Appendix A

Pre-Design and Supplemental Design Investigation Supporting Documents

90074582

Appendix A - Appendices

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

Appendix A-1

First Phase Pre-Design Investigation Laboratory Reports

November 30, 2018 Service Request No:E1801018

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

Laboratory Results for: C1844-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 07, 2018
For your reference, these analyses have been assigned our service request number **E1801018.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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

Certificate of Analysis

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

ALS Environmental

Client:	Integral Consulting	**Service Request No.:**	E1801018
Project:	C1844-0501	**Date Received:**	11/07/18
Sample Matrix:	Sediment		

CASE NARRATIVE

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

Sample Receipt

Nine samples were received for analysis at ALS Environmental in Houston on 11/07/18.

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

Data Validation Notes and Discussion

B flags – Method Blanks

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

MS/MSD

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

K flags

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

Detection Limits

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

2378-TCDF

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

Manual Integrations

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

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

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

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

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

Client: Integral Consulting, Incorporated **Service Request:**E1801018
Project: C1844-0501

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801018-001	SL0500	11/6/2018	1200
E1801018-002	SL0501	11/6/2018	1227
E1801018-003	SL0502	11/6/2018	1237
E1801018-004	SL0503	11/6/2018	1244
E1801018-005	SL0504	11/6/2018	1250
E1801018-006	SL0505	11/6/2018	1256
E1801018-007	SL0506	11/6/2018	1301
E1801018-008	SL0507	11/6/2018	1307
E1801018-009	SL0508	11/6/2018	1317

Service Request Summary

Folder #: **E1801018**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/07/18
Internal Due Date: 11/29/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

9 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
9 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
9 -N/A N/A

Location: EHRMS-WIC 2B, SMO

Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801018-001	SL0500	Sediment	11/06/18 1200	**IV**	**IV**
E1801018-002	SL0501	Sediment	11/06/18 1227	**IV**	**IV**
E1801018-003	SL0502	Sediment	11/06/18 1237	**IV**	**IV**
E1801018-004	SL0503	Sediment	11/06/18 1244	**IV**	**IV**
E1801018-005	SL0504	Sediment	11/06/18 1250	**IV**	**IV**
E1801018-006	SL0505	Sediment	11/06/18 1256	**IV**	**IV**
E1801018-007	SL0506	Sediment	11/06/18 1301	**IV**	**IV**
E1801018-008	SL0507	Sediment	11/06/18 1307	**IV**	**IV**
E1801018-009	SL0508	Sediment	11/06/18 1317	**IV**	**IV**

Service Request Summary

Folder #: **E1801018**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/07/18
Internal Due Date: 11/29/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

9 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
9 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
9 -N/A N/A

Location: EHRMS-WIC 2B, SMO

Pressure Gas:

Superset Summary

Service Request: E1801018 **SuperSet Reference:** 18-0000488838 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P518834	P518826	P518927	E1801018-001
P518835	P518826	P518927	E1801018-002
P518836	P518826	P518927	E1801018-003
P518842	P518837	P518927	E1801018-004
P518843	P518837	P518927	E1801018-005
P518844	P518837	P518927	E1801018-006
P518953	P518948	P518927	E1801018-007
P518846	P518837	P518927	E1801018-008
P518847	P518837	P518927	E1801018-009
P518927	P518924	P518927	EQ1800463-01
P518850	P518837	P518927	EQ1800463-02
P518851	P518837	P518927	EQ1800463-03

Data Qualifiers

HRMS Qualifier Set

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

ALS Laboratory Group

Acronyms

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

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

SR# Unique ID: E180108 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
11/10/18	YC	001-003

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

Date:	Analyst:	Samples:
11/19/18	LKL	001_003

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E180108 | (DB-5MSUI) | SPB-Octyl

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

Date:	Analyst:	Samples:
11/20/18	QC	004-009

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

Date:	Analyst:	Samples:
11/21/18	LG	004-009

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

SR# Unique ID E1801018 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
11/26/18	LKL	007

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

Date:	Analyst:	Samples:
11/30/18	KJ	007

Chain of Custody

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CHAIN OF CUSTODY FORM

Project: C1844 - 0501

Samplers: Stefan Wodzicki, Chris Torell

integral consulting inc.

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

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

ANALYSES REQUESTED

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides					Extra Container	Archive	Comments
SL0500	0001	11/6/2018	1200	SL	X										
SL0501	0002		1227		X										
SL0502	0003		1237		X										
SL0503	0004		1244		X										
SL0504	0005		1250		X										
SL0505	0006		1256		X										
SL0506	0007		1301		X										
SL0507	0008		1307		X										
SL0508	0009	11/6/2018	1317	SL	X										

E1801018 5
Integral Consulting, Inc.
San Jacinto Waste Pits

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

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

Shipped by: **Shipping Tracking No.**

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

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

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

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides. Received: 11/8/18

Cooler Receipt Form

ALS Environmental

Project Chemist _____

Client/Project Integral Thermometer ID SM04

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

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

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

3. Were custody seals on coolers? ✓ Yes ○ No If yes, how many and where? 2 Seals

Were they intact? ✓ Yes ○ No ○ N/A

Were they signed and dated? ✓ Yes ○ No ○ N/A

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

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

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

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No

10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E1801018 5

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San Jacinto Waste Pits

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SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

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

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

Spiking Solutions

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

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

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

EQ1800463-02	100.00µL	EQ1800463-03	100.00µL

Preparation Information Benchsheet

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

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

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

Preparation Materials

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

Preparation Steps

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

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0500	**Units:**	ng/Kg
Lab Code:	E1801018-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 20:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.420g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518834	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	12.5	**K**	0.714	0.714	0.91	1.001	1
1,2,3,7,8-PeCDD	0.542	**JK**	0.188	3.16	0.83	0.999	1
1,2,3,4,7,8-HxCDD	0.845	**JK**	0.385	3.16	0.98	1.000	1
1,2,3,6,7,8-HxCDD	2.46	**J**	0.414	3.16	1.28	1.000	1
1,2,3,7,8,9-HxCDD	3.00	**J**	0.391	3.16	1.15	1.008	1
1,2,3,4,6,7,8-HpCDD	104		0.175	3.16	1.02	1.000	1
OCDD	4720		0.277	6.31	0.90	1.000	1
2,3,7,8-TCDF	45.9		0.783	0.783	0.84	1.001	1
1,2,3,7,8-PeCDF	1.09	**JK**	0.293	3.16	1.19	1.001	1
2,3,4,7,8-PeCDF	1.40	**JK**	0.297	3.16	2.08	1.001	1
1,2,3,4,7,8-HxCDF	1.89	**J**	0.150	3.16	1.16	1.000	1
1,2,3,6,7,8-HxCDF	0.783	**J**	0.135	3.16	1.15	1.000	1
1,2,3,7,8,9-HxCDF	0.591	**BJ**	0.146	3.16	1.08	1.001	1
2,3,4,6,7,8-HxCDF	1.05	**J**	0.146	3.16	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	9.89		0.315	3.16	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	0.706	**JK**	0.366	3.16	1.24	1.000	1
OCDF	44.1		0.249	6.31	0.85	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0500	**Units:**	ng/Kg
Lab Code:	E1801018-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 20:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.420g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518834	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.22		0.714	0.714	0.84		1
Total Penta-Dioxins	3.47		0.188	3.16	1.72		1
Total Hexa-Dioxins	59.5		0.397	3.16	1.24		1
Total Hepta-Dioxins	466		0.175	3.16	1.03		1
Total Tetra-Furans	72.1		0.783	0.783	0.77		1
Total Penta-Furans	6.09		0.295	3.16	1.33		1
Total Hexa-Furans	13.0		0.144	3.16	1.19		1
Total Hepta-Furans	31.2		0.339	3.16	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0500	**Units:**	Percent
Lab Code:	E1801018-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 20:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.420g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518834	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1111.799	56		25-164	0.77	1.028
13C-1,2,3,7,8-PeCDD	2000	1455.809	73		25-181	1.60	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1117.328	56		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1166.678	58		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1509.155	75		23-140	1.06	1.071
13C-OCDD	4000	2564.181	64		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	960.435	48		24-169	0.79	0.988
13C-1,2,3,7,8-PeCDF	2000	1336.957	67		24-185	1.56	1.182
13C-2,3,4,7,8-PeCDF	2000	1283.755	64		21-178	1.62	1.222
13C-1,2,3,4,7,8-HxCDF	2000	930.092	47		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1045.634	52		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1181.882	59		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1048.793	52		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1121.129	56		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1342.370	67		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	487.936	61		35-197	NA	1.028

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0500	**Units:**	ng/Kg
Lab Code:	E1801018-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**12.5**	0.714	0.714	1	1	12.5
1,2,3,7,8-PeCDD	**0.542**	0.188	3.16	1	1	0.542
1,2,3,4,7,8-HxCDD	**0.845**	0.385	3.16	1	0.1	0.0845
1,2,3,6,7,8-HxCDD	**2.46**	0.414	3.16	1	0.1	0.246
1,2,3,7,8,9-HxCDD	**3.00**	0.391	3.16	1	0.1	0.300
1,2,3,4,6,7,8-HpCDD	**104**	0.175	3.16	1	0.01	1.04
OCDD	**4720**	0.277	6.31	1	0.0003	1.42
2,3,7,8-TCDF	**45.9**	0.783	0.783	1	0.1	4.59
1,2,3,7,8-PeCDF	**1.09**	0.293	3.16	1	0.03	0.0327
2,3,4,7,8-PeCDF	**1.40**	0.297	3.16	1	0.3	0.420
1,2,3,4,7,8-HxCDF	**1.89**	0.150	3.16	1	0.1	0.189
1,2,3,6,7,8-HxCDF	**0.783**	0.135	3.16	1	0.1	0.0783
1,2,3,7,8,9-HxCDF	**0.591**	0.146	3.16	1	0.1	0.0591
2,3,4,6,7,8-HxCDF	**1.05**	0.146	3.16	1	0.1	0.105
1,2,3,4,6,7,8-HpCDF	**9.89**	0.315	3.16	1	0.01	0.0989
1,2,3,4,7,8,9-HpCDF	**0.706**	0.366	3.16	1	0.01	0.00706
OCDF	**44.1**	0.249	6.31	1	0.0003	0.0132
		Total TEQ				21.7

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0500	**Units:**	Percent
Lab Code:	E1801018-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	8.454g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:27
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0501	**Units:**	ng/Kg
Lab Code:	E1801018-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 21:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.800g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518835	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.55**K**		0.730	0.730	0.90	1.000	1
1,2,3,7,8-PeCDD	0.341**JK**		0.230	3.21	1.25	1.001	1
1,2,3,4,7,8-HxCDD	0.486**JK**		0.263	3.21	2.05	1.000	1
1,2,3,6,7,8-HxCDD	0.752**JK**		0.282	3.21	0.77	1.000	1
1,2,3,7,8,9-HxCDD	1.78**JK**		0.266	3.21	1.03	1.008	1
1,2,3,4,6,7,8-HpCDD	42.5		0.491	3.21	1.11	1.001	1
OCDD	2750		0.0941	6.42	0.90	1.000	1
2,3,7,8-TCDF	5.03		0.549	0.642	0.81	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.337	3.21			1
2,3,4,7,8-PeCDF	ND	U	0.328	3.21			1
1,2,3,4,7,8-HxCDF	0.208**BJK**		0.187	3.21	0.94	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.164	3.21			1
1,2,3,7,8,9-HxCDF	ND	U	0.203	3.21			1
2,3,4,6,7,8-HxCDF	ND	U	0.180	3.21			1
1,2,3,4,6,7,8-HpCDF	1.25**J**		0.0636	3.21	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0777	3.21			1
OCDF	5.19**JK**		0.136	6.42	0.72	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:27
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0501	**Units:**	ng/Kg
Lab Code:	E1801018-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 21:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.800g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518835	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.730	0.730			1
Total Penta-Dioxins	3.16**J**		0.230	3.21	1.46		1
Total Hexa-Dioxins	15.4		0.270	3.21	1.14		1
Total Hepta-Dioxins	121		0.491	3.21	1.07		1
Total Tetra-Furans	6.94		0.549	0.642	0.70		1
Total Penta-Furans	ND	U	0.333	3.21			1
Total Hexa-Furans	0.656**J**		0.182	3.21	1.38		1
Total Hepta-Furans	2.30**J**		0.0702	3.21	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:27
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0501	**Units:**	Percent
Lab Code:	E1801018-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 21:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.800g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518835	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	934.476	47		25-164	0.77	1.028
13C-1,2,3,7,8-PeCDD	2000	1252.339	63		25-181	1.64	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1021.622	51		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1078.581	54		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1590.681	80		23-140	1.08	1.071
13C-OCDD	4000	2782.538	70		17-157	0.89	1.142
13C-2,3,7,8-TCDF	2000	830.666	42		24-169	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	1169.416	58		24-185	1.59	1.183
13C-2,3,4,7,8-PeCDF	2000	1151.395	58		21-178	1.57	1.223
13C-1,2,3,4,7,8-HxCDF	2000	829.137	41		26-152	0.50	0.968
13C-1,2,3,6,7,8-HxCDF	2000	998.085	50		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1051.942	53		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	979.894	49		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1081.365	54		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1245.885	62		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	442.107	55		35-197	NA	1.028

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:27
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0501	**Units:**	ng/Kg
Lab Code:	E1801018-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.55**	0.730	0.730	1	1	1.55
1,2,3,7,8-PeCDD	**0.341**	0.230	3.21	1	1	0.341
1,2,3,4,7,8-HxCDD	**0.486**	0.263	3.21	1	0.1	0.0486
1,2,3,6,7,8-HxCDD	**0.752**	0.282	3.21	1	0.1	0.0752
1,2,3,7,8,9-HxCDD	**1.78**	0.266	3.21	1	0.1	0.178
1,2,3,4,6,7,8-HpCDD	**42.5**	0.491	3.21	1	0.01	0.425
OCDD	**2750**	0.0941	6.42	1	0.0003	0.825
2,3,7,8-TCDF	**5.03**	0.549	0.642	1	0.1	0.503
1,2,3,7,8-PeCDF	ND	0.337	3.21	1	0.03	
2,3,4,7,8-PeCDF	ND	0.328	3.21	1	0.3	
1,2,3,4,7,8-HxCDF	**0.208**	0.187	3.21	1	0.1	0.0208
1,2,3,6,7,8-HxCDF	ND	0.164	3.21	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.203	3.21	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.180	3.21	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.25**	0.0636	3.21	1	0.01	0.0125
1,2,3,4,7,8,9-HpCDF	ND	0.0777	3.21	1	0.01	
OCDF	**5.19**	0.136	6.42	1	0.0003	0.00156
		Total TEQ				3.98

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:27
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0501	**Units:**	Percent
Lab Code:	E1801018-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	6.159g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	72.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:37
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0502	**Units:**	ng/Kg
Lab Code:	E1801018-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 22:28
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.933g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518836	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.749	0.749			1
1,2,3,7,8-PeCDD	0.339**J**		0.171	3.23	1.54	1.001	1
1,2,3,4,7,8-HxCDD	0.504**JK**		0.377	3.23	1.45	1.000	1
1,2,3,6,7,8-HxCDD	0.804**JK**		0.406	3.23	1.71	1.000	1
1,2,3,7,8,9-HxCDD	1.84**J**		0.383	3.23	1.18	1.007	1
1,2,3,4,6,7,8-HpCDD	37.5		0.416	3.23	1.14	1.001	1
OCDD	2110		0.239	6.47	0.89	1.000	1
2,3,7,8-TCDF	1.81**K**		0.635	0.647	0.59	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.244	3.23			1
2,3,4,7,8-PeCDF	ND	U	0.252	3.23			1
1,2,3,4,7,8-HxCDF	ND	U	0.129	3.23			1
1,2,3,6,7,8-HxCDF	ND	U	0.116	3.23			1
1,2,3,7,8,9-HxCDF	ND	U	0.138	3.23			1
2,3,4,6,7,8-HxCDF	ND	U	0.117	3.23			1
1,2,3,4,6,7,8-HpCDF	0.393**BJ**		0.0979	3.23	0.88	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.113	3.23			1
OCDF	2.95**J**		0.116	6.47	0.79	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:37
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0502	**Units:**	ng/Kg
Lab Code:	E1801018-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 22:28
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.933g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518836	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.749	0.749			1
Total Penta-Dioxins	1.74**J**		0.171	3.23	1.52		1
Total Hexa-Dioxins	22.4		0.389	3.23	1.28		1
Total Hepta-Dioxins	106		0.416	3.23	1.09		1
Total Tetra-Furans	ND	U	0.635	0.647			1
Total Penta-Furans	ND	U	0.248	3.23			1
Total Hexa-Furans	ND	U	0.124	3.23			1
Total Hepta-Furans	0.380**J**		0.105	3.23	0.94		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:37
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0502	**Units:**	Percent
Lab Code:	E1801018-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 22:28
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.933g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518836	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	830.773	42		25-164	0.81	1.028
13C-1,2,3,7,8-PeCDD	2000	1215.145	61		25-181	1.59	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1035.886	52		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1132.771	57		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1600.389	80		23-140	1.07	1.071
13C-OCDD	4000	2887.172	72		17-157	0.93	1.142
13C-2,3,7,8-TCDF	2000	735.877	37		24-169	0.77	0.989
13C-1,2,3,7,8-PeCDF	2000	1111.608	56		24-185	1.60	1.183
13C-2,3,4,7,8-PeCDF	2000	1072.514	54		21-178	1.60	1.223
13C-1,2,3,4,7,8-HxCDF	2000	835.135	42		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	996.993	50		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1073.989	54		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1026.279	51		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1086.896	54		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1372.031	69		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	399.691	50		35-197	NA	1.028

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:37
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0502	**Units:**	ng/Kg
Lab Code:	E1801018-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.749	0.749	1	1	
1,2,3,7,8-PeCDD	**0.339**	0.171	3.23	1	1	0.339
1,2,3,4,7,8-HxCDD	**0.504**	0.377	3.23	1	0.1	0.0504
1,2,3,6,7,8-HxCDD	**0.804**	0.406	3.23	1	0.1	0.0804
1,2,3,7,8,9-HxCDD	**1.84**	0.383	3.23	1	0.1	0.184
1,2,3,4,6,7,8-HpCDD	**37.5**	0.416	3.23	1	0.01	0.375
OCDD	**2110**	0.239	6.47	1	0.0003	0.633
2,3,7,8-TCDF	**1.81**	0.635	0.647	1	0.1	0.181
1,2,3,7,8-PeCDF	ND	0.244	3.23	1	0.03	
2,3,4,7,8-PeCDF	ND	0.252	3.23	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.129	3.23	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.116	3.23	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.138	3.23	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.117	3.23	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.393**	0.0979	3.23	1	0.01	0.00393
1,2,3,4,7,8,9-HpCDF	ND	0.113	3.23	1	0.01	
OCDF	**2.95**	0.116	6.47	1	0.0003	0.000885
		Total TEQ				1.85

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:37
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0502	**Units:**	Percent
Lab Code:	E1801018-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	7.849g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	70.7		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:44
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0503	**Units:**	ng/Kg
Lab Code:	E1801018-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 03:34
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.422g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518842	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.37	1.37			1
1,2,3,7,8-PeCDD	ND	U	0.292	3.86			1
1,2,3,4,7,8-HxCDD	ND	U	0.335	3.86			1
1,2,3,6,7,8-HxCDD	ND	U	0.355	3.86			1
1,2,3,7,8,9-HxCDD	0.577**J**		0.337	3.86	1.18	1.007	1
1,2,3,4,6,7,8-HpCDD	11.3		0.375	3.86	1.12	1.000	1
OCDD	690		0.113	7.71	0.90	1.000	1
2,3,7,8-TCDF	2.81**K**		0.768	0.771	0.63	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.294	3.86			1
2,3,4,7,8-PeCDF	ND	U	0.292	3.86			1
1,2,3,4,7,8-HxCDF	0.221**BJ**		0.133	3.86	1.24	1.000	1
1,2,3,6,7,8-HxCDF	0.137**BJK**		0.125	3.86	2.20	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.167	3.86			1
2,3,4,6,7,8-HxCDF	ND	U	0.131	3.86			1
1,2,3,4,6,7,8-HpCDF	0.349**BJK**		0.128	3.86	1.43	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.167	3.86			1
OCDF	1.45**BJ**		0.293	7.71	0.91	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:44
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0503	**Units:**	ng/Kg
Lab Code:	E1801018-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 03:34
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.422g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518842	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.37	1.37			1
Total Penta-Dioxins	ND	U	0.292	3.86			1
Total Hexa-Dioxins	6.35		0.342	3.86	1.30		1
Total Hepta-Dioxins	32.1		0.375	3.86	1.05		1
Total Tetra-Furans	ND	U	0.768	0.771			1
Total Penta-Furans	ND	U	0.293	3.86			1
Total Hexa-Furans	0.359**J**		0.137	3.86	1.34		1
Total Hepta-Furans	ND	U	0.146	3.86			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:44
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0503	**Units:**	Percent
Lab Code:	E1801018-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 03:34
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.422g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518842	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	734.520	37		25-164	0.76	1.028
13C-1,2,3,7,8-PeCDD	2000	950.959	48		25-181	1.61	1.235
13C-1,2,3,4,7,8-HxCDD	2000	873.620	44		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	893.819	45		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1321.737	66		23-140	1.10	1.071
13C-OCDD	4000	2429.626	61		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	667.783	33		24-169	0.78	0.989
13C-1,2,3,7,8-PeCDF	2000	907.566	45		24-185	1.57	1.183
13C-2,3,4,7,8-PeCDF	2000	917.764	46		21-178	1.65	1.223
13C-1,2,3,4,7,8-HxCDF	2000	704.833	35		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	852.309	43		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	751.813	38		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	816.909	41		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	956.518	48		28-143	0.42	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1059.857	53		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	423.078	53		35-197	NA	1.028

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:44
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0503	**Units:**	ng/Kg
Lab Code:	E1801018-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	1.37	1.37	1	1	
1,2,3,7,8-PeCDD	ND	0.292	3.86	1	1	
1,2,3,4,7,8-HxCDD	ND	0.335	3.86	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.355	3.86	1	0.1	
1,2,3,7,8,9-HxCDD	**0.577**	0.337	3.86	1	0.1	0.0577
1,2,3,4,6,7,8-HpCDD	**11.3**	0.375	3.86	1	0.01	0.113
OCDD	**690**	0.113	7.71	1	0.0003	0.207
2,3,7,8-TCDF	**2.81**	0.768	0.771	1	0.1	0.281
1,2,3,7,8-PeCDF	ND	0.294	3.86	1	0.03	
2,3,4,7,8-PeCDF	ND	0.292	3.86	1	0.3	
1,2,3,4,7,8-HxCDF	**0.221**	0.133	3.86	1	0.1	0.0221
1,2,3,6,7,8-HxCDF	**0.137**	0.125	3.86	1	0.1	0.0137
1,2,3,7,8,9-HxCDF	ND	0.167	3.86	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.131	3.86	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.349**	0.128	3.86	1	0.01	0.00349
1,2,3,4,7,8,9-HpCDF	ND	0.167	3.86	1	0.01	
OCDF	**1.45**	0.293	7.71	1	0.0003	0.000435
		Total TEQ				0.698

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:44
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0503	**Units:**	Percent
Lab Code:	E1801018-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	8.049g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	62.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:50
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0504	**Units:**	ng/Kg
Lab Code:	E1801018-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 04:23
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.407g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518843	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.648	0.648			1
1,2,3,7,8-PeCDD	ND	U	0.277	3.17			1
1,2,3,4,7,8-HxCDD	0.286**BJK**		0.0960	3.17	1.04	1.000	1
1,2,3,6,7,8-HxCDD	0.670**J**		0.110	3.17	1.40	1.001	1
1,2,3,7,8,9-HxCDD	0.965**J**		0.101	3.17	1.08	1.008	1
1,2,3,4,6,7,8-HpCDD	20.1		0.150	3.17	1.16	1.000	1
OCDD	791		0.123	6.34	0.89	1.000	1
2,3,7,8-TCDF	2.26		0.395	0.634	0.67	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.200	3.17			1
2,3,4,7,8-PeCDF	ND	U	0.204	3.17			1
1,2,3,4,7,8-HxCDF	ND	U	0.0490	3.17			1
1,2,3,6,7,8-HxCDF	ND	U	0.0458	3.17			1
1,2,3,7,8,9-HxCDF	0.0820**BJK**		0.0558	3.17	2.68	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0487	3.17			1
1,2,3,4,6,7,8-HpCDF	0.463**BJ**		0.0541	3.17	0.88	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0596	3.17			1
OCDF	2.00**BJK**		0.286	6.34	0.69	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:50
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0504	**Units:**	ng/Kg
Lab Code:	E1801018-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 04:23
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.407g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518843	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.719		0.648	0.648	0.70		1
Total Penta-Dioxins	2.72**J**		0.277	3.17	1.46		1
Total Hexa-Dioxins	18.8		0.103	3.17	1.31		1
Total Hepta-Dioxins	68.6		0.150	3.17	1.09		1
Total Tetra-Furans	2.74		0.395	0.634	0.71		1
Total Penta-Furans	ND	U	0.202	3.17			1
Total Hexa-Furans	0.123**J**		0.0496	3.17	1.16		1
Total Hepta-Furans	0.713**J**		0.0566	3.17	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:50
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0504	**Units:**	Percent
Lab Code:	E1801018-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 04:23
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.407g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518843	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	834.905	42		25-164	0.79	1.028
13C-1,2,3,7,8-PeCDD	2000	1155.201	58		25-181	1.59	1.236
13C-1,2,3,4,7,8-HxCDD	2000	975.044	49		32-141	1.26	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1023.002	51		28-130	1.31	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1253.813	63		23-140	1.09	1.071
13C-OCDD	4000	1990.238	50		17-157	0.92	1.142
13C-2,3,7,8-TCDF	2000	733.253	37		24-169	0.78	0.989
13C-1,2,3,7,8-PeCDF	2000	1069.185	53		24-185	1.61	1.184
13C-2,3,4,7,8-PeCDF	2000	1082.210	54		21-178	1.63	1.223
13C-1,2,3,4,7,8-HxCDF	2000	814.426	41		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	921.313	46		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	982.532	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	930.556	47		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	899.214	45		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1130.111	57		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	414.933	52		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:50
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0504	**Units:**	ng/Kg
Lab Code:	E1801018-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.648	0.648	1	1	
1,2,3,7,8-PeCDD	ND	0.277	3.17	1	1	
1,2,3,4,7,8-HxCDD	**0.286**	0.0960	3.17	1	0.1	0.0286
1,2,3,6,7,8-HxCDD	**0.670**	0.110	3.17	1	0.1	0.0670
1,2,3,7,8,9-HxCDD	**0.965**	0.101	3.17	1	0.1	0.0965
1,2,3,4,6,7,8-HpCDD	**20.1**	0.150	3.17	1	0.01	0.201
OCDD	**791**	0.123	6.34	1	0.0003	0.237
2,3,7,8-TCDF	**2.26**	0.395	0.634	1	0.1	0.226
1,2,3,7,8-PeCDF	ND	0.200	3.17	1	0.03	
2,3,4,7,8-PeCDF	ND	0.204	3.17	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0490	3.17	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0458	3.17	1	0.1	
1,2,3,7,8,9-HxCDF	**0.0820**	0.0558	3.17	1	0.1	0.00820
2,3,4,6,7,8-HxCDF	ND	0.0487	3.17	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.463**	0.0541	3.17	1	0.01	0.00463
1,2,3,4,7,8,9-HpCDF	ND	0.0596	3.17	1	0.01	
OCDF	**2.00**	0.286	6.34	1	0.0003	0.000600
		Total TEQ				0.870

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:50
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0504	**Units:**	Percent
Lab Code:	E1801018-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	10.961g		NA
			E-Balance-01

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:56
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0505	**Units:**	ng/Kg
Lab Code:	E1801018-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 05:12
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.475g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518844	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.537	0.766			1
1,2,3,7,8-PeCDD	ND	U	0.111	3.83			1
1,2,3,4,7,8-HxCDD	0.641**JK**		0.142	3.83	0.88	1.000	1
1,2,3,6,7,8-HxCDD	1.38**J**		0.155	3.83	1.26	1.000	1
1,2,3,7,8,9-HxCDD	1.98**J**		0.145	3.83	1.07	1.007	1
1,2,3,4,6,7,8-HpCDD	49.3		0.655	3.83	1.02	1.000	1
OCDD	3470		0.0574	7.66	0.90	1.000	1
2,3,7,8-TCDF	1.21**K**		0.334	0.766	1.02	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.149	3.83			1
2,3,4,7,8-PeCDF	ND	U	0.153	3.83			1
1,2,3,4,7,8-HxCDF	ND	U	0.104	3.83			1
1,2,3,6,7,8-HxCDF	ND	U	0.101	3.83			1
1,2,3,7,8,9-HxCDF	ND	U	0.117	3.83			1
2,3,4,6,7,8-HxCDF	ND	U	0.102	3.83			1
1,2,3,4,6,7,8-HpCDF	0.255**BJ**		0.0751	3.83	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0874	3.83			1
OCDF	2.00**BJ**		0.181	7.66	0.77	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:56
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0505	**Units:**	ng/Kg
Lab Code:	E1801018-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 05:12
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.475g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518844	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.537	0.766			1
Total Penta-Dioxins	3.08**J**		0.111	3.83	1.52		1
Total Hexa-Dioxins	28.7		0.148	3.83	1.27		1
Total Hepta-Dioxins	139		0.655	3.83	1.02		1
Total Tetra-Furans	2.61		0.334	0.766	0.75		1
Total Penta-Furans	ND	U	0.151	3.83			1
Total Hexa-Furans	0.247**J**		0.106	3.83	1.20		1
Total Hepta-Furans	0.497**J**		0.0808	3.83	1.05		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:56
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0505	**Units:**	Percent
Lab Code:	E1801018-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 05:12
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.475g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518844	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1150.464	58		25-164	0.79	1.028
13C-1,2,3,7,8-PeCDD	2000	1386.374	69		25-181	1.60	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1132.621	57		32-141	1.36	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1173.801	59		28-130	1.20	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1726.179	86		23-140	1.07	1.071
13C-OCDD	4000	3104.320	78		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1014.677	51		24-169	0.81	0.988
13C-1,2,3,7,8-PeCDF	2000	1323.283	66		24-185	1.60	1.184
13C-2,3,4,7,8-PeCDF	2000	1274.692	64		21-178	1.60	1.223
13C-1,2,3,4,7,8-HxCDF	2000	975.567	49		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1091.257	55		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1180.220	59		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1100.492	55		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1197.394	60		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1454.457	73		26-138	0.46	1.083
37Cl-2,3,7,8-TCDD	800	501.755	63		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:56
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0505	**Units:**	ng/Kg
Lab Code:	E1801018-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.537	0.766	1	1	
1,2,3,7,8-PeCDD	ND	0.111	3.83	1	1	
1,2,3,4,7,8-HxCDD	**0.641**	0.142	3.83	1	0.1	0.0641
1,2,3,6,7,8-HxCDD	**1.38**	0.155	3.83	1	0.1	0.138
1,2,3,7,8,9-HxCDD	**1.98**	0.145	3.83	1	0.1	0.198
1,2,3,4,6,7,8-HpCDD	**49.3**	0.655	3.83	1	0.01	0.493
OCDD	**3470**	0.0574	7.66	1	0.0003	1.04
2,3,7,8-TCDF	**1.21**	0.334	0.766	1	0.1	0.121
1,2,3,7,8-PeCDF	ND	0.149	3.83	1	0.03	
2,3,4,7,8-PeCDF	ND	0.153	3.83	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.104	3.83	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.101	3.83	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.117	3.83	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.102	3.83	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.255**	0.0751	3.83	1	0.01	0.00255
1,2,3,4,7,8,9-HpCDF	ND	0.0874	3.83	1	0.01	
OCDF	**2.00**	0.181	7.66	1	0.0003	0.000600
		Total TEQ				2.06

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 12:56
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0505	**Units:**	Percent
Lab Code:	E1801018-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	7.084g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	62.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:01
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0506	**Units:**	ng/Kg
Lab Code:	E1801018-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/20/18 20:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.401g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518953	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518948

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.728	0.728			1
1,2,3,7,8-PeCDD	0.308**JK**		0.101	3.22	1.14	1.001	1
1,2,3,4,7,8-HxCDD	0.311**BJK**		0.168	3.22	1.45	1.000	1
1,2,3,6,7,8-HxCDD	0.538**JK**		0.193	3.22	1.49	1.000	1
1,2,3,7,8,9-HxCDD	1.14**J**		0.177	3.22	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	21.8		0.124	3.22	1.04	1.000	1
OCDD	1040		0.149	6.44	0.90	1.000	1
2,3,7,8-TCDF	0.895		0.368	0.644	0.89	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.183	3.22			1
2,3,4,7,8-PeCDF	ND	U	0.185	3.22			1
1,2,3,4,7,8-HxCDF	0.125**BJK**		0.0834	3.22	1.44	1.000	1
1,2,3,6,7,8-HxCDF	0.132**BJ**		0.0854	3.22	1.25	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.101	3.22			1
2,3,4,6,7,8-HxCDF	ND	U	0.0820	3.22			1
1,2,3,4,6,7,8-HpCDF	0.864**J**		0.111	3.22	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.150	3.22			1
OCDF	15.7		0.107	6.44	0.90	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:01
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0506	**Units:**	ng/Kg
Lab Code:	E1801018-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/20/18 20:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.401g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518953	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518948

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.728	0.728			1
Total Penta-Dioxins	0.787**J**		0.101	3.22	1.47		1
Total Hexa-Dioxins	13.8		0.180	3.22	1.30		1
Total Hepta-Dioxins	60.8		0.124	3.22	1.07		1
Total Tetra-Furans	0.427**J**		0.368	0.644	0.85		1
Total Penta-Furans	ND	U	0.184	3.22			1
Total Hexa-Furans	0.132**J**		0.0874	3.22	1.25		1
Total Hepta-Furans	0.864**J**		0.128	3.22	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:01
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0506	**Units:**	Percent
Lab Code:	E1801018-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/20/18 20:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.401g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518953	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518948

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	667.860	33		25-164	0.79	1.029
13C-1,2,3,7,8-PeCDD	2000	1016.123	51		25-181	1.62	1.240
13C-1,2,3,4,7,8-HxCDD	2000	1096.805	55		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1084.484	54		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1400.061	70		23-140	1.05	1.071
13C-OCDD	4000	2357.023	59		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	551.302	28		24-169	0.80	0.989
13C-1,2,3,7,8-PeCDF	2000	860.266	43		24-185	1.57	1.188
13C-2,3,4,7,8-PeCDF	2000	865.974	43		21-178	1.59	1.228
13C-1,2,3,4,7,8-HxCDF	2000	846.128	42		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	896.645	45		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	950.568	48		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	966.083	48		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1029.137	51		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1100.732	55		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	317.924	40		35-197	NA	1.030

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:01
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0506	**Units:**	ng/Kg
Lab Code:	E1801018-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.728	0.728	1	1	
1,2,3,7,8-PeCDD	**0.308**	0.101	3.22	1	1	0.308
1,2,3,4,7,8-HxCDD	**0.311**	0.168	3.22	1	0.1	0.0311
1,2,3,6,7,8-HxCDD	**0.538**	0.193	3.22	1	0.1	0.0538
1,2,3,7,8,9-HxCDD	**1.14**	0.177	3.22	1	0.1	0.114
1,2,3,4,6,7,8-HpCDD	**21.8**	0.124	3.22	1	0.01	0.218
OCDD	**1040**	0.149	6.44	1	0.0003	0.312
2,3,7,8-TCDF	**0.895**	0.368	0.644	1	0.1	0.0895
1,2,3,7,8-PeCDF	ND	0.183	3.22	1	0.03	
2,3,4,7,8-PeCDF	ND	0.185	3.22	1	0.3	
1,2,3,4,7,8-HxCDF	**0.125**	0.0834	3.22	1	0.1	0.0125
1,2,3,6,7,8-HxCDF	**0.132**	0.0854	3.22	1	0.1	0.0132
1,2,3,7,8,9-HxCDF	ND	0.101	3.22	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0820	3.22	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.864**	0.111	3.22	1	0.01	0.00864
1,2,3,4,7,8,9-HpCDF	ND	0.150	3.22	1	0.01	
OCDF	**15.7**	0.107	6.44	1	0.0003	0.00471
		Total TEQ				1.17

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:01
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0506	**Units:**	Percent
Lab Code:	E1801018-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	6.874g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	74.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:07
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0507	**Units:**	ng/Kg
Lab Code:	E1801018-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 06:49
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.518g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518846	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.834	0.834			1
1,2,3,7,8-PeCDD	ND	U	0.0820	3.09			1
1,2,3,4,7,8-HxCDD	ND	U	0.0982	3.09			1
1,2,3,6,7,8-HxCDD	0.324**BJK**		0.103	3.09	0.90	1.000	1
1,2,3,7,8,9-HxCDD	0.372**BJK**		0.0980	3.09	1.48	1.007	1
1,2,3,4,6,7,8-HpCDD	12.0		0.0892	3.09	0.97	1.000	1
OCDD	296		0.120	6.19	0.91	1.000	1
2,3,7,8-TCDF	0.644**K**		0.519	0.619	0.37	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.130	3.09			1
2,3,4,7,8-PeCDF	ND	U	0.125	3.09			1
1,2,3,4,7,8-HxCDF	0.0639**BJK**		0.0527	3.09	0.52	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0493	3.09			1
1,2,3,7,8,9-HxCDF	ND	U	0.0615	3.09			1
2,3,4,6,7,8-HxCDF	ND	U	0.0486	3.09			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0508	3.09			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0642	3.09			1
OCDF	0.505**BJ**		0.125	6.19	1.01	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:07
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0507	**Units:**	ng/Kg
Lab Code:	E1801018-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 06:49
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.518g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518846	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.834	0.834			1
Total Penta-Dioxins	0.723**J**		0.0820	3.09	1.64		1
Total Hexa-Dioxins	2.12**J**		0.0996	3.09	1.28		1
Total Hepta-Dioxins	25.3		0.0892	3.09	1.06		1
Total Tetra-Furans	ND	U	0.519	0.619			1
Total Penta-Furans	ND	U	0.128	3.09			1
Total Hexa-Furans	ND	U	0.0525	3.09			1
Total Hepta-Furans	ND	U	0.0570	3.09			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:07
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0507	**Units:**	Percent
Lab Code:	E1801018-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 06:49
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.518g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518846	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	534.202	27		25-164	0.79	1.028
13C-1,2,3,7,8-PeCDD	2000	1054.787	53		25-181	1.57	1.236
13C-1,2,3,4,7,8-HxCDD	2000	987.041	49		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	996.220	50		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1346.928	67		23-140	1.07	1.071
13C-OCDD	4000	2531.238	63		17-157	0.88	1.142
13C-2,3,7,8-TCDF	2000	471.439	24		24-169	0.83	0.989
13C-1,2,3,7,8-PeCDF	2000	904.082	45		24-185	1.62	1.184
13C-2,3,4,7,8-PeCDF	2000	966.344	48		21-178	1.64	1.223
13C-1,2,3,4,7,8-HxCDF	2000	794.440	40		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	906.009	45		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	913.894	46		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	943.958	47		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1023.057	51		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1148.236	57		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	272.589	34	**Y**	35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:07
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0507	**Units:**	ng/Kg
Lab Code:	E1801018-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.834	0.834	1	1	
1,2,3,7,8-PeCDD	ND	0.0820	3.09	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0982	3.09	1	0.1	
1,2,3,6,7,8-HxCDD	**0.324**	0.103	3.09	1	0.1	0.0324
1,2,3,7,8,9-HxCDD	**0.372**	0.0980	3.09	1	0.1	0.0372
1,2,3,4,6,7,8-HpCDD	**12.0**	0.0892	3.09	1	0.01	0.120
OCDD	**296**	0.120	6.19	1	0.0003	0.0888
2,3,7,8-TCDF	**0.644**	0.519	0.619	1	0.1	0.0644
1,2,3,7,8-PeCDF	ND	0.130	3.09	1	0.03	
2,3,4,7,8-PeCDF	ND	0.125	3.09	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0639**	0.0527	3.09	1	0.1	0.00639
1,2,3,6,7,8-HxCDF	ND	0.0493	3.09	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0615	3.09	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0486	3.09	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.0508	3.09	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.0642	3.09	1	0.01	
OCDF	**0.505**	0.125	6.19	1	0.0003	0.000152
		Total TEQ				0.349

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:07
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0507	**Units:**	Percent
Lab Code:	E1801018-008	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	15.475g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.8		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:17
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0508	**Units:**	ng/Kg
Lab Code:	E1801018-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 07:37
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.525g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518847	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5.87		0.417	0.623	0.87	1.000	1
1,2,3,7,8-PeCDD	0.131**JK**		0.129	3.12	0.78	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.442	3.12			1
1,2,3,6,7,8-HxCDD	ND	U	0.480	3.12			1
1,2,3,7,8,9-HxCDD	1.10**J**		0.450	3.12	1.35	1.007	1
1,2,3,4,6,7,8-HpCDD	30.5		0.398	3.12	1.04	1.000	1
OCDD	1320		0.134	6.23	0.90	1.000	1
2,3,7,8-TCDF	21.0		0.411	0.623	0.70	1.001	1
1,2,3,7,8-PeCDF	0.708**BJK**		0.140	3.12	1.29	1.001	1
2,3,4,7,8-PeCDF	0.528**JK**		0.150	3.12	0.93	1.000	1
1,2,3,4,7,8-HxCDF	1.20**JK**		0.140	3.12	1.57	1.000	1
1,2,3,6,7,8-HxCDF	0.508**JK**		0.128	3.12	1.80	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.149	3.12			1
2,3,4,6,7,8-HxCDF	0.328**JK**		0.138	3.12	0.94	1.000	1
1,2,3,4,6,7,8-HpCDF	3.21		0.140	3.12	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	0.299**BJK**		0.155	3.12	1.69	1.001	1
OCDF	13.1		0.133	6.23	0.81	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:17
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0508	**Units:**	ng/Kg
Lab Code:	E1801018-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 07:37
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.525g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518847	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	5.87		0.417	0.623	0.87		1
Total Penta-Dioxins	0.739**J**		0.129	3.12	1.51		1
Total Hexa-Dioxins	16.1		0.457	3.12	1.15		1
Total Hepta-Dioxins	103		0.398	3.12	1.01		1
Total Tetra-Furans	31.0		0.411	0.623	0.79		1
Total Penta-Furans	2.71**J**		0.145	3.12	1.51		1
Total Hexa-Furans	2.02**J**		0.138	3.12	1.23		1
Total Hepta-Furans	9.05		0.147	3.12	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:17
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0508	**Units:**	Percent
Lab Code:	E1801018-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 07:37
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.525g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518847	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1134.628	57		25-164	0.81	1.028
13C-1,2,3,7,8-PeCDD	2000	1384.810	69		25-181	1.60	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1221.563	61		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1212.118	61		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1676.138	84		23-140	1.08	1.071
13C-OCDD	4000	2929.195	73		17-157	0.92	1.142
13C-2,3,7,8-TCDF	2000	979.183	49		24-169	0.79	0.988
13C-1,2,3,7,8-PeCDF	2000	1352.239	68		24-185	1.61	1.183
13C-2,3,4,7,8-PeCDF	2000	1274.413	64		21-178	1.63	1.223
13C-1,2,3,4,7,8-HxCDF	2000	984.597	49		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1122.994	56		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1219.146	61		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1120.235	56		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1224.697	61		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1510.712	76		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	560.695	70		35-197	NA	1.028

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:17
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0508	**Units:**	ng/Kg
Lab Code:	E1801018-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5.87**	0.417	0.623	1	1	5.87
1,2,3,7,8-PeCDD	**0.131**	0.129	3.12	1	1	0.131
1,2,3,4,7,8-HxCDD	ND	0.442	3.12	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.480	3.12	1	0.1	
1,2,3,7,8,9-HxCDD	**1.10**	0.450	3.12	1	0.1	0.110
1,2,3,4,6,7,8-HpCDD	**30.5**	0.398	3.12	1	0.01	0.305
OCDD	**1320**	0.134	6.23	1	0.0003	0.396
2,3,7,8-TCDF	**21.0**	0.411	0.623	1	0.1	2.10
1,2,3,7,8-PeCDF	**0.708**	0.140	3.12	1	0.03	0.0212
2,3,4,7,8-PeCDF	**0.528**	0.150	3.12	1	0.3	0.158
1,2,3,4,7,8-HxCDF	**1.20**	0.140	3.12	1	0.1	0.120
1,2,3,6,7,8-HxCDF	**0.508**	0.128	3.12	1	0.1	0.0508
1,2,3,7,8,9-HxCDF	ND	0.149	3.12	1	0.1	
2,3,4,6,7,8-HxCDF	**0.328**	0.138	3.12	1	0.1	0.0328
1,2,3,4,6,7,8-HpCDF	**3.21**	0.140	3.12	1	0.01	0.0321
1,2,3,4,7,8,9-HpCDF	**0.299**	0.155	3.12	1	0.01	0.00299
OCDF	**13.1**	0.133	6.23	1	0.0003	0.00393
		Total TEQ				9.33

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	11/06/18 13:17
Sample Matrix:	Sediment	**Date Received:**	11/07/18 00:00
Sample Name:	SL0508	**Units:**	Percent
Lab Code:	E1801018-009	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	6.772g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

Accuracy & Precision

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

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Analyzed:**	11/16/18
Sample Matrix:	Sediment	**Date Extracted:**	11/12/18

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

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

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800463-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801018
Project:	San Jacinto Waste Pits/C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0500

Run #17 Filename P518834 Samp: 1 Inj: 1 Acquired: 15-NOV-18 20:50:53
Processed: 16-NOV-18 14:10:48 Sample ID: E1801018-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	2.052e+03	2.431e+03	0.84	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:36	9.413e+01	7.941e+01	1.19	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	31:37	1.459e+02	7.002e+01	2.08	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	1.437e+02	1.243e+02	1.16	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	7.133e+01	6.188e+01	1.15	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	8.816e+01	7.099e+01	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	4.663e+01	4.324e+01	1.08	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	7.569e+02	7.417e+02	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.150e+01	4.959e+01	1.24	no	no	1.258
10	Unk	OCDF	40:52	2.131e+03	2.504e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	5.121e+02	5.619e+02	0.91	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:54	3.195e+01	3.847e+01	0.83	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	5.196e+01	5.302e+01	0.98	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.641e+02	1.282e+02	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	1.889e+02	1.640e+02	1.15	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	7.209e+03	7.082e+03	1.02	yes	no	1.025
17	Unk	OCDD	40:43	1.934e+05	2.145e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	1.156e+04	1.464e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.160e+04	1.386e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.083e+04	1.288e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.027e+04	1.975e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.312e+04	2.513e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.185e+04	2.261e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.116e+04	2.240e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.670e+03	1.966e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.814e+03	1.998e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	8.080e+03	1.043e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:55	1.574e+04	9.847e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.516e+04	1.186e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.617e+04	1.278e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.742e+04	1.643e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:42	1.874e+04	2.031e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:51	1.599e+04	2.006e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.009e+04	2.220e+04	1.36	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:35	8.917e+03				no	1.014

$$\text{OCDD} = \frac{(1.934e+05 + 2.145e+05) \times 4000 \text{ pg} \times 1}{(1.874e+04 + 2.031e+04) \times 10.42 \text{ g} \times 76.0 / 100 \times 1.118} = 4719 \text{ ng/kg}$$

LLW 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0500

Run #17 Filename P518834 Samp: 1 Inj: 1 Acquired: 15-NOV-18 20:50:53
Processed: 16-NOV-18 14:10:48 LAB. ID: E1801018-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.45e+05	1.35e+03	1.8e+02	3.00e+05	2.82e+03	1.1e+02
2	1,2,3,7,8-PeCDF	1.38e+04	7.36e+02	1.9e+01	1.13e+04	1.95e+03	5.8e+00
3	2,3,4,7,8-PeCDF	2.18e+04	7.36e+02	3.0e+01	1.14e+04	1.95e+03	5.9e+00
4	1,2,3,4,7,8-HxCDF	2.81e+04	4.32e+02	6.5e+01	2.99e+04	1.26e+03	2.4e+01
5	1,2,3,6,7,8-HxCDF	1.25e+04	4.32e+02	2.9e+01	1.01e+04	1.26e+03	8.0e+00
6	2,3,4,6,7,8-HxCDF	1.46e+04	4.32e+02	3.4e+01	1.28e+04	1.26e+03	1.0e+01
7	1,2,3,7,8,9-HxCDF	6.09e+03	4.32e+02	1.4e+01	9.84e+03	1.26e+03	7.8e+00
8	1,2,3,4,6,7,8-HpCDF	1.55e+05	2.67e+03	5.8e+01	1.45e+05	1.13e+03	1.3e+02
9	1,2,3,4,7,8,9-HpCDF	1.18e+04	2.67e+03	4.4e+00	9.71e+03	1.13e+03	8.6e+00
10	OCDF	3.47e+05	6.40e+02	5.4e+02	3.96e+05	1.09e+03	3.6e+02
11	2,3,7,8-TCDD	7.26e+04	2.27e+03	3.2e+01	9.21e+04	1.17e+03	7.9e+01
12	1,2,3,7,8-PeCDD	6.37e+03	8.92e+02	7.1e+00	5.67e+03	3.56e+02	1.6e+01
13	1,2,3,4,7,8-HxCDD	1.16e+04	1.32e+03	8.8e+00	1.24e+04	2.39e+03	5.2e+00
14	1,2,3,6,7,8-HxCDD	3.32e+04	1.32e+03	2.5e+01	2.52e+04	2.39e+03	1.1e+01
15	1,2,3,7,8,9-HxCDD	3.64e+04	1.32e+03	2.8e+01	3.04e+04	2.39e+03	1.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.39e+06	1.27e+03	1.1e+03	1.34e+06	5.60e+02	2.4e+03
17	OCDD	3.14e+07	8.52e+02	3.7e+04	3.47e+07	7.32e+02	4.7e+04
18	13C-2,3,7,8-TCDF	1.58e+06	8.04e+03	2.0e+02	1.99e+06	3.33e+03	6.0e+02
19	13C-1,2,3,7,8-PeCDF	3.44e+06	5.16e+02	6.7e+03	2.25e+06	7.16e+02	3.1e+03
20	13C-2,3,4,7,8-PeCDF	3.66e+06	5.16e+02	7.1e+03	2.28e+06	7.16e+02	3.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.05e+06	1.02e+03	2.0e+03	3.91e+06	8.36e+02	4.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.42e+06	1.02e+03	2.4e+03	4.60e+06	8.36e+02	5.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.26e+06	1.02e+03	2.2e+03	4.31e+06	8.36e+02	5.2e+03
24	13C-1,2,3,7,8,9-HxCDF	2.17e+06	1.02e+03	2.1e+03	4.14e+06	8.36e+02	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+06	2.52e+03	7.0e+02	3.82e+06	5.11e+03	7.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.59e+06	2.52e+03	6.3e+02	3.61e+06	5.11e+03	7.1e+02
27	13C-2,3,7,8-TCDD	1.22e+06	6.16e+03	2.0e+02	1.57e+06	3.30e+03	4.8e+02
28	13C-1,2,3,7,8-PeCDD	2.66e+06	8.64e+02	3.1e+03	1.71e+06	1.24e+03	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	3.28e+06	1.21e+03	2.7e+03	2.55e+06	9.48e+02	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.04e+06	1.21e+03	2.5e+03	2.40e+06	9.48e+02	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.33e+06	9.60e+02	3.5e+03	3.11e+06	8.64e+02	3.6e+03
32	13C-OCDD	3.09e+06	8.76e+02	3.5e+03	3.35e+06	5.68e+02	5.9e+03
33	13C-1,2,3,4-TCDD	2.40e+06	6.16e+03	3.9e+02	3.00e+06	3.30e+03	9.1e+02
34	13C-1,2,3,7,8,9-HxCDD	5.64e+06	1.21e+03	4.7e+03	4.34e+06	9.48e+02	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.35e+06	8.80e+02	1.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0500

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P518834 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 303.9020 305.8990 Tot Response: 7.05e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:00	1.18e+02	1.54e+02	0.77	yes	2.72e+02		n	n
2	23:05	4.63e+01	6.86e+01	0.67	yes	1.15e+02		n	n
3	24:34	8.08e+02	9.70e+02	0.83	yes	1.78e+03		n	n
4	25:34	2.05e+03	2.43e+03	0.84	yes	4.48e+03	2,3,7,8-TCDF	n	n
5	26:00	1.79e+02	2.20e+02	0.81	yes	3.99e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0500

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P518834 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 319.8970 321.8940 Tot Response: 9.71e+01 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:44	4.44e+01	5.27e+01 0.84	yes	9.71e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0500

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P518834 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 339.8600 341.8570 Tot Response: 2.90e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:50	1.74e+02	1.16e+02 1.51	yes	2.90e+02		n	n

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Peak List Summary

CLIENT ID.
SL0500

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P518834 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 339.8600 341.8570 Tot Response: 5.32e+02 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:25	5.77e+01	4.34e+01	1.33	yes	1.01e+02		n	y
2	29:32	2.01e+02	1.30e+02	1.54	yes	3.32e+02		n	y
3	30:52	5.90e+01	4.04e+01	1.46	yes	9.95e+01		n	y

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Peak List Summary

CLIENT ID.
SL0500

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P518834 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 355.8550 357.8520 Tot Response: 3.36e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:36	1.18e+02	6.85e+01	1.72	yes	1.87e+02		y	n
2	30:55	9.09e+01	5.86e+01	1.55	yes	1.49e+02		y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0500

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P518834 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 373.8210 375.8180 Tot Response: 1.99e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:29	3.13e+02	2.63e+02	1.19	yes	5.76e+02		n	n
2	34:03	4.21e+02	3.42e+02	1.23	yes	7.63e+02		n	n
3	34:30	1.44e+02	1.24e+02	1.16	yes	2.68e+02	1,2,3,4,7,8-HxCDF	n	n
4	34:37	7.13e+01	6.19e+01	1.15	yes	1.33e+02	1,2,3,6,7,8-HxCDF	n	n
5	35:09	8.82e+01	7.10e+01	1.24	yes	1.59e+02	2,3,4,6,7,8-HxCDF	n	n
6	35:57	4.66e+01	4.32e+01	1.08	yes	8.99e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0500

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P518834 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 389.8160 391.8130 Tot Response: 6.91e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	2.18e+03	1.76e+03	1.24	yes	3.94e+03		n	n
2	34:41	9.92e+02	8.00e+02	1.24	yes	1.79e+03		n	n
3	34:47	2.85e+02	2.49e+02	1.14	yes	5.34e+02		n	n
4	35:23	1.64e+02	1.28e+02	1.28	yes	2.92e+02	1,2,3,6,7,8-HxCDD	n	n
5	35:39	1.89e+02	1.64e+02	1.15	yes	3.53e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0500

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P518834 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 407.7820 409.7790 Tot Response: 4.65e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	7.57e+02	7.42e+02	1.02	yes	1.50e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	1.59e+03	1.52e+03	1.05	yes	3.10e+03		n	n
3	37:48	2.28e+01	2.16e+01	1.06	yes	4.44e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0500

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P518834 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 20:50:53 Processed: 16-NOV-18 14:10:48

Mass: 423.7770 425.7740 Tot Response: 6.39e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	2.52e+04	2.44e+04 1.03	yes	4.96e+04		n	n
2	38:10	7.21e+03	7.08e+03 1.02	yes	1.43e+04	1,2,3,4,6,7,8-HpCDD	n	n

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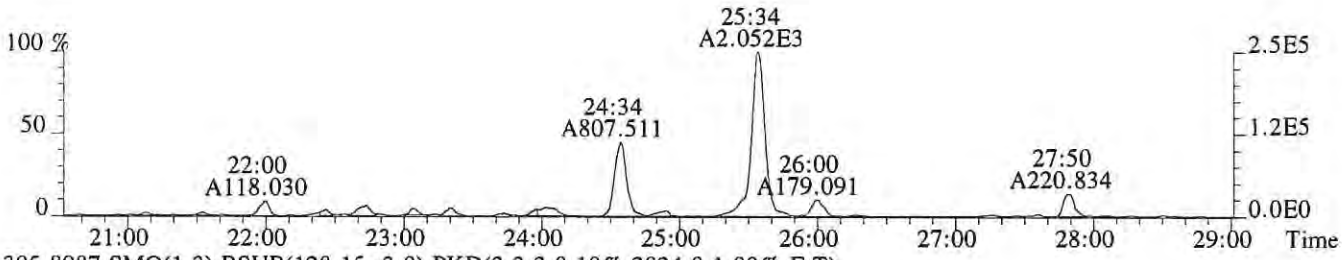
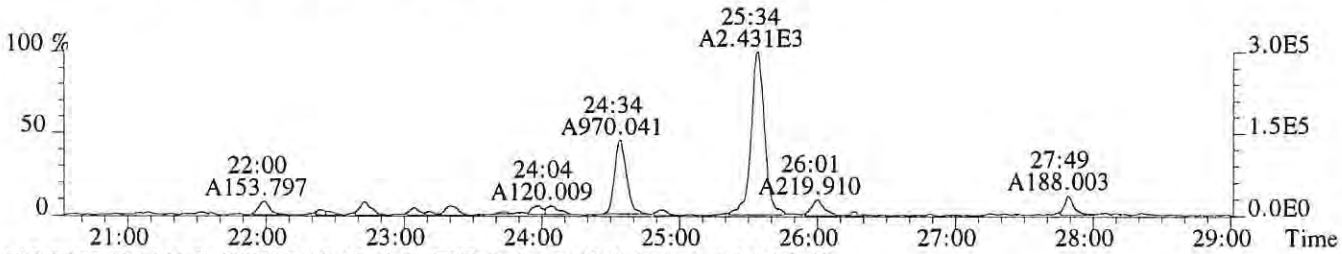
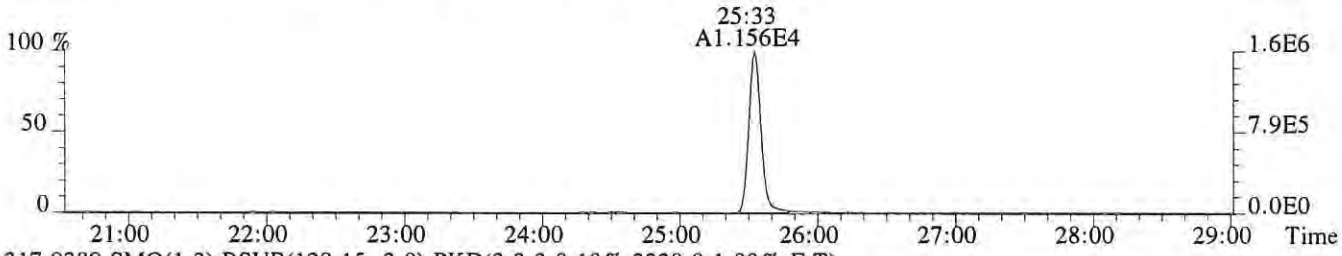
File:P518834 #1-602 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



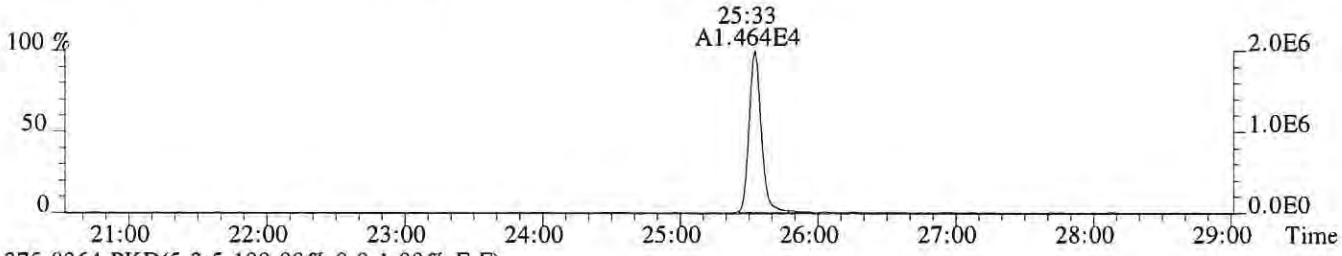
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2824.0,1.00%,F,T)



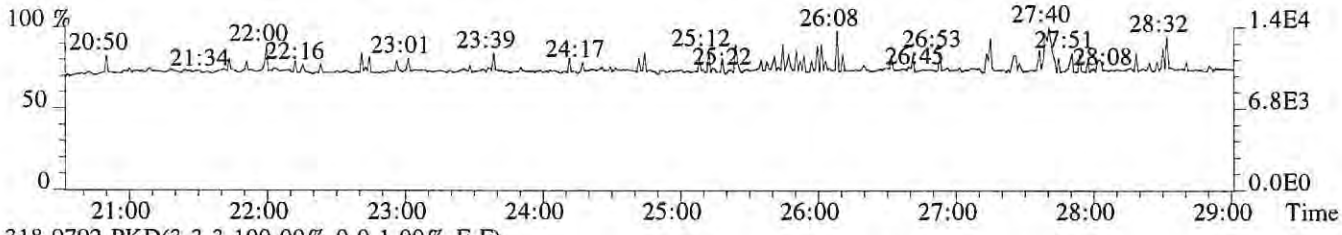
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8040.0,1.00%,F,T)



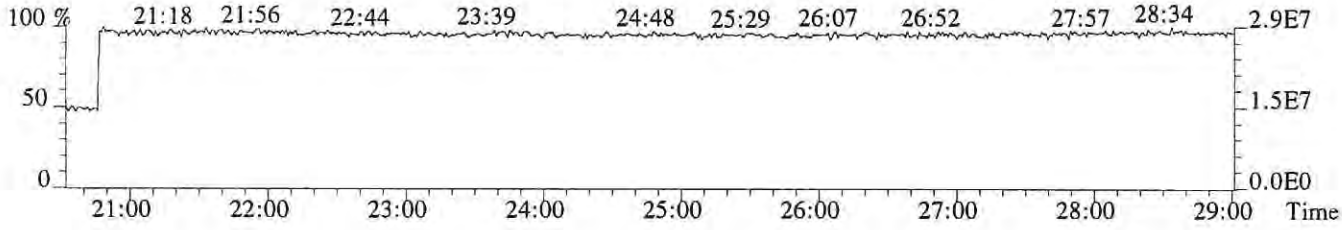
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3328.0,1.00%,F,T)



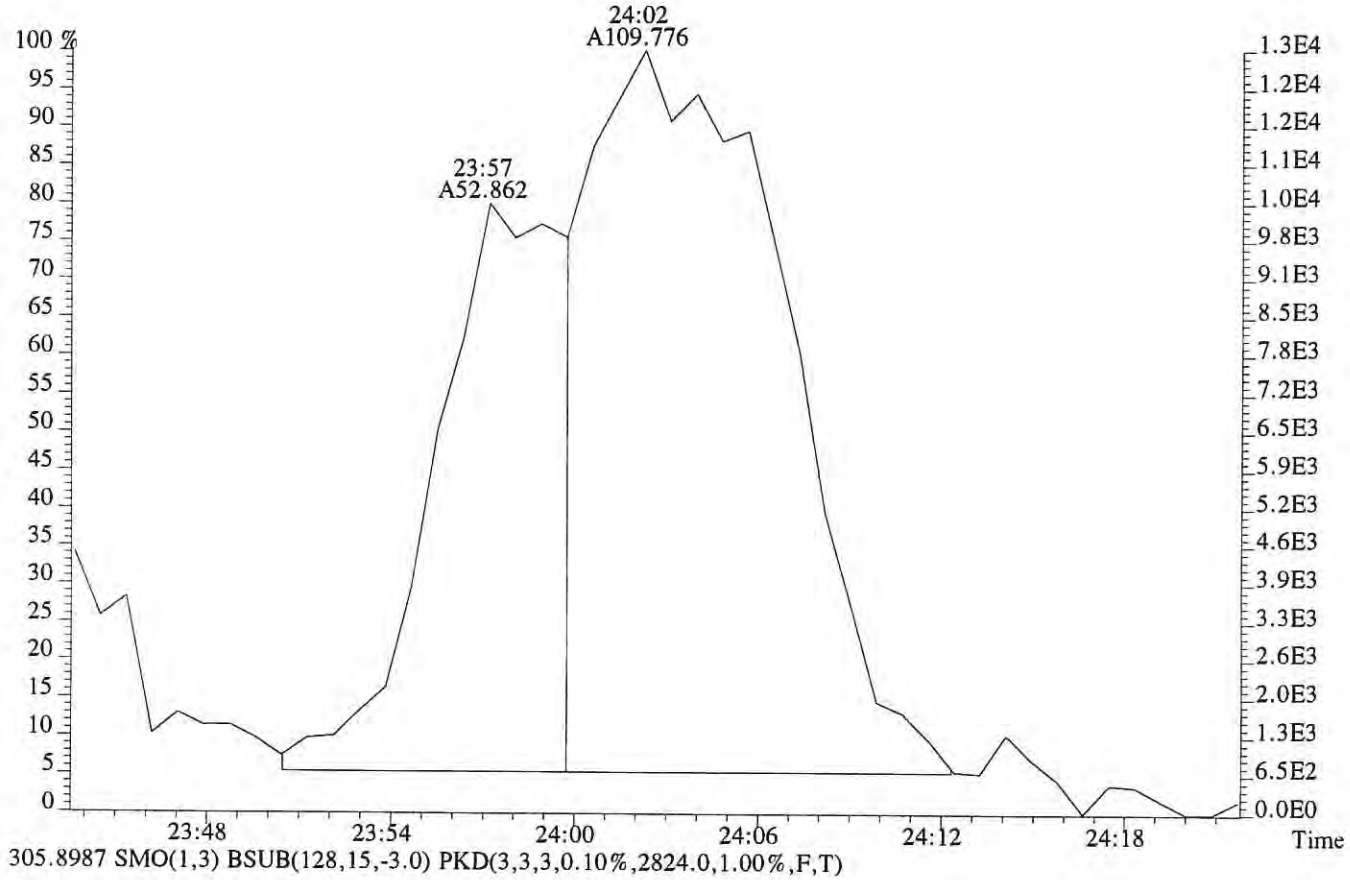
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



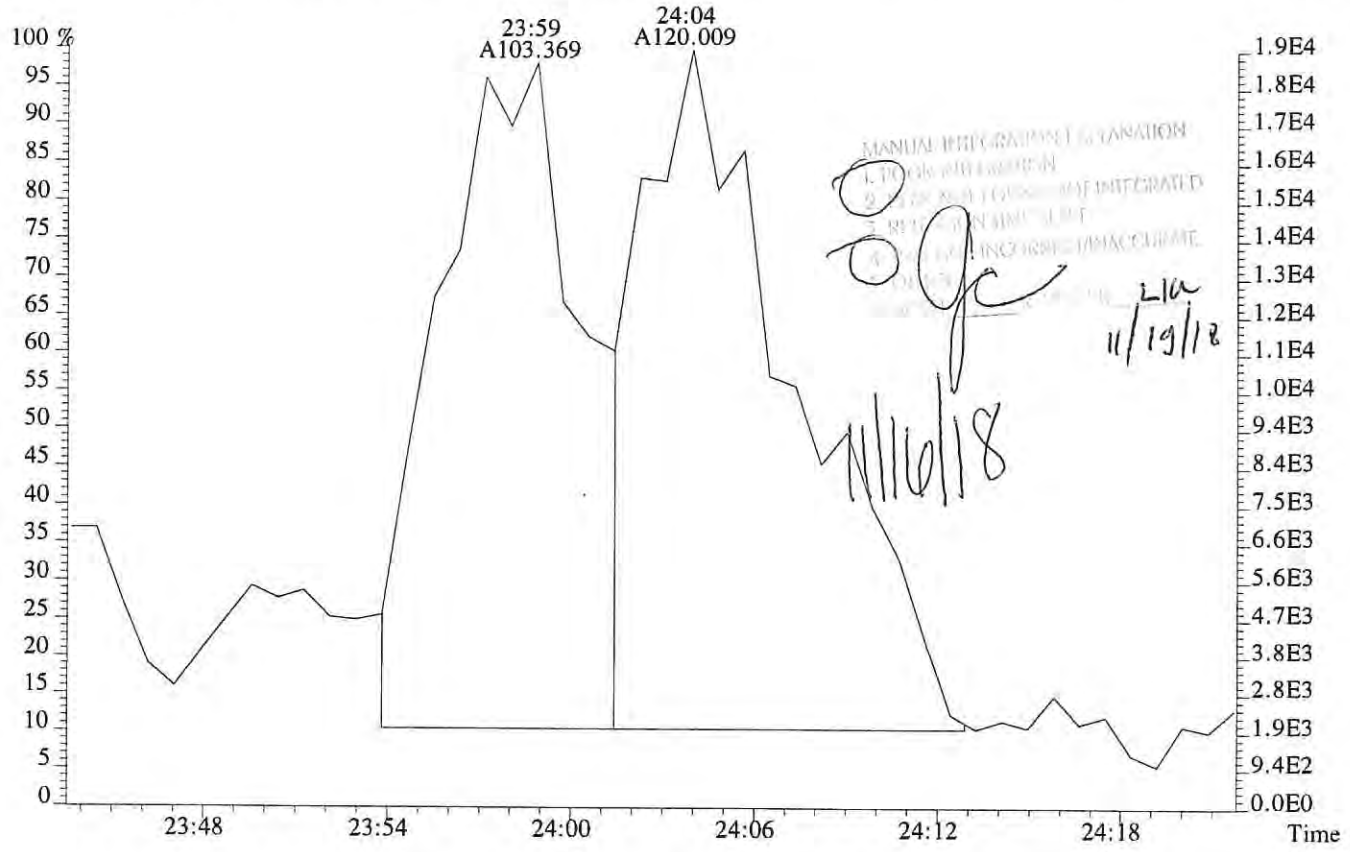
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518834 #1-602 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)

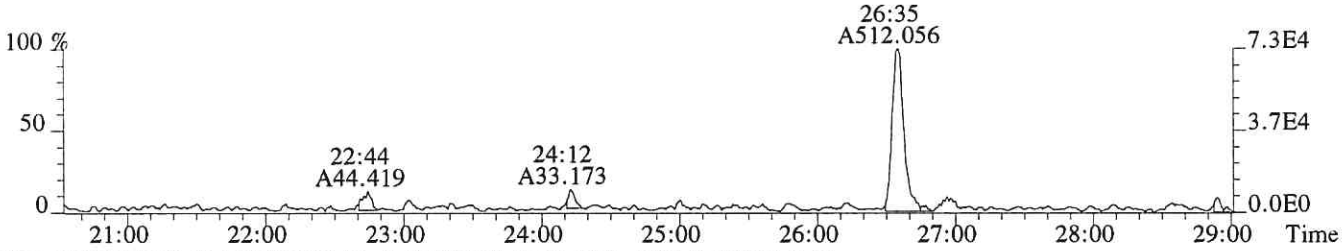


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2824.0,1.00%,F,T)

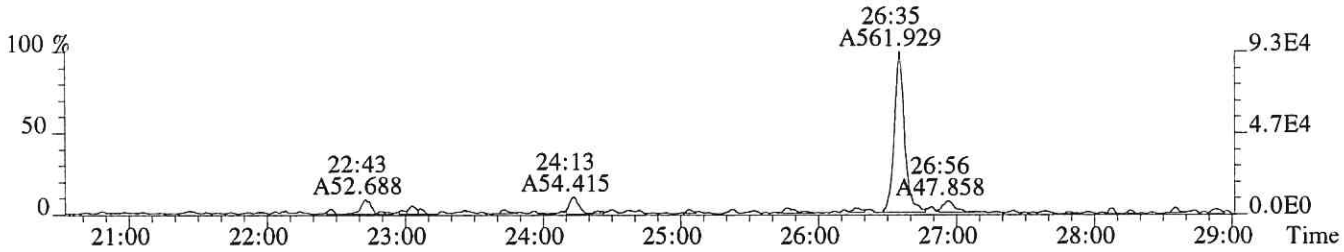


MANUAL INTEGRATION
11/19/18
11/10/18

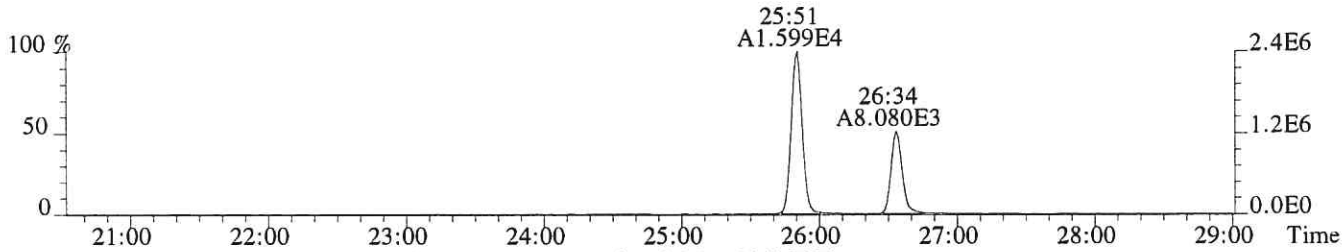
File:P518834 #1-602 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



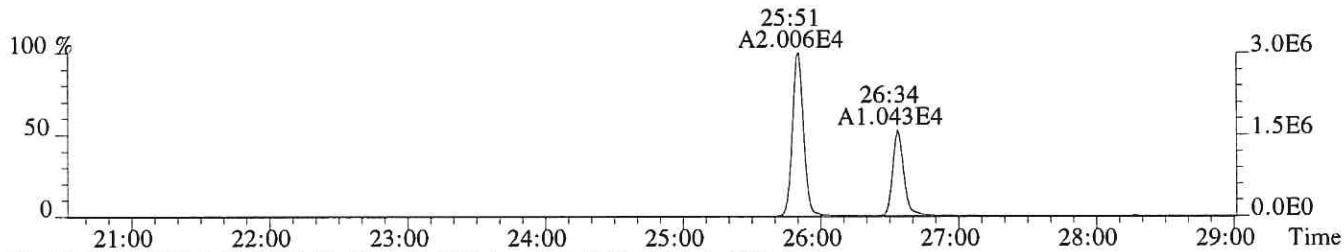
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



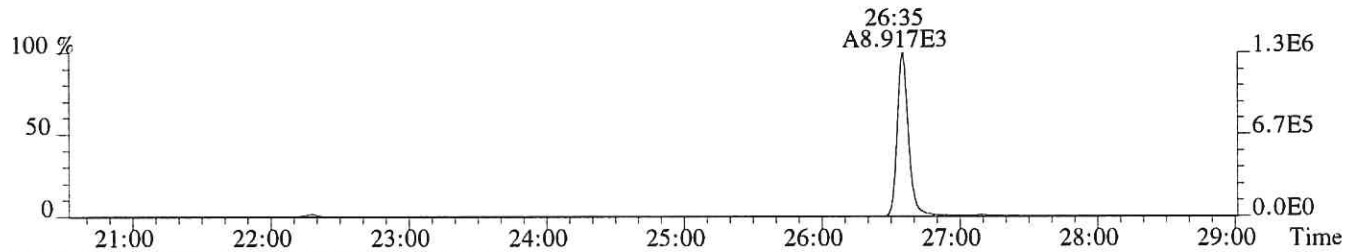
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6156.0,1.00%,F,T)



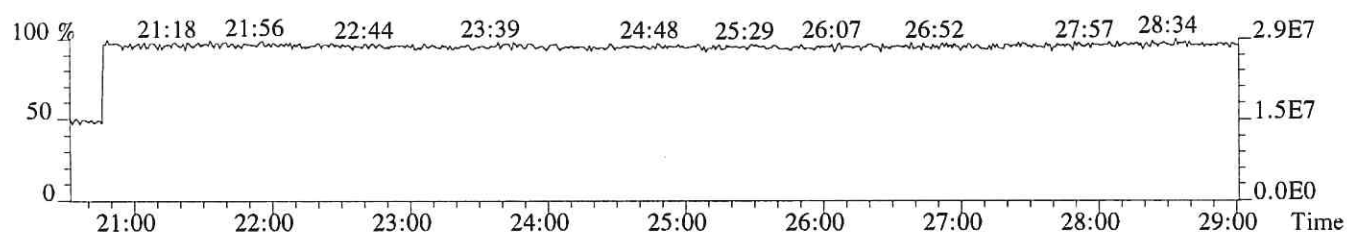
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3296.0,1.00%,F,T)



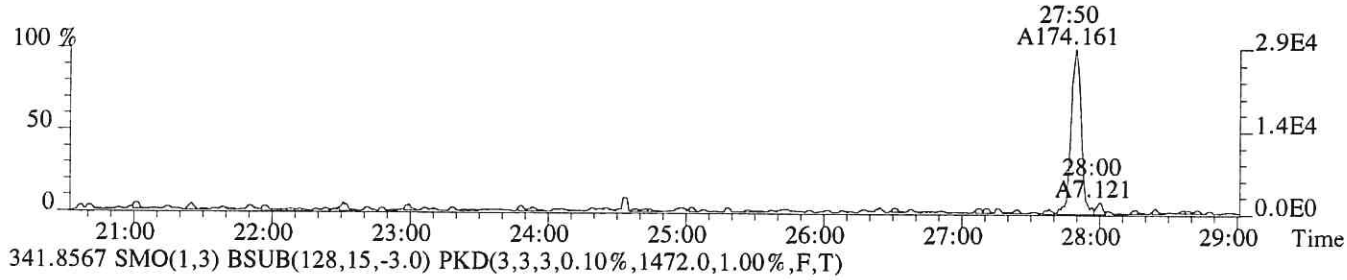
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



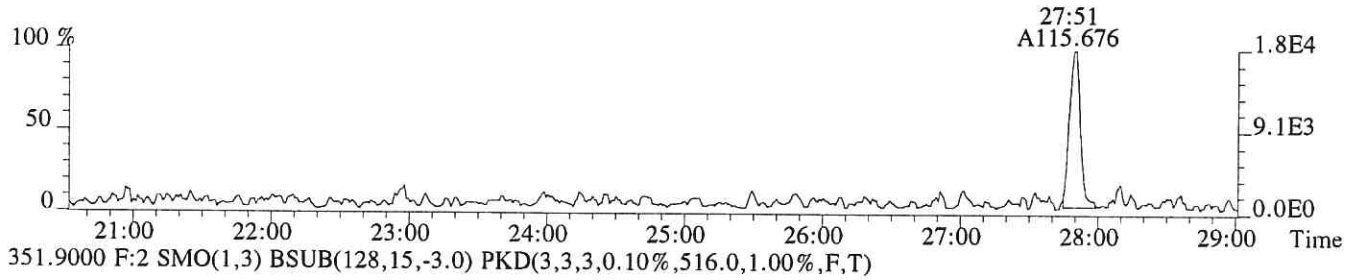
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



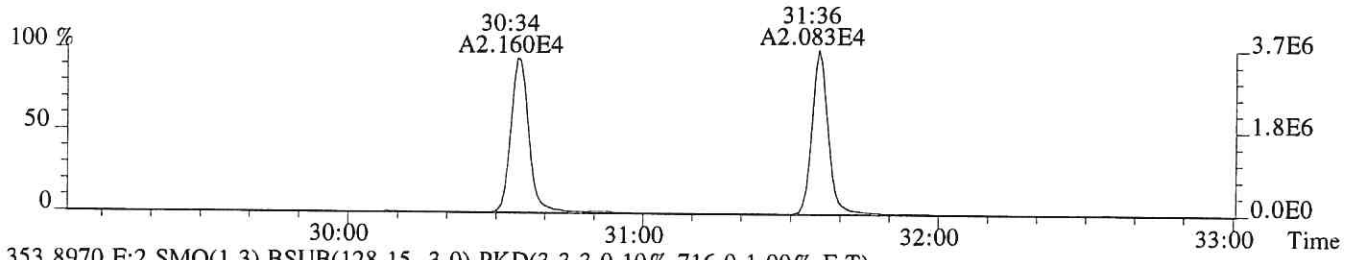
File:P518834 #1-602 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



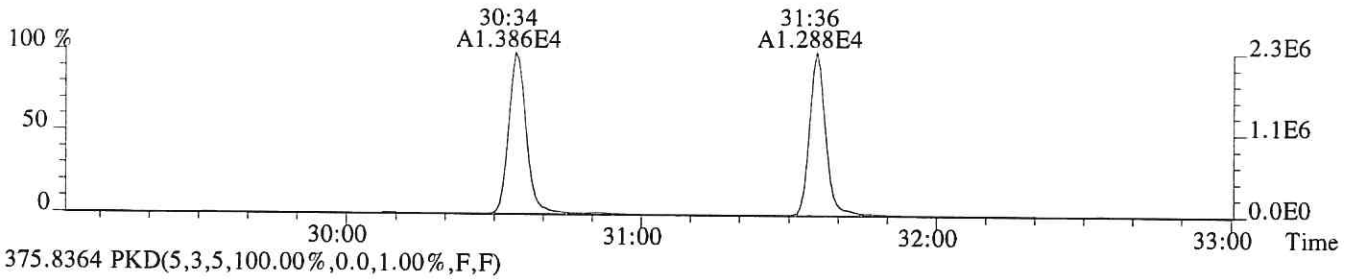
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



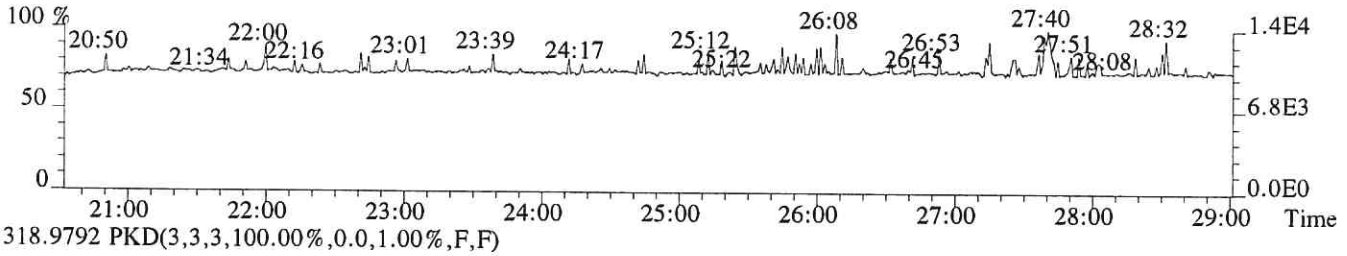
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



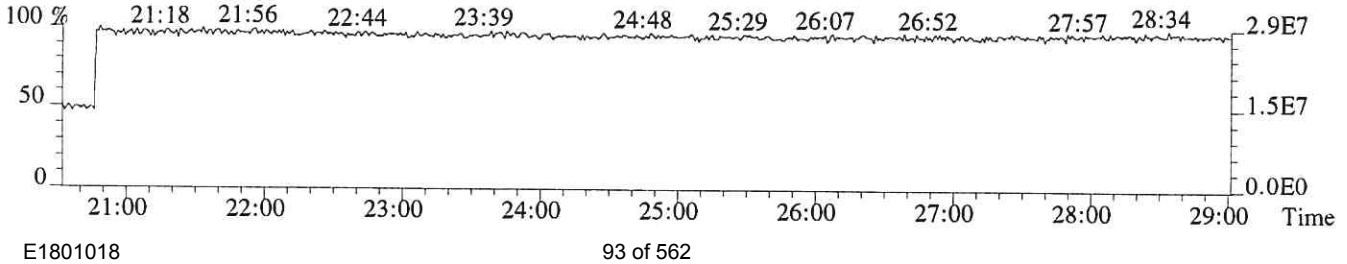
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



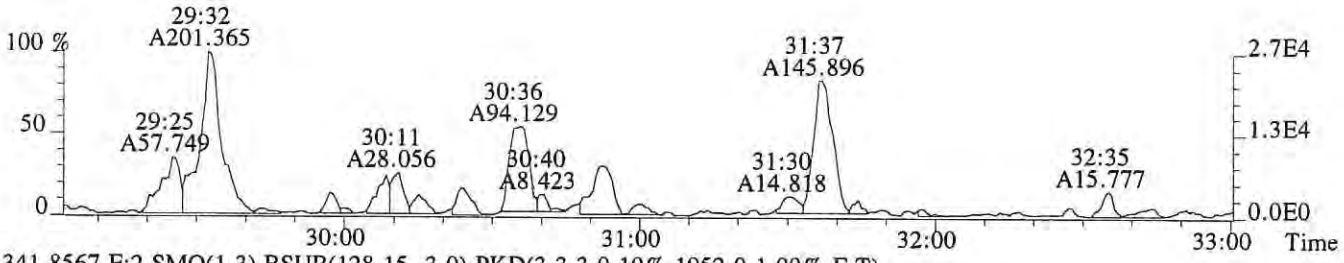
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



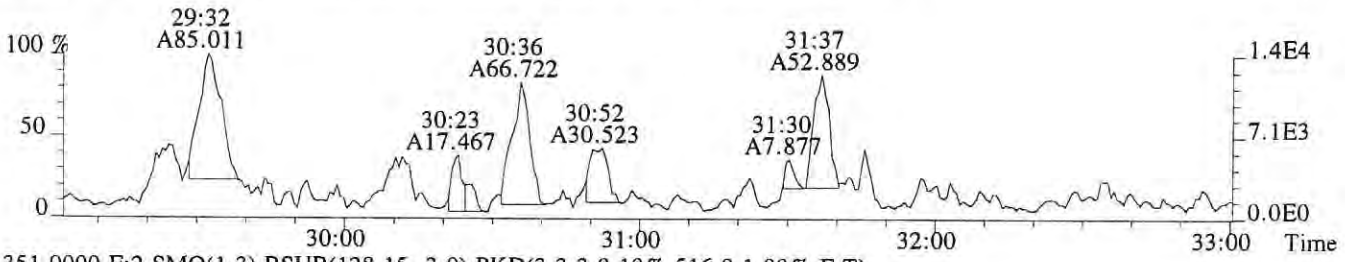
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



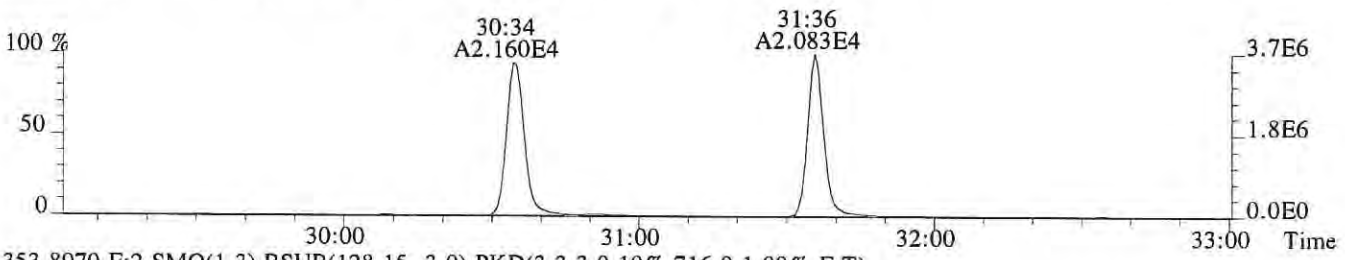
File:P518834 #1-357 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



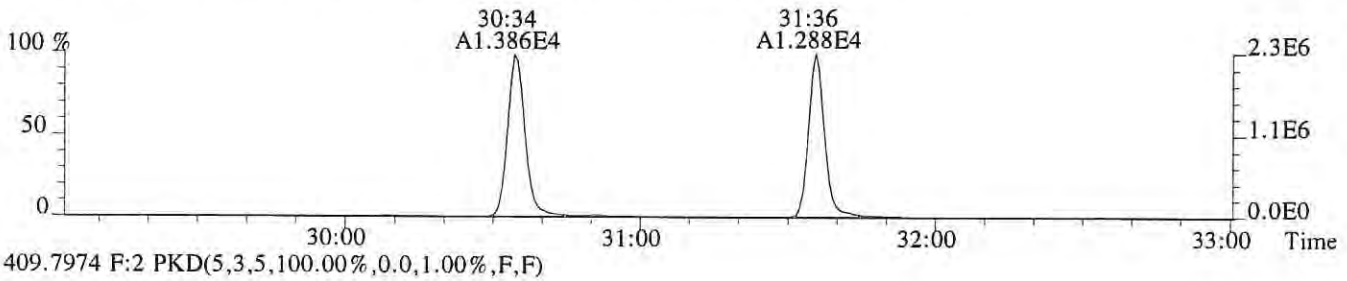
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



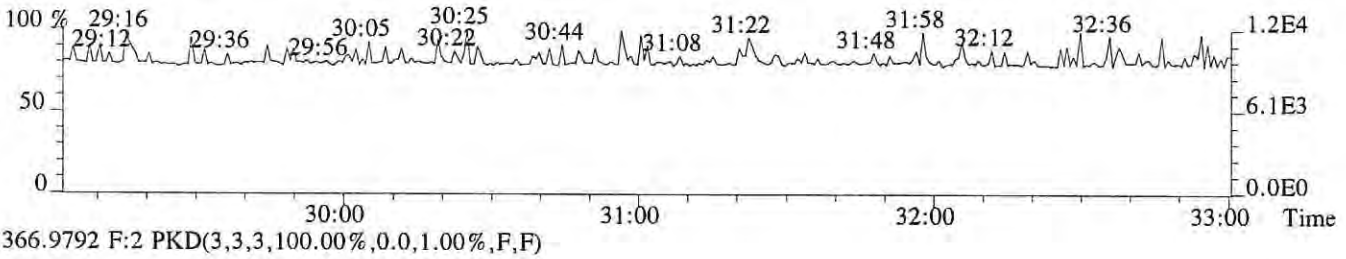
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



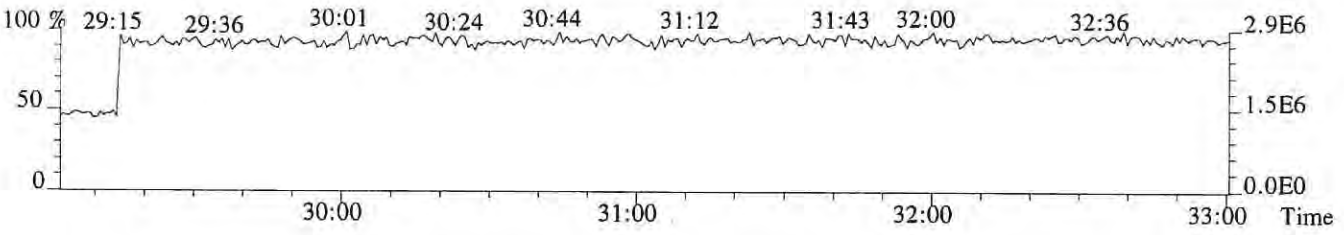
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



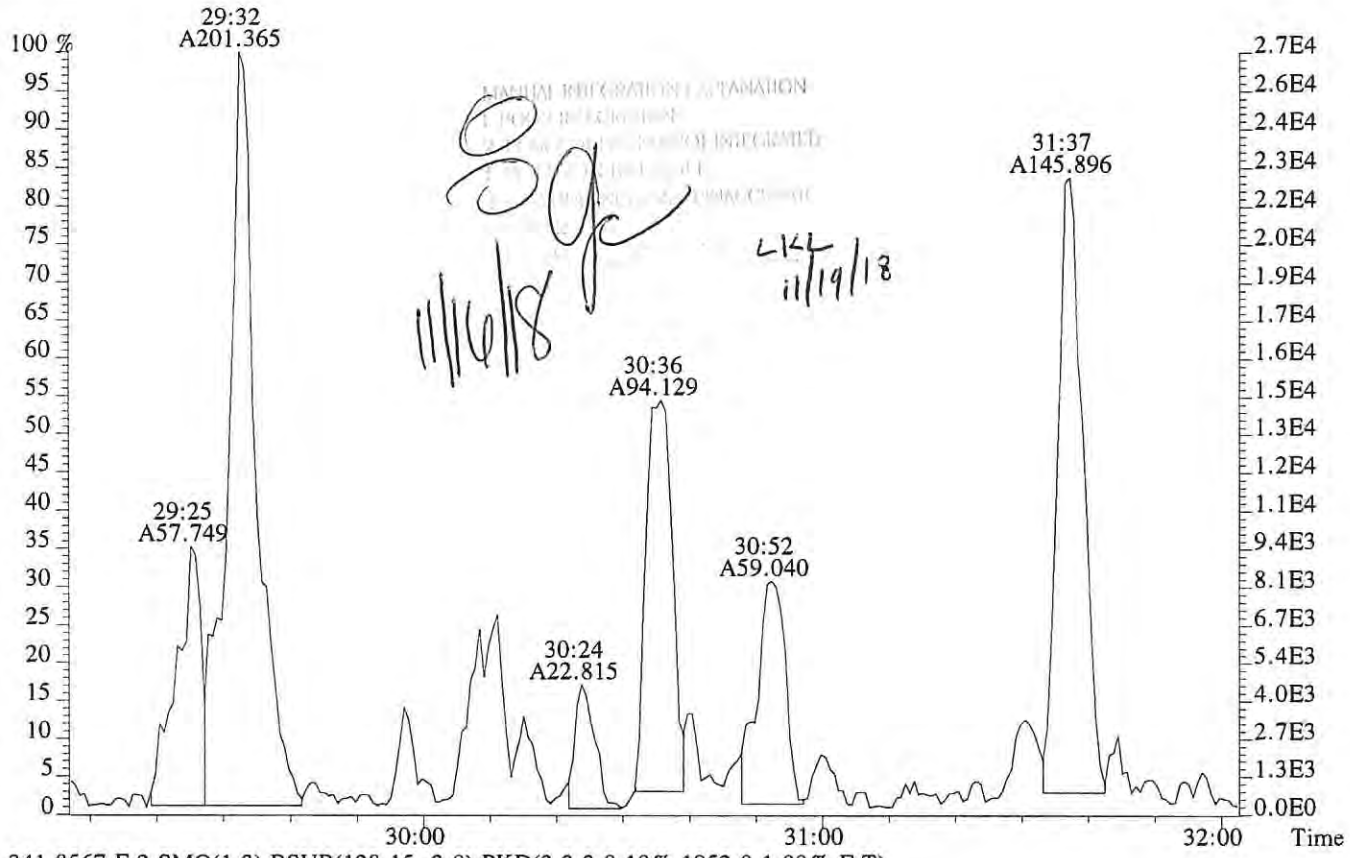
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



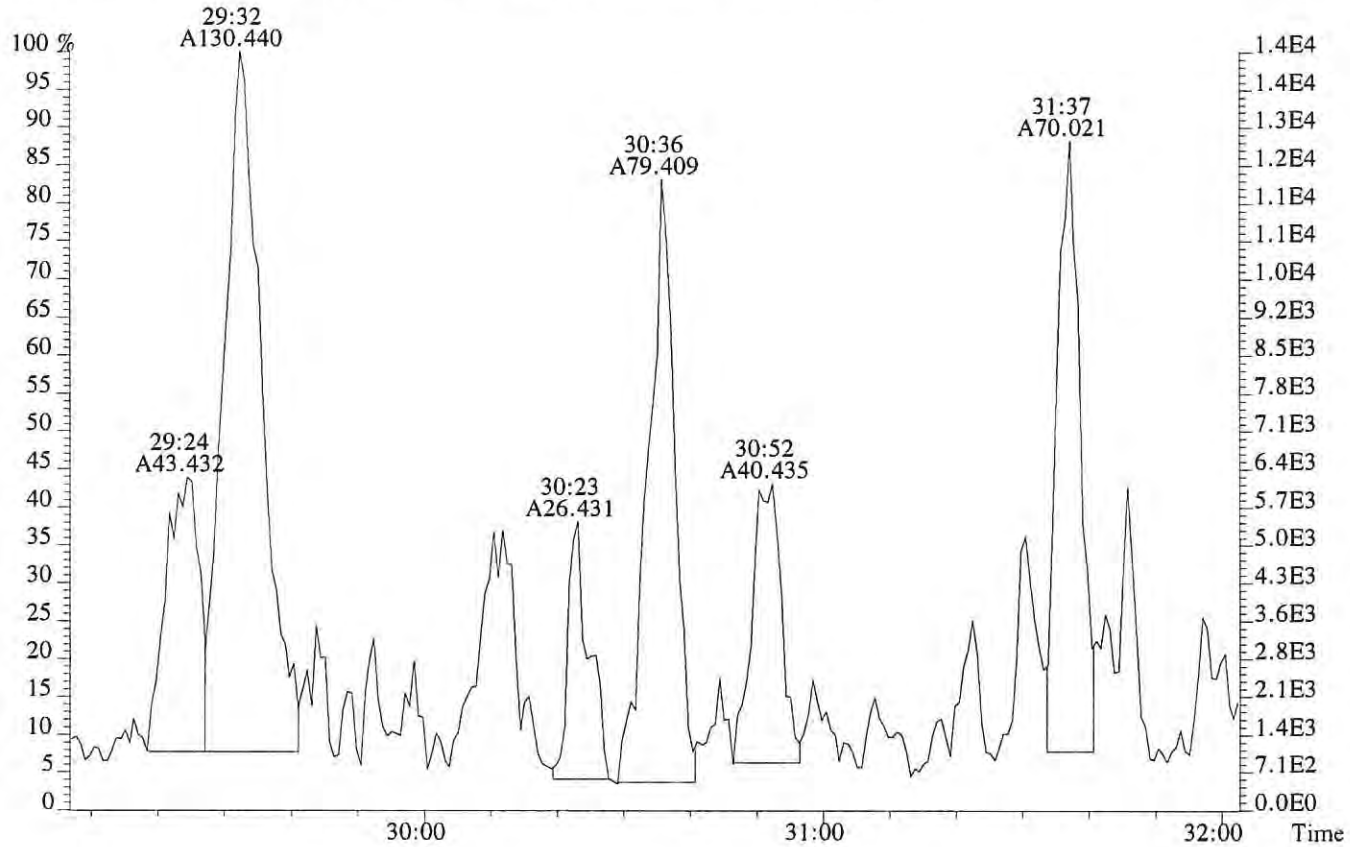
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



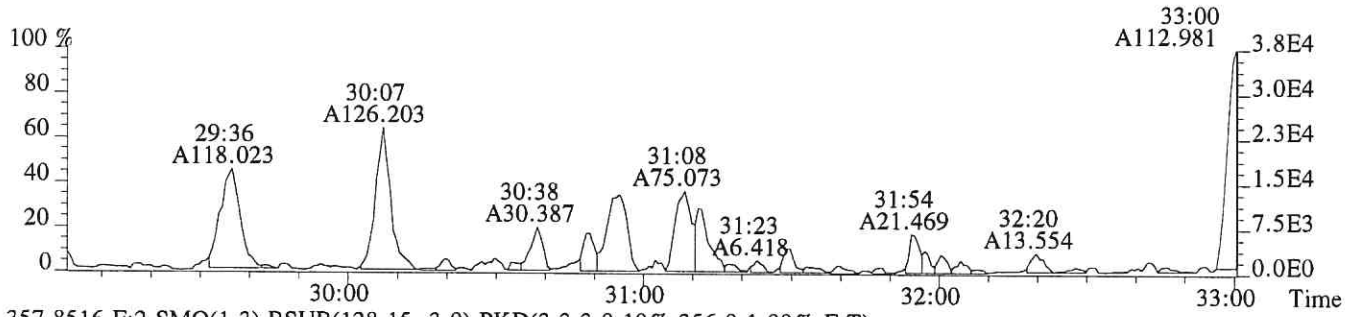
File:P518834 #1-357 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



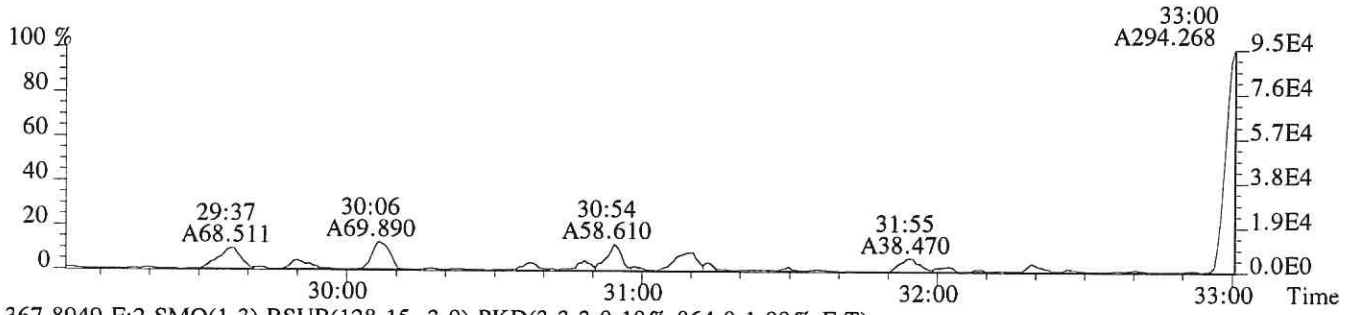
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



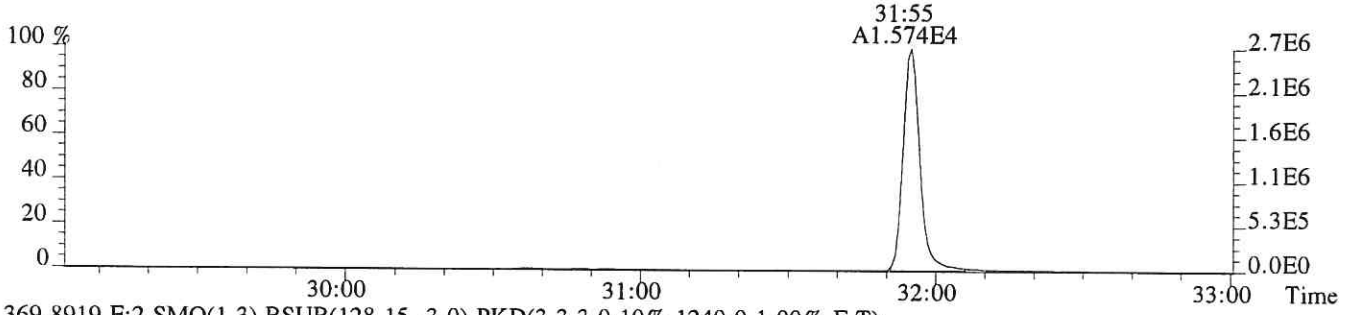
File:P518834 #1-357 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



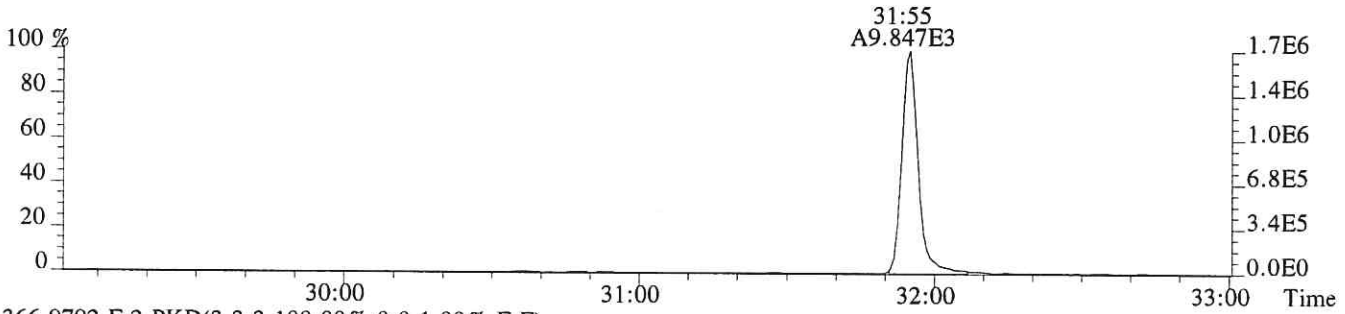
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



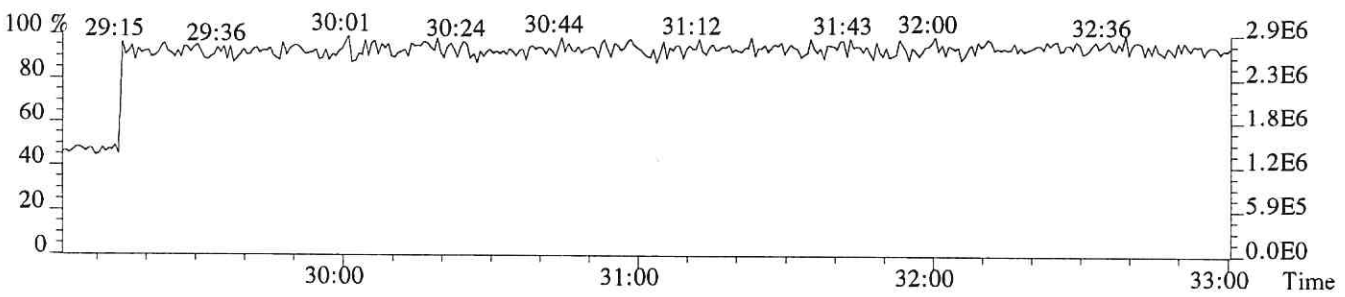
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



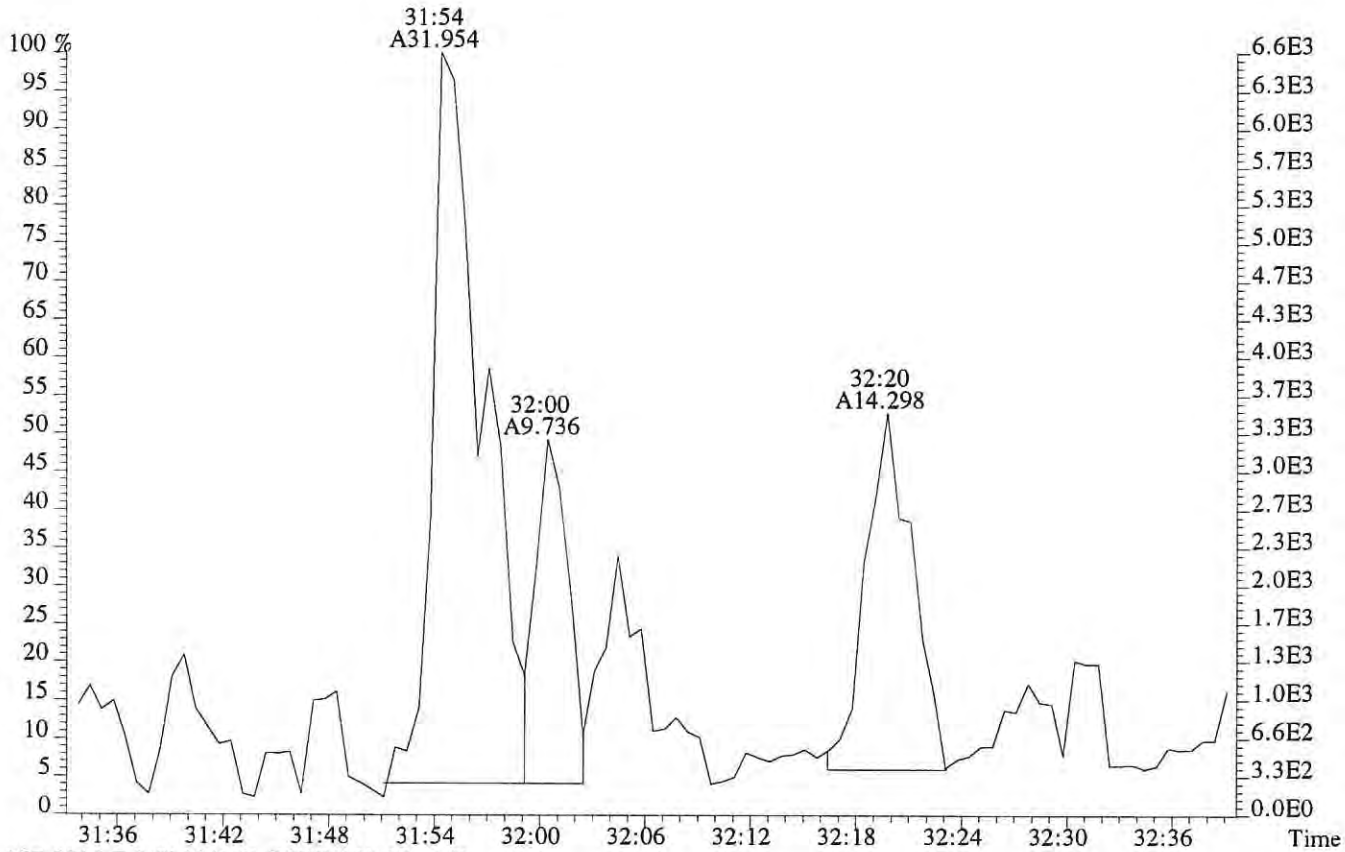
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



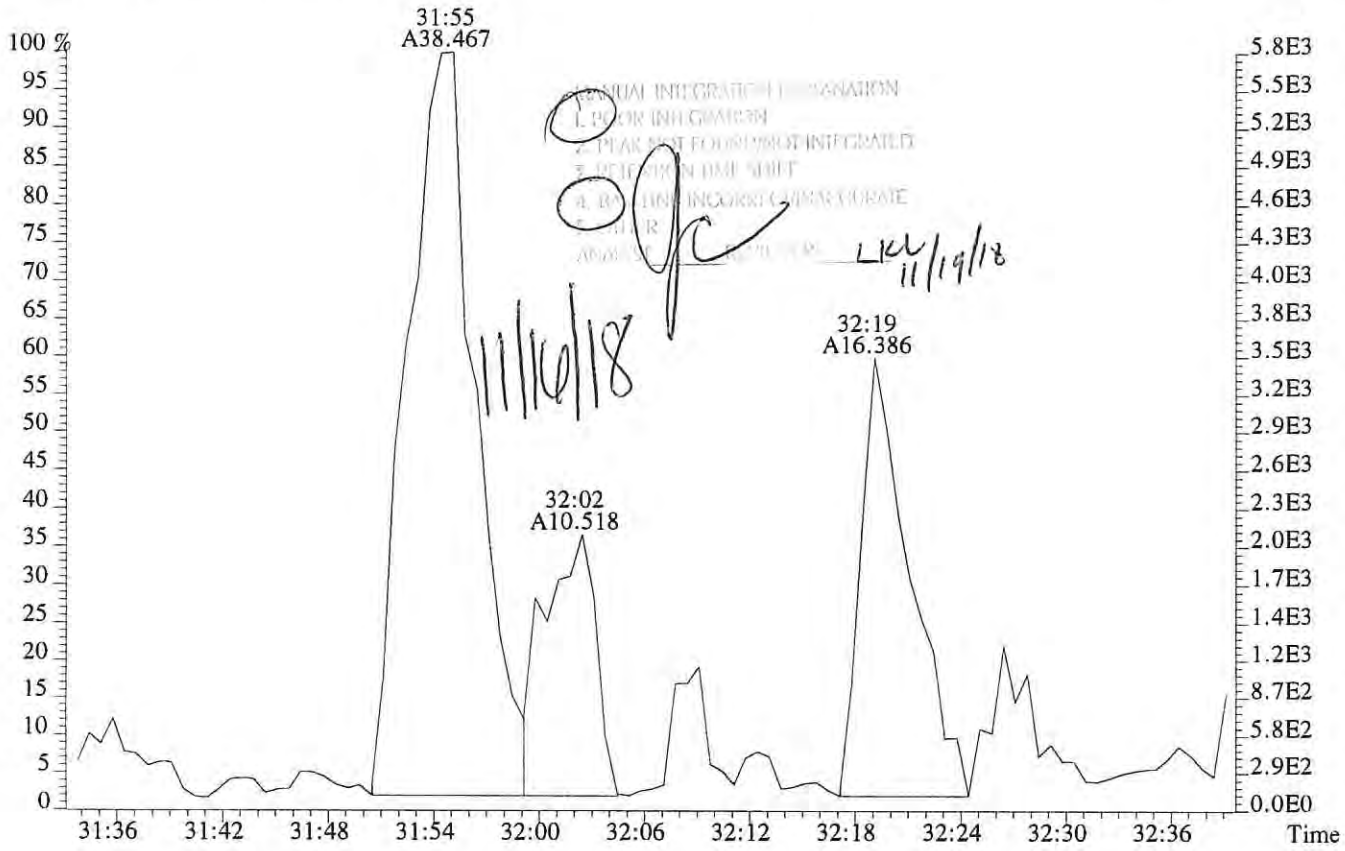
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



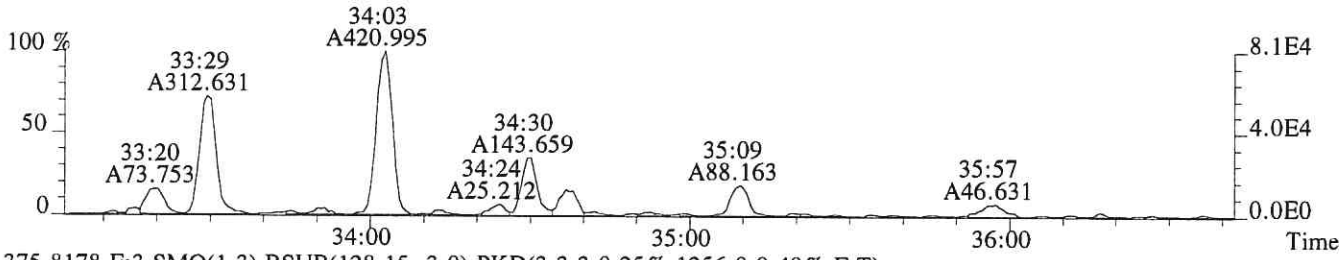
File:P518834 #1-357 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0)



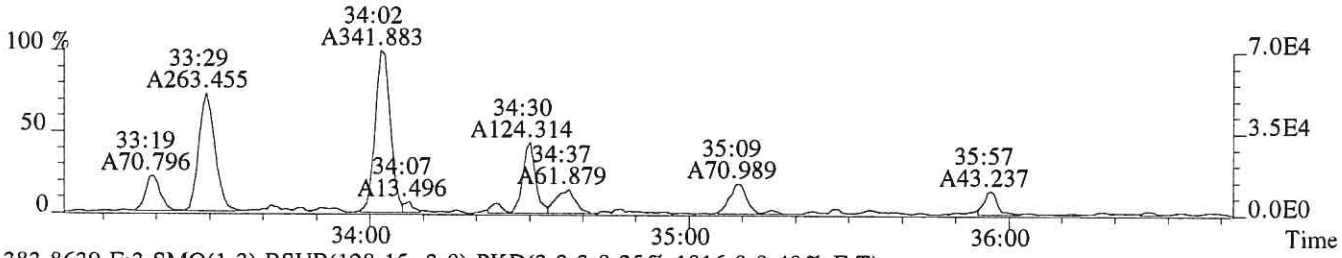
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0)



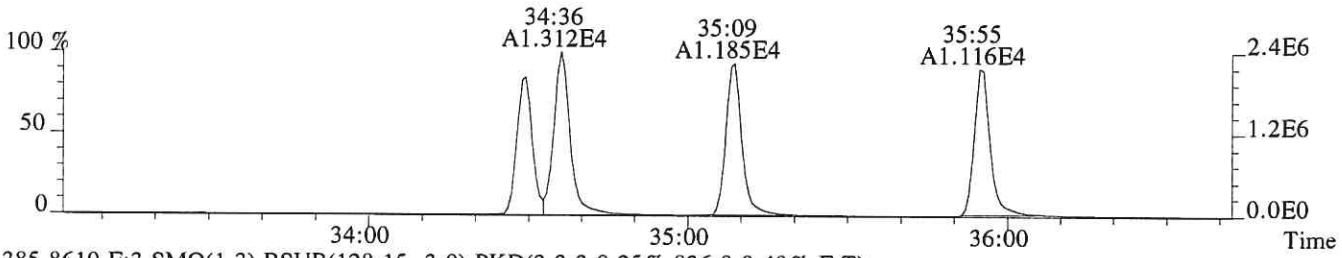
File:P518834 #1-330 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



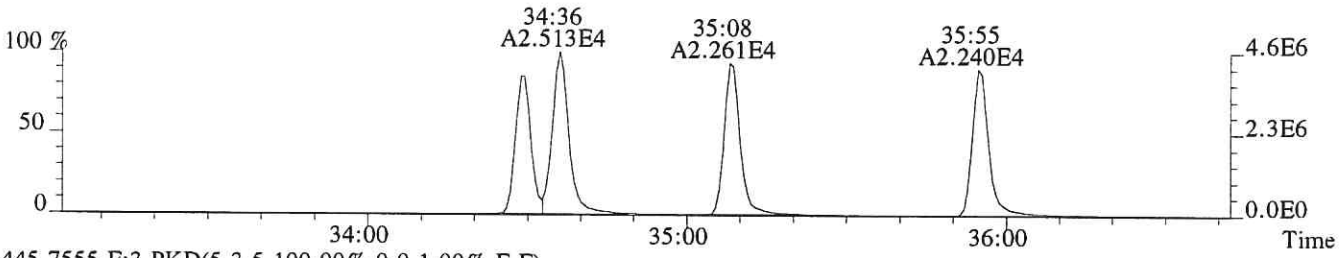
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



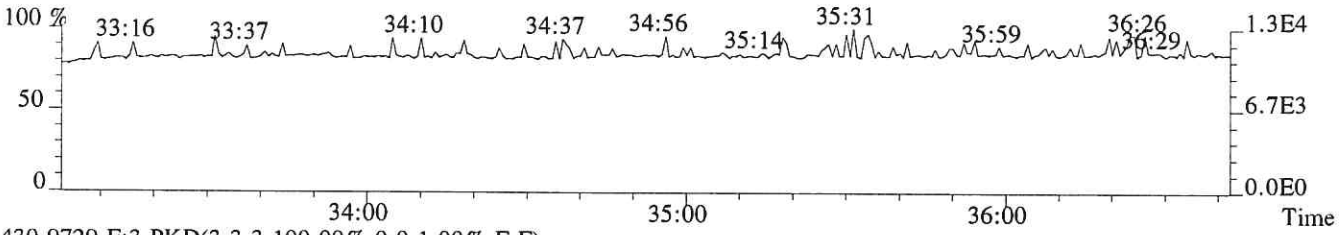
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



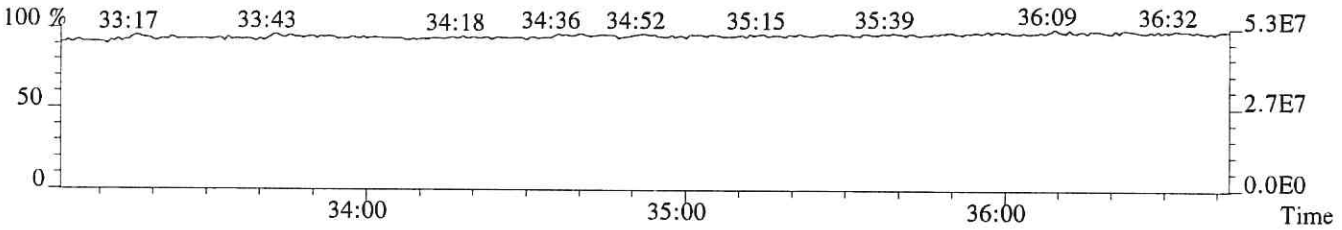
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



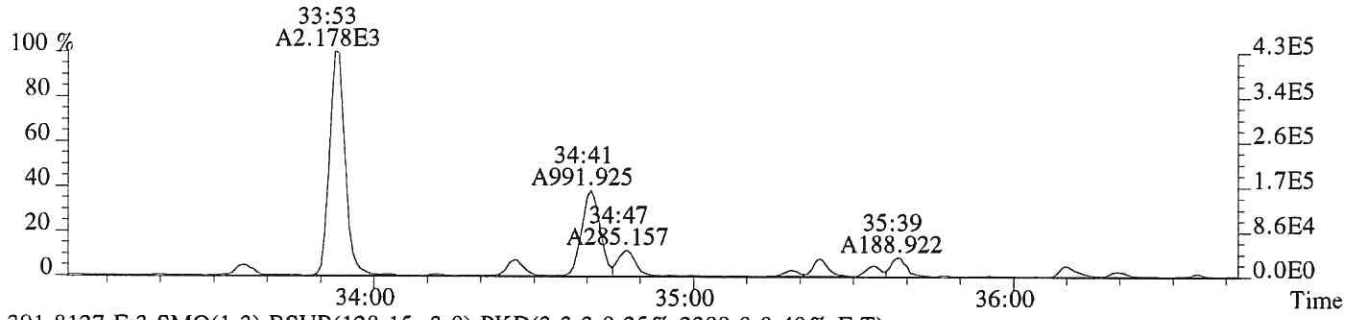
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



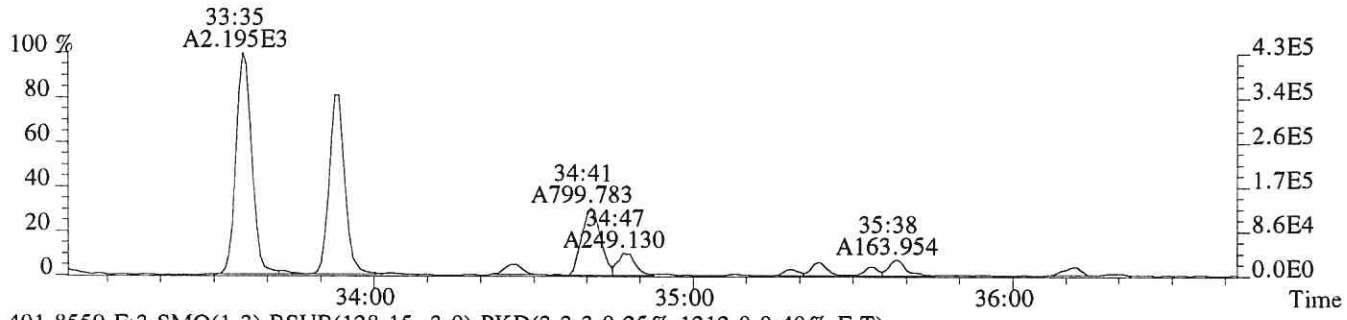
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



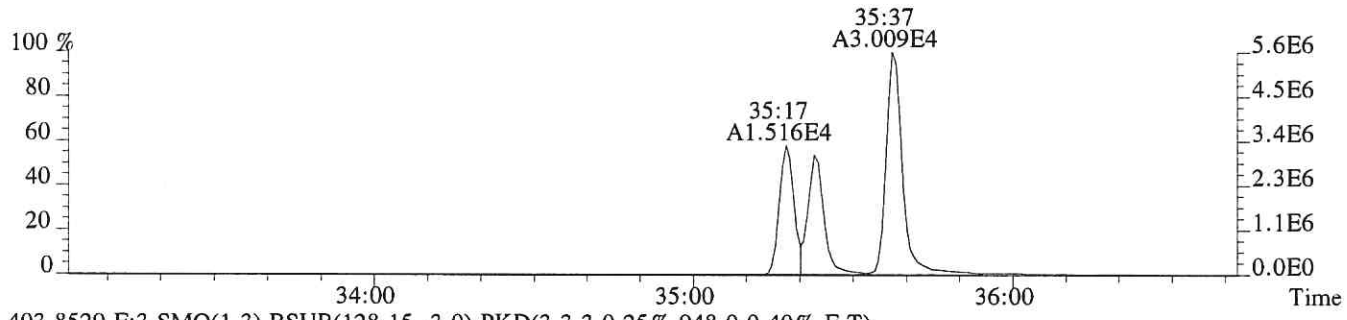
File:P518834 #1-330 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



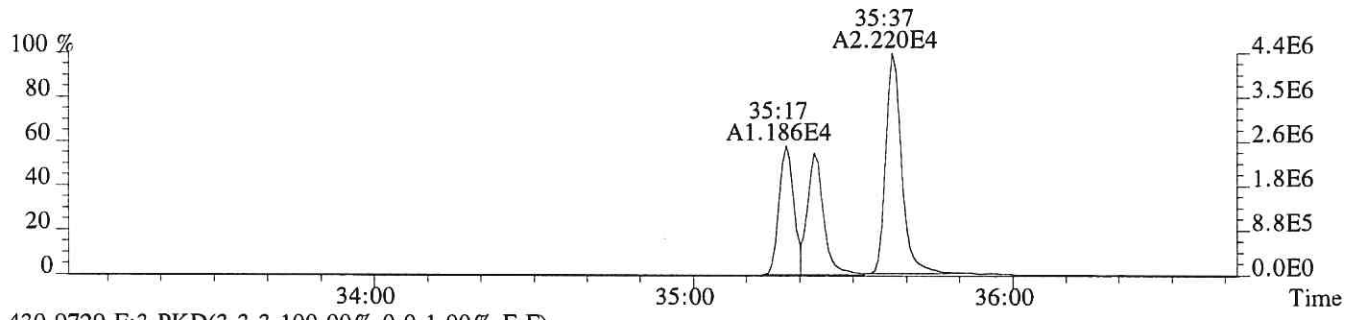
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2388.0,0.40%,F,T)



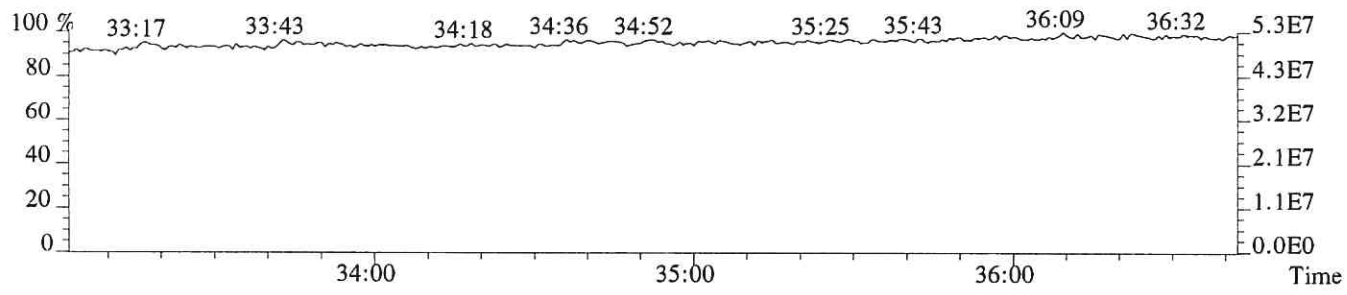
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



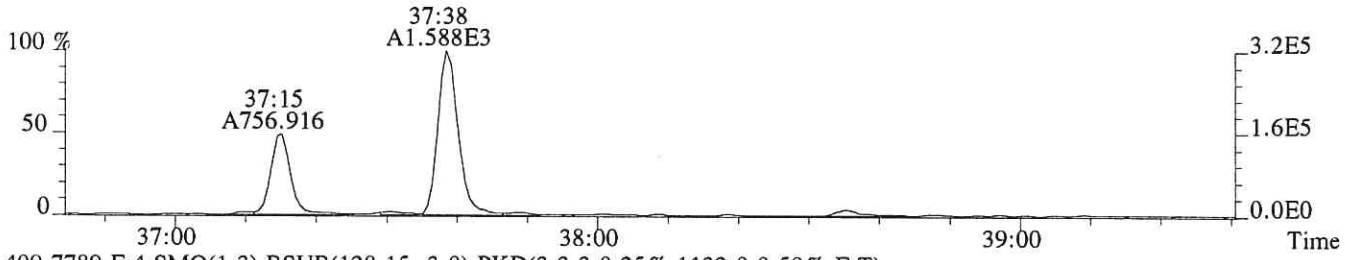
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



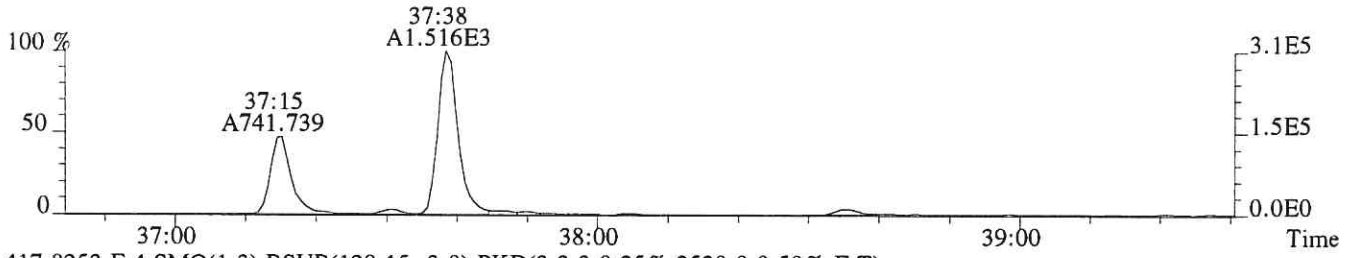
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



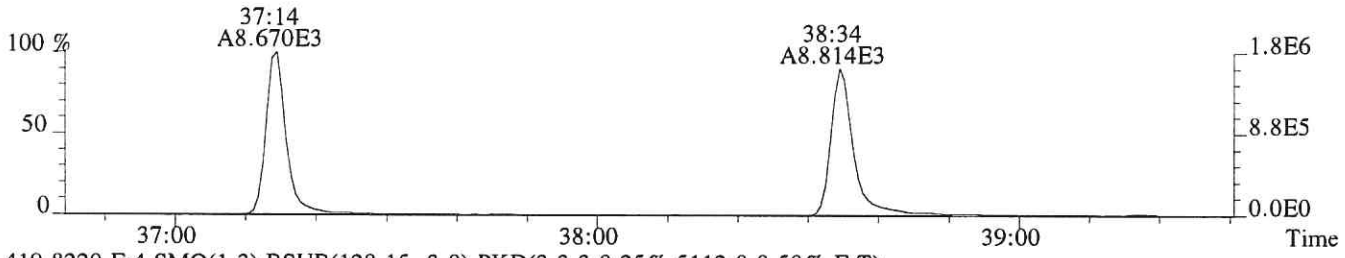
File:P518834 #1-250 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2668.0,0.50%,F,T)



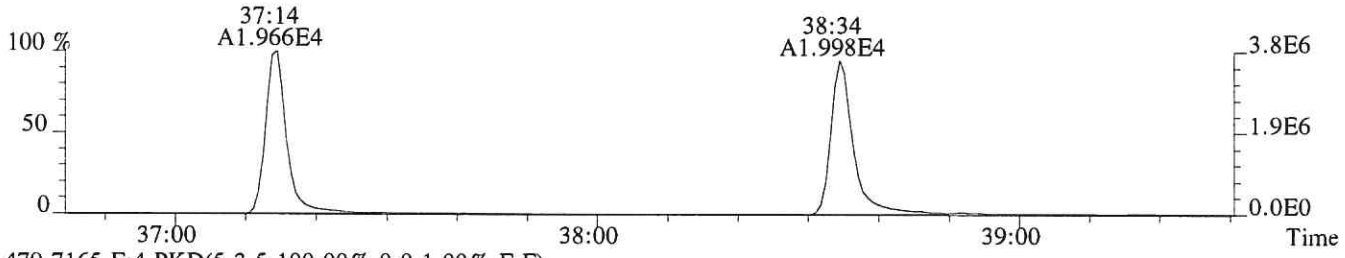
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.50%,F,T)



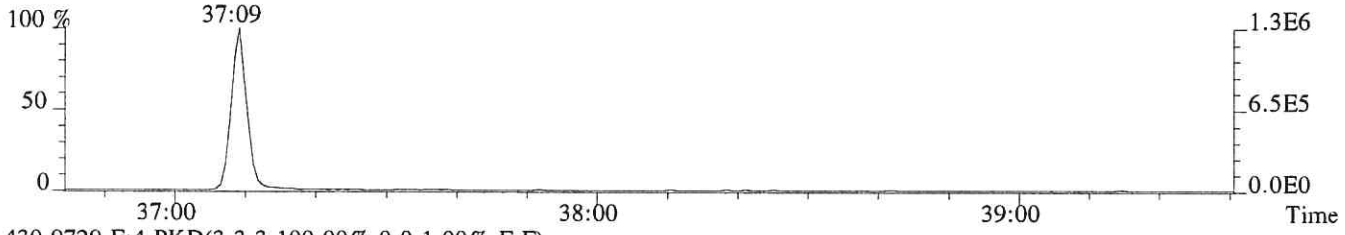
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2520.0,0.50%,F,T)



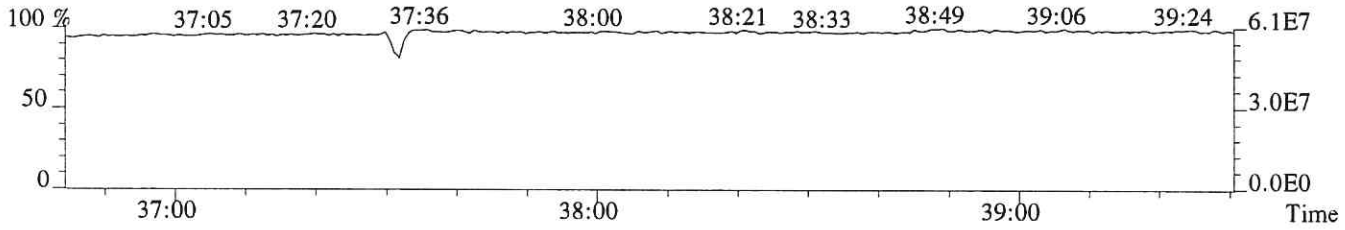
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5112.0,0.50%,F,T)



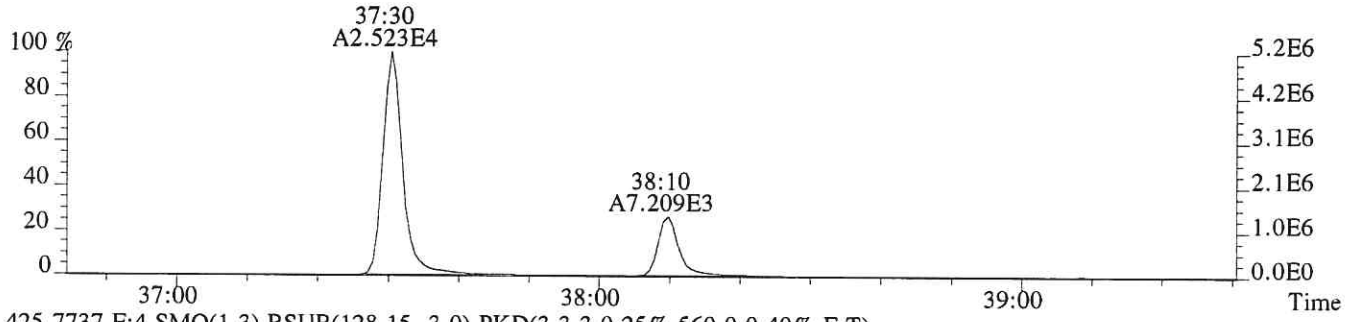
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



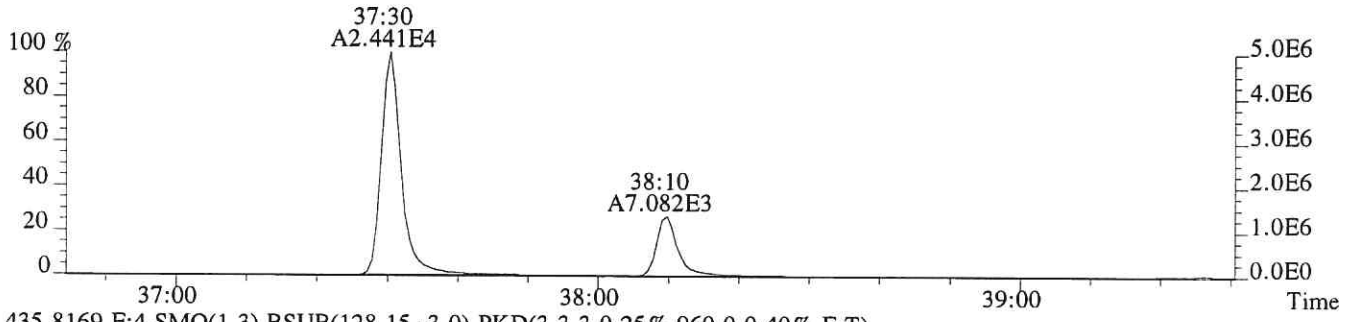
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



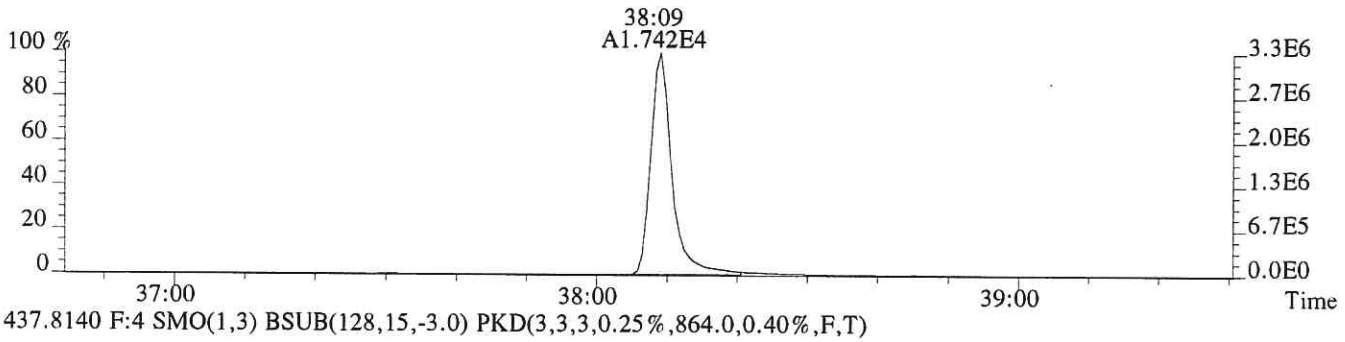
File:P518834 #1-250 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



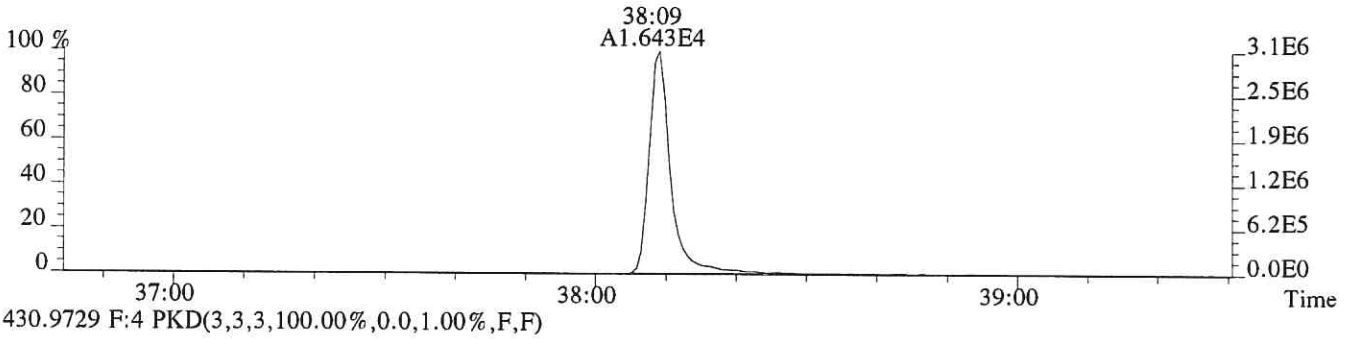
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



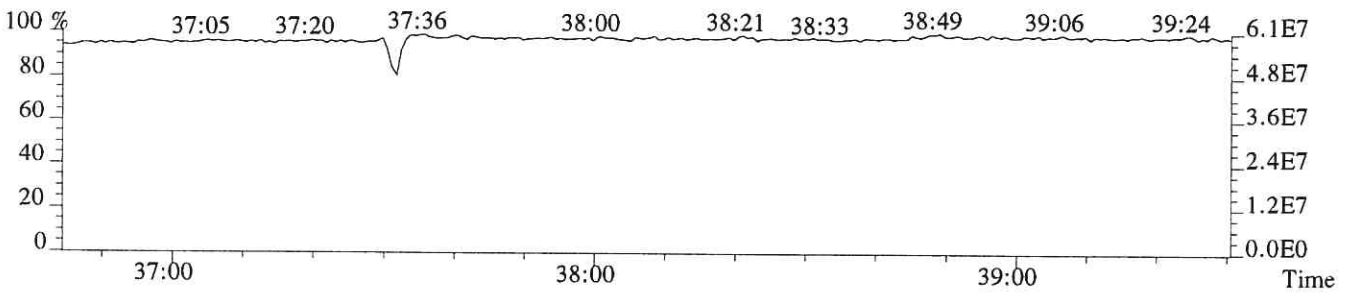
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



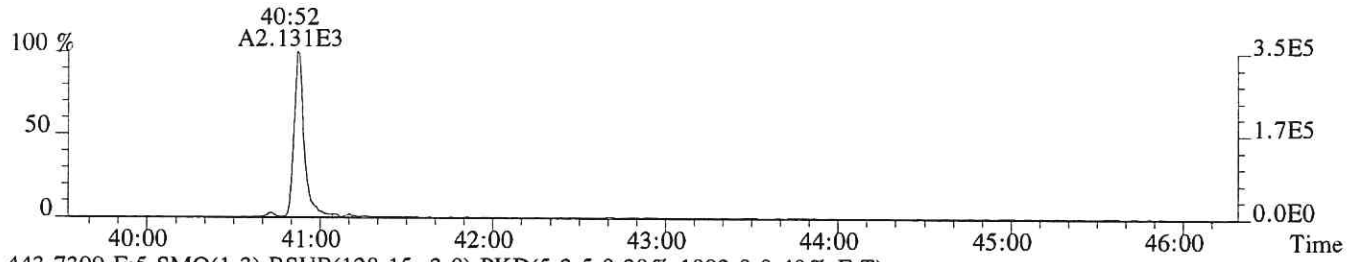
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



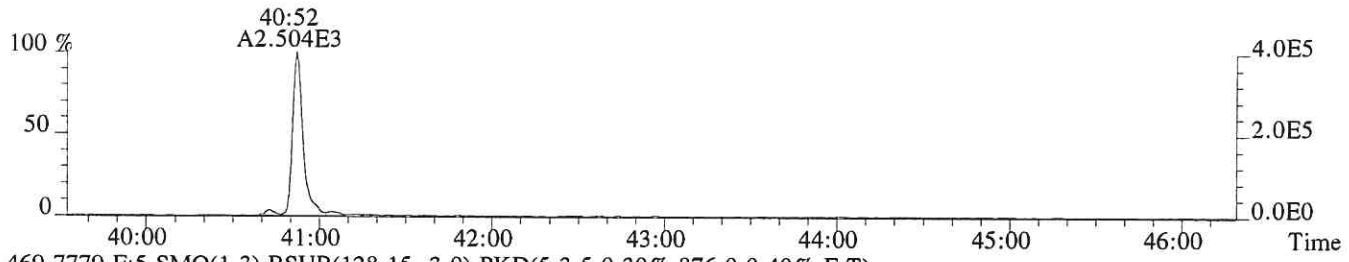
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



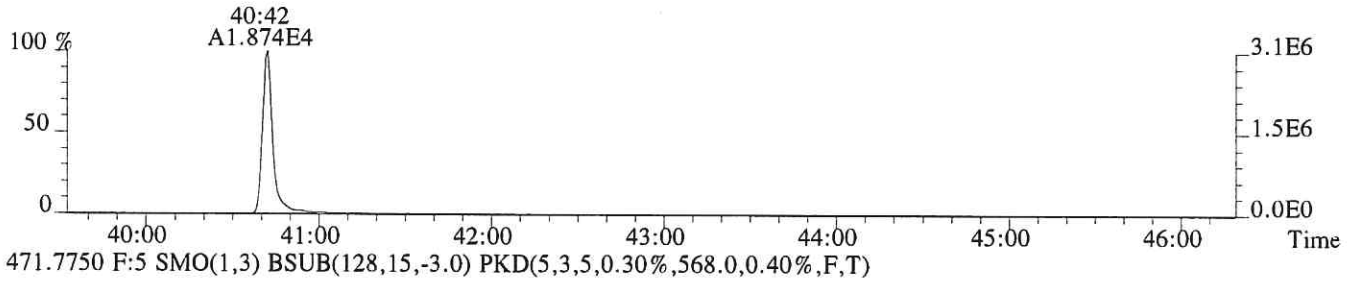
File:P518834 #1-610 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



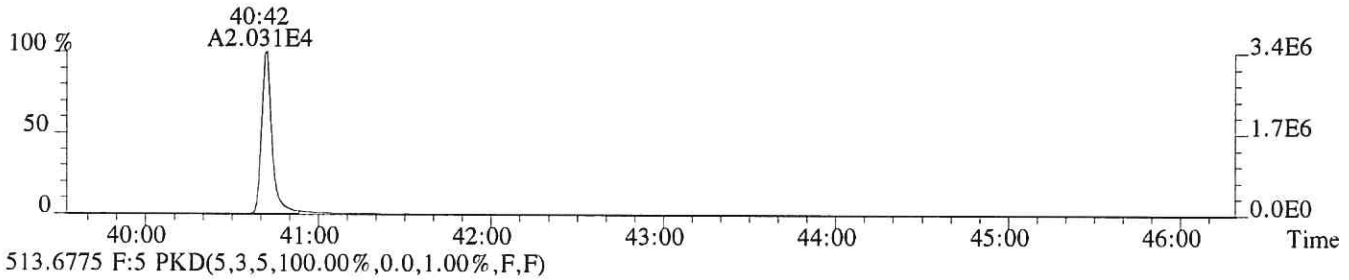
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



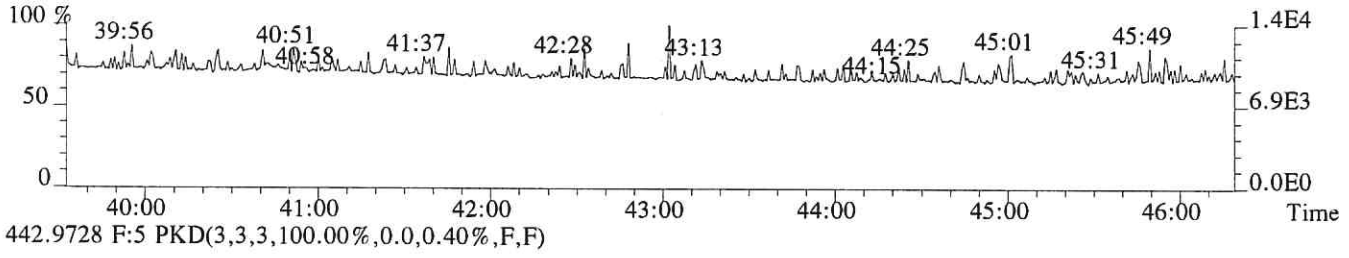
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



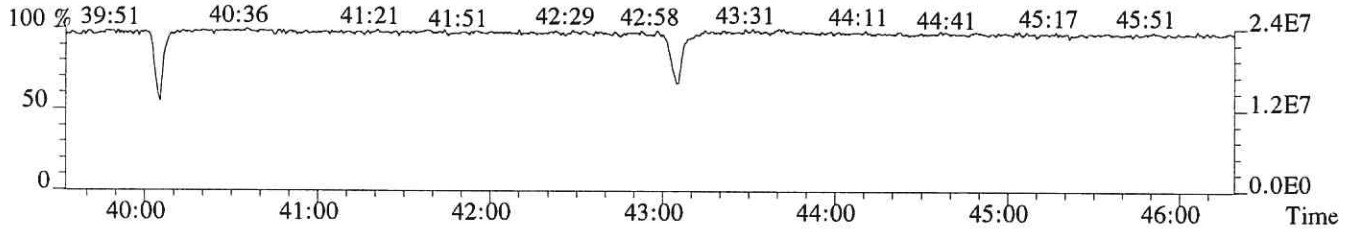
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



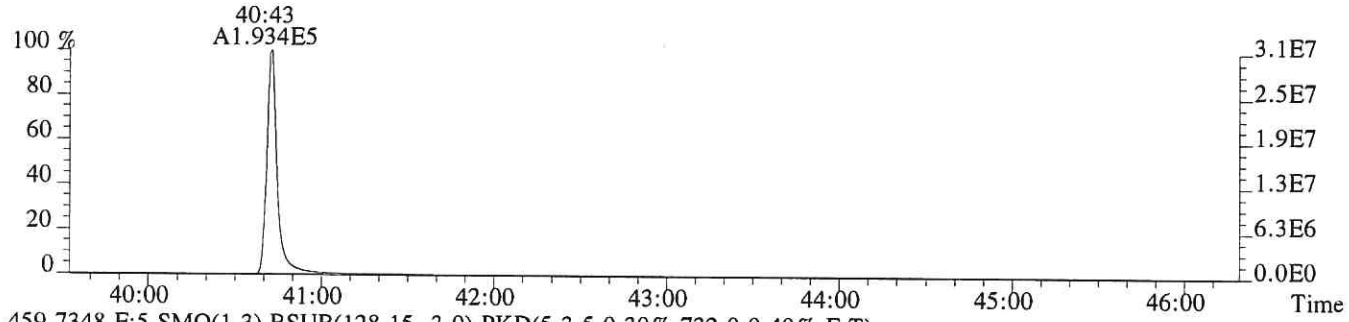
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



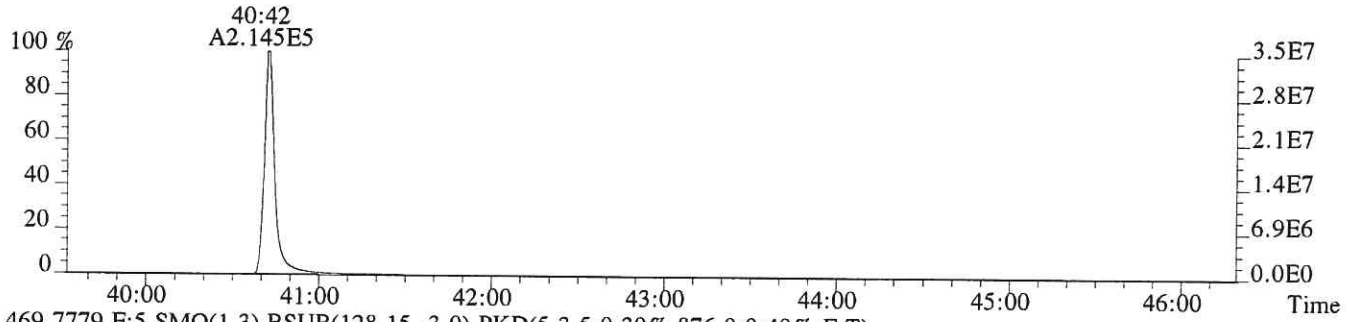
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



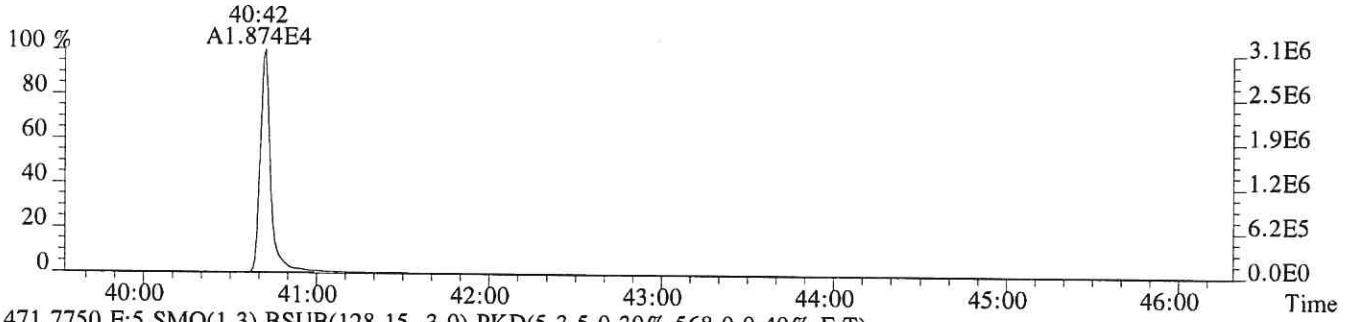
File:P518834 #1-610 Acq:15-NOV-2018 20:50:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,852.0,0.40%,F,T)



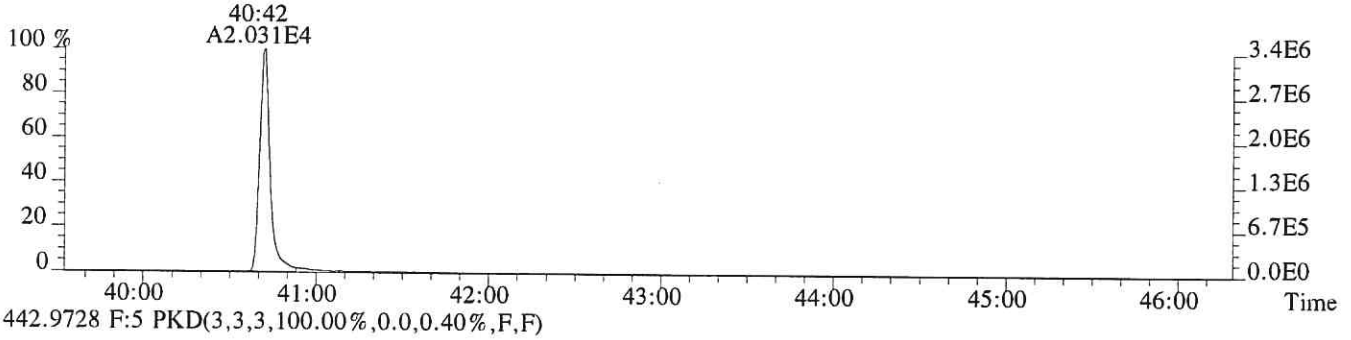
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



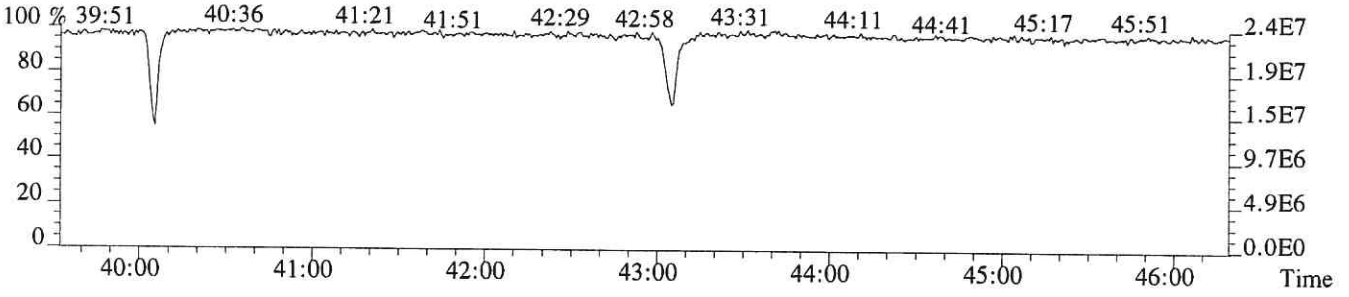
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0501

Run #18 Filename P518835 Samp: 1 Inj: 1 Acquired: 15-NOV-18 21:39:31
Processed: 16-NOV-18 14:10:49 Sample ID: E1801018-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	2.132e+02	2.619e+02	0.81	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.562e+01	1.666e+01	0.94	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	9.936e+01	9.644e+01	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	2.990e+02	4.173e+02	0.72	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	5.907e+01	6.544e+01	0.90	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	1.928e+01	1.549e+01	1.25	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	4.851e+01	2.367e+01	2.05	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	4.918e+01	6.370e+01	0.77	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	1.143e+02	1.107e+02	1.03	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	3.472e+03	3.125e+03	1.11	yes	yes	1.025
17	Unk	OCDD	40:42	1.310e+05	1.459e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	1.139e+04	1.435e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.163e+04	1.360e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.099e+04	1.335e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	9.672e+03	1.954e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.371e+04	2.614e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.210e+04	2.305e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.109e+04	2.151e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.209e+03	2.062e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.770e+03	2.040e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	7.680e+03	9.996e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.552e+04	9.486e+03	1.64	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.518e+04	1.179e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.652e+04	1.270e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	2.023e+04	1.871e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:41	2.181e+04	2.445e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	1.812e+04	2.284e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.228e+04	2.481e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	9.178e+03				no	1.014

$$\text{OCDD} = \frac{(1.310e+05 + 1.459e+05) \times 4000 \text{ pg} \times 1}{(2.181e+04 + 2.445e+04) \times 10.2 \text{ g} \times 72.1 / 100 \times 1.118} = 2752 \text{ ng/kg}$$

LM 11/26/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0501

Run #18 Filename P518835 Samp: 1 Inj: 1 Acquired: 15-NOV-18 21:39:31
Processed: 16-NOV-18 14:10:49 LAB. ID: E1801018-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.42e+04	8.36e+02	4.1e+01	3.88e+04	2.00e+03	1.9e+01
2	1,2,3,7,8-PeCDF	*	9.56e+02	*	*	1.98e+03	*
3	2,3,4,7,8-PeCDF	*	9.56e+02	*	*	1.98e+03	*
4	1,2,3,4,7,8-HxCDF	3.50e+03	6.56e+02	5.3e+00	4.02e+03	1.35e+03	3.0e+00
5	1,2,3,6,7,8-HxCDF	*	6.56e+02	*	*	1.35e+03	*
6	2,3,4,6,7,8-HxCDF	*	6.56e+02	*	*	1.35e+03	*
7	1,2,3,7,8,9-HxCDF	*	6.56e+02	*	*	1.35e+03	*
8	1,2,3,4,6,7,8-HpCDF	1.97e+04	4.24e+02	4.6e+01	1.66e+04	3.60e+02	4.6e+01
9	1,2,3,4,7,8,9-HpCDF	*	4.24e+02	*	*	3.60e+02	*
10	OCDF	3.84e+04	2.80e+02	1.4e+02	6.44e+04	7.72e+02	8.3e+01
11	2,3,7,8-TCDD	7.67e+03	2.28e+03	3.4e+00	1.22e+04	9.64e+02	1.3e+01
12	1,2,3,7,8-PeCDD	4.98e+03	9.40e+02	5.3e+00	3.57e+03	5.12e+02	7.0e+00
13	1,2,3,4,7,8-HxCDD	1.02e+04	8.88e+02	1.1e+01	5.21e+03	1.57e+03	3.3e+00
14	1,2,3,6,7,8-HxCDD	1.06e+04	8.88e+02	1.2e+01	1.22e+04	1.57e+03	7.7e+00
15	1,2,3,7,8,9-HxCDD	2.13e+04	8.88e+02	2.4e+01	2.17e+04	1.57e+03	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	6.13e+05	2.70e+03	2.3e+02	5.57e+05	2.69e+03	2.1e+02
17	OCDD	2.07e+07	3.36e+02	6.2e+04	2.32e+07	2.64e+02	8.8e+04
18	13C-2,3,7,8-TCDF	1.55e+06	6.06e+03	2.6e+02	1.96e+06	3.80e+03	5.1e+02
19	13C-1,2,3,7,8-PeCDF	3.39e+06	6.24e+02	5.4e+03	2.11e+06	4.48e+02	4.7e+03
20	13C-2,3,4,7,8-PeCDF	3.61e+06	6.24e+02	5.8e+03	2.34e+06	4.48e+02	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.93e+06	4.56e+02	4.2e+03	3.83e+06	6.40e+02	6.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.38e+06	4.56e+02	5.2e+03	4.60e+06	6.40e+02	7.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.22e+06	4.56e+02	4.9e+03	4.21e+06	6.40e+02	6.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.88e+06	4.56e+02	4.1e+03	3.67e+06	6.40e+02	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.78e+06	2.22e+03	8.0e+02	4.08e+06	3.08e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.59e+06	2.22e+03	7.2e+02	3.48e+06	3.08e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.16e+06	5.21e+03	2.2e+02	1.46e+06	2.22e+03	6.6e+02
28	13C-1,2,3,7,8-PeCDD	2.64e+06	1.00e+03	2.6e+03	1.59e+06	6.96e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.21e+06	1.23e+03	2.6e+03	2.56e+06	1.04e+03	2.5e+03
30	13C-1,2,3,6,7,8-HxCDD	3.01e+06	1.23e+03	2.4e+03	2.38e+06	1.04e+03	2.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.56e+06	4.96e+02	7.2e+03	3.30e+06	2.48e+02	1.3e+04
32	13C-OCDD	3.42e+06	6.68e+02	5.1e+03	3.89e+06	2.44e+02	1.6e+04
33	13C-1,2,3,4-TCDD	2.74e+06	5.21e+03	5.2e+02	3.44e+06	2.22e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	5.81e+06	1.23e+03	4.7e+03	4.60e+06	1.04e+03	4.4e+03
35	37Cl-2,3,7,8-TCDD	1.36e+06	9.92e+02	1.4e+03			

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Peak List Summary

CLIENT ID.
SL0501

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P518835 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 21:39:31 Processed: 16-NOV-18 14:10:49

Mass: 303.9020 305.8990 Tot Response: 6.55e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	21:59	7.44e+01	1.06e+02	0.70	yes	1.80e+02		n	n
2	25:34	2.13e+02	2.62e+02	0.81	yes	4.75e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0501

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P518835 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 21:39:31 Processed: 16-NOV-18 14:10:49

Mass: 355.8550 357.8520 Tot Response: 2.94e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:34	1.79e+01	1.22e+01	1.46	yes	3.01e+01		n	n
2	30:06	7.48e+01	4.45e+01	1.68	yes	1.19e+02		n	n
3	30:48	2.64e+01	1.94e+01	1.36	yes	4.58e+01		n	n
4	30:54	6.13e+01	3.78e+01	1.62	yes	9.92e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0501

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P518835 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 21:39:31 Processed: 16-NOV-18 14:10:49

Mass: 373.8210 375.8180 Tot Response: 9.97e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:29	5.77e+01	4.19e+01 1.38	yes	9.97e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0501

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P518835 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 21:39:31 Processed: 16-NOV-18 14:10:49

Mass: 389.8160 391.8130 Tot Response: 1.77e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	9.11e+02	7.98e+02	1.14	yes	1.71e+03		n	n
2	35:33	3.12e+01	2.74e+01	1.14	yes	5.85e+01		n	n

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Peak List Summary

CLIENT ID.
SL0501

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P518835 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 21:39:31 Processed: 16-NOV-18 14:10:49

Mass: 407.7820 409.7790 Tot Response: 3.54e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	9.94e+01	9.64e+01 1.03	yes	1.96e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	8.30e+01	7.53e+01 1.10	yes	1.58e+02		n	n

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Peak List Summary

CLIENT ID.
SL0501

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P518835 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 21:39:31 Processed: 16-NOV-18 14:10:49

Mass: 423.7770 425.7740 Tot Response: 1.88e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	6.29e+03	5.88e+03	1.07	yes	1.22e+04		n	n
2	38:10	3.47e+03	3.13e+03	1.11	yes	6.60e+03	1,2,3,4,6,7,8-HpCDD	y	n

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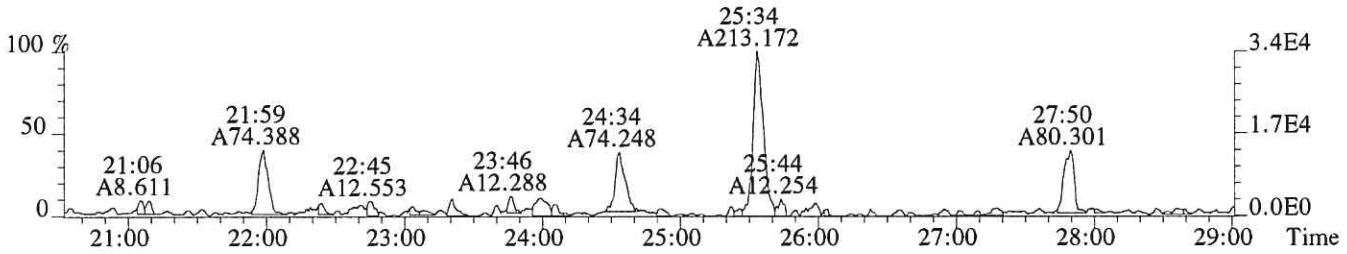
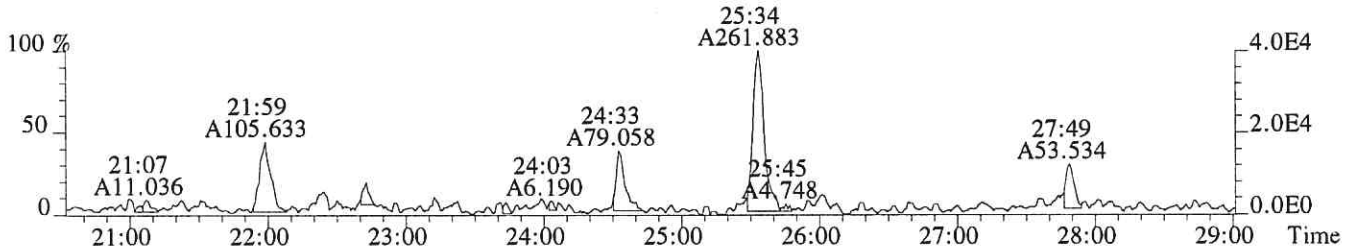
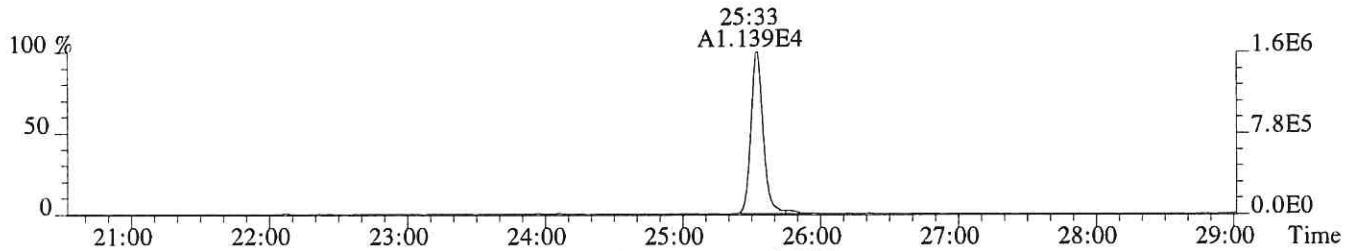
File:P518835 #1-602 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



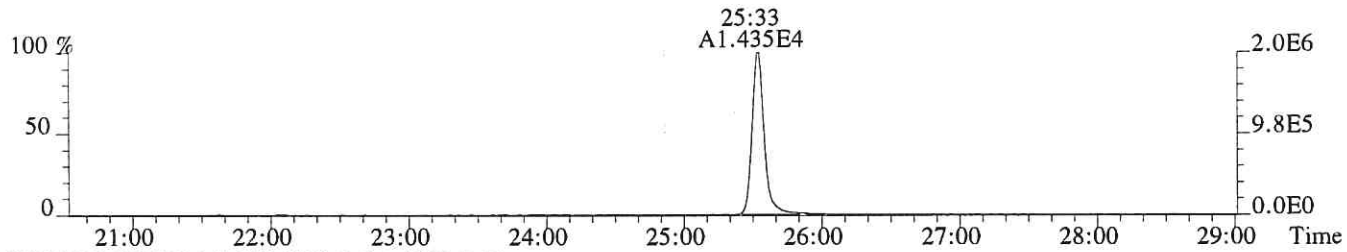
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



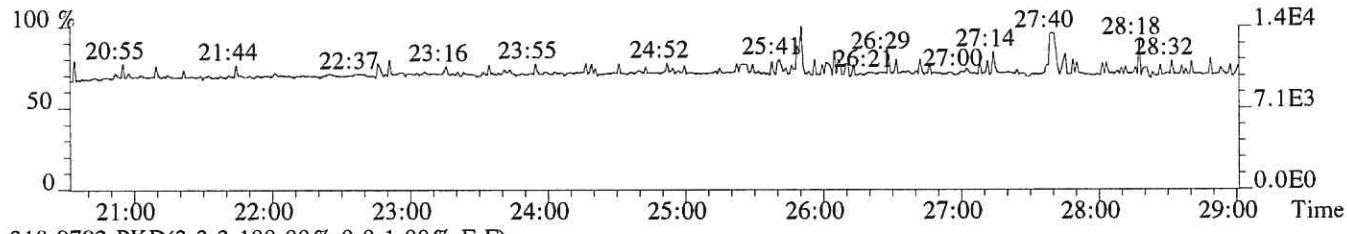
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6064.0,1.00%,F,T)



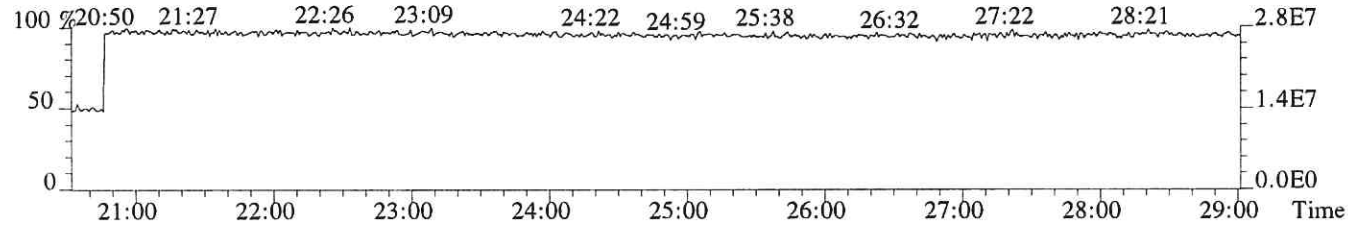
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3800.0,1.00%,F,T)



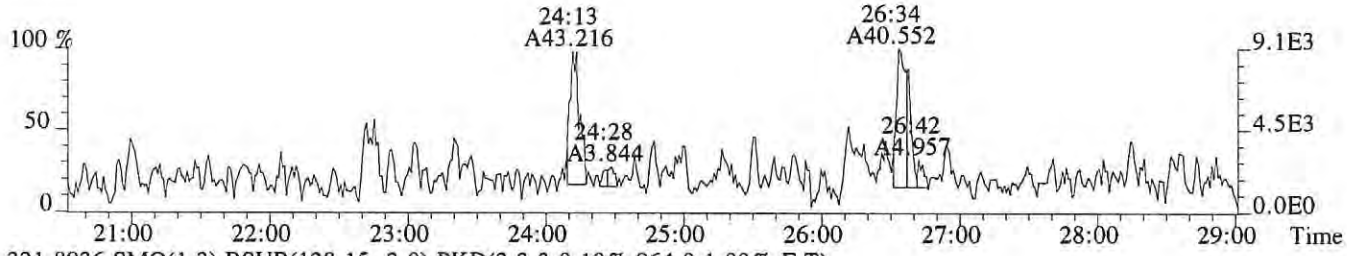
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



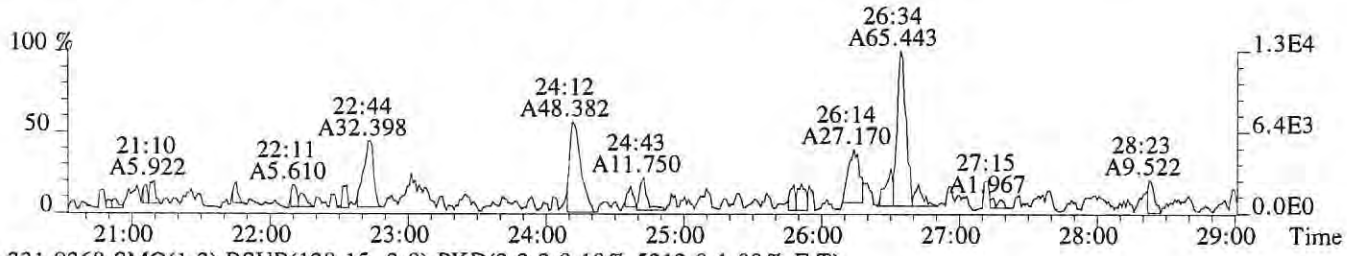
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



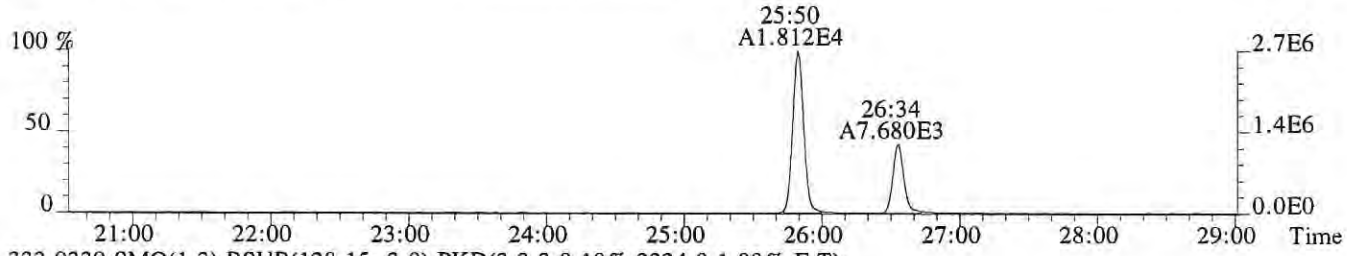
File:P518835 #1-602 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



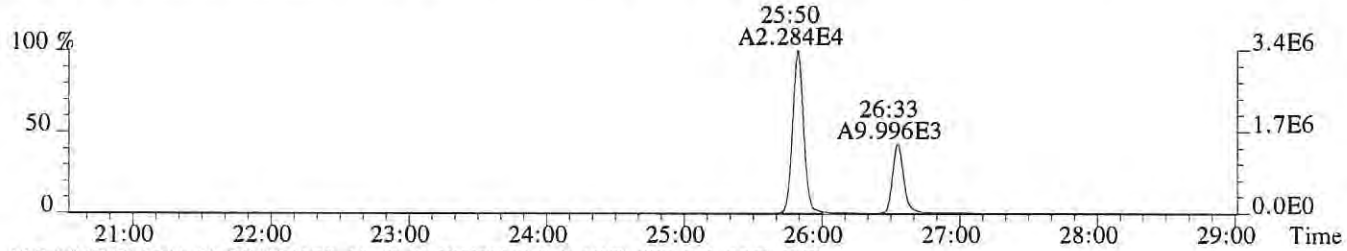
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



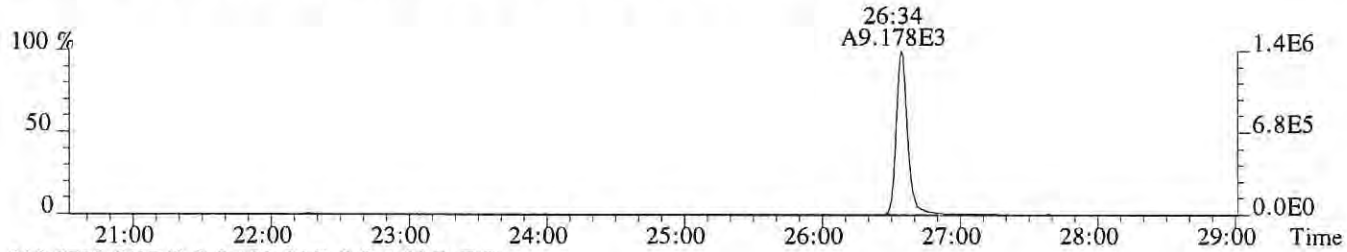
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5212.0,1.00%,F,T)



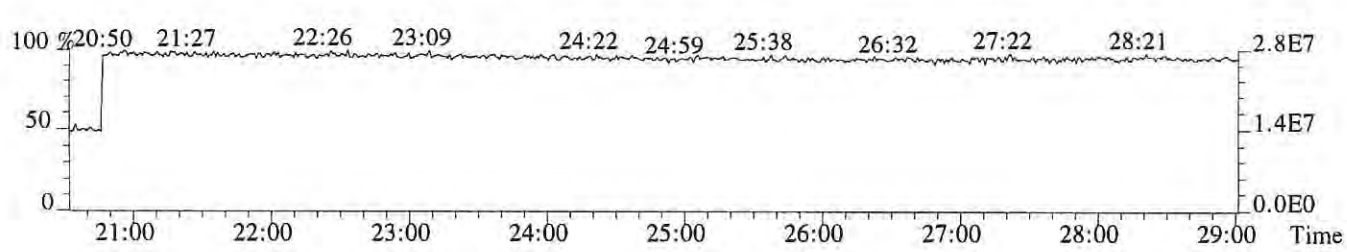
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2224.0,1.00%,F,T)



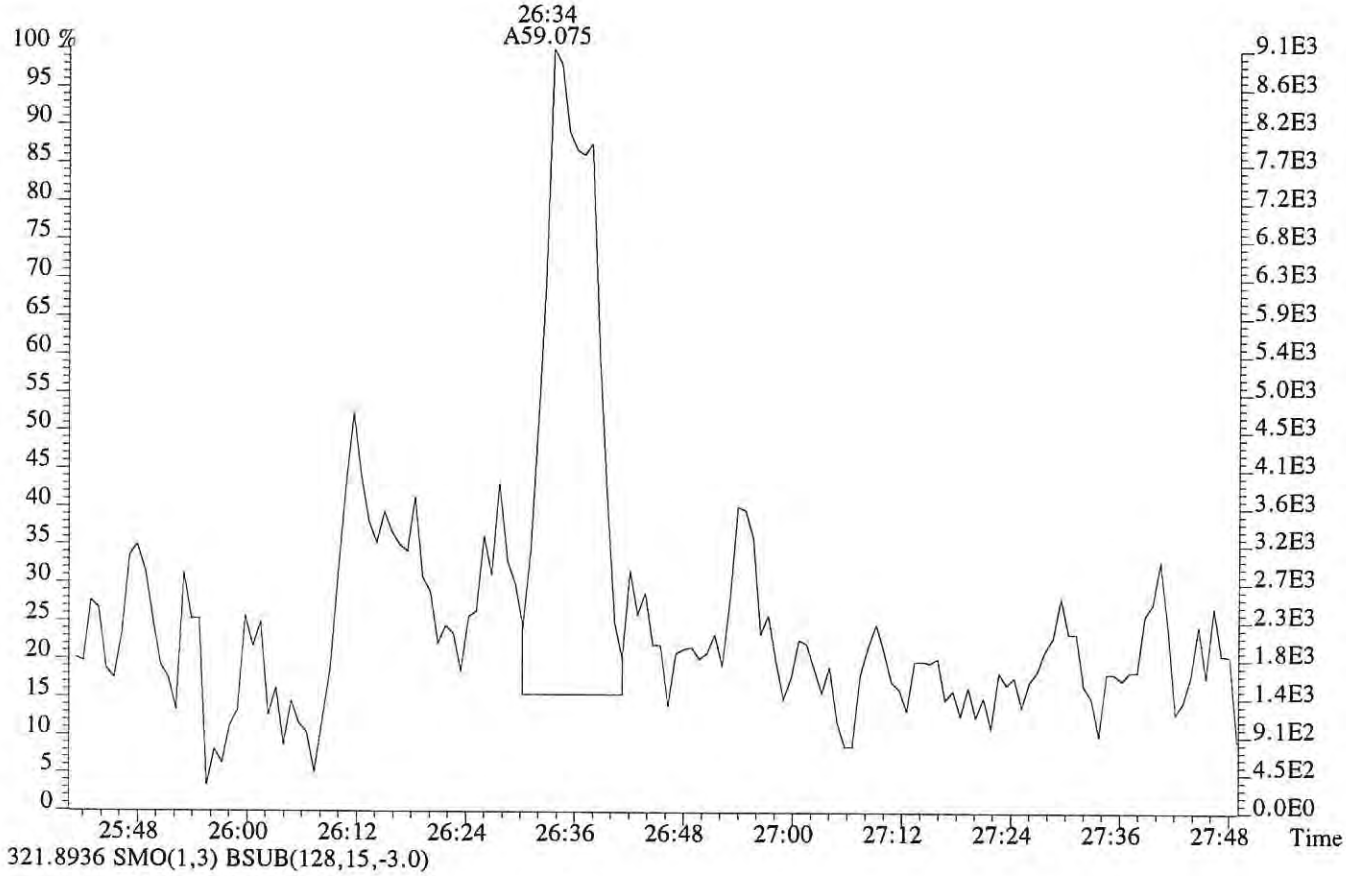
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



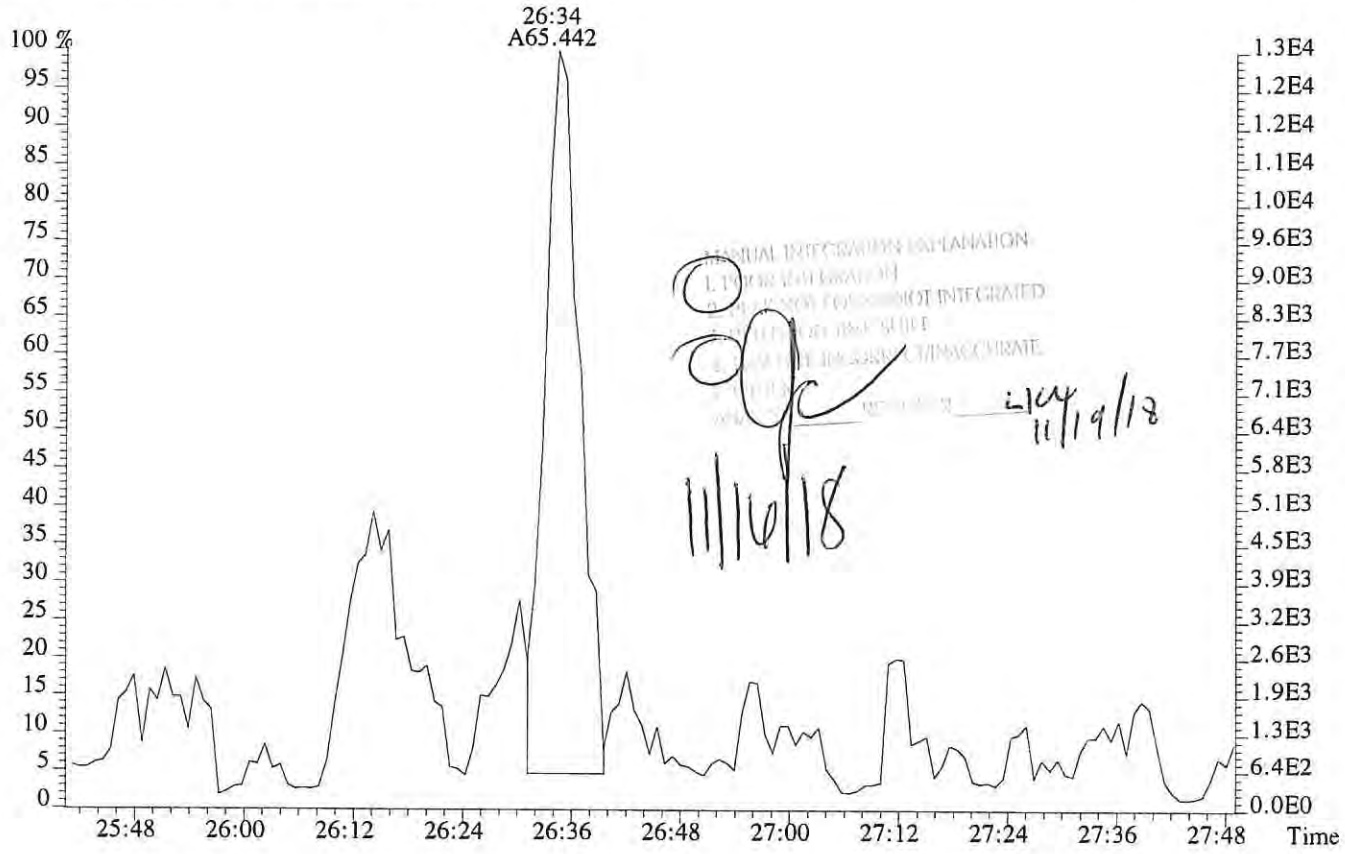
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518835 #1-602 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
319.8965 SMO(1,3) BSUB(128,15,-3.0)

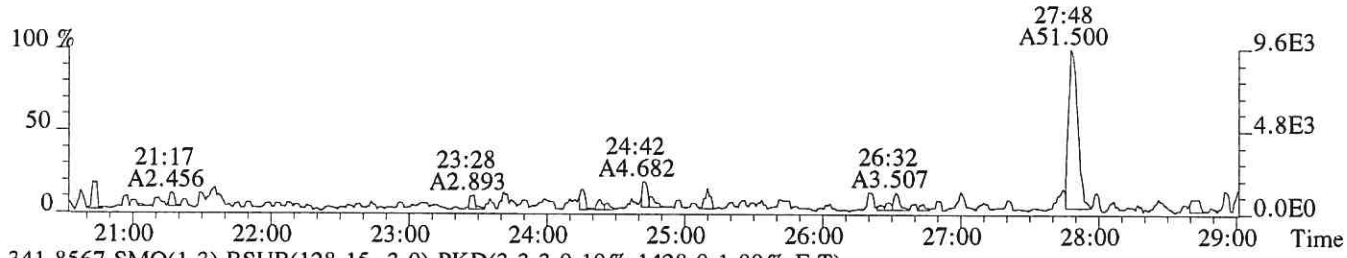


321.8936 SMO(1,3) BSUB(128,15,-3.0)

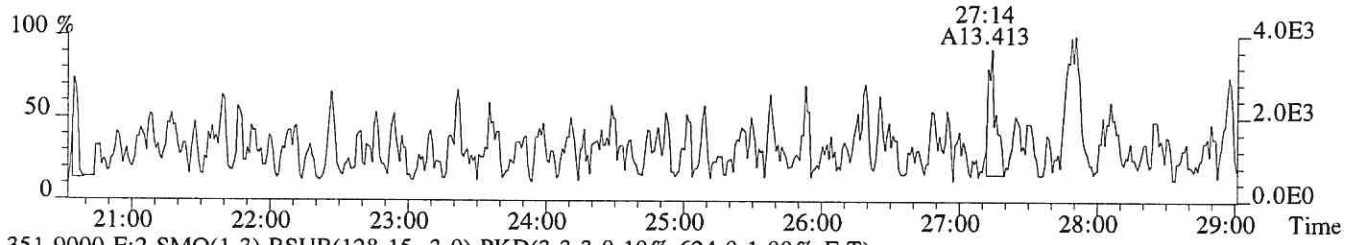


MANUAL INTEGRATION EXPLANATION
NOT INTEGRATED
INACCURATE
11/19/18
11/19/18

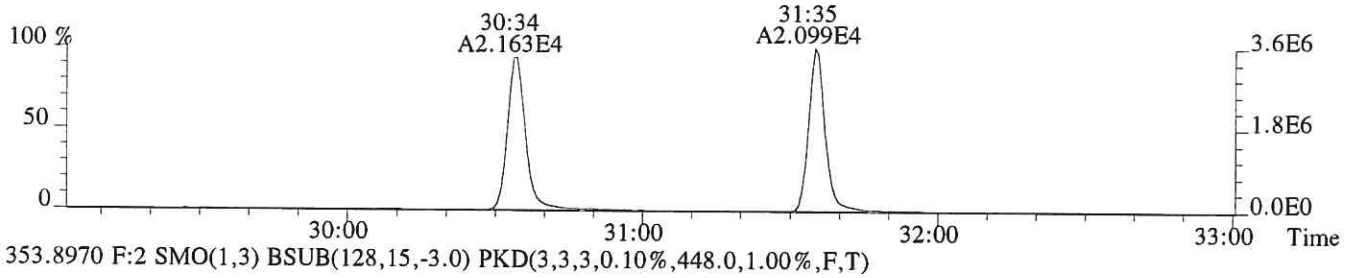
File:P518835 #1-602 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



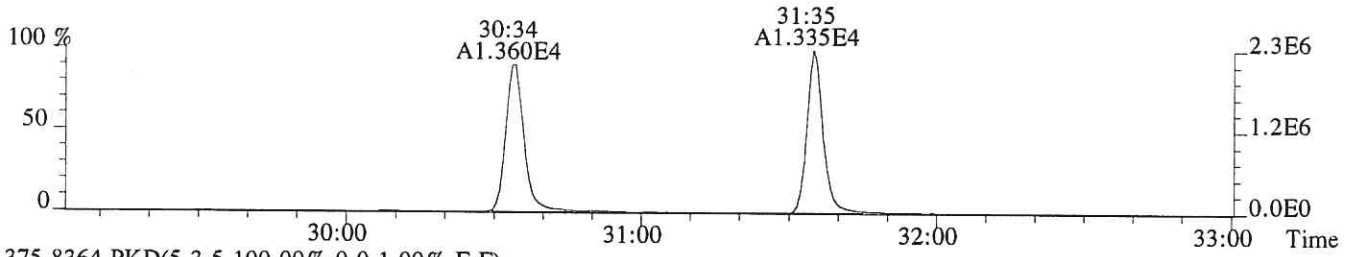
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



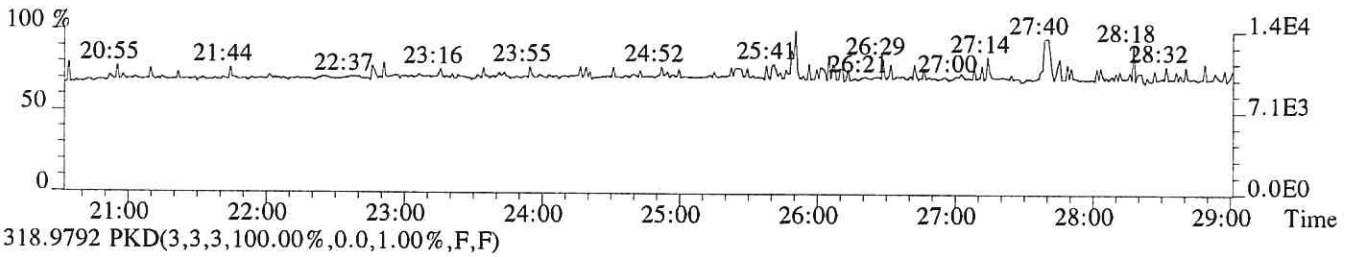
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



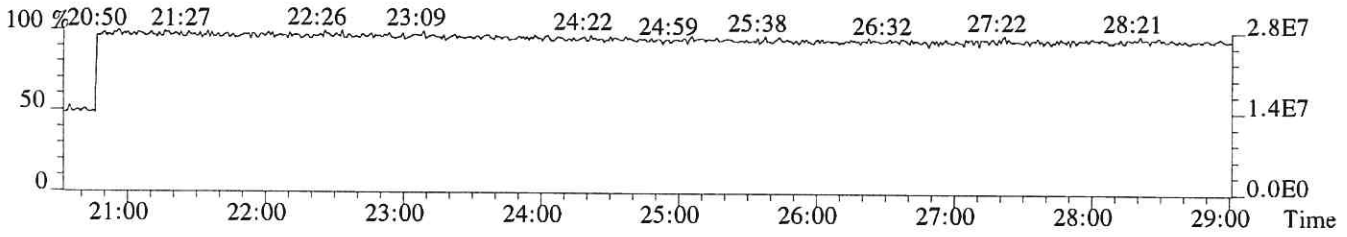
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



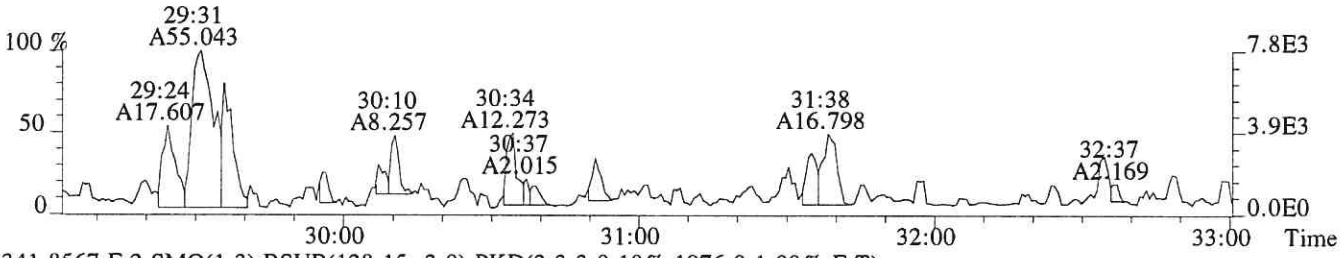
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



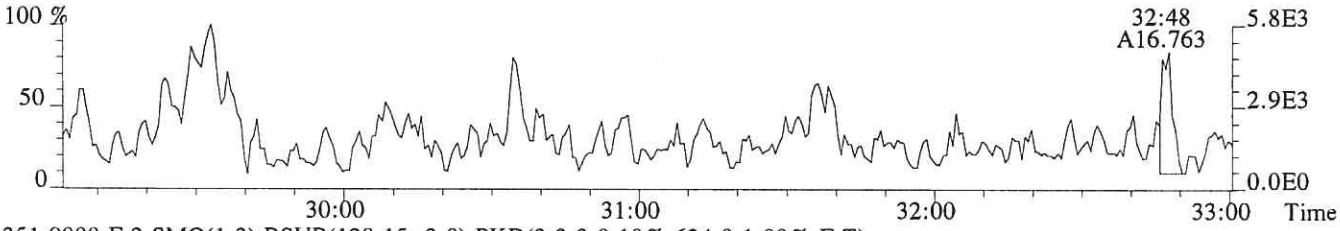
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



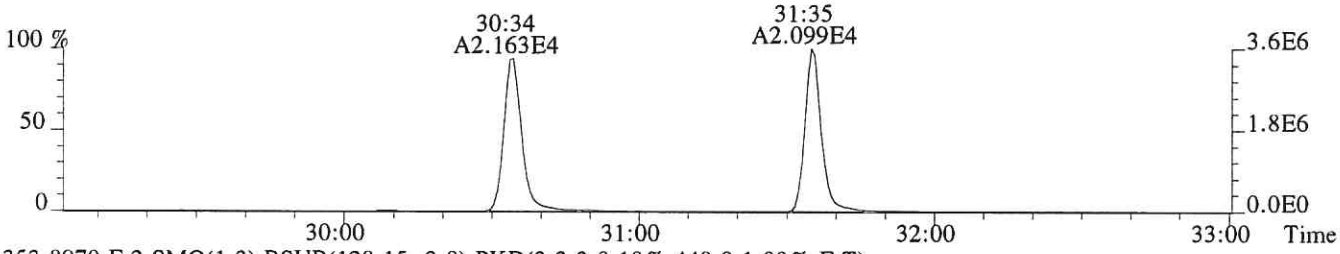
File:P518835 #1-357 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



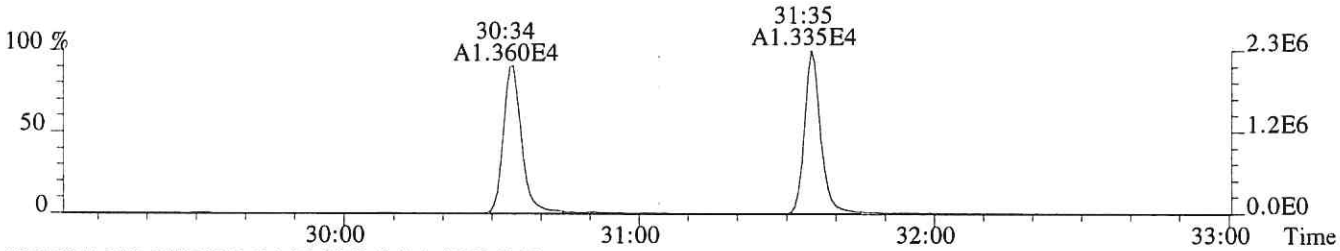
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



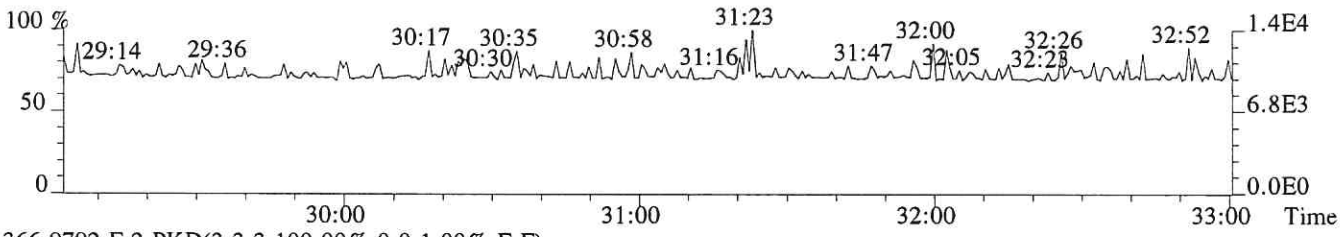
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



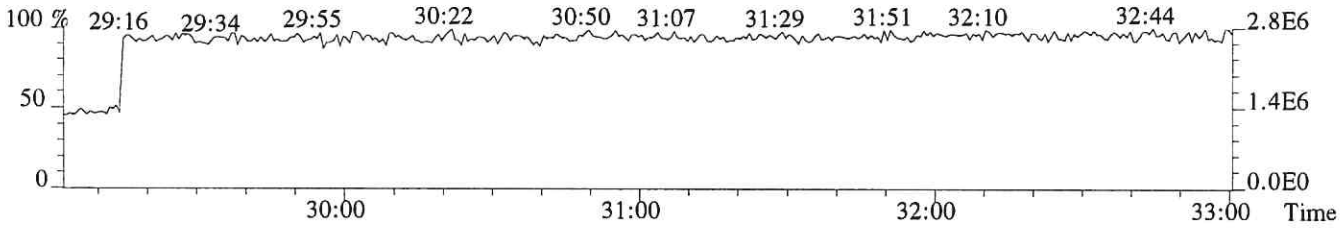
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



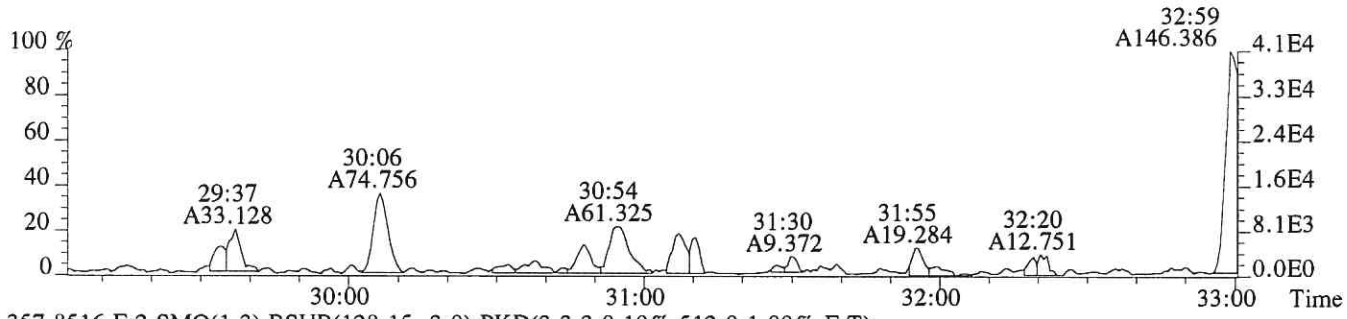
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



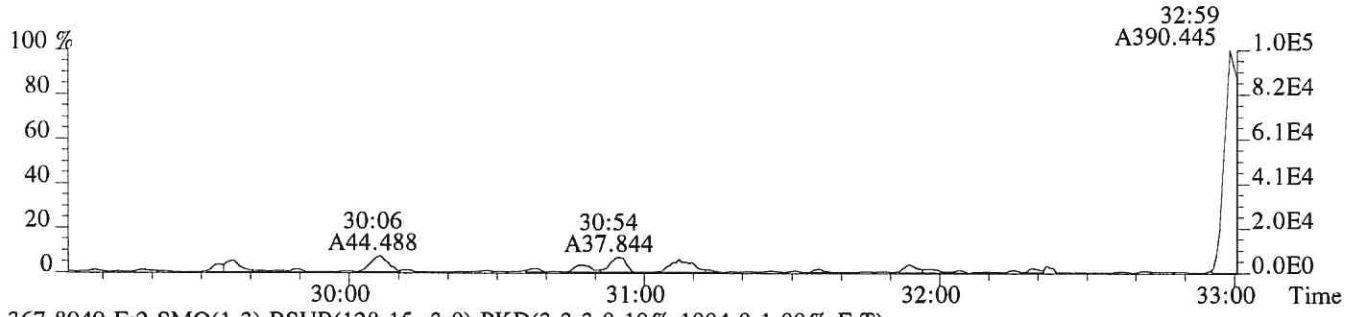
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



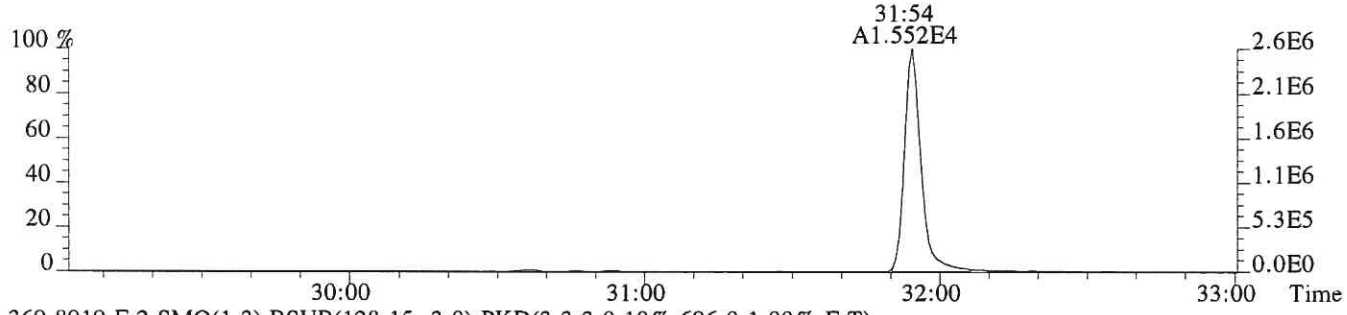
File:P518835 #1-357 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



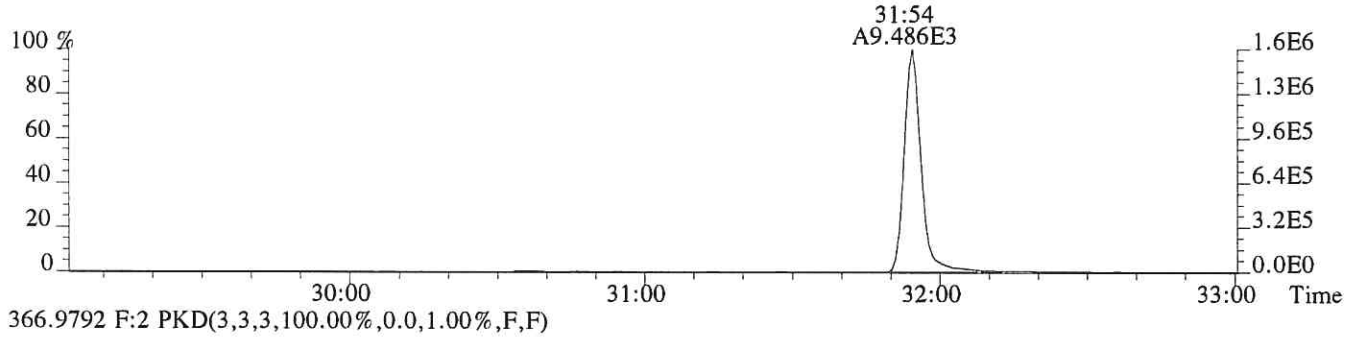
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



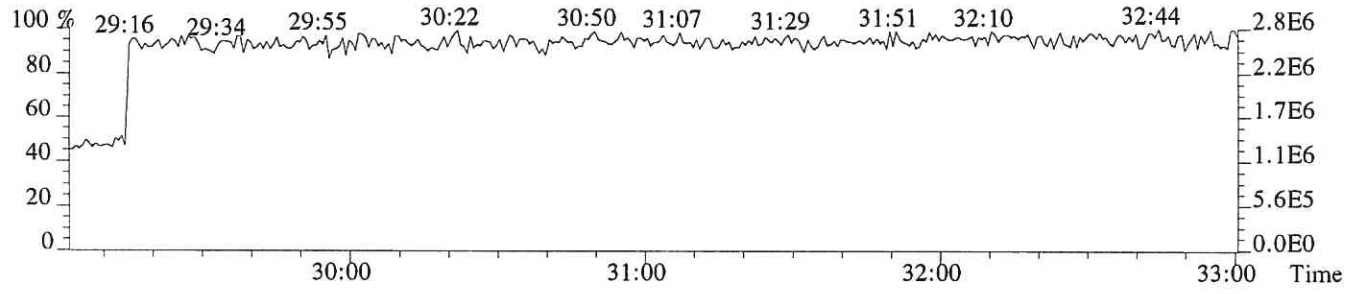
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



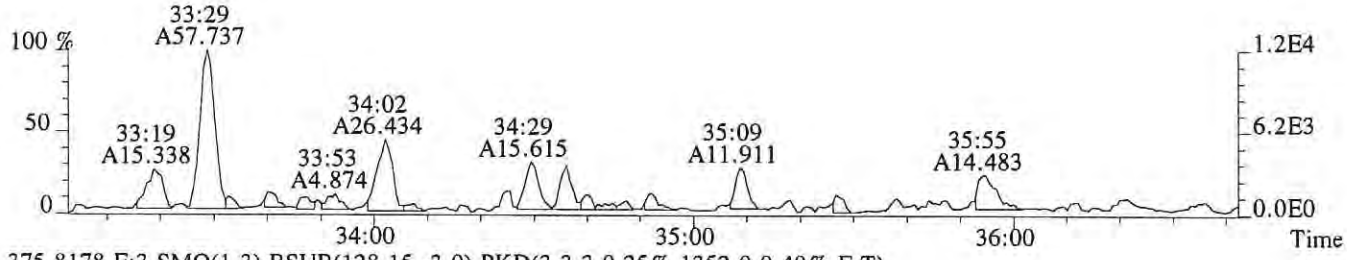
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



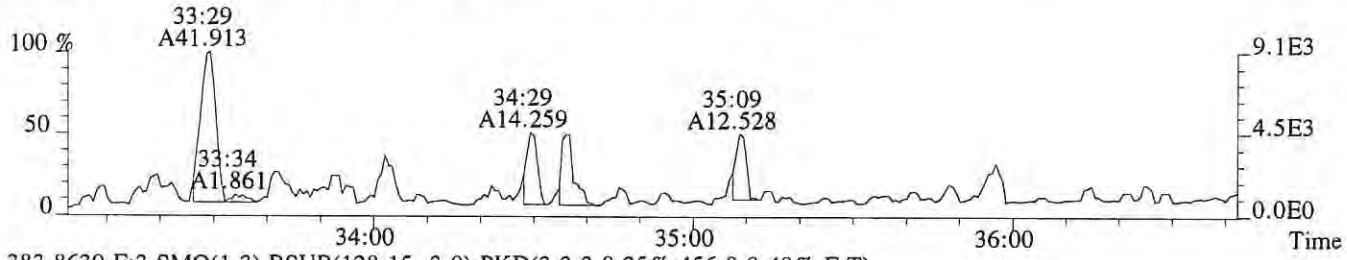
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



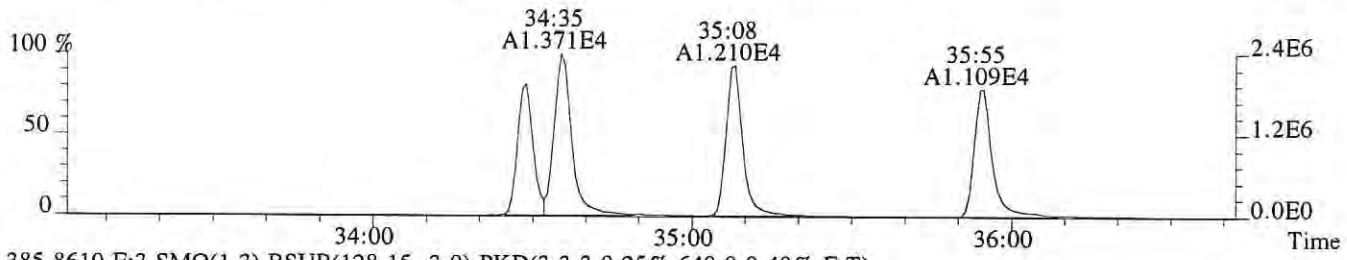
File:P518835 #1-330 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



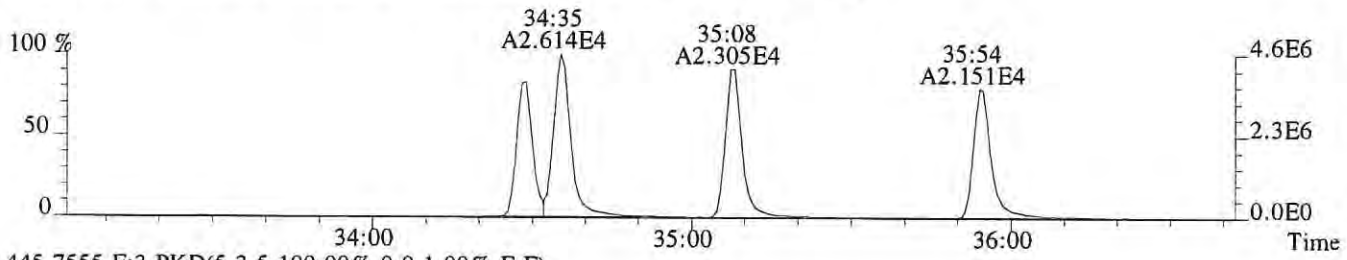
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



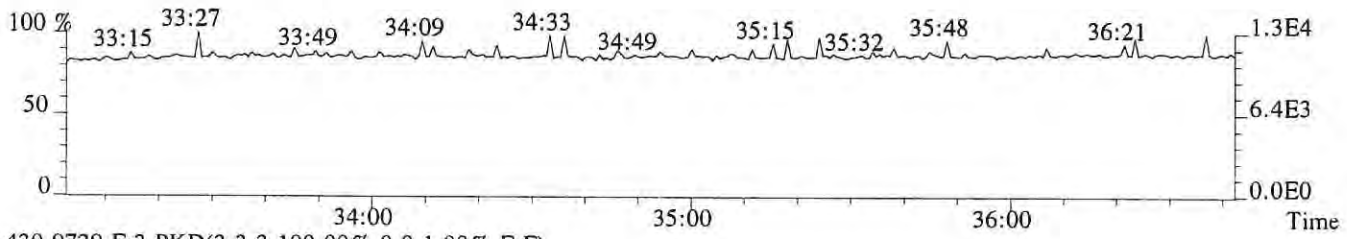
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



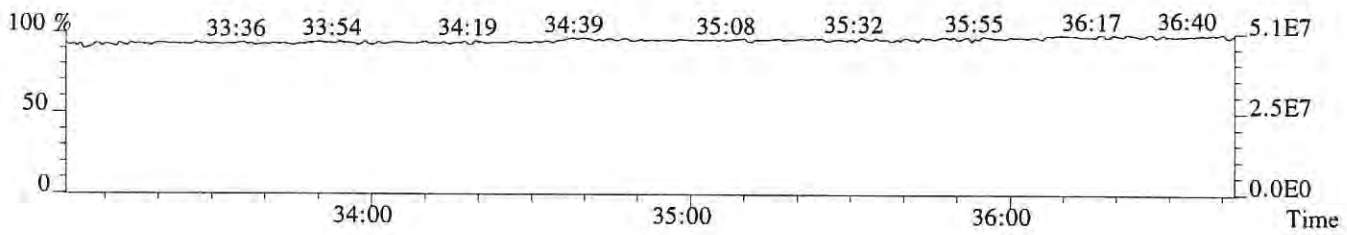
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



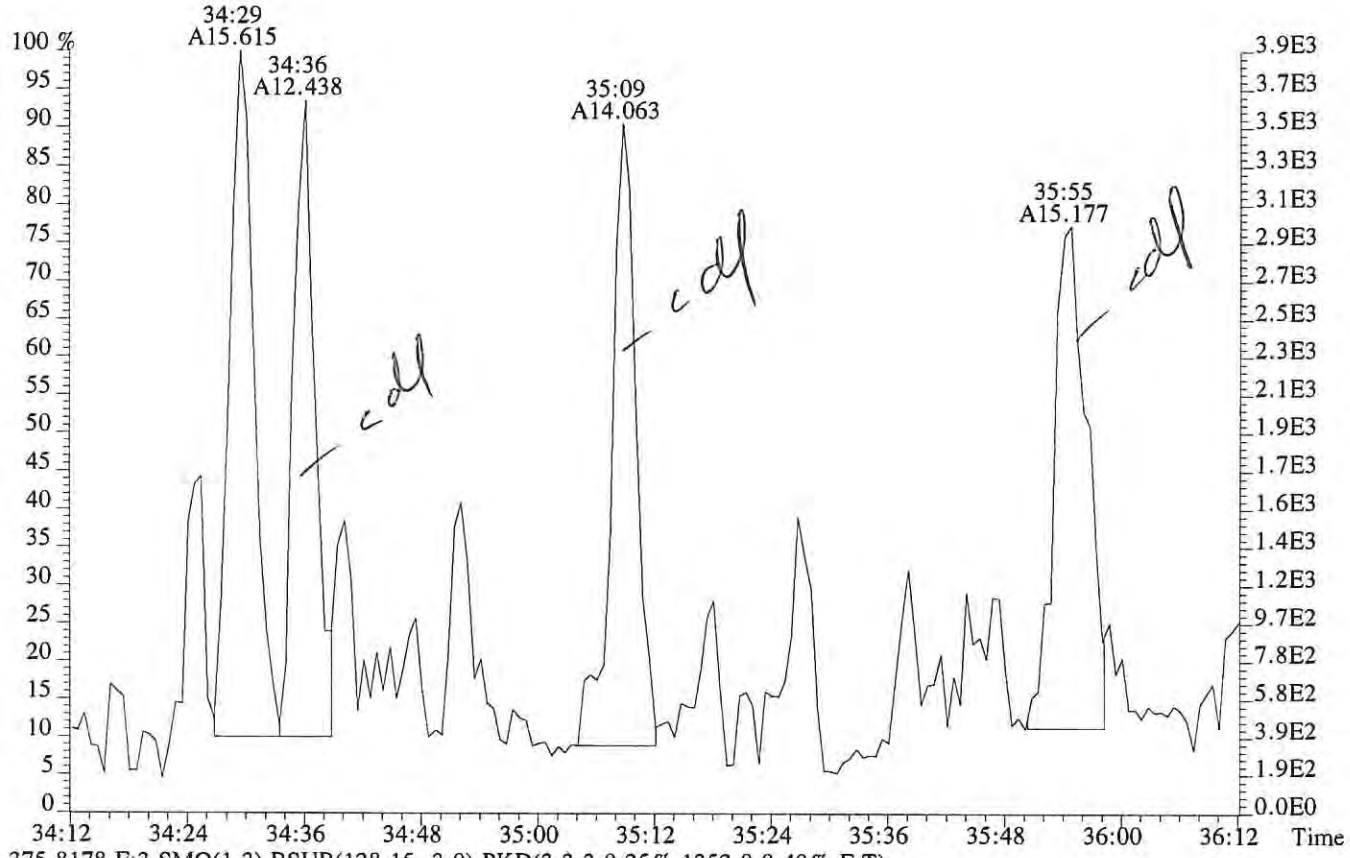
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



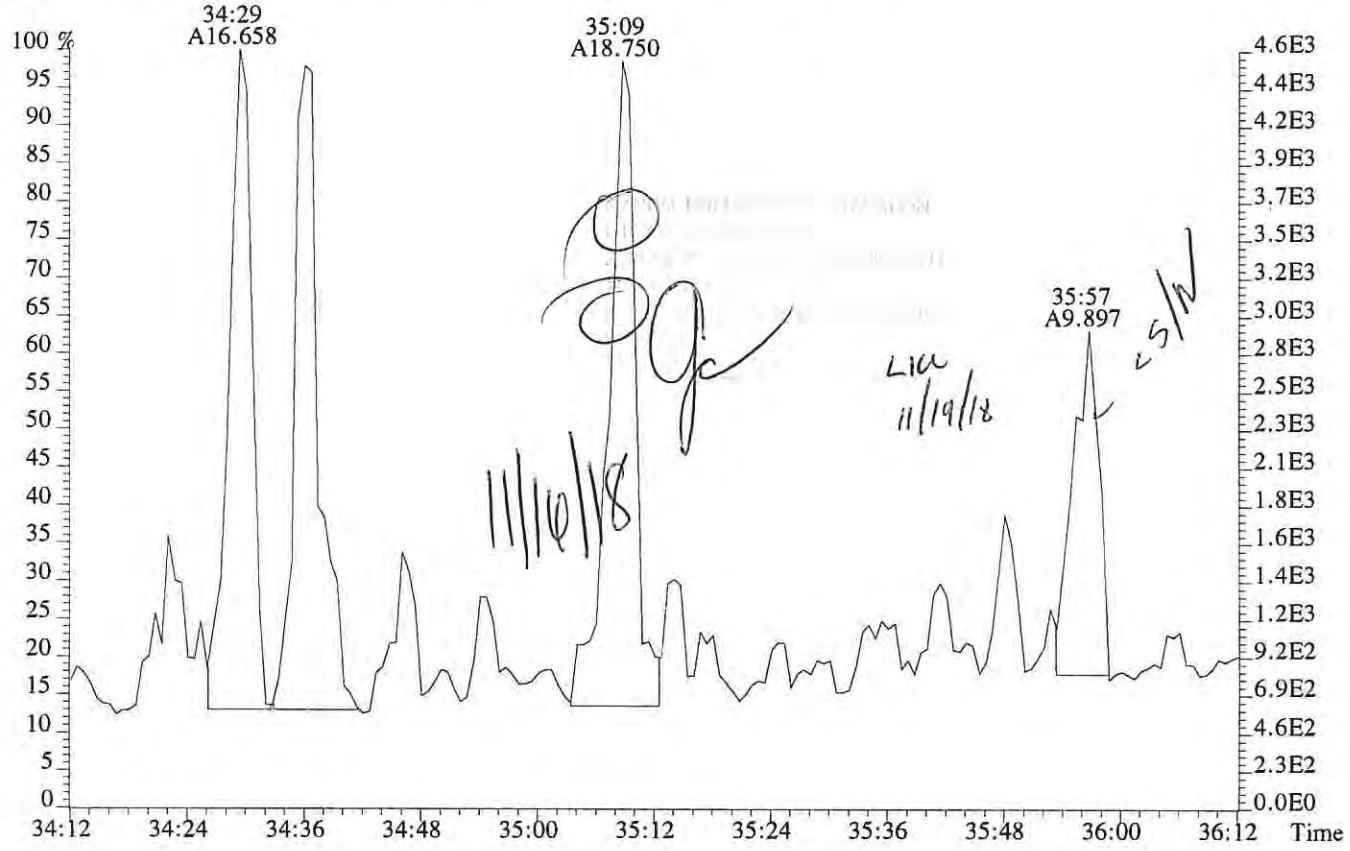
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



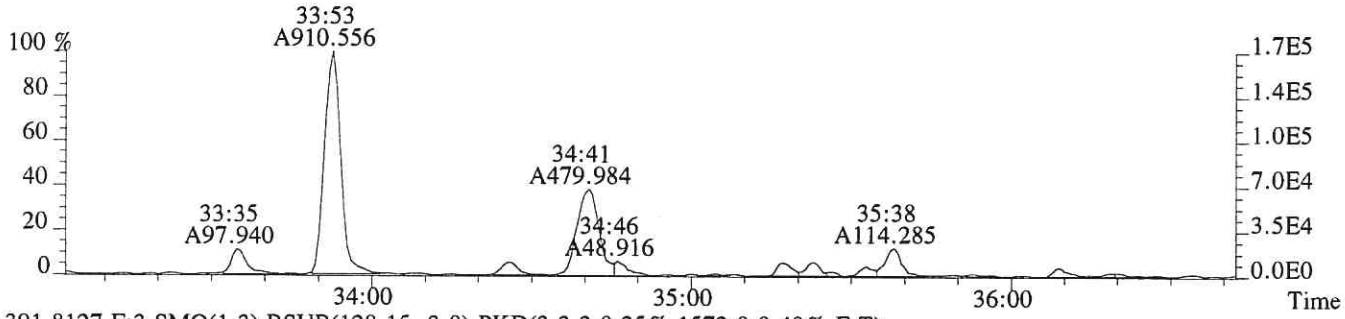
File:P518835 #1-330 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



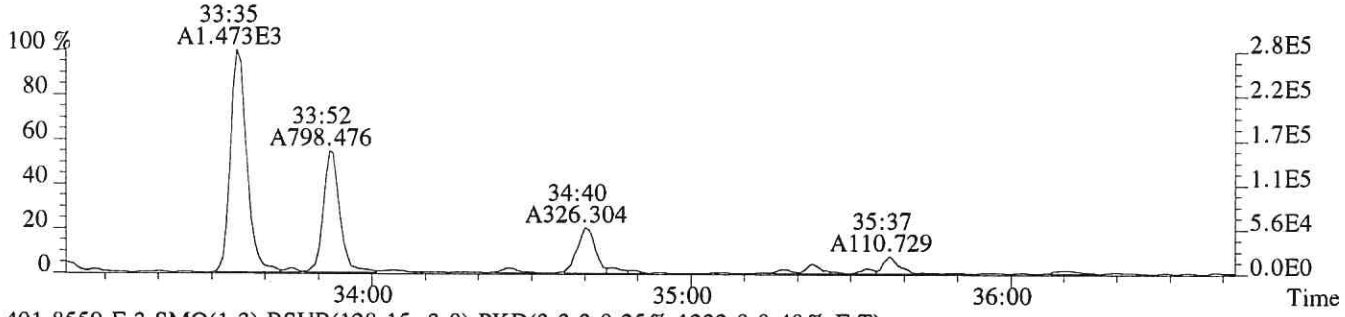
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



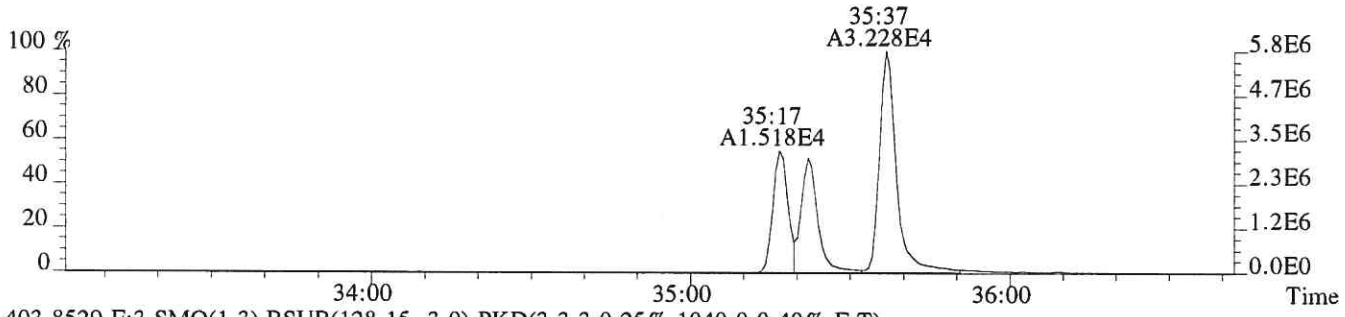
File:P518835 #1-330 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



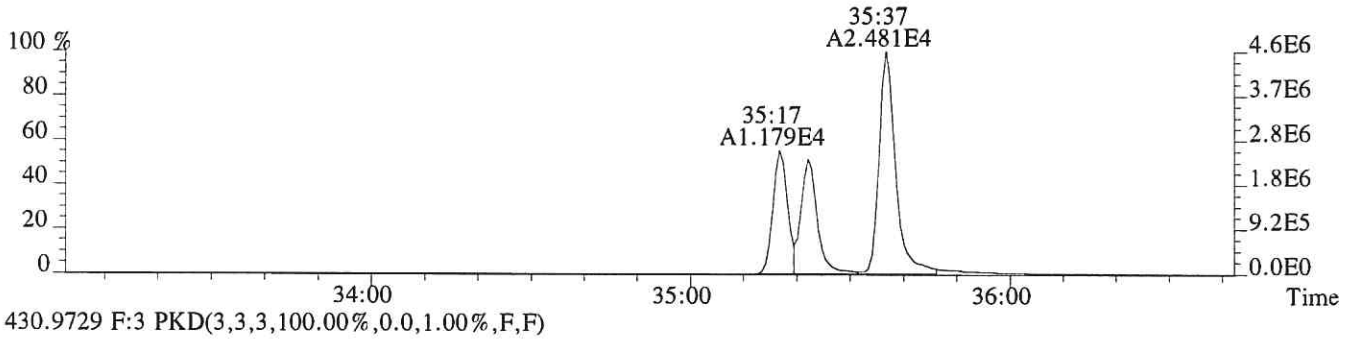
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



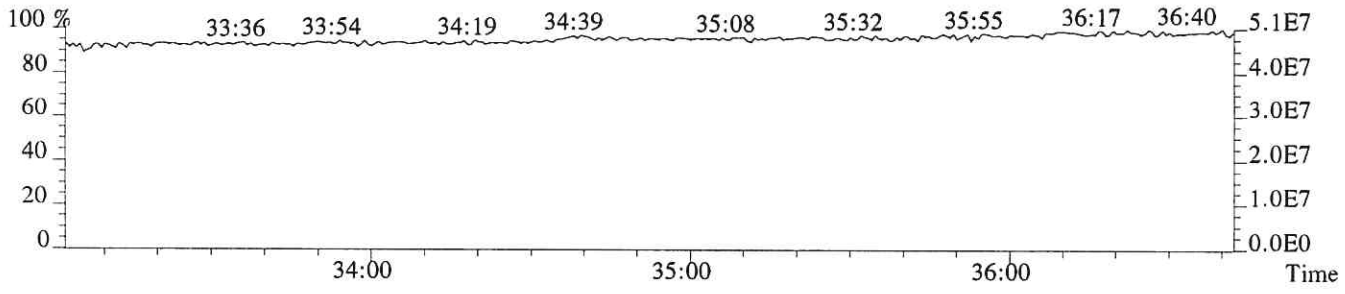
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



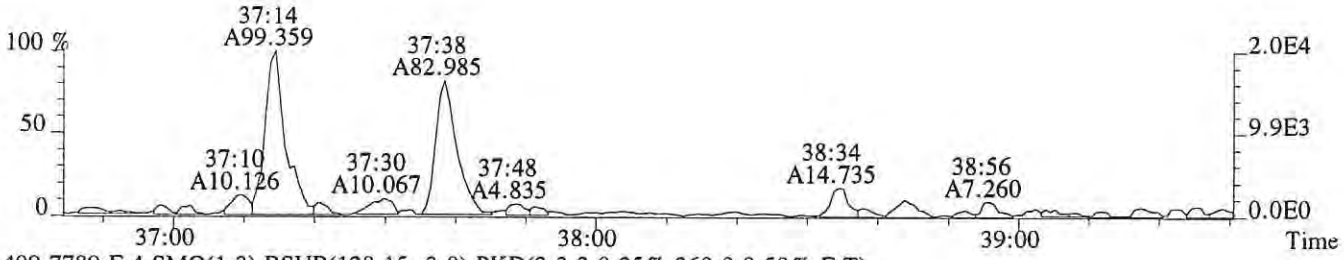
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



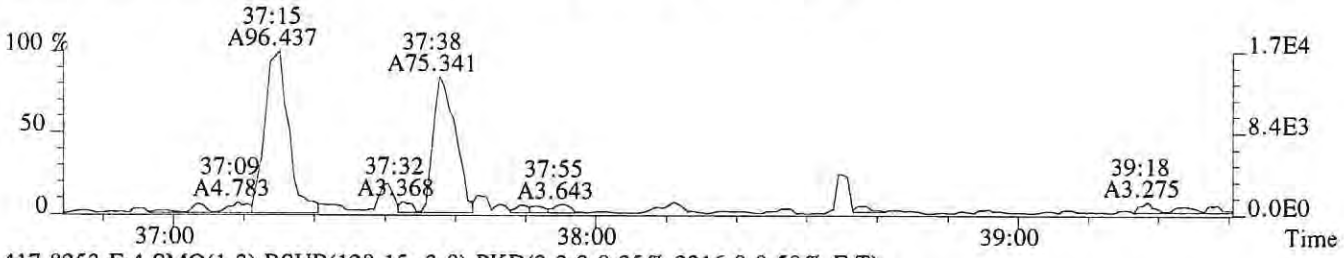
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



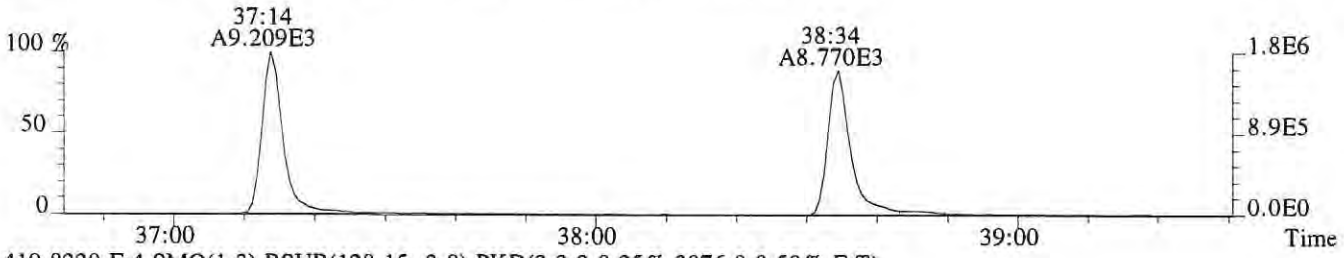
File:P518835 #1-250 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.50%,F,T)



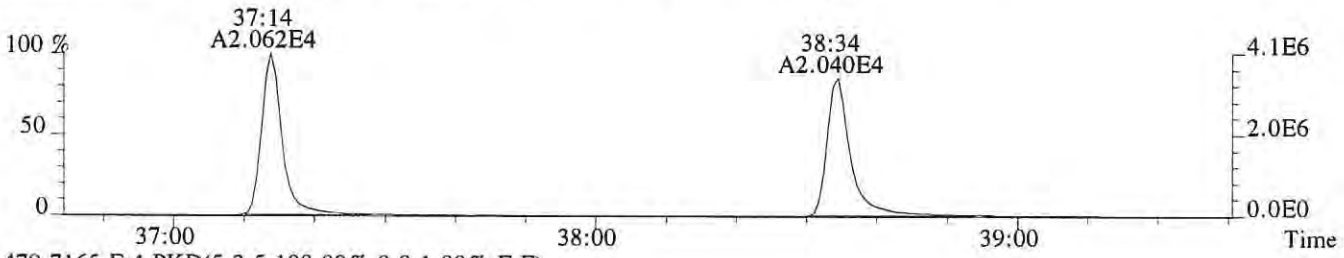
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



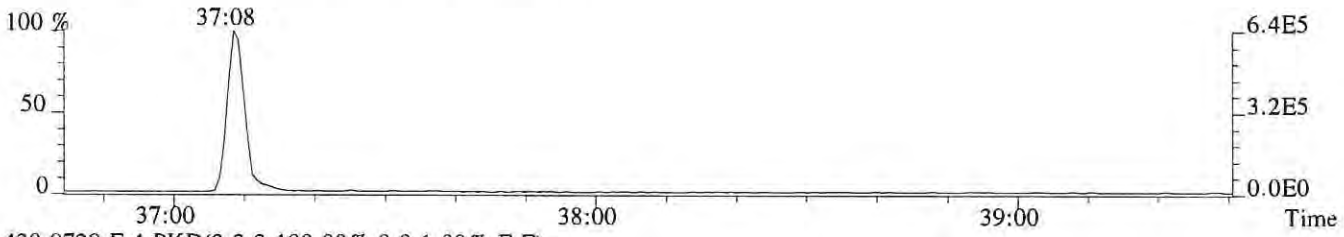
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.50%,F,T)



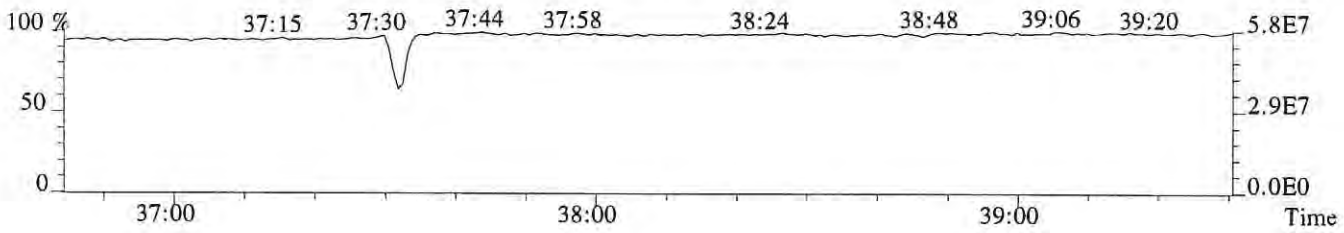
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.50%,F,T)



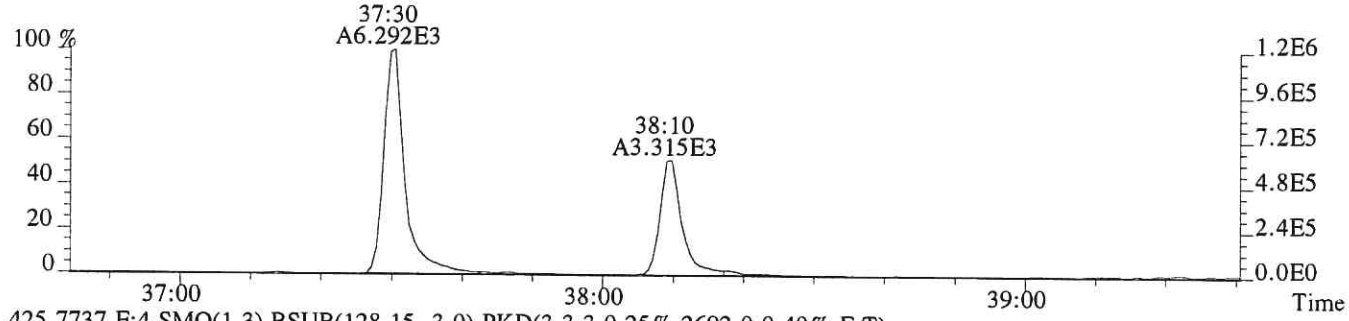
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



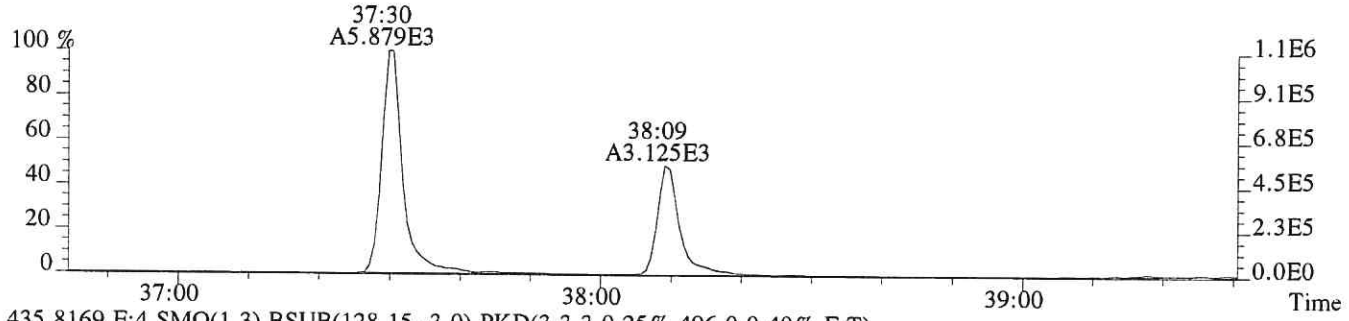
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



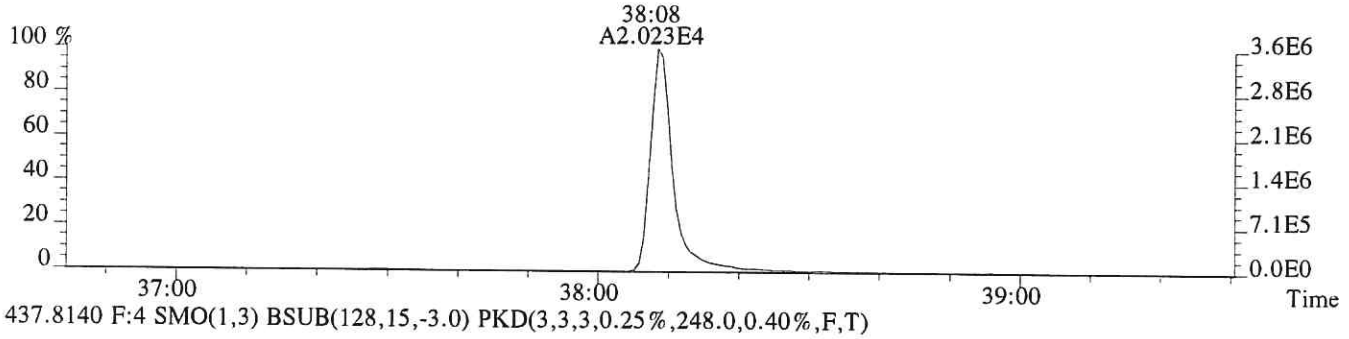
File:P518835 #1-250 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2700.0,0.40%,F,T)



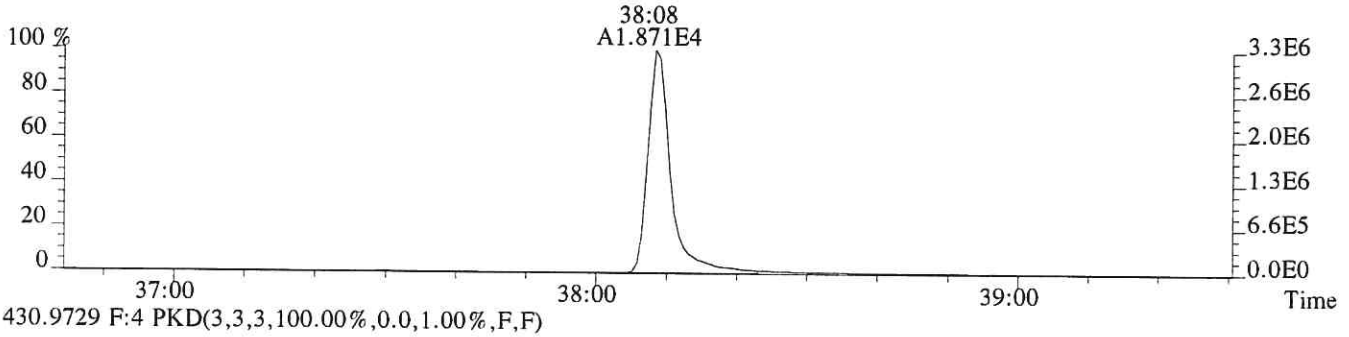
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.40%,F,T)



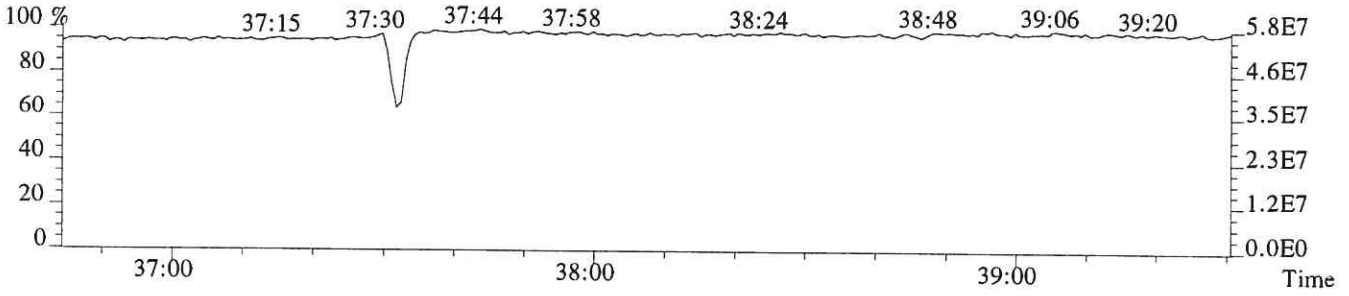
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



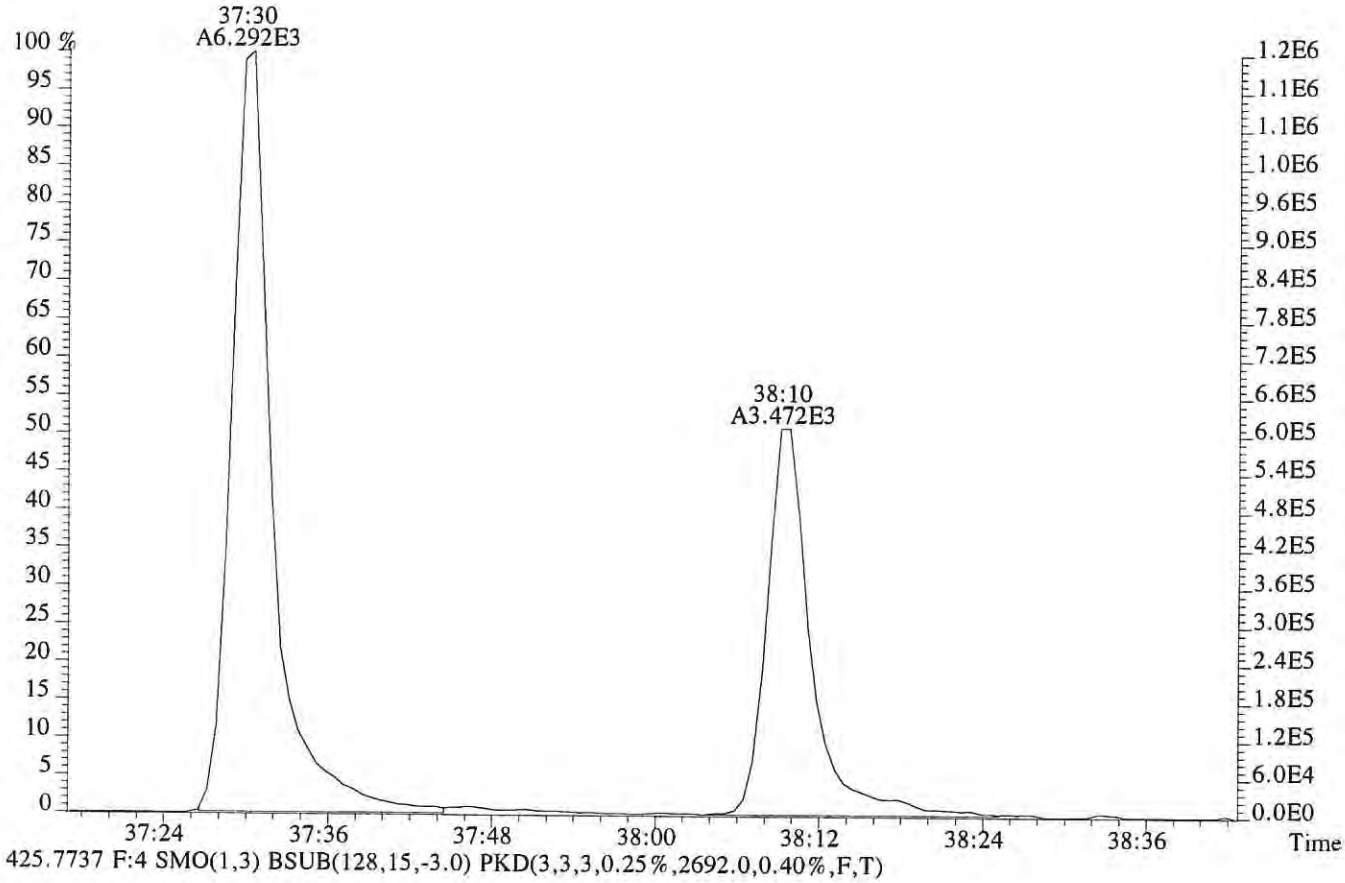
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



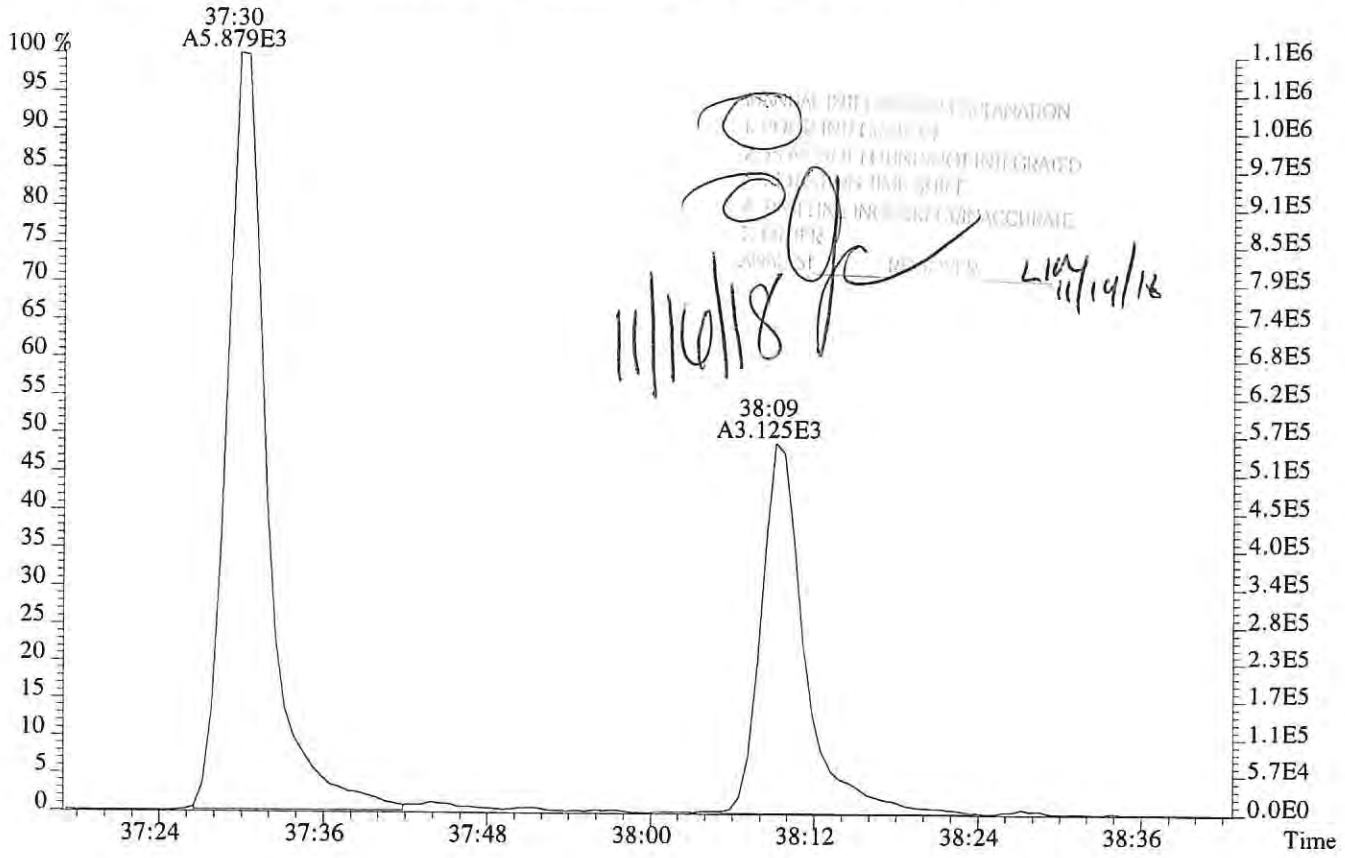
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518835 #1-250 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2700.0,0.40%,F,T)

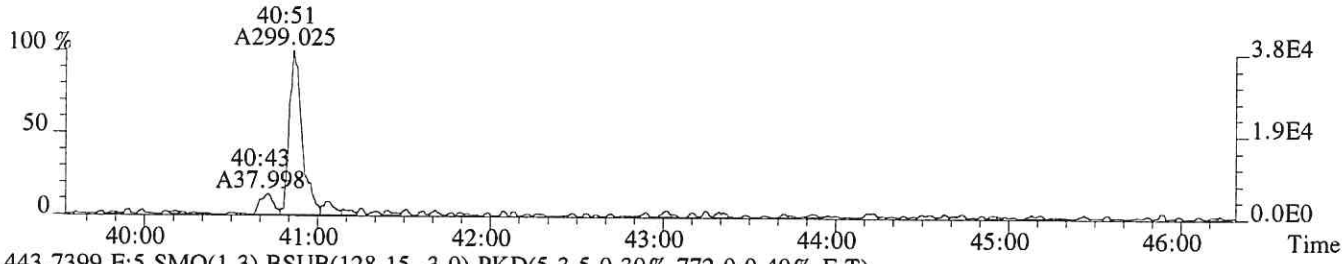


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.40%,F,T)

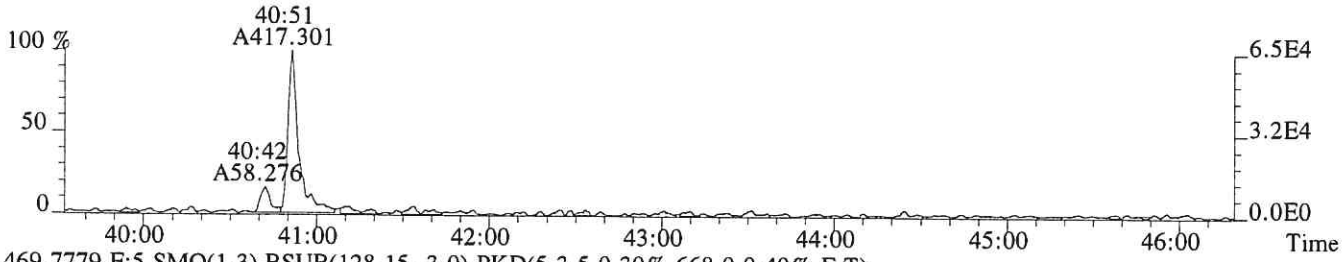


11/16/18

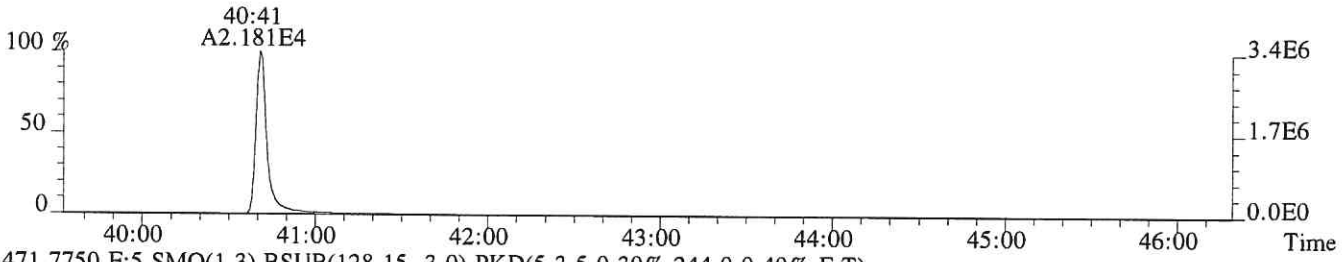
File:P518835 #1-610 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



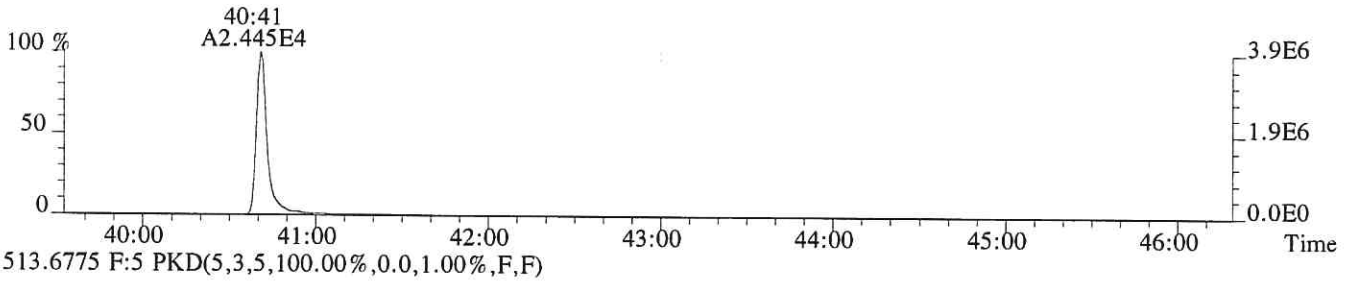
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



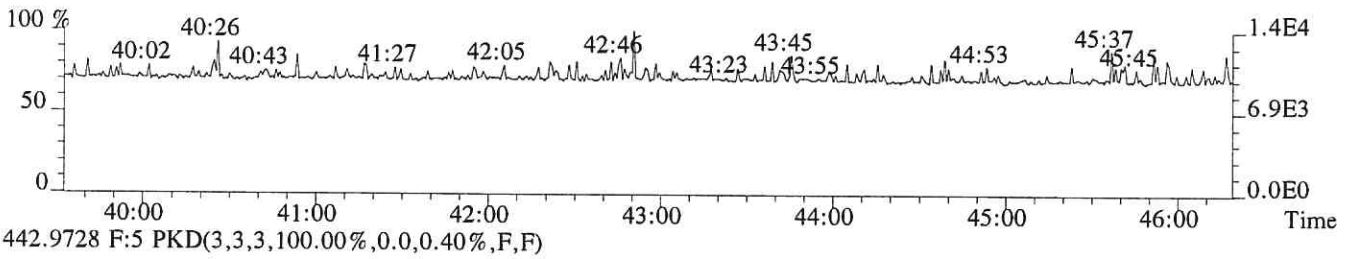
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



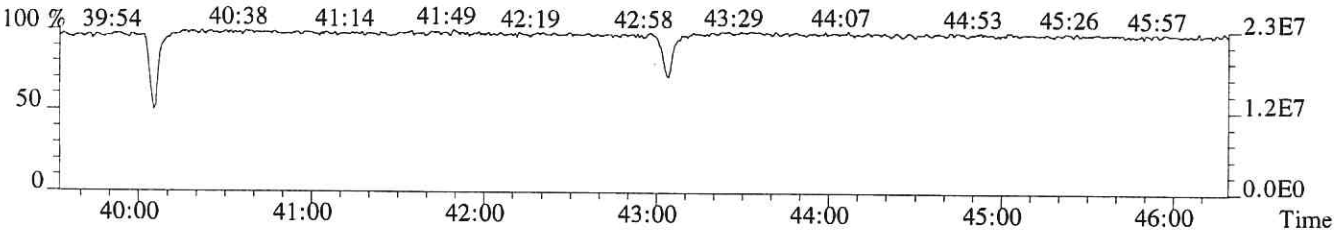
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



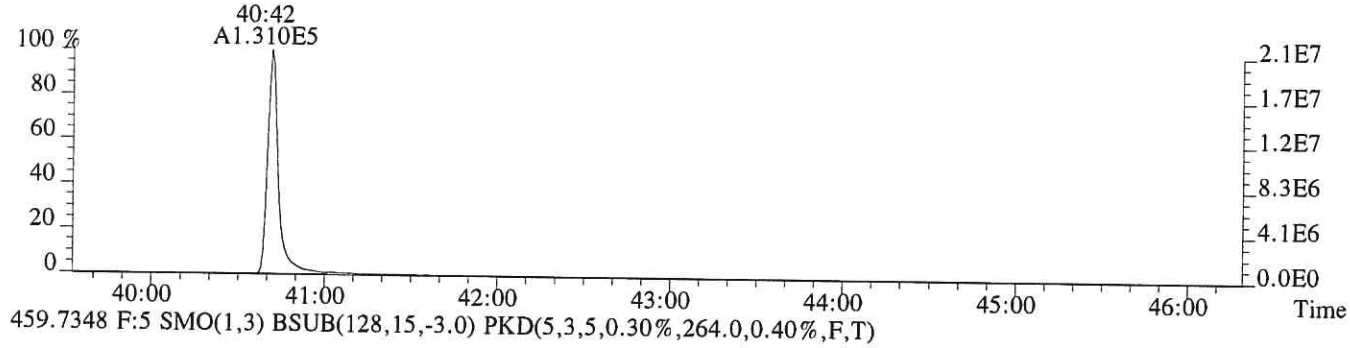
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



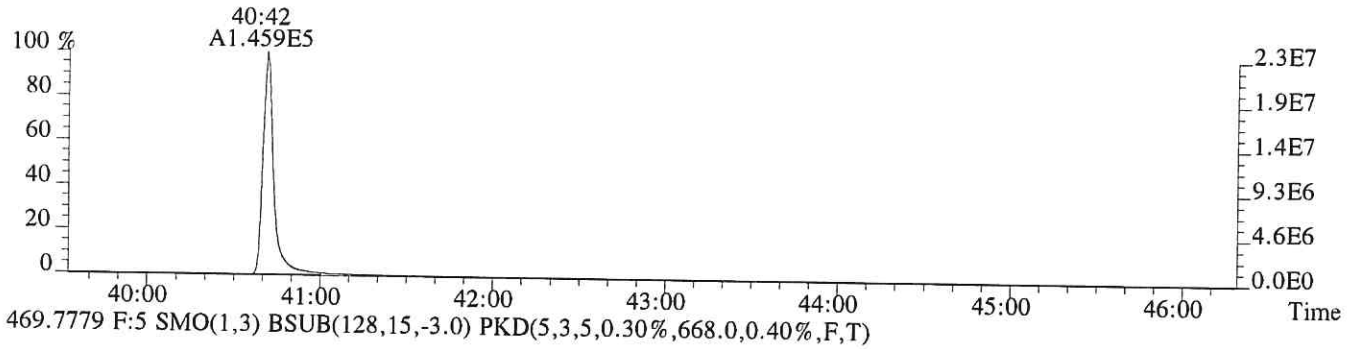
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



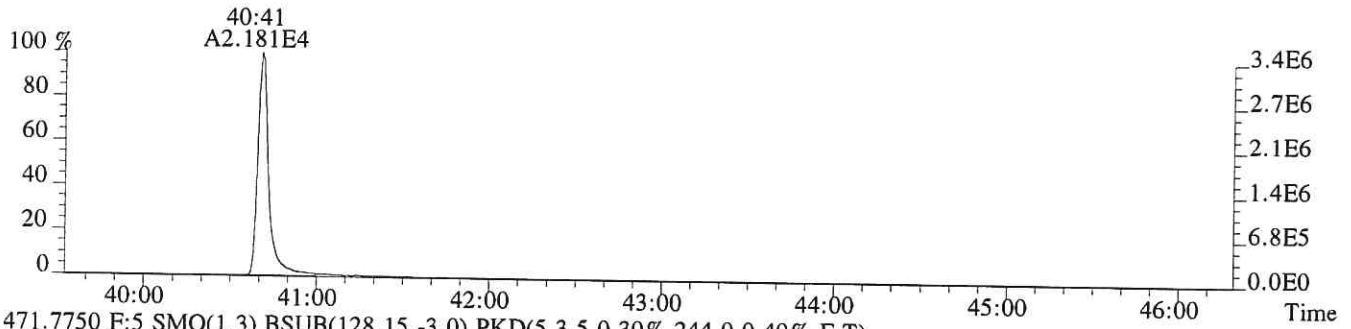
File:P518835 #1-610 Acq:15-NOV-2018 21:39:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



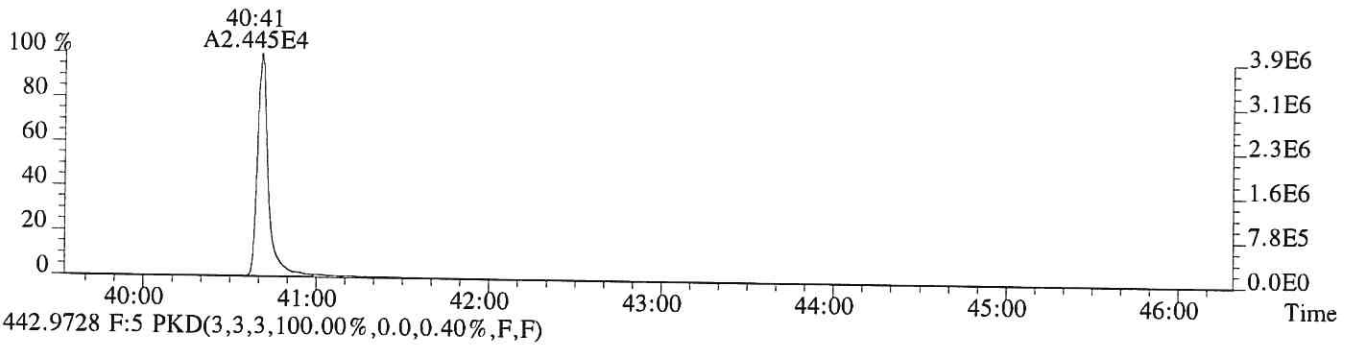
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



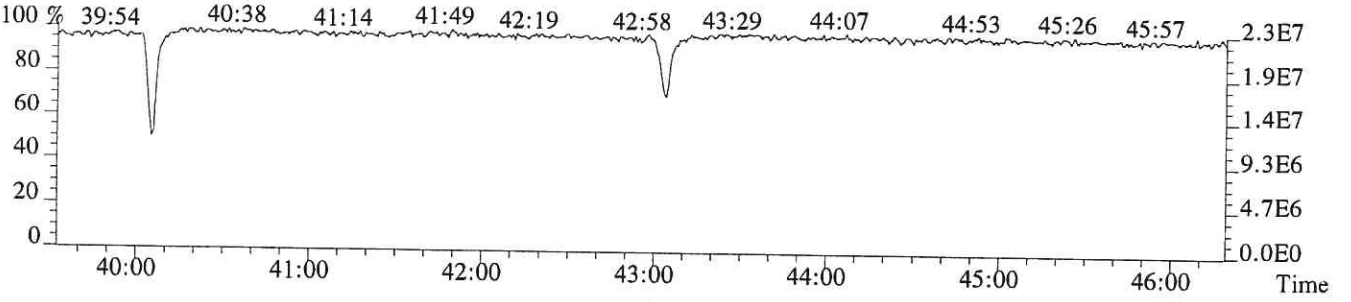
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0502

Run #19 Filename P518836 Samp: 1 Inj: 1 Acquired: 15-NOV-18 22:28:11
Processed: 16-NOV-18 14:10:49 Sample ID: E1801018-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	6.784e+01	1.156e+02	0.59	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	3.018e+01	3.416e+01	0.88	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	40:51	1.579e+02	1.996e+02	0.79	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	1.910e+01	1.238e+01	1.54	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	3.445e+01	2.374e+01	1.45	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	7.286e+01	4.251e+01	1.71	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.143e+02	9.673e+01	1.18	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	2.981e+03	2.621e+03	1.14	yes	no	1.025
17	Unk	OCDD	40:42	9.920e+04	1.112e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	1.030e+04	1.331e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.132e+04	1.336e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.039e+04	1.275e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	9.678e+03	1.864e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.320e+04	2.511e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.202e+04	2.342e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.087e+04	2.117e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.935e+03	1.992e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.497e+03	2.142e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.266e+03	9.010e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.542e+04	9.709e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.480e+04	1.152e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.655e+04	1.299e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.947e+04	1.824e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	2.222e+04	2.398e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	1.870e+04	2.372e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.102e+04	2.394e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	8.594e+03				no	1.014

$$\text{OCDD} = \frac{(9.920e+04 + 1.112e+05) \times 4000\ \text{pg} \times 1}{(2.222e+04 + 2.398e+04) \times 10.933\ \text{g} \times 70.7 / 100 \times 1.118} = 2107.9\ \text{ng/kg}$$

LM 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0502

Run #19 Filename P518836 Samp: 1 Inj: 1 Acquired: 15-NOV-18 22:28:11
Processed: 16-NOV-18 14:10:49 LAB. ID: E1801018-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.64e+03	9.72e+02	8.9e+00	1.93e+04	1.94e+03	9.9e+00
2	1,2,3,7,8-PeCDF	*	3.92e+02	*	*	1.71e+03	*
3	2,3,4,7,8-PeCDF	*	3.92e+02	*	*	1.71e+03	*
4	1,2,3,4,7,8-HxCDF	*	8.32e+02	*	*	5.04e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.32e+02	*	*	5.04e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.32e+02	*	*	5.04e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.32e+02	*	*	5.04e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.42e+03	7.84e+02	6.9e+00	6.77e+03	3.68e+02	1.8e+01
9	1,2,3,4,7,8,9-HpCDF	*	7.84e+02	*	*	3.68e+02	*
10	OCDF	2.20e+04	2.28e+02	9.6e+01	3.09e+04	6.40e+02	4.8e+01
11	2,3,7,8-TCDD	*	2.02e+03	*	*	9.80e+02	*
12	1,2,3,7,8-PeCDD	3.22e+03	7.36e+02	4.4e+00	2.17e+03	3.20e+02	6.8e+00
13	1,2,3,4,7,8-HxCDD	8.74e+03	1.18e+03	7.4e+00	5.53e+03	2.22e+03	2.5e+00
14	1,2,3,6,7,8-HxCDD	1.19e+04	1.18e+03	1.0e+01	9.23e+03	2.22e+03	4.2e+00
15	1,2,3,7,8,9-HxCDD	1.99e+04	1.18e+03	1.7e+01	2.00e+04	2.22e+03	9.0e+00
16	1,2,3,4,6,7,8-HpCDD	5.22e+05	3.12e+03	1.7e+02	4.87e+05	1.20e+03	4.1e+02
17	OCDD	1.55e+07	8.56e+02	1.8e+04	1.71e+07	6.24e+02	2.7e+04
18	13C-2,3,7,8-TCDF	1.40e+06	6.20e+03	2.3e+02	1.74e+06	3.30e+03	5.3e+02
19	13C-1,2,3,7,8-PeCDF	3.39e+06	3.76e+02	9.0e+03	2.10e+06	6.28e+02	3.3e+03
20	13C-2,3,4,7,8-PeCDF	3.42e+06	3.76e+02	9.1e+03	2.18e+06	6.28e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.94e+06	7.84e+02	2.5e+03	3.71e+06	7.24e+02	5.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.28e+06	7.84e+02	2.9e+03	4.33e+06	7.24e+02	6.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.25e+06	7.84e+02	2.9e+03	4.39e+06	7.24e+02	6.1e+03
24	13C-1,2,3,7,8,9-HxCDF	1.84e+06	7.84e+02	2.3e+03	3.63e+06	7.24e+02	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.73e+06	4.25e+03	4.1e+02	3.89e+06	6.38e+03	6.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.63e+06	4.25e+03	3.8e+02	3.60e+06	6.38e+03	5.6e+02
27	13C-2,3,7,8-TCDD	1.06e+06	5.86e+03	1.8e+02	1.32e+06	2.87e+03	4.6e+02
28	13C-1,2,3,7,8-PeCDD	2.58e+06	4.64e+02	5.6e+03	1.61e+06	8.12e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.18e+06	8.36e+02	3.8e+03	2.42e+06	8.68e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.88e+06	8.36e+02	3.4e+03	2.32e+06	8.68e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.34e+06	7.60e+02	4.4e+03	3.21e+06	2.52e+02	1.3e+04
32	13C-OCDD	3.43e+06	7.32e+02	4.7e+03	3.72e+06	2.12e+02	1.8e+04
33	13C-1,2,3,4-TCDD	2.77e+06	5.86e+03	4.7e+02	3.51e+06	2.87e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.46e+06	8.36e+02	6.5e+03	4.29e+06	8.68e+02	4.9e+03
35	37Cl-2,3,7,8-TCDD	1.26e+06	9.64e+02	1.3e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0502

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P518836 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 22:28:11 Processed: 16-NOV-18 14:10:49

Mass: 355.8550 357.8520 Tot Response: 1.61e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:35	4.96e+01	3.26e+01	1.52	yes	8.22e+01		n	n
2	31:10	1.74e+01	1.28e+01	1.36	yes	3.03e+01		n	n
3	31:55	1.91e+01	1.24e+01	1.54	yes	3.15e+01	1,2,3,7,8-PeCDD	n	y
4	32:00	1.05e+01	6.98e+00	1.50	yes	1.75e+01		n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0502

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P518836 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 22:28:11 Processed: 16-NOV-18 14:10:49

Mass: 389.8160 391.8130 Tot Response: 2.53e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	8.14e+02	6.38e+02	1.28	yes	1.45e+03		n	n
2	34:26	4.45e+01	3.12e+01	1.43	yes	7.57e+01		n	n
3	34:41	4.31e+02	3.07e+02	1.40	yes	7.38e+02		n	n
4	35:33	3.32e+01	2.41e+01	1.38	yes	5.73e+01		n	n
5	35:37	1.14e+02	9.67e+01	1.18	yes	2.11e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0502

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P518836 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 22:28:11 Processed: 16-NOV-18 14:10:49

Mass: 407.7820 409.7790 Tot Response: 5.75e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:39	2.79e+01	2.96e+01 0.94	yes	5.75e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0502

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P518836 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 22:28:11 Processed: 16-NOV-18 14:10:49

Mass: 423.7770 425.7740 Tot Response: 1.59e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	5.38e+03	4.92e+03	1.09	yes	1.03e+04		n	n
2	38:10	2.98e+03	2.62e+03	1.14	yes	5.60e+03	1,2,3,4,6,7,8-HpCDD	n	n

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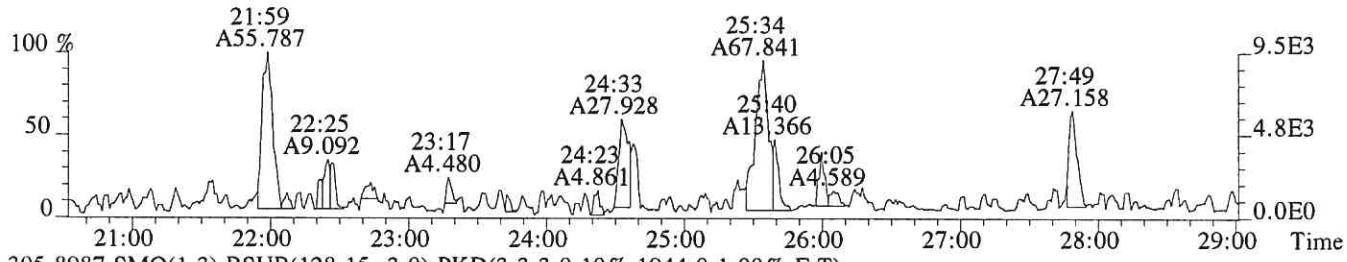
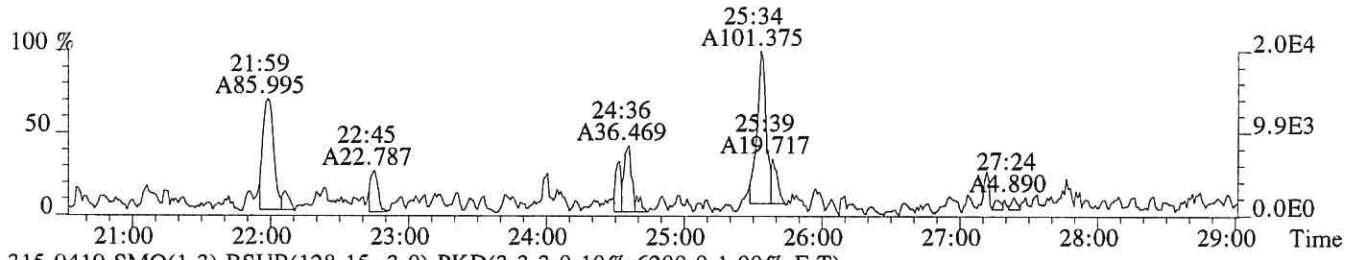
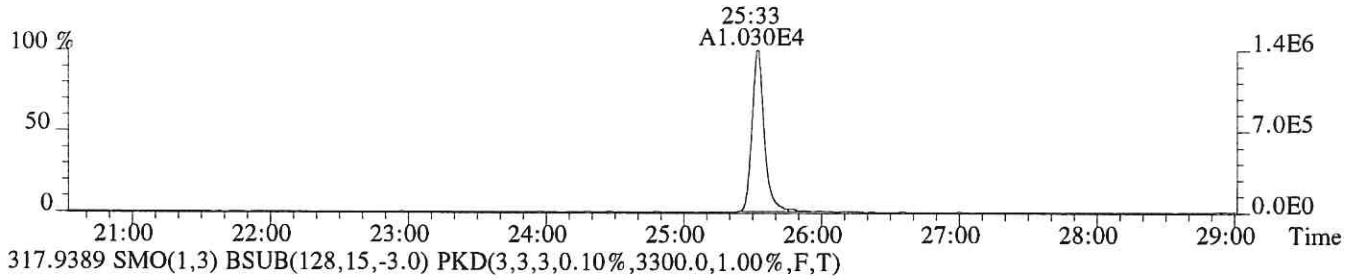
File:P518836 #1-602 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



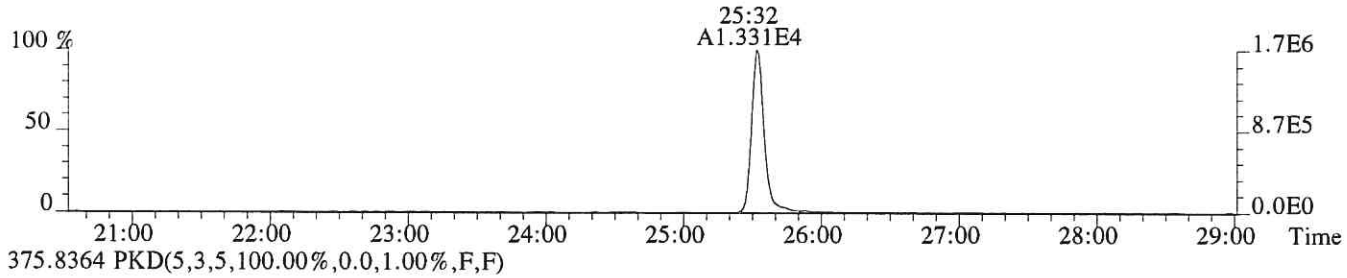
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



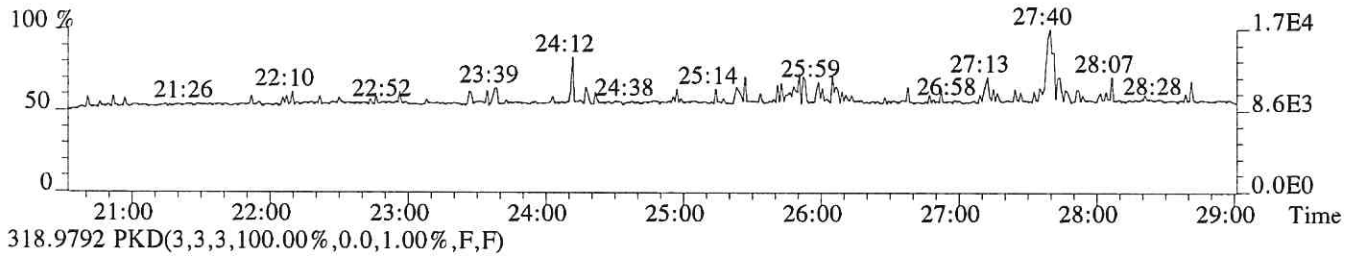
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6200.0,1.00%,F,T)



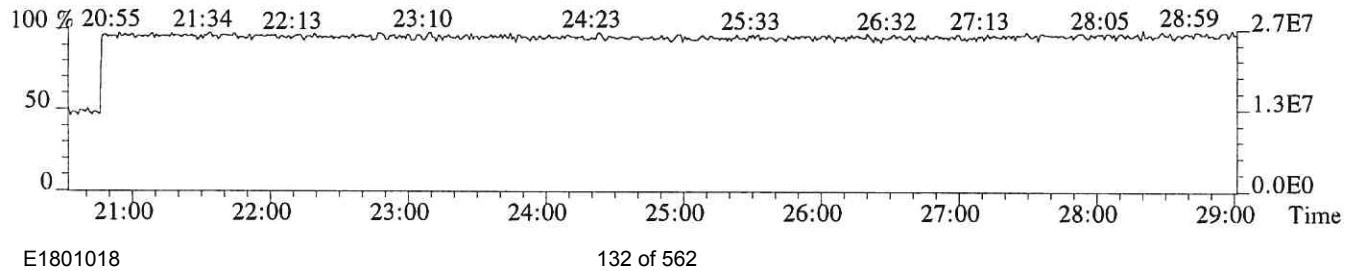
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3300.0,1.00%,F,T)



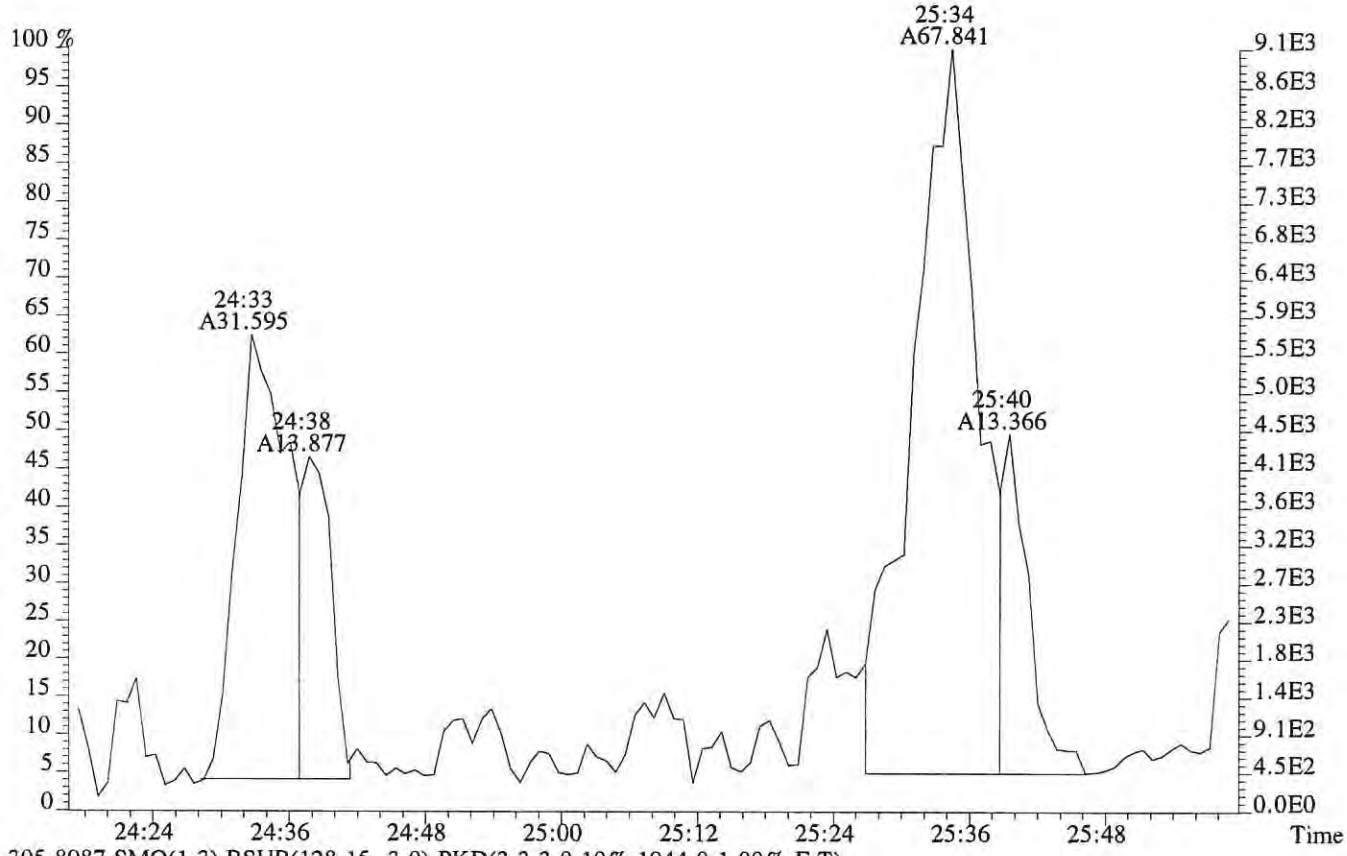
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



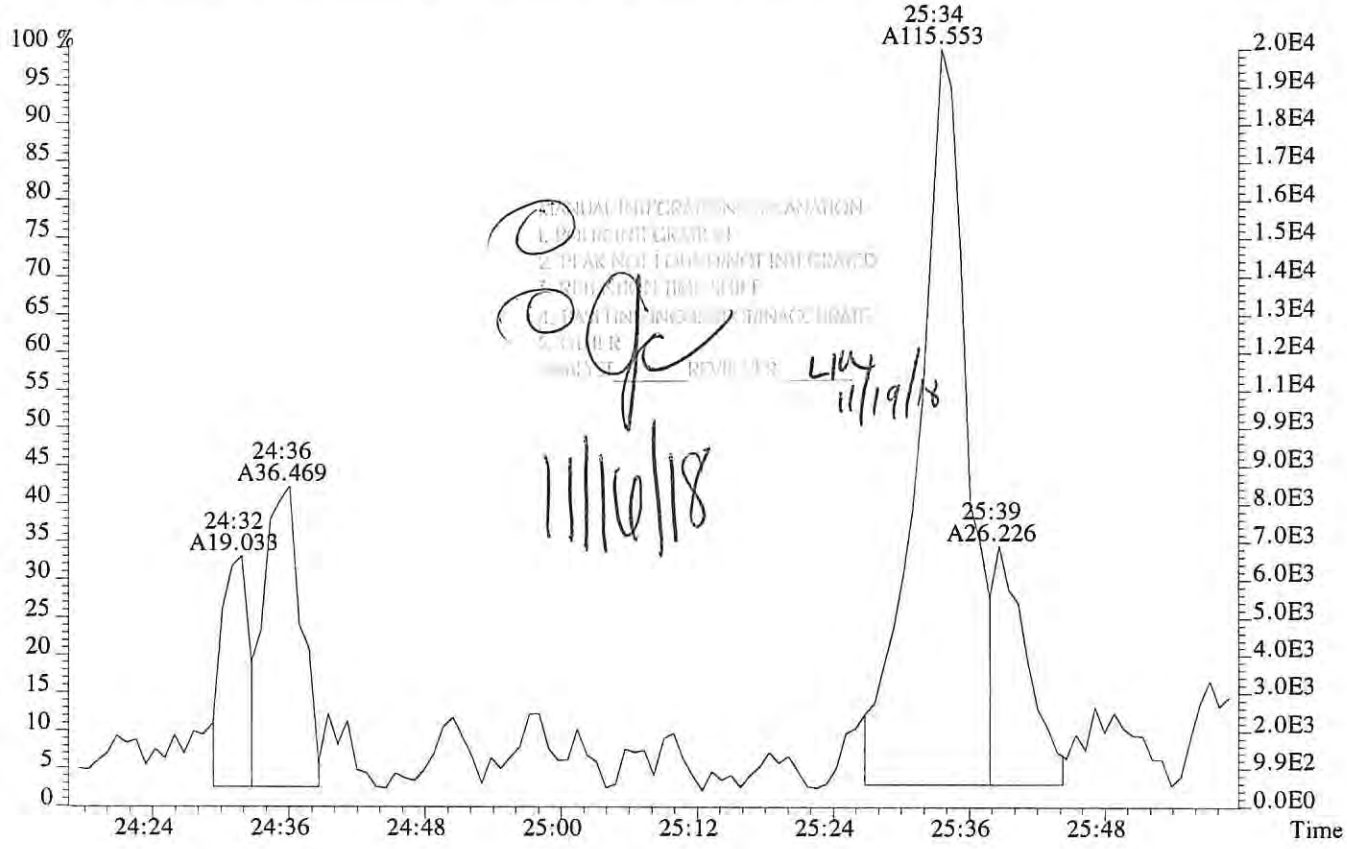
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



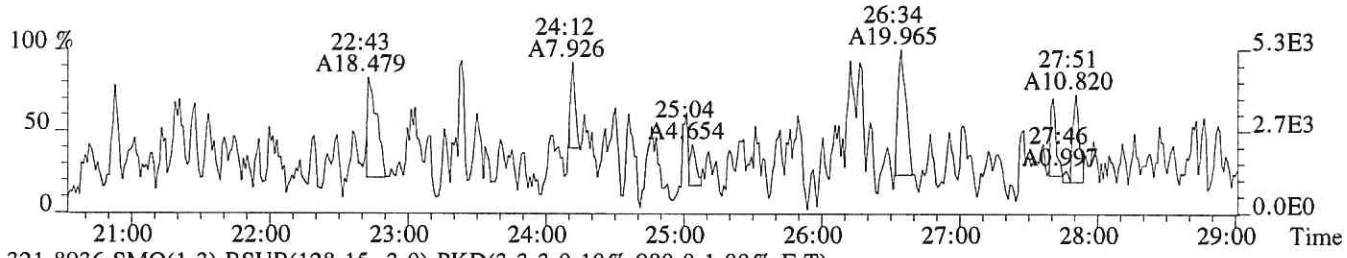
File:P518836 #1-602 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



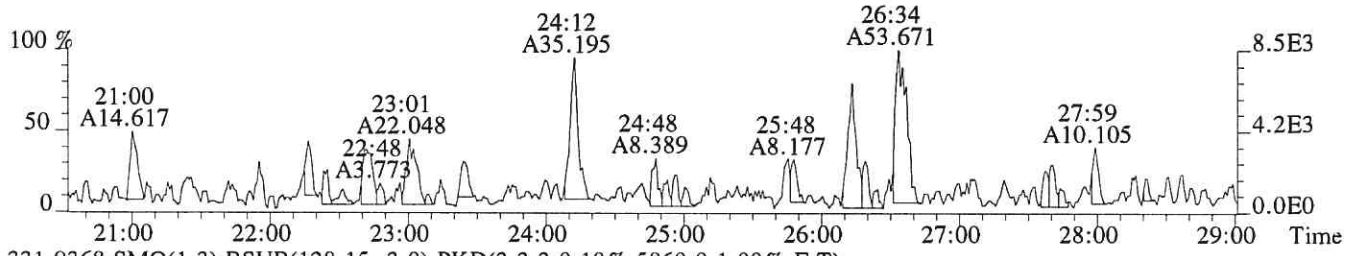
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



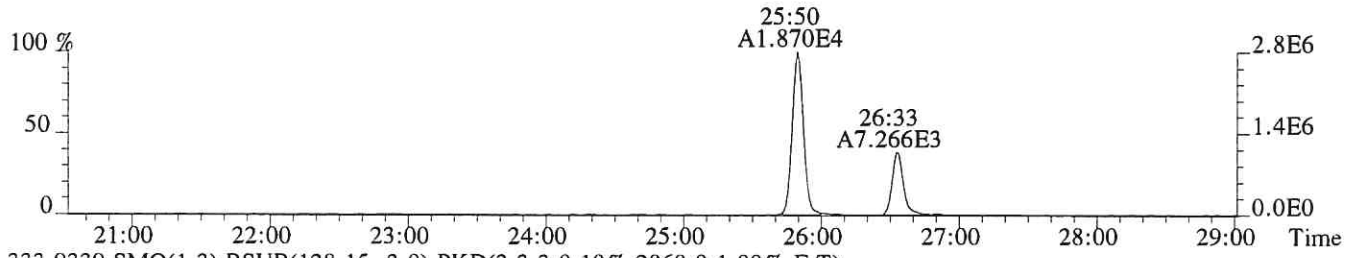
File:P518836 #1-602 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



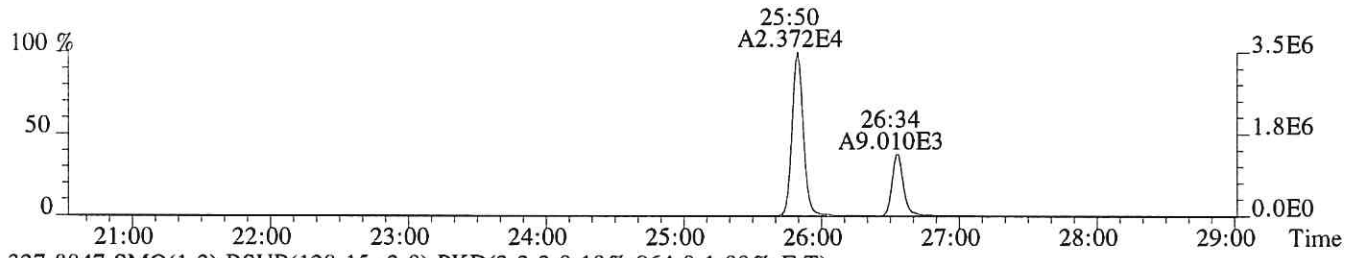
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



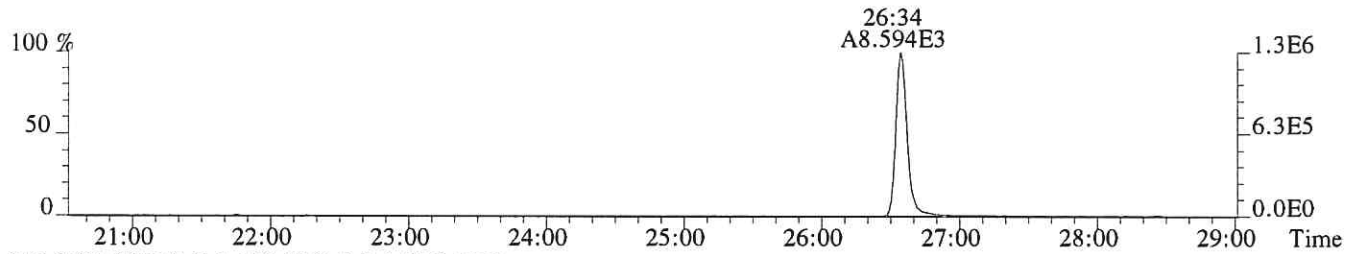
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5860.0,1.00%,F,T)



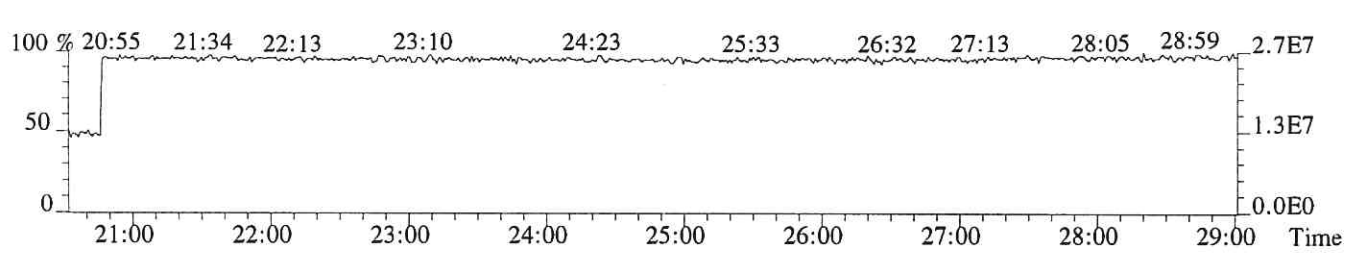
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)



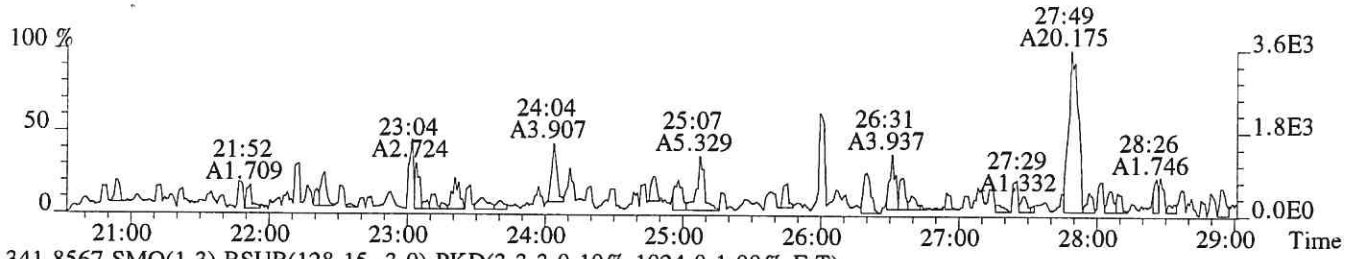
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



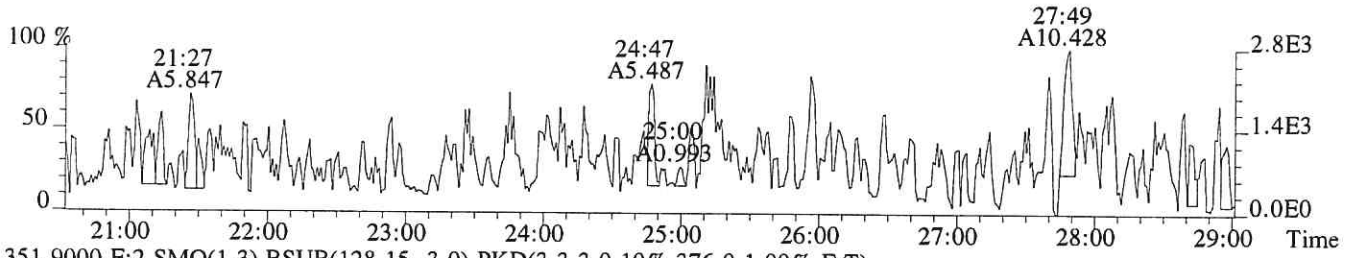
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



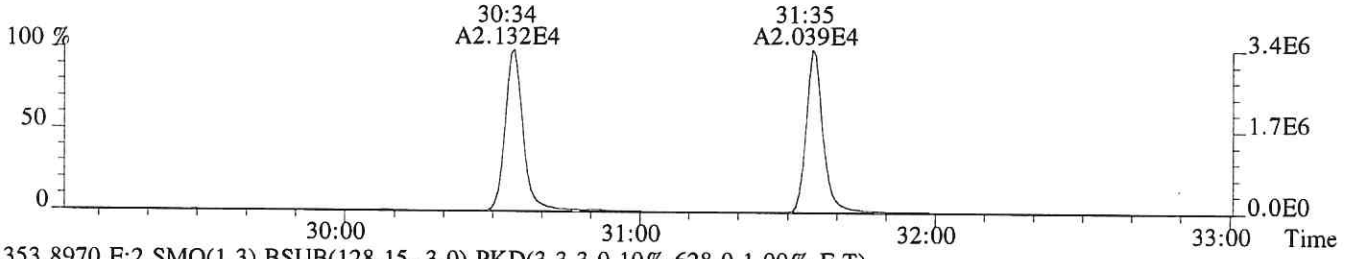
File:P518836 #1-602 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



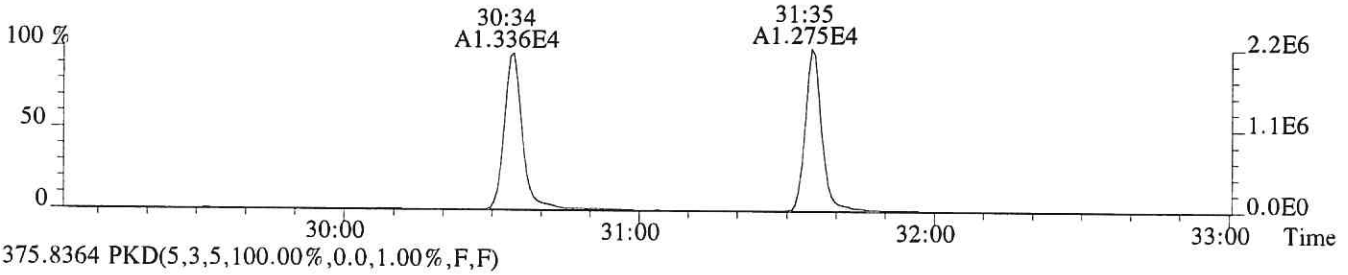
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



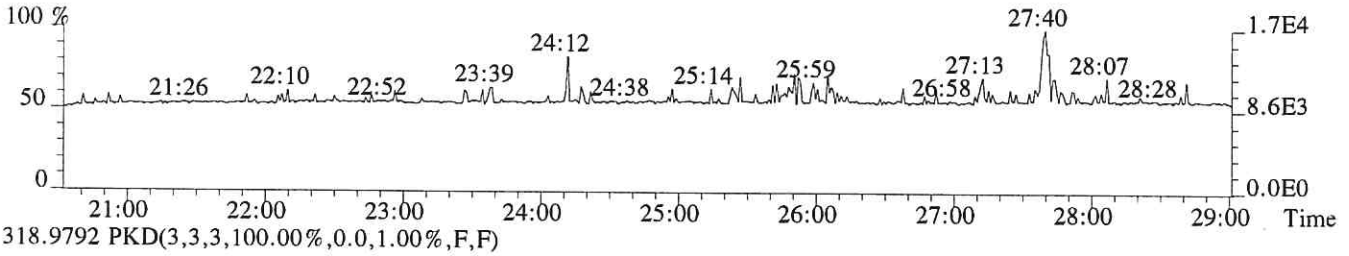
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



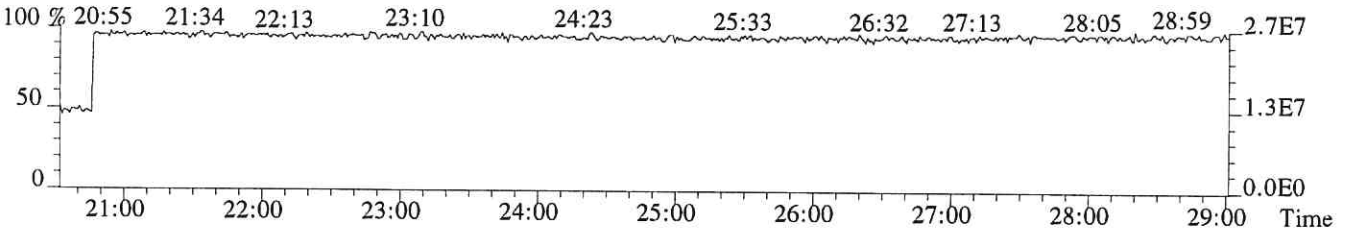
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



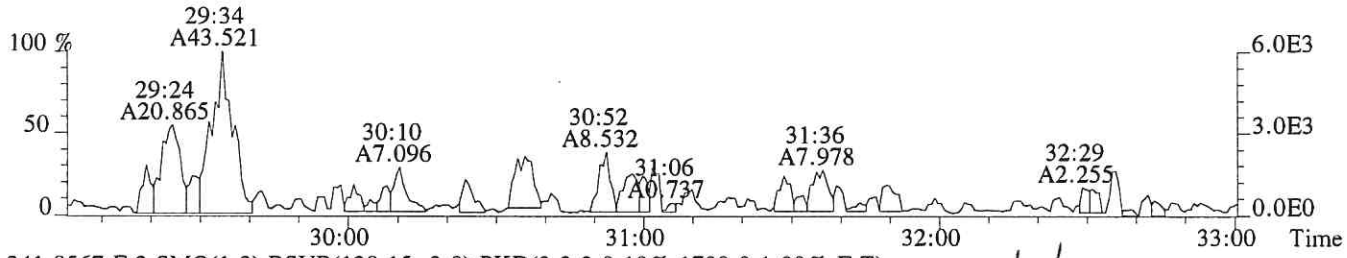
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



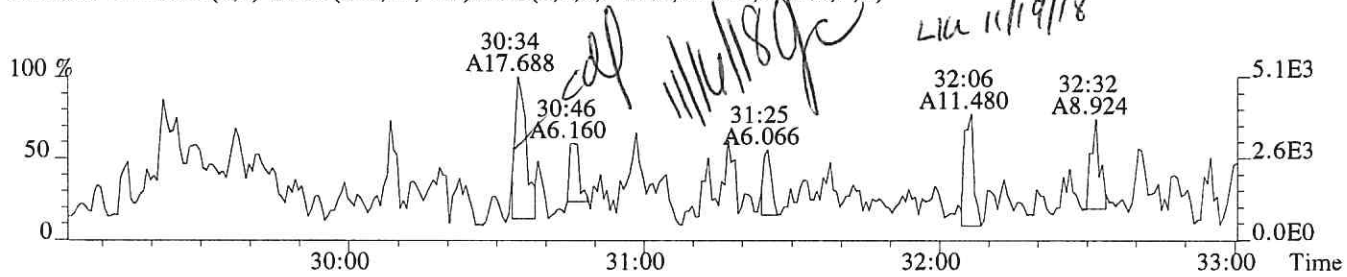
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



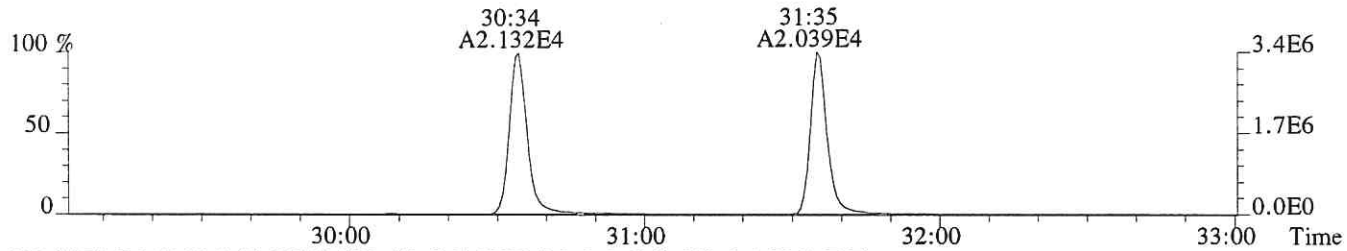
File:P518836 #1-357 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



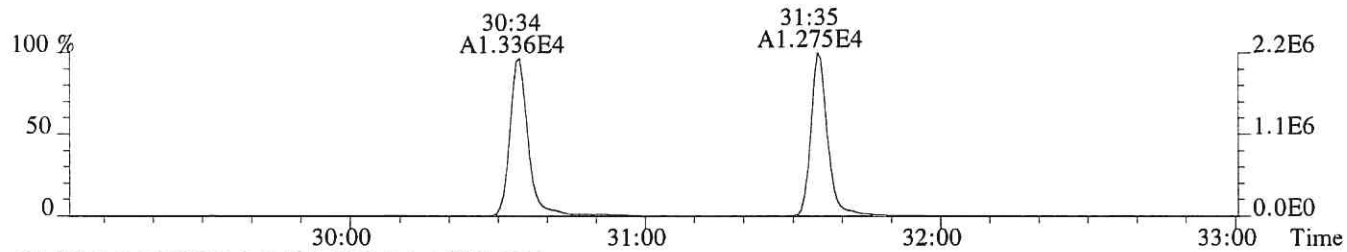
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



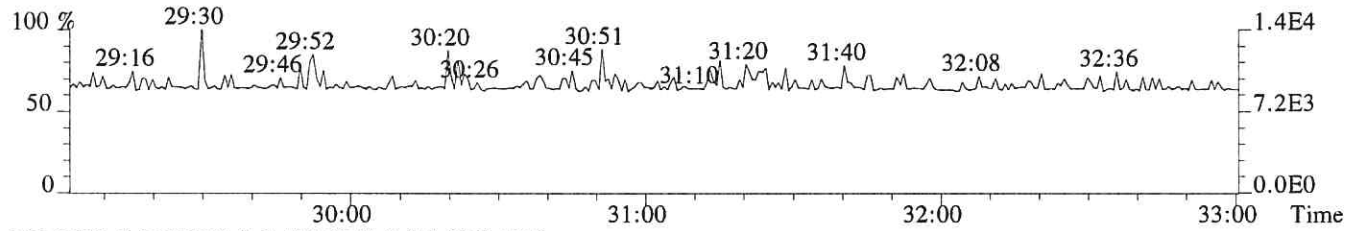
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



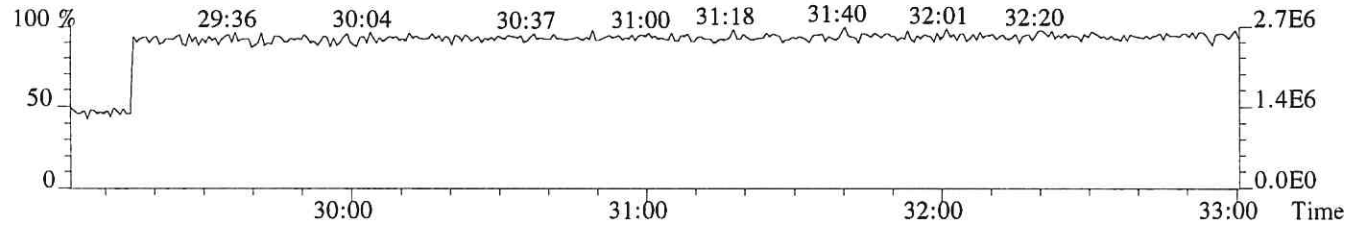
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



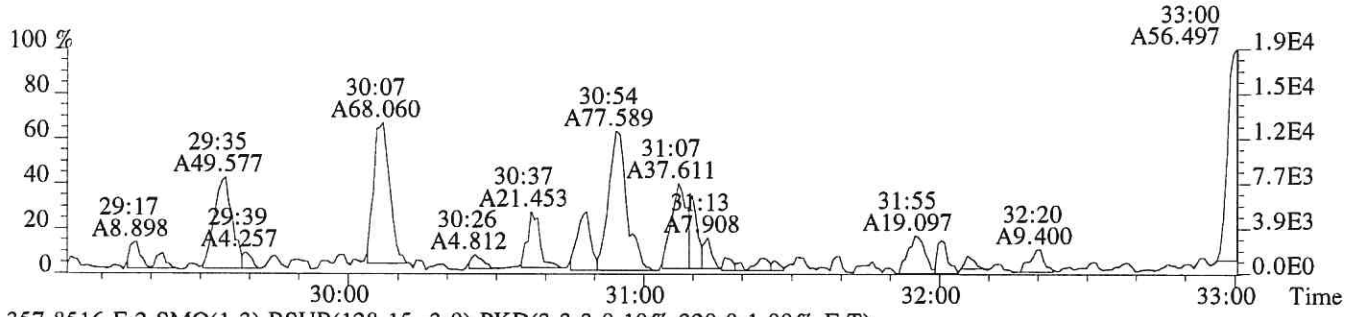
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



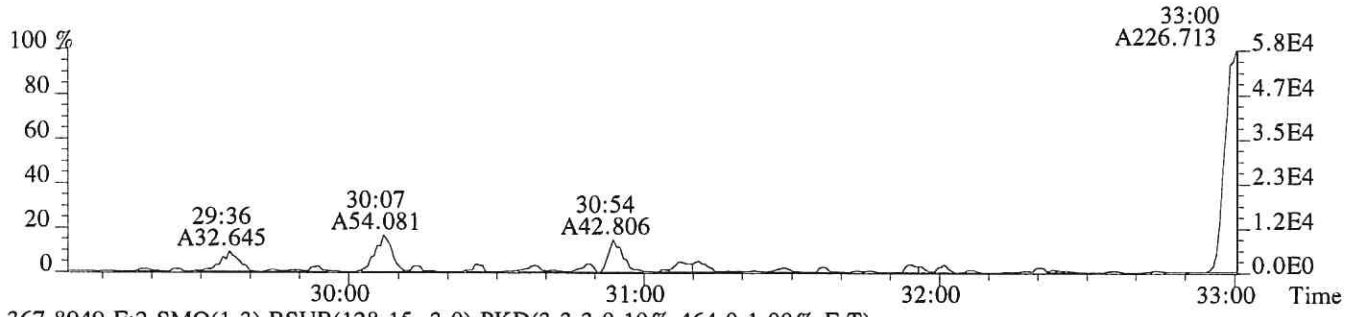
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



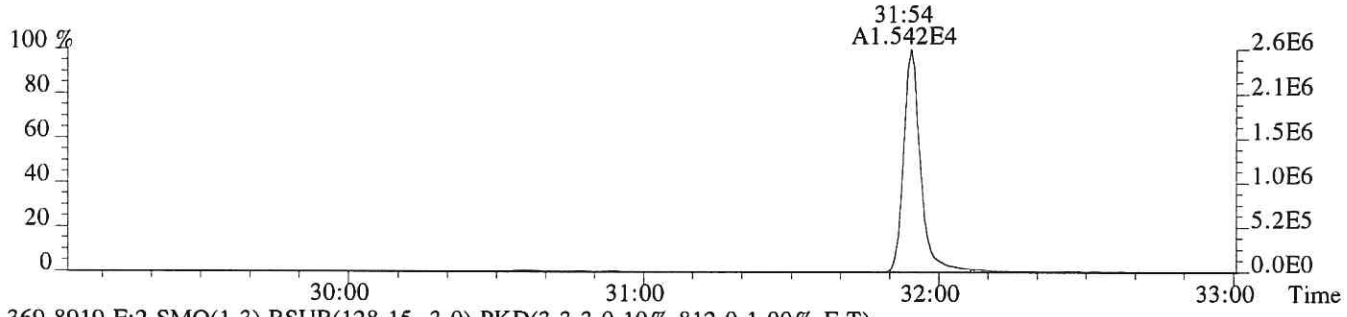
File:P518836 #1-357 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



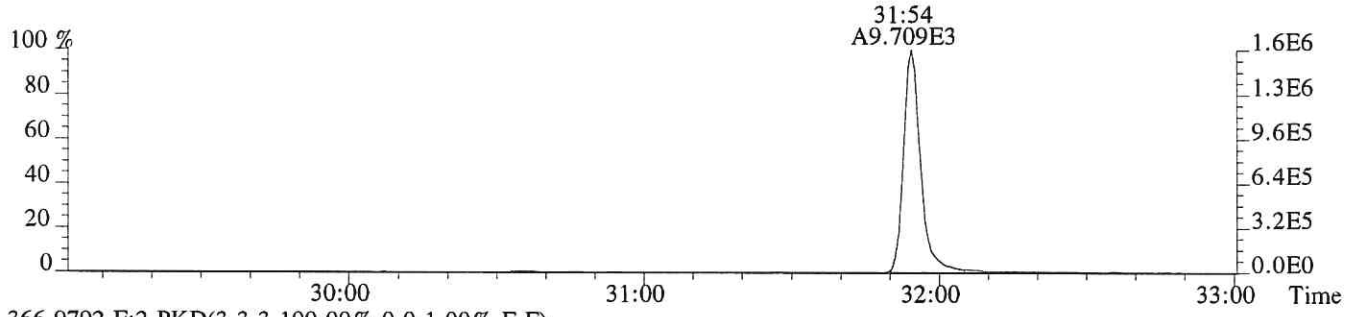
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



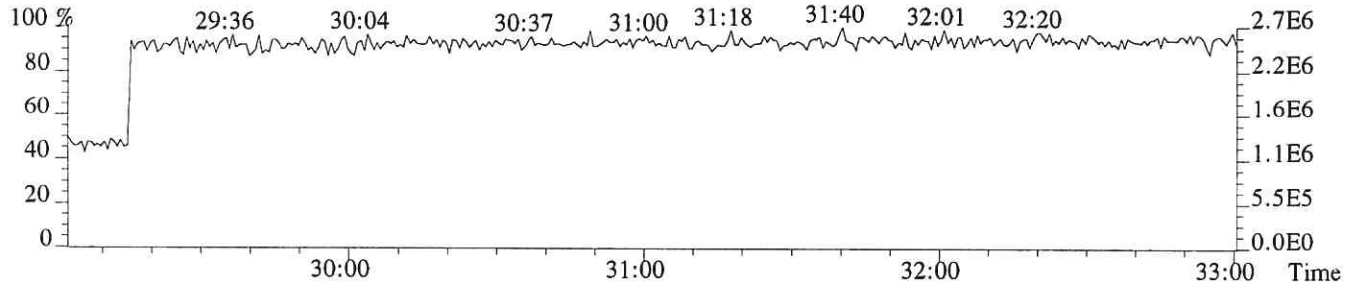
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



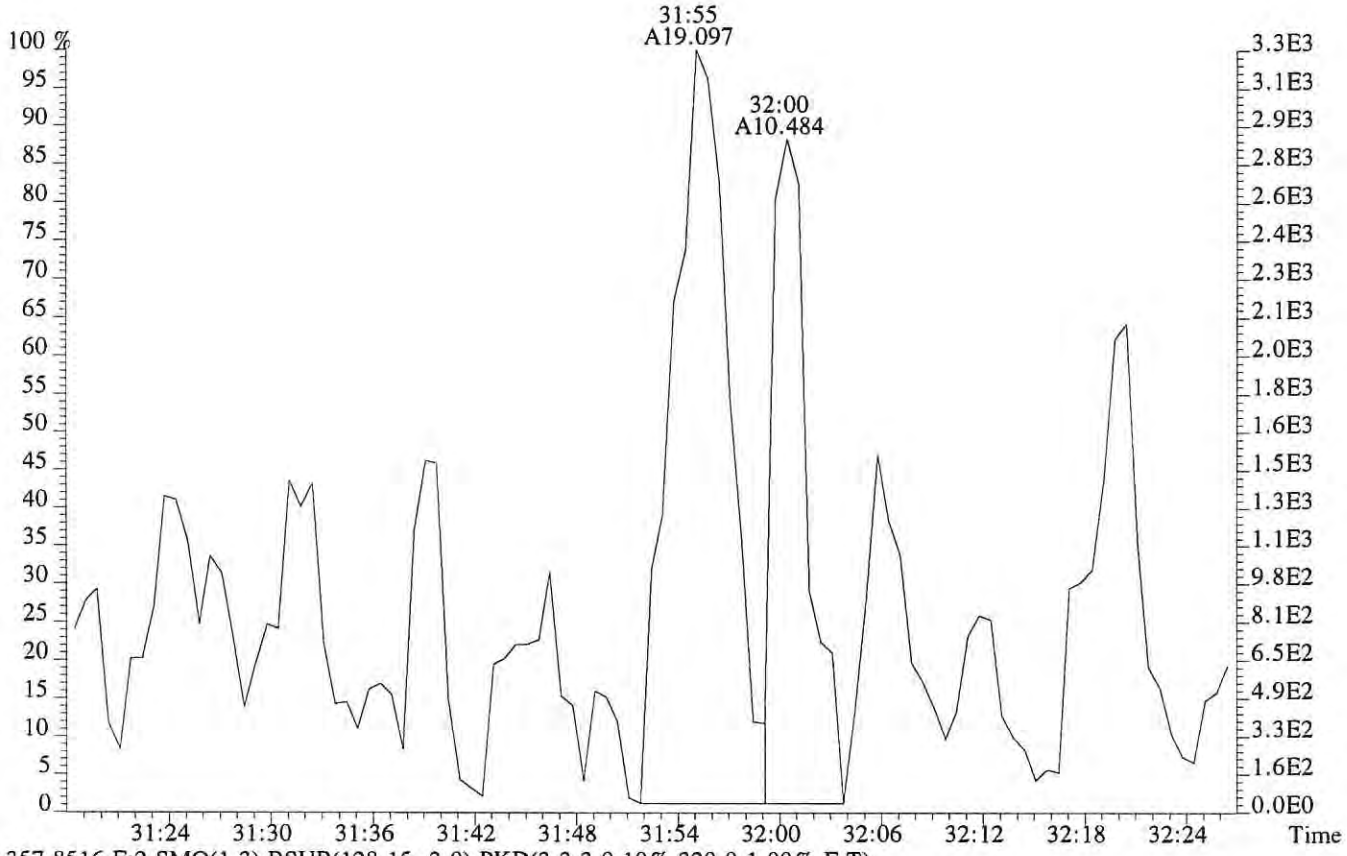
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



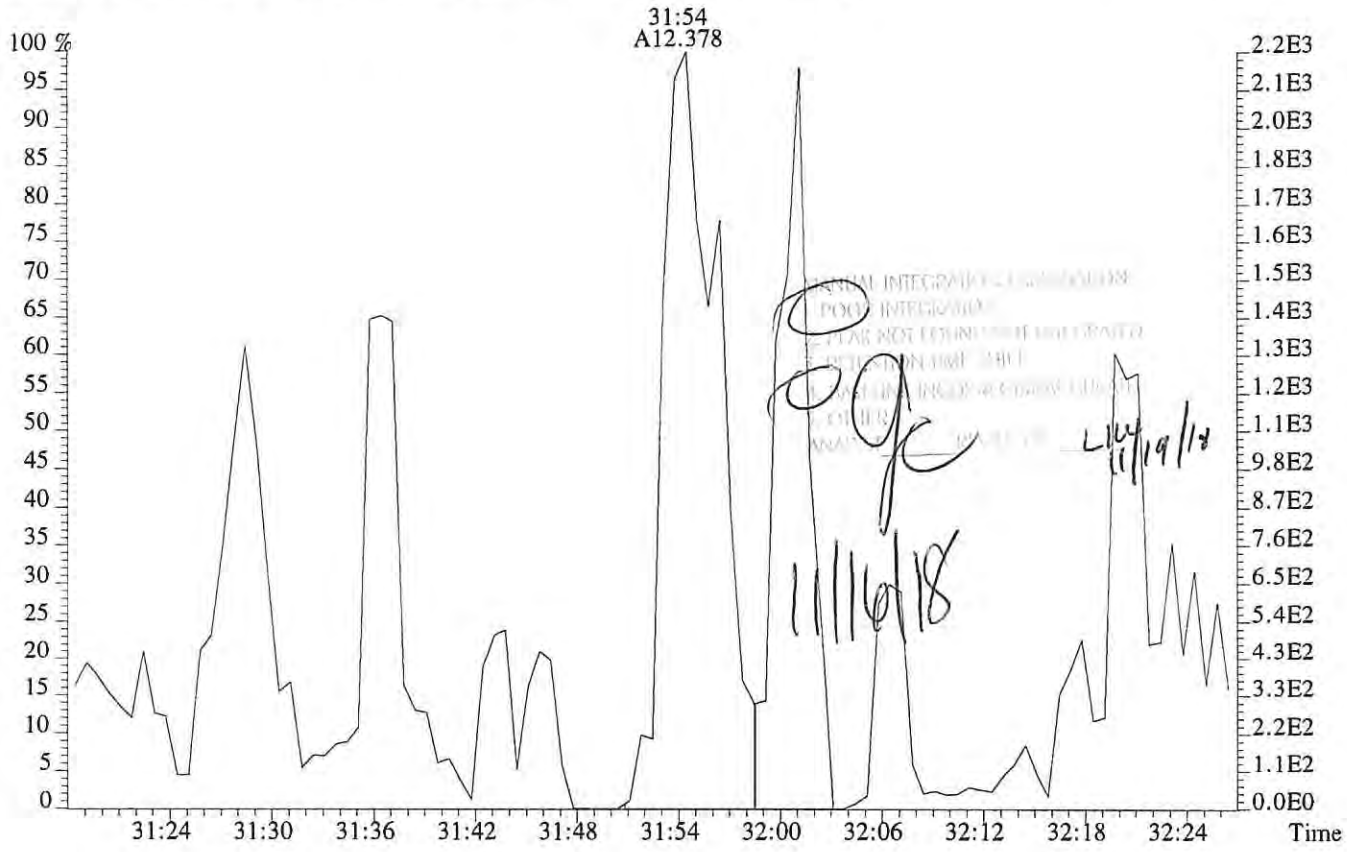
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



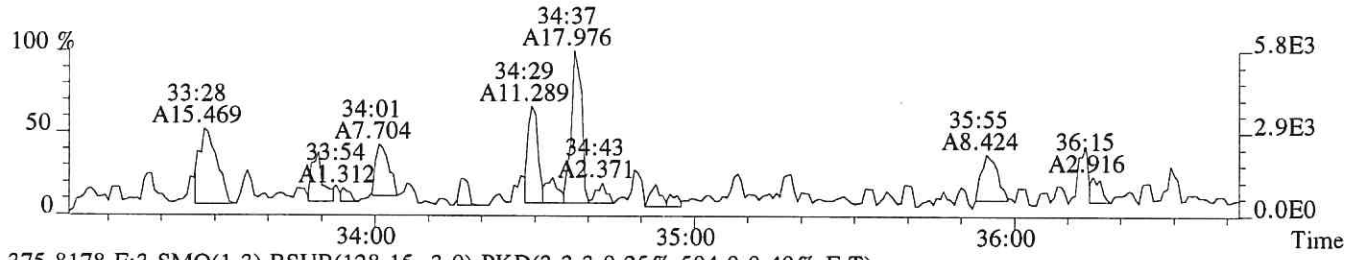
File:P518836 #1-357 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



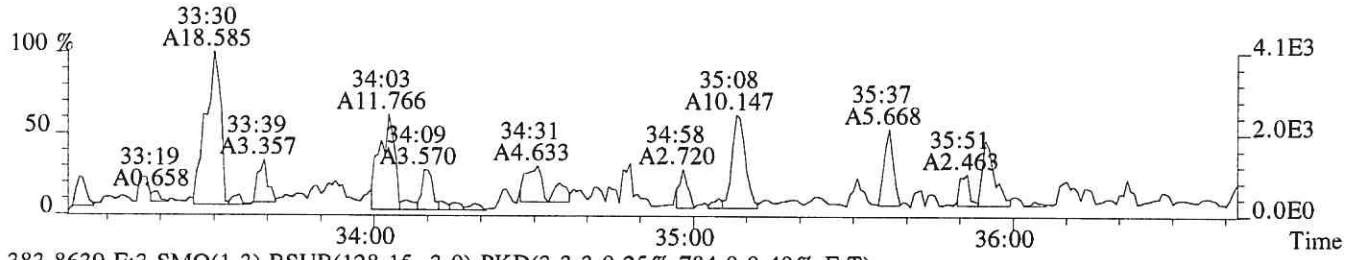
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



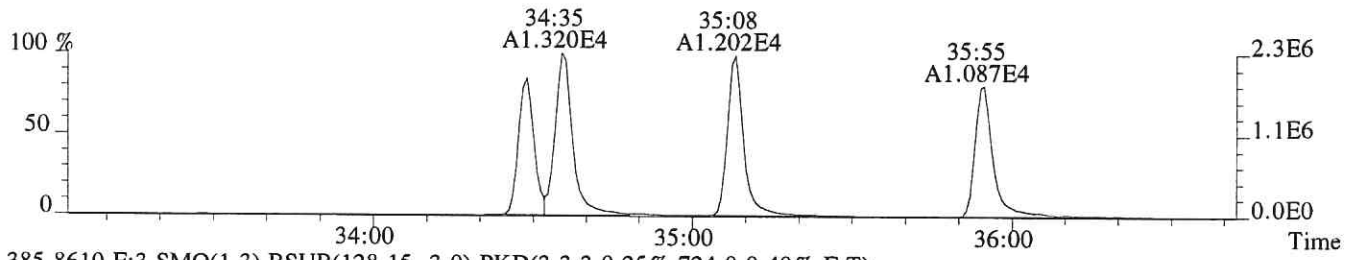
File:P518836 #1-330 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



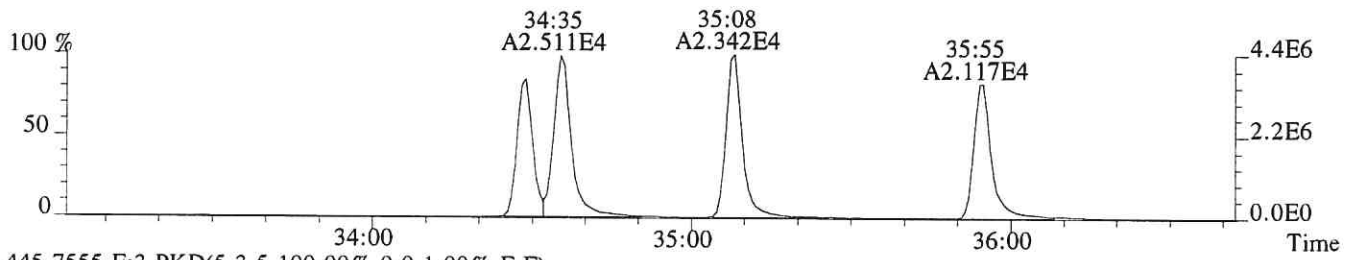
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



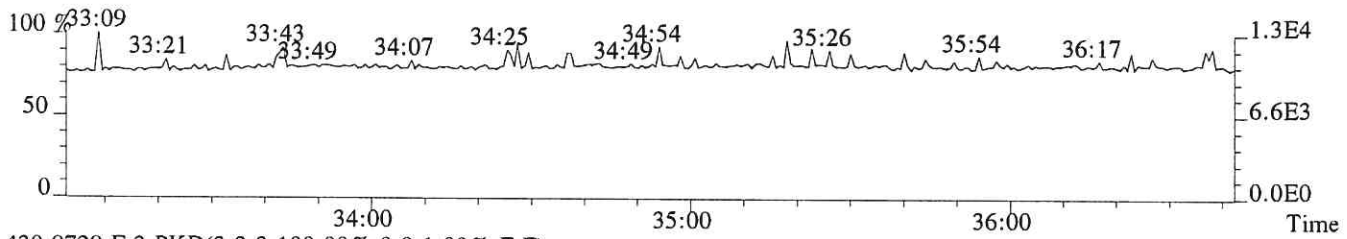
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



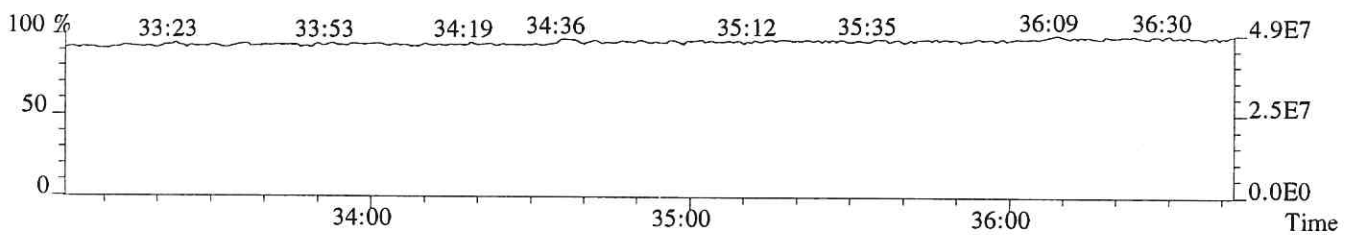
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



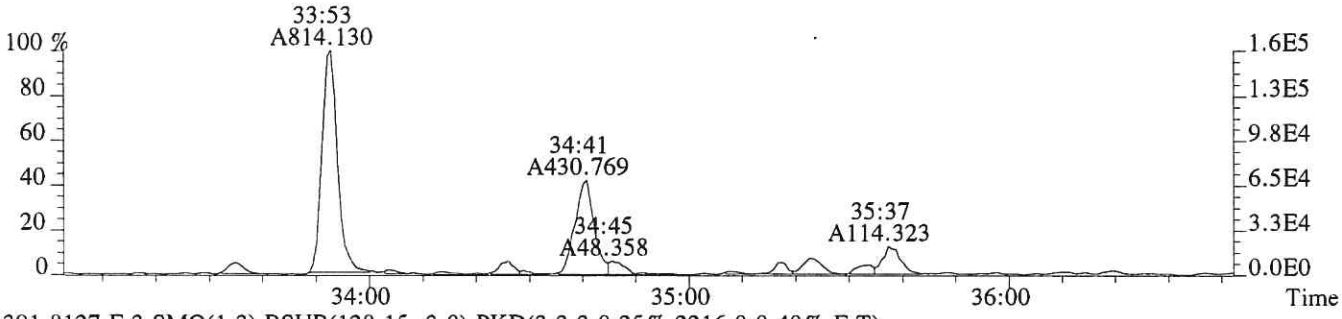
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



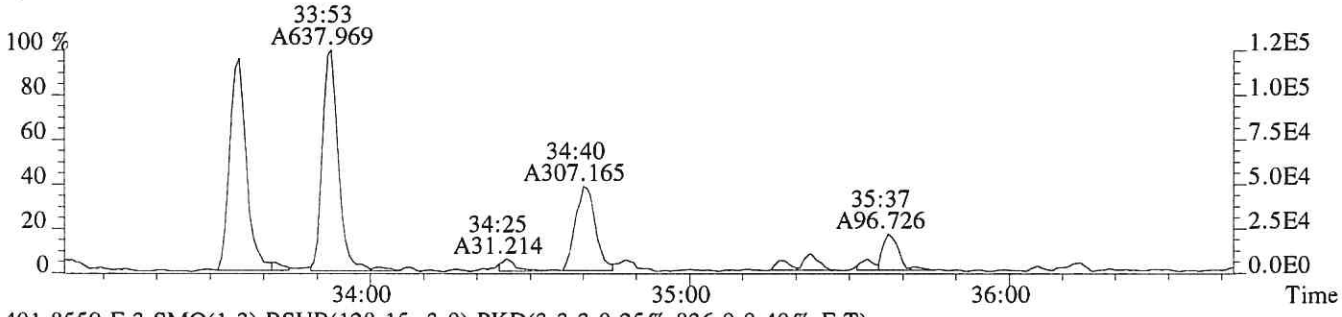
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



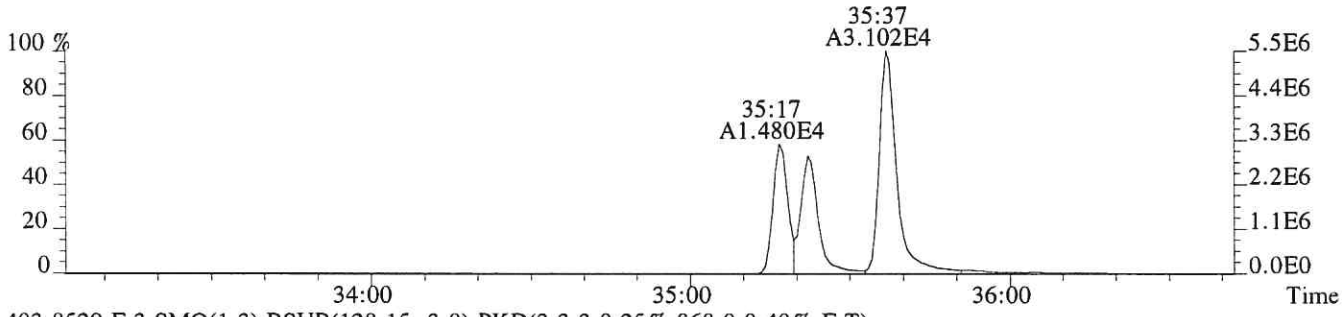
File:P518836 #1-330 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



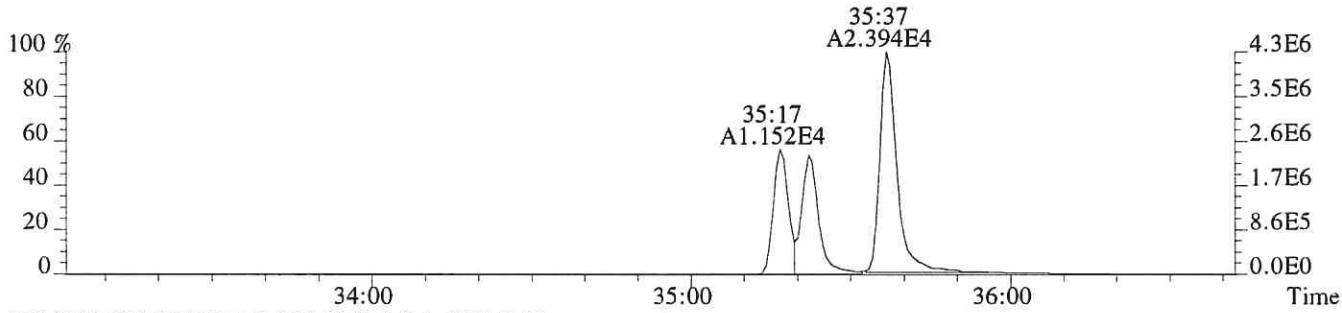
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



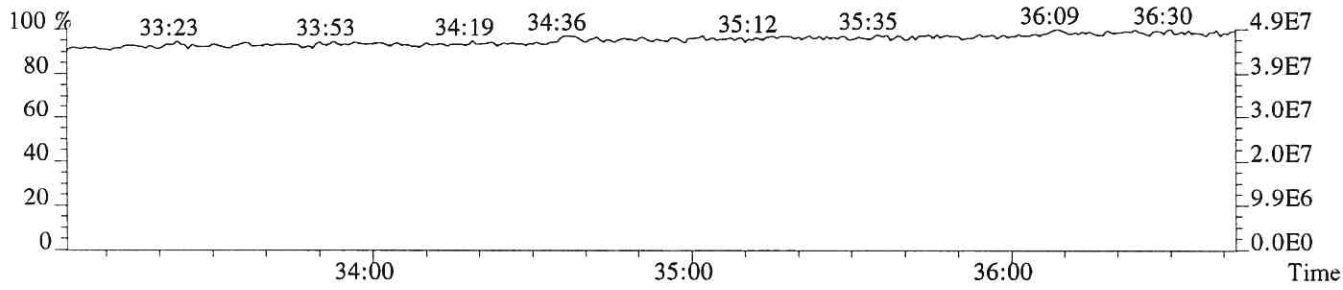
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



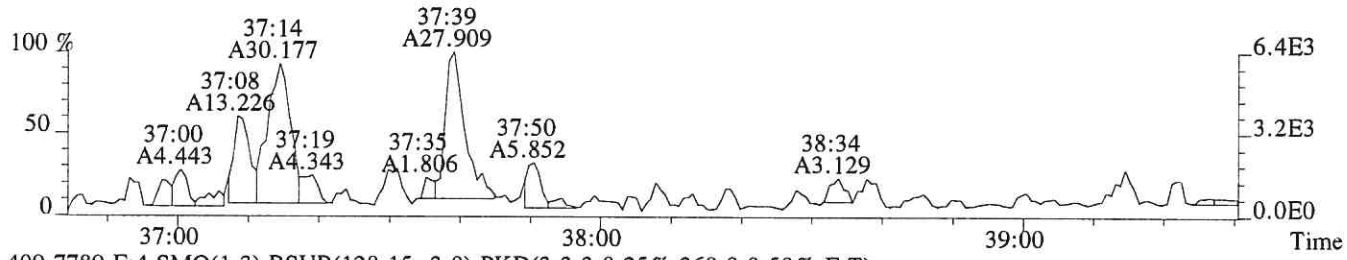
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



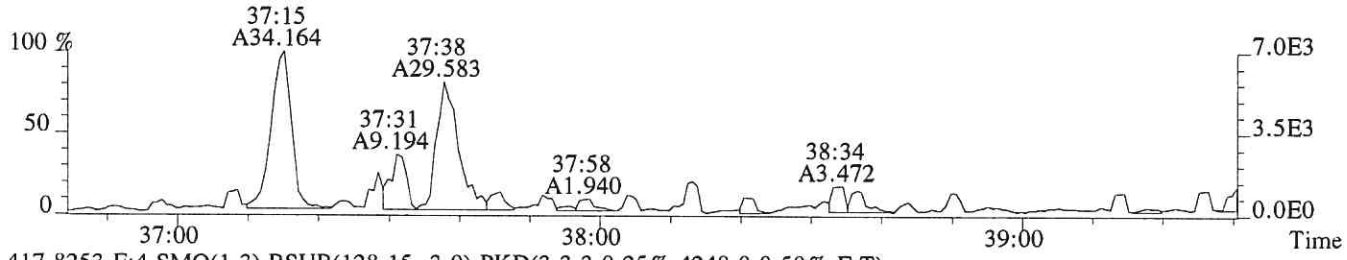
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



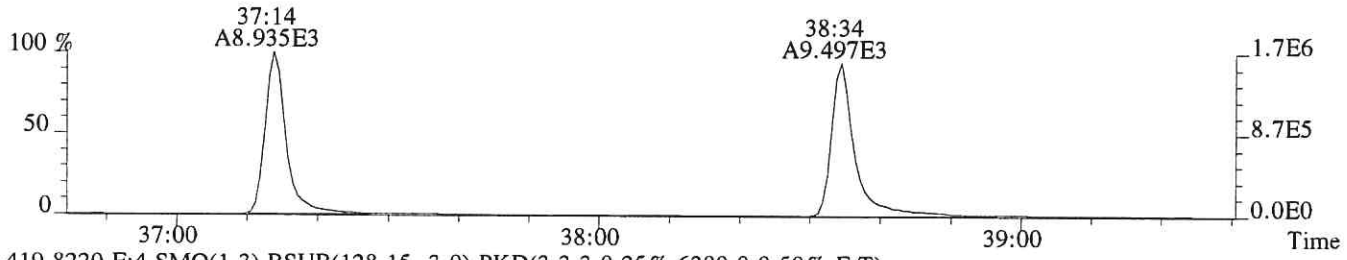
File:P518836 #1-250 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.50%,F,T)



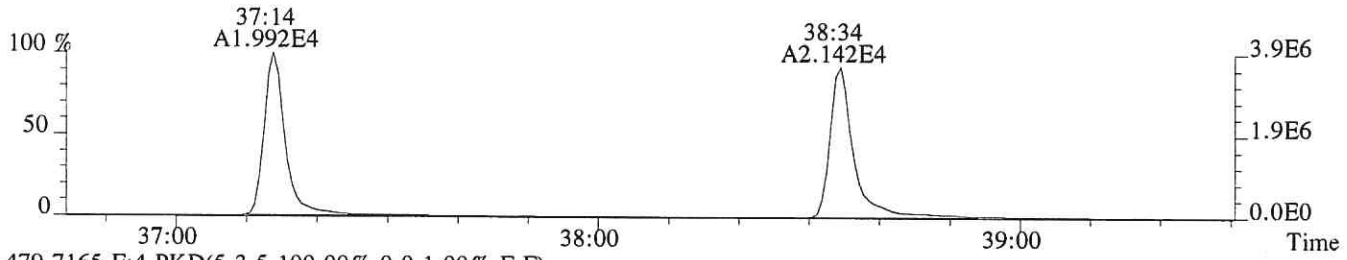
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.50%,F,T)



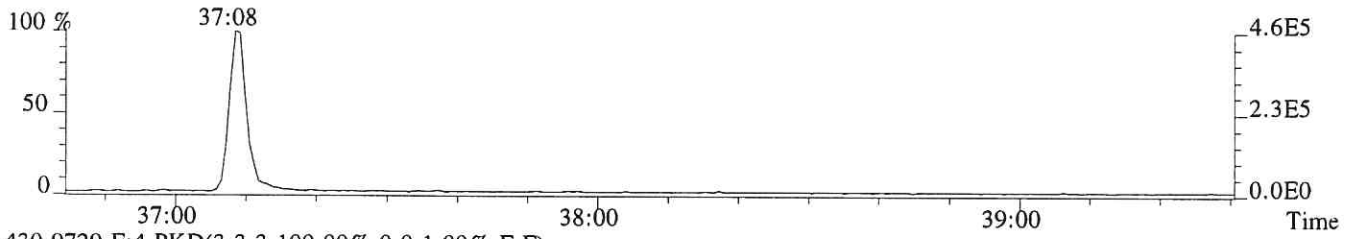
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4248.0,0.50%,F,T)



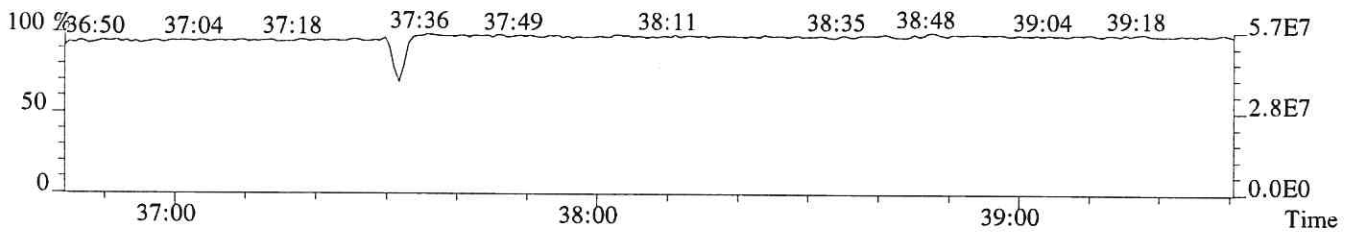
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6380.0,0.50%,F,T)



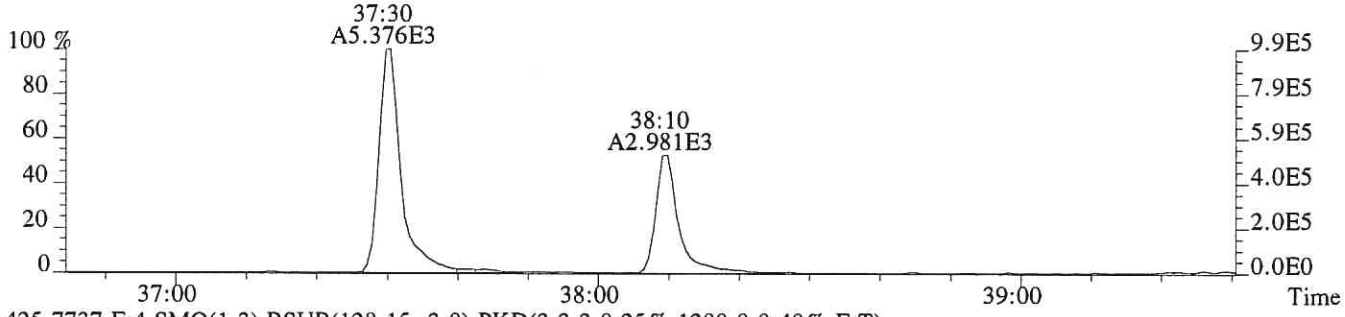
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



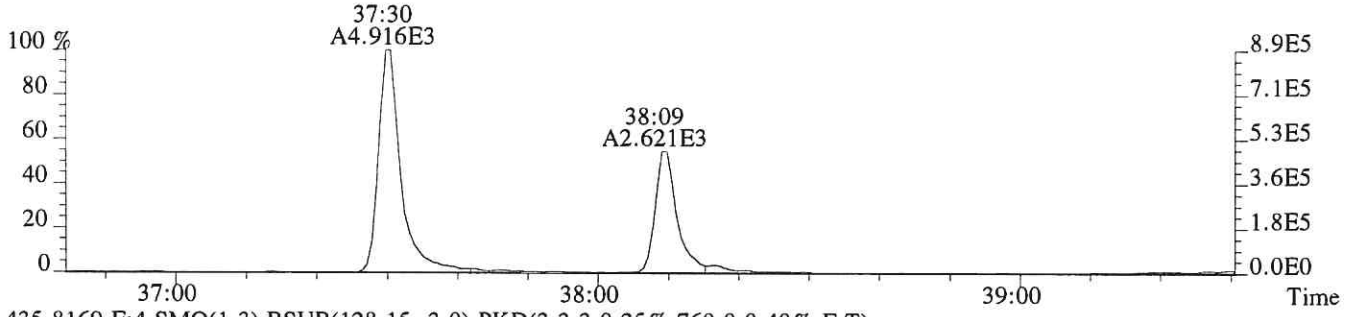
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



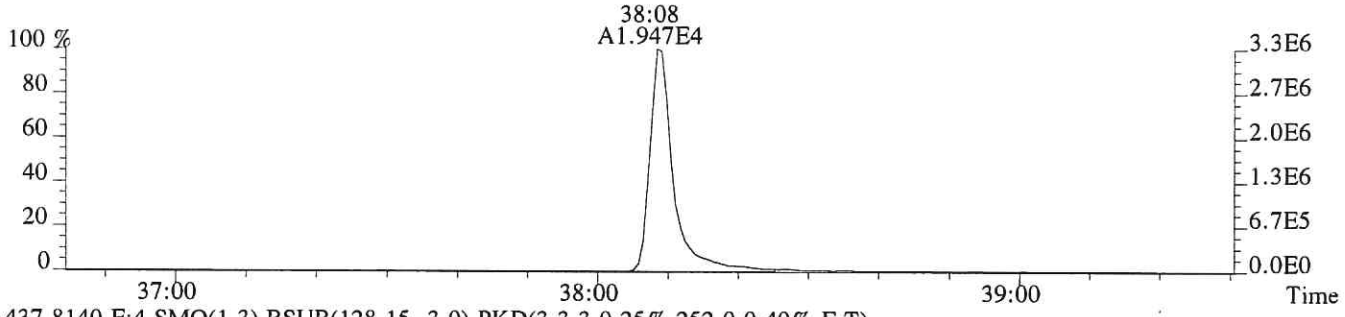
File:P518836 #1-250 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3124.0,0.40%,F,T)



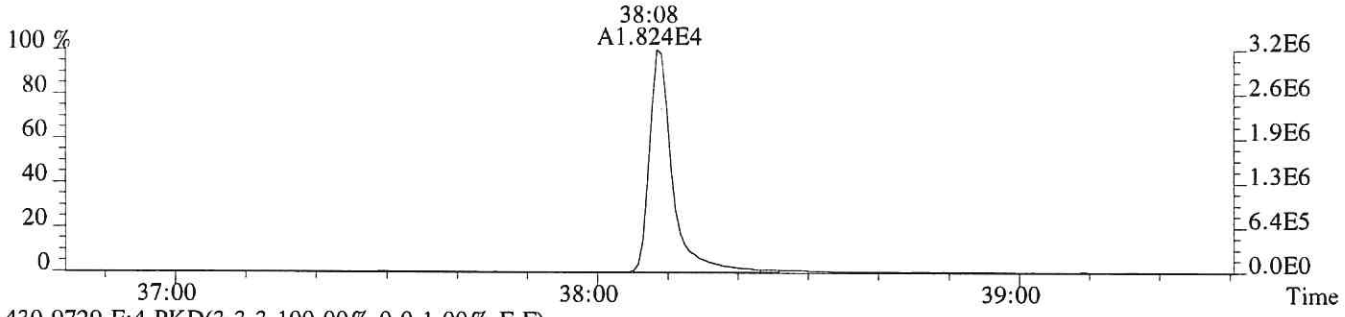
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



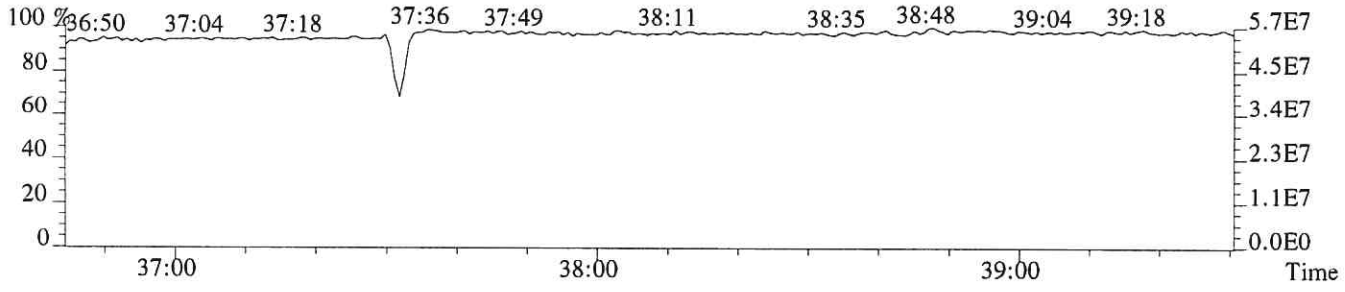
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



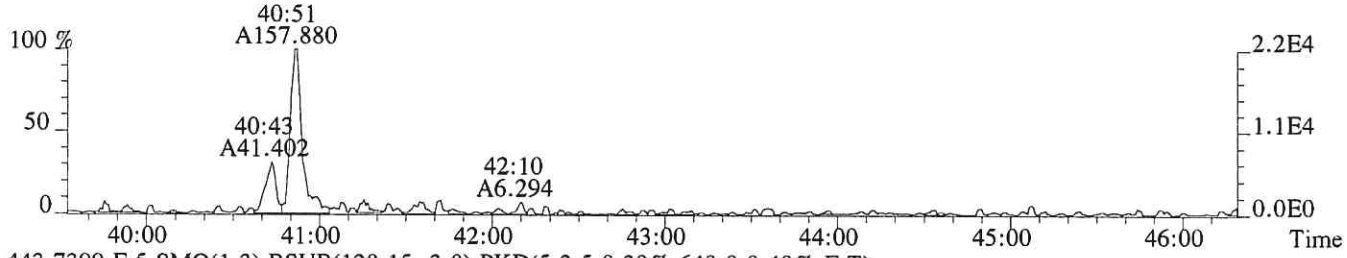
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



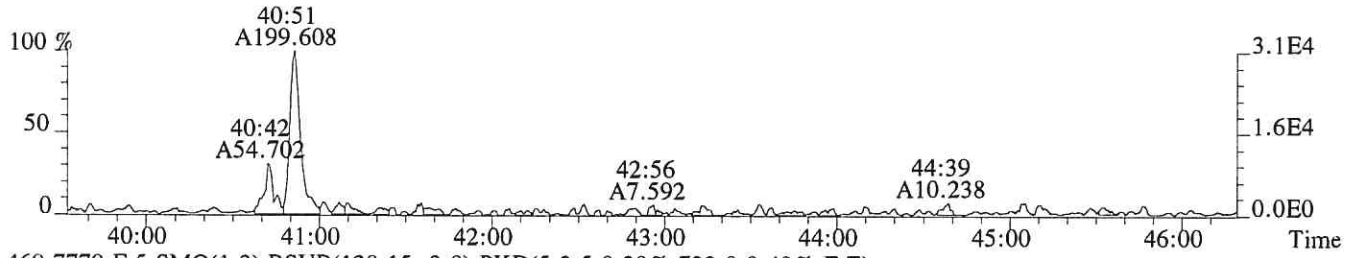
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



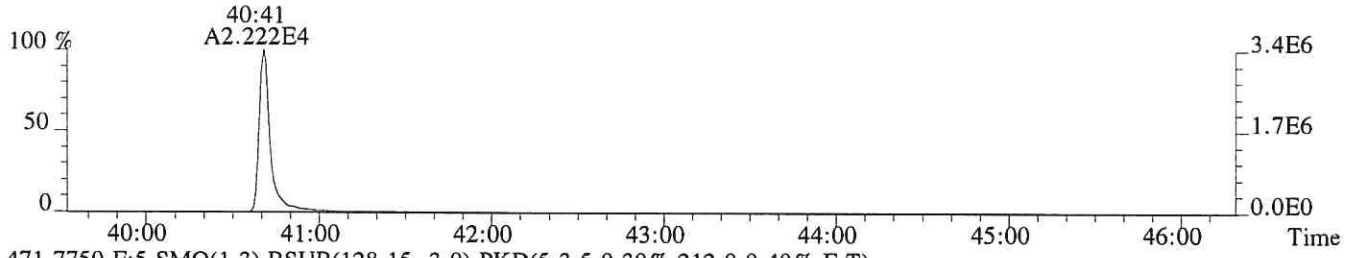
File:P518836 #1-610 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



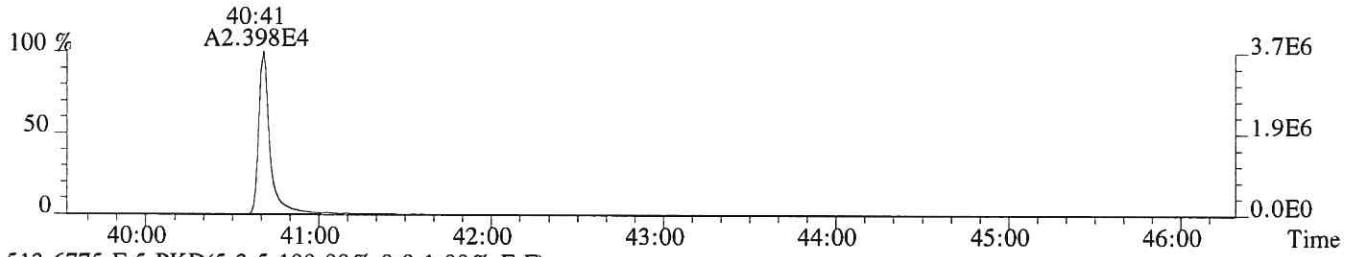
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



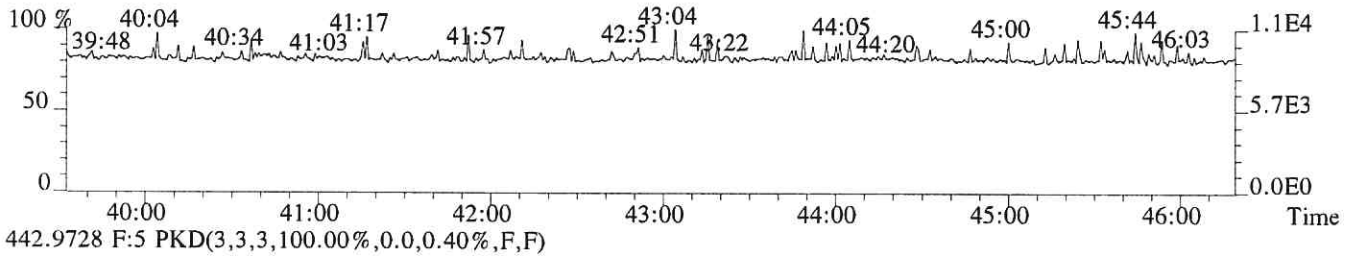
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



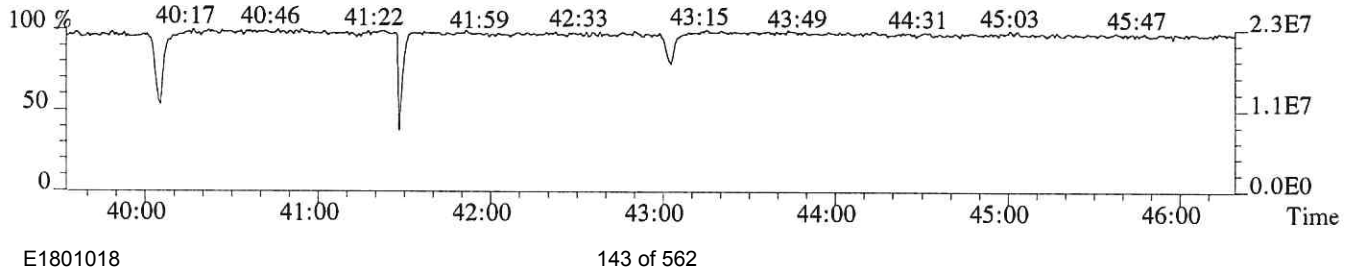
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



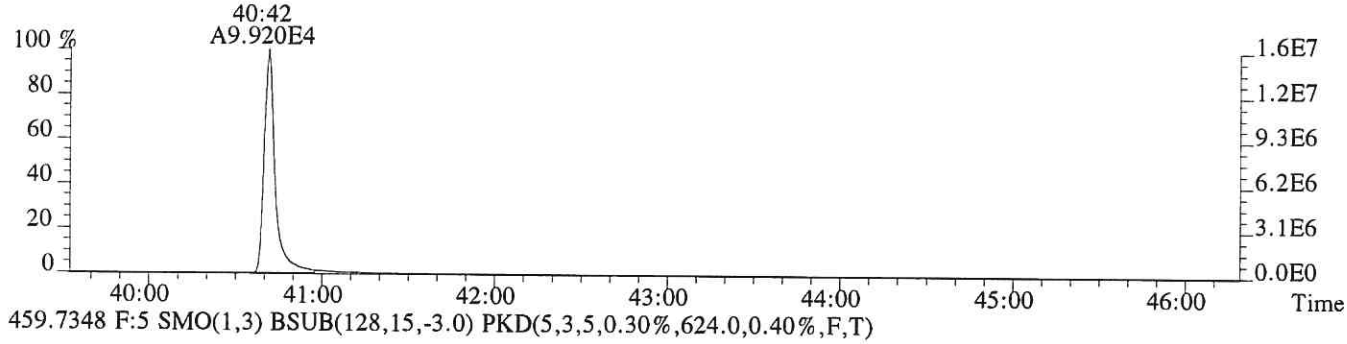
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



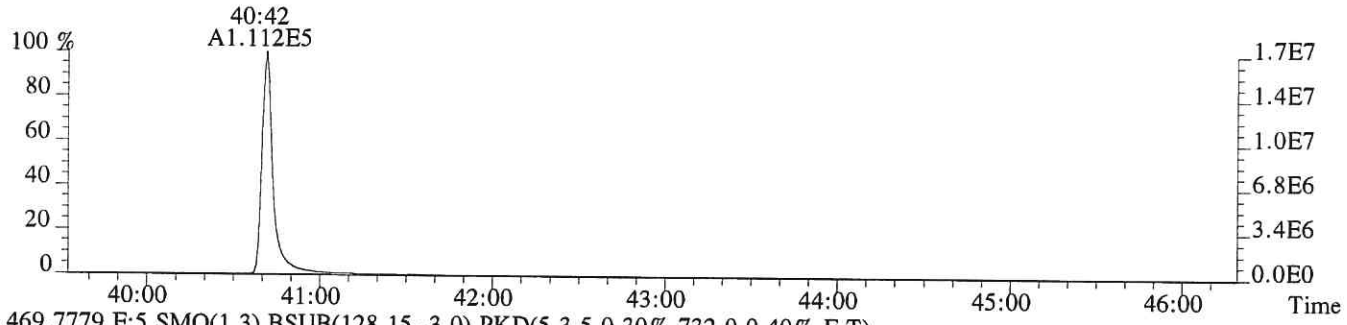
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



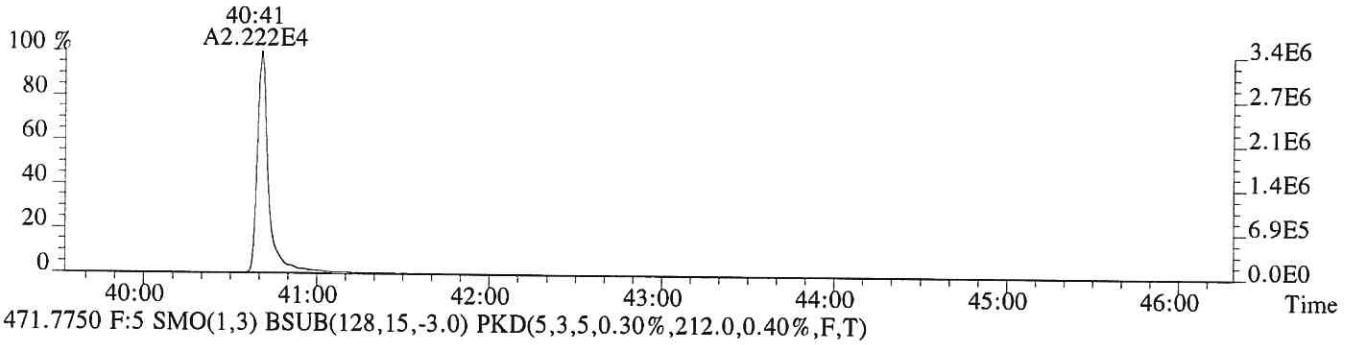
File:P518836 #1-610 Acq:15-NOV-2018 22:28:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



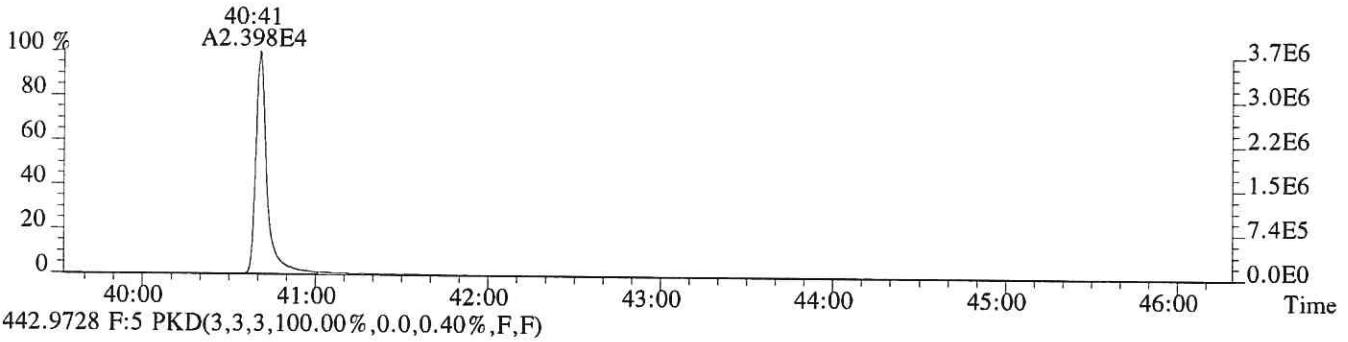
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



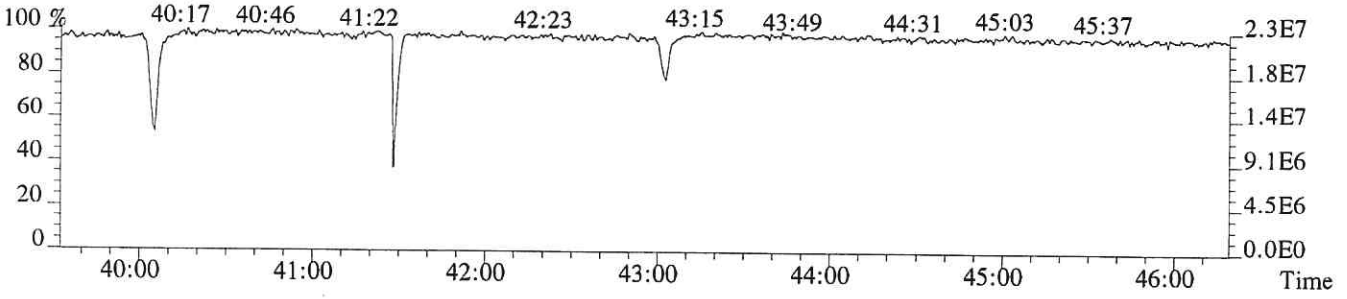
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0503

Run #12 Filename P518842 Samp: 1 Inj: 1 Acquired: 16-NOV-18 03:34:44
Processed: 19-NOV-18 09:11:50 Sample ID: E1801018-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	5.403e+01	8.518e+01	0.63	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	7.555e+00	6.112e+00	1.24	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:35	1.073e+01	4.870e+00	2.20	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.820e+01	1.275e+01	1.43	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	40:51	3.981e+01	4.358e+01	0.91	yes	yes	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	1.643e+01	1.392e+01	1.18	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	4.154e+02	3.695e+02	1.12	yes	no	1.025
17	Unk	OCDD	40:42	1.539e+04	1.719e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	6.350e+03	8.149e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.170e+04	7.461e+03	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	1.195e+04	7.233e+03	1.65	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	5.547e+03	1.048e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	7.488e+03	1.448e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	6.590e+03	1.233e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	5.134e+03	9.907e+03	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	5.076e+03	1.196e+04	0.42	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	4.964e+03	1.105e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	4.210e+03	5.525e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	8.208e+03	5.097e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	8.367e+03	6.516e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	8.747e+03	6.882e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.092e+04	9.967e+03	1.10	yes	no	0.858
32	IS	13C-OCDD	40:42	1.244e+04	1.364e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	1.280e+04	1.590e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	2.061e+04	1.625e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	6.154e+03				no	1.014

$$\text{OCDD} = \frac{(1.539e+04 + 1.719e+04) \times 4000\ \text{pg} \times 1}{(1.244e+04 + 1.364e+04) \times 10.422\text{g} \times 62.2/100 \times 1.118} = 689.4777\ \text{ng/Kg}$$

LG 11/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0503

Run #12 Filename P518842 Samp: 1 Inj: 1 Acquired: 16-NOV-18 03:34:44
Processed: 19-NOV-18 09:11:50 LAB. ID: E1801018-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.72e+03	5.64e+02	1.5e+01	1.25e+04	1.16e+03	1.1e+01
2	1,2,3,7,8-PeCDF	*	1.68e+02	*	*	9.80e+02	*
3	2,3,4,7,8-PeCDF	*	1.68e+02	*	*	9.80e+02	*
4	1,2,3,4,7,8-HxCDF	1.60e+03	3.52e+02	4.6e+00	1.66e+03	3.24e+02	5.1e+00
5	1,2,3,6,7,8-HxCDF	2.08e+03	3.52e+02	5.9e+00	1.30e+03	3.24e+02	4.0e+00
6	2,3,4,6,7,8-HxCDF	*	3.52e+02	*	*	3.24e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.52e+02	*	*	3.24e+02	*
8	1,2,3,4,6,7,8-HpCDF	4.45e+03	4.64e+02	9.6e+00	2.44e+03	2.76e+02	8.9e+00
9	1,2,3,4,7,8,9-HpCDF	*	4.64e+02	*	*	2.76e+02	*
10	OCDF	6.05e+03	3.20e+02	1.9e+01	6.41e+03	7.40e+02	8.7e+00
11	2,3,7,8-TCDD	*	1.86e+03	*	*	8.44e+02	*
12	1,2,3,7,8-PeCDD	*	4.76e+02	*	*	2.88e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.12e+02	*	*	7.92e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.12e+02	*	*	7.92e+02	*
15	1,2,3,7,8,9-HxCDD	3.42e+03	6.12e+02	5.6e+00	4.03e+03	7.92e+02	5.1e+00
16	1,2,3,4,6,7,8-HpCDD	7.45e+04	3.40e+02	2.2e+02	7.21e+04	1.59e+03	4.5e+01
17	OCDD	2.38e+06	2.04e+02	1.2e+04	2.64e+06	1.32e+02	2.0e+04
18	13C-2,3,7,8-TCDF	8.15e+05	4.37e+03	1.9e+02	1.01e+06	2.74e+03	3.7e+02
19	13C-1,2,3,7,8-PeCDF	1.81e+06	5.32e+02	3.4e+03	1.16e+06	7.20e+02	1.6e+03
20	13C-2,3,4,7,8-PeCDF	1.97e+06	5.32e+02	3.7e+03	1.19e+06	7.20e+02	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.14e+06	3.44e+02	3.3e+03	2.15e+06	5.44e+02	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	1.27e+06	3.44e+02	3.7e+03	2.47e+06	5.44e+02	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.25e+06	3.44e+02	3.6e+03	2.35e+06	5.44e+02	4.3e+03
24	13C-1,2,3,7,8,9-HxCDF	9.20e+05	3.44e+02	2.7e+03	1.81e+06	5.44e+02	3.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.85e+05	9.52e+02	1.0e+03	2.30e+06	2.50e+03	9.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.25e+05	9.52e+02	8.7e+02	1.92e+06	2.50e+03	7.7e+02
27	13C-2,3,7,8-TCDD	6.30e+05	4.92e+03	1.3e+02	7.68e+05	1.54e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	1.31e+06	3.04e+02	4.3e+03	8.00e+05	5.04e+02	1.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.77e+06	1.03e+03	1.7e+03	1.34e+06	7.12e+02	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.63e+06	1.03e+03	1.6e+03	1.30e+06	7.12e+02	1.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.03e+06	2.52e+02	8.1e+03	1.84e+06	2.84e+02	6.5e+03
32	13C-OCDD	1.95e+06	4.60e+02	4.2e+03	2.15e+06	2.60e+02	8.3e+03
33	13C-1,2,3,4-TCDD	1.83e+06	4.92e+03	3.7e+02	2.30e+06	1.54e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.77e+06	1.03e+03	3.7e+03	2.98e+06	7.12e+02	4.2e+03
35	37Cl-2,3,7,8-TCDD	8.72e+05	9.72e+02	9.0e+02			

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Peak List Summary

CLIENT ID.
SL0503

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P518842 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 03:34:44 Processed: 19-NOV-18 09:11:50

Mass: 373.8210 375.8180 Tot Response: 2.28e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:01	5.25e+00	3.90e+00 1.34	yes	9.15e+00		n	n
2	34:30	7.55e+00	6.11e+00 1.24	yes	1.37e+01	1,2,3,4,7,8-HxCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0503

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P518842 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 03:34:44 Processed: 19-NOV-18 09:11:50

Mass: 389.8160 391.8130 Tot Response: 3.29e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	1.19e+02	9.15e+01 1.30	yes	2.11e+02		n	n
2	34:41	4.59e+01	4.18e+01 1.10	yes	8.76e+01		n	n
3	35:38	1.64e+01	1.39e+01 1.18	yes	3.03e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0503

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P518842 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 03:34:44 Processed: 19-NOV-18 09:11:50

Mass: 423.7770 425.7740 Tot Response: 2.23e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	7.39e+02	7.04e+02 1.05	yes	1.44e+03		n	n
2	38:10	4.15e+02	3.70e+02 1.12	yes	7.85e+02	1,2,3,4,6,7,8-HpCDD	n	n

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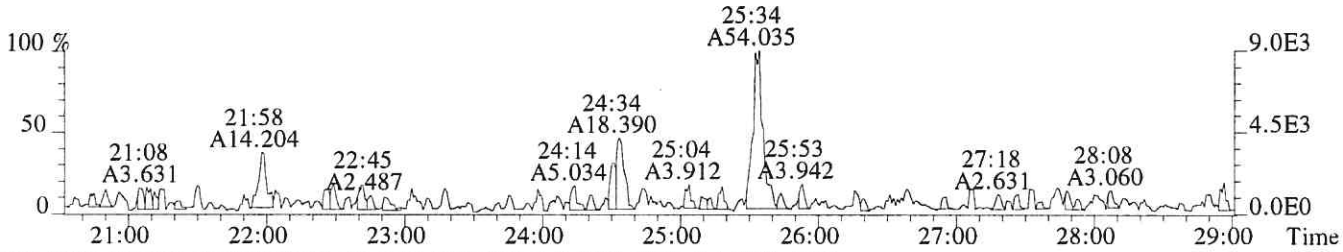
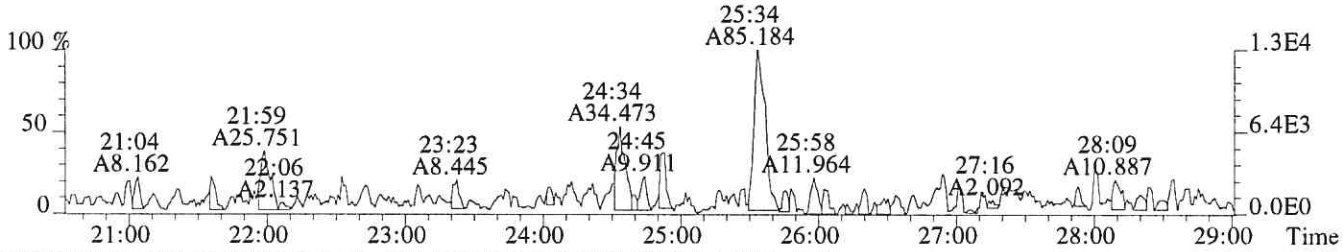
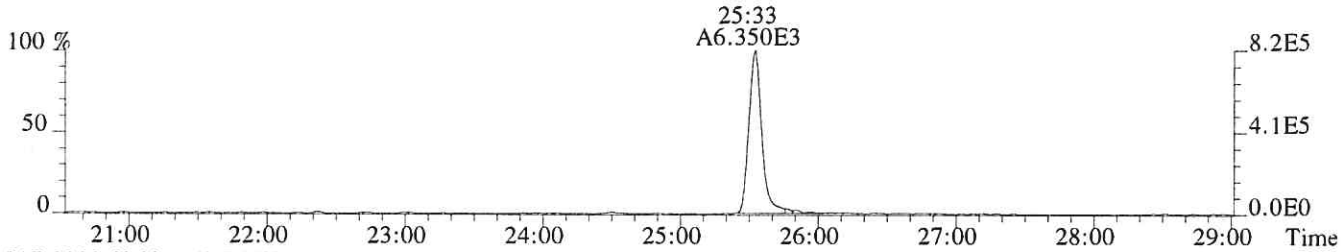
File:P518842 #1-602 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



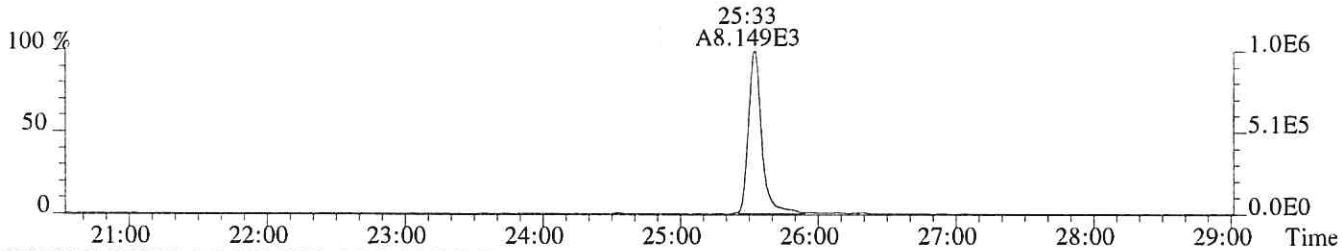
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



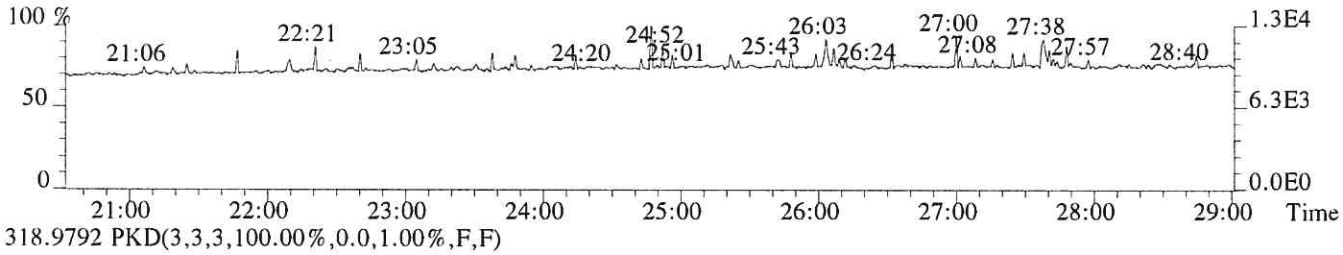
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4372.0,1.00%,F,T)



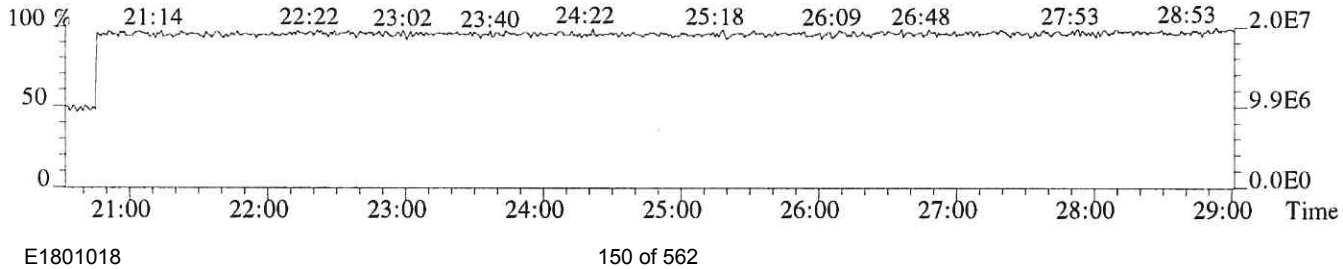
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2744.0,1.00%,F,T)



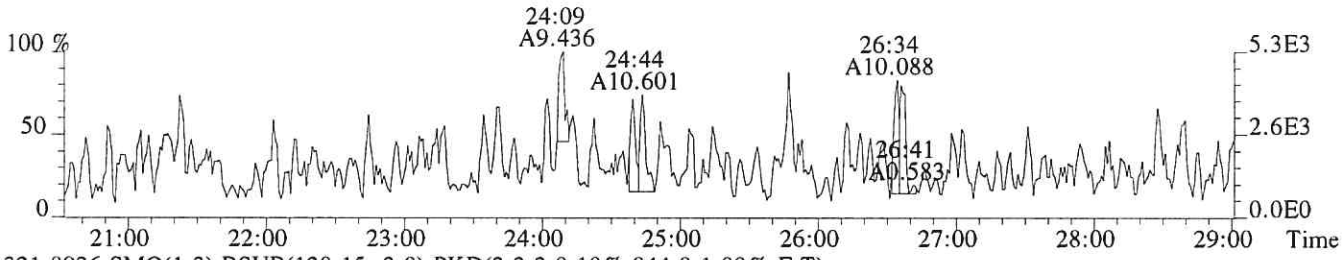
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



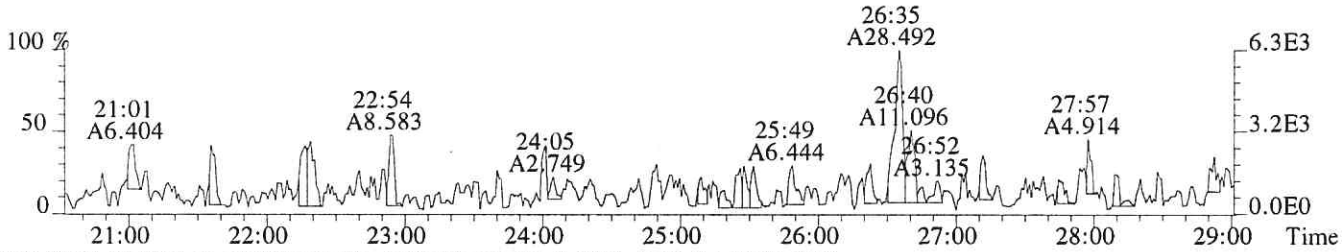
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



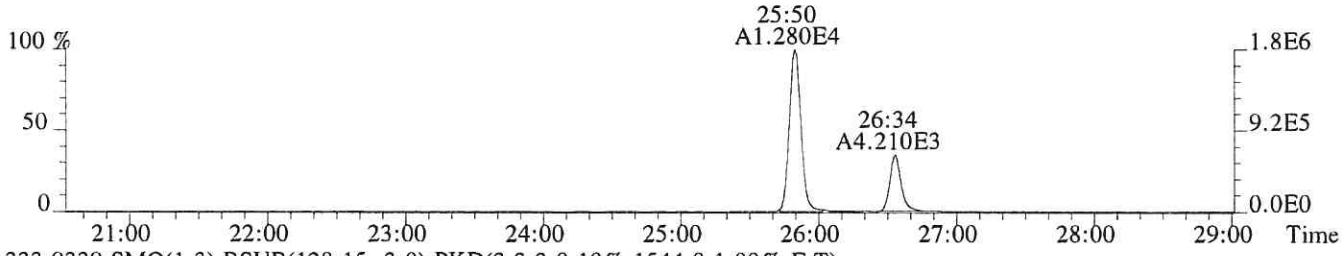
File:P518842 #1-602 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



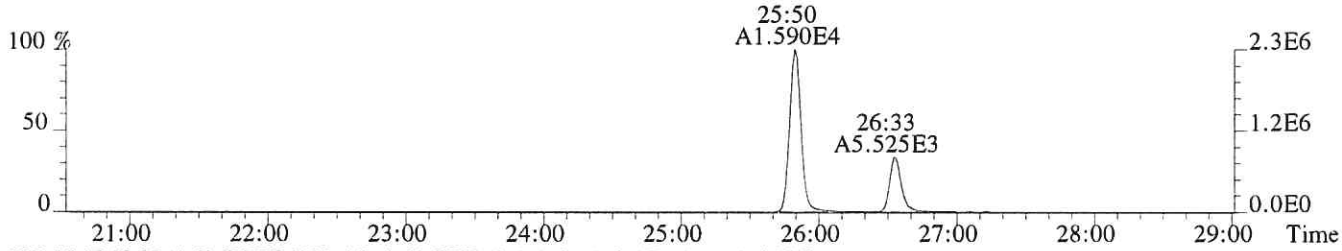
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



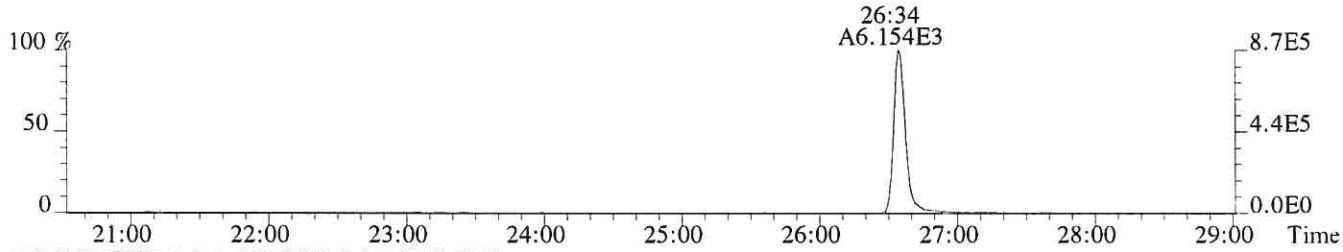
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4924.0,1.00%,F,T)



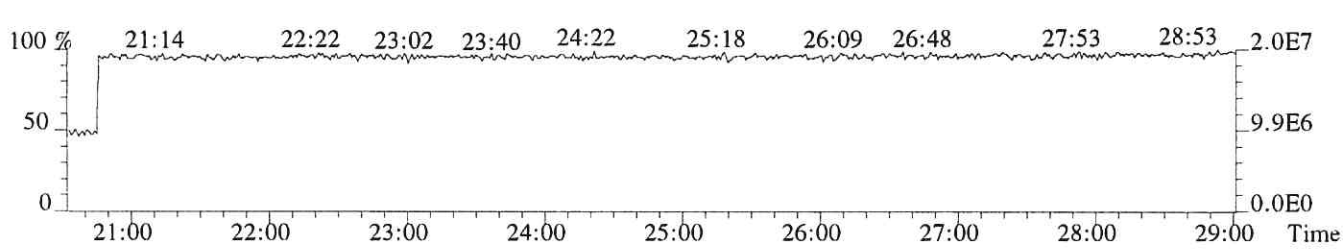
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



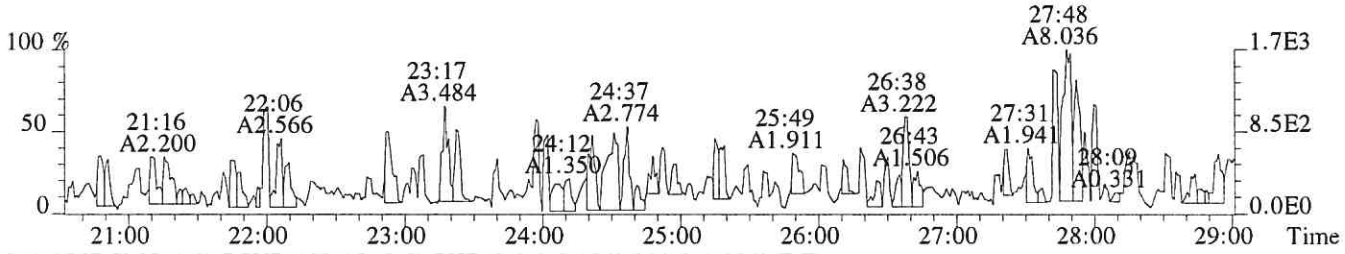
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



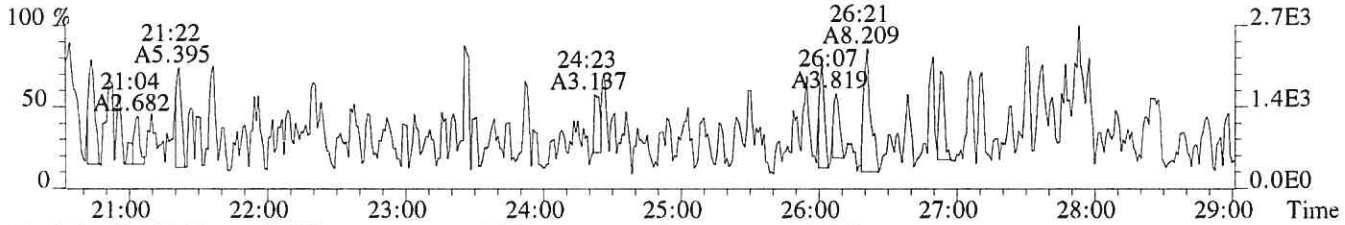
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



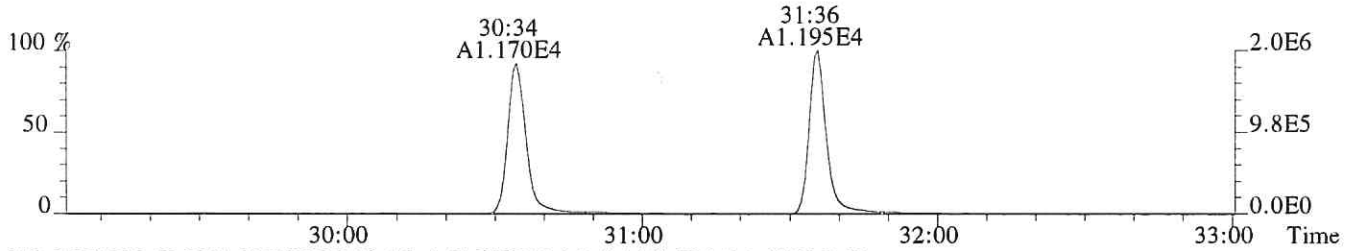
File:P518842 #1-602 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



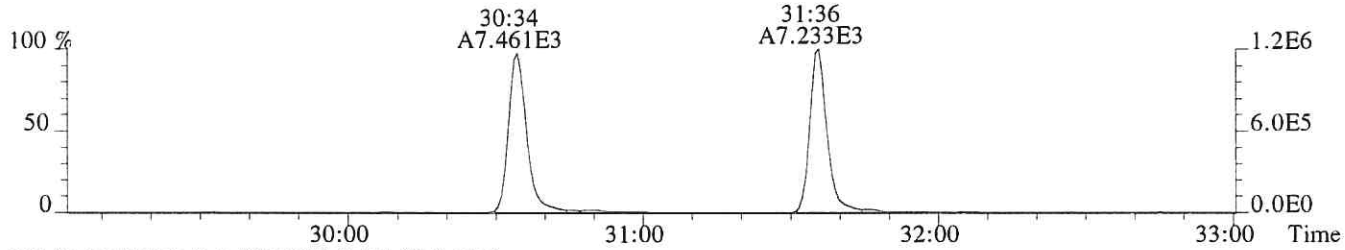
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



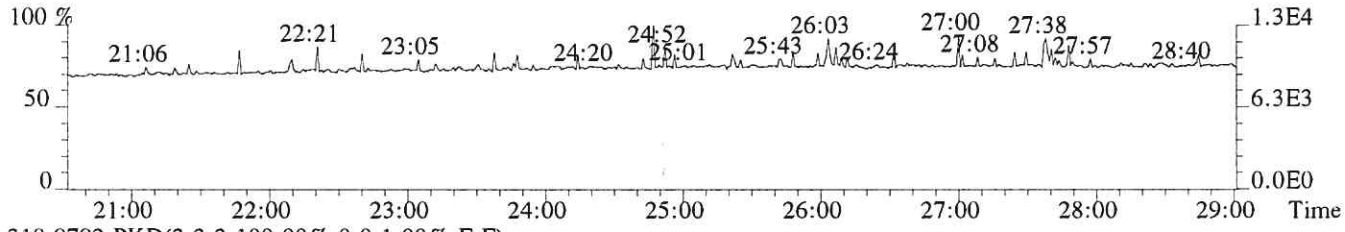
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



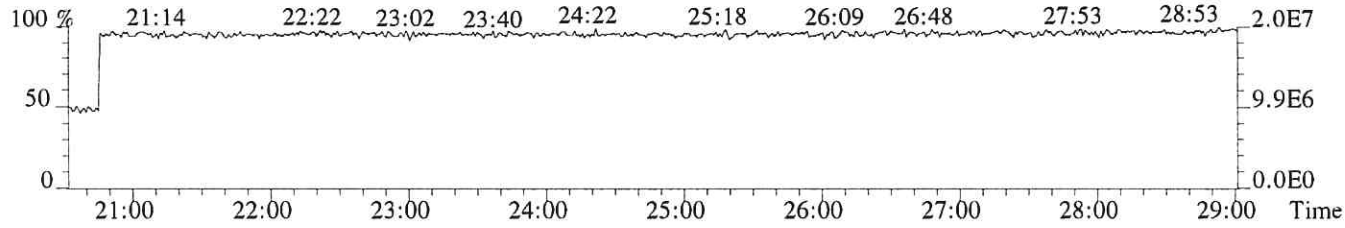
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



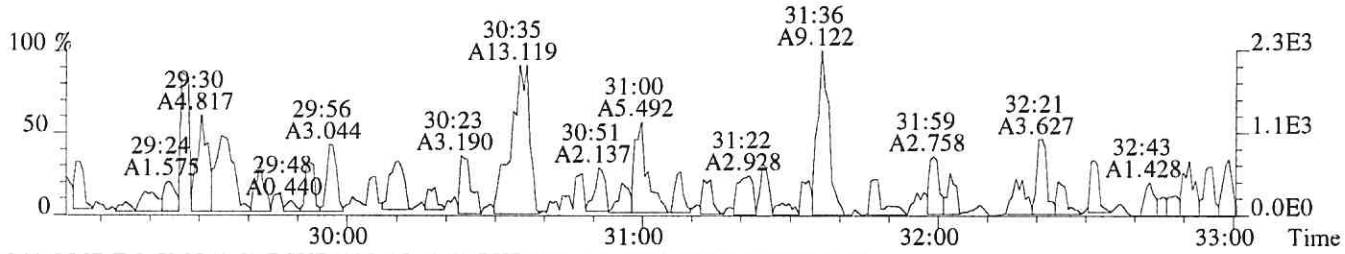
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



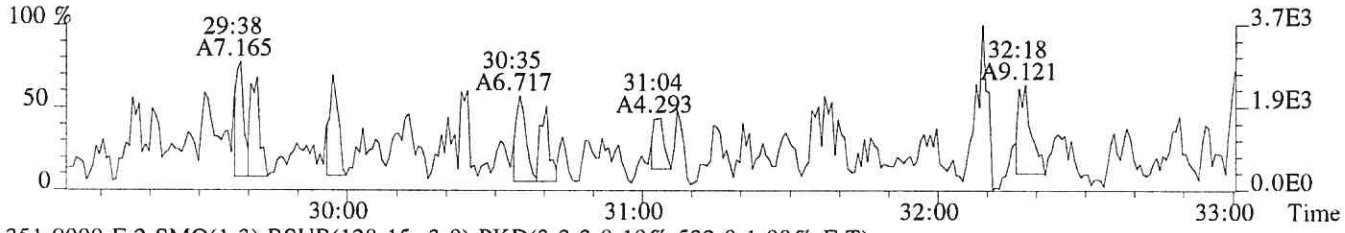
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



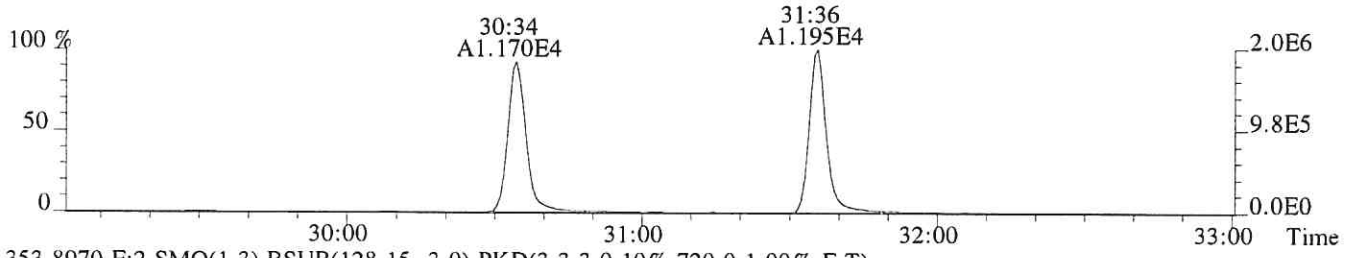
File:P518842 #1-357 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



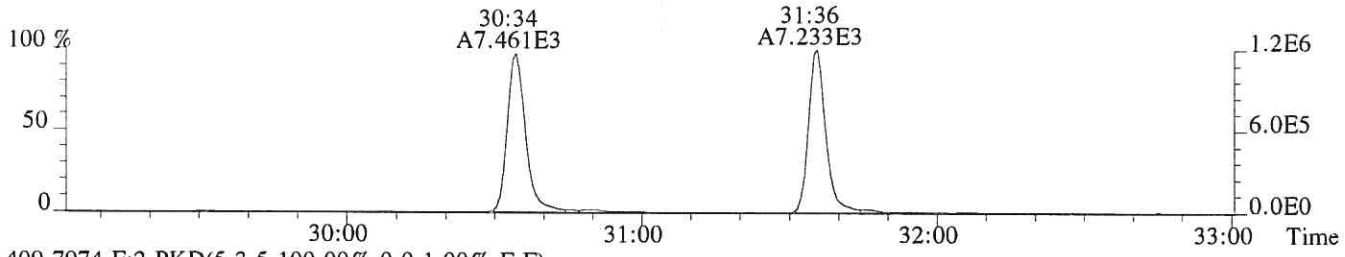
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



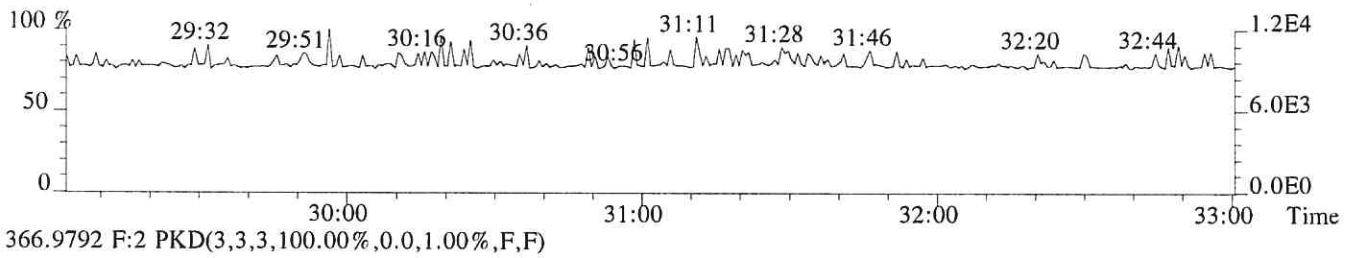
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



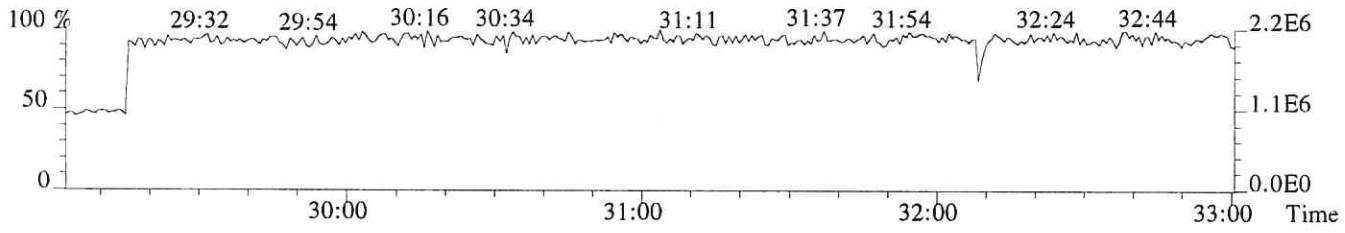
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



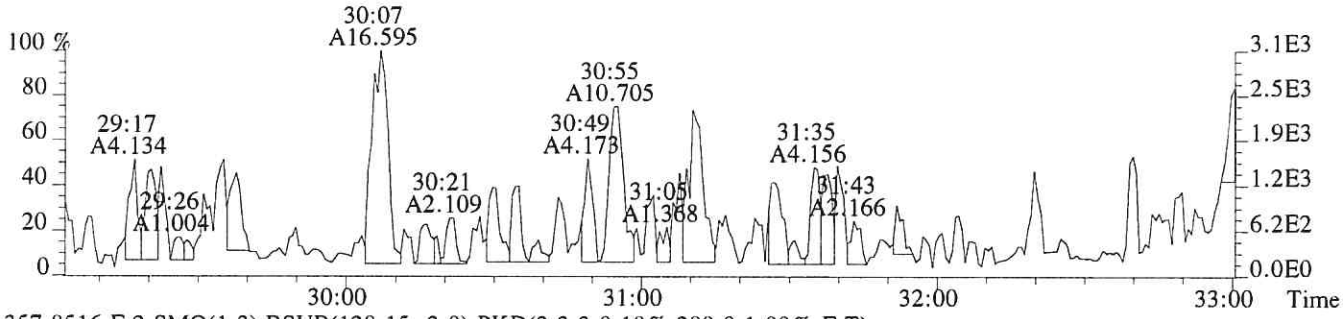
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



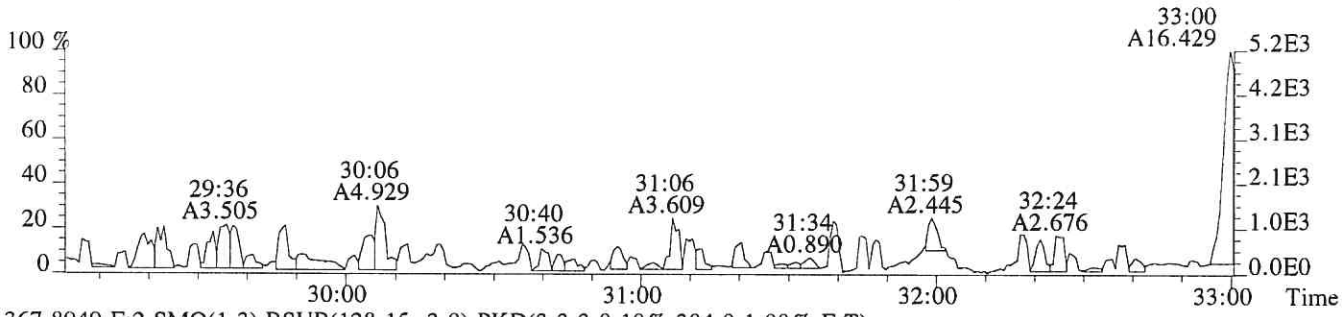
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



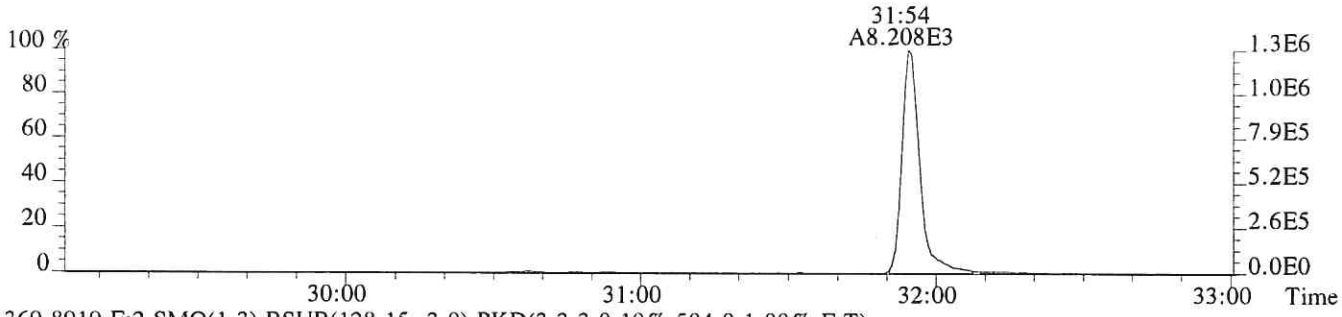
File:P518842 #1-357 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



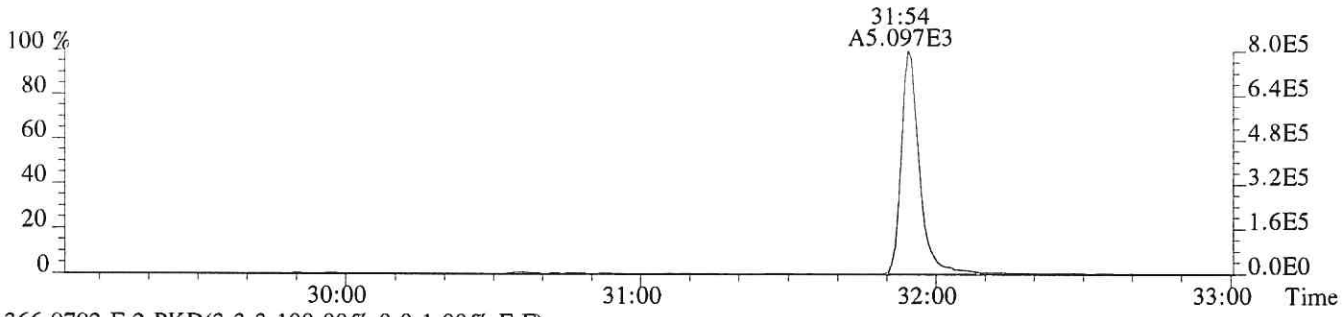
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



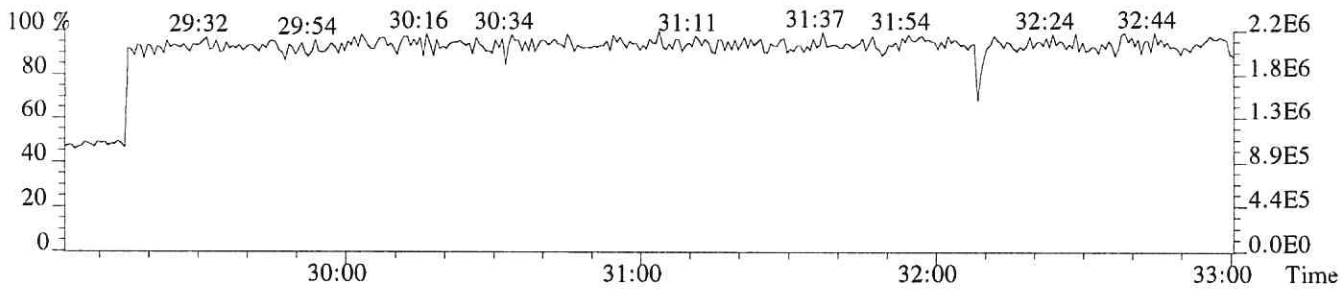
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



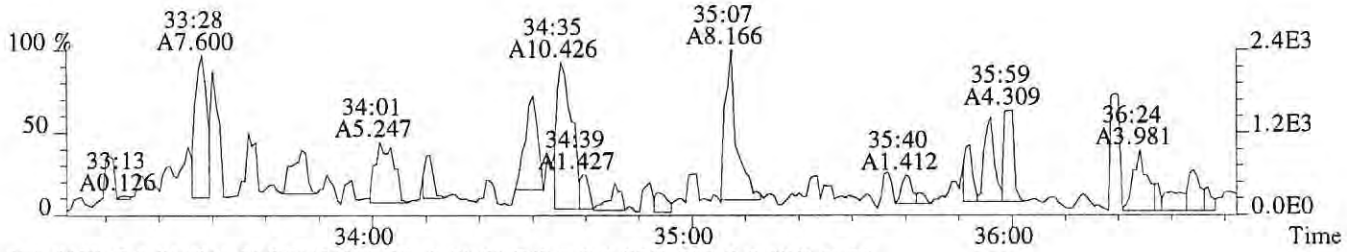
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



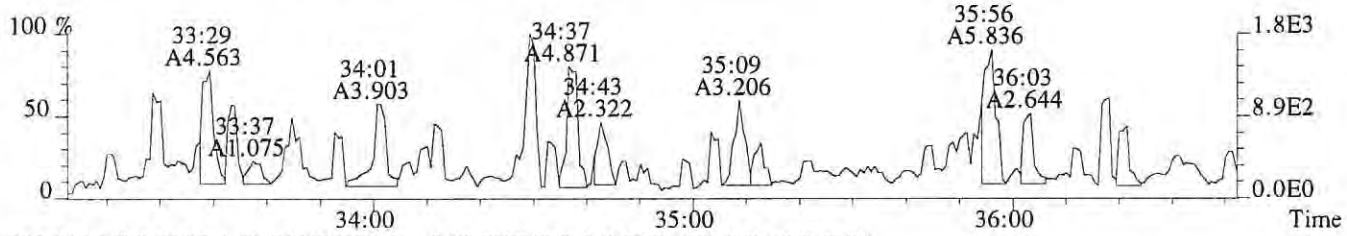
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



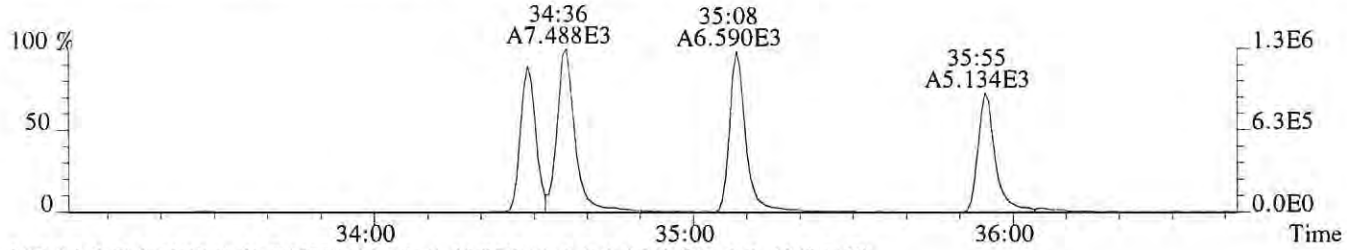
File:P518842 #1-330 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



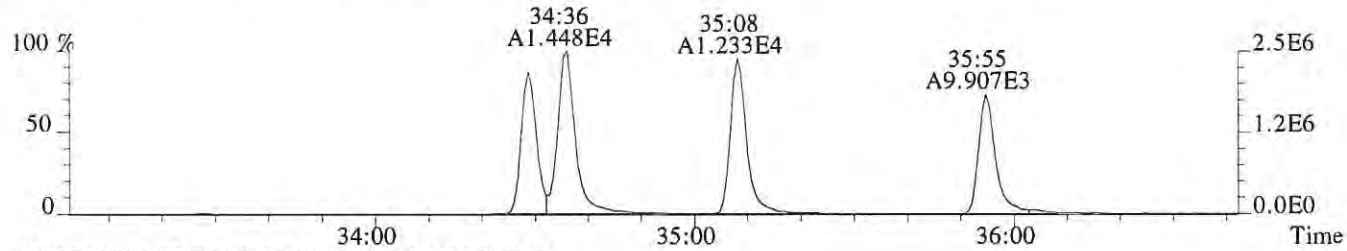
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



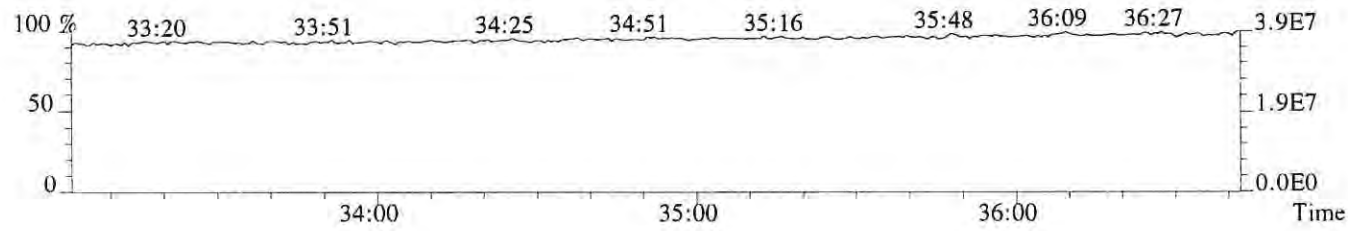
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



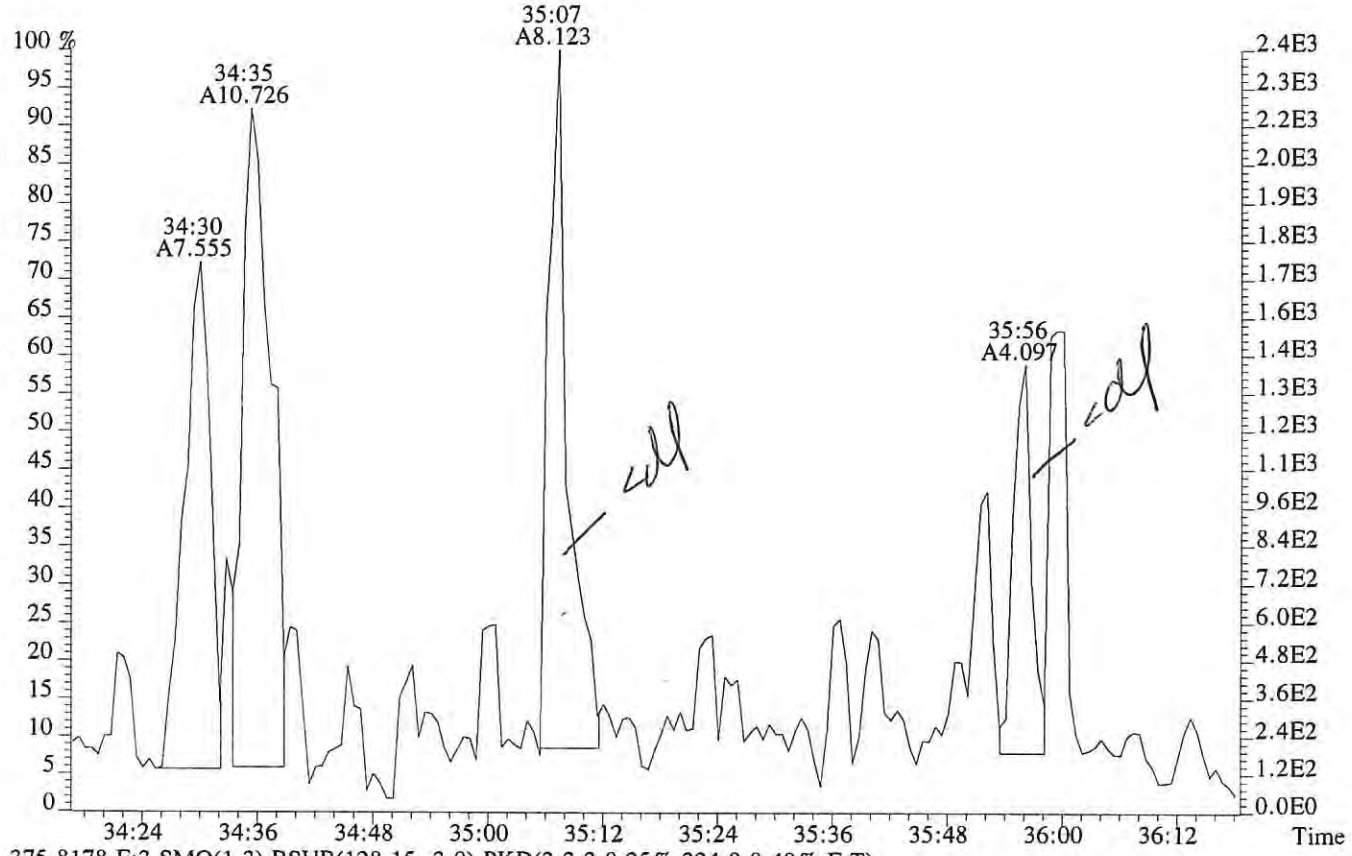
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



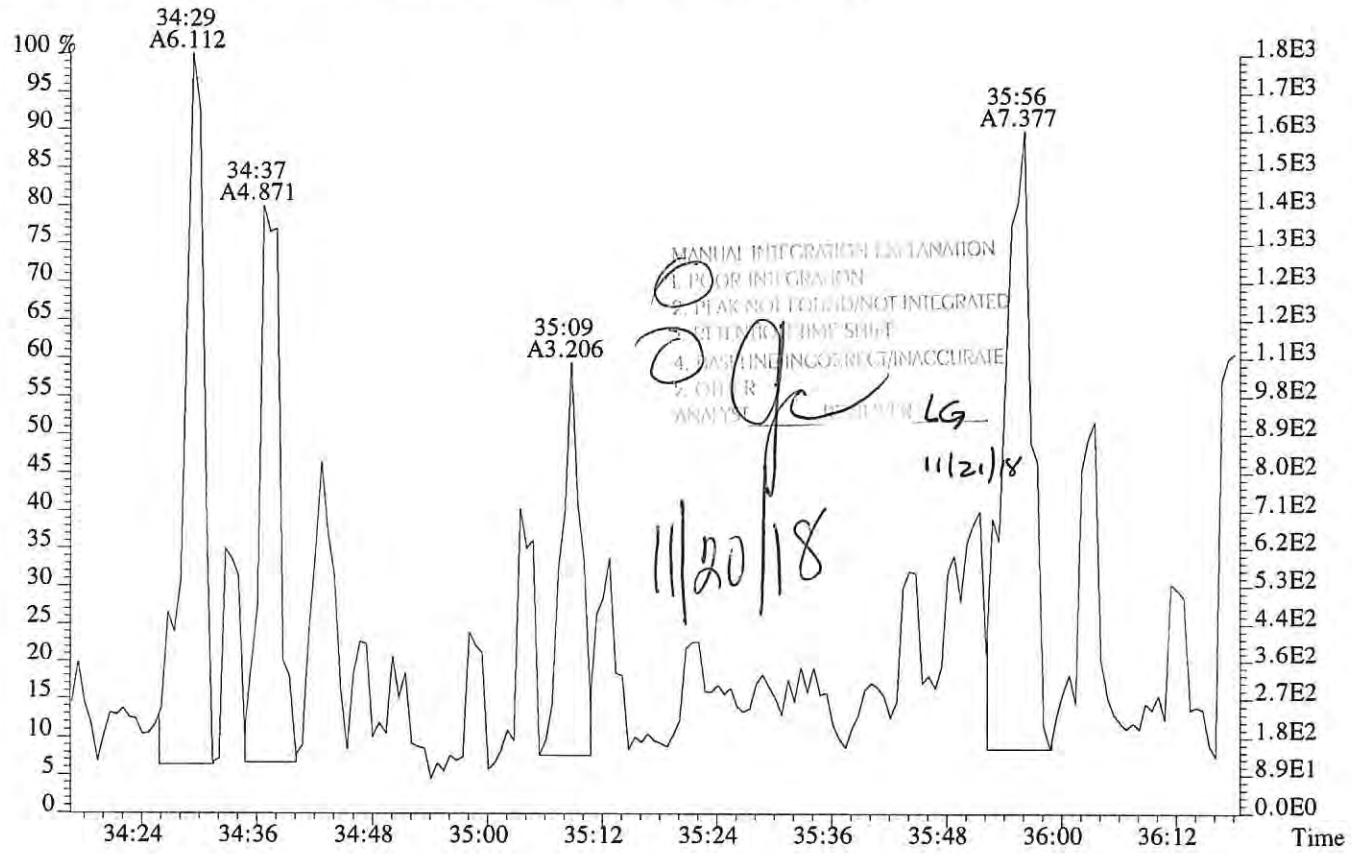
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518842 #1-330 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)

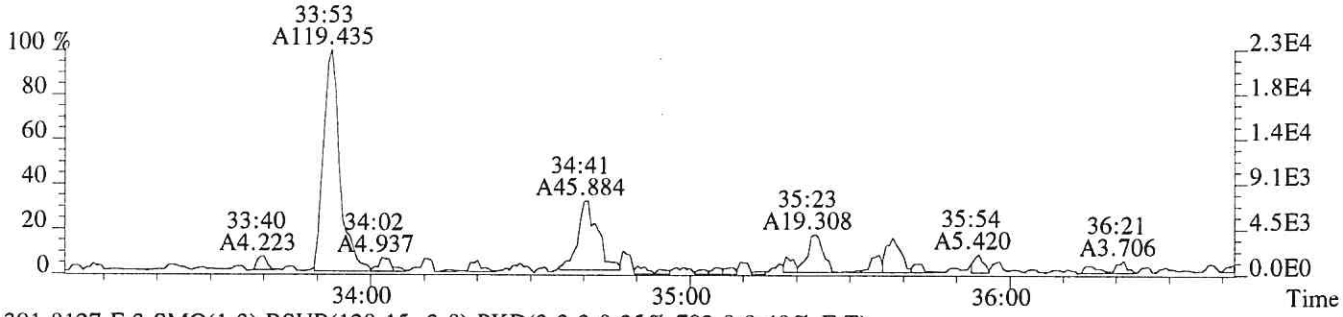


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)

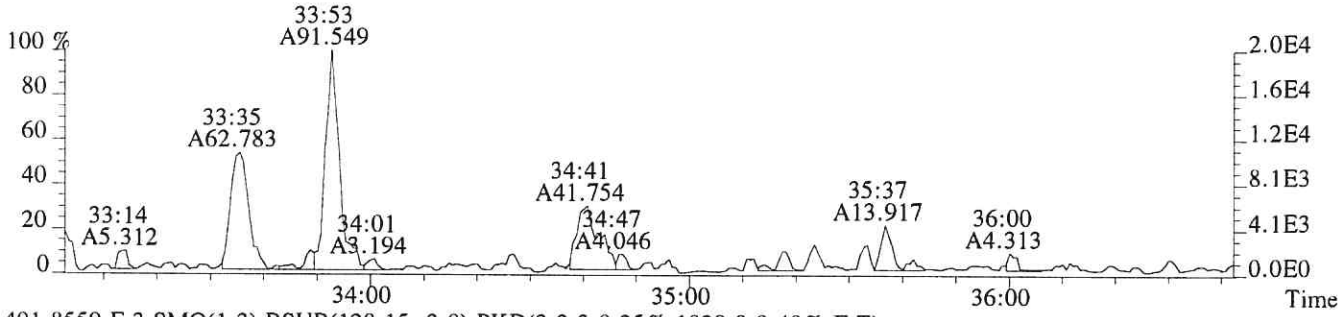


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. BASELINE INCORRECT/INACCURATE
LG
11/21/18
11/20/18

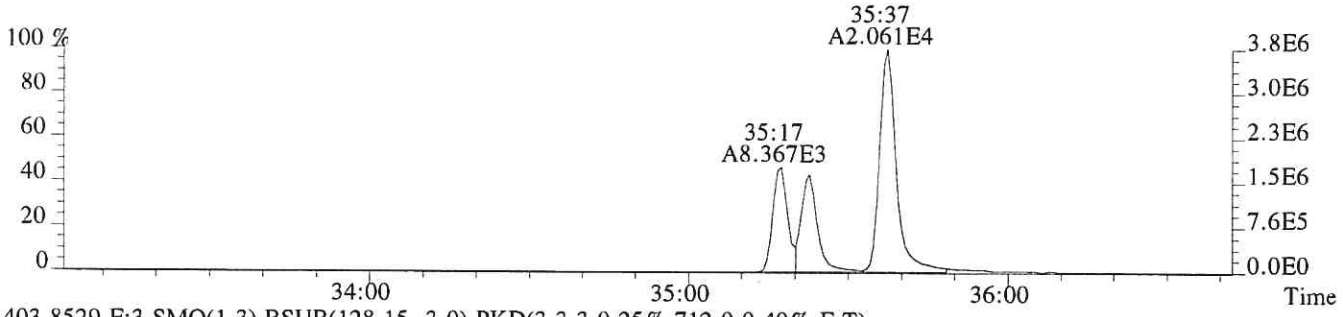
File:P518842 #1-330 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



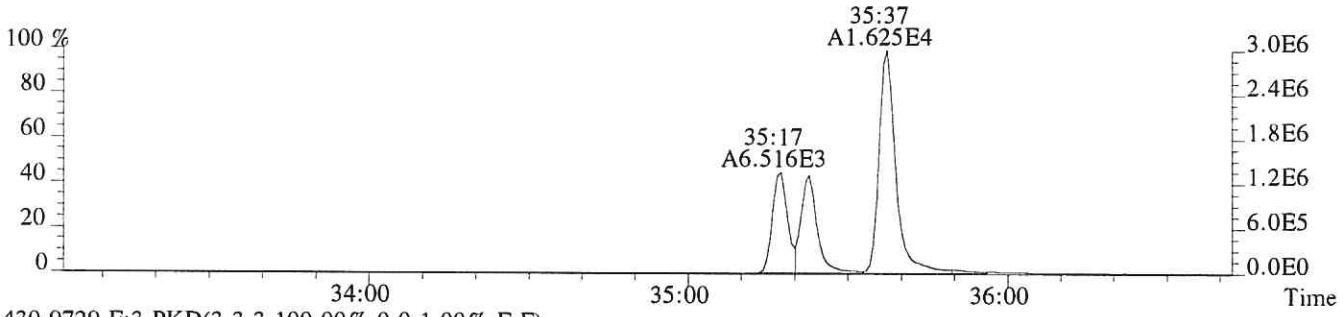
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



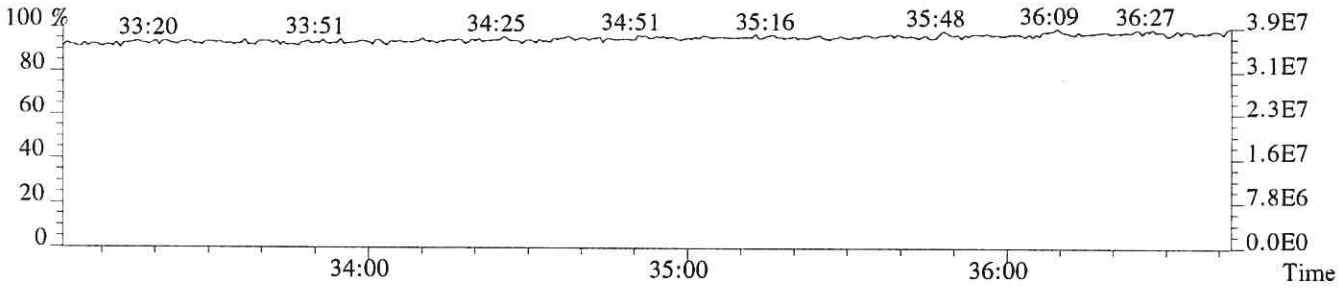
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)

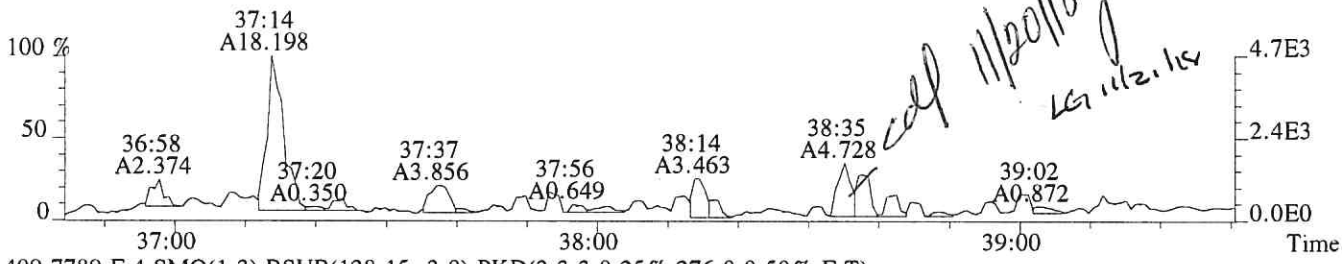


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

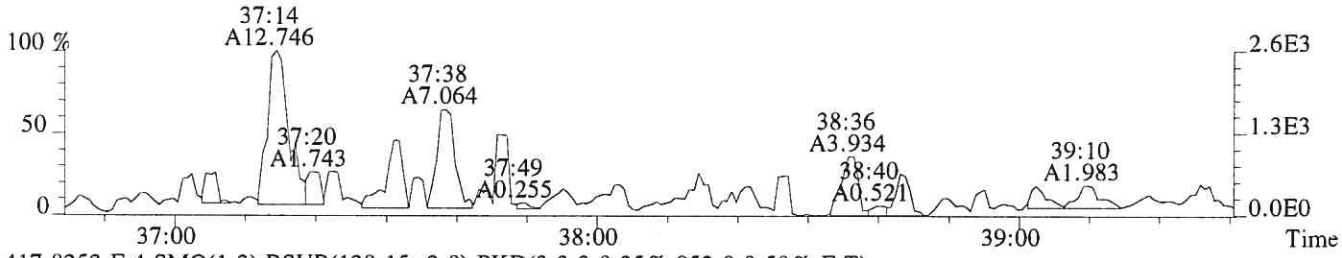


File:P518842 #1-250 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004

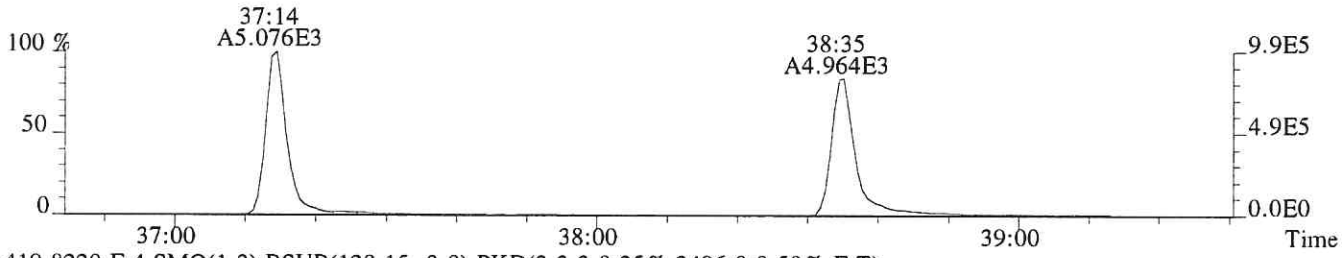
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.50%,F,T)



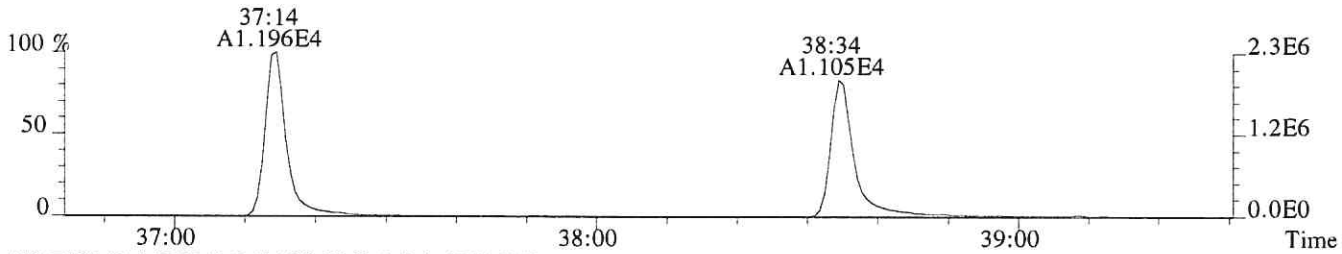
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.50%,F,T)



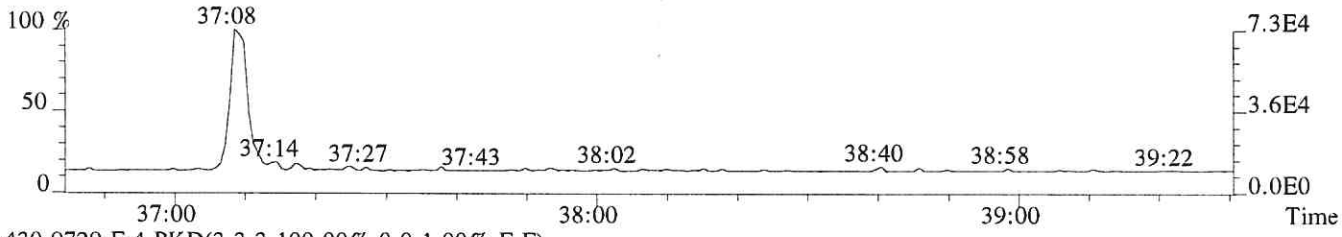
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.50%,F,T)



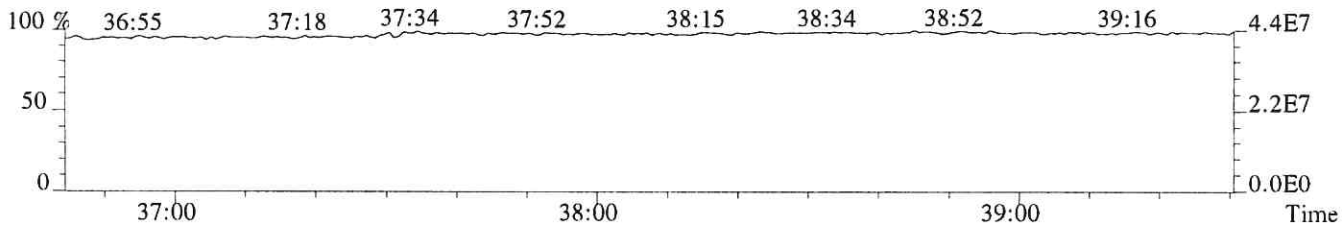
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2496.0,0.50%,F,T)



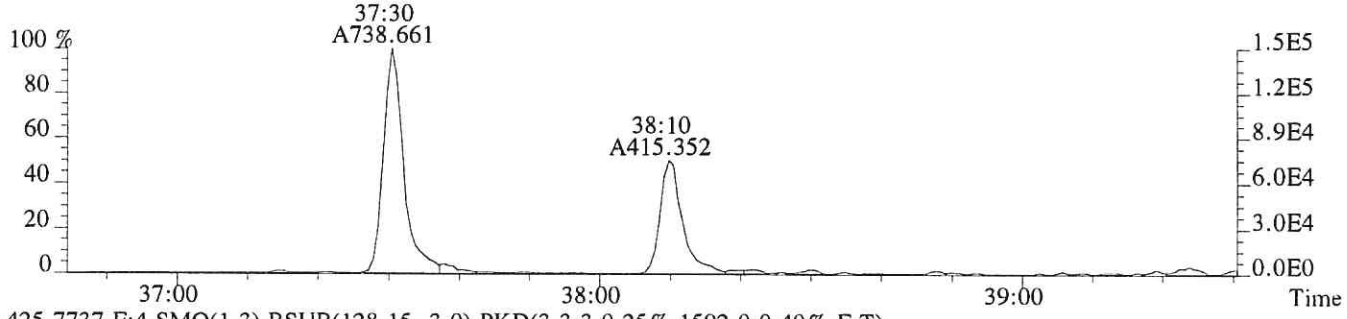
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



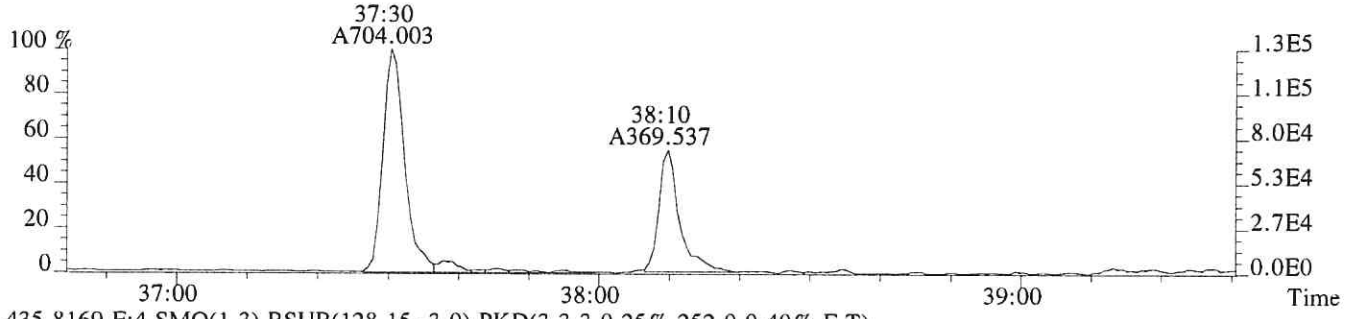
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



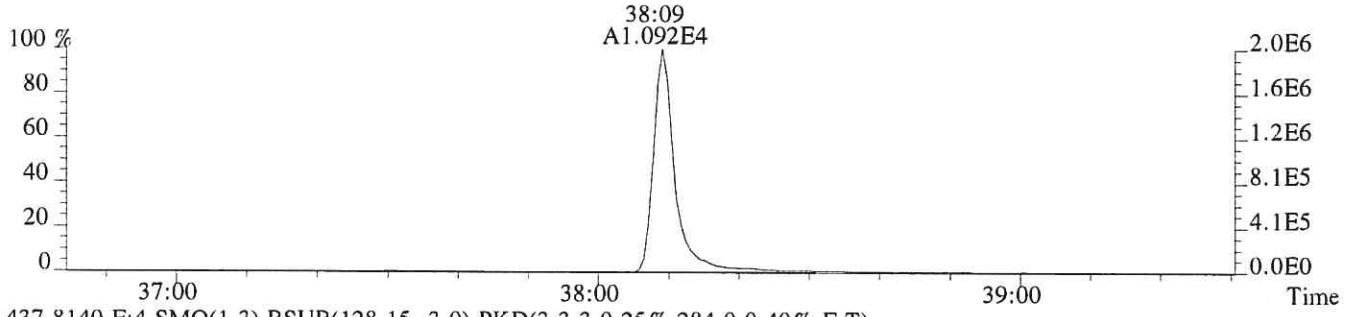
File:P518842 #1-250 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



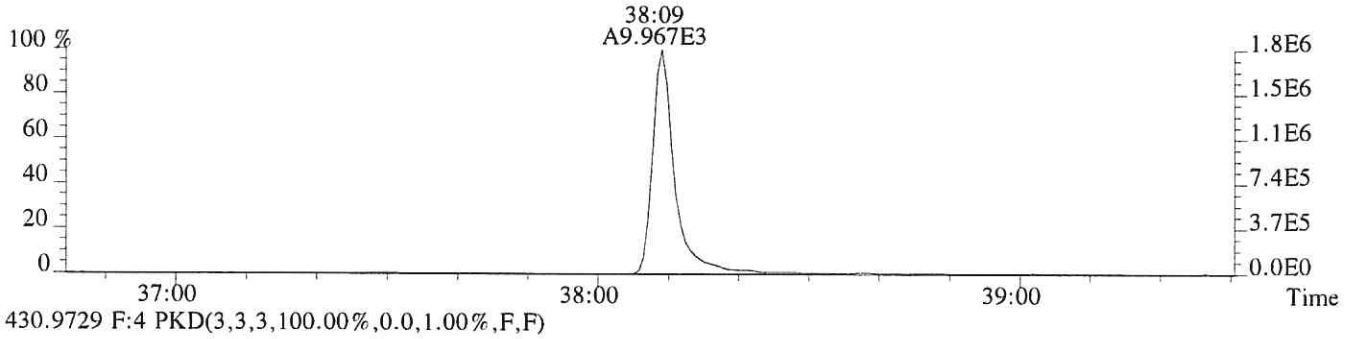
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.40%,F,T)



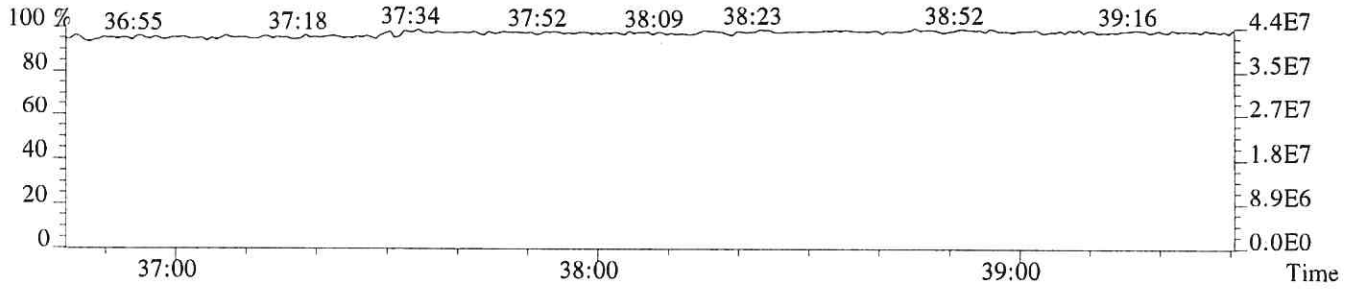
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



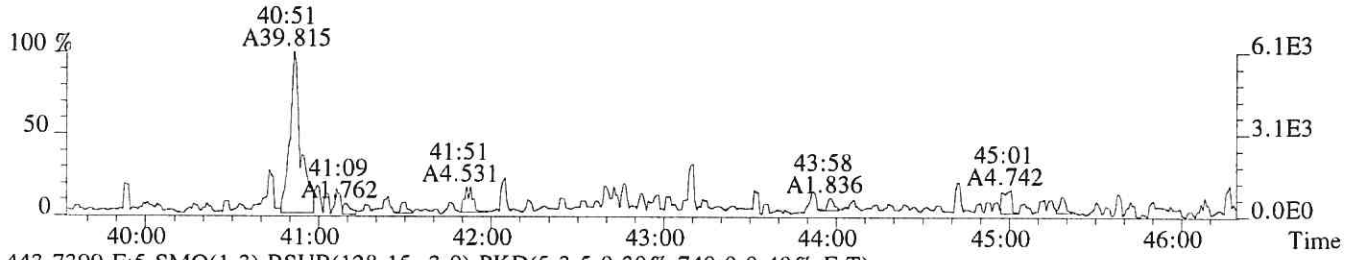
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



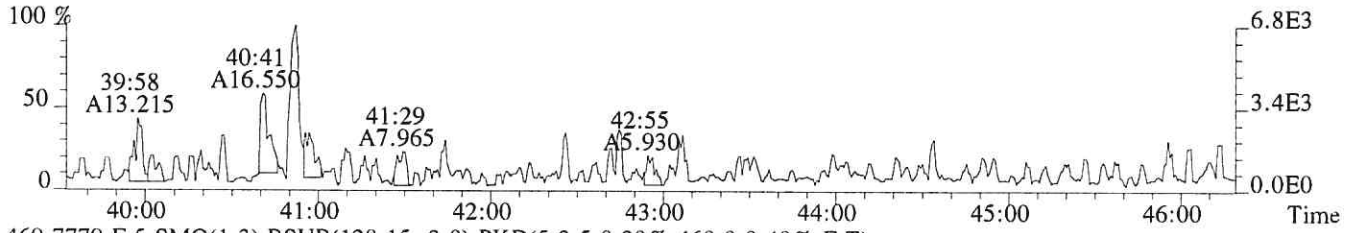
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



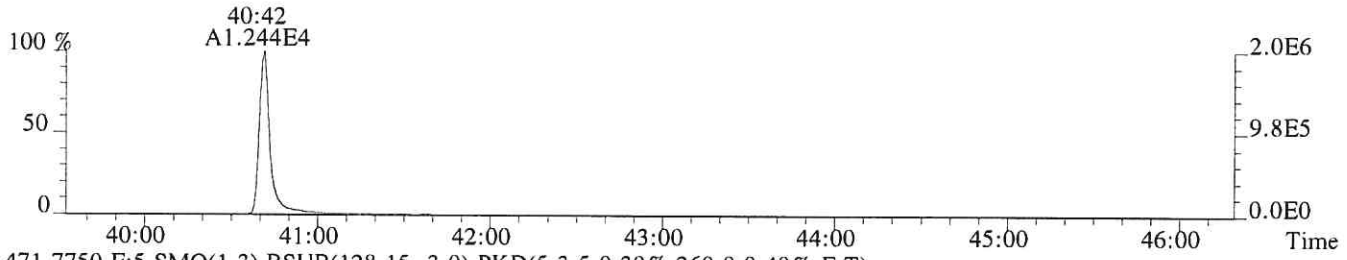
File:P518842 #1-610 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



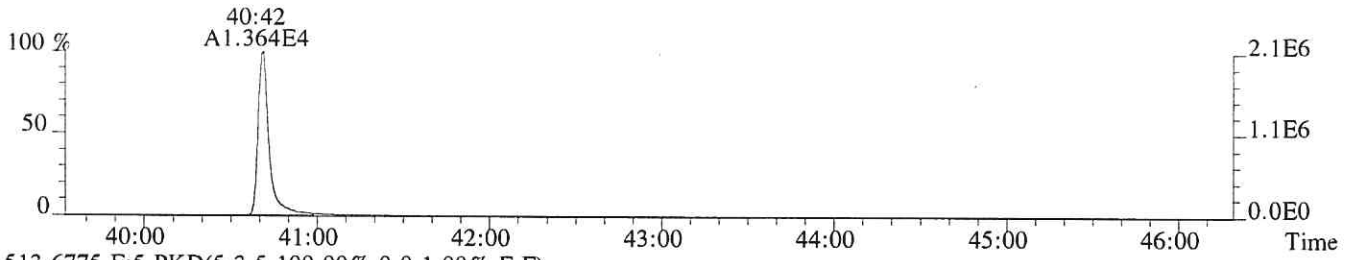
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



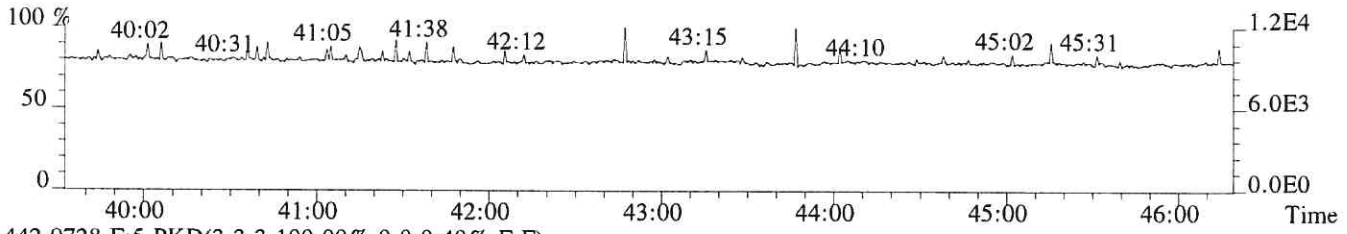
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



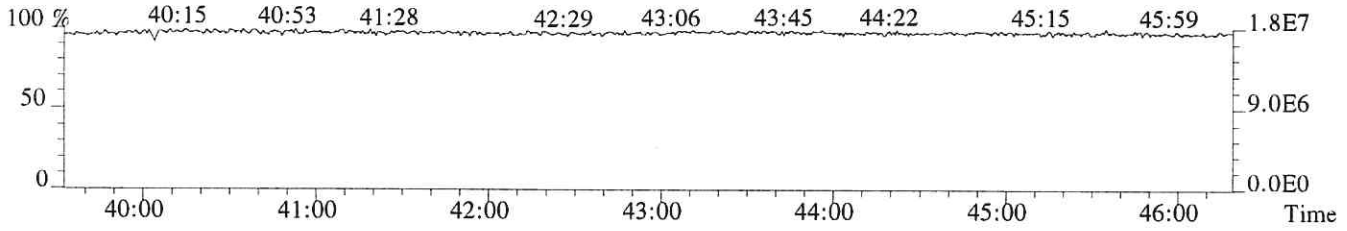
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



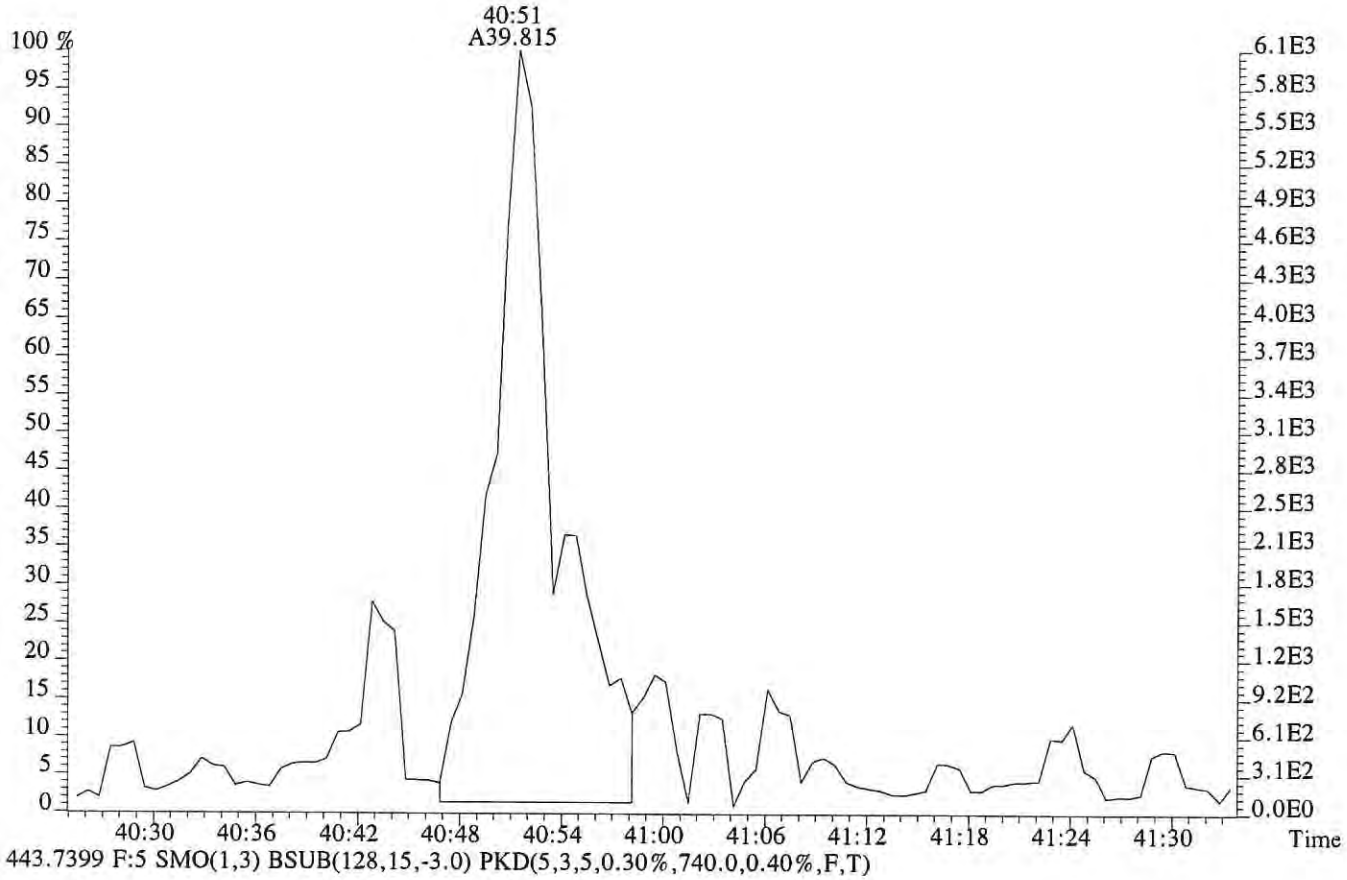
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



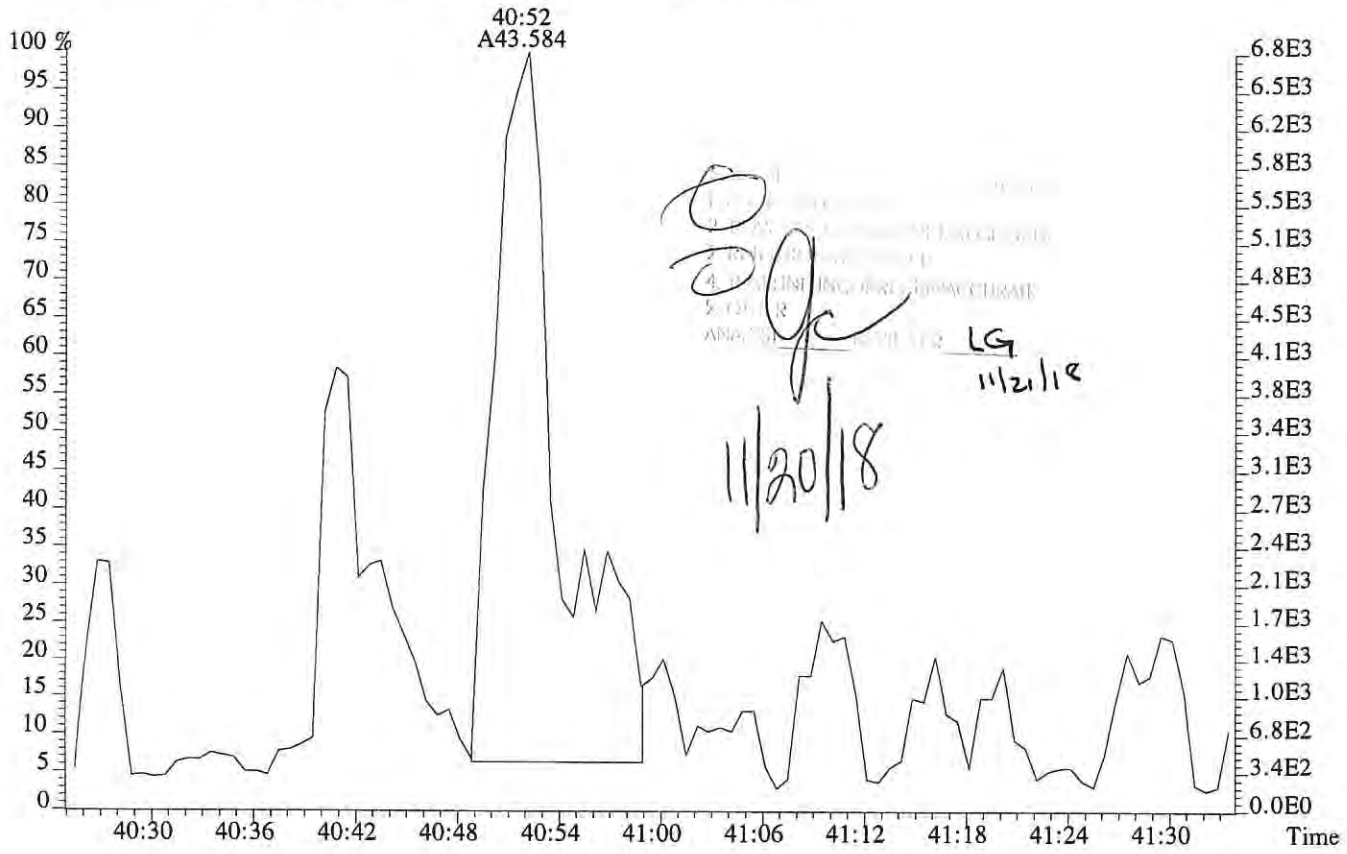
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P518842 #1-610 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)

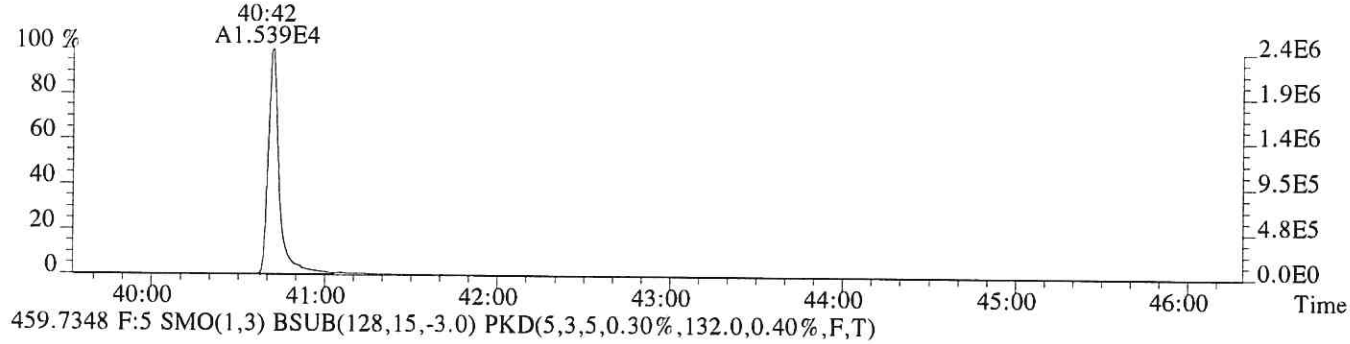


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)

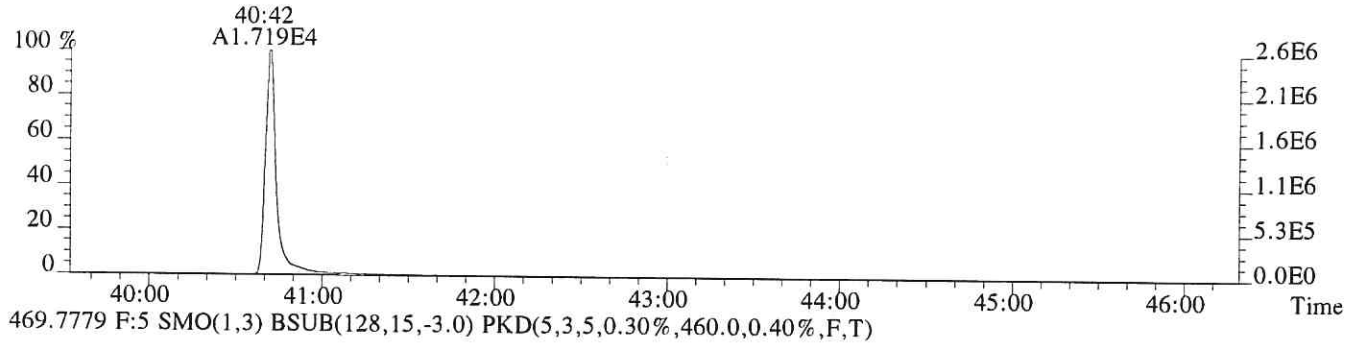


LG
11/21/18
11/20/18

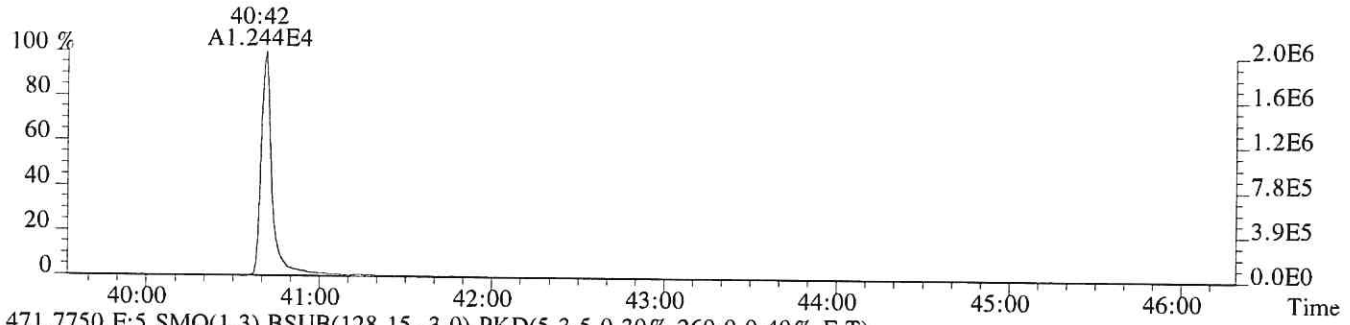
File:P518842 #1-610 Acq:16-NOV-2018 03:34:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



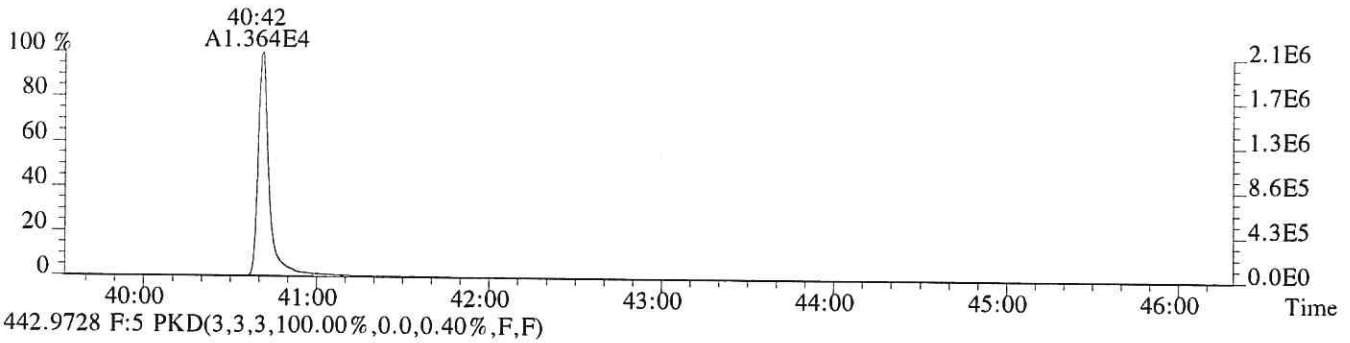
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



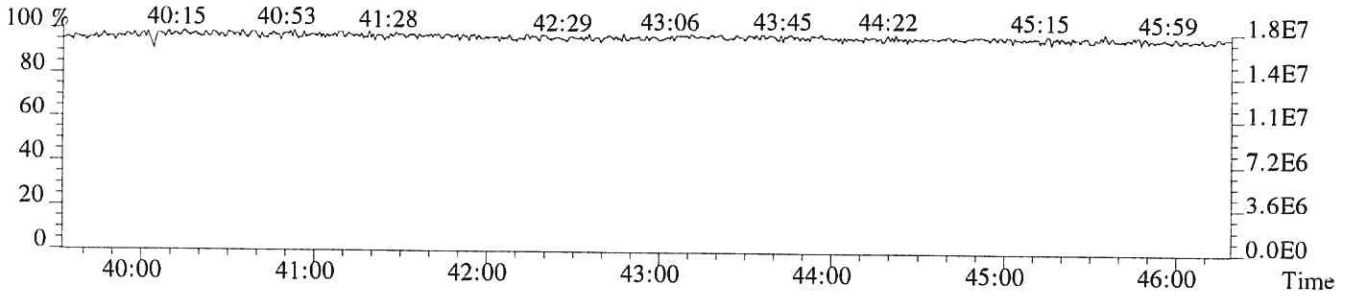
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0504

Run #13 Filename P518843 Samp: 1 Inj: 1 Acquired: 16-NOV-18 04:23:22
Processed: 19-NOV-18 09:11:51 Sample ID: E1801018-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	8.536e+01	1.283e+02	0.67	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:56	1.395e+01	5.212e+00	2.68	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	3.235e+01	3.682e+01	0.88	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	8.669e+01	1.248e+02	0.69	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	1.732e+01	1.660e+01	1.04	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	4.590e+01	3.285e+01	1.40	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	5.820e+01	5.379e+01	1.08	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	1.386e+03	1.197e+03	1.16	yes	no	1.025
17	Unk	OCDD	40:41	2.819e+04	3.164e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.117e+04	1.431e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.228e+04	1.384e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.246e+04	1.374e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.024e+04	1.948e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.311e+04	2.500e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.186e+04	2.272e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.077e+04	2.078e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	7.799e+03	1.790e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.480e+03	1.893e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.814e+03	9.895e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.589e+04	9.975e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.488e+04	1.178e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.628e+04	1.242e+04	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.655e+04	1.525e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	40:40	1.641e+04	1.787e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.044e+04	2.549e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.352e+04	2.562e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	9.659e+03				no	1.014

$$OCDD = \frac{(2.819e+04 + 3.164e+04) \times 4000\ pg \times 1}{(1.641e+04 + 1.787e+04) \times 10.407\ g \times 75.8/100 \times 1.118} = 791.5924\ ng/Kg$$

LG 11/26/18

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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0504

Run #13 Filename P518843 Samp: 1 Inj: 1 Acquired: 16-NOV-18 04:23:22
Processed: 19-NOV-18 09:11:51 LAB. ID: E1801018-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.08e+04	7.00e+02	1.5e+01	1.73e+04	1.26e+03	1.4e+01
2	1,2,3,7,8-PeCDF	*	4.00e+02	*	*	1.50e+03	*
3	2,3,4,7,8-PeCDF	*	4.00e+02	*	*	1.50e+03	*
4	1,2,3,4,7,8-HxCDF	*	3.16e+02	*	*	2.56e+02	*
5	1,2,3,6,7,8-HxCDF	*	3.16e+02	*	*	2.56e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.16e+02	*	*	2.56e+02	*
7	1,2,3,7,8,9-HxCDF	2.58e+03	3.16e+02	8.2e+00	1.05e+03	2.56e+02	4.1e+00
8	1,2,3,4,6,7,8-HpCDF	6.50e+03	2.72e+02	2.4e+01	5.58e+03	3.04e+02	1.8e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.72e+02	*	*	3.04e+02	*
10	OCDF	1.42e+04	5.72e+02	2.5e+01	2.06e+04	1.06e+03	1.9e+01
11	2,3,7,8-TCDD	*	1.79e+03	*	*	1.19e+03	*
12	1,2,3,7,8-PeCDD	*	1.44e+03	*	*	3.72e+02	*
13	1,2,3,4,7,8-HxCDD	5.43e+03	3.20e+02	1.7e+01	4.45e+03	5.88e+02	7.6e+00
14	1,2,3,6,7,8-HxCDD	1.25e+04	3.20e+02	3.9e+01	6.40e+03	5.88e+02	1.1e+01
15	1,2,3,7,8,9-HxCDD	1.30e+04	3.20e+02	4.1e+01	9.98e+03	5.88e+02	1.7e+01
16	1,2,3,4,6,7,8-HpCDD	2.54e+05	2.28e+02	1.1e+03	2.47e+05	1.19e+03	2.1e+02
17	OCDD	4.33e+06	2.00e+02	2.2e+04	4.93e+06	3.76e+02	1.3e+04
18	13C-2,3,7,8-TCDF	1.46e+06	4.97e+03	2.9e+02	1.88e+06	2.92e+03	6.5e+02
19	13C-1,2,3,7,8-PeCDF	3.66e+06	2.20e+02	1.7e+04	2.26e+06	4.64e+02	4.9e+03
20	13C-2,3,4,7,8-PeCDF	3.78e+06	2.20e+02	1.7e+04	2.34e+06	4.64e+02	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	2.12e+06	2.44e+02	8.7e+03	4.09e+06	1.08e+03	3.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.40e+06	2.44e+02	9.8e+03	4.64e+06	1.08e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	2.30e+06	2.44e+02	9.4e+03	4.39e+06	1.08e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	1.91e+06	2.44e+02	7.8e+03	3.77e+06	1.08e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.52e+06	2.45e+03	6.2e+02	3.45e+06	1.36e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.50e+06	2.45e+03	6.1e+02	3.37e+06	1.36e+03	2.5e+03
27	13C-2,3,7,8-TCDD	1.18e+06	4.06e+03	2.9e+02	1.50e+06	2.11e+03	7.1e+02
28	13C-1,2,3,7,8-PeCDD	2.67e+06	6.96e+02	3.8e+03	1.66e+06	6.12e+02	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.23e+06	1.41e+03	2.3e+03	2.53e+06	4.04e+02	6.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.80e+06	1.41e+03	2.0e+03	2.22e+06	4.04e+02	5.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.05e+06	2.20e+02	1.4e+04	2.79e+06	1.52e+02	1.8e+04
32	13C-OCDD	2.53e+06	6.08e+02	4.2e+03	2.77e+06	2.68e+02	1.0e+04
33	13C-1,2,3,4-TCDD	3.00e+06	4.06e+03	7.4e+02	3.72e+06	2.11e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.83e+06	1.41e+03	4.1e+03	4.53e+06	4.04e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.42e+06	1.14e+03	1.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0504

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P518843 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 04:23:22 Processed: 19-NOV-18 09:11:51

Mass: 303.9020 305.8990 Tot Response: 2.59e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	21:58	1.89e+01	2.68e+01 0.71	yes	4.57e+01		n	n
2	25:34	8.54e+01	1.28e+02 0.67	yes	2.14e+02	2,3,7,8-TCDF	n	n

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10450 Stancliff Rd., Suite 115
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0504

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P518843 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 04:23:22 Processed: 19-NOV-18 09:11:51

Mass: 319.8970 321.8940 Tot Response: 5.45e+01 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:37	2.24e+01	3.21e+01 0.70	yes	5.45e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0504

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P518843 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 04:23:22 Processed: 19-NOV-18 09:11:51

Mass: 355.8550 357.8520 Tot Response: 2.65e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:34	2.37e+01	1.63e+01	1.46	yes	4.00e+01		n	y
2	30:06	9.47e+01	6.94e+01	1.36	yes	1.64e+02		y	n
3	31:07	3.56e+01	2.53e+01	1.41	yes	6.09e+01		n	n

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Peak List Summary

CLIENT ID.
SL0504

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P518843 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 04:23:22 Processed: 19-NOV-18 09:11:51

Mass: 373.8210 375.8180 Tot Response: 1.85e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:02	9.94e+00	8.53e+00 1.16	yes	1.85e+01		n	n

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Peak List Summary

CLIENT ID.
SL0504

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P518843 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 04:23:22 Processed: 19-NOV-18 09:11:51

Mass: 389.8160 391.8130 Tot Response: 2.15e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	7.76e+02	5.92e+02	1.31	yes	1.37e+03		n	n
2	34:39	3.01e+02	2.39e+02	1.26	yes	5.40e+02		n	n
3	35:23	4.59e+01	3.29e+01	1.40	yes	7.88e+01	1,2,3,6,7,8-HxCDD	n	n
4	35:33	2.89e+01	2.31e+01	1.25	yes	5.20e+01		n	n
5	35:37	5.82e+01	5.38e+01	1.08	yes	1.12e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0504

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P518843 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 04:23:22 Processed: 19-NOV-18 09:11:51

Mass: 407.7820 409.7790 Tot Response: 9.76e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:38	5.12e+01	4.64e+01 1.10	yes	9.76e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0504

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P518843 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 04:23:22 Processed: 19-NOV-18 09:11:51

Mass: 423.7770 425.7740 Tot Response: 8.82e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	3.25e+03	2.99e+03 1.09	yes	6.23e+03		n	n
2	38:09	1.39e+03	1.20e+03 1.16	yes	2.58e+03	1,2,3,4,6,7,8-HpCDD	n	n

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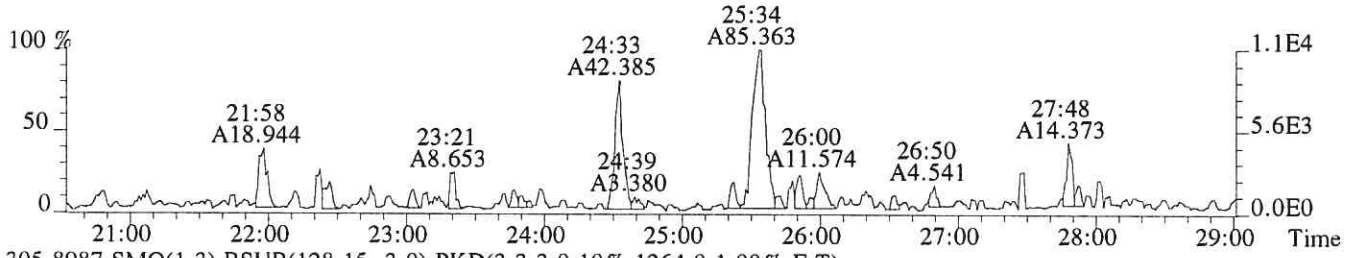
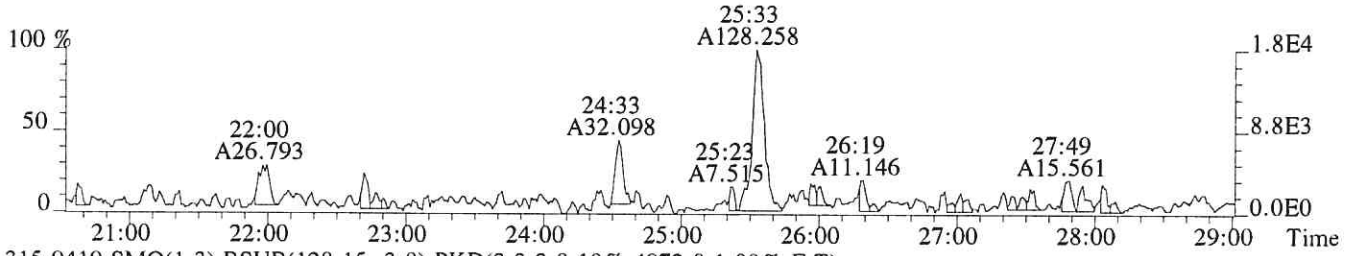
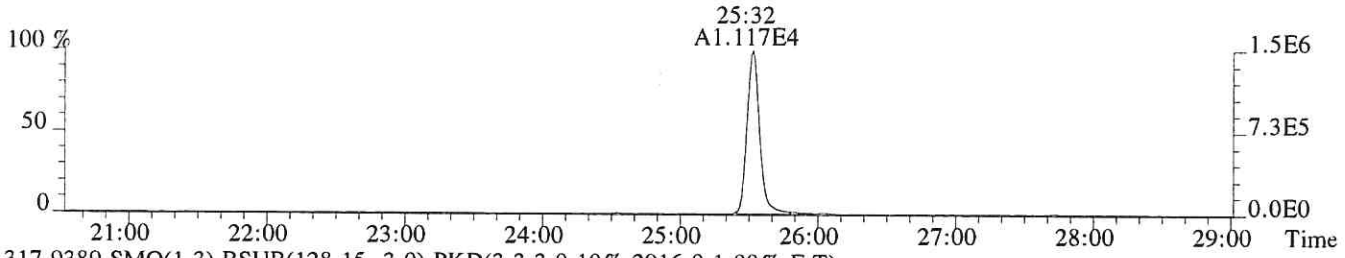
File:P518843 #1-602 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



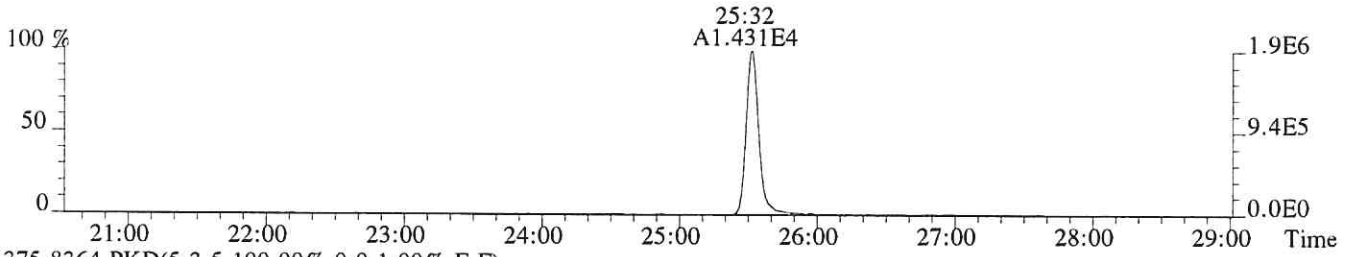
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



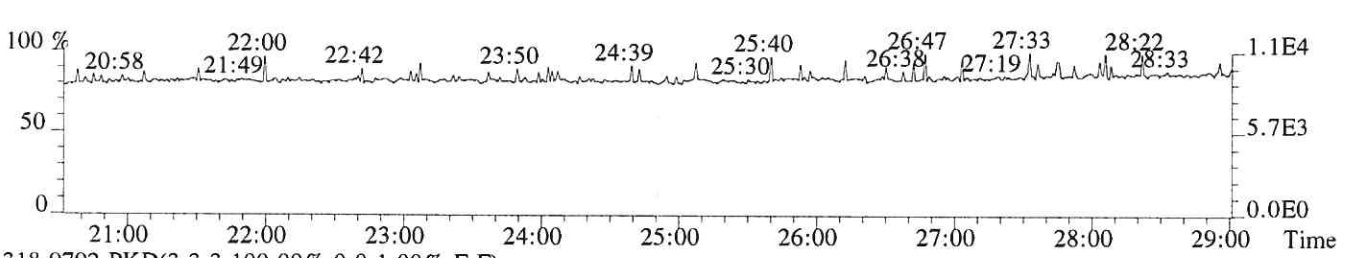
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4972.0,1.00%,F,T)



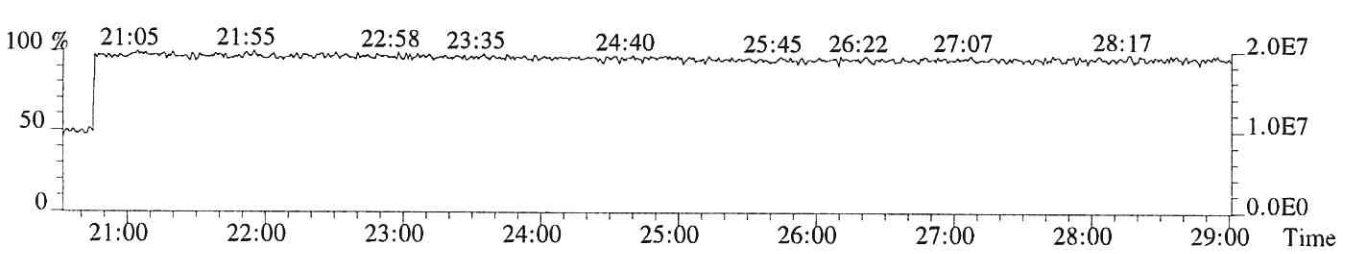
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2916.0,1.00%,F,T)



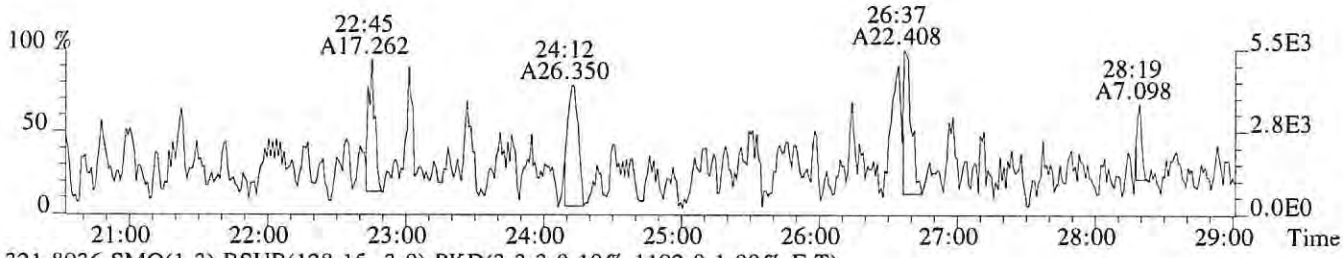
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



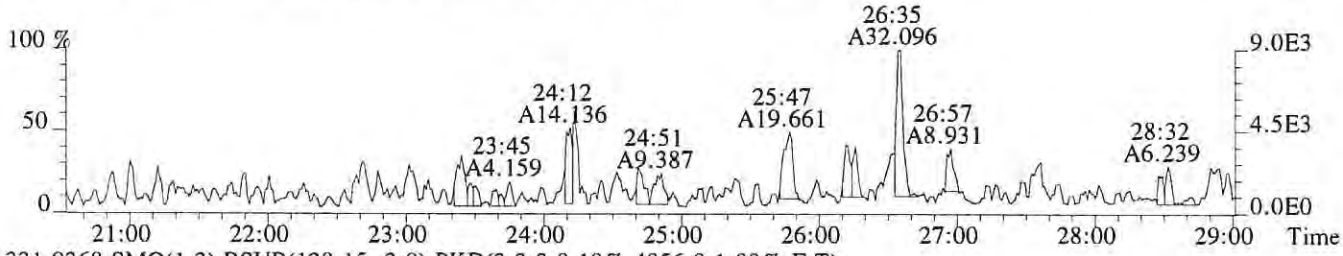
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



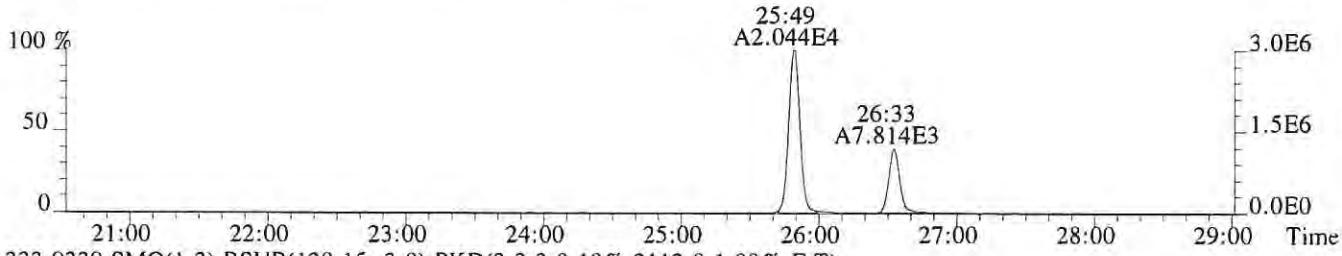
File:P518843 #1-602 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



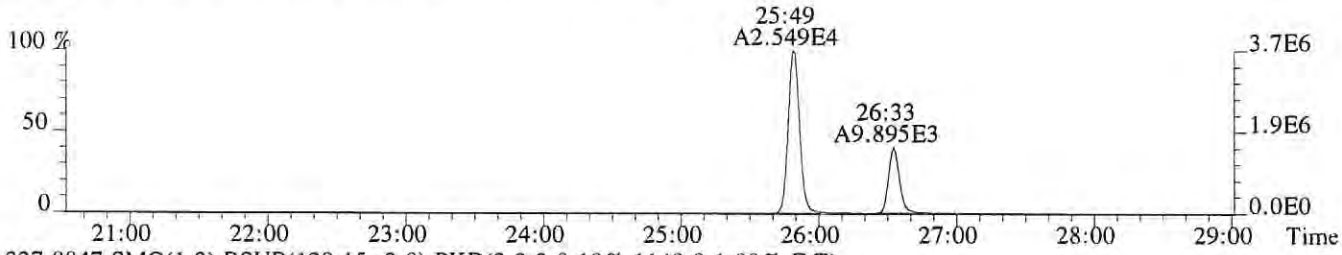
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



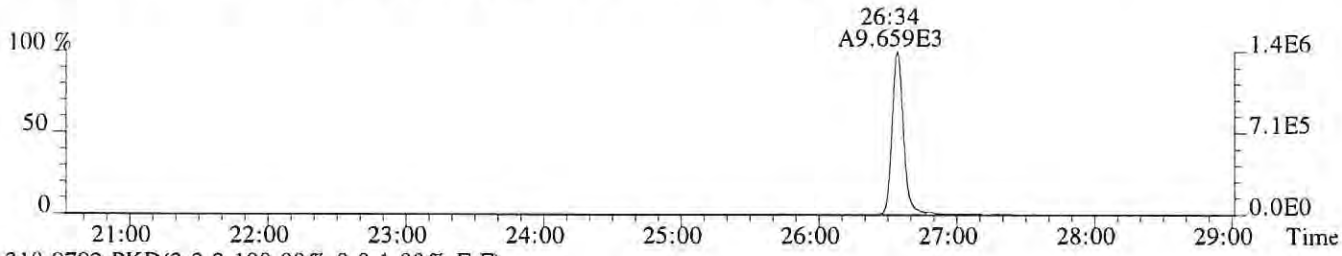
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4056.0,1.00%,F,T)



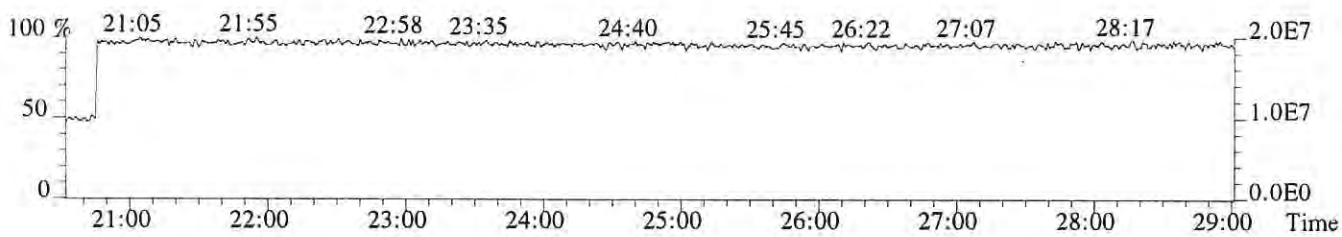
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)



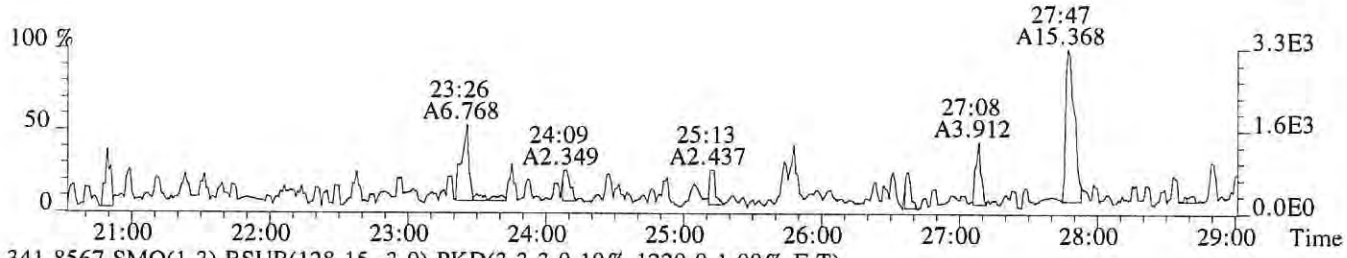
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



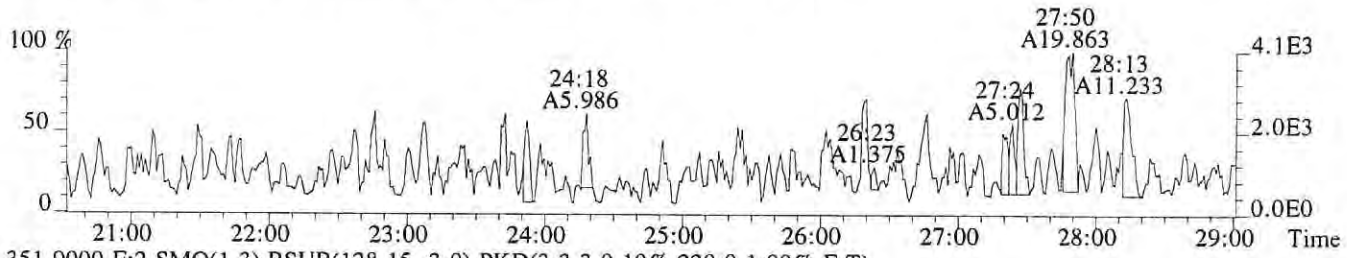
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



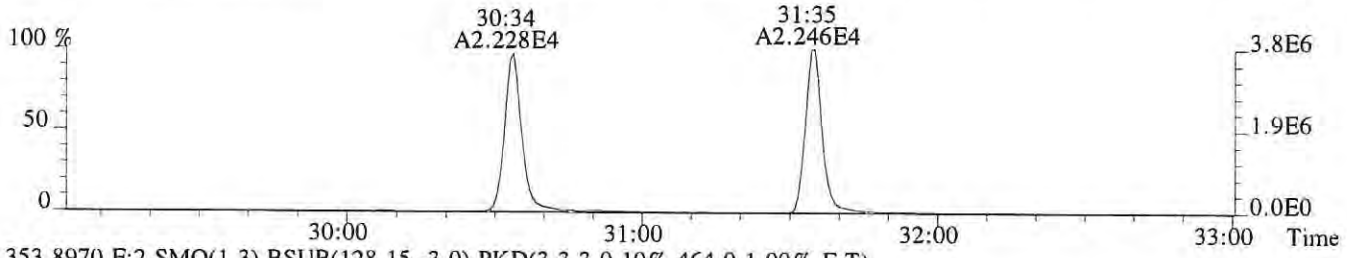
File:P518843 #1-602 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



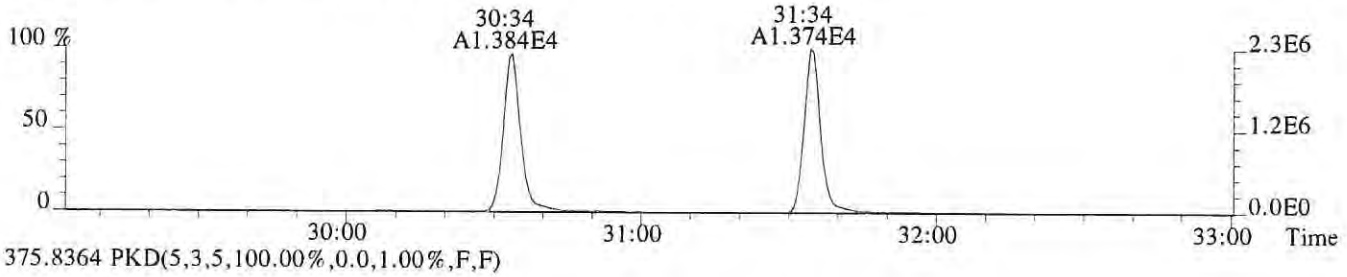
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



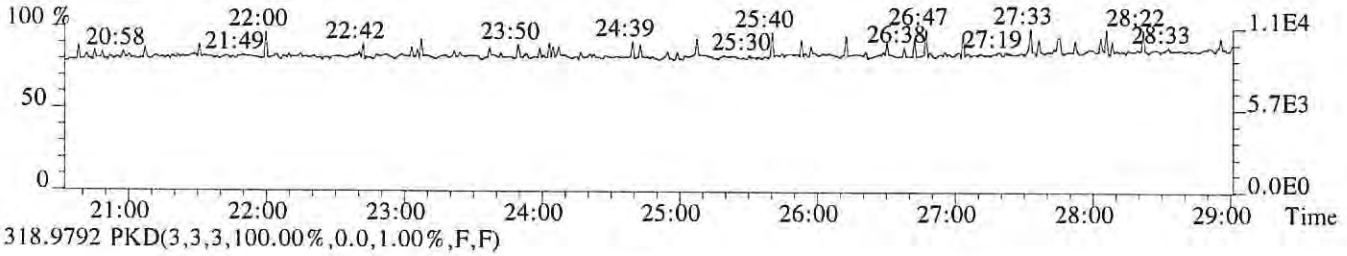
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



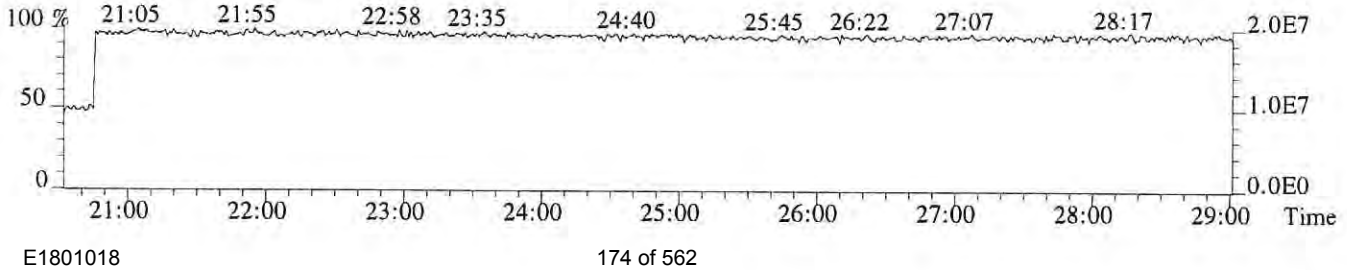
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



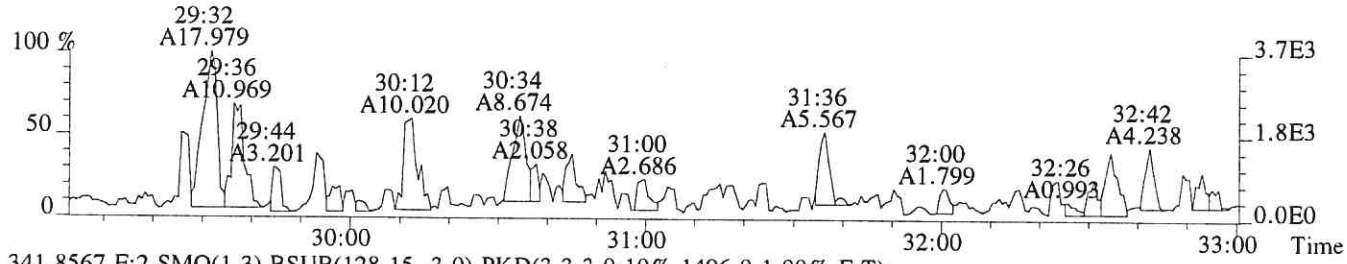
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



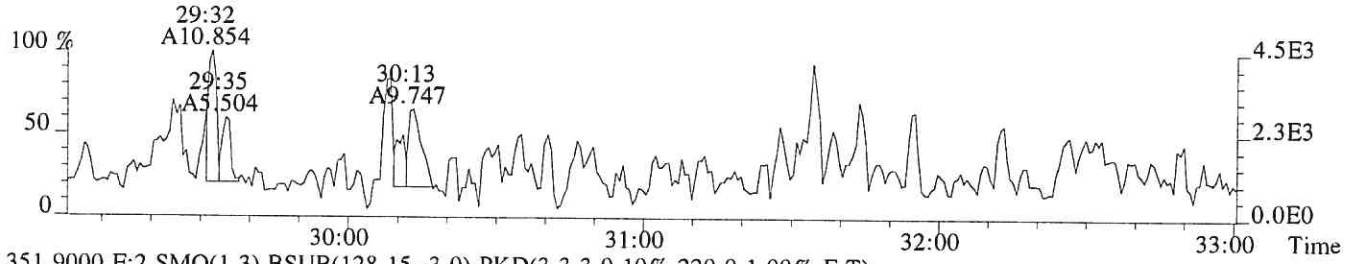
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



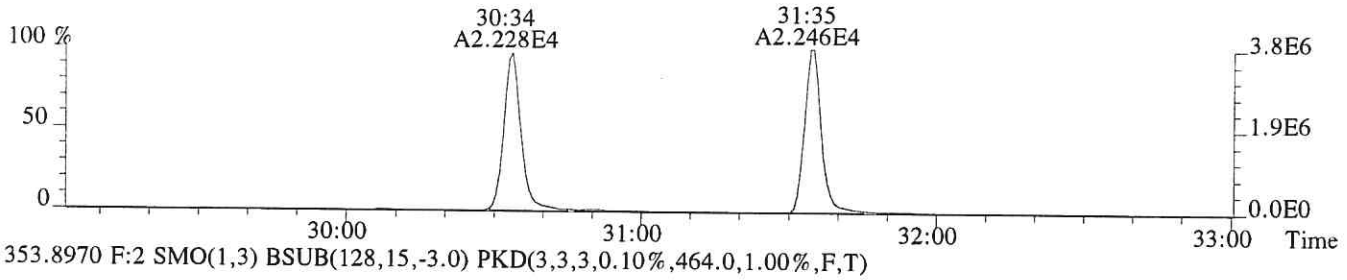
File:P518843 #1-357 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



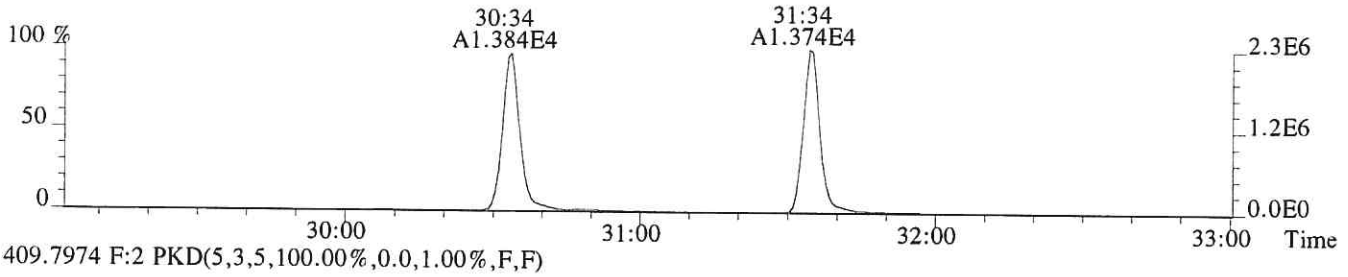
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



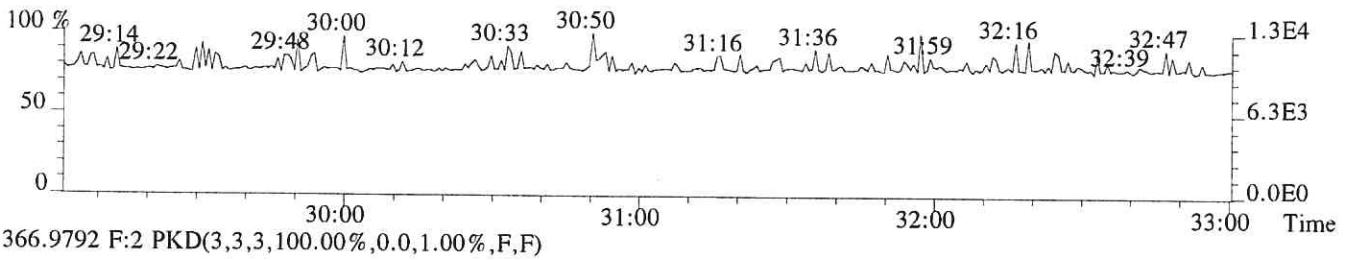
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



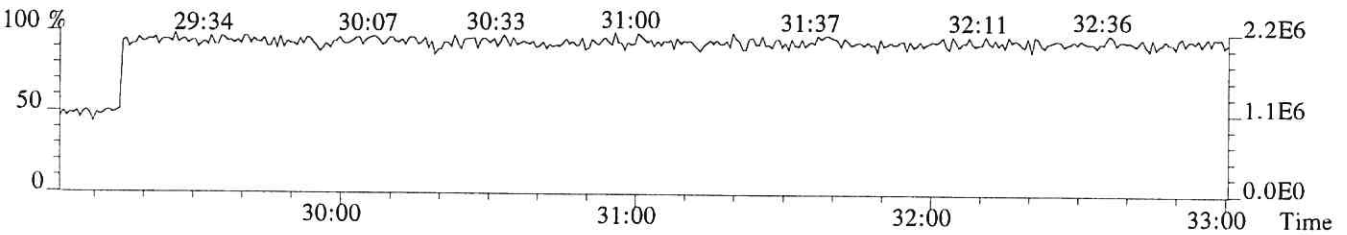
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



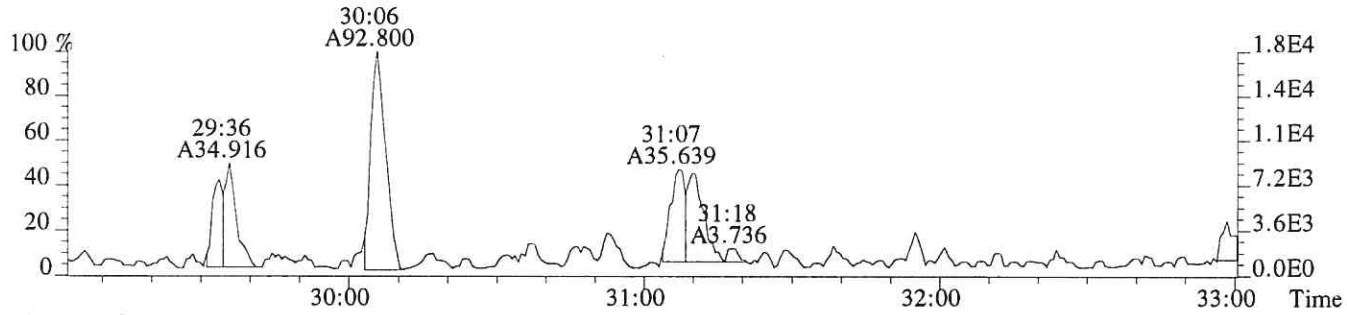
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



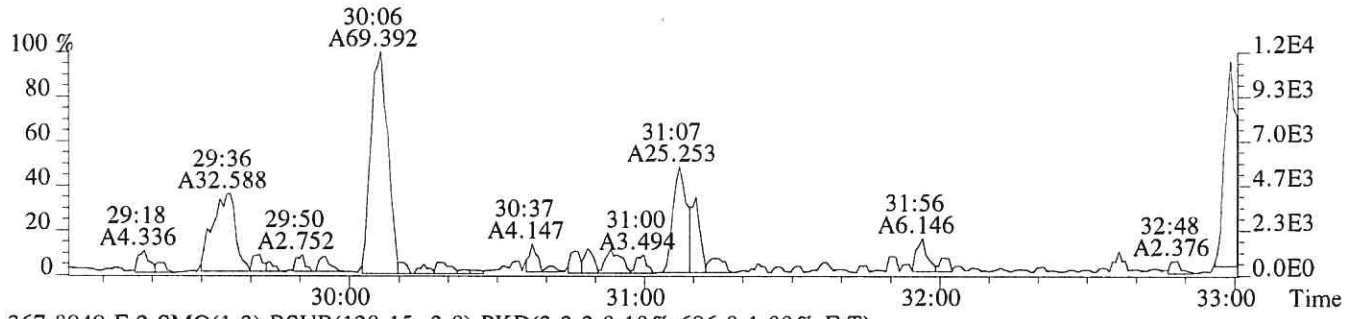
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



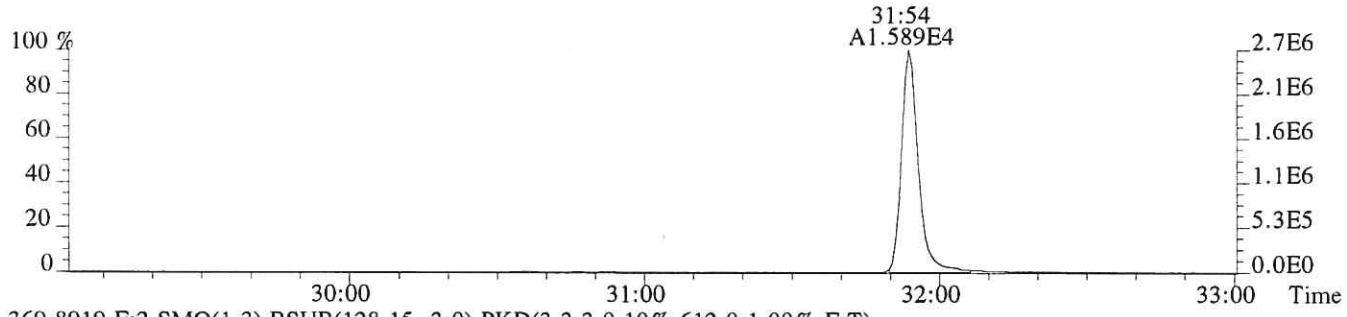
File:P518843 #1-357 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



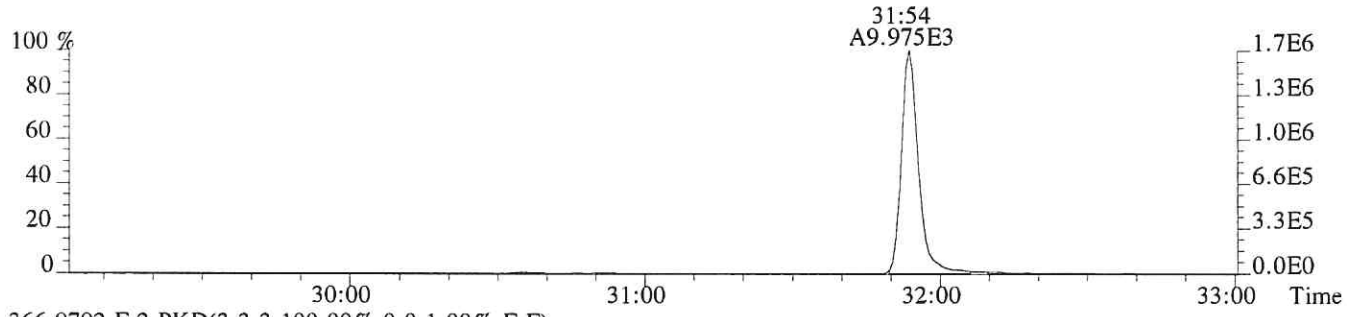
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



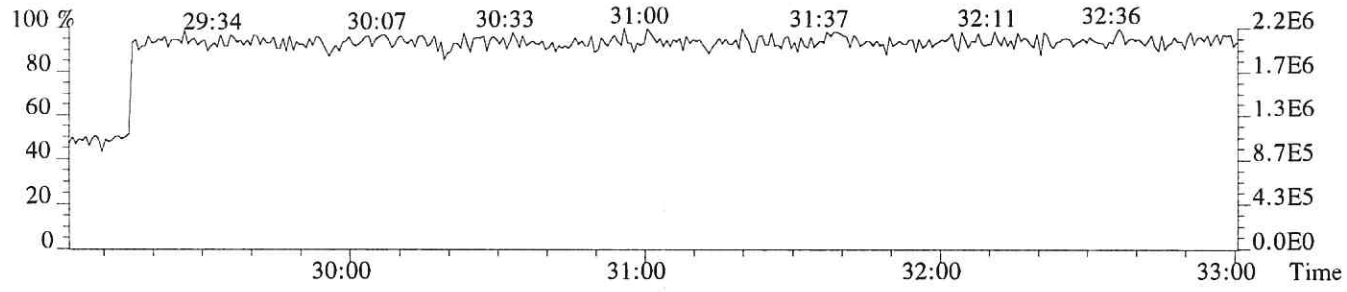
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



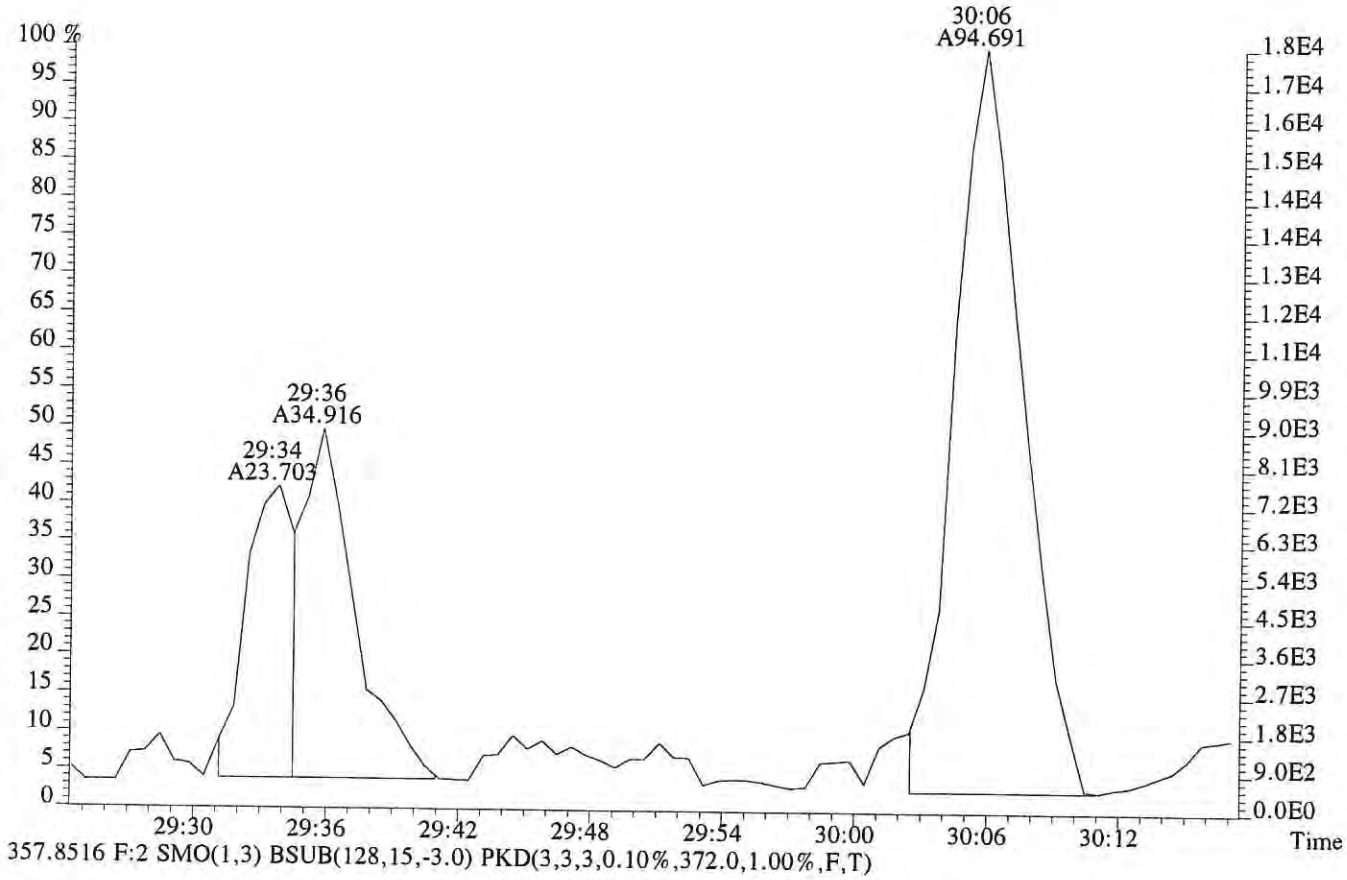
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



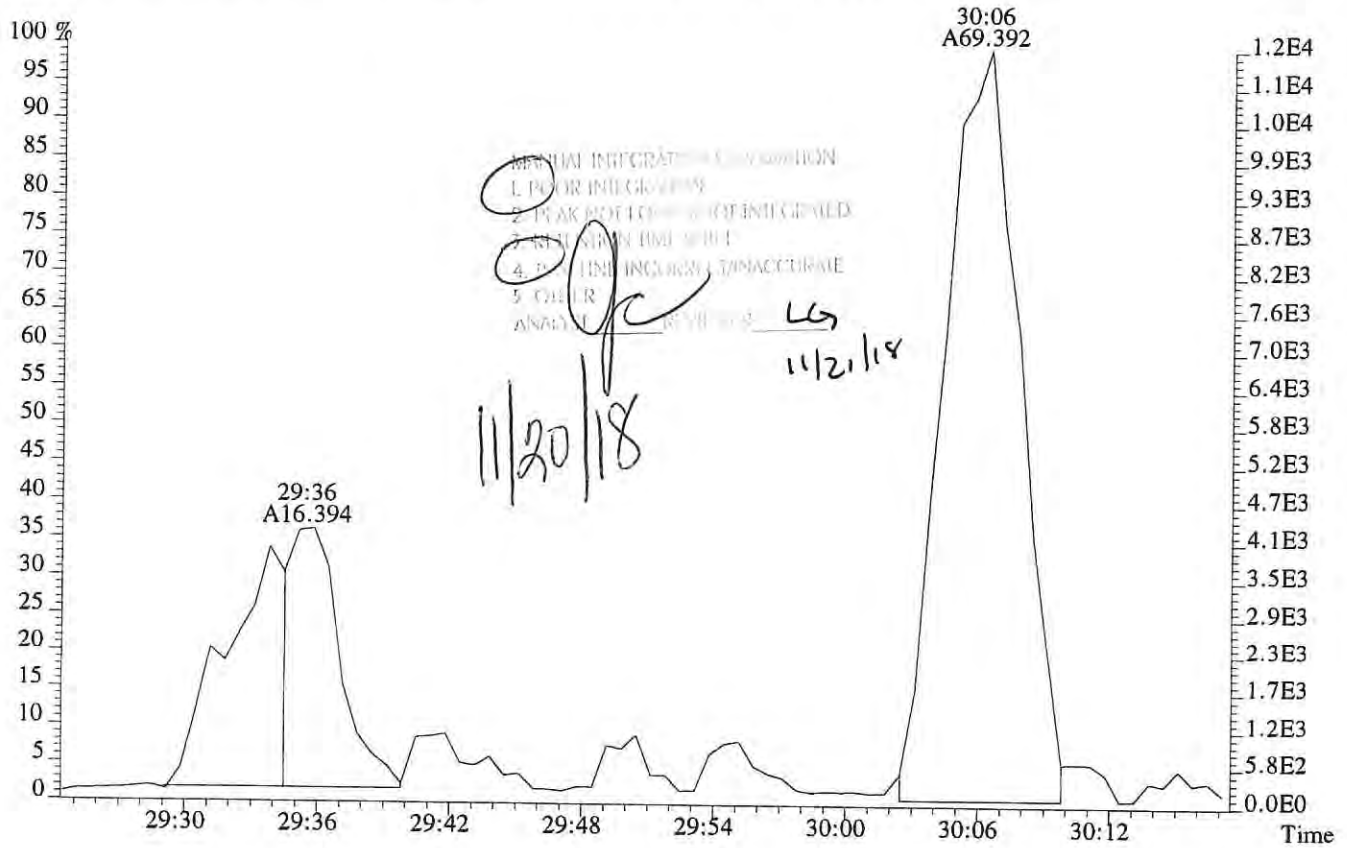
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518843 #1-357 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



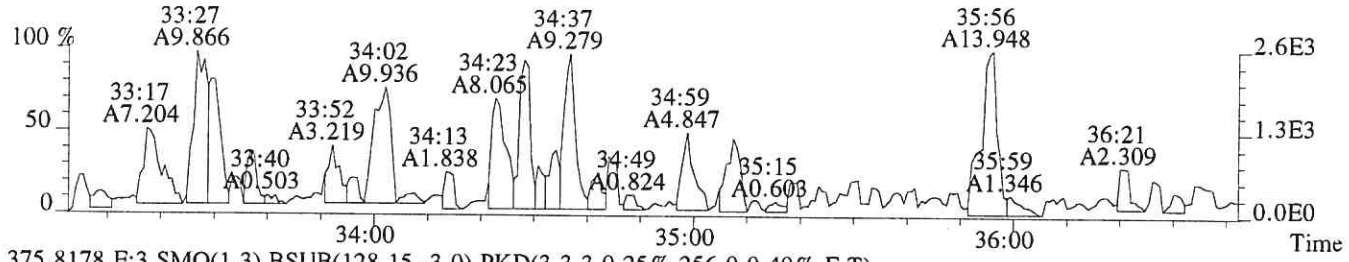
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



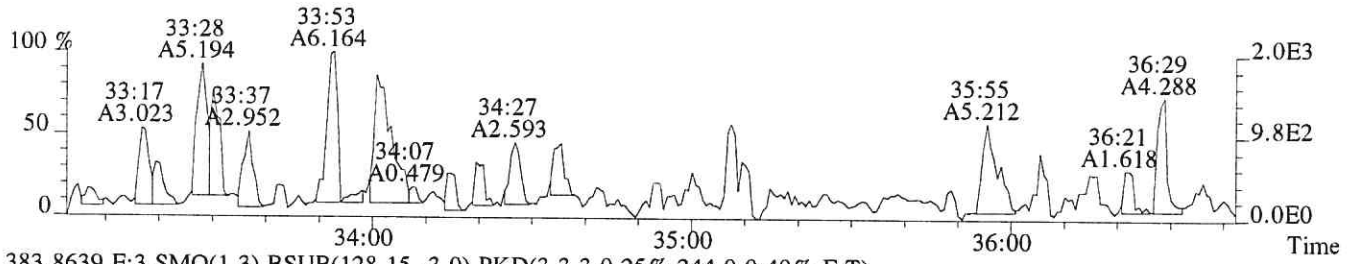
11/20/18

11/21/18

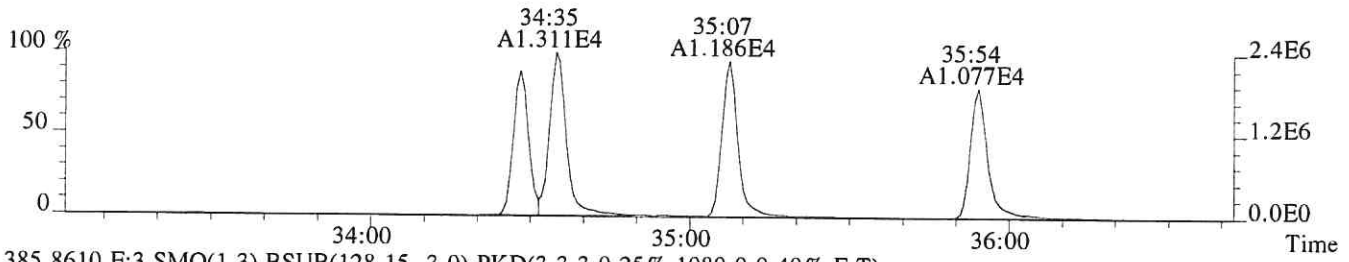
File:P518843 #1-330 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



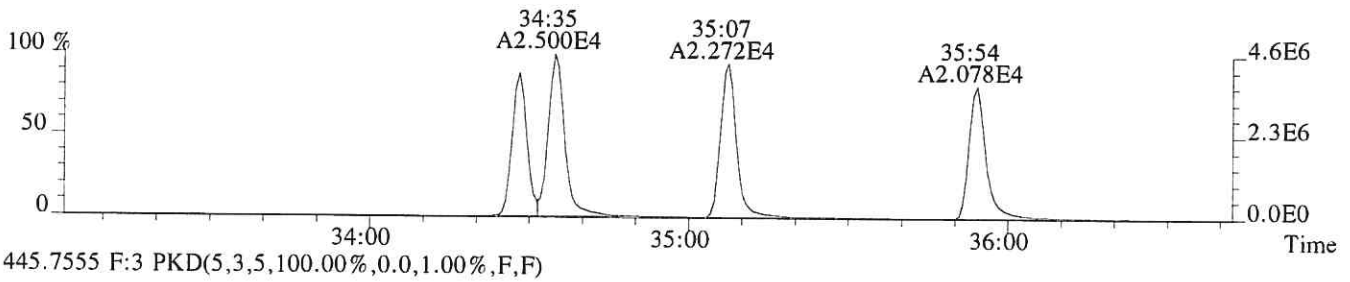
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



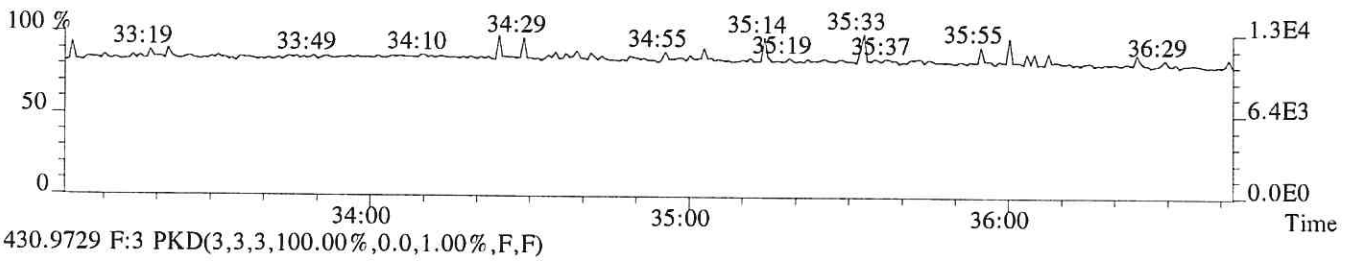
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



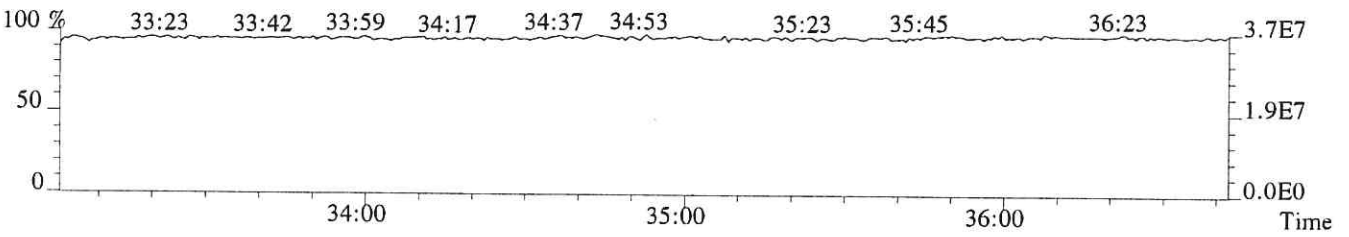
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



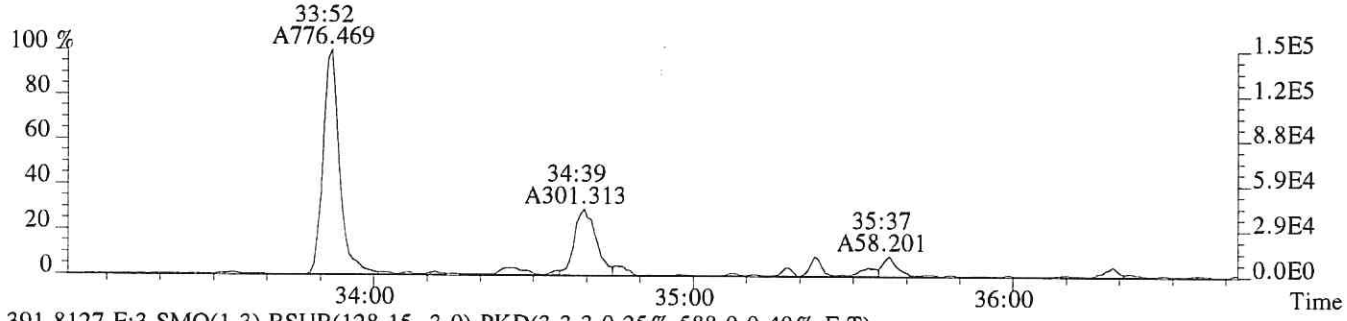
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



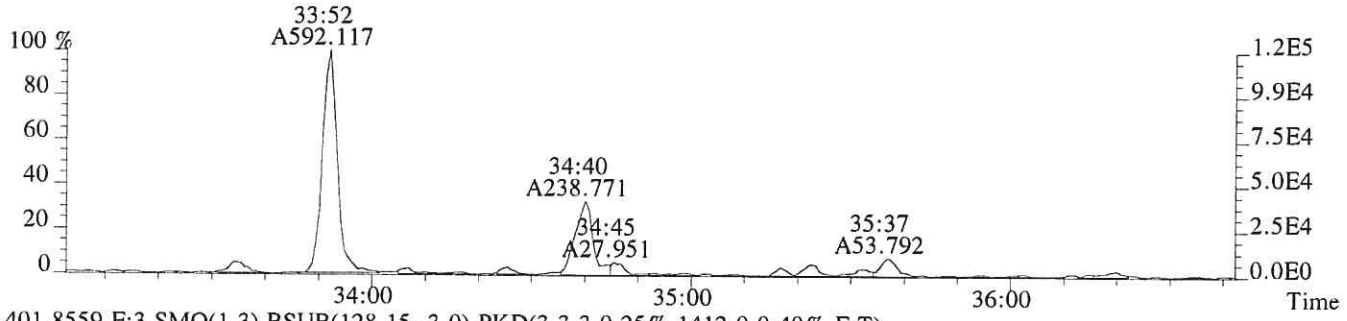
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



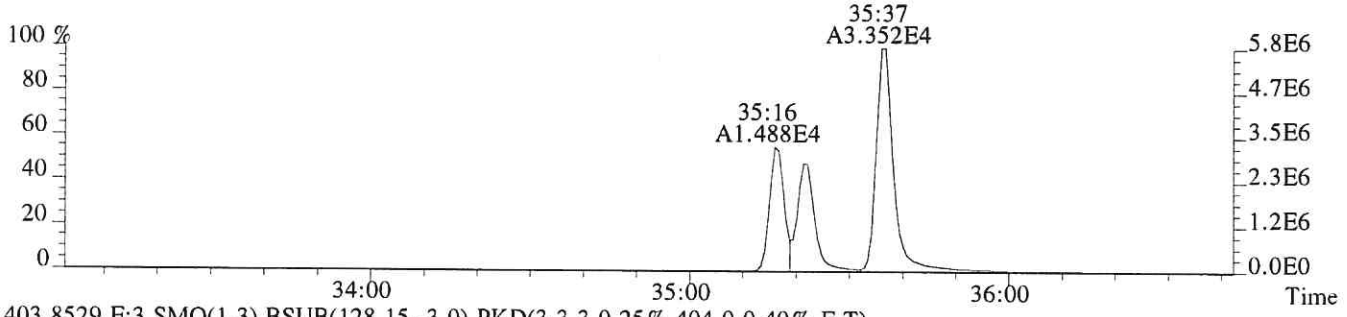
File:P518843 #1-330 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



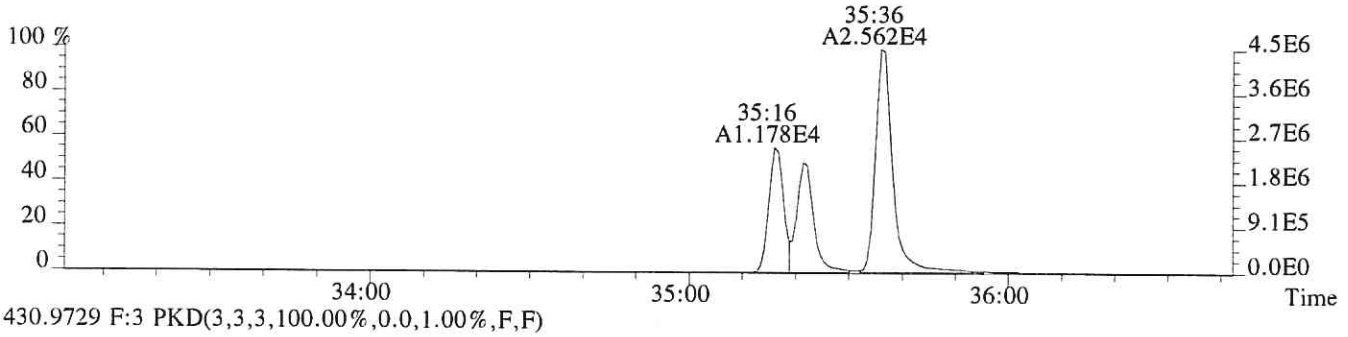
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



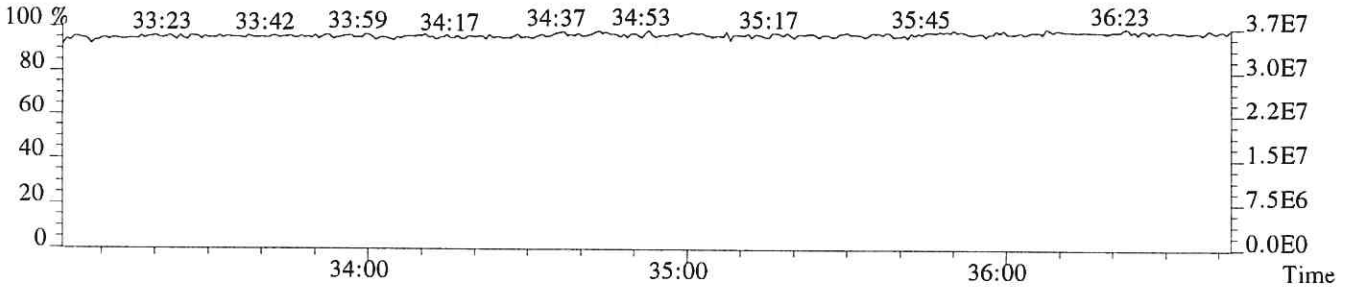
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



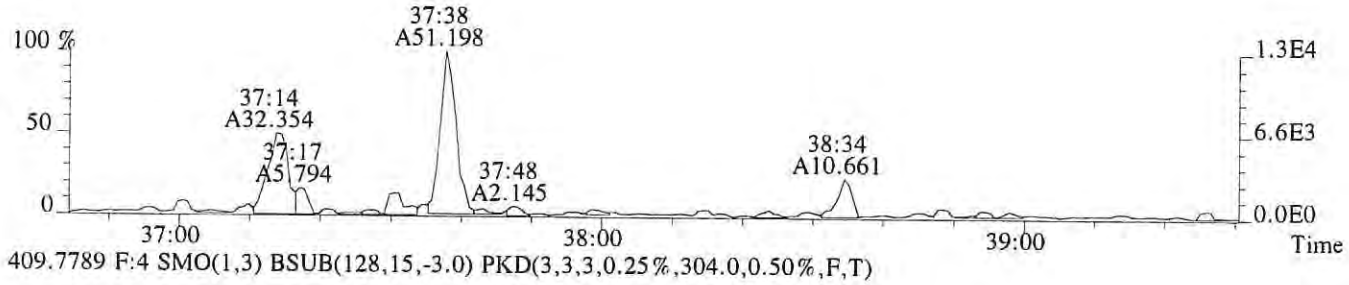
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



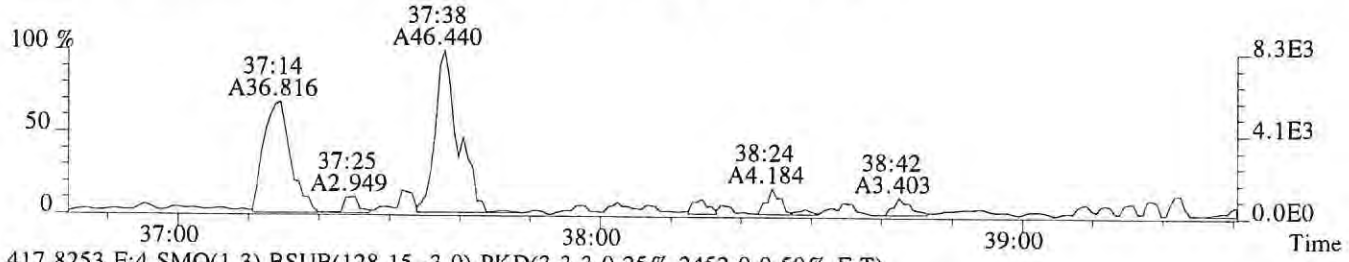
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



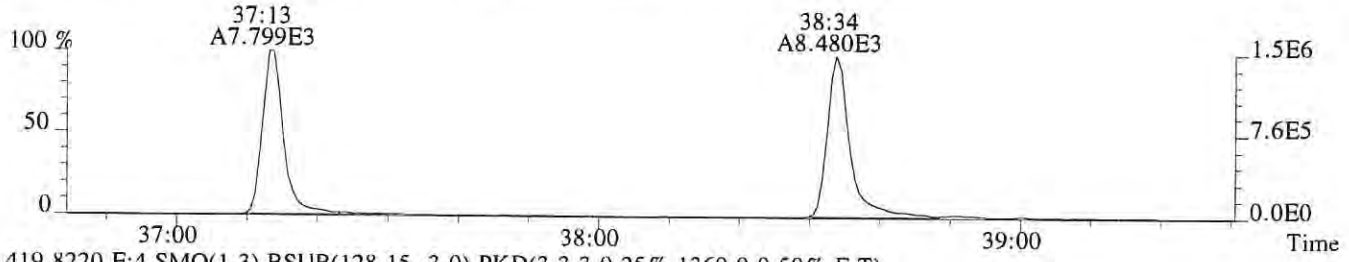
File:P518843 #1-250 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.50%,F,T)



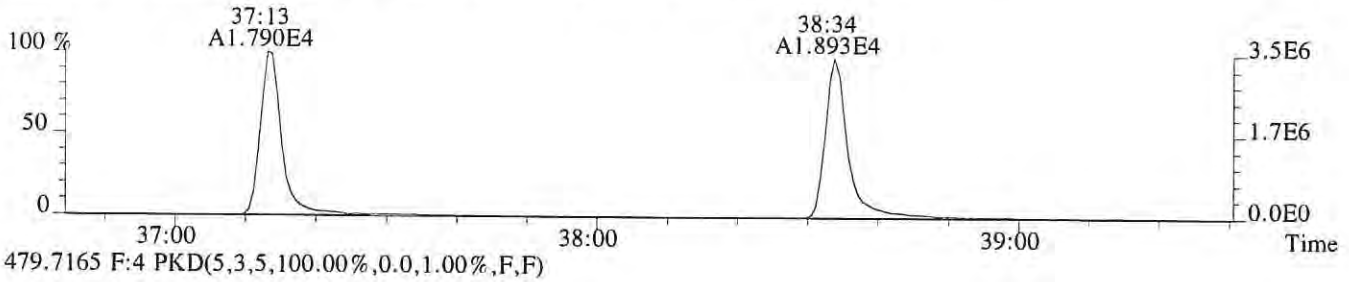
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



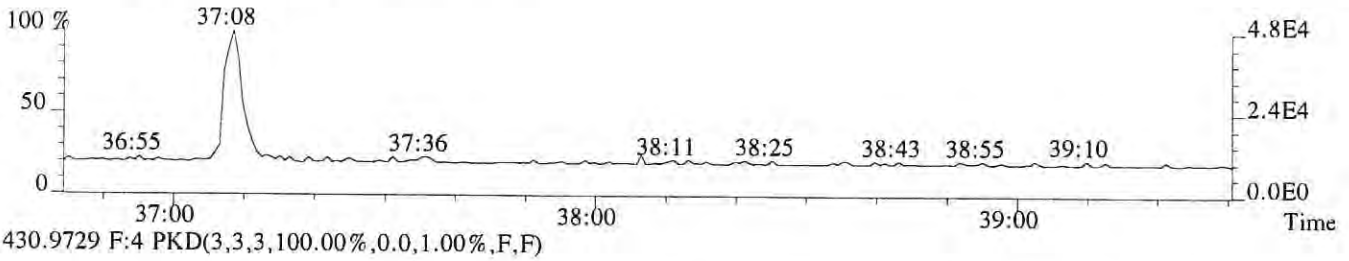
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2452.0,0.50%,F,T)



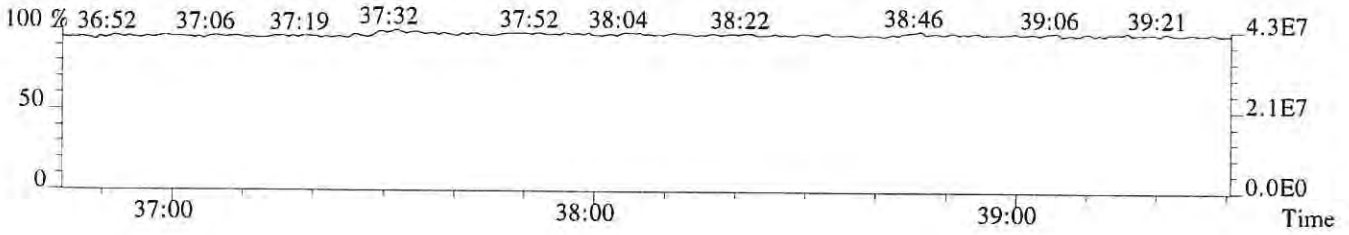
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.50%,F,T)



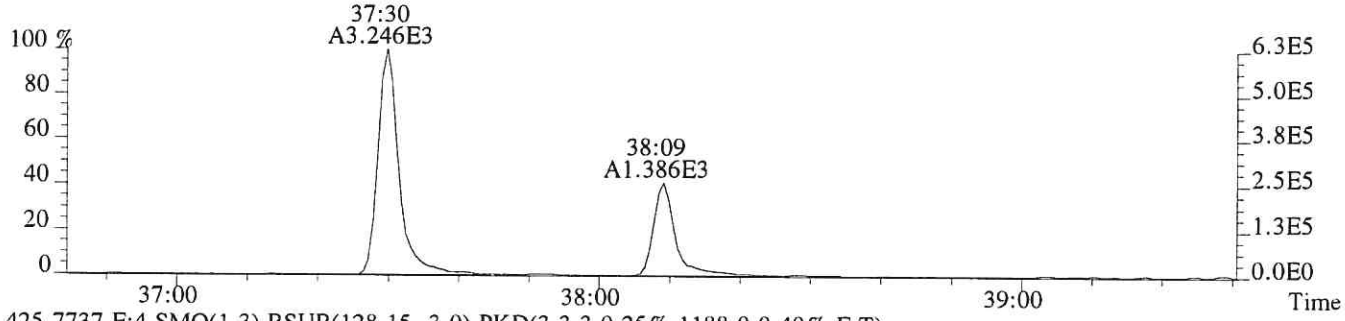
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



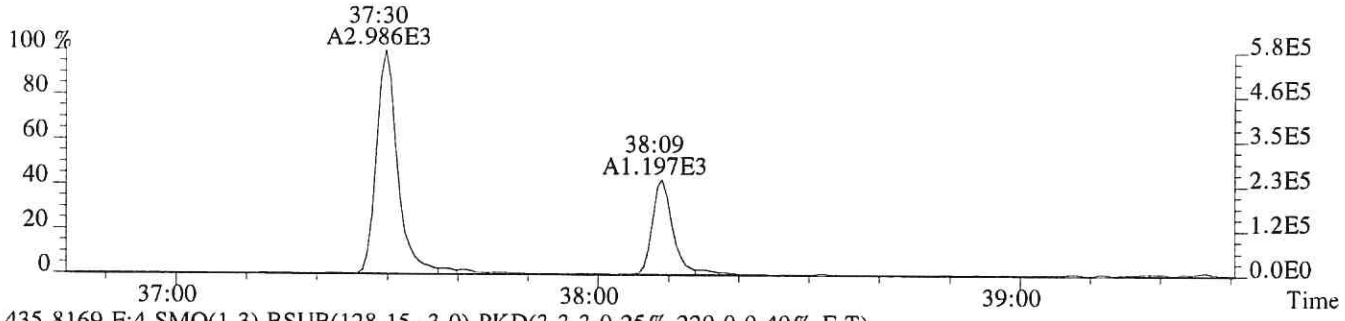
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



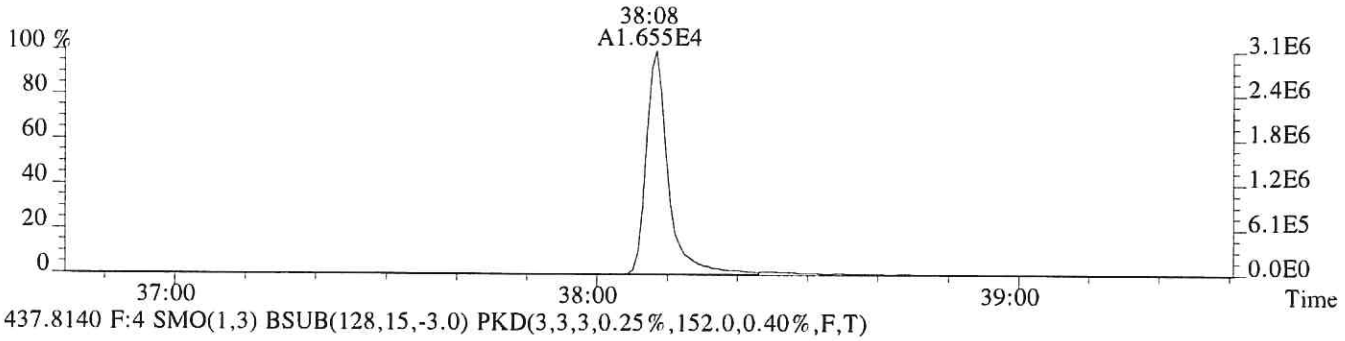
File:P518843 #1-250 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



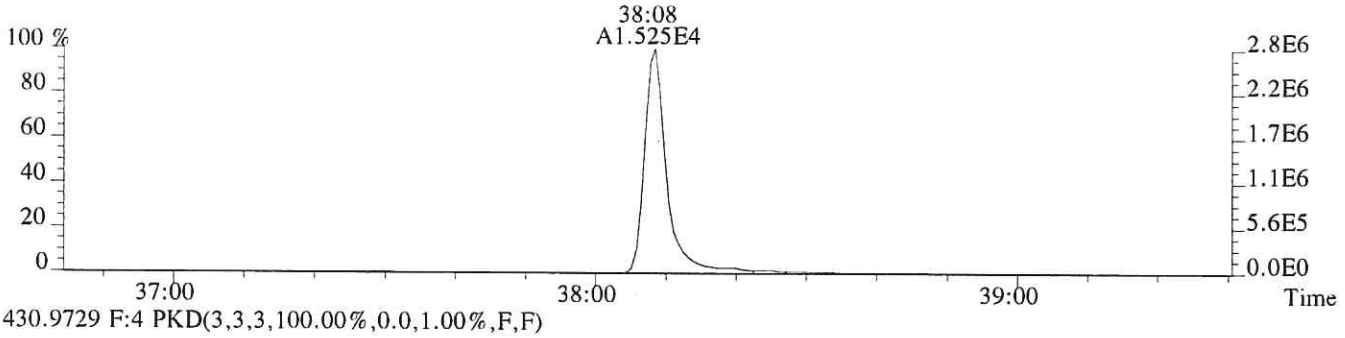
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



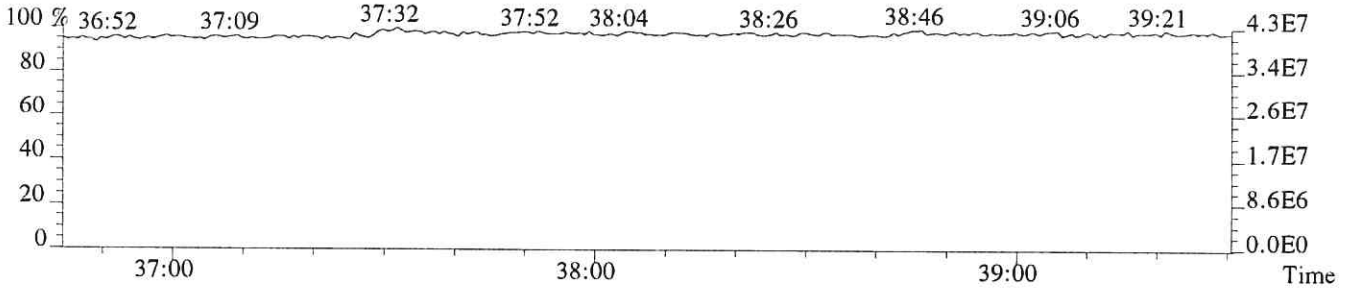
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



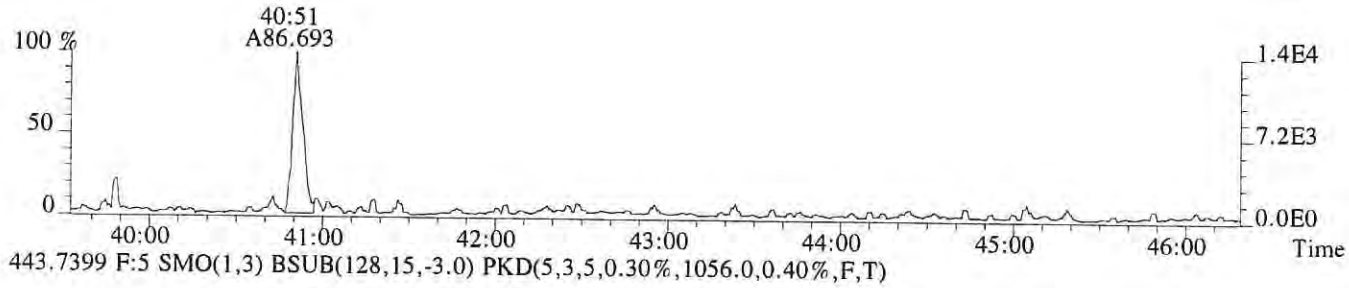
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



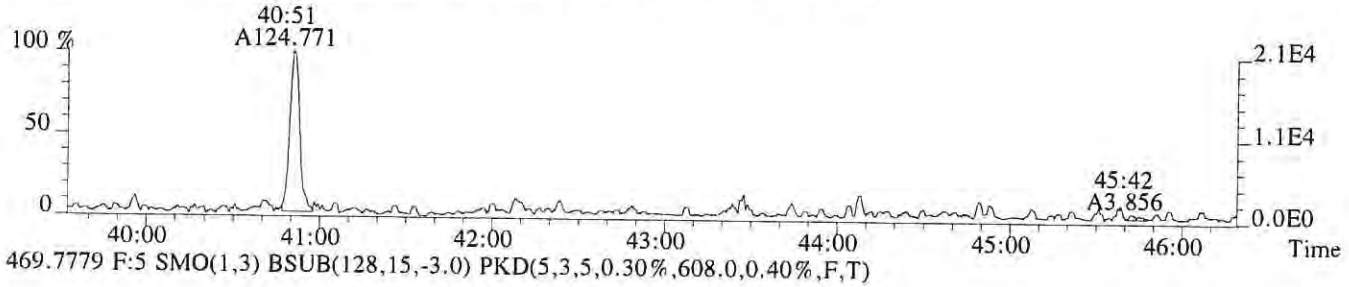
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



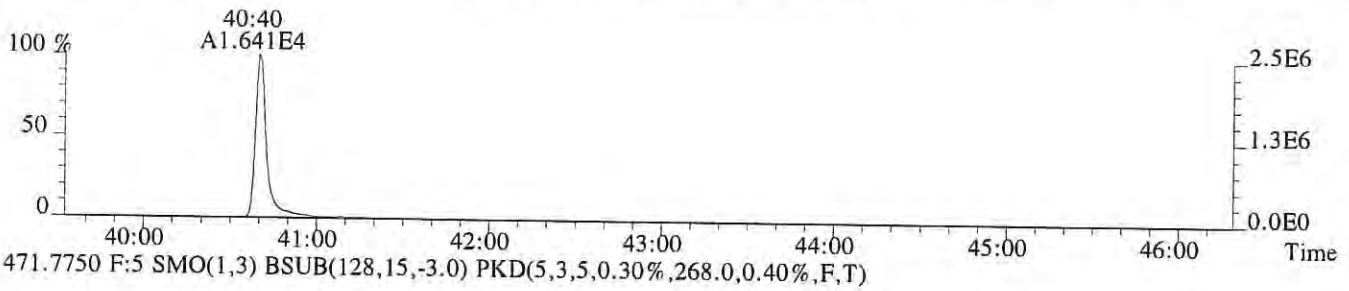
File:P518843 #1-610 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



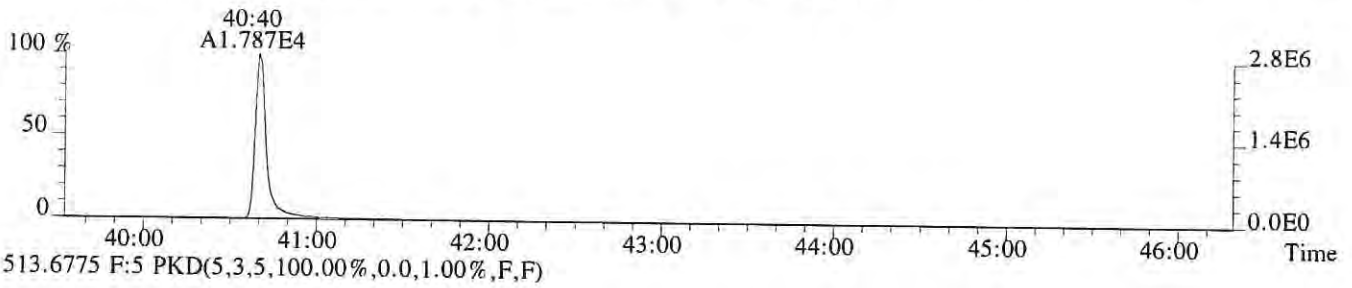
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



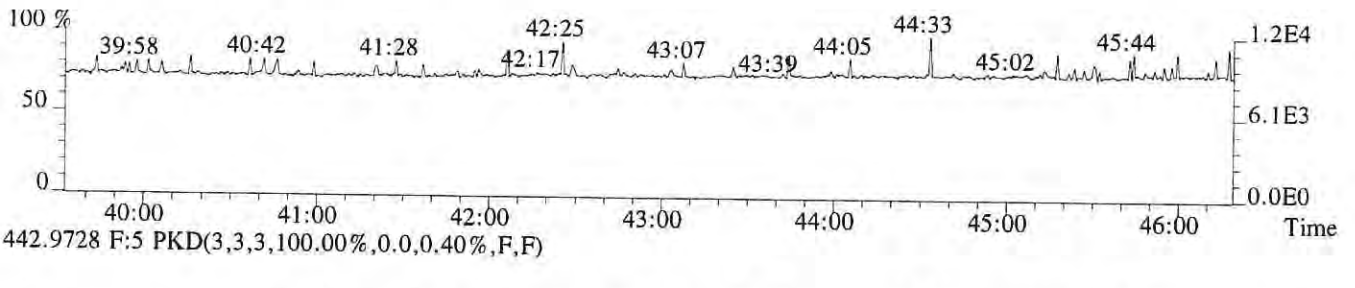
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



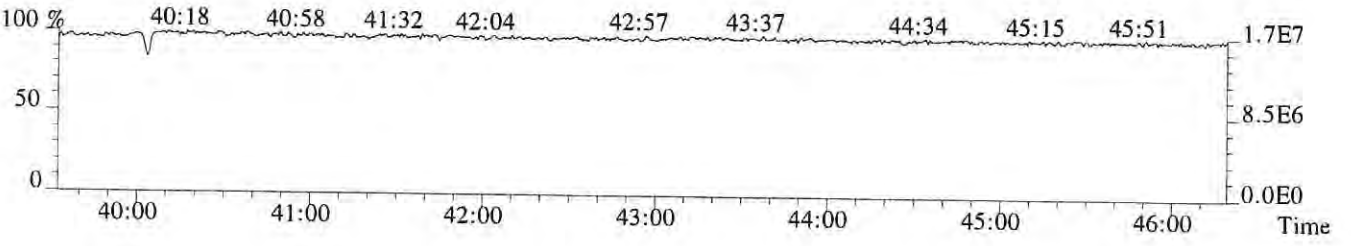
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



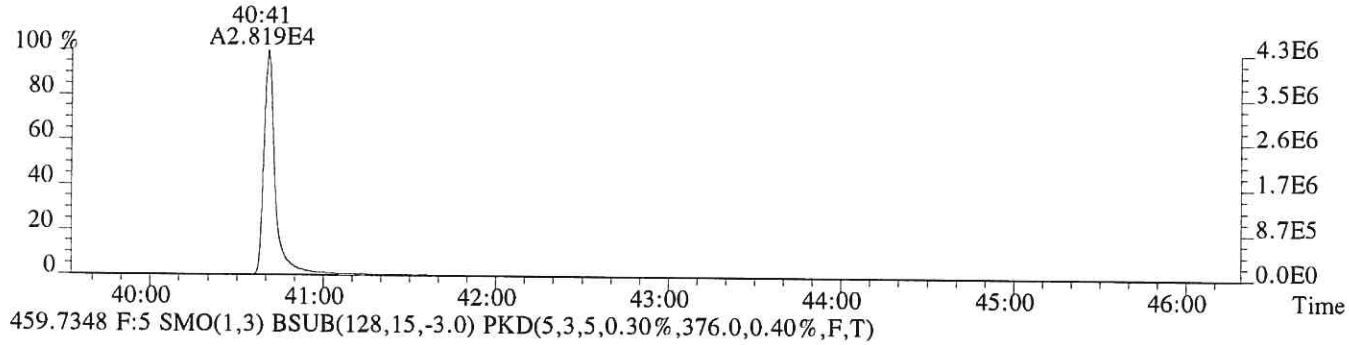
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



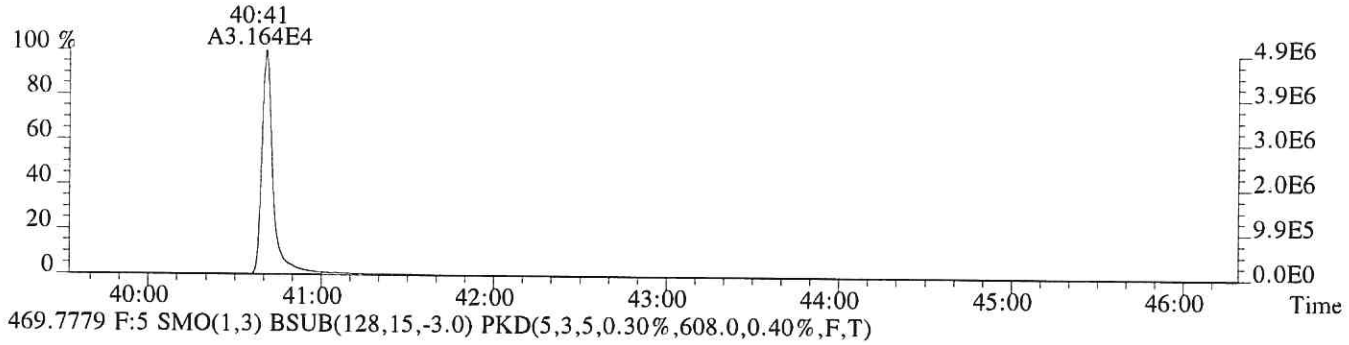
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



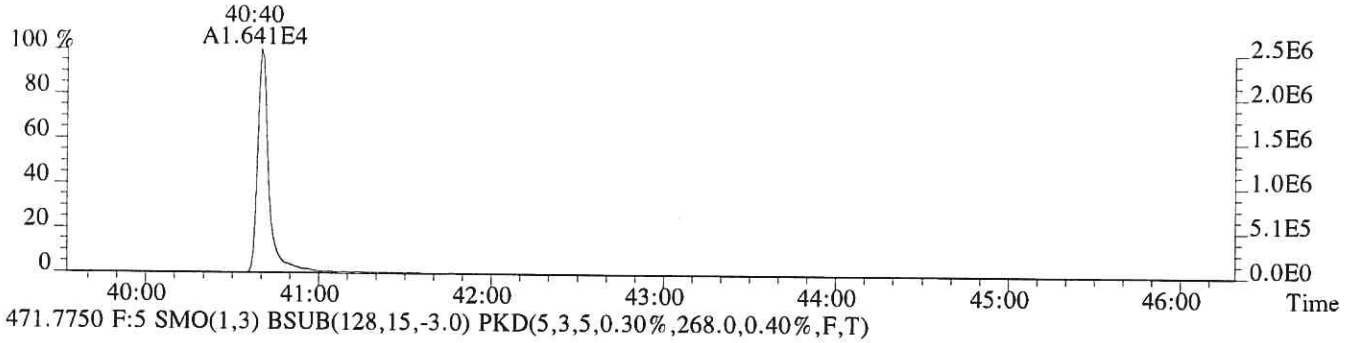
File:P518843 #1-610 Acq:16-NOV-2018 04:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



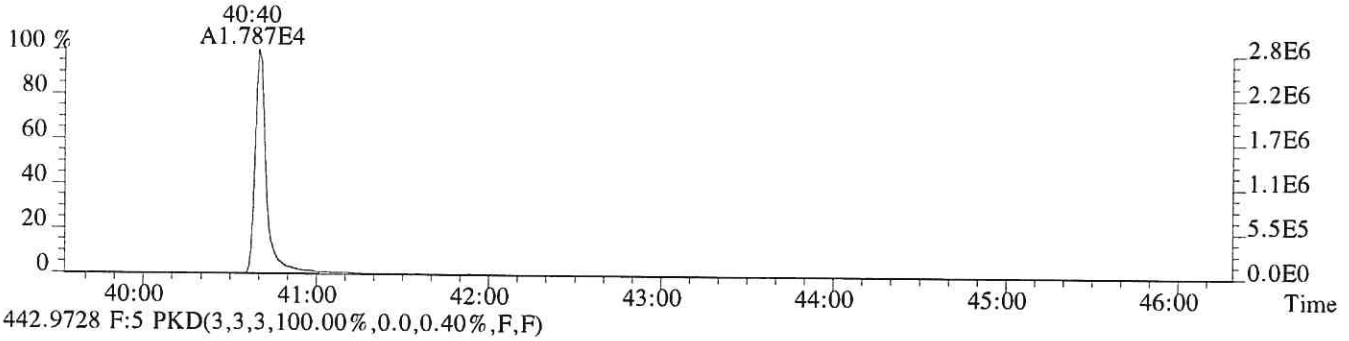
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



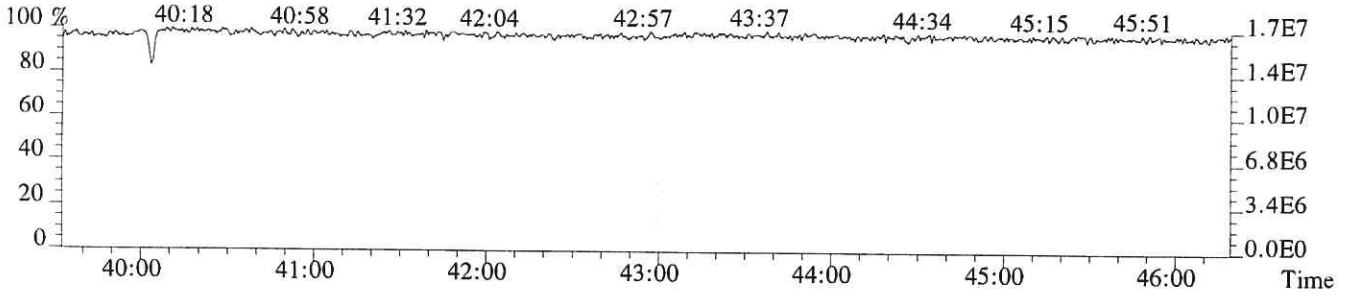
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0505

Run #14 Filename P518844 Samp: 1 Inj: 1 Acquired: 16-NOV-18 05:12:00
Processed: 19-NOV-18 09:11:52 Sample ID: E1801018-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	7.315e+01	7.147e+01	1.02	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.950e+01	1.850e+01	1.05	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	1.019e+02	1.324e+02	0.77	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	3.673e+01	4.177e+01	0.88	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.484e+01	6.733e+01	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.115e+02	1.047e+02	1.07	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	3.587e+03	3.533e+03	1.02	yes	no	1.025
17	Unk	OCDD	40:42	1.582e+05	1.758e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	1.521e+04	1.889e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.658e+04	1.666e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	2.540e+04	1.584e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.203e+04	2.309e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.520e+04	2.933e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.361e+04	2.673e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.251e+04	2.487e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	1.028e+04	2.348e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	1.098e+04	2.383e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	1.045e+04	1.315e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.849e+04	1.153e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.763e+04	1.292e+04	1.36	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.774e+04	1.476e+04	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	2.236e+04	2.083e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	2.497e+04	2.777e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	1.993e+04	2.449e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.268e+04	2.567e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.130e+04				no	1.014

$$\text{OCDD} = \frac{(1.582e+05 + 1.758e+05) \times 4000\ \text{pg} \times 1}{(2.497e+04 + 2.777e+04) \times 10.475 \times 62.3 / 100 \times 1.118} = 3472.0219\ \text{ng/kg}$$

LG 11/26/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0505

Run #14 Filename P518844 Samp: 1 Inj: 1 Acquired: 16-NOV-18 05:12:00
Processed: 19-NOV-18 09:11:52 LAB. ID: E1801018-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.02e+04	4.48e+02	2.3e+01	1.20e+04	1.37e+03	8.7e+00
2	1,2,3,7,8-PeCDF	*	3.52e+02	*	*	9.92e+02	*
3	2,3,4,7,8-PeCDF	*	3.52e+02	*	*	9.92e+02	*
4	1,2,3,4,7,8-HxCDF	*	6.04e+02	*	*	5.44e+02	*
5	1,2,3,6,7,8-HxCDF	*	6.04e+02	*	*	5.44e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.04e+02	*	*	5.44e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.04e+02	*	*	5.44e+02	*
8	1,2,3,4,6,7,8-HpCDF	4.30e+03	7.00e+02	6.1e+00	5.16e+03	1.64e+02	3.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	7.00e+02	*	*	1.64e+02	*
10	OCDF	1.71e+04	2.52e+02	6.8e+01	2.24e+04	1.08e+03	2.1e+01
11	2,3,7,8-TCDD	*	1.70e+03	*	*	9.72e+02	*
12	1,2,3,7,8-PeCDD	*	4.12e+02	*	*	2.88e+02	*
13	1,2,3,4,7,8-HxCDD	7.57e+03	3.56e+02	2.1e+01	1.06e+04	8.60e+02	1.2e+01
14	1,2,3,6,7,8-HxCDD	1.68e+04	3.56e+02	4.7e+01	1.27e+04	8.60e+02	1.5e+01
15	1,2,3,7,8,9-HxCDD	2.22e+04	3.56e+02	6.2e+01	1.88e+04	8.60e+02	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	6.51e+05	3.12e+03	2.1e+02	6.31e+05	3.70e+03	1.7e+02
17	OCDD	2.46e+07	1.88e+02	1.3e+05	2.72e+07	1.60e+02	1.7e+05
18	13C-2,3,7,8-TCDF	1.99e+06	4.44e+03	4.5e+02	2.43e+06	2.36e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	4.20e+06	1.60e+02	2.6e+04	2.64e+06	6.08e+02	4.3e+03
20	13C-2,3,4,7,8-PeCDF	4.32e+06	1.60e+02	2.7e+04	2.68e+06	6.08e+02	4.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.44e+06	2.00e+02	1.2e+04	4.64e+06	9.72e+02	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.65e+06	2.00e+02	1.3e+04	5.15e+06	9.72e+02	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	2.63e+06	2.00e+02	1.3e+04	5.16e+06	9.72e+02	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.25e+06	2.00e+02	1.1e+04	4.25e+06	9.72e+02	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.99e+06	3.06e+03	6.5e+02	4.50e+06	3.82e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+06	3.06e+03	6.1e+02	4.16e+06	3.82e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.55e+06	4.22e+03	3.7e+02	1.95e+06	1.40e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+06	1.72e+02	1.8e+04	1.95e+06	8.40e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.54e+06	1.46e+03	2.4e+03	2.76e+06	6.12e+02	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	3.24e+06	1.46e+03	2.2e+03	2.55e+06	6.12e+02	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.99e+06	3.56e+02	1.1e+04	3.77e+06	2.60e+02	1.4e+04
32	13C-OCDD	3.97e+06	8.64e+02	4.6e+03	4.31e+06	1.12e+02	3.8e+04
33	13C-1,2,3,4-TCDD	2.94e+06	4.22e+03	7.0e+02	3.61e+06	1.40e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	5.68e+06	1.46e+03	3.9e+03	4.52e+06	6.12e+02	7.4e+03
35	37Cl-2,3,7,8-TCDD	1.69e+06	1.08e+03	1.6e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0505

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P518844 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 05:12:00 Processed: 19-NOV-18 09:11:52

Mass: 303.9020 305.8990 Tot Response: 2.73e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	21:58	8.09e+01	1.08e+02	0.75	yes	1.89e+02		n	n
2	22:22	1.64e+01	2.02e+01	0.81	yes	3.66e+01		y	y
3	24:32	2.22e+01	2.52e+01	0.88	yes	4.74e+01		y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0505

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P518844 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 05:12:00 Processed: 19-NOV-18 09:11:52

Mass: 355.8550 357.8520 Tot Response: 2.88e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:06	1.16e+02	7.65e+01	1.52	yes	1.93e+02		n	n
2	30:54	5.84e+01	3.73e+01	1.56	yes	9.57e+01		n	n

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Peak List Summary

CLIENT ID.
SL0505

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P518844 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 05:12:00 Processed: 19-NOV-18 09:11:52

Mass: 373.8210 375.8180 Tot Response: 3.62e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:27	1.78e+01	1.48e+01	1.20	yes	3.26e+01		n	n
2	33:52	2.09e+00	1.49e+00	1.41	yes	3.58e+00		n	n

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SL0505

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P518844 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 05:12:00 Processed: 19-NOV-18 09:11:52

Mass: 389.8160 391.8130 Tot Response: 3.09e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	1.00e+03	7.91e+02	1.27	yes	1.79e+03		n	n
2	34:25	4.29e+01	3.12e+01	1.38	yes	7.41e+01		n	n
3	34:39	4.62e+02	3.26e+02	1.42	yes	7.89e+02		n	n
4	35:23	8.48e+01	6.73e+01	1.26	yes	1.52e+02	1,2,3,6,7,8-HxCDD	n	n
5	35:33	3.99e+01	2.82e+01	1.41	yes	6.81e+01		n	n
6	35:37	1.12e+02	1.05e+02	1.07	yes	2.16e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0505

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P518844 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 05:12:00 Processed: 19-NOV-18 09:11:52

Mass: 407.7820 409.7790 Tot Response: 7.33e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	1.95e+01	1.85e+01 1.05	yes	3.80e+01	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	1.81e+01	1.72e+01 1.05	yes	3.53e+01		n	n

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Peak List Summary

CLIENT ID.
SL0505

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P518844 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 05:12:00 Processed: 19-NOV-18 09:11:52

Mass: 423.7770 425.7740 Tot Response: 2.01e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	6.56e+03	1.02	yes	1.30e+04		n	n
2	38:09	3.59e+03	1.02	yes	7.12e+03	1,2,3,4,6,7,8-HpCDD	n	n

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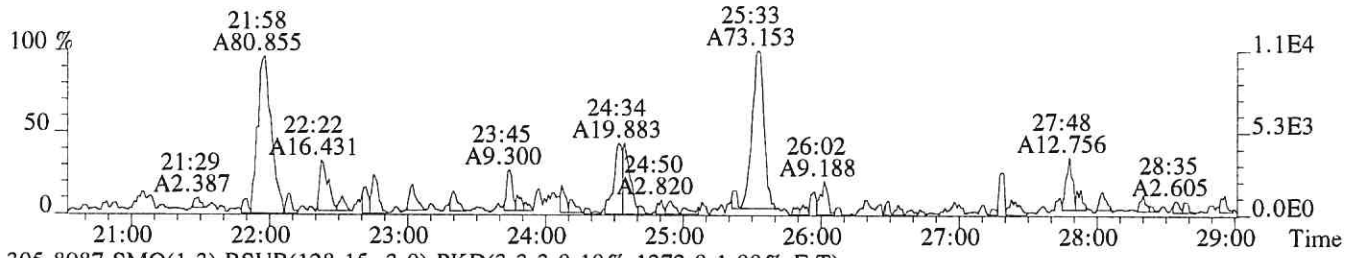
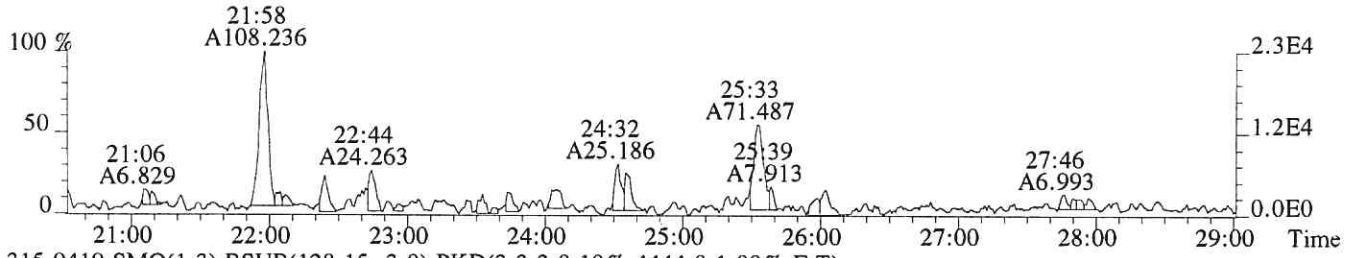
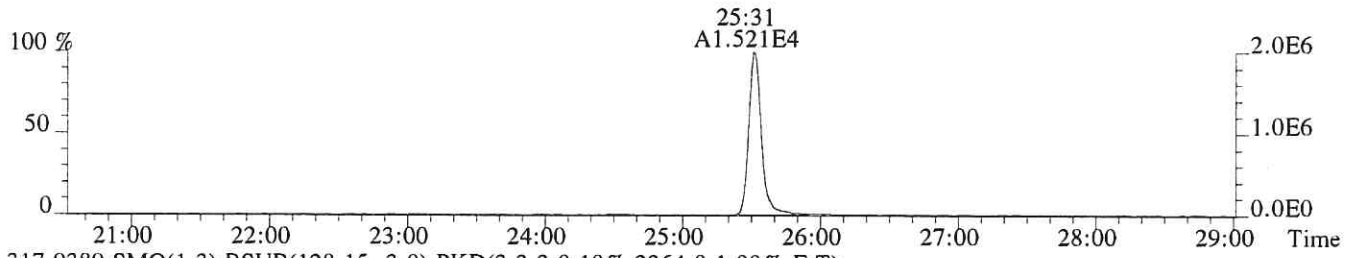
File:P518844 #1-602 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



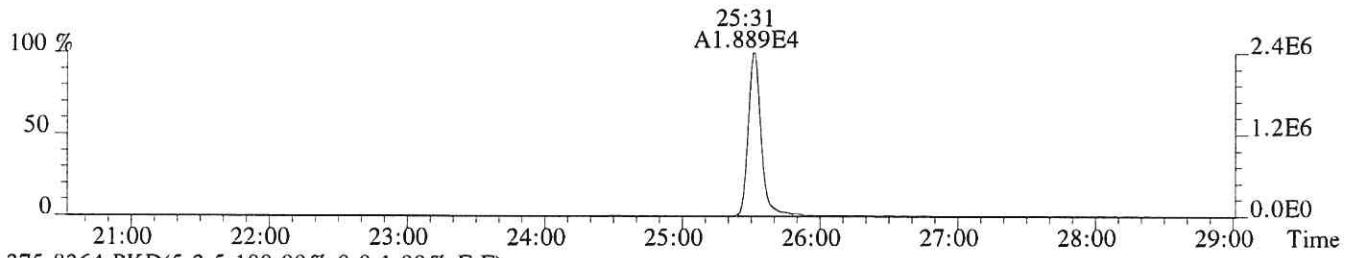
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



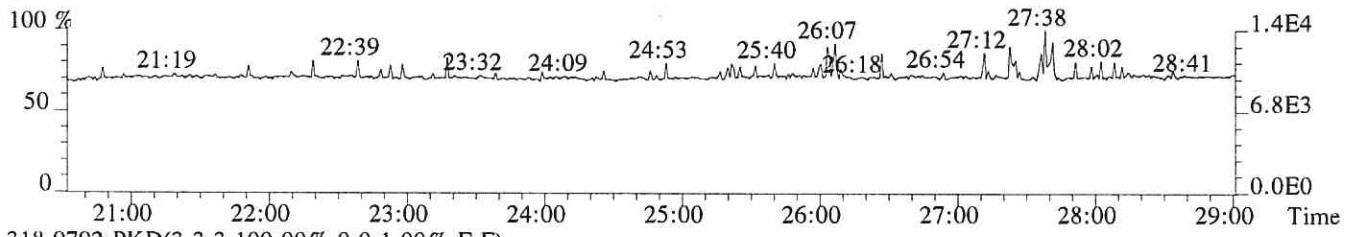
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4444.0,1.00%,F,T)



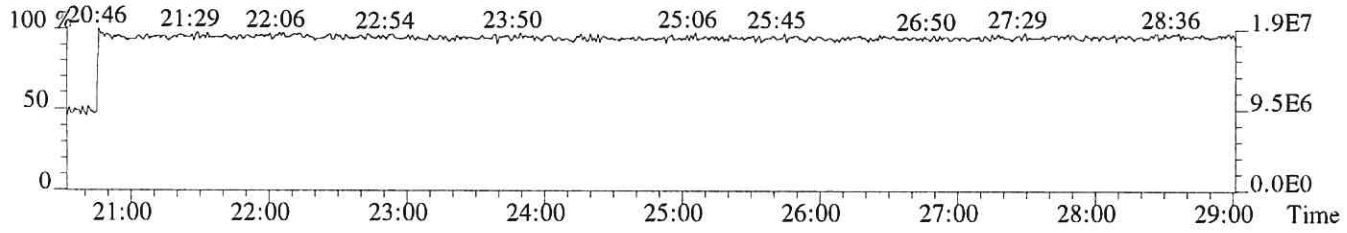
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



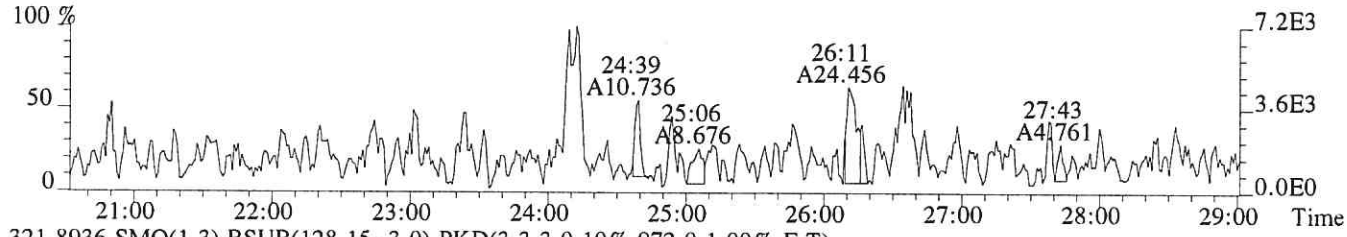
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



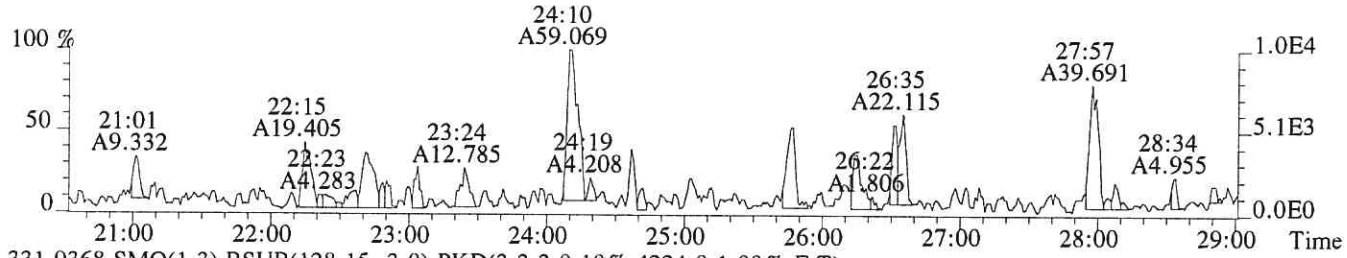
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



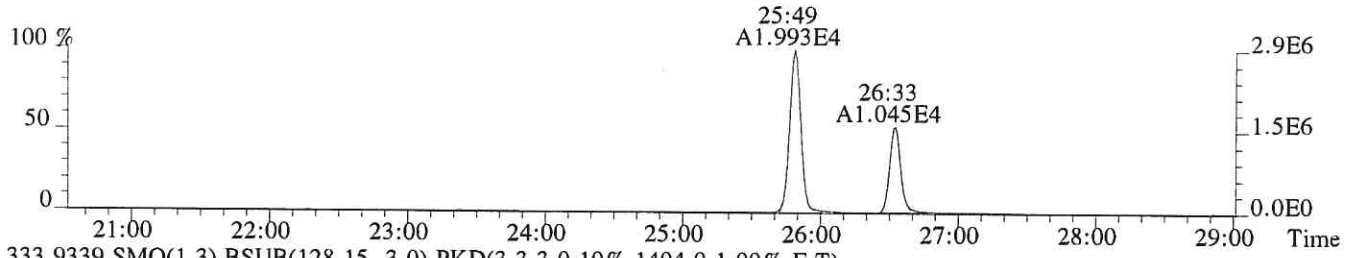
File:P518844 #1-602 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



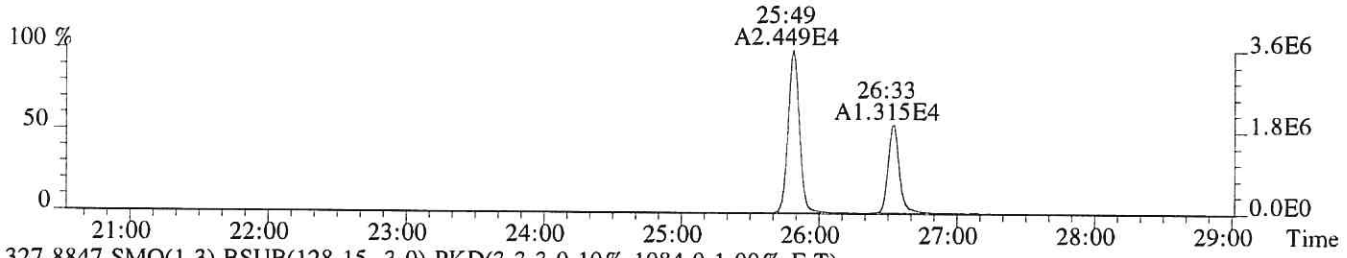
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



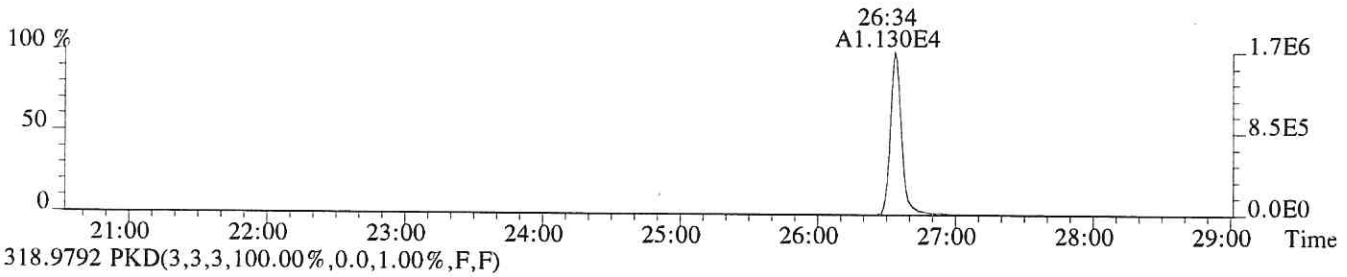
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4224.0,1.00%,F,T)



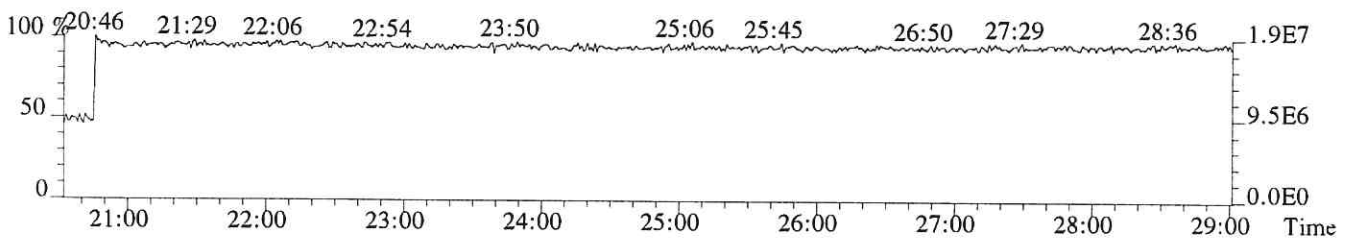
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



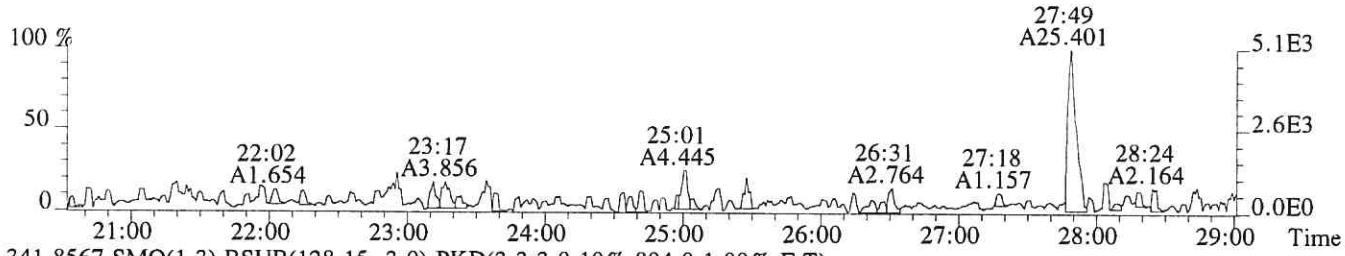
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



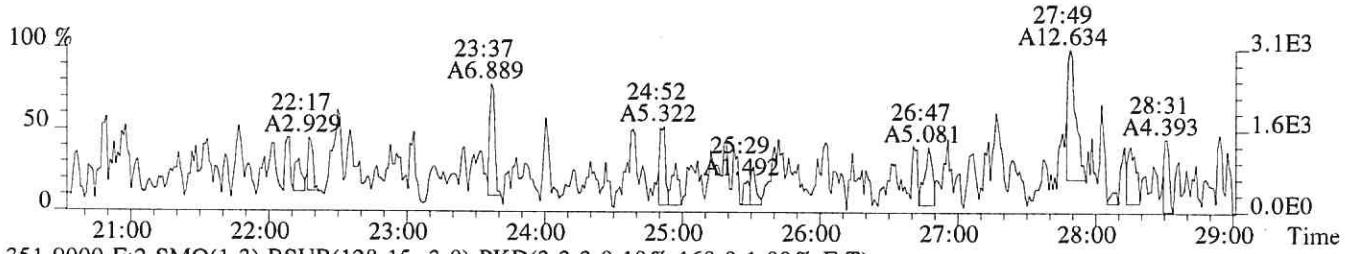
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



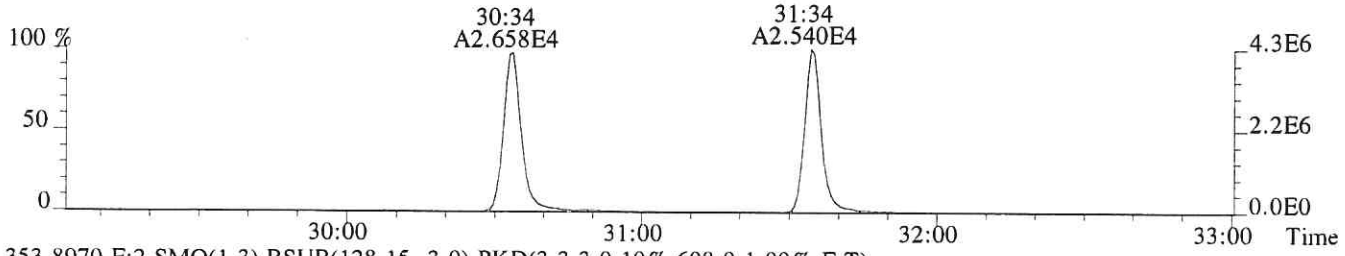
File:P518844 #1-602 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:E1801018-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



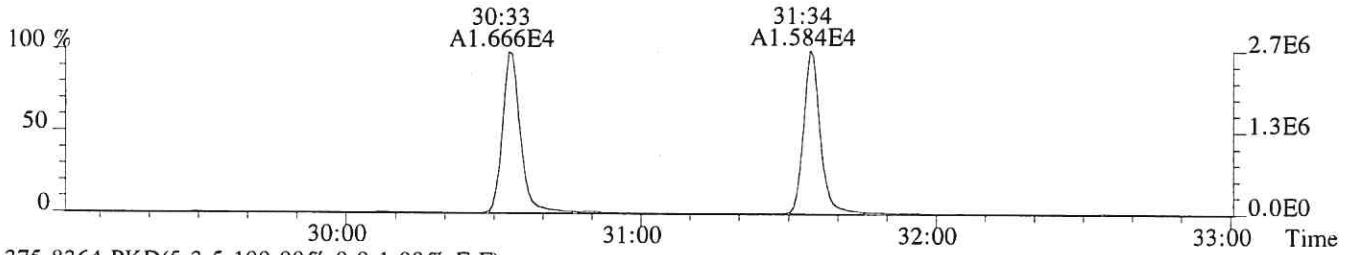
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



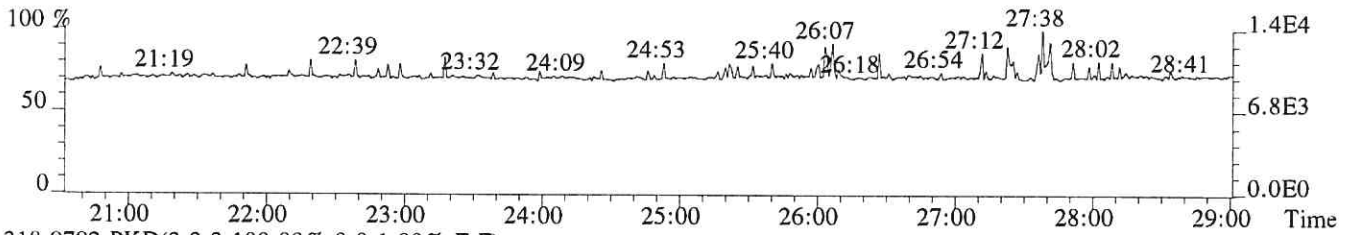
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



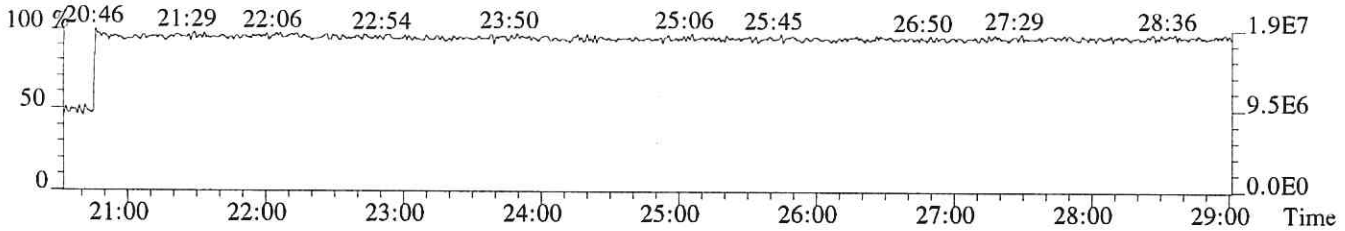
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



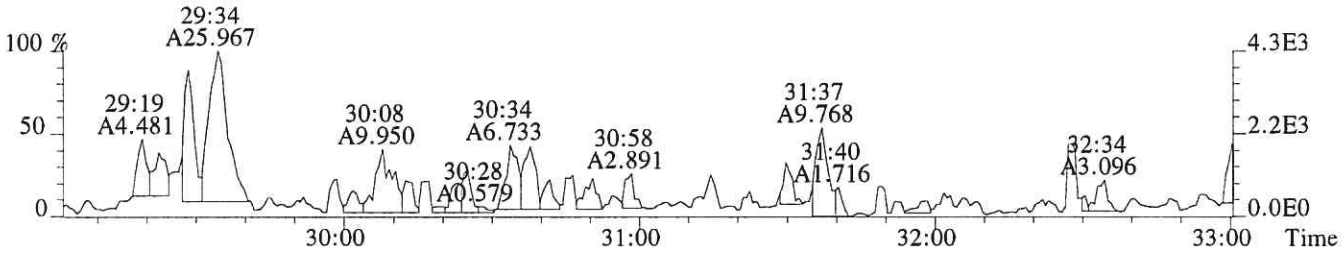
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



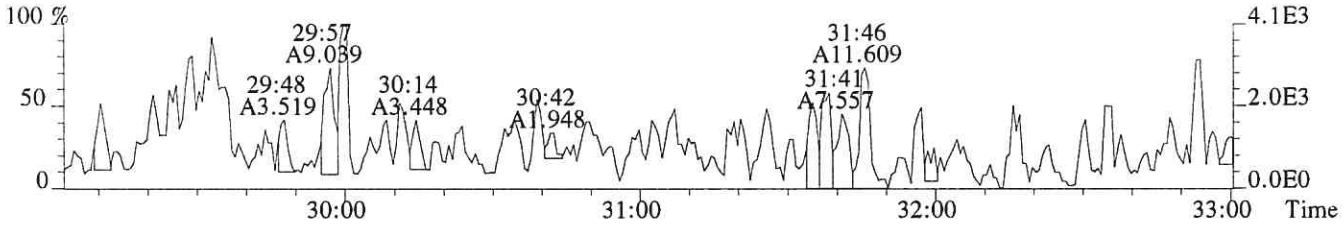
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



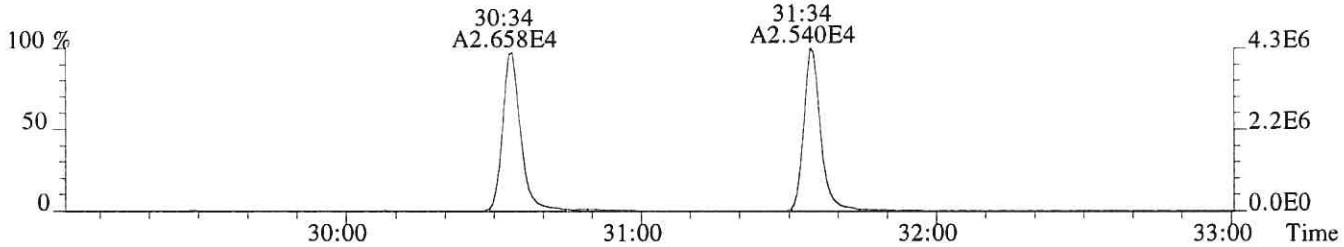
File:P518844 #1-357 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



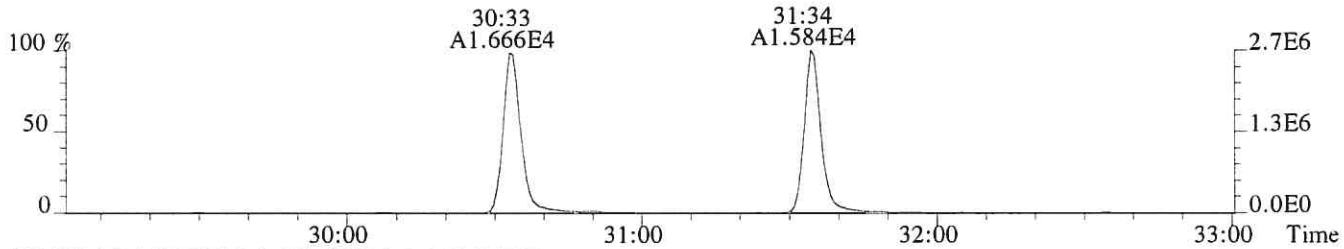
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



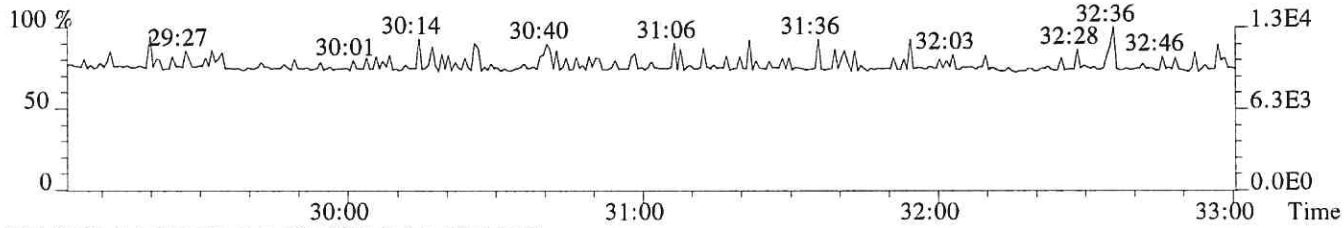
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



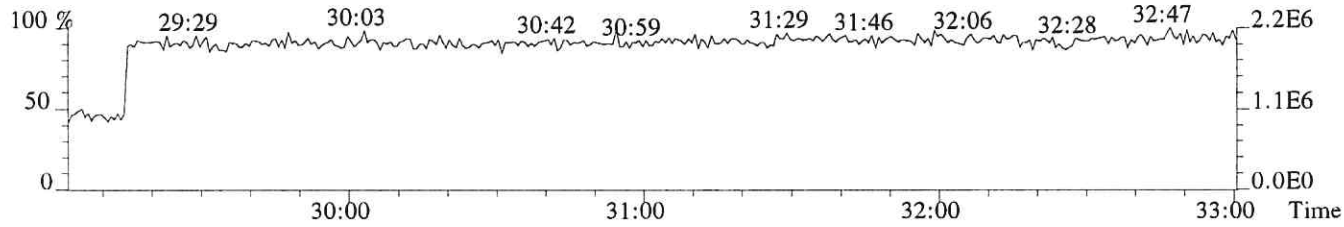
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



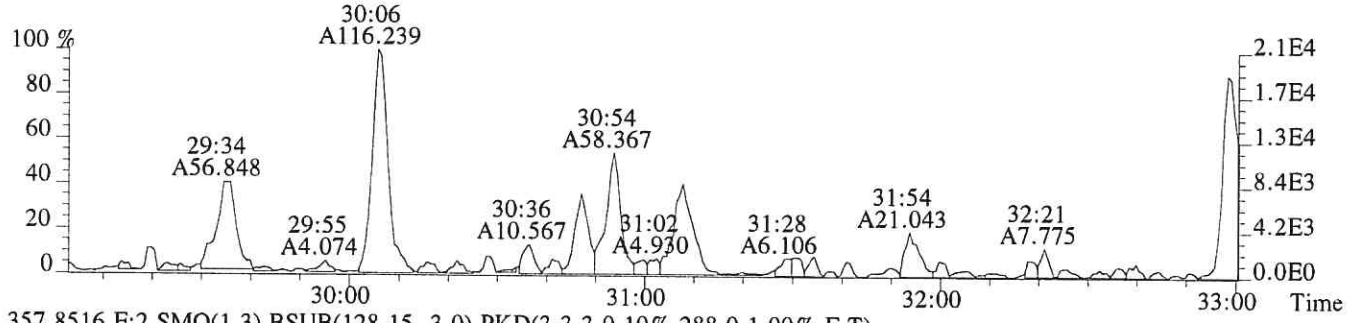
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



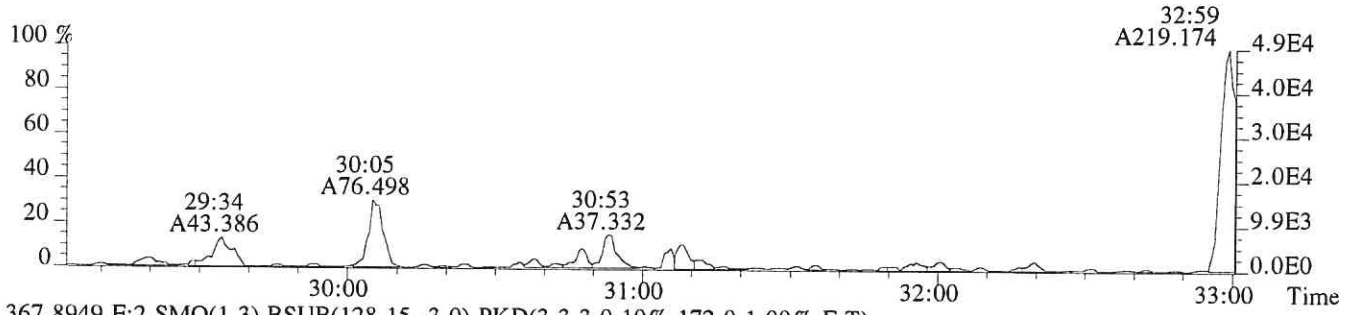
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



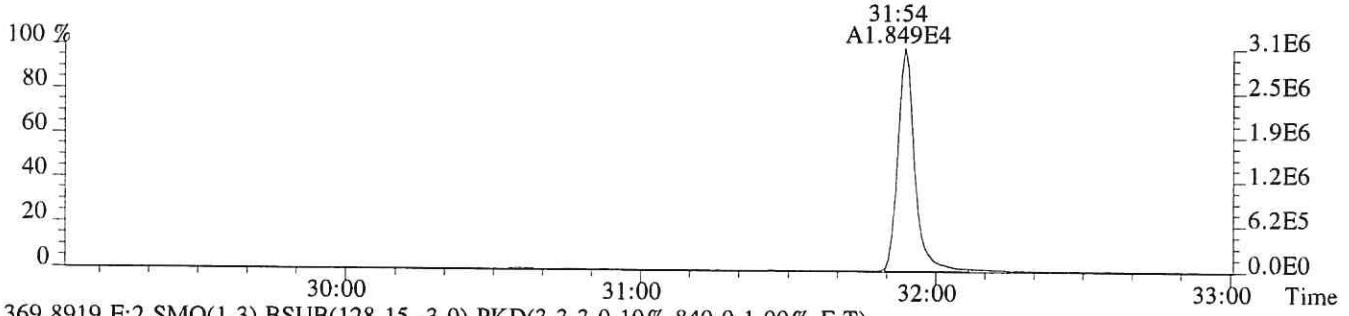
File:P518844 #1-357 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



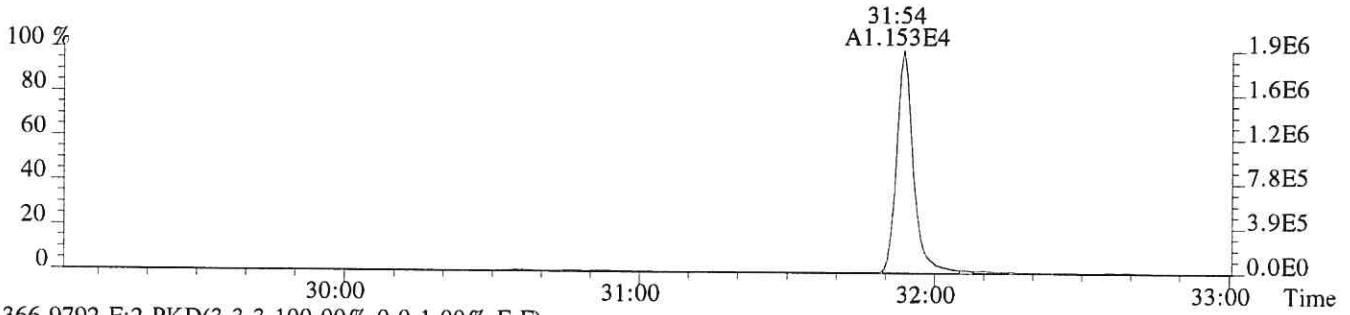
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



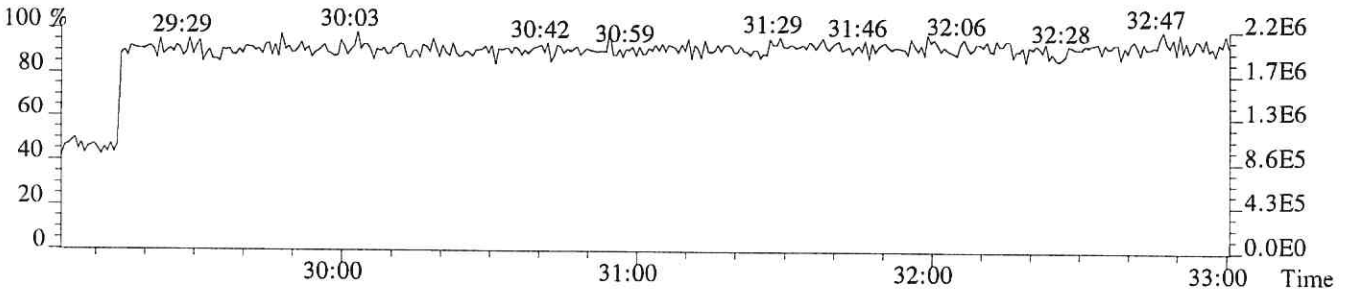
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)

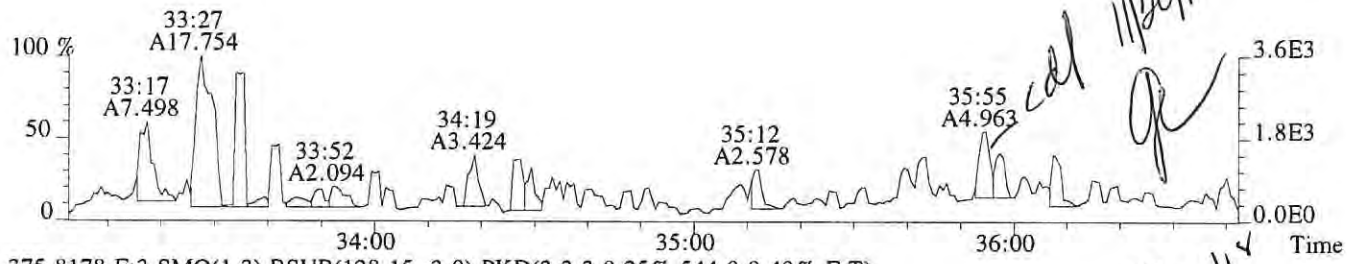


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

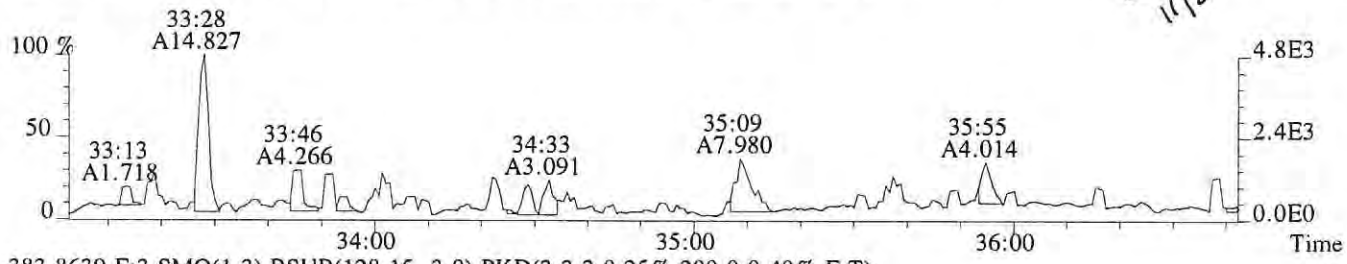


File:P518844 #1-330 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006

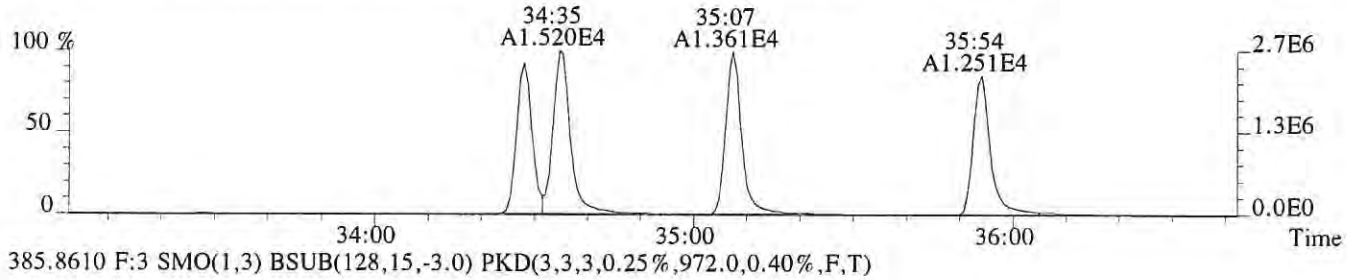
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



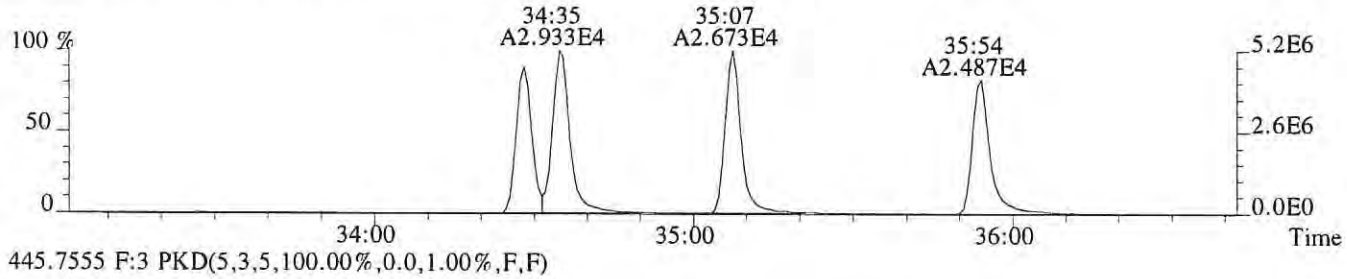
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



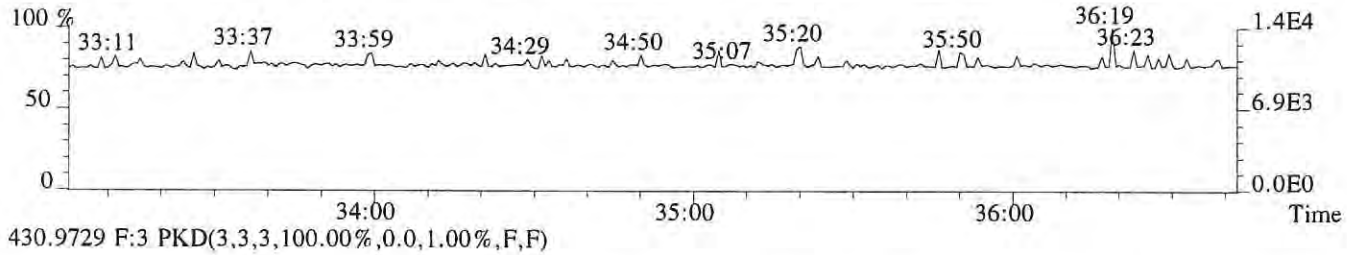
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



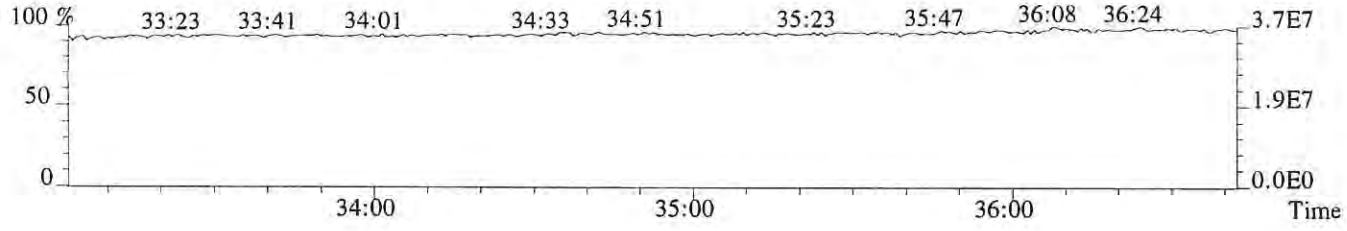
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



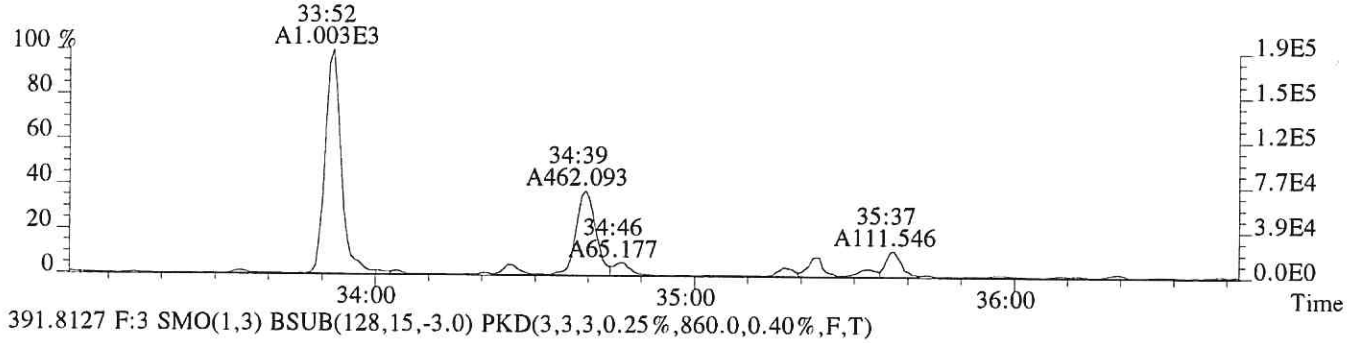
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



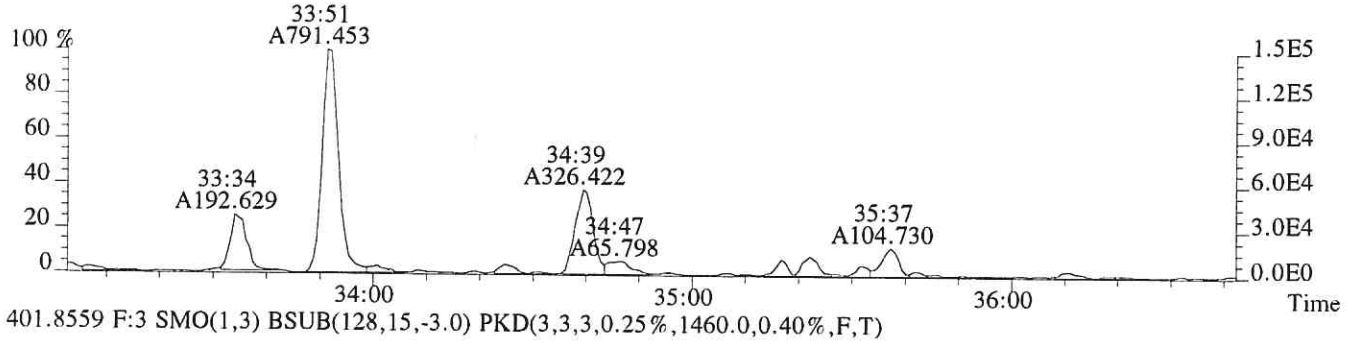
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



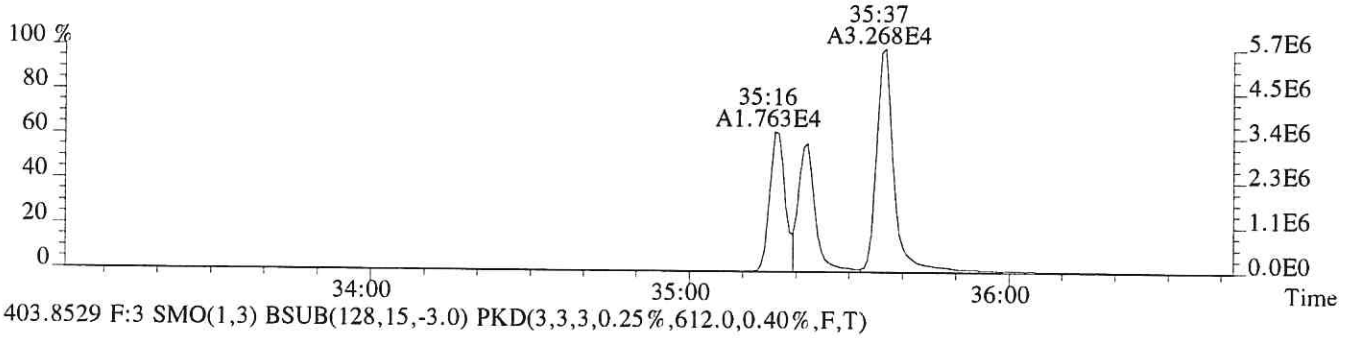
File:P518844 #1-330 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



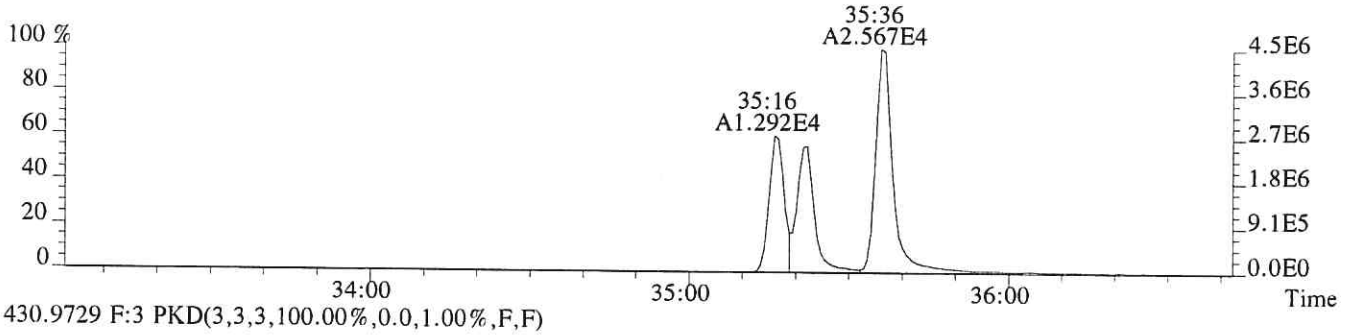
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



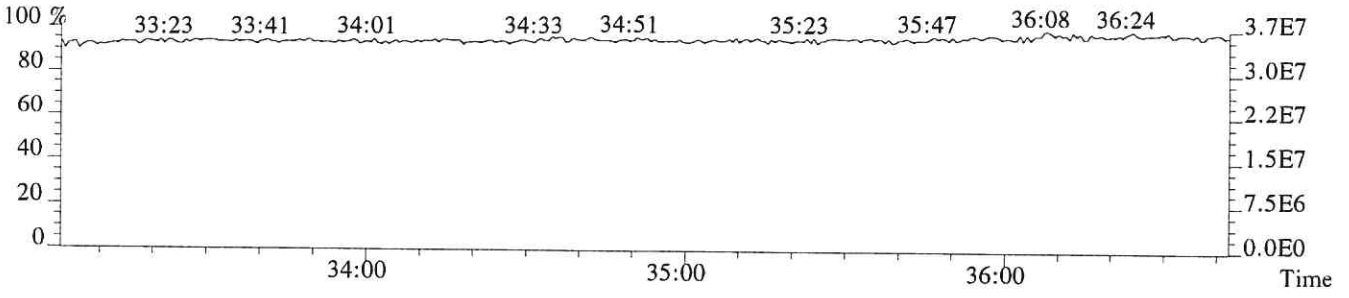
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)



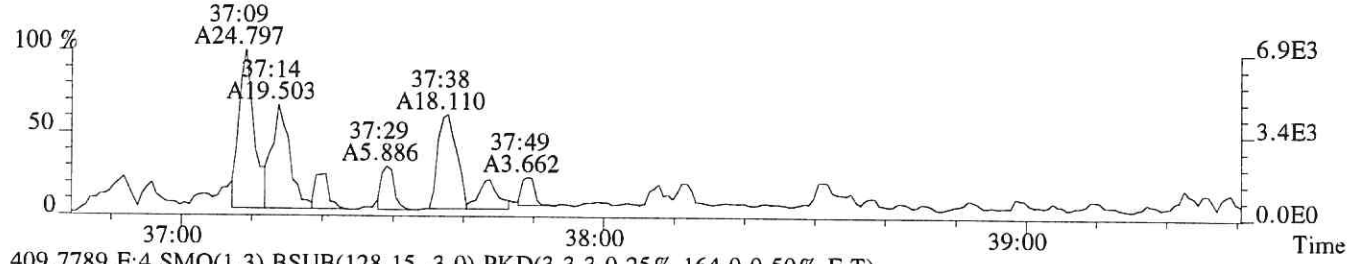
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



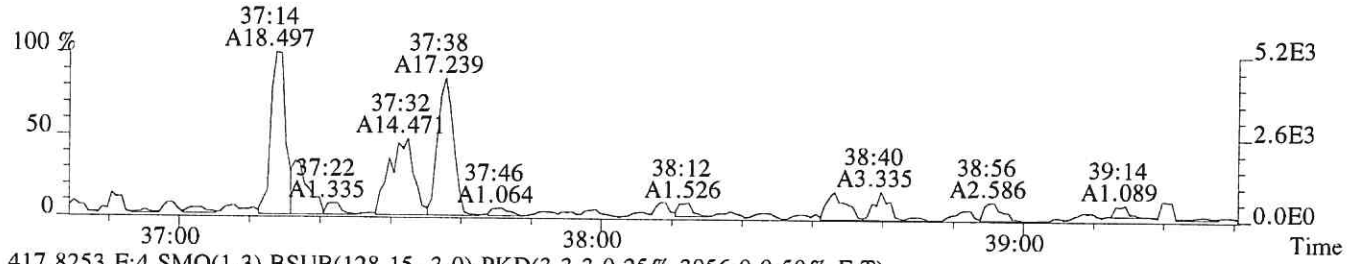
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



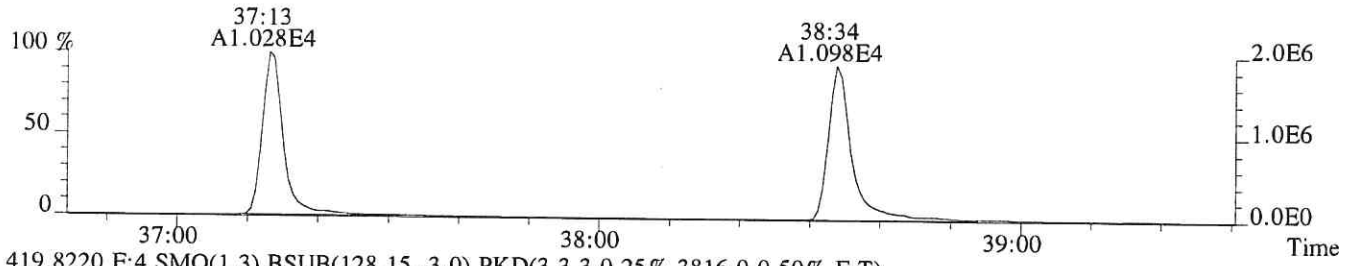
File:P518844 #1-250 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.50%,F,T)



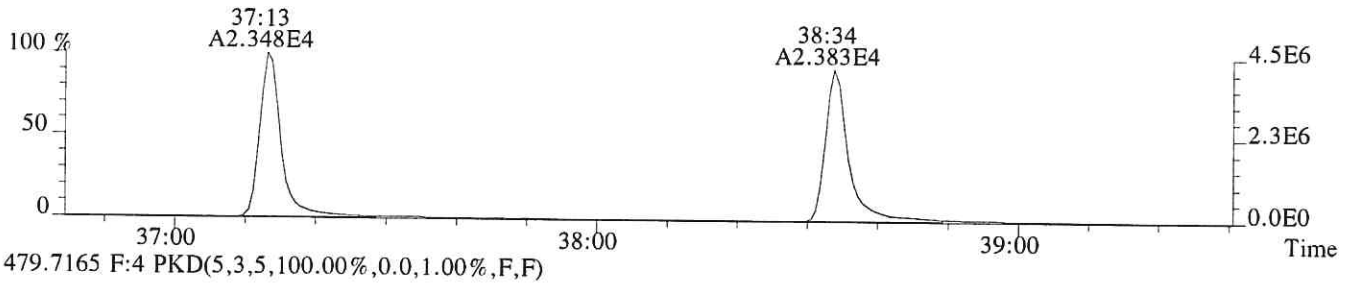
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.50%,F,T)



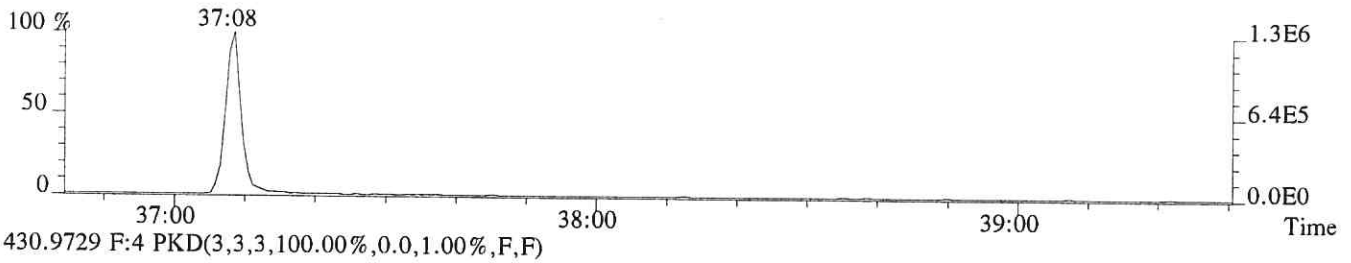
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3056.0,0.50%,F,T)



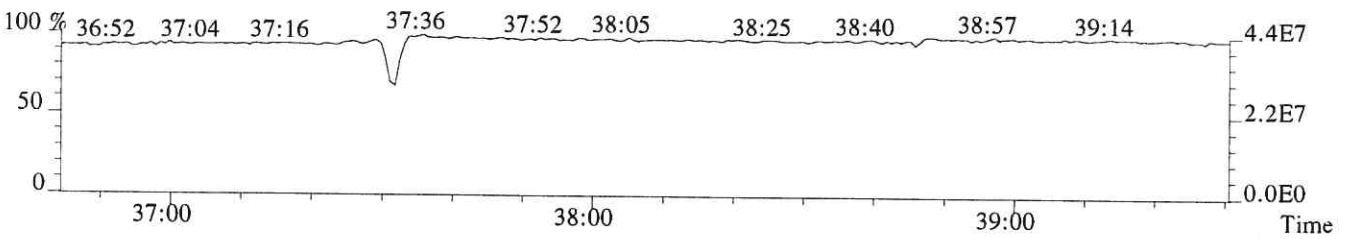
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3816.0,0.50%,F,T)



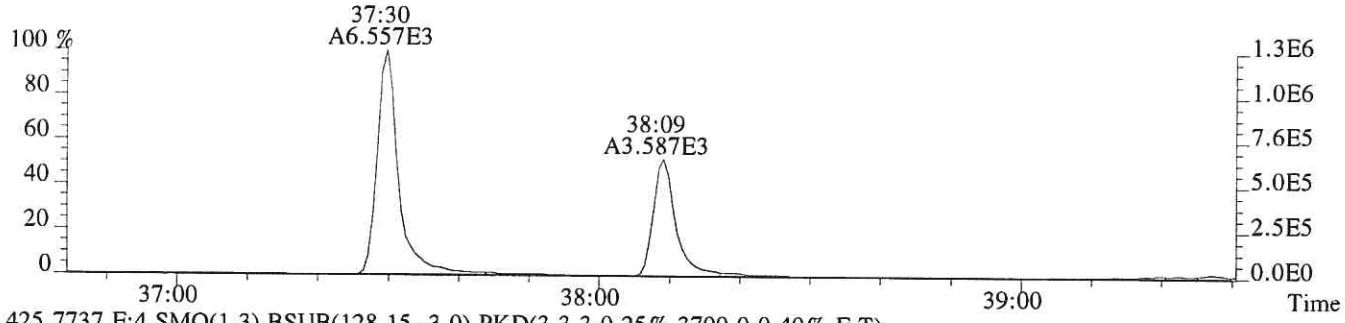
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



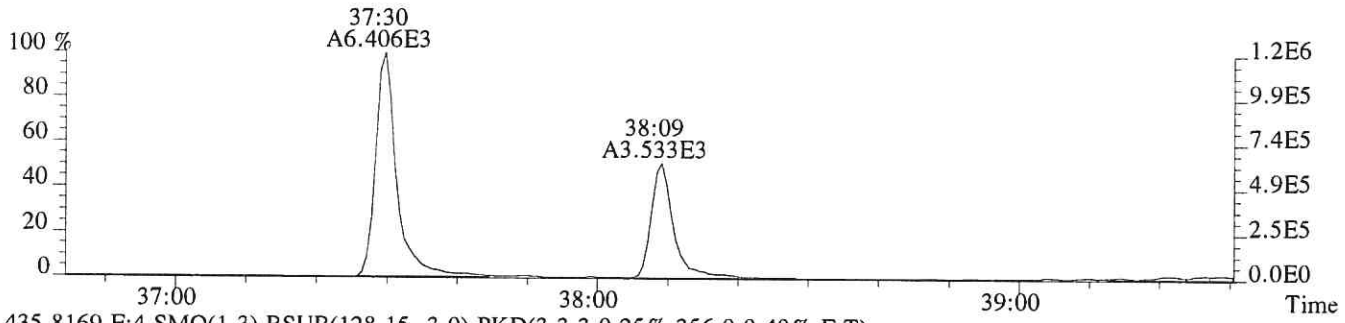
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



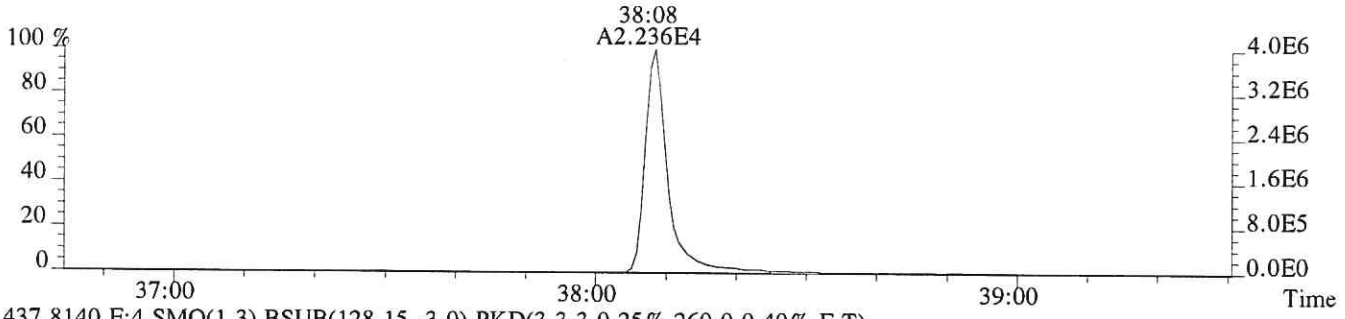
File:P518844 #1-250 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3116.0,0.40%,F,T)



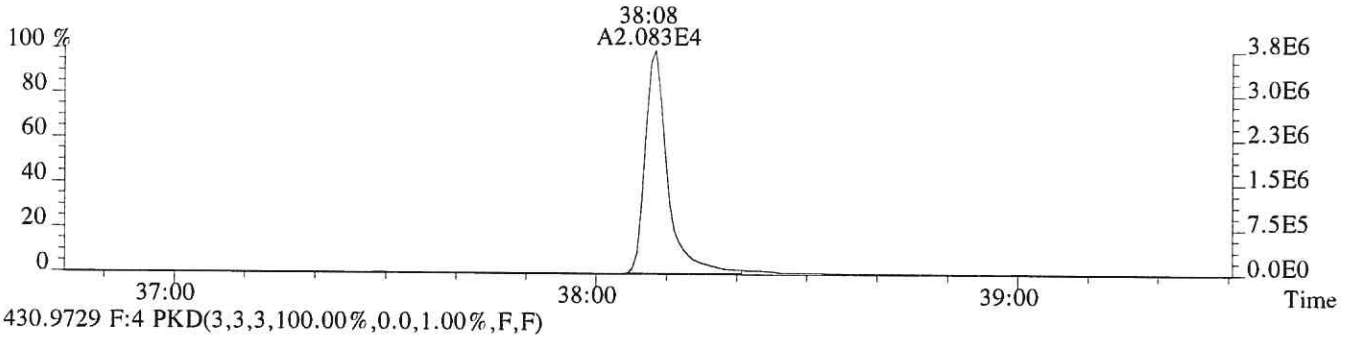
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3700.0,0.40%,F,T)



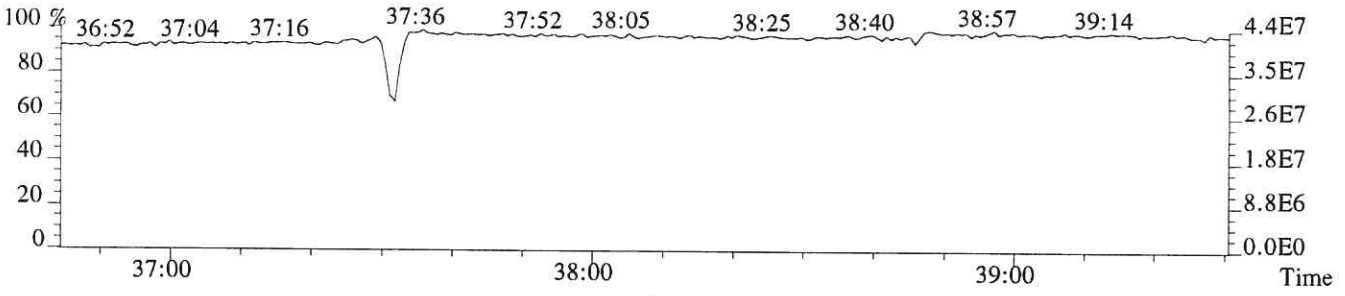
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



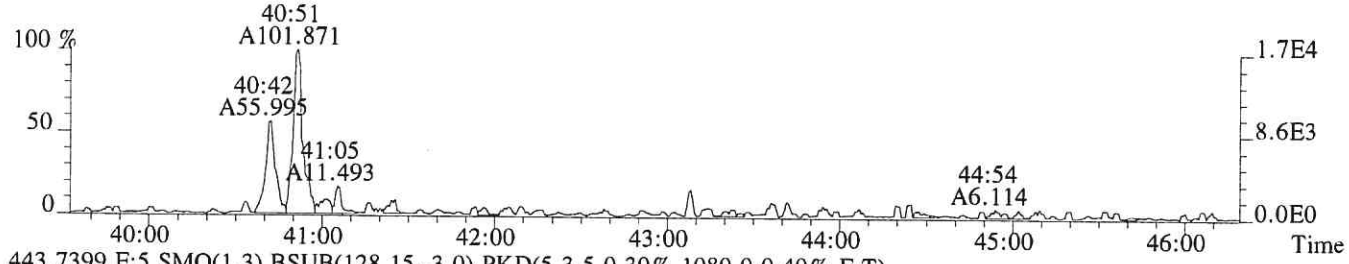
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



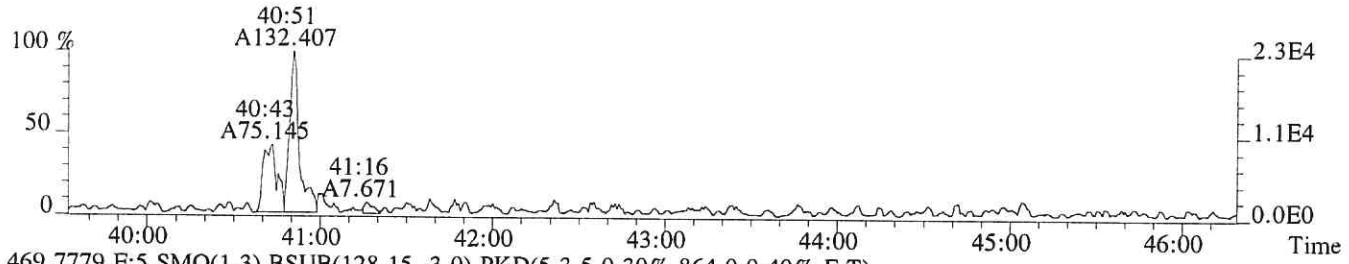
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



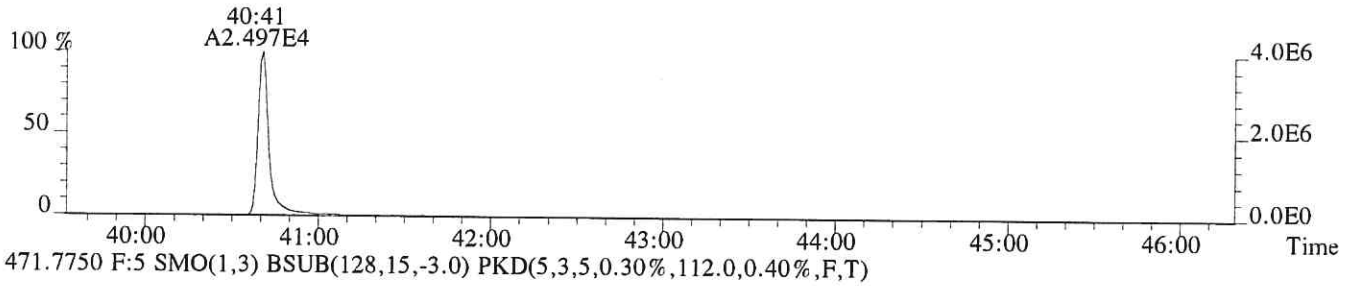
File:P518844 #1-610 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



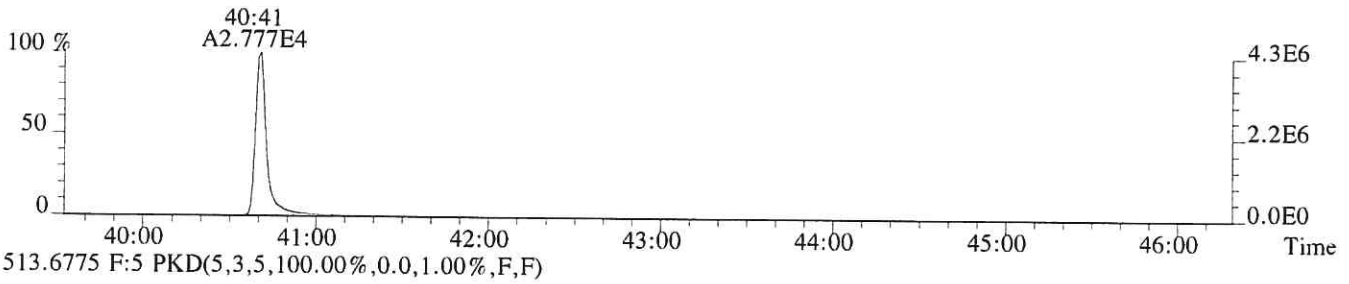
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



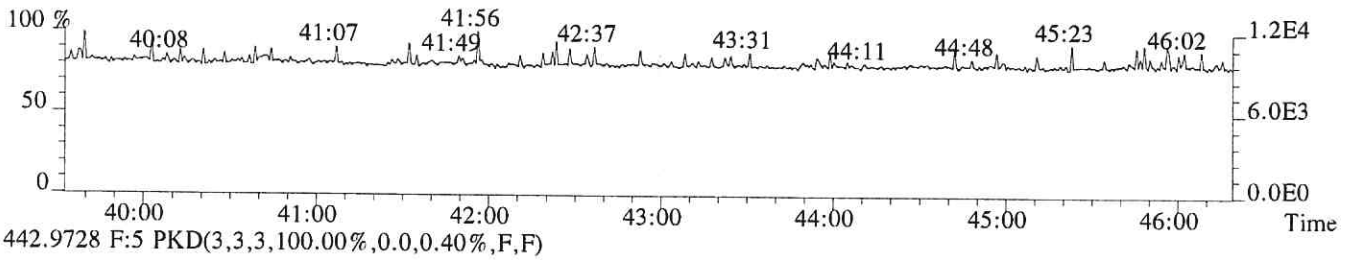
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



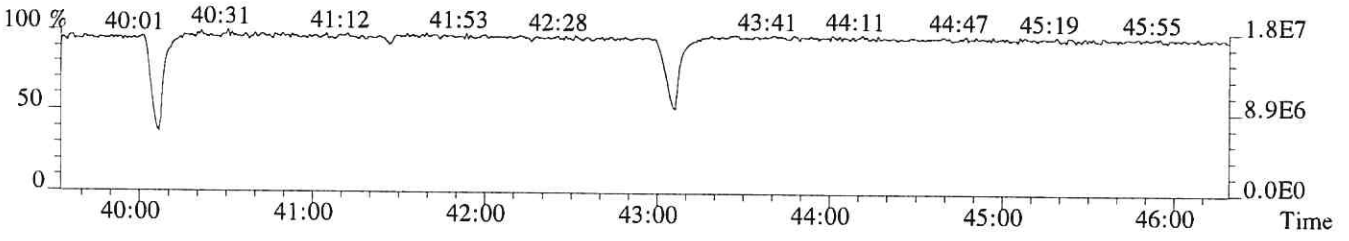
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,112.0,0.40%,F,T)



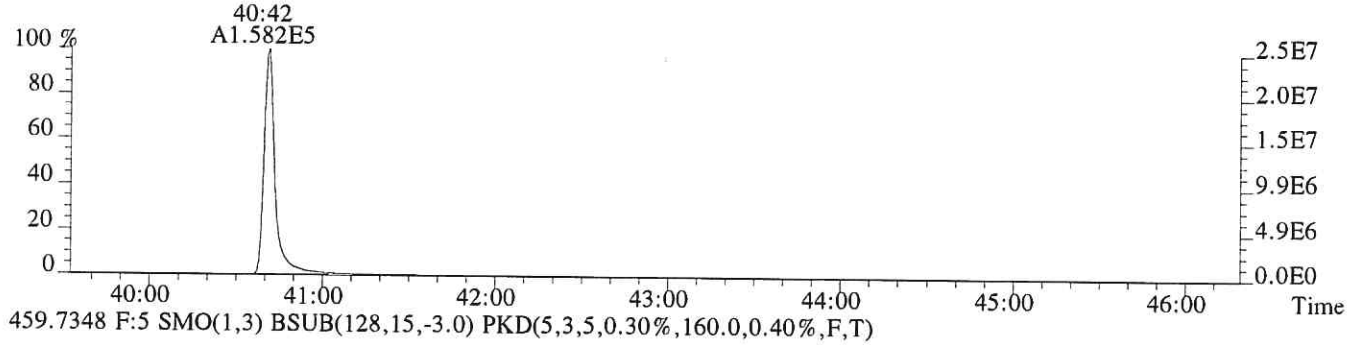
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



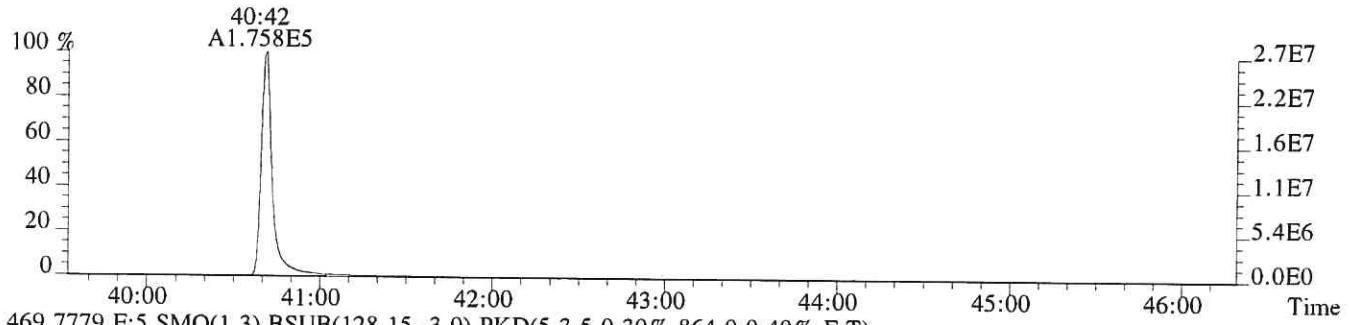
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



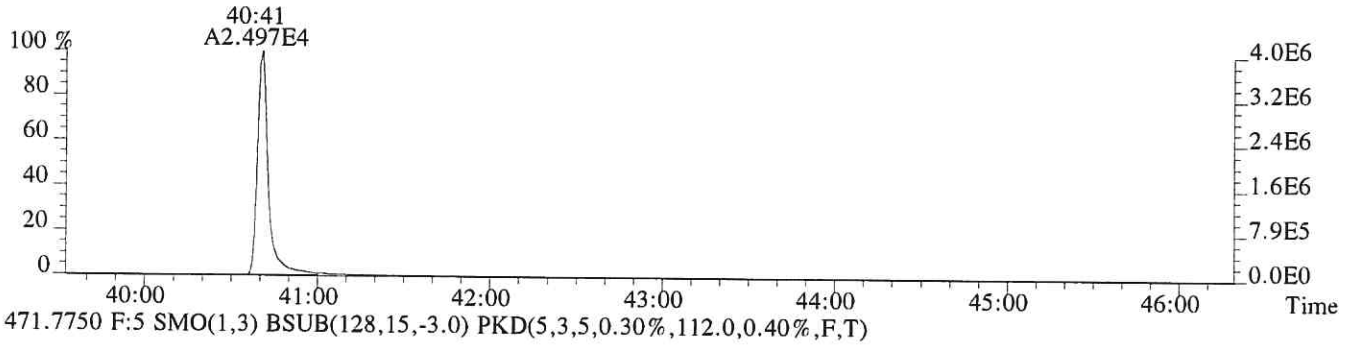
File:P518844 #1-610 Acq:16-NOV-2018 05:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



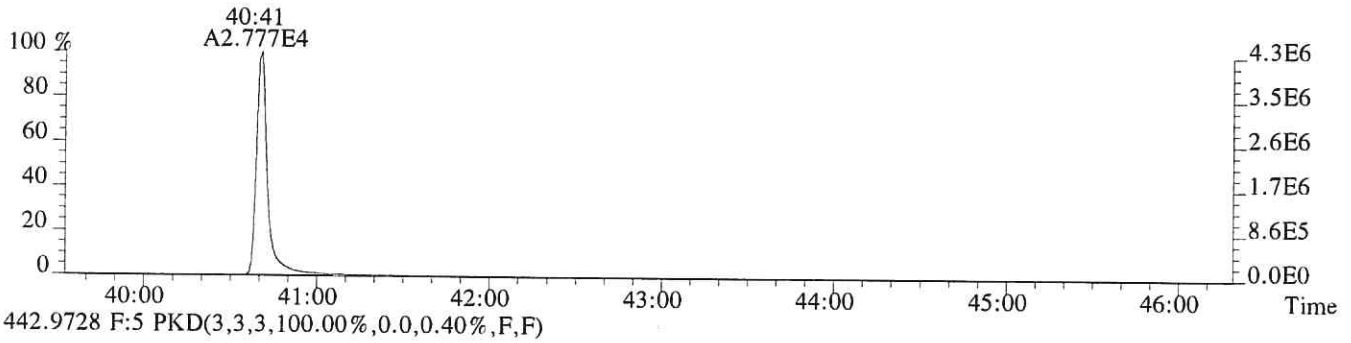
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



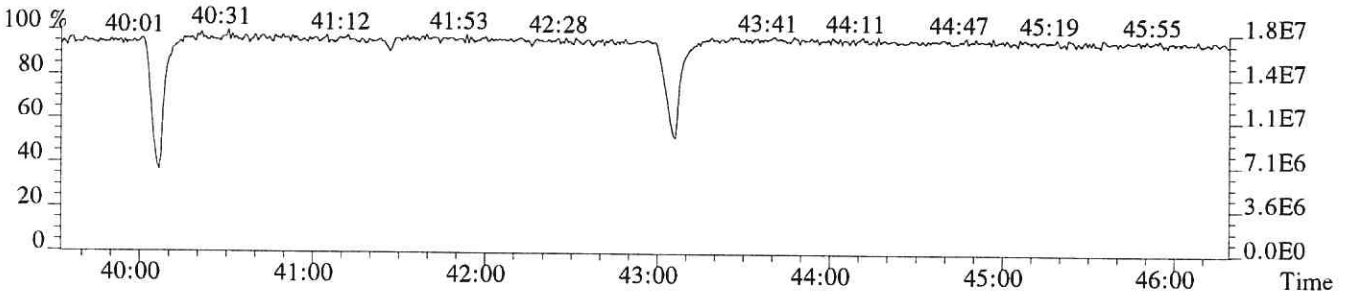
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,112.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0506

Run #10 Filename P518953 Samp: 1 Inj: 1 Acquired: 20-NOV-18 20:41:00
Processed: 26-NOV-18 09:58:02 Sample ID: E1801018-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:23	6.451e+01	7.267e+01	0.89	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	1.940e+01	1.345e+01	1.44	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:31	2.006e+01	1.608e+01	1.25	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:10	1.140e+02	1.114e+02	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:47	1.344e+03	1.491e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:50	3.239e+01	2.835e+01	1.14	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:13	4.097e+01	2.835e+01	1.45	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	7.408e+01	4.984e+01	1.49	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:33	1.344e+02	1.060e+02	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	2.648e+03	2.551e+03	1.04	yes	no	1.025
17	Unk	OCDD	40:37	7.309e+04	8.148e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:22	1.744e+04	2.189e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:28	3.643e+04	2.323e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	3.653e+04	2.293e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:24	1.771e+04	3.456e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	2.148e+04	4.129e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:03	2.074e+04	4.003e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:50	1.774e+04	3.393e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	1.507e+04	3.471e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:30	1.385e+04	3.134e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:23	1.281e+04	1.627e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:48	2.886e+04	1.785e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	2.828e+04	2.248e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:18	2.873e+04	2.279e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:05	3.072e+04	2.938e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:37	3.271e+04	3.600e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:39	4.136e+04	5.292e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	5.377e+04	4.634e+04	1.16	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:25	1.519e+04				no	1.014

$$\text{OCDD} = \frac{(7.309e+04 + 8.148e+04) \times 4000\ \text{pg} \times 1}{(3.271e+04 + 3.600e+04) \times 10.401\ \text{g} \times 74.40 / 100 \times 1.118} = 10.40\ \text{ng/kg}$$

VAO 11/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0506

Run #10 Filename P518953 Samp: 1 Inj: 1 Acquired: 20-NOV-18 20:41:00
Processed: 26-NOV-18 09:58:02 LAB. ID: E1801018-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.29e+03	1.02e+03	9.1e+00	1.25e+04	1.63e+03	7.7e+00
2	1,2,3,7,8-PeCDF	*	8.96e+02	*	*	1.78e+03	*
3	2,3,4,7,8-PeCDF	*	8.96e+02	*	*	1.78e+03	*
4	1,2,3,4,7,8-HxCDF	4.01e+03	1.04e+03	3.8e+00	3.55e+03	5.92e+02	6.0e+00
5	1,2,3,6,7,8-HxCDF	3.02e+03	1.04e+03	2.9e+00	3.84e+03	5.92e+02	6.5e+00
6	2,3,4,6,7,8-HxCDF	*	1.04e+03	*	*	5.92e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.04e+03	*	*	5.92e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.83e+04	1.93e+03	9.5e+00	2.49e+04	4.24e+02	5.9e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.93e+03	*	*	4.24e+02	*
10	OCDF	2.27e+05	3.44e+02	6.6e+02	2.34e+05	8.84e+02	2.7e+02
11	2,3,7,8-TCDD	*	3.04e+03	*	*	1.86e+03	*
12	1,2,3,7,8-PeCDD	4.97e+03	9.64e+02	5.2e+00	5.09e+03	1.80e+02	2.8e+01
13	1,2,3,4,7,8-HxCDD	1.00e+04	6.96e+02	1.4e+01	7.84e+03	2.24e+03	3.5e+00
14	1,2,3,6,7,8-HxCDD	1.51e+04	6.96e+02	2.2e+01	1.11e+04	2.24e+03	4.9e+00
15	1,2,3,7,8,9-HxCDD	2.47e+04	6.96e+02	3.6e+01	2.41e+04	2.24e+03	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	5.01e+05	1.84e+03	2.7e+02	4.72e+05	2.88e+02	1.6e+03
17	OCDD	1.17e+07	4.64e+02	2.5e+04	1.30e+07	9.48e+02	1.4e+04
18	13C-2,3,7,8-TCDF	2.18e+06	8.44e+03	2.6e+02	2.72e+06	5.99e+03	4.5e+02
19	13C-1,2,3,7,8-PeCDF	5.70e+06	2.32e+02	2.5e+04	3.60e+06	1.60e+02	2.3e+04
20	13C-2,3,4,7,8-PeCDF	5.96e+06	2.32e+02	2.6e+04	3.76e+06	1.60e+02	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.59e+06	1.47e+03	2.4e+03	6.99e+06	7.12e+02	9.8e+03
22	13C-1,2,3,6,7,8-HxCDF	3.74e+06	1.47e+03	2.5e+03	7.23e+06	7.12e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.97e+06	1.47e+03	2.7e+03	7.55e+06	7.12e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	3.15e+06	1.47e+03	2.1e+03	5.98e+06	7.12e+02	8.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.10e+06	3.25e+03	9.5e+02	7.04e+06	4.56e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.49e+06	3.25e+03	7.7e+02	5.55e+06	4.56e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.77e+06	7.43e+03	2.4e+02	2.21e+06	3.33e+03	6.6e+02
28	13C-1,2,3,7,8-PeCDD	4.71e+06	9.12e+02	5.2e+03	2.92e+06	1.28e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	6.07e+06	1.37e+03	4.4e+03	4.76e+06	1.28e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	5.30e+06	1.37e+03	3.9e+03	4.14e+06	1.28e+03	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.53e+06	7.04e+02	7.9e+03	5.25e+06	8.16e+02	6.4e+03
32	13C-OCDD	5.16e+06	5.08e+02	1.0e+04	5.76e+06	6.36e+02	9.1e+03
33	13C-1,2,3,4-TCDD	5.84e+06	7.43e+03	7.9e+02	7.46e+06	3.33e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.03e+07	1.37e+03	7.5e+03	8.39e+06	1.28e+03	6.6e+03
35	37Cl-2,3,7,8-TCDD	2.07e+06	1.48e+03	1.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.040e+03 + 1.860e+03) \times 2000}{(1.766e+06 + 2.214e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0506

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P518953 Sample:1 Injection:1 Function:1

Acquired: 20-NOV-18 20:41:00 Processed: 26-NOV-18 09:58:02

Mass: 303.9020 305.8990 Tot Response: 6.14e+01 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:23	2.81e+01	3.32e+01	0.85	yes	6.14e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0506

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P518953 Sample:1 Injection:1 Function:2

Acquired: 20-NOV-18 20:41:00 Processed: 26-NOV-18 09:58:02

Mass: 355.8550 357.8520 Tot Response: 1.36e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:60	8.12e+01	5.53e+01 1.47	yes	1.36e+02		n	n

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Peak List Summary

CLIENT ID.
SL0506

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518953 Sample:1 Injection:1 Function:3

Acquired: 20-NOV-18 20:41:00 Processed: 26-NOV-18 09:58:02

Mass: 373.8210 375.8180 Tot Response: 3.61e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:31	2.01e+01	1.61e+01 1.25	yes	3.61e+01	1,2,3,6,7,8-HxCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0506

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P518953 Sample:1 Injection:1 Function:3

Acquired: 20-NOV-18 20:41:00 Processed: 26-NOV-18 09:58:02

Mass: 389.8160 391.8130 Tot Response: 2.87e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:47	1.00e+03	7.72e+02	1.30	yes	1.77e+03		n	n
2	33:55	3.09e+01	2.50e+01	1.24	yes	5.60e+01		n	n
3	34:36	4.28e+02	3.73e+02	1.15	yes	8.01e+02		n	n
4	35:33	1.34e+02	1.06e+02	1.27	yes	2.40e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0506

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P518953 Sample:1 Injection:1 Function:4

Acquired: 20-NOV-18 20:41:00 Processed: 26-NOV-18 09:58:02

Mass: 407.7820 409.7790 Tot Response: 2.25e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:10	1.14e+02	1.11e+02 1.02	yes	2.25e+02	1,2,3,4,6,7,8-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0506

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P518953 Sample:1 Injection:1 Function:4

Acquired: 20-NOV-18 20:41:00 Processed: 26-NOV-18 09:58:02

Mass: 423.7770 425.7740 Tot Response: 1.45e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:26	4.82e+03	4.50e+03	1.07	yes	9.32e+03		n	n
2	38:06	2.65e+03	2.55e+03	1.04	yes	5.20e+03	1,2,3,4,6,7,8-HpCDD	n	n

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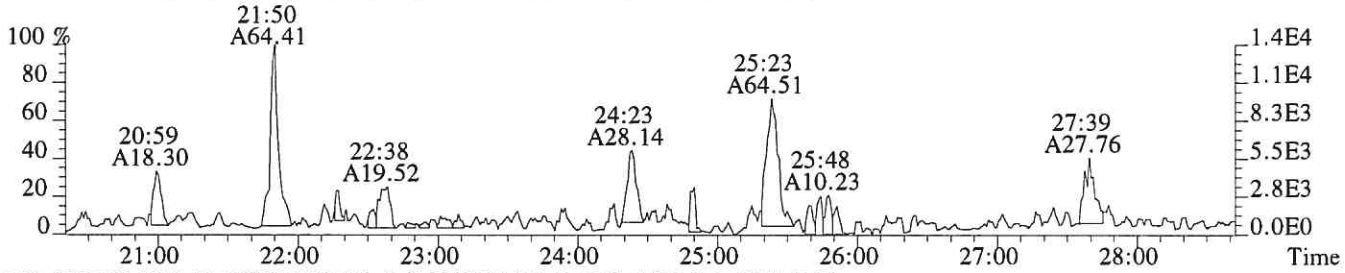
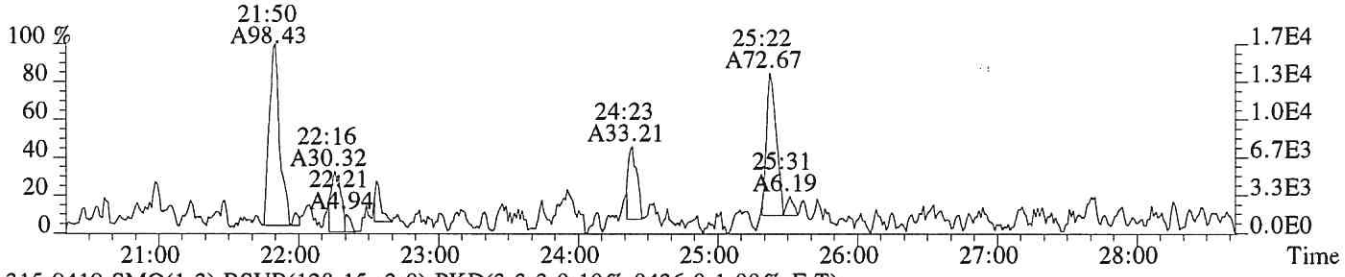
File:P518953 #1-594 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007

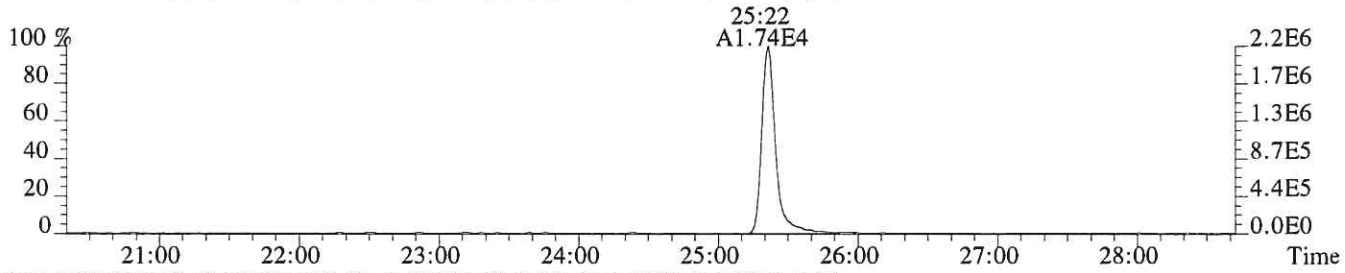
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



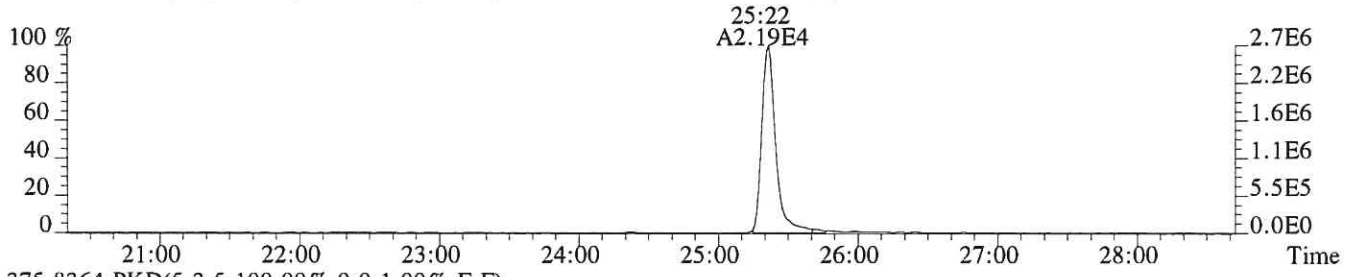
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



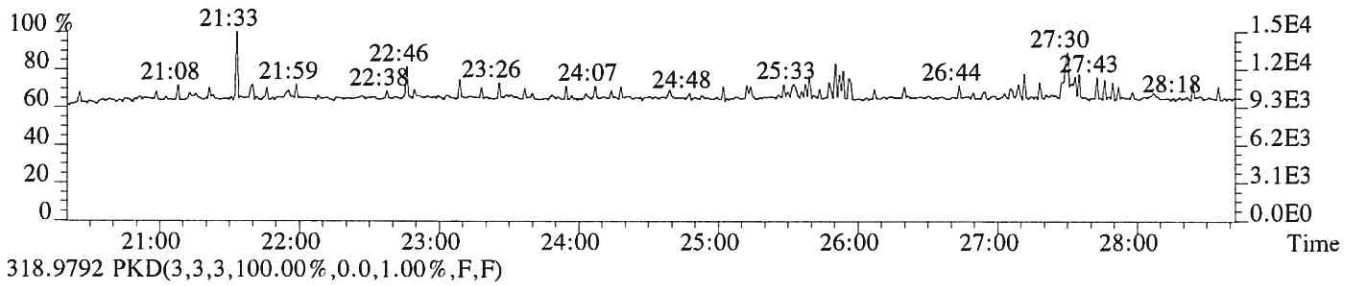
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8436.0,1.00%,F,T)



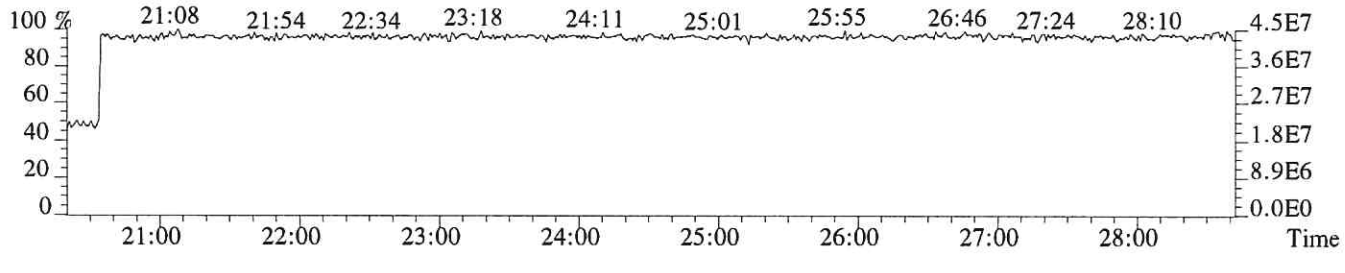
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5992.0,1.00%,F,T)



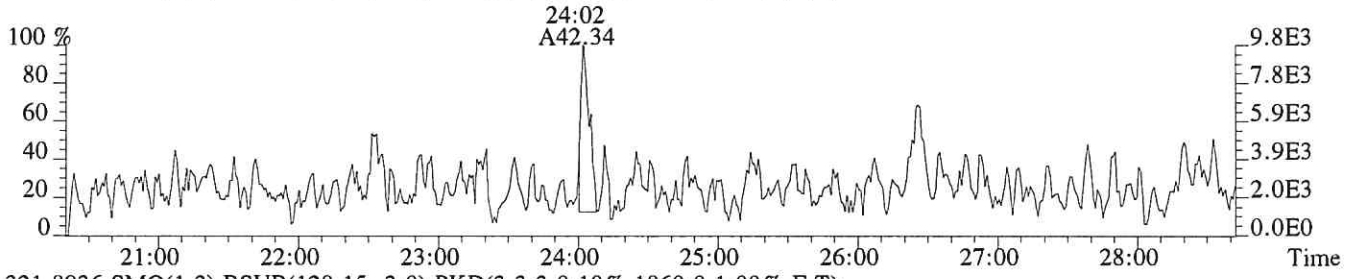
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



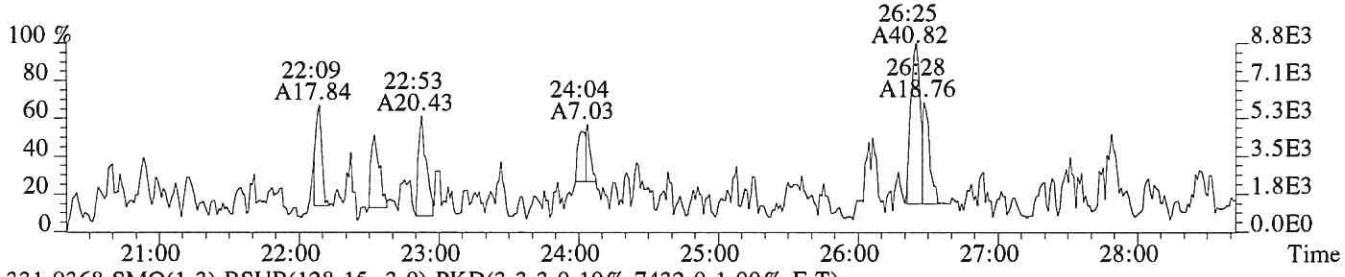
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



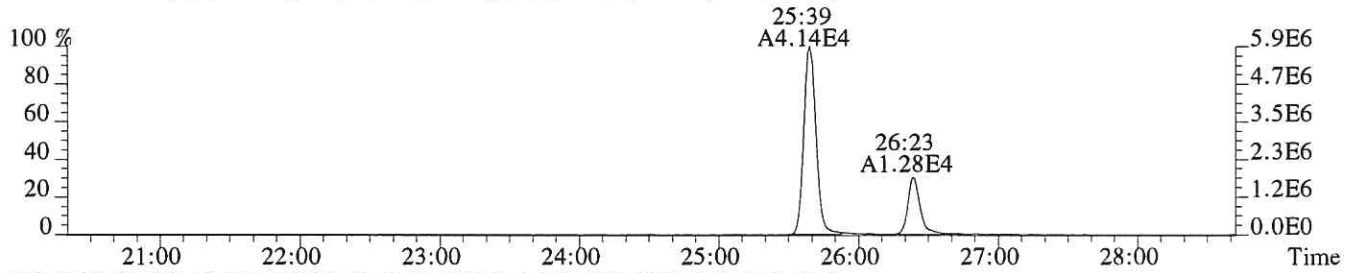
File:P518953 #1-594 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3040.0,1.00%,F,T)



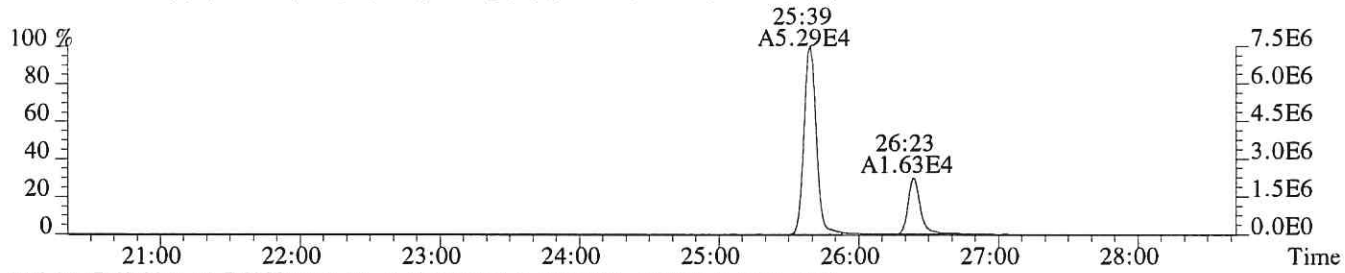
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



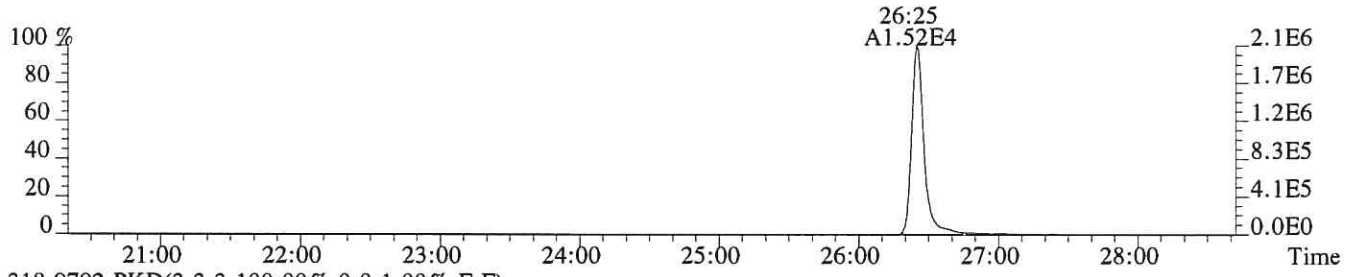
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7432.0,1.00%,F,T)



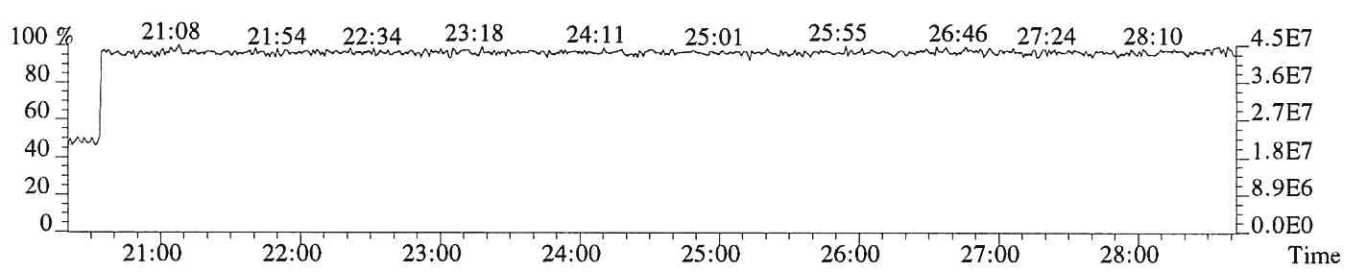
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3332.0,1.00%,F,T)



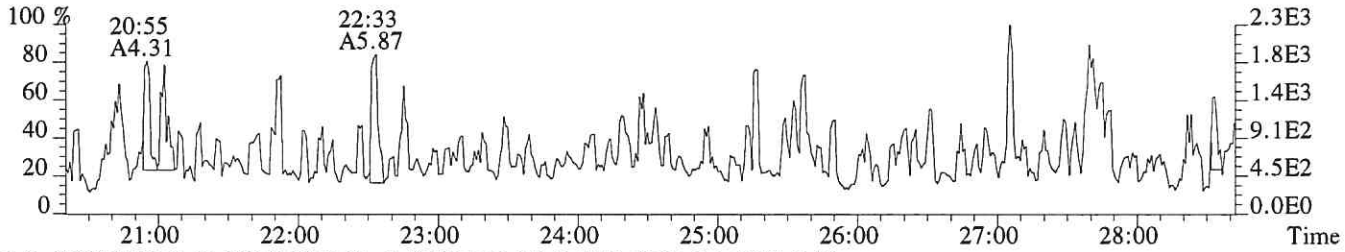
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



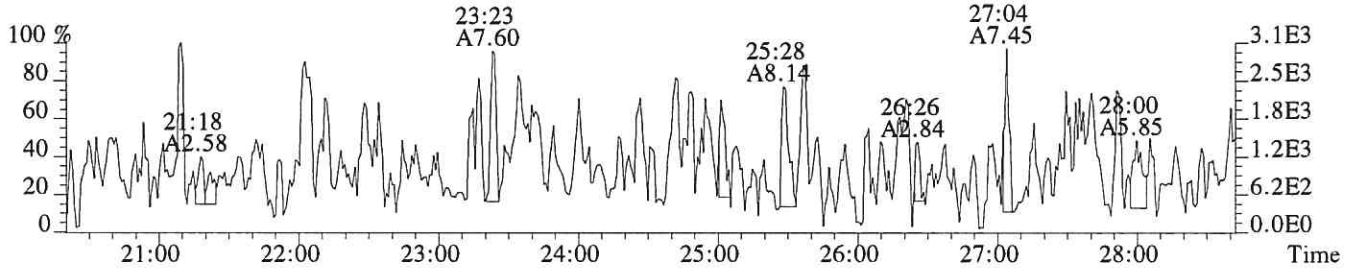
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



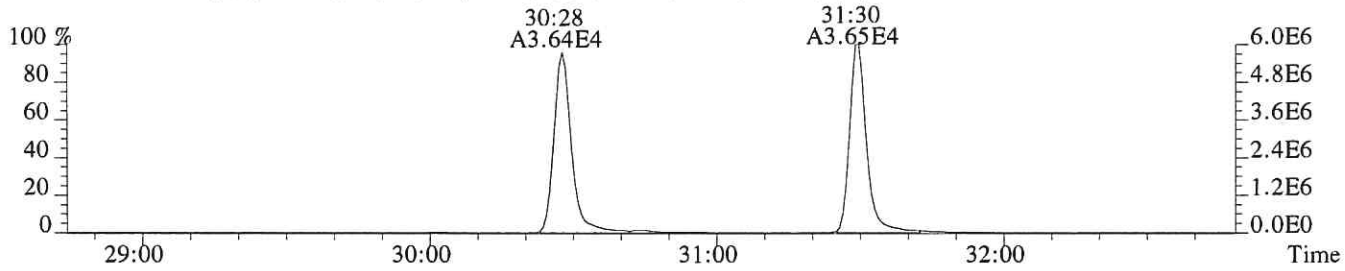
File:P518953 #1-594 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



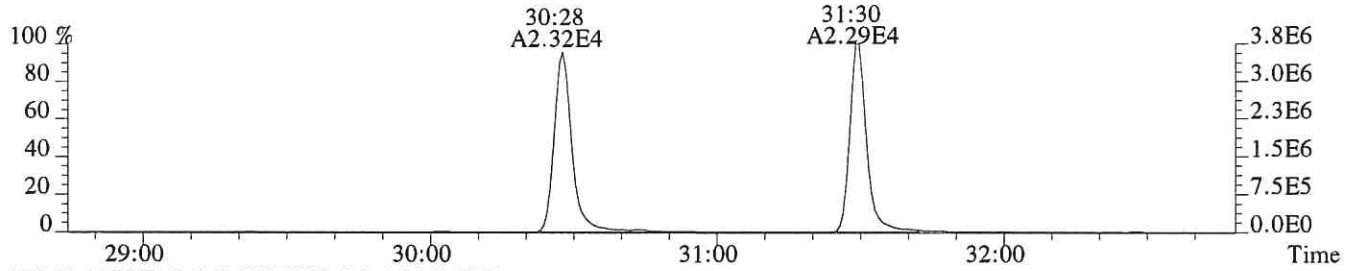
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



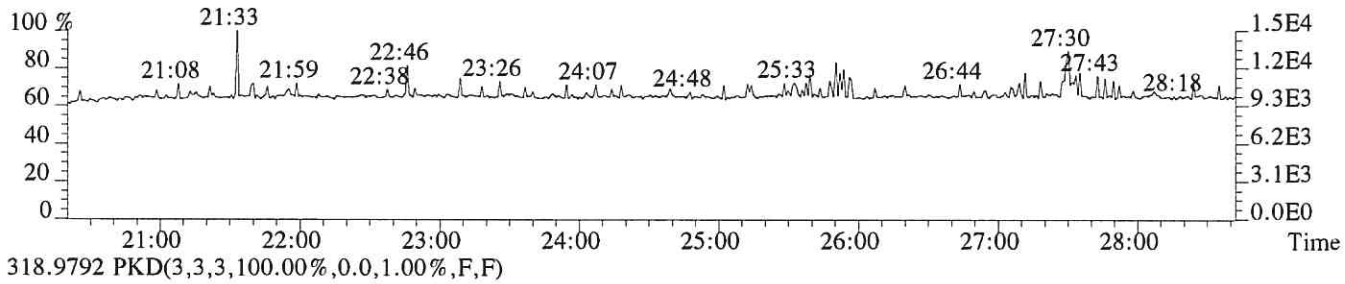
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



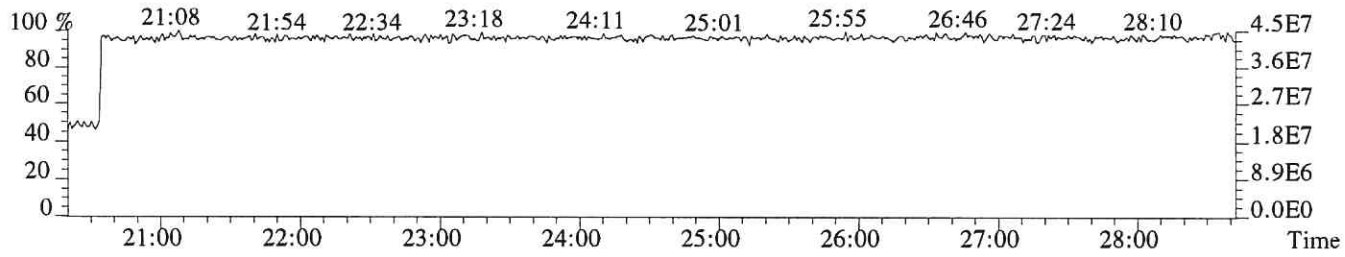
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



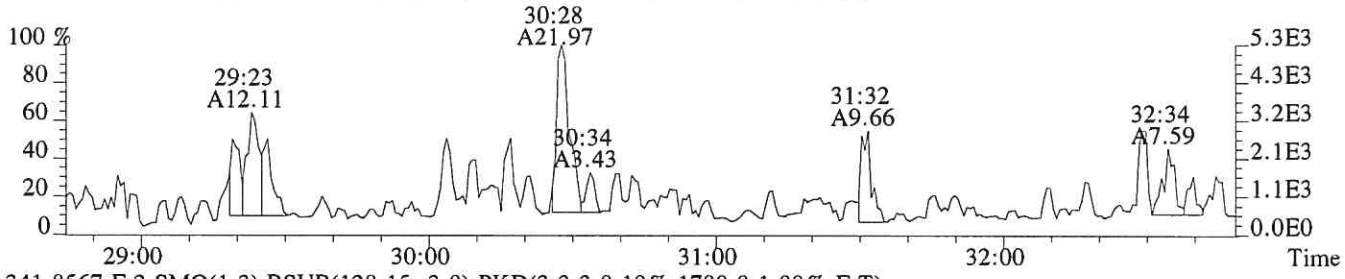
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



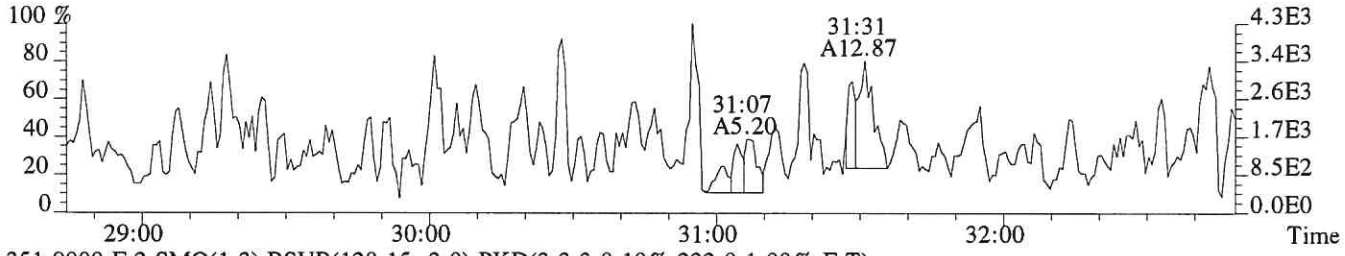
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



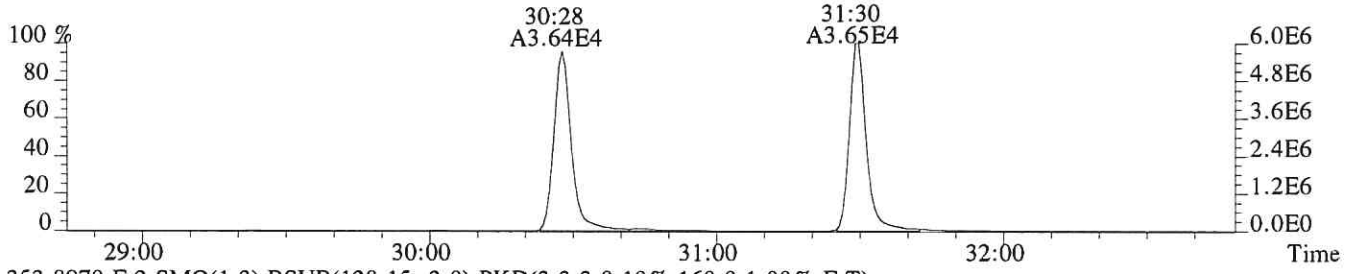
File:P518953 #1-367 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



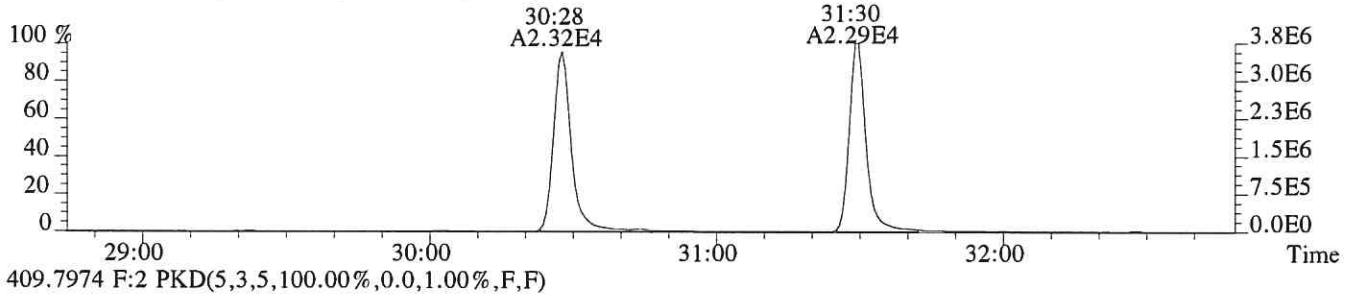
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



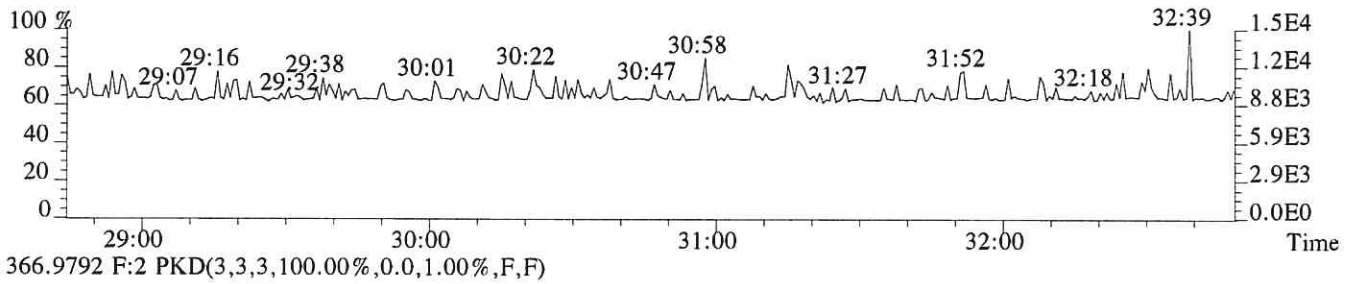
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



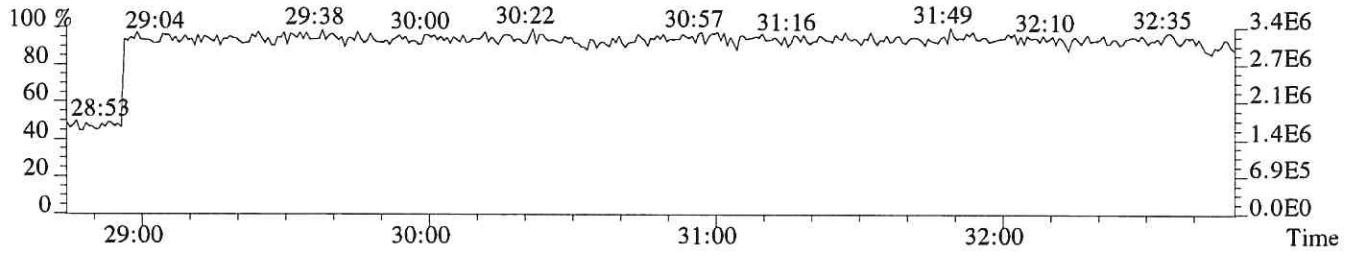
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



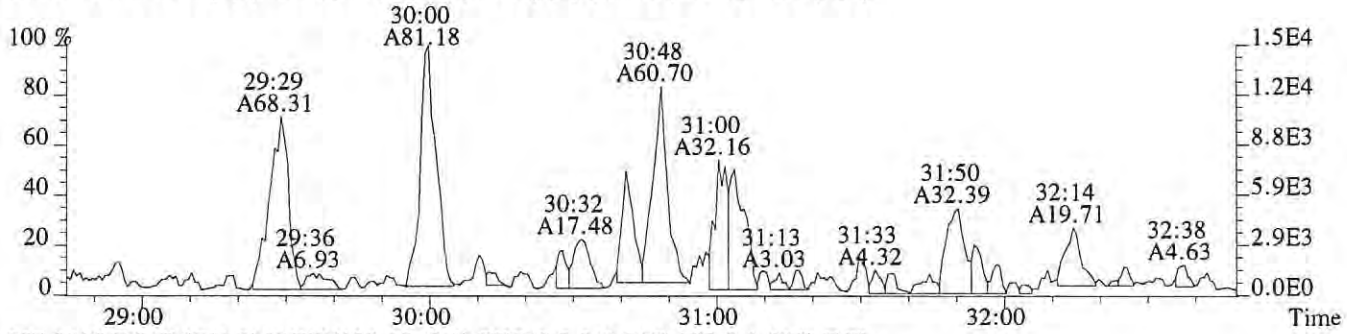
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



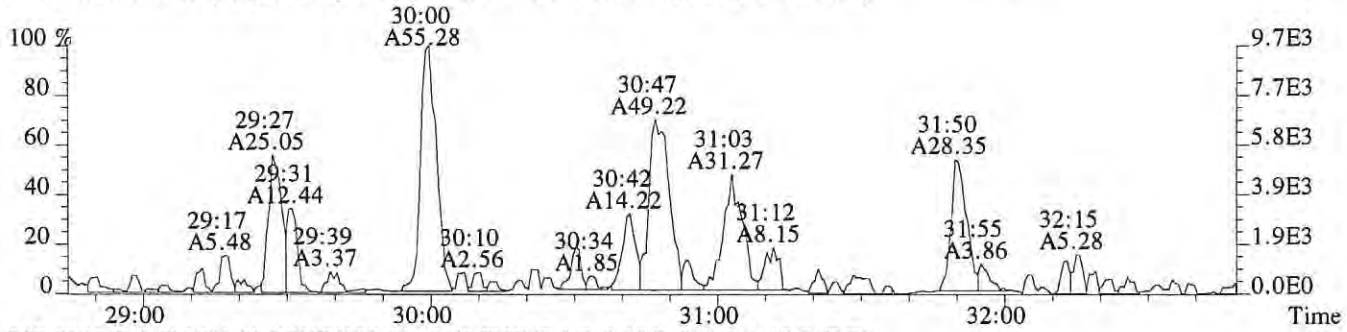
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



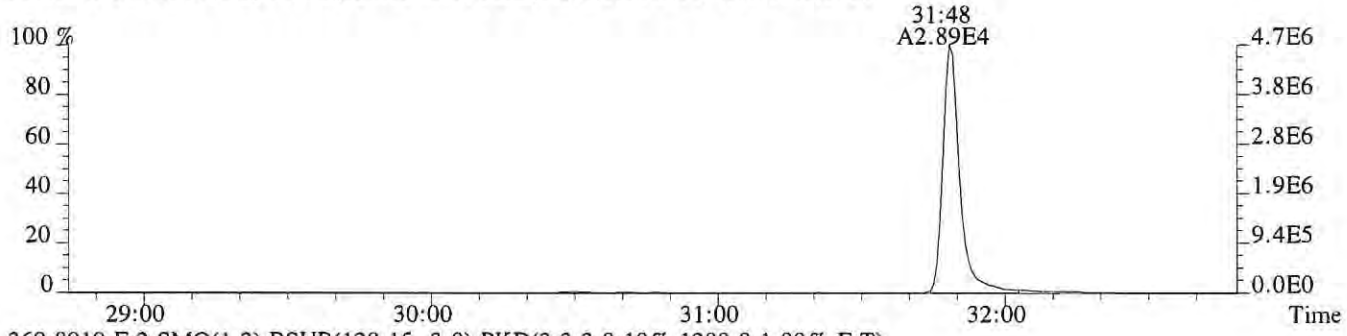
File:P518953 #1-367 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



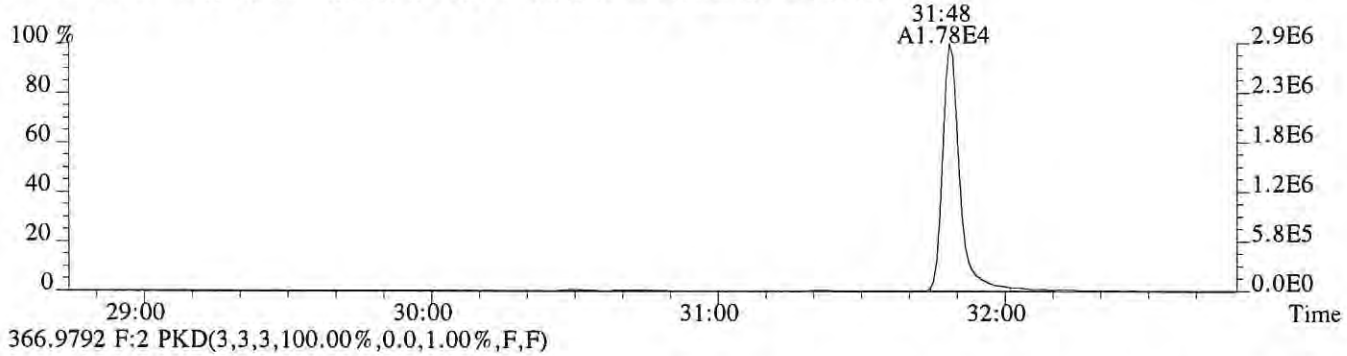
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



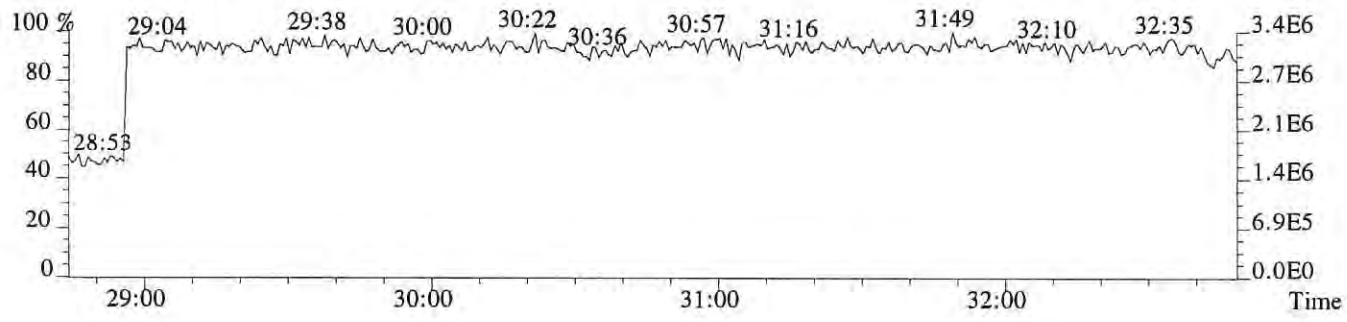
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



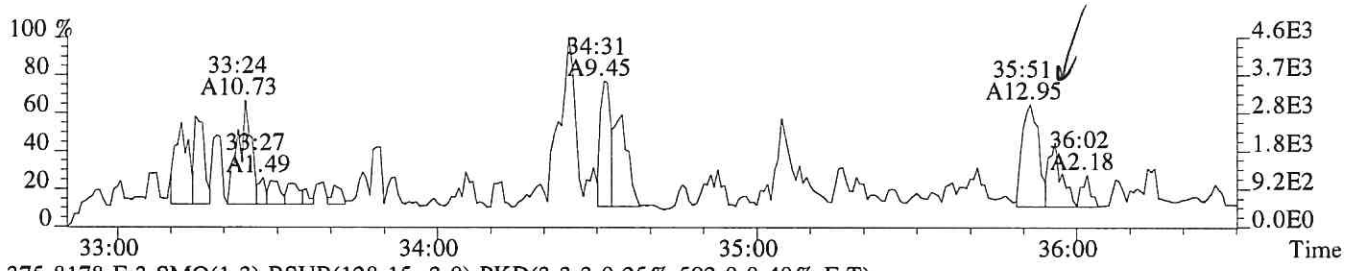
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



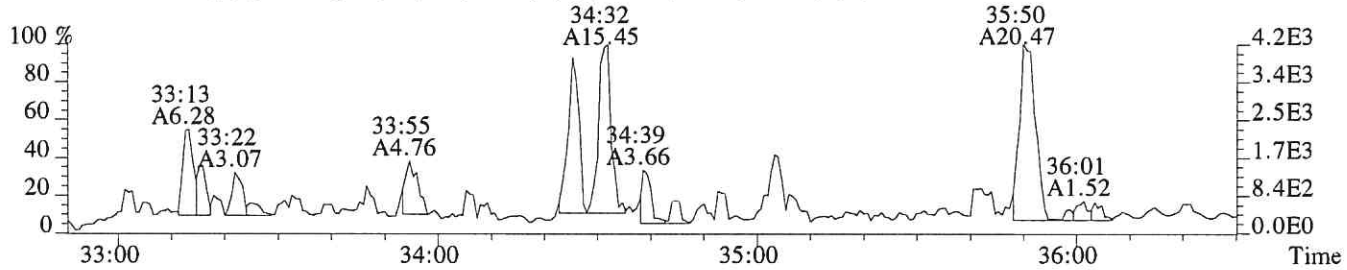
File:P518953 #1-330 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007

LSIV LKW 11/26/18

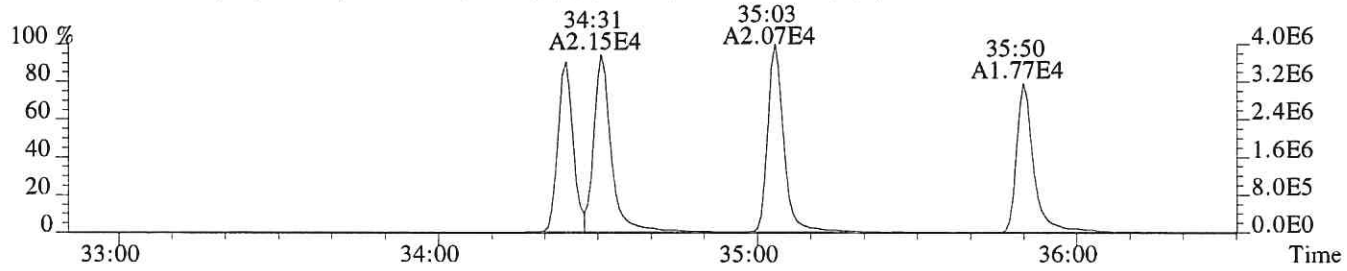
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



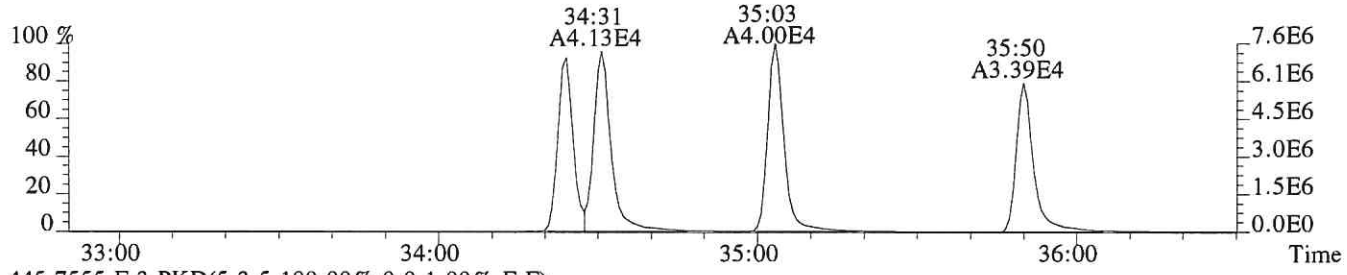
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



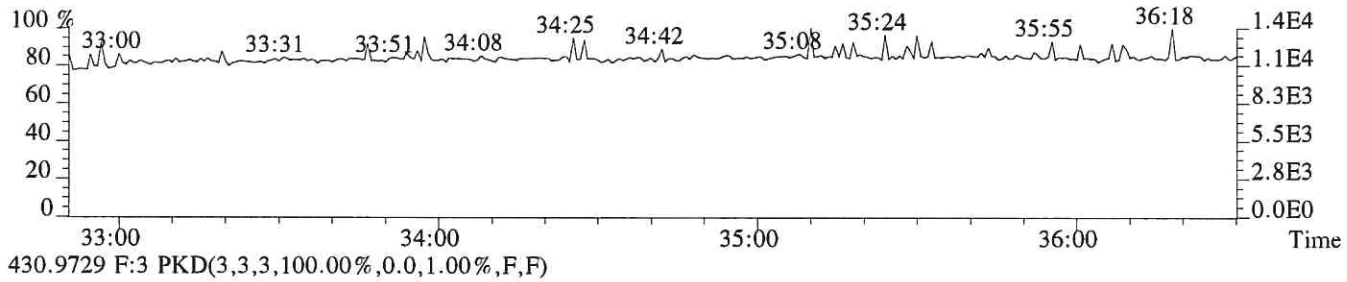
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



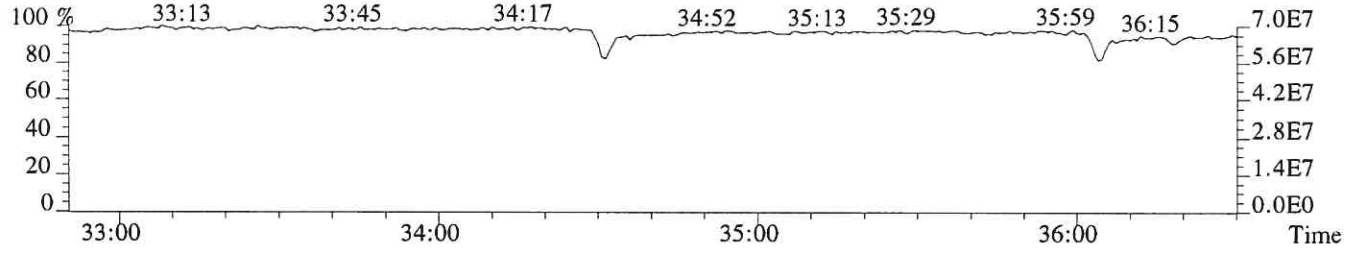
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



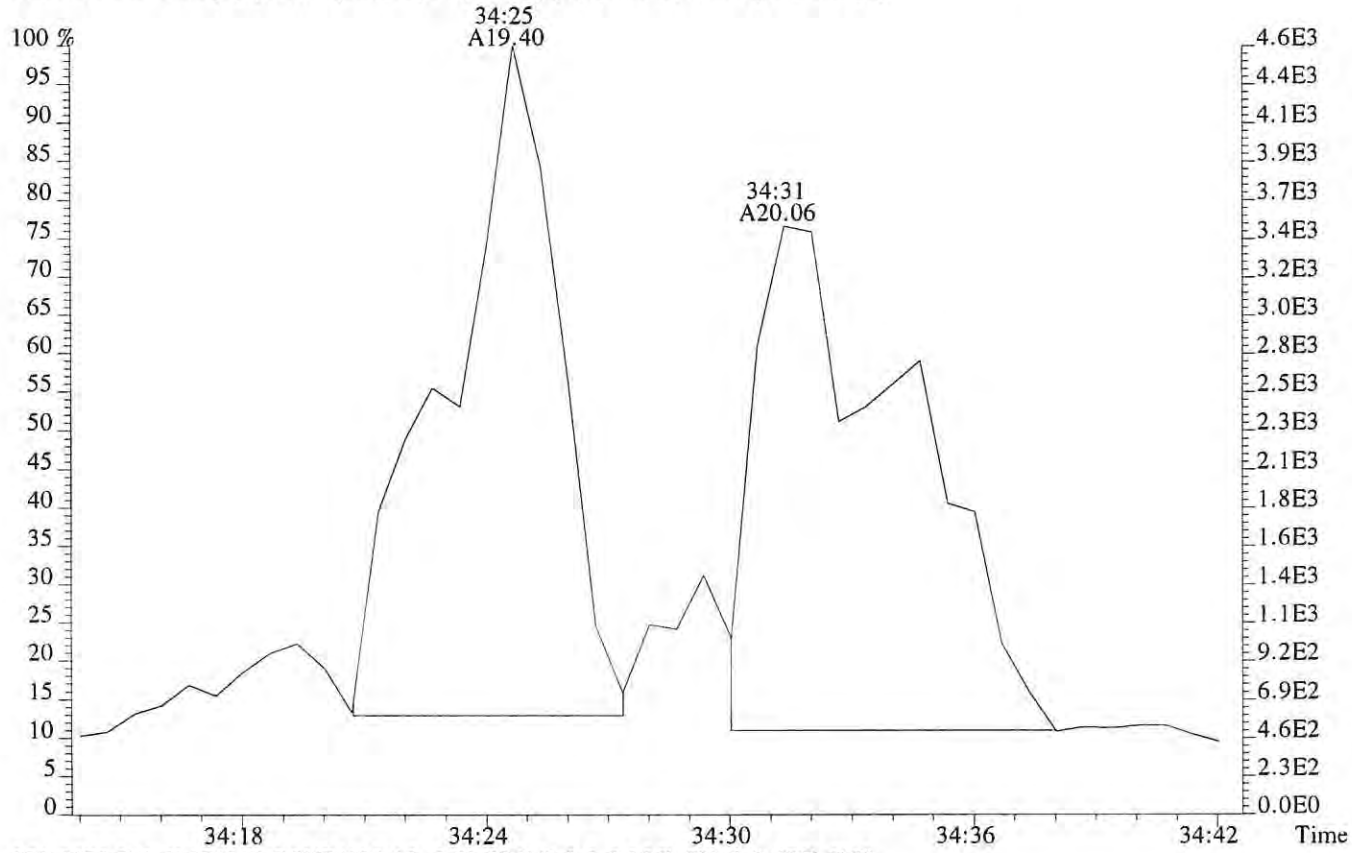
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



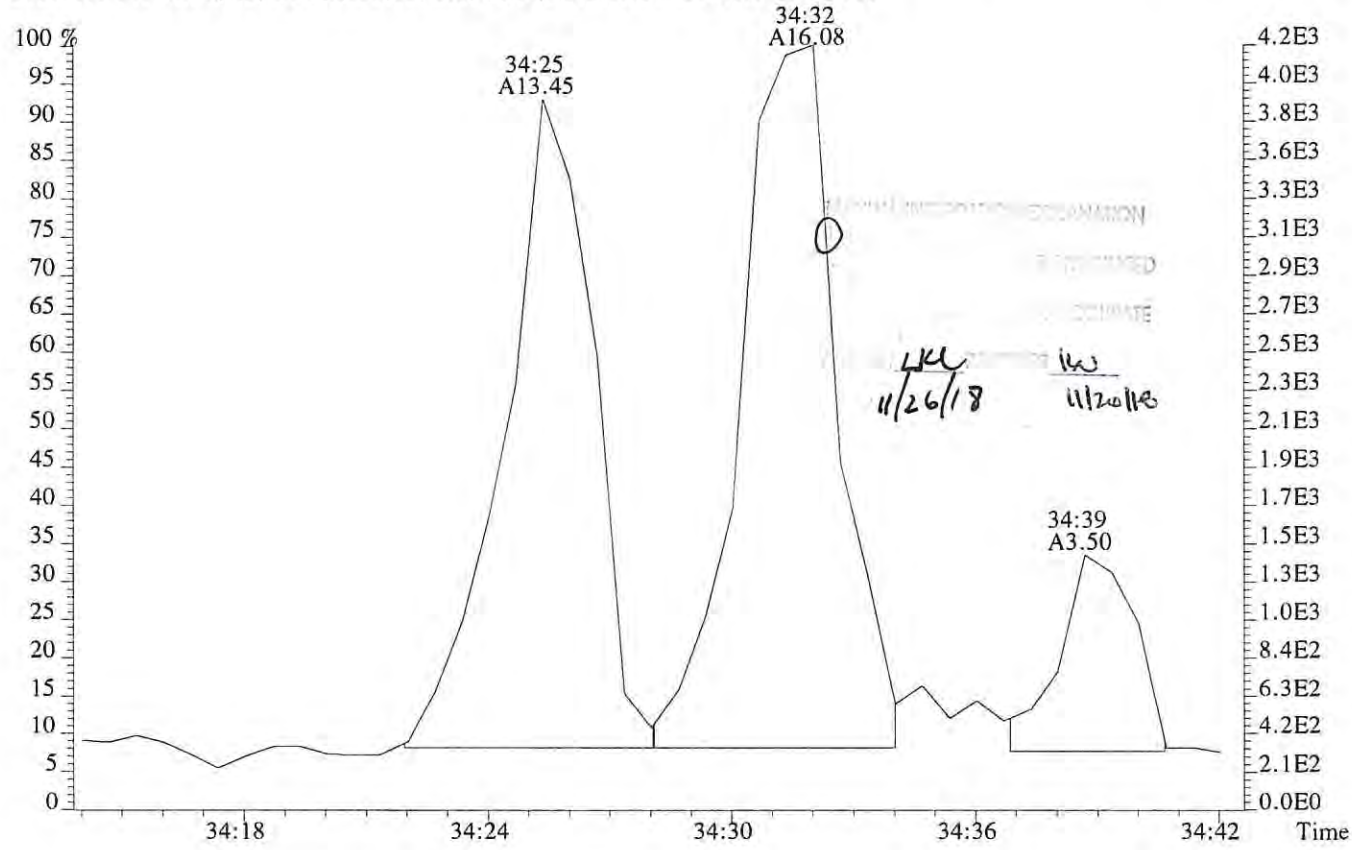
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



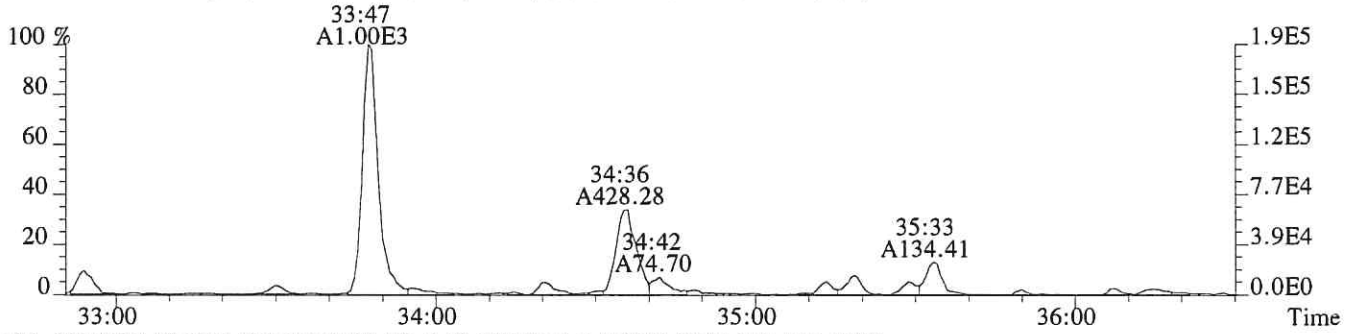
File:P518953 #1-330 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



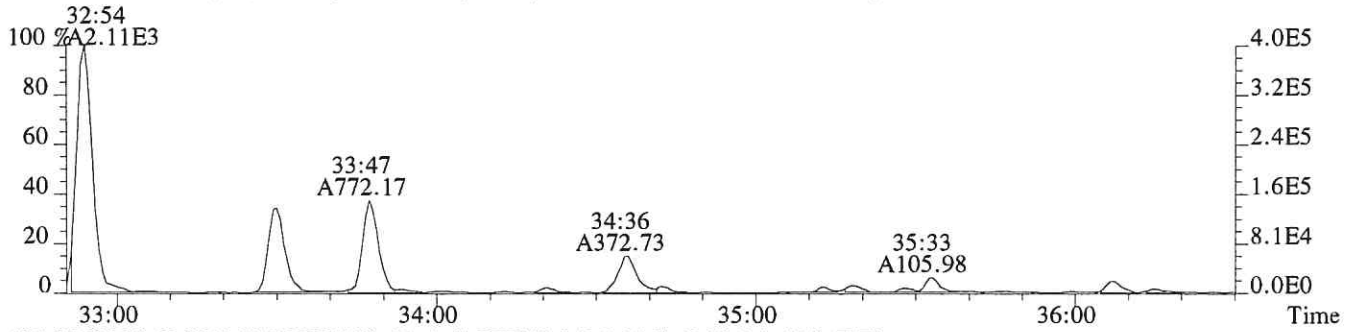
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



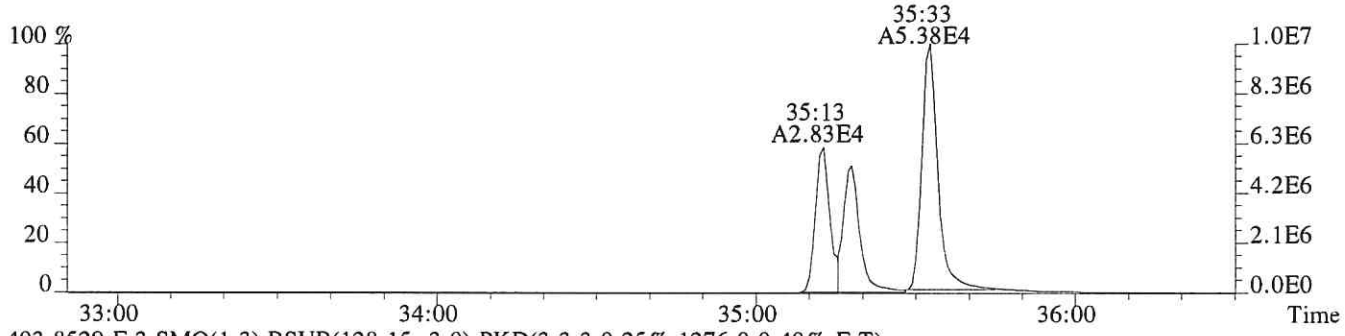
File:P518953 #1-330 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



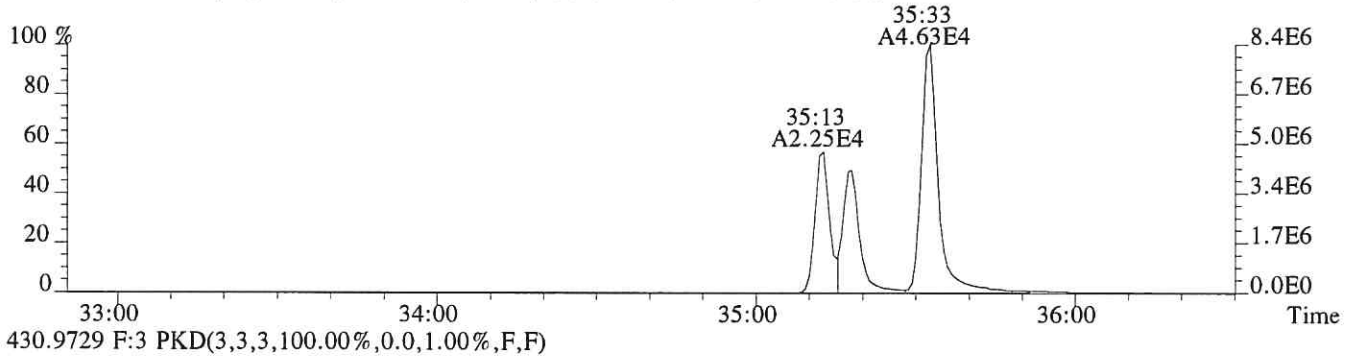
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2244.0,0.40%,F,T)



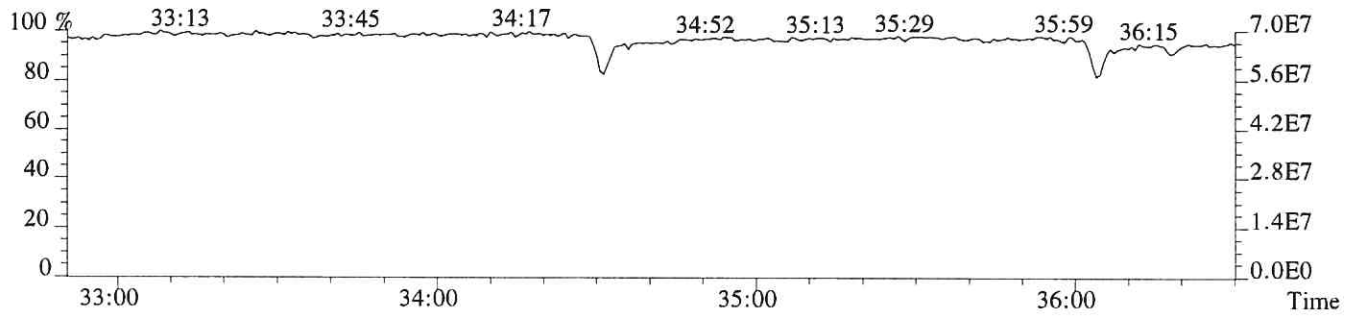
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)

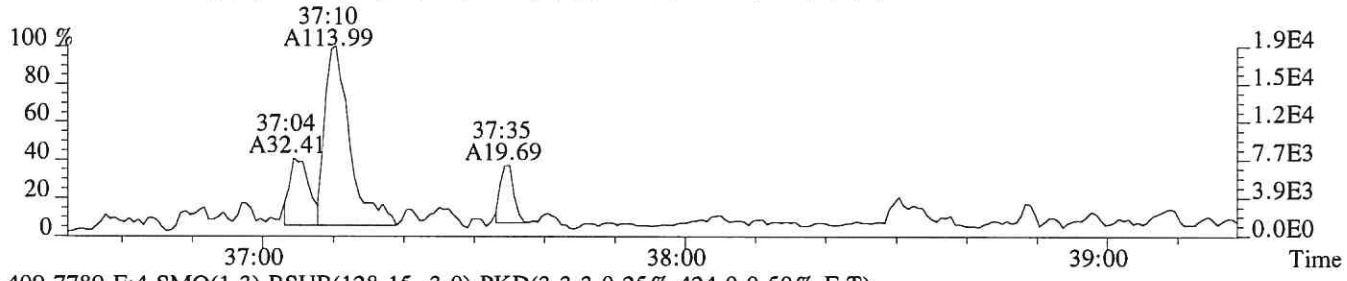


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

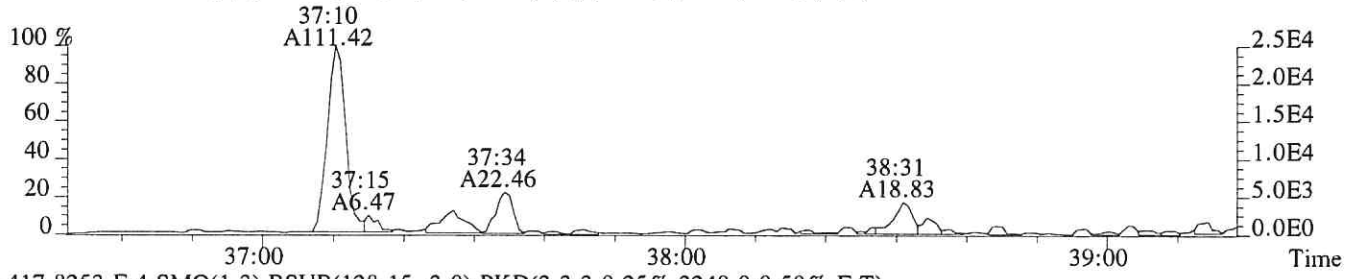


File:P518953 #1-250 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007

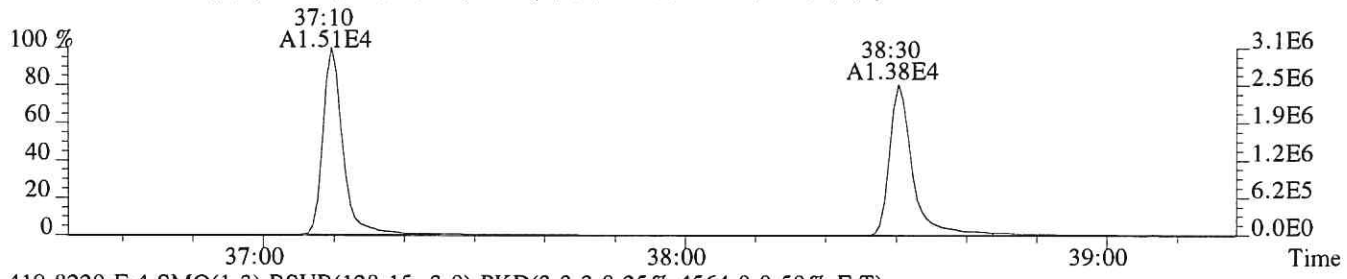
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1932.0,0.50%,F,T)



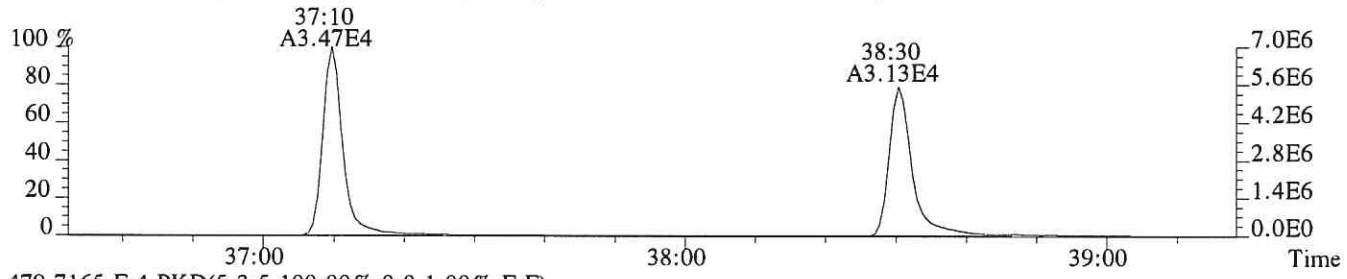
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.50%,F,T)



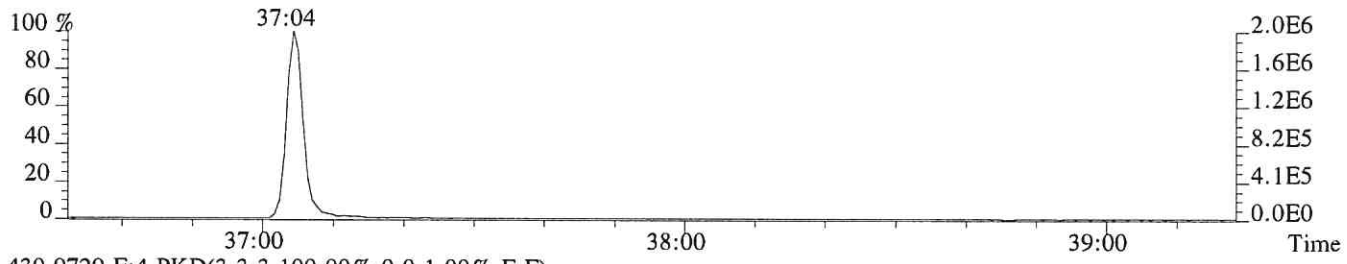
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3248.0,0.50%,F,T)



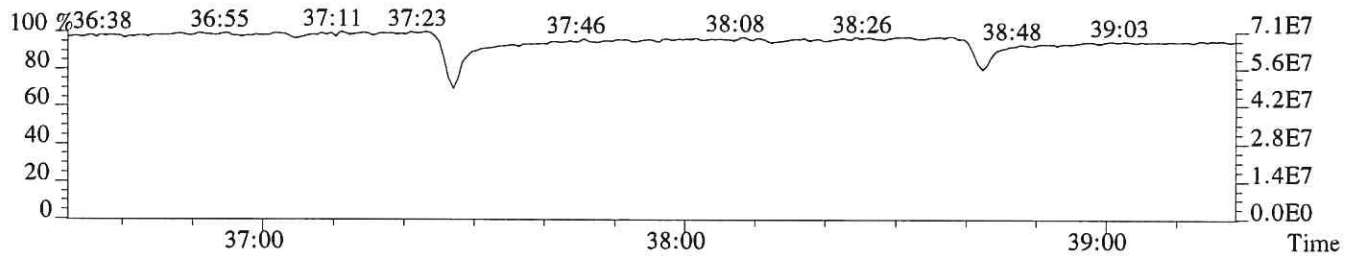
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4564.0,0.50%,F,T)



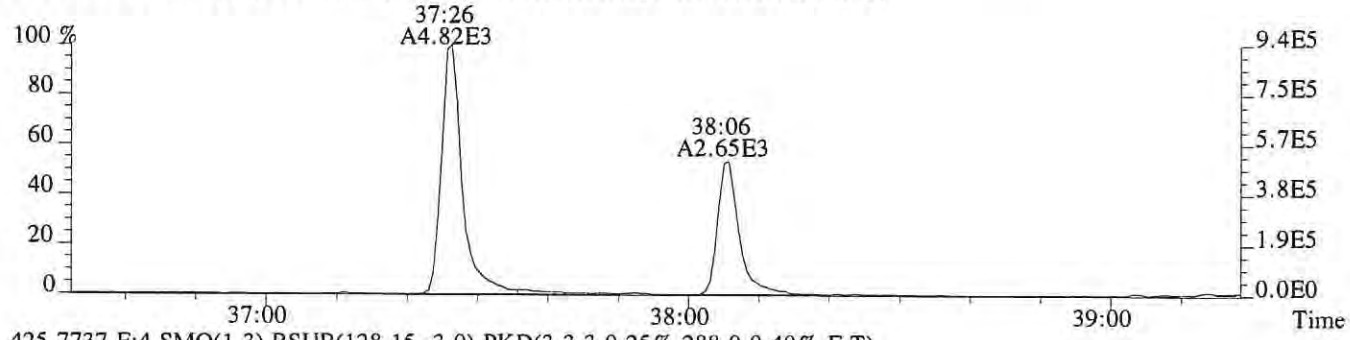
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



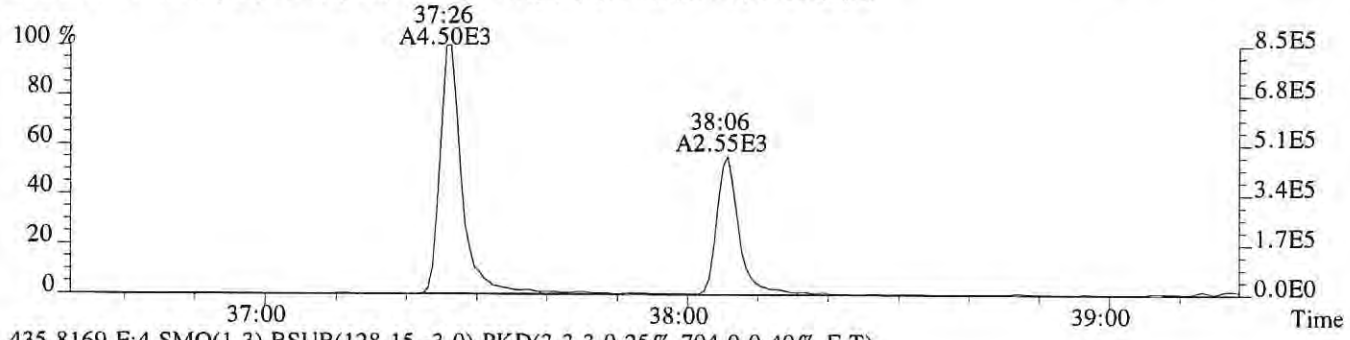
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



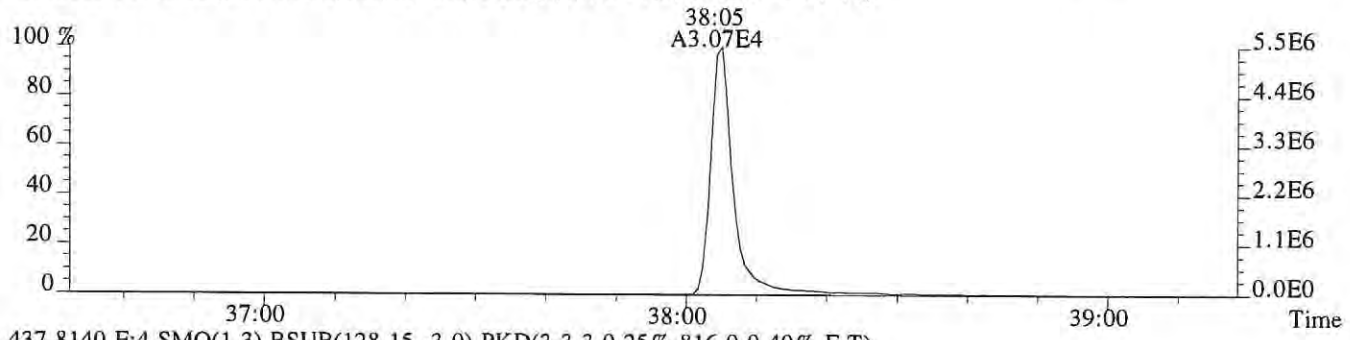
File:P518953 #1-250 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



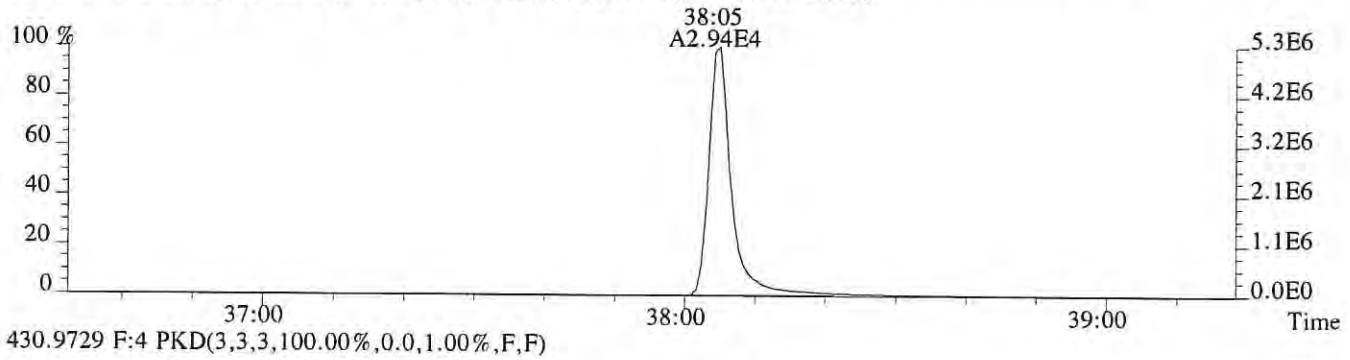
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



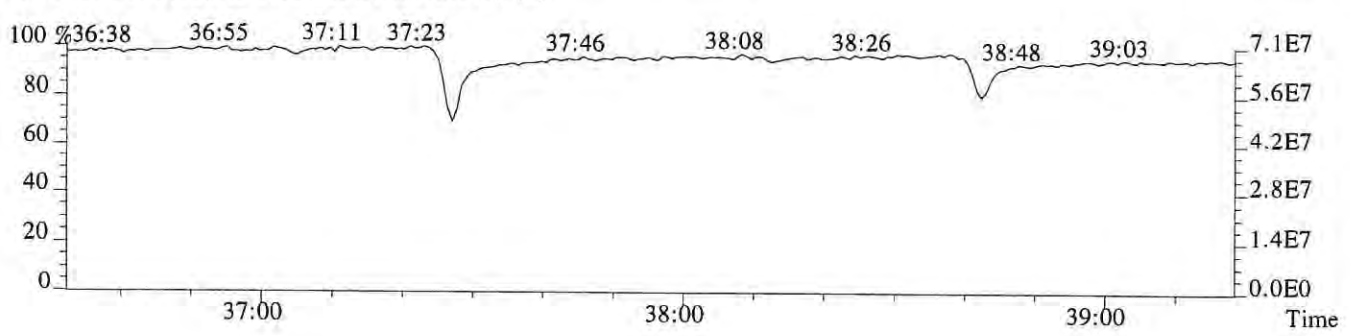
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)

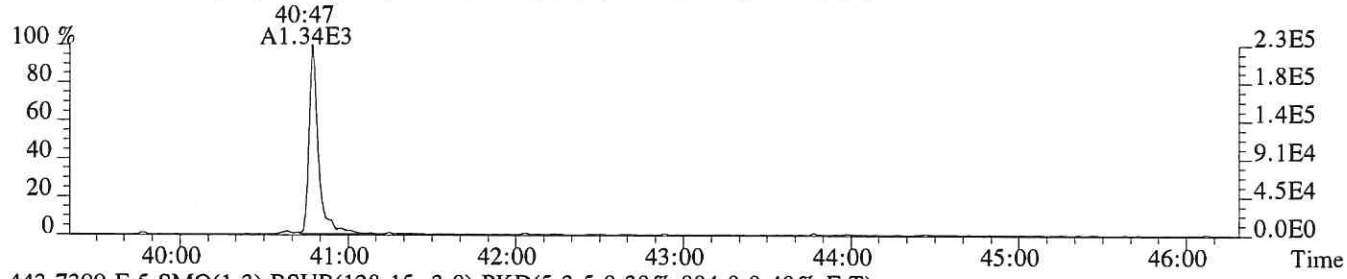


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

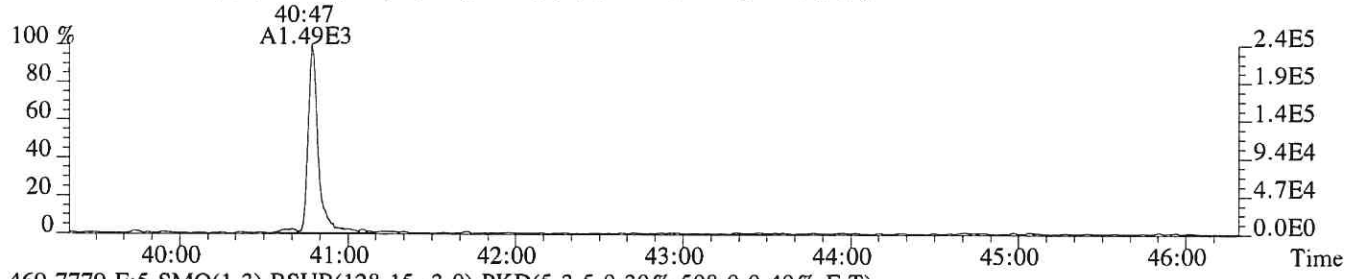


File:P518953 #1-628 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007

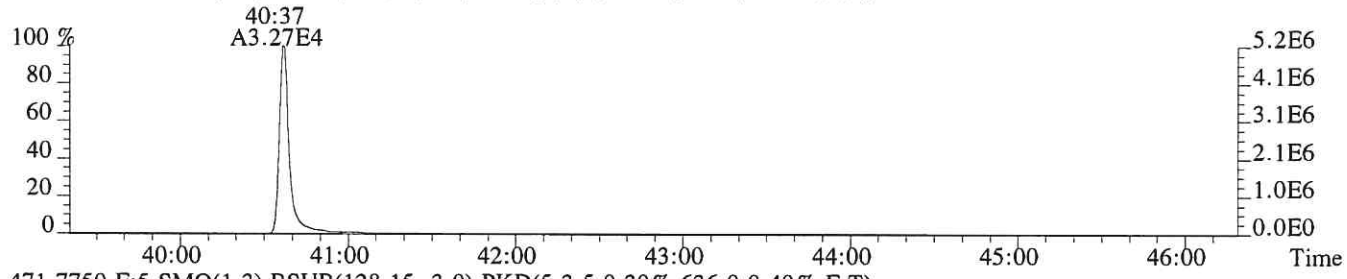
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



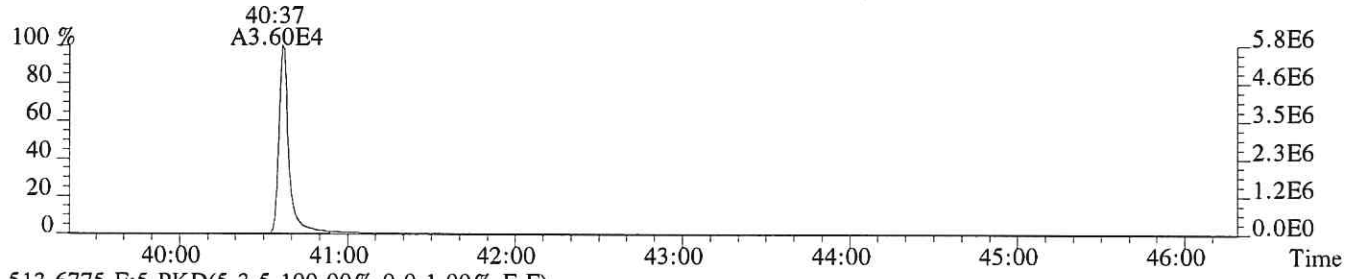
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,884.0,0.40%,F,T)



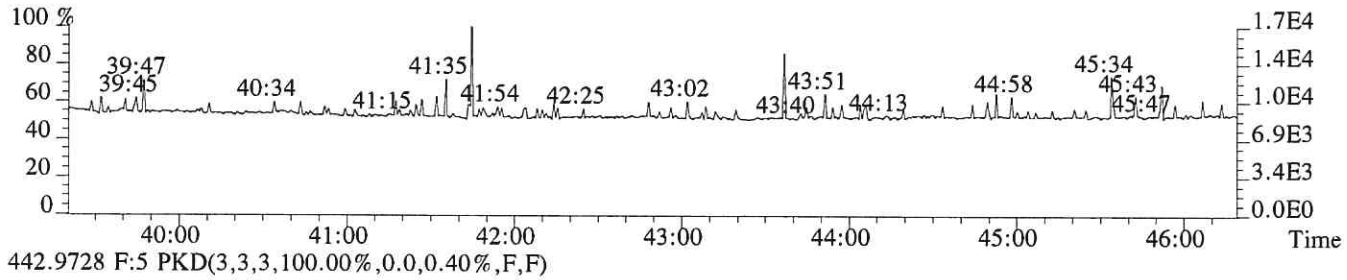
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



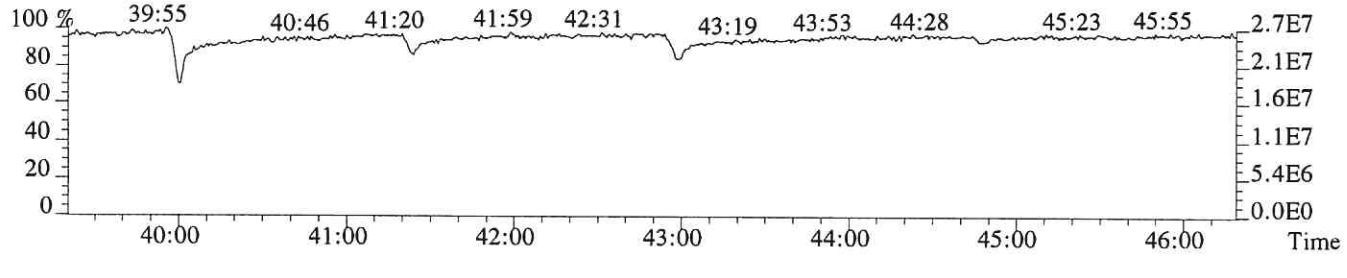
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



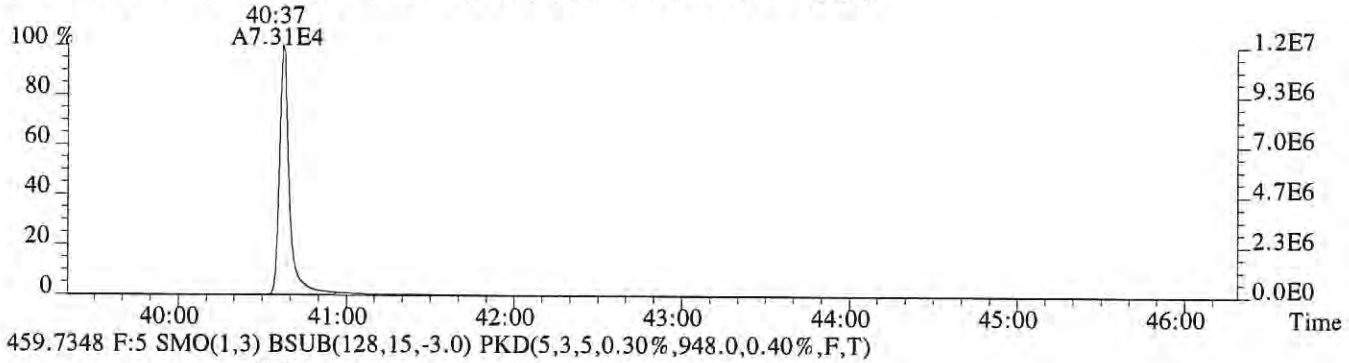
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



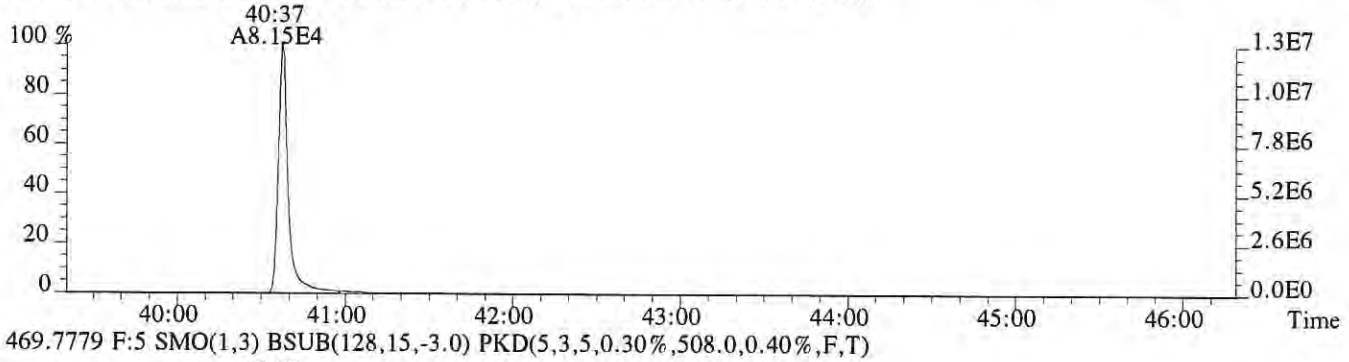
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



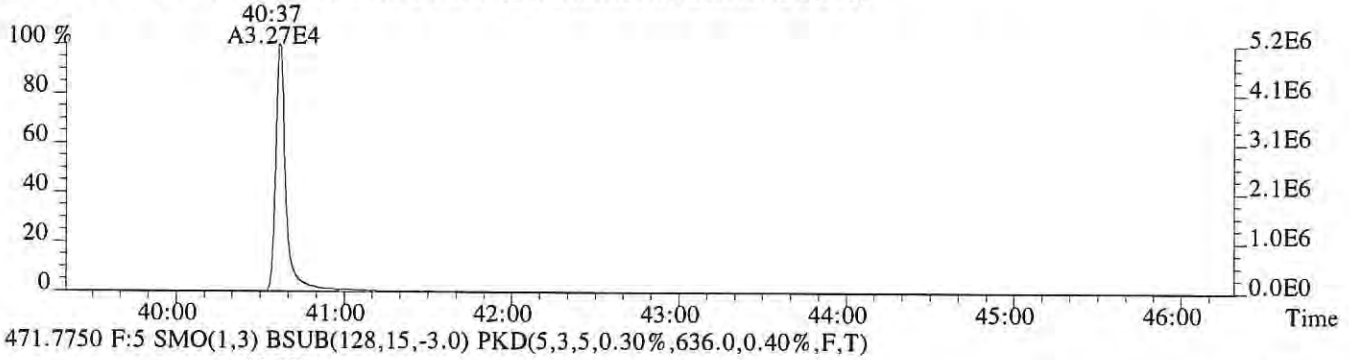
File:P518953 #1-628 Acq:20-NOV-2018 20:41:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



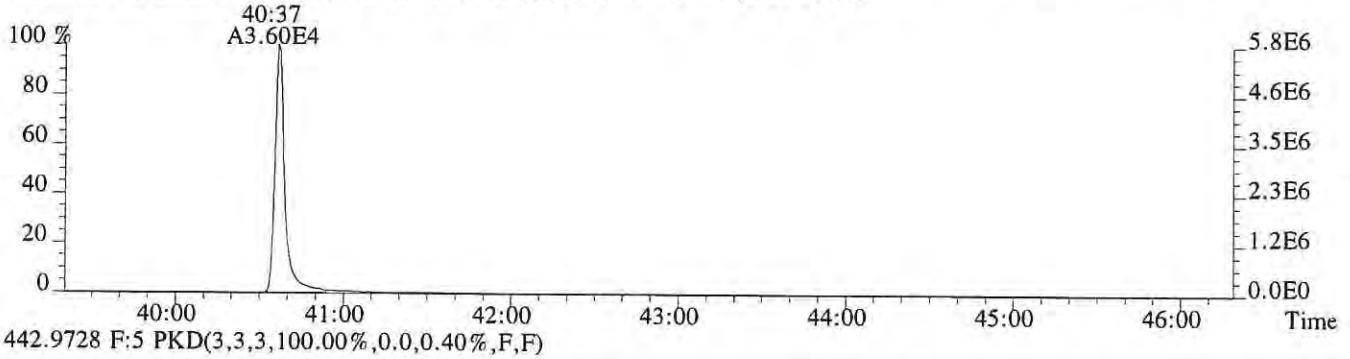
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,948.0,0.40%,F,T)



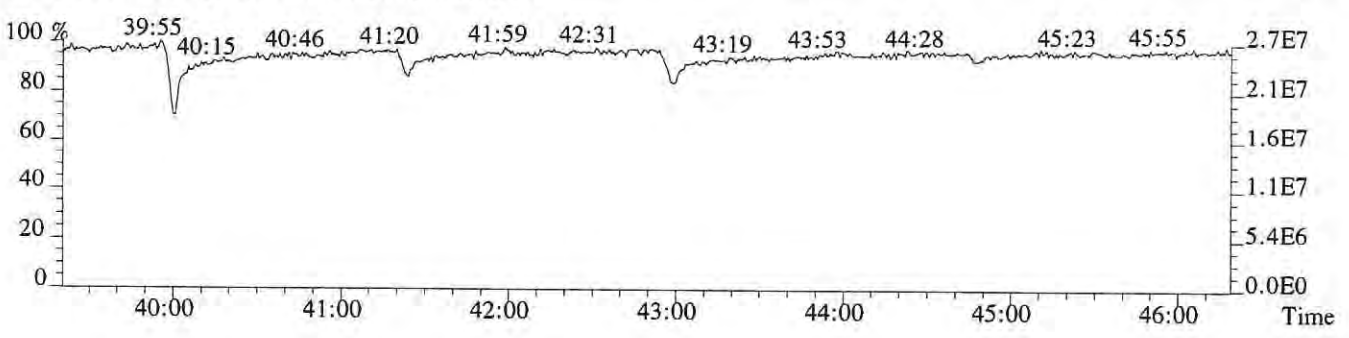
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0507

Run #16 Filename P518846 Samp: 1 Inj: 1 Acquired: 16-NOV-18 06:49:17
Processed: 19-NOV-18 09:11:54 Sample ID: E1801018-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:32	1.628e+01	4.439e+01	0.37	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	4.663e+00	8.964e+00	0.52	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	2.870e+01	2.842e+01	1.01	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.991e+01	2.223e+01	0.90	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	2.747e+01	1.856e+01	1.48	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	7.923e+02	8.175e+02	0.97	yes	no	1.025
17	Unk	OCDD	40:41	1.313e+04	1.441e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	6.952e+03	8.330e+03	0.83	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.762e+04	1.087e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.872e+04	1.143e+04	1.64	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	9.345e+03	1.810e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.195e+04	2.352e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.137e+04	2.183e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	9.367e+03	1.841e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.412e+03	1.926e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.126e+03	1.823e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	4.670e+03	5.901e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.345e+04	8.581e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.416e+04	1.138e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.483e+04	1.163e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.674e+04	1.559e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:40	1.937e+04	2.189e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	1.891e+04	2.393e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.088e+04	2.509e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	5.920e+03				no	1.014

$$\text{OCDD} = \frac{(1.313e+04 + 1.441e+04) \times 4000 \text{ pg} \times 1}{(1.937e+04 + 2.189e+04) \times 10.518 \text{ g} \times 76.8 / 100 \times 1.118} = 295.63168 \text{ ng/kg}$$

LG 11/26/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0507

Run #16 Filename P518846 Samp: 1 Inj: 1 Acquired: 16-NOV-18 06:49:17
Processed: 19-NOV-18 09:11:54 LAB. ID: E1801018-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.37e+03	6.04e+02	5.6e+00	5.76e+03	9.36e+02	6.2e+00
2	1,2,3,7,8-PeCDF	*	2.68e+02	*	*	7.12e+02	*
3	2,3,4,7,8-PeCDF	*	2.68e+02	*	*	7.12e+02	*
4	1,2,3,4,7,8-HxCDF	1.37e+03	2.68e+02	5.1e+00	2.99e+03	2.92e+02	1.0e+01
5	1,2,3,6,7,8-HxCDF	*	2.68e+02	*	*	2.92e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.68e+02	*	*	2.92e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.68e+02	*	*	2.92e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	3.24e+02	*	*	2.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.24e+02	*	*	2.64e+02	*
10	OCDF	5.71e+03	2.24e+02	2.5e+01	5.33e+03	6.12e+02	8.7e+00
11	2,3,7,8-TCDD	*	1.60e+03	*	*	6.72e+02	*
12	1,2,3,7,8-PeCDD	*	2.52e+02	*	*	2.12e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.80e+02	*	*	5.80e+02	*
14	1,2,3,6,7,8-HxCDD	5.43e+03	2.80e+02	1.9e+01	4.10e+03	5.80e+02	7.1e+00
15	1,2,3,7,8,9-HxCDD	6.92e+03	2.80e+02	2.5e+01	4.91e+03	5.80e+02	8.5e+00
16	1,2,3,4,6,7,8-HpCDD	1.44e+05	5.32e+02	2.7e+02	1.51e+05	3.64e+02	4.2e+02
17	OCDD	1.98e+06	2.60e+02	7.6e+03	2.23e+06	4.04e+02	5.5e+03
18	13C-2,3,7,8-TCDF	8.66e+05	4.20e+03	2.1e+02	1.08e+06	1.96e+03	5.5e+02
19	13C-1,2,3,7,8-PeCDF	2.84e+06	1.64e+02	1.7e+04	1.77e+06	7.48e+02	2.4e+03
20	13C-2,3,4,7,8-PeCDF	3.14e+06	1.64e+02	1.9e+04	1.91e+06	7.48e+02	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.84e+06	2.48e+02	7.4e+03	3.70e+06	8.76e+02	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.12e+06	2.48e+02	8.6e+03	4.10e+06	8.76e+02	4.7e+03
23	13C-2,3,4,6,7,8-HxCDF	2.18e+06	2.48e+02	8.8e+03	4.25e+06	8.76e+02	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.68e+06	2.48e+02	6.8e+03	3.22e+06	8.76e+02	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.63e+06	2.81e+03	5.8e+02	3.64e+06	5.18e+03	7.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+06	2.81e+03	5.0e+02	3.05e+06	5.18e+03	5.9e+02
27	13C-2,3,7,8-TCDD	6.85e+05	3.84e+03	1.8e+02	8.64e+05	1.30e+03	6.6e+02
28	13C-1,2,3,7,8-PeCDD	2.20e+06	2.84e+02	7.7e+03	1.44e+06	2.88e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.91e+06	1.05e+03	2.8e+03	2.30e+06	9.52e+02	2.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.81e+06	1.05e+03	2.7e+03	2.18e+06	9.52e+02	2.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.16e+06	3.04e+02	1.0e+04	2.89e+06	3.28e+02	8.8e+03
32	13C-OCDD	2.84e+06	7.12e+02	4.0e+03	3.26e+06	1.44e+02	2.3e+04
33	13C-1,2,3,4-TCDD	2.75e+06	3.84e+03	7.2e+02	3.48e+06	1.30e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	5.75e+06	1.05e+03	5.5e+03	4.47e+06	9.52e+02	4.7e+03
35	37Cl-2,3,7,8-TCDD	8.33e+05	1.13e+03	7.4e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0507

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P518846 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 06:49:17 Processed: 19-NOV-18 09:11:54

Mass: 303.9020 305.8990 Tot Response: 2.63e+01 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:34	1.13e+01	1.50e+01 0.75	yes	2.63e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0507

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P518846 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 06:49:17 Processed: 19-NOV-18 09:11:54

Mass: 355.8550 357.8520 Tot Response: 6.15e+01 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:06	2.20e+01	1.34e+01	1.64	yes	3.55e+01		n	n
2	31:05	1.63e+01	9.75e+00	1.67	yes	2.60e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0507

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P518846 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 06:49:17 Processed: 19-NOV-18 09:11:54

Mass: 389.8160 391.8130 Tot Response: 2.33e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	1.14e+02	8.86e+01 1.28	yes	2.02e+02		n	n
2	34:46	1.62e+01	1.41e+01 1.15	yes	3.03e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0507

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P518846 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 06:49:17 Processed: 19-NOV-18 09:11:54

Mass: 423.7770 425.7740 Tot Response: 3.39e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	9.15e+02	8.65e+02 1.06	yes	1.78e+03		n	n
2	38:09	7.92e+02	8.17e+02 0.97	yes	1.61e+03	1,2,3,4,6,7,8-HpCDD	n	n

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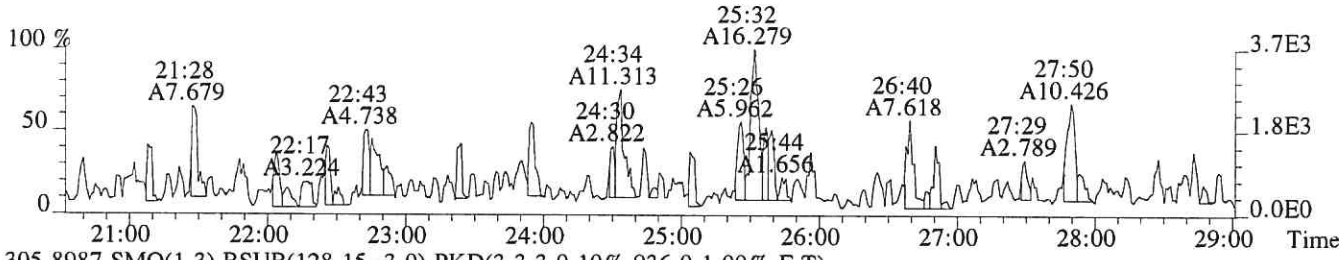
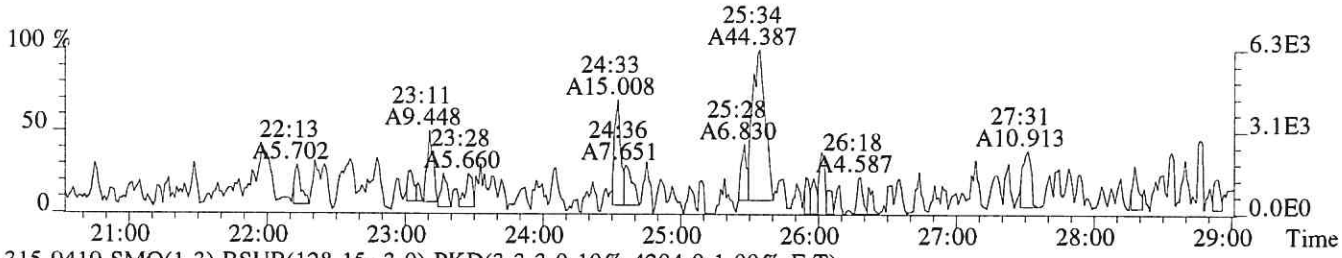
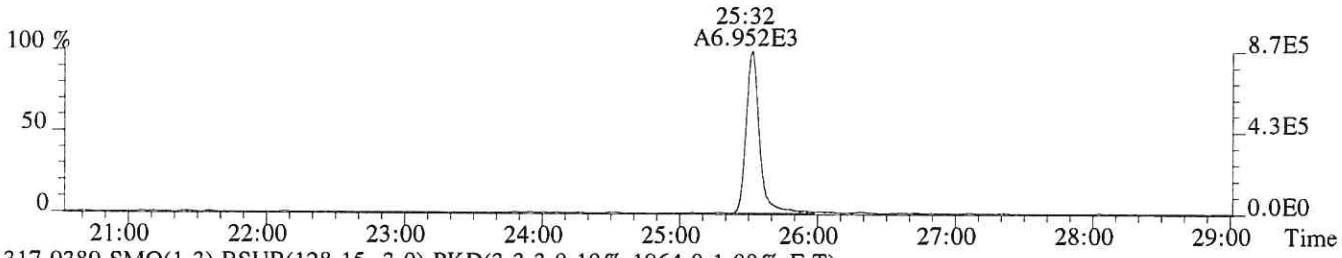
File:P518846 #1-602 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



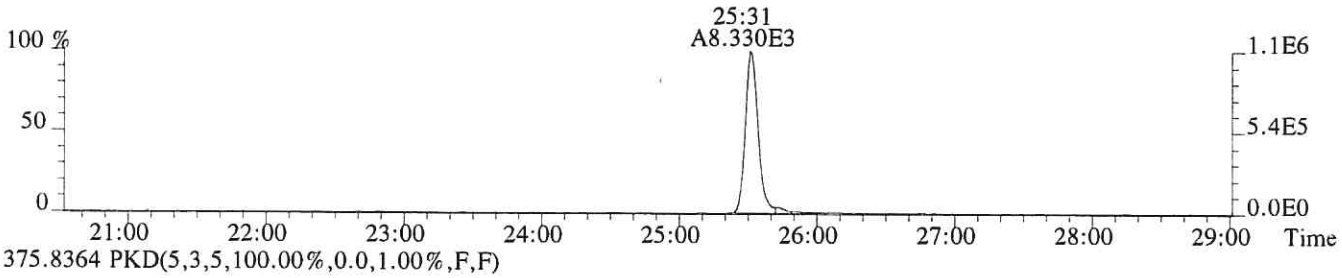
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



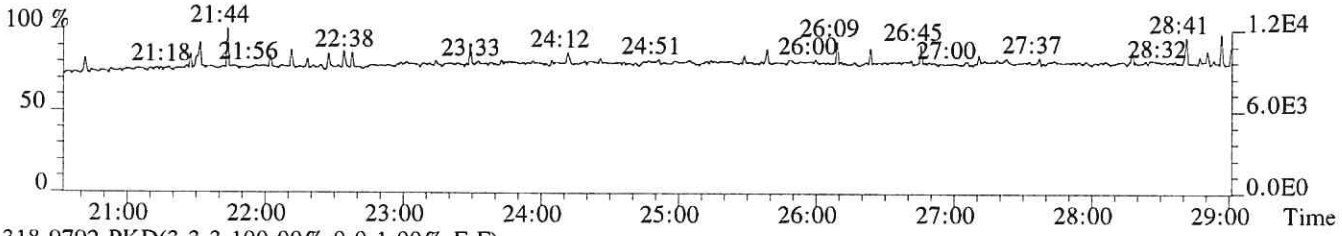
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4204.0,1.00%,F,T)



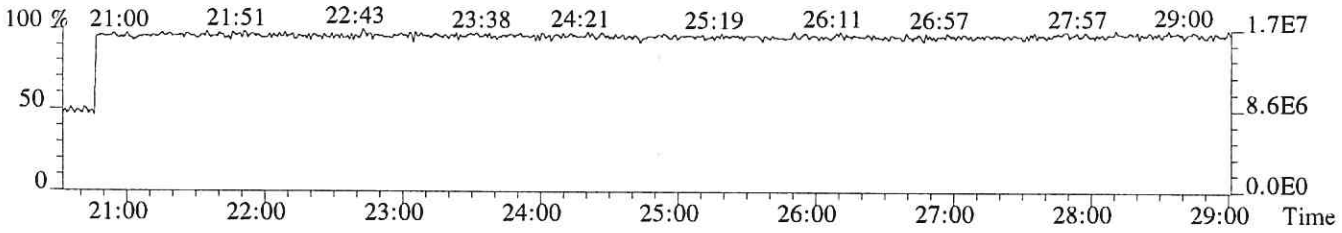
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



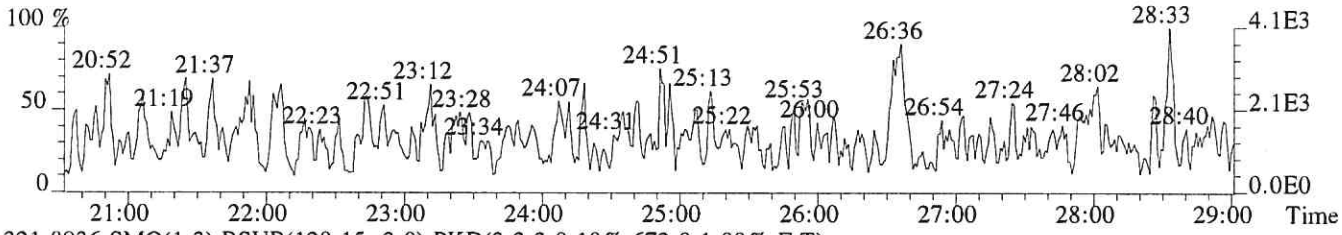
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



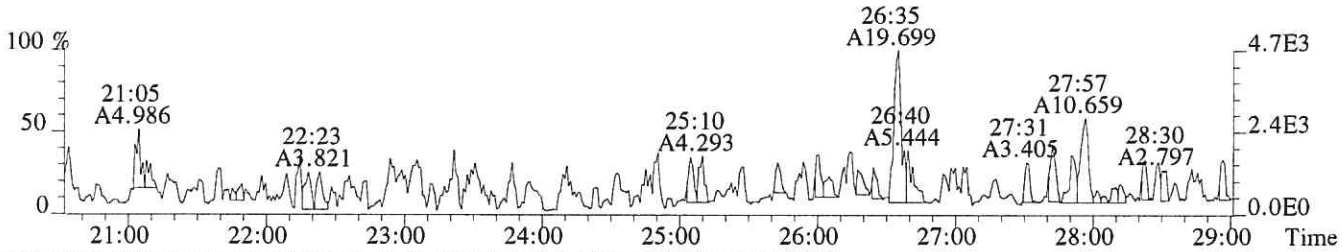
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



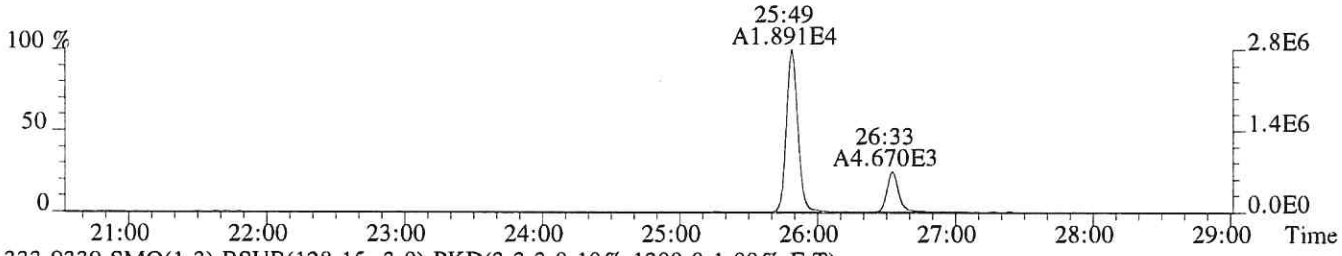
File:P518846 #1-602 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



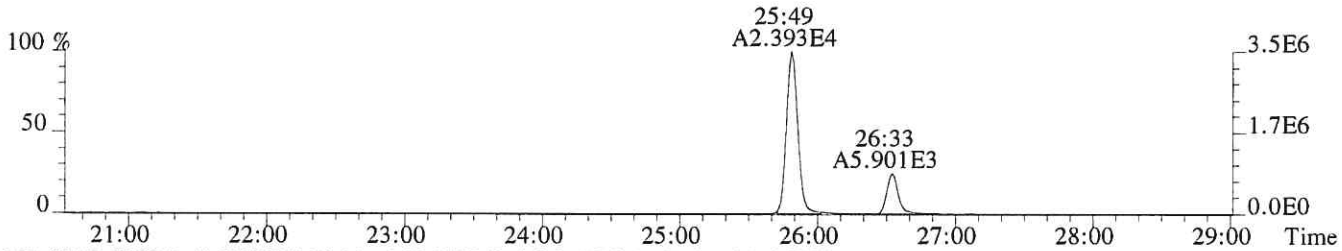
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



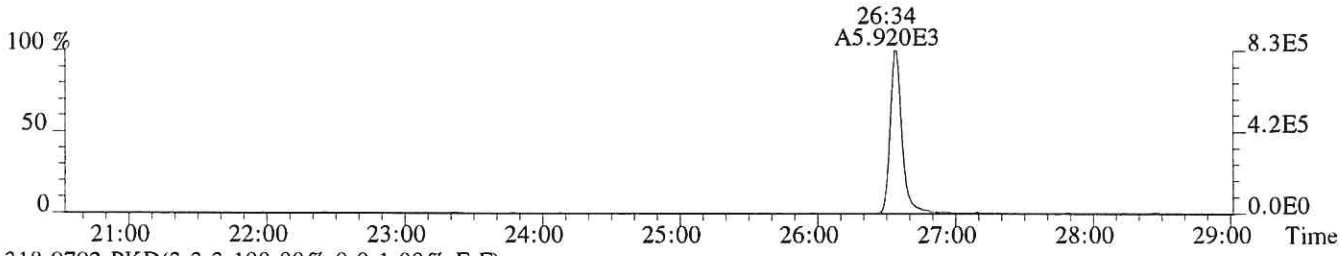
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



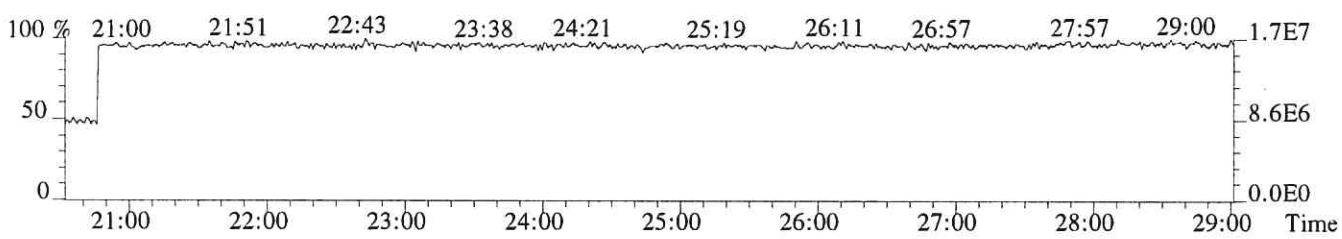
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



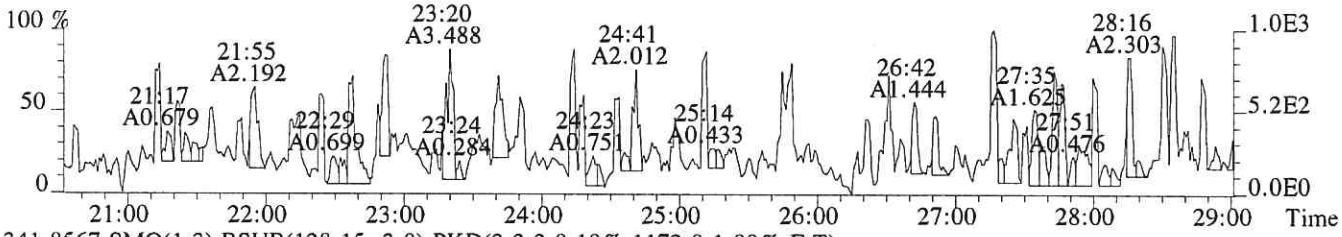
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



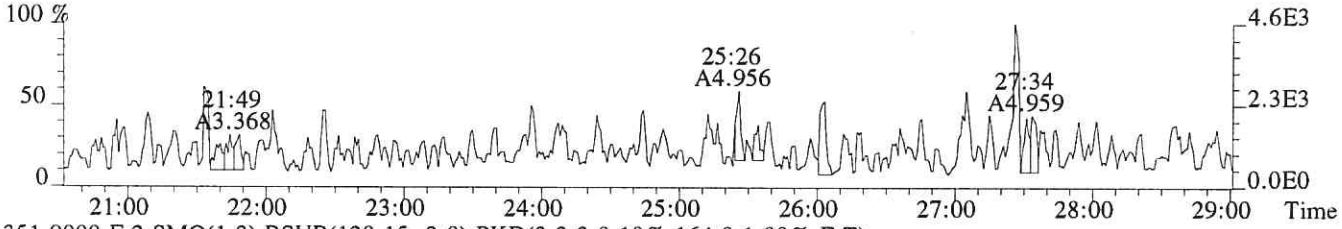
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



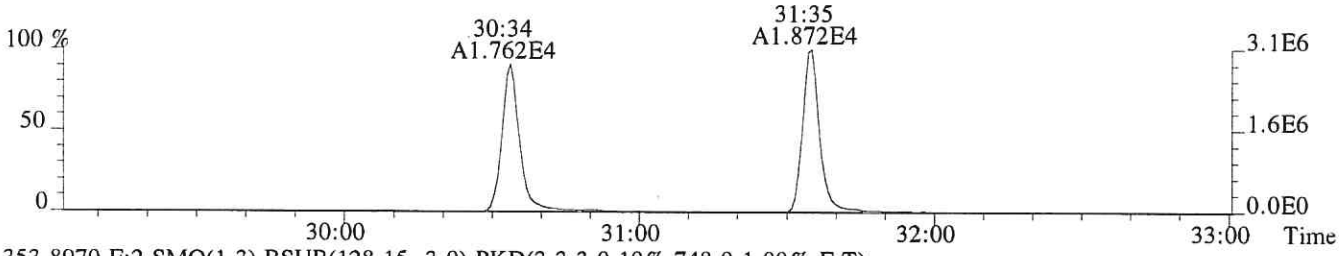
File:P518846 #1-602 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



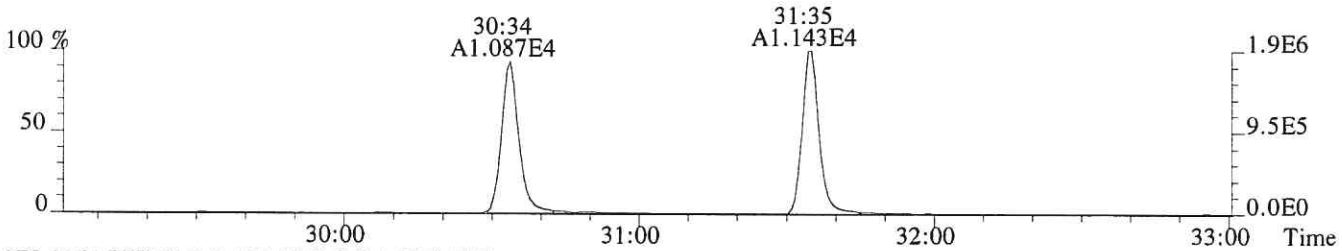
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



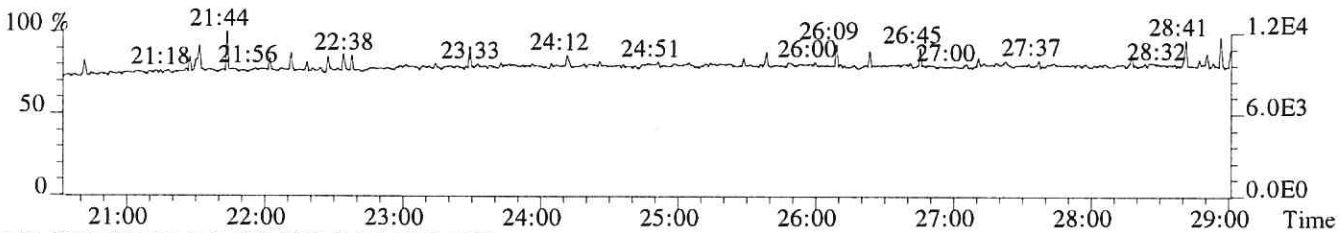
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



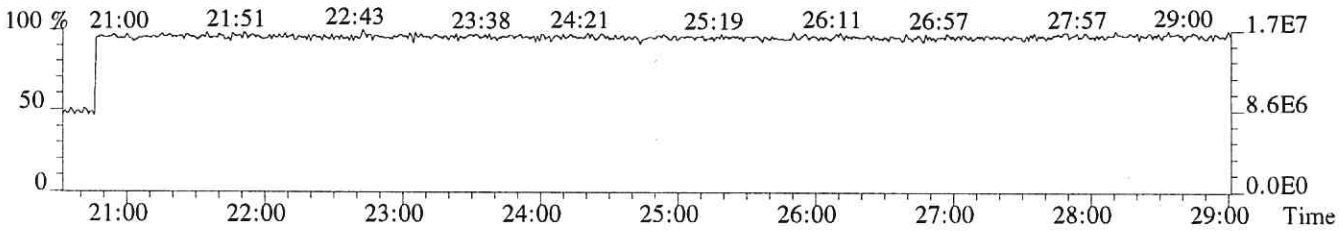
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



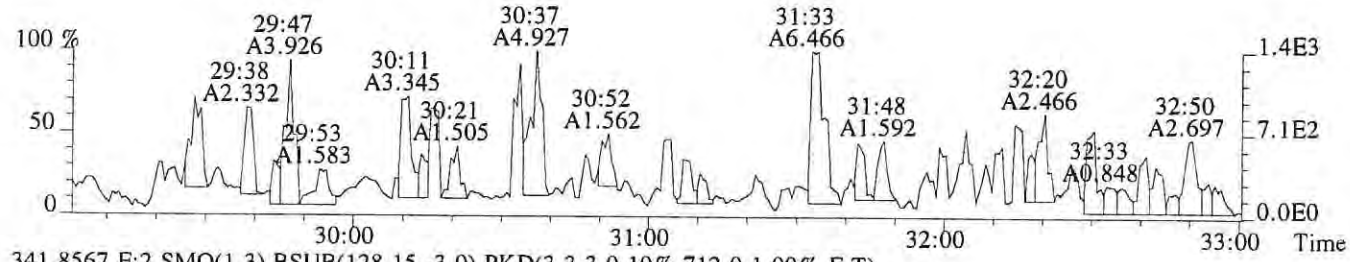
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



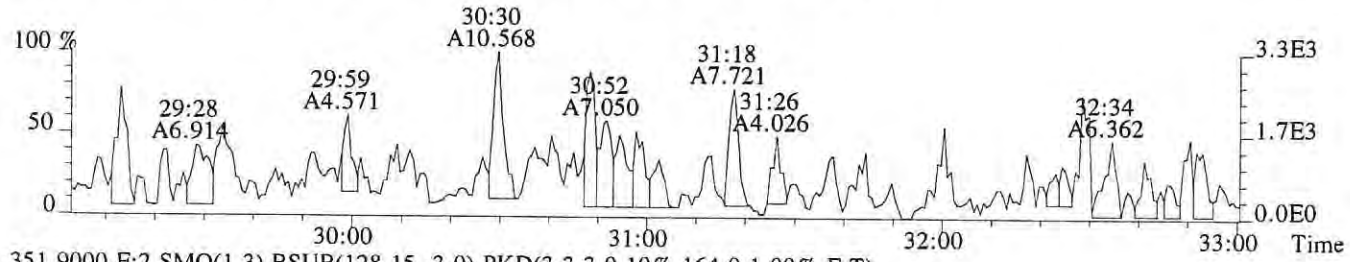
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



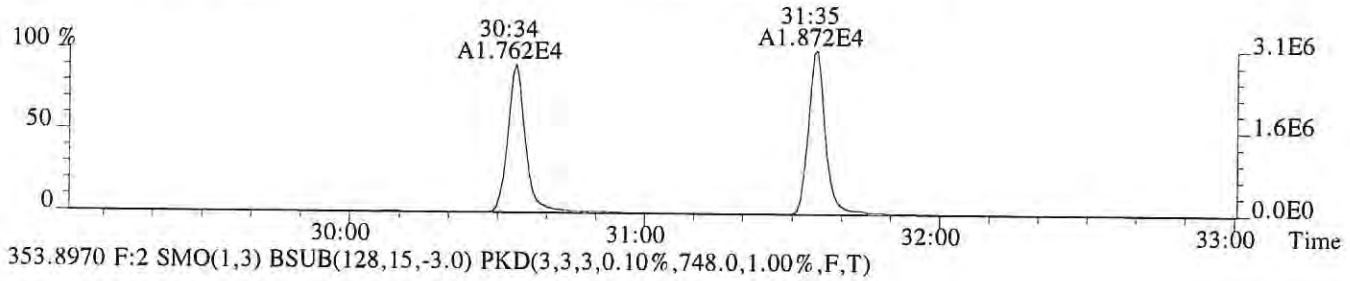
File:P518846 #1-357 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



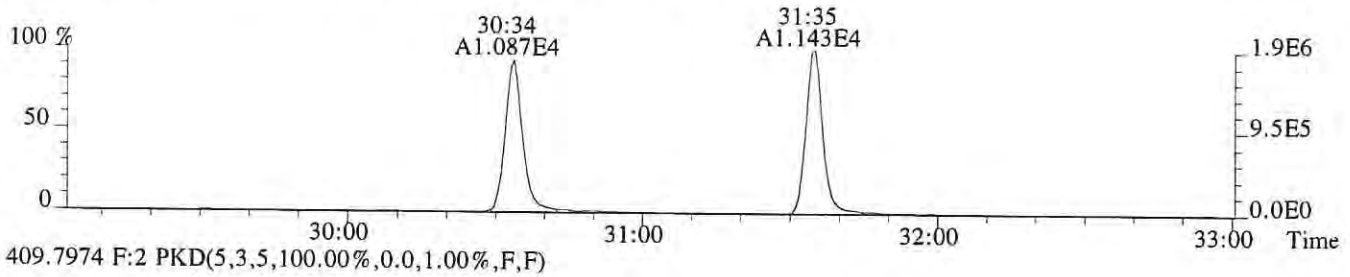
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



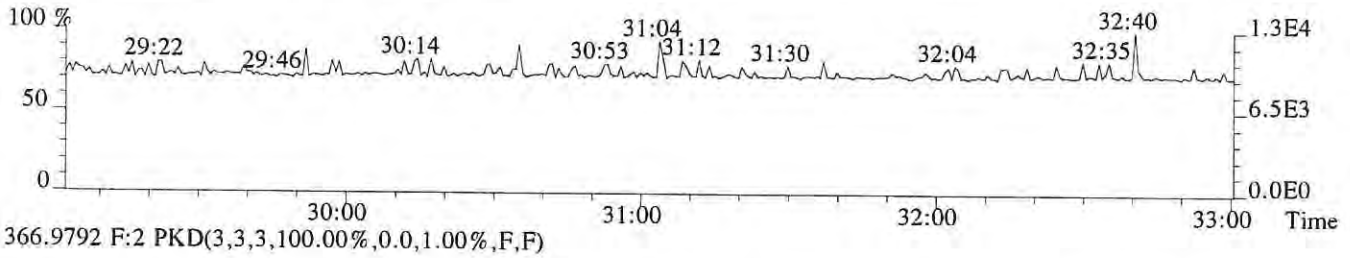
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



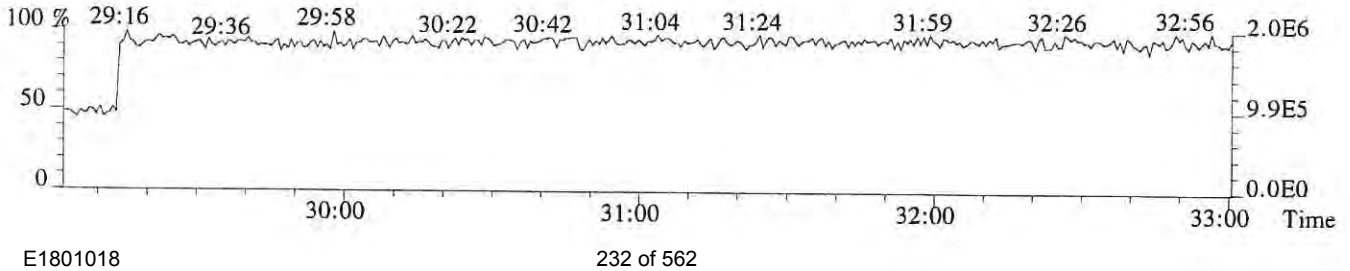
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



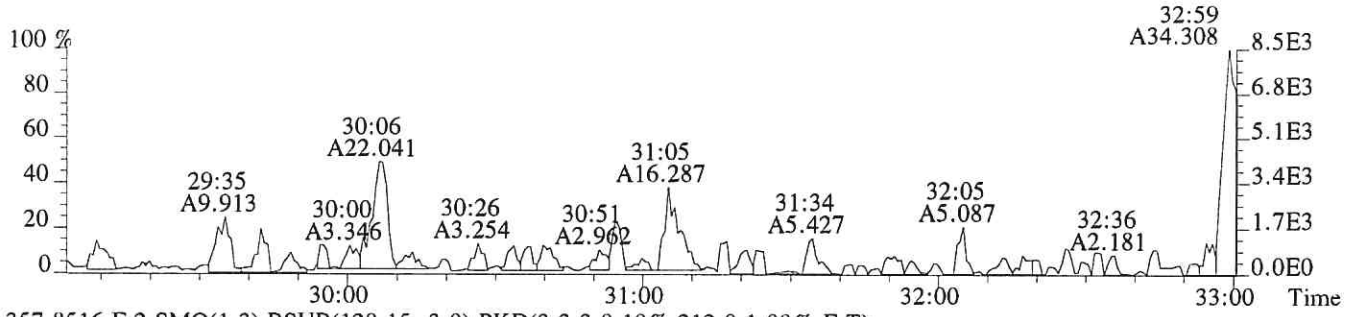
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



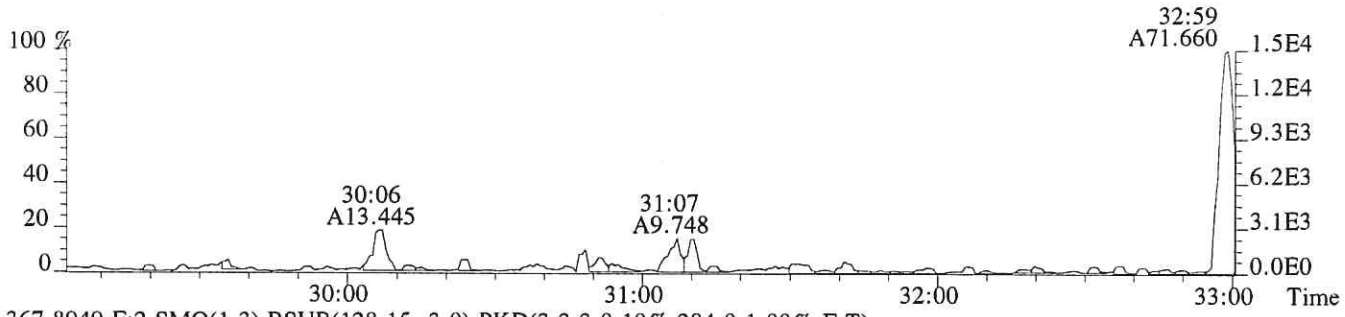
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



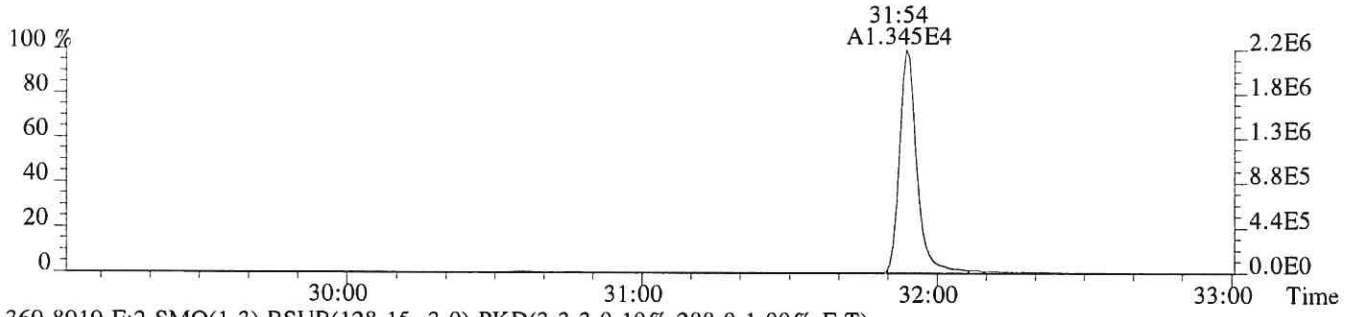
File:P518846 #1-357 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



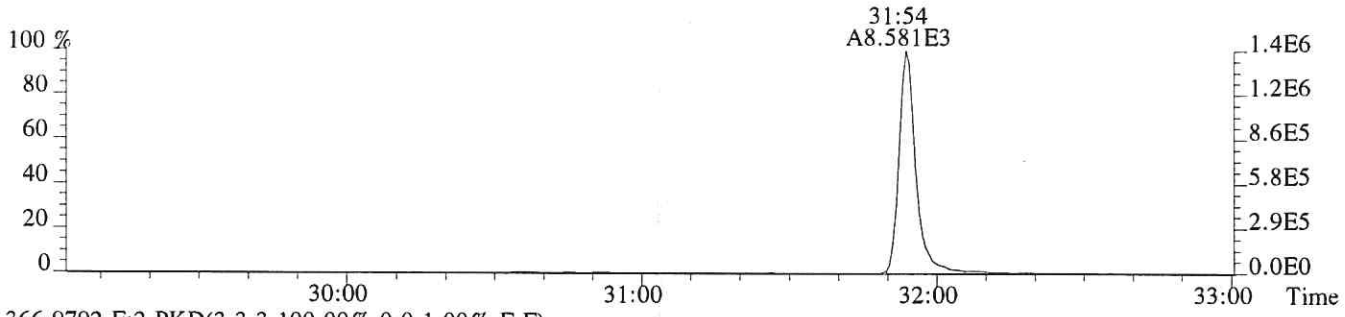
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



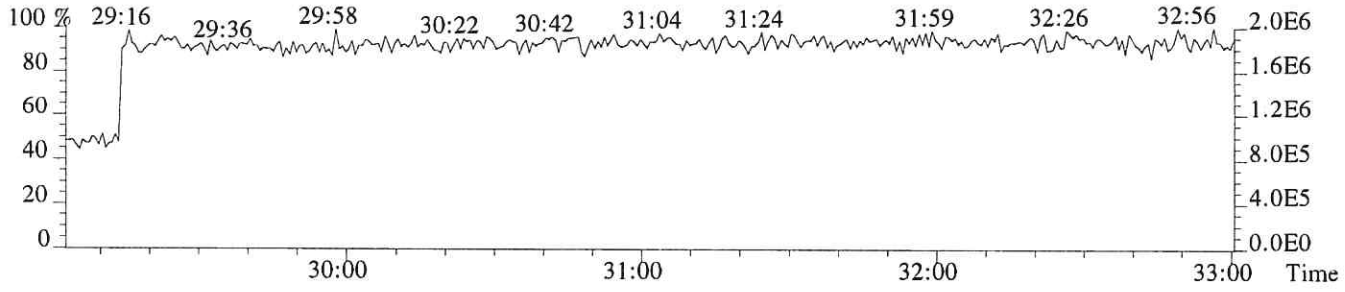
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



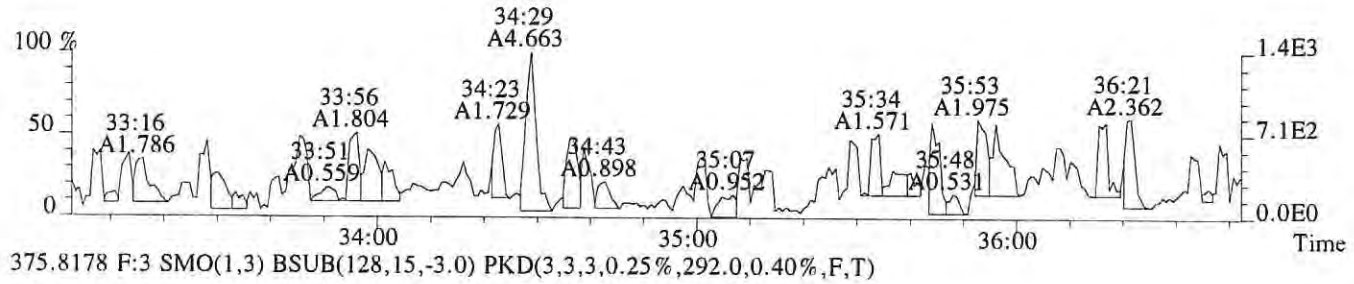
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



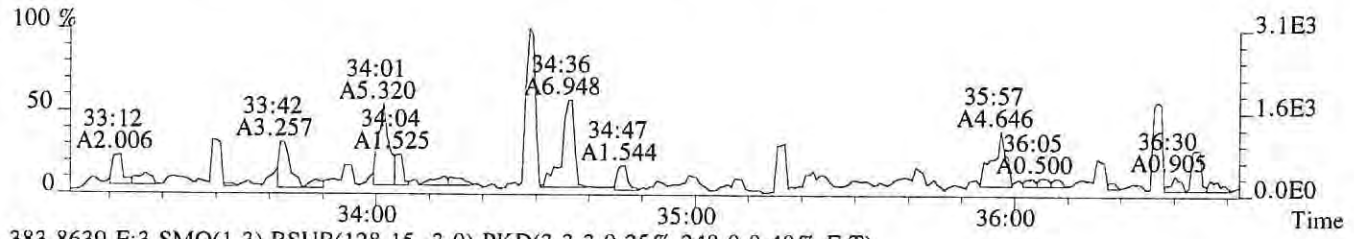
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



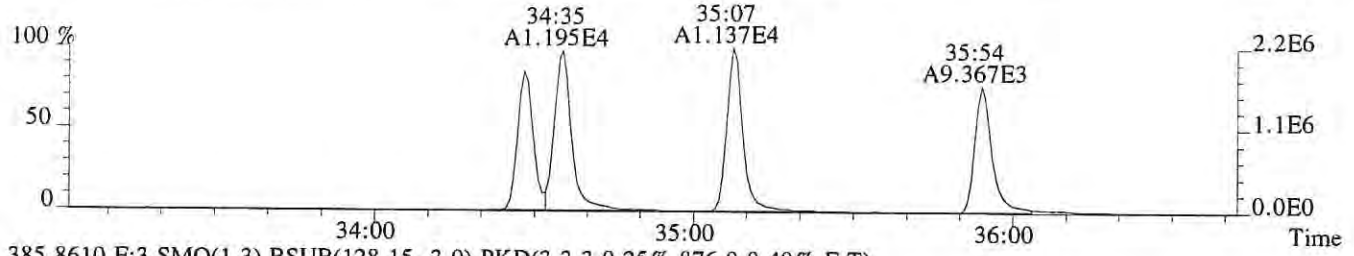
File:P518846 #1-330 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



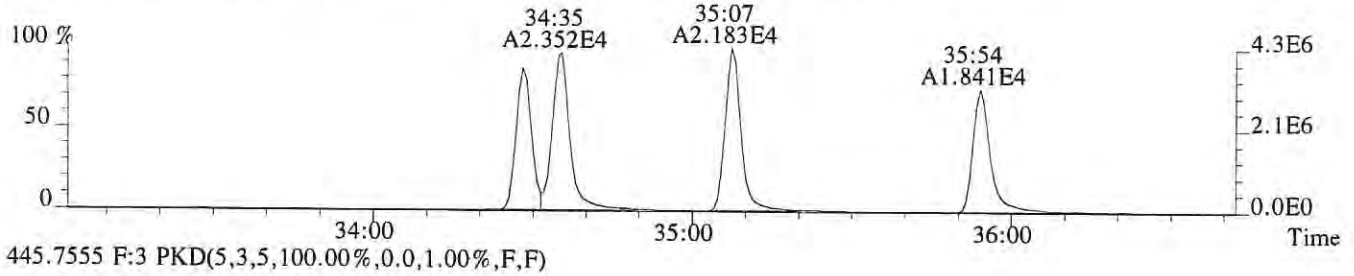
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



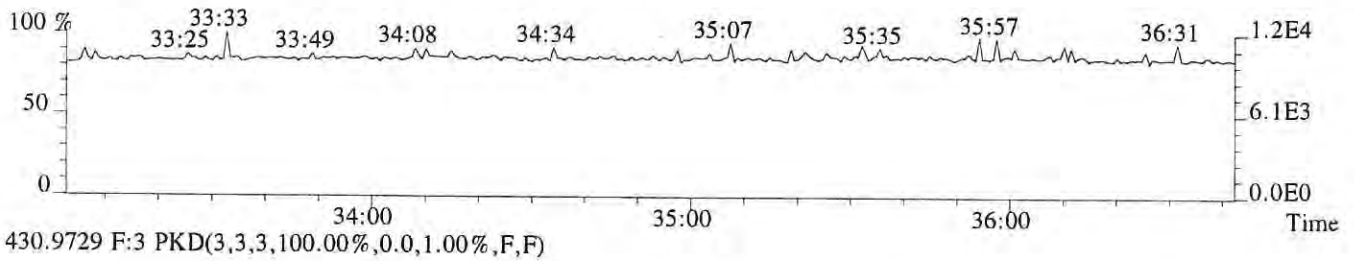
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



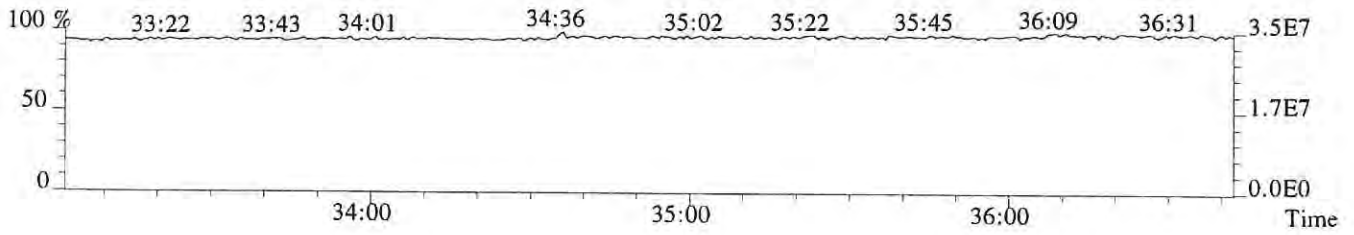
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



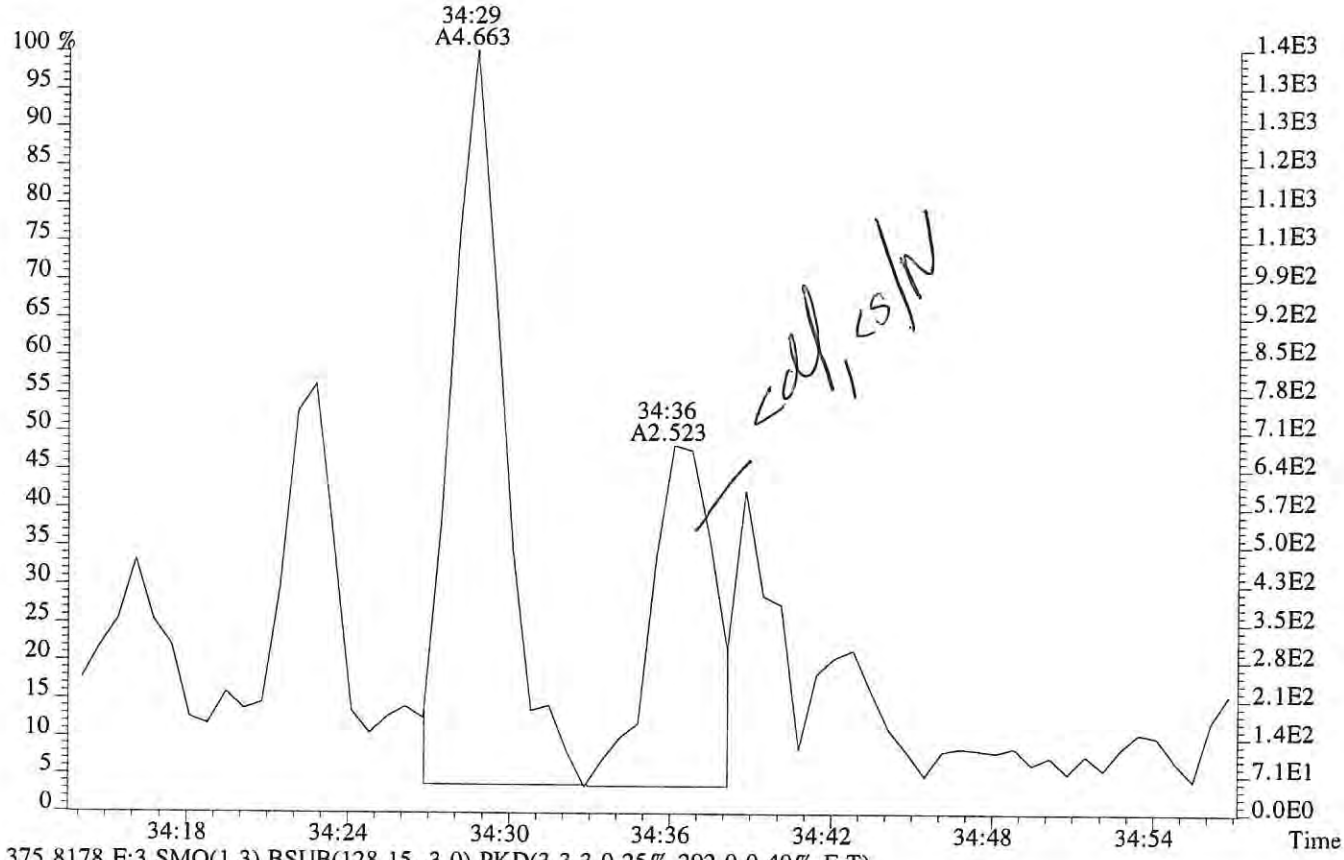
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



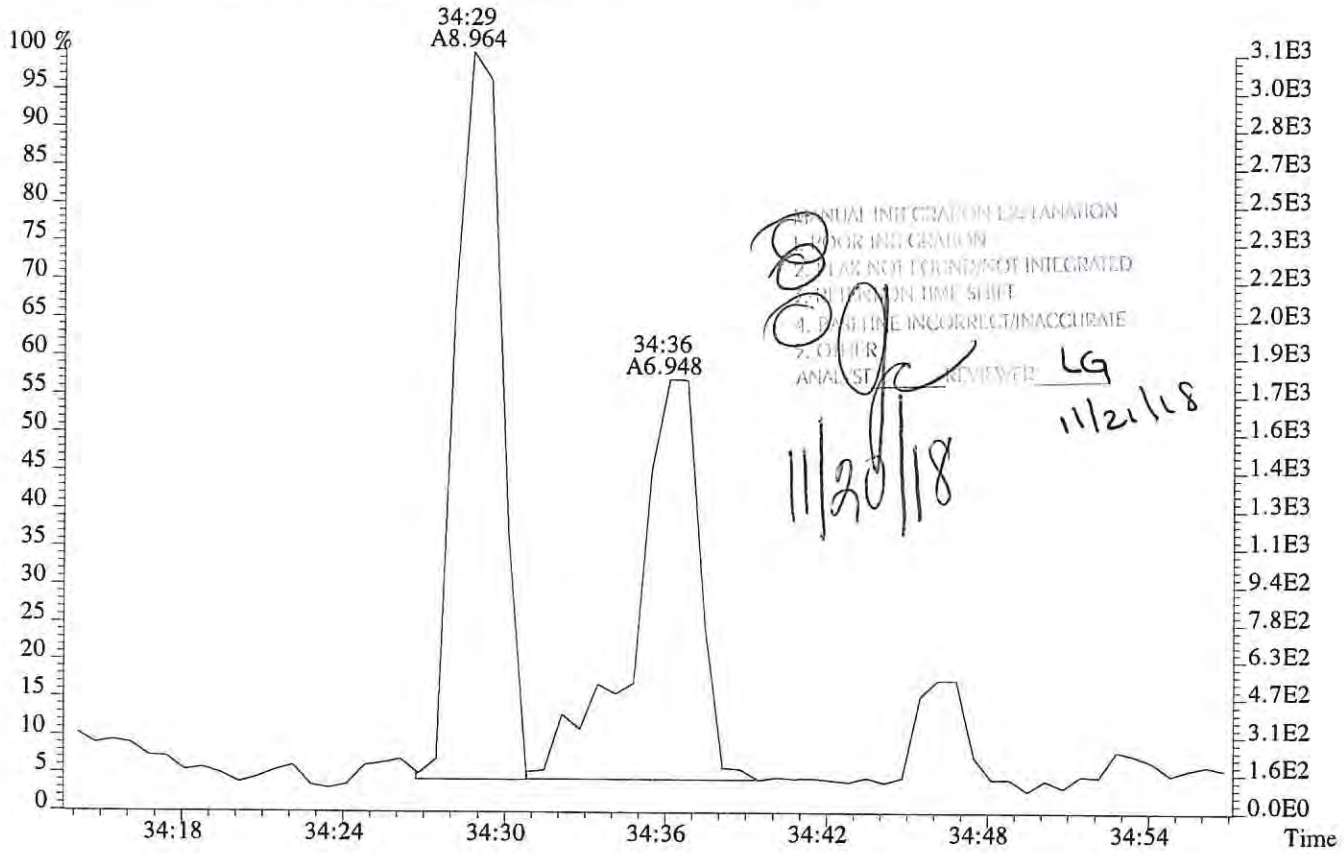
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



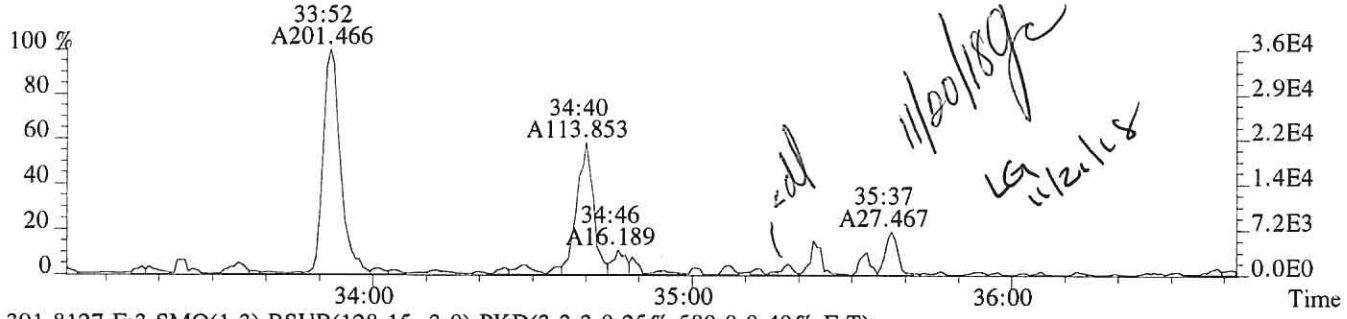
File:P518846 #1-330 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



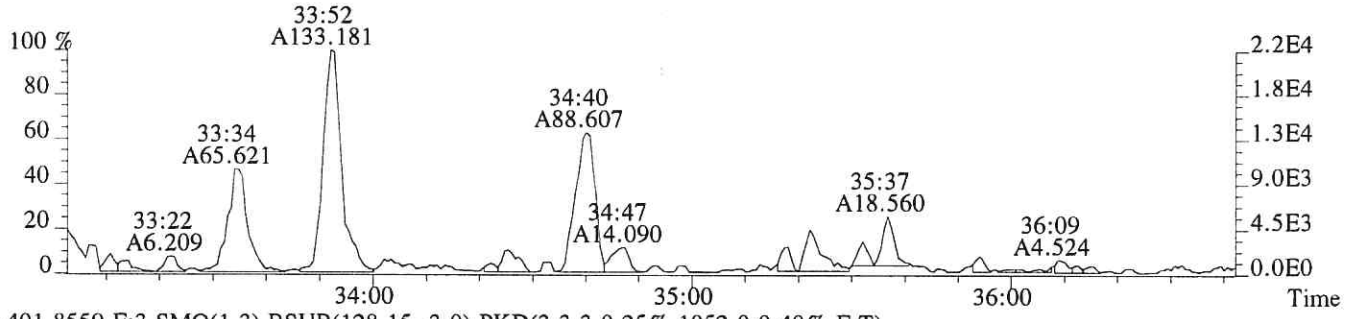
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



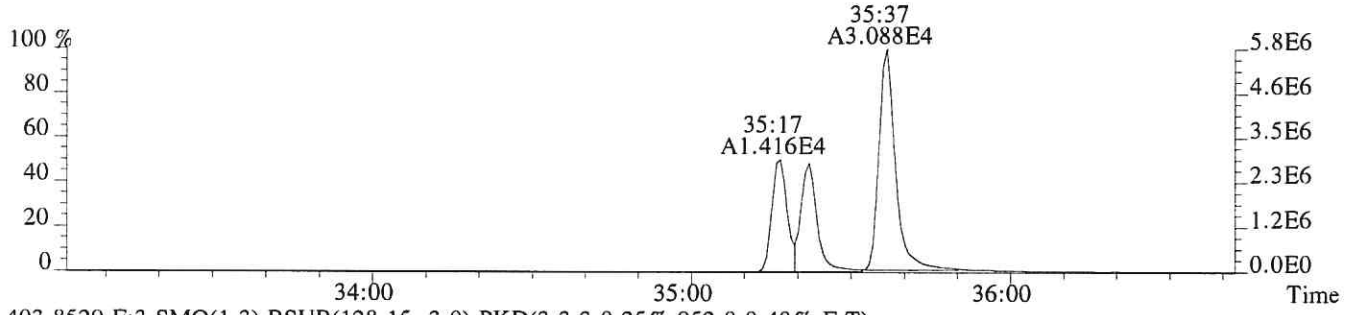
File:P518846 #1-330 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



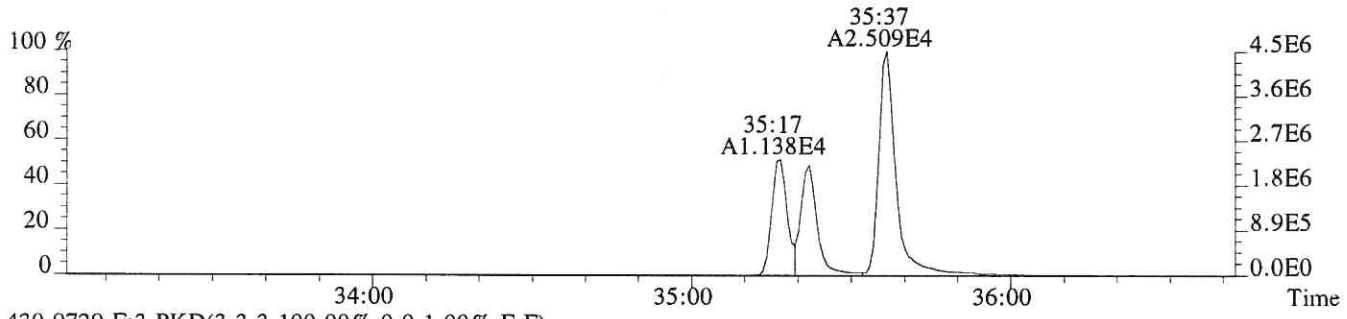
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



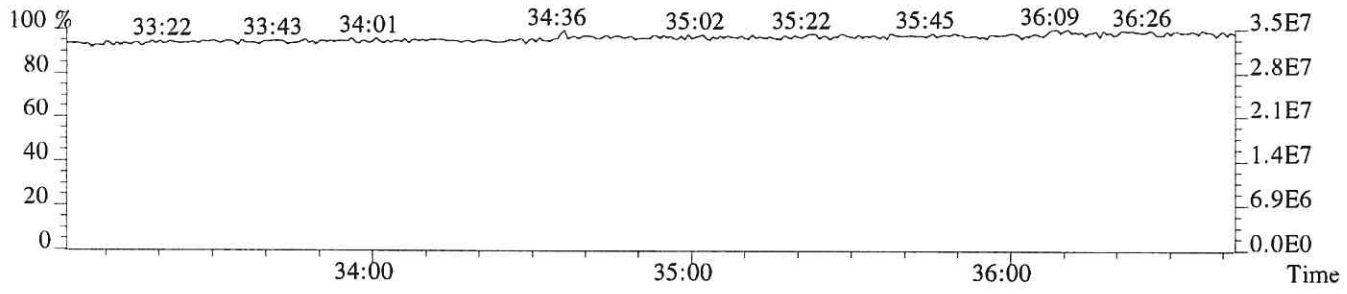
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



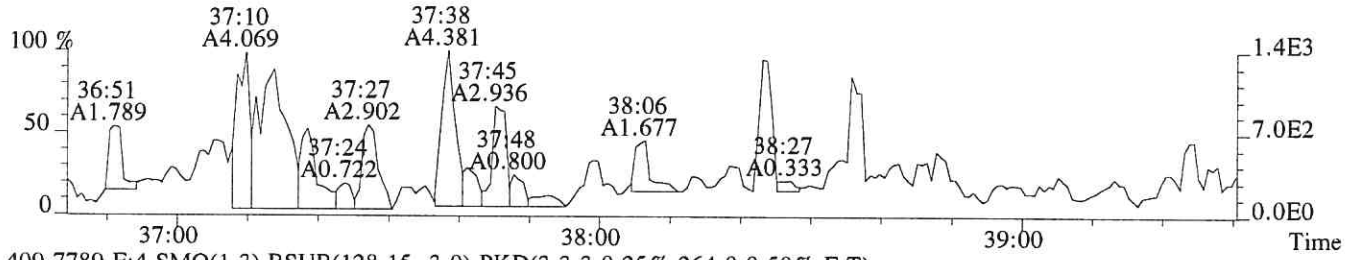
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



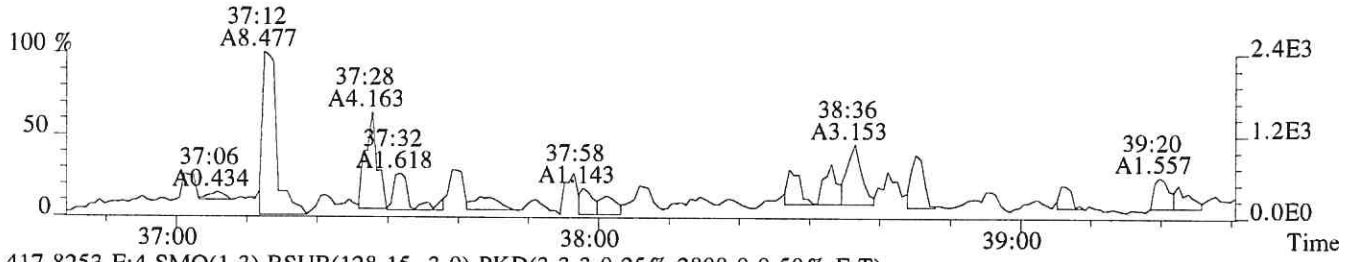
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



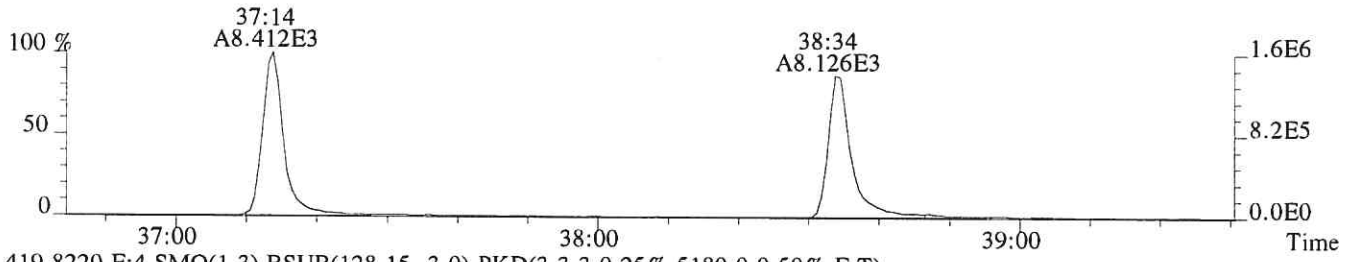
File:P518846 #1-250 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.50%,F,T)



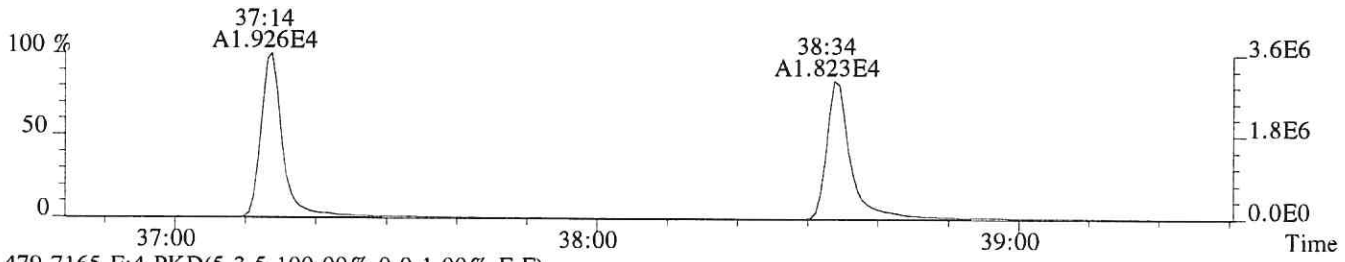
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.50%,F,T)



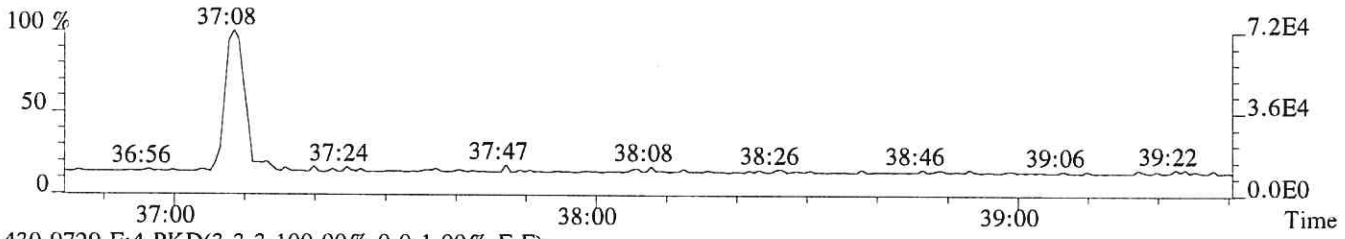
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2808.0,0.50%,F,T)



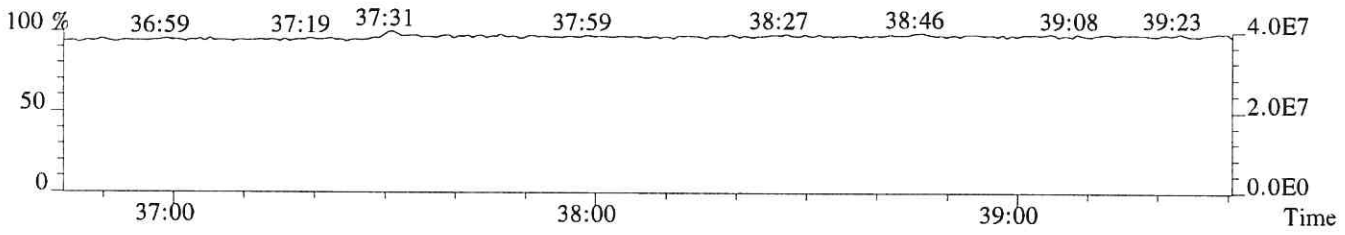
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5180.0,0.50%,F,T)



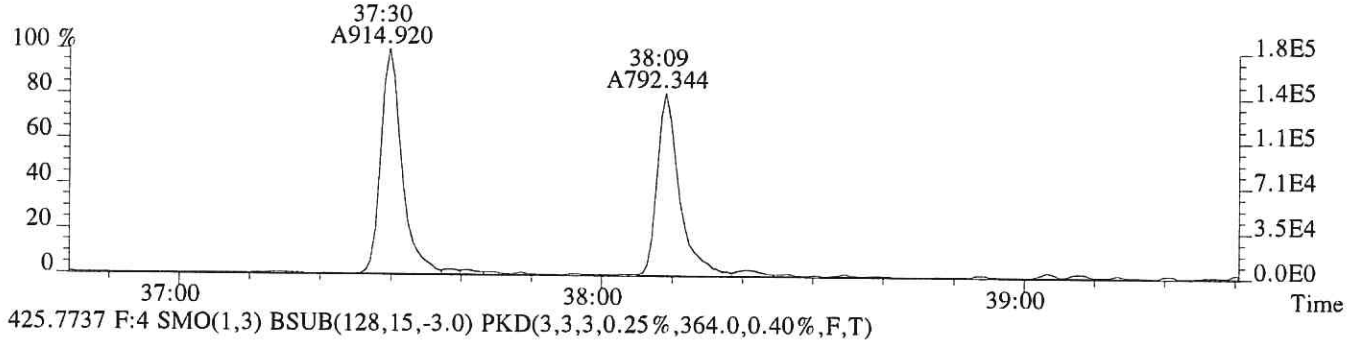
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



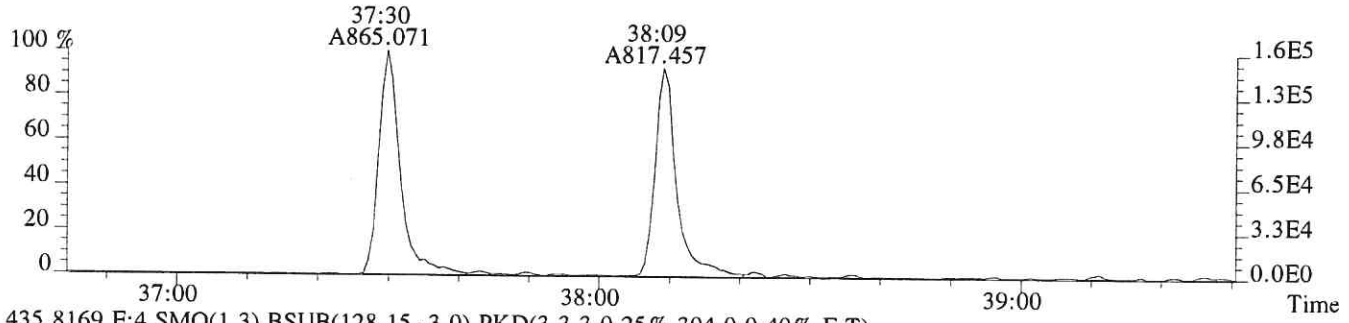
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



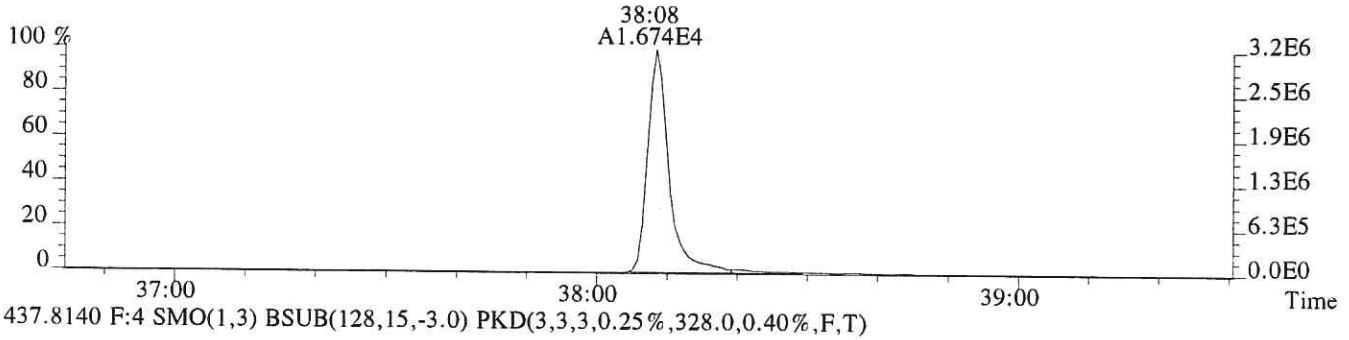
File:P518846 #1-250 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



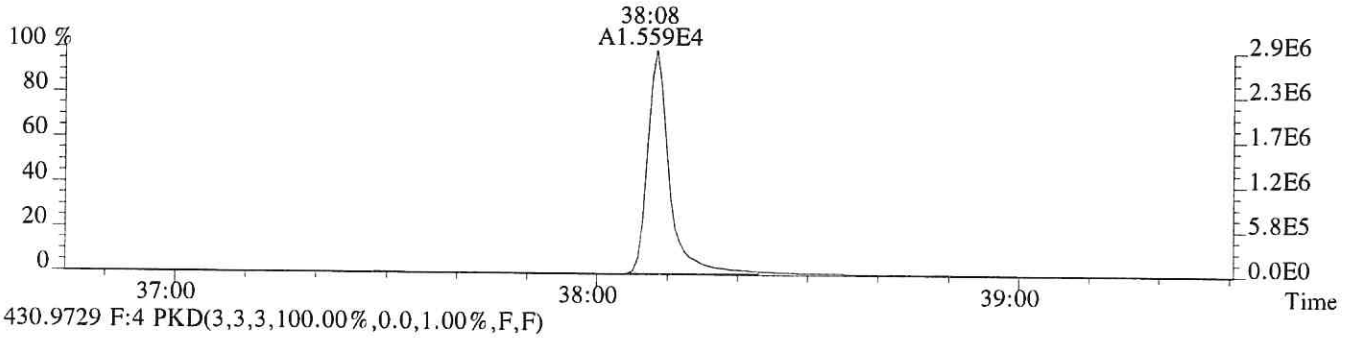
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



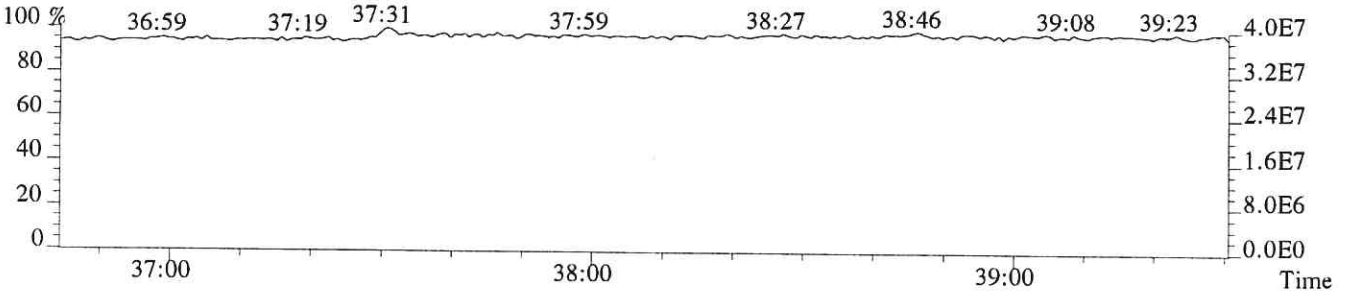
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



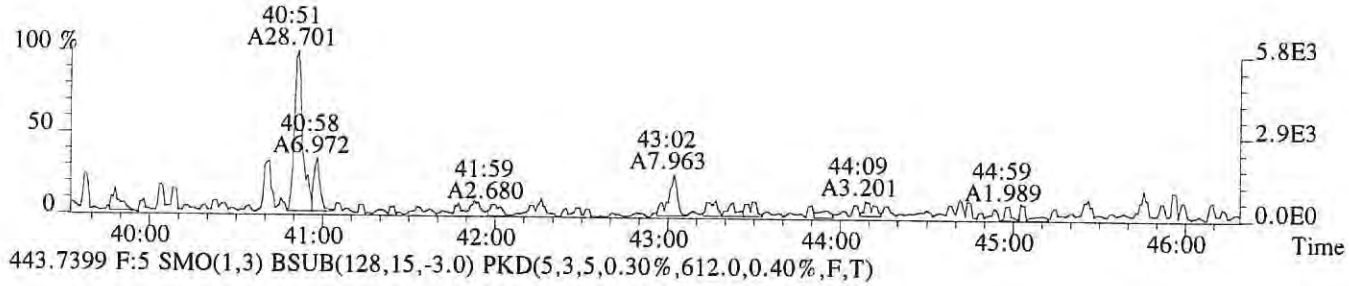
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



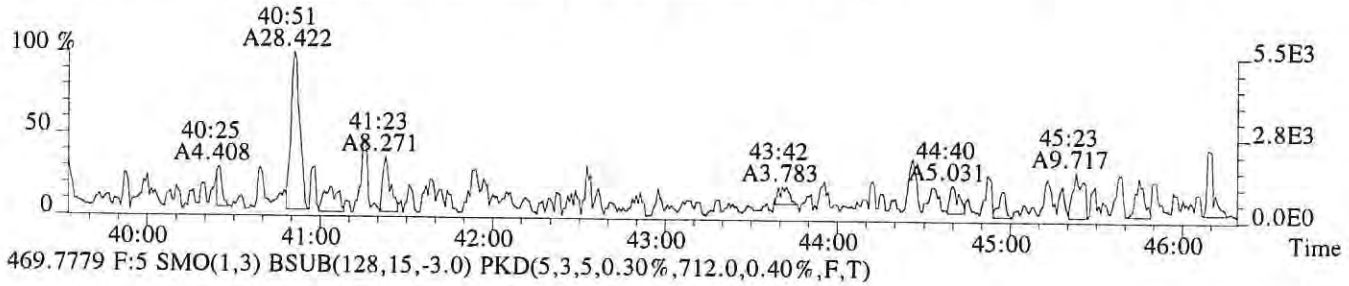
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



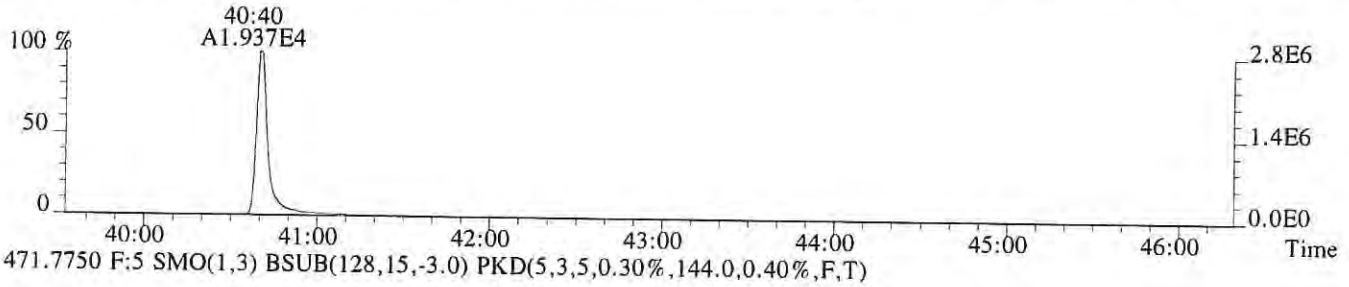
File:P518846 #1-610 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



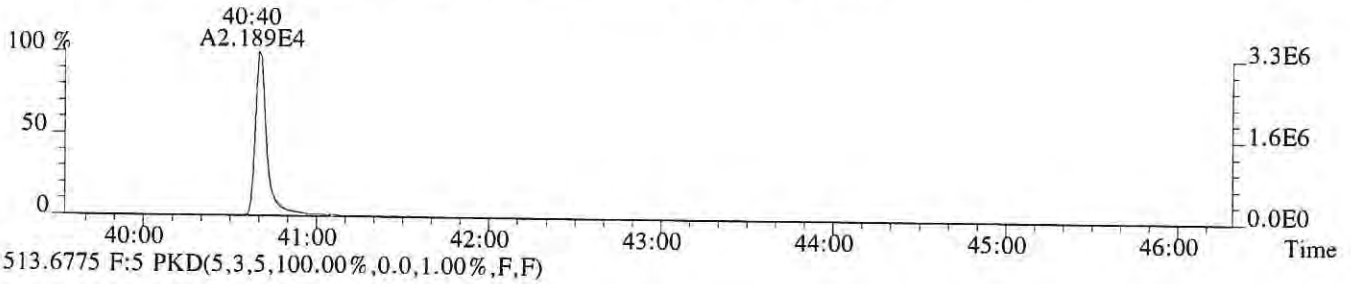
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



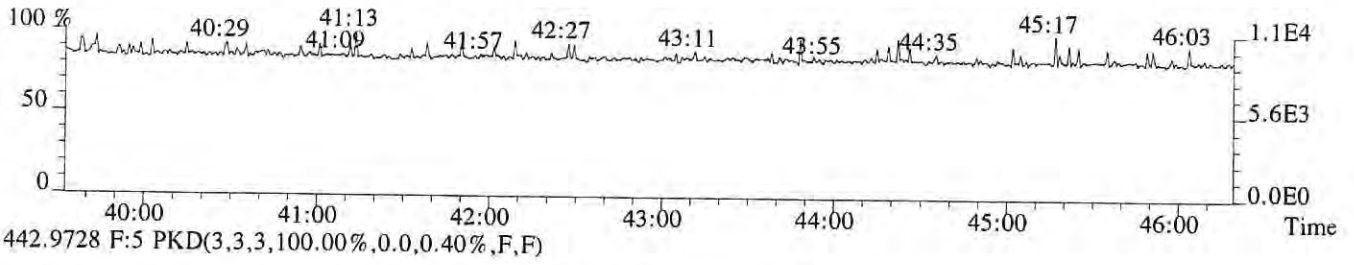
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



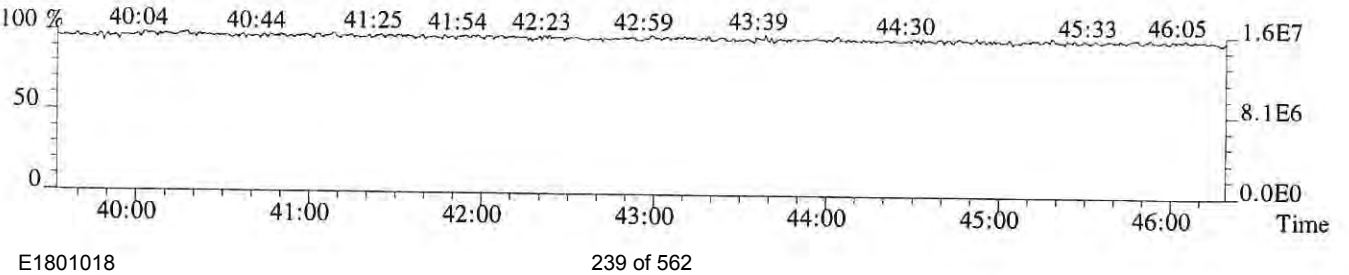
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



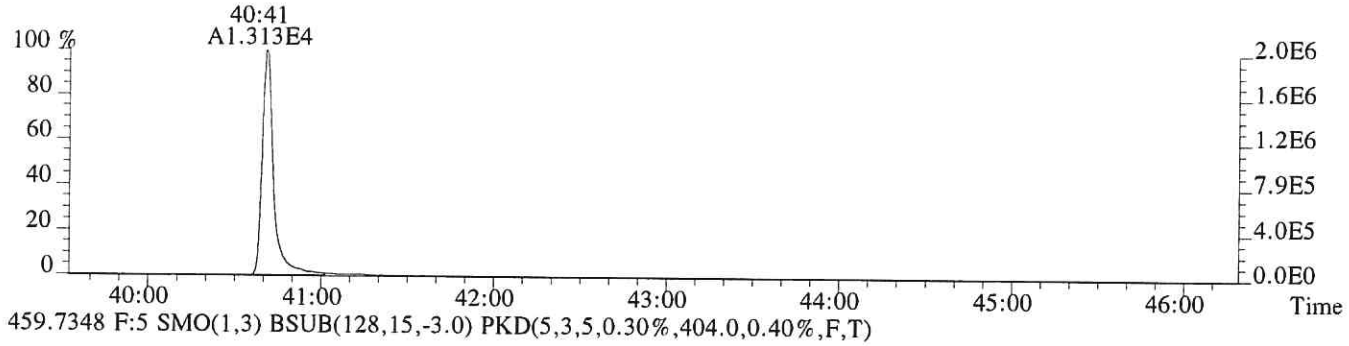
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



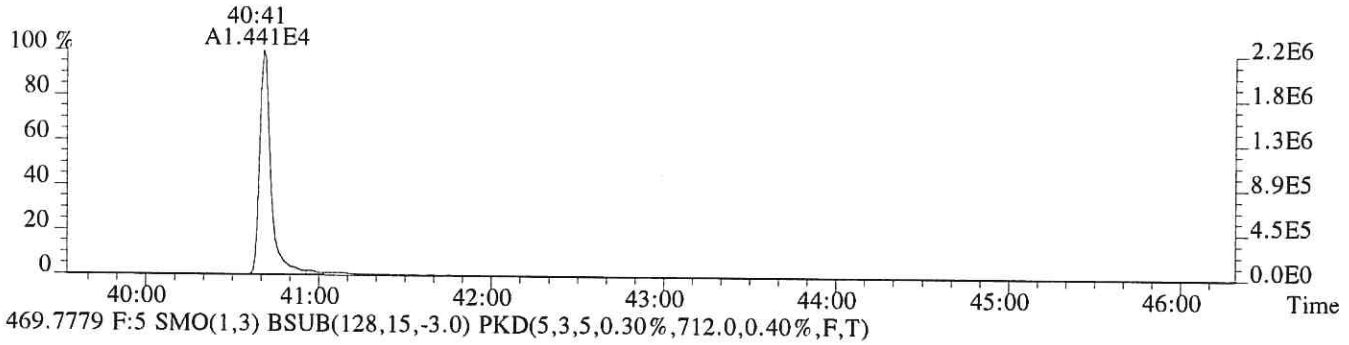
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



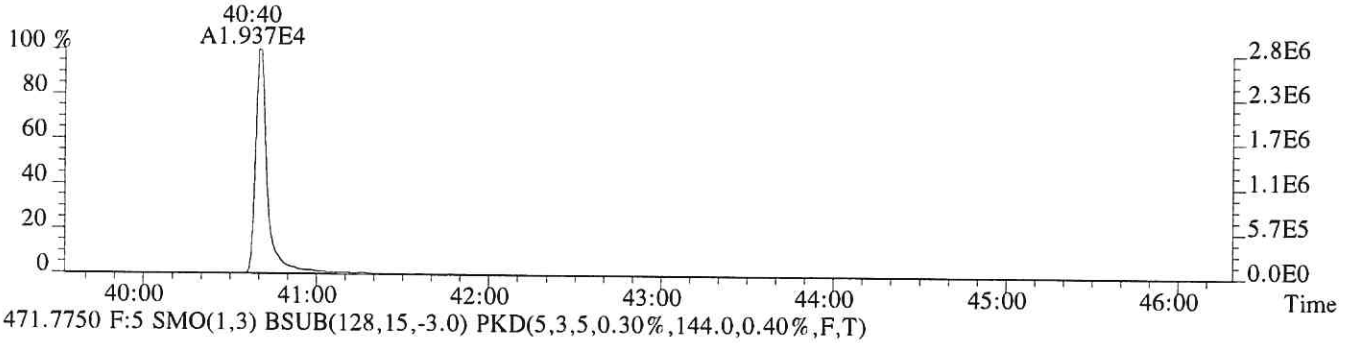
File:P518846 #1-610 Acq:16-NOV-2018 06:49:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



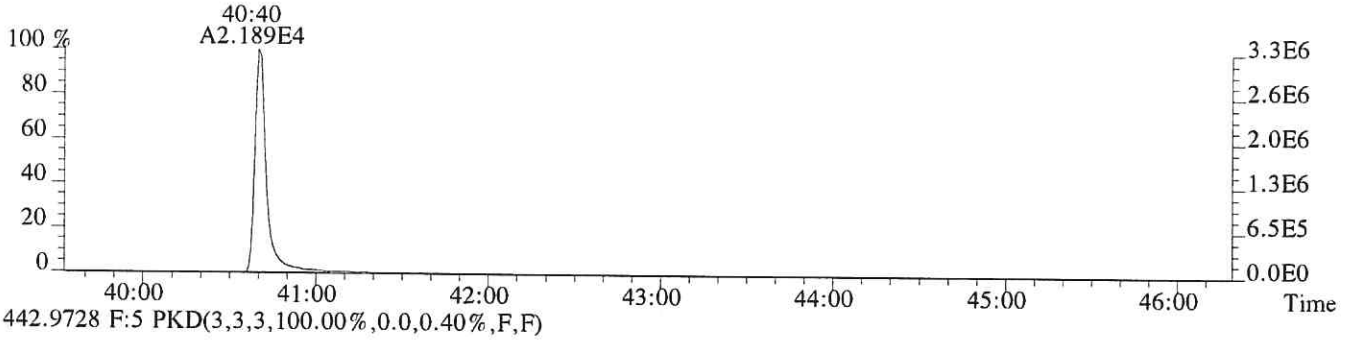
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



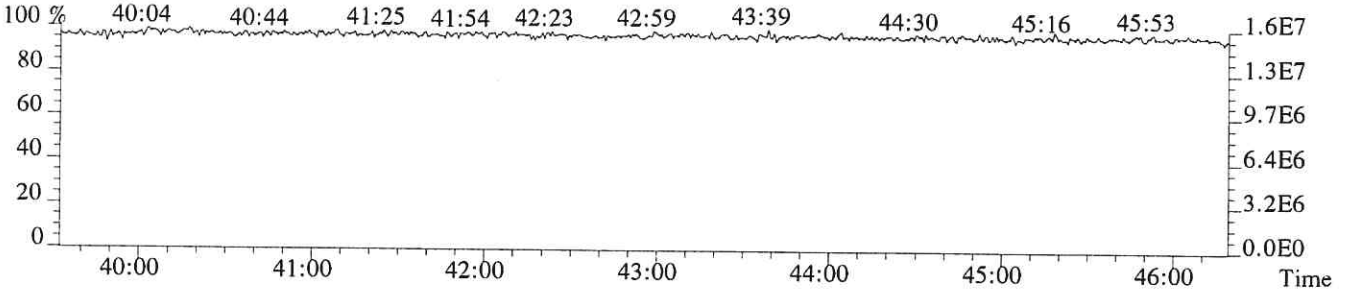
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0508

Run #17 Filename P518847 Samp: 1 Inj: 1 Acquired: 16-NOV-18 07:37:55
Processed: 19-NOV-18 09:11:55 Sample ID: E1801018-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	8.427e+02	1.200e+03	0.70	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	6.060e+01	4.691e+01	1.29	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	3.989e+01	4.273e+01	0.93	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	1.093e+02	6.943e+01	1.57	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	6.471e+01	3.588e+01	1.80	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	2.548e+01	2.707e+01	0.94	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	2.348e+02	2.255e+02	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	3.473e+01	2.052e+01	1.69	no	no	1.258
10	Unk	OCDF	40:51	6.071e+02	7.518e+02	0.81	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	2.166e+02	2.503e+02	0.87	yes	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	7.202e+00	9.208e+00	0.78	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	6.881e+01	5.090e+01	1.35	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	2.061e+03	1.978e+03	1.04	yes	no	1.025
17	Unk	OCDD	40:42	5.346e+04	5.926e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.142e+04	1.440e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.138e+04	1.330e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.006e+04	1.229e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	9.333e+03	1.787e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.183e+04	2.333e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.088e+04	2.063e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.014e+04	1.949e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.121e+03	1.837e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.471e+03	1.927e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	8.165e+03	1.010e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.449e+04	9.043e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.426e+04	1.102e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.448e+04	1.126e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.672e+04	1.546e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:41	1.827e+04	1.992e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	1.546e+04	1.939e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	2.519e+04	1.958e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	9.907e+03				no	1.014

$$\text{OCDD} = \frac{(5.346e+04 + 5.926e+04) \times 4000\ \text{pg} \times 1}{(1.827e+04 + 1.992e+04) \times 10.525\ \text{g} \times 76.2/100 \times 1.118} = 1316.717\ \text{ng/Kg}$$

LG 11/26/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0508

Run #17 Filename P518847 Samp: 1 Inj: 1 Acquired: 16-NOV-18 07:37:55
Processed: 19-NOV-18 09:11:55 LAB. ID: E1801018-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+05	6.48e+02	1.6e+02	1.49e+05	1.44e+03	1.0e+02
2	1,2,3,7,8-PeCDF	1.15e+04	5.80e+02	2.0e+01	6.42e+03	6.72e+02	9.5e+00
3	2,3,4,7,8-PeCDF	9.32e+03	5.80e+02	1.6e+01	6.97e+03	6.72e+02	1.0e+01
4	1,2,3,4,7,8-HxCDF	2.09e+04	7.00e+02	3.0e+01	1.32e+04	7.76e+02	1.7e+01
5	1,2,3,6,7,8-HxCDF	9.92e+03	7.00e+02	1.4e+01	8.29e+03	7.76e+02	1.1e+01
6	2,3,4,6,7,8-HxCDF	4.74e+03	7.00e+02	6.8e+00	6.77e+03	7.76e+02	8.7e+00
7	1,2,3,7,8,9-HxCDF	*	7.00e+02	*	*	7.76e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.12e+04	1.31e+03	3.9e+01	4.61e+04	2.16e+02	2.1e+02
9	1,2,3,4,7,8,9-HpCDF	8.85e+03	1.31e+03	6.7e+00	3.82e+03	2.16e+02	1.8e+01
10	OCDF	9.04e+04	1.56e+02	5.8e+02	1.22e+05	7.32e+02	1.7e+02
11	2,3,7,8-TCDD	3.43e+04	1.12e+03	3.1e+01	4.12e+04	8.12e+02	5.1e+01
12	1,2,3,7,8-PeCDD	1.47e+03	4.16e+02	3.5e+00	1.97e+03	3.64e+02	5.4e+00
13	1,2,3,4,7,8-HxCDD	*	4.24e+02	*	*	3.40e+03	*
14	1,2,3,6,7,8-HxCDD	*	4.24e+02	*	*	3.40e+03	*
15	1,2,3,7,8,9-HxCDD	1.28e+04	4.24e+02	3.0e+01	1.04e+04	3.40e+03	3.1e+00
16	1,2,3,4,6,7,8-HpCDD	3.87e+05	2.76e+03	1.4e+02	3.86e+05	1.20e+03	3.2e+02
17	OCDD	8.55e+06	2.00e+02	4.3e+04	9.53e+06	5.36e+02	1.8e+04
18	13C-2,3,7,8-TCDF	1.48e+06	3.23e+03	4.6e+02	1.86e+06	2.20e+03	8.5e+02
19	13C-1,2,3,7,8-PeCDF	3.37e+06	3.72e+02	9.1e+03	2.13e+06	2.84e+02	7.5e+03
20	13C-2,3,4,7,8-PeCDF	3.38e+06	3.72e+02	9.1e+03	2.04e+06	2.84e+02	7.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.86e+06	5.92e+02	3.1e+03	3.68e+06	7.08e+02	5.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.18e+06	5.92e+02	3.7e+03	4.20e+06	7.08e+02	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	2.07e+06	5.92e+02	3.5e+03	3.95e+06	7.08e+02	5.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.84e+06	5.92e+02	3.1e+03	3.56e+06	7.08e+02	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.53e+06	1.67e+03	9.2e+02	3.50e+06	3.31e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.47e+06	1.67e+03	8.8e+02	3.42e+06	3.31e+03	1.0e+03
27	13C-2,3,7,8-TCDD	1.21e+06	3.48e+03	3.5e+02	1.43e+06	1.38e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	2.42e+06	1.88e+02	1.3e+04	1.51e+06	7.56e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.93e+06	1.03e+03	2.8e+03	2.25e+06	3.76e+02	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.74e+06	1.03e+03	2.7e+03	2.04e+06	3.76e+02	5.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.13e+06	4.80e+02	6.5e+03	2.91e+06	1.60e+02	1.8e+04
32	13C-OCDD	2.93e+06	4.40e+02	6.7e+03	3.18e+06	2.72e+02	1.2e+04
33	13C-1,2,3,4-TCDD	2.29e+06	3.48e+03	6.6e+02	2.88e+06	1.38e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.57e+06	1.03e+03	4.4e+03	3.57e+06	3.76e+02	9.5e+03
35	37Cl-2,3,7,8-TCDD	1.42e+06	9.32e+02	1.5e+03			

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Peak List Summary

CLIENT ID.
SL0508

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P518847 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 303.9020 305.8990 Tot Response: 3.02e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:33	3.98e+02	5.01e+02	0.79	yes	9.00e+02		n	n
2	24:50	3.67e+01	4.31e+01	0.85	yes	7.98e+01		n	n
3	25:33	8.43e+02	1.20e+03	0.70	yes	2.04e+03	2,3,7,8-TCDF	y	n

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Peak List Summary

CLIENT ID.
SL0508

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P518847 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 319.8970 321.8940 Tot Response: 4.67e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:34	2.17e+02	2.50e+02 0.87	yes	4.67e+02	2,3,7,8-TCDD	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0508

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P518847 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 339.8600 341.8570 Tot Response: 1.55e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:50	8.94e+01	6.58e+01 1.36	yes	1.55e+02		n	n

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Peak List Summary

CLIENT ID.
SL0508

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P518847 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 339.8600 341.8570 Tot Response: 2.03e+02 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:23	2.49e+01	1.65e+01	1.51	yes	4.15e+01		n	n
2	29:33	1.03e+02	5.86e+01	1.76	yes	1.62e+02		n	n

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Peak List Summary

CLIENT ID.
SL0508

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P518847 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 355.8550 357.8520 Tot Response: 6.67e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:36	4.01e+01	2.66e+01 1.51	yes	6.67e+01		y	n

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Peak List Summary

CLIENT ID.

SL0508

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P518847 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 373.8210 375.8180 Tot Response: 2.86e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:18	3.26e+01	1.23	yes	5.92e+01		n	n
2	33:29	1.28e+02	1.30	yes	2.27e+02		n	n

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Peak List Summary

CLIENT ID.
SL0508

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P518847 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 389.8160 391.8130 Tot Response: 1.73e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	5.80e+02	5.02e+02	1.15	yes	1.08e+03		n	n
2	34:41	3.07e+02	2.18e+02	1.41	yes	5.25e+02		n	n
3	35:38	6.88e+01	5.09e+01	1.35	yes	1.20e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0508

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P518847 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 407.7820 409.7790 Tot Response: 1.29e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	2.35e+02	2.26e+02	1.04	yes	4.60e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	37:39	4.21e+02	4.10e+02	1.03	yes	8.31e+02		n	n

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Peak List Summary

CLIENT ID.
SL0508

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P518847 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 07:37:55 Processed: 19-NOV-18 09:11:55

Mass: 423.7770 425.7740 Tot Response: 1.37e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	4.85e+03	4.79e+03 1.01	yes	9.64e+03		n	n
2	38:10	2.06e+03	1.98e+03 1.04	yes	4.04e+03	1,2,3,4,6,7,8-HpCDD	n	n

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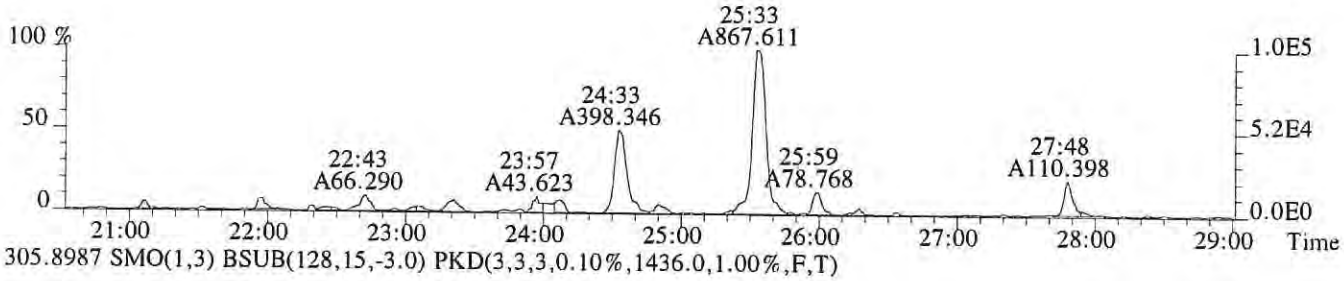
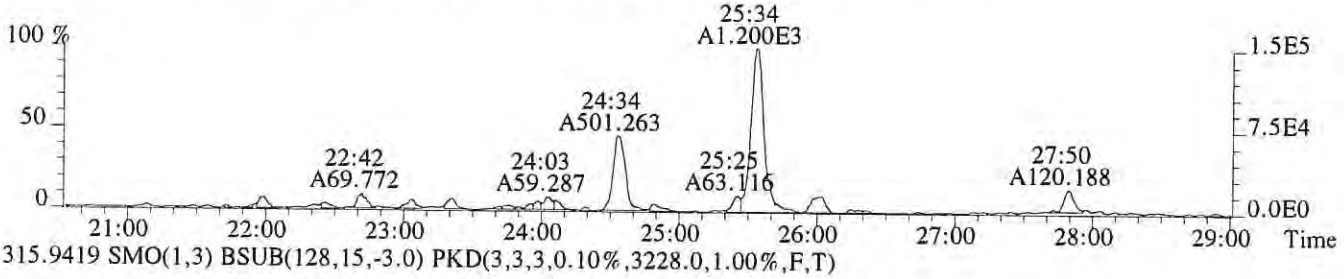
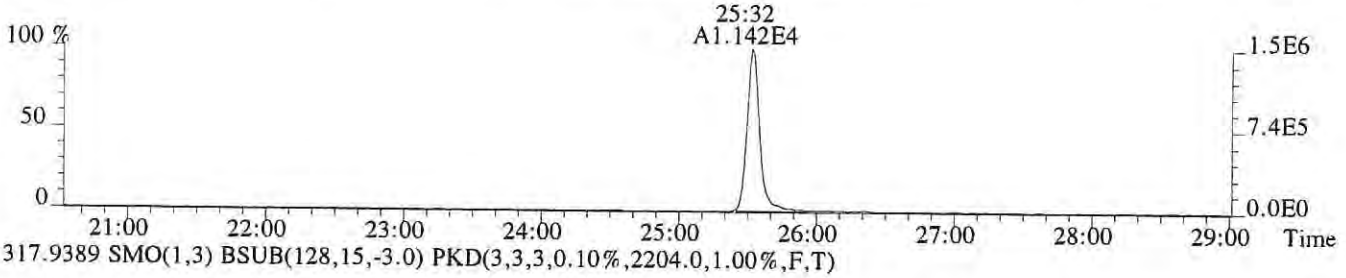
File:P518847 #1-602 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



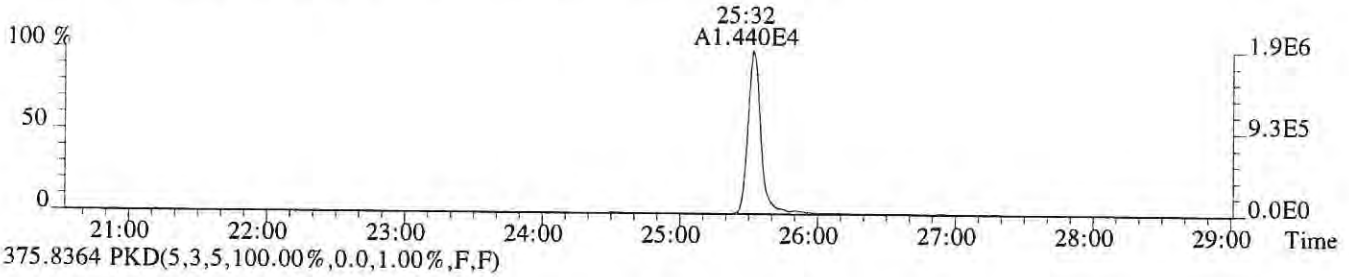
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



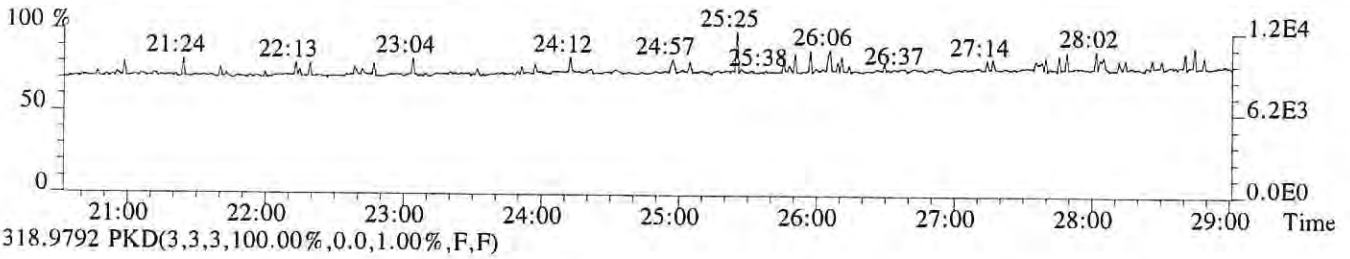
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3228.0,1.00%,F,T)



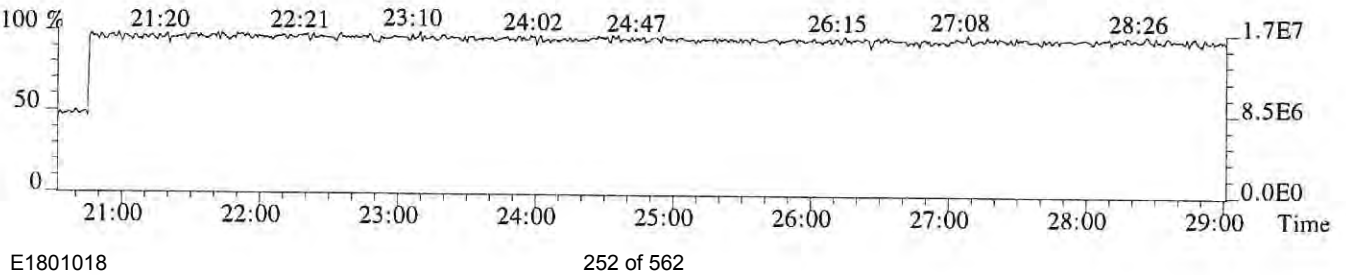
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



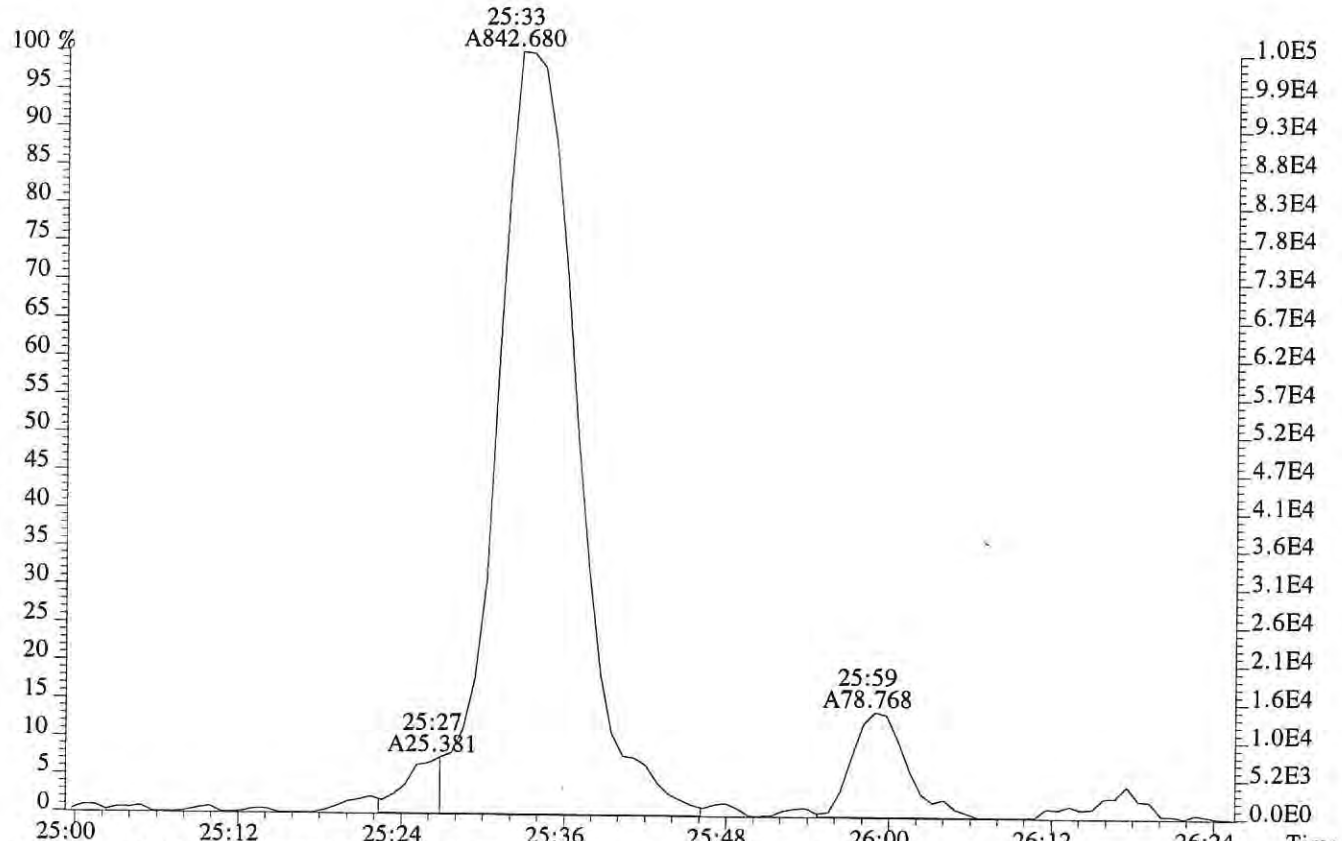
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



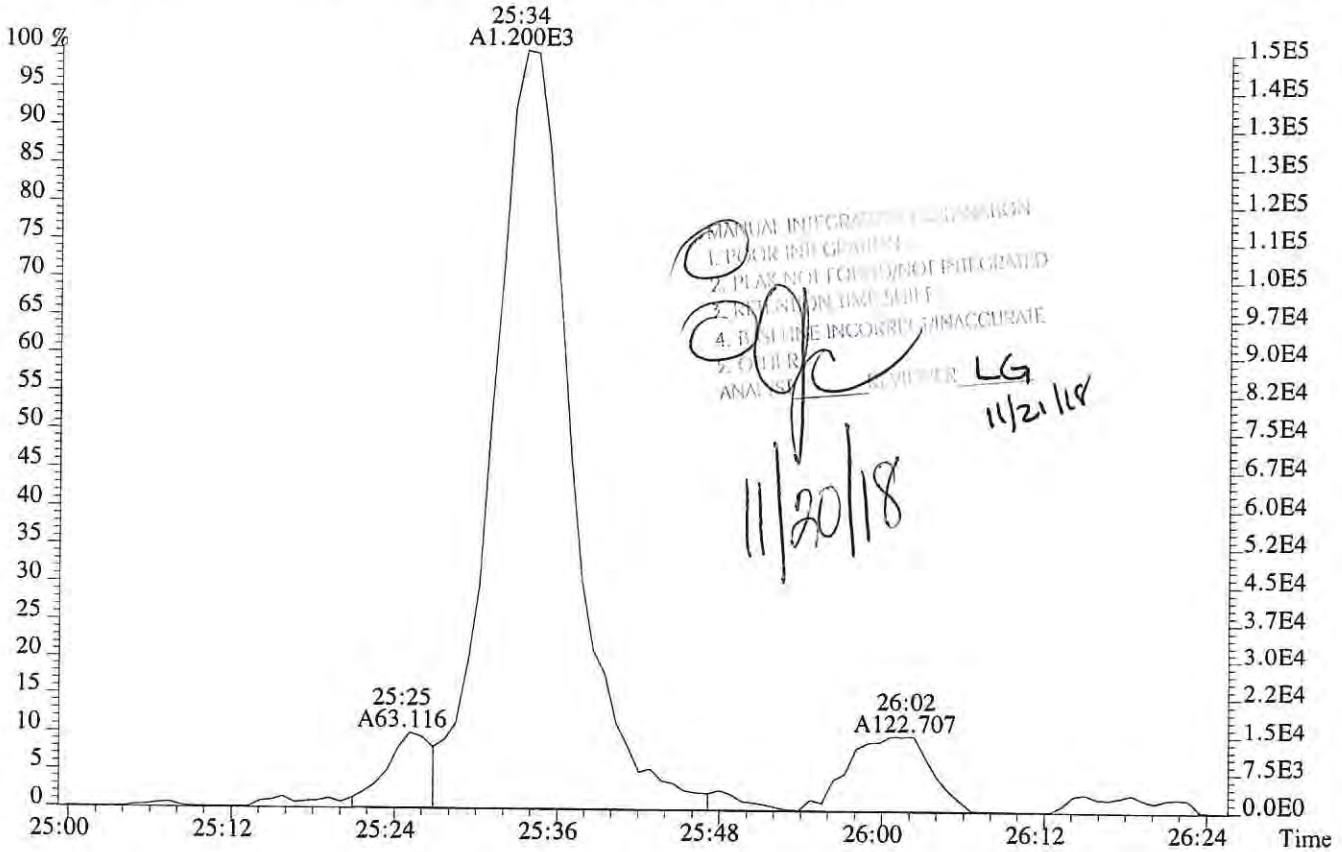
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518847 #1-602 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)

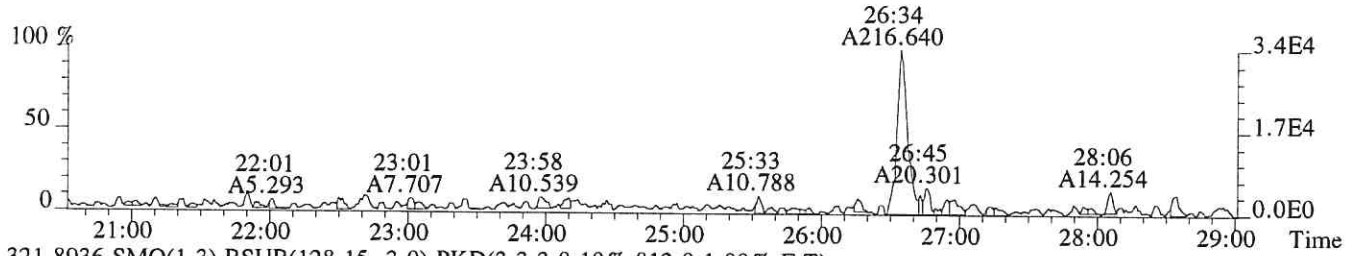


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)

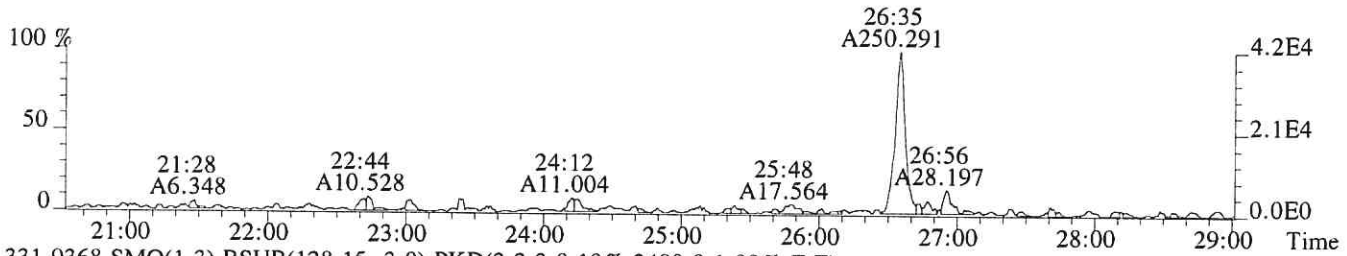


MANUAL INTEGRATION
1. PEAK NOT INTEGRATED
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG 11/21/18
11/20/18

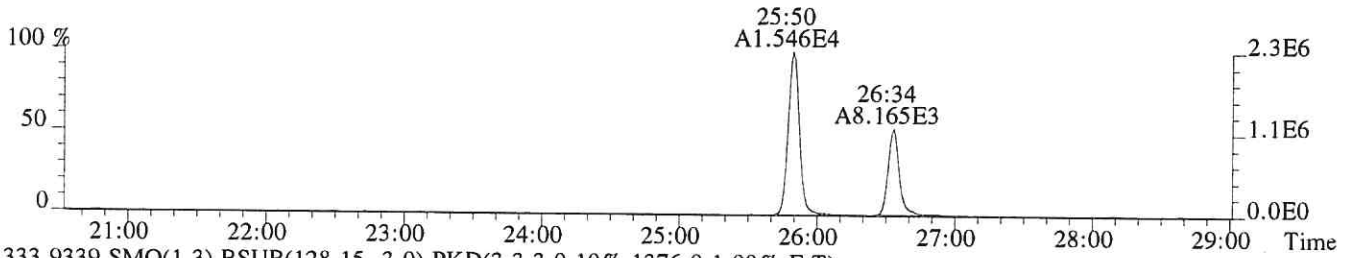
File:P518847 #1-602 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



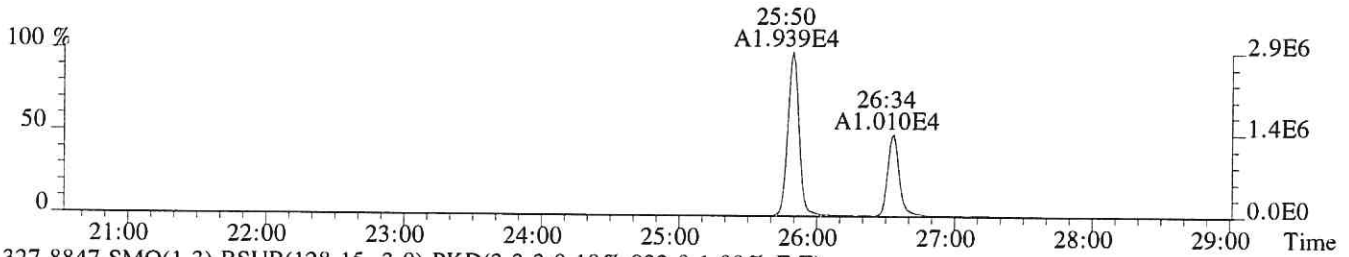
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



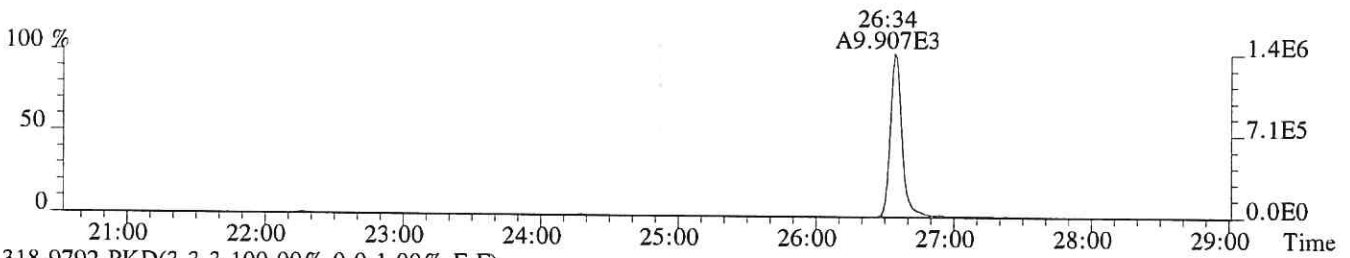
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3480.0,1.00%,F,T)



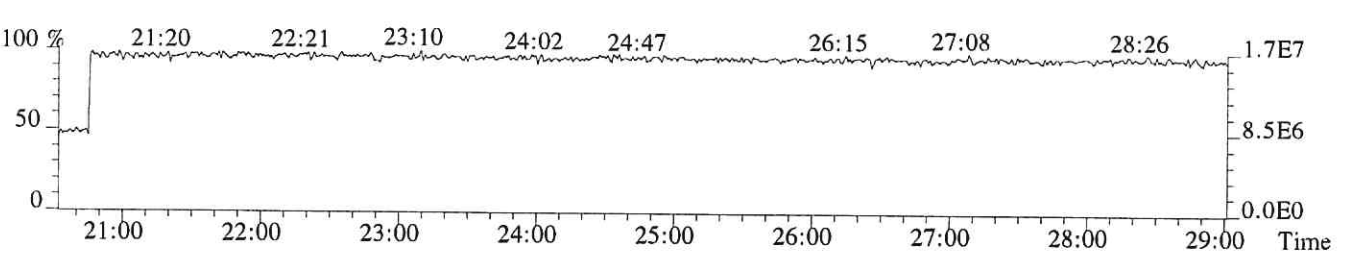
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



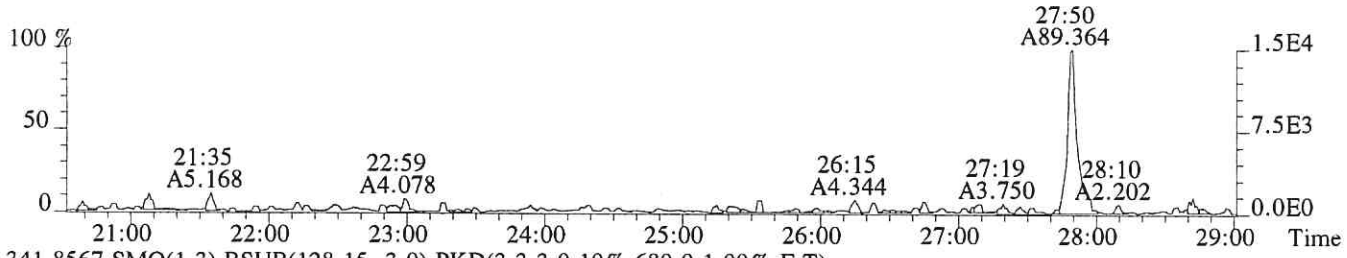
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



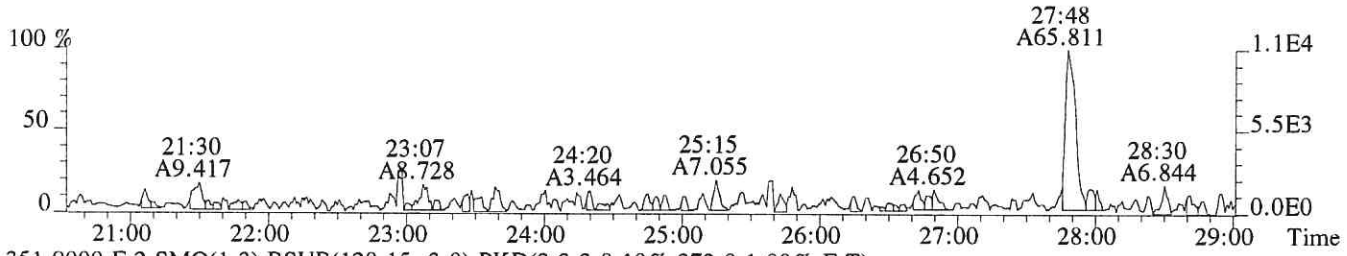
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



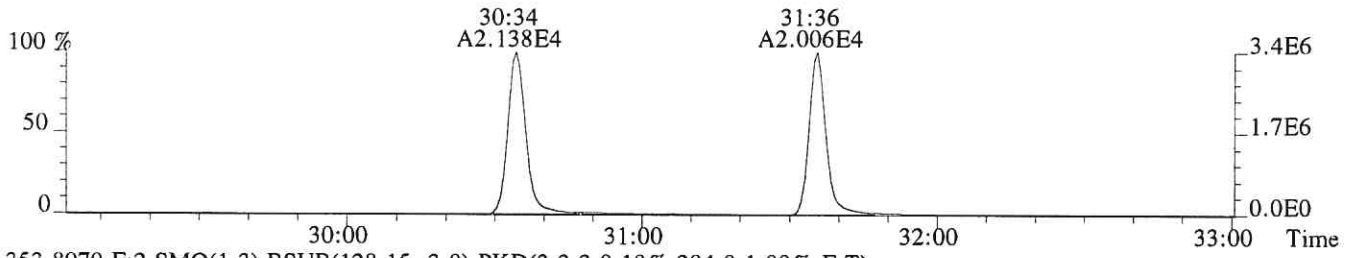
File:P518847 #1-602 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



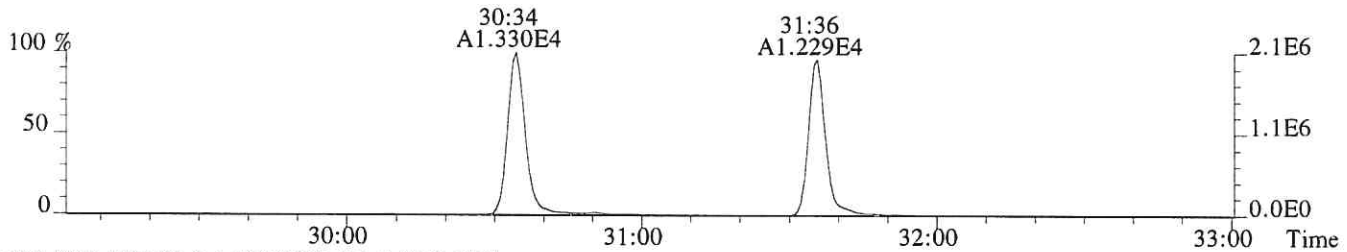
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



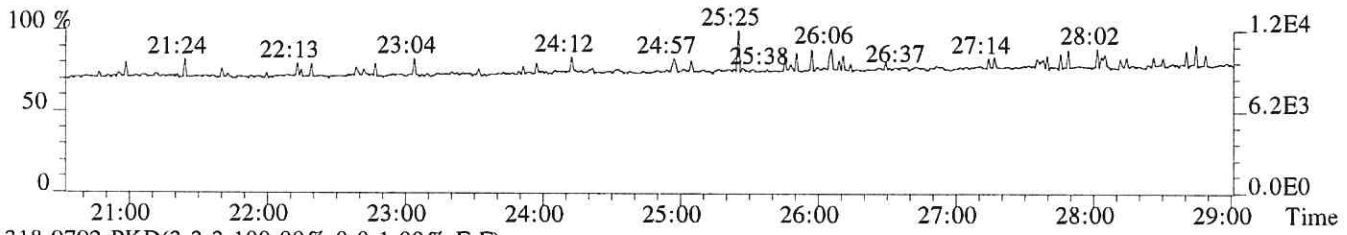
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



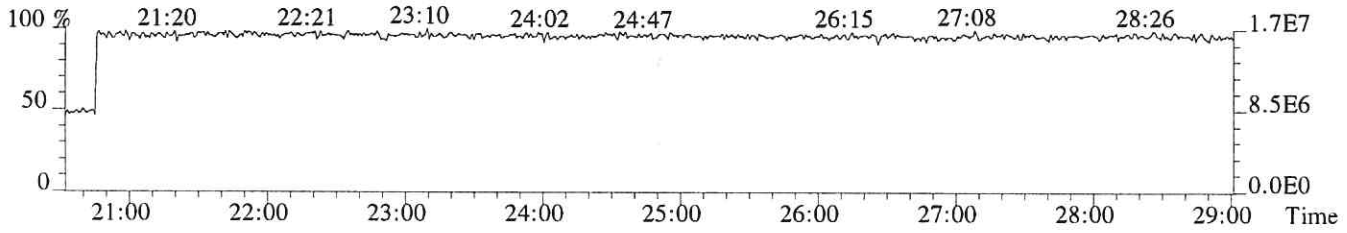
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



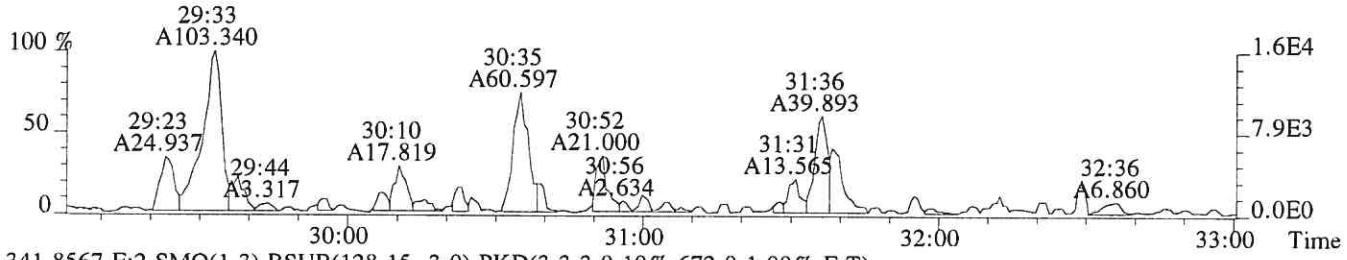
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



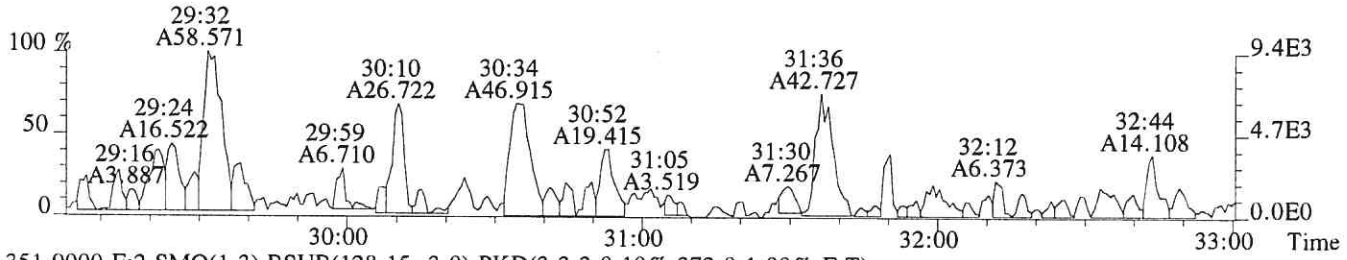
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



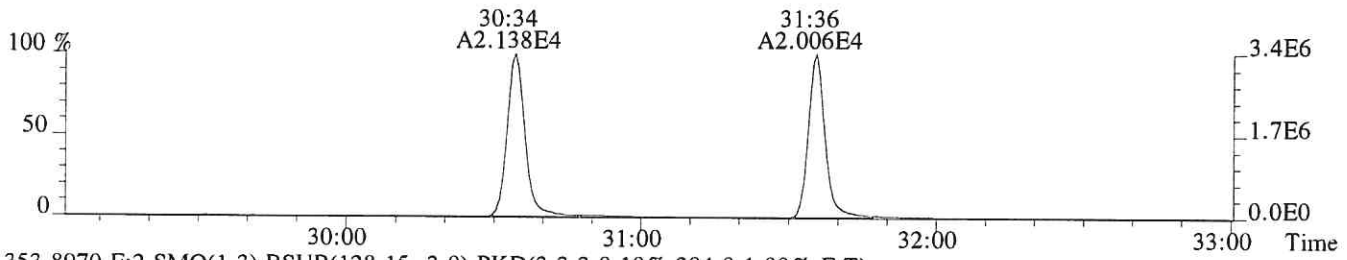
File:P518847 #1-357 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



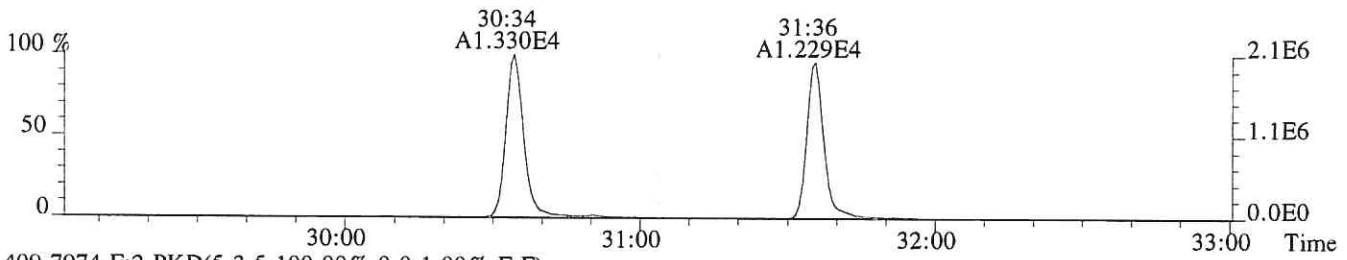
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



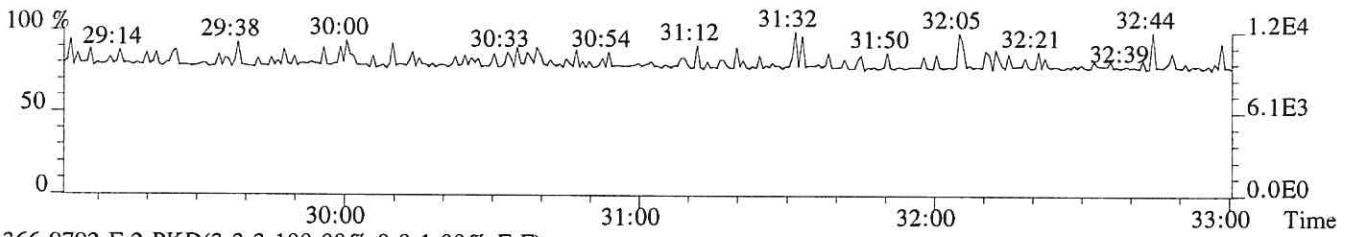
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



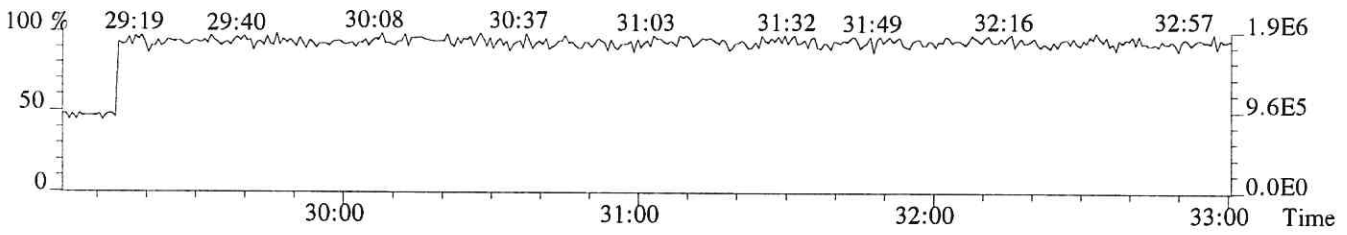
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



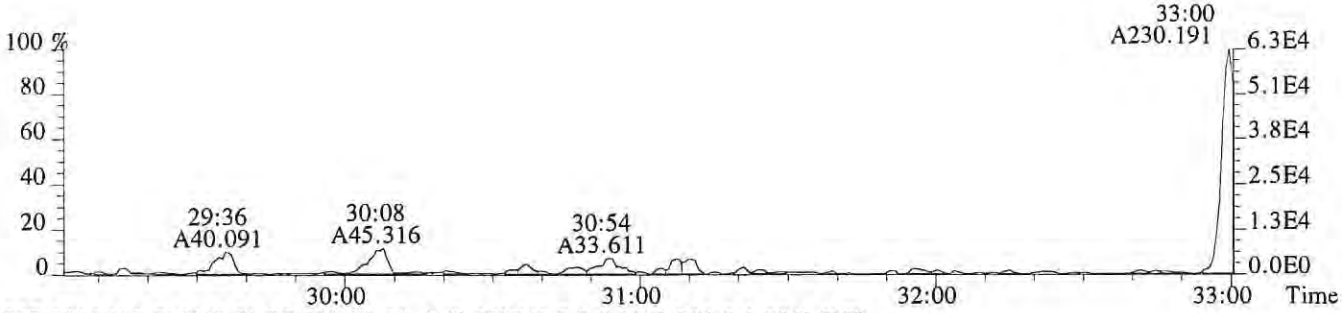
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



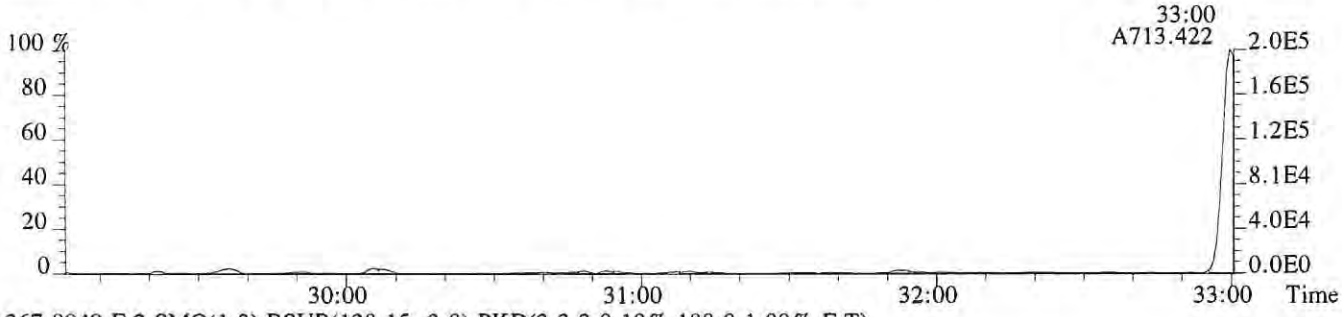
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



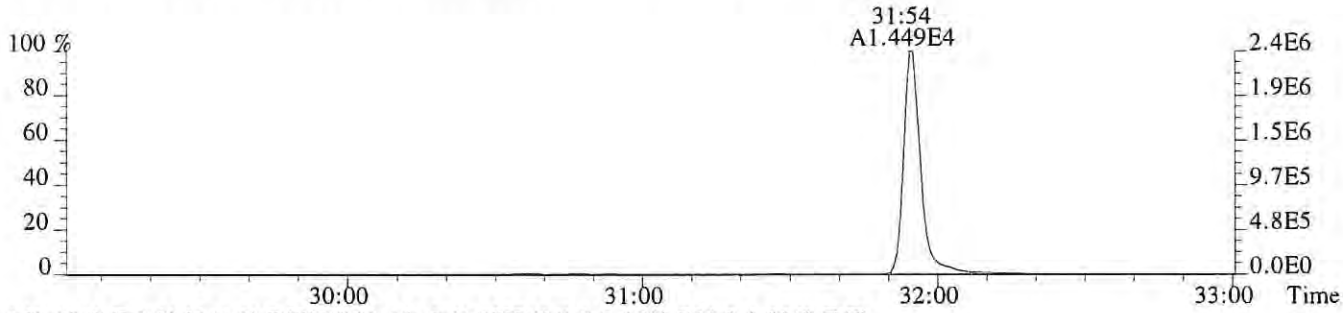
File:P518847 #1-357 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



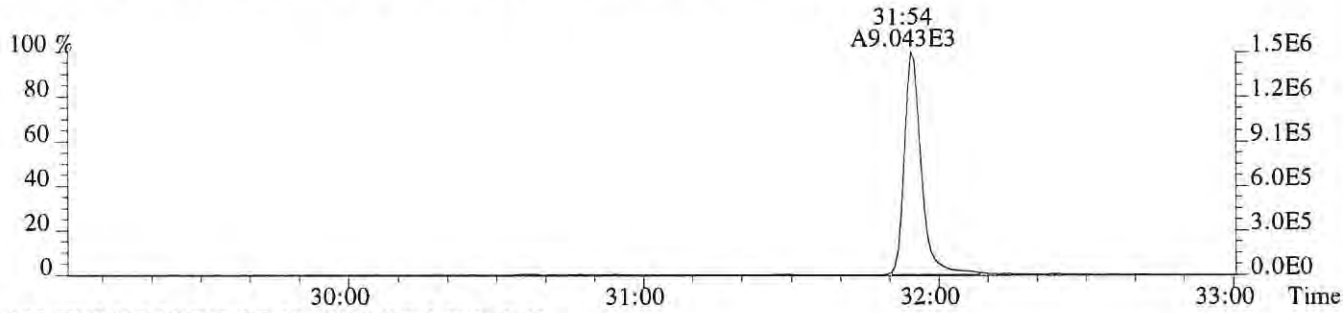
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



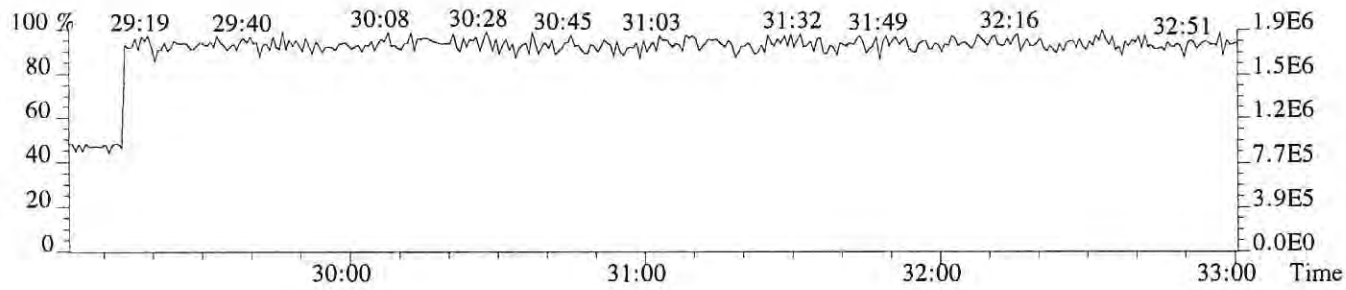
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



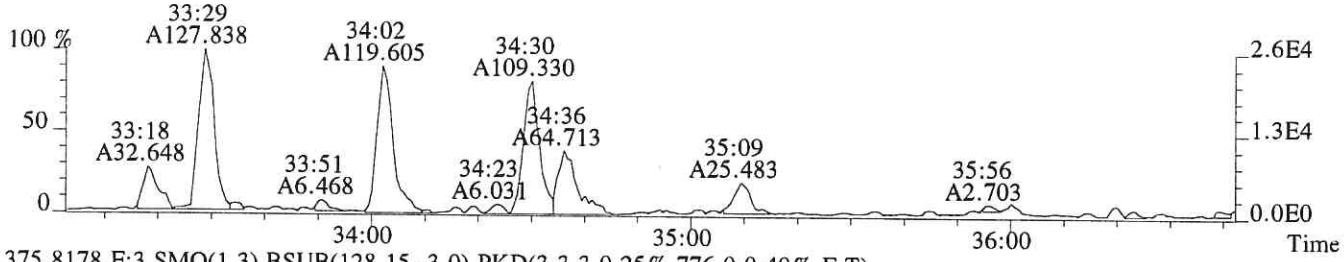
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



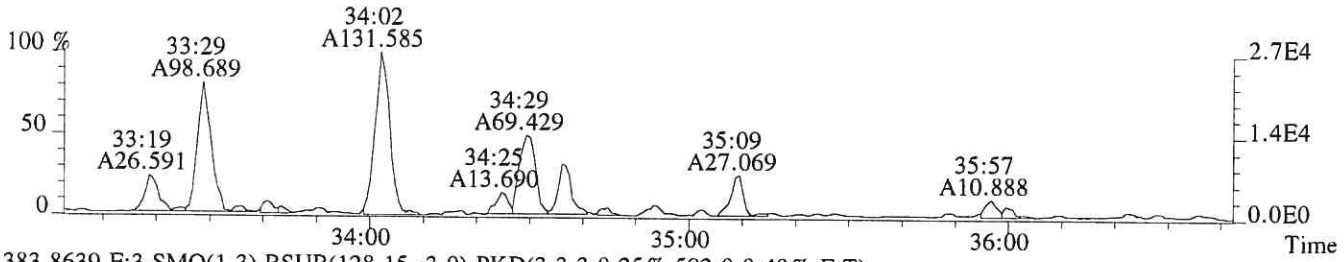
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



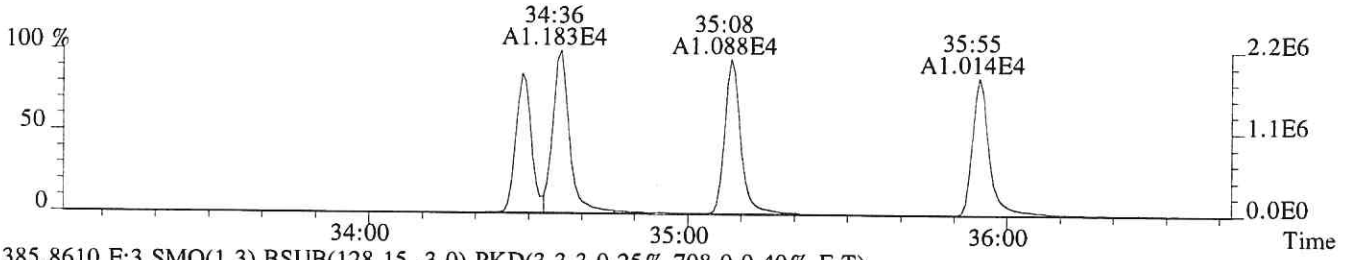
File:P518847 #1-330 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



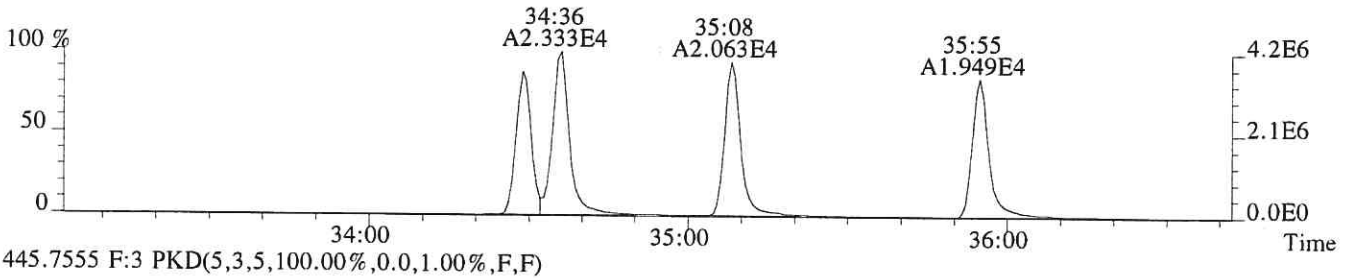
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



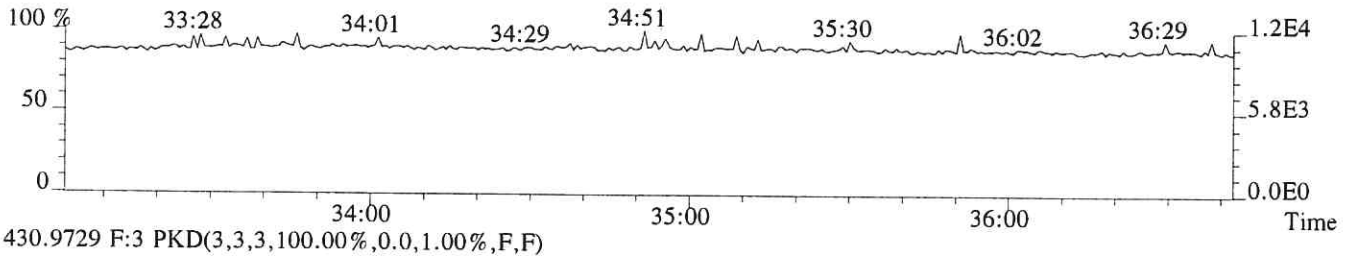
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



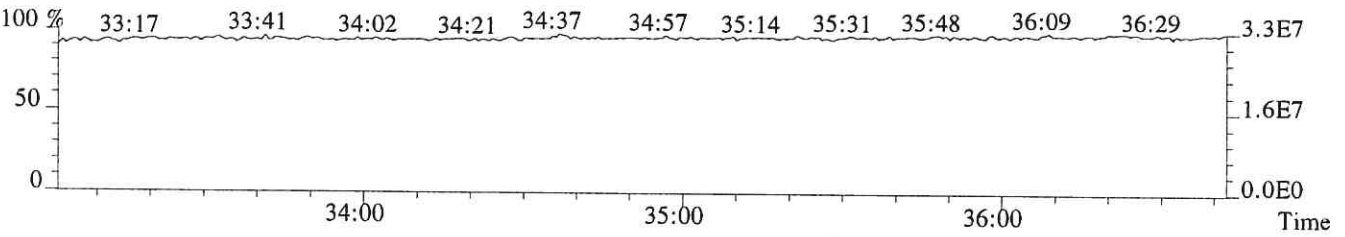
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



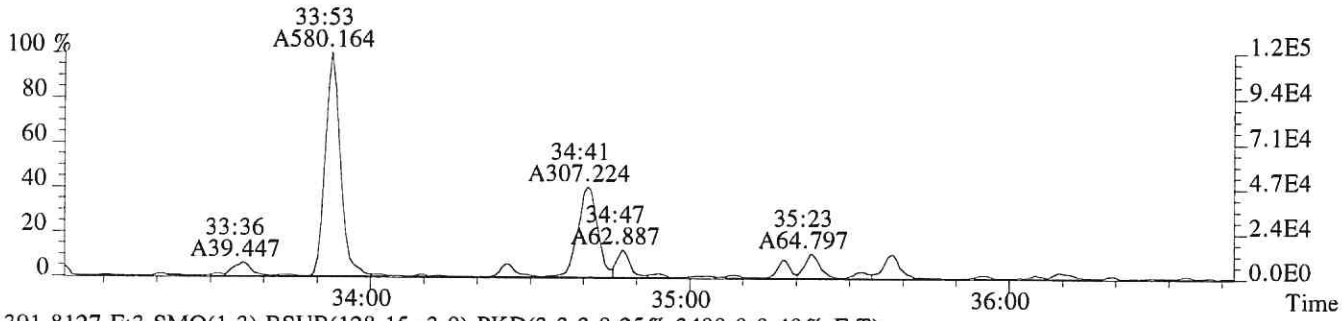
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



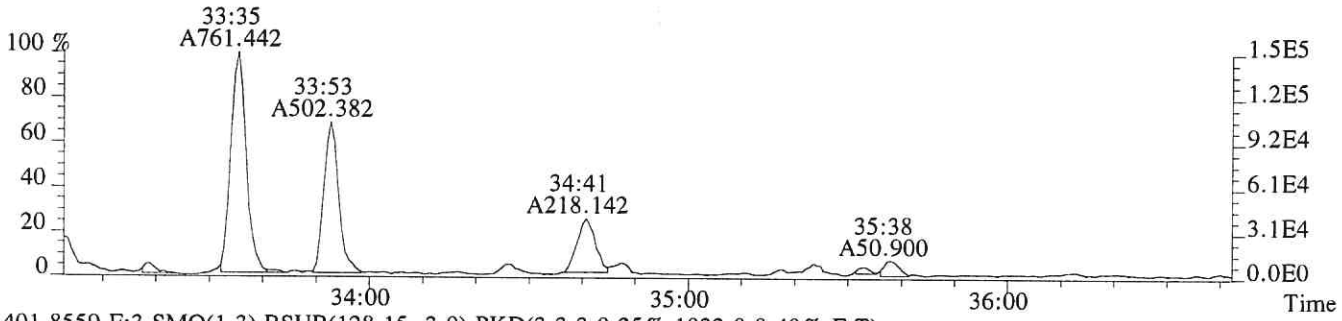
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



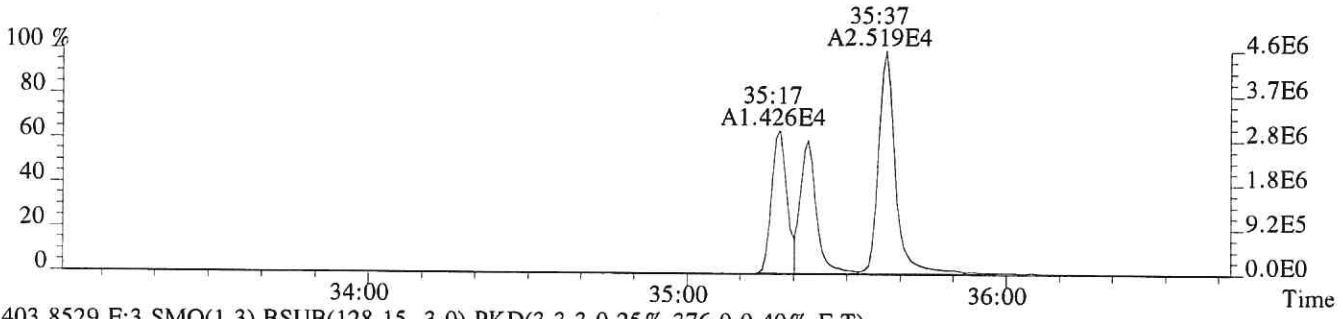
File:P518847 #1-330 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



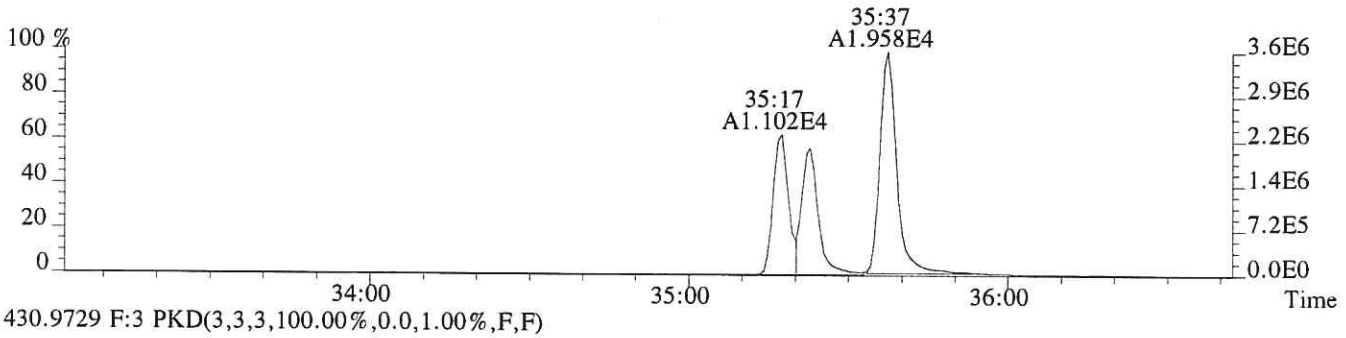
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3400.0,0.40%,F,T)



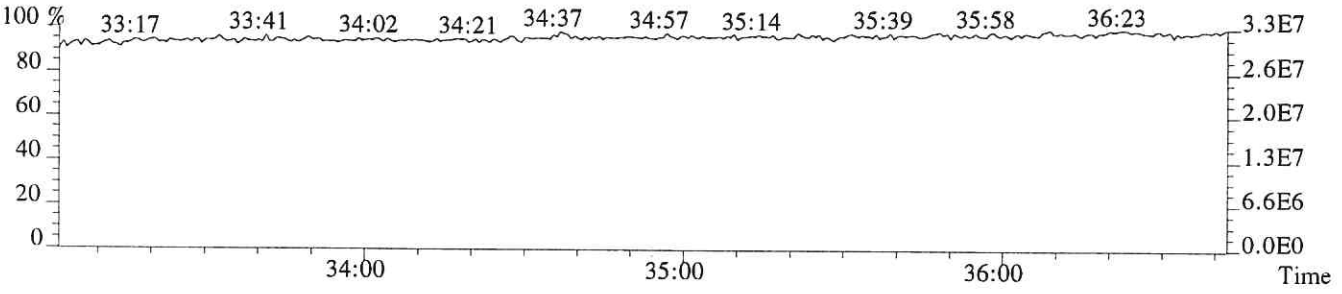
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



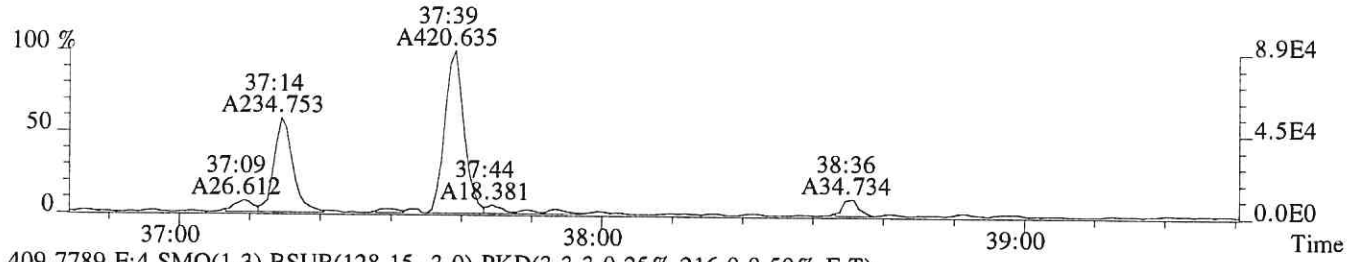
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



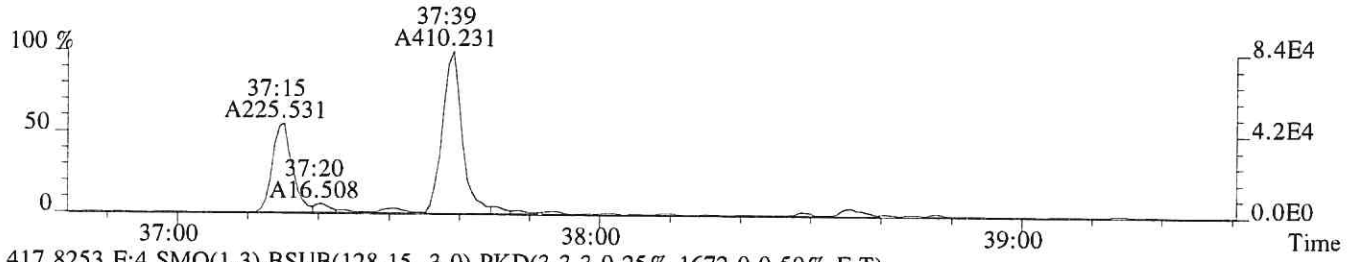
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



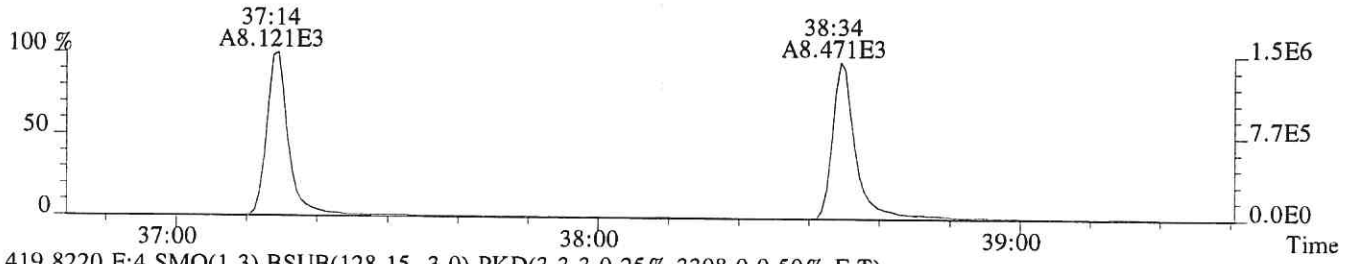
File:P518847 #1-250 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.50%,F,T)



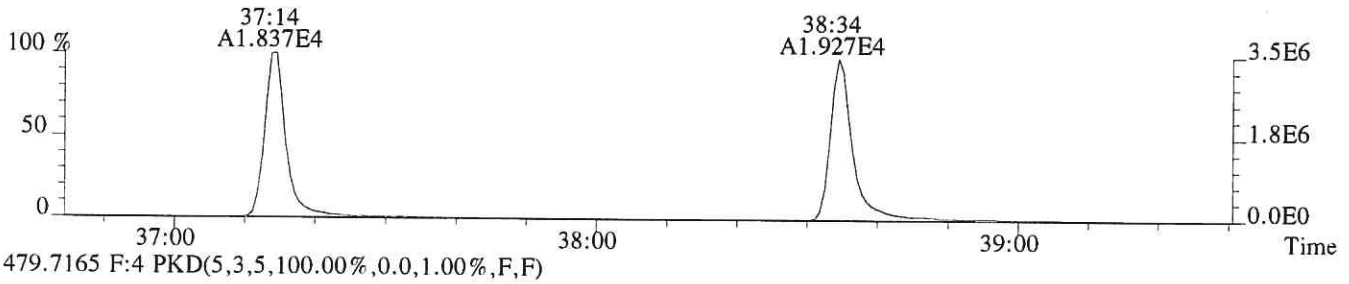
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



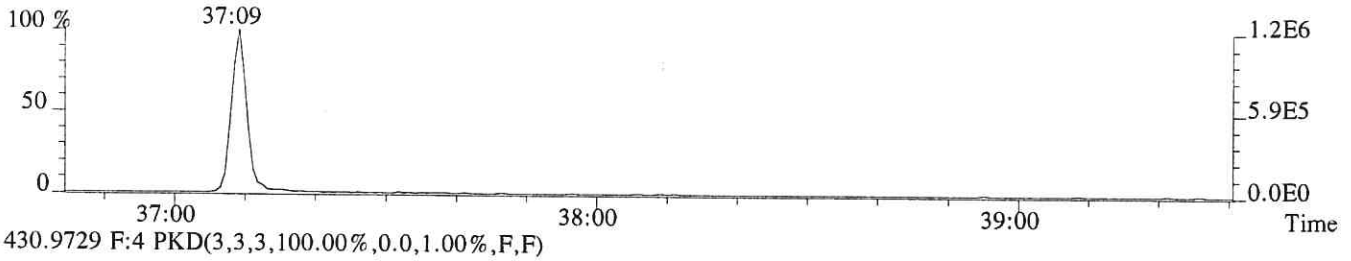
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.50%,F,T)



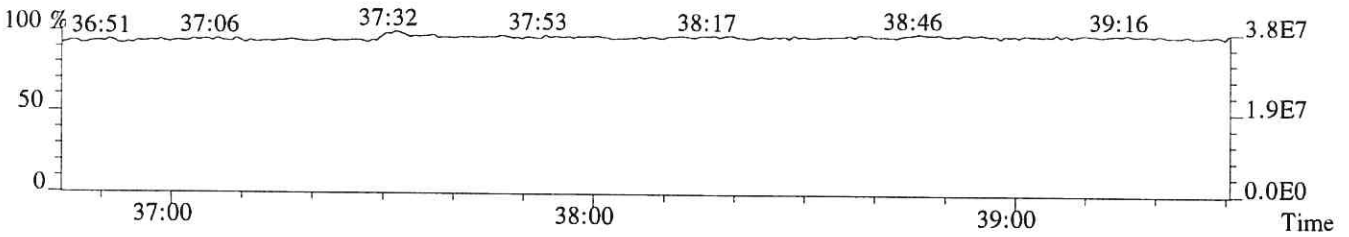
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3308.0,0.50%,F,T)



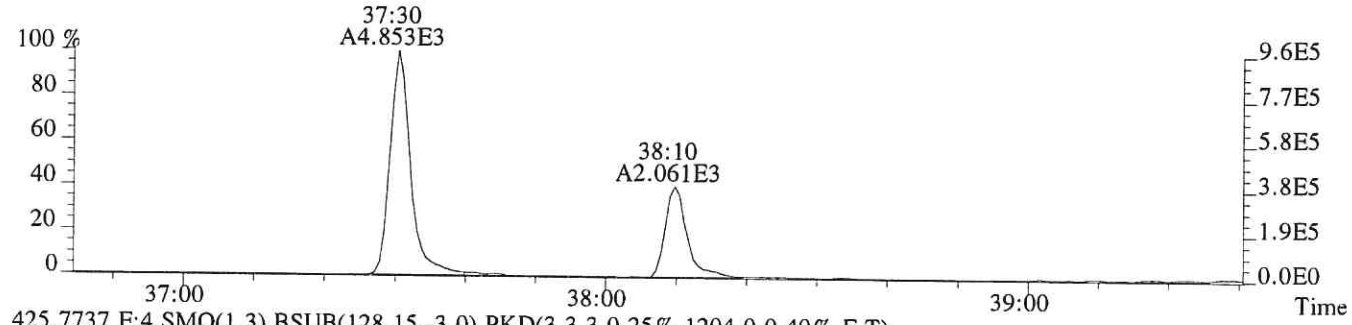
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



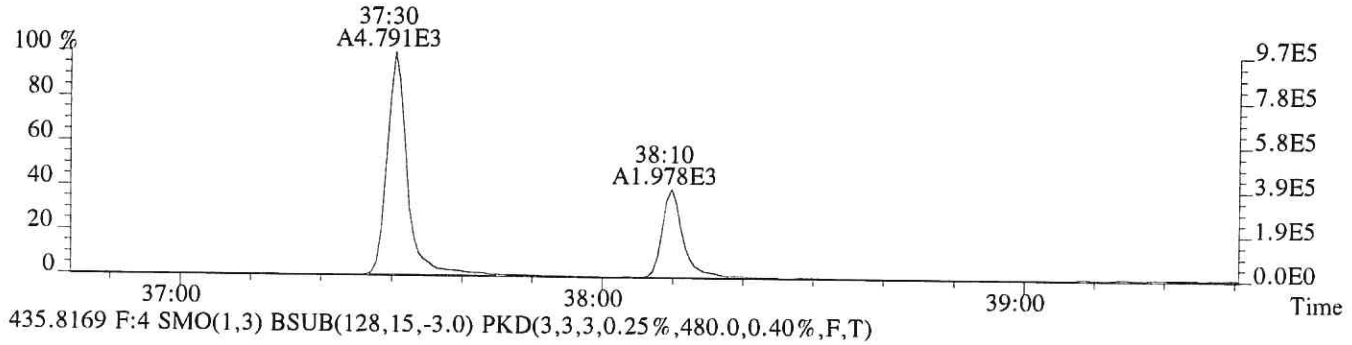
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



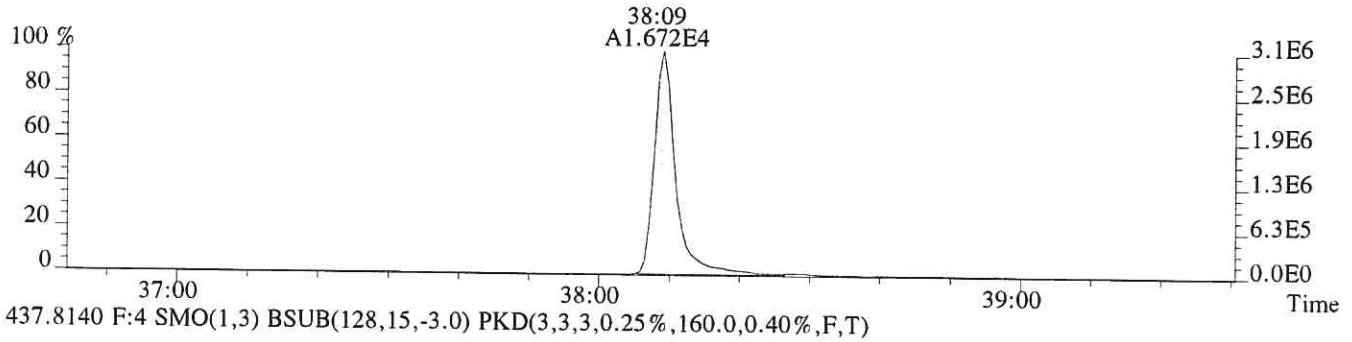
File:P518847 #1-250 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2756.0,0.40%,F,T)



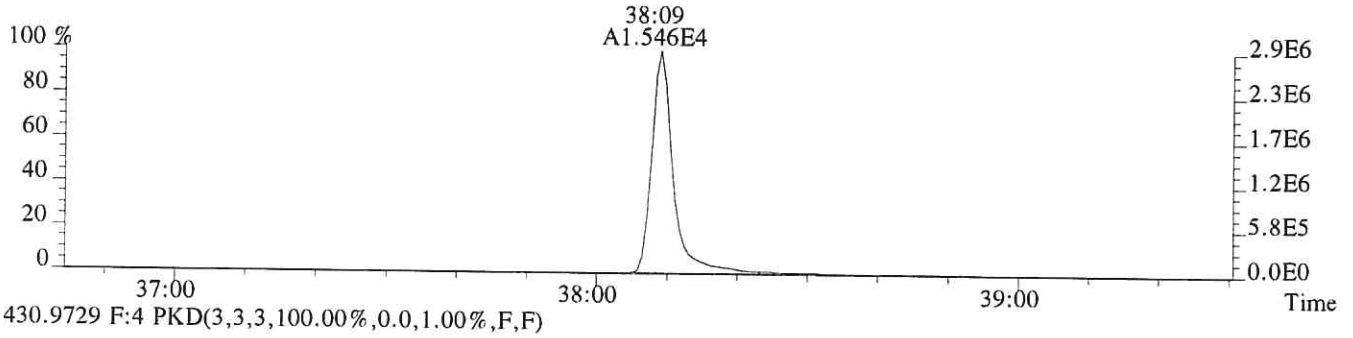
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



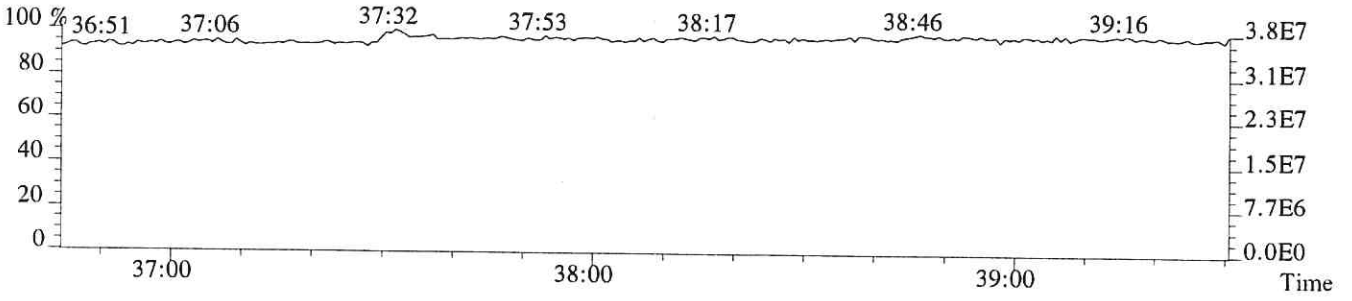
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



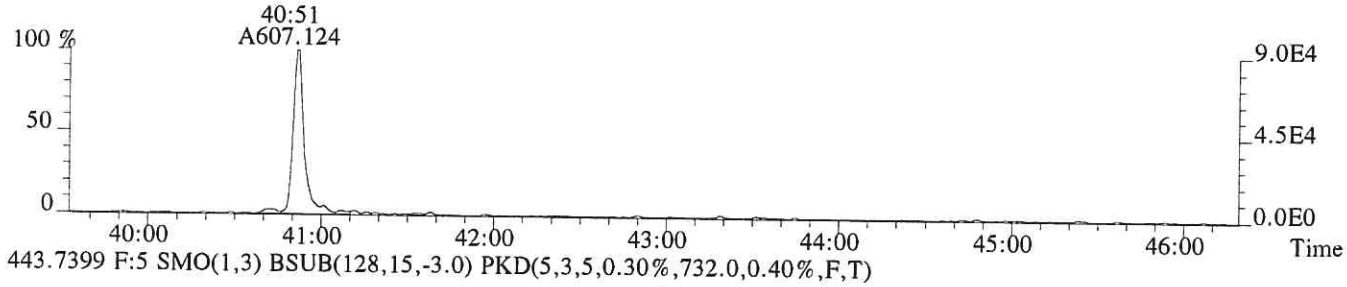
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



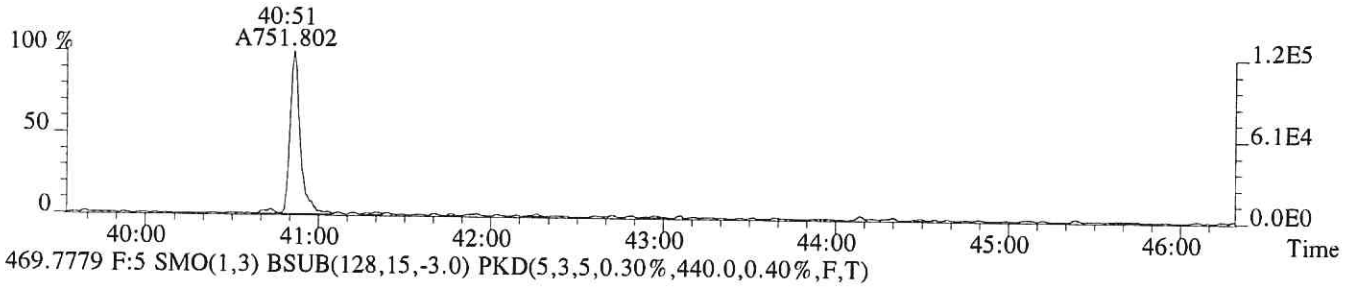
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



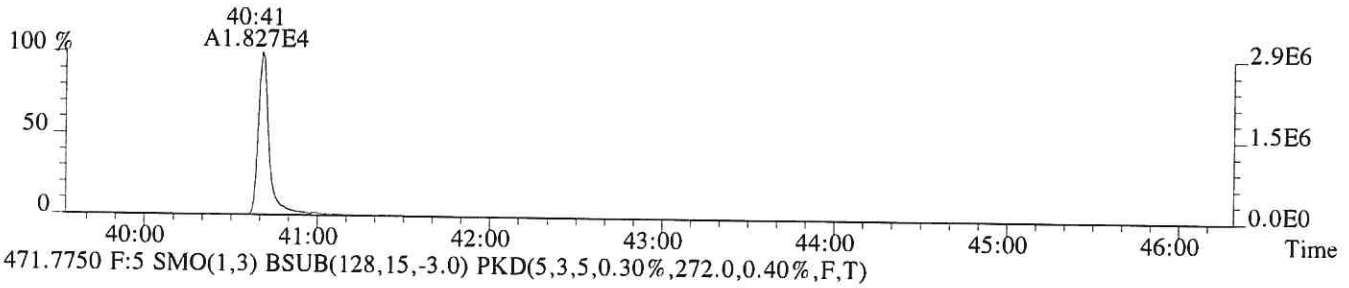
File:P518847 #1-610 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



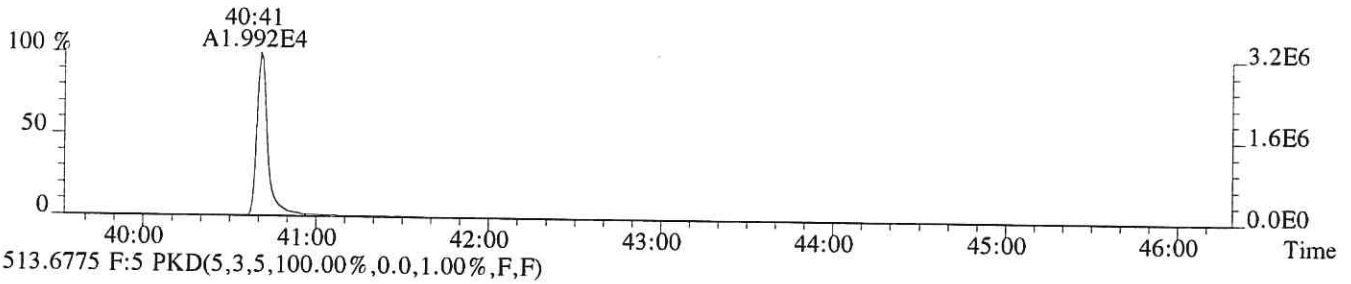
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



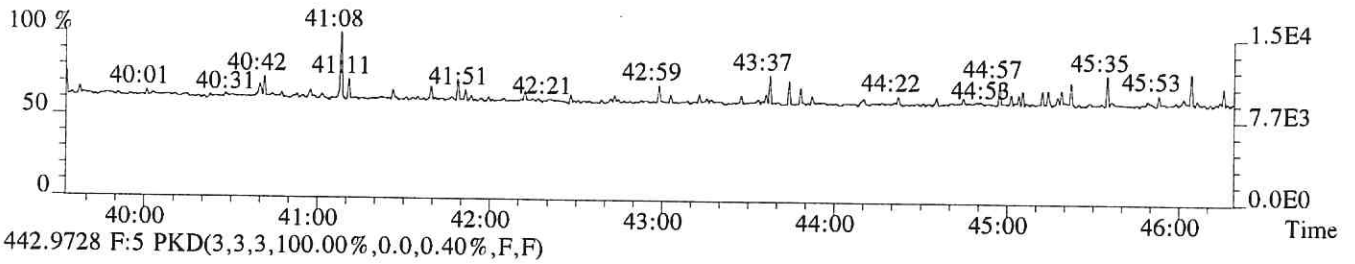
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



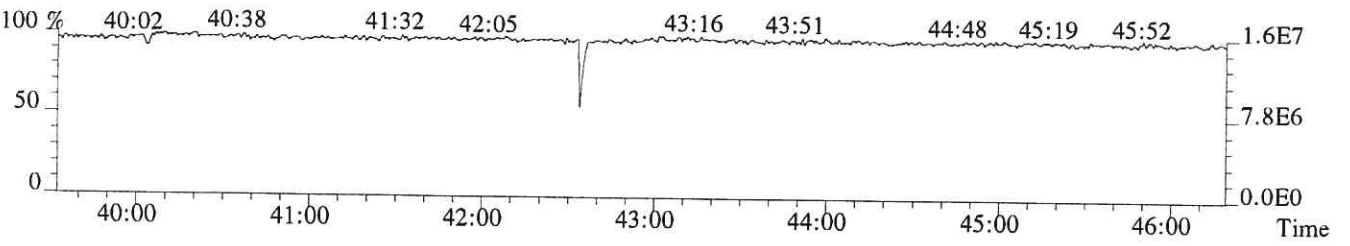
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



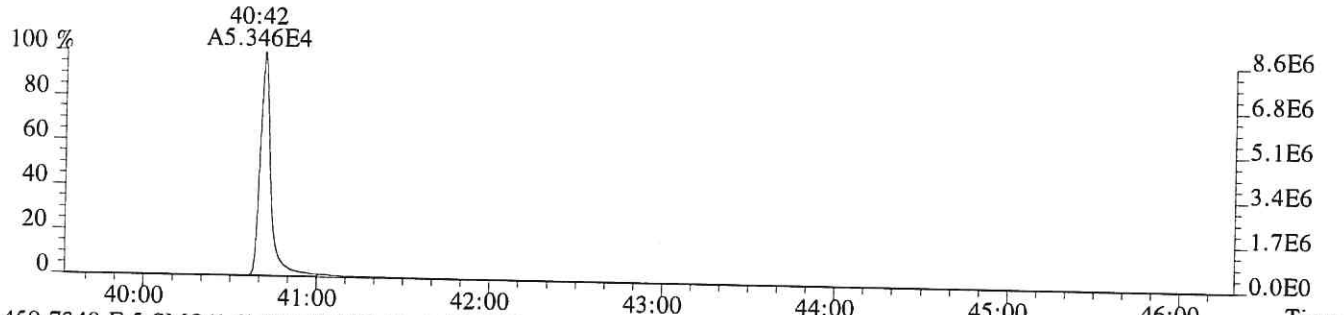
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



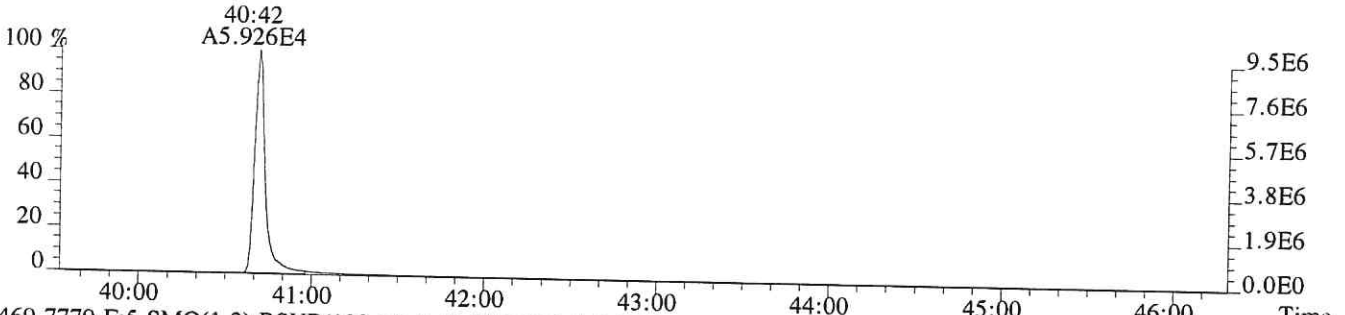
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



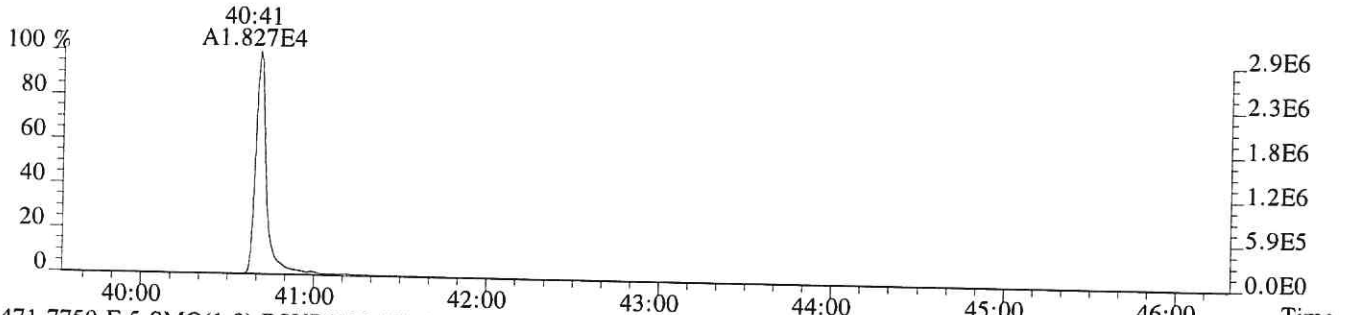
File:P518847 #1-610 Acq:16-NOV-2018 07:37:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801018-009
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



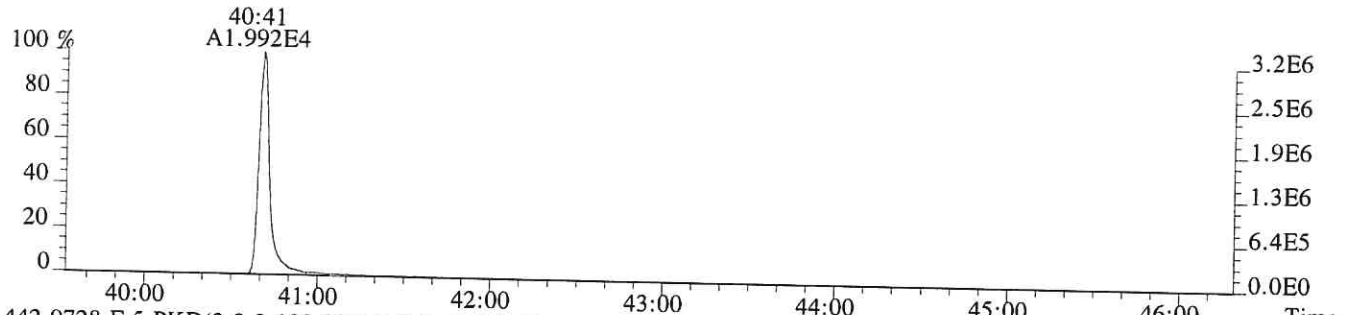
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



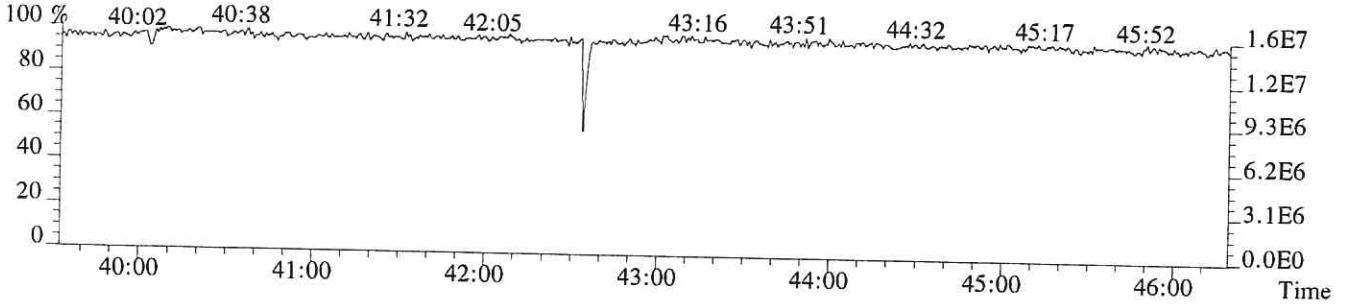
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518927 Samp: 1 Inj: 1 Acquired: 19-NOV-18 23:03:59
Processed: 20-NOV-18 10:35:22 Sample ID: EQ1800463-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	3.296e+01	1.839e+01	1.79	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	1.317e+01	2.229e+01	0.59	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:33	1.506e+01	1.728e+01	0.87	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:51	2.239e+01	1.685e+01	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	2.721e+01	1.809e+01	1.50	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	8.853e+00	2.723e+01	0.33	no	no	1.258
10	Unk	OCDF	40:47	4.389e+01	4.225e+01	1.04	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	1.540e+01	8.725e+00	1.77	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	1.495e+01	1.045e+01	1.43	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:33	2.004e+01	1.260e+01	1.59	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	1.908e+01	3.028e+01	0.63	no	no	1.025
17	Unk	OCDD	40:37	9.648e+01	1.083e+02	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:23	3.864e+04	5.015e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:28	7.606e+04	4.877e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	7.196e+04	4.541e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	3.311e+04	6.428e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	4.057e+04	7.814e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:04	3.812e+04	7.333e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	3.322e+04	6.479e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	2.618e+04	5.790e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	2.406e+04	5.477e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:25	2.958e+04	3.782e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	5.708e+04	3.575e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	5.311e+04	3.933e+04	1.35	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:18	5.202e+04	4.347e+04	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:05	5.247e+04	4.949e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:37	5.105e+04	5.737e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:41	6.582e+04	8.224e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	9.772e+04	7.704e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:27	3.409e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518927 Samp: 1 Inj: 1 Acquired: 19-NOV-18 23:03:59
Processed: 20-NOV-18 10:35:22 LAB. ID: EQ1800463-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.20e+02	*	*	8.60e+02	*
2	1,2,3,7,8-PeCDF	7.83e+03	7.52e+02	1.0e+01	4.91e+03	8.92e+02	5.5e+00
3	2,3,4,7,8-PeCDF	*	7.52e+02	*	*	8.92e+02	*
4	1,2,3,4,7,8-HxCDF	3.26e+03	3.92e+02	8.3e+00	4.21e+03	7.40e+02	5.7e+00
5	1,2,3,6,7,8-HxCDF	3.13e+03	3.92e+02	8.0e+00	3.12e+03	7.40e+02	4.2e+00
6	2,3,4,6,7,8-HxCDF	*	3.92e+02	*	*	7.40e+02	*
7	1,2,3,7,8,9-HxCDF	5.01e+03	3.92e+02	1.3e+01	3.90e+03	7.40e+02	5.3e+00
8	1,2,3,4,6,7,8-HpCDF	4.21e+03	3.36e+02	1.3e+01	4.61e+03	3.76e+02	1.2e+01
9	1,2,3,4,7,8,9-HpCDF	1.70e+03	3.36e+02	5.1e+00	6.92e+03	3.76e+02	1.8e+01
10	OCDF	8.54e+03	1.40e+02	6.1e+01	7.41e+03	8.36e+02	8.9e+00
11	2,3,7,8-TCDD	*	1.95e+03	*	*	8.16e+02	*
12	1,2,3,7,8-PeCDD	*	8.00e+02	*	*	1.44e+02	*
13	1,2,3,4,7,8-HxCDD	2.84e+03	3.44e+02	8.3e+00	2.30e+03	4.84e+02	4.7e+00
14	1,2,3,6,7,8-HxCDD	4.35e+03	3.44e+02	1.3e+01	2.12e+03	4.84e+02	4.4e+00
15	1,2,3,7,8,9-HxCDD	5.31e+03	3.44e+02	1.5e+01	2.70e+03	4.84e+02	5.6e+00
16	1,2,3,4,6,7,8-HpCDD	3.78e+03	2.64e+02	1.4e+01	5.45e+03	2.84e+02	1.9e+01
17	OCDD	1.54e+04	3.04e+02	5.1e+01	1.66e+04	5.68e+02	2.9e+01
18	13C-2,3,7,8-TCDF	4.96e+06	5.25e+03	9.4e+02	6.29e+06	2.42e+03	2.6e+03
19	13C-1,2,3,7,8-PeCDF	1.19e+07	1.11e+03	1.1e+04	7.74e+06	1.09e+03	7.1e+03
20	13C-2,3,4,7,8-PeCDF	1.23e+07	1.11e+03	1.1e+04	7.71e+06	1.09e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	6.63e+06	8.52e+02	7.8e+03	1.26e+07	1.40e+03	9.0e+03
22	13C-1,2,3,6,7,8-HxCDF	7.41e+06	8.52e+02	8.7e+03	1.44e+07	1.40e+03	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	8.52e+02	8.9e+03	1.43e+07	1.40e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	6.02e+06	8.52e+02	7.1e+03	1.16e+07	1.40e+03	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.32e+06	5.17e+03	1.0e+03	1.17e+07	5.43e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.59e+06	5.17e+03	8.9e+02	1.02e+07	5.43e+03	1.9e+03
27	13C-2,3,7,8-TCDD	4.32e+06	5.87e+03	7.4e+02	5.34e+06	2.17e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	9.40e+06	5.20e+02	1.8e+04	5.86e+06	7.80e+02	7.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.10e+07	1.39e+03	7.9e+03	8.55e+06	3.24e+02	2.6e+04
30	13C-1,2,3,6,7,8-HxCDD	9.80e+06	1.39e+03	7.1e+03	7.93e+06	3.24e+02	2.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.85e+06	5.24e+02	1.9e+04	9.35e+06	7.64e+02	1.2e+04
32	13C-OCDD	8.54e+06	1.64e+02	5.2e+04	9.47e+06	3.60e+02	2.6e+04
33	13C-1,2,3,4-TCDD	9.33e+06	5.87e+03	1.6e+03	1.17e+07	2.17e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.72e+07	1.39e+03	1.2e+04	1.37e+07	3.24e+02	4.2e+04
35	37Cl-2,3,7,8-TCDD	4.86e+06	1.36e+03	3.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.948e{+}03 + 8.160e{+}02) \times 2000}{(4.321e{+}06 + 5.338e{+}06) \times (\qquad\qquad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518927 Sample:1 Injection:1 Function:3

Acquired: 19-NOV-18 23:03:59 Processed: 20-NOV-18 10:35:22

Mass: 373.8210 375.8180 Tot Response: 3.92e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:51	2.24e+01	1.68e+01 1.33	yes	3.92e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P518927 Sample:1 Injection:1 Function:4

Acquired: 19-NOV-18 23:03:59 Processed: 20-NOV-18 10:35:22

Mass: 423.7770 425.7740 Tot Response: 7.23e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:27	3.66e+01	3.57e+01 1.03	yes	7.23e+01		n	n

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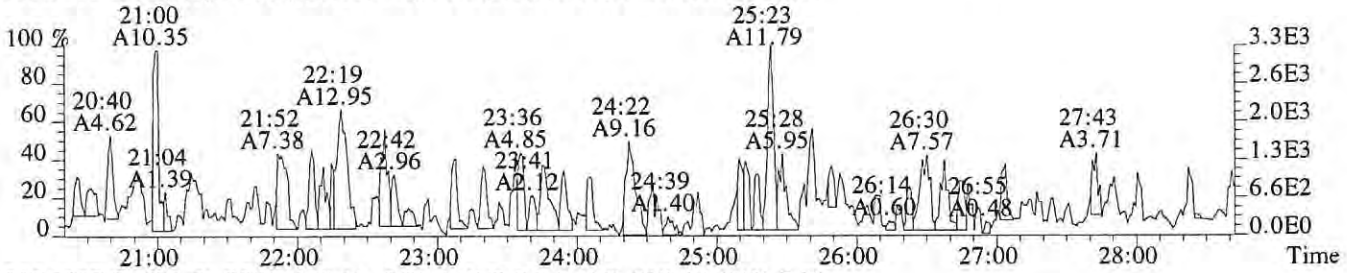
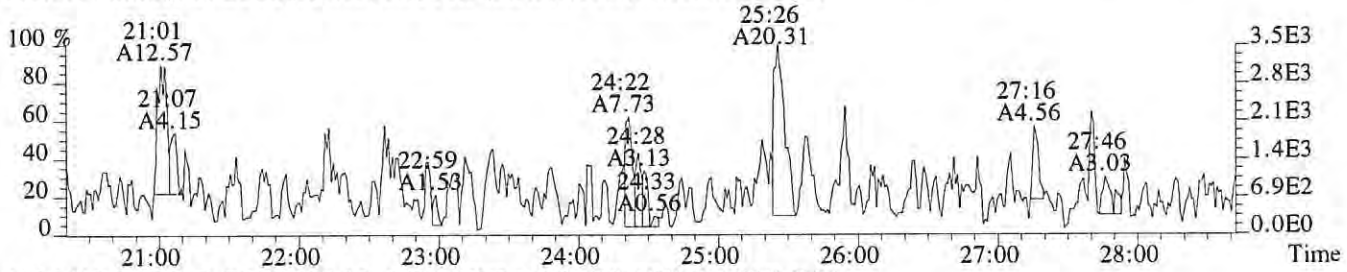
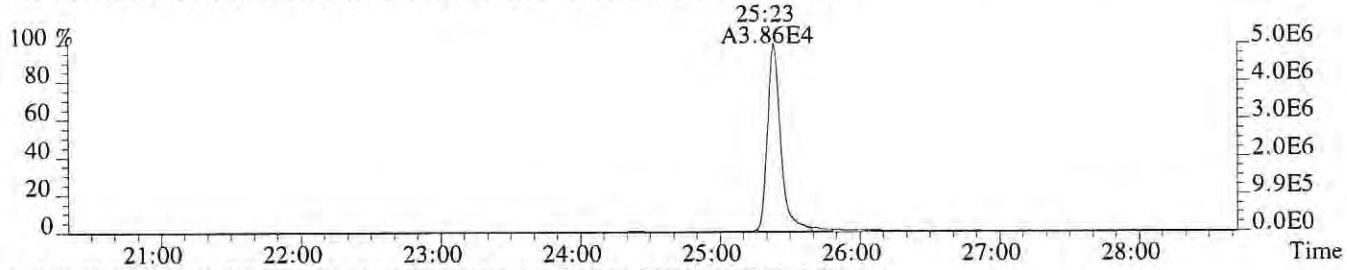
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



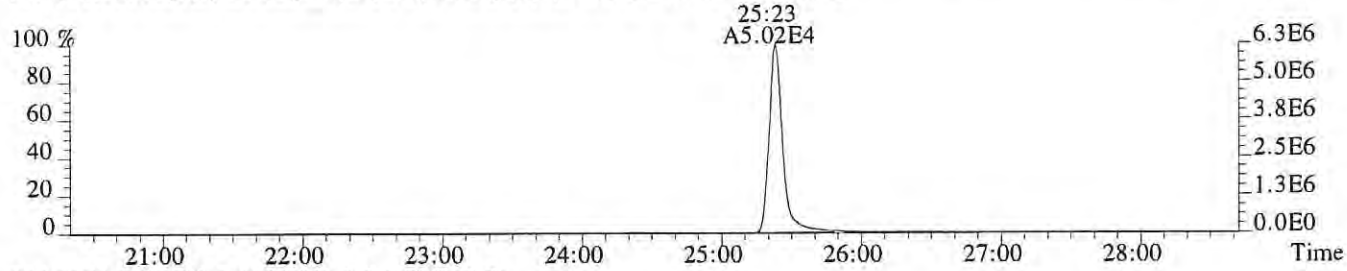
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



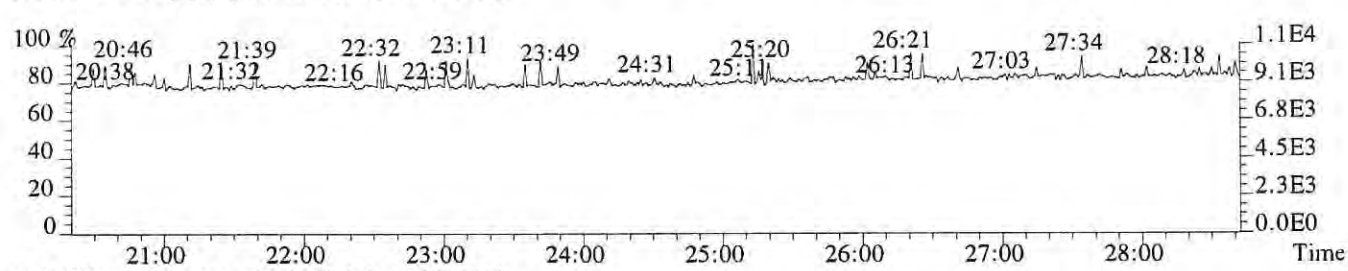
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5248.0,1.00%,F,T)



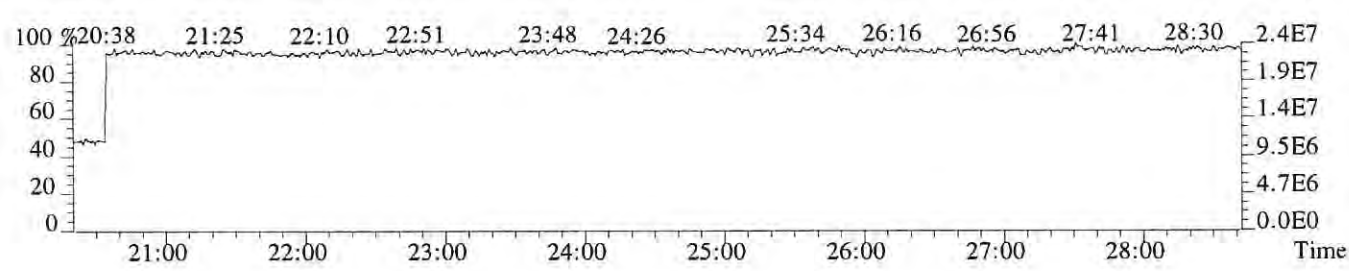
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



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

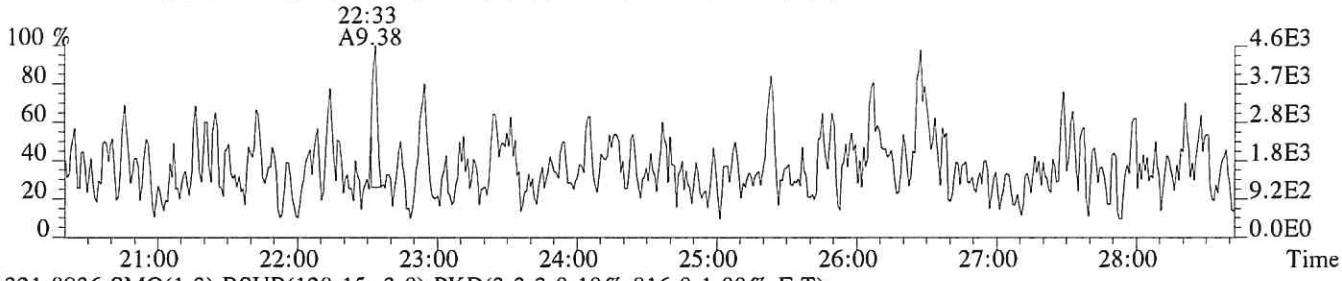


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

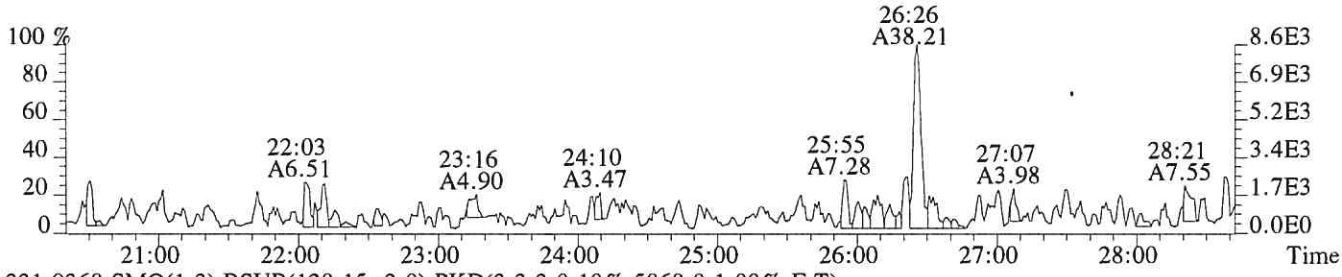


File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

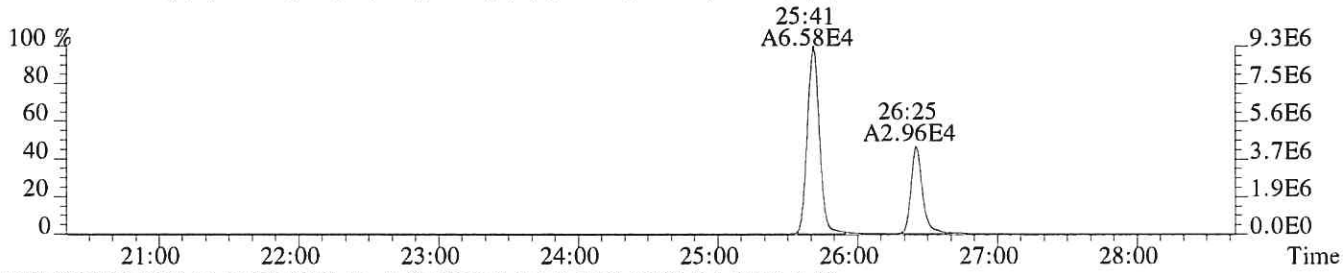
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



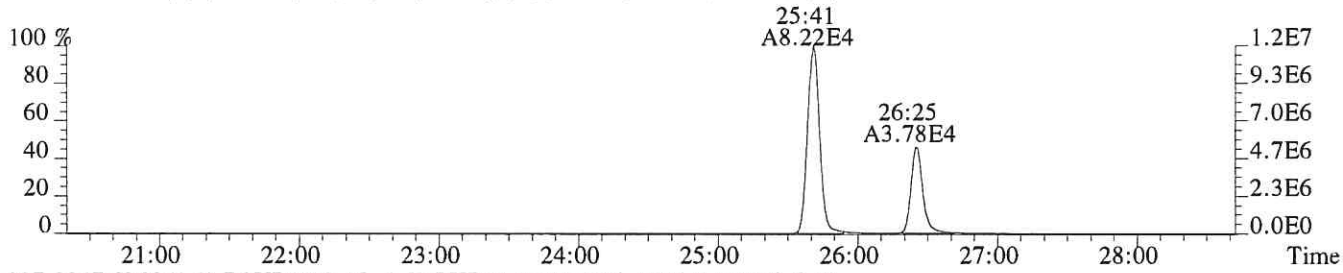
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



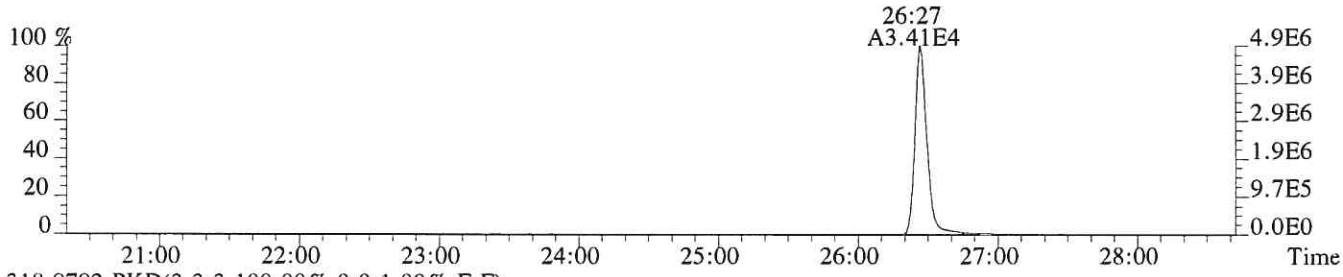
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5868.0,1.00%,F,T)



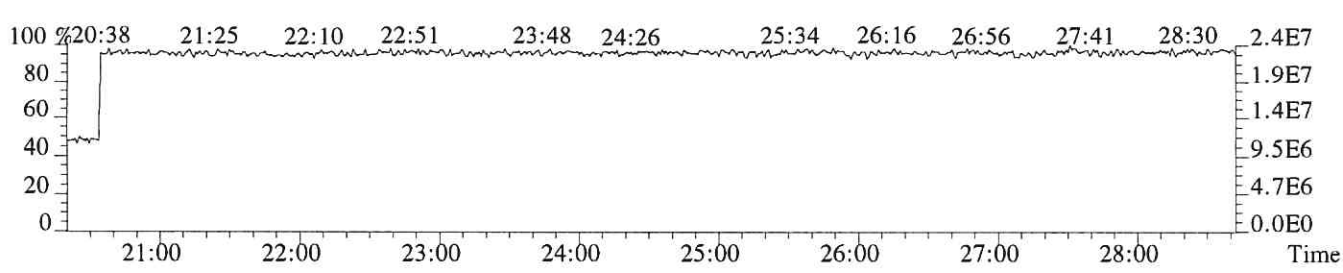
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



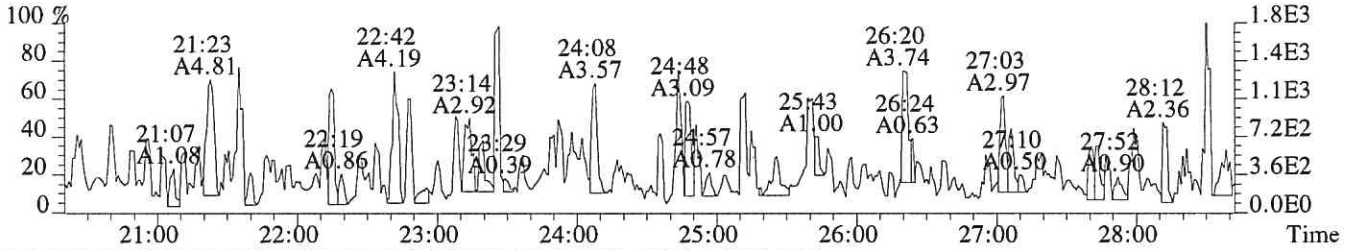
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



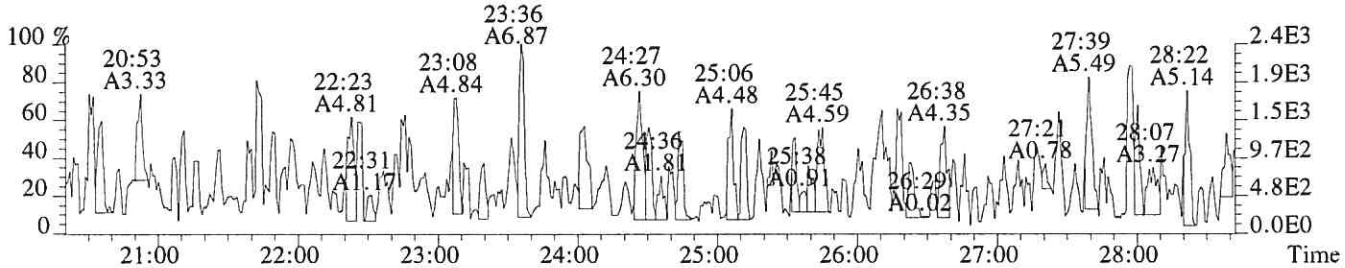
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



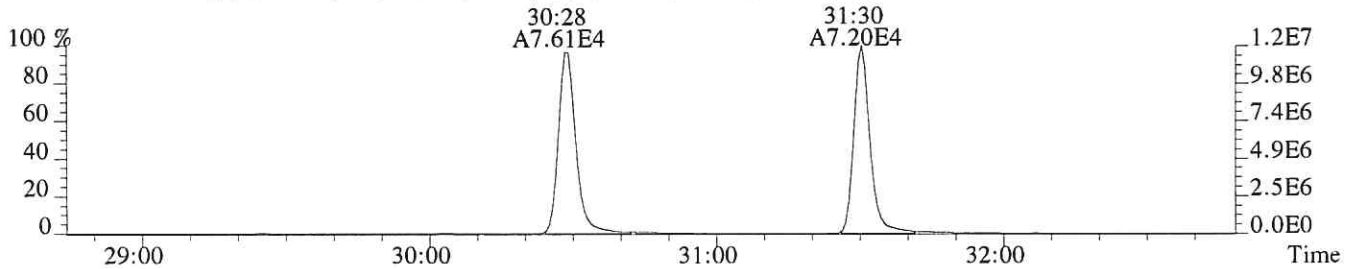
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



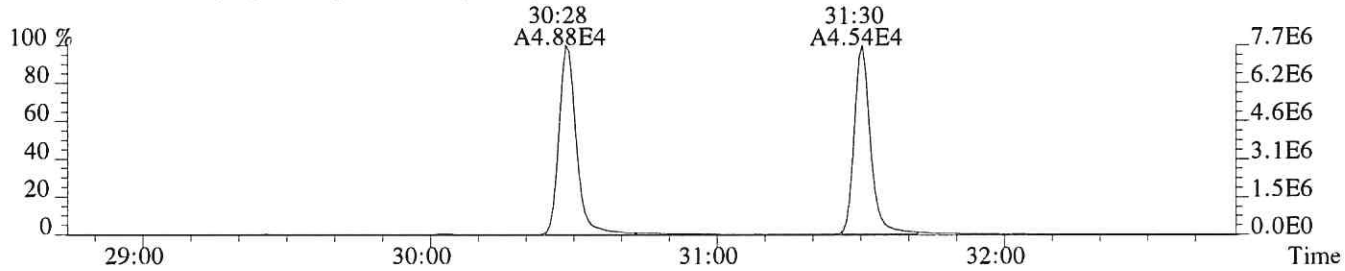
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



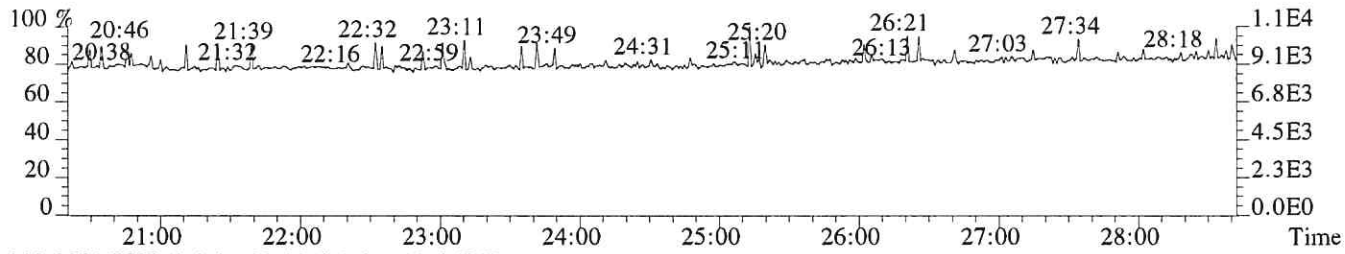
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



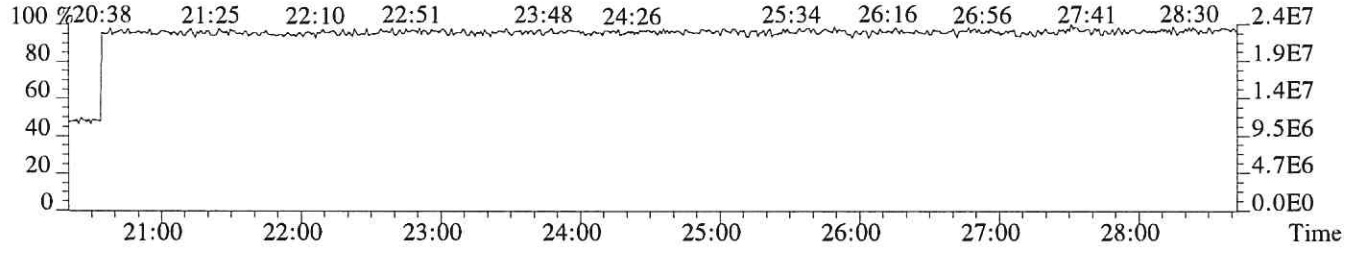
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



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

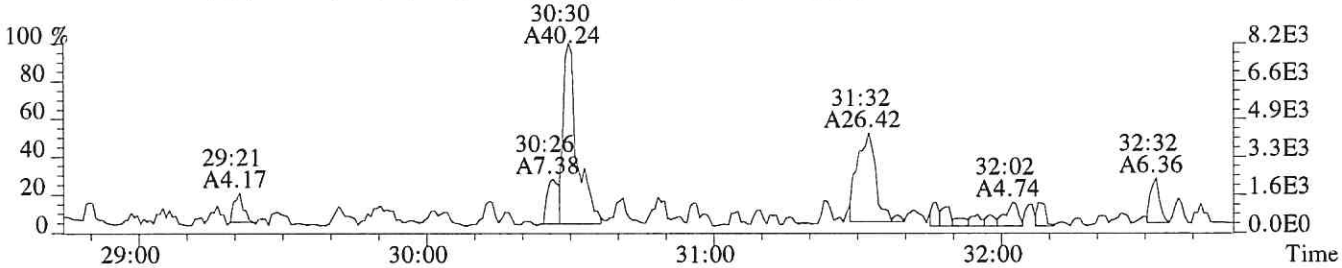


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

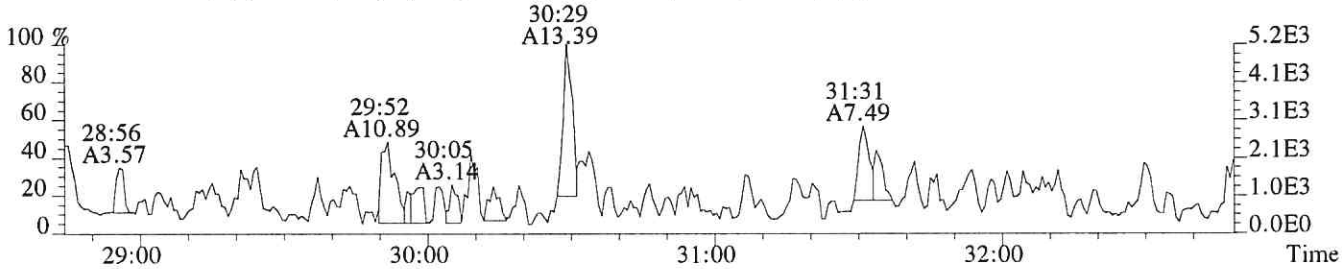


File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

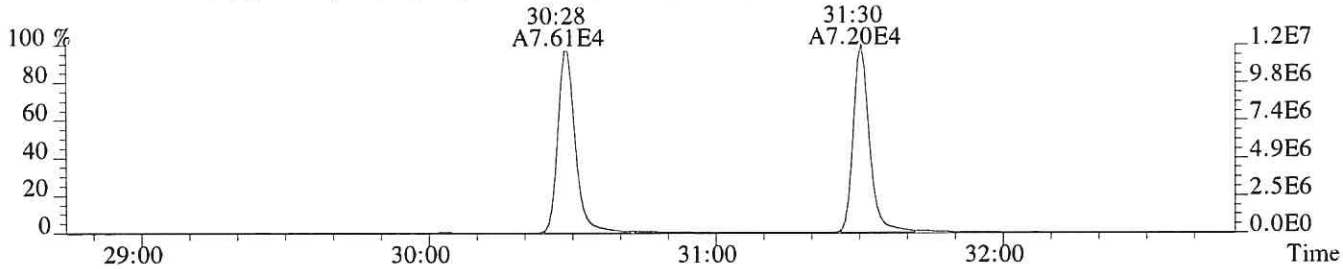
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



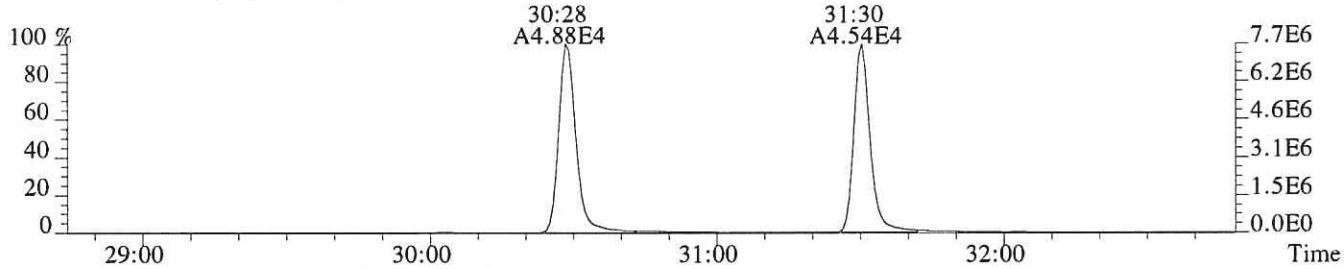
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



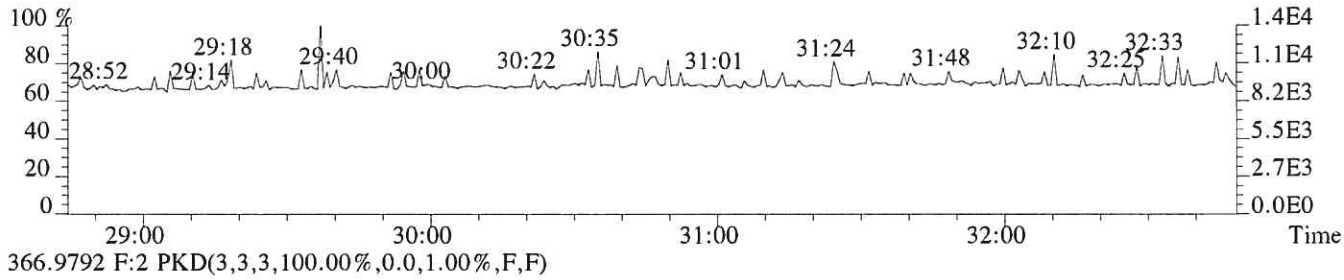
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



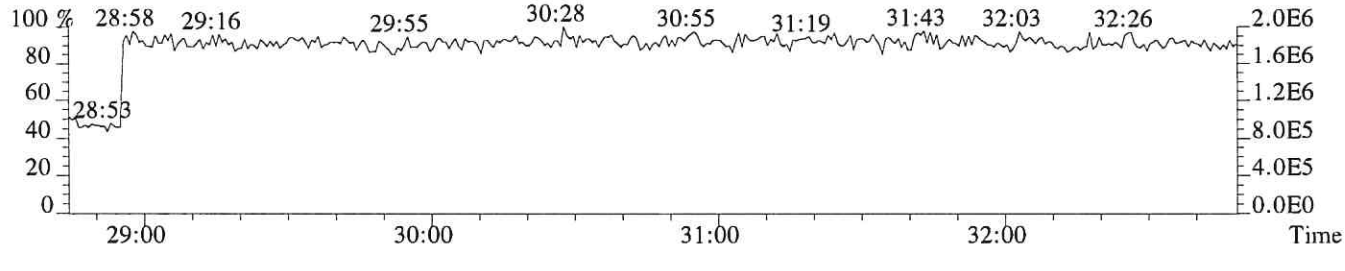
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



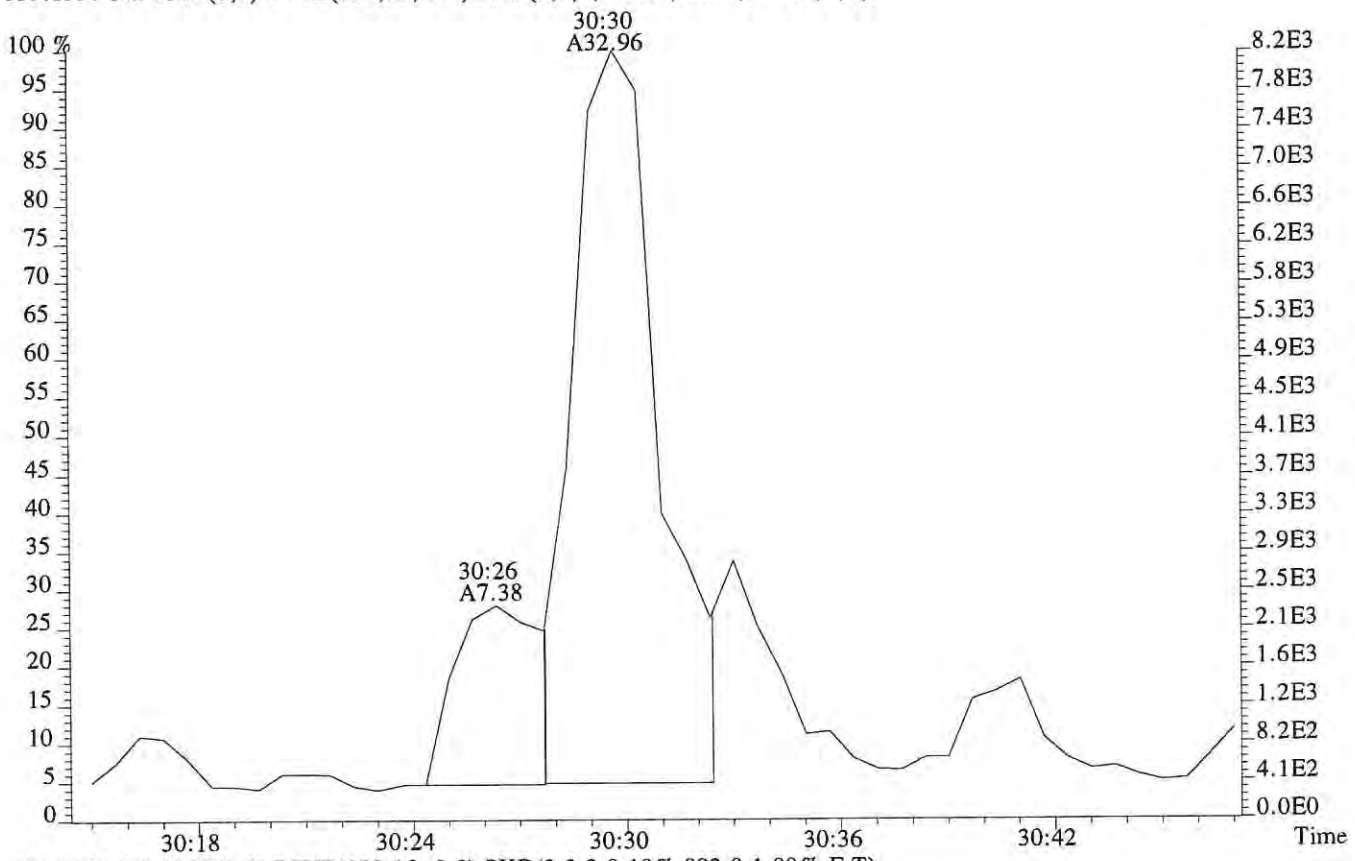
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



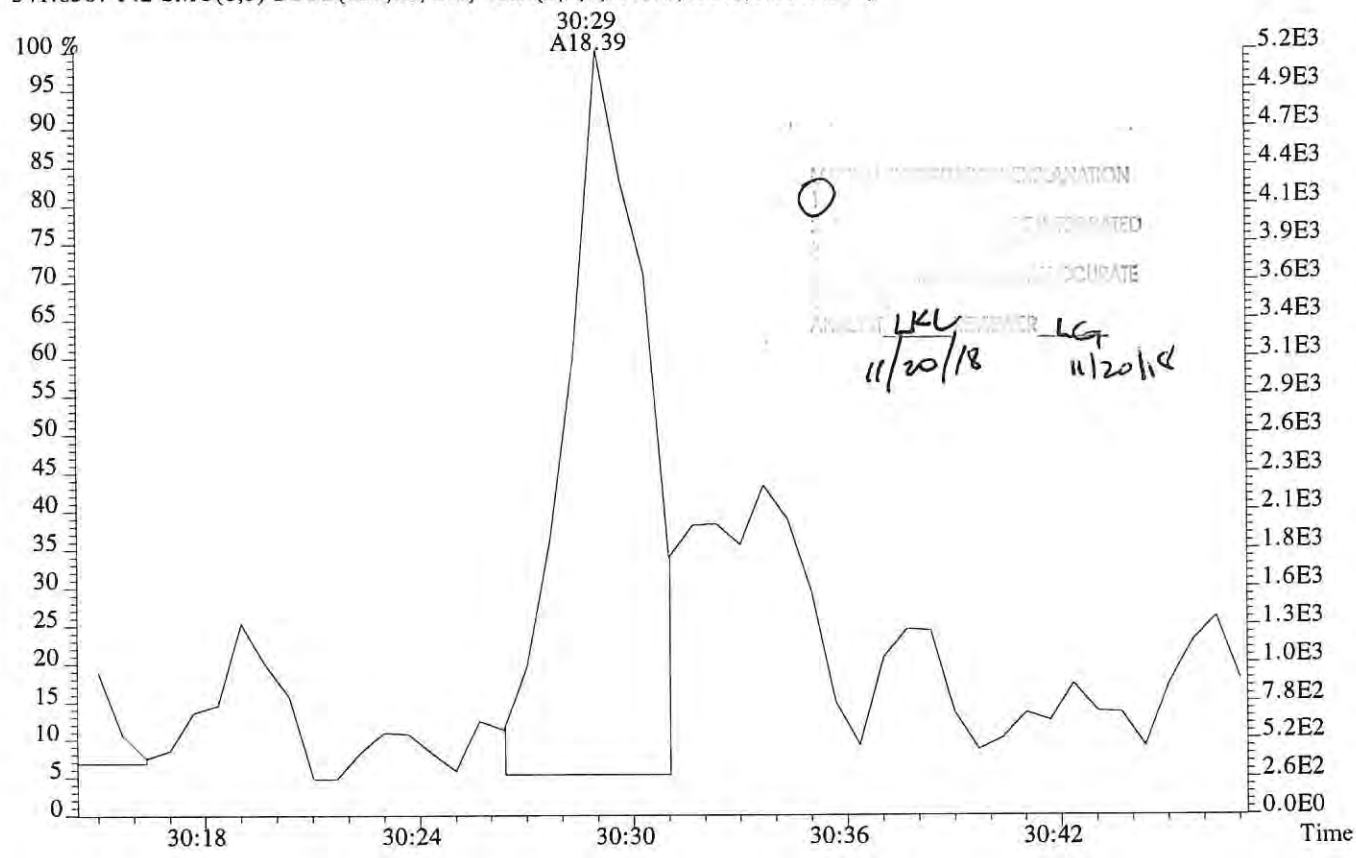
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)

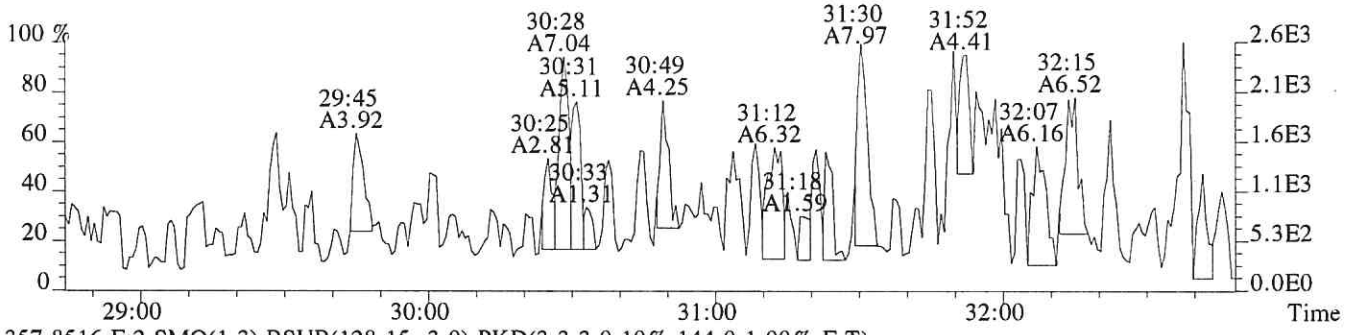


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)

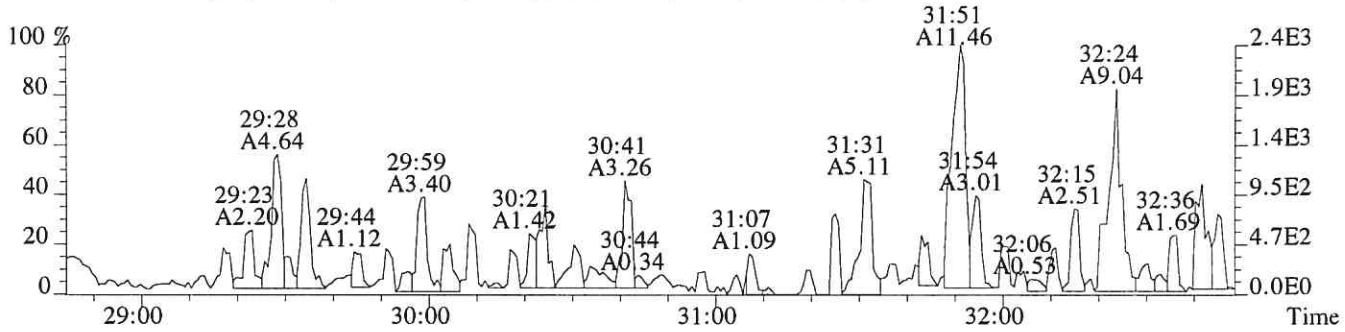


LKL 11/20/18 LG 11/20/18

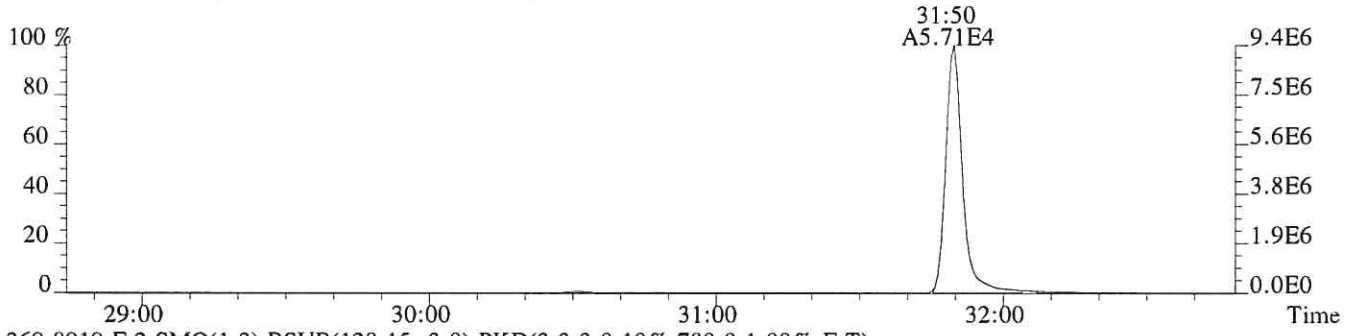
File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



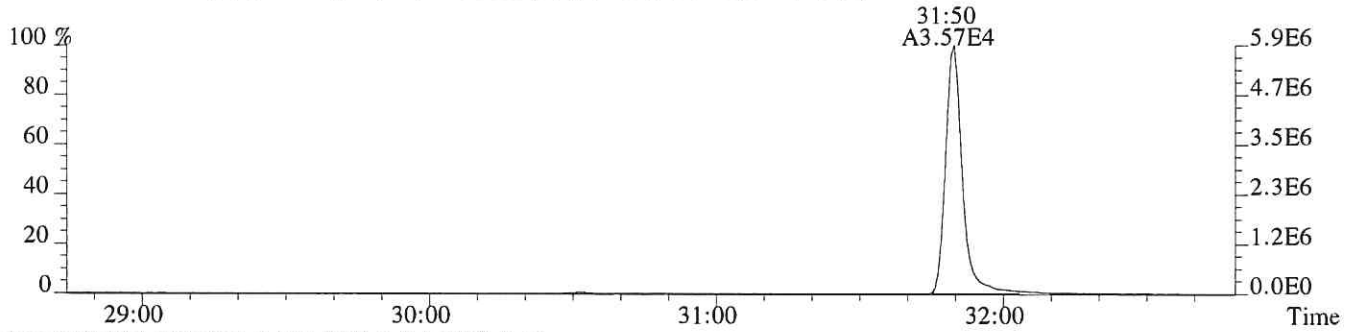
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



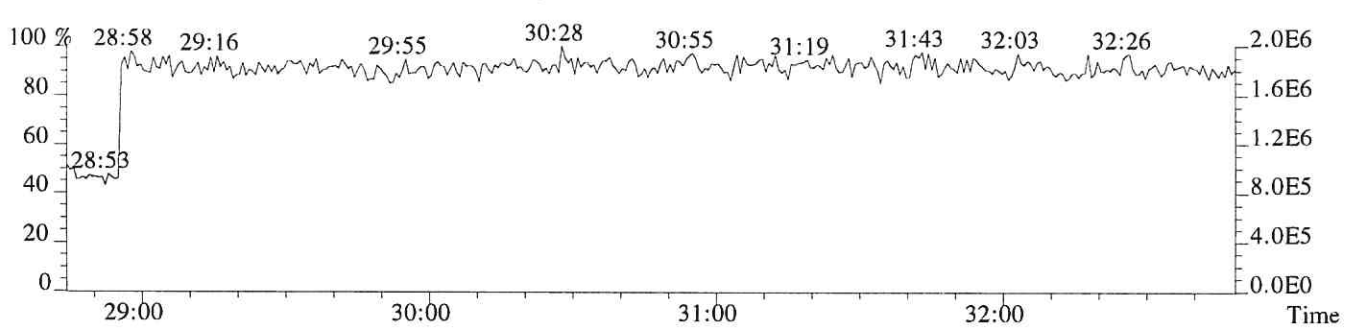
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)

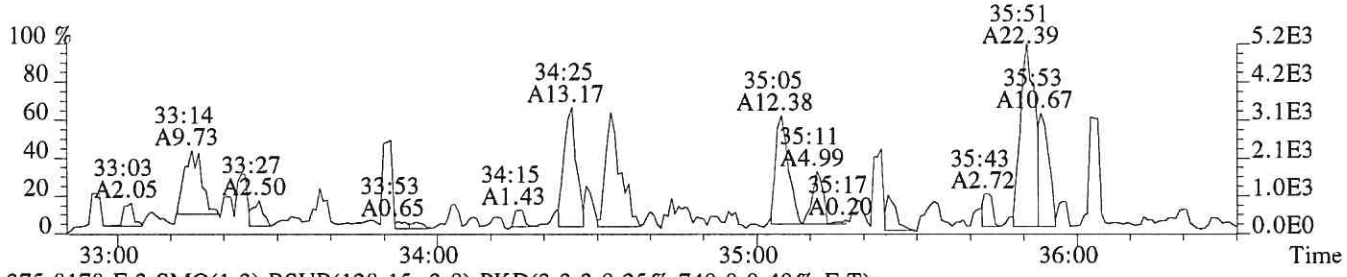


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

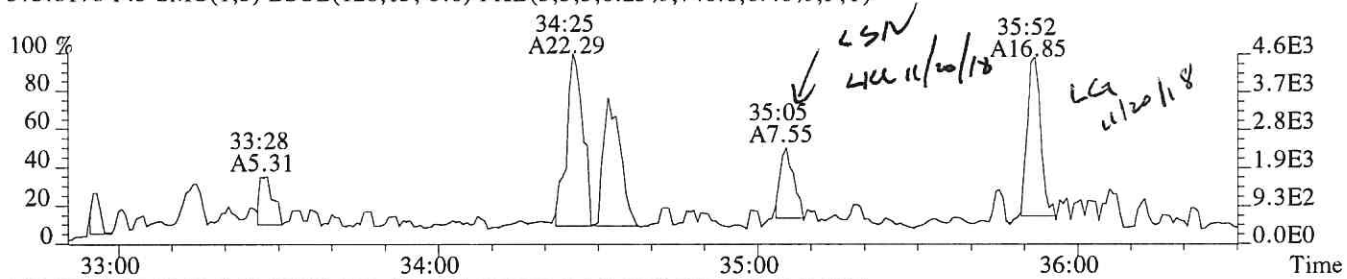


File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

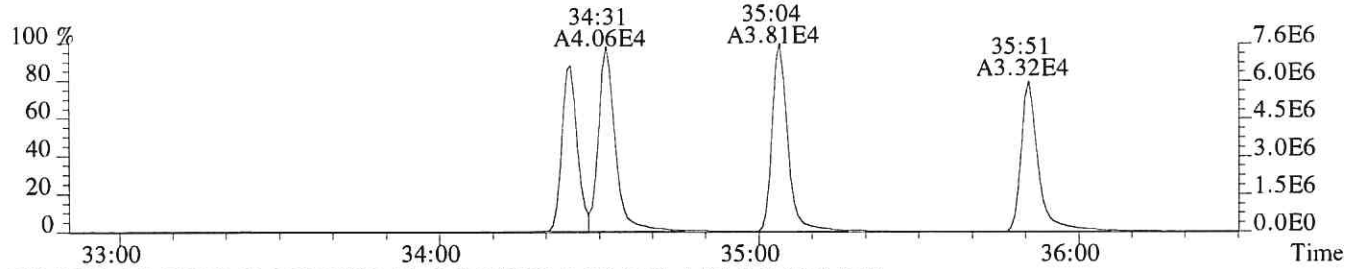
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



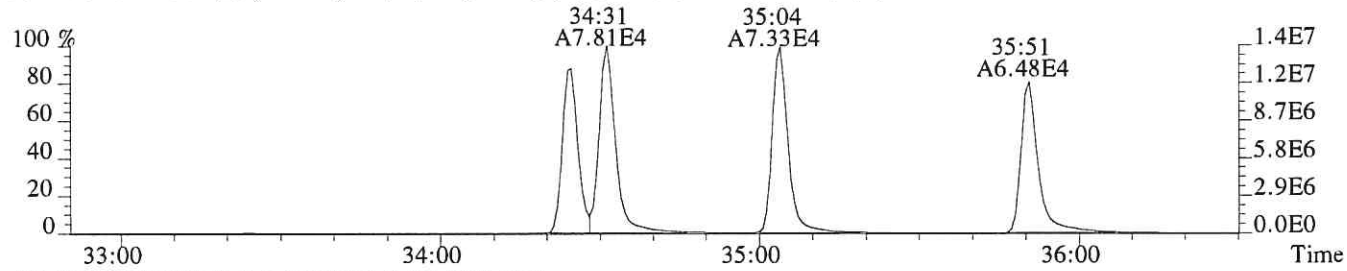
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



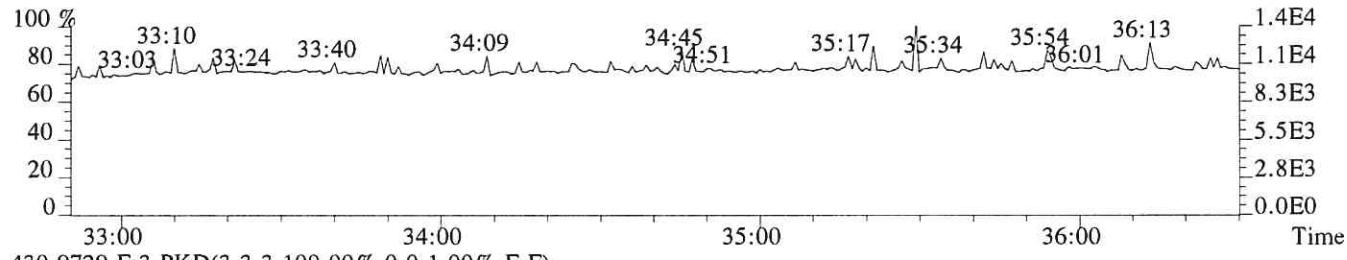
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



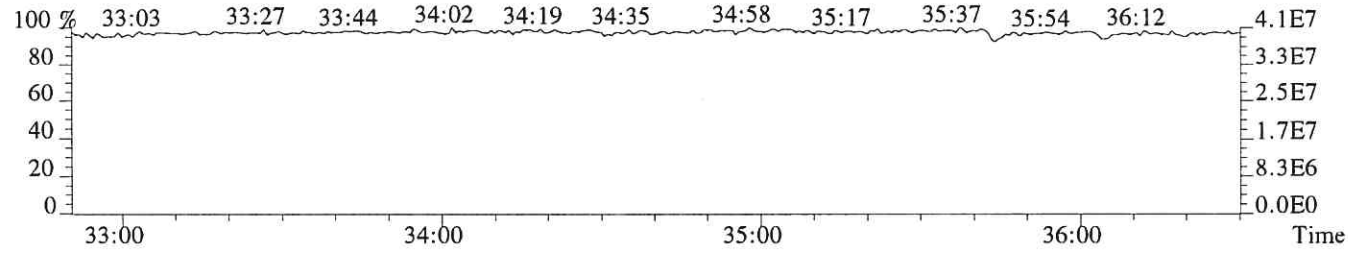
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



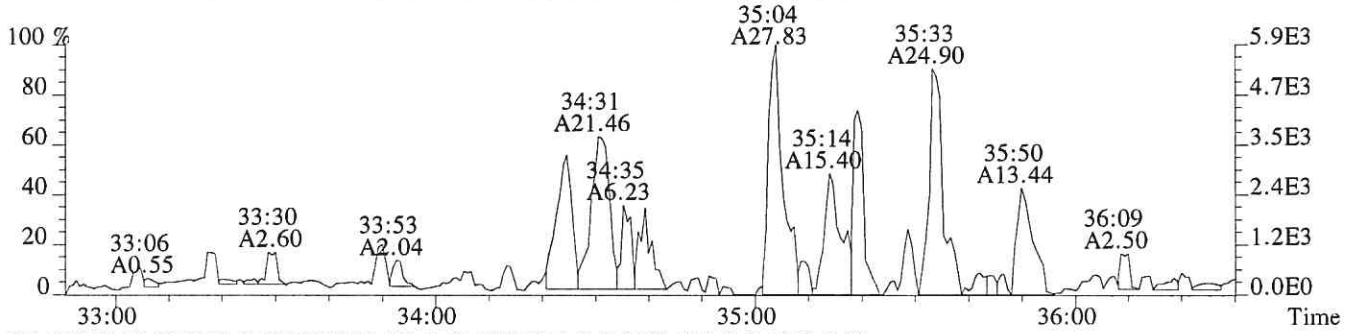
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



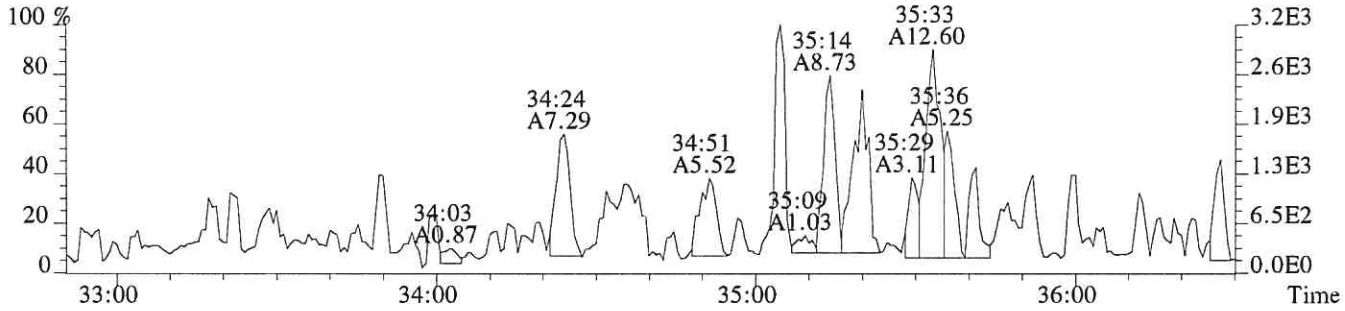
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



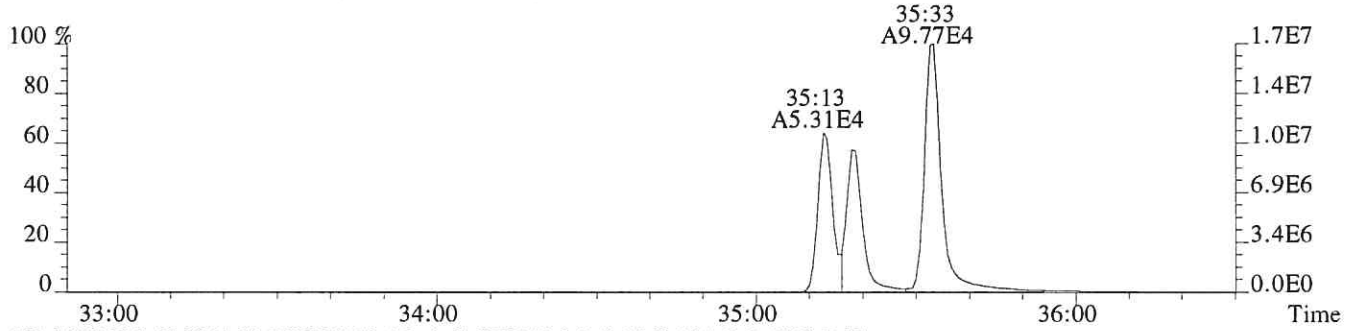
File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



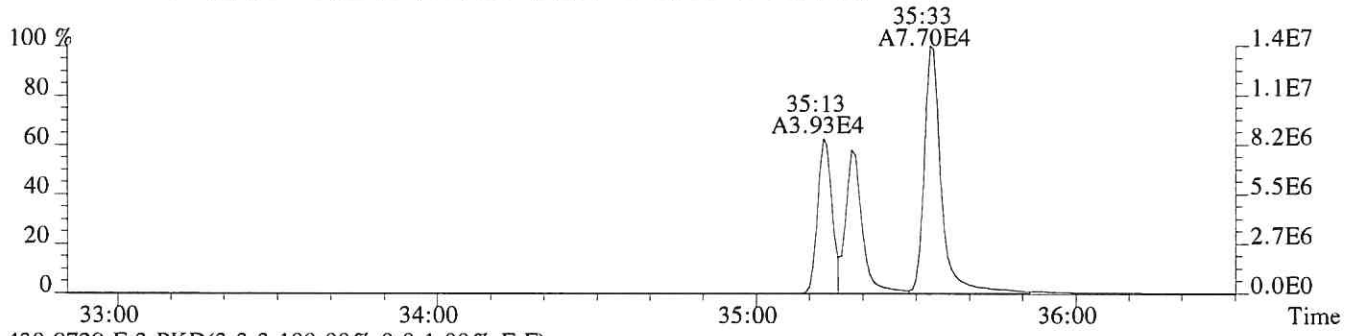
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



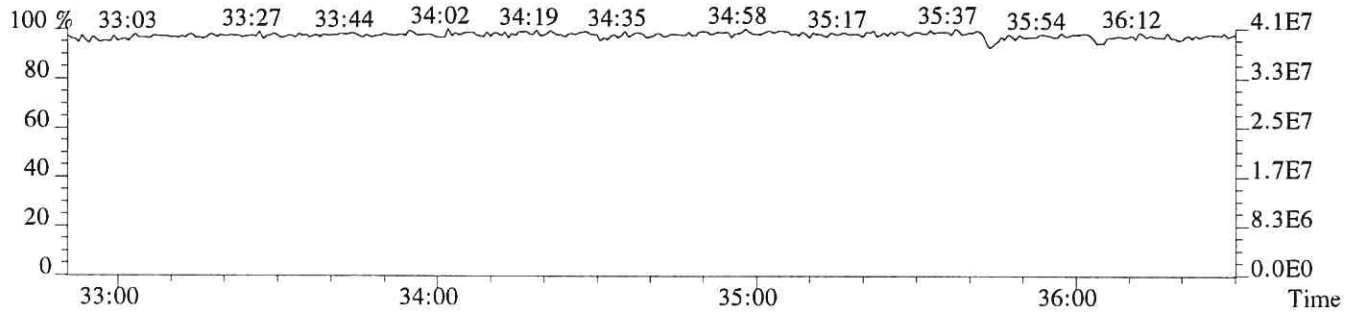
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.40%,F,T)



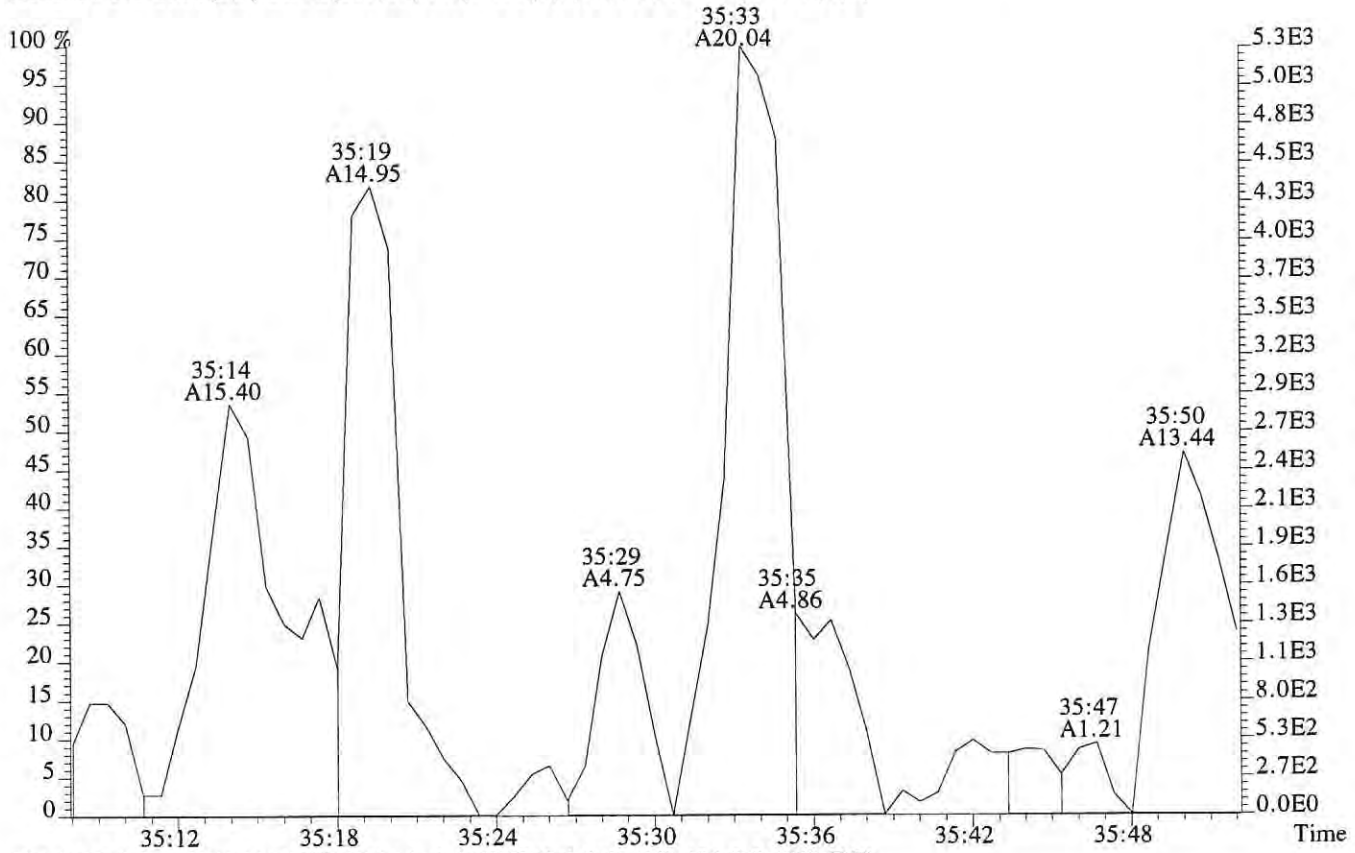
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



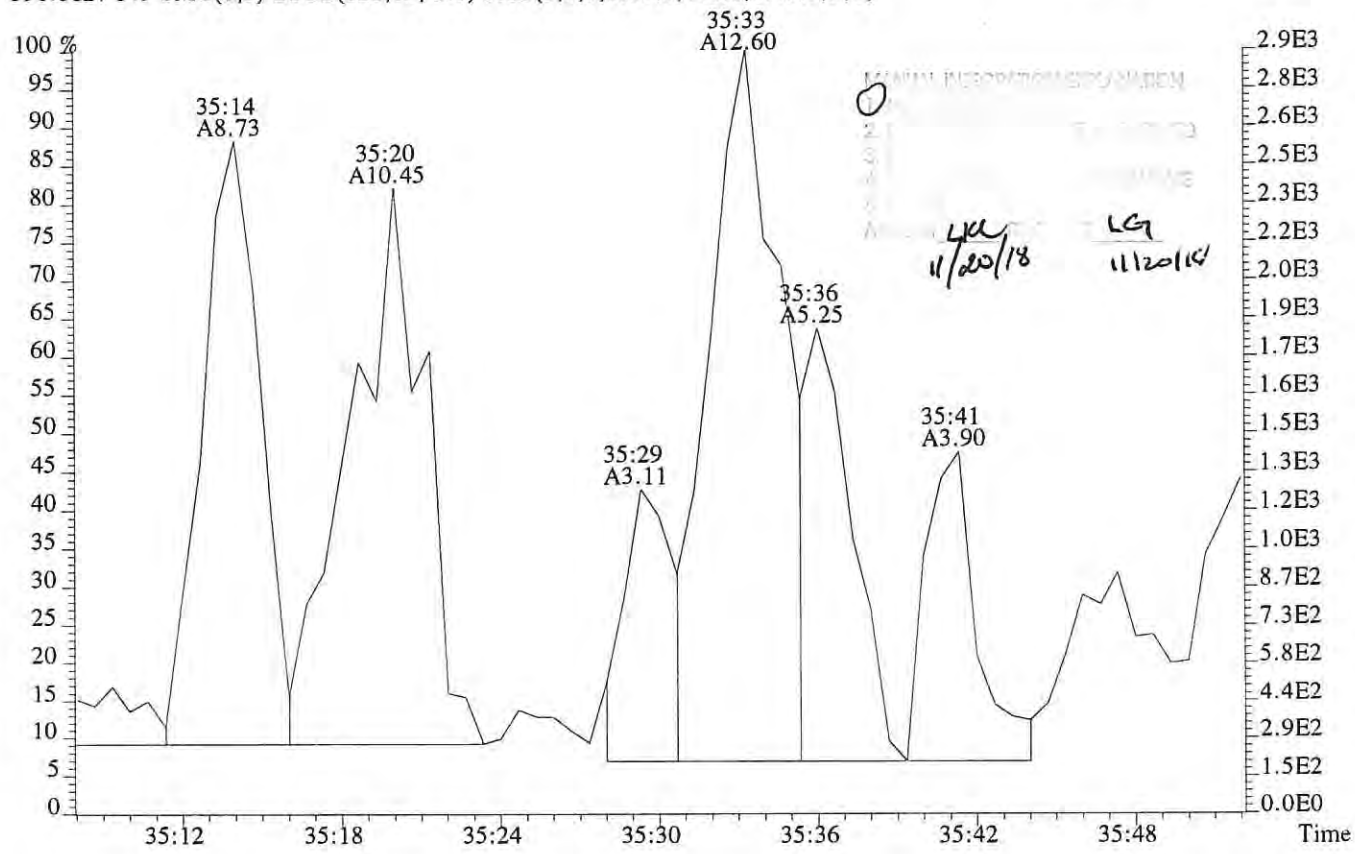
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)

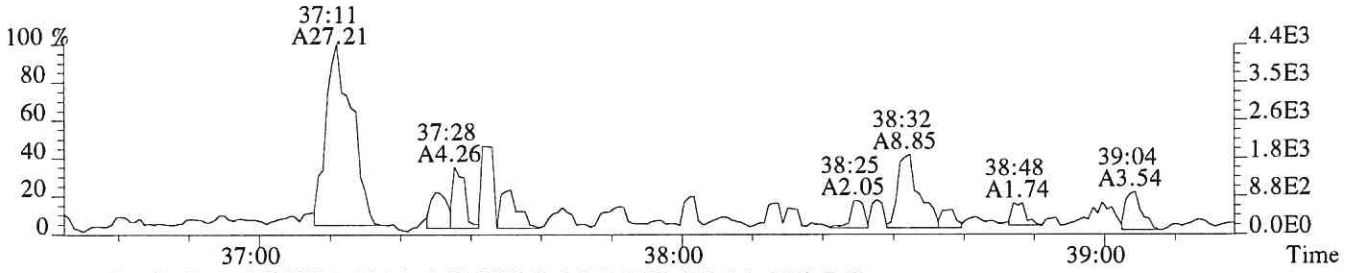


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)

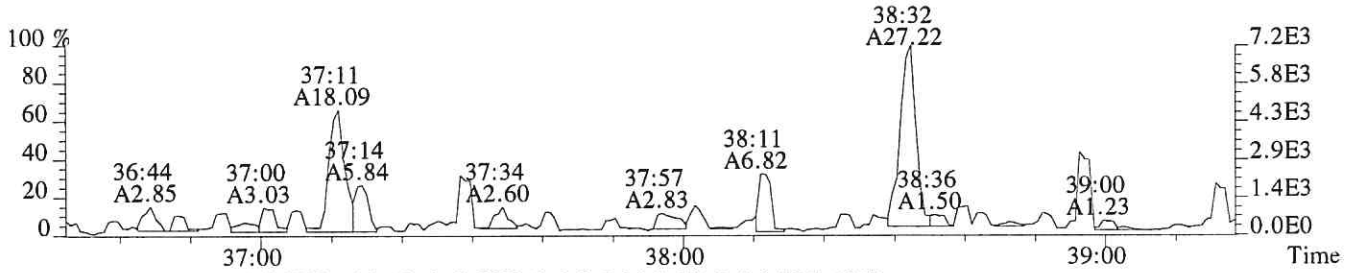


File:P518927 #1-250 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

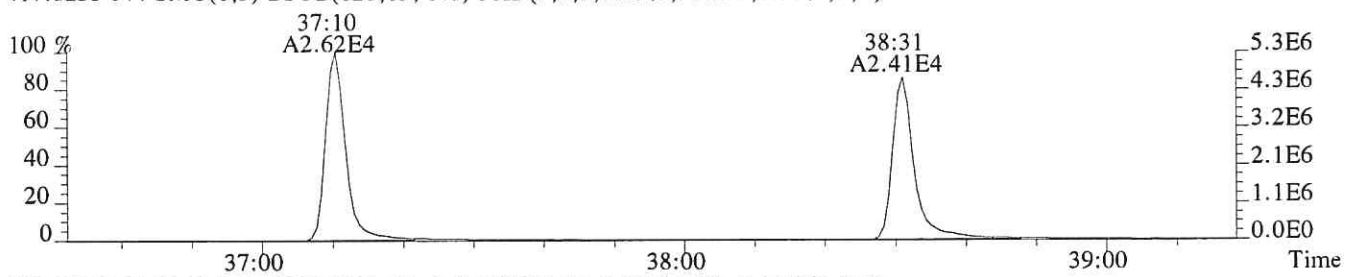
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.50%,F,T)



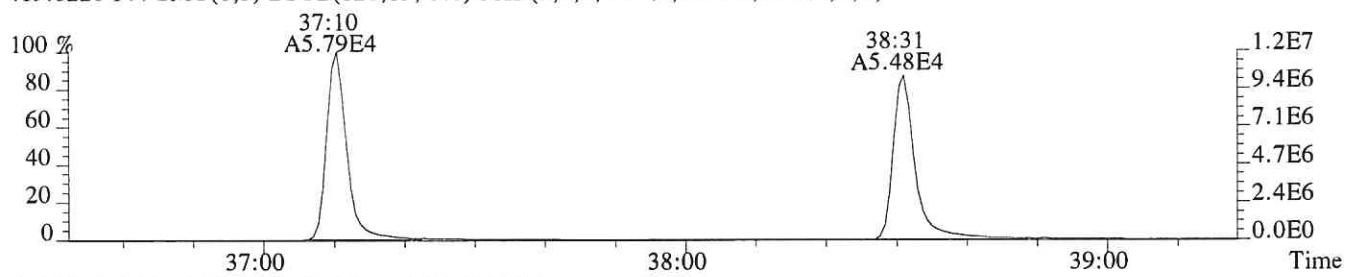
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.50%,F,T)



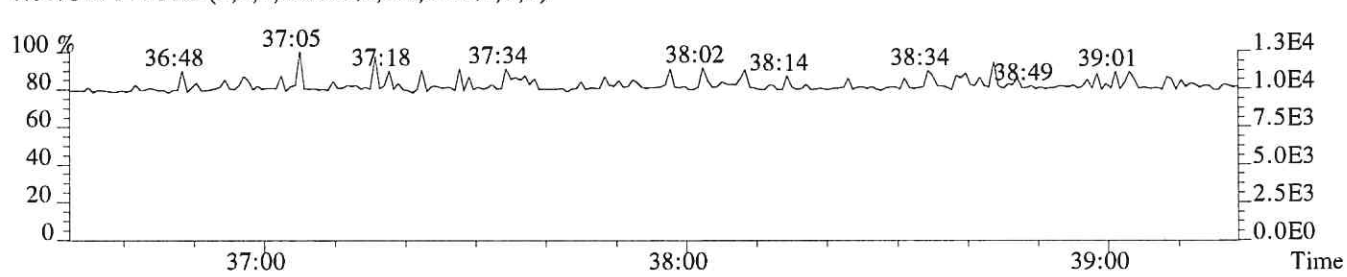
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5172.0,0.50%,F,T)



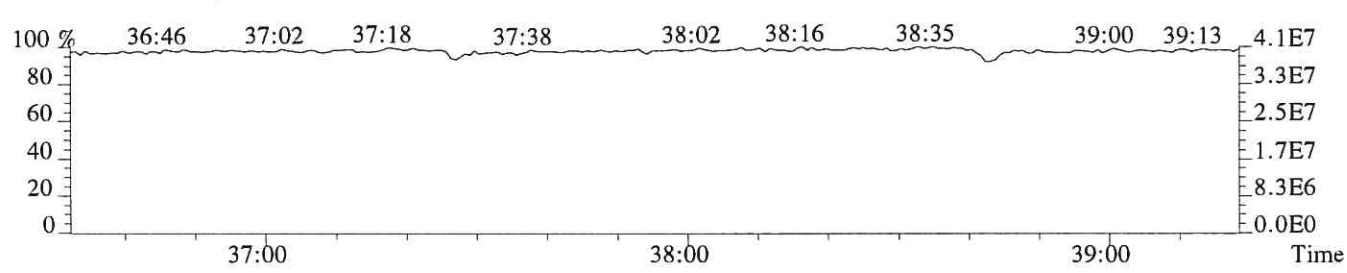
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5432.0,0.50%,F,T)



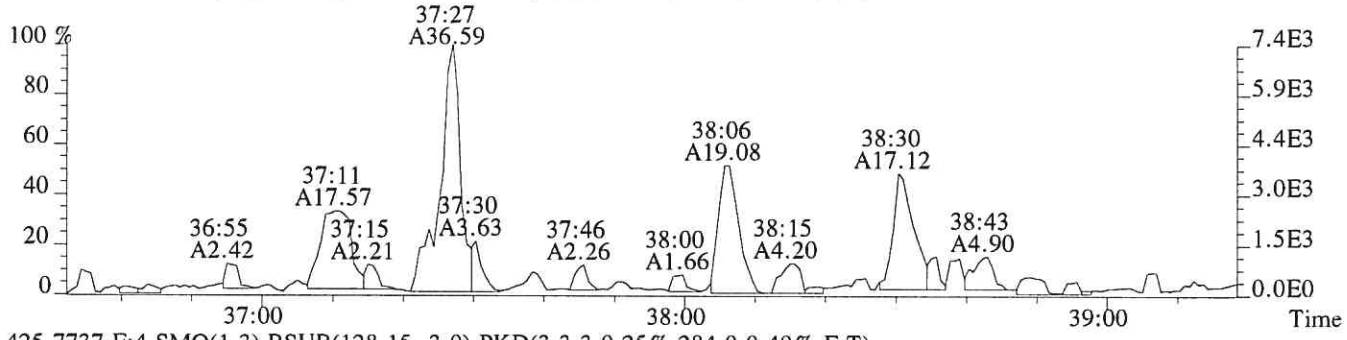
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



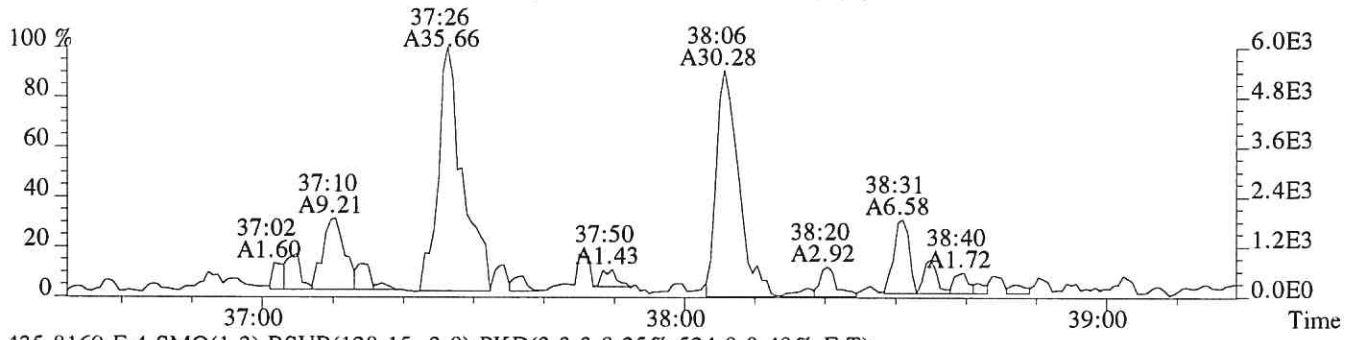
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



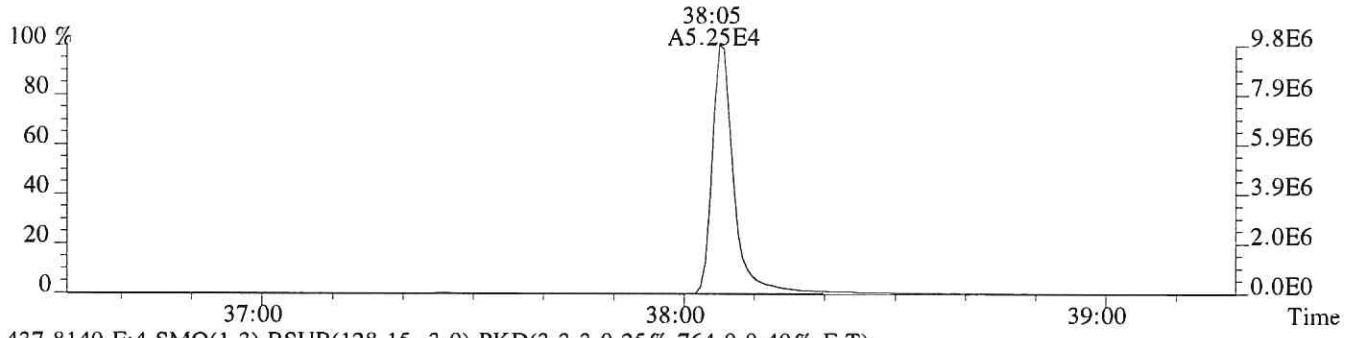
File:P518927 #1-250 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



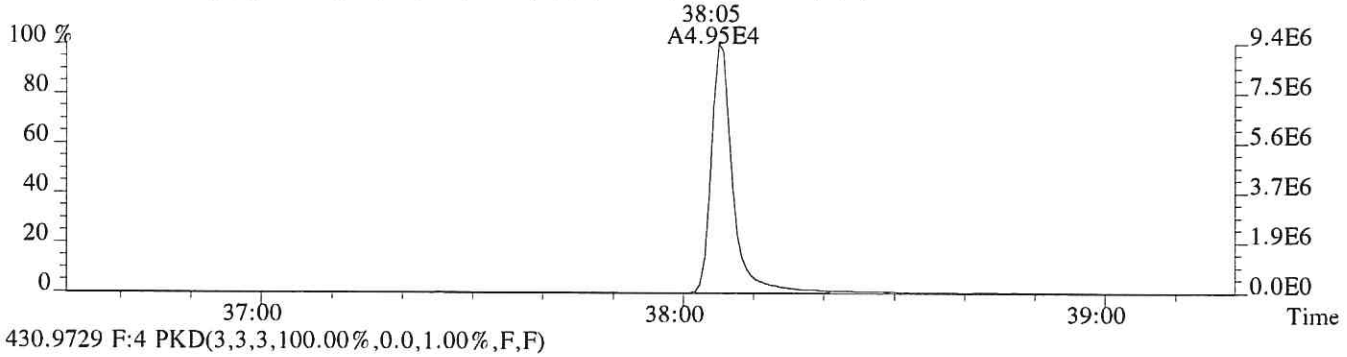
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



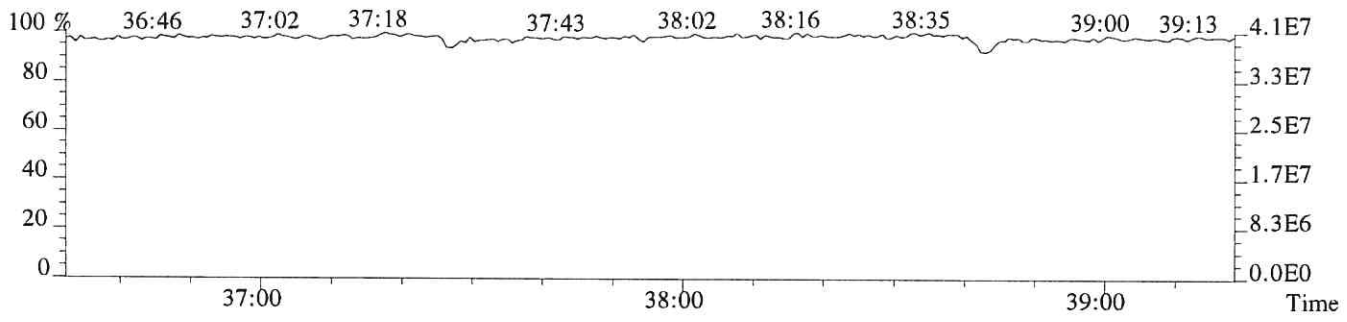
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)

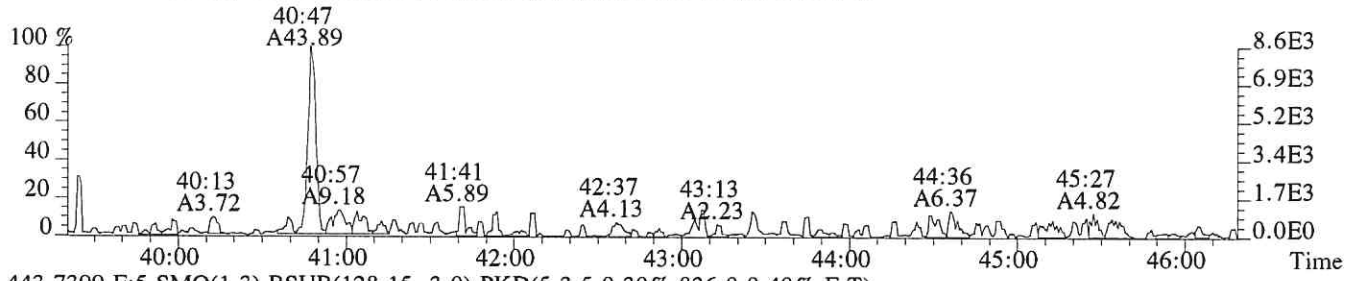


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

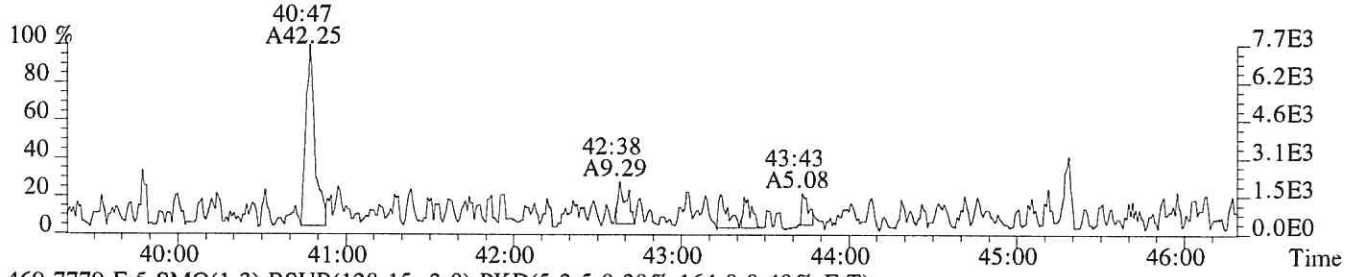


File:P518927 #1-628 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

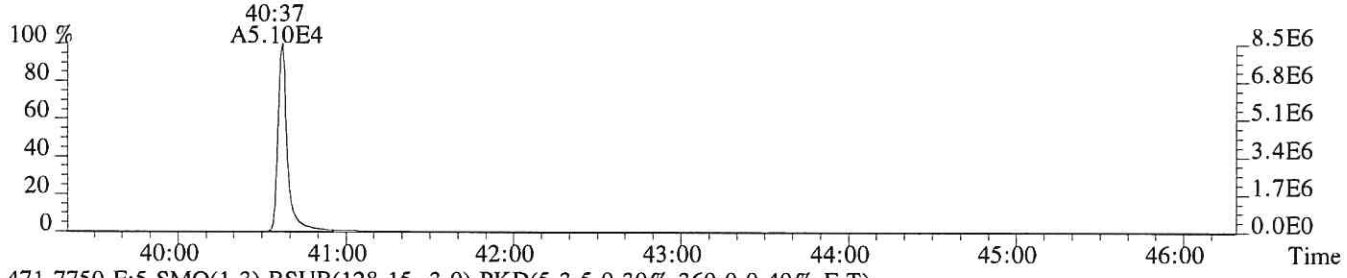
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



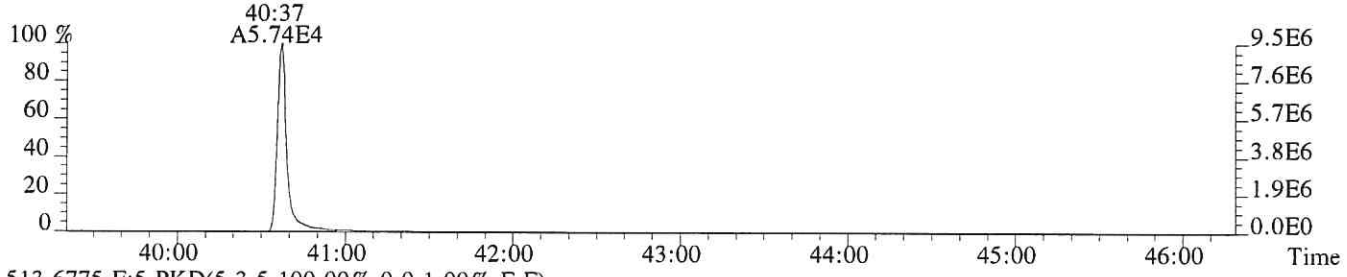
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



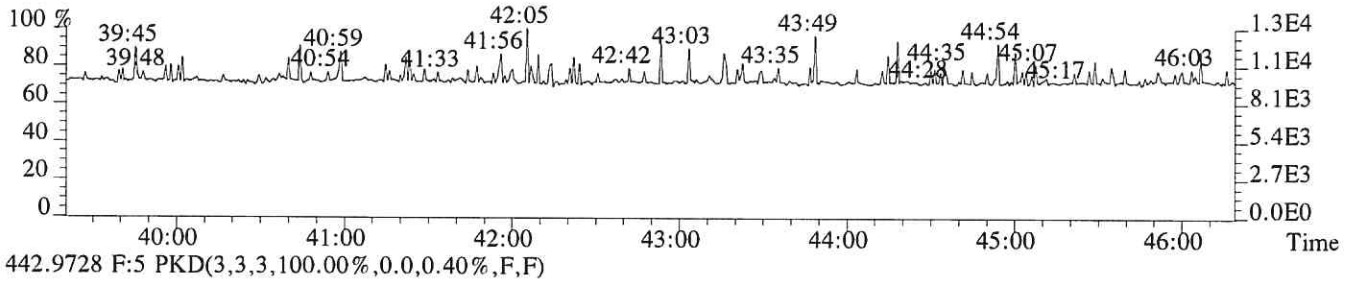
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



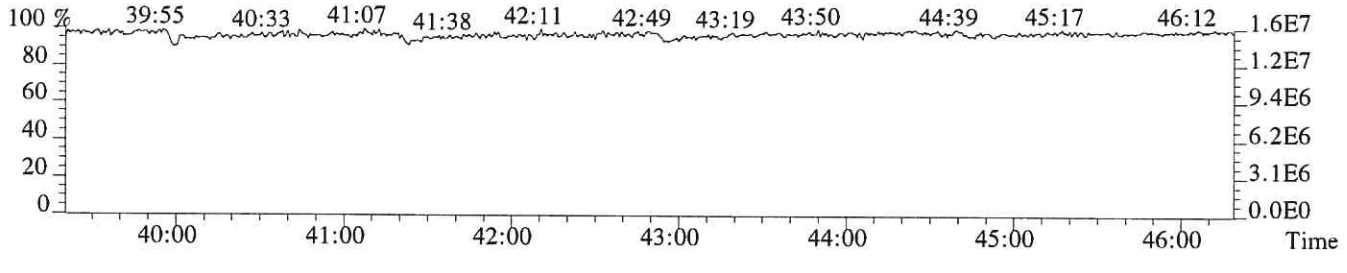
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



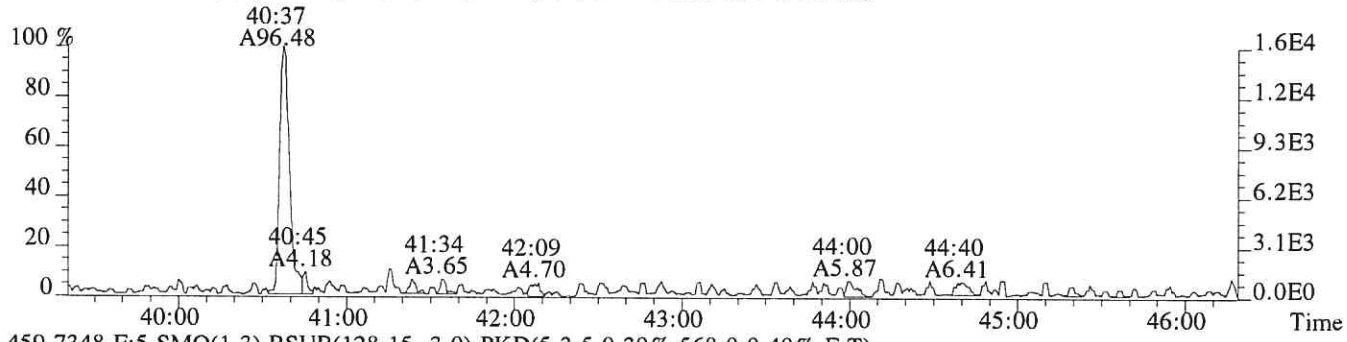
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



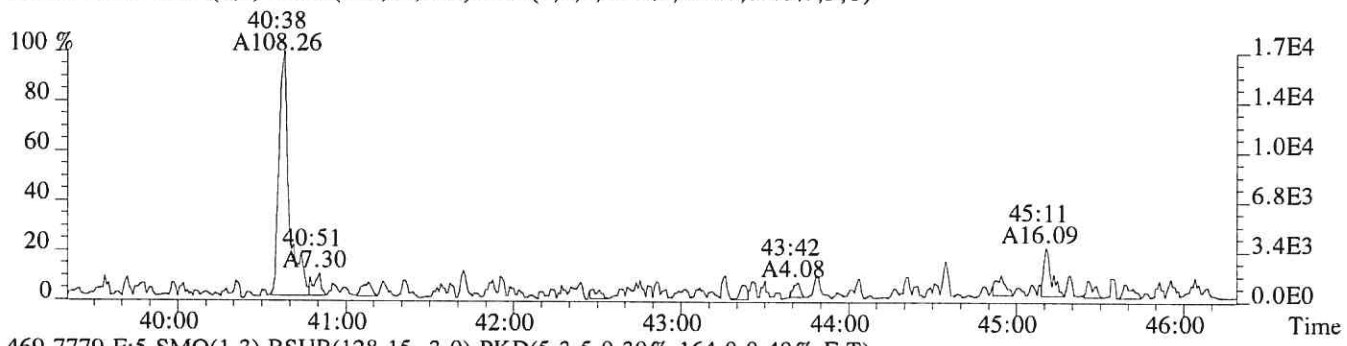
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



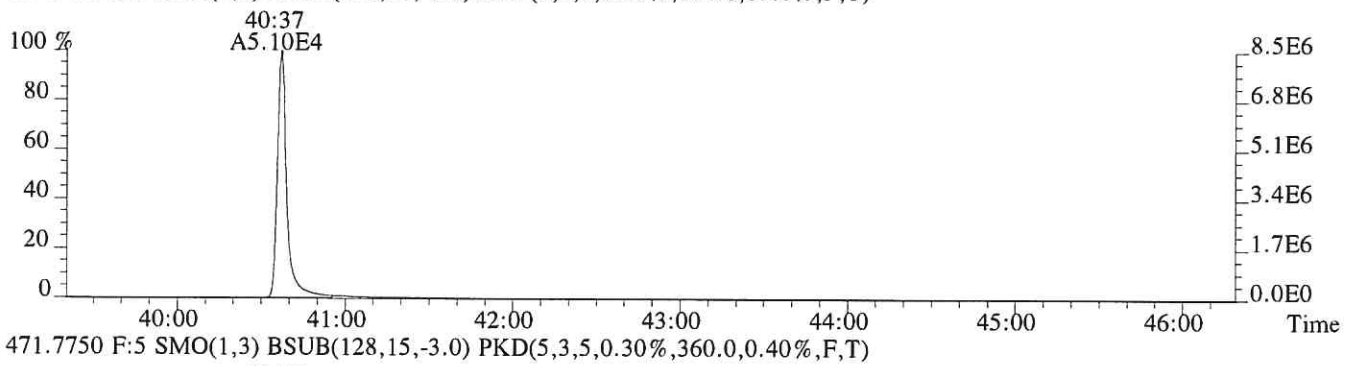
File:P518927 #1-628 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



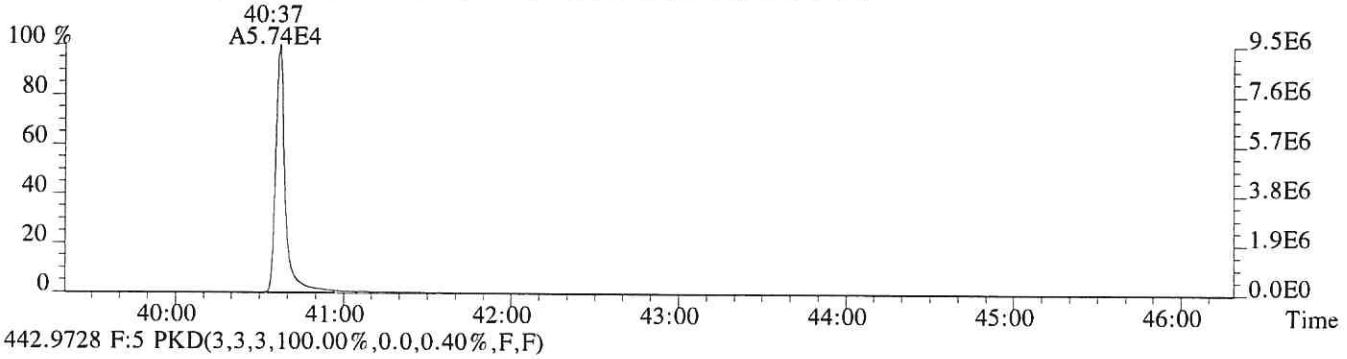
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



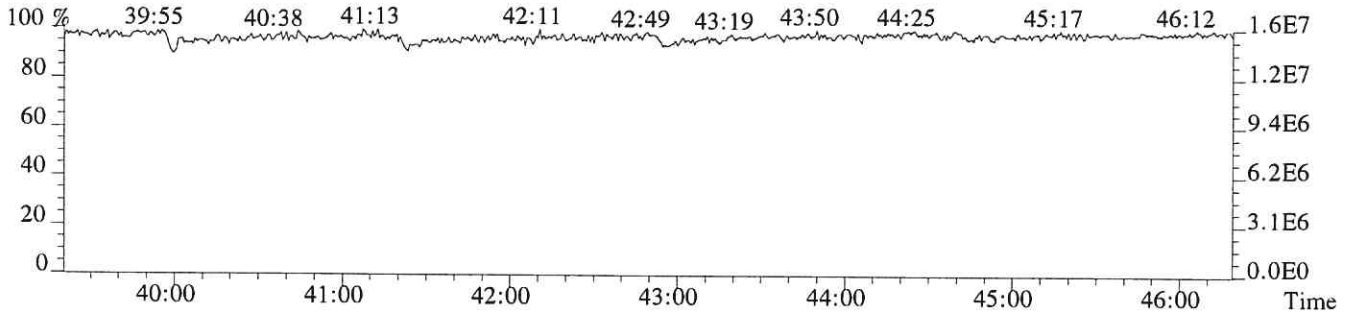
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



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



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Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P518850 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:03:50
Processed: 19-NOV-18 09:11:57 Sample ID: EQ1800463-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	9.227e+02	1.262e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:34	9.030e+03	5.782e+03	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.275e+03	6.135e+03	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	8.039e+03	6.684e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	9.878e+03	8.133e+03	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:08	9.018e+03	7.715e+03	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	7.871e+03	6.519e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	7.992e+03	8.144e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	7.550e+03	7.309e+03	1.03	yes	no	1.258
10	Unk	OCDF	40:51	1.074e+04	1.229e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	7.409e+02	8.974e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	6.639e+03	4.131e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	6.281e+03	5.050e+03	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	6.945e+03	5.601e+03	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	6.868e+03	5.384e+03	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	5.926e+03	5.749e+03	1.03	yes	no	1.025
17	Unk	OCDD	40:41	7.679e+03	8.584e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	1.015e+04	1.300e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.930e+04	1.223e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.897e+04	1.227e+04	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	8.935e+03	1.689e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.071e+04	2.090e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.049e+04	2.030e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	9.076e+03	1.730e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	7.722e+03	1.746e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.287e+03	1.616e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	6.584e+03	8.429e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.386e+04	8.587e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.292e+04	1.036e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.316e+04	1.035e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.466e+04	1.423e+04	1.03	yes	no	0.858
32	IS	13C-OCDD	40:40	1.479e+04	1.605e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	1.987e+04	2.472e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.209e+04	2.531e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	7.276e+03				no	1.014

$$\text{OCDD} = \frac{(7.679e+03 + 8.584e+03) \times 4000\ \text{pg} \times 1}{(1.479e+04 + 1.605e+04) \times \text{g} \times / 100 \times 1.118}$$

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Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P518850 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:03:50
Processed: 19-NOV-18 09:11:57 LAB. ID: EQ1800463-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.23e+05	4.12e+02	3.0e+02	1.66e+05	9.88e+02	1.7e+02
2	1,2,3,7,8-PeCDF	1.43e+06	2.36e+02	6.1e+03	9.12e+05	1.09e+03	8.4e+02
3	2,3,4,7,8-PeCDF	1.57e+06	2.36e+02	6.6e+03	1.03e+06	1.09e+03	9.4e+02
4	1,2,3,4,7,8-HxCDF	1.67e+06	1.76e+02	9.5e+03	1.39e+06	2.28e+02	6.1e+03
5	1,2,3,6,7,8-HxCDF	1.69e+06	1.76e+02	9.6e+03	1.44e+06	2.28e+02	6.3e+03
6	2,3,4,6,7,8-HxCDF	1.74e+06	1.76e+02	9.9e+03	1.48e+06	2.28e+02	6.5e+03
7	1,2,3,7,8,9-HxCDF	1.39e+06	1.76e+02	7.9e+03	1.14e+06	2.28e+02	5.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.61e+06	1.08e+03	1.5e+03	1.58e+06	2.58e+03	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.35e+06	1.08e+03	1.2e+03	1.31e+06	2.58e+03	5.1e+02
10	OCDF	1.72e+06	2.08e+02	8.3e+03	1.88e+06	4.88e+02	3.9e+03
11	2,3,7,8-TCDD	1.13e+05	1.68e+03	6.7e+01	1.30e+05	5.16e+02	2.5e+02
12	1,2,3,7,8-PeCDD	1.13e+06	5.44e+02	2.1e+03	6.96e+05	2.80e+02	2.5e+03
13	1,2,3,4,7,8-HxCDD	1.31e+06	4.24e+02	3.1e+03	1.01e+06	5.36e+02	1.9e+03
14	1,2,3,6,7,8-HxCDD	1.29e+06	4.24e+02	3.0e+03	1.03e+06	5.36e+02	1.9e+03
15	1,2,3,7,8,9-HxCDD	1.20e+06	4.24e+02	2.8e+03	9.78e+05	5.36e+02	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	1.13e+06	2.40e+02	4.7e+03	1.06e+06	3.20e+02	3.3e+03
17	OCDD	1.22e+06	2.08e+02	5.9e+03	1.32e+06	2.00e+02	6.6e+03
18	13C-2,3,7,8-TCDF	1.29e+06	4.00e+03	3.2e+02	1.65e+06	2.32e+03	7.1e+02
19	13C-1,2,3,7,8-PeCDF	3.11e+06	3.60e+02	8.6e+03	1.92e+06	4.40e+02	4.4e+03
20	13C-2,3,4,7,8-PeCDF	3.17e+06	3.60e+02	8.8e+03	2.06e+06	4.40e+02	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.75e+06	6.40e+02	2.7e+03	3.48e+06	8.16e+02	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.96e+06	6.40e+02	3.1e+03	3.70e+06	8.16e+02	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.02e+06	6.40e+02	3.2e+03	3.92e+06	8.16e+02	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.57e+06	6.40e+02	2.4e+03	3.02e+06	8.16e+02	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.50e+06	2.10e+03	7.2e+02	3.35e+06	4.30e+03	7.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.30e+06	2.10e+03	6.2e+02	2.92e+06	4.30e+03	6.8e+02
27	13C-2,3,7,8-TCDD	9.92e+05	4.91e+03	2.0e+02	1.22e+06	1.66e+03	7.4e+02
28	13C-1,2,3,7,8-PeCDD	2.28e+06	2.04e+02	1.1e+04	1.45e+06	3.52e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.65e+06	1.04e+03	2.6e+03	2.10e+06	8.08e+02	2.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.43e+06	1.04e+03	2.3e+03	1.93e+06	8.08e+02	2.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.74e+06	2.16e+02	1.3e+04	2.60e+06	2.16e+02	1.2e+04
32	13C-OCDD	2.25e+06	2.32e+02	9.7e+03	2.50e+06	2.44e+02	1.0e+04
33	13C-1,2,3,4-TCDD	2.88e+06	4.91e+03	5.9e+02	3.60e+06	1.66e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.74e+06	1.04e+03	5.5e+03	4.46e+06	8.08e+02	5.5e+03
35	37Cl-2,3,7,8-TCDD	1.04e+06	5.92e+02	1.8e+03			

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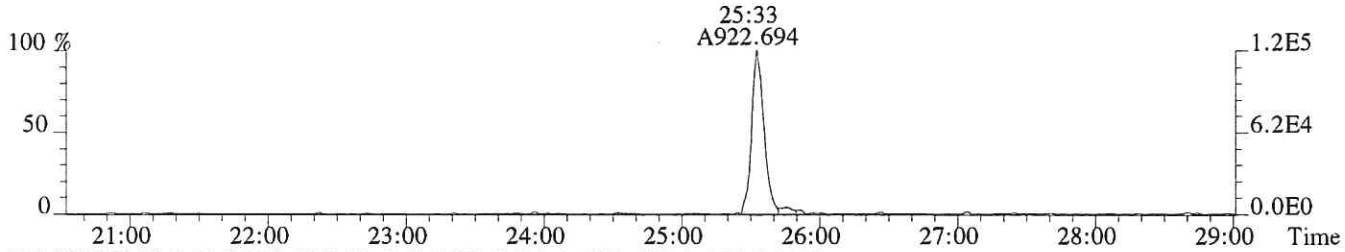
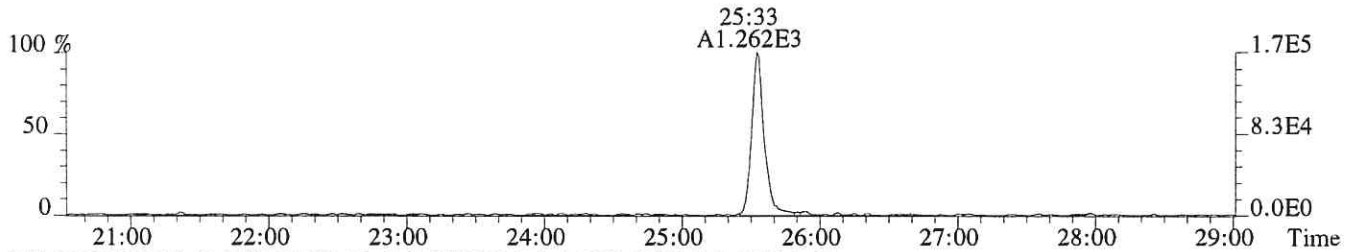
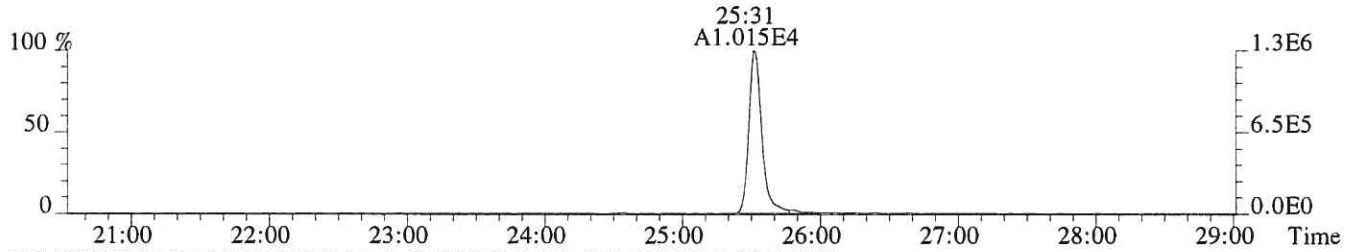
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



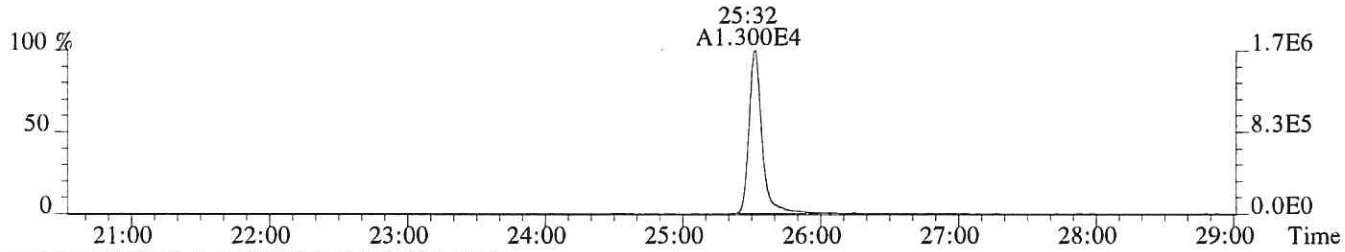
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



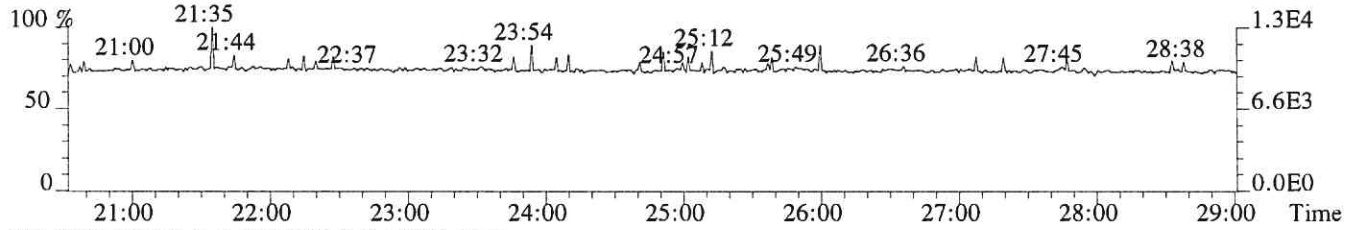
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3996.0,1.00%,F,T)



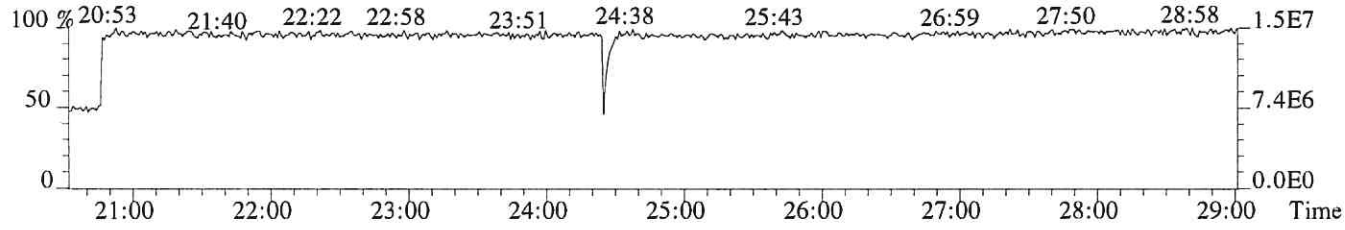
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



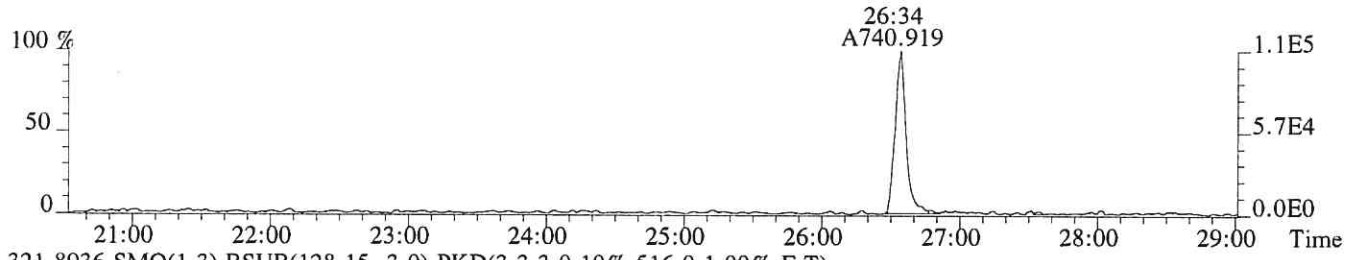
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



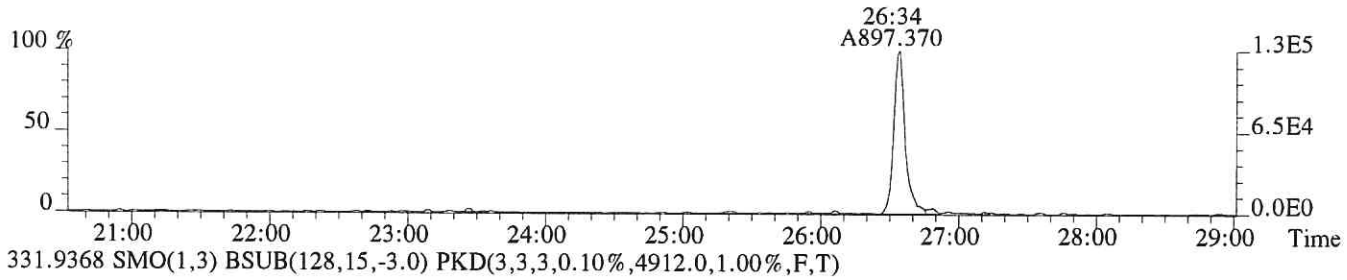
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



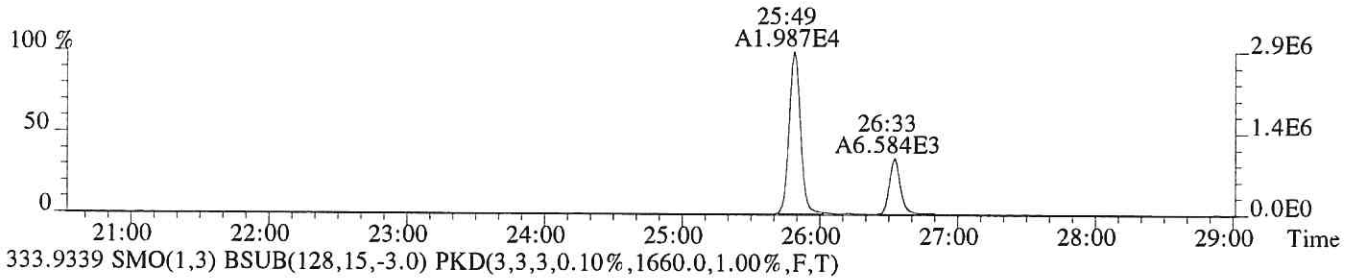
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



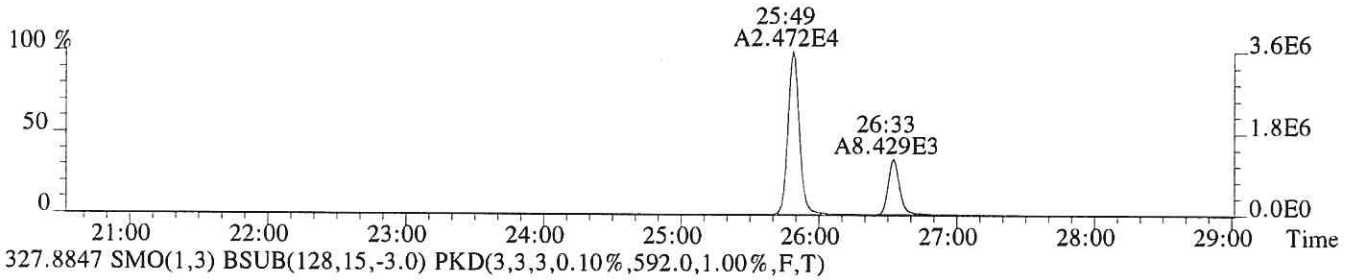
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



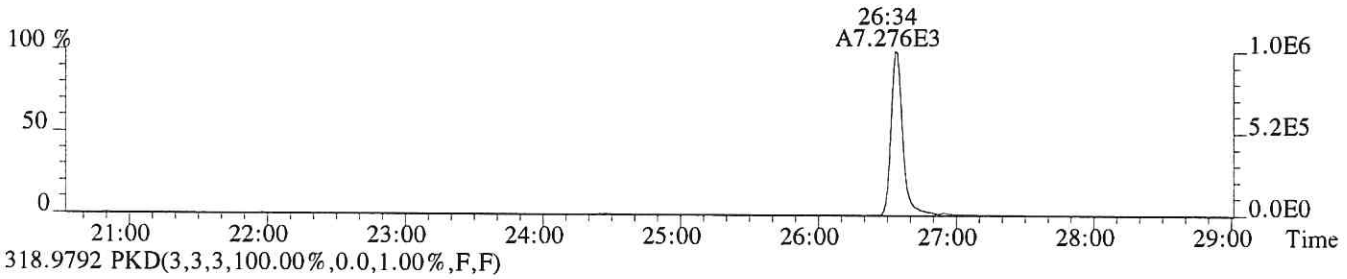
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4912.0,1.00%,F,T)



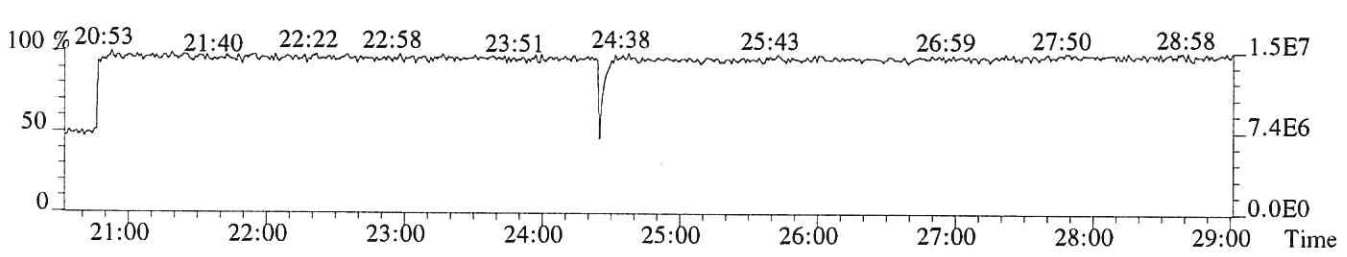
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



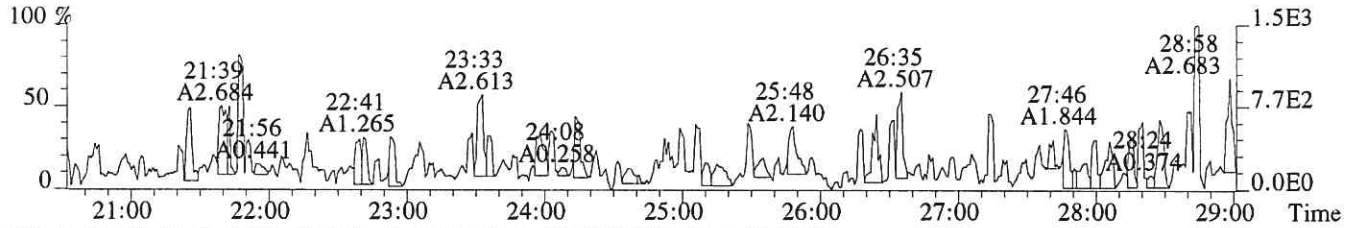
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



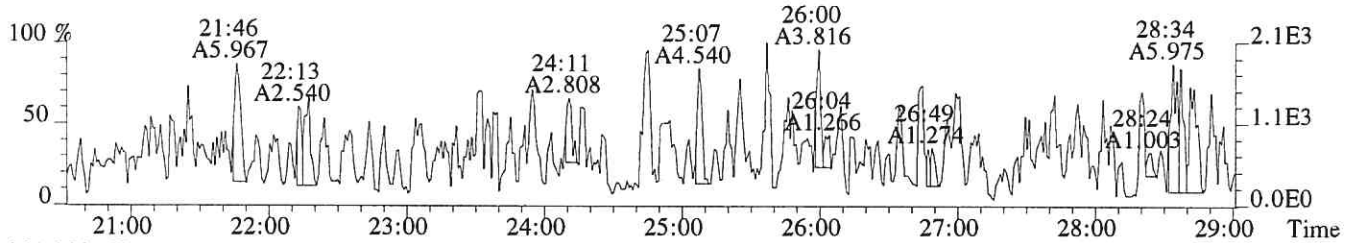
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



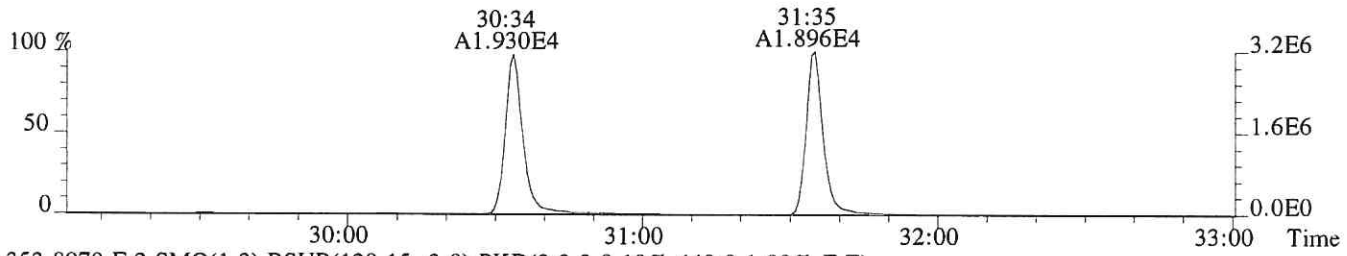
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



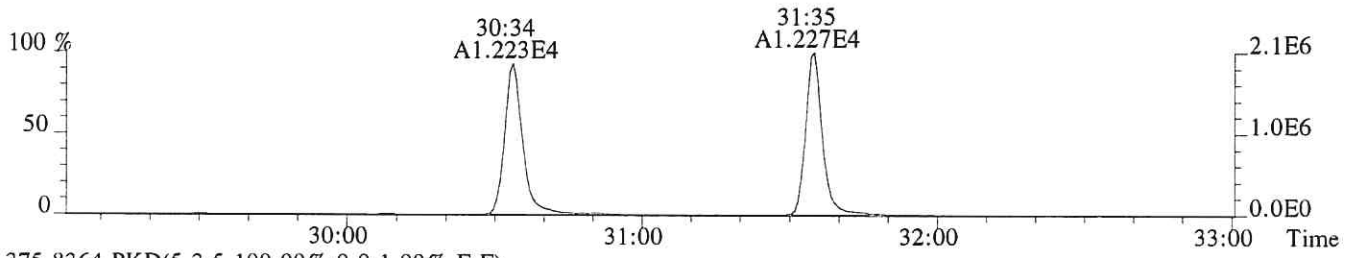
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



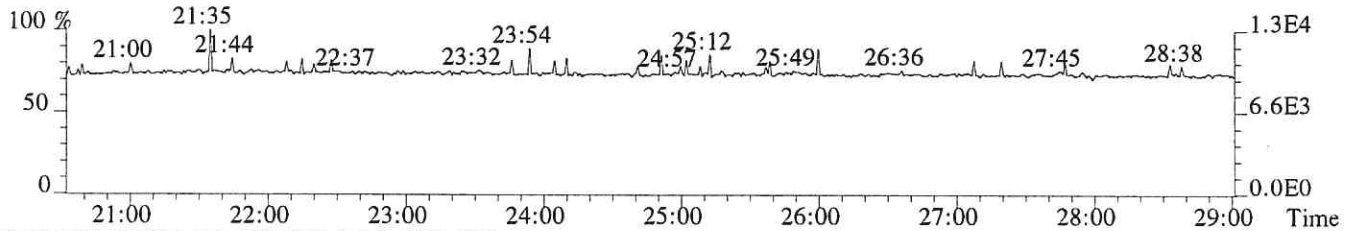
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



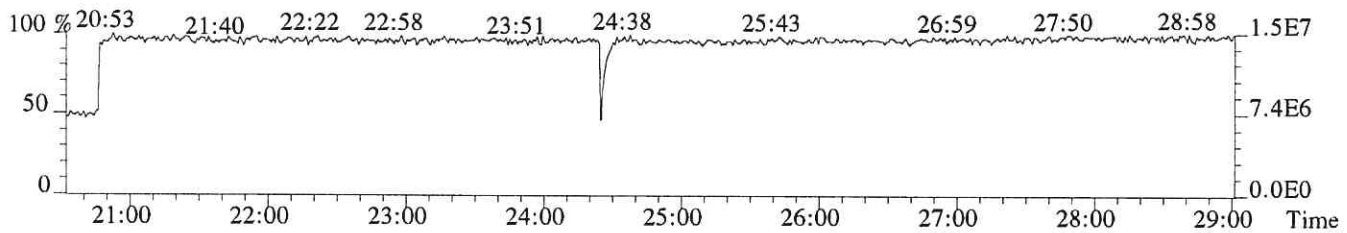
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



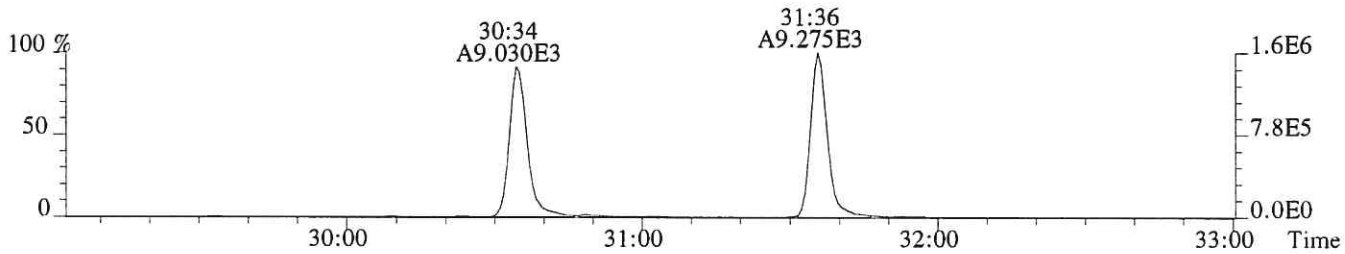
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



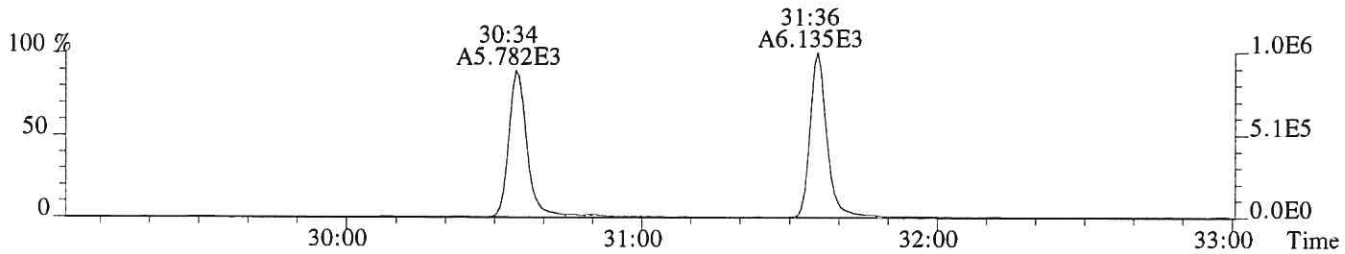
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



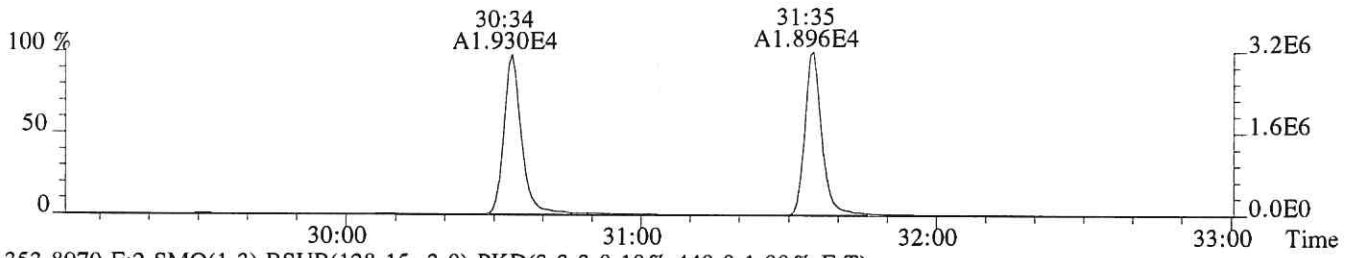
File:P518850 #1-357 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



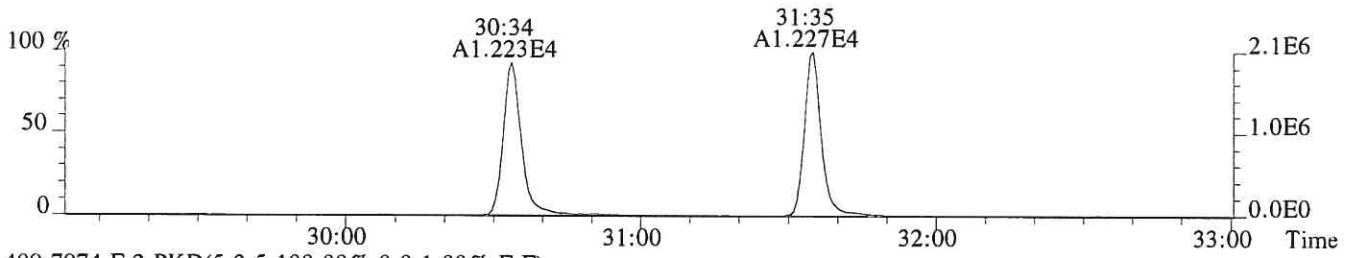
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



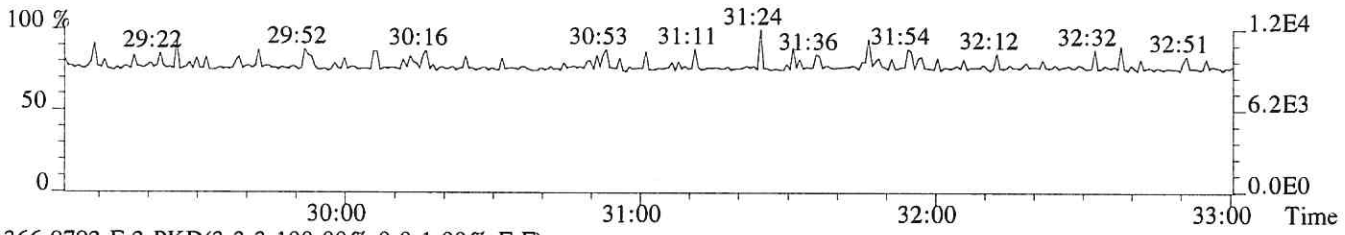
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



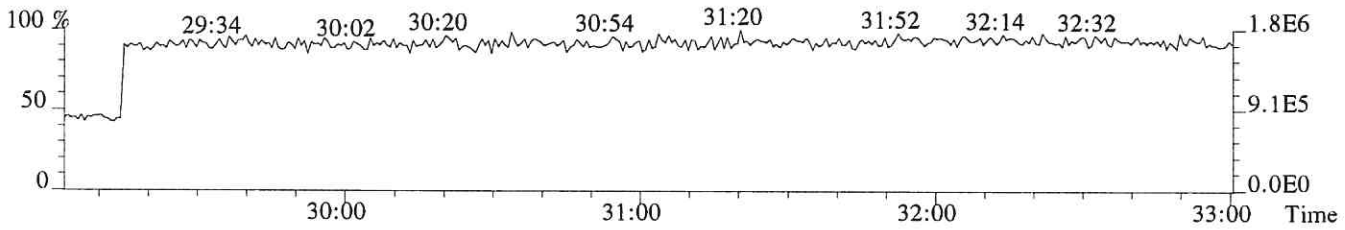
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



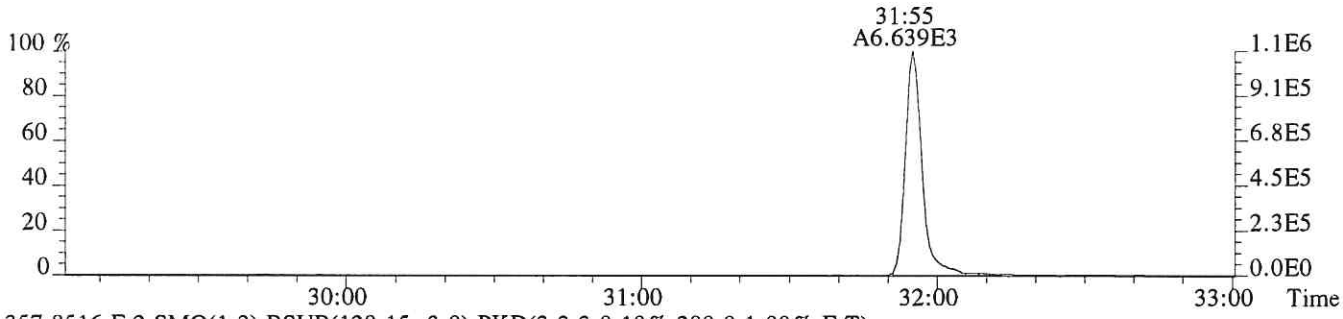
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



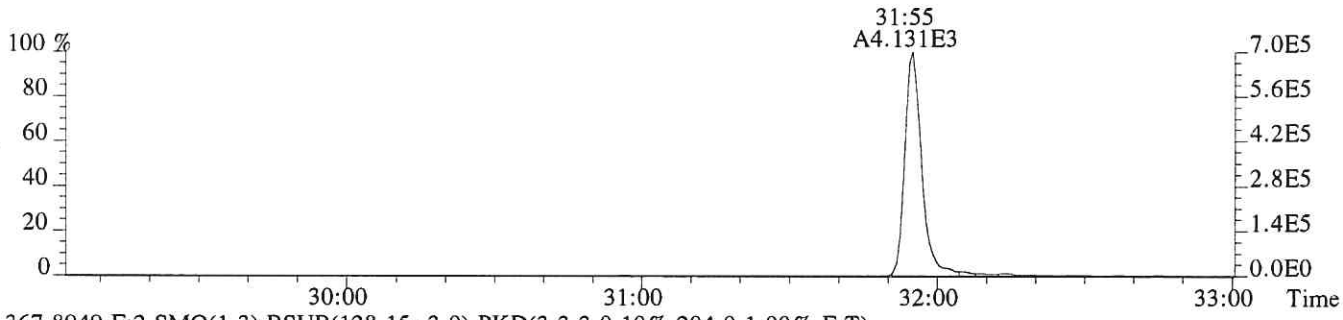
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



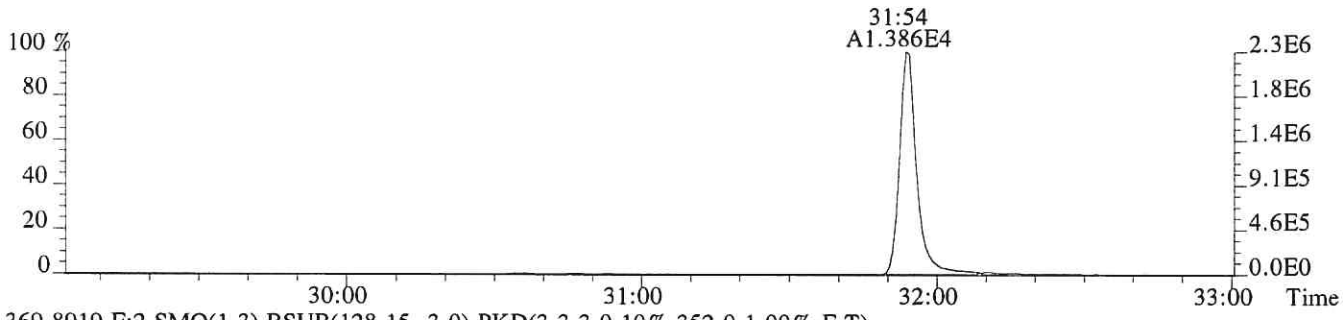
File:P518850 #1-357 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



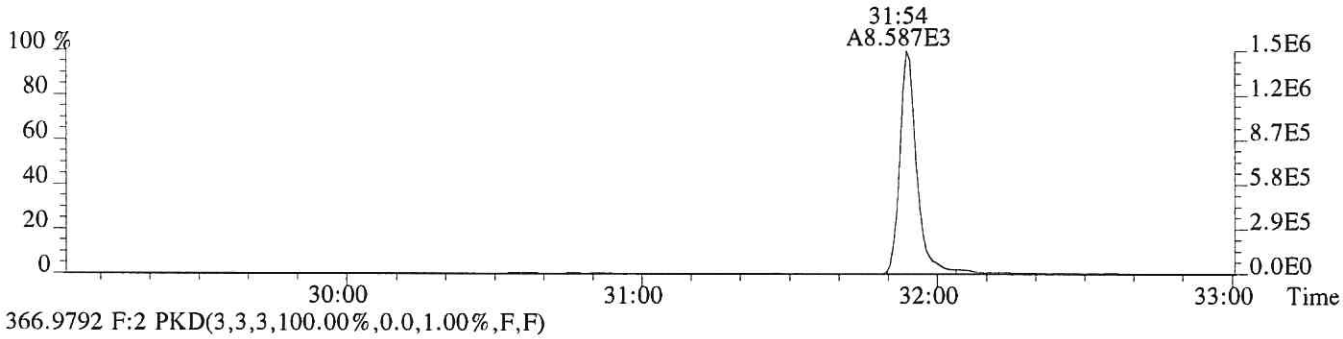
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



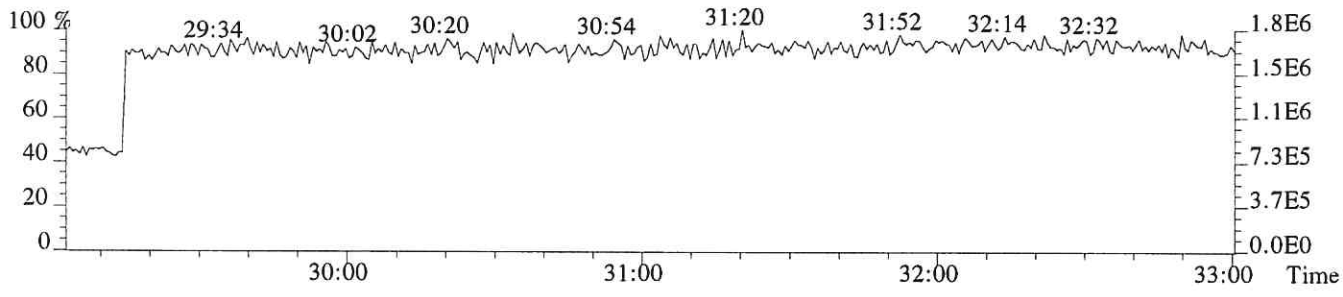
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



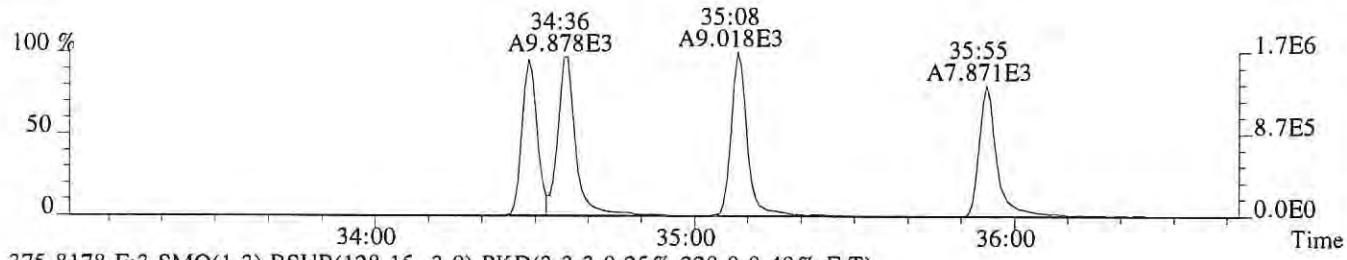
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



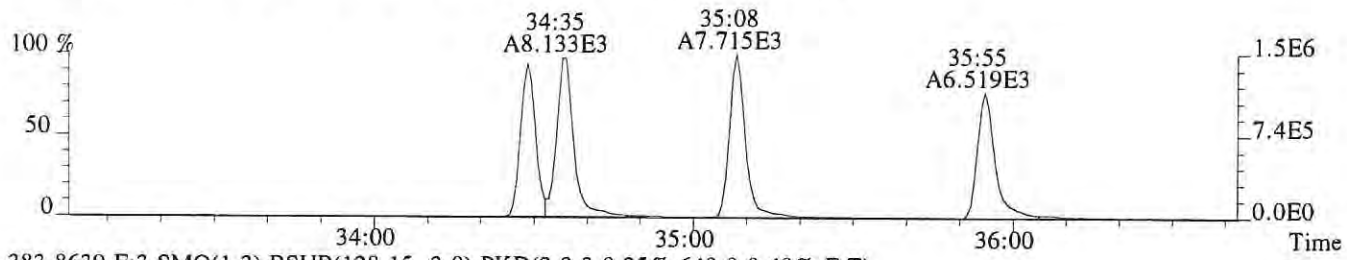
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



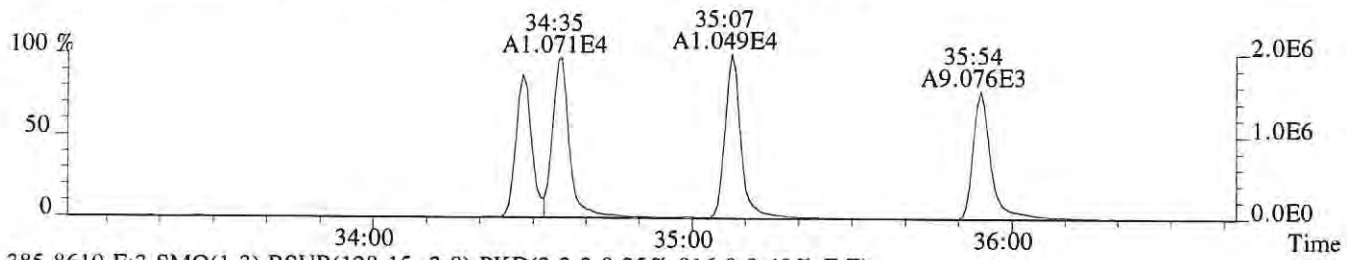
File:P518850 #1-330 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



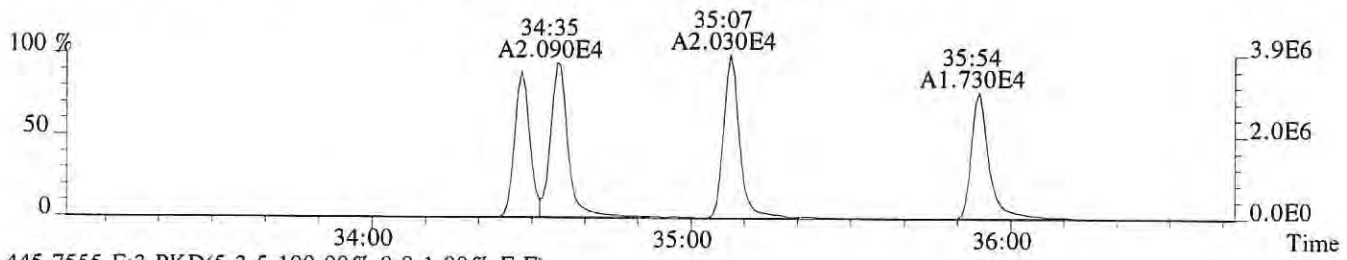
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



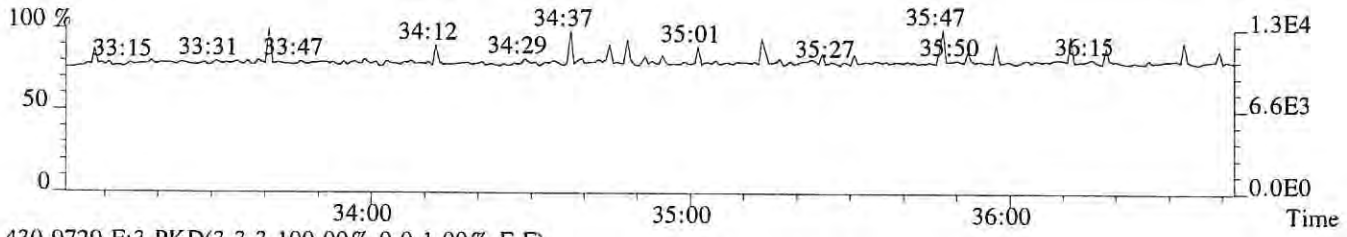
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



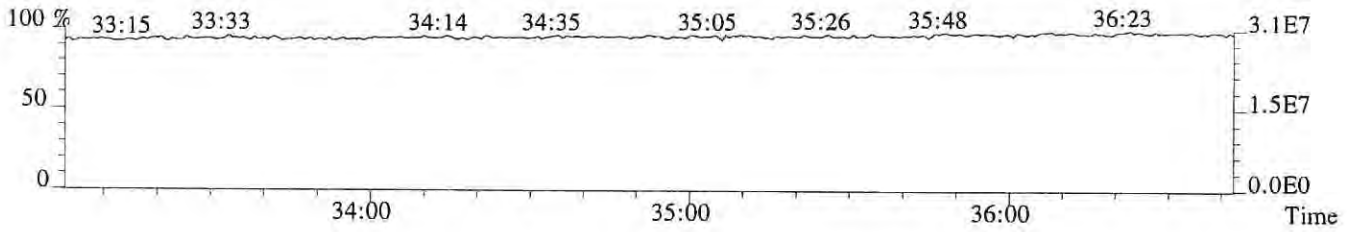
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



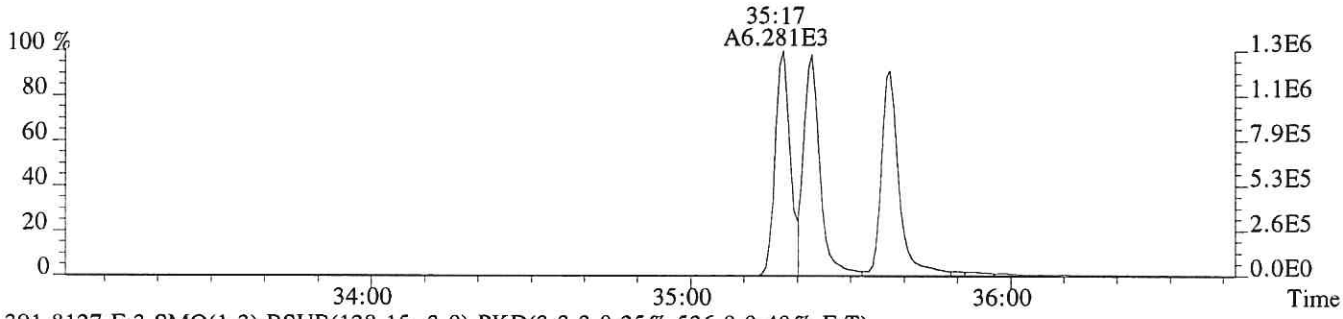
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



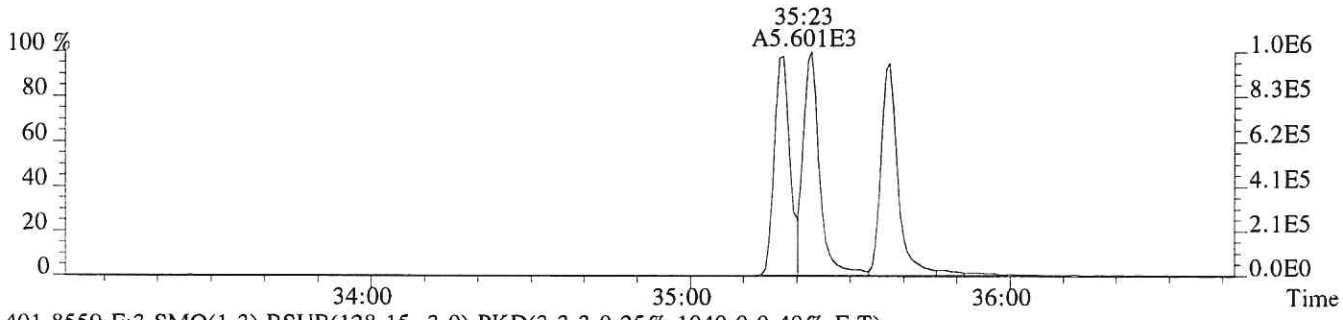
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



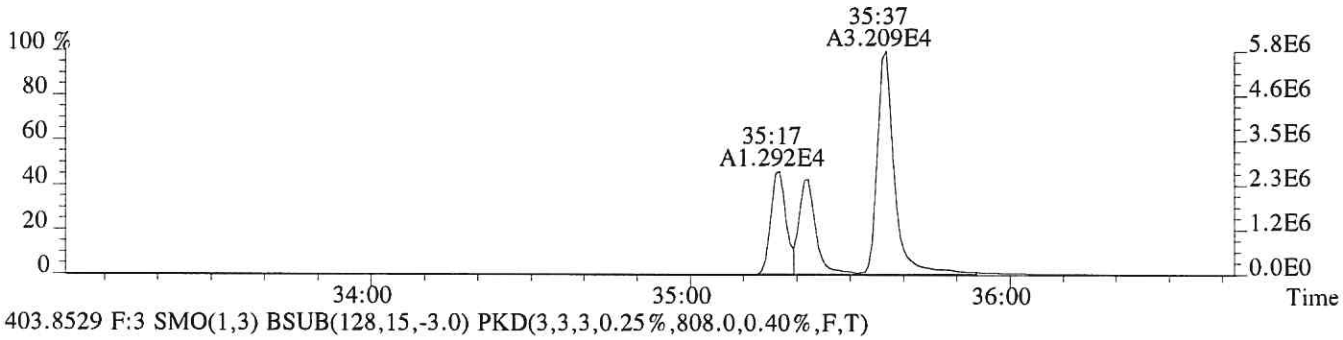
File:P518850 #1-330 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



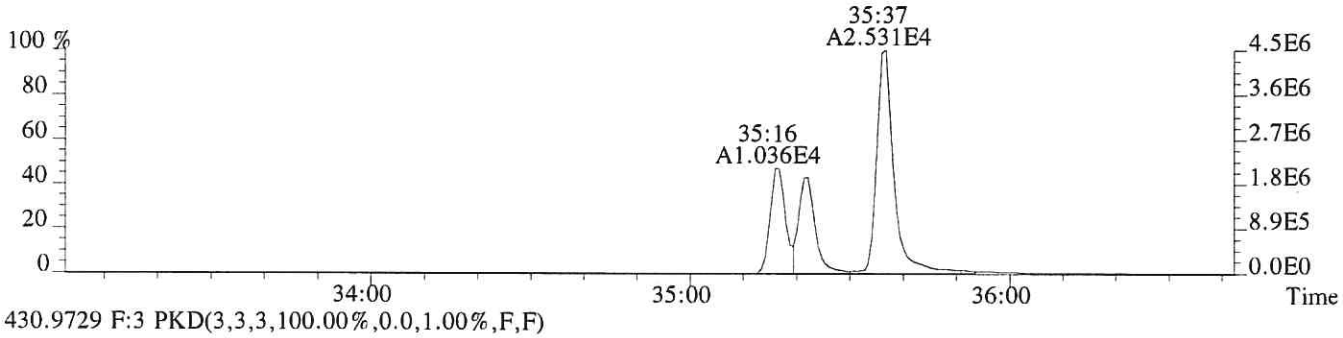
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



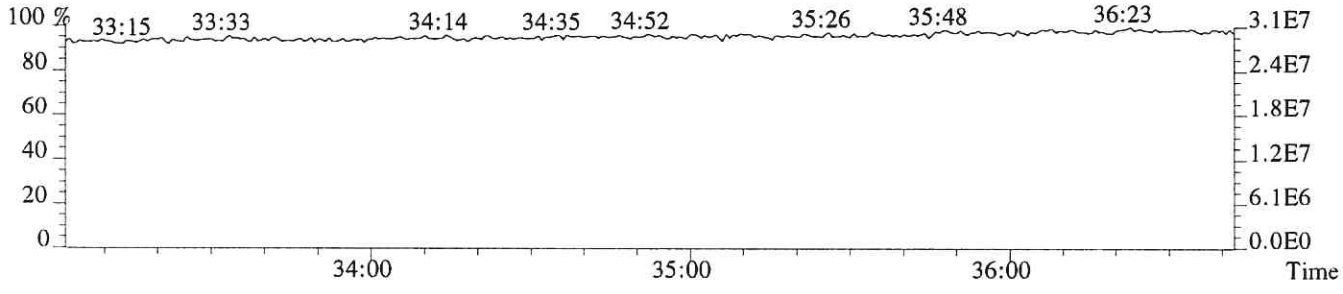
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



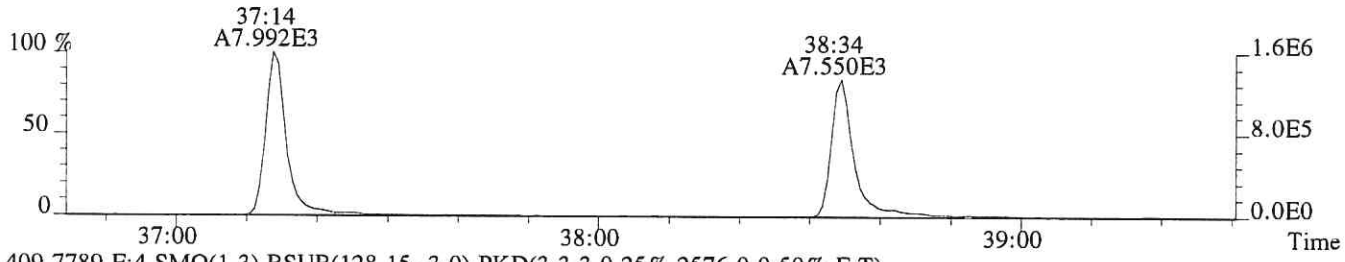
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



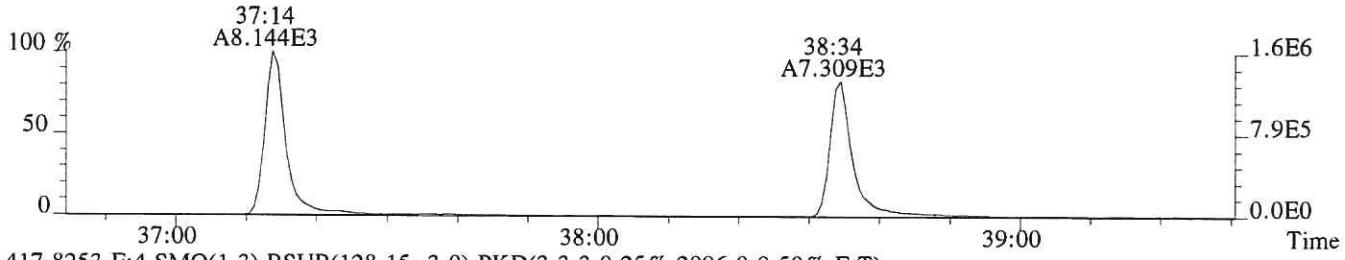
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



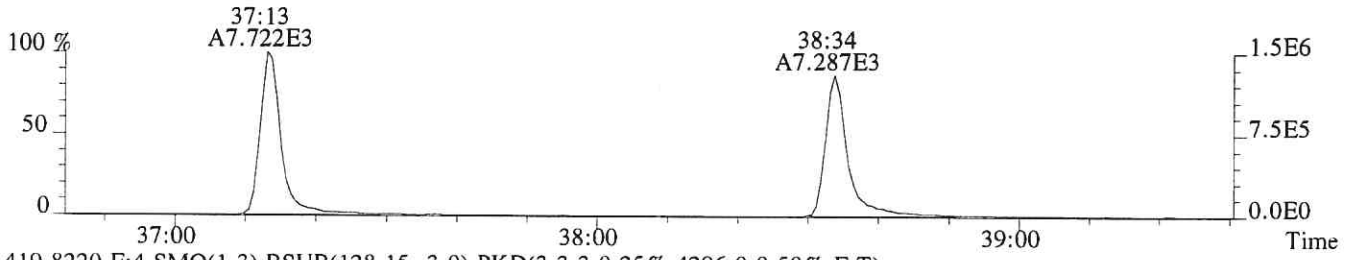
File:P518850 #1-250 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.50%,F,T)



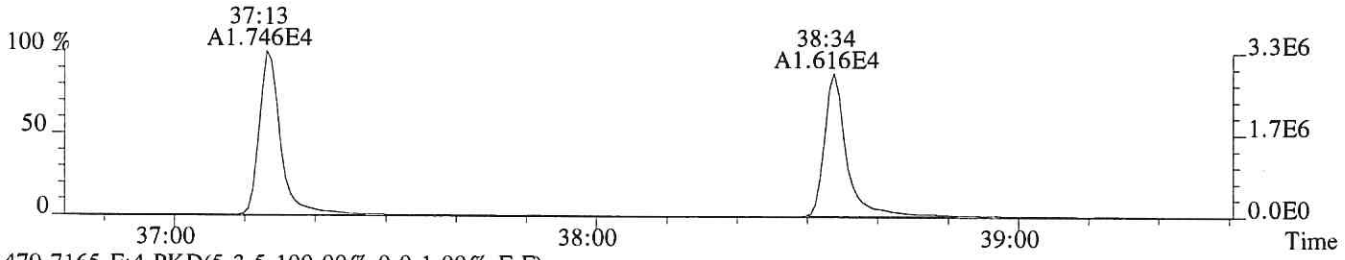
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



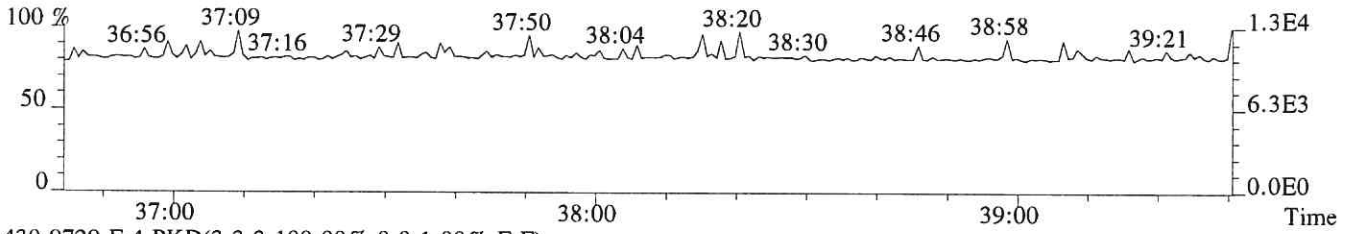
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.50%,F,T)



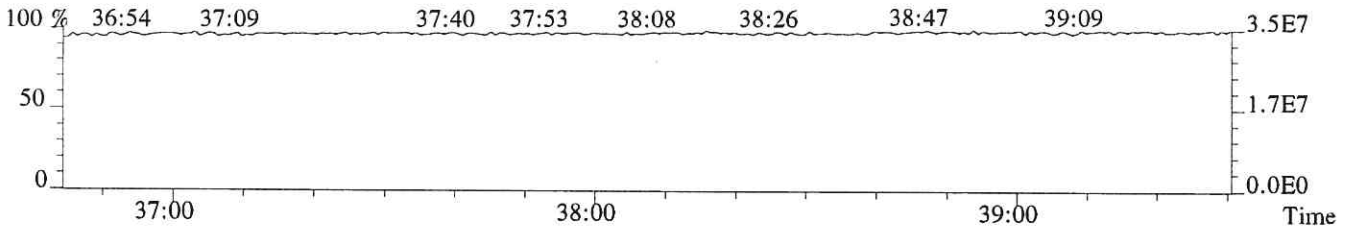
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4296.0,0.50%,F,T)



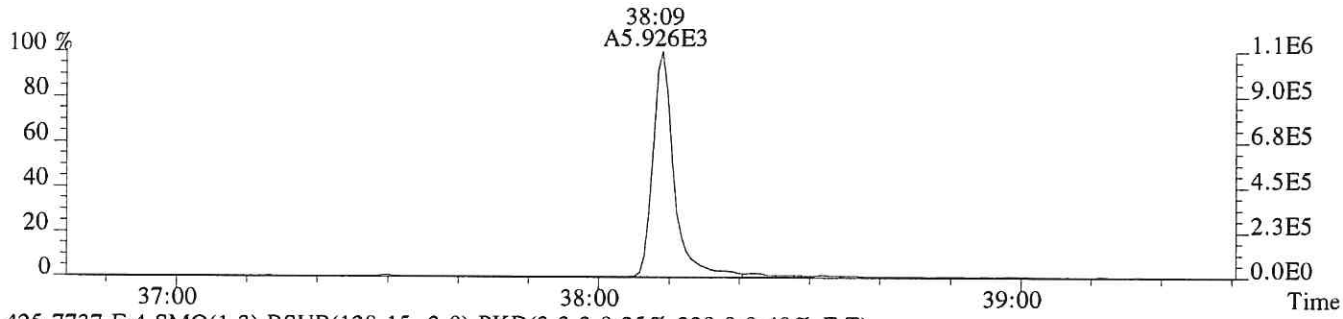
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



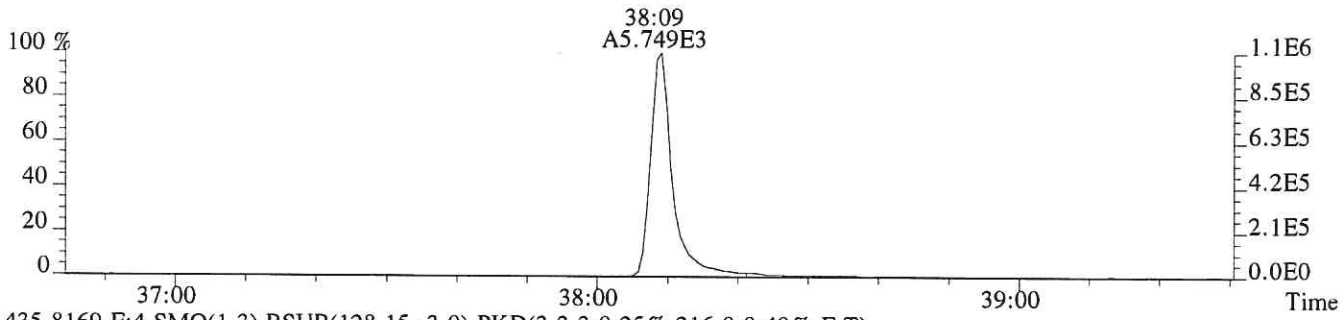
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



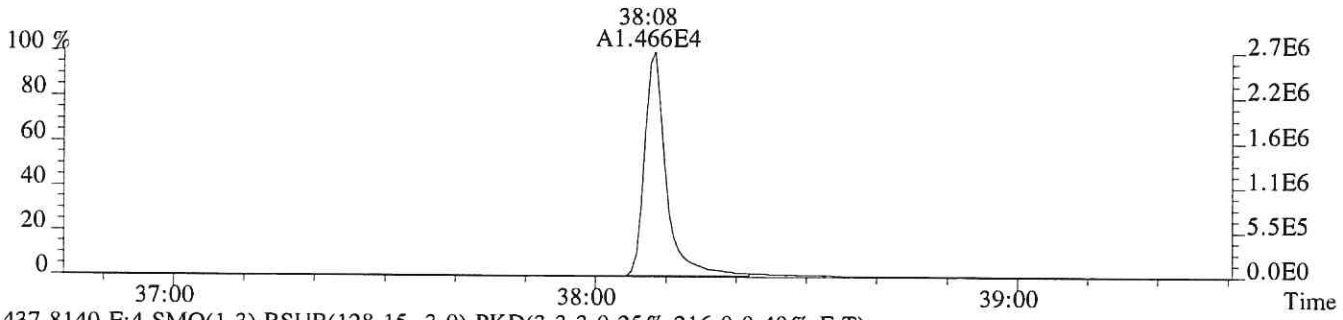
File:P518850 #1-250 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



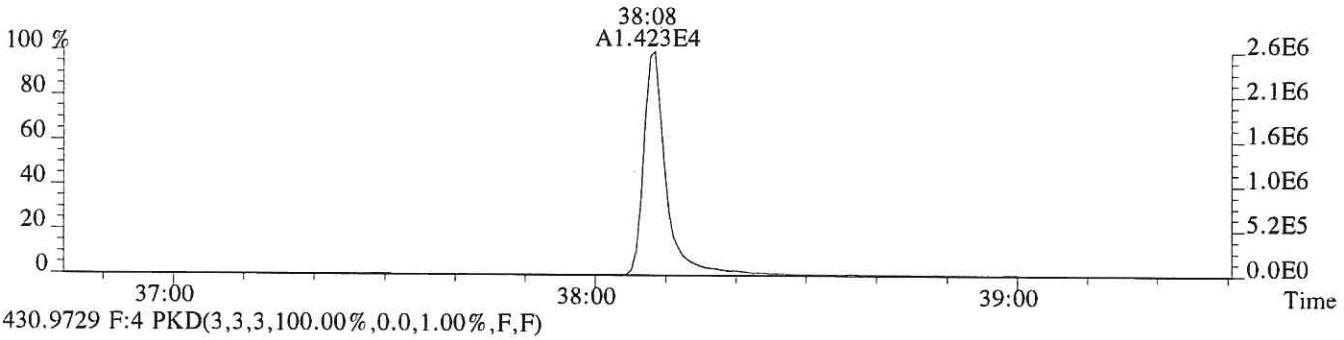
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



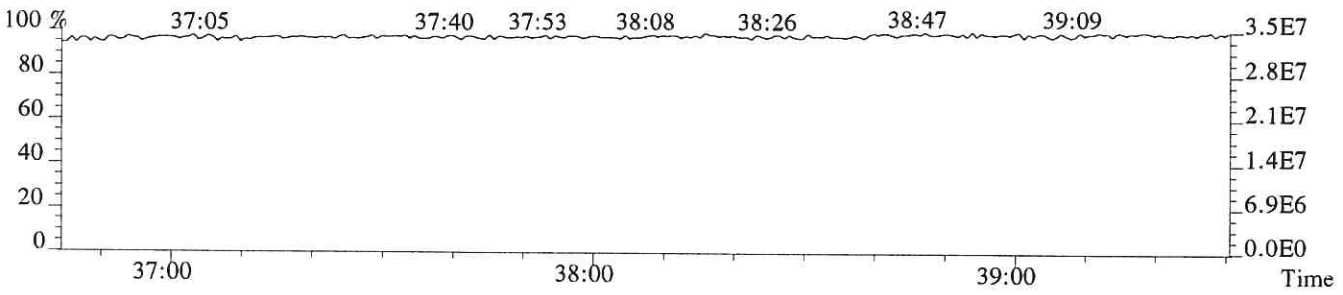
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



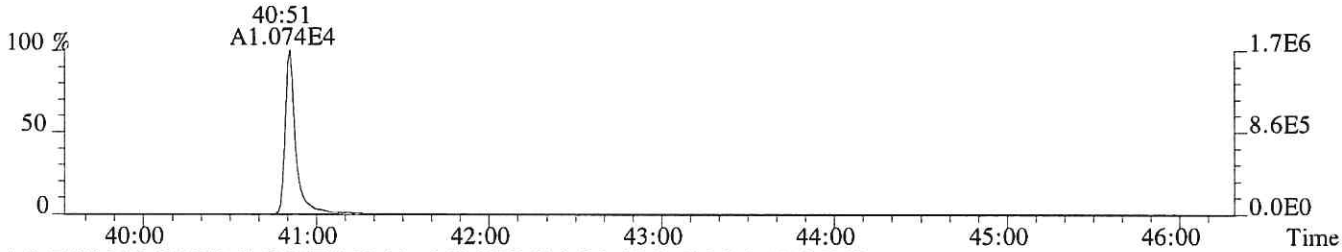
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



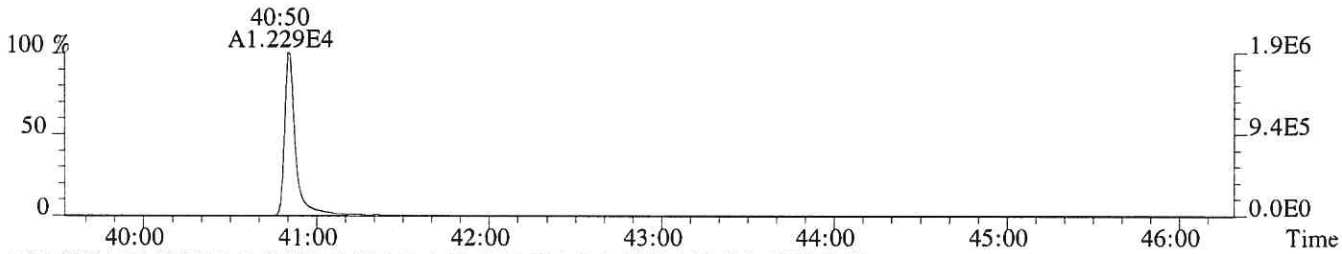
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



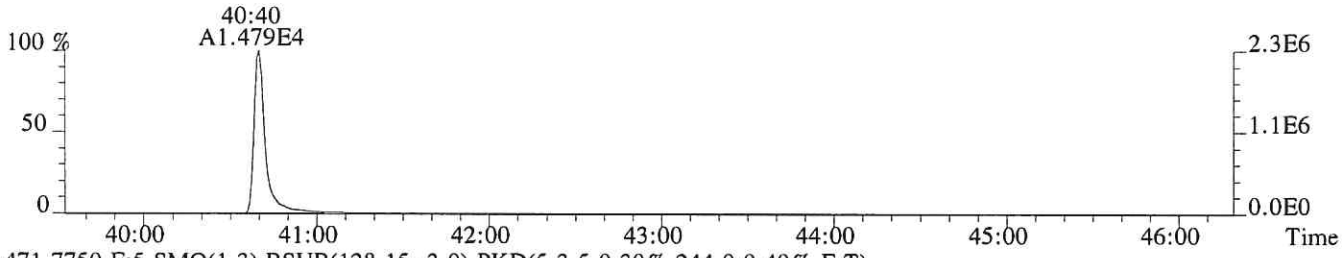
File:P518850 #1-610 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



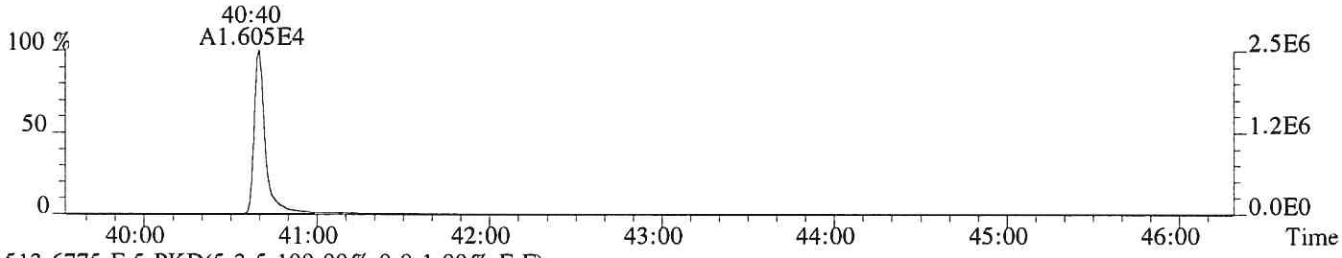
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



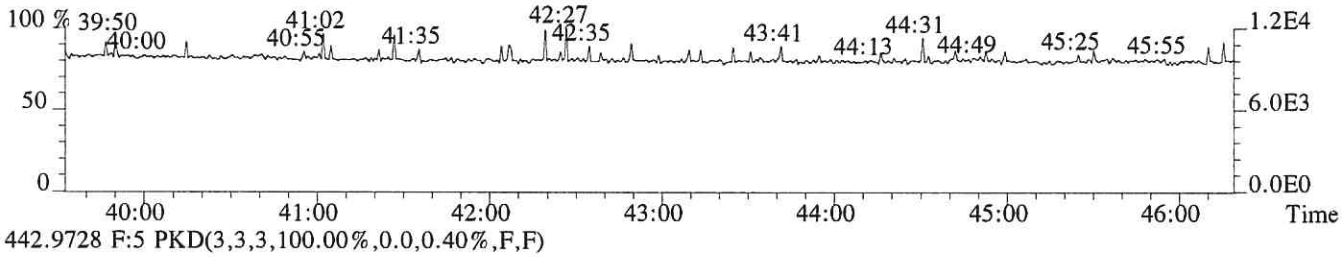
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



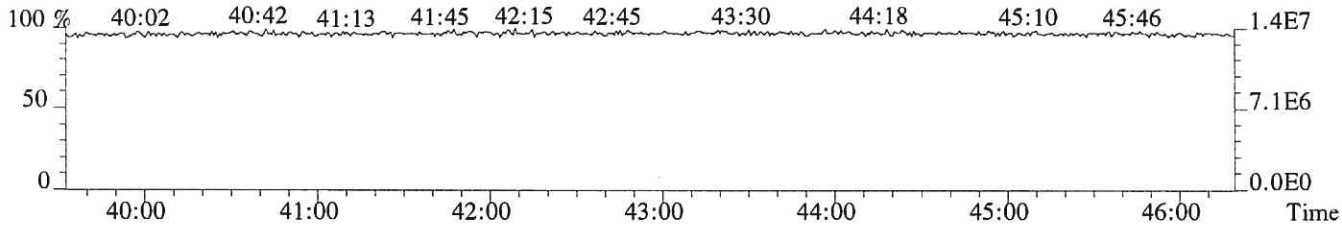
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



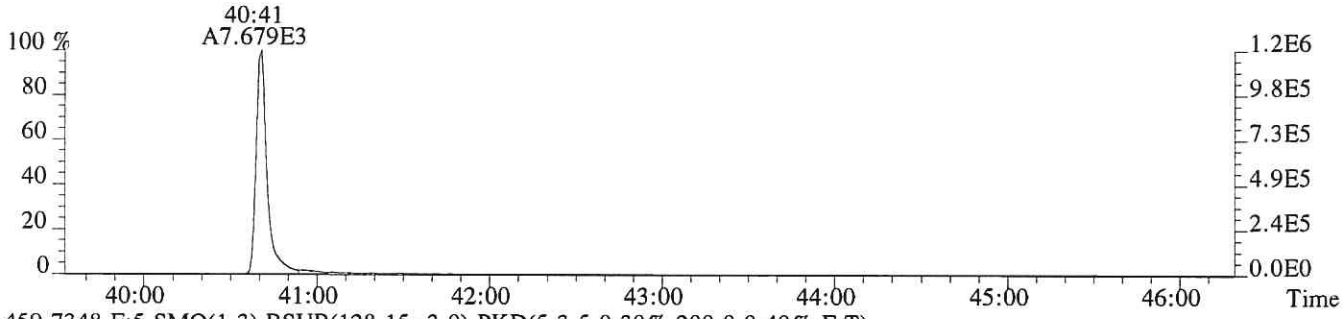
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



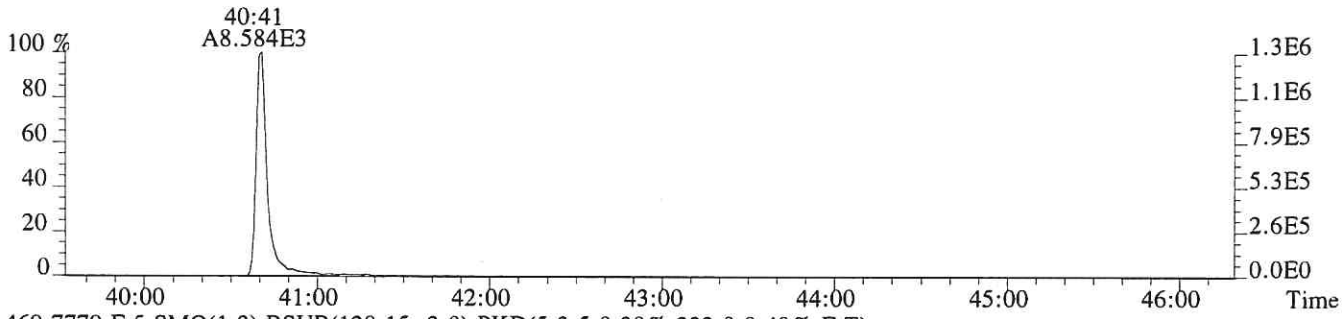
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



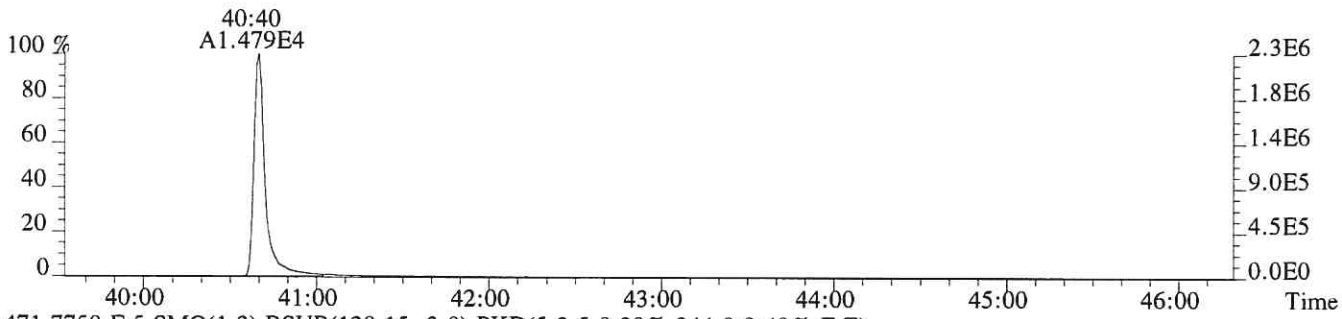
File:P518850 #1-610 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



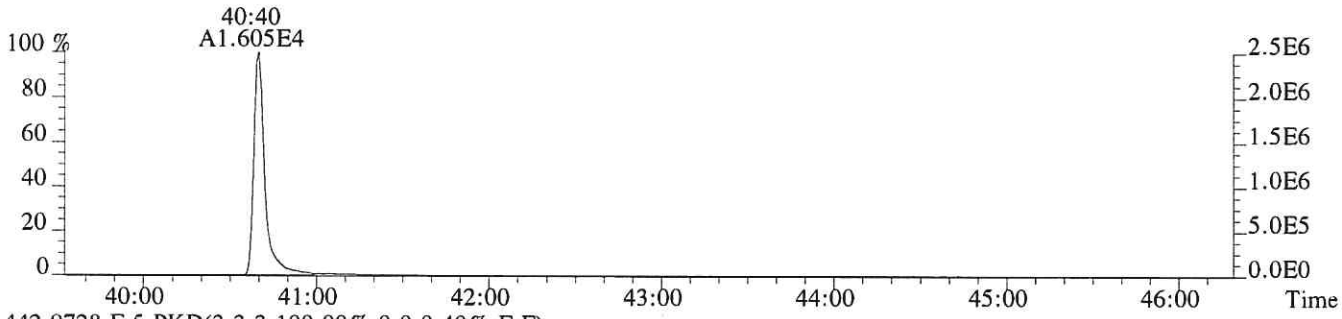
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



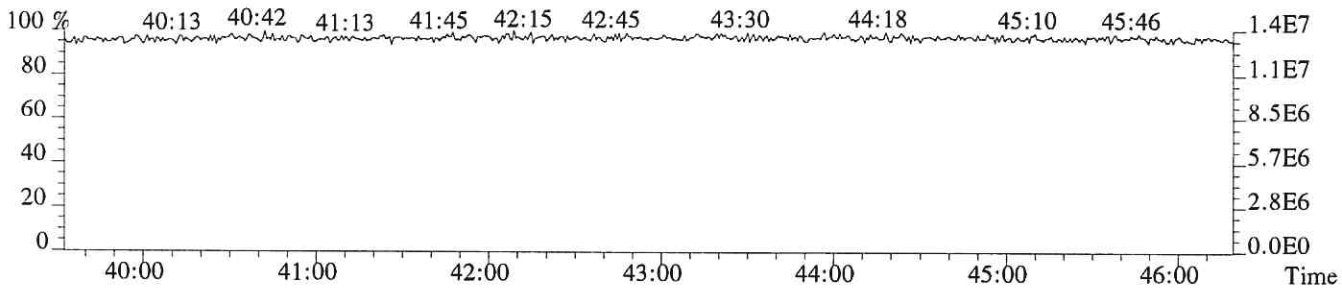
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P518851 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:52:30
Processed: 19-NOV-18 09:11:58 Sample ID: EQ1800463-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	9.187e+02	1.286e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.014e+04	6.531e+03	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.037e+04	6.841e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.773e+03	8.018e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.156e+04	9.449e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	9.885e+03	8.059e+03	1.23	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.248e+03	7.708e+03	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	9.116e+03	9.217e+03	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	8.513e+03	8.309e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:51	1.316e+04	1.428e+04	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	6.876e+02	8.988e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	7.742e+03	4.900e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	7.433e+03	5.721e+03	1.30	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.075e+03	6.191e+03	1.30	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	8.246e+03	6.340e+03	1.30	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	6.811e+03	6.681e+03	1.02	yes	no	1.025
17	Unk	OCDD	40:42	9.927e+03	1.116e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.072e+04	1.335e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.147e+04	1.346e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.199e+04	1.354e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.057e+04	2.007e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.308e+04	2.465e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.138e+04	2.251e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.038e+04	1.973e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.541e+03	1.926e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.485e+03	1.895e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.057e+03	8.845e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.578e+04	9.922e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.541e+04	1.125e+04	1.37	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.529e+04	1.254e+04	1.22	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.710e+04	1.587e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:42	1.814e+04	2.020e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.040e+04	2.578e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.405e+04	2.525e+04	1.35	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	7.807e+03				no	1.014

$$\text{OCDD} = \frac{(9.927e+03 + 1.116e+04) \times 4000\ \text{pg} \times 1}{(1.814e+04 + 2.020e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P518851 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:52:30
Processed: 19-NOV-18 09:11:58 LAB. ID: EQ1800463-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.14e+05	4.28e+02	2.7e+02	1.71e+05	1.29e+03	1.3e+02
2	1,2,3,7,8-PeCDF	1.67e+06	6.44e+02	2.6e+03	1.08e+06	8.72e+02	1.2e+03
3	2,3,4,7,8-PeCDF	1.82e+06	6.44e+02	2.8e+03	1.20e+06	8.72e+02	1.4e+03
4	1,2,3,4,7,8-HxCDF	2.02e+06	2.60e+02	7.8e+03	1.66e+06	3.16e+02	5.3e+03
5	1,2,3,6,7,8-HxCDF	2.08e+06	2.60e+02	8.0e+03	1.64e+06	3.16e+02	5.2e+03
6	2,3,4,6,7,8-HxCDF	1.97e+06	2.60e+02	7.6e+03	1.60e+06	3.16e+02	5.1e+03
7	1,2,3,7,8,9-HxCDF	1.64e+06	2.60e+02	6.3e+03	1.33e+06	3.16e+02	4.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.76e+06	1.00e+03	1.7e+03	1.74e+06	2.54e+03	6.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.56e+06	1.00e+03	1.6e+03	1.51e+06	2.54e+03	5.9e+02
10	OCDF	2.00e+06	1.56e+02	1.3e+04	2.22e+06	6.44e+02	3.4e+03
11	2,3,7,8-TCDD	1.07e+05	1.32e+03	8.1e+01	1.41e+05	5.32e+02	2.7e+02
12	1,2,3,7,8-PeCDD	1.24e+06	6.76e+02	1.8e+03	8.16e+05	1.84e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	1.50e+06	2.52e+02	6.0e+03	1.15e+06	2.80e+02	4.1e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	2.52e+02	6.0e+03	1.17e+06	2.80e+02	4.2e+03
15	1,2,3,7,8,9-HxCDD	1.44e+06	2.52e+02	5.7e+03	1.15e+06	2.80e+02	4.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.28e+06	2.44e+02	5.2e+03	1.23e+06	4.96e+02	2.5e+03
17	OCDD	1.54e+06	1.92e+02	8.0e+03	1.74e+06	2.36e+02	7.4e+03
18	13C-2,3,7,8-TCDF	1.41e+06	3.14e+03	4.5e+02	1.77e+06	1.17e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	3.46e+06	1.48e+02	2.3e+04	2.17e+06	4.20e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	3.71e+06	1.48e+02	2.5e+04	2.27e+06	4.20e+02	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.20e+06	9.20e+02	2.4e+03	4.20e+06	2.56e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	2.28e+06	9.20e+02	2.5e+03	4.42e+06	2.56e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	2.25e+06	9.20e+02	2.4e+03	4.39e+06	2.56e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	1.85e+06	9.20e+02	2.0e+03	3.47e+06	2.56e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.69e+06	2.20e+03	7.6e+02	3.75e+06	3.33e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.52e+06	2.20e+03	6.9e+02	3.35e+06	3.33e+03	1.0e+03
27	13C-2,3,7,8-TCDD	1.05e+06	3.10e+03	3.4e+02	1.29e+06	1.89e+03	6.8e+02
28	13C-1,2,3,7,8-PeCDD	2.62e+06	3.24e+02	8.1e+03	1.68e+06	2.88e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.15e+06	1.06e+03	3.0e+03	2.45e+06	3.32e+02	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.78e+06	1.06e+03	2.6e+03	2.24e+06	3.32e+02	6.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.12e+06	1.64e+02	1.9e+04	2.90e+06	2.32e+02	1.3e+04
32	13C-OCDD	2.78e+06	4.88e+02	5.7e+03	3.16e+06	2.16e+02	1.5e+04
33	13C-1,2,3,4-TCDD	3.01e+06	3.10e+03	9.7e+02	3.78e+06	1.89e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	5.90e+06	1.06e+03	5.6e+03	4.51e+06	3.32e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.13e+06	1.04e+03	1.1e+03			

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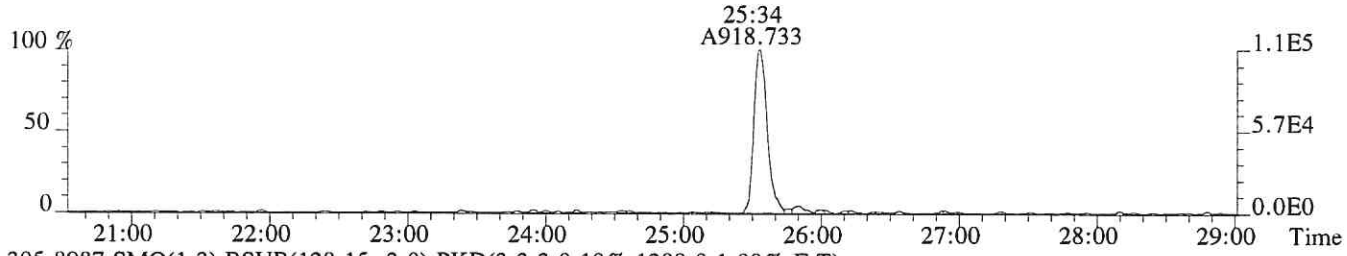
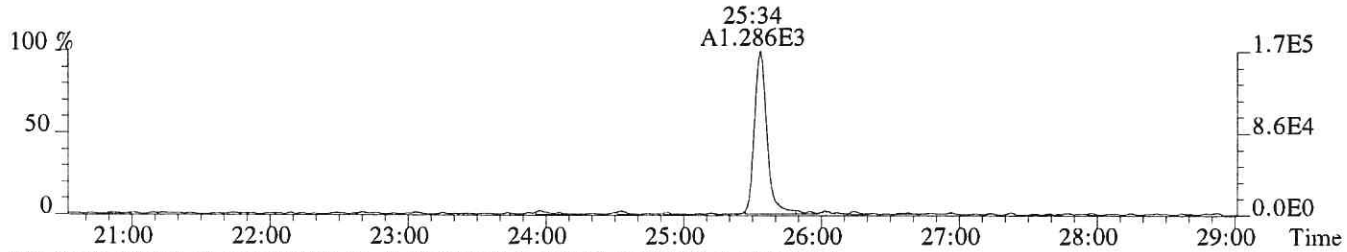
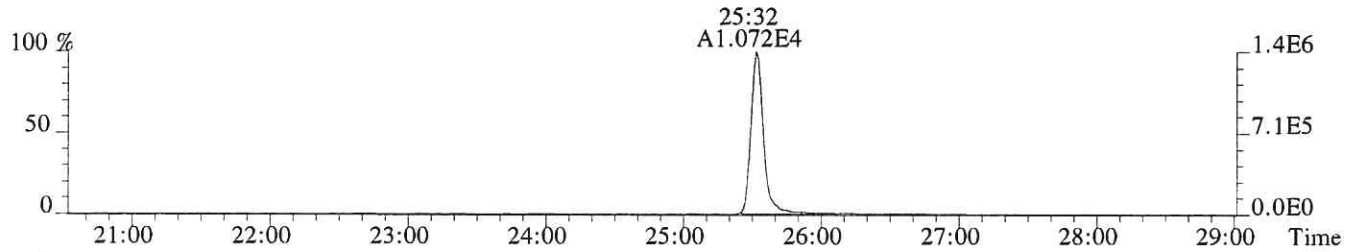
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



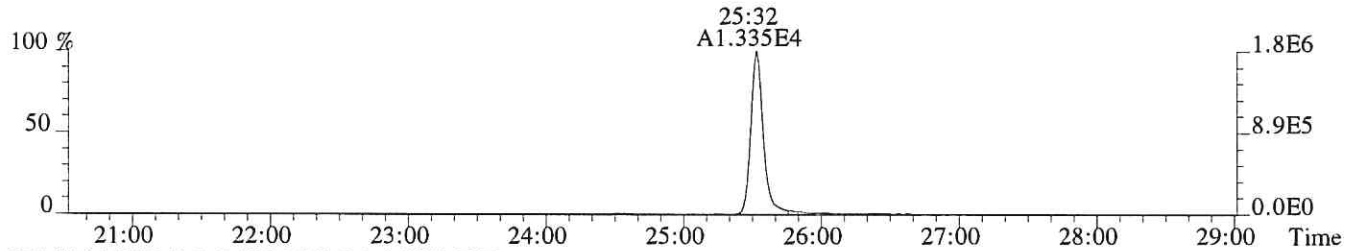
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



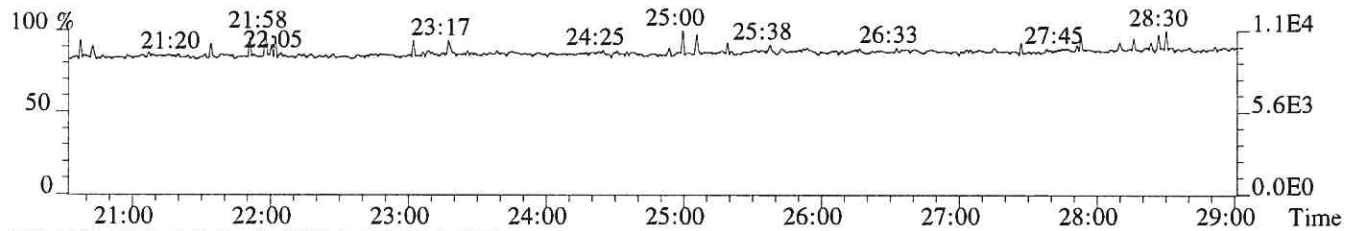
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



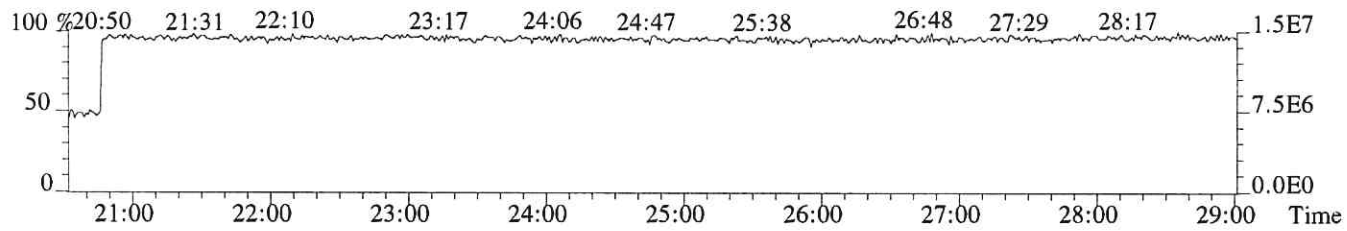
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



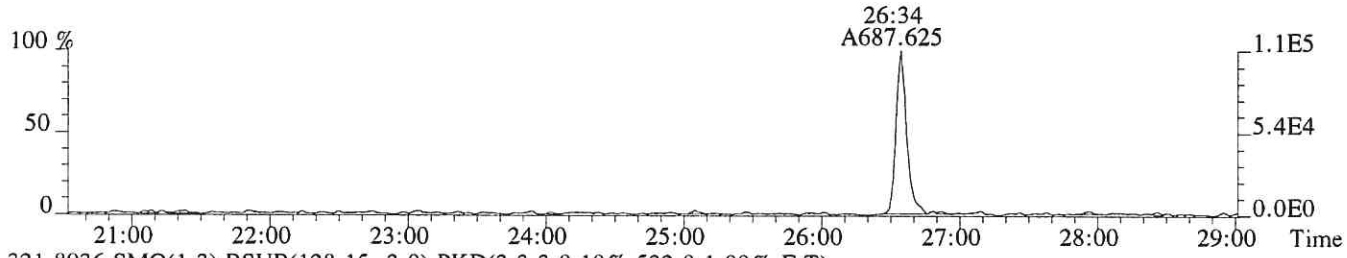
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



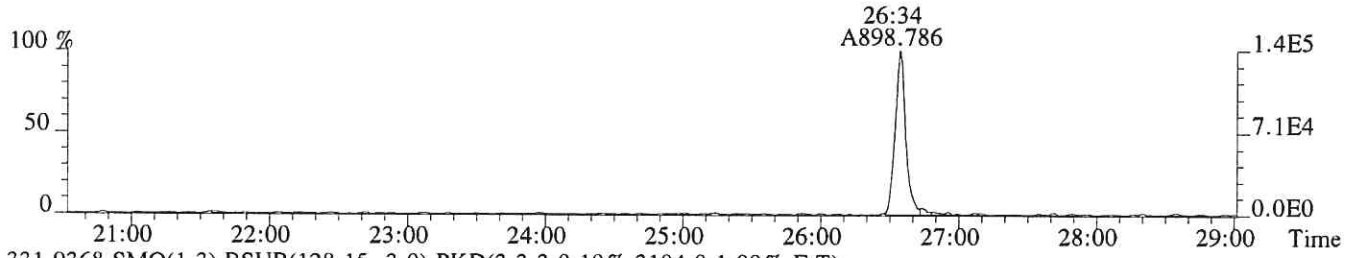
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



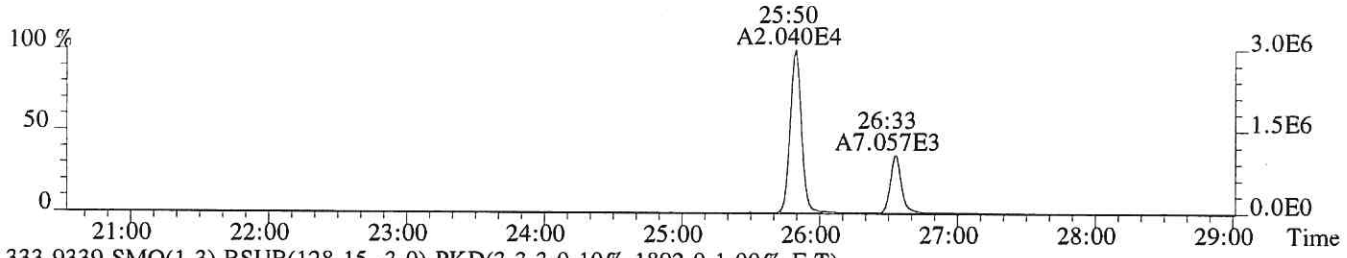
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



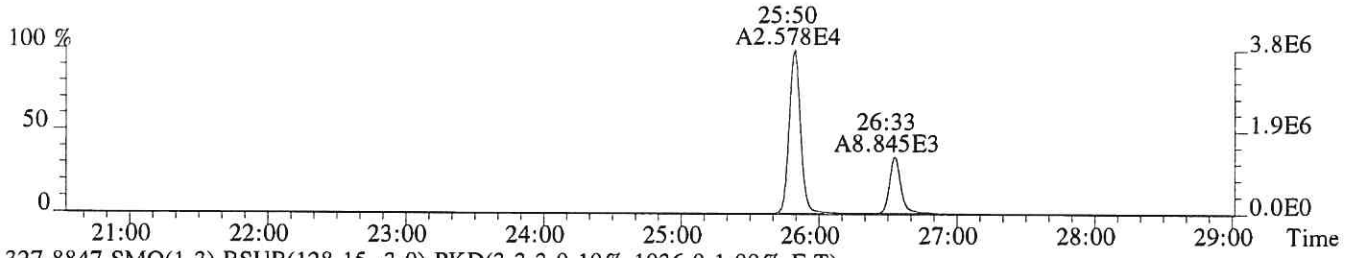
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



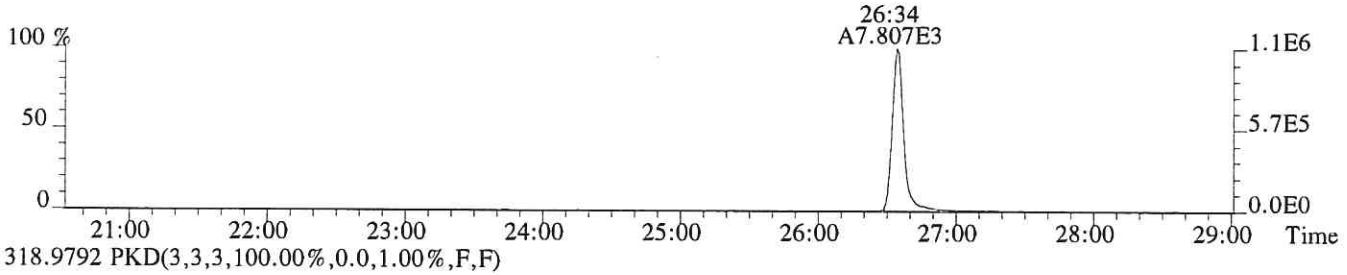
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3104.0,1.00%,F,T)



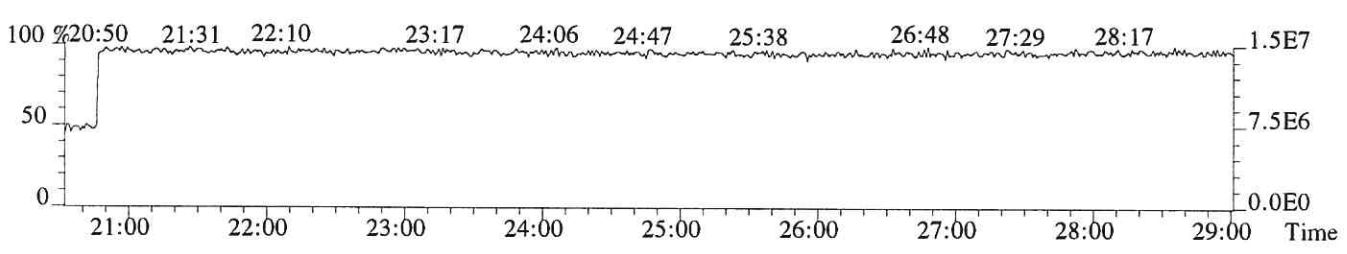
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



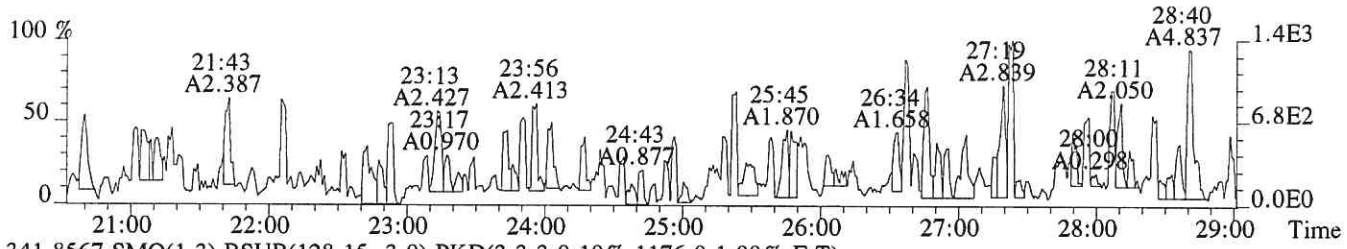
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



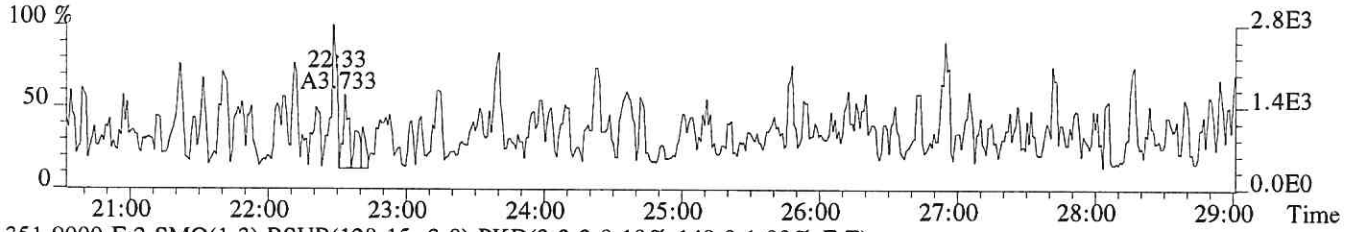
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



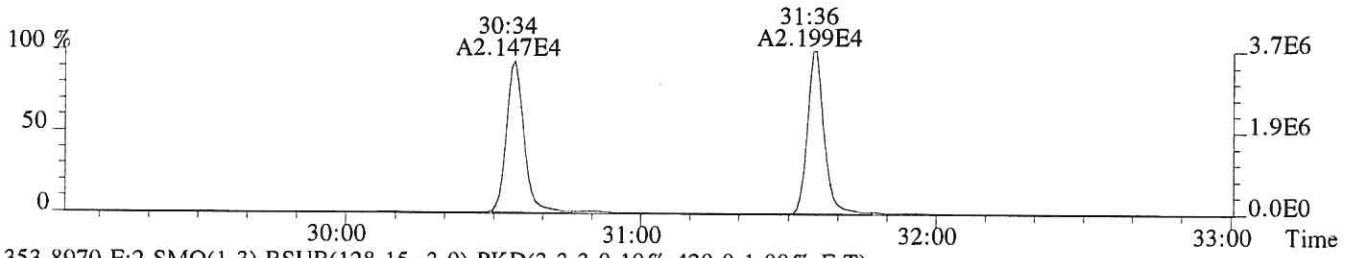
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:EQ1800463-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



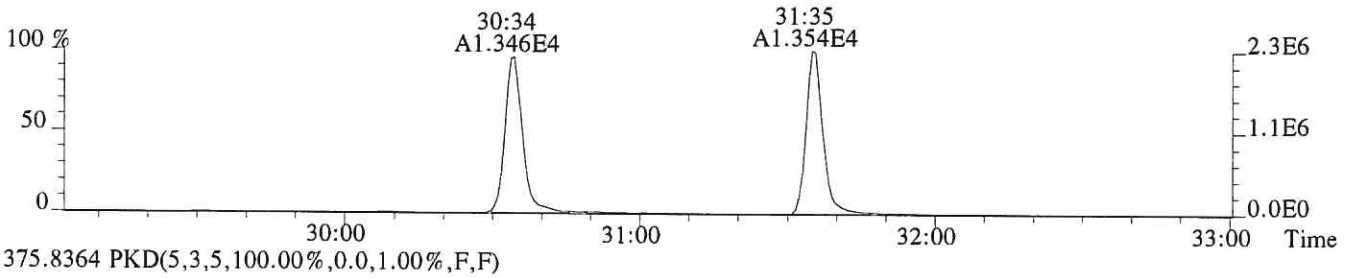
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



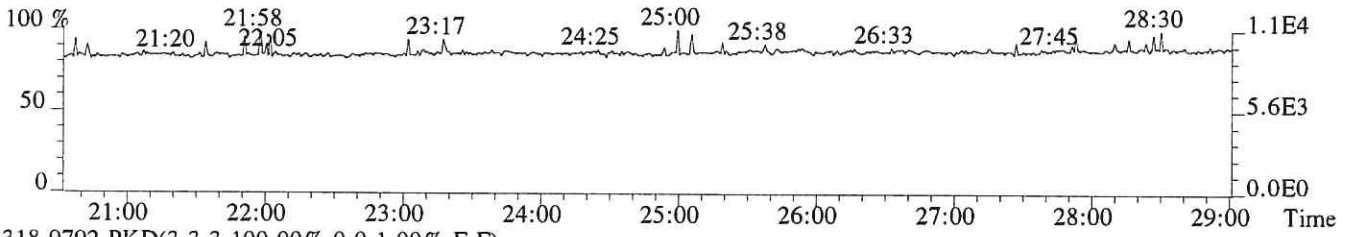
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



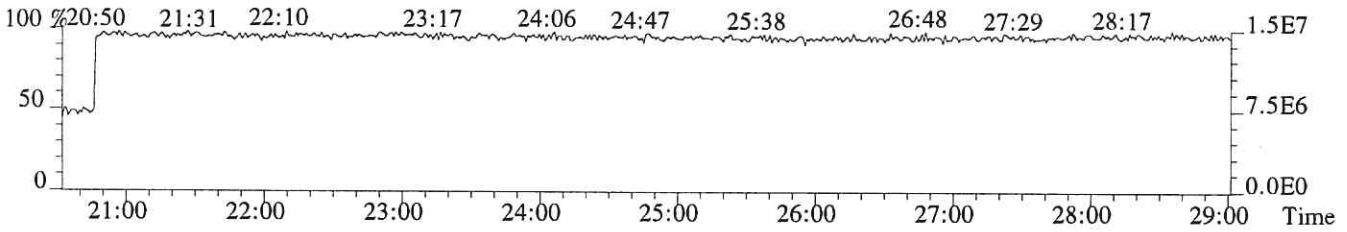
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



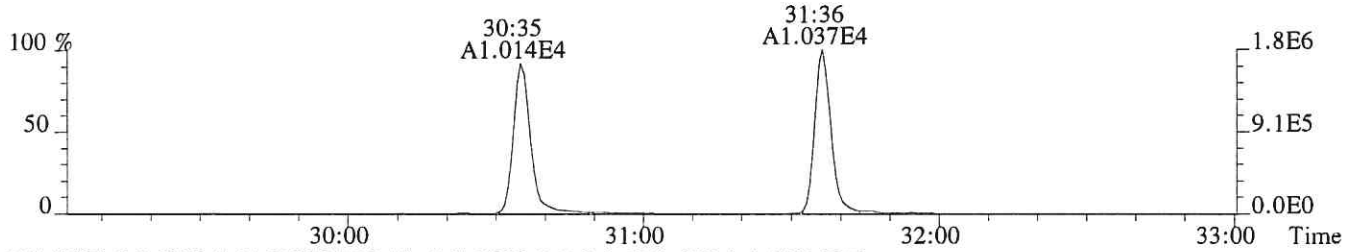
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



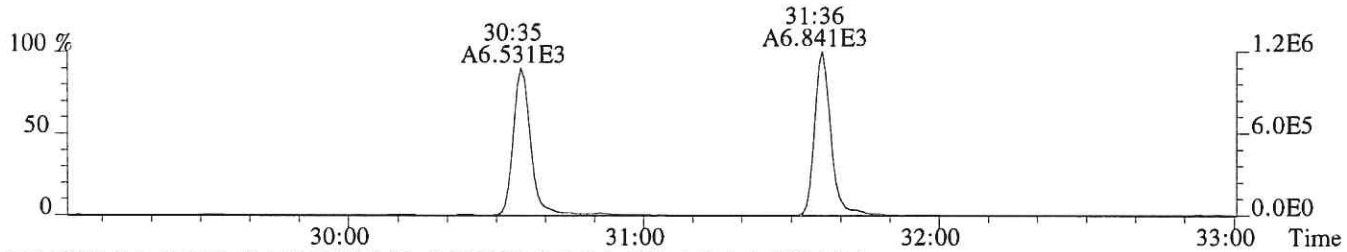
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



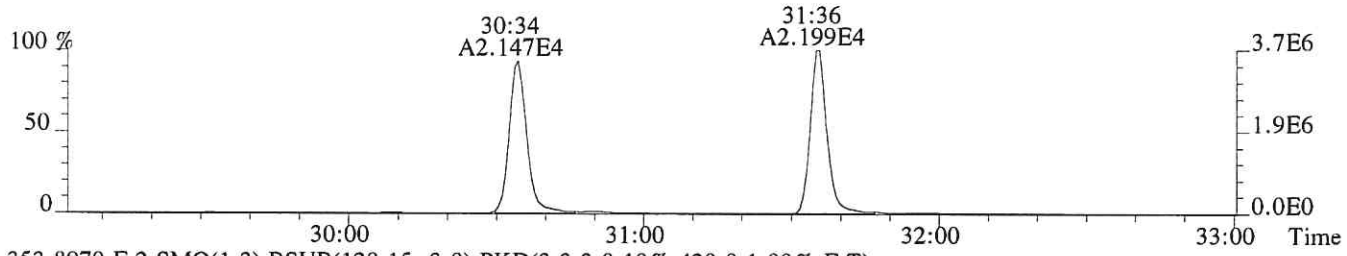
File:P518851 #1-357 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



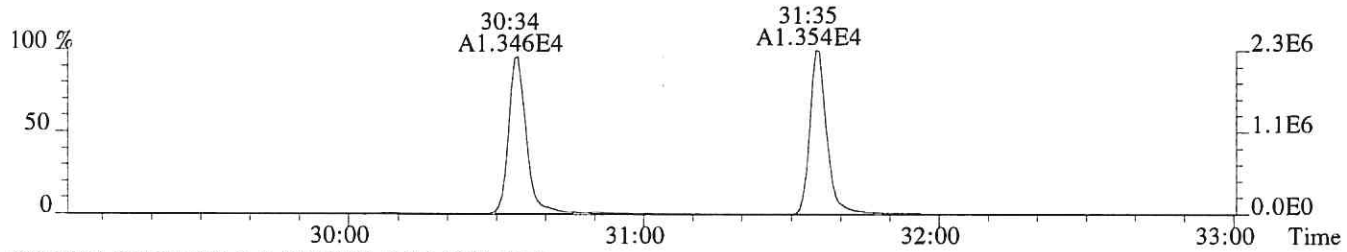
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



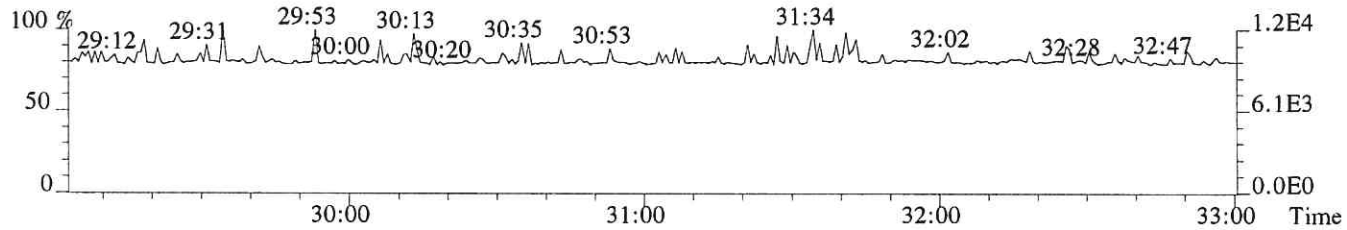
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



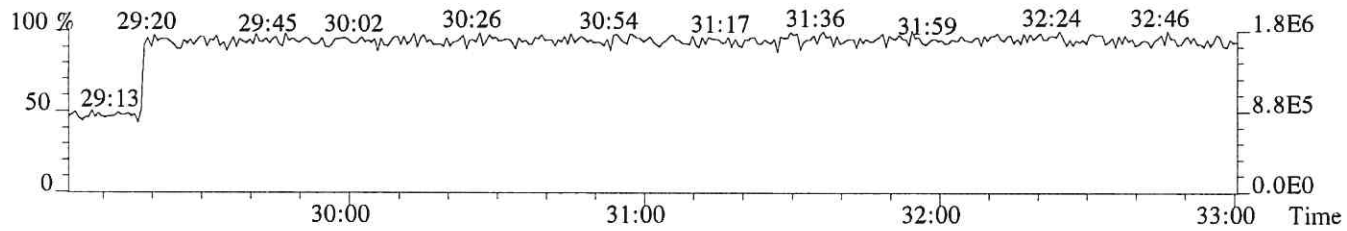
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



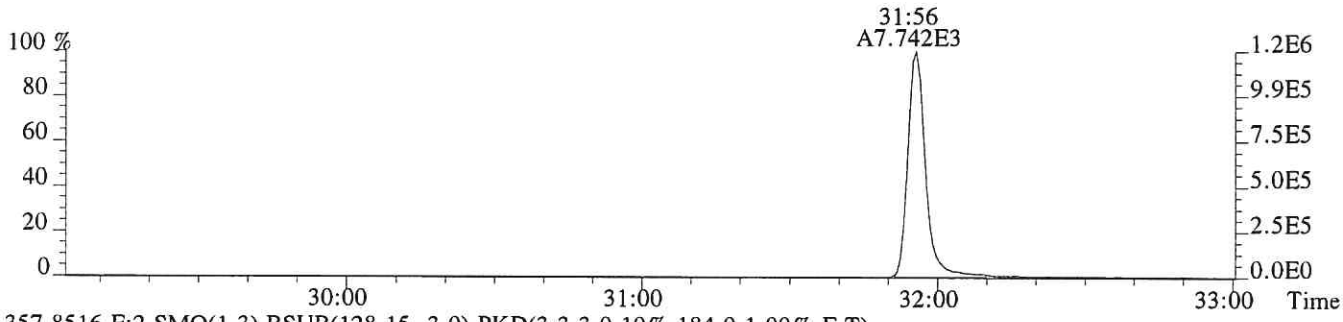
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



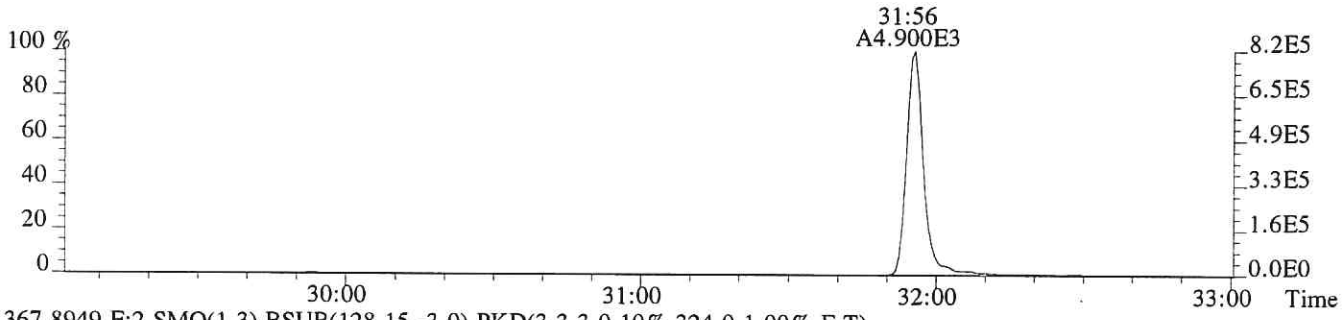
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



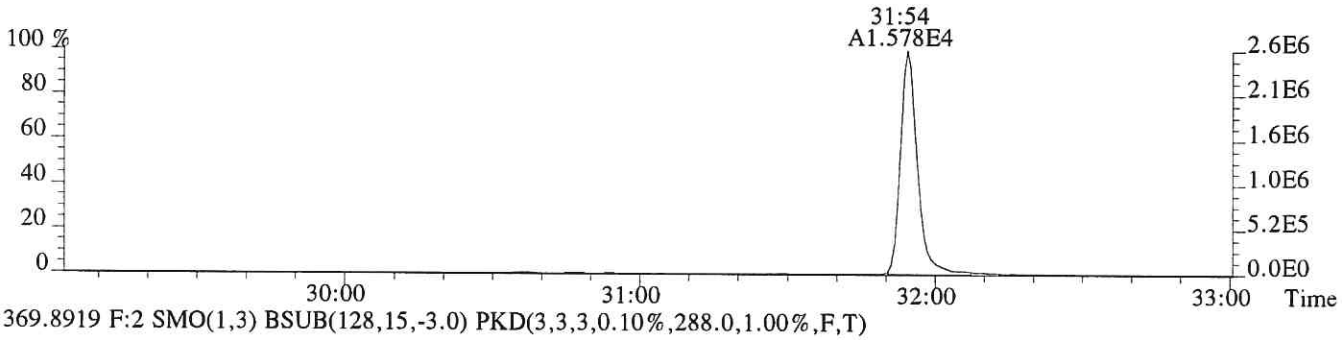
File:P518851 #1-357 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



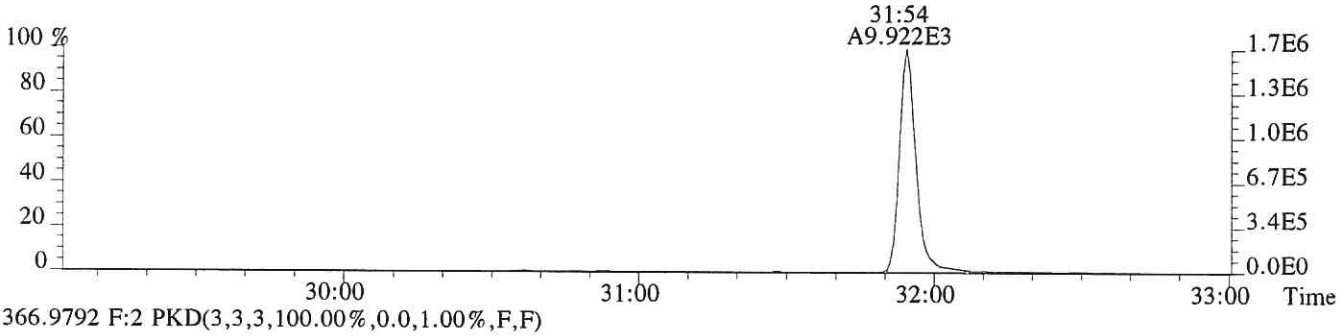
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



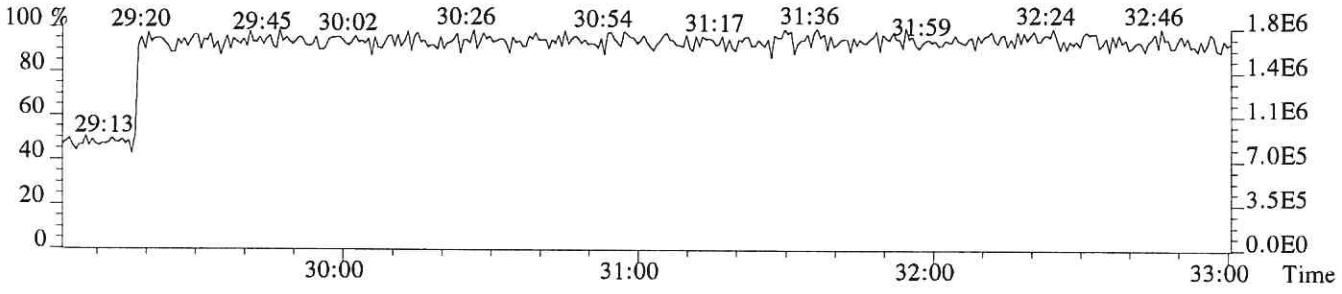
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



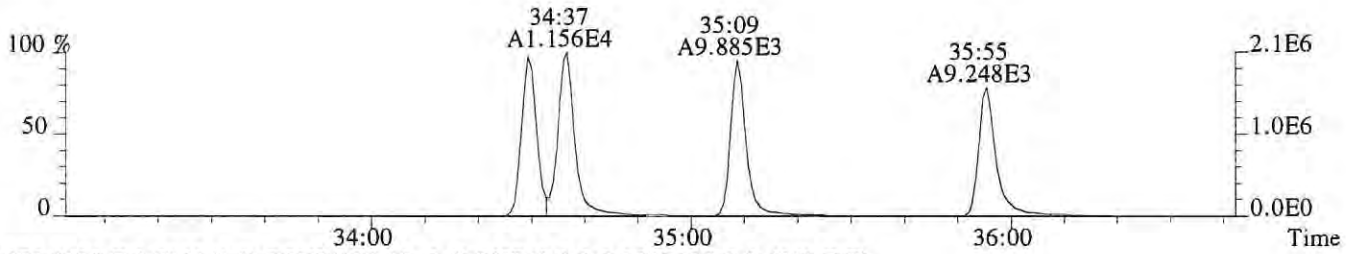
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



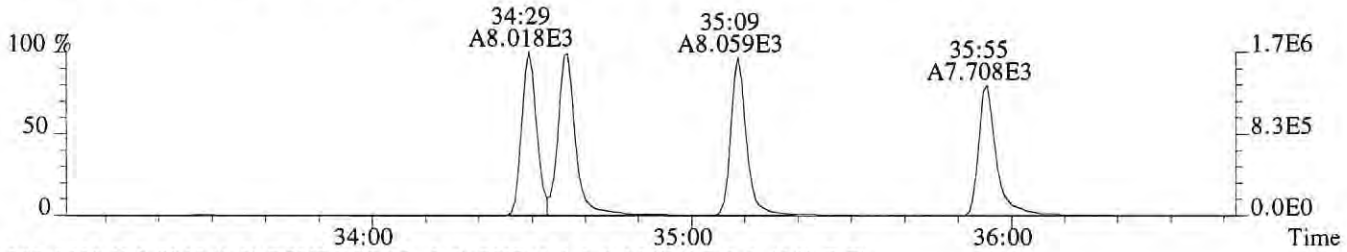
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



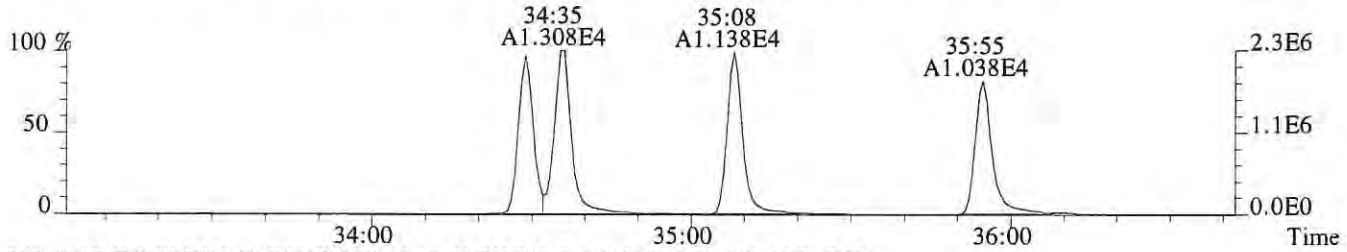
File:P518851 #1-330 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



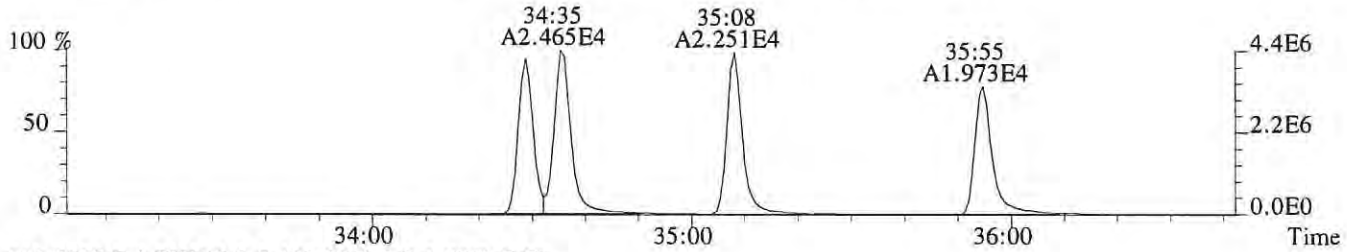
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



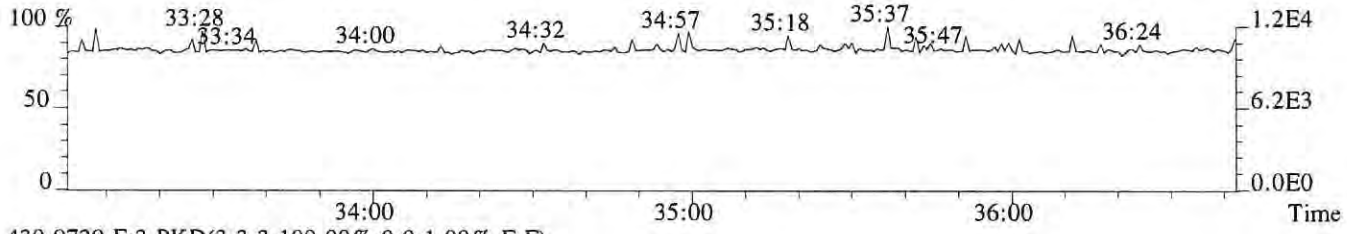
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



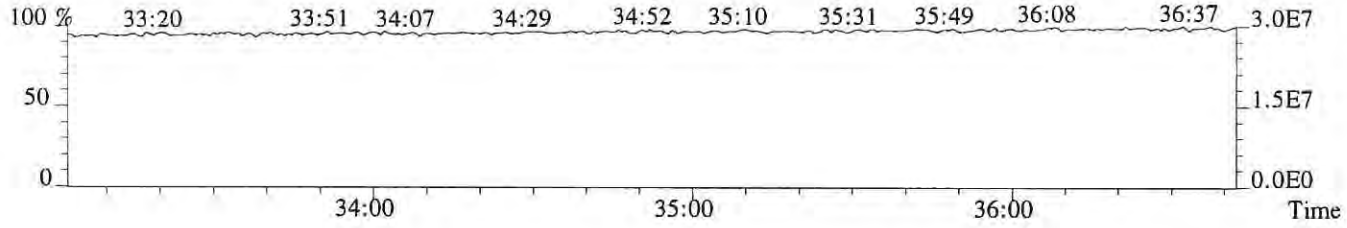
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



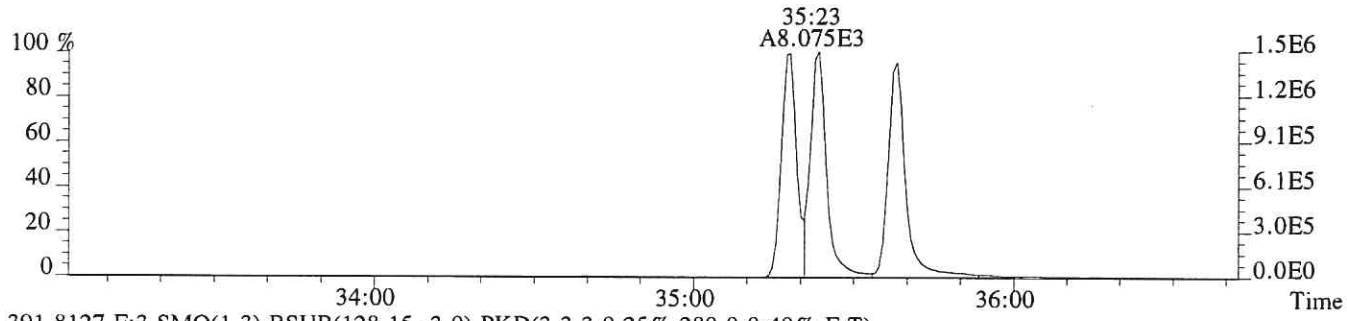
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



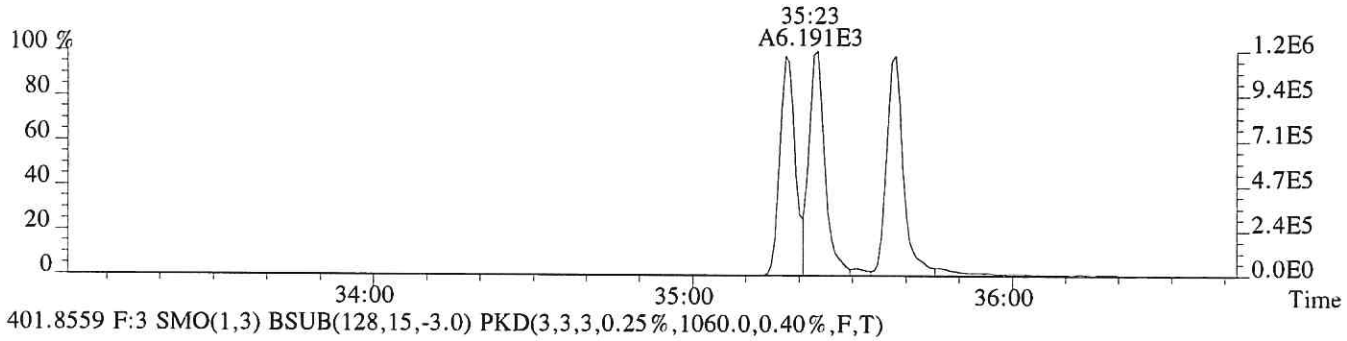
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



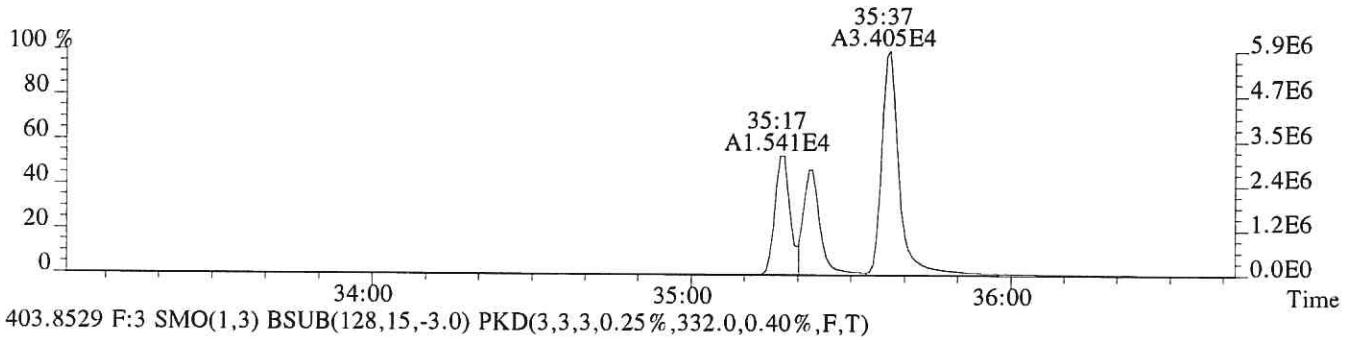
File:P518851 #1-330 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



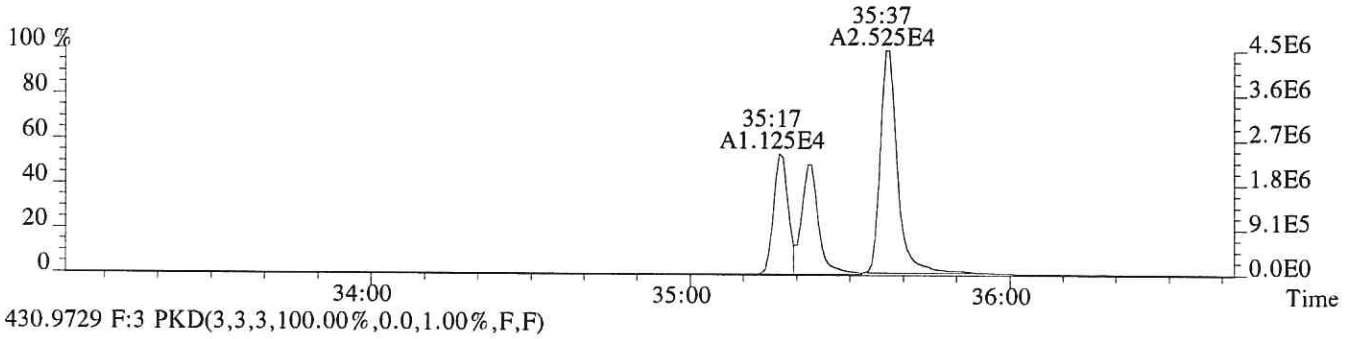
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



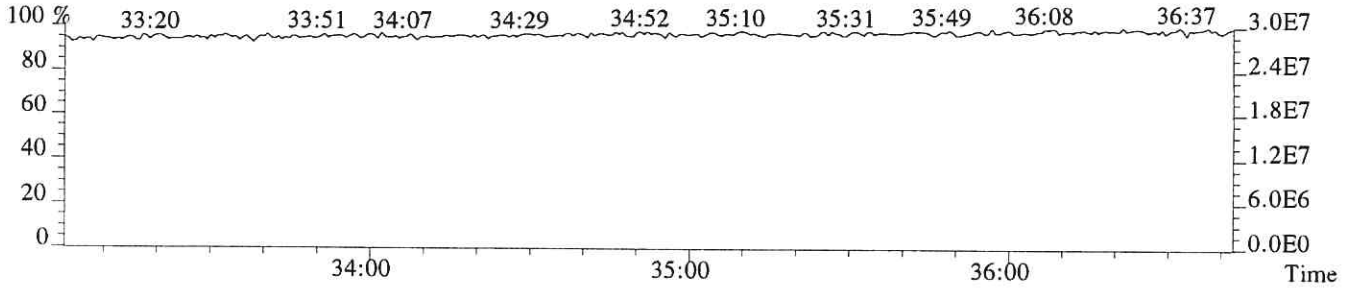
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



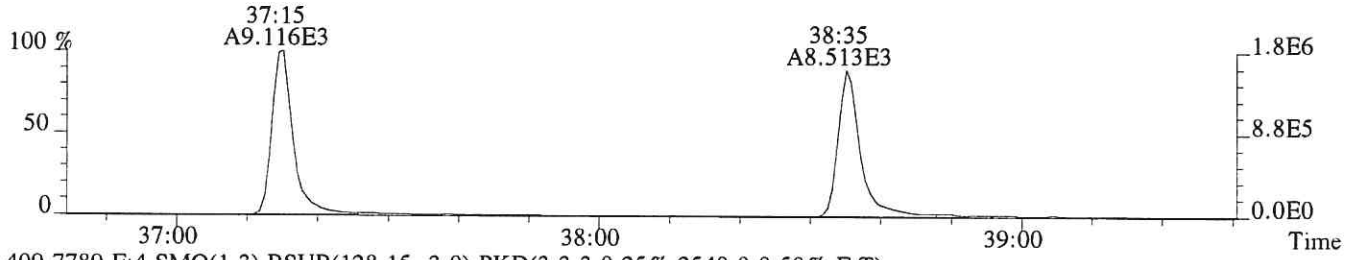
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



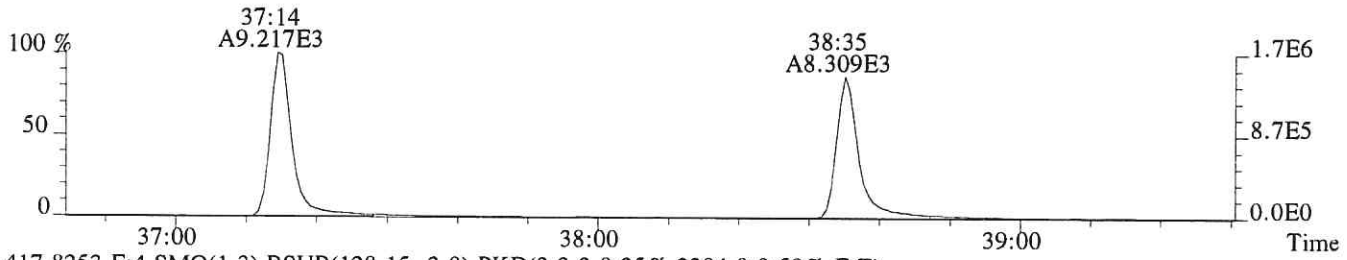
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



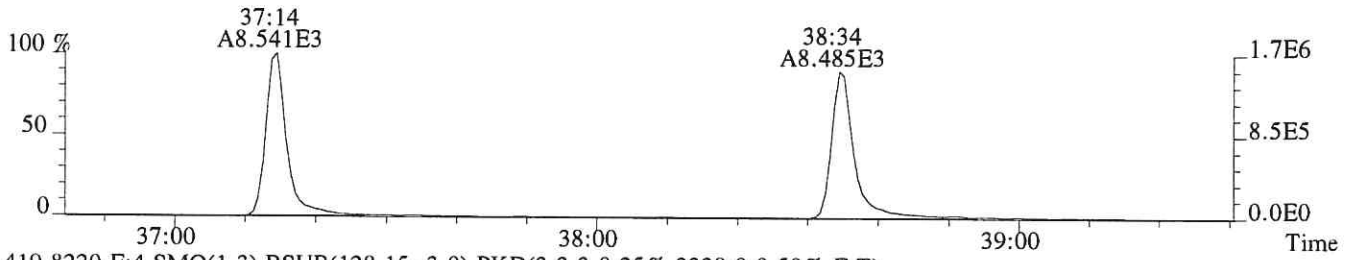
File:P518851 #1-250 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)



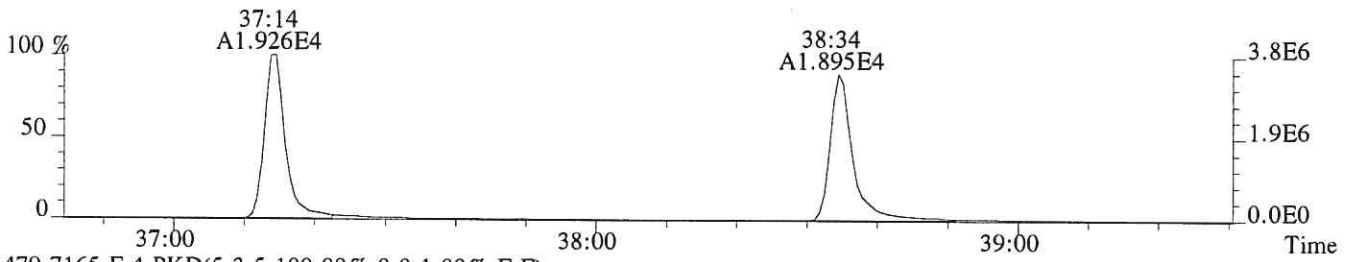
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2540.0,0.50%,F,T)



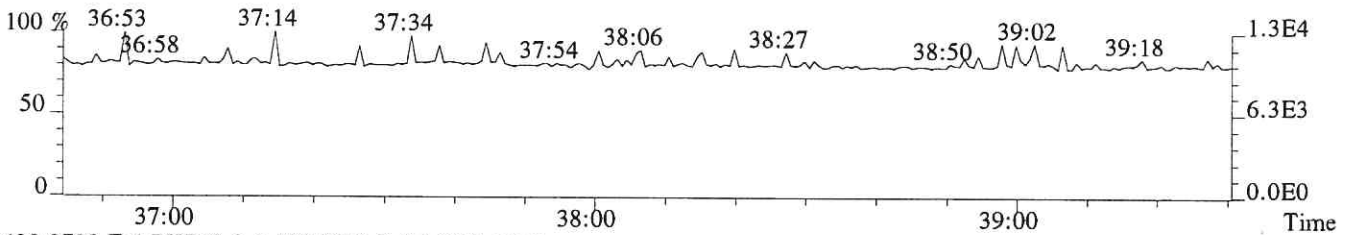
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2204.0,0.50%,F,T)



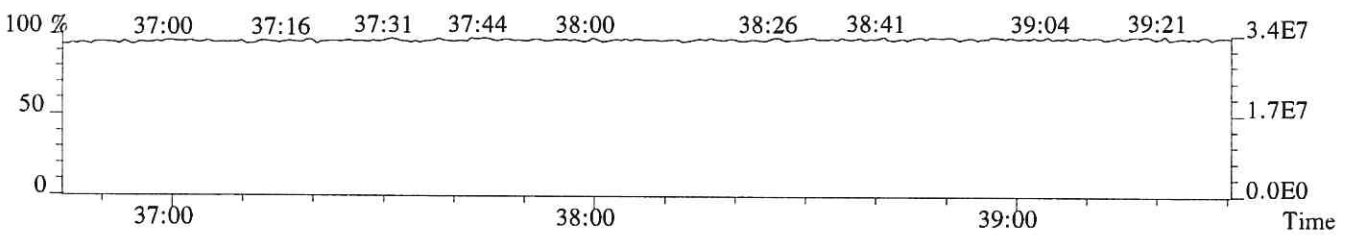
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3328.0,0.50%,F,T)



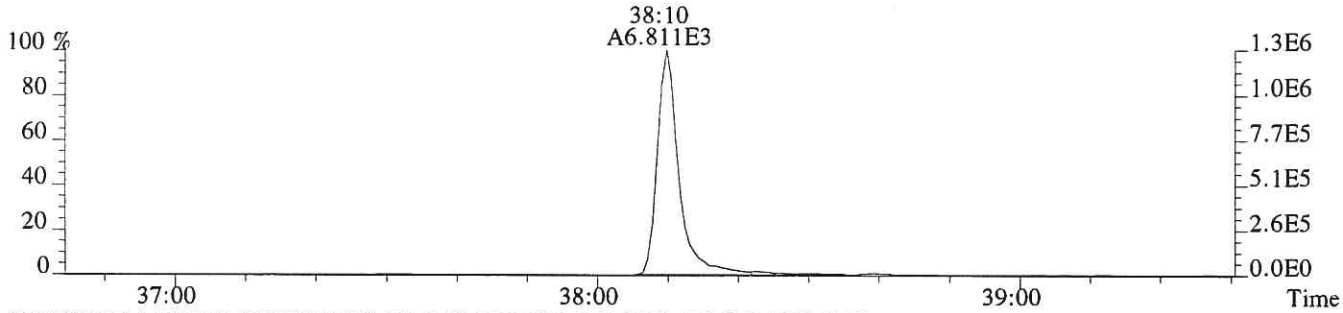
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



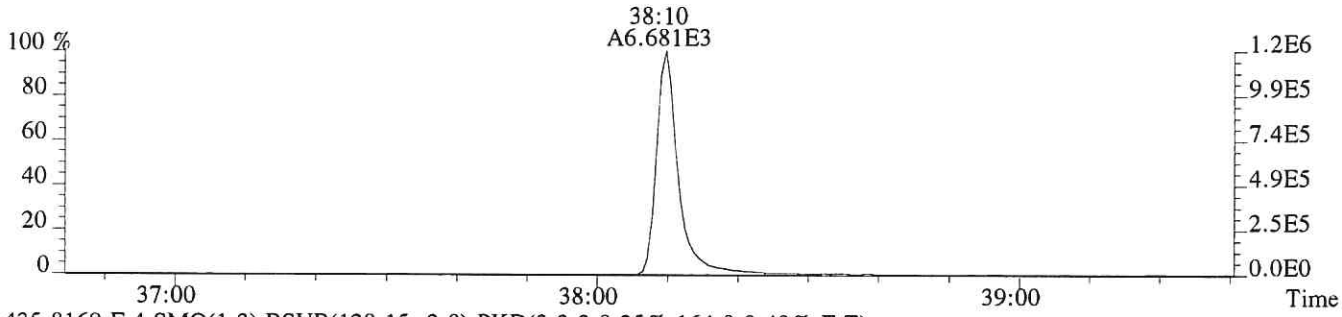
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



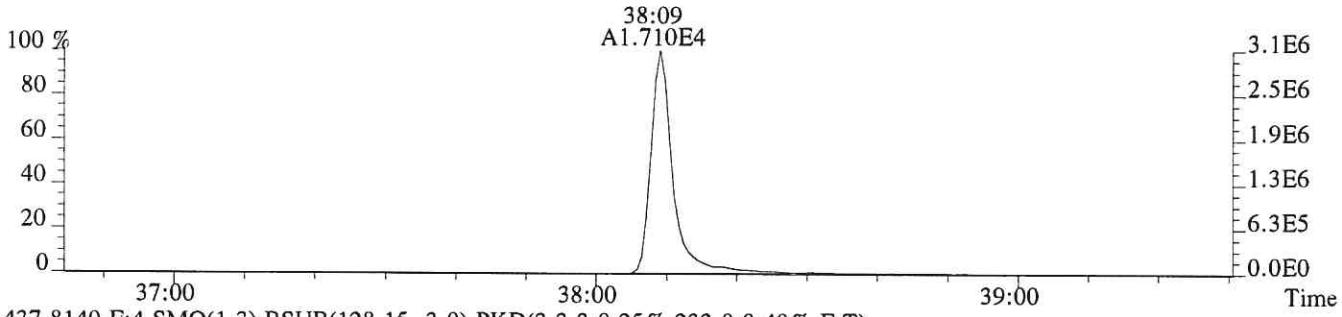
File:P518851 #1-250 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



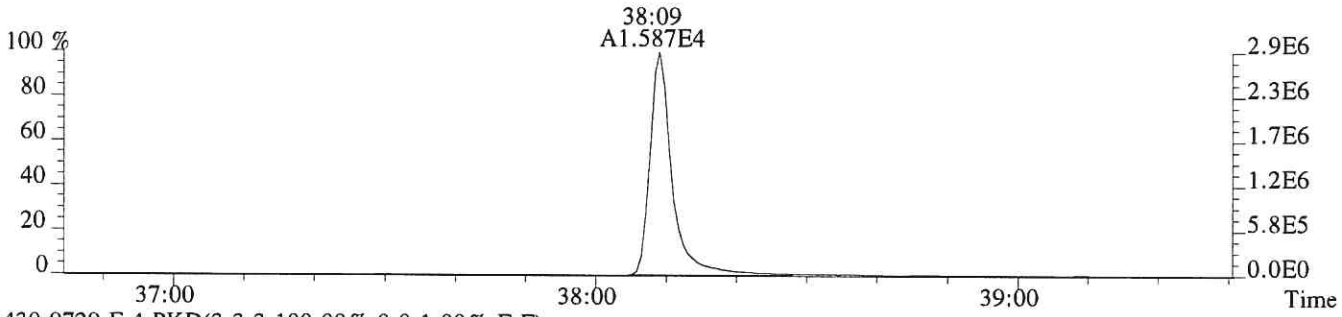
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



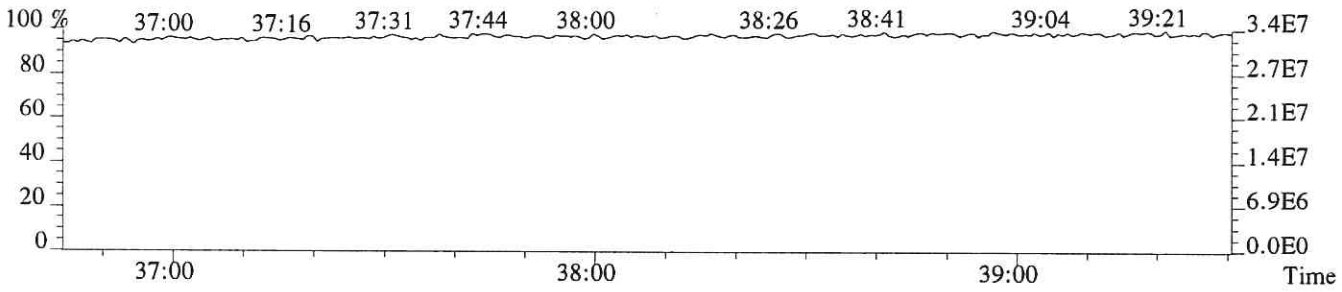
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



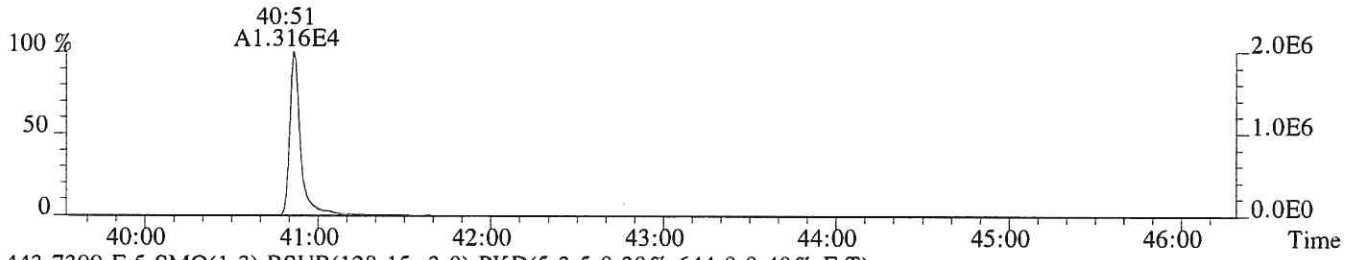
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



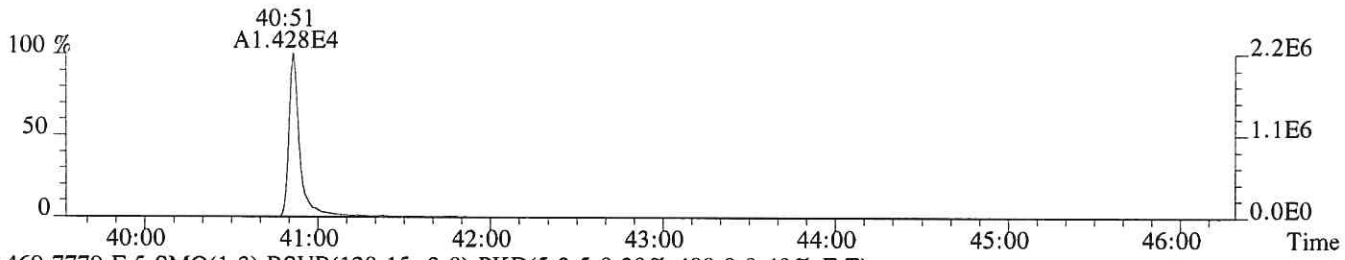
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



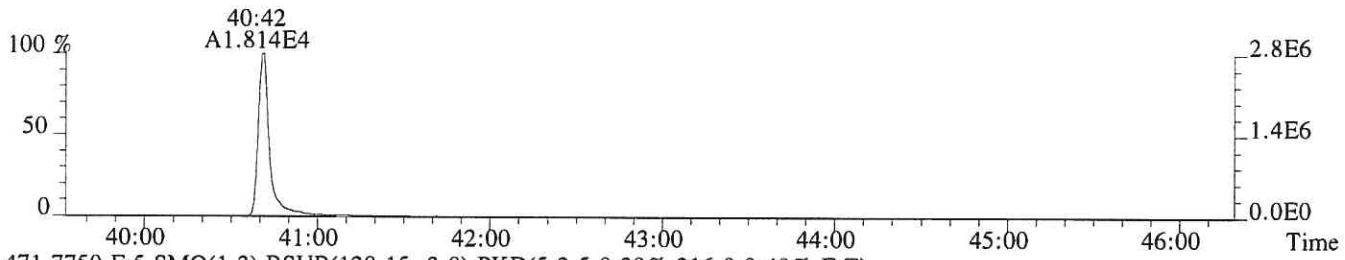
File:P518851 #1-610 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



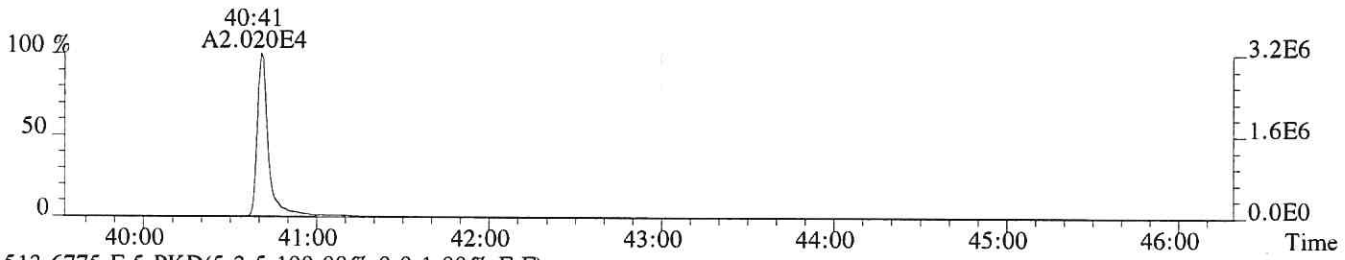
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



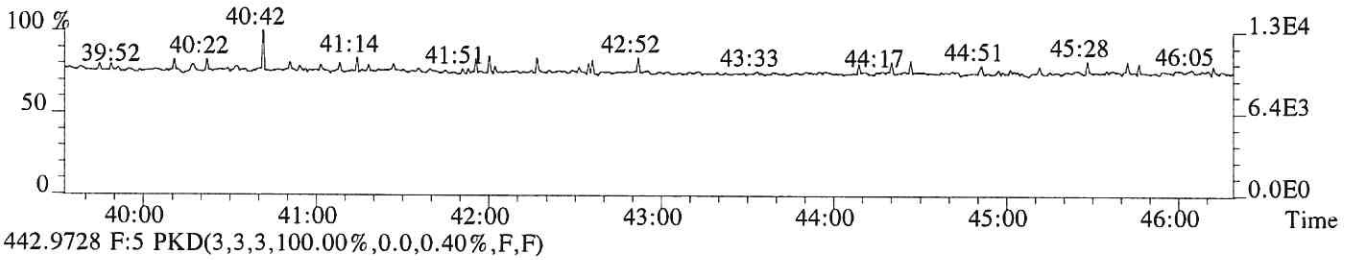
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



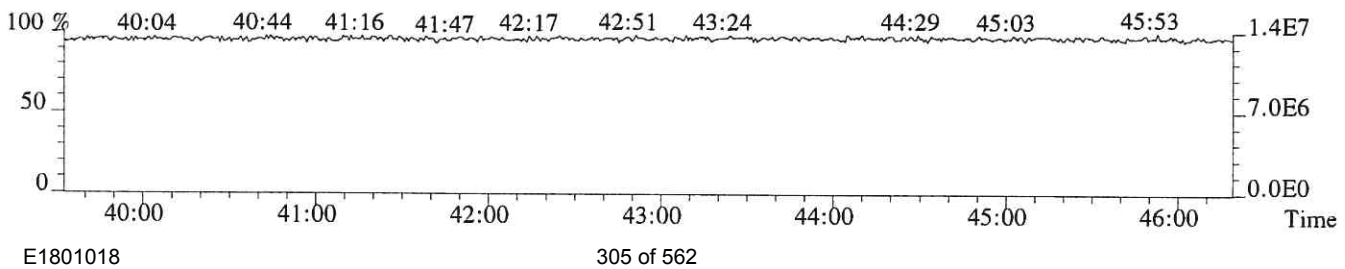
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



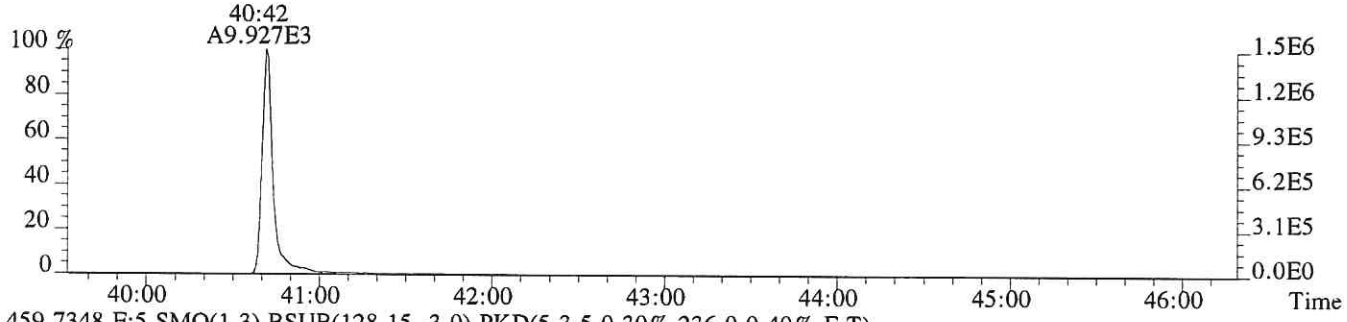
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



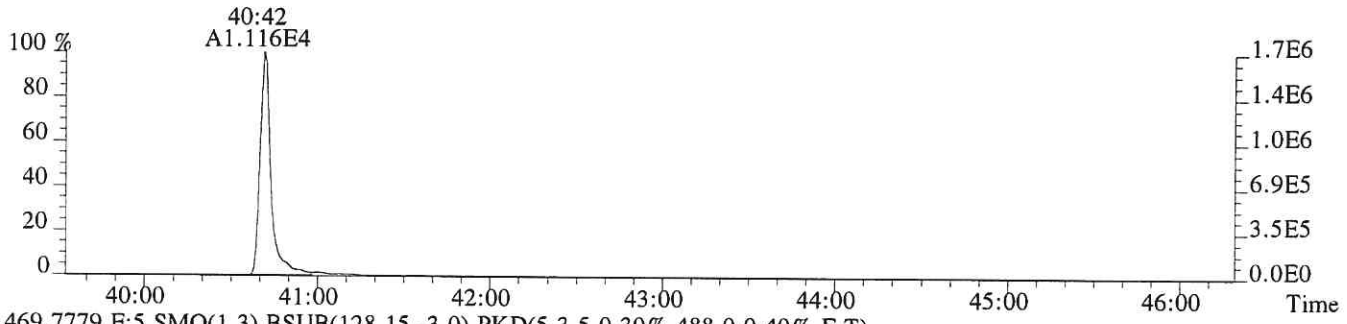
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



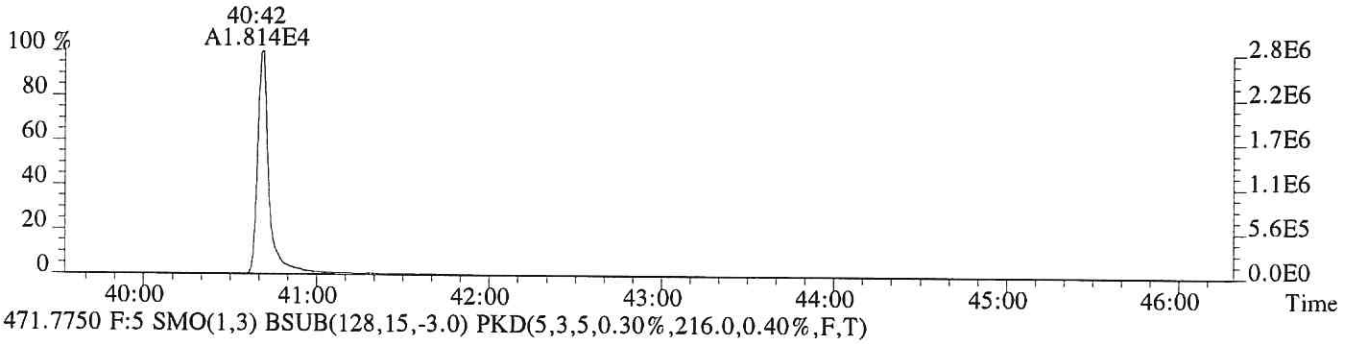
File:P518851 #1-610 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



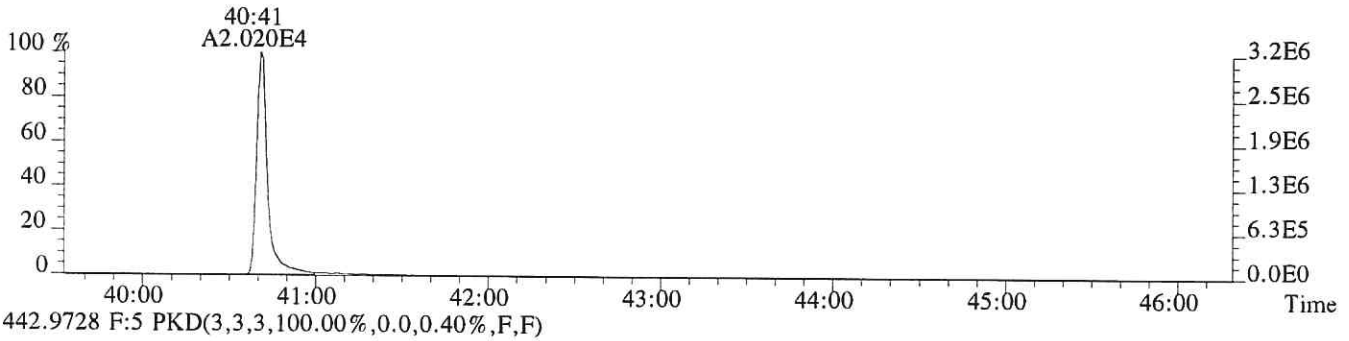
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



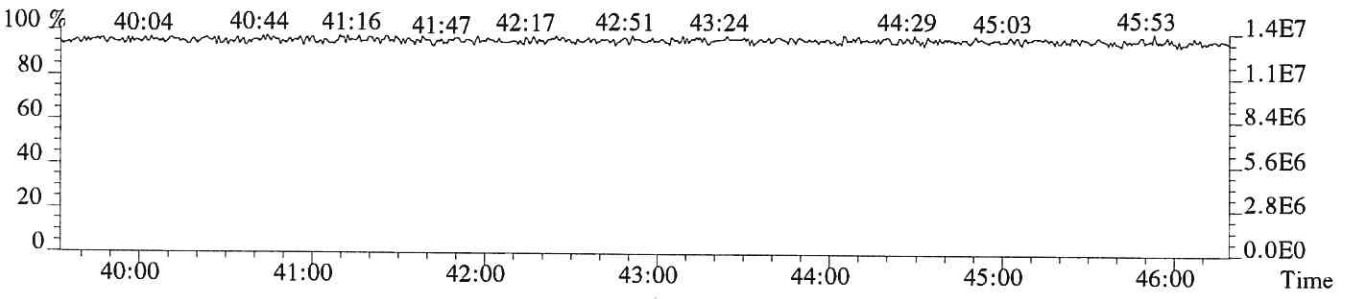
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



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



Continuing Calibration

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

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: PJ18826

Date: 11/5/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518824	15-NOV-18	12:04:32
194503	DO NOT USE	P518825	15-NOV-18	12:59:54
194503	CS3	P518826	15-NOV-18	14:12:08
METHOD BLANK	EQ1800447-01	P518827	15-NOV-18	15:11:19
376137-138	E1801008-014	P518828	15-NOV-18	15:59:07
376095-096	E1801008-015	P518829	15-NOV-18	16:47:42
SL0058	E1801012-006	P518830	15-NOV-18	17:36:23
SL0064	E1801012-012	P518831	15-NOV-18	18:24:59
SL0071	E1801012-018	P518832	15-NOV-18	19:13:37
SL0065	E1801012-019	P518833	15-NOV-18	20:02:15
SL0500	E1801018-001	P518834	15-NOV-18	20:50:53
SL0501	E1801018-002	P518835	15-NOV-18	21:39:31
SL0502	E1801018-003	P518836	15-NOV-18	22:28:11

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181115A.SPL
Last Modified: Friday, November 16, 2018 09:50:18 Central Standard Time
Printed: Friday, November 16, 2018 09:50:29 Central Standard Time

1613

Opus4: P518824ures

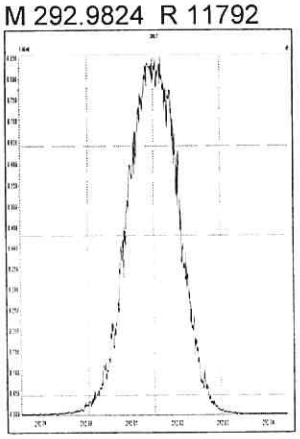
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/15/18	12:04	P518824	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	LKL	HRMS check 11:59
2		12:59	P518825	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		NOT USE
3		14:12	P518826	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		15:11	P518827	MB	EQ1800447-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P518828	E1801008-014	E1801008-014	EPA1613_ALS	Dioxin_ALS	Tray1:5		need rejection
6		16:47	P518829	E1801008-015	E1801008-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:36	P518830	E1801012-006	E1801012-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:24	P518831	E1801012-012	E1801012-012	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:13	P518832	E1801012-018	E1801012-018	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P518833	E1801012-019	E1801012-019	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		20:50	P518834	E1801018-001	E1801018-001	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:39	P518835	E1801018-002	E1801018-002	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		22:28	P518836	E1801018-003	E1801018-003	EPA1613_ALS	Dioxin_ALS	Tray1:13		HRMS check 23:25
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
17			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17		
18			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18		
19			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19		
20			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20		
21			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21		
22			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22		
23			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23		
24			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24		
25			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25		
26			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26		
27			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
31	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:31	---	---
32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:37	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

gc 11/16/18

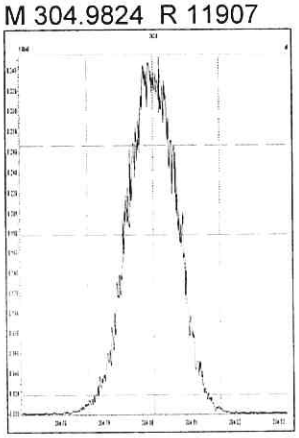
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, November 15, 2018 11:59:36 Central Standard Time

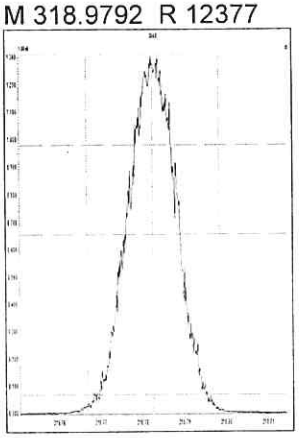
M 292.9824 R 11792



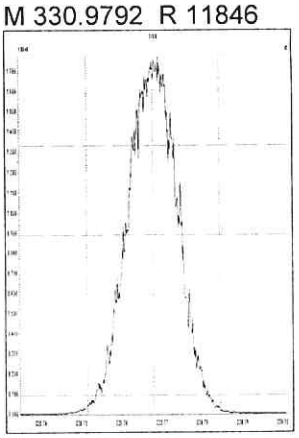
M 304.9824 R 11907



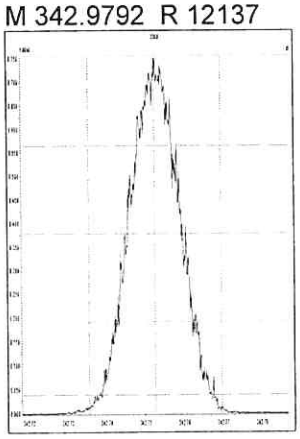
M 318.9792 R 12377



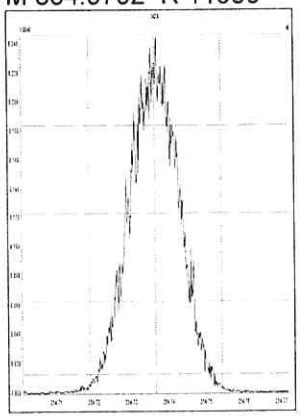
M 330.9792 R 11846



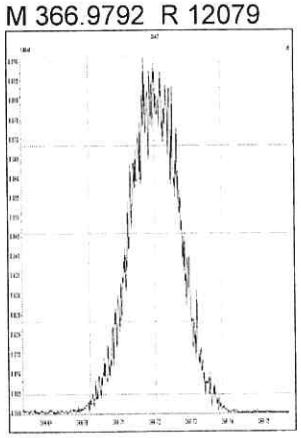
M 342.9792 R 12137



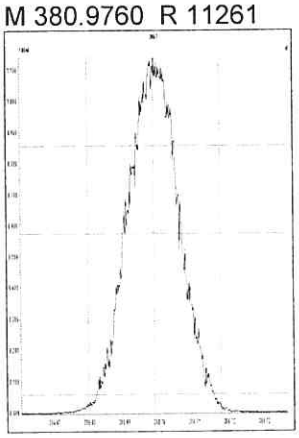
M 354.9792 R 11960



M 366.9792 R 12079



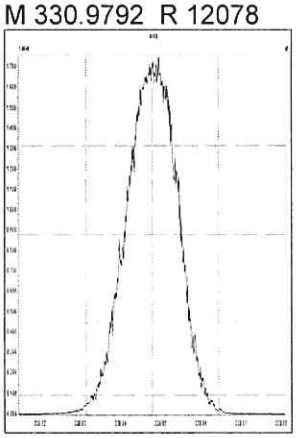
M 380.9760 R 11261



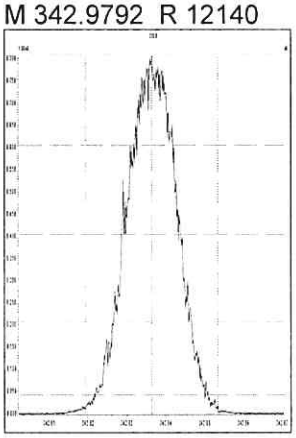
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, November 15, 2018 12:00:45 Central Standard Time

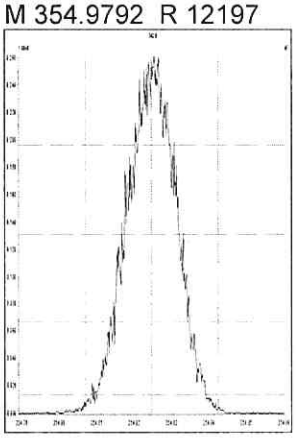
M 330.9792 R 12078



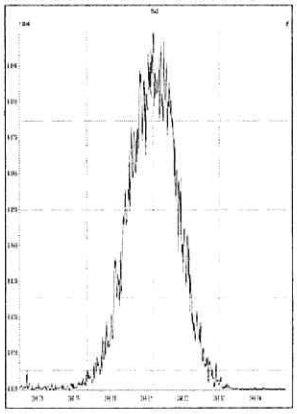
M 342.9792 R 12140



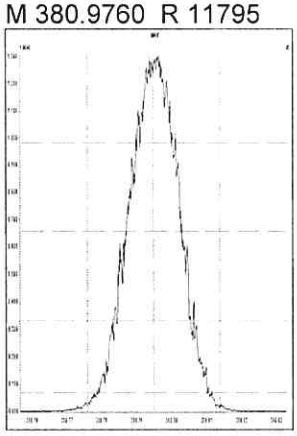
M 354.9792 R 12197



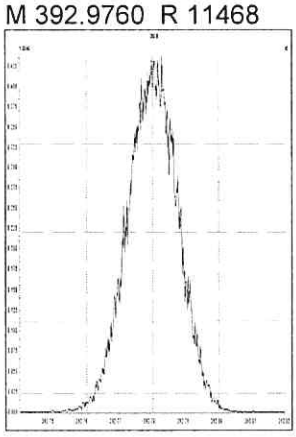
M 366.9792 R 12375



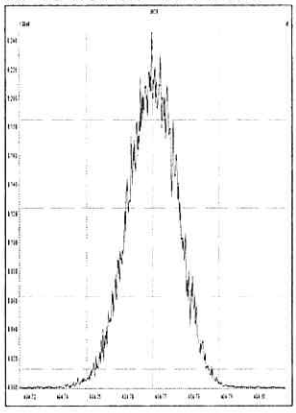
M 380.9760 R 11795



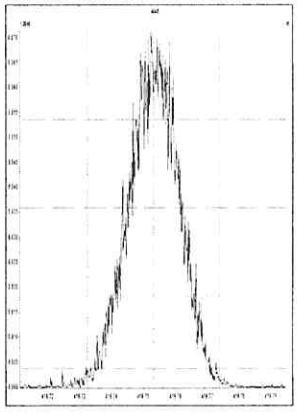
M 392.9760 R 11468



M 404.9760 R 11630



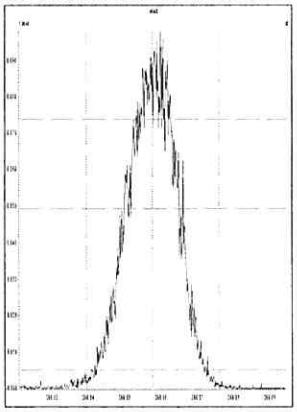
M 416.9760 R 12377



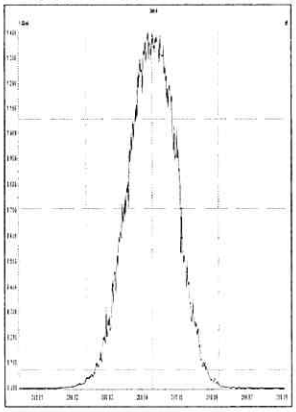
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, November 15, 2018 12:01:50 Central Standard Time

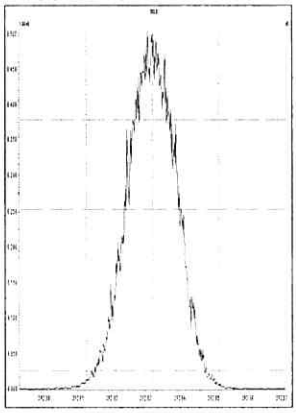
M 366.9792 R 12073



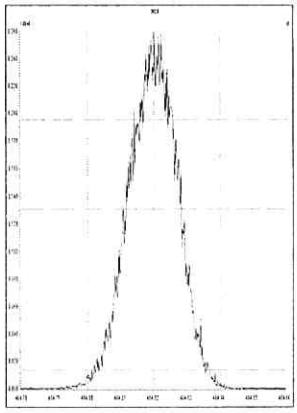
M 380.9760 R 12018



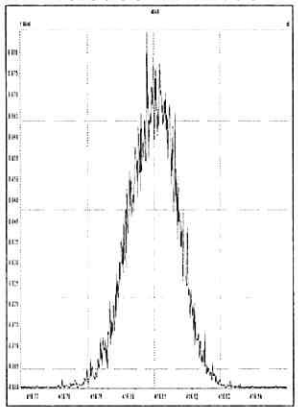
M 392.9760 R 12197



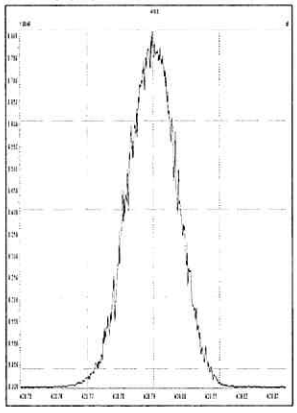
M 404.9760 R 12136



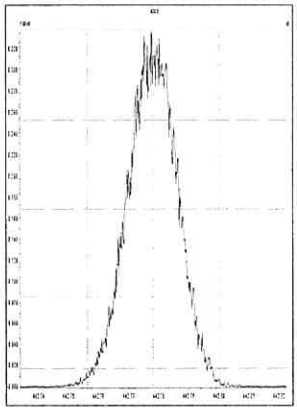
M 416.9760 R 12193



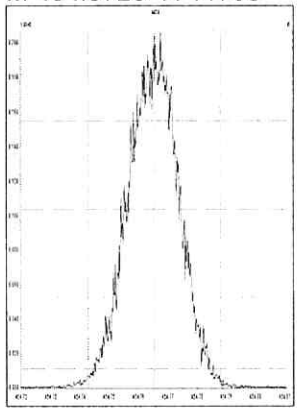
M 430.9728 R 11575



M 442.9728 R 11791



M 454.9728 R 11793



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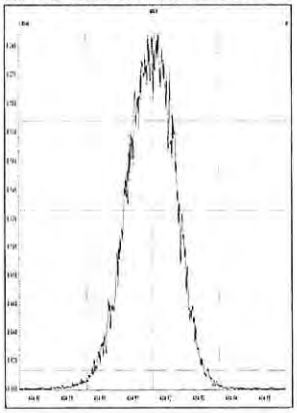
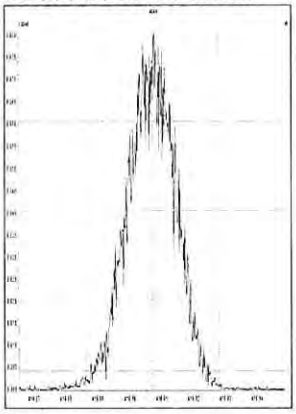
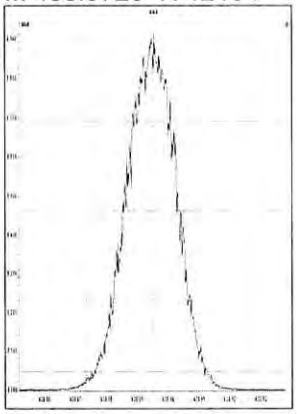
M 404.9760 R 12022



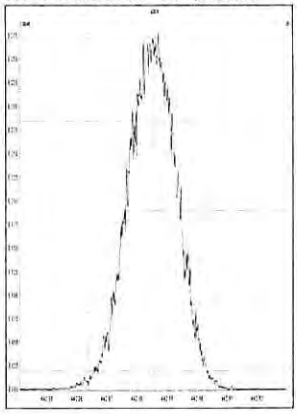
M 416.9760 R 13737



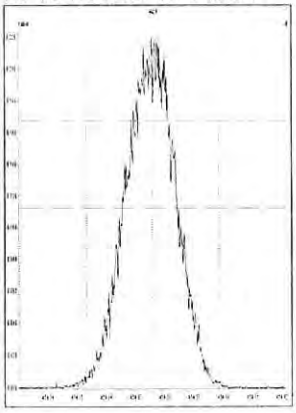
M 430.9728 R 12194



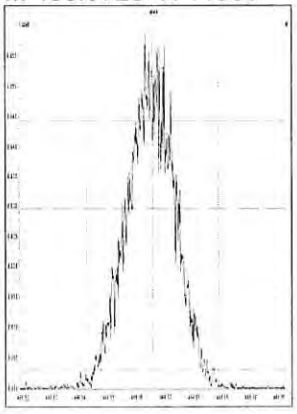
M 442.9728 R 12252



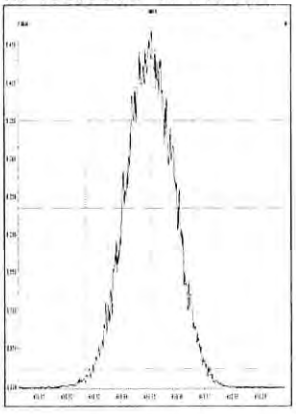
M 454.9728 R 11961



M 466.9728 R 11903



M 480.9696 R 11734



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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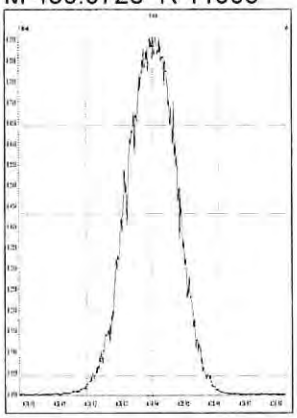
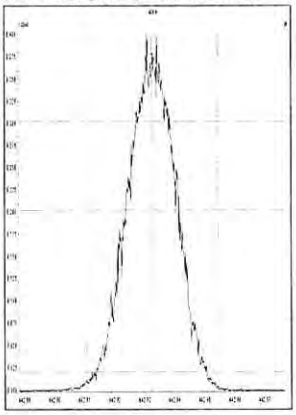
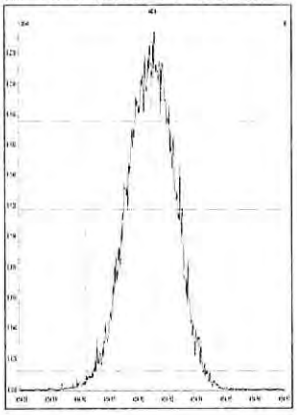
M 430.9728 R 11905



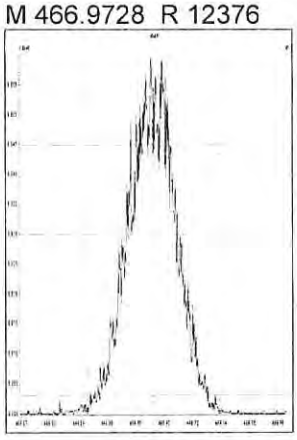
M 442.9728 R 12018



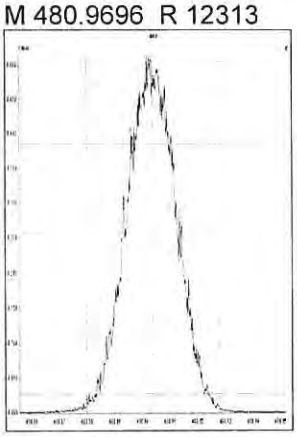
M 454.9728 R 11849



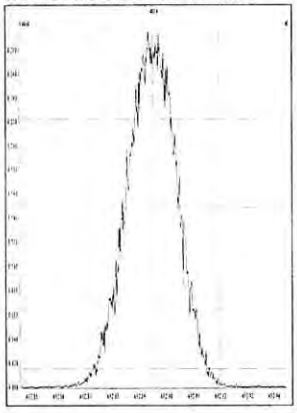
M 466.9728 R 12376



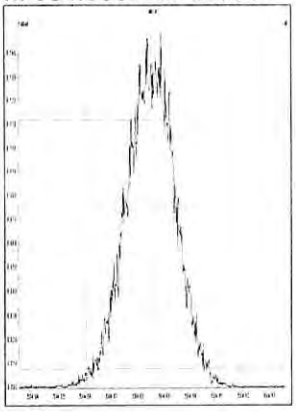
M 480.9696 R 12313



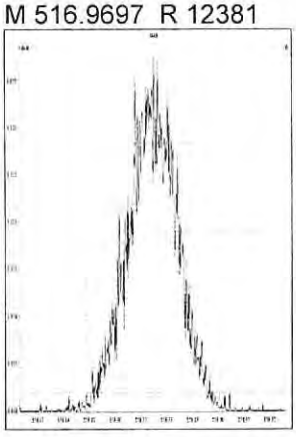
M 492.9696 R 12078



M 504.9696 R 12194



M 516.9697 R 12381



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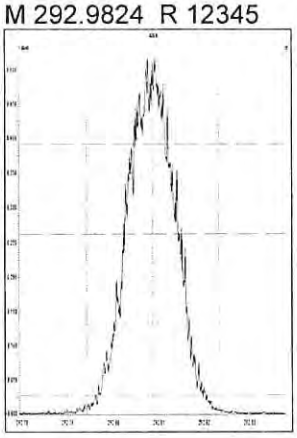
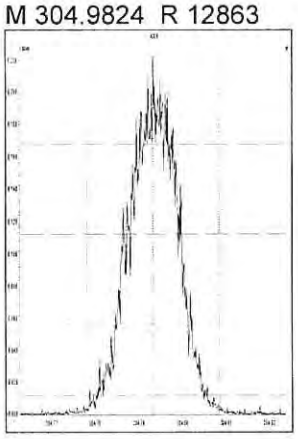
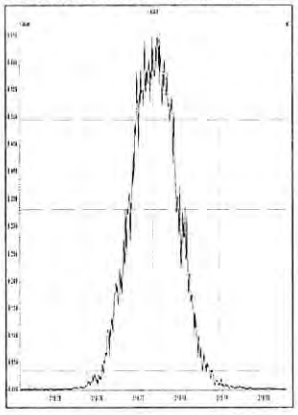
M 292.9824 R 12345



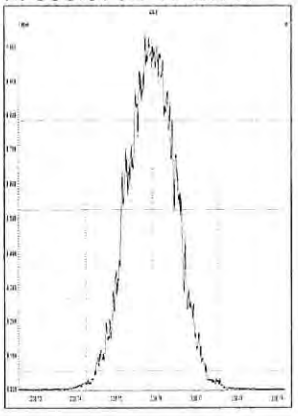
M 304.9824 R 12863



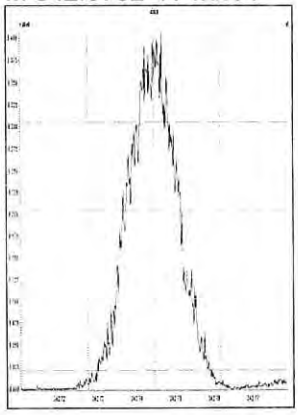
M 318.9792 R 12438



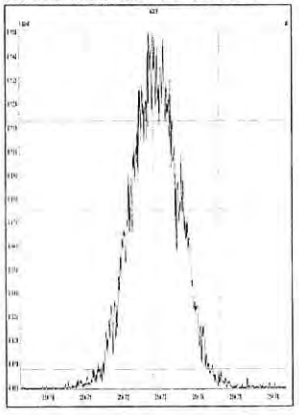
M 330.9792 R 12317



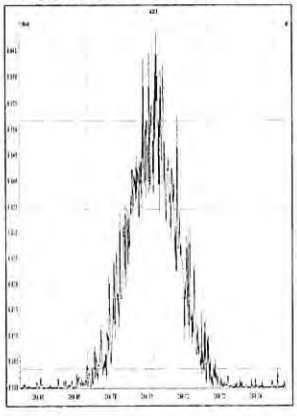
M 342.9792 R 12251



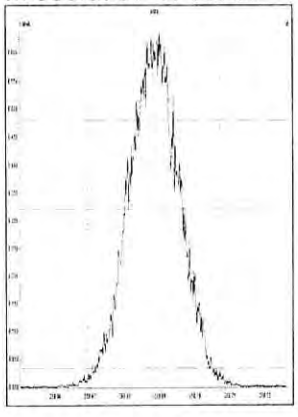
M 354.9792 R 12594



M 366.9792 R 13264



M 380.9760 R 11709



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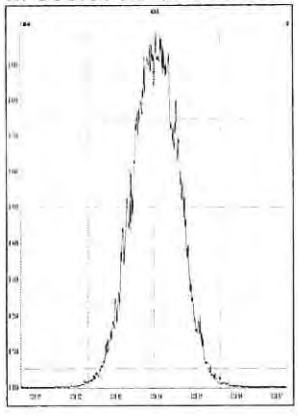
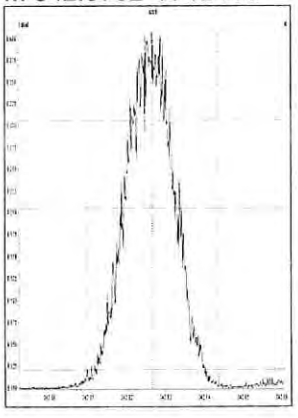
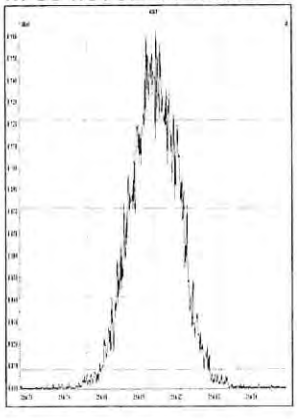


M 342.9792 R 12440



M 354.9792 R 12230



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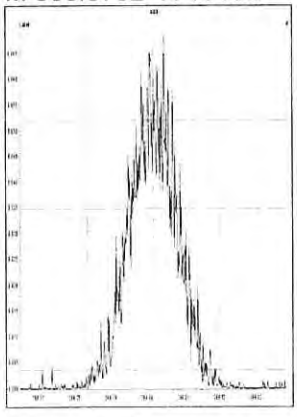
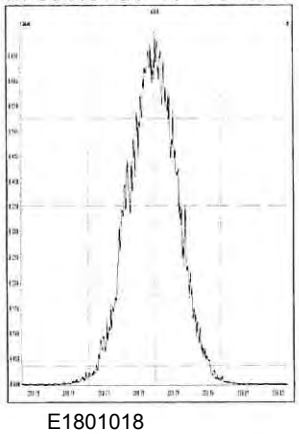
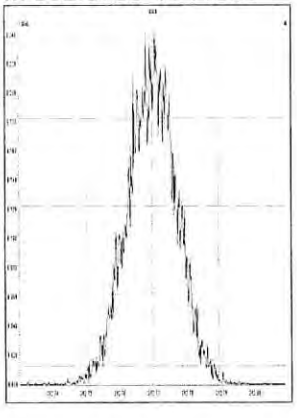


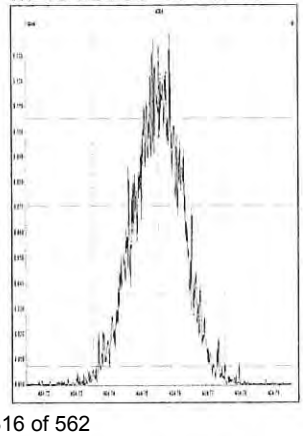
M 380.9760 R 11876



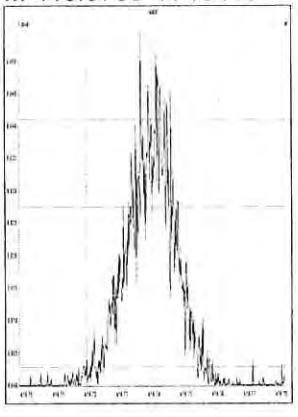
M 392.9760 R 11881



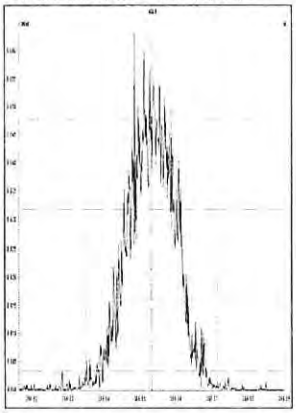
M 404.9760 R 11628



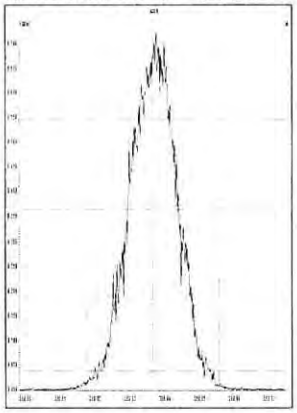
M 416.9760 R 13415



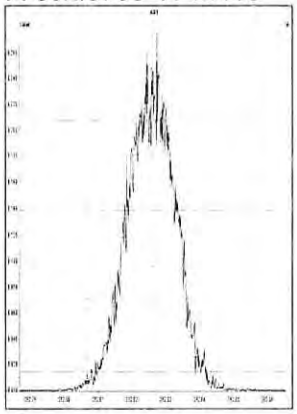
M 366.9792 R 13344



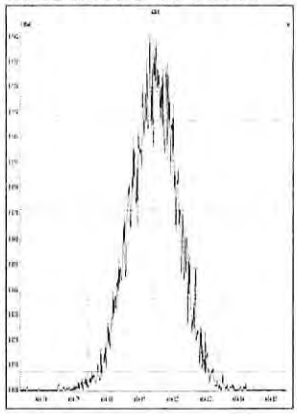
M 380.9760 R 12562



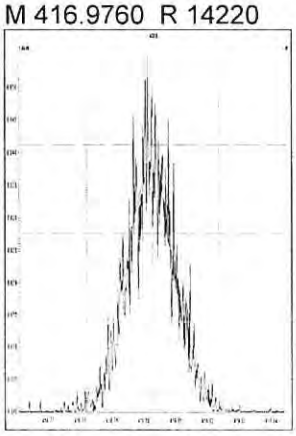
M 392.9760 R 12410



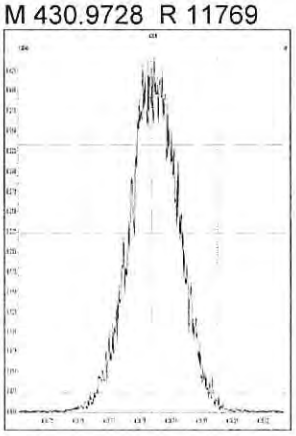
M 404.9760 R 12919



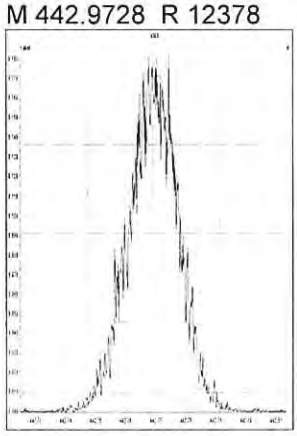
M 416.9760 R 14220



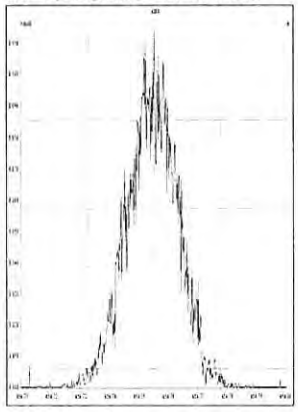
M 430.9728 R 11769



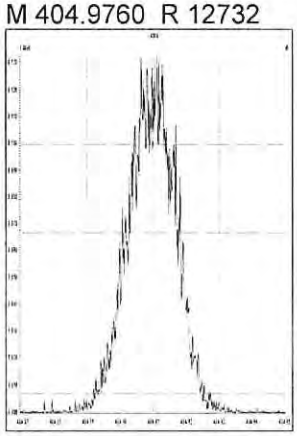
M 442.9728 R 12378



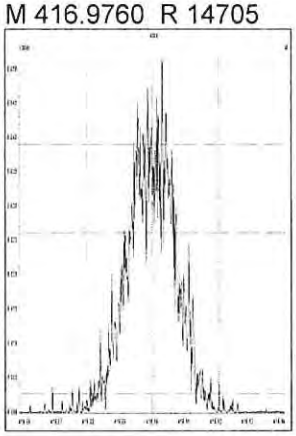
M 454.9728 R 12233



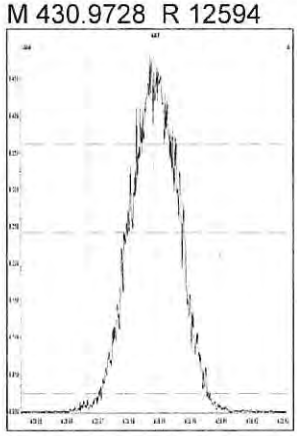
M 404.9760 R 12732



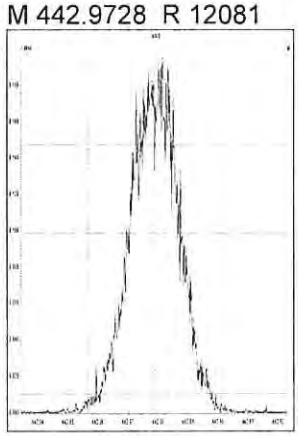
M 416.9760 R 14705



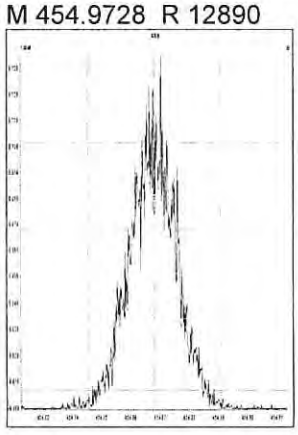
M 430.9728 R 12594



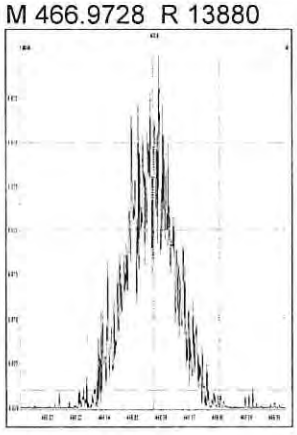
M 442.9728 R 12081



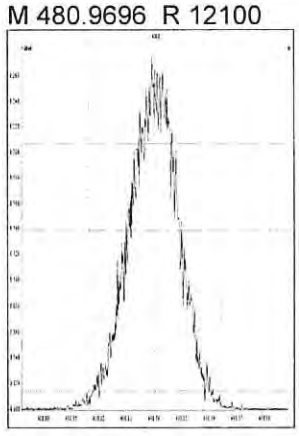
M 454.9728 R 12890



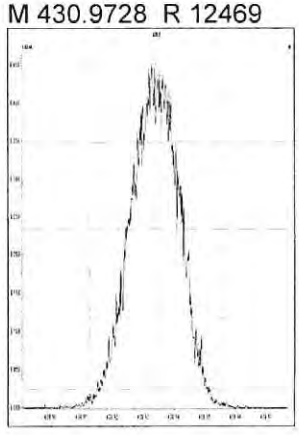
M 466.9728 R 13880



M 480.9696 R 12100



M 430.9728 R 12469



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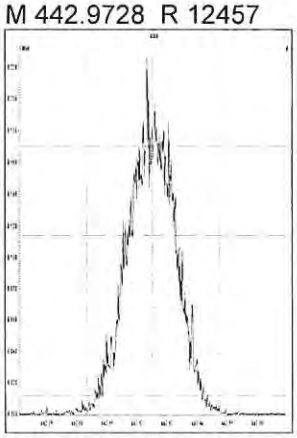
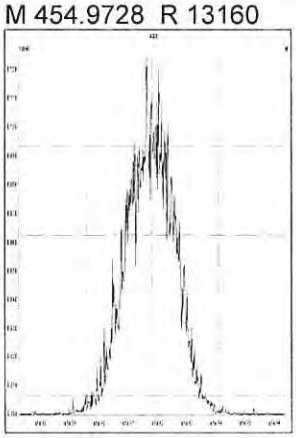
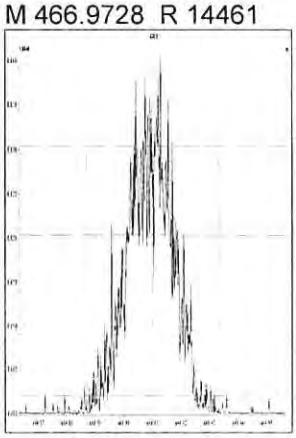


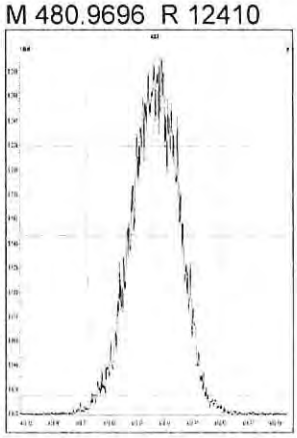
M 454.9728 R 13160



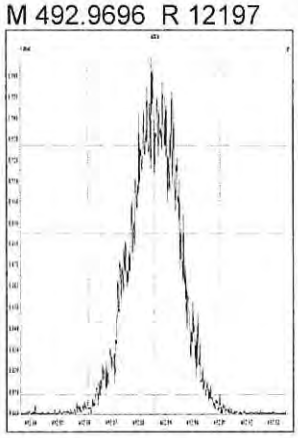
M 466.9728 R 14461



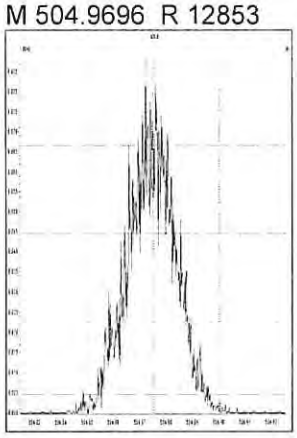
M 480.9696 R 12410



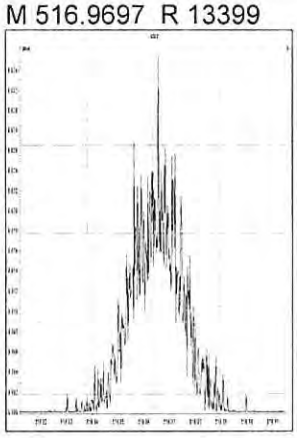
M 492.9696 R 12197



M 504.9696 R 12853



M 516.9697 R 13399



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

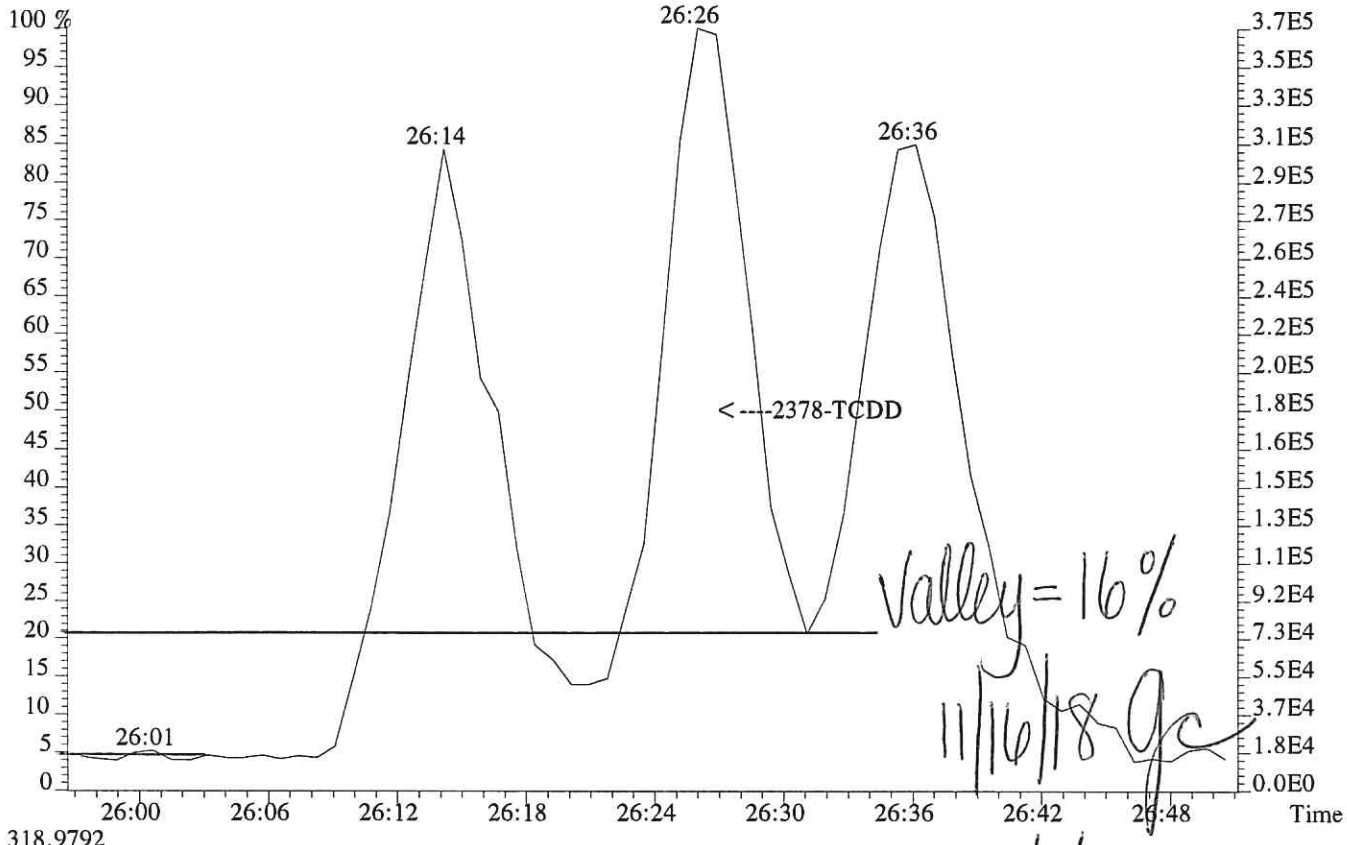
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518824
Date Analyzed: 15-NOV-2018
Time Analyzed: 12:04:32

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:08	27:51
TCDD	22:43	27:40
PeCDF	27:49	32:35
PeCDD	29:36	32:20
HxCDF	33:19	35:57
HxCDD	33:53	35:33
HpCDF	37:15	38:35
HpCDD	37:30	38:10

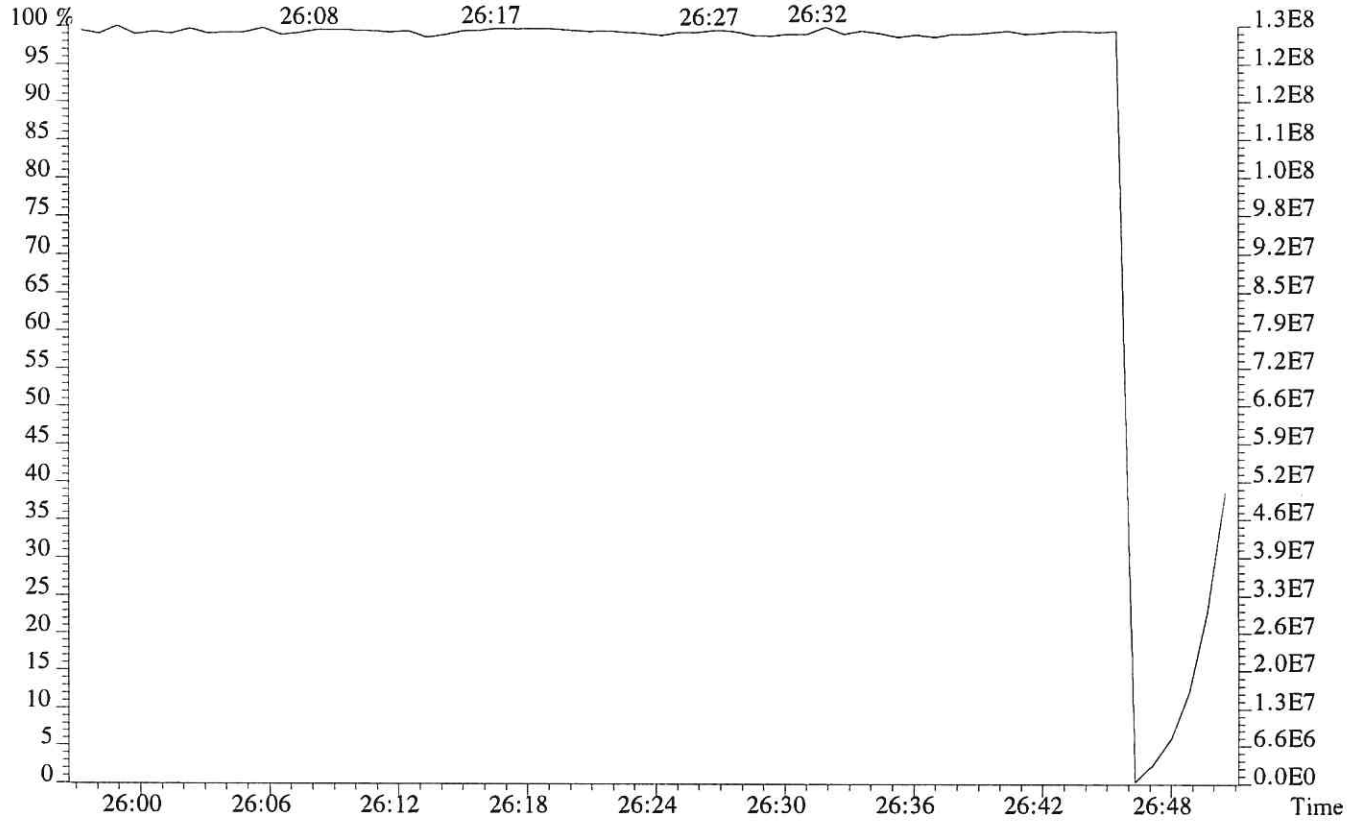
% Valley 2378-TCDD: 16 %

File:P518824 #1-602 Acq:15-NOV-2018 12:04:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LKL 11/19/18



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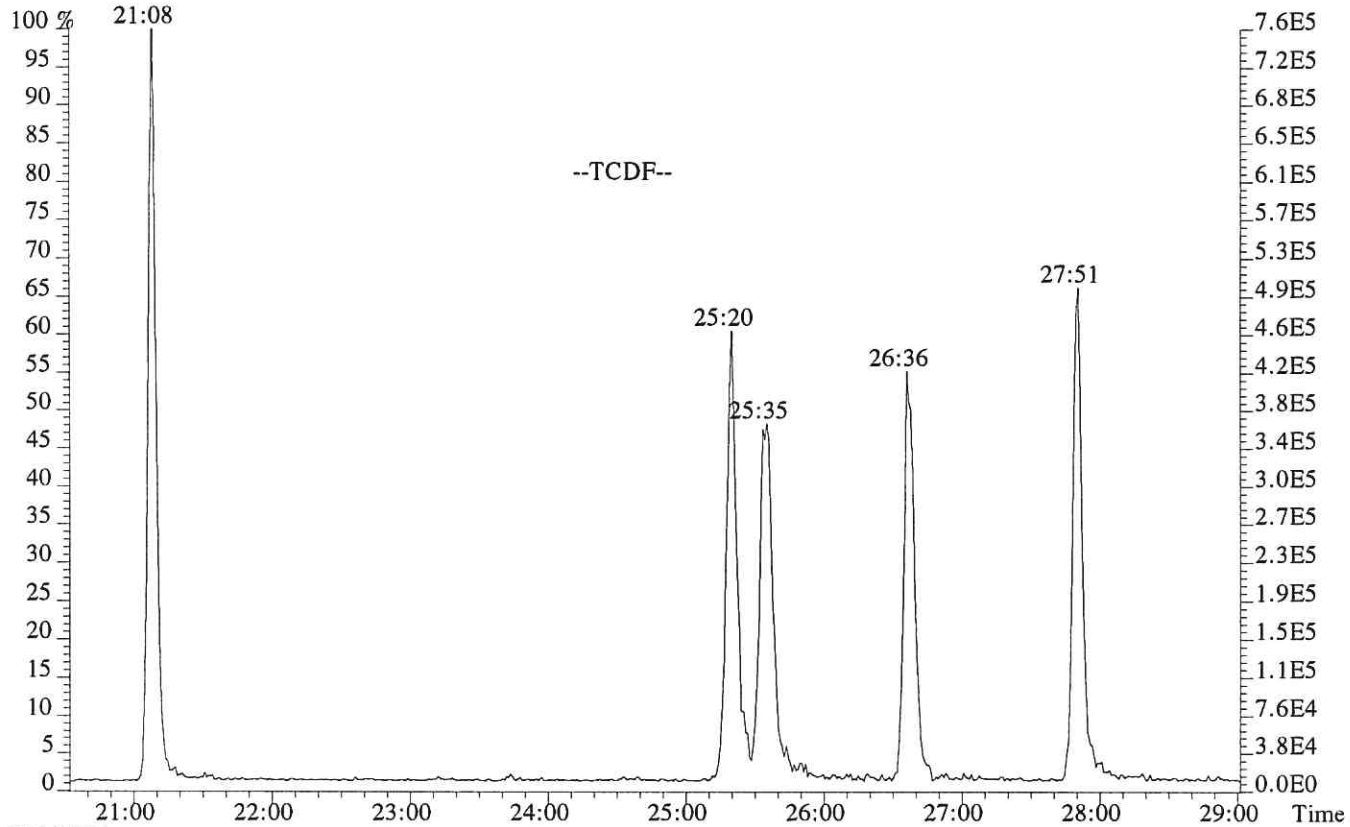
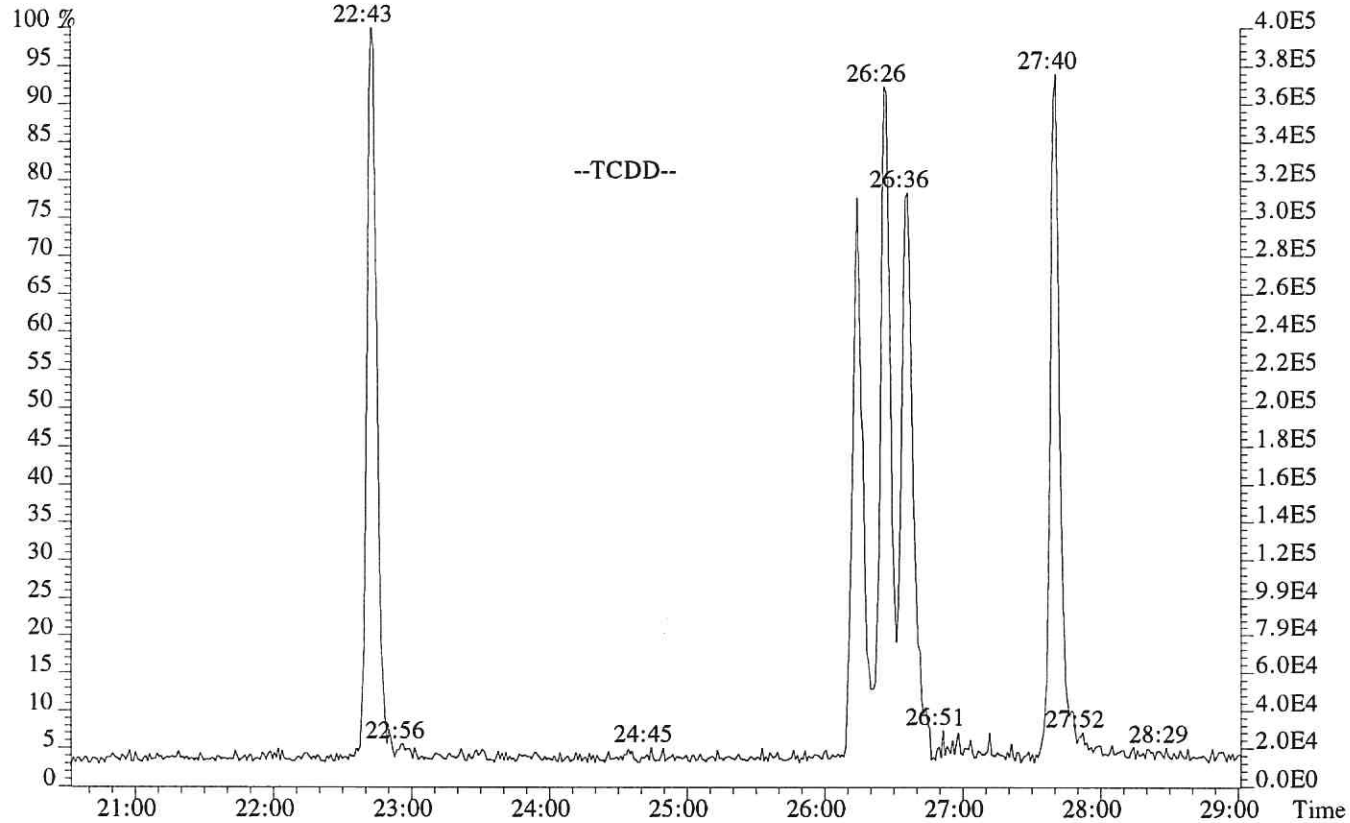
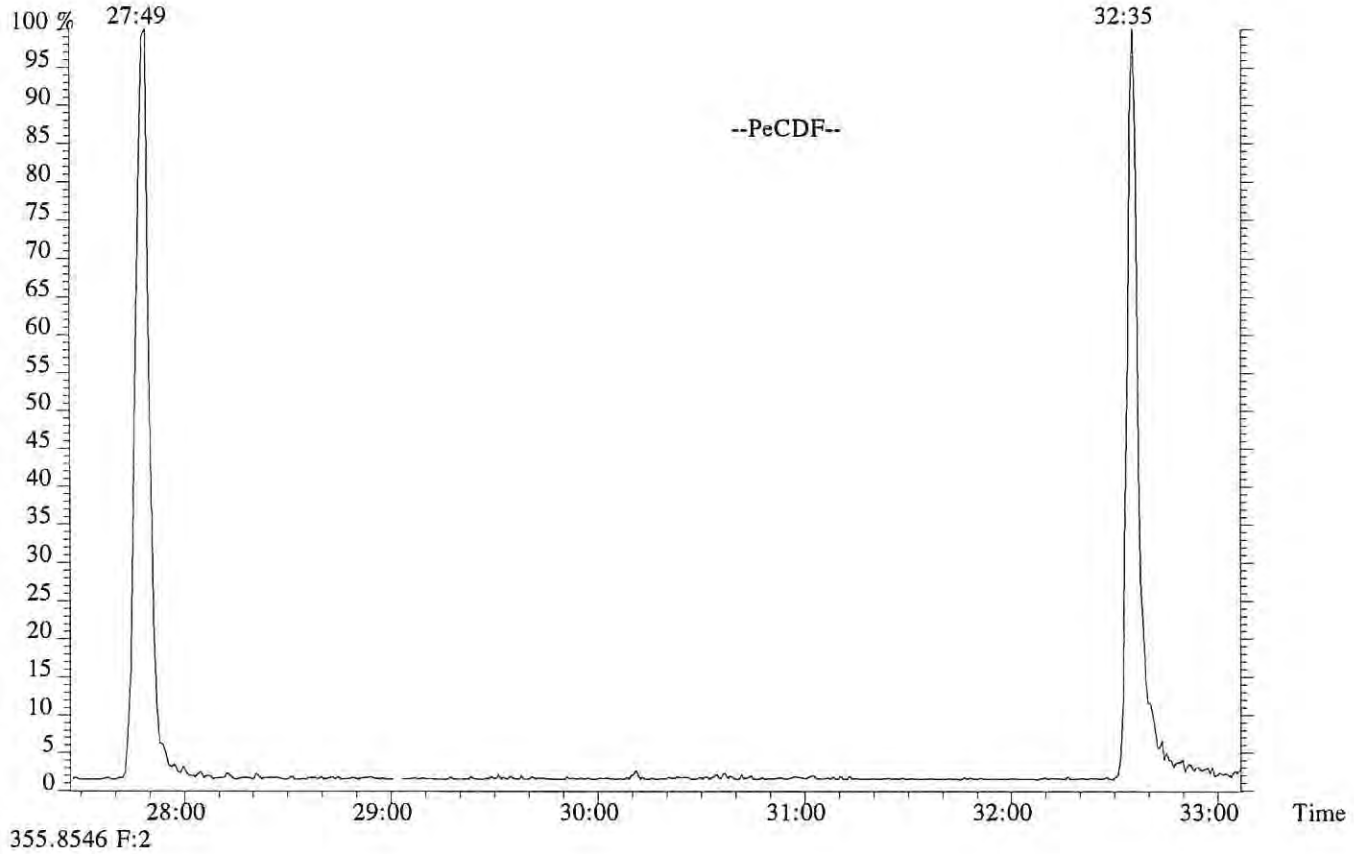
Sample#1 Exp:192977
303.9016



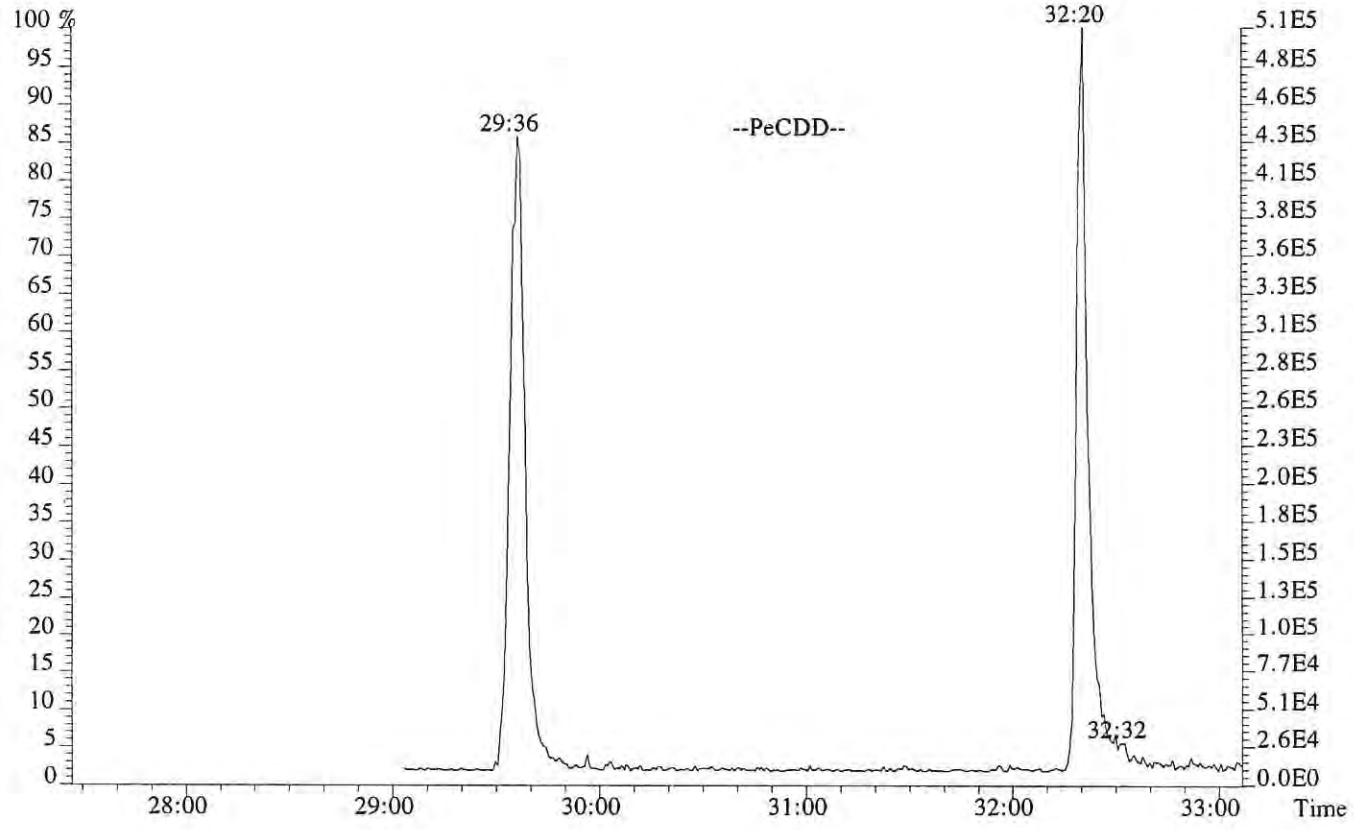
319.8965



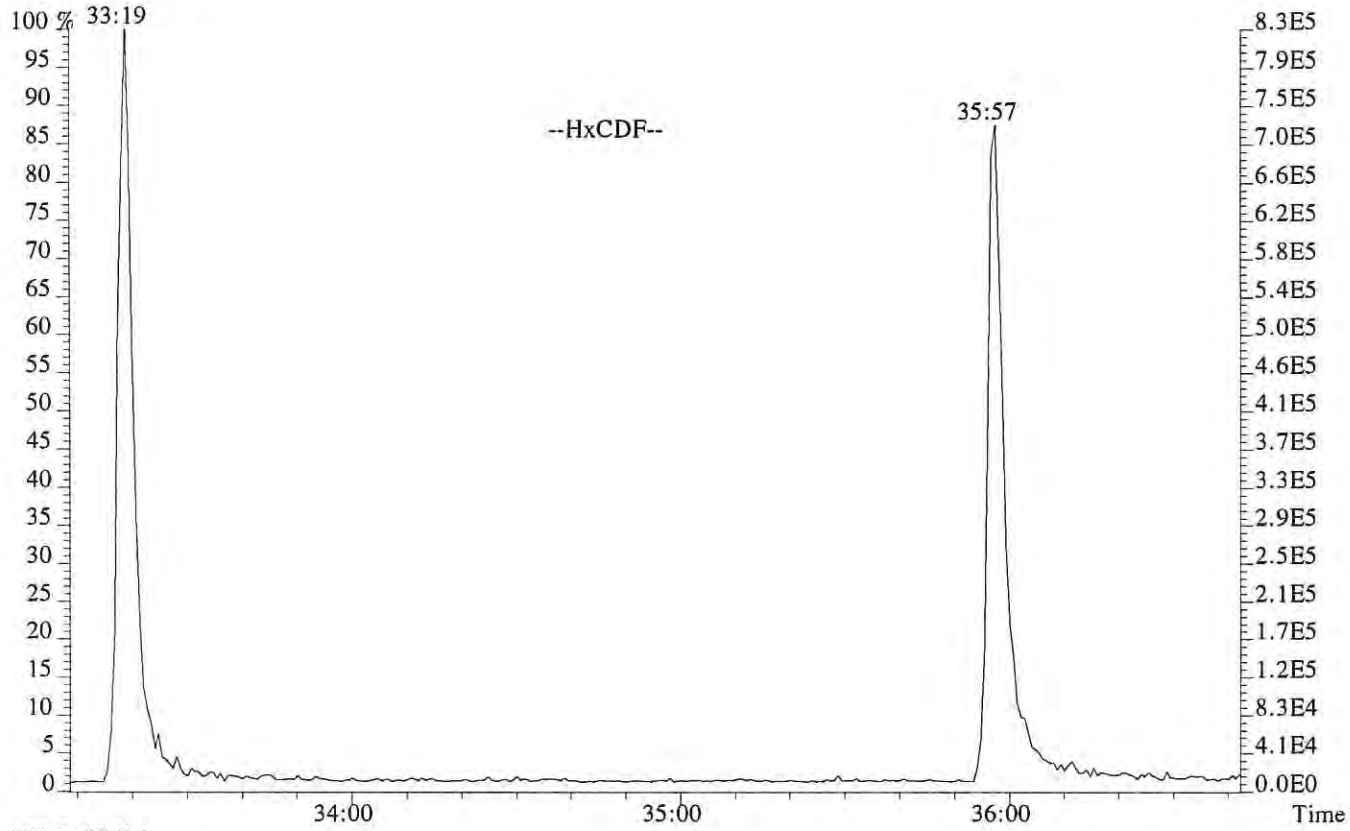
File:P518824 #1-602 Acq:15-NOV-2018 12:04:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



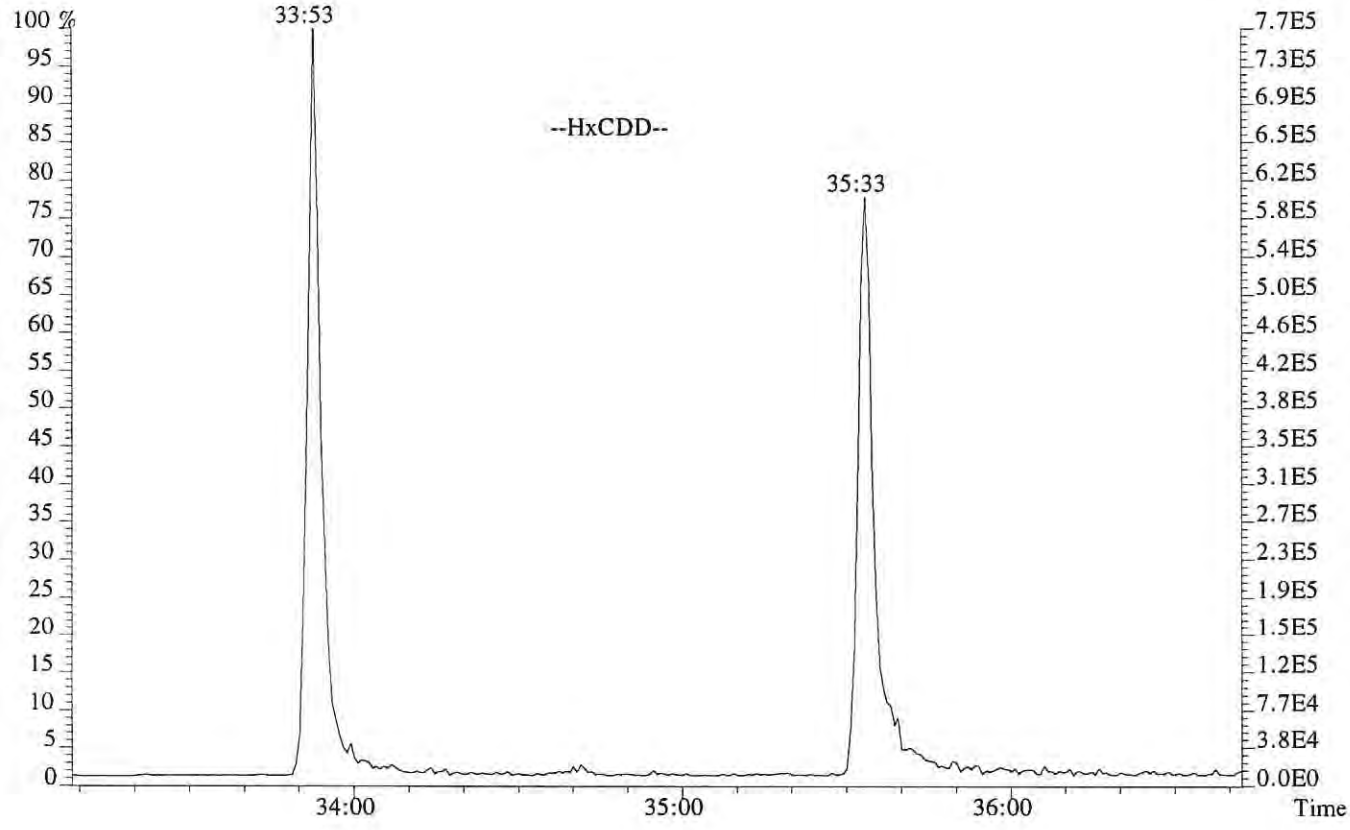
355.8546 F:2



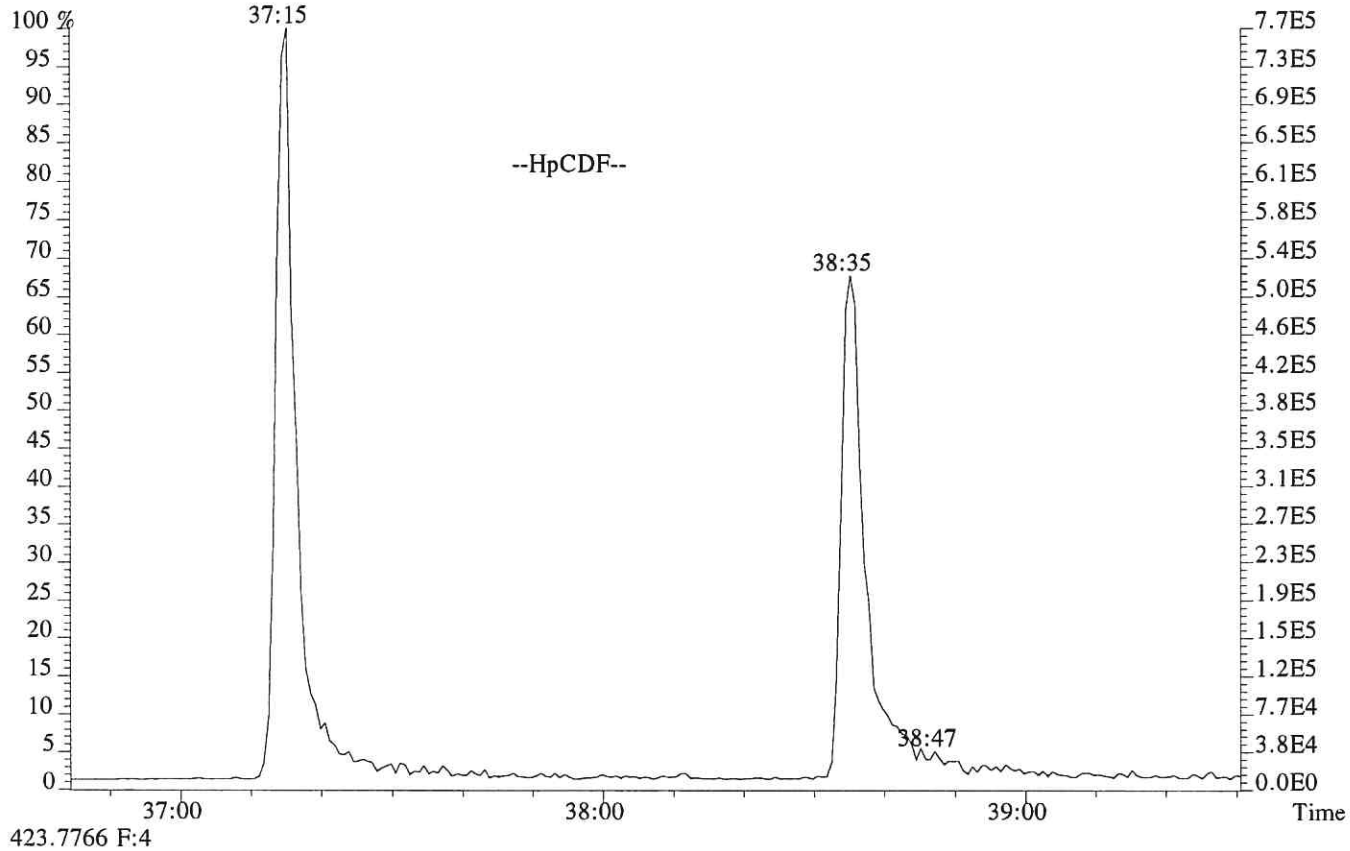
File:P518824 #1-321 Acq:15-NOV-2018 12:04:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



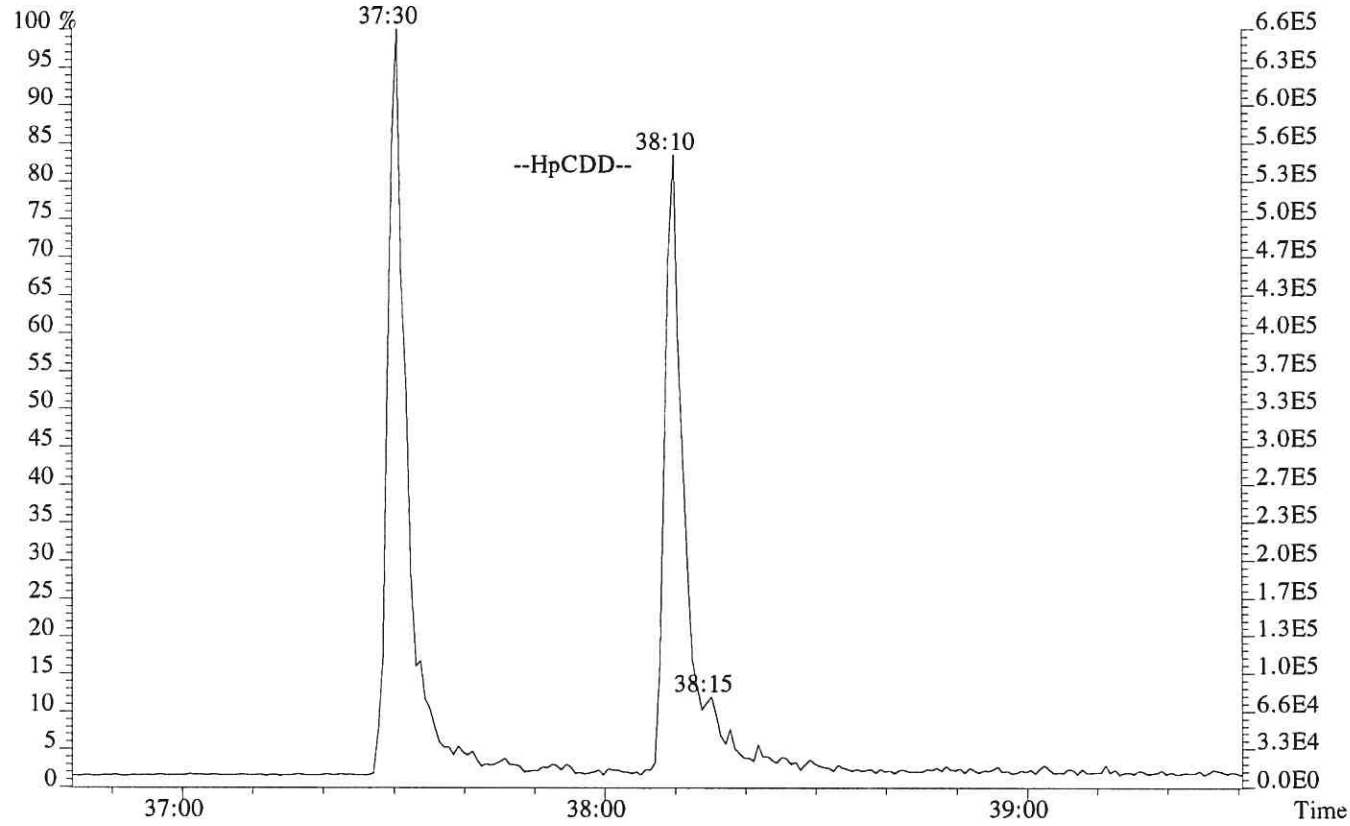
389.8157 F:3



File:P518824 #1-250 Acq:15-NOV-2018 12:04:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518826 Analysis Date: 15-NOV-18 Time: 14:12:08

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.3	7.8 - 12.9	-7.0
1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	50	39 - 65	1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64	-1.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	53	41 - 61	6.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	49	43 - 58	-2.4
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	0.7
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	50	41 - 60	0.3
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	51	44 - 57	2.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-2.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	44 - 57	1.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	49	45 - 55	-1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	49	43 - 58	-2.7
OCDF	M+2/M+4	0.87	0.76-1.02	99	63 - 159	-1.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518826 Analysis Date: 15-NOV-18 Time: 14:12:08

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	96	82 - 121	-3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	101	62 - 160	1.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	87	85 - 117	-13.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	108	85 - 118	8.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	113	72 - 138	13.2
13C-OCDD	M+2/M+4	0.93	0.76-1.02	310	96 - 415	55.0
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	89	71 - 140	-11.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	101	76 - 130	1.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	101	77 - 130	1.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	79	76 - 131	-20.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	99	70 - 143	-0.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	92	74 - 135	-8.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	73 - 137	-5.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	111	77 - 129	11.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #9 Filename P518826 Samp: 1 Inj: 1 Acquired: 15-NOV-18 14:12:08
Processed: 16-NOV-18 14:10:41 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	1.526e+03	2.149e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.362e+04	8.648e+03	1.57	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.266e+04	8.304e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.030e+04	8.411e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.380e+04	1.097e+04	1.26	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.126e+04	9.389e+03	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.469e+03	7.880e+03	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.087e+04	1.054e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	8.819e+03	8.522e+03	1.03	yes	no	1.258
10	Unk	OCDF	40:51	1.754e+04	2.008e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	1.148e+03	1.490e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	8.625e+03	5.403e+03	1.60	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.091e+03	5.753e+03	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	9.432e+03	7.392e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	8.895e+03	7.188e+03	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	7.854e+03	7.214e+03	1.09	yes	no	1.025
17	Unk	OCDD	40:41	1.479e+04	1.677e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	1.753e+04	2.215e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.714e+04	1.670e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.651e+04	1.688e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.022e+04	2.008e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.493e+04	2.827e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.278e+04	2.402e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.057e+04	2.041e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.940e+03	2.224e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.440e+03	1.989e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	1.144e+04	1.470e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.767e+04	1.138e+04	1.55	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.392e+04	1.106e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.784e+04	1.401e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.559e+04	1.456e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:40	2.696e+04	2.910e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:51	1.299e+04	1.646e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	1.757e+04	1.348e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:35	2.878e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #9 Filename P518826 Samp: 1 Inj: 1 Acquired: 15-NOV-18 14:12:08
Processed: 16-NOV-18 14:10:41 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.93e+05	9.80e+02	2.0e+02	2.87e+05	2.76e+03	1.0e+02
2	1,2,3,7,8-PeCDF	2.00e+06	7.08e+02	2.8e+03	1.26e+06	2.64e+03	4.8e+02
3	2,3,4,7,8-PeCDF	2.01e+06	7.08e+02	2.8e+03	1.32e+06	2.64e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	2.05e+06	8.72e+02	2.4e+03	1.67e+06	1.07e+03	1.6e+03
5	1,2,3,6,7,8-HxCDF	2.15e+06	8.72e+02	2.5e+03	1.80e+06	1.07e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	2.00e+06	8.72e+02	2.3e+03	1.62e+06	1.07e+03	1.5e+03
7	1,2,3,7,8,9-HxCDF	1.54e+06	8.72e+02	1.8e+03	1.27e+06	1.07e+03	1.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.94e+06	4.54e+03	4.3e+02	1.84e+06	3.20e+03	5.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.43e+06	4.54e+03	3.1e+02	1.41e+06	3.20e+03	4.4e+02
10	OCDF	2.59e+06	3.28e+02	7.9e+03	2.94e+06	7.00e+02	4.2e+03
11	2,3,7,8-TCDD	1.77e+05	3.75e+03	4.7e+01	1.97e+05	1.52e+03	1.3e+02
12	1,2,3,7,8-PeCDD	1.35e+06	1.30e+03	1.0e+03	8.64e+05	2.76e+02	3.1e+03
13	1,2,3,4,7,8-HxCDD	1.51e+06	9.48e+02	1.6e+03	1.18e+06	6.56e+02	1.8e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	9.48e+02	1.6e+03	1.24e+06	6.56e+02	1.9e+03
15	1,2,3,7,8,9-HxCDD	1.40e+06	9.48e+02	1.5e+03	1.10e+06	6.56e+02	1.7e+03
16	1,2,3,4,6,7,8-HpCDD	1.27e+06	6.32e+02	2.0e+03	1.28e+06	8.20e+02	1.6e+03
17	OCDD	2.13e+06	2.36e+02	9.0e+03	2.47e+06	4.36e+02	5.7e+03
18	13C-2,3,7,8-TCDF	2.31e+06	1.12e+04	2.1e+02	2.86e+06	9.94e+03	2.9e+02
19	13C-1,2,3,7,8-PeCDF	4.03e+06	7.52e+02	5.4e+03	2.45e+06	1.01e+03	2.4e+03
20	13C-2,3,4,7,8-PeCDF	4.12e+06	7.52e+02	5.5e+03	2.60e+06	1.01e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.96e+06	1.30e+03	1.5e+03	3.85e+06	1.10e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.40e+06	1.30e+03	1.8e+03	4.49e+06	1.10e+03	4.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.18e+06	1.30e+03	1.7e+03	4.16e+06	1.10e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.69e+06	1.30e+03	1.3e+03	3.18e+06	1.10e+03	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.77e+06	7.80e+02	2.3e+03	3.87e+06	8.79e+03	4.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.40e+06	7.80e+02	1.8e+03	3.05e+06	8.79e+03	3.5e+02
27	13C-2,3,7,8-TCDD	1.66e+06	7.50e+03	2.2e+02	1.99e+06	3.44e+03	5.8e+02
28	13C-1,2,3,7,8-PeCDD	2.65e+06	1.30e+03	2.0e+03	1.74e+06	1.82e+03	9.6e+02
29	13C-1,2,3,4,7,8-HxCDD	2.90e+06	1.61e+03	1.8e+03	2.33e+06	1.16e+03	2.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.92e+06	1.61e+03	1.8e+03	2.30e+06	1.16e+03	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.59e+06	1.22e+03	2.1e+03	2.43e+06	6.20e+02	3.9e+03
32	13C-OCDD	3.74e+06	8.24e+02	4.5e+03	4.15e+06	5.56e+02	7.5e+03
33	13C-1,2,3,4-TCDD	1.89e+06	7.50e+03	2.5e+02	2.32e+06	3.44e+03	6.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.70e+06	1.61e+03	1.7e+03	2.20e+06	1.16e+03	1.9e+03
35	37Cl-2,3,7,8-TCDD	4.02e+05	2.02e+03	2.0e+02			

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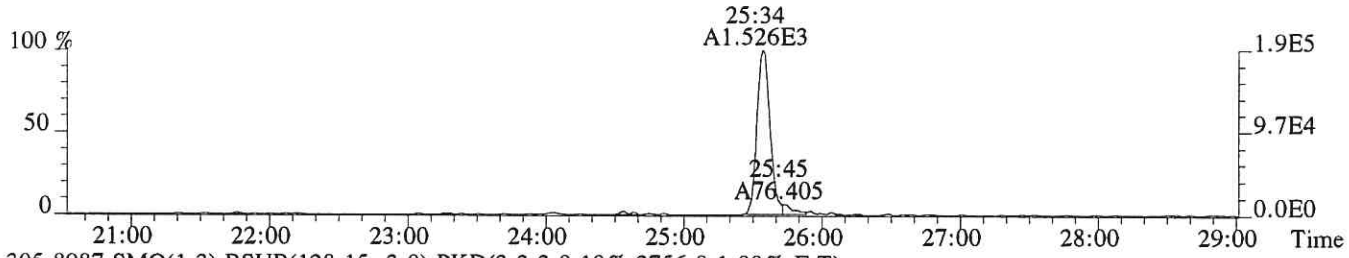
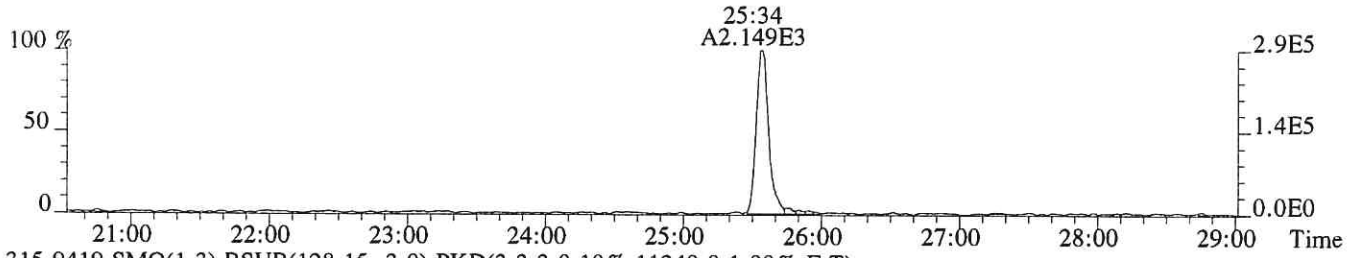
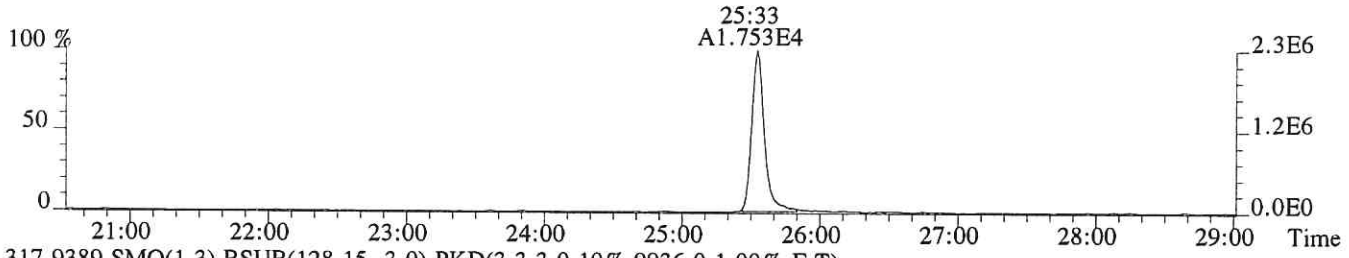
File:P518826 #1-602 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



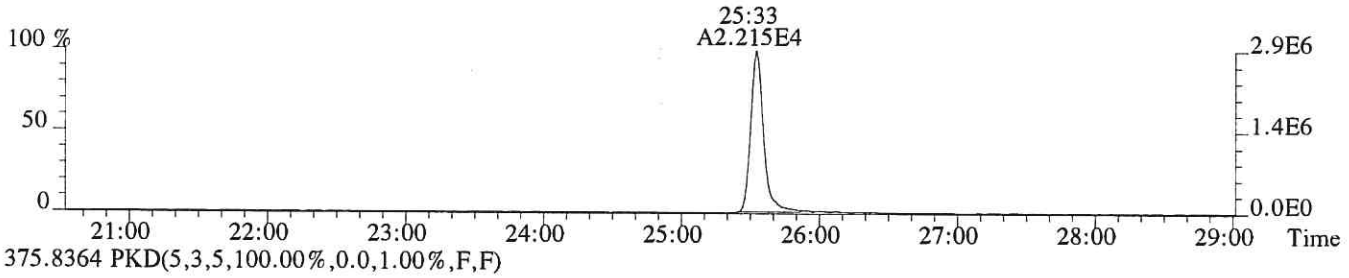
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



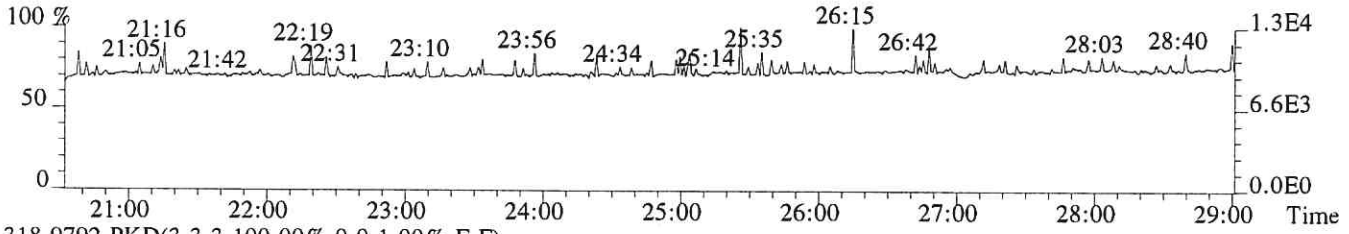
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11240.0,1.00%,F,T)



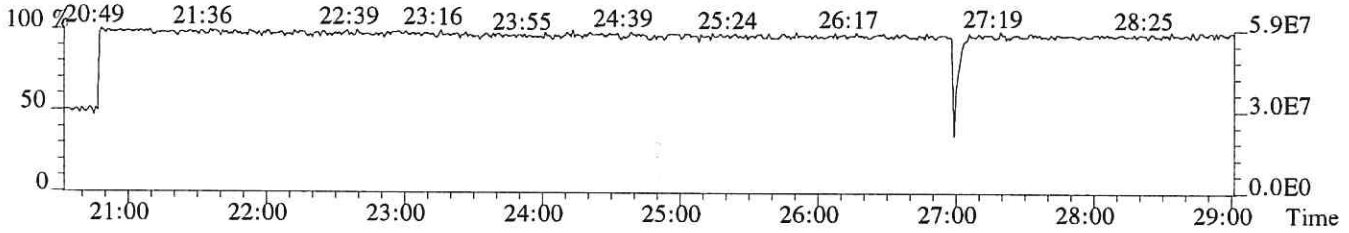
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9936.0,1.00%,F,T)



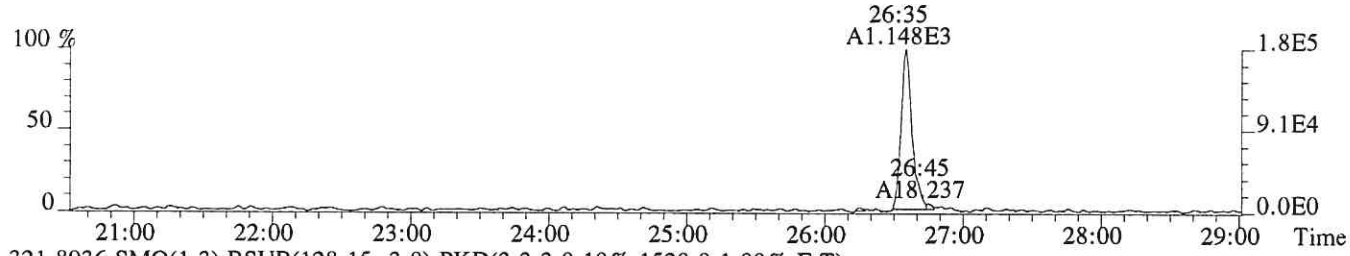
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



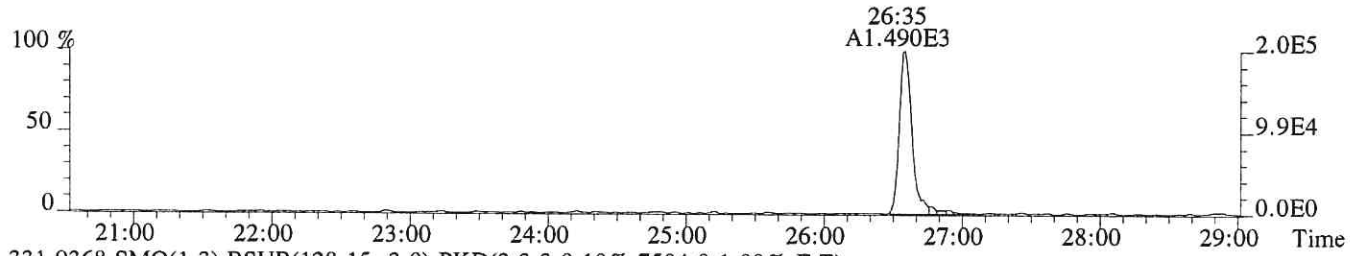
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



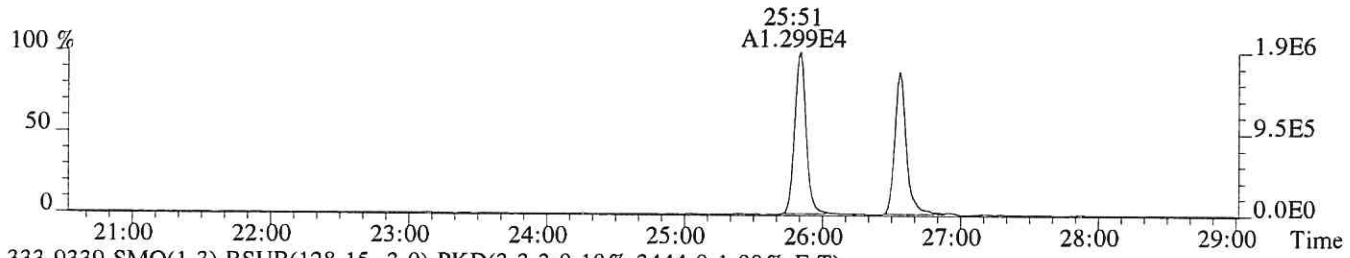
File:P518826 #1-602 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



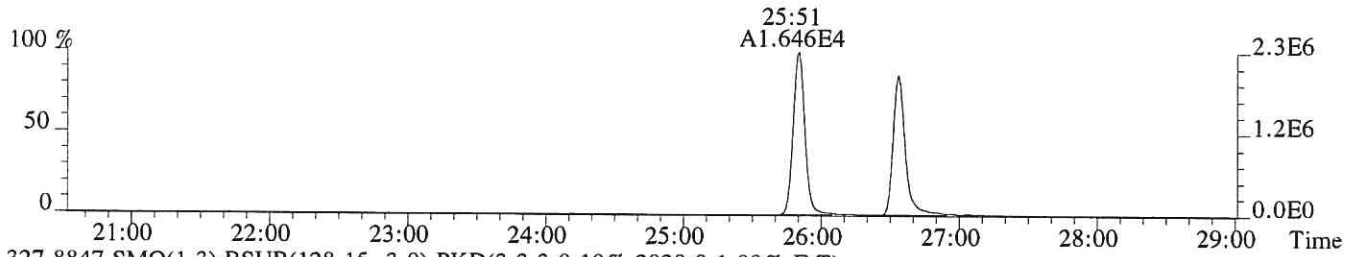
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



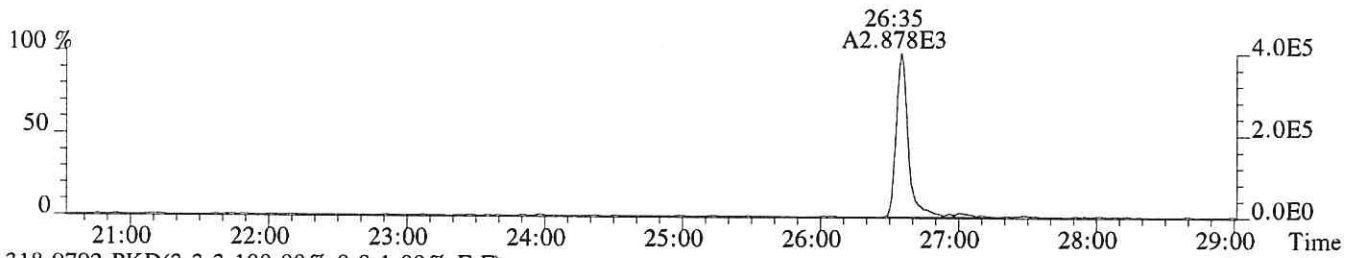
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7504.0,1.00%,F,T)



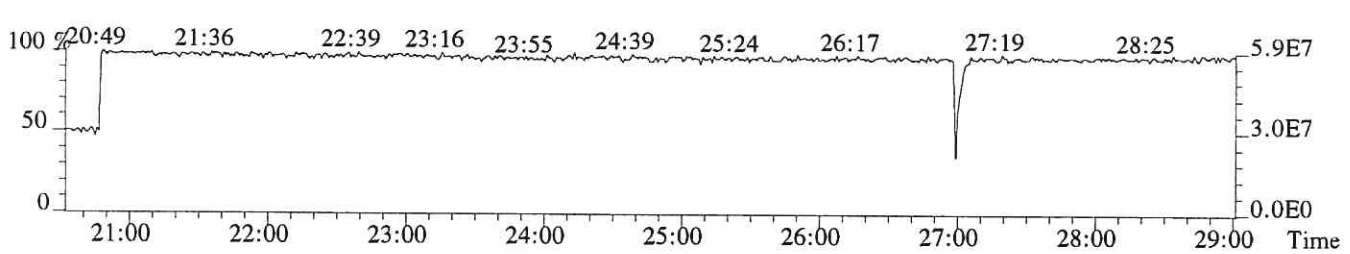
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



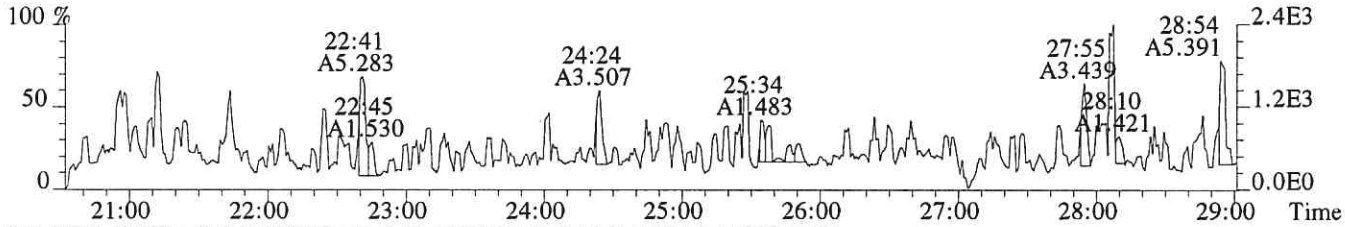
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



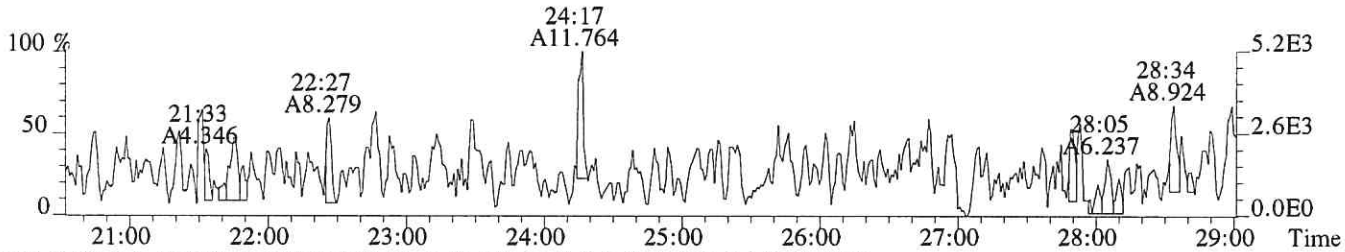
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



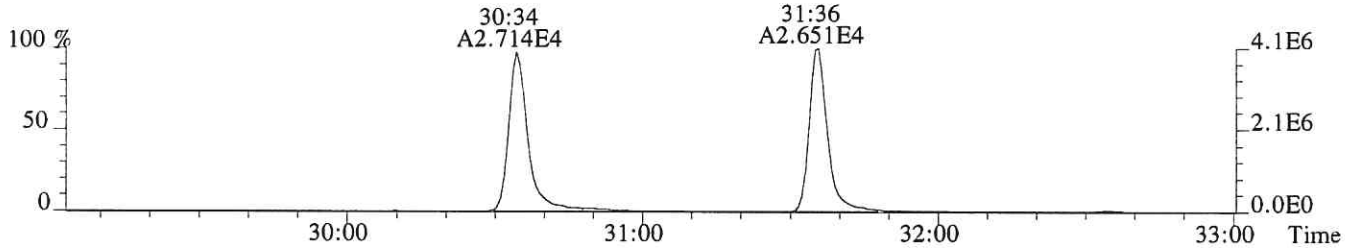
File:P518826 #1-602 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



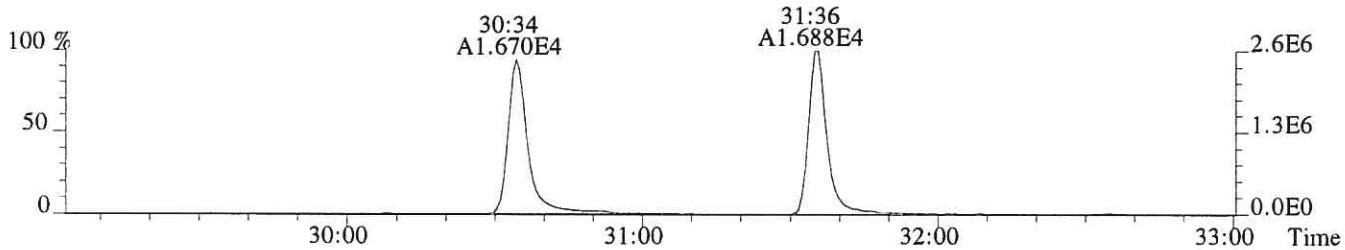
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



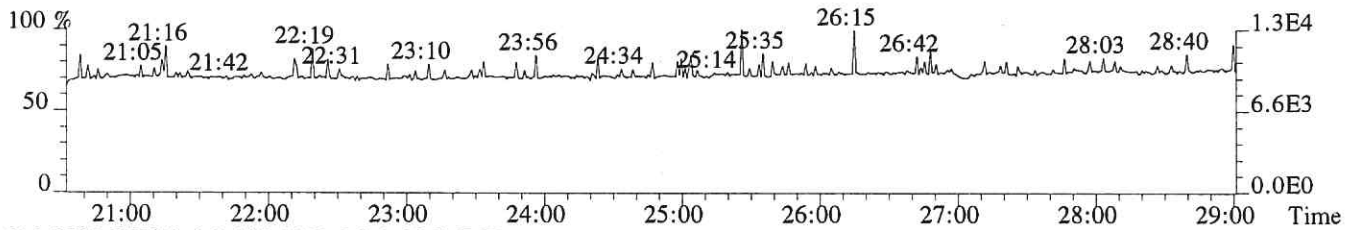
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



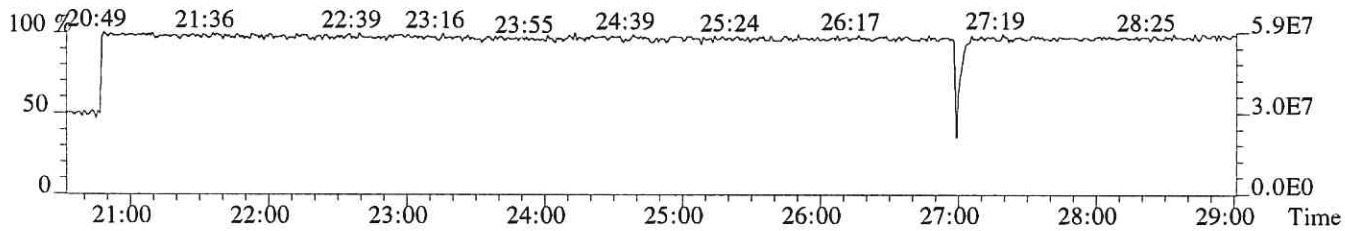
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



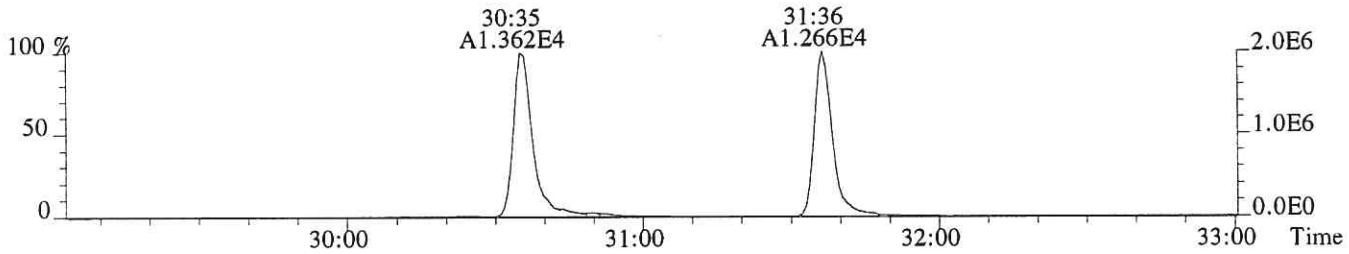
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



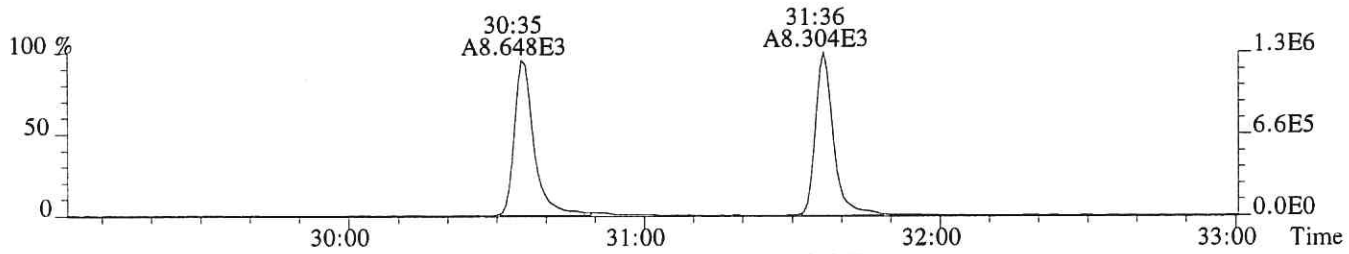
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



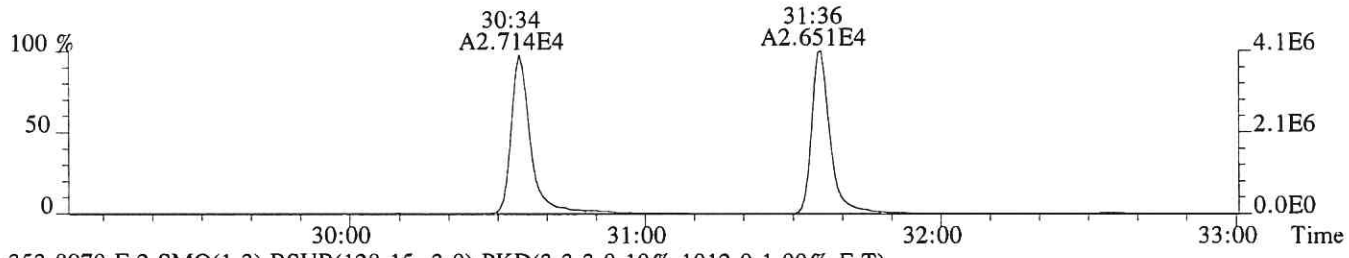
File:P518826 #1-357 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



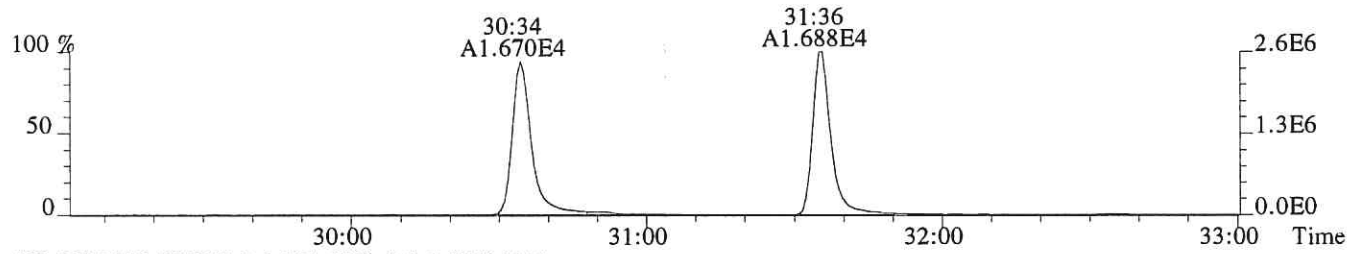
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2644.0,1.00%,F,T)



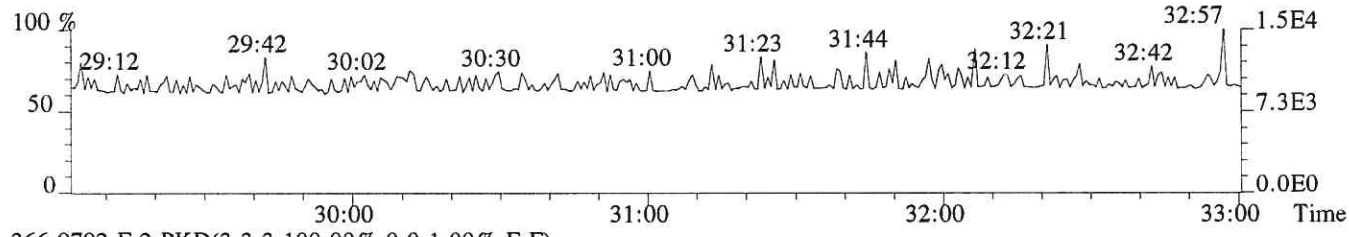
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



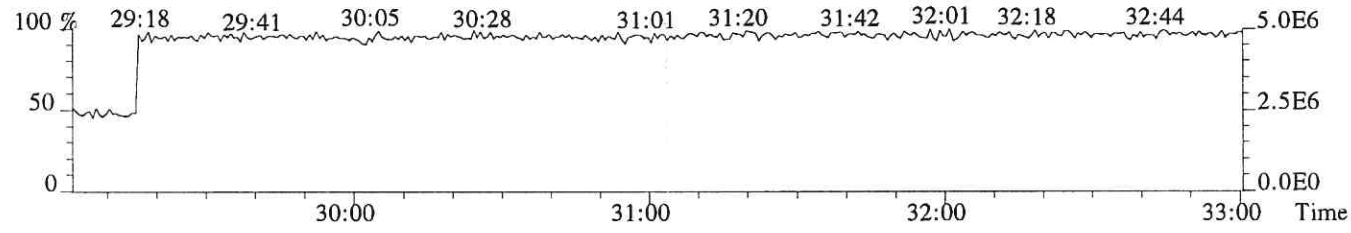
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



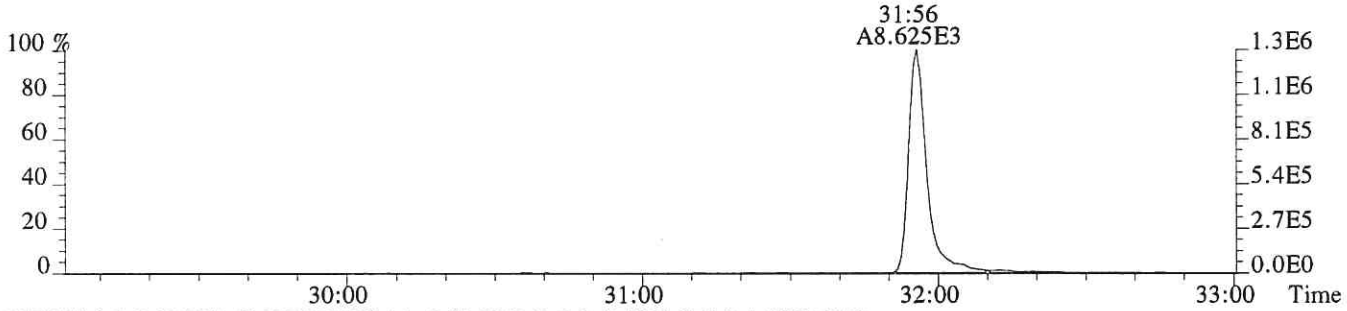
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



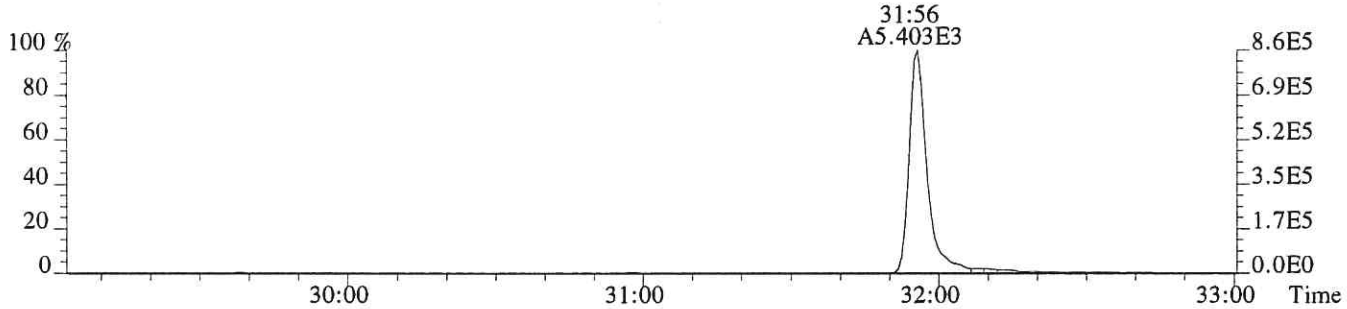
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



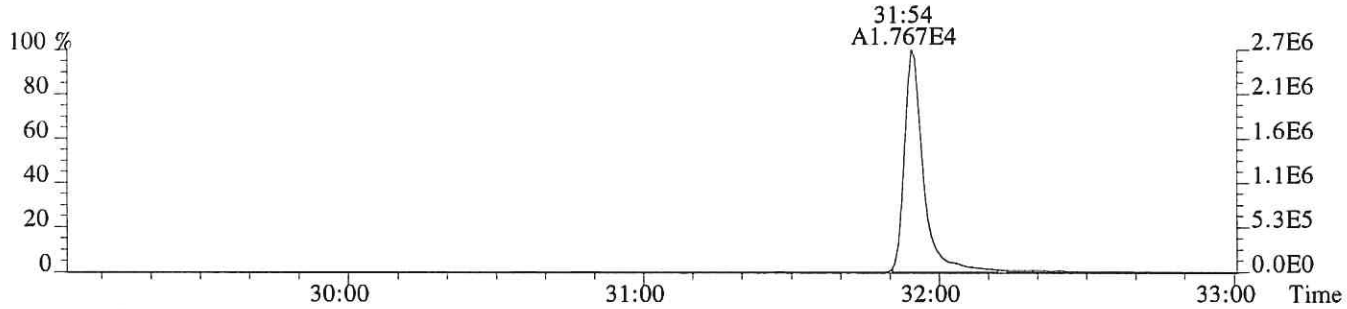
File:P518826 #1-357 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



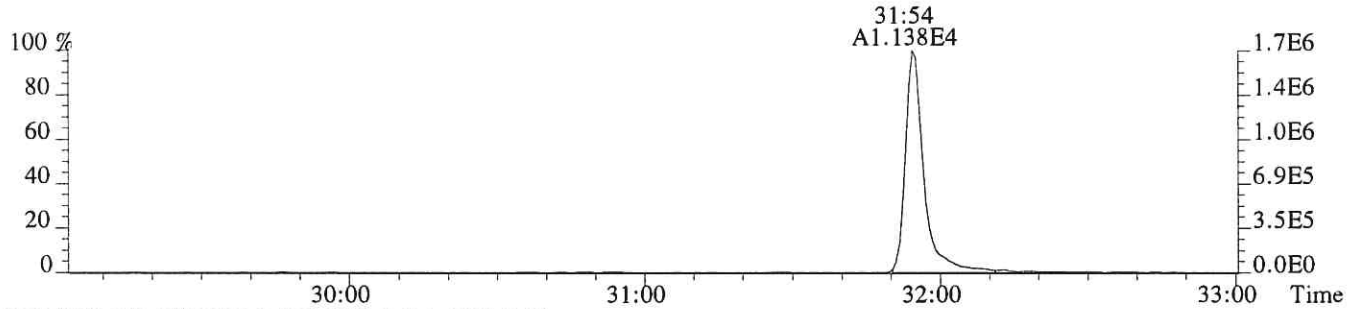
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



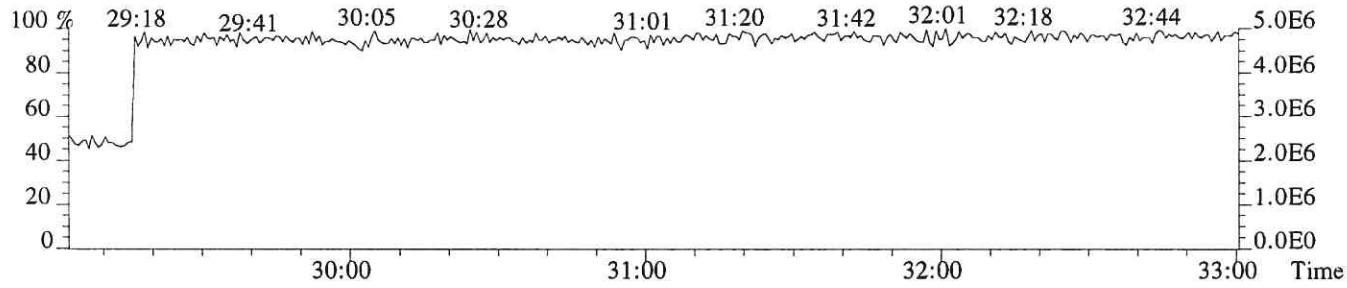
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



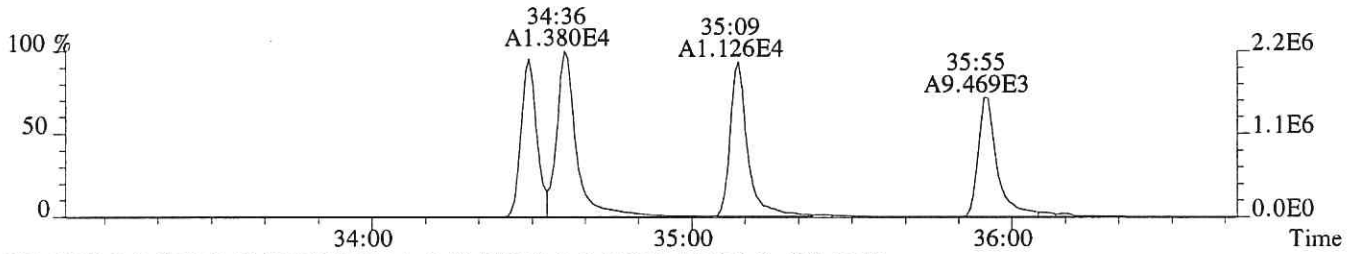
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



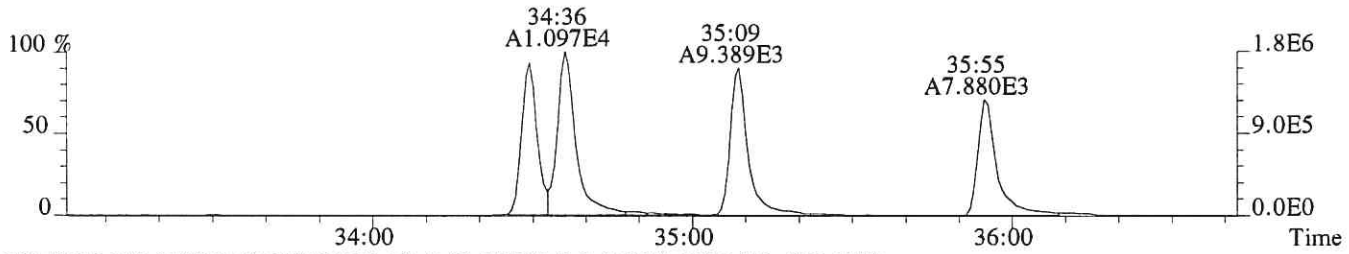
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



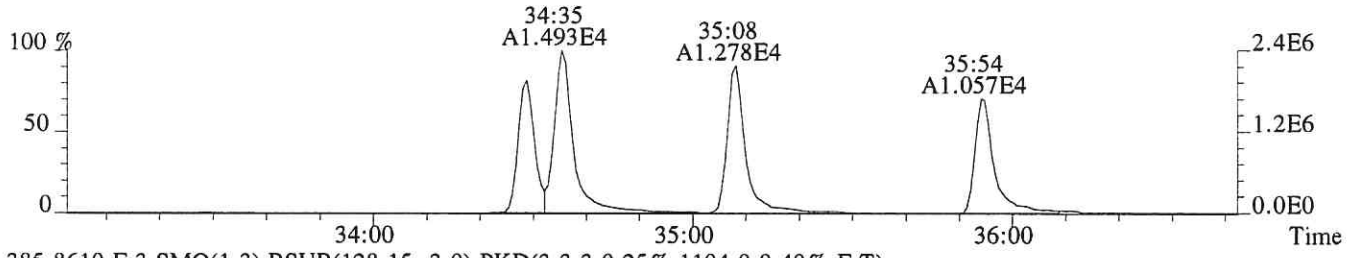
File:P518826 #1-330 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



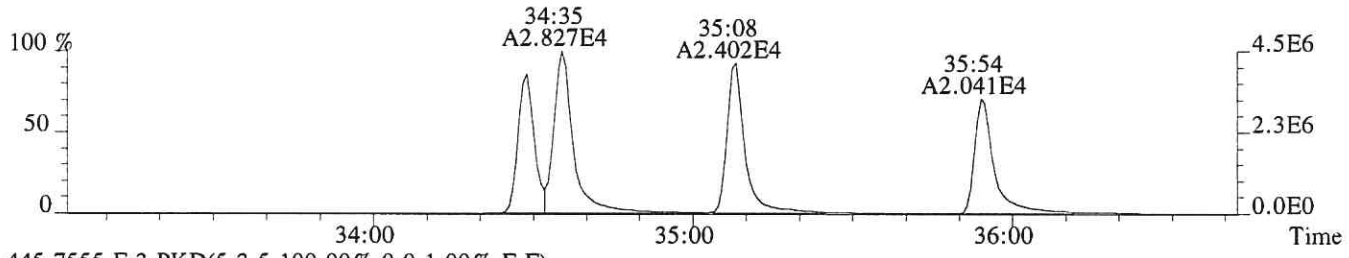
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



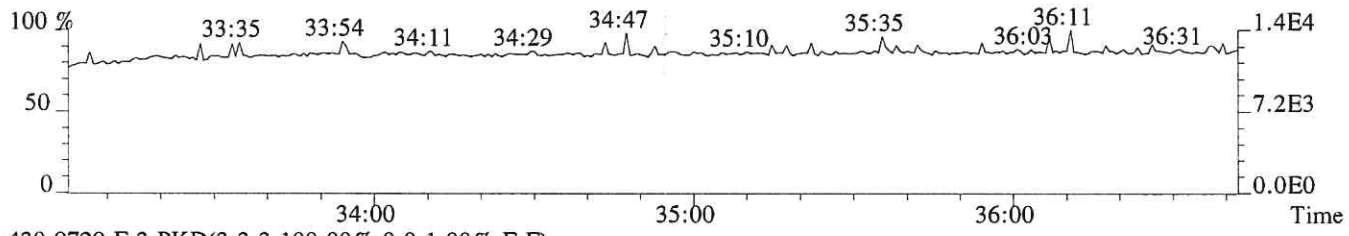
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



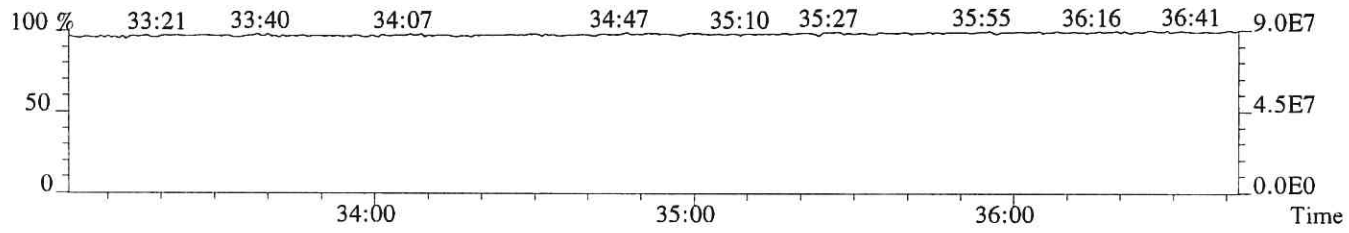
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



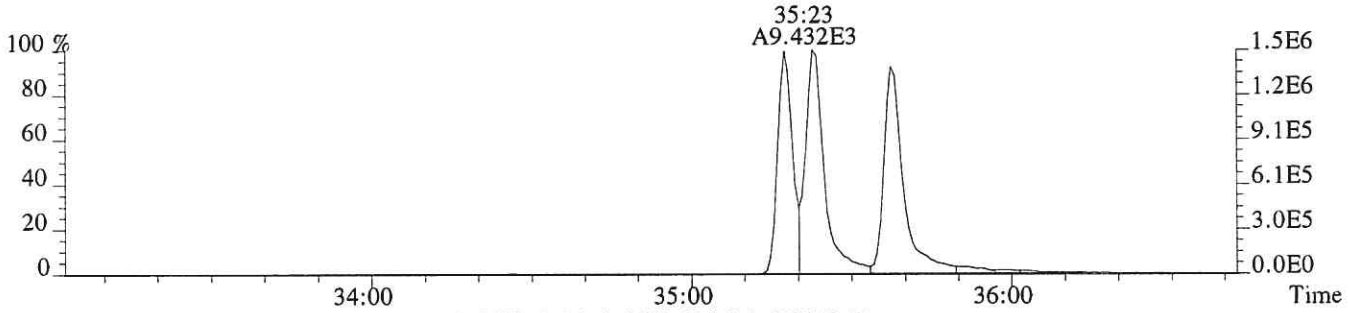
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



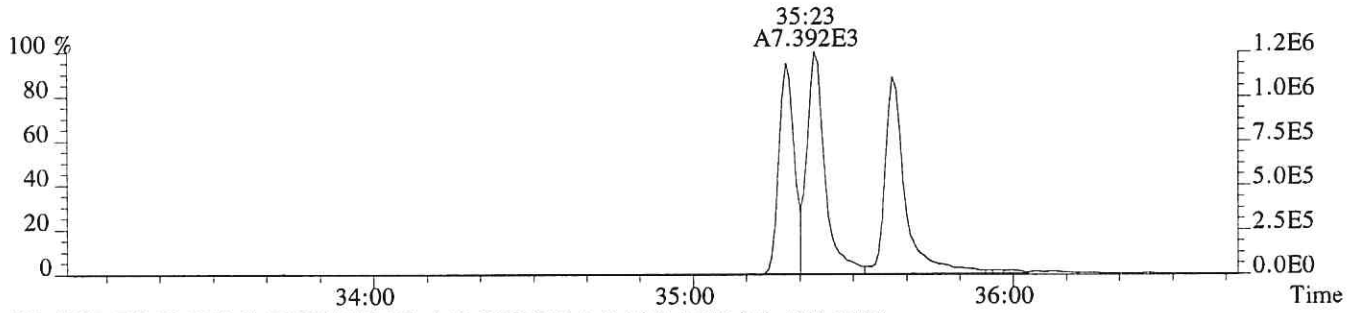
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



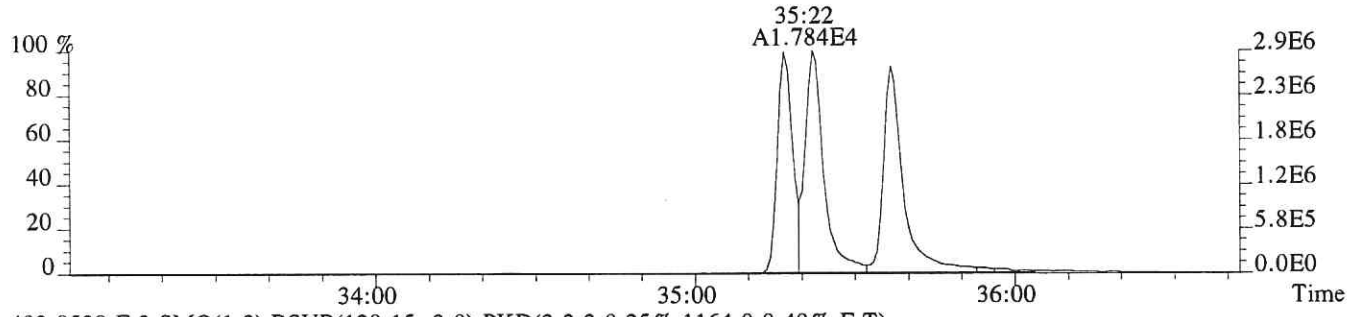
File:P518826 #1-330 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



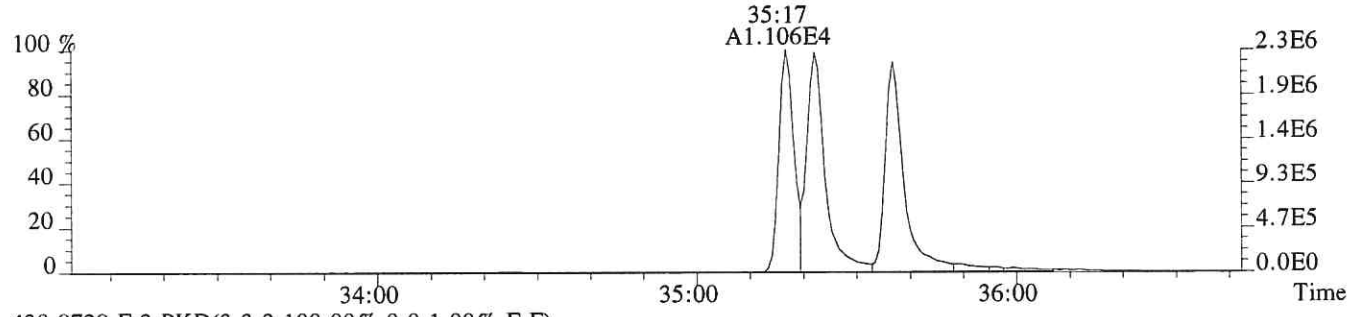
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



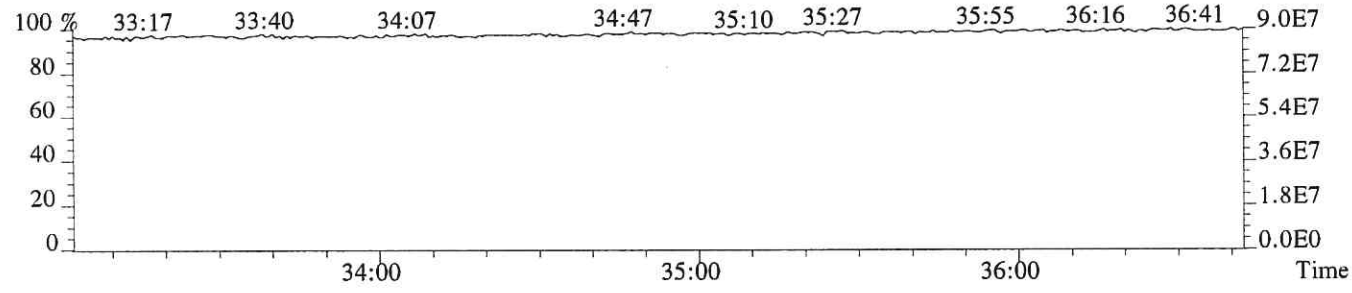
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1612.0,0.40%,F,T)



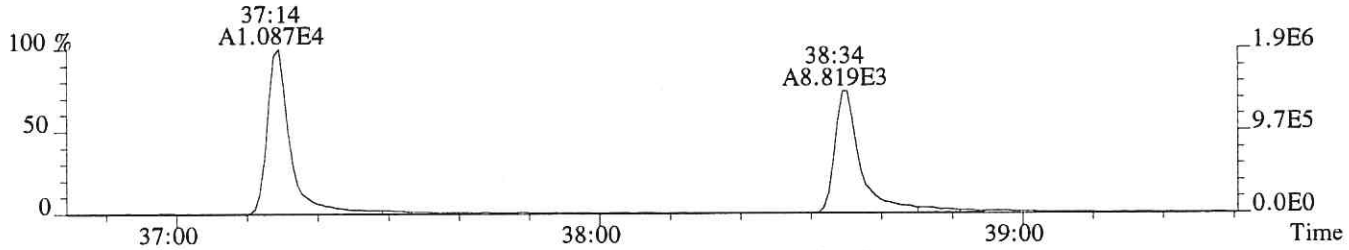
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



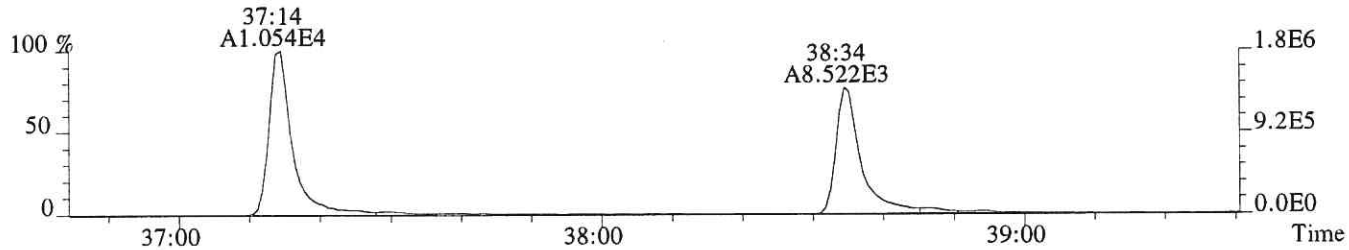
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



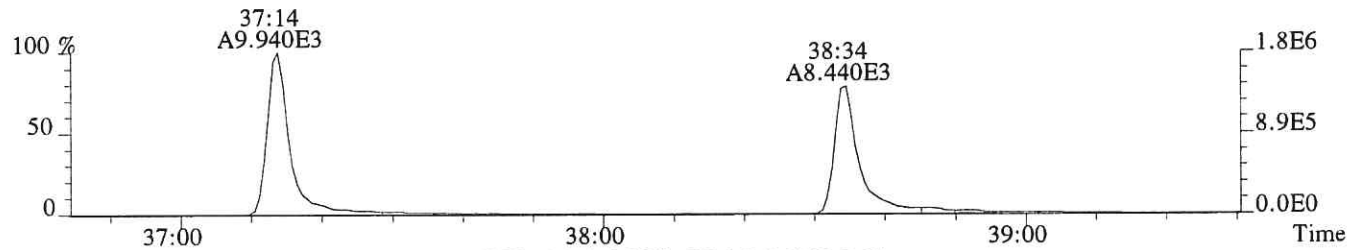
File:P518826 #1-250 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4540.0,0.50%,F,T)



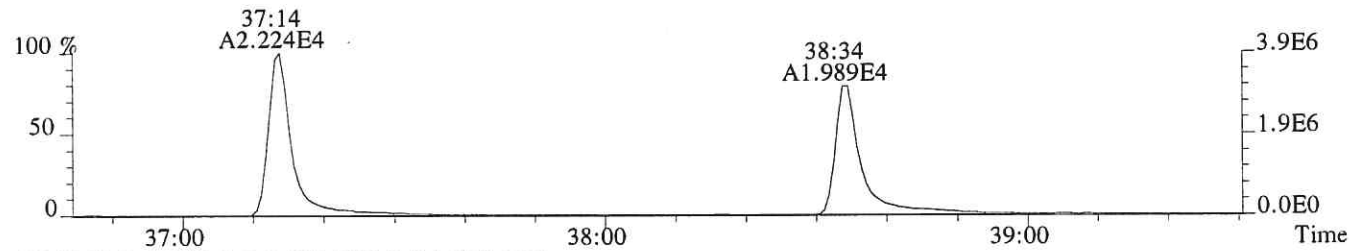
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3204.0,0.50%,F,T)



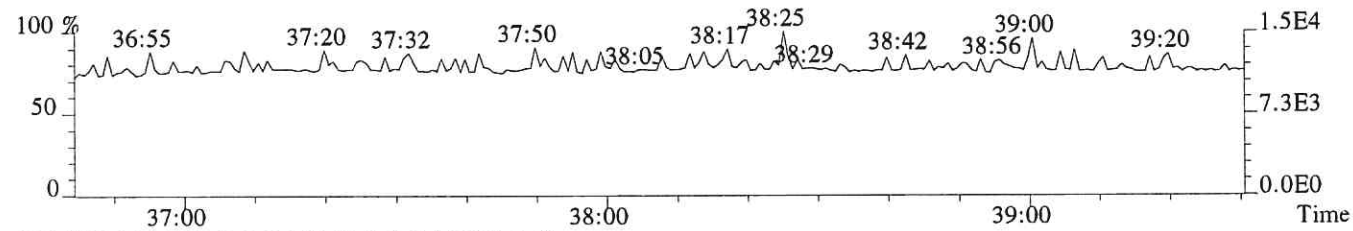
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.50%,F,T)



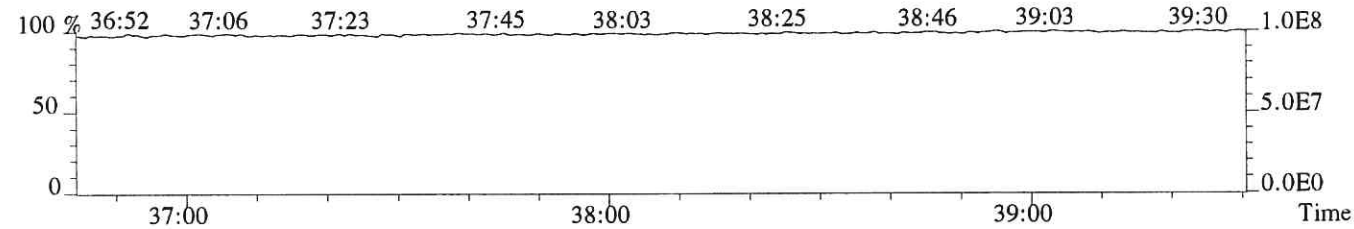
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8792.0,0.50%,F,T)



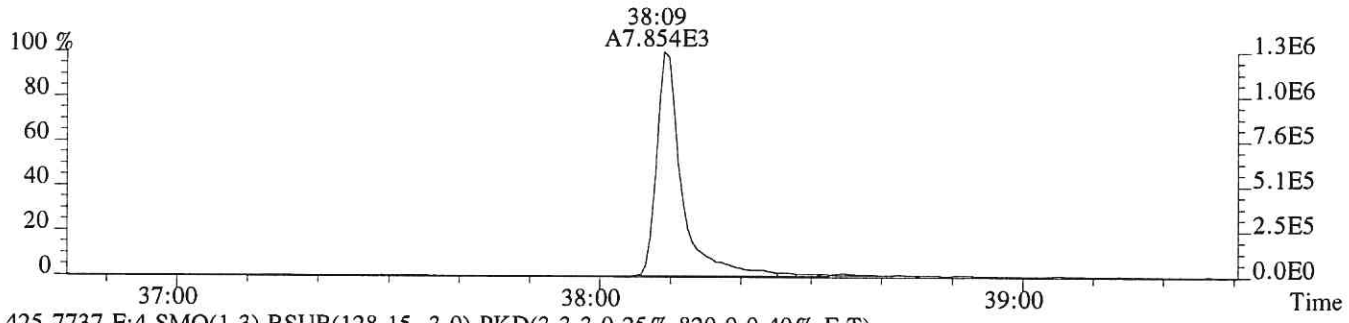
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



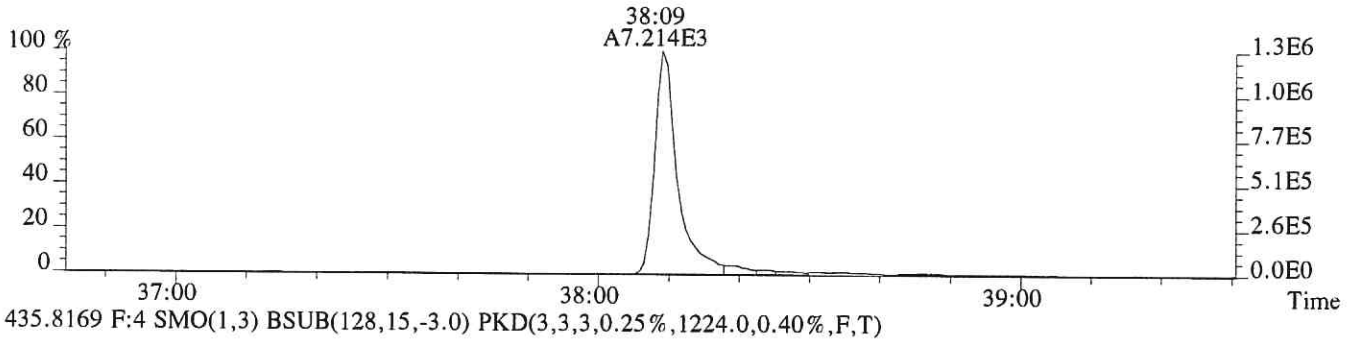
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



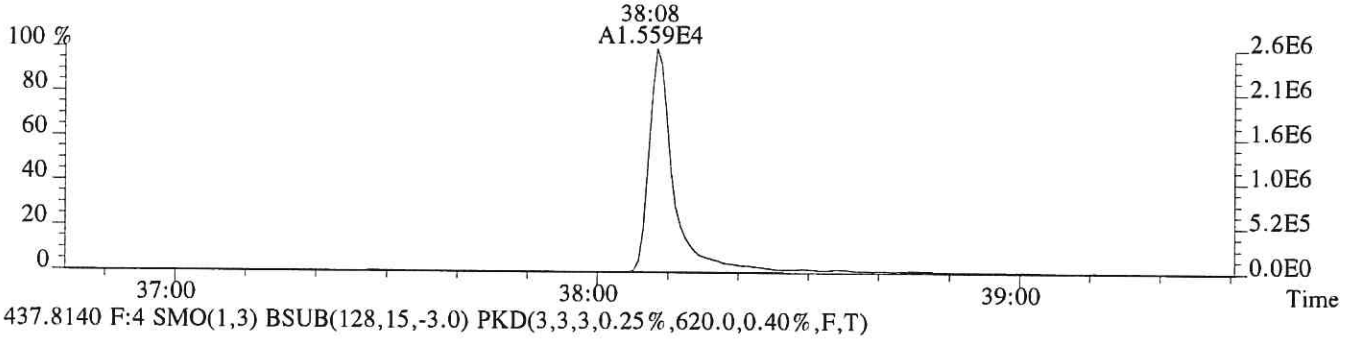
File:P518826 #1-250 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



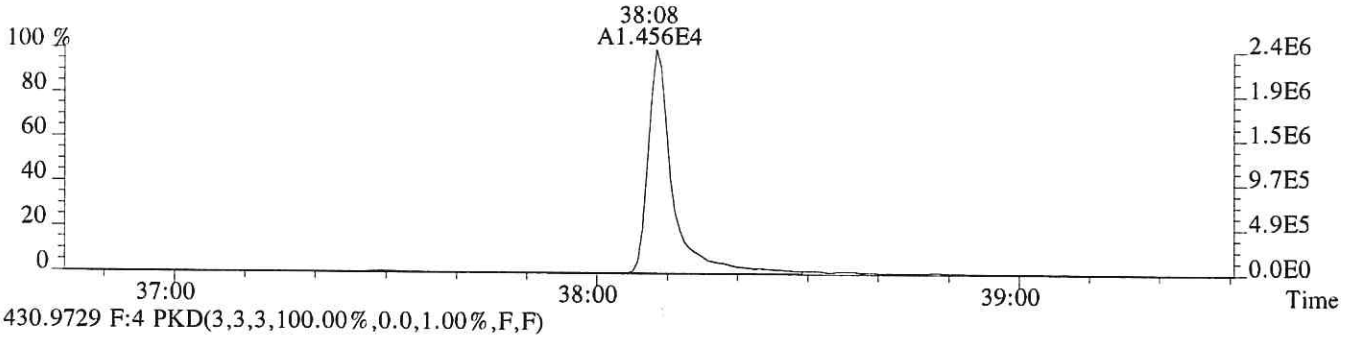
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



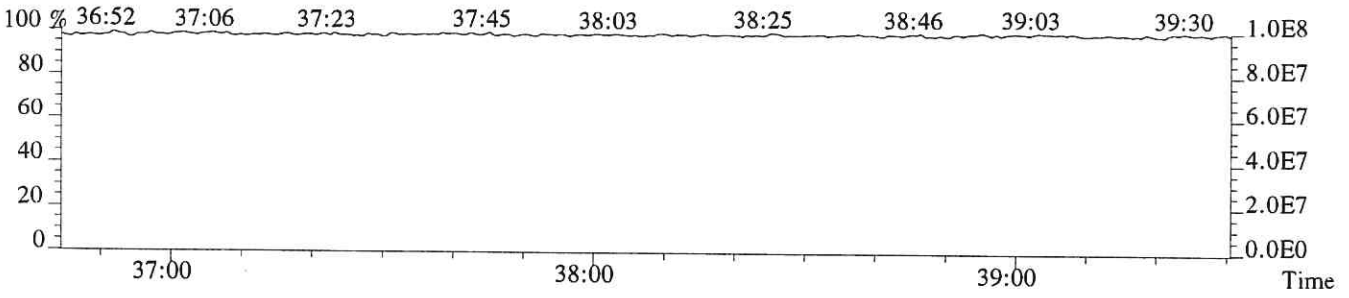
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



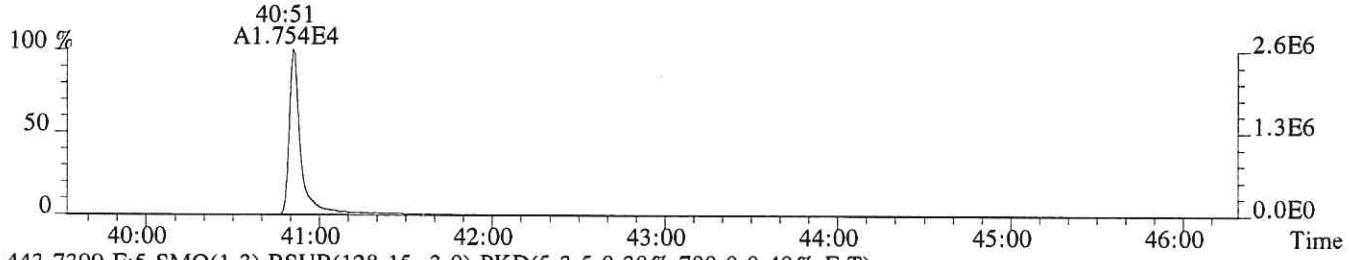
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



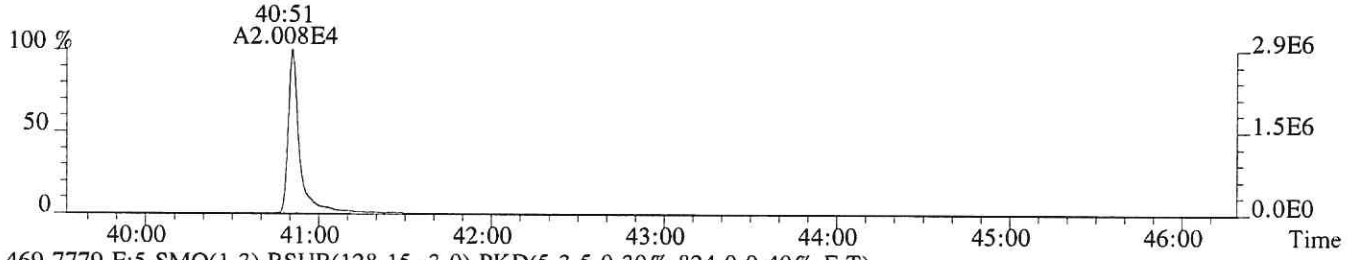
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



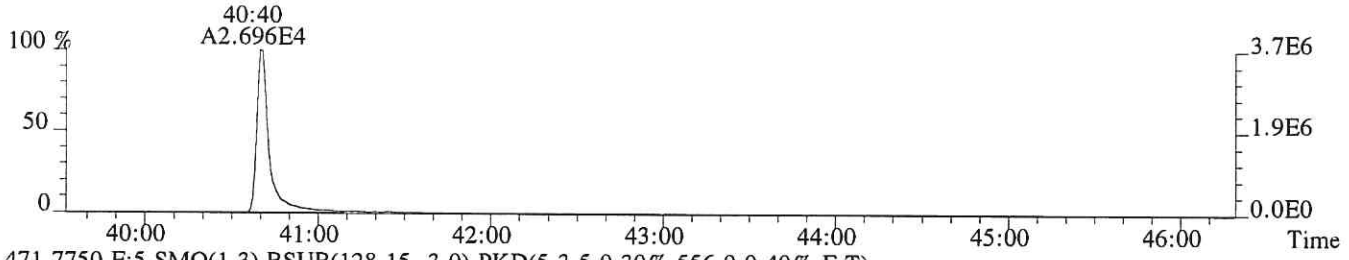
File:P518826 #1-610 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



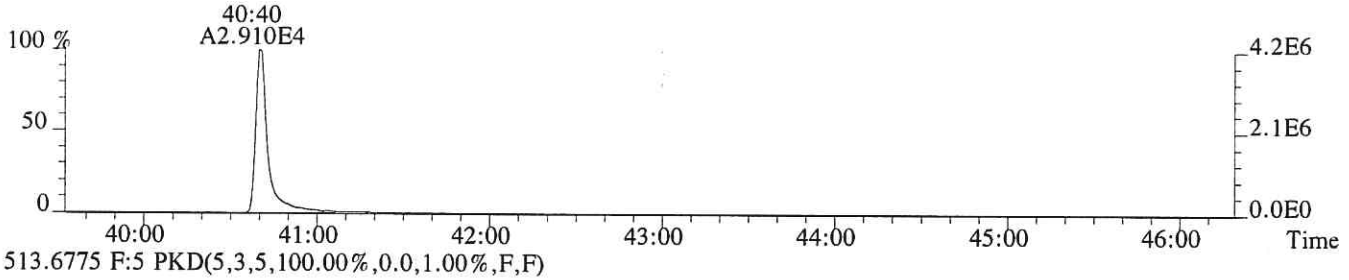
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



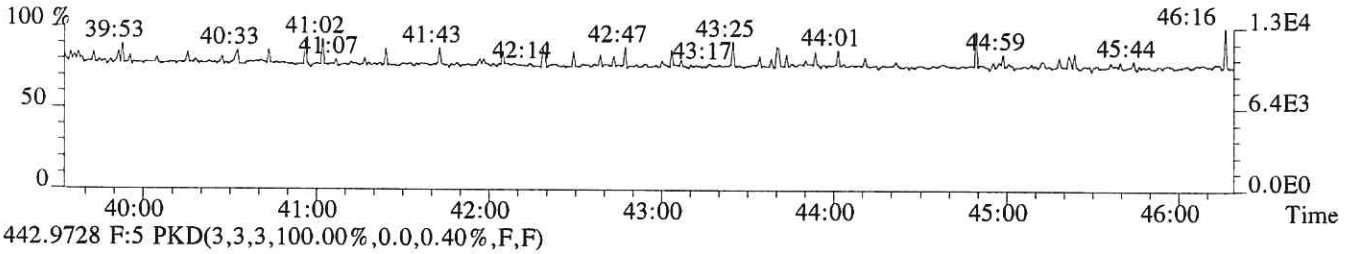
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



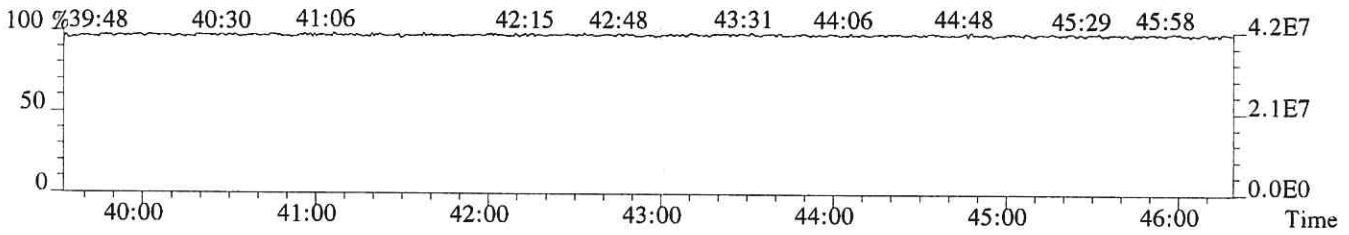
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



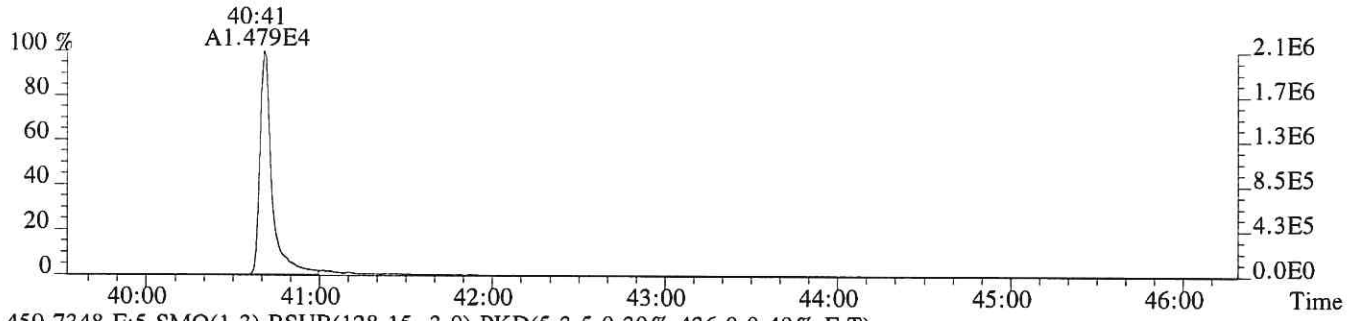
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



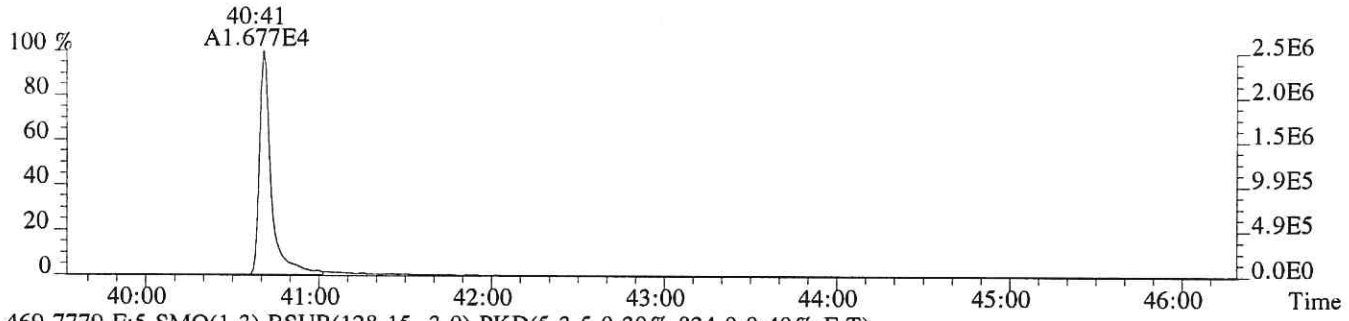
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



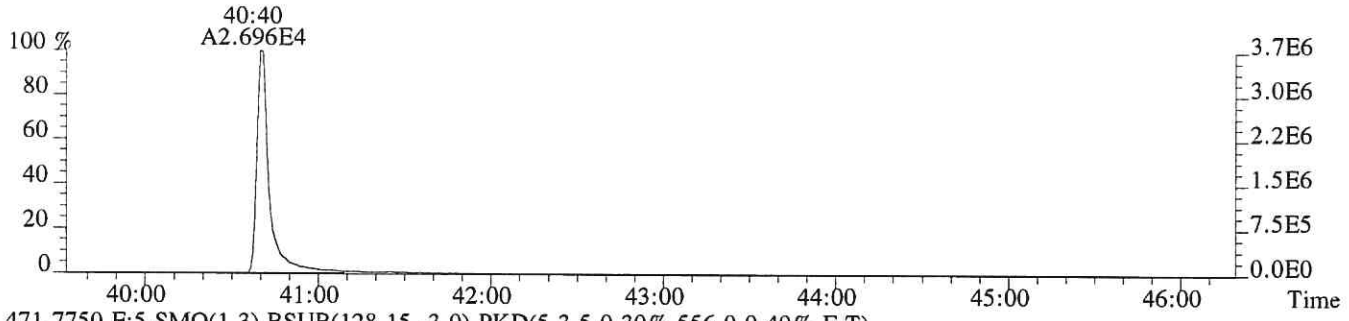
File:P518826 #1-610 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



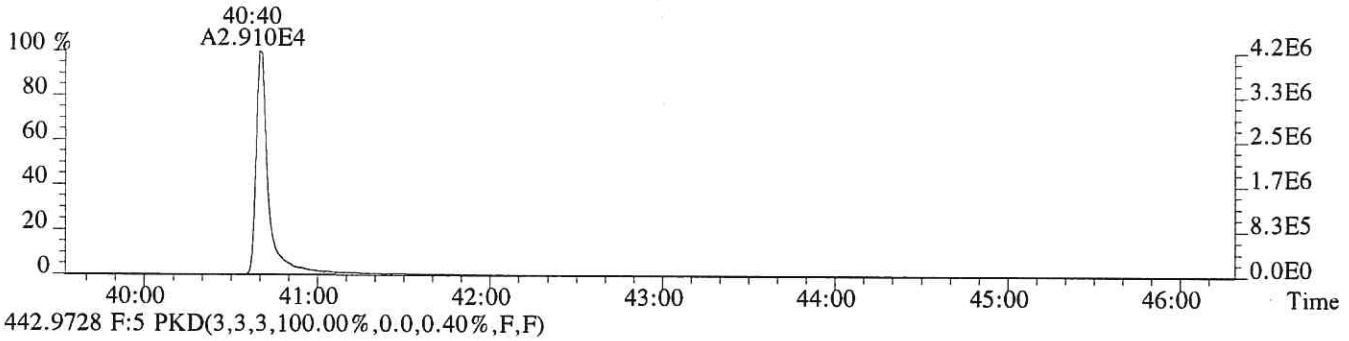
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



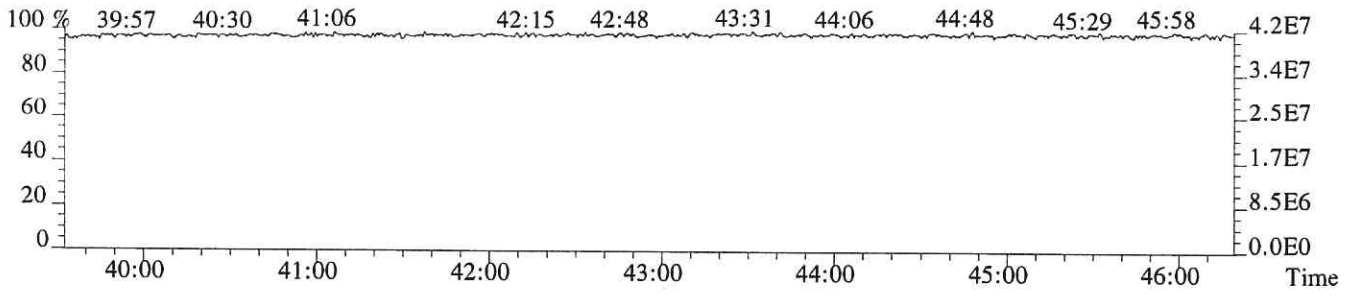
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



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



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518837

Date: 11/15/18-11/16/18 Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DO NOT USE	CS3	P518837	15-NOV-18	23:25:04
194503	DO NOT USE	P518838	16-NOV-18	00:21:03
192977	WINDOW DEFINE	P518839	16-NOV-18	01:08:50
METHOD BLANK	EQ1800461-01	P518840	16-NOV-18	01:57:29
METHOD BLANK	EQ1800463-01	P518841	16-NOV-18	02:46:07
SL0503	E1801018-004	P518842	16-NOV-18	03:34:44
SL0504	E1801018-005	P518843	16-NOV-18	04:23:22
SL0505	E1801018-006	P518844	16-NOV-18	05:12:00
SL0506	E1801018-007	P518845	16-NOV-18	06:00:38
SL0507	E1801018-008	P518846	16-NOV-18	06:49:17
SL0508	E1801018-009	P518847	16-NOV-18	07:37:55
SL0045	E1801020-006	P518848	16-NOV-18	08:26:33
SL0052	E1801020-012	P518849	16-NOV-18	09:15:12
LCS	EQ1800463-02	P518850	16-NOV-18	10:03:50
DLCS	EQ1800463-03	P518851	16-NOV-18	10:52:30

E1801018

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Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181115B.SPL
Last Modified: Friday, November 16, 2018 09:51:03 Central Standard Time
Printed: Friday, November 16, 2018 09:51:19 Central Standard Time

1613 Page Position (1, 1)

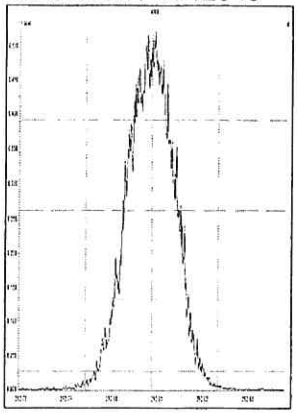
Opus 4: P518837res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/15/18	23:25	P518837	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMS check 23:25
2	11/16/18	00:21	P518838	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		NOT USE
3		01:08	P518839	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
4		01:57	P518840	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		02:46	P518841	MB	EQ1800463-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		03:34	P518842	E1801018-004	E1801018-004	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		04:23	P518843	E1801018-005	E1801018-005	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		05:12	P518844	E1801018-006	E1801018-006	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		06:00	P518845	E1801018-007	E1801018-007	EPA1613_ALS	Dioxin_ALS	Tray1:9		meets reinjection
10		06:49	P518846	E1801018-008	E1801018-008	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		07:37	P518847	E1801018-009	E1801018-009	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		08:26	P518848	E1801020-006	E1801020-006	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		09:15	P518849	E1801020-012	E1801020-012	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		10:03	P518850	LCS	EQ1800463-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		10:52	P518851	DLCS	EQ1800463-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:49
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
17			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17		
18			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18		
19			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19		
20			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20		
21			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21		
22			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22		
23			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23		
24			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24		
25			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25		
26			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26		
27			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
31	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:31	---	---
32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:37	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

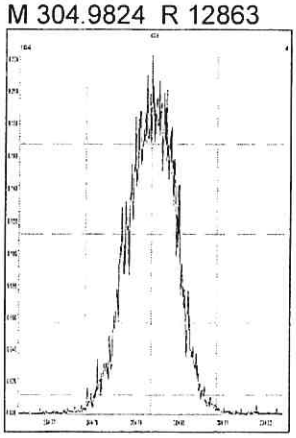
gc 11/20/18

Printed: Thursday, November 15, 2018 23:25:02 Central Standard Time

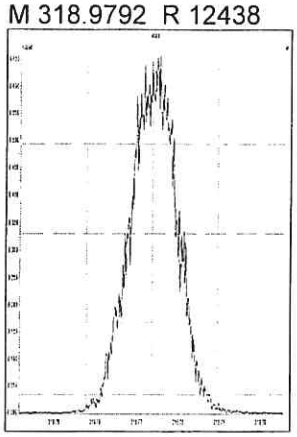
M 292.9824 R 12345



M 304.9824 R 12863



M 318.9792 R 12438



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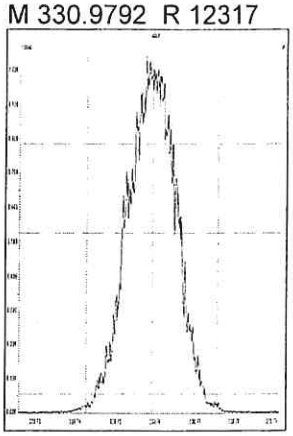

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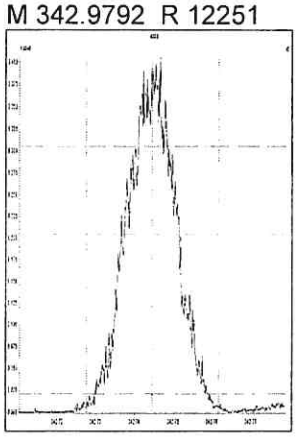

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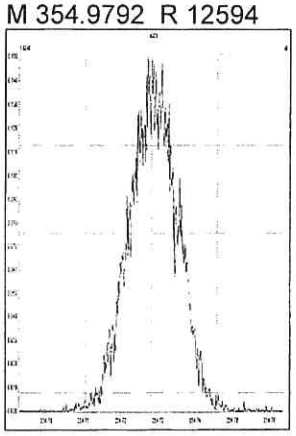

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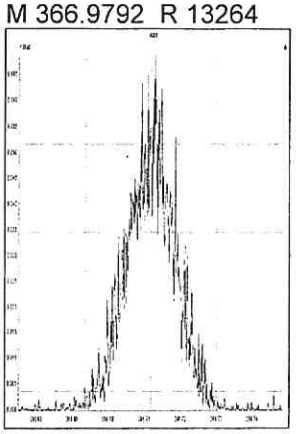

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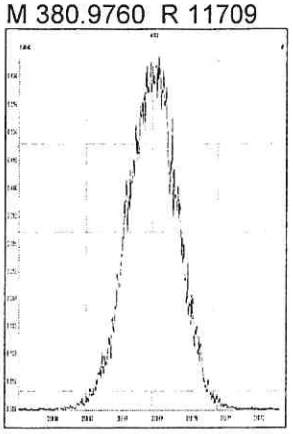

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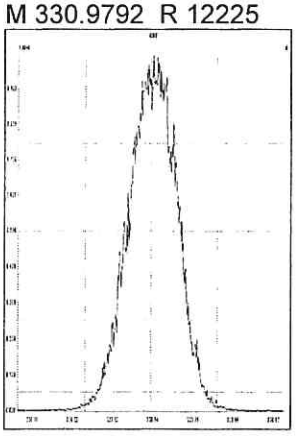

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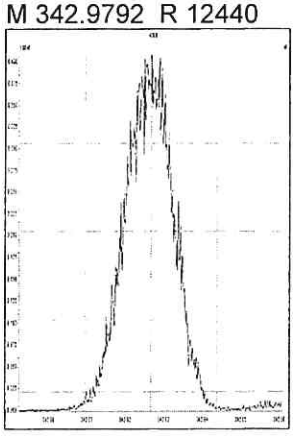

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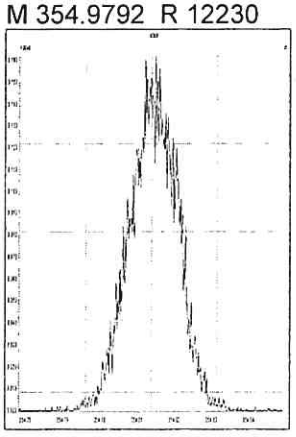

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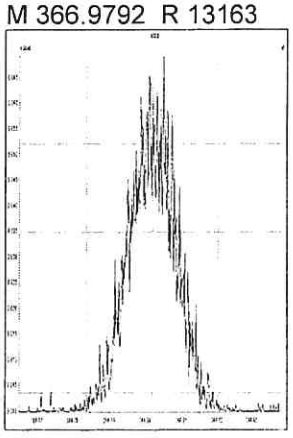

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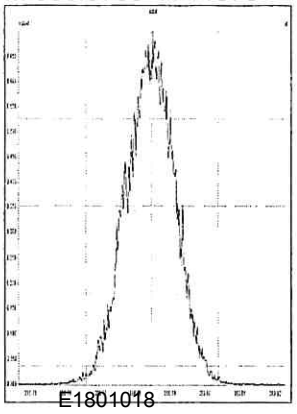

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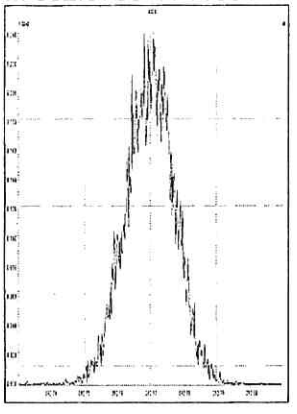

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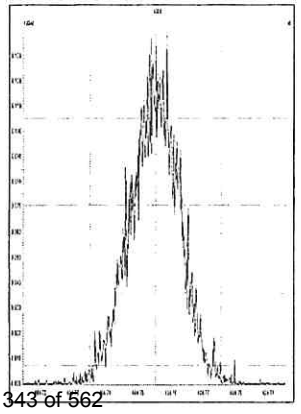

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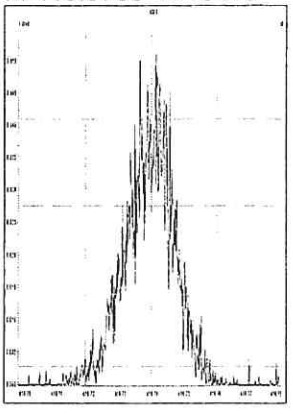

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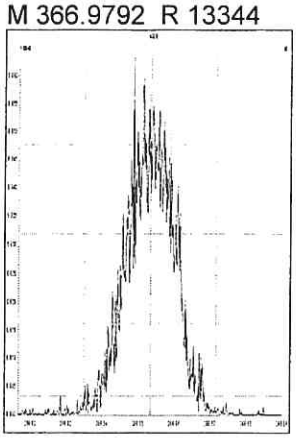
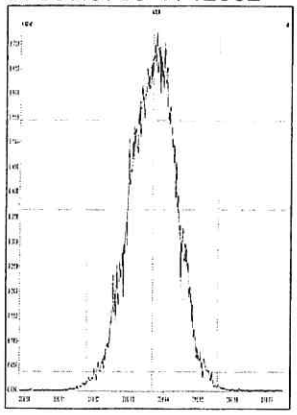


M 380.9760 R 12562



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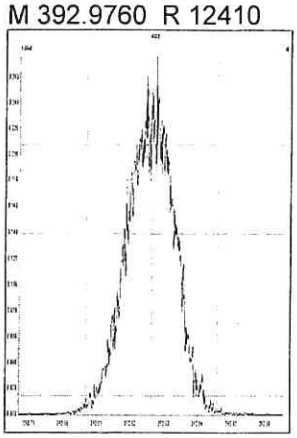

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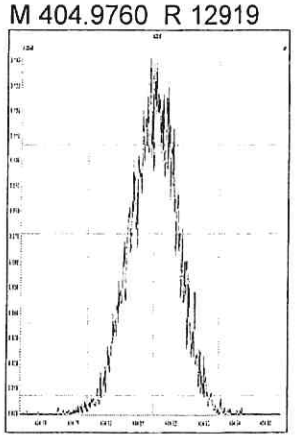

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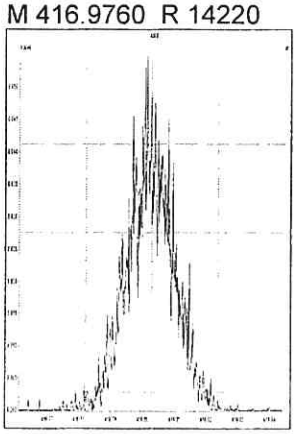
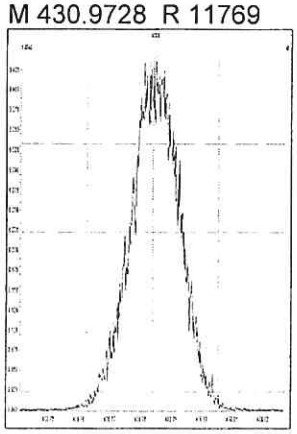


M 430.9728 R 11769



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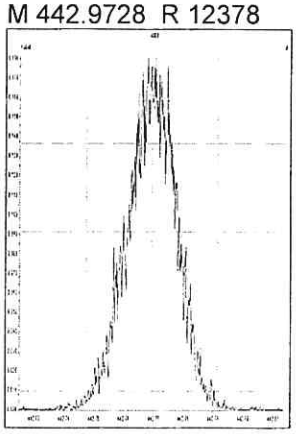

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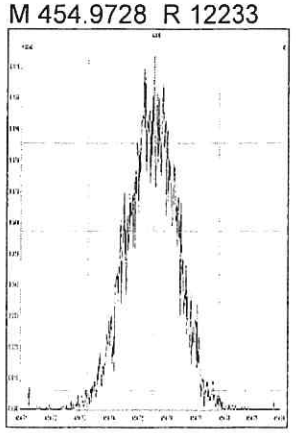

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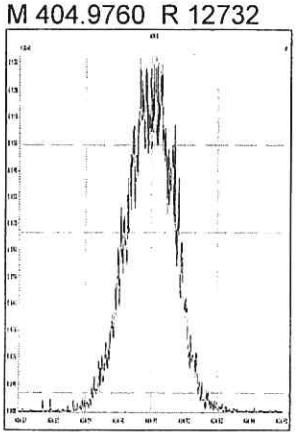

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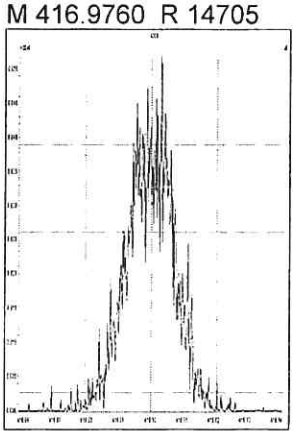
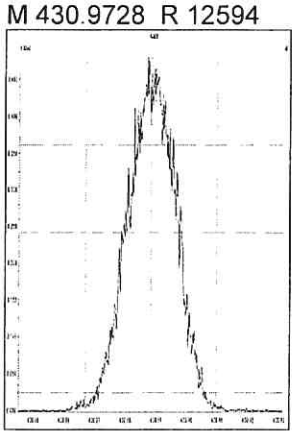


M 430.9728 R 12594



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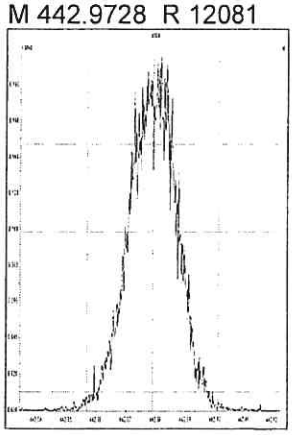

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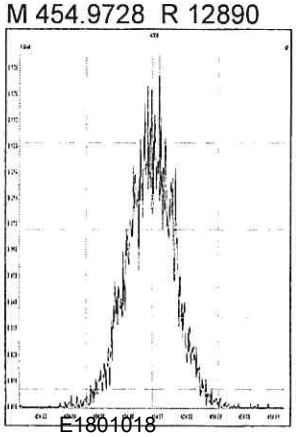

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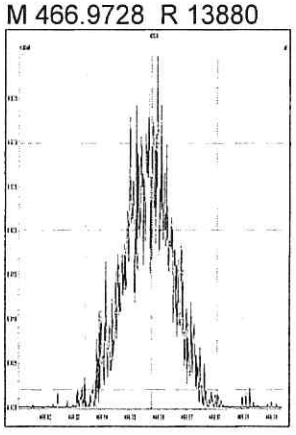

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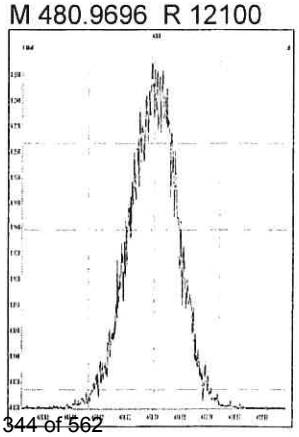

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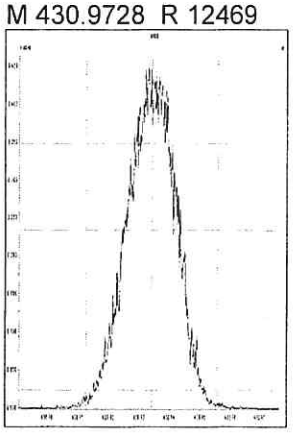

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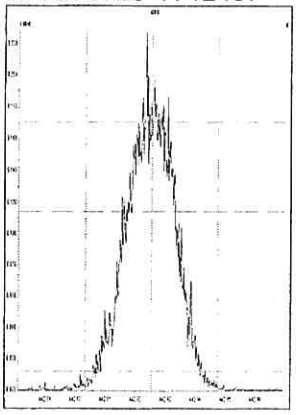

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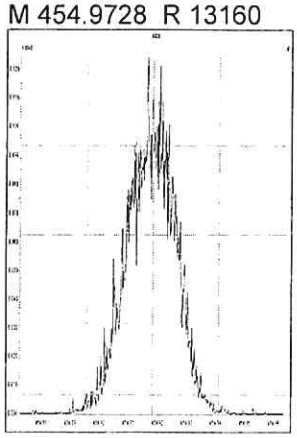

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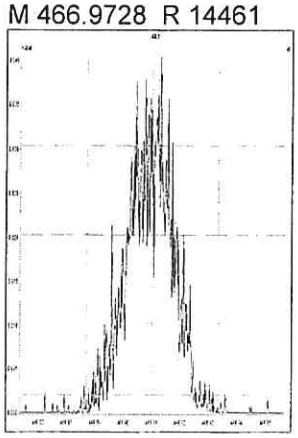

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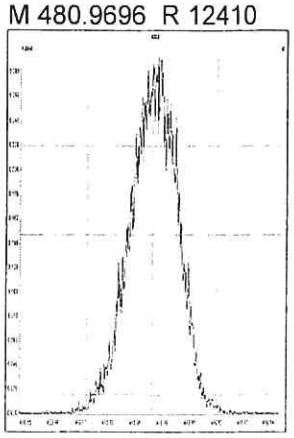

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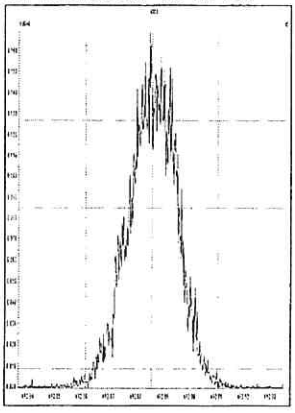

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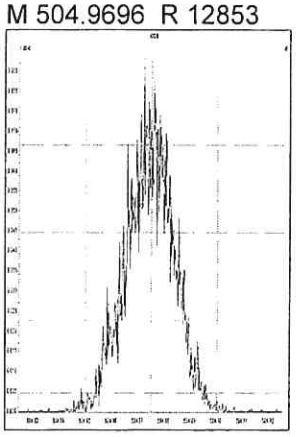

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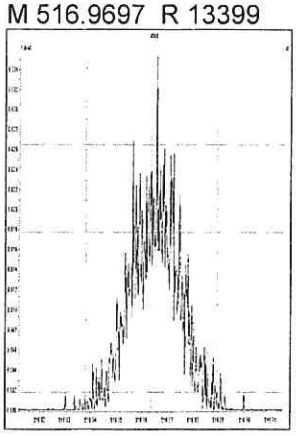

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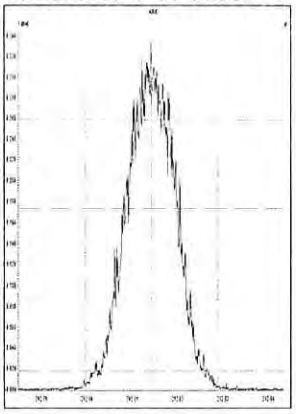

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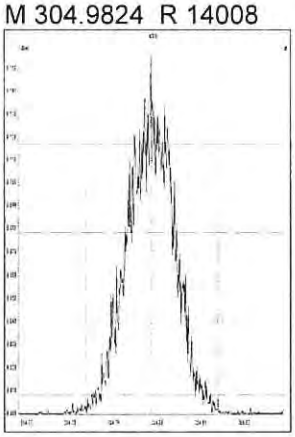
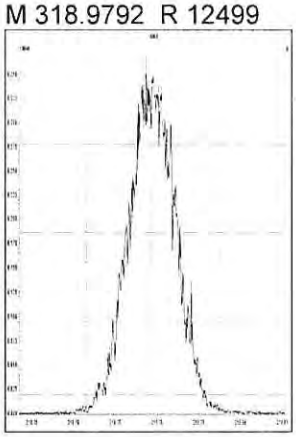


M 318.9792 R 12499



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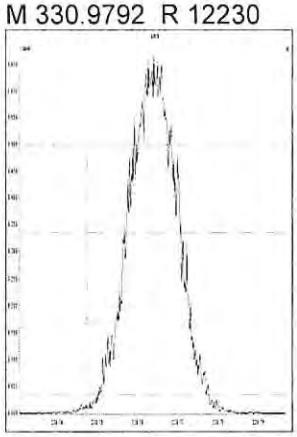

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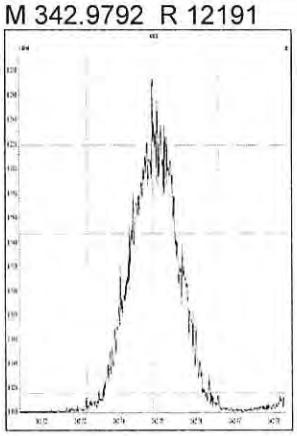
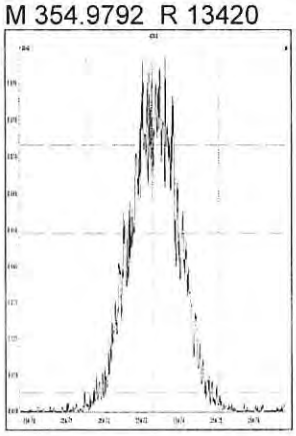


M 354.9792 R 13420



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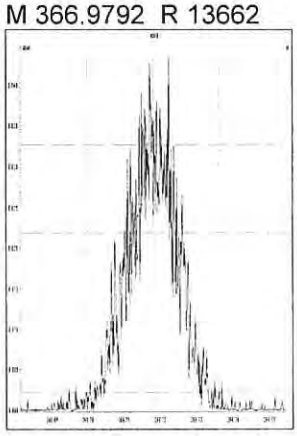

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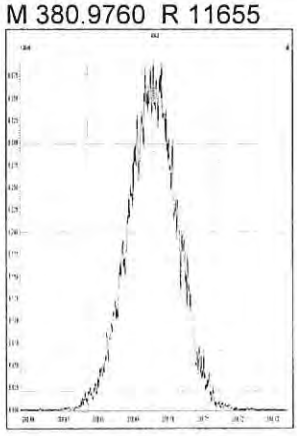

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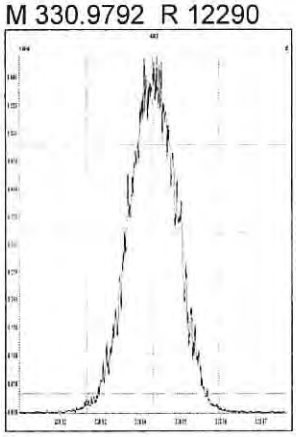
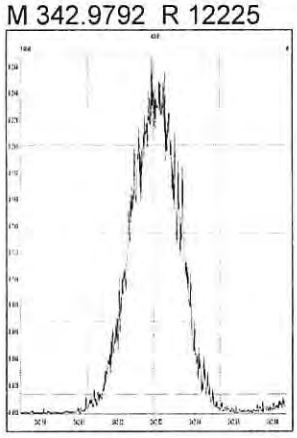


M 342.9792 R 12225



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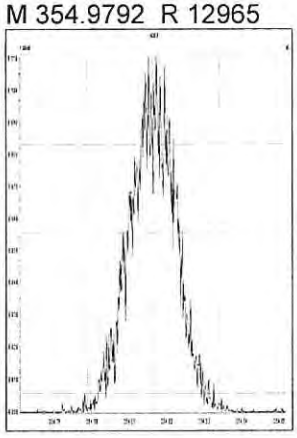

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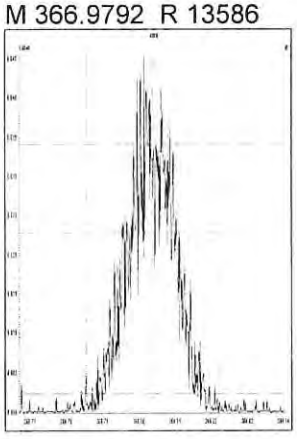

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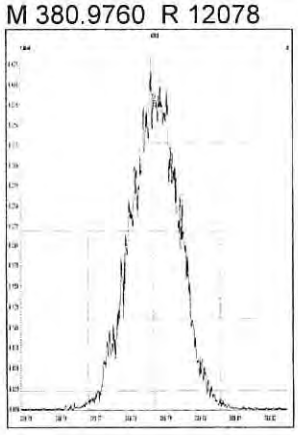
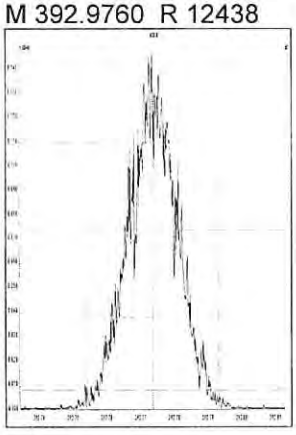


M 392.9760 R 12438



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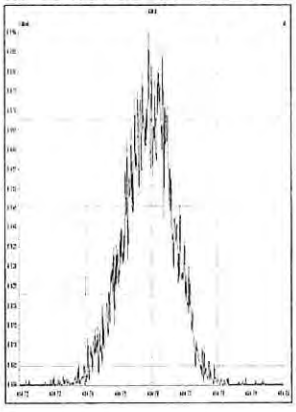

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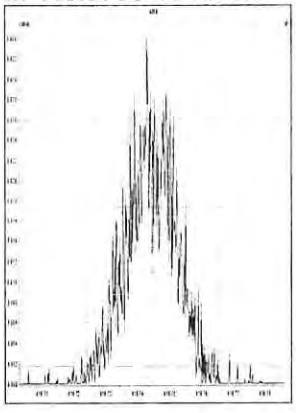

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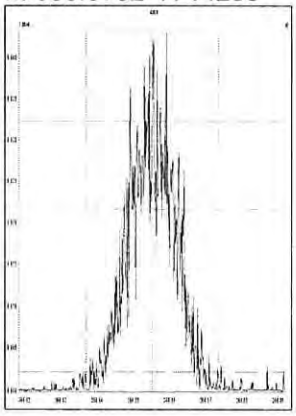
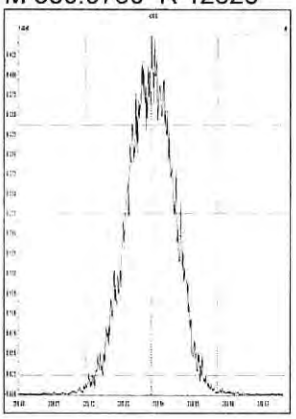
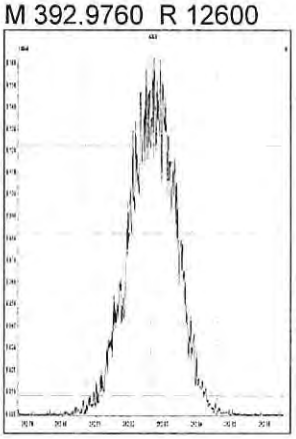


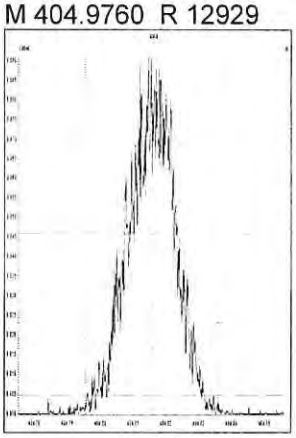
M 380.9760 R 12626



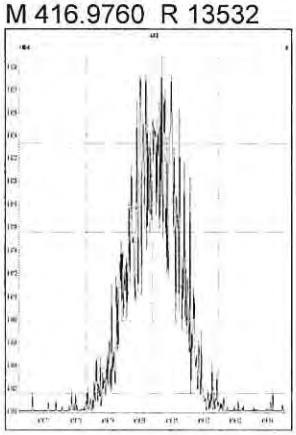
M 392.9760 R 12600



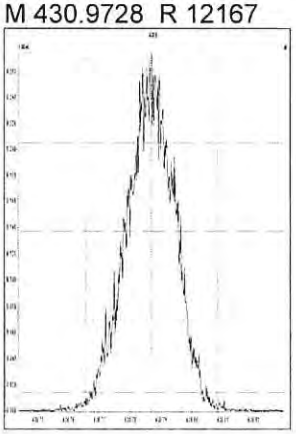
M 404.9760 R 12929



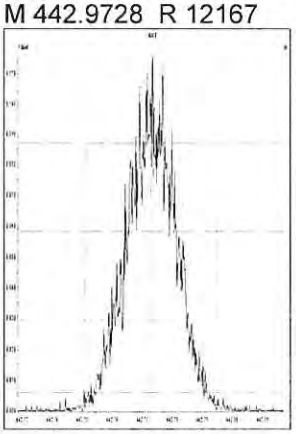
M 416.9760 R 13532



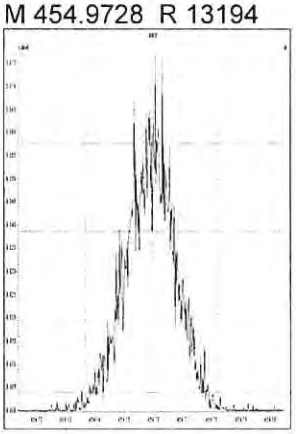
M 430.9728 R 12167



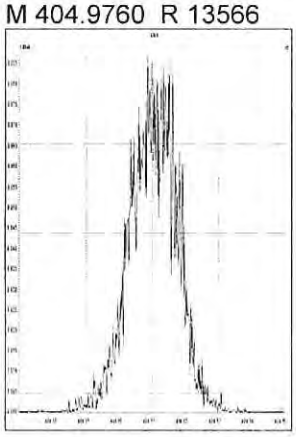
M 442.9728 R 12167



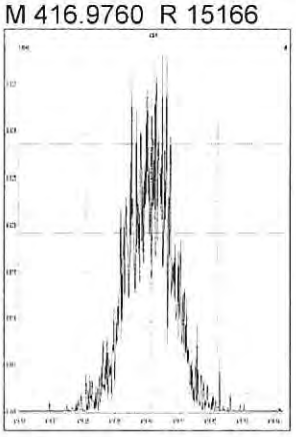
M 454.9728 R 13194



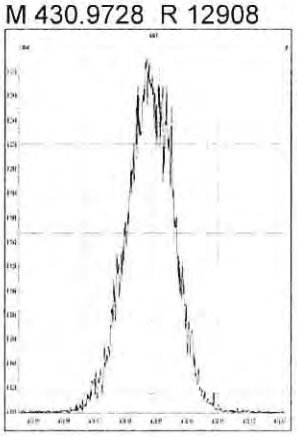
M 404.9760 R 13566



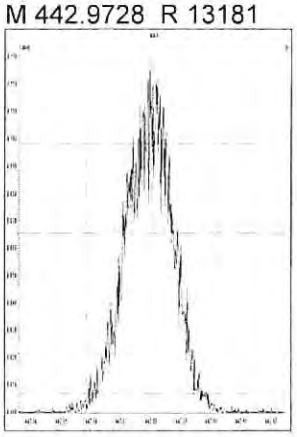
M 416.9760 R 15166



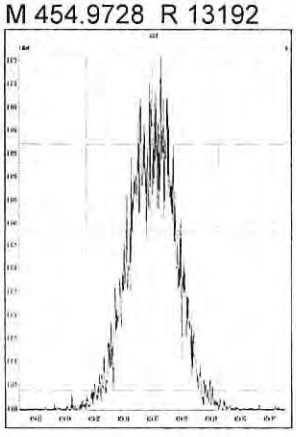
M 430.9728 R 12908



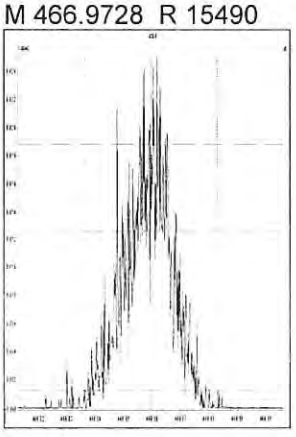
M 442.9728 R 13181



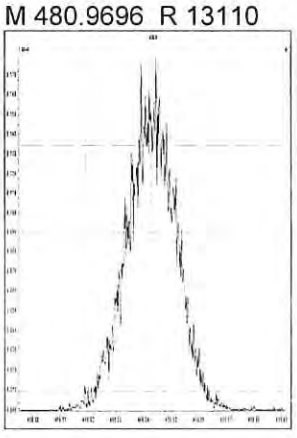
M 454.9728 R 13192



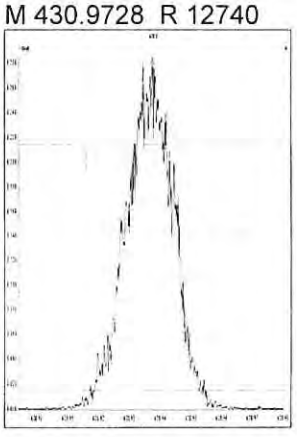
M 466.9728 R 15490



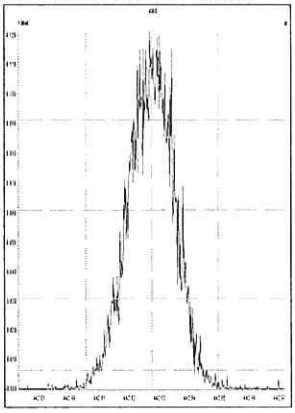
M 480.9696 R 13110



M 430.9728 R 12740



M 442.9728 R 13227



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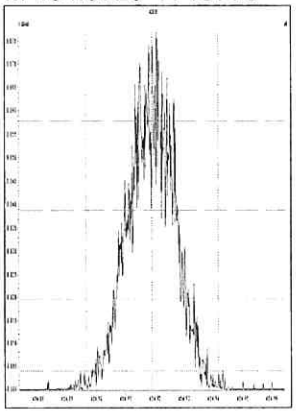
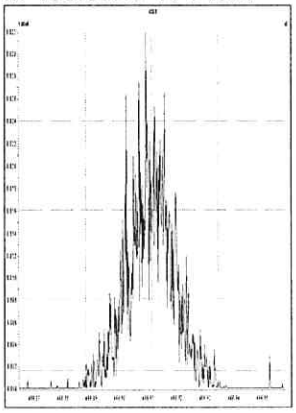


M 466.9728 R 14837



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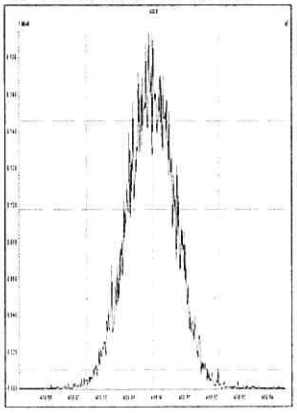
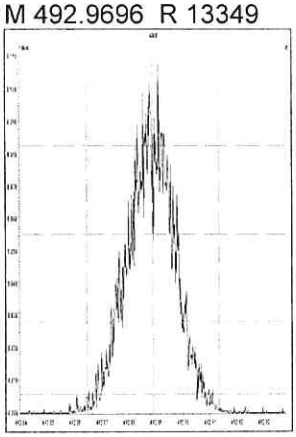
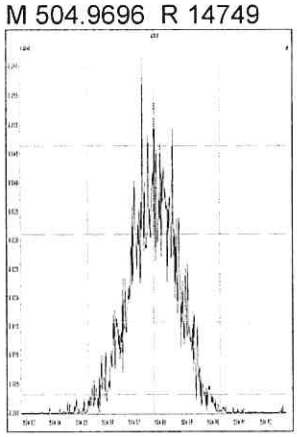


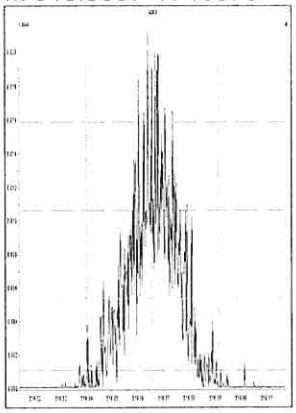
M 492.9696 R 13349



M 504.9696 R 14749



M 516.9697 R 15876



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

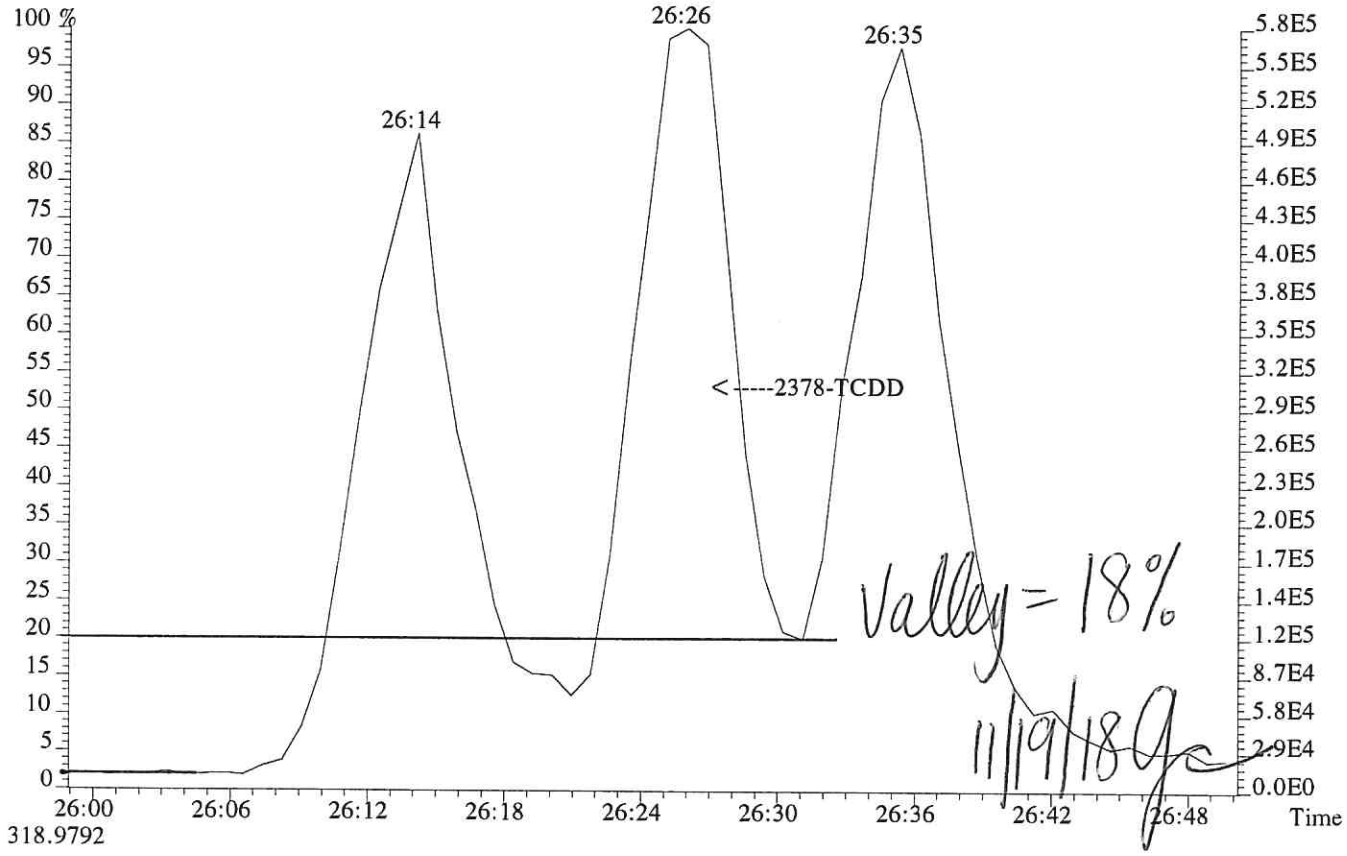
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P518839
Date Analyzed: 16-NOV-2018
Time Analyzed: 01:08:50

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:08	27:50
TCDD	22:42	27:40
PeCDF	27:47	32:35
PeCDD	29:36	32:20
HxCDF	33:19	35:57
HxCDD	33:53	35:33
HpCDF	37:15	38:35
HpCDD	37:30	38:10

% Valley 2378-TCDD: 18 %

File:P518839 #1-602 Acq:16-NOV-2018 01:08:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



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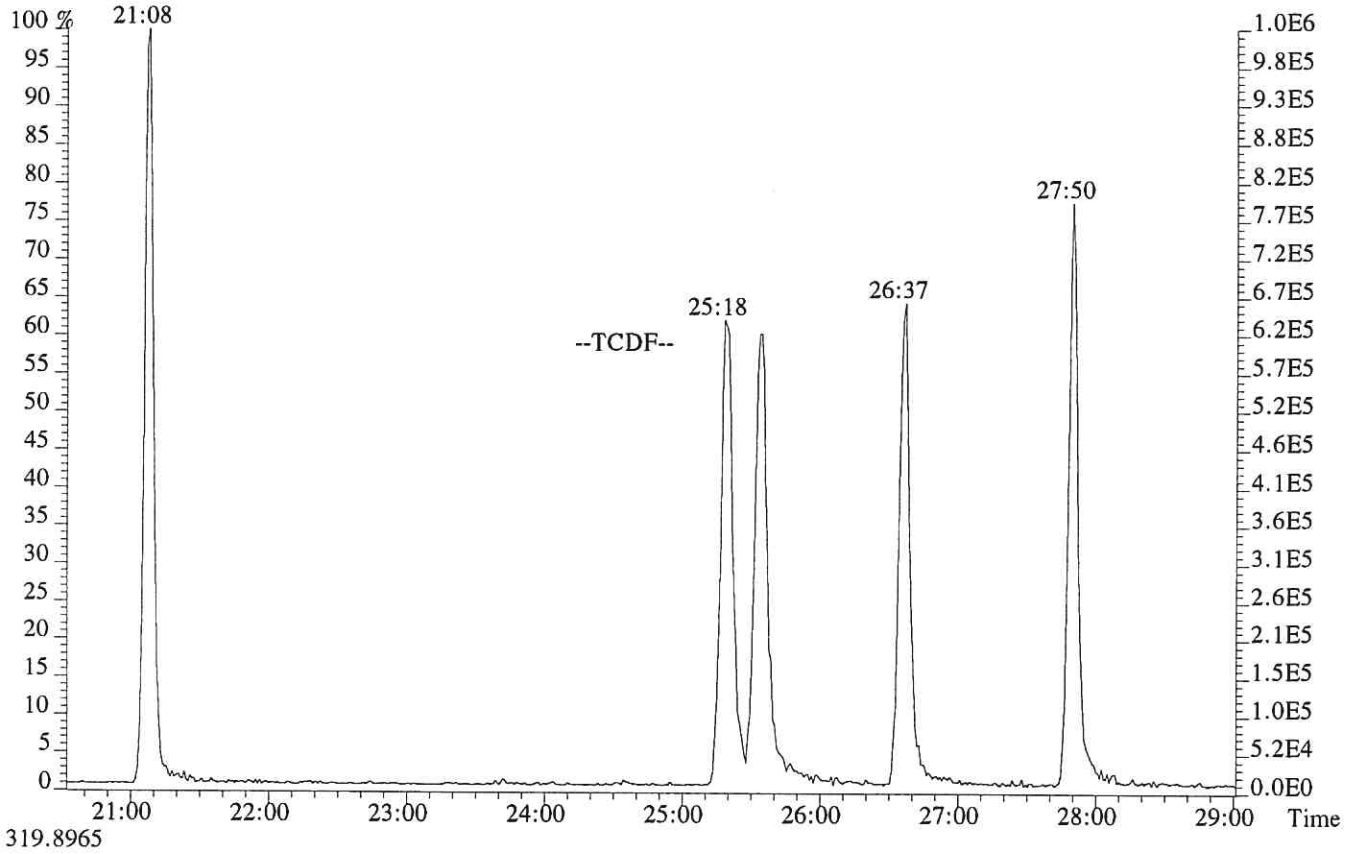
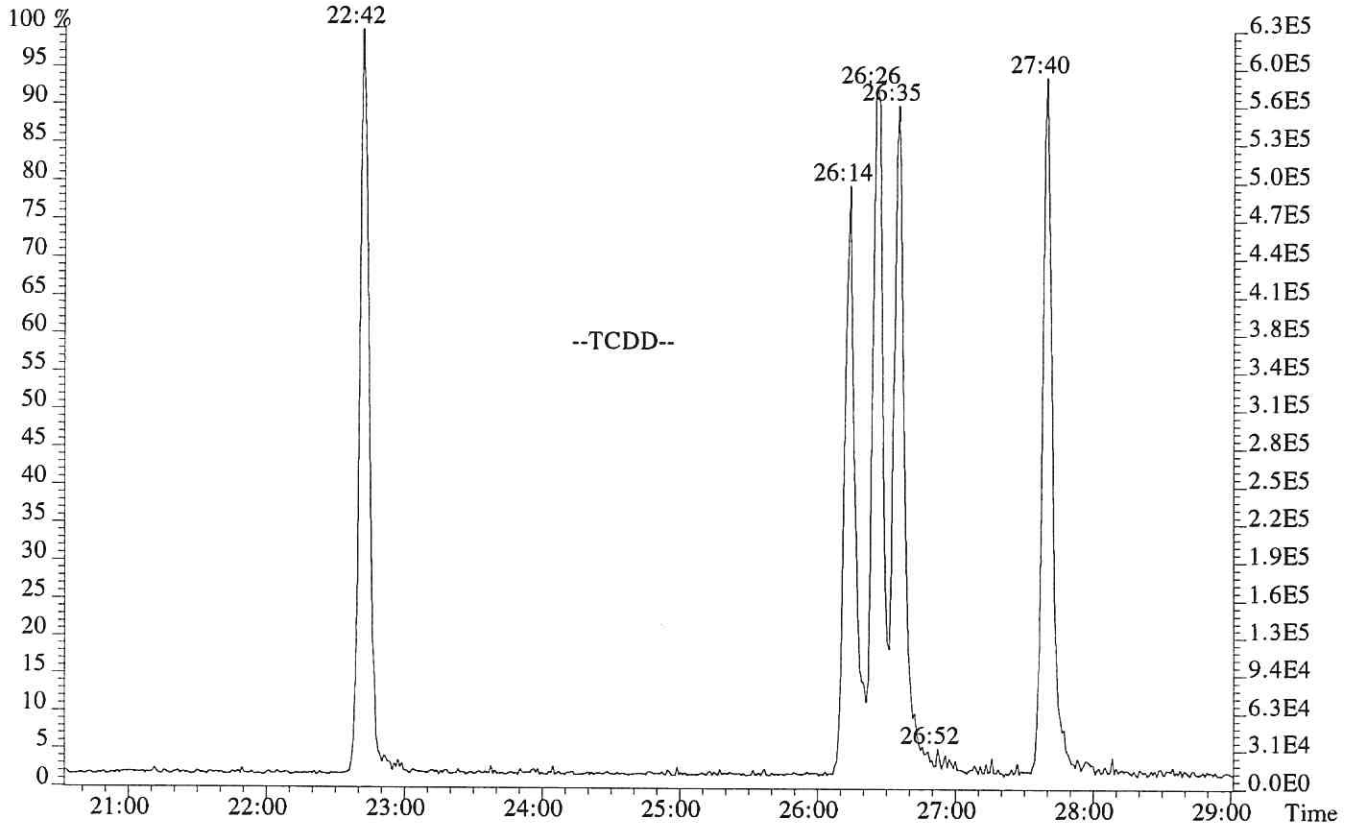
Sample#1 Exp:192977
303.9016



319.8965



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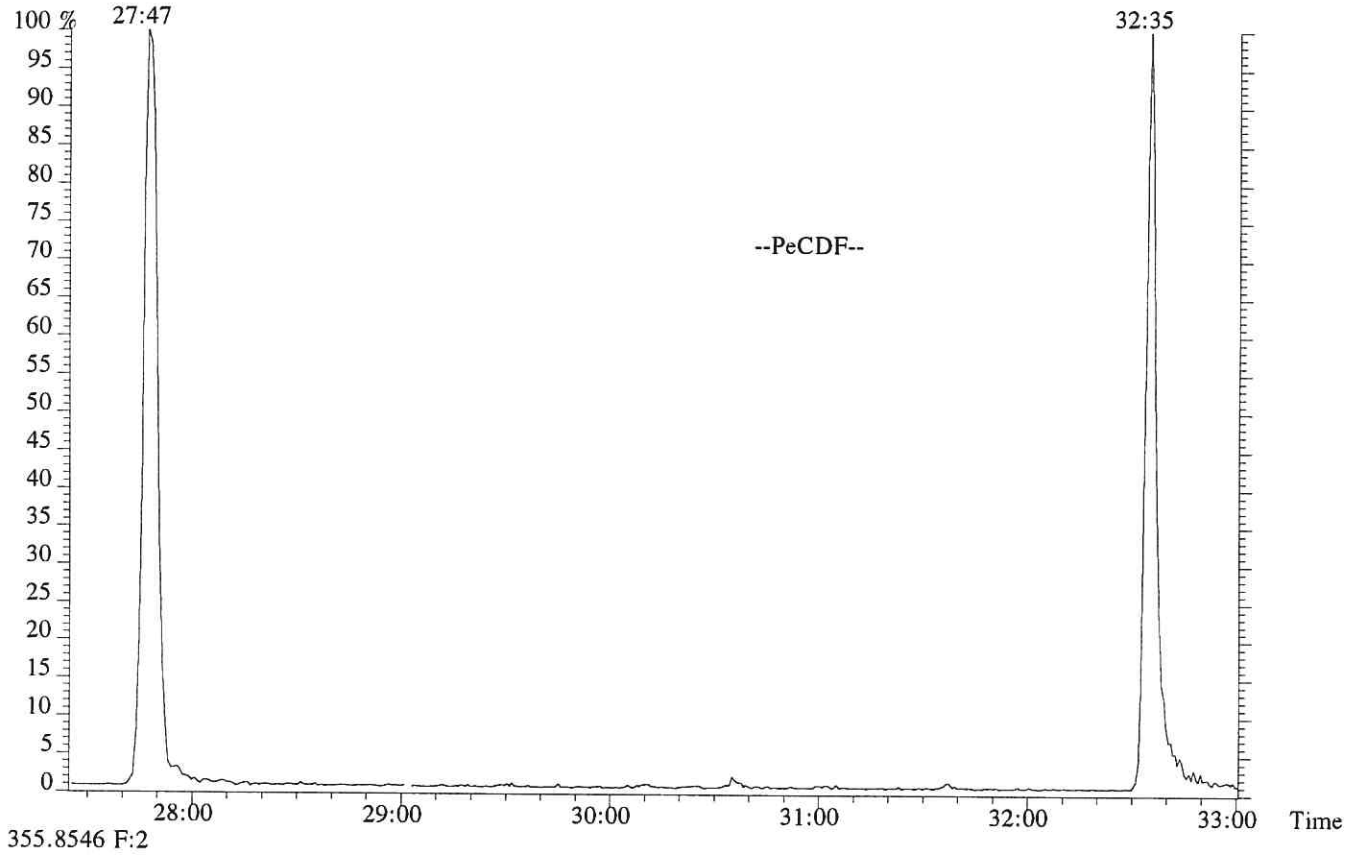
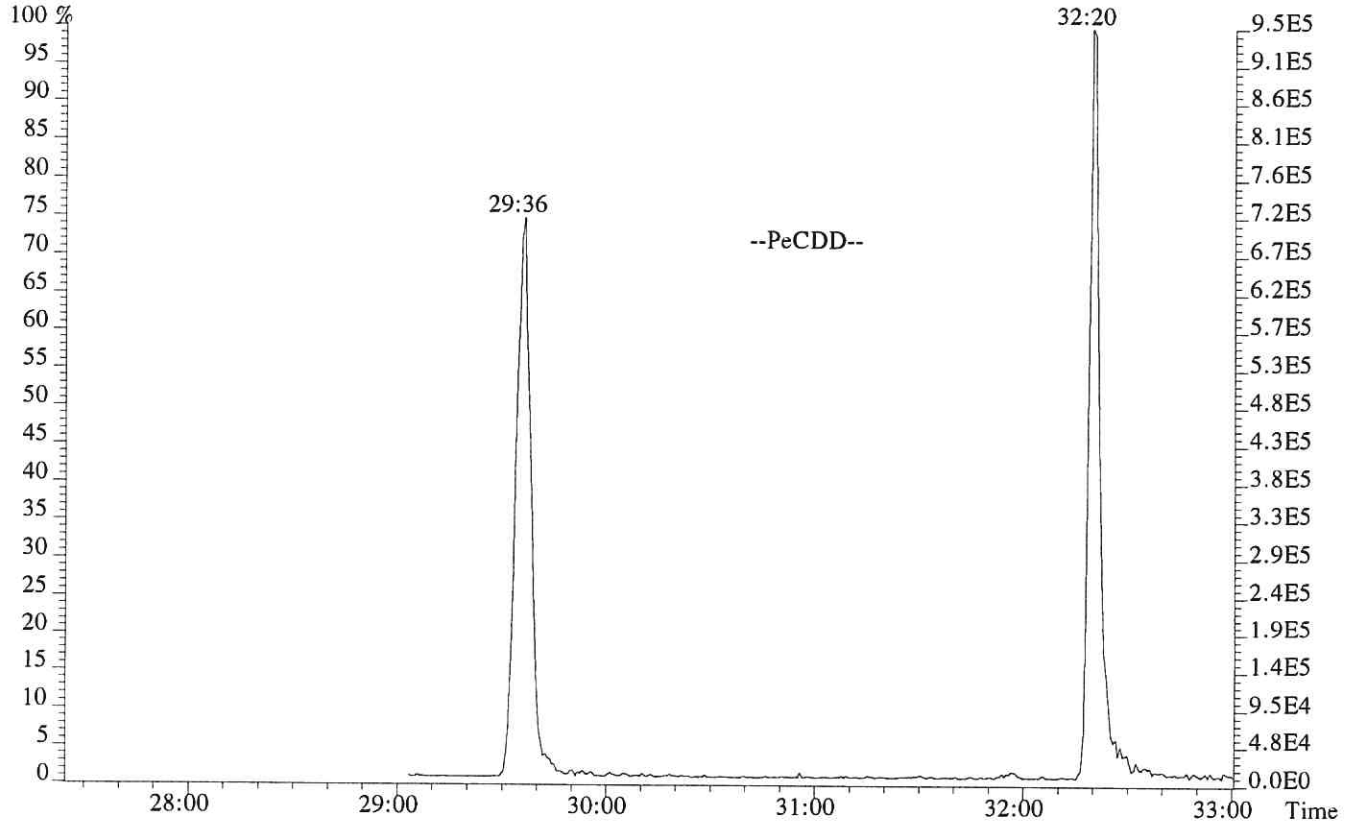
339.8597,339.8597 F:2



355.8546 F:2



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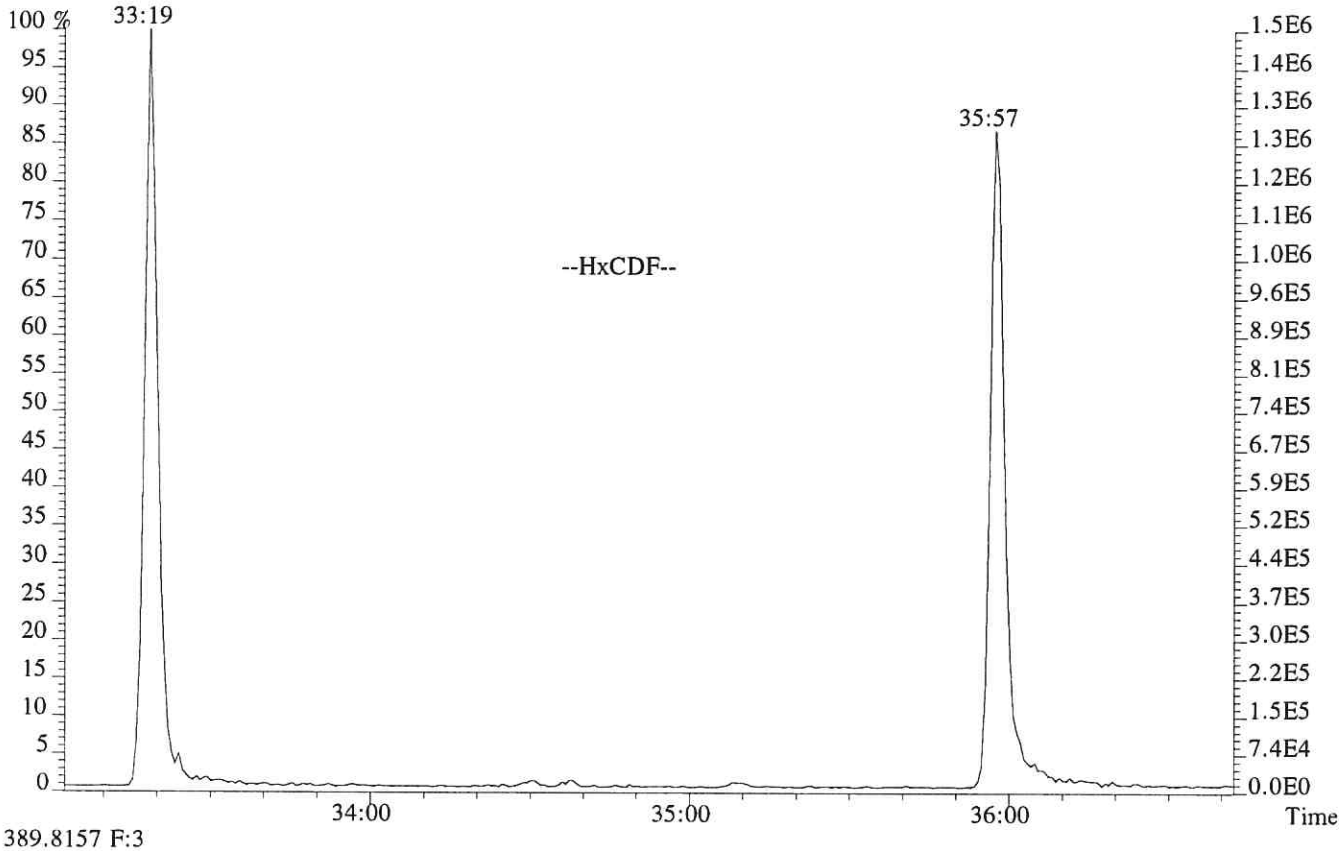
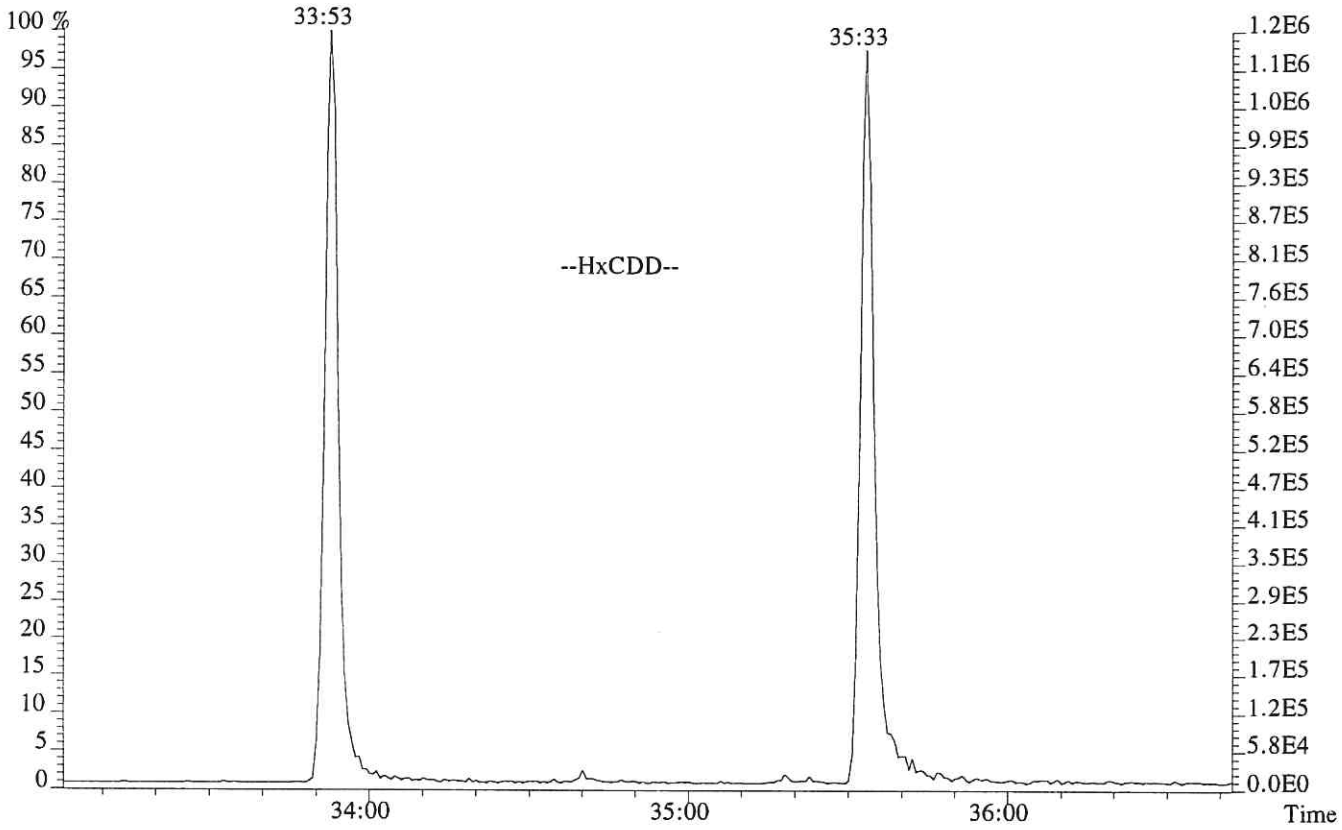
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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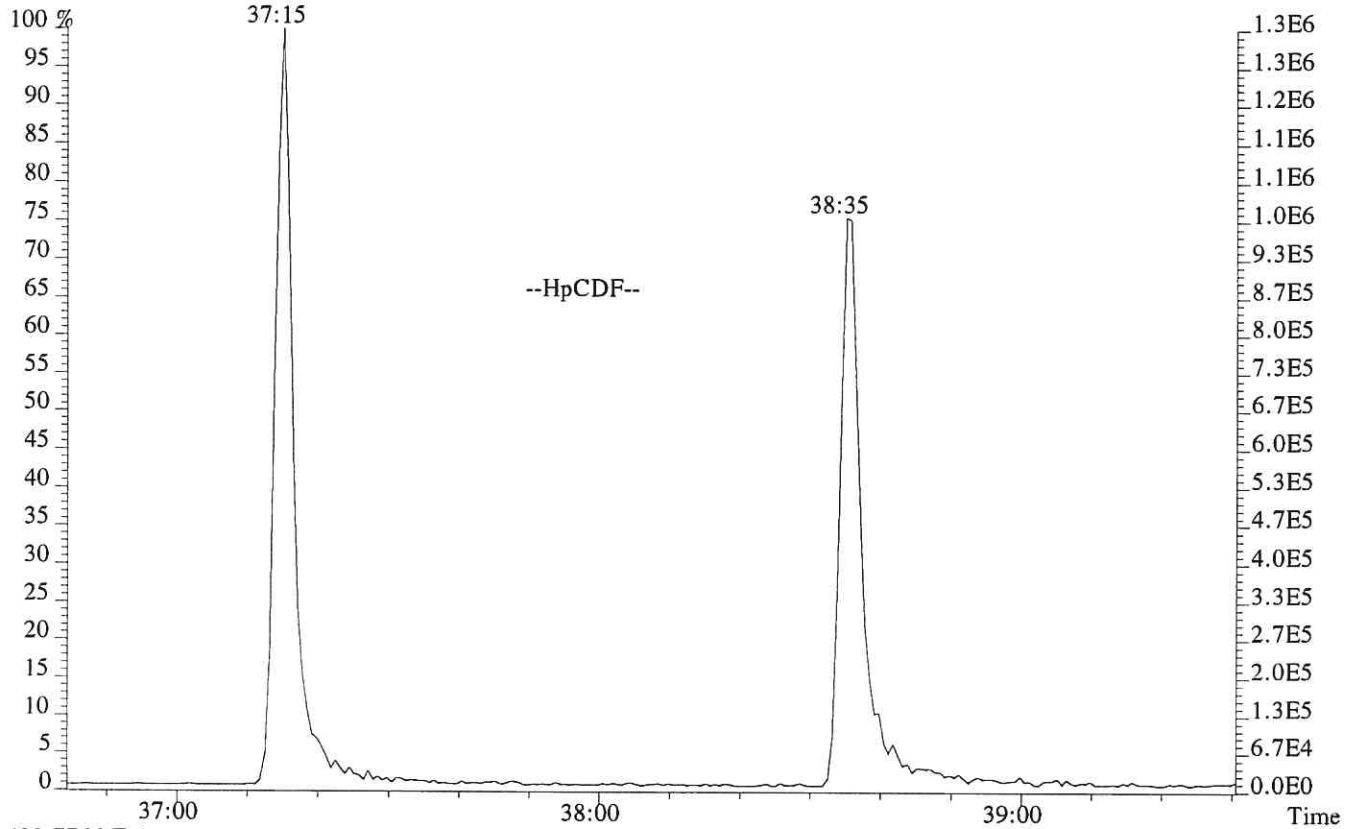
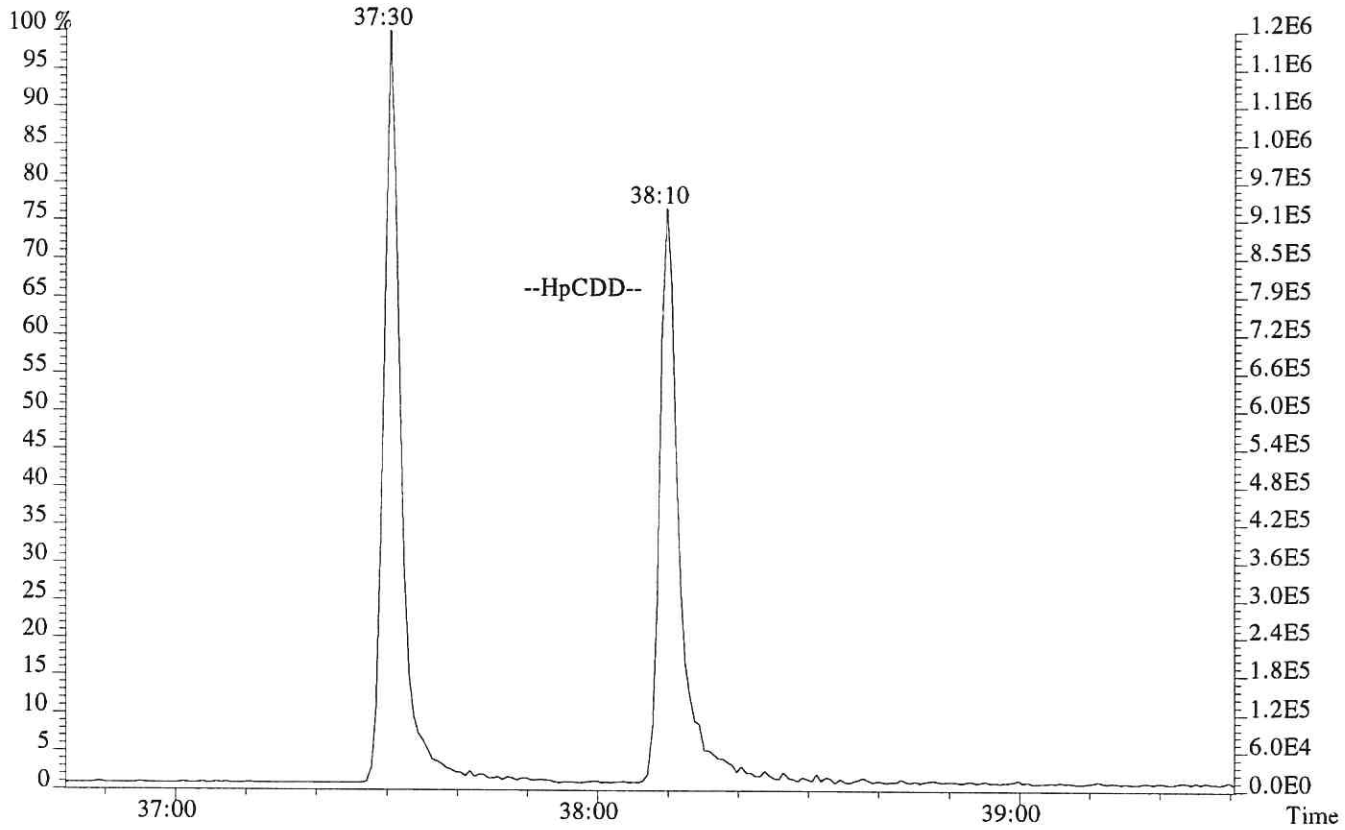
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518837 Analysis Date: 15-NOV-18 Time: 23:25:04

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.5	7.8 - 12.9	-4.9
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	50	39 - 65	-0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	50	39 - 64	0.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	51	39 - 64	1.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.87	0.76-1.02	102	79 - 126	1.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.9	8.4 - 12.0	-1.2
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 60	1.2
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 61	0.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	1.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	0.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	50	45 - 56	-0.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	44 - 57	1.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	1.7
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	-0.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518837 Analysis Date: 15-NOV-18 Time: 23:25:04

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	105	82 - 121	4.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	113	62 - 160	13.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	87	85 - 117	-12.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	99	85 - 118	-1.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	112	72 - 138	12.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	286	96 - 415	43.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	96	71 - 140	-4.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	108	76 - 130	8.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	112	77 - 130	11.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	81	76 - 131	-19.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	91	70 - 143	-9.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	93	73 - 137	-7.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	103	78 - 129	2.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	113	77 - 129	12.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.3	7.8 - 12.7	2.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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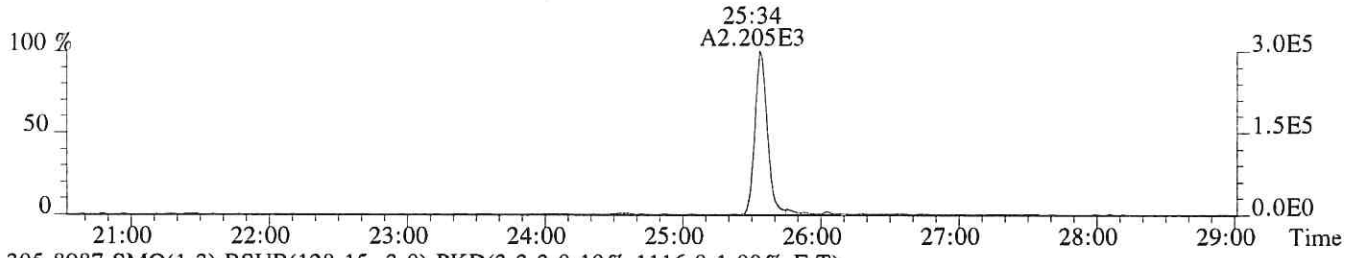
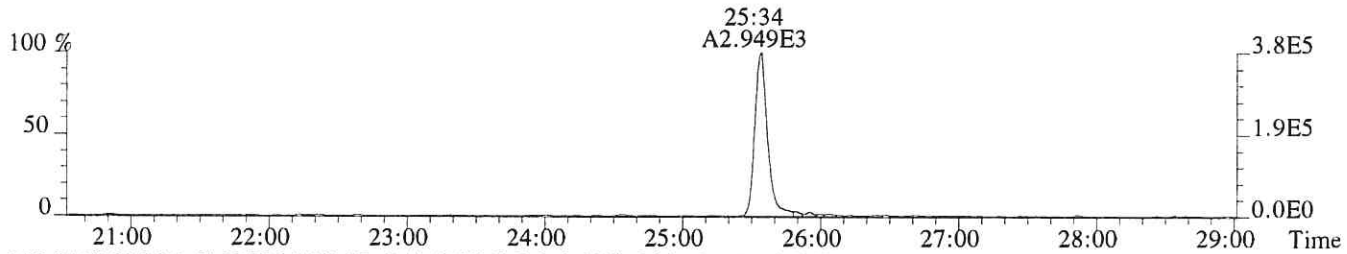
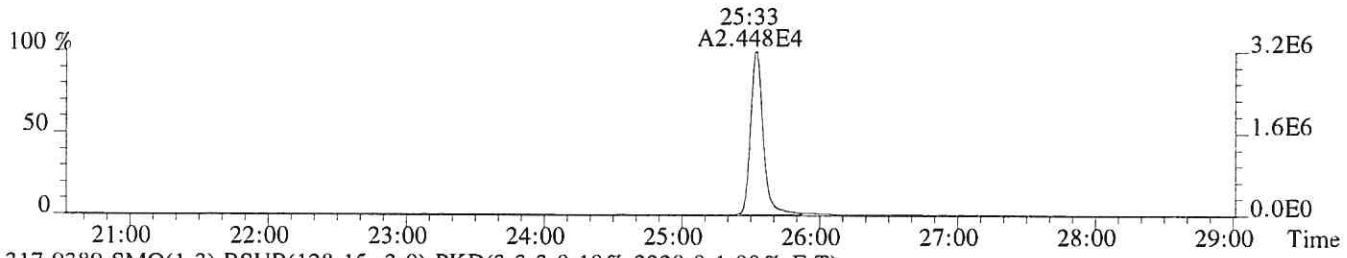
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



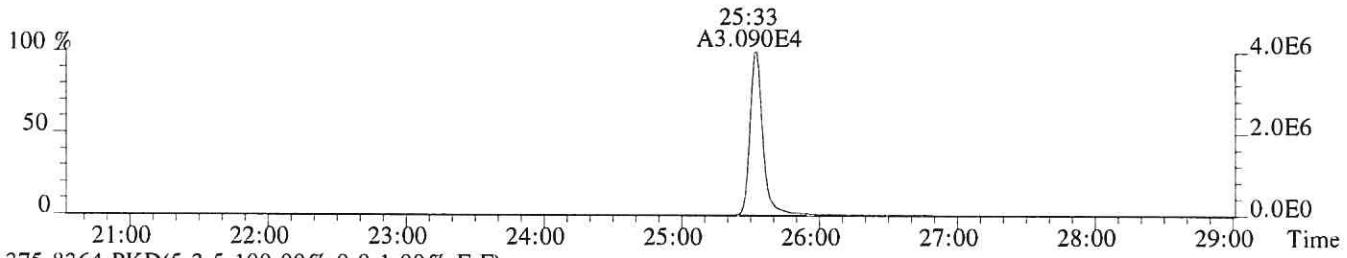
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



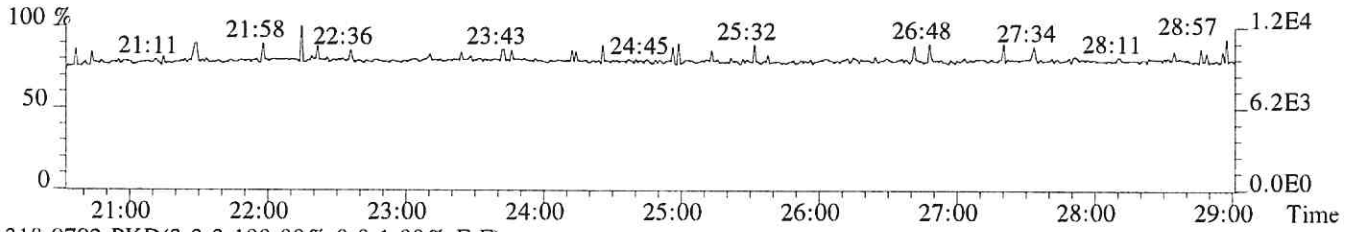
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5664.0,1.00%,F,T)



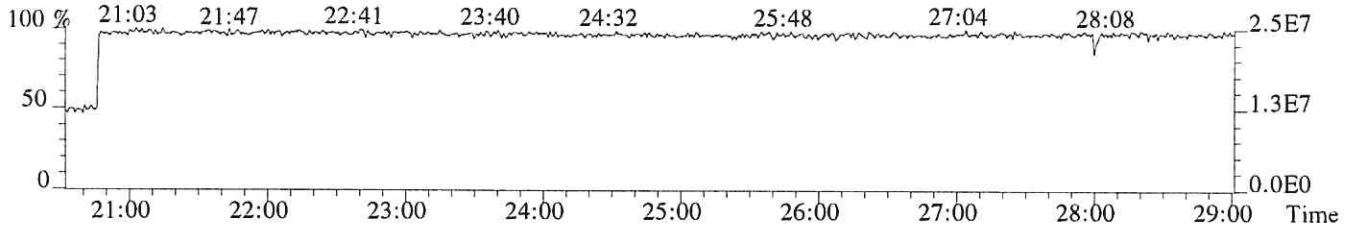
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3328.0,1.00%,F,T)



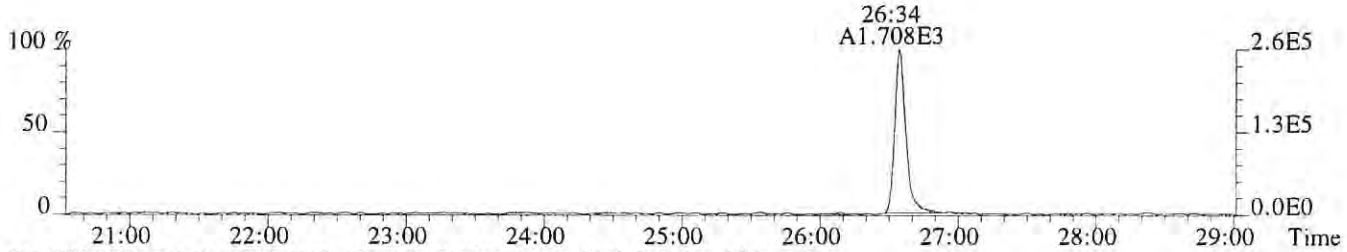
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



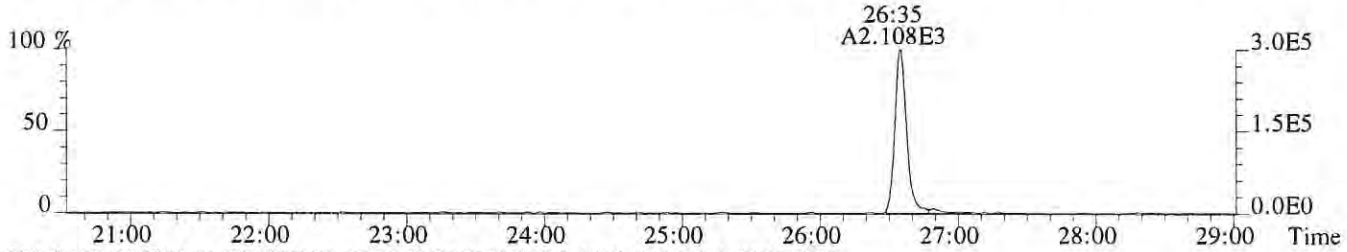
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



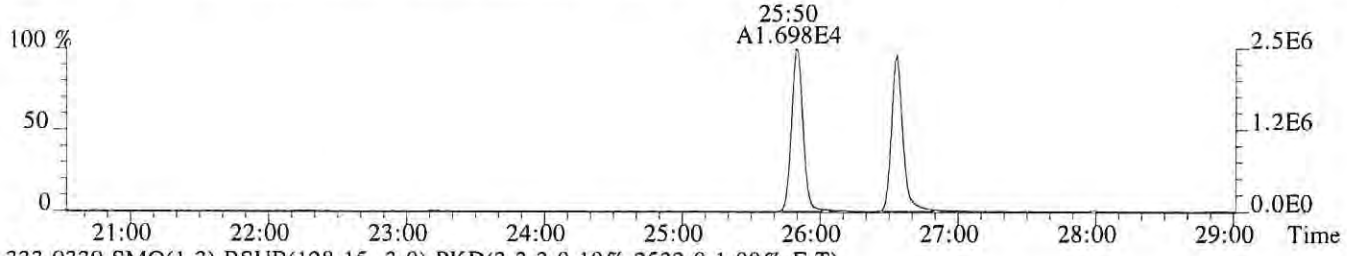
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



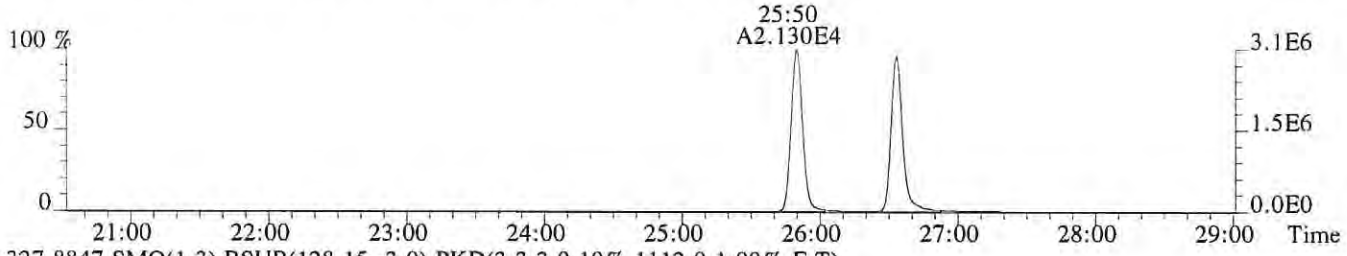
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



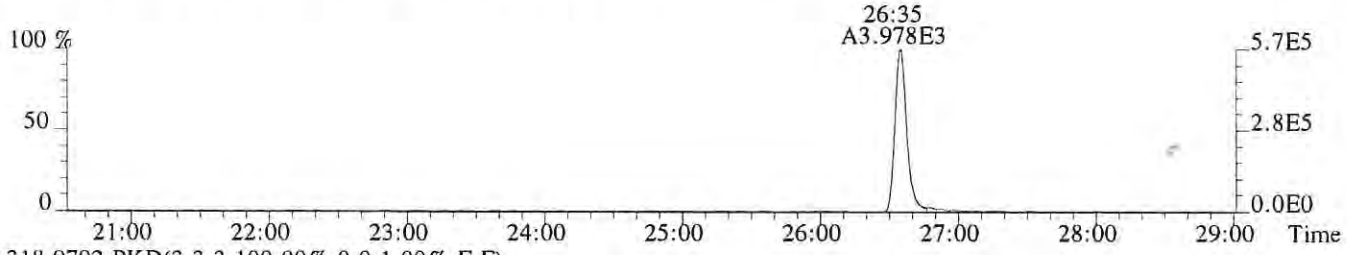
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5416.0,1.00%,F,T)



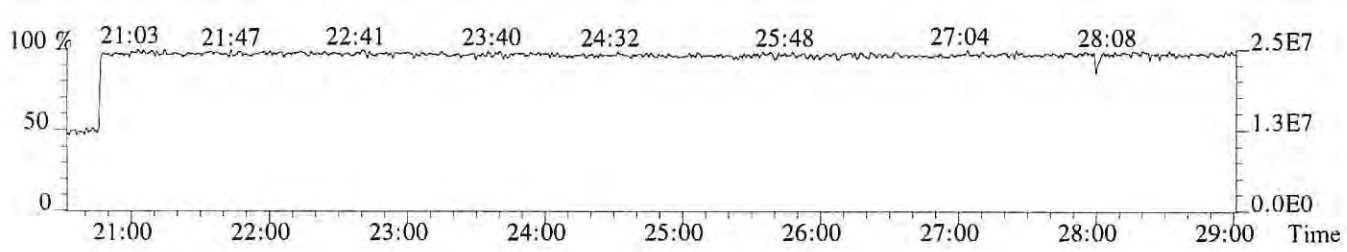
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2532.0,1.00%,F,T)



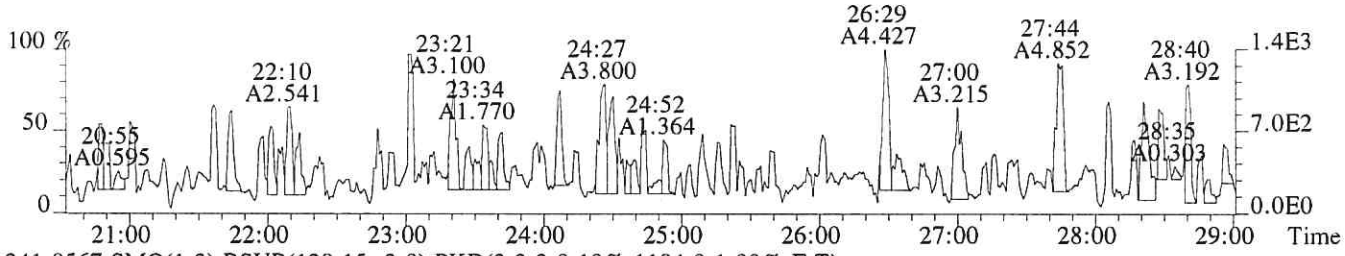
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



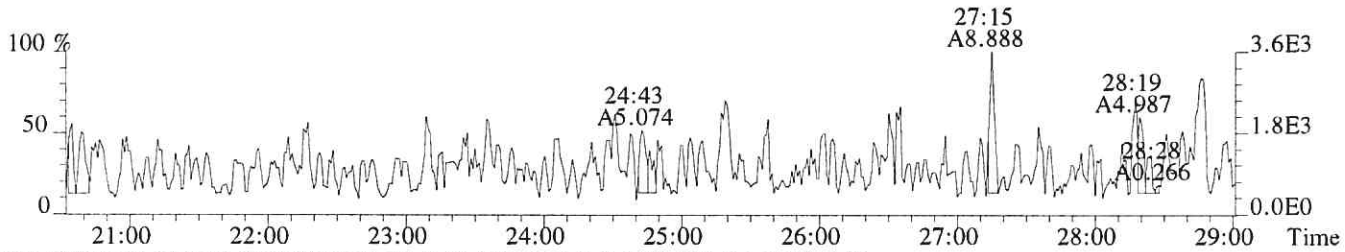
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



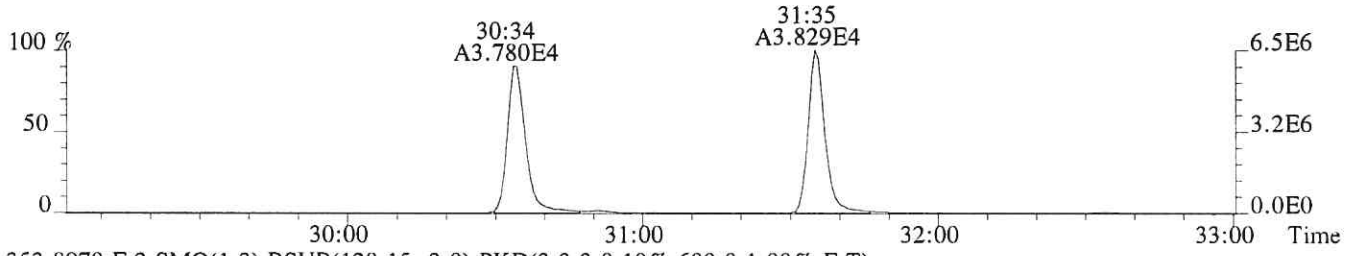
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



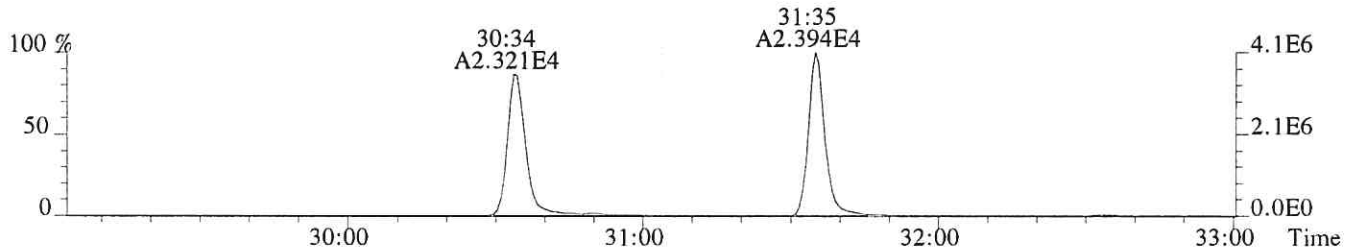
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



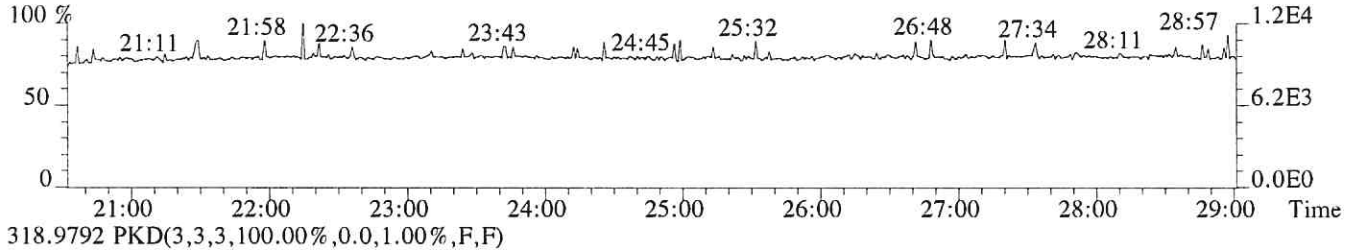
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



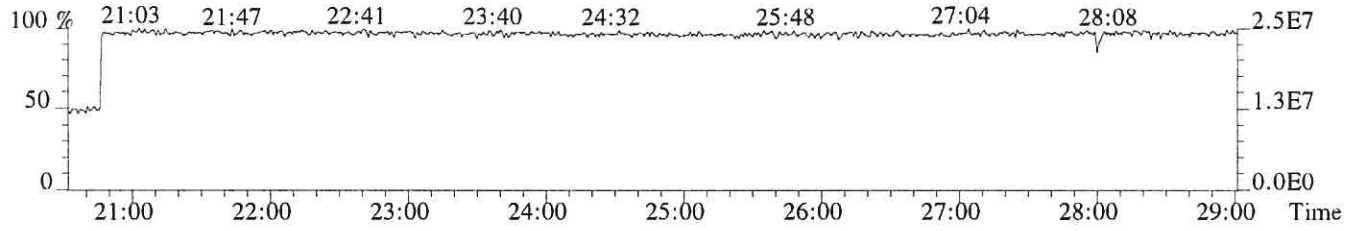
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



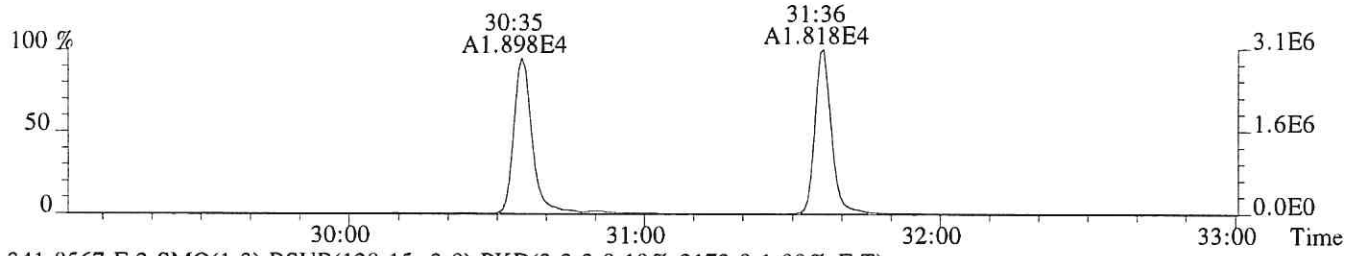
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



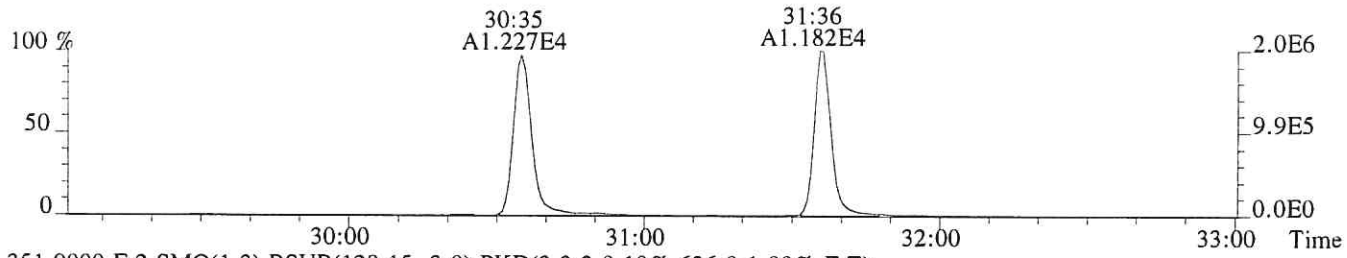
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



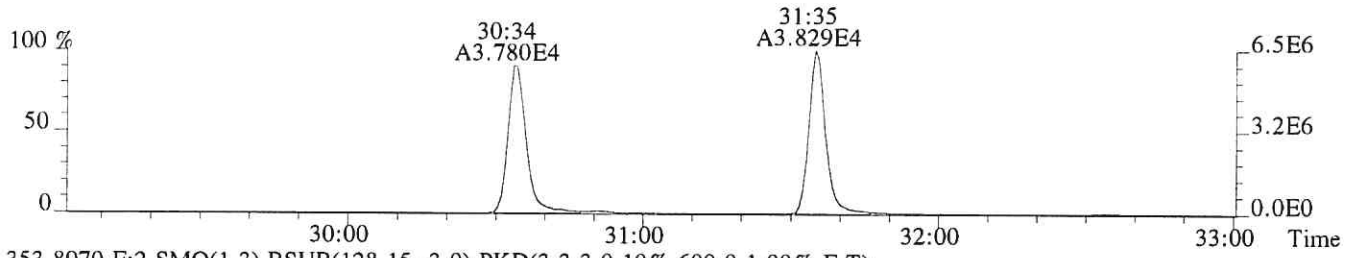
File:P518837 #1-357 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



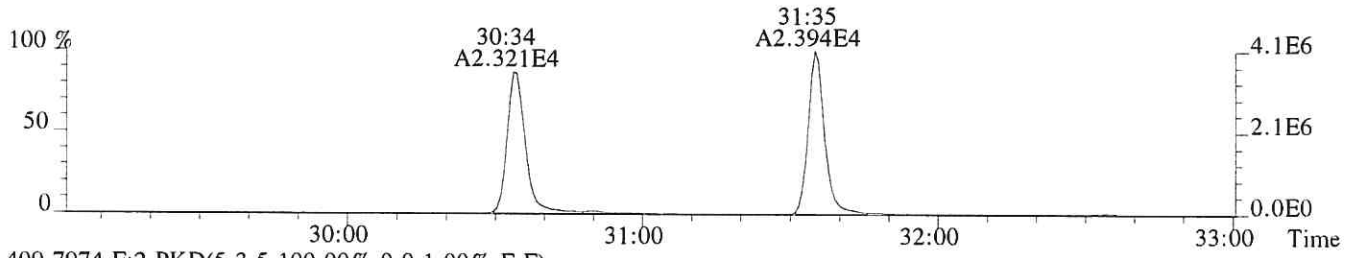
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2172.0,1.00%,F,T)



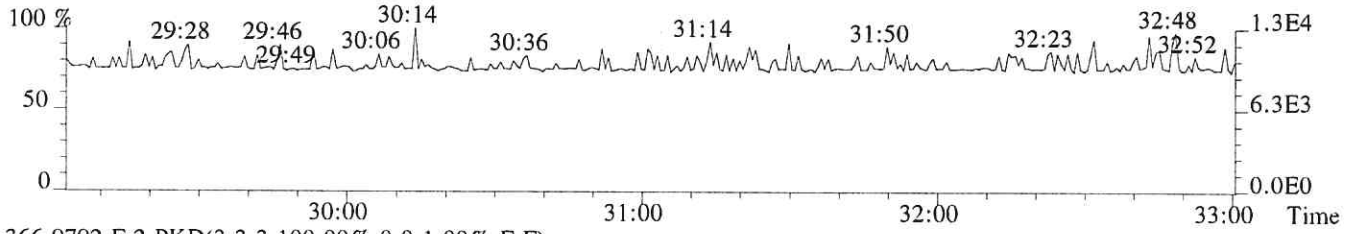
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



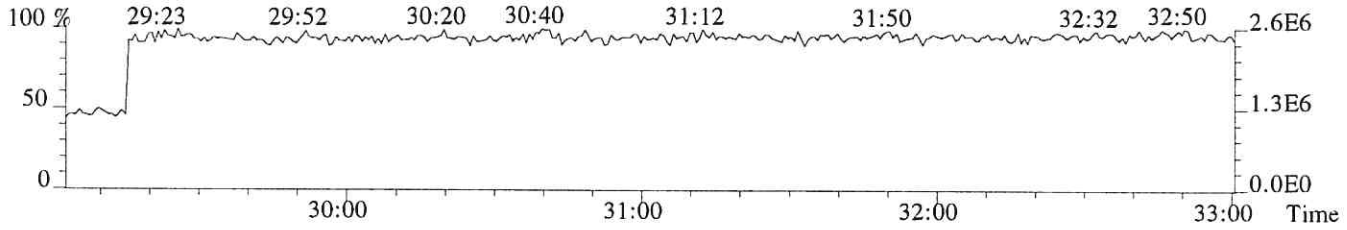
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



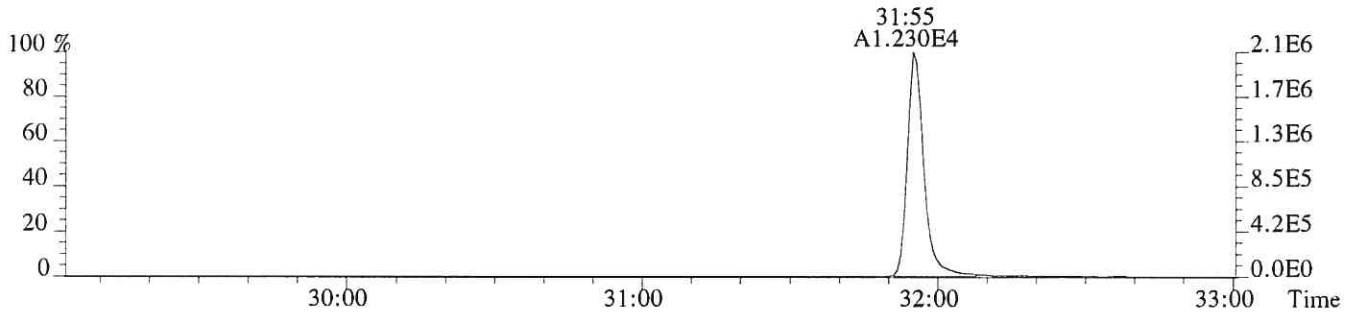
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



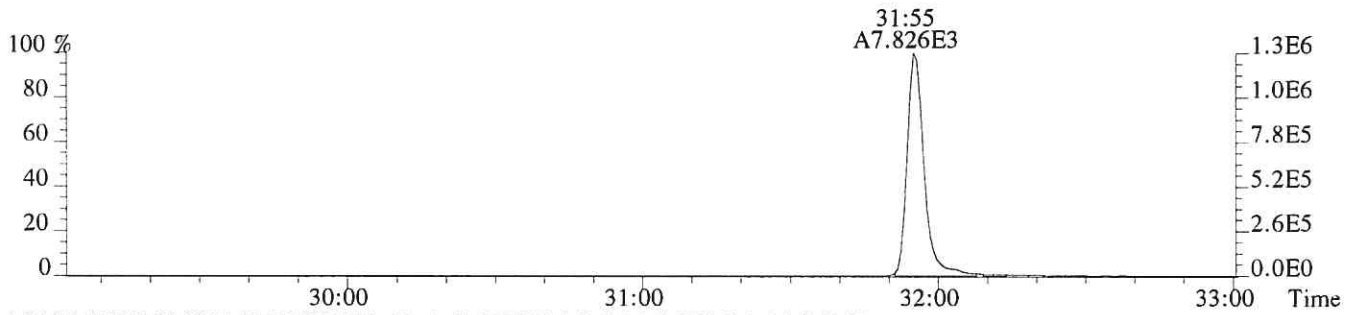
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



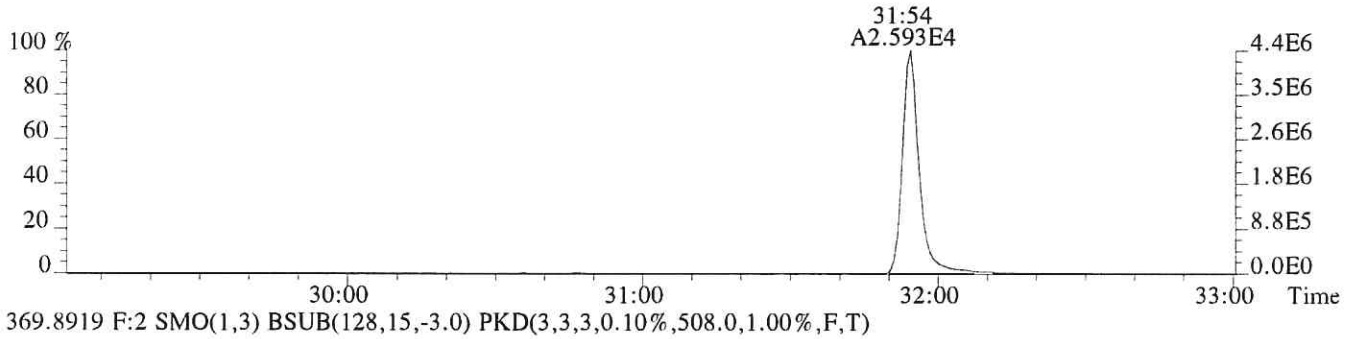
File:P518837 #1-357 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



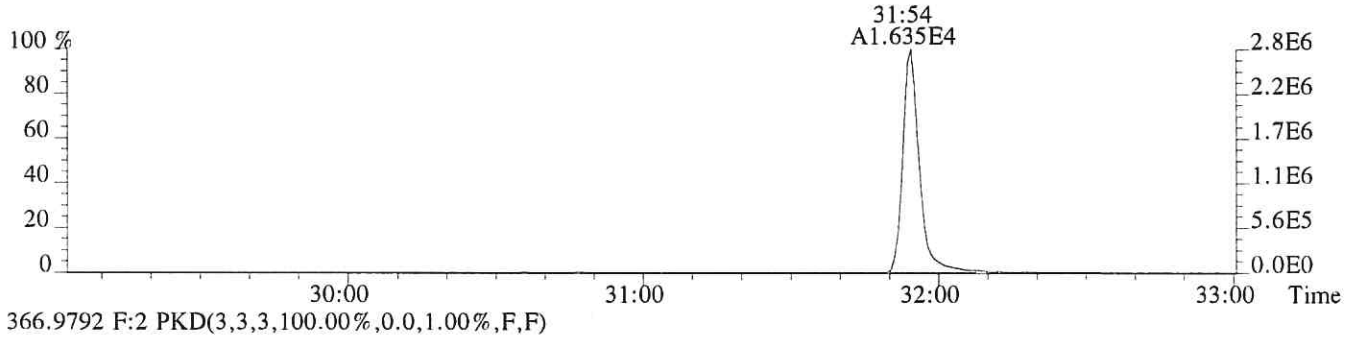
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



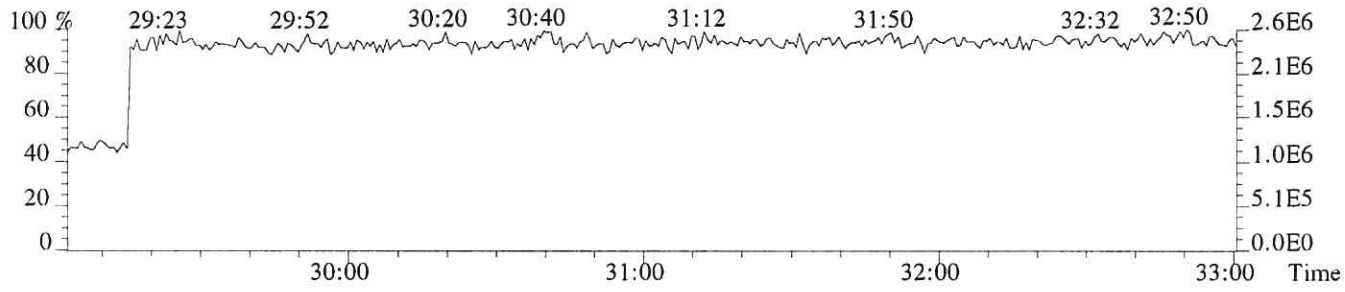
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



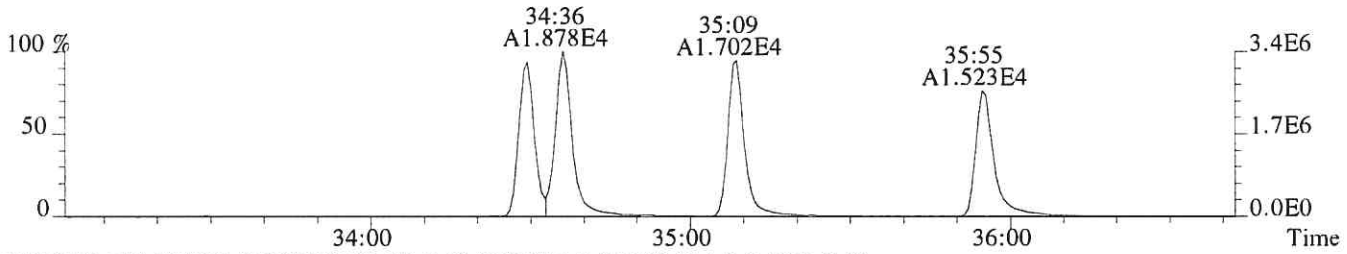
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



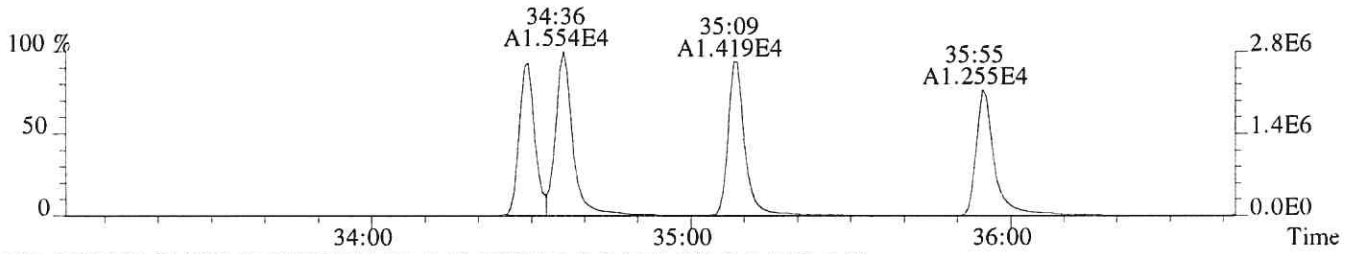
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



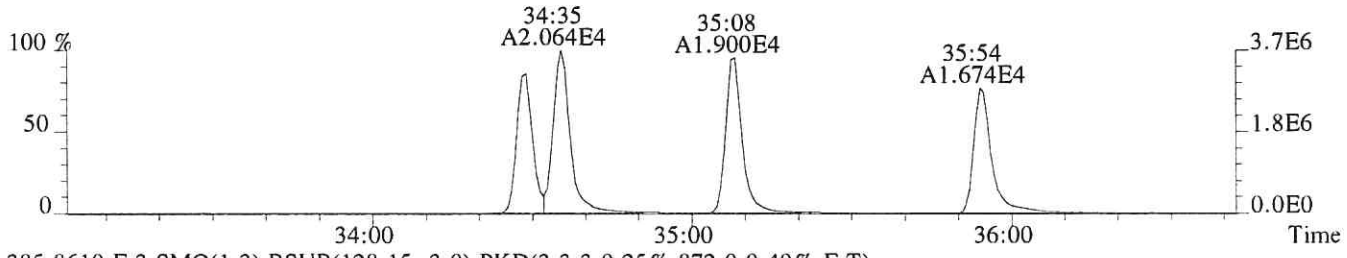
File:P518837 #1-330 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



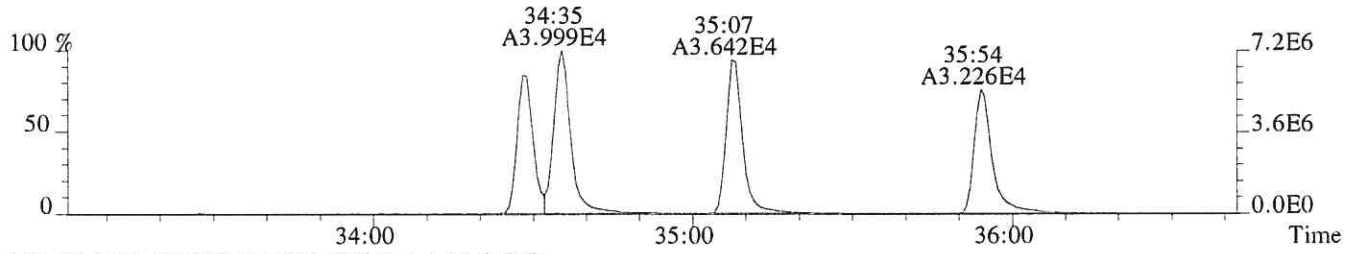
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



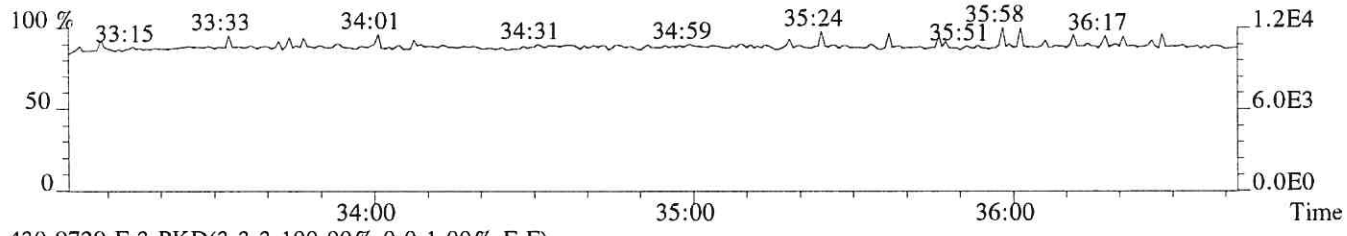
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



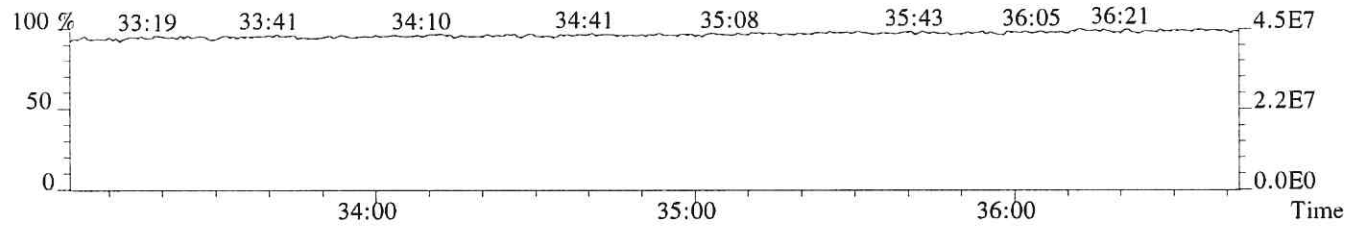
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



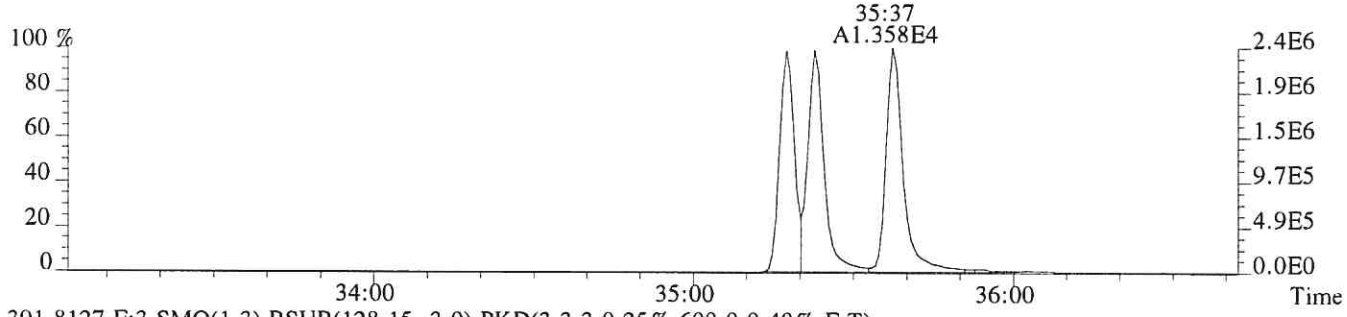
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



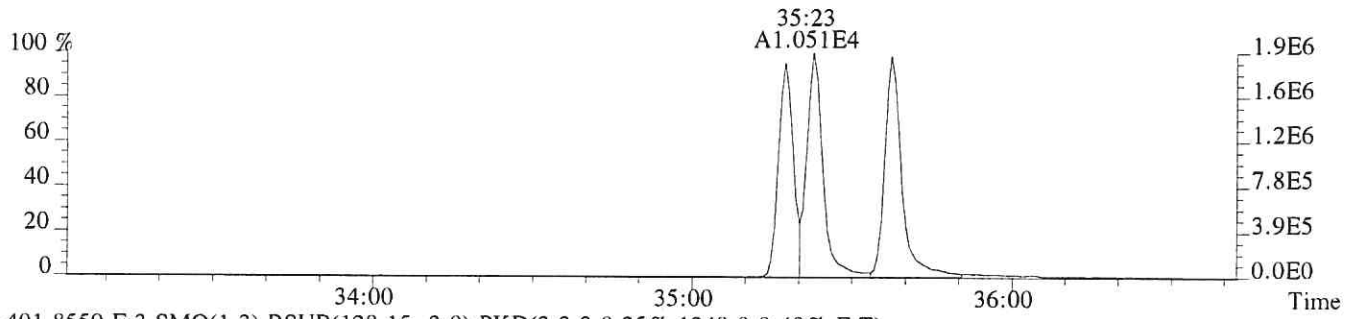
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



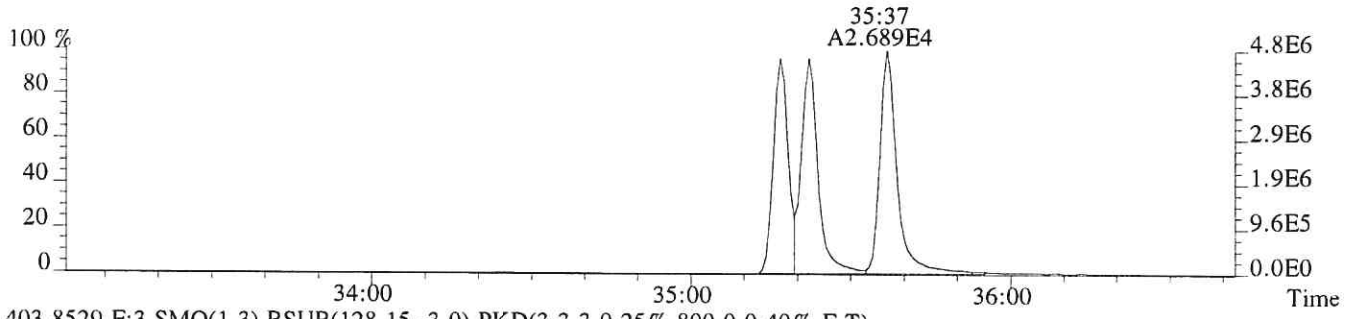
File:P518837 #1-330 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



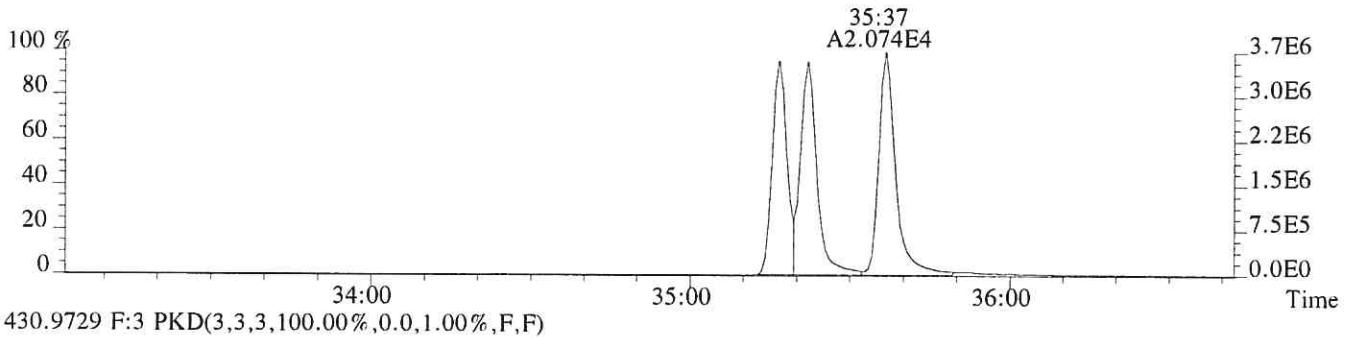
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



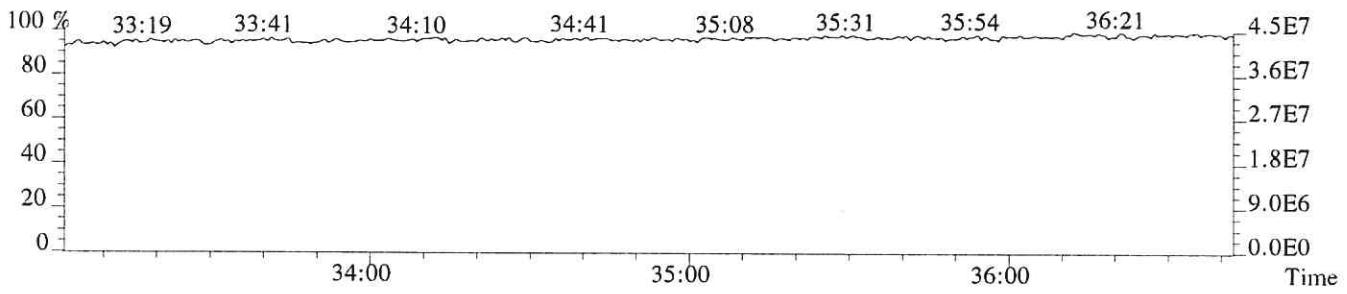
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



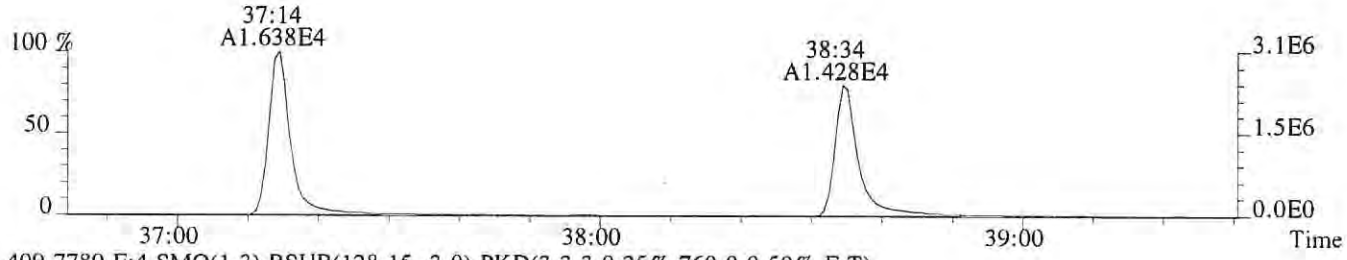
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



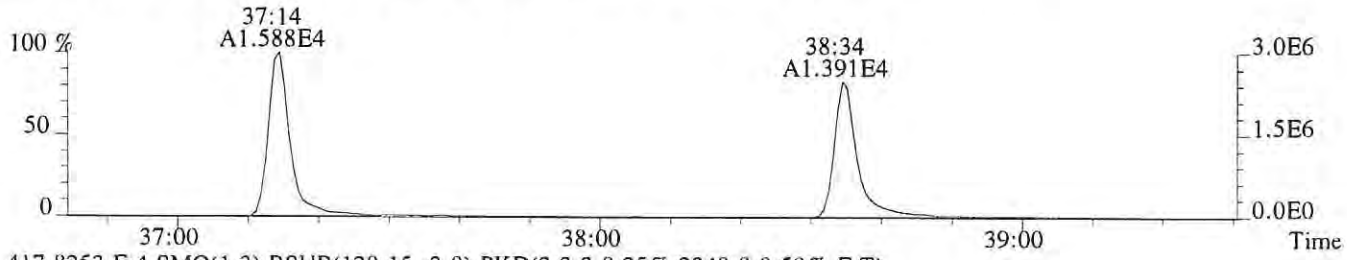
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



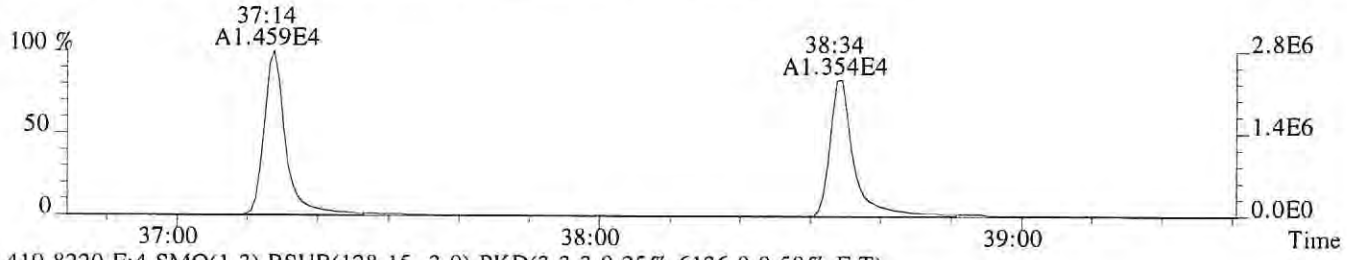
File:P518837 #1-250 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.50%,F,T)



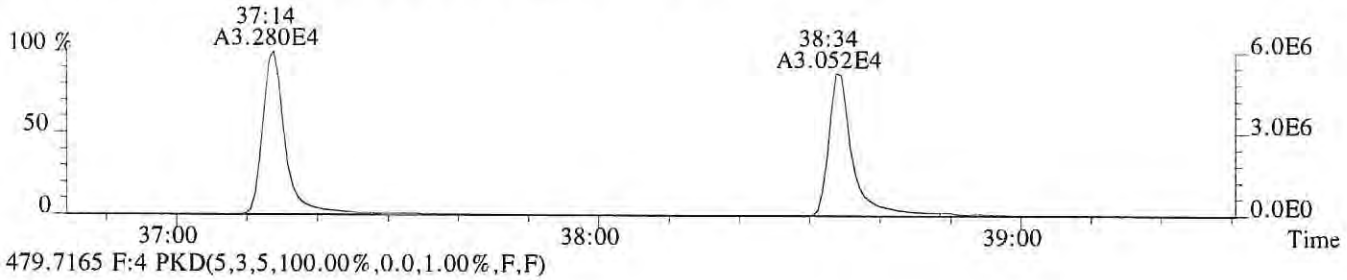
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.50%,F,T)



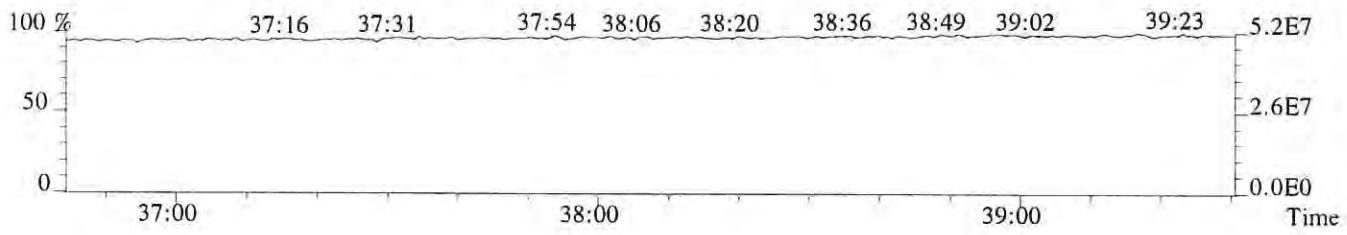
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6136.0,0.50%,F,T)



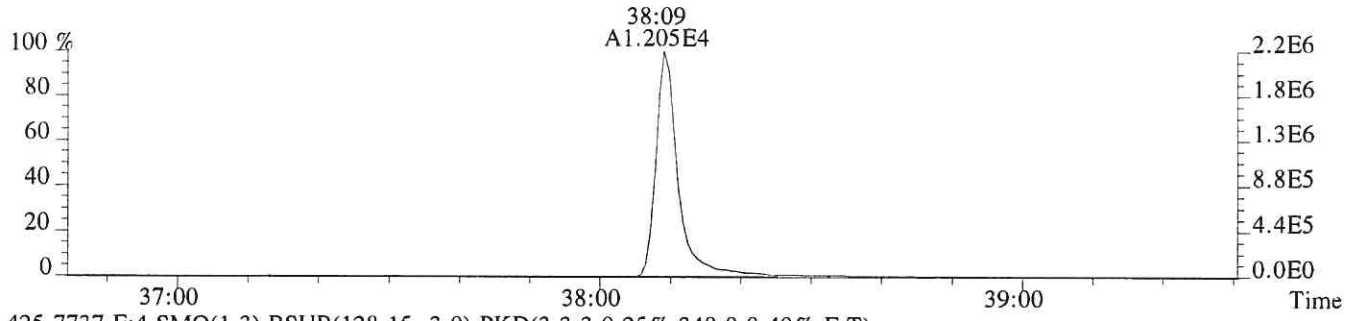
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



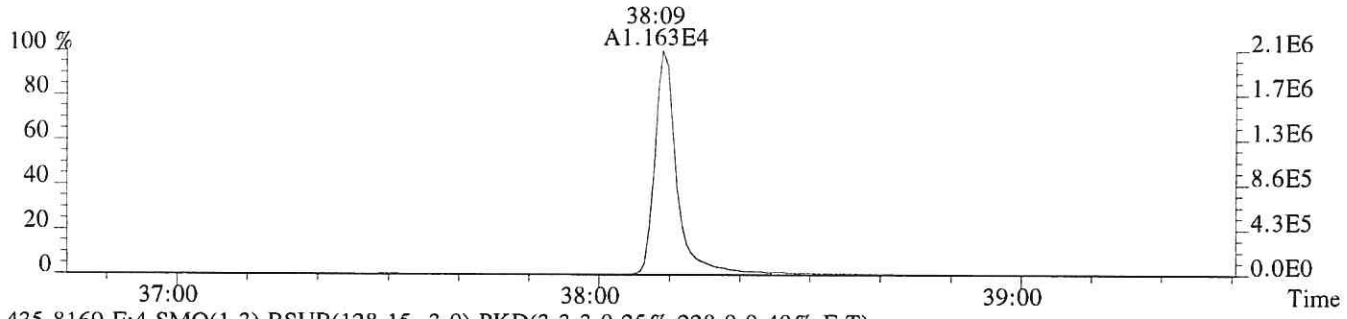
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



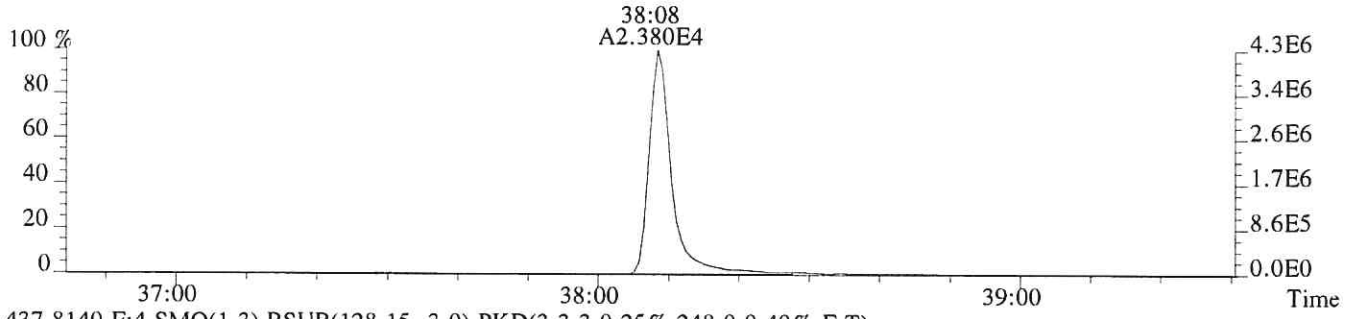
File:P518837 #1-250 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



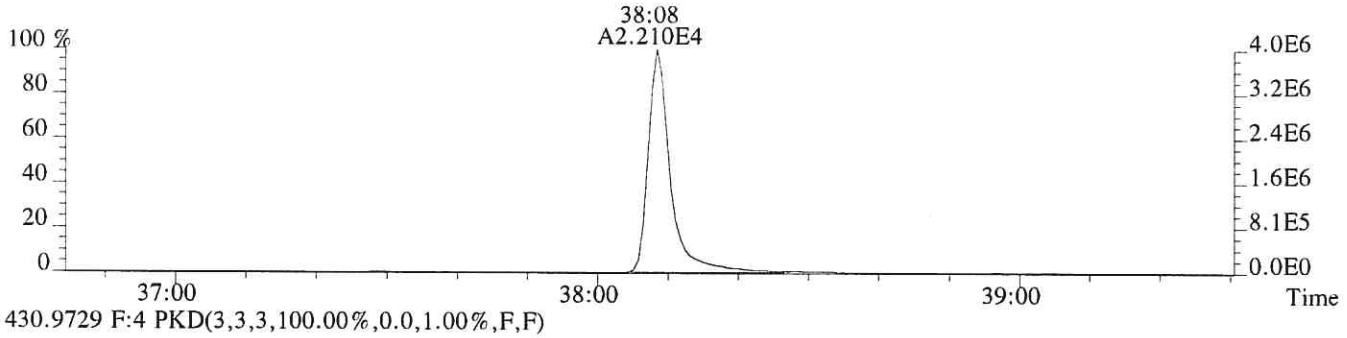
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



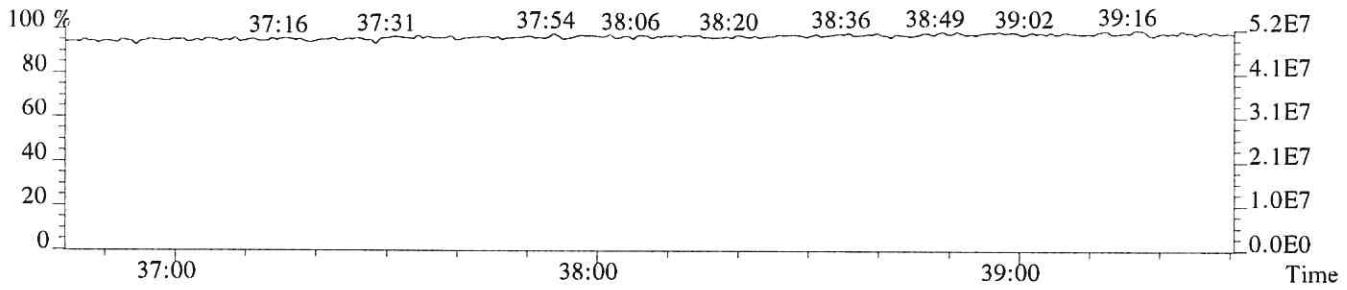
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



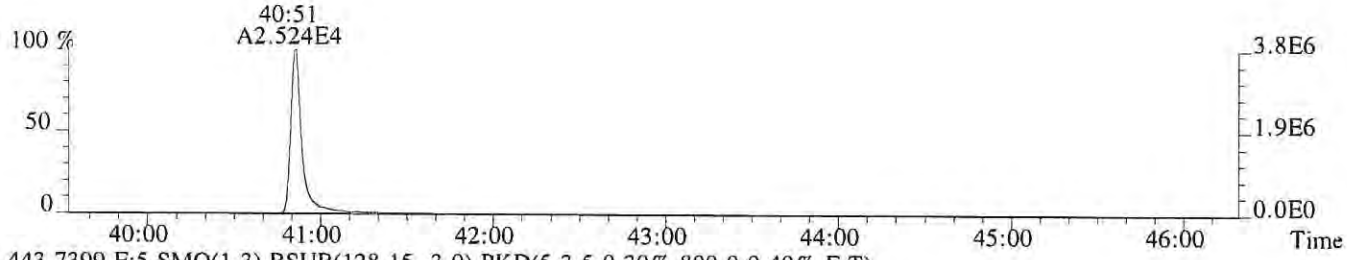
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



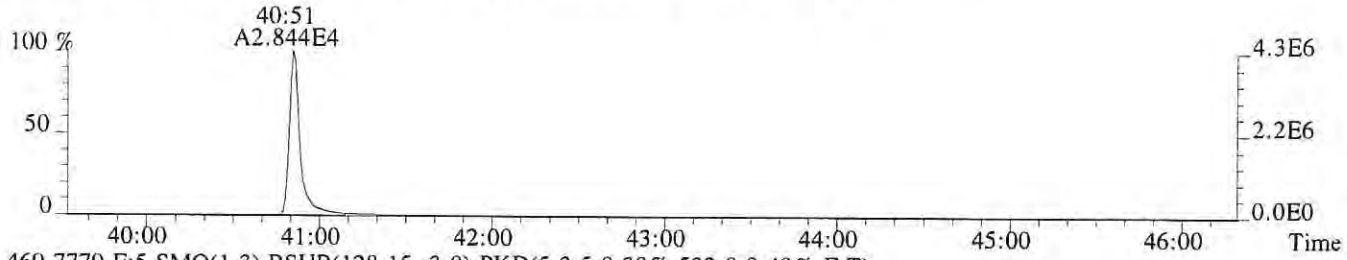
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



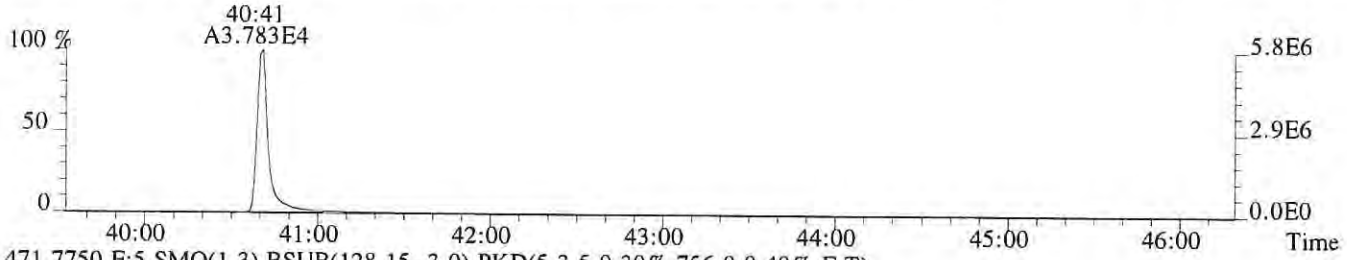
File:P518837 #1-610 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



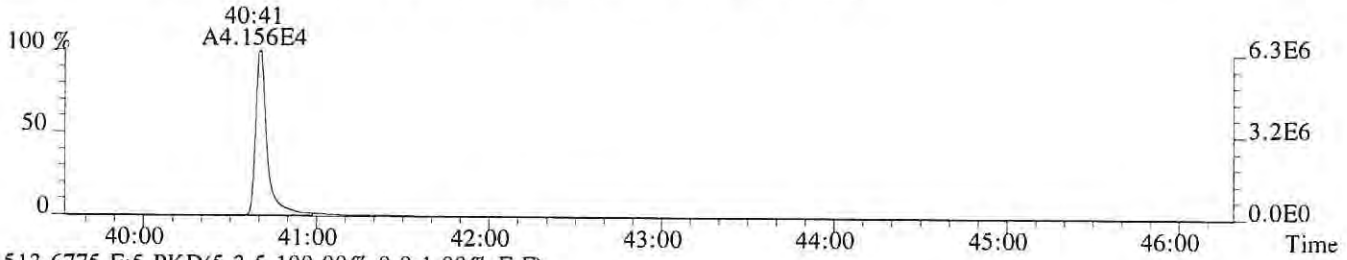
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



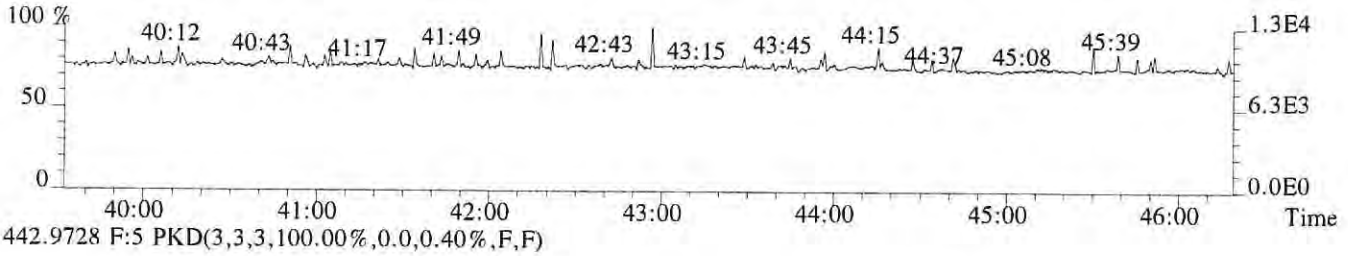
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



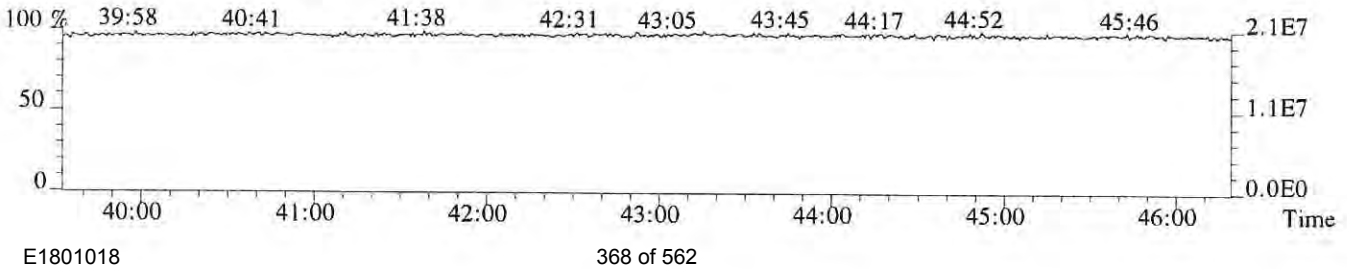
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



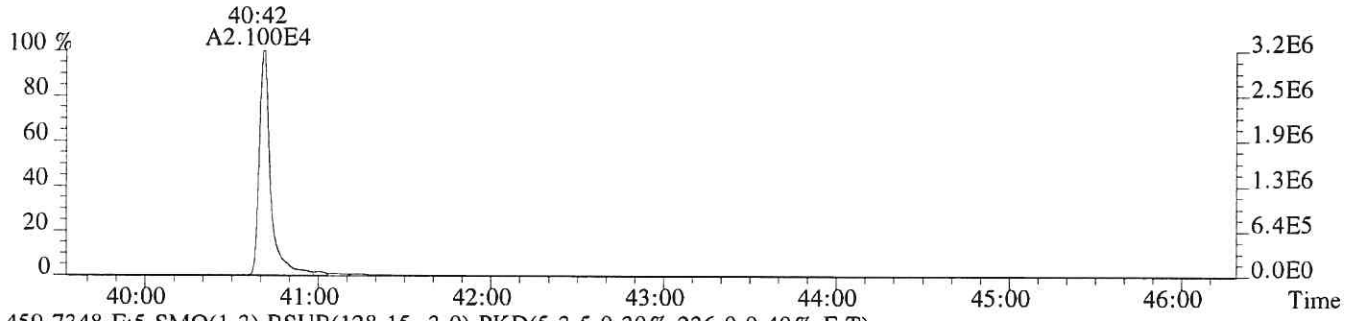
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



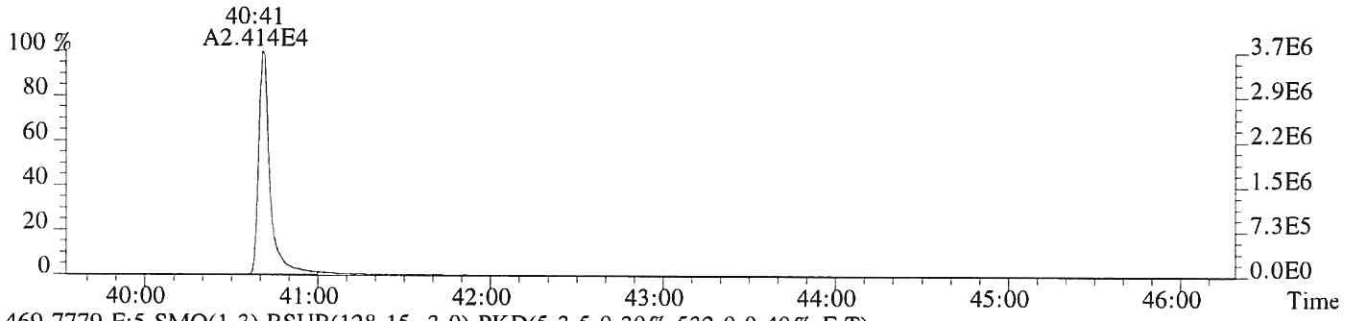
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



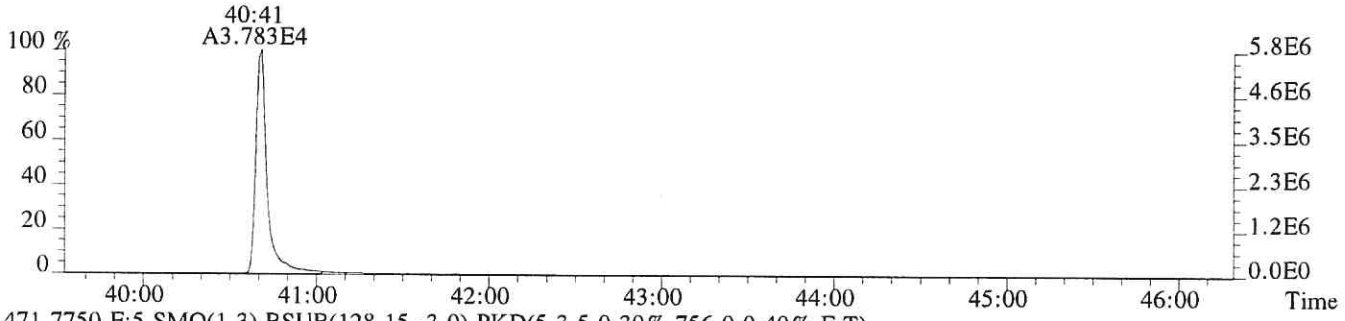
File:P518837 #1-610 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



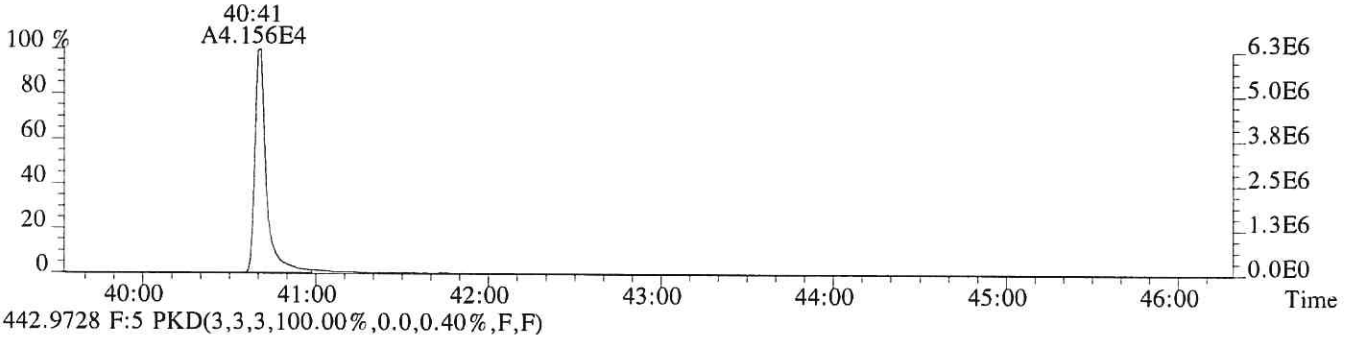
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



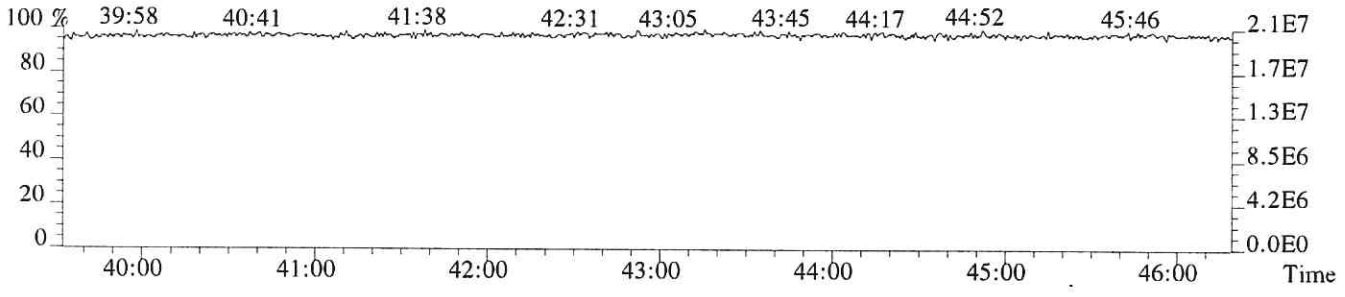
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



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



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518924 - P518937

Circle one: (Beginning) / (Ending)

Date: 11/19 - 11/20/18

Method: (1613) / 1613E / (8290) VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: LKL

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518925	19-NOV-18	21:27:33
194503	CS3	P518924	19-NOV-18	20:31:34
194503	CS3	P518937	20-NOV-18	07:28:54
METHOD BLANK	EQ1800461-01	P518926	19-NOV-18	22:15:21
METHOD BLANK	EQ1800463-01	P518927	19-NOV-18	23:03:59
376137-138	E1801008-014	P518928	19-NOV-18	23:52:36
376095-096	E1801008-015	P518929	20-NOV-18	00:41:12
1810-23037-006	E1800992-002	P518930	20-NOV-18	01:29:50
MSTP 77523-S	E1800993-001	P518931	20-NOV-18	02:18:27
9 DF	E1801007-009	P518932	20-NOV-18	03:07:04
13 DF	E1801007-012	P518933	20-NOV-18	03:55:41
14 DF	E1801007-013	P518934	20-NOV-18	04:44:19
15 DF	E1801007-014	P518935	20-NOV-18	05:32:57

E1801018

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181119B.SPL
Last Modified: Tuesday, November 20, 2018 08:28:16 Central Standard Time
Printed: Tuesday, November 20, 2018 08:28:18 Central Standard Time

Page Position (1, 1)

DB5 NET: P518924 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/19/18	20:31	P518924	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMS check 21:27
2		21:27	P518925	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		22:15	P518926	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		23:03	P518927	MB	EQ1800463-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		23:52	P518928	E1801008-014	E1801008-014	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6	11/20/18	00:41	P518929	E1801008-015	E1801008-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		01:29	P518930	E1800992-002	E1800992-002	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		02:18	P518931	E1800993-001	E1800993-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		03:07	P518932	E1801007-009	E1801007-009	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		03:55	P518933	E1801007-012	E1801007-012	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		04:44	P518934	E1801007-013	E1801007-013	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		05:32	P518935	E1801007-014	E1801007-014	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		06:30	P518936	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:13		not used
14		07:28	P518937	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 07:18
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 10/20/18

Printed: Monday, November 19, 2018 21:27:31 Central Standard Time

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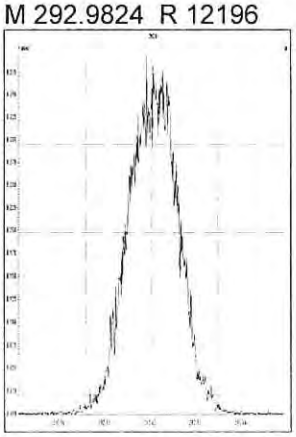

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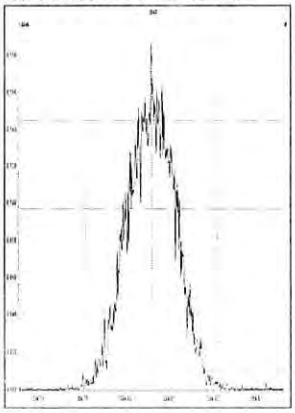

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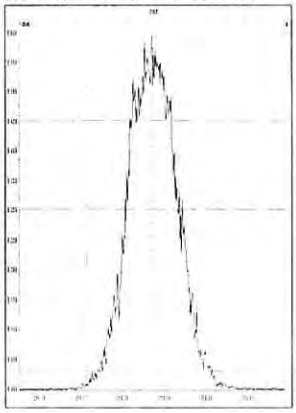

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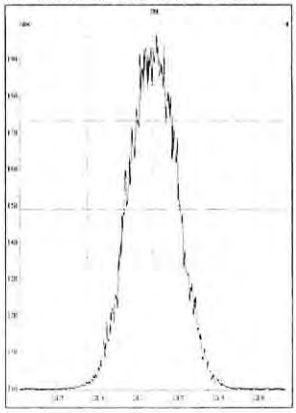

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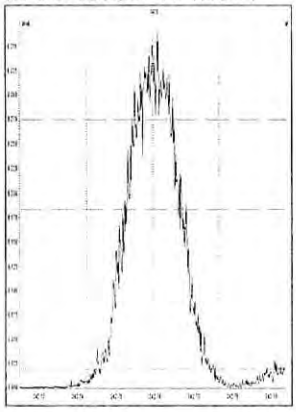

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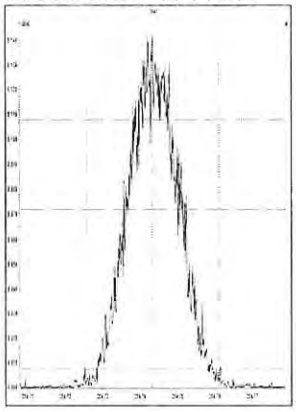

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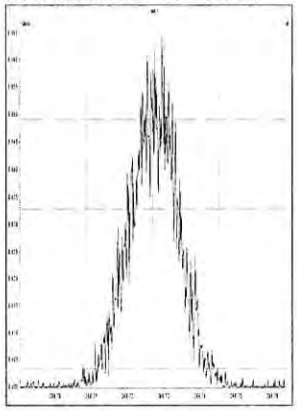

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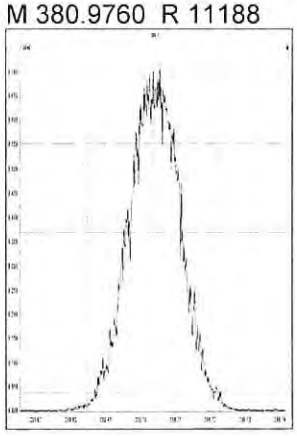

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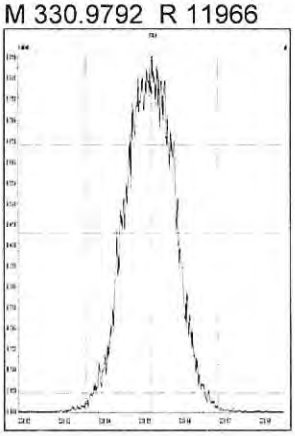

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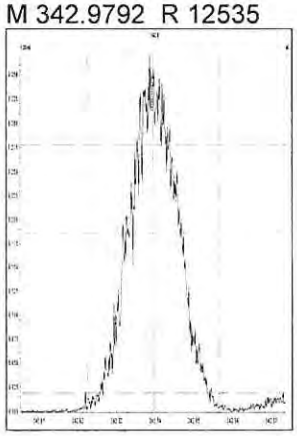

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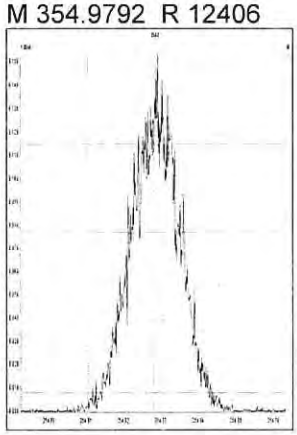

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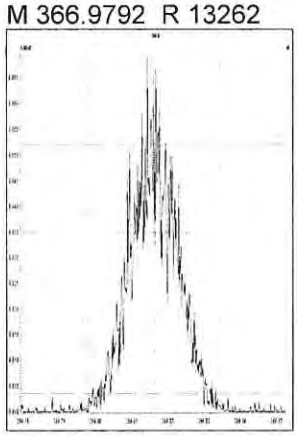

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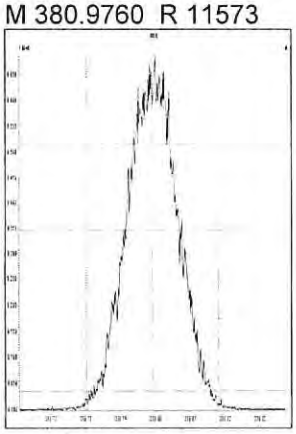

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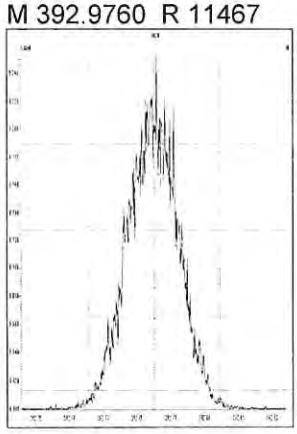

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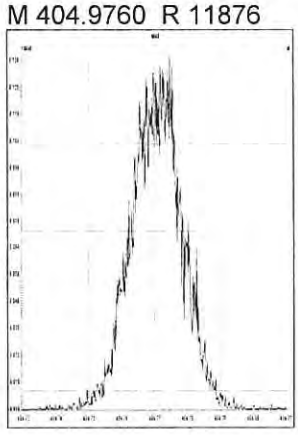

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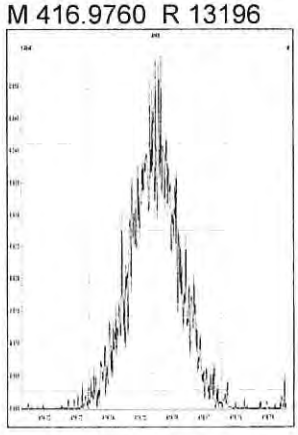

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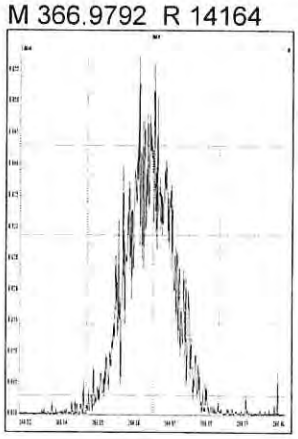

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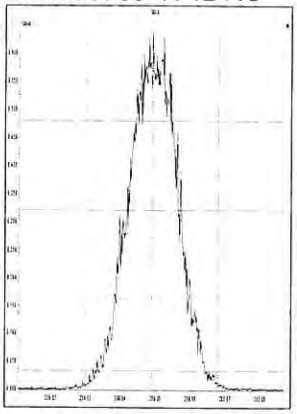

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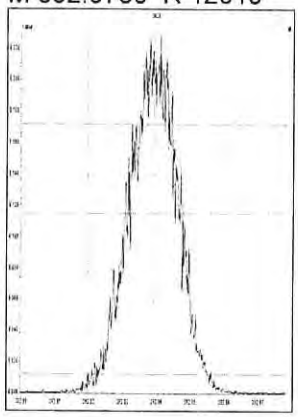

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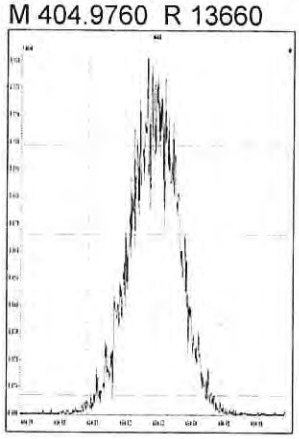

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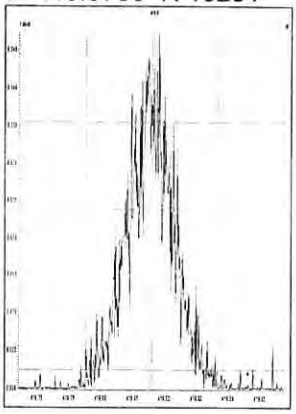

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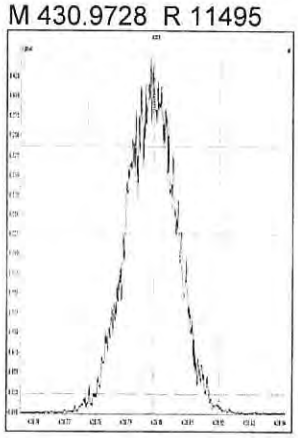

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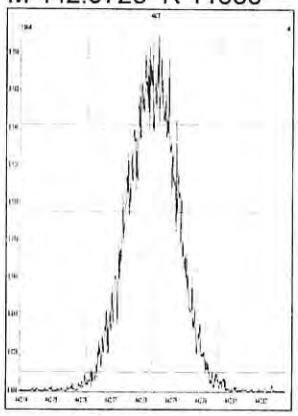

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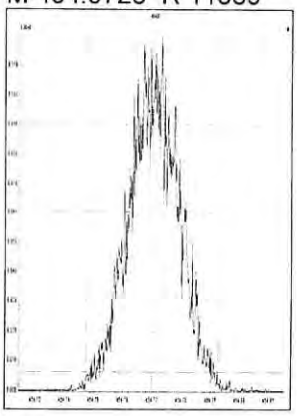

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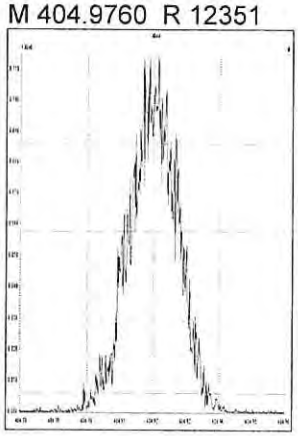

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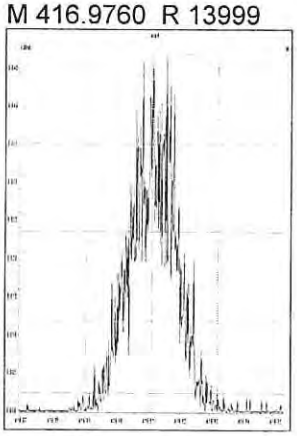

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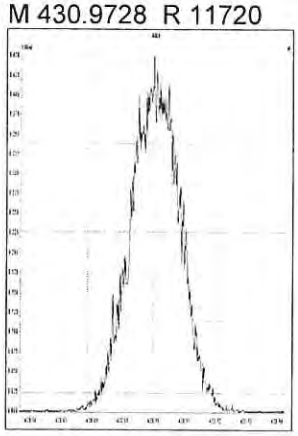

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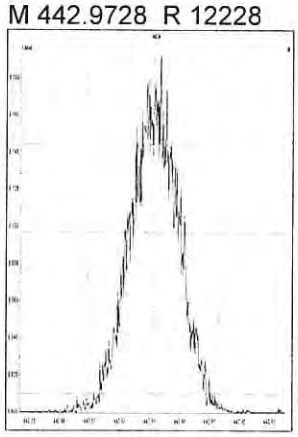

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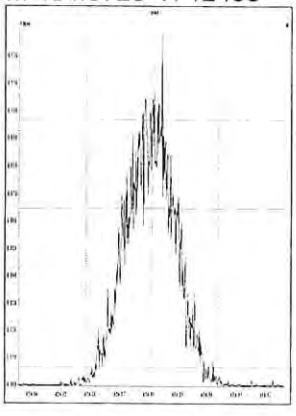

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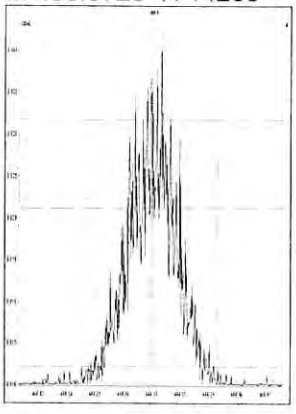

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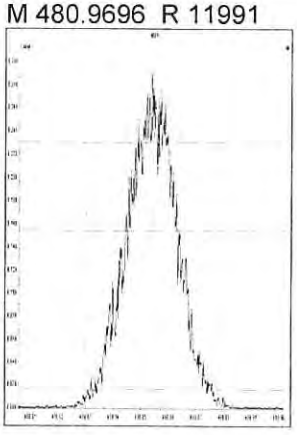

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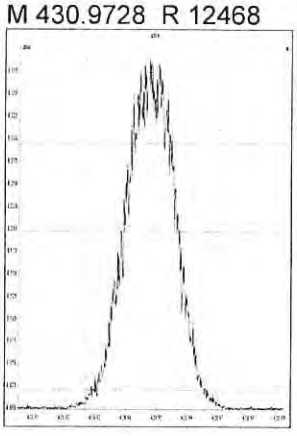

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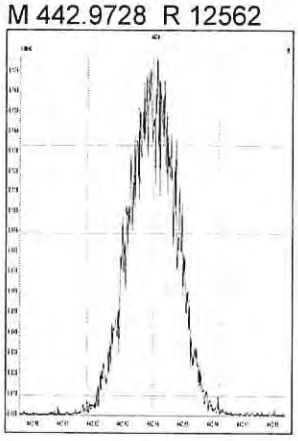

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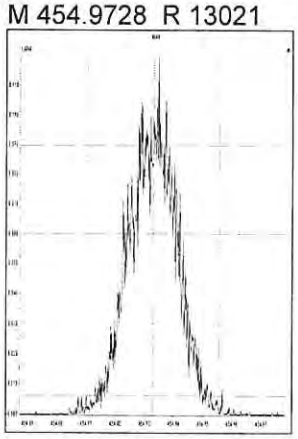

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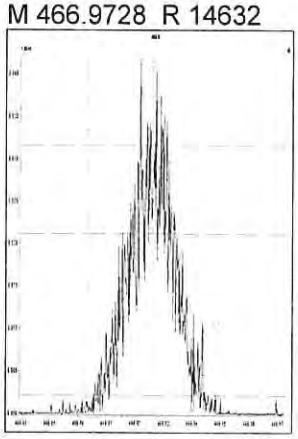

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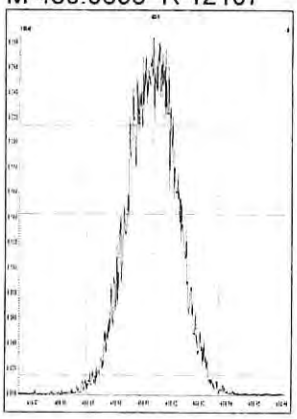

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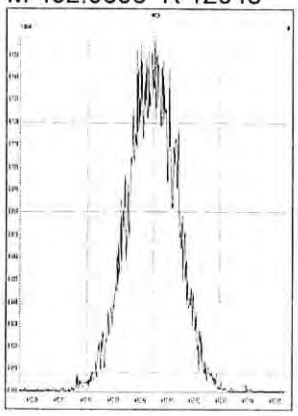

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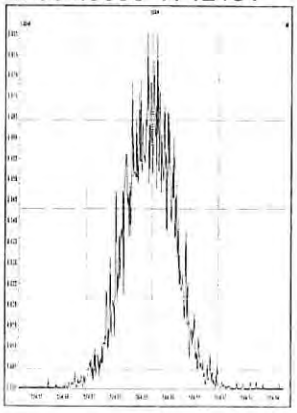

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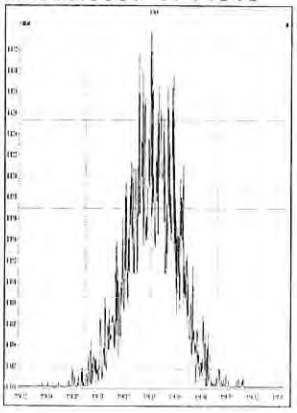

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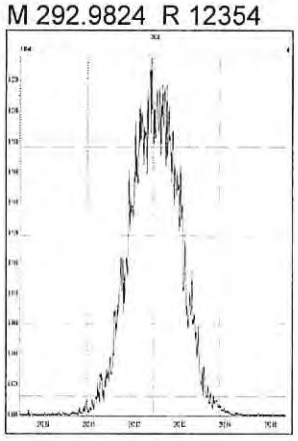

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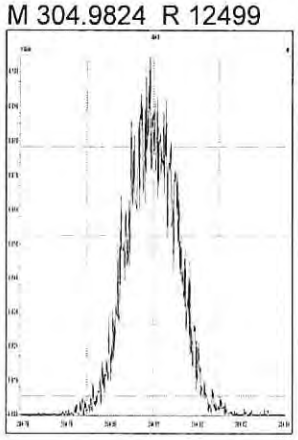

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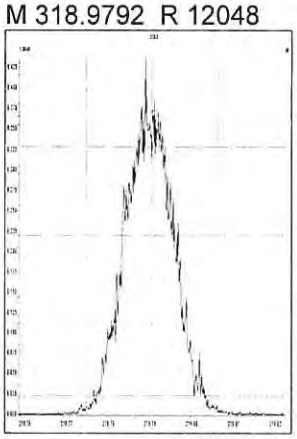

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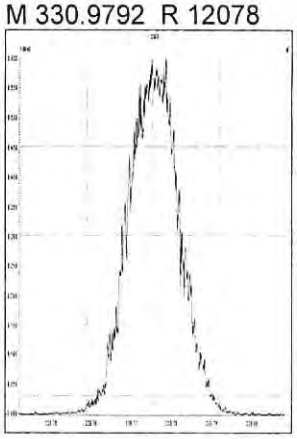

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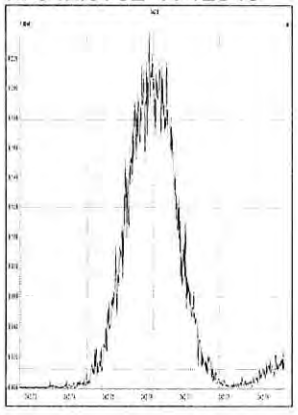

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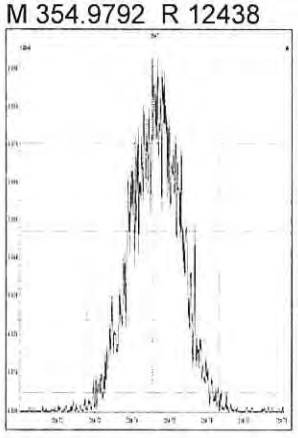

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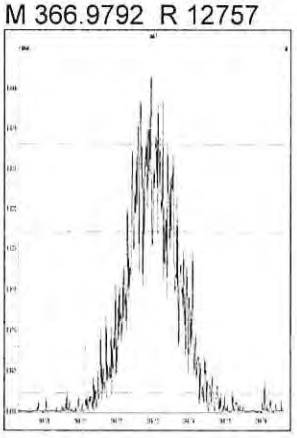

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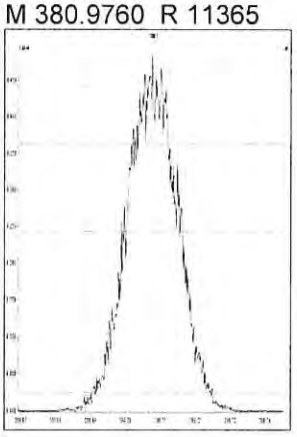

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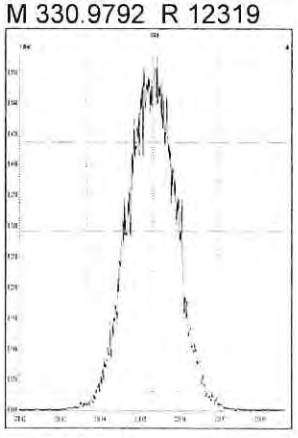

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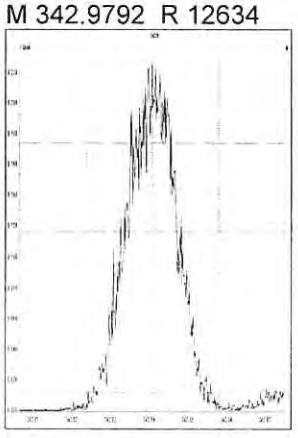

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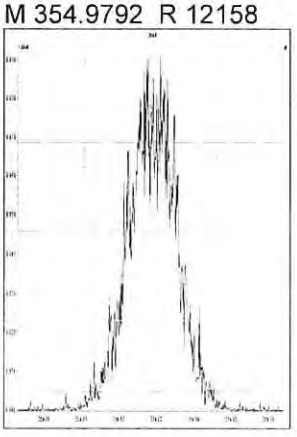

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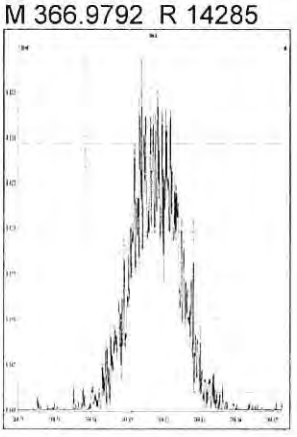

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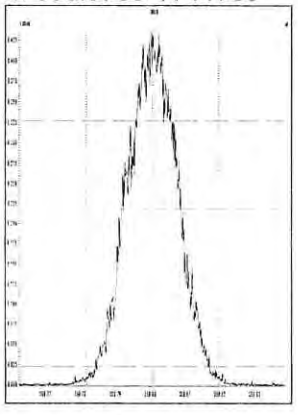

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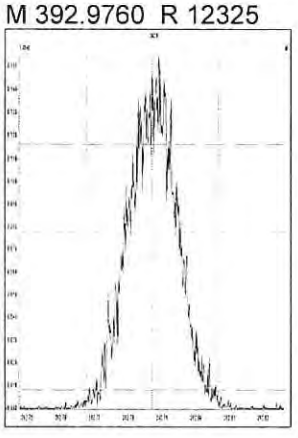

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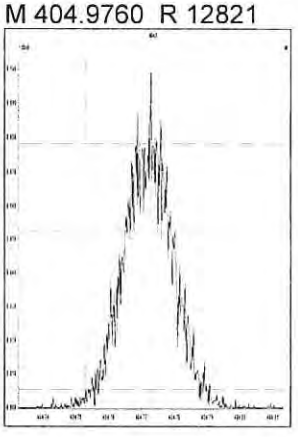

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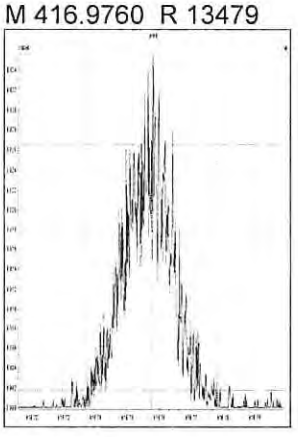

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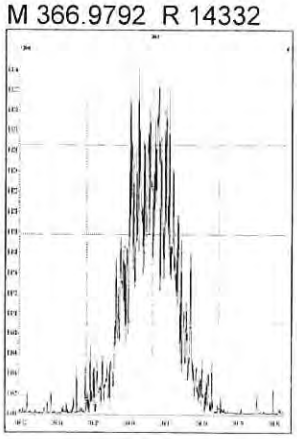

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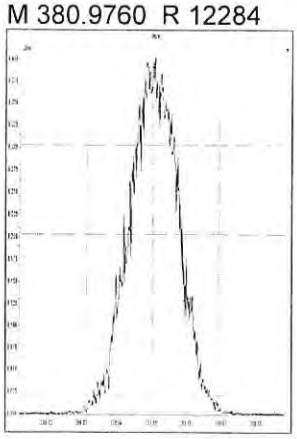

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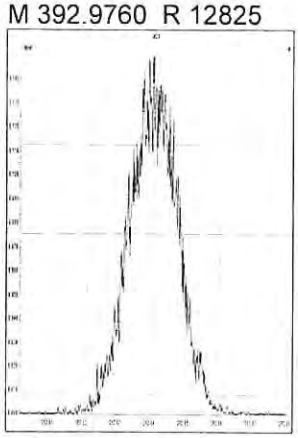

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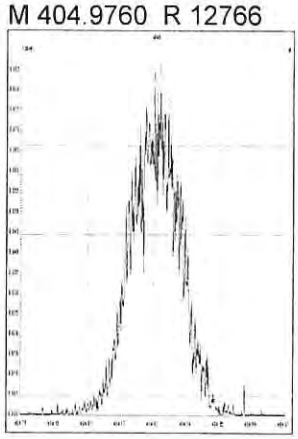

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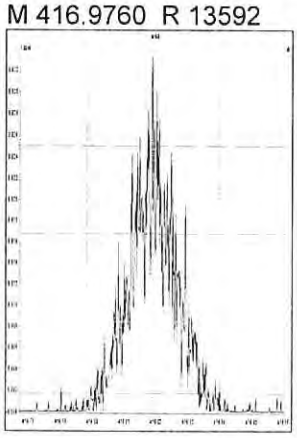

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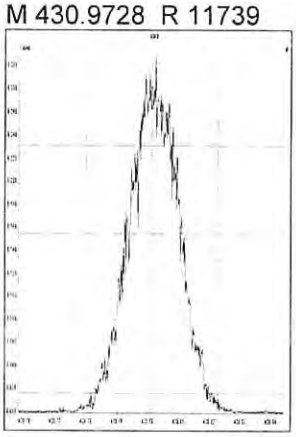

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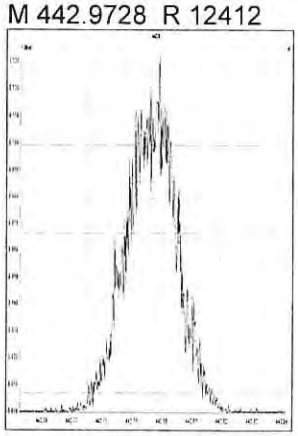

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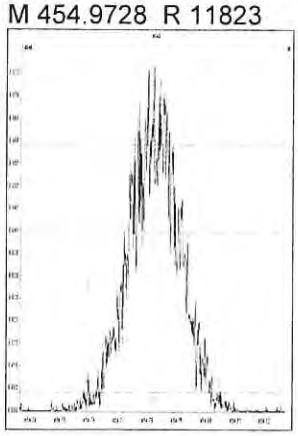

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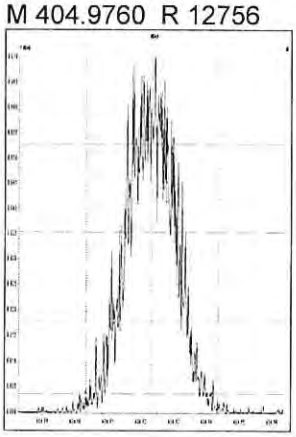

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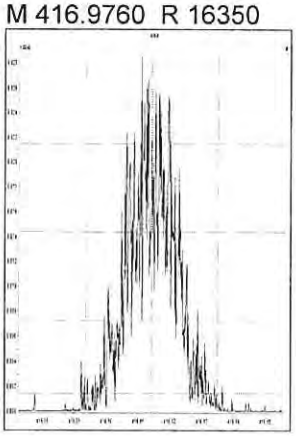

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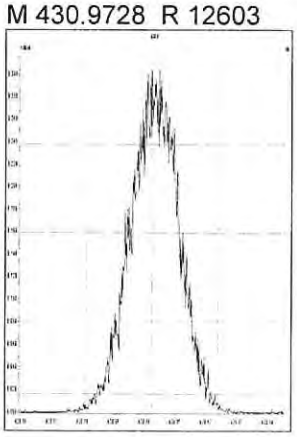

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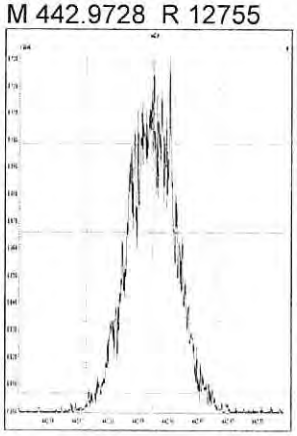

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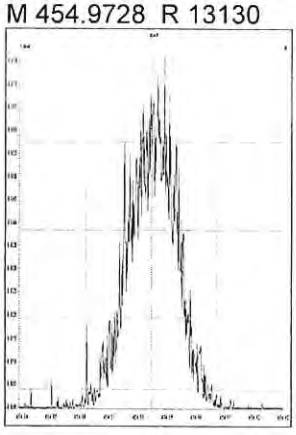

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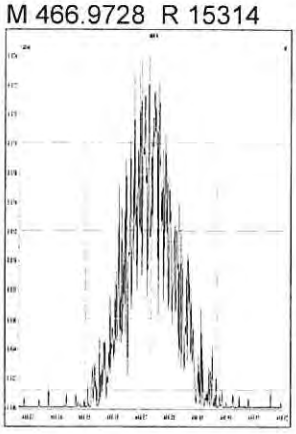

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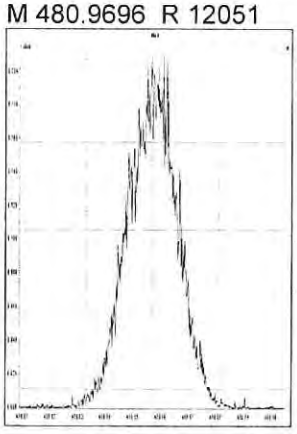
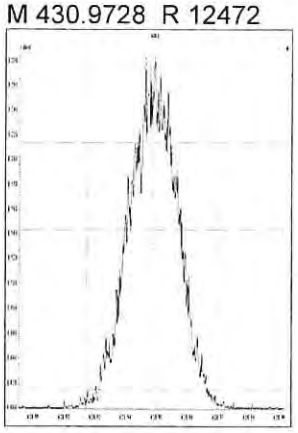


M 430.9728 R 12472



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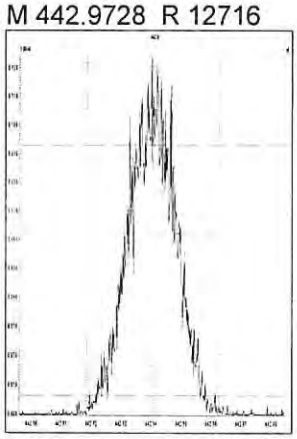

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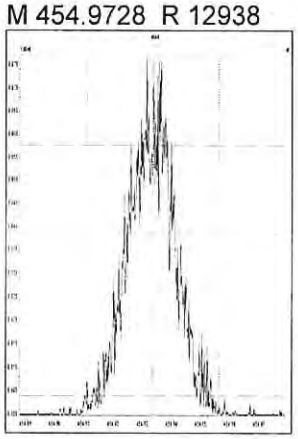

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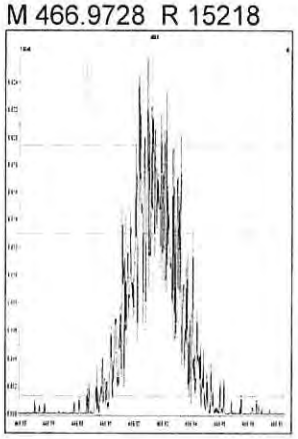

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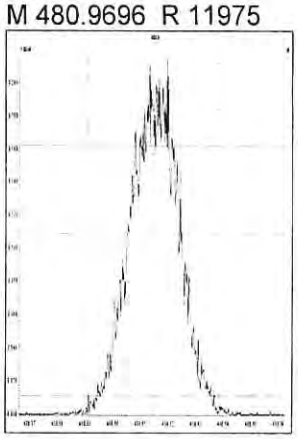

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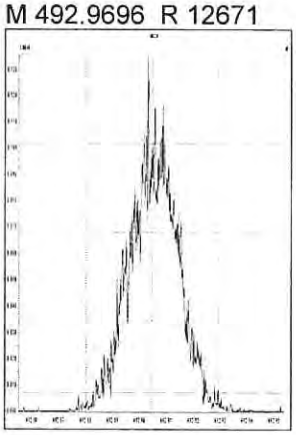

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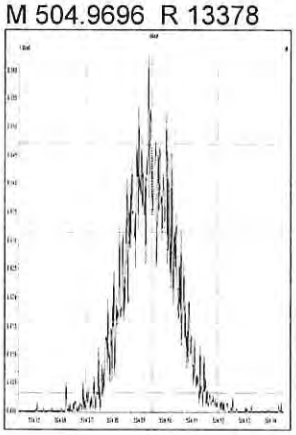

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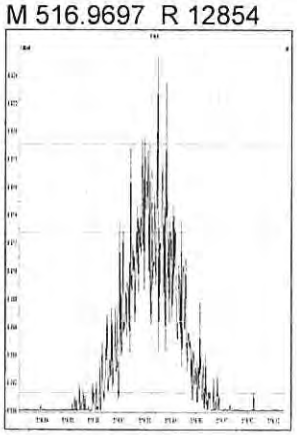


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

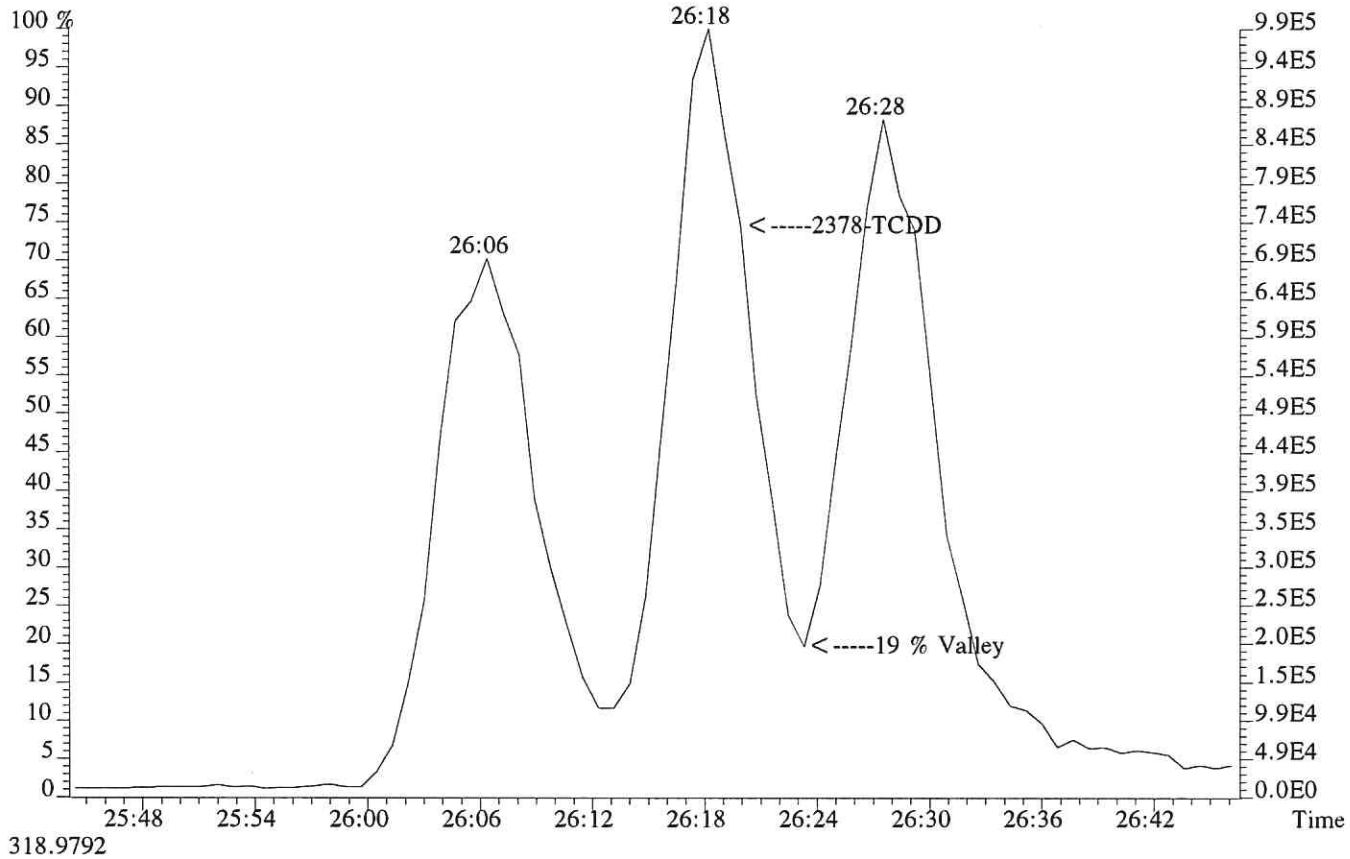
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518925
Date Analyzed: 19-NOV-18
Time Analyzed: 21:27:33

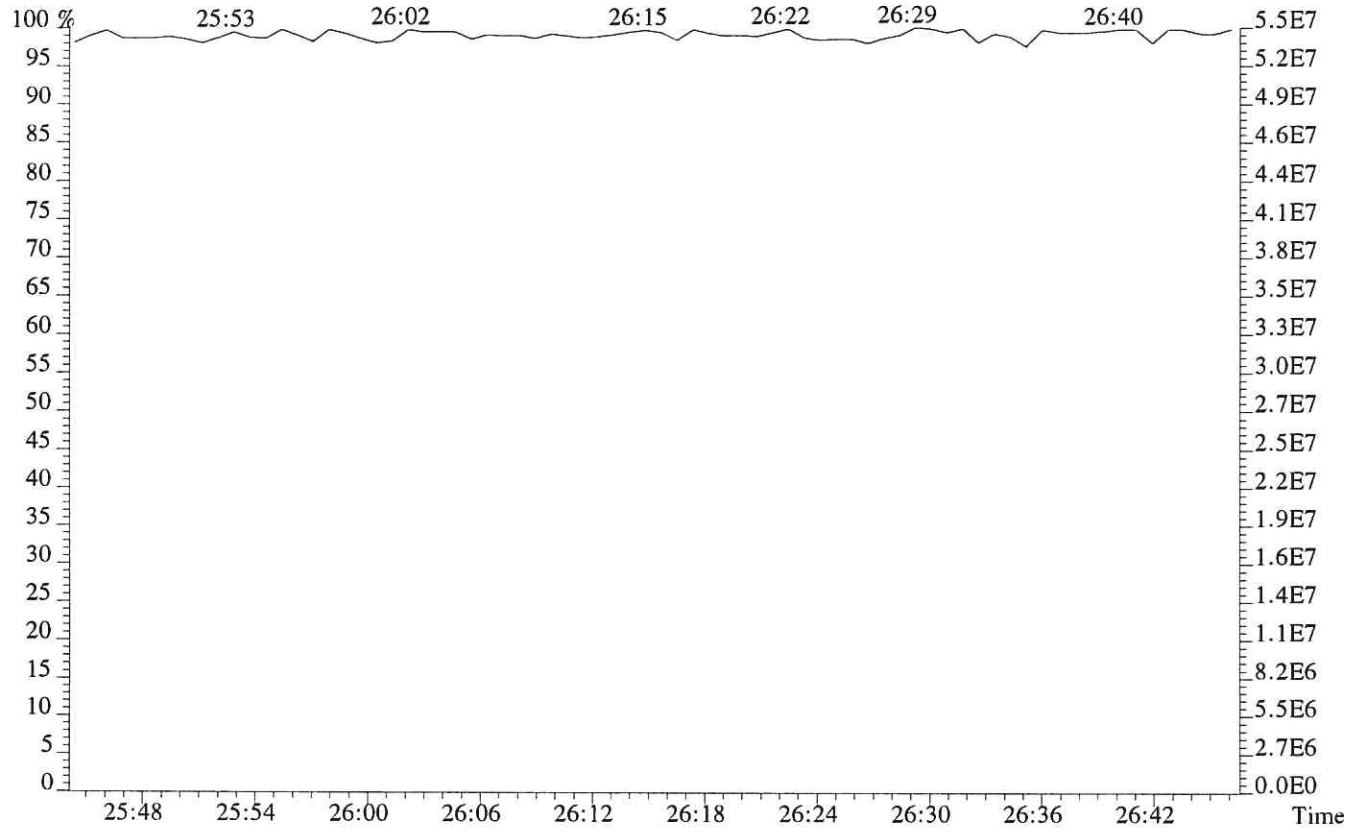
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:01	27:44
TCDD	22:36	27:33
PeCDF	27:41	32:30
PeCDD	29:31	32:16
HxCDF	33:15	35:53
HxCDD	33:49	35:29
HpCDF	37:11	38:32
HpCDD	37:27	38:06

% Valley 2378-TCDD: 19 %

File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



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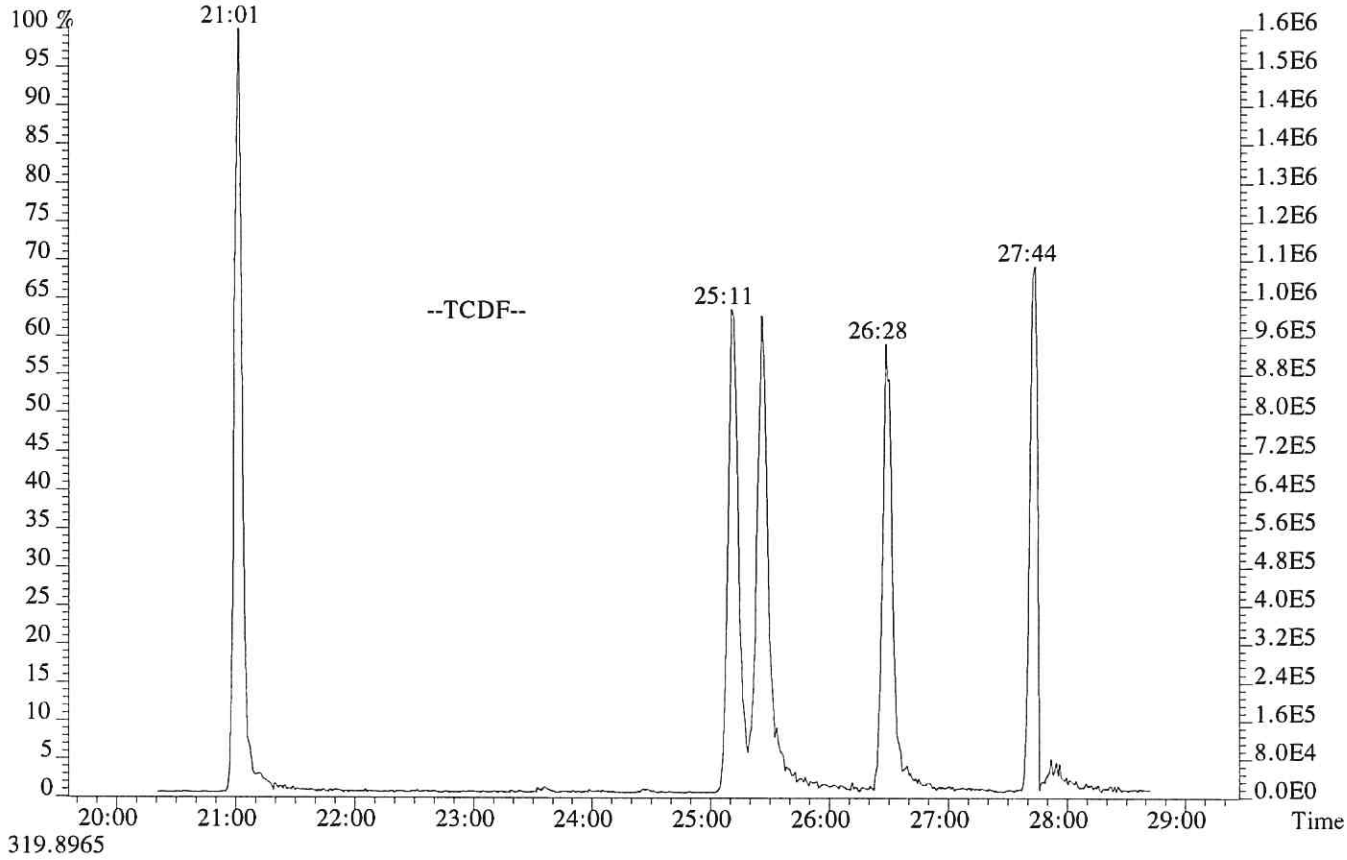
Sample#1 Exp:192977
303.9016



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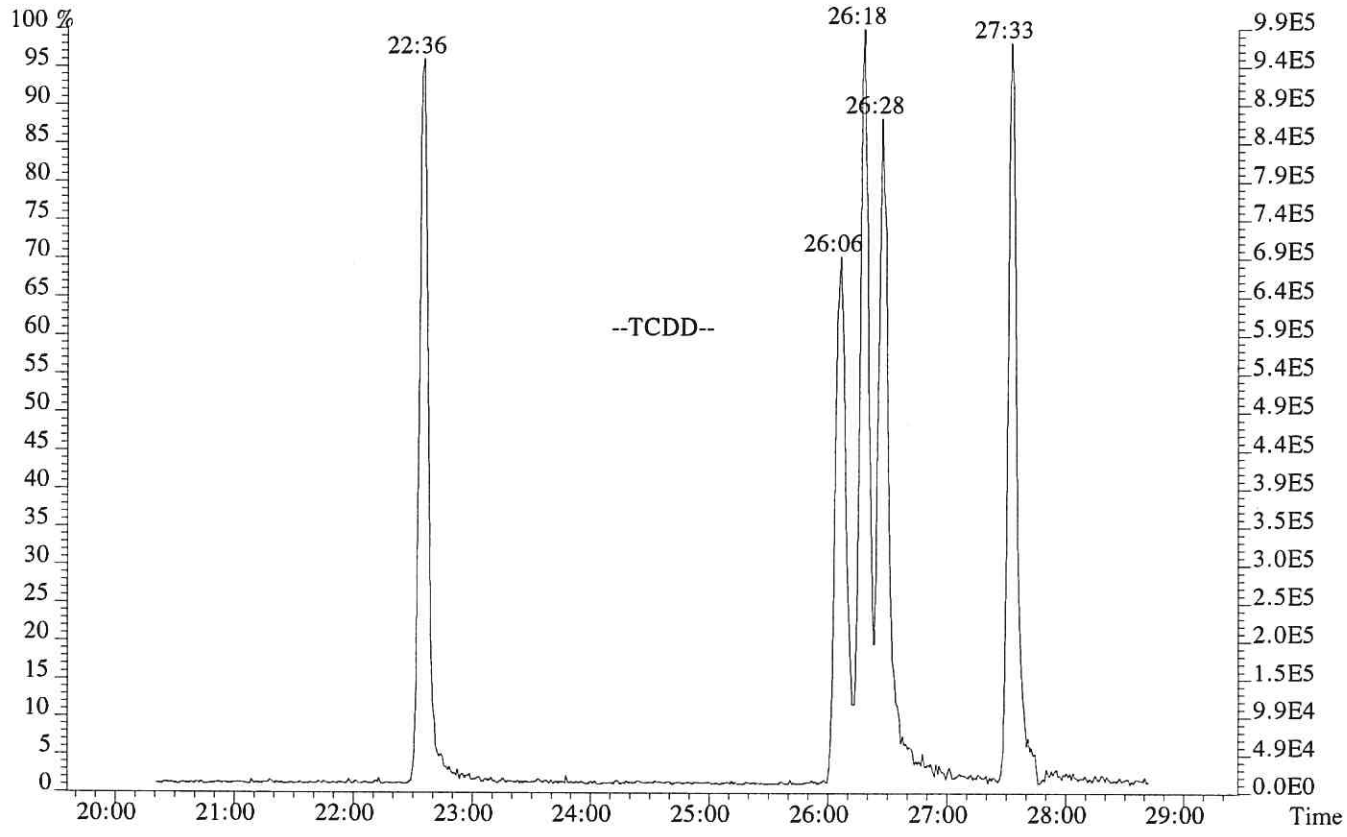

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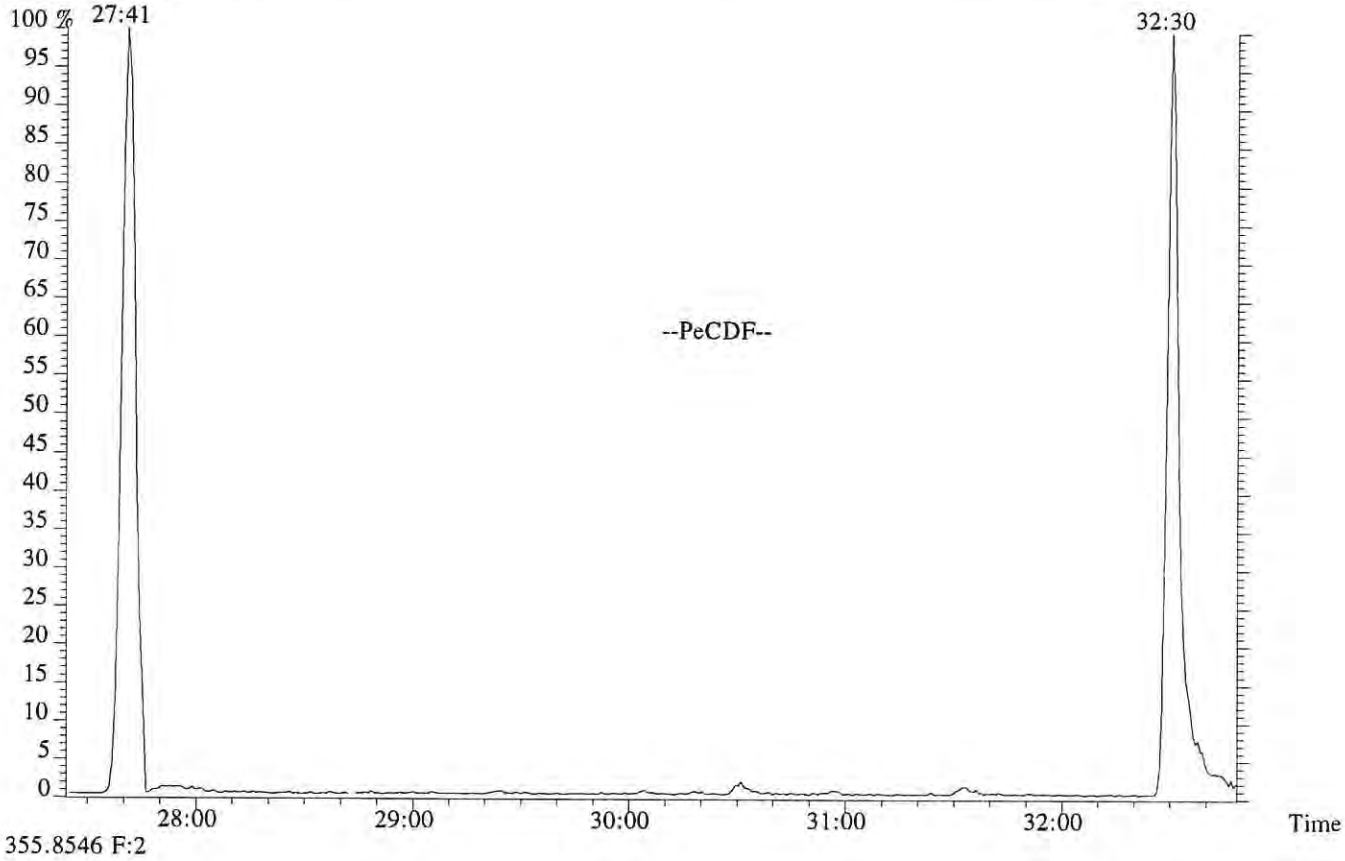
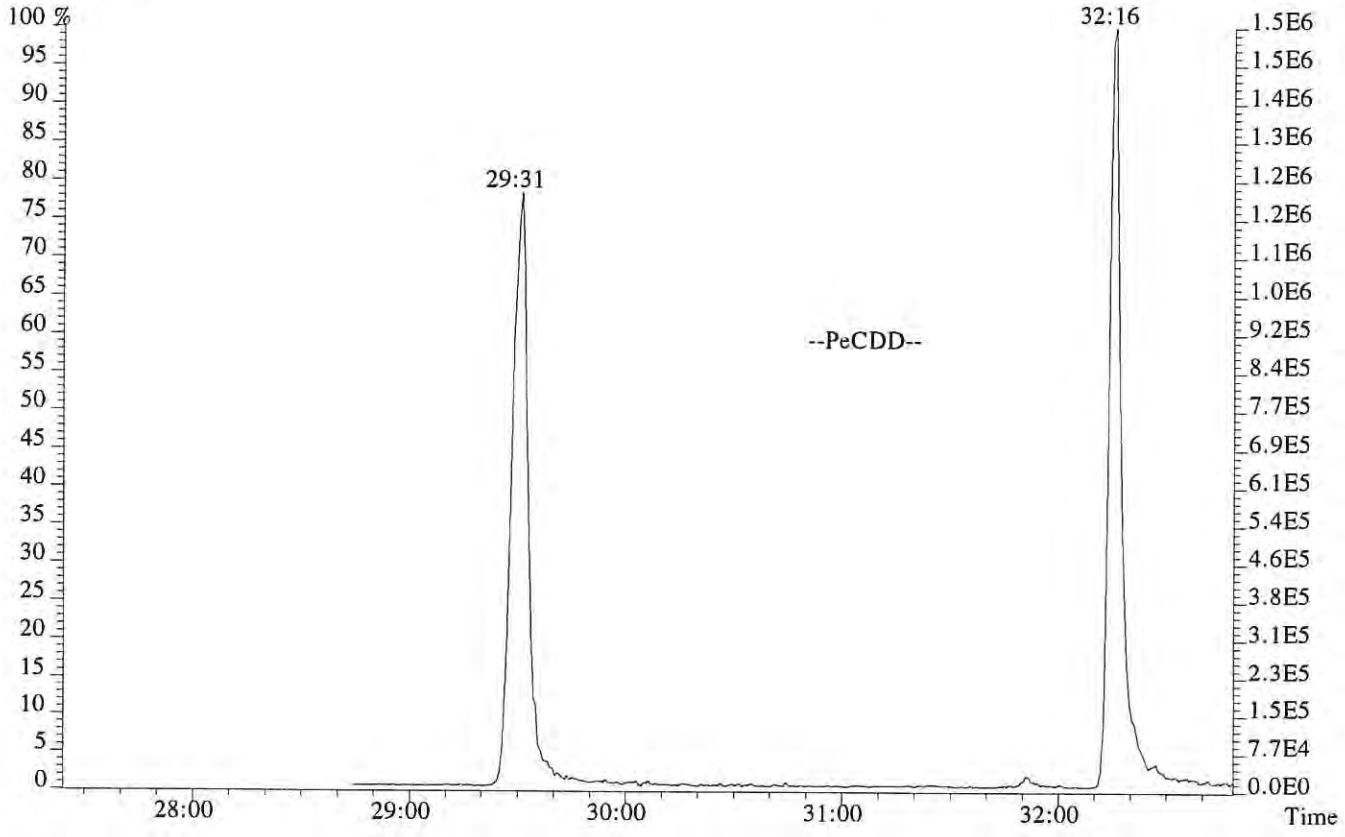
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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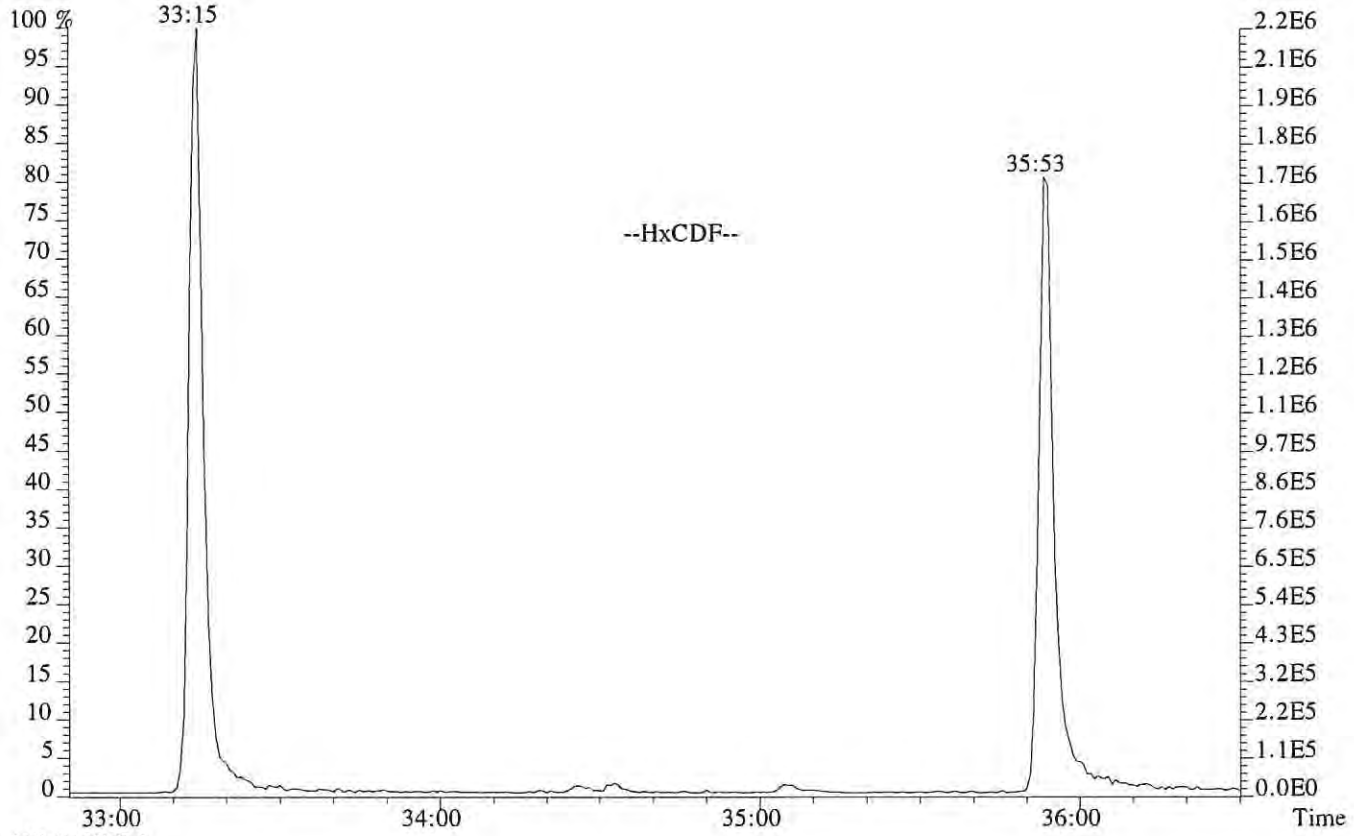
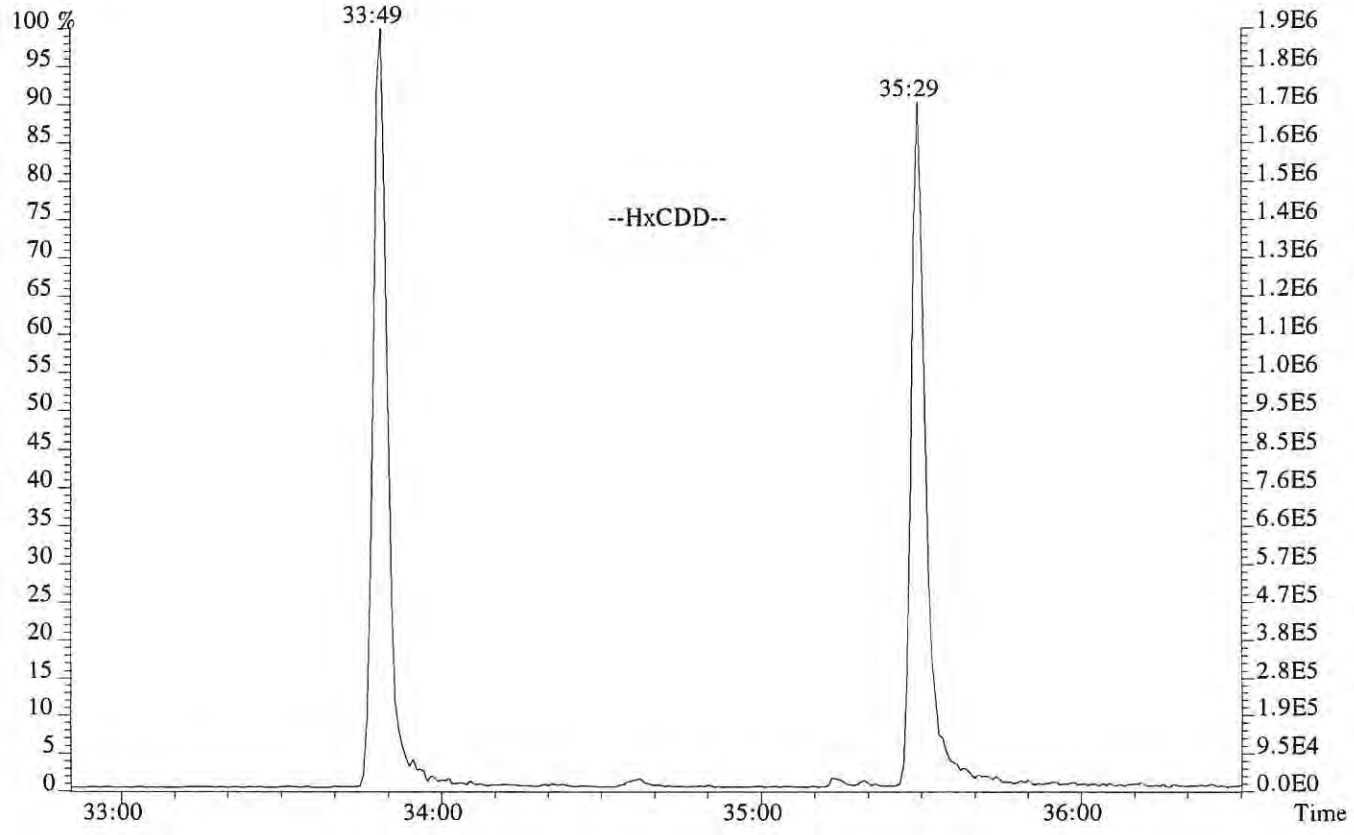
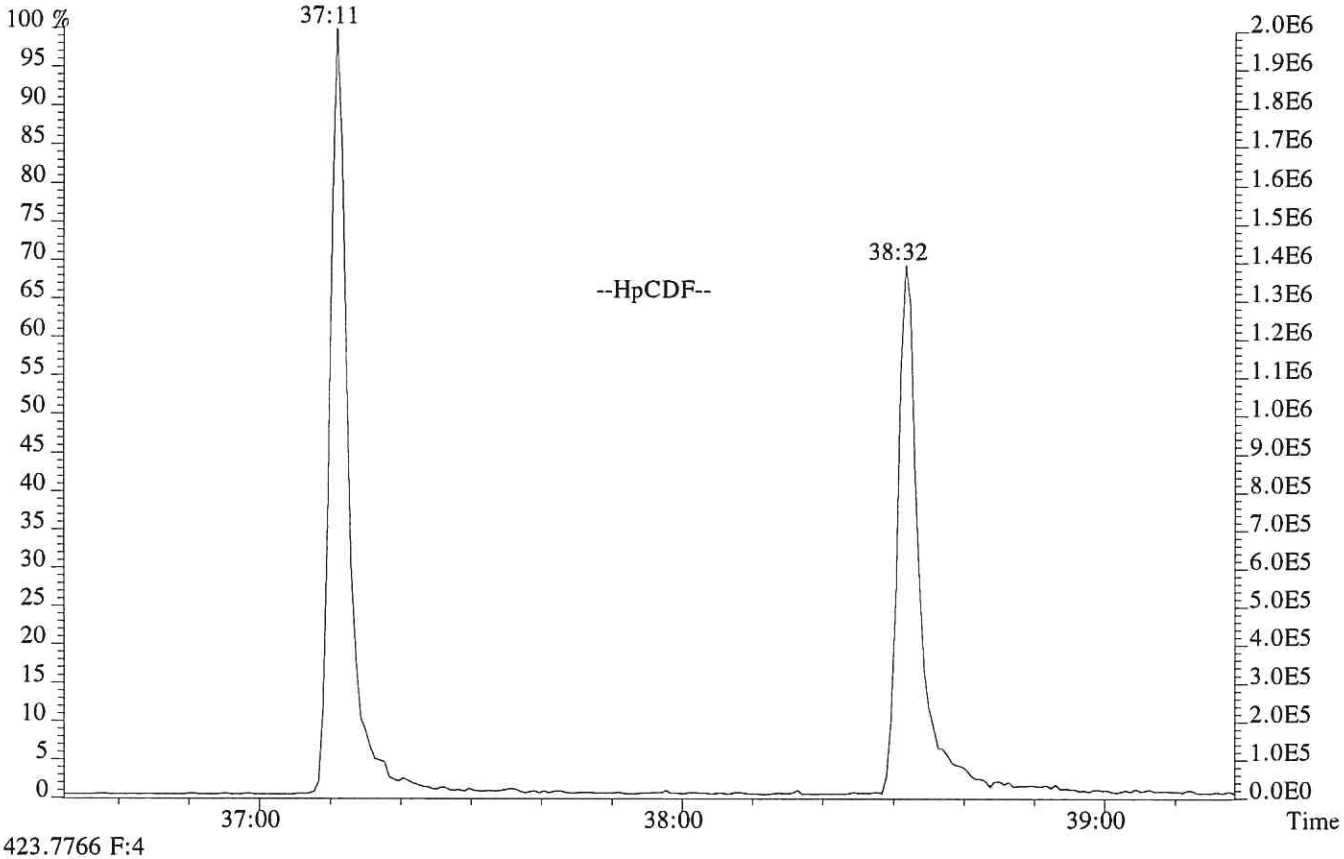


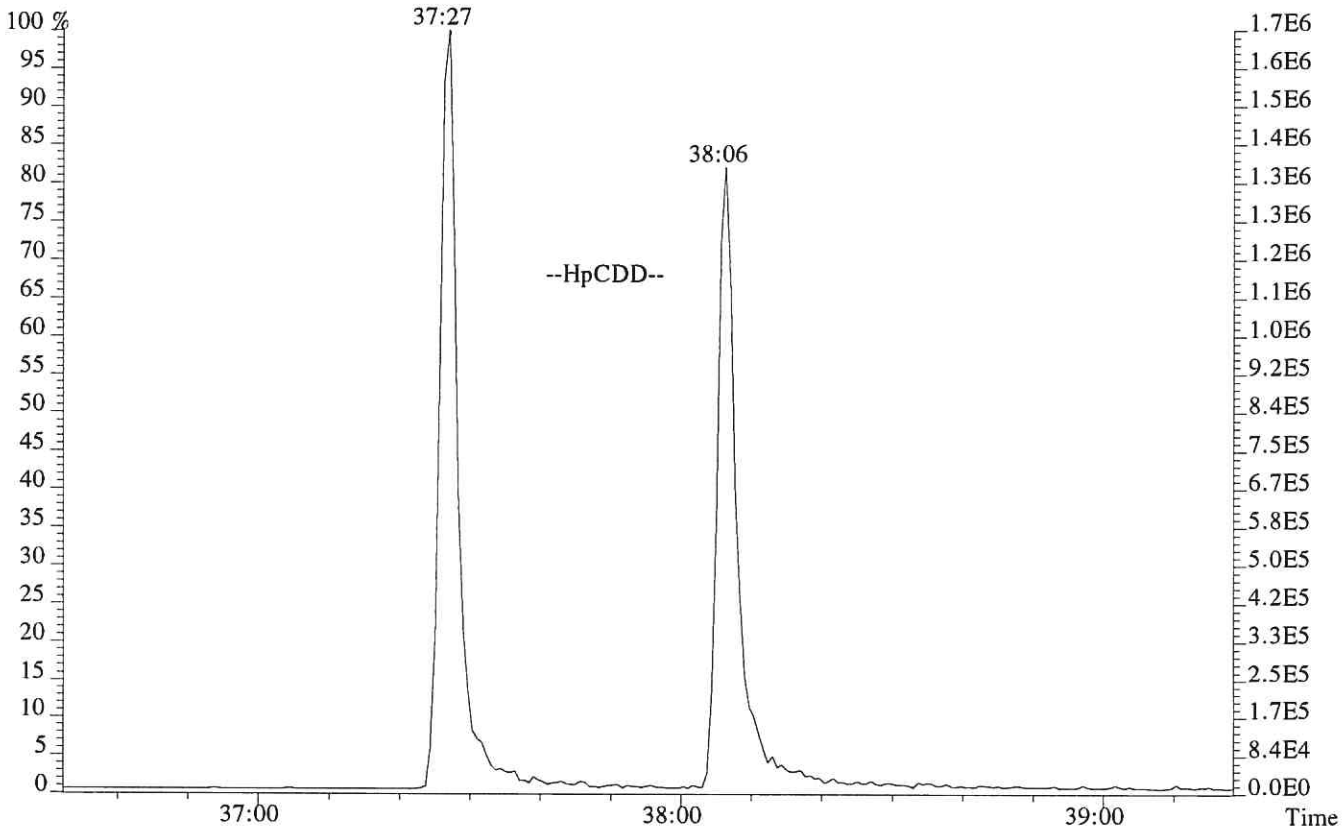
389.8157 F:3



File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518924 Analysis Date: 19-NOV-18 Time: 20:31:34

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.2	7.8 - 12.9	-8.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-2.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	53	41 - 61	5.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	49	43 - 58	-1.3
OCDD	M+2/M+4	0.89	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.6	8.4 - 12.0	-4.1
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	49	41 - 60	-1.5
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-1.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	49	45 - 56	-2.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	50	43 - 58	-0.3
OCDF	M+2/M+4	0.89	0.76-1.02	95	63 - 159	-5.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518924 Analysis Date: 19-NOV-18 Time: 20:31:34

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	103	82 - 121	3.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	109	62 - 160	9.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	90	85 - 117	-9.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	99	85 - 118	-1.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	101	72 - 138	1.3
13C-OCDD	M+2/M+4	0.88	0.76-1.02	236	96 - 415	18.1
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	89	71 - 140	-11.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	99	76 - 130	-1.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	101	77 - 130	0.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	79	76 - 131	-20.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	70 - 143	-13.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	87	74 - 135	-13.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	73 - 137	-9.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	92	78 - 129	-8.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	95	77 - 129	-5.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518924 Samp: 1 Inj: 1 Acquired: 19-NOV-18 20:31:34
Processed: 20-NOV-18 10:30:23 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:26	1.015e+04	1.339e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	8.557e+04	5.503e+04	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:32	8.074e+04	5.297e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:26	6.895e+04	5.729e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:33	8.078e+04	6.644e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:05	7.403e+04	6.075e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:52	6.280e+04	5.062e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	6.485e+04	6.448e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	5.322e+04	5.160e+04	1.03	yes	no	1.258
10	Unk	OCDF	40:48	9.027e+04	1.010e+05	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:28	8.166e+03	1.026e+04	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:51	5.843e+04	3.763e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	5.141e+04	4.085e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	5.804e+04	4.597e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:34	5.981e+04	4.716e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	4.760e+04	4.699e+04	1.01	yes	no	1.025
17	Unk	OCDD	40:38	7.836e+04	8.783e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:24	1.144e+05	1.463e+05	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:30	1.725e+05	1.094e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:31	1.735e+05	1.105e+05	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	7.245e+04	1.389e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:32	8.940e+04	1.720e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:05	8.365e+04	1.603e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	6.921e+04	1.338e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:11	5.965e+04	1.318e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	5.144e+04	1.158e+05	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:27	8.265e+04	1.027e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	1.259e+05	8.047e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	1.006e+05	7.960e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:19	1.131e+05	8.935e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:06	9.685e+04	9.027e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:37	1.388e+05	1.576e+05	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:43	8.543e+04	1.085e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	1.199e+05	9.557e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:28	1.959e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518924 Samp: 1 Inj: 1 Acquired: 19-NOV-18 20:31:34
Processed: 20-NOV-18 10:30:23 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+06	5.56e+02	2.4e+03	1.75e+06	1.38e+03	1.3e+03
2	1,2,3,7,8-PeCDF	1.36e+07	9.08e+02	1.5e+04	8.69e+06	1.27e+03	6.9e+03
3	2,3,4,7,8-PeCDF	1.37e+07	9.08e+02	1.5e+04	9.09e+06	1.27e+03	7.2e+03
4	1,2,3,4,7,8-HxCDF	1.41e+07	4.12e+02	3.4e+04	1.16e+07	6.88e+02	1.7e+04
5	1,2,3,6,7,8-HxCDF	1.51e+07	4.12e+02	3.7e+04	1.25e+07	6.88e+02	1.8e+04
6	2,3,4,6,7,8-HxCDF	1.44e+07	4.12e+02	3.5e+04	1.20e+07	6.88e+02	1.7e+04
7	1,2,3,7,8,9-HxCDF	1.13e+07	4.12e+02	2.7e+04	9.07e+06	6.88e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	1.29e+07	7.76e+03	1.7e+03	1.27e+07	5.21e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.00e+07	7.76e+03	1.3e+03	9.84e+06	5.21e+03	1.9e+03
10	OCDF	1.51e+07	5.20e+02	2.9e+04	1.69e+07	6.88e+02	2.5e+04
11	2,3,7,8-TCDD	1.15e+06	1.91e+03	6.0e+02	1.48e+06	1.28e+03	1.2e+03
12	1,2,3,7,8-PeCDD	9.93e+06	6.40e+02	1.6e+04	6.44e+06	3.28e+02	2.0e+04
13	1,2,3,4,7,8-HxCDD	1.11e+07	3.84e+02	2.9e+04	8.94e+06	4.52e+02	2.0e+04
14	1,2,3,6,7,8-HxCDD	1.06e+07	3.84e+02	2.8e+04	8.56e+06	4.52e+02	1.9e+04
15	1,2,3,7,8,9-HxCDD	1.09e+07	3.84e+02	2.8e+04	8.83e+06	4.52e+02	2.0e+04
16	1,2,3,4,6,7,8-HpCDD	9.53e+06	3.68e+02	2.6e+04	9.38e+06	4.32e+02	2.2e+04
17	OCDD	1.31e+07	1.40e+02	9.4e+04	1.47e+07	1.96e+02	7.5e+04
18	13C-2,3,7,8-TCDF	1.43e+07	4.98e+03	2.9e+03	1.82e+07	3.11e+03	5.8e+03
19	13C-1,2,3,7,8-PeCDF	2.69e+07	8.12e+02	3.3e+04	1.70e+07	1.51e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	2.98e+07	8.12e+02	3.7e+04	1.91e+07	1.51e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.44e+07	7.68e+02	1.9e+04	2.75e+07	1.57e+03	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	1.68e+07	7.68e+02	2.2e+04	3.21e+07	1.57e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.65e+07	7.68e+02	2.1e+04	3.11e+07	1.57e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.24e+07	7.68e+02	1.6e+04	2.37e+07	1.57e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.18e+07	7.43e+03	1.6e+03	2.59e+07	1.10e+04	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.66e+06	7.43e+03	1.3e+03	2.16e+07	1.10e+04	2.0e+03
27	13C-2,3,7,8-TCDD	1.17e+07	5.06e+03	2.3e+03	1.45e+07	2.58e+03	5.6e+03
28	13C-1,2,3,7,8-PeCDD	2.13e+07	8.68e+02	2.5e+04	1.35e+07	5.48e+02	2.5e+04
29	13C-1,2,3,4,7,8-HxCDD	2.17e+07	9.84e+02	2.2e+04	1.72e+07	7.00e+02	2.5e+04
30	13C-1,2,3,6,7,8-HxCDD	2.09e+07	9.84e+02	2.1e+04	1.67e+07	7.00e+02	2.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.90e+07	1.06e+03	1.8e+04	1.79e+07	5.28e+02	3.4e+04
32	13C-OCDD	2.36e+07	6.20e+02	3.8e+04	2.64e+07	3.40e+02	7.8e+04
33	13C-1,2,3,4-TCDD	1.18e+07	5.06e+03	2.3e+03	1.49e+07	2.58e+03	5.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.19e+07	9.84e+02	2.2e+04	1.75e+07	7.00e+02	2.5e+04
35	37Cl-2,3,7,8-TCDD	2.75e+06	1.50e+03	1.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.912e{+}03 + 1.280e{+}03) \times 100}{(1.167e{+}07 + 1.454e{+}07) \times (\quad) \times 1.085} =$$

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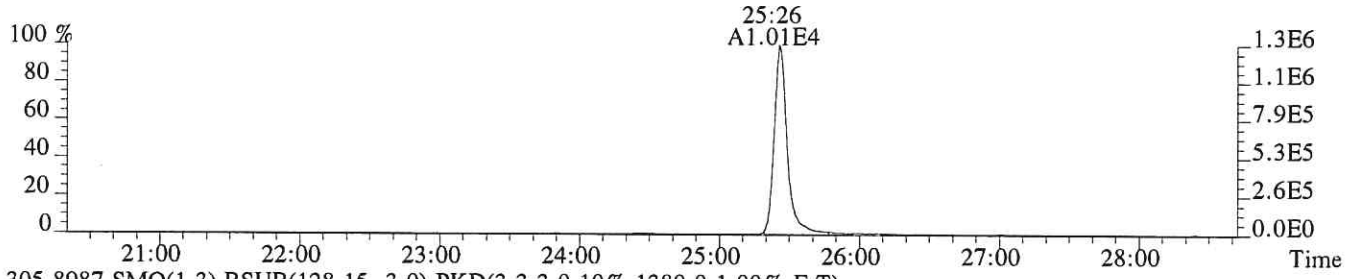
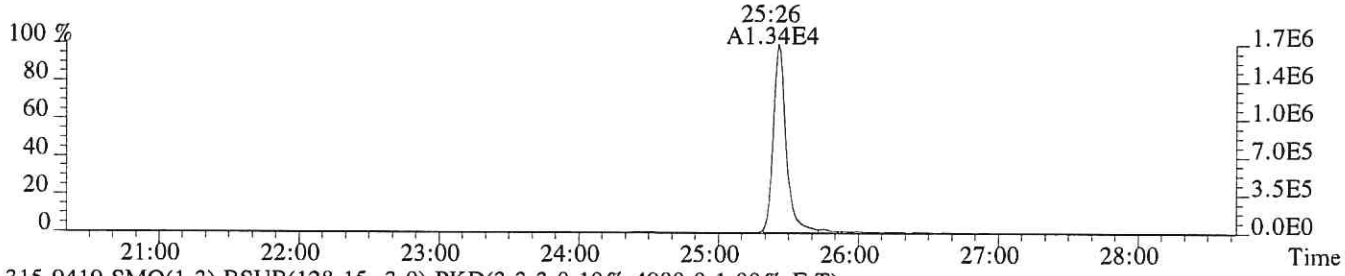
File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

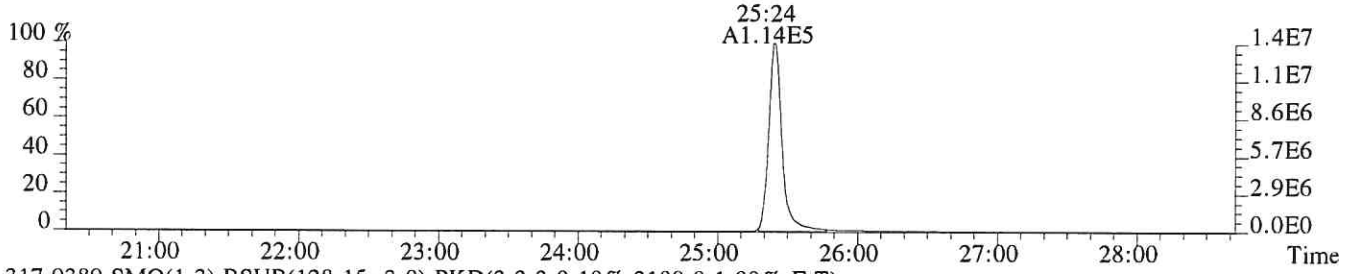
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



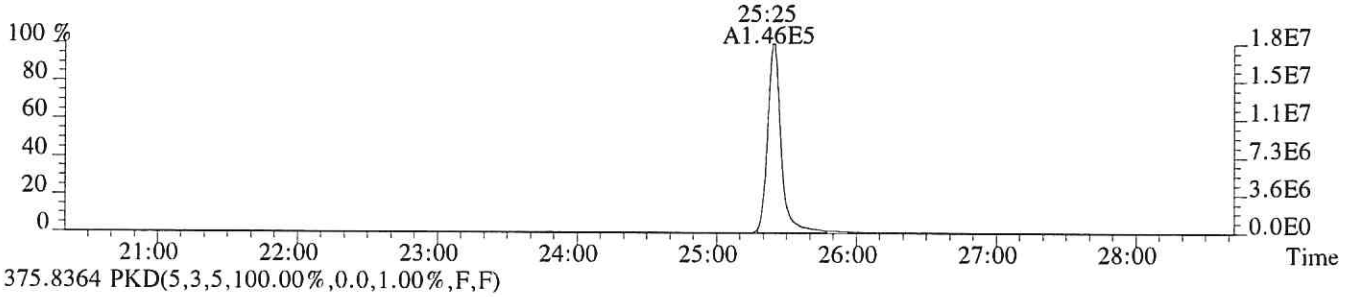
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



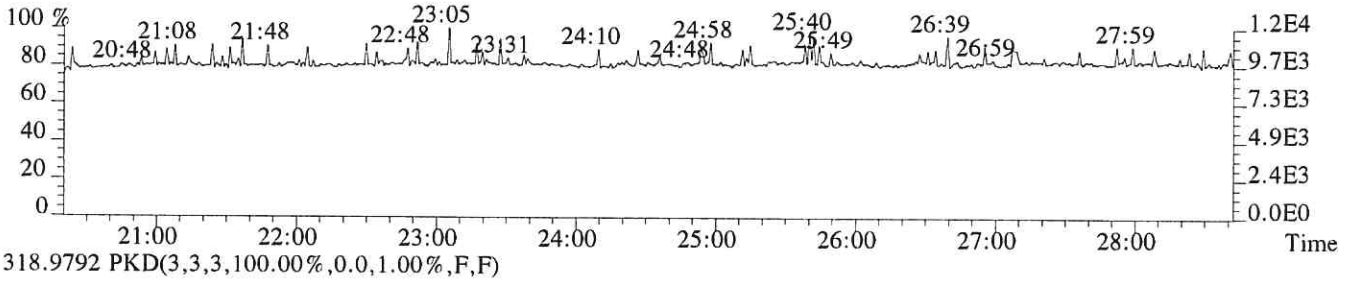
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4980.0,1.00%,F,T)



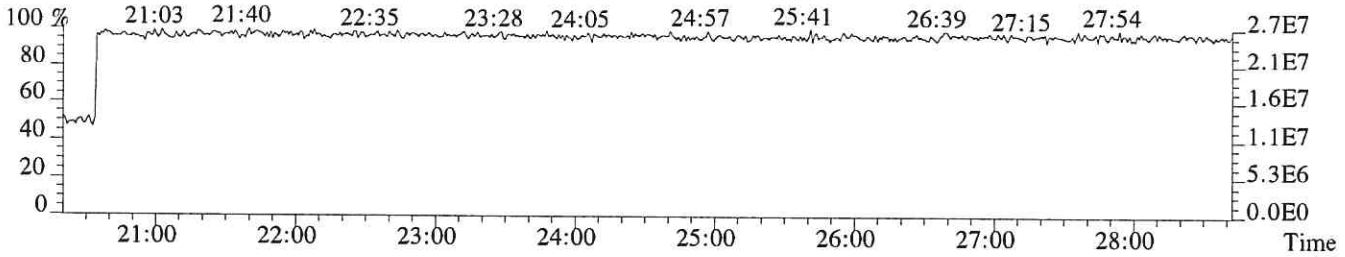
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3108.0,1.00%,F,T)



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

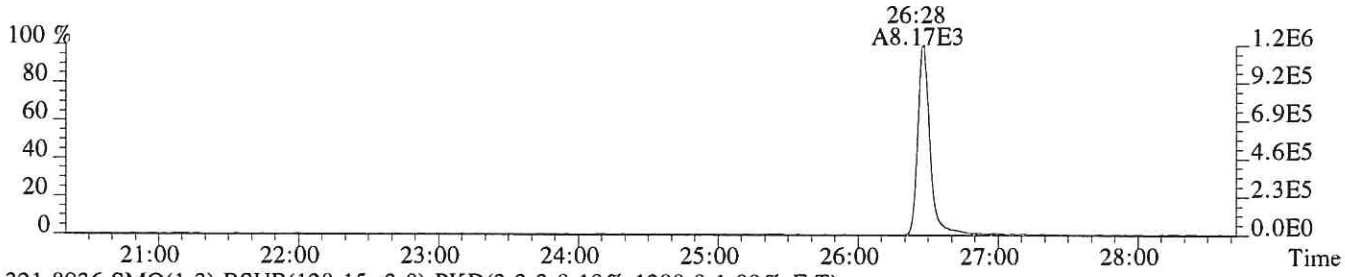


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

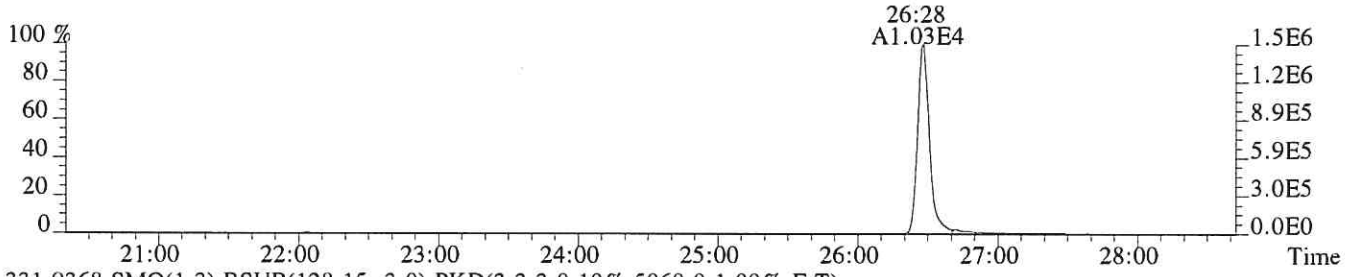


File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

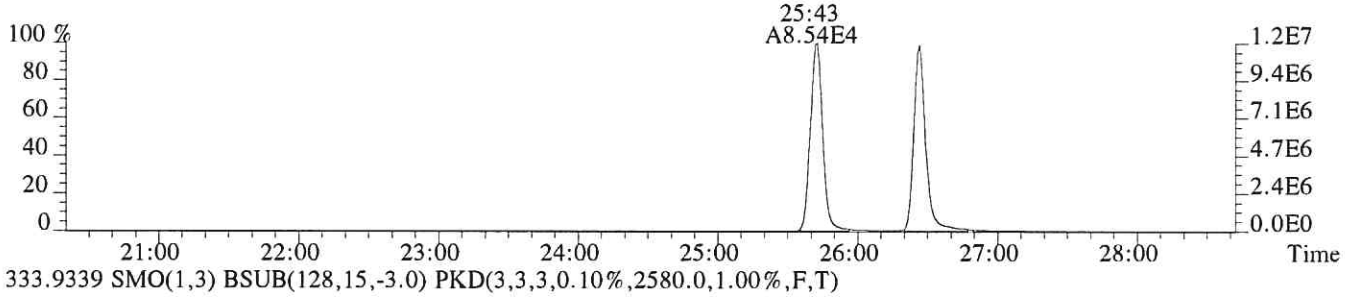
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



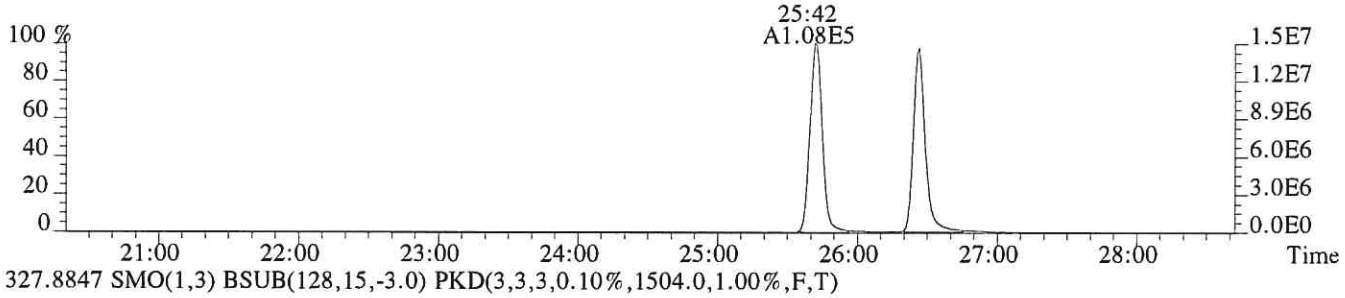
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



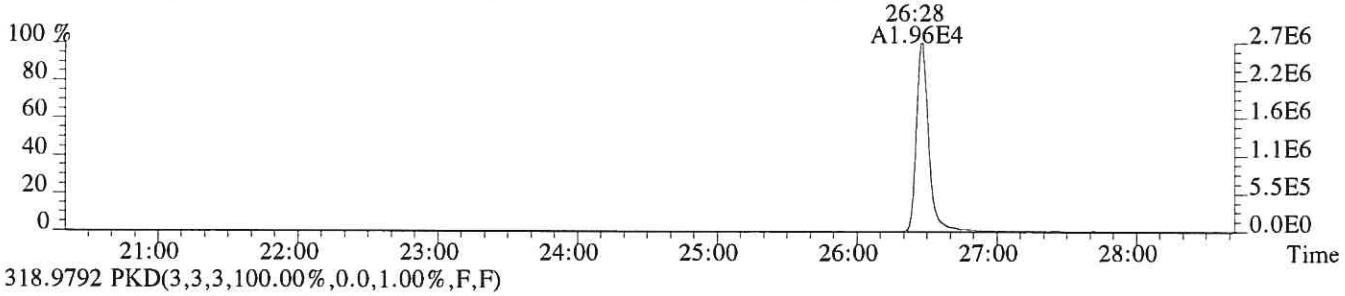
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5060.0,1.00%,F,T)



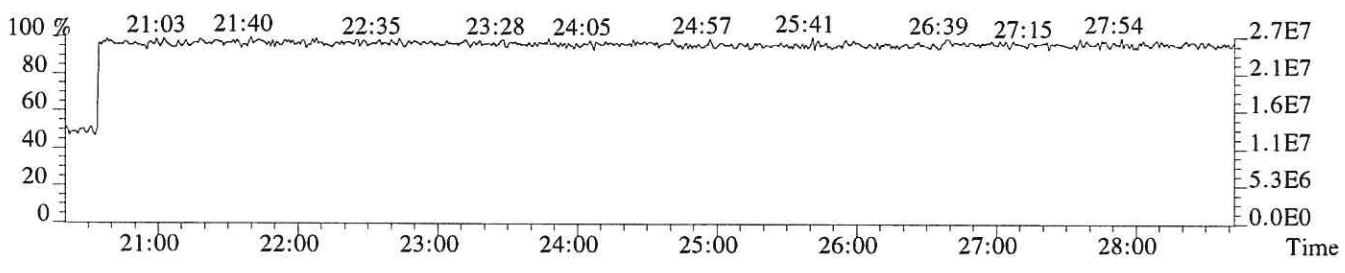
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



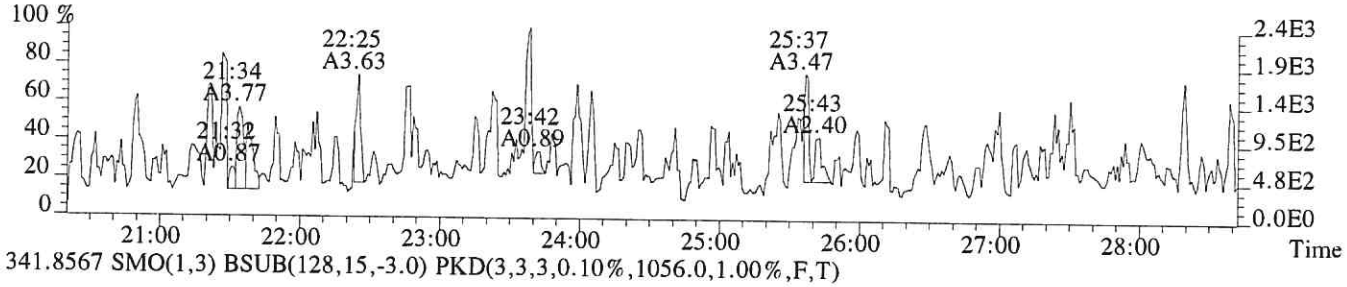
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



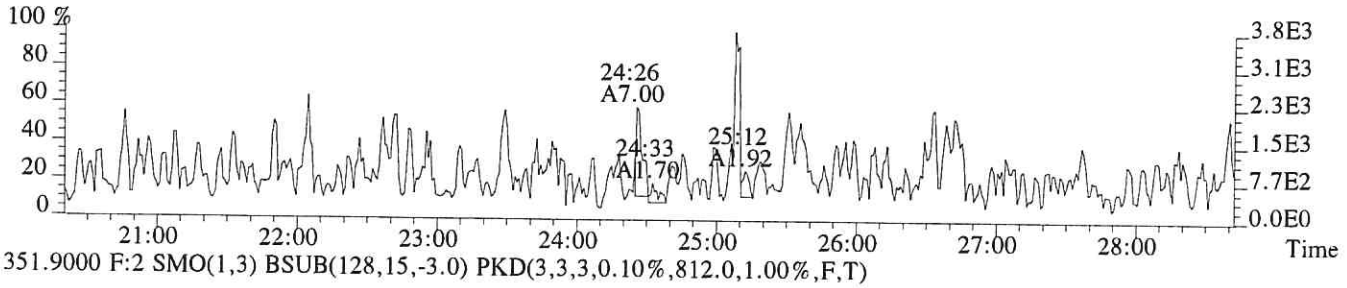
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



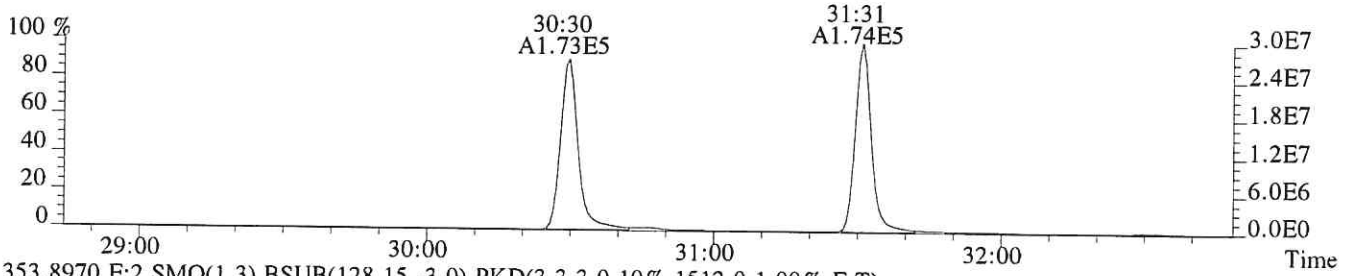
File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



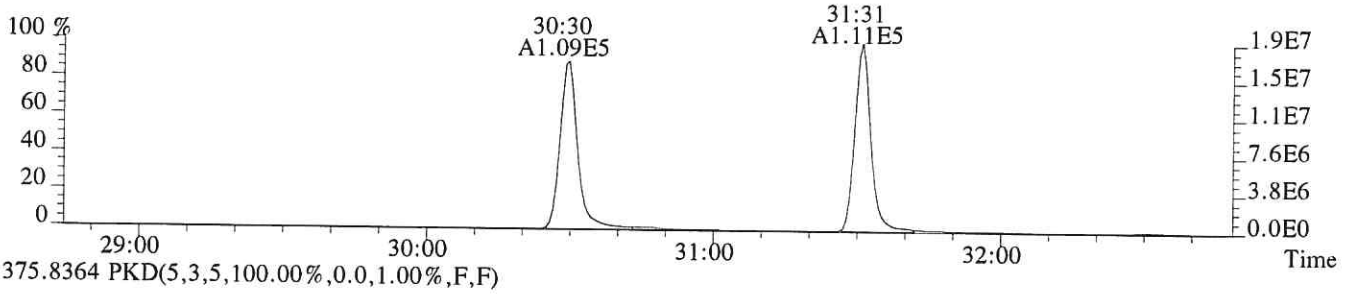
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



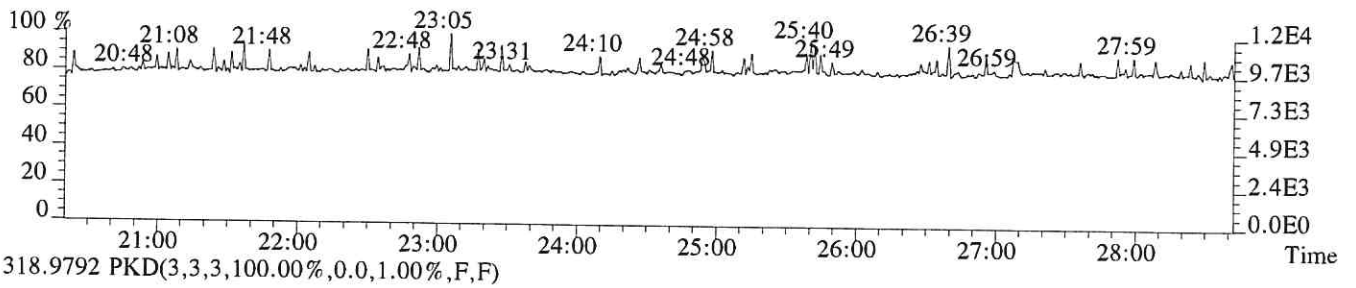
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



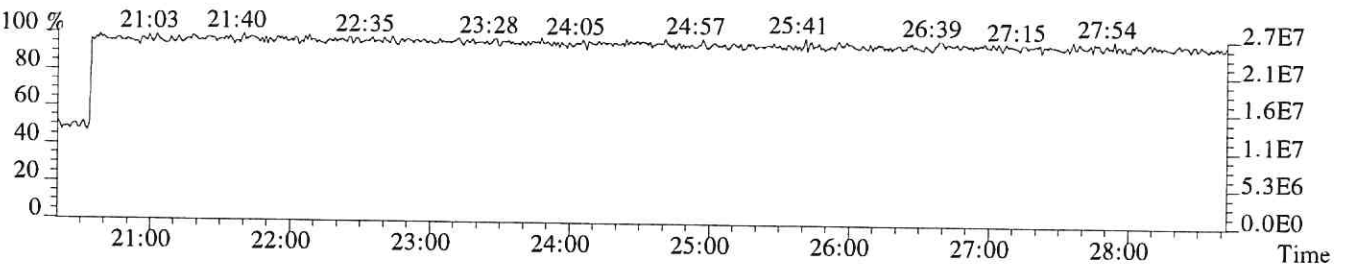
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



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

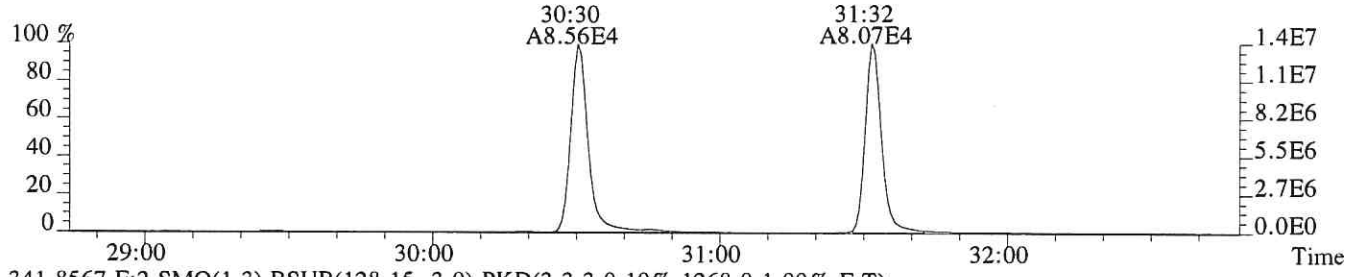


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

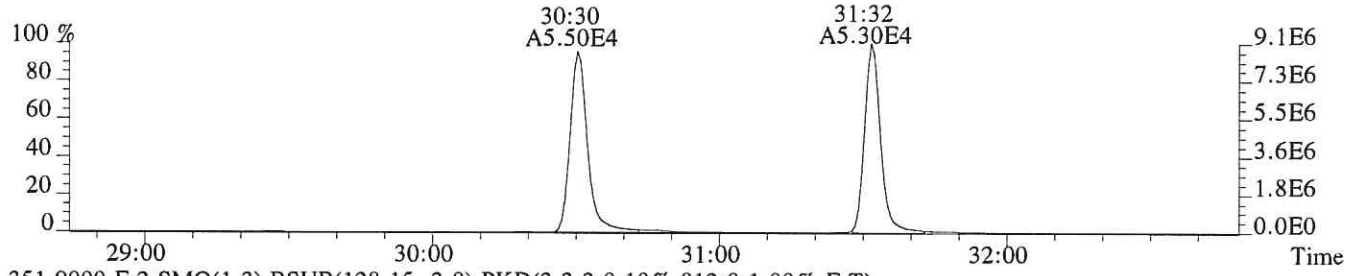


File:P518924 #1-367 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

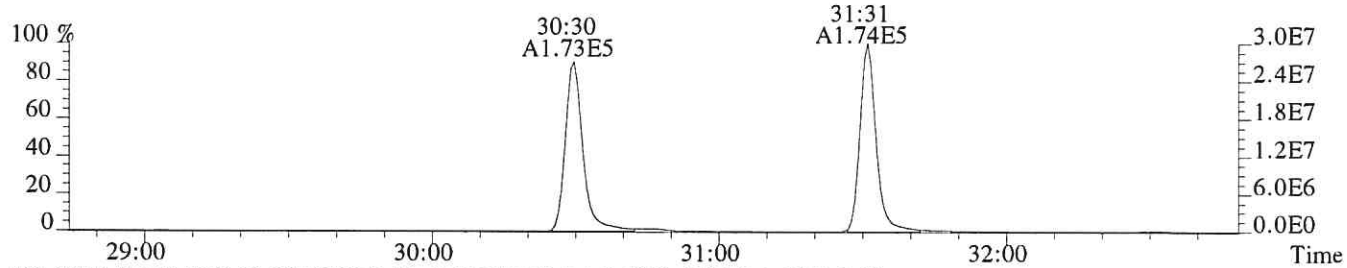
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



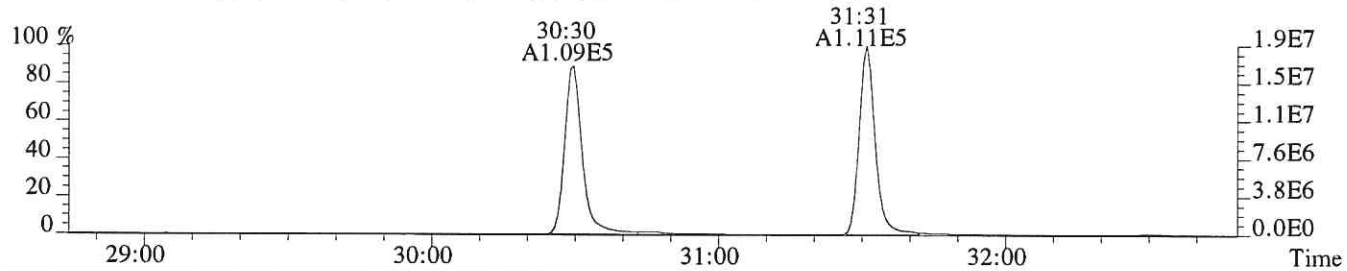
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



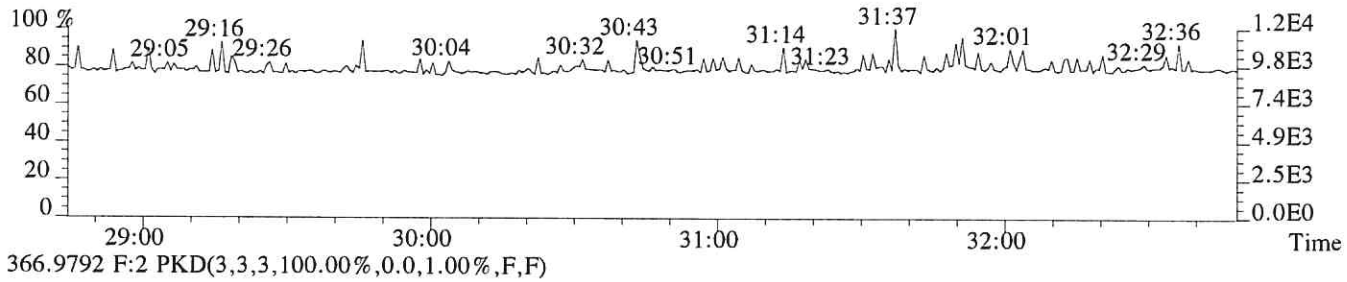
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



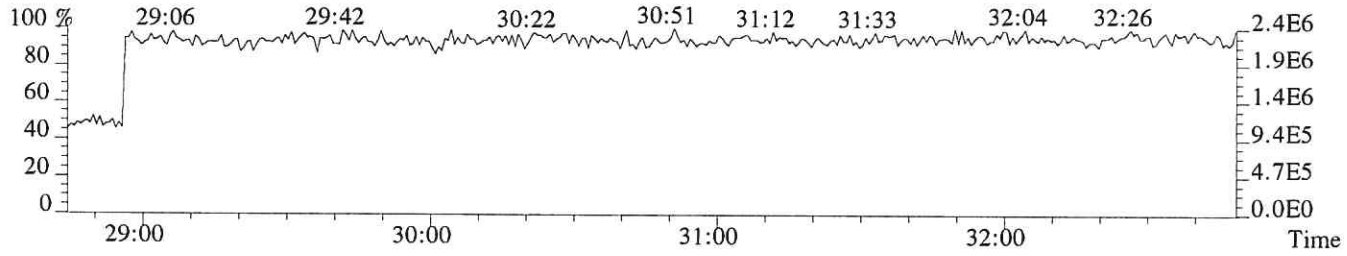
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



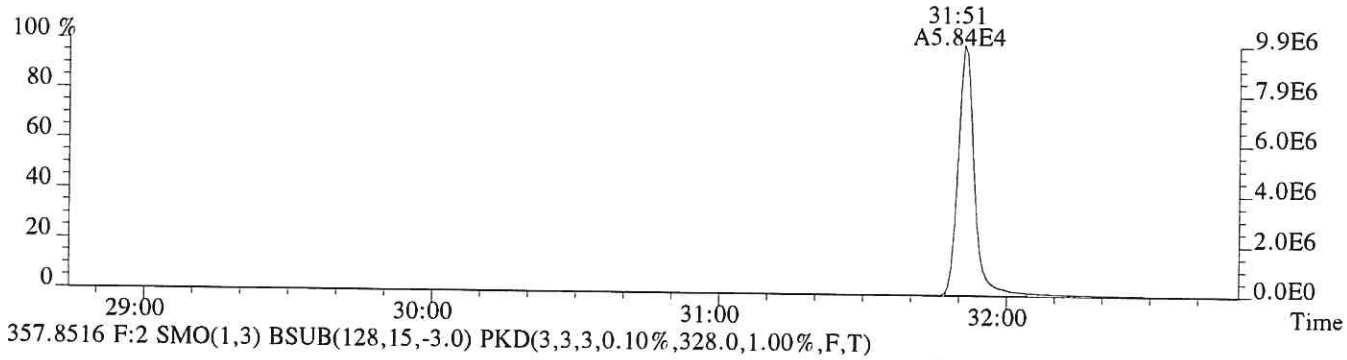
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



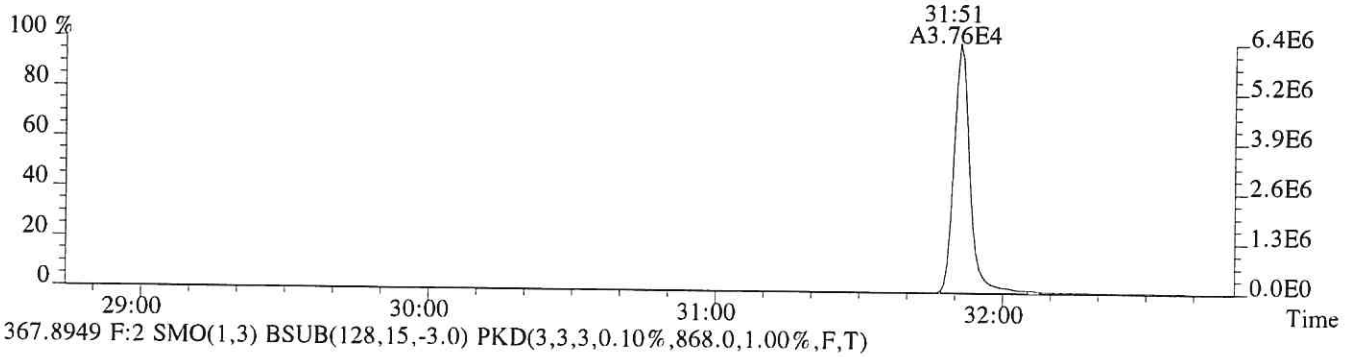
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



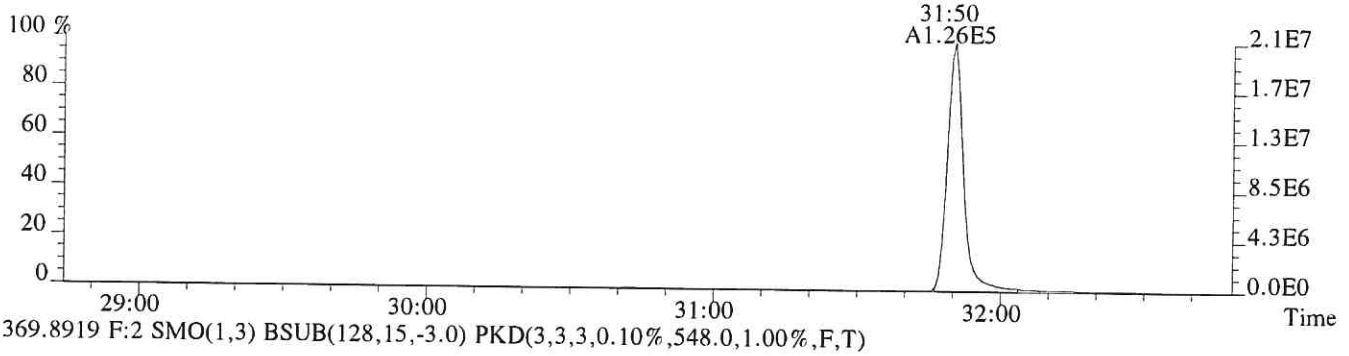
File:P518924 #1-367 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



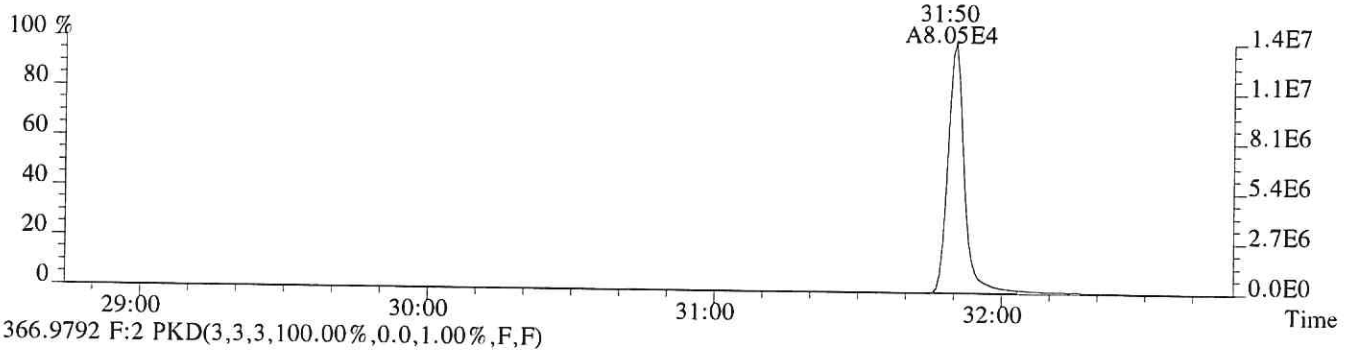
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



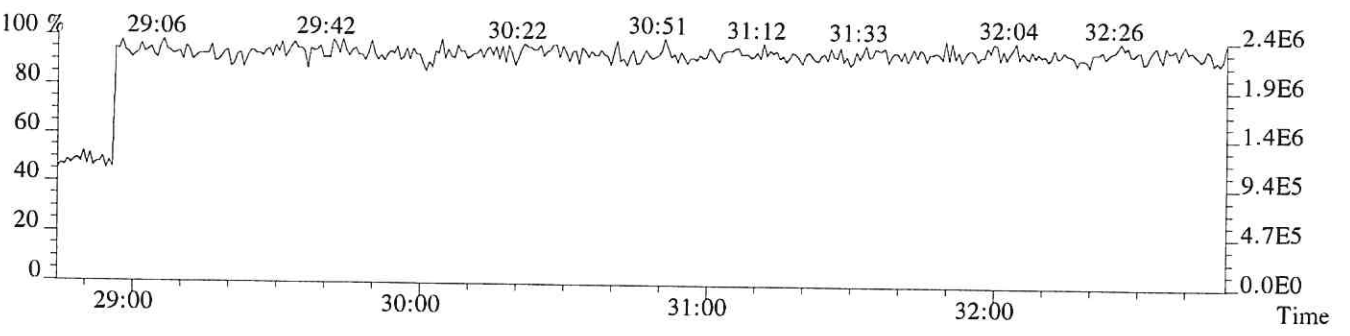
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)

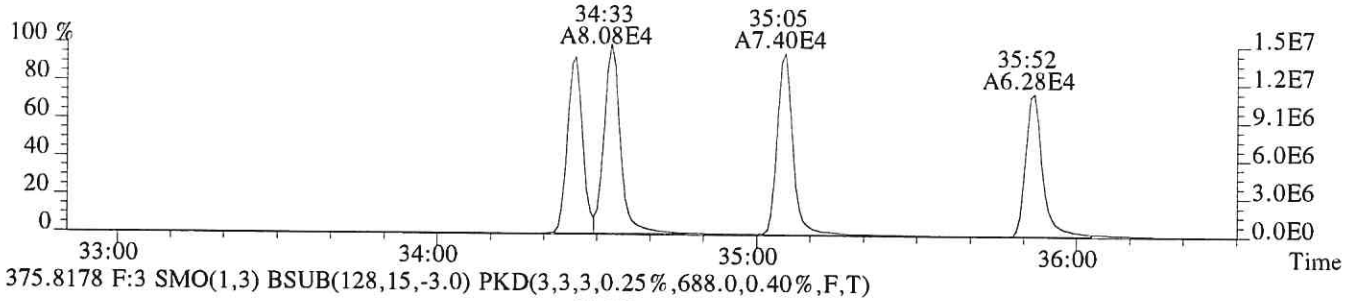


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

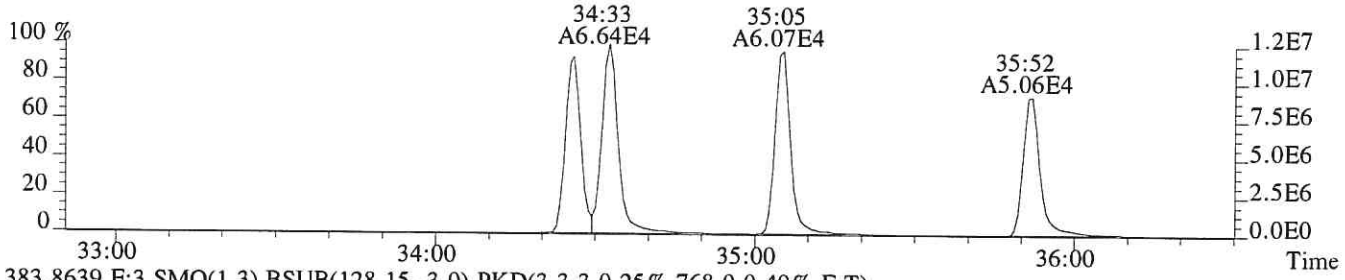


File:P518924 #1-330 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

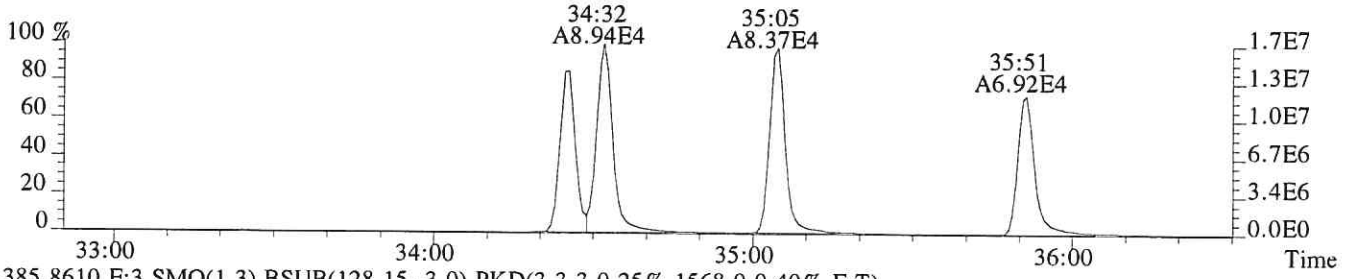
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



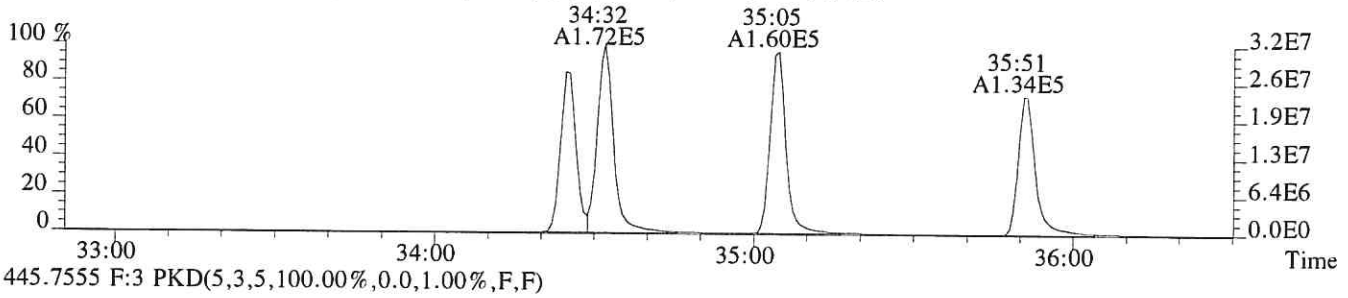
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



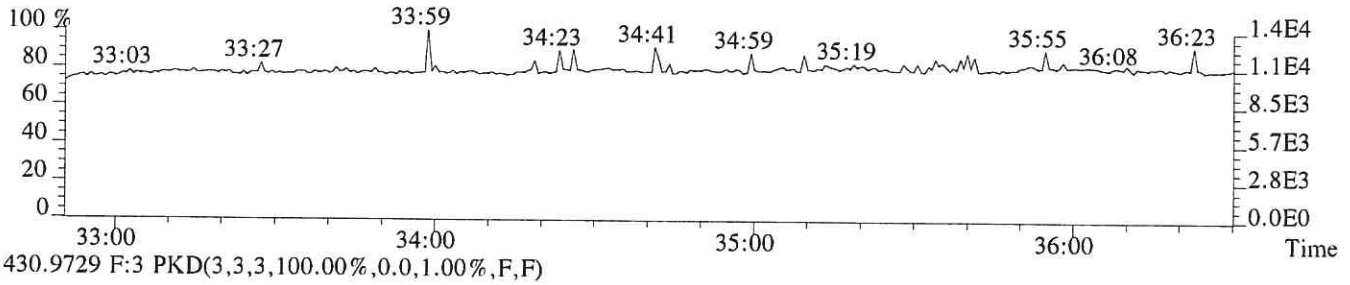
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



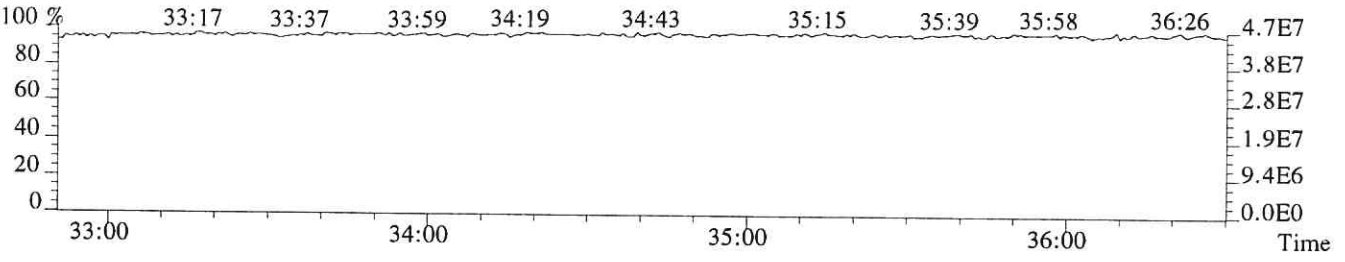
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



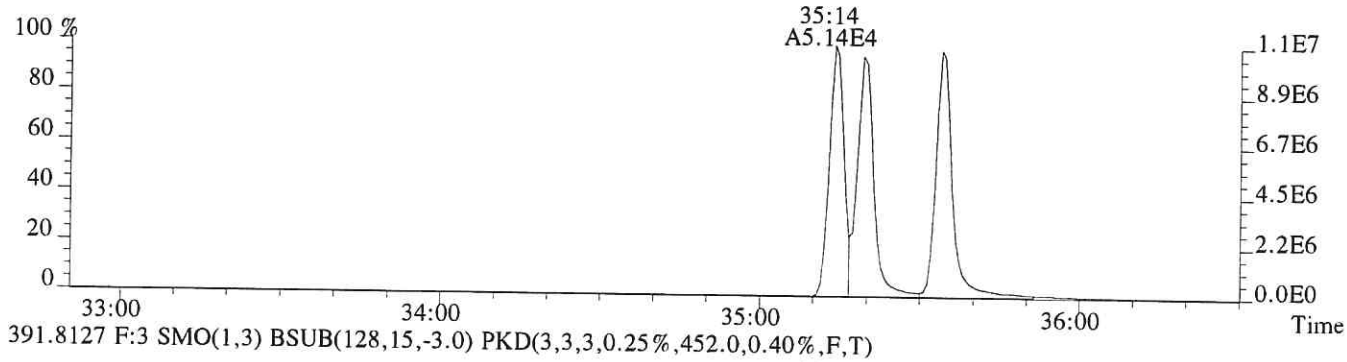
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



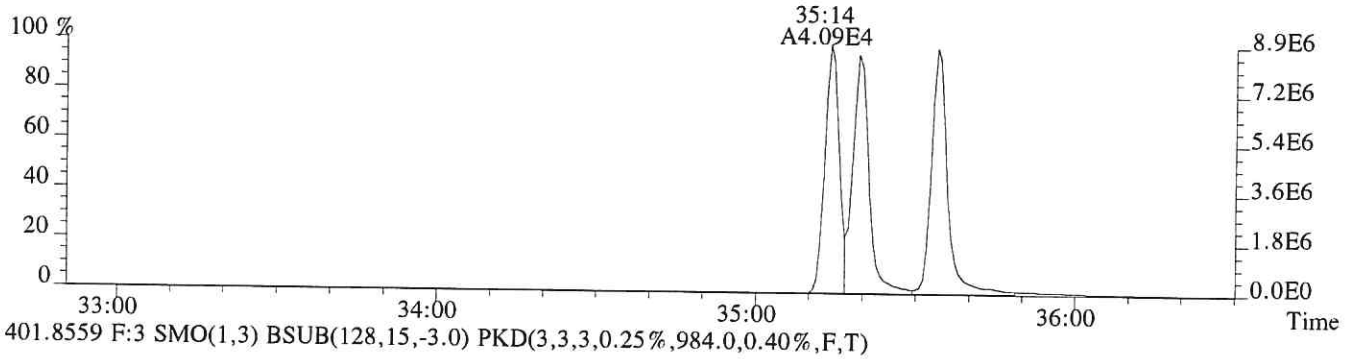
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



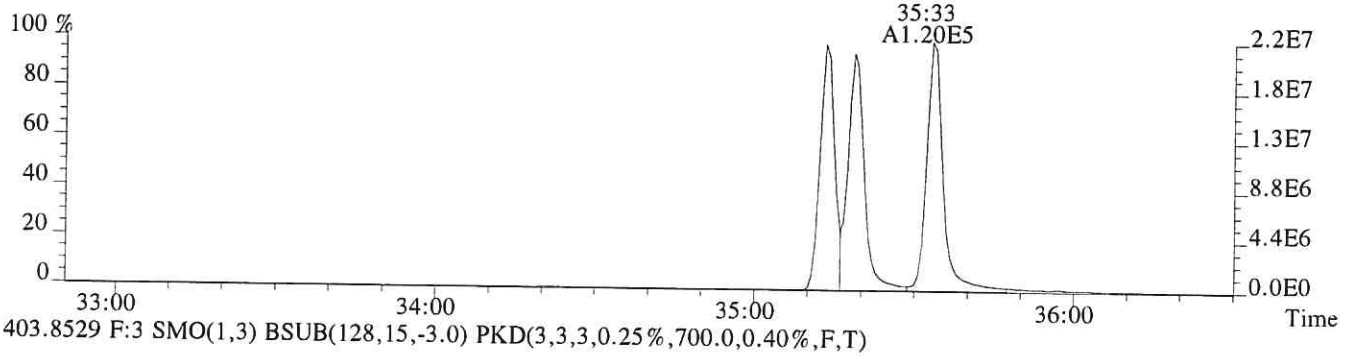
File:P518924 #1-330 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



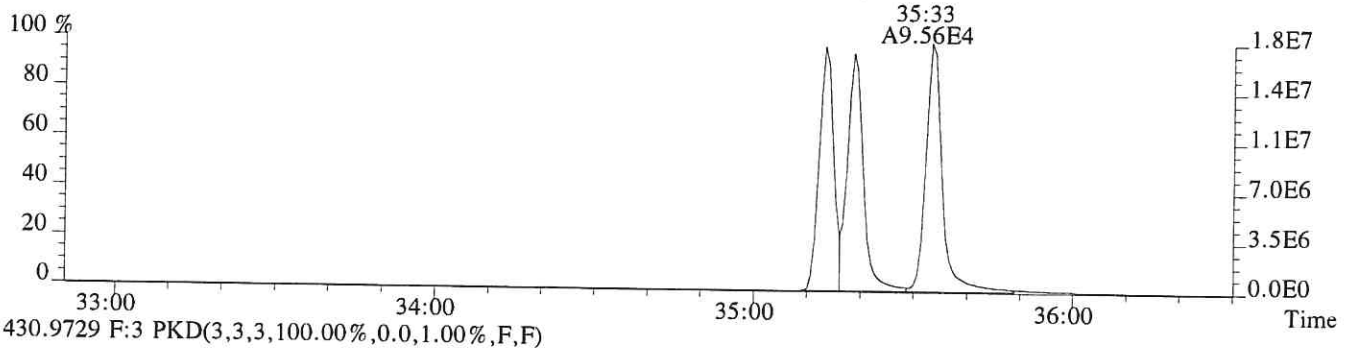
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



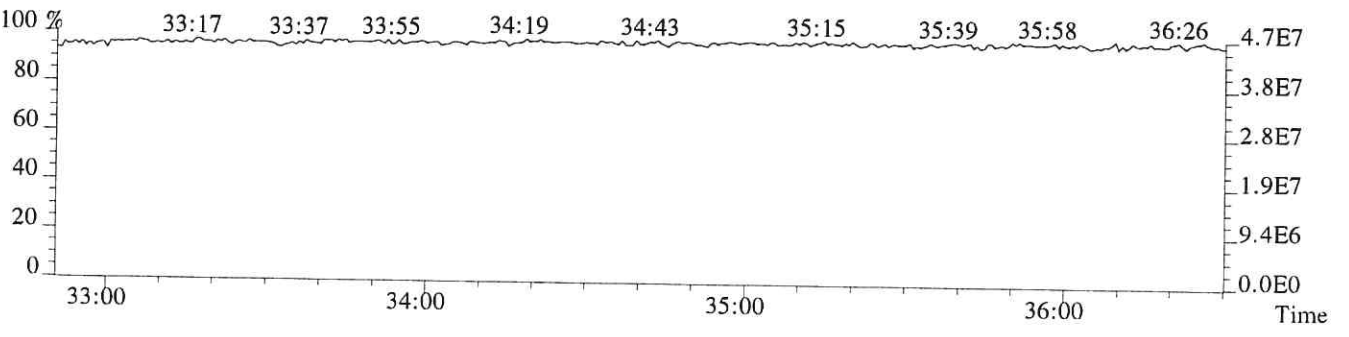
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

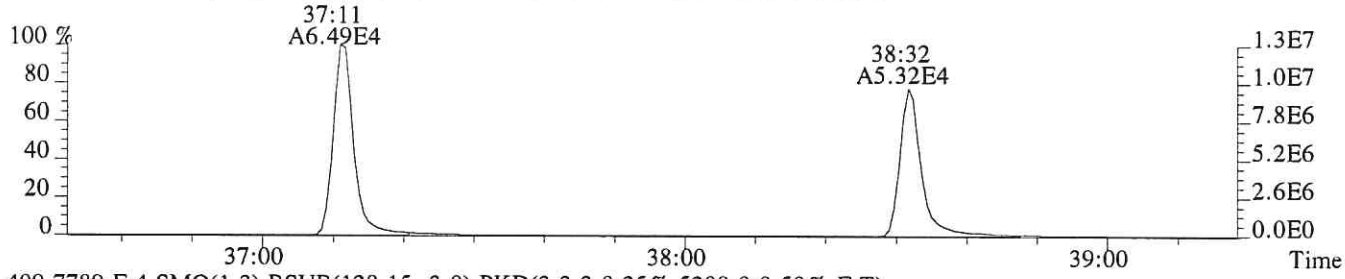


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

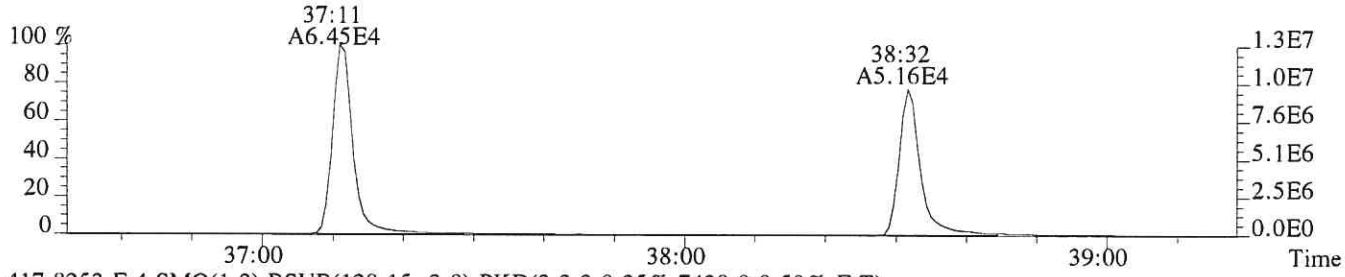


File:P518924 #1-250 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

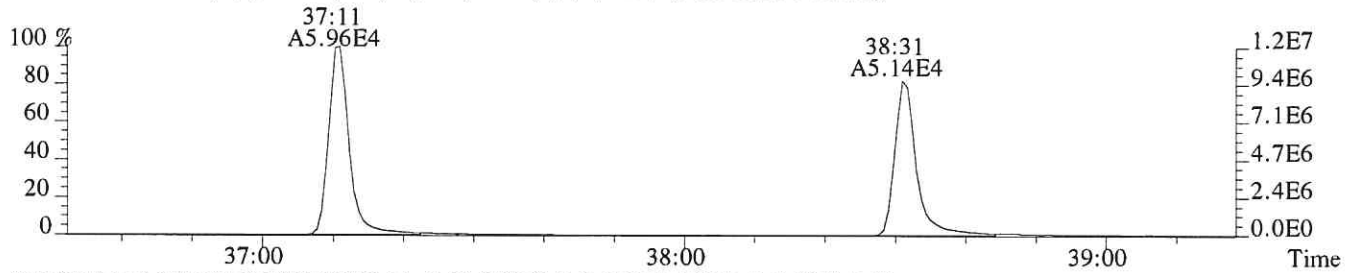
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7756.0,0.50%,F,T)



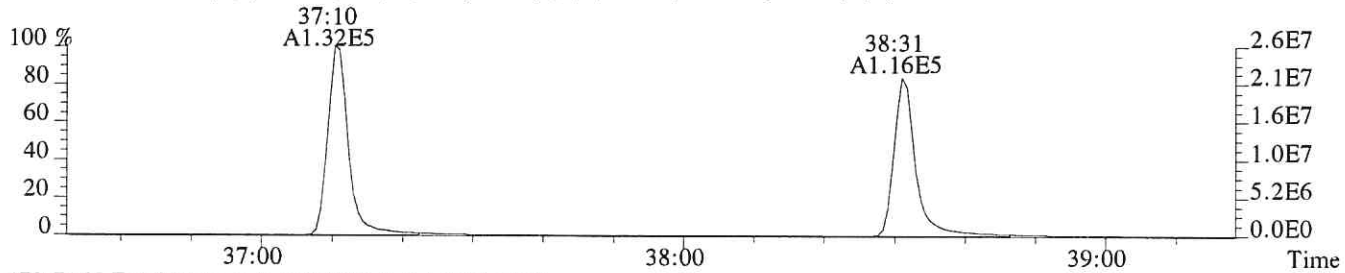
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5208.0,0.50%,F,T)



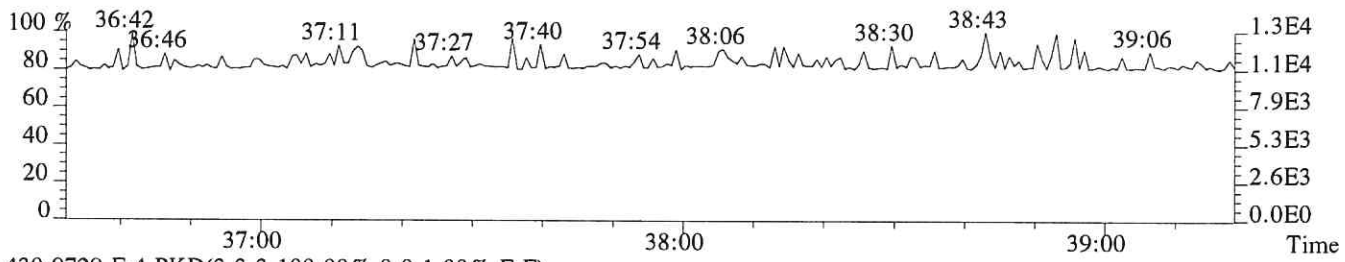
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7428.0,0.50%,F,T)



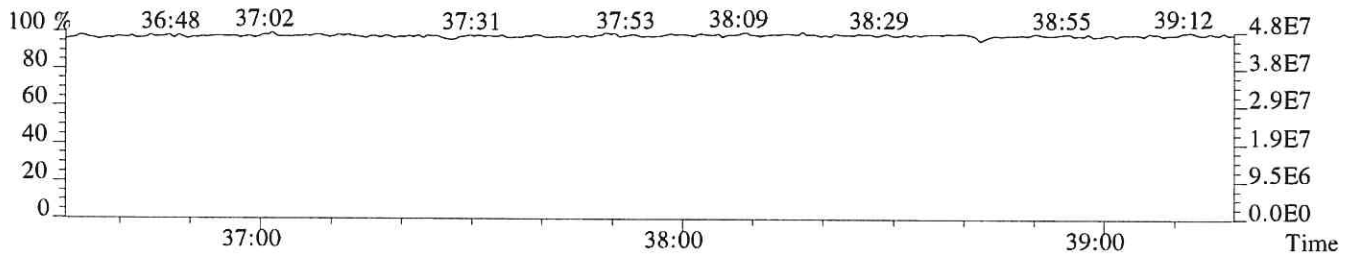
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10992.0,0.50%,F,T)



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

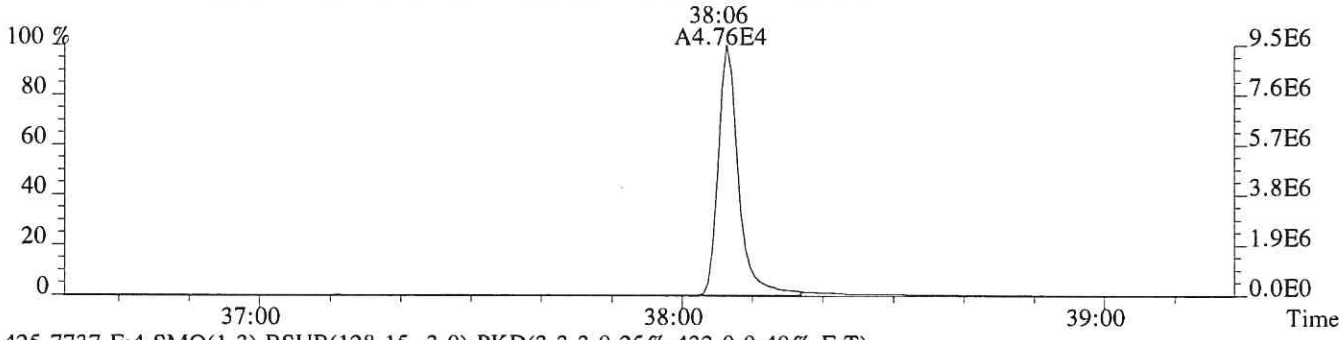


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

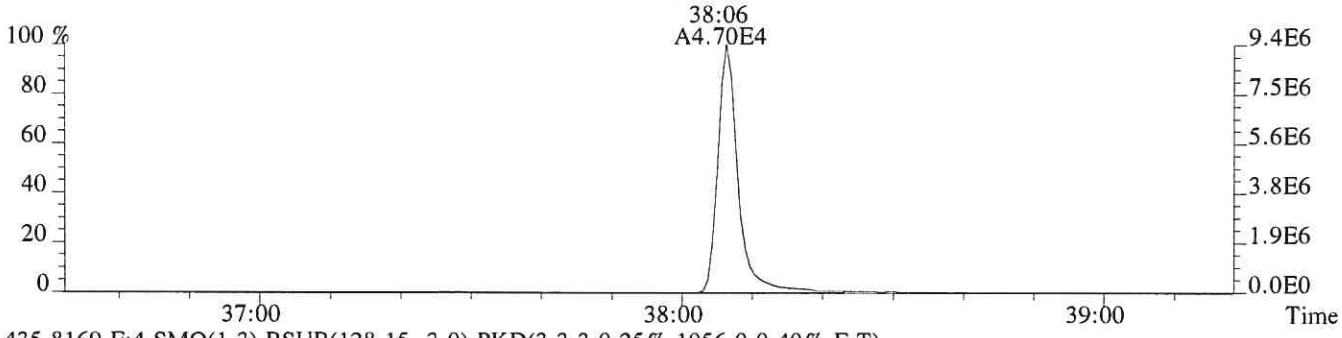


File:P518924 #1-250 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

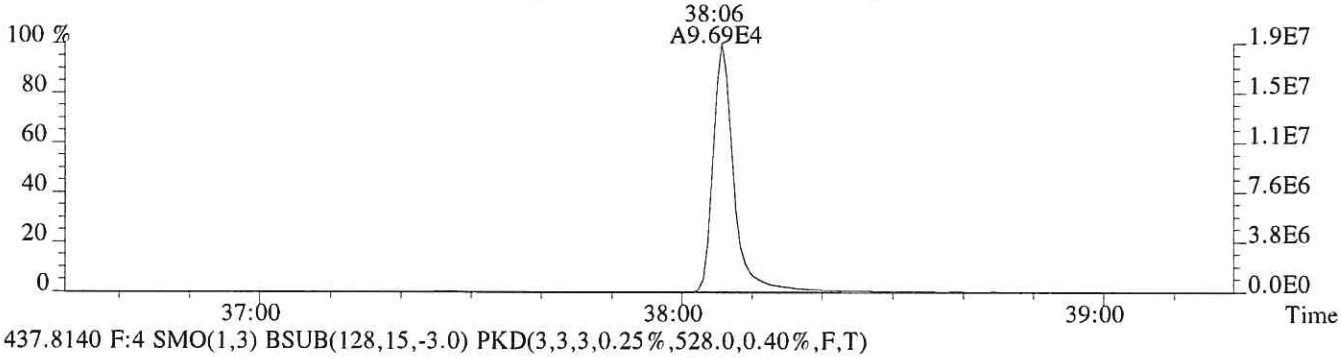
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



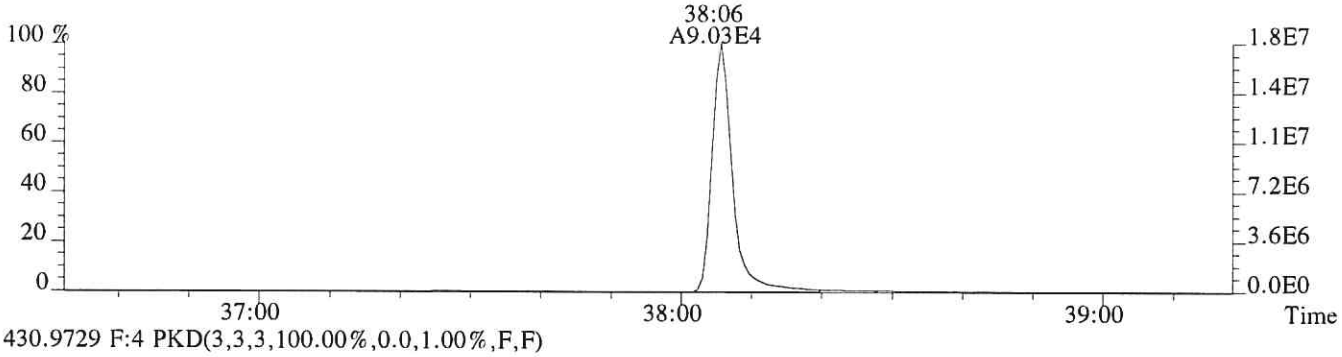
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



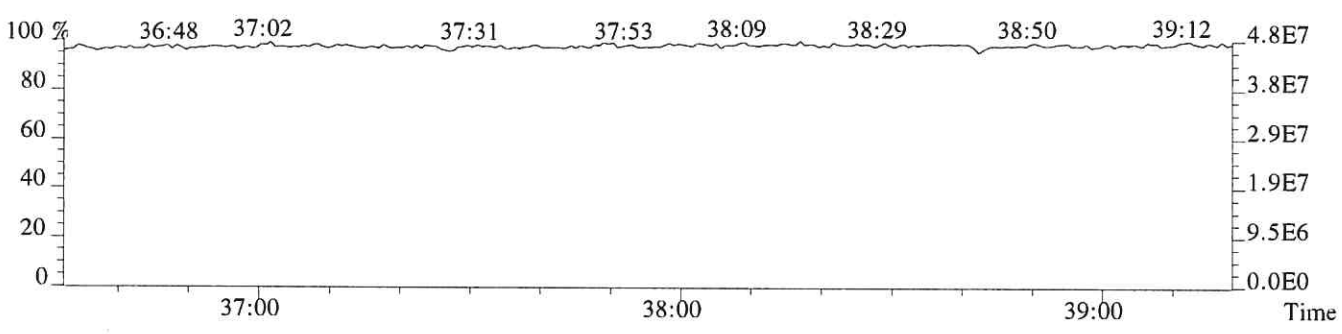
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)

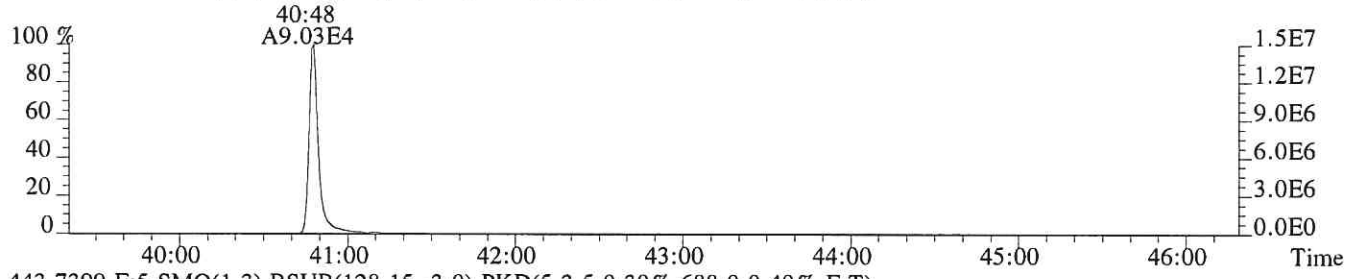


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

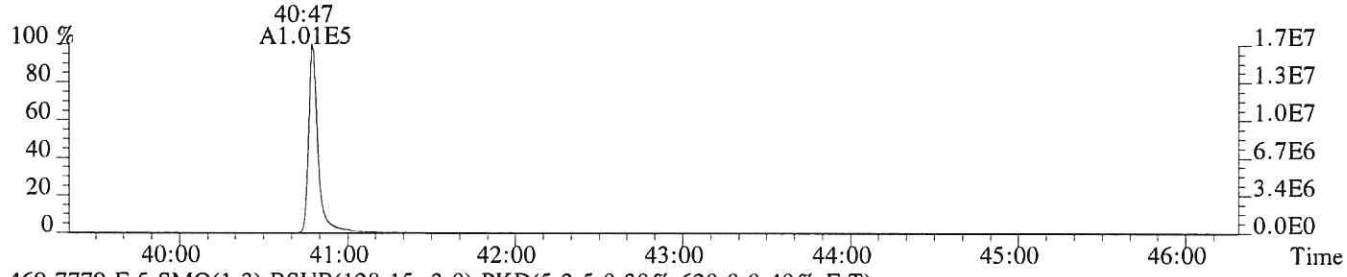


File:P518924 #1-628 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

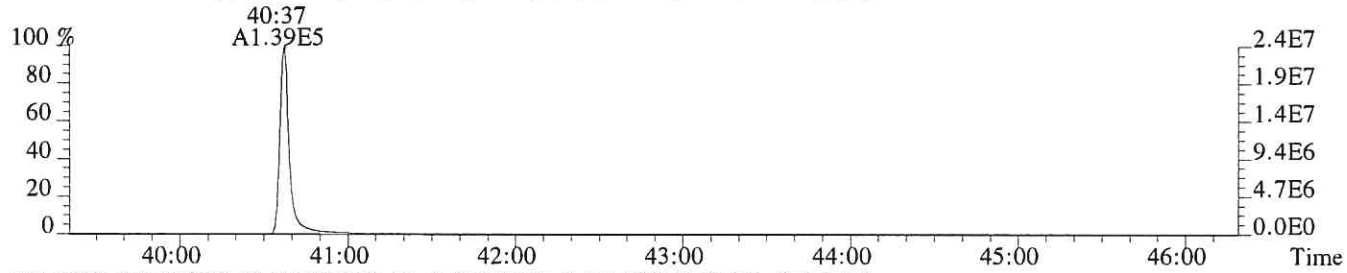
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



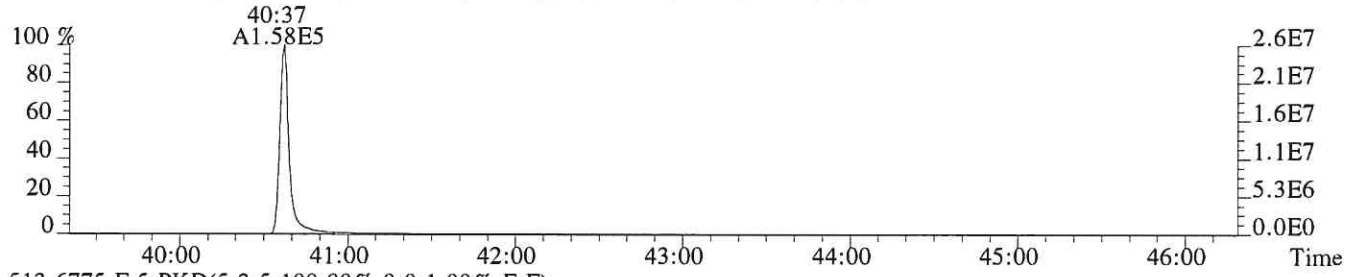
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



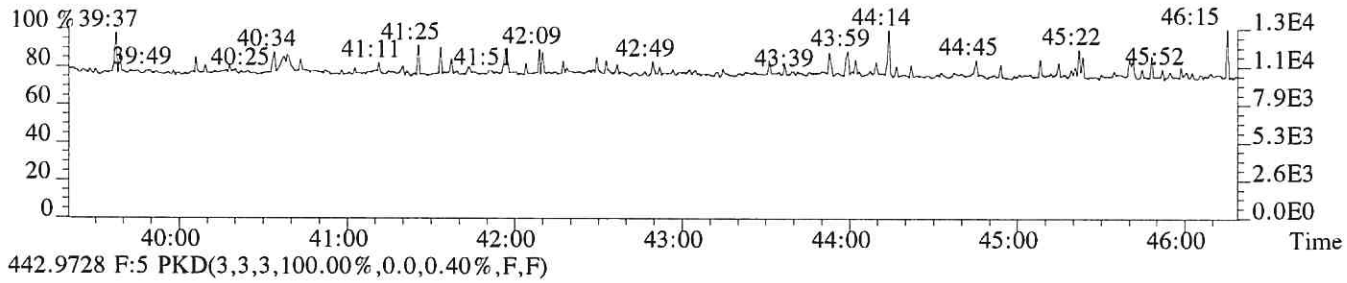
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



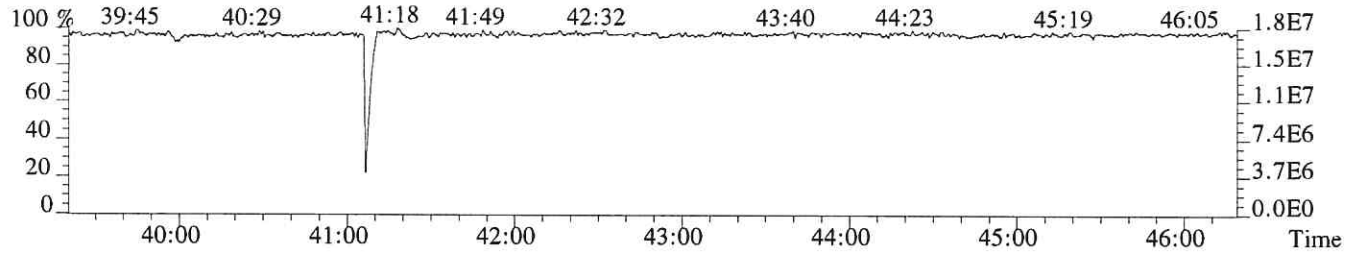
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



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

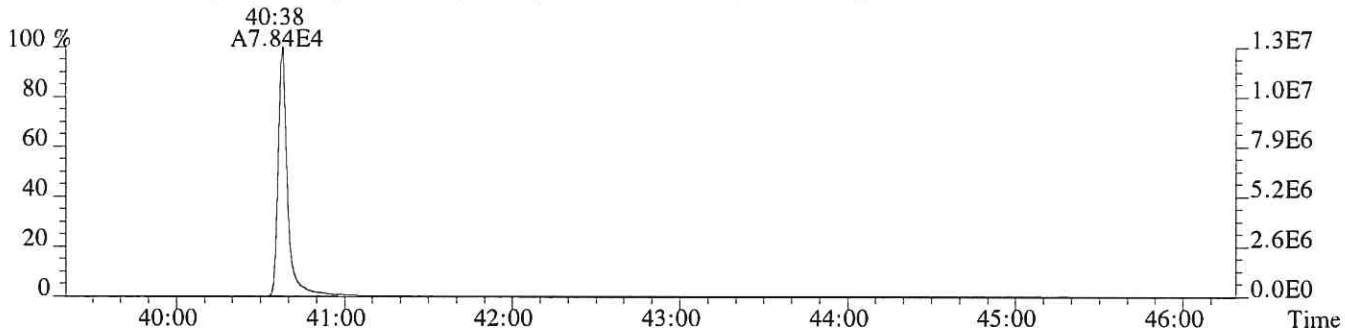


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

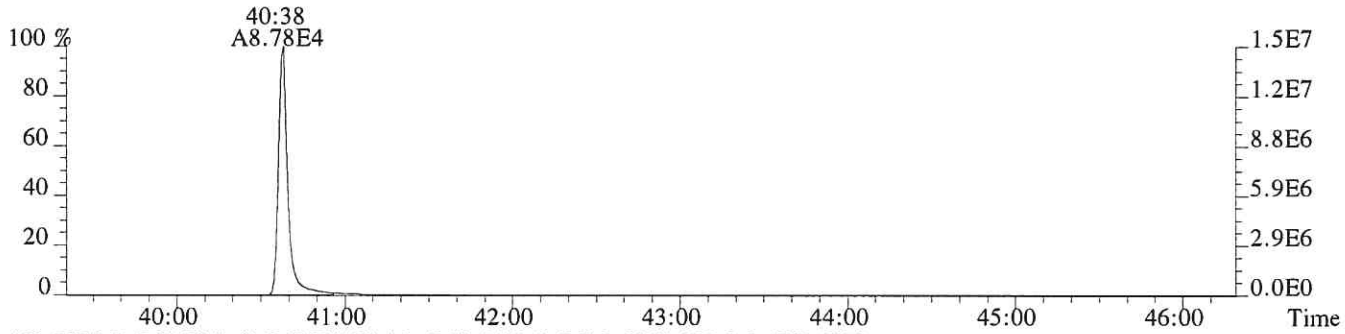


File:P518924 #1-628 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

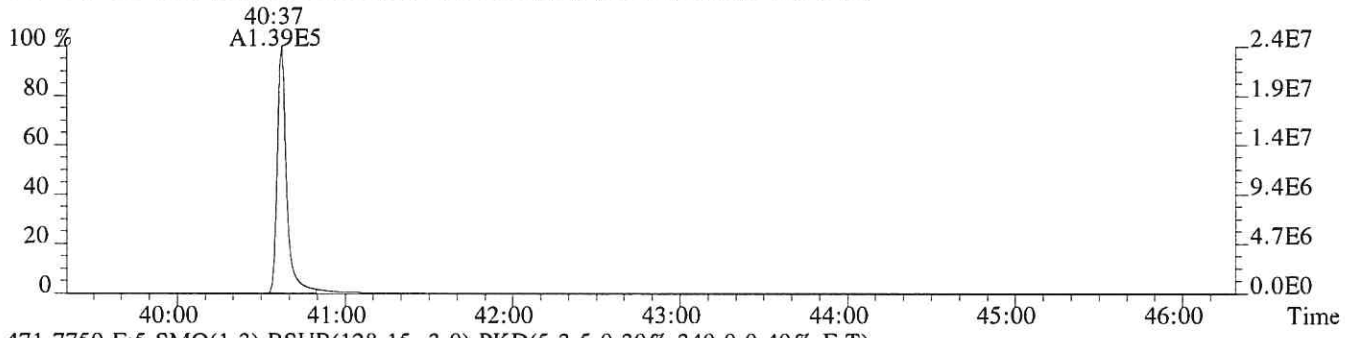
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



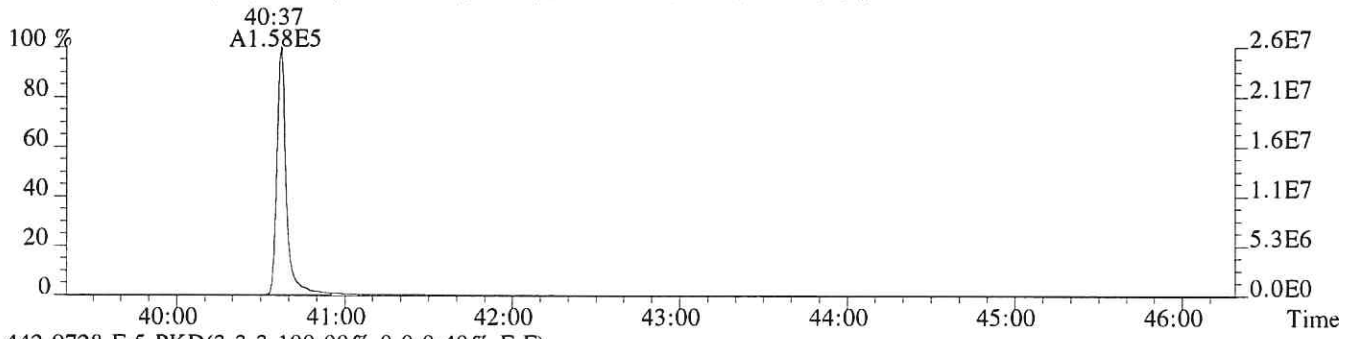
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



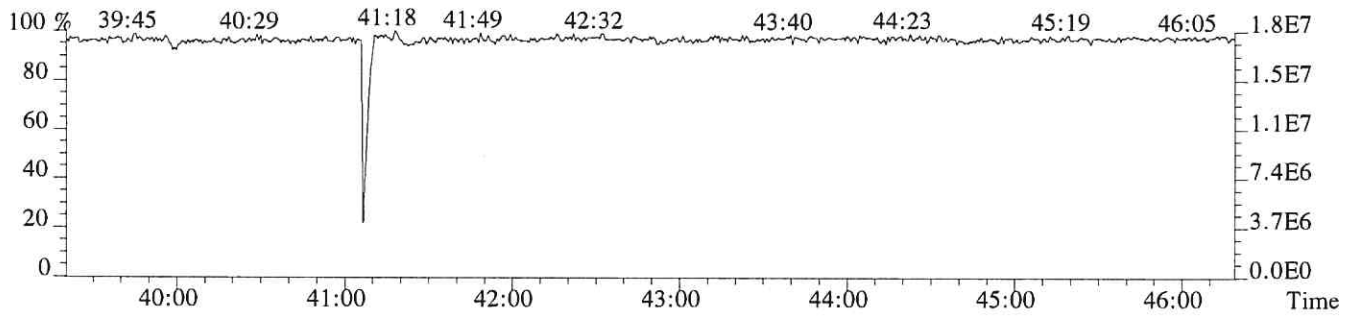
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518937 Analysis Date: 20-NOV-18 Time: 07:28:54

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.0	7.8 - 12.9	-10.0
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	48	39 - 65	-3.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-2.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	53	41 - 61	5.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	49	43 - 58	-1.7
OCDD	M+2/M+4	0.89	0.76-1.02	98	79 - 126	-1.8
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.1	8.4 - 12.0	-9.1
1,2,3,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	49	41 - 60	-3.0
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	48	41 - 61	-3.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	-0.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	49	44 - 57	-1.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-2.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-2.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.4
OCDF	M+2/M+4	0.89	0.76-1.02	93	63 - 159	-7.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518937 Analysis Date: 20-NOV-18 Time: 07:28:54

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	100	82 - 121	0.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	113	62 - 160	12.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	89	85 - 117	-10.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 118	-3.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	100	72 - 138	0.1
13C-OCDD	M+2/M+4	0.90	0.76-1.02	244	96 - 415	22.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	86	71 - 140	-14.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	101	76 - 130	0.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	104	77 - 130	3.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	74	76 - 131	-26.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	84	70 - 143	-15.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	73 - 137	-14.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	93	77 - 129	-7.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.6	7.8 - 12.7	-4.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P518937 Samp: 1 Inj: 1 Acquired: 20-NOV-18 07:28:54
Processed: 20-NOV-18 10:32:47 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:25	3.791e+03	5.056e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	3.462e+04	2.326e+04	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:32	3.331e+04	2.210e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	2.816e+04	2.339e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:32	3.399e+04	2.803e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:05	3.005e+04	2.541e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:51	2.668e+04	2.217e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	2.807e+04	2.800e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	2.313e+04	2.223e+04	1.04	yes	no	1.258
10	Unk	OCDF	40:47	4.034e+04	4.531e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:28	3.189e+03	4.015e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:51	2.463e+04	1.564e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	2.193e+04	1.787e+04	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	2.464e+04	1.969e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:34	2.588e+04	2.074e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	2.127e+04	1.992e+04	1.07	yes	no	1.025
17	Unk	OCDD	40:37	3.508e+04	3.935e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:24	4.567e+04	5.773e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:29	7.227e+04	4.555e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	7.321e+04	4.699e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	2.944e+04	5.755e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	3.837e+04	7.428e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:04	3.501e+04	6.733e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	2.972e+04	5.776e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	2.557e+04	5.735e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	2.244e+04	4.999e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:26	3.236e+04	4.139e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	5.368e+04	3.393e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	4.420e+04	3.445e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:19	4.879e+04	3.831e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:06	4.221e+04	3.962e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:37	6.424e+04	7.135e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:42	3.527e+04	4.434e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	5.344e+04	4.187e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:28	7.724e+03				no	1.014

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P518937 Samp: 1 Inj: 1 Acquired: 20-NOV-18 07:28:54
Processed: 20-NOV-18 10:32:47 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.63e+05	7.16e+02	6.5e+02	6.52e+05	1.74e+03	3.7e+02
2	1,2,3,7,8-PeCDF	5.29e+06	5.16e+02	1.0e+04	3.40e+06	1.37e+03	2.5e+03
3	2,3,4,7,8-PeCDF	5.49e+06	5.16e+02	1.1e+04	3.66e+06	1.37e+03	2.7e+03
4	1,2,3,4,7,8-HxCDF	5.81e+06	1.25e+03	4.6e+03	4.81e+06	5.40e+02	8.9e+03
5	1,2,3,6,7,8-HxCDF	5.95e+06	1.25e+03	4.8e+03	5.00e+06	5.40e+02	9.3e+03
6	2,3,4,6,7,8-HxCDF	5.84e+06	1.25e+03	4.7e+03	4.86e+06	5.40e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	4.63e+06	1.25e+03	3.7e+03	3.83e+06	5.40e+02	7.1e+03
8	1,2,3,4,6,7,8-HpCDF	5.61e+06	3.68e+03	1.5e+03	5.56e+06	6.00e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.21e+06	3.68e+03	1.1e+03	4.09e+06	6.00e+03	6.8e+02
10	OCDF	6.67e+06	2.28e+02	2.9e+04	7.33e+06	9.12e+02	8.0e+03
11	2,3,7,8-TCDD	4.30e+05	2.57e+03	1.7e+02	5.33e+05	1.05e+03	5.1e+02
12	1,2,3,7,8-PeCDD	4.04e+06	8.40e+02	4.8e+03	2.53e+06	3.36e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	4.65e+06	6.36e+02	7.3e+03	3.75e+06	9.72e+02	3.9e+03
14	1,2,3,6,7,8-HxCDD	4.63e+06	6.36e+02	7.3e+03	3.73e+06	9.72e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	4.63e+06	6.36e+02	7.3e+03	3.67e+06	9.72e+02	3.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.04e+06	3.16e+02	1.3e+04	3.79e+06	7.60e+02	5.0e+03
17	OCDD	5.87e+06	2.12e+02	2.8e+04	6.59e+06	4.92e+02	1.3e+04
18	13C-2,3,7,8-TCDF	5.62e+06	1.15e+04	4.9e+02	7.12e+06	8.57e+03	8.3e+02
19	13C-1,2,3,7,8-PeCDF	1.09e+07	8.80e+02	1.2e+04	6.87e+06	7.88e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	1.18e+07	8.80e+02	1.3e+04	7.68e+06	7.88e+02	9.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.01e+06	1.46e+03	4.1e+03	1.17e+07	1.73e+03	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	6.89e+06	1.46e+03	4.7e+03	1.34e+07	1.73e+03	7.7e+03
23	13C-2,3,4,6,7,8-HxCDF	6.75e+06	1.46e+03	4.6e+03	1.29e+07	1.73e+03	7.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.24e+06	1.46e+03	3.6e+03	1.01e+07	1.73e+03	5.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.01e+06	2.78e+03	1.8e+03	1.13e+07	7.22e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.04e+06	2.78e+03	1.5e+03	9.10e+06	7.22e+03	1.3e+03
27	13C-2,3,7,8-TCDD	4.40e+06	6.95e+03	6.3e+02	5.56e+06	2.68e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	8.65e+06	1.49e+03	5.8e+03	5.45e+06	1.40e+03	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.23e+06	1.28e+03	7.2e+03	7.18e+06	9.60e+02	7.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.02e+06	1.28e+03	7.1e+03	7.13e+06	9.60e+02	7.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.08e+06	8.40e+02	9.6e+03	7.53e+06	7.32e+02	1.0e+04
32	13C-OCDD	1.05e+07	7.92e+02	1.3e+04	1.17e+07	5.28e+02	2.2e+04
33	13C-1,2,3,4-TCDD	4.90e+06	6.95e+03	7.0e+02	6.15e+06	2.68e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	9.38e+06	1.28e+03	7.3e+03	7.41e+06	9.60e+02	7.7e+03
35	37Cl-2,3,7,8-TCDD	1.05e+06	1.83e+03	5.7e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.572e{+}03 + 1.048e{+}03) \times 100}{(4.398e{+}06 + 5.556e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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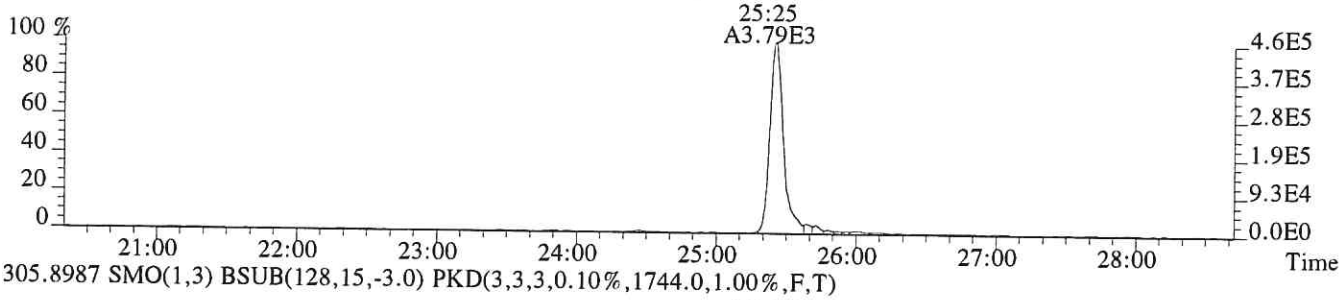
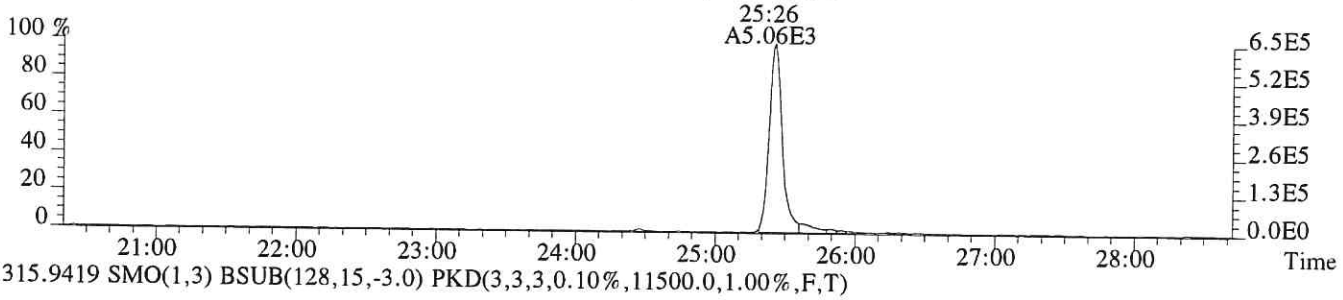
File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

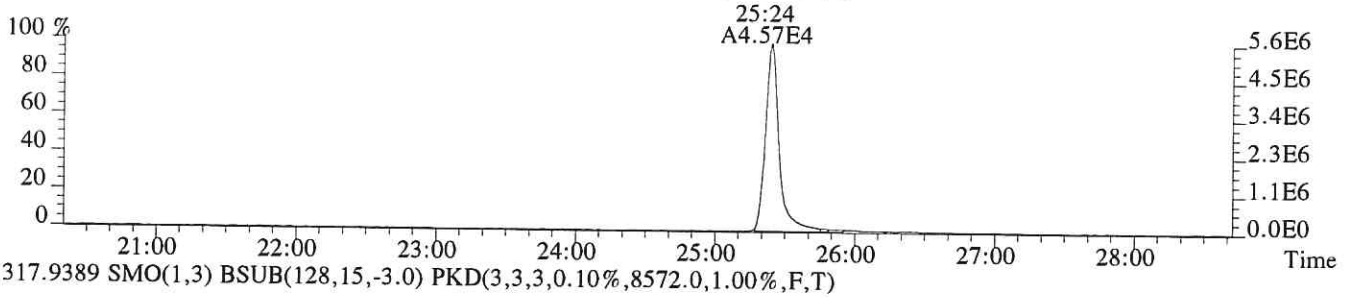
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



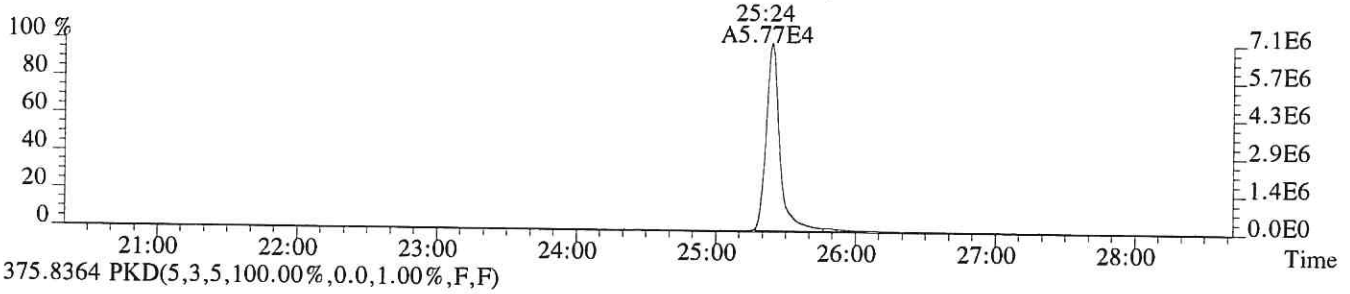
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



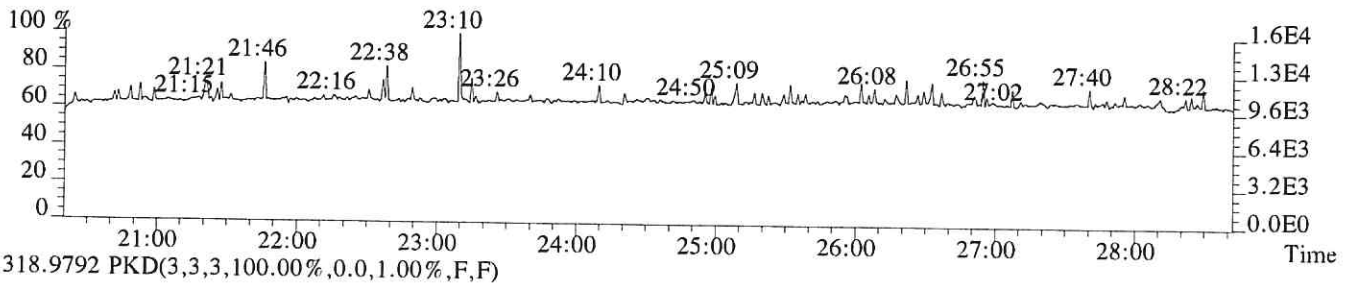
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11500.0,1.00%,F,T)



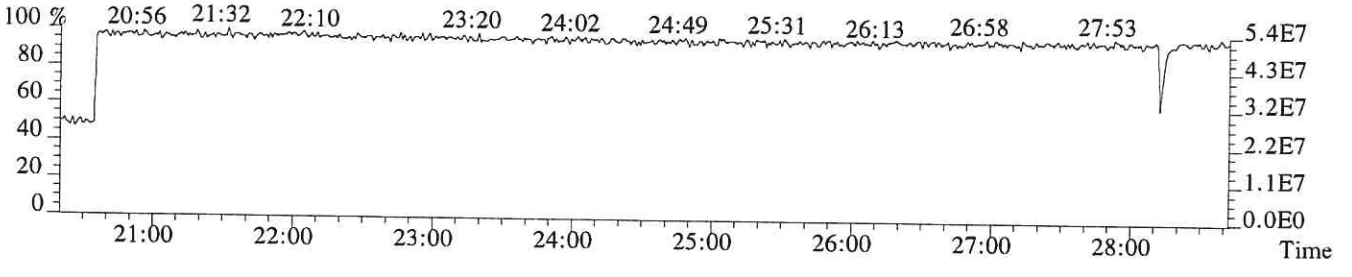
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8572.0,1.00%,F,T)



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

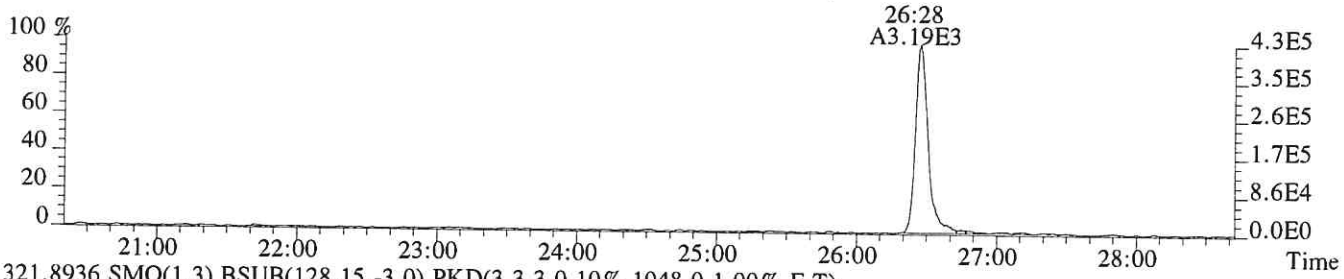


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

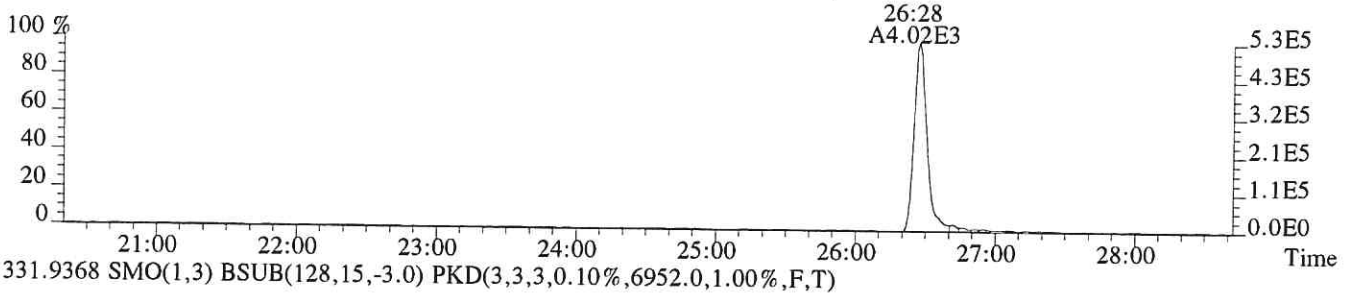


File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

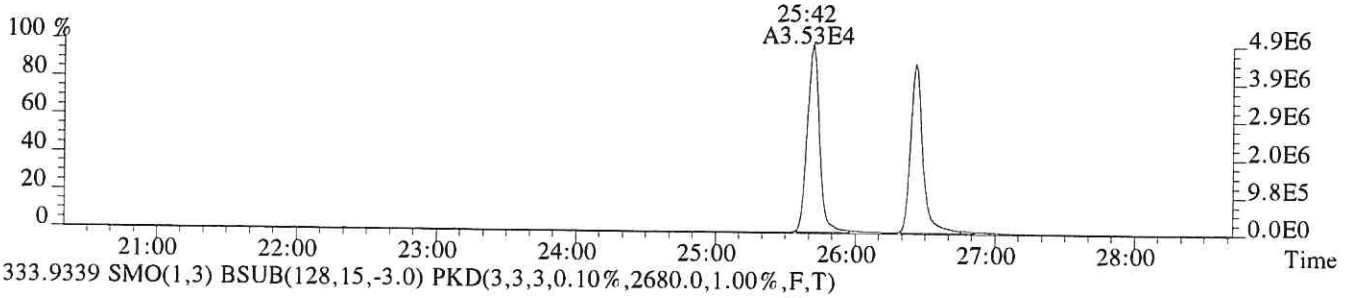
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



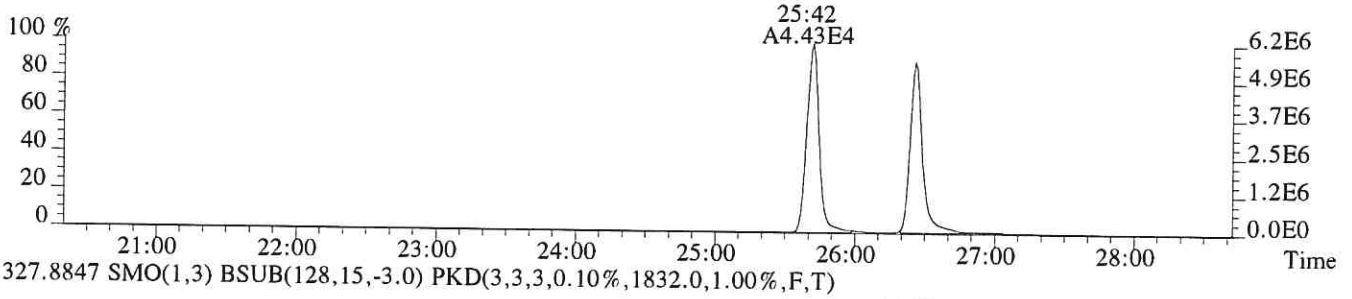
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



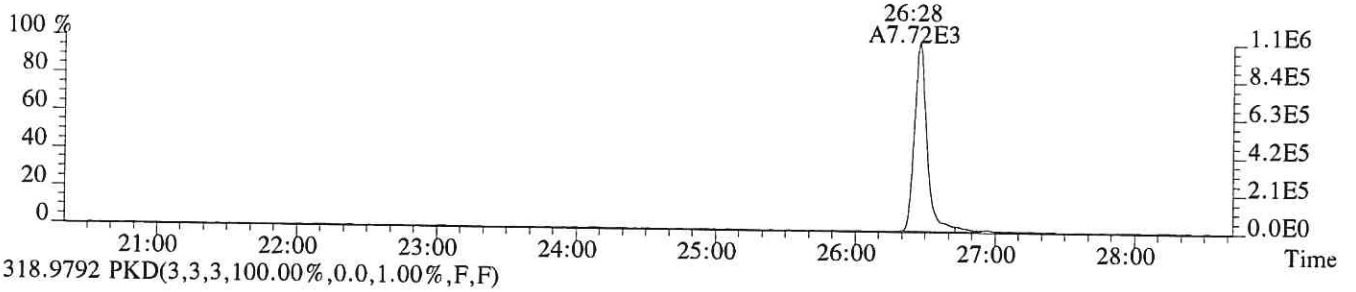
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6952.0,1.00%,F,T)



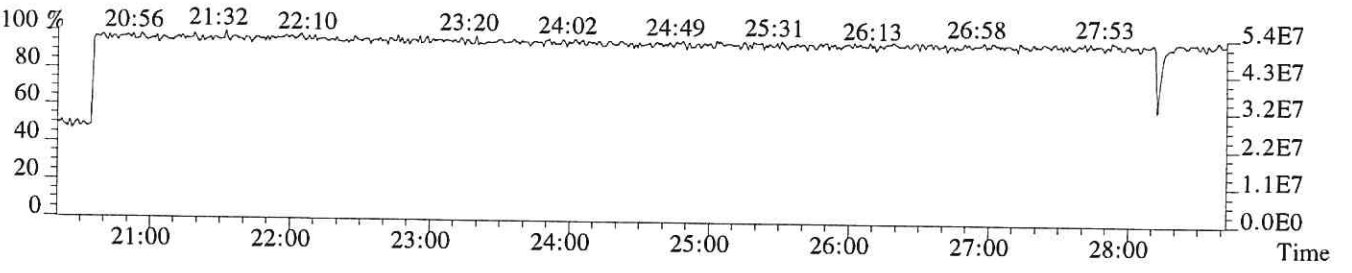
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2680.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)

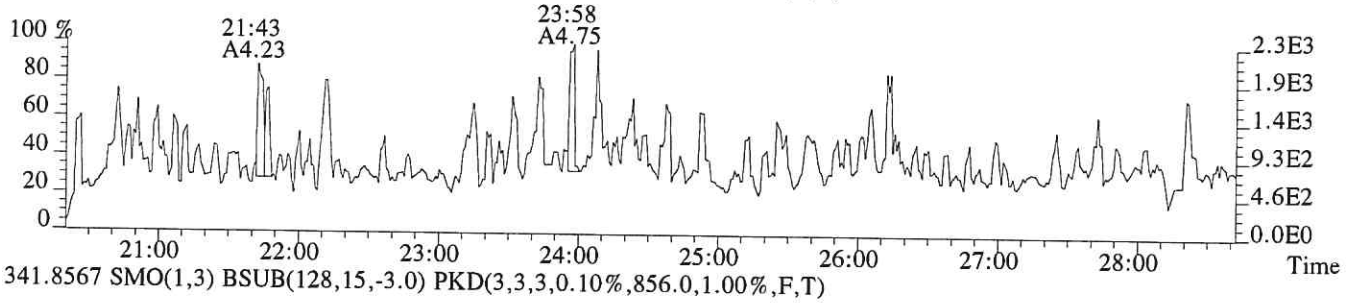


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

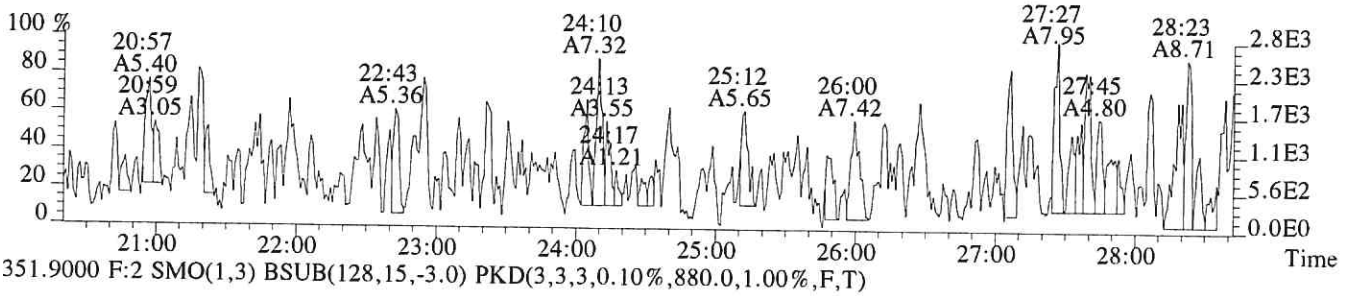


File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

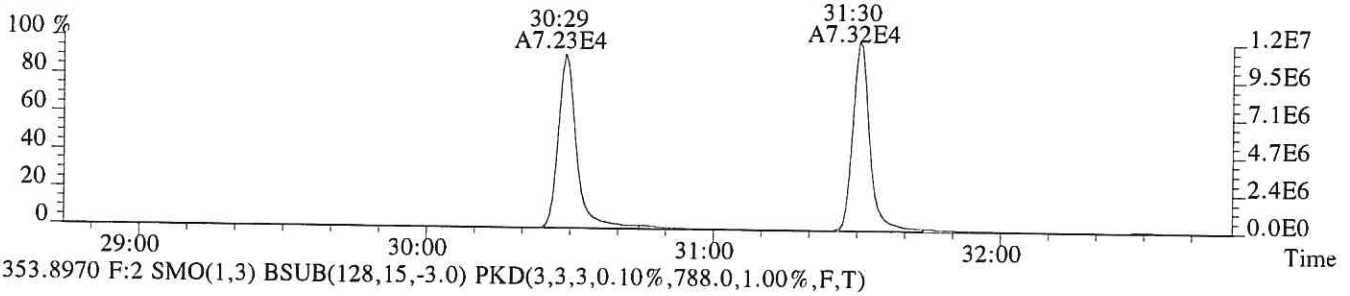
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



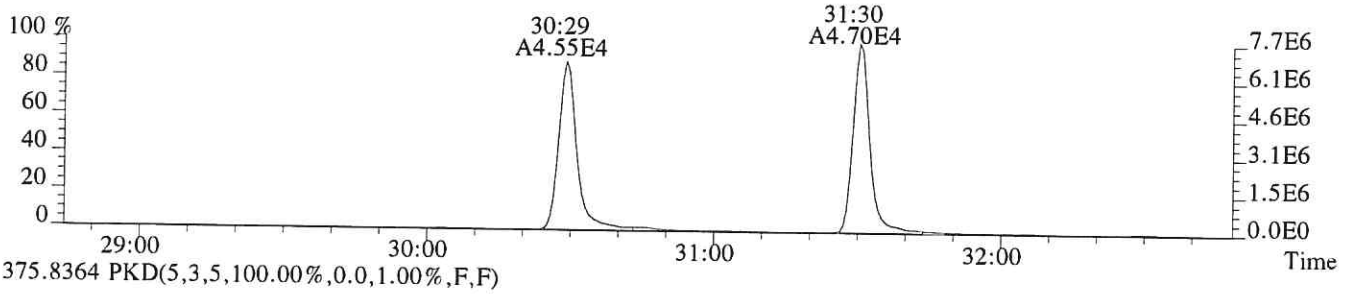
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



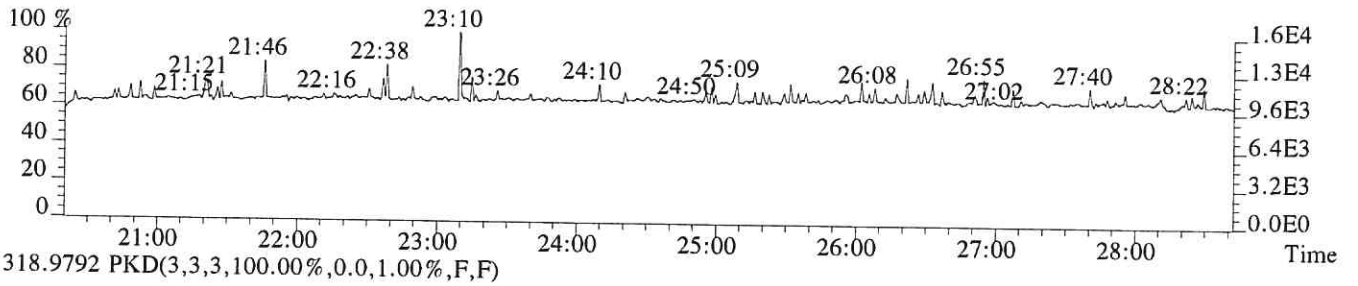
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



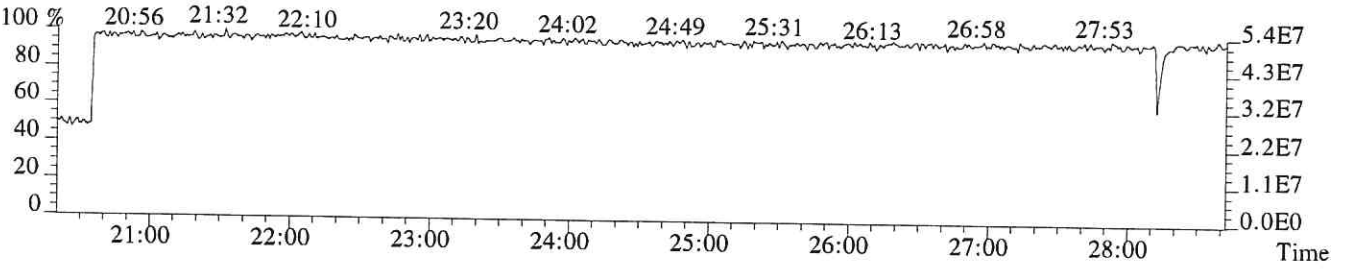
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



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

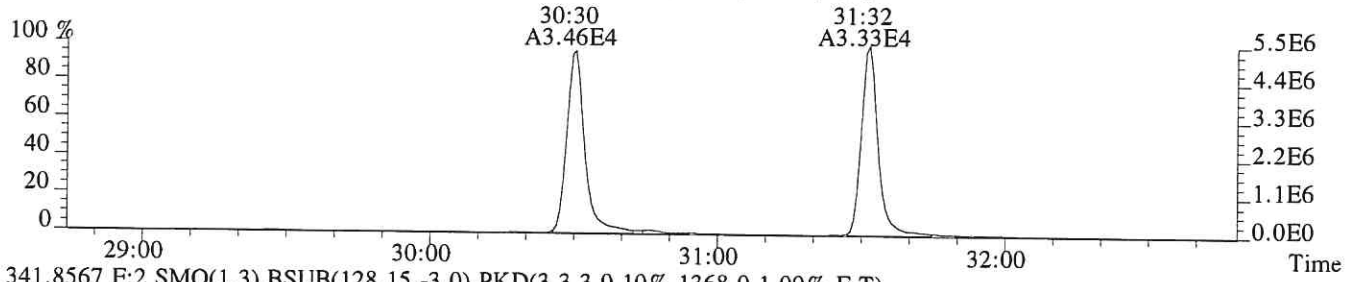


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

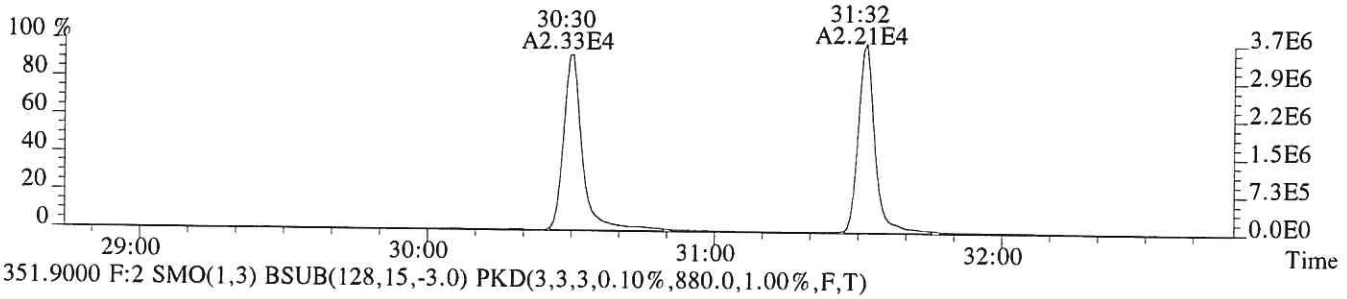


File:P518937 #1-367 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

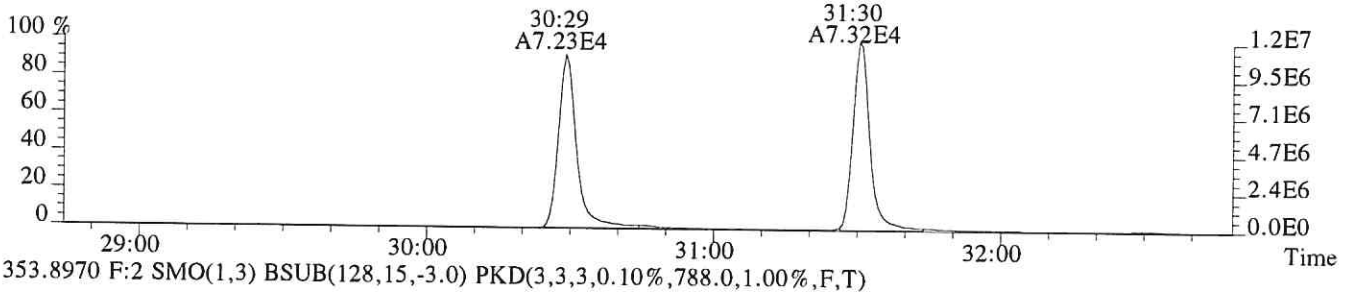
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



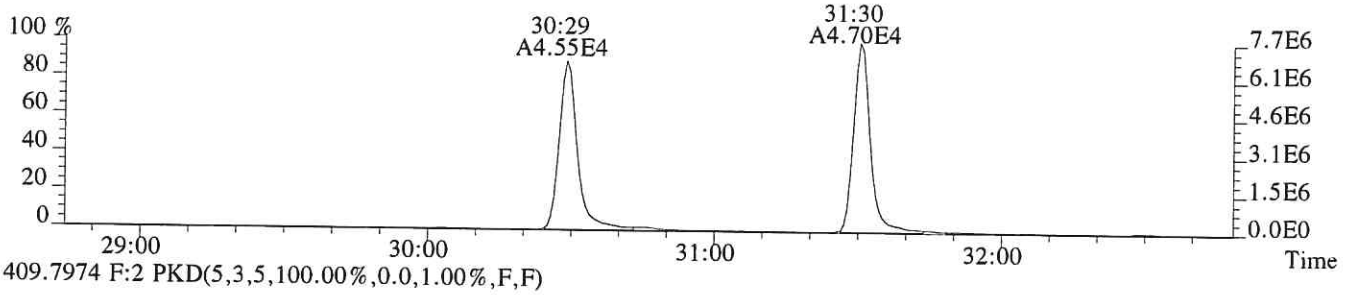
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



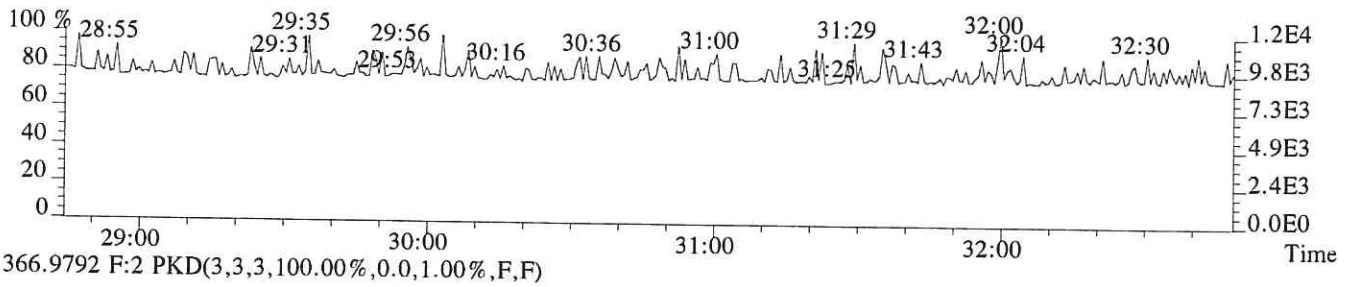
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



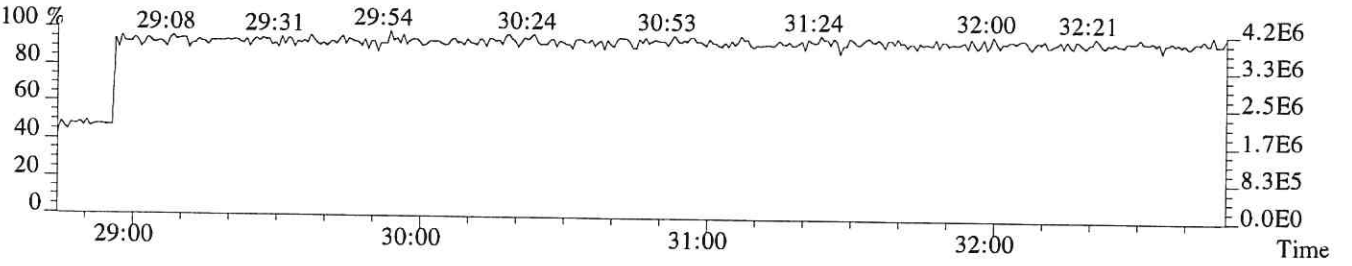
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



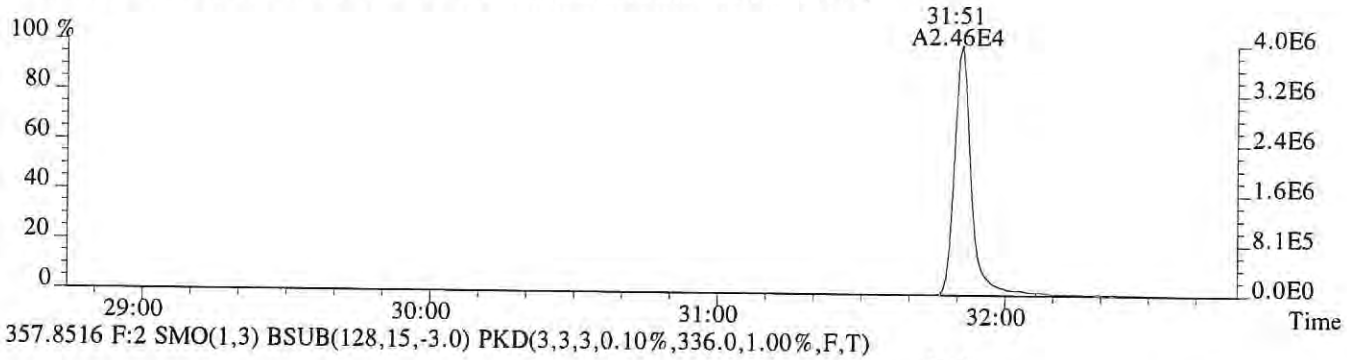
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



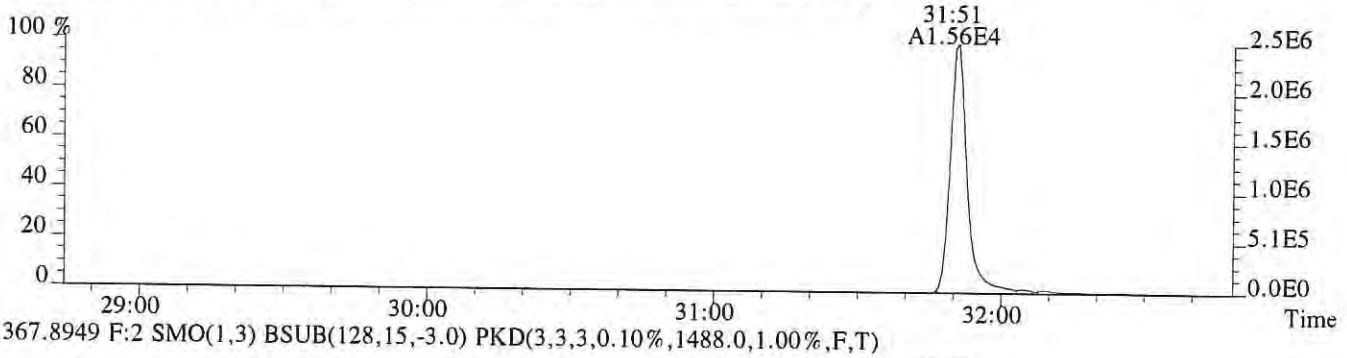
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



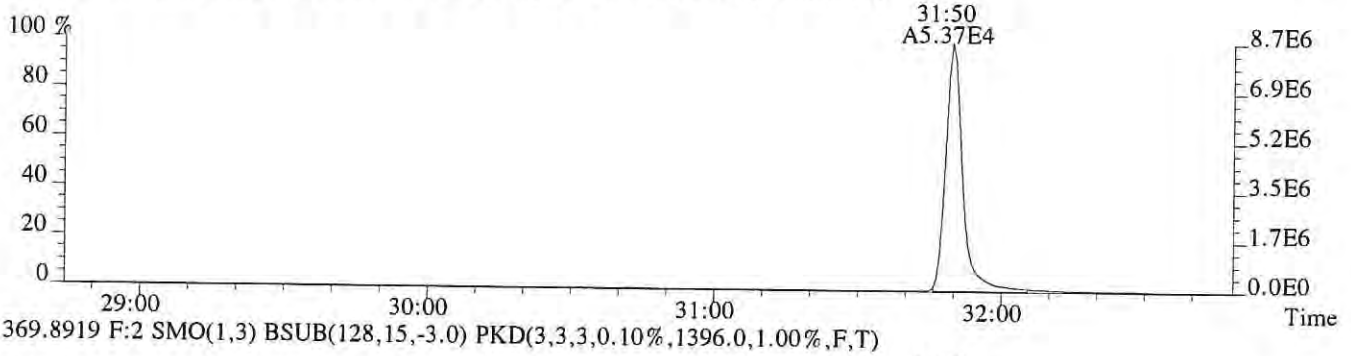
File:P518937 #1-367 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



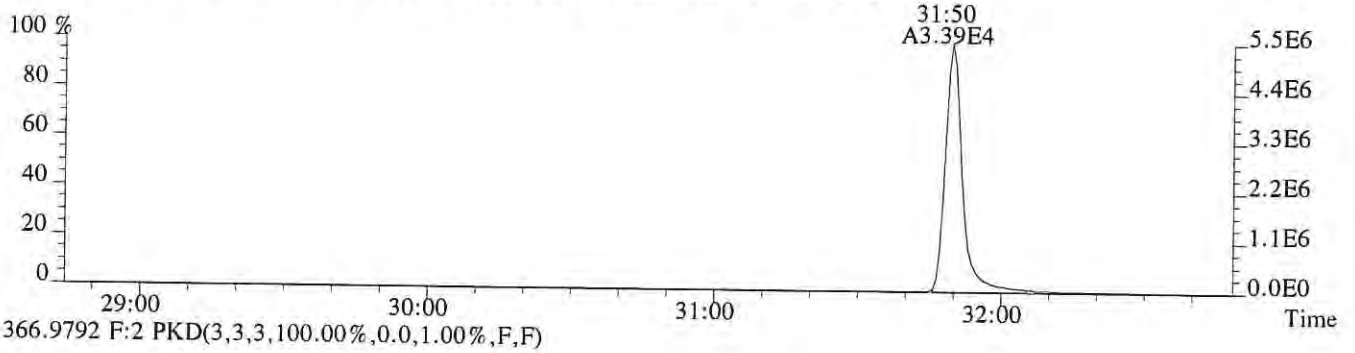
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



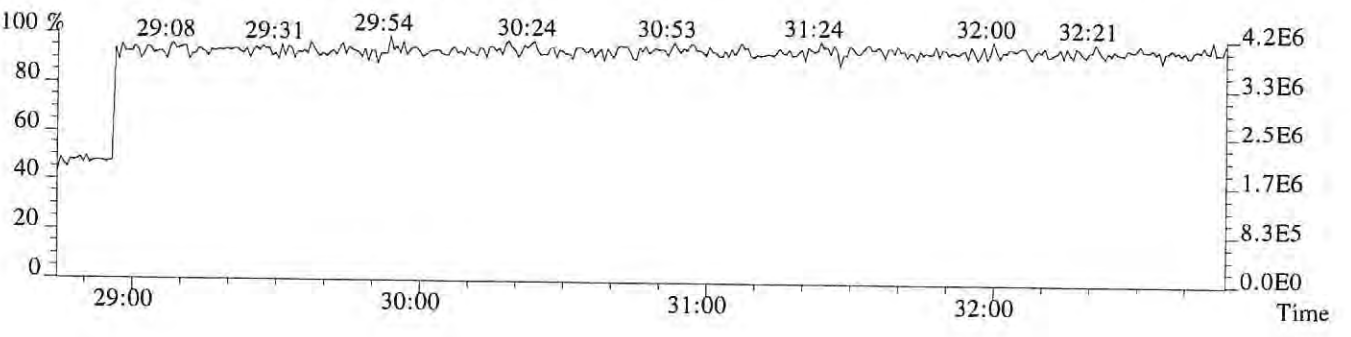
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)

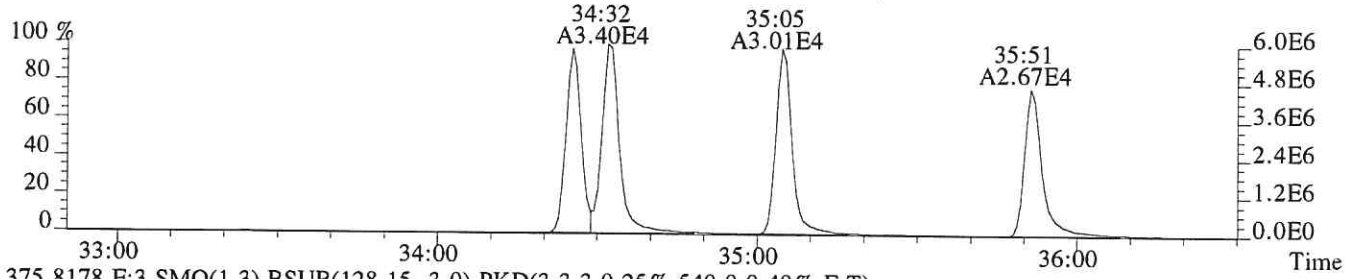


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

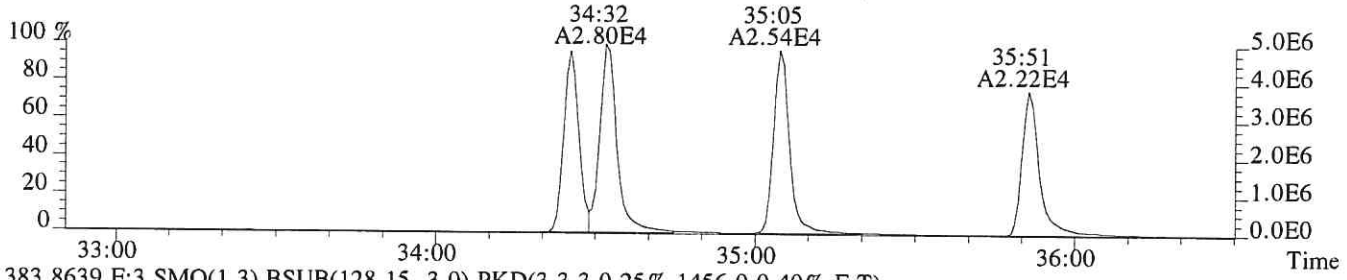


File:P518937 #1-330 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

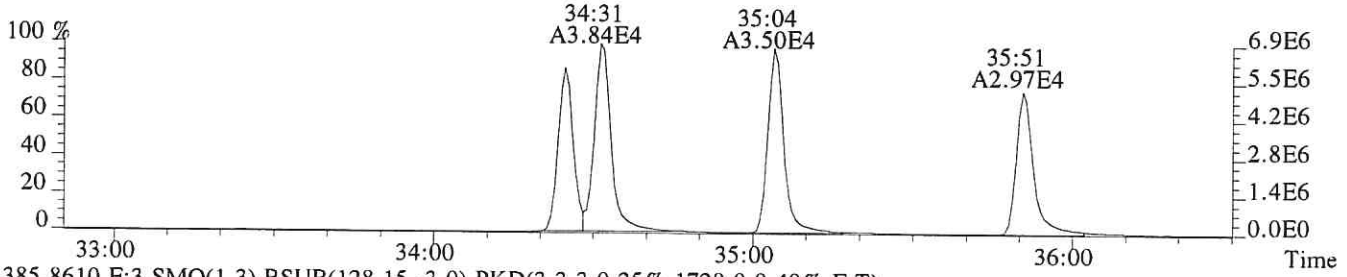
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



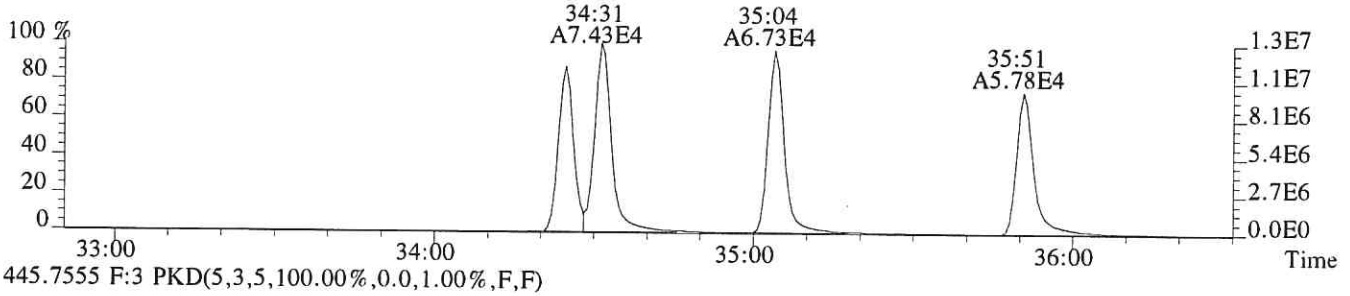
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



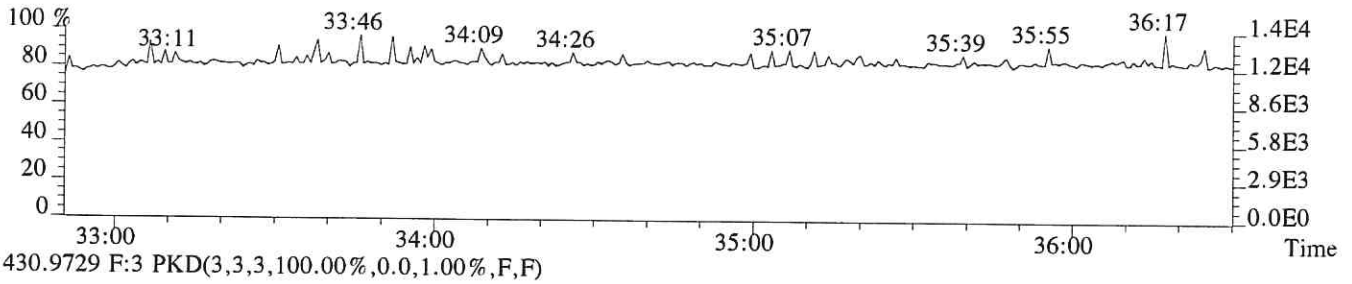
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



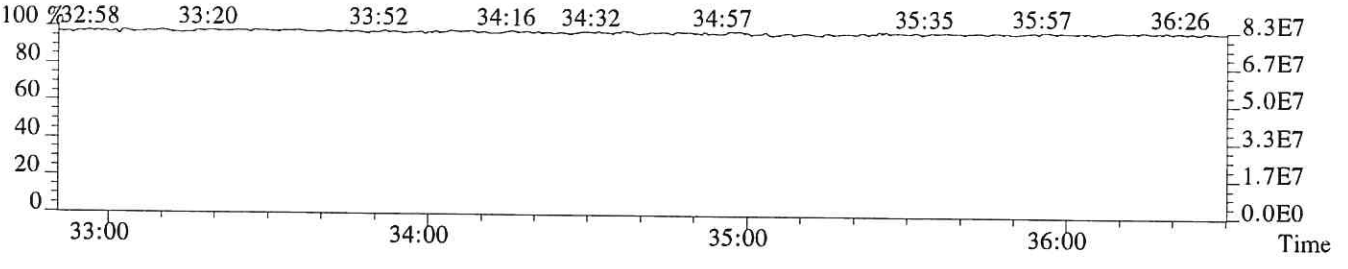
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



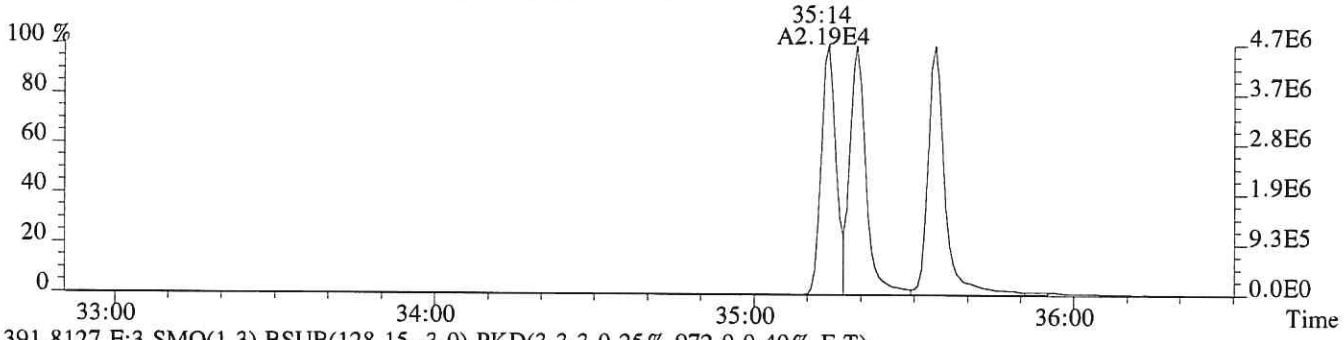
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



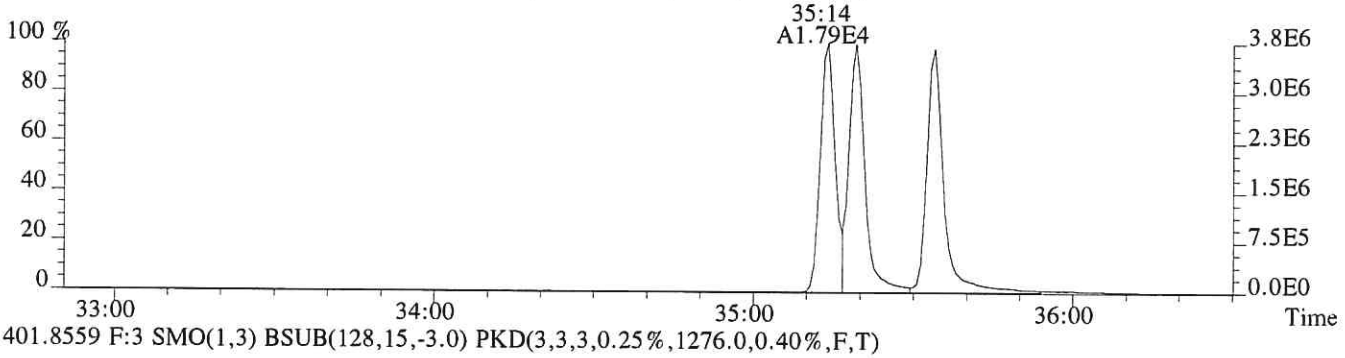
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



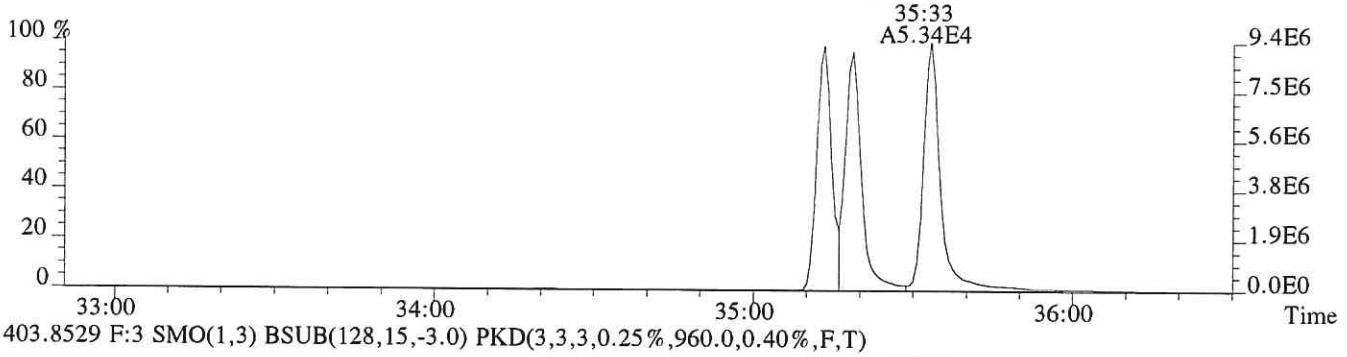
File:P518937 #1-330 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



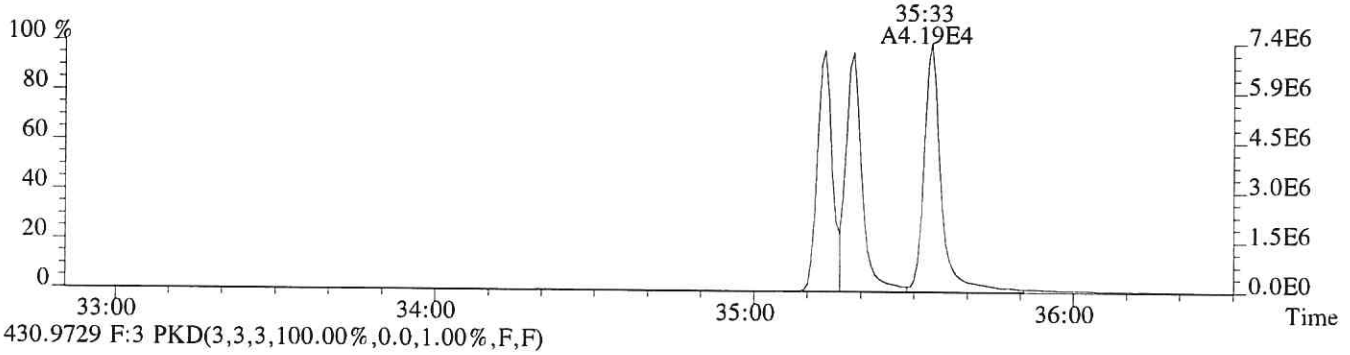
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



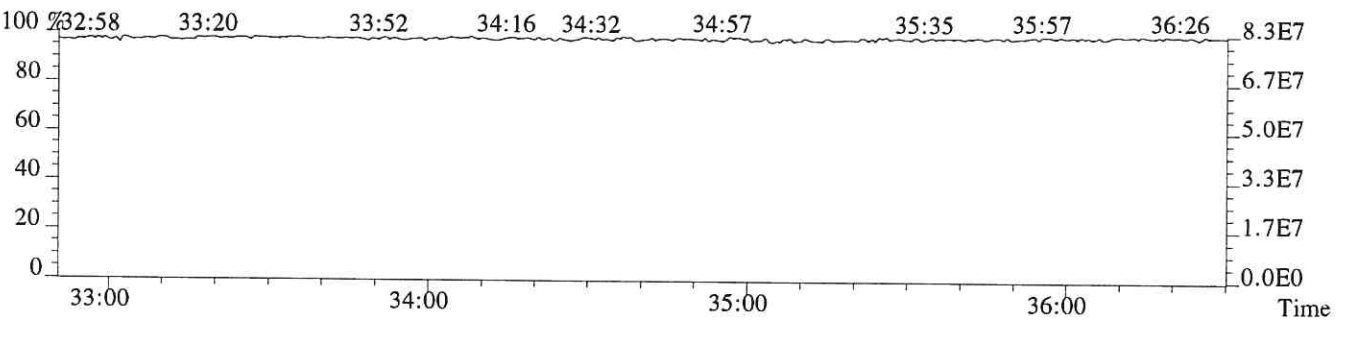
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)

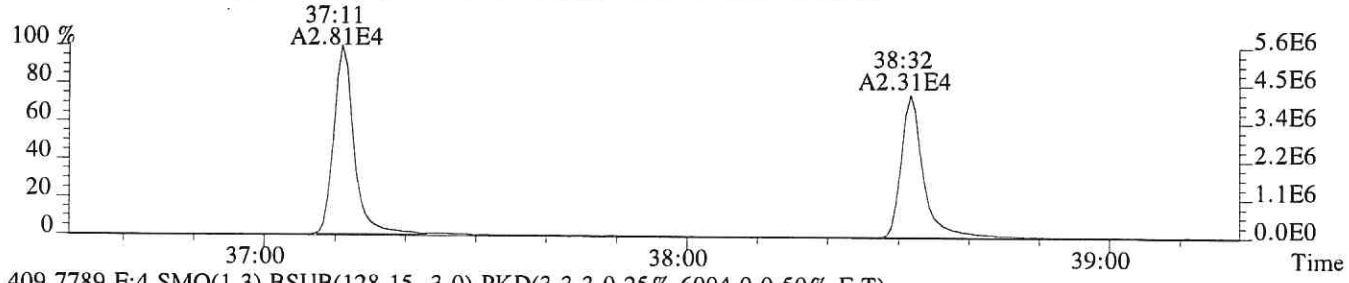


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

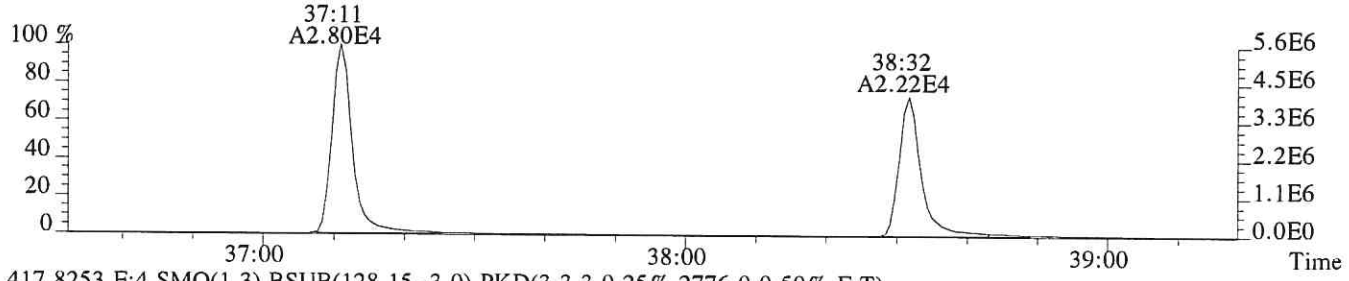


File:P518937 #1-250 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

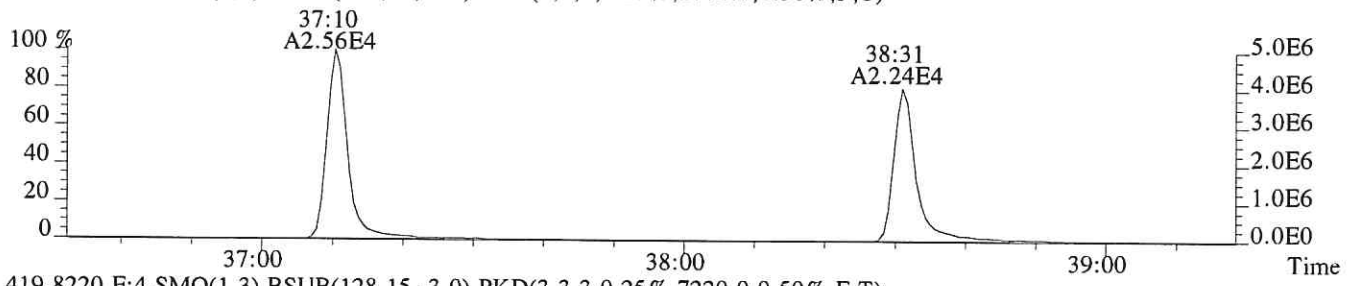
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



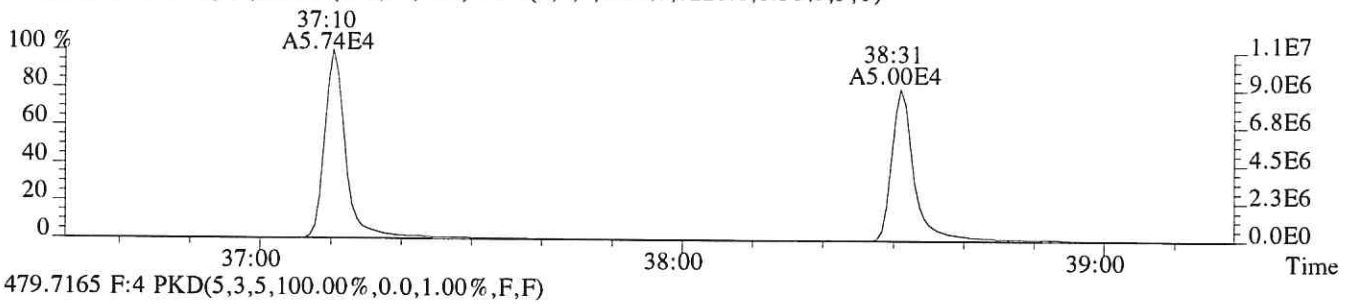
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6004.0,0.50%,F,T)



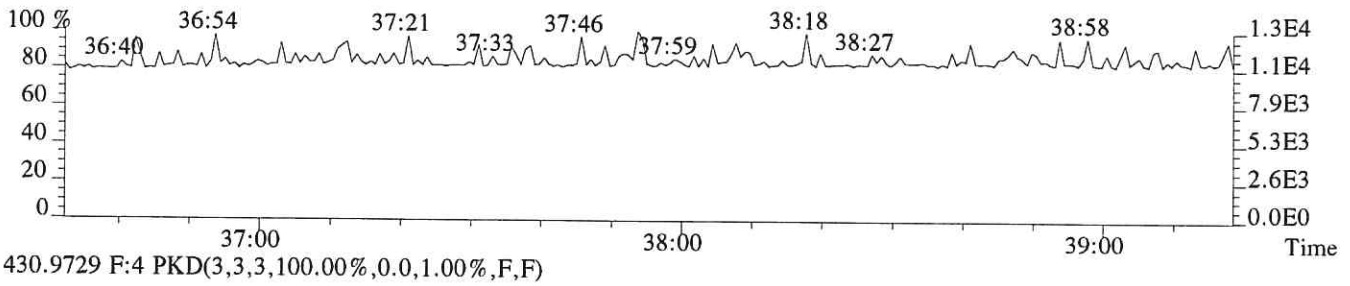
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2776.0,0.50%,F,T)



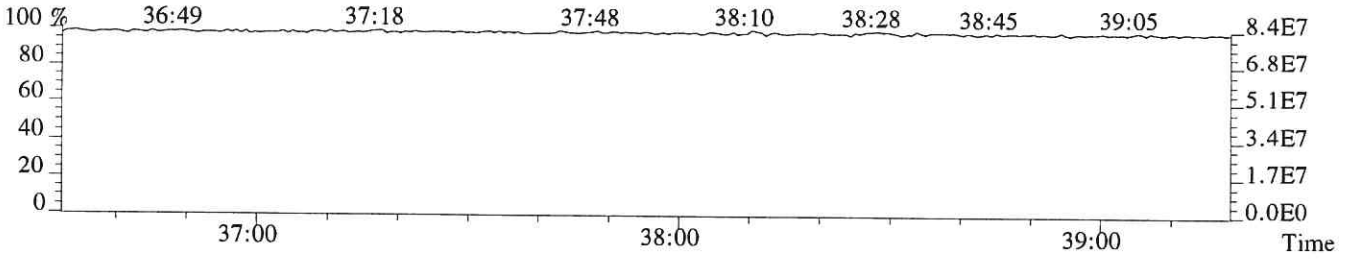
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7220.0,0.50%,F,T)



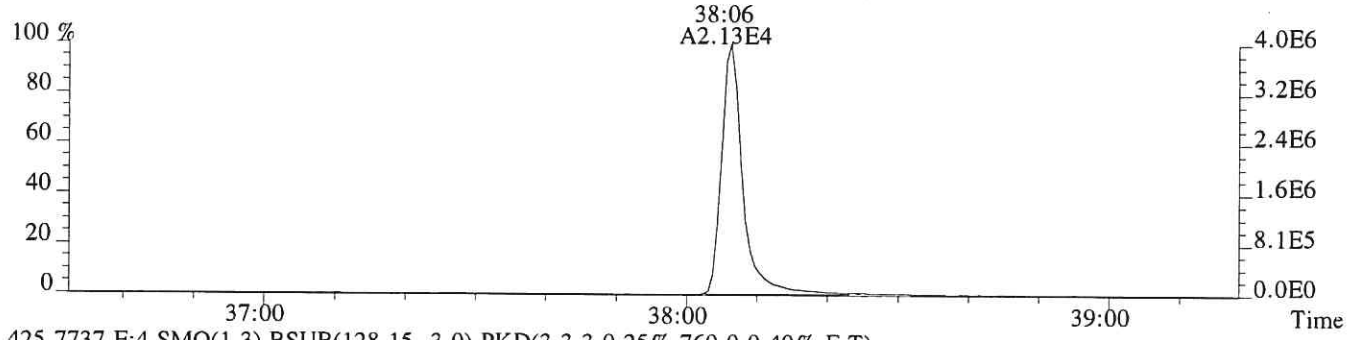
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



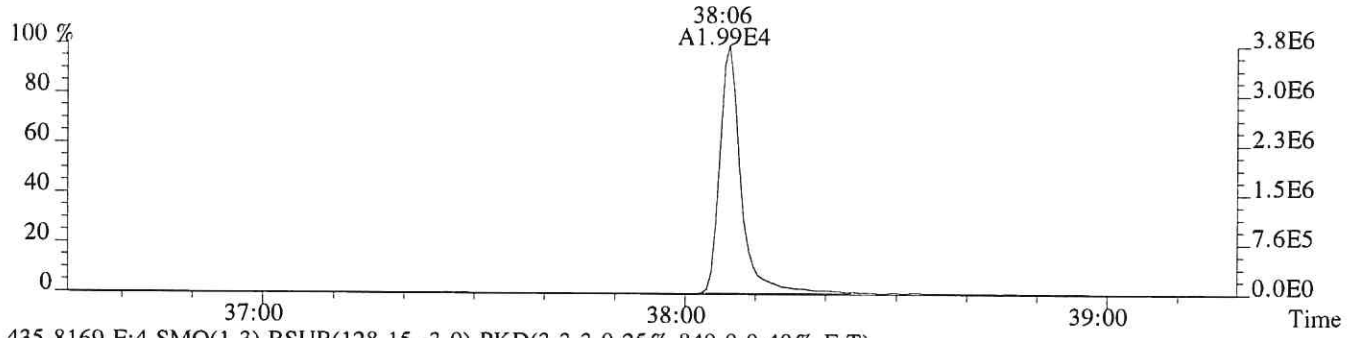
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



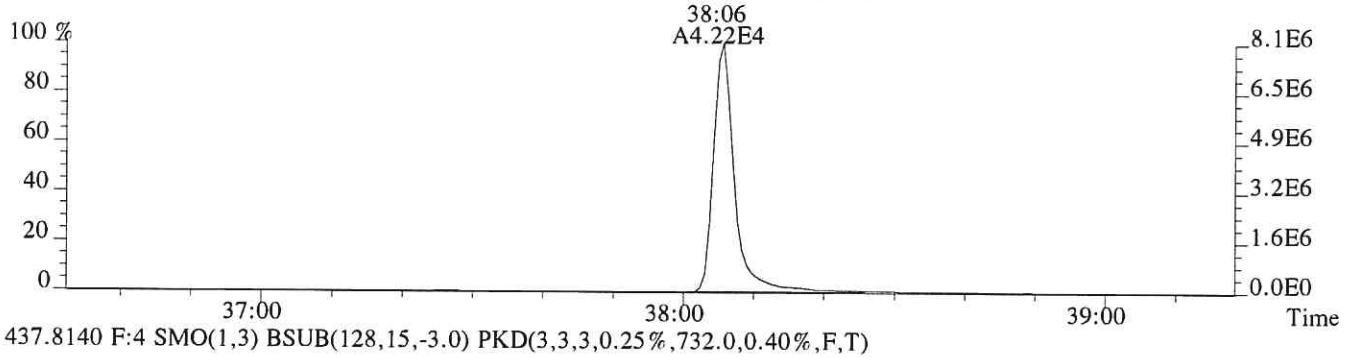
File:P518937 #1-250 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



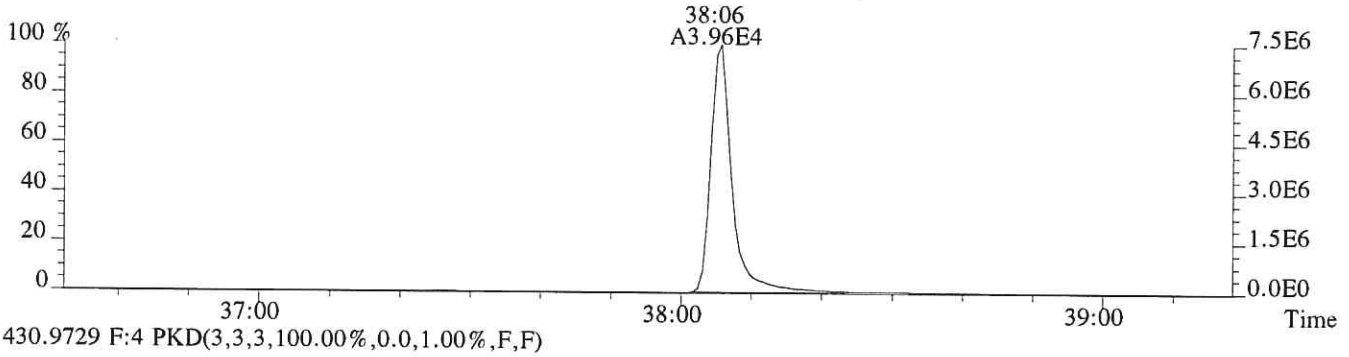
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



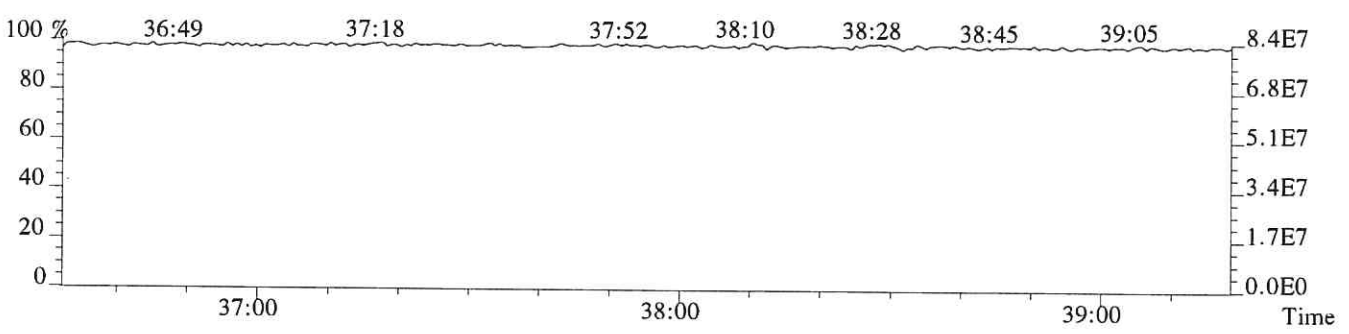
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)

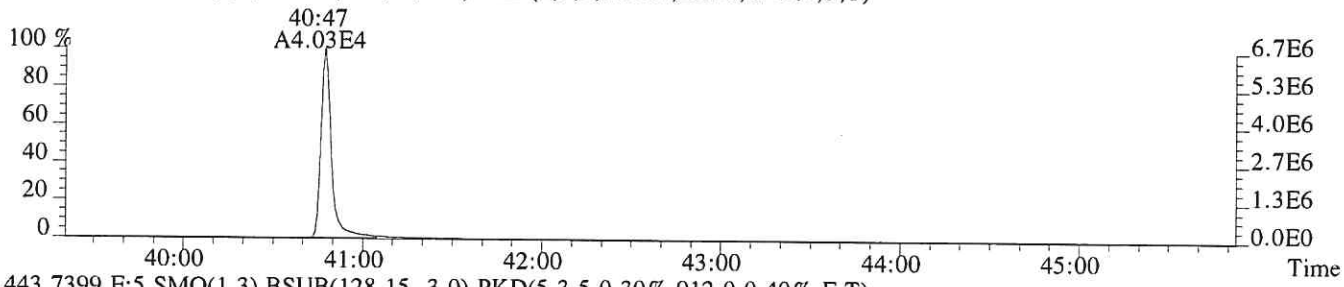


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

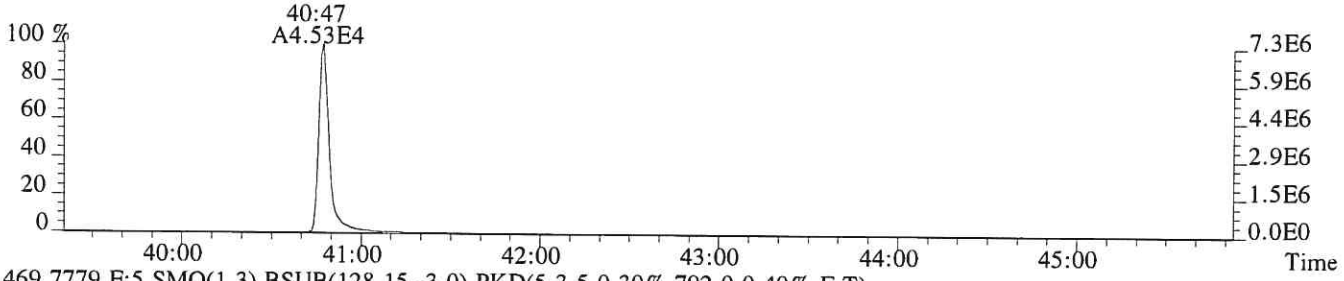


File:P518937 #1-588 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

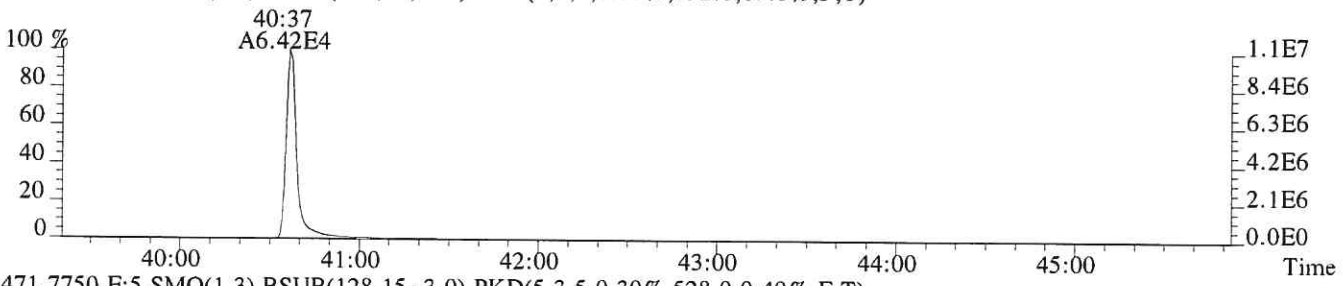
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



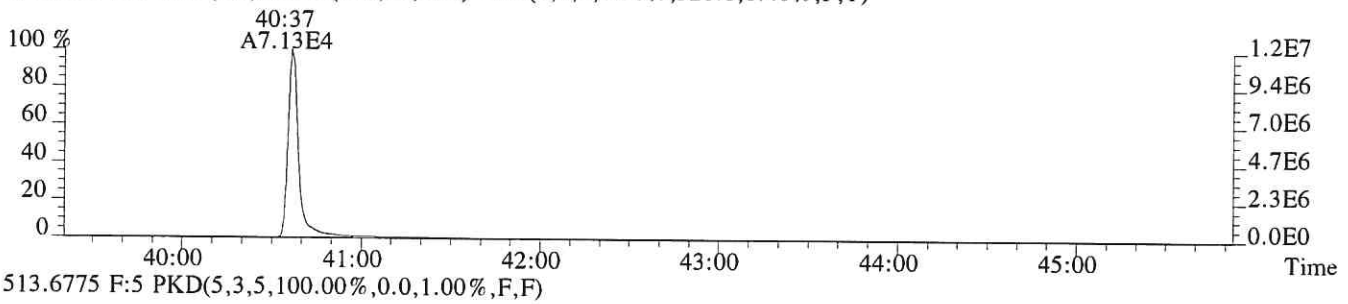
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



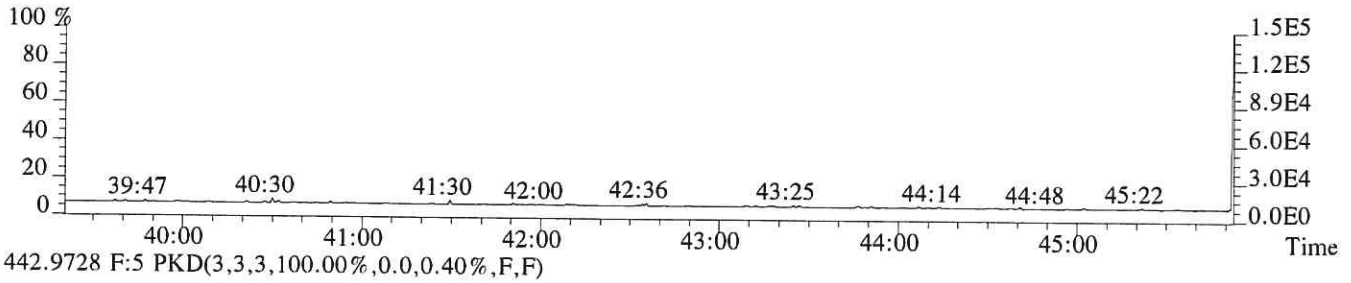
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



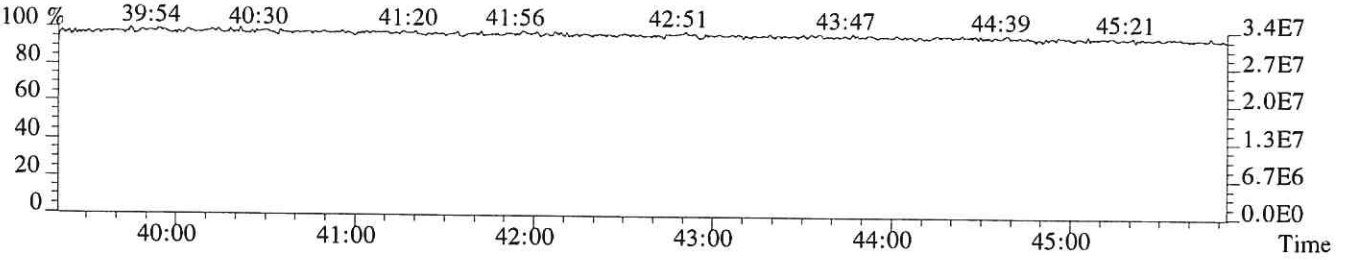
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



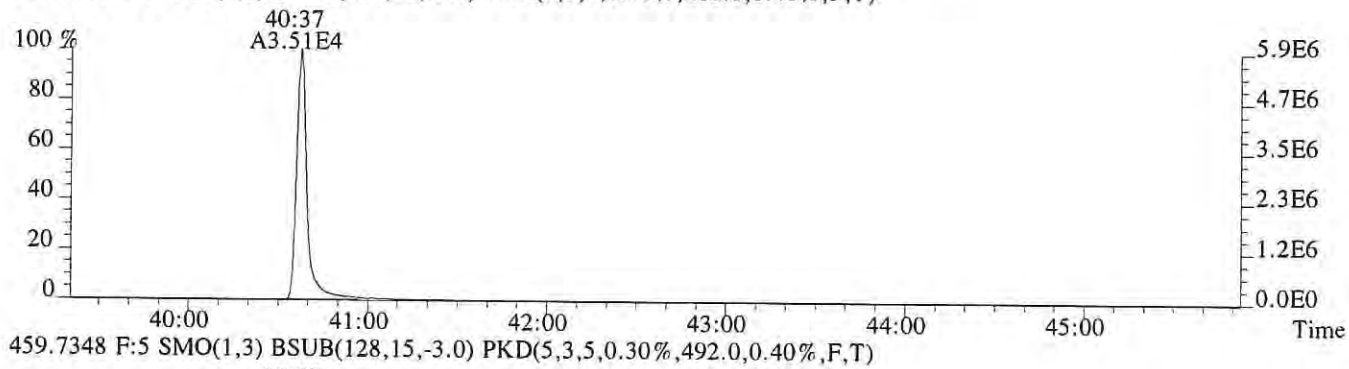
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



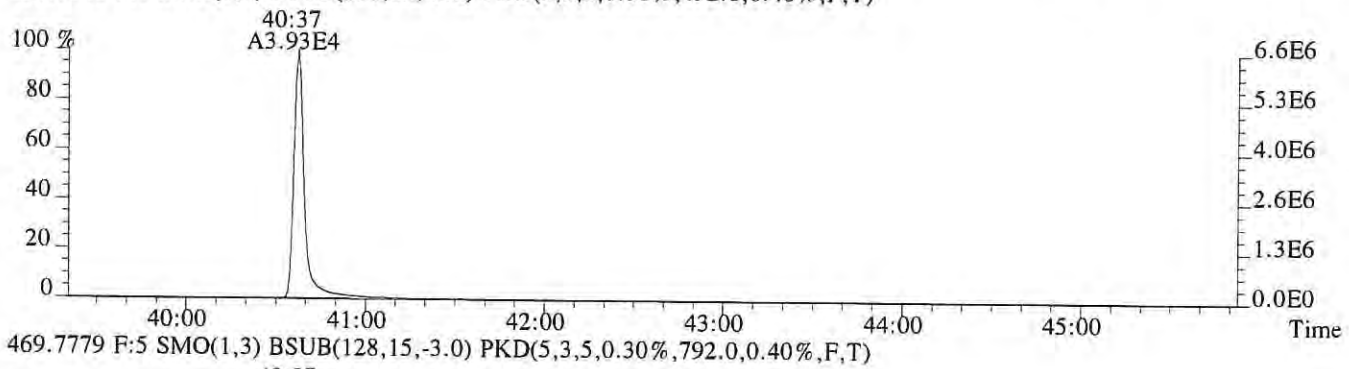
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



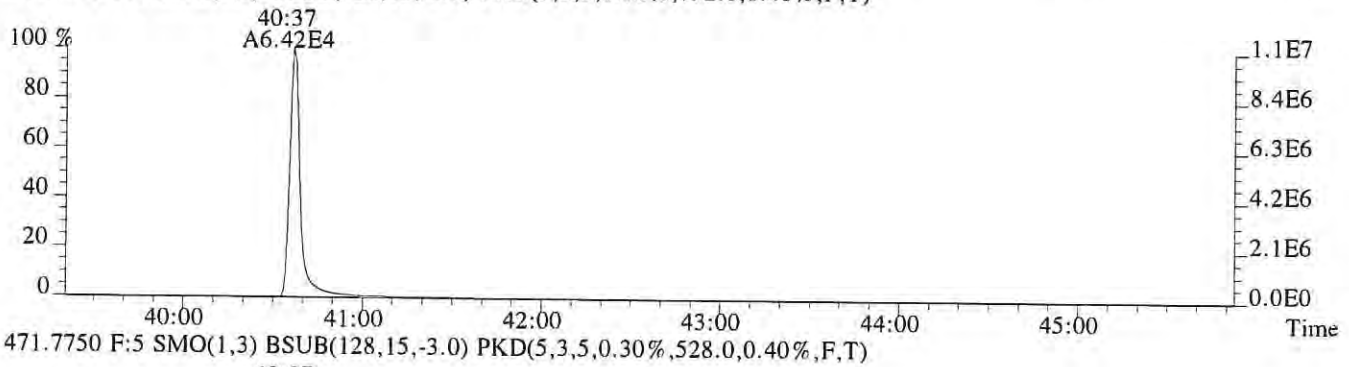
File:P518937 #1-588 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



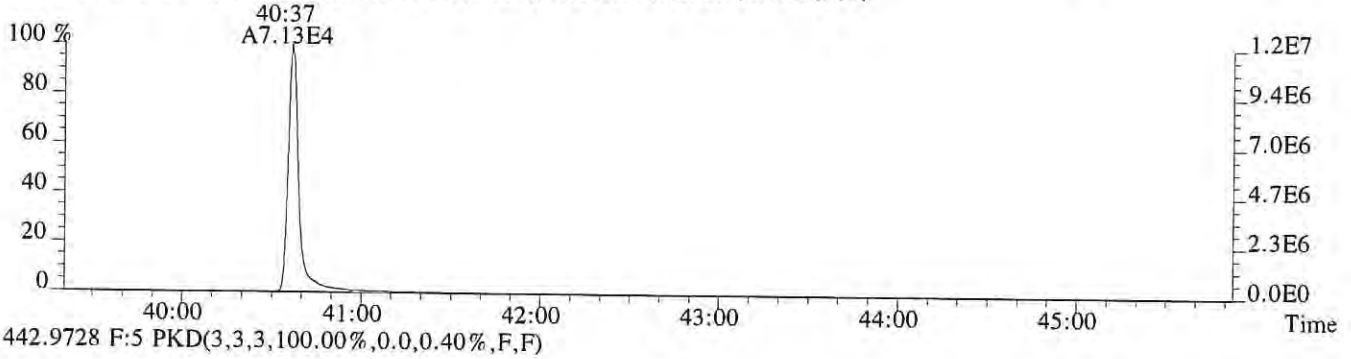
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



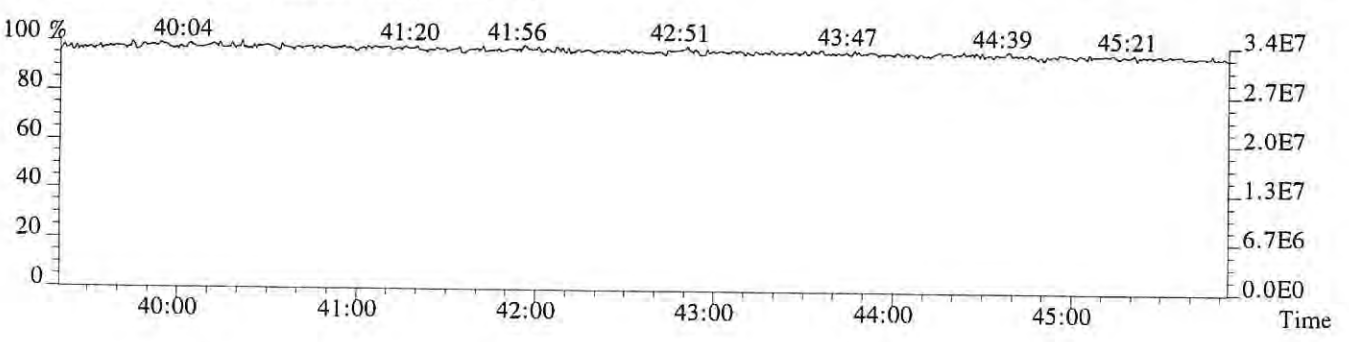
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



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



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518948

Date: 11/20 - 11/21/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: LKL

Second QC: [illegible]

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518950	20-NOV-18	18:15:04
194503	CS3	P518948	20-NOV-18	16:33:34
METHOD BLANK	EQ1800461-01	P518951	20-NOV-18	19:03:45
METHOD BLANK	EQ1800470-01	P518952	20-NOV-18	19:52:24
SL0506	E1801018-007	P518953	20-NOV-18	20:41:00
1K80201-01	E1801013-001	P518954	20-NOV-18	21:29:38
CCWRF EFFLUENT	E1801022-001	P518955	20-NOV-18	22:18:14
RP5 EFFLUENT	E1801022-002	P518956	20-NOV-18	23:06:51
RP5 INFLUENT	E1801022-003	P518957	20-NOV-18	23:55:28
RP2 PUMP	E1801022-004	P518958	21-NOV-18	00:44:06
1K80510-02	E1801023-001	P518959	21-NOV-18	01:32:43
INF-001-COMP	E1801028-001	P518960	21-NOV-18	02:21:20
LCS	EQ1800470-02	P518961	21-NOV-18	03:09:58
DLCS	EQ1800470-03	P518962	21-NOV-18	03:58:35

E1801018

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181120B.SPL
Last Modified: Wednesday, November 21, 2018 06:56:48 Central Standard Time
Printed: Wednesday, November 21, 2018 06:56:50 Central Standard Time

Page Position (1, 1)

OPVS5NET: P518948 RES

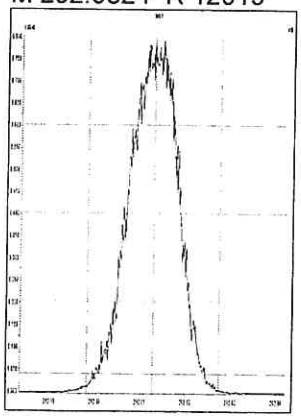
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/20/18	16:33	P518948	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMScheck 17:23
2		/	P518949	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		MdlUsed
3		18:15	P518950	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		19:03	P518951	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		19:52	P518952	MB	EQ1800470-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		20:41	P518953	E1801018-007	E1801018-007	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		21:29	P518954	E1801013-001	E1801013-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		22:18	P518955	E1801022-001	E1801022-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		23:06	P518956	E1801022-002	E1801022-002	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		23:55	P518957	E1801022-003	E1801022-003	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11	11/21/18	00:44	P518958	E1801022-004	E1801022-004	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		01:32	P518959	E1801023-001	E1801023-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		02:21	P518960	E1801028-001	E1801028-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		03:09	P518961	LCS	EQ1800470-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		03:58	P518962	DLCS	EQ1800470-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMScheck 04:55
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 11/26/18

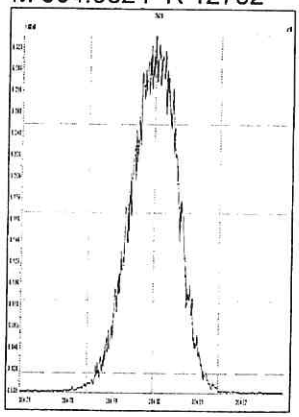
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, November 20, 2018 17:23:41 Central Standard Time

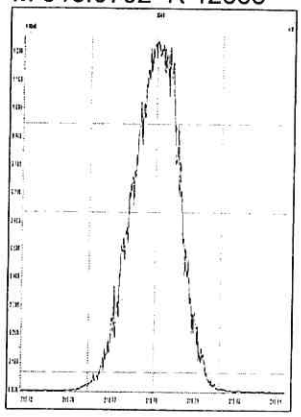
M 292.9824 R 12019



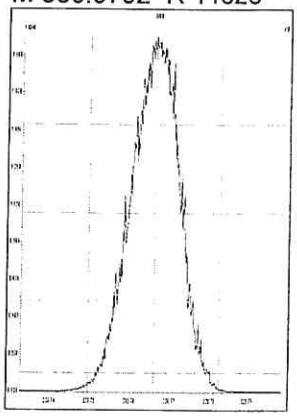
M 304.9824 R 12752



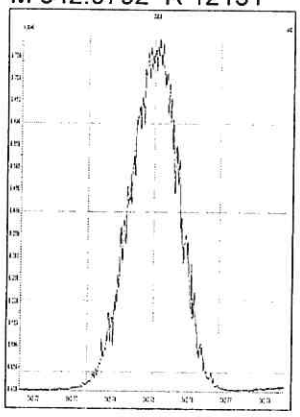
M 318.9792 R 12563



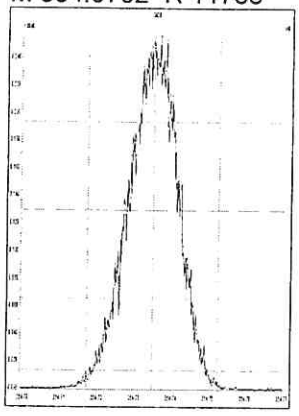
M 330.9792 R 11626



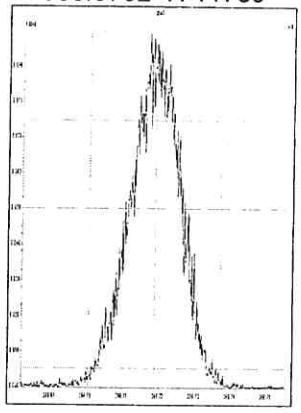
M 342.9792 R 12131



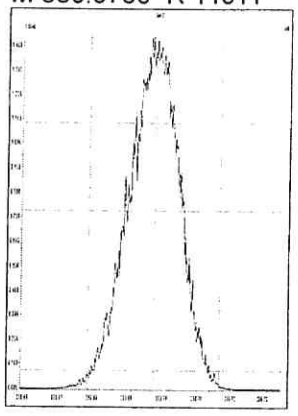
M 354.9792 R 11736



M 366.9792 R 11789



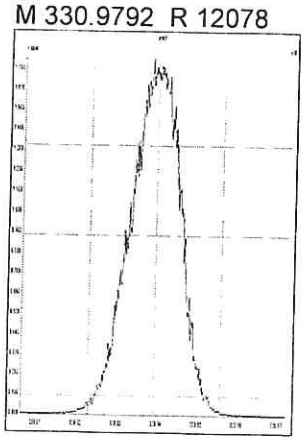
M 380.9760 R 11311



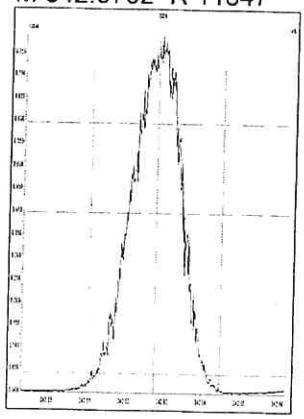
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, November 20, 2018 17:24:28 Central Standard Time

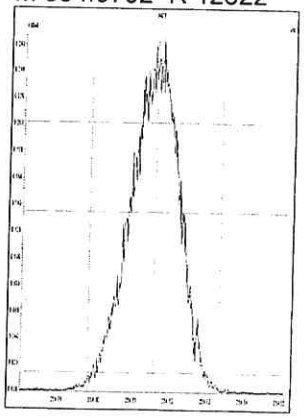
M 330.9792 R 12078



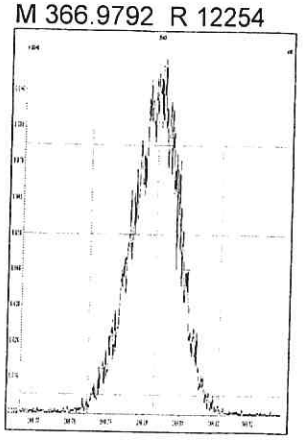
M 342.9792 R 11847



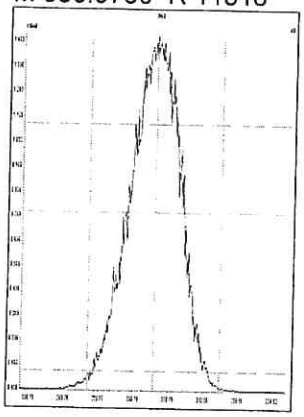
M 354.9792 R 12622



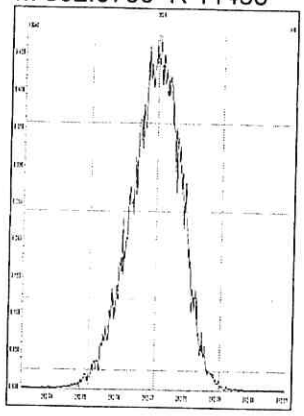
M 366.9792 R 12254



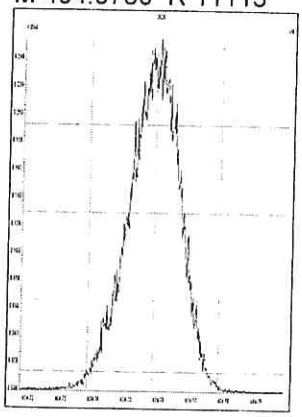
M 380.9760 R 11518



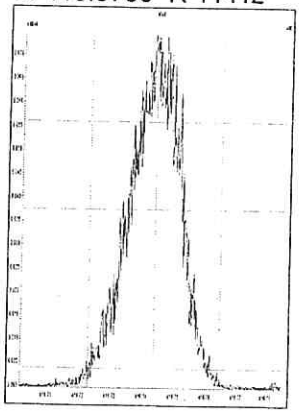
M 392.9760 R 11468



M 404.9760 R 11113



M 416.9760 R 11412



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

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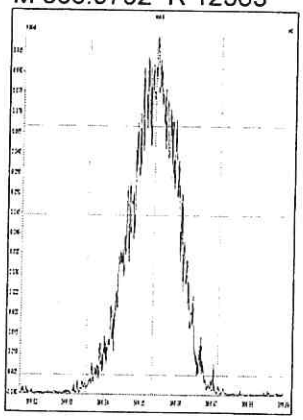
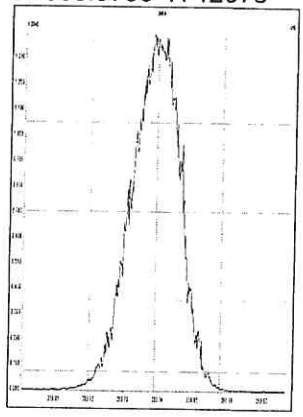
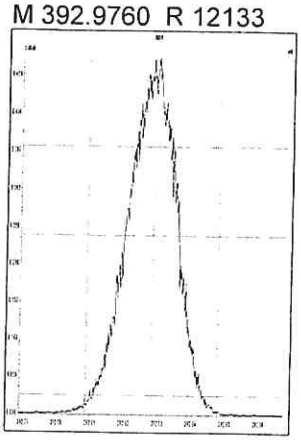
M 366.9792 R 12563



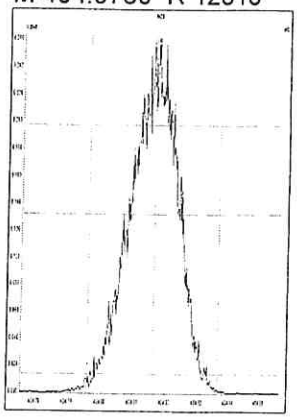
M 380.9760 R 12076



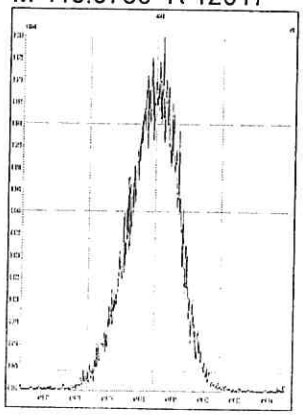
M 392.9760 R 12133



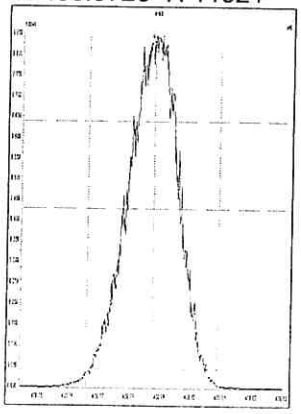
M 404.9760 R 12315



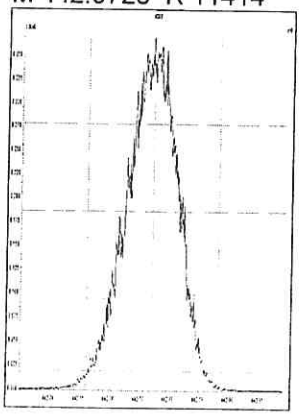
M 416.9760 R 12017



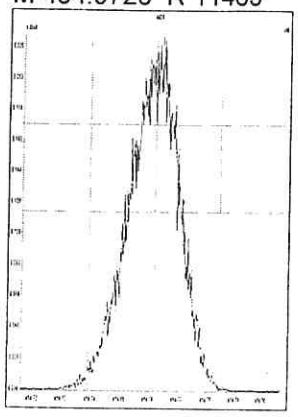
M 430.9728 R 11521



M 442.9728 R 11414



M 454.9728 R 11465



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

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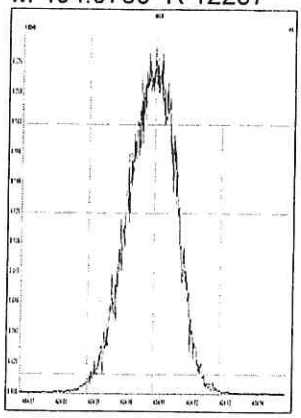
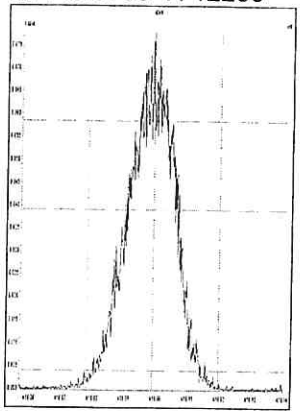
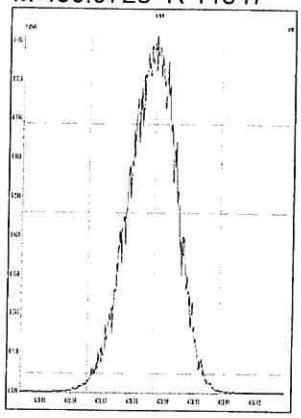
M 404.9760 R 12257



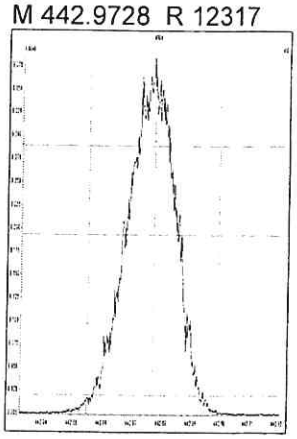
M 416.9760 R 12255



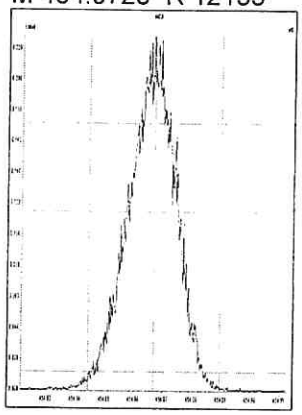
M 430.9728 R 11847



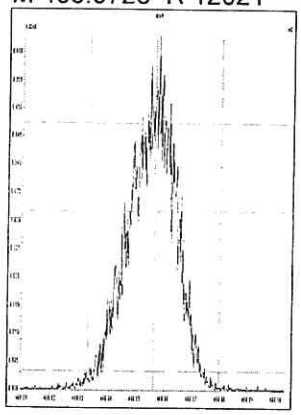
M 442.9728 R 12317



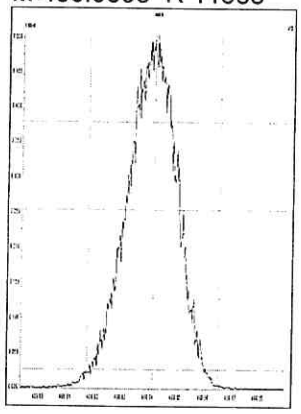
M 454.9728 R 12135



M 466.9728 R 12021



M 480.9696 R 11683



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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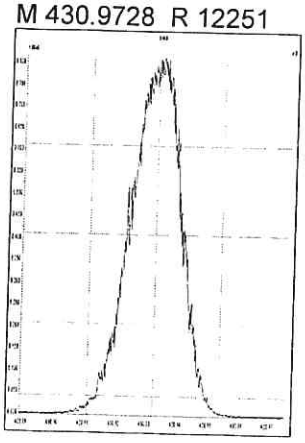
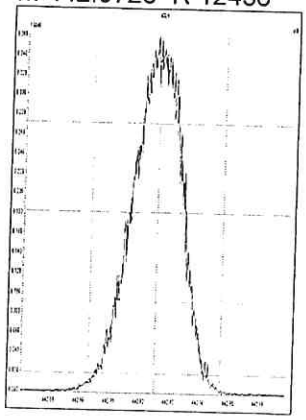
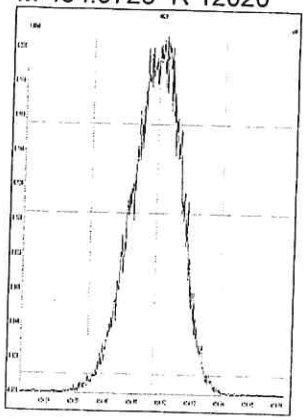
M 430.9728 R 12251



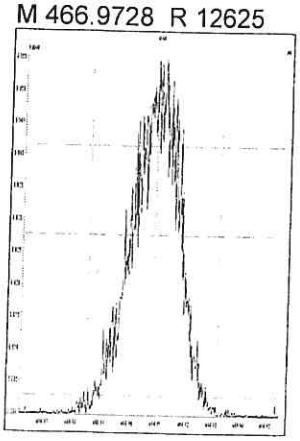
M 442.9728 R 12436



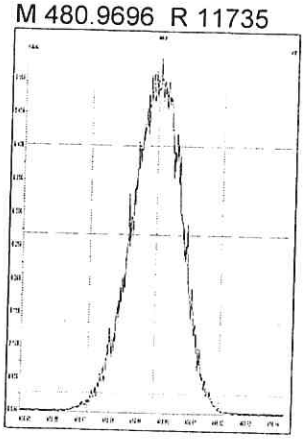
M 454.9728 R 12020



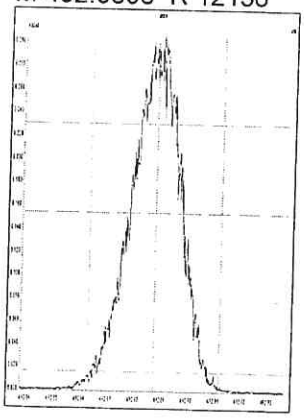
M 466.9728 R 12625



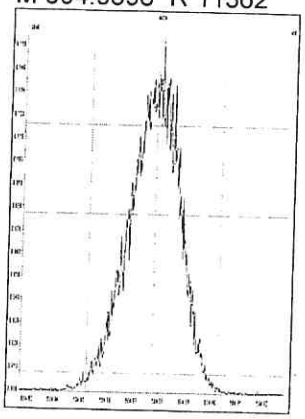
M 480.9696 R 11735



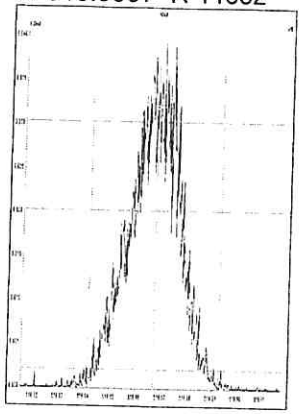
M 492.9696 R 12136



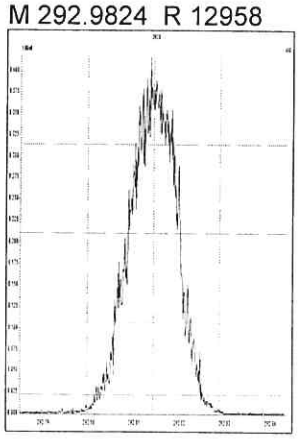
M 504.9696 R 11362



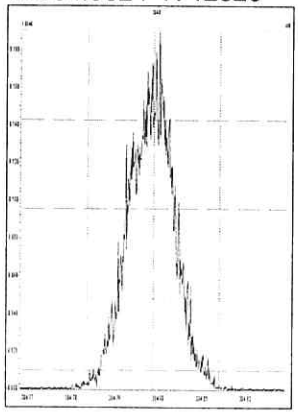
M 516.9697 R 11632



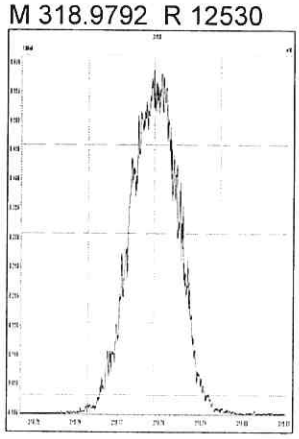
M 292.9824 R 12958



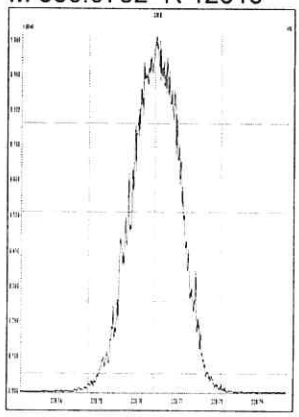
M 304.9824 R 12820



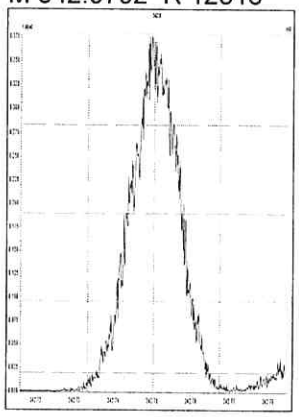
M 318.9792 R 12530



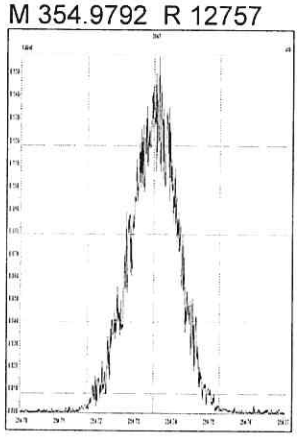
M 330.9792 R 12315



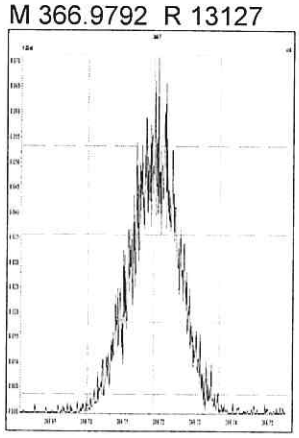
M 342.9792 R 12316



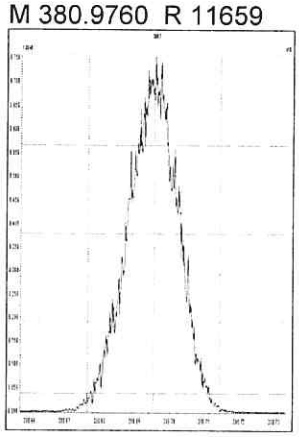
M 354.9792 R 12757



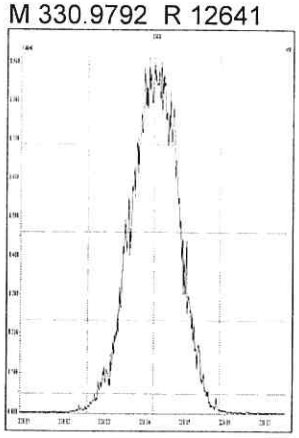
M 366.9792 R 13127



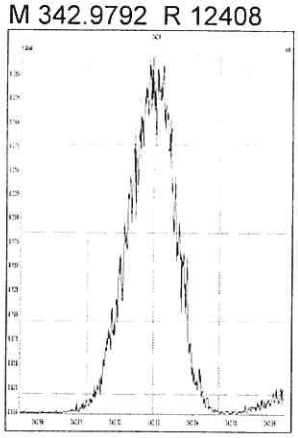
M 380.9760 R 11659



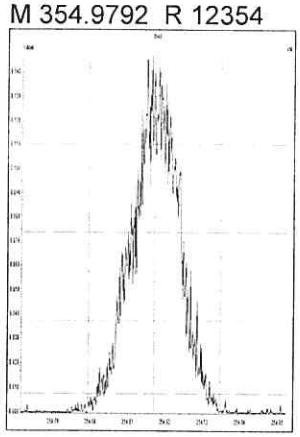
M 330.9792 R 12641



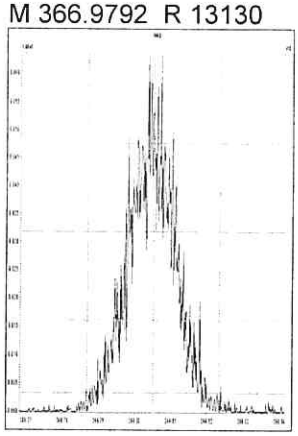
M 342.9792 R 12408



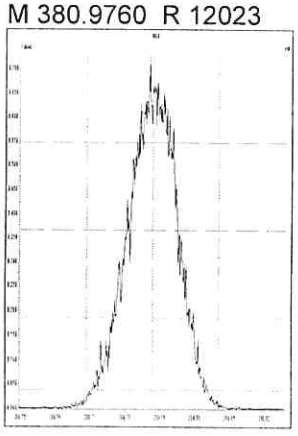
M 354.9792 R 12354



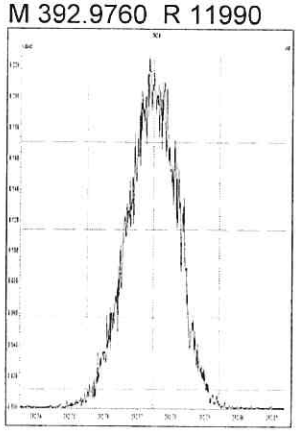
M 366.9792 R 13130



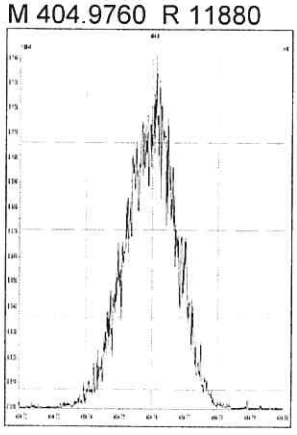
M 380.9760 R 12023



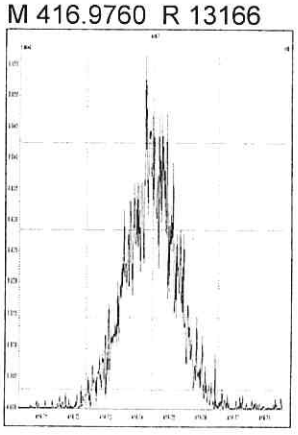
M 392.9760 R 11990



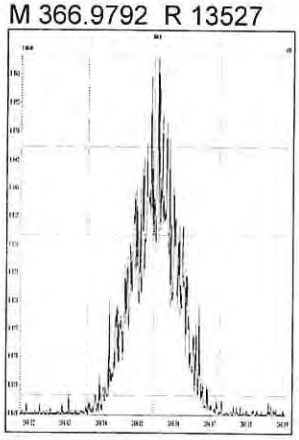
M 404.9760 R 11880



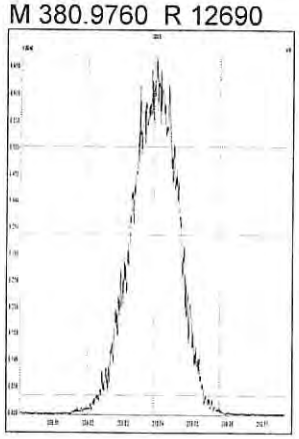
M 416.9760 R 13166



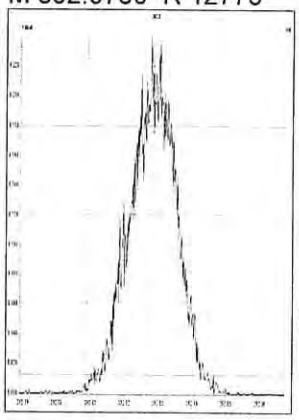
M 366.9792 R 13527



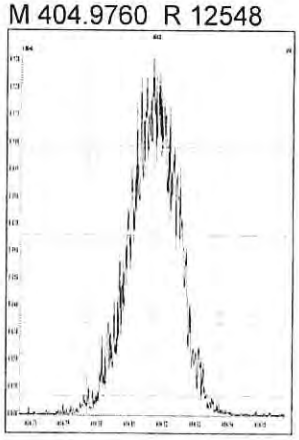
M 380.9760 R 12690



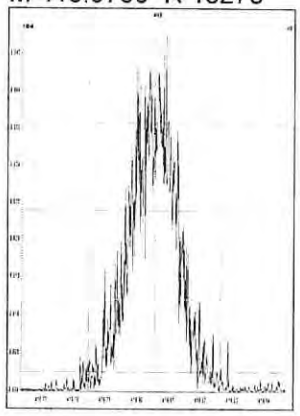
M 392.9760 R 12775



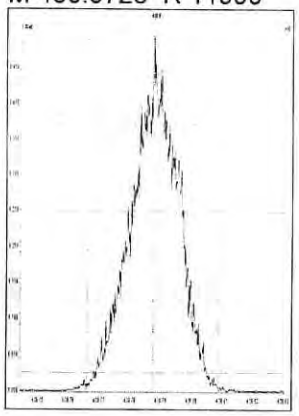
M 404.9760 R 12548



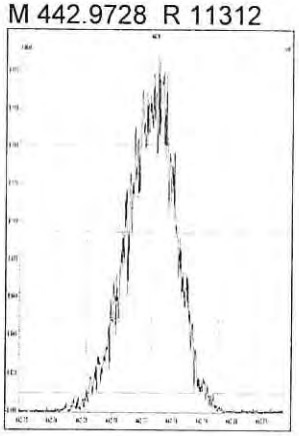
M 416.9760 R 13278



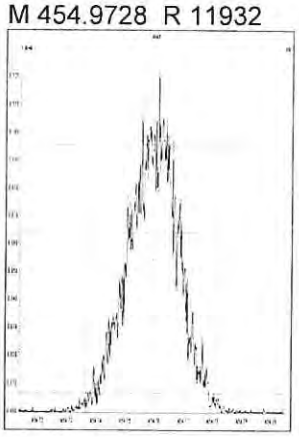
M 430.9728 R 11990



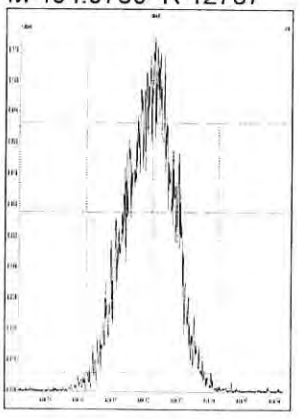
M 442.9728 R 11312



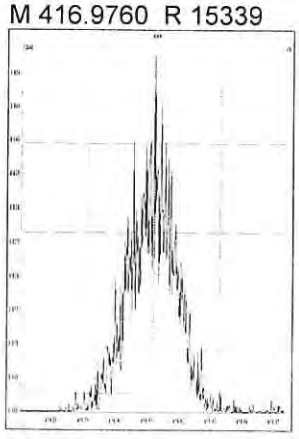
M 454.9728 R 11932



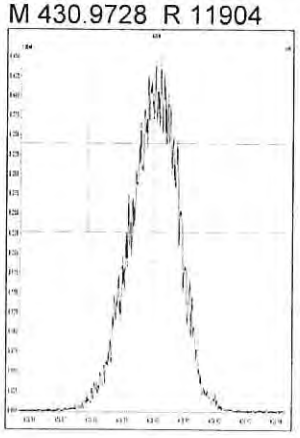
M 404.9760 R 12787



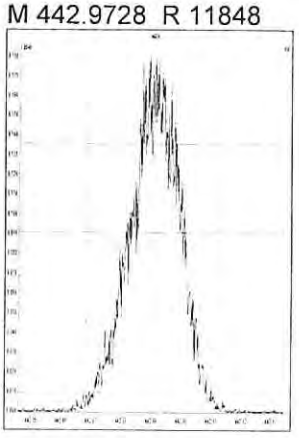
M 416.9760 R 15339



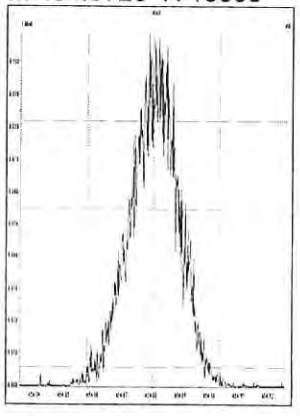
M 430.9728 R 11904



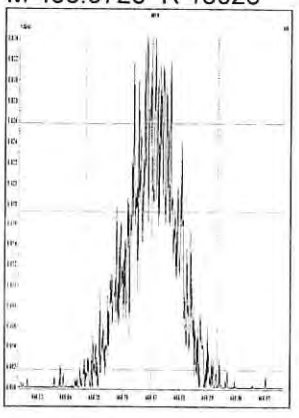
M 442.9728 R 11848



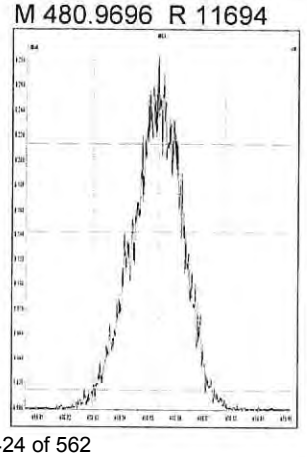
M 454.9728 R 13803



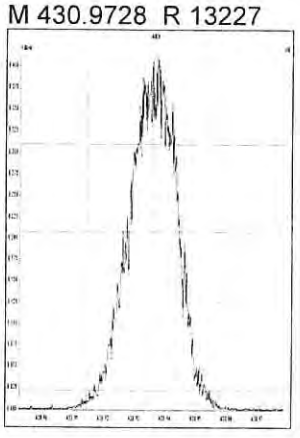
M 466.9728 R 13026



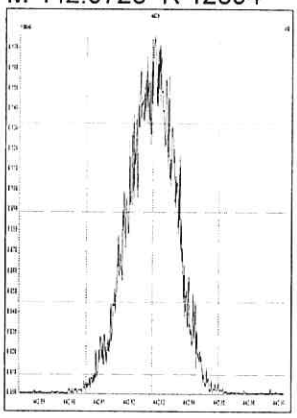
M 480.9696 R 11694



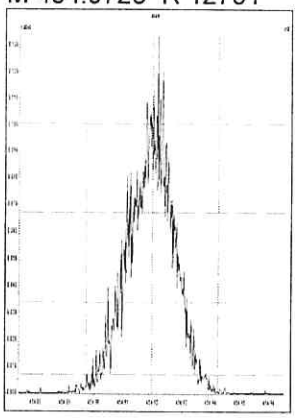
M 430.9728 R 13227



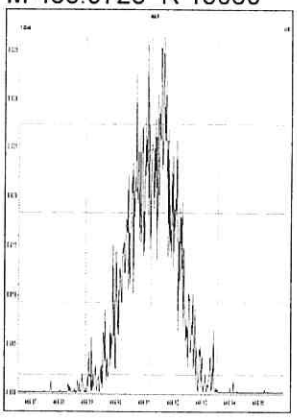
M 442.9728 R 12894



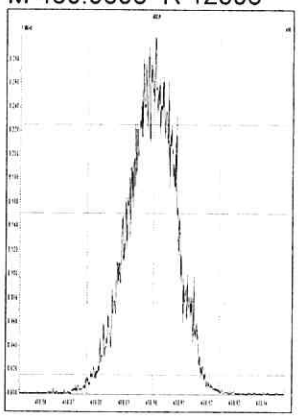
M 454.9728 R 12751



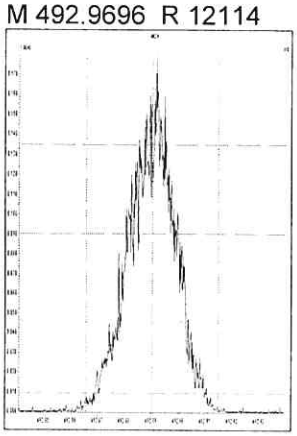
M 466.9728 R 15060



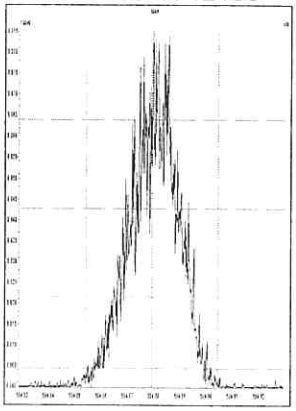
M 480.9696 R 12596



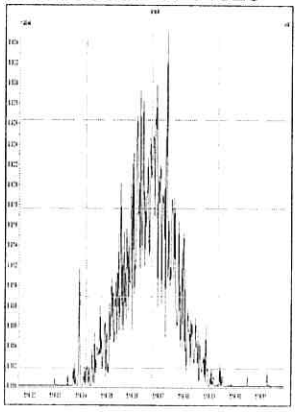
M 492.9696 R 12114



M 504.9696 R 12136



M 516.9697 R 14326



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

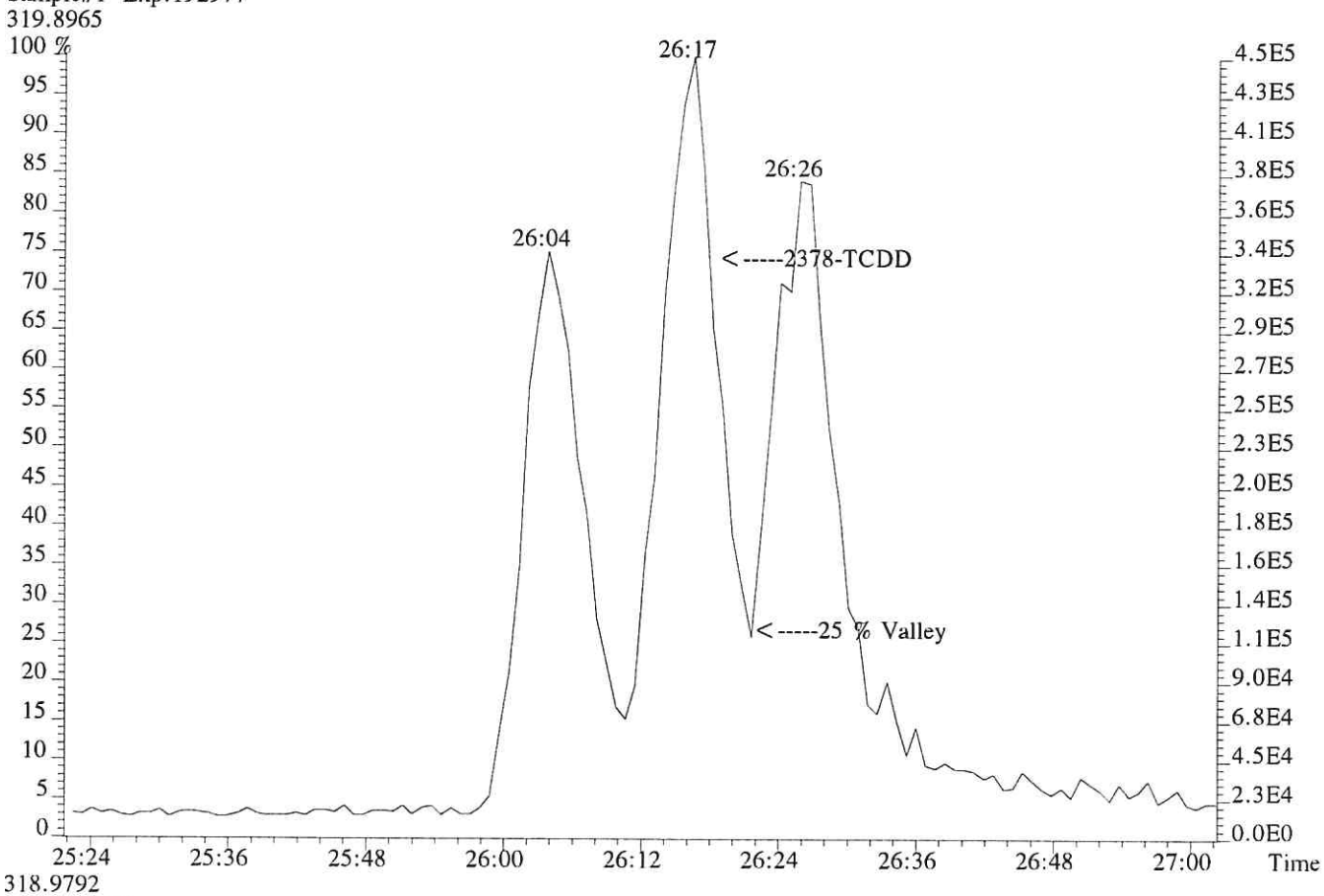
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

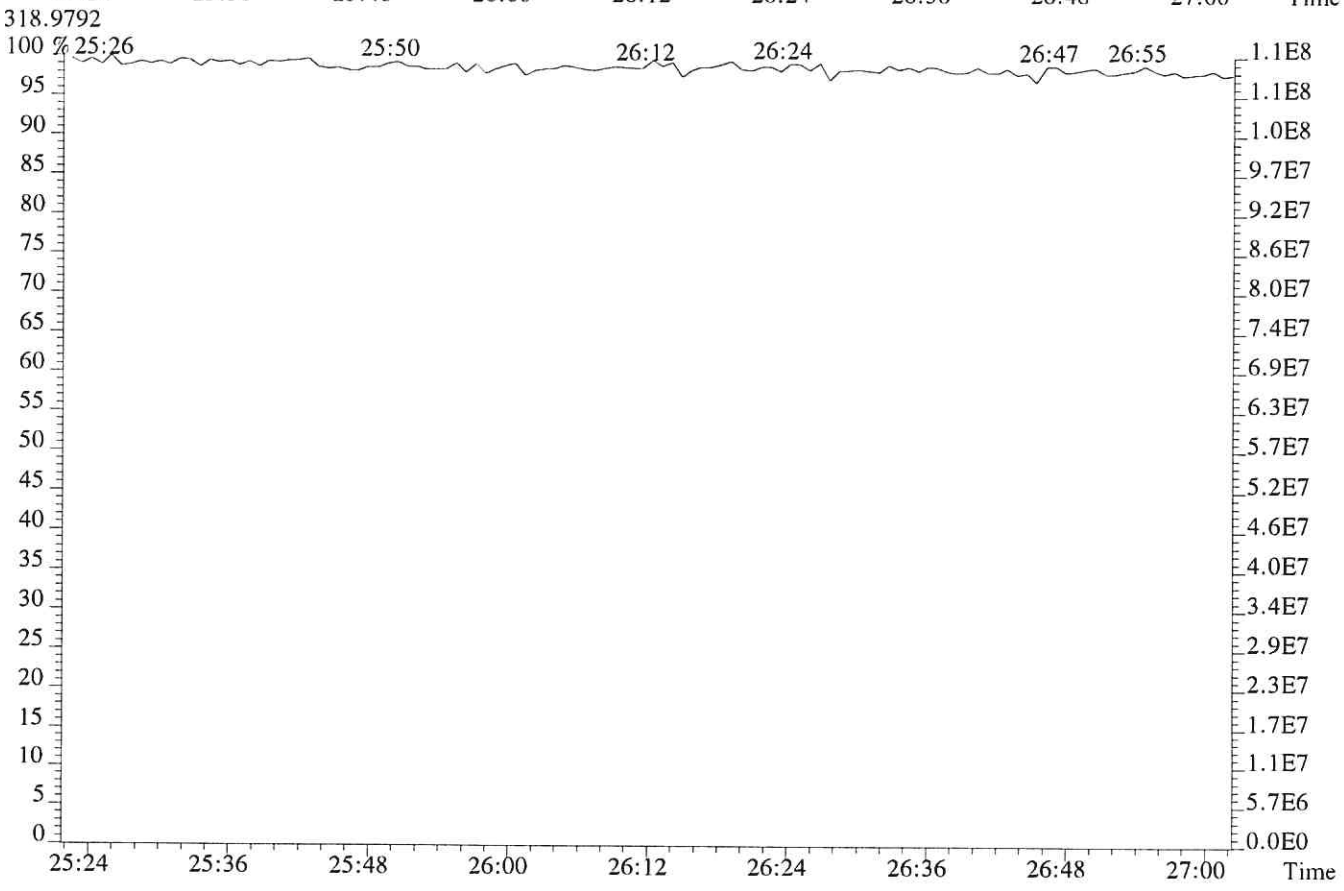
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P518950
Date Analyzed: 20-NOV-18
Time Analyzed: 18:15:04

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	20:59	27:41
TCDD	22:33	27:31
PeCDF	27:39	32:30
PeCDD	29:29	32:14
HxCDF	33:13	35:53
HxCDD	33:47	35:29
HpCDF	37:10	38:32
HpCDD	37:26	38:06

% Valley 2378-TCDD: 25 %

File:P518950 #1-594 Acq:20-NOV-2018 18:15:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





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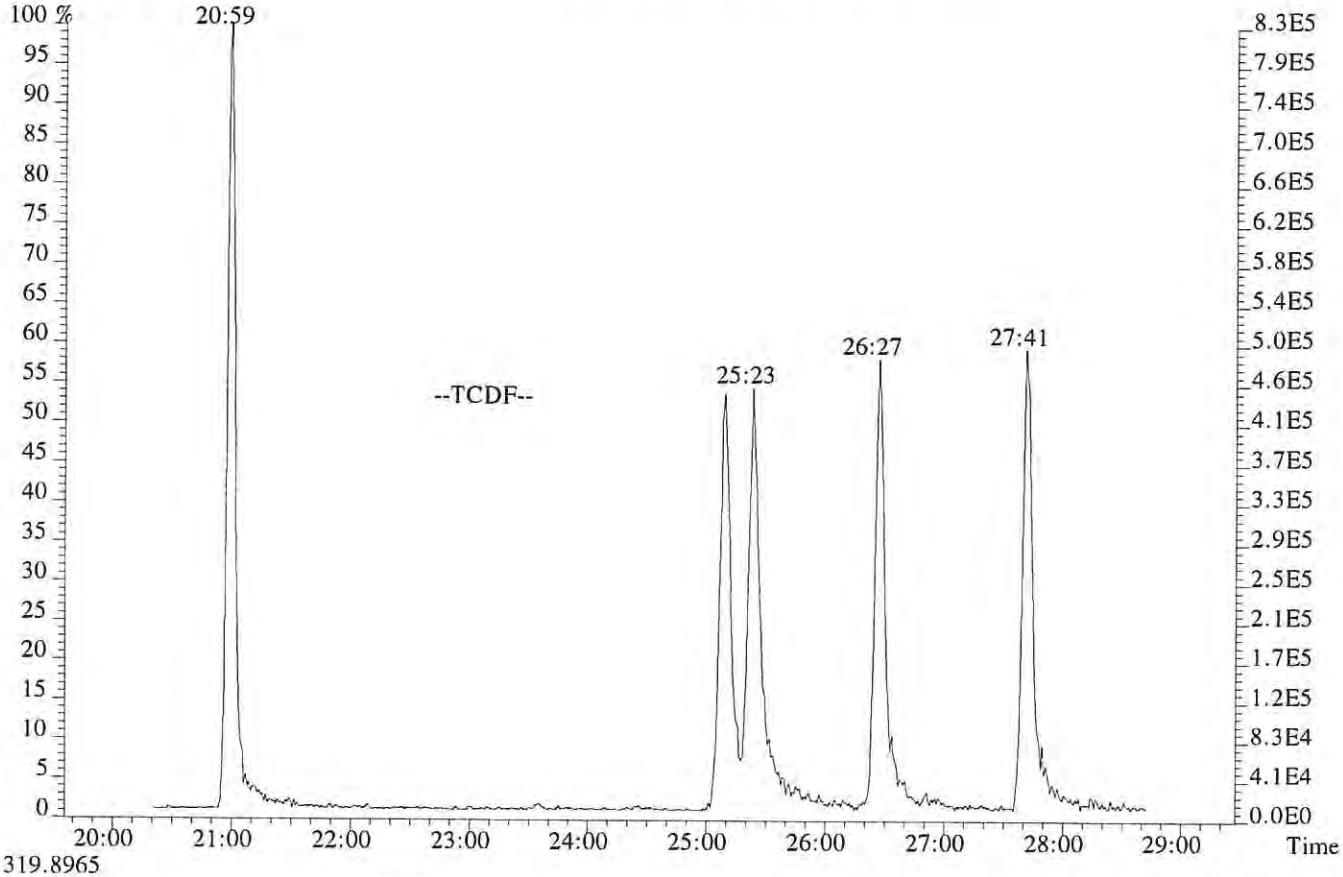
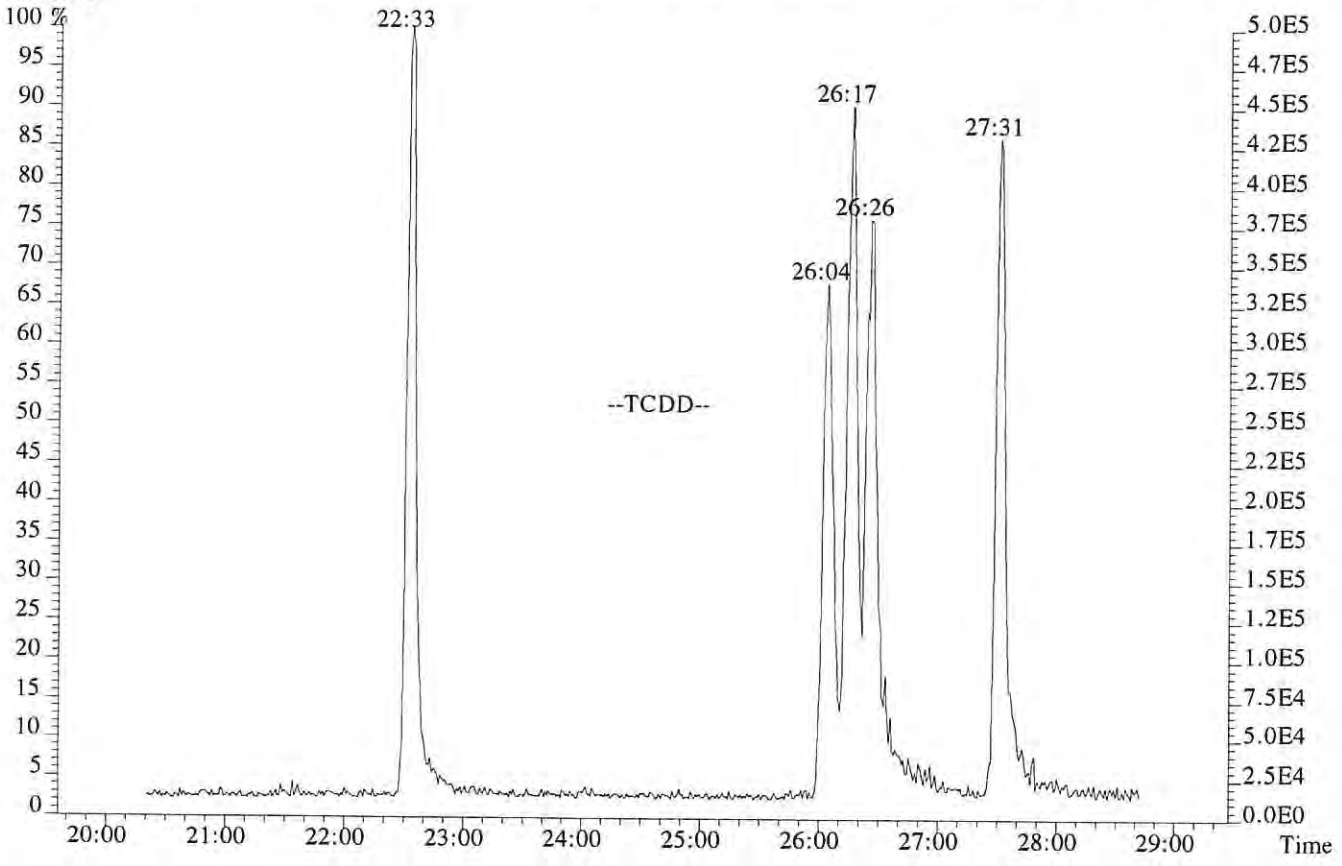
Sample#1 Exp:192977

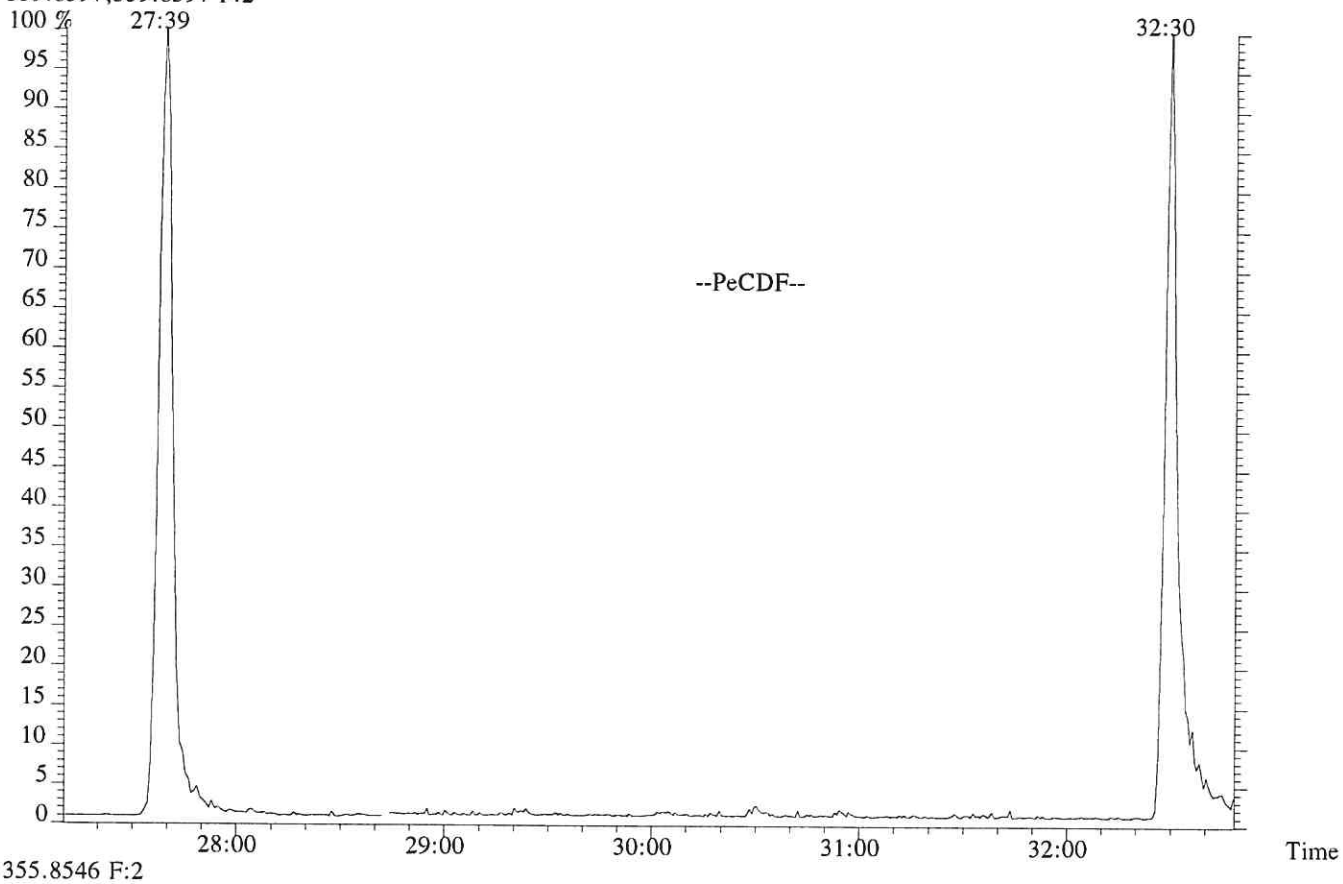
303.9016



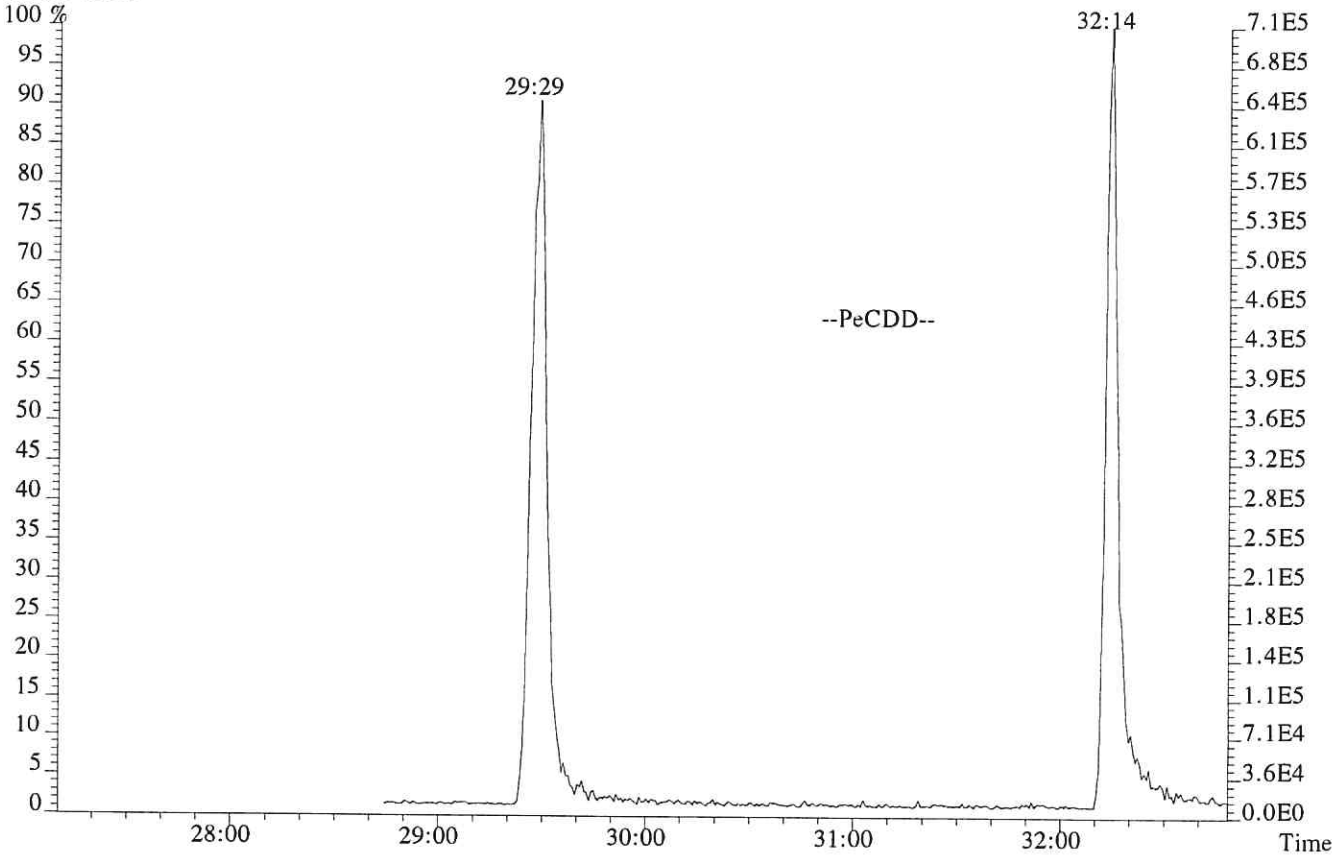
319.8965



File:P518950 #1-594 Acq:20-NOV-2018 18:15:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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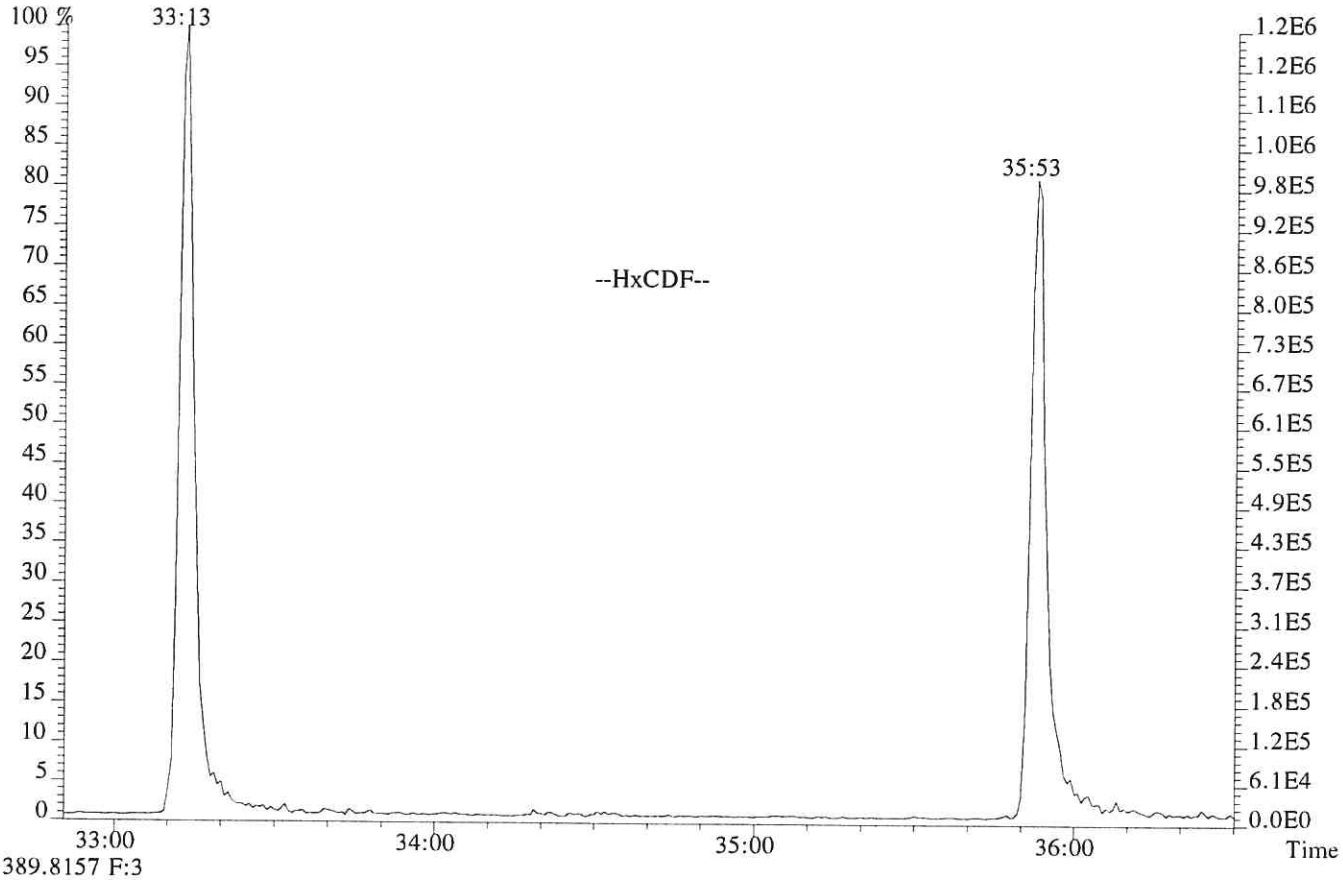
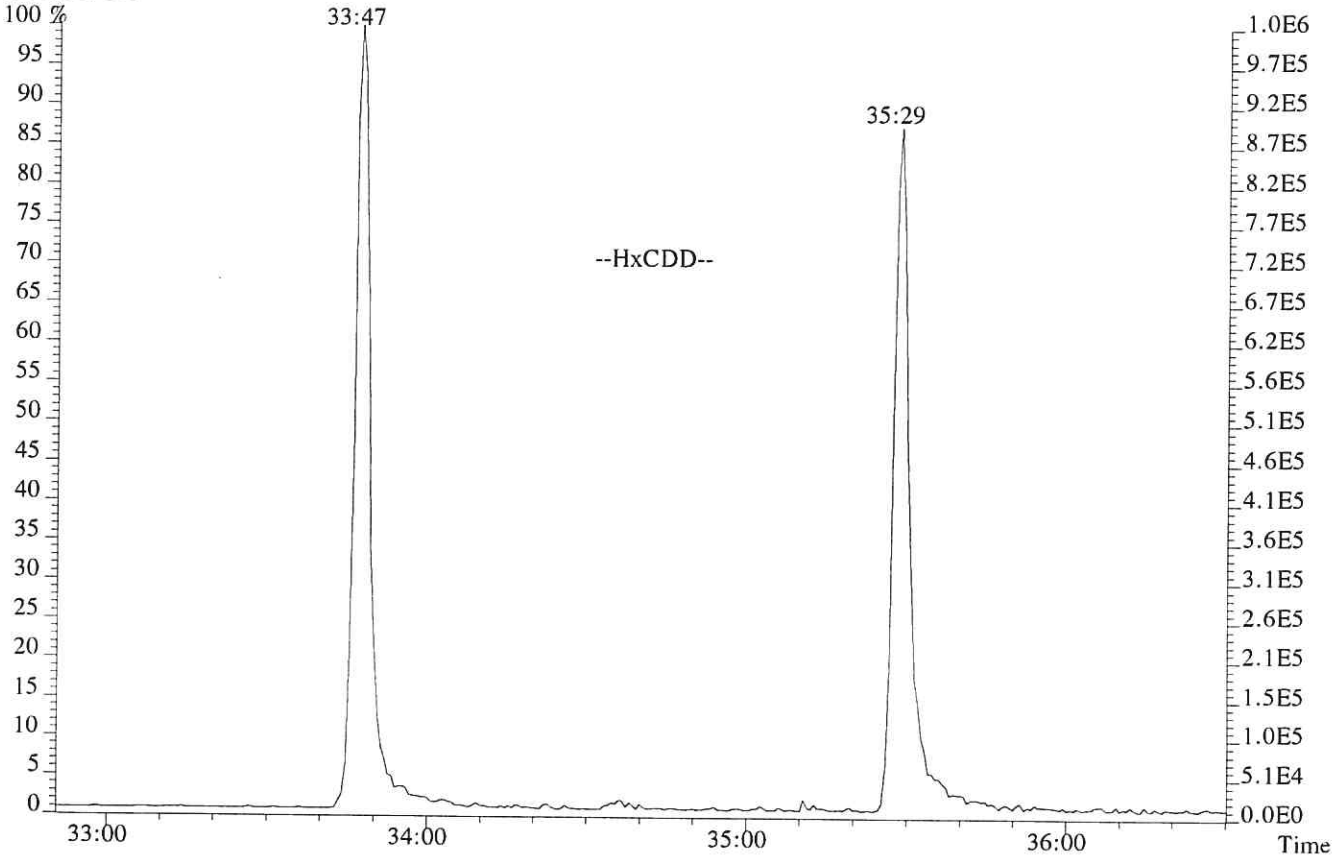
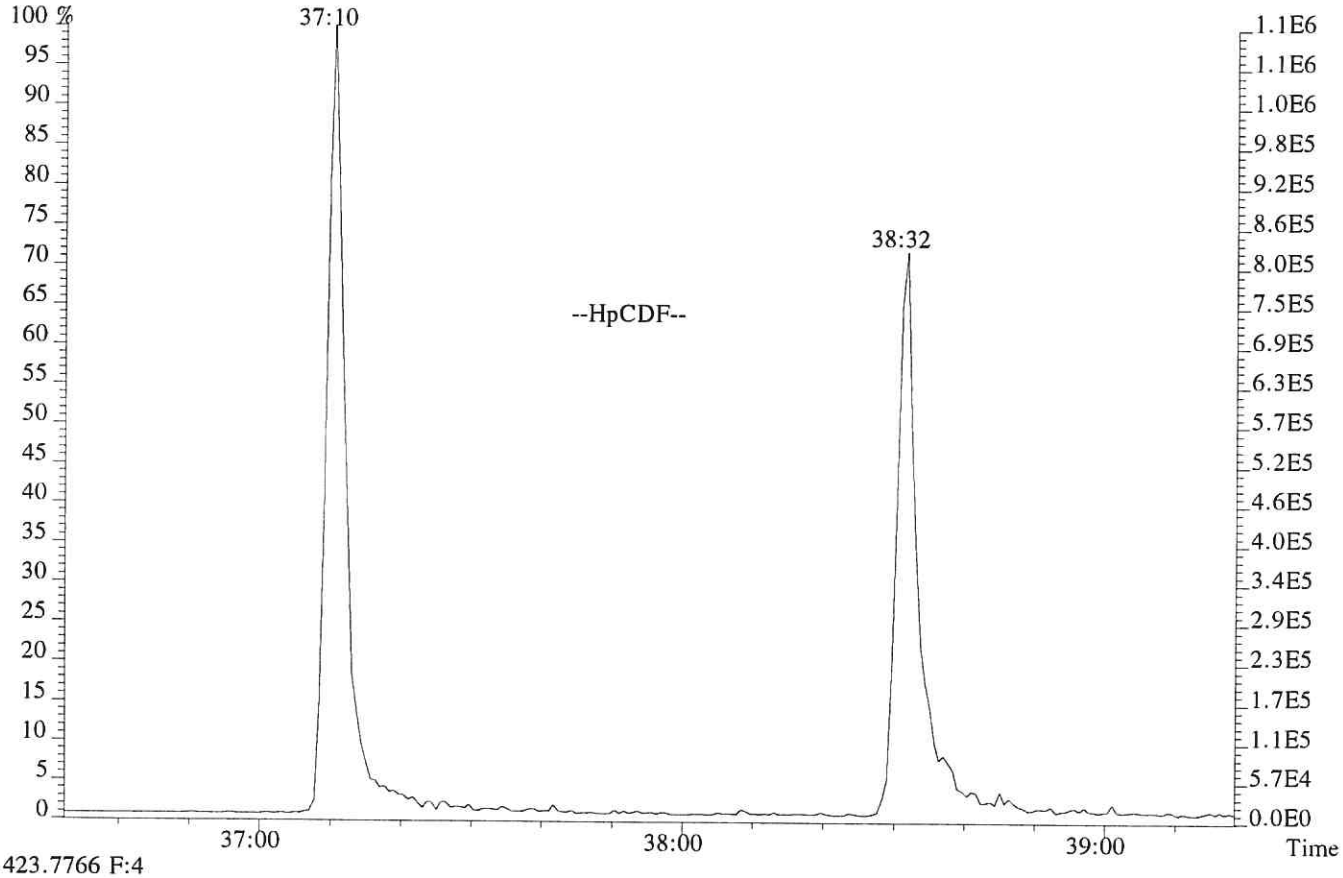
Sample#1 Exp:192977
373.8208 F:3



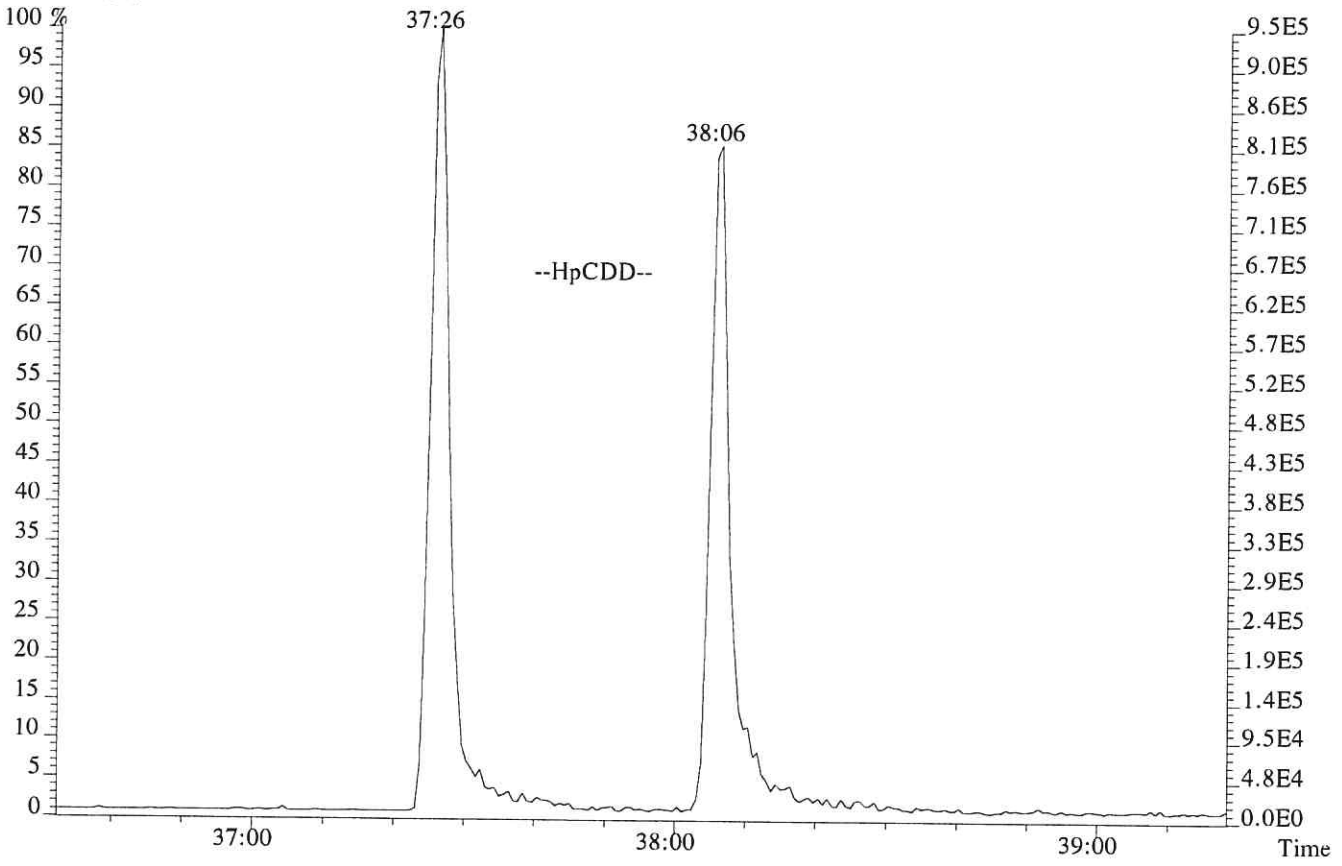
389.8157 F:3



File:P518950 #1-594 Acq:20-NOV-2018 18:15:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518948 Analysis Date: 20-NOV-18 Time: 16:33:34

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.3	7.8 - 12.9	-7.0
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-1.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	50	39 - 64	-0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	55	41 - 61	9.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.0
OCDD	M+2/M+4	0.91	0.76-1.02	100	79 - 126	-0.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.2	8.4 - 12.0	-7.9
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 60	-1.7
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	48	41 - 61	-3.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	45 - 56	2.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	49	45 - 56	-1.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	49	45 - 55	-1.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.7
OCDF	M+2/M+4	0.91	0.76-1.02	95	63 - 159	-5.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518948 Analysis Date: 20-NOV-18 Time: 16:33:34

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	103	82 - 121	3.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	107	62 - 160	6.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	88	85 - 117	-12.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	96	85 - 118	-3.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	101	72 - 138	1.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	243	96 - 415	21.7
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	90	71 - 140	-10.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	99	76 - 130	-1.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	77 - 130	1.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	77	76 - 131	-22.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	88	70 - 143	-11.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	87	74 - 135	-12.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	73 - 137	-11.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	95	78 - 129	-4.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	96	77 - 129	-3.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-2.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518948 Samp: 1 Inj: 1 Acquired: 20-NOV-18 16:33:34
Processed: 26-NOV-18 09:52:32 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:23	4.284e+03	5.617e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:29	3.710e+04	2.373e+04	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:30	3.440e+04	2.277e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	3.037e+04	2.503e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:31	3.591e+04	2.988e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:04	3.193e+04	2.631e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:51	2.796e+04	2.281e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:10	2.966e+04	2.888e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	2.352e+04	2.327e+04	1.01	yes	no	1.258
10	Unk	OCDF	40:48	4.128e+04	4.537e+04	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:26	3.538e+03	4.549e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:50	2.511e+04	1.617e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:13	2.201e+04	1.749e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	2.459e+04	2.010e+04	1.22	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:33	2.624e+04	2.141e+04	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	2.172e+04	2.062e+04	1.05	yes	no	1.025
17	Unk	OCDD	40:38	3.579e+04	3.941e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:22	5.008e+04	6.411e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:28	7.530e+04	4.695e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	7.580e+04	4.810e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:24	3.069e+04	5.985e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	4.079e+04	7.648e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:03	3.628e+04	6.960e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:50	3.053e+04	5.971e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	2.695e+04	6.068e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	2.311e+04	5.185e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:24	3.505e+04	4.510e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:49	5.375e+04	3.381e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	4.293e+04	3.403e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:18	4.830e+04	3.855e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:05	4.213e+04	4.050e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	40:37	6.386e+04	7.082e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:40	3.755e+04	4.665e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	5.298e+04	4.204e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:26	8.291e+03				no	1.014

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518948 Samp: 1 Inj: 1 Acquired: 20-NOV-18 16:33:34
Processed: 26-NOV-18 09:52:32 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.00e+05	7.28e+02	6.9e+02	6.93e+05	9.84e+02	7.0e+02
2	1,2,3,7,8-PeCDF	5.53e+06	1.92e+02	2.9e+04	3.61e+06	1.22e+03	3.0e+03
3	2,3,4,7,8-PeCDF	5.62e+06	1.92e+02	2.9e+04	3.70e+06	1.22e+03	3.0e+03
4	1,2,3,4,7,8-HxCDF	6.28e+06	3.96e+02	1.6e+04	5.17e+06	3.88e+02	1.3e+04
5	1,2,3,6,7,8-HxCDF	6.13e+06	3.96e+02	1.5e+04	5.17e+06	3.88e+02	1.3e+04
6	2,3,4,6,7,8-HxCDF	6.12e+06	3.96e+02	1.5e+04	5.11e+06	3.88e+02	1.3e+04
7	1,2,3,7,8,9-HxCDF	4.75e+06	3.96e+02	1.2e+04	4.00e+06	3.88e+02	1.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.83e+06	3.43e+03	1.7e+03	5.66e+06	3.34e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.27e+06	3.43e+03	1.2e+03	4.25e+06	3.34e+03	1.3e+03
10	OCDF	6.47e+06	2.52e+02	2.6e+04	7.00e+06	1.04e+03	6.7e+03
11	2,3,7,8-TCDD	4.58e+05	1.47e+03	3.1e+02	6.01e+05	6.88e+02	8.7e+02
12	1,2,3,7,8-PeCDD	4.09e+06	3.68e+02	1.1e+04	2.58e+06	1.96e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	4.57e+06	4.92e+02	9.3e+03	3.58e+06	3.52e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	4.57e+06	4.92e+02	9.3e+03	3.75e+06	3.52e+02	1.1e+04
15	1,2,3,7,8,9-HxCDD	4.74e+06	4.92e+02	9.6e+03	3.78e+06	3.52e+02	1.1e+04
16	1,2,3,4,6,7,8-HpCDD	4.04e+06	9.72e+02	4.2e+03	3.90e+06	4.08e+02	9.5e+03
17	OCDD	5.56e+06	2.92e+02	1.9e+04	6.20e+06	4.04e+02	1.5e+04
18	13C-2,3,7,8-TCDF	5.92e+06	5.59e+03	1.1e+03	7.56e+06	2.93e+03	2.6e+03
19	13C-1,2,3,7,8-PeCDF	1.09e+07	7.24e+02	1.5e+04	6.92e+06	3.60e+02	1.9e+04
20	13C-2,3,4,7,8-PeCDF	1.24e+07	7.24e+02	1.7e+04	7.71e+06	3.60e+02	2.1e+04
21	13C-1,2,3,4,7,8-HxCDF	6.31e+06	8.52e+02	7.4e+03	1.23e+07	9.52e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	7.07e+06	8.52e+02	8.3e+03	1.34e+07	9.52e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	6.86e+06	8.52e+02	8.1e+03	1.32e+07	9.52e+02	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.28e+06	8.52e+02	6.2e+03	1.02e+07	9.52e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.15e+06	6.28e+03	8.2e+02	1.16e+07	6.35e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.18e+06	6.28e+03	6.6e+02	9.40e+06	6.35e+03	1.5e+03
27	13C-2,3,7,8-TCDD	4.62e+06	4.98e+03	9.3e+02	5.87e+06	2.90e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	8.58e+06	4.08e+02	2.1e+04	5.40e+06	6.24e+02	8.7e+03
29	13C-1,2,3,4,7,8-HxCDD	8.78e+06	1.31e+03	6.7e+03	6.91e+06	7.24e+02	9.5e+03
30	13C-1,2,3,6,7,8-HxCDD	8.90e+06	1.31e+03	6.8e+03	7.14e+06	7.24e+02	9.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.88e+06	7.48e+02	1.1e+04	7.60e+06	3.92e+02	1.9e+04
32	13C-OCDD	9.94e+06	7.04e+02	1.4e+04	1.10e+07	2.32e+02	4.7e+04
33	13C-1,2,3,4-TCDD	5.08e+06	4.98e+03	1.0e+03	6.28e+06	2.90e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	9.45e+06	1.31e+03	7.2e+03	7.48e+06	7.24e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	1.10e+06	1.29e+03	8.5e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.472e{+}03 + 6.880e{+}02) \times 100}{(4.617e{+}06 + 5.870e{+}06) \times (\quad) \times 1.085} =$$

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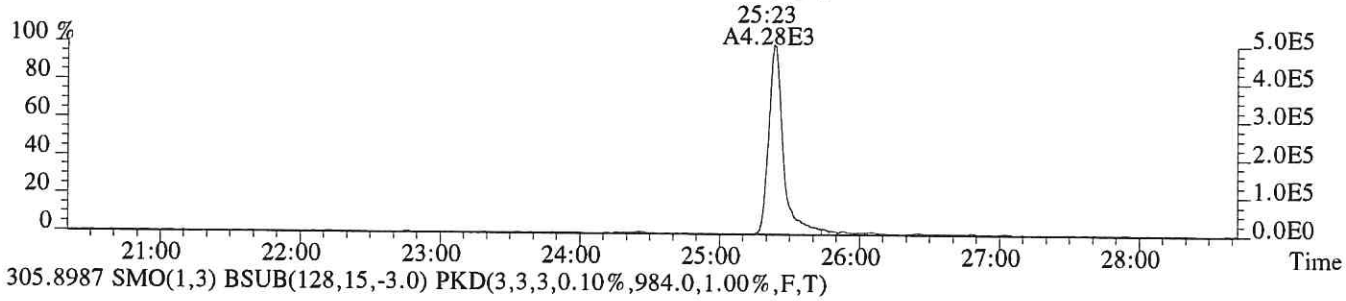
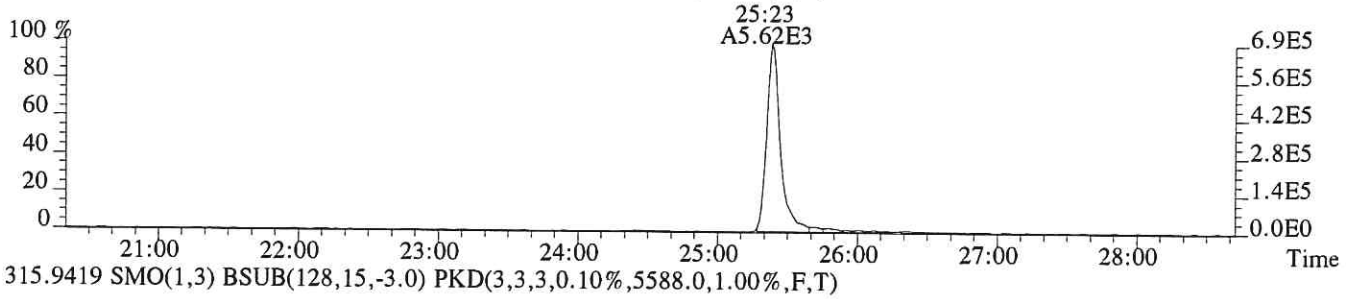
File:P518948 #1-594 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

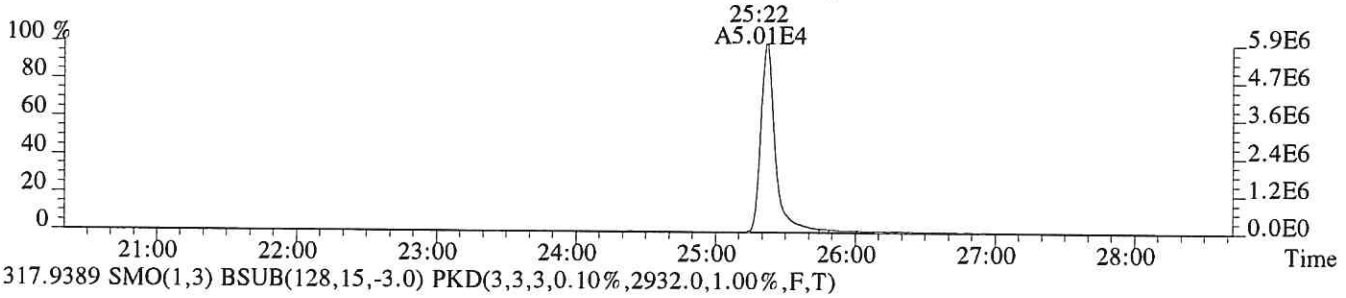
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



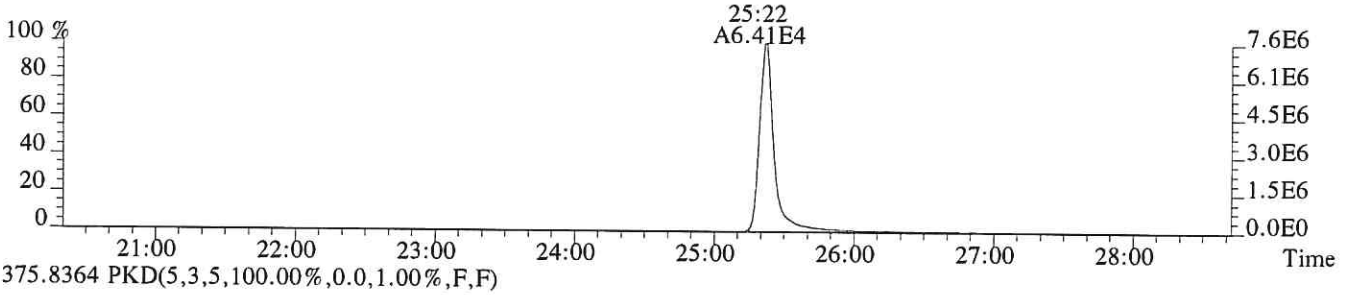
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



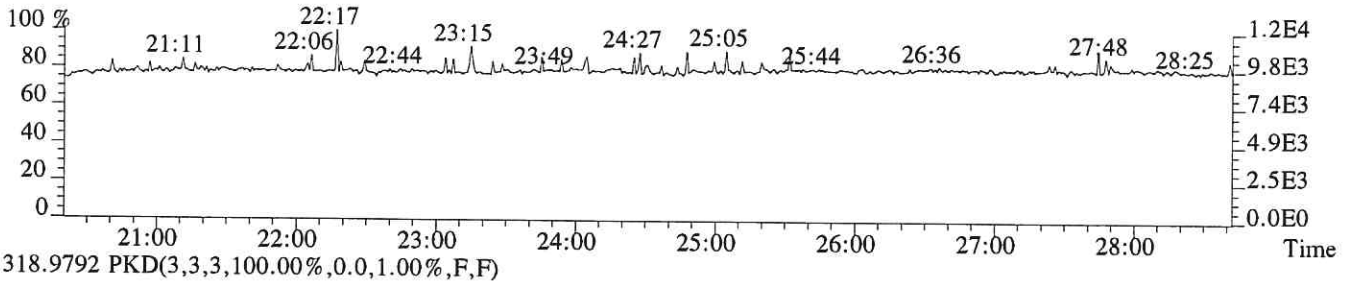
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5588.0,1.00%,F,T)



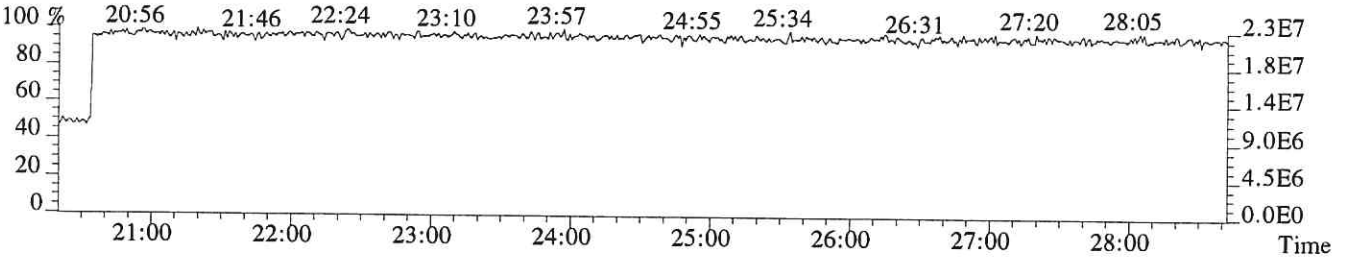
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2932.0,1.00%,F,T)



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

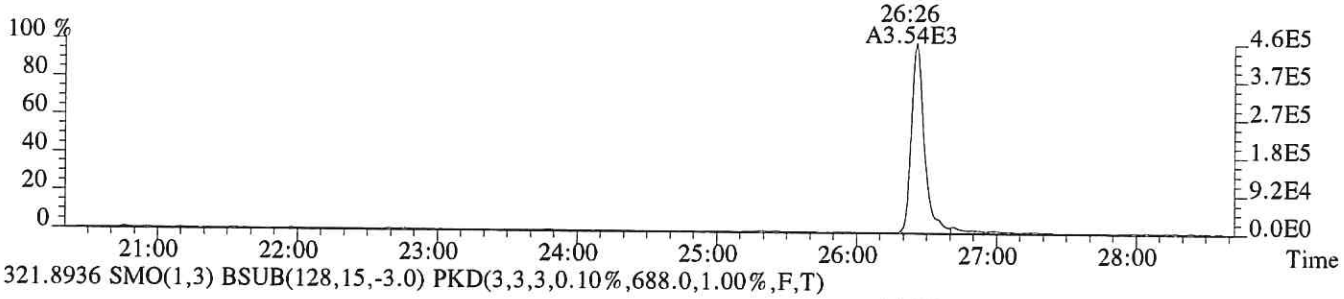


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

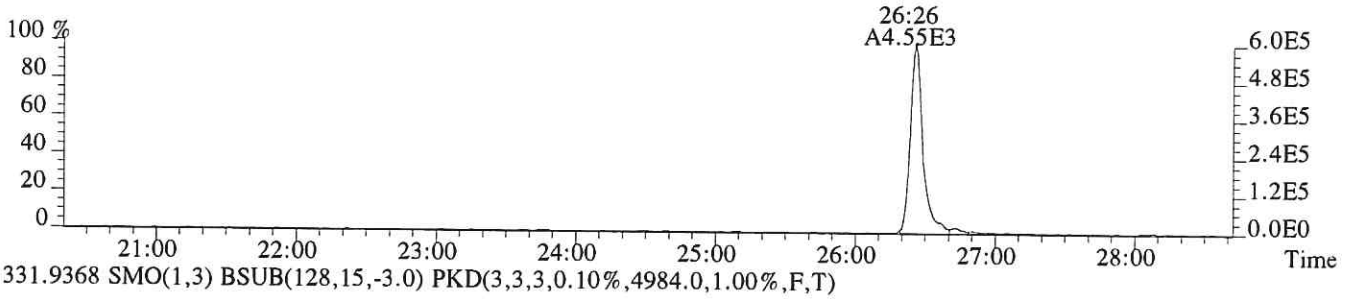


File:P518948 #1-594 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

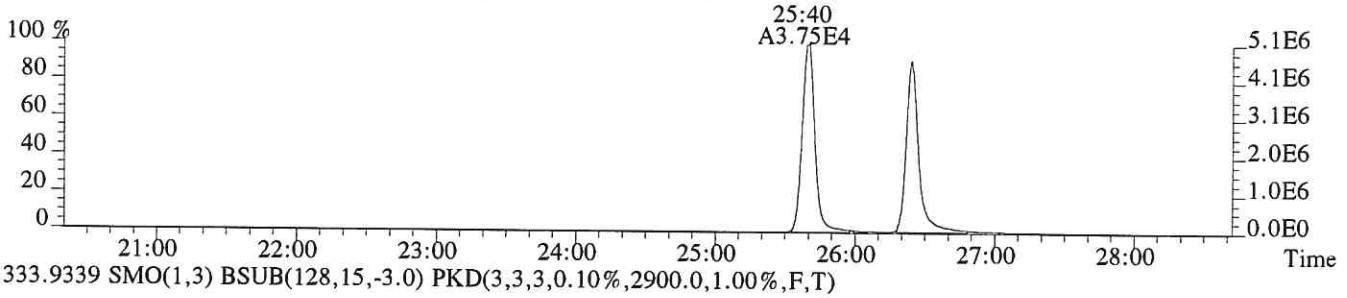
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



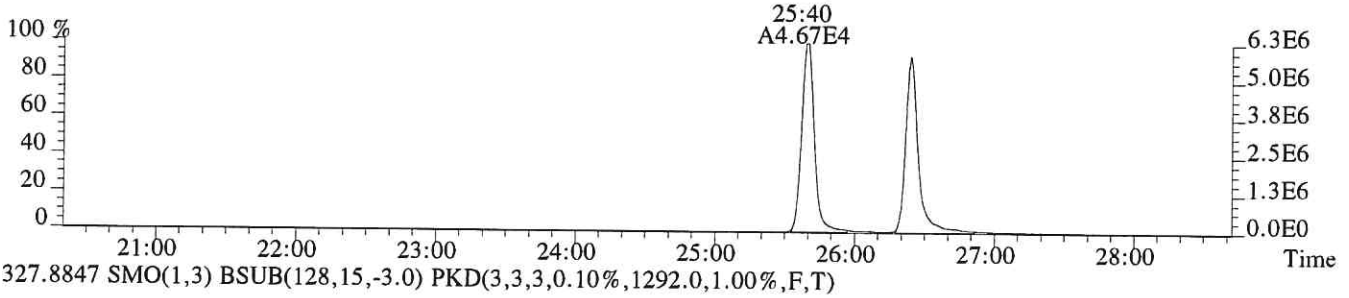
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



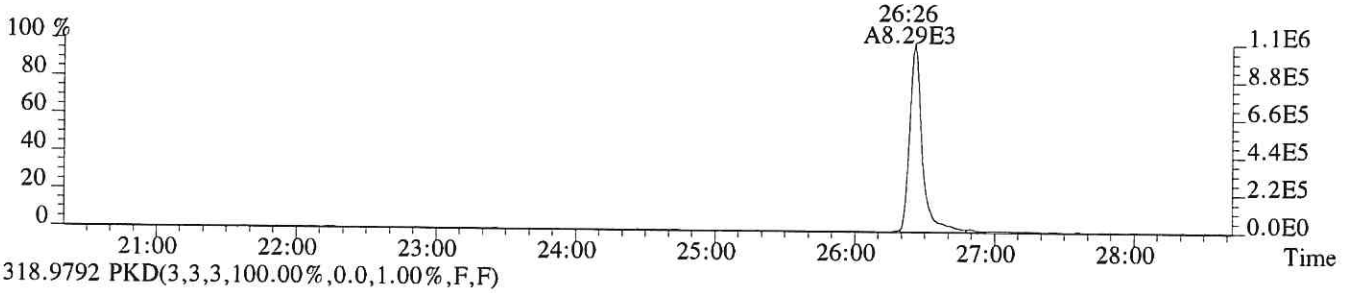
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4984.0,1.00%,F,T)



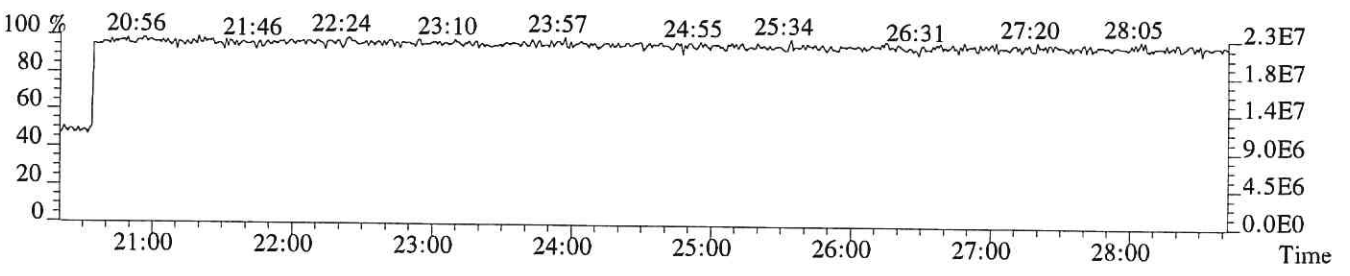
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)

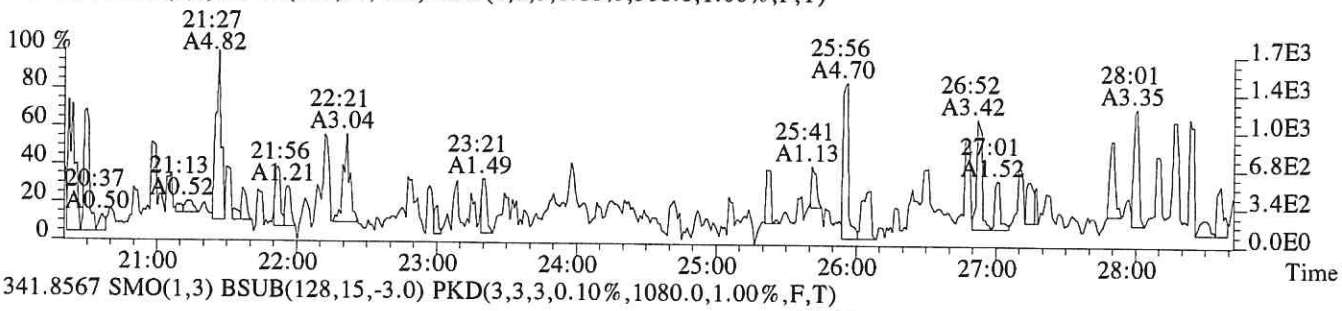


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

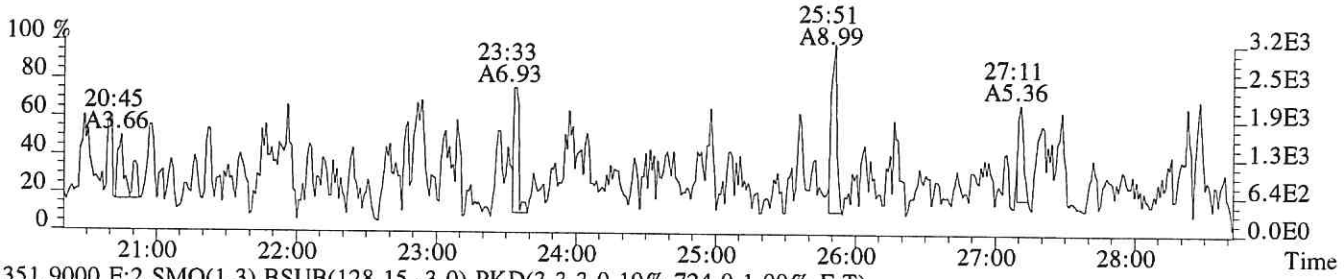


File:P518948 #1-594 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

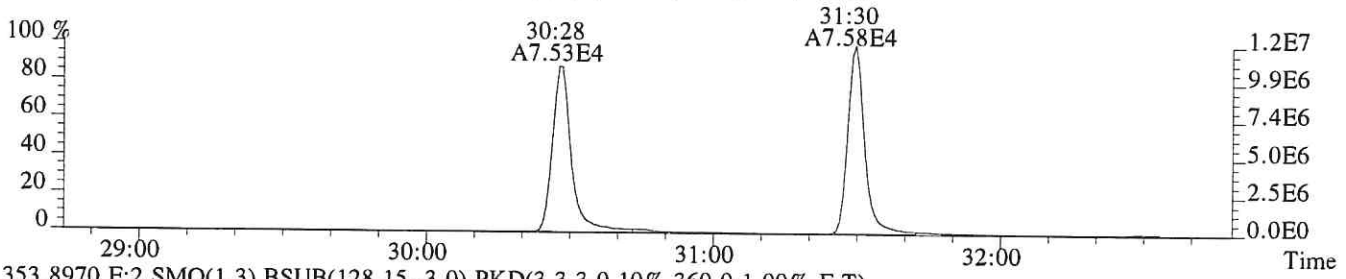
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



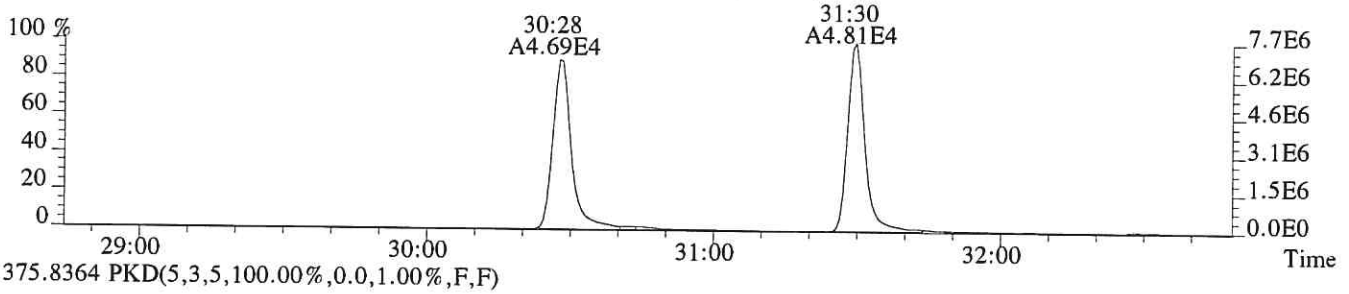
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



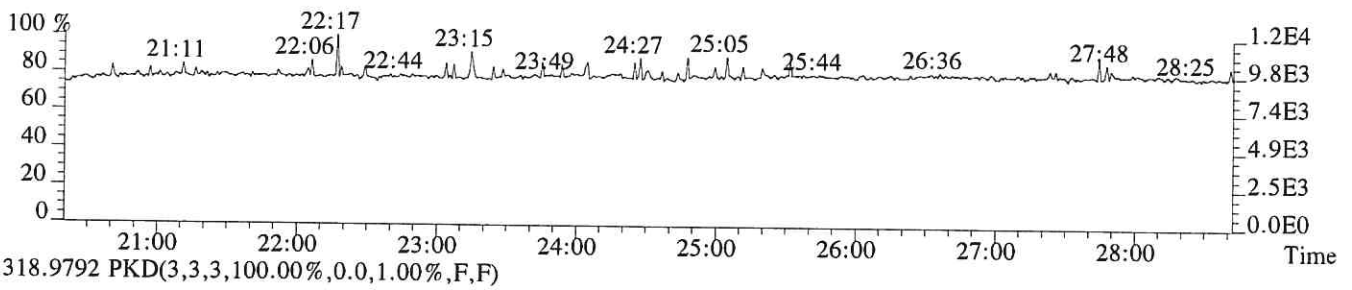
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



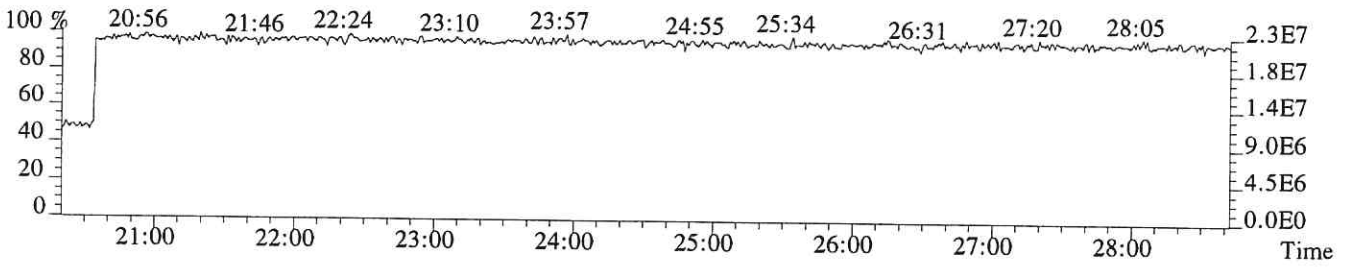
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



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

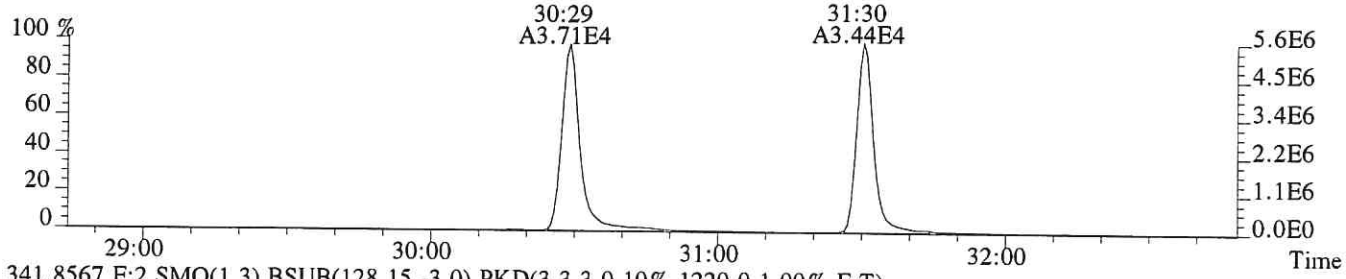


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

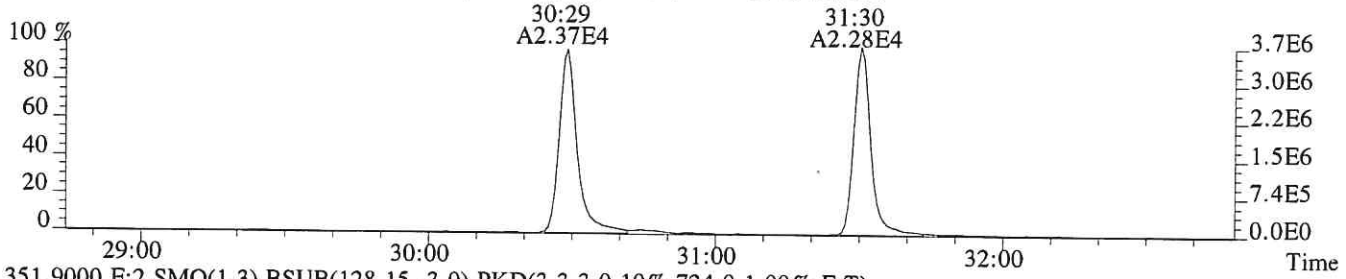


File:P518948 #1-367 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

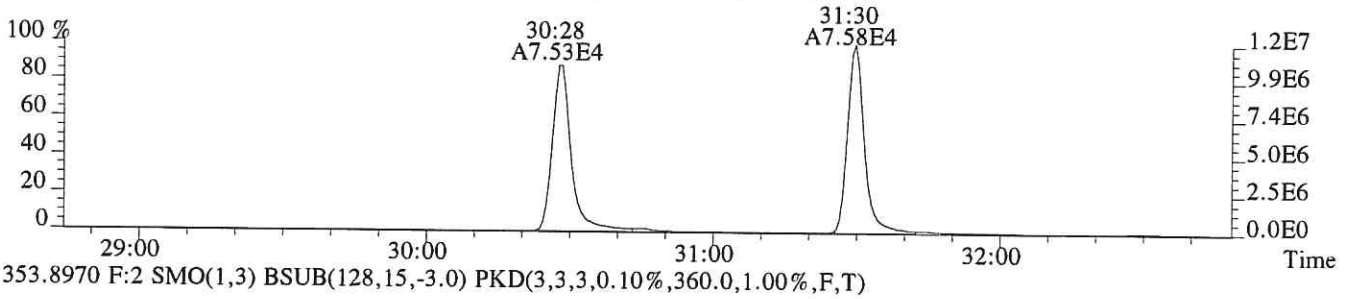
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



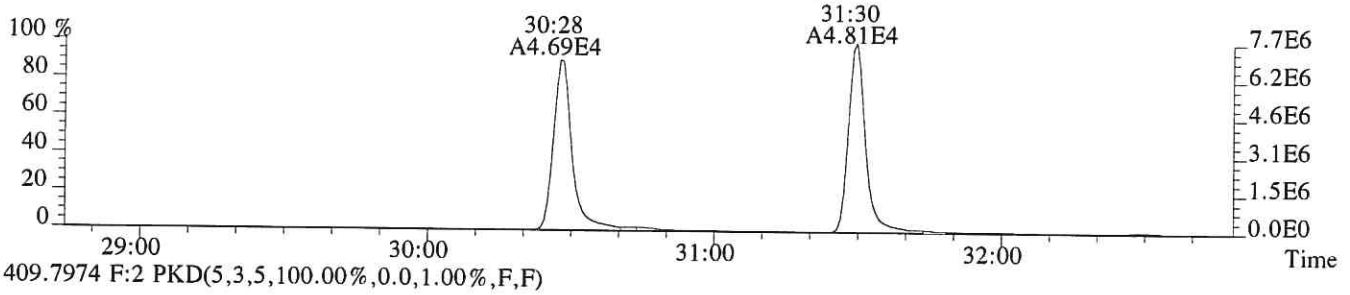
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



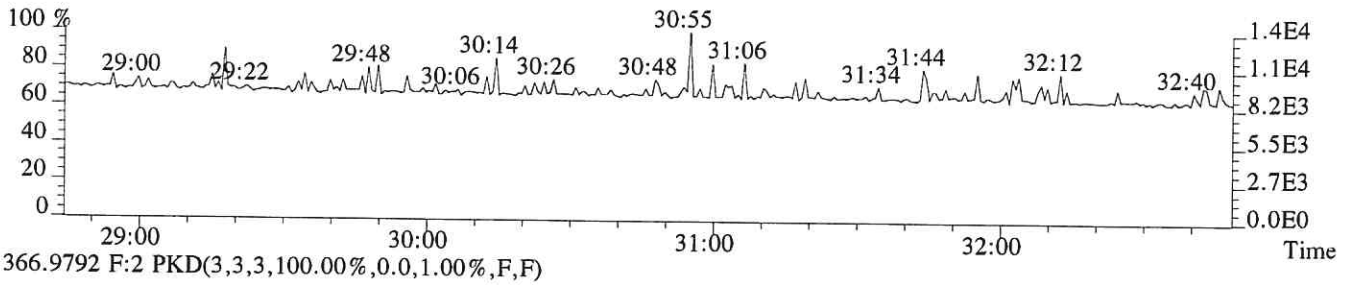
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



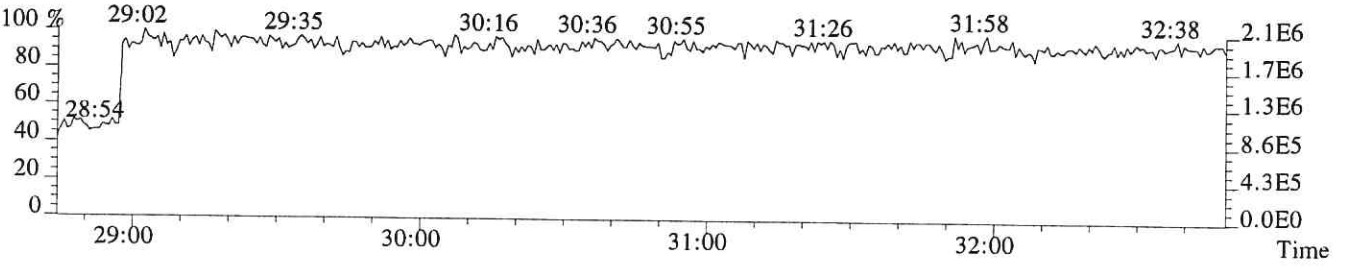
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



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

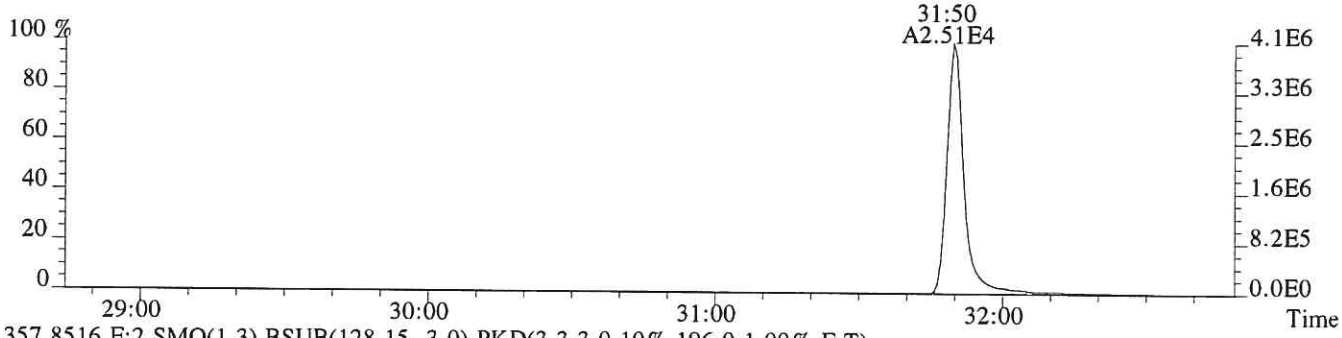


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

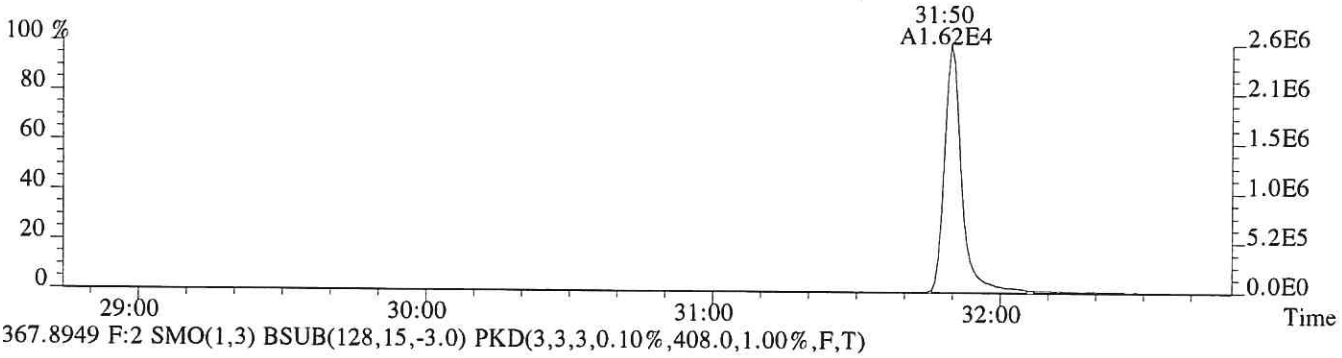


File:P518948 #1-367 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

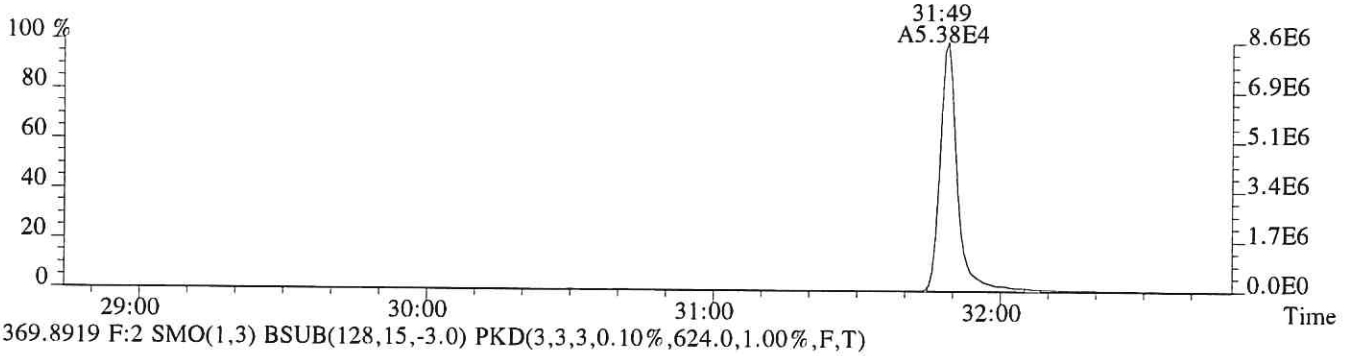
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



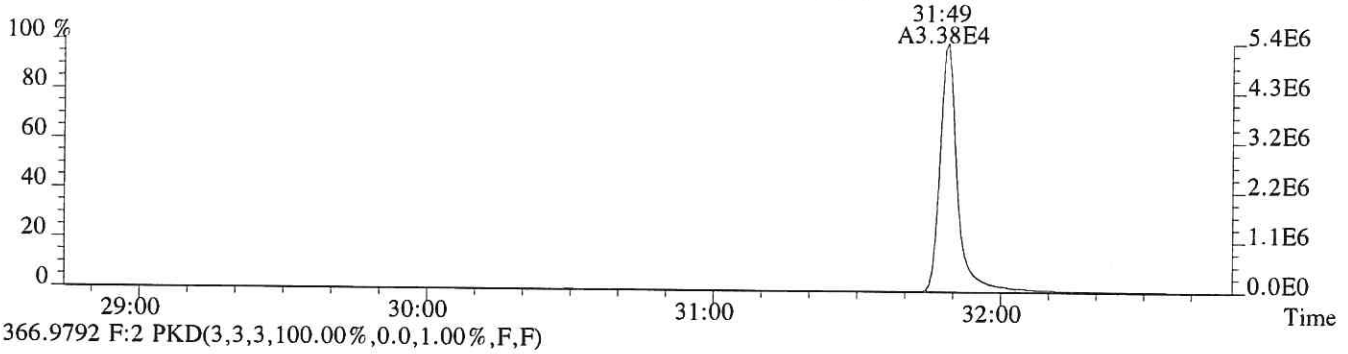
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



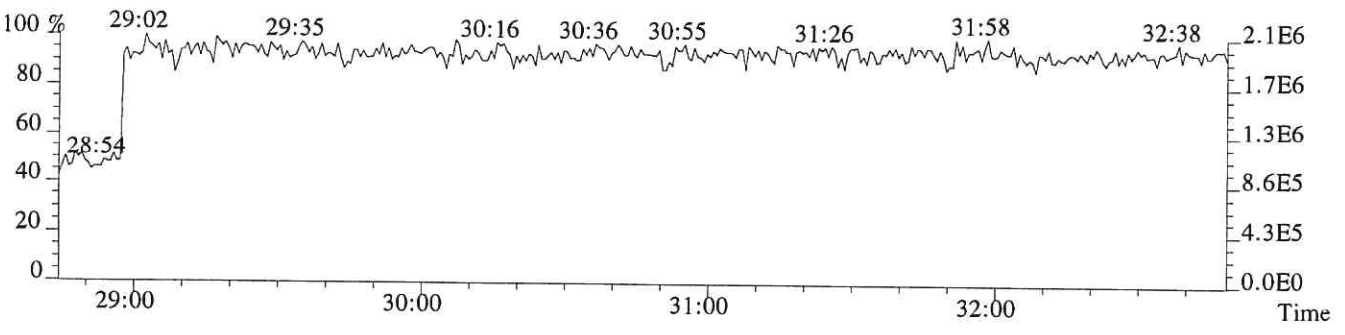
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)

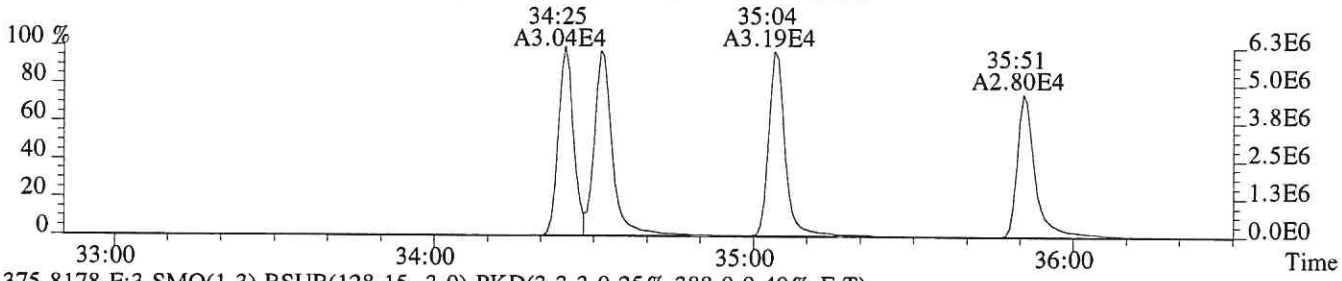


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

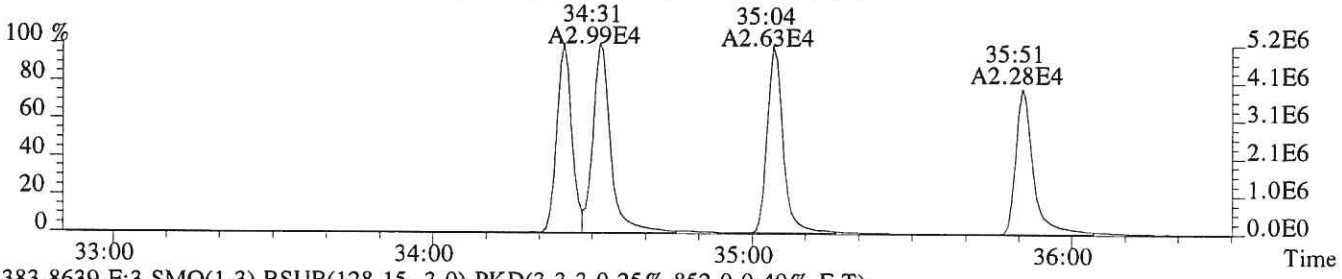


File:P518948 #1-330 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

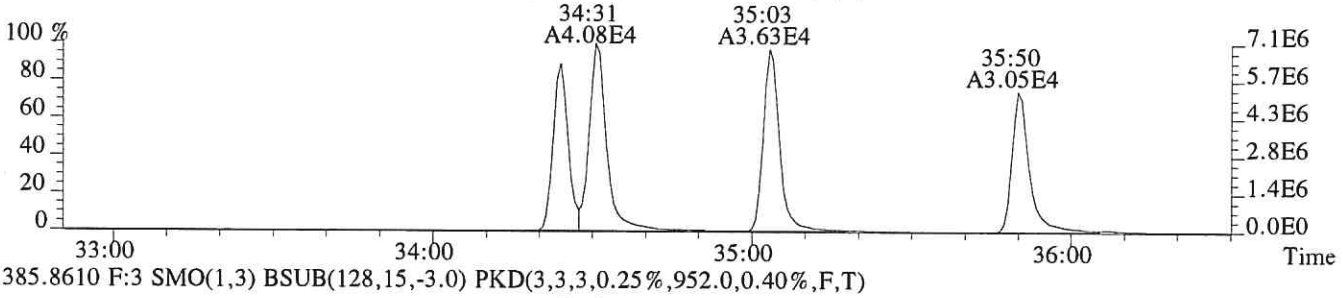
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



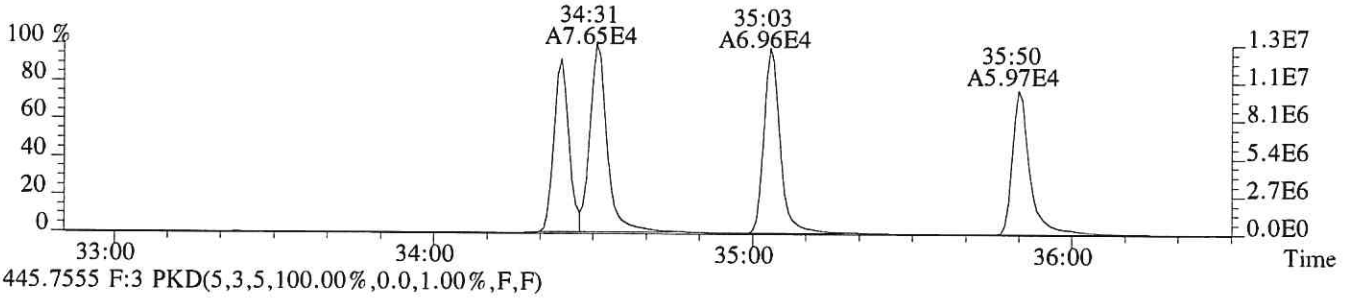
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



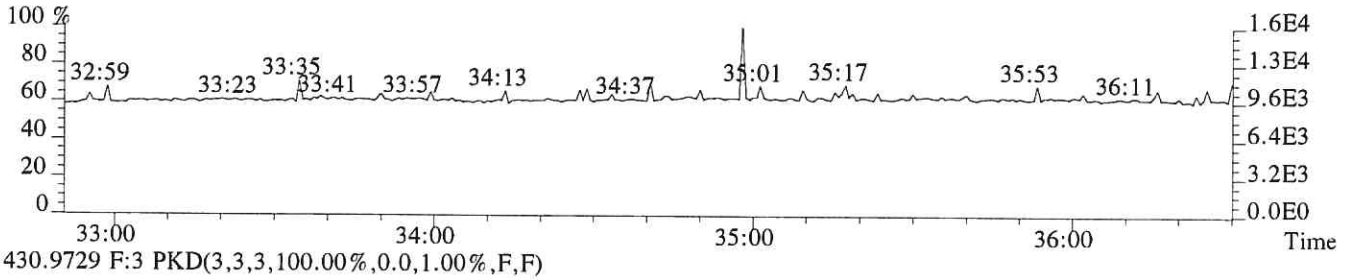
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



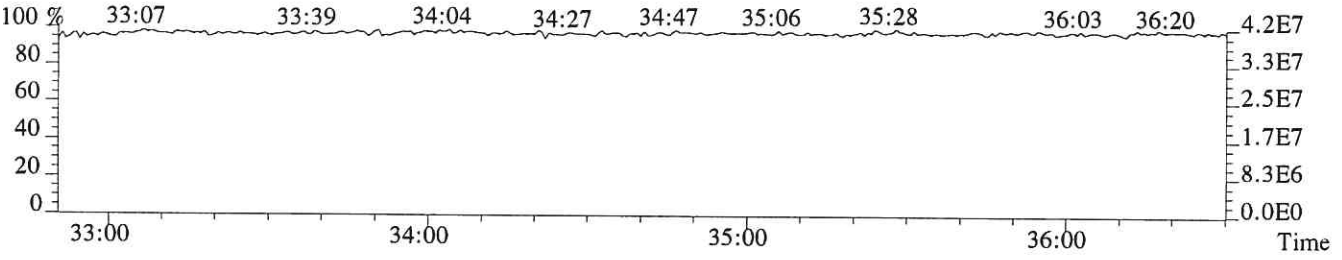
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



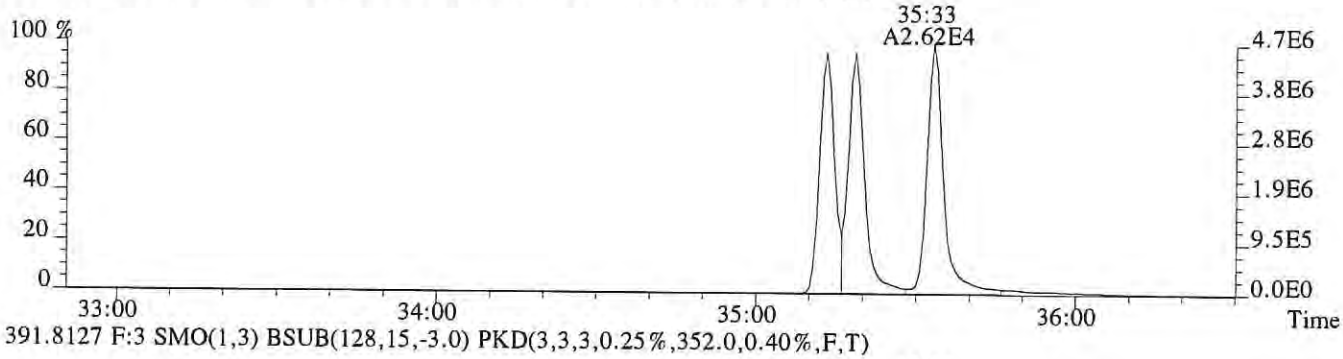
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



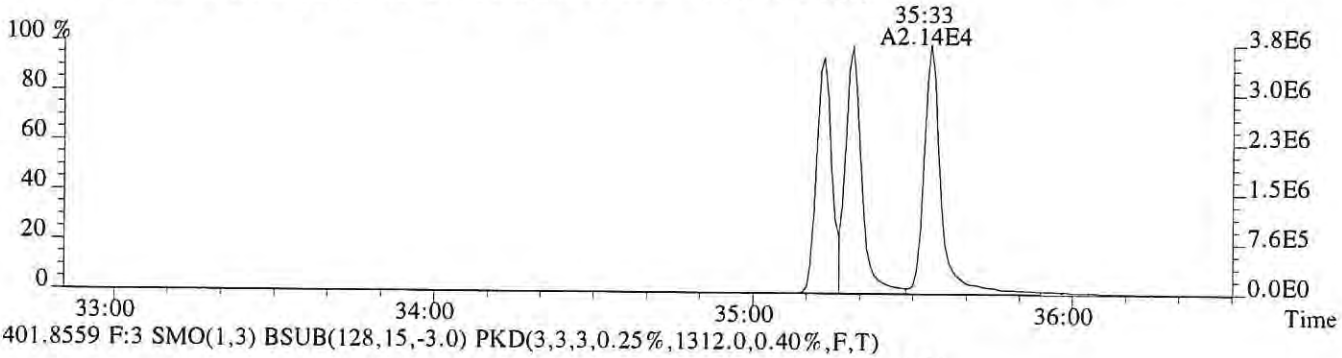
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



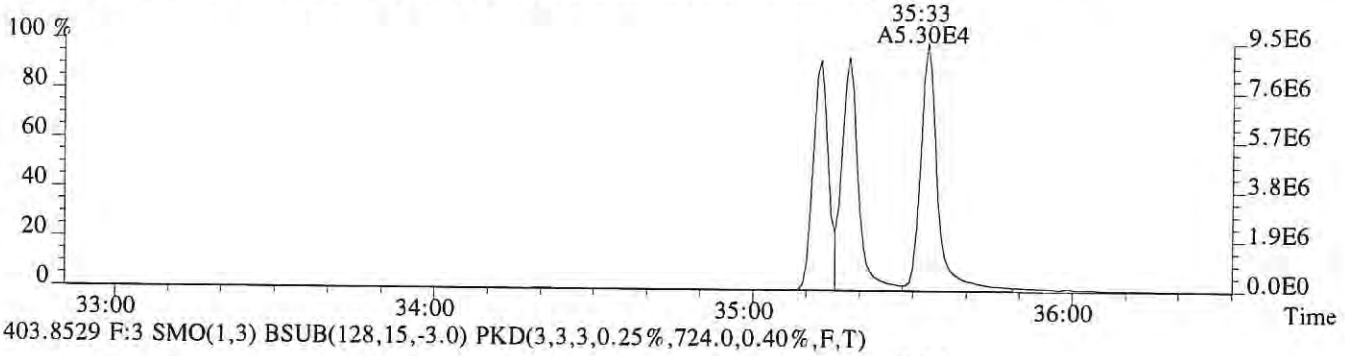
File:P518948 #1-330 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



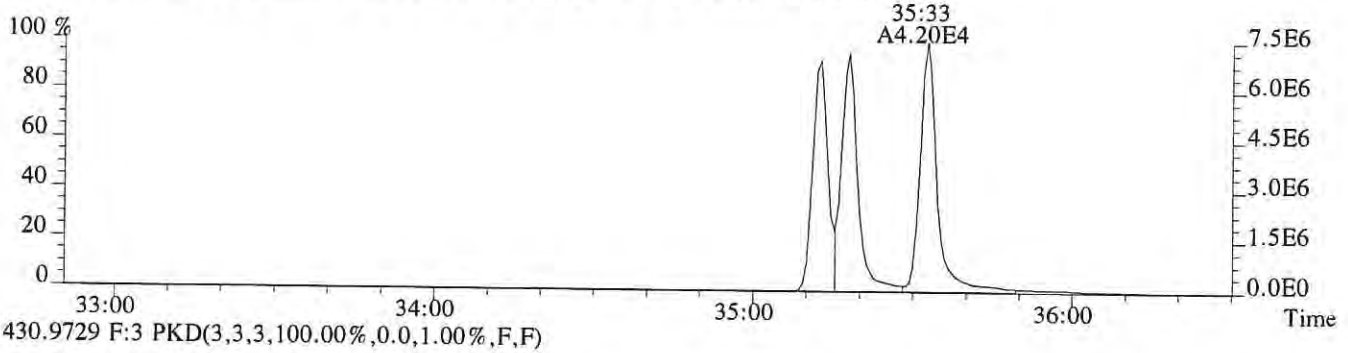
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



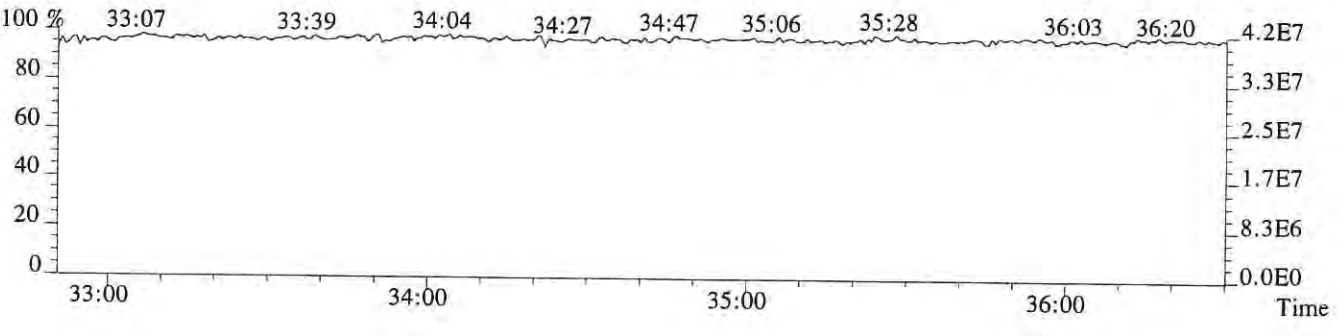
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



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

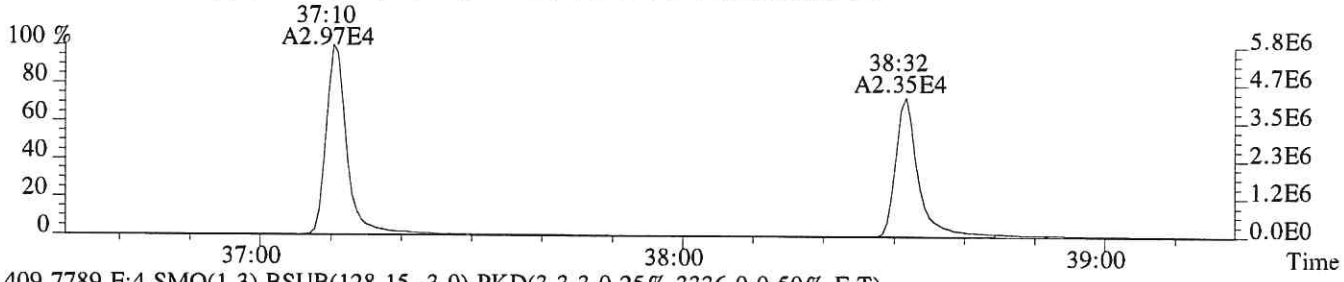


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

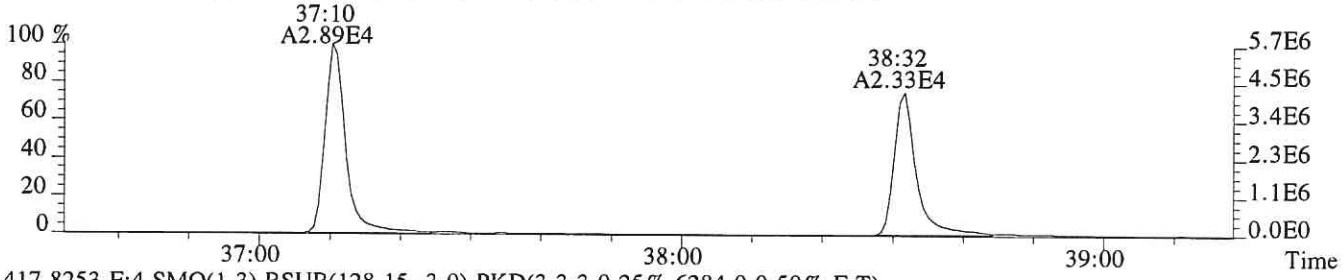


File:P518948 #1-250 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

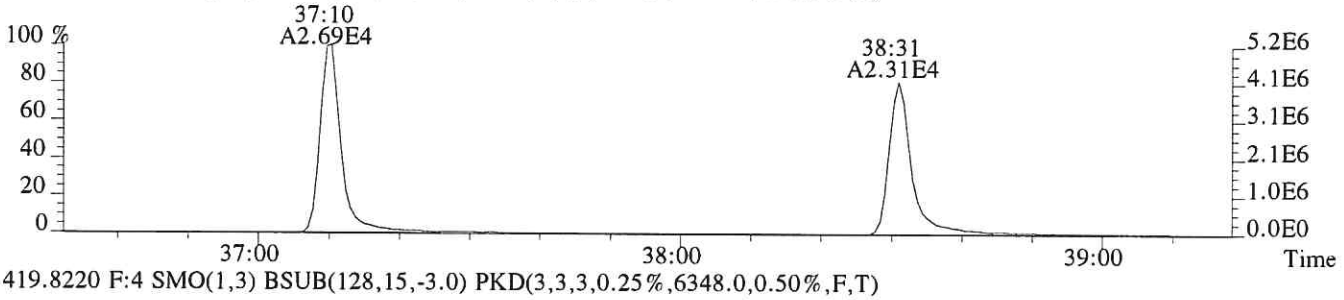
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3428.0,0.50%,F,T)



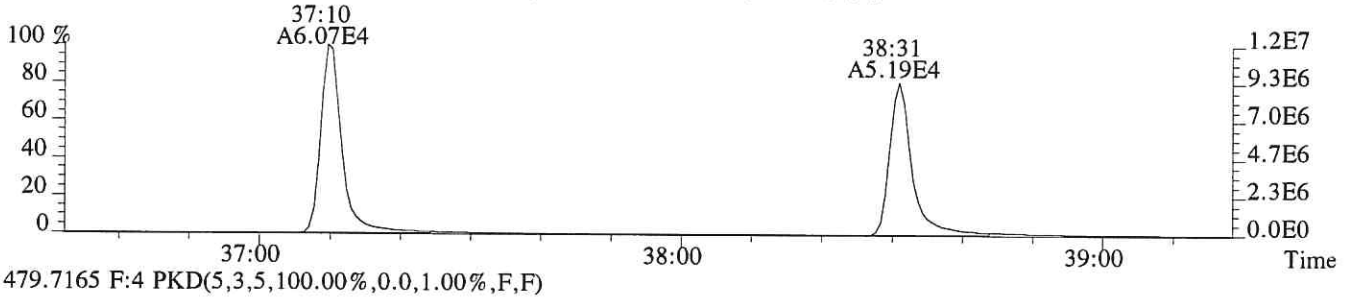
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3336.0,0.50%,F,T)



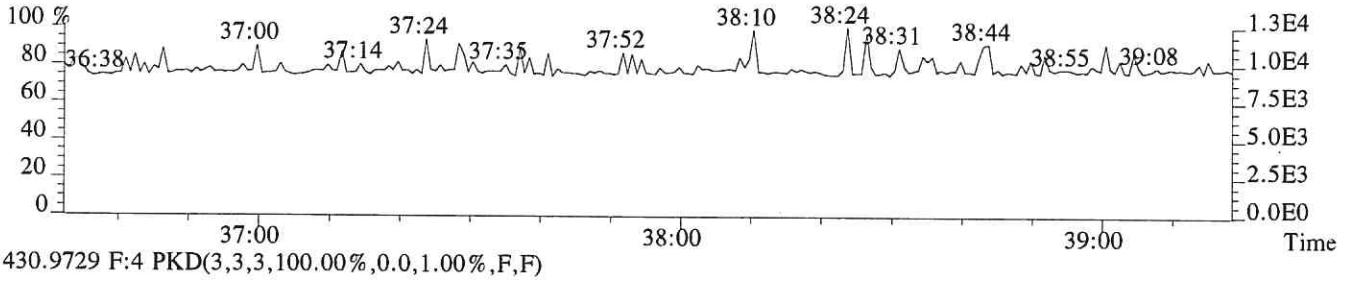
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6284.0,0.50%,F,T)



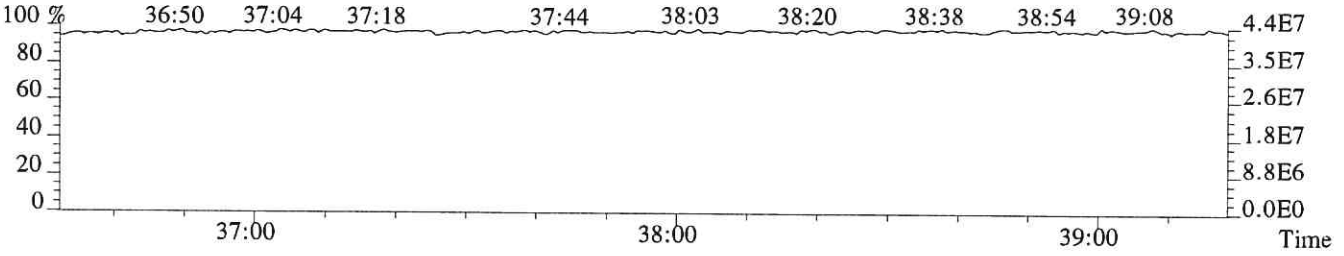
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6348.0,0.50%,F,T)



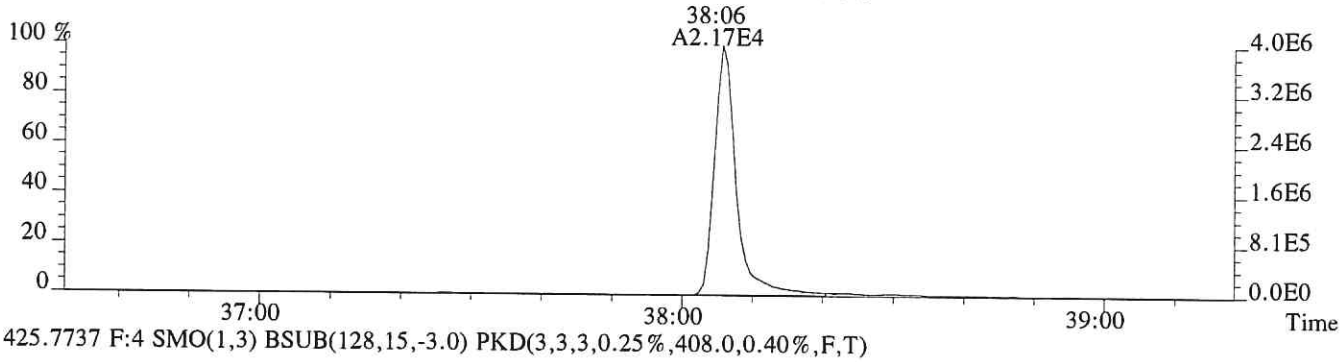
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



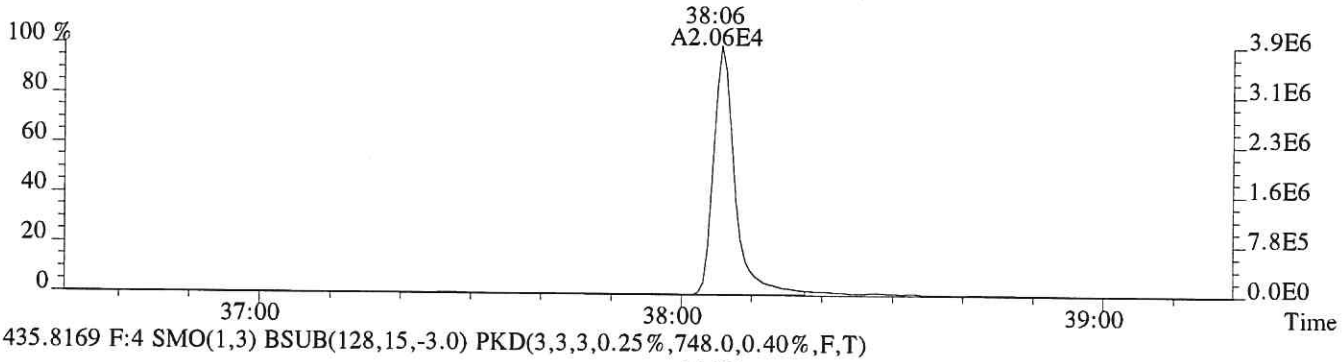
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



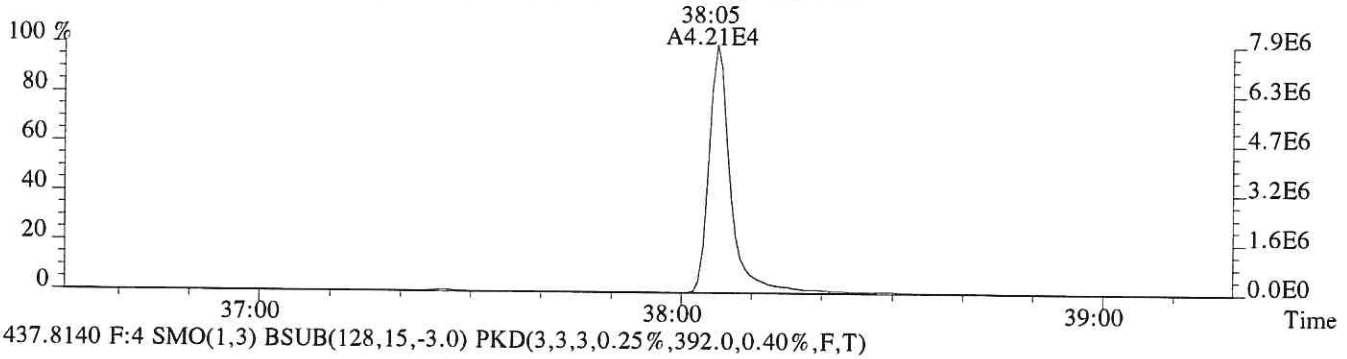
File:P518948 #1-250 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



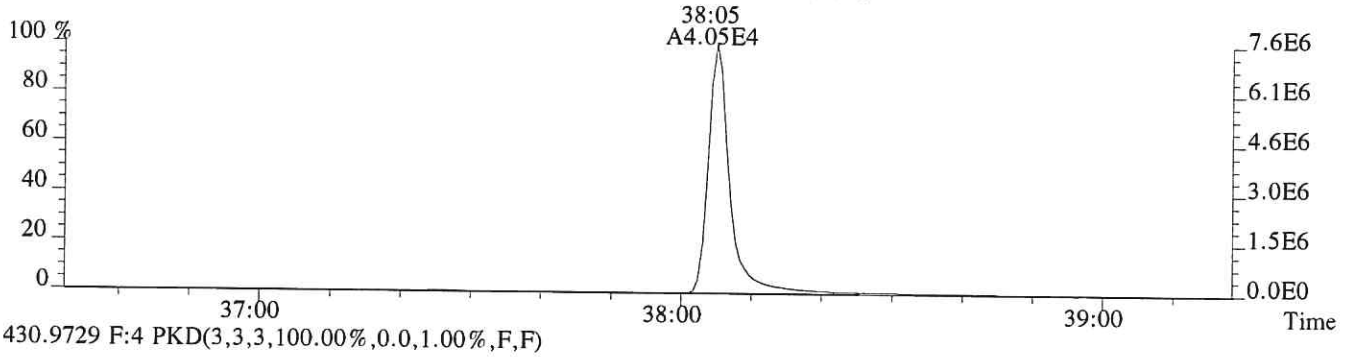
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



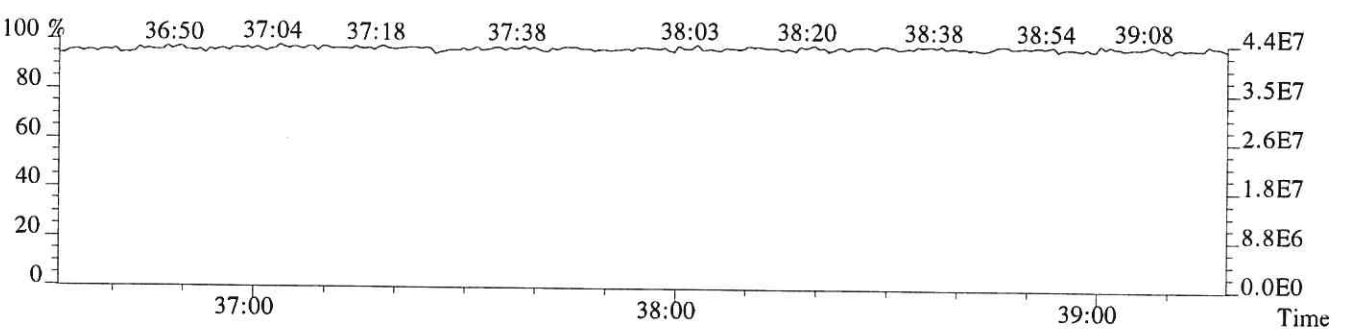
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)

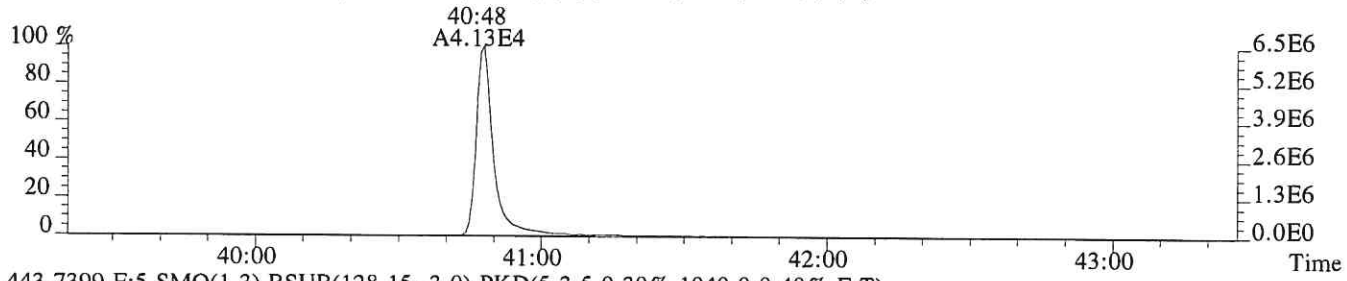


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

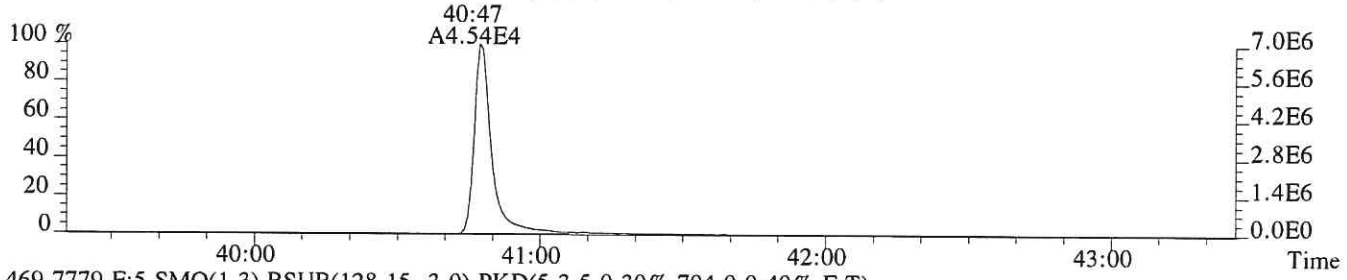


File:P518948 #1-369 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

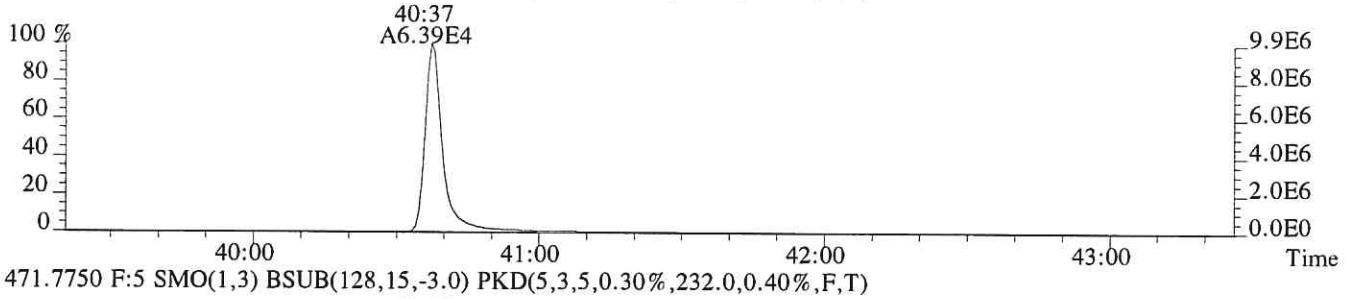
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



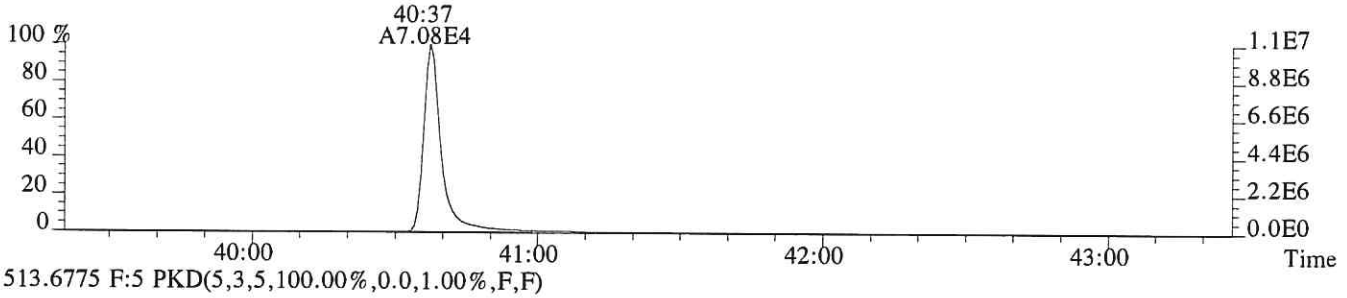
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



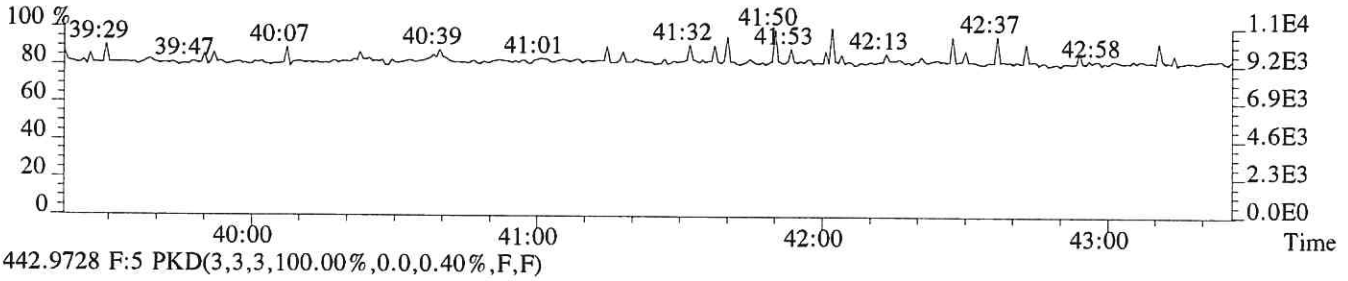
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



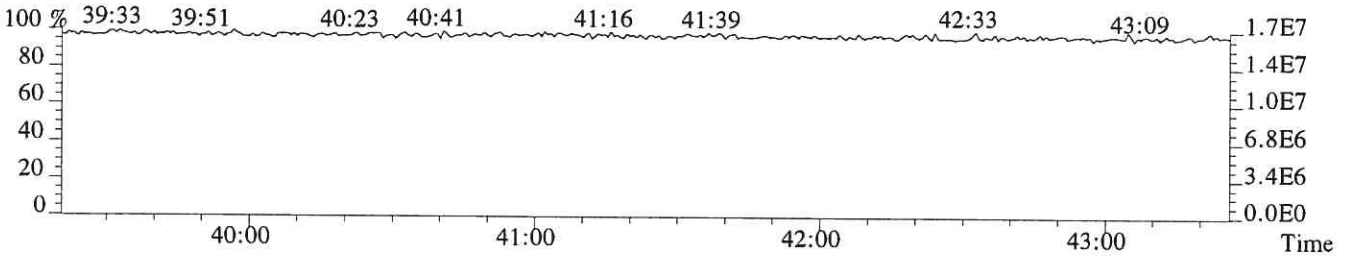
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



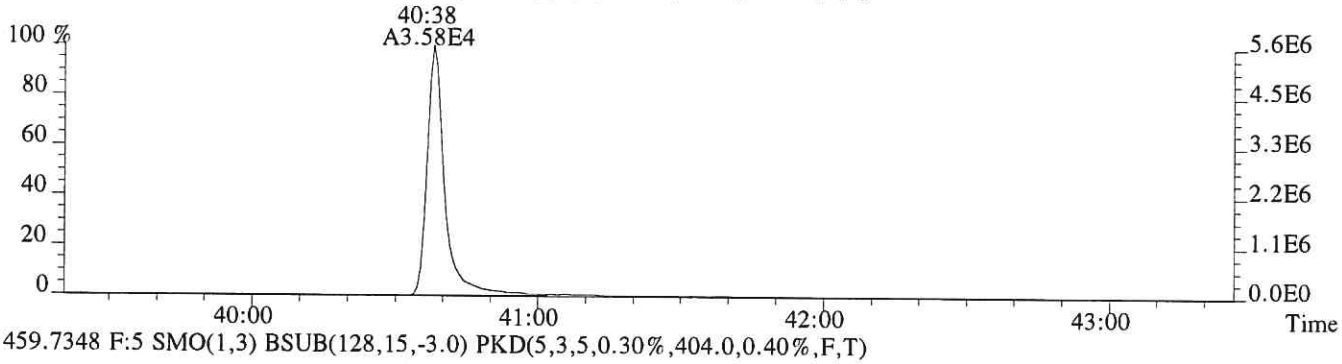
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



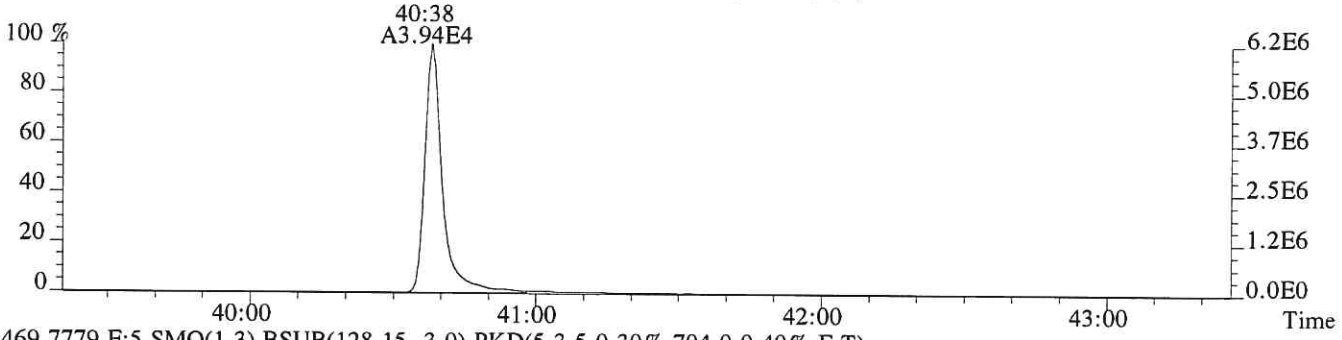
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



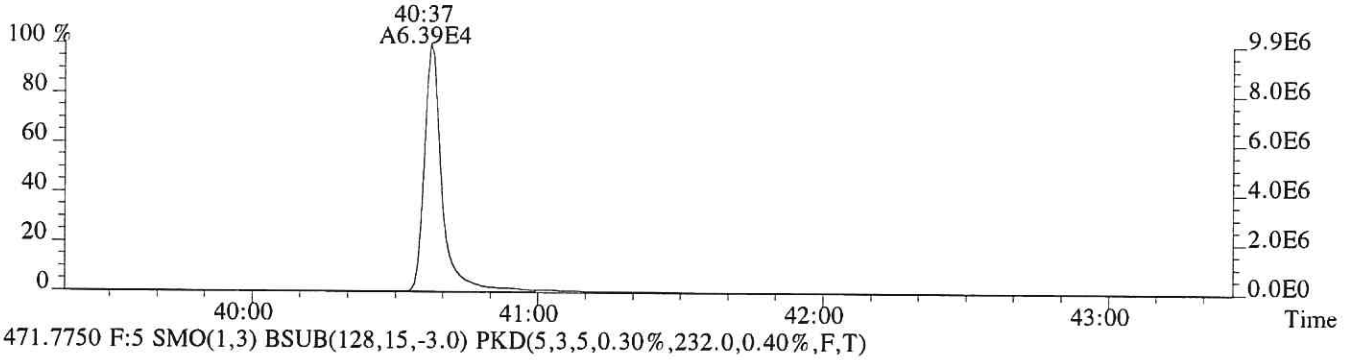
File:P518948 #1-369 Acq:20-NOV-2018 16:33:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



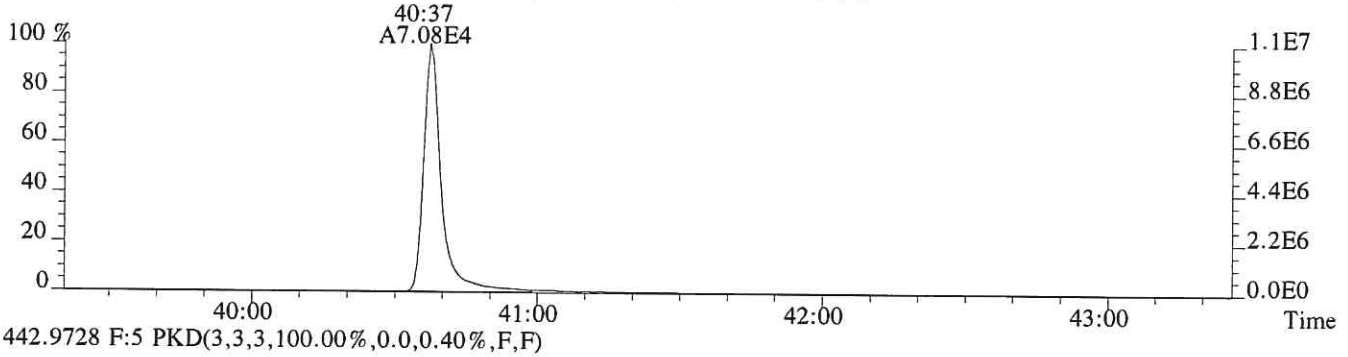
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



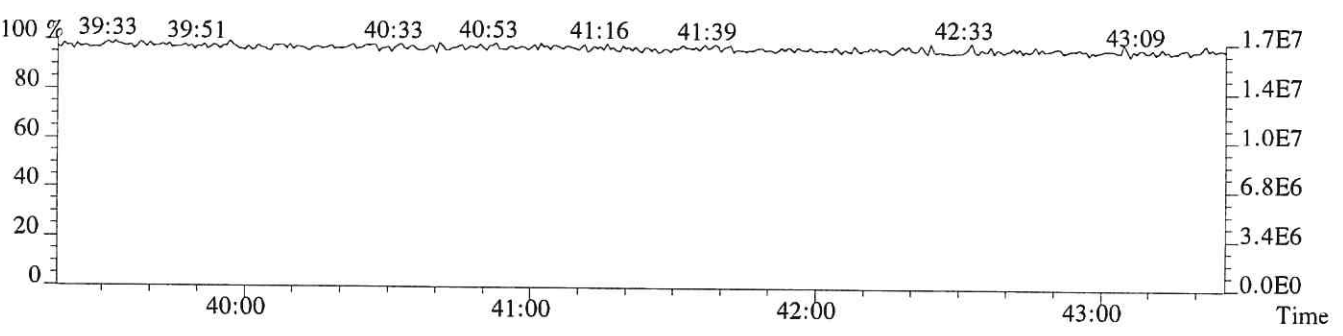
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



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



Initial Calibration

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

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Opus 4: P5-180124l613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:38	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	LS	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ LD 1/24/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

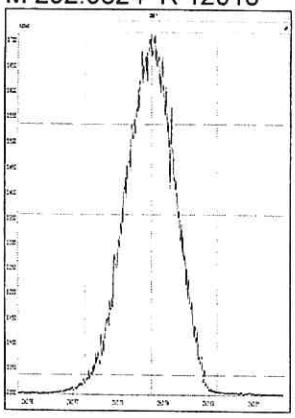
gc 01/25/18

* gc 01/25/18

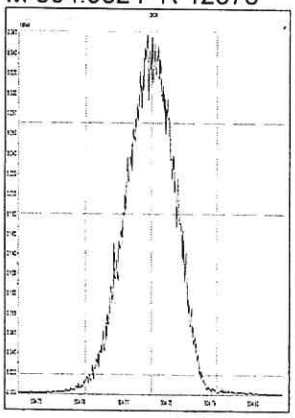
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

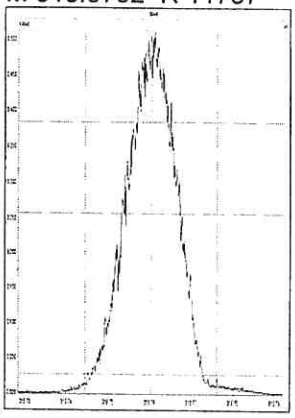
M 292.9824 R 12018



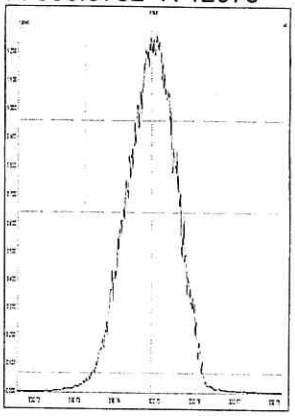
M 304.9824 R 12378



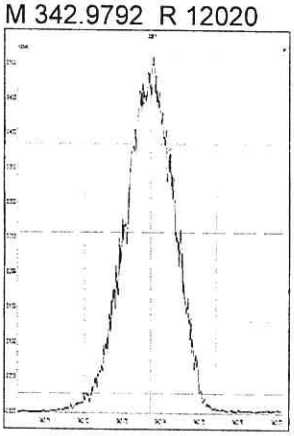
M 318.9792 R 11737



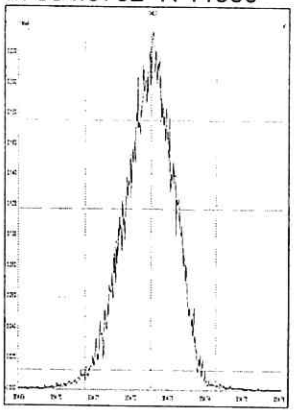
M 330.9792 R 12075



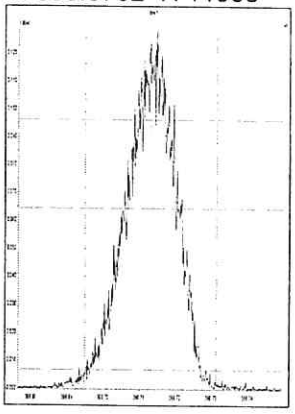
M 342.9792 R 12020



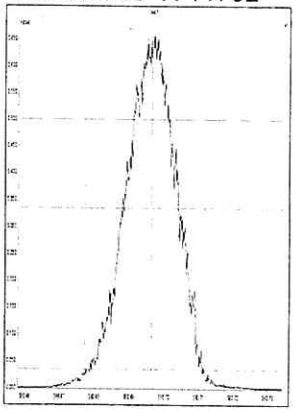
M 354.9792 R 11680



M 366.9792 R 11963



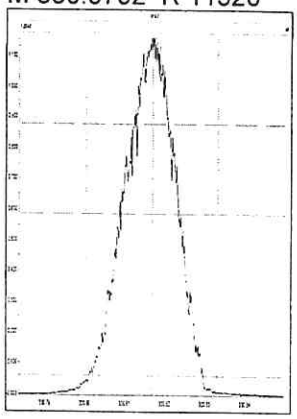
M 380.9760 R 11792



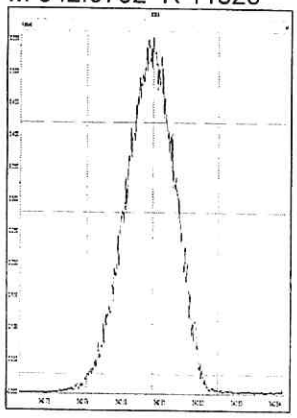
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

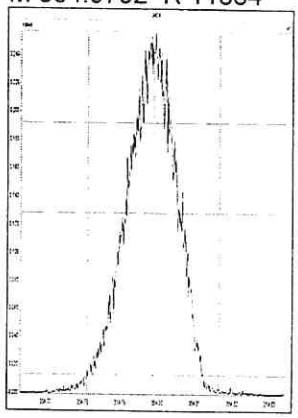
M 330.9792 R 11520



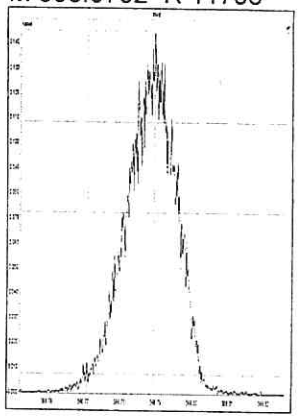
M 342.9792 R 11625



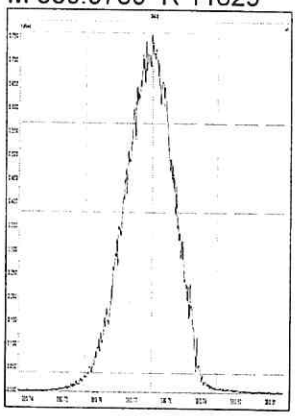
M 354.9792 R 11364



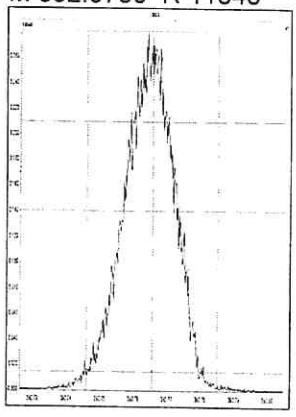
M 366.9792 R 11796



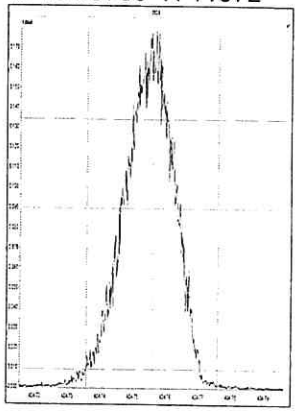
M 380.9760 R 11629



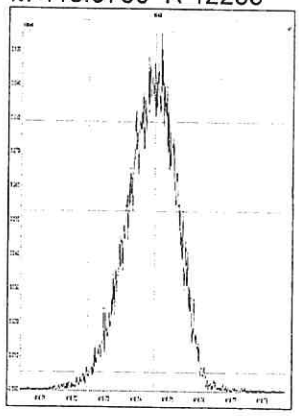
M 392.9760 R 11848



M 404.9760 R 11572



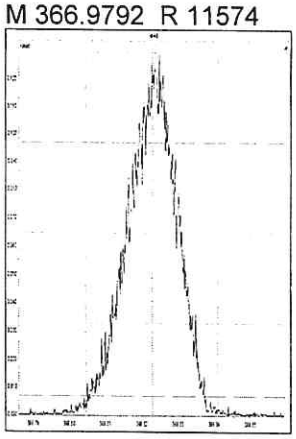
M 416.9760 R 12255



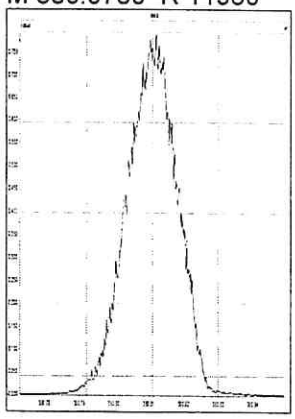
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

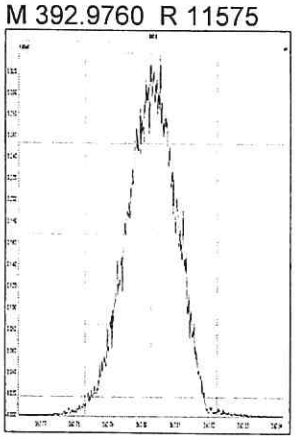
M 366.9792 R 11574



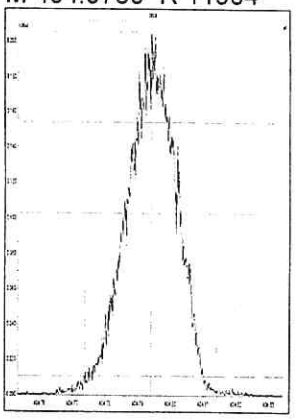
M 380.9760 R 11960



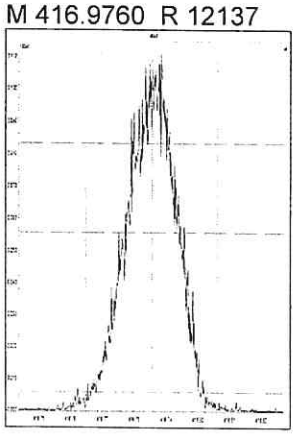
M 392.9760 R 11575



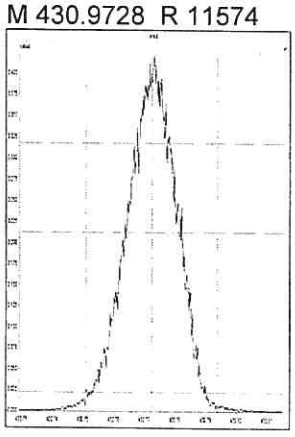
M 404.9760 R 11904



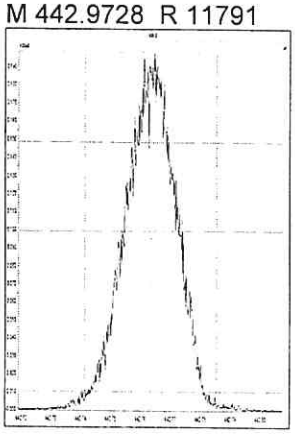
M 416.9760 R 12137



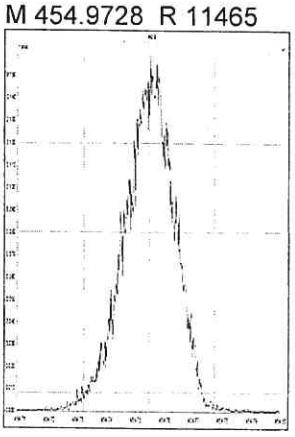
M 430.9728 R 11574



M 442.9728 R 11791



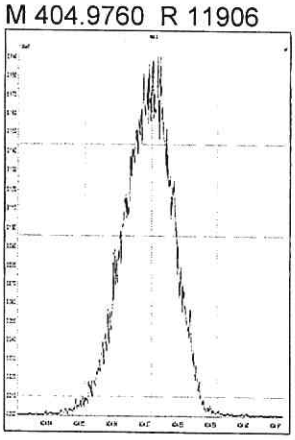
M 454.9728 R 11465



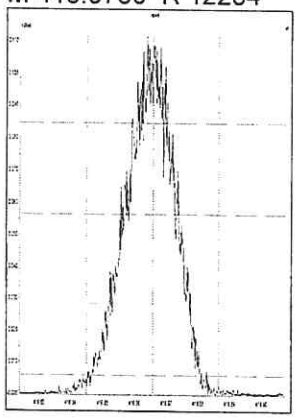
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

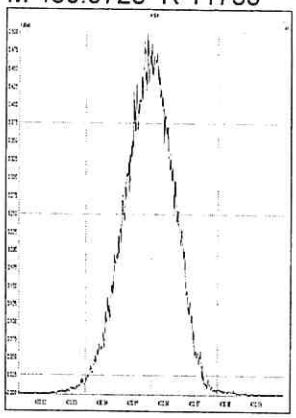
M 404.9760 R 11906



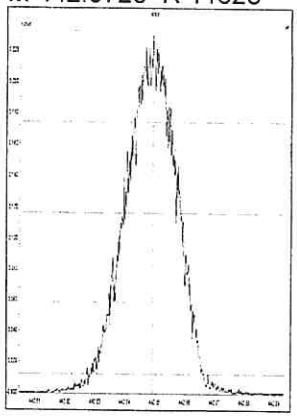
M 416.9760 R 12254



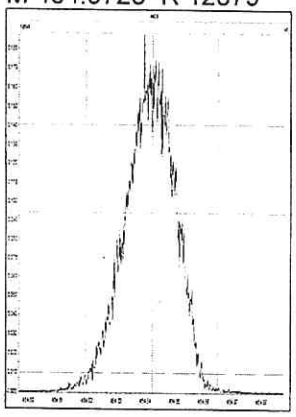
M 430.9728 R 11735



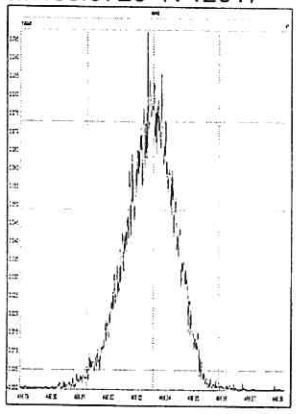
M 442.9728 R 11628



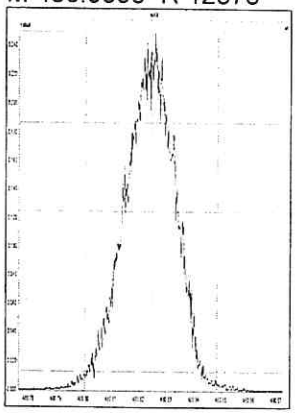
M 454.9728 R 12379



M 466.9728 R 12017



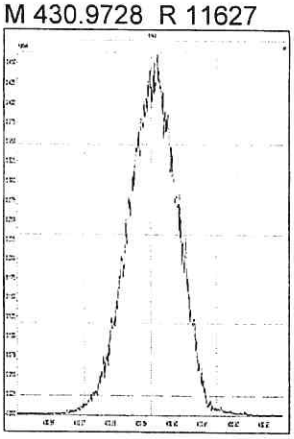
M 480.9696 R 12376



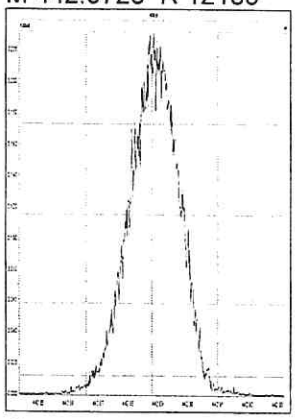
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

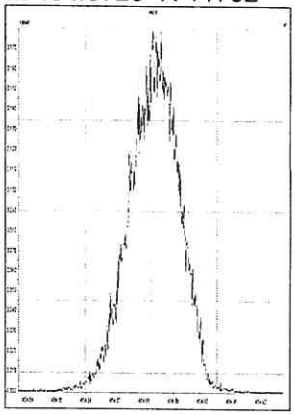
M 430.9728 R 11627



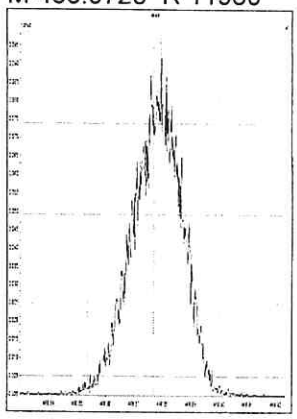
M 442.9728 R 12133



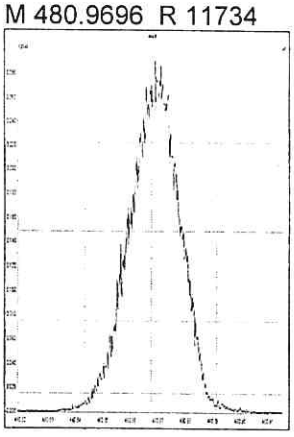
M 454.9728 R 11792



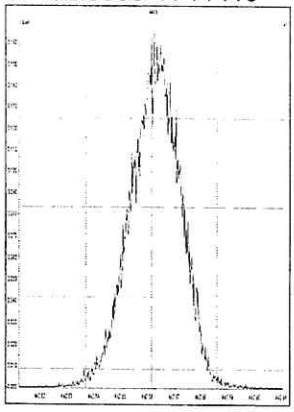
M 466.9728 R 11960



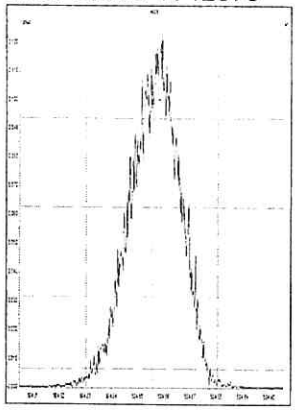
M 480.9696 R 11734



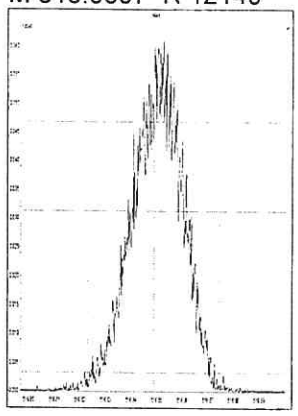
M 492.9696 R 11415



M 504.9696 R 12075



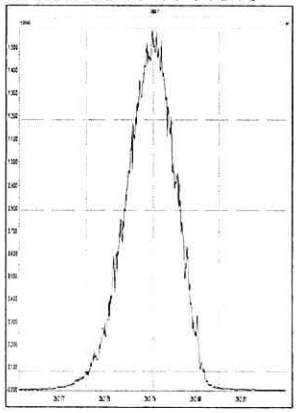
M 516.9697 R 12140



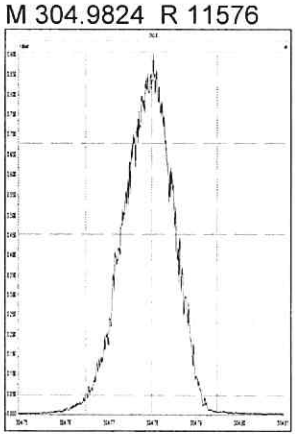
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

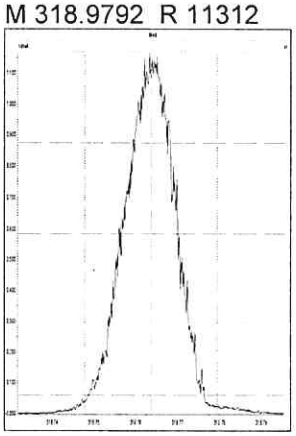
M 292.9824 R 11519



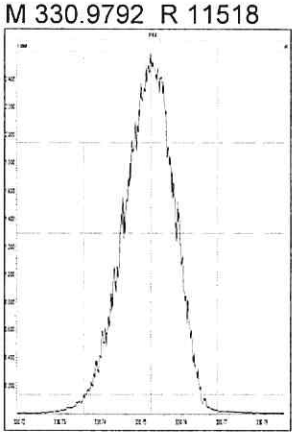
M 304.9824 R 11576



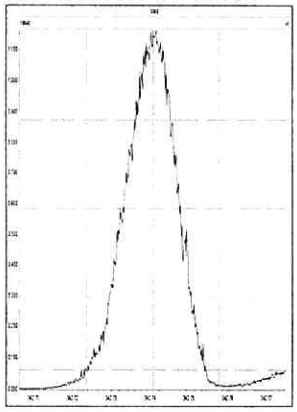
M 318.9792 R 11312



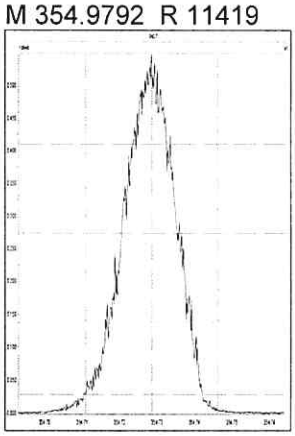
M 330.9792 R 11518



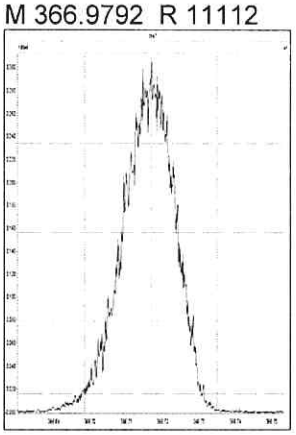
M 342.9792 R 11161



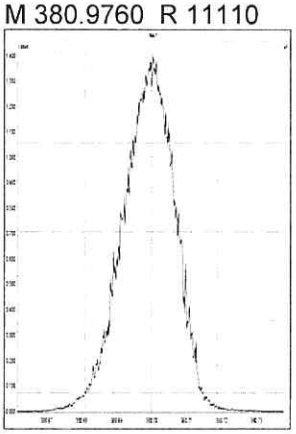
M 354.9792 R 11419



M 366.9792 R 11112



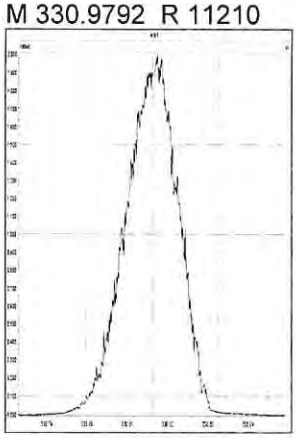
M 380.9760 R 11110



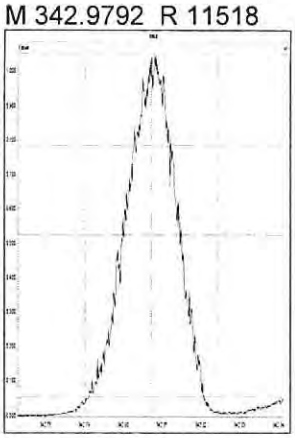
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

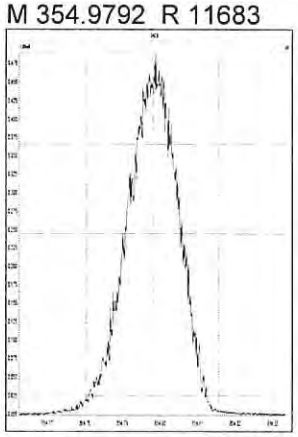
M 330.9792 R 11210



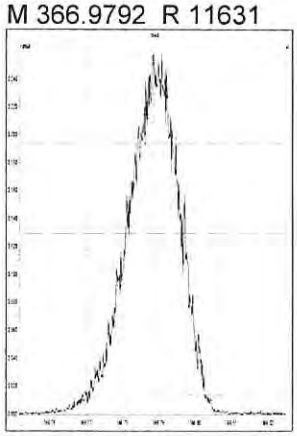
M 342.9792 R 11518



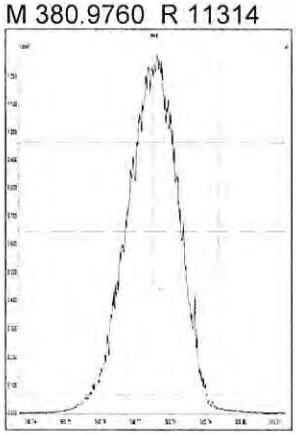
M 354.9792 R 11683



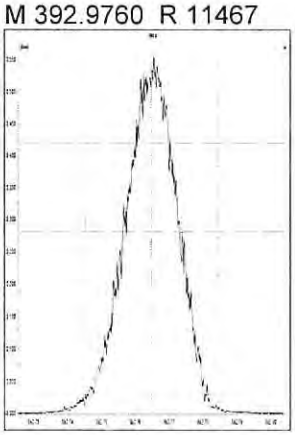
M 366.9792 R 11631



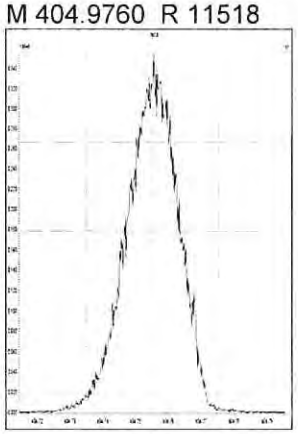
M 380.9760 R 11314



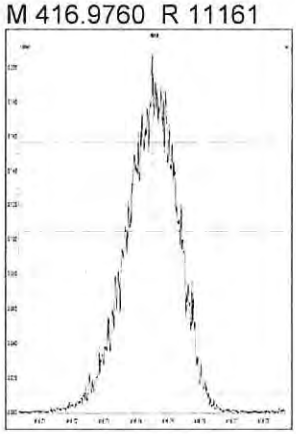
M 392.9760 R 11467



M 404.9760 R 11518



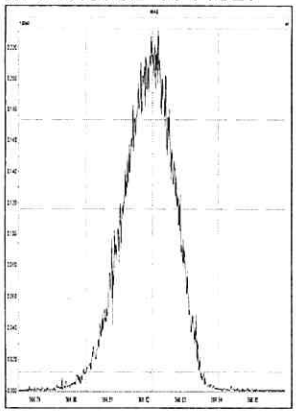
M 416.9760 R 11161



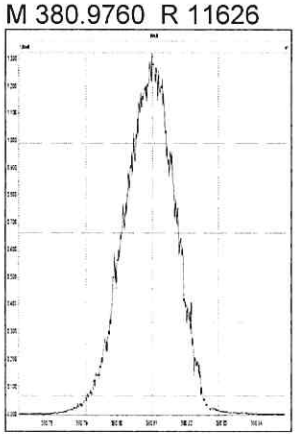
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

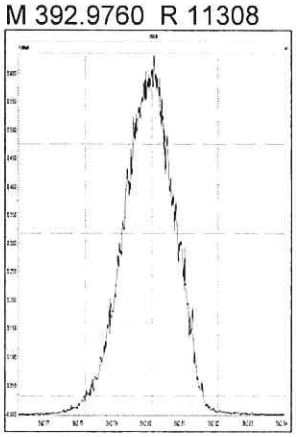
M 366.9792 R 11627



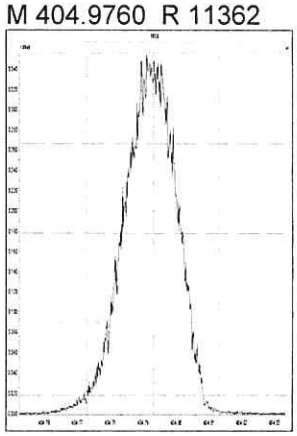
M 380.9760 R 11626



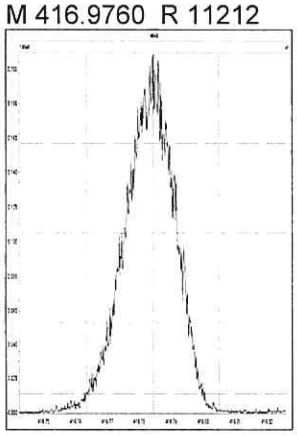
M 392.9760 R 11308



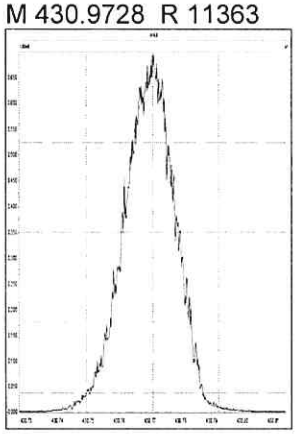
M 404.9760 R 11362



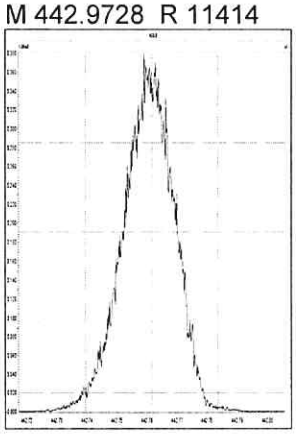
M 416.9760 R 11212



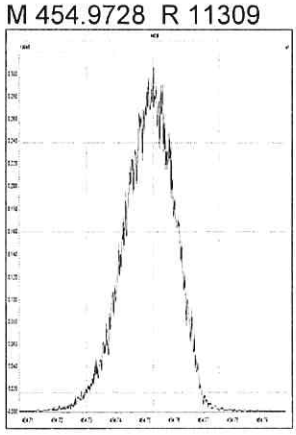
M 430.9728 R 11363



M 442.9728 R 11414



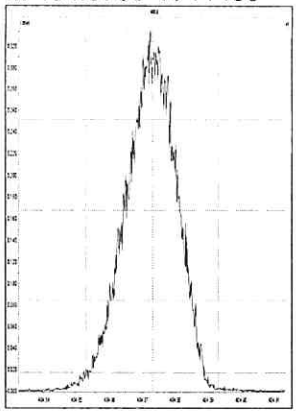
M 454.9728 R 11309



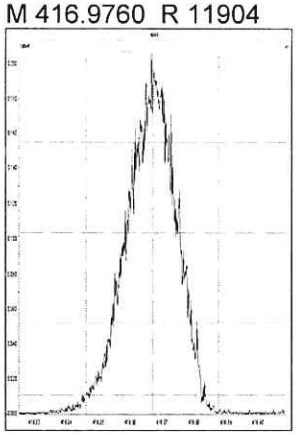
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

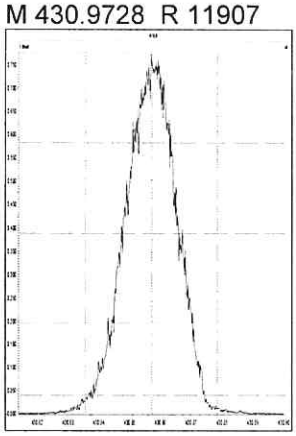
M 404.9760 R 11465



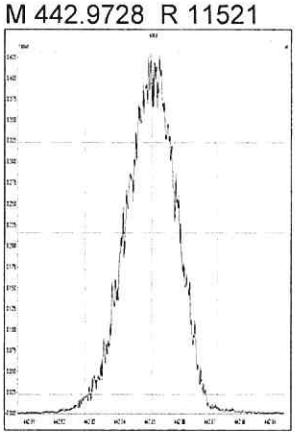
M 416.9760 R 11904



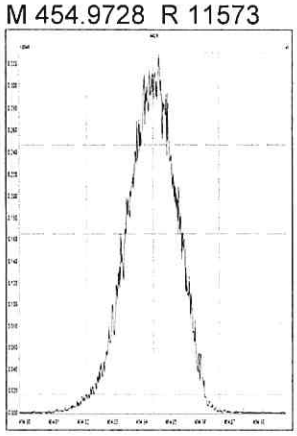
M 430.9728 R 11907



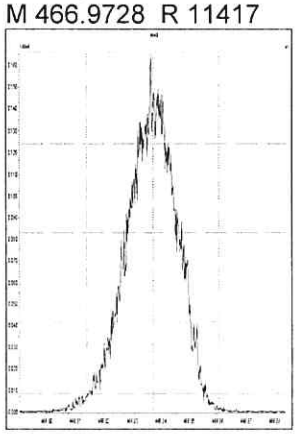
M 442.9728 R 11521



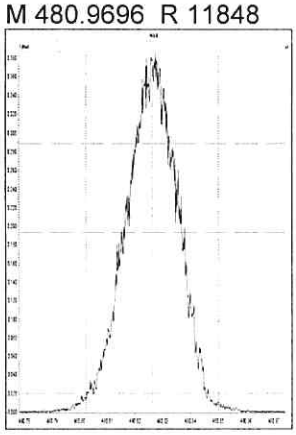
M 454.9728 R 11573



M 466.9728 R 11417



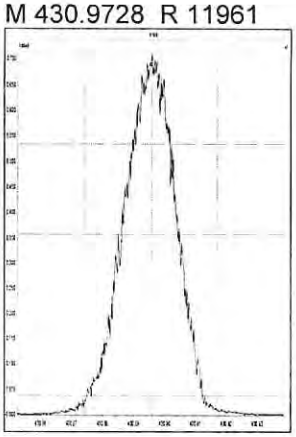
M 480.9696 R 11848



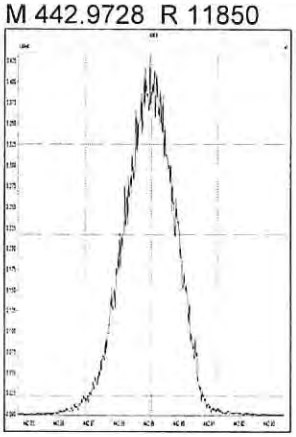
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

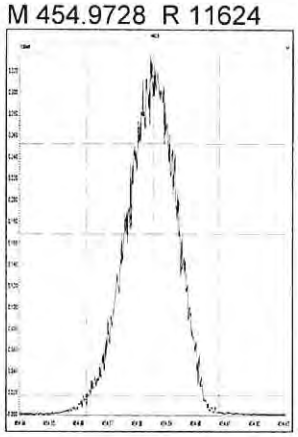
M 430.9728 R 11961



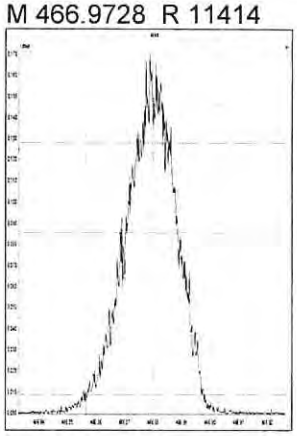
M 442.9728 R 11850



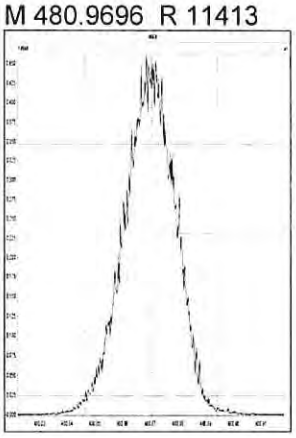
M 454.9728 R 11624



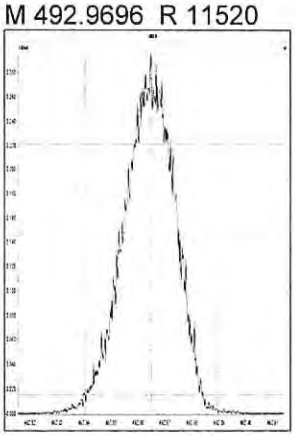
M 466.9728 R 11414



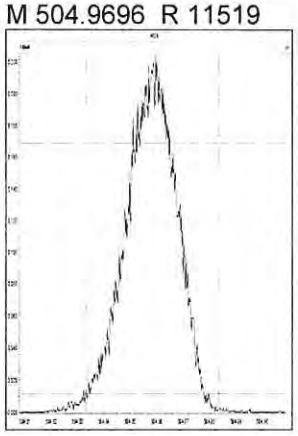
M 480.9696 R 11413



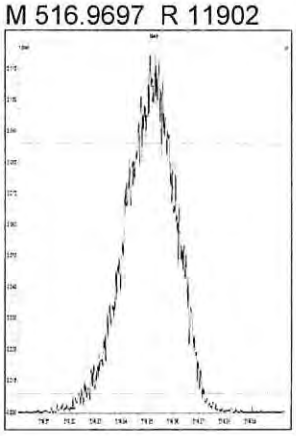
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

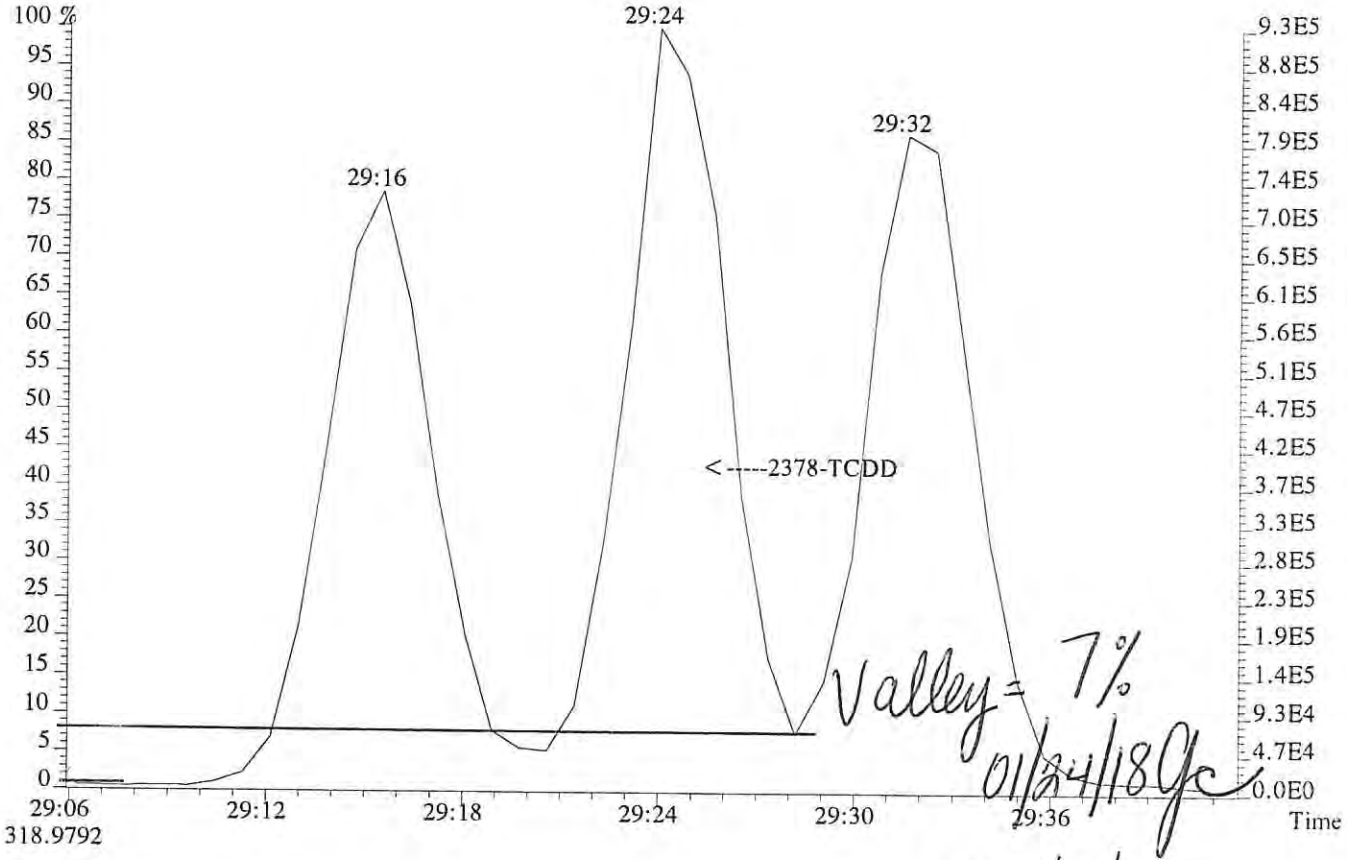
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

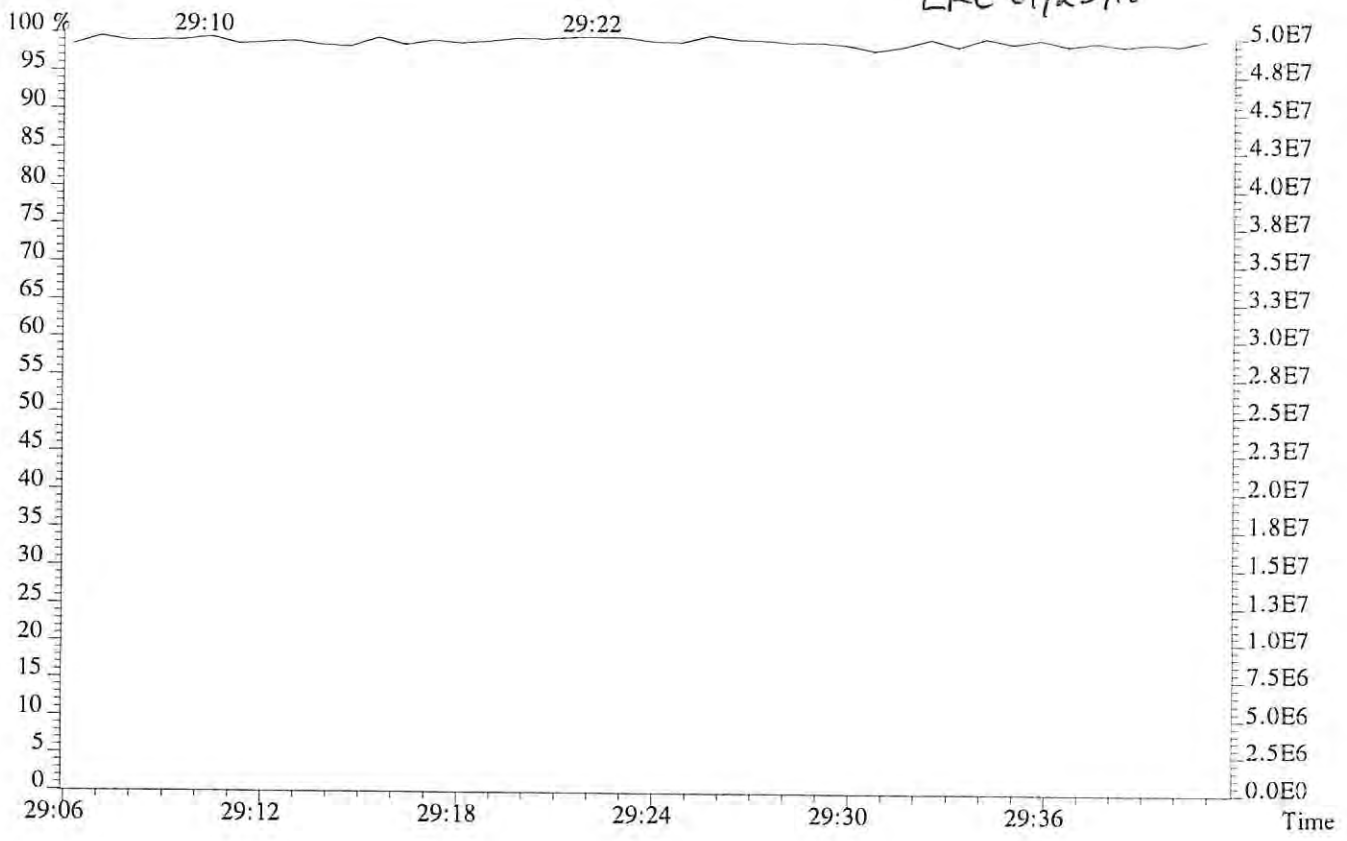
% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

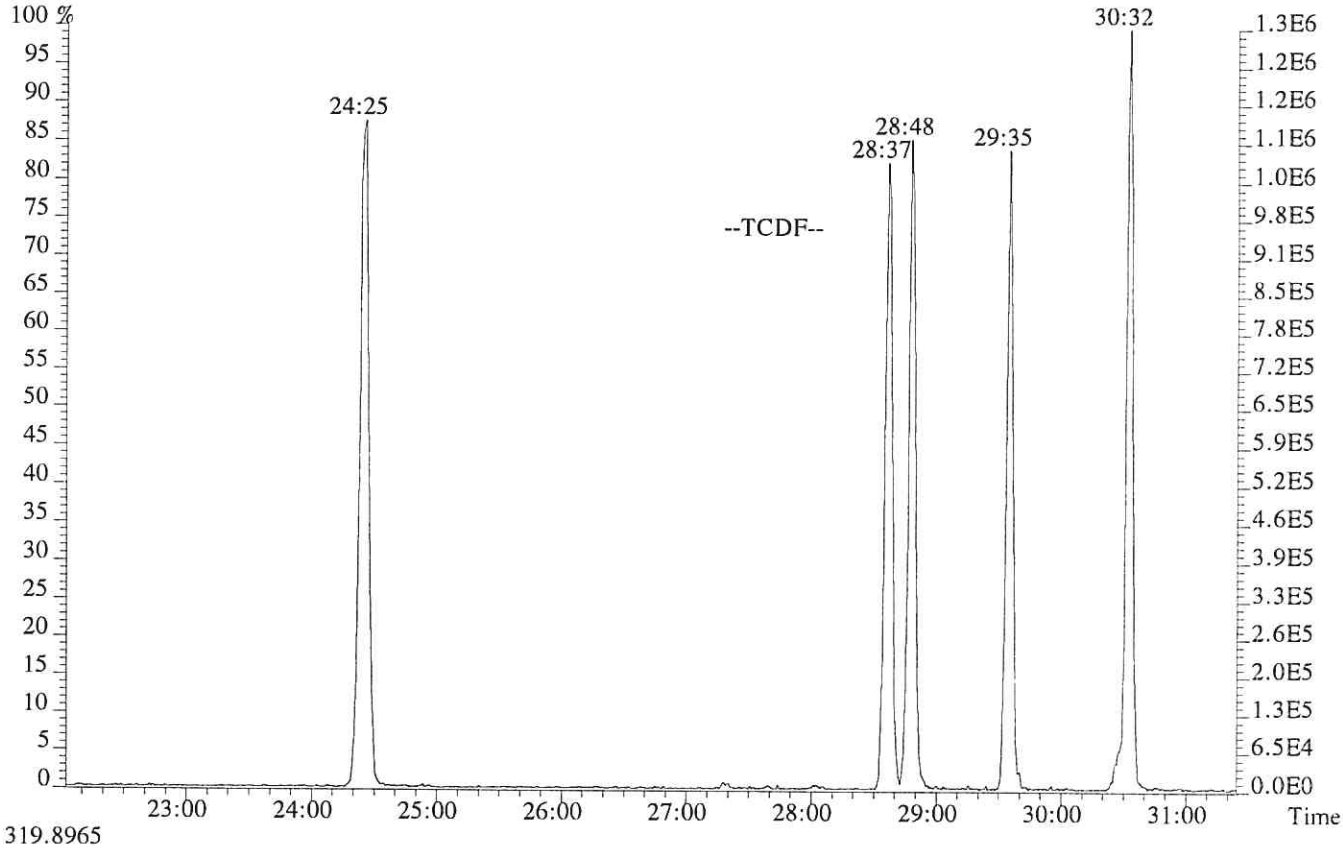


318.9792

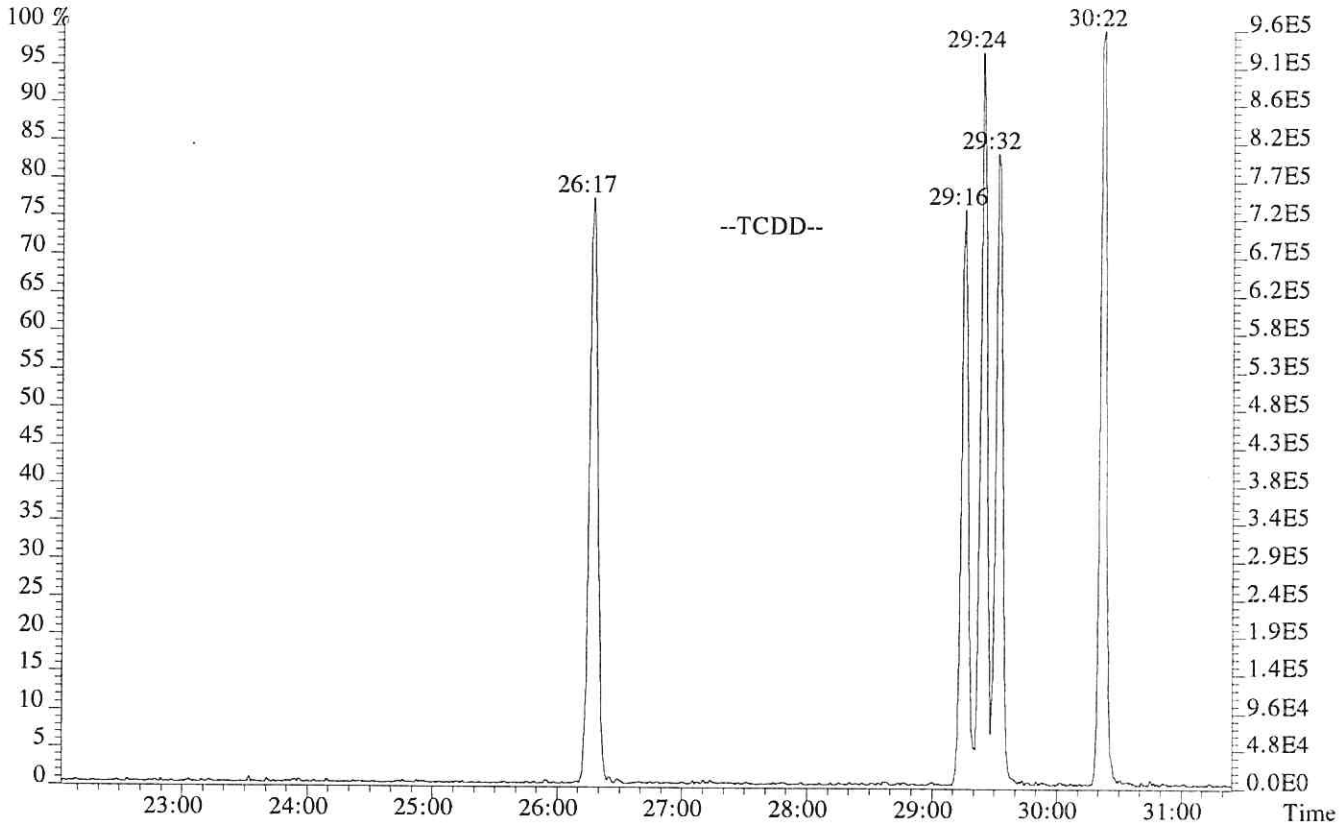
LKL 01/25/18



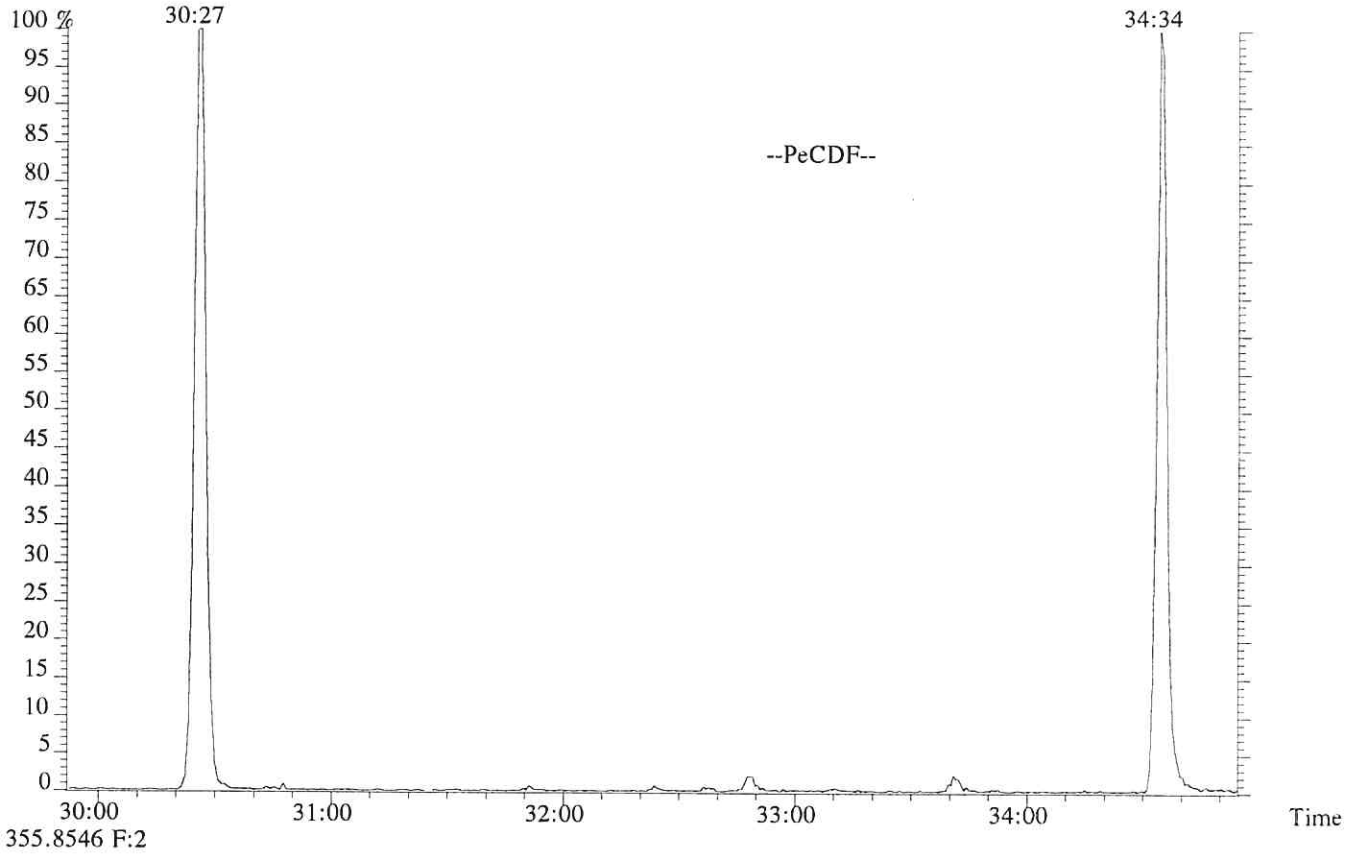
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016



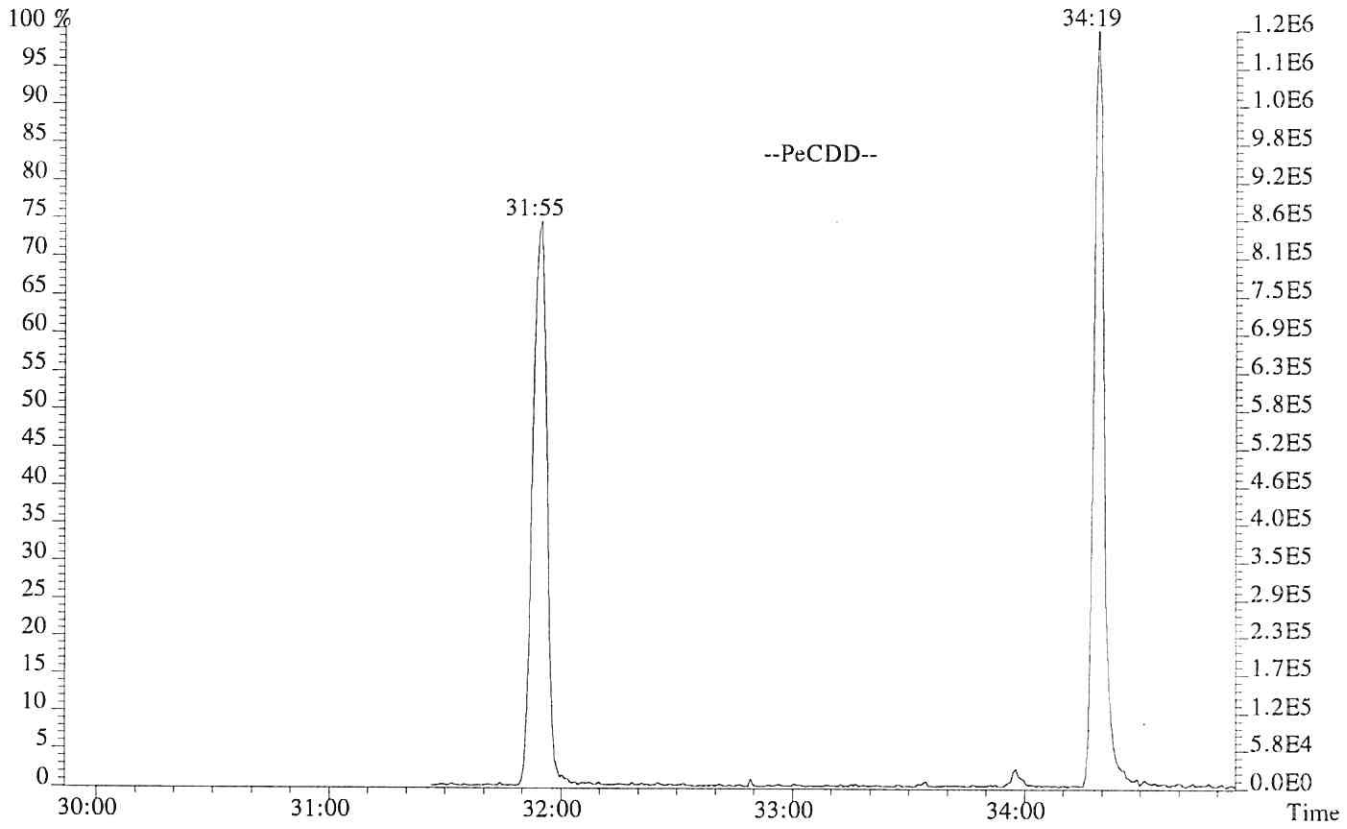
319.8965



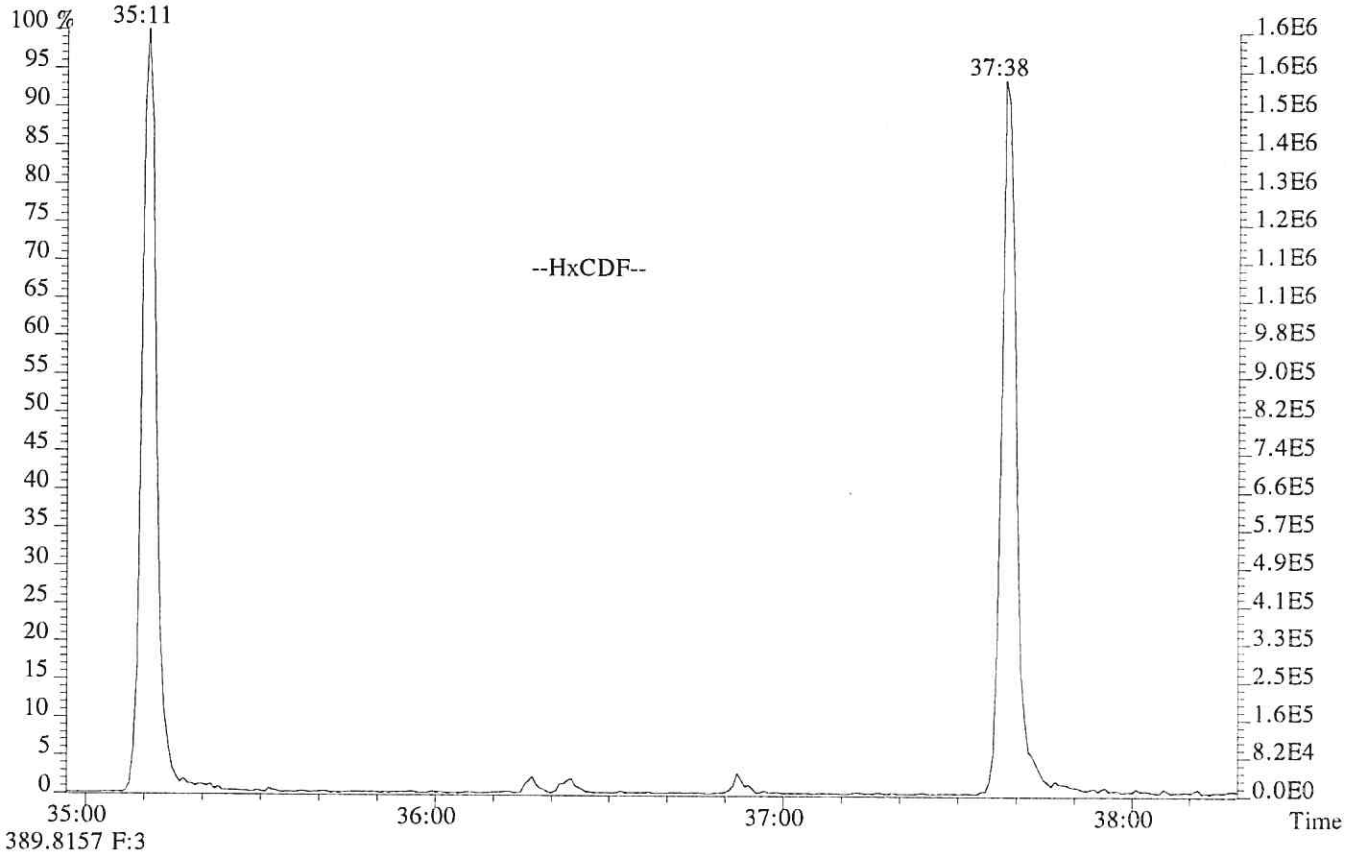
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



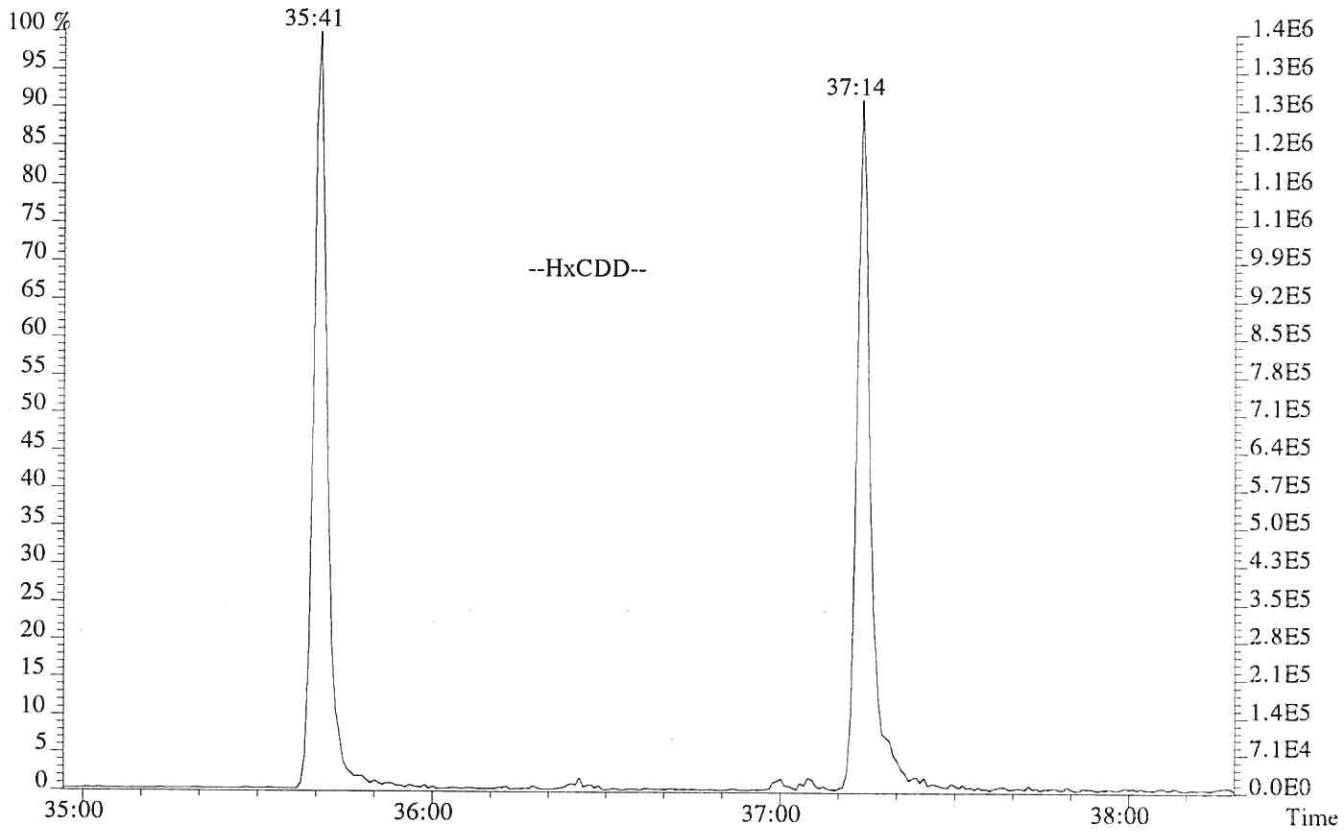
355.8546 F:2



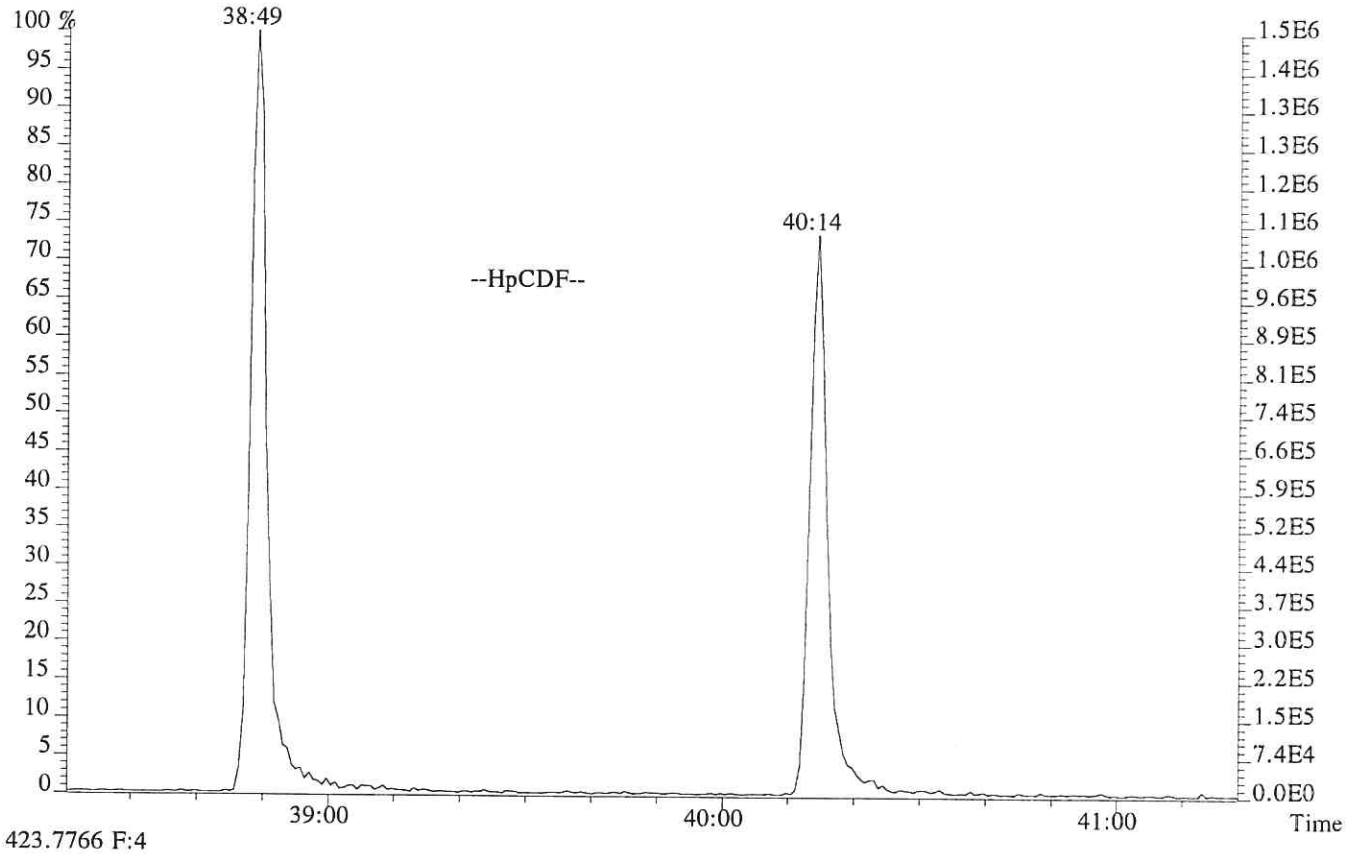
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



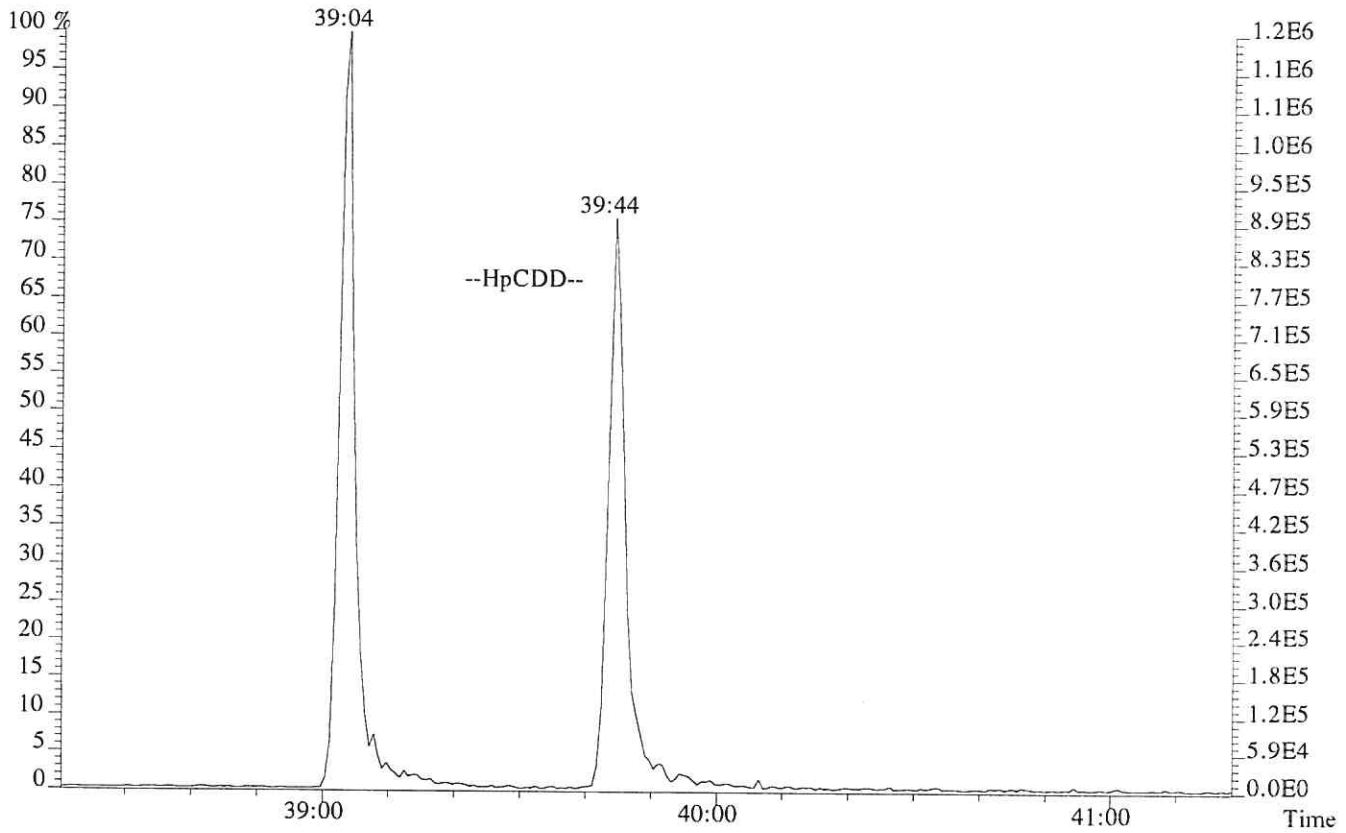
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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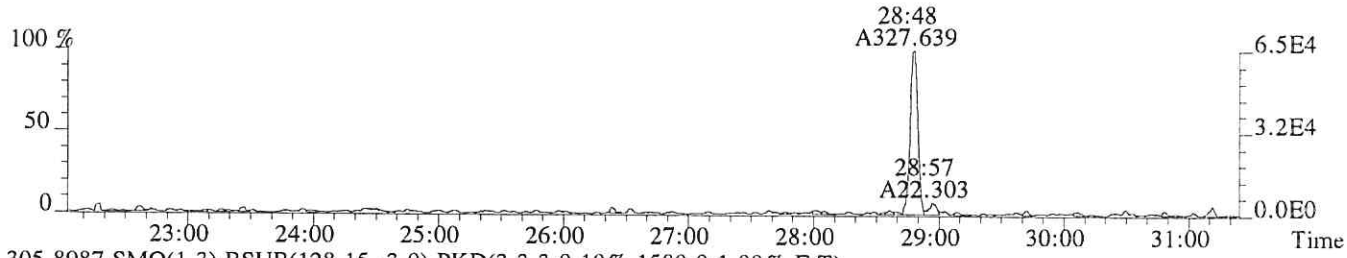
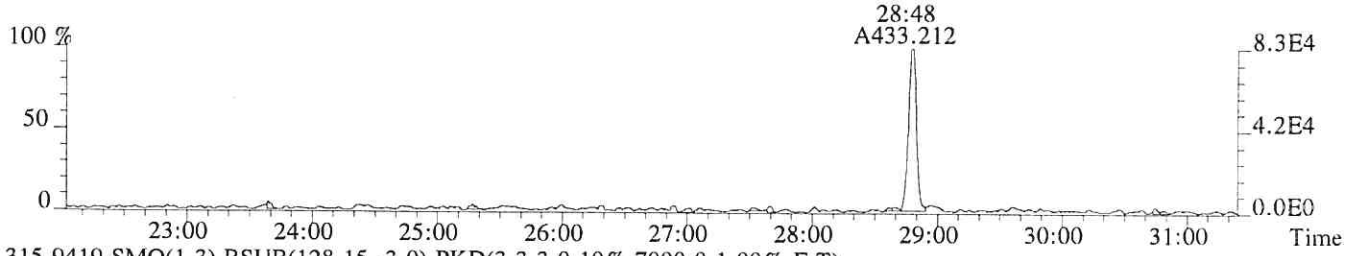
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

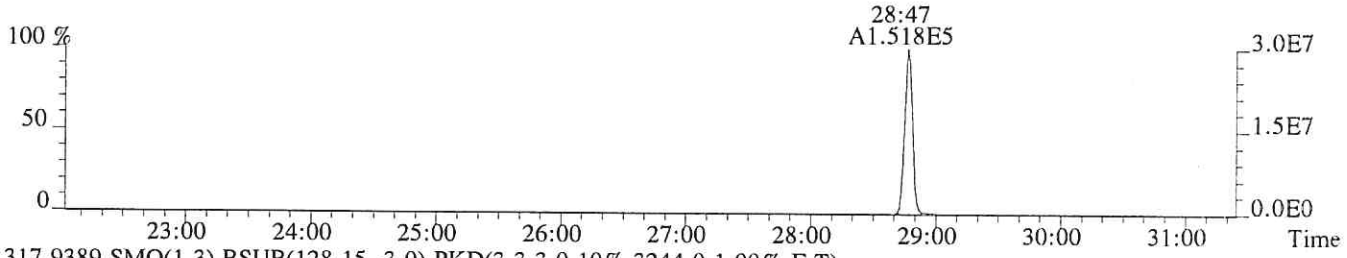
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



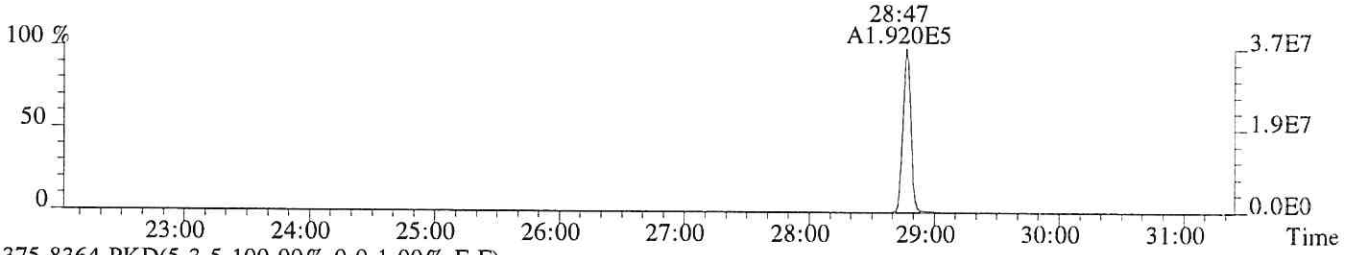
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



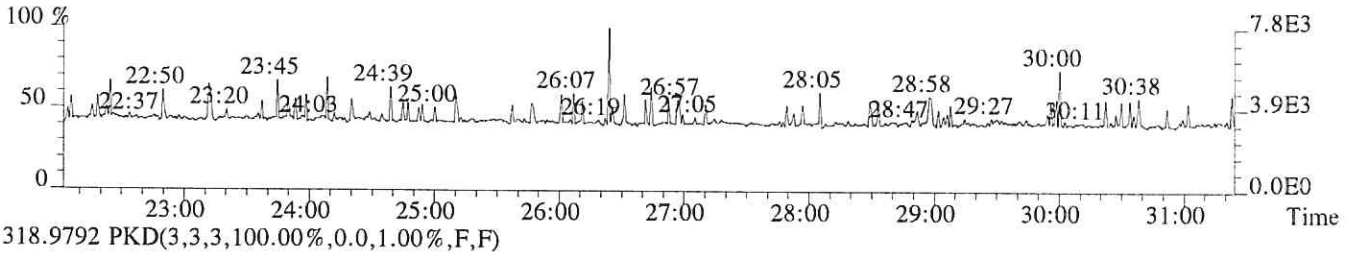
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



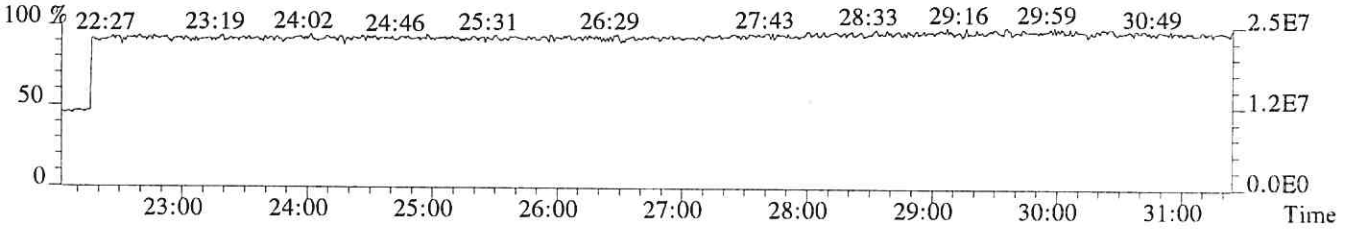
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



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

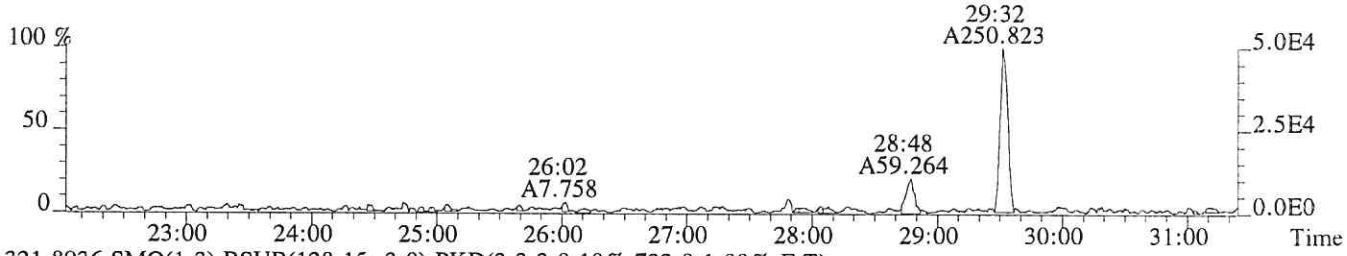


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

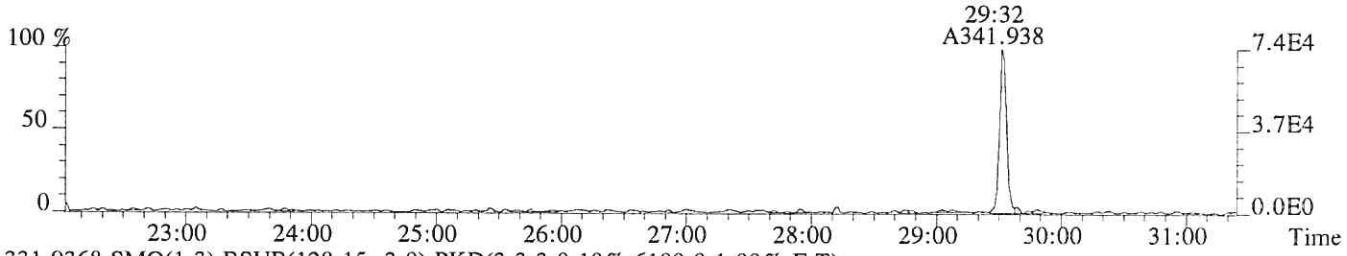


File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

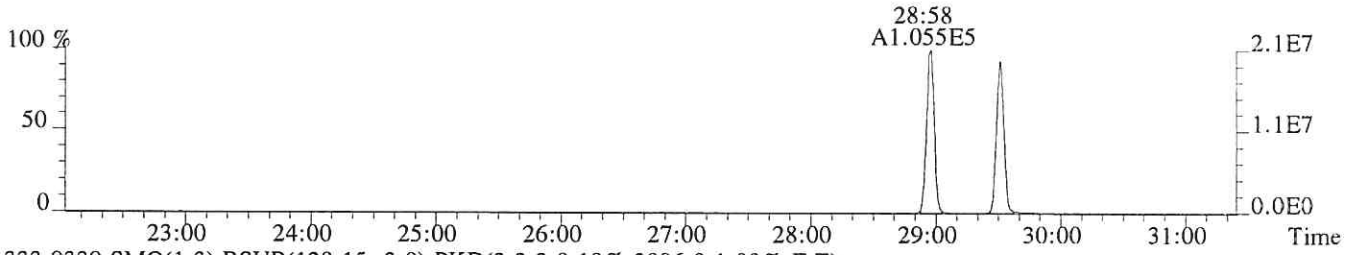
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



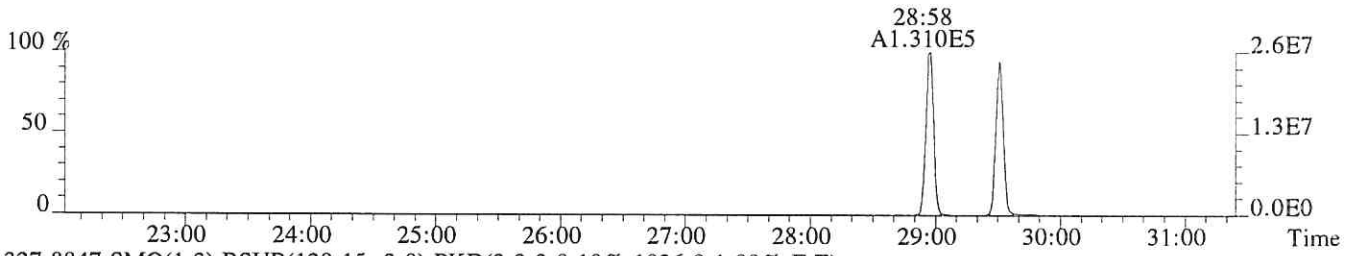
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



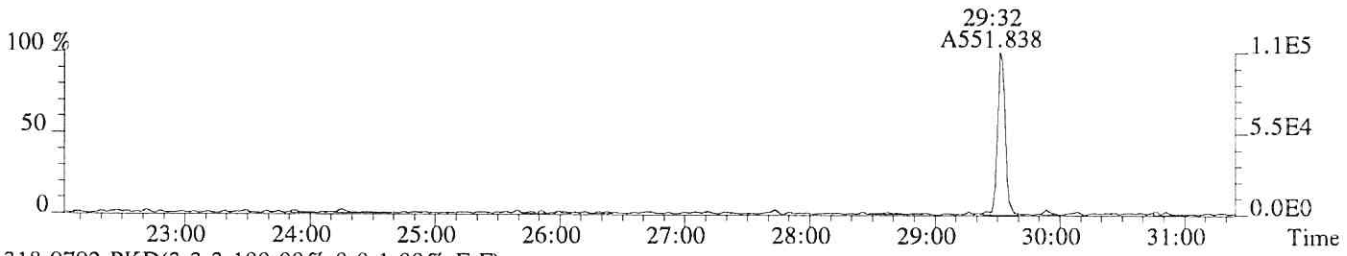
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



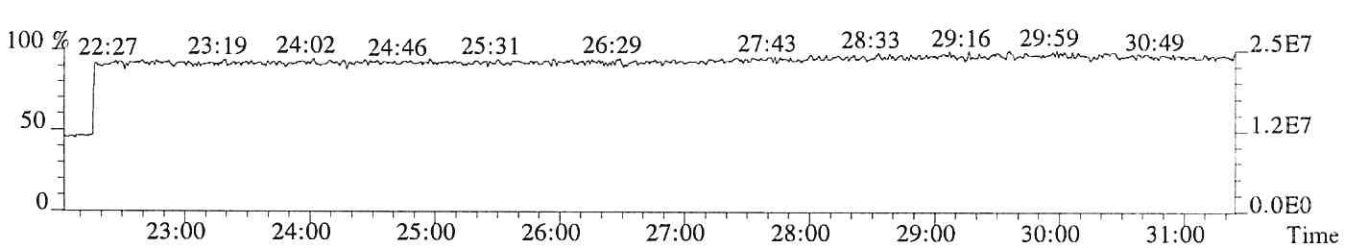
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



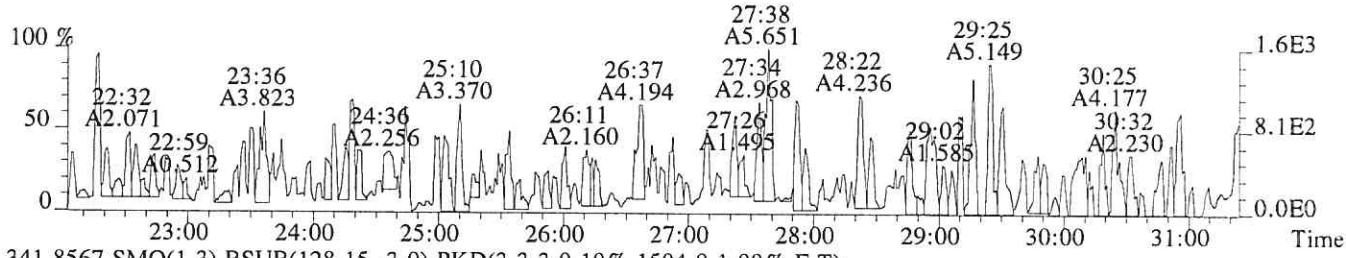
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



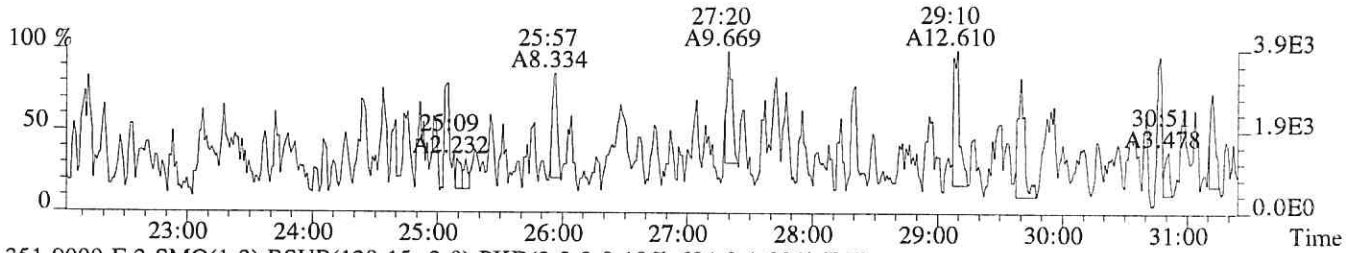
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



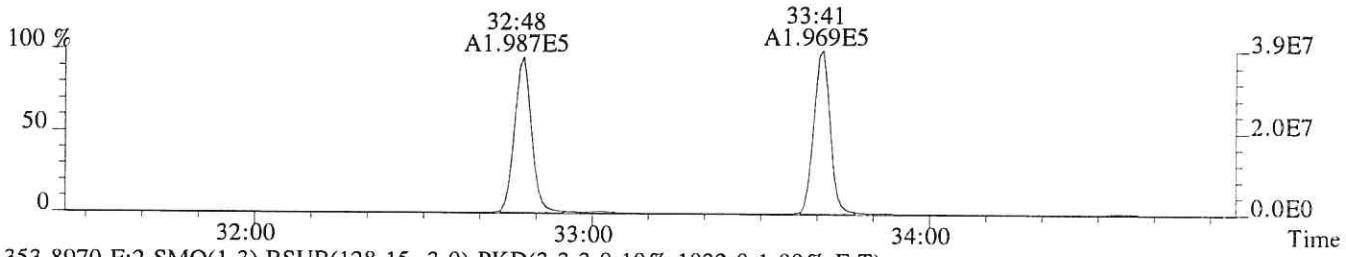
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



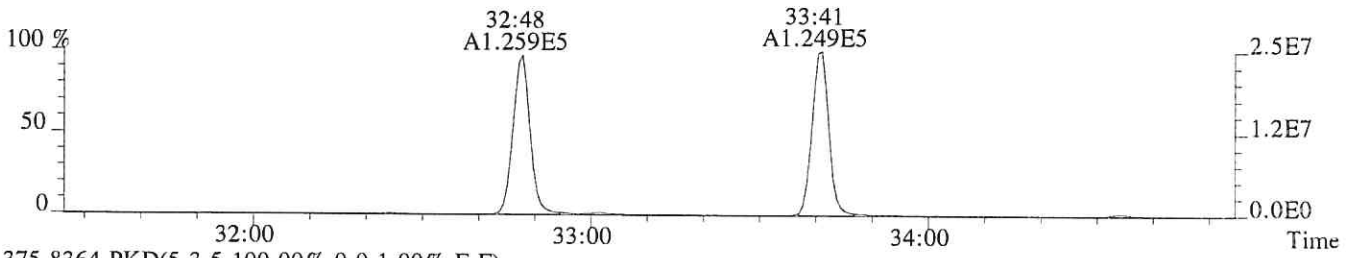
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



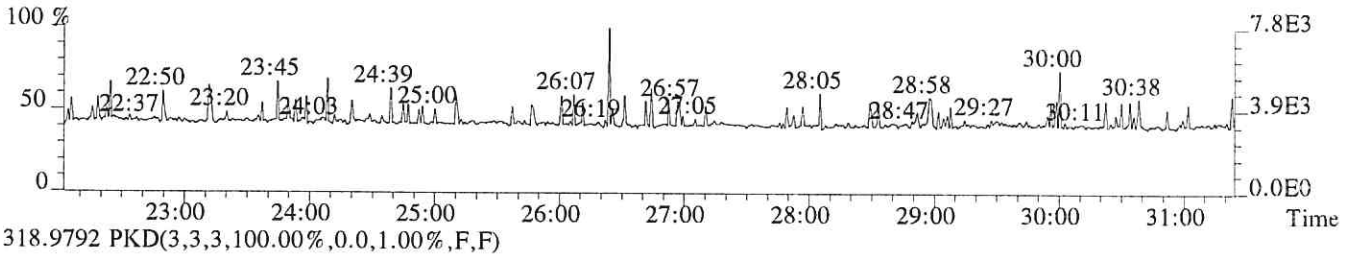
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



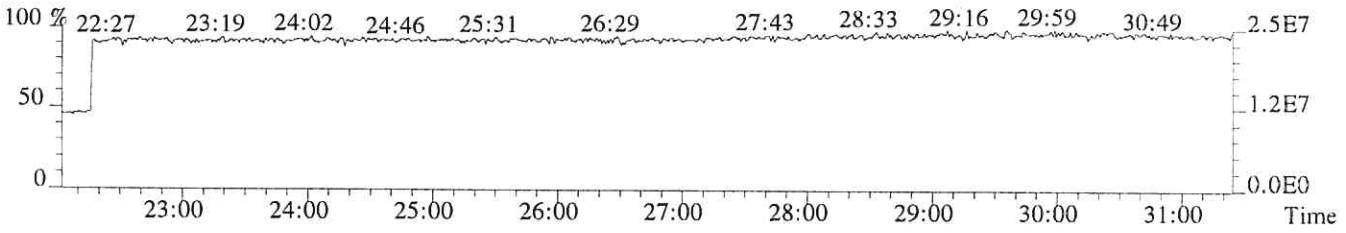
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



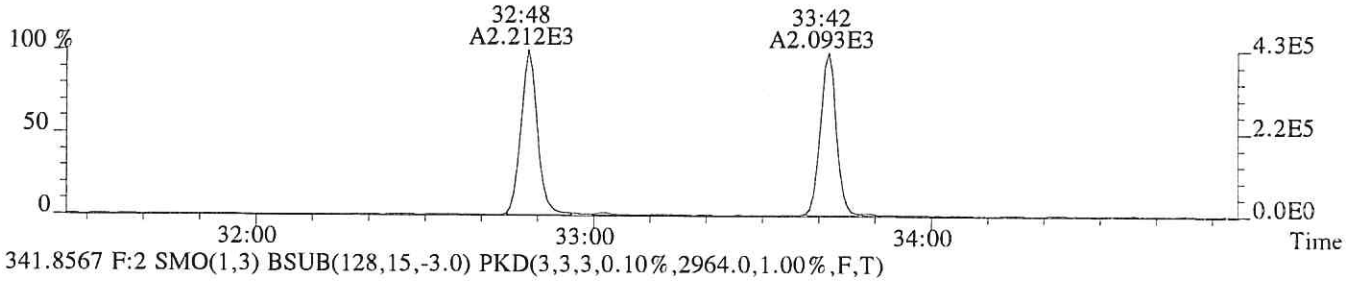
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



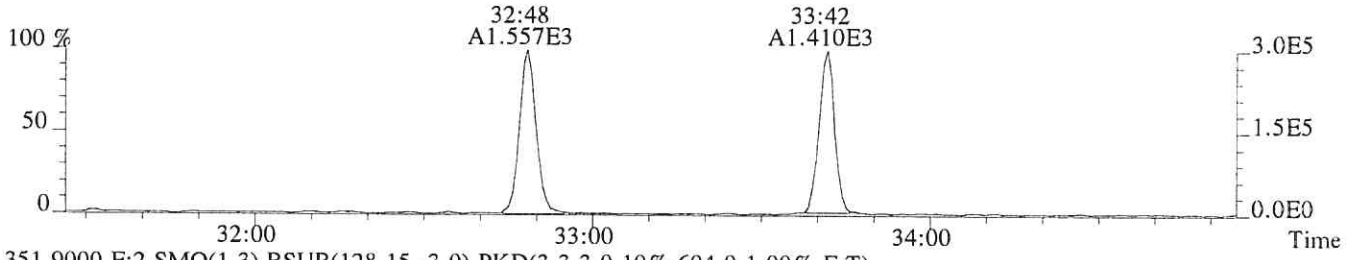
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



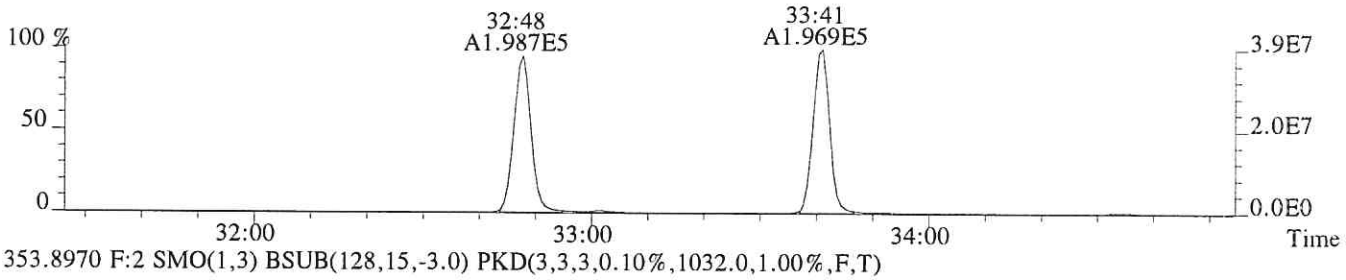
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



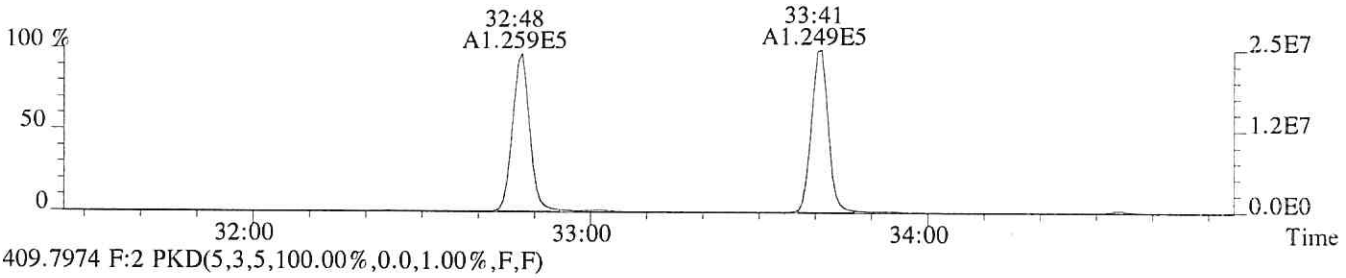
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



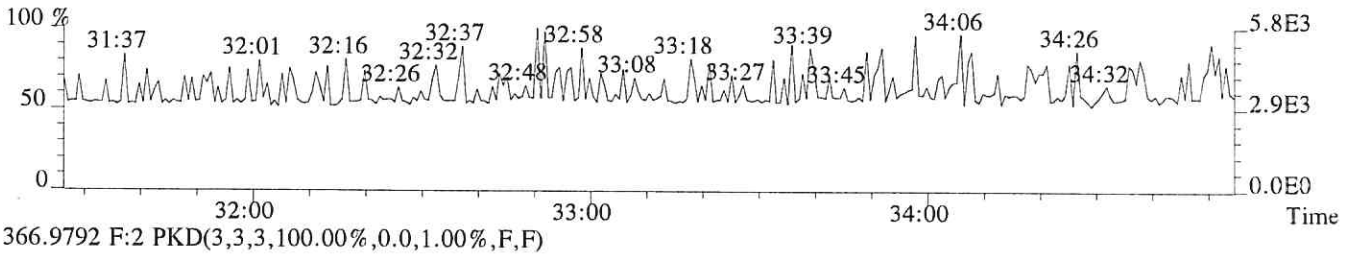
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



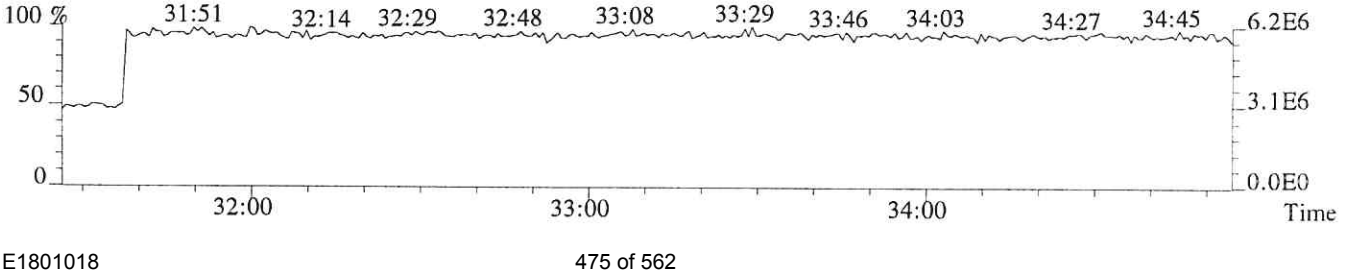
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



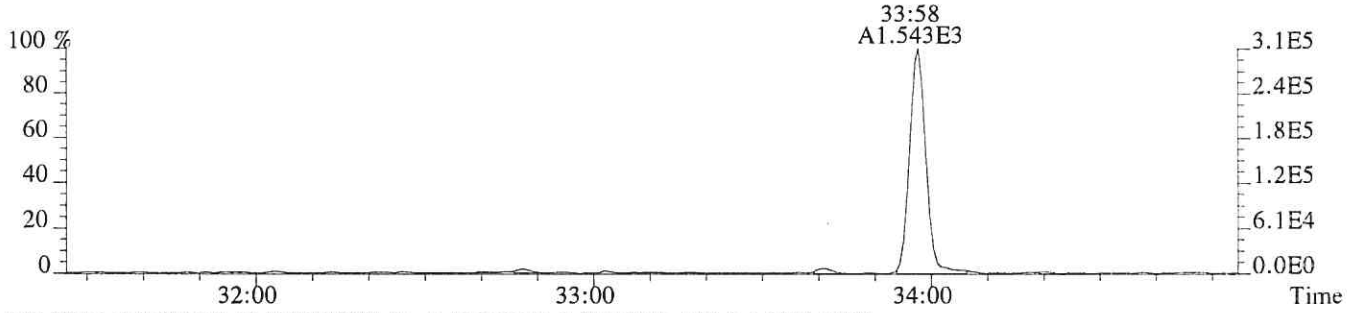
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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



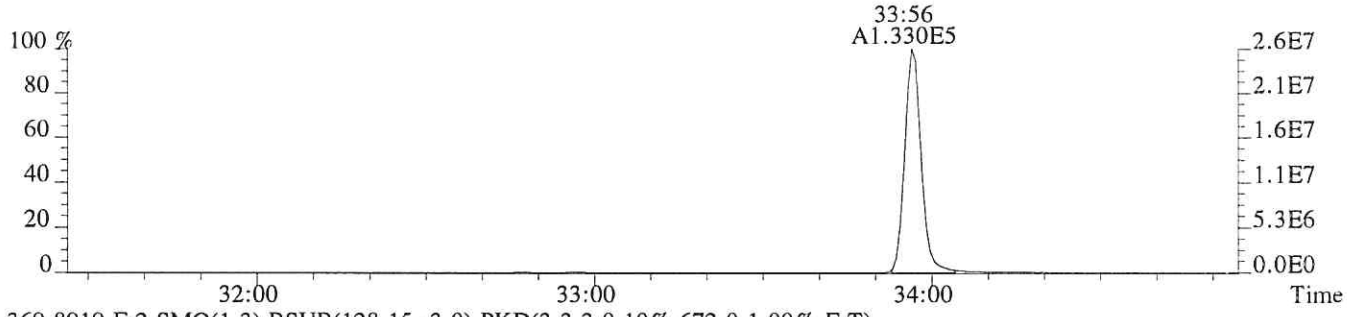
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



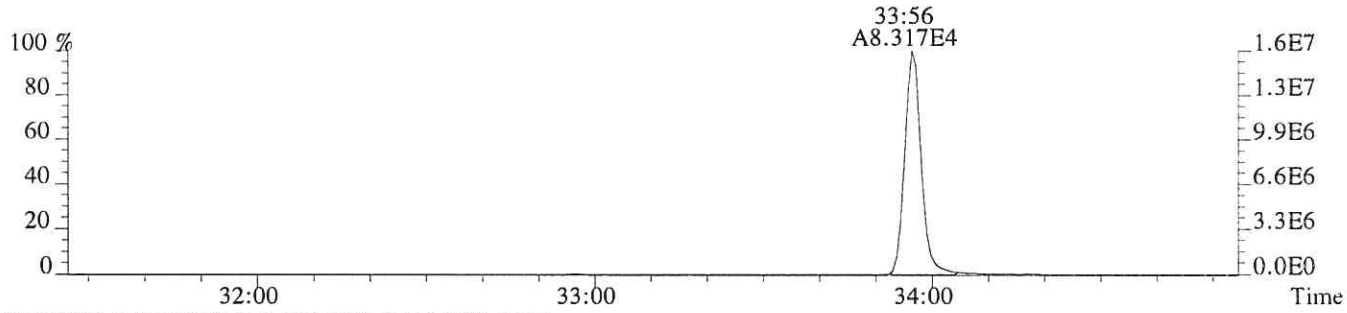
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



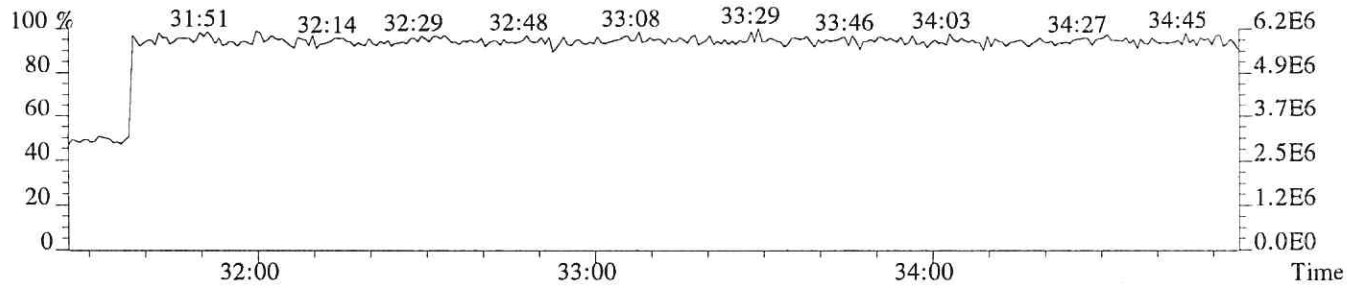
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



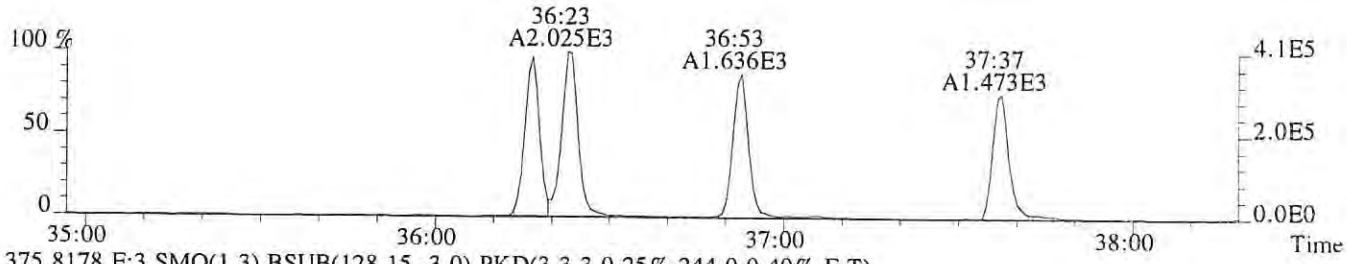
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



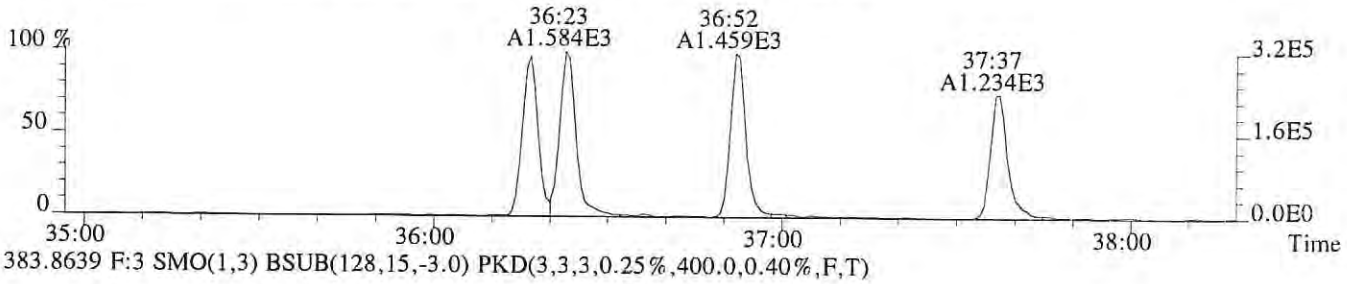
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



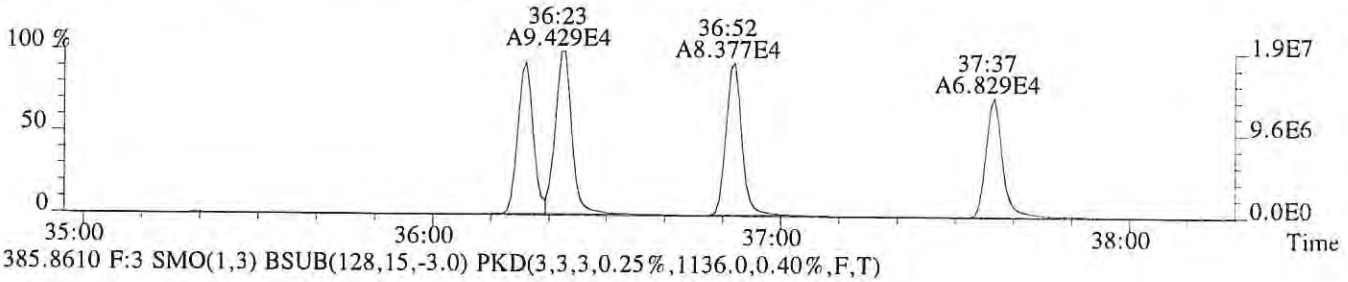
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



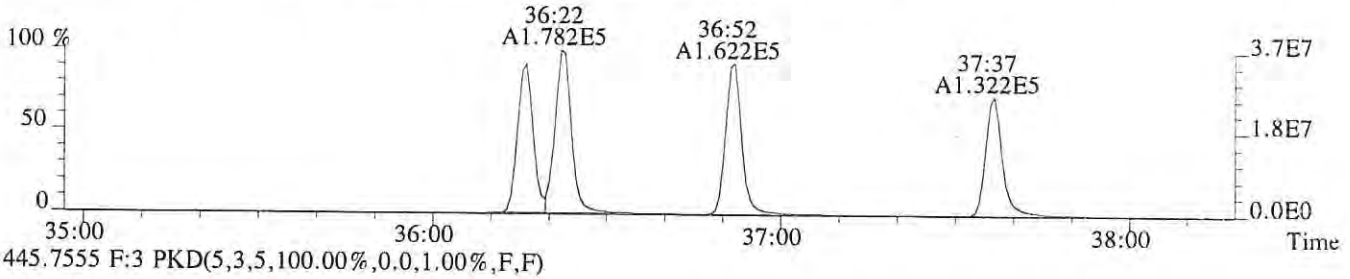
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



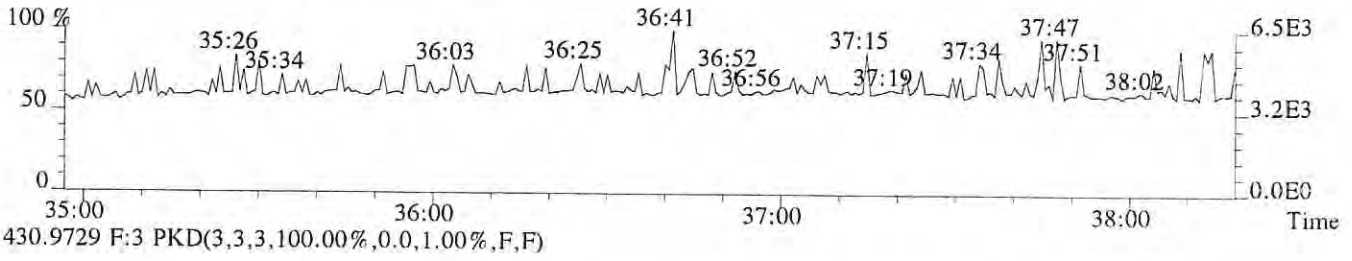
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



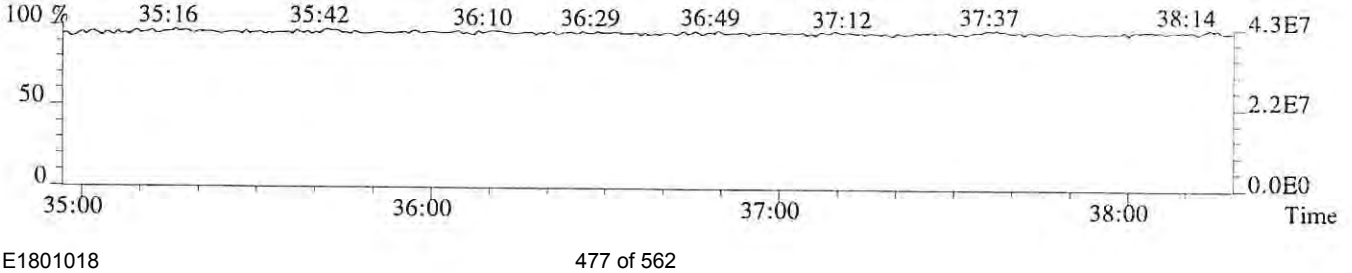
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



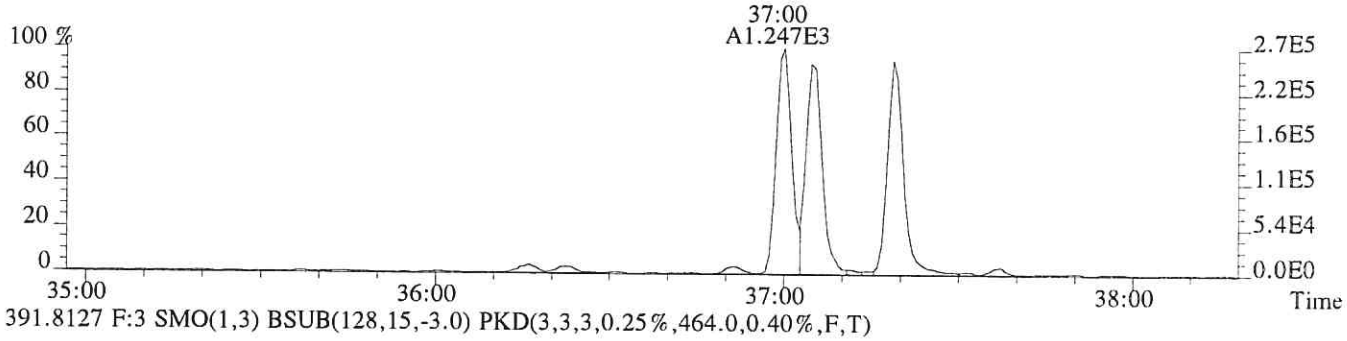
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



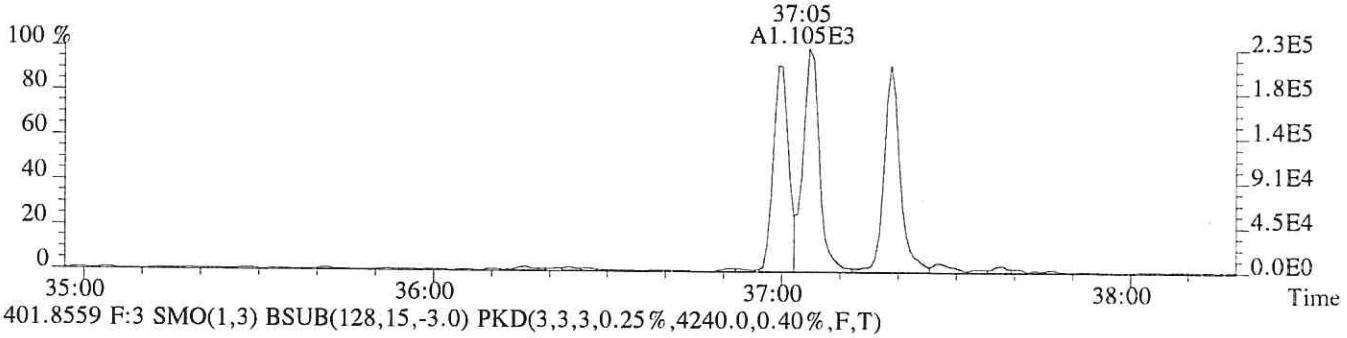
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



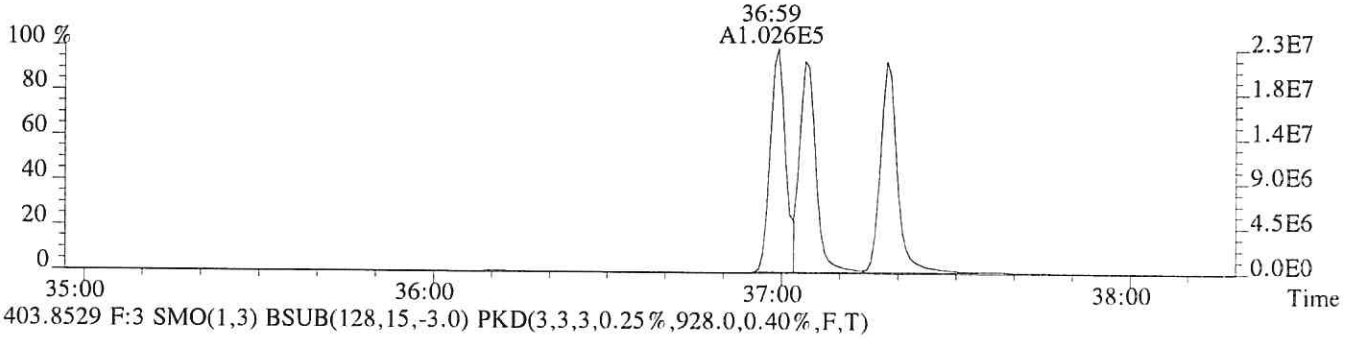
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



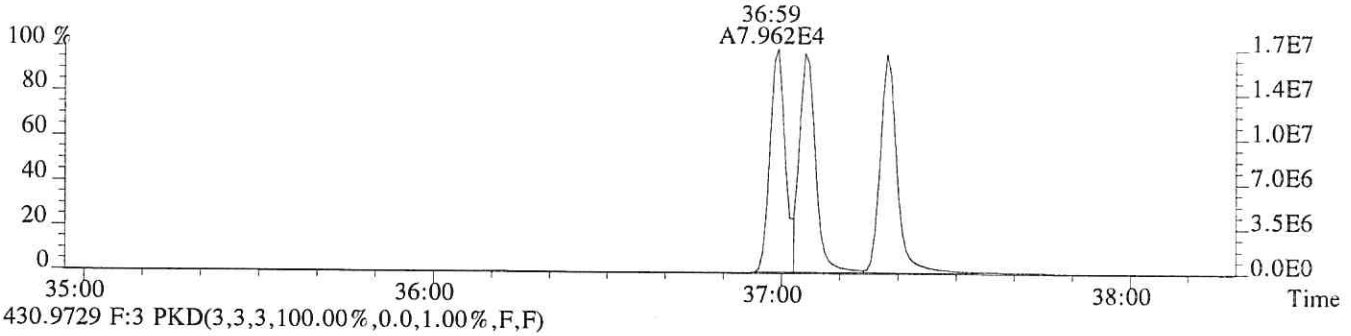
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



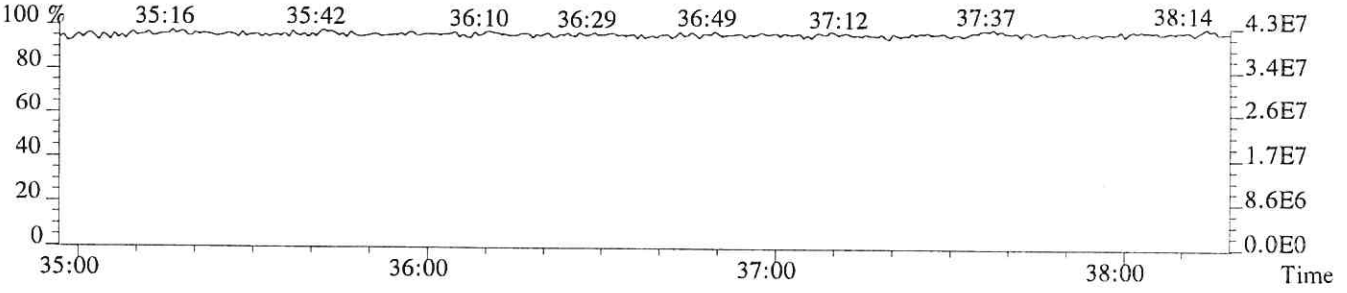
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



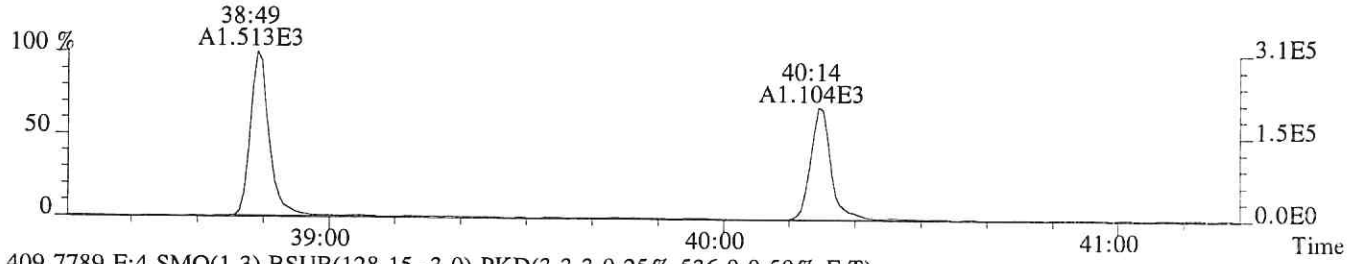
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



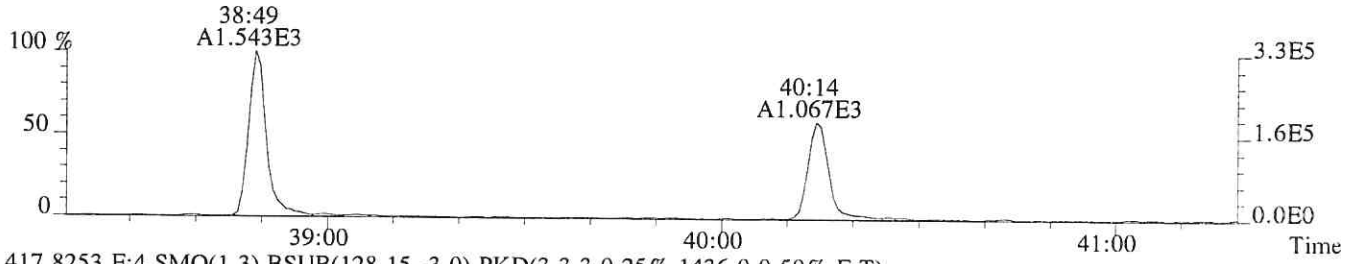
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



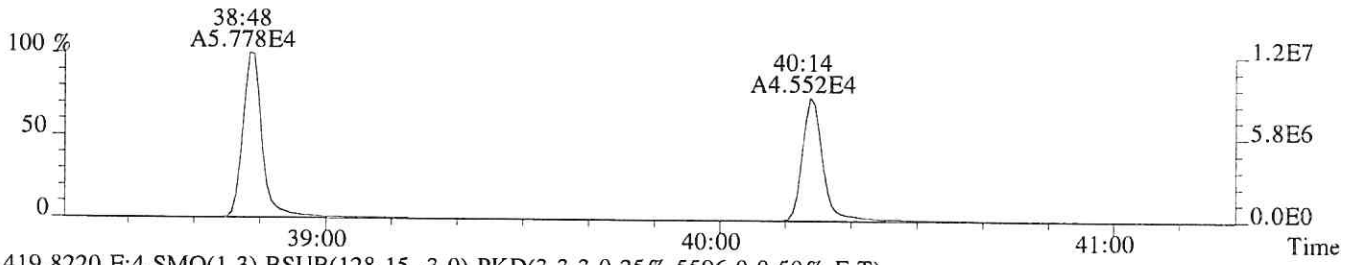
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



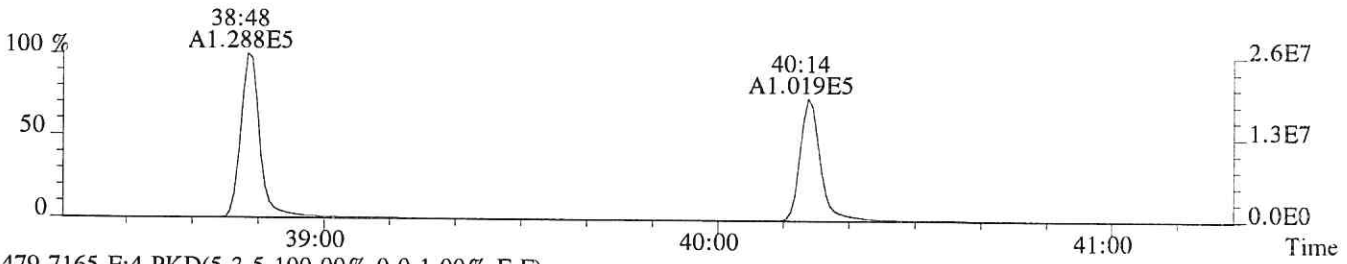
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



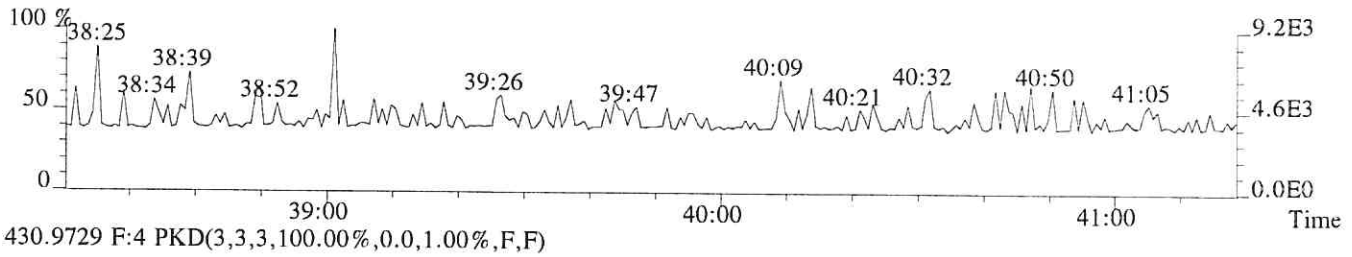
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



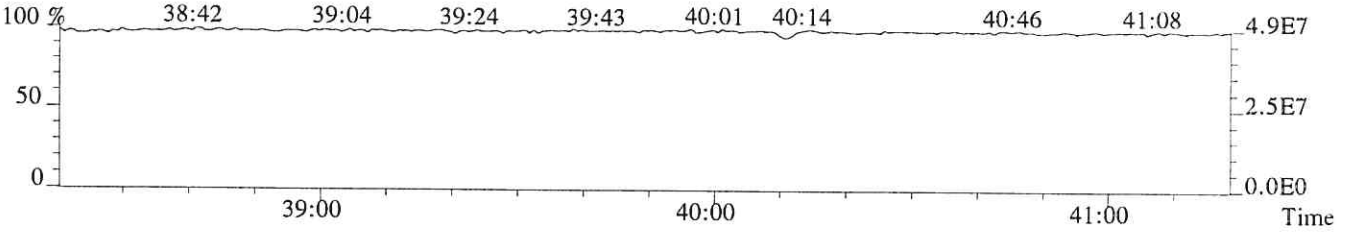
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



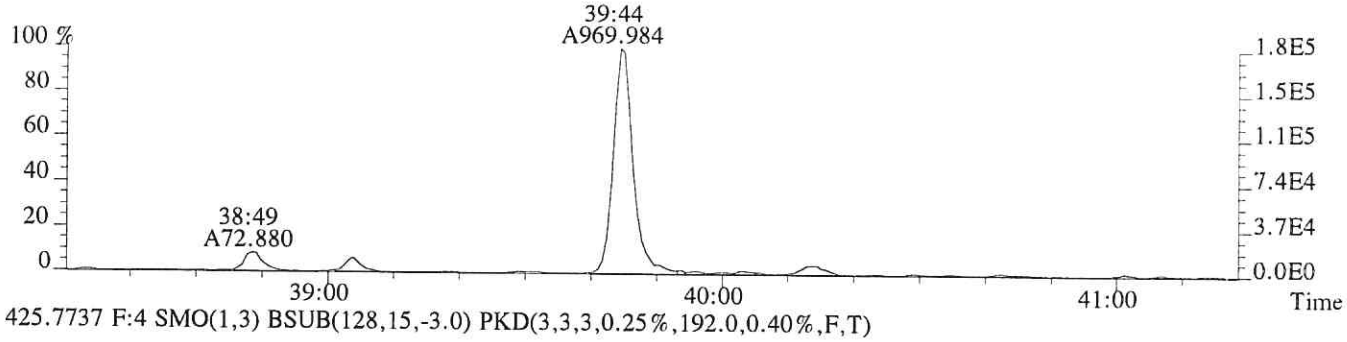
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



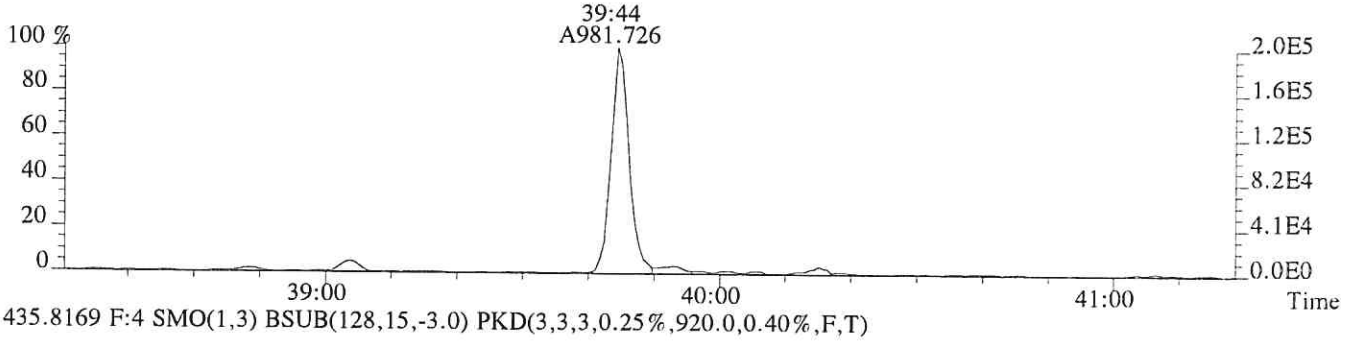
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



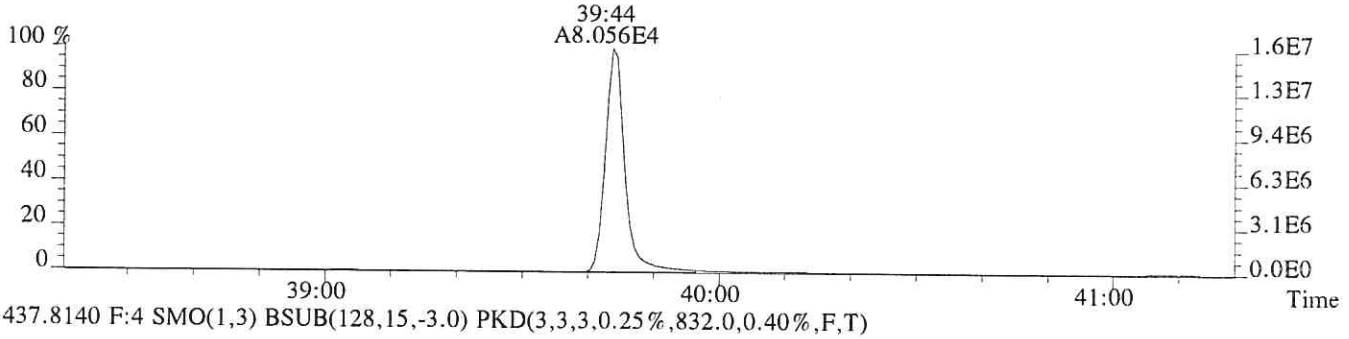
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



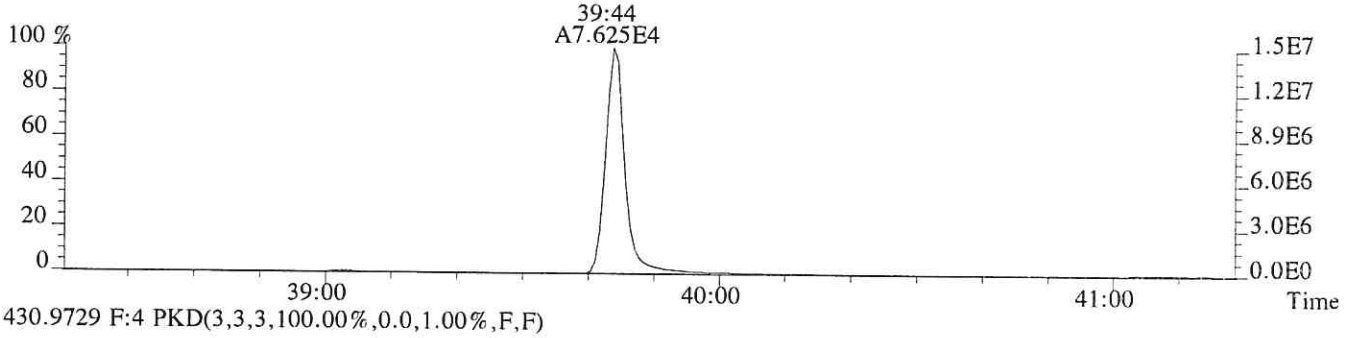
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



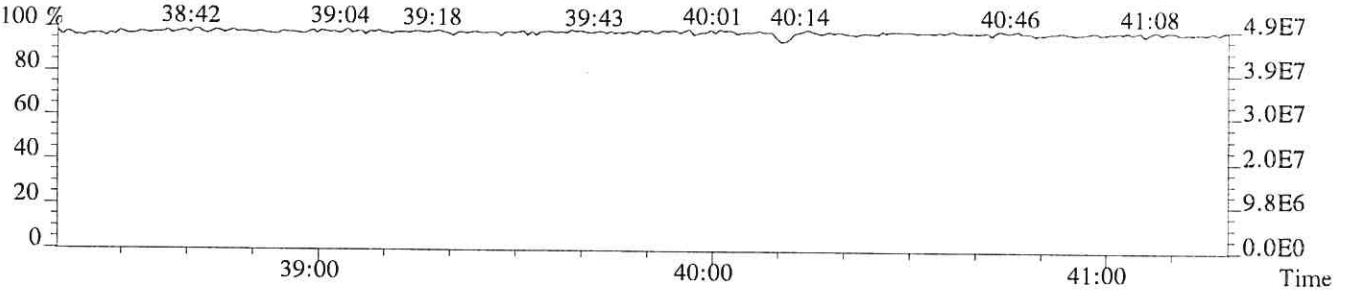
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



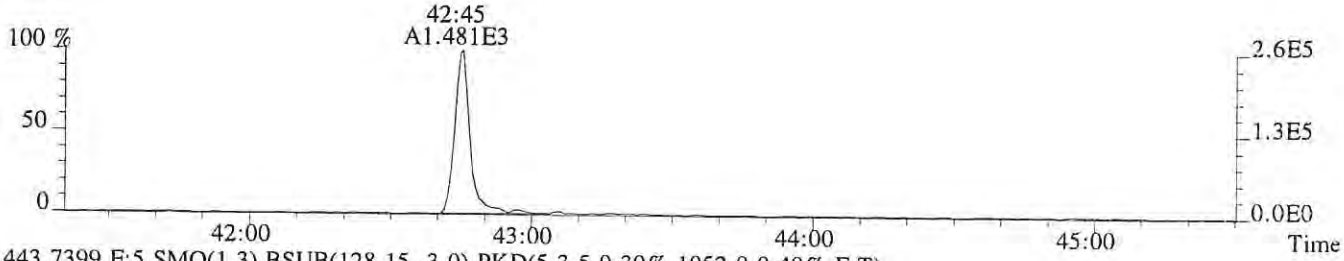
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



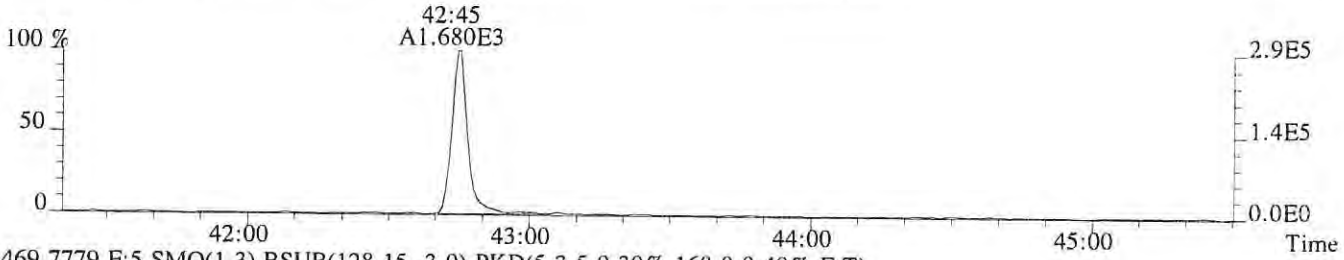
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



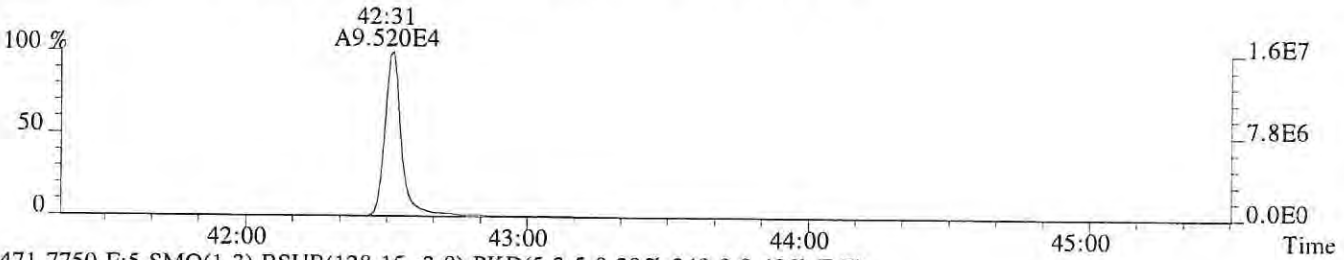
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



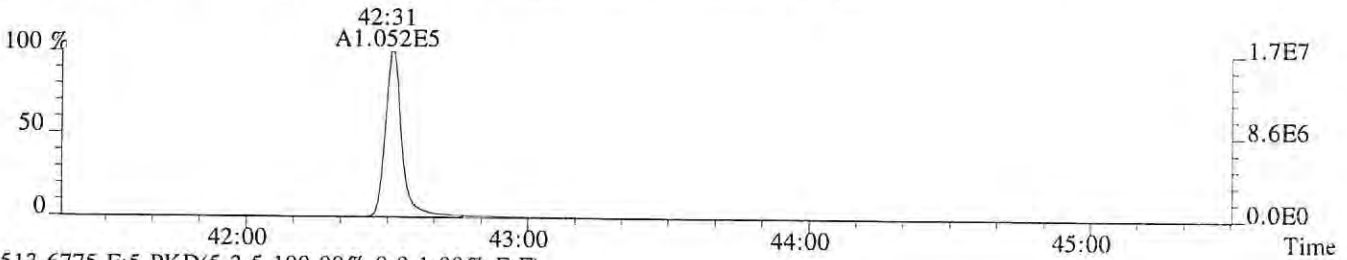
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



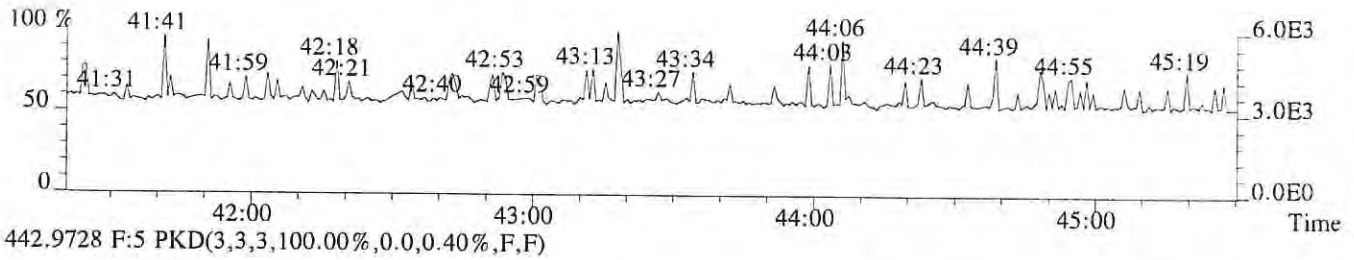
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



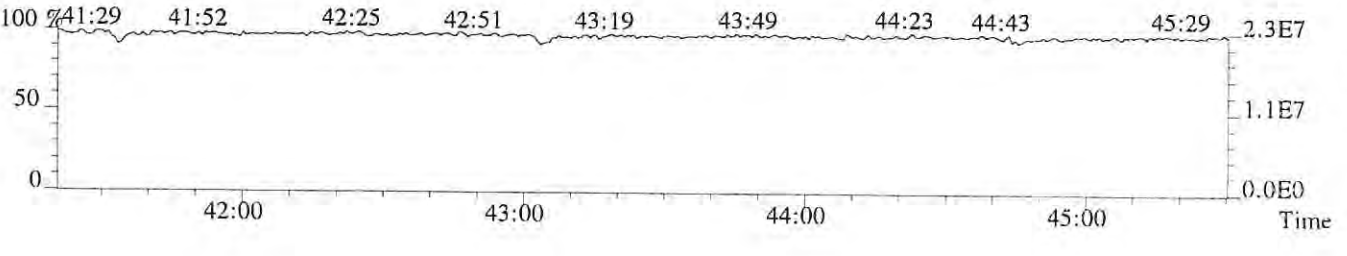
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



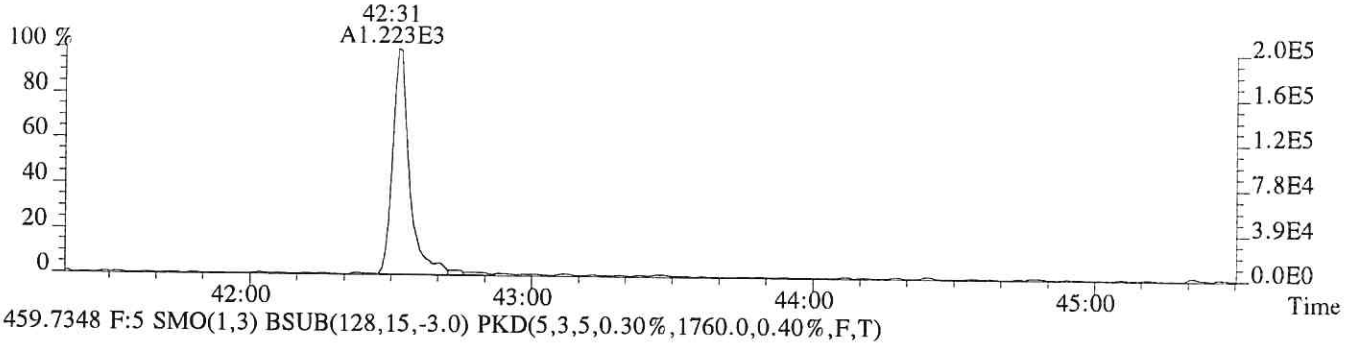
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



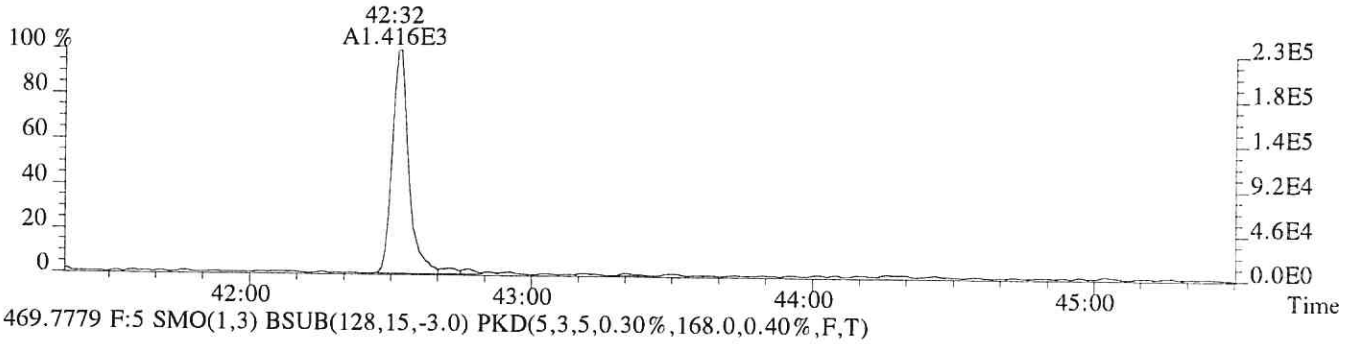
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



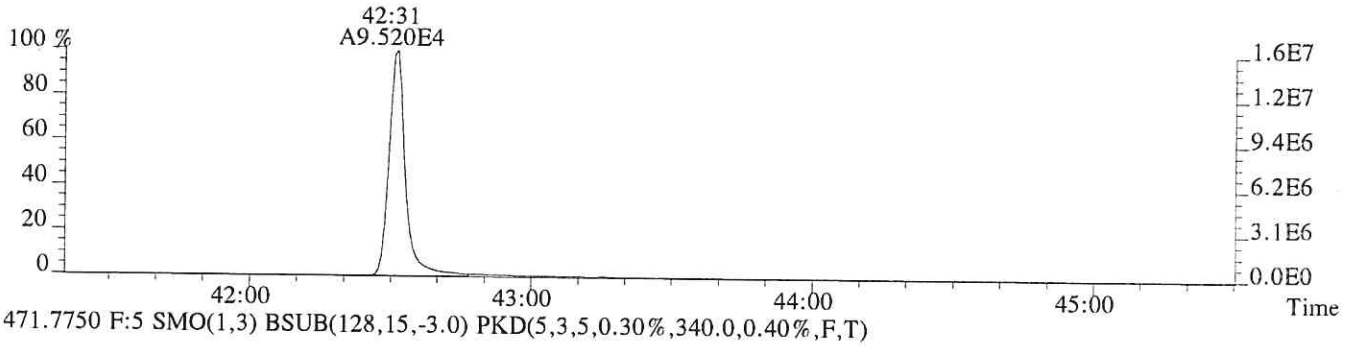
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



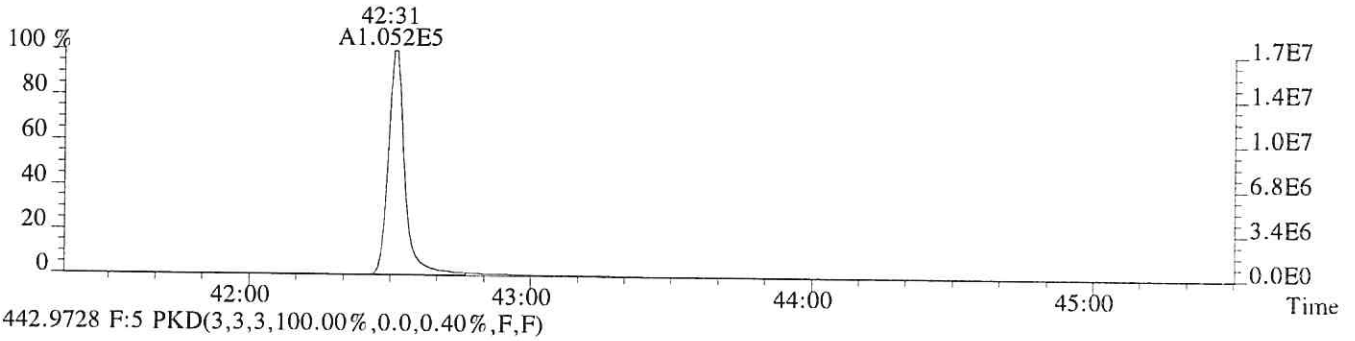
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



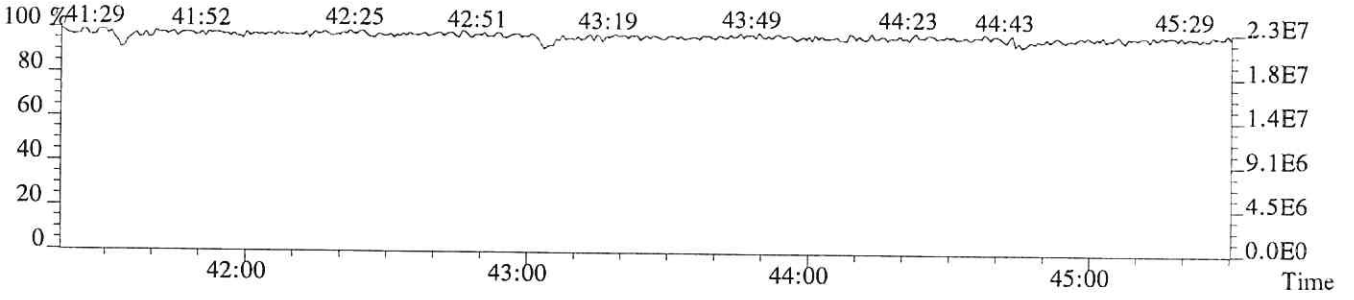
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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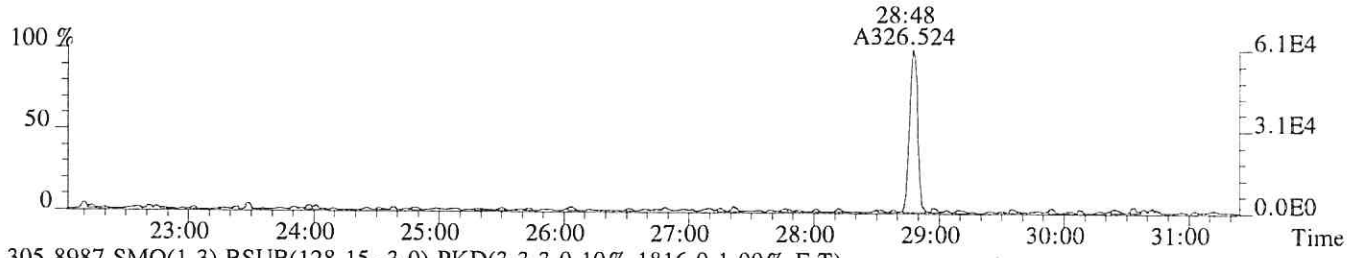
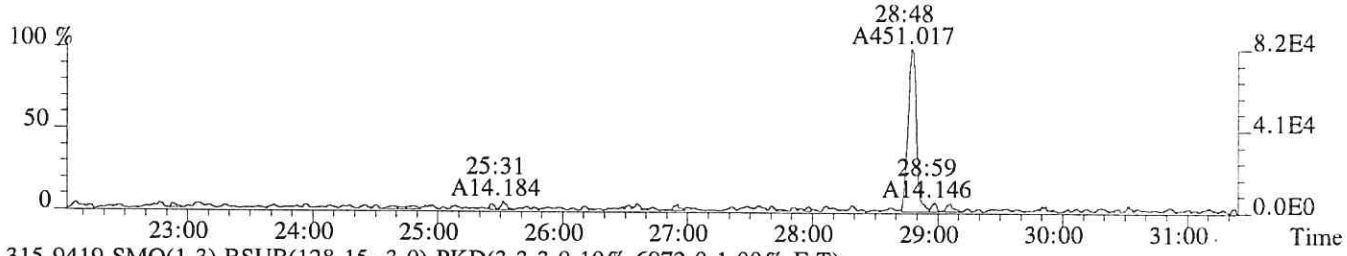
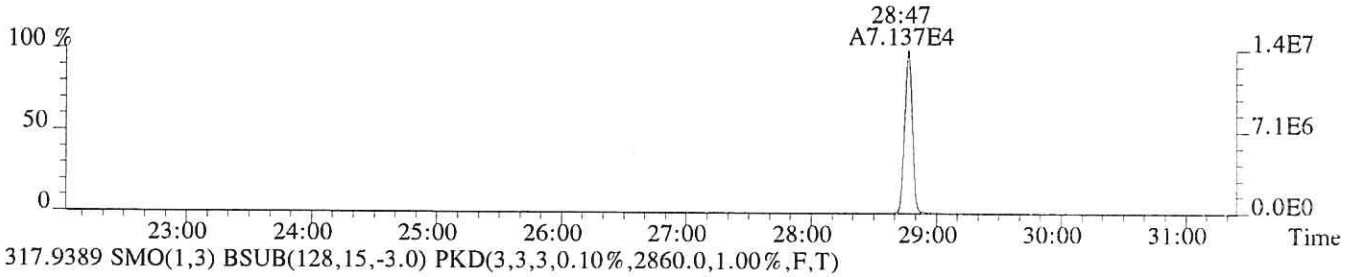
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



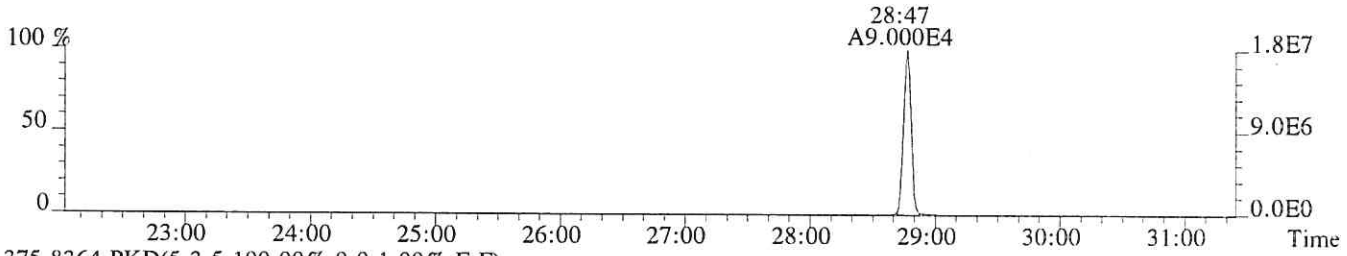
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



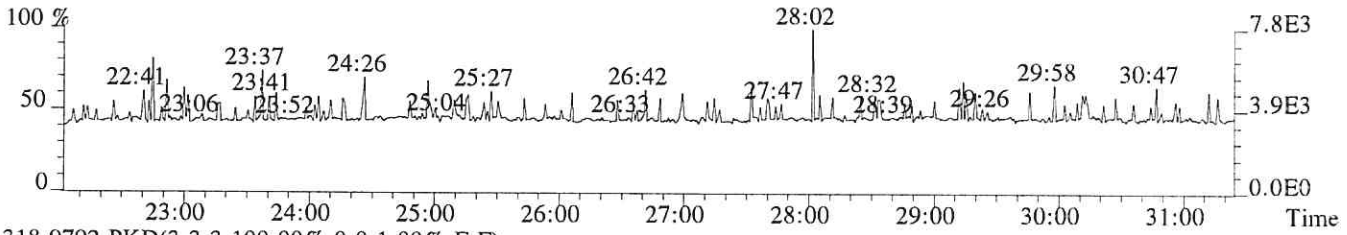
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



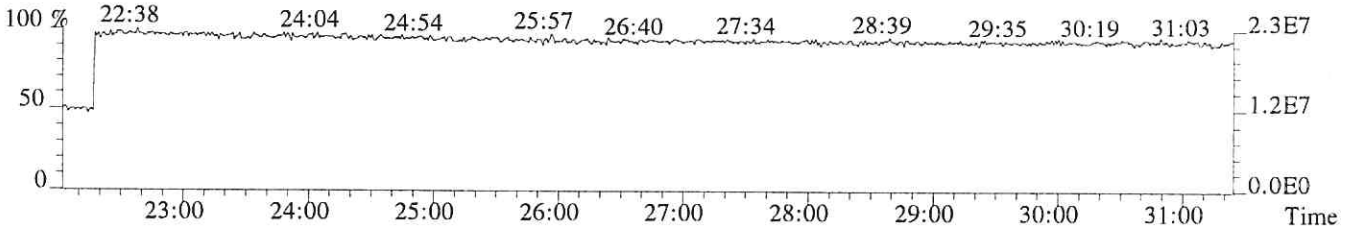
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



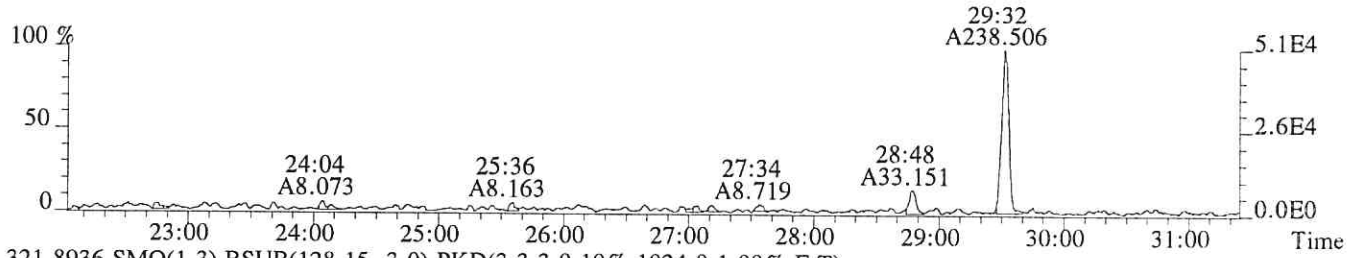
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



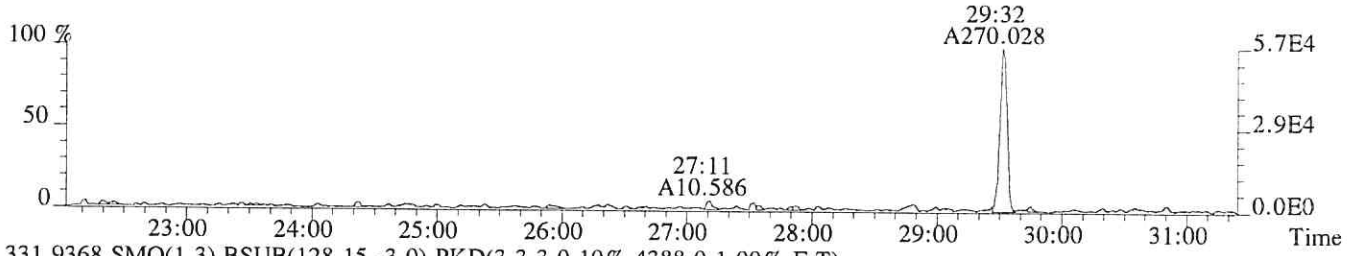
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



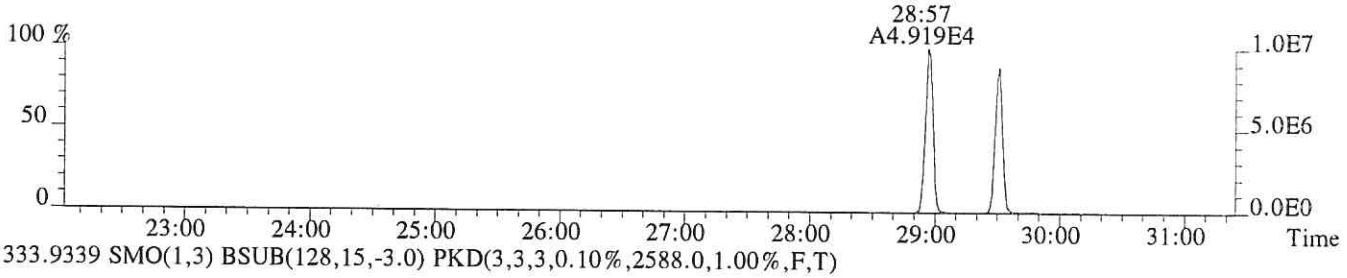
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



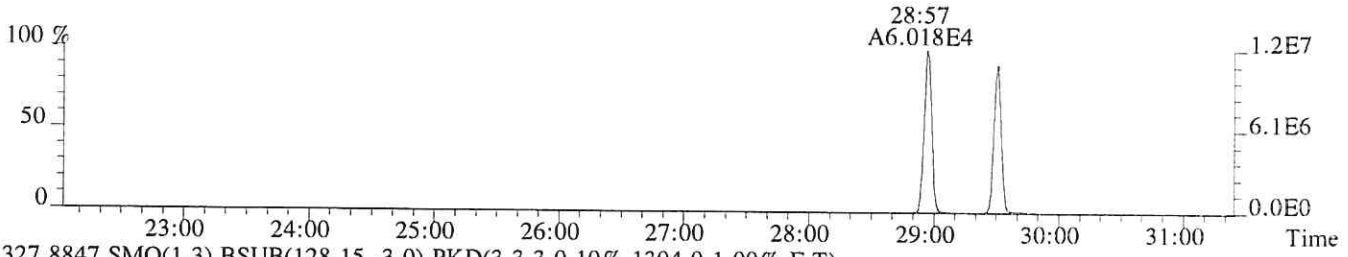
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



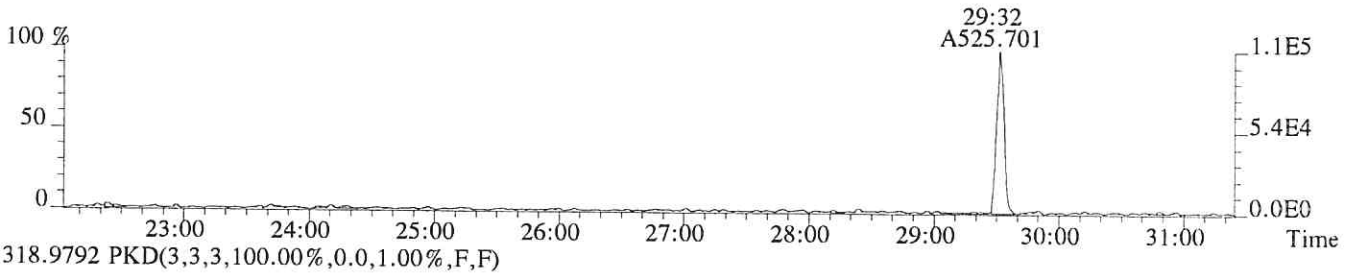
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



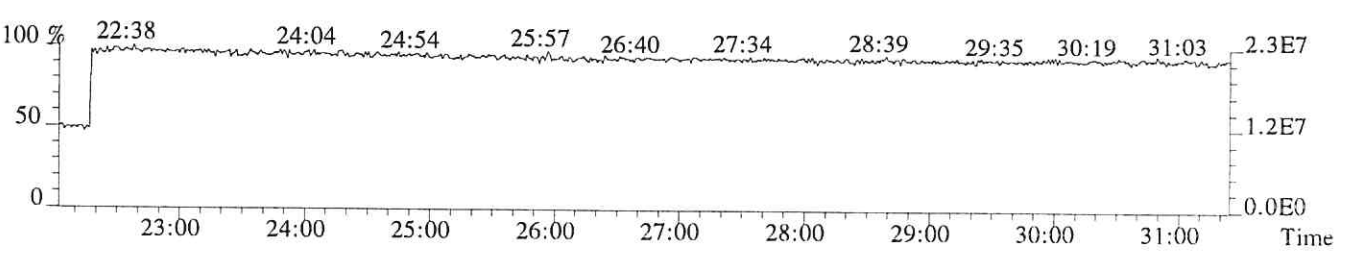
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



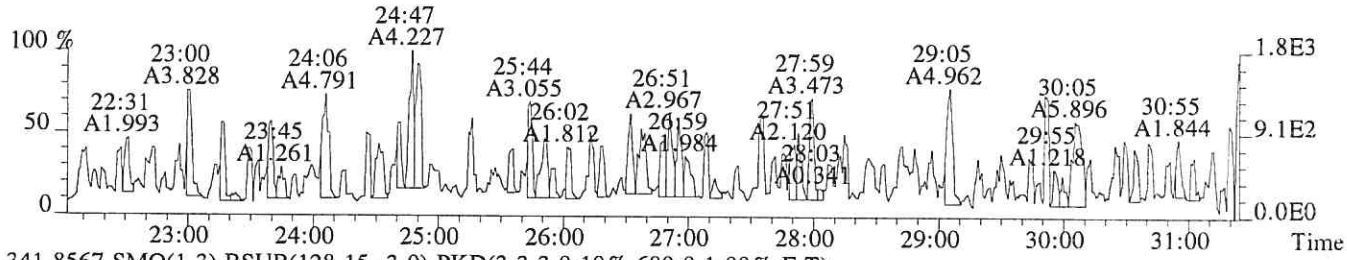
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



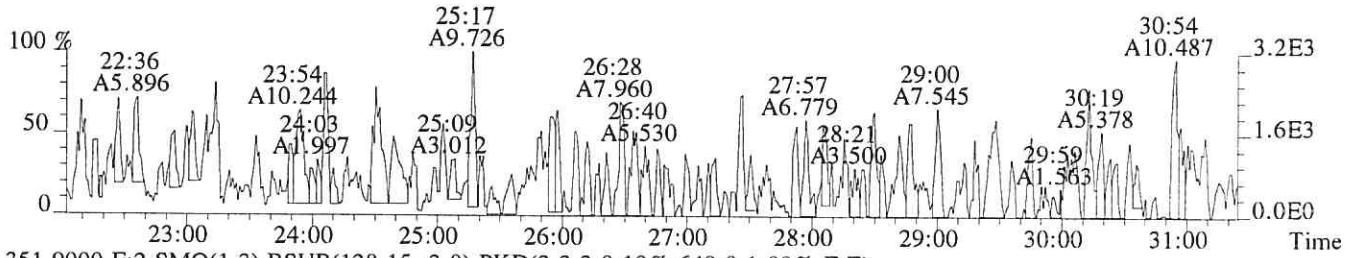
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



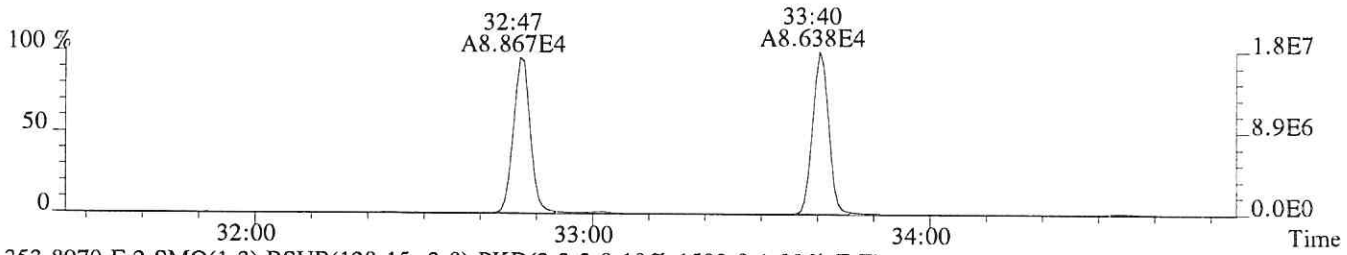
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



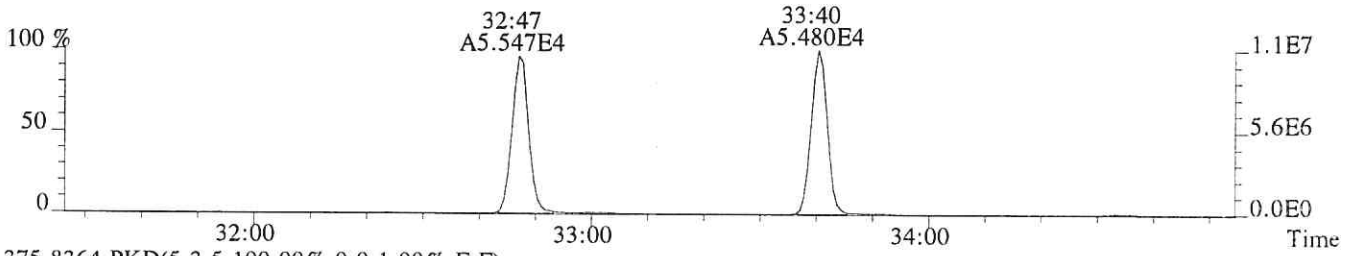
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



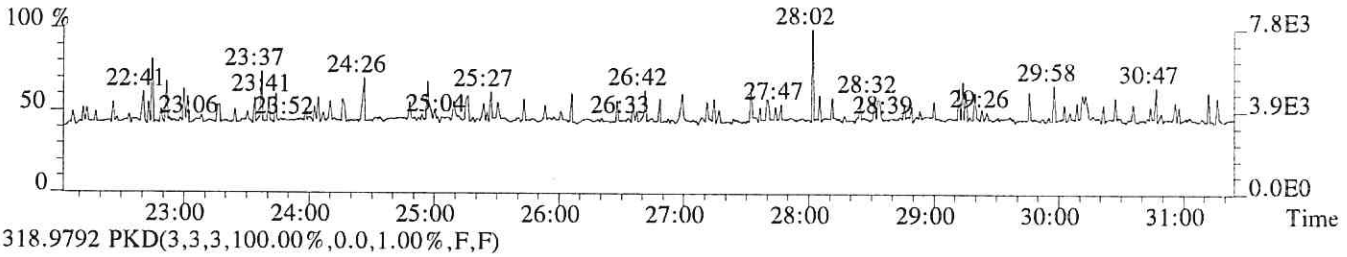
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



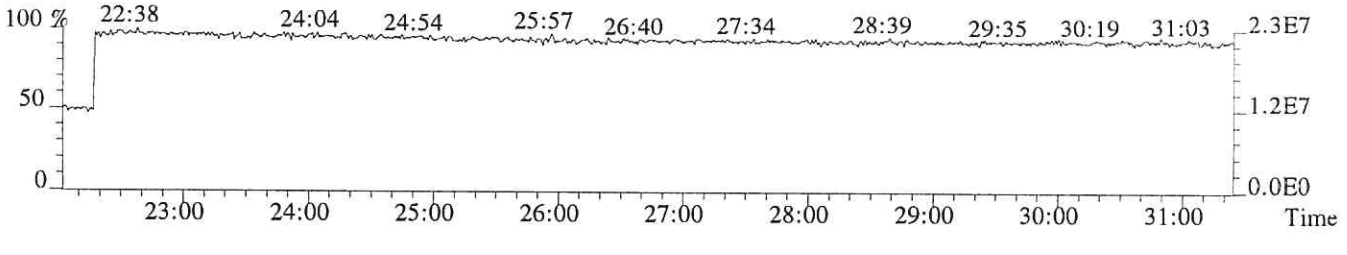
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



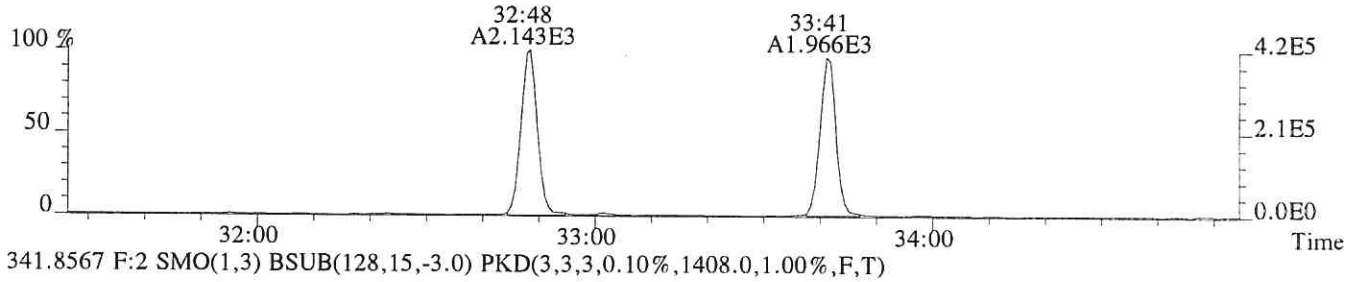
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



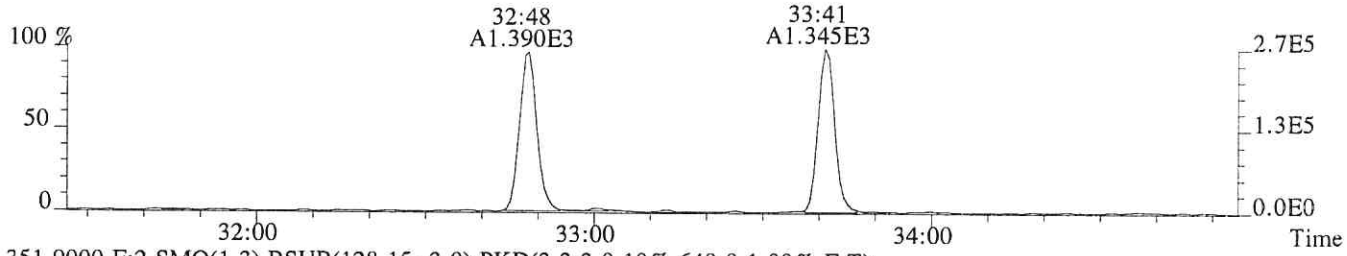
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



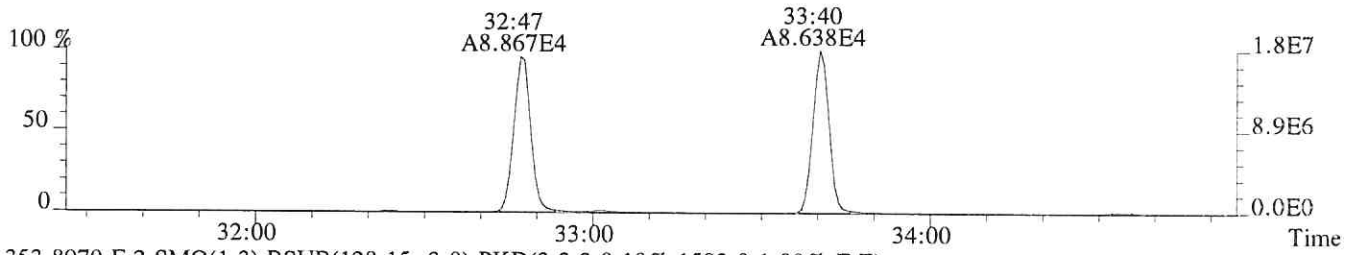
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



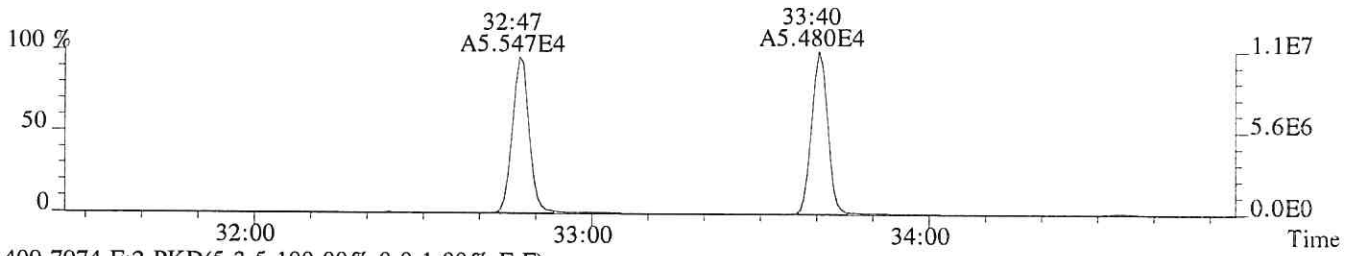
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



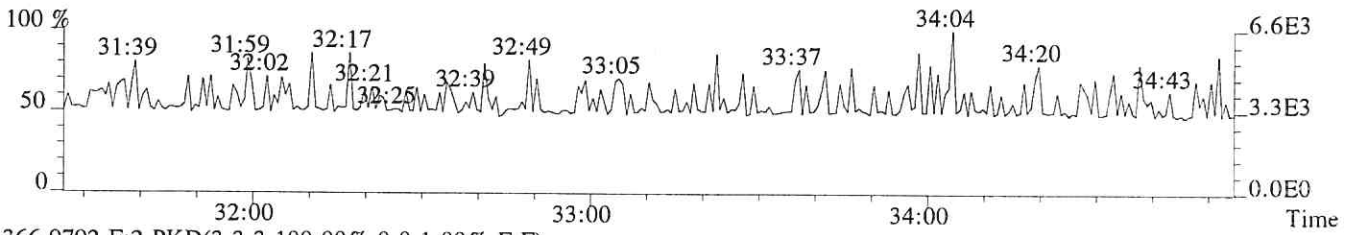
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



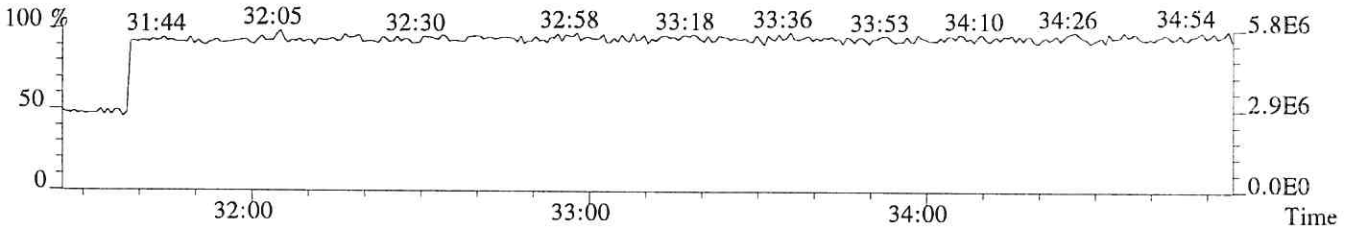
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



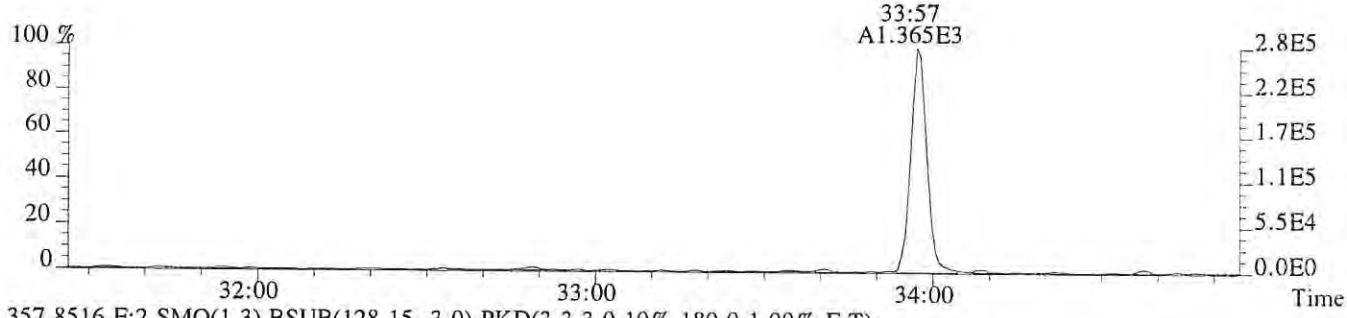
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



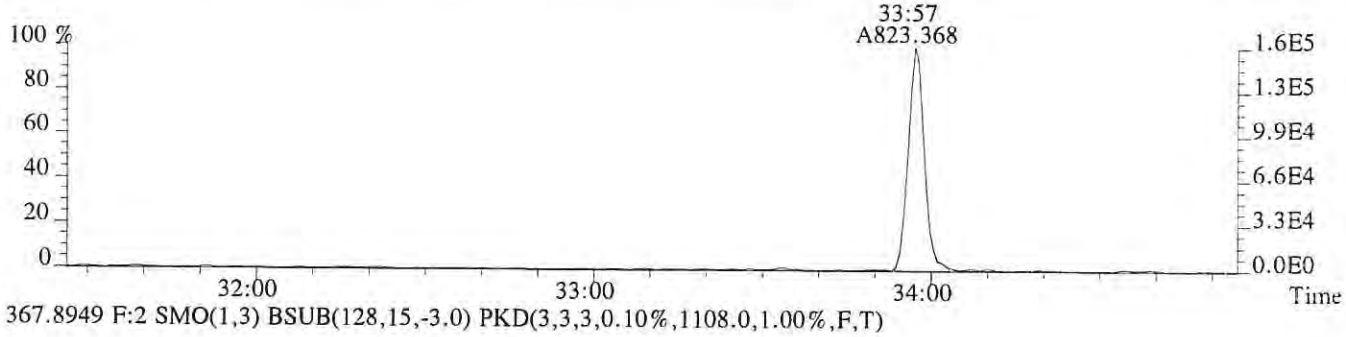
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



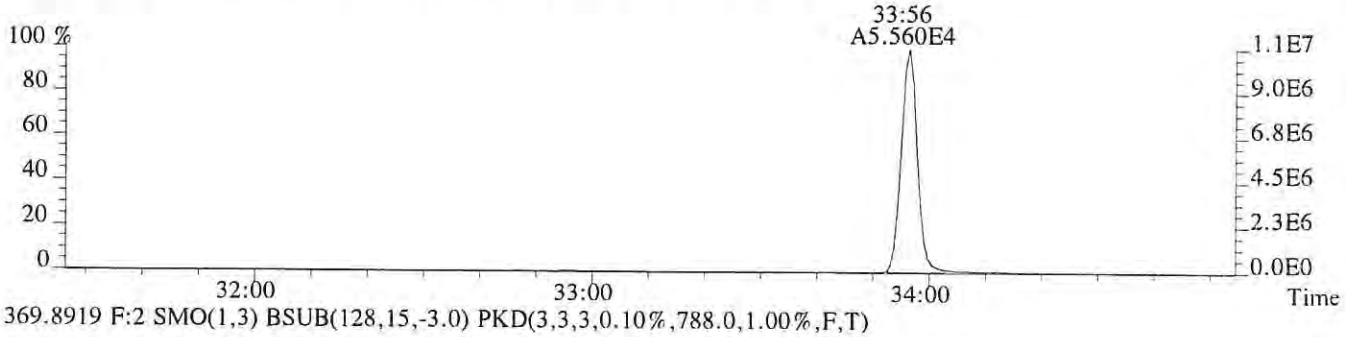
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



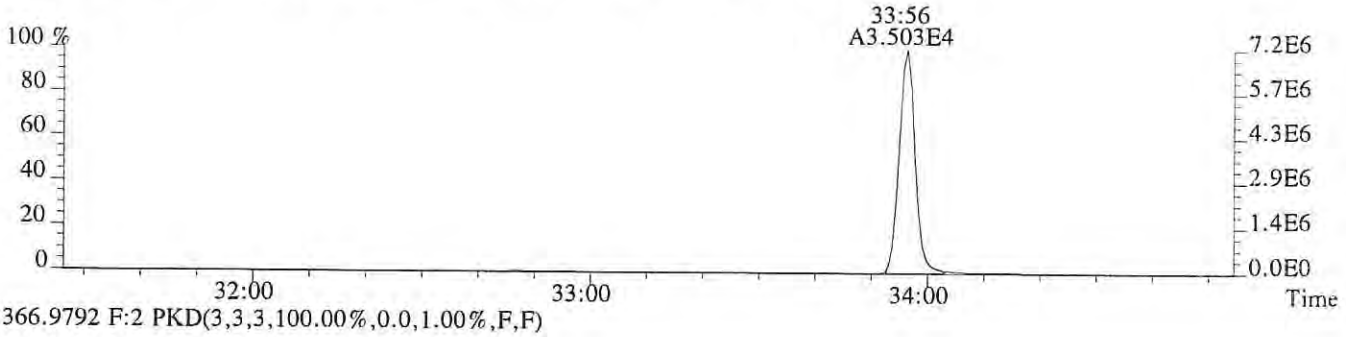
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



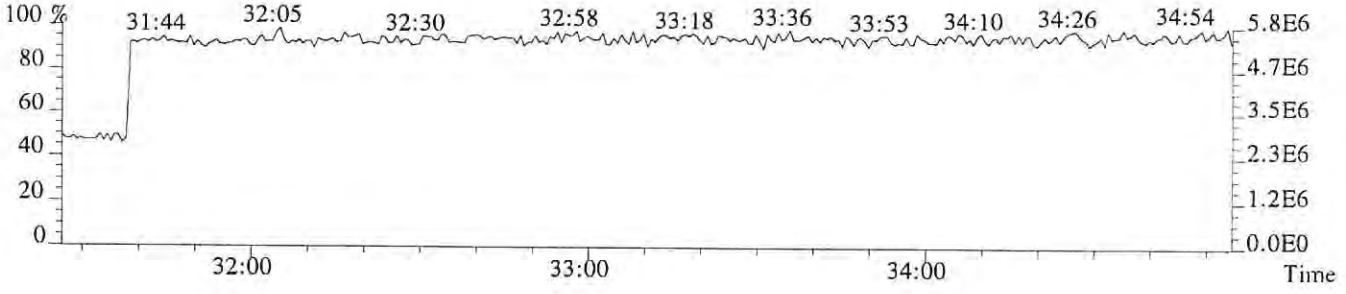
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



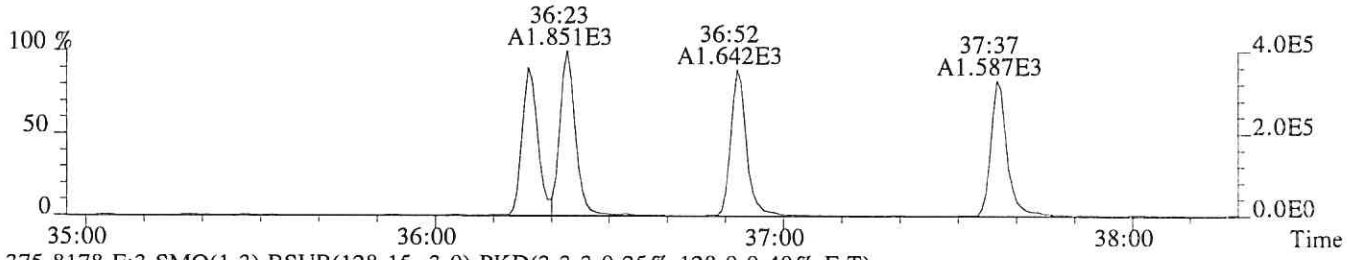
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



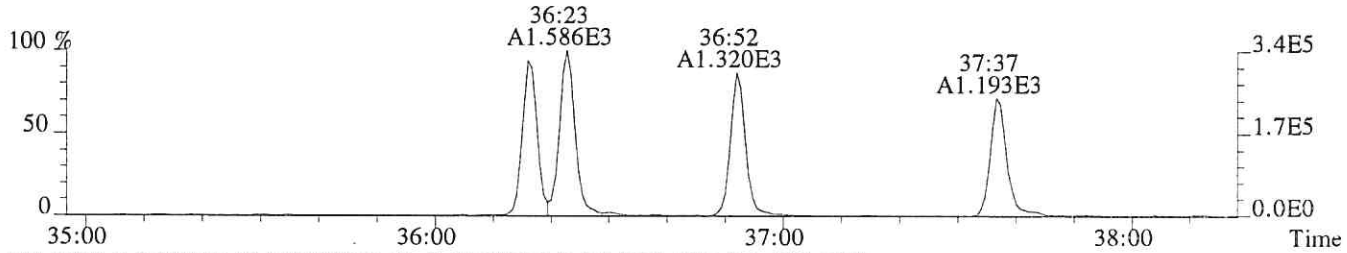
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



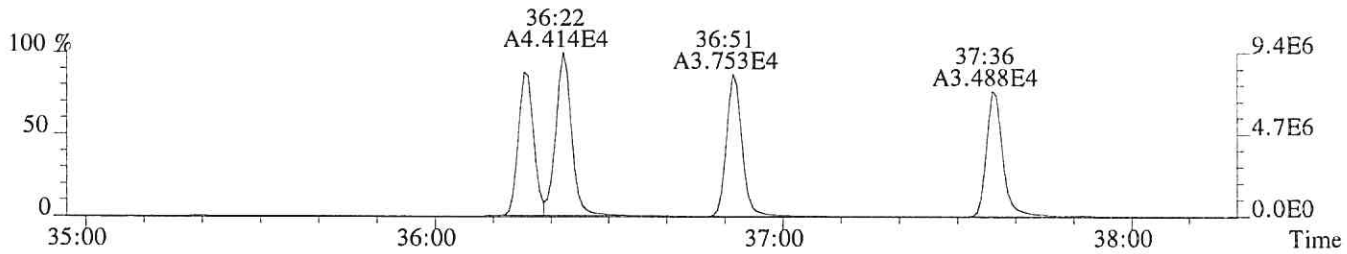
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



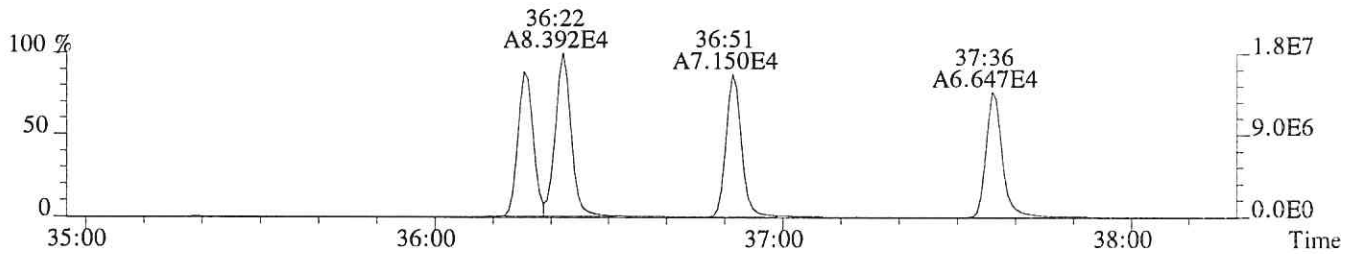
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



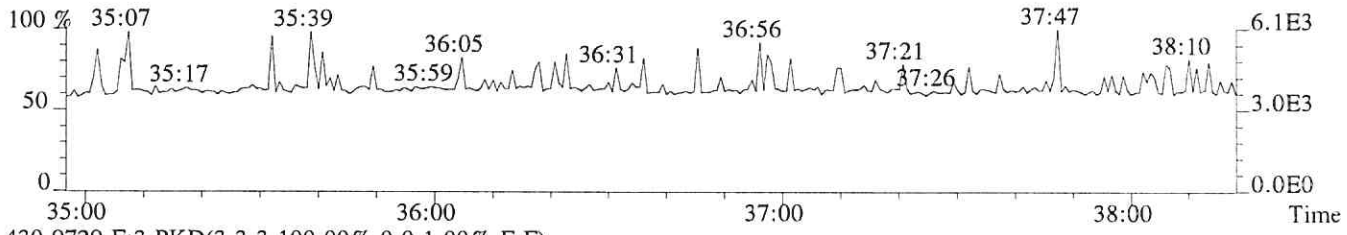
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



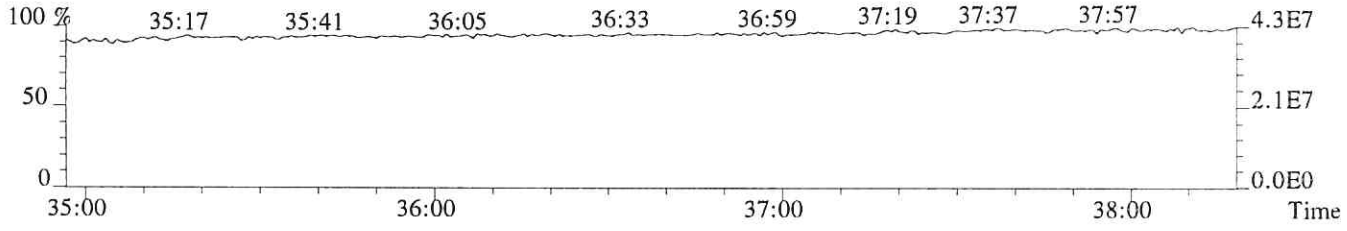
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



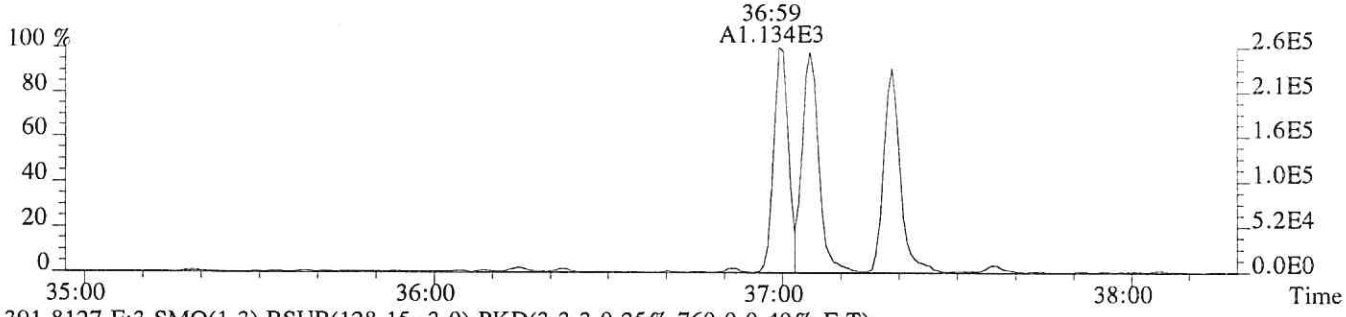
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



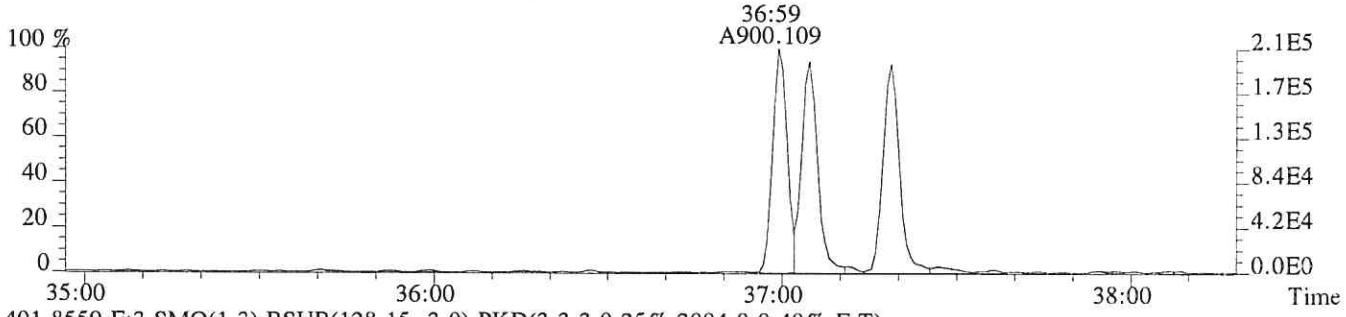
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



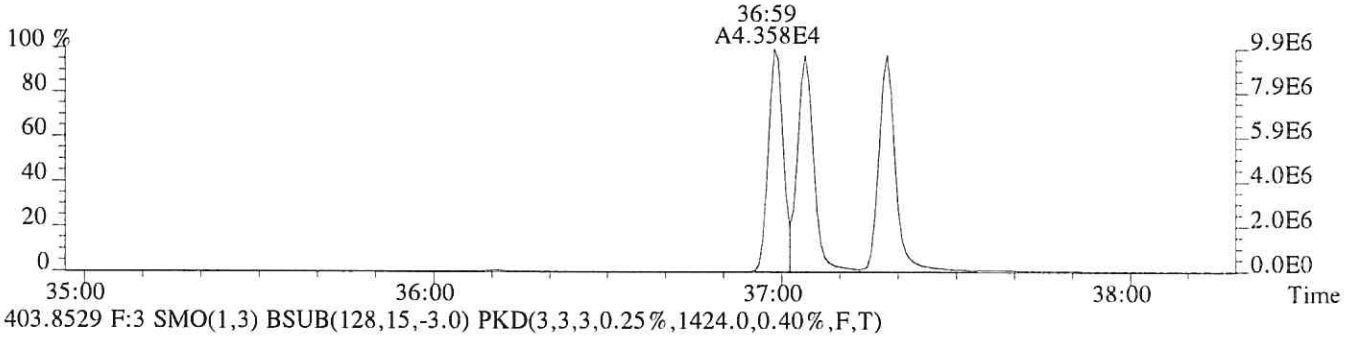
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



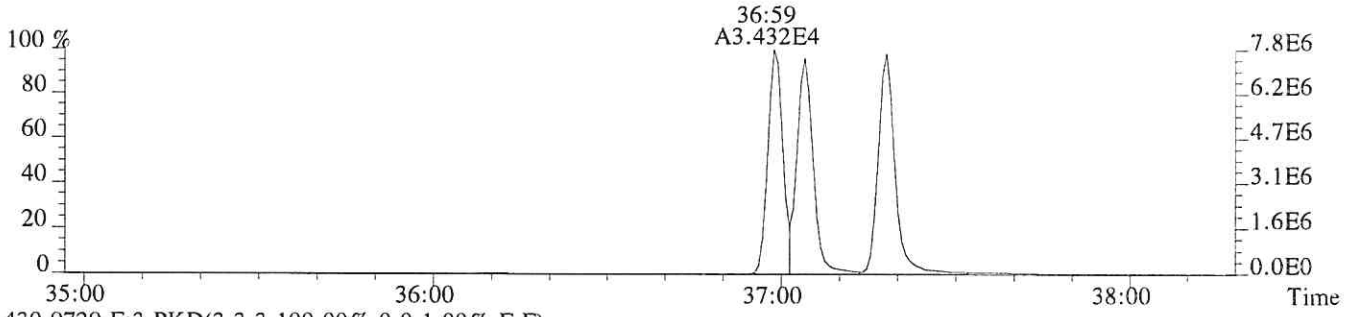
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



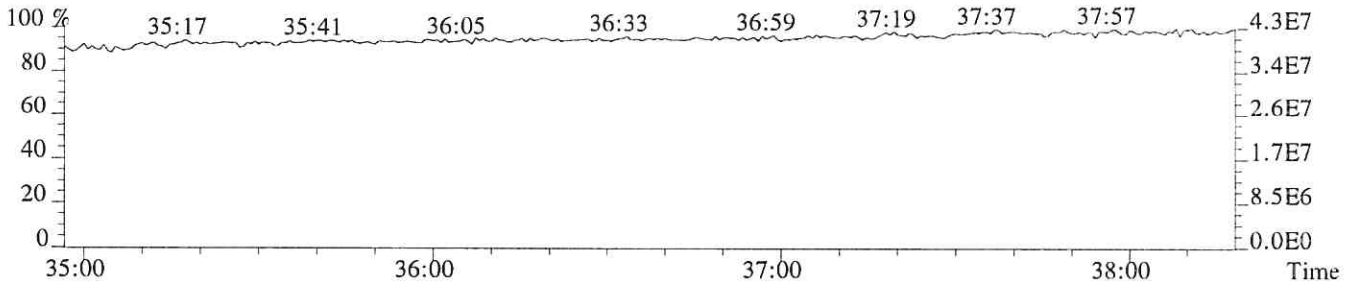
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



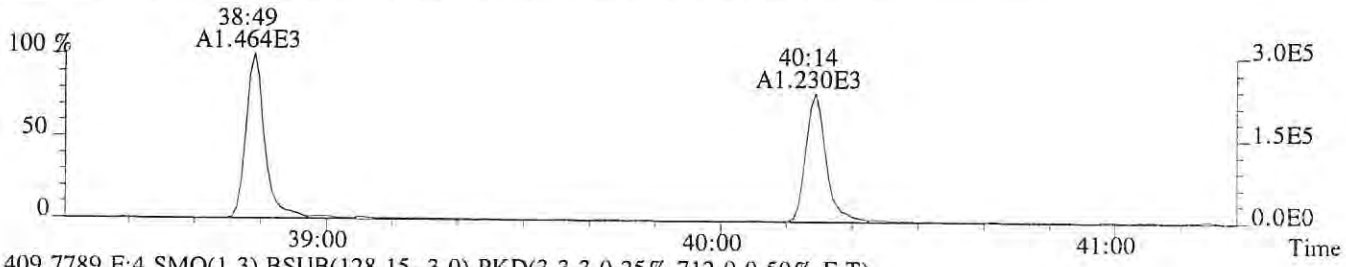
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



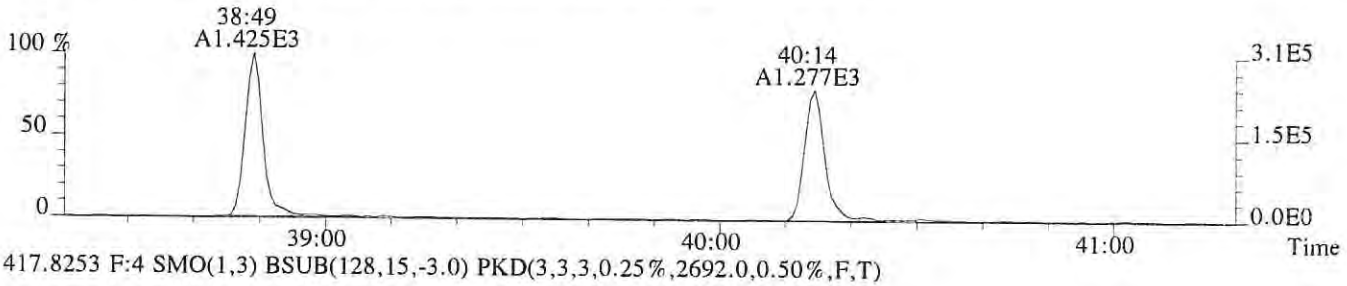
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



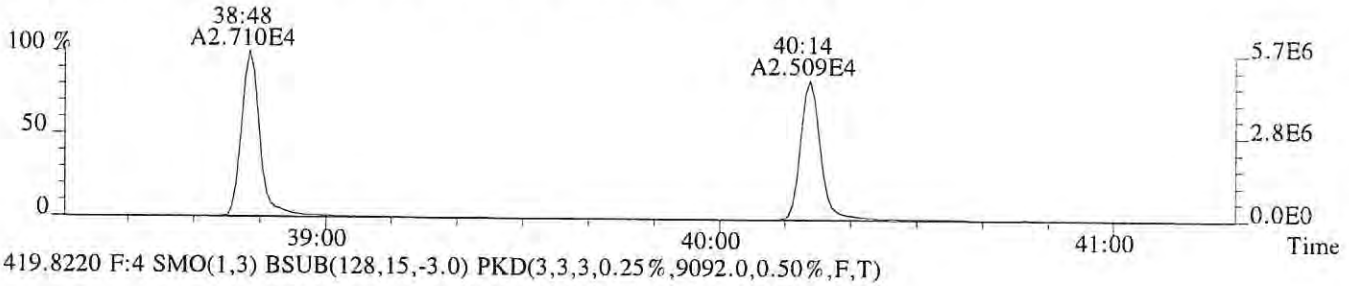
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



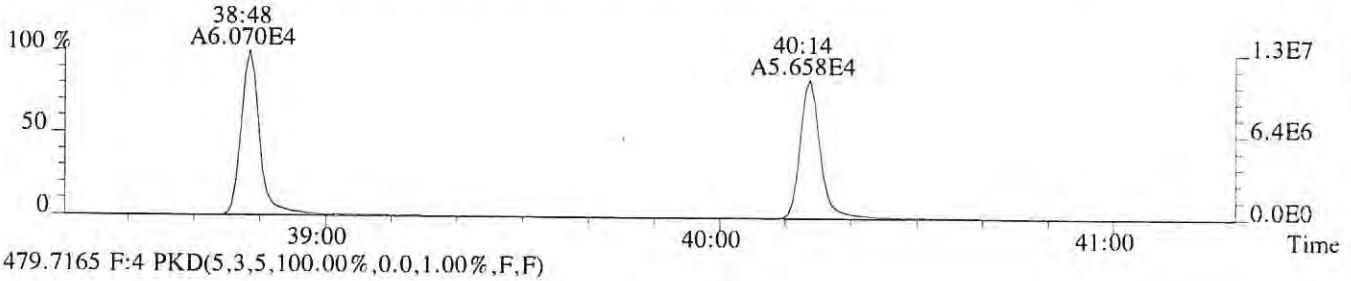
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



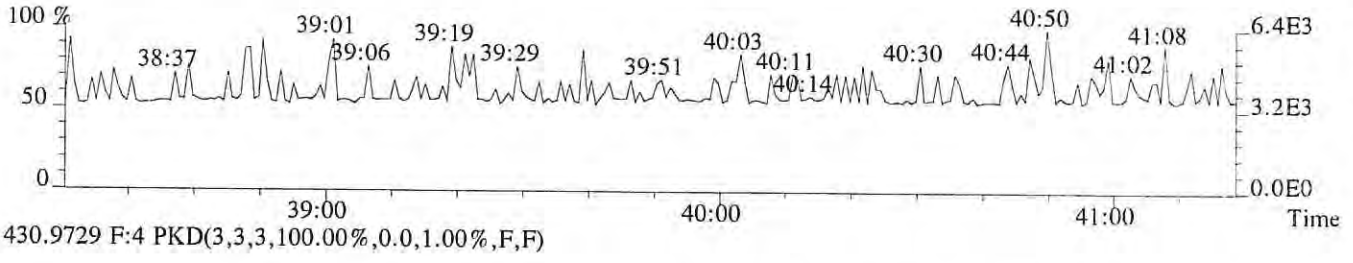
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



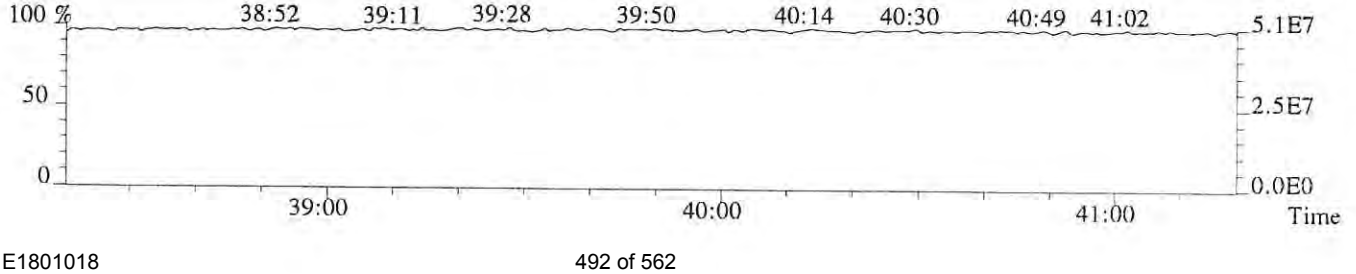
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



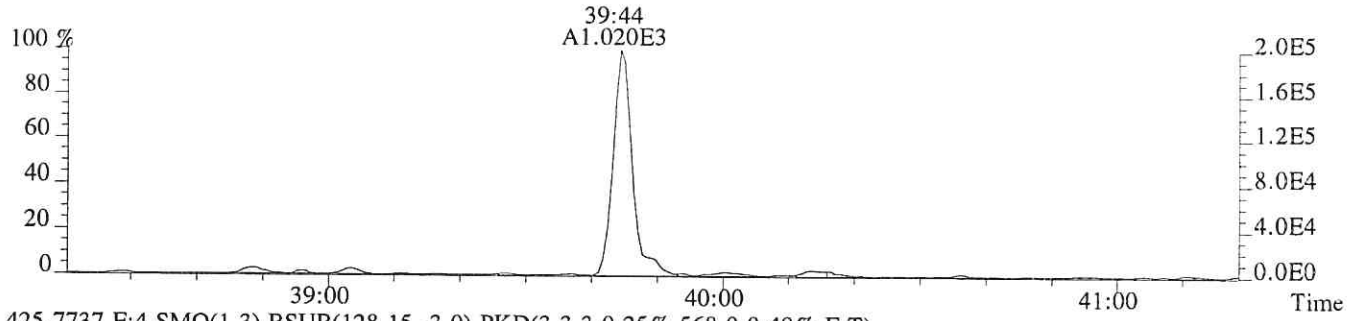
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



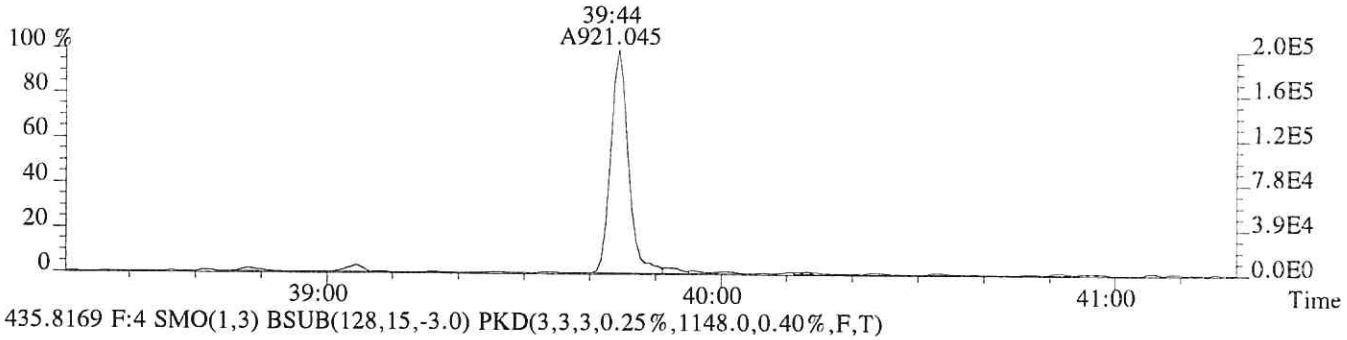
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



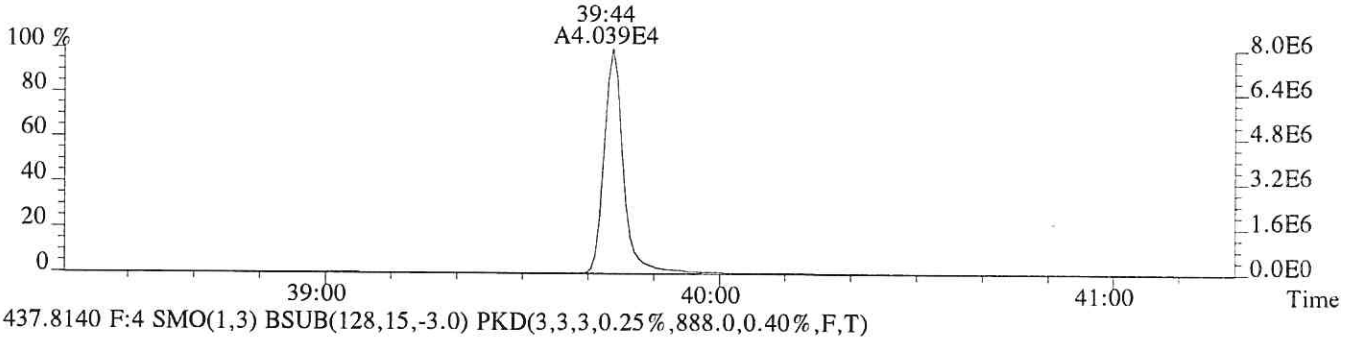
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



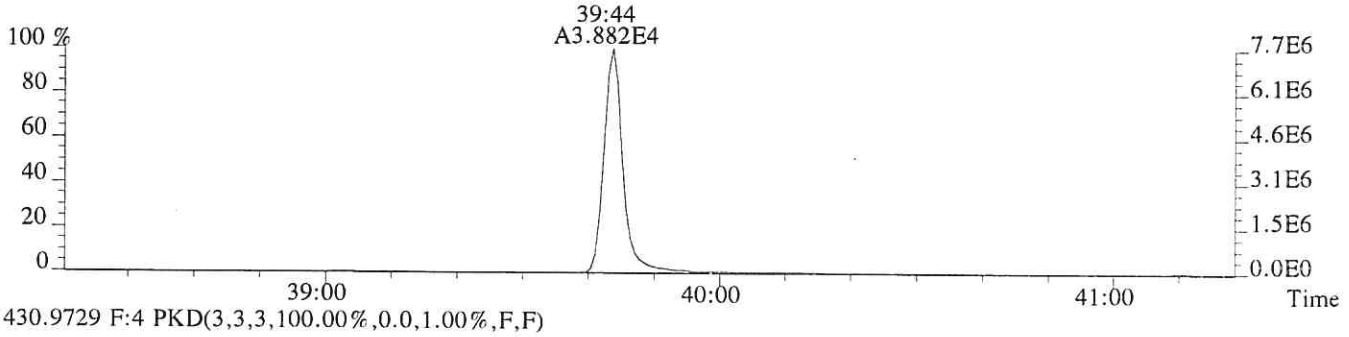
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



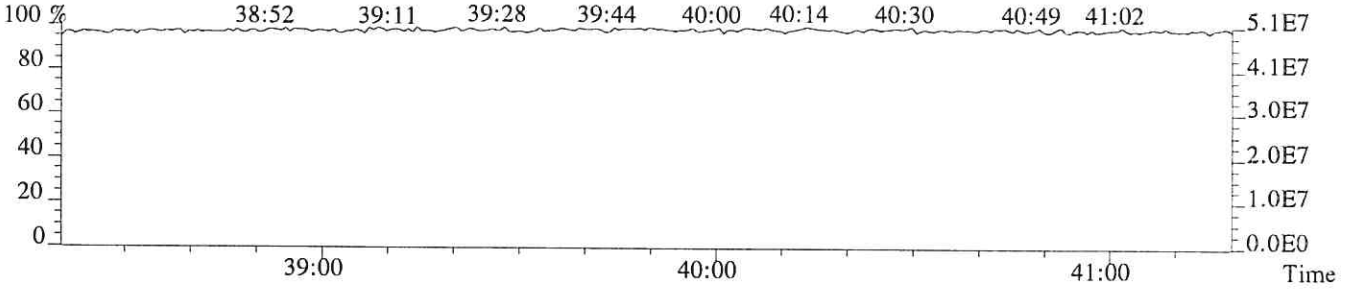
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



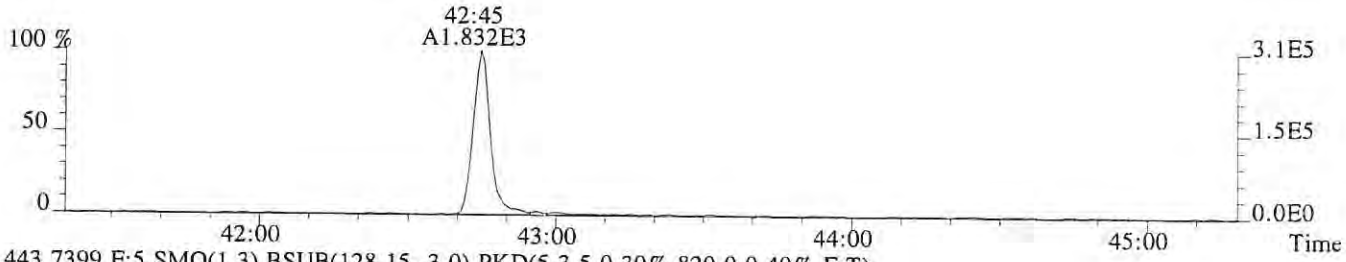
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



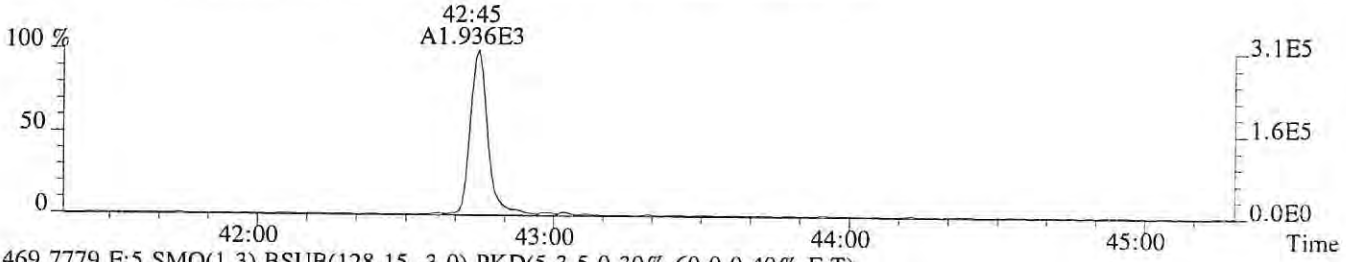
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



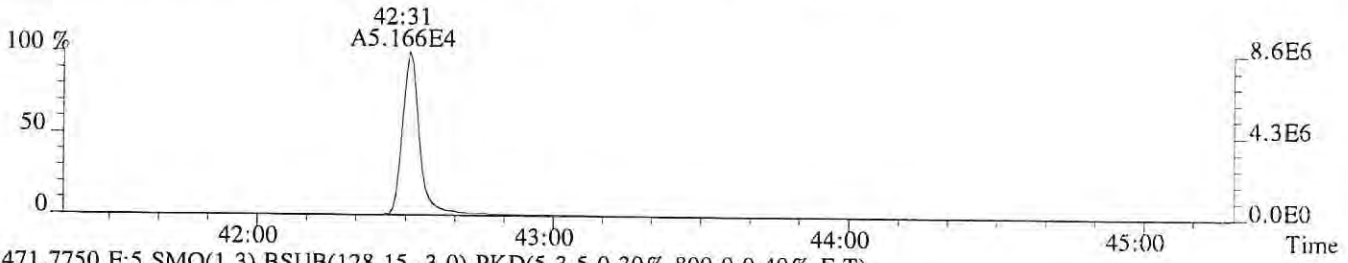
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



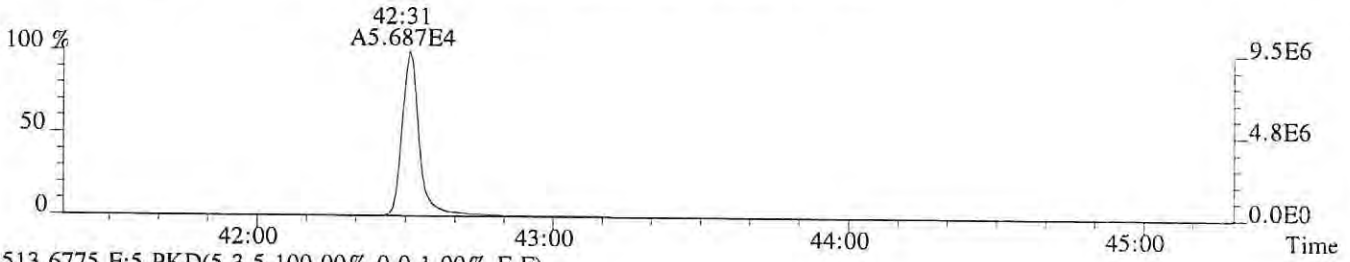
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



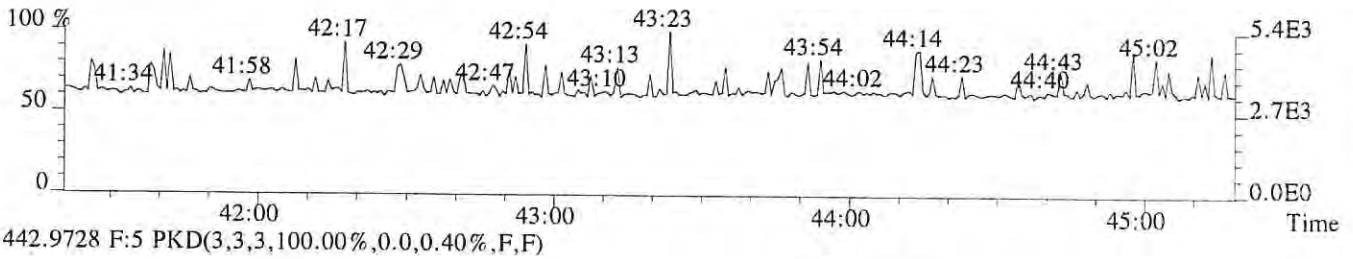
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



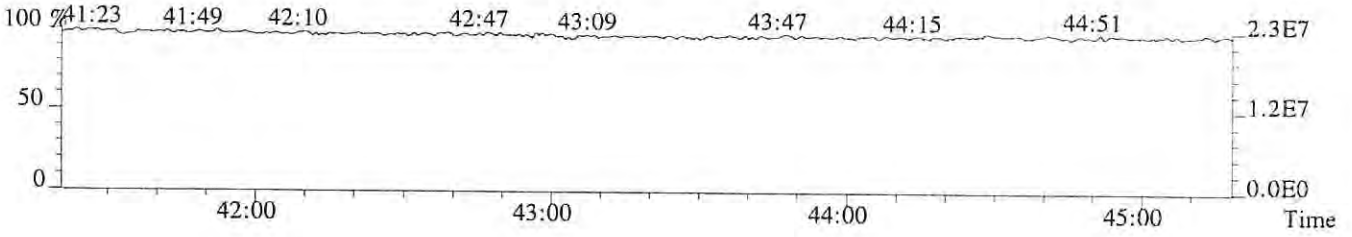
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



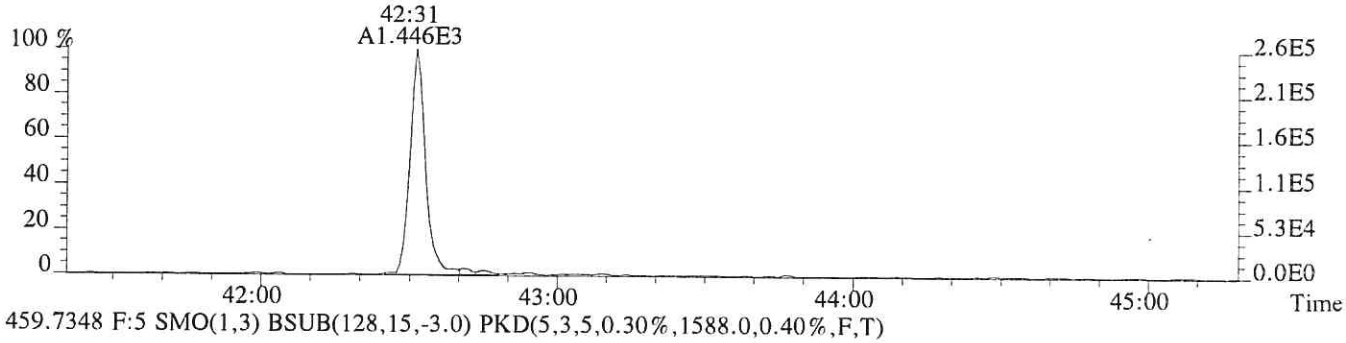
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



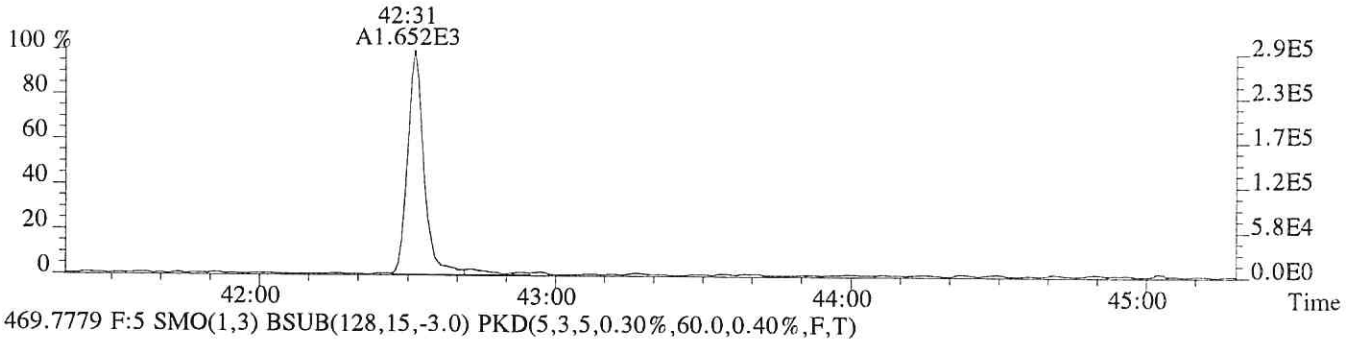
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



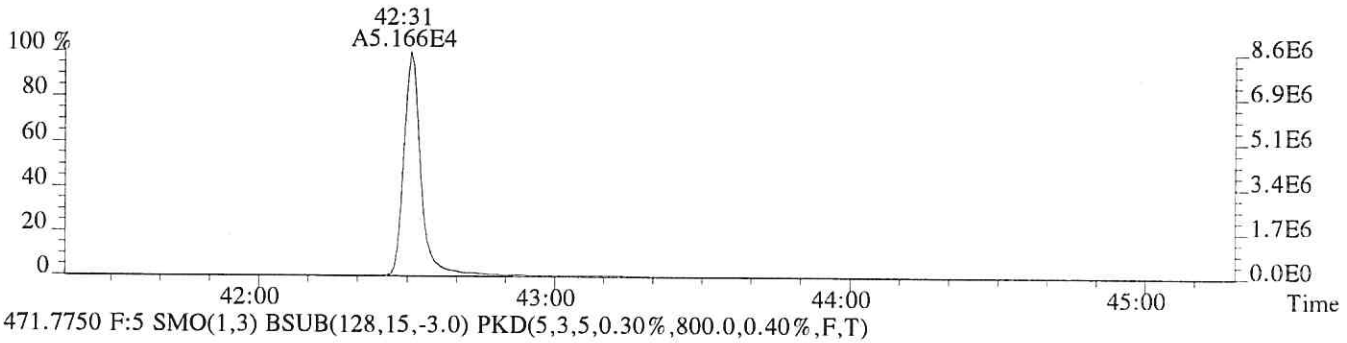
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



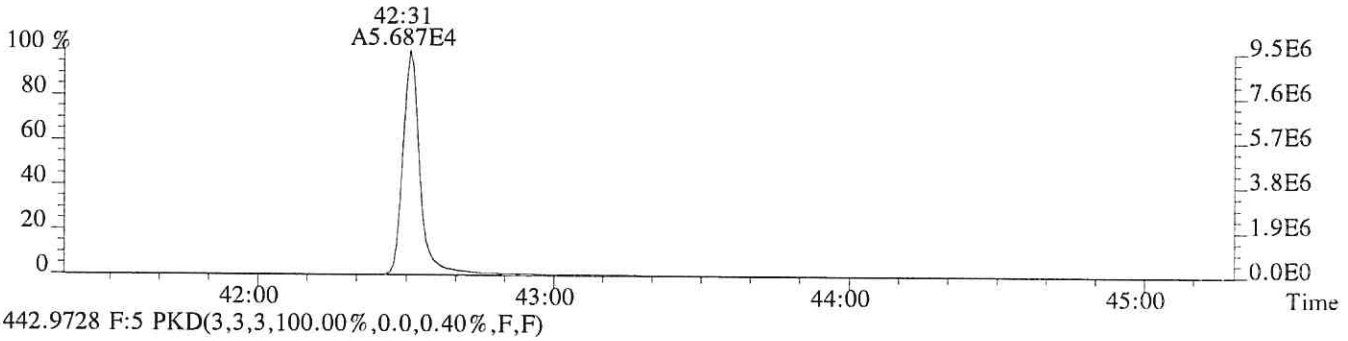
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



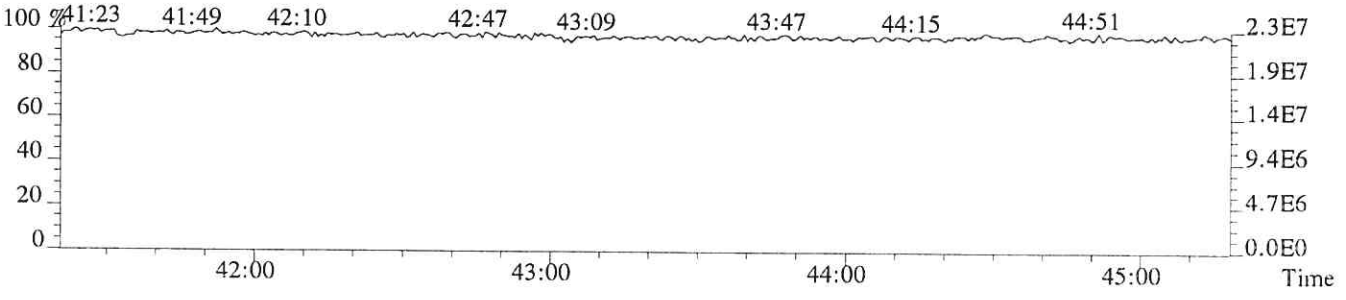
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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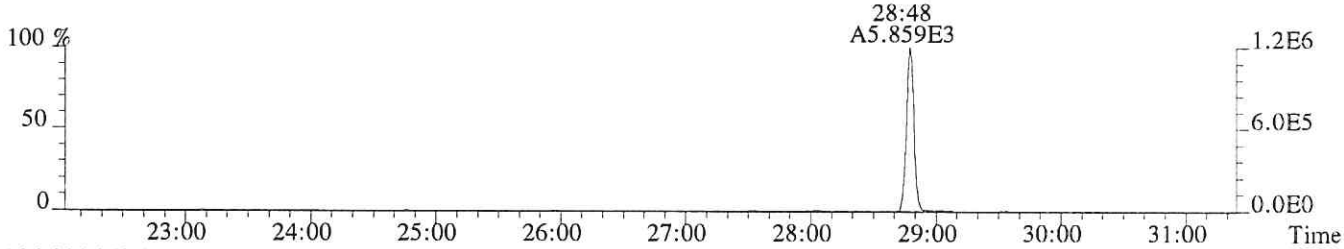
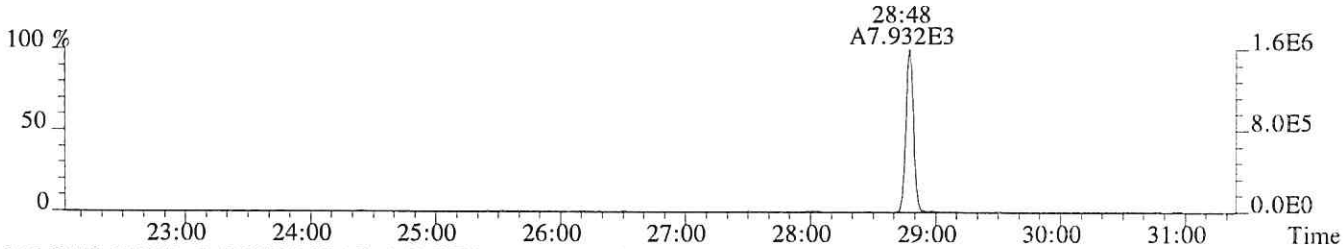
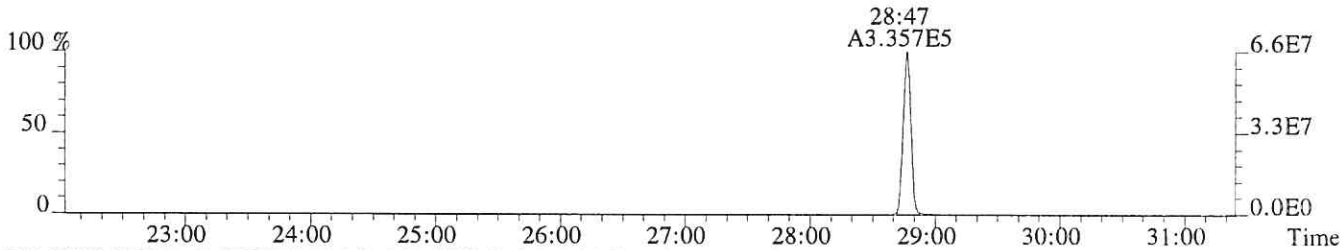
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



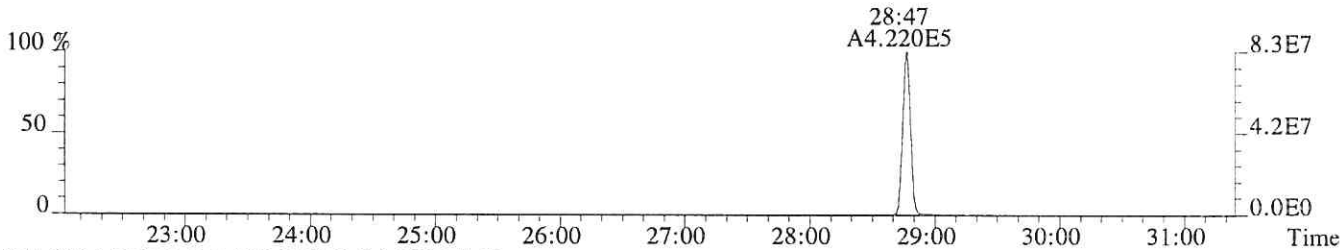
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



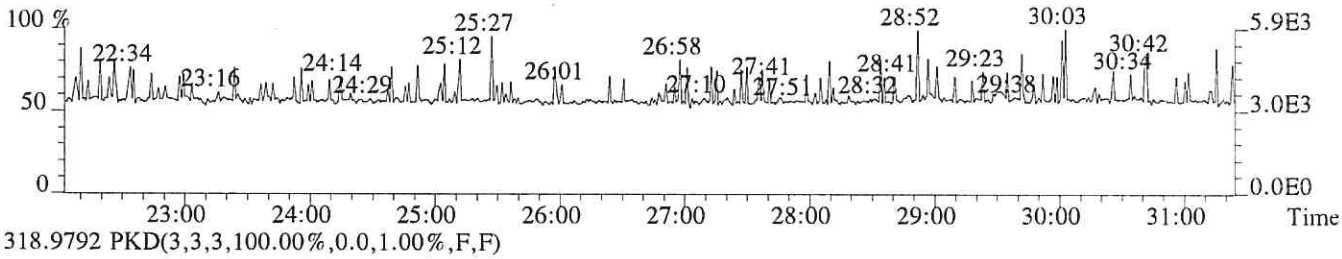
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



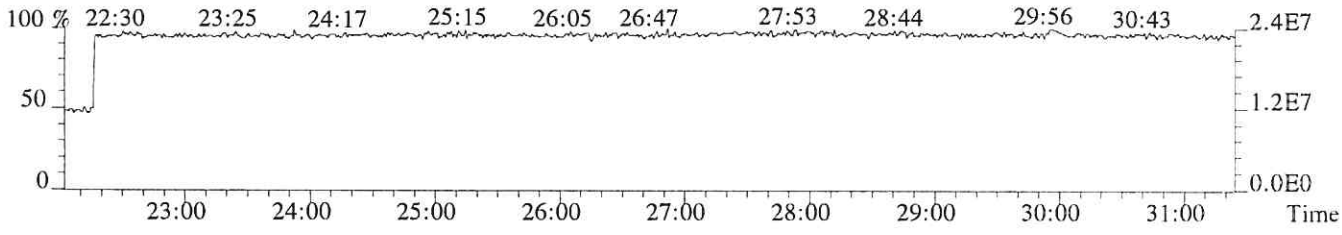
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



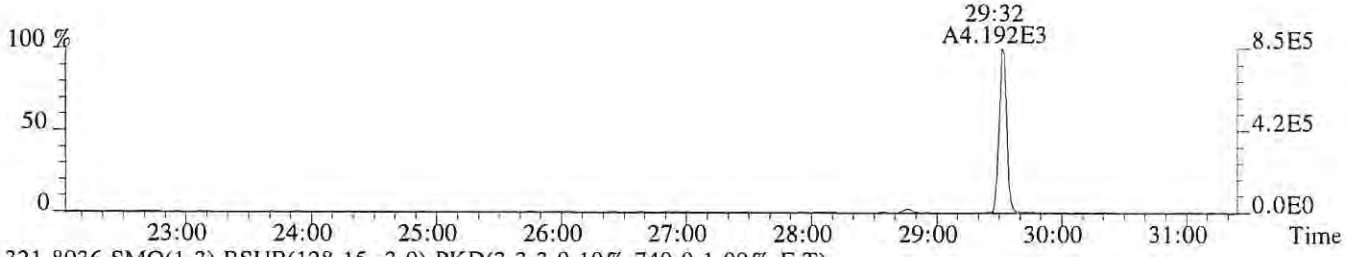
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



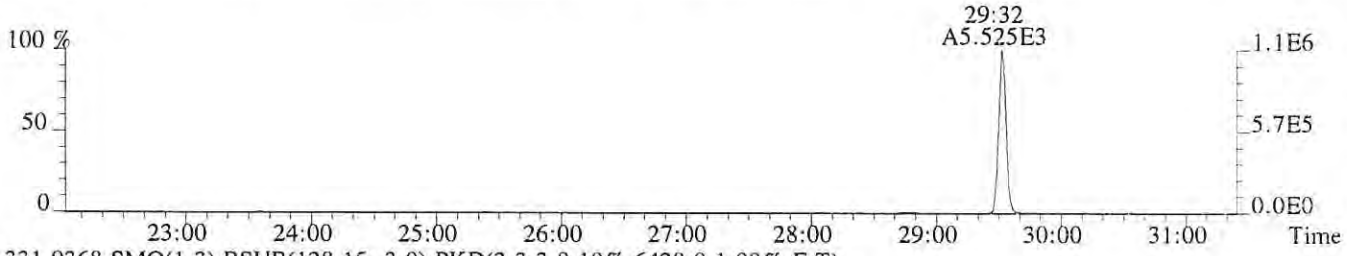
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



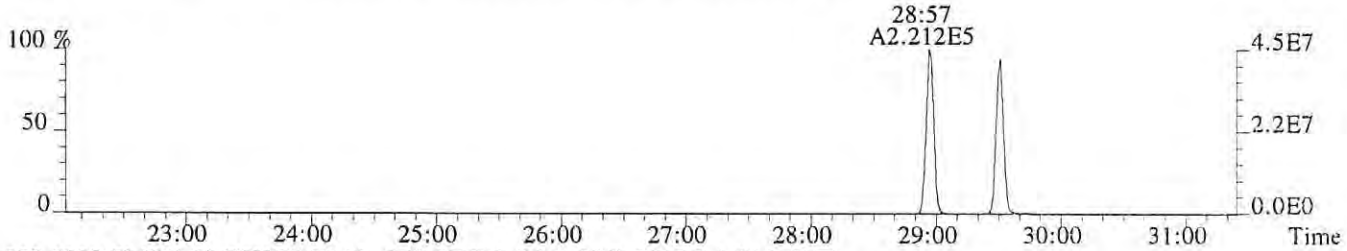
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



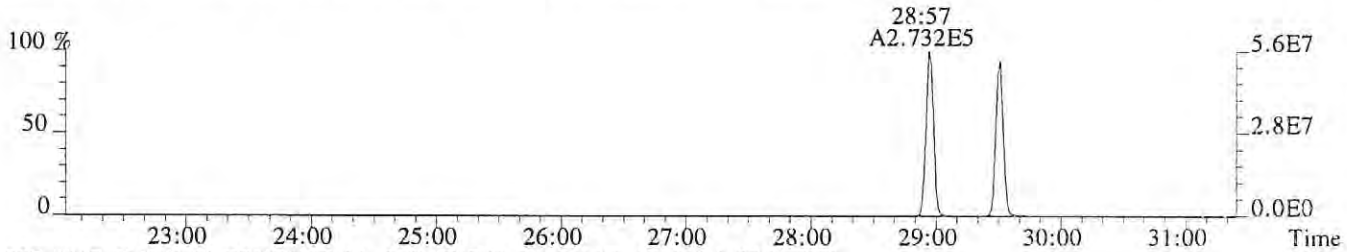
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



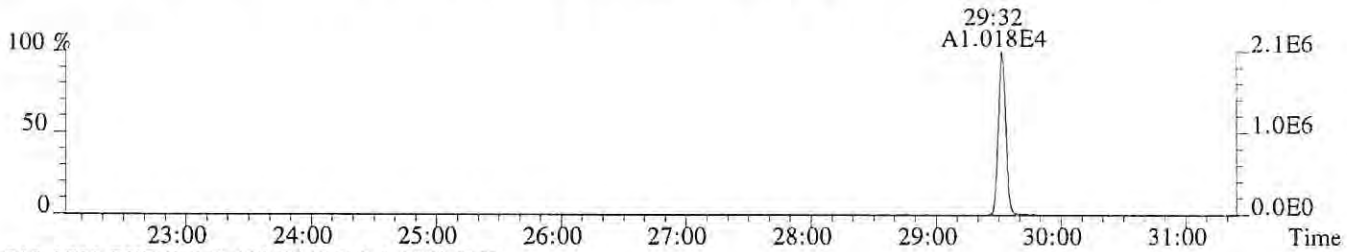
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



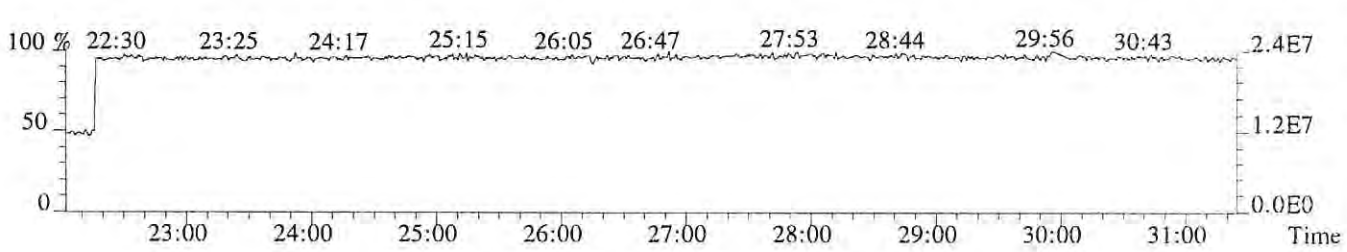
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

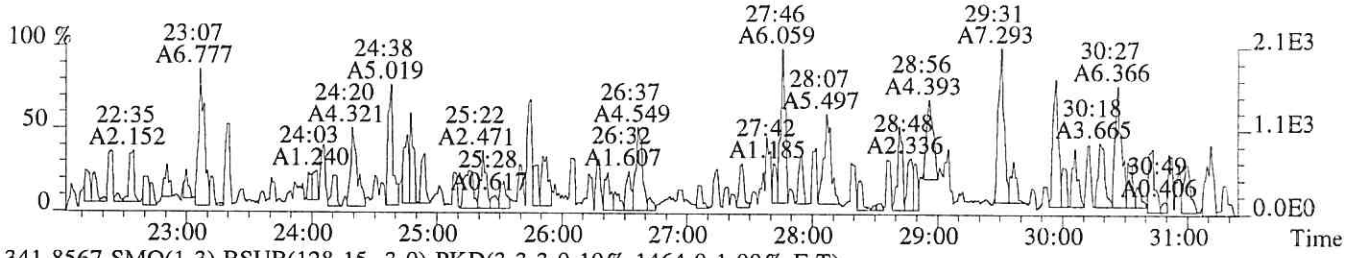


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

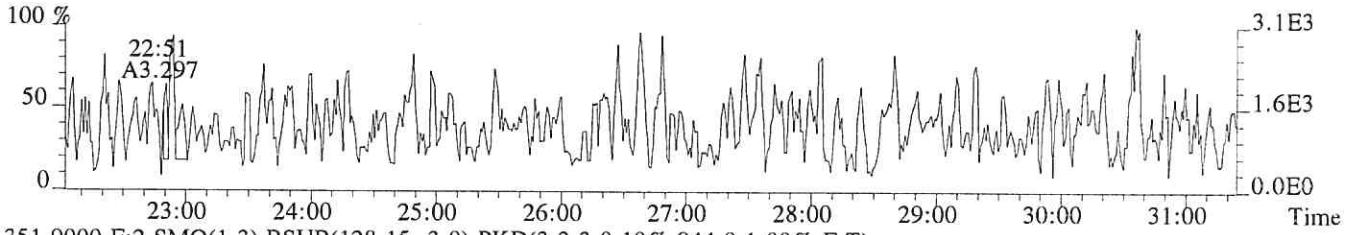


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

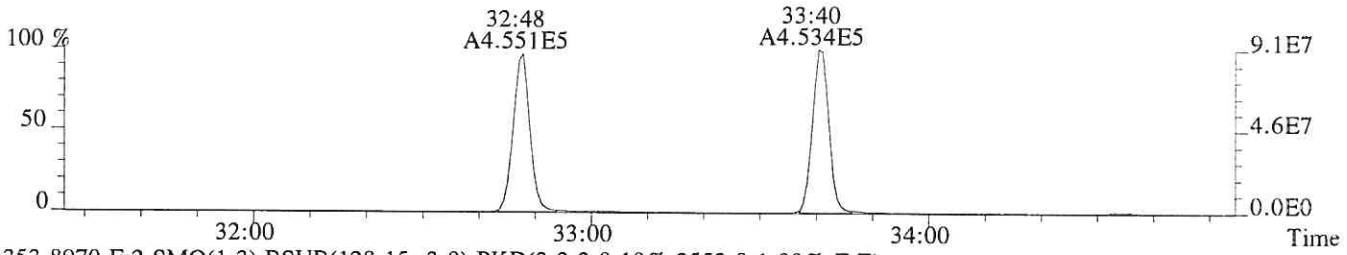
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



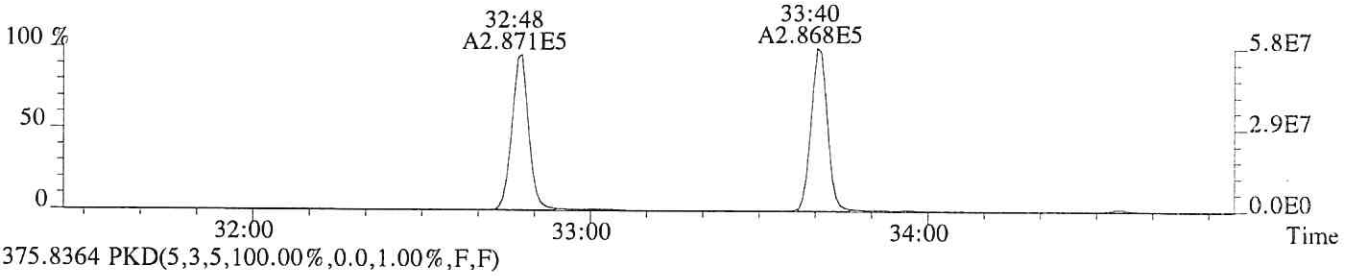
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



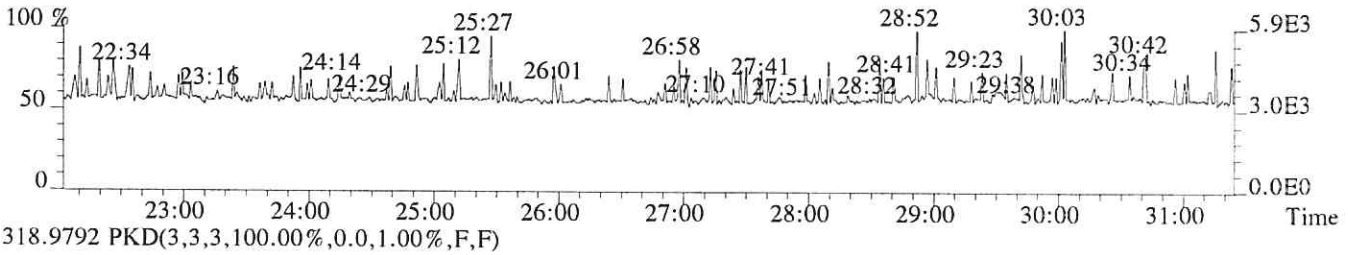
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



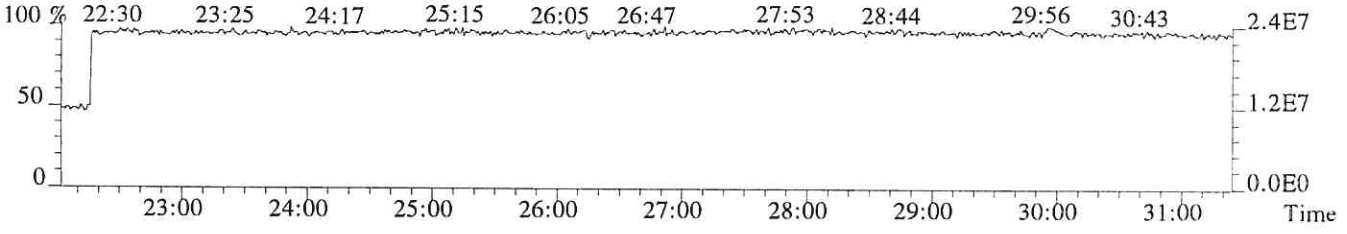
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



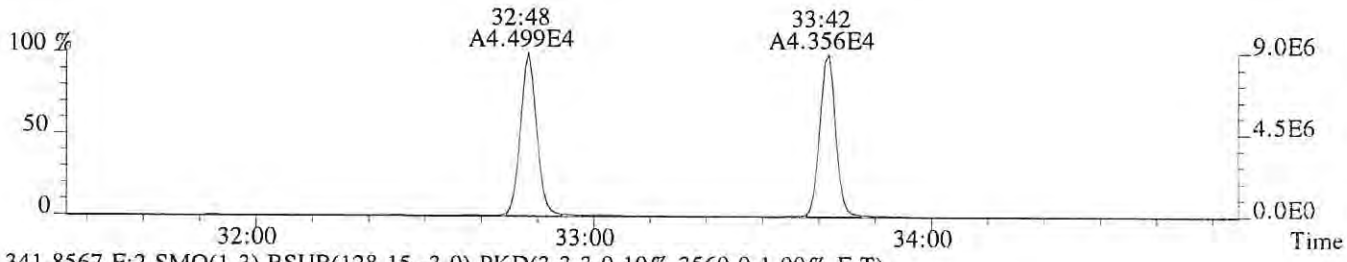
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



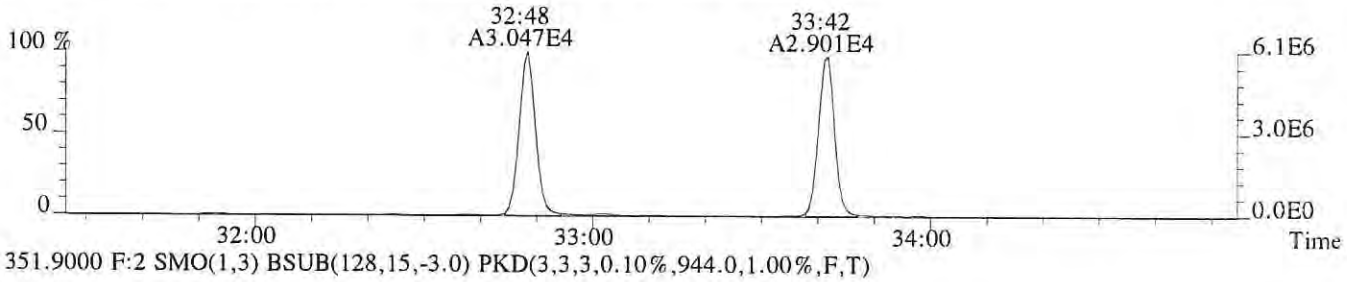
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



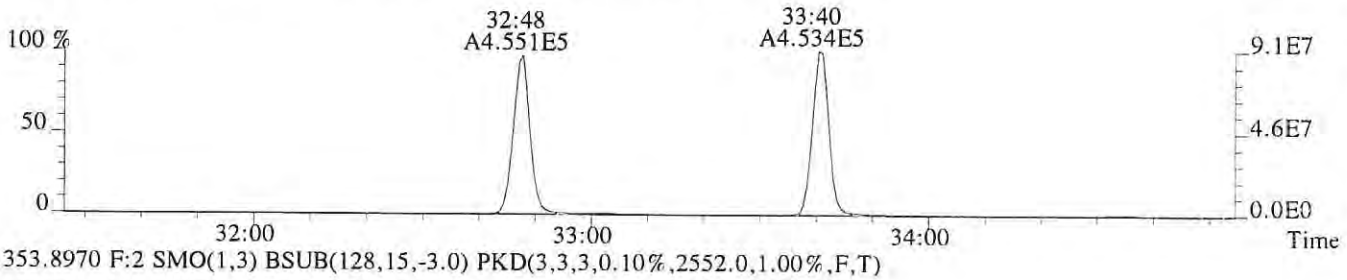
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



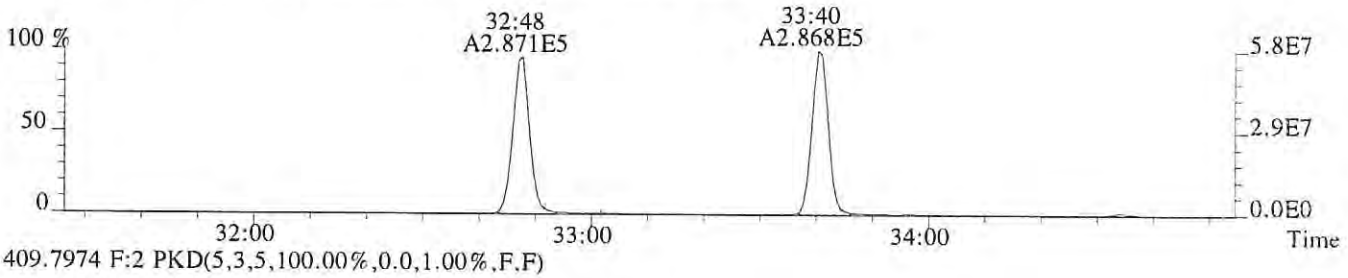
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



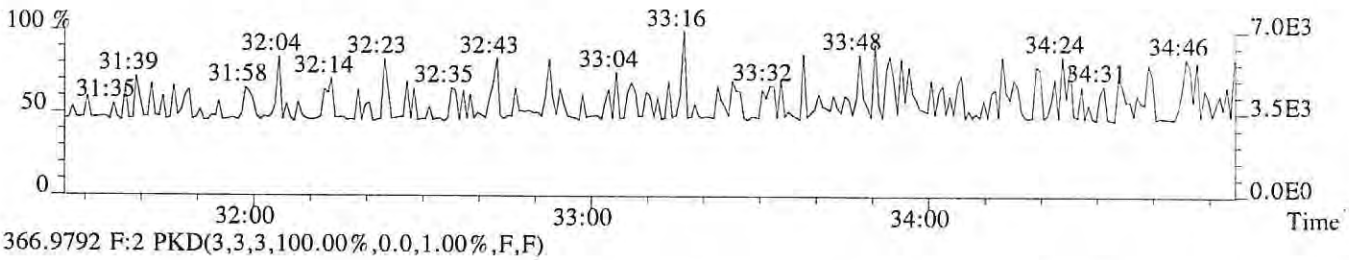
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



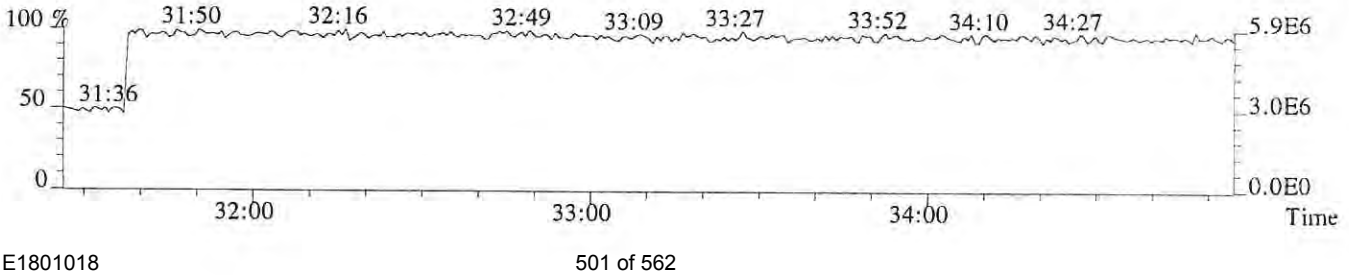
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



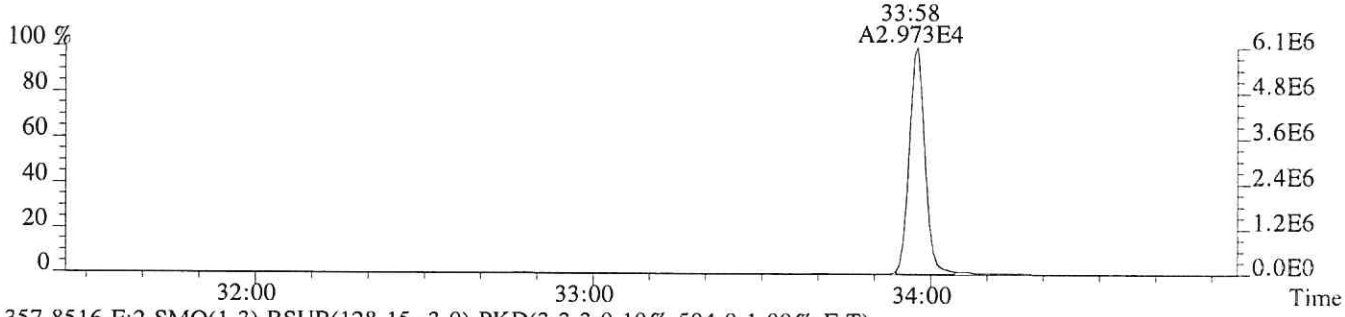
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



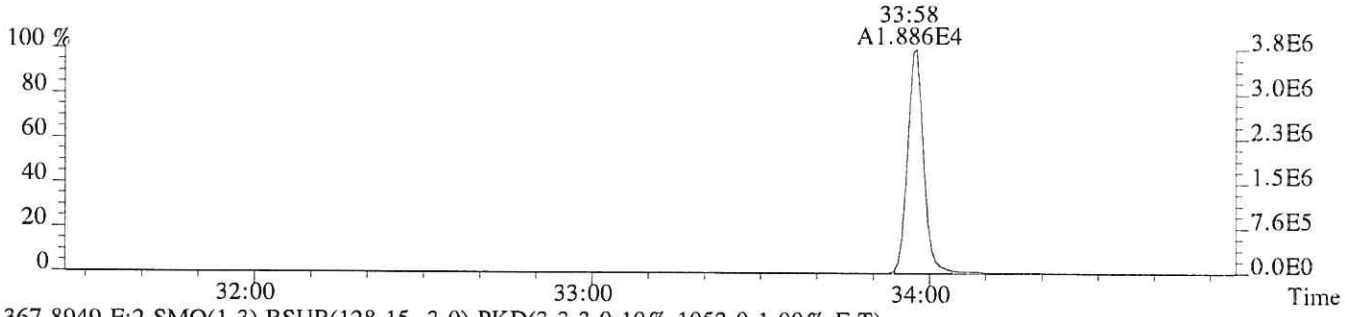
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



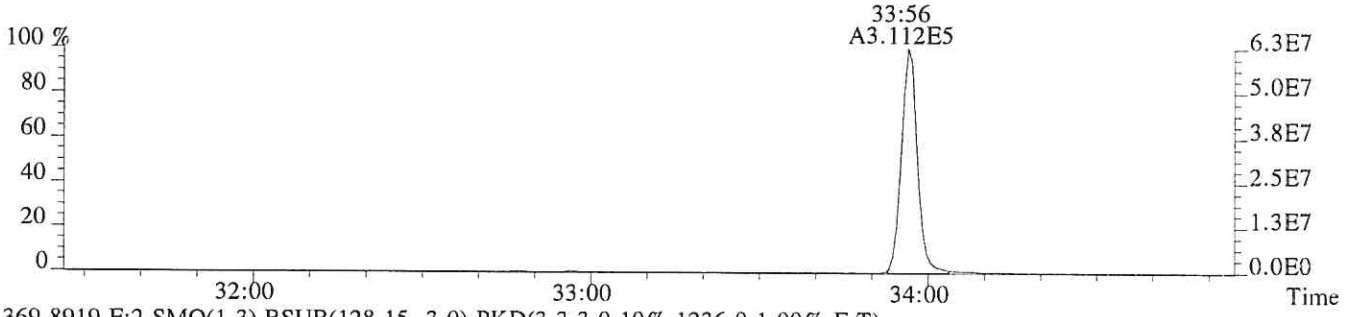
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



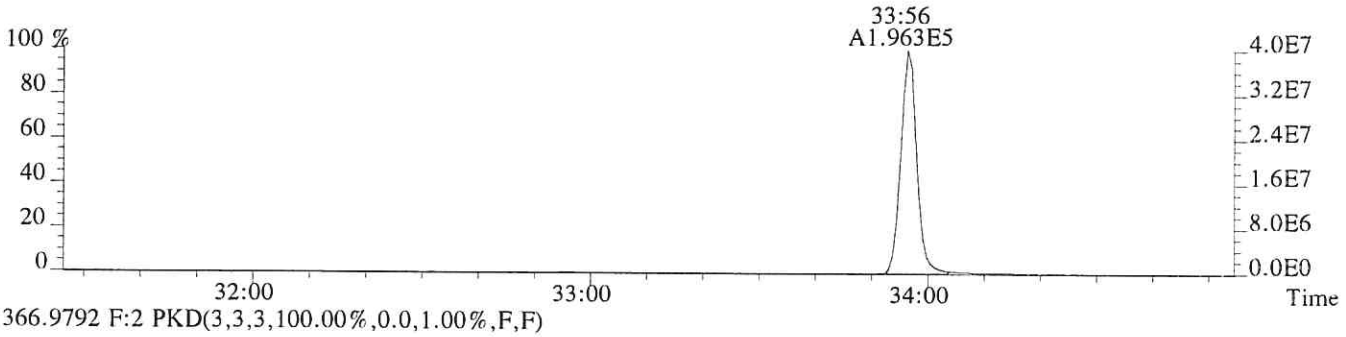
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



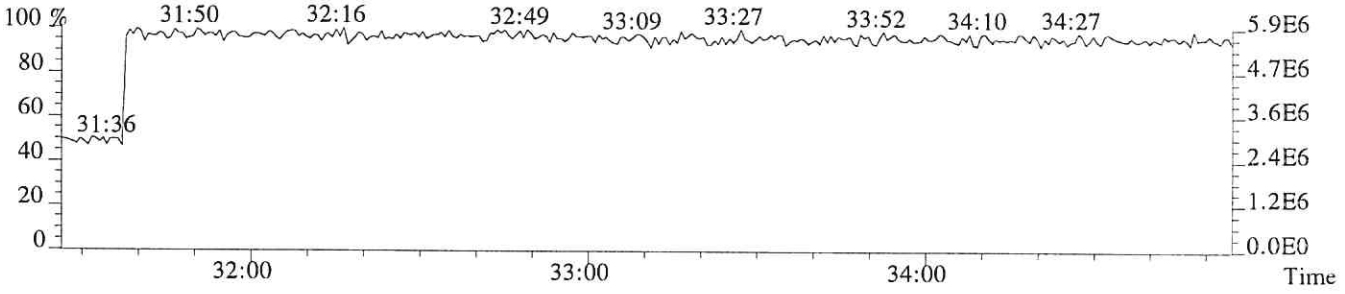
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



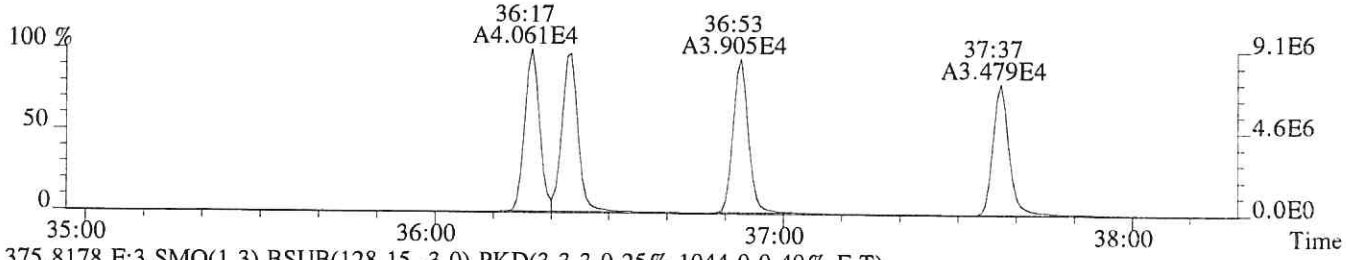
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



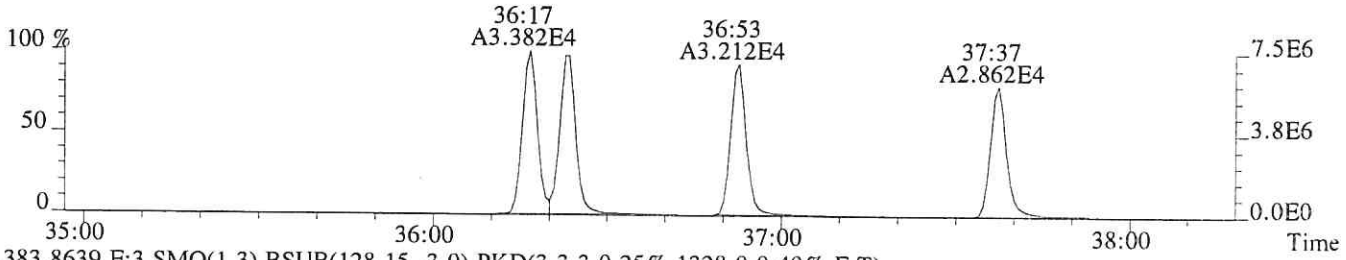
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



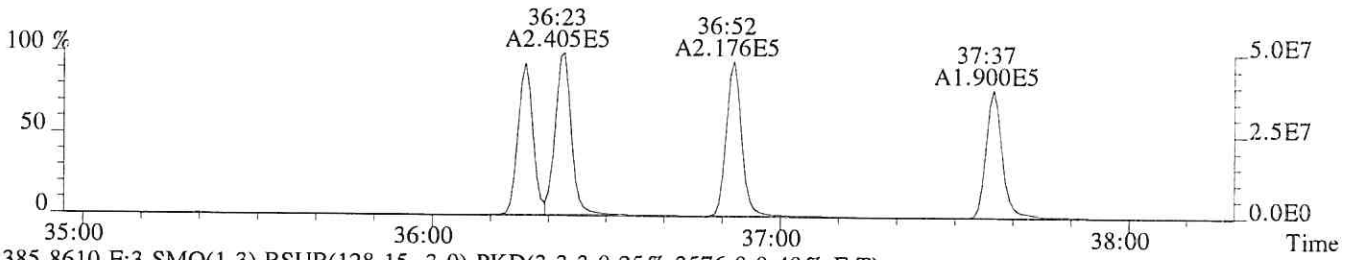
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



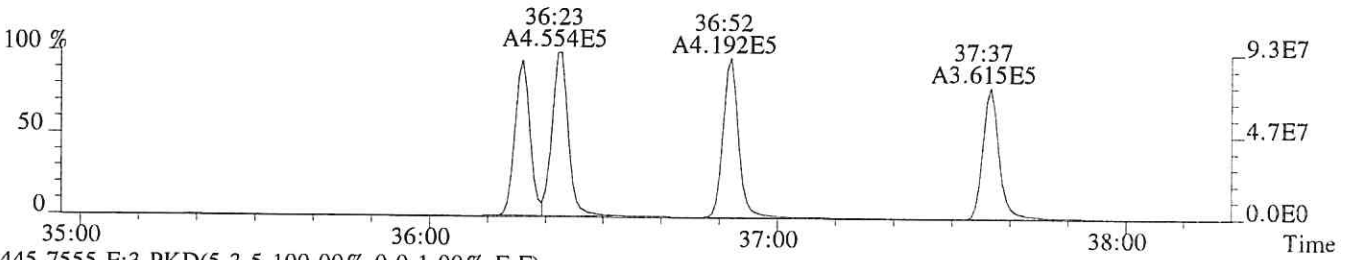
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



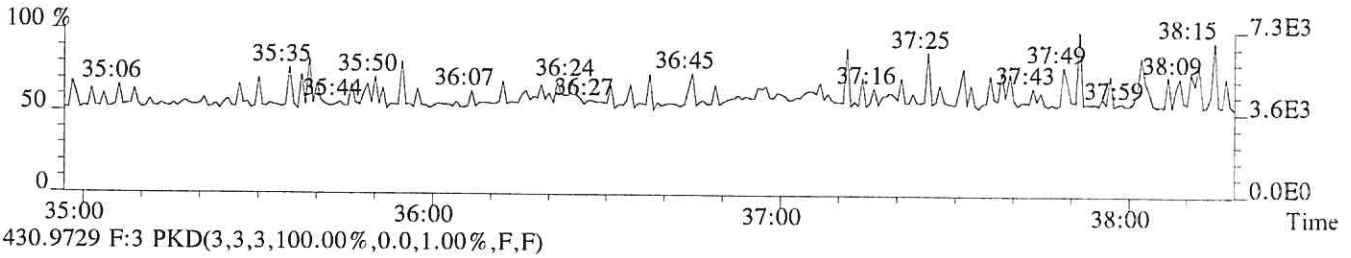
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



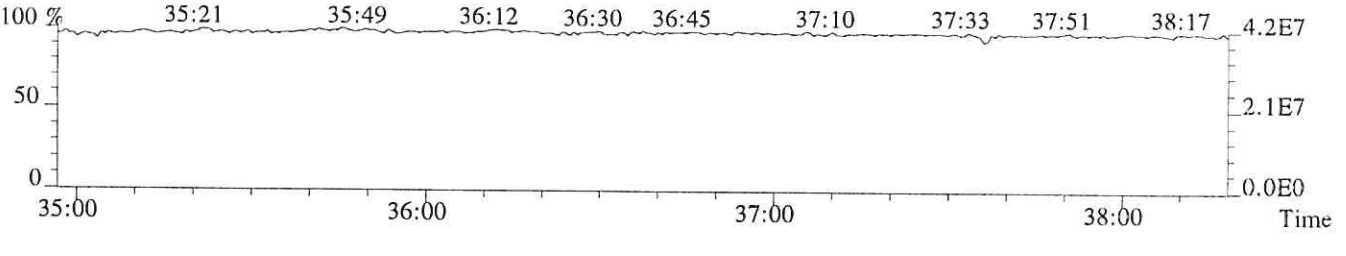
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



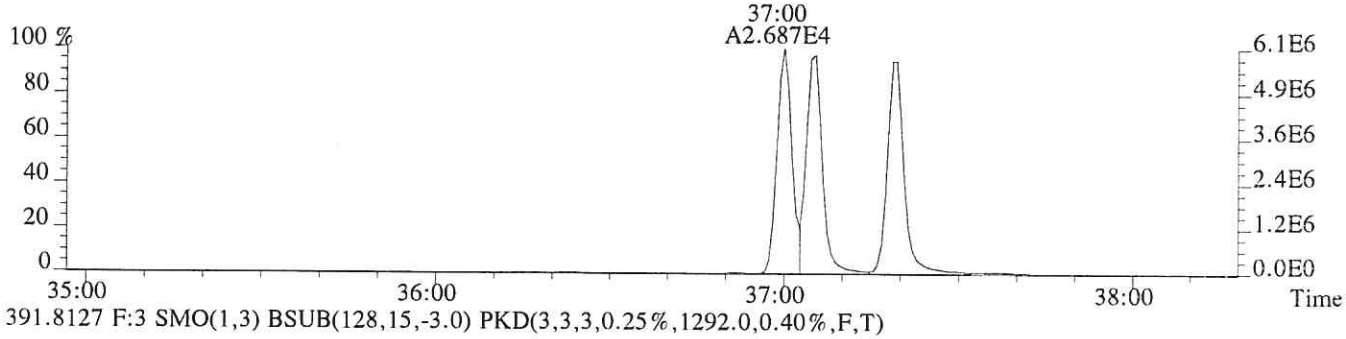
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



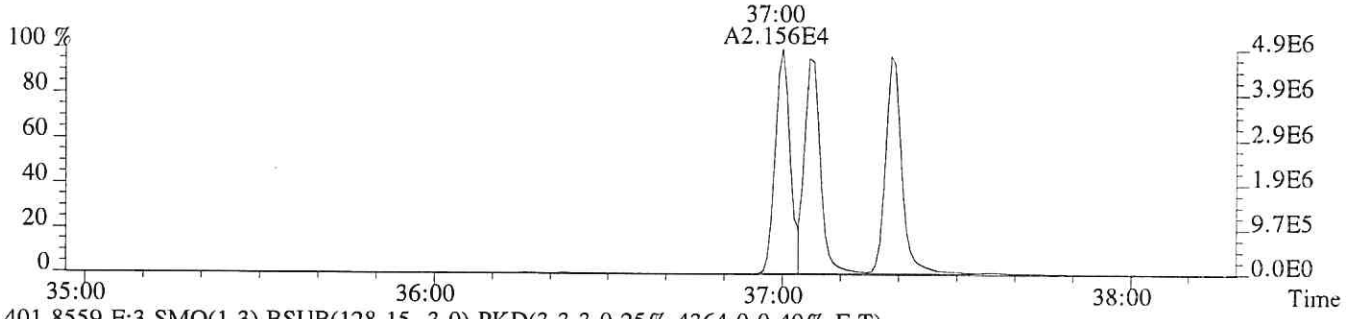
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



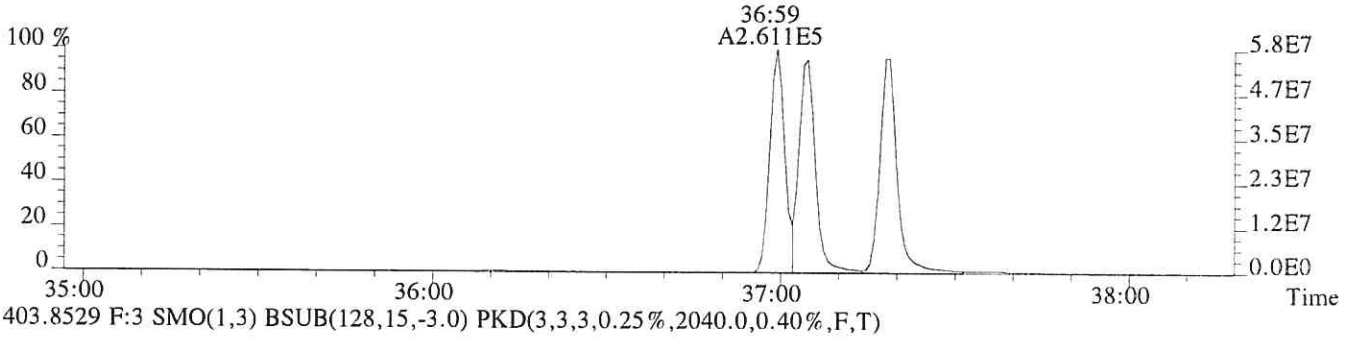
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



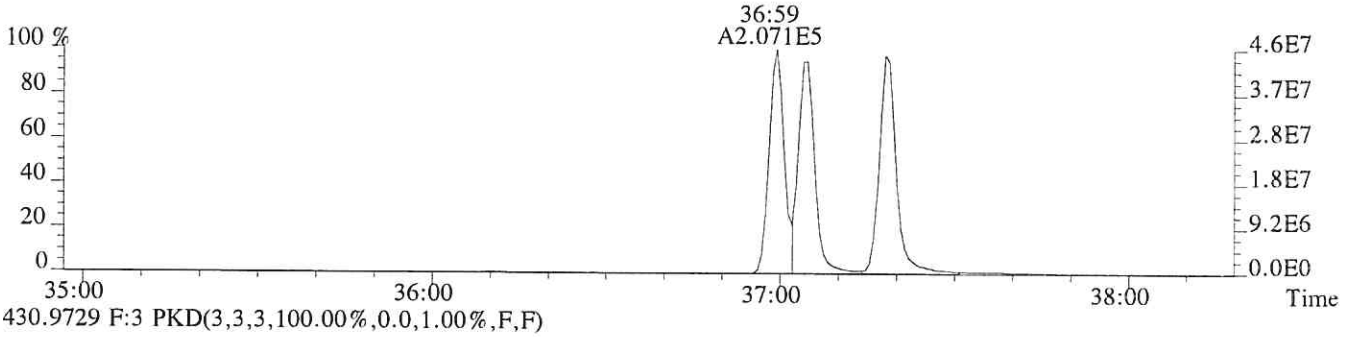
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



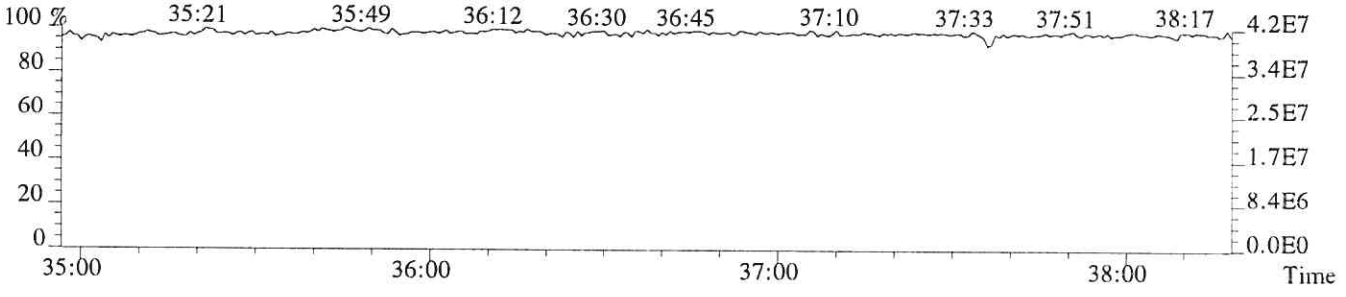
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



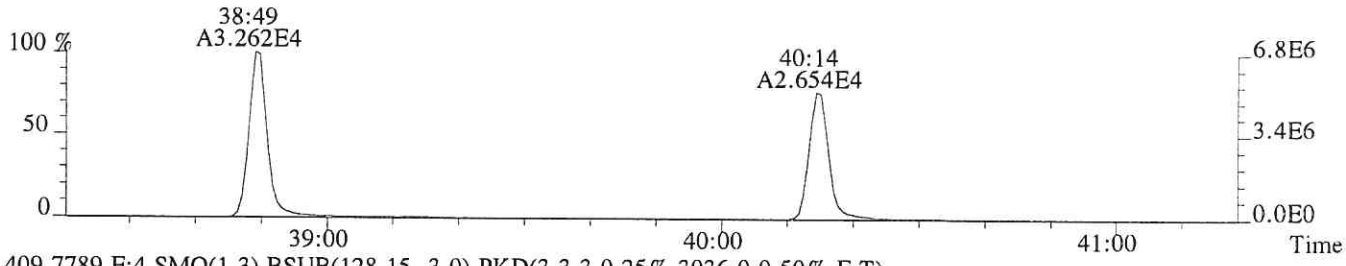
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



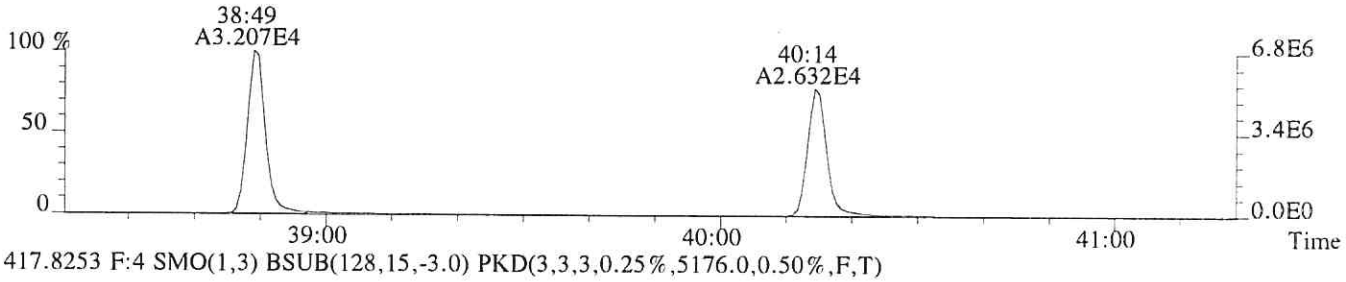
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



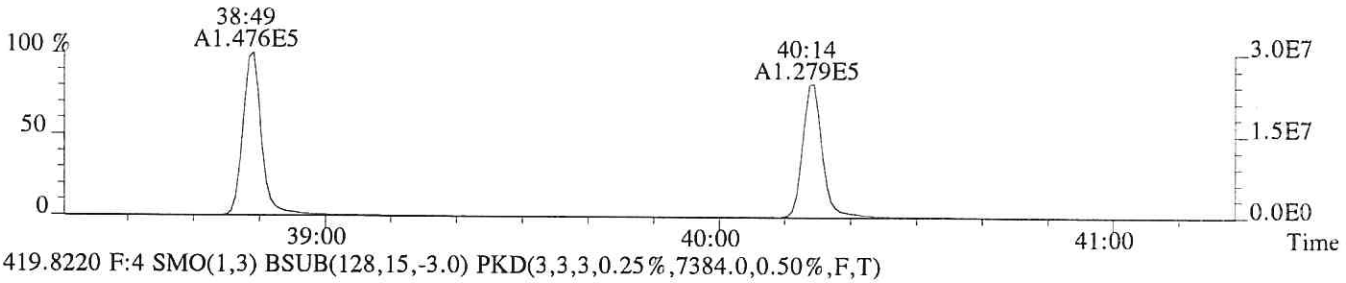
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



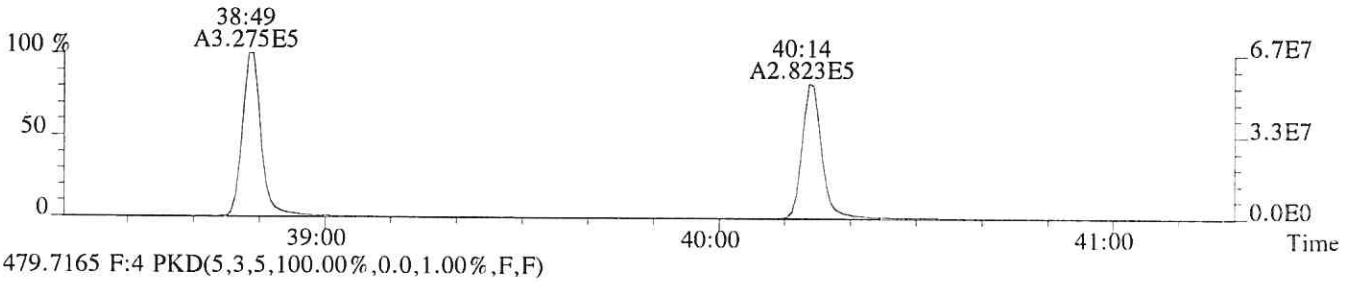
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



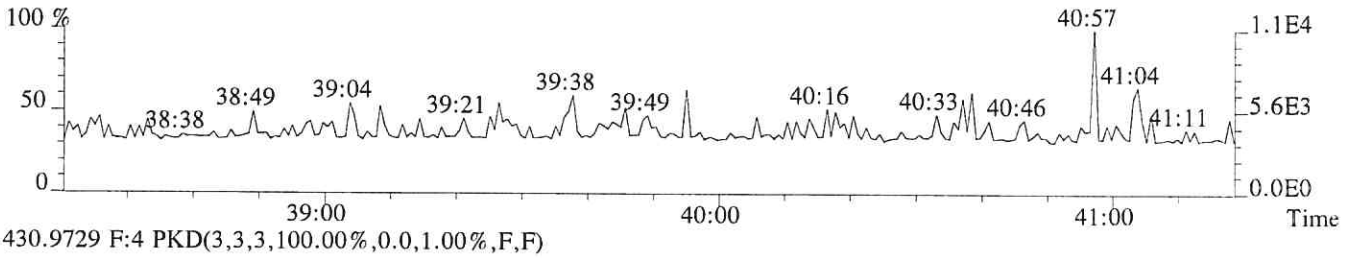
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



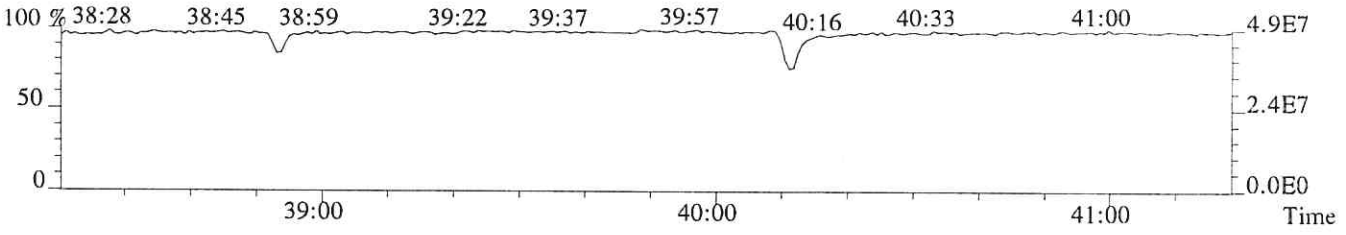
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



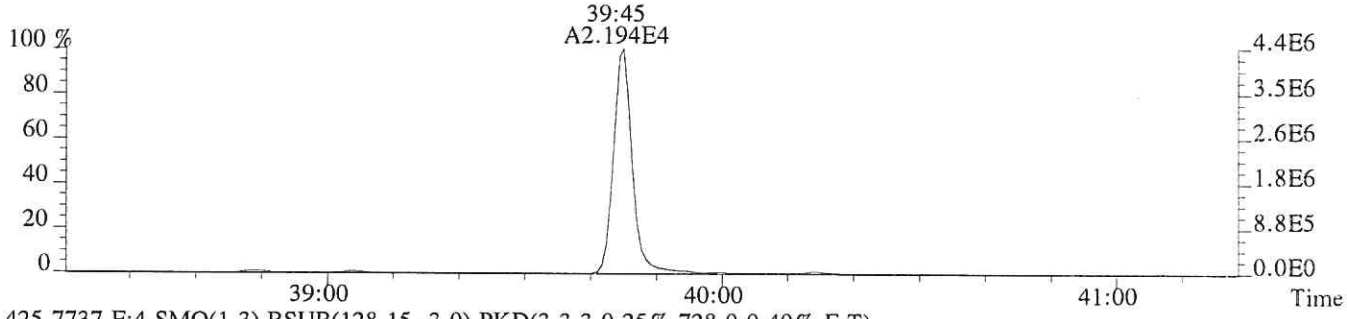
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



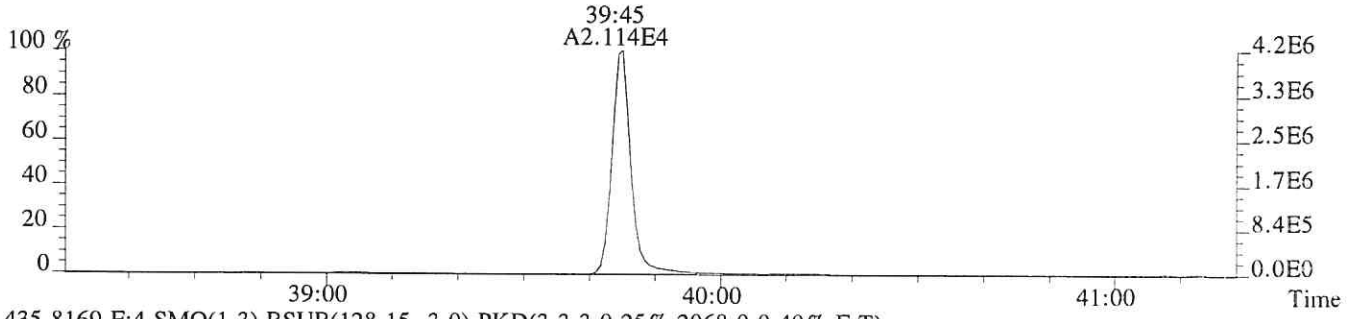
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



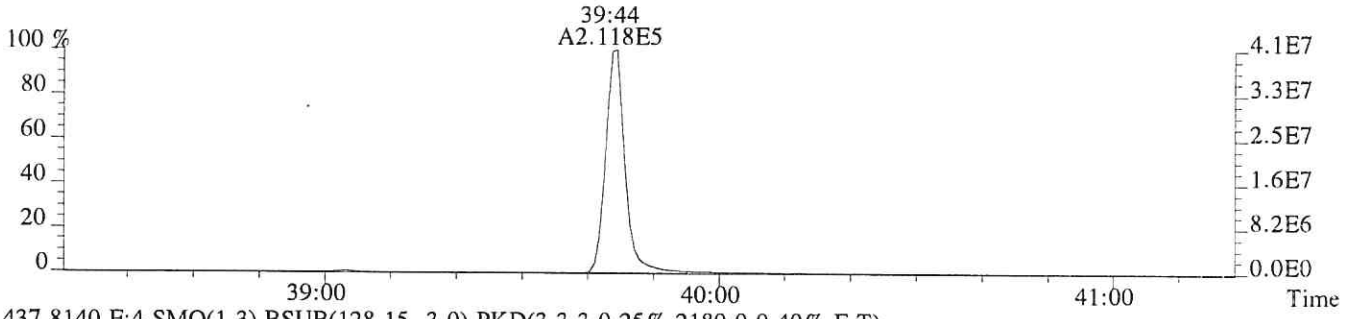
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



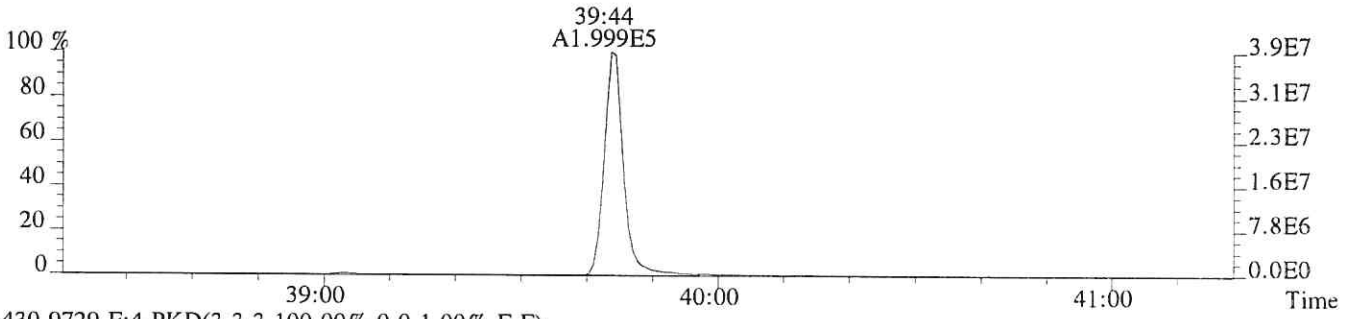
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



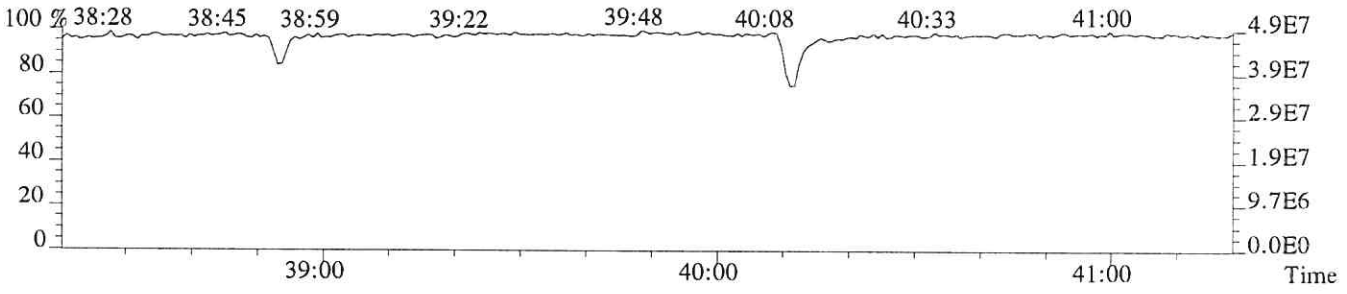
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



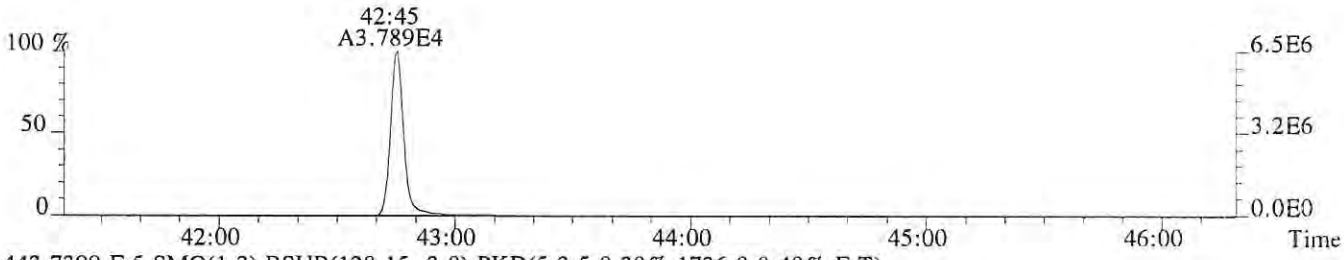
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



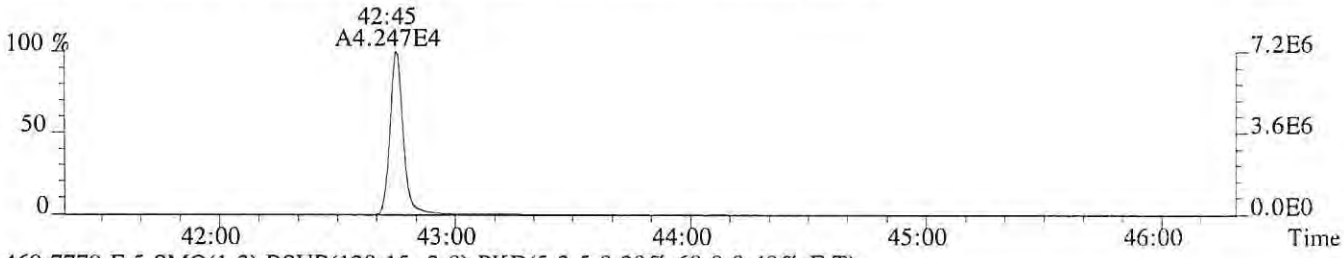
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



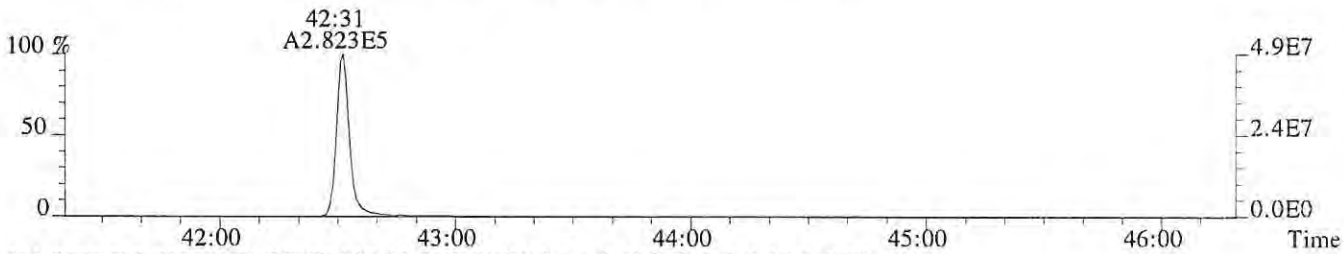
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



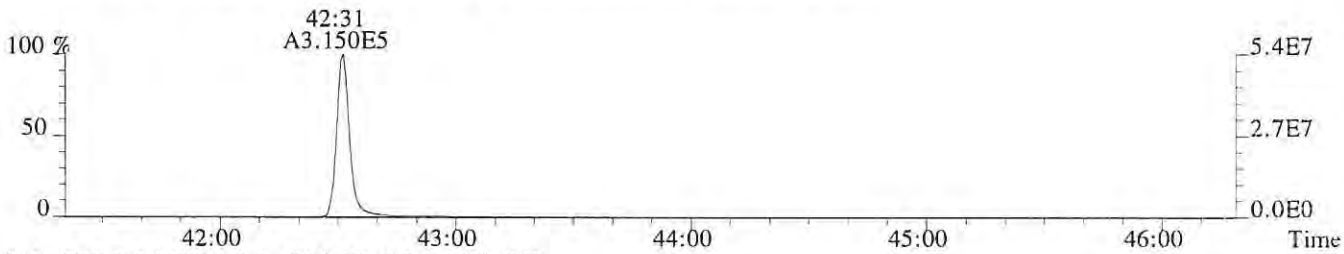
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



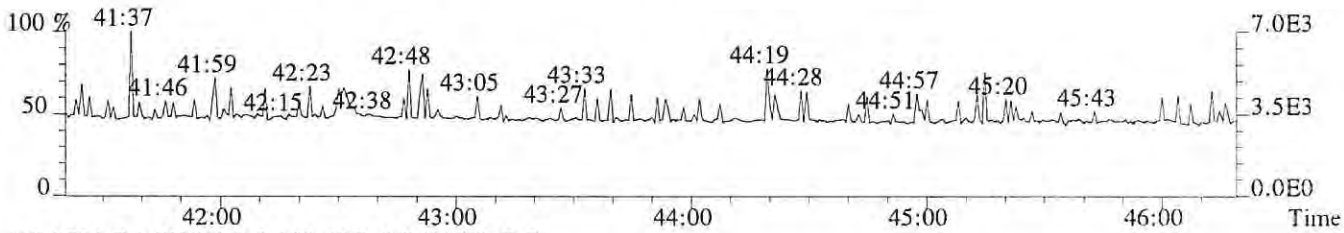
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



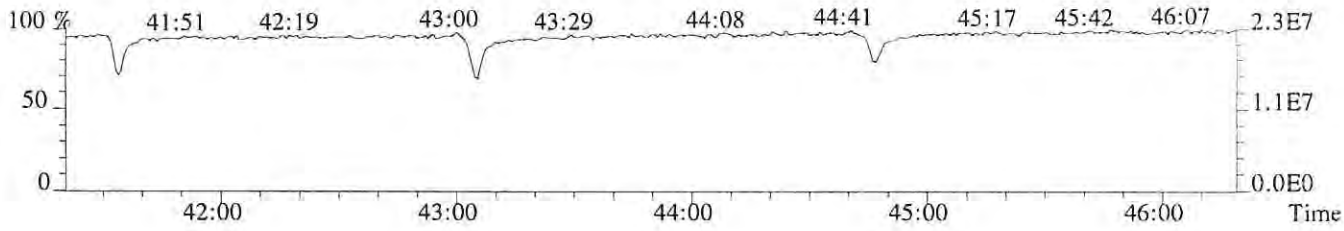
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



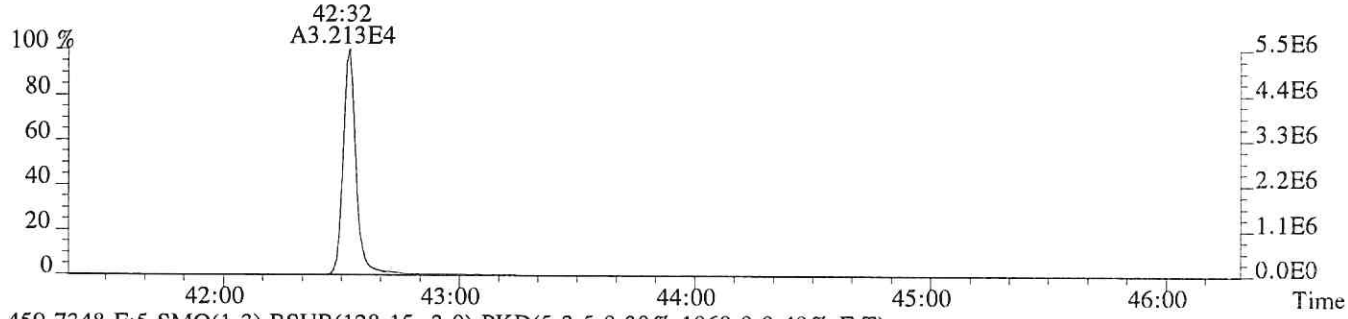
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



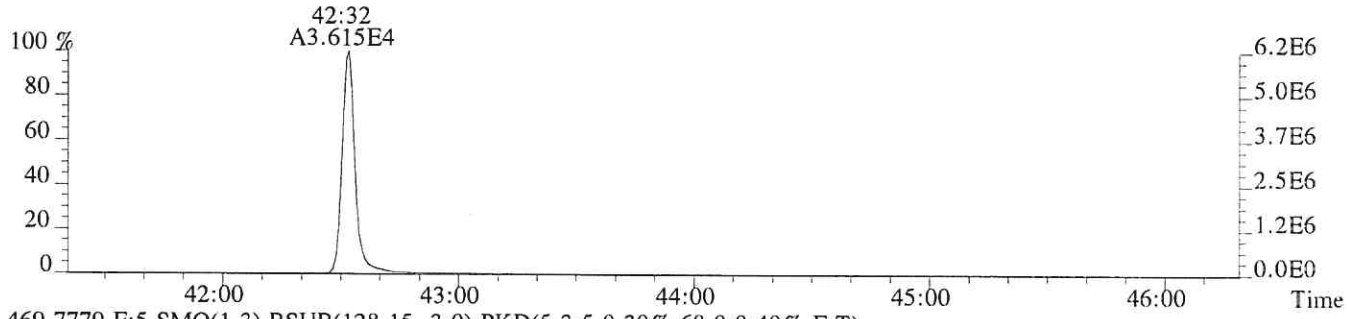
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



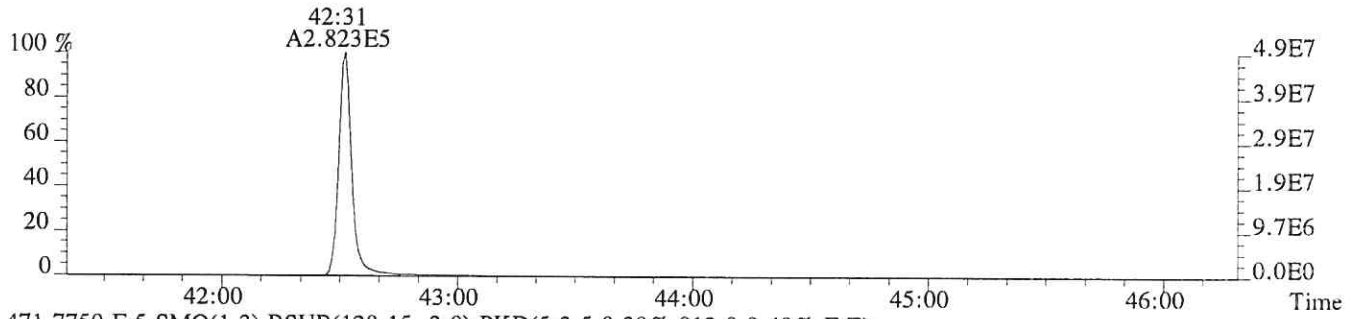
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



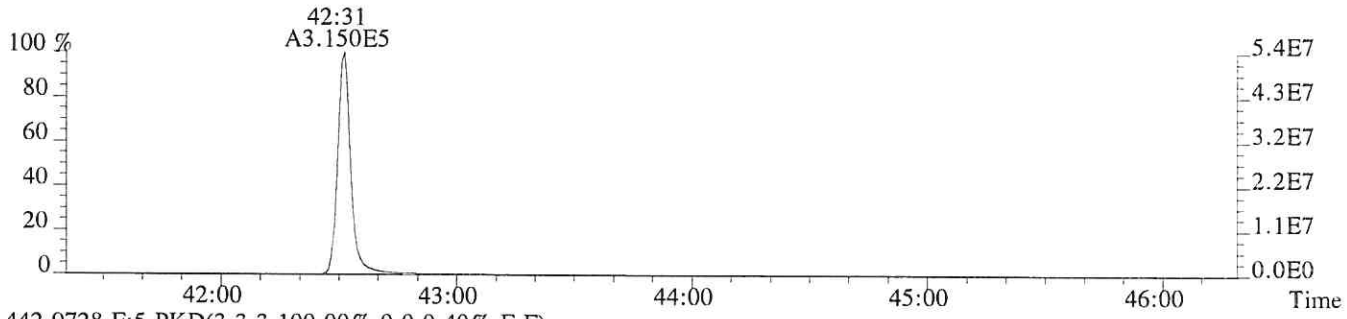
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



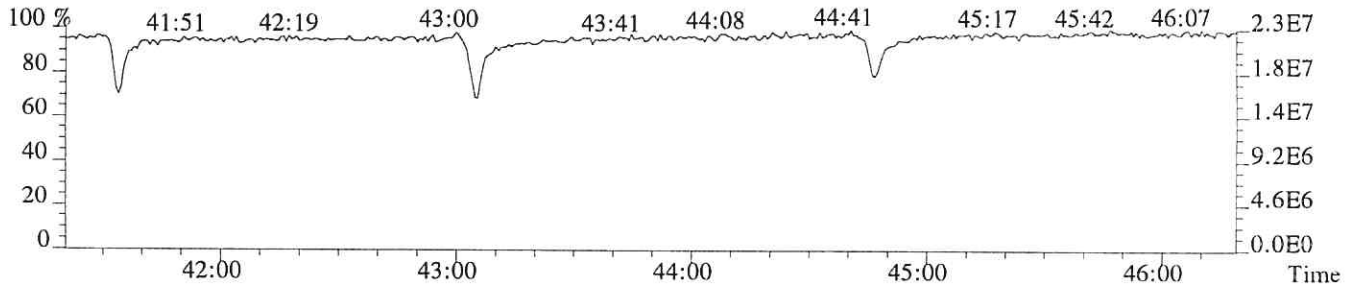
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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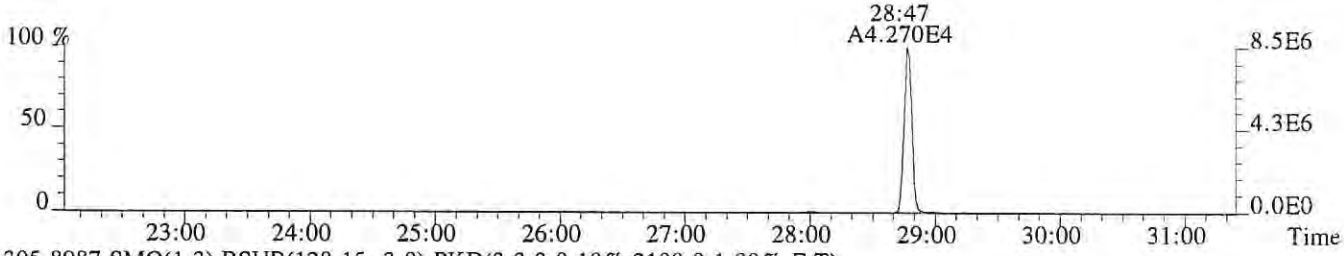
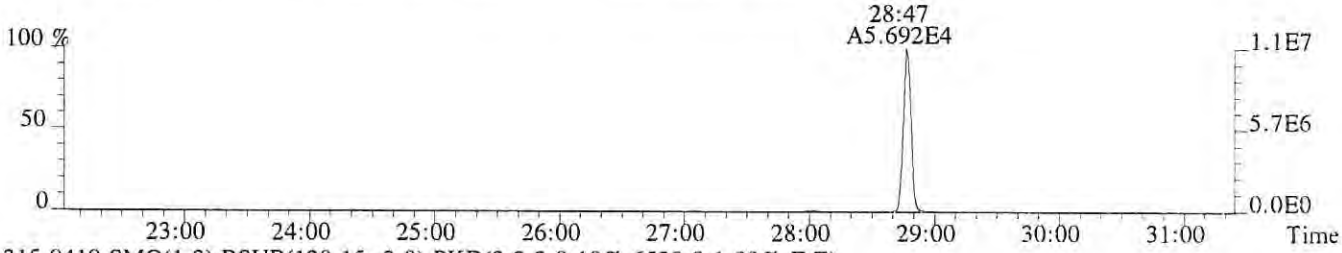
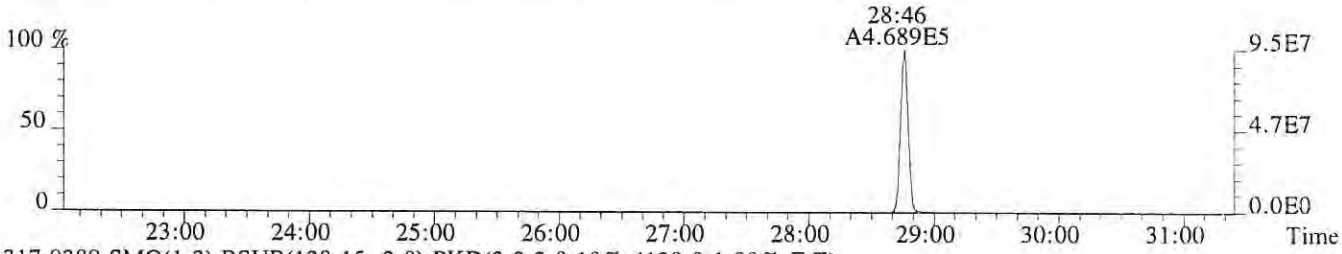
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



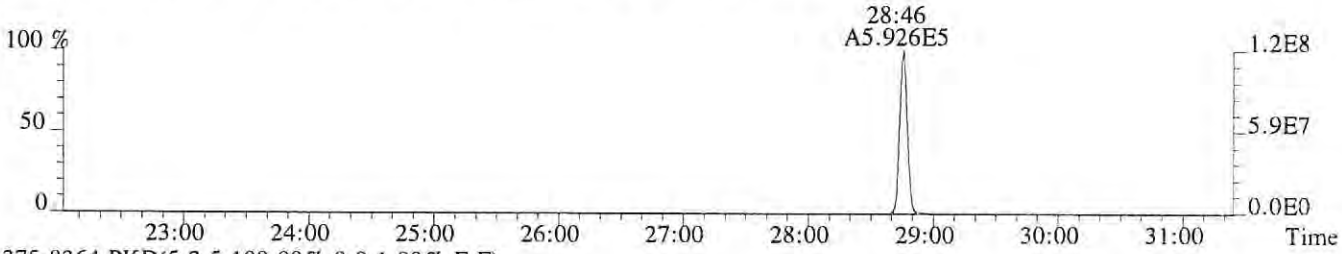
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



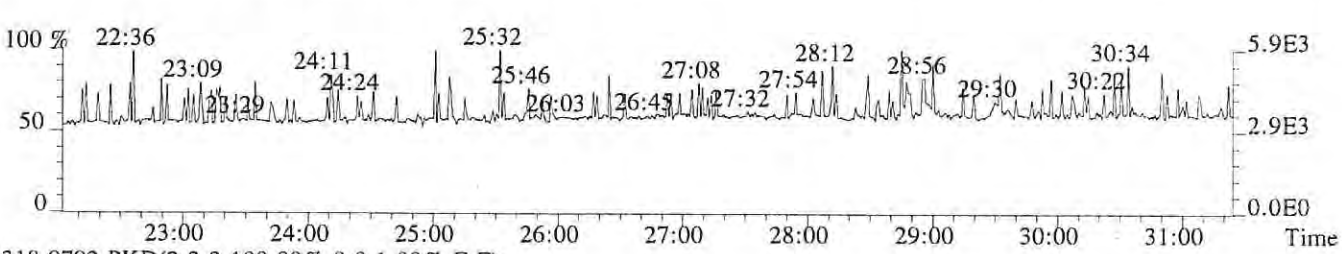
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



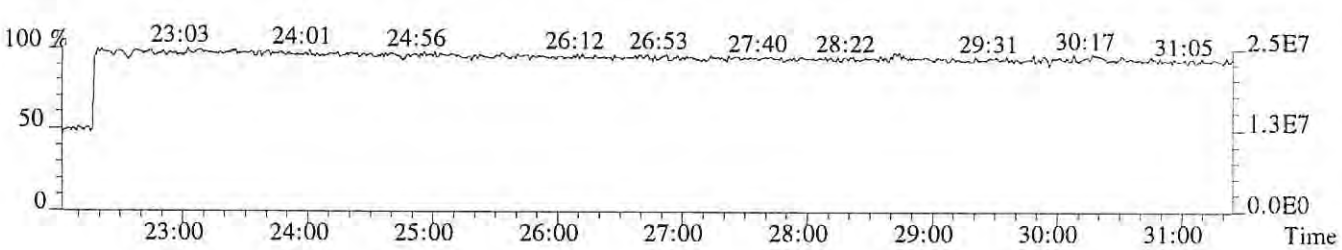
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



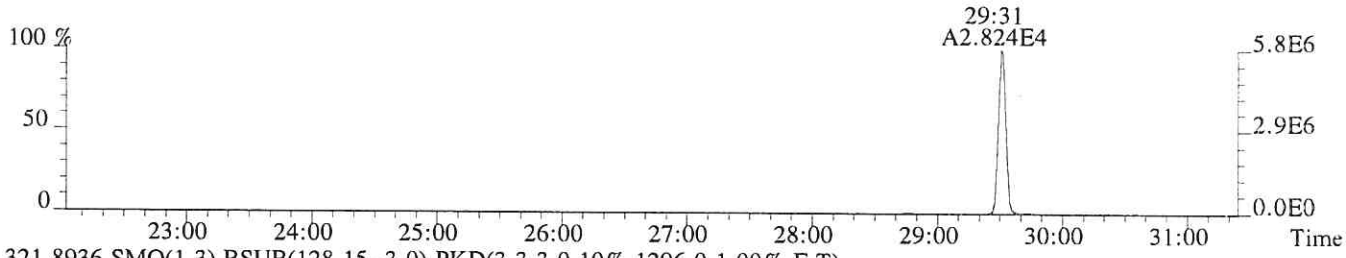
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



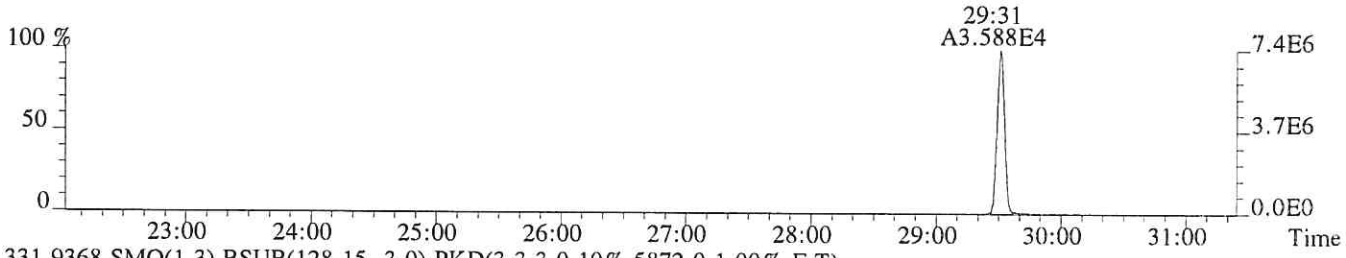
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



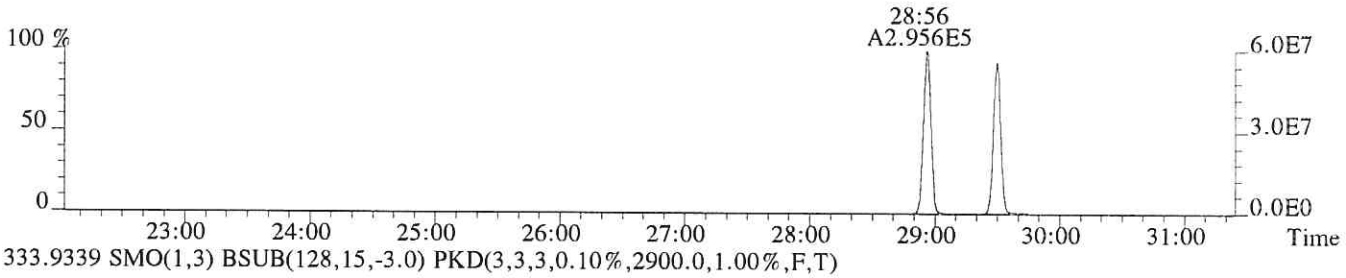
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



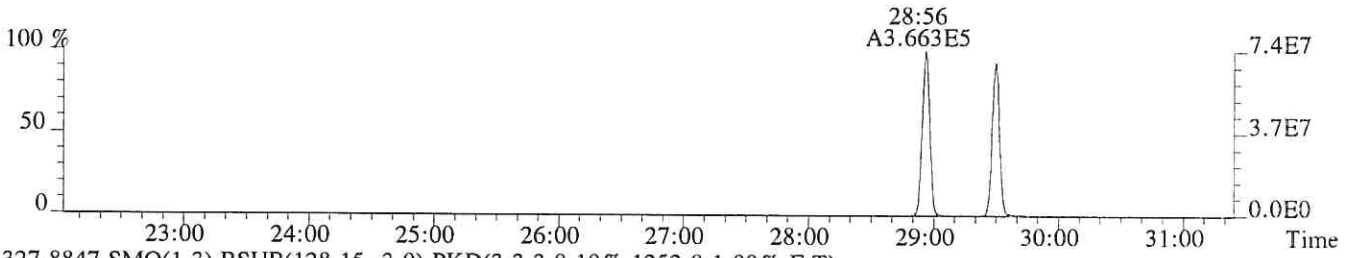
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



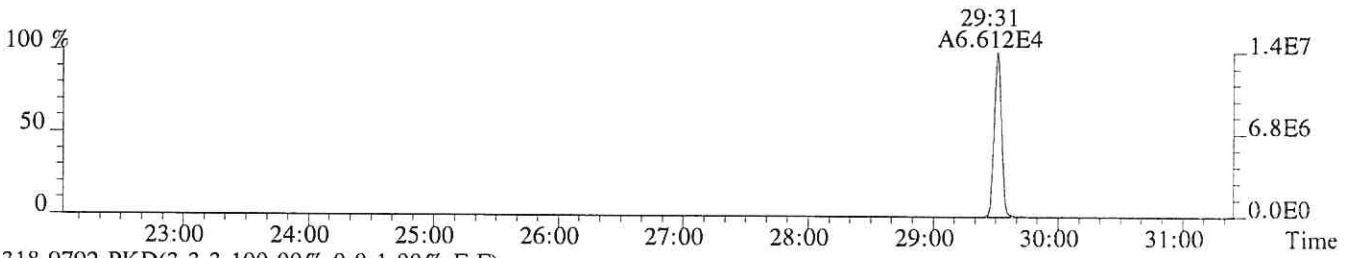
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



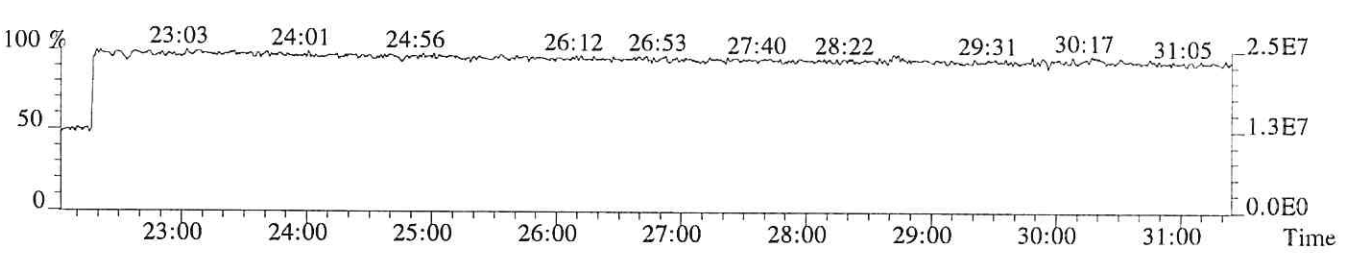
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



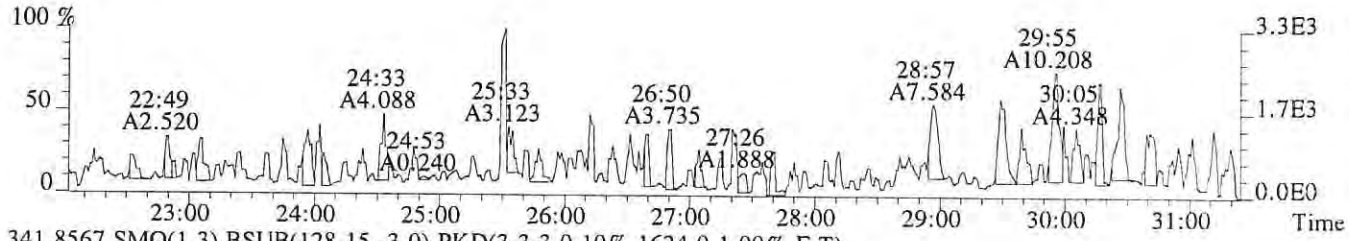
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



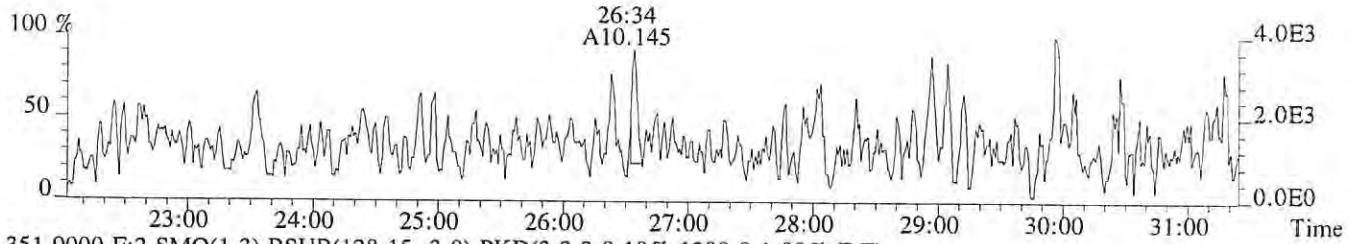
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



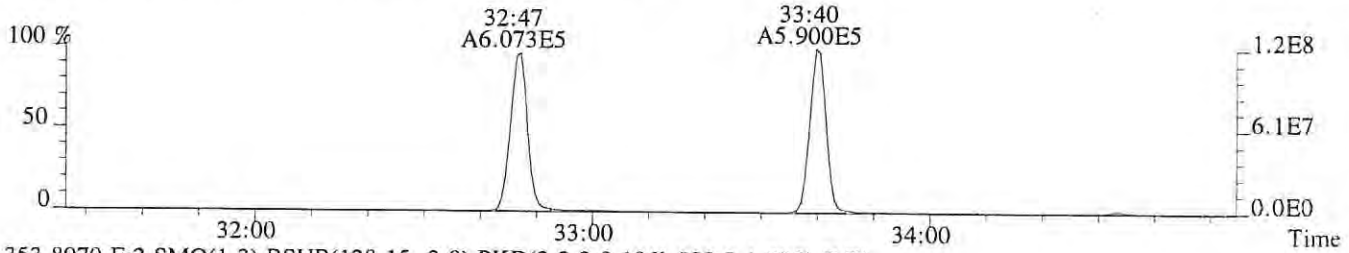
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



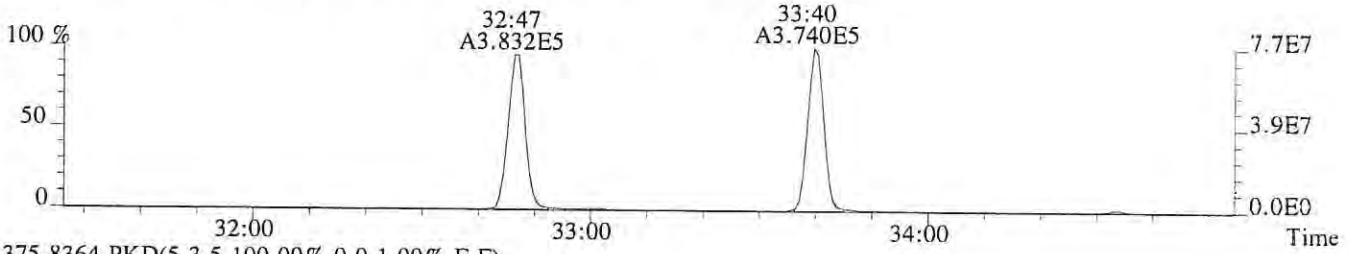
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



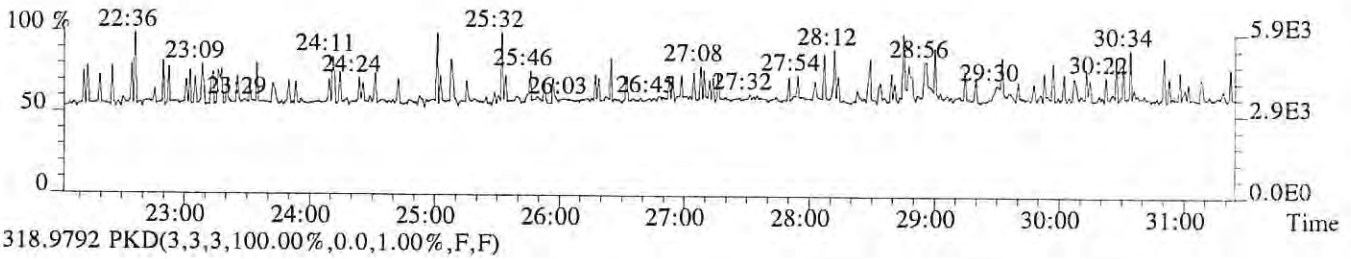
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



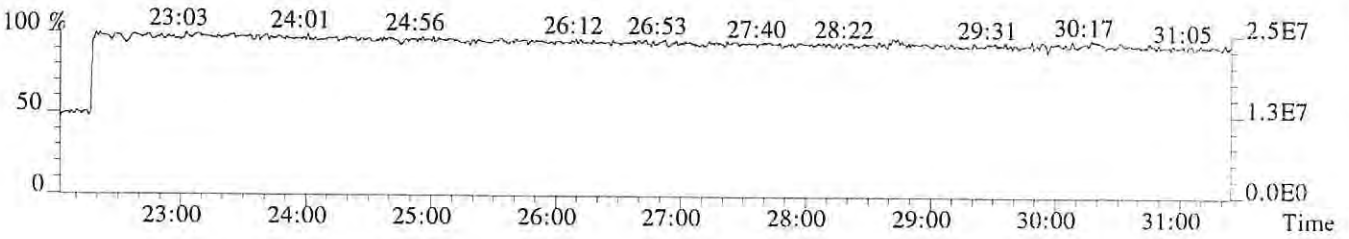
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



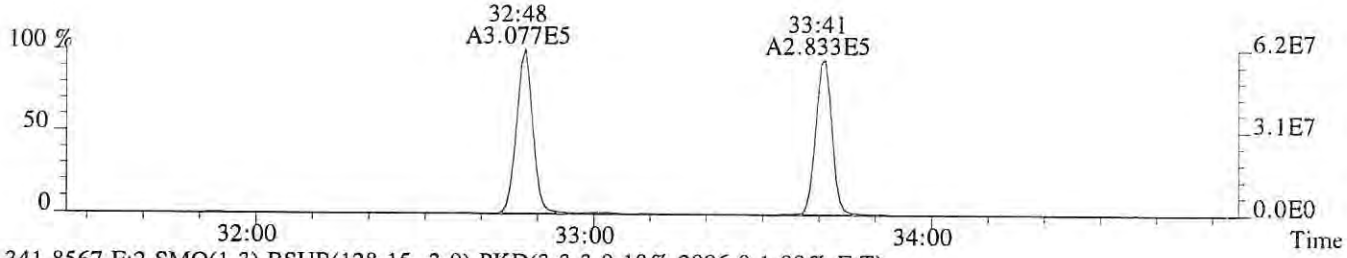
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



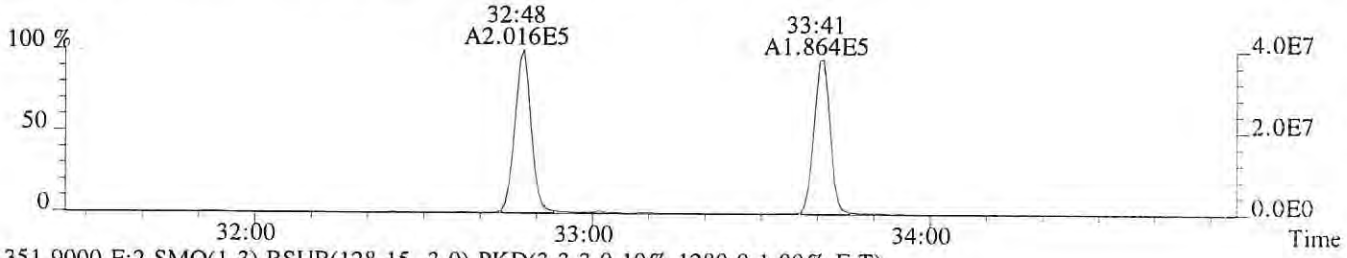
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



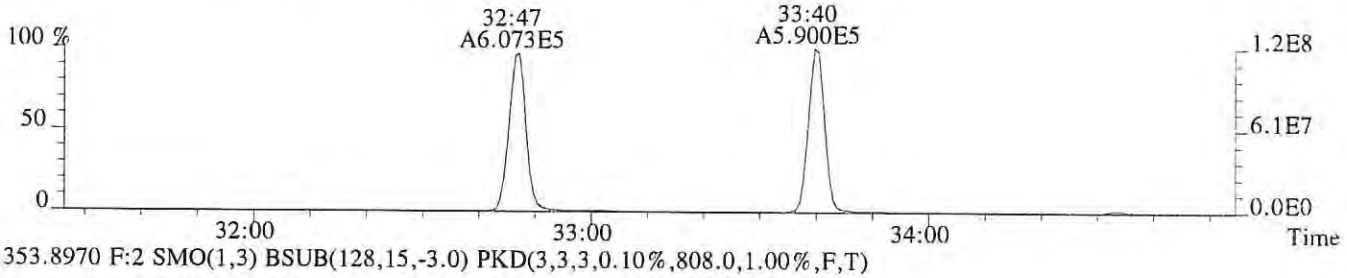
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



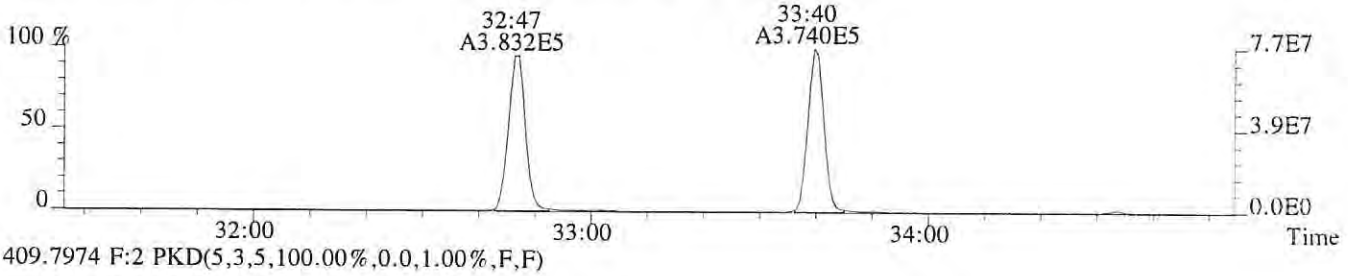
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



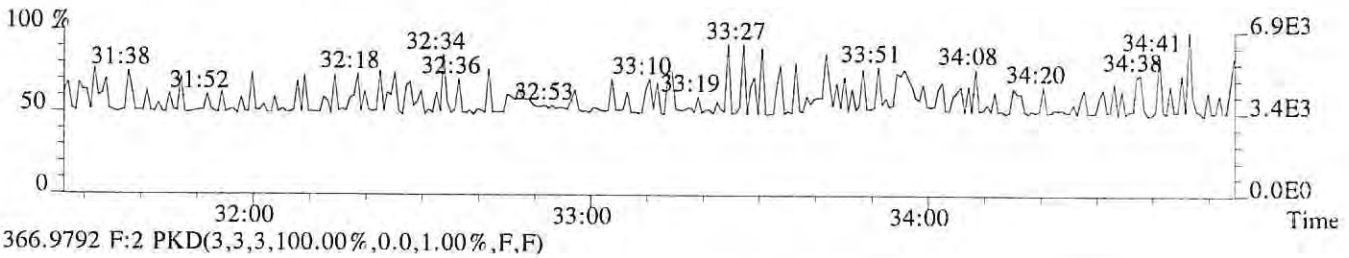
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



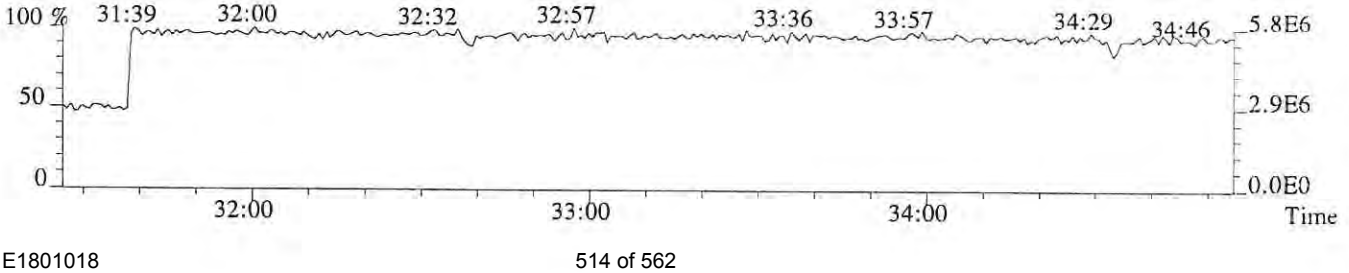
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



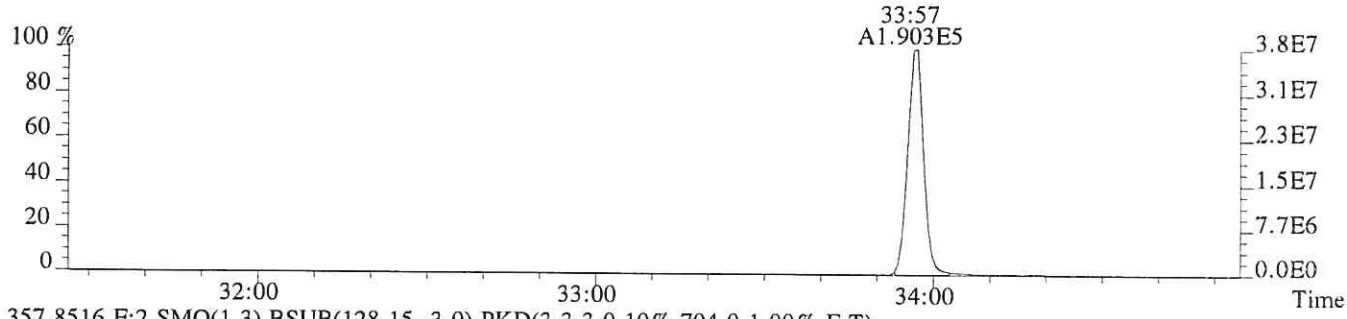
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



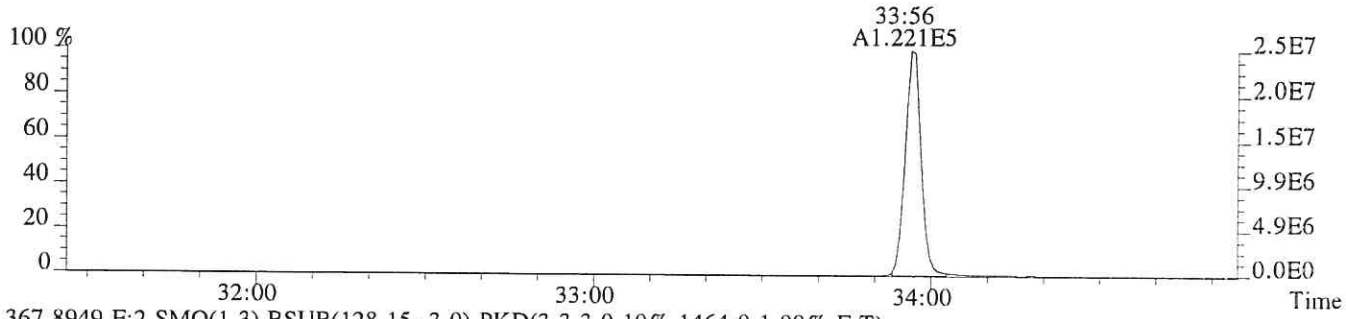
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



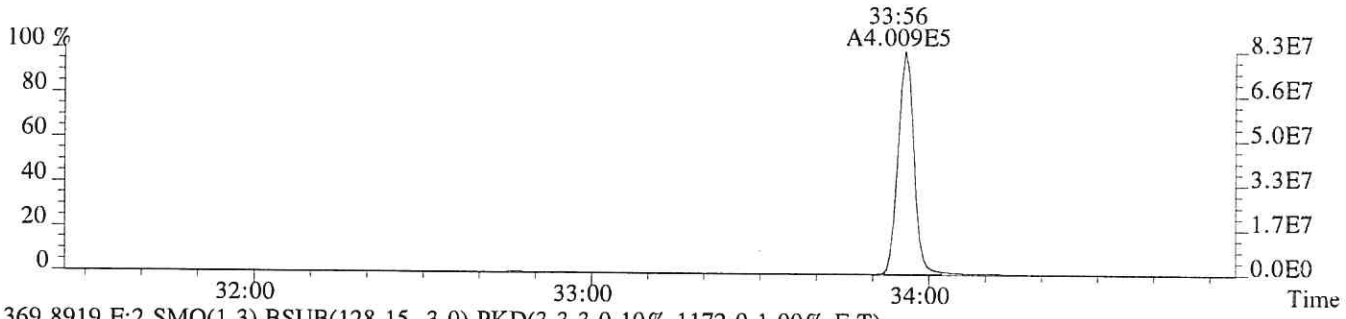
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



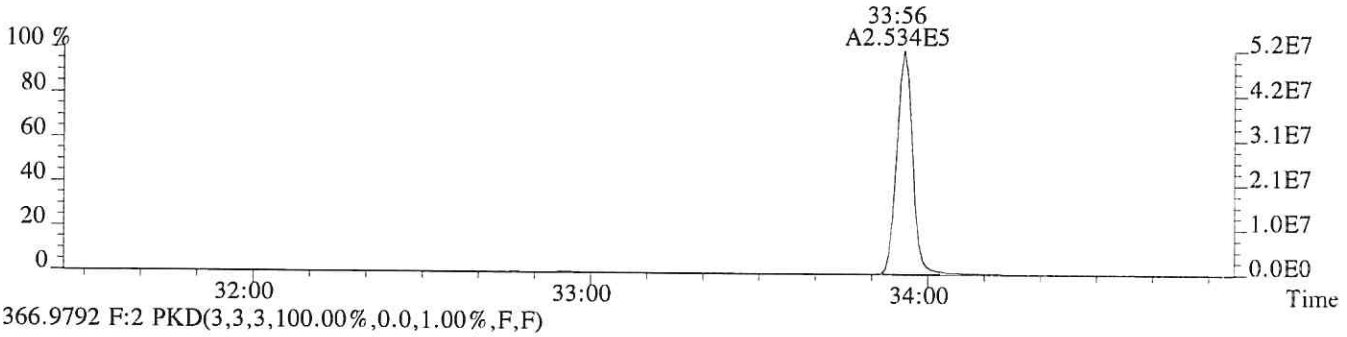
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



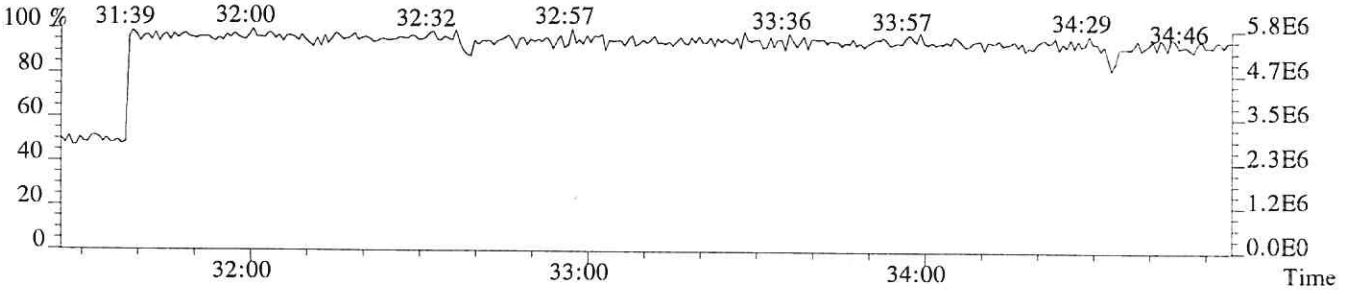
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



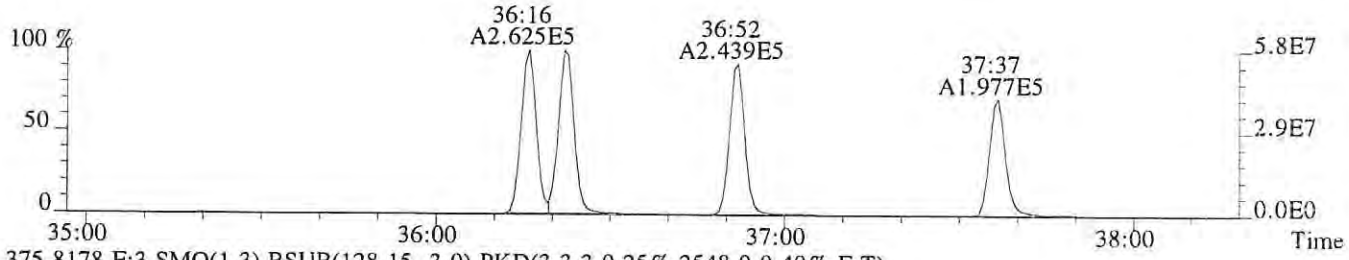
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



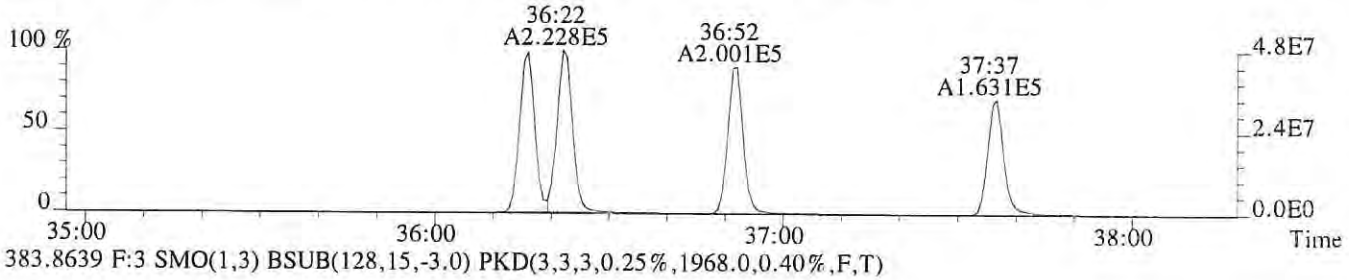
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



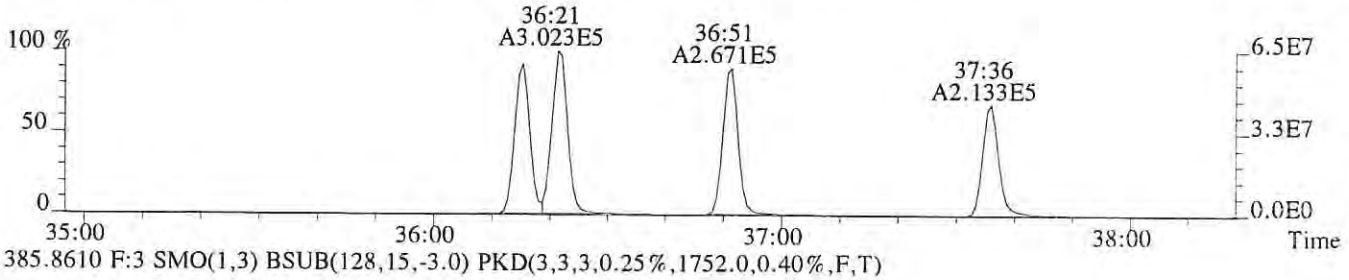
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



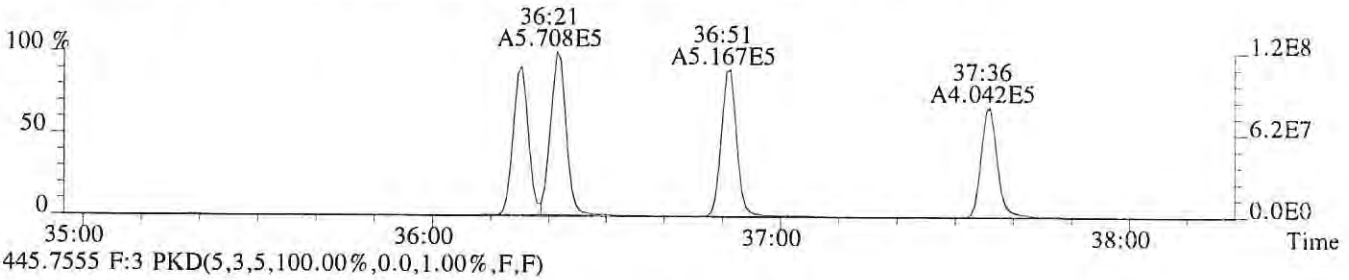
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



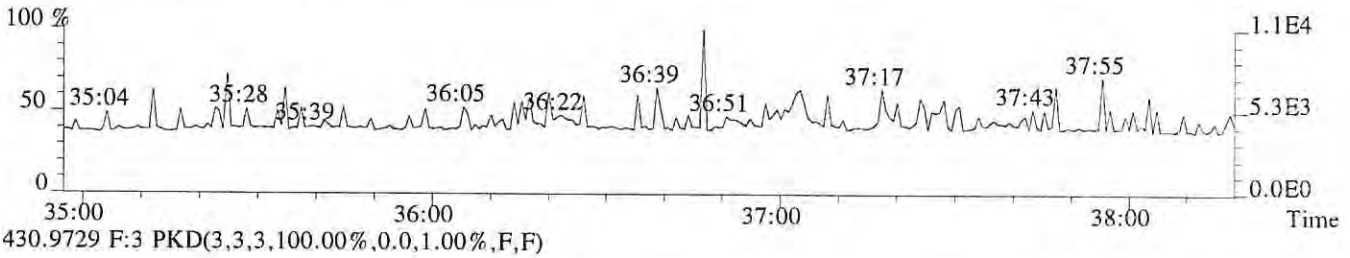
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



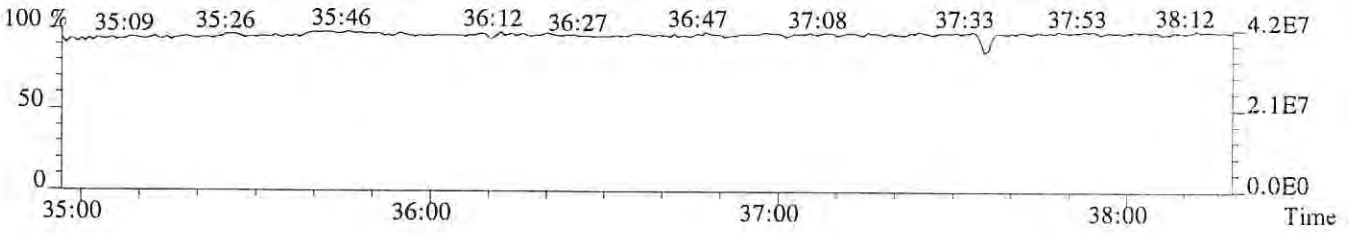
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



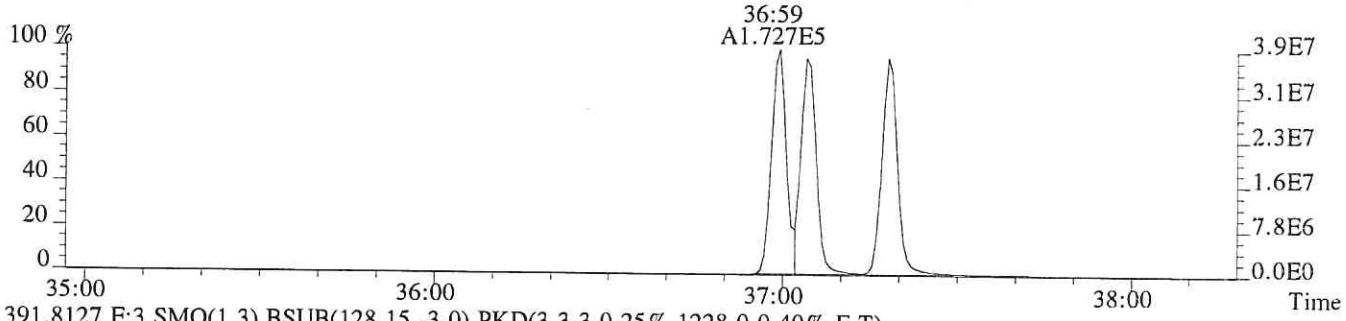
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



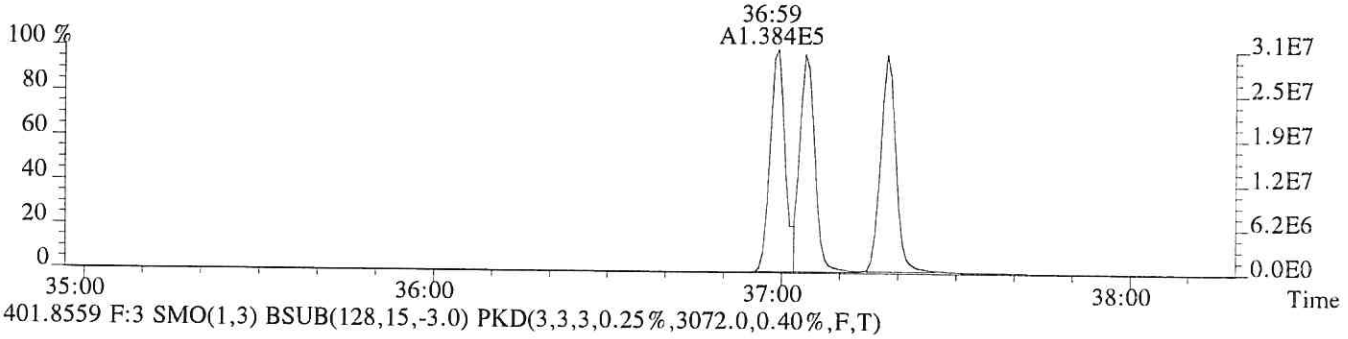
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



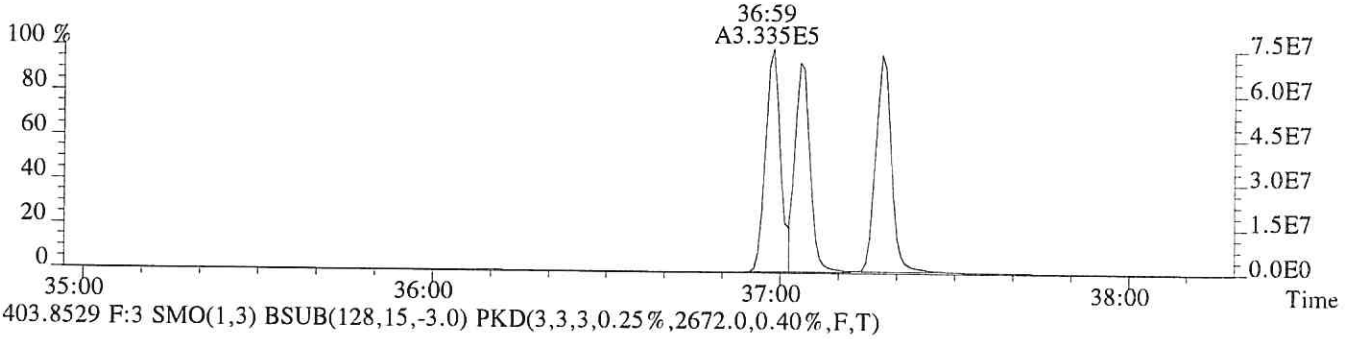
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



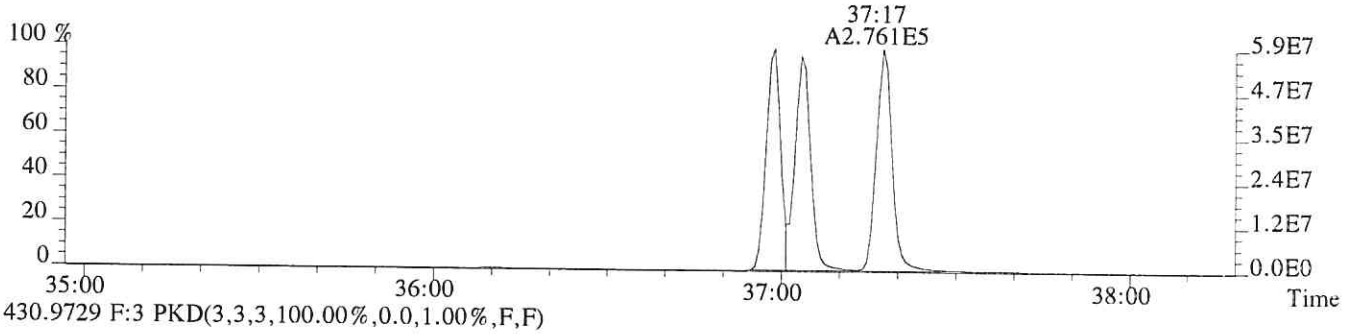
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



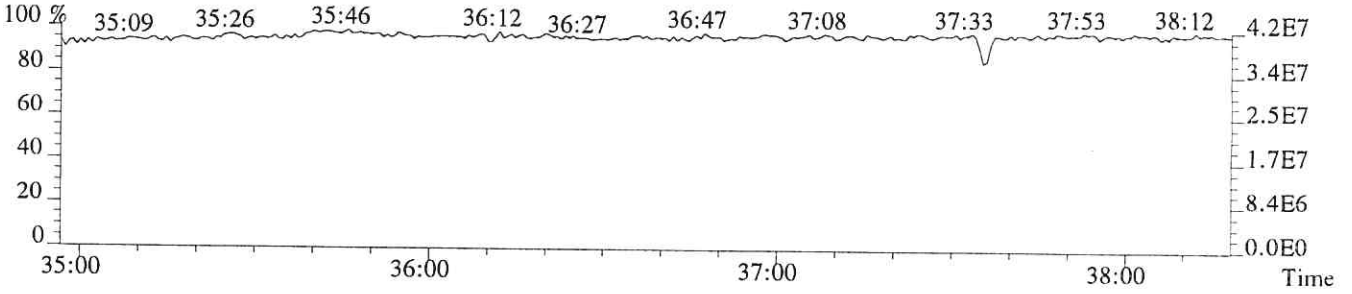
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



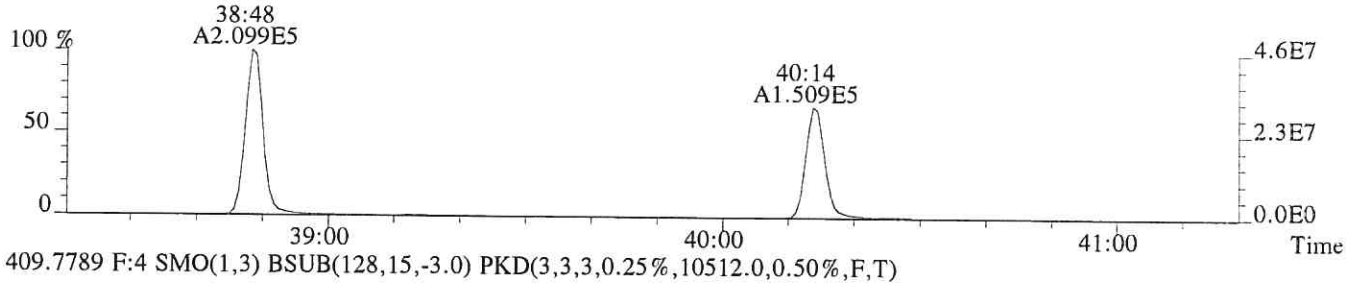
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)



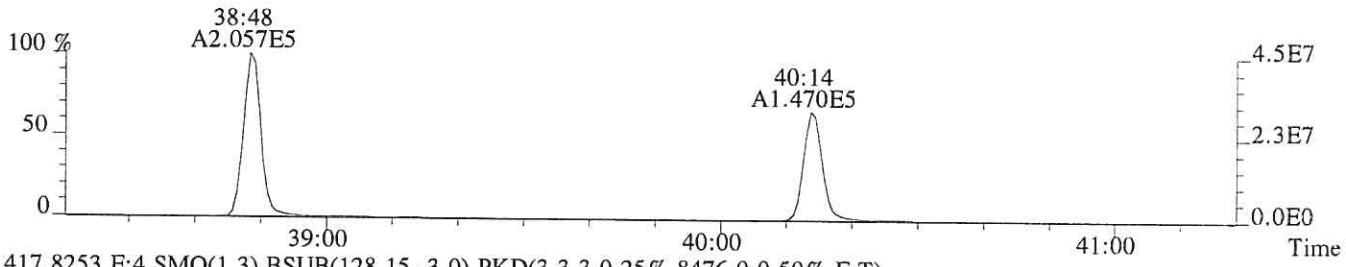
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



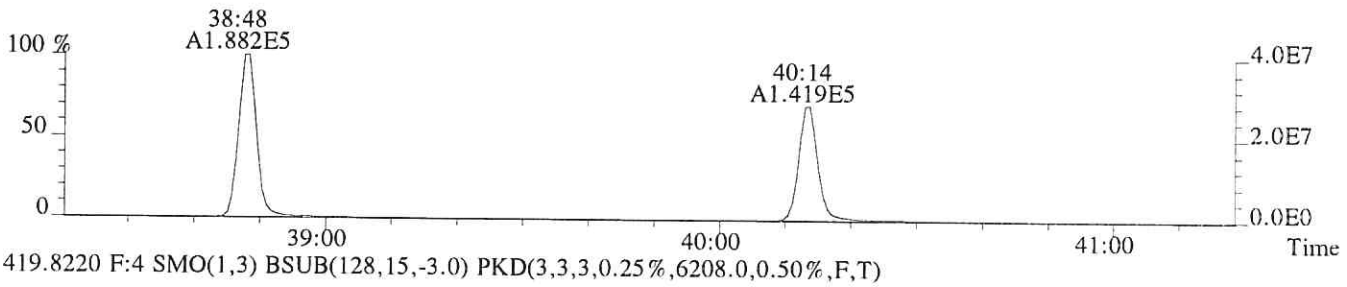
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



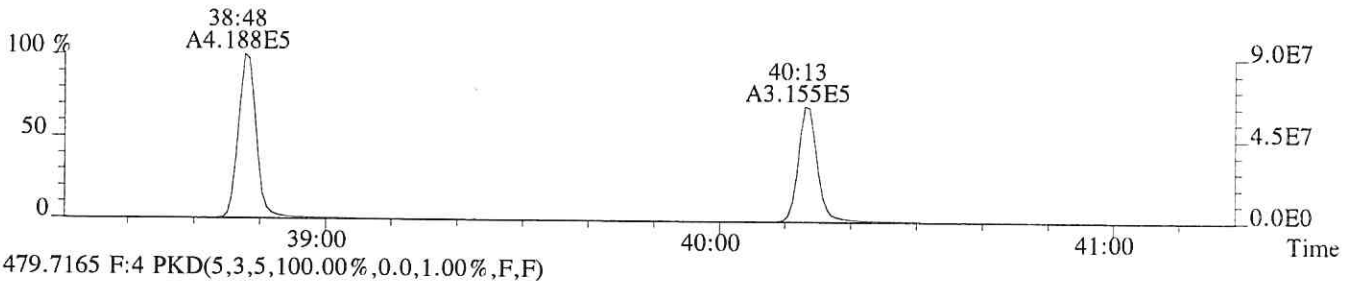
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



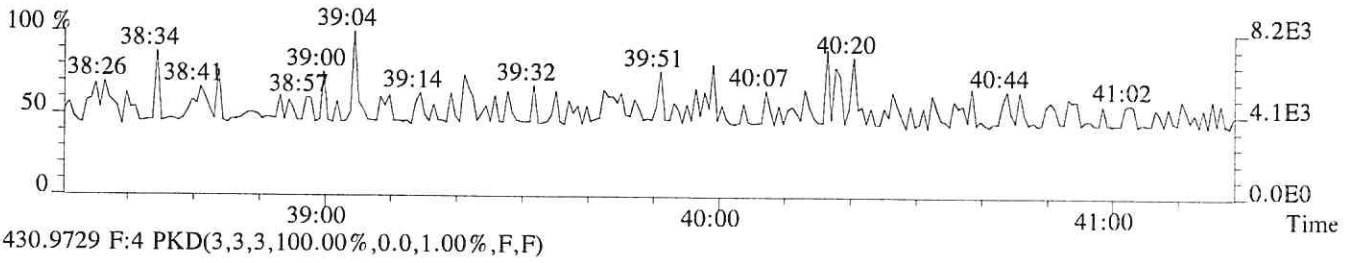
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



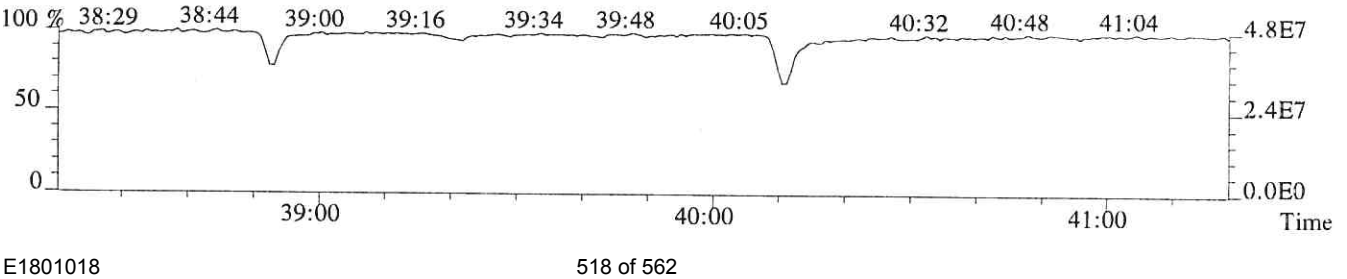
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



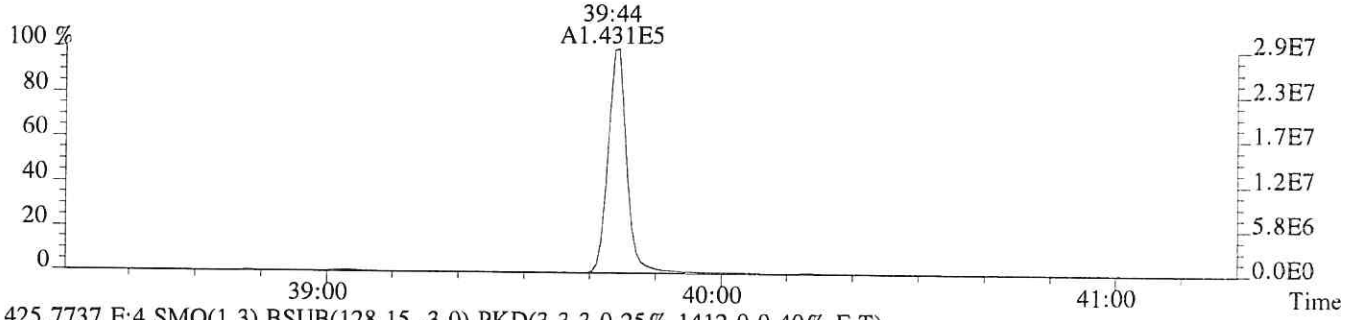
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



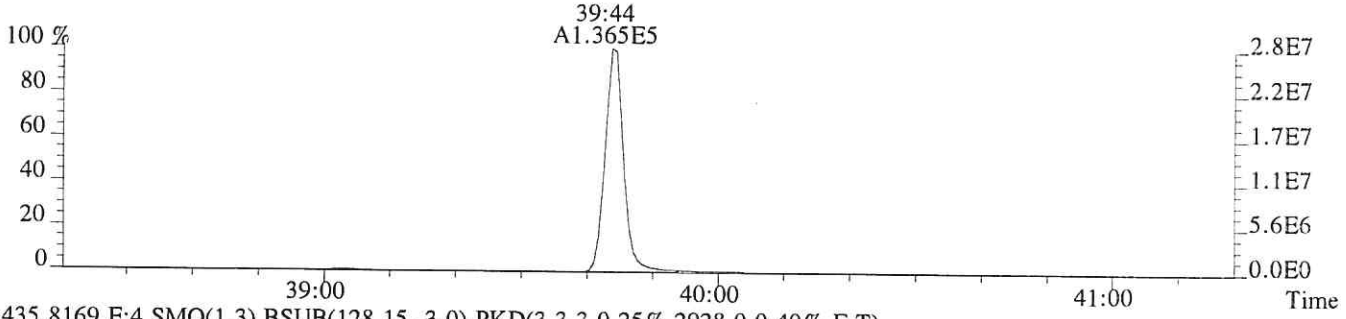
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



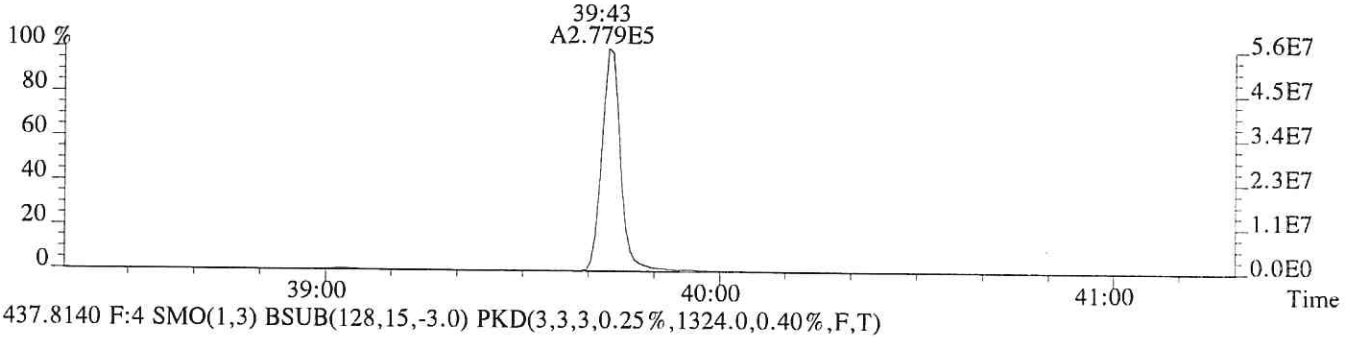
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



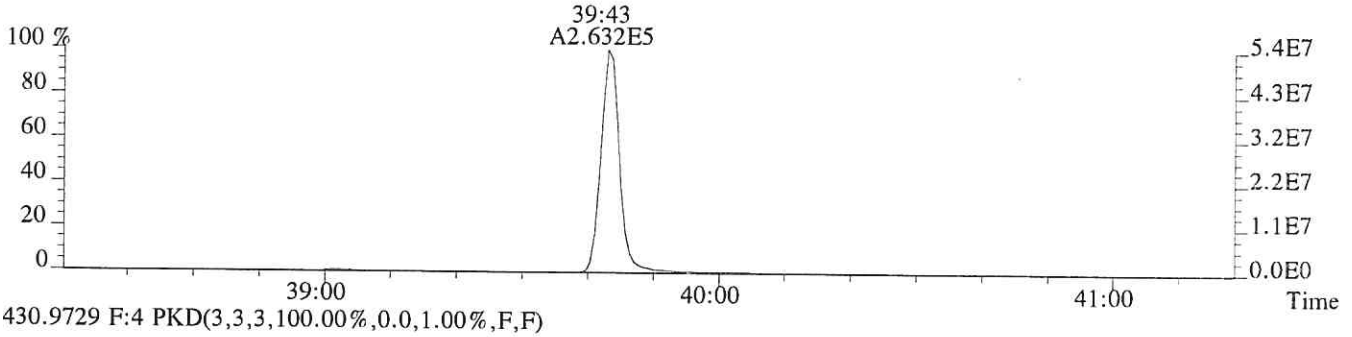
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



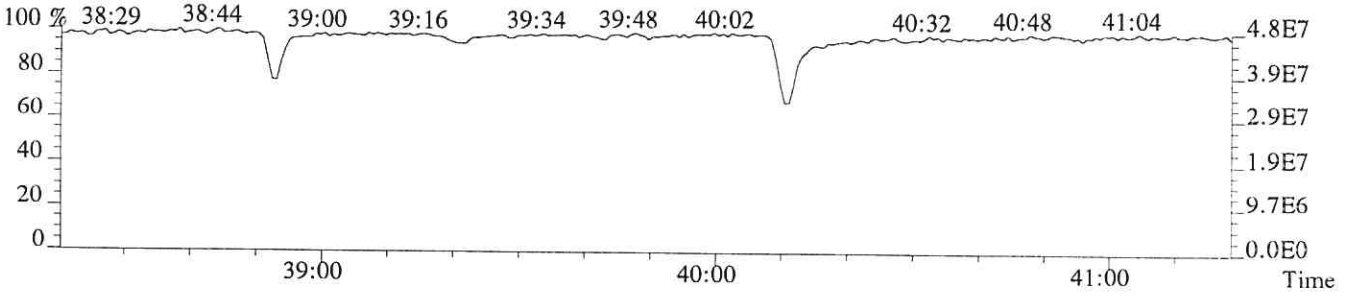
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



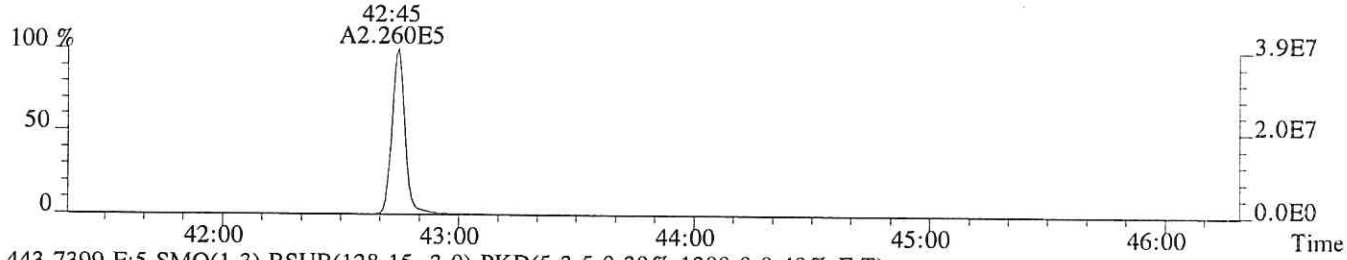
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



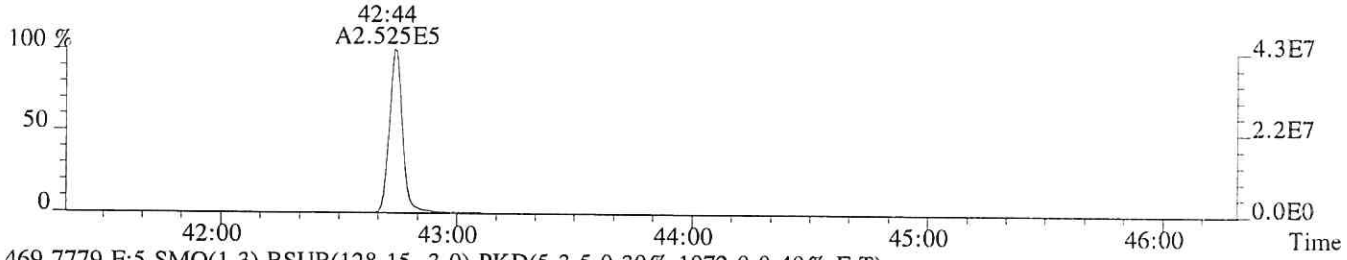
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



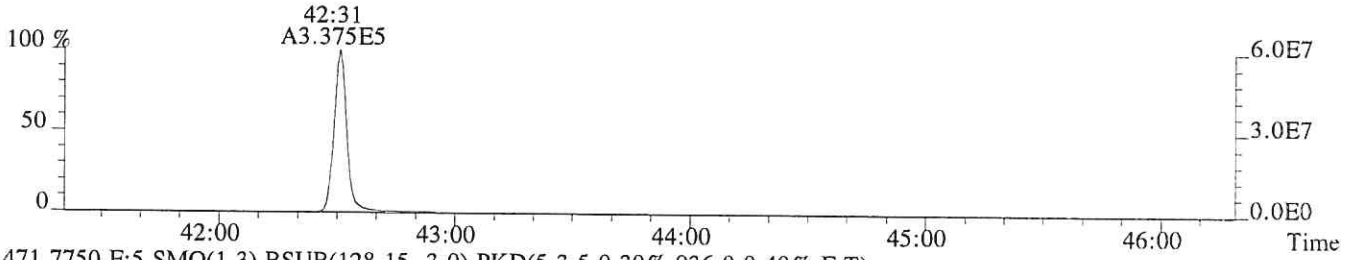
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



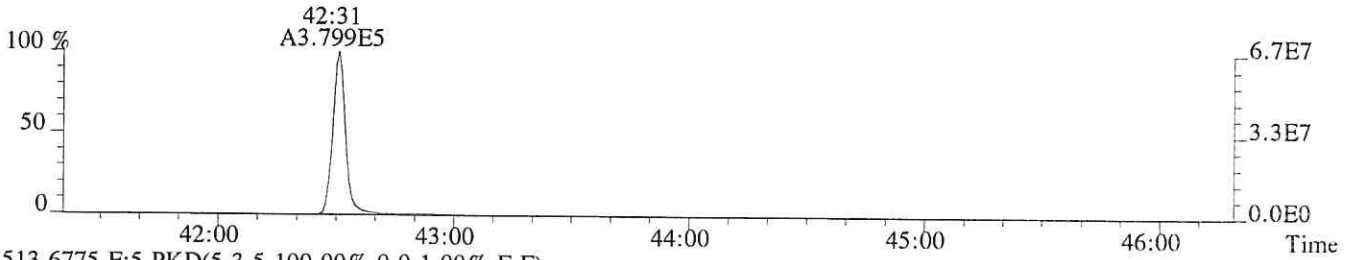
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



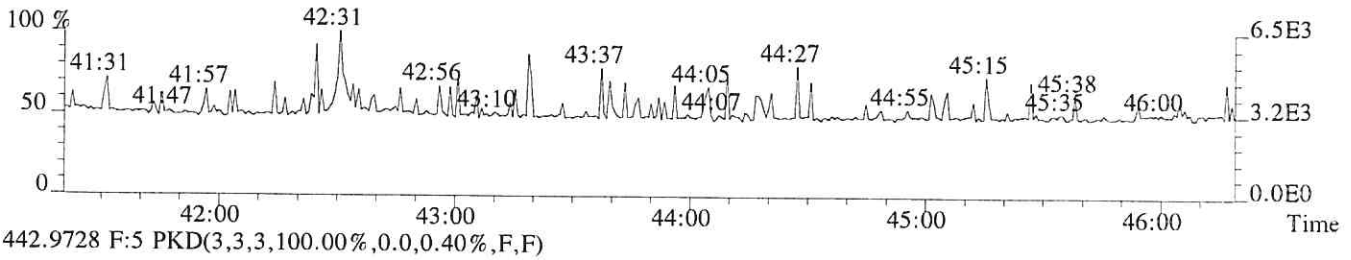
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



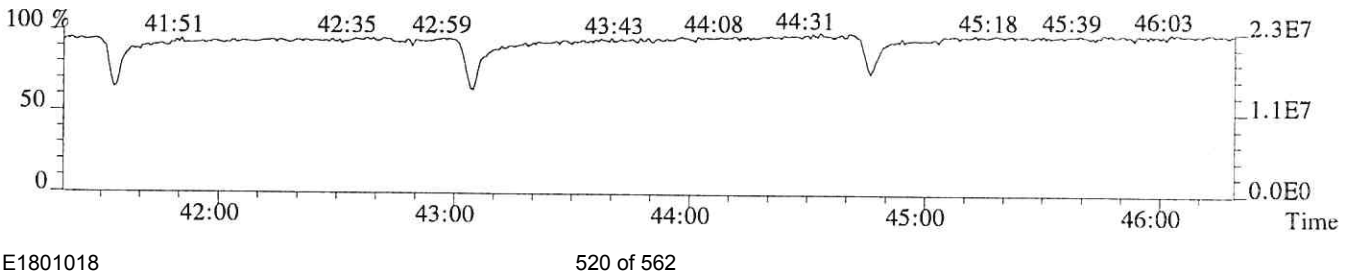
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



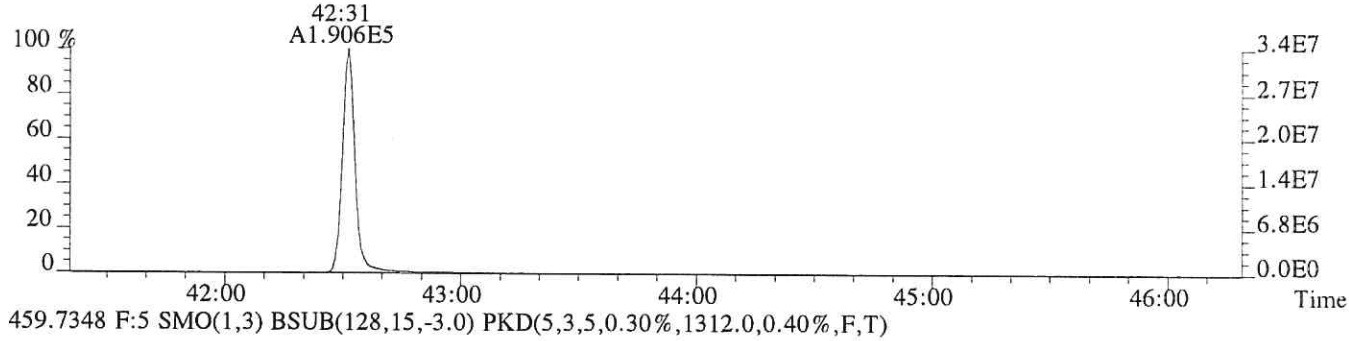
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



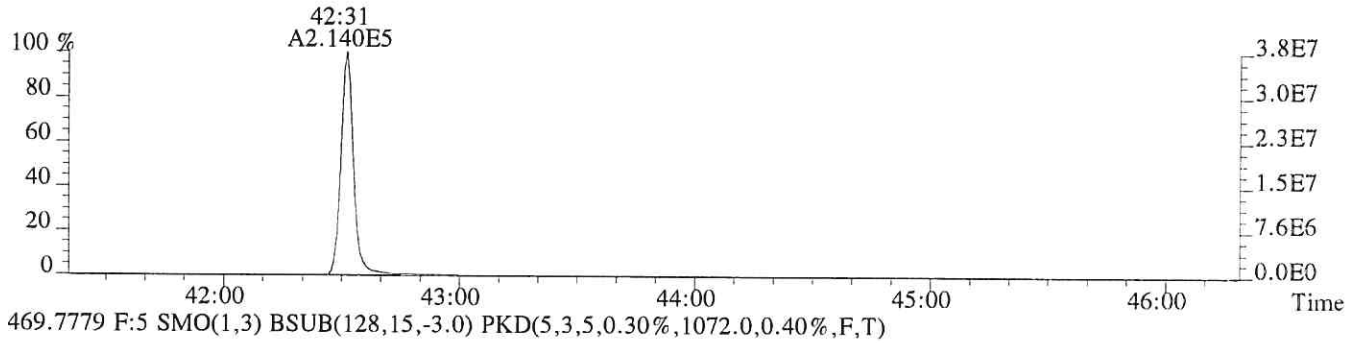
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



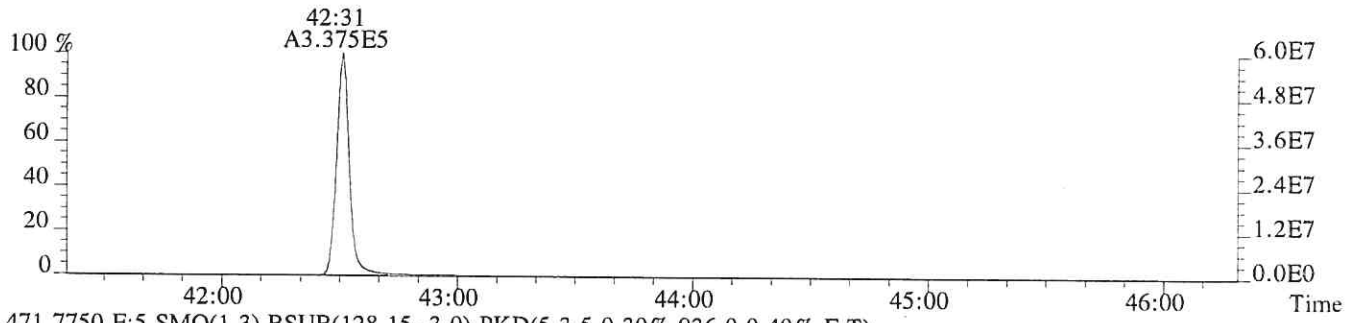
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



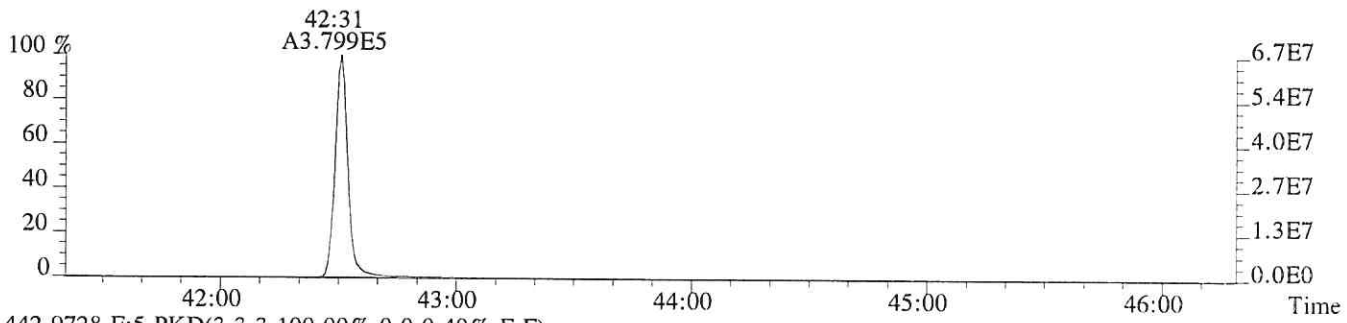
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



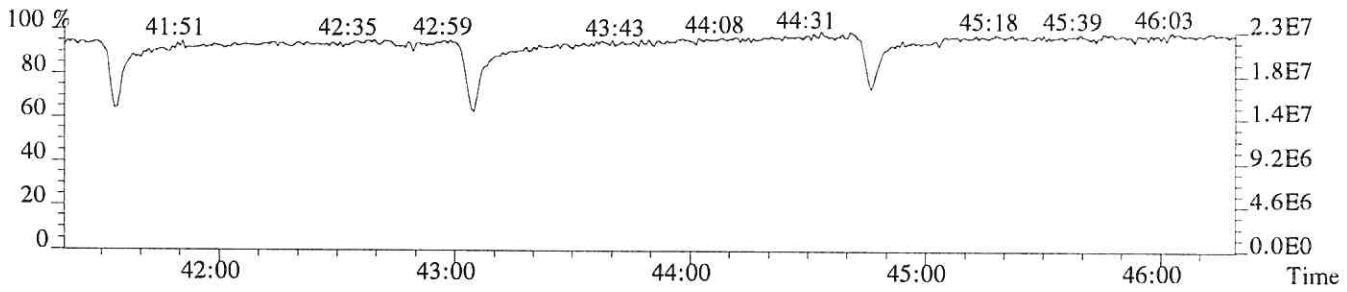
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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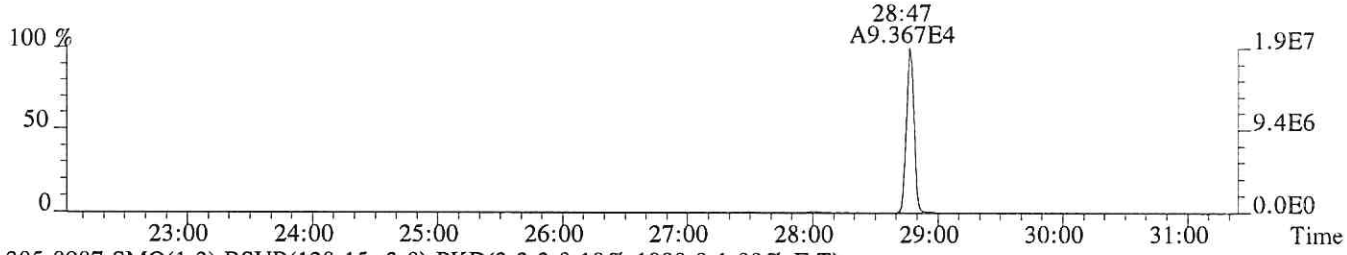
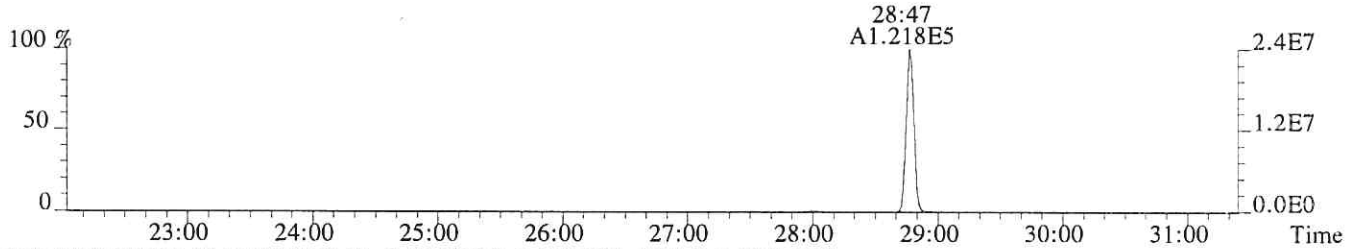
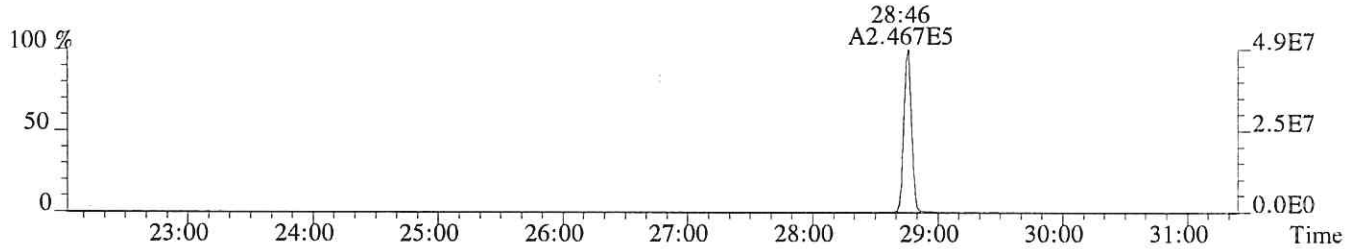
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



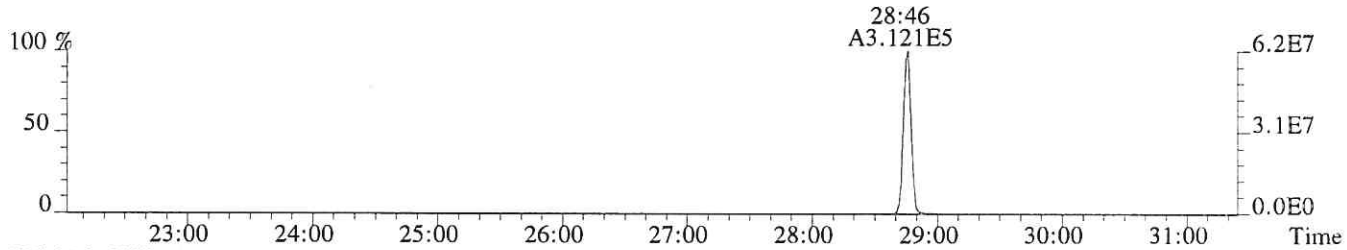
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



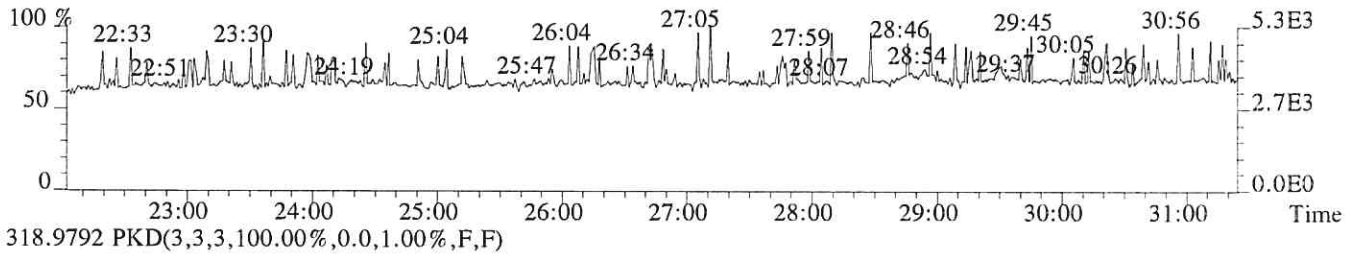
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



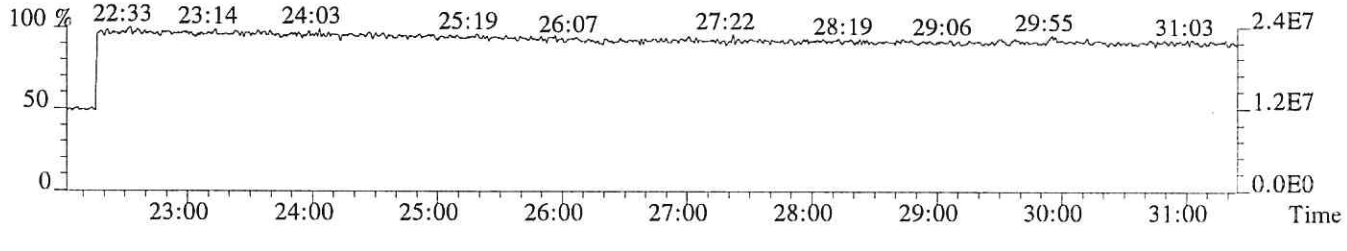
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



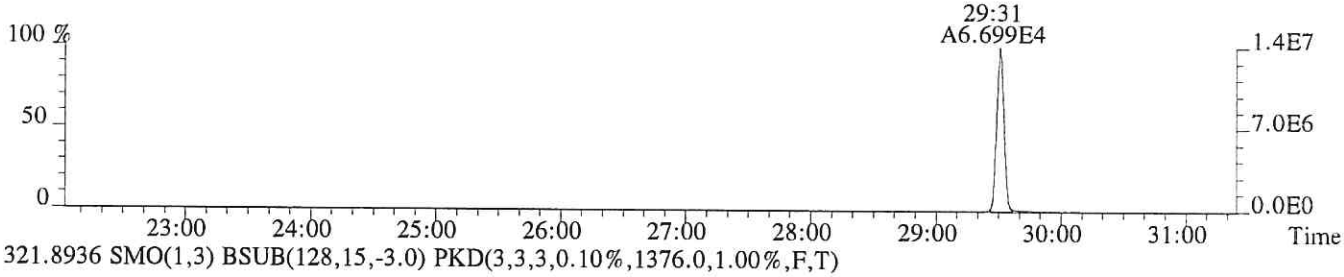
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



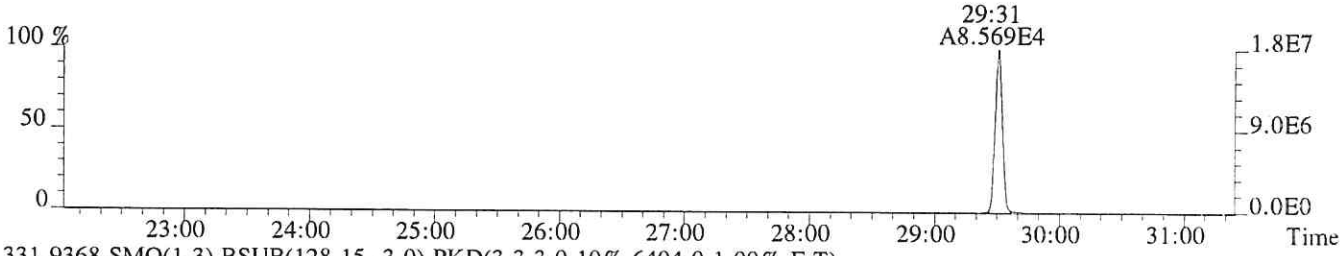
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



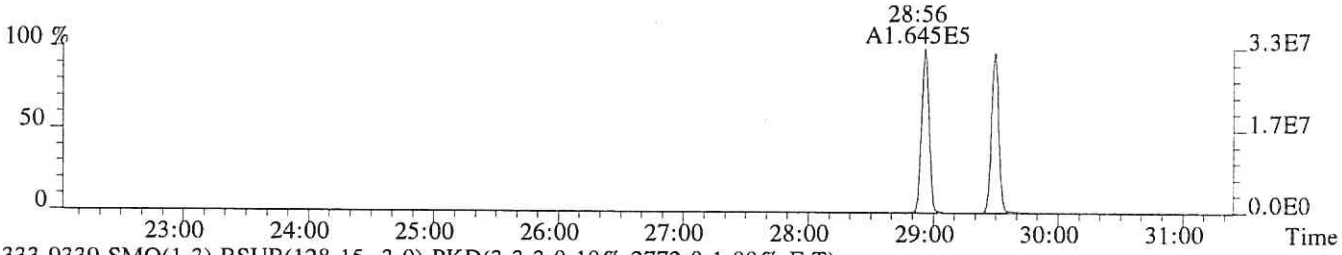
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



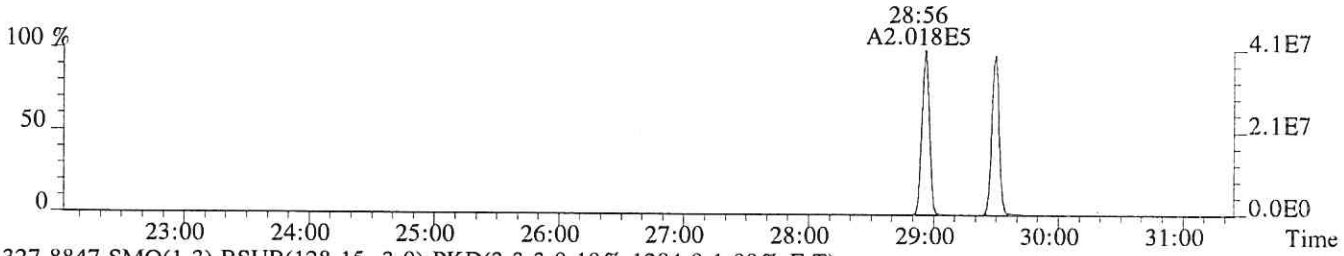
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



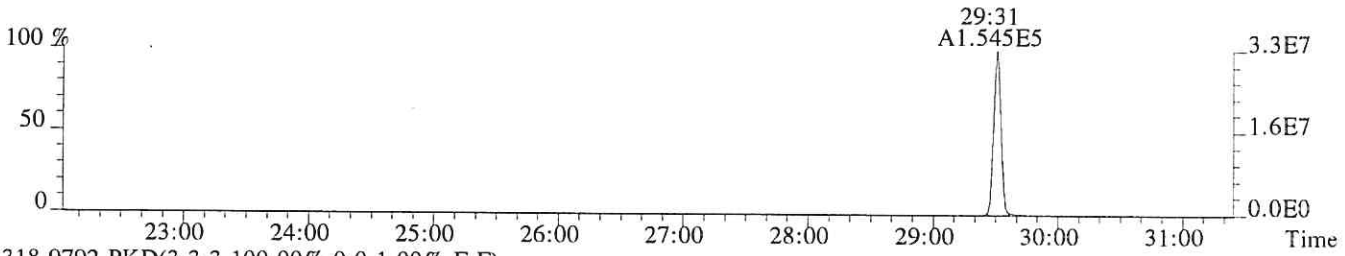
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



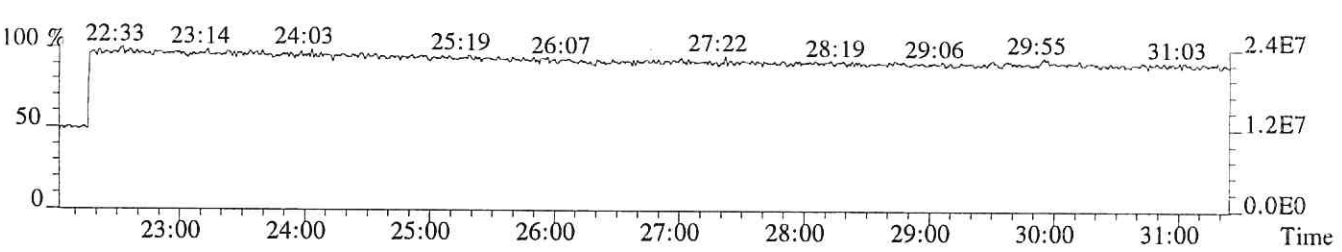
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



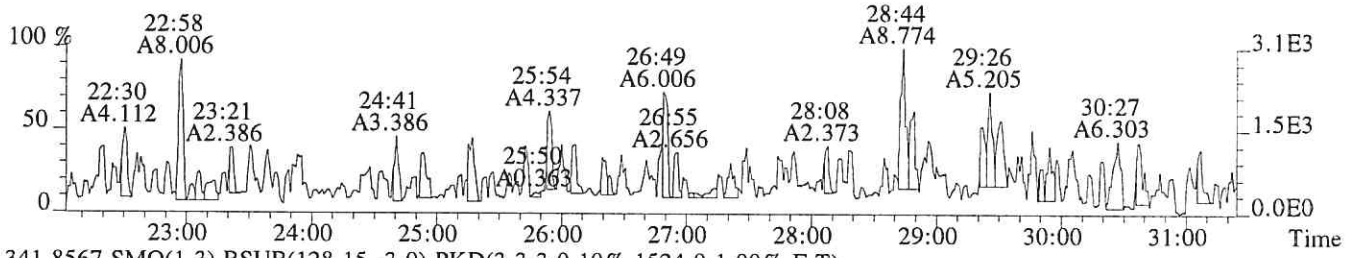
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



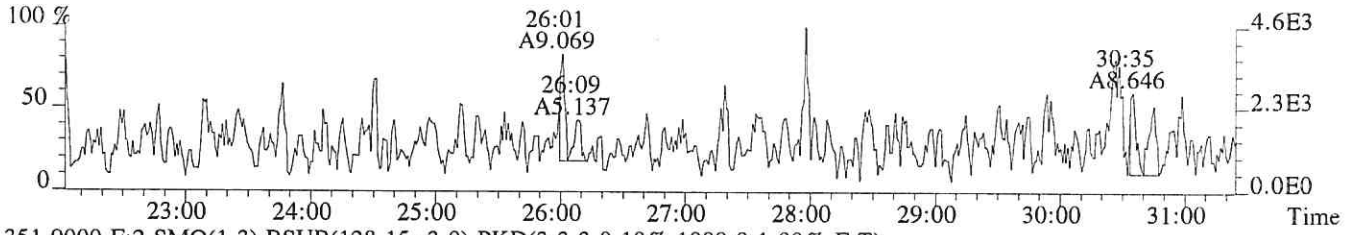
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



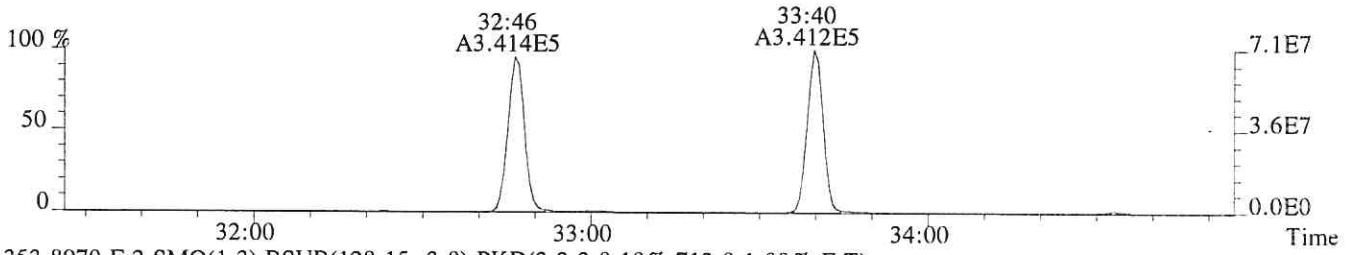
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



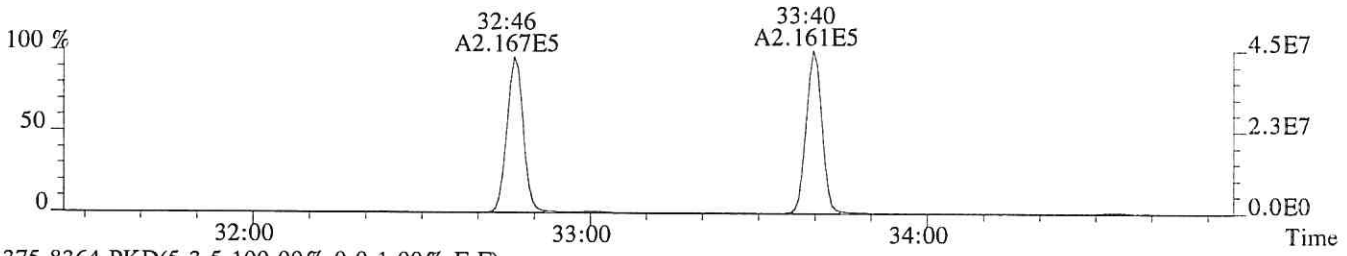
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



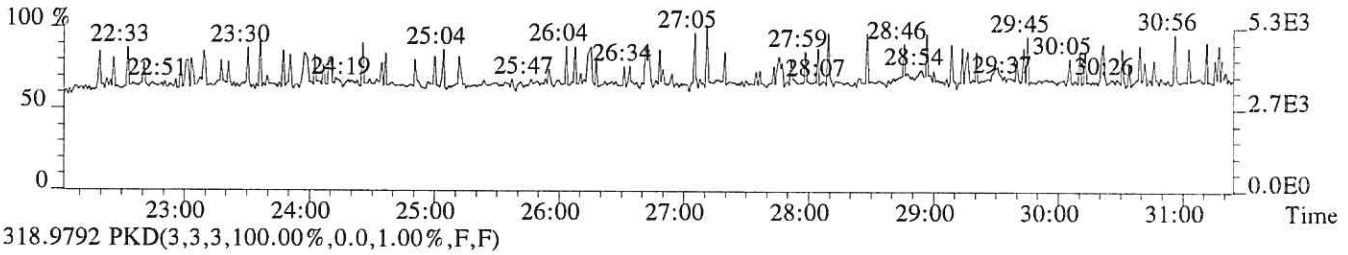
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



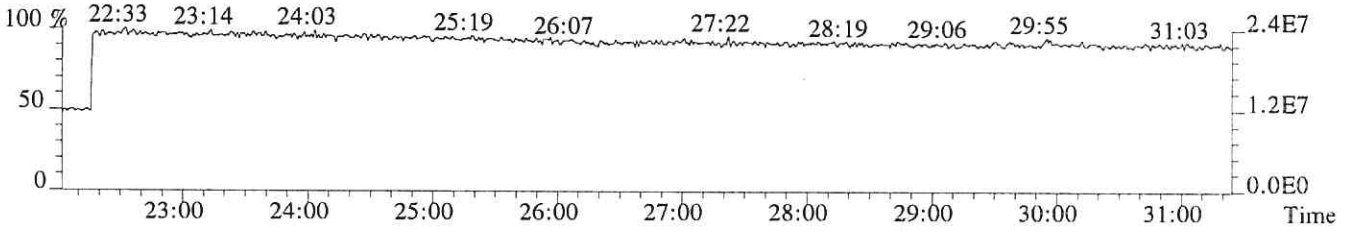
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



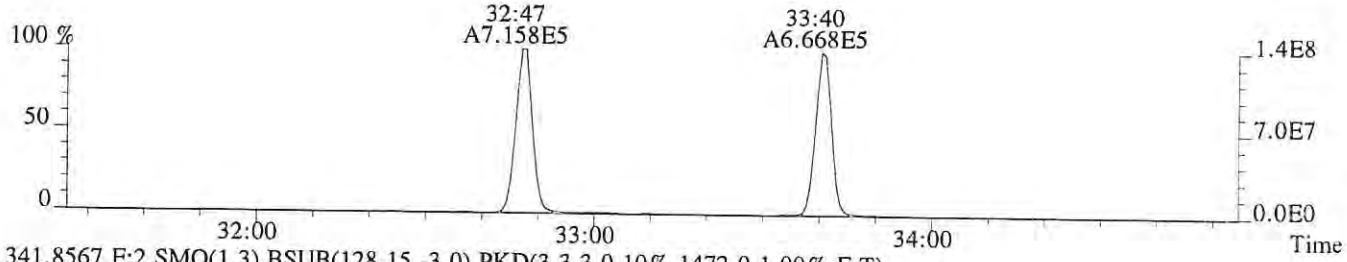
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



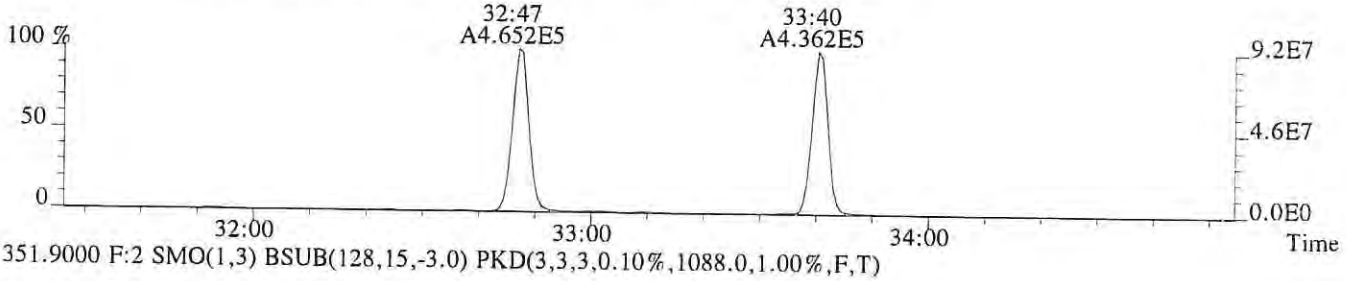
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



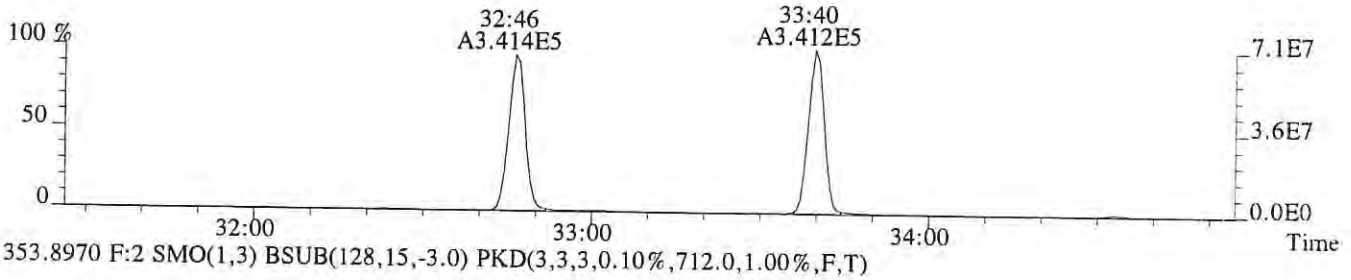
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



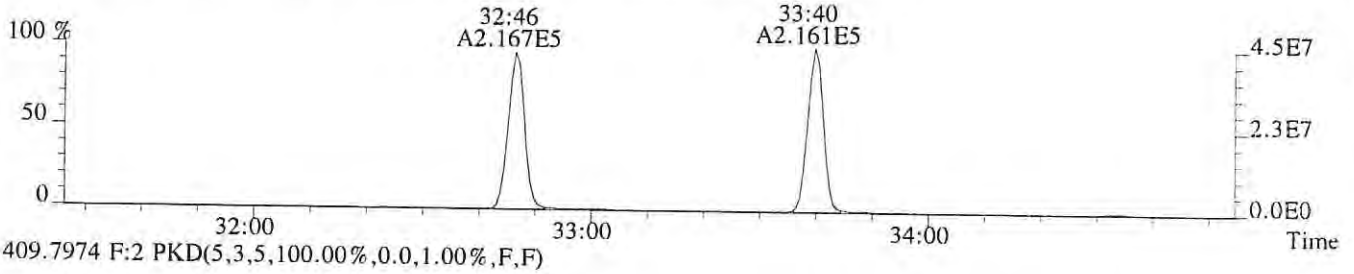
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



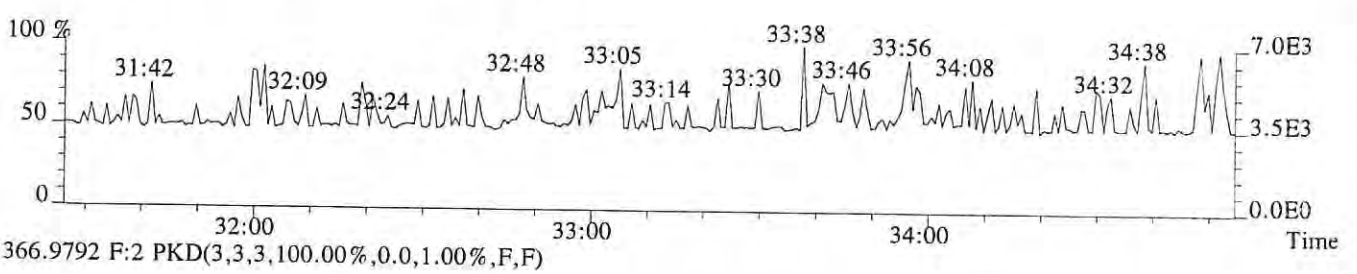
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



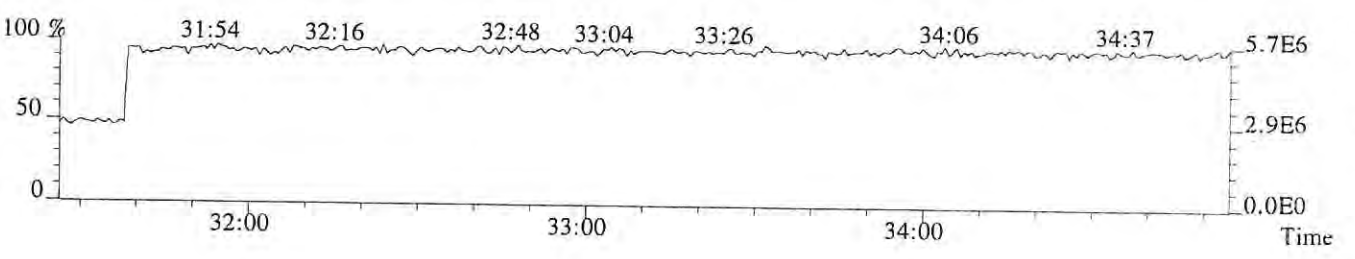
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



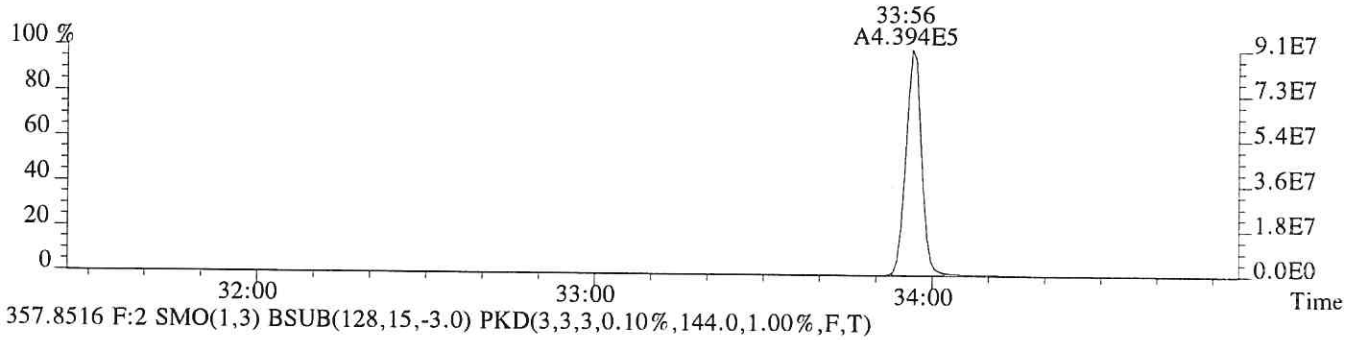
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



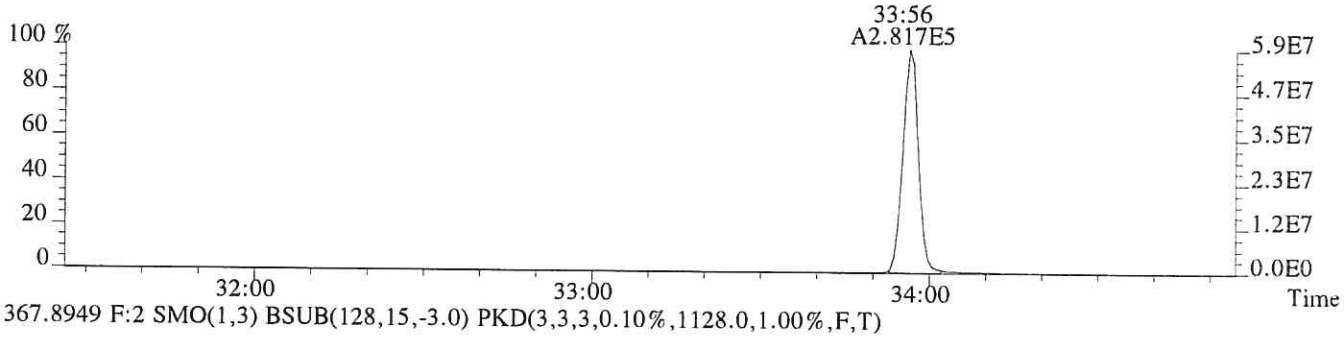
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



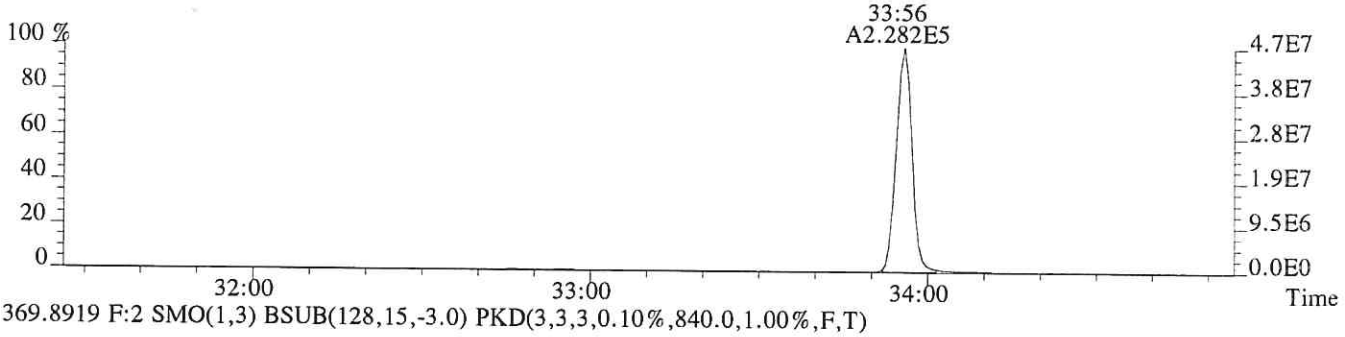
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



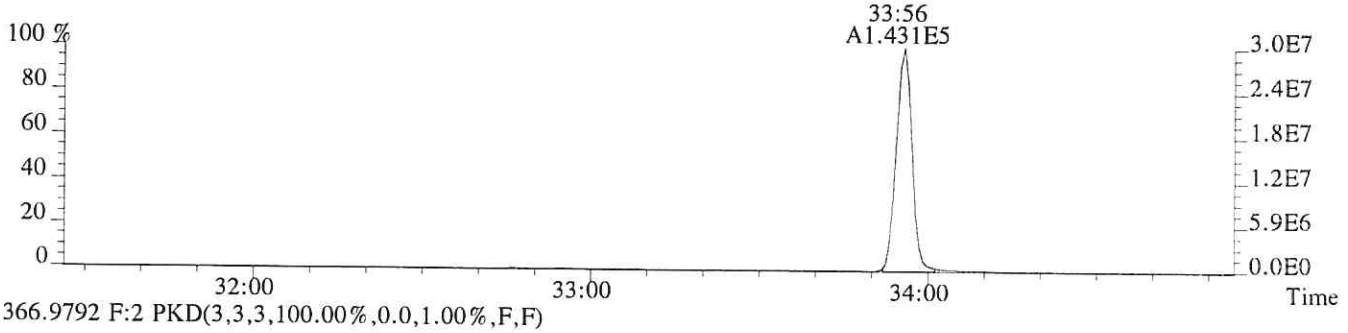
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



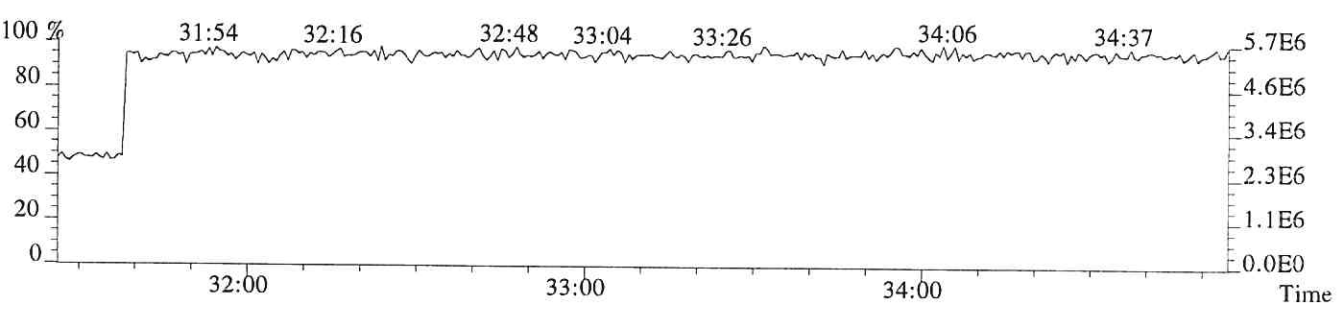
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



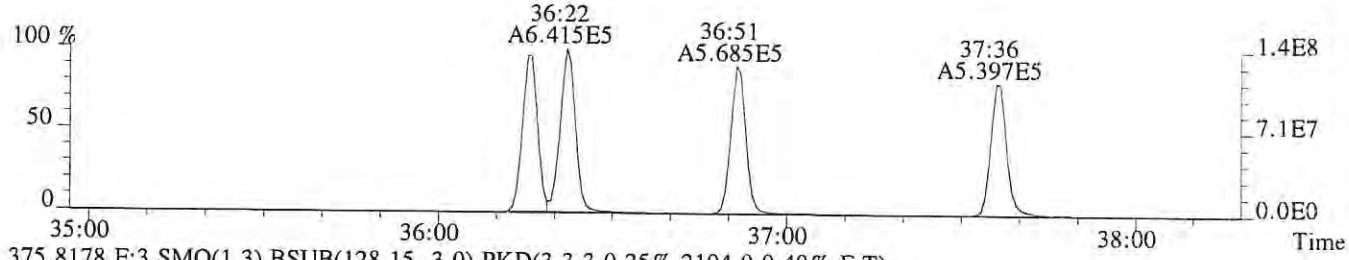
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



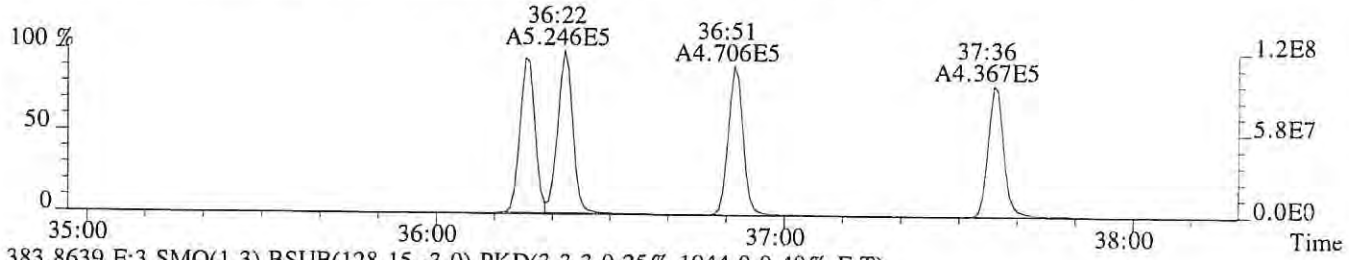
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



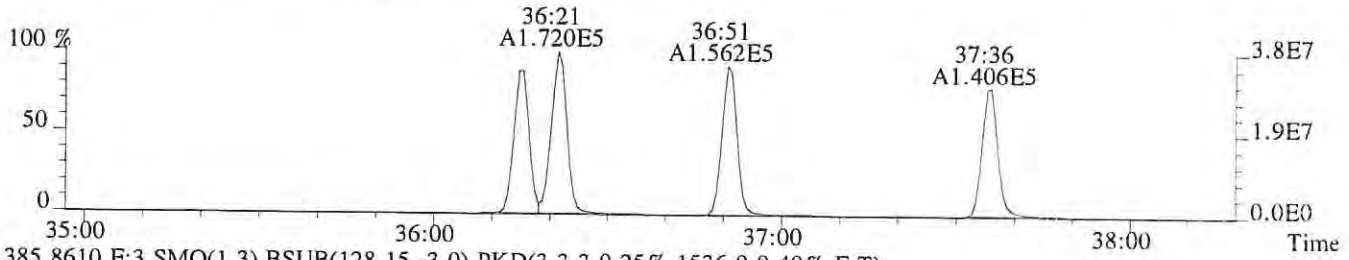
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



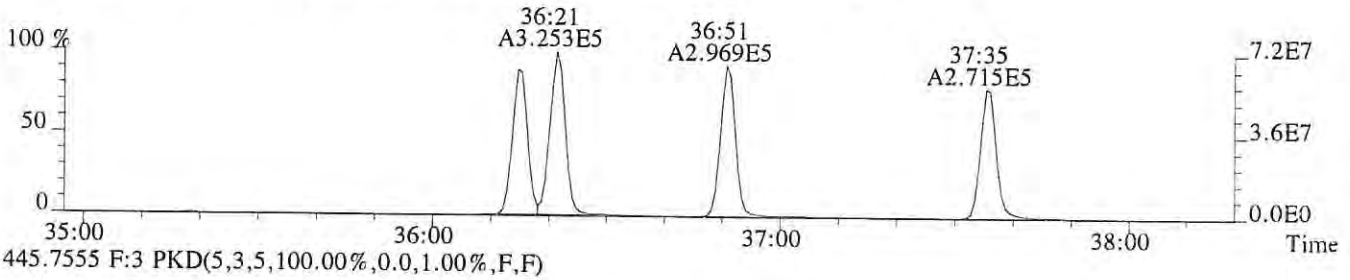
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



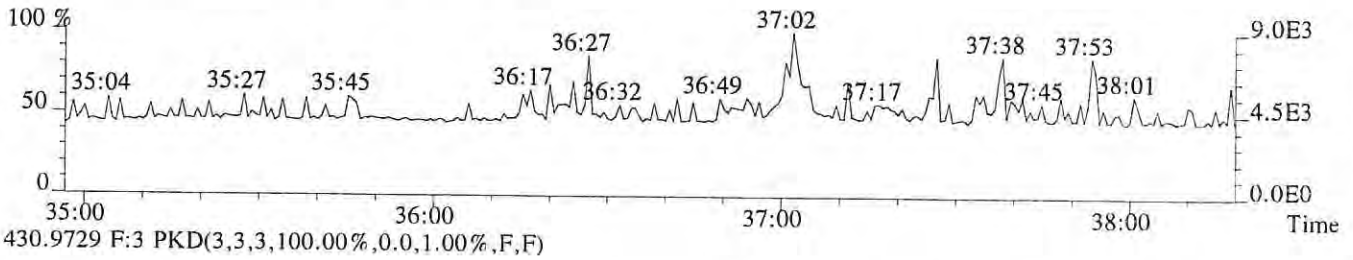
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



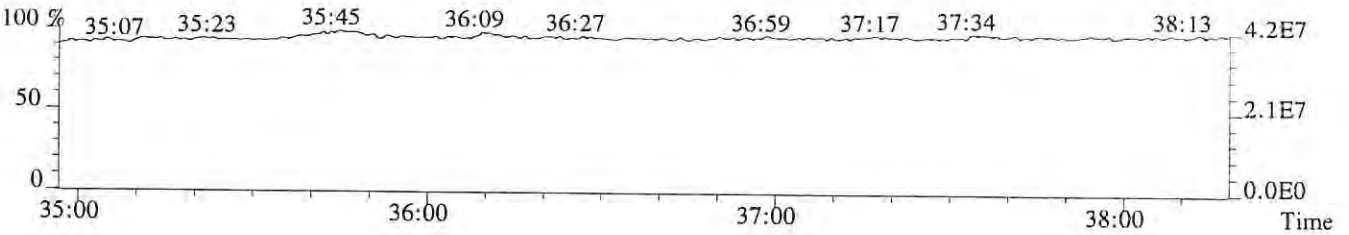
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



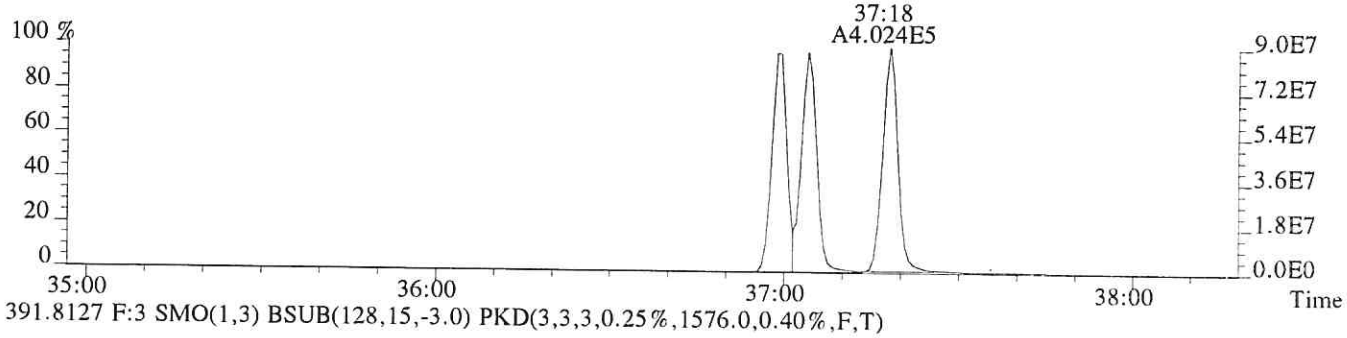
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



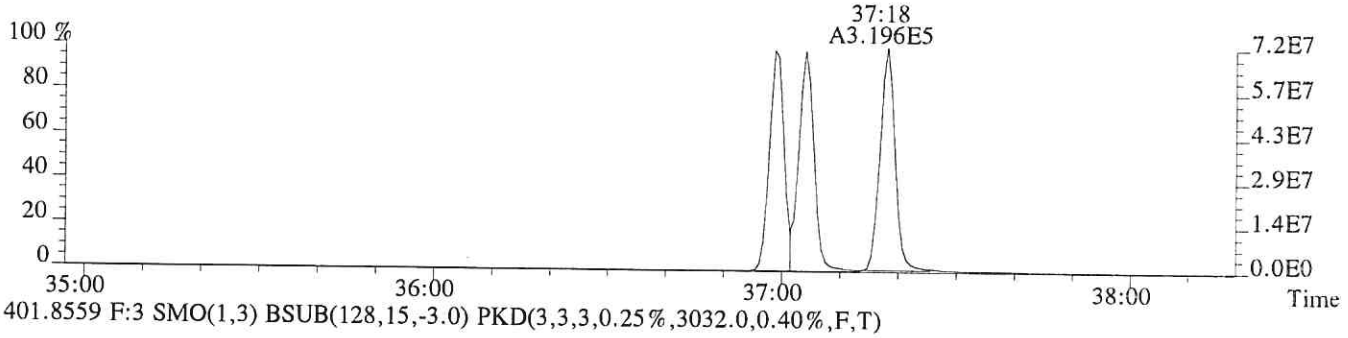
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



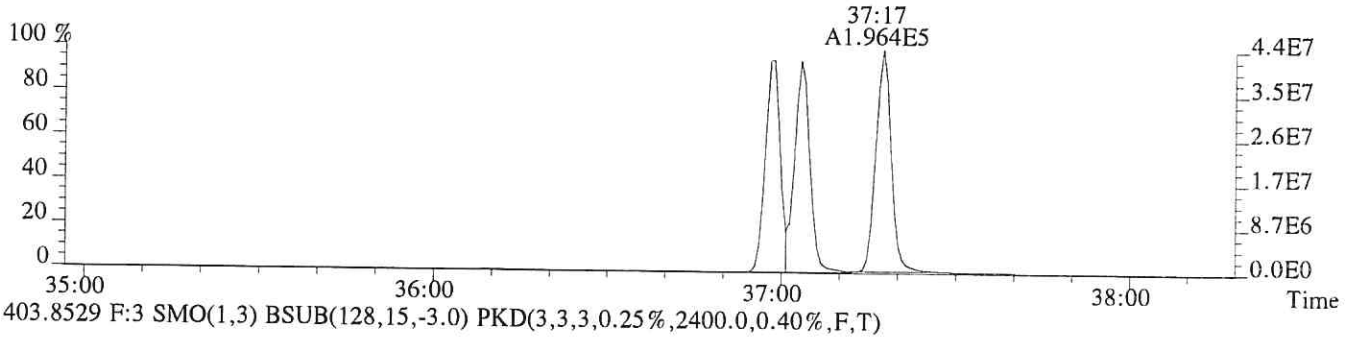
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



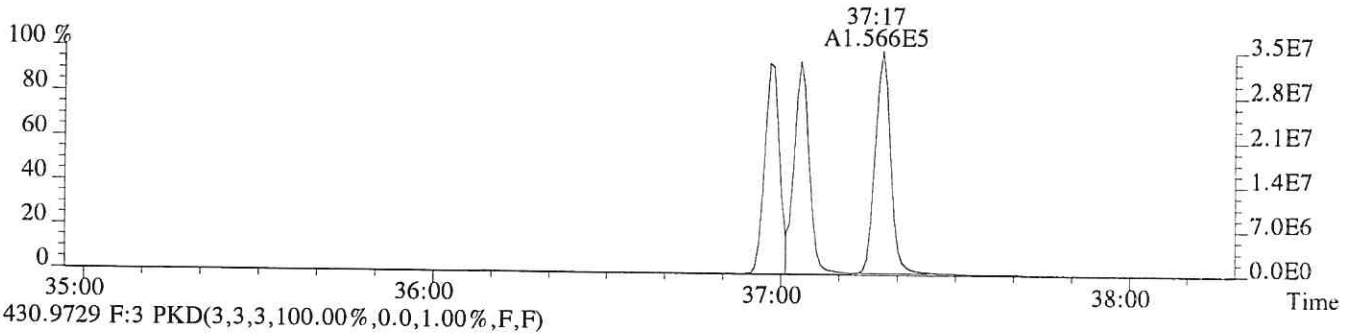
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



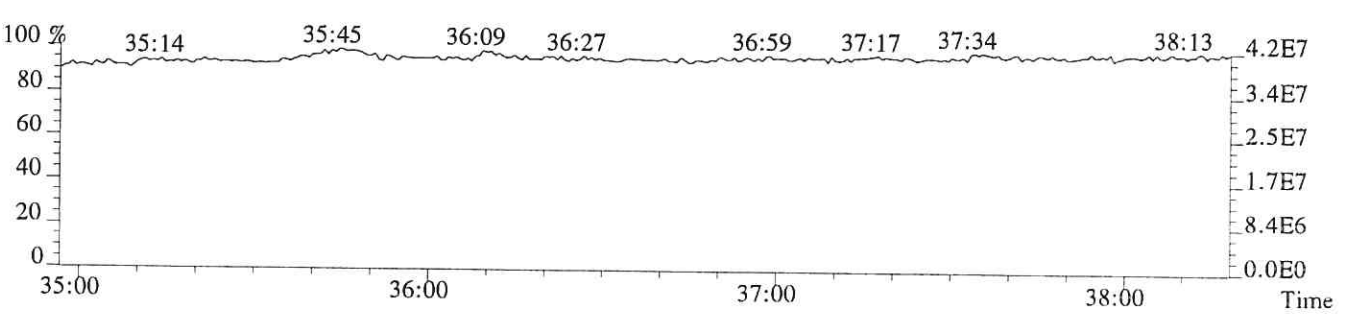
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



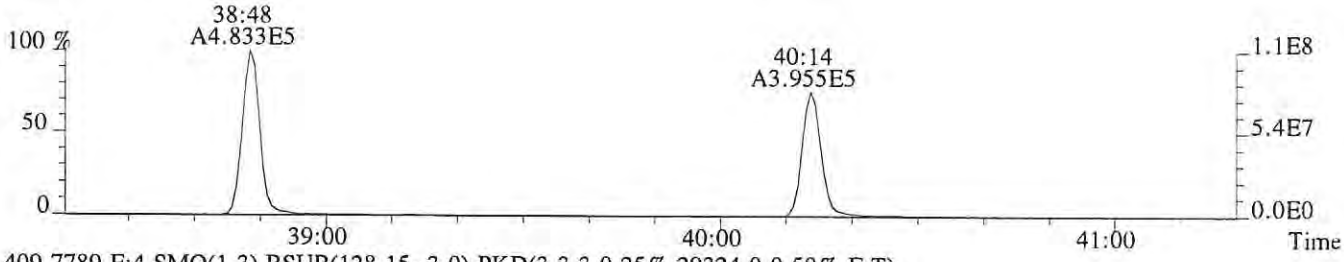
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



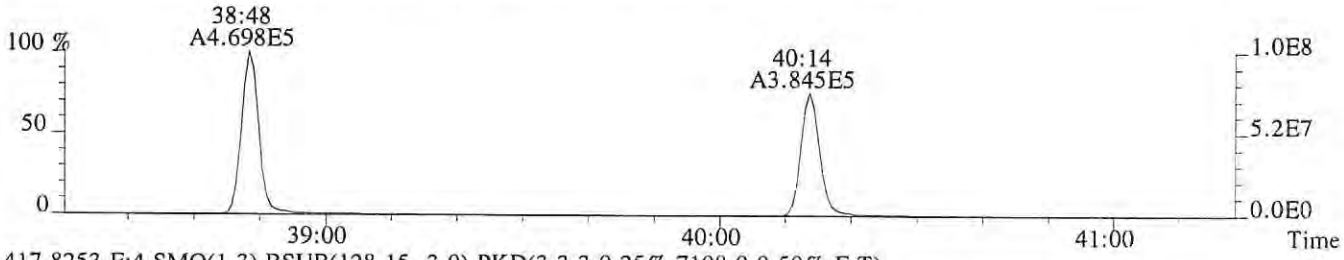
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



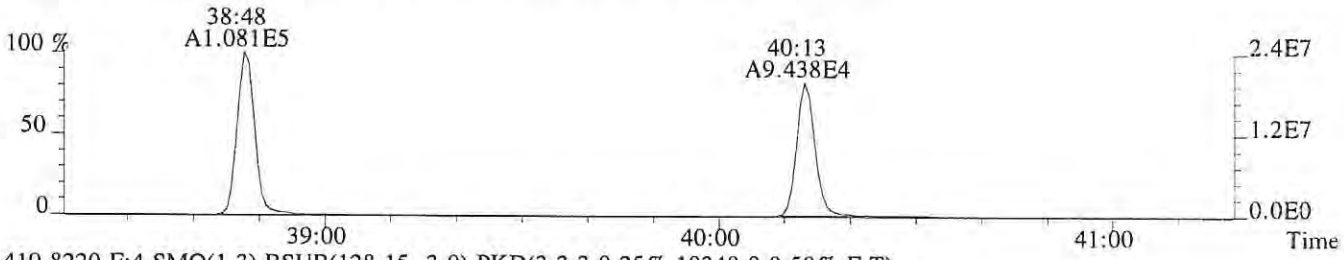
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



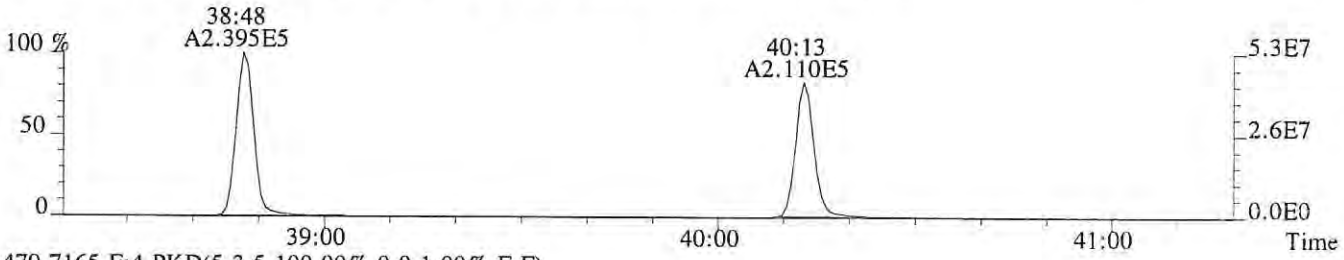
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



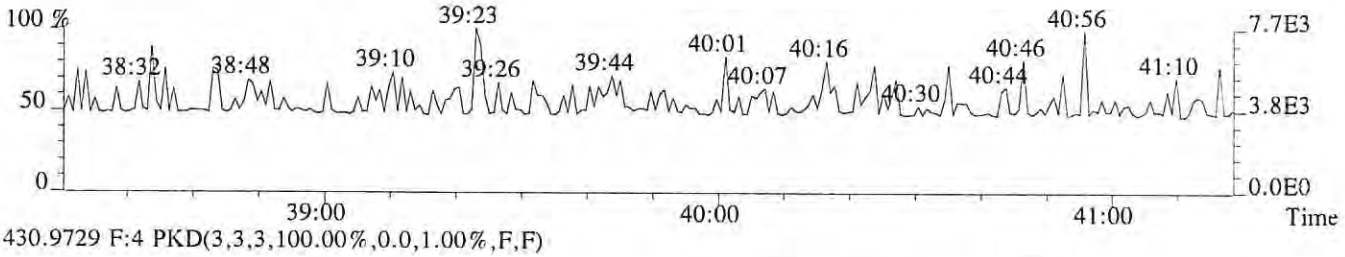
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



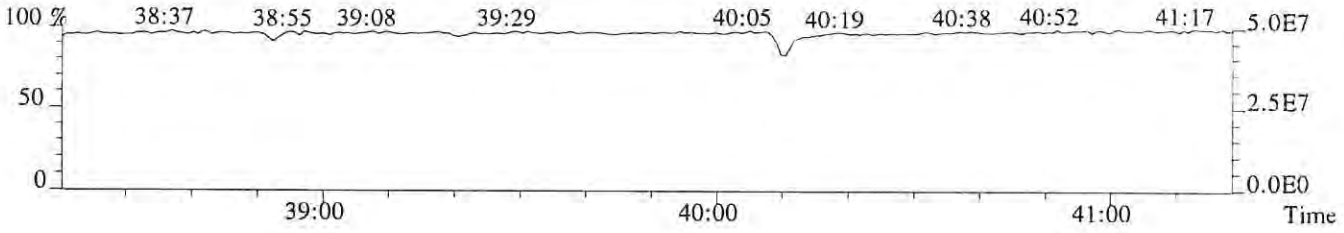
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



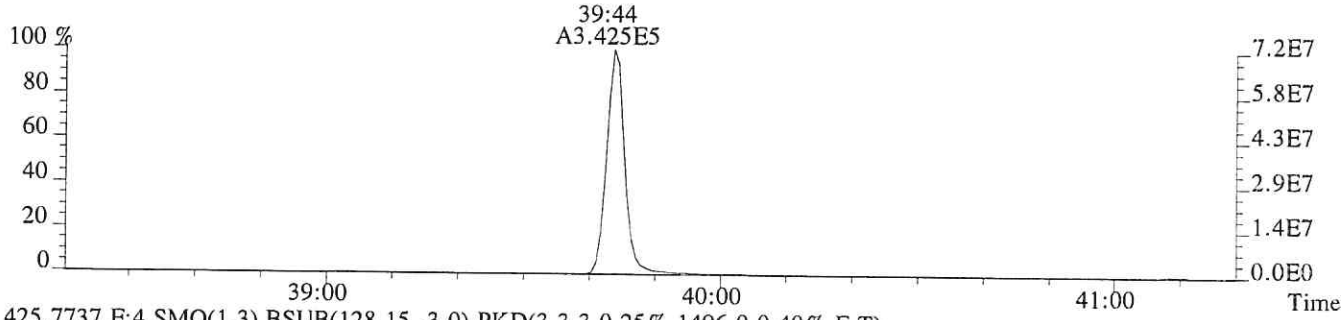
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



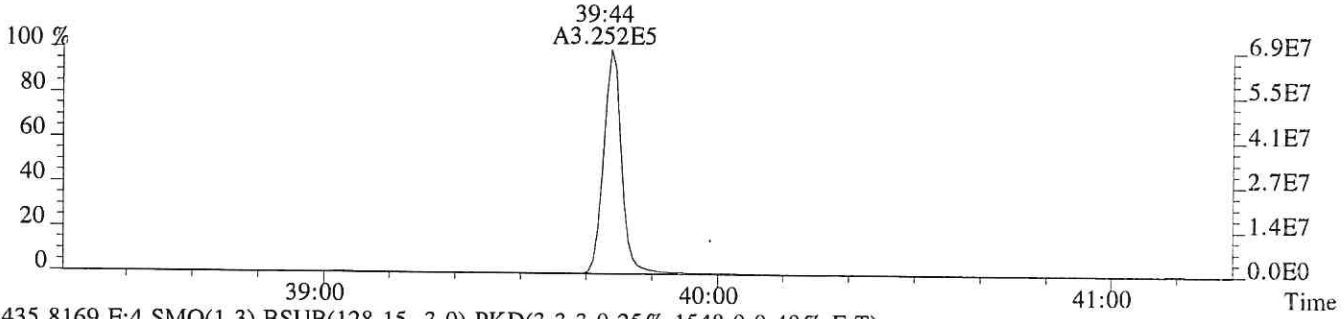
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



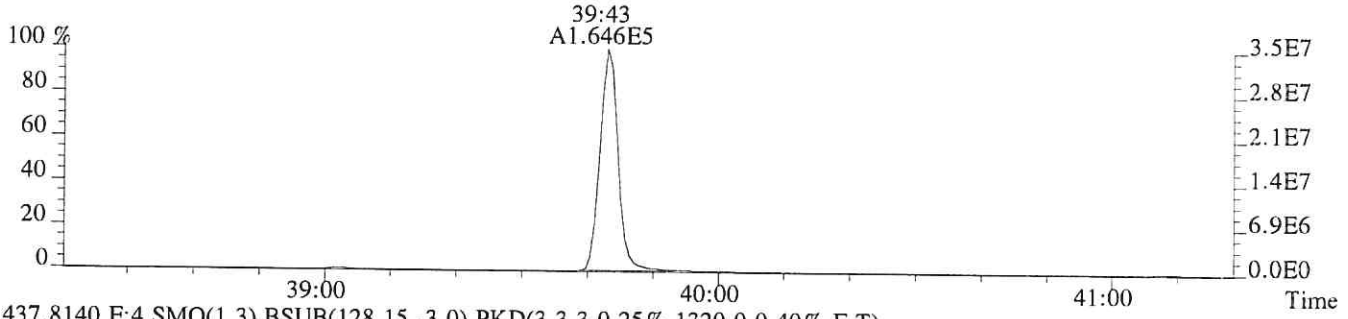
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



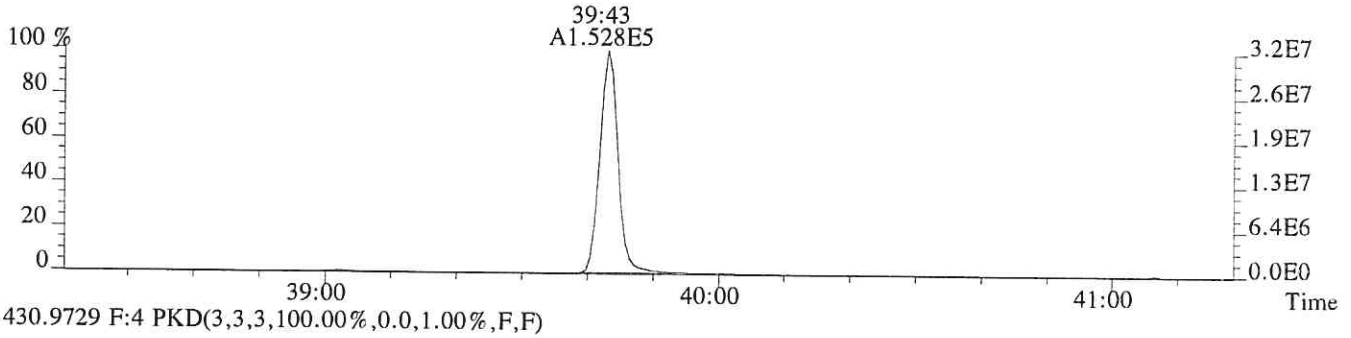
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



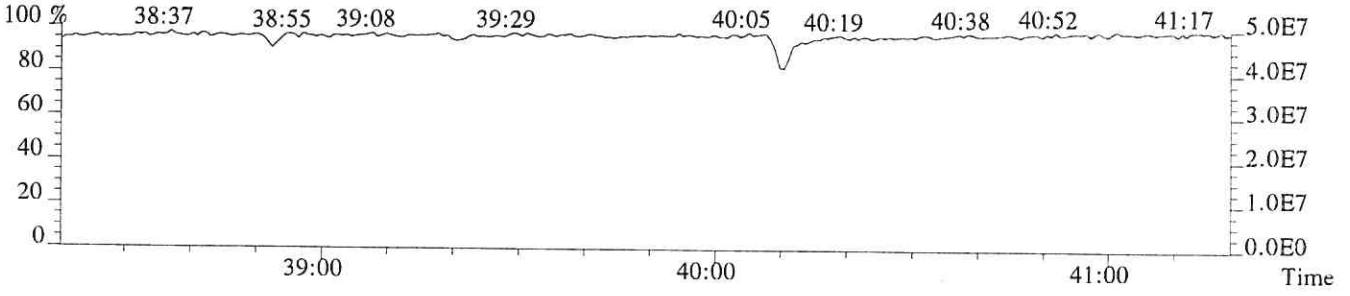
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



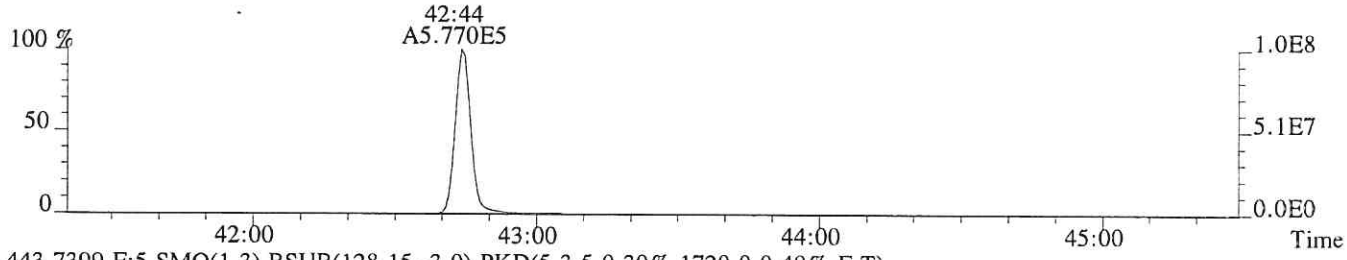
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



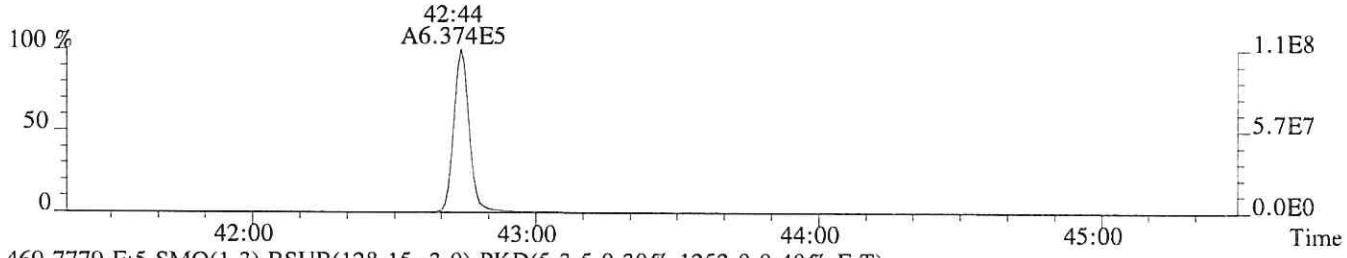
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



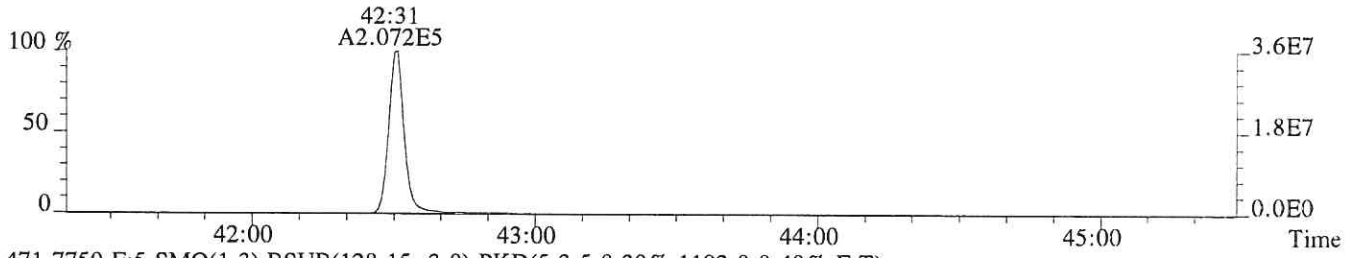
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



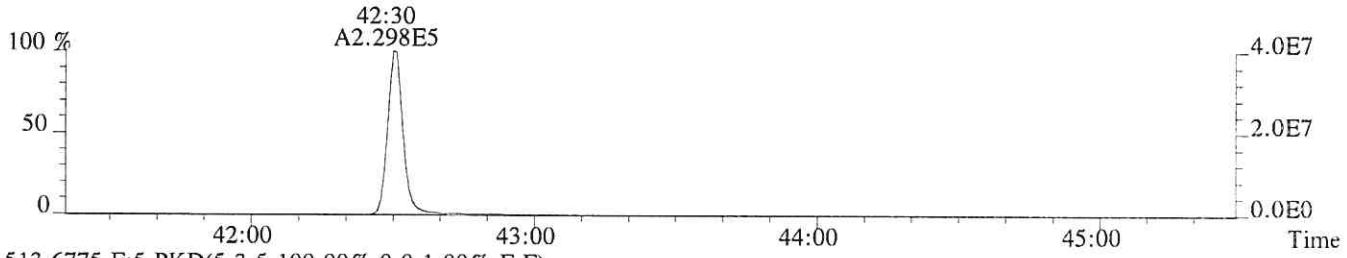
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



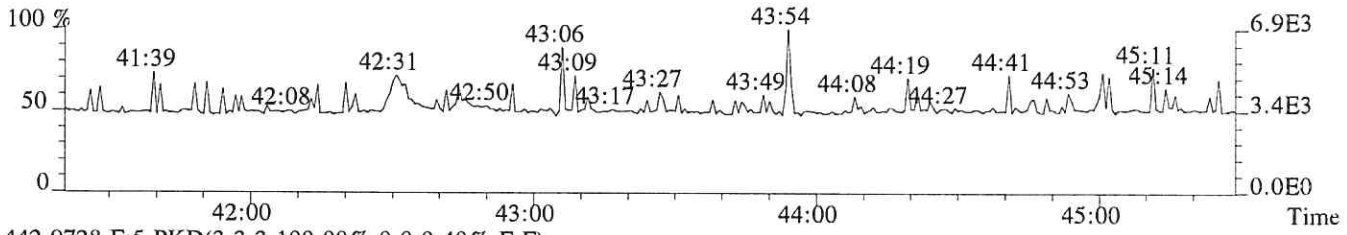
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



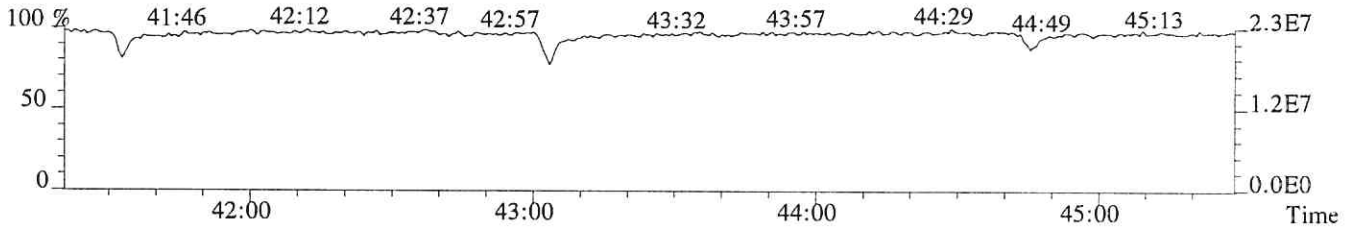
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



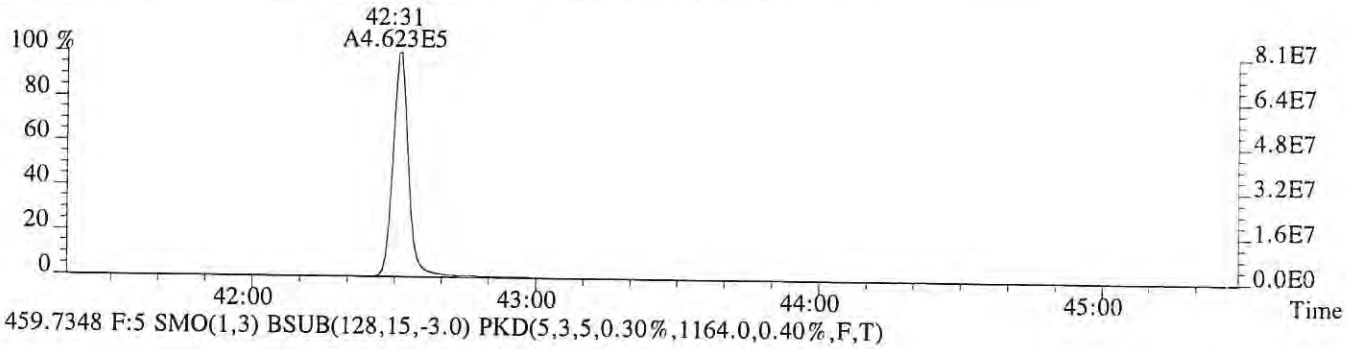
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



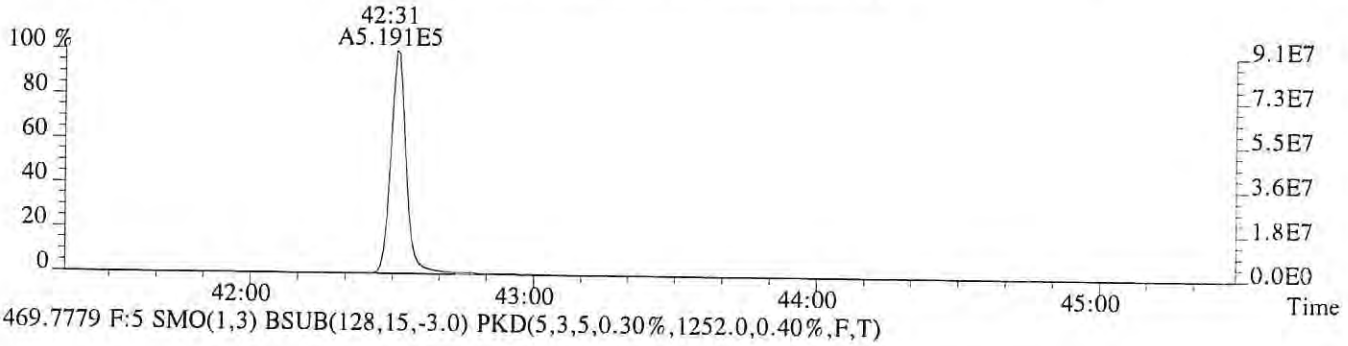
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



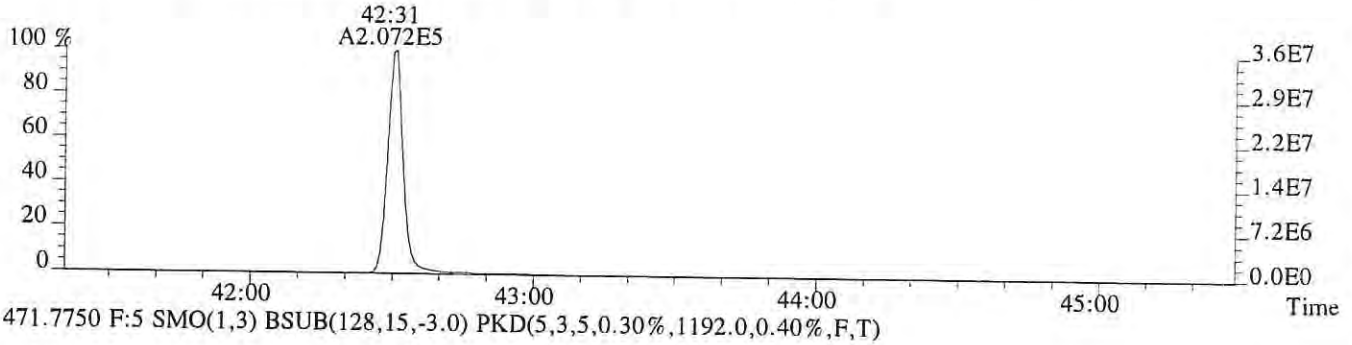
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



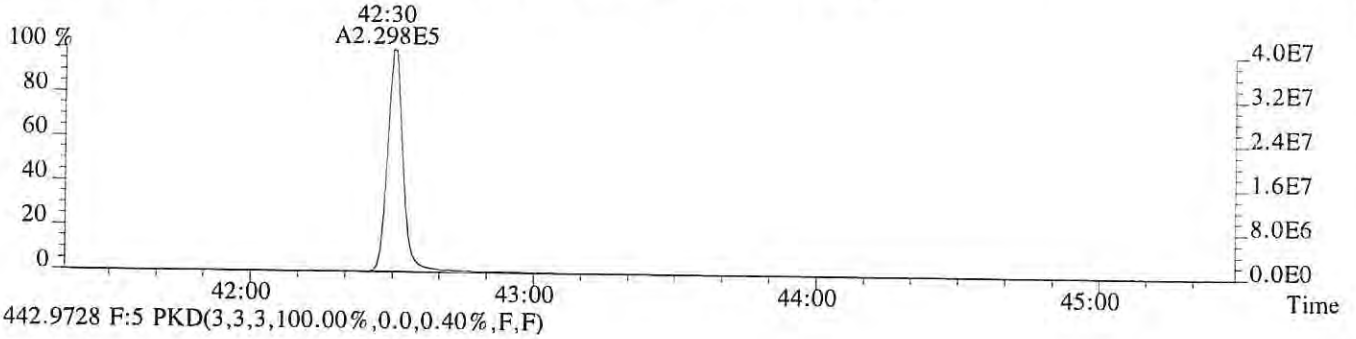
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



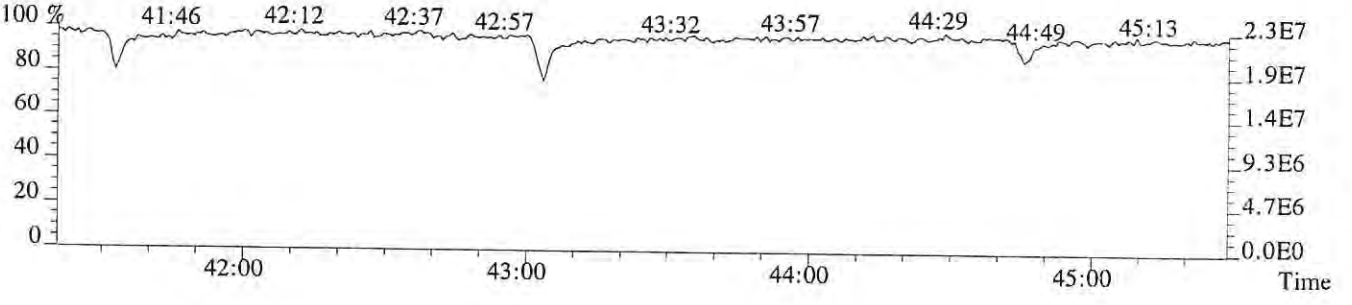
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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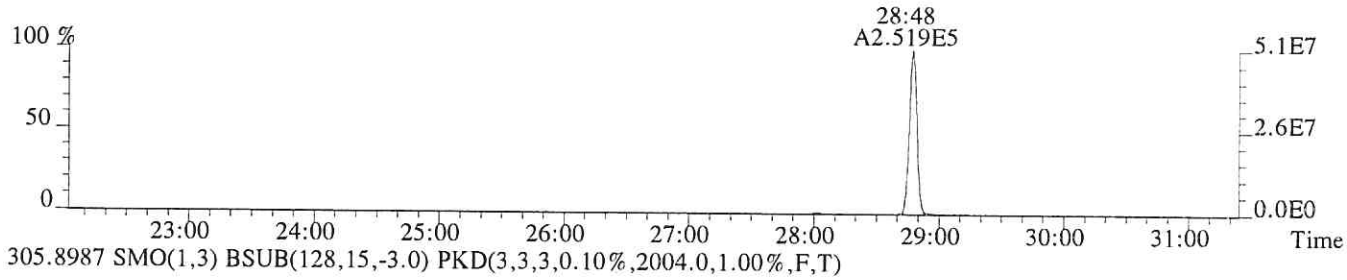
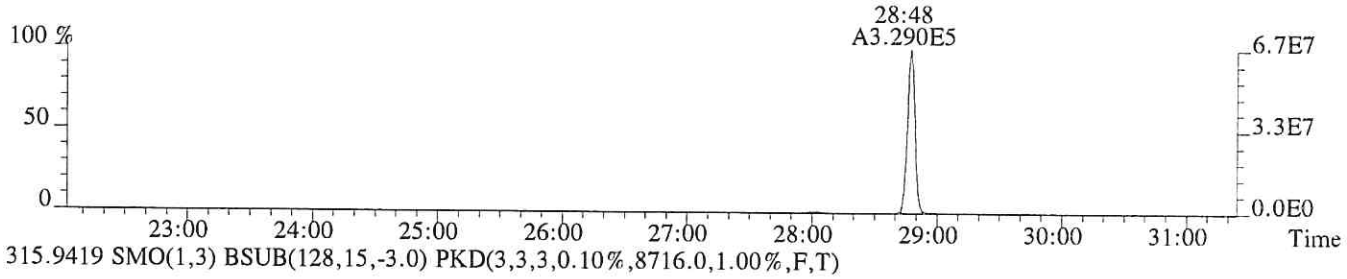
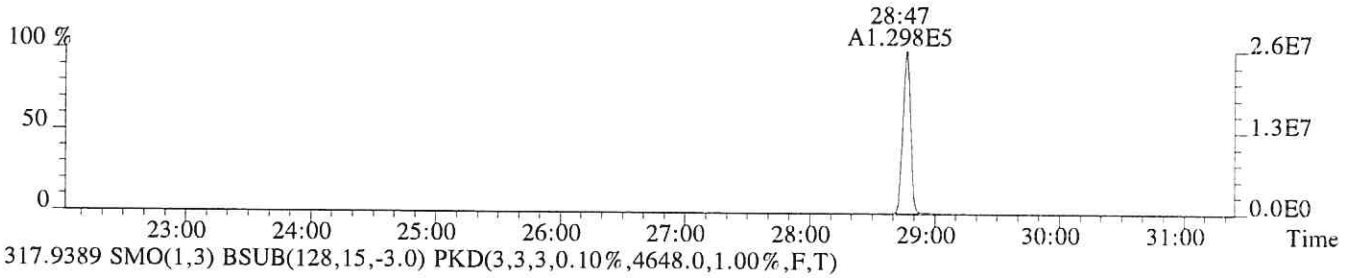
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



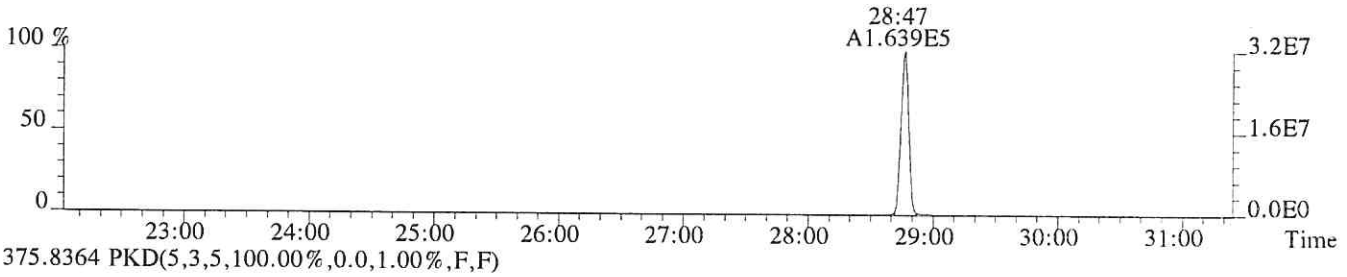
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



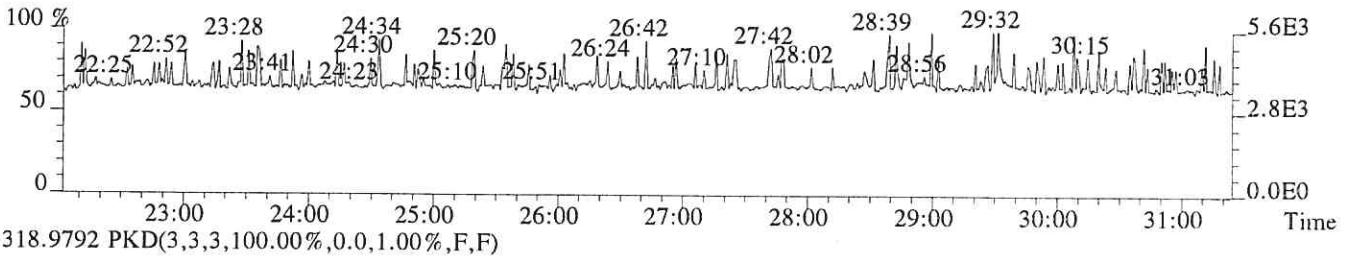
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



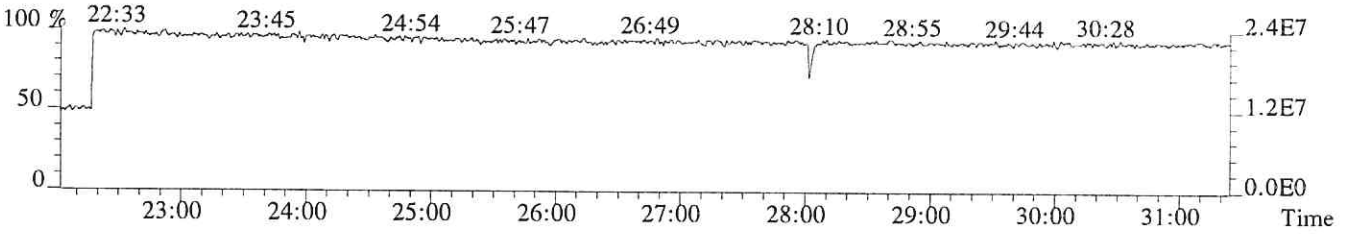
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



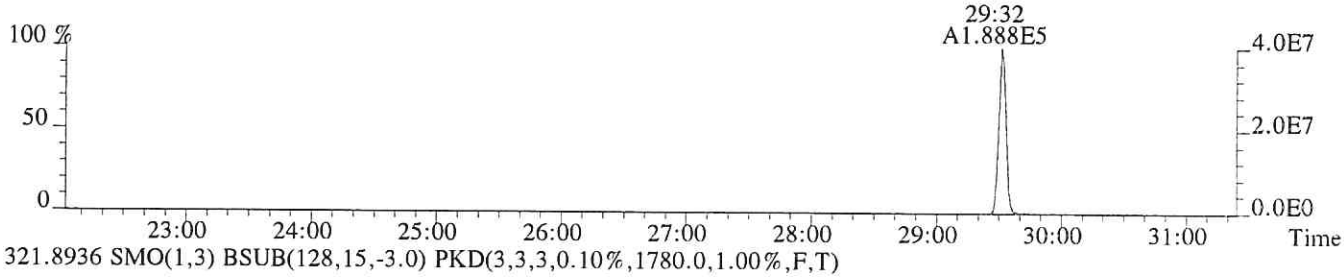
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



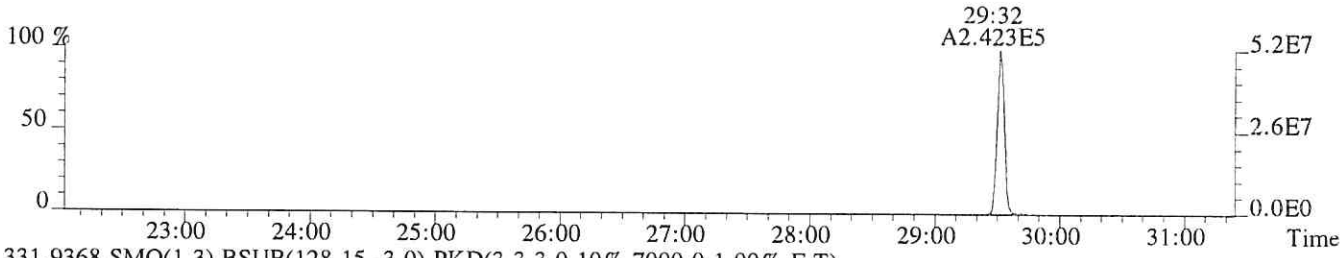
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



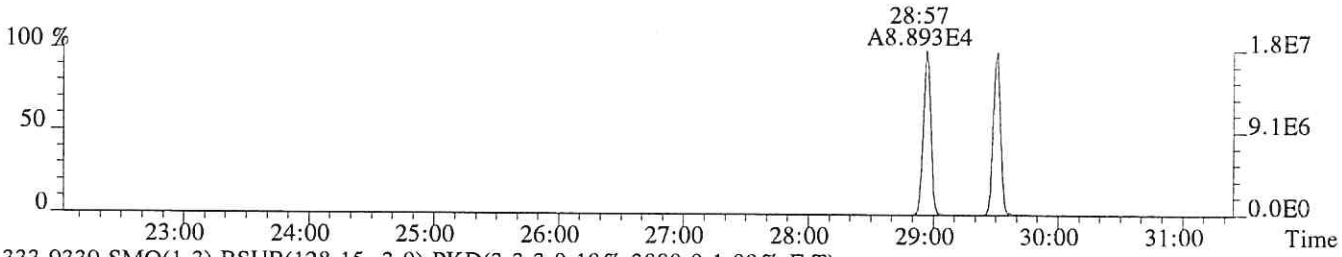
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



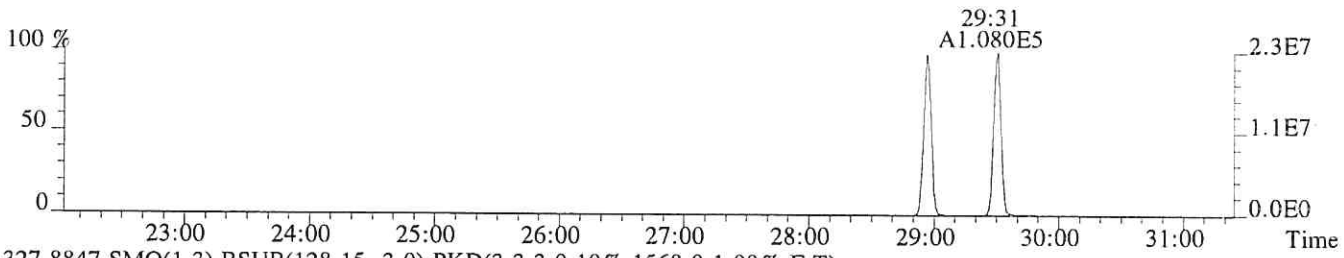
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



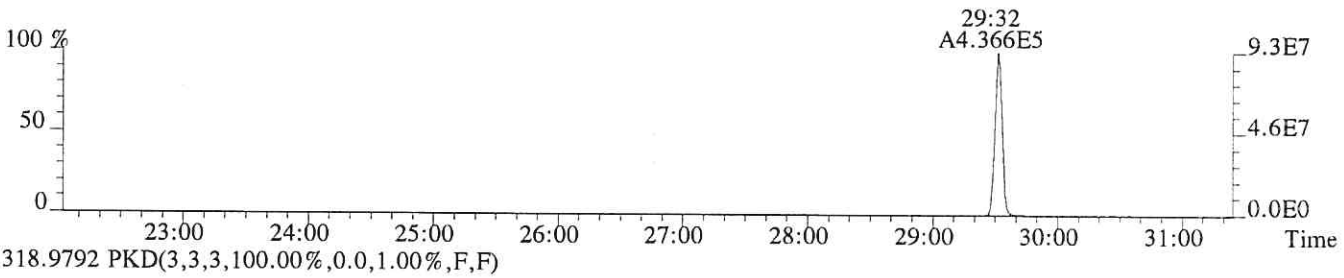
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



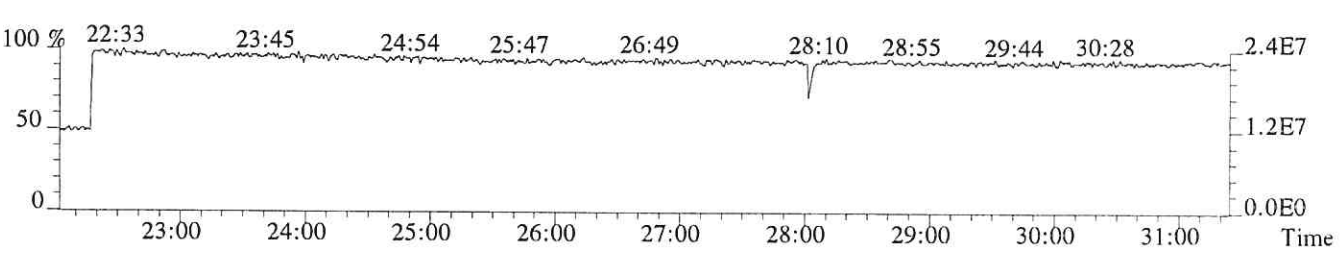
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



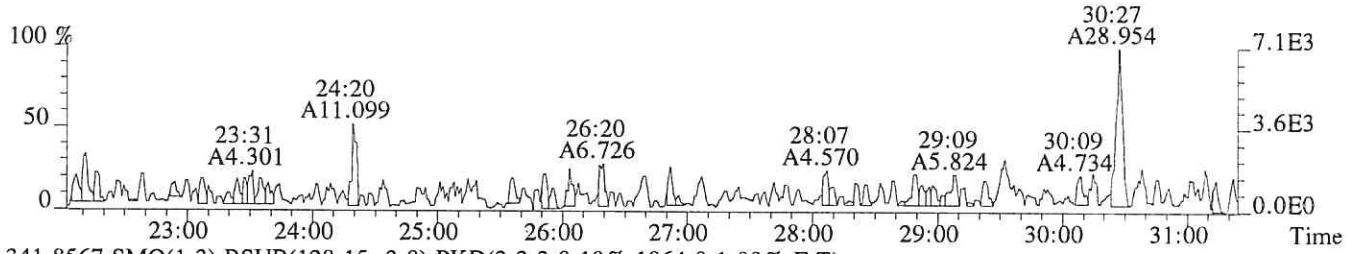
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



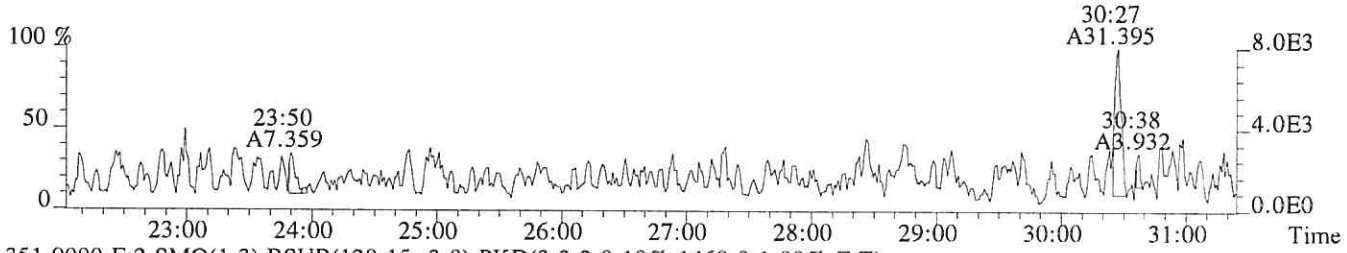
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



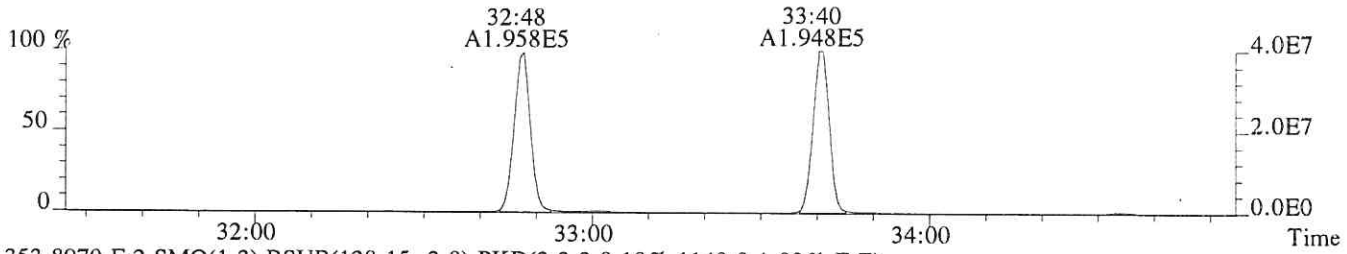
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



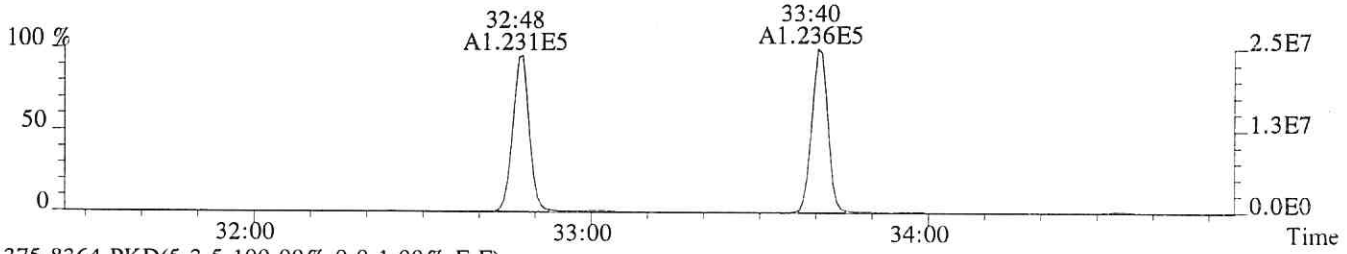
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



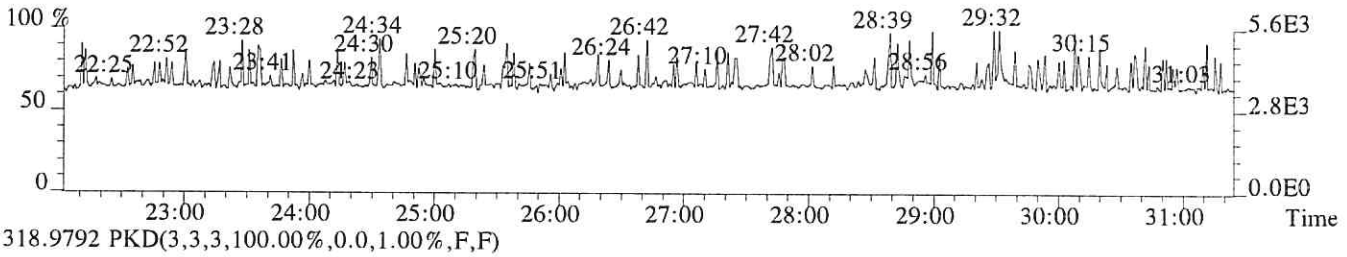
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



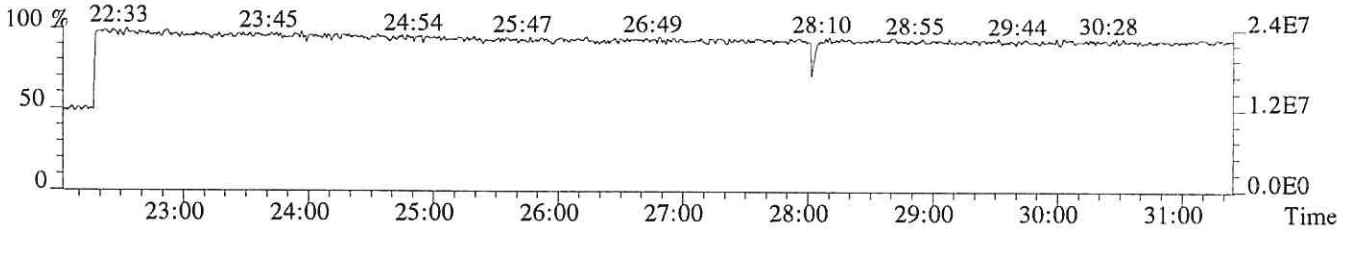
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



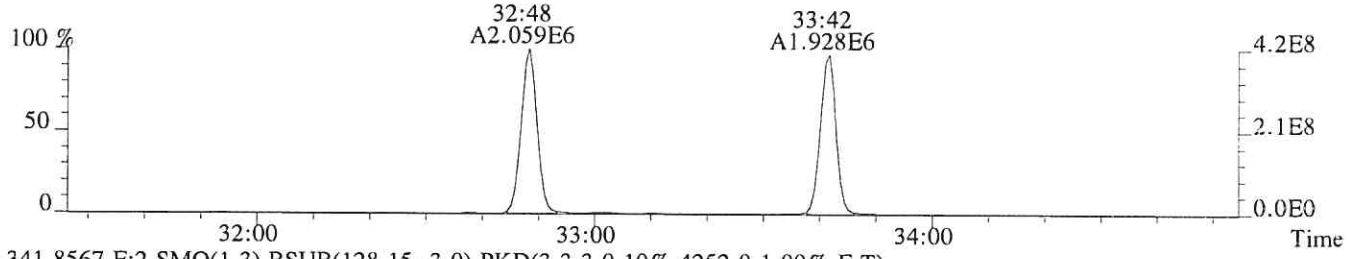
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



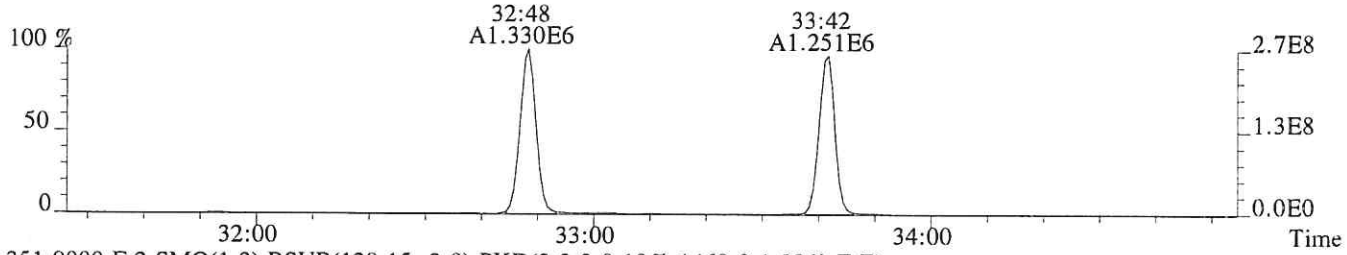
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



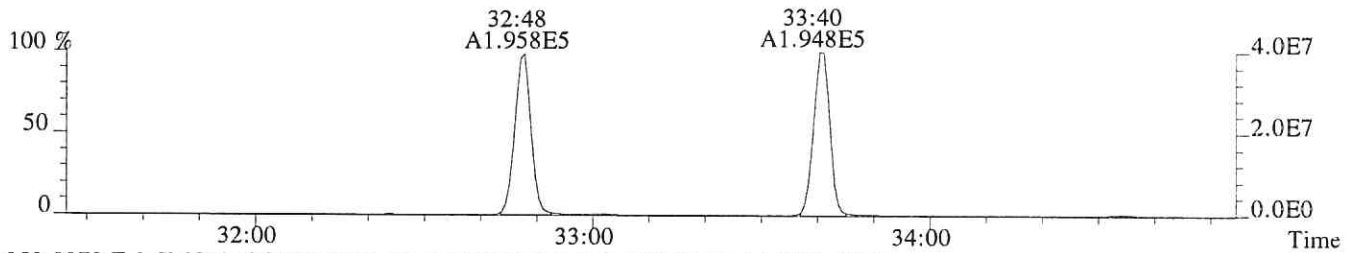
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



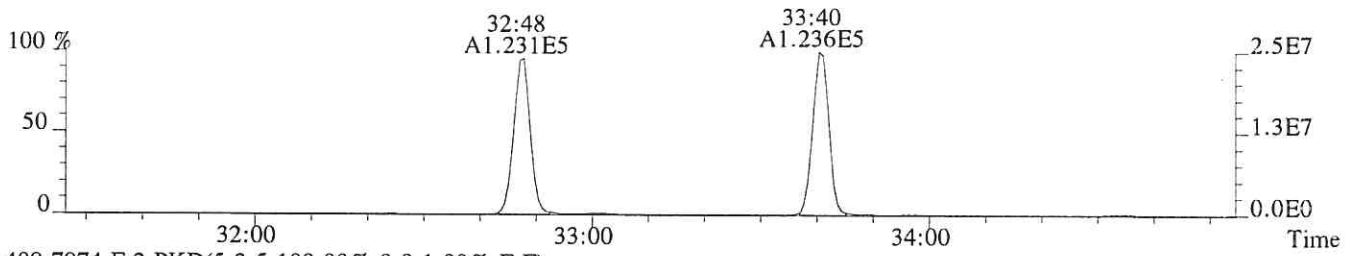
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



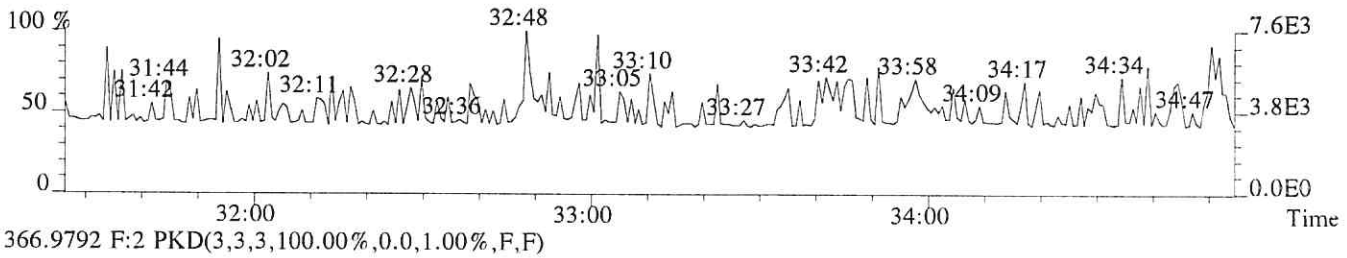
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



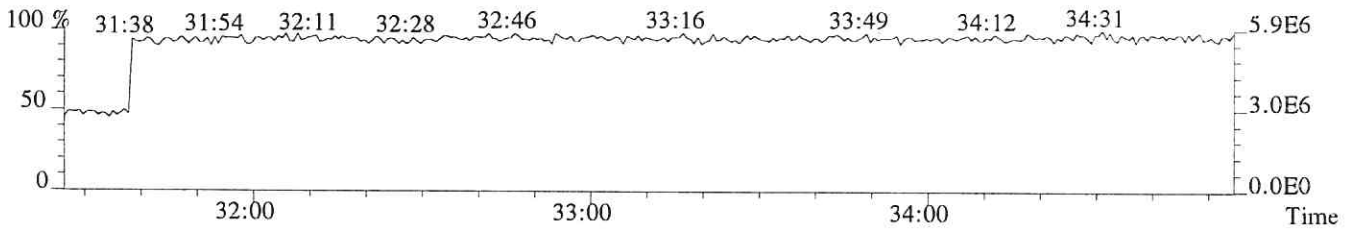
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



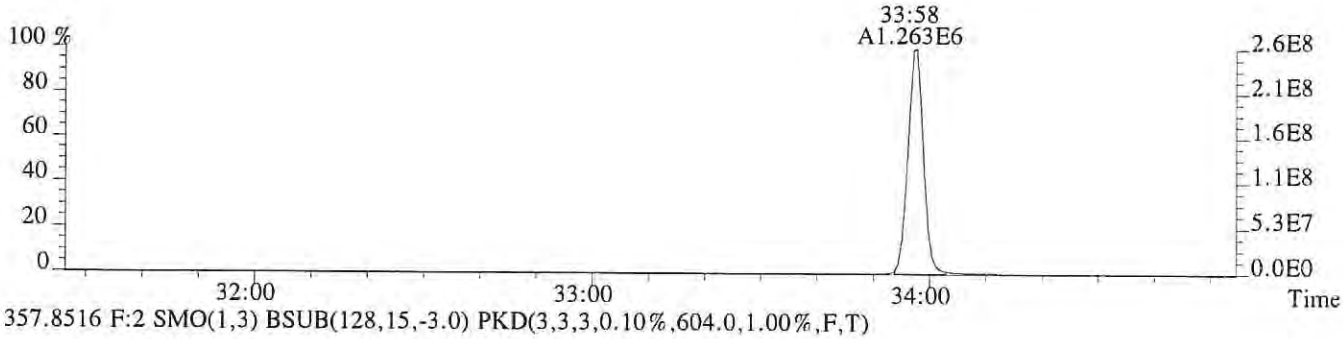
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



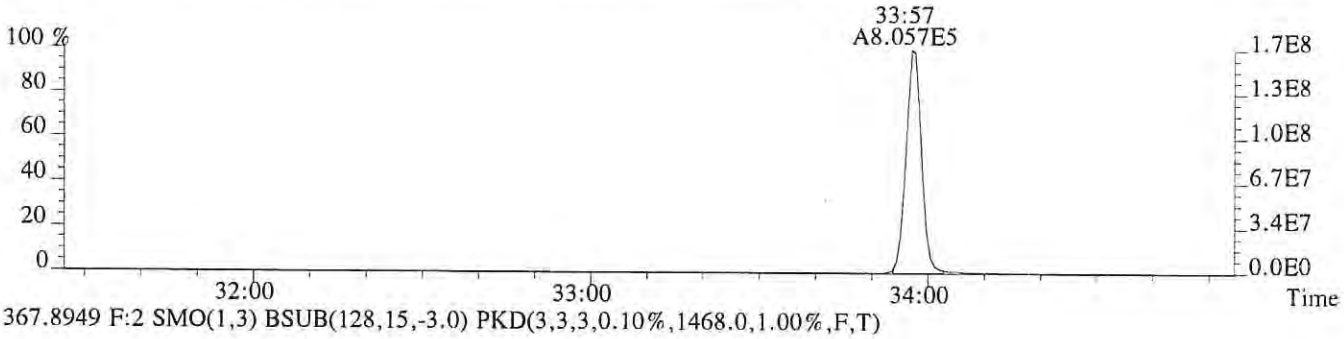
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



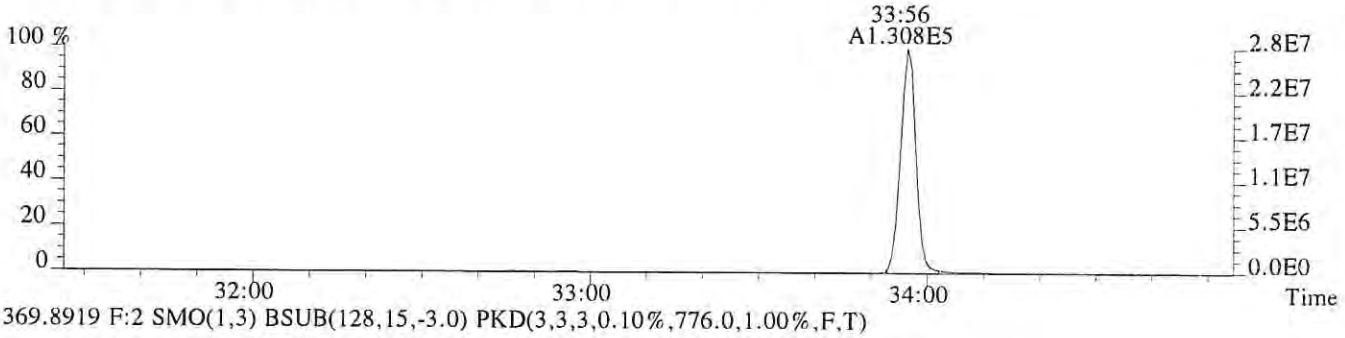
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



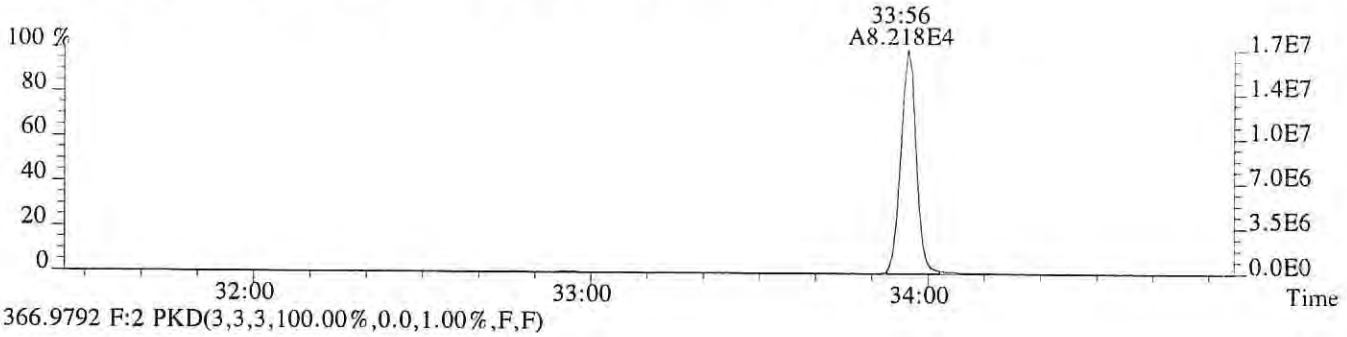
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



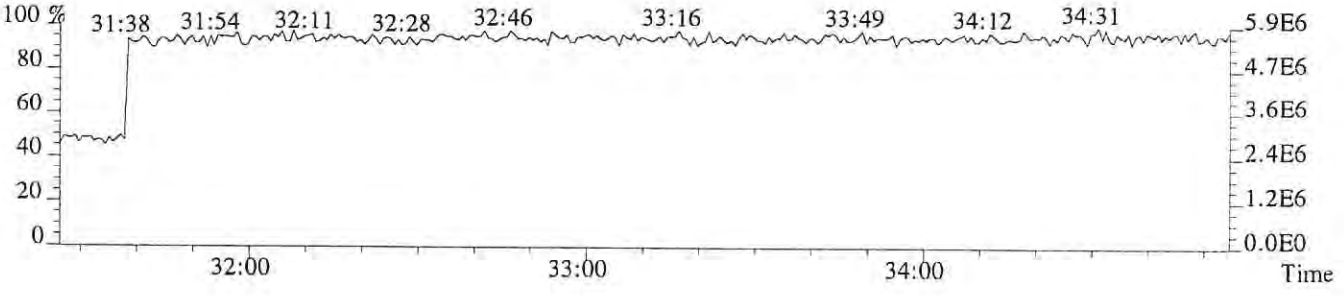
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



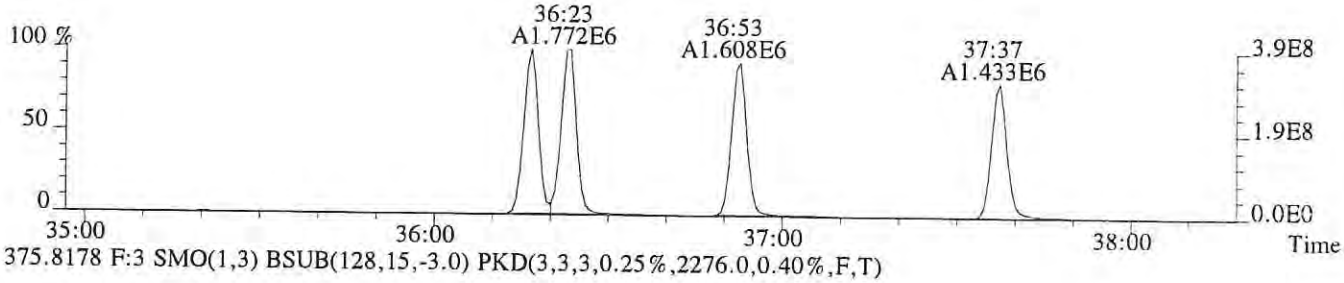
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



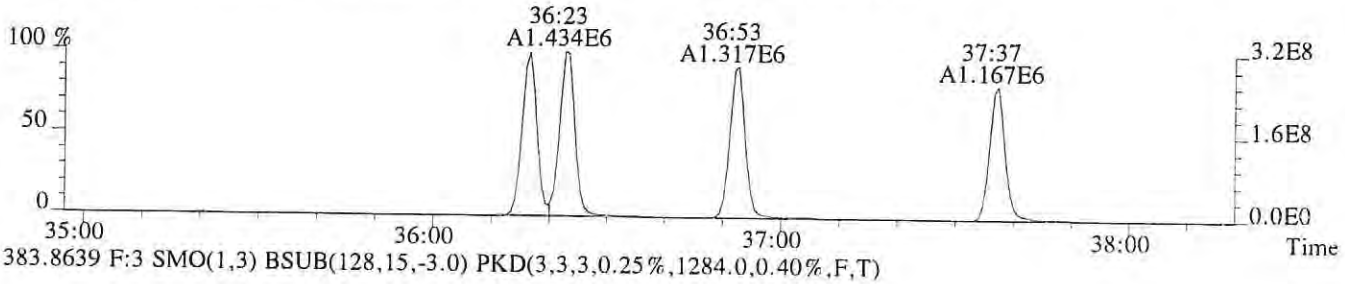
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



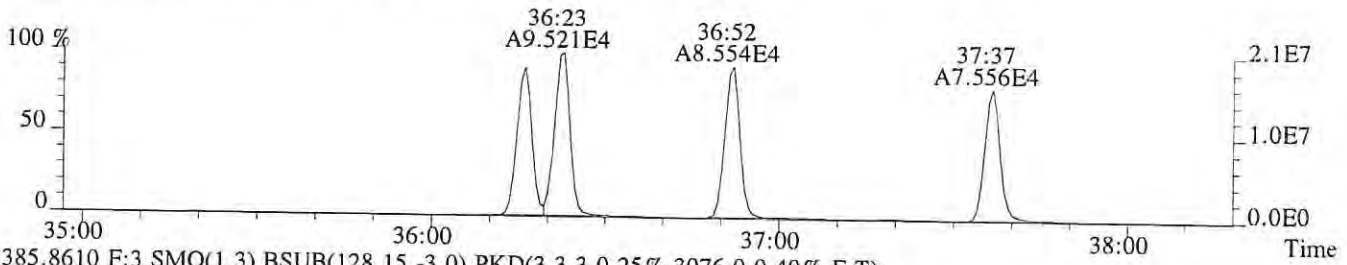
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



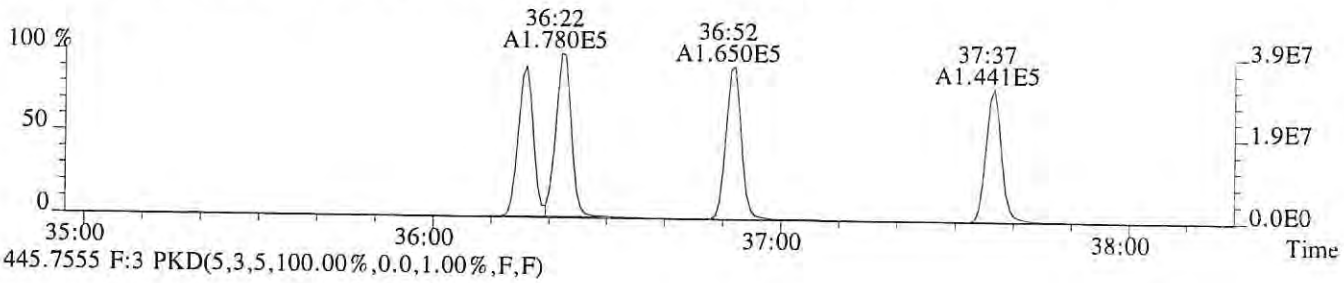
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



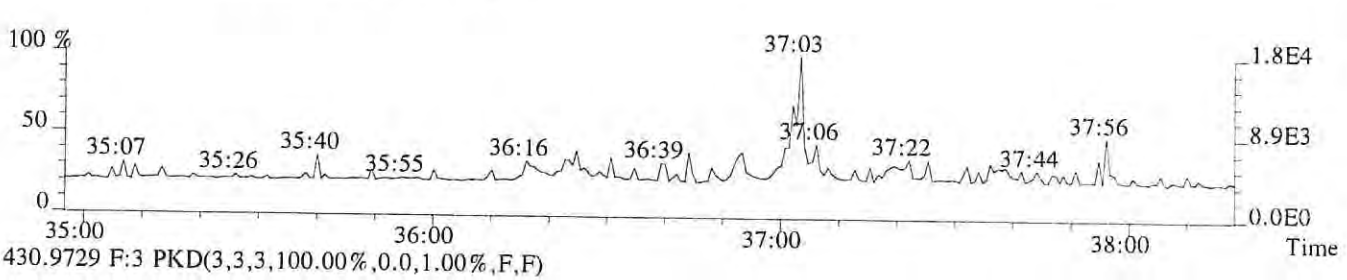
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



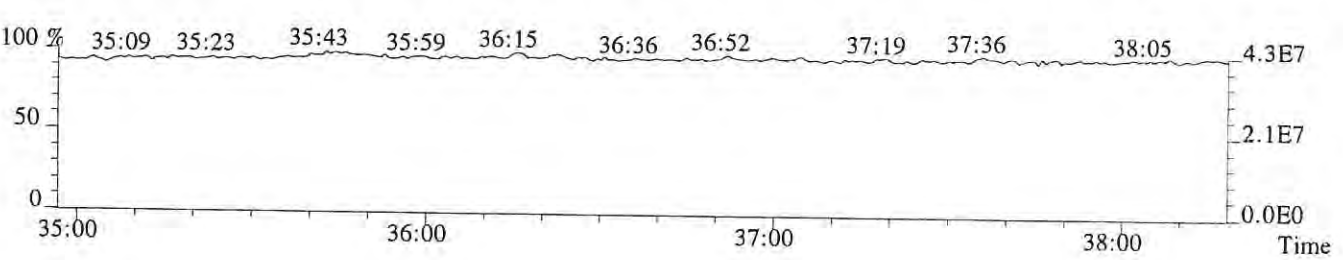
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



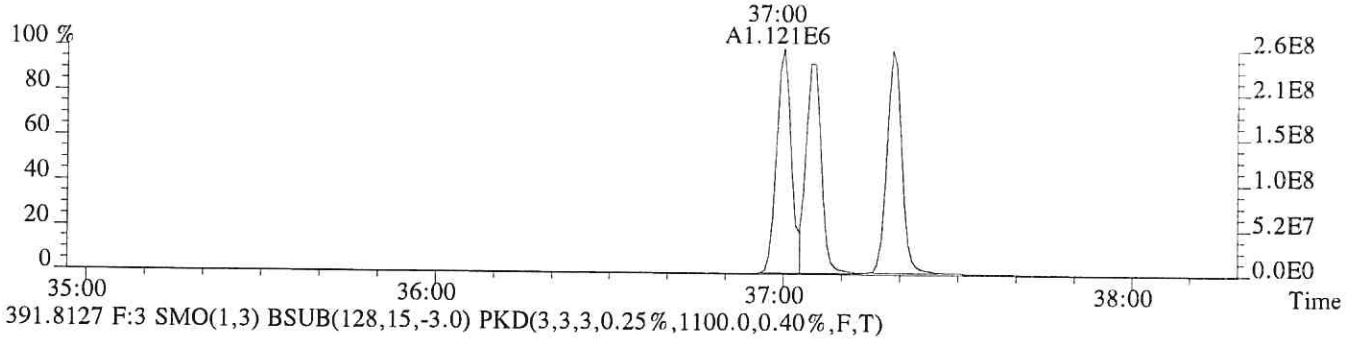
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



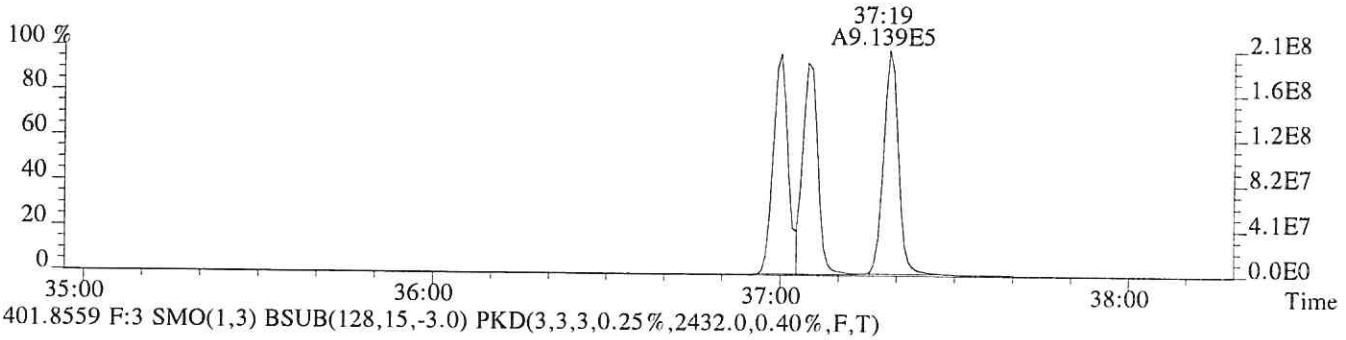
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



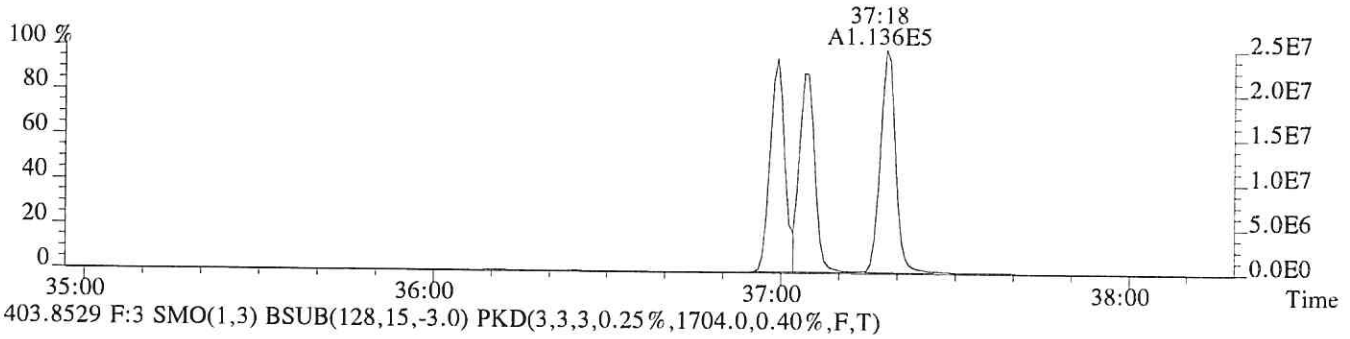
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



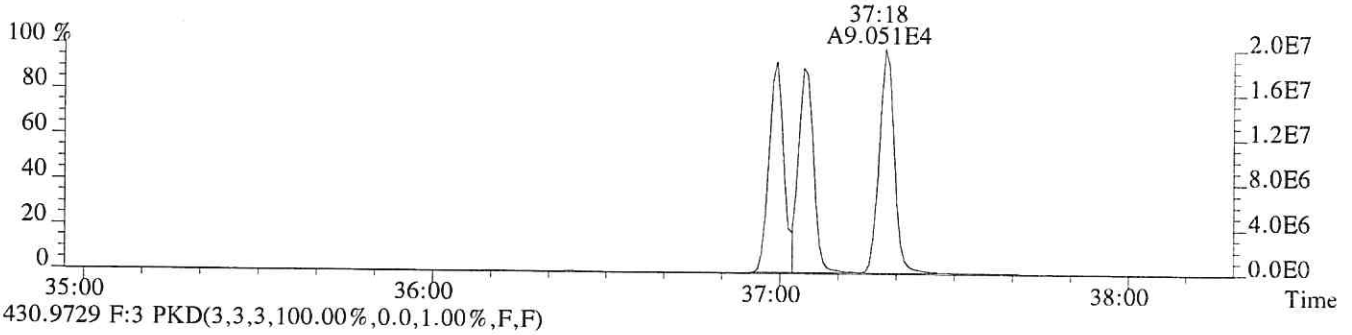
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



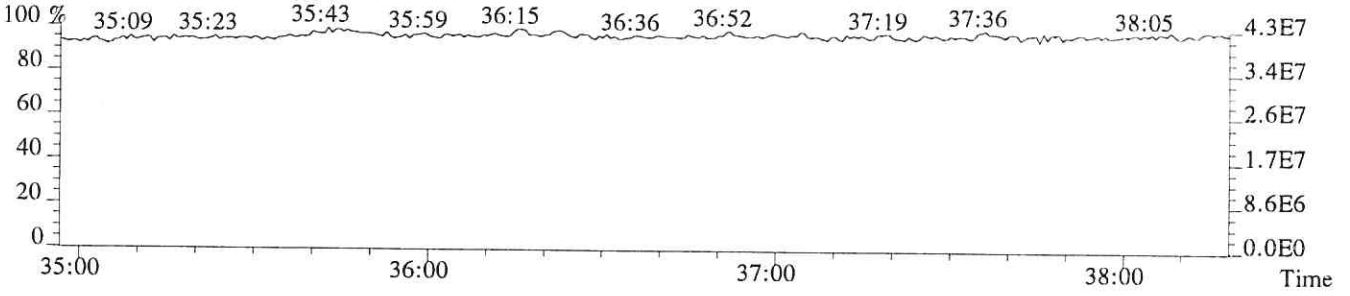
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



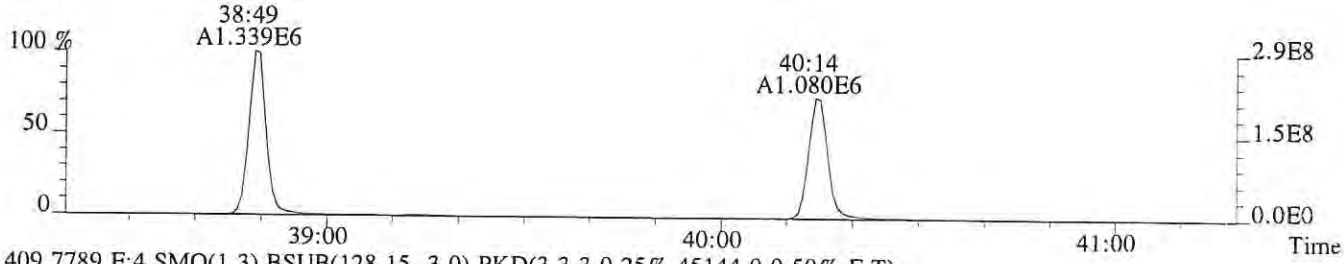
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



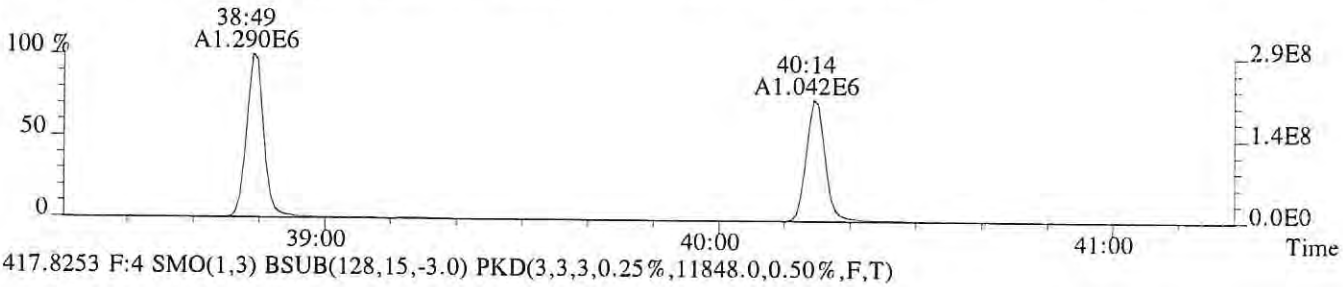
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



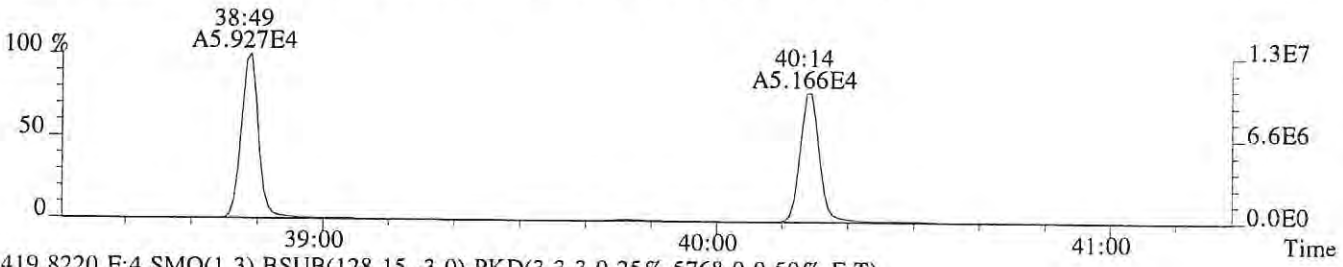
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



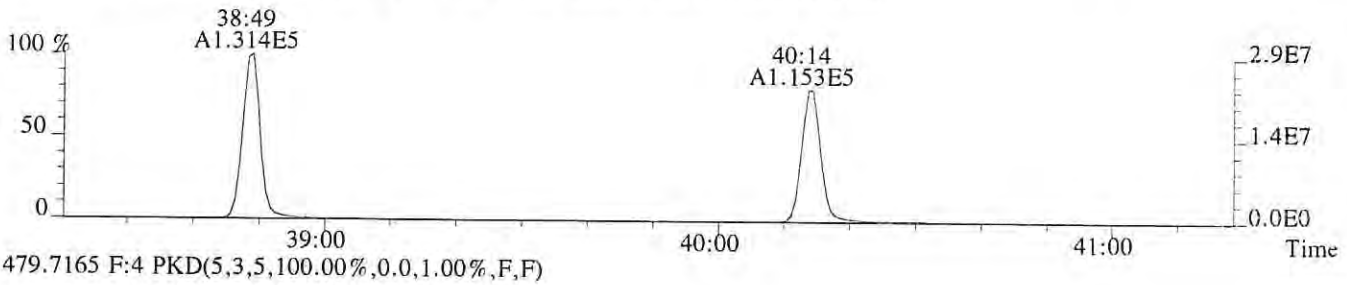
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



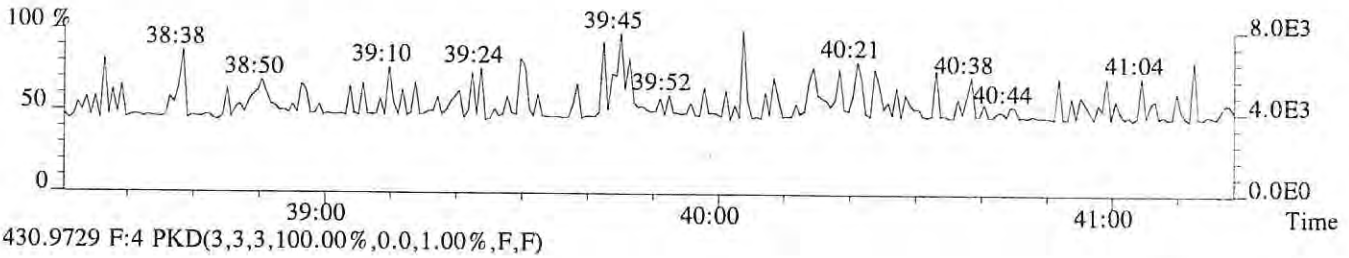
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



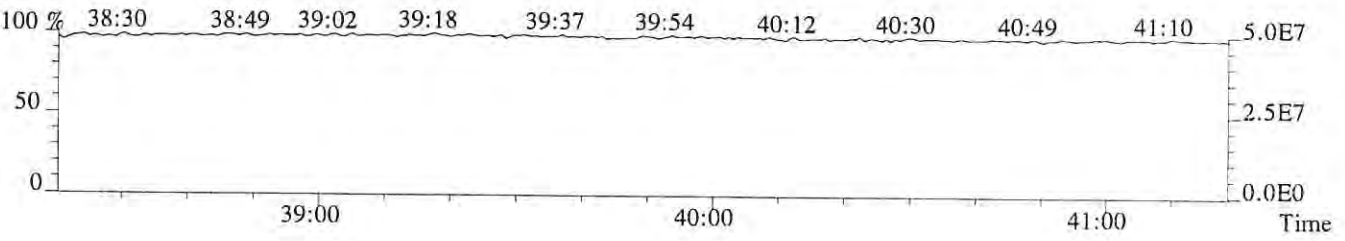
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



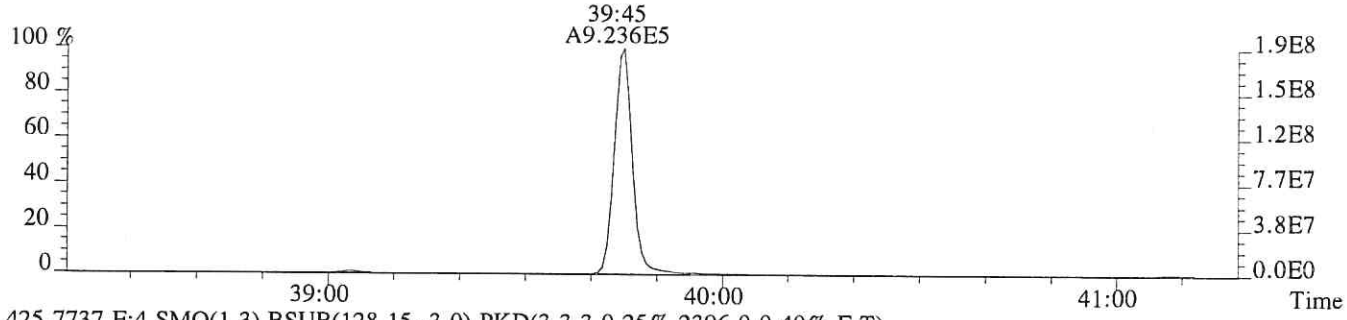
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



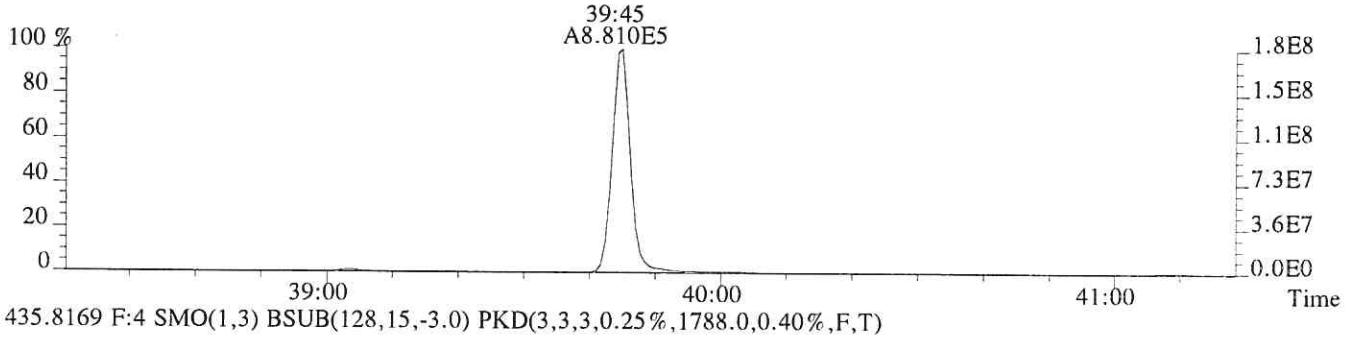
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



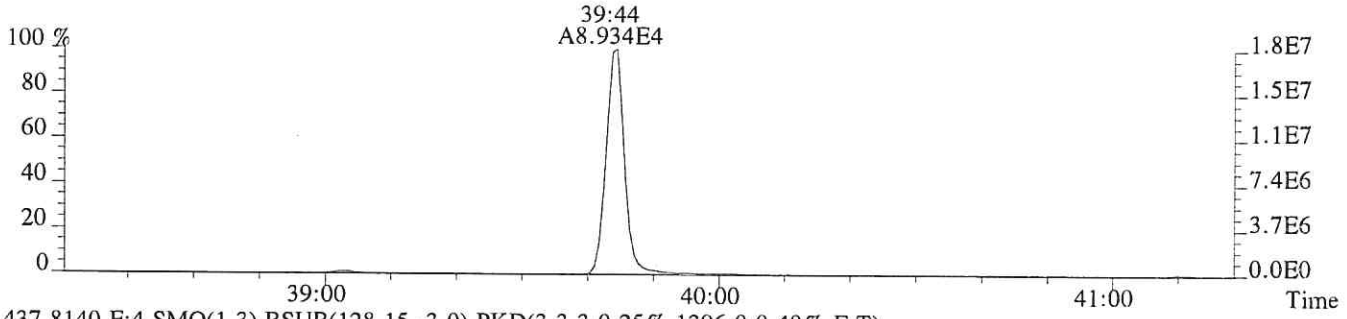
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



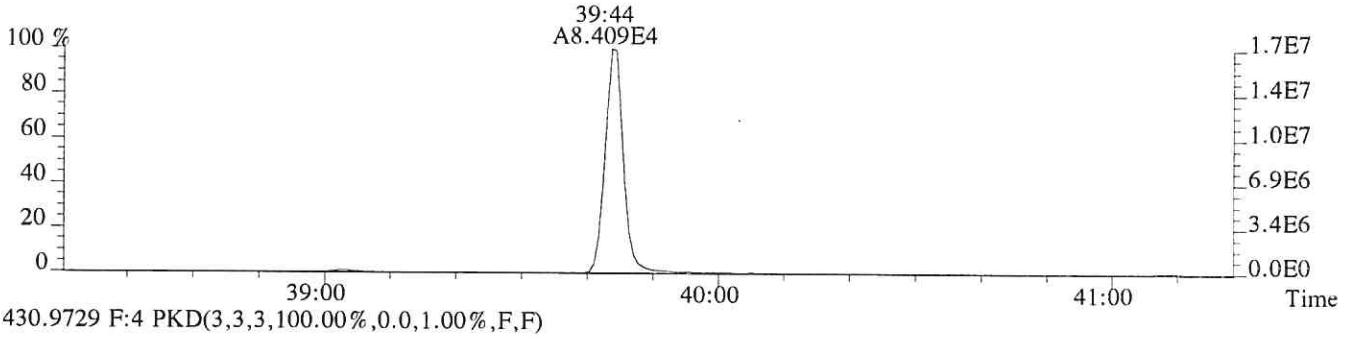
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



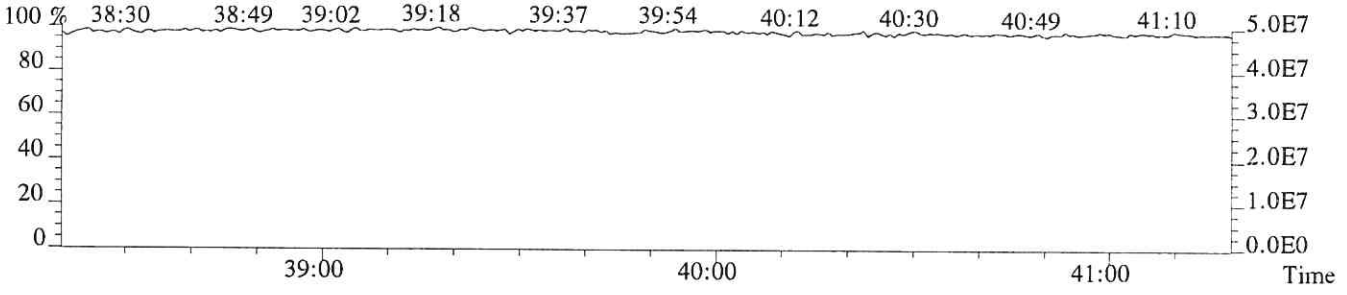
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



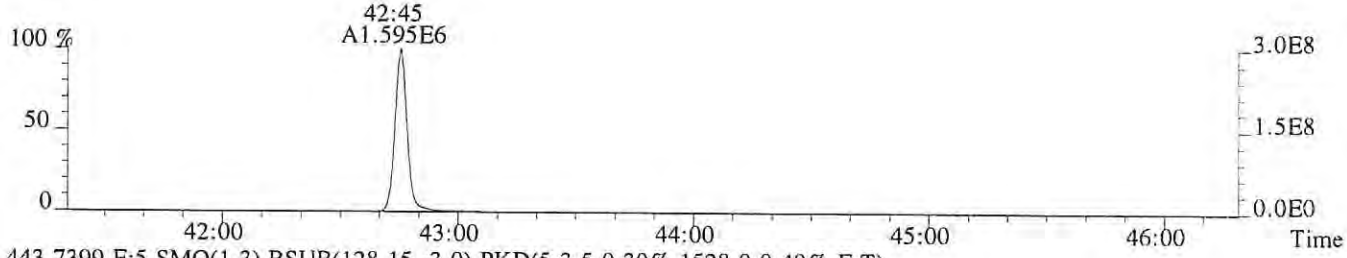
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



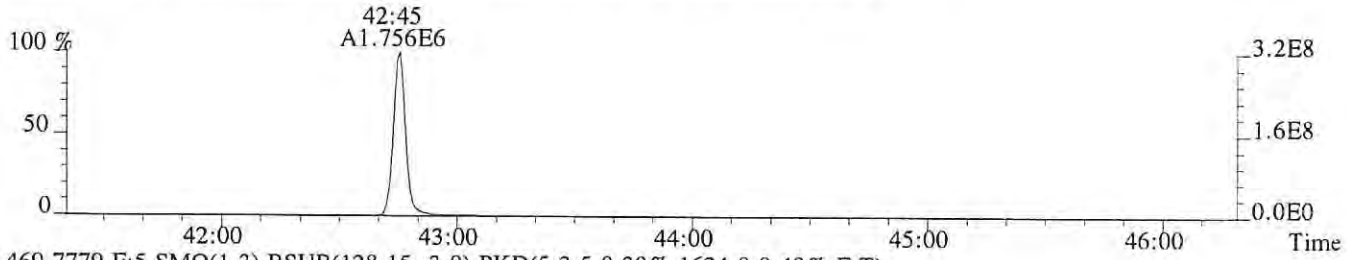
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



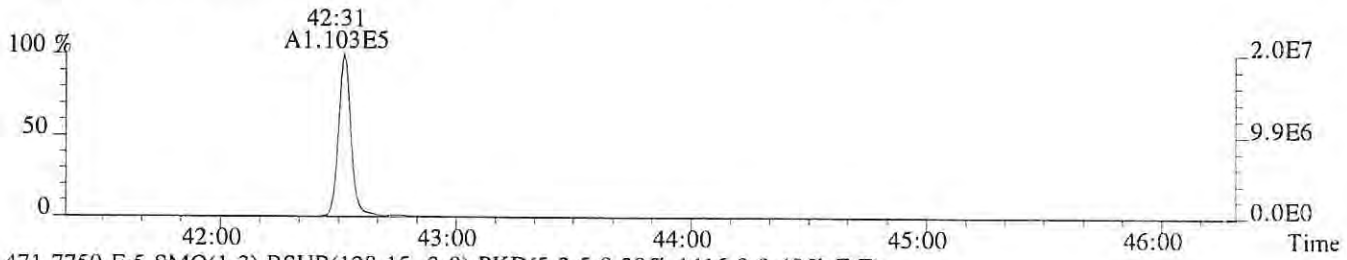
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



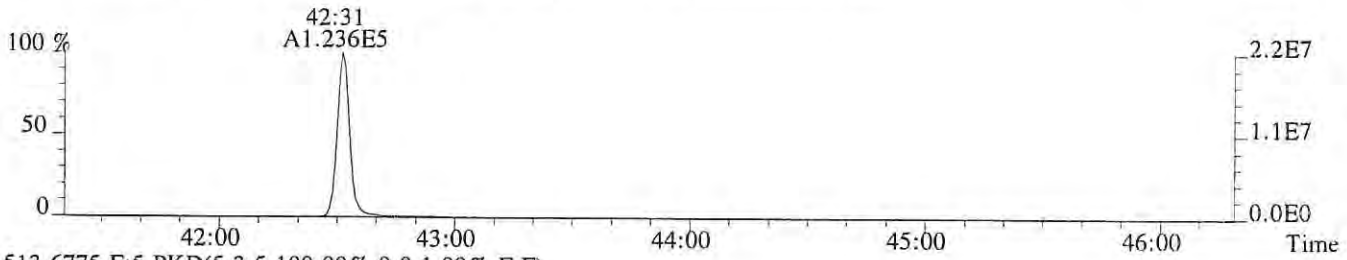
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



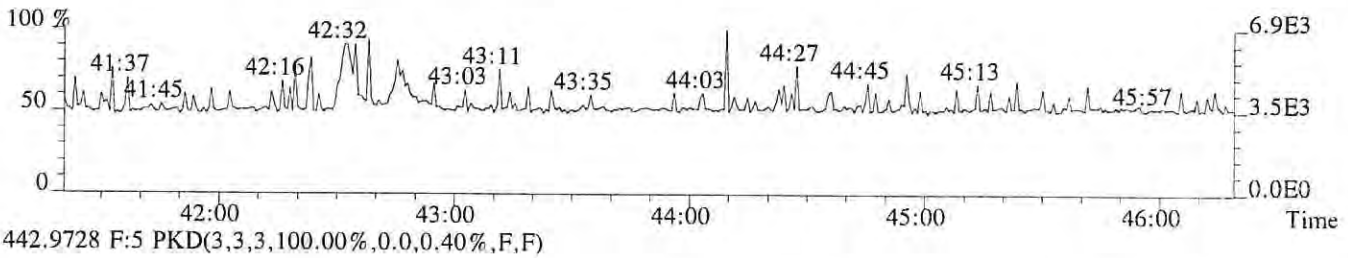
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



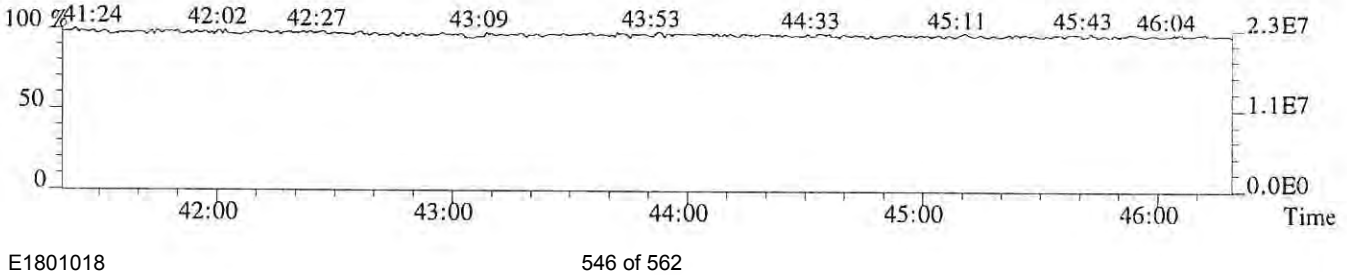
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



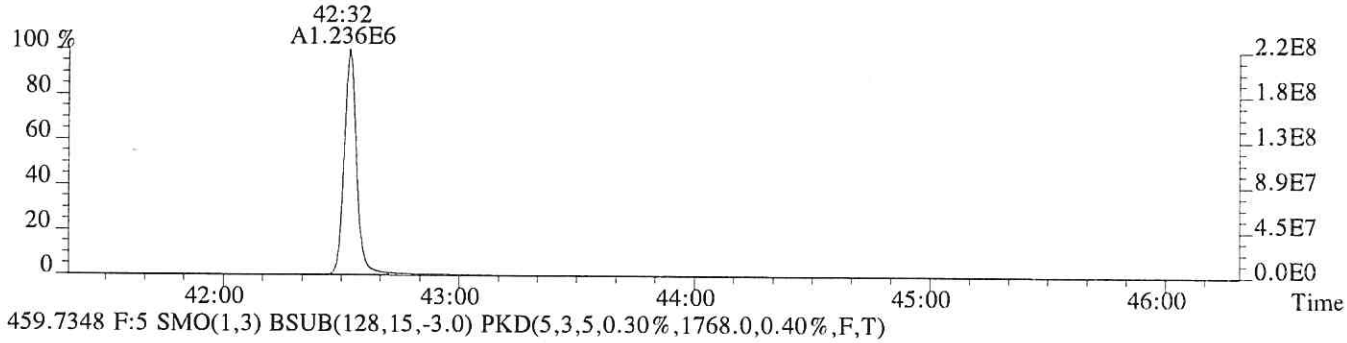
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



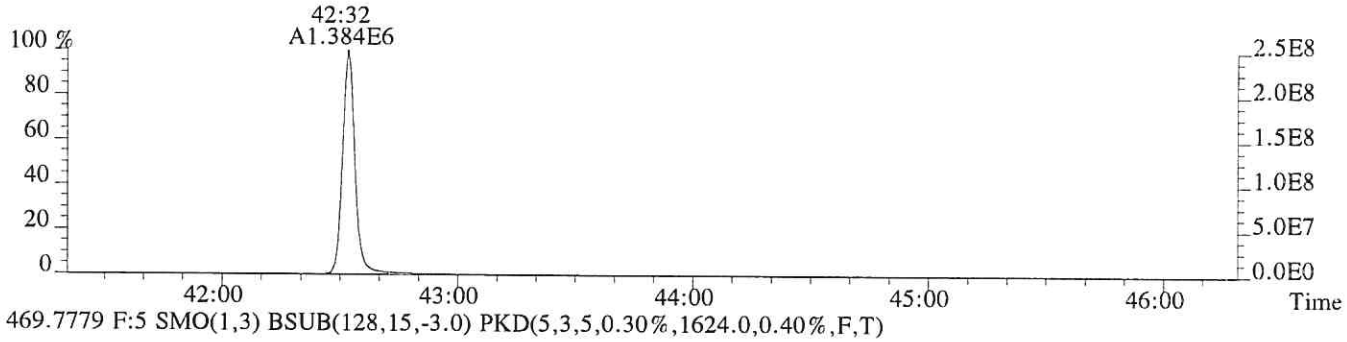
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



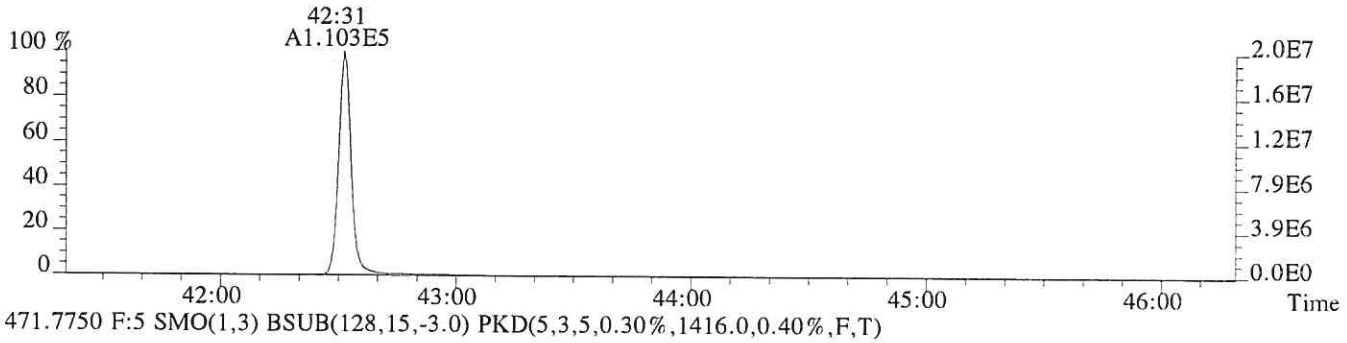
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



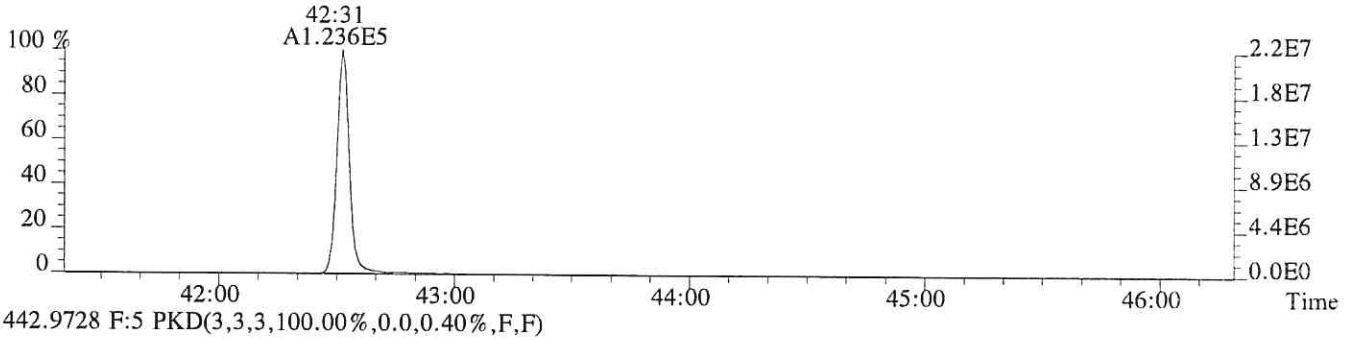
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



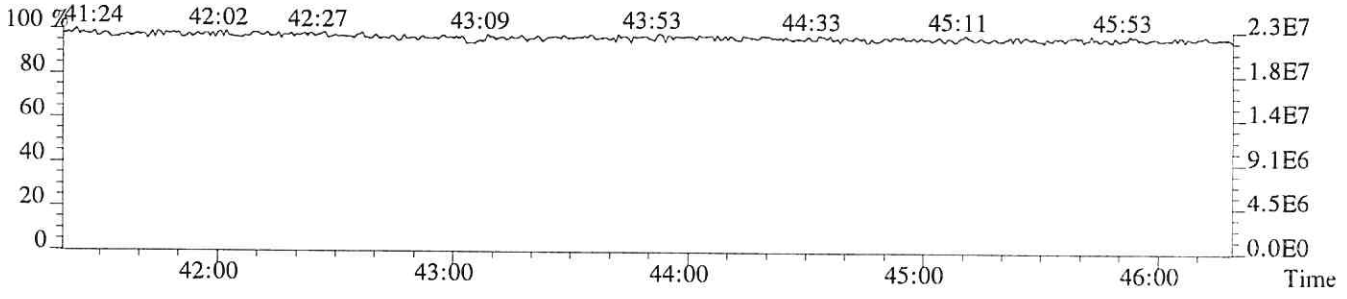
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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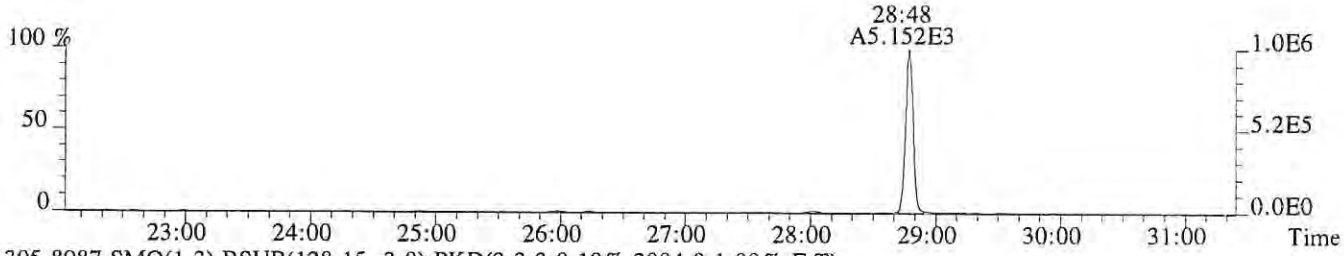
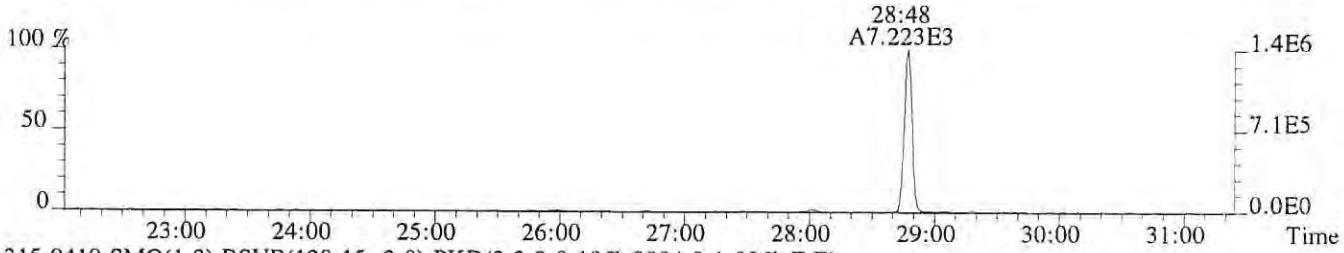
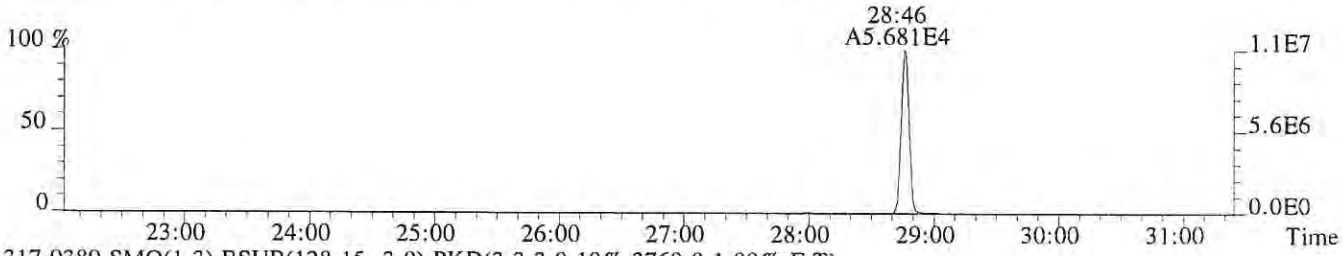
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



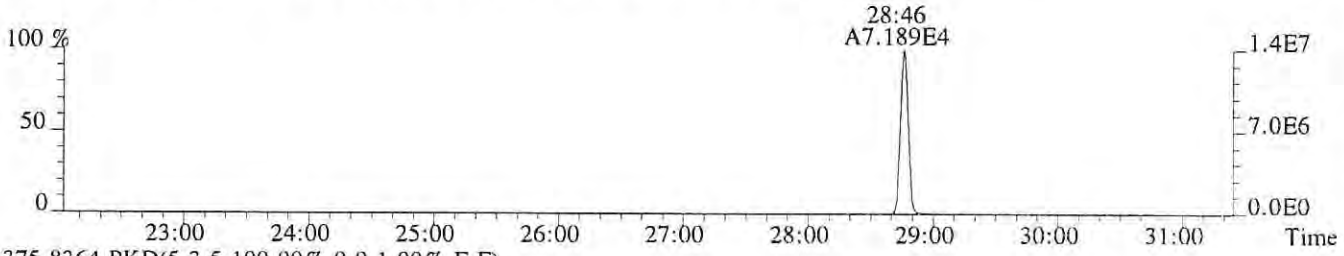
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



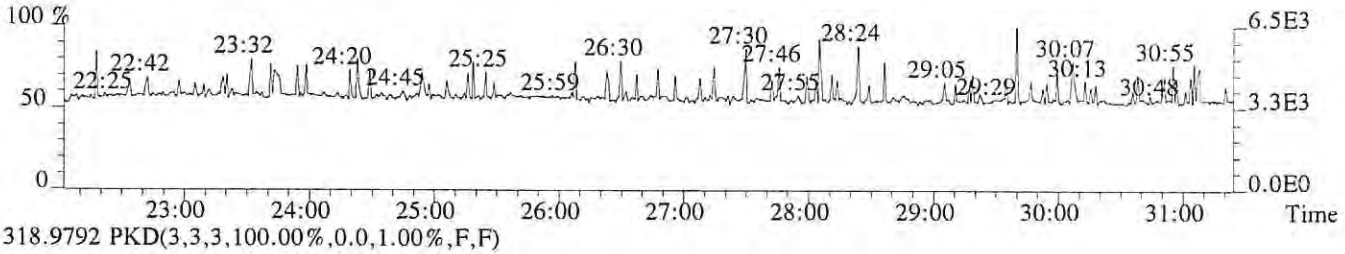
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



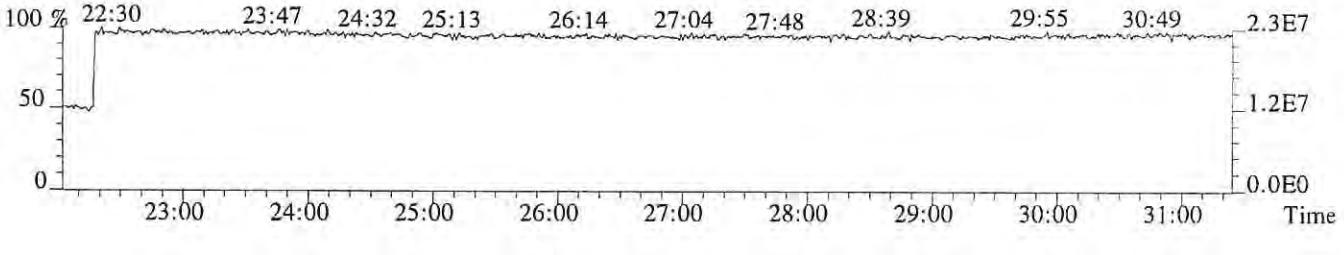
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



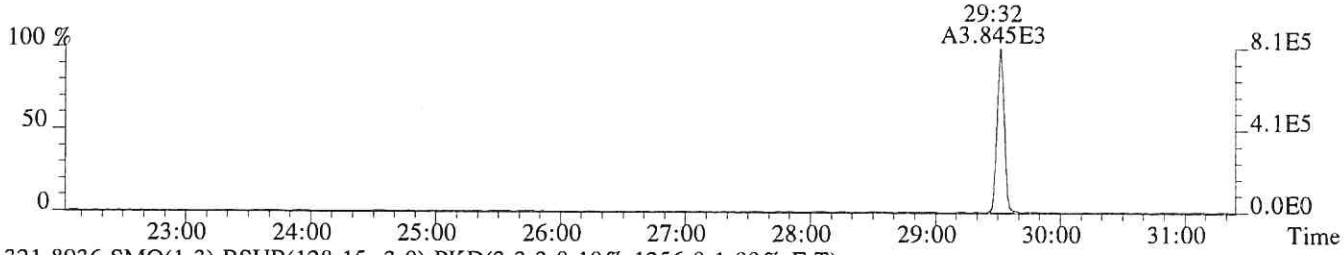
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



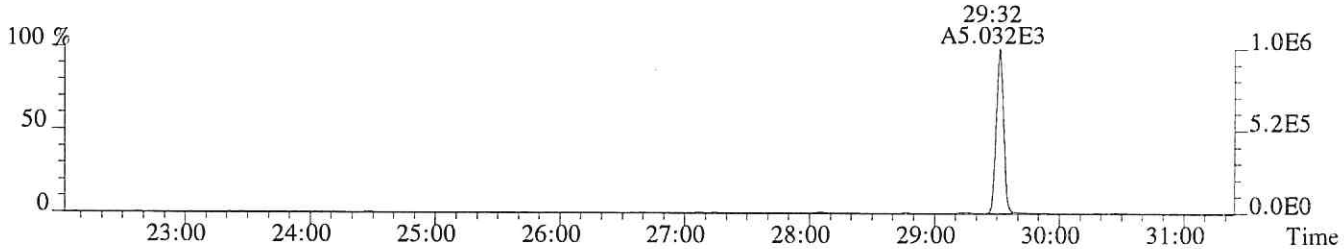
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



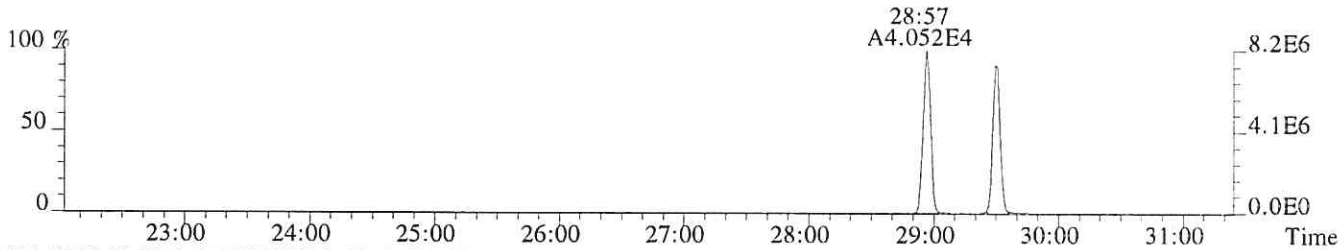
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



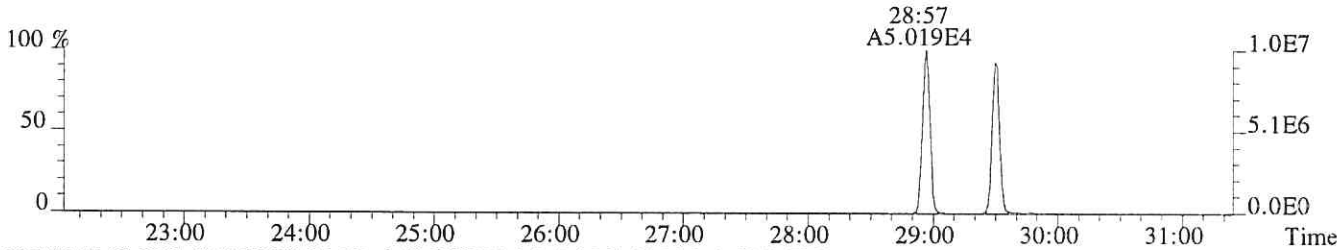
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



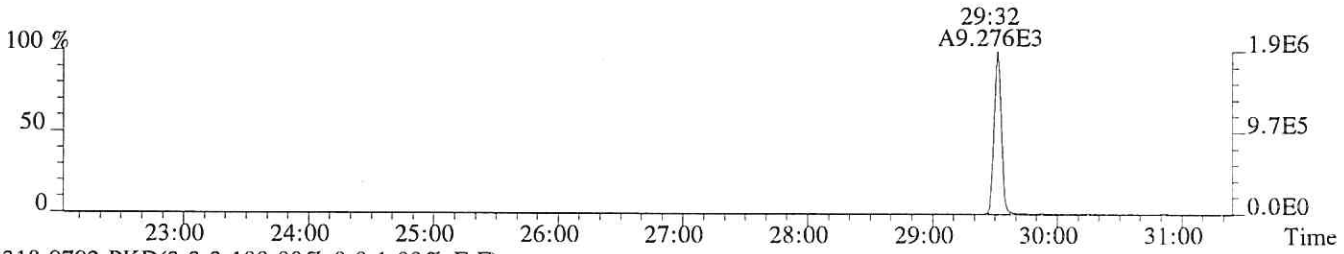
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



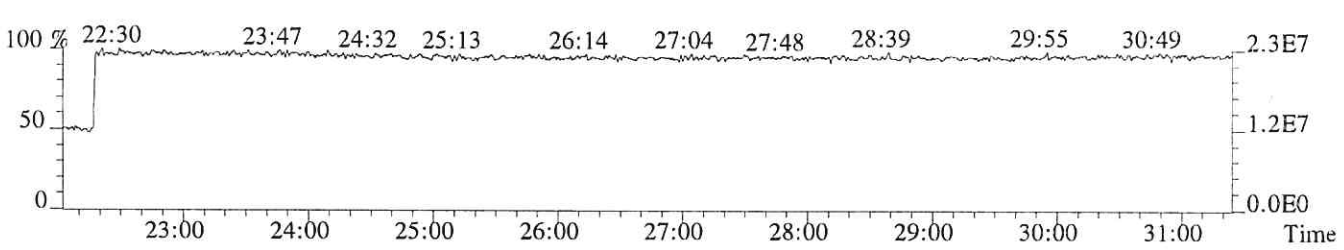
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



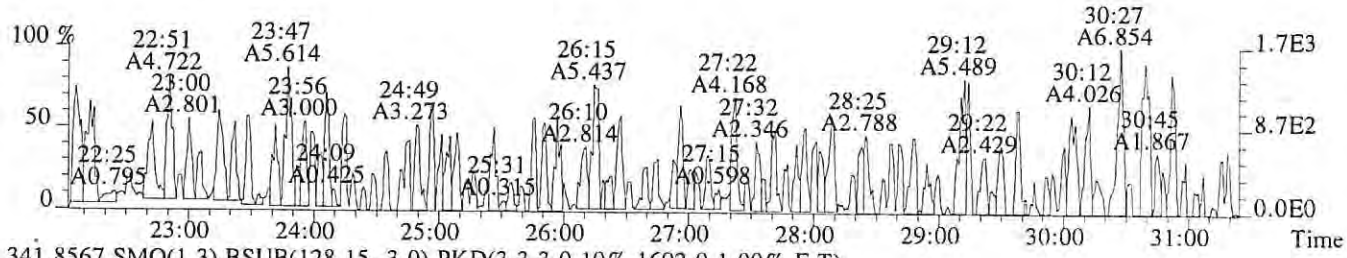
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



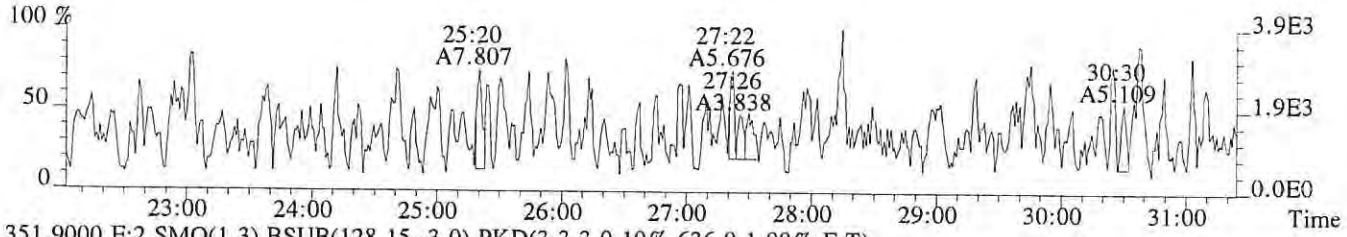
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



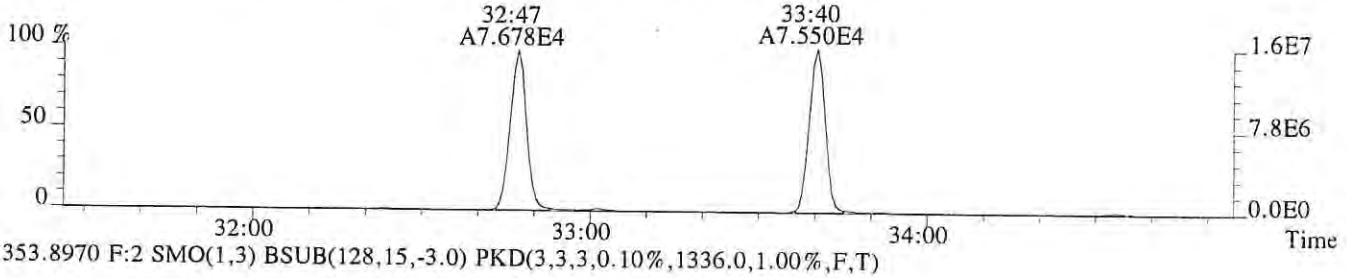
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



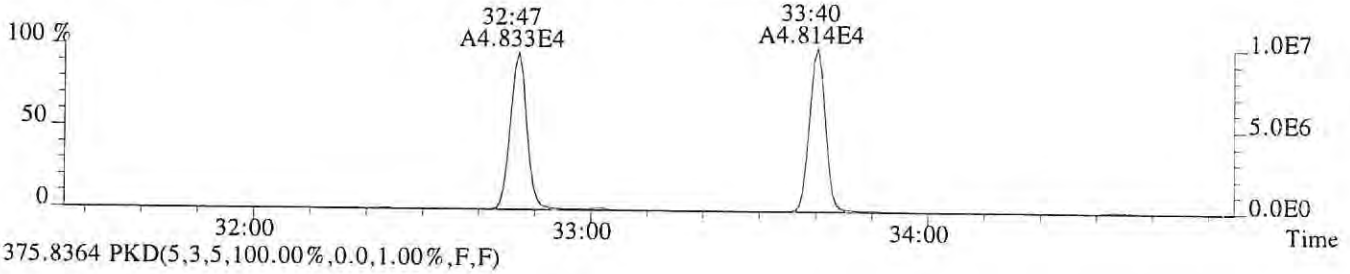
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



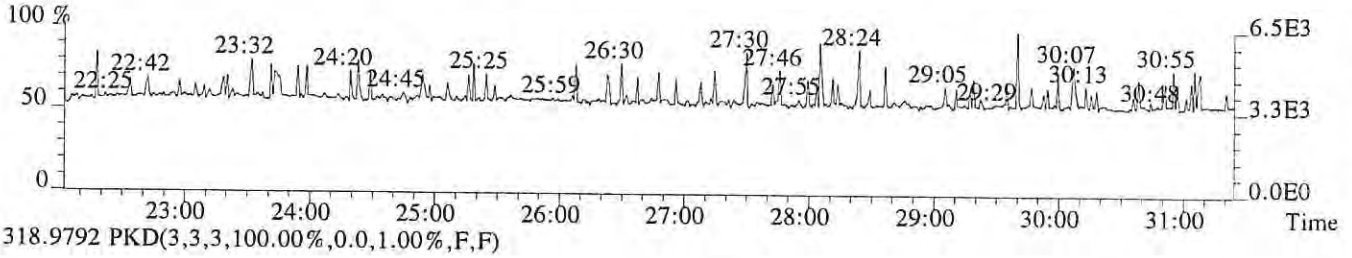
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



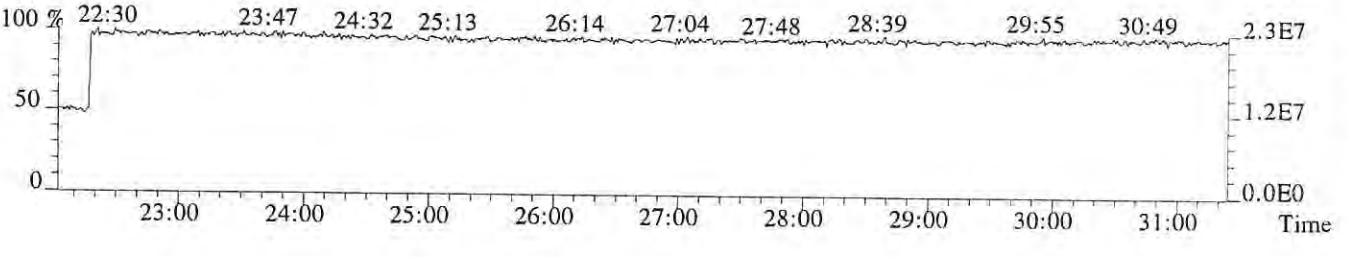
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



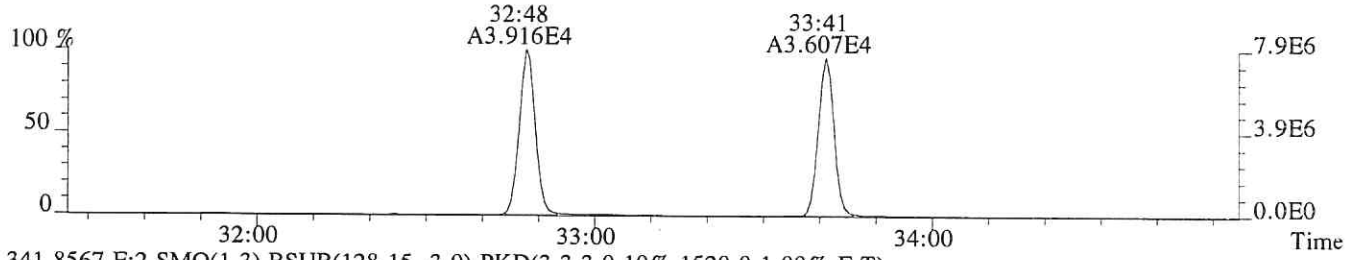
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



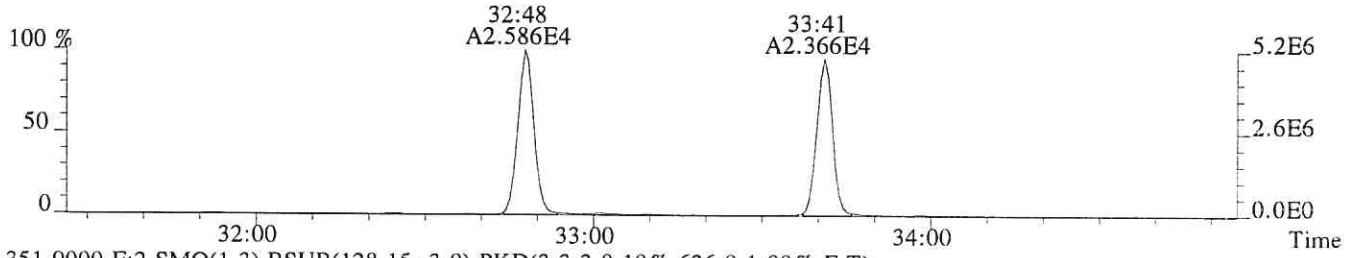
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



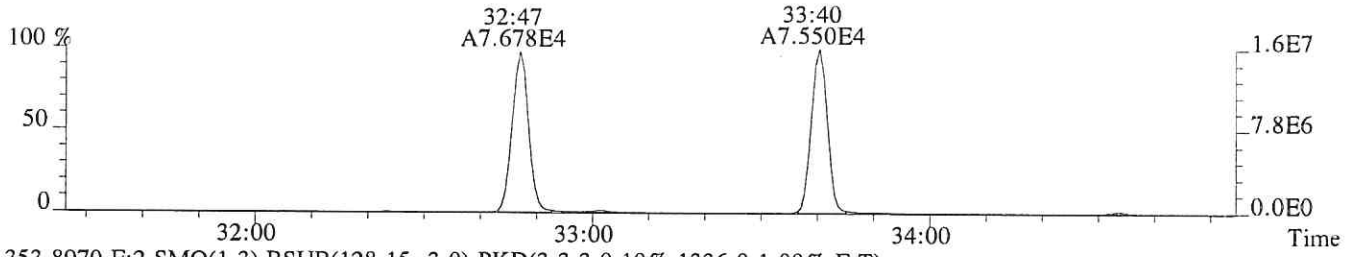
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



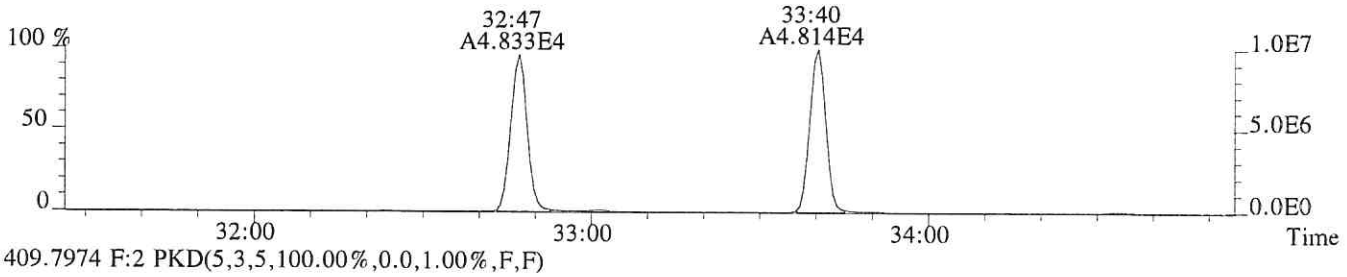
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



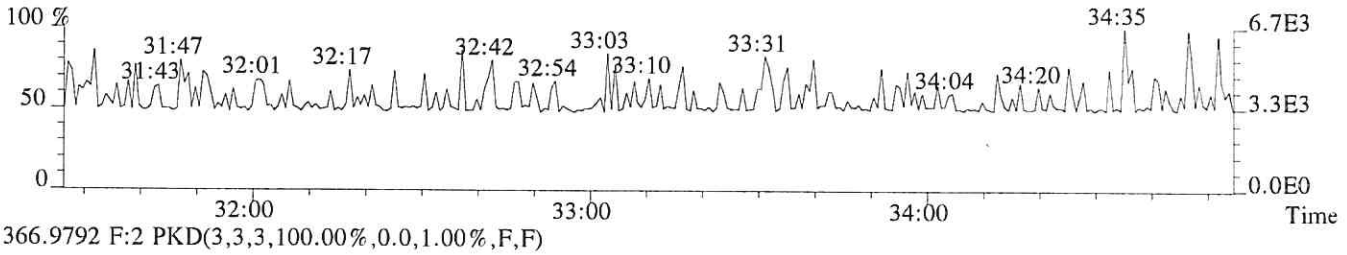
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



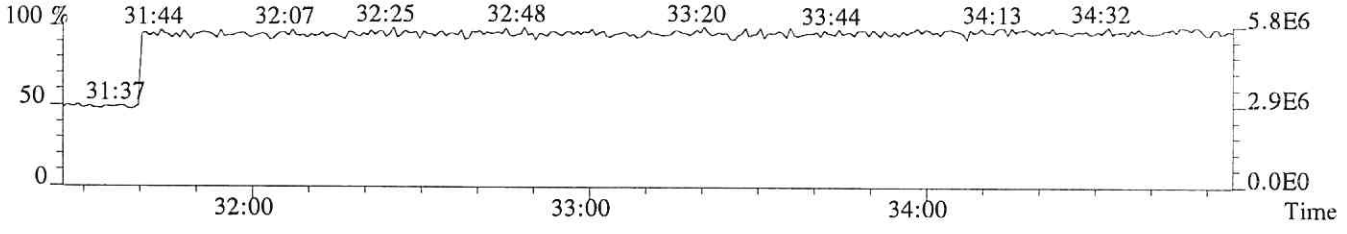
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



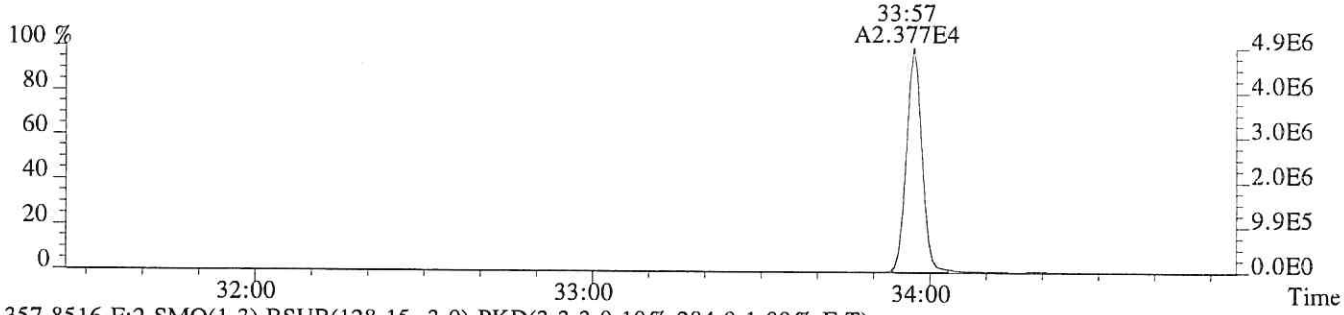
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



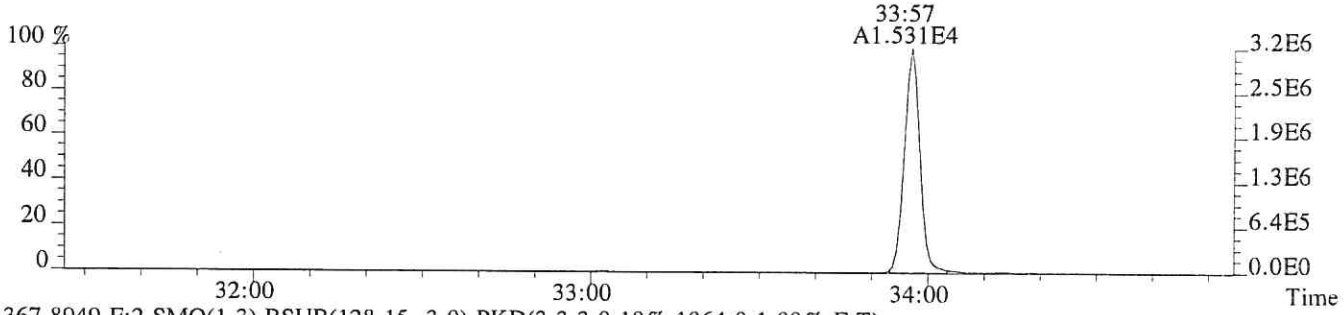
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



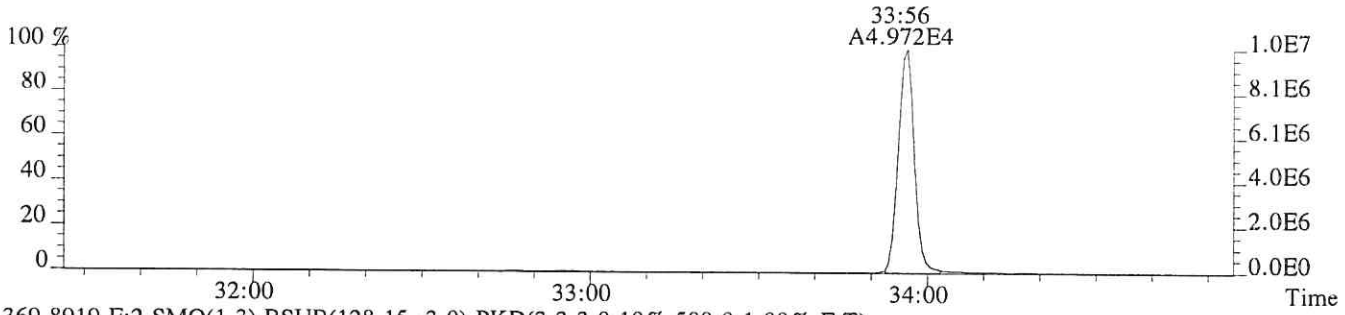
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



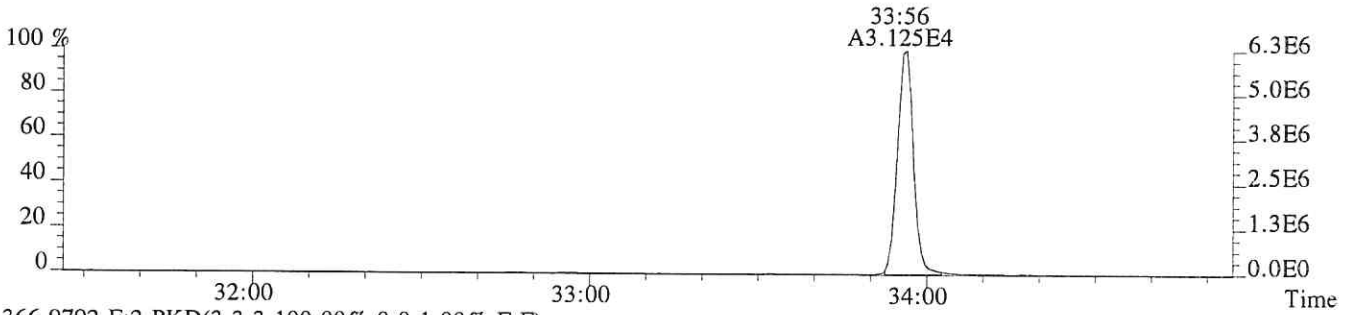
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



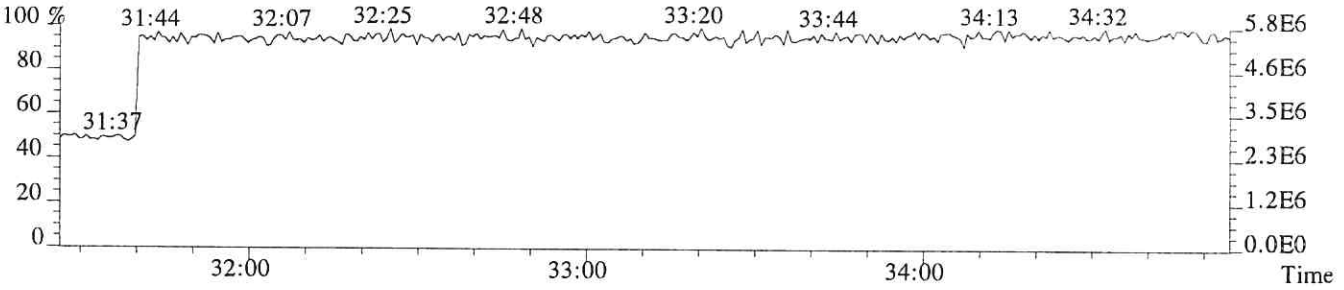
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



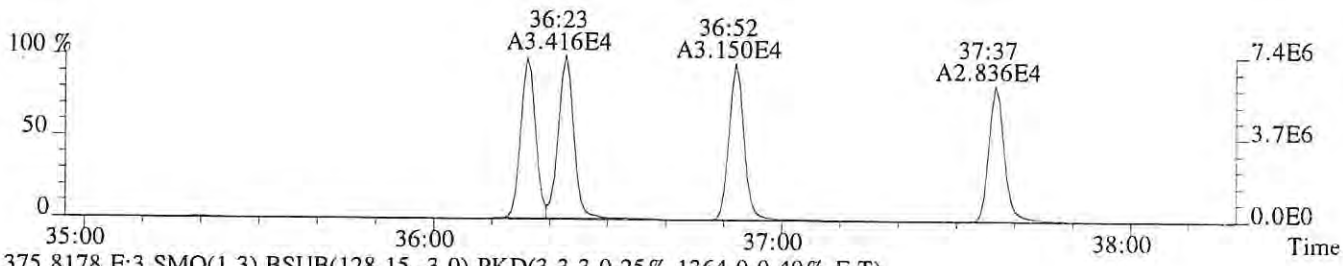
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



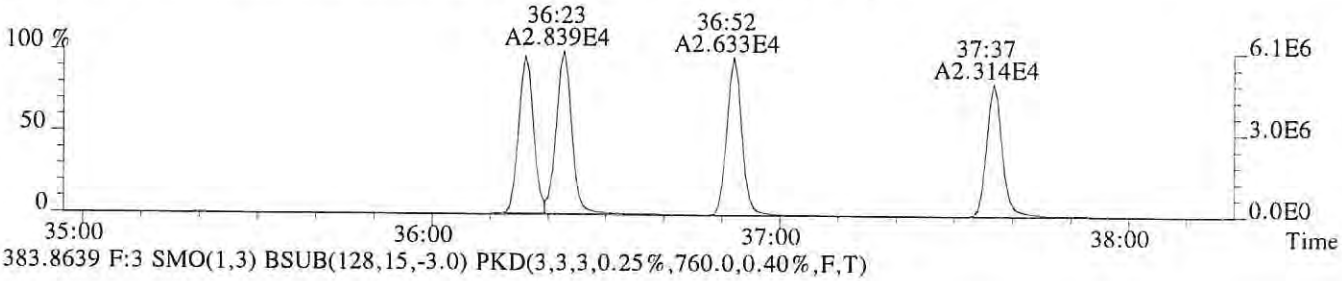
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



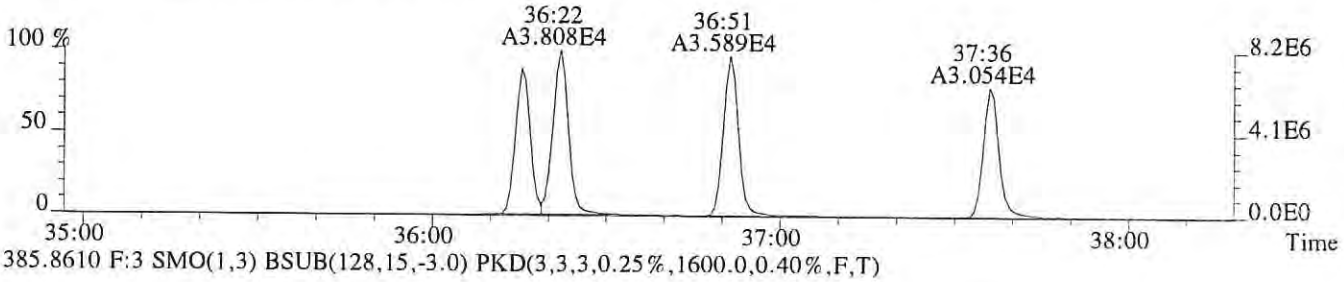
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



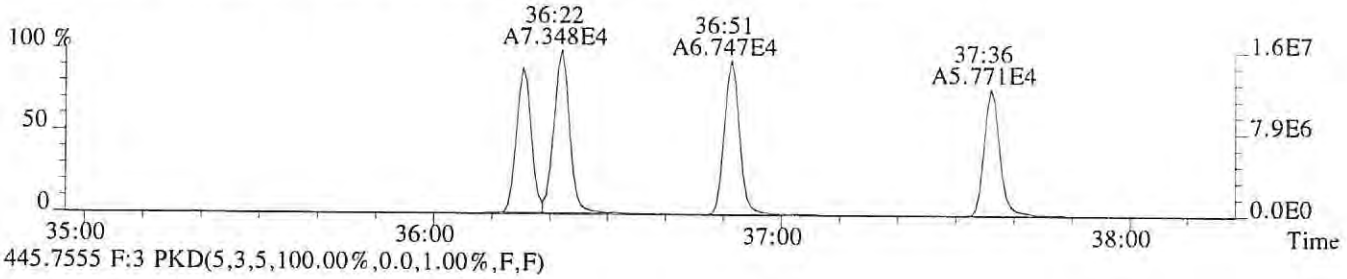
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



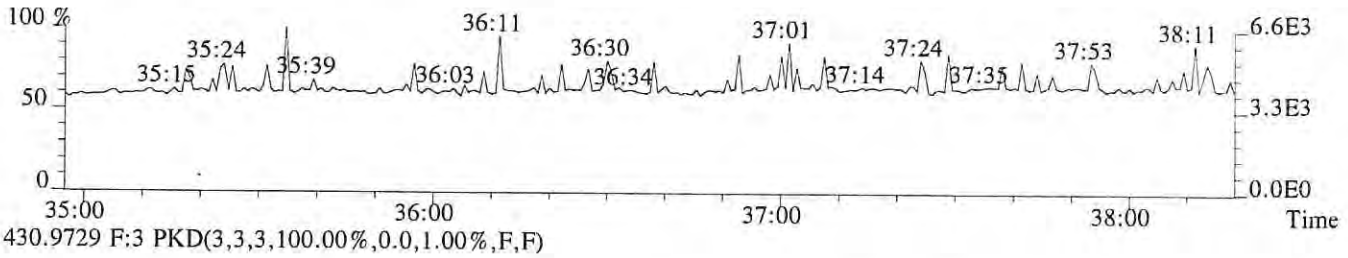
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



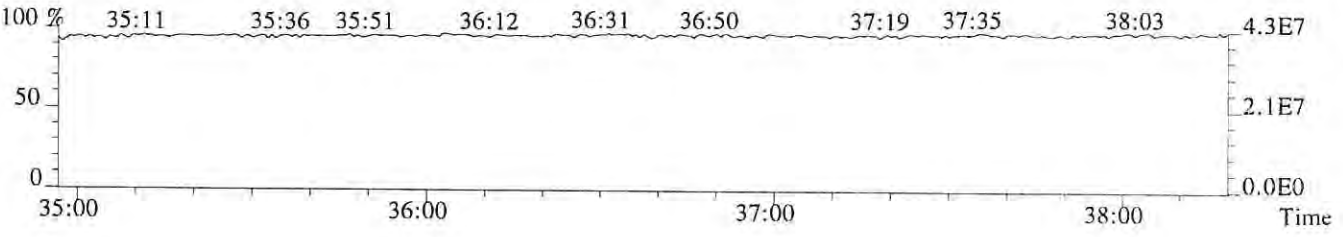
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



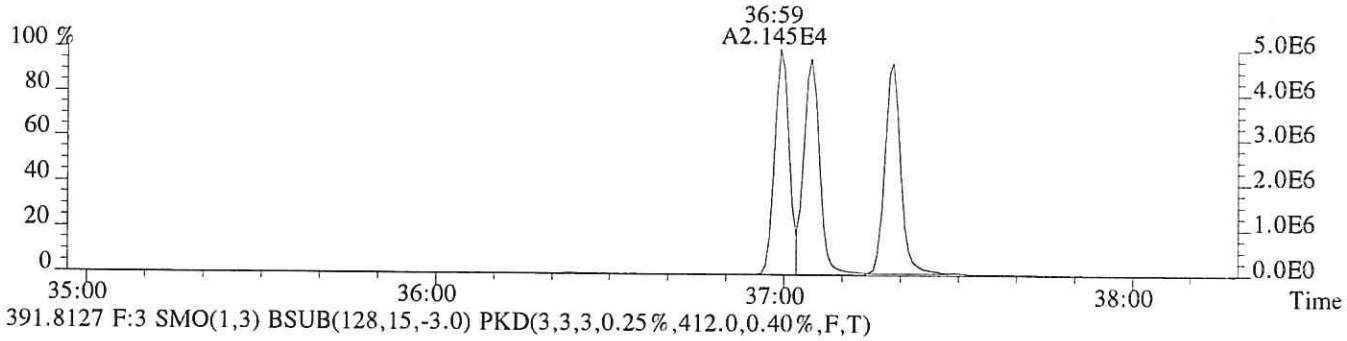
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



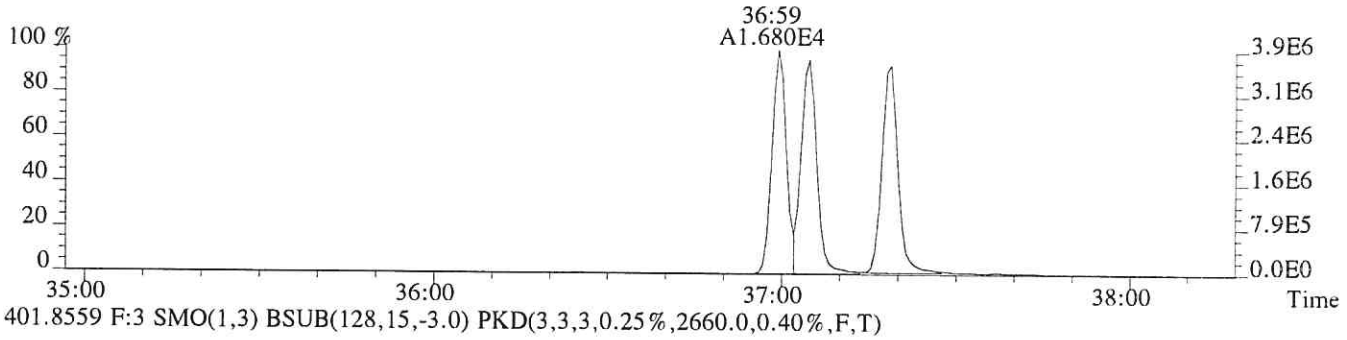
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



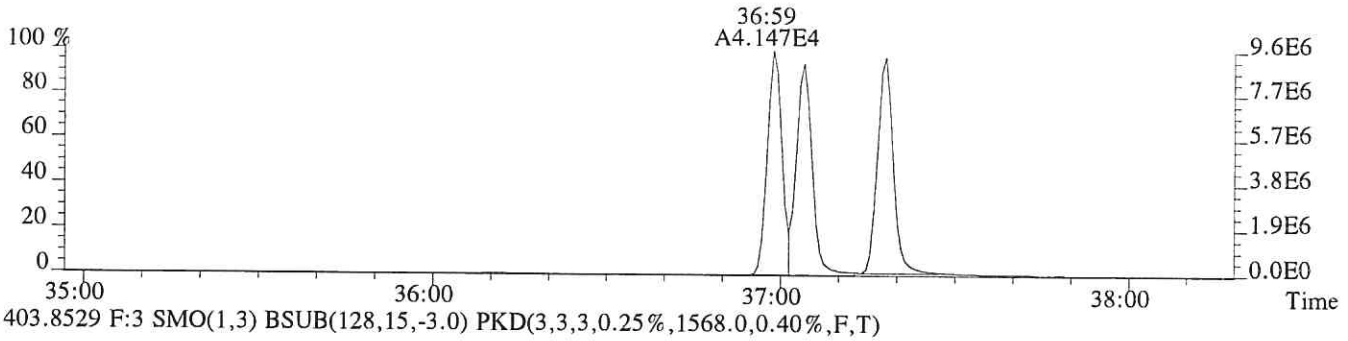
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



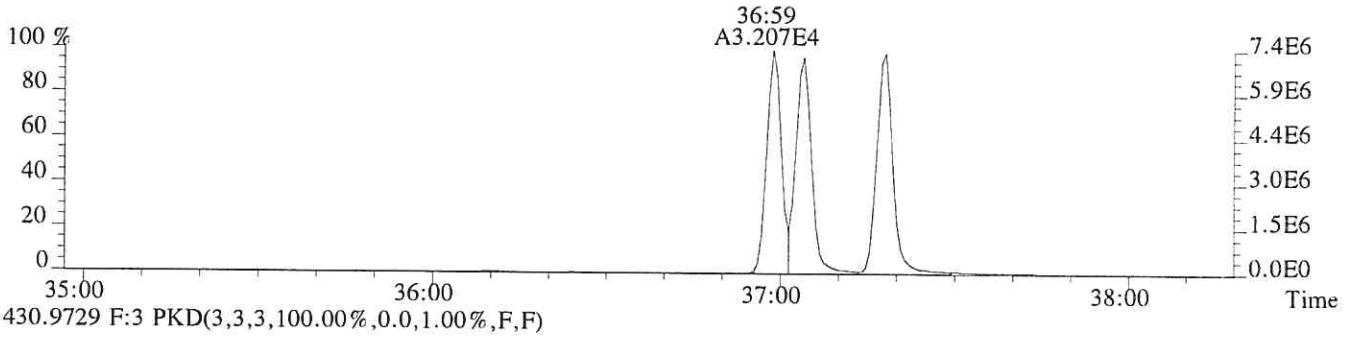
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



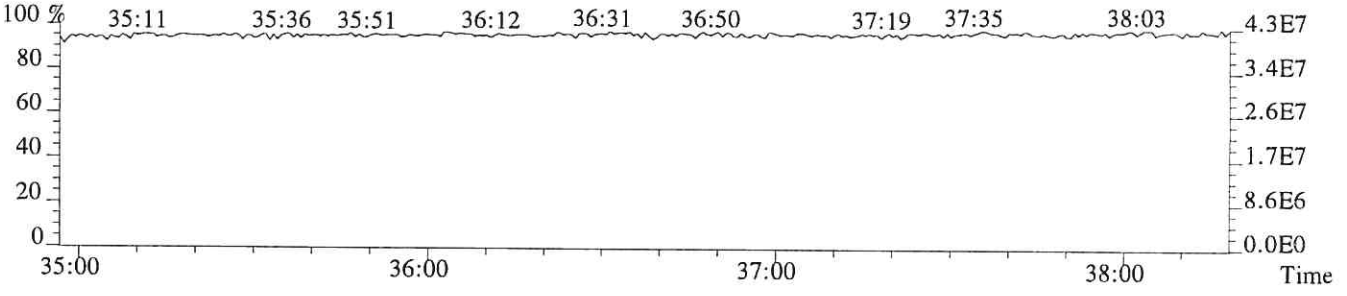
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



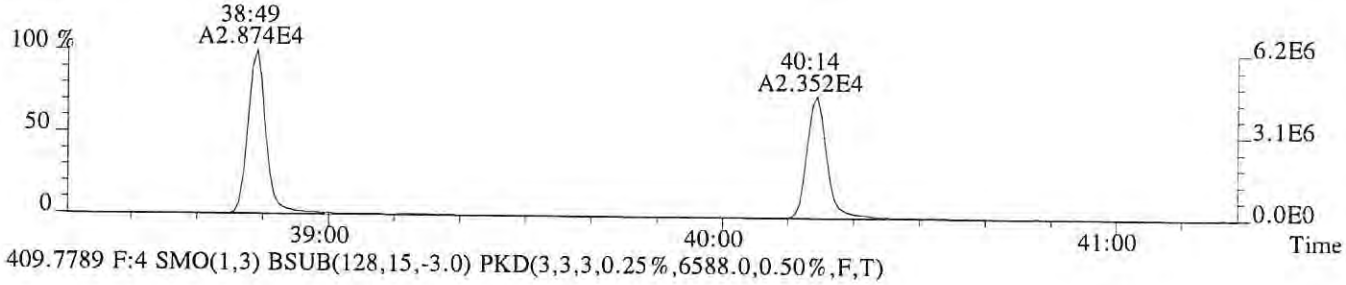
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



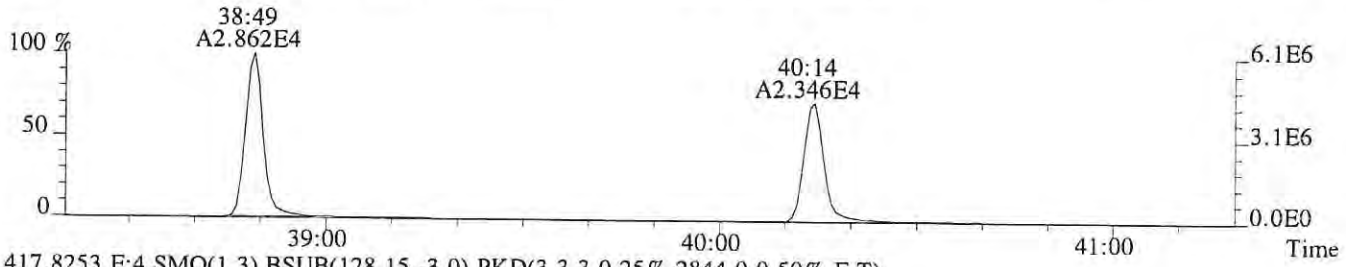
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



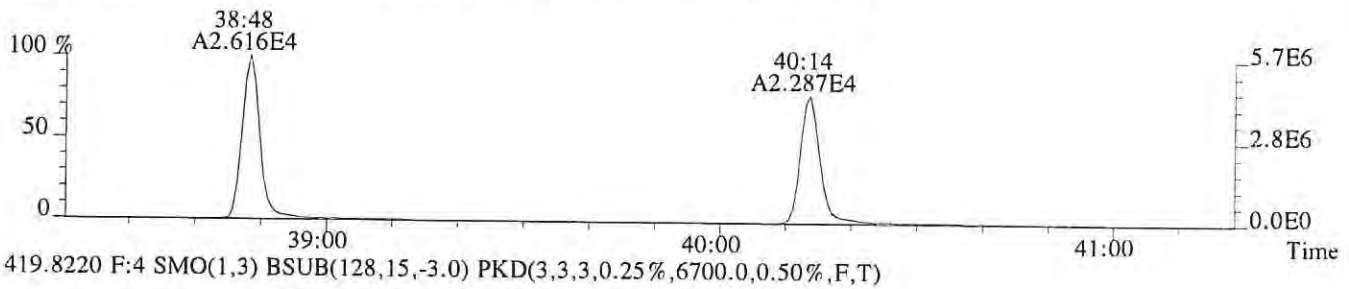
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



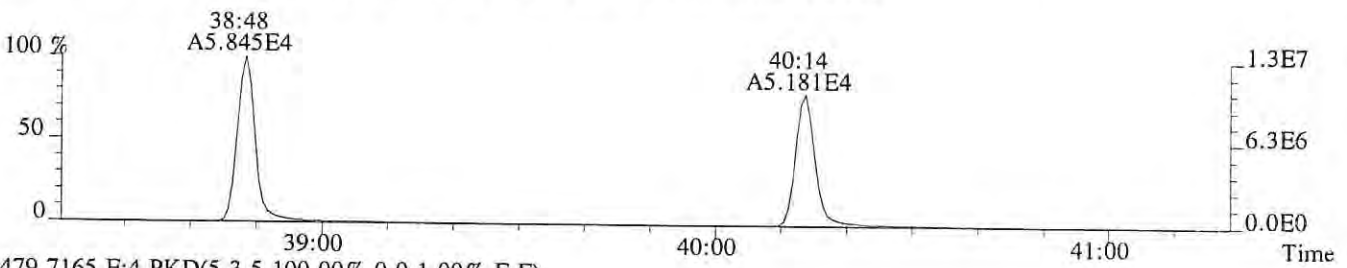
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



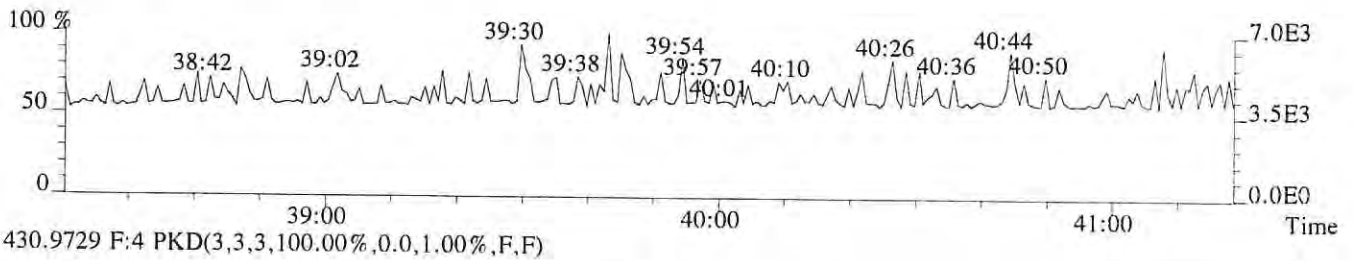
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



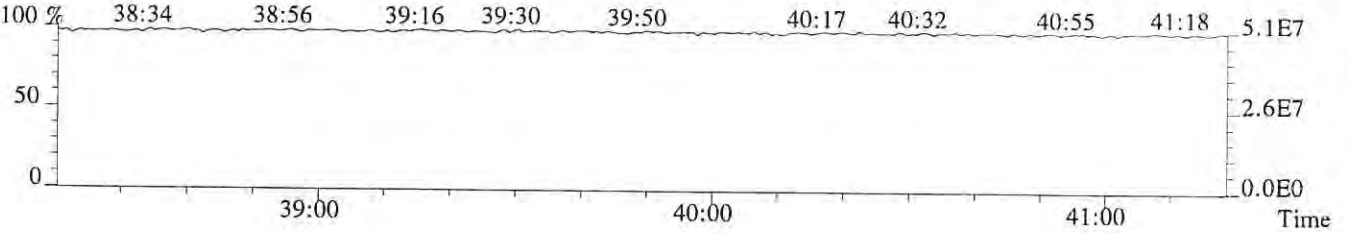
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



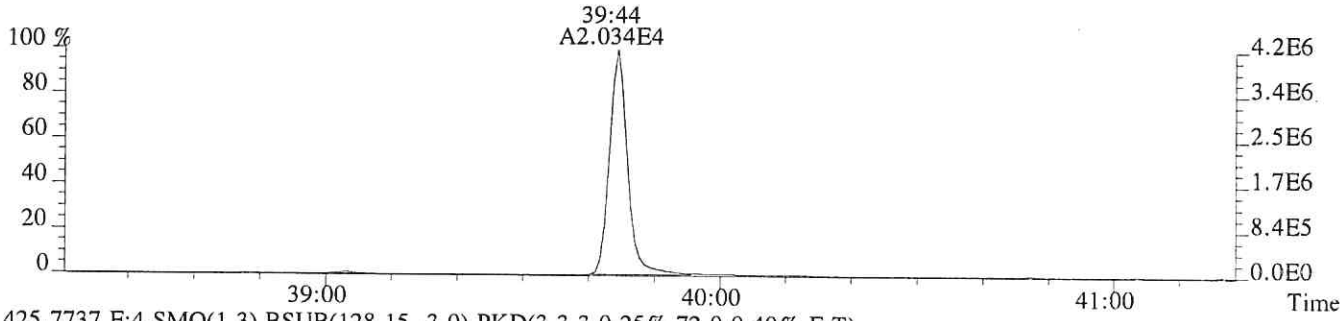
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



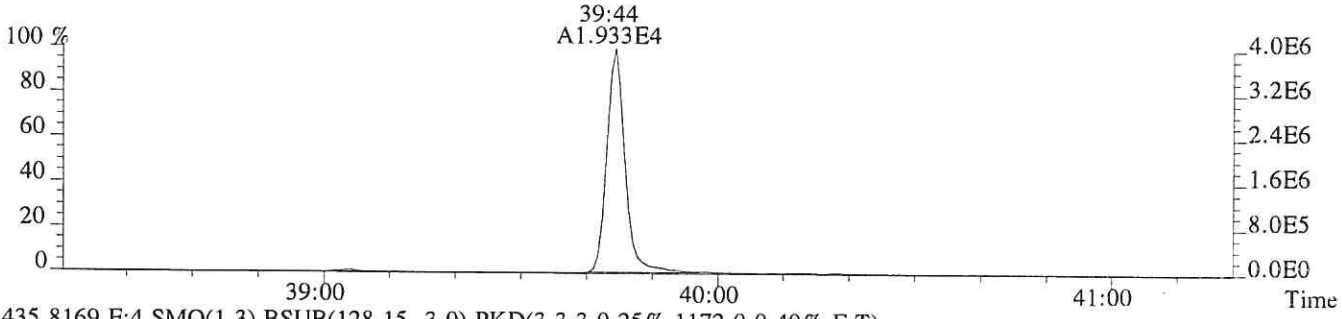
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



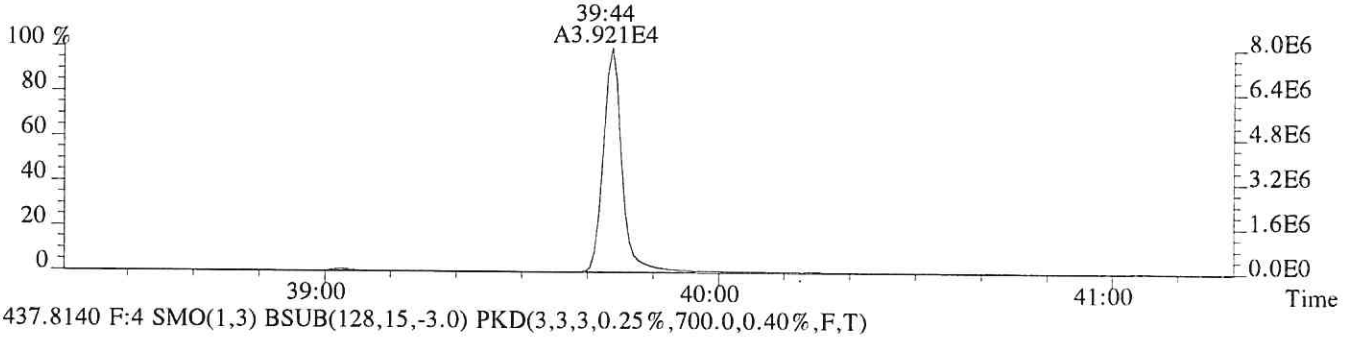
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



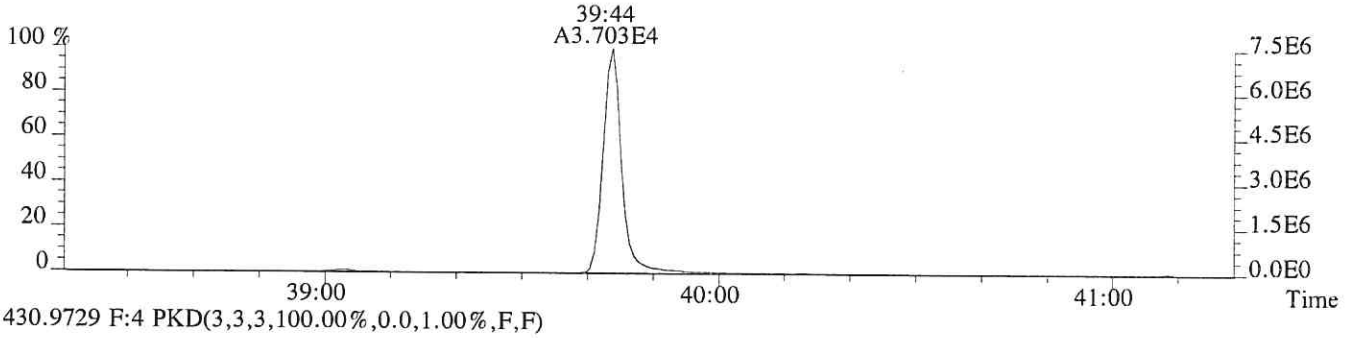
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



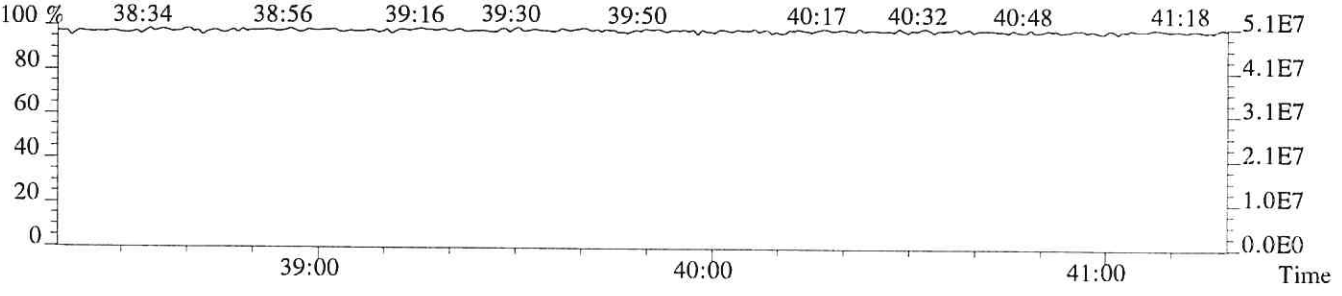
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



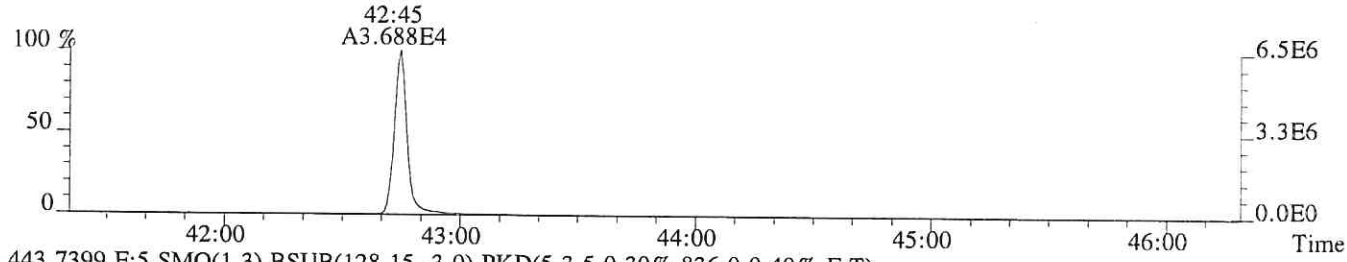
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



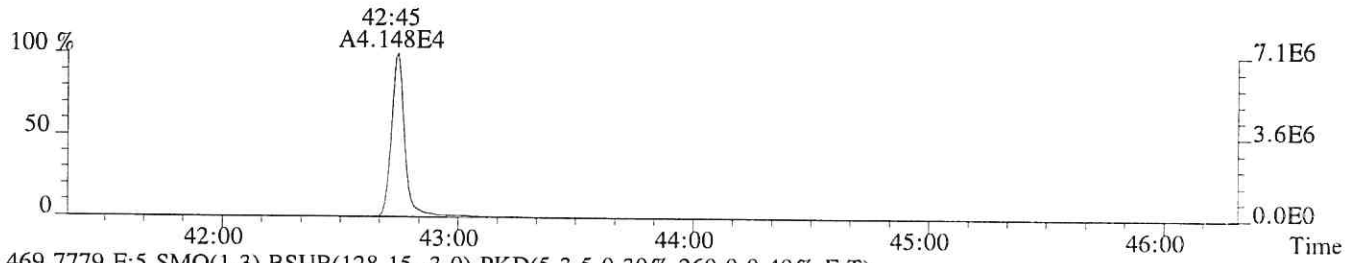
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



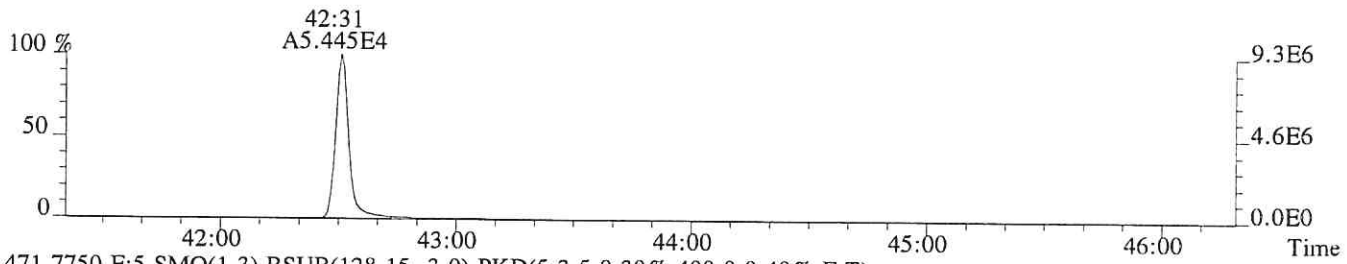
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



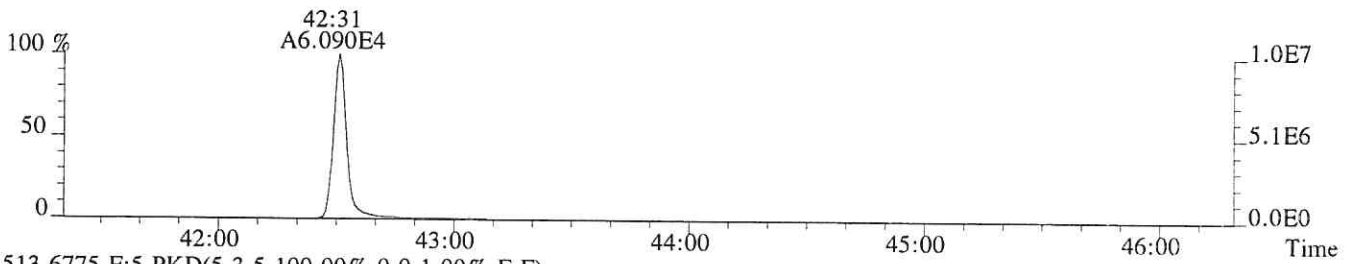
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



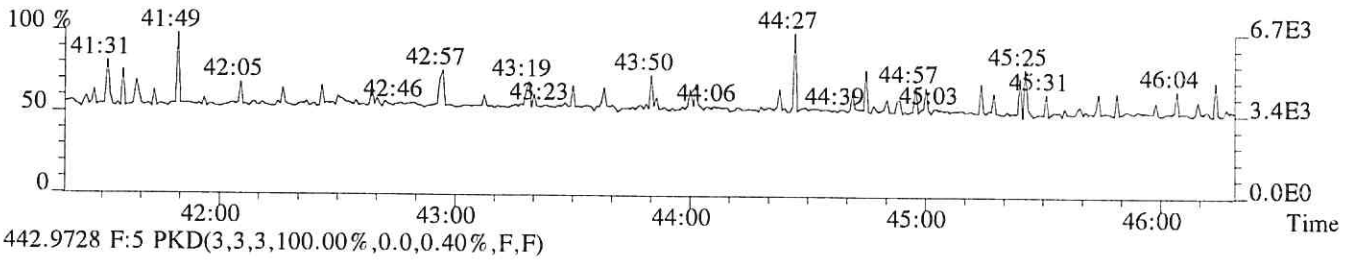
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



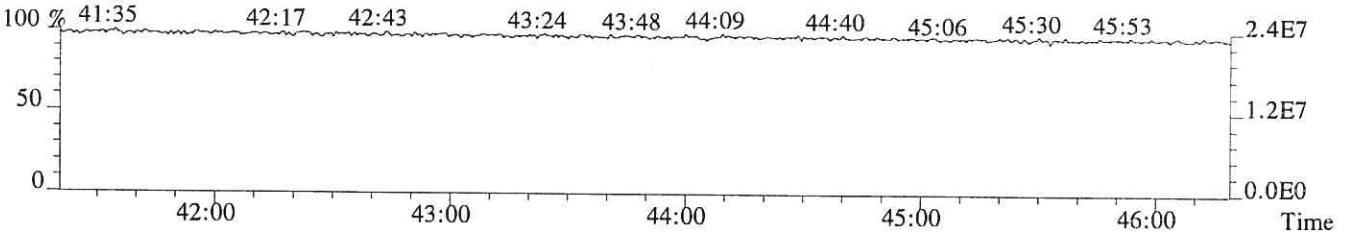
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



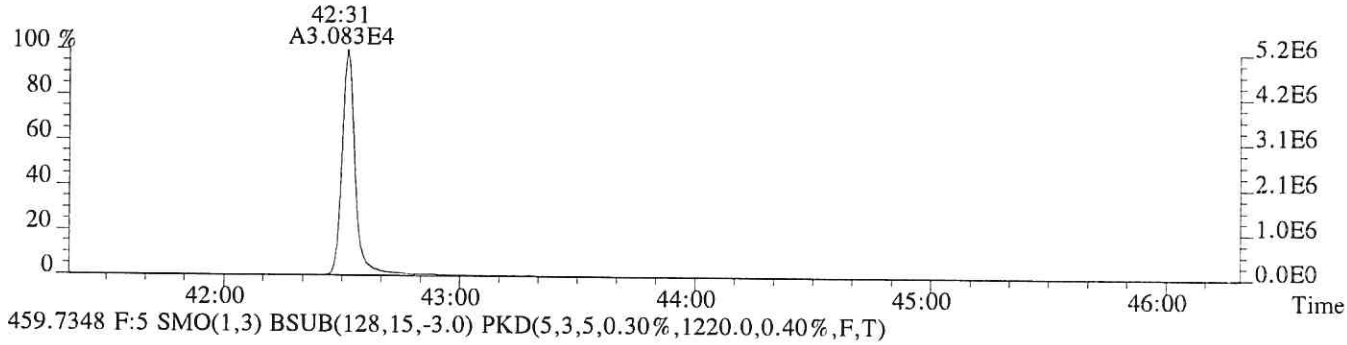
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



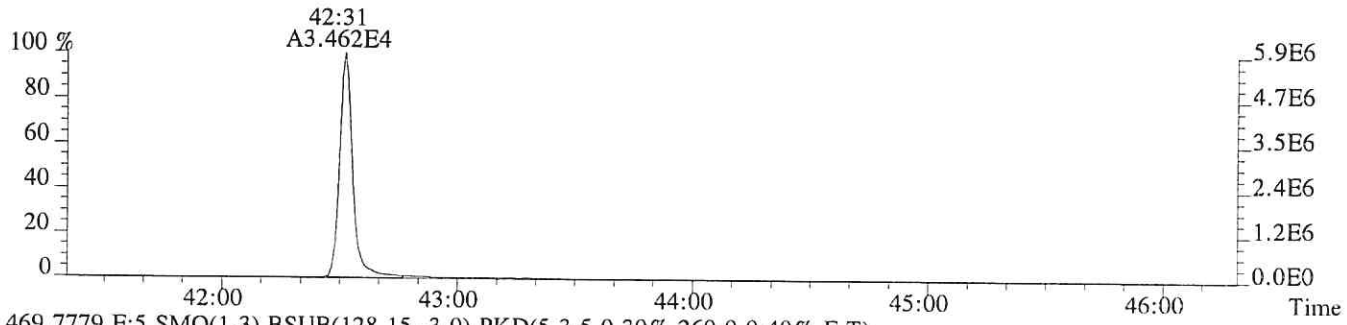
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



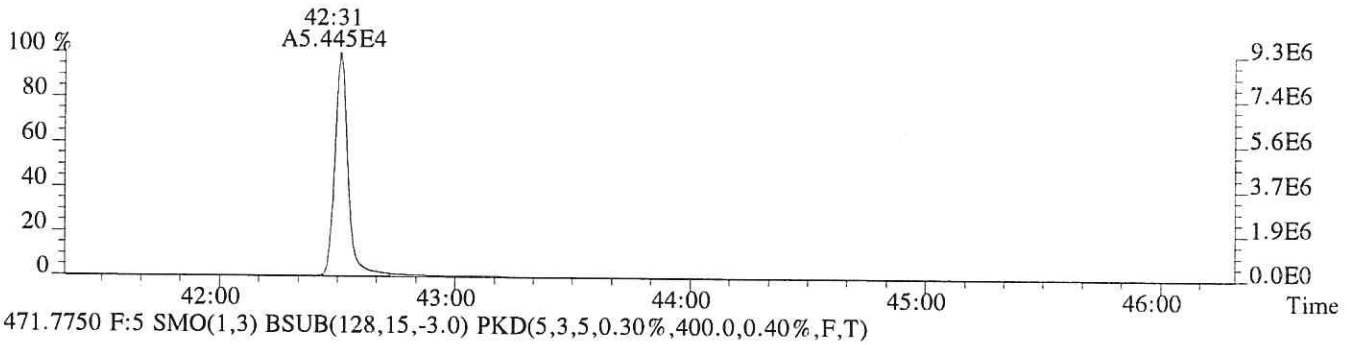
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



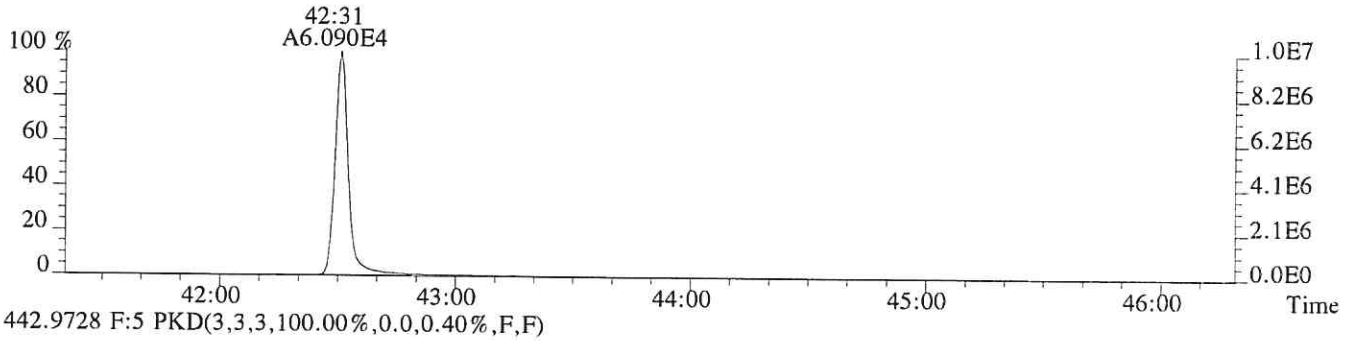
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



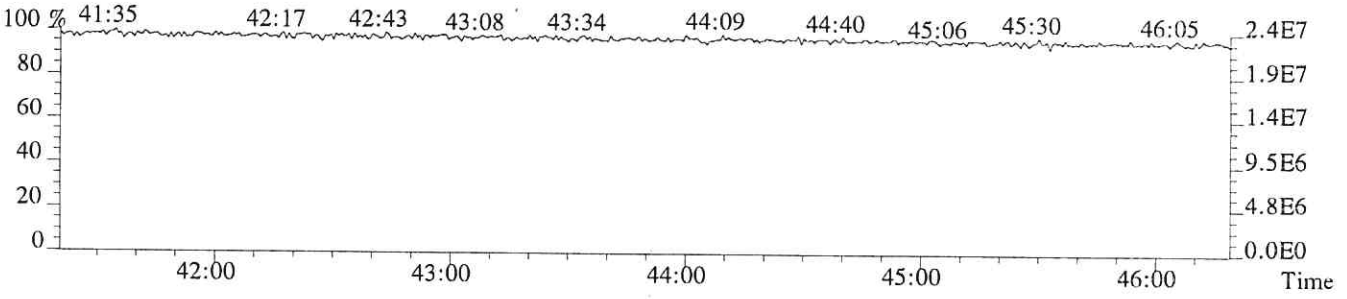
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



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



December 06, 2018 Service Request No:E1801038

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

Laboratory Results for: C1844-0501 Northern Impoundment

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 12, 2018
For your reference, these analyses have been assigned our service request number **E1801038.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

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

ALS Environmental

Client:	Integral Consulting, Incorporated	**Service Request No.:**	E1800339
Project:	C1844-0501	**Date Received:**	11/12/18
Sample Matrix:	Sediment/Wipe		

CASE NARRATIVE

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

Sample Receipt

Twenty-three samples were received for analysis at ALS Environmental in Houston on 11/12/18.

The samples were received at 1.1°C, 0.9°C, 3.6°C, and 1.7 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blanks EQ1800467-01, EQ1800468-01, EQ1800469-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800467, EQ1800468, EQ1800469: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

LCS/DLCS

EQ1800468-02: slightly high recovery for OCDF in the Laboratory Control Sample. The DLCS is within control limits.

Y flags – Labeled Standards

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

K flags

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

Detection Limits

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

2378-TCDF

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

Manual Integrations

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

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

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

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

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

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801038-001	SL0519	11/10/2018	1456
E1801038-002	SL0520	11/10/2018	1459
E1801038-003	SL0521	11/10/2018	1505
E1801038-004	SL0522	11/10/2018	1508
E1801038-005	SL0523	11/10/2018	1512
E1801038-006	SL0524	11/10/2018	1515
E1801038-007	SL0525	11/10/2018	1520
E1801038-008	SL0526	11/10/2018	1524
E1801038-009	SL0527	11/10/2018	1526
E1801038-010	SL0528	11/11/2018	1510
E1801038-011	SL0529	11/11/2018	1515
E1801038-012	SL0530	11/11/2018	1520
E1801038-013	SL0531	11/11/2018	1525
E1801038-014	SL0532	11/11/2018	1530
E1801038-015	SL0533	11/11/2018	1535
E1801038-016	SL0534	11/11/2018	1540
E1801038-017	SL0535	11/11/2018	1550
E1801038-018	SL0536	11/11/2018	1555
E1801038-019	SL0537	11/11/2018	1545
E1801038-020	SL0515	11/9/2018	0913
E1801038-021	SL0516	11/9/2018	0918
E1801038-022	SL0517	11/9/2018	0923
E1801038-023	FW0050	11/9/2018	1347

Service Request Summary

Folder #: **E1801038**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 Northern Impoundment
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/12/18
Internal Due Date: 12/3/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number: C1844-0501
EDD: Integral-UCR

22 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
1 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2A, E-Disposed
Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801038-001	SL0519	Sediment	11/10/18 1456	**IV**	**IV**
E1801038-002	SL0520	Sediment	11/10/18 1459	**IV**	**IV**
E1801038-003	SL0521	Sediment	11/10/18 1505	**IV**	**IV**
E1801038-004	SL0522	Sediment	11/10/18 1508	**IV**	**IV**
E1801038-005	SL0523	Sediment	11/10/18 1512	**IV**	**IV**
E1801038-006	SL0524	Sediment	11/10/18 1515	**IV**	**IV**
E1801038-007	SL0525	Sediment	11/10/18 1520	**IV**	**IV**
E1801038-008	SL0526	Sediment	11/10/18 1524	**IV**	**IV**
E1801038-009	SL0527	Sediment	11/10/18 1526	**IV**	**IV**
E1801038-010	SL0528	Sediment	11/11/18 1510	**IV**	**IV**
E1801038-011	SL0529	Sediment	11/11/18 1515	**IV**	**IV**
E1801038-012	SL0530	Sediment	11/11/18 1520	**IV**	**IV**
E1801038-013	SL0531	Sediment	11/11/18 1525	**IV**	**IV**
E1801038-014	SL0532	Sediment	11/11/18 1530	**IV**	**IV**
E1801038-015	SL0533	Sediment	11/11/18 1535	**IV**	**IV**
E1801038-016	SL0534	Sediment	11/11/18 1540	**IV**	**IV**

Service Request Summary

Folder #: **E1801038**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 Northern Impoundment
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/12/18
Internal Due Date: 12/3/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number: C1844-0501
EDD: Integral-UCR

22 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
1 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2A, E-Disposed
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801038-017	SL0535	Sediment	11/11/18 1550	**IV**	**IV**
E1801038-018	SL0536	Sediment	11/11/18 1555	**IV**	**IV**
E1801038-019	SL0537	Sediment	11/11/18 1545	**IV**	**IV**
E1801038-020	SL0515	Sediment	11/09/18 0913	**IV**	**IV**
E1801038-021	SL0516	Sediment	11/09/18 0918	**IV**	**IV**
E1801038-022	SL0517	Sediment	11/09/18 0923	**IV**	**IV**
E1801038-023	FW0050	Wipe	11/09/18 1347	**IV**	

Service Request Summary

Folder #: **E1801038**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 Northern Impoundment
Project Number:

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

Project Chemist: Kristin Brown
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Logged By: ALOPEZ
Date Received: 11/12/18
Internal Due Date: 12/3/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number: C1844-0501
EDD: Integral-UCR

22 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
1 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2A, E-Disposed

Pressure Gas:

Superset Summary

Service Request: E1801038 **SuperSet Reference:** 18-0000488949 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P518876	P518865	P518868	E1801038-001
P518890	P518880	P518868	E1801038-002
P518891	P518880	P518868	E1801038-003
P518898	P518895	P518868	E1801038-004
P518899	P518895	P518868	E1801038-005
P518900	P518895	P518868	E1801038-006
P518901	P518895	P518868	E1801038-007
P518902	P518895	P518868	E1801038-008
P518903	P518895	P518868	E1801038-009
P518904	P518895	P518868	E1801038-010
P518905	P518895	P518868	E1801038-011
P518906	P518895	P518868	E1801038-012
P518907	P518895	P518868	E1801038-013
P518908	P518895	P518868	E1801038-014
P518968	P518965	P518868	E1801038-015
P518969	P518965	P518868	E1801038-016
P518970	P518965	P518868	E1801038-017
P519125	P519116	P519219	E1801038-018
P519126	P519116	P519219	E1801038-019
P519127	P519116	P519219	E1801038-020
P519135	P519131	P519219	E1801038-021
P519136	P519131	P519219	E1801038-022
P518868	P518865	P518868	EQ1800468-01
P518877	P518865	P518868	EQ1800468-02
P518878	P518865	P518868	EQ1800468-03
P519219	P519210	P519219	EQ1800469-01
P519143	P519131	P519219	EQ1800469-02
P519144	P519131	P519219	EQ1800469-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615726	P615714	P615718	E1801038-023
P615718	P615714	P615718	EQ1800467-01
P615727	P615714	P615718	EQ1800467-02
P615728	P615714	P615718	EQ1800467-03

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.

E Estimated value. The reported concentration is above the calibration range of the instrument.

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

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

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

SR# Unique ID: E1801038 | DB-5MSUI (circled) | SPB-Octyl

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

Date:	Analyst:	Samples:
11/21/18	JC	001

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

Date:	Analyst:	Samples:
11/21/18	LG	001

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E1801038 | DB-5MSUI (circled) | SPB-Octyl

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

Date:	Analyst:	Samples:
11/20/18	JC	002, 003

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

Date:	Analyst:	Samples:
11/20/18	LKL	002, 003

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E1801038 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
11/21/18	[signature]	004-014

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

Date:	Analyst:	Samples:
11/26/18	LG	004-014

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

SR# Unique ID: E180l038 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
11/26/18	LKL	015_017

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

Date:	Analyst:	Samples:
11/26/18	LG	015-017

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

SR# Unique ID: E1801038 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
12/04/18	JC	-018, -019, -020

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

Date:	Analyst:	Samples:
12/05/18	VN	018-020

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

SR# Unique ID: E1801038 | DB-5MSUI (circled) | SPB-Octyl

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

Date:	Analyst:	Samples:
12/03/18	JC	021, 022

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

Date:	Analyst:	Samples:
12/05/18	LKL	021, 022

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

SR# Unique ID: E1801038 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
11/28/18	LKL	023

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

Date:	Analyst:	Samples:
11/28/18	LG	023

HS-HRMSREVIEW R1.0

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Chain of Custody

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

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Integral Consulting, Inc.
C1844-0501 Northern Impoundment

CHAIN OF CUSTODY FORM

Project: C1844 - 0501 Northern Impoundment
Samplers: Olivia Hargrave, Stefan Wodzicki

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

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

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides					Extra Container	Archive	Comments
SL0519	0020	11/10/18	1456	SL	X										
SL0520	0021	11/10/18	1459	SL	X										
SL0521	0022	11/10/18	1505	SL	X										
SL0522	0023	11/10/18	1508	SL	X										
SL0523	0024	11/10/18	1512	SL	X										
SL0524	0025	11/10/18	1515	SL	X										
SL0525	0026	11/10/18	1520	SL	X										
SL0526	0027	11/10/18	1524	SL	X										
SL0527	0028	11/10/18	1526	SL	X										
SL0528	0029	11/11/18	1510	SL	X										
SL0529	0030	11/11/18	1515	SL	X										
SL0530	0031	11/11/18	1520	SL	X										
SL0531	0032	11/11/18	1525	SL	X										
SL0532	0033	11/11/18	1530	SL	X										
SL0533	0034	11/11/18	1535	SL	X										
SL0534	0035	11/11/18	1540	SL	X										
SL0535	0037	11/11/18	1550	SL	X										
SL0536	0038	11/11/18	1555	SL	X										
SL0537	0036	11/11/18	1545	SL	X										
FW0050	0461	11/9/18	1347	FW	X										

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

Shipped by: **Shipping Tracking No.**

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

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

Relinquished by: (signature) **Date/Time:** 11/12/18 1134 **Received by:** (signature) **Date/Time:** 11/12/18 1134

Relinquished by: (signature) **Date/Time:** 11/12/18 13:15 **Received by:** (signature) **Date/Time:**

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

CHAIN OF CUSTODY FORM

Project: C1844 - 0501 Northern Impoundment

Samplers: Olivia Hargrave, Stefan Wodzicki

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

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

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides					Extra Container	Archive	Comments
SL0515	0017	11/9/18	0913	SL	X										
SL0516	0018	11/9/18	0918	SL	X										
SL0517	0019	11/9/18	0923	SL	X										

ANALYSES REQUESTED

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

Shipped by: **Shipping Tracking No.**

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

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

Relinquished by: (signature) **Date/Time:** 11/12/18 1134 **Received by:** (signature) **Date/Time:** 11-12-18 1532

Relinquished by: (signature) **Date/Time:** 11/12/18 1348 **Received by:** (signature) **Date/Time:**

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

Cooler Receipt Form

ALS Environmental

Project Chemist HB

Client/Project INTEGRAL

Thermometer ID SMOM

Date/Time Received: 11/12/18 Initials: CH Date/Time Logged in: 11/12/18 Initials CH

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ⊘ ALS Courier ○ Client
2. Samples received in: ⊘ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ⊘ Yes ○ No — If yes, how many and where? 2 SEALS PER
   Were they intact? ⊘ Yes ○ No ○ N/A
   Were they signed and dated? ⊘ Yes ○ No ○ N/A
4. Packing Material: ○ Inserts ⊘ Baggies ⊘ Bubble Wrap ○ Gel Packs ⊘ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/12/18		JG	1.1/1.5	☑
-		↓		↓	0.9/1.3	☑
-					3.6/4.0	☑
-		↓		↓	1.7/2.1	☑

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

Notes, Discrepancies, & Resolutions:

Service request Label:

E1801038 5

Integral Consulting, Inc. C1844-0601 Northern Impoundment

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

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

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

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

Spiking Solutions

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

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

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

EQ1800468-02	100.00µL	EQ1800468-03	100.00µL

Preparation Information Benchsheet

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

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

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

Preparation Materials

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

Preparation Steps

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

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801035-017	SL0078	.01	1613B/Dioxins Furans			Sediment	10.536g	Brown Mud
2	E1801038-018	SL0536	.01	1613B/Dioxins Furans			Sediment	10.630g	Brown Mud
3	E1801038-019	SL0537	.01	1613B/Dioxins Furans			Sediment	10.294g	Brown Mud
4	E1801038-020	SL0515	.01	1613B/Dioxins Furans			Sediment	10.753g	Brown Mud
5	E1801038-021	SL0516	.01	1613B/Dioxins Furans			Sediment	10.207g	Brown Mud
6	E1801038-022	SL0517	.01	1613B/Dioxins Furans			Sediment	10.135g	Brown Mud
7	E1801039-006	SL0100	.02	1613B/Dioxins Furans			Sediment	10.897g	Brown Mud
8	E1801039-017	SL0107	.02	1613B/Dioxins Furans			Sediment	10.500g	Brown Mud
9	E1801039-031	SL0108	.02	1613B/Dioxins Furans			Sediment	10.385g	Brown Mud
10	E1801039-036	SL0129	.02	1613B/Dioxins Furans			Sediment	10.819g	Brown Mud
11	E1801039-037	SL0130	.02	1613B/Dioxins Furans			Sediment	10.195g	Brown Mud
12	E1801039-038	SL0101	.02	1613B/Dioxins Furans			Sediment	10.176g	Brown Mud
13	E1801040-001	SL0509	.01	1613B/Dioxins Furans			Sediment	10.852g	Moist Brown Sand
14	E1801040-002	SL0510	.01	1613B/Dioxins Furans			Sediment	10.733g	Brown Clumps of Mud
15	E1801040-003	SL0511	.01	1613B/Dioxins Furans			Sediment	10.429g	Brown Mud
16	E1801040-004	SL0512	.01	1613B/Dioxins Furans			Sediment	10.292g	Brown Mud
17	E1801040-005	SL0513	.01	1613B/Dioxins Furans			Sediment	10.260g	Brown Mud
18	E1801040-006	SL0514	.01	1613B/Dioxins Furans			Sediment	10.104g	Brown Mud
19	E1801040-007	SL0518	.01	1613B/Dioxins Furans			Sediment	10.460g	Moist Brown Sand
20	EQ1800469-01	MB		1613B/Dioxins Furans			Solid	10.246g	
21	EQ1800469-02	LCS		1613B/Dioxins Furans			Solid	10.291g	
22	EQ1800469-03	DLCS		1613B/Dioxins Furans			Solid	10.188g	

Spiking Solutions

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

EQ1800469-02 100.00µL EQ1800469-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 194904 Logbook Ref: 194903 JG 11/14/18 2-4ngml Expires On: 01/31/2019

E1801035-017	1,000.00µL	E1801038-018	1,000.00µL	E1801038-019	1,000.00µL	E1801038-020	1,000.00µL	E1801038-021	1,000.00µL	E1801038-022	1,000.00µL
E1801039-006	1,000.00µL	E1801039-017	1,000.00µL	E1801039-031	1,000.00µL	E1801039-036	1,000.00µL	E1801039-037	1,000.00µL	E1801039-038	1,000.00µL
E1801040-001	1,000.00µL	E1801040-002	1,000.00µL	E1801040-003	1,000.00µL	E1801040-004	1,000.00µL	E1801040-005	1,000.00µL	E1801040-006	1,000.00µL
E1801040-007	1,000.00µL	EQ1800469-01	1,000.00µL	EQ1800469-02	1,000.00µL	EQ1800469-03	1,000.00µL				

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

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

E1801035-017	100.00µL	E1801038-018	100.00µL	E1801038-019	100.00µL	E1801038-020	100.00µL	E1801038-021	100.00µL	E1801038-022	100.00µL
E1801039-006	100.00µL	E1801039-017	100.00µL	E1801039-031	100.00µL	E1801039-036	100.00µL	E1801039-037	100.00µL	E1801039-038	100.00µL
E1801040-001	100.00µL	E1801040-002	100.00µL	E1801040-003	100.00µL	E1801040-004	100.00µL	E1801040-005	100.00µL	E1801040-006	100.00µL
E1801040-007	100.00µL	EQ1800469-01	100.00µL	EQ1800469-02	100.00µL	EQ1800469-03	100.00µL				

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	10/31/18 tw toluene (194571)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/14/18 11:00	Started:	11/28/18 13:00	Started:	11/28/18 14:00	Started:	11/29/18 12:00
Finished:	11/15/18 07:30	Finished:	11/28/18 14:00	Finished:	11/28/18 17:00	Finished:	11/29/18 15:00
By:	ALOPEZ	By:	TWOODS	By:	TWOODS	By:	TWOODS
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

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

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

Spiking Solutions

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

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

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

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

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

EQ1800467-02 100.00µL EQ1800467-03 100.00µL

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

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

Preparation Information Benchsheet

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

Preparation Materials

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

Preparation Steps

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

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

E1801038 30 of 1233

Analytical Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:56
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0519	**Units:**	ng/Kg
Lab Code:	E1801038-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.361g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518876	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.53		0.334	0.558	0.86	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.115	2.79			1
1,2,3,4,7,8-HxCDD	ND	U	0.108	2.79			1
1,2,3,6,7,8-HxCDD	0.216**JK**		0.117	2.79	0.92	1.000	1
1,2,3,7,8,9-HxCDD	0.279**JK**		0.110	2.79	1.59	1.008	1
1,2,3,4,6,7,8-HpCDD	5.69		0.296	2.79	1.06	1.000	1
OCDD	272		0.131	5.58	0.91	1.000	1
2,3,7,8-TCDF	11.8		0.262	0.558	0.76	1.001	1
1,2,3,7,8-PeCDF	0.469**J**		0.102	2.79	1.52	1.001	1
2,3,4,7,8-PeCDF	0.327**J**		0.0975	2.79	1.46	1.000	1
1,2,3,4,7,8-HxCDF	0.620**BJ**		0.0459	2.79	1.25	1.001	1
1,2,3,6,7,8-HxCDF	0.106**BJK**		0.0430	2.79	0.66	1.001	1
1,2,3,7,8,9-HxCDF	ND	U	0.0575	2.79			1
2,3,4,6,7,8-HxCDF	0.0489**JK**		0.0455	2.79	1.52	1.000	1
1,2,3,4,6,7,8-HpCDF	0.344**JK**		0.0427	2.79	0.79	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0928**BJK**		0.0576	2.79	1.43	1.000	1
OCDF	1.01**BJK**		0.112	5.58	1.10	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:56
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0519	**Units:**	ng/Kg
Lab Code:	E1801038-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.361g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518876	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3.53		0.334	0.558	0.86		1
Total Penta-Dioxins	ND	U	0.115	2.79			1
Total Hexa-Dioxins	0.865**J**		0.112	2.79	1.27		1
Total Hepta-Dioxins	20.7		0.296	2.79	0.98		1
Total Tetra-Furans	17.7		0.262	0.558	0.66		1
Total Penta-Furans	0.797**J**		0.0997	2.79	1.52		1
Total Hexa-Furans	0.620**J**		0.0476	2.79	1.25		1
Total Hepta-Furans	ND	U	0.0494	2.79			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:56
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0519	**Units:**	Percent
Lab Code:	E1801038-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.361g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518876	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	885.244	44		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1340.800	67		25-181	1.60	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1127.925	56		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1194.711	60		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1279.043	64		23-140	1.06	1.072
13C-OCDD	4000	1508.954	38		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	837.815	42		24-169	0.80	0.989
13C-1,2,3,7,8-PeCDF	2000	1230.345	62		24-185	1.59	1.183
13C-2,3,4,7,8-PeCDF	2000	1253.516	63		21-178	1.63	1.223
13C-1,2,3,4,7,8-HxCDF	2000	1003.474	50		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1106.071	55		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1123.724	56		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1138.444	57		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1030.107	52		28-143	0.44	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	1053.425	53		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	400.166	50		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:56
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0519	**Units:**	ng/Kg
Lab Code:	E1801038-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3.53**	0.334	0.558	1	1	3.53
1,2,3,7,8-PeCDD	ND	0.115	2.79	1	1	
1,2,3,4,7,8-HxCDD	ND	0.108	2.79	1	0.1	
1,2,3,6,7,8-HxCDD	**0.216**	0.117	2.79	1	0.1	0.0216
1,2,3,7,8,9-HxCDD	**0.279**	0.110	2.79	1	0.1	0.0279
1,2,3,4,6,7,8-HpCDD	**5.69**	0.296	2.79	1	0.01	0.0569
OCDD	**272**	0.131	5.58	1	0.0003	0.0816
2,3,7,8-TCDF	**11.8**	0.262	0.558	1	0.1	1.18
1,2,3,7,8-PeCDF	**0.469**	0.102	2.79	1	0.03	0.0141
2,3,4,7,8-PeCDF	**0.327**	0.0975	2.79	1	0.3	0.0981
1,2,3,4,7,8-HxCDF	**0.620**	0.0459	2.79	1	0.1	0.0620
1,2,3,6,7,8-HxCDF	**0.106**	0.0430	2.79	1	0.1	0.0106
1,2,3,7,8,9-HxCDF	ND	0.0575	2.79	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0489**	0.0455	2.79	1	0.1	0.00489
1,2,3,4,6,7,8-HpCDF	**0.344**	0.0427	2.79	1	0.01	0.00344
1,2,3,4,7,8,9-HpCDF	**0.0928**	0.0576	2.79	1	0.01	0.000928
OCDF	**1.01**	0.112	5.58	1	0.0003	0.000303
		Total TEQ				5.09

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:56
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0519	**Units:**	Percent
Lab Code:	E1801038-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	9.112g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	86.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:59
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0520	**Units:**	ng/Kg
Lab Code:	E1801038-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 21:37
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.833g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518890	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518880

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.35**K**		0.761	0.761	0.64	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.158	2.74			1
1,2,3,4,7,8-HxCDD	ND	U	0.154	2.74			1
1,2,3,6,7,8-HxCDD	ND	U	0.167	2.74			1
1,2,3,7,8,9-HxCDD	0.400**J**		0.157	2.74	1.21	1.008	1
1,2,3,4,6,7,8-HpCDD	5.85		0.0731	2.74	1.08	1.000	1
OCDD	319		0.110	5.48	0.88	1.000	1
2,3,7,8-TCDF	3.27**K**		0.447	0.548	0.57	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.195	2.74			1
2,3,4,7,8-PeCDF	ND	U	0.190	2.74			1
1,2,3,4,7,8-HxCDF	0.158**BJK**		0.0393	2.74	0.78	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0349	2.74			1
1,2,3,7,8,9-HxCDF	0.0571**JK**		0.0449	2.74	2.91	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0367	2.74			1
1,2,3,4,6,7,8-HpCDF	0.0608**JK**		0.0452	2.74	1.84	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0660**BJ**		0.0643	2.74	1.14	1.001	1
OCDF	0.646**BJ**		0.215	5.48	0.77	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:59
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0520	**Units:**	ng/Kg
Lab Code:	E1801038-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 21:37
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.833g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518890	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518880

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.761	0.761			1
Total Penta-Dioxins	ND	U	0.158	2.74			1
Total Hexa-Dioxins	3.91		0.159	2.74	1.11		1
Total Hepta-Dioxins	22.6		0.0731	2.74	0.99		1
Total Tetra-Furans	ND	U	0.447	0.548			1
Total Penta-Furans	ND	U	0.193	2.74			1
Total Hexa-Furans	ND	U	0.0386	2.74			1
Total Hepta-Furans	0.0660**J**		0.0537	2.74	1.14		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:59
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0520	**Units:**	Percent
Lab Code:	E1801038-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 21:37
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.833g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518890	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518880

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	432.869	22	**Y**	25-164	0.76	1.028
13C-1,2,3,7,8-PeCDD	2000	903.075	45		25-181	1.62	1.236
13C-1,2,3,4,7,8-HxCDD	2000	888.950	44		32-141	1.23	0.991
13C-1,2,3,6,7,8-HxCDD	2000	941.104	47		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1179.234	59		23-140	1.03	1.071
13C-OCDD	4000	1565.762	39		17-157	0.87	1.143
13C-2,3,7,8-TCDF	2000	364.965	18	**Y**	24-169	0.77	0.989
13C-1,2,3,7,8-PeCDF	2000	788.594	39		24-185	1.55	1.184
13C-2,3,4,7,8-PeCDF	2000	794.051	40		21-178	1.57	1.223
13C-1,2,3,4,7,8-HxCDF	2000	738.091	37		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	863.665	43		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	902.428	45		29-147	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	885.812	44		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	926.752	46		28-143	0.46	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	932.888	47		26-138	0.46	1.083
37Cl-2,3,7,8-TCDD	800	194.210	24	**Y**	35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:59
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0520	**Units:**	ng/Kg
Lab Code:	E1801038-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.35**	0.761	0.761	1	1	1.35
1,2,3,7,8-PeCDD	ND	0.158	2.74	1	1	
1,2,3,4,7,8-HxCDD	ND	0.154	2.74	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.167	2.74	1	0.1	
1,2,3,7,8,9-HxCDD	**0.400**	0.157	2.74	1	0.1	0.0400
1,2,3,4,6,7,8-HpCDD	**5.85**	0.0731	2.74	1	0.01	0.0585
OCDD	**319**	0.110	5.48	1	0.0003	0.0957
2,3,7,8-TCDF	**3.27**	0.447	0.548	1	0.1	0.327
1,2,3,7,8-PeCDF	ND	0.195	2.74	1	0.03	
2,3,4,7,8-PeCDF	ND	0.190	2.74	1	0.3	
1,2,3,4,7,8-HxCDF	**0.158**	0.0393	2.74	1	0.1	0.0158
1,2,3,6,7,8-HxCDF	ND	0.0349	2.74	1	0.1	
1,2,3,7,8,9-HxCDF	**0.0571**	0.0449	2.74	1	0.1	0.00571
2,3,4,6,7,8-HxCDF	ND	0.0367	2.74	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0608**	0.0452	2.74	1	0.01	0.000608
1,2,3,4,7,8,9-HpCDF	**0.0660**	0.0643	2.74	1	0.01	0.000660
OCDF	**0.646**	0.215	5.48	1	0.0003	0.000194
		Total TEQ				1.89

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 14:59
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0520	**Units:**	Percent
Lab Code:	E1801038-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	8.12g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0521	**Units:**	ng/Kg
Lab Code:	E1801038-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 22:26
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.412g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518891	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518880

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.09		0.764	0.764	0.76	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.273	2.93			1
1,2,3,4,7,8-HxCDD	ND	U	0.129	2.93			1
1,2,3,6,7,8-HxCDD	ND	U	0.139	2.93			1
1,2,3,7,8,9-HxCDD	0.199**J**		0.131	2.93	1.12	1.008	1
1,2,3,4,6,7,8-HpCDD	4.30		0.130	2.93	1.16	1.000	1
OCDD	180		0.174	5.86	0.90	1.000	1
2,3,7,8-TCDF	6.07		0.323	0.586	0.66	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.243	2.93			1
2,3,4,7,8-PeCDF	ND	U	0.256	2.93			1
1,2,3,4,7,8-HxCDF	0.278**BJK**		0.0531	2.93	1.79	1.001	1
1,2,3,6,7,8-HxCDF	0.178**BJK**		0.0480	2.93	0.88	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0581	2.93			1
2,3,4,6,7,8-HxCDF	0.0779**J**		0.0507	2.93	1.12	1.001	1
1,2,3,4,6,7,8-HpCDF	0.253**JK**		0.0463	2.93	0.69	1.001	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0582	2.93			1
OCDF	1.96**BJK**		0.175	5.86	0.73	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0521	**Units:**	ng/Kg
Lab Code:	E1801038-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 22:26
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.412g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518891	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518880

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.09		0.764	0.764	0.76		1
Total Penta-Dioxins	ND	U	0.273	2.93			1
Total Hexa-Dioxins	1.15**J**		0.133	2.93	1.41		1
Total Hepta-Dioxins	17.3		0.130	2.93	1.14		1
Total Tetra-Furans	6.63		0.323	0.586	0.66		1
Total Penta-Furans	ND	U	0.249	2.93			1
Total Hexa-Furans	0.0779**J**		0.0522	2.93	1.12		1
Total Hepta-Furans	0.174**J**		0.0516	2.93	0.98		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0521	**Units:**	Percent
Lab Code:	E1801038-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 22:26
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.412g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518891	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518880

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	593.832	30		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1163.273	58		25-181	1.60	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1061.342	53		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1081.067	54		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1477.949	74		23-140	1.09	1.071
13C-OCDD	4000	2075.915	52		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	524.001	26		24-169	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	1068.148	53		24-185	1.58	1.184
13C-2,3,4,7,8-PeCDF	2000	1014.856	51		21-178	1.61	1.223
13C-1,2,3,4,7,8-HxCDF	2000	863.682	43		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	998.290	50		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1058.049	53		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	994.727	50		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1116.960	56		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1210.715	61		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	277.001	35		35-197	NA	1.029

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0521	**Units:**	ng/Kg
Lab Code:	E1801038-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.09**	0.764	0.764	1	1	2.09
1,2,3,7,8-PeCDD	ND	0.273	2.93	1	1	
1,2,3,4,7,8-HxCDD	ND	0.129	2.93	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.139	2.93	1	0.1	
1,2,3,7,8,9-HxCDD	**0.199**	0.131	2.93	1	0.1	0.0199
1,2,3,4,6,7,8-HpCDD	**4.30**	0.130	2.93	1	0.01	0.0430
OCDD	**180**	0.174	5.86	1	0.0003	0.0540
2,3,7,8-TCDF	**6.07**	0.323	0.586	1	0.1	0.607
1,2,3,7,8-PeCDF	ND	0.243	2.93	1	0.03	
2,3,4,7,8-PeCDF	ND	0.256	2.93	1	0.3	
1,2,3,4,7,8-HxCDF	**0.278**	0.0531	2.93	1	0.1	0.0278
1,2,3,6,7,8-HxCDF	**0.178**	0.0480	2.93	1	0.1	0.0178
1,2,3,7,8,9-HxCDF	ND	0.0581	2.93	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0779**	0.0507	2.93	1	0.1	0.00779
1,2,3,4,6,7,8-HpCDF	**0.253**	0.0463	2.93	1	0.01	0.00253
1,2,3,4,7,8,9-HpCDF	ND	0.0582	2.93	1	0.01	
OCDF	**1.96**	0.175	5.86	1	0.0003	0.000588
		Total TEQ				2.87

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0521	**Units:**	Percent
Lab Code:	E1801038-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	8.722g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.9		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0522	**Units:**	ng/Kg
Lab Code:	E1801038-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 04:21
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.107g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518898	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.440	0.619			1
1,2,3,7,8-PeCDD	ND	U	0.149	3.10			1
1,2,3,4,7,8-HxCDD	0.184**JK**		0.141	3.10	1.90	1.000	1
1,2,3,6,7,8-HxCDD	0.393**JK**		0.157	3.10	1.47	1.000	1
1,2,3,7,8,9-HxCDD	0.638**JK**		0.146	3.10	0.90	1.008	1
1,2,3,4,6,7,8-HpCDD	12.6		0.0467	3.10	1.11	1.000	1
OCDD	787		0.104	6.19	0.91	1.000	1
2,3,7,8-TCDF	2.49**K**		0.242	0.619	0.59	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.125	3.10			1
2,3,4,7,8-PeCDF	ND	U	0.132	3.10			1
1,2,3,4,7,8-HxCDF	0.166**BJK**		0.0850	3.10	1.99	1.000	1
1,2,3,6,7,8-HxCDF	0.167**BJ**		0.0694	3.10	1.22	1.000	1
1,2,3,7,8,9-HxCDF	0.110**JK**		0.102	3.10	0.71	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0854	3.10			1
1,2,3,4,6,7,8-HpCDF	0.604**J**		0.0433	3.10	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0569	3.10			1
OCDF	2.73**JK**		0.263	6.19	1.10	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0522	**Units:**	ng/Kg
Lab Code:	E1801038-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 04:21
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.107g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518898	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.440	0.619			1
Total Penta-Dioxins	0.378**J**		0.149	3.10	1.39		1
Total Hexa-Dioxins	8.22		0.148	3.10	1.38		1
Total Hepta-Dioxins	41.4		0.0467	3.10	1.07		1
Total Tetra-Furans	1.00		0.242	0.619	0.73		1
Total Penta-Furans	ND	U	0.129	3.10			1
Total Hexa-Furans	0.167**J**		0.0836	3.10	1.22		1
Total Hepta-Furans	1.27**J**		0.0495	3.10	0.98		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0522	**Units:**	Percent
Lab Code:	E1801038-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 04:21
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.107g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518898	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	664.873	33		25-164	0.79	1.028
13C-1,2,3,7,8-PeCDD	2000	1009.038	50		25-181	1.63	1.236
13C-1,2,3,4,7,8-HxCDD	2000	958.970	48		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1016.817	51		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1285.675	64		23-140	1.05	1.071
13C-OCDD	4000	1649.776	41		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	592.740	30		24-169	0.77	0.988
13C-1,2,3,7,8-PeCDF	2000	963.659	48		24-185	1.58	1.184
13C-2,3,4,7,8-PeCDF	2000	903.963	45		21-178	1.58	1.223
13C-1,2,3,4,7,8-HxCDF	2000	802.381	40		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1031.149	52		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	927.246	46		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	917.096	46		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	925.842	46		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1007.134	50		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	297.758	37		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0522	**Units:**	ng/Kg
Lab Code:	E1801038-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.440	0.619	1	1	
1,2,3,7,8-PeCDD	ND	0.149	3.10	1	1	
1,2,3,4,7,8-HxCDD	**0.184**	0.141	3.10	1	0.1	0.0184
1,2,3,6,7,8-HxCDD	**0.393**	0.157	3.10	1	0.1	0.0393
1,2,3,7,8,9-HxCDD	**0.638**	0.146	3.10	1	0.1	0.0638
1,2,3,4,6,7,8-HpCDD	**12.6**	0.0467	3.10	1	0.01	0.126
OCDD	**787**	0.104	6.19	1	0.0003	0.236
2,3,7,8-TCDF	**2.49**	0.242	0.619	1	0.1	0.249
1,2,3,7,8-PeCDF	ND	0.125	3.10	1	0.03	
2,3,4,7,8-PeCDF	ND	0.132	3.10	1	0.3	
1,2,3,4,7,8-HxCDF	**0.166**	0.0850	3.10	1	0.1	0.0166
1,2,3,6,7,8-HxCDF	**0.167**	0.0694	3.10	1	0.1	0.0167
1,2,3,7,8,9-HxCDF	**0.110**	0.102	3.10	1	0.1	0.0110
2,3,4,6,7,8-HxCDF	ND	0.0854	3.10	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.604**	0.0433	3.10	1	0.01	0.00604
1,2,3,4,7,8,9-HpCDF	ND	0.0569	3.10	1	0.01	
OCDF	**2.73**	0.263	6.19	1	0.0003	0.000819
		Total TEQ				0.784

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0522	**Units:**	Percent
Lab Code:	E1801038-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	6.421g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:12
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0523	**Units:**	ng/Kg
Lab Code:	E1801038-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 05:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.614g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518899	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.545**J**		0.252	0.605	0.65	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.108	3.03			1
1,2,3,4,7,8-HxCDD	ND	U	0.0407	3.03			1
1,2,3,6,7,8-HxCDD	0.152**JK**		0.0466	3.03	0.83	1.000	1
1,2,3,7,8,9-HxCDD	0.131**JK**		0.0427	3.03	2.29	1.007	1
1,2,3,4,6,7,8-HpCDD	4.77		0.136	3.03	0.98	1.000	1
OCDD	170		0.0949	6.05	0.88	1.000	1
2,3,7,8-TCDF	1.55		0.0929	0.605	0.70	1.001	1
1,2,3,7,8-PeCDF	0.108**JK**		0.0805	3.03	1.20	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.0820	3.03			1
1,2,3,4,7,8-HxCDF	0.428**BJ**		0.0306	3.03	1.10	1.000	1
1,2,3,6,7,8-HxCDF	0.180**BJ**		0.0277	3.03	1.06	1.001	1
1,2,3,7,8,9-HxCDF	0.100**JK**		0.0363	3.03	0.68	1.001	1
2,3,4,6,7,8-HxCDF	0.0639**JK**		0.0296	3.03	0.87	1.000	1
1,2,3,4,6,7,8-HpCDF	2.78**J**		0.0411	3.03	1.13	1.000	1
1,2,3,4,7,8,9-HpCDF	0.303**BJK**		0.0576	3.03	1.56	1.000	1
OCDF	18.8		0.0667	6.05	0.76	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:12
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0523	**Units:**	ng/Kg
Lab Code:	E1801038-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 05:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.614g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518899	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.252	0.605			1
Total Penta-Dioxins	ND	U	0.108	3.03			1
Total Hexa-Dioxins	2.37**J**		0.0433	3.03	1.24		1
Total Hepta-Dioxins	16.4		0.136	3.03	0.96		1
Total Tetra-Furans	2.43		0.0929	0.605	0.74		1
Total Penta-Furans	ND	U	0.0813	3.03			1
Total Hexa-Furans	1.19**J**		0.0307	3.03	1.10		1
Total Hepta-Furans	5.00		0.0485	3.03	1.13		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:12
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0523	**Units:**	Percent
Lab Code:	E1801038-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 05:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.614g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518899	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1137.652	57		25-164	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	1440.137	72		25-181	1.59	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1284.147	64		32-141	1.35	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1290.031	65		28-130	1.20	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1557.163	78		23-140	1.07	1.071
13C-OCDD	4000	2046.077	51		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	1034.772	52		24-169	0.79	0.988
13C-1,2,3,7,8-PeCDF	2000	1370.019	69		24-185	1.61	1.184
13C-2,3,4,7,8-PeCDF	2000	1326.484	66		21-178	1.59	1.223
13C-1,2,3,4,7,8-HxCDF	2000	1084.461	54		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1256.215	63		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1246.653	62		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1226.401	61		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1188.247	59		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1214.100	61		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	520.410	65		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:12
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0523	**Units:**	ng/Kg
Lab Code:	E1801038-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.545**	0.252	0.605	1	1	0.545
1,2,3,7,8-PeCDD	ND	0.108	3.03	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0407	3.03	1	0.1	
1,2,3,6,7,8-HxCDD	**0.152**	0.0466	3.03	1	0.1	0.0152
1,2,3,7,8,9-HxCDD	**0.131**	0.0427	3.03	1	0.1	0.0131
1,2,3,4,6,7,8-HpCDD	**4.77**	0.136	3.03	1	0.01	0.0477
OCDD	**170**	0.0949	6.05	1	0.0003	0.0510
2,3,7,8-TCDF	**1.55**	0.0929	0.605	1	0.1	0.155
1,2,3,7,8-PeCDF	**0.108**	0.0805	3.03	1	0.03	0.00324
2,3,4,7,8-PeCDF	ND	0.0820	3.03	1	0.3	
1,2,3,4,7,8-HxCDF	**0.428**	0.0306	3.03	1	0.1	0.0428
1,2,3,6,7,8-HxCDF	**0.180**	0.0277	3.03	1	0.1	0.0180
1,2,3,7,8,9-HxCDF	**0.100**	0.0363	3.03	1	0.1	0.0100
2,3,4,6,7,8-HxCDF	**0.0639**	0.0296	3.03	1	0.1	0.00639
1,2,3,4,6,7,8-HpCDF	**2.78**	0.0411	3.03	1	0.01	0.0278
1,2,3,4,7,8,9-HpCDF	**0.303**	0.0576	3.03	1	0.01	0.00303
OCDF	**18.8**	0.0667	6.05	1	0.0003	0.00564
		Total TEQ				0.944

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:12
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0523	**Units:**	Percent
Lab Code:	E1801038-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	6.4g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.8		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0524	**Units:**	ng/Kg
Lab Code:	E1801038-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 05:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.369g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518900	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.790**K**		0.268	0.594	0.90	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.0857	2.97			1
1,2,3,4,7,8-HxCDD	0.199**JK**		0.0854	2.97	1.88	1.000	1
1,2,3,6,7,8-HxCDD	0.116**JK**		0.0955	2.97	0.74	1.000	1
1,2,3,7,8,9-HxCDD	0.240**JK**		0.0884	2.97	1.00	1.007	1
1,2,3,4,6,7,8-HpCDD	2.68**J**		0.183	2.97	1.02	1.000	1
OCDD	159		0.178	5.94	0.89	1.000	1
2,3,7,8-TCDF	1.87		0.246	0.594	0.74	1.001	1
1,2,3,7,8-PeCDF	0.126**JK**		0.0631	2.97	0.83	1.000	1
2,3,4,7,8-PeCDF	0.204**JK**		0.0600	2.97	1.17	1.000	1
1,2,3,4,7,8-HxCDF	0.145**BJK**		0.0423	2.97	1.04	1.000	1
1,2,3,6,7,8-HxCDF	0.125**BJ**		0.0395	2.97	1.09	1.000	1
1,2,3,7,8,9-HxCDF	0.257**J**		0.0543	2.97	1.10	1.000	1
2,3,4,6,7,8-HxCDF	0.128**JK**		0.0427	2.97	1.65	1.001	1
1,2,3,4,6,7,8-HpCDF	0.268**J**		0.0505	2.97	0.89	1.001	1
1,2,3,4,7,8,9-HpCDF	0.185**BJK**		0.0704	2.97	1.49	1.000	1
OCDF	0.729**BJK**		0.141	5.94	0.71	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0524	**Units:**	ng/Kg
Lab Code:	E1801038-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 05:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.369g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518900	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.268	0.594			1
Total Penta-Dioxins	ND	U	0.0857	2.97			1
Total Hexa-Dioxins	1.40**J**		0.0898	2.97	1.11		1
Total Hepta-Dioxins	9.70		0.183	2.97	1.05		1
Total Tetra-Furans	1.87		0.246	0.594	0.74		1
Total Penta-Furans	ND	U	0.0616	2.97			1
Total Hexa-Furans	0.382**J**		0.0442	2.97	1.09		1
Total Hepta-Furans	0.268**J**		0.0594	2.97	0.89		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0524	**Units:**	Percent
Lab Code:	E1801038-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 05:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.369g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518900	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	752.817	38		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1253.068	63		25-181	1.60	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1112.696	56		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1086.138	54		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1315.361	66		23-140	1.06	1.071
13C-OCDD	4000	1709.612	43		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	703.633	35		24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	1105.147	55		24-185	1.55	1.184
13C-2,3,4,7,8-PeCDF	2000	1145.947	57		21-178	1.60	1.223
13C-1,2,3,4,7,8-HxCDF	2000	931.922	47		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1075.290	54		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1031.694	52		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1048.961	52		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1016.362	51		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1051.576	53		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	356.443	45		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0524	**Units:**	ng/Kg
Lab Code:	E1801038-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.790**	0.268	0.594	1	1	0.790
1,2,3,7,8-PeCDD	ND	0.0857	2.97	1	1	
1,2,3,4,7,8-HxCDD	**0.199**	0.0854	2.97	1	0.1	0.0199
1,2,3,6,7,8-HxCDD	**0.116**	0.0955	2.97	1	0.1	0.0116
1,2,3,7,8,9-HxCDD	**0.240**	0.0884	2.97	1	0.1	0.0240
1,2,3,4,6,7,8-HpCDD	**2.68**	0.183	2.97	1	0.01	0.0268
OCDD	**159**	0.178	5.94	1	0.0003	0.0477
2,3,7,8-TCDF	**1.87**	0.246	0.594	1	0.1	0.187
1,2,3,7,8-PeCDF	**0.126**	0.0631	2.97	1	0.03	0.00378
2,3,4,7,8-PeCDF	**0.204**	0.0600	2.97	1	0.3	0.0612
1,2,3,4,7,8-HxCDF	**0.145**	0.0423	2.97	1	0.1	0.0145
1,2,3,6,7,8-HxCDF	**0.125**	0.0395	2.97	1	0.1	0.0125
1,2,3,7,8,9-HxCDF	**0.257**	0.0543	2.97	1	0.1	0.0257
2,3,4,6,7,8-HxCDF	**0.128**	0.0427	2.97	1	0.1	0.0128
1,2,3,4,6,7,8-HpCDF	**0.268**	0.0505	2.97	1	0.01	0.00268
1,2,3,4,7,8,9-HpCDF	**0.185**	0.0704	2.97	1	0.01	0.00185
OCDF	**0.729**	0.141	5.94	1	0.0003	0.000219
		Total TEQ				1.24

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0524	**Units:**	Percent
Lab Code:	E1801038-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	6.218g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0525	**Units:**	ng/Kg
Lab Code:	E1801038-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 06:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.736g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518901	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.446	0.618			1
1,2,3,7,8-PeCDD	ND	U	0.0873	3.09			1
1,2,3,4,7,8-HxCDD	0.0710**JK**		0.0613	3.09	0.47	1.000	1
1,2,3,6,7,8-HxCDD	0.121**JK**		0.0660	3.09	1.91	1.001	1
1,2,3,7,8,9-HxCDD	0.227**JK**		0.0621	3.09	1.59	1.008	1
1,2,3,4,6,7,8-HpCDD	3.48**K**		0.0792	3.09	0.84	1.000	1
OCDD	229		0.167	6.18	0.90	1.000	1
2,3,7,8-TCDF	2.01**K**		0.371	0.618	0.61	0.999	1
1,2,3,7,8-PeCDF	ND	U	0.154	3.09			1
2,3,4,7,8-PeCDF	ND	U	0.150	3.09			1
1,2,3,4,7,8-HxCDF	0.0637**BJ**		0.0401	3.09	1.26	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0343	3.09			1
1,2,3,7,8,9-HxCDF	ND	U	0.0456	3.09			1
2,3,4,6,7,8-HxCDF	0.0537**JK**		0.0375	3.09	1.47	1.001	1
1,2,3,4,6,7,8-HpCDF	0.132**J**		0.0357	3.09	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0459	3.09			1
OCDF	0.441**BJK**		0.121	6.18	0.55	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0525	**Units:**	ng/Kg
Lab Code:	E1801038-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 06:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.736g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518901	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.446	0.618			1
Total Penta-Dioxins	ND	U	0.0873	3.09			1
Total Hexa-Dioxins	3.10		0.0631	3.09	1.37		1
Total Hepta-Dioxins	11.9		0.0792	3.09	1.11		1
Total Tetra-Furans	1.01		0.371	0.618	0.84		1
Total Penta-Furans	ND	U	0.152	3.09			1
Total Hexa-Furans	0.178**J**		0.0390	3.09	1.37		1
Total Hepta-Furans	0.201**J**		0.0403	3.09	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0525	**Units:**	Percent
Lab Code:	E1801038-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 06:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.736g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518901	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	529.403	26		25-164	0.77	1.028
13C-1,2,3,7,8-PeCDD	2000	950.631	48		25-181	1.58	1.236
13C-1,2,3,4,7,8-HxCDD	2000	995.245	50		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1048.343	52		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1360.494	68		23-140	1.05	1.071
13C-OCDD	4000	1764.806	44		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	473.328	24		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	850.455	43		24-185	1.57	1.184
13C-2,3,4,7,8-PeCDF	2000	872.502	44		21-178	1.60	1.224
13C-1,2,3,4,7,8-HxCDF	2000	835.263	42		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	985.401	49		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1013.209	51		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	979.784	49		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	989.431	49		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	1078.692	54		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	230.137	29	**Y**	35-197	NA	1.029

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0525	**Units:**	ng/Kg
Lab Code:	E1801038-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.446	0.618	1	1	
1,2,3,7,8-PeCDD	ND	0.0873	3.09	1	1	
1,2,3,4,7,8-HxCDD	**0.0710**	0.0613	3.09	1	0.1	0.00710
1,2,3,6,7,8-HxCDD	**0.121**	0.0660	3.09	1	0.1	0.0121
1,2,3,7,8,9-HxCDD	**0.227**	0.0621	3.09	1	0.1	0.0227
1,2,3,4,6,7,8-HpCDD	**3.48**	0.0792	3.09	1	0.01	0.0348
OCDD	**229**	0.167	6.18	1	0.0003	0.0687
2,3,7,8-TCDF	**2.01**	0.371	0.618	1	0.1	0.201
1,2,3,7,8-PeCDF	ND	0.154	3.09	1	0.03	
2,3,4,7,8-PeCDF	ND	0.150	3.09	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0637**	0.0401	3.09	1	0.1	0.00637
1,2,3,6,7,8-HxCDF	ND	0.0343	3.09	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0456	3.09	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0537**	0.0375	3.09	1	0.1	0.00537
1,2,3,4,6,7,8-HpCDF	**0.132**	0.0357	3.09	1	0.01	0.00132
1,2,3,4,7,8,9-HpCDF	ND	0.0459	3.09	1	0.01	
OCDF	**0.441**	0.121	6.18	1	0.0003	0.000132
		Total TEQ				0.360

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0525	**Units:**	Percent
Lab Code:	E1801038-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	6.418g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	75.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:24
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0526	**Units:**	ng/Kg
Lab Code:	E1801038-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 07:35
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.385g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518902	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.12		0.434	0.572	0.75	1.000	1
1,2,3,7,8-PeCDD	ND	U	0.146	2.86			1
1,2,3,4,7,8-HxCDD	ND	U	0.0547	2.86			1
1,2,3,6,7,8-HxCDD	0.177**JK**		0.0594	2.86	1.00	1.001	1
1,2,3,7,8,9-HxCDD	0.278**JK**		0.0558	2.86	0.98	1.008	1
1,2,3,4,6,7,8-HpCDD	2.36**J**		0.0345	2.86	0.97	1.000	1
OCDD	121		0.121	5.72	0.91	1.000	1
2,3,7,8-TCDF	1.97		0.269	0.572	0.84	1.000	1
1,2,3,7,8-PeCDF	0.114**JK**		0.0734	2.86	0.83	0.999	1
2,3,4,7,8-PeCDF	ND	U	0.0668	2.86			1
1,2,3,4,7,8-HxCDF	0.0756**BJK**		0.0555	2.86	0.66	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0513	2.86			1
1,2,3,7,8,9-HxCDF	ND	U	0.0677	2.86			1
2,3,4,6,7,8-HxCDF	ND	U	0.0528	2.86			1
1,2,3,4,6,7,8-HpCDF	0.0427**JK**		0.0296	2.86	2.22	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0412	2.86			1
OCDF	0.377**BJK**		0.139	5.72	0.70	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:24
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0526	**Units:**	ng/Kg
Lab Code:	E1801038-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 07:35
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.385g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518902	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.12		0.434	0.572	0.75		1
Total Penta-Dioxins	ND	U	0.146	2.86			1
Total Hexa-Dioxins	0.552**J**		0.0567	2.86	1.37		1
Total Hepta-Dioxins	9.44		0.0345	2.86	0.98		1
Total Tetra-Furans	1.97		0.269	0.572	0.84		1
Total Penta-Furans	ND	U	0.0699	2.86			1
Total Hexa-Furans	ND	U	0.0564	2.86			1
Total Hepta-Furans	ND	U	0.0347	2.86			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:24
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0526	**Units:**	Percent
Lab Code:	E1801038-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 07:35
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.385g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518902	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	484.258	24	**Y**	25-164	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	1032.760	52		25-181	1.59	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1032.033	52		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1083.718	54		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1277.597	64		23-140	1.05	1.071
13C-OCDD	4000	1574.012	39		17-157	0.88	1.143
13C-2,3,7,8-TCDF	2000	413.969	21	**Y**	24-169	0.79	0.988
13C-1,2,3,7,8-PeCDF	2000	850.352	43		24-185	1.62	1.184
13C-2,3,4,7,8-PeCDF	2000	954.663	48		21-178	1.58	1.224
13C-1,2,3,4,7,8-HxCDF	2000	846.810	42		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	962.167	48		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	985.409	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	997.714	50		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1007.035	50		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1022.297	51		26-138	0.46	1.083
37Cl-2,3,7,8-TCDD	800	210.214	26	**Y**	35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:24
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0526	**Units:**	ng/Kg
Lab Code:	E1801038-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.12**	0.434	0.572	1	1	1.12
1,2,3,7,8-PeCDD	ND	0.146	2.86	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0547	2.86	1	0.1	
1,2,3,6,7,8-HxCDD	**0.177**	0.0594	2.86	1	0.1	0.0177
1,2,3,7,8,9-HxCDD	**0.278**	0.0558	2.86	1	0.1	0.0278
1,2,3,4,6,7,8-HpCDD	**2.36**	0.0345	2.86	1	0.01	0.0236
OCDD	**121**	0.121	5.72	1	0.0003	0.0363
2,3,7,8-TCDF	**1.97**	0.269	0.572	1	0.1	0.197
1,2,3,7,8-PeCDF	**0.114**	0.0734	2.86	1	0.03	0.00342
2,3,4,7,8-PeCDF	ND	0.0668	2.86	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0756**	0.0555	2.86	1	0.1	0.00756
1,2,3,6,7,8-HxCDF	ND	0.0513	2.86	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0677	2.86	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0528	2.86	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0427**	0.0296	2.86	1	0.01	0.000427
1,2,3,4,7,8,9-HpCDF	ND	0.0412	2.86	1	0.01	
OCDF	**0.377**	0.139	5.72	1	0.0003	0.000113
		Total TEQ				1.43

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:24
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0526	**Units:**	Percent
Lab Code:	E1801038-008	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	5.541g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:26
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0527	**Units:**	ng/Kg
Lab Code:	E1801038-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 08:24
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.723g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518903	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.489**J**		0.384	0.570	0.65	1.002	1
1,2,3,7,8-PeCDD	ND	U	0.0817	2.85			1
1,2,3,4,7,8-HxCDD	ND	U	0.111	2.85			1
1,2,3,6,7,8-HxCDD	0.211**J**		0.123	2.85	1.40	1.000	1
1,2,3,7,8,9-HxCDD	0.418**J**		0.114	2.85	1.27	1.008	1
1,2,3,4,6,7,8-HpCDD	5.03		0.177	2.85	0.96	1.000	1
OCDD	315		0.118	5.70	0.90	1.000	1
2,3,7,8-TCDF	1.34		0.170	0.570	0.74	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.110	2.85			1
2,3,4,7,8-PeCDF	ND	U	0.120	2.85			1
1,2,3,4,7,8-HxCDF	0.0751**BJK**		0.0325	2.85	0.96	1.000	1
1,2,3,6,7,8-HxCDF	0.0320**BJK**		0.0279	2.85	2.58	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0389	2.85			1
2,3,4,6,7,8-HxCDF	ND	U	0.0305	2.85			1
1,2,3,4,6,7,8-HpCDF	0.114**J**		0.0401	2.85	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0544	2.85			1
OCDF	0.362**BJK**		0.179	5.70	1.57	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:26
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0527	**Units:**	ng/Kg
Lab Code:	E1801038-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 08:24
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.723g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518903	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.384	0.570			1
Total Penta-Dioxins	0.327**J**		0.0817	2.85	1.77		1
Total Hexa-Dioxins	7.10		0.116	2.85	1.10		1
Total Hepta-Dioxins	21.7		0.177	2.85	1.14		1
Total Tetra-Furans	1.34		0.170	0.570	0.74		1
Total Penta-Furans	ND	U	0.115	2.85			1
Total Hexa-Furans	ND	U	0.0321	2.85			1
Total Hepta-Furans	0.114**J**		0.0465	2.85	0.94		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:26
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0527	**Units:**	Percent
Lab Code:	E1801038-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 08:24
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.723g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518903	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	804.673	40		25-164	0.83	1.028
13C-1,2,3,7,8-PeCDD	2000	1165.036	58		25-181	1.62	1.237
13C-1,2,3,4,7,8-HxCDD	2000	1063.220	53		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1113.649	56		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1386.001	69		23-140	1.04	1.071
13C-OCDD	4000	1746.336	44		17-157	0.89	1.142
13C-2,3,7,8-TCDF	2000	692.120	35		24-169	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	1071.811	54		24-185	1.57	1.185
13C-2,3,4,7,8-PeCDF	2000	1023.240	51		21-178	1.61	1.224
13C-1,2,3,4,7,8-HxCDF	2000	901.905	45		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1059.871	53		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1038.768	52		29-147	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1052.353	53		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1045.162	52		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1060.036	53		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	357.413	45		35-197	NA	1.030

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:26
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0527	**Units:**	ng/Kg
Lab Code:	E1801038-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.489**	0.384	0.570	1	1	0.489
1,2,3,7,8-PeCDD	ND	0.0817	2.85	1	1	
1,2,3,4,7,8-HxCDD	ND	0.111	2.85	1	0.1	
1,2,3,6,7,8-HxCDD	**0.211**	0.123	2.85	1	0.1	0.0211
1,2,3,7,8,9-HxCDD	**0.418**	0.114	2.85	1	0.1	0.0418
1,2,3,4,6,7,8-HpCDD	**5.03**	0.177	2.85	1	0.01	0.0503
OCDD	**315**	0.118	5.70	1	0.0003	0.0945
2,3,7,8-TCDF	**1.34**	0.170	0.570	1	0.1	0.134
1,2,3,7,8-PeCDF	ND	0.110	2.85	1	0.03	
2,3,4,7,8-PeCDF	ND	0.120	2.85	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0751**	0.0325	2.85	1	0.1	0.00751
1,2,3,6,7,8-HxCDF	**0.0320**	0.0279	2.85	1	0.1	0.00320
1,2,3,7,8,9-HxCDF	ND	0.0389	2.85	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0305	2.85	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.114**	0.0401	2.85	1	0.01	0.00114
1,2,3,4,7,8,9-HpCDF	ND	0.0544	2.85	1	0.01	
OCDF	**0.362**	0.179	5.70	1	0.0003	0.000109
		Total TEQ				0.843

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/10/18 15:26
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0527	**Units:**	Percent
Lab Code:	E1801038-009	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	7.169g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.8		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0528	**Units:**	ng/Kg
Lab Code:	E1801038-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 09:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.215g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518904	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.847**K**		0.241	0.559	0.93	1.002	1
1,2,3,7,8-PeCDD	ND	U	0.101	2.79			1
1,2,3,4,7,8-HxCDD	0.128**J**		0.0650	2.79	1.24	1.000	1
1,2,3,6,7,8-HxCDD	0.659**J**		0.0699	2.79	1.23	1.000	1
1,2,3,7,8,9-HxCDD	0.436**J**		0.0659	2.79	1.07	1.007	1
1,2,3,4,6,7,8-HpCDD	20.7		0.0901	2.79	0.98	1.000	1
OCDD	481		0.246	5.59	0.88	1.000	1
2,3,7,8-TCDF	2.41		0.159	0.559	0.74	1.002	1
1,2,3,7,8-PeCDF	0.350**J**		0.167	2.79	1.56	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.178	2.79			1
1,2,3,4,7,8-HxCDF	0.546**BJK**		0.0525	2.79	0.98	1.000	1
1,2,3,6,7,8-HxCDF	0.292**BJ**		0.0487	2.79	1.42	1.000	1
1,2,3,7,8,9-HxCDF	0.107**JK**		0.0650	2.79	1.84	1.000	1
2,3,4,6,7,8-HxCDF	0.108**JK**		0.0528	2.79	2.61	1.000	1
1,2,3,4,6,7,8-HpCDF	2.90		0.0872	2.79	1.14	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.131	2.79			1
OCDF	12.1**K**		0.365	5.59	1.03	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0528	**Units:**	ng/Kg
Lab Code:	E1801038-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 09:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.215g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518904	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.241	0.559			1
Total Penta-Dioxins	0.153**J**		0.101	2.79	1.74		1
Total Hexa-Dioxins	9.06		0.0670	2.79	1.35		1
Total Hepta-Dioxins	56.0		0.0901	2.79	1.03		1
Total Tetra-Furans	3.50		0.159	0.559	0.76		1
Total Penta-Furans	1.84**J**		0.172	2.79	1.40		1
Total Hexa-Furans	3.71		0.0542	2.79	1.23		1
Total Hepta-Furans	11.6		0.106	2.79	1.14		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0528	**Units:**	Percent
Lab Code:	E1801038-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 09:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.215g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518904	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1001.029	50		25-164	0.81	1.028
13C-1,2,3,7,8-PeCDD	2000	1138.379	57		25-181	1.57	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1003.083	50		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1015.199	51		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1052.737	53		23-140	1.06	1.071
13C-OCDD	4000	961.263	24		17-157	0.86	1.142
13C-2,3,7,8-TCDF	2000	846.677	42		24-169	0.81	0.988
13C-1,2,3,7,8-PeCDF	2000	1110.954	56		24-185	1.56	1.185
13C-2,3,4,7,8-PeCDF	2000	1040.672	52		21-178	1.62	1.224
13C-1,2,3,4,7,8-HxCDF	2000	865.705	43		26-152	0.54	0.968
13C-1,2,3,6,7,8-HxCDF	2000	945.051	47		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	925.131	46		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	917.313	46		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	860.270	43		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	827.052	41		26-138	0.46	1.083
37Cl-2,3,7,8-TCDD	800	468.103	59		35-197	NA	1.030

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0528	**Units:**	ng/Kg
Lab Code:	E1801038-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.847**	0.241	0.559	1	1	0.847
1,2,3,7,8-PeCDD	ND	0.101	2.79	1	1	
1,2,3,4,7,8-HxCDD	**0.128**	0.0650	2.79	1	0.1	0.0128
1,2,3,6,7,8-HxCDD	**0.659**	0.0699	2.79	1	0.1	0.0659
1,2,3,7,8,9-HxCDD	**0.436**	0.0659	2.79	1	0.1	0.0436
1,2,3,4,6,7,8-HpCDD	**20.7**	0.0901	2.79	1	0.01	0.207
OCDD	**481**	0.246	5.59	1	0.0003	0.144
2,3,7,8-TCDF	**2.41**	0.159	0.559	1	0.1	0.241
1,2,3,7,8-PeCDF	**0.350**	0.167	2.79	1	0.03	0.0105
2,3,4,7,8-PeCDF	ND	0.178	2.79	1	0.3	
1,2,3,4,7,8-HxCDF	**0.546**	0.0525	2.79	1	0.1	0.0546
1,2,3,6,7,8-HxCDF	**0.292**	0.0487	2.79	1	0.1	0.0292
1,2,3,7,8,9-HxCDF	**0.107**	0.0650	2.79	1	0.1	0.0107
2,3,4,6,7,8-HxCDF	**0.108**	0.0528	2.79	1	0.1	0.0108
1,2,3,4,6,7,8-HpCDF	**2.90**	0.0872	2.79	1	0.01	0.0290
1,2,3,4,7,8,9-HpCDF	ND	0.131	2.79	1	0.01	
OCDF	**12.1**	0.365	5.59	1	0.0003	0.00363
		Total TEQ				1.71

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0528	**Units:**	Percent
Lab Code:	E1801038-010	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	5.902g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	87.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0529	**Units:**	ng/Kg
Lab Code:	E1801038-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 10:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.338g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518905	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.404	0.564			1
1,2,3,7,8-PeCDD	ND	U	0.0855	2.82			1
1,2,3,4,7,8-HxCDD	ND	U	0.0568	2.82			1
1,2,3,6,7,8-HxCDD	ND	U	0.0601	2.82			1
1,2,3,7,8,9-HxCDD	0.239**JK**		0.0571	2.82	0.89	1.007	1
1,2,3,4,6,7,8-HpCDD	3.54		0.0508	2.82	1.11	1.000	1
OCDD	120		0.224	5.64	0.86	1.000	1
2,3,7,8-TCDF	2.72**K**		0.383	0.564	0.92	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.132	2.82			1
2,3,4,7,8-PeCDF	ND	U	0.138	2.82			1
1,2,3,4,7,8-HxCDF	0.137**BJ**		0.0439	2.82	1.43	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0409	2.82			1
1,2,3,7,8,9-HxCDF	ND	U	0.0530	2.82			1
2,3,4,6,7,8-HxCDF	ND	U	0.0428	2.82			1
1,2,3,4,6,7,8-HpCDF	0.137**JK**		0.0454	2.82	0.50	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0628	2.82			1
OCDF	0.564**BJK**		0.188	5.64	0.64	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0529	**Units:**	ng/Kg
Lab Code:	E1801038-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 10:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.338g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518905	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.404	0.564			1
Total Penta-Dioxins	ND	U	0.0855	2.82			1
Total Hexa-Dioxins	ND	U	0.0580	2.82			1
Total Hepta-Dioxins	13.2		0.0508	2.82	0.91		1
Total Tetra-Furans	ND	U	0.383	0.564			1
Total Penta-Furans	ND	U	0.135	2.82			1
Total Hexa-Furans	0.137**J**		0.0449	2.82	1.43		1
Total Hepta-Furans	ND	U	0.0532	2.82			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0529	**Units:**	Percent
Lab Code:	E1801038-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 10:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.338g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518905	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	550.123	28		25-164	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	997.641	50		25-181	1.59	1.236
13C-1,2,3,4,7,8-HxCDD	2000	975.062	49		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1027.139	51		28-130	1.23	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1088.839	54		23-140	1.07	1.071
13C-OCDD	4000	1037.613	26		17-157	0.93	1.142
13C-2,3,7,8-TCDF	2000	415.021	21	**Y**	24-169	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	902.215	45		24-185	1.61	1.185
13C-2,3,4,7,8-PeCDF	2000	871.538	44		21-178	1.58	1.224
13C-1,2,3,4,7,8-HxCDF	2000	808.072	40		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	888.908	44		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	950.886	48		29-147	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	922.181	46		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	849.800	42		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	858.292	43		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	240.412	30	**Y**	35-197	NA	1.030

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0529	**Units:**	ng/Kg
Lab Code:	E1801038-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.404	0.564	1	1	
1,2,3,7,8-PeCDD	ND	0.0855	2.82	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0568	2.82	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.0601	2.82	1	0.1	
1,2,3,7,8,9-HxCDD	**0.239**	0.0571	2.82	1	0.1	0.0239
1,2,3,4,6,7,8-HpCDD	**3.54**	0.0508	2.82	1	0.01	0.0354
OCDD	**120**	0.224	5.64	1	0.0003	0.0360
2,3,7,8-TCDF	**2.72**	0.383	0.564	1	0.1	0.272
1,2,3,7,8-PeCDF	ND	0.132	2.82	1	0.03	
2,3,4,7,8-PeCDF	ND	0.138	2.82	1	0.3	
1,2,3,4,7,8-HxCDF	**0.137**	0.0439	2.82	1	0.1	0.0137
1,2,3,6,7,8-HxCDF	ND	0.0409	2.82	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0530	2.82	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0428	2.82	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.137**	0.0454	2.82	1	0.01	0.00137
1,2,3,4,7,8,9-HpCDF	ND	0.0628	2.82	1	0.01	
OCDF	**0.564**	0.188	5.64	1	0.0003	0.000169
		Total TEQ				0.383

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0529	**Units:**	Percent
Lab Code:	E1801038-011	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	8.553g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	85.8		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0530	**Units:**	ng/Kg
Lab Code:	E1801038-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.493g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518906	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.668		0.322	0.580	0.68	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.136	2.90			1
1,2,3,4,7,8-HxCDD	ND	U	0.0731	2.90			1
1,2,3,6,7,8-HxCDD	ND	U	0.0778	2.90			1
1,2,3,7,8,9-HxCDD	0.132**JK**		0.0738	2.90	4.39	1.008	1
1,2,3,4,6,7,8-HpCDD	3.45		0.172	2.90	1.02	1.000	1
OCDD	141		0.0986	5.80	0.85	1.001	1
2,3,7,8-TCDF	1.43		0.330	0.580	0.85	1.002	1
1,2,3,7,8-PeCDF	ND	U	0.133	2.90			1
2,3,4,7,8-PeCDF	ND	U	0.130	2.90			1
1,2,3,4,7,8-HxCDF	0.104**BJK**		0.0358	2.90	1.55	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0334	2.90			1
1,2,3,7,8,9-HxCDF	ND	U	0.0452	2.90			1
2,3,4,6,7,8-HxCDF	ND	U	0.0356	2.90			1
1,2,3,4,6,7,8-HpCDF	0.148**JK**		0.0310	2.90	0.52	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0450	2.90			1
OCDF	0.337**BJK**		0.122	5.80	0.38	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0530	**Units:**	ng/Kg
Lab Code:	E1801038-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.493g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518906	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.668		0.322	0.580	0.68		1
Total Penta-Dioxins	ND	U	0.136	2.90			1
Total Hexa-Dioxins	2.34**J**		0.0749	2.90	1.39		1
Total Hepta-Dioxins	13.8		0.172	2.90	0.96		1
Total Tetra-Furans	1.43		0.330	0.580	0.85		1
Total Penta-Furans	ND	U	0.132	2.90			1
Total Hexa-Furans	0.0388**J**		0.0371	2.90	1.28		1
Total Hepta-Furans	ND	U	0.0371	2.90			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0530	**Units:**	Percent
Lab Code:	E1801038-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.493g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518906	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	865.400	43		25-164	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	1301.144	65		25-181	1.62	1.237
13C-1,2,3,4,7,8-HxCDD	2000	1191.933	60		32-141	1.33	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1211.231	61		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1385.812	69		23-140	1.02	1.071
13C-OCDD	4000	1537.865	38		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	781.741	39		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1183.993	59		24-185	1.57	1.185
13C-2,3,4,7,8-PeCDF	2000	1189.732	59		21-178	1.58	1.224
13C-1,2,3,4,7,8-HxCDF	2000	1022.712	51		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1092.549	55		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1084.677	54		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1125.352	56		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1135.184	57		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1075.540	54		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	397.668	50		35-197	NA	1.030

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0530	**Units:**	ng/Kg
Lab Code:	E1801038-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.668**	0.322	0.580	1	1	0.668
1,2,3,7,8-PeCDD	ND	0.136	2.90	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0731	2.90	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.0778	2.90	1	0.1	
1,2,3,7,8,9-HxCDD	**0.132**	0.0738	2.90	1	0.1	0.0132
1,2,3,4,6,7,8-HpCDD	**3.45**	0.172	2.90	1	0.01	0.0345
OCDD	**141**	0.0986	5.80	1	0.0003	0.0423
2,3,7,8-TCDF	**1.43**	0.330	0.580	1	0.1	0.143
1,2,3,7,8-PeCDF	ND	0.133	2.90	1	0.03	
2,3,4,7,8-PeCDF	ND	0.130	2.90	1	0.3	
1,2,3,4,7,8-HxCDF	**0.104**	0.0358	2.90	1	0.1	0.0104
1,2,3,6,7,8-HxCDF	ND	0.0334	2.90	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0452	2.90	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0356	2.90	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.148**	0.0310	2.90	1	0.01	0.00148
1,2,3,4,7,8,9-HpCDF	ND	0.0450	2.90	1	0.01	
OCDF	**0.337**	0.122	5.80	1	0.0003	0.000101
		Total TEQ				0.913

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0530	**Units:**	Percent
Lab Code:	E1801038-012	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	5.335g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0531	**Units:**	ng/Kg
Lab Code:	E1801038-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.619g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518907	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.778**K**		0.453	0.567	1.15	1.001	1
1,2,3,7,8-PeCDD	0.0834**JK**		0.0770	2.84	0.48	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.149	2.84			1
1,2,3,6,7,8-HxCDD	0.283**J**		0.164	2.84	1.27	1.000	1
1,2,3,7,8,9-HxCDD	0.428**JK**		0.153	2.84	1.50	1.007	1
1,2,3,4,6,7,8-HpCDD	5.89		0.0510	2.84	1.06	1.000	1
OCDD	213		0.158	5.67	0.91	1.000	1
2,3,7,8-TCDF	2.60		0.176	0.567	0.75	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.104	2.84			1
2,3,4,7,8-PeCDF	ND	U	0.101	2.84			1
1,2,3,4,7,8-HxCDF	0.0955**BJK**		0.0350	2.84	0.93	1.000	1
1,2,3,6,7,8-HxCDF	0.0565**BJ**		0.0326	2.84	1.24	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0434	2.84			1
2,3,4,6,7,8-HxCDF	ND	U	0.0359	2.84			1
1,2,3,4,6,7,8-HpCDF	0.166**JK**		0.0401	2.84	0.73	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0556	2.84			1
OCDF	1.46**BJK**		0.261	5.67	0.74	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0531	**Units:**	ng/Kg
Lab Code:	E1801038-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.619g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518907	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.453	0.567			1
Total Penta-Dioxins	0.359**J**		0.0770	2.84	1.56		1
Total Hexa-Dioxins	4.96		0.156	2.84	1.23		1
Total Hepta-Dioxins	26.3		0.0510	2.84	1.03		1
Total Tetra-Furans	2.60		0.176	0.567	0.75		1
Total Penta-Furans	ND	U	0.102	2.84			1
Total Hexa-Furans	0.163**J**		0.0365	2.84	1.24		1
Total Hepta-Furans	0.597**J**		0.0470	2.84	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0531	**Units:**	Percent
Lab Code:	E1801038-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.619g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518907	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	518.359	26		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1061.599	53		25-181	1.60	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1027.680	51		32-141	1.33	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1039.186	52		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1070.813	54		23-140	1.09	1.071
13C-OCDD	4000	1023.168	26		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	431.467	22	**Y**	24-169	0.78	0.989
13C-1,2,3,7,8-PeCDF	2000	903.721	45		24-185	1.62	1.185
13C-2,3,4,7,8-PeCDF	2000	963.609	48		21-178	1.62	1.224
13C-1,2,3,4,7,8-HxCDF	2000	871.295	44		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	944.231	47		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	970.411	49		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	943.579	47		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	853.806	43		28-143	0.46	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	870.017	44		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	246.692	31	**Y**	35-197	NA	1.030

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0531	**Units:**	ng/Kg
Lab Code:	E1801038-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.778**	0.453	0.567	1	1	0.778
1,2,3,7,8-PeCDD	**0.0834**	0.0770	2.84	1	1	0.0834
1,2,3,4,7,8-HxCDD	ND	0.149	2.84	1	0.1	
1,2,3,6,7,8-HxCDD	**0.283**	0.164	2.84	1	0.1	0.0283
1,2,3,7,8,9-HxCDD	**0.428**	0.153	2.84	1	0.1	0.0428
1,2,3,4,6,7,8-HpCDD	**5.89**	0.0510	2.84	1	0.01	0.0589
OCDD	**213**	0.158	5.67	1	0.0003	0.0639
2,3,7,8-TCDF	**2.60**	0.176	0.567	1	0.1	0.260
1,2,3,7,8-PeCDF	ND	0.104	2.84	1	0.03	
2,3,4,7,8-PeCDF	ND	0.101	2.84	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0955**	0.0350	2.84	1	0.1	0.00955
1,2,3,6,7,8-HxCDF	**0.0565**	0.0326	2.84	1	0.1	0.00565
1,2,3,7,8,9-HxCDF	ND	0.0434	2.84	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0359	2.84	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.166**	0.0401	2.84	1	0.01	0.00166
1,2,3,4,7,8,9-HpCDF	ND	0.0556	2.84	1	0.01	
OCDF	**1.46**	0.261	5.67	1	0.0003	0.000438
		Total TEQ				1.33

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0531	**Units:**	Percent
Lab Code:	E1801038-013	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	7.864g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:30
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0532	**Units:**	ng/Kg
Lab Code:	E1801038-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 12:27
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.482g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518908	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.511**JK**		0.211	0.594	0.60	1.000	1
1,2,3,7,8-PeCDD	ND	U	0.114	2.97			1
1,2,3,4,7,8-HxCDD	ND	U	0.107	2.97			1
1,2,3,6,7,8-HxCDD	ND	U	0.117	2.97			1
1,2,3,7,8,9-HxCDD	0.335**J**		0.110	2.97	1.17	1.007	1
1,2,3,4,6,7,8-HpCDD	5.92		0.111	2.97	1.08	1.000	1
OCDD	173		0.291	5.94	0.90	1.000	1
2,3,7,8-TCDF	1.53		0.123	0.594	0.88	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.0547	2.97			1
2,3,4,7,8-PeCDF	ND	U	0.0546	2.97			1
1,2,3,4,7,8-HxCDF	ND	U	0.0428	2.97			1
1,2,3,6,7,8-HxCDF	ND	U	0.0391	2.97			1
1,2,3,7,8,9-HxCDF	ND	U	0.0609	2.97			1
2,3,4,6,7,8-HxCDF	ND	U	0.0448	2.97			1
1,2,3,4,6,7,8-HpCDF	0.166**JK**		0.0440	2.97	0.42	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0666	2.97			1
OCDF	1.18**BJK**		0.273	5.94	1.16	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:30
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0532	**Units:**	ng/Kg
Lab Code:	E1801038-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 12:27
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.482g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518908	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.01		0.211	0.594	0.88		1
Total Penta-Dioxins	ND	U	0.114	2.97			1
Total Hexa-Dioxins	4.08		0.111	2.97	1.24		1
Total Hepta-Dioxins	23.0		0.111	2.97	1.05		1
Total Tetra-Furans	1.68		0.123	0.594	0.83		1
Total Penta-Furans	ND	U	0.0547	2.97			1
Total Hexa-Furans	ND	U	0.0459	2.97			1
Total Hepta-Furans	ND	U	0.0535	2.97			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:30
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0532	**Units:**	Percent
Lab Code:	E1801038-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/18/18 12:27
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.482g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518908	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518895

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	946.779	47		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1320.343	66		25-181	1.60	1.236
13C-1,2,3,4,7,8-HxCDD	2000	1102.975	55		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1123.359	56		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1066.496	53		23-140	1.01	1.071
13C-OCDD	4000	904.221	23		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	873.664	44		24-169	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	1201.445	60		24-185	1.60	1.185
13C-2,3,4,7,8-PeCDF	2000	1182.221	59		21-178	1.61	1.224
13C-1,2,3,4,7,8-HxCDF	2000	935.738	47		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1021.408	51		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	912.485	46		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	990.679	50		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	884.747	44		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	810.873	41		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	439.431	55		35-197	NA	1.030

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:30
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0532	**Units:**	ng/Kg
Lab Code:	E1801038-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.511**	0.211	0.594	1	1	0.511
1,2,3,7,8-PeCDD	ND	0.114	2.97	1	1	
1,2,3,4,7,8-HxCDD	ND	0.107	2.97	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.117	2.97	1	0.1	
1,2,3,7,8,9-HxCDD	**0.335**	0.110	2.97	1	0.1	0.0335
1,2,3,4,6,7,8-HpCDD	**5.92**	0.111	2.97	1	0.01	0.0592
OCDD	**173**	0.291	5.94	1	0.0003	0.0519
2,3,7,8-TCDF	**1.53**	0.123	0.594	1	0.1	0.153
1,2,3,7,8-PeCDF	ND	0.0547	2.97	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0546	2.97	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0428	2.97	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0391	2.97	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0609	2.97	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0448	2.97	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.166**	0.0440	2.97	1	0.01	0.00166
1,2,3,4,7,8,9-HpCDF	ND	0.0666	2.97	1	0.01	
OCDF	**1.18**	0.273	5.94	1	0.0003	0.000354
		Total TEQ				0.811

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:30
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0532	**Units:**	Percent
Lab Code:	E1801038-014	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	7.774g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:35
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0533	**Units:**	ng/Kg
Lab Code:	E1801038-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 13:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.269g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518968	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.07**K**		0.517	0.595	1.09	1.000	1
1,2,3,7,8-PeCDD	ND	U	0.0890	2.98			1
1,2,3,4,7,8-HxCDD	ND	U	0.0708	2.98			1
1,2,3,6,7,8-HxCDD	ND	U	0.0784	2.98			1
1,2,3,7,8,9-HxCDD	0.205**J**		0.0728	2.98	1.11	1.007	1
1,2,3,4,6,7,8-HpCDD	2.05**J**		0.0847	2.98	1.12	1.000	1
OCDD	99.7		0.0864	5.95	0.90	1.000	1
2,3,7,8-TCDF	2.30**K**		0.167	0.595	0.57	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0999	2.98			1
2,3,4,7,8-PeCDF	ND	U	0.0960	2.98			1
1,2,3,4,7,8-HxCDF	0.0894**BJ**		0.0520	2.98	1.05	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0518	2.98			1
1,2,3,7,8,9-HxCDF	ND	U	0.0611	2.98			1
2,3,4,6,7,8-HxCDF	ND	U	0.0504	2.98			1
1,2,3,4,6,7,8-HpCDF	0.0489**JK**		0.0272	2.98	0.27	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0360	2.98			1
OCDF	0.299**BJ**		0.121	5.95	1.01	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:35
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0533	**Units:**	ng/Kg
Lab Code:	E1801038-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 13:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.269g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518968	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.517	0.595			1
Total Penta-Dioxins	ND	U	0.0890	2.98			1
Total Hexa-Dioxins	0.205**J**		0.0739	2.98	1.11		1
Total Hepta-Dioxins	8.48		0.0847	2.98	1.08		1
Total Tetra-Furans	1.21		0.167	0.595	0.71		1
Total Penta-Furans	ND	U	0.0979	2.98			1
Total Hexa-Furans	ND	U	0.0535	2.98			1
Total Hepta-Furans	ND	U	0.0309	2.98			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:35
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0533	**Units:**	Percent
Lab Code:	E1801038-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 13:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.269g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518968	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	505.145	25		25-164	0.80	1.018
13C-1,2,3,7,8-PeCDD	2000	843.189	42		25-181	1.63	1.175
13C-1,2,3,4,7,8-HxCDD	2000	903.988	45		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	860.621	43		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1200.573	60		23-140	1.08	1.067
13C-OCDD	4000	2120.818	53		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	417.096	21	**Y**	24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	710.178	36		24-185	1.62	1.134
13C-2,3,4,7,8-PeCDF	2000	742.348	37		21-178	1.61	1.165
13C-1,2,3,4,7,8-HxCDF	2000	734.681	37		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	734.189	37		26-123	0.50	0.975
13C-1,2,3,7,8,9-HxCDF	2000	793.276	40		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	820.300	41		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	879.815	44		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	757.721	38		26-138	0.49	1.080
37Cl-2,3,7,8-TCDD	800	227.661	28	**Y**	35-197	NA	1.019

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:35
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0533	**Units:**	ng/Kg
Lab Code:	E1801038-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.07**	0.517	0.595	1	1	1.07
1,2,3,7,8-PeCDD	ND	0.0890	2.98	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0708	2.98	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.0784	2.98	1	0.1	
1,2,3,7,8,9-HxCDD	**0.205**	0.0728	2.98	1	0.1	0.0205
1,2,3,4,6,7,8-HpCDD	**2.05**	0.0847	2.98	1	0.01	0.0205
OCDD	**99.7**	0.0864	5.95	1	0.0003	0.0299
2,3,7,8-TCDF	**2.30**	0.167	0.595	1	0.1	0.230
1,2,3,7,8-PeCDF	ND	0.0999	2.98	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0960	2.98	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0894**	0.0520	2.98	1	0.1	0.00894
1,2,3,6,7,8-HxCDF	ND	0.0518	2.98	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0611	2.98	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0504	2.98	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0489**	0.0272	2.98	1	0.01	0.000489
1,2,3,4,7,8,9-HpCDF	ND	0.0360	2.98	1	0.01	
OCDF	**0.299**	0.121	5.95	1	0.0003	0.0000897
		Total TEQ				1.38

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:35
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0533	**Units:**	Percent
Lab Code:	E1801038-015	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	7.261g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.8		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0534	**Units:**	ng/Kg
Lab Code:	E1801038-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 14:21
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.797g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518969	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.49**K**		0.746	0.746	0.64	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.0990	2.78			1
1,2,3,4,7,8-HxCDD	ND	U	0.0544	2.78			1
1,2,3,6,7,8-HxCDD	0.0899**JK**		0.0605	2.78	0.59	1.000	1
1,2,3,7,8,9-HxCDD	0.330**JK**		0.0560	2.78	1.54	1.007	1
1,2,3,4,6,7,8-HpCDD	3.02		0.151	2.78	1.14	1.001	1
OCDD	140		0.0578	5.57	0.89	1.000	1
2,3,7,8-TCDF	3.18		0.381	0.557	0.78	1.001	1
1,2,3,7,8-PeCDF	0.202**JK**		0.120	2.78	0.62	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.107	2.78			1
1,2,3,4,7,8-HxCDF	0.276**BJK**		0.0736	2.78	0.99	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.153	2.78			1
1,2,3,7,8,9-HxCDF	ND	U	0.0880	2.78			1
2,3,4,6,7,8-HxCDF	ND	U	0.0755	2.78			1
1,2,3,4,6,7,8-HpCDF	0.228**J**		0.0382	2.78	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0448	2.78			1
OCDF	1.08**BJ**		0.111	5.57	0.99	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0534	**Units:**	ng/Kg
Lab Code:	E1801038-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 14:21
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.797g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518969	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.746	0.746			1
Total Penta-Dioxins	ND	U	0.0990	2.78			1
Total Hexa-Dioxins	1.92**J**		0.0569	2.78	1.18		1
Total Hepta-Dioxins	12.6		0.151	2.78	1.03		1
Total Tetra-Furans	4.57		0.381	0.557	0.88		1
Total Penta-Furans	ND	U	0.113	2.78			1
Total Hexa-Furans	ND	U	0.0904	2.78			1
Total Hepta-Furans	0.228**J**		0.0412	2.78	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0534	**Units:**	Percent
Lab Code:	E1801038-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 14:21
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.797g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518969	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	506.583	25		25-164	0.79	1.018
13C-1,2,3,7,8-PeCDD	2000	1142.908	57		25-181	1.59	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1054.036	53		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1016.189	51		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1337.028	67		23-140	1.06	1.067
13C-OCDD	4000	2310.660	58		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	430.306	22	**Y**	24-169	0.81	0.992
13C-1,2,3,7,8-PeCDF	2000	879.336	44		24-185	1.56	1.134
13C-2,3,4,7,8-PeCDF	2000	981.238	49		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	897.933	45		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	444.949	22	**Y**	26-123	0.55	0.975
13C-1,2,3,7,8,9-HxCDF	2000	969.781	48		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	928.178	46		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	955.502	48		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1179.062	59		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	224.161	28	**Y**	35-197	NA	1.019

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0534	**Units:**	ng/Kg
Lab Code:	E1801038-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.49**	0.746	0.746	1	1	1.49
1,2,3,7,8-PeCDD	ND	0.0990	2.78	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0544	2.78	1	0.1	
1,2,3,6,7,8-HxCDD	**0.0899**	0.0605	2.78	1	0.1	0.00899
1,2,3,7,8,9-HxCDD	**0.330**	0.0560	2.78	1	0.1	0.0330
1,2,3,4,6,7,8-HpCDD	**3.02**	0.151	2.78	1	0.01	0.0302
OCDD	**140**	0.0578	5.57	1	0.0003	0.0420
2,3,7,8-TCDF	**3.18**	0.381	0.557	1	0.1	0.318
1,2,3,7,8-PeCDF	**0.202**	0.120	2.78	1	0.03	0.00606
2,3,4,7,8-PeCDF	ND	0.107	2.78	1	0.3	
1,2,3,4,7,8-HxCDF	**0.276**	0.0736	2.78	1	0.1	0.0276
1,2,3,6,7,8-HxCDF	ND	0.153	2.78	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0880	2.78	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0755	2.78	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.228**	0.0382	2.78	1	0.01	0.00228
1,2,3,4,7,8,9-HpCDF	ND	0.0448	2.78	1	0.01	
OCDF	**1.08**	0.111	5.57	1	0.0003	0.000324
		Total TEQ				1.96

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0534	**Units:**	Percent
Lab Code:	E1801038-016	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	7.771g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0535	**Units:**	ng/Kg
Lab Code:	E1801038-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 15:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.716g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518970	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.882**K**		0.503	0.572	1.16	1.001	1
1,2,3,7,8-PeCDD	0.144**JK**		0.104	2.86	2.88	1.001	1
1,2,3,4,7,8-HxCDD	0.195**JK**		0.106	2.86	0.56	1.000	1
1,2,3,6,7,8-HxCDD	0.193**JK**		0.112	2.86	1.51	1.000	1
1,2,3,7,8,9-HxCDD	0.309**J**		0.107	2.86	1.05	1.007	1
1,2,3,4,6,7,8-HpCDD	3.85		0.172	2.86	0.95	1.000	1
OCDD	157		0.141	5.72	0.86	1.000	1
2,3,7,8-TCDF	2.81		0.275	0.572	0.79	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0902	2.86			1
2,3,4,7,8-PeCDF	ND	U	0.0915	2.86			1
1,2,3,4,7,8-HxCDF	0.147**BJ**		0.0840	2.86	1.10	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0798	2.86			1
1,2,3,7,8,9-HxCDF	ND	U	0.0920	2.86			1
2,3,4,6,7,8-HxCDF	ND	U	0.0803	2.86			1
1,2,3,4,6,7,8-HpCDF	0.0995**J**		0.0527	2.86	1.20	1.001	1
1,2,3,4,7,8,9-HpCDF	0.0710**BJ**		0.0667	2.86	1.03	1.001	1
OCDF	0.789**BJ**		0.126	5.72	0.92	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0535	**Units:**	ng/Kg
Lab Code:	E1801038-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 15:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.716g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518970	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.503	0.572			1
Total Penta-Dioxins	ND	U	0.104	2.86			1
Total Hexa-Dioxins	0.370**J**		0.108	2.86	1.26		1
Total Hepta-Dioxins	14.3		0.172	2.86	1.00		1
Total Tetra-Furans	4.15		0.275	0.572	0.69		1
Total Penta-Furans	ND	U	0.0909	2.86			1
Total Hexa-Furans	0.147**J**		0.0838	2.86	1.10		1
Total Hepta-Furans	0.0710**J**		0.0592	2.86	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0535	**Units:**	Percent
Lab Code:	E1801038-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 15:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.716g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518970	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	727.983	36		25-164	0.82	1.018
13C-1,2,3,7,8-PeCDD	2000	1152.460	58		25-181	1.61	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1050.833	53		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1115.438	56		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1441.747	72		23-140	1.07	1.067
13C-OCDD	4000	2418.430	60		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	623.964	31		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	975.811	49		24-185	1.61	1.134
13C-2,3,4,7,8-PeCDF	2000	996.728	50		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	870.813	44		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	893.403	45		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1007.616	50		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1000.629	50		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1062.474	53		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1198.738	60		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	335.604	42		35-197	NA	1.019

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0535	**Units:**	ng/Kg
Lab Code:	E1801038-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.882**	0.503	0.572	1	1	0.882
1,2,3,7,8-PeCDD	**0.144**	0.104	2.86	1	1	0.144
1,2,3,4,7,8-HxCDD	**0.195**	0.106	2.86	1	0.1	0.0195
1,2,3,6,7,8-HxCDD	**0.193**	0.112	2.86	1	0.1	0.0193
1,2,3,7,8,9-HxCDD	**0.309**	0.107	2.86	1	0.1	0.0309
1,2,3,4,6,7,8-HpCDD	**3.85**	0.172	2.86	1	0.01	0.0385
OCDD	**157**	0.141	5.72	1	0.0003	0.0471
2,3,7,8-TCDF	**2.81**	0.275	0.572	1	0.1	0.281
1,2,3,7,8-PeCDF	ND	0.0902	2.86	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0915	2.86	1	0.3	
1,2,3,4,7,8-HxCDF	**0.147**	0.0840	2.86	1	0.1	0.0147
1,2,3,6,7,8-HxCDF	ND	0.0798	2.86	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0920	2.86	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0803	2.86	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0995**	0.0527	2.86	1	0.01	0.000995
1,2,3,4,7,8,9-HpCDF	**0.0710**	0.0667	2.86	1	0.01	0.000710
OCDF	**0.789**	0.126	5.72	1	0.0003	0.000237
		Total TEQ				1.48

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0535	**Units:**	Percent
Lab Code:	E1801038-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	8.376g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0536	**Units:**	ng/Kg
Lab Code:	E1801038-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 22:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.630g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519125	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.130	0.592			1
1,2,3,7,8-PeCDD	ND	U	0.0927	2.96			1
1,2,3,4,7,8-HxCDD	ND	U	0.0604	2.96			1
1,2,3,6,7,8-HxCDD	0.255**JK**		0.0650	2.96	0.86	1.000	1
1,2,3,7,8,9-HxCDD	0.330**JK**		0.0612	2.96	1.70	1.007	1
1,2,3,4,6,7,8-HpCDD	5.25		0.0977	2.96	0.90	1.000	1
OCDD	127		0.312	5.92	0.85	1.000	1
2,3,7,8-TCDF	0.249**J**		0.0755	0.592	0.84	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0718	2.96			1
2,3,4,7,8-PeCDF	ND	U	0.0759	2.96			1
1,2,3,4,7,8-HxCDF	0.0663**JK**		0.0412	2.96	0.89	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0406	2.96			1
1,2,3,7,8,9-HxCDF	0.0795**J**		0.0573	2.96	1.31	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0467	2.96			1
1,2,3,4,6,7,8-HpCDF	0.165**JK**		0.0490	2.96	1.61	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0912**JK**		0.0778	2.96	1.23	1.000	1
OCDF	1.06**JK**		0.327	5.92	1.19	1.006	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0536	**Units:**	ng/Kg
Lab Code:	E1801038-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 22:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.630g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519125	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.05		0.130	0.592	0.85		1
Total Penta-Dioxins	1.19**J**		0.0927	2.96	1.69		1
Total Hexa-Dioxins	5.25		0.0622	2.96	1.15		1
Total Hepta-Dioxins	20.6		0.0977	2.96	1.03		1
Total Tetra-Furans	0.249**J**		0.0755	0.592	0.84		1
Total Penta-Furans	ND	U	0.0738	2.96			1
Total Hexa-Furans	0.232**J**		0.0457	2.96	1.17		1
Total Hepta-Furans	0.177**J**		0.0612	2.96	0.89		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0536	**Units:**	Percent
Lab Code:	E1801038-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 22:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.630g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519125	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1010.240	51		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1197.291	60		25-181	1.59	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1191.268	60		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1197.136	60		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	927.224	46		23-140	1.07	1.067
13C-OCDD	4000	665.832	17		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	872.437	44		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1053.761	53		24-185	1.58	1.140
13C-2,3,4,7,8-PeCDF	2000	1007.902	50		21-178	1.55	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1095.445	55		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1095.256	55		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	986.659	49		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	999.838	50		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	770.146	39		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	706.464	35		26-138	0.42	1.080
37Cl-2,3,7,8-TCDD	800	427.496	53		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0536	**Units:**	ng/Kg
Lab Code:	E1801038-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.130	0.592	1	1	
1,2,3,7,8-PeCDD	ND	0.0927	2.96	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0604	2.96	1	0.1	
1,2,3,6,7,8-HxCDD	**0.255**	0.0650	2.96	1	0.1	0.0255
1,2,3,7,8,9-HxCDD	**0.330**	0.0612	2.96	1	0.1	0.0330
1,2,3,4,6,7,8-HpCDD	**5.25**	0.0977	2.96	1	0.01	0.0525
OCDD	**127**	0.312	5.92	1	0.0003	0.0381
2,3,7,8-TCDF	**0.249**	0.0755	0.592	1	0.1	0.0249
1,2,3,7,8-PeCDF	ND	0.0718	2.96	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0759	2.96	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0663**	0.0412	2.96	1	0.1	0.00663
1,2,3,6,7,8-HxCDF	ND	0.0406	2.96	1	0.1	
1,2,3,7,8,9-HxCDF	**0.0795**	0.0573	2.96	1	0.1	0.00795
2,3,4,6,7,8-HxCDF	ND	0.0467	2.96	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.165**	0.0490	2.96	1	0.01	0.00165
1,2,3,4,7,8,9-HpCDF	**0.0912**	0.0778	2.96	1	0.01	0.000912
OCDF	**1.06**	0.327	5.92	1	0.0003	0.000318
		Total TEQ				0.191

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0536	**Units:**	Percent
Lab Code:	E1801038-018	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	8.056g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0537	**Units:**	ng/Kg
Lab Code:	E1801038-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 23:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.294g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519126	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.142	0.585			1
1,2,3,7,8-PeCDD	0.0961**JK**		0.0476	2.93	1.12	1.001	1
1,2,3,4,7,8-HxCDD	0.0534**JK**		0.0510	2.93	0.70	1.000	1
1,2,3,6,7,8-HxCDD	0.0844**JK**		0.0547	2.93	2.59	1.000	1
1,2,3,7,8,9-HxCDD	0.282**JK**		0.0517	2.93	1.44	1.006	1
1,2,3,4,6,7,8-HpCDD	2.49**J**		0.0498	2.93	1.19	1.000	1
OCDD	144		0.172	5.85	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.107	0.585			1
1,2,3,7,8-PeCDF	ND	U	0.0492	2.93			1
2,3,4,7,8-PeCDF	ND	U	0.0517	2.93			1
1,2,3,4,7,8-HxCDF	ND	U	0.0277	2.93			1
1,2,3,6,7,8-HxCDF	ND	U	0.0263	2.93			1
1,2,3,7,8,9-HxCDF	0.0648**J**		0.0332	2.93	1.14	1.001	1
2,3,4,6,7,8-HxCDF	0.0274**JK**		0.0265	2.93	2.17	1.000	1
1,2,3,4,6,7,8-HpCDF	0.0688**JK**		0.0218	2.93	0.69	1.001	1
1,2,3,4,7,8,9-HpCDF	0.0462**JK**		0.0347	2.93	1.56	1.000	1
OCDF	0.544**J**		0.167	5.85	0.77	1.006	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0537	**Units:**	ng/Kg
Lab Code:	E1801038-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 23:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.294g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519126	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.142	0.585			1
Total Penta-Dioxins	0.0795**J**		0.0476	2.93	1.34		1
Total Hexa-Dioxins	1.61**J**		0.0525	2.93	1.35		1
Total Hepta-Dioxins	10.5		0.0498	2.93	1.01		1
Total Tetra-Furans	ND	U	0.107	0.585			1
Total Penta-Furans	ND	U	0.0504	2.93			1
Total Hexa-Furans	0.0648**J**		0.0283	2.93	1.14		1
Total Hepta-Furans	ND	U	0.0273	2.93			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0537	**Units:**	Percent
Lab Code:	E1801038-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 23:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.294g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519126	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	926.746	46		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1184.120	59		25-181	1.56	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1103.376	55		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1128.605	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1143.386	57		23-140	1.08	1.067
13C-OCDD	4000	1312.446	33		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	794.418	40		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	1044.573	52		24-185	1.56	1.140
13C-2,3,4,7,8-PeCDF	2000	1017.759	51		21-178	1.57	1.172
13C-1,2,3,4,7,8-HxCDF	2000	959.037	48		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	996.451	50		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1044.082	52		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1054.344	53		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	920.089	46		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	847.185	42		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	389.828	49		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0537	**Units:**	ng/Kg
Lab Code:	E1801038-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.142	0.585	1	1	
1,2,3,7,8-PeCDD	**0.0961**	0.0476	2.93	1	1	0.0961
1,2,3,4,7,8-HxCDD	**0.0534**	0.0510	2.93	1	0.1	0.00534
1,2,3,6,7,8-HxCDD	**0.0844**	0.0547	2.93	1	0.1	0.00844
1,2,3,7,8,9-HxCDD	**0.282**	0.0517	2.93	1	0.1	0.0282
1,2,3,4,6,7,8-HpCDD	**2.49**	0.0498	2.93	1	0.01	0.0249
OCDD	**144**	0.172	5.85	1	0.0003	0.0432
2,3,7,8-TCDF	ND	0.107	0.585	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0492	2.93	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0517	2.93	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0277	2.93	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0263	2.93	1	0.1	
1,2,3,7,8,9-HxCDF	**0.0648**	0.0332	2.93	1	0.1	0.00648
2,3,4,6,7,8-HxCDF	**0.0274**	0.0265	2.93	1	0.1	0.00274
1,2,3,4,6,7,8-HpCDF	**0.0688**	0.0218	2.93	1	0.01	0.000688
1,2,3,4,7,8,9-HpCDF	**0.0462**	0.0347	2.93	1	0.01	0.000462
OCDF	**0.544**	0.167	5.85	1	0.0003	0.000163
		Total TEQ				0.217

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/11/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0537	**Units:**	Percent
Lab Code:	E1801038-019	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.564g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:13
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0515	**Units:**	ng/Kg
Lab Code:	E1801038-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 00:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.753g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519127	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.163**JK**		0.123	0.566	0.30	1.001	1
1,2,3,7,8-PeCDD	0.0601**JK**		0.0481	2.83	1.01	1.000	1
1,2,3,4,7,8-HxCDD	0.0841**JK**		0.0542	2.83	0.65	1.000	1
1,2,3,6,7,8-HxCDD	0.139**JK**		0.0594	2.83	1.00	1.000	1
1,2,3,7,8,9-HxCDD	0.199**JK**		0.0555	2.83	1.77	1.007	1
1,2,3,4,6,7,8-HpCDD	3.98		0.0446	2.83	0.97	1.000	1
OCDD	113		0.120	5.66	0.85	1.000	1
2,3,7,8-TCDF	0.972		0.0657	0.566	0.83	1.001	1
1,2,3,7,8-PeCDF	0.120**JK**		0.0648	2.83	1.20	1.000	1
2,3,4,7,8-PeCDF	ND	U	0.0703	2.83			1
1,2,3,4,7,8-HxCDF	0.147**JK**		0.0215	2.83	1.69	1.000	1
1,2,3,6,7,8-HxCDF	0.0677**JK**		0.0227	2.83	0.98	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0280	2.83			1
2,3,4,6,7,8-HxCDF	0.0743**JK**		0.0237	2.83	1.57	1.001	1
1,2,3,4,6,7,8-HpCDF	0.421**J**		0.0393	2.83	1.17	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0558	2.83			1
OCDF	1.58**J**		0.0938	5.66	0.80	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:13
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0515	**Units:**	ng/Kg
Lab Code:	E1801038-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 00:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.753g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519127	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.123	0.566			1
Total Penta-Dioxins	0.0601**J**		0.0481	2.83	1.42		1
Total Hexa-Dioxins	2.74**J**		0.0564	2.83	1.27		1
Total Hepta-Dioxins	12.5		0.0446	2.83	1.05		1
Total Tetra-Furans	1.38		0.0657	0.566	0.71		1
Total Penta-Furans	ND	U	0.0675	2.83			1
Total Hexa-Furans	0.121**J**		0.0238	2.83	1.15		1
Total Hepta-Furans	1.16**J**		0.0465	2.83	1.17		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:13
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0515	**Units:**	Percent
Lab Code:	E1801038-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 00:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.753g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519127	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1191.458	60		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1300.152	65		25-181	1.60	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1208.658	60		32-141	1.33	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1160.807	58		28-130	1.21	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1235.269	62		23-140	1.06	1.067
13C-OCDD	4000	1420.071	36		17-157	0.88	1.143
13C-2,3,7,8-TCDF	2000	998.599	50		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	1177.839	59		24-185	1.60	1.140
13C-2,3,4,7,8-PeCDF	2000	1096.131	55		21-178	1.57	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1120.268	56		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1088.935	54		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1133.801	57		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1093.190	55		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	948.348	47		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	946.559	47		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	493.758	62		35-197	NA	1.020

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:13
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0515	**Units:**	ng/Kg
Lab Code:	E1801038-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.163**	0.123	0.566	1	1	0.163
1,2,3,7,8-PeCDD	**0.0601**	0.0481	2.83	1	1	0.0601
1,2,3,4,7,8-HxCDD	**0.0841**	0.0542	2.83	1	0.1	0.00841
1,2,3,6,7,8-HxCDD	**0.139**	0.0594	2.83	1	0.1	0.0139
1,2,3,7,8,9-HxCDD	**0.199**	0.0555	2.83	1	0.1	0.0199
1,2,3,4,6,7,8-HpCDD	**3.98**	0.0446	2.83	1	0.01	0.0398
OCDD	**113**	0.120	5.66	1	0.0003	0.0339
2,3,7,8-TCDF	**0.972**	0.0657	0.566	1	0.1	0.0972
1,2,3,7,8-PeCDF	**0.120**	0.0648	2.83	1	0.03	0.00360
2,3,4,7,8-PeCDF	ND	0.0703	2.83	1	0.3	
1,2,3,4,7,8-HxCDF	**0.147**	0.0215	2.83	1	0.1	0.0147
1,2,3,6,7,8-HxCDF	**0.0677**	0.0227	2.83	1	0.1	0.00677
1,2,3,7,8,9-HxCDF	ND	0.0280	2.83	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0743**	0.0237	2.83	1	0.1	0.00743
1,2,3,4,6,7,8-HpCDF	**0.421**	0.0393	2.83	1	0.01	0.00421
1,2,3,4,7,8,9-HpCDF	ND	0.0558	2.83	1	0.01	
OCDF	**1.58**	0.0938	5.66	1	0.0003	0.000474
		Total TEQ				0.473

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:13
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0515	**Units:**	Percent
Lab Code:	E1801038-020	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	7.022g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:18
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0516	**Units:**	ng/Kg
Lab Code:	E1801038-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 07:48
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.207g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519135	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.230	0.598			1
1,2,3,7,8-PeCDD	0.141**JK**		0.0633	2.99	1.06	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0990	2.99			1
1,2,3,6,7,8-HxCDD	0.266**J**		0.110	2.99	1.42	1.000	1
1,2,3,7,8,9-HxCDD	0.290**J**		0.102	2.99	1.05	1.006	1
1,2,3,4,6,7,8-HpCDD	6.96		0.0834	2.99	1.01	1.000	1
OCDD	239		0.149	5.98	0.89	1.000	1
2,3,7,8-TCDF	0.546**JK**		0.138	0.598	0.58	1.000	1
1,2,3,7,8-PeCDF	0.105**JK**		0.0713	2.99	2.47	1.001	1
2,3,4,7,8-PeCDF	0.116**JK**		0.0765	2.99	0.54	1.000	1
1,2,3,4,7,8-HxCDF	0.131**JK**		0.0469	2.99	0.51	1.000	1
1,2,3,6,7,8-HxCDF	0.0986**JK**		0.0501	2.99	1.94	1.000	1
1,2,3,7,8,9-HxCDF	0.128**JK**		0.0599	2.99	2.10	1.000	1
2,3,4,6,7,8-HxCDF	0.161**J**		0.0515	2.99	1.42	1.000	1
1,2,3,4,6,7,8-HpCDF	0.701**J**		0.0523	2.99	1.10	1.000	1
1,2,3,4,7,8,9-HpCDF	0.136**JK**		0.0749	2.99	2.04	1.000	1
OCDF	2.90**J**		0.202	5.98	0.91	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:18
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0516	**Units:**	ng/Kg
Lab Code:	E1801038-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 07:48
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.207g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519135	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.230	0.598			1
Total Penta-Dioxins	0.494**J**		0.0633	2.99	1.71		1
Total Hexa-Dioxins	4.67		0.103	2.99	1.25		1
Total Hepta-Dioxins	24.0		0.0834	2.99	1.09		1
Total Tetra-Furans	ND	U	0.138	0.598			1
Total Penta-Furans	ND	U	0.0737	2.99			1
Total Hexa-Furans	0.611**J**		0.0518	2.99	1.27		1
Total Hepta-Furans	1.91**J**		0.0623	2.99	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:18
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0516	**Units:**	Percent
Lab Code:	E1801038-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 07:48
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.207g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519135	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1017.987	51		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1173.585	59		25-181	1.57	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1038.689	52		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	961.063	48		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1009.689	50		23-140	1.06	1.067
13C-OCDD	4000	1096.907	27		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	835.499	42		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1067.758	53		24-185	1.58	1.140
13C-2,3,4,7,8-PeCDF	2000	1002.783	50		21-178	1.60	1.172
13C-1,2,3,4,7,8-HxCDF	2000	895.492	45		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	868.288	43		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	913.105	46		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	905.619	45		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	809.365	40		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	810.468	41		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	431.043	54		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:18
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0516	**Units:**	ng/Kg
Lab Code:	E1801038-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.230	0.598	1	1	
1,2,3,7,8-PeCDD	**0.141**	0.0633	2.99	1	1	0.141
1,2,3,4,7,8-HxCDD	ND	0.0990	2.99	1	0.1	
1,2,3,6,7,8-HxCDD	**0.266**	0.110	2.99	1	0.1	0.0266
1,2,3,7,8,9-HxCDD	**0.290**	0.102	2.99	1	0.1	0.0290
1,2,3,4,6,7,8-HpCDD	**6.96**	0.0834	2.99	1	0.01	0.0696
OCDD	**239**	0.149	5.98	1	0.0003	0.0717
2,3,7,8-TCDF	**0.546**	0.138	0.598	1	0.1	0.0546
1,2,3,7,8-PeCDF	**0.105**	0.0713	2.99	1	0.03	0.00315
2,3,4,7,8-PeCDF	**0.116**	0.0765	2.99	1	0.3	0.0348
1,2,3,4,7,8-HxCDF	**0.131**	0.0469	2.99	1	0.1	0.0131
1,2,3,6,7,8-HxCDF	**0.0986**	0.0501	2.99	1	0.1	0.00986
1,2,3,7,8,9-HxCDF	**0.128**	0.0599	2.99	1	0.1	0.0128
2,3,4,6,7,8-HxCDF	**0.161**	0.0515	2.99	1	0.1	0.0161
1,2,3,4,6,7,8-HpCDF	**0.701**	0.0523	2.99	1	0.01	0.00701
1,2,3,4,7,8,9-HpCDF	**0.136**	0.0749	2.99	1	0.01	0.00136
OCDF	**2.90**	0.202	5.98	1	0.0003	0.000870
		Total TEQ				0.492

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:18
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0516	**Units:**	Percent
Lab Code:	E1801038-021	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.85g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:23
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0517	**Units:**	ng/Kg
Lab Code:	E1801038-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 08:36
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.135g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519136	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.213	0.650			1
1,2,3,7,8-PeCDD	0.104**JK**		0.0636	3.25	1.13	1.001	1
1,2,3,4,7,8-HxCDD	0.119**J**		0.0836	3.25	1.25	1.000	1
1,2,3,6,7,8-HxCDD	0.323**J**		0.0913	3.25	1.31	1.000	1
1,2,3,7,8,9-HxCDD	0.374**JK**		0.0853	3.25	1.00	1.007	1
1,2,3,4,6,7,8-HpCDD	6.29		0.112	3.25	1.06	1.000	1
OCDD	165		0.128	6.50	0.88	1.000	1
2,3,7,8-TCDF	ND	U	0.122	0.650			1
1,2,3,7,8-PeCDF	ND	U	0.0762	3.25			1
2,3,4,7,8-PeCDF	ND	U	0.0804	3.25			1
1,2,3,4,7,8-HxCDF	ND	U	0.0449	3.25			1
1,2,3,6,7,8-HxCDF	ND	U	0.0458	3.25			1
1,2,3,7,8,9-HxCDF	0.0837**JK**		0.0571	3.25	1.46	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0472	3.25			1
1,2,3,4,6,7,8-HpCDF	0.160**JK**		0.0251	3.25	1.29	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0375	3.25			1
OCDF	0.801**J**		0.165	6.50	0.90	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:23
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0517	**Units:**	ng/Kg
Lab Code:	E1801038-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 08:36
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.135g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519136	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.786		0.213	0.650	0.74		1
Total Penta-Dioxins	0.950**J**		0.0636	3.25	1.35		1
Total Hexa-Dioxins	8.36		0.0868	3.25	1.20		1
Total Hepta-Dioxins	22.2		0.112	3.25	1.01		1
Total Tetra-Furans	ND	U	0.122	0.650			1
Total Penta-Furans	ND	U	0.0783	3.25			1
Total Hexa-Furans	0.0528**J**		0.0484	3.25	1.16		1
Total Hepta-Furans	ND	U	0.0305	3.25			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:23
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0517	**Units:**	Percent
Lab Code:	E1801038-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 08:36
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.135g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519136	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1194.895	60		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	1474.443	74		25-181	1.57	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1314.976	66		32-141	1.33	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1266.901	63		28-130	1.20	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1410.788	71		23-140	1.05	1.067
13C-OCDD	4000	1673.990	42		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	1015.124	51		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1331.044	67		24-185	1.57	1.140
13C-2,3,4,7,8-PeCDF	2000	1251.488	63		21-178	1.57	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1151.492	58		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1154.378	58		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1177.995	59		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1185.971	59		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1080.791	54		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1053.015	53		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	519.878	65		35-197	NA	1.020

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:23
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0517	**Units:**	ng/Kg
Lab Code:	E1801038-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.213	0.650	1	1	
1,2,3,7,8-PeCDD	**0.104**	0.0636	3.25	1	1	0.104
1,2,3,4,7,8-HxCDD	**0.119**	0.0836	3.25	1	0.1	0.0119
1,2,3,6,7,8-HxCDD	**0.323**	0.0913	3.25	1	0.1	0.0323
1,2,3,7,8,9-HxCDD	**0.374**	0.0853	3.25	1	0.1	0.0374
1,2,3,4,6,7,8-HpCDD	**6.29**	0.112	3.25	1	0.01	0.0629
OCDD	**165**	0.128	6.50	1	0.0003	0.0495
2,3,7,8-TCDF	ND	0.122	0.650	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0762	3.25	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0804	3.25	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0449	3.25	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0458	3.25	1	0.1	
1,2,3,7,8,9-HxCDF	**0.0837**	0.0571	3.25	1	0.1	0.00837
2,3,4,6,7,8-HxCDF	ND	0.0472	3.25	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.160**	0.0251	3.25	1	0.01	0.00160
1,2,3,4,7,8,9-HpCDF	ND	0.0375	3.25	1	0.01	
OCDF	**0.801**	0.165	6.50	1	0.0003	0.000240
		Total TEQ				0.308

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 09:23
Sample Matrix:	Sediment	**Date Received:**	11/12/18 13:18
Sample Name:	SL0517	**Units:**	Percent
Lab Code:	E1801038-022	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.106g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	75.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 13:47
Sample Matrix:	Wipe	**Date Received:**	11/12/18 13:18
Sample Name:	FW0050	**Units:**	pg
Lab Code:	E1801038-023	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:04
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615726	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	2.96	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.83	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.12	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.31	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.13	50.0			1
1,2,3,4,6,7,8-HpCDD	8.54**BJ**		0.932	50.0	1.01	1.000	1
OCDD	109**B**		2.46	100	0.96	1.000	1
2,3,7,8-TCDF	ND	U	2.47	10.0			1
1,2,3,7,8-PeCDF	ND	U	3.07	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.05	50.0			1
1,2,3,4,7,8-HxCDF	2.45**JK**		1.37	50.0	0.92	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	1.41	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.60	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.48	50.0			1
1,2,3,4,6,7,8-HpCDF	7.42**JK**		1.48	50.0	0.79	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.81	50.0			1
OCDF	91.3**BJ**		2.90	100	0.84	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 13:47
Sample Matrix:	Wipe	**Date Received:**	11/12/18 13:18
Sample Name:	FW0050	**Units:**	pg
Lab Code:	E1801038-023	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:04
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615726	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	2.96	10.0			1
Total Penta-Dioxins	ND	U	1.83	50.0			1
Total Hexa-Dioxins	ND	U	1.18	50.0			1
Total Hepta-Dioxins	8.54**J**		0.932	50.0	1.01		1
Total Tetra-Furans	ND	U	2.47	10.0			1
Total Penta-Furans	ND	U	2.50	50.0			1
Total Hexa-Furans	ND	U	1.46	50.0			1
Total Hepta-Furans	ND	U	1.63	50.0			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 13:47
Sample Matrix:	Wipe	**Date Received:**	11/12/18 13:18
Sample Name:	FW0050	**Units:**	Percent
Lab Code:	E1801038-023	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:04
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615726	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	878.413	88		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	1000	1082.783	108		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1132.707	113		32-141	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	1000	1032.742	103		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1148.784	115		23-140	1.03	1.067
13C-OCDD	2000	1509.720	75		17-157	0.90	1.148
13C-2,3,7,8-TCDF	1000	808.497	81		24-169	0.78	0.994
13C-1,2,3,7,8-PeCDF	1000	770.873	77		24-185	1.52	1.129
13C-2,3,4,7,8-PeCDF	1000	998.317	100		21-178	1.57	1.159
13C-1,2,3,4,7,8-HxCDF	1000	1001.690	100		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	1000	942.364	94		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	1000	975.295	98		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	1000	955.435	96		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	843.419	84		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	1000	891.195	89		26-138	0.46	1.081
37Cl-2,3,7,8-TCDD	800	346.197	43		35-197	NA	1.019

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/09/18 13:47
Sample Matrix:	Wipe	**Date Received:**	11/12/18 13:18
Sample Name:	FW0050	**Units:**	pg
Lab Code:	E1801038-023	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	2.96	10.0	1	1	1.48
1,2,3,7,8-PeCDD	ND	1.83	50.0	1	1	0.915
1,2,3,4,7,8-HxCDD	ND	1.12	50.0	1	0.1	0.0560
1,2,3,6,7,8-HxCDD	ND	1.31	50.0	1	0.1	0.0655
1,2,3,7,8,9-HxCDD	ND	1.13	50.0	1	0.1	0.0565
1,2,3,4,6,7,8-HpCDD	**8.54**	0.932	50.0	1	0.01	0.0854
OCDD	**109**	2.46	100	1	0.0003	0.0327
2,3,7,8-TCDF	ND	2.47	10.0	1	0.1	0.124
1,2,3,7,8-PeCDF	ND	3.07	50.0	1	0.03	0.0461
2,3,4,7,8-PeCDF	ND	2.05	50.0	1	0.3	0.308
1,2,3,4,7,8-HxCDF	**2.45**	1.37	50.0	1	0.1	0.245
1,2,3,6,7,8-HxCDF	ND	1.41	50.0	1	0.1	0.0705
1,2,3,7,8,9-HxCDF	ND	1.60	50.0	1	0.1	0.0800
2,3,4,6,7,8-HxCDF	ND	1.48	50.0	1	0.1	0.0740
1,2,3,4,6,7,8-HpCDF	**7.42**	1.48	50.0	1	0.01	0.0742
1,2,3,4,7,8,9-HpCDF	ND	1.81	50.0	1	0.01	0.00905
OCDF	**91.3**	2.90	100	1	0.0003	0.0274
		Total TEQ				3.75

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.381	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0614	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0337	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0371	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0346	2.44			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.0442	2.44			1
OCDD	0.338**J**		0.0397	4.88	0.97	1.000	1
2,3,7,8-TCDF	ND	U	0.254	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.0836	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0846	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0238	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0235	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0252	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0236	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0349	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0414	2.44			1
OCDF	ND	U	0.0699	4.88			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.381	0.488			1
Total Penta-Dioxins	ND	U	0.0614	2.44			1
Total Hexa-Dioxins	ND	U	0.0352	2.44			1
Total Hepta-Dioxins	0.103**J**		0.0442	2.44	0.94		1
Total Tetra-Furans	ND	U	0.254	0.488			1
Total Penta-Furans	ND	U	0.0841	2.44			1
Total Hexa-Furans	ND	U	0.0240	2.44			1
Total Hepta-Furans	ND	U	0.0379	2.44			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1576.459	79		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	2731.808	137		25-181	1.61	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1888.275	94		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1796.326	90		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2868.687	143	**Y**	23-140	1.04	1.067
13C-OCDD	4000	5666.155	142		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	1367.535	68		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	2328.489	116		24-185	1.60	1.143
13C-2,3,4,7,8-PeCDF	2000	2328.334	116		21-178	1.59	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1549.864	77		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1543.115	77		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1803.889	90		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1647.245	82		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	2049.390	102		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	2391.939	120		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	663.016	83		35-197	NA	1.021

Accuracy & Precision

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

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	11/27/18
Sample Matrix:	Wipe	**Date Extracted:**	11/14/18

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

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

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

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	11/27/18
Sample Matrix:	Wipe	**Date Extracted:**	11/14/18

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

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

EQ1800467-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	1400	2000	70	70-140
1,2,3,4,7,8-HxCDD	1720	2000	86	70-164
1,2,3,6,7,8-HxCDD	1840	2000	92	76-134
1,2,3,7,8,9-HxCDD	1730	2000	86	64-162
1,2,3,7,8-PeCDD	1860	2000	93	70-142
2,3,7,8-TCDD	374	400	94	67-158
OCDD	3430	4000	86	78-144
1,2,3,4,6,7,8-HpCDF	1670	2000	84	82-122
1,2,3,4,7,8,9-HpCDF	1660	2000	83	78-138
1,2,3,4,7,8-HxCDF	1630	2000	81	72-134
1,2,3,6,7,8-HxCDF	1690	2000	84	84-130
1,2,3,7,8,9-HxCDF	1640	2000	82	78-130
1,2,3,7,8-PeCDF	1600	2000	80	80-134
2,3,4,6,7,8-HxCDF	1690	2000	84	70-156
2,3,4,7,8-PeCDF	1720	2000	86	68-160
2,3,7,8-TCDF	361	400	90	75-158
OCDF	3470	4000	87	63-170

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	11/17/18
Sample Matrix:	Sediment	**Date Extracted:**	11/13/18

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

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

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

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	11/17/18
Sample Matrix:	Sediment	**Date Extracted:**	11/13/18

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

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

EQ1800468-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	77.8	97.1	80	70-140
1,2,3,4,7,8-HxCDD	89.9	97.1	93	70-164
1,2,3,6,7,8-HxCDD	98.0	97.1	101	76-134
1,2,3,7,8,9-HxCDD	96.4	97.1	99	64-162
1,2,3,7,8-PeCDD	99.9	97.1	103	70-142
2,3,7,8-TCDD	19.7	19.4	101	67-158
OCDD	201	194	104	78-144
1,2,3,4,6,7,8-HpCDF	92.4	97.1	95	82-122
1,2,3,4,7,8,9-HpCDF	96.8	97.1	100	78-138
1,2,3,4,7,8-HxCDF	98.2	97.1	101	72-134
1,2,3,6,7,8-HxCDF	97.8	97.1	101	84-130
1,2,3,7,8,9-HxCDF	90.8	97.1	94	78-130
1,2,3,7,8-PeCDF	90.6	97.1	93	80-134
2,3,4,6,7,8-HxCDF	95.0	97.1	98	70-156
2,3,4,7,8-PeCDF	101	97.1	104	68-160
2,3,7,8-TCDF	20.7	19.4	107	75-158
OCDF	390	194	201 *	63-170

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

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

Labeled Standard Results

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

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	12/02/18
Sample Matrix:	Sediment	**Date Extracted:**	11/14/18

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

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	617699

	Lab Control Sample EQ1800469-02			Duplicate Lab Control Sample EQ1800469-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.1	97.2	78	79.2	98.2	81	70-140	4	50
1,2,3,4,7,8-HxCDD	90.9	97.2	94	90.7	98.2	92	70-164	<1	50
1,2,3,6,7,8-HxCDD	96.4	97.2	99	98.6	98.2	100	76-134	2	50
1,2,3,7,8,9-HxCDD	98.7	97.2	102	96.6	98.2	98	64-162	2	50
1,2,3,7,8-PeCDD	98.4	97.2	101	98.3	98.2	100	70-142	<1	50
2,3,7,8-TCDD	18.2	19.4	94	19.0	19.6	97	67-158	5	50
OCDD	189	194	97	189	196	96	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	92.7	97.2	95	96.7	98.2	99	82-122	4	50
1,2,3,4,7,8,9-HpCDF	95.8	97.2	99	99.8	98.2	102	78-138	4	50
1,2,3,4,7,8-HxCDF	96.9	97.2	100	99.3	98.2	101	72-134	2	50
1,2,3,6,7,8-HxCDF	97.2	97.2	100	98.3	98.2	100	84-130	1	50
1,2,3,7,8,9-HxCDF	92.0	97.2	95	93.5	98.2	95	78-130	2	50
1,2,3,7,8-PeCDF	88.8	97.2	91	91.9	98.2	94	80-134	3	50
2,3,4,6,7,8-HxCDF	95.6	97.2	98	95.4	98.2	97	70-156	<1	50
2,3,4,7,8-PeCDF	99.6	97.2	102	103	98.2	105	68-160	3	50
2,3,7,8-TCDF	18.5	19.4	95	19.1	19.6	97	75-158	3	50
OCDF	176	194	91	183	196	93	63-170	4	50

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	12/02/18
Sample Matrix:	Sediment	**Date Extracted:**	11/14/18

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

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	617699

EQ1800469-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	76.1	97.2	78	70-140
1,2,3,4,7,8-HxCDD	90.9	97.2	94	70-164
1,2,3,6,7,8-HxCDD	96.4	97.2	99	76-134
1,2,3,7,8,9-HxCDD	98.7	97.2	102	64-162
1,2,3,7,8-PeCDD	98.4	97.2	101	70-142
2,3,7,8-TCDD	18.2	19.4	94	67-158
OCDD	189	194	97	78-144
1,2,3,4,6,7,8-HpCDF	92.7	97.2	95	82-122
1,2,3,4,7,8,9-HpCDF	95.8	97.2	99	78-138
1,2,3,4,7,8-HxCDF	96.9	97.2	100	72-134
1,2,3,6,7,8-HxCDF	97.2	97.2	100	84-130
1,2,3,7,8,9-HxCDF	92.0	97.2	95	78-130
1,2,3,7,8-PeCDF	88.8	97.2	91	80-134
2,3,4,6,7,8-HxCDF	95.6	97.2	98	70-156
2,3,4,7,8-PeCDF	99.6	97.2	102	68-160
2,3,7,8-TCDF	18.5	19.4	95	75-158
OCDF	176	194	91	63-170

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.2		0.210	0.486	0.76	1.001	1
1,2,3,7,8-PeCDD	98.4		0.0474	2.43	1.57	1.000	1
1,2,3,4,7,8-HxCDD	90.9		0.0232	2.43	1.27	1.000	1
1,2,3,6,7,8-HxCDD	96.4		0.0252	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	98.7		0.0237	2.43	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	76.1		0.0626	2.43	1.06	1.000	1
OCDD	189		0.219	4.86	0.88	1.000	1
2,3,7,8-TCDF	18.5		0.126	0.486	0.75	1.001	1
1,2,3,7,8-PeCDF	88.8		0.0495	2.43	1.54	1.001	1
2,3,4,7,8-PeCDF	99.6		0.0471	2.43	1.51	1.001	1
1,2,3,4,7,8-HxCDF	96.9		0.0301	2.43	1.17	1.000	1
1,2,3,6,7,8-HxCDF	97.2		0.0294	2.43	1.20	1.000	1
1,2,3,7,8,9-HxCDF	92.0		0.0396	2.43	1.20	1.000	1
2,3,4,6,7,8-HxCDF	95.6		0.0295	2.43	1.18	1.000	1
1,2,3,4,6,7,8-HpCDF	92.7		0.192	2.43	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.326	2.43	0.94	1.000	1
OCDF	176		0.262	4.86	0.90	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.3		0.210	0.486	0.76		1
Total Penta-Dioxins	98.5		0.0474	2.43	1.57		1
Total Hexa-Dioxins	286		0.0240	2.43	1.27		1
Total Hepta-Dioxins	76.1		0.0626	2.43	1.06		1
Total Tetra-Furans	18.6		0.126	0.486	0.75		1
Total Penta-Furans	189		0.0482	2.43	1.54		1
Total Hexa-Furans	382		0.0317	2.43	1.17		1
Total Hepta-Furans	188		0.247	2.43	0.96		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	636.561	32		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1087.680	54		25-181	1.58	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1160.893	58		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1142.394	57		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	926.595	46		23-140	1.08	1.067
13C-OCDD	4000	925.030	23		17-157	0.90	1.144
13C-2,3,7,8-TCDF	2000	548.573	27		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	918.007	46		24-185	1.57	1.139
13C-2,3,4,7,8-PeCDF	2000	956.316	48		21-178	1.58	1.171
13C-1,2,3,4,7,8-HxCDF	2000	982.761	49		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1012.451	51		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	971.970	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1085.164	54		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	770.074	39		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	662.545	33		26-138	0.42	1.080
37Cl-2,3,7,8-TCDD	800	270.557	34	**Y**	35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.0		0.137	0.491	0.75	1.001	1
1,2,3,7,8-PeCDD	98.3		0.0420	2.45	1.59	1.000	1
1,2,3,4,7,8-HxCDD	90.7		0.0392	2.45	1.25	1.000	1
1,2,3,6,7,8-HxCDD	98.6		0.0424	2.45	1.24	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0398	2.45	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	79.2		0.0520	2.45	1.05	1.000	1
OCDD	189		0.150	4.91	0.89	1.000	1
2,3,7,8-TCDF	19.1		0.0843	0.491	0.73	1.001	1
1,2,3,7,8-PeCDF	91.9		0.0643	2.45	1.51	1.001	1
2,3,4,7,8-PeCDF	103		0.0688	2.45	1.52	1.000	1
1,2,3,4,7,8-HxCDF	99.3		0.0213	2.45	1.19	1.000	1
1,2,3,6,7,8-HxCDF	98.3		0.0207	2.45	1.21	1.000	1
1,2,3,7,8,9-HxCDF	93.5		0.0259	2.45	1.21	1.000	1
2,3,4,6,7,8-HxCDF	95.4		0.0204	2.45	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	96.7		0.189	2.45	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	99.8		0.311	2.45	0.99	1.000	1
OCDF	183		0.154	4.91	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.0		0.137	0.491	0.75		1
Total Penta-Dioxins	98.3		0.0420	2.45	1.59		1
Total Hexa-Dioxins	286		0.0405	2.45	1.25		1
Total Hepta-Dioxins	79.2		0.0520	2.45	1.05		1
Total Tetra-Furans	19.3		0.0843	0.491	0.81		1
Total Penta-Furans	196		0.0665	2.45	1.40		1
Total Hexa-Furans	387		0.0218	2.45	1.19		1
Total Hepta-Furans	196		0.239	2.45	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801038
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	968.894	48		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1290.570	65		25-181	1.60	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1326.341	66		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1299.547	65		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1173.699	59		23-140	1.07	1.067
13C-OCDD	4000	1282.795	32		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	811.184	41		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1140.415	57		24-185	1.60	1.140
13C-2,3,4,7,8-PeCDF	2000	1101.113	55		21-178	1.56	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1120.401	56		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1131.321	57		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1138.142	57		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1213.244	61		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	980.545	49		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	850.443	43		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	412.171	52		35-197	NA	1.020

Chromatograms and Selected Ion Monitoring

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

Sample Response Summary

CLIENT ID.
SL0519

Run #18 Filename P518876 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:01:58
Processed: 21-NOV-18 09:19:35 Sample ID: E1801038-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	6.787e+02	8.954e+02	0.76	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:36	5.788e+01	3.806e+01	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	3.794e+01	2.598e+01	1.46	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:31	6.893e+01	5.522e+01	1.25	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:39	1.383e+01	2.102e+01	0.66	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	7.124e+00	4.699e+00	1.52	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	3.204e+01	4.076e+01	0.79	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	9.612e+00	6.709e+00	1.43	no	yes	1.258
10	Unk	OCDF	40:53	4.772e+01	4.336e+01	1.10	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	1.612e+02	1.881e+02	0.86	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.909e+01	2.076e+01	0.92	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	3.113e+01	1.956e+01	1.59	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	4.464e+02	4.220e+02	1.06	yes	no	1.025
17	Unk	OCDD	40:43	8.660e+03	9.484e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	1.403e+04	1.752e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.767e+04	1.737e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.815e+04	1.729e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.288e+04	2.464e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.580e+04	3.107e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.506e+04	2.828e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.240e+04	2.456e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:15	9.260e+03	2.089e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	8.130e+03	1.804e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	9.042e+03	1.131e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:55	2.000e+04	1.253e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.785e+04	1.374e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.923e+04	1.512e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:10	1.708e+04	1.614e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:42	1.262e+04	1.401e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.216e+04	2.762e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.368e+04	2.691e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:35	1.010e+04				no	1.014

$$\text{OCDD} = \frac{(8.660e+03 + 9.484e+03) \times 4000\ \text{pg} \times 1}{(1.262e+04 + 1.401e+04) \times 10.361\ \text{g} \times 86.5 / 100 \times 1.118} = 271.9958\ \text{ng/kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0519

Run #18 Filename P518876 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:01:58
Processed: 21-NOV-18 09:19:35 LAB. ID: E1801038-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.74e+04	5.68e+02	1.5e+02	1.20e+05	1.30e+03	9.2e+01
2	1,2,3,7,8-PeCDF	8.34e+03	6.04e+02	1.4e+01	5.40e+03	7.28e+02	7.4e+00
3	2,3,4,7,8-PeCDF	6.88e+03	6.04e+02	1.1e+01	5.43e+03	7.28e+02	7.5e+00
4	1,2,3,4,7,8-HxCDF	1.43e+04	2.52e+02	5.7e+01	1.06e+04	5.04e+02	2.1e+01
5	1,2,3,6,7,8-HxCDF	3.25e+03	2.52e+02	1.3e+01	5.55e+03	5.04e+02	1.1e+01
6	2,3,4,6,7,8-HxCDF	1.72e+03	2.52e+02	6.8e+00	1.30e+03	5.04e+02	2.6e+00
7	1,2,3,7,8,9-HxCDF	*	2.52e+02	*	*	5.04e+02	*
8	1,2,3,4,6,7,8-HpCDF	7.32e+03	3.68e+02	2.0e+01	7.33e+03	2.32e+02	3.2e+01
9	1,2,3,4,7,8,9-HpCDF	2.24e+03	3.68e+02	6.1e+00	1.01e+03	2.32e+02	4.4e+00
10	OCDF	1.10e+04	3.48e+02	3.2e+01	6.42e+03	2.16e+02	3.0e+01
11	2,3,7,8-TCDD	2.37e+04	1.47e+03	1.6e+01	3.05e+04	5.44e+02	5.6e+01
12	1,2,3,7,8-PeCDD	*	9.28e+02	*	*	1.60e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.24e+02	*	*	1.14e+03	*
14	1,2,3,6,7,8-HxCDD	3.02e+03	2.24e+02	1.3e+01	3.58e+03	1.14e+03	3.1e+00
15	1,2,3,7,8,9-HxCDD	7.17e+03	2.24e+02	3.2e+01	4.58e+03	1.14e+03	4.0e+00
16	1,2,3,4,6,7,8-HpCDD	8.79e+04	2.82e+03	3.1e+01	7.62e+04	5.44e+02	1.4e+02
17	OCDD	1.35e+06	1.88e+02	7.2e+03	1.46e+06	3.56e+02	4.1e+03
18	13C-2,3,7,8-TCDF	1.88e+06	3.77e+03	5.0e+02	2.32e+06	1.78e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	4.41e+06	1.20e+02	3.7e+04	2.76e+06	2.16e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	4.84e+06	1.20e+02	4.0e+04	3.06e+06	2.16e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	2.68e+06	9.48e+02	2.8e+03	4.98e+06	9.24e+02	5.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.93e+06	9.48e+02	3.1e+03	5.76e+06	9.24e+02	6.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.89e+06	9.48e+02	3.1e+03	5.46e+06	9.24e+02	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.18e+06	9.48e+02	2.3e+03	4.18e+06	9.24e+02	4.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.78e+06	2.75e+03	6.5e+02	4.01e+06	3.72e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.44e+06	2.75e+03	5.2e+02	3.16e+06	3.72e+03	8.5e+02
27	13C-2,3,7,8-TCDD	1.36e+06	4.68e+03	2.9e+02	1.74e+06	2.45e+03	7.1e+02
28	13C-1,2,3,7,8-PeCDD	3.42e+06	2.20e+02	1.6e+04	2.10e+06	7.88e+02	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.78e+06	1.30e+03	2.9e+03	2.99e+06	4.04e+02	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	3.50e+06	1.30e+03	2.7e+03	2.76e+06	4.04e+02	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.18e+06	4.64e+02	6.8e+03	2.99e+06	3.44e+02	8.7e+03
32	13C-OCDD	1.96e+06	3.44e+02	5.7e+03	2.18e+06	1.96e+02	1.1e+04
33	13C-1,2,3,4-TCDD	3.31e+06	4.68e+03	7.1e+02	4.07e+06	2.45e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	5.99e+06	1.30e+03	4.6e+03	4.82e+06	4.04e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.51e+06	3.52e+02	4.3e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0519

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P518876 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 10:01:58 Processed: 21-NOV-18 09:19:35

Mass: 303.9020 305.8990 Tot Response: 2.35e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:01	1.74e+01	2.64e+01	0.66	yes	4.38e+01		n	n
2	24:06	2.26e+01	3.08e+01	0.73	yes	5.34e+01		n	n
3	24:34	2.70e+02	3.28e+02	0.82	yes	5.98e+02		n	n
4	25:26	3.77e+01	4.76e+01	0.79	yes	8.54e+01		n	y
5	25:34	6.79e+02	8.95e+02	0.76	yes	1.57e+03	2,3,7,8-TCDF	n	y

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Peak List Summary

CLIENT ID.
SL0519

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P518876 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 10:01:58 Processed: 21-NOV-18 09:19:35

Mass: 319.8970 321.8940 Tot Response: 3.49e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:35	1.61e+02	1.88e+02 0.86	yes	3.49e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0519

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P518876 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 10:01:58 Processed: 21-NOV-18 09:19:35

Mass: 339.8600 341.8570 Tot Response: 1.60e+02 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:36	5.79e+01	3.81e+01	1.52	yes	9.59e+01	1,2,3,7,8-PeCDF	n	n
2	31:36	3.79e+01	2.60e+01	1.46	yes	6.39e+01	2,3,4,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0519

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P518876 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 10:01:58 Processed: 21-NOV-18 09:19:35

Mass: 373.8210 375.8180 Tot Response: 1.24e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:31	6.89e+01	5.52e+01 1.25	yes	1.24e+02	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0519

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P518876 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 10:01:58 Processed: 21-NOV-18 09:19:35

Mass: 389.8160 391.8130 Tot Response: 1.34e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:41	7.49e+01	5.88e+01 1.27	yes	1.34e+02		y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0519

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P518876 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 10:01:58 Processed: 21-NOV-18 09:19:35

Mass: 423.7770 425.7740 Tot Response: 3.16e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	1.13e+03	1.16e+03 0.98	yes	2.29e+03		n	n
2	38:10	4.46e+02	4.22e+02 1.06	yes	8.68e+02	1,2,3,4,6,7,8-HpCDD	n	n

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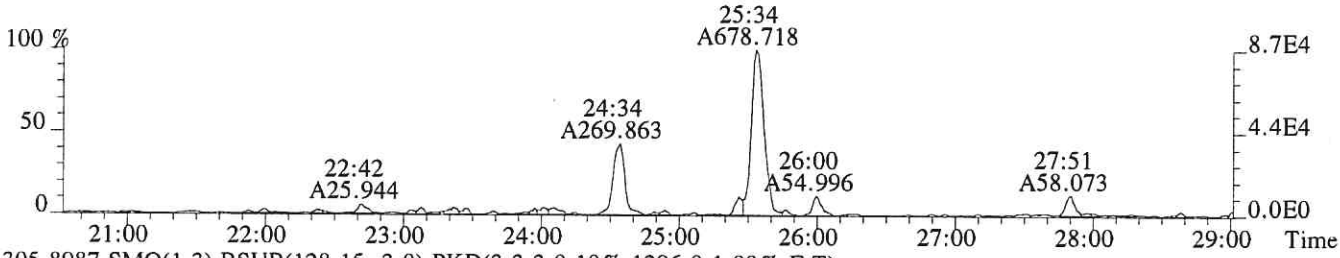
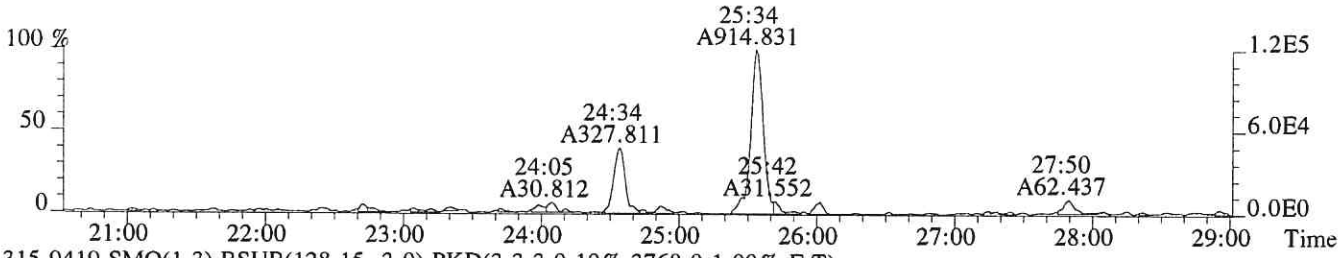
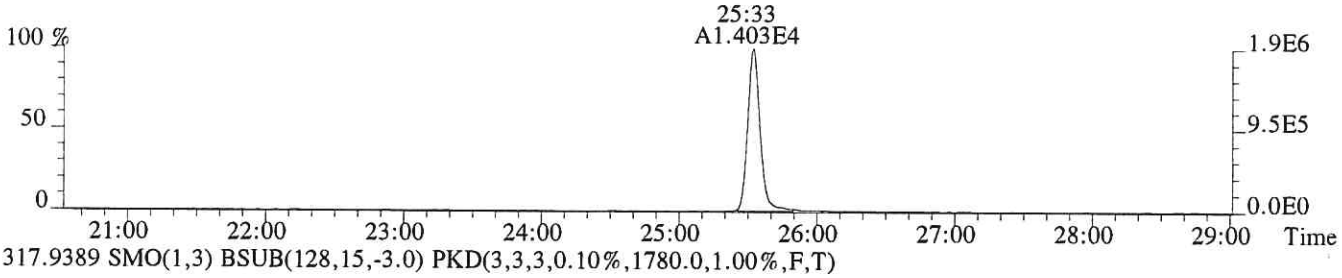
File:P518876 #1-602 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



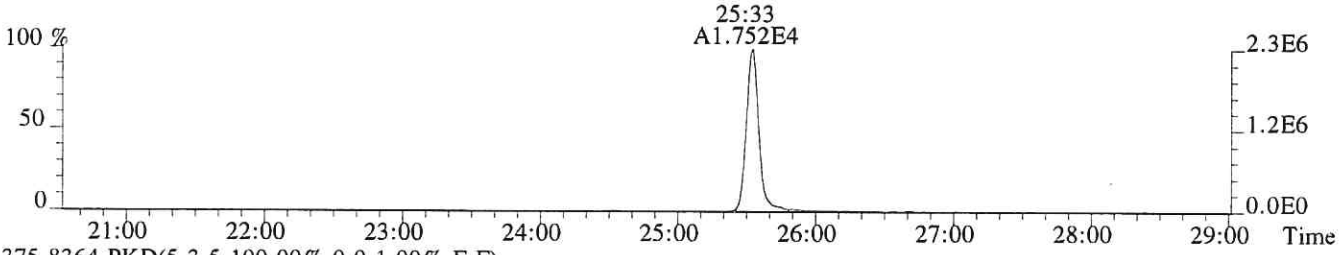
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



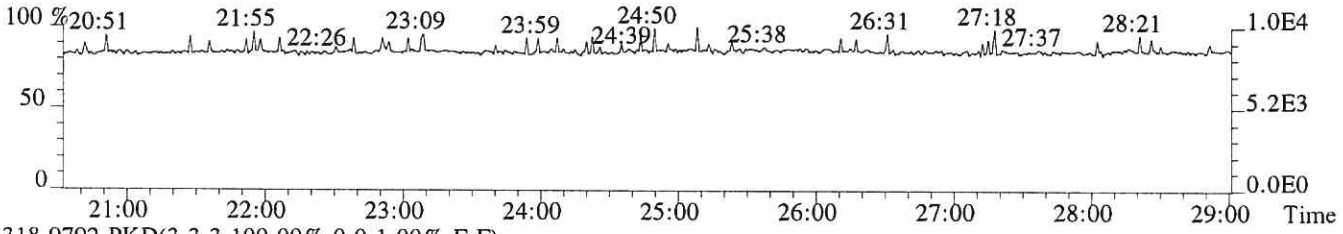
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3768.0,1.00%,F,T)



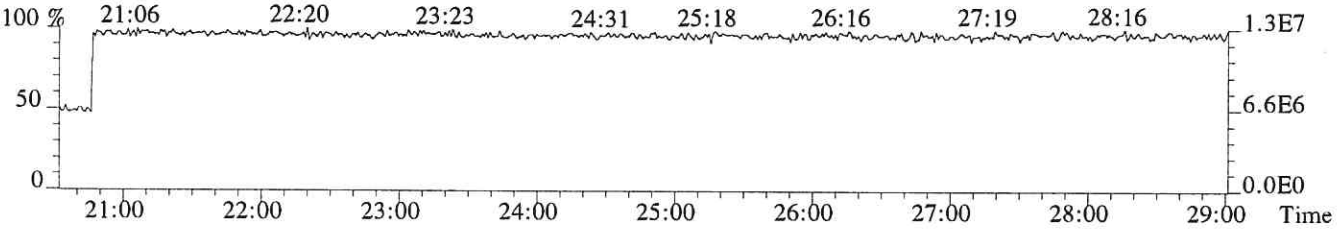
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



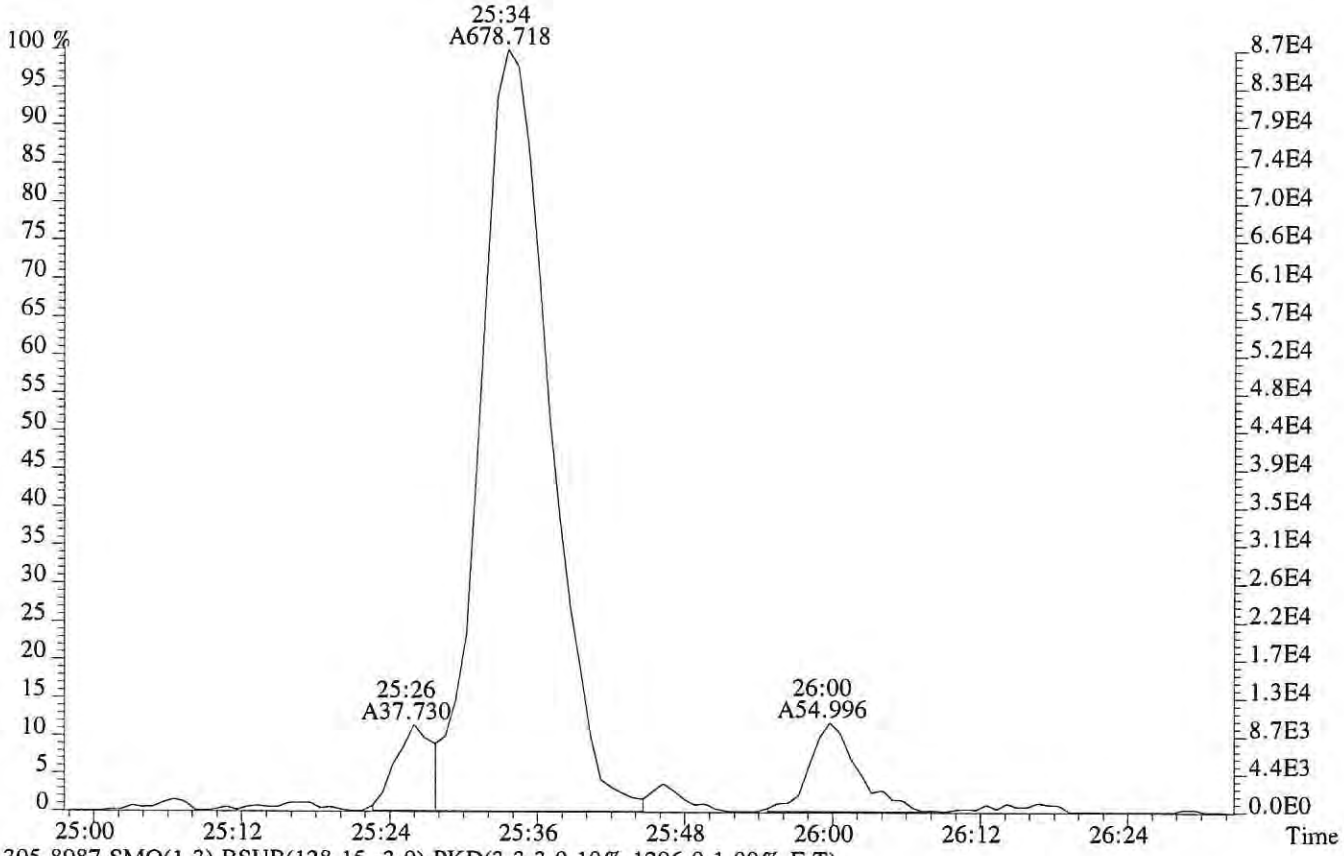
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



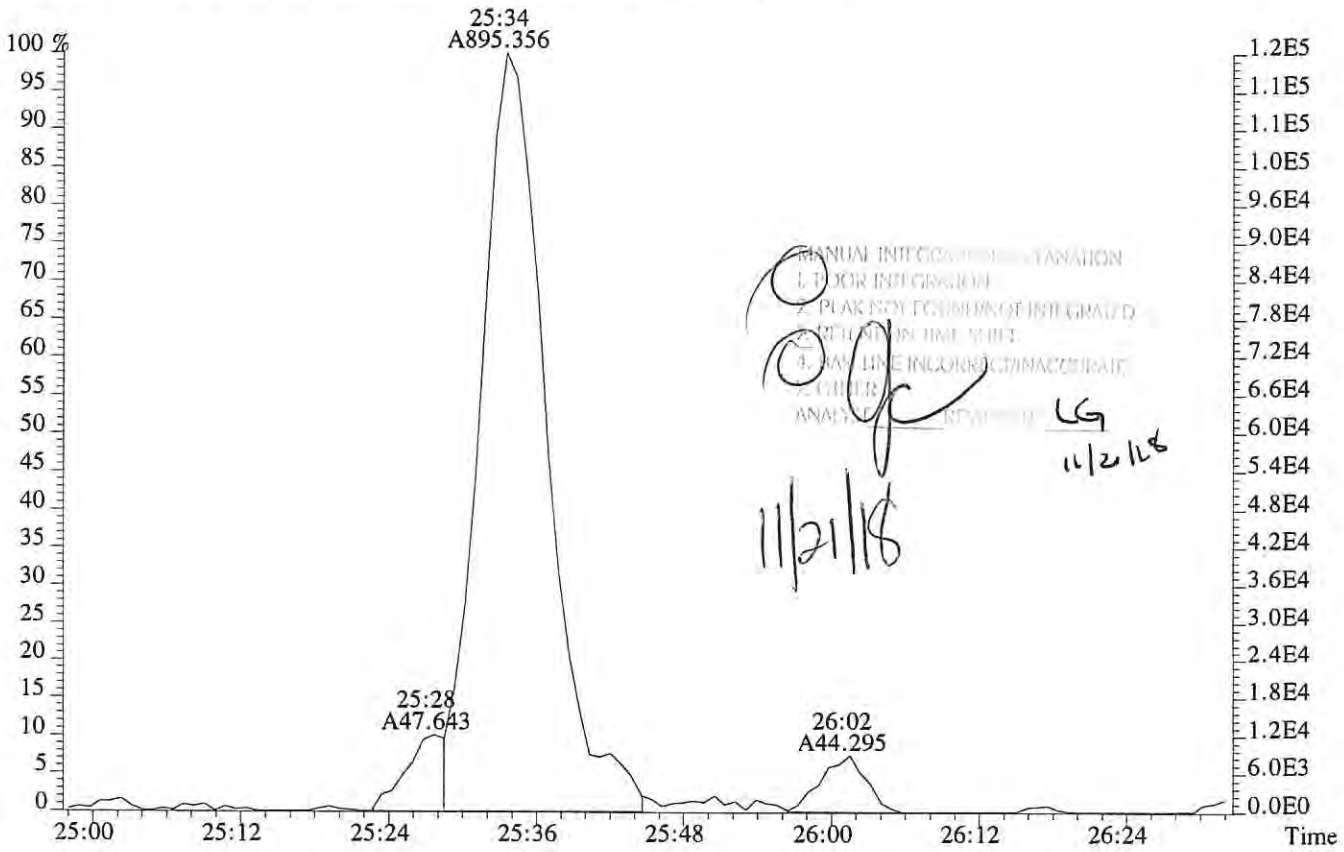
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518876 #1-602 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)

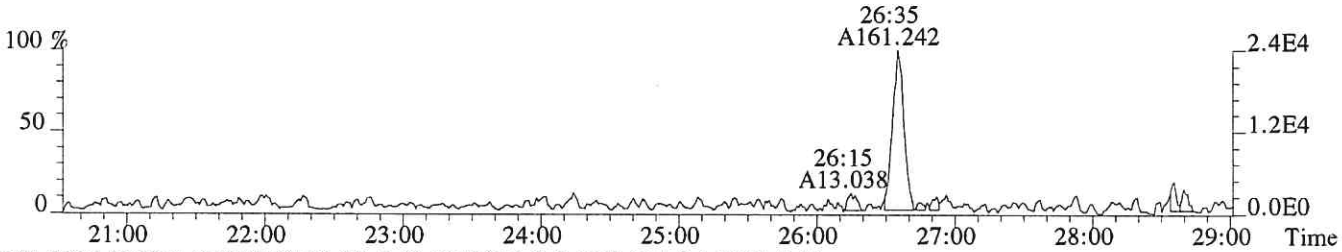


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)

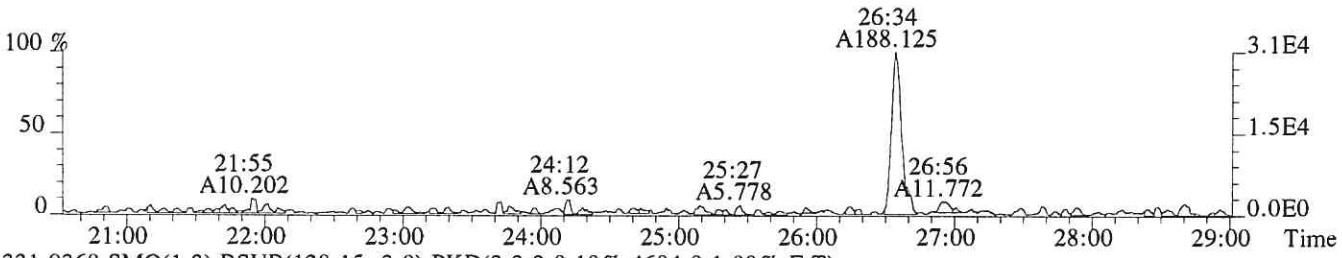


MANUAL INTEGRATION/INTERPRETATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
11/21/18
11/21/18

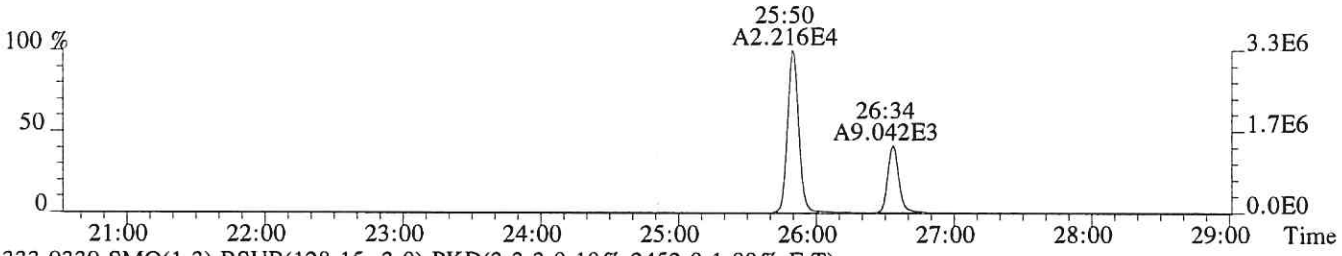
File:P518876 #1-602 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



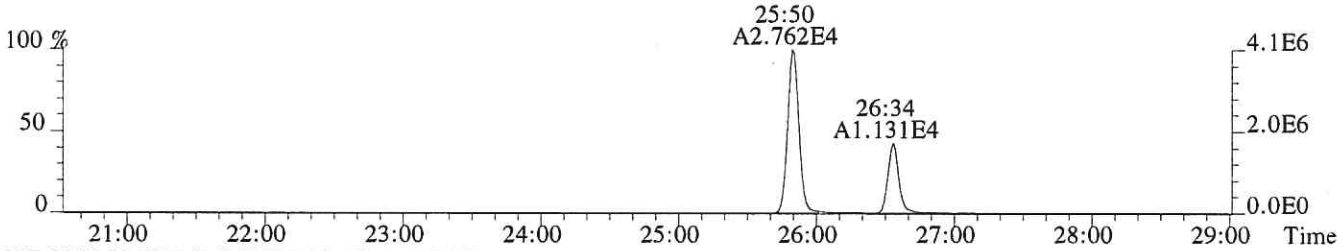
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



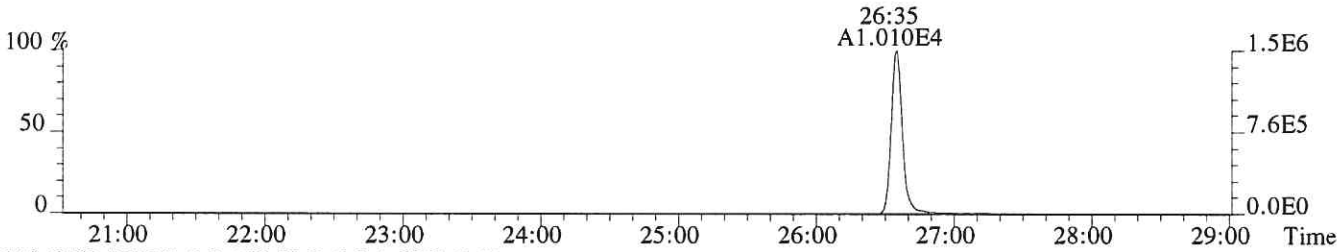
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4684.0,1.00%,F,T)



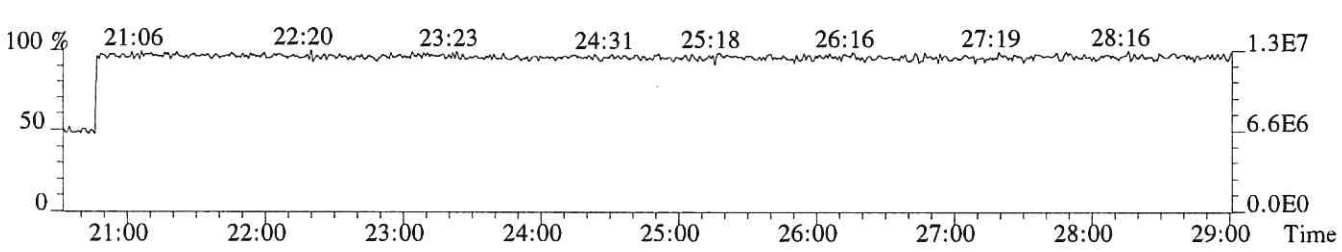
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2452.0,1.00%,F,T)



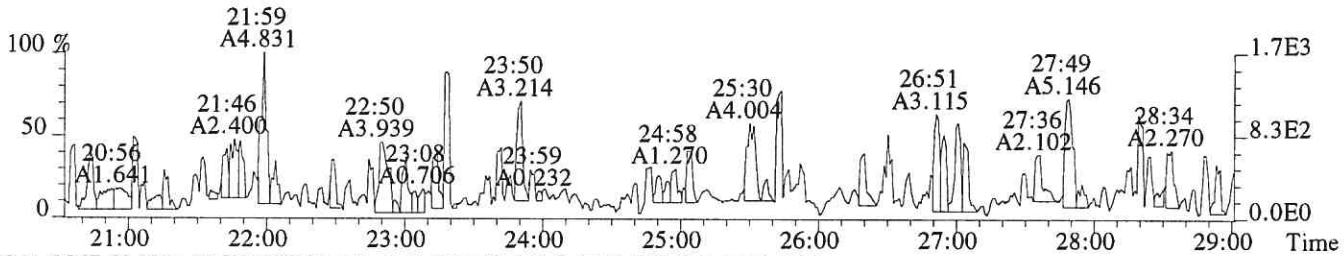
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



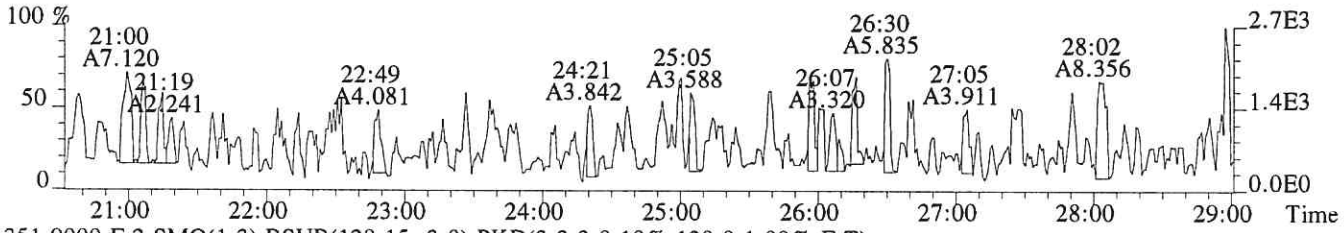
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



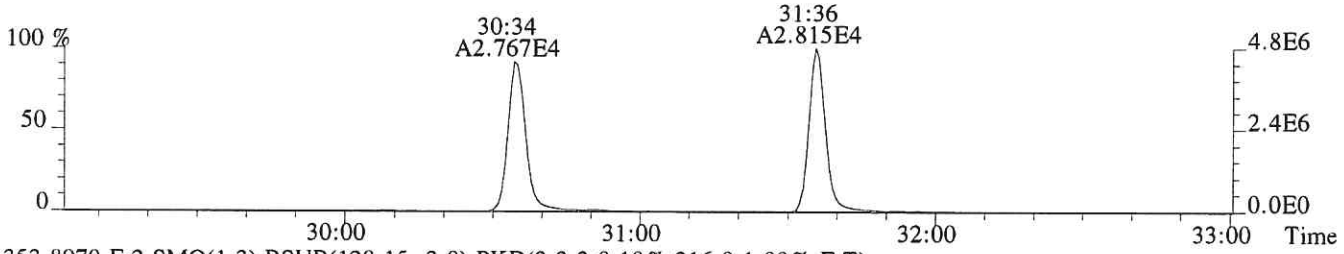
File:P518876 #1-602 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



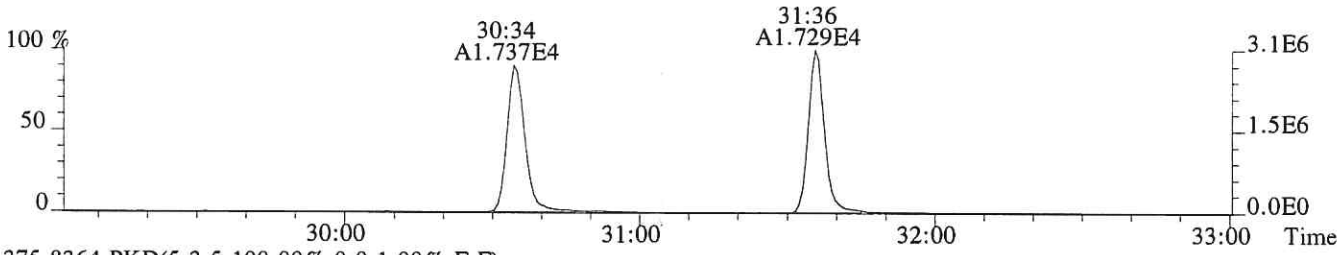
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



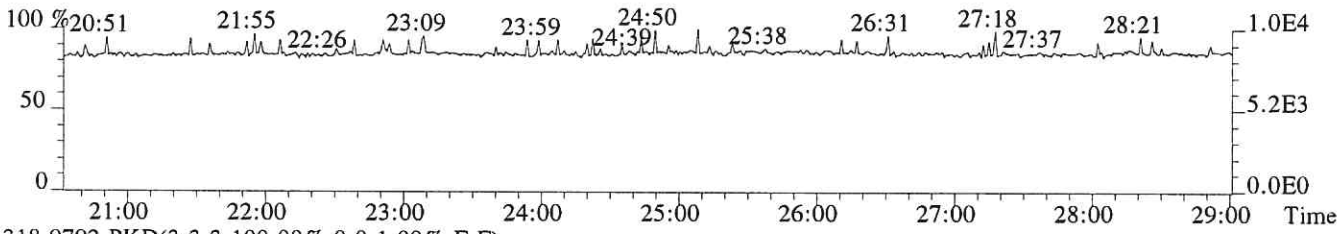
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,120.0,1.00%,F,T)



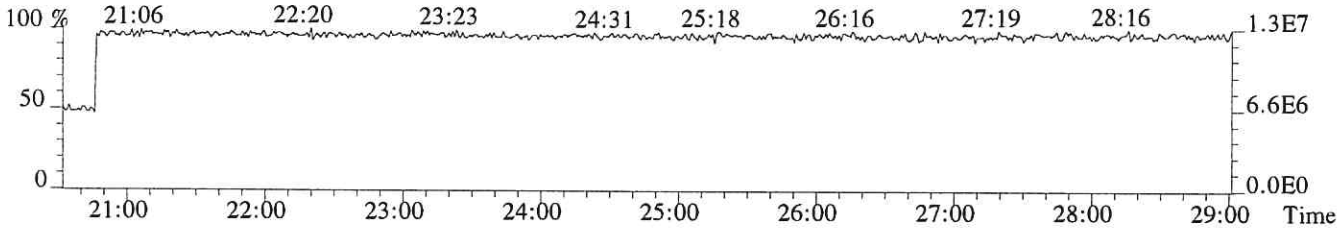
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



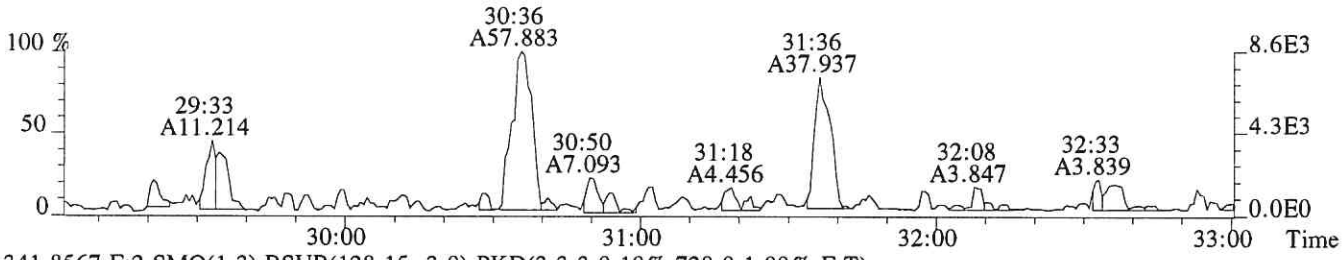
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



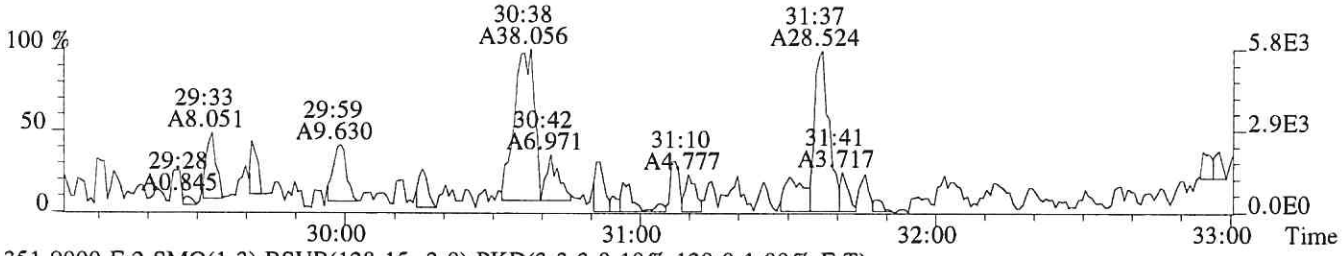
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



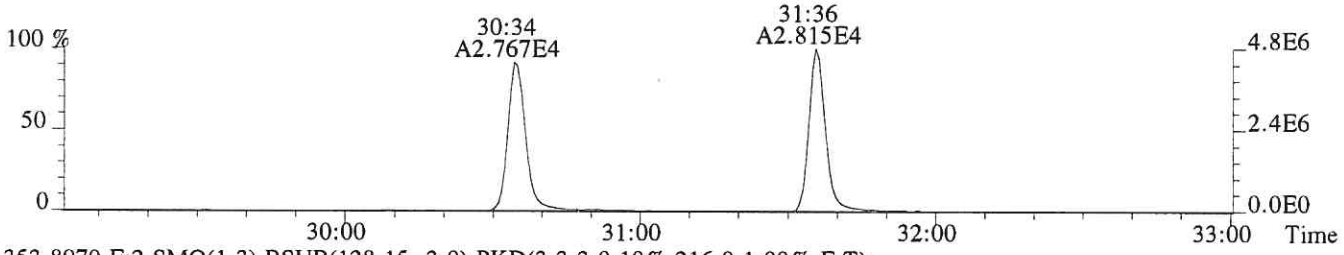
File:P518876 #1-357 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



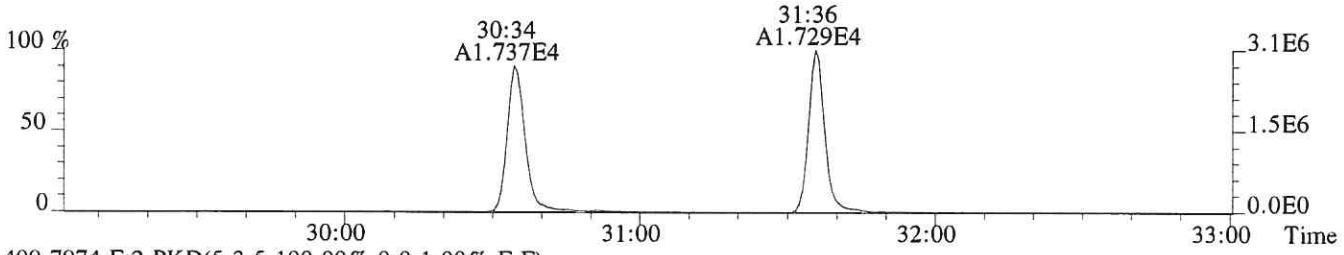
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



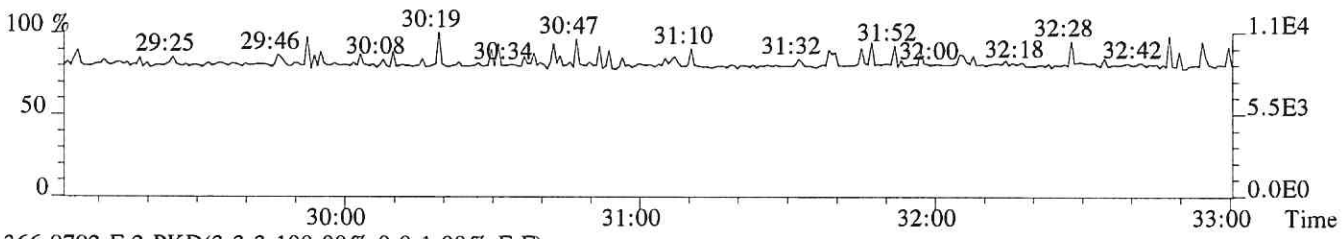
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,120.0,1.00%,F,T)



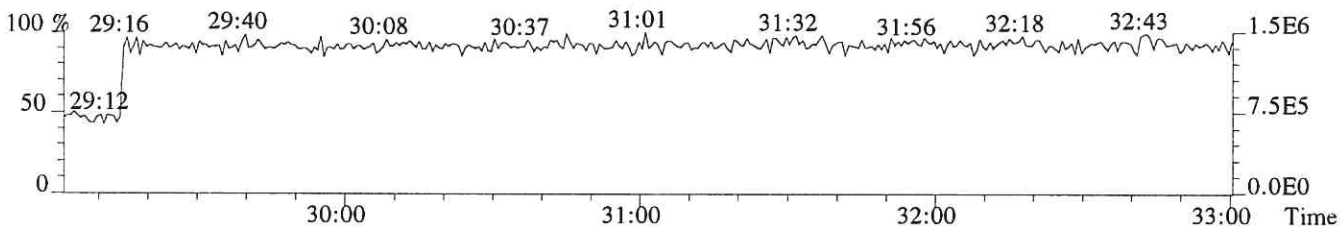
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



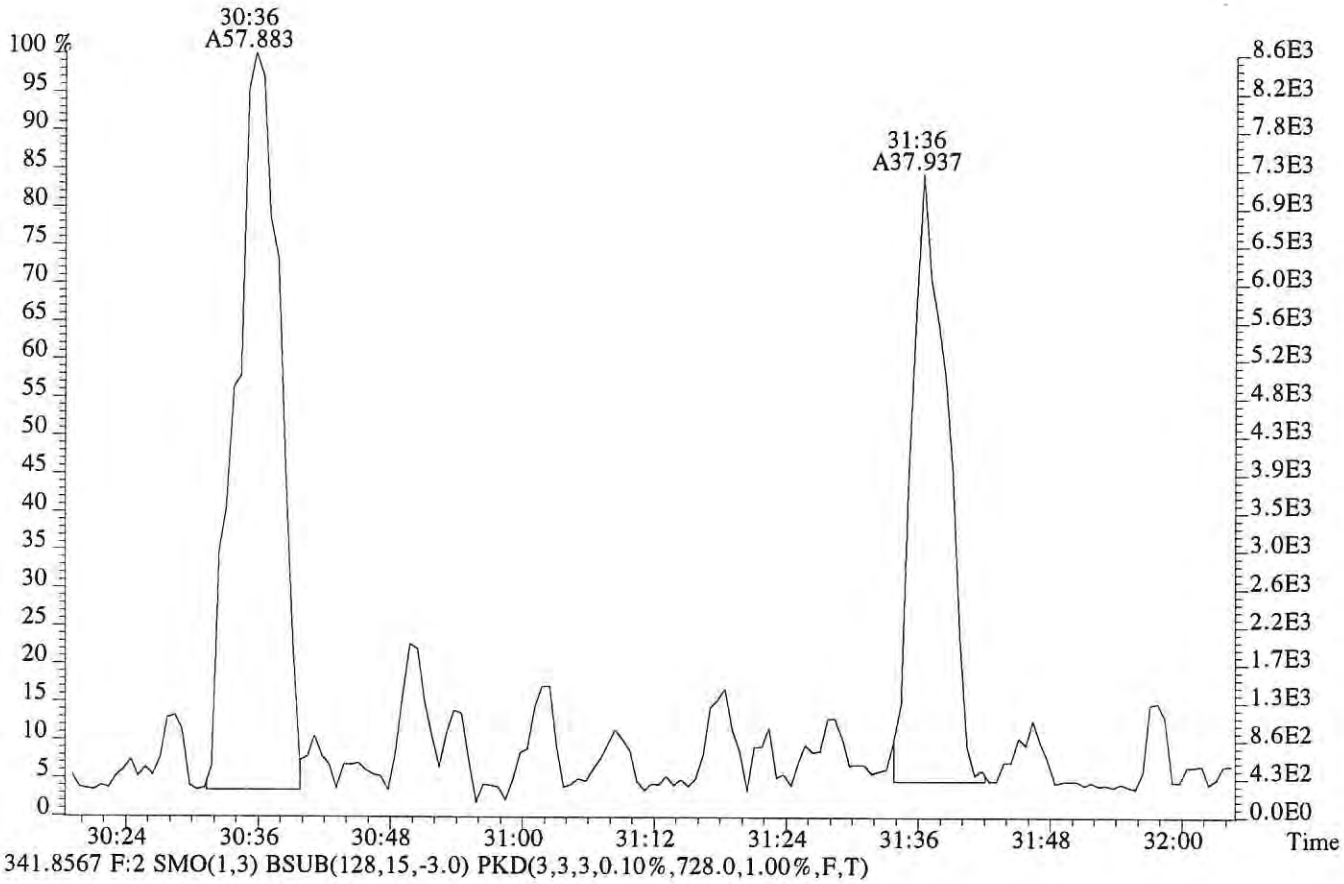
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



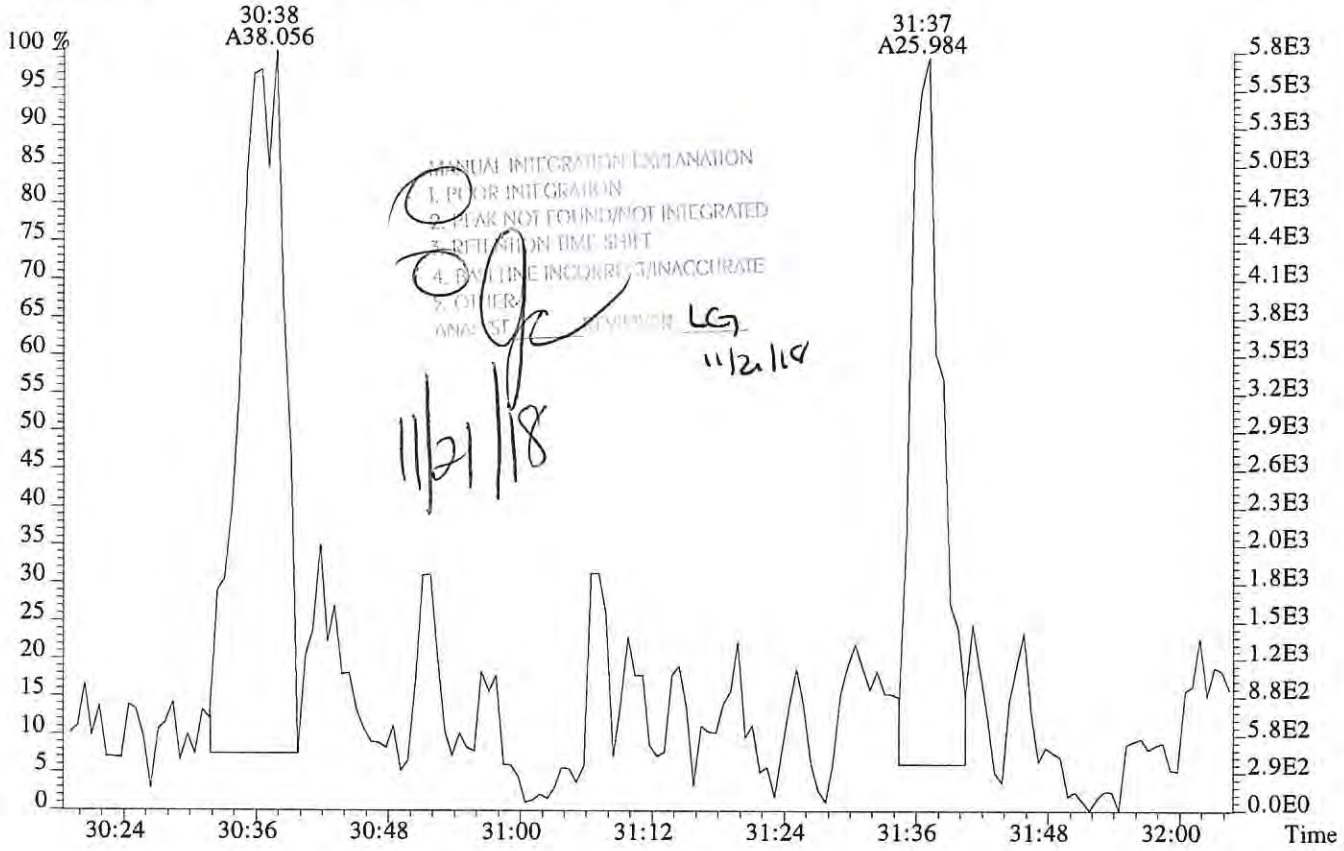
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518876 #1-357 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)

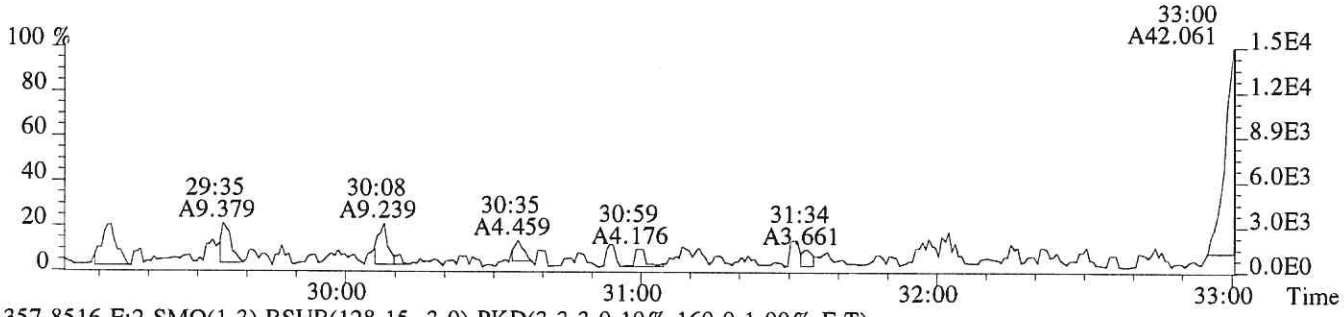


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)

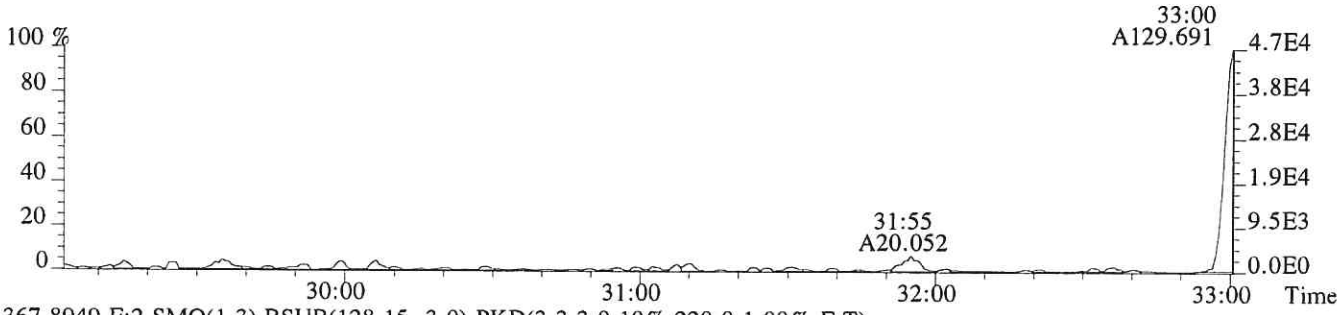


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST SIGNATURE
LG
11/21/18
11/21/18

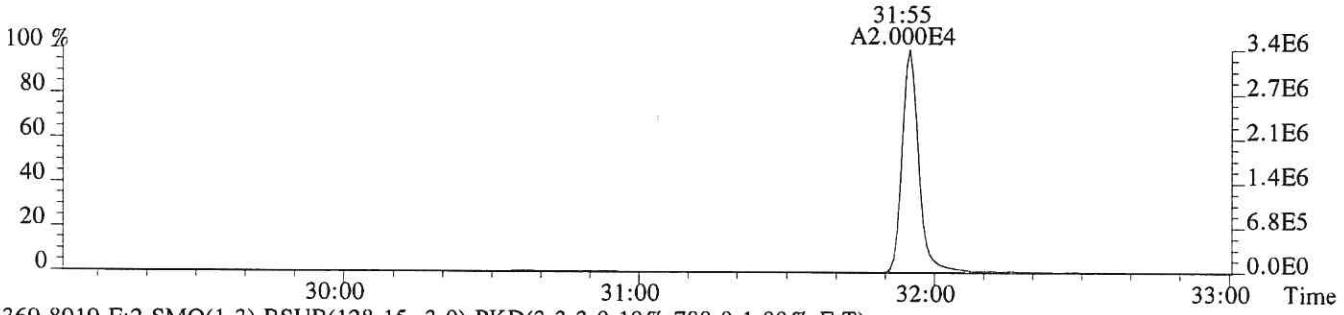
File:P518876 #1-357 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



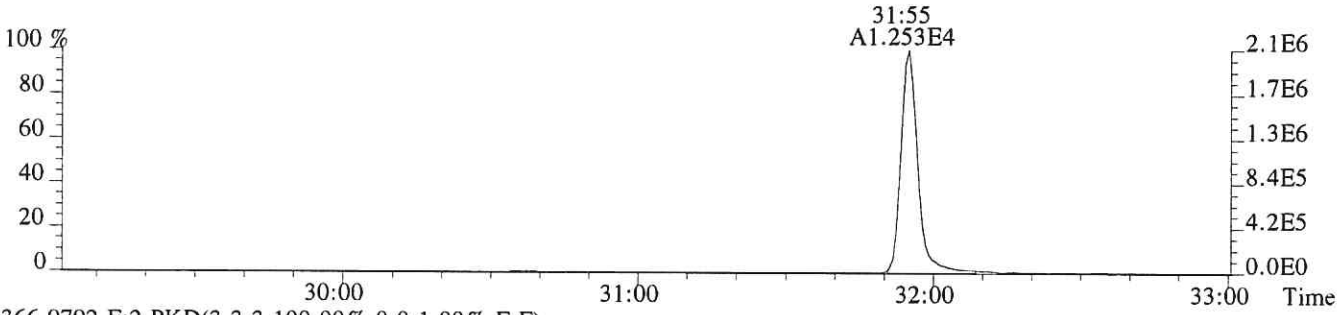
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



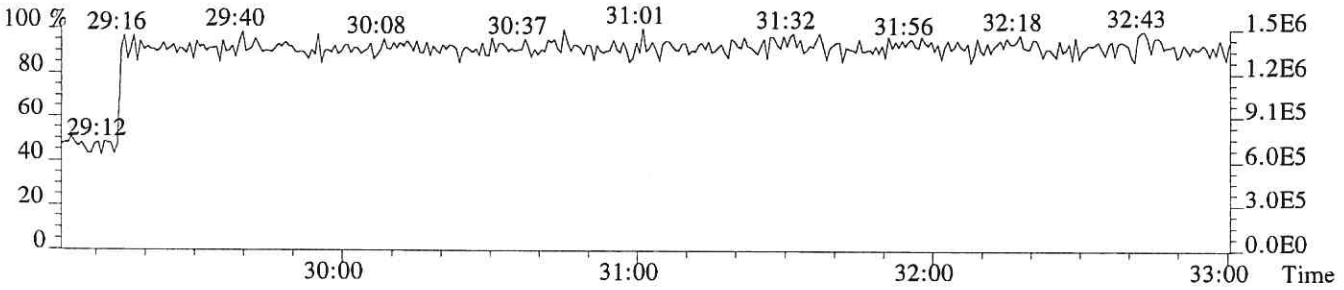
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)

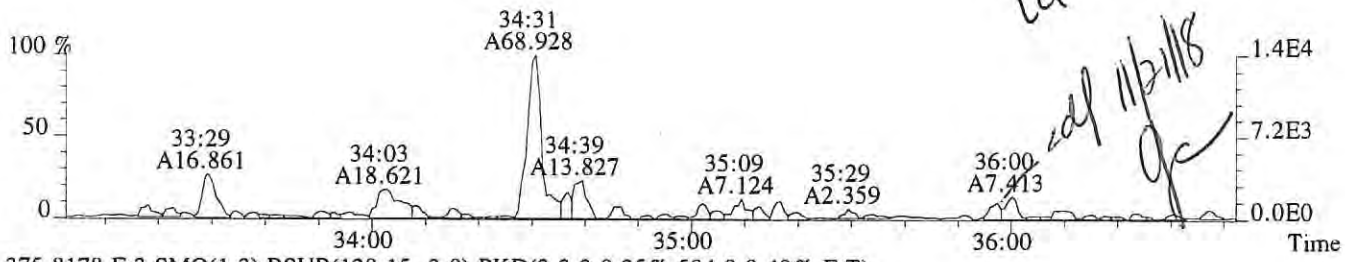


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

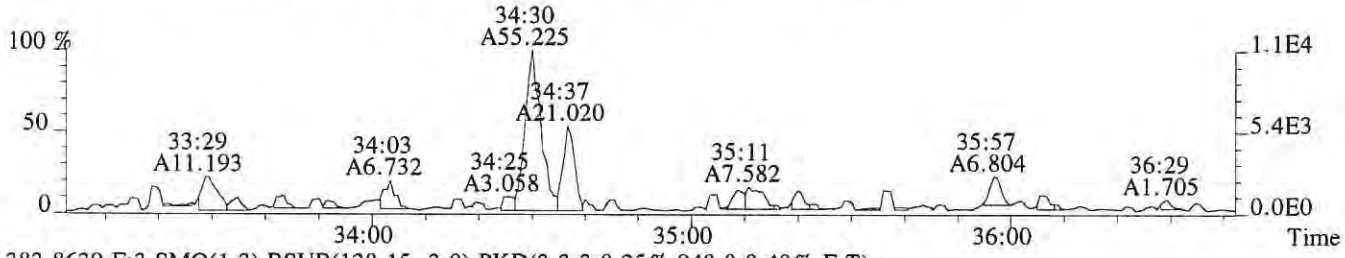


File:P518876 #1-330 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)

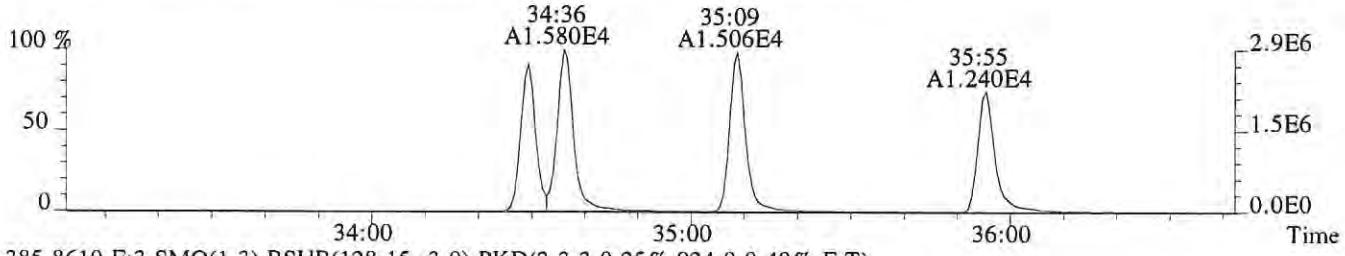
LG 11/21/18
adj 11/21/18



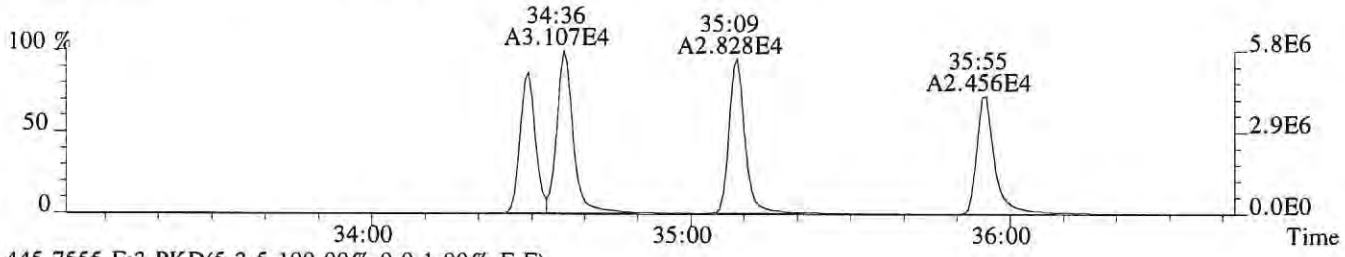
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



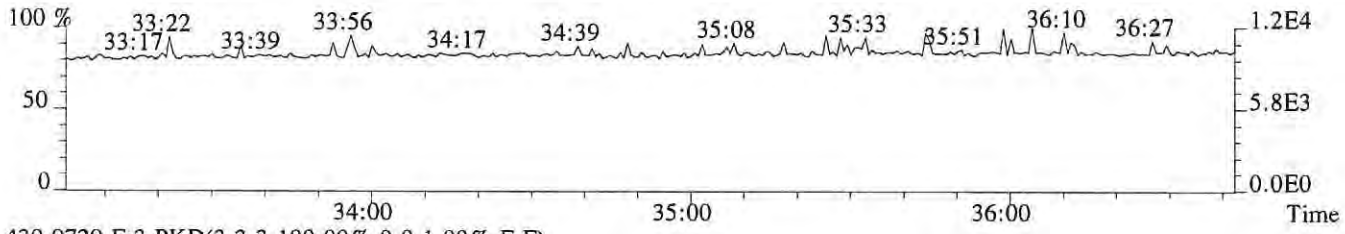
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



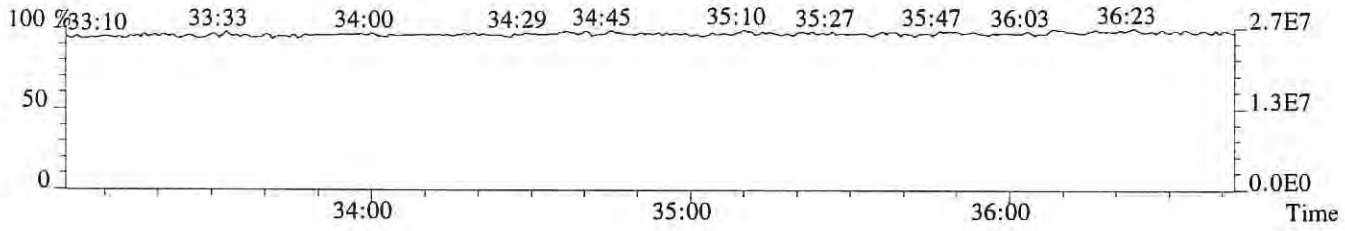
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



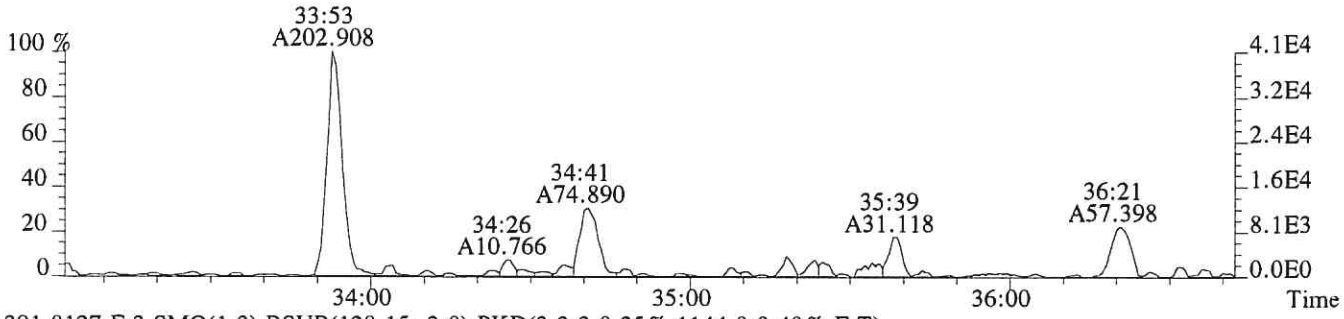
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



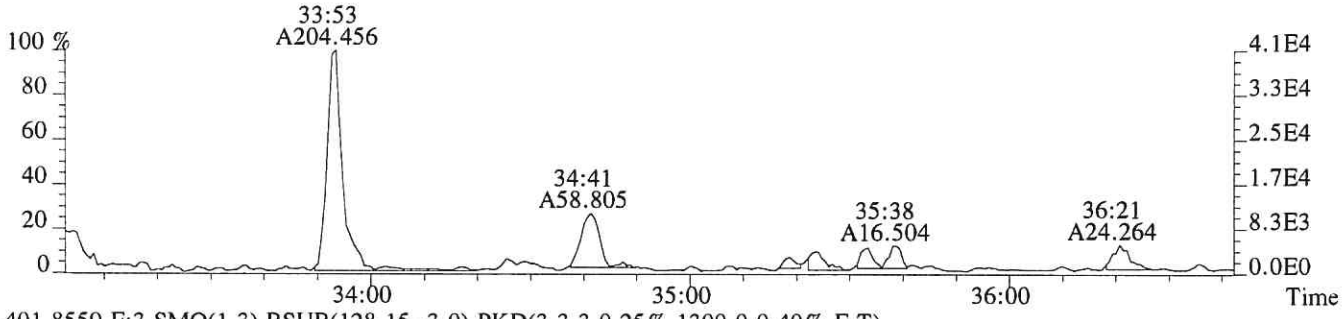
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



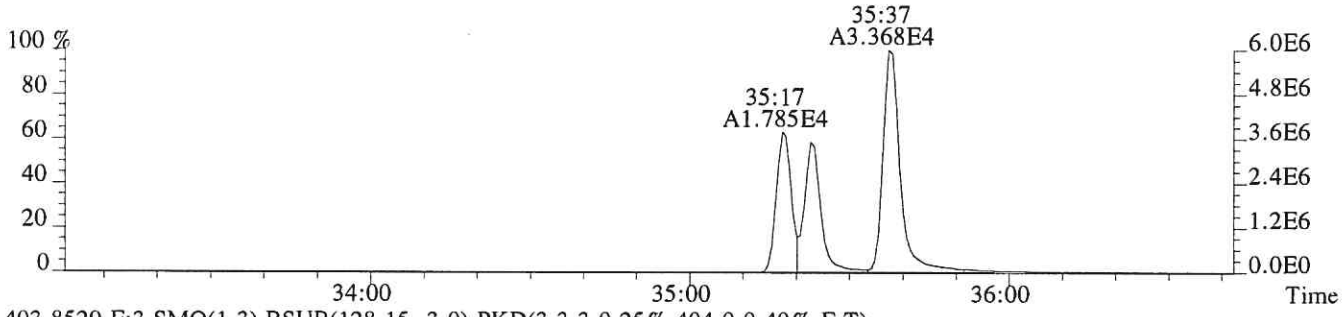
File:P518876 #1-330 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



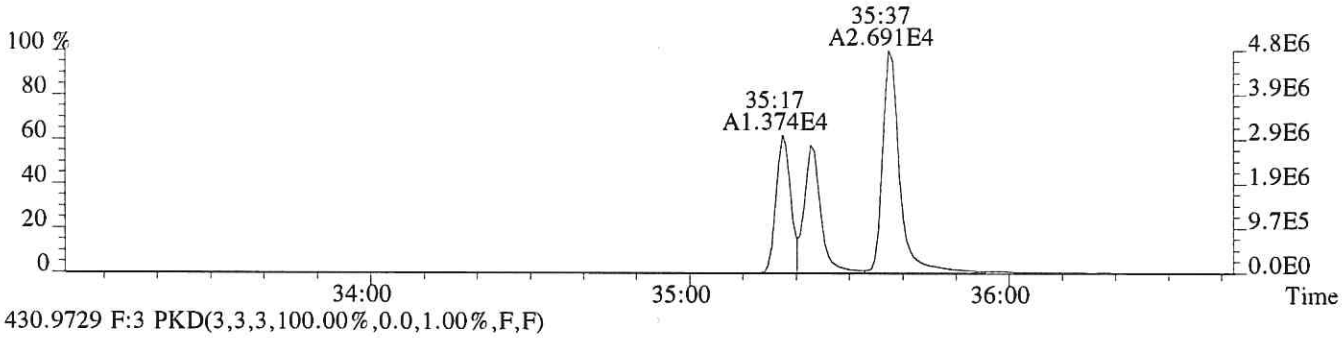
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



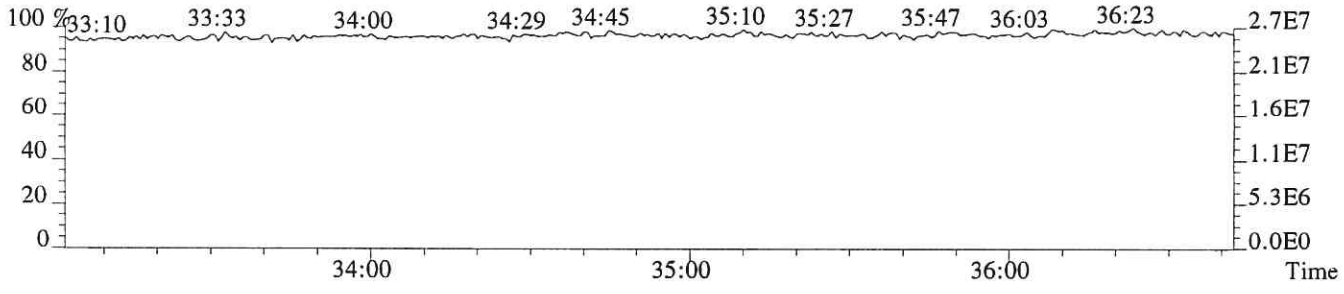
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



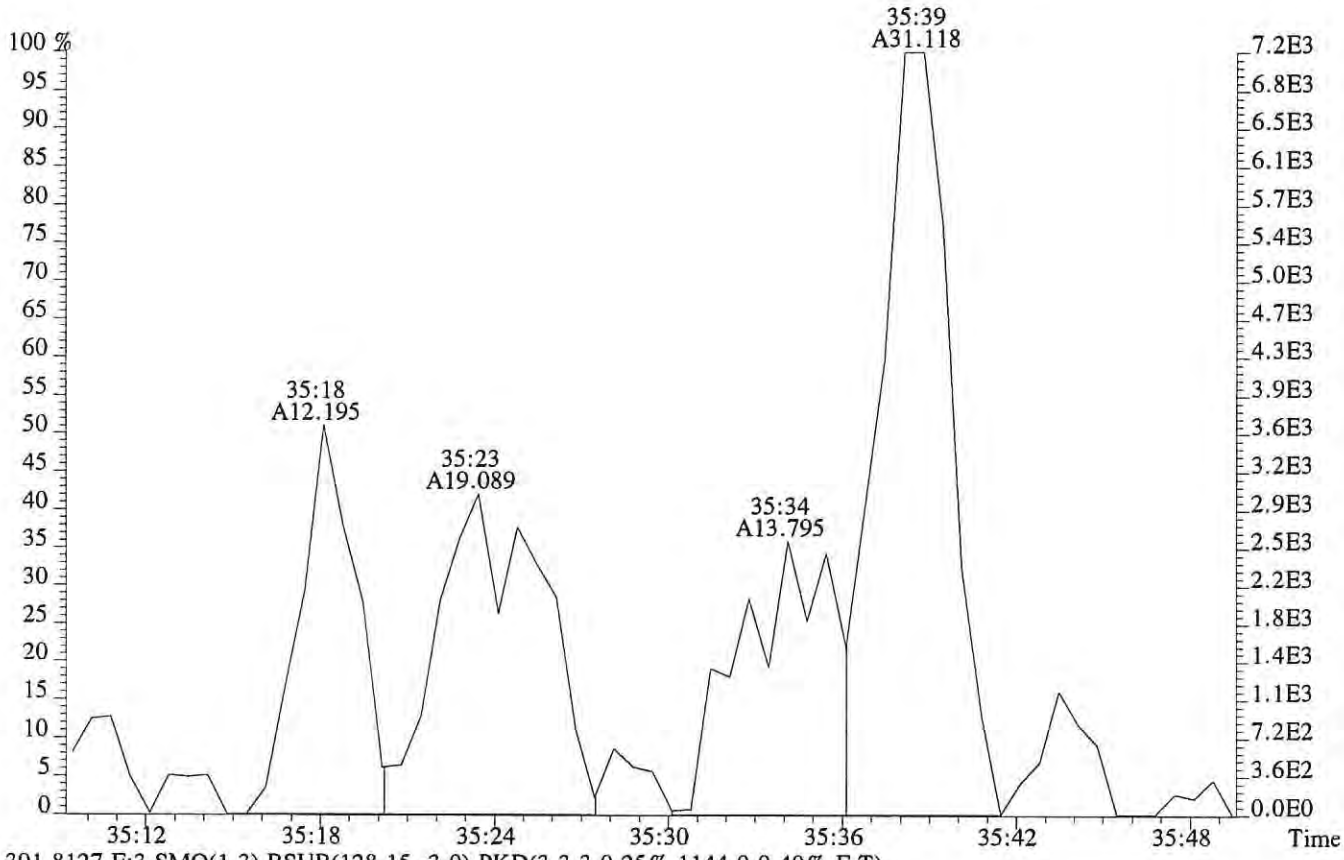
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



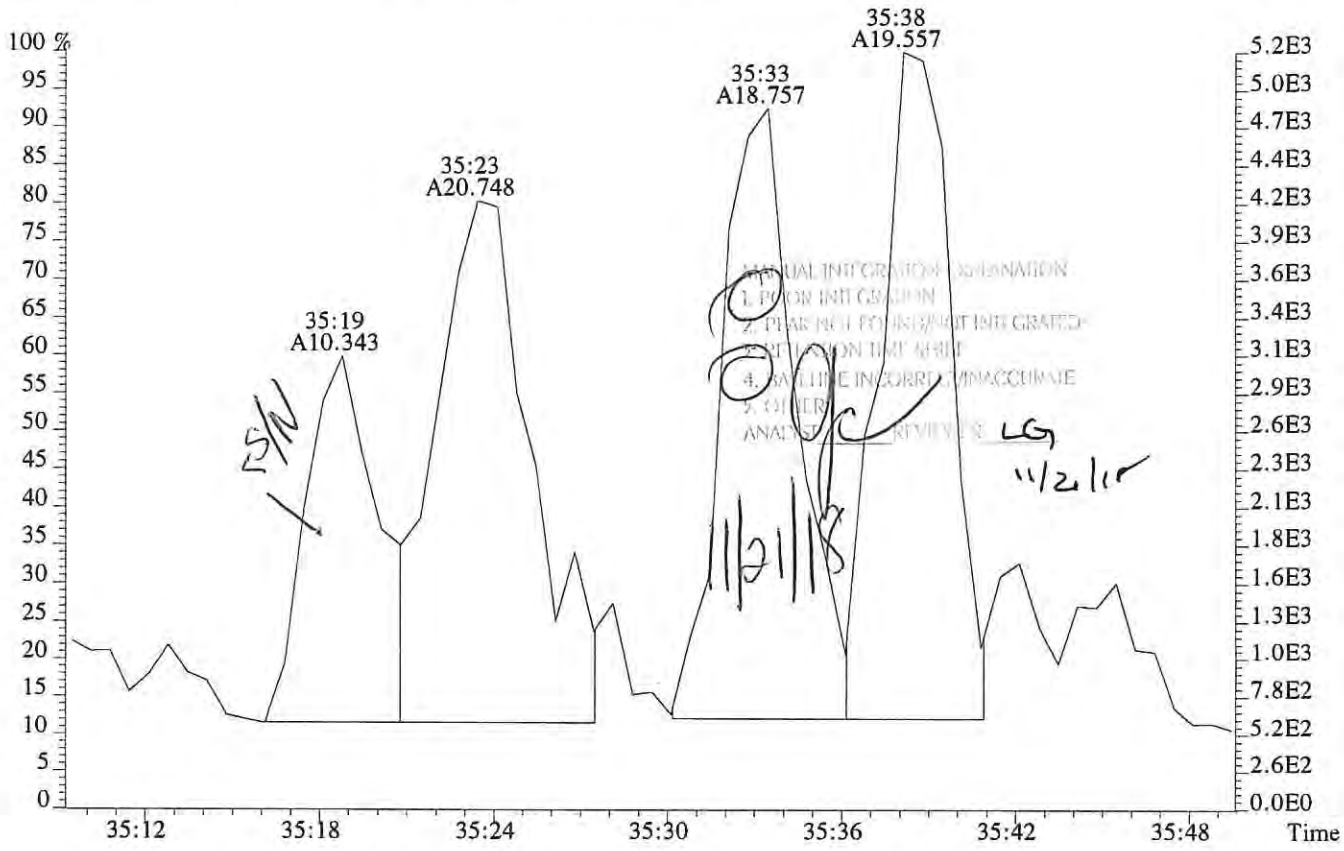
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



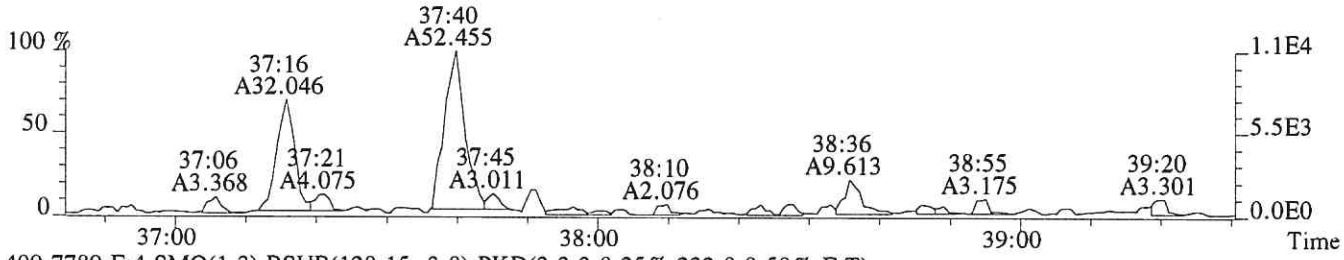
File:P518876 #1-330 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



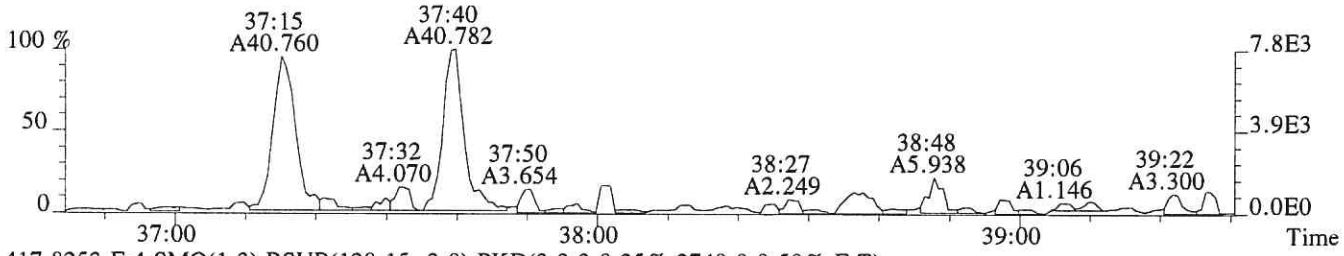
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



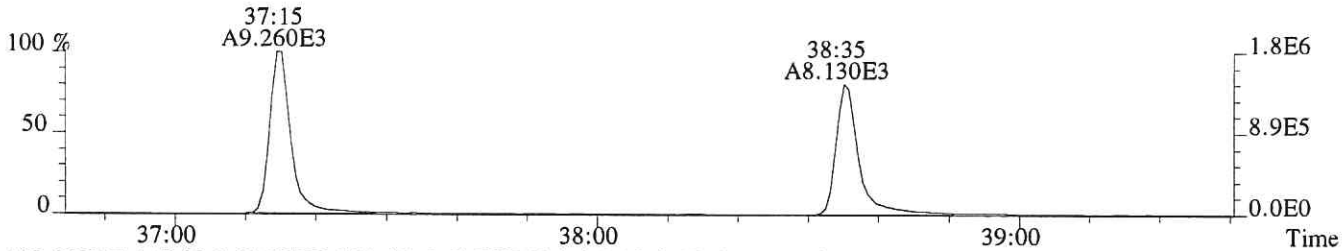
File:P518876 #1-250 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.50%,F,T)



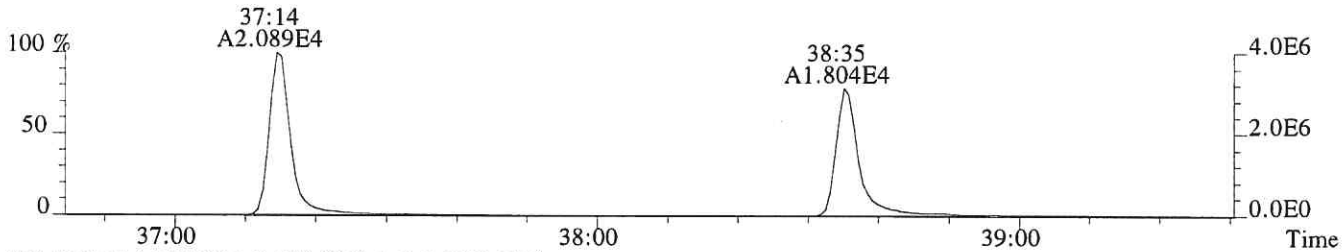
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



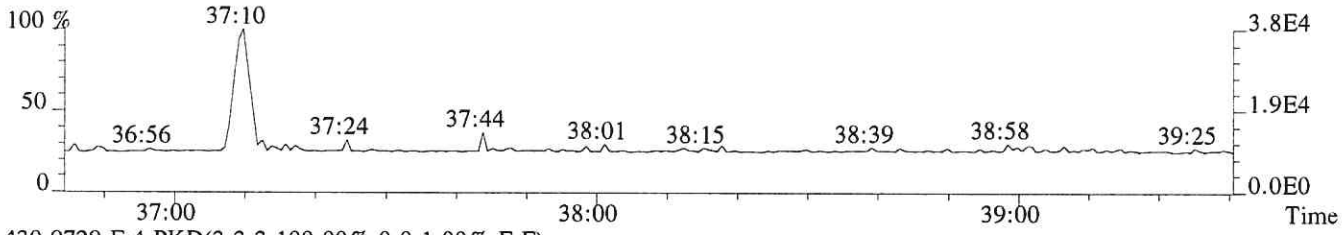
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2748.0,0.50%,F,T)



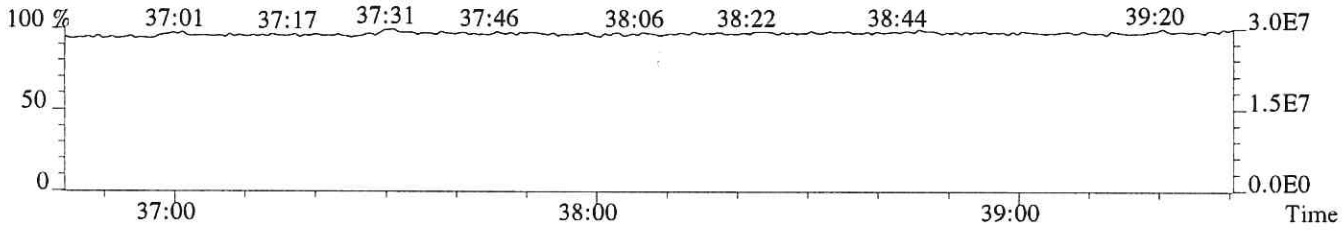
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3716.0,0.50%,F,T)



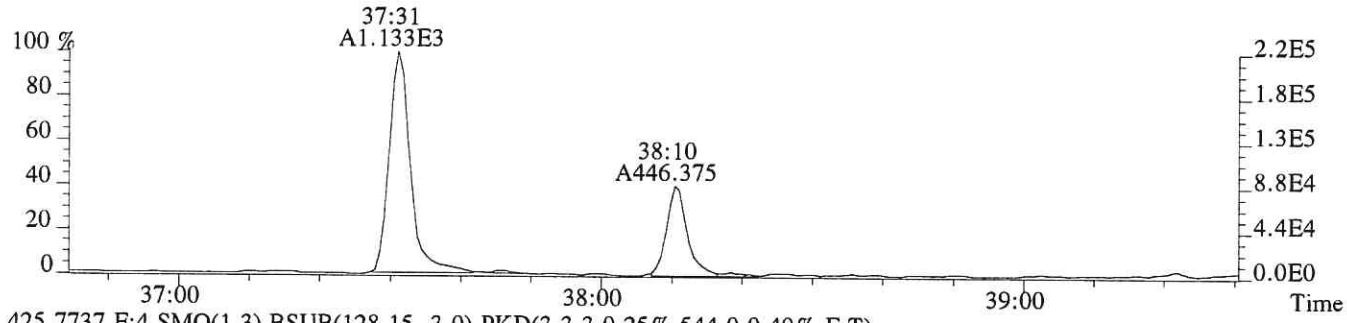
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



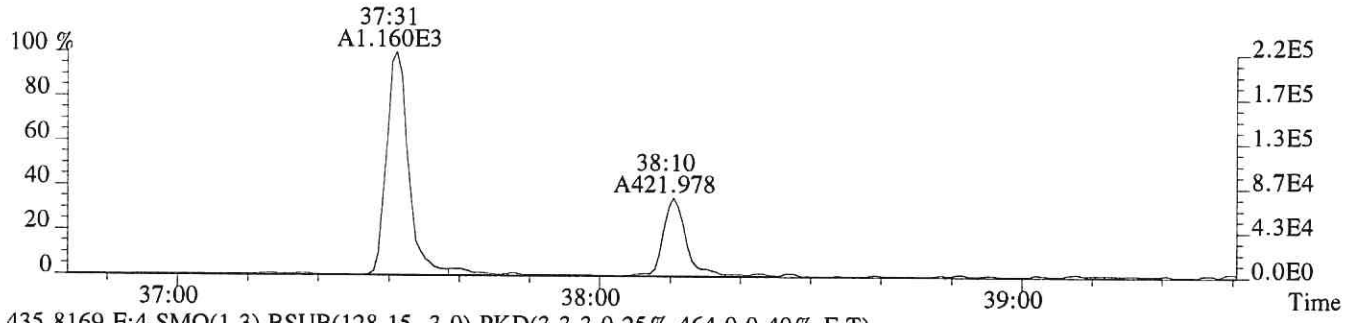
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



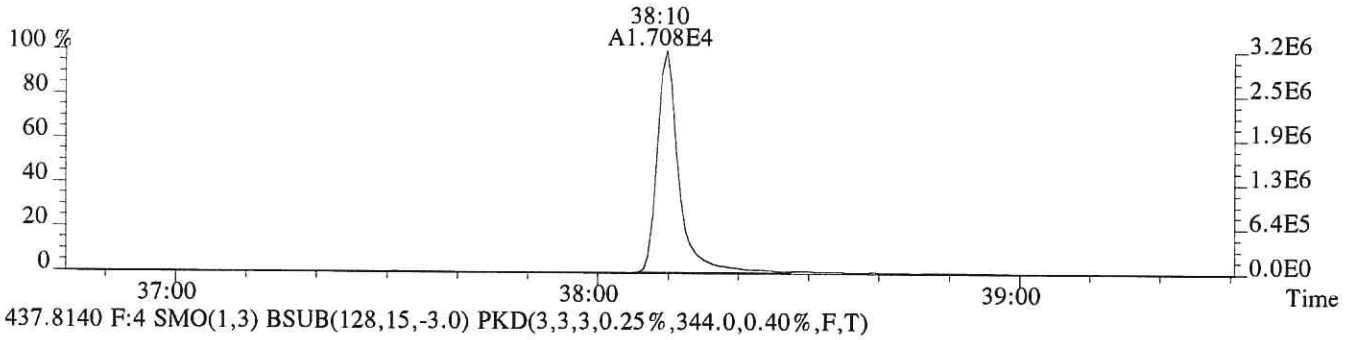
File:P518876 #1-250 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2816.0,0.40%,F,T)



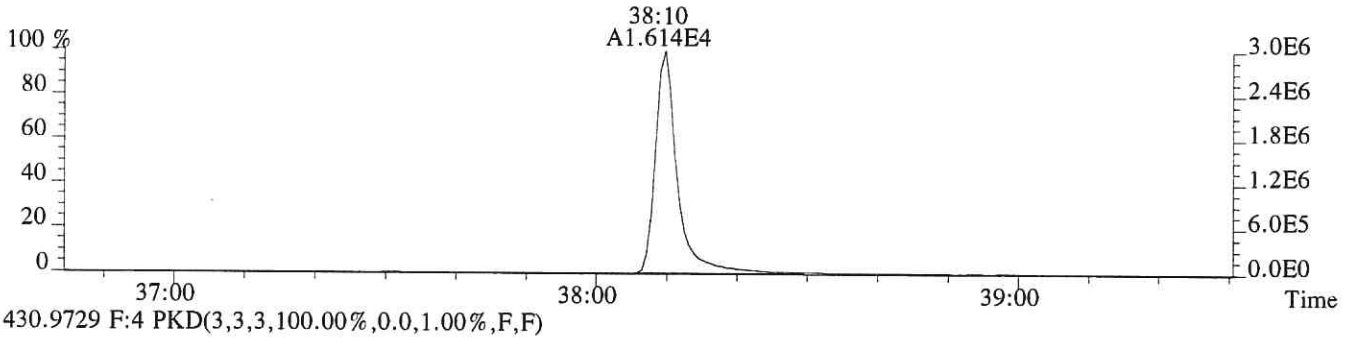
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



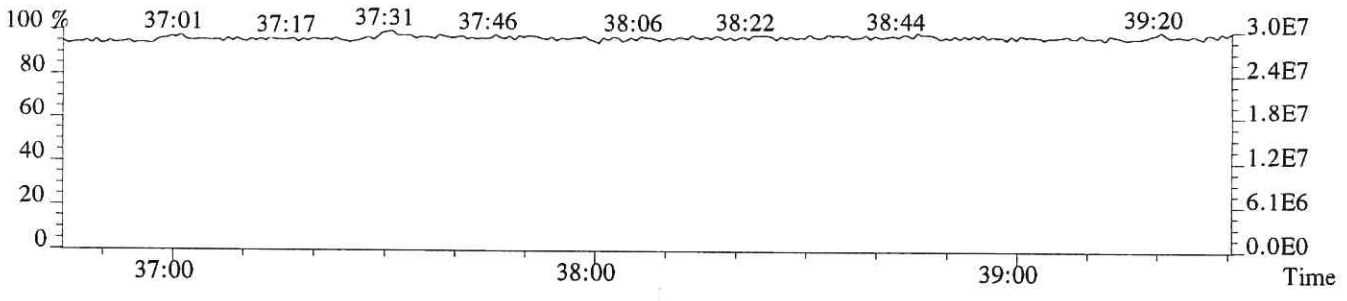
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



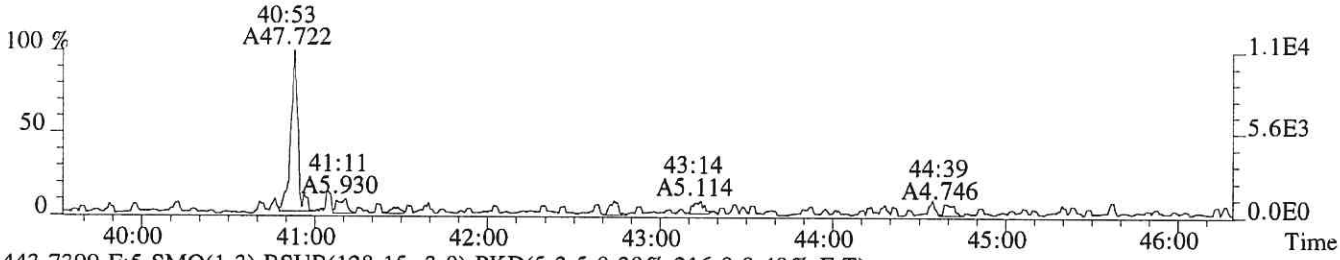
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



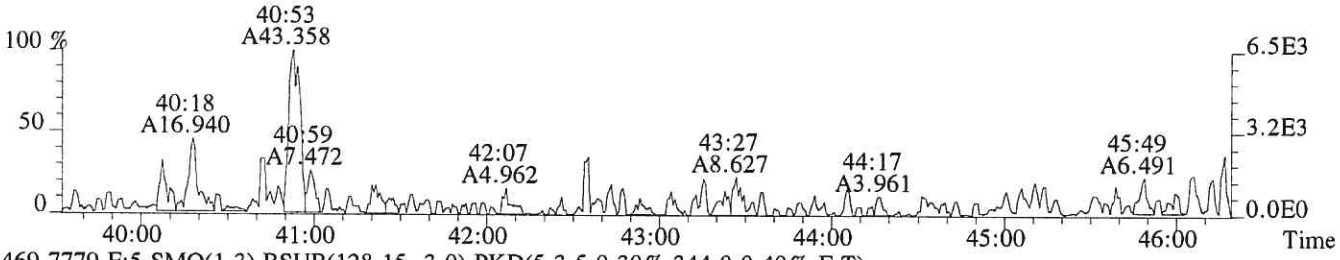
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



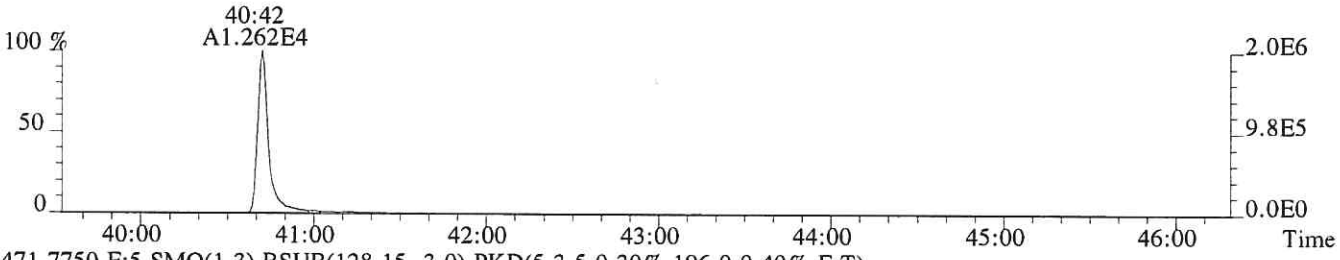
File:P518876 #1-610 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



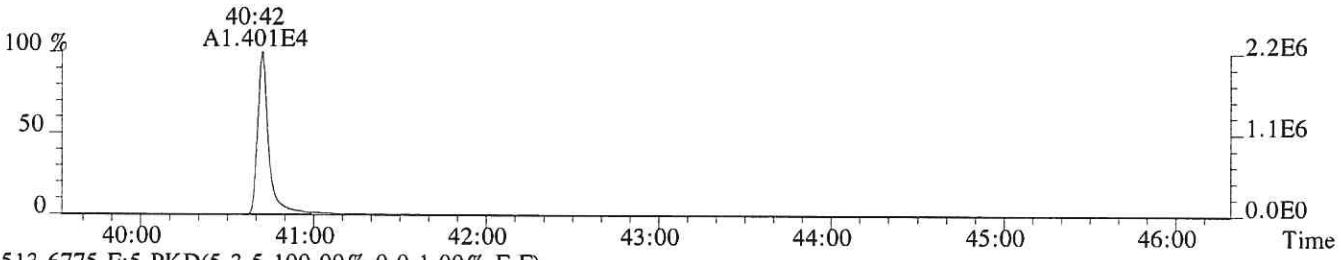
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



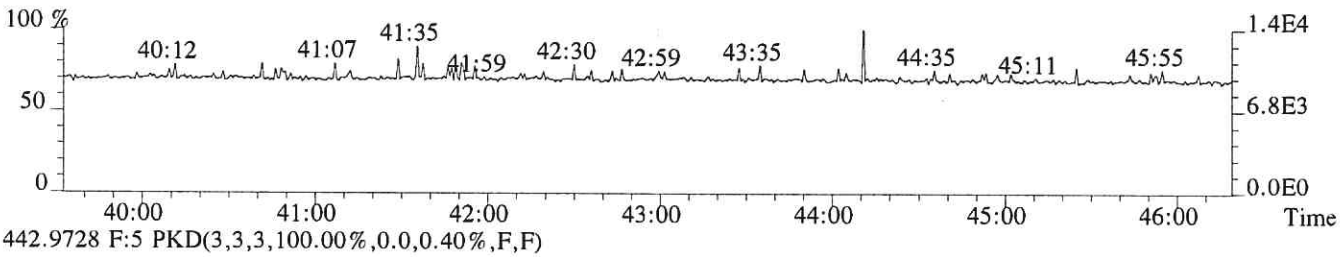
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



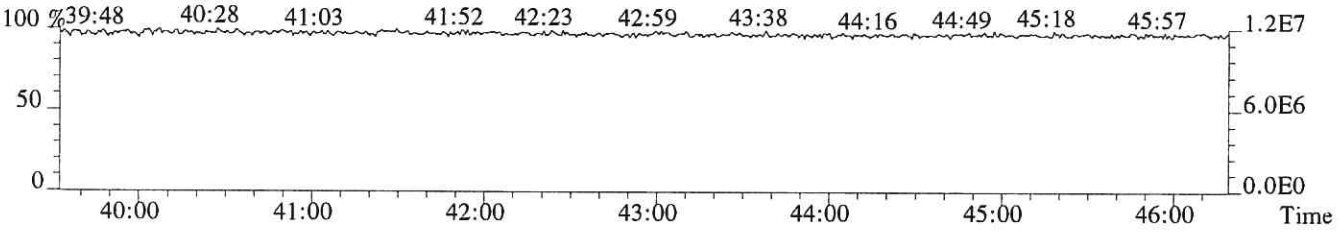
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



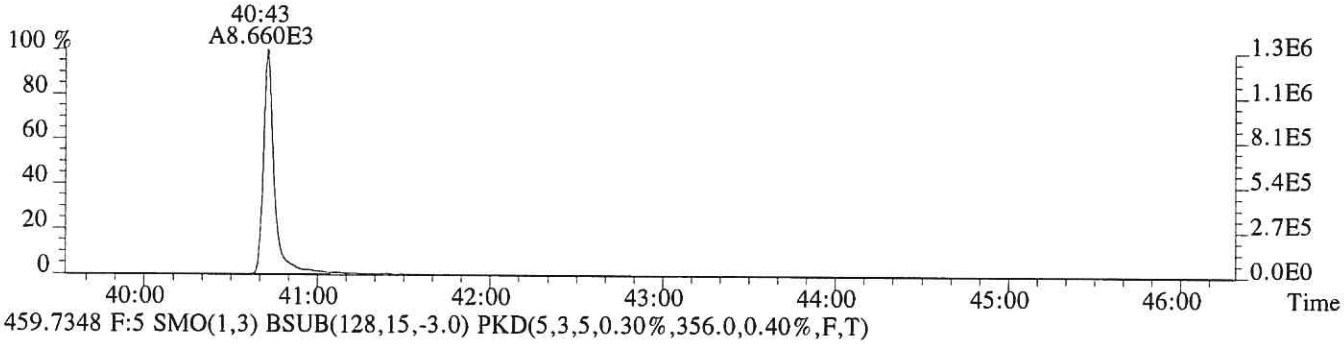
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



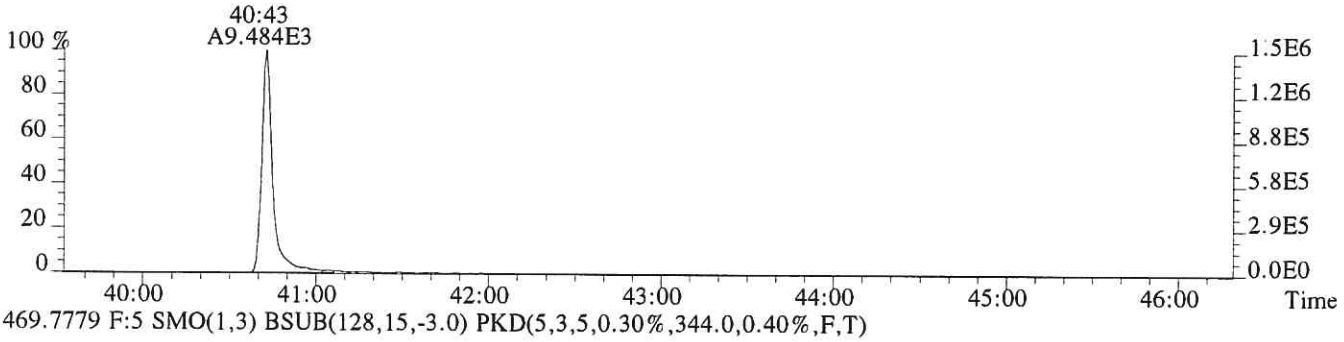
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



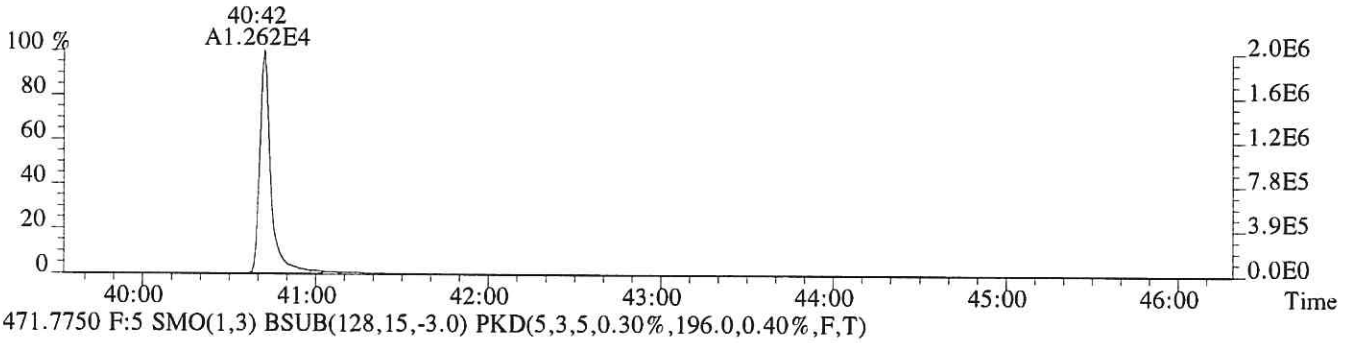
File:P518876 #1-610 Acq:17-NOV-2018 10:01:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



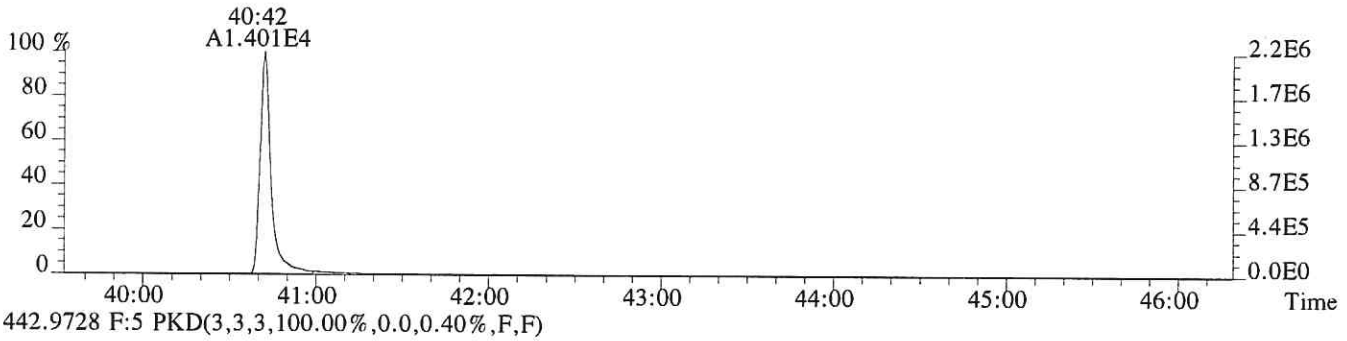
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



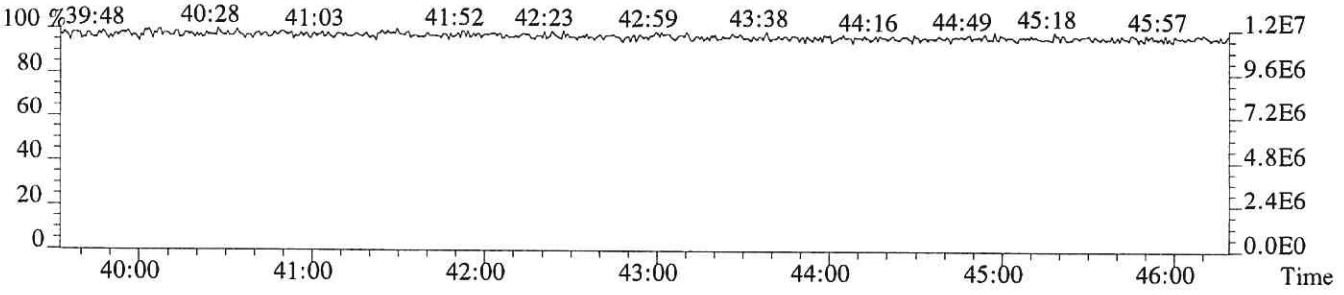
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0520

Run #17 Filename P518890 Samp: 1 Inj: 1 Acquired: 17-NOV-18 21:37:35
Processed: 19-NOV-18 14:30:26 Sample ID: E1801038-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	7.739e+01	1.366e+02	0.57	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.191e+01	1.534e+01	0.78	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:56	1.044e+01	3.587e+00	2.91	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	8.338e+00	4.524e+00	1.84	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	4.240e+00	3.722e+00	1.14	yes	no	1.258
10	Unk	OCDF	40:53	2.182e+01	2.832e+01	0.77	yes	yes	1.359
11	Unk	2,3,7,8-TCDD	26:34	2.670e+01	4.162e+01	0.64	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	2.505e+01	2.074e+01	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	3.945e+02	3.659e+02	1.08	yes	no	1.025
17	Unk	OCDD	40:42	9.556e+03	1.082e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	5.516e+03	7.166e+03	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.620e+04	1.044e+04	1.55	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.623e+04	1.032e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	8.513e+03	1.653e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.125e+04	2.196e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.030e+04	2.030e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	8.915e+03	1.802e+04	0.49	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	7.701e+03	1.692e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.613e+03	1.442e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	3.979e+03	5.203e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.250e+04	7.720e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.249e+04	1.011e+04	1.23	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.389e+04	1.066e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.409e+04	1.371e+04	1.03	yes	no	0.858
32	IS	13C-OCDD	40:42	1.165e+04	1.342e+04	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.014e+04	2.579e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.014e+04	2.485e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	4.521e+03				no	1.014

$$\text{OCDD} = \frac{(9.556e+03 + 1.082e+04) \times 4000\ \text{pg} \times 1}{(1.165e+04 + 1.342e+04) \times 10.833\ \text{g} \times 84.2 / 100 \times 1.118} = 318.8\ \text{ng/kg}$$

LW 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0520

Run #17 Filename P518890 Samp: 1 Inj: 1 Acquired: 17-NOV-18 21:37:35
Processed: 19-NOV-18 14:30:26 LAB. ID: E1801038-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.01e+04	2.44e+02	4.1e+01	1.79e+04	9.56e+02	1.9e+01
2	1,2,3,7,8-PeCDF	*	2.68e+02	*	*	1.18e+03	*
3	2,3,4,7,8-PeCDF	*	2.68e+02	*	*	1.18e+03	*
4	1,2,3,4,7,8-HxCDF	2.04e+03	2.52e+02	8.1e+00	3.24e+03	1.80e+02	1.8e+01
5	1,2,3,6,7,8-HxCDF	*	2.52e+02	*	*	1.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.52e+02	*	*	1.80e+02	*
7	1,2,3,7,8,9-HxCDF	2.16e+03	2.52e+02	8.6e+00	1.10e+03	1.80e+02	6.1e+00
8	1,2,3,4,6,7,8-HpCDF	1.74e+03	2.84e+02	6.1e+00	1.07e+03	2.56e+02	4.2e+00
9	1,2,3,4,7,8,9-HpCDF	8.60e+02	2.84e+02	3.0e+00	9.19e+02	2.56e+02	3.6e+00
10	OCDF	5.03e+03	1.96e+02	2.6e+01	7.38e+03	8.80e+02	8.4e+00
11	2,3,7,8-TCDD	4.22e+03	1.24e+03	3.4e+00	7.27e+03	6.52e+02	1.1e+01
12	1,2,3,7,8-PeCDD	*	5.84e+02	*	*	2.88e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.68e+02	*	*	1.24e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.68e+02	*	*	1.24e+03	*
15	1,2,3,7,8,9-HxCDD	5.28e+03	1.68e+02	3.1e+01	4.29e+03	1.24e+03	3.5e+00
16	1,2,3,4,6,7,8-HpCDD	7.47e+04	1.96e+02	3.8e+02	6.80e+04	5.12e+02	1.3e+02
17	OCDD	1.47e+06	2.12e+02	6.9e+03	1.71e+06	2.40e+02	7.1e+03
18	13C-2,3,7,8-TCDF	7.14e+05	2.29e+03	3.1e+02	8.37e+05	9.12e+02	9.2e+02
19	13C-1,2,3,7,8-PeCDF	2.43e+06	2.40e+02	1.0e+04	1.58e+06	9.64e+02	1.6e+03
20	13C-2,3,4,7,8-PeCDF	2.64e+06	2.40e+02	1.1e+04	1.71e+06	9.64e+02	1.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.72e+06	2.16e+02	8.0e+03	3.31e+06	2.72e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.04e+06	2.16e+02	9.4e+03	3.97e+06	2.72e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.95e+06	2.16e+02	9.0e+03	3.87e+06	2.72e+02	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.55e+06	2.16e+02	7.2e+03	3.02e+06	2.72e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.49e+06	1.84e+03	8.1e+02	3.37e+06	5.48e+03	6.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.11e+06	1.84e+03	6.0e+02	2.59e+06	5.48e+03	4.7e+02
27	13C-2,3,7,8-TCDD	5.45e+05	2.97e+03	1.8e+02	7.07e+05	1.44e+03	4.9e+02
28	13C-1,2,3,7,8-PeCDD	1.95e+06	2.36e+02	8.2e+03	1.20e+06	1.64e+02	7.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.65e+06	7.44e+02	3.6e+03	2.16e+06	7.32e+02	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.50e+06	7.44e+02	3.4e+03	1.95e+06	7.32e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.64e+06	2.52e+02	1.0e+04	2.53e+06	2.80e+02	9.0e+03
32	13C-OCDD	1.86e+06	1.92e+02	9.7e+03	2.17e+06	1.92e+02	1.1e+04
33	13C-1,2,3,4-TCDD	2.86e+06	2.97e+03	9.6e+02	3.62e+06	1.44e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	5.58e+06	7.44e+02	7.5e+03	4.41e+06	7.32e+02	6.0e+03
35	37Cl-2,3,7,8-TCDD	6.61e+05	1.14e+03	5.8e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0520

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P518890 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 21:37:35 Processed: 19-NOV-18 14:30:26

Mass: 389.8160 391.8130 Tot Response: 4.41e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	1.55e+02	1.39e+02 1.11	yes	2.94e+02		n	n
2	34:40	5.40e+01	4.67e+01 1.16	yes	1.01e+02		n	n
3	35:38	2.51e+01	2.07e+01 1.21	yes	4.58e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0520

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P518890 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 21:37:35 Processed: 19-NOV-18 14:30:26

Mass: 407.7820 409.7790 Tot Response: 7.96e+00 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	4.24e+00	3.72e+00 1.14	yes	7.96e+00	1,2,3,4,7,8,9-HpCDF	n	n

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

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0520

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P518890 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 21:37:35 Processed: 19-NOV-18 14:30:26

Mass: 423.7770 425.7740 Tot Response: 2.94e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	1.08e+03	1.10e+03	0.99	yes	2.18e+03		n	n
2	38:10	3.94e+02	3.66e+02	1.08	yes	7.60e+02	1,2,3,4,6,7,8-HpCDD	n	n

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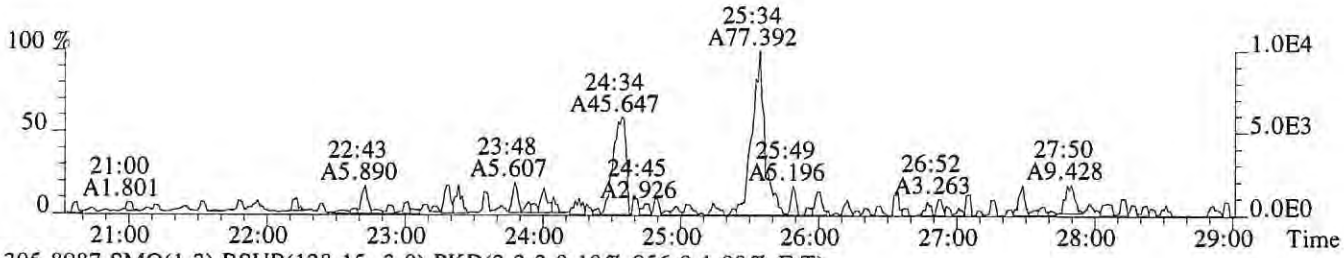
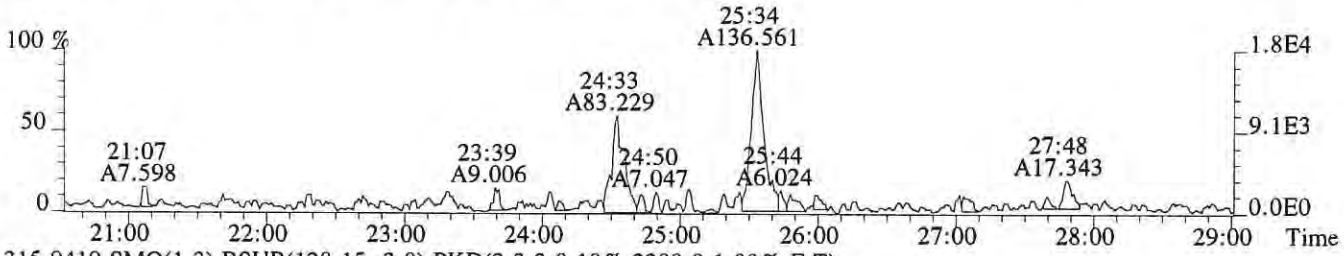
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

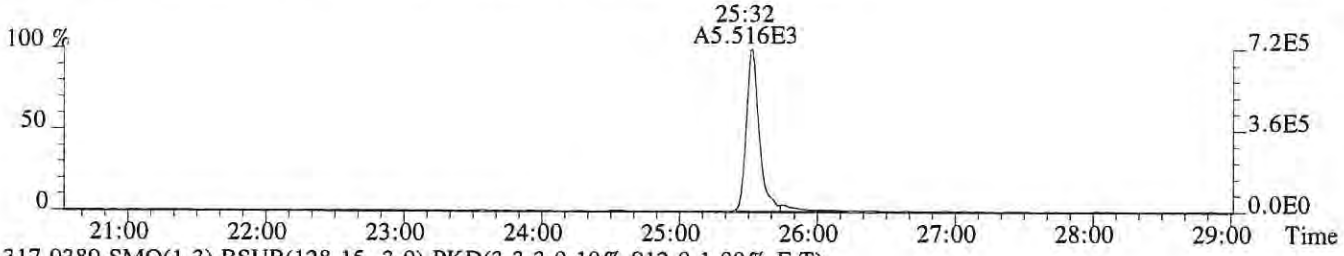
File:P518890 #1-602 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



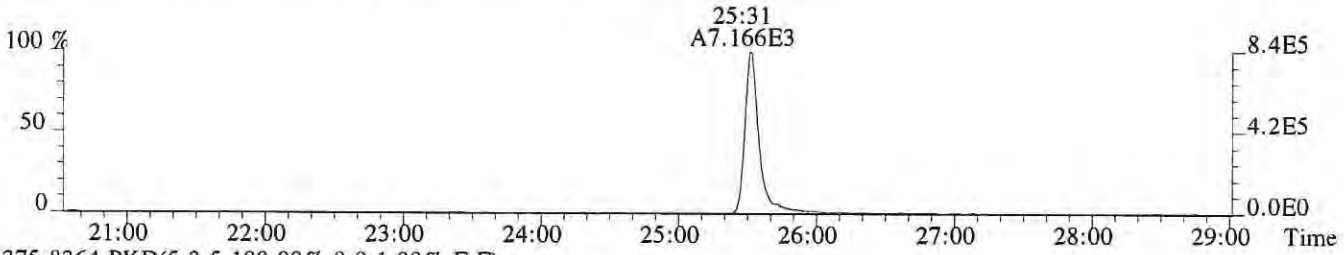
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



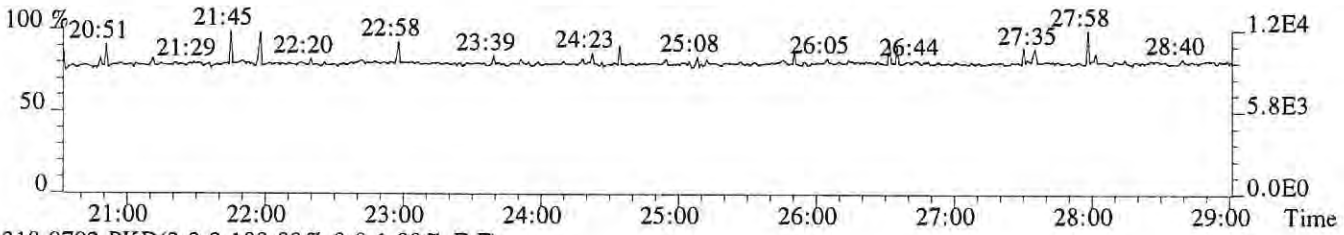
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



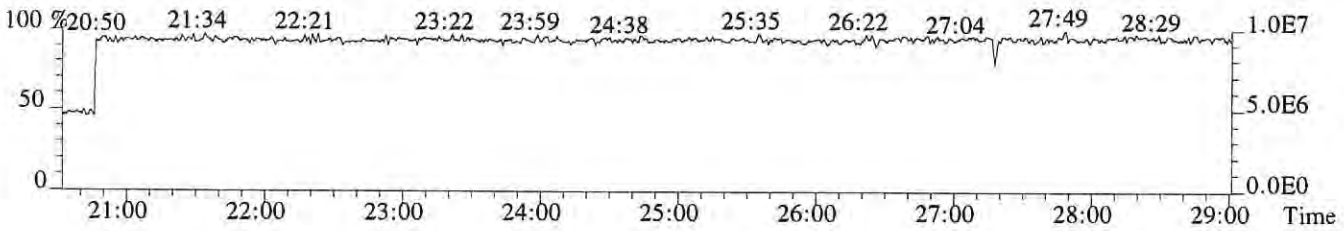
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



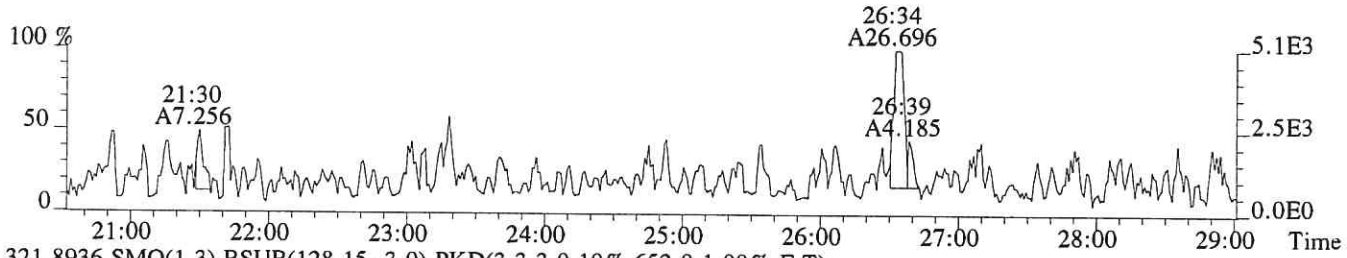
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



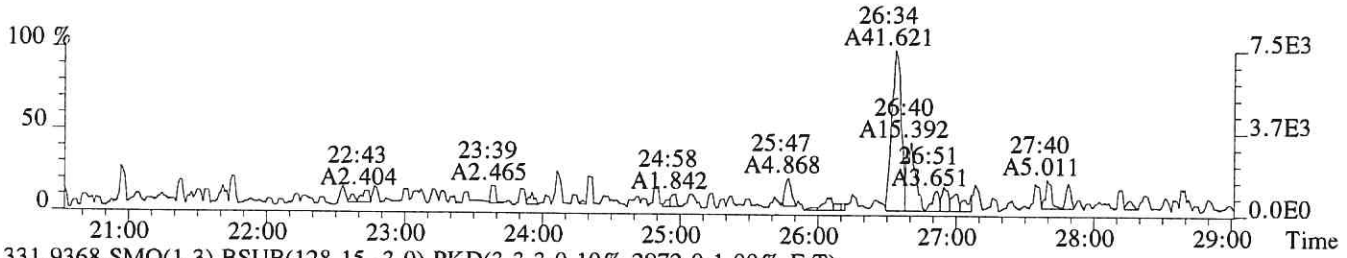
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



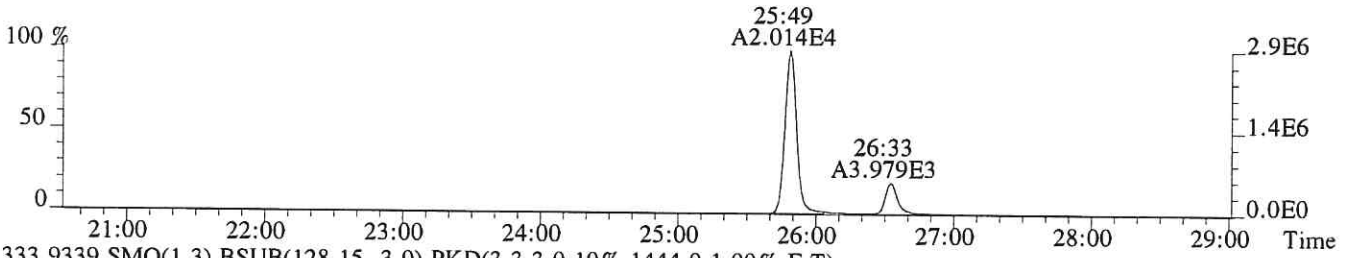
File:P518890 #1-602 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



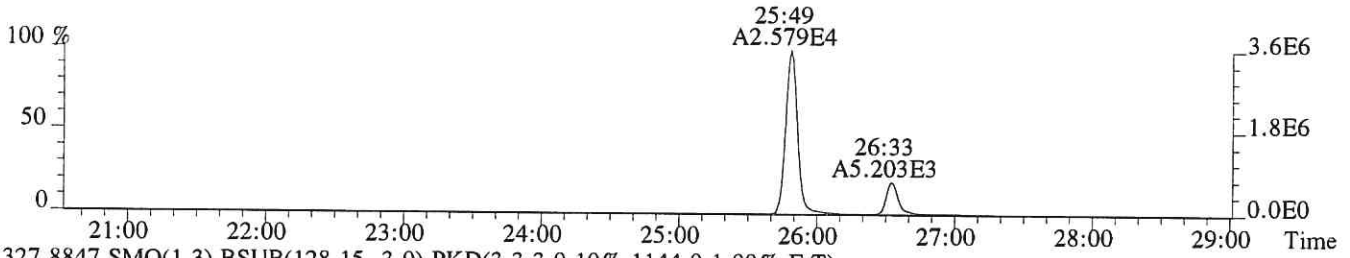
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



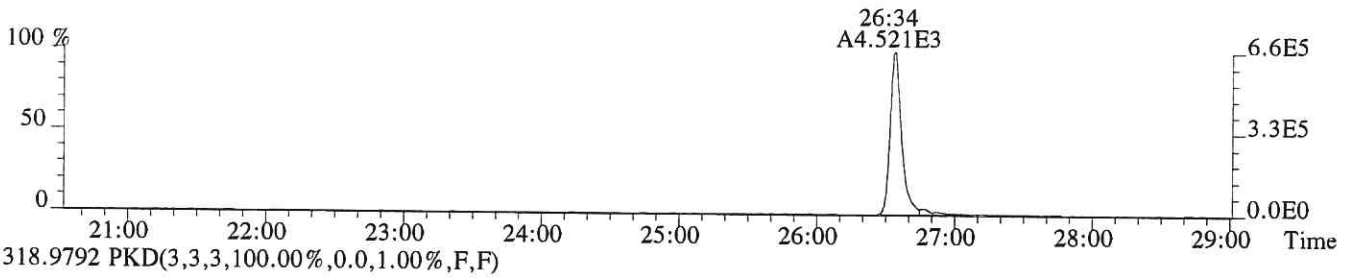
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



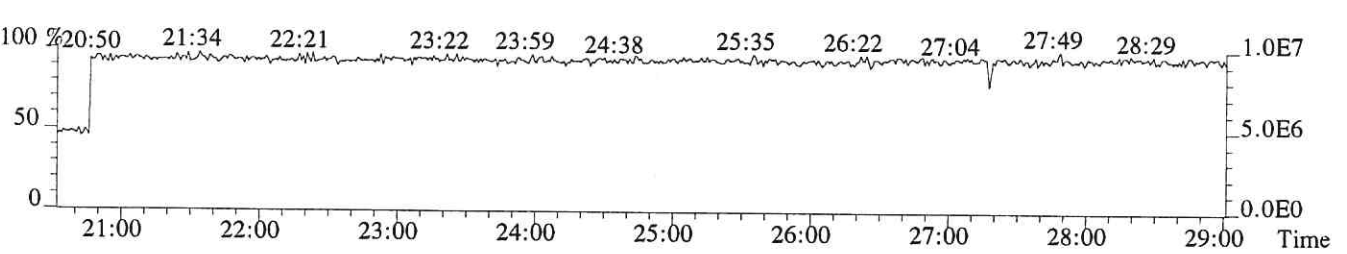
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



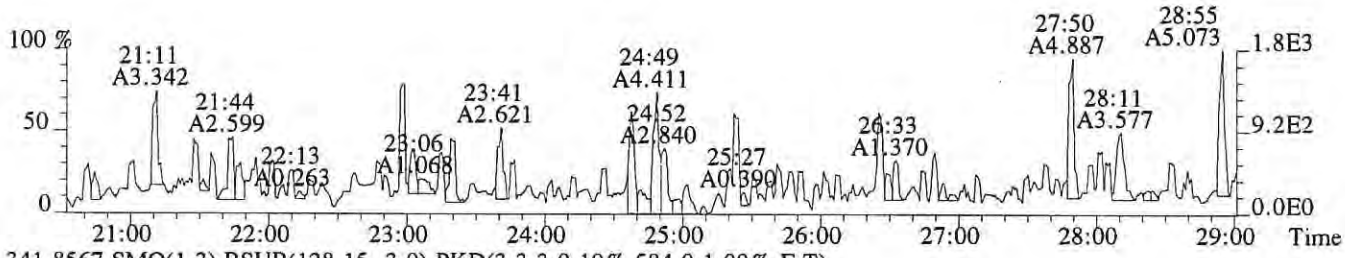
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



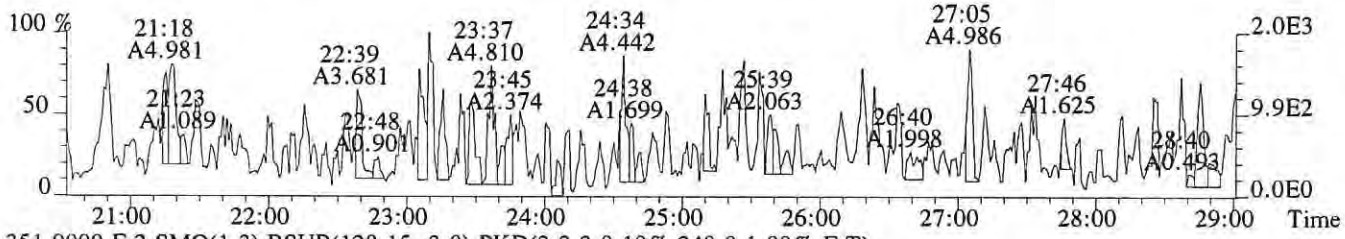
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



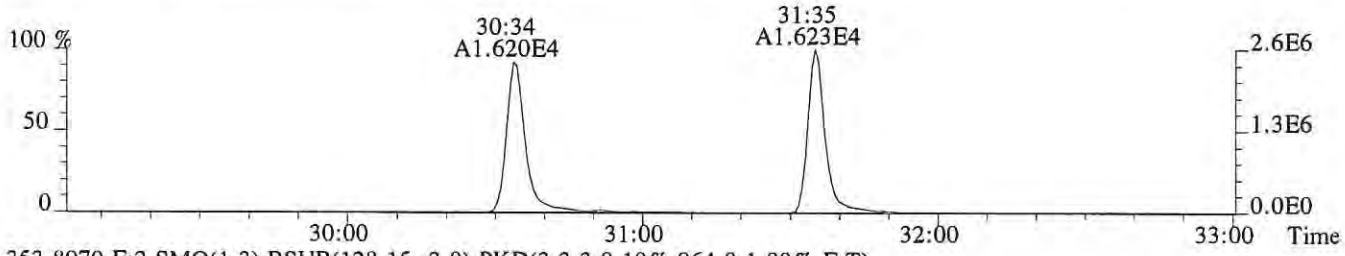
File:P518890 #1-602 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



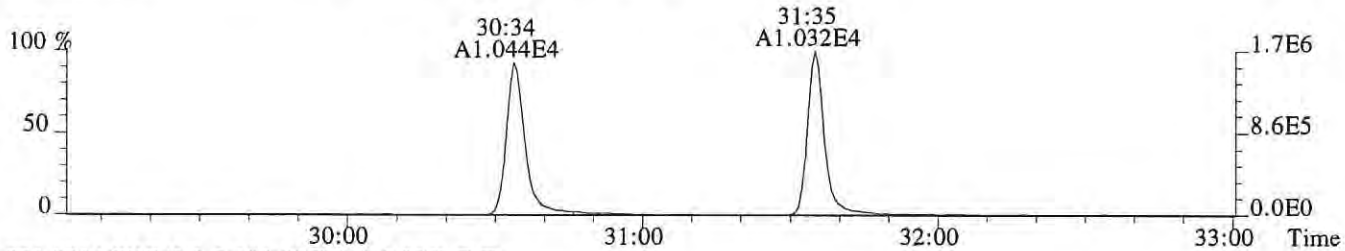
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



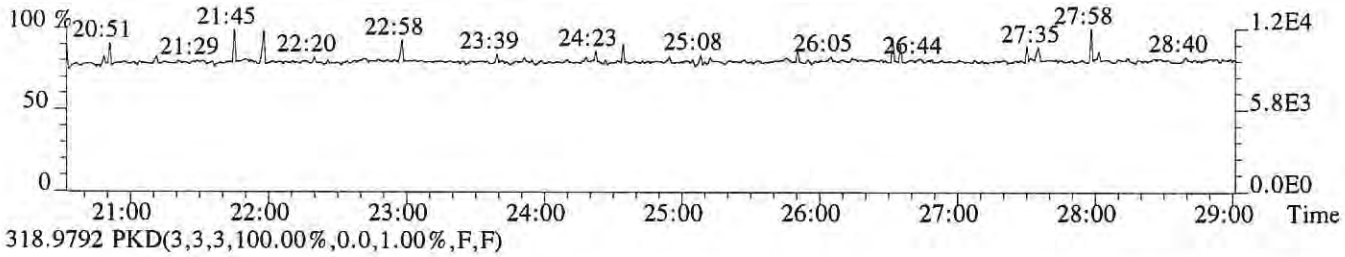
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



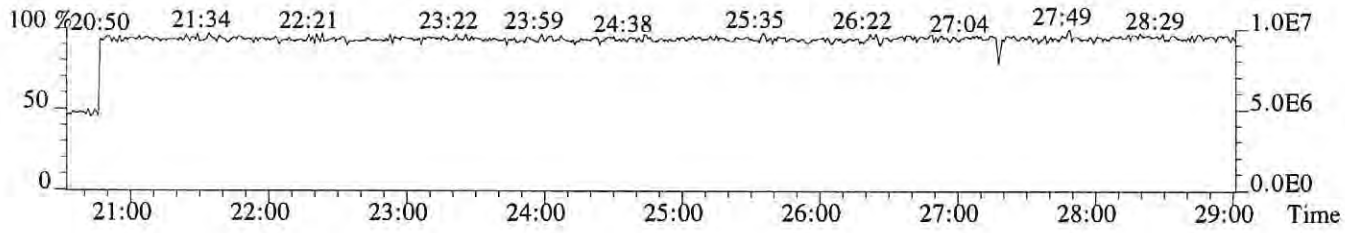
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



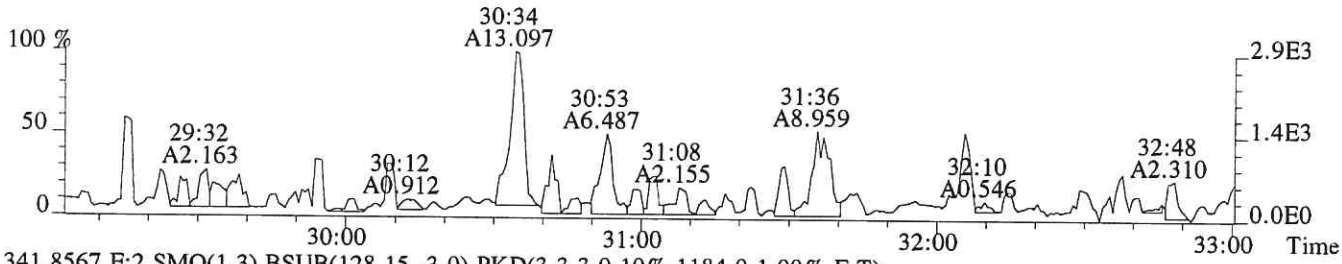
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



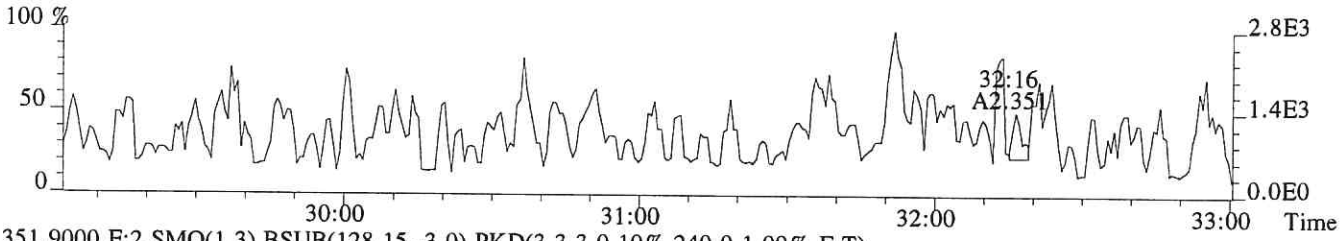
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



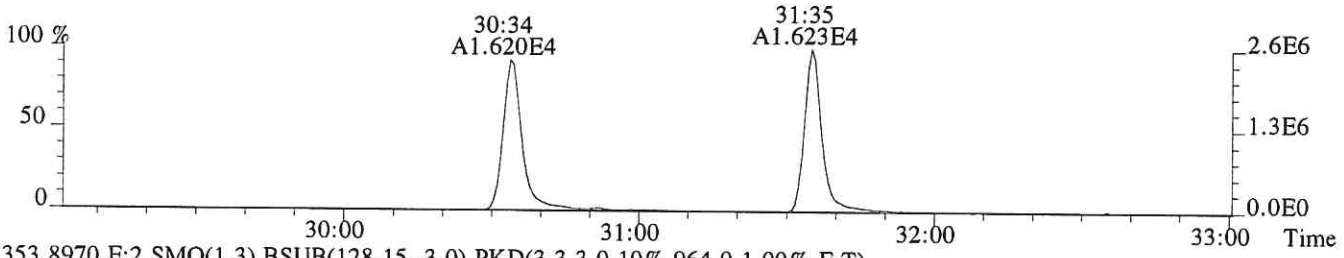
File:P518890 #1-357 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



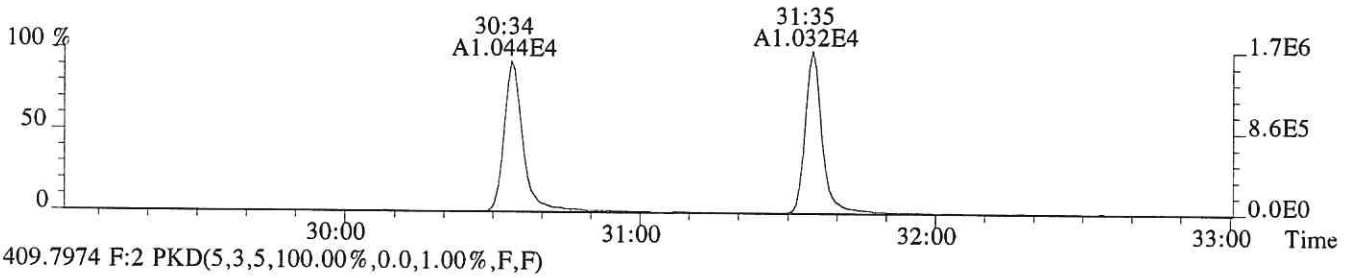
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



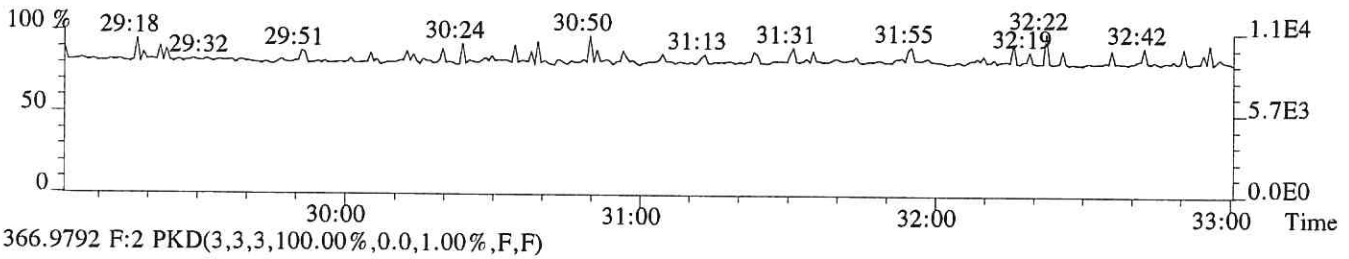
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



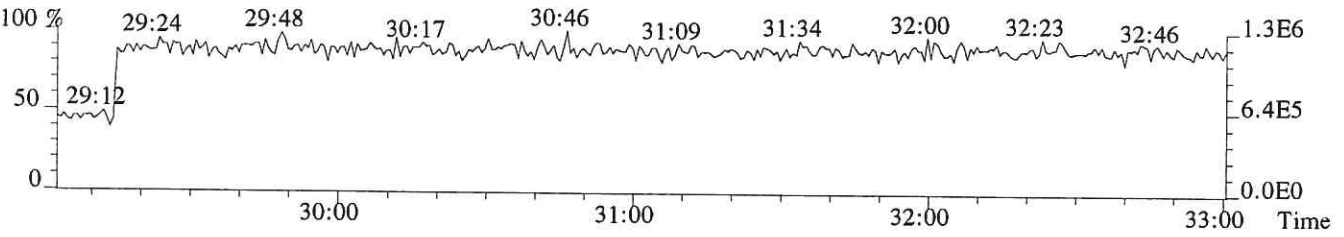
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



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

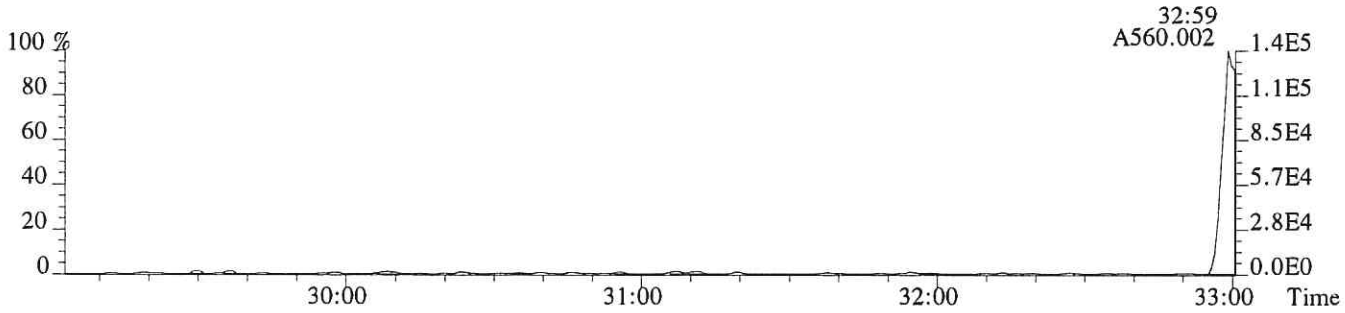


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

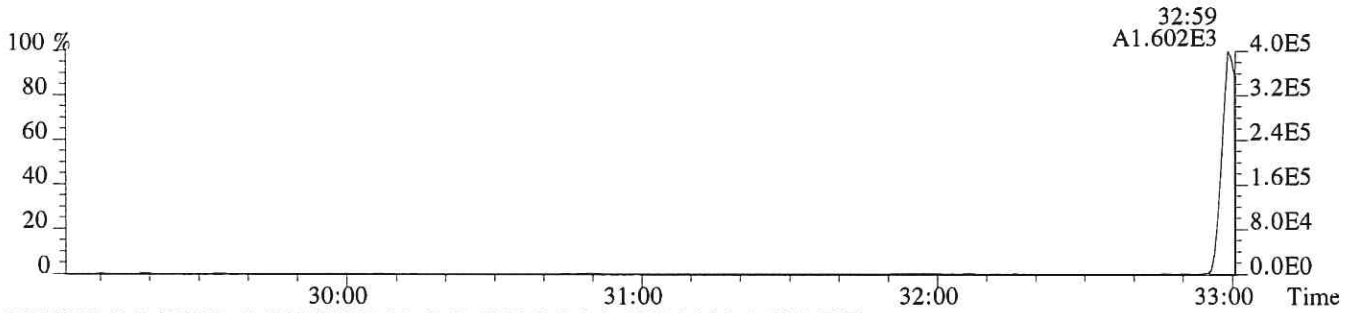


File:P518890 #1-357 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002

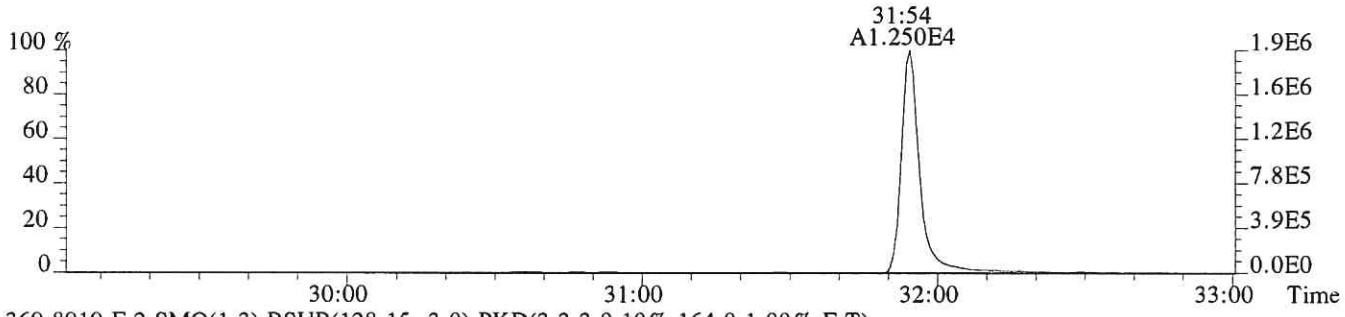
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



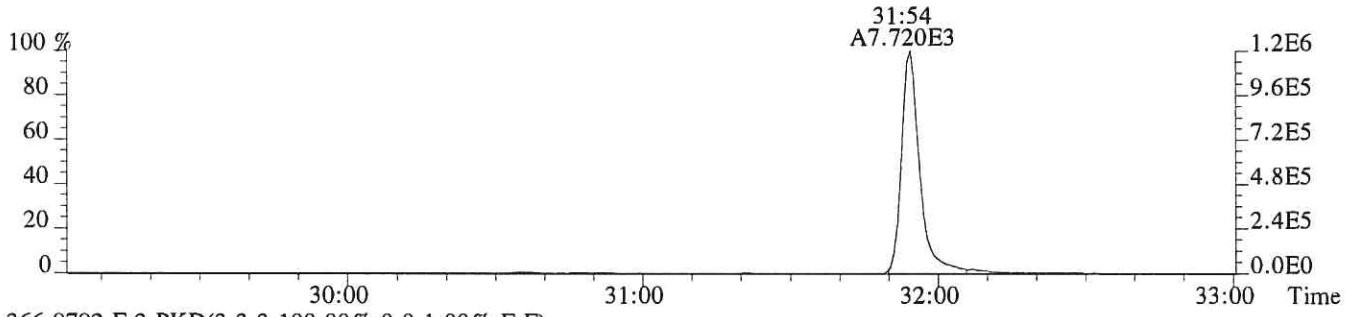
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



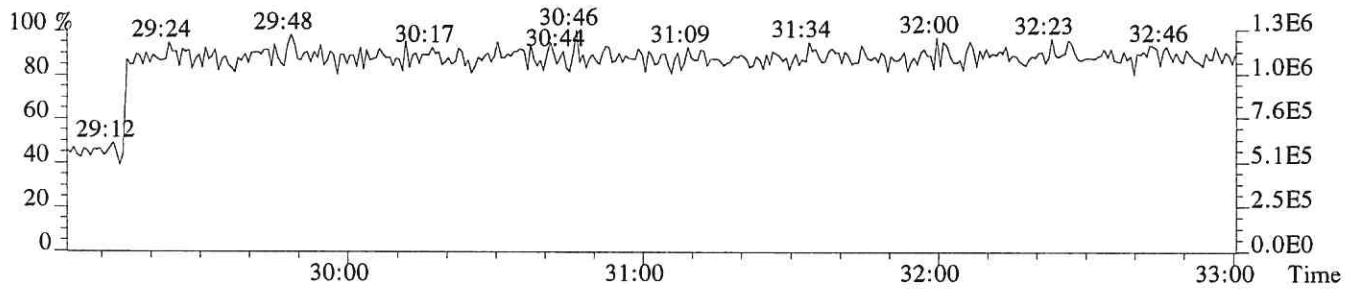
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



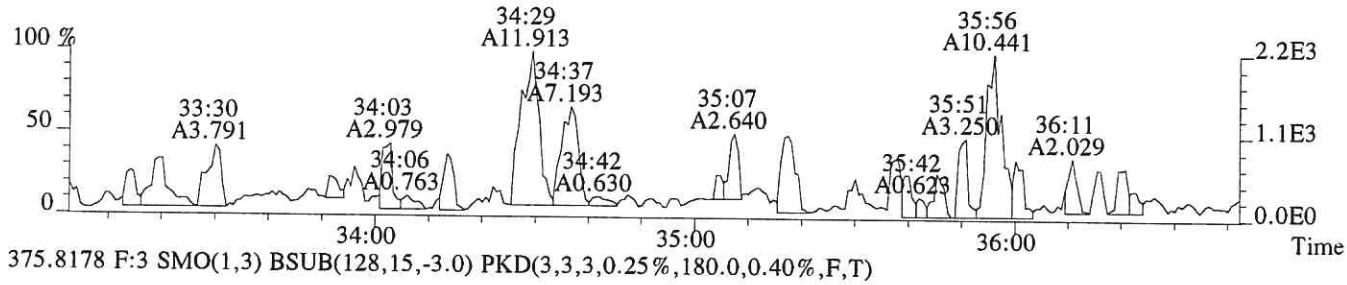
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



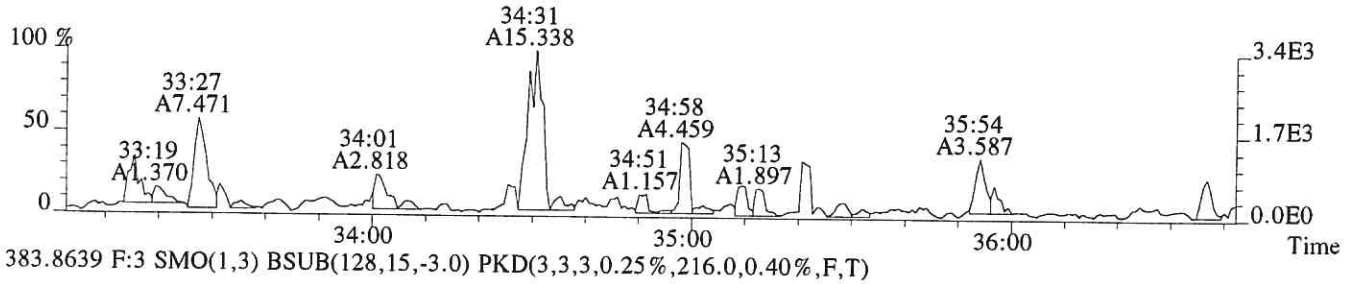
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



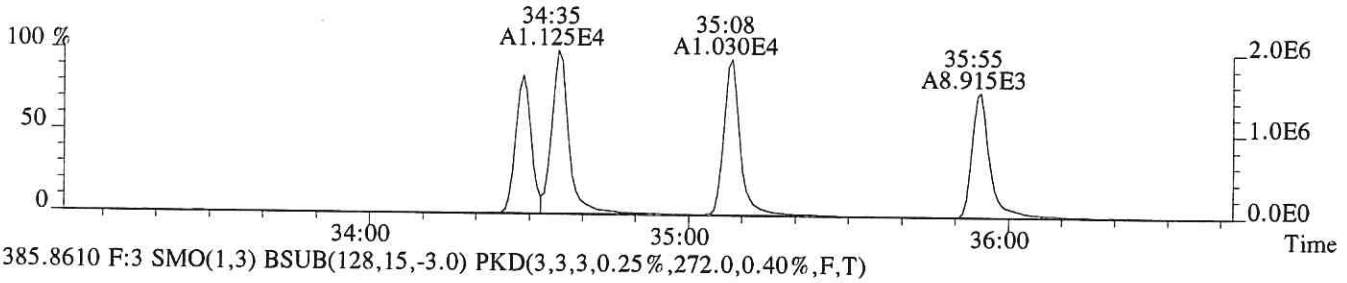
File:P518890 #1-330 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



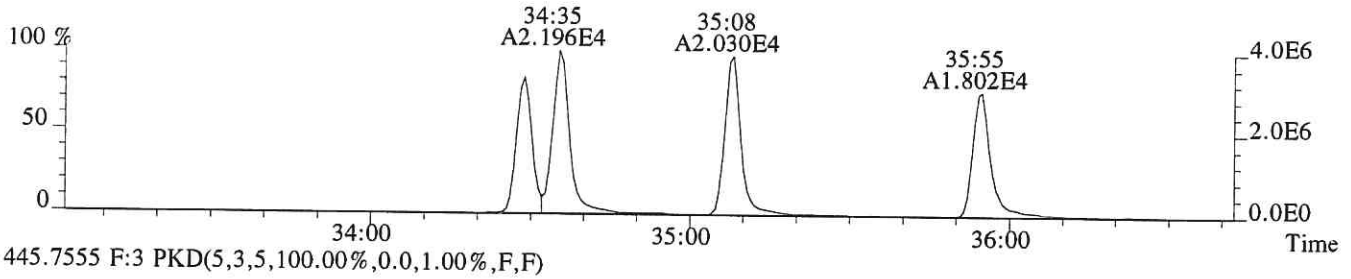
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



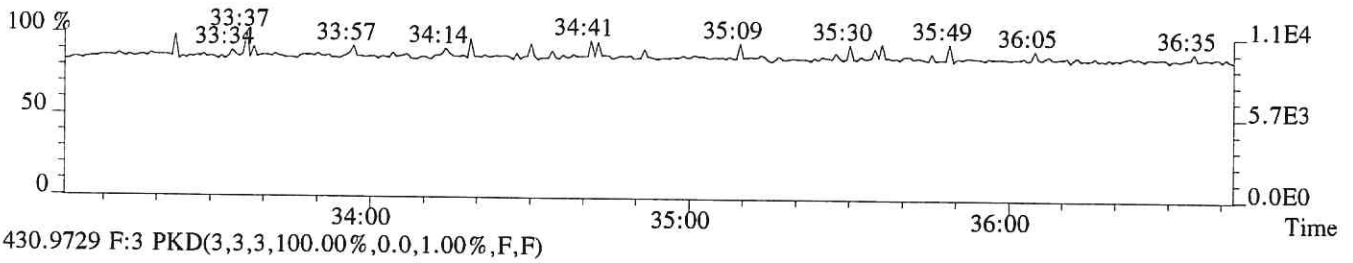
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



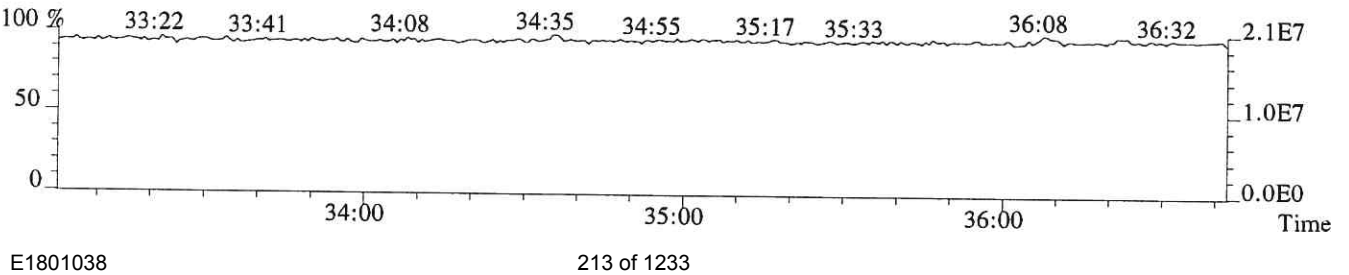
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



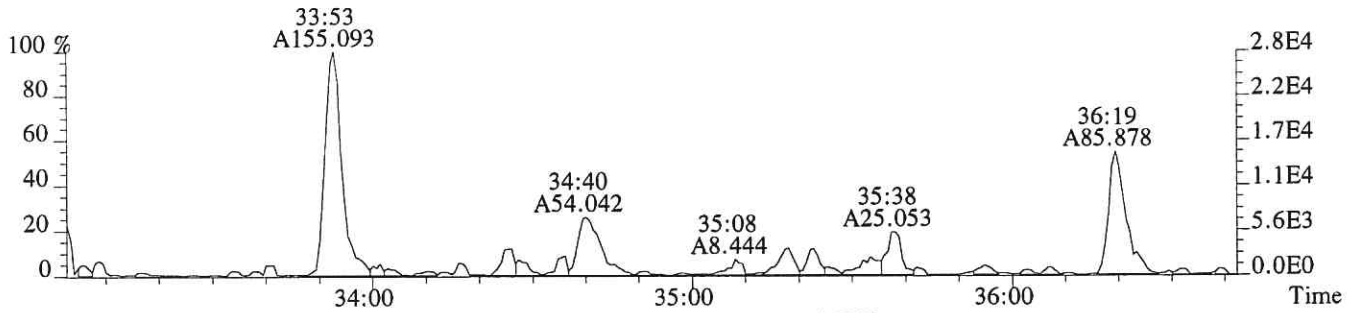
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



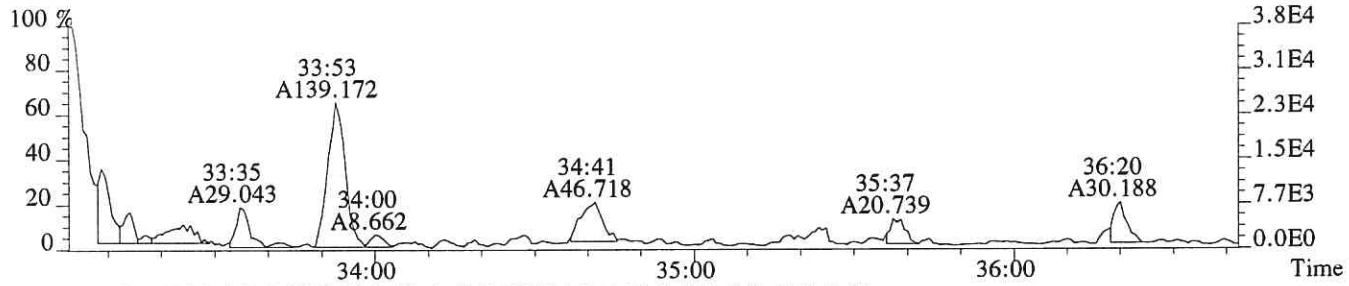
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



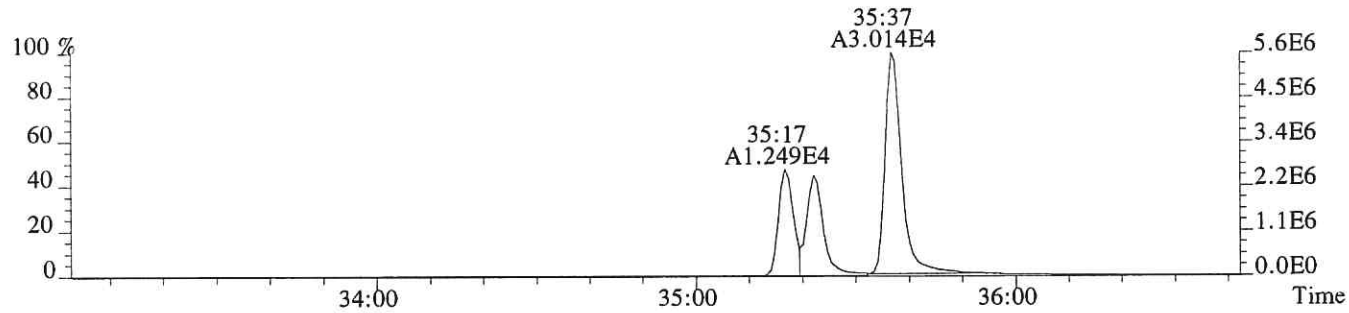
File:P518890 #1-330 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



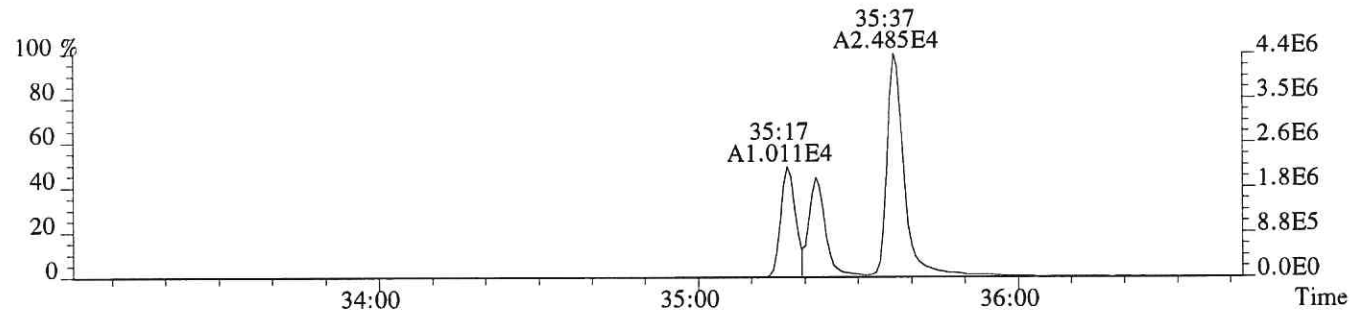
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



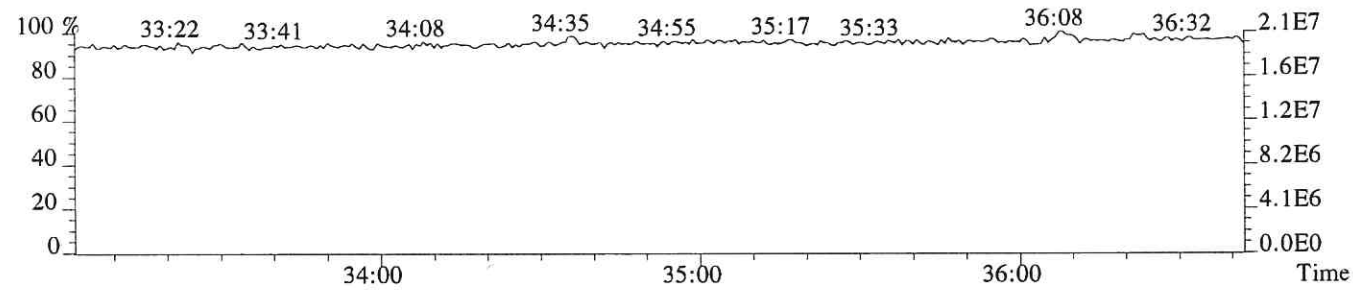
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



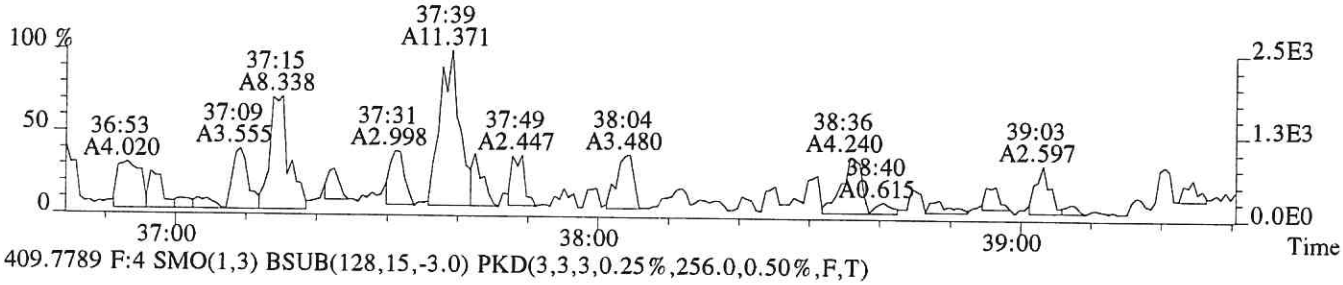
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



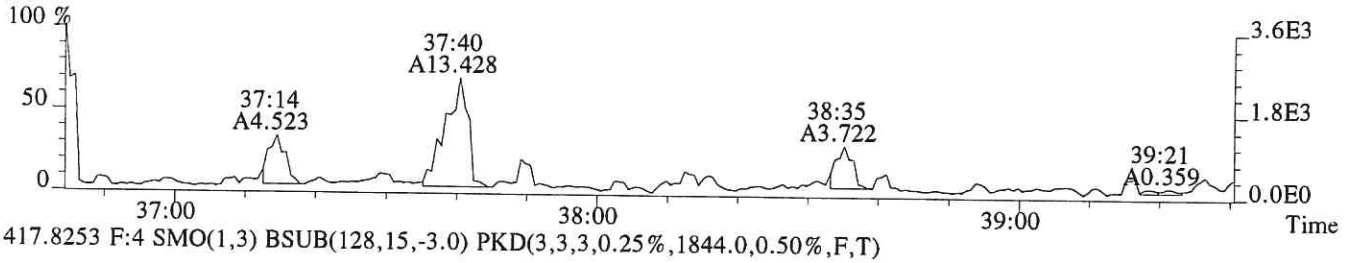
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



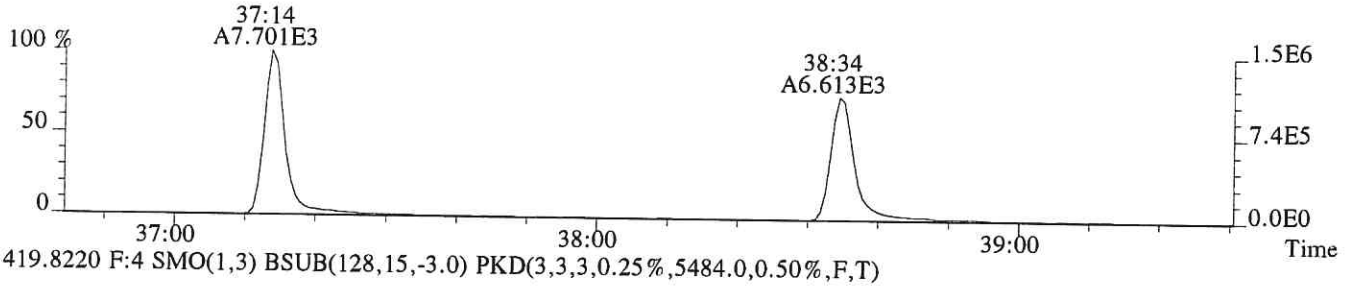
File:P518890 #1-250 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



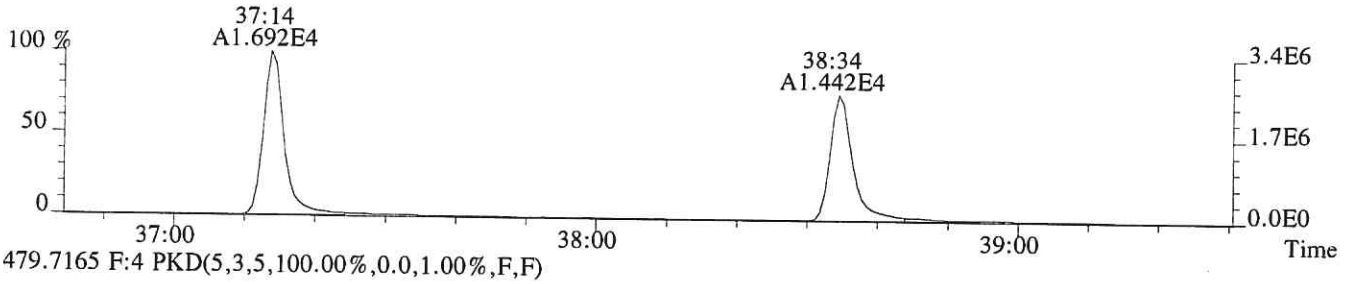
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.50%,F,T)



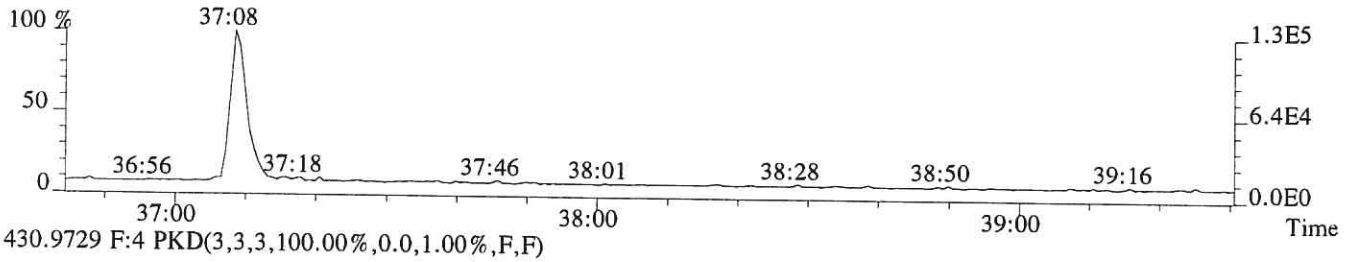
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



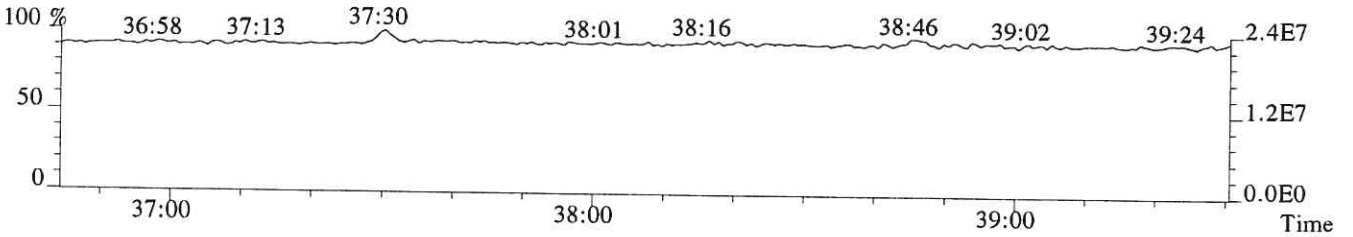
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5484.0,0.50%,F,T)



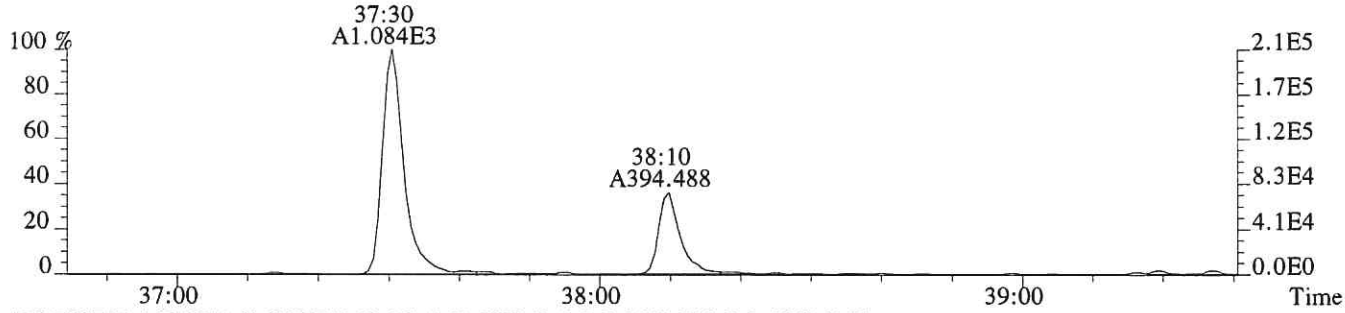
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



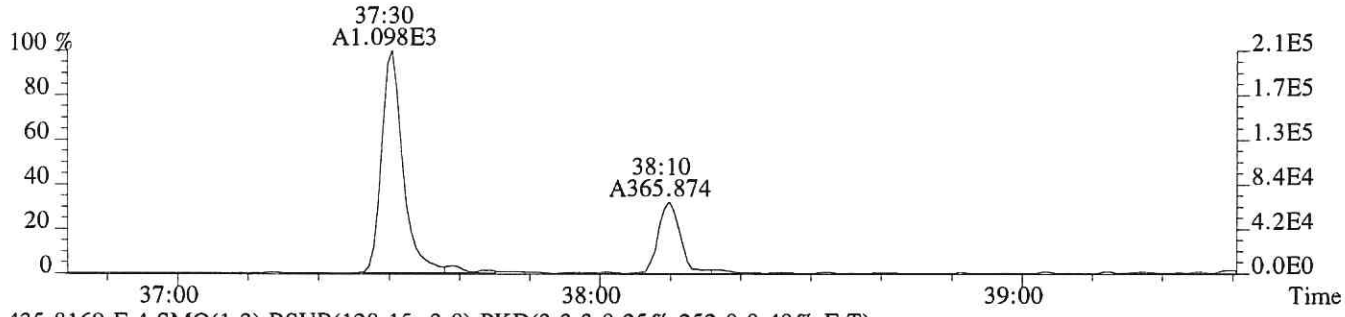
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



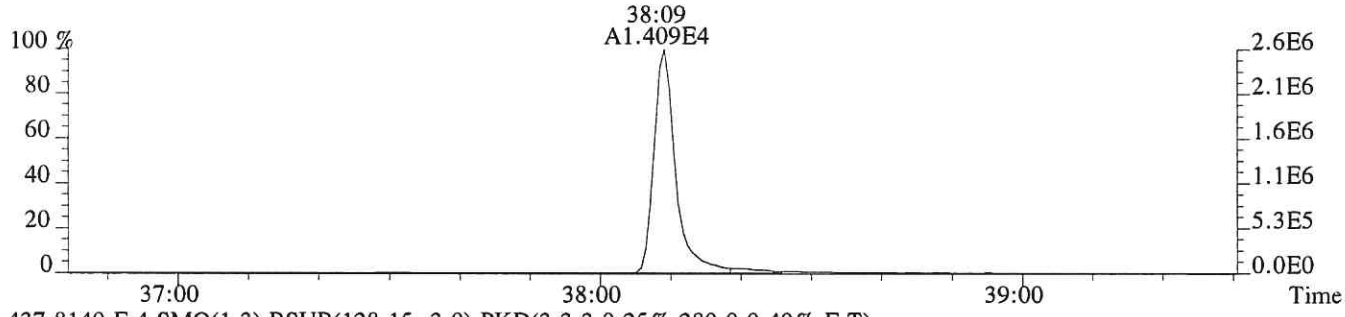
File:P518890 #1-250 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



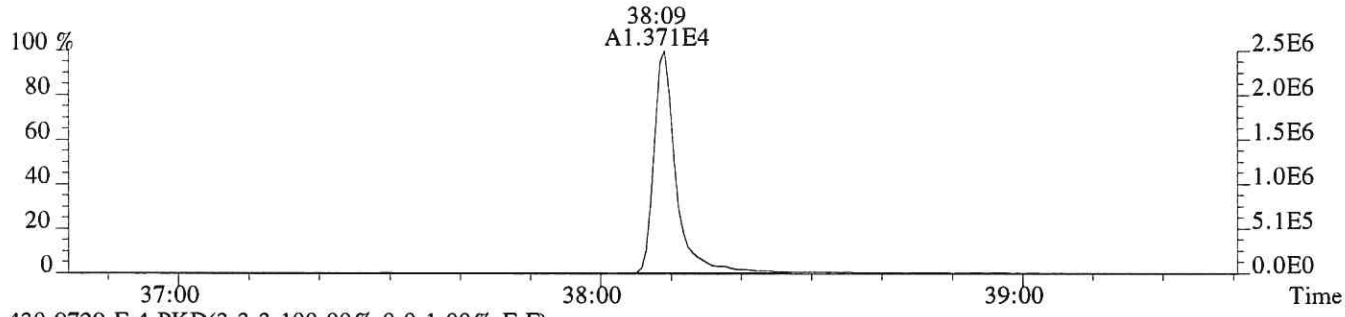
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



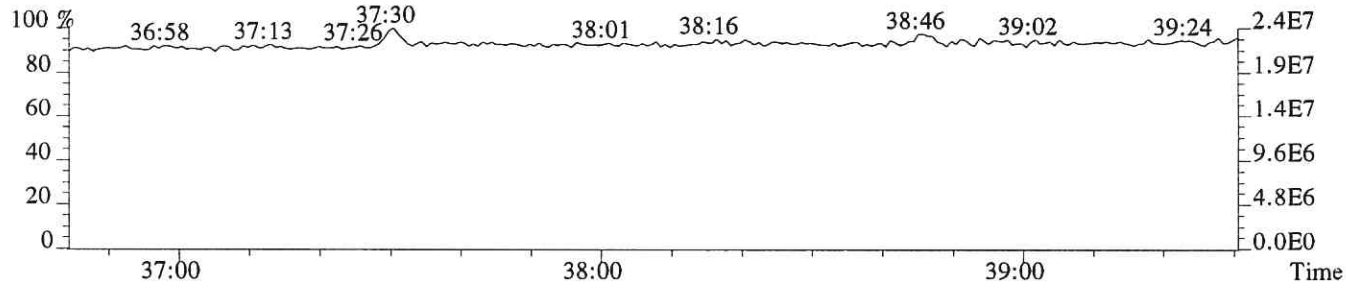
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



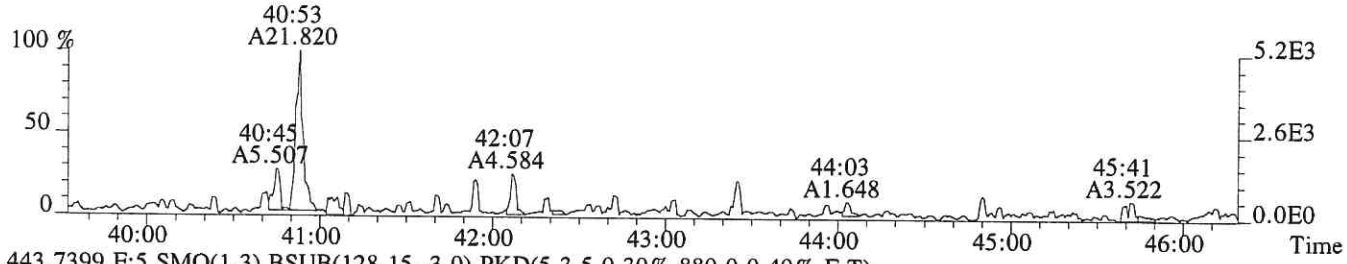
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



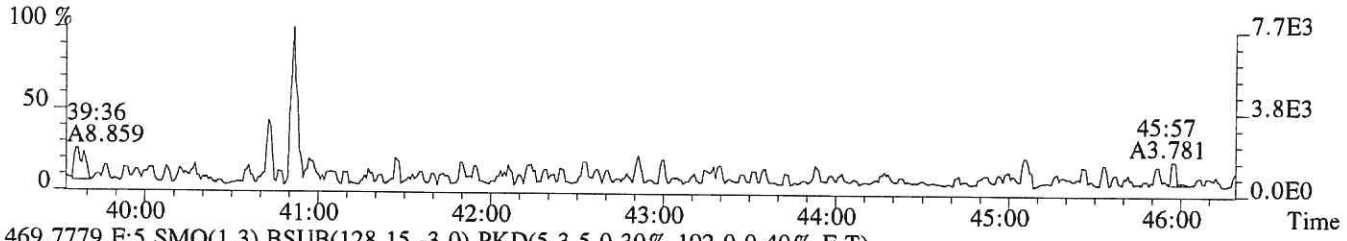
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



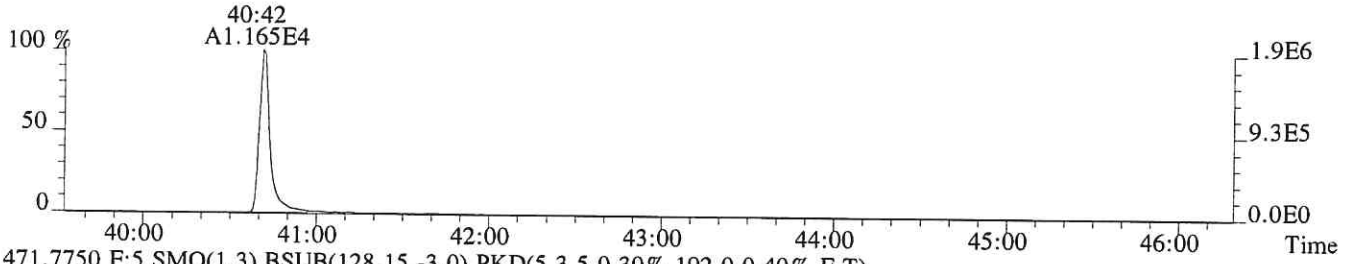
File:P518890 #1-610 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



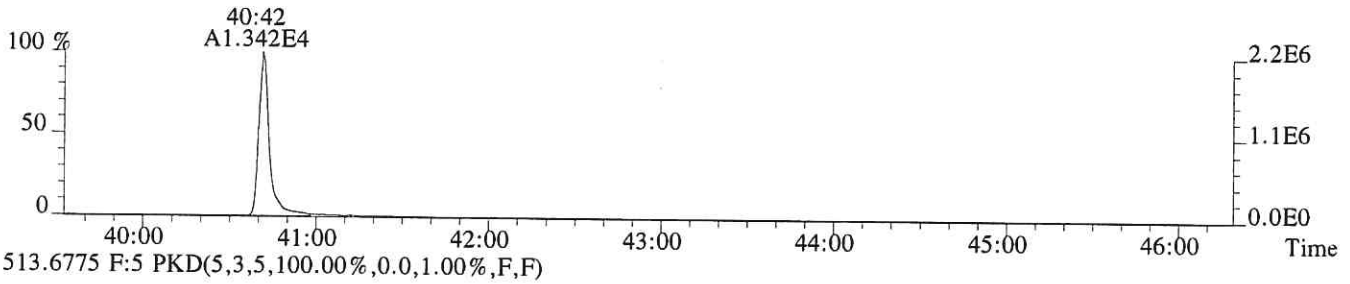
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



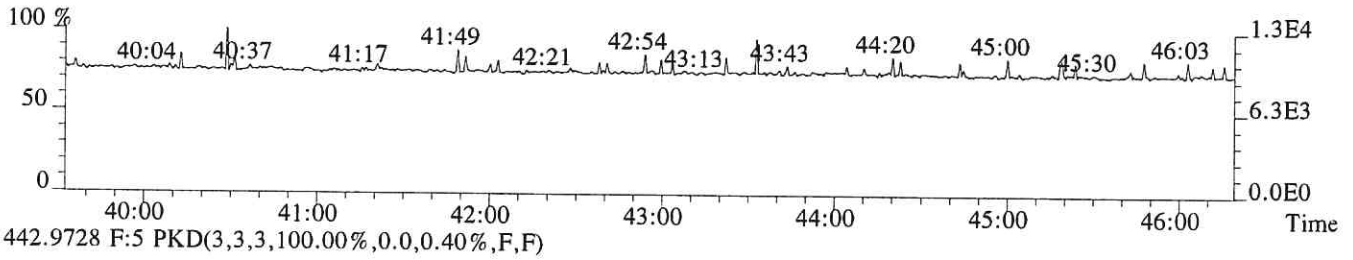
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



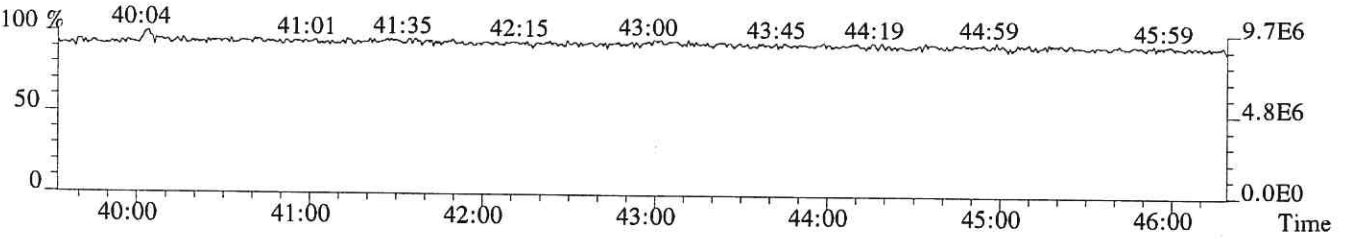
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



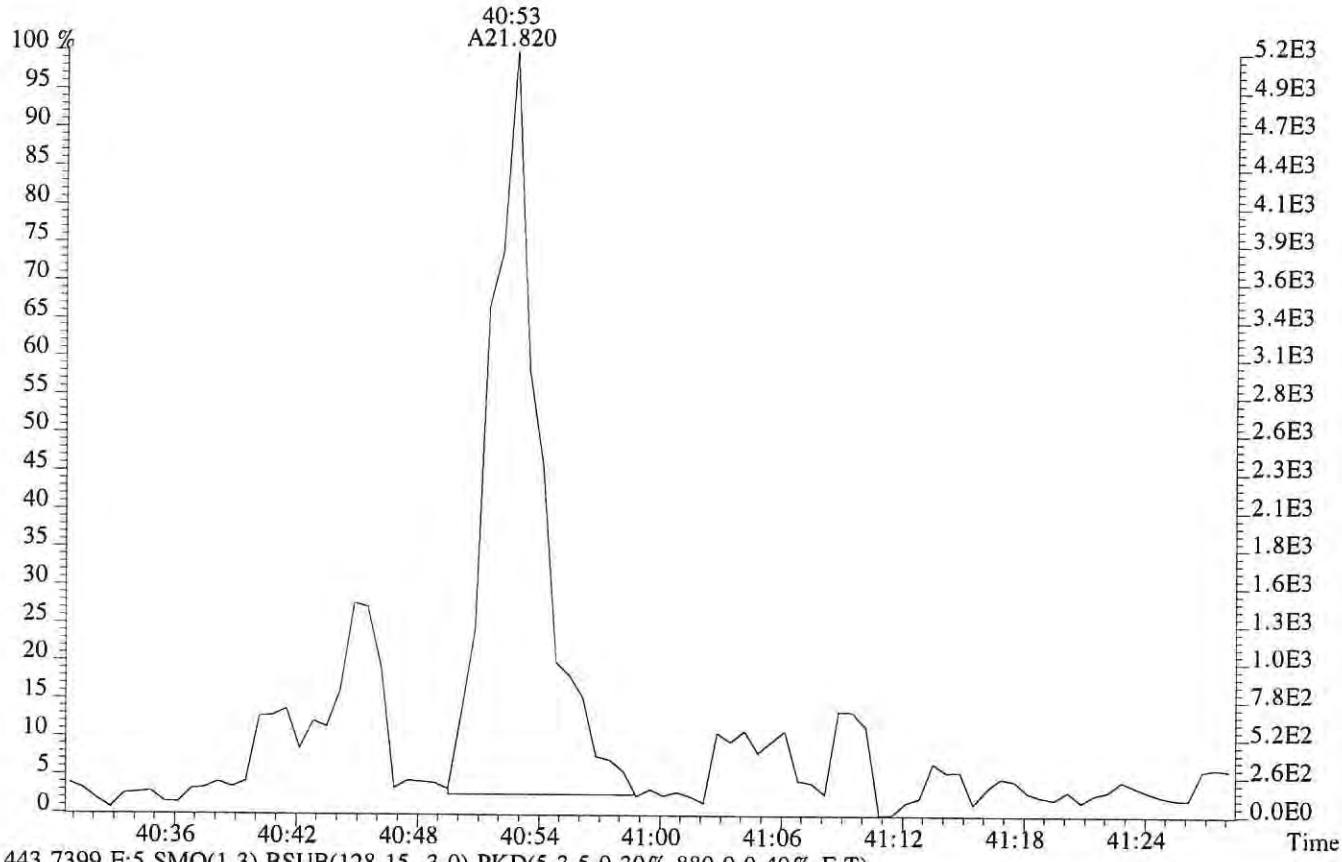
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



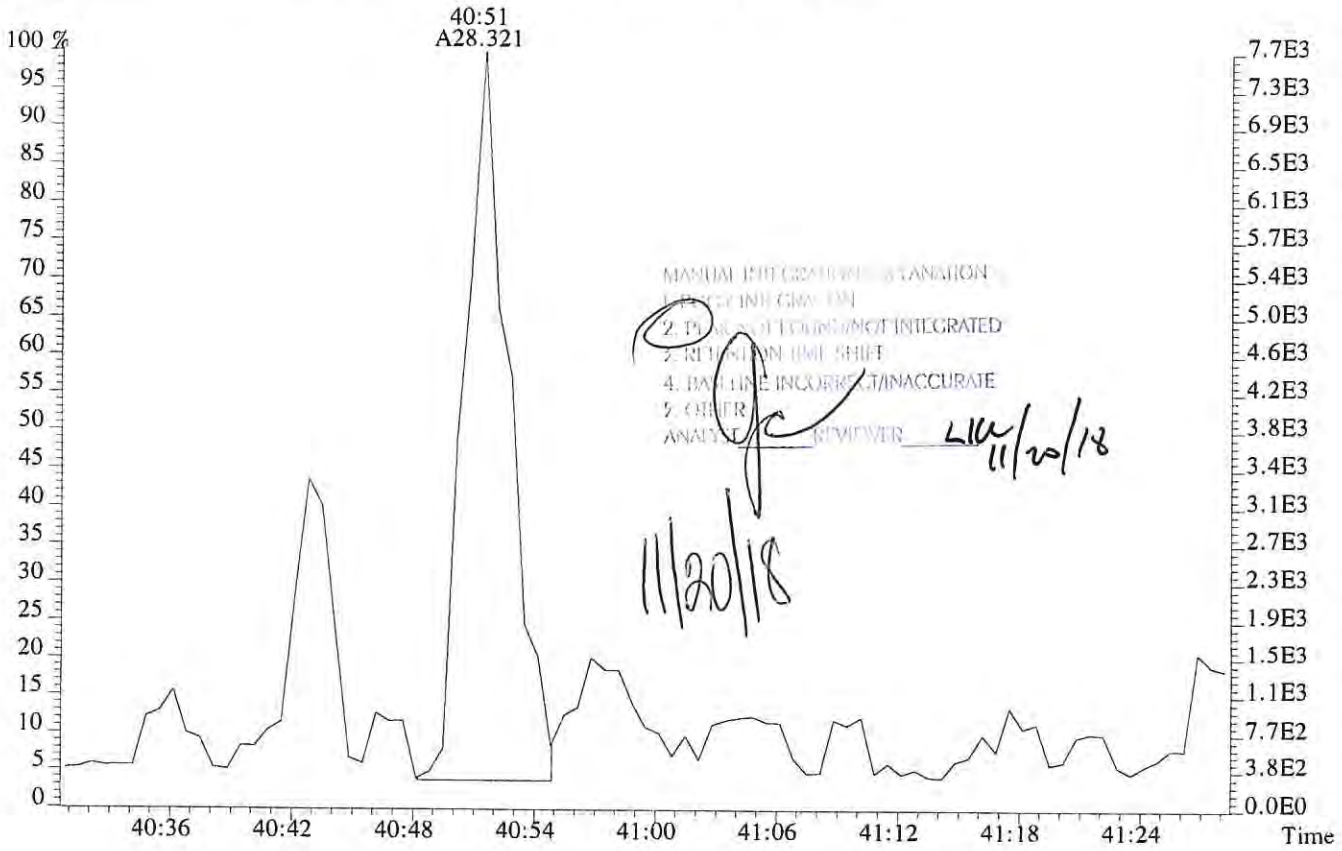
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P518890 #1-610 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)

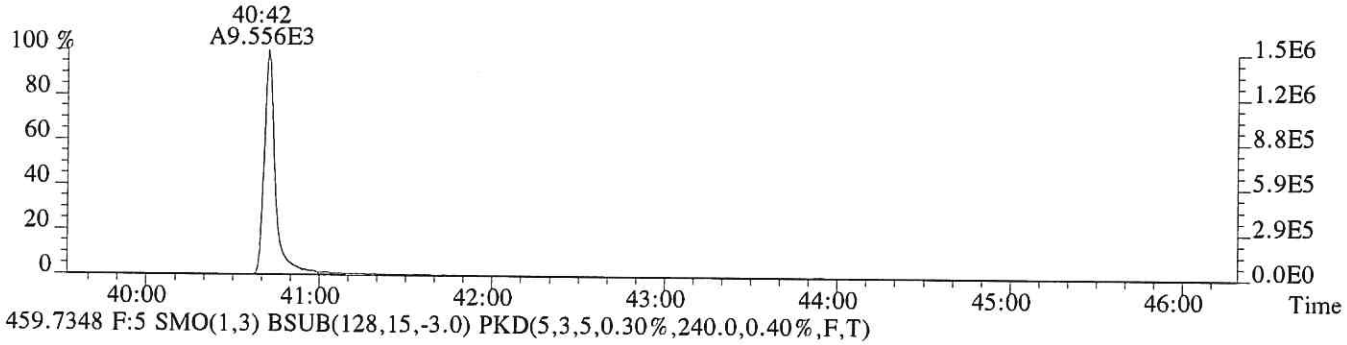


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)

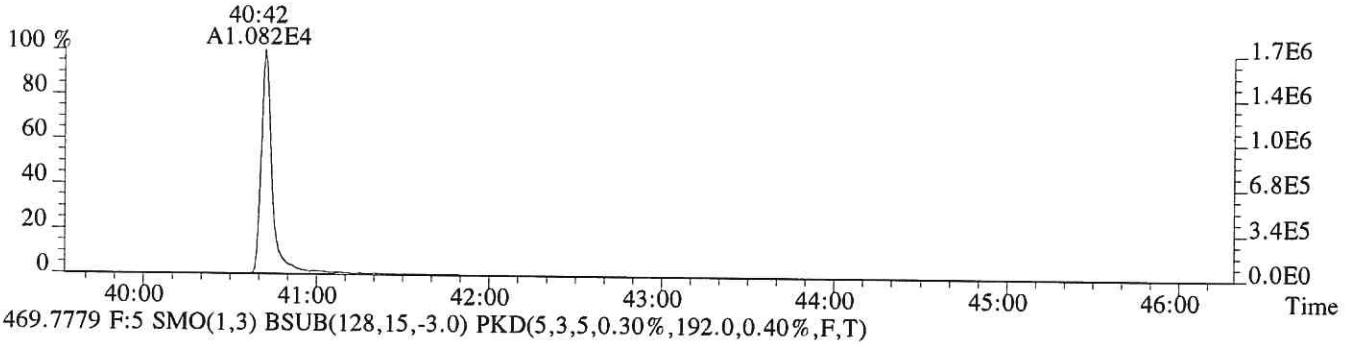


MANUAL INTEGRATION EXPLANATION
2. PEAK NOT FOUND/NOT INTEGRATED
4. BASELINE INCORRECT/INACCURATE
ANALYST REVIEWER LLW 11/20/18
11/20/18

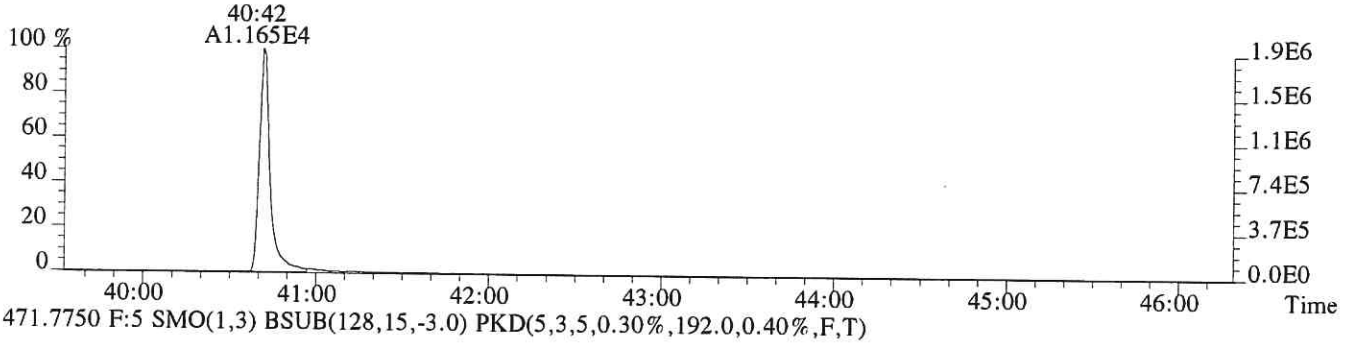
File:P518890 #1-610 Acq:17-NOV-2018 21:37:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



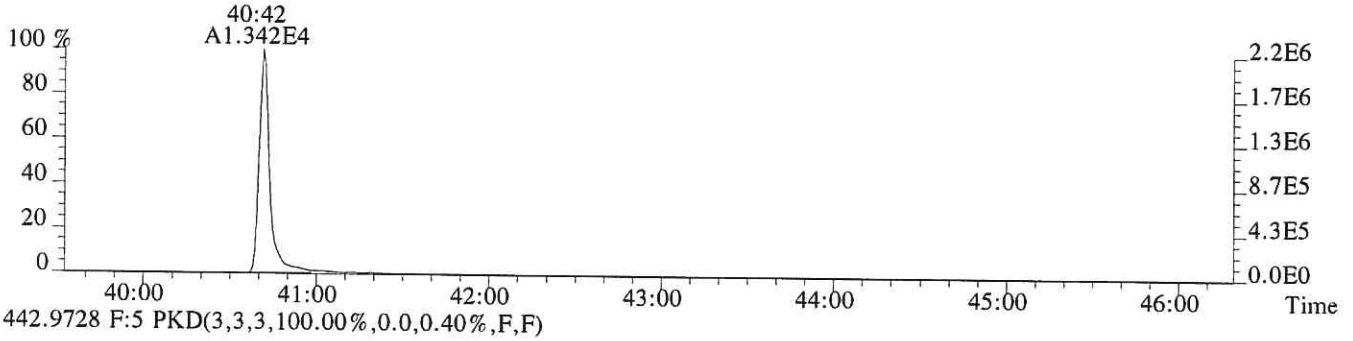
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



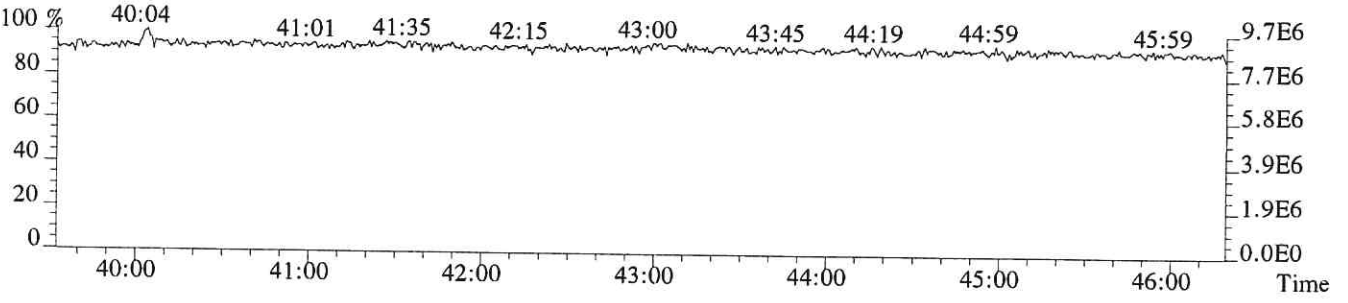
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0521

Run #18 Filename P518891 Samp: 1 Inj: 1 Acquired: 17-NOV-18 22:26:13
Processed: 19-NOV-18 14:30:26 Sample ID: E1801038-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	1.139e+02	1.724e+02	0.66	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:31	2.414e+01	1.348e+01	1.79	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.321e+01	1.501e+01	0.88	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:11	4.889e+00	4.360e+00	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	1.612e+01	2.329e+01	0.69	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	40:53	6.483e+01	8.888e+01	0.73	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	3.378e+01	4.470e+01	0.76	yes	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	9.633e+00	8.581e+00	1.12	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	2.572e+02	2.208e+02	1.16	yes	no	1.025
17	Unk	OCDD	40:42	4.939e+03	5.504e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	5.201e+03	6.553e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.428e+04	9.018e+03	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.352e+04	8.388e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	7.288e+03	1.412e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	9.621e+03	1.841e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	8.626e+03	1.647e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	7.773e+03	1.529e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	6.692e+03	1.498e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	6.077e+03	1.386e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	3.611e+03	4.520e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.035e+04	6.463e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.098e+04	8.729e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.150e+04	9.103e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.325e+04	1.220e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	40:42	1.162e+04	1.266e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	1.322e+04	1.643e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	2.261e+04	1.755e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	4.163e+03				no	1.014

$$\text{OCDD} = \frac{(4.939e+03 + 5.504e+03) \times 4000\ \text{pg} \times 1}{(1.162e+04 + 1.266e+04) \times 10.412\ \text{g} \times 81.9 / 100 \times 1.118} = 180.4\ \text{ng/Kg}$$

LMH 11/26/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0521

Run #18 Filename P518891 Samp: 1 Inj: 1 Acquired: 17-NOV-18 22:26:13
Processed: 19-NOV-18 14:30:26 LAB. ID: E1801038-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.60e+04	2.92e+02	5.5e+01	2.38e+04	4.36e+02	5.4e+01
2	1,2,3,7,8-PeCDF	*	2.48e+02	*	*	1.22e+03	*
3	2,3,4,7,8-PeCDF	*	2.48e+02	*	*	1.22e+03	*
4	1,2,3,4,7,8-HxCDF	4.02e+03	2.56e+02	1.6e+01	2.82e+03	1.96e+02	1.4e+01
5	1,2,3,6,7,8-HxCDF	2.89e+03	2.56e+02	1.1e+01	3.05e+03	1.96e+02	1.6e+01
6	2,3,4,6,7,8-HxCDF	1.40e+03	2.56e+02	5.5e+00	1.17e+03	1.96e+02	6.0e+00
7	1,2,3,7,8,9-HxCDF	*	2.56e+02	*	*	1.96e+02	*
8	1,2,3,4,6,7,8-HpCDF	2.74e+03	2.28e+02	1.2e+01	5.28e+03	2.20e+02	2.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.28e+02	*	*	2.20e+02	*
10	OCDF	1.35e+04	3.68e+02	3.7e+01	1.57e+04	4.20e+02	3.7e+01
11	2,3,7,8-TCDD	6.07e+03	1.02e+03	6.0e+00	6.82e+03	5.32e+02	1.3e+01
12	1,2,3,7,8-PeCDD	*	9.08e+02	*	*	2.60e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.24e+02	*	*	7.08e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.24e+02	*	*	7.08e+02	*
15	1,2,3,7,8,9-HxCDD	2.91e+03	2.24e+02	1.3e+01	2.74e+03	7.08e+02	3.9e+00
16	1,2,3,4,6,7,8-HpCDD	4.68e+04	2.32e+02	2.0e+02	4.50e+04	8.44e+02	5.3e+01
17	OCDD	8.10e+05	2.88e+02	2.8e+03	8.75e+05	3.60e+02	2.4e+03
18	13C-2,3,7,8-TCDF	6.26e+05	2.63e+03	2.4e+02	7.72e+05	9.96e+02	7.7e+02
19	13C-1,2,3,7,8-PeCDF	2.11e+06	2.20e+02	9.6e+03	1.36e+06	2.24e+02	6.1e+03
20	13C-2,3,4,7,8-PeCDF	2.16e+06	2.20e+02	9.8e+03	1.34e+06	2.24e+02	6.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.41e+06	3.08e+02	4.6e+03	2.79e+06	4.28e+02	6.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.67e+06	3.08e+02	5.4e+03	3.24e+06	4.28e+02	7.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.60e+06	3.08e+02	5.2e+03	3.11e+06	4.28e+02	7.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.34e+06	3.08e+02	4.3e+03	2.64e+06	4.28e+02	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.31e+06	1.47e+03	8.9e+02	2.86e+06	3.56e+03	8.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.10e+06	1.47e+03	7.5e+02	2.46e+06	3.56e+03	6.9e+02
27	13C-2,3,7,8-TCDD	4.82e+05	3.12e+03	1.5e+02	6.14e+05	9.96e+02	6.2e+02
28	13C-1,2,3,7,8-PeCDD	1.60e+06	2.68e+02	6.0e+03	1.01e+06	2.92e+02	3.5e+03
29	13C-1,2,3,4,7,8-HxCDD	2.31e+06	8.88e+02	2.6e+03	1.79e+06	4.60e+02	3.9e+03
30	13C-1,2,3,6,7,8-HxCDD	2.09e+06	8.88e+02	2.4e+03	1.69e+06	4.60e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.46e+06	1.80e+02	1.4e+04	2.26e+06	3.96e+02	5.7e+03
32	13C-OCDD	1.84e+06	4.00e+02	4.6e+03	2.05e+06	3.04e+02	6.7e+03
33	13C-1,2,3,4-TCDD	1.86e+06	3.12e+03	5.9e+02	2.30e+06	9.96e+02	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.03e+06	8.88e+02	4.5e+03	3.13e+06	4.60e+02	6.8e+03
35	37Cl-2,3,7,8-TCDD	5.59e+05	9.04e+02	6.2e+02			

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Peak List Summary

CLIENT ID.
SL0521

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P518891 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 22:26:13 Processed: 19-NOV-18 14:30:26

Mass: 303.9020 305.8990 Tot Response: 3.13e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:33	1.14e+02	1.72e+02	0.66	yes	2.86e+02	2,3,7,8-TCDF	n	n
2	27:50	1.09e+01	1.58e+01	0.69	yes	2.66e+01		n	n

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Peak List Summary

CLIENT ID.
SL0521

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P518891 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 22:26:13 Processed: 19-NOV-18 14:30:26

Mass: 319.8970 321.8940 Tot Response: 7.85e+01 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:34	3.38e+01	4.47e+01 0.76	yes	7.85e+01	2,3,7,8-TCDD	y	y

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Peak List Summary

CLIENT ID.
SL0521

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P518891 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 22:26:13 Processed: 19-NOV-18 14:30:26

Mass: 373.8210 375.8180 Tot Response: 9.25e+00 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	4.89e+00	4.36e+00 1.12	yes	9.25e+00	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0521

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P518891 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 22:26:13 Processed: 19-NOV-18 14:30:26

Mass: 389.8160 391.8130 Tot Response: 1.04e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	5.02e+01	3.56e+01 1.41	yes	8.58e+01		n	n
2	35:39	9.63e+00	8.58e+00 1.12	yes	1.82e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0521

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P518891 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 22:26:13 Processed: 19-NOV-18 14:30:26

Mass: 407.7820 409.7790 Tot Response: 2.01e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:39	9.98e+00	1.02e+01 0.98	yes	2.01e+01		n	n

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Peak List Summary

CLIENT ID.
SL0521

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P518891 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 22:26:13 Processed: 19-NOV-18 14:30:26

Mass: 423.7770 425.7740 Tot Response: 1.93e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	7.70e+02	6.78e+02	1.14	yes	1.45e+03		n	n
2	38:10	2.57e+02	2.21e+02	1.16	yes	4.78e+02	1,2,3,4,6,7,8-HpCDD	n	n

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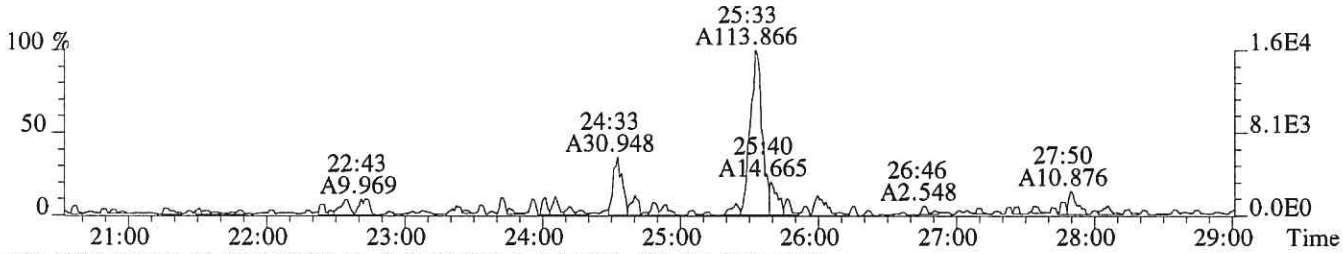
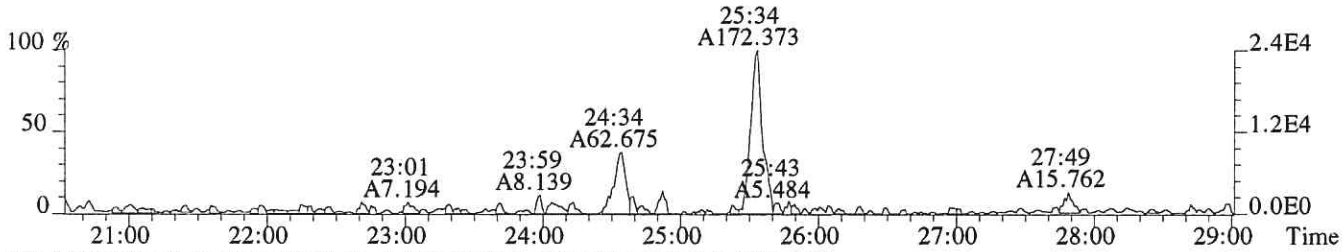
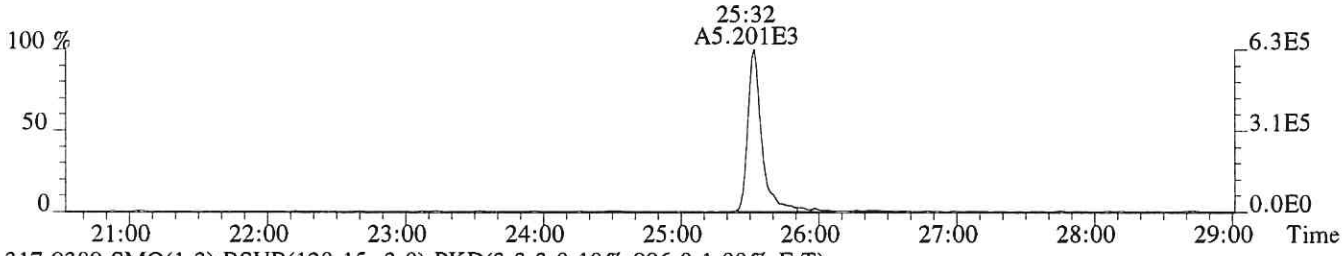
File:P518891 #1-602 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



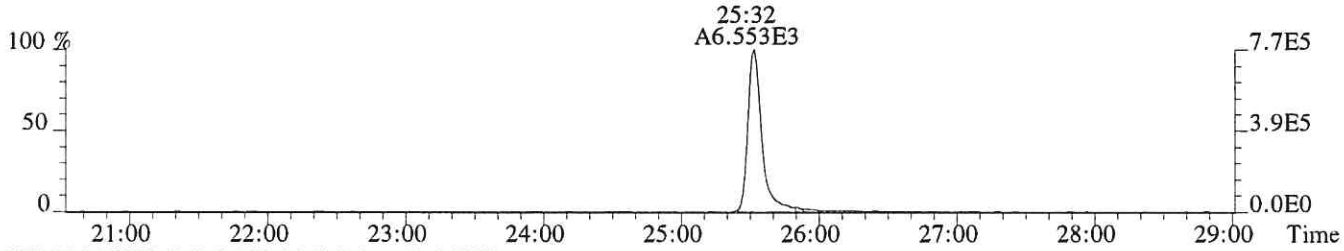
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



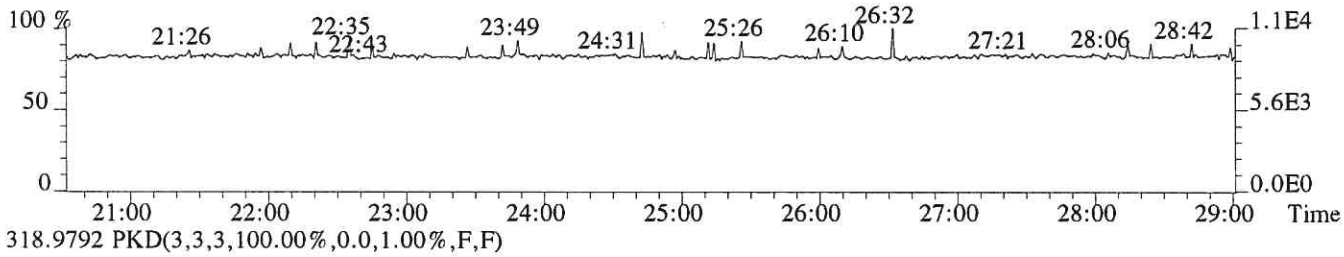
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



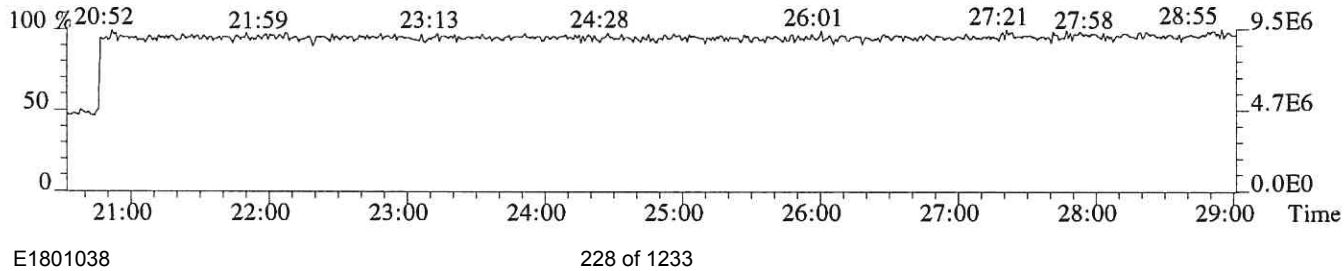
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



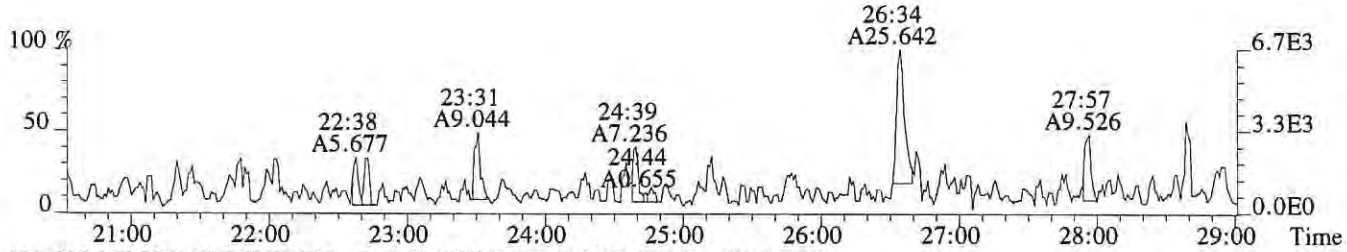
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



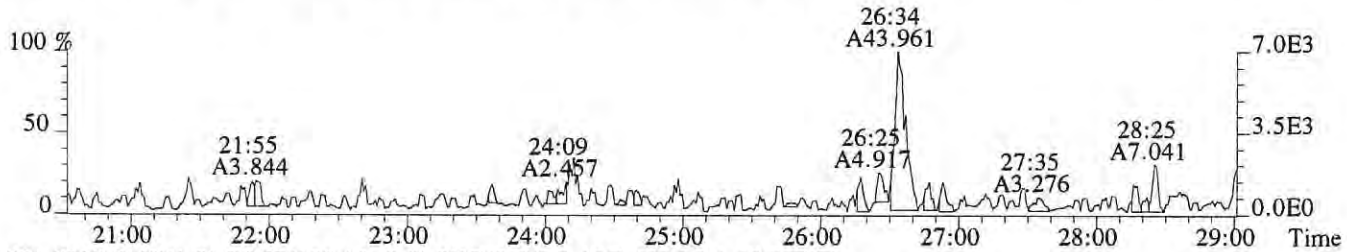
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



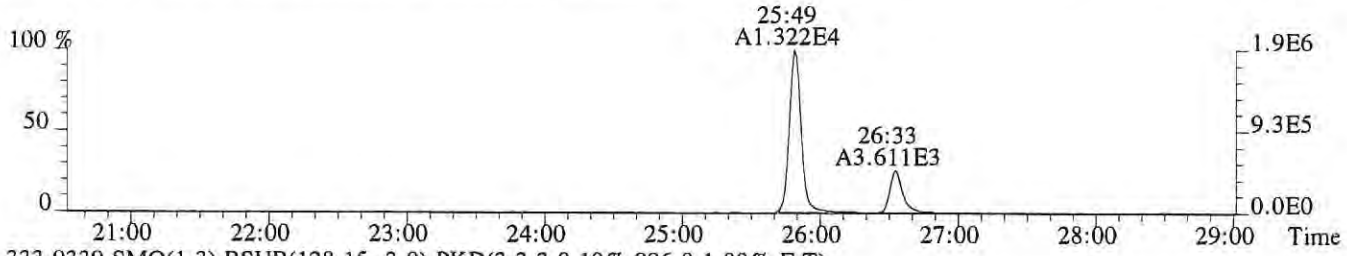
File:P518891 #1-602 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



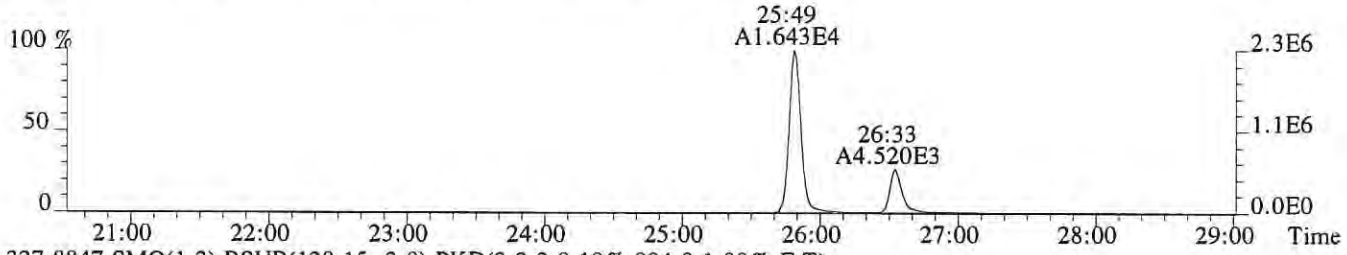
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



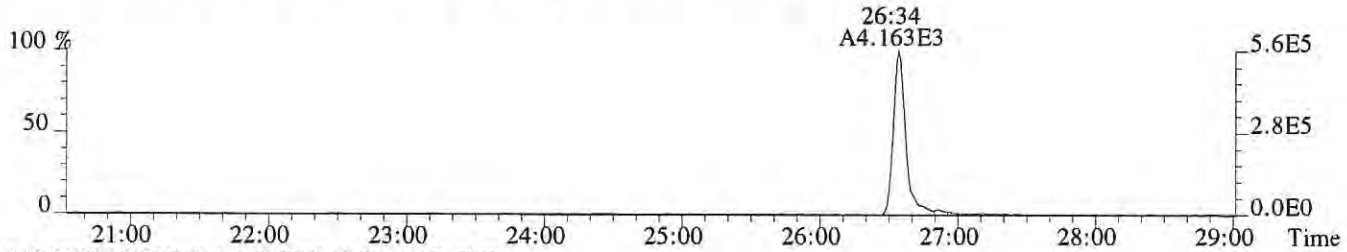
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3124.0,1.00%,F,T)



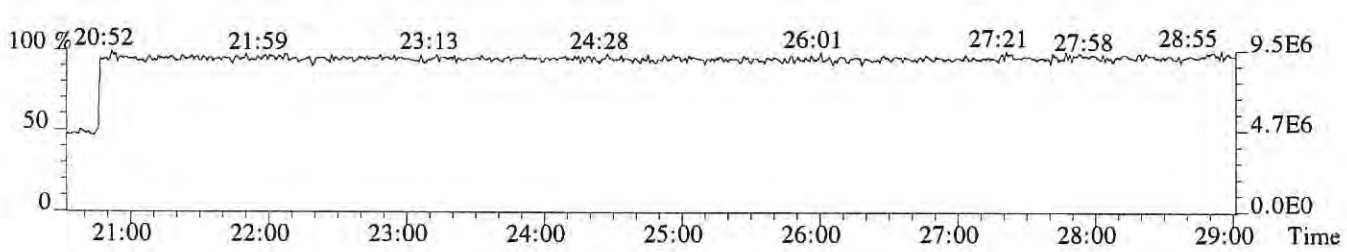
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



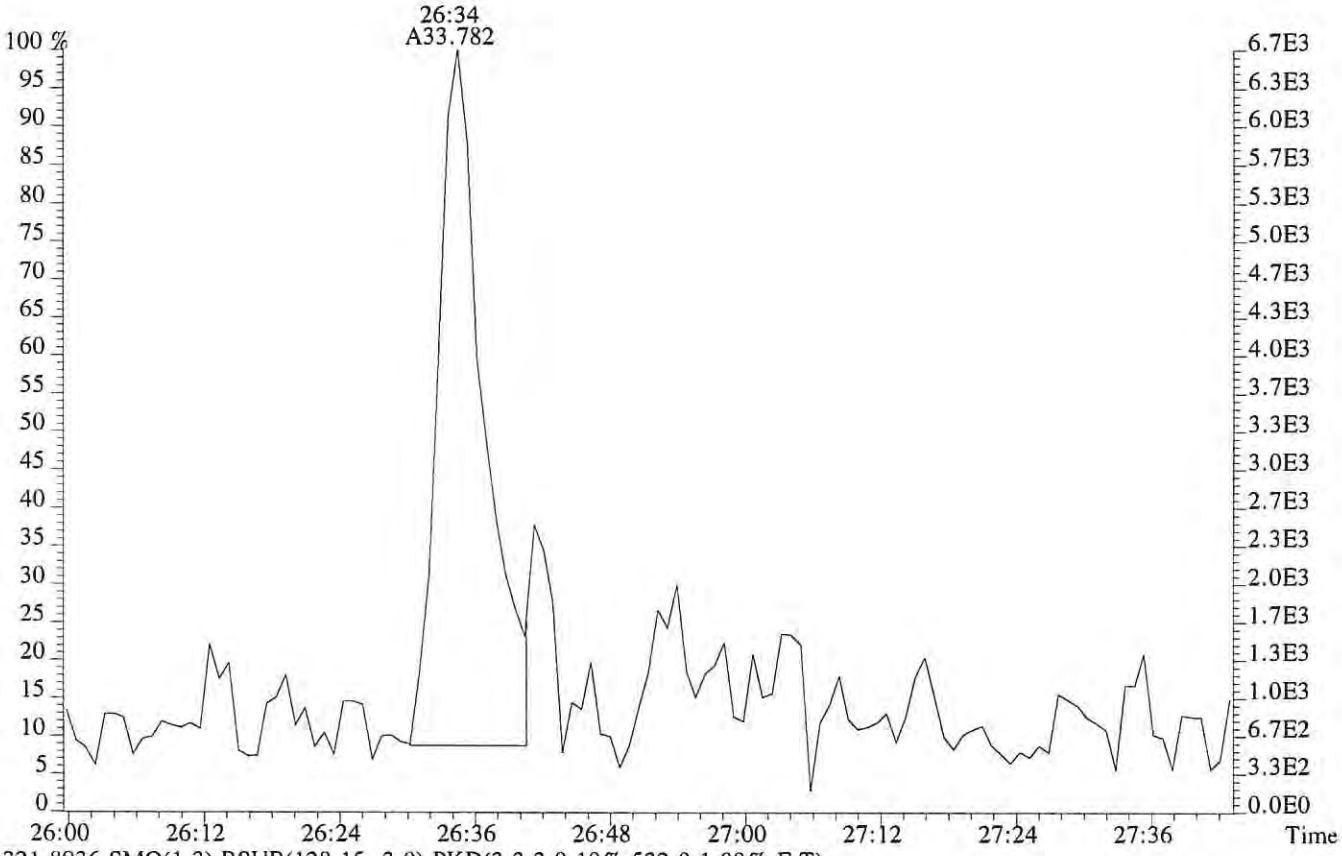
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



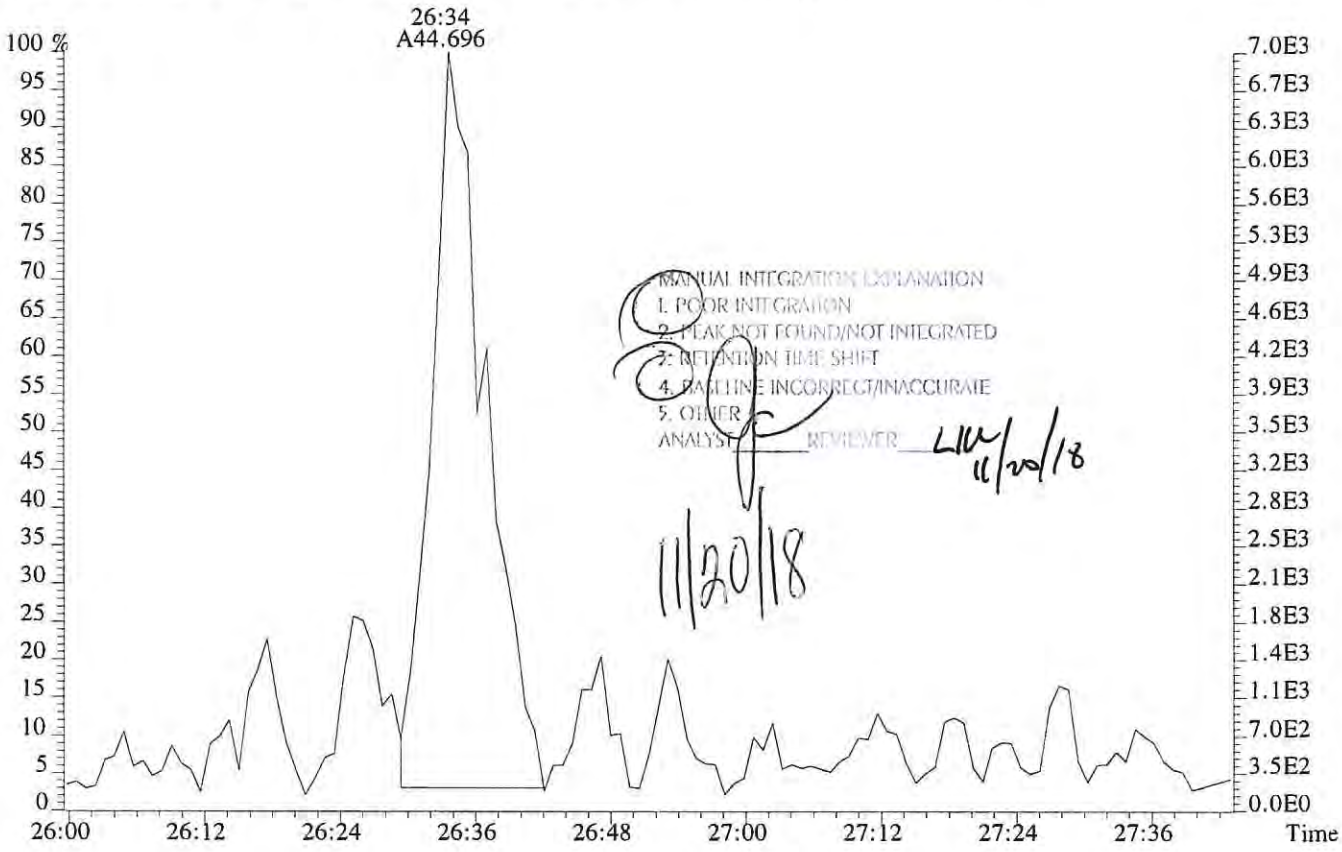
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518891 #1-602 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



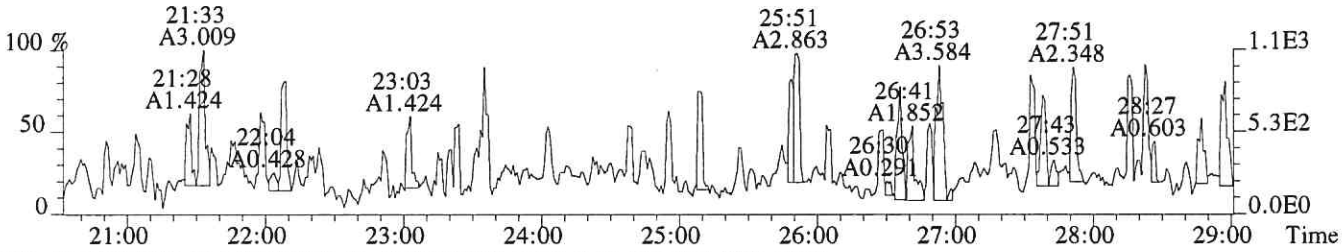
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



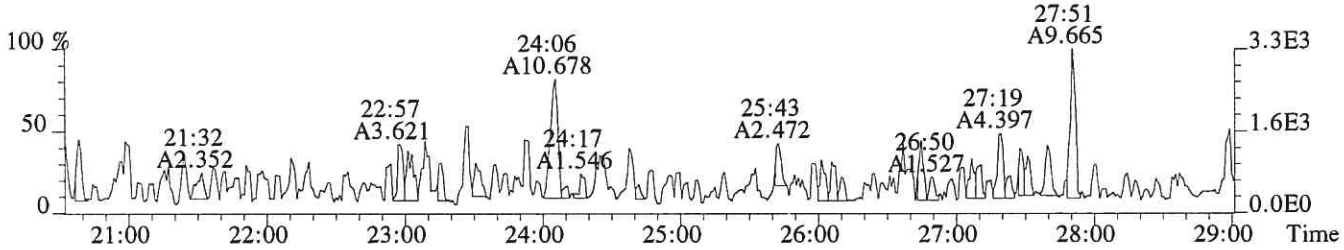
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LHW 11/20/18

11/20/18

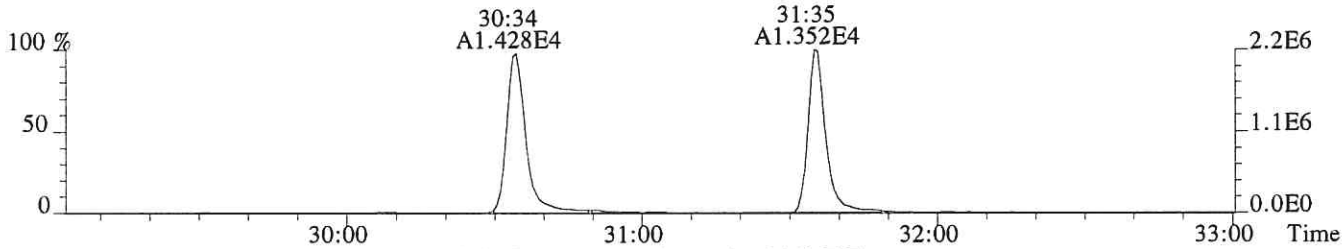
File:P518891 #1-602 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



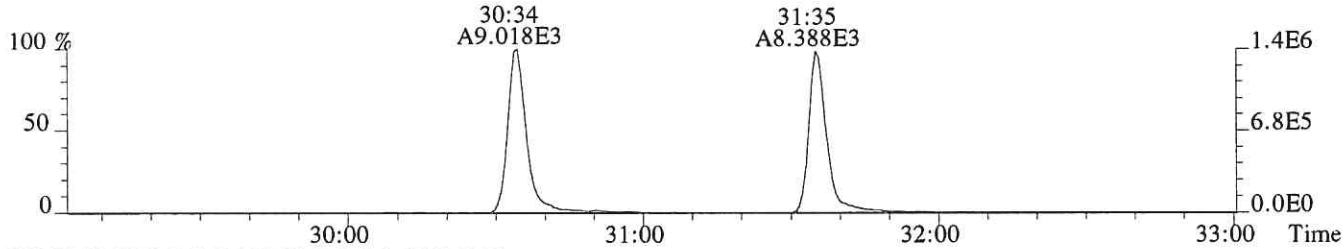
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



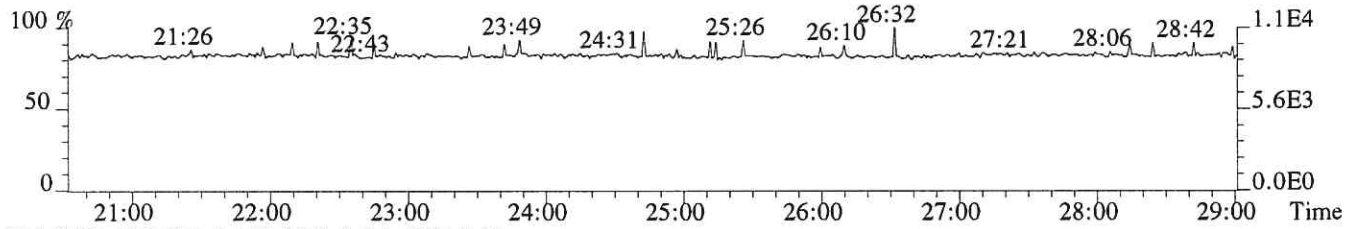
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



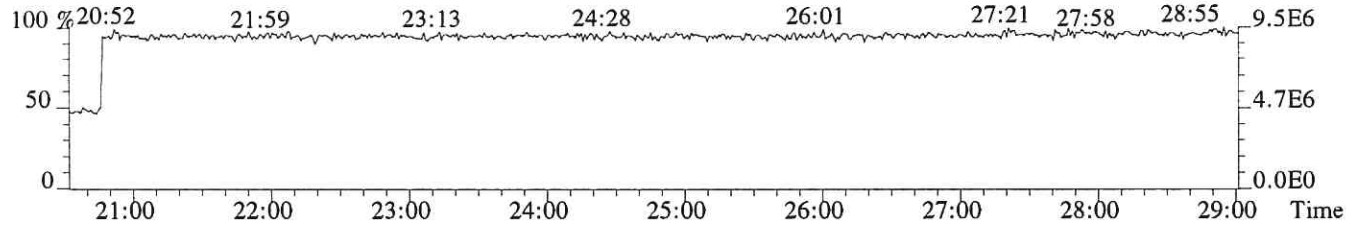
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



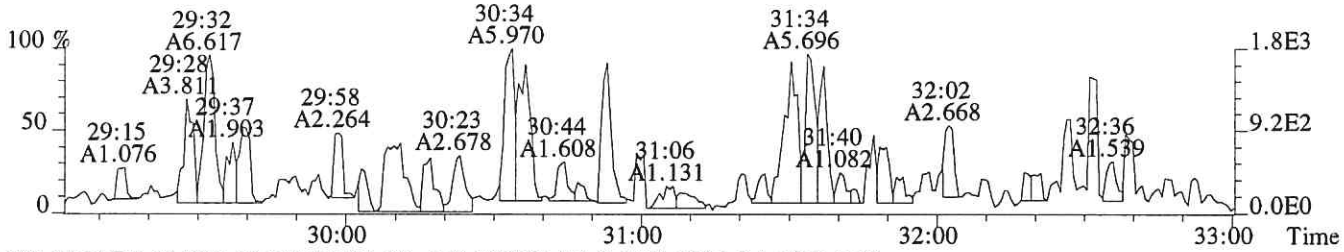
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



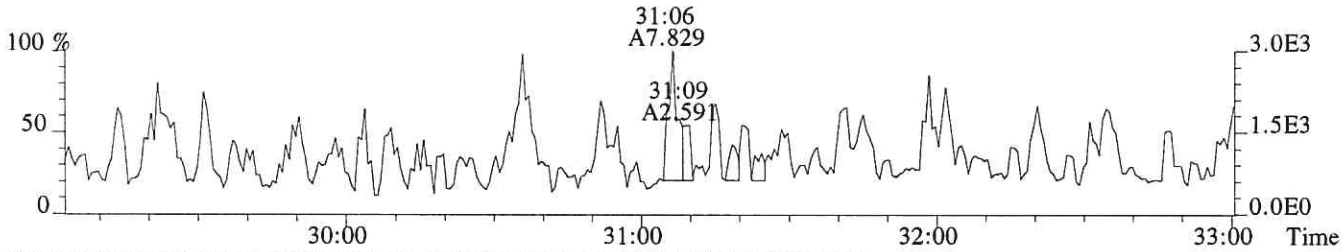
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



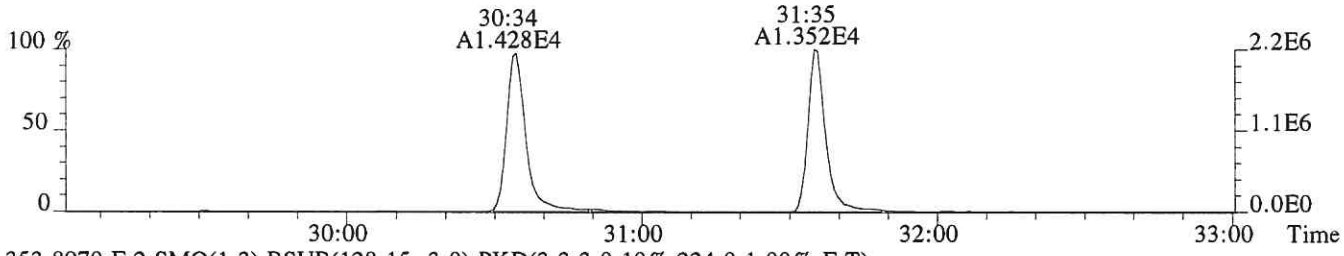
File:P518891 #1-357 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



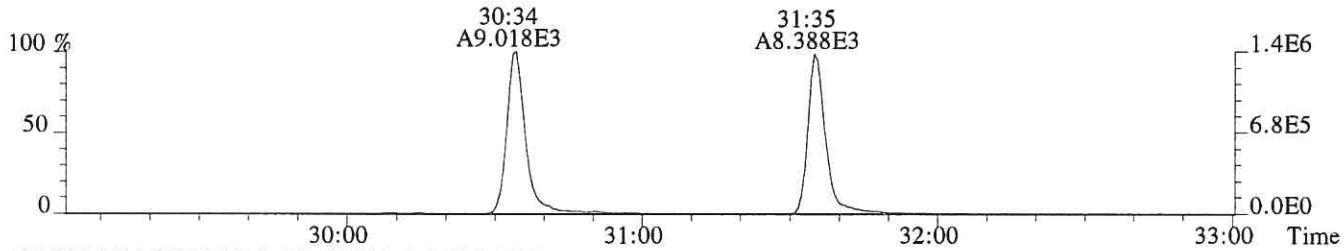
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



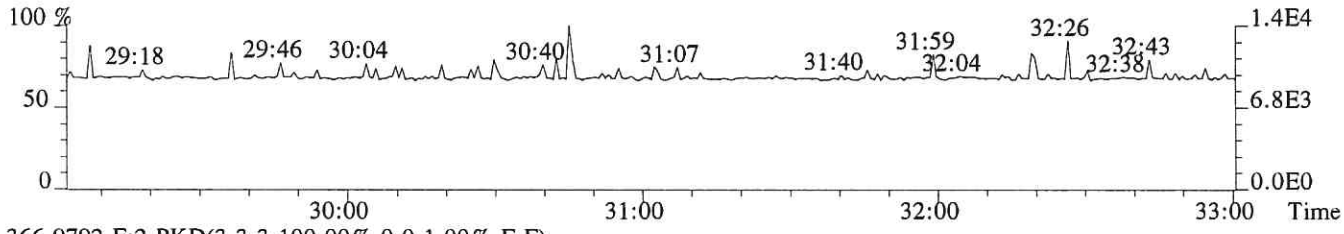
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



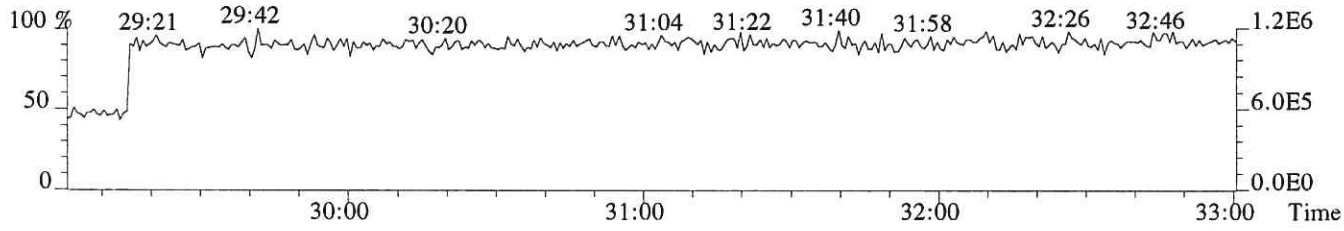
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



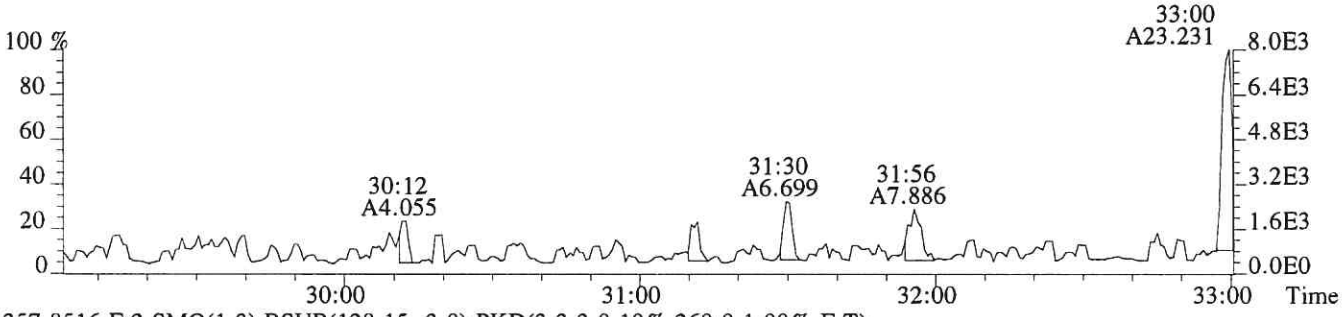
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



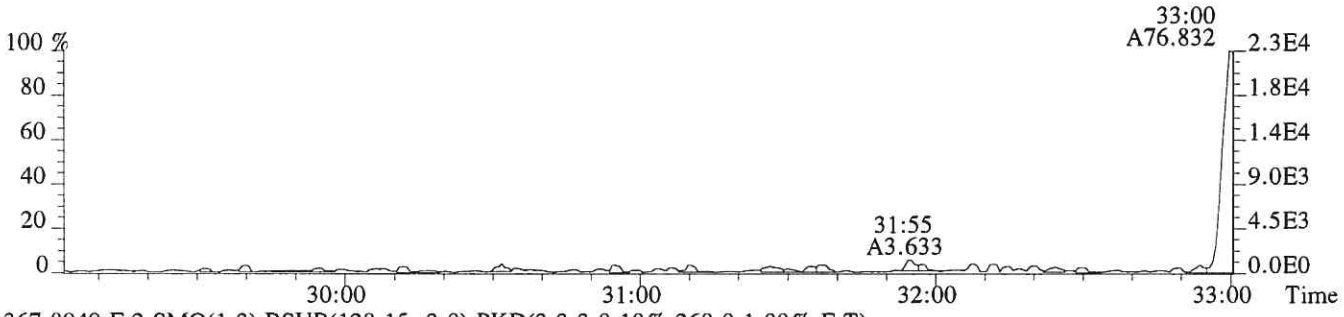
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



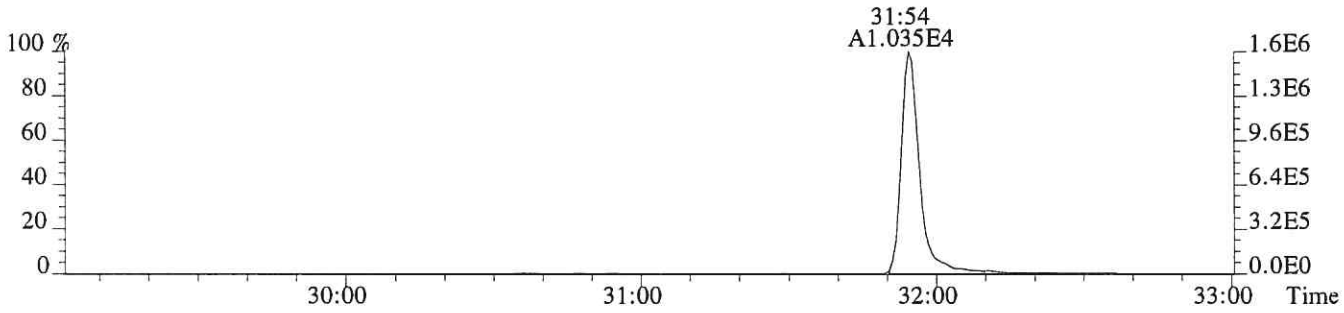
File:P518891 #1-357 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



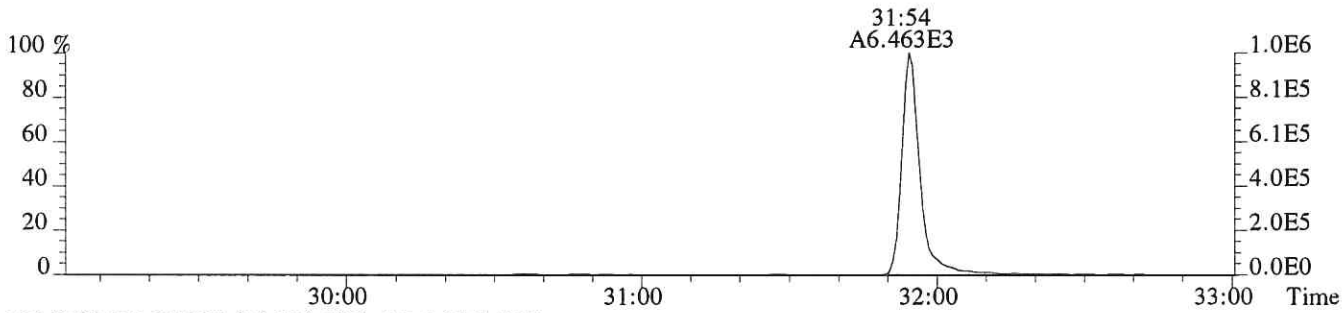
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



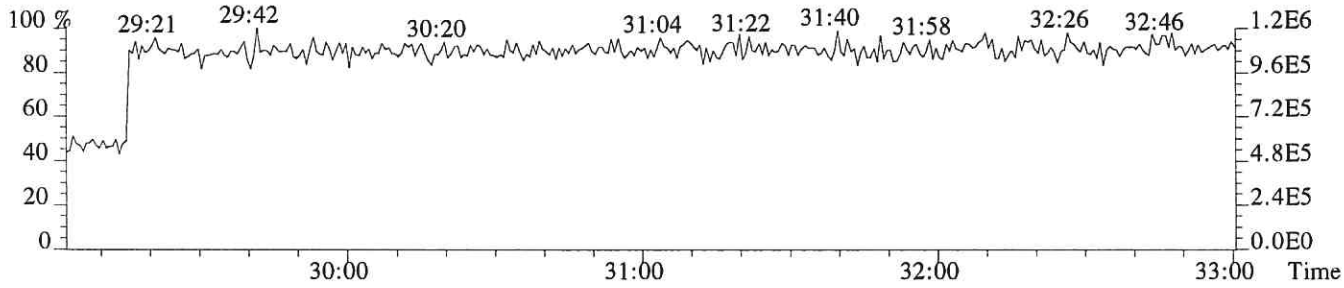
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)

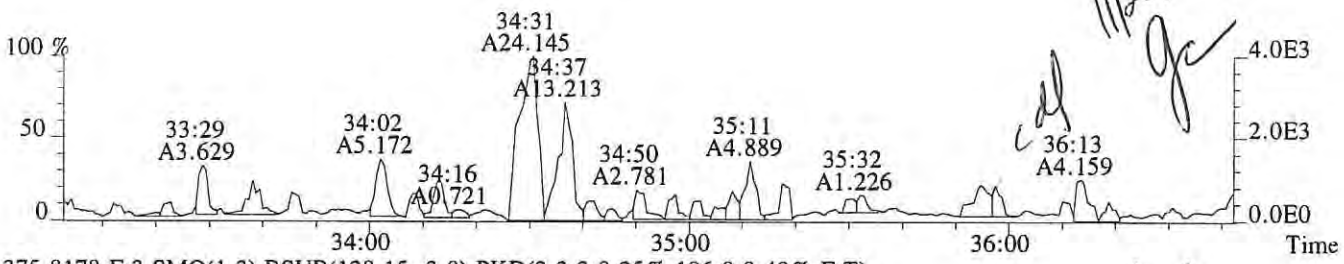


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

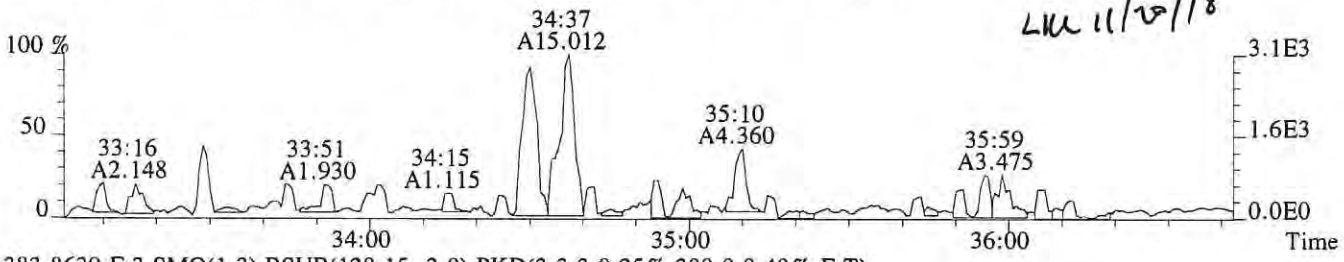


File:P518891 #1-330 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003

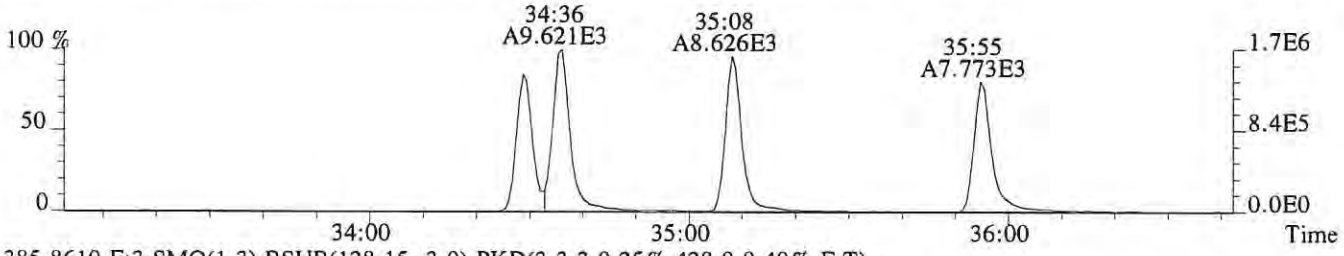
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



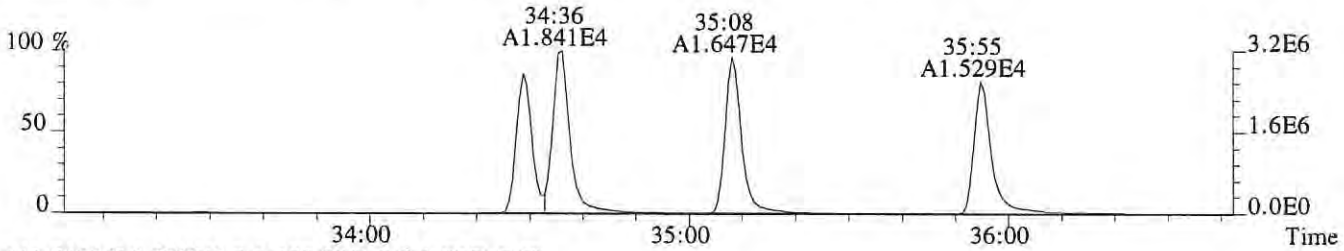
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



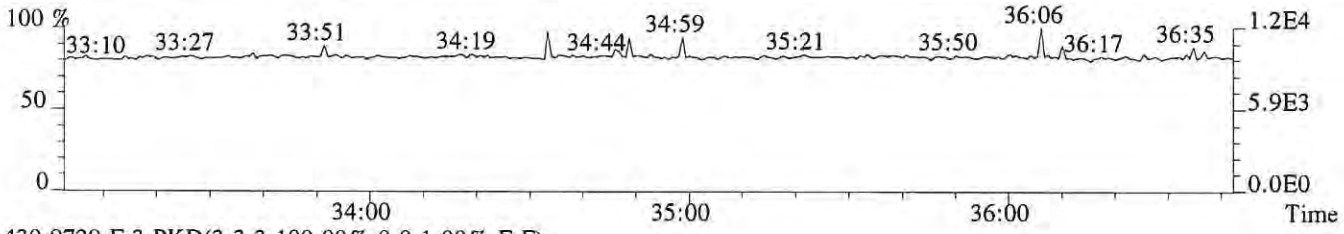
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



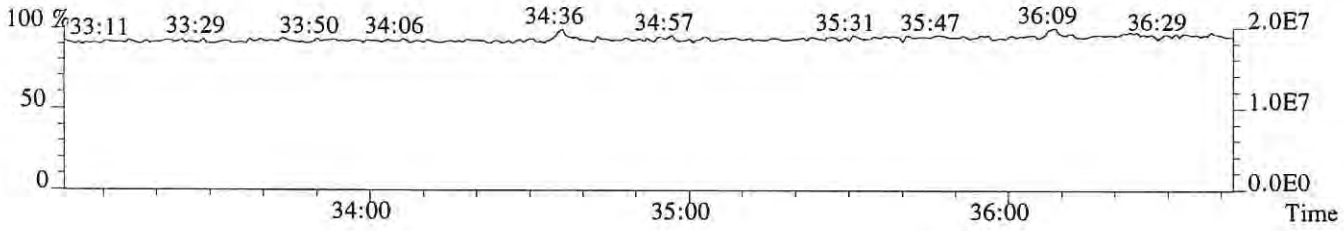
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



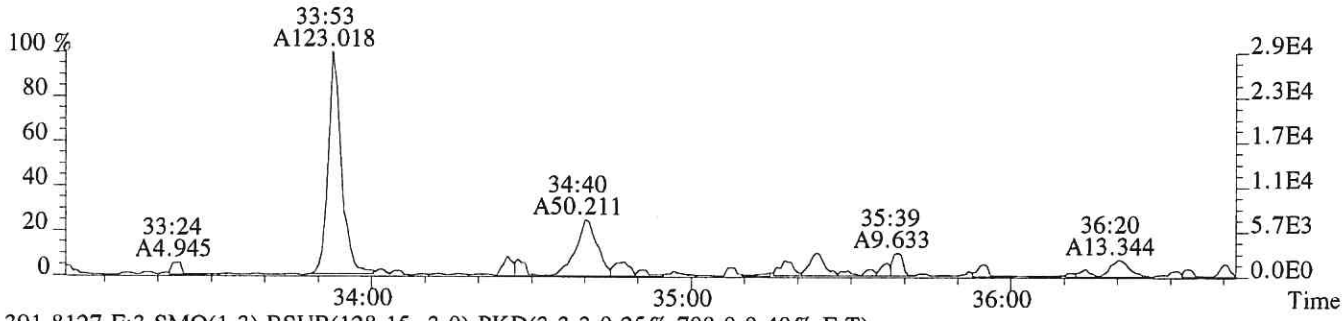
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



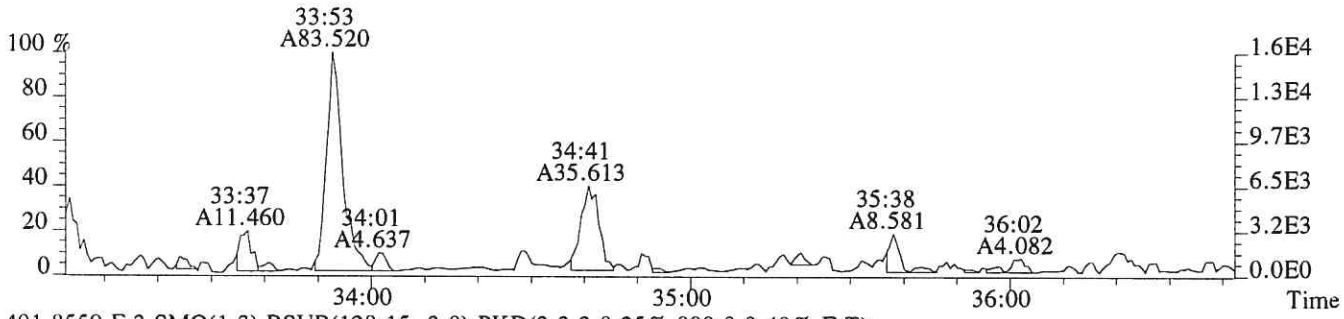
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



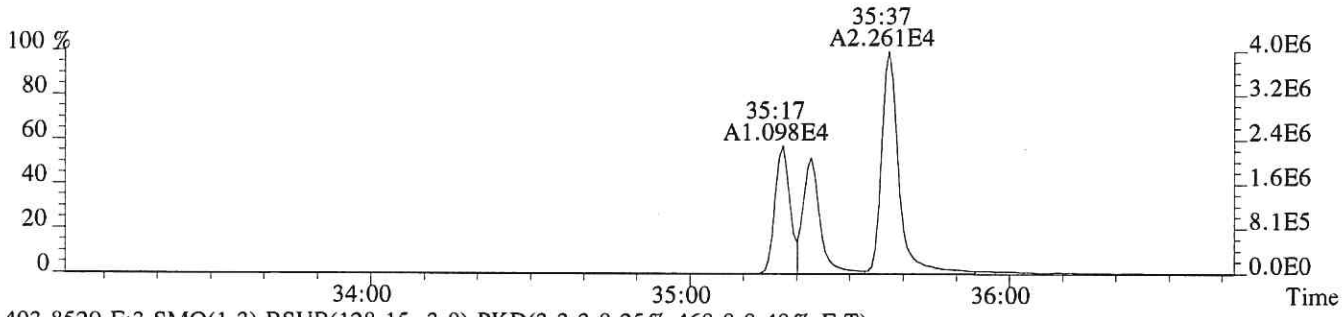
File:P518891 #1-330 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



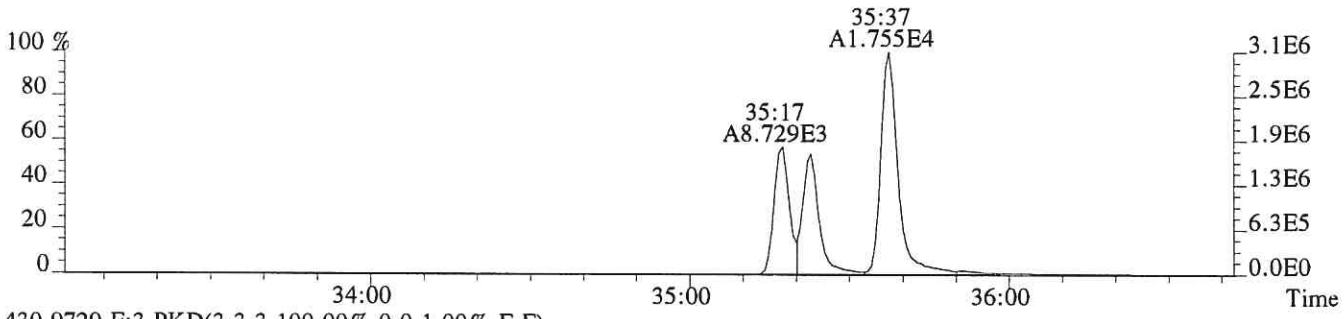
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



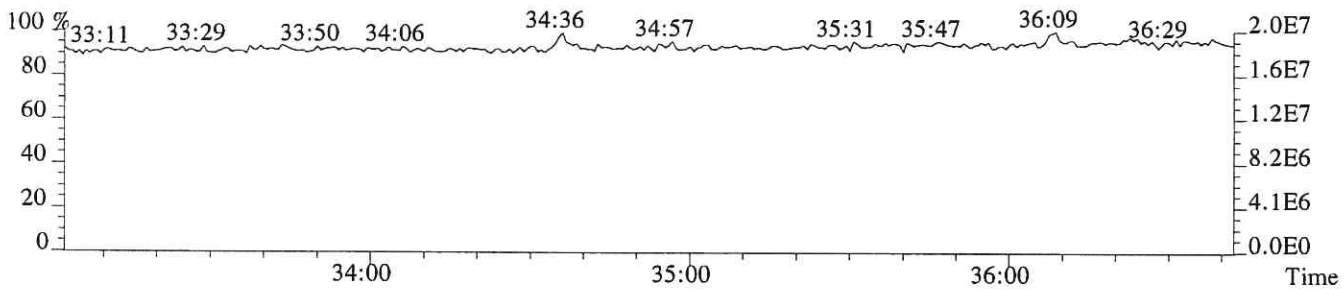
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



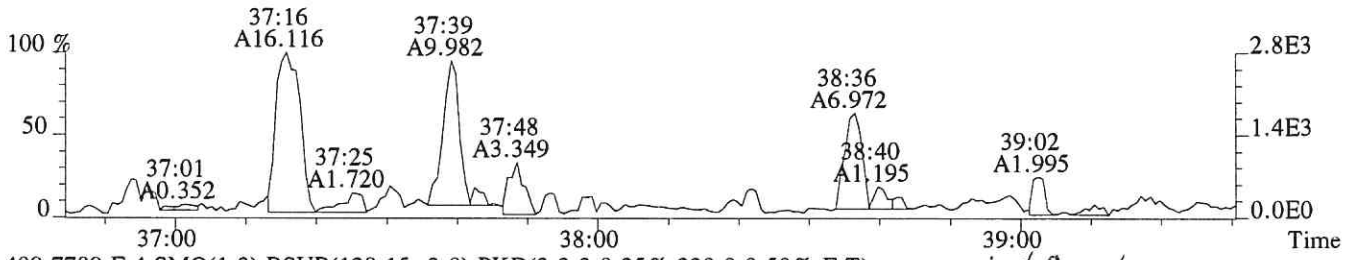
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



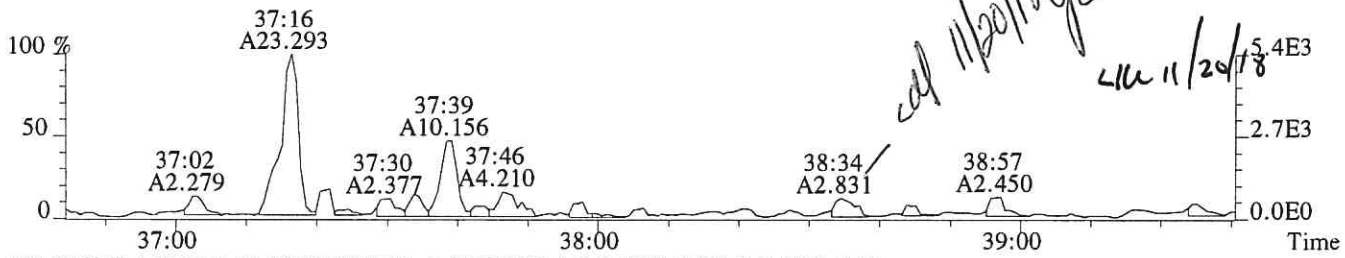
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



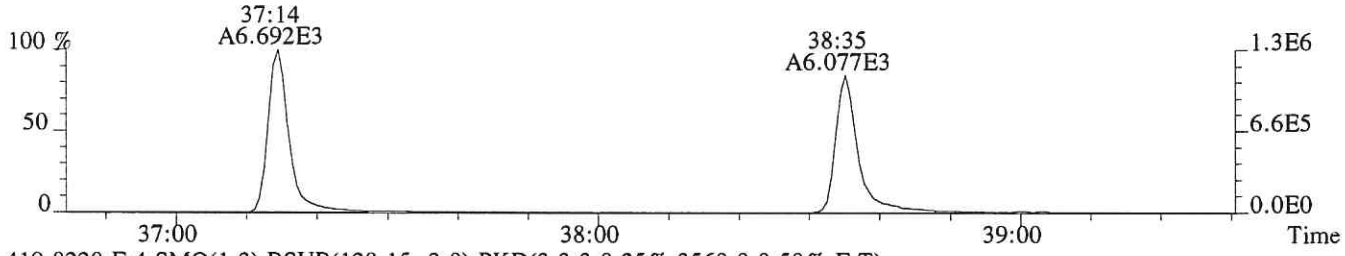
File:P518891 #1-250 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)



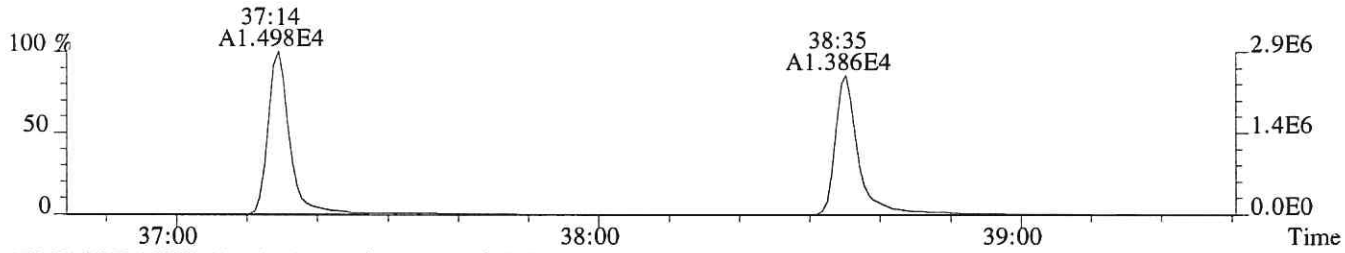
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.50%,F,T)



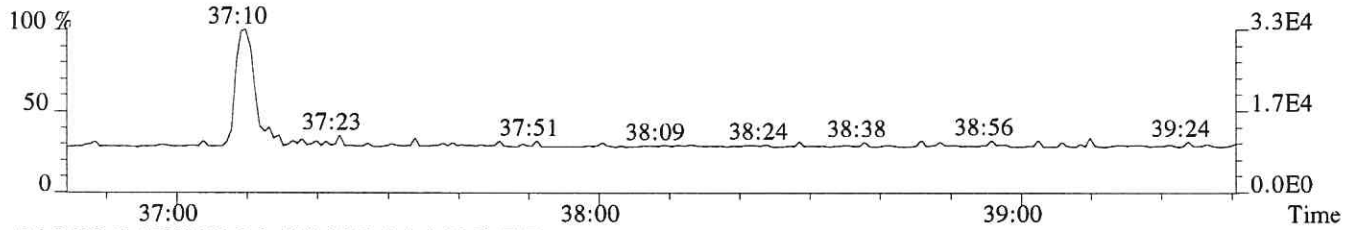
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.50%,F,T)



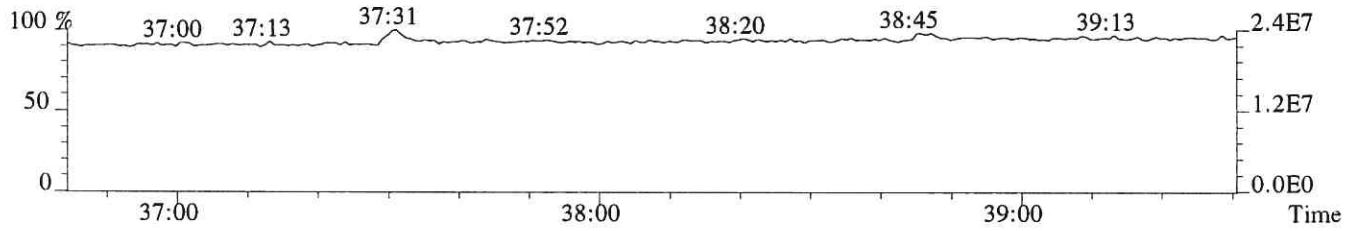
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3560.0,0.50%,F,T)



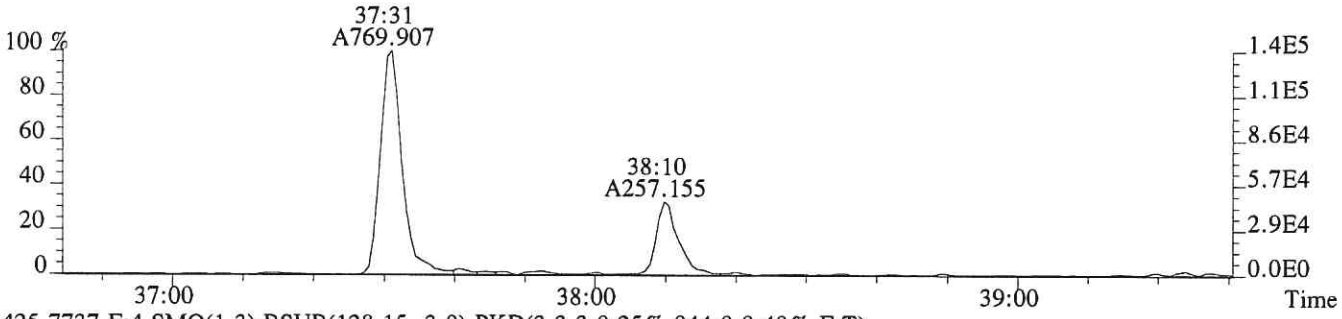
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



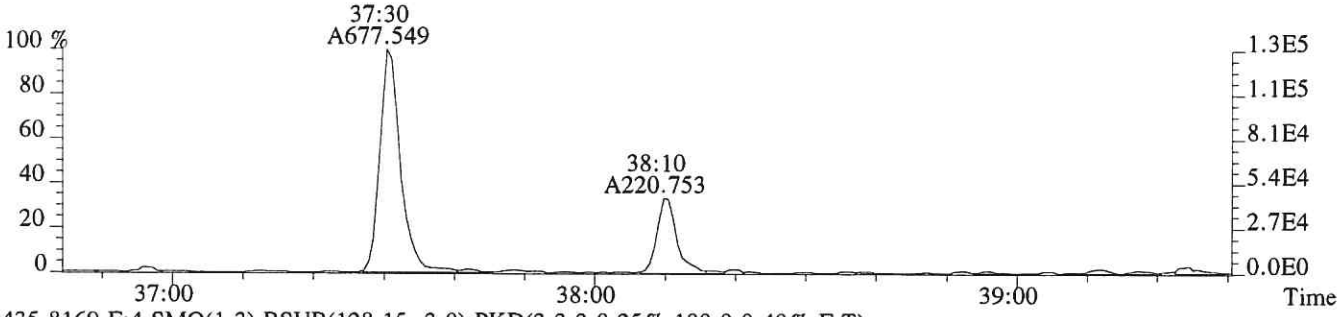
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



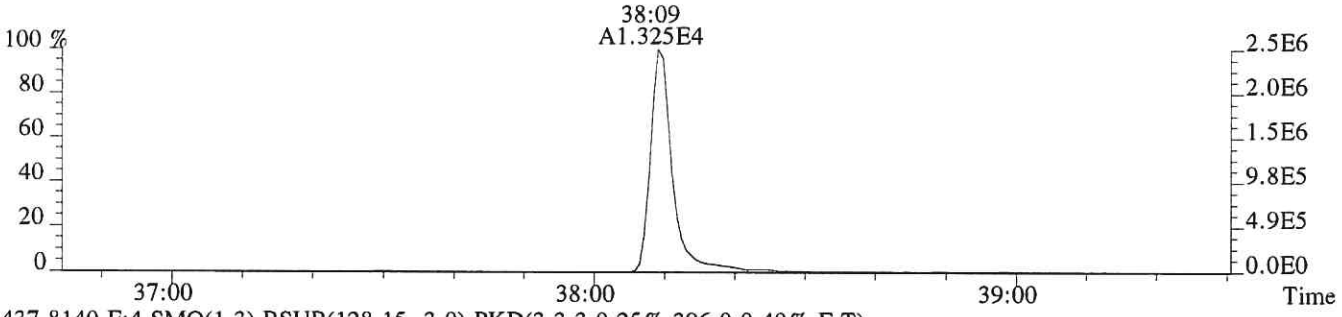
File:P518891 #1-250 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



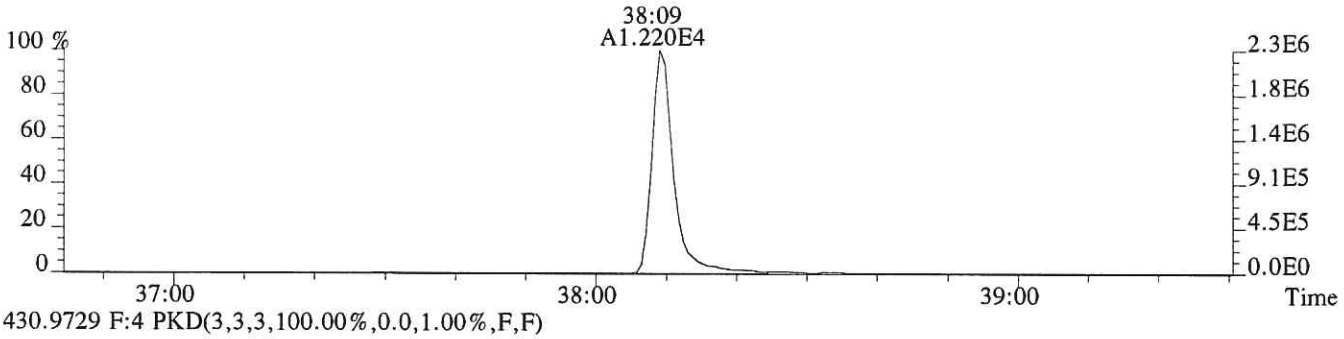
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



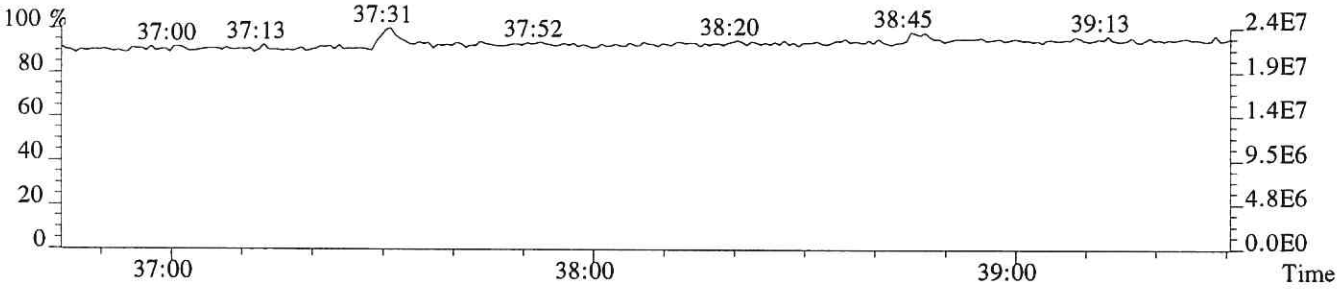
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



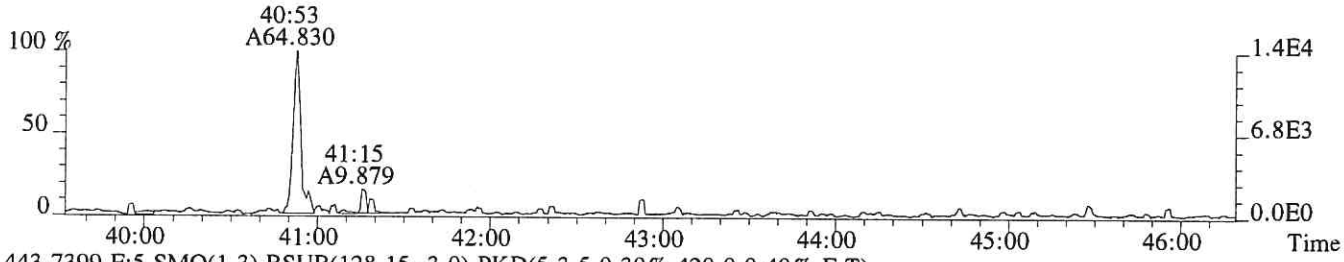
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



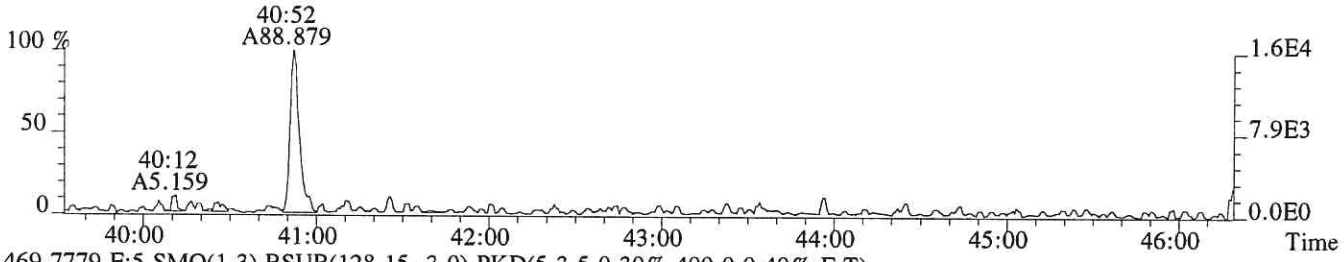
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



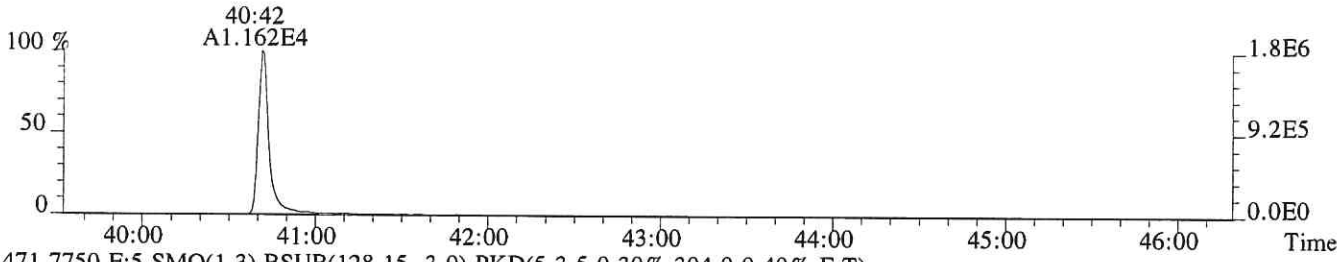
File:P518891 #1-610 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



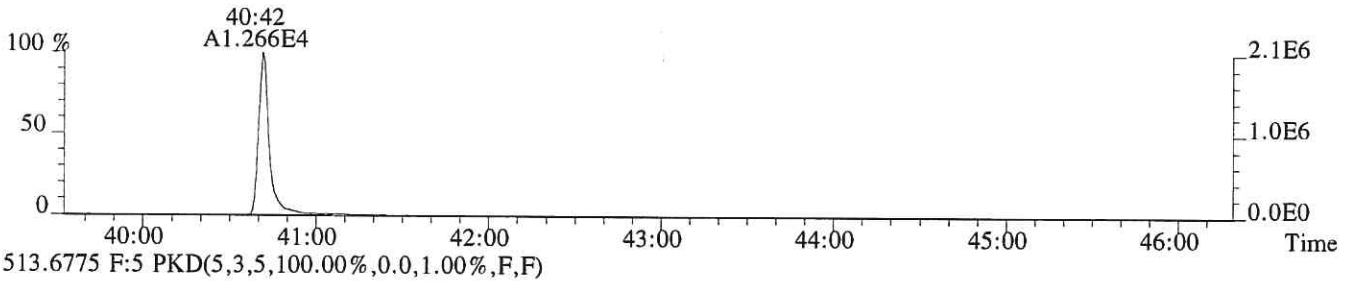
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



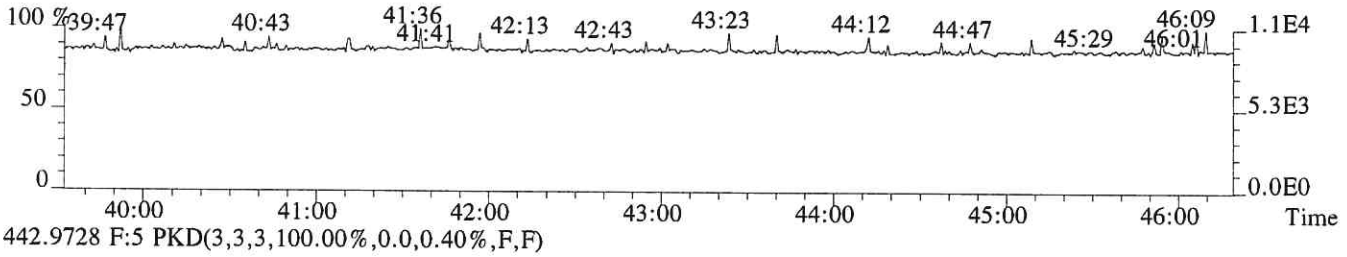
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



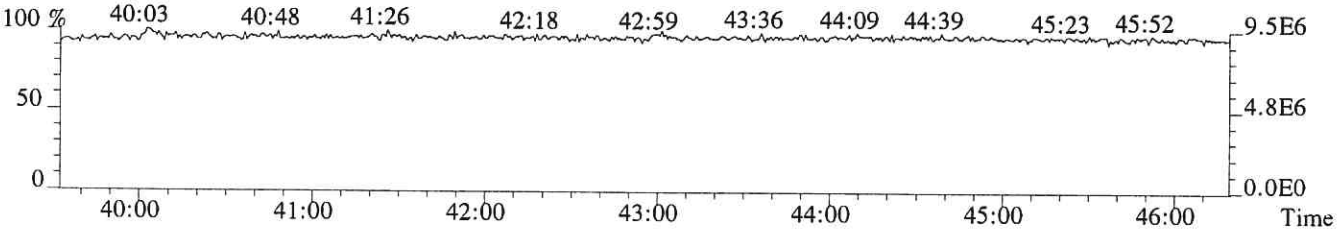
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



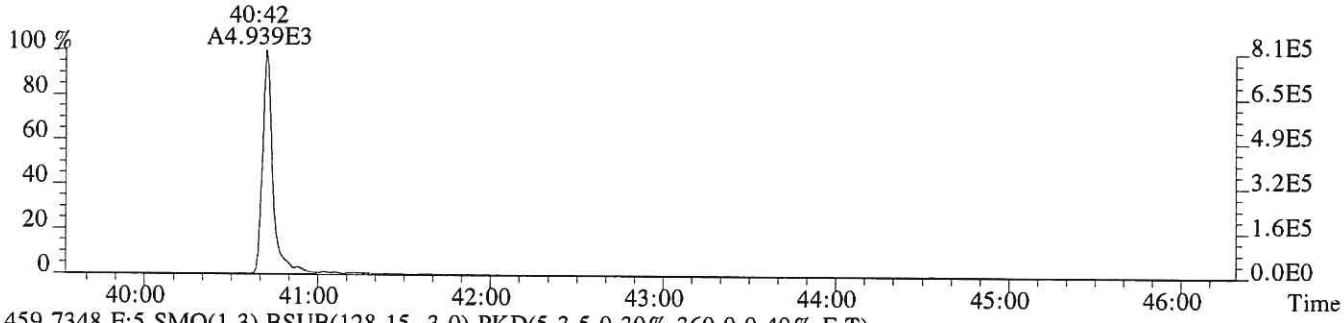
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



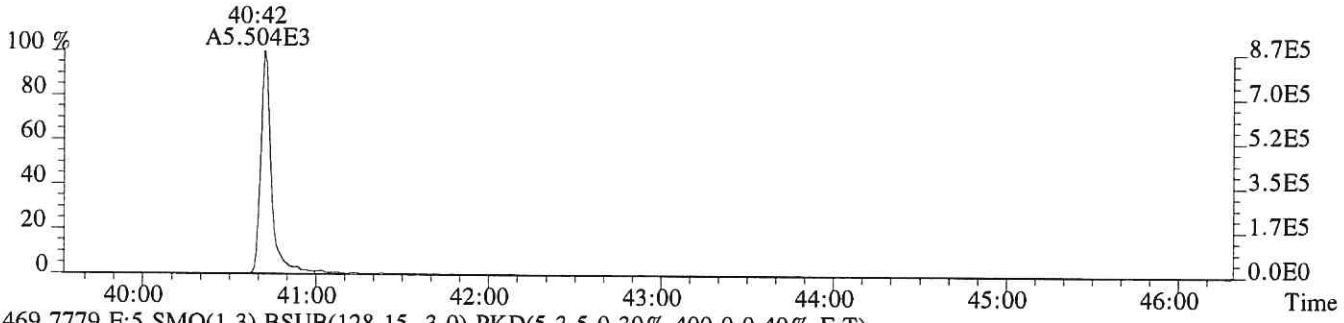
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



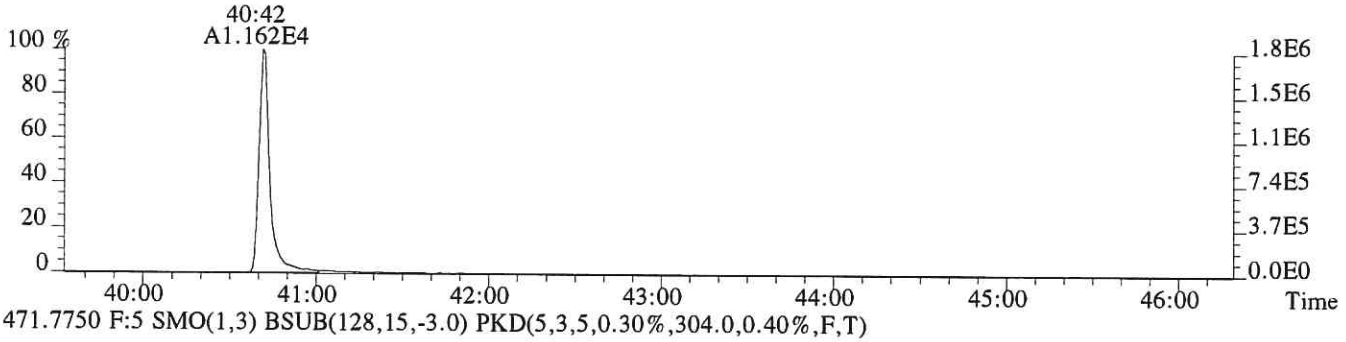
File:P518891 #1-610 Acq:17-NOV-2018 22:26:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



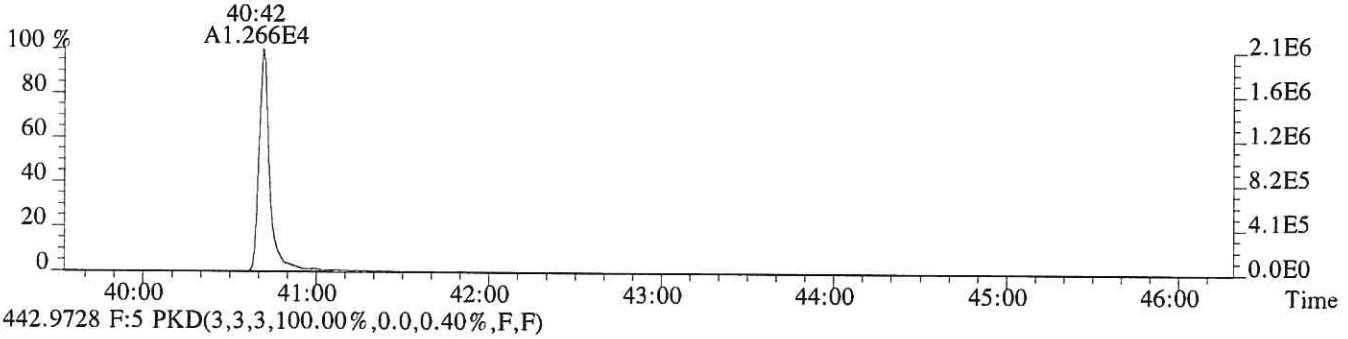
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



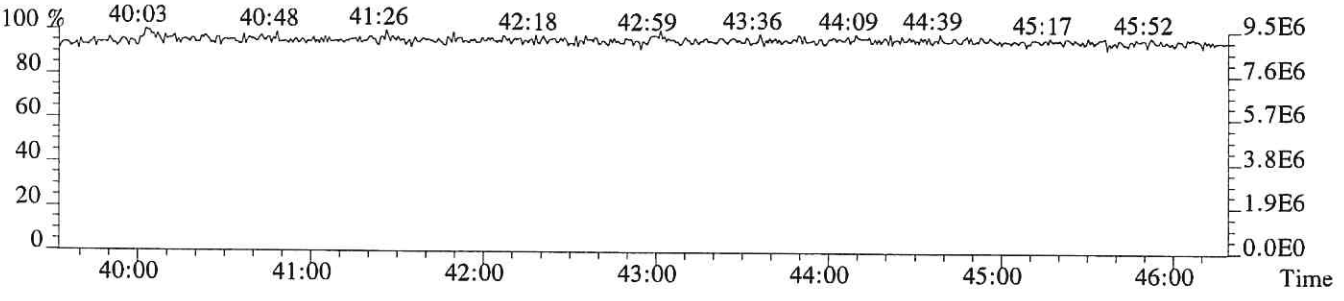
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0522

Run #10 Filename P518898 Samp: 1 Inj: 1 Acquired: 18-NOV-18 04:21:25
Processed: 21-NOV-18 12:44:50 Sample ID: E1801038-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	8.535e+01	1.446e+02	0.59	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.888e+01	9.466e+00	1.99	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.606e+01	1.316e+01	1.22	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	7.582e+00	1.073e+01	0.71	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	3.916e+01	3.985e+01	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	40:52	1.126e+02	1.020e+02	1.10	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	1.558e+01	8.199e+00	1.90	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:22	2.805e+01	1.902e+01	1.47	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	3.765e+01	4.188e+01	0.90	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	8.098e+02	7.295e+02	1.11	yes	no	1.025
17	Unk	OCDD	40:42	2.176e+04	2.399e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	8.974e+03	1.171e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.002e+04	1.268e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.858e+04	1.179e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	9.104e+03	1.744e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.342e+04	2.524e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.054e+04	2.035e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	9.108e+03	1.788e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	7.292e+03	1.669e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	6.748e+03	1.540e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	6.254e+03	7.911e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.405e+04	8.643e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.348e+04	1.029e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.448e+04	1.139e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.513e+04	1.443e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:42	1.214e+04	1.362e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.036e+04	2.577e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	2.961e+04	2.400e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	6.962e+03				no	1.014

$$OCDD = \frac{(2.176e+04 + 2.399e+04) \times 4000\ pg \times 1}{(1.214e+04 + 1.362e+04) \times 10.107\ g \times 79.9 / 100 \times 1.118} = 486.85\ ng/kg$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0522

Run #10 Filename P518898 Samp: 1 Inj: 1 Acquired: 18-NOV-18 04:21:25
Processed: 21-NOV-18 12:44:50 LAB. ID: E1801038-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.47e+04	1.44e+02	1.0e+02	2.12e+04	8.04e+02	2.6e+01
2	1,2,3,7,8-PeCDF	*	2.76e+02	*	*	7.32e+02	*
3	2,3,4,7,8-PeCDF	*	2.76e+02	*	*	7.32e+02	*
4	1,2,3,4,7,8-HxCDF	4.27e+03	5.80e+02	7.4e+00	2.32e+03	2.88e+02	8.0e+00
5	1,2,3,6,7,8-HxCDF	2.70e+03	5.80e+02	4.7e+00	2.47e+03	2.88e+02	8.6e+00
6	2,3,4,6,7,8-HxCDF	*	5.80e+02	*	*	2.88e+02	*
7	1,2,3,7,8,9-HxCDF	2.32e+03	5.80e+02	4.0e+00	1.90e+03	2.88e+02	6.6e+00
8	1,2,3,4,6,7,8-HpCDF	8.57e+03	2.48e+02	3.5e+01	9.47e+03	1.84e+02	5.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.48e+02	*	*	1.84e+02	*
10	OCDF	1.40e+04	2.24e+02	6.2e+01	1.75e+04	9.00e+02	1.9e+01
11	2,3,7,8-TCDD	*	1.14e+03	*	*	3.60e+02	*
12	1,2,3,7,8-PeCDD	*	6.16e+02	*	*	2.08e+02	*
13	1,2,3,4,7,8-HxCDD	4.02e+03	5.44e+02	7.4e+00	2.42e+03	6.48e+02	3.7e+00
14	1,2,3,6,7,8-HxCDD	4.57e+03	5.44e+02	8.4e+00	3.99e+03	6.48e+02	6.2e+00
15	1,2,3,7,8,9-HxCDD	7.69e+03	5.44e+02	1.4e+01	7.15e+03	6.48e+02	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	1.49e+05	2.36e+02	6.3e+02	1.37e+05	1.84e+02	7.4e+02
17	OCDD	3.29e+06	2.08e+02	1.6e+04	3.71e+06	1.56e+02	2.4e+04
18	13C-2,3,7,8-TCDF	1.12e+06	2.42e+03	4.6e+02	1.45e+06	1.04e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	3.06e+06	8.44e+02	3.6e+03	1.89e+06	3.12e+02	6.0e+03
20	13C-2,3,4,7,8-PeCDF	3.02e+06	8.44e+02	3.6e+03	1.90e+06	3.12e+02	6.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.82e+06	2.96e+02	6.2e+03	3.46e+06	5.12e+02	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.37e+06	2.96e+02	8.0e+03	4.53e+06	5.12e+02	8.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.94e+06	2.96e+02	6.6e+03	3.69e+06	5.12e+02	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.58e+06	2.96e+02	5.3e+03	3.03e+06	5.12e+02	5.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.39e+06	5.00e+03	2.8e+02	3.18e+06	3.91e+03	8.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.15e+06	5.00e+03	2.3e+02	2.56e+06	3.91e+03	6.6e+02
27	13C-2,3,7,8-TCDD	8.48e+05	3.71e+03	2.3e+02	1.09e+06	1.24e+03	8.8e+02
28	13C-1,2,3,7,8-PeCDD	2.21e+06	2.60e+02	8.5e+03	1.36e+06	2.04e+02	6.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+06	1.22e+03	2.3e+03	2.20e+06	3.32e+02	6.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.53e+06	1.22e+03	2.1e+03	1.99e+06	3.32e+02	6.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.80e+06	2.24e+02	1.2e+04	2.62e+06	2.68e+02	9.8e+03
32	13C-OCDD	1.84e+06	1.64e+02	1.1e+04	2.05e+06	2.00e+02	1.0e+04
33	13C-1,2,3,4-TCDD	2.82e+06	3.71e+03	7.6e+02	3.62e+06	1.24e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.28e+06	1.22e+03	4.3e+03	4.25e+06	3.32e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	9.35e+05	8.16e+02	1.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0522

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P518898 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 04:21:25 Processed: 21-NOV-18 12:44:50

Mass: 303.9020 305.8990 Tot Response: 7.87e+01 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:33	3.31e+01	4.56e+01	0.73	yes	7.87e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0522

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P518898 Sample:1 Injection:1 Function:2

Acquired: 18-NOV-18 04:21:25 Processed: 21-NOV-18 12:44:50

Mass: 355.8550 357.8520 Tot Response: 3.31e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:36	1.92e+01	1.38e+01 1.39	yes	3.31e+01		n	n

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Peak List Summary

CLIENT ID.
SL0522

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518898 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 04:21:25 Processed: 21-NOV-18 12:44:50

Mass: 373.8210 375.8180 Tot Response: 2.92e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:36	1.61e+01	1.32e+01 1.22	yes	2.92e+01	1,2,3,6,7,8-HxCDF	y	y

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Peak List Summary

CLIENT ID.
SL0522

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P518898 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 04:21:25 Processed: 21-NOV-18 12:44:50

Mass: 389.8160 391.8130 Tot Response: 8.62e+02 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	3.68e+02	2.66e+02	1.38	yes	6.33e+02		n	n
2	34:40	1.19e+02	1.10e+02	1.09	yes	2.29e+02		n	n

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Peak List Summary

CLIENT ID.
SL0522

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P518898 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 04:21:25 Processed: 21-NOV-18 12:44:50

Mass: 407.7820 409.7790 Tot Response: 1.60e+02 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	3.92e+01	3.98e+01	0.98	yes	7.90e+01	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	4.30e+01	3.79e+01	1.13	yes	8.08e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0522

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P518898 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 04:21:25 Processed: 21-NOV-18 12:44:50

Mass: 423.7770 425.7740 Tot Response: 5.07e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	1.82e+03	1.71e+03 1.07	yes	3.53e+03		n	n
2	38:10	8.10e+02	7.29e+02 1.11	yes	1.54e+03	1,2,3,4,6,7,8-HpCDD	n	n

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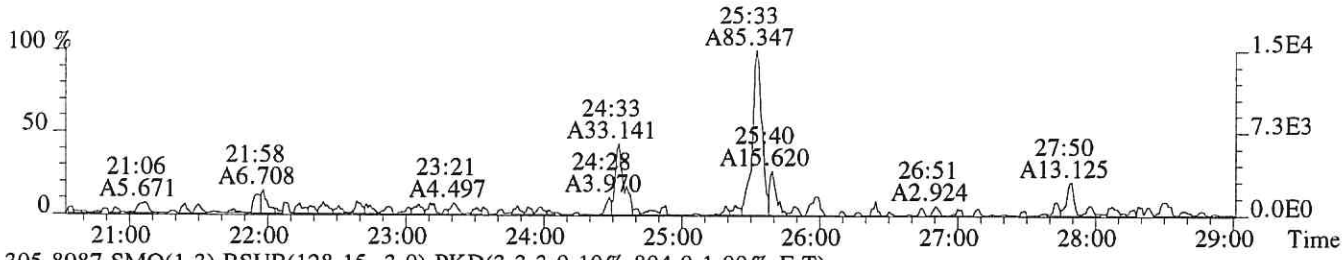
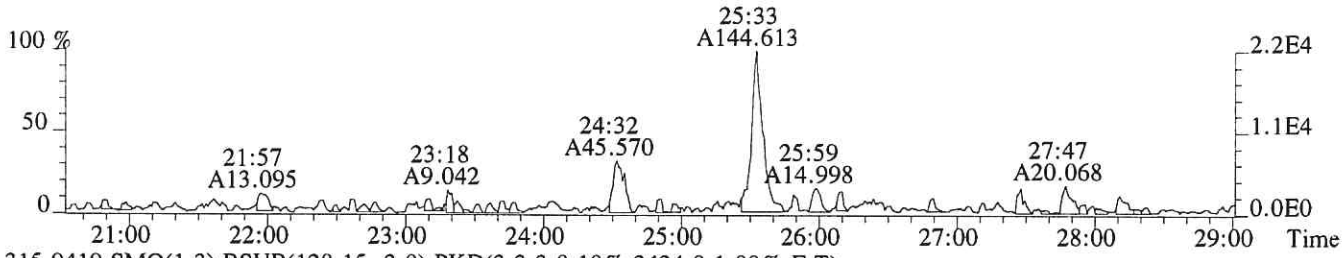
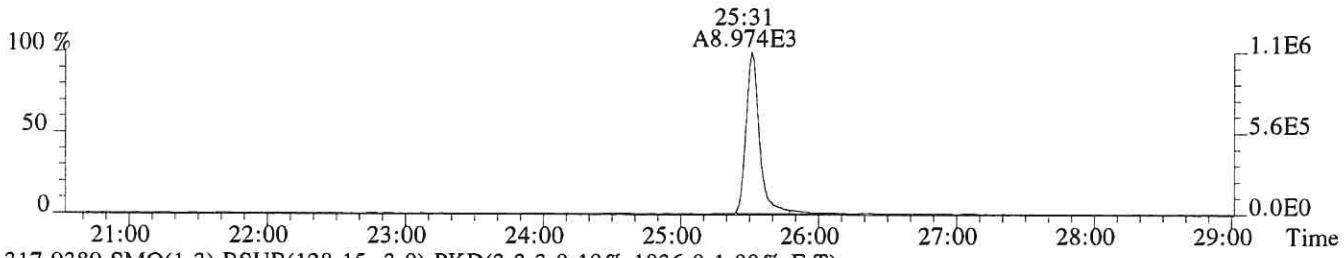
File:P518898 #1-602 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



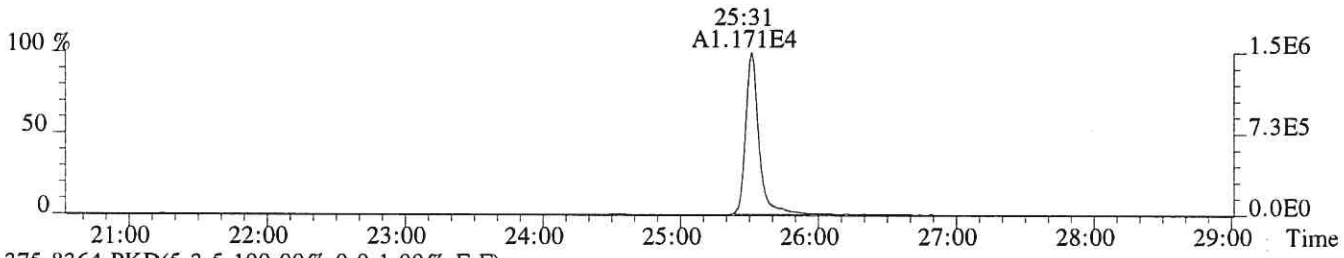
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



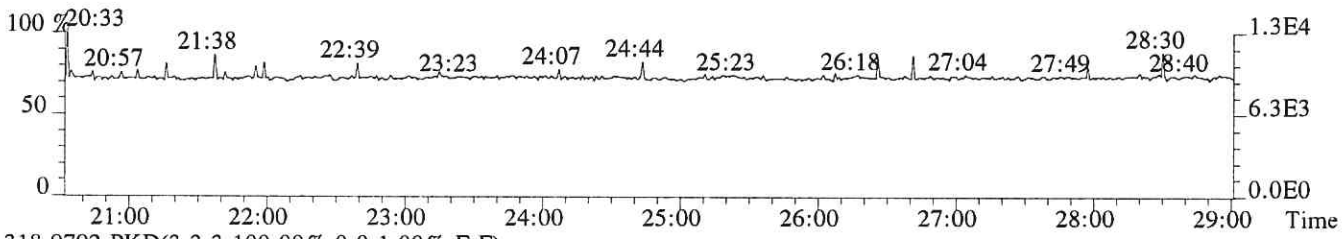
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



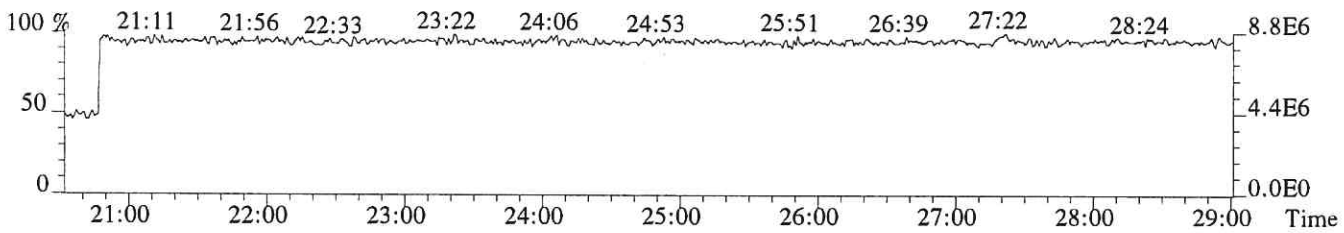
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



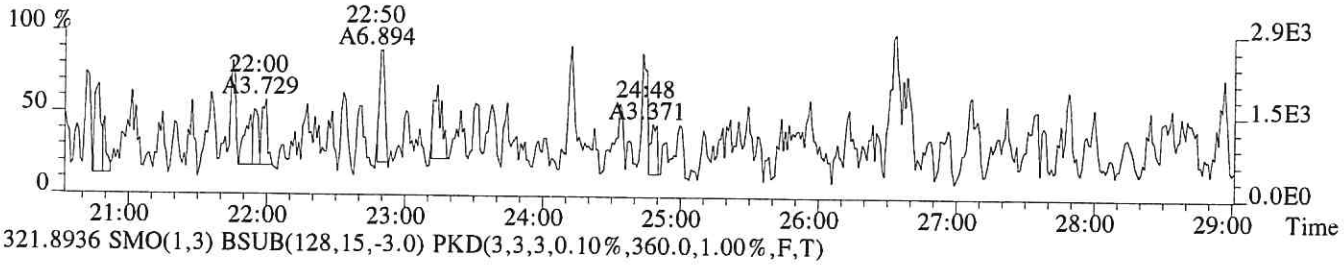
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



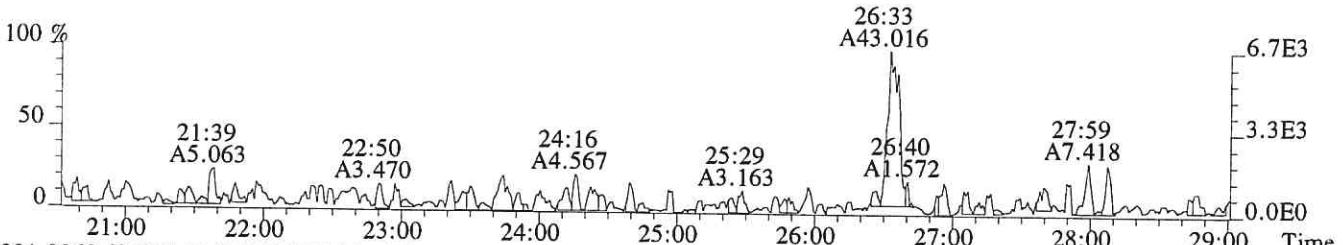
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



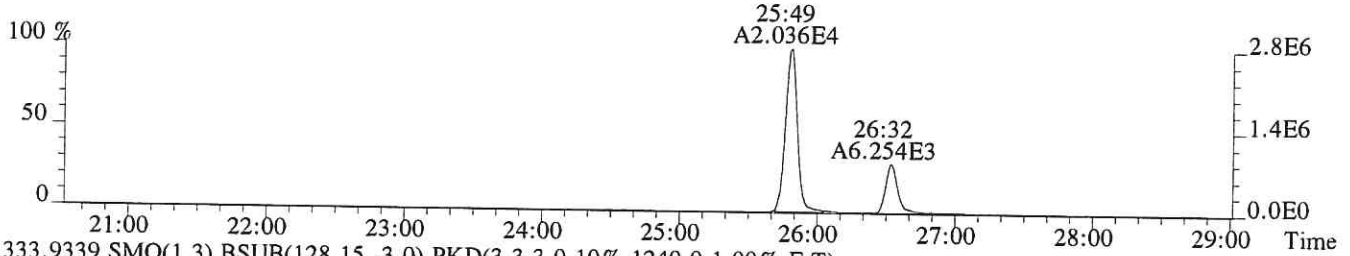
File:P518898 #1-602 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



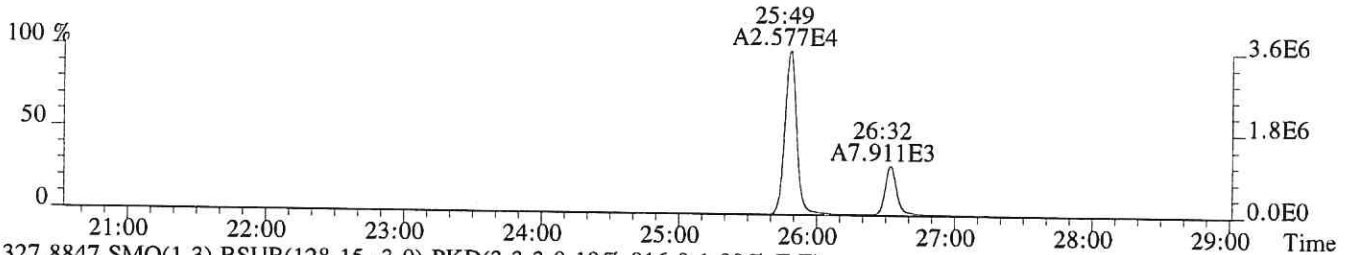
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



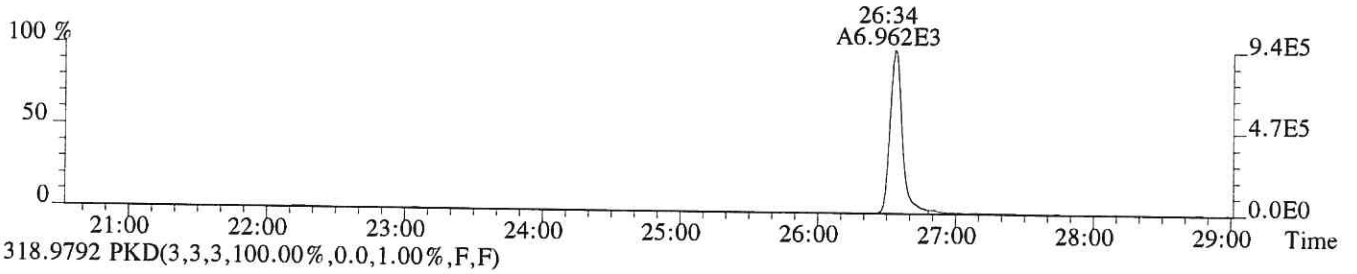
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3708.0,1.00%,F,T)



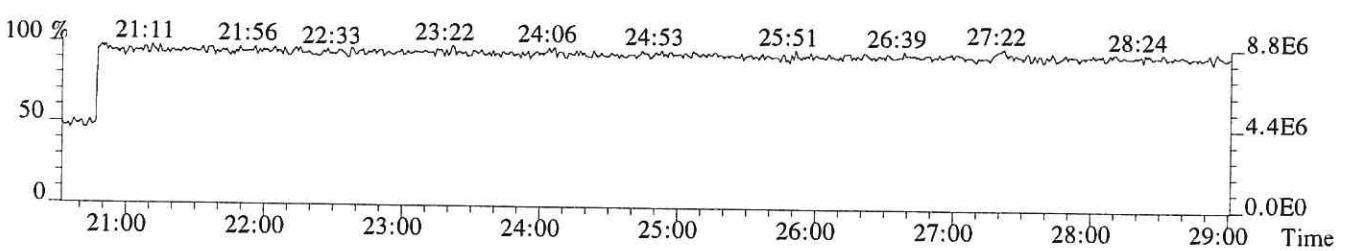
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



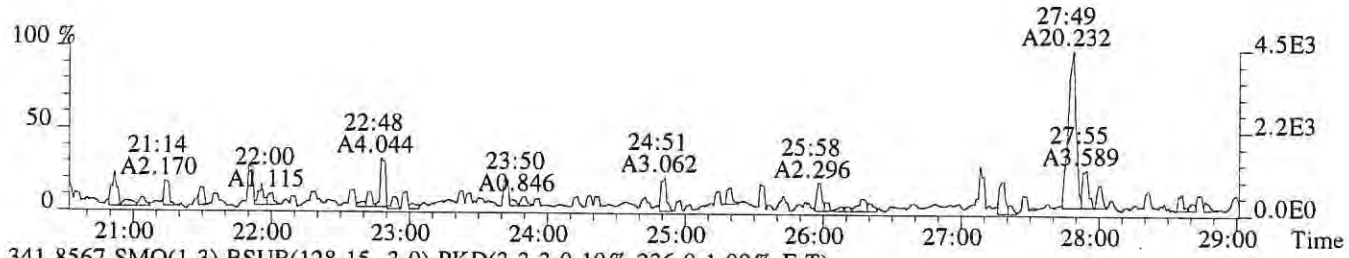
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



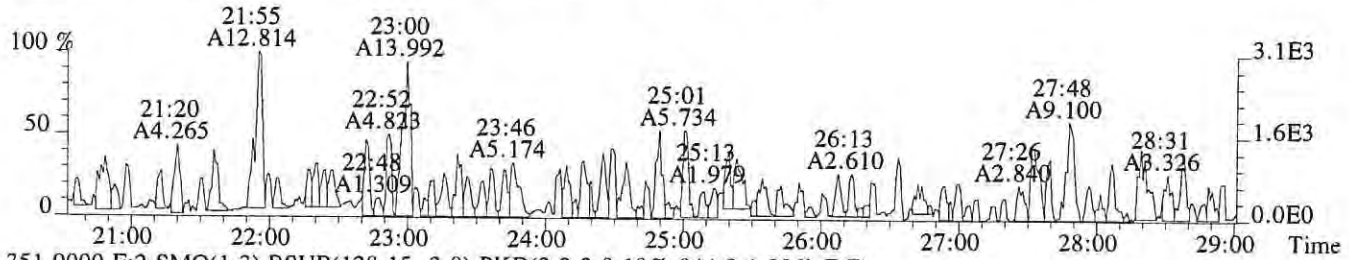
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



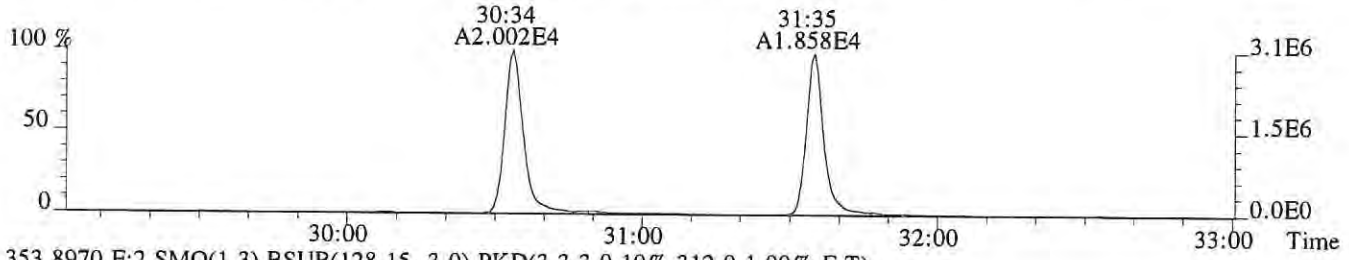
File:P518898 #1-602 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



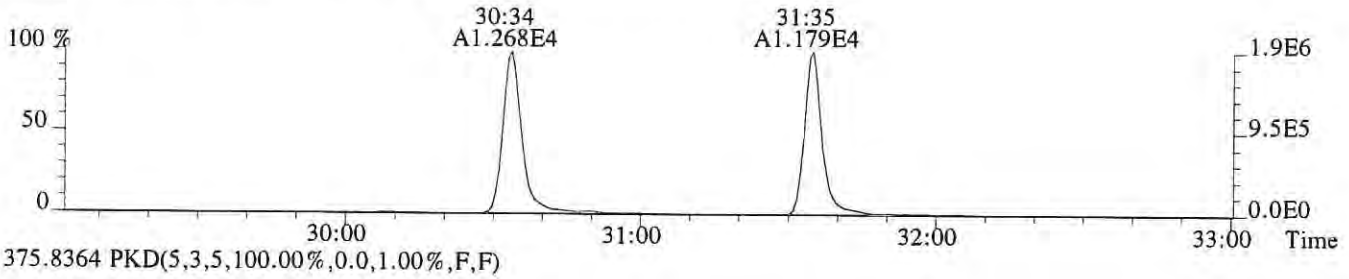
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



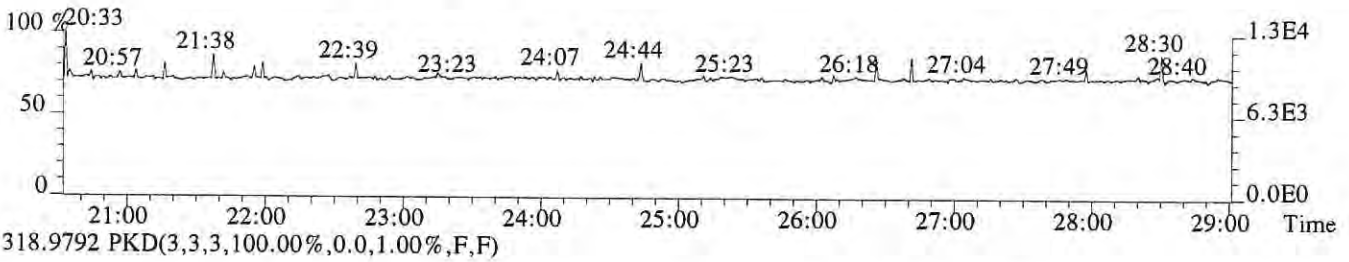
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



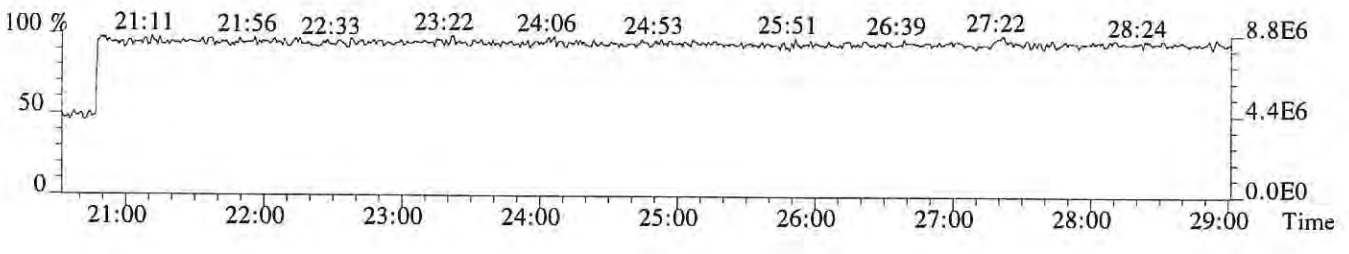
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



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

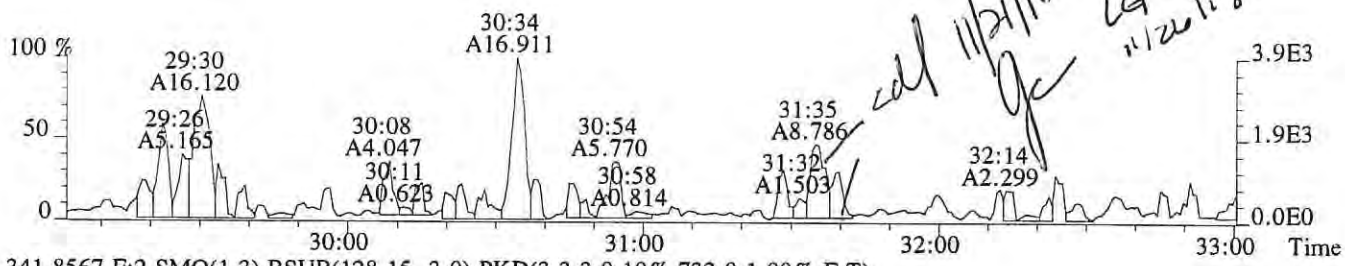


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

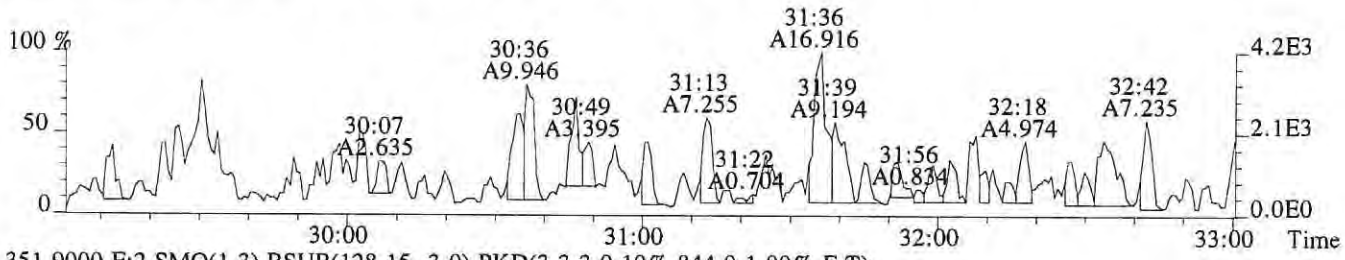


File:P518898 #1-357 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004

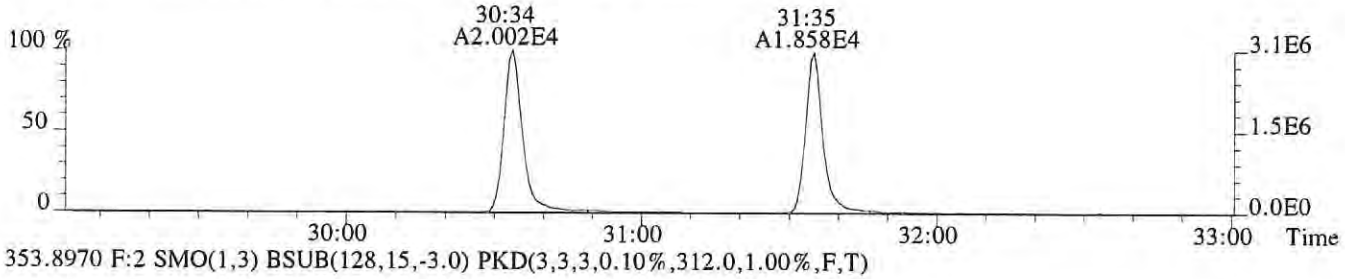
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



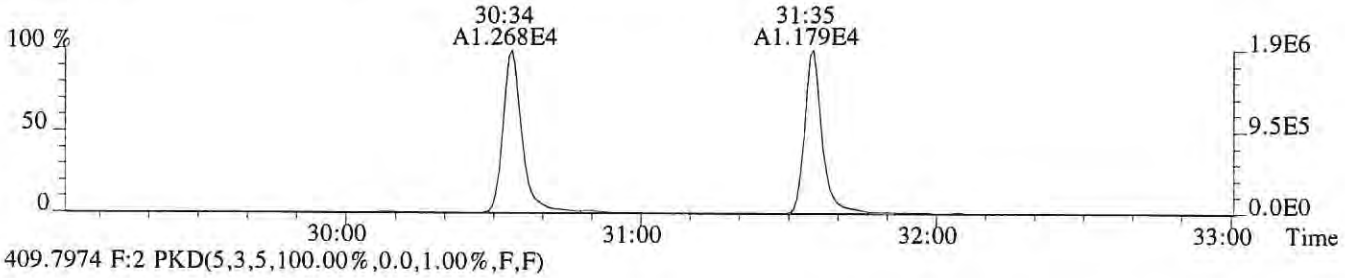
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



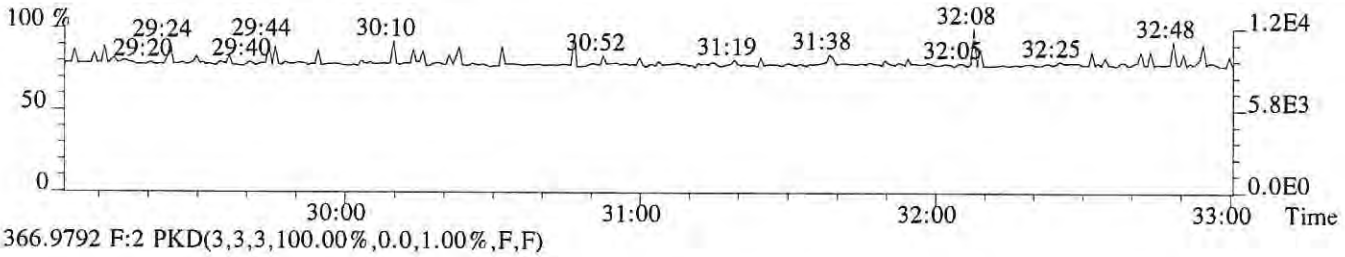
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



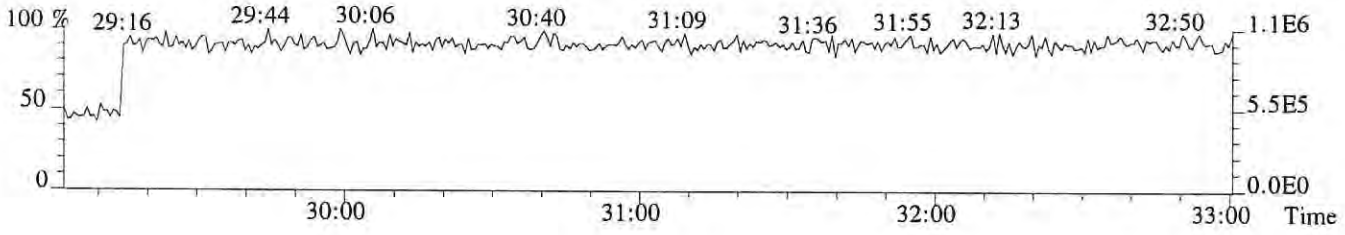
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



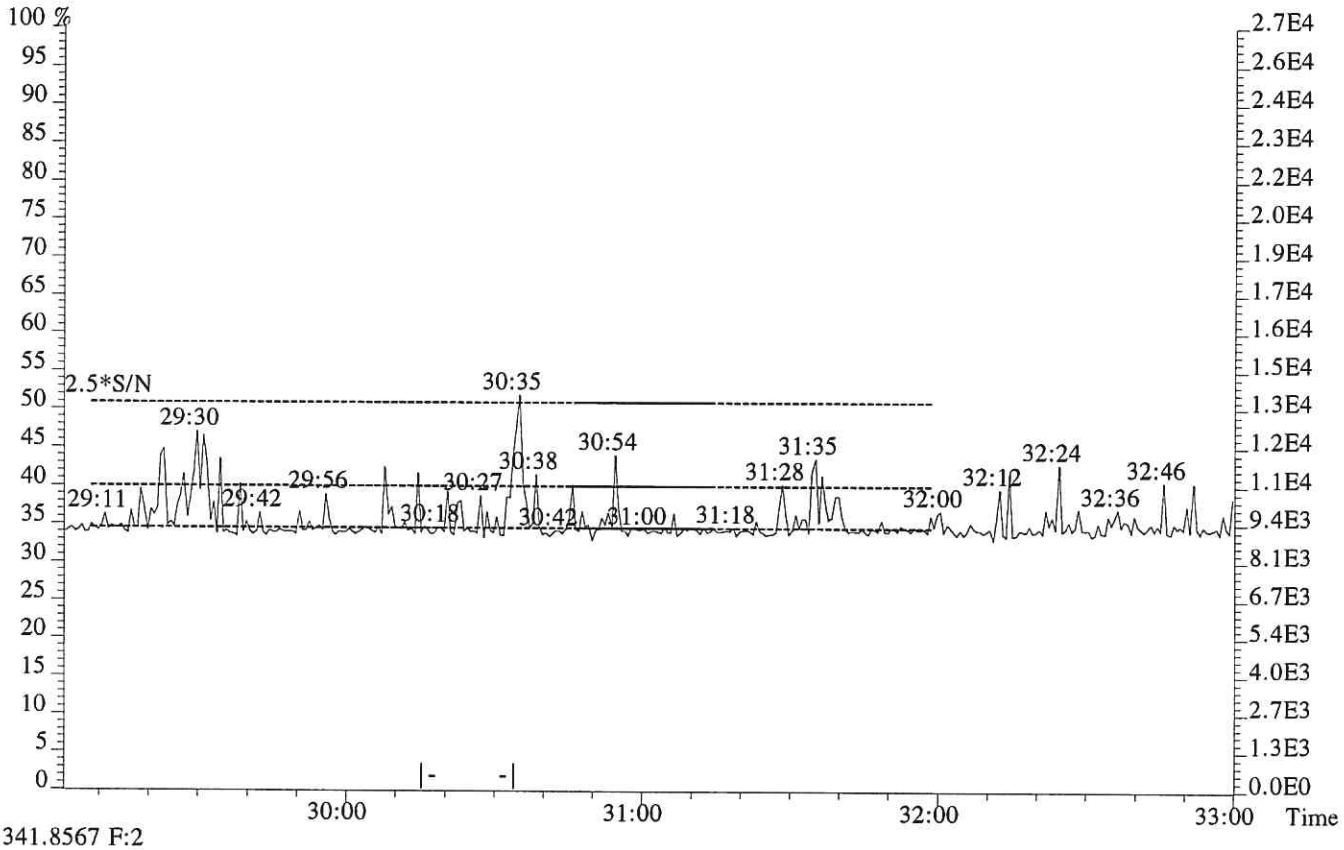
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



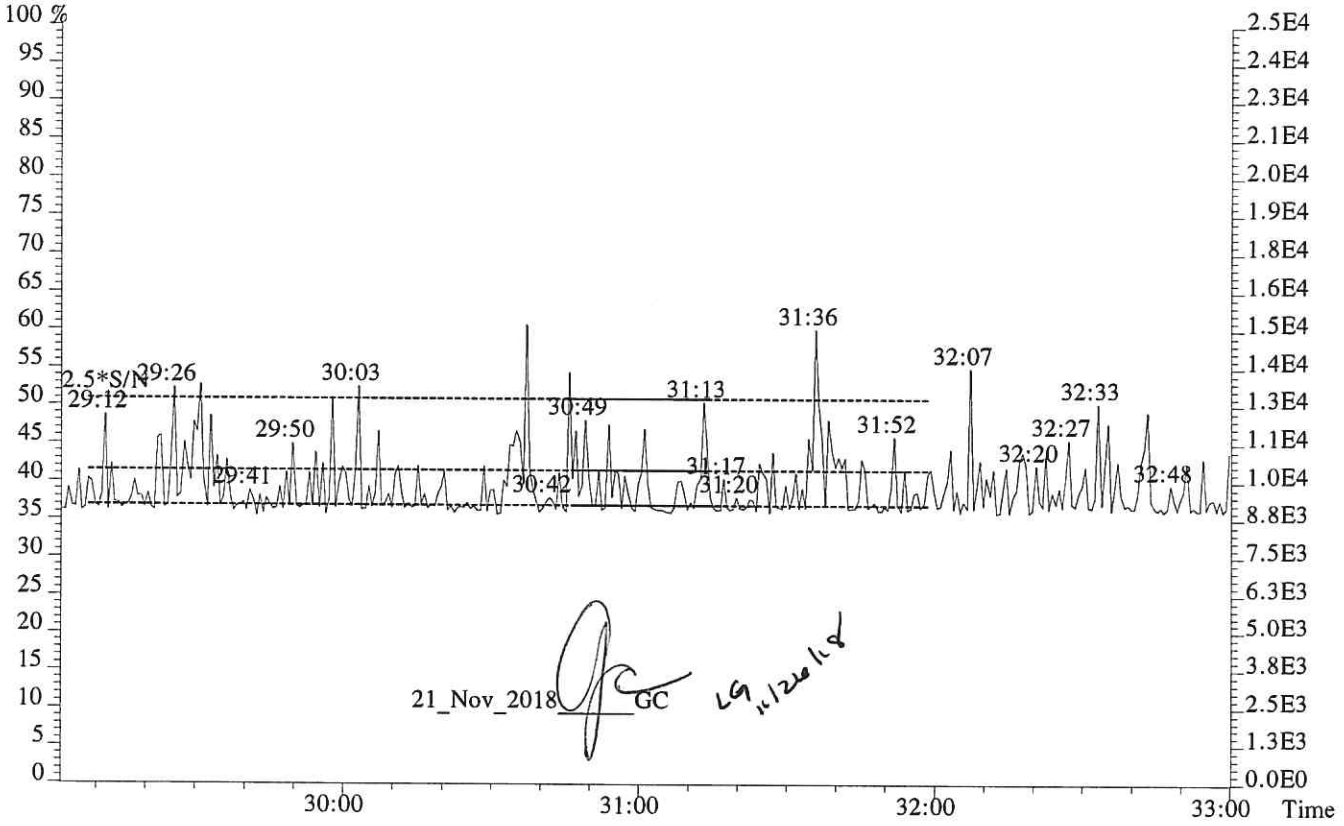
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518898 #1-357 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
339.8597 F:2

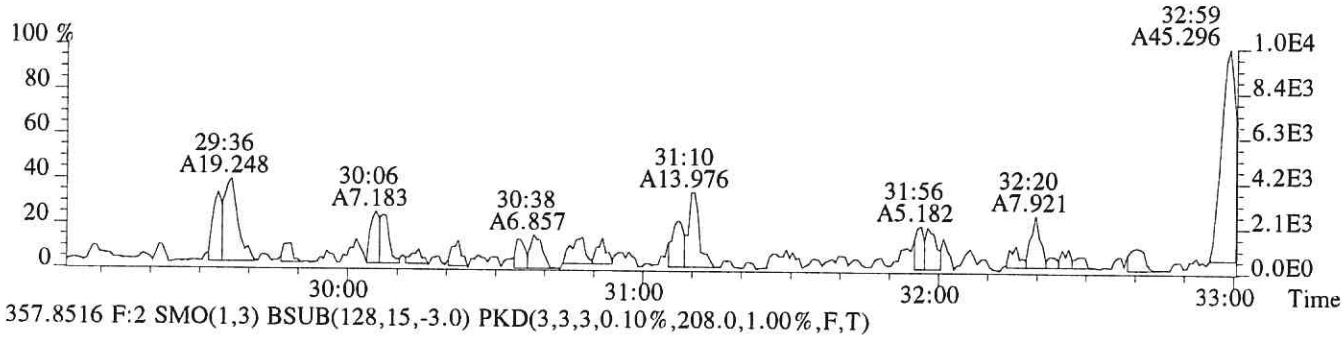


341.8567 F:2

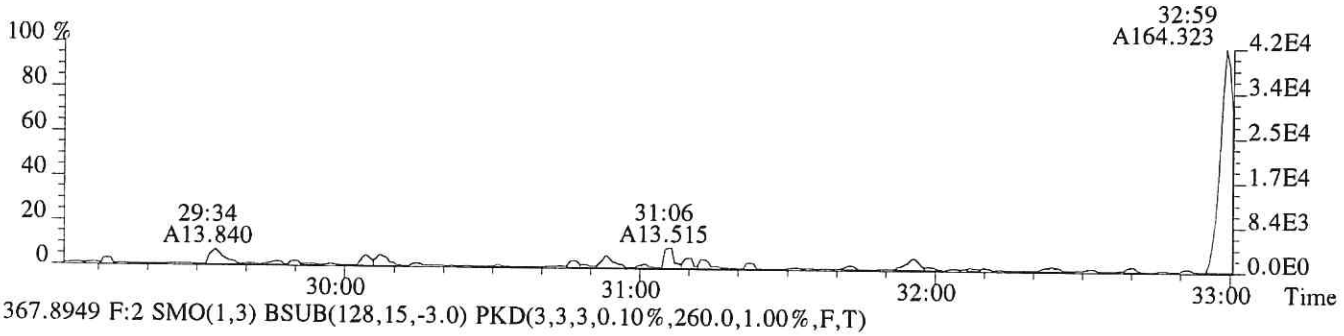


21_Nov_2018 GC LG 11/26/18

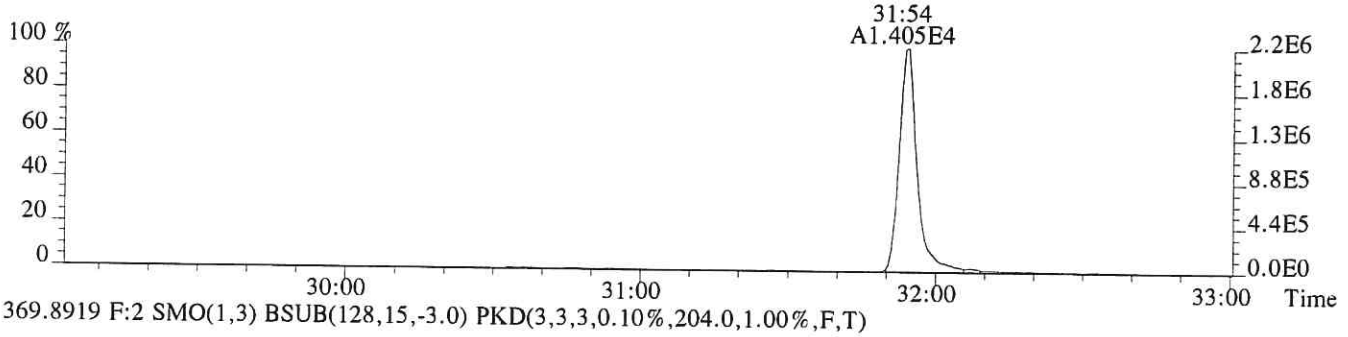
File:P518898 #1-357 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



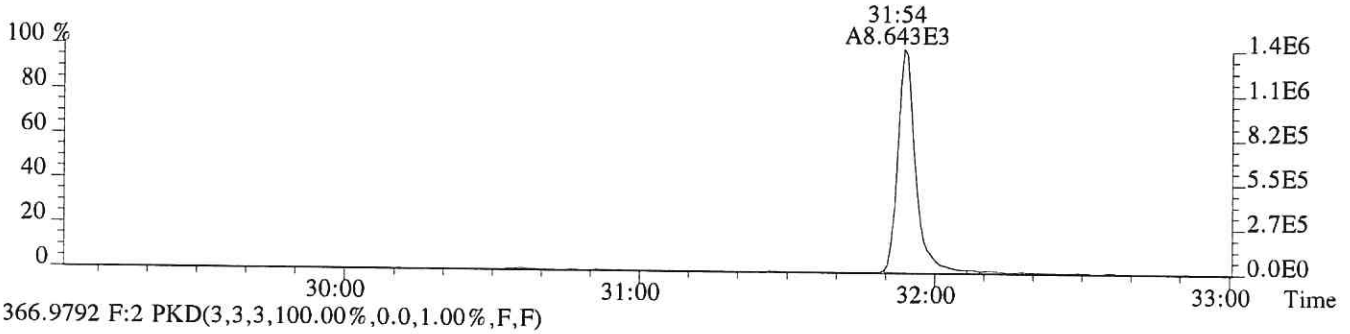
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



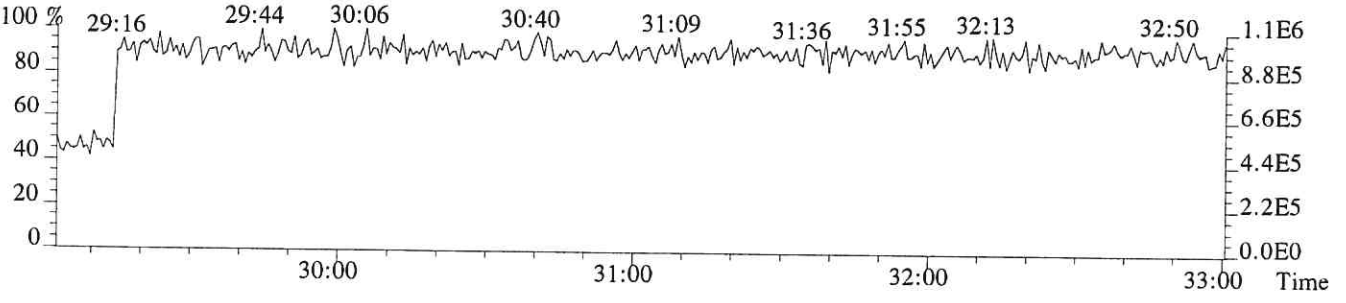
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



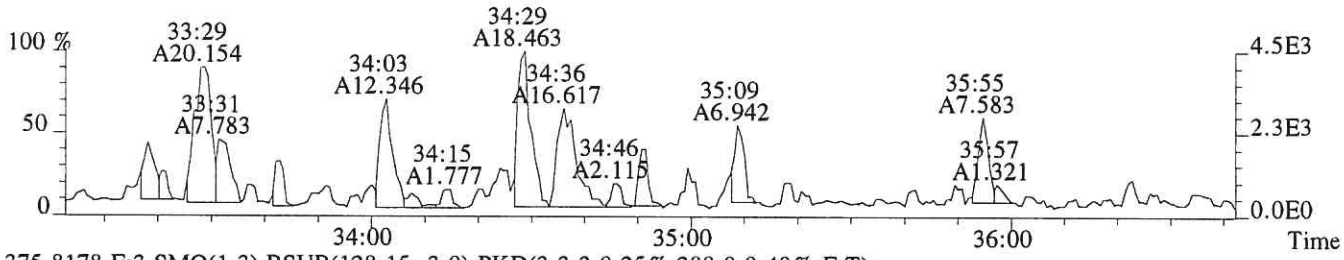
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



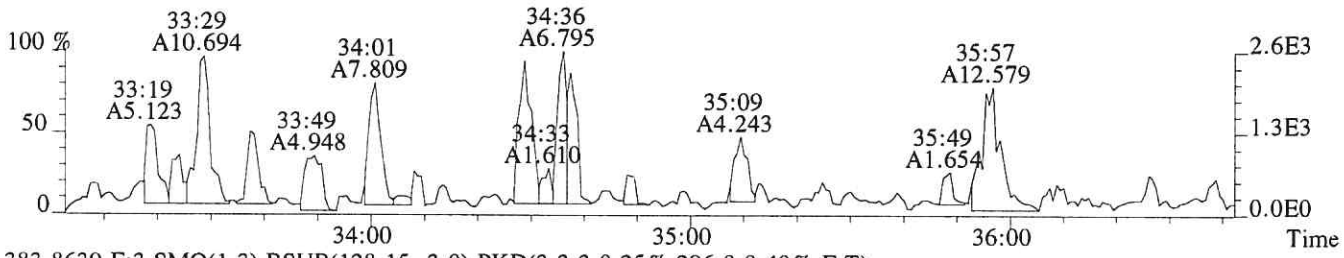
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



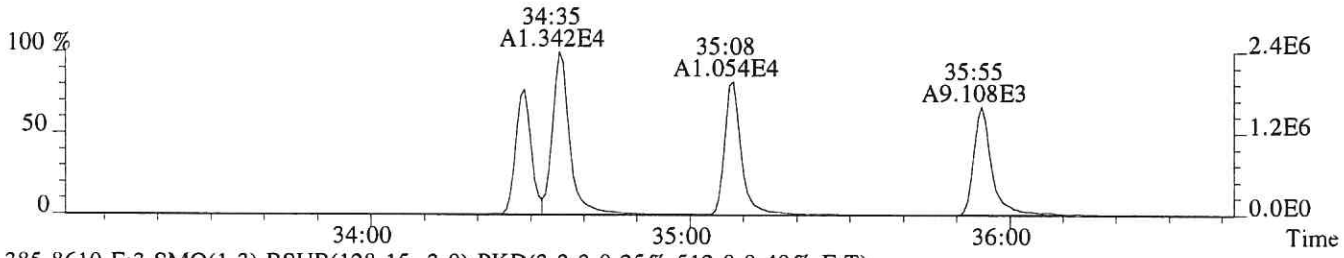
File:P518898 #1-330 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



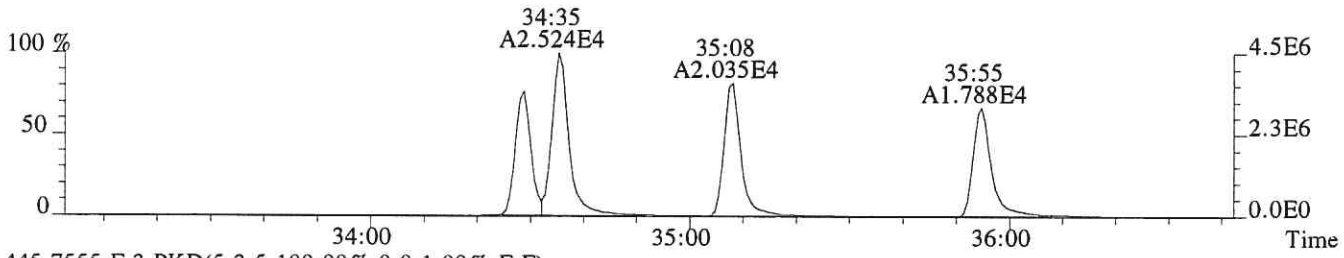
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



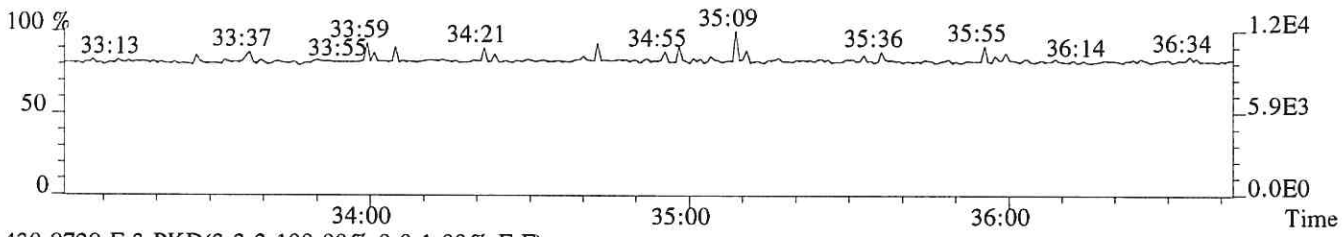
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



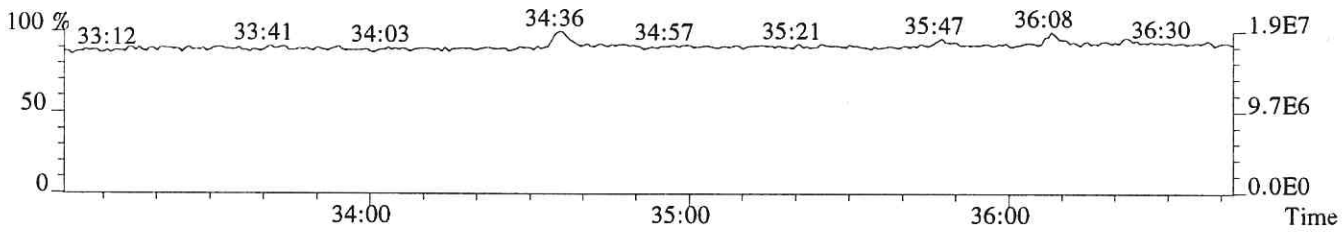
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



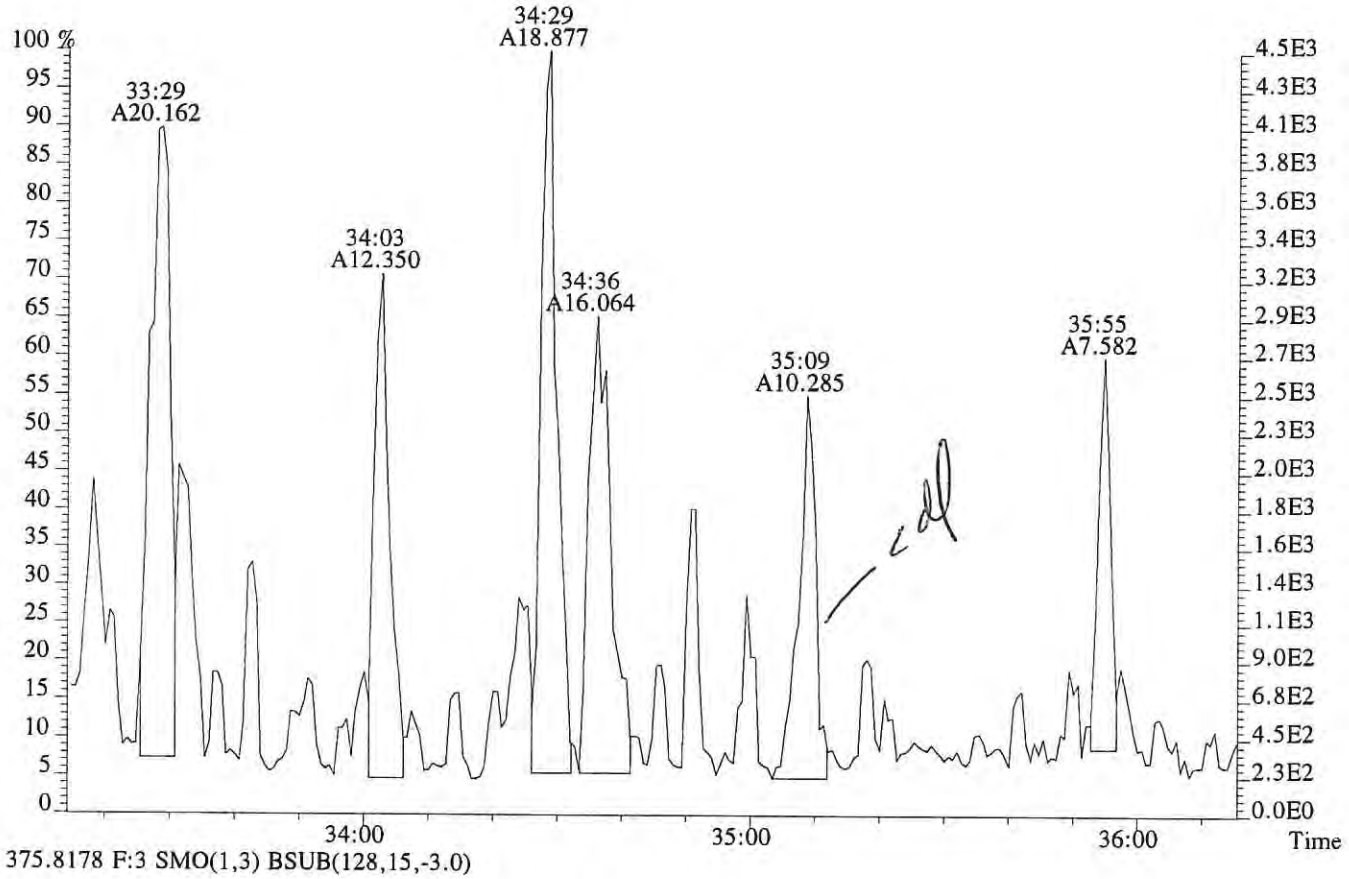
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



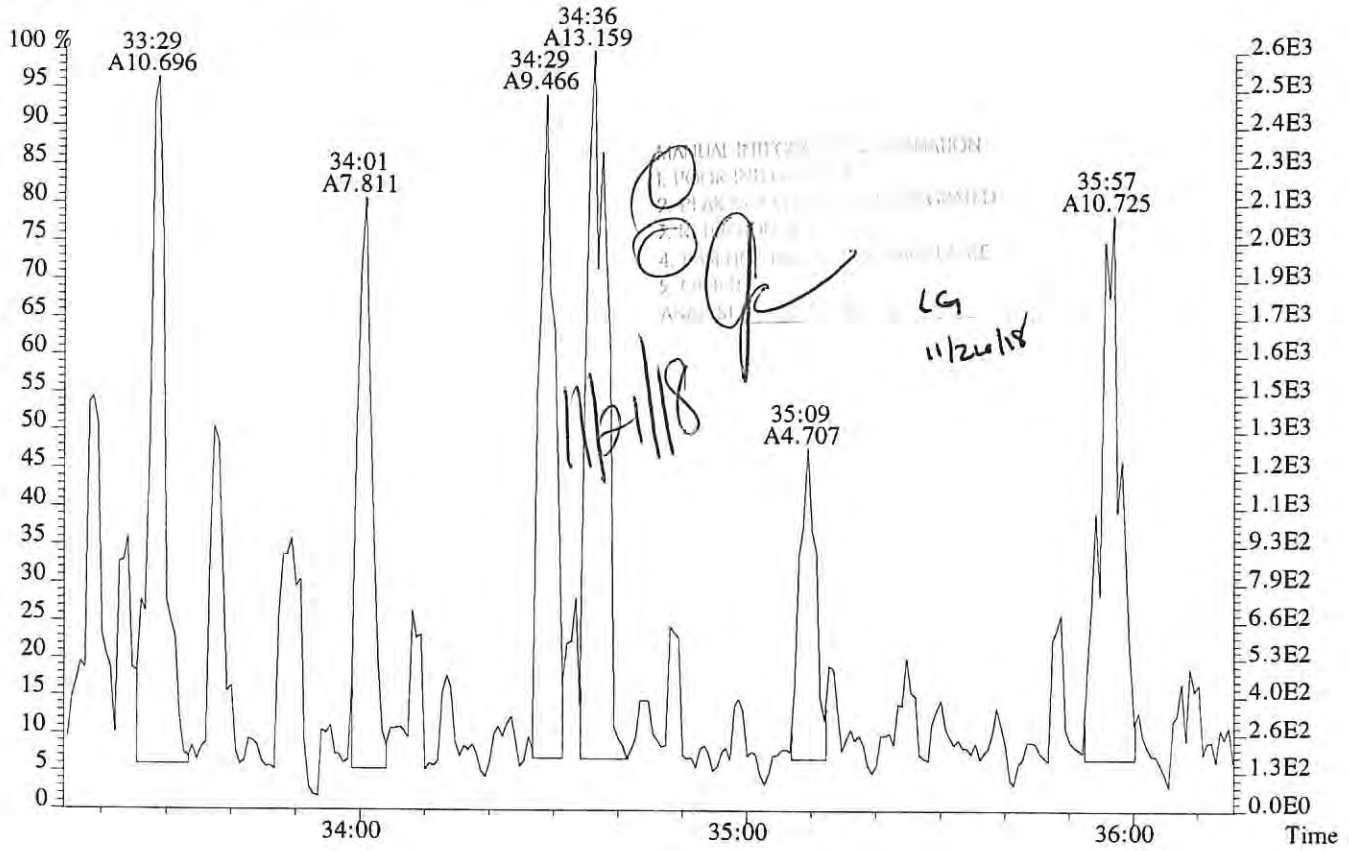
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



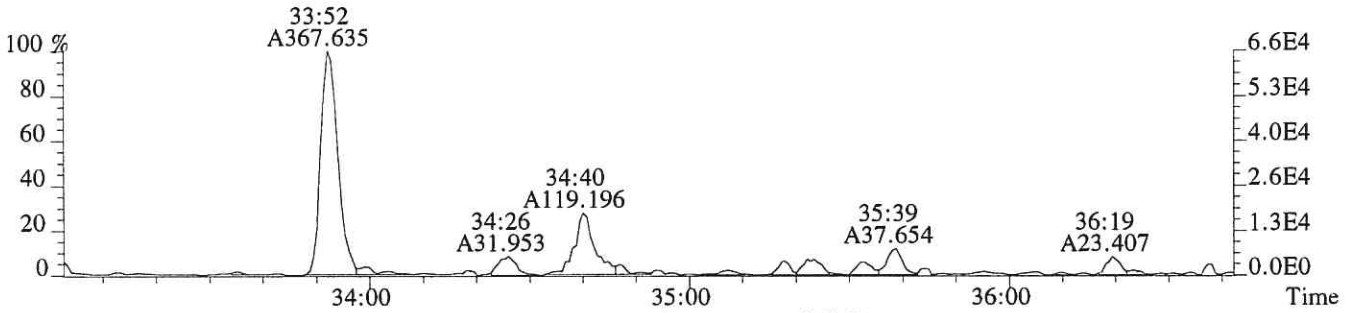
File:P518898 #1-330 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0)



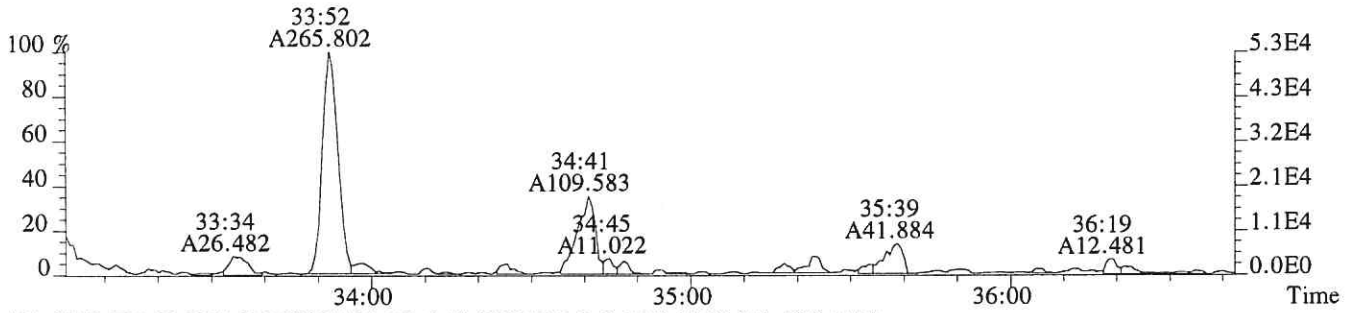
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0)



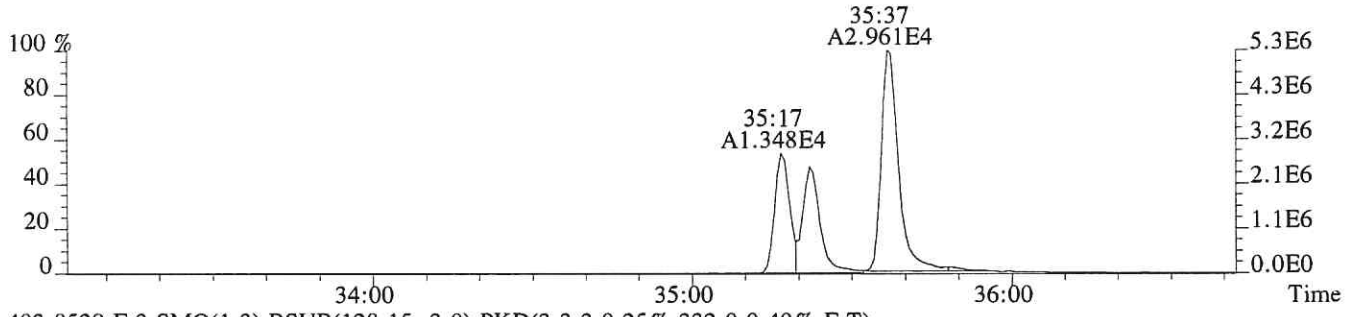
File:P518898 #1-330 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



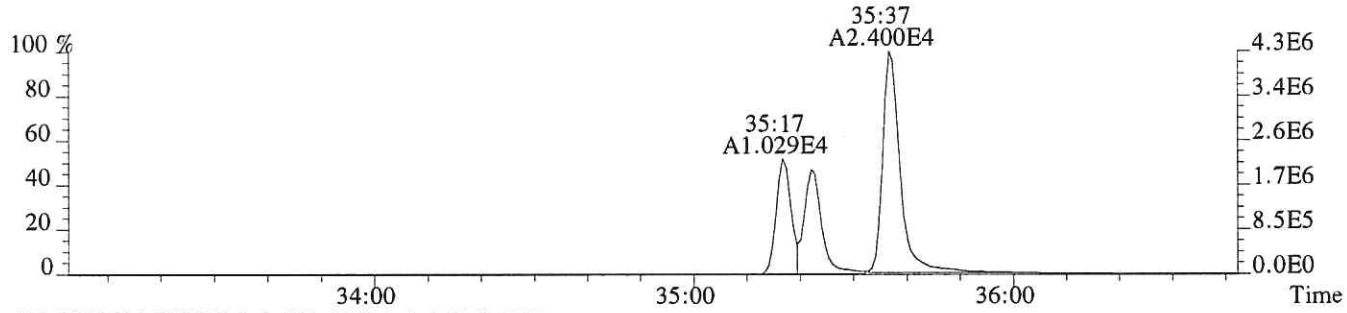
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



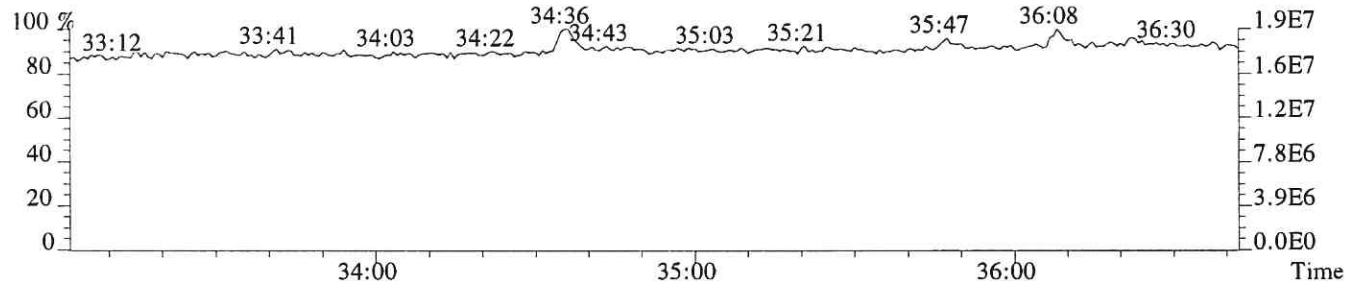
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)



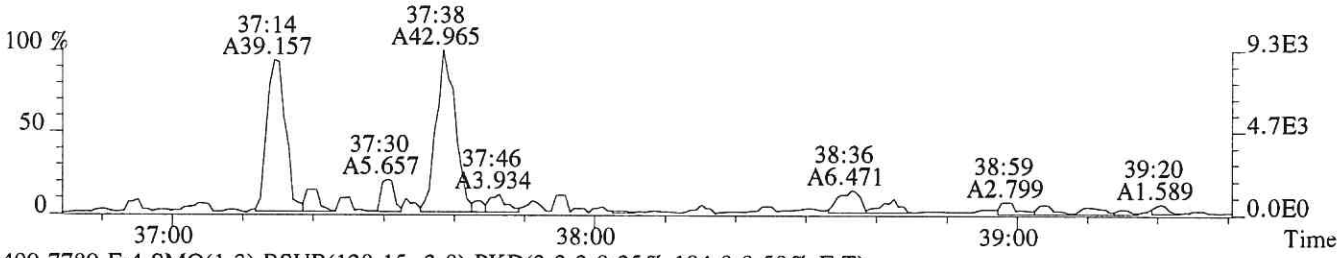
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



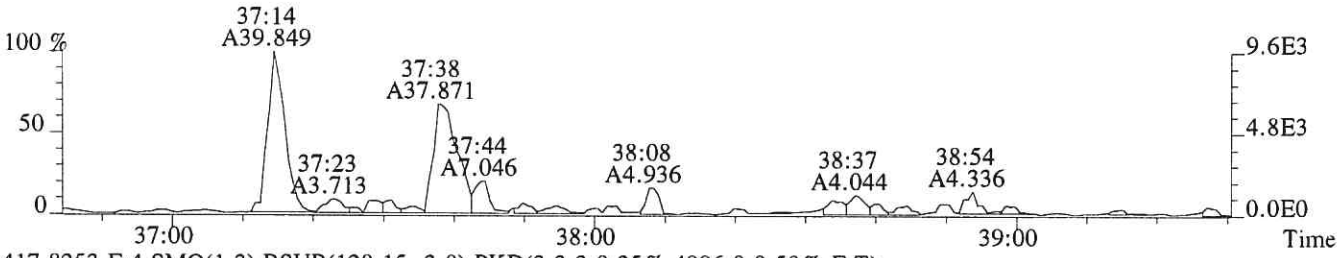
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



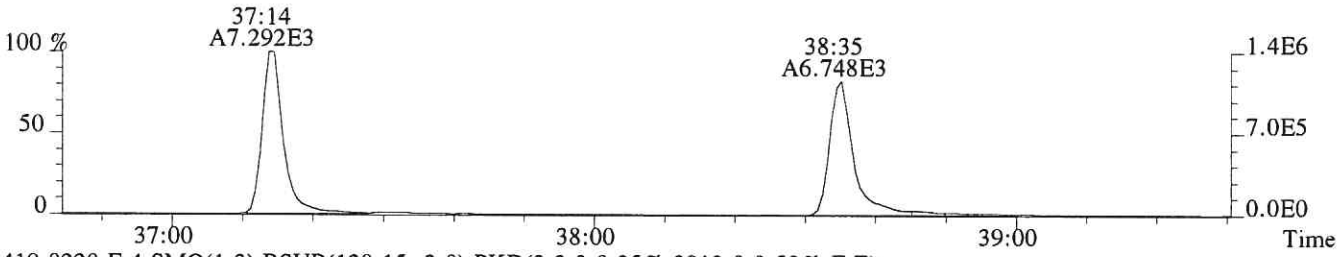
File:P518898 #1-250 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.50%,F,T)



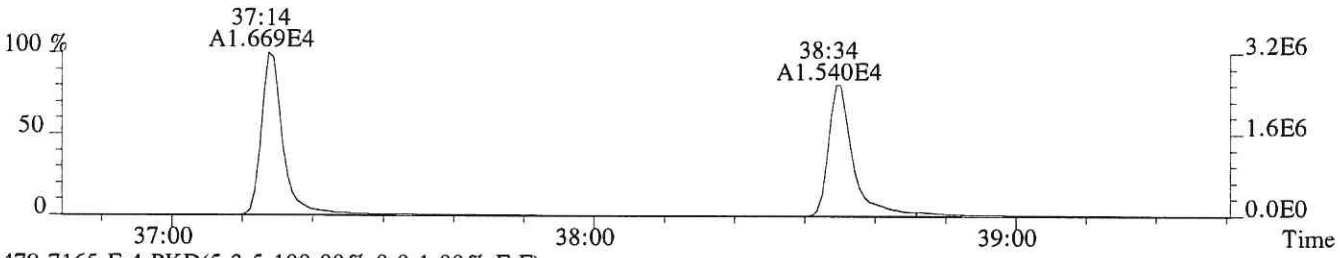
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.50%,F,T)



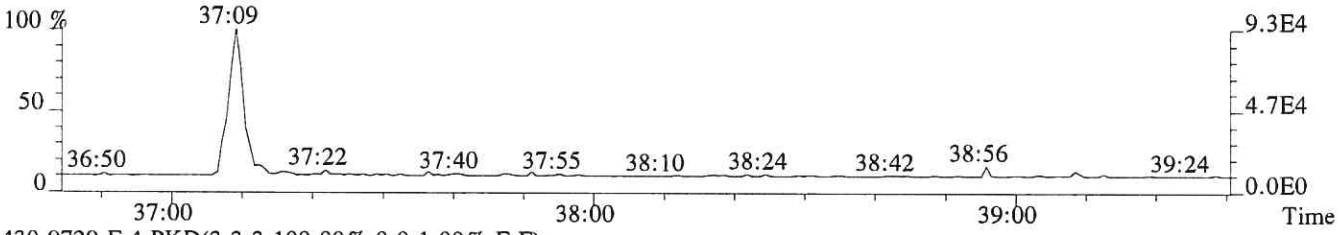
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4996.0,0.50%,F,T)



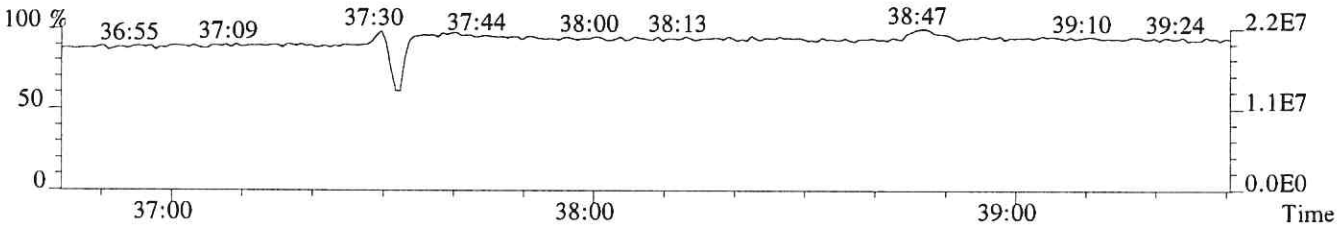
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3912.0,0.50%,F,T)



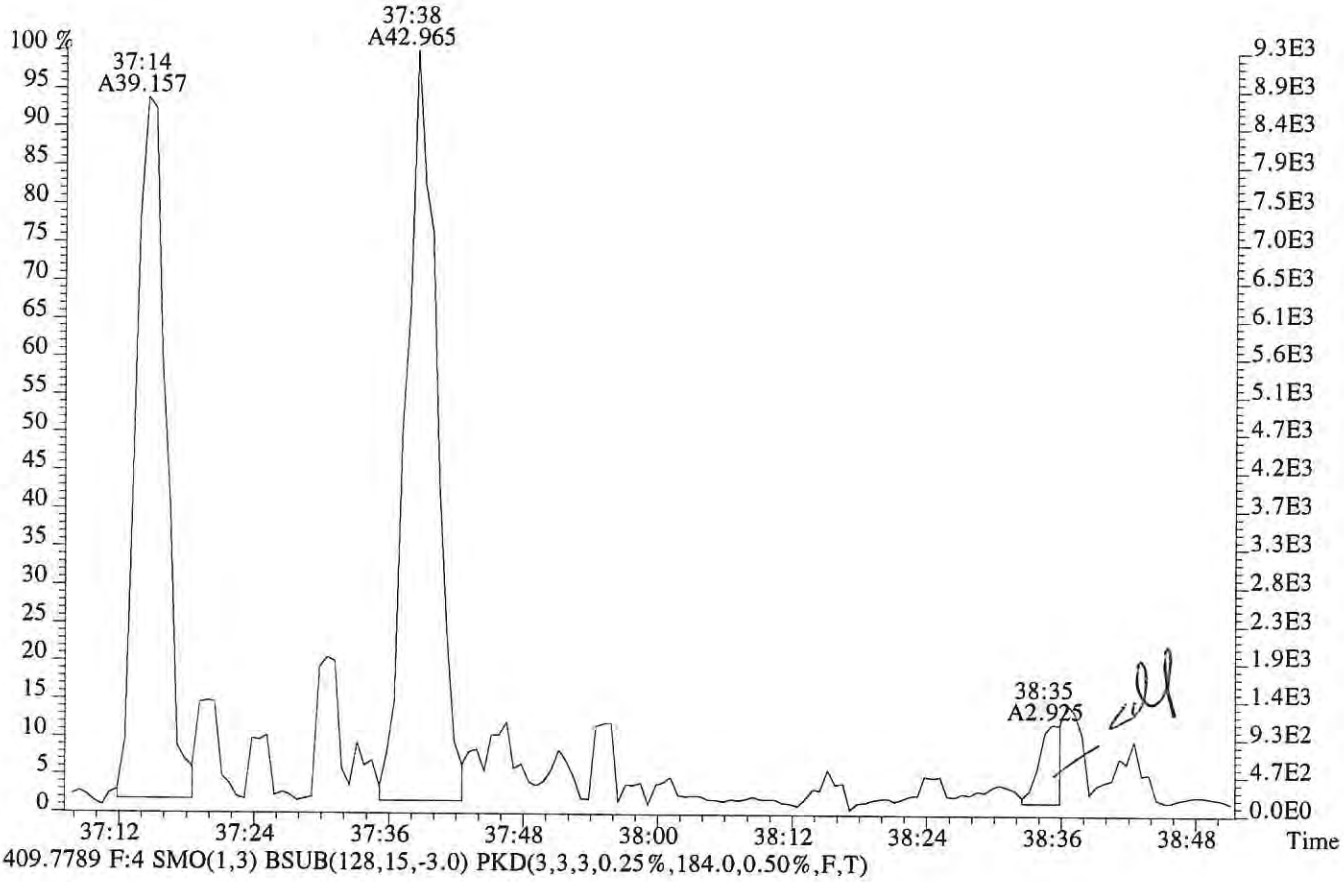
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



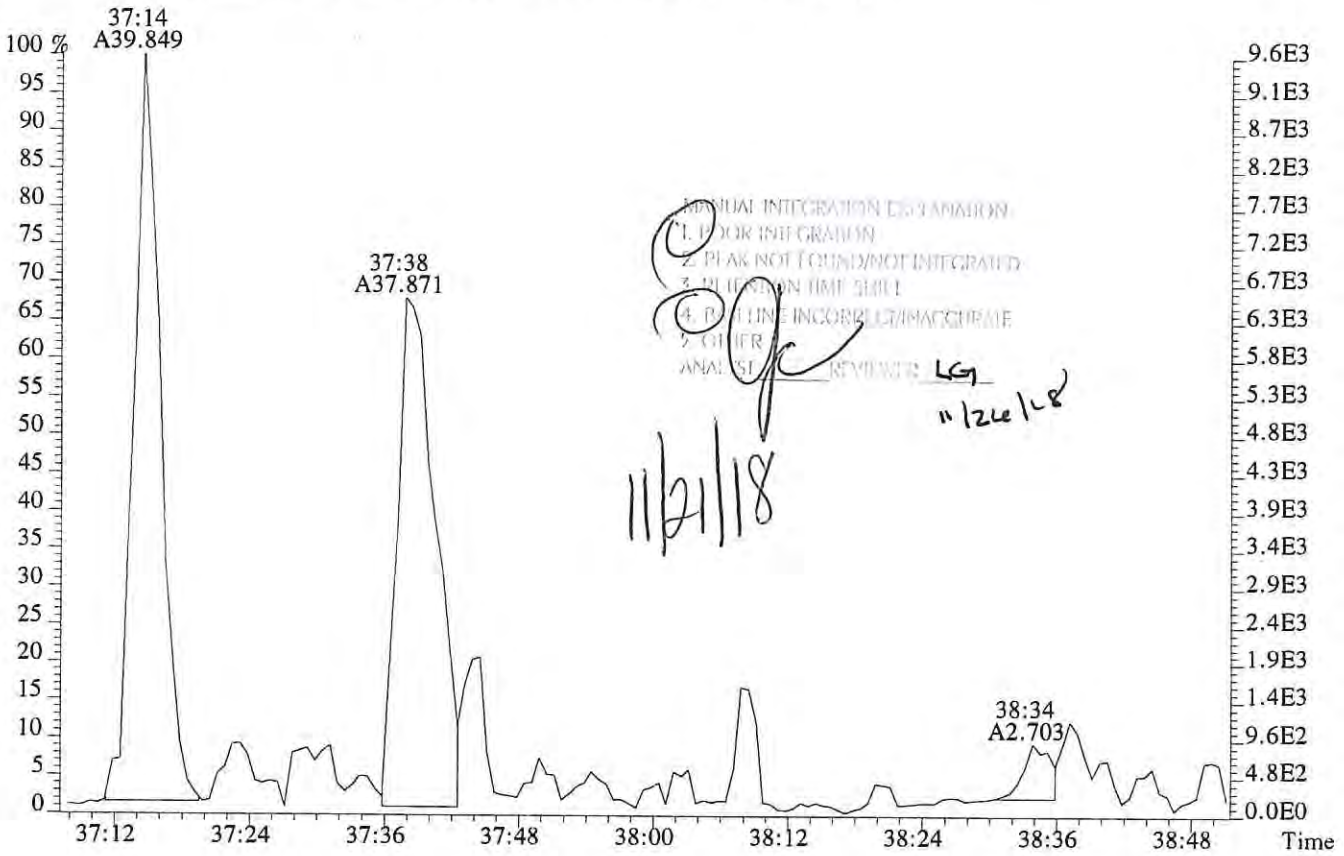
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518898 #1-250 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.50%,F,T)

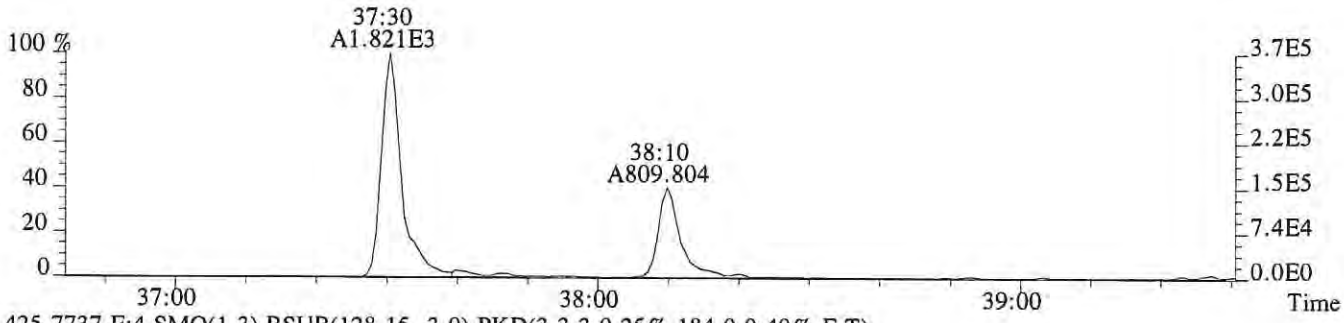


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.50%,F,T)

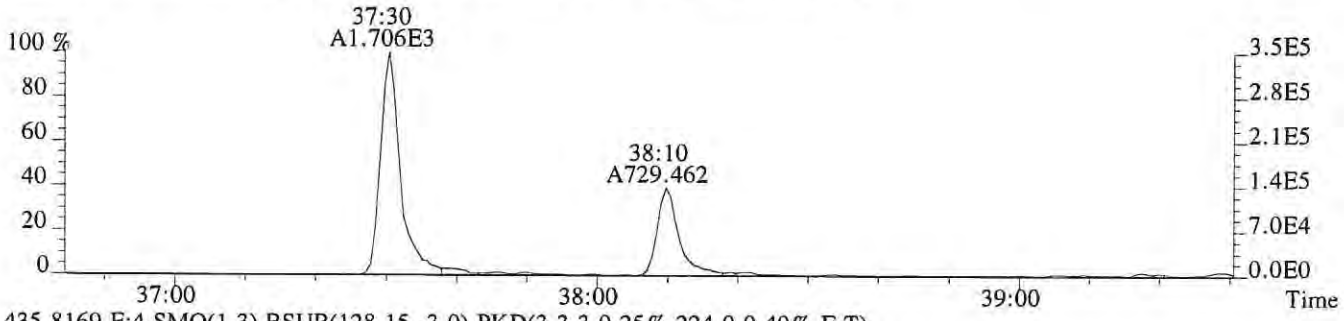


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST
REVIEWER LG
11/26/18
11/21/18

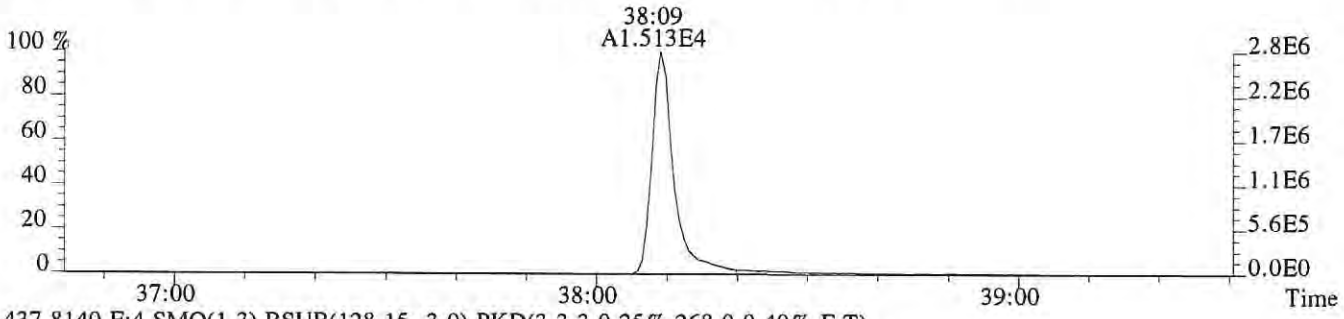
File:P518898 #1-250 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



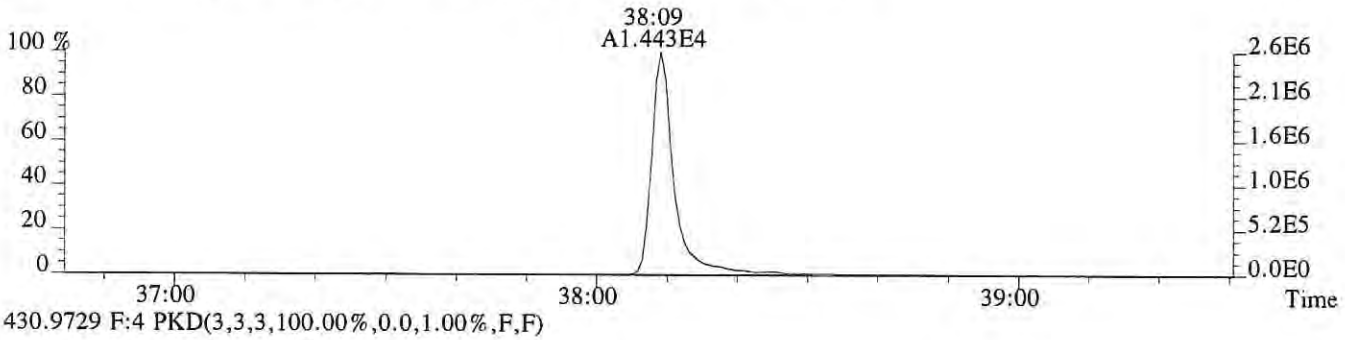
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



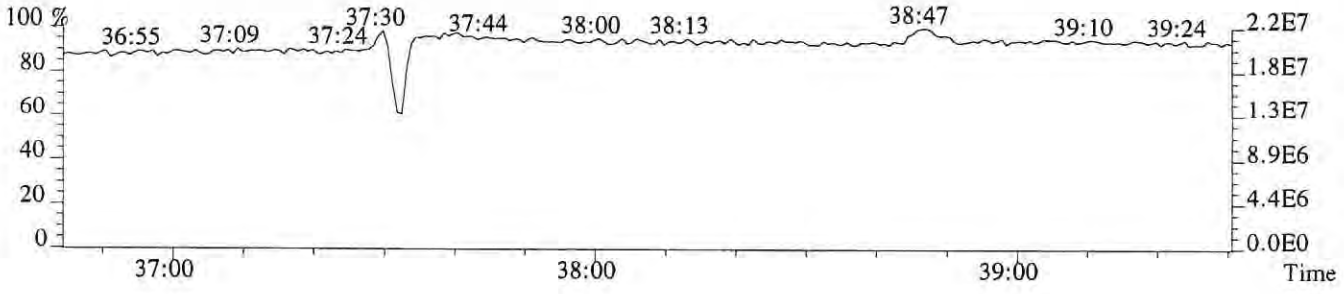
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



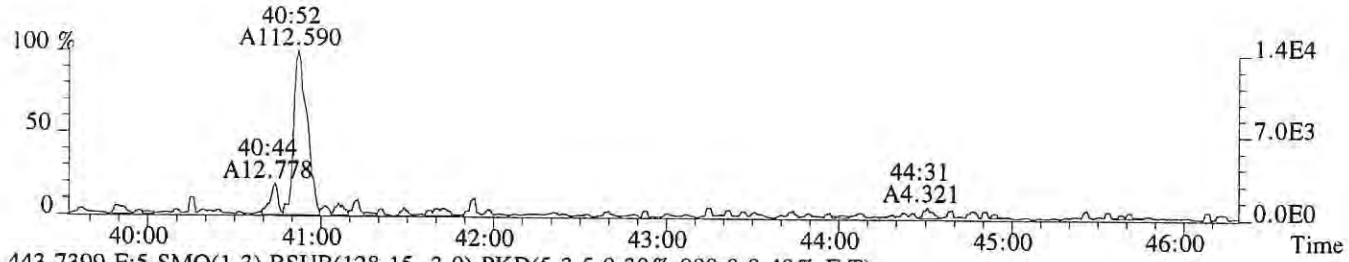
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



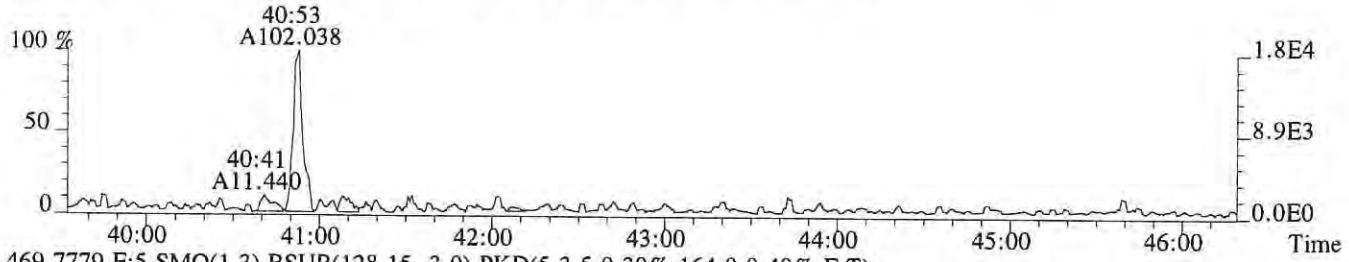
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



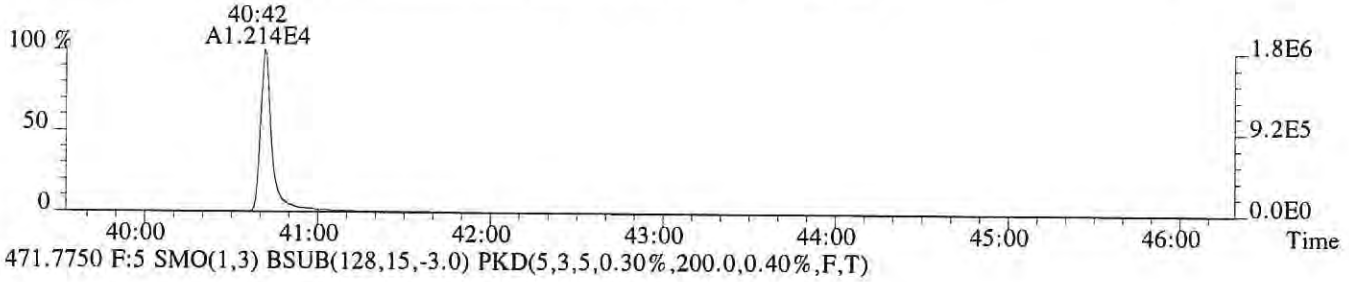
File:P518898 #1-610 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



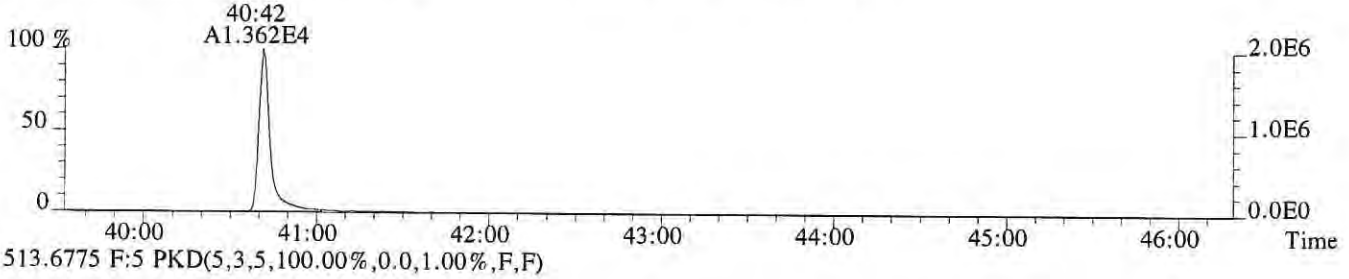
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



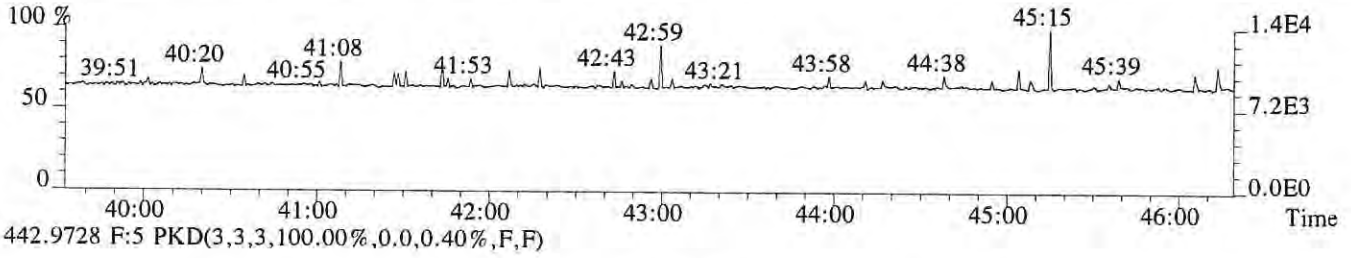
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



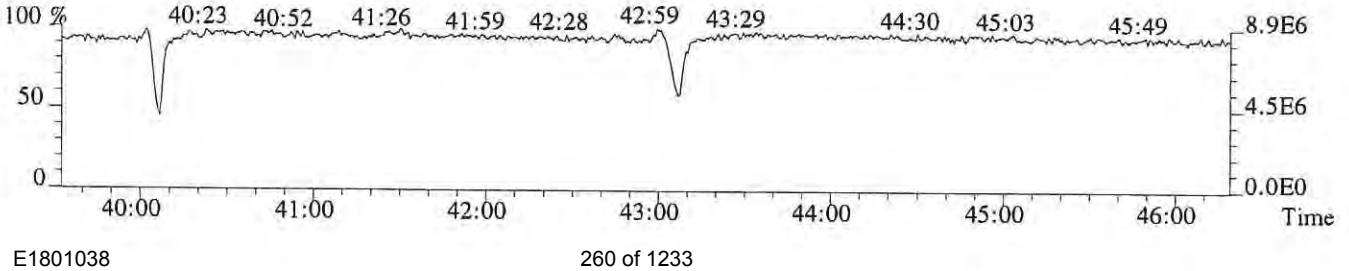
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



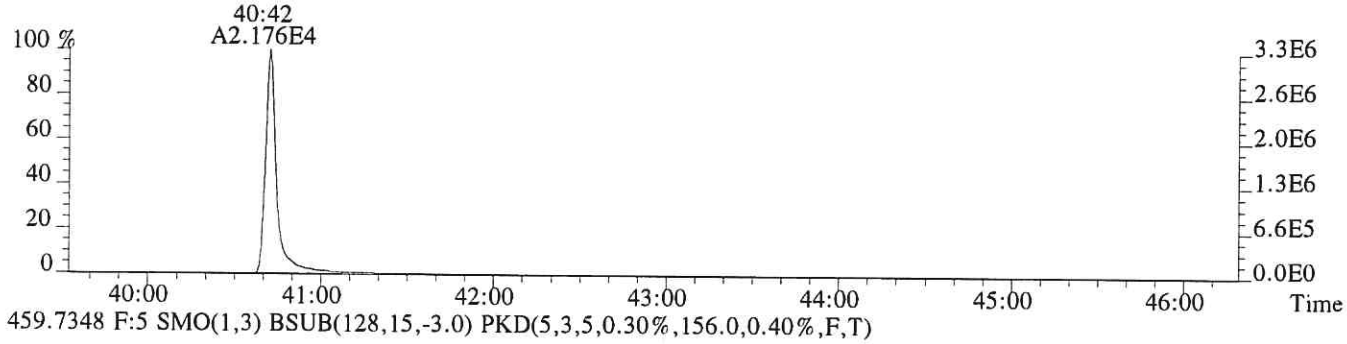
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



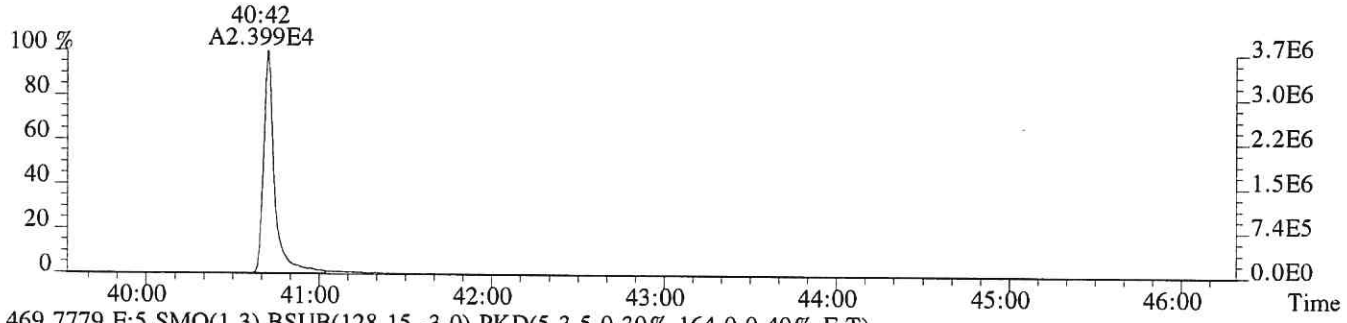
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



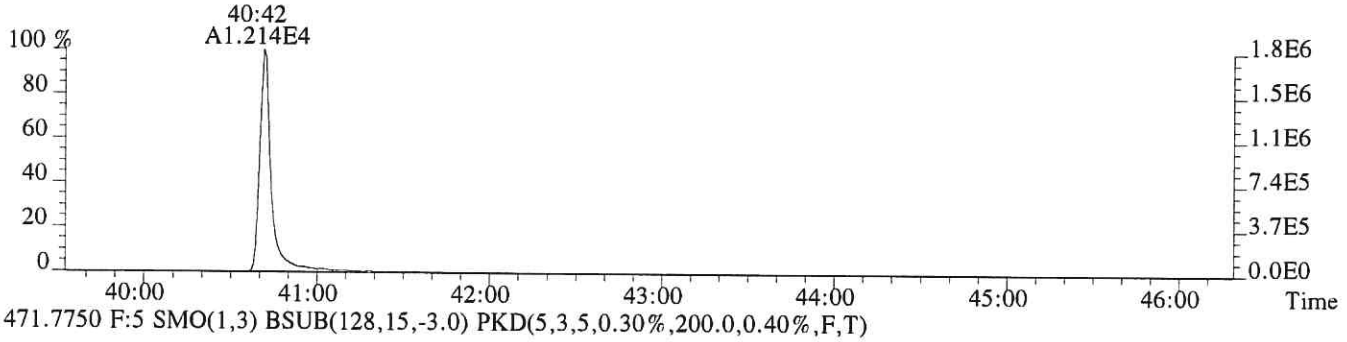
File:P518898 #1-610 Acq:18-NOV-2018 04:21:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



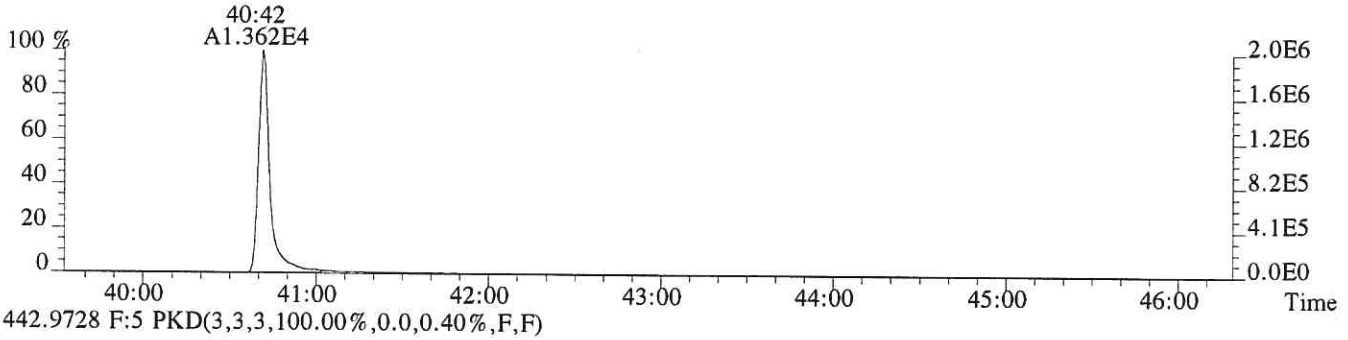
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



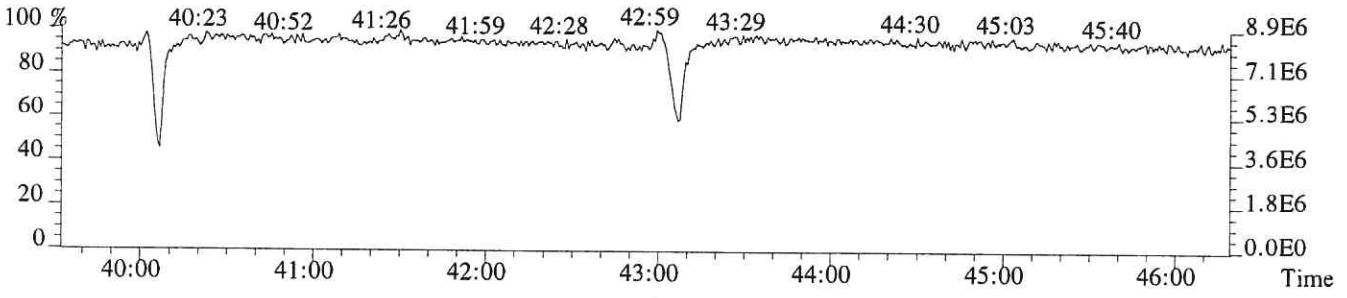
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



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



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Sample Response Summary

CLIENT ID.
SL0523

Run #11 Filename P518899 Samp: 1 Inj: 1 Acquired: 18-NOV-18 05:10:02
Processed: 21-NOV-18 12:44:51 Sample ID: E1801038-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	9.543e+01	1.366e+02	0.70	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.358e+01	1.131e+01	1.20	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	4.273e+01	3.879e+01	1.10	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	2.188e+01	2.059e+01	1.06	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	7.242e+00	8.309e+00	0.87	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	1.027e+01	1.518e+01	0.68	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	2.731e+02	2.418e+02	1.13	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	3.462e+01	2.224e+01	1.56	no	no	1.258
10	Unk	OCDF	40:52	7.894e+02	1.035e+03	0.76	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	2.749e+01	4.214e+01	0.65	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.276e+01	1.542e+01	0.83	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	2.045e+01	8.946e+00	2.29	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	3.867e+02	3.938e+02	0.98	yes	no	1.025
17	Unk	OCDD	40:42	6.376e+03	7.206e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	1.697e+04	2.156e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	3.060e+04	1.899e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.921e+04	1.833e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.330e+04	2.547e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.748e+04	3.342e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.535e+04	2.929e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.340e+04	2.581e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.018e+04	2.308e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	8.629e+03	2.022e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	1.137e+04	1.449e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	2.123e+04	1.333e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.973e+04	1.466e+04	1.35	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.936e+04	1.610e+04	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.999e+04	1.869e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:42	1.647e+04	1.805e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.187e+04	2.734e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.237e+04	2.556e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.298e+04				no	1.014

$$\text{OCDD} = \frac{(6.376e+03 + 7.206e+03) \times 4000\ \text{pg} \times 1}{(1.647e+04 + 1.805e+04) \times 10.014\ \text{g} \times 77.8/100 \times 1.118} = 170.478\ \text{ng/kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0523

Run #11 Filename P518899 Samp: 1 Inj: 1 Acquired: 18-NOV-18 05:10:02
Processed: 21-NOV-18 12:44:51 LAB. ID: E1801038-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.38e+04	3.00e+02	4.6e+01	1.96e+04	4.16e+02	4.7e+01
2	1,2,3,7,8-PeCDF	3.48e+03	2.40e+02	1.4e+01	3.00e+03	8.12e+02	3.7e+00
3	2,3,4,7,8-PeCDF	*	2.40e+02	*	*	8.12e+02	*
4	1,2,3,4,7,8-HxCDF	8.13e+03	2.28e+02	3.6e+01	7.86e+03	2.48e+02	3.2e+01
5	1,2,3,6,7,8-HxCDF	3.59e+03	2.28e+02	1.6e+01	3.83e+03	2.48e+02	1.5e+01
6	2,3,4,6,7,8-HxCDF	2.14e+03	2.28e+02	9.4e+00	2.33e+03	2.48e+02	9.4e+00
7	1,2,3,7,8,9-HxCDF	2.13e+03	2.28e+02	9.4e+00	4.02e+03	2.48e+02	1.6e+01
8	1,2,3,4,6,7,8-HpCDF	5.49e+04	3.60e+02	1.5e+02	4.90e+04	2.40e+02	2.0e+02
9	1,2,3,4,7,8,9-HpCDF	8.21e+03	3.60e+02	2.3e+01	4.05e+03	2.40e+02	1.7e+01
10	OCDF	1.14e+05	1.92e+02	6.0e+02	1.55e+05	2.04e+02	7.6e+02
11	2,3,7,8-TCDD	5.04e+03	1.20e+03	4.2e+00	6.86e+03	4.72e+02	1.5e+01
12	1,2,3,7,8-PeCDD	*	6.56e+02	*	*	3.20e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.68e+02	*	*	2.36e+02	*
14	1,2,3,6,7,8-HxCDD	2.59e+03	2.68e+02	9.7e+00	4.26e+03	2.36e+02	1.8e+01
15	1,2,3,7,8,9-HxCDD	4.34e+03	2.68e+02	1.6e+01	2.41e+03	2.36e+02	1.0e+01
16	1,2,3,4,6,7,8-HpCDD	7.58e+04	9.12e+02	8.3e+01	7.74e+04	7.28e+02	1.1e+02
17	OCDD	9.86e+05	1.92e+02	5.1e+03	1.12e+06	2.72e+02	4.1e+03
18	13C-2,3,7,8-TCDF	2.16e+06	1.95e+03	1.1e+03	2.77e+06	6.92e+02	4.0e+03
19	13C-1,2,3,7,8-PeCDF	4.82e+06	1.64e+02	2.9e+04	2.98e+06	6.12e+02	4.9e+03
20	13C-2,3,4,7,8-PeCDF	4.96e+06	1.64e+02	3.0e+04	3.11e+06	6.12e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.70e+06	2.44e+02	1.1e+04	5.22e+06	6.20e+02	8.4e+03
22	13C-1,2,3,6,7,8-HxCDF	3.16e+06	2.44e+02	1.3e+04	6.13e+06	6.20e+02	9.9e+03
23	13C-2,3,4,6,7,8-HxCDF	3.03e+06	2.44e+02	1.2e+04	5.71e+06	6.20e+02	9.2e+03
24	13C-1,2,3,7,8,9-HxCDF	2.34e+06	2.44e+02	9.6e+03	4.60e+06	6.20e+02	7.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.02e+06	2.38e+03	8.5e+02	4.47e+06	2.22e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.53e+06	2.38e+03	6.4e+02	3.43e+06	2.22e+03	1.5e+03
27	13C-2,3,7,8-TCDD	1.63e+06	3.40e+03	4.8e+02	2.08e+06	1.17e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	3.54e+06	3.20e+02	1.1e+04	2.20e+06	2.24e+02	9.8e+03
29	13C-1,2,3,4,7,8-HxCDD	4.01e+06	1.24e+03	3.2e+03	3.15e+06	1.96e+02	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	3.53e+06	1.24e+03	2.8e+03	2.79e+06	1.96e+02	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.70e+06	3.08e+02	1.2e+04	3.43e+06	1.56e+02	2.2e+04
32	13C-OCDD	2.49e+06	2.08e+02	1.2e+04	2.79e+06	2.00e+02	1.4e+04
33	13C-1,2,3,4-TCDD	3.16e+06	3.40e+03	9.3e+02	3.95e+06	1.17e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	5.80e+06	1.24e+03	4.7e+03	4.46e+06	1.96e+02	2.3e+04
35	37Cl-2,3,7,8-TCDD	1.85e+06	2.80e+02	6.6e+03			

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Peak List Summary

CLIENT ID.
SL0523

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P518899 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 05:10:02 Processed: 21-NOV-18 12:44:51

Mass: 303.9020 305.8990 Tot Response: 3.64e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:34	5.59e+01	7.60e+01	0.74	yes	1.32e+02		n	n
2	25:33	9.54e+01	1.37e+02	0.70	yes	2.32e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0523

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P518899 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 05:10:02 Processed: 21-NOV-18 12:44:51

Mass: 373.8210 375.8180 Tot Response: 2.42e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:29	2.23e+01	2.03e+01	1.10	yes	4.26e+01		n	n
2	34:01	4.03e+01	3.52e+01	1.14	yes	7.55e+01		n	n
3	34:29	4.27e+01	3.88e+01	1.10	yes	8.15e+01	1,2,3,4,7,8-HxCDF	n	n
4	34:37	2.19e+01	2.06e+01	1.06	yes	4.25e+01	1,2,3,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0523

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P518899 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 05:10:02 Processed: 21-NOV-18 12:44:51

Mass: 389.8160 391.8130 Tot Response: 3.57e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	1.48e+02	1.19e+02 1.24	yes	2.67e+02		n	n
2	34:41	4.71e+01	4.32e+01 1.09	yes	9.03e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0523

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P518899 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 05:10:02 Processed: 21-NOV-18 12:44:51

Mass: 407.7820 409.7790 Tot Response: 8.88e+02 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	2.73e+02	2.42e+02	1.13	yes	5.15e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	1.96e+02	1.77e+02	1.10	yes	3.73e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0523

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P518899 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 05:10:02 Processed: 21-NOV-18 12:44:51

Mass: 423.7770 425.7740 Tot Response: 2.68e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	9.32e+02	9.68e+02	0.96	yes	1.90e+03		n	n
2	38:10	3.87e+02	3.94e+02	0.98	yes	7.80e+02	1,2,3,4,6,7,8-HpCDD	n	n

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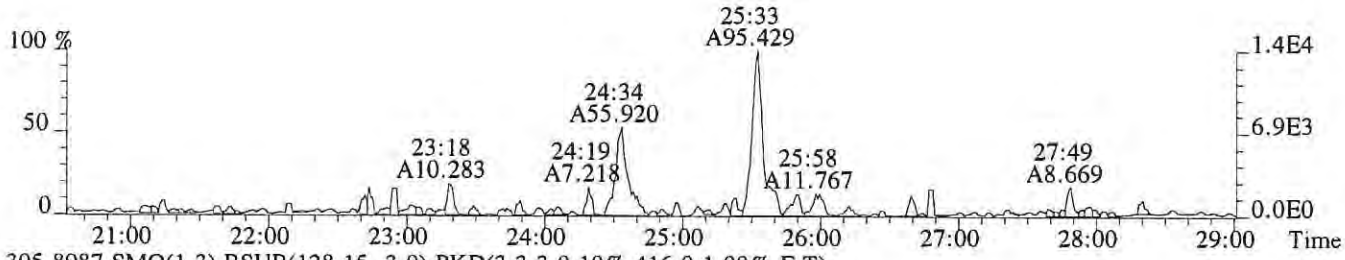
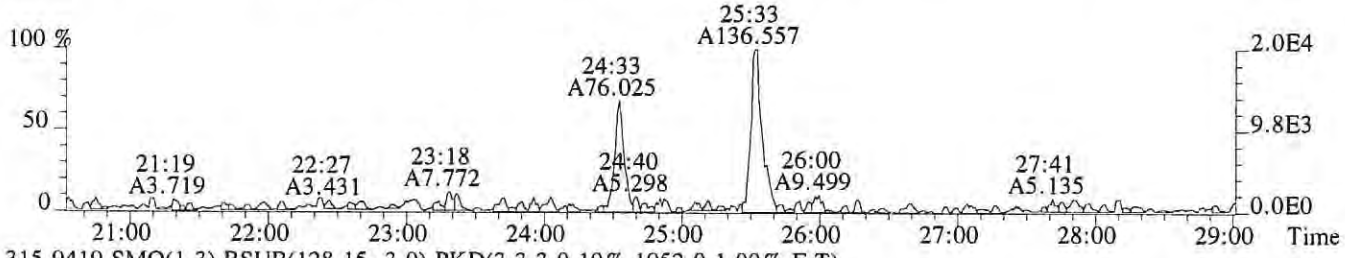
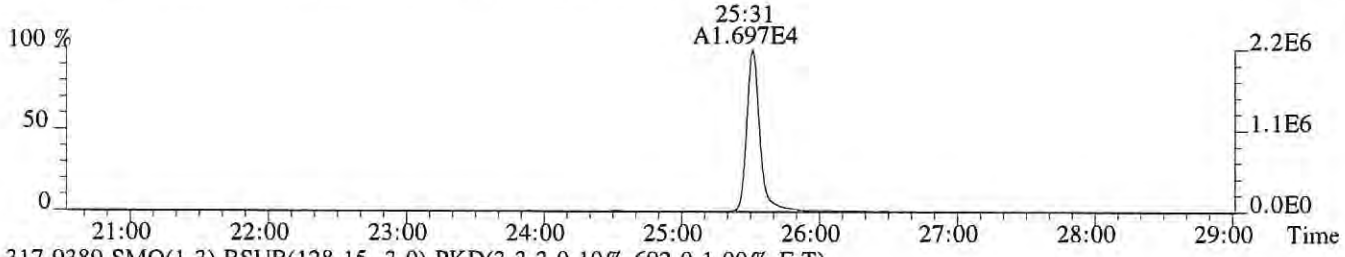
File:P518899 #1-602 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



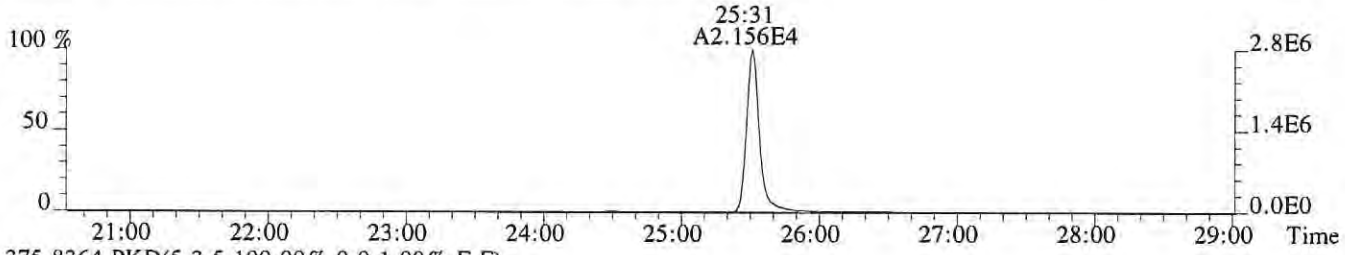
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



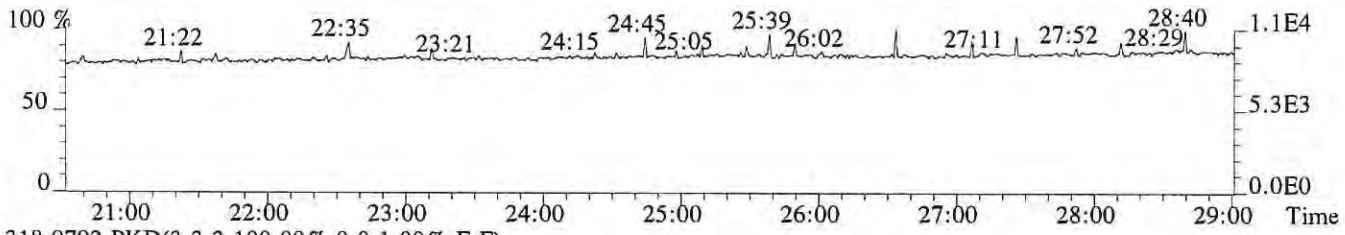
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



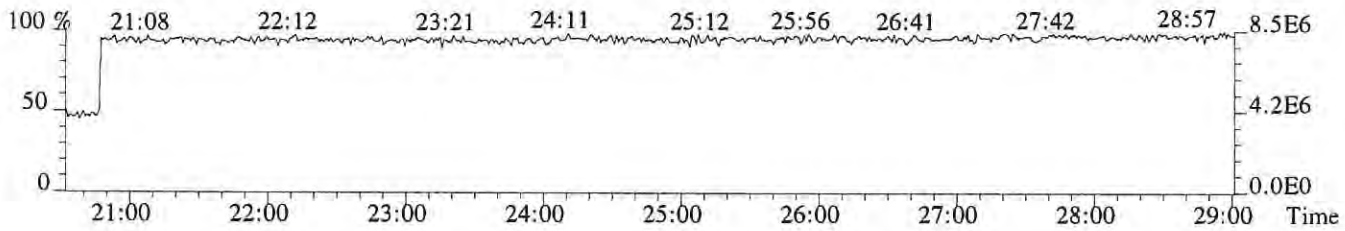
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



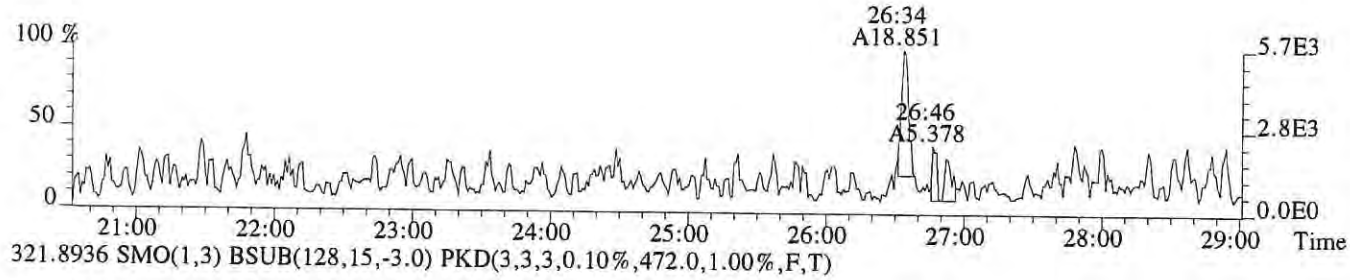
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



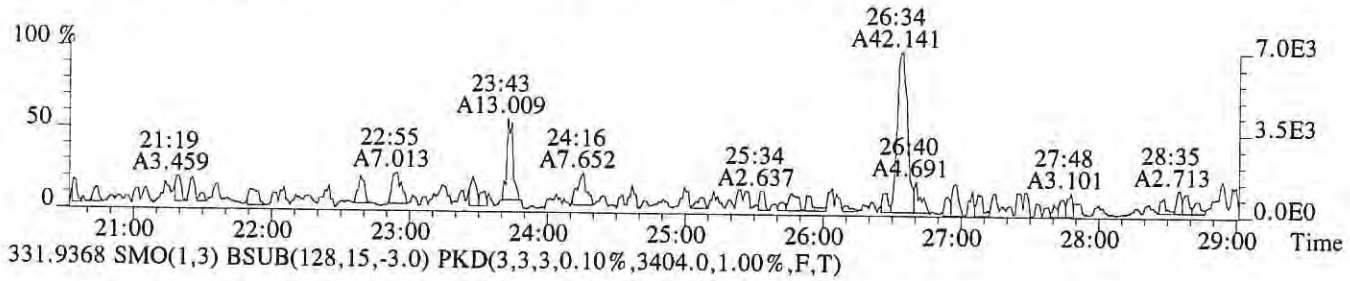
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



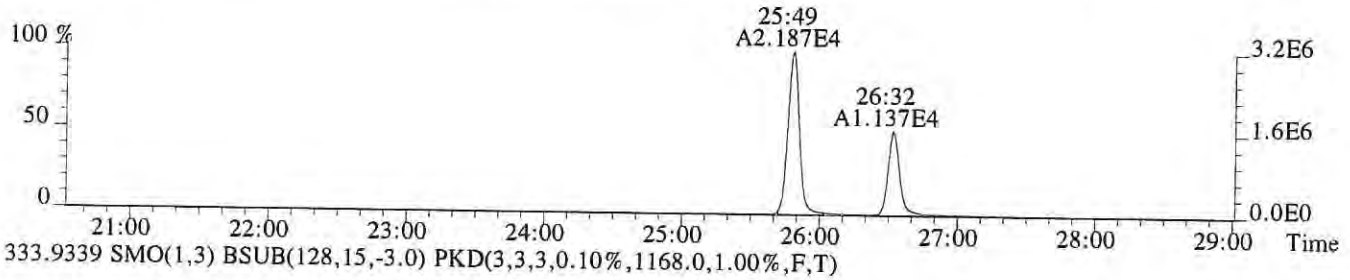
File:P518899 #1-602 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



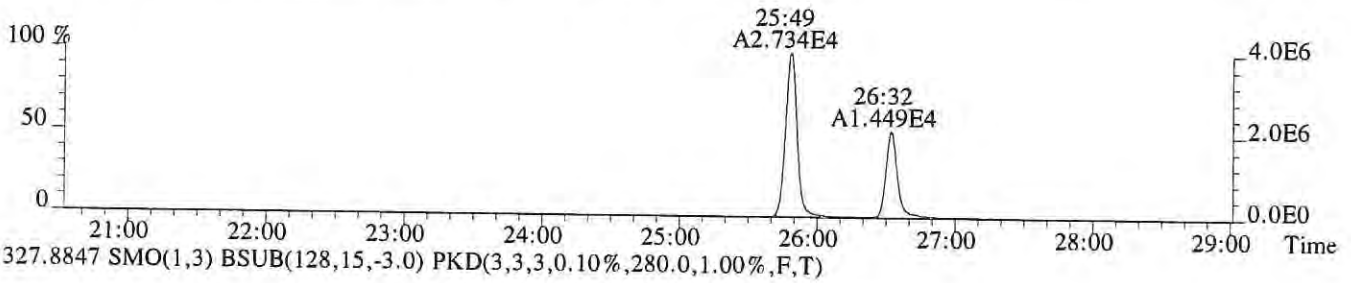
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



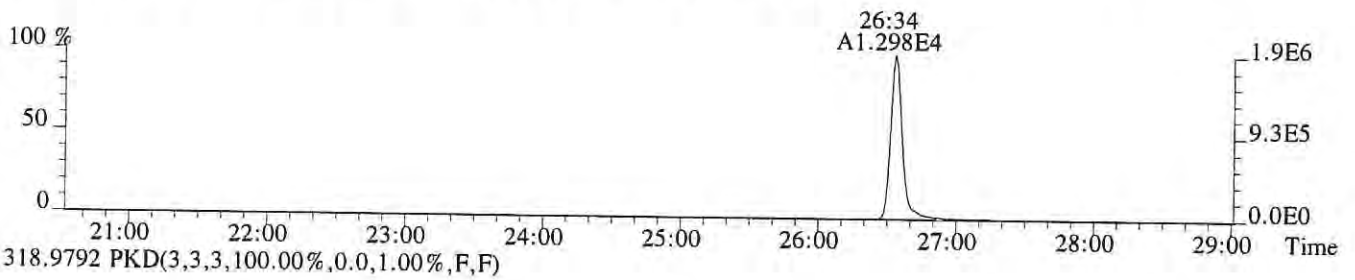
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3404.0,1.00%,F,T)



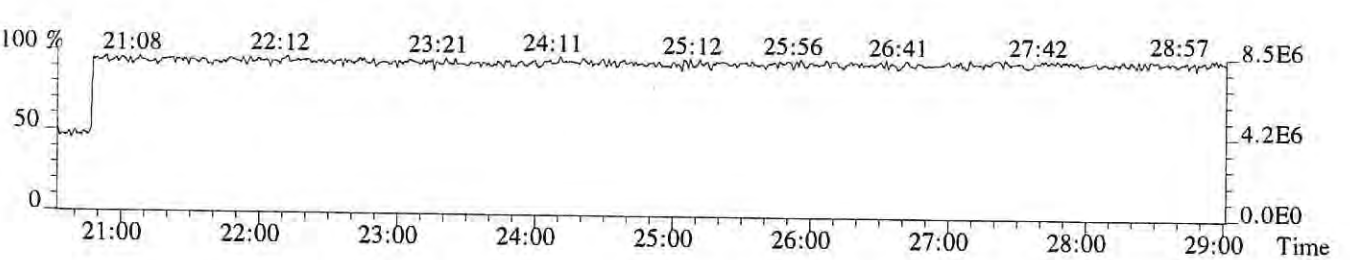
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



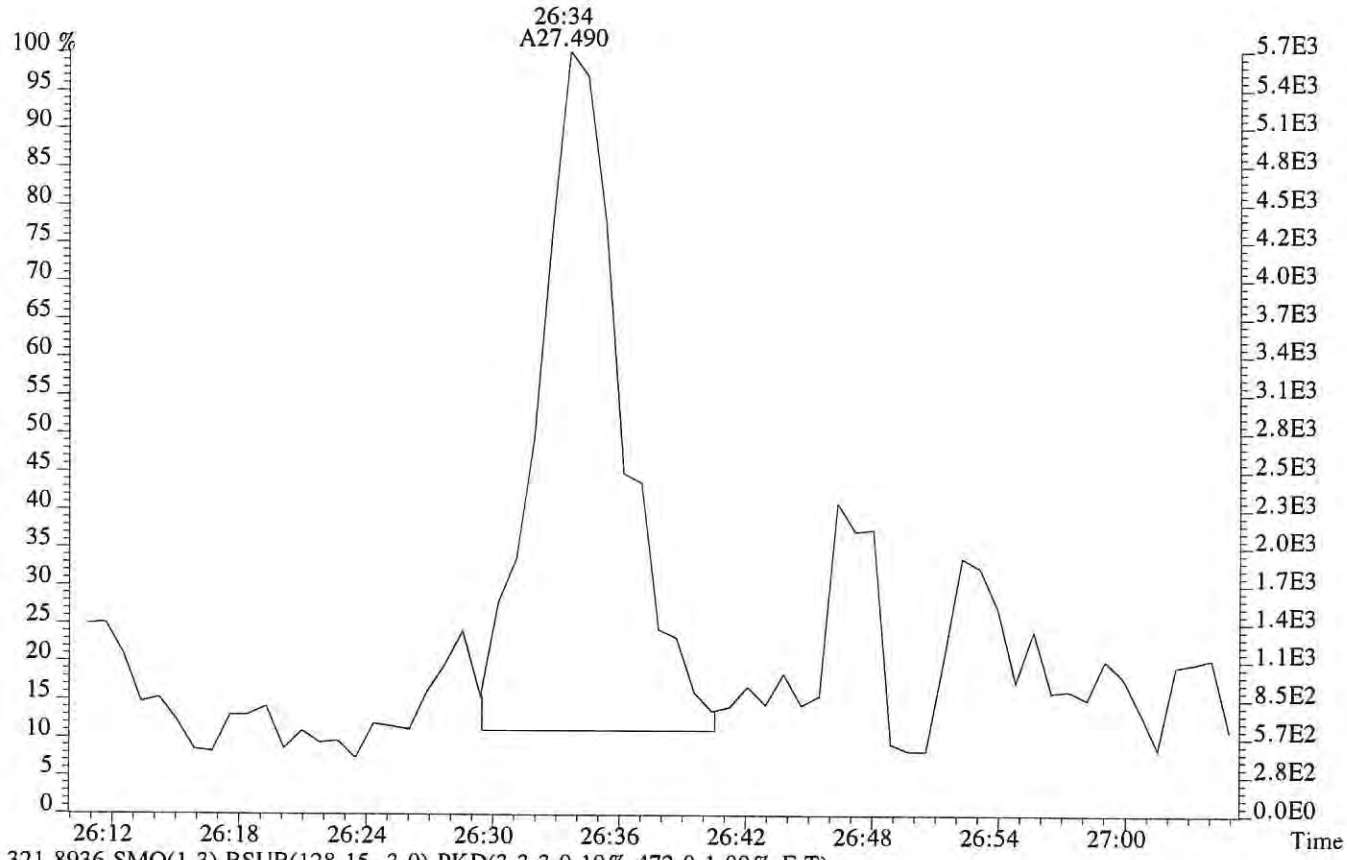
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



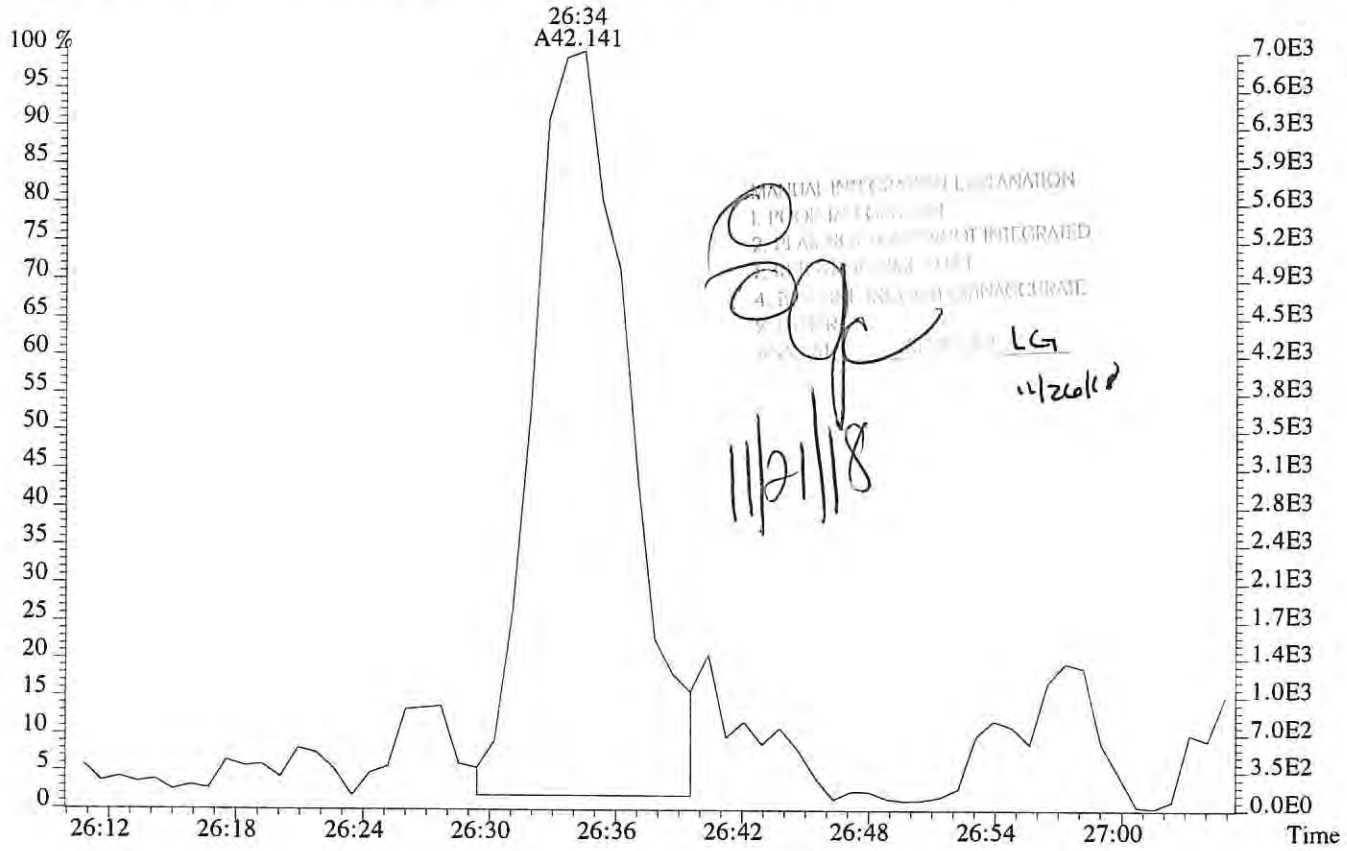
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518899 #1-602 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)

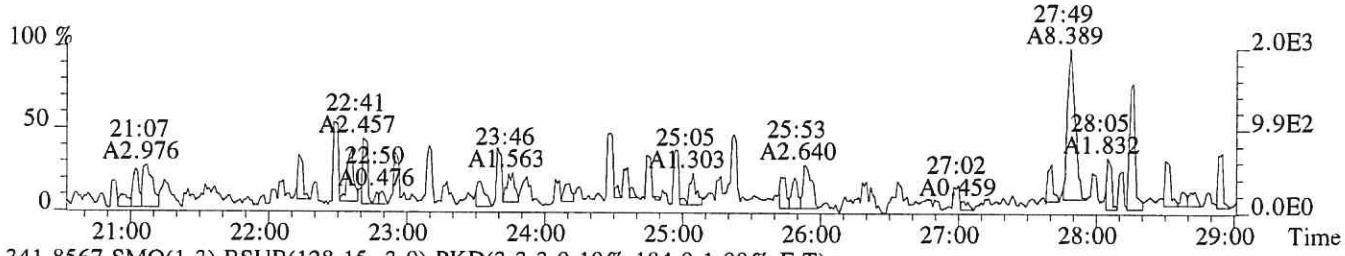


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)

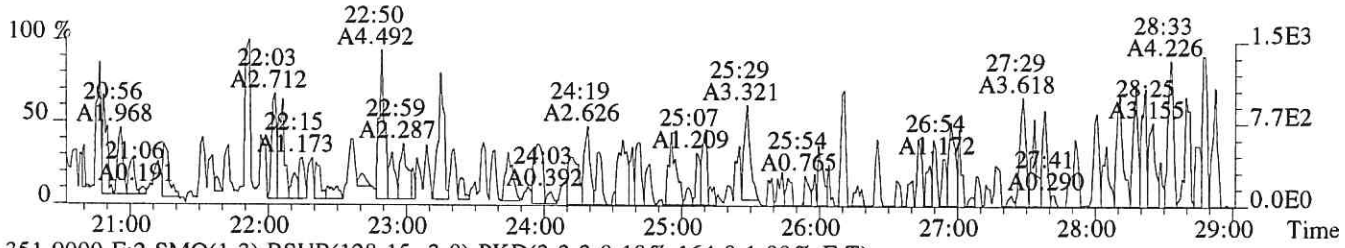


LG
11/26/18
11/21/18

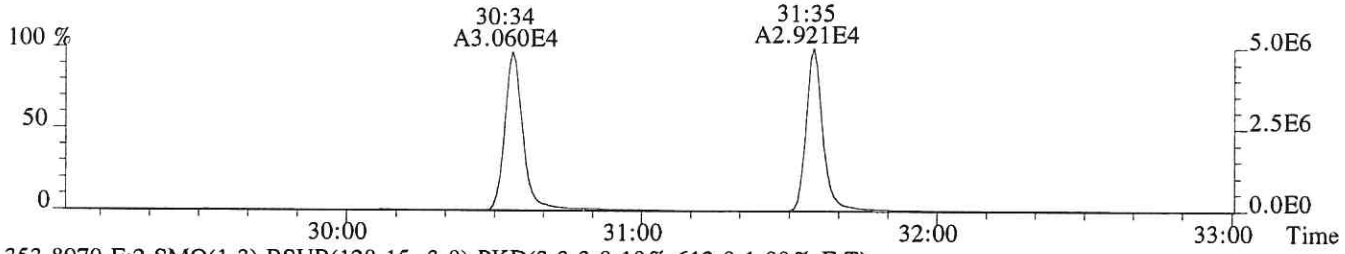
File:P518899 #1-602 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



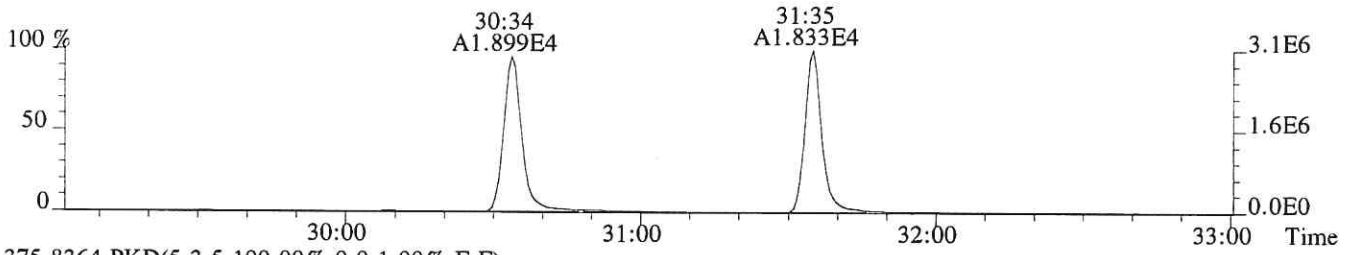
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



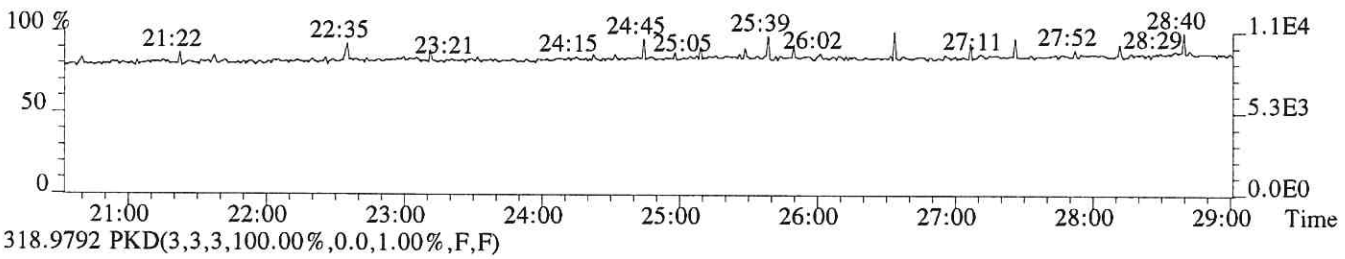
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



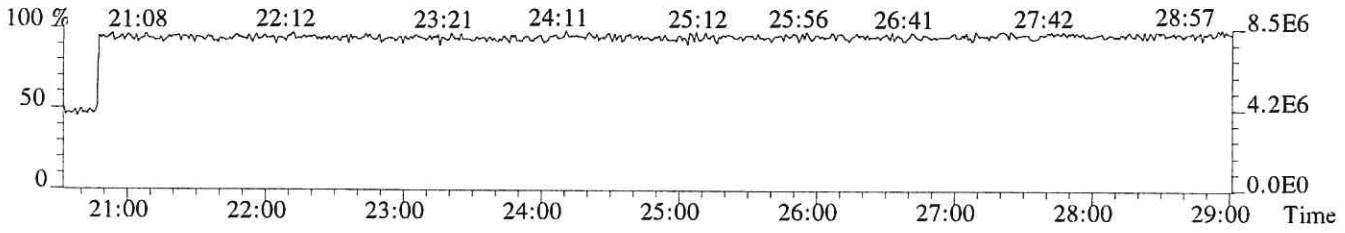
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



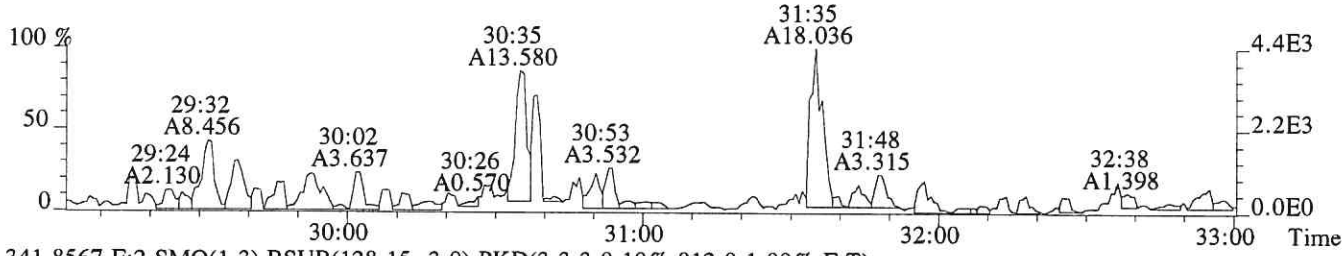
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



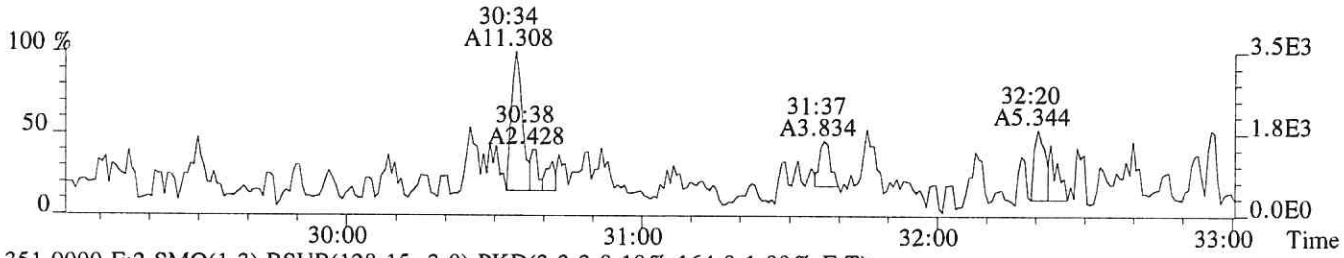
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



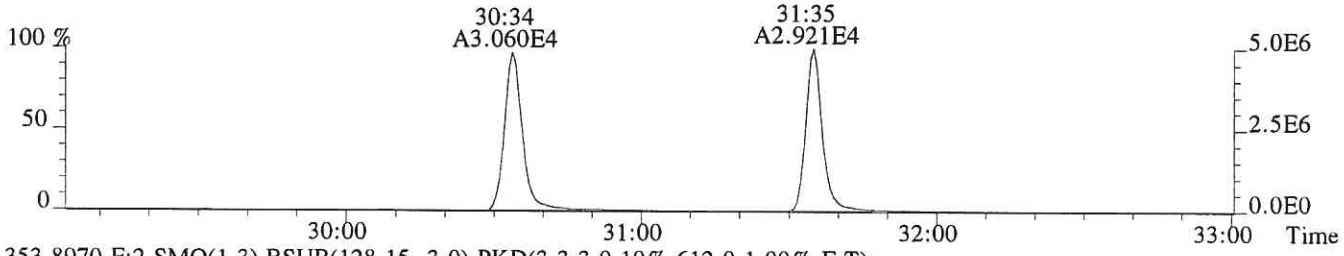
File:P518899 #1-357 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



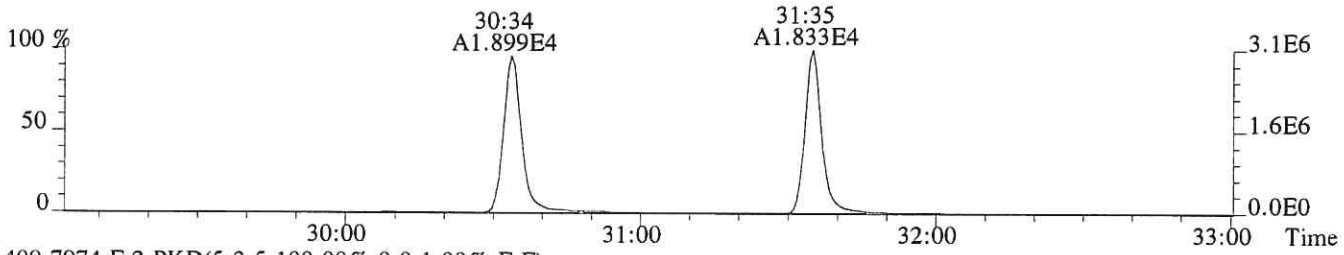
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



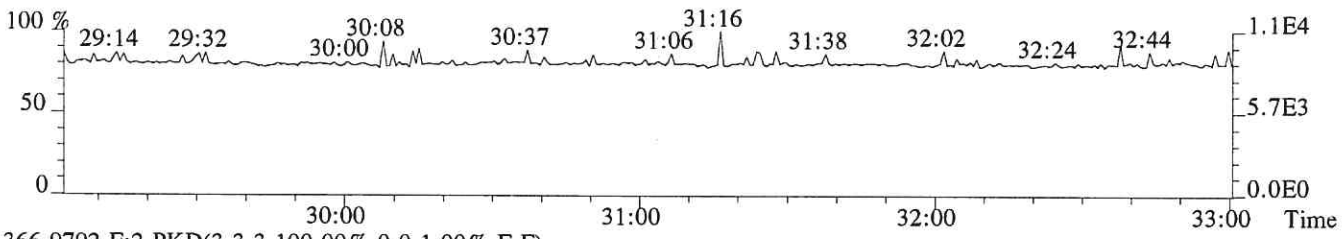
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



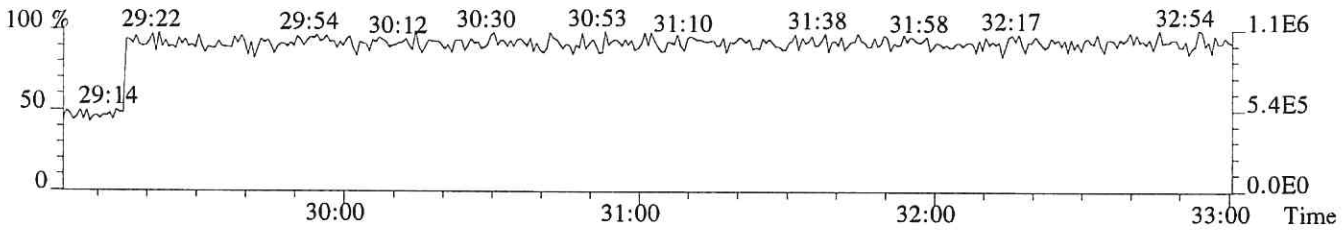
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



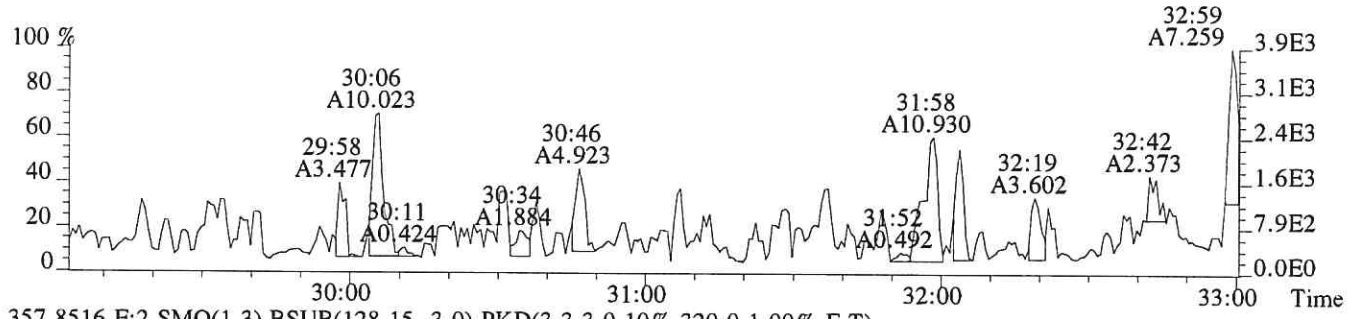
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



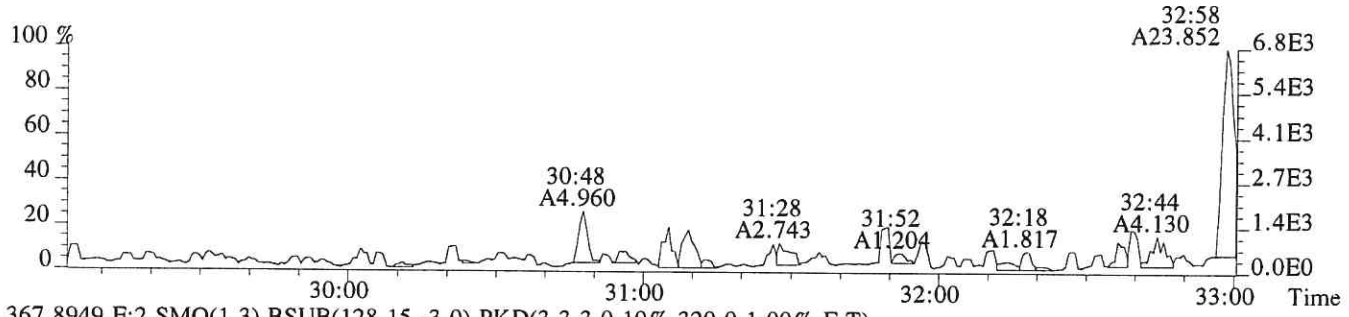
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



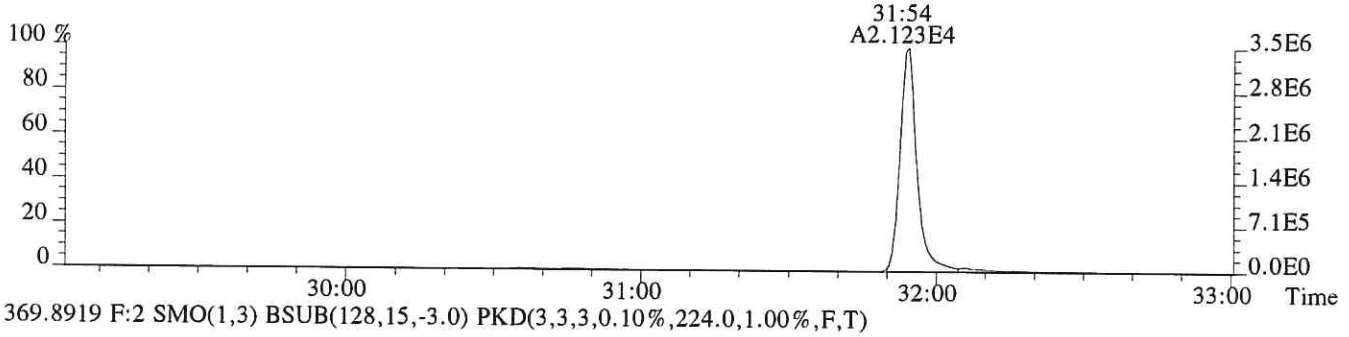
File:P518899 #1-357 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



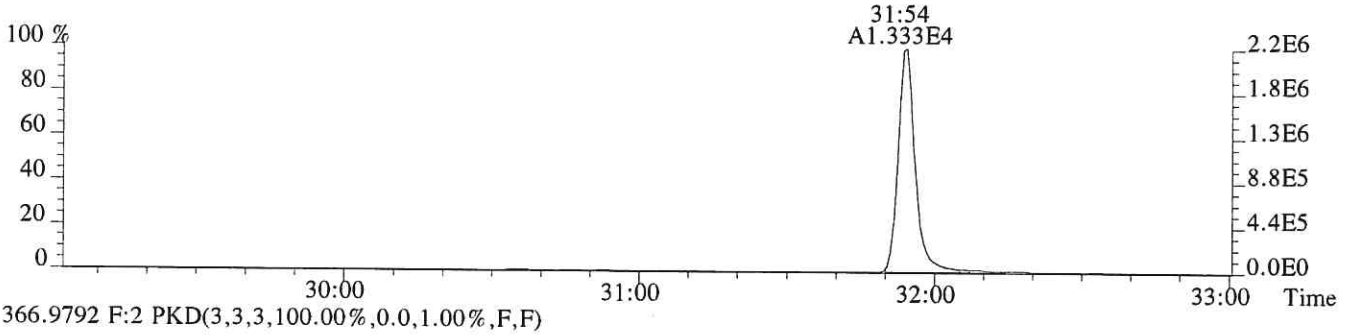
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



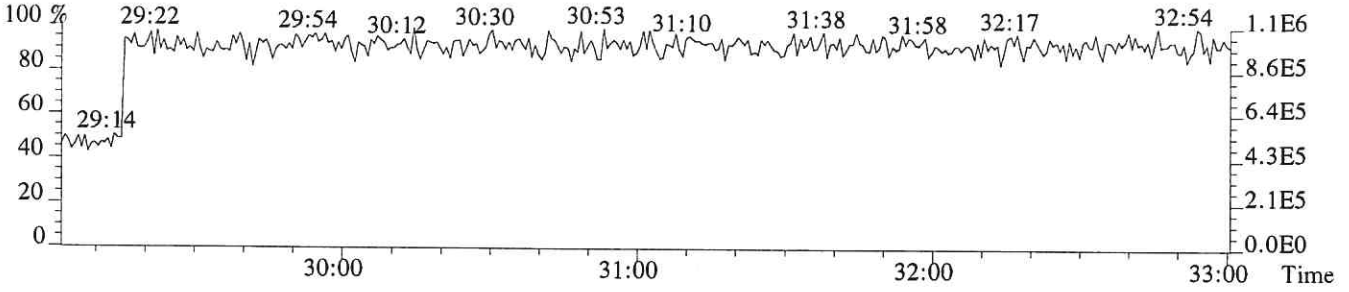
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



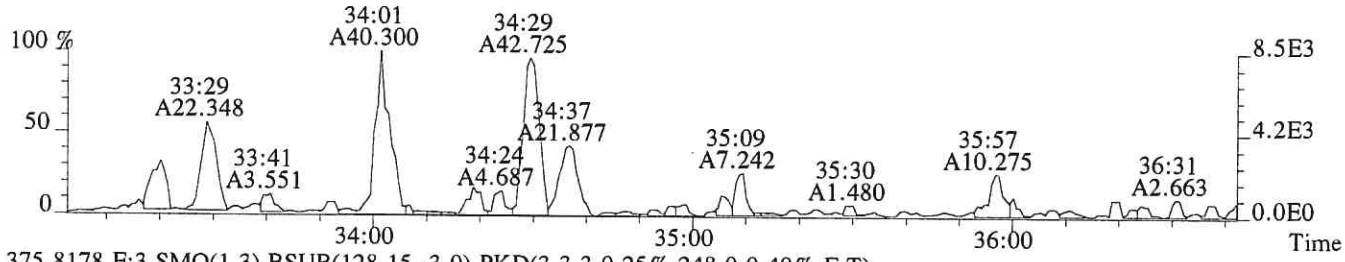
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



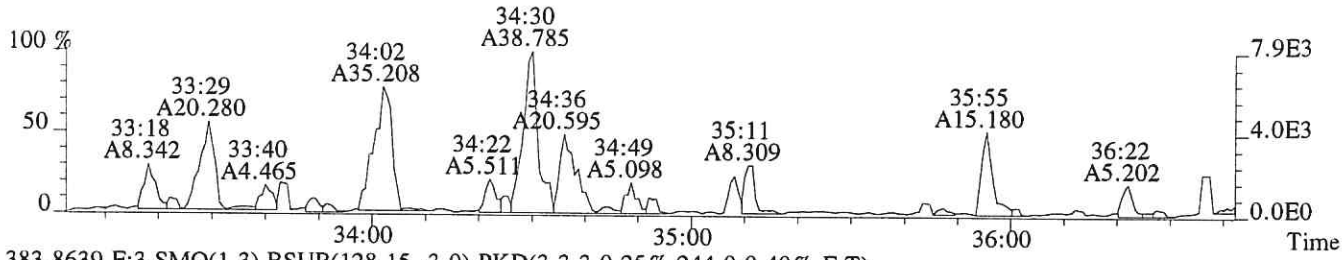
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



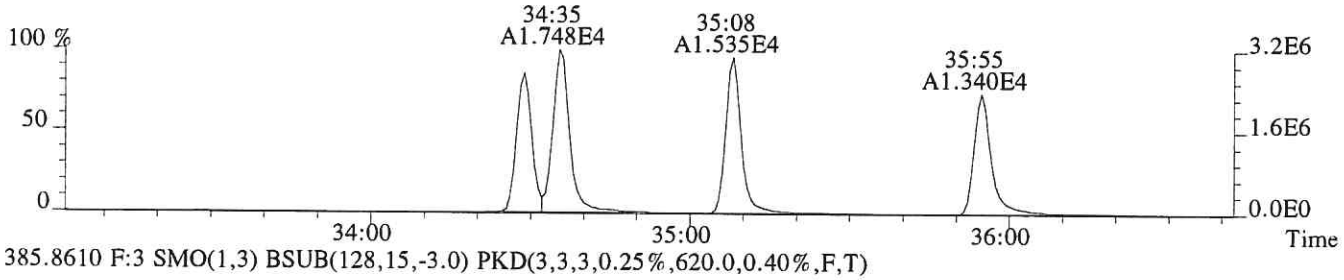
File:P518899 #1-330 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



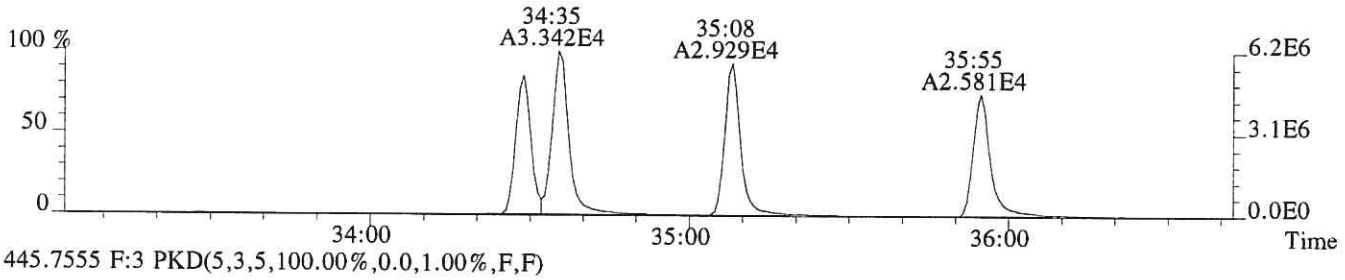
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



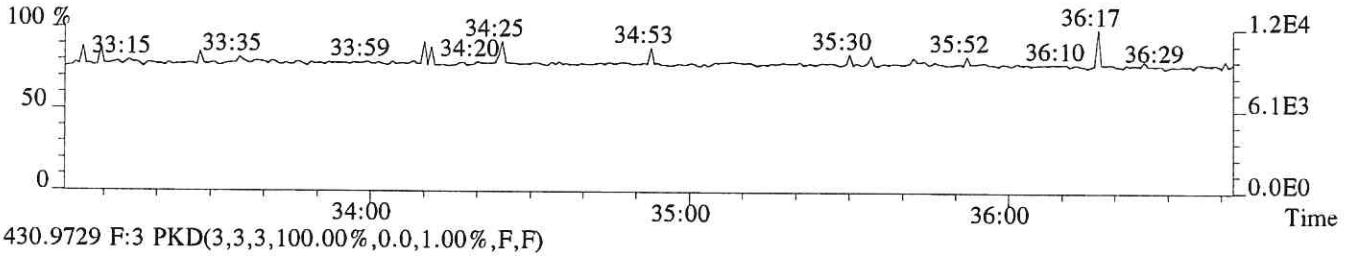
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



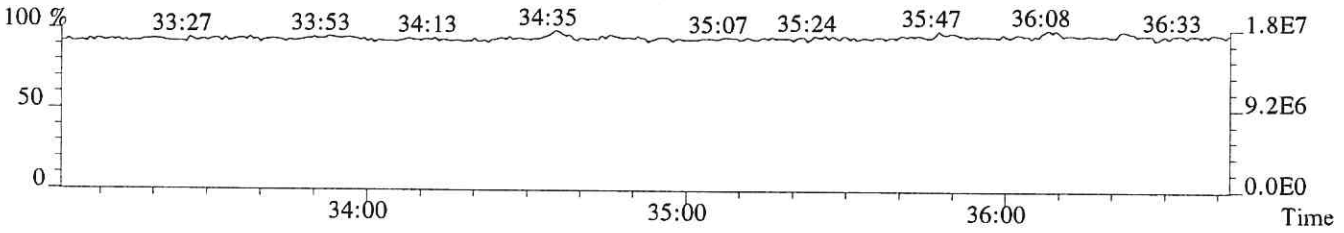
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



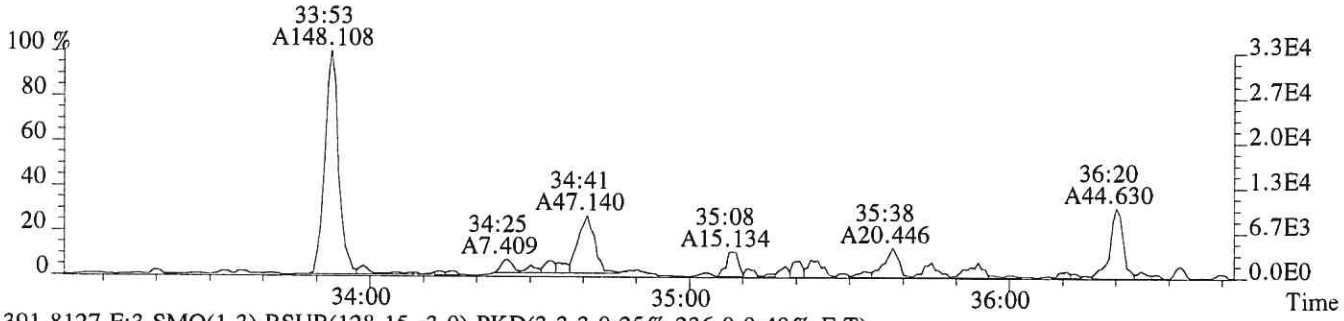
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



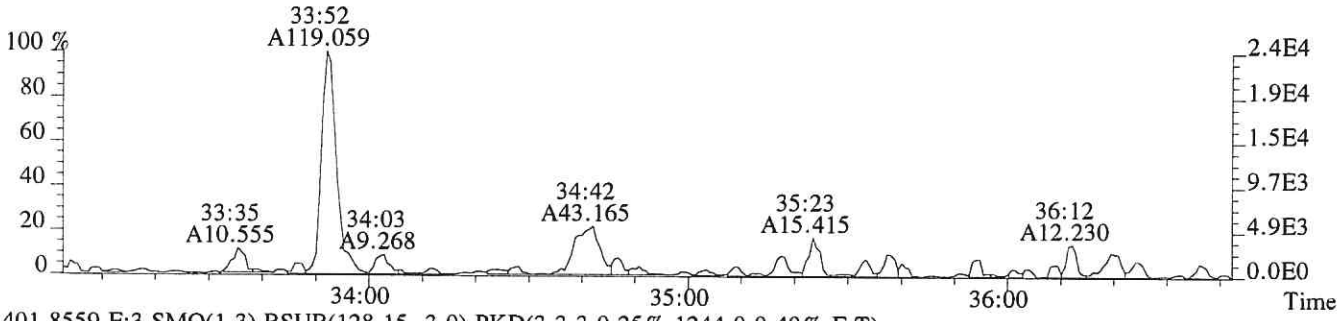
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



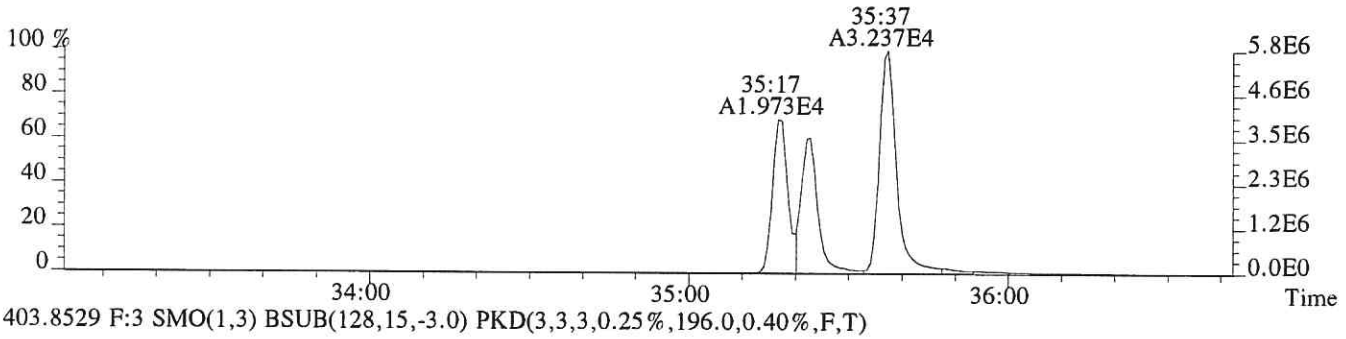
File:P518899 #1-330 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



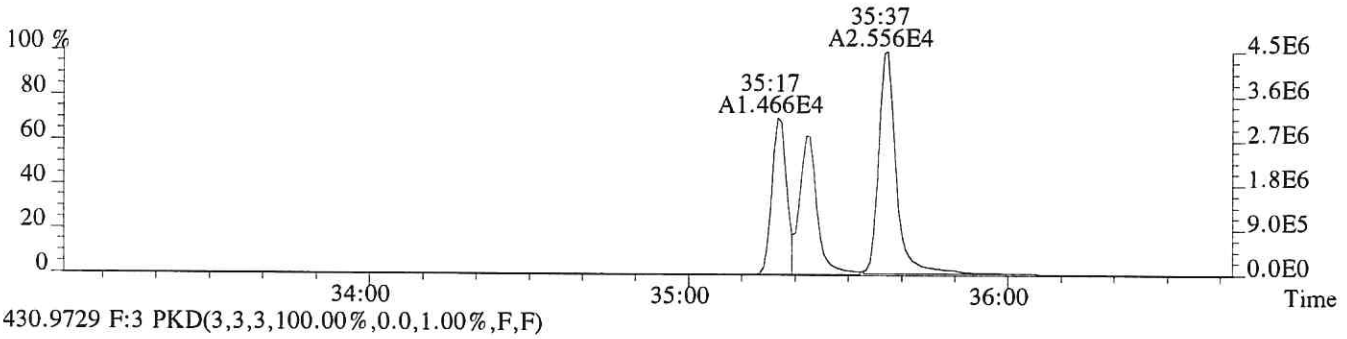
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



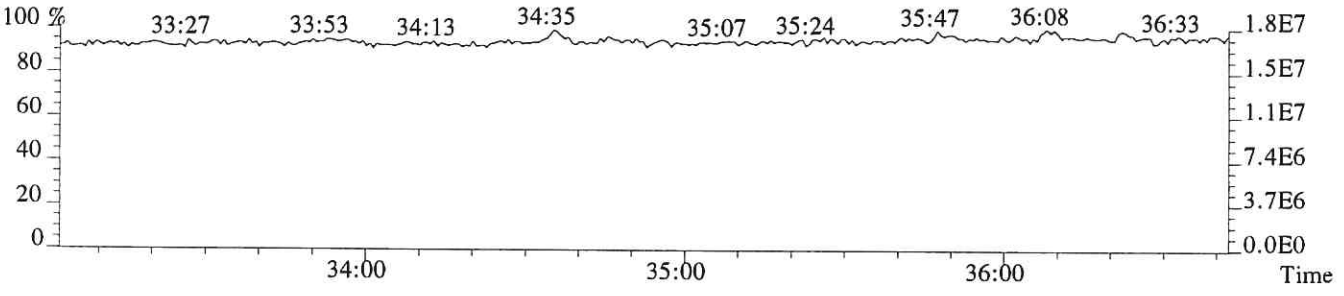
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



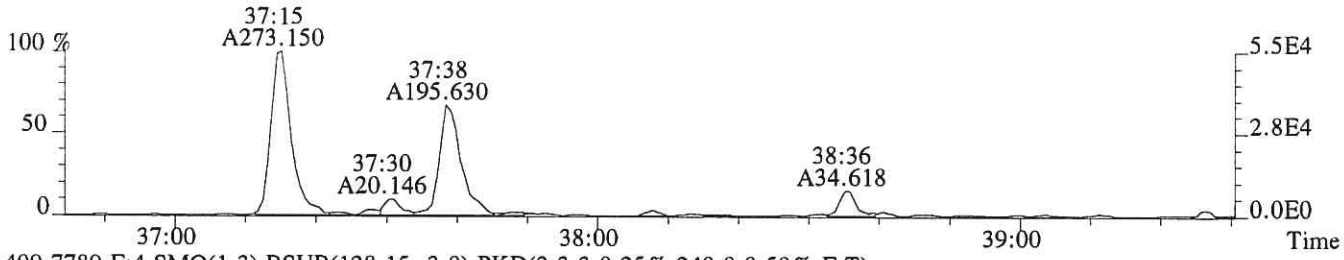
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



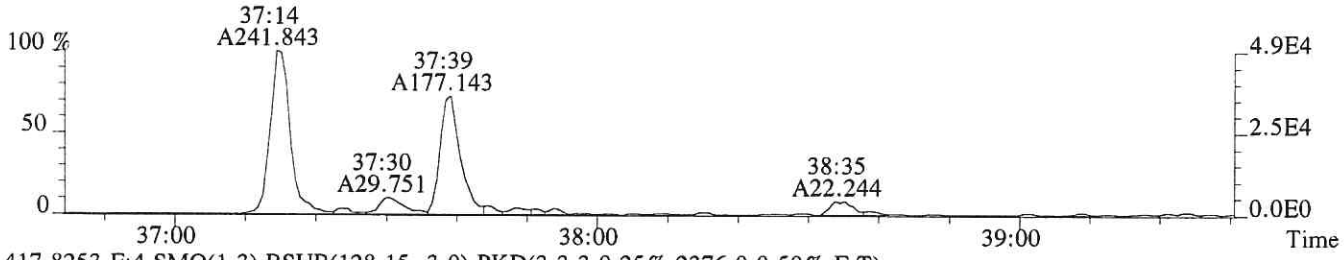
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



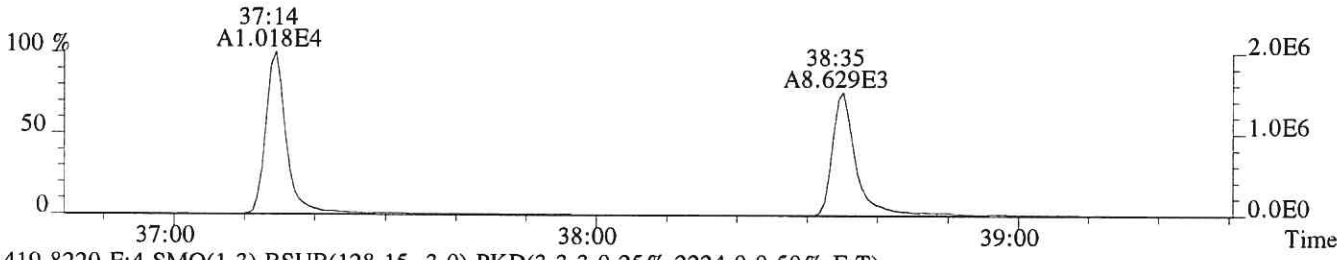
File:P518899 #1-250 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



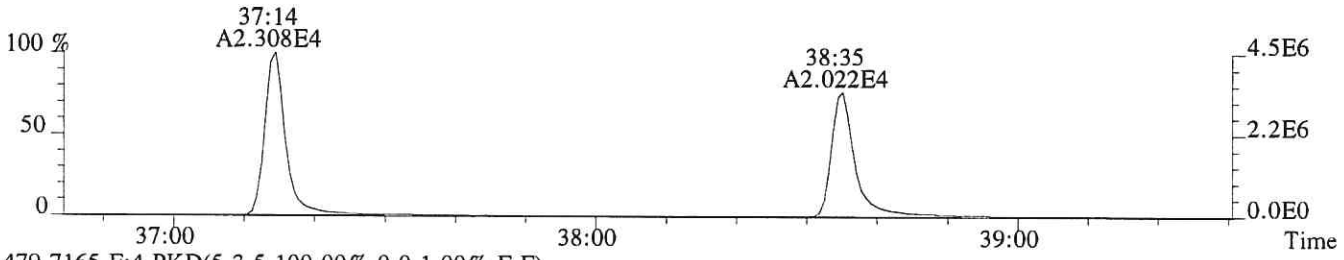
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.50%,F,T)



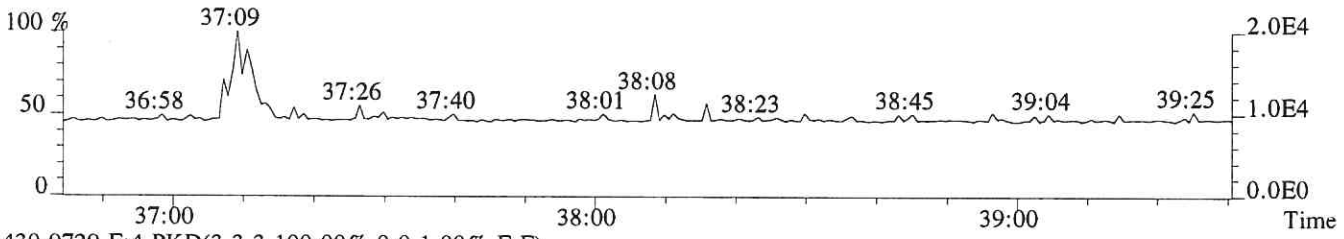
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2376.0,0.50%,F,T)



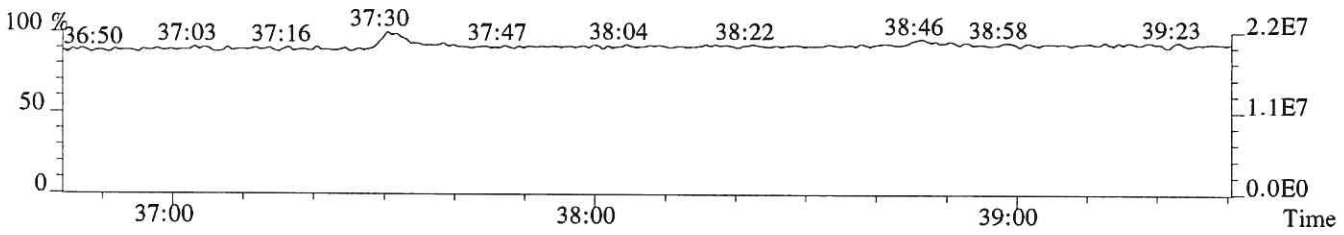
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



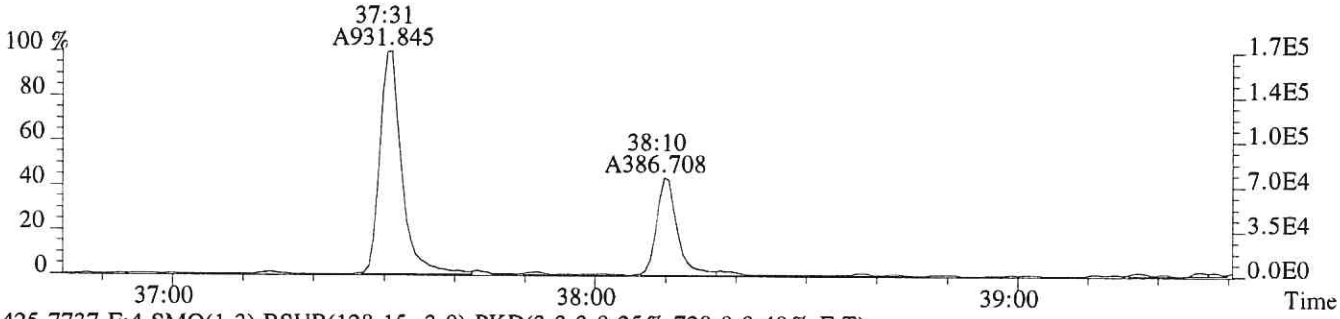
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



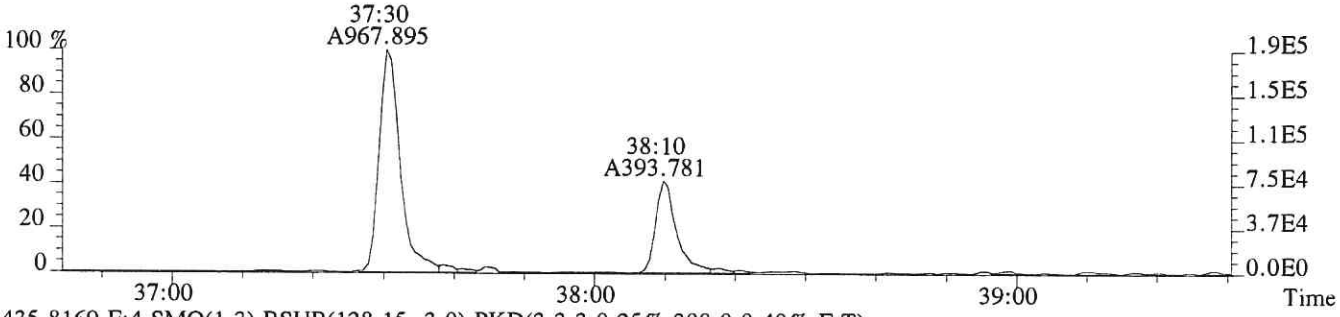
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



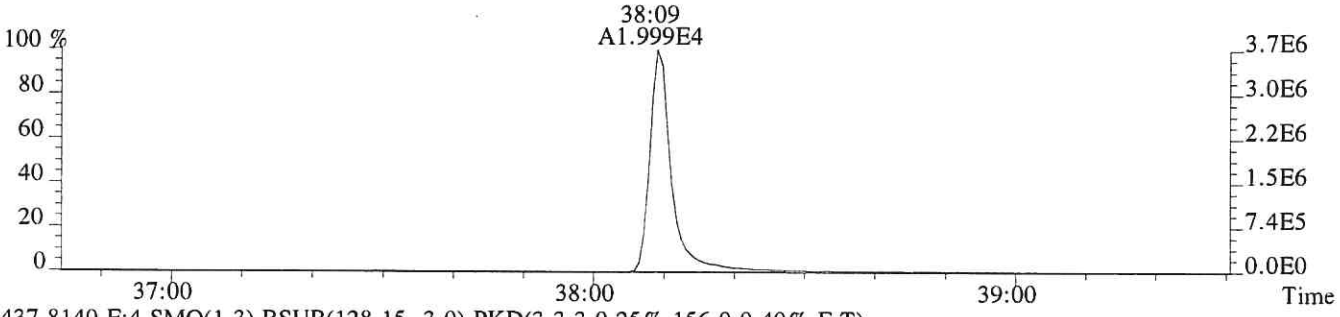
File:P518899 #1-250 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



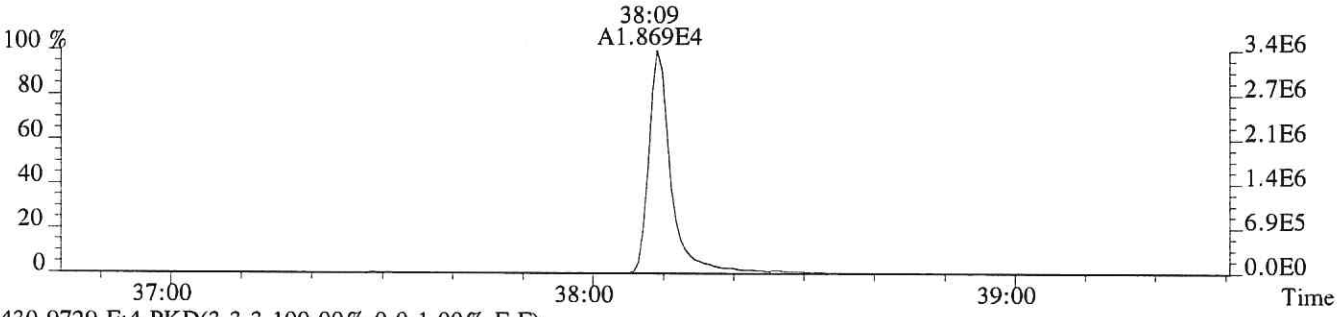
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



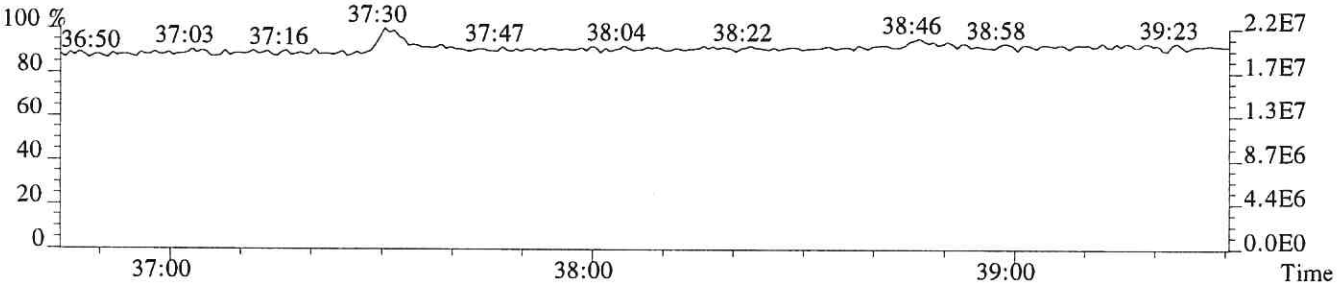
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



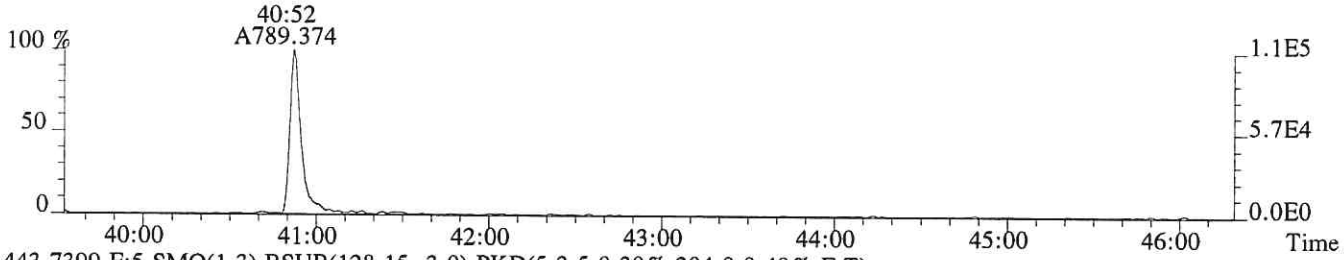
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



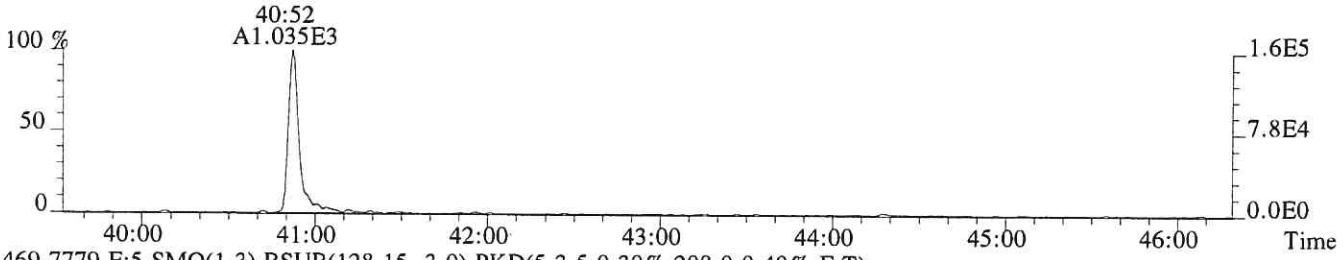
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



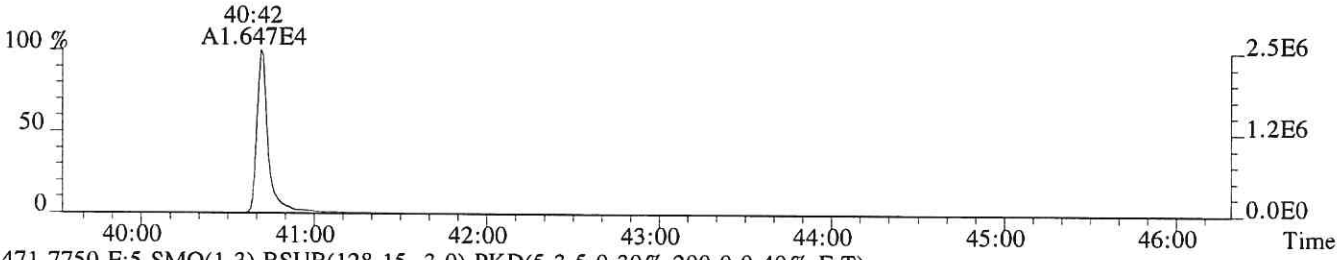
File:P518899 #1-610 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



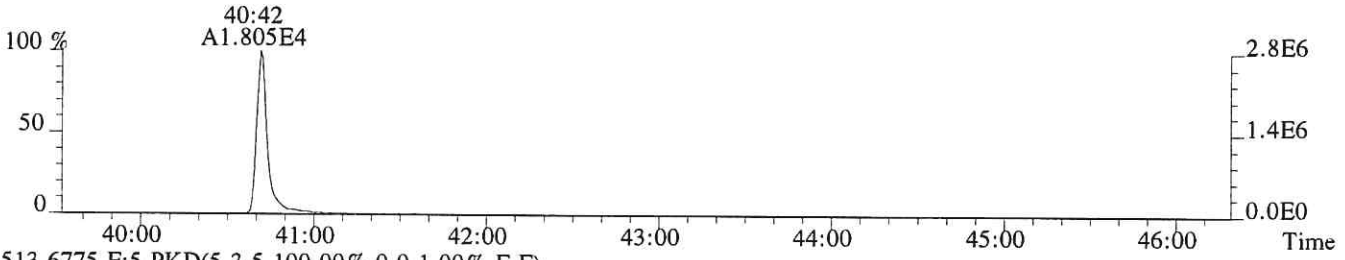
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



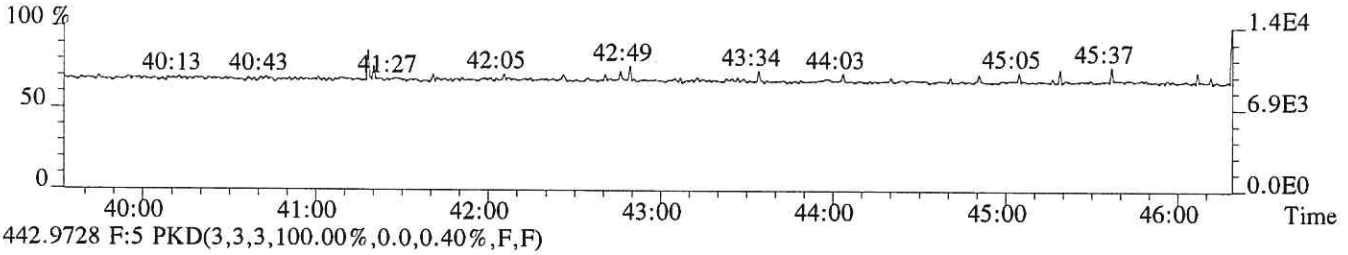
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



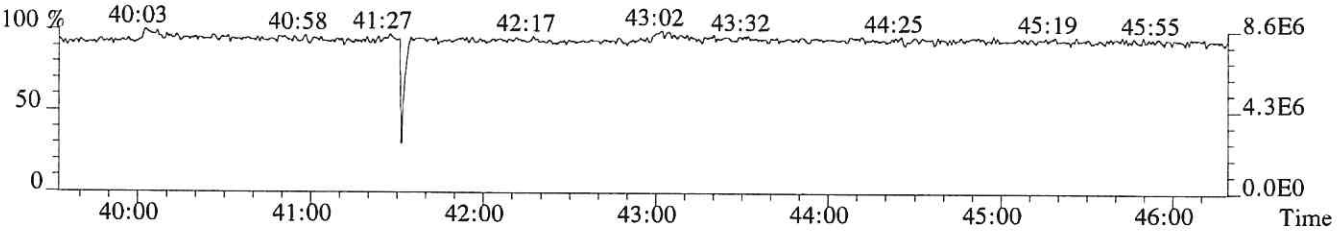
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



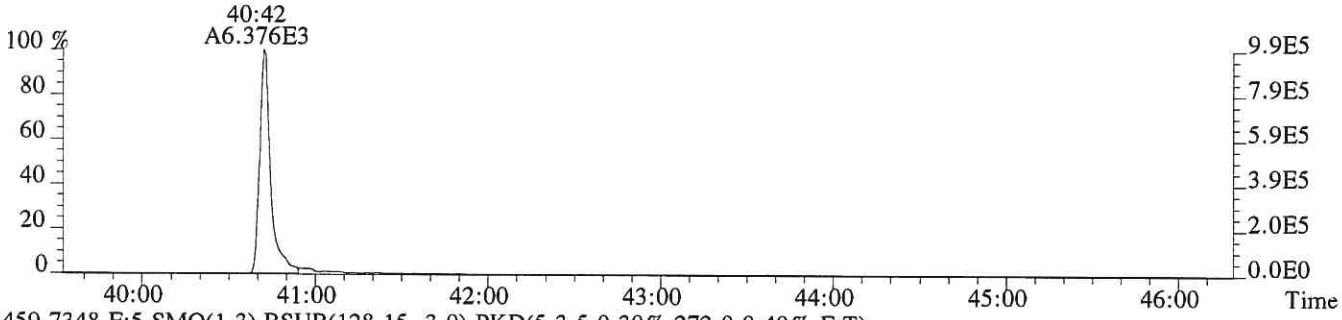
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



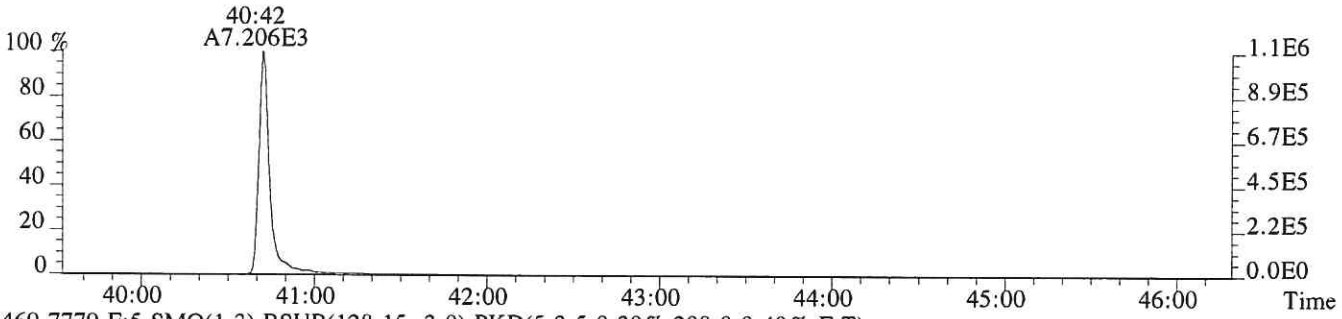
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



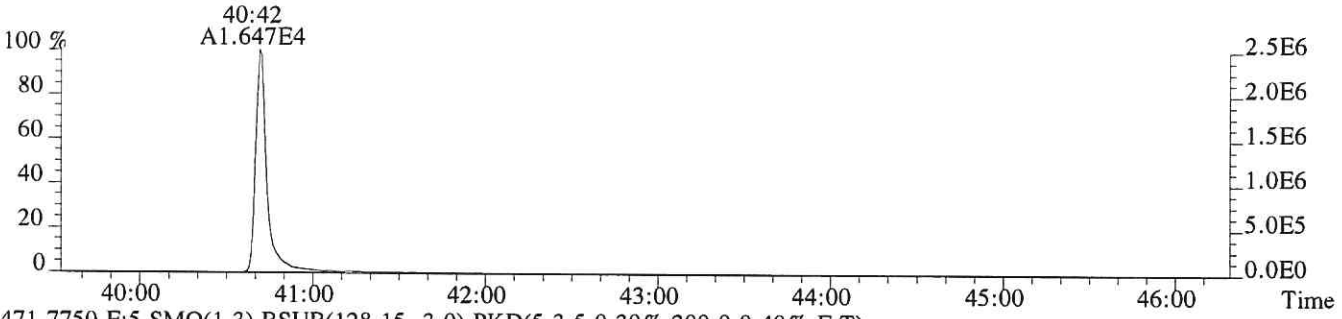
File:P518899 #1-610 Acq:18-NOV-2018 05:10:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



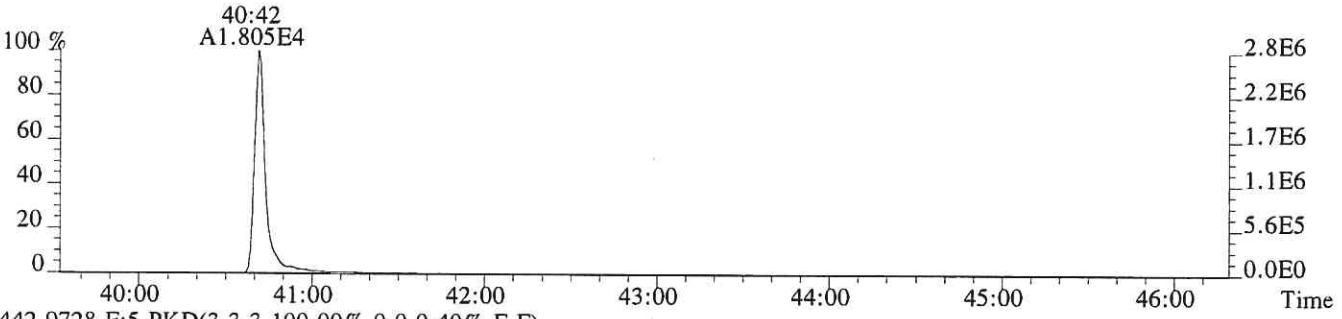
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



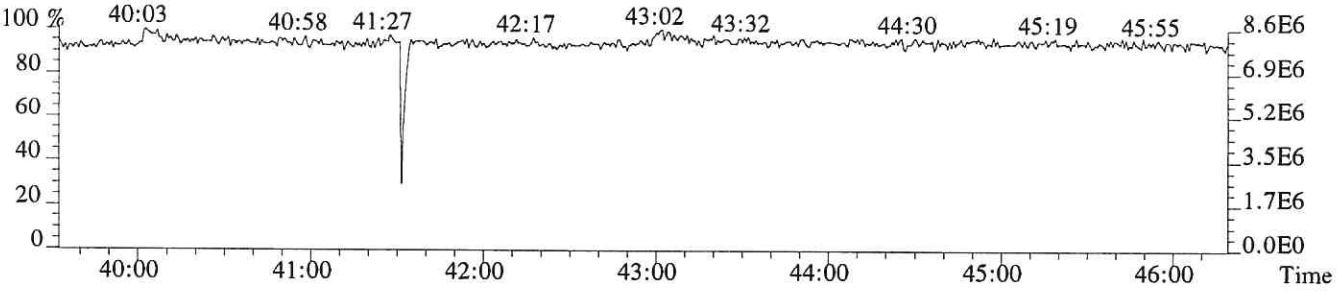
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0524

Run #12 Filename P518900 Samp: 1 Inj: 1 Acquired: 18-NOV-18 05:58:40
Processed: 21-NOV-18 12:44:52 Sample ID: E1801038-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:32	8.089e+01	1.094e+02	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:34	1.280e+01	1.541e+01	0.83	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:35	2.012e+01	1.715e+01	1.17	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.368e+01	1.309e+01	1.04	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.374e+01	1.256e+01	1.09	yes	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:10	1.716e+01	1.042e+01	1.65	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	2.149e+01	1.948e+01	1.10	yes	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	2.080e+01	2.337e+01	0.89	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	1.818e+01	1.220e+01	1.49	no	no	1.258
10	Unk	OCDF	40:53	2.887e+01	4.042e+01	0.71	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	3.094e+01	3.422e+01	0.90	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	2.222e+01	1.183e+01	1.88	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.580e+00	1.161e+01	0.74	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.806e+01	1.798e+01	1.00	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.943e+02	1.905e+02	1.02	yes	no	1.025
17	Unk	OCDD	40:42	5.187e+03	5.840e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	1.129e+04	1.441e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.384e+04	1.540e+04	1.55	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.480e+04	1.549e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.158e+04	2.241e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.505e+04	2.940e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.334e+04	2.562e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.138e+04	2.172e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.989e+03	2.003e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	7.786e+03	1.770e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	7.449e+03	9.334e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.813e+04	1.136e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.707e+04	1.334e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.722e+04	1.324e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.713e+04	1.621e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:42	1.401e+04	1.541e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.124e+04	2.703e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.317e+04	2.593e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	8.721e+03				no	1.014

$$OCDD = \frac{(5.187e+03 + 5.840e+03) \times 4000\ pg \times 1}{(1.401e+04 + 1.541e+04) \times 10.369g \times 81.2/100 \times 1.118} = 159.2722 ng/Kg$$

LG 11/20/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0524

Run #12 Filename P518900 Samp: 1 Inj: 1 Acquired: 18-NOV-18 05:58:40
Processed: 21-NOV-18 12:44:52 LAB. ID: E1801038-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.13e+04	3.80e+02	3.0e+01	1.17e+04	8.44e+02	1.4e+01
2	1,2,3,7,8-PeCDF	2.23e+03	2.44e+02	9.1e+00	1.95e+03	4.12e+02	4.7e+00
3	2,3,4,7,8-PeCDF	3.81e+03	2.44e+02	1.6e+01	3.48e+03	4.12e+02	8.5e+00
4	1,2,3,4,7,8-HxCDF	3.87e+03	2.52e+02	1.5e+01	2.77e+03	3.40e+02	8.1e+00
5	1,2,3,6,7,8-HxCDF	2.68e+03	2.52e+02	1.1e+01	2.84e+03	3.40e+02	8.4e+00
6	2,3,4,6,7,8-HxCDF	2.65e+03	2.52e+02	1.1e+01	2.35e+03	3.40e+02	6.9e+00
7	1,2,3,7,8,9-HxCDF	4.10e+03	2.52e+02	1.6e+01	3.60e+03	3.40e+02	1.1e+01
8	1,2,3,4,6,7,8-HpCDF	3.91e+03	3.08e+02	1.3e+01	3.95e+03	3.44e+02	1.1e+01
9	1,2,3,4,7,8,9-HpCDF	3.45e+03	3.08e+02	1.1e+01	2.04e+03	3.44e+02	5.9e+00
10	OCDF	5.31e+03	2.48e+02	2.1e+01	7.98e+03	4.52e+02	1.8e+01
11	2,3,7,8-TCDD	4.82e+03	8.72e+02	5.5e+00	4.76e+03	2.84e+02	1.7e+01
12	1,2,3,7,8-PeCDD	*	4.88e+02	*	*	1.84e+02	*
13	1,2,3,4,7,8-HxCDD	5.43e+03	2.36e+02	2.3e+01	3.04e+03	6.96e+02	4.4e+00
14	1,2,3,6,7,8-HxCDD	2.09e+03	2.36e+02	8.9e+00	2.33e+03	6.96e+02	3.3e+00
15	1,2,3,7,8,9-HxCDD	3.27e+03	2.36e+02	1.4e+01	4.63e+03	6.96e+02	6.6e+00
16	1,2,3,4,6,7,8-HpCDD	4.18e+04	1.58e+03	2.6e+01	3.38e+04	3.76e+02	9.0e+01
17	OCDD	8.07e+05	2.04e+02	4.0e+03	8.80e+05	5.24e+02	1.7e+03
18	13C-2,3,7,8-TCDF	1.37e+06	2.02e+03	6.8e+02	1.76e+06	8.52e+02	2.1e+03
19	13C-1,2,3,7,8-PeCDF	3.74e+06	4.64e+02	8.1e+03	2.36e+06	2.60e+02	9.1e+03
20	13C-2,3,4,7,8-PeCDF	4.16e+06	4.64e+02	9.0e+03	2.59e+06	2.60e+02	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	2.36e+06	1.84e+02	1.3e+04	4.61e+06	2.24e+02	2.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.67e+06	1.84e+02	1.5e+04	5.22e+06	2.24e+02	2.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.53e+06	1.84e+02	1.4e+04	4.88e+06	2.24e+02	2.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.92e+06	1.84e+02	1.0e+04	3.74e+06	2.24e+02	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+06	1.42e+03	1.2e+03	3.88e+06	2.68e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.35e+06	1.42e+03	9.5e+02	2.99e+06	2.68e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.04e+06	3.66e+03	2.8e+02	1.32e+06	1.48e+03	8.9e+02
28	13C-1,2,3,7,8-PeCDD	3.00e+06	2.60e+02	1.2e+04	1.86e+06	2.16e+02	8.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.45e+06	8.52e+02	4.0e+03	2.76e+06	5.96e+02	4.6e+03
30	13C-1,2,3,6,7,8-HxCDD	3.15e+06	8.52e+02	3.7e+03	2.41e+06	5.96e+02	4.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.15e+06	2.88e+02	1.1e+04	3.01e+06	2.72e+02	1.1e+04
32	13C-OCDD	2.04e+06	2.72e+02	7.5e+03	2.30e+06	2.72e+02	8.4e+03
33	13C-1,2,3,4-TCDD	3.06e+06	3.66e+03	8.4e+02	3.85e+06	1.48e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	5.72e+06	8.52e+02	6.7e+03	4.46e+06	5.96e+02	7.5e+03
35	37Cl-2,3,7,8-TCDD	1.26e+06	8.20e+02	1.5e+03			

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Peak List Summary

CLIENT ID.
SL0524

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P518900 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 05:58:40 Processed: 21-NOV-18 12:44:52

Mass: 303.9020 305.8990 Tot Response: 1.90e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:32	8.09e+01	1.09e+02 0.74	yes	1.90e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0524

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P518900 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 05:58:40 Processed: 21-NOV-18 12:44:52

Mass: 373.8210 375.8180 Tot Response: 6.73e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:36	1.37e+01	1.26e+01 1.09	yes	2.63e+01	1,2,3,6,7,8-HxCDF	y	n
2	35:55	2.15e+01	1.95e+01 1.10	yes	4.10e+01	1,2,3,7,8,9-HxCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0524

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P518900 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 05:58:40 Processed: 21-NOV-18 12:44:52

Mass: 389.8160 391.8130 Tot Response: 1.88e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	9.88e+01	8.93e+01 1.11	yes	1.88e+02		n	n

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Peak List Summary

CLIENT ID.
SL0524

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P518900 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 05:58:40 Processed: 21-NOV-18 12:44:52

Mass: 407.7820 409.7790 Tot Response: 4.42e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:16	2.08e+01	2.34e+01 0.89	yes	4.42e+01	1,2,3,4,6,7,8-HpCDF	y	y

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Peak List Summary

CLIENT ID.
SL0524

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P518900 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 05:58:40 Processed: 21-NOV-18 12:44:52

Mass: 423.7770 425.7740 Tot Response: 1.40e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	5.17e+02	4.94e+02 1.05	yes	1.01e+03		n	n
2	38:10	1.94e+02	1.91e+02 1.02	yes	3.85e+02	1,2,3,4,6,7,8-HpCDD	n	n

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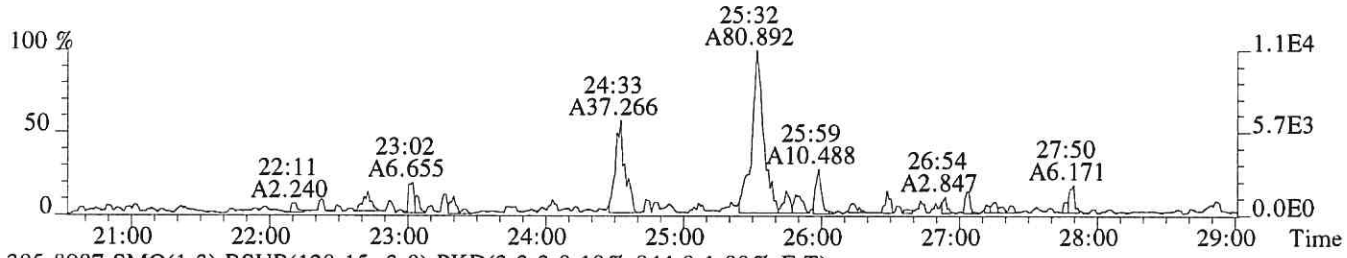
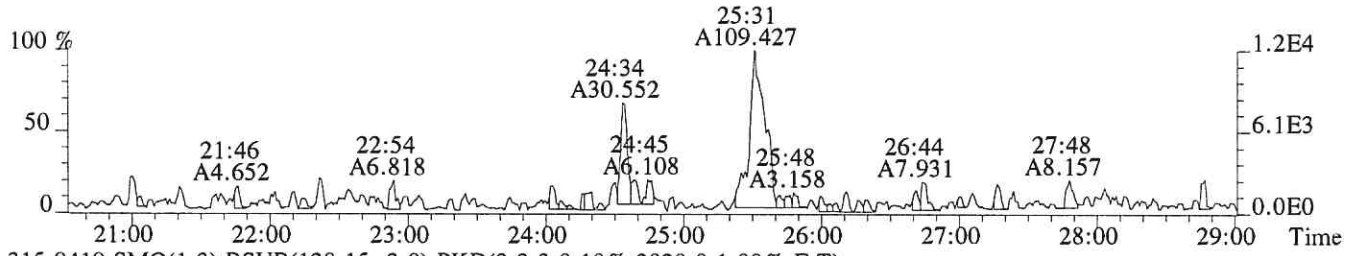
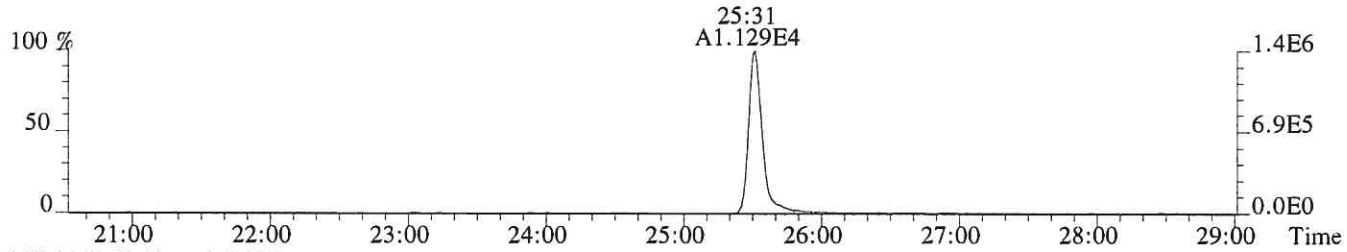
File:P518900 #1-602 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



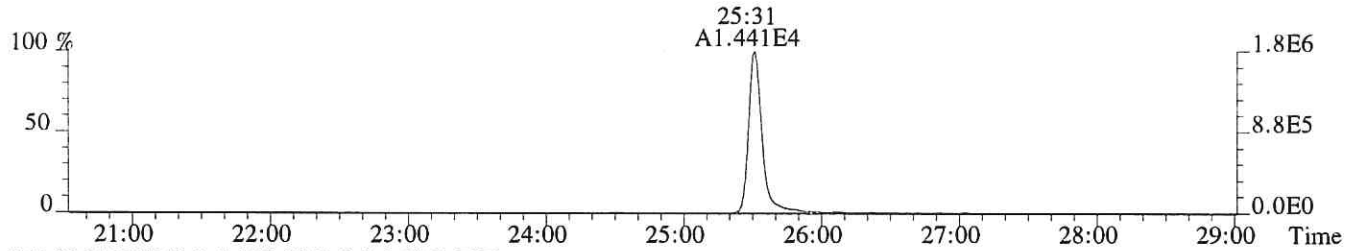
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



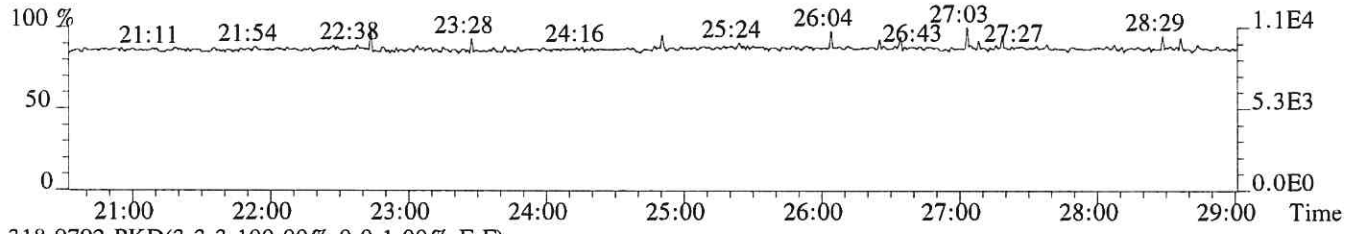
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



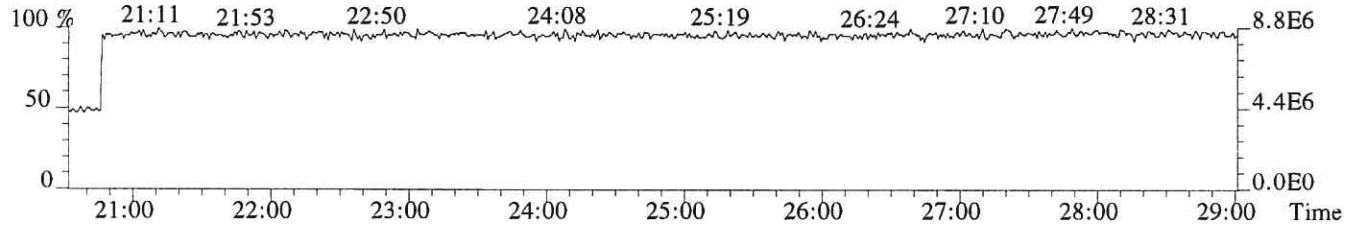
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



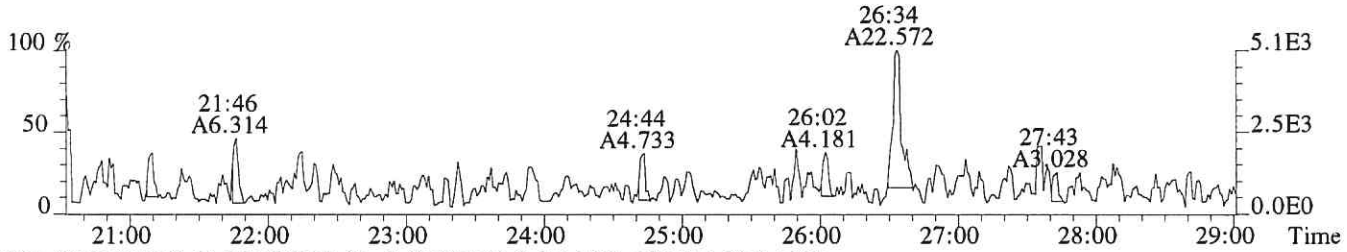
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



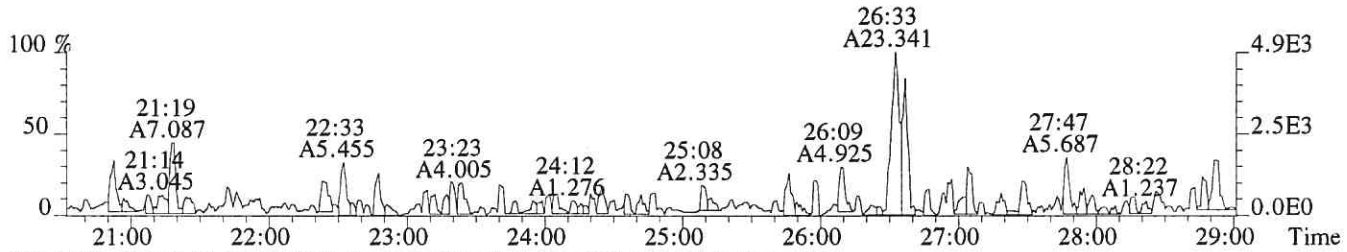
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



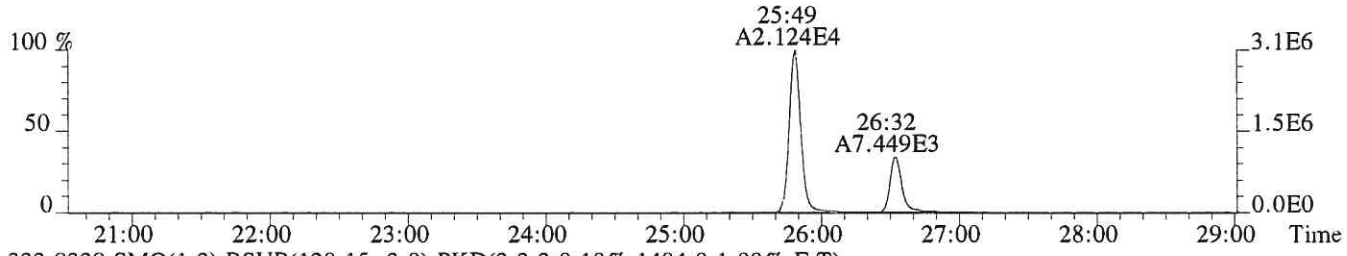
File:P518900 #1-602 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



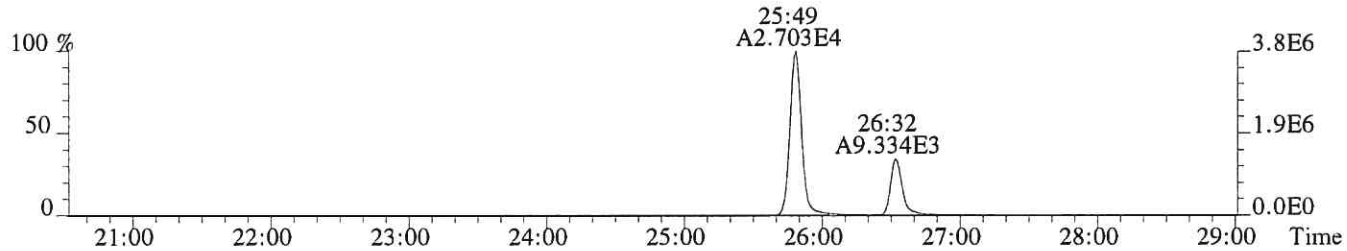
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



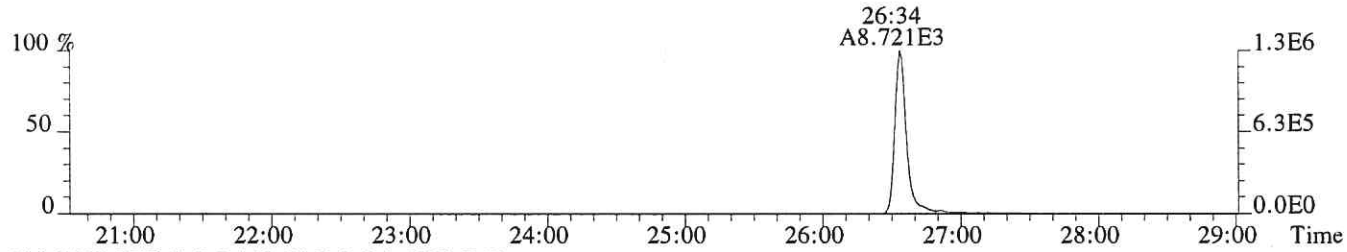
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3656.0,1.00%,F,T)



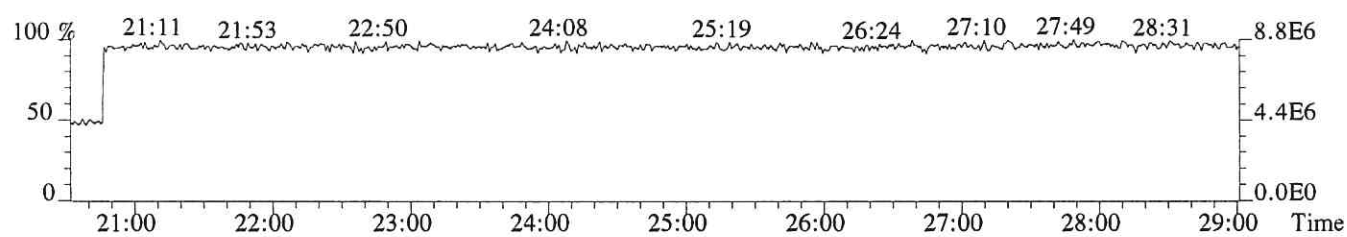
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



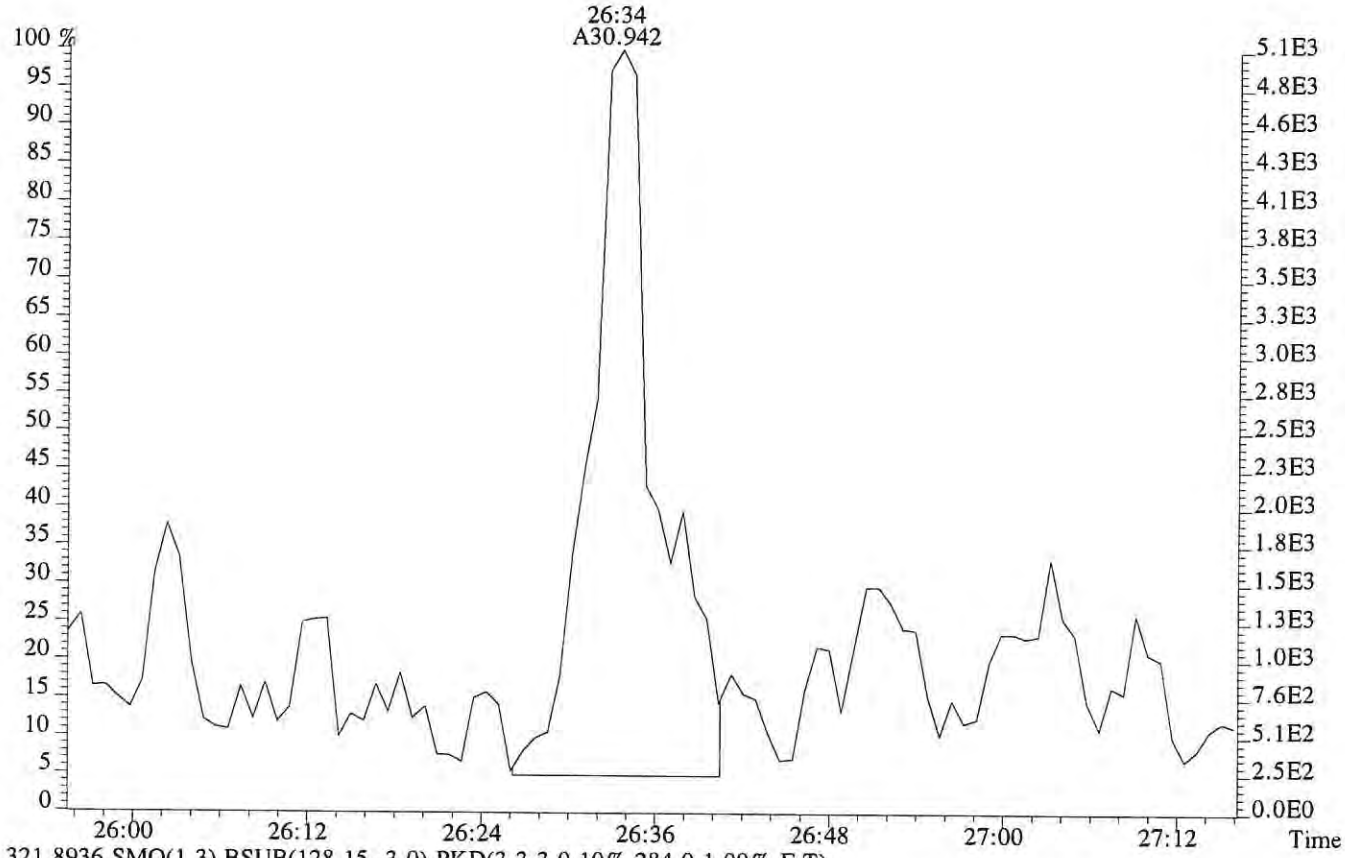
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



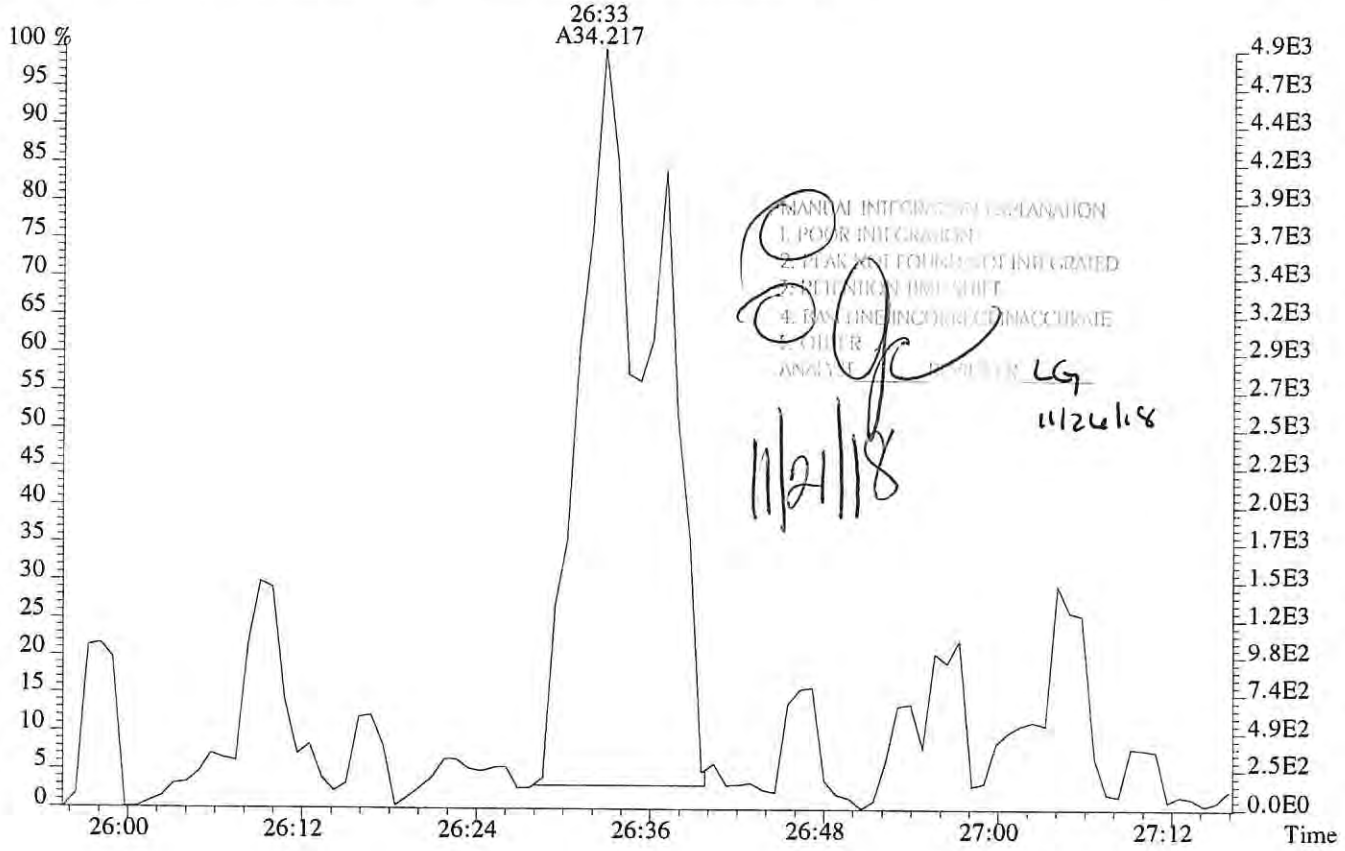
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518900 #1-602 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



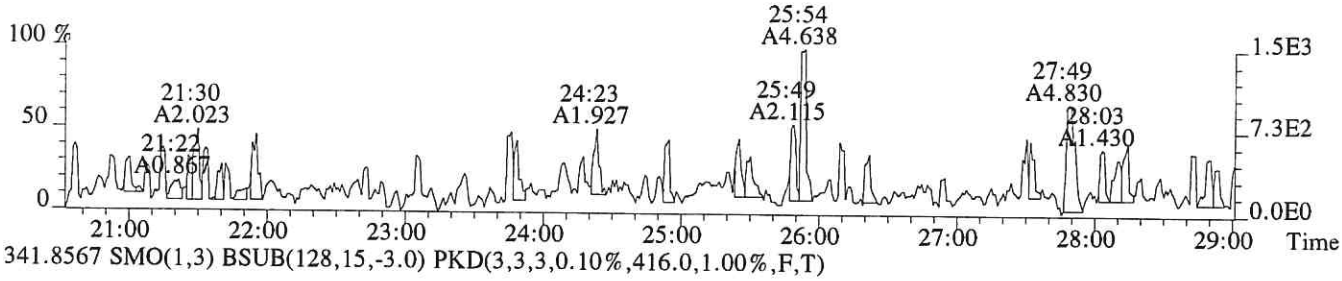
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



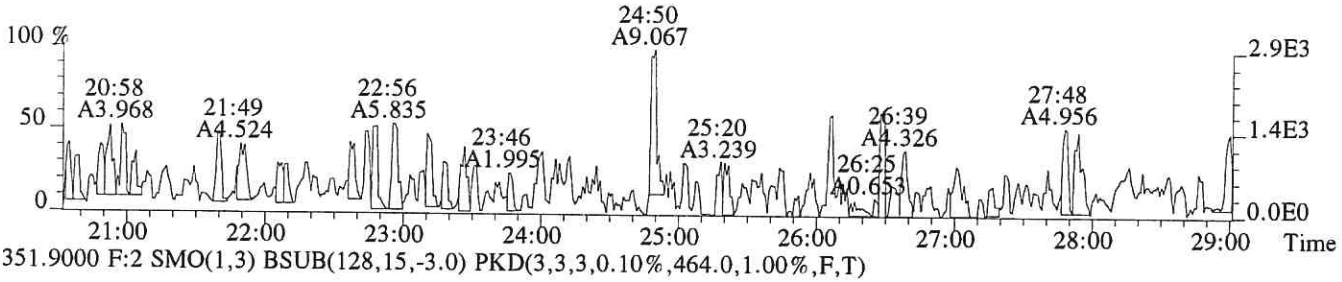
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST

LG
11/26/18
11/21/18

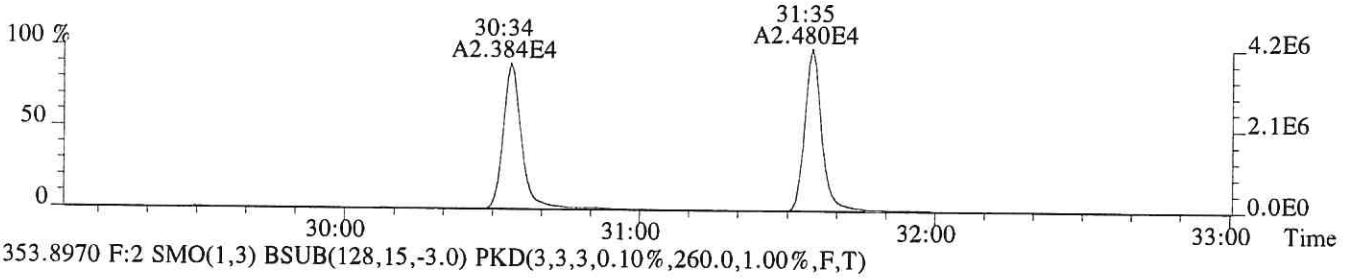
File:P518900 #1-602 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



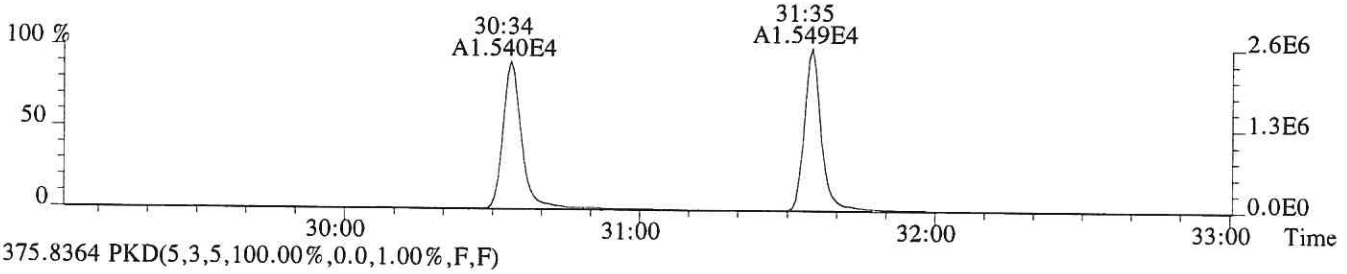
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



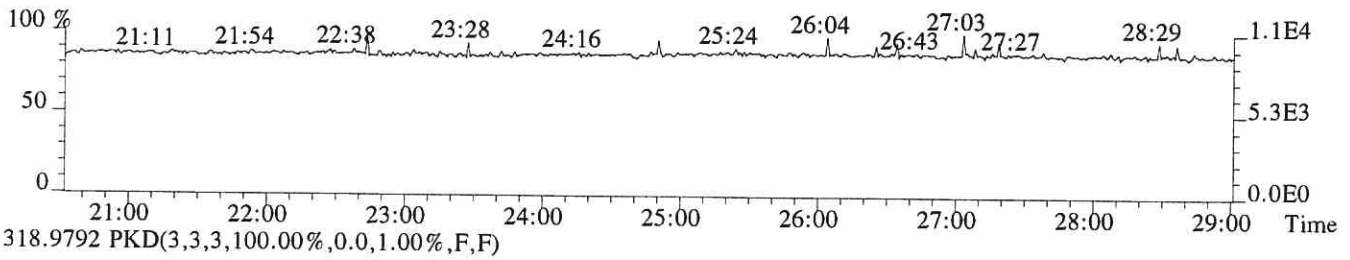
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



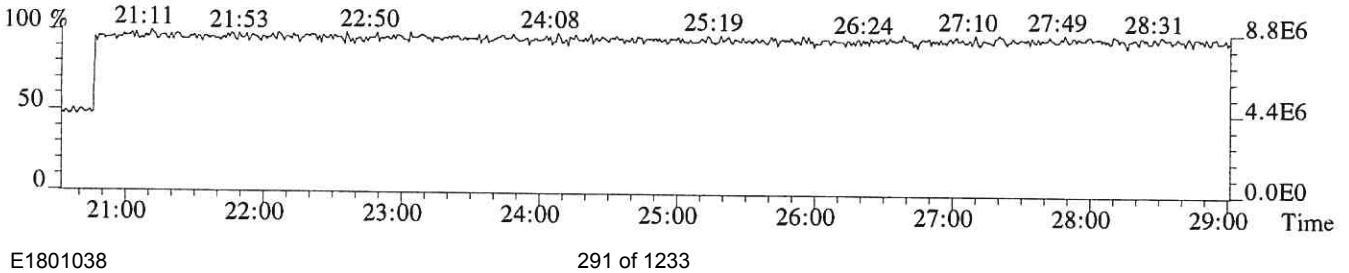
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



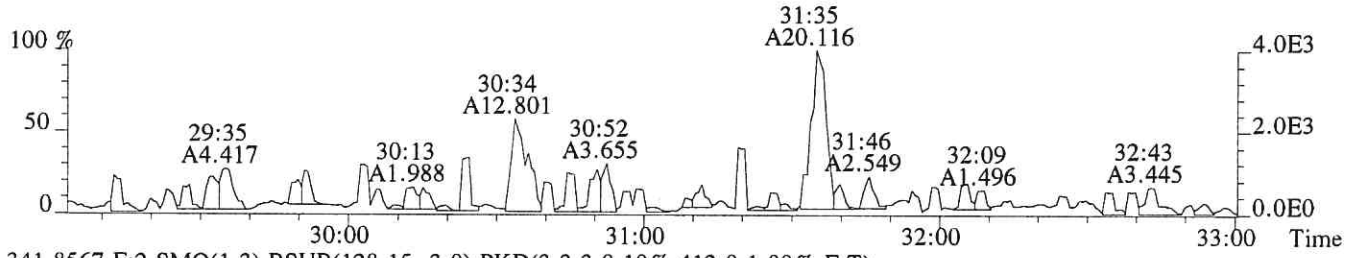
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



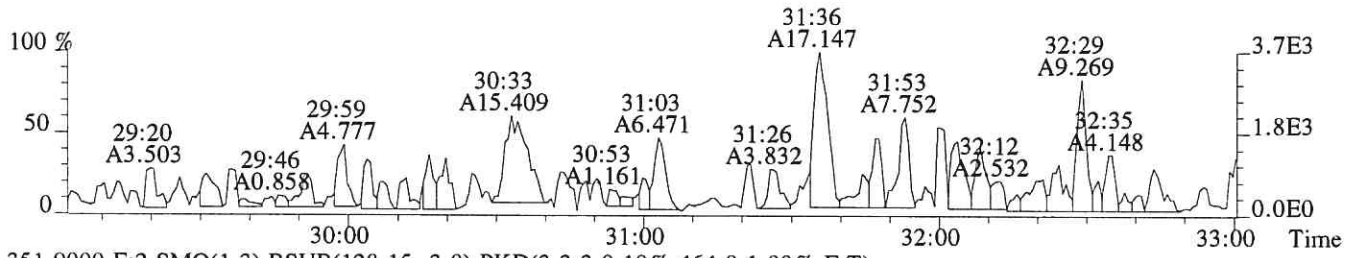
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



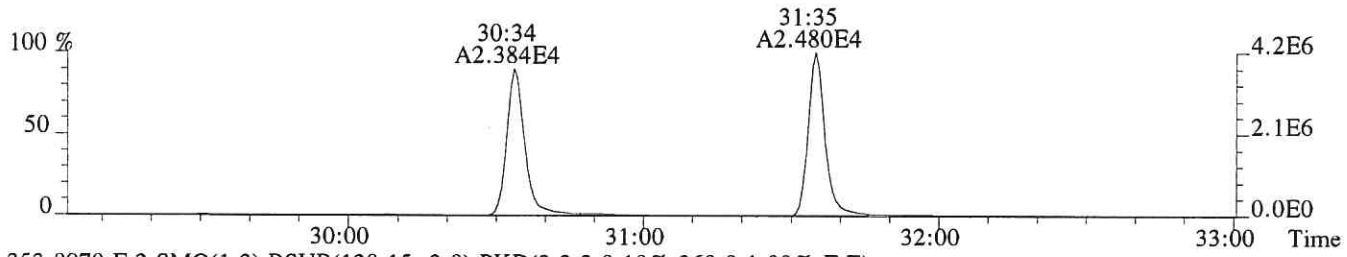
File:P518900 #1-357 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



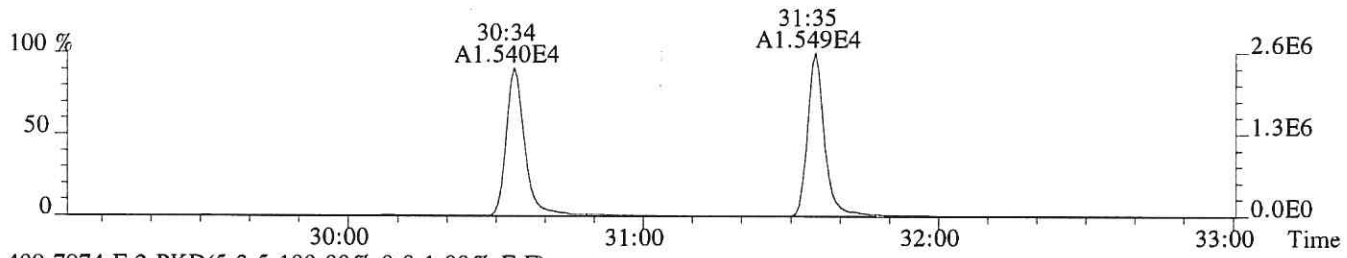
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



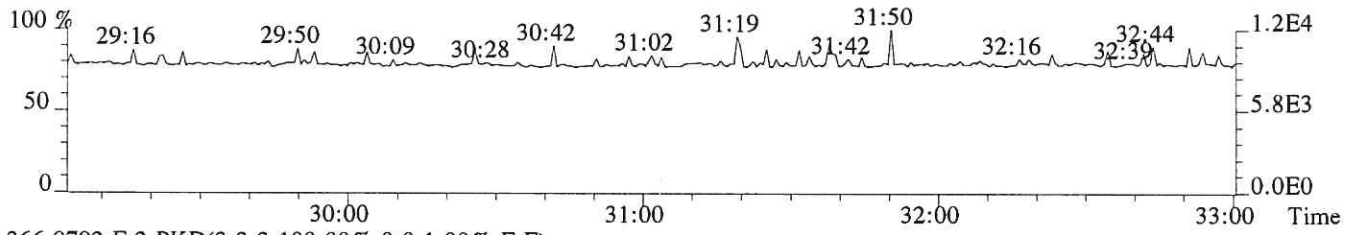
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



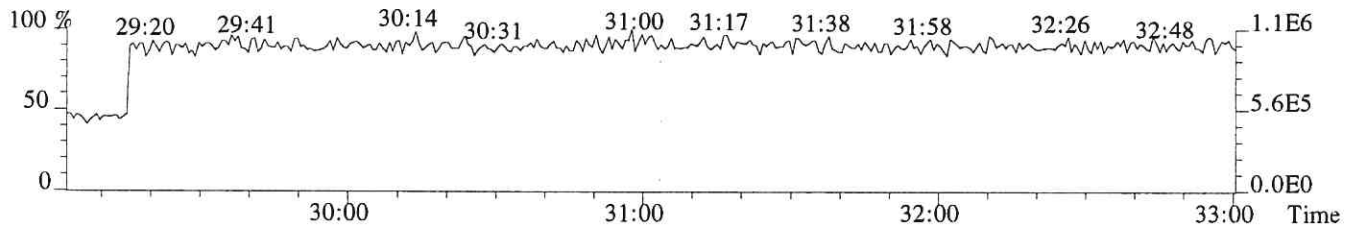
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



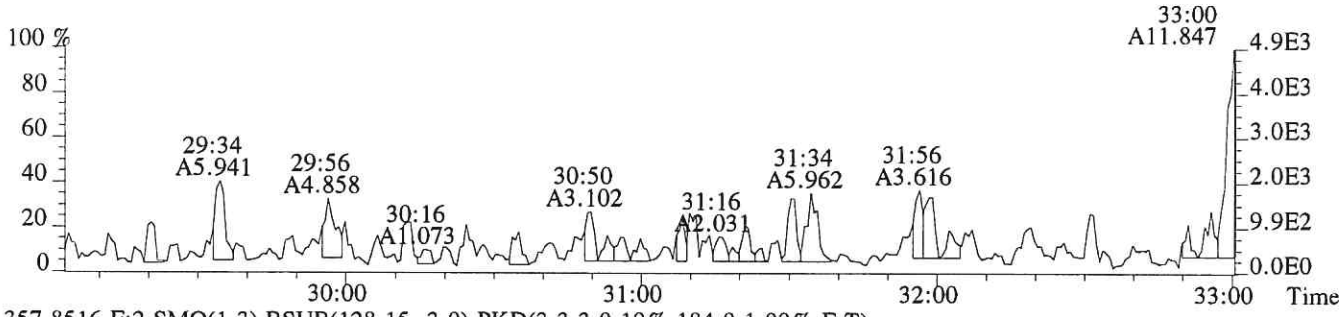
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



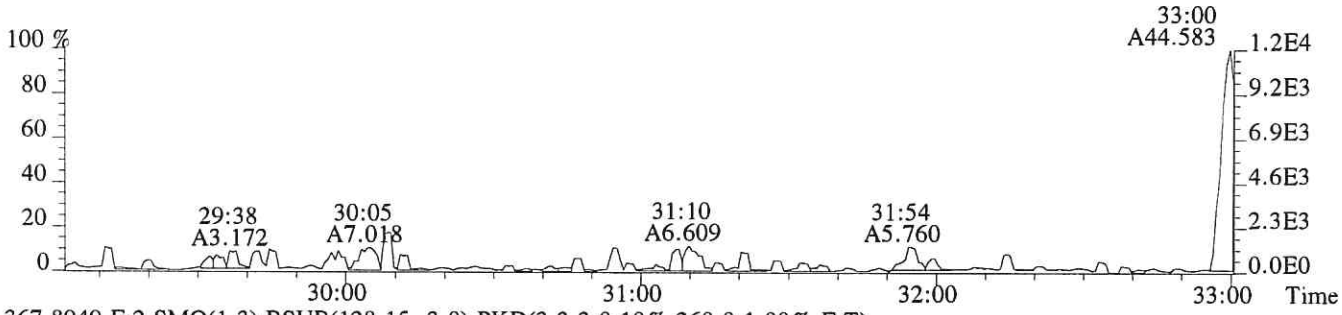
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



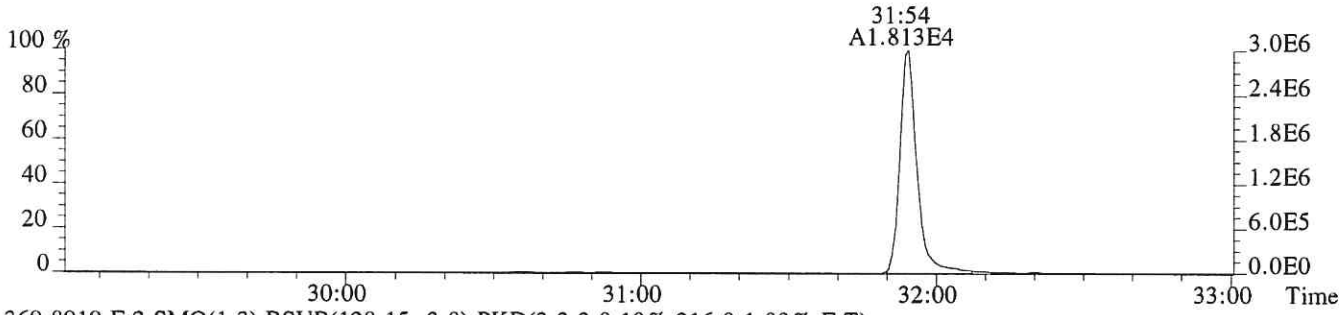
File:P518900 #1-357 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



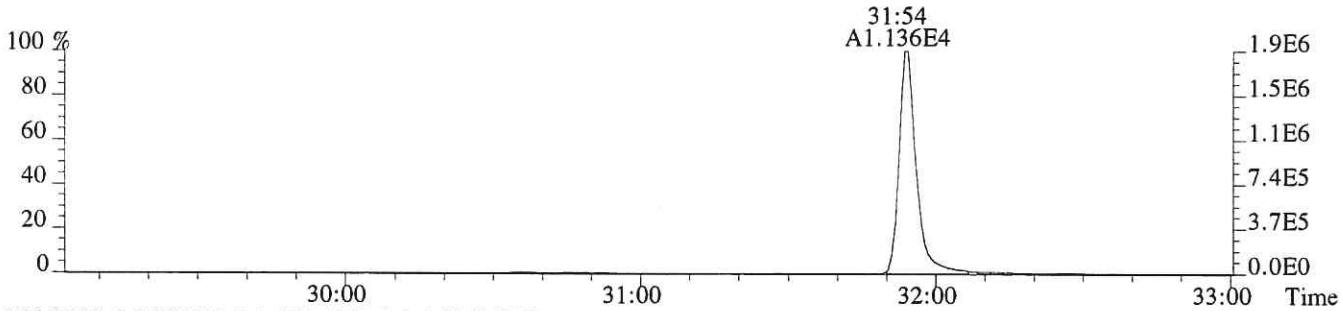
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



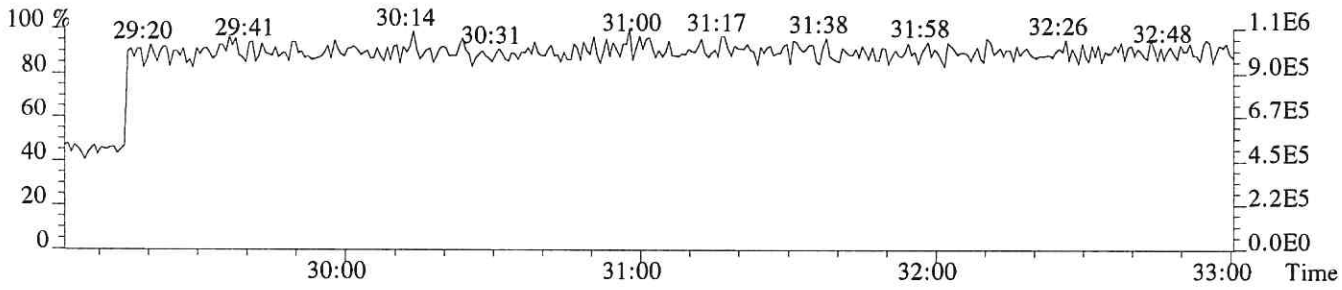
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



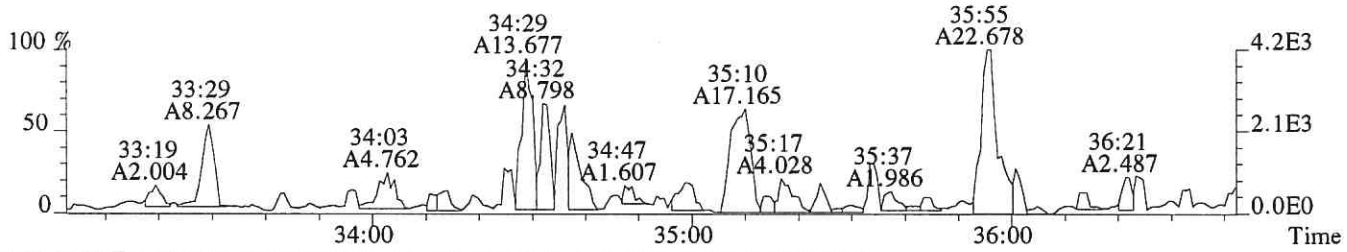
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



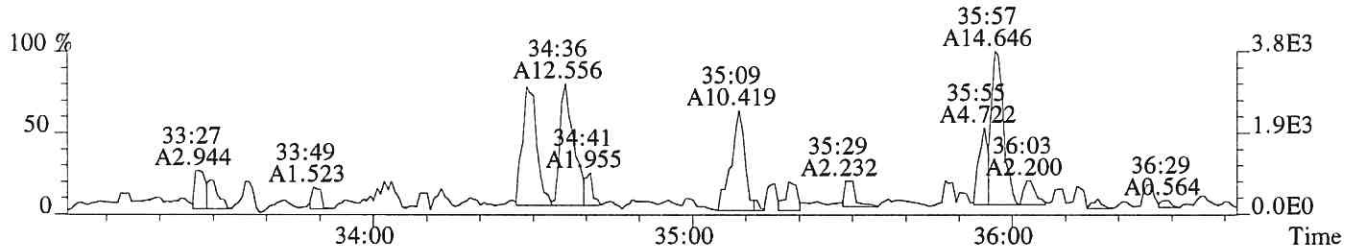
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



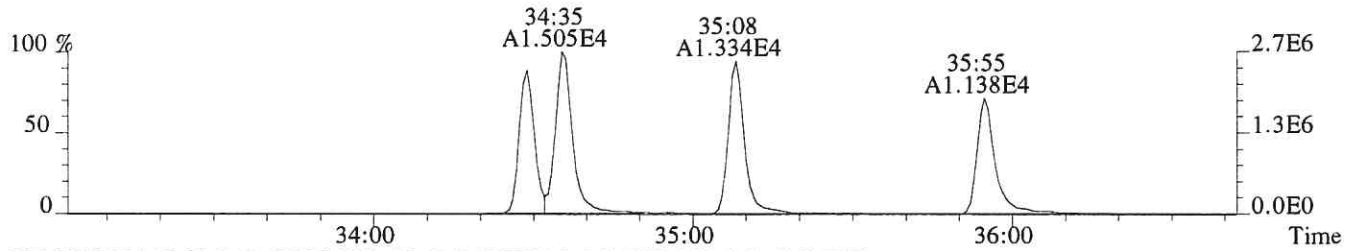
File:P518900 #1-330 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



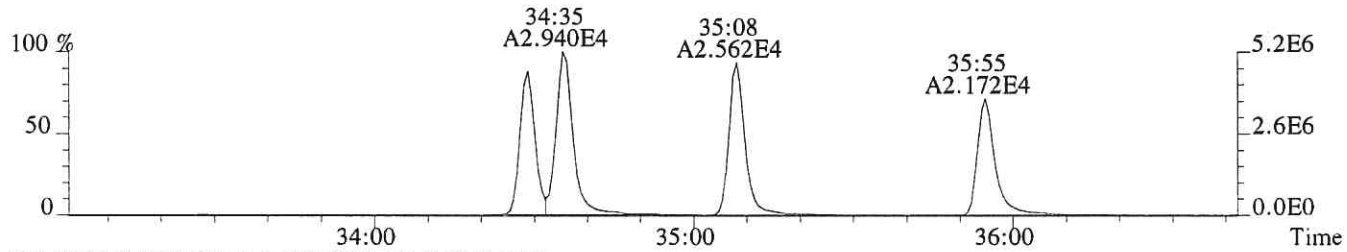
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



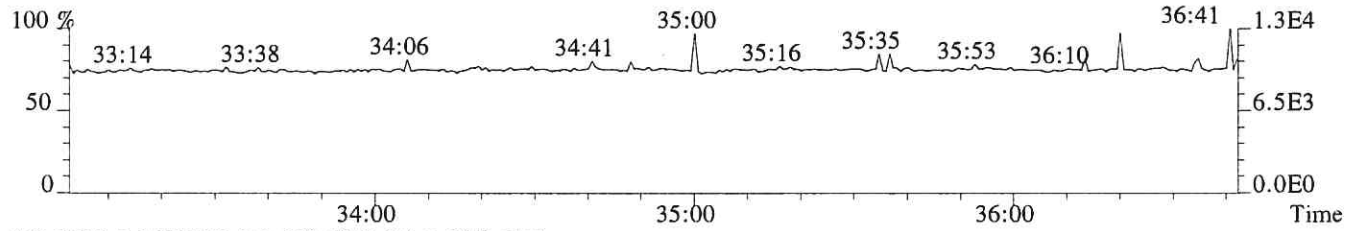
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



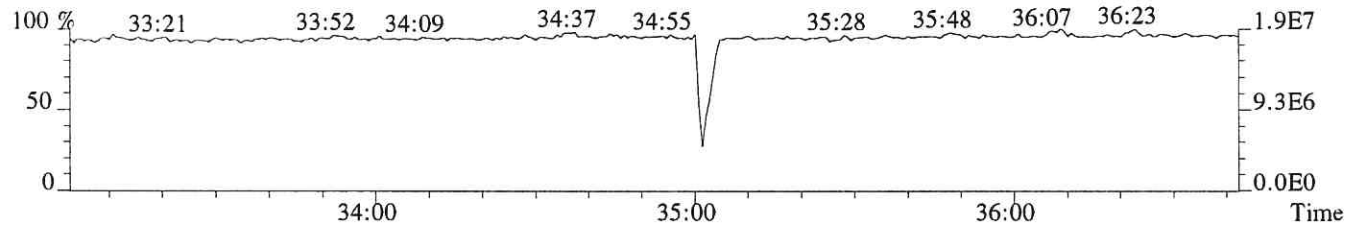
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



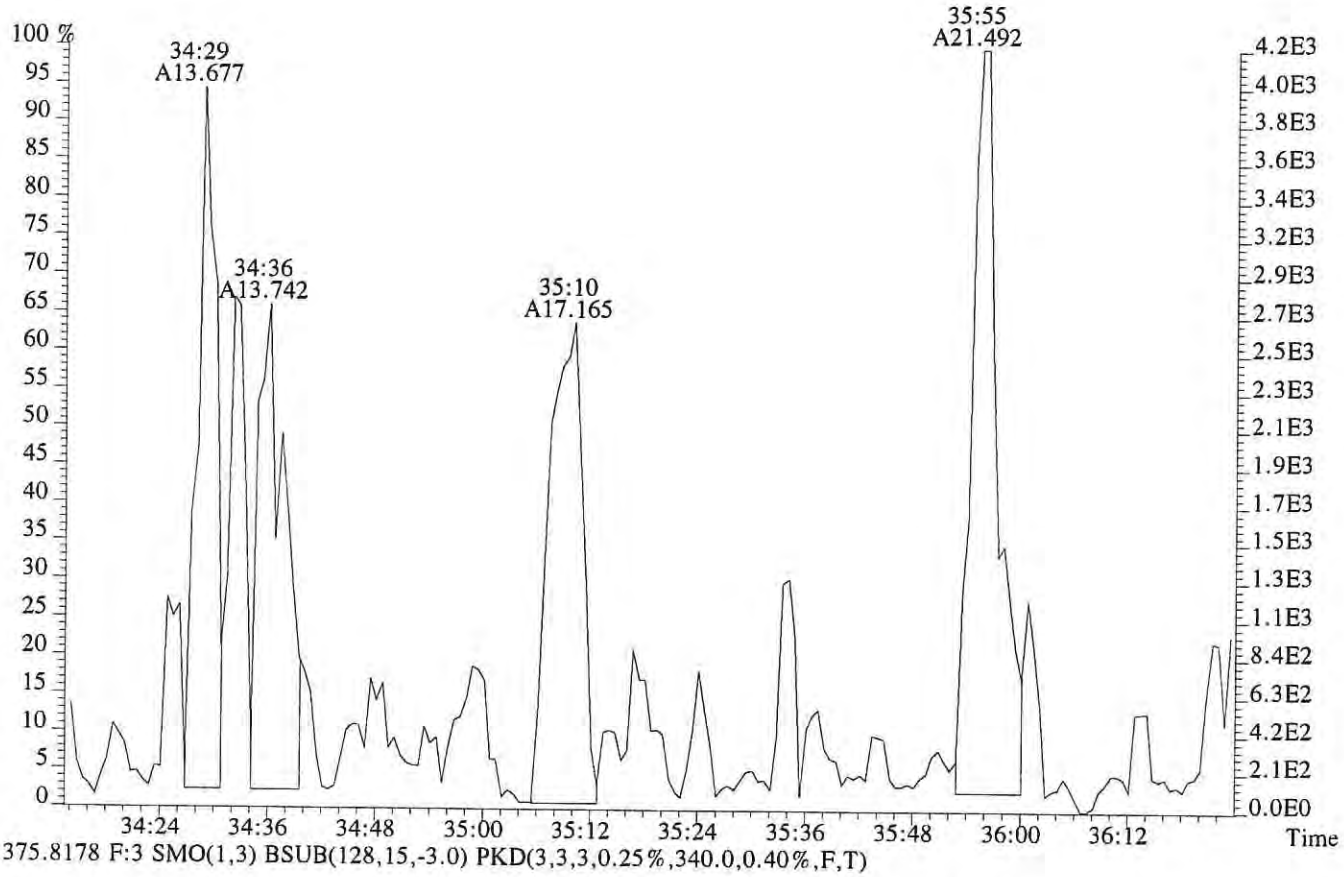
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



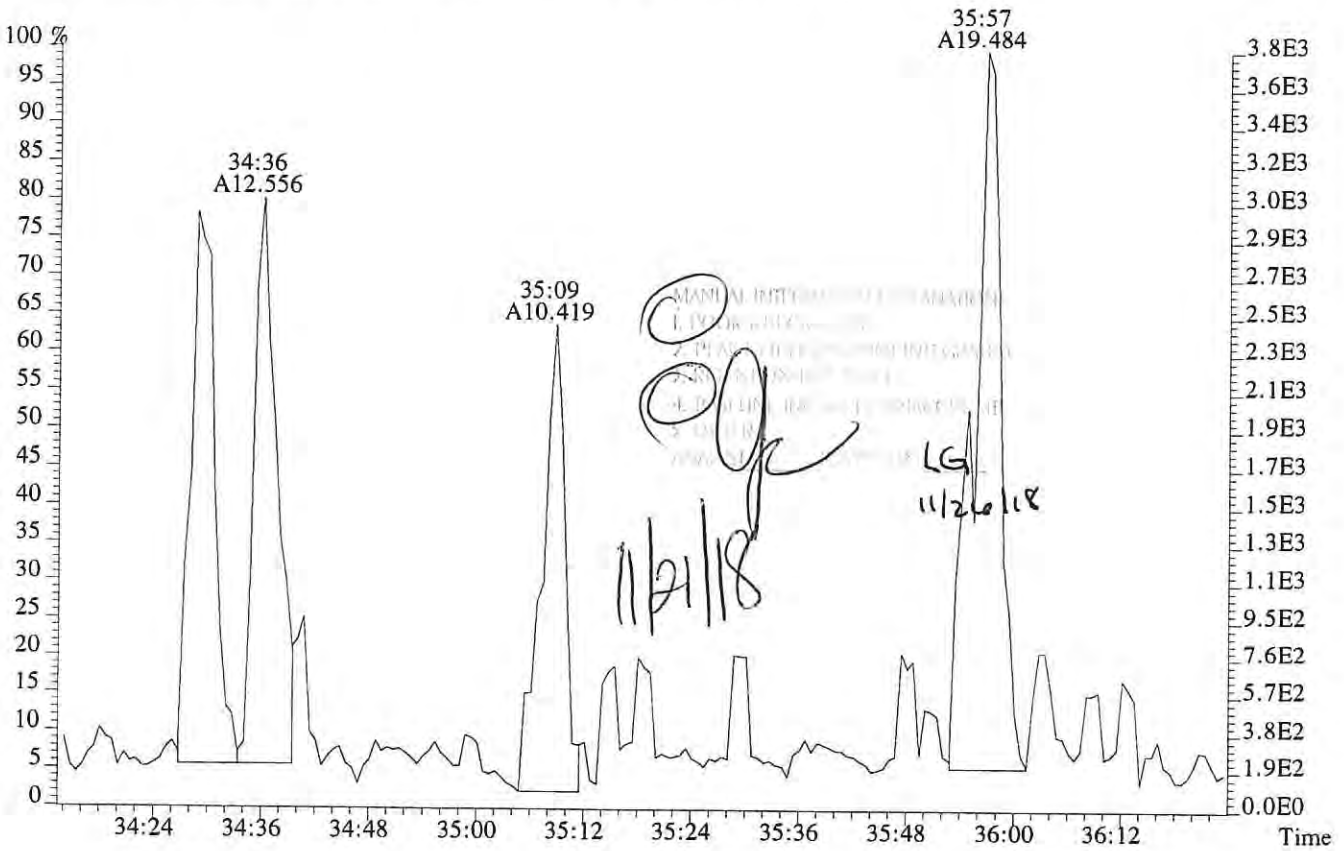
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



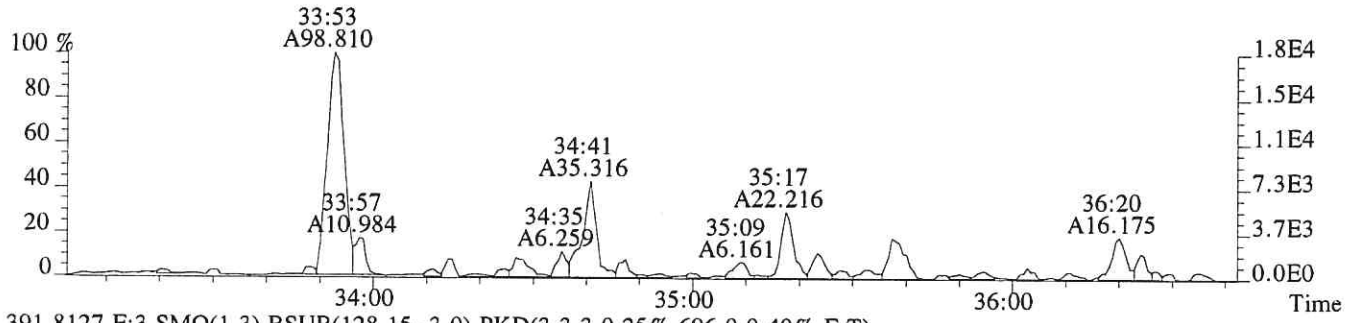
File:P518900 #1-330 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



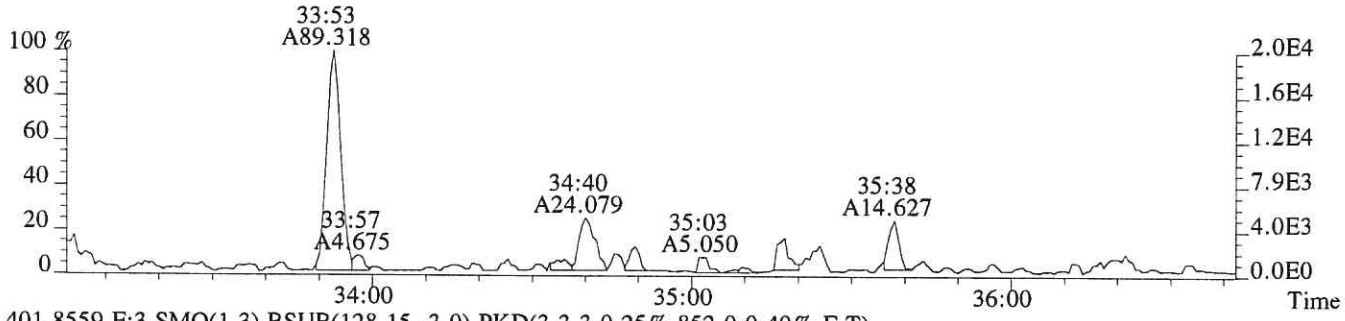
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



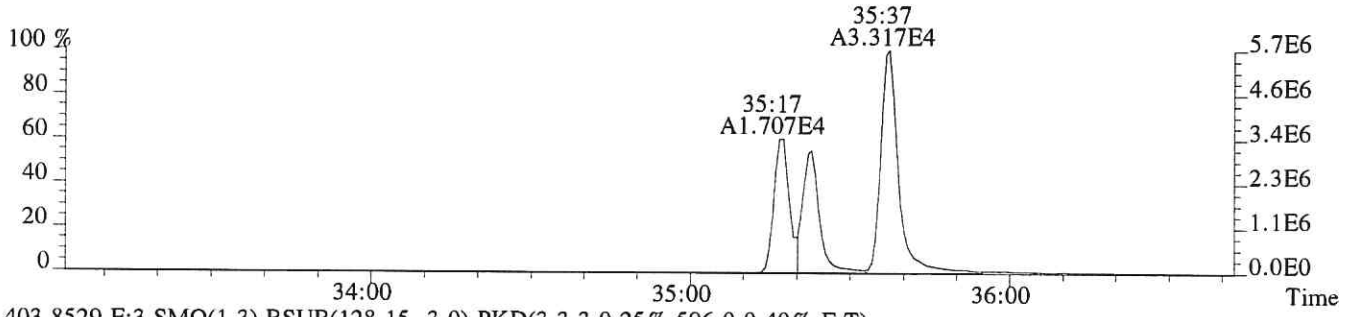
File:P518900 #1-330 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



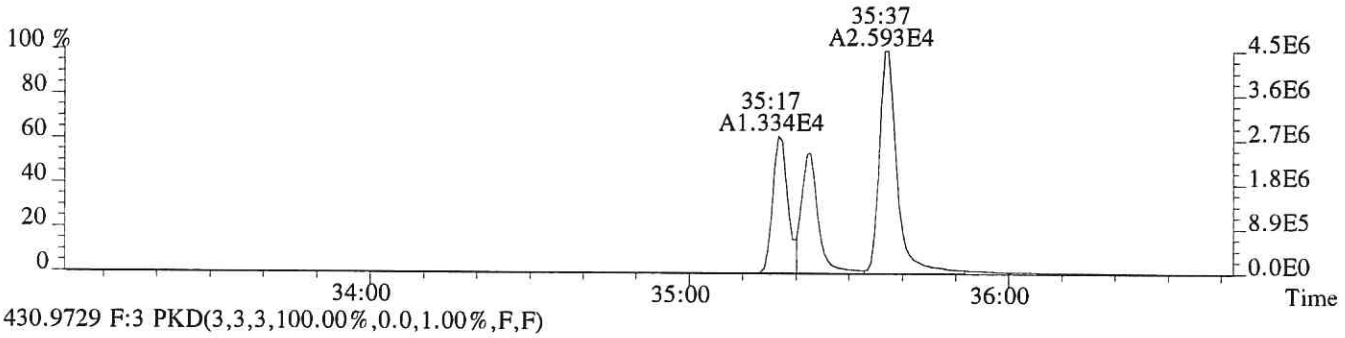
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



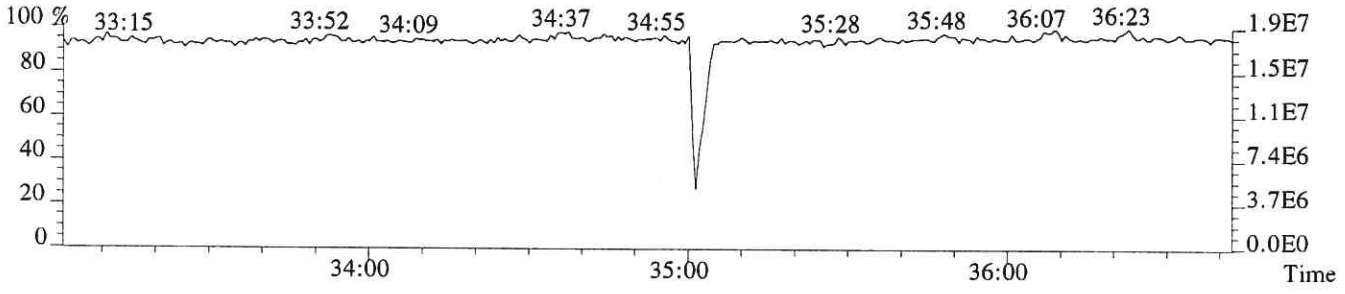
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



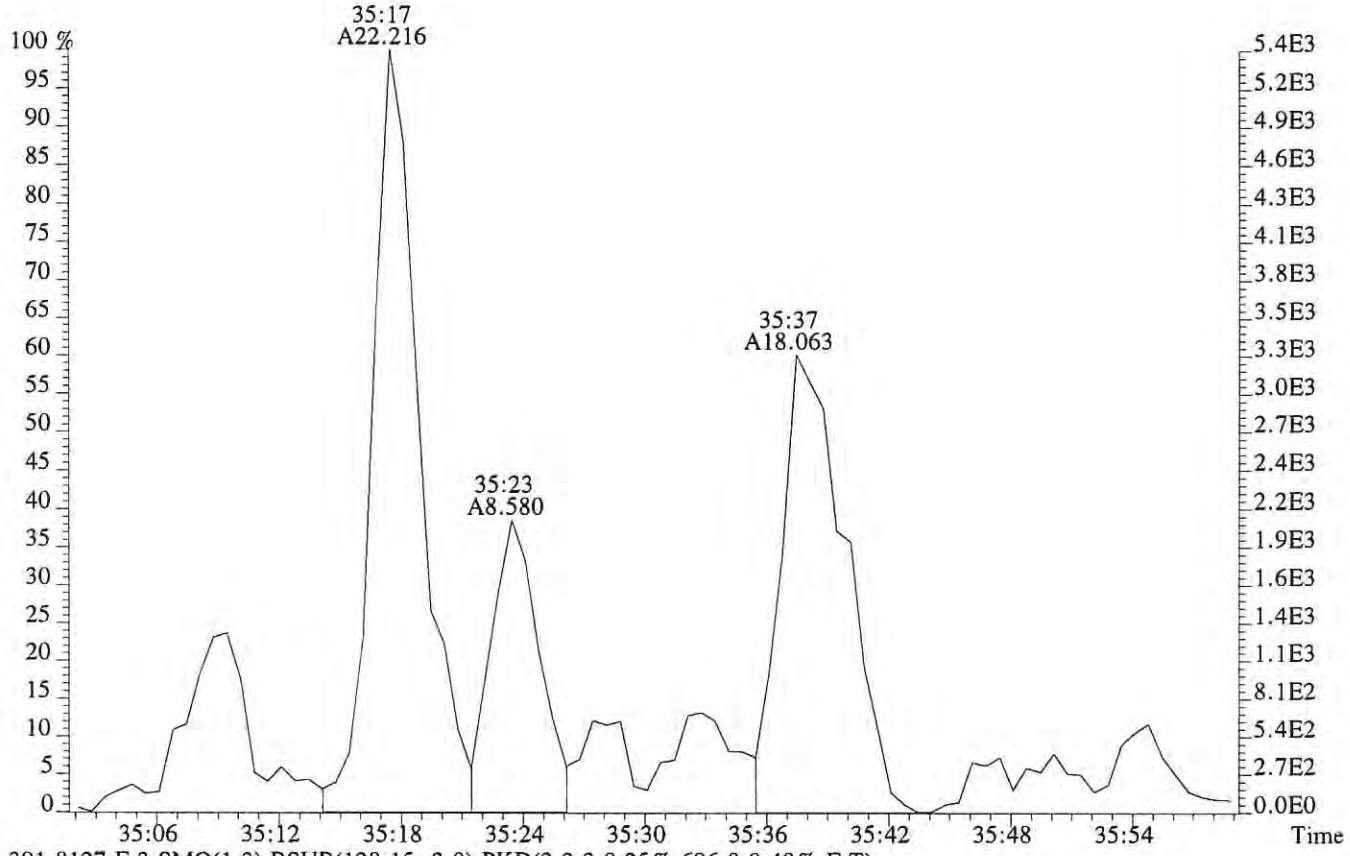
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



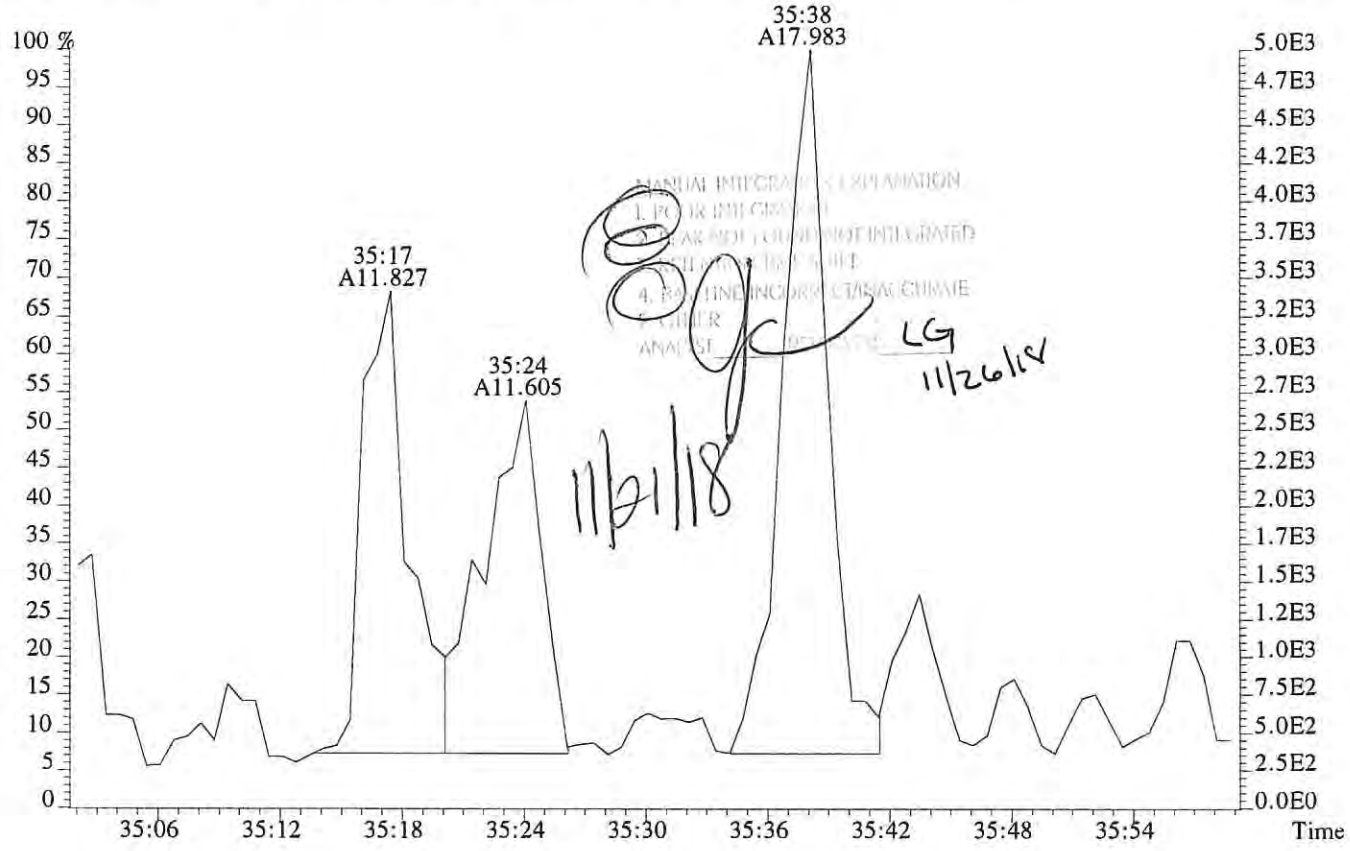
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518900 #1-330 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)

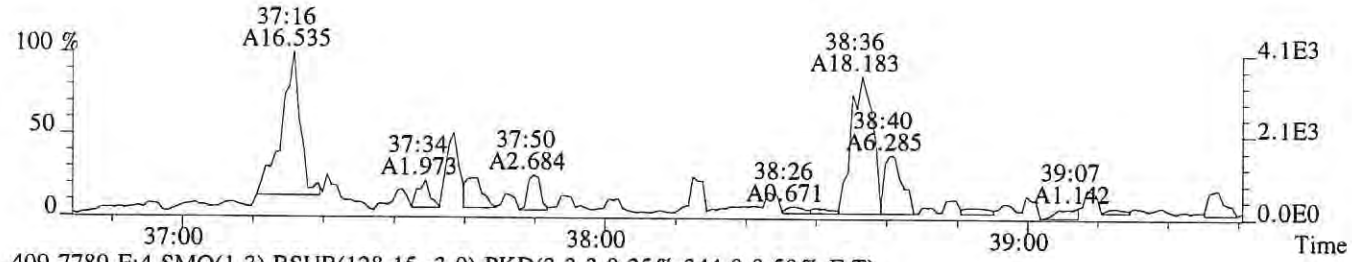


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)

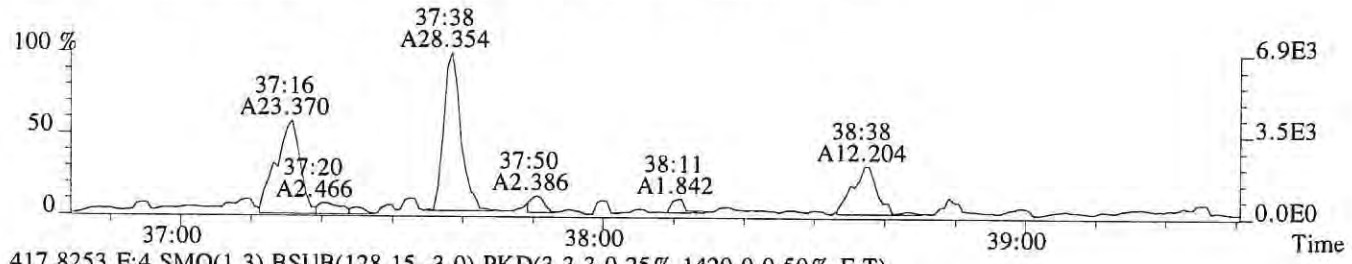


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST
LG
11/26/18
11/21/18

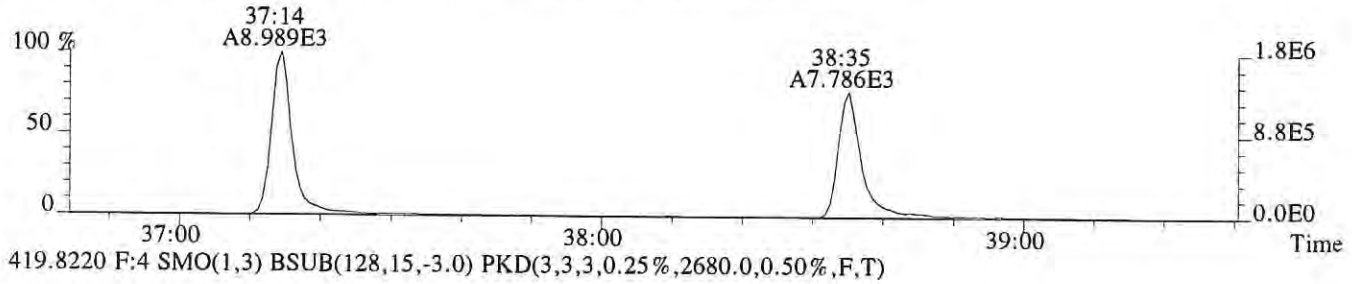
File:P518900 #1-250 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.50%,F,T)



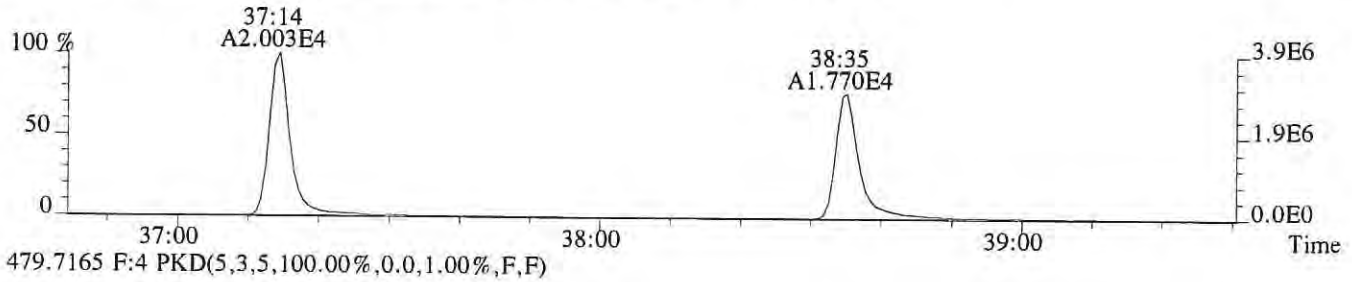
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.50%,F,T)



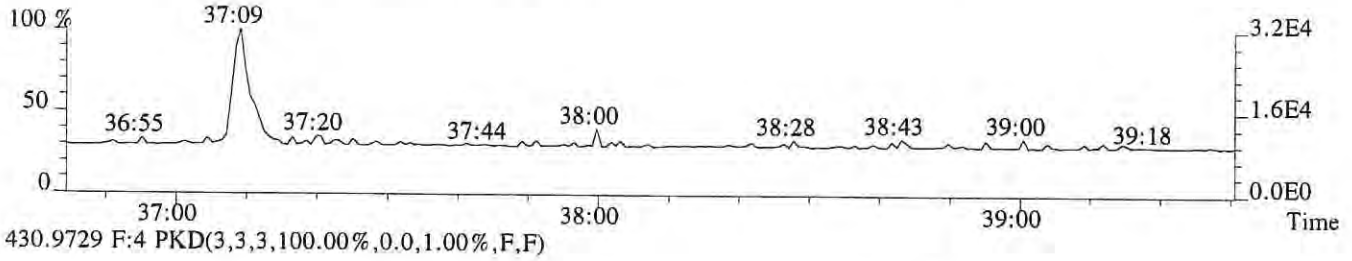
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.50%,F,T)



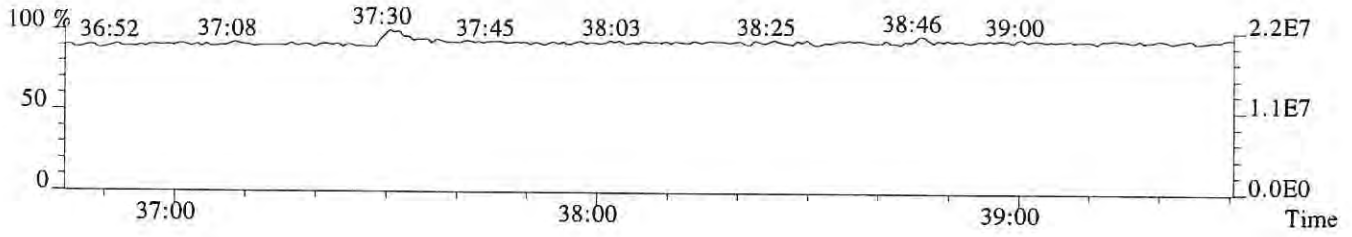
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.50%,F,T)



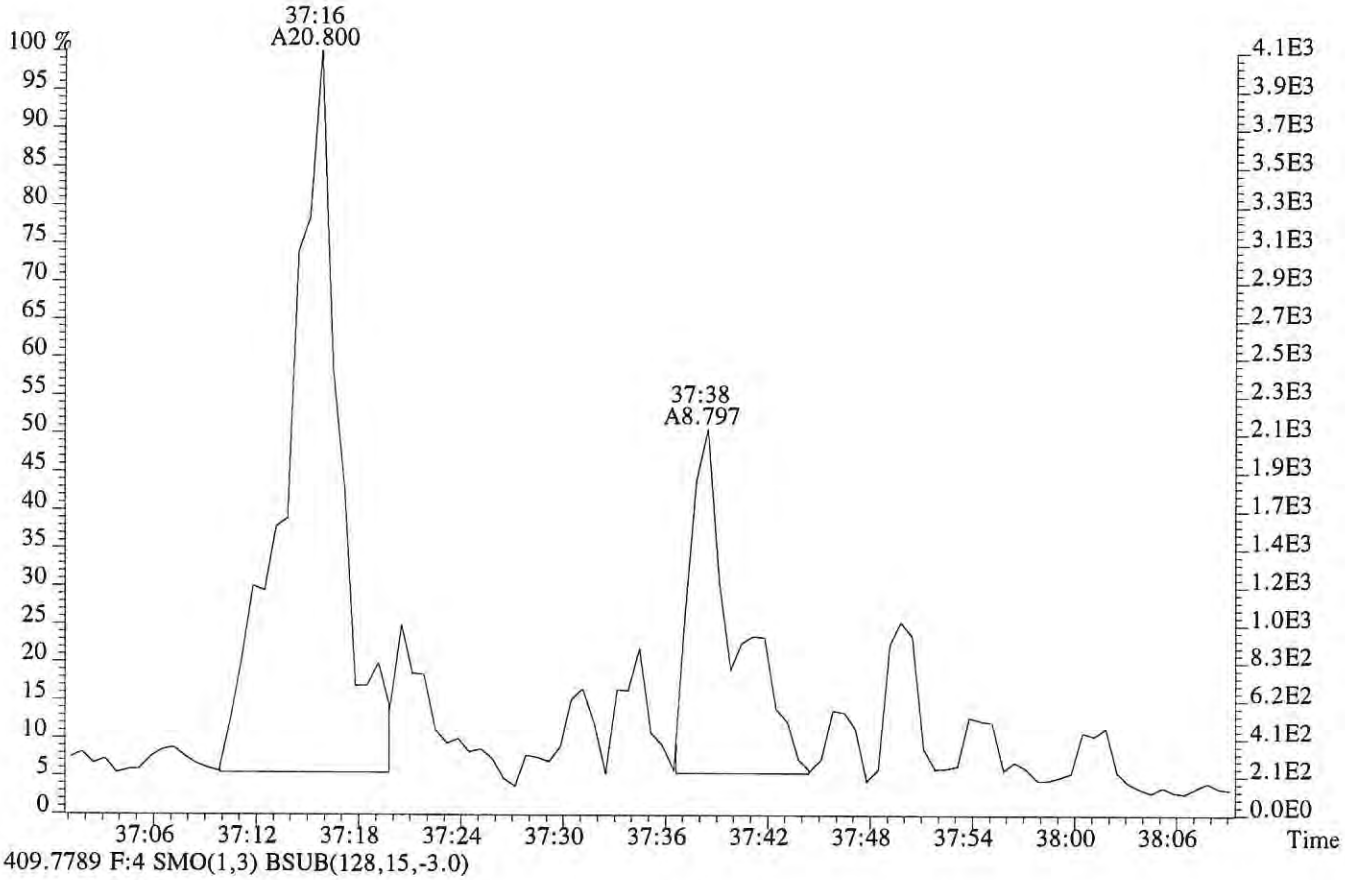
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



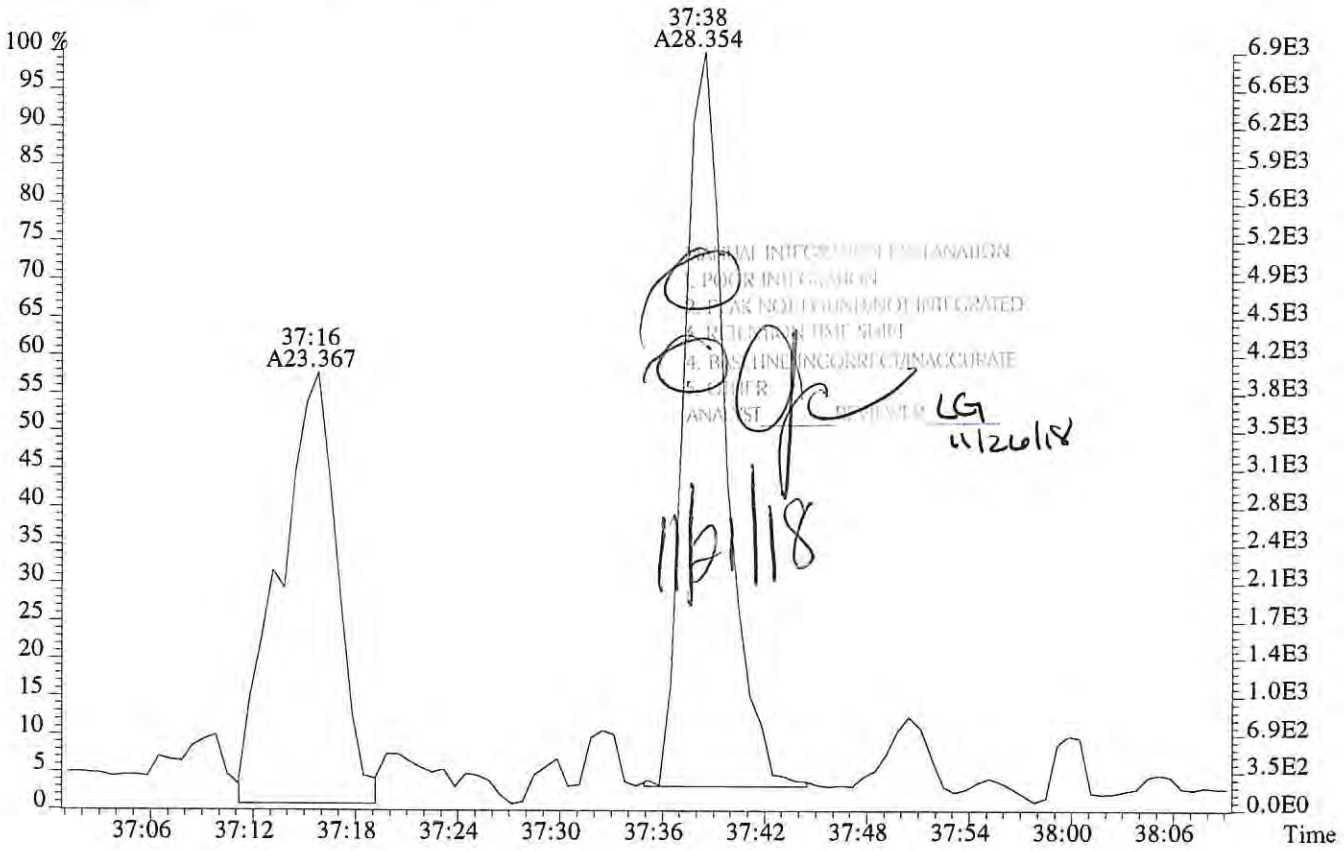
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



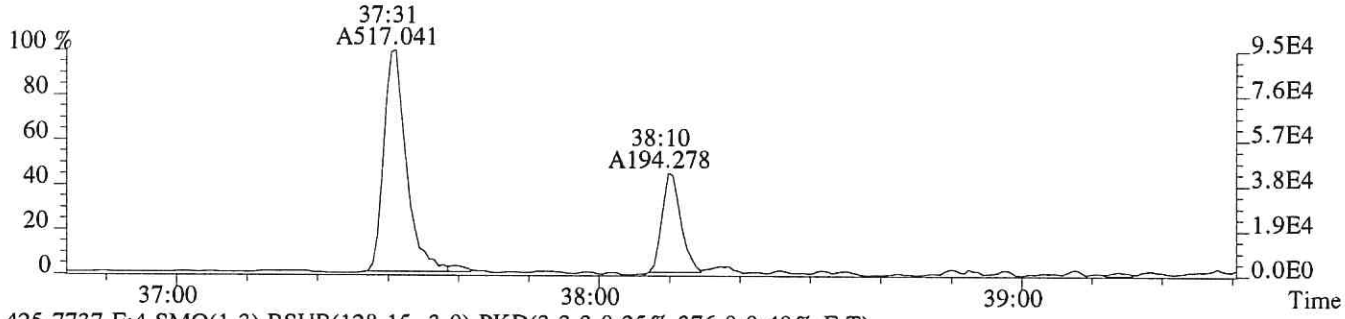
File:P518900 #1-250 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0)



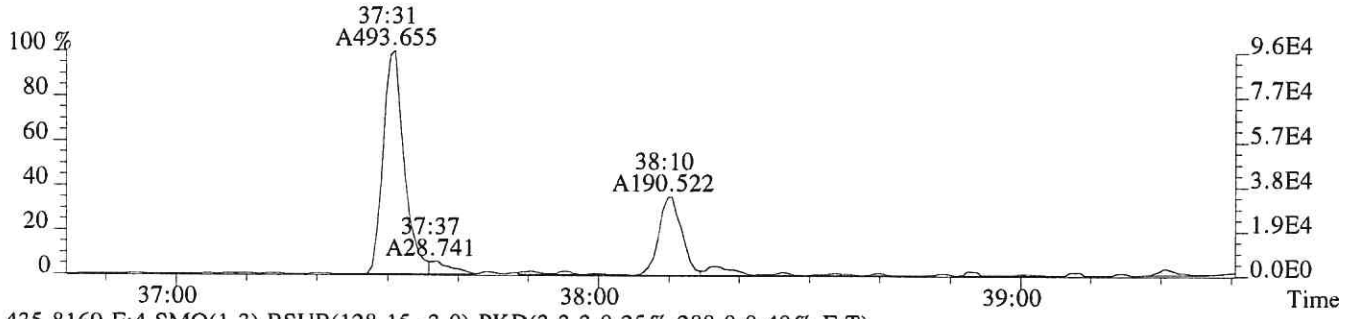
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0)



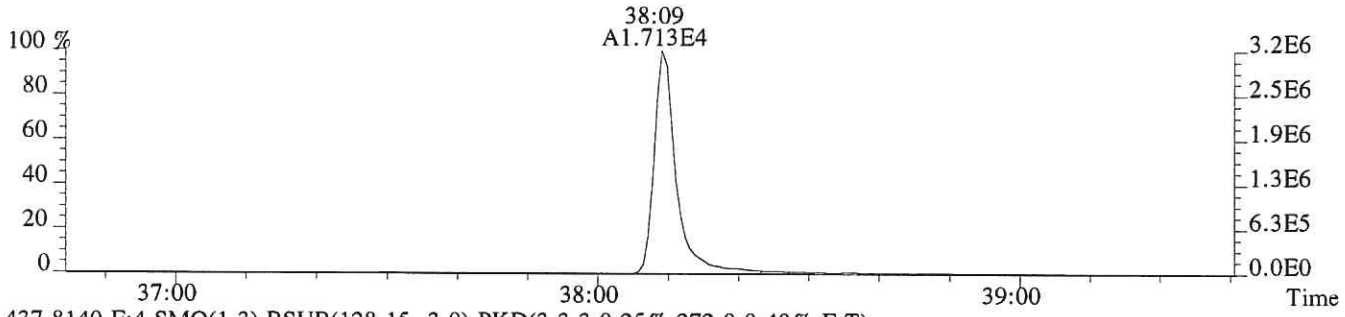
File:P518900 #1-250 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



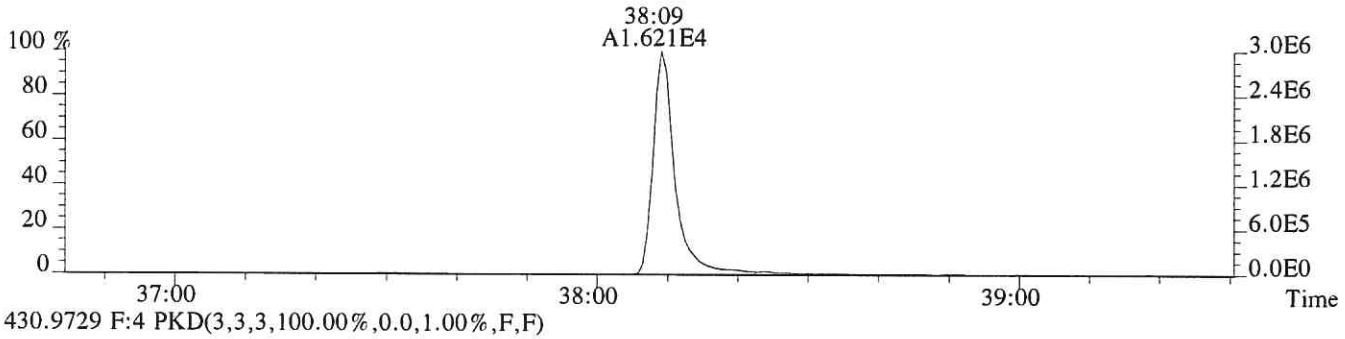
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



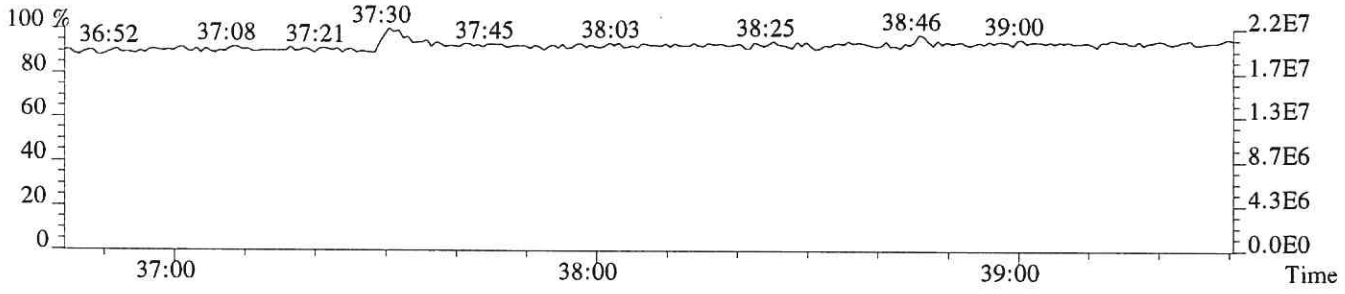
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



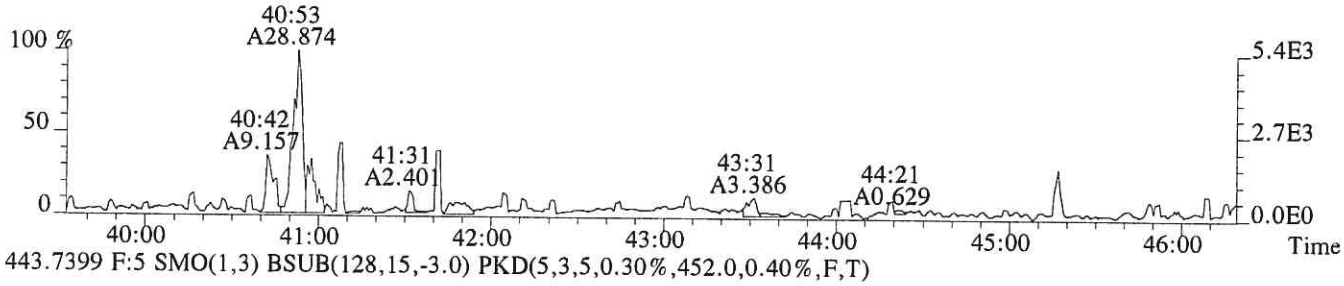
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



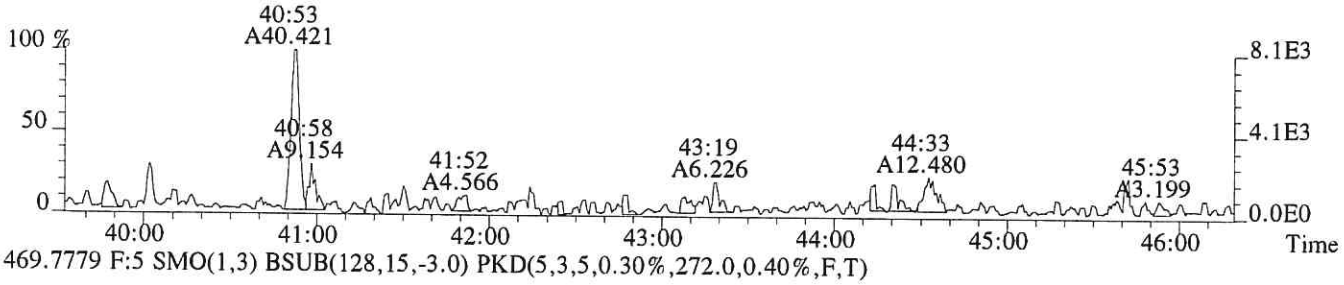
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



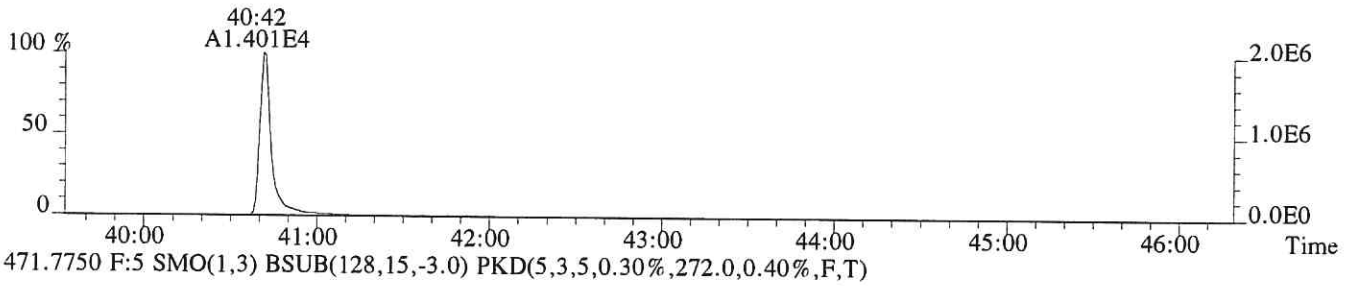
File:P518900 #1-610 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



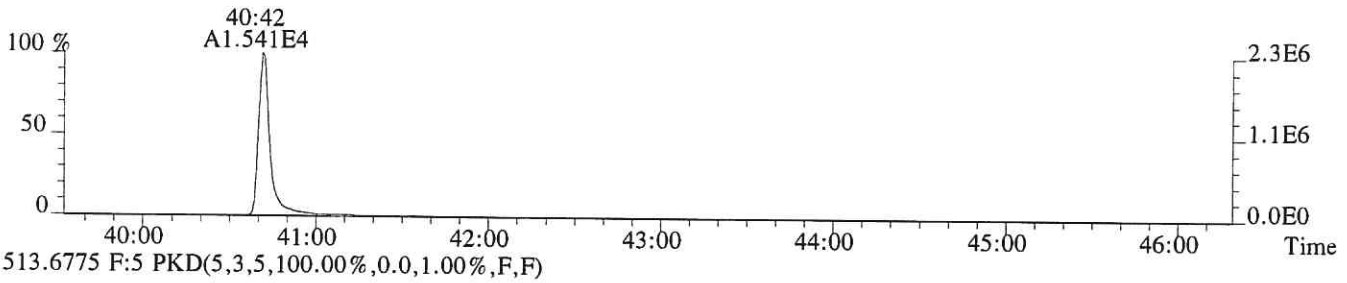
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



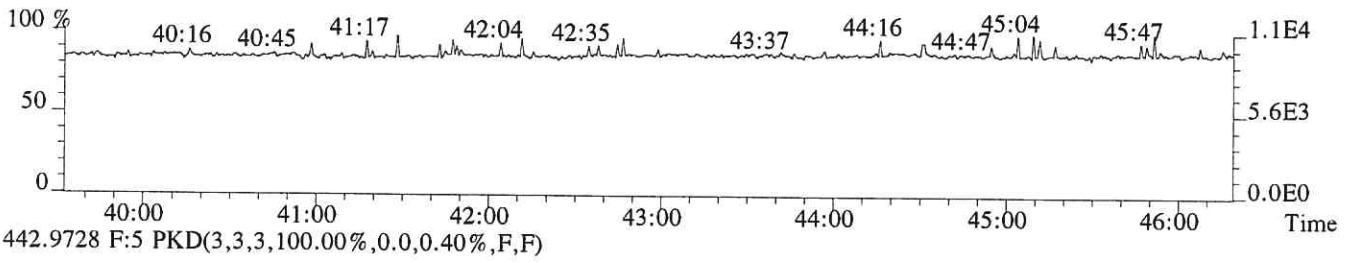
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



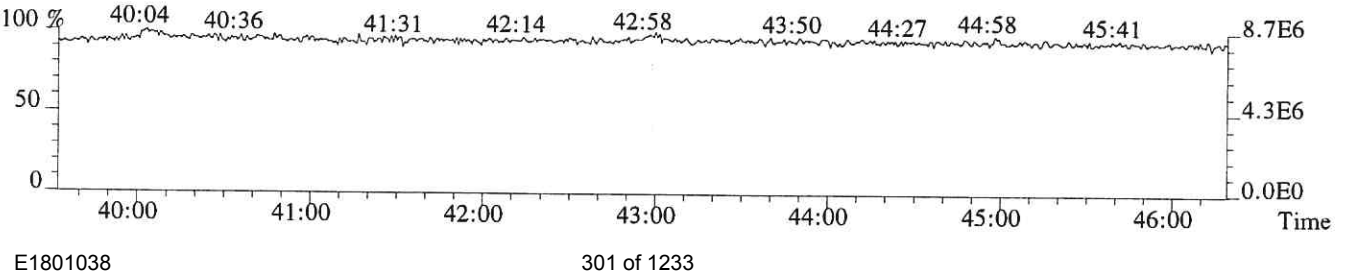
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



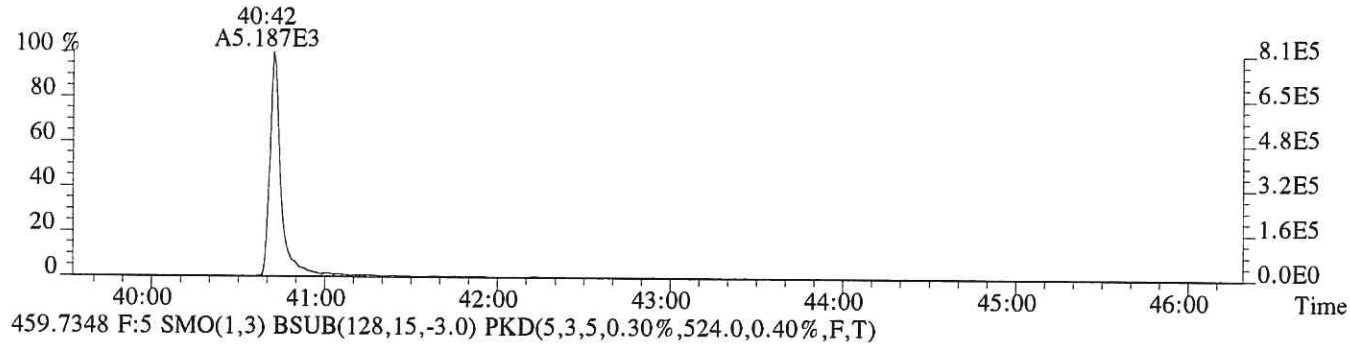
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



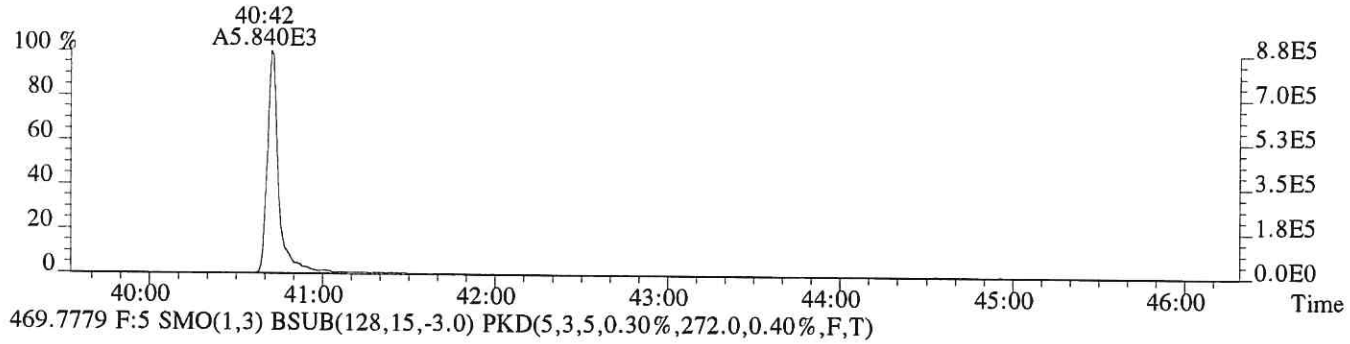
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



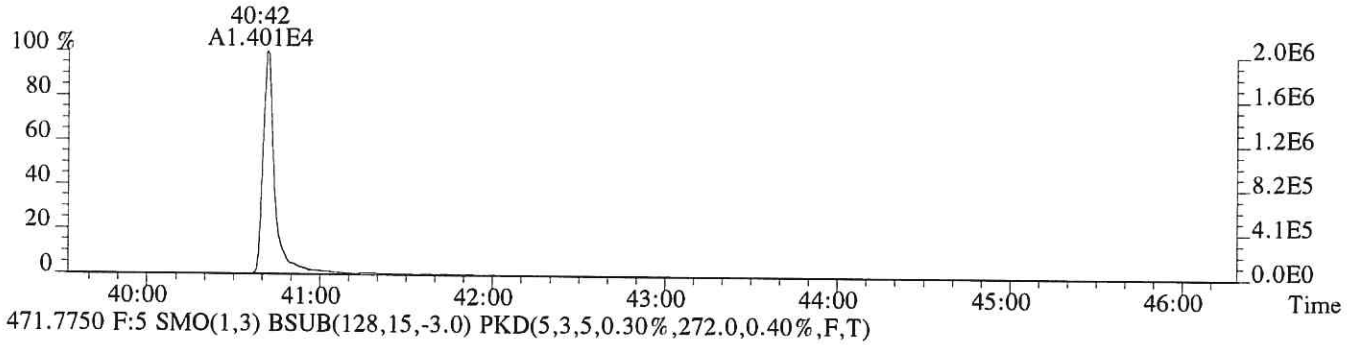
File:P518900 #1-610 Acq:18-NOV-2018 05:58:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



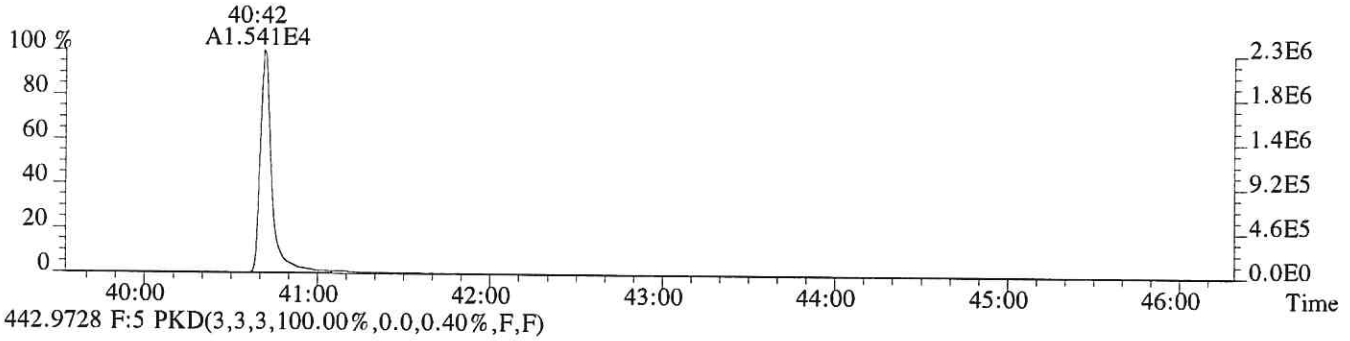
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



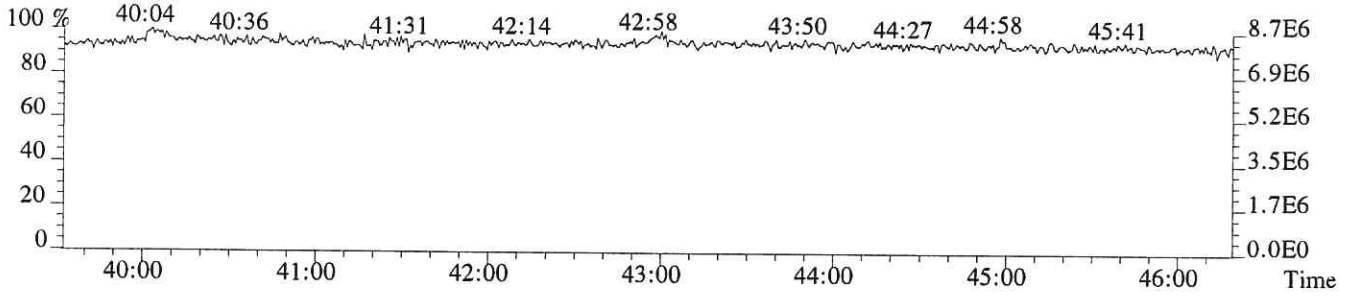
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0525

Run #13 Filename P518901 Samp: 1 Inj: 1 Acquired: 18-NOV-18 06:47:18
Processed: 21-NOV-18 12:44:53 Sample ID: E1801038-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:29	5.853e+01	9.585e+01	0.61	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	5.078e+00	4.020e+00	1.26	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	5.606e+00	3.809e+00	1.47	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	1.046e+01	9.431e+00	1.11	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	40:51	1.686e+01	3.091e+01	0.55	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	4.372e+00	9.210e+00	0.47	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.243e+01	6.504e+00	1.91	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.907e+01	1.202e+01	1.59	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	2.472e+02	2.928e+02	0.84	no	no	1.025
17	Unk	OCDD	40:42	7.233e+03	8.052e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:30	7.779e+03	9.767e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:33	1.871e+04	1.194e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	1.916e+04	1.197e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.019e+04	1.950e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.341e+04	2.627e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.197e+04	2.348e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.063e+04	2.105e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.544e+03	1.899e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.779e+03	1.770e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	5.228e+03	6.753e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:53	1.389e+04	8.818e+03	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.482e+04	1.168e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.613e+04	1.252e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.718e+04	1.642e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:41	1.401e+04	1.559e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	2.183e+04	2.717e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	3.236e+04	2.522e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:33	5.716e+03				no	1.014

$$\text{OCDD} = \frac{(7.233e+03 + 8.052e+03) \times 4000 \text{ pg} \times 1}{(1.401e+04 + 1.559e+04) \times 10.736 \text{ g} \times 75.3 / 100 \times 1.118} = 228.5355 \text{ ng/Kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0525

Run #13 Filename P518901 Samp: 1 Inj: 1 Acquired: 18-NOV-18 06:47:18
Processed: 21-NOV-18 12:44:53 LAB. ID: E1801038-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.56e+03	3.00e+02	2.2e+01	1.20e+04	9.40e+02	1.3e+01
2	1,2,3,7,8-PeCDF	*	3.84e+02	*	*	7.88e+02	*
3	2,3,4,7,8-PeCDF	*	3.84e+02	*	*	7.88e+02	*
4	1,2,3,4,7,8-HxCDF	9.10e+02	2.72e+02	3.3e+00	1.03e+03	1.80e+02	5.7e+00
5	1,2,3,6,7,8-HxCDF	*	2.72e+02	*	*	1.80e+02	*
6	2,3,4,6,7,8-HxCDF	1.71e+03	2.72e+02	6.3e+00	1.20e+03	1.80e+02	6.7e+00
7	1,2,3,7,8,9-HxCDF	*	2.72e+02	*	*	1.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.81e+03	1.68e+02	1.1e+01	2.12e+03	2.36e+02	9.0e+00
9	1,2,3,4,7,8,9-HpCDF	*	1.68e+02	*	*	2.36e+02	*
10	OCDF	2.66e+03	3.04e+02	8.7e+00	5.62e+03	2.84e+02	2.0e+01
11	2,3,7,8-TCDD	*	1.02e+03	*	*	2.72e+02	*
12	1,2,3,7,8-PeCDD	*	2.92e+02	*	*	2.20e+02	*
13	1,2,3,4,7,8-HxCDD	8.56e+02	1.84e+02	4.7e+00	2.31e+03	3.96e+02	5.8e+00
14	1,2,3,6,7,8-HxCDD	2.73e+03	1.84e+02	1.5e+01	1.87e+03	3.96e+02	4.7e+00
15	1,2,3,7,8,9-HxCDD	3.87e+03	1.84e+02	2.1e+01	2.58e+03	3.96e+02	6.5e+00
16	1,2,3,4,6,7,8-HpCDD	4.60e+04	5.00e+02	9.2e+01	5.33e+04	3.08e+02	1.7e+02
17	OCDD	1.08e+06	3.12e+02	3.5e+03	1.24e+06	3.56e+02	3.5e+03
18	13C-2,3,7,8-TCDF	9.72e+05	2.22e+03	4.4e+02	1.21e+06	6.08e+02	2.0e+03
19	13C-1,2,3,7,8-PeCDF	2.78e+06	2.20e+02	1.3e+04	1.84e+06	3.48e+02	5.3e+03
20	13C-2,3,4,7,8-PeCDF	3.06e+06	2.20e+02	1.4e+04	1.95e+06	3.48e+02	5.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.02e+06	2.40e+02	8.4e+03	3.80e+06	6.28e+02	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.46e+06	2.40e+02	1.0e+04	4.78e+06	6.28e+02	7.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.28e+06	2.40e+02	9.5e+03	4.40e+06	6.28e+02	7.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.84e+06	2.40e+02	7.7e+03	3.47e+06	6.28e+02	5.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.61e+06	1.38e+03	1.2e+03	3.57e+06	2.61e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.34e+06	1.38e+03	9.7e+02	2.96e+06	2.61e+03	1.1e+03
27	13C-2,3,7,8-TCDD	7.27e+05	2.96e+03	2.5e+02	9.17e+05	8.20e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	2.28e+06	2.12e+02	1.1e+04	1.49e+06	1.80e+02	8.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.14e+06	1.30e+03	2.4e+03	2.48e+06	2.76e+02	9.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.95e+06	1.30e+03	2.3e+03	2.28e+06	2.76e+02	8.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.17e+06	1.72e+02	1.8e+04	2.97e+06	3.88e+02	7.6e+03
32	13C-OCDD	2.11e+06	2.80e+02	7.5e+03	2.30e+06	2.24e+02	1.0e+04
33	13C-1,2,3,4-TCDD	3.04e+06	2.96e+03	1.0e+03	3.82e+06	8.20e+02	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	5.80e+06	1.30e+03	4.5e+03	4.48e+06	2.76e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	8.09e+05	7.20e+02	1.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0525

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P518901 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 06:47:18 Processed: 21-NOV-18 12:44:53

Mass: 303.9020 305.8990 Tot Response: 6.72e+01 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:32	3.06e+01	3.66e+01	0.84	yes	6.72e+01		y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0525

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P518901 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 06:47:18 Processed: 21-NOV-18 12:44:53

Mass: 373.8210 375.8180 Tot Response: 2.70e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:28	4.93e+00	3.59e+00	1.37	yes	8.53e+00		y	y
2	33:31	5.34e+00	4.05e+00	1.32	yes	9.39e+00		y	n
3	34:29	5.08e+00	4.02e+00	1.26	yes	9.10e+00	1,2,3,4,7,8-HxCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0525

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P518901 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 06:47:18 Processed: 21-NOV-18 12:44:53

Mass: 389.8160 391.8130 Tot Response: 3.61e+02 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	2.05e+02	1.49e+02	1.37	yes	3.54e+02		n	n
2	34:47	3.98e+00	3.63e+00	1.10	yes	7.60e+00		n	n

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Peak List Summary

CLIENT ID.
SL0525

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P518901 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 06:47:18 Processed: 21-NOV-18 12:44:53

Mass: 407.7820 409.7790 Tot Response: 2.96e+01 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	1.05e+01	9.43e+00	1.11	yes	1.99e+01	1,2,3,4,6,7,8-HpCDF	y	y
2	37:37	5.21e+00	4.45e+00	1.17	yes	9.66e+00		y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0525

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P518901 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 06:47:18 Processed: 21-NOV-18 12:44:53

Mass: 423.7770 425.7740 Tot Response: 1.66e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	8.75e+02	7.85e+02 1.11	yes	1.66e+03		n	n

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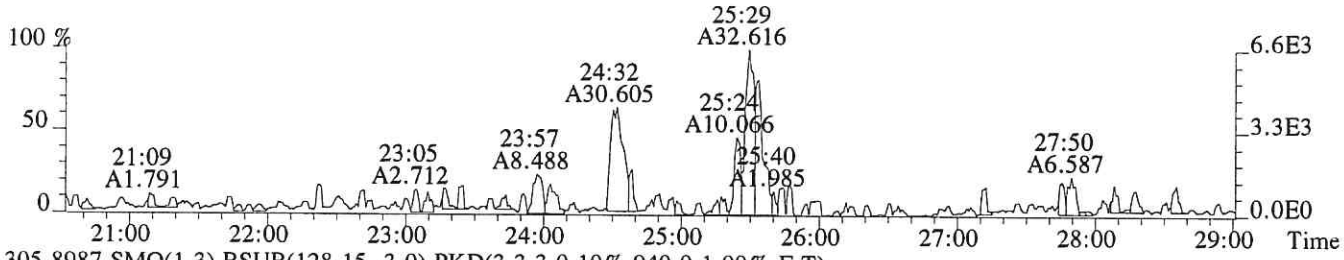
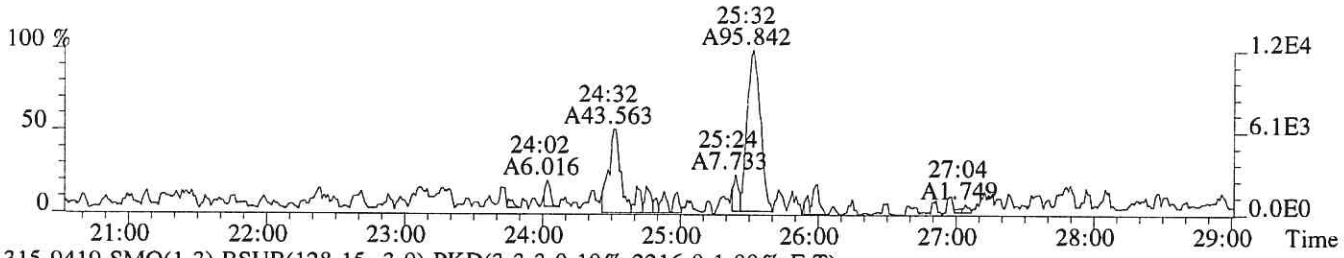
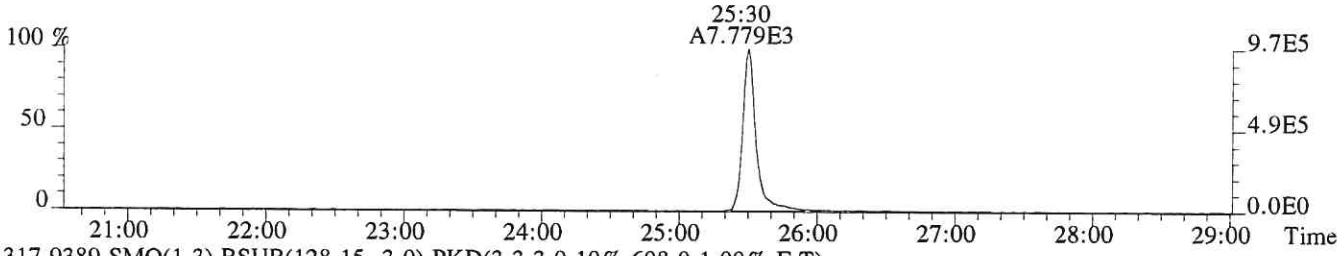
File:P518901 #1-602 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



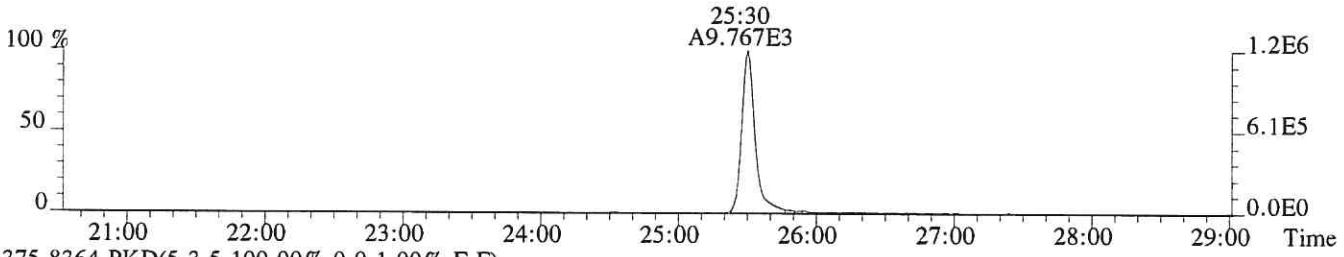
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



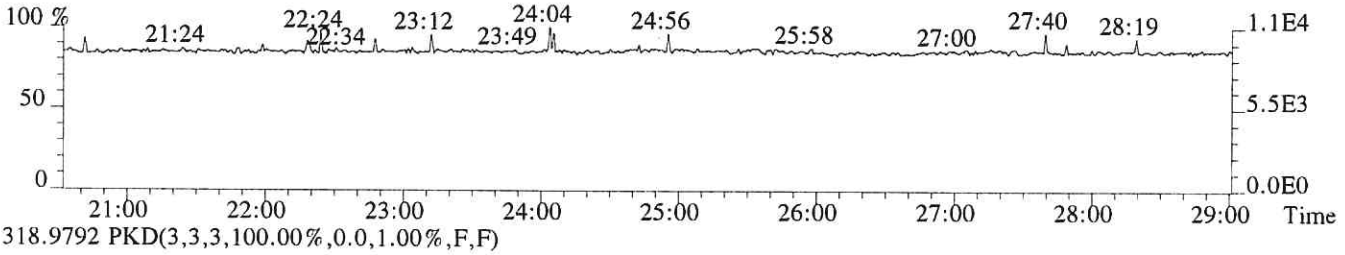
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



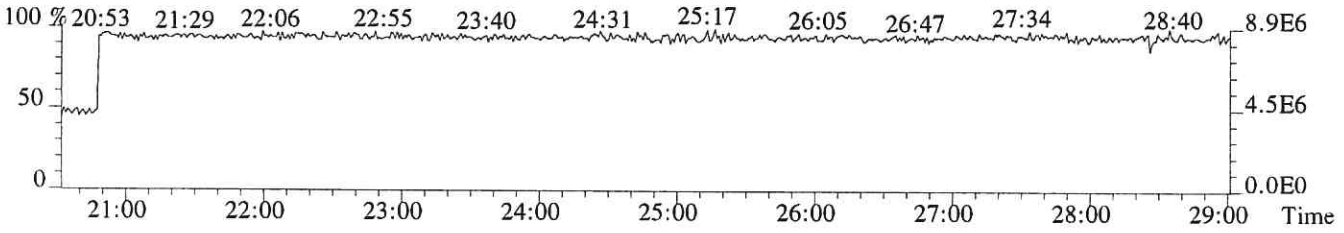
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



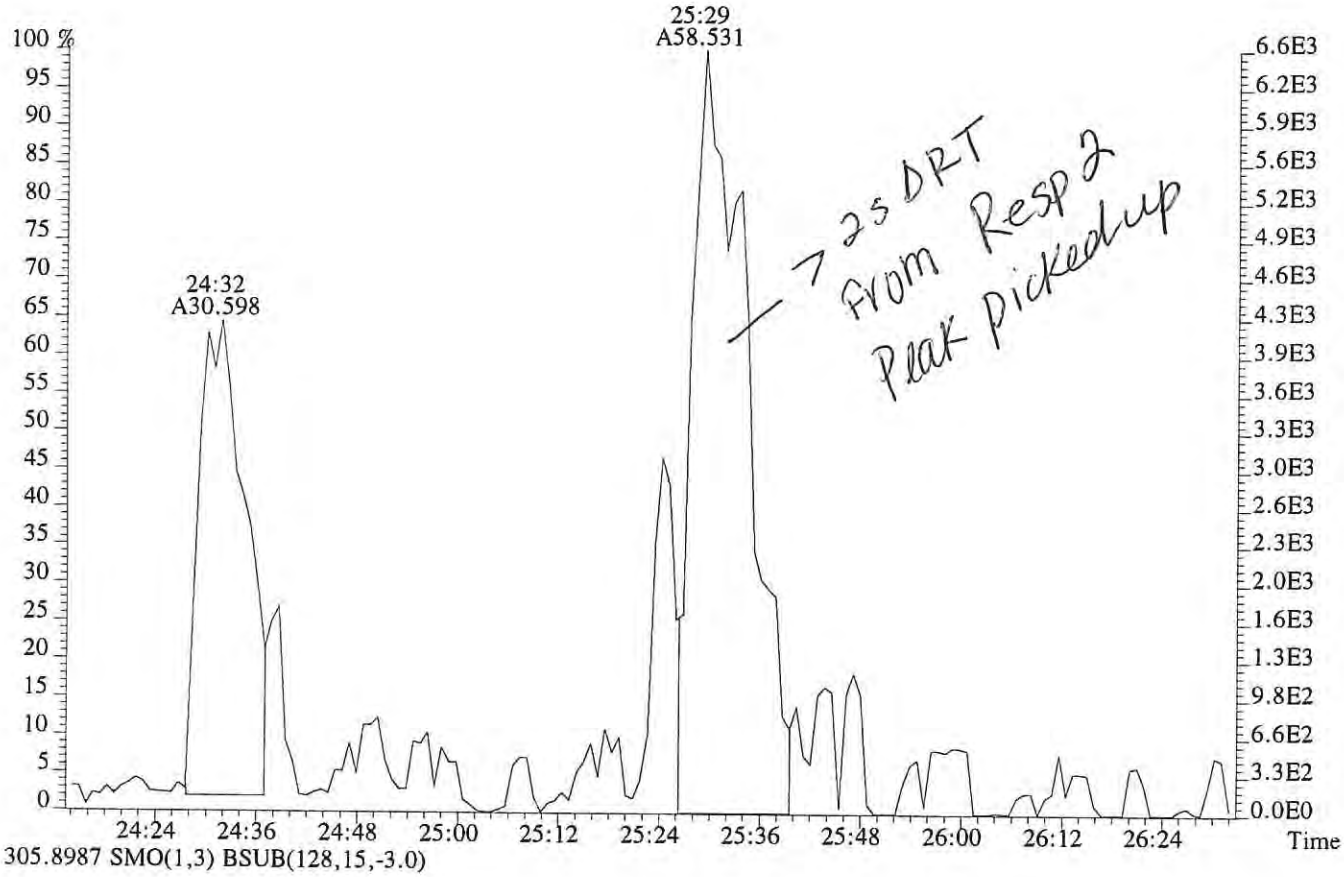
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



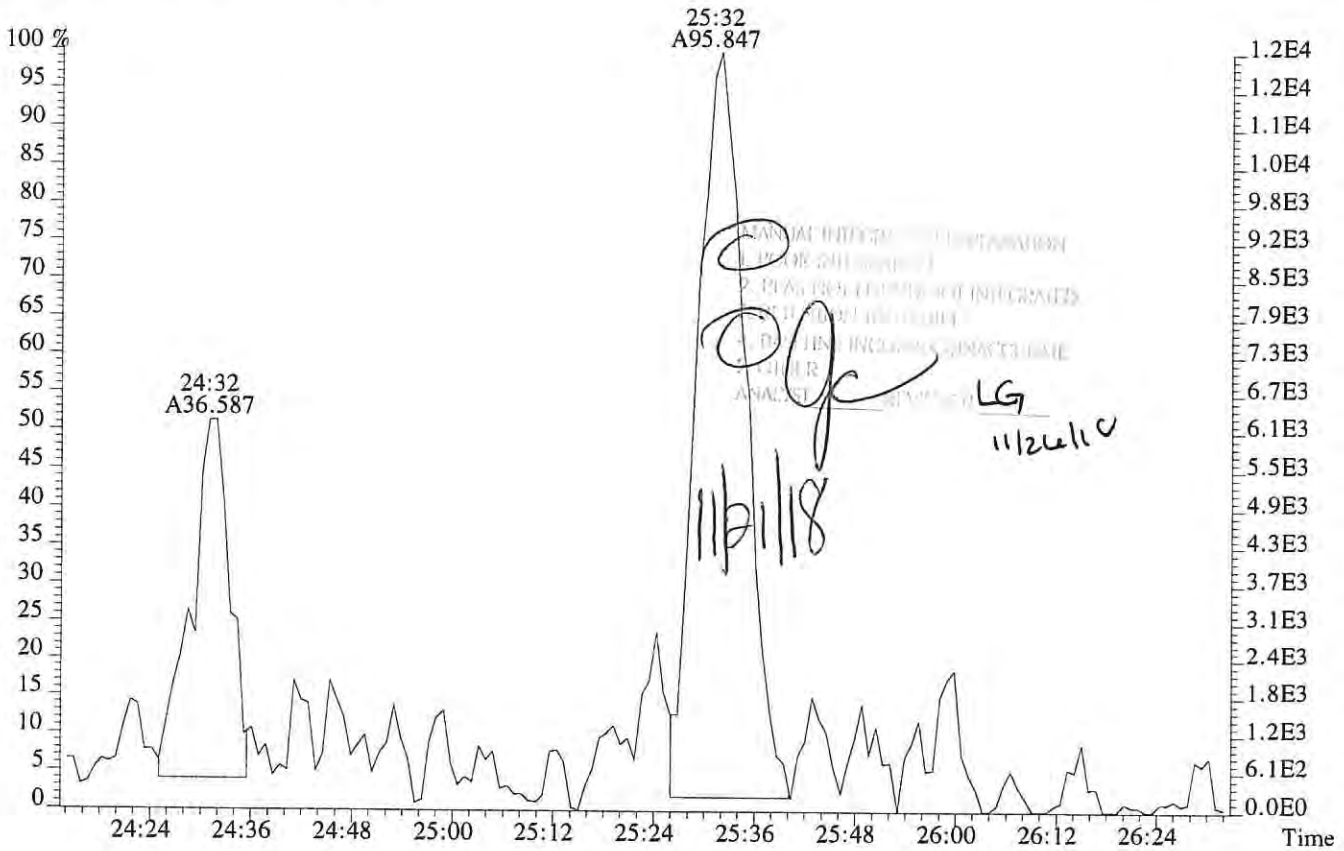
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



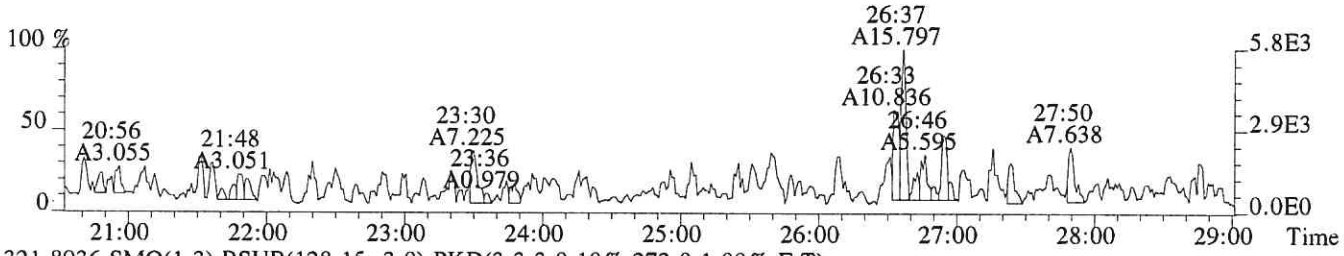
File:P518901 #1-602 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
303.9016 SMO(1,3) BSUB(128,15,-3.0)



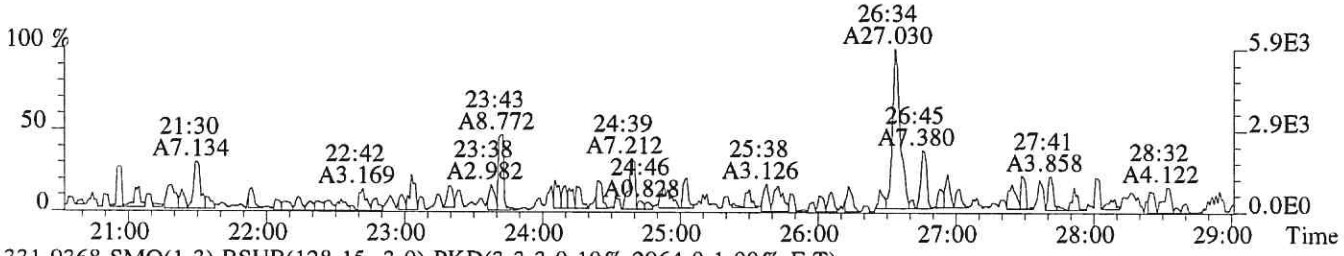
305.8987 SMO(1,3) BSUB(128,15,-3.0)



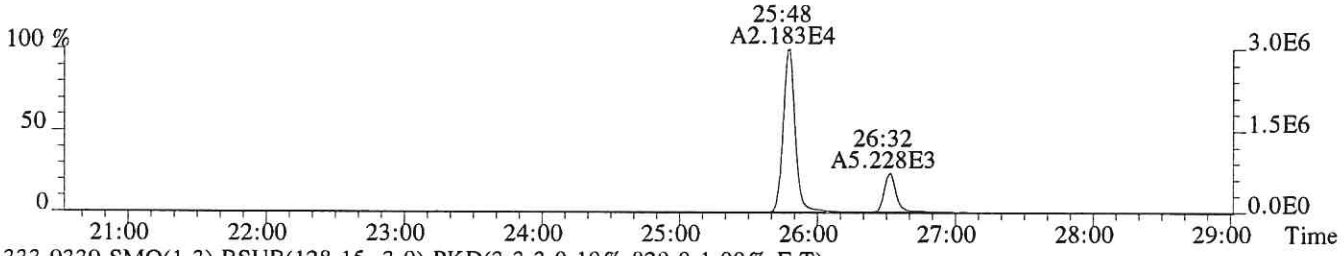
File:P518901 #1-602 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



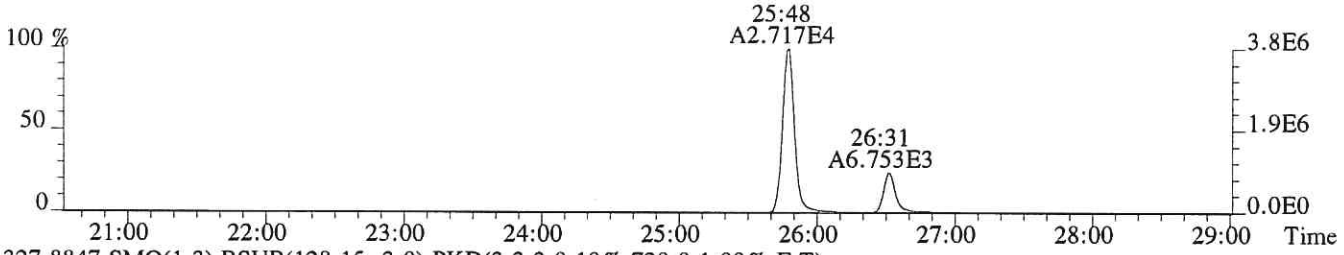
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



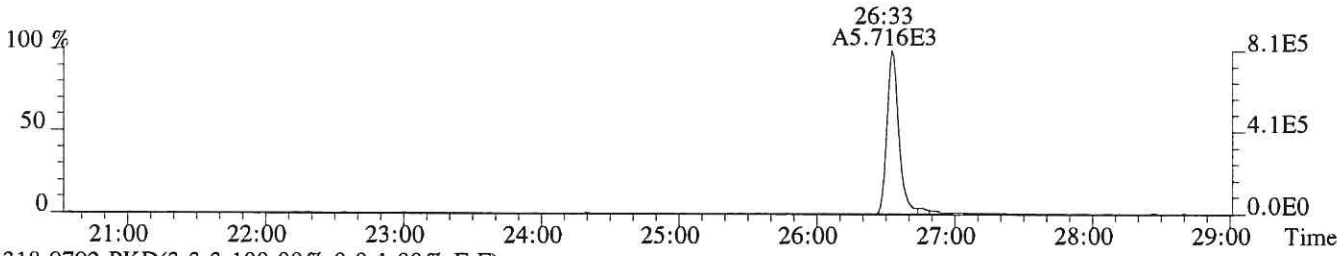
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



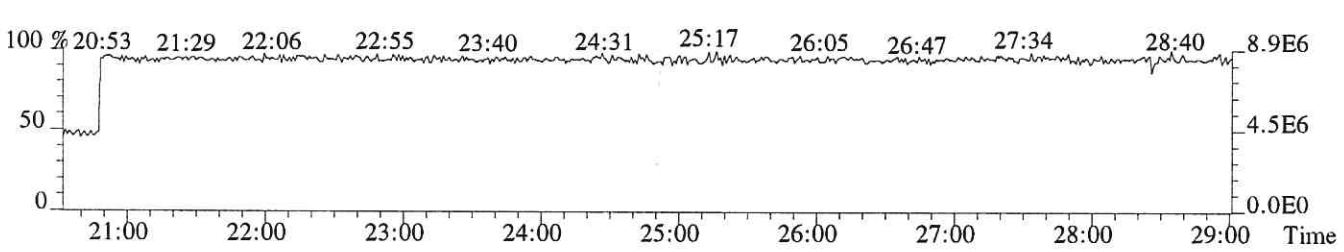
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



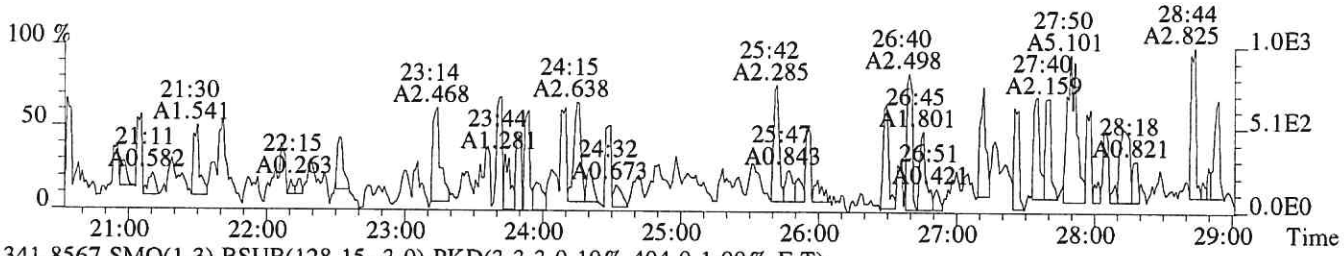
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



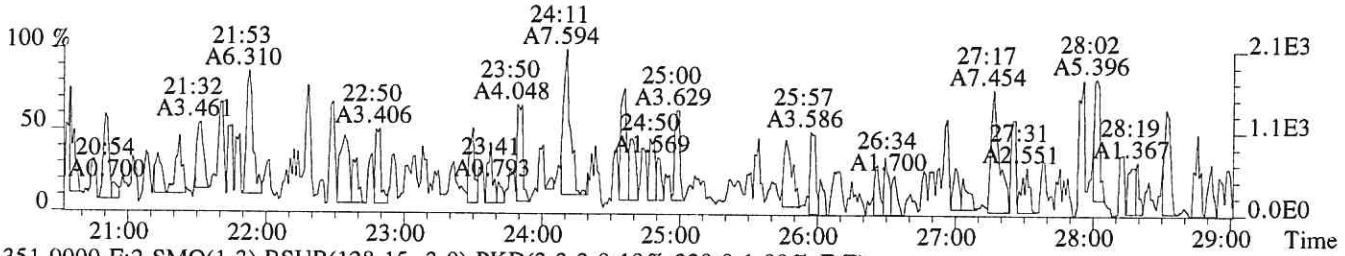
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



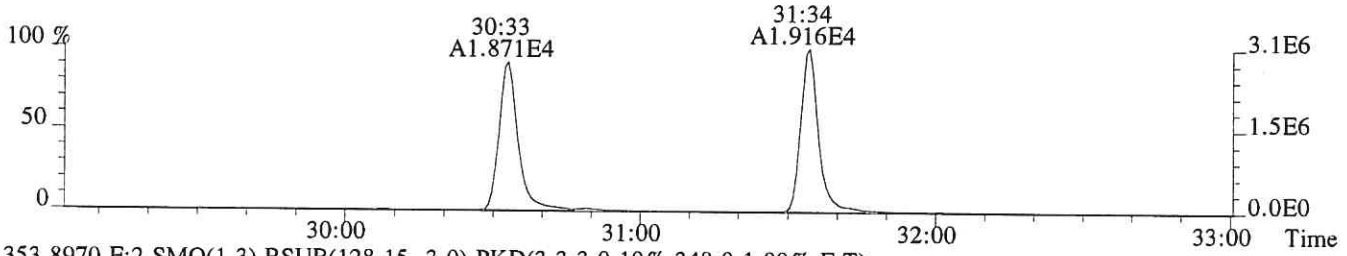
File:P518901 #1-602 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



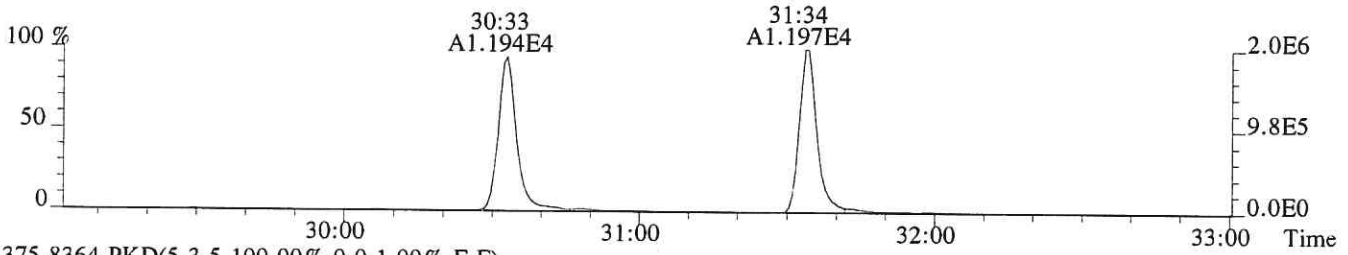
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



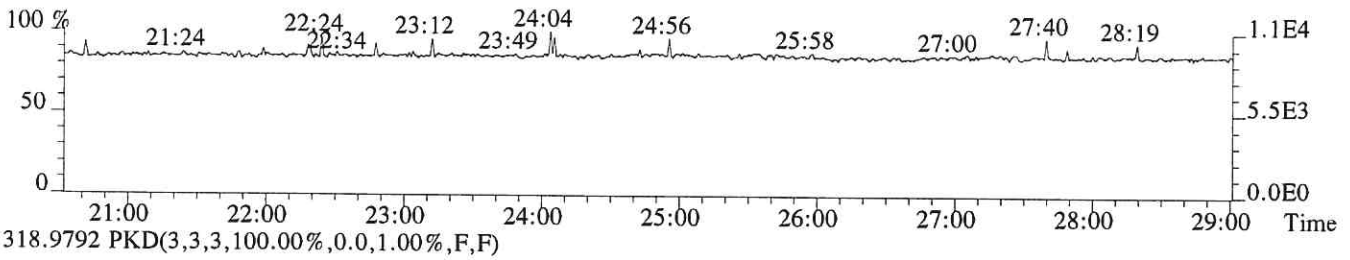
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



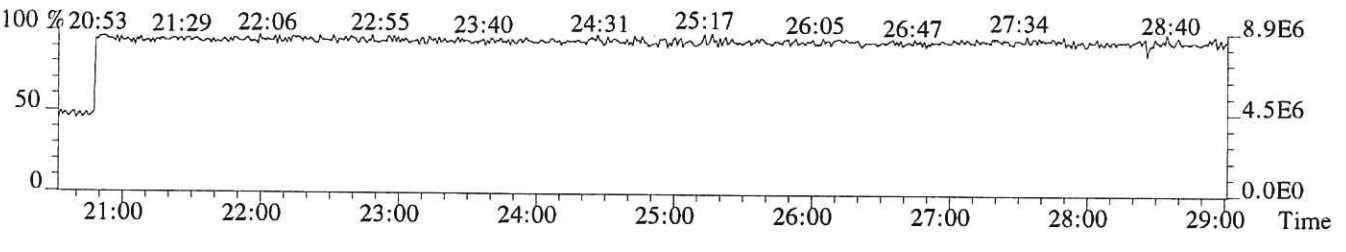
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



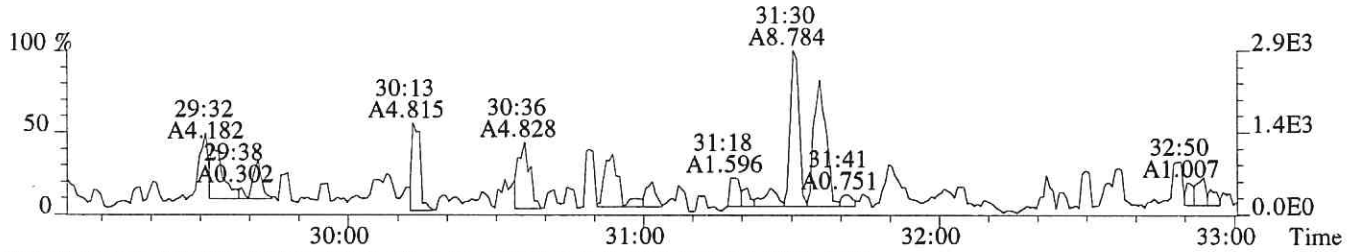
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



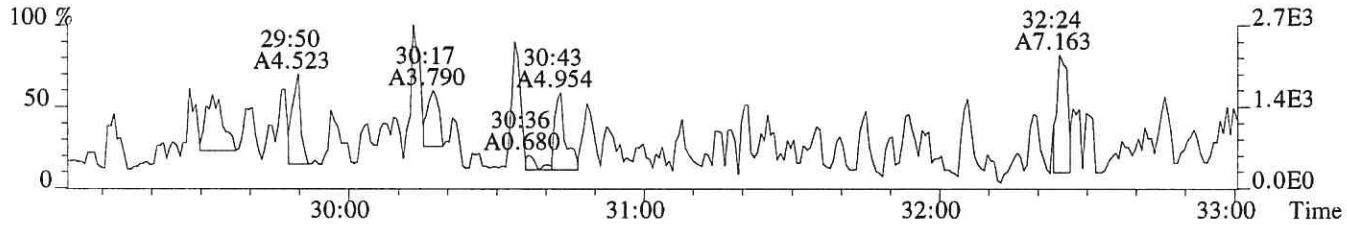
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



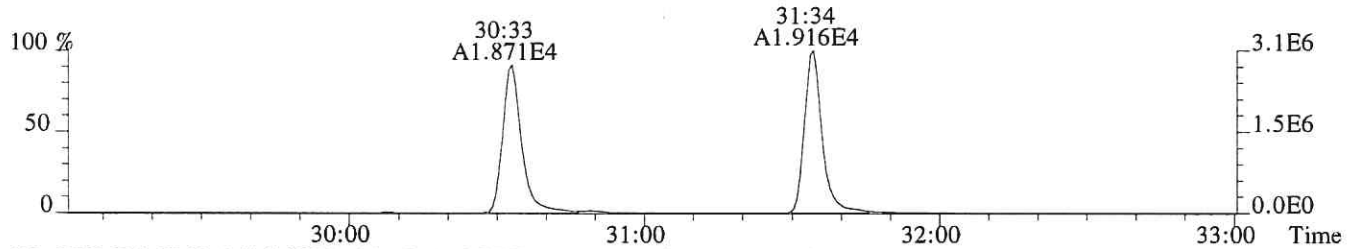
File:P518901 #1-357 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



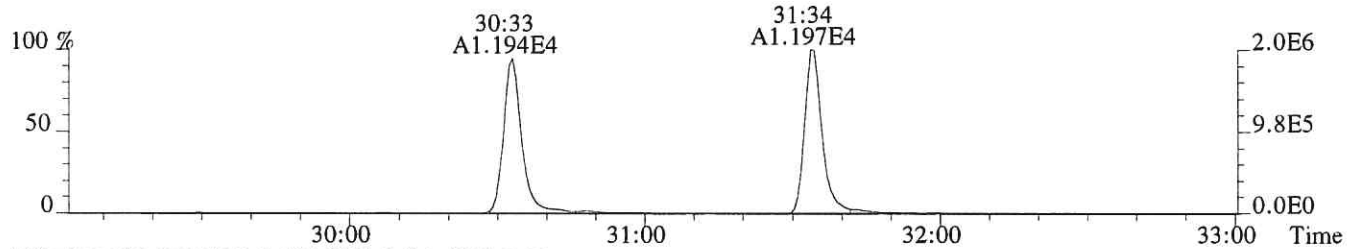
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



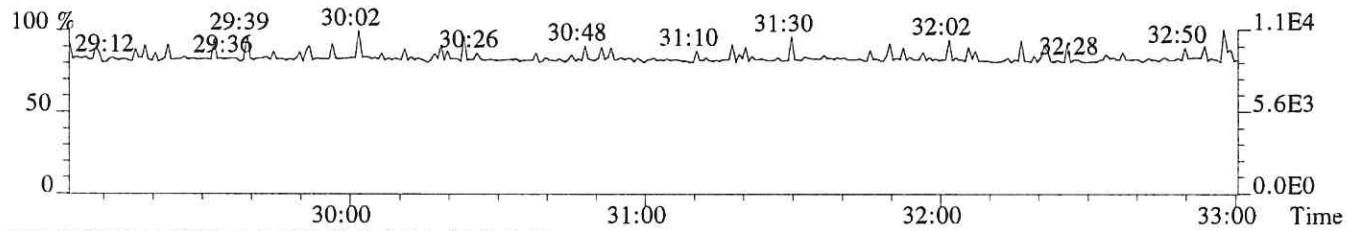
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



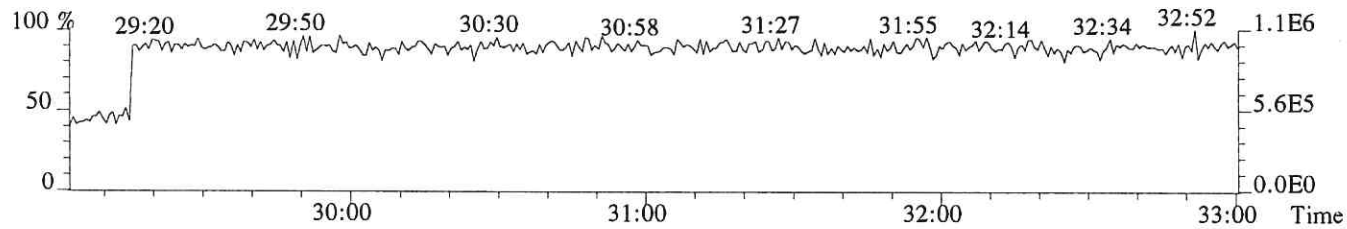
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



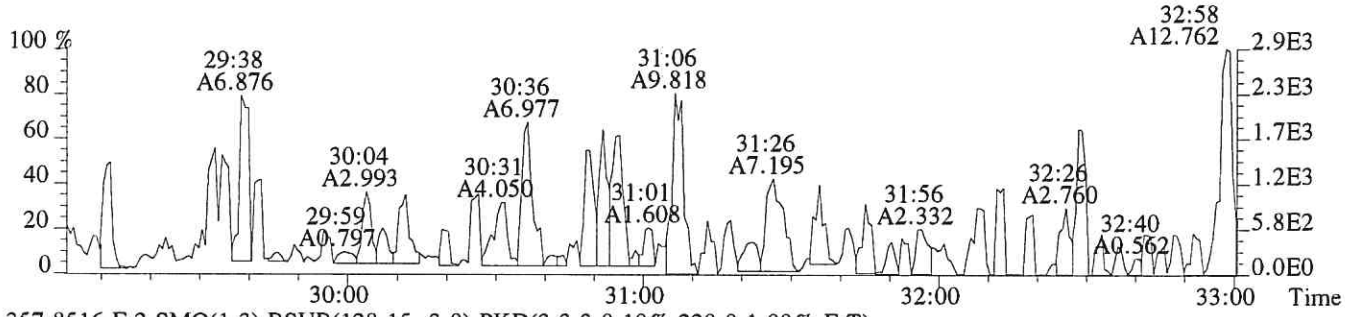
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



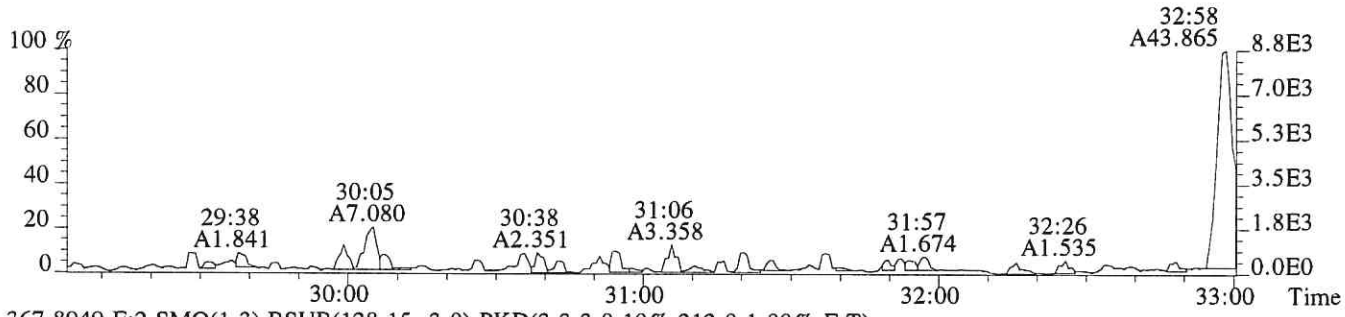
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



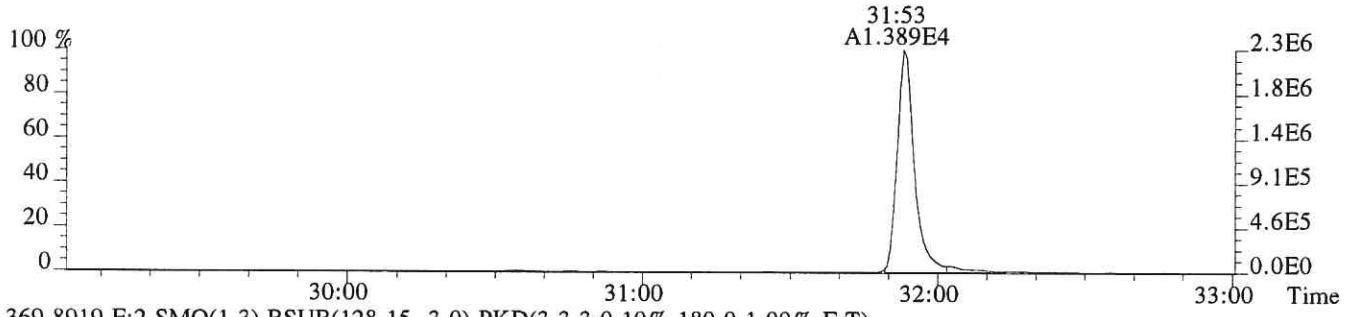
File:P518901 #1-357 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



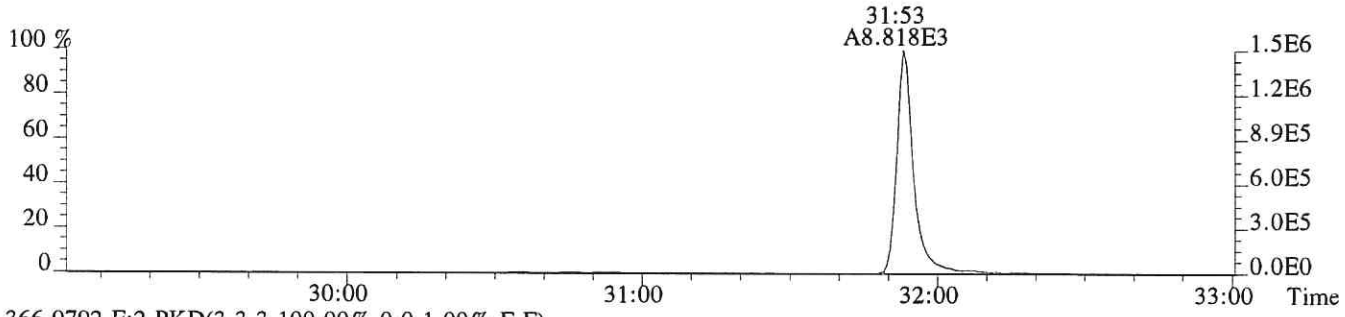
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



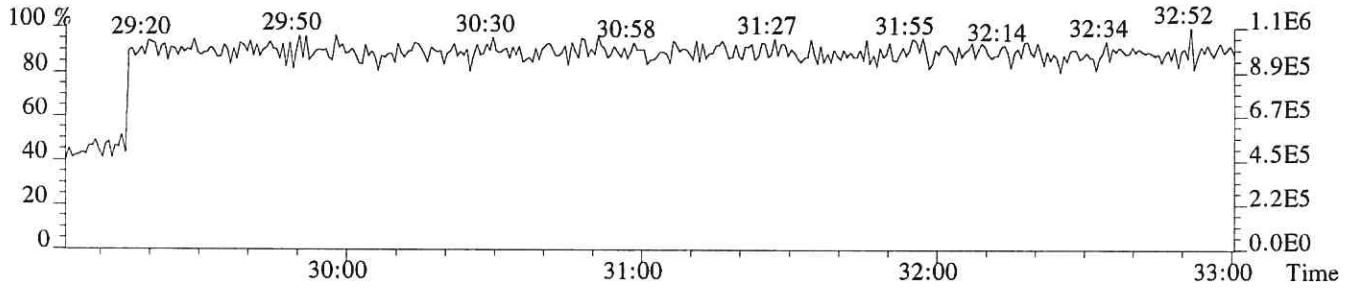
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



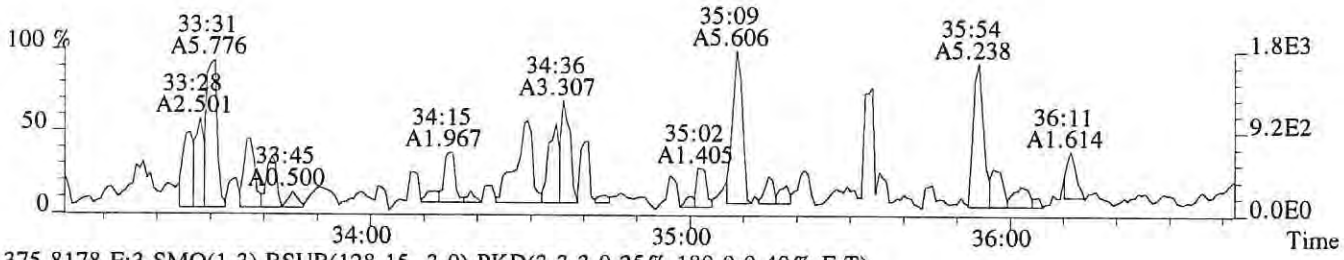
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



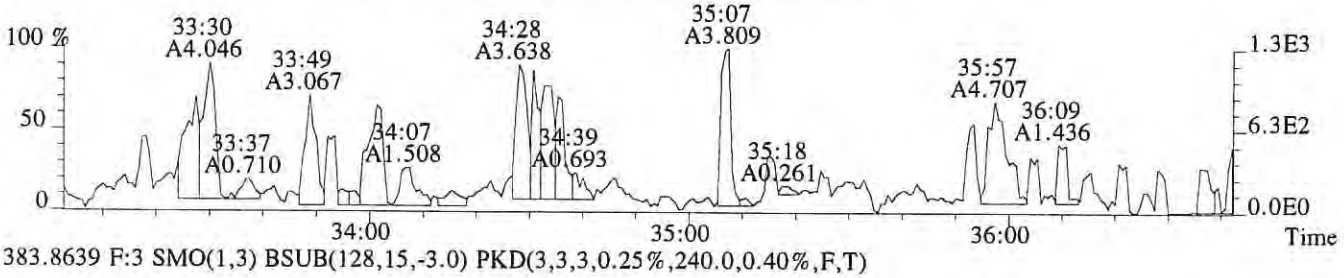
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



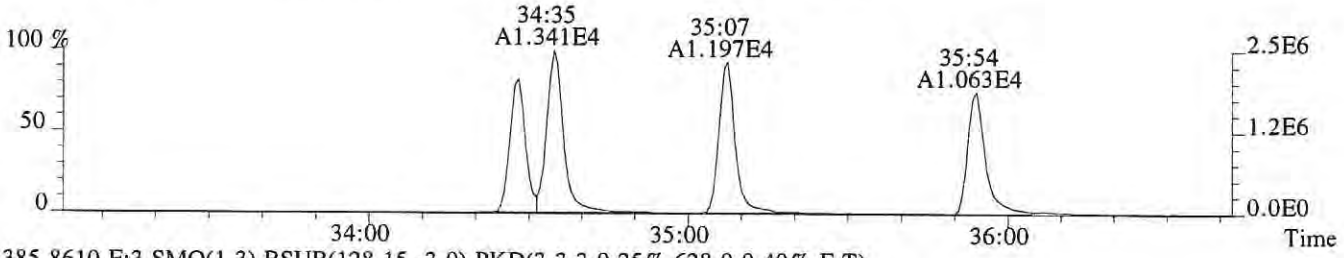
File:P518901 #1-330 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



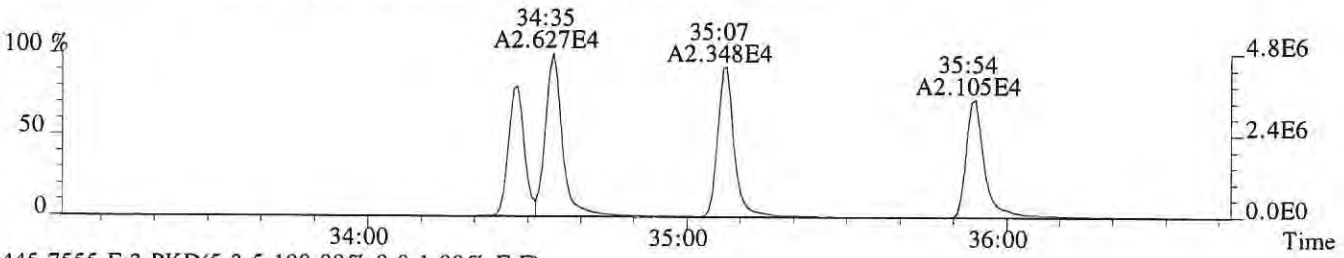
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



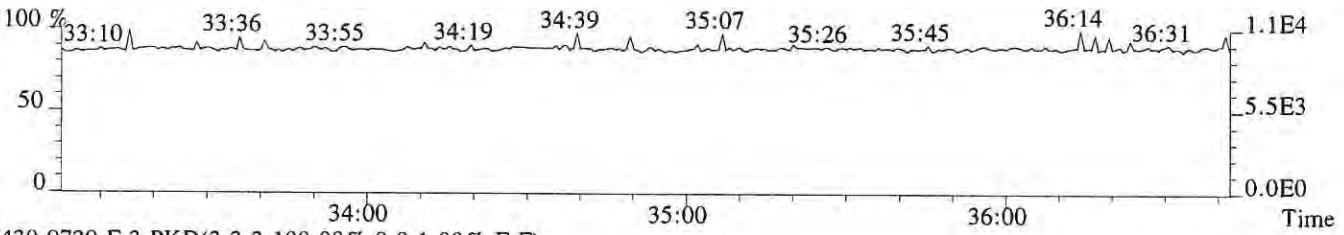
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



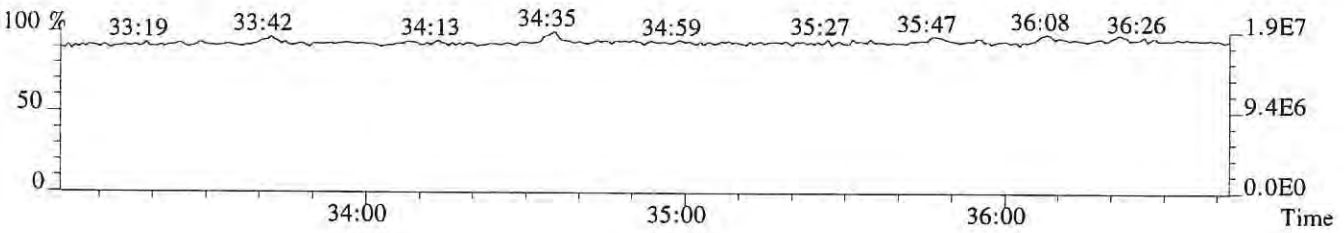
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



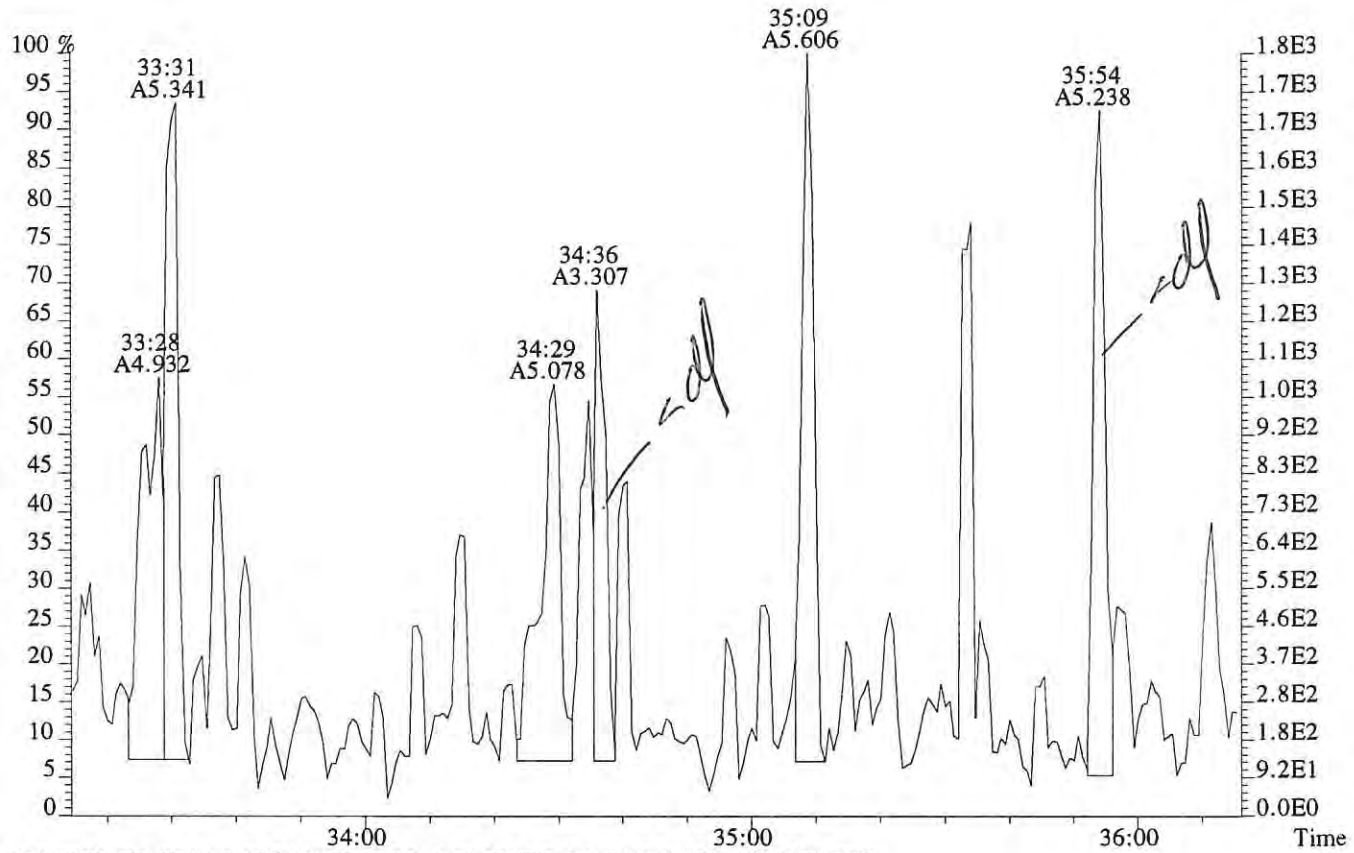
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



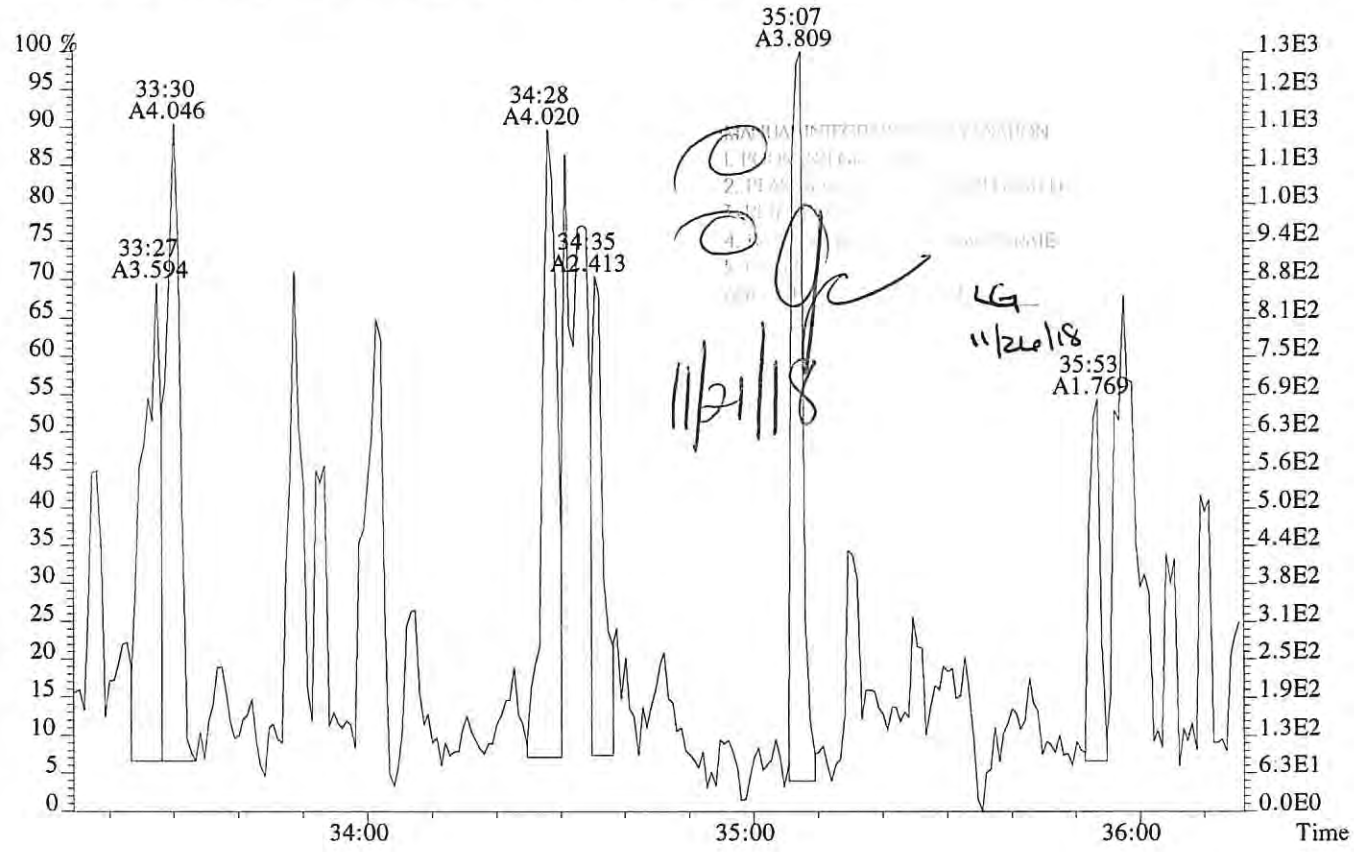
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



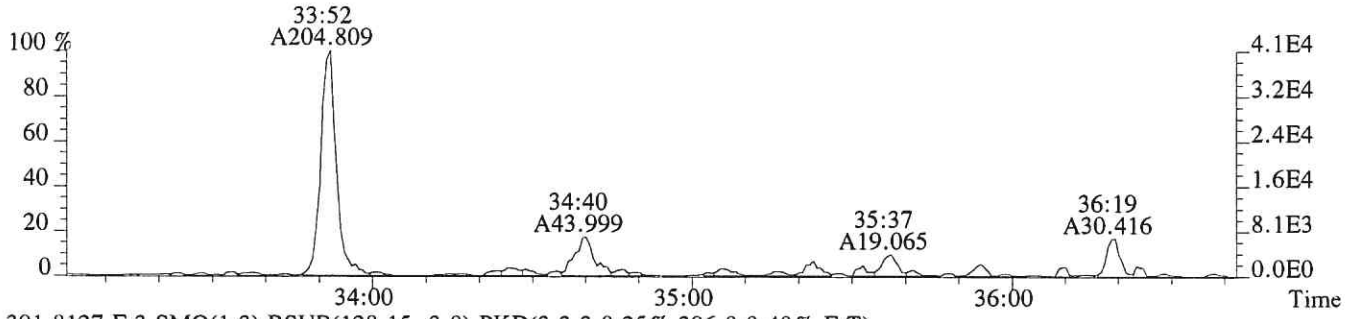
File:P518901 #1-330 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



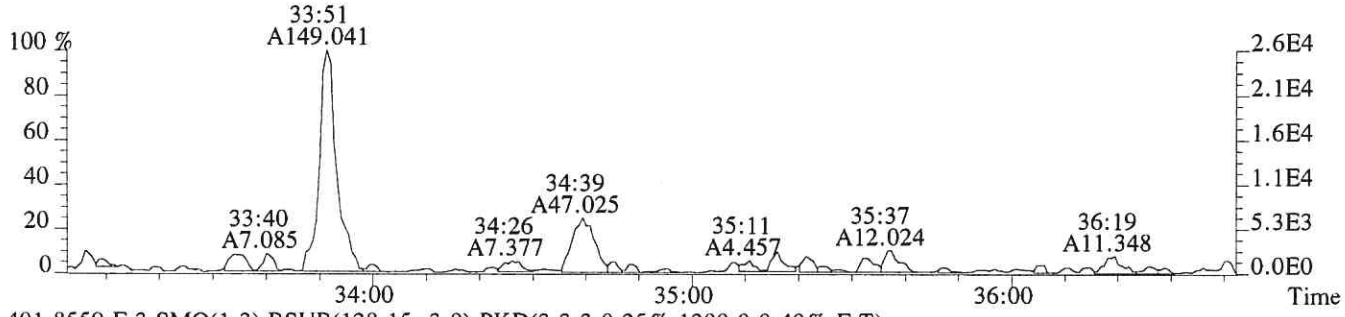
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



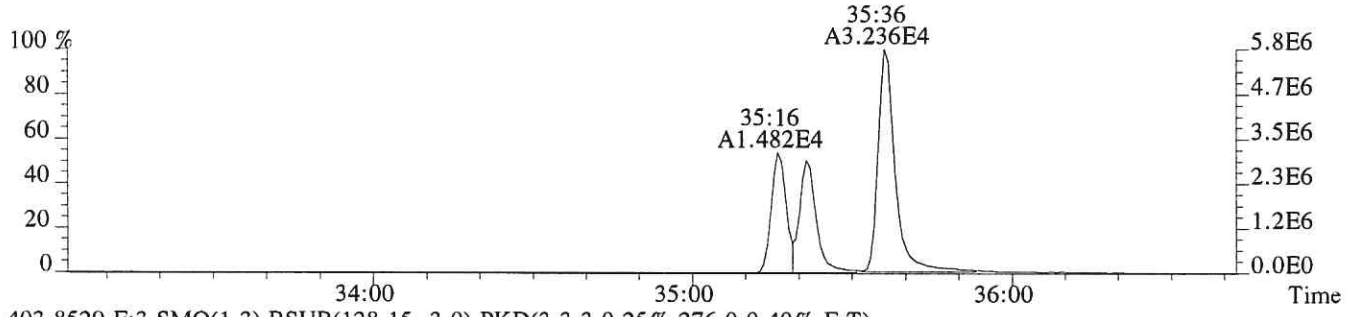
File:P518901 #1-330 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



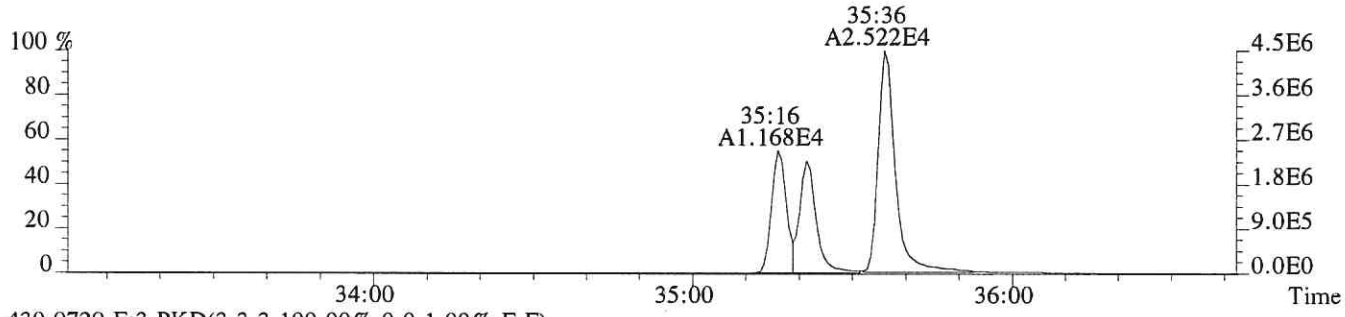
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



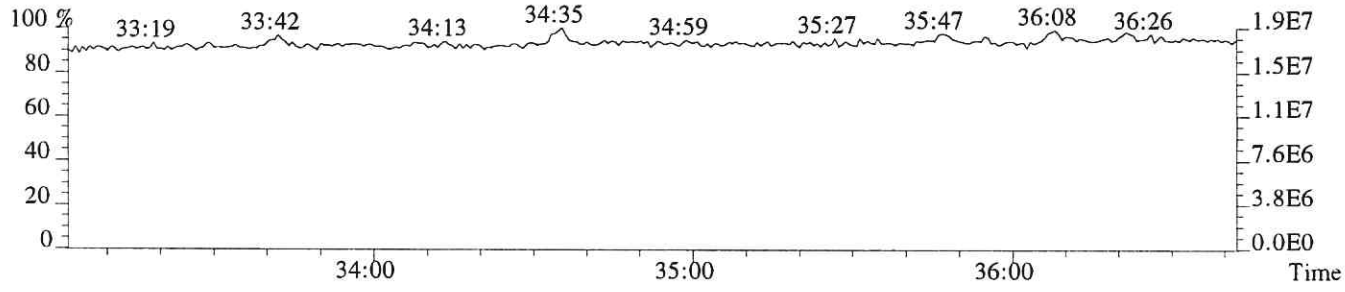
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



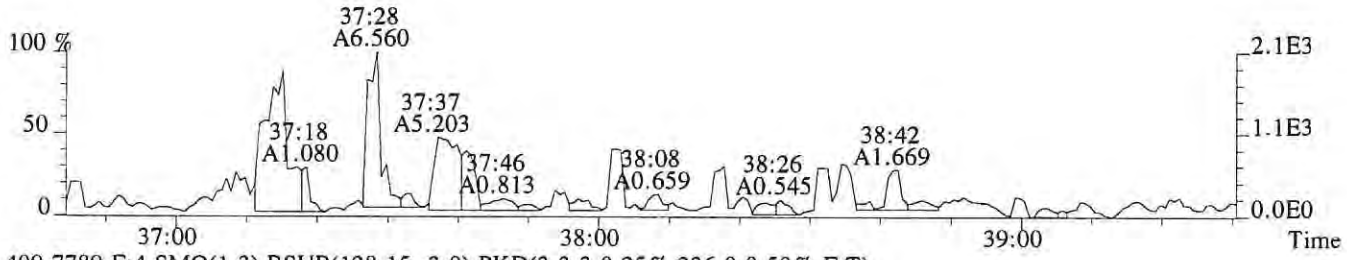
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



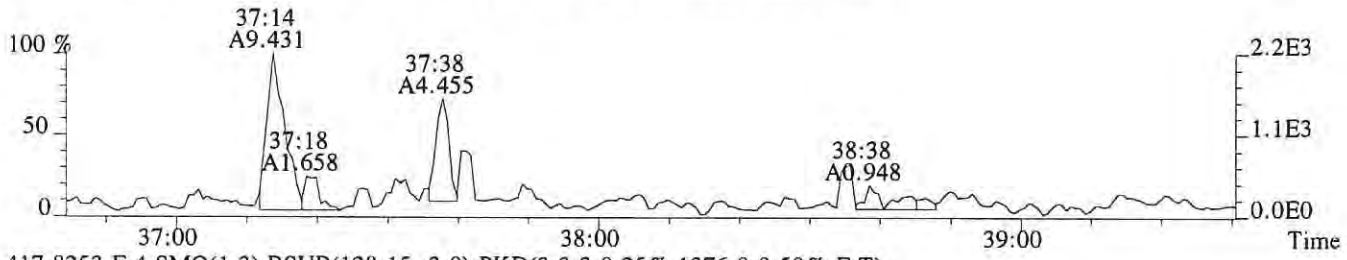
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



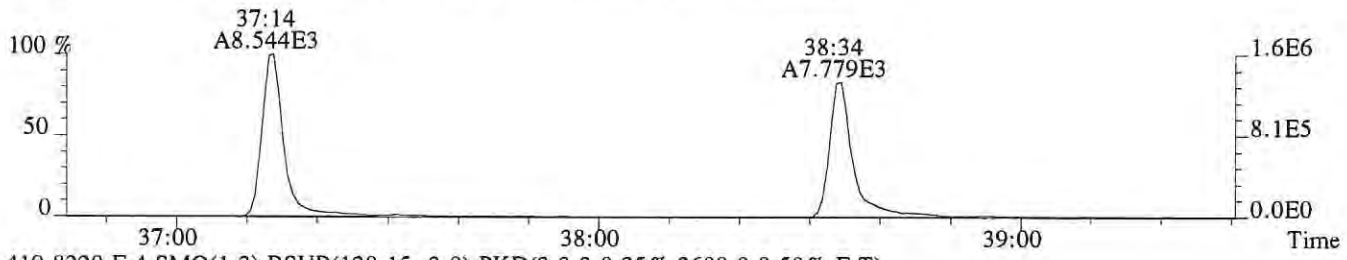
File:P518901 #1-250 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.50%,F,T)



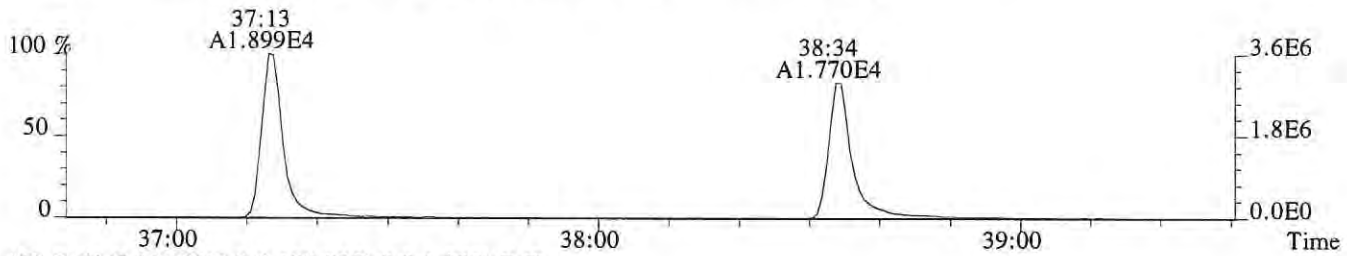
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.50%,F,T)



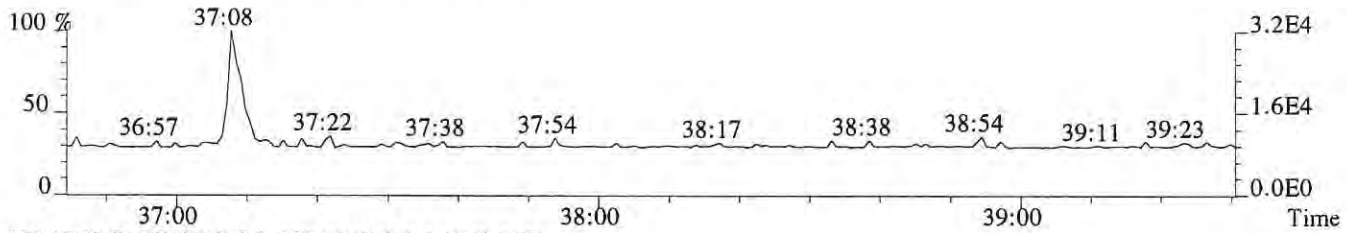
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.50%,F,T)



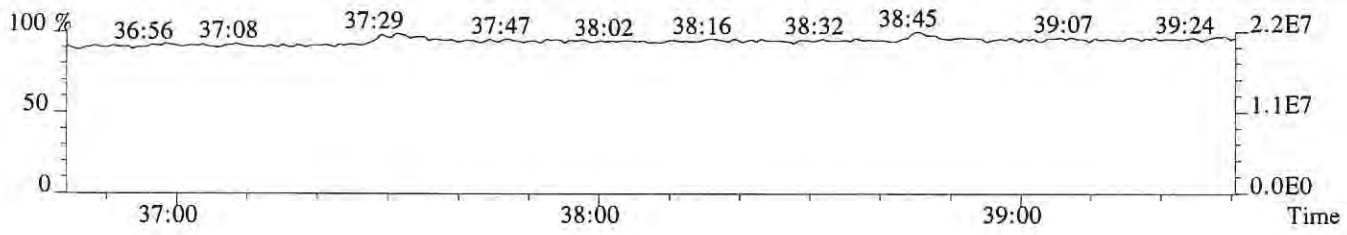
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.50%,F,T)



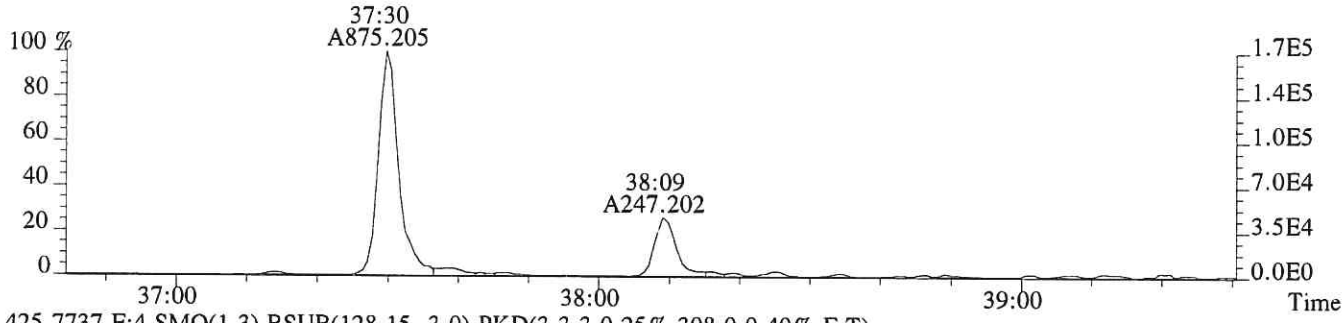
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



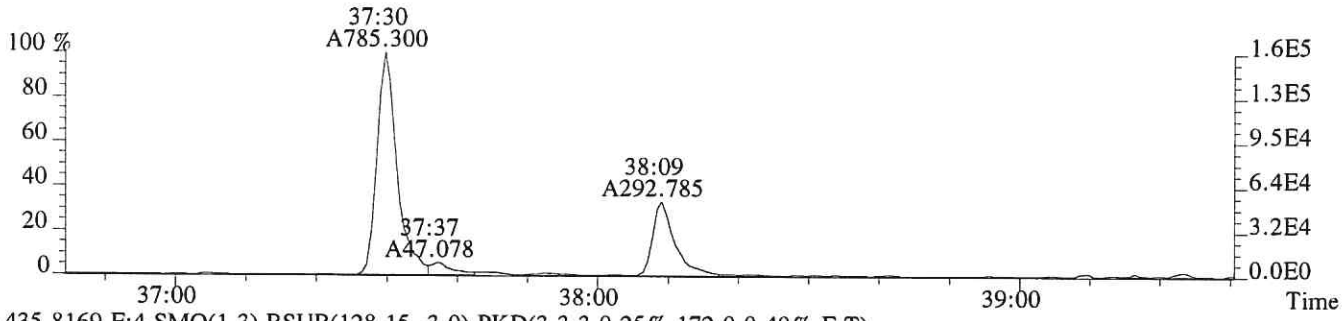
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



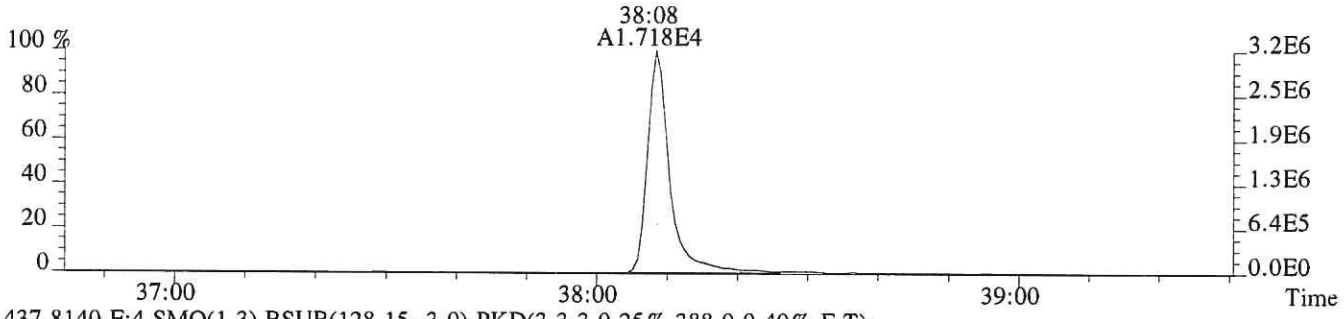
File:P518901 #1-250 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



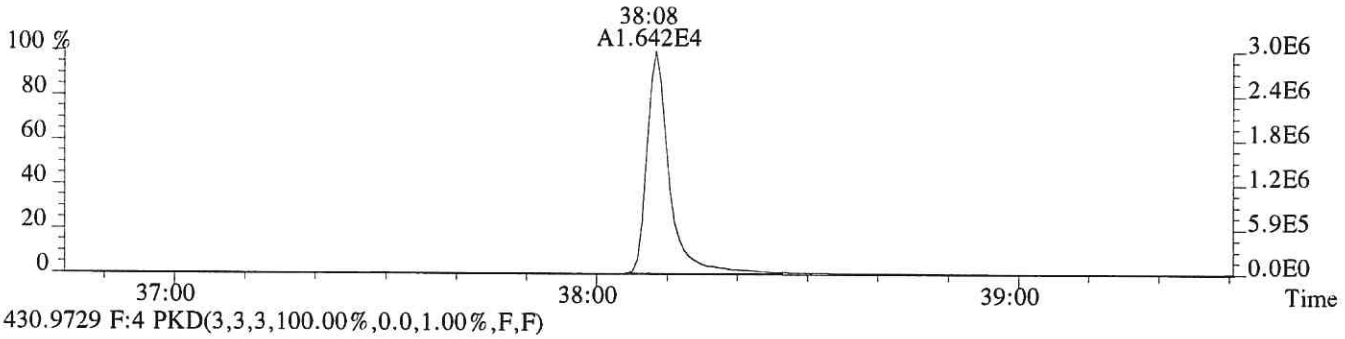
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



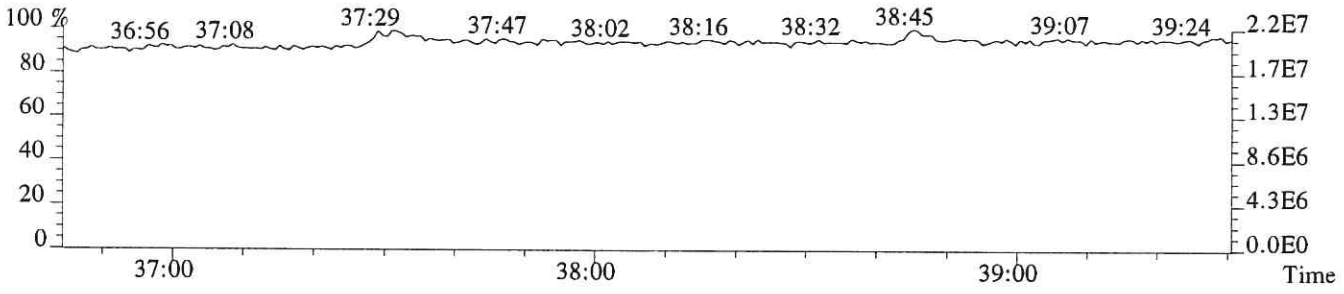
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



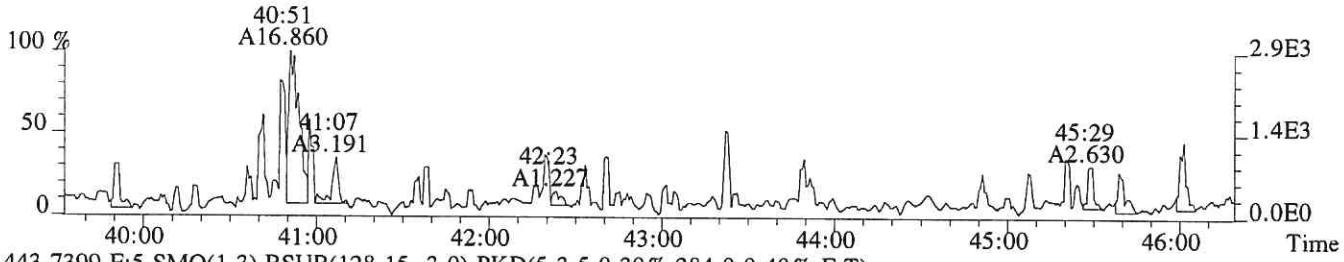
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



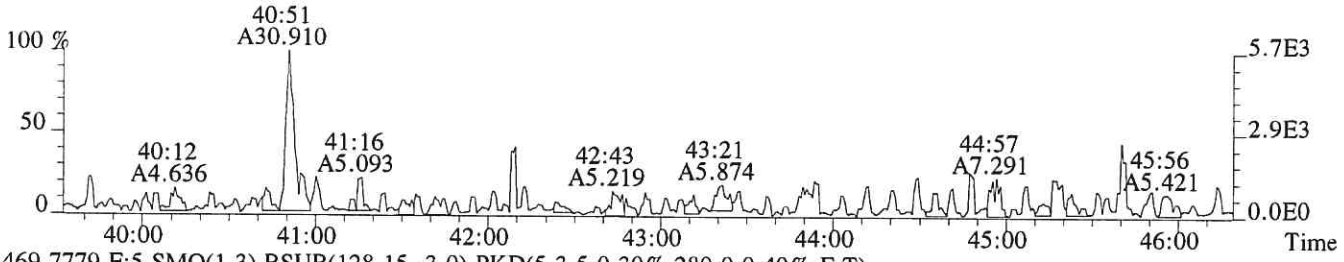
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



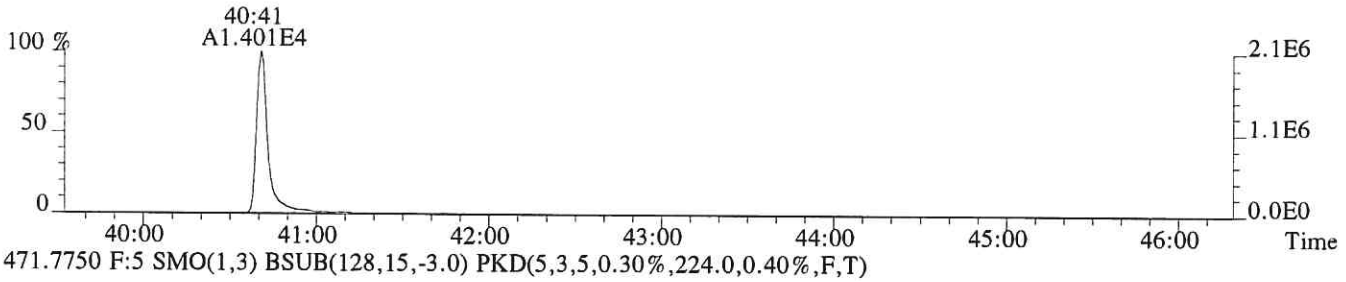
File:P518901 #1-610 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



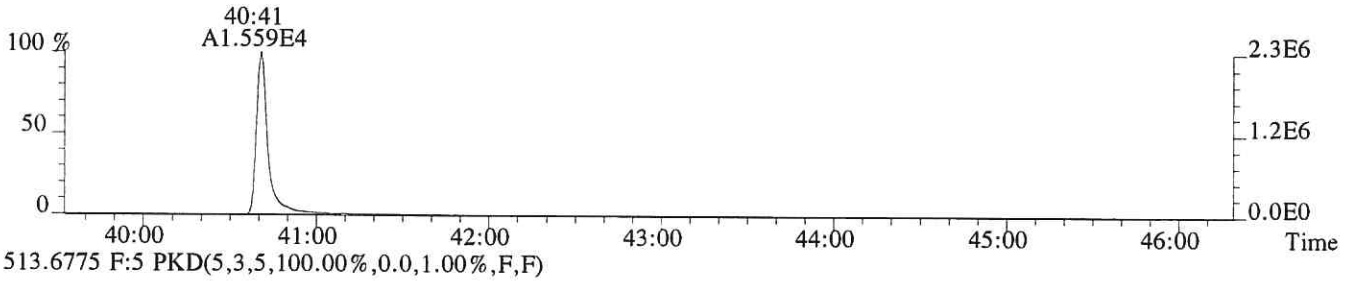
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



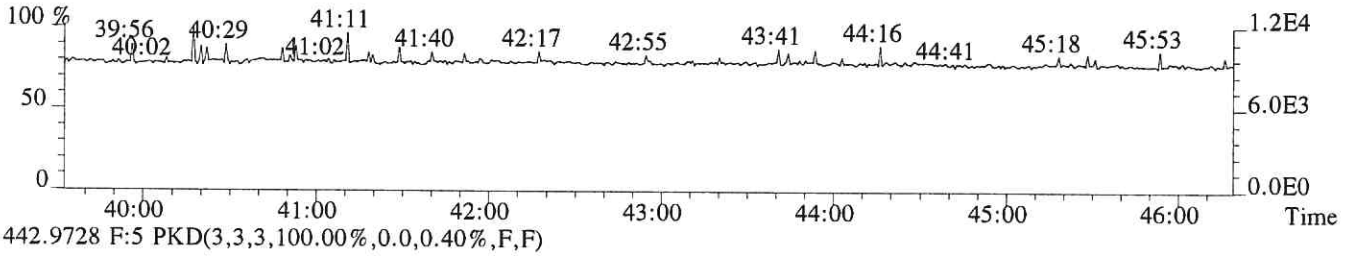
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



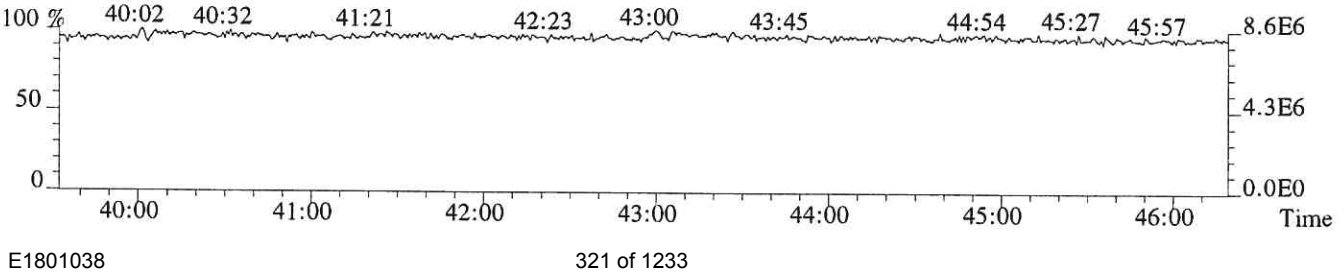
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



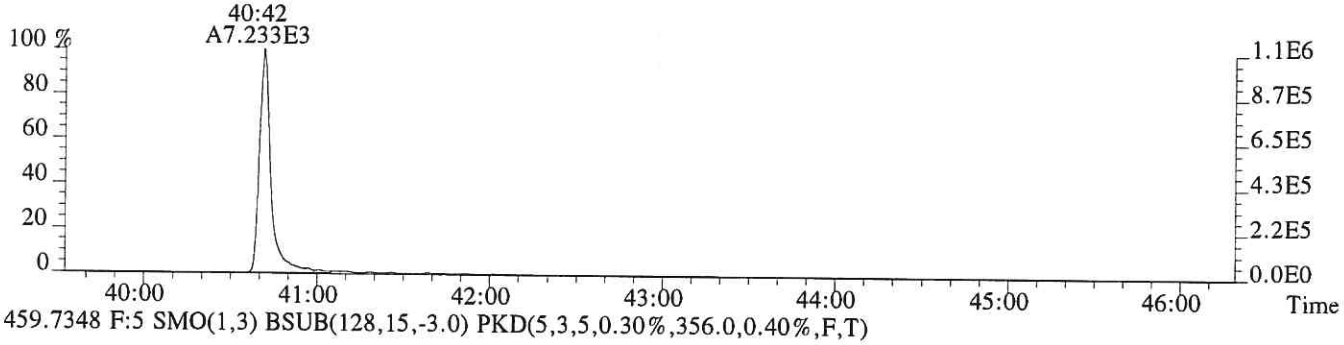
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



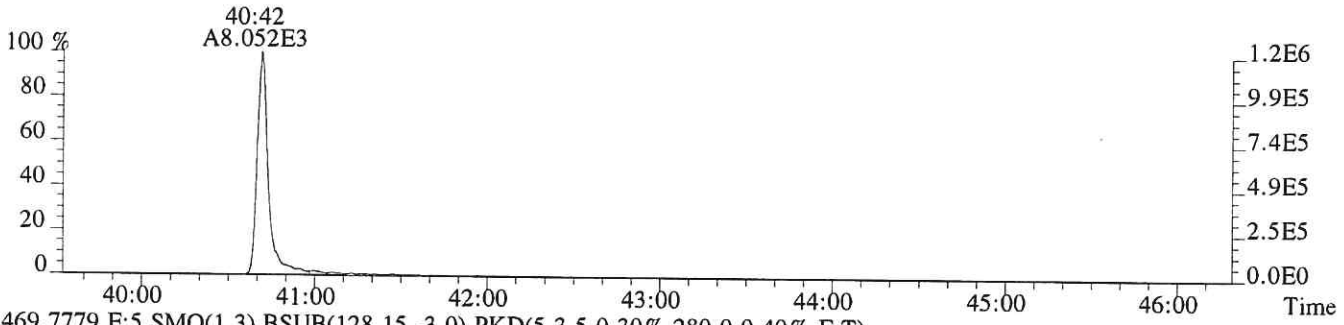
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



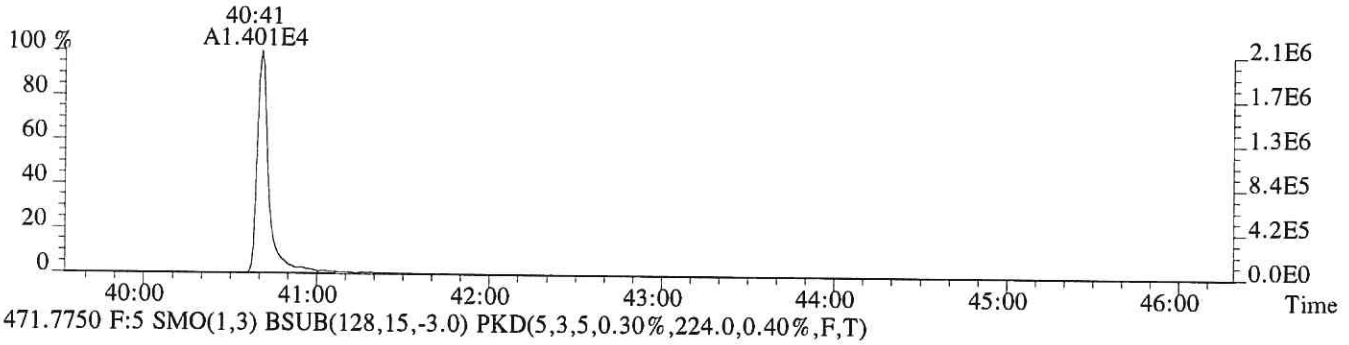
File:P518901 #1-610 Acq:18-NOV-2018 06:47:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



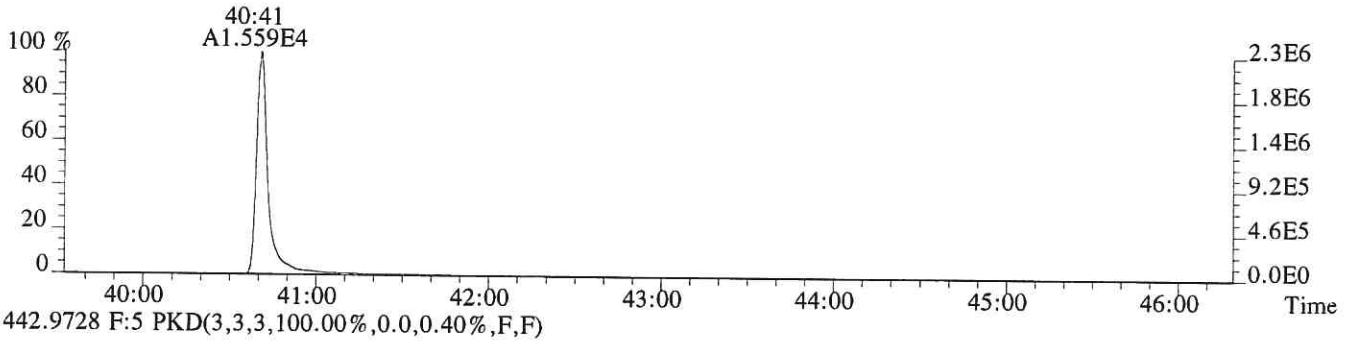
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



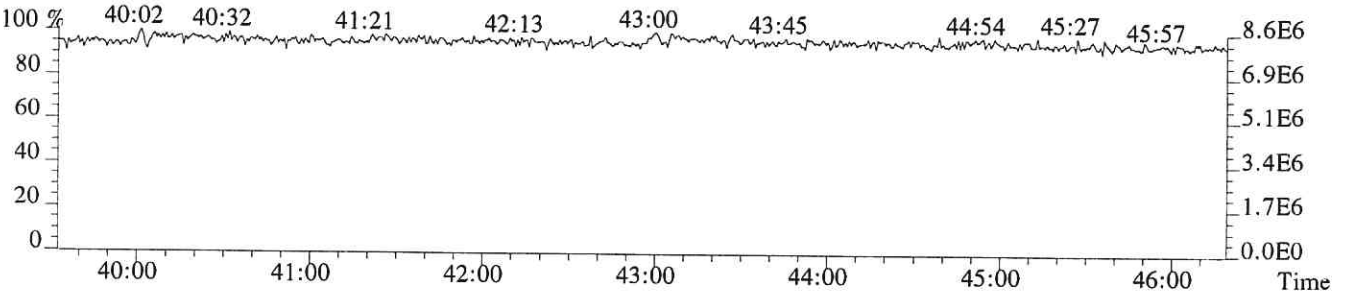
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0526

Run #14 Filename P518902 Samp: 1 Inj: 1 Acquired: 18-NOV-18 07:35:57
Processed: 21-NOV-18 12:44:54 Sample ID: E1801038-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:30	5.584e+01	6.670e+01	0.84	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:32	9.264e+00	1.113e+01	0.83	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:28	6.388e+00	9.710e+00	0.66	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:13	7.507e+00	3.376e+00	2.22	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:53	1.357e+01	1.927e+01	0.70	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:32	2.467e+01	3.283e+01	0.75	yes	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.284e+01	1.288e+01	1.00	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.994e+01	2.029e+01	0.98	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	1.596e+02	1.652e+02	0.97	yes	no	1.025
17	Unk	OCDD	40:42	3.615e+03	3.991e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:30	6.661e+03	8.468e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:33	1.867e+04	1.155e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	2.058e+04	1.301e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.004e+04	1.934e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.286e+04	2.497e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.209e+04	2.316e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.035e+04	1.973e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	8.475e+03	1.888e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.421e+03	1.615e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	4.729e+03	6.075e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.494e+04	9.385e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.512e+04	1.171e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.619e+04	1.272e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.577e+04	1.504e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:41	1.207e+04	1.370e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	2.099e+04	2.731e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	3.101e+04	2.521e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:33	5.147e+03				no	1.014

$$OCDD = \frac{(3.615e+03 + 3.991e+03) \times 4000\ pg \times 1}{(1.207e+04 + 1.370e+04) \times 10.385\ g \times 84.1 / 100 \times 1.118} = 120.9087\ ng/kg$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0526

Run #14 Filename P518902 Samp: 1 Inj: 1 Acquired: 18-NOV-18 07:35:57
Processed: 21-NOV-18 12:44:54 LAB. ID: E1801038-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+03	3.12e+02	2.1e+01	8.92e+03	5.20e+02	1.7e+01
2	1,2,3,7,8-PeCDF	2.32e+03	1.48e+02	1.6e+01	1.97e+03	4.60e+02	4.3e+00
3	2,3,4,7,8-PeCDF	*	1.48e+02	*	*	4.60e+02	*
4	1,2,3,4,7,8-HxCDF	1.62e+03	4.04e+02	4.0e+00	2.02e+03	2.72e+02	7.4e+00
5	1,2,3,6,7,8-HxCDF	*	4.04e+02	*	*	2.72e+02	*
6	2,3,4,6,7,8-HxCDF	*	4.04e+02	*	*	2.72e+02	*
7	1,2,3,7,8,9-HxCDF	*	4.04e+02	*	*	2.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.97e+03	2.20e+02	8.9e+00	1.10e+03	1.48e+02	7.4e+00
9	1,2,3,4,7,8,9-HpCDF	*	2.20e+02	*	*	1.48e+02	*
10	OCDF	3.13e+03	2.64e+02	1.2e+01	2.75e+03	3.68e+02	7.5e+00
11	2,3,7,8-TCDD	4.36e+03	8.40e+02	5.2e+00	5.90e+03	3.88e+02	1.5e+01
12	1,2,3,7,8-PeCDD	*	7.36e+02	*	*	1.96e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.00e+02	*	*	2.64e+02	*
14	1,2,3,6,7,8-HxCDD	3.18e+03	3.00e+02	1.1e+01	2.69e+03	2.64e+02	1.0e+01
15	1,2,3,7,8,9-HxCDD	3.69e+03	3.00e+02	1.2e+01	3.94e+03	2.64e+02	1.5e+01
16	1,2,3,4,6,7,8-HpCDD	2.97e+04	1.84e+02	1.6e+02	2.92e+04	1.68e+02	1.7e+02
17	OCDD	5.39e+05	2.00e+02	2.7e+03	5.83e+05	2.52e+02	2.3e+03
18	13C-2,3,7,8-TCDF	8.30e+05	2.20e+03	3.8e+02	1.05e+06	1.04e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	2.88e+06	2.08e+02	1.4e+04	1.79e+06	4.16e+02	4.3e+03
20	13C-2,3,4,7,8-PeCDF	3.31e+06	2.08e+02	1.6e+04	2.10e+06	4.16e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.02e+06	7.76e+02	2.6e+03	3.80e+06	2.92e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.25e+06	7.76e+02	2.9e+03	4.46e+06	2.92e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	2.23e+06	7.76e+02	2.9e+03	4.37e+06	2.92e+02	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	1.70e+06	7.76e+02	2.2e+03	3.28e+06	2.92e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.61e+06	1.94e+03	8.3e+02	3.68e+06	2.39e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.26e+06	1.94e+03	6.5e+02	2.84e+06	2.39e+03	1.2e+03
27	13C-2,3,7,8-TCDD	6.45e+05	2.77e+03	2.3e+02	8.47e+05	1.68e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	2.38e+06	1.72e+02	1.4e+04	1.45e+06	3.12e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.18e+06	9.72e+02	3.3e+03	2.48e+06	6.48e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.90e+06	9.72e+02	3.0e+03	2.32e+06	6.48e+02	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.90e+06	2.68e+02	1.1e+04	2.78e+06	1.56e+02	1.8e+04
32	13C-OCDD	1.79e+06	2.48e+02	7.2e+03	2.03e+06	2.48e+02	8.2e+03
33	13C-1,2,3,4-TCDD	2.93e+06	2.77e+03	1.1e+03	3.83e+06	1.68e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	5.62e+06	9.72e+02	5.8e+03	4.43e+06	6.48e+02	6.8e+03
35	37Cl-2,3,7,8-TCDD	6.80e+05	8.44e+02	8.1e+02			

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Peak List Summary

CLIENT ID.
SL0526

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P518902 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 07:35:57 Processed: 21-NOV-18 12:44:54

Mass: 303.9020 305.8990 Tot Response: 1.23e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:30	5.58e+01	6.67e+01 0.84	yes	1.23e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0526

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P518902 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 07:35:57 Processed: 21-NOV-18 12:44:54

Mass: 319.8970 321.8940 Tot Response: 5.75e+01 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:32	2.47e+01	3.28e+01 0.75	yes	5.75e+01	2,3,7,8-TCDD	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0526

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P518902 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 07:35:57 Processed: 21-NOV-18 12:44:54

Mass: 389.8160 391.8130 Tot Response: 7.03e+01 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	4.06e+01	2.97e+01 1.37	yes	7.03e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0526

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P518902 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 07:35:57 Processed: 21-NOV-18 12:44:54

Mass: 423.7770 425.7740 Tot Response: 1.30e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	4.84e+02	4.93e+02	0.98	yes	9.77e+02		n	n
2	38:09	1.60e+02	1.65e+02	0.97	yes	3.25e+02	1,2,3,4,6,7,8-HpCDD	n	n

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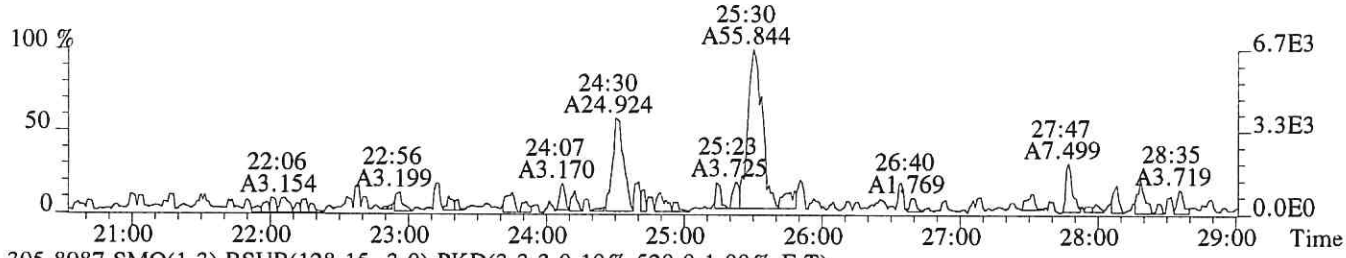
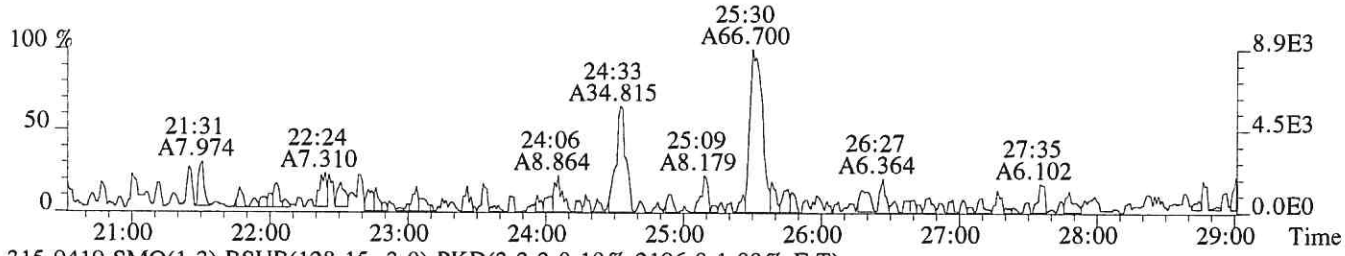
Office(281)530-5656. Fax(281)530-5887

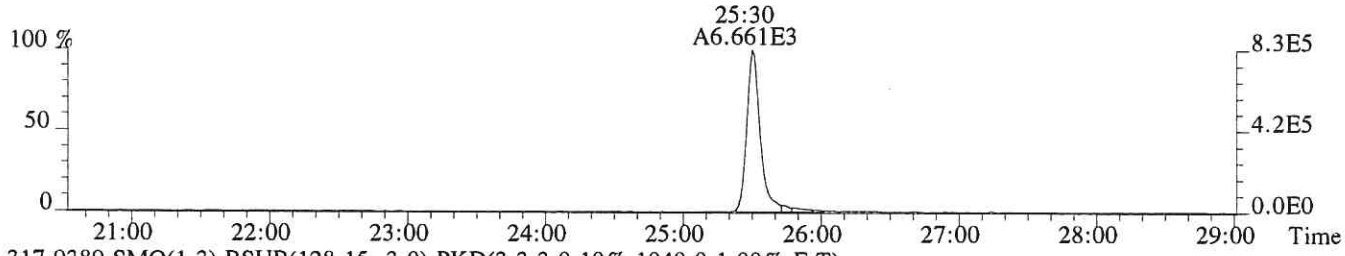
File:P518902 #1-602 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



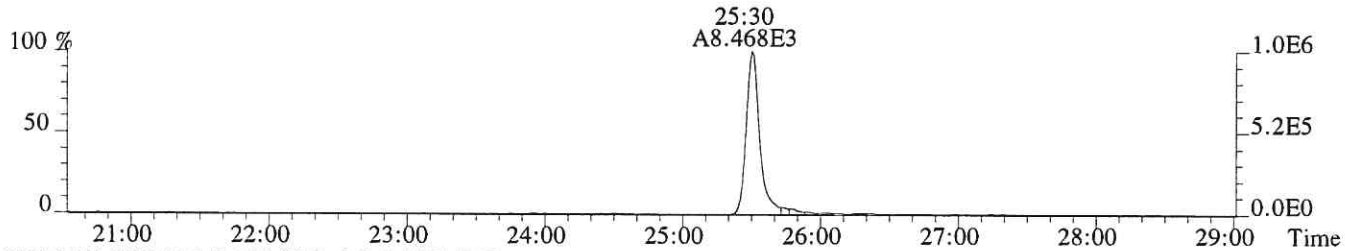
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



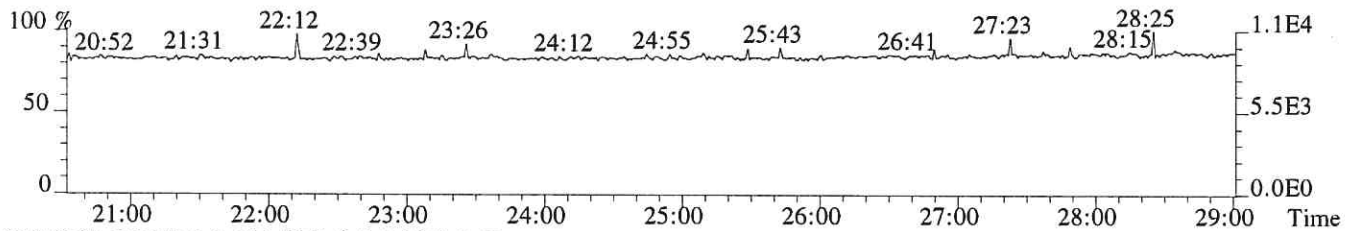
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



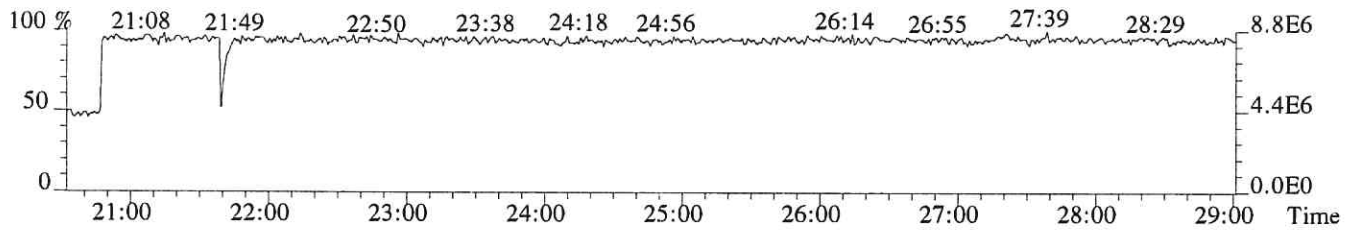
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



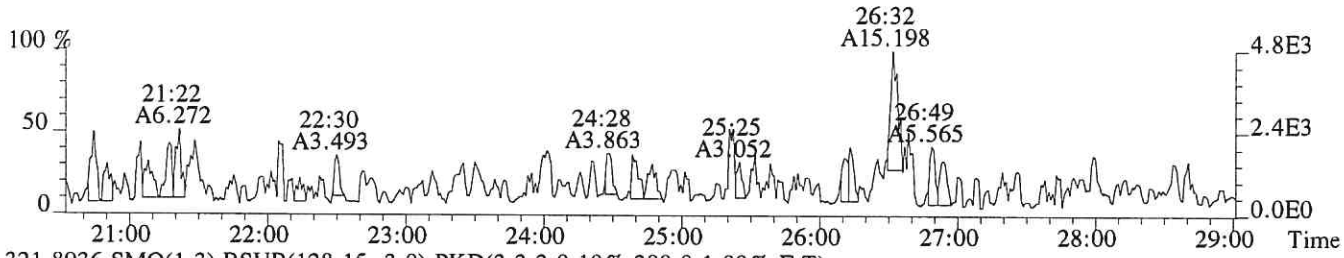
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



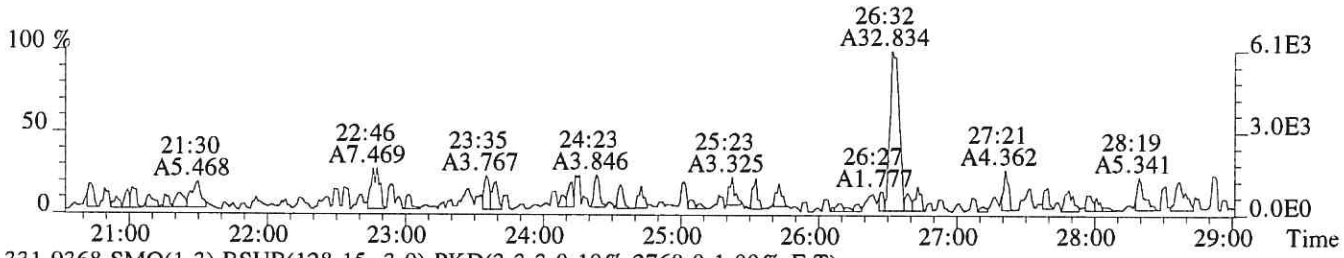
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



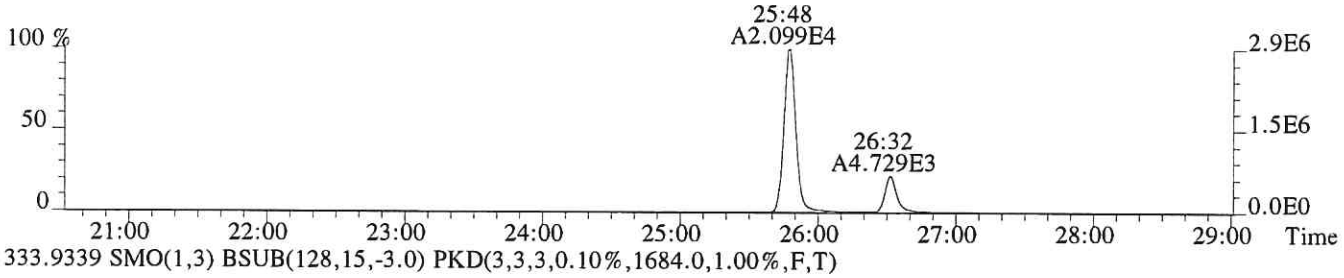
File:P518902 #1-602 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



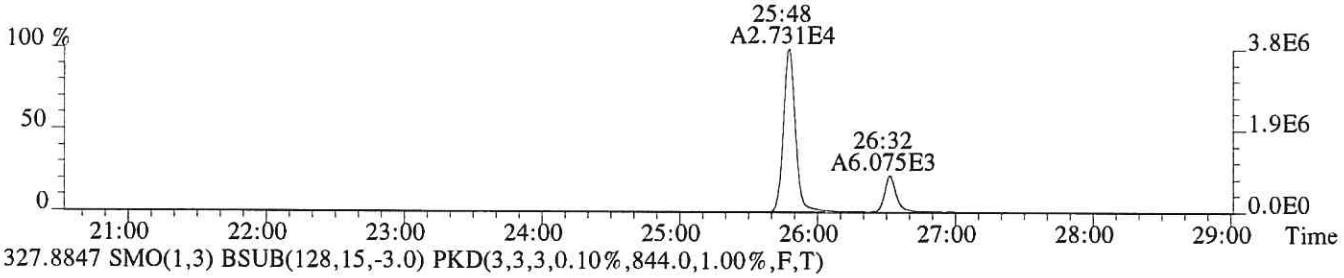
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



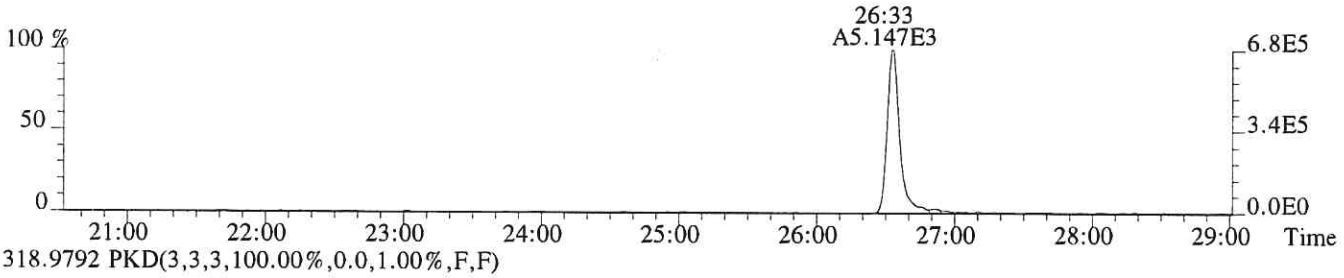
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



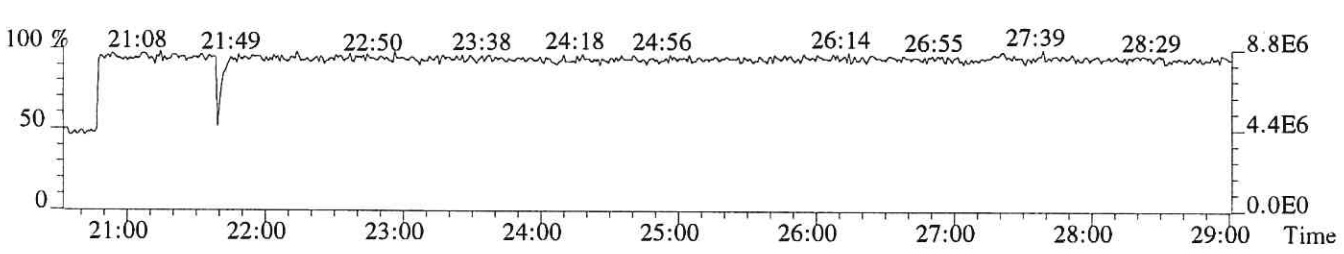
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



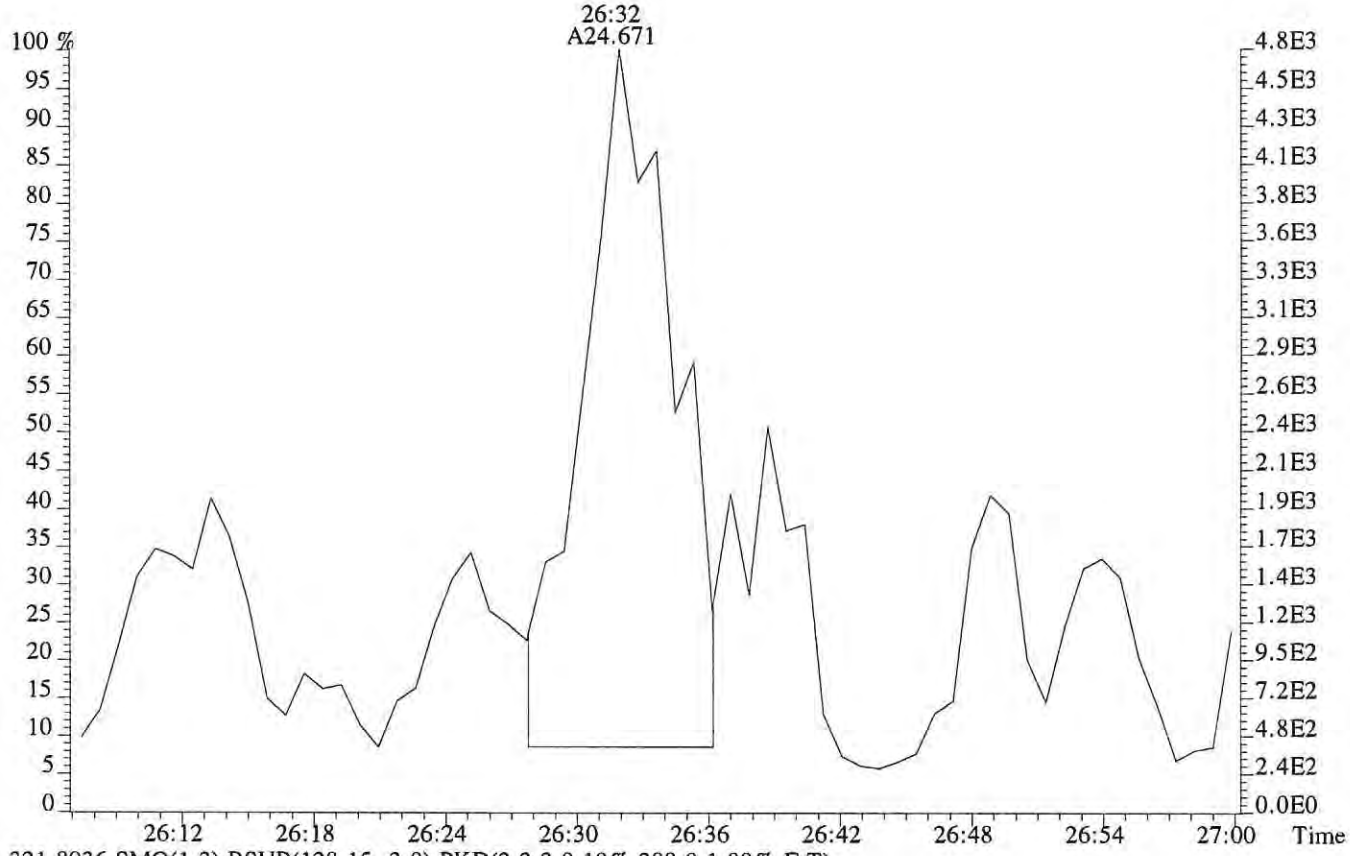
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



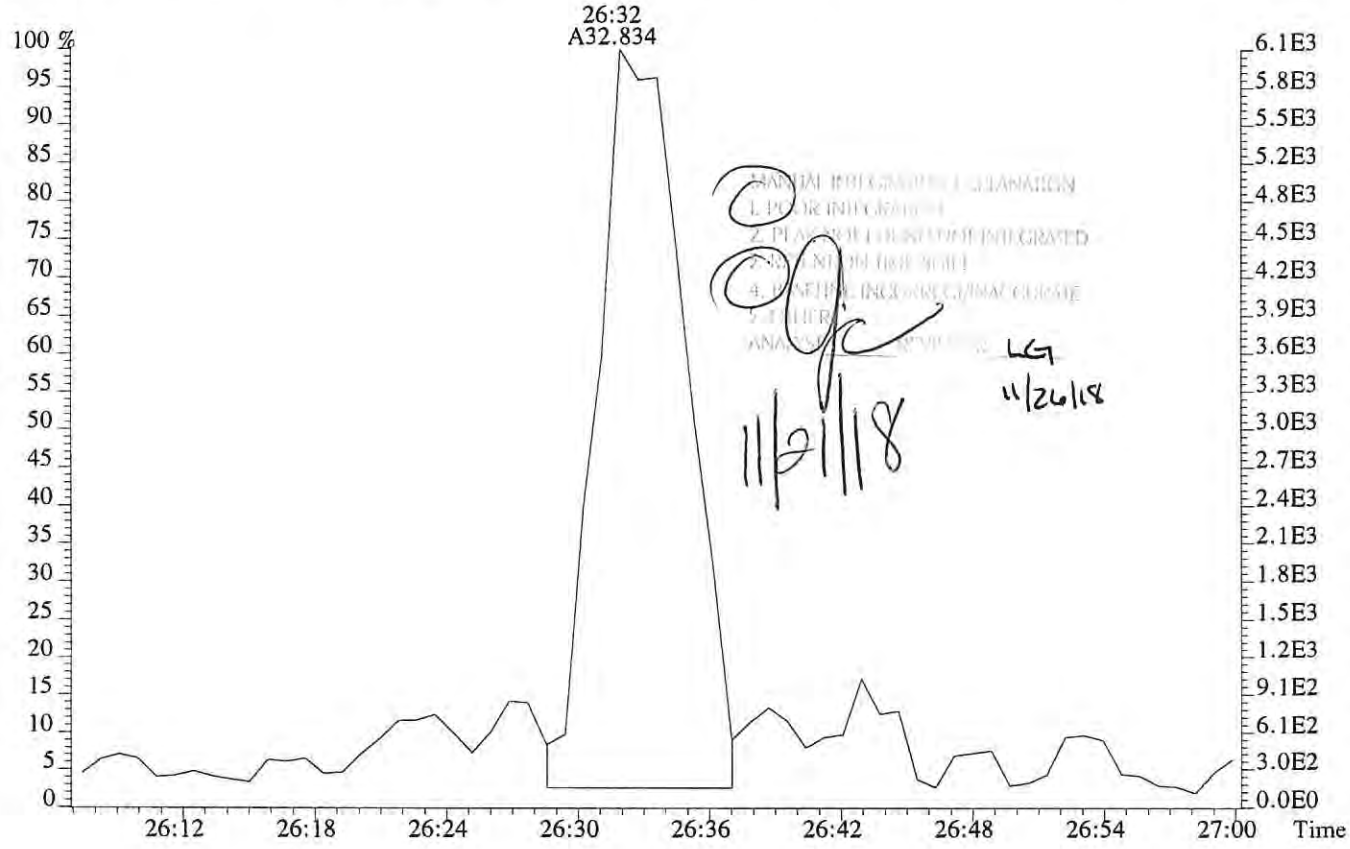
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518902 #1-602 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)

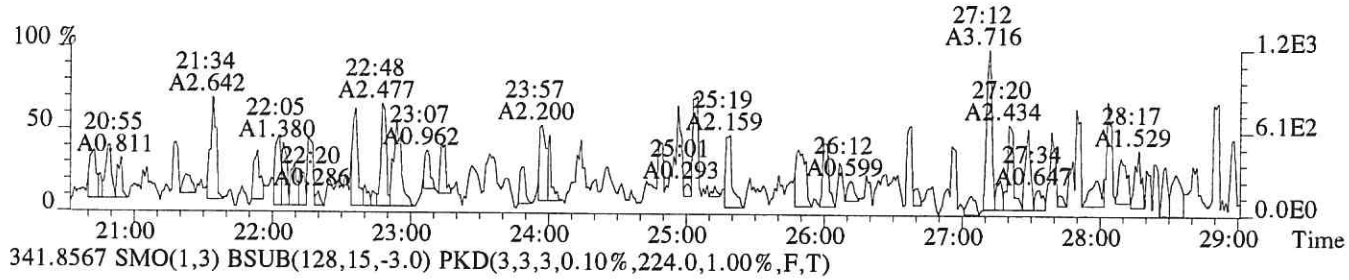


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)

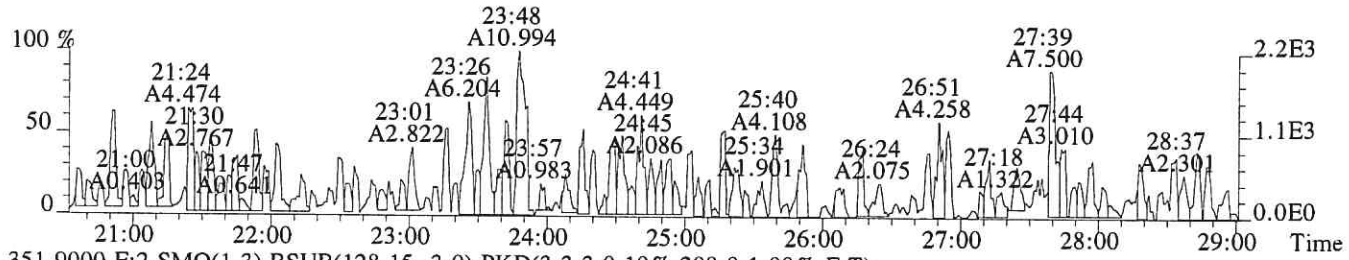


LG
11/26/18
11/21/18

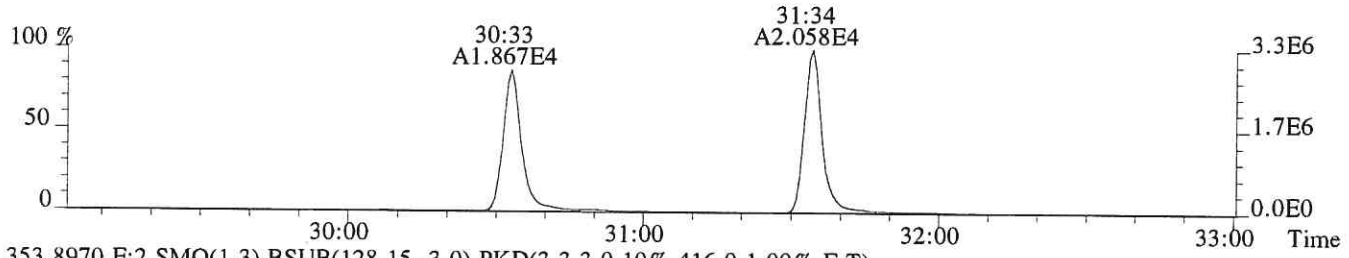
File:P518902 #1-602 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



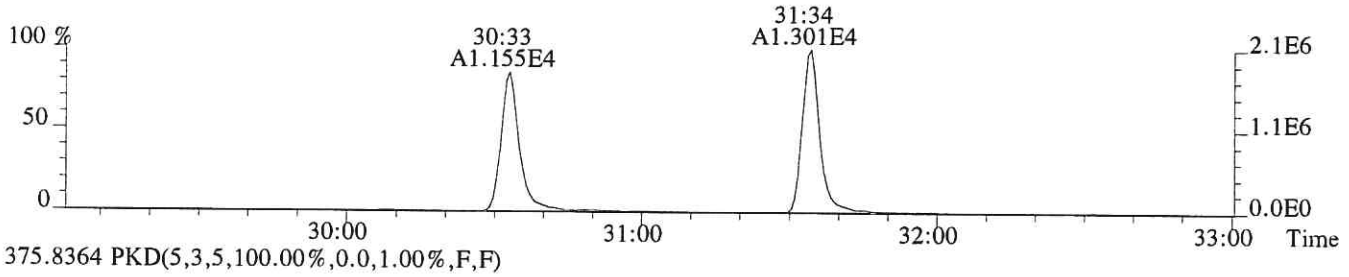
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



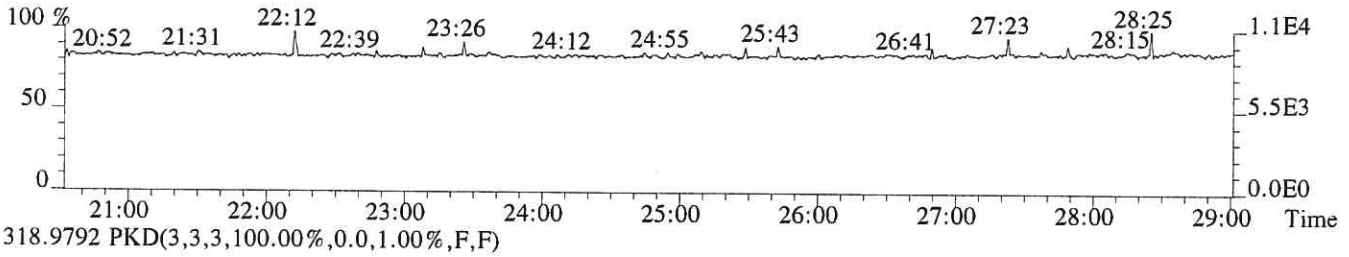
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



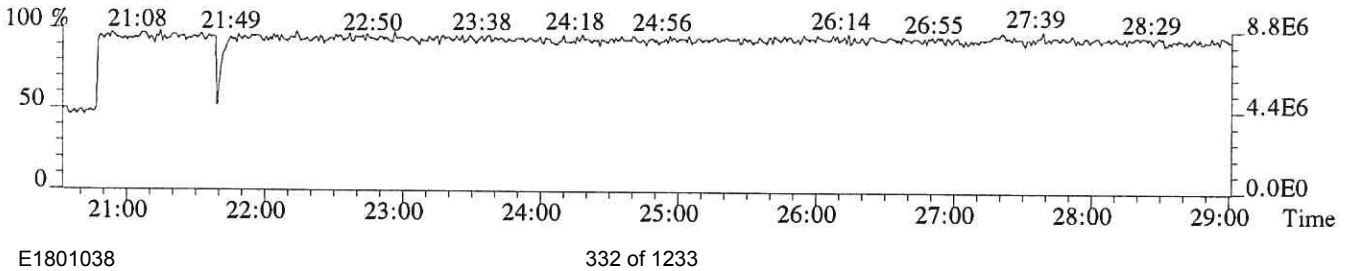
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



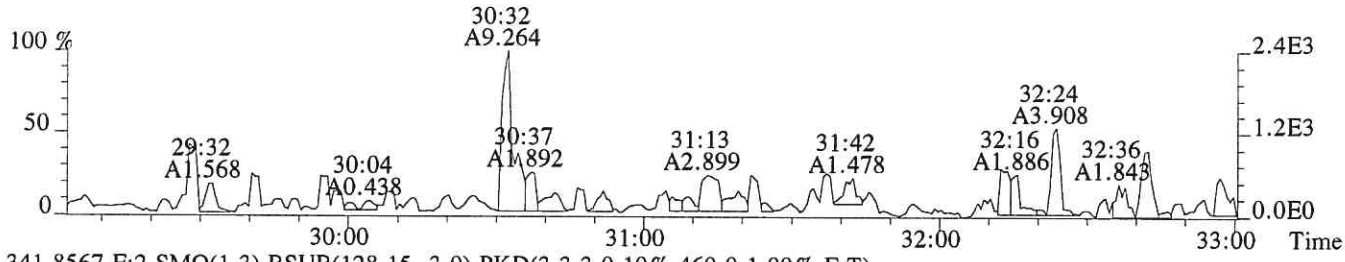
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



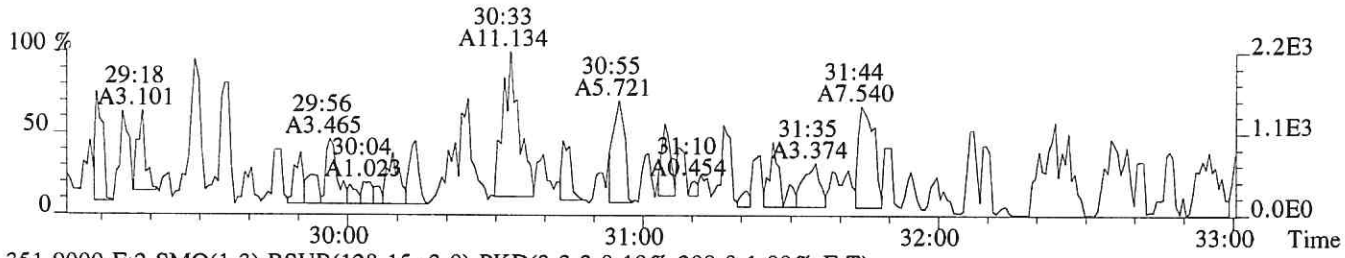
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



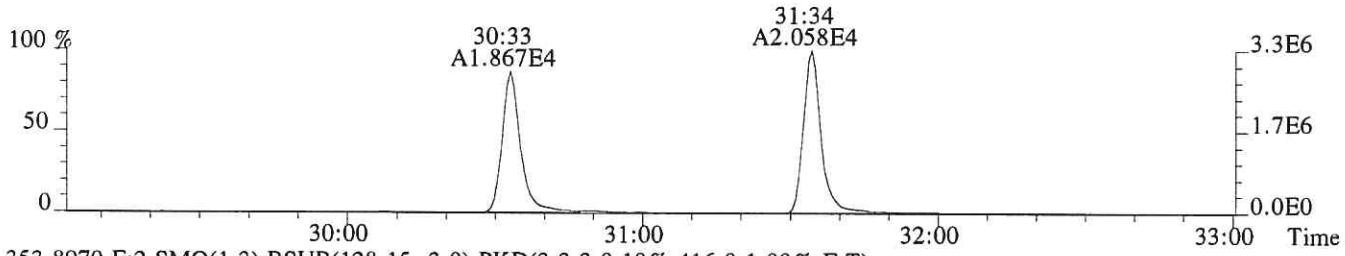
File:P518902 #1-357 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



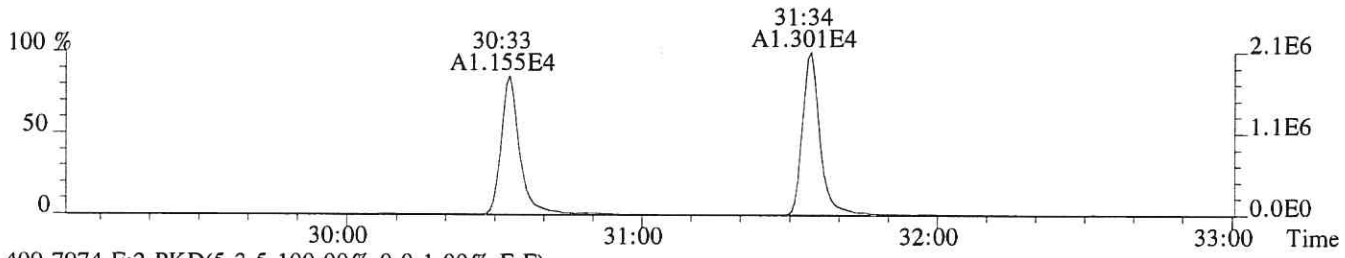
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



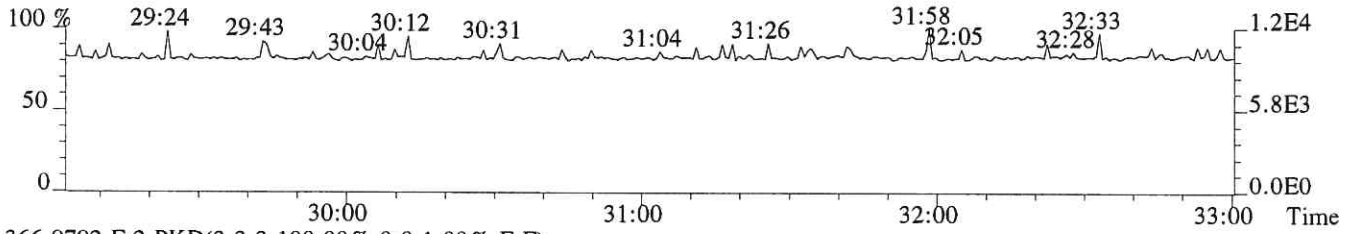
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



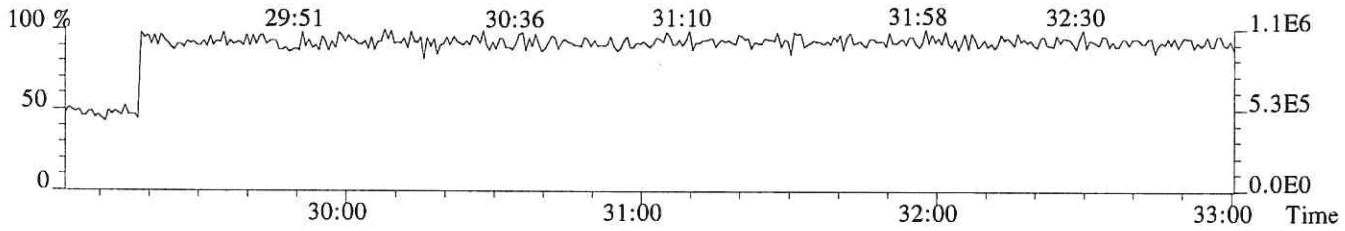
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



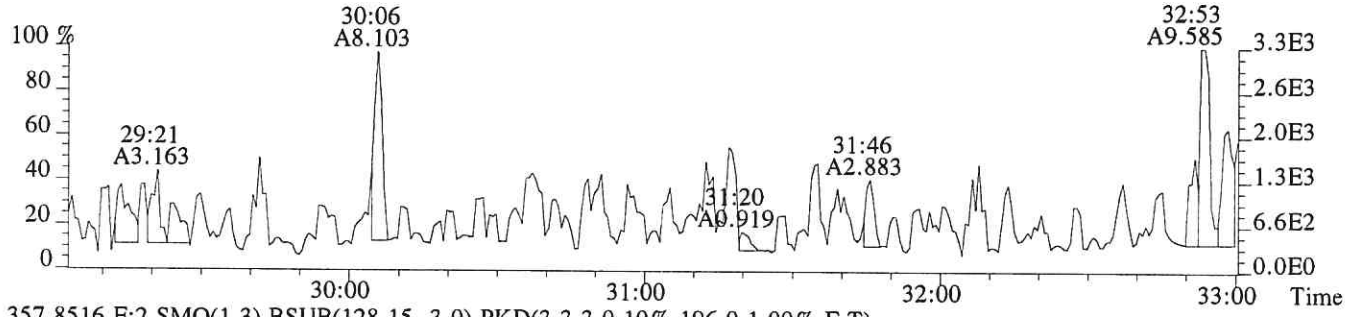
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



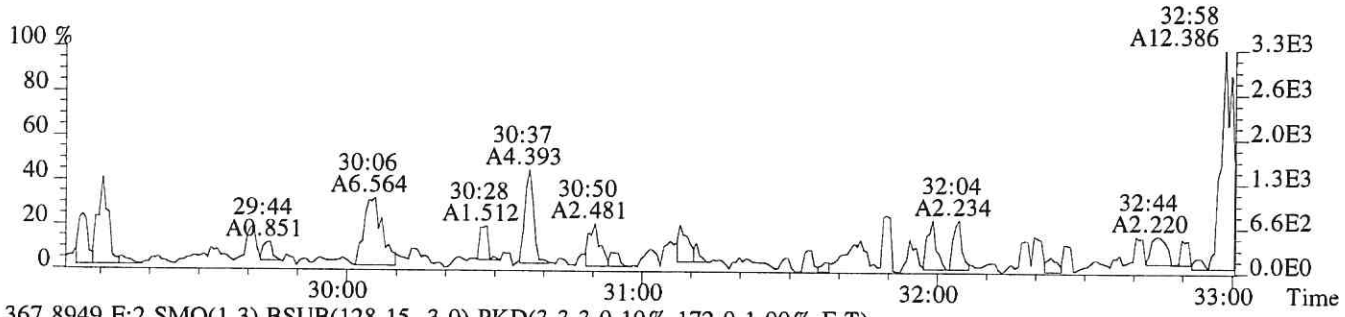
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



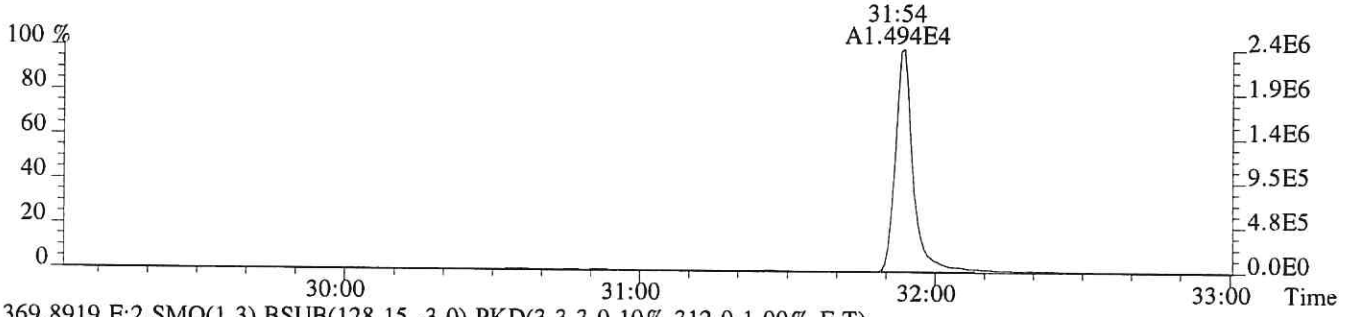
File:P518902 #1-357 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



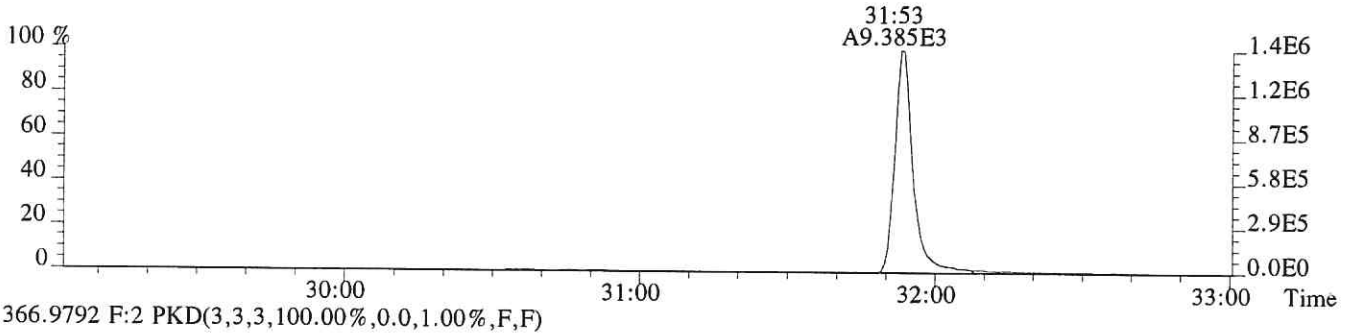
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



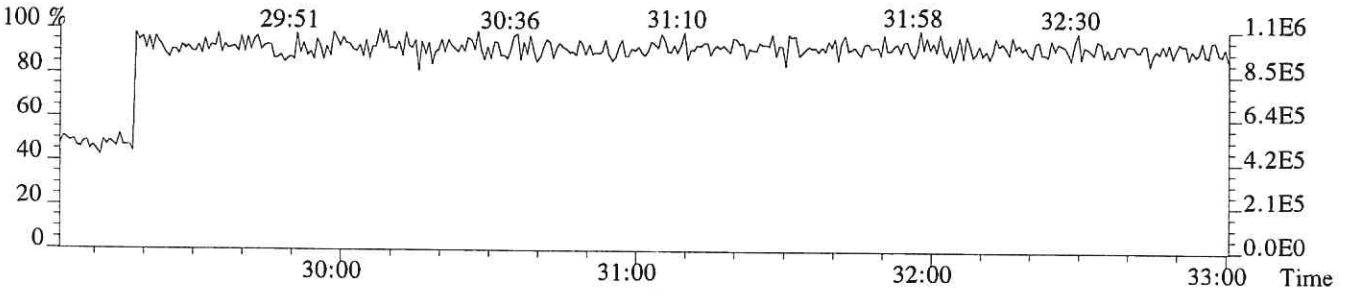
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



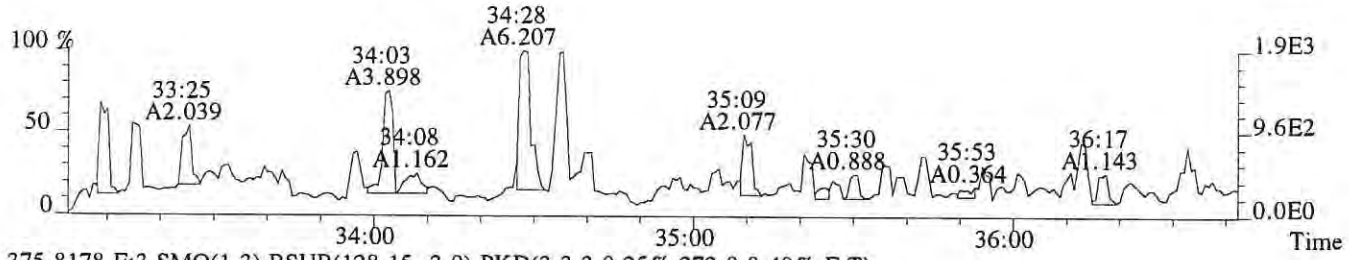
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



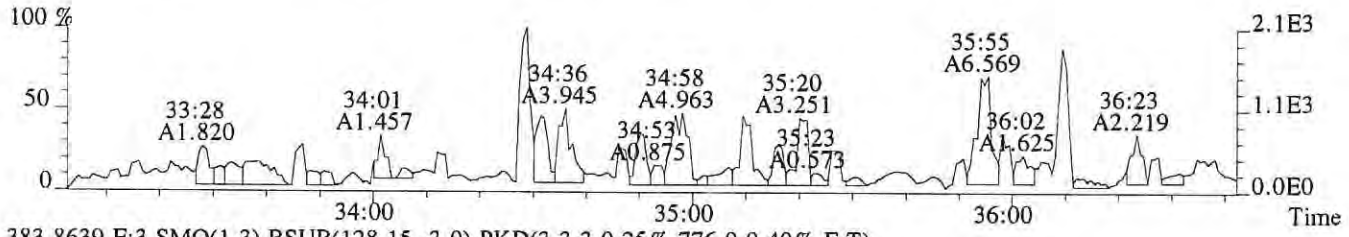
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



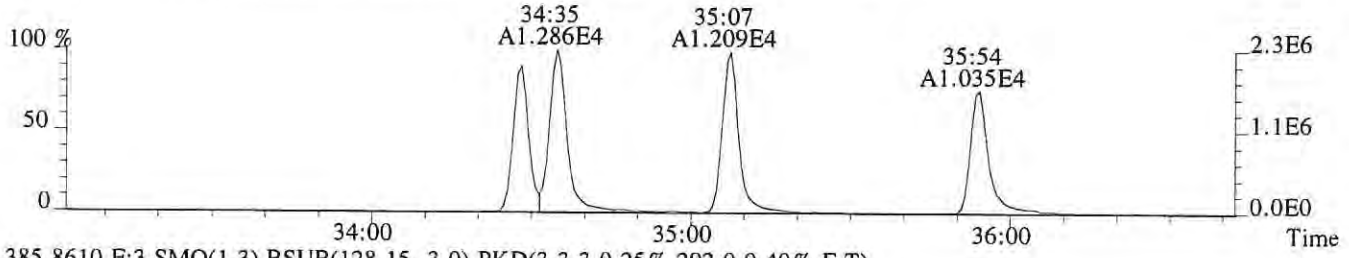
File:P518902 #1-330 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



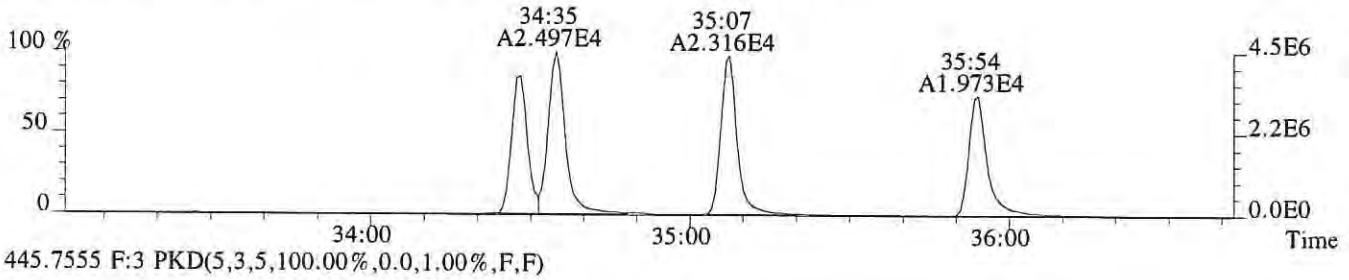
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



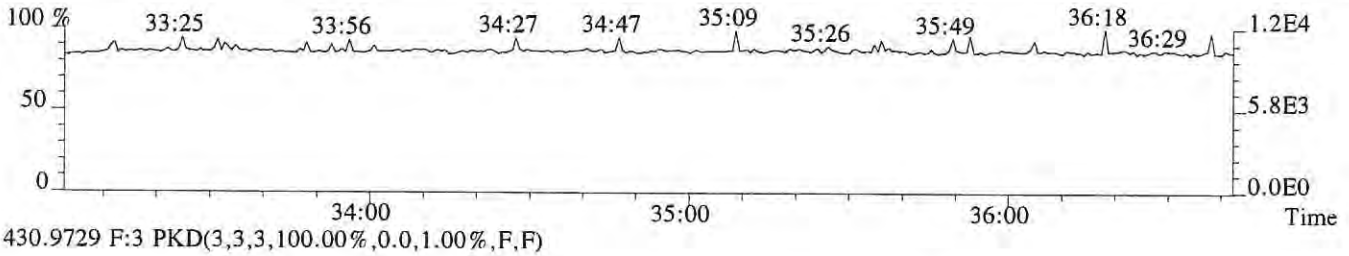
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



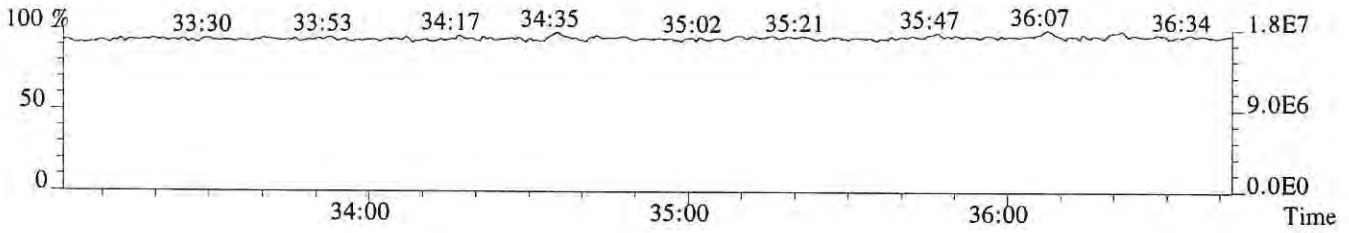
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



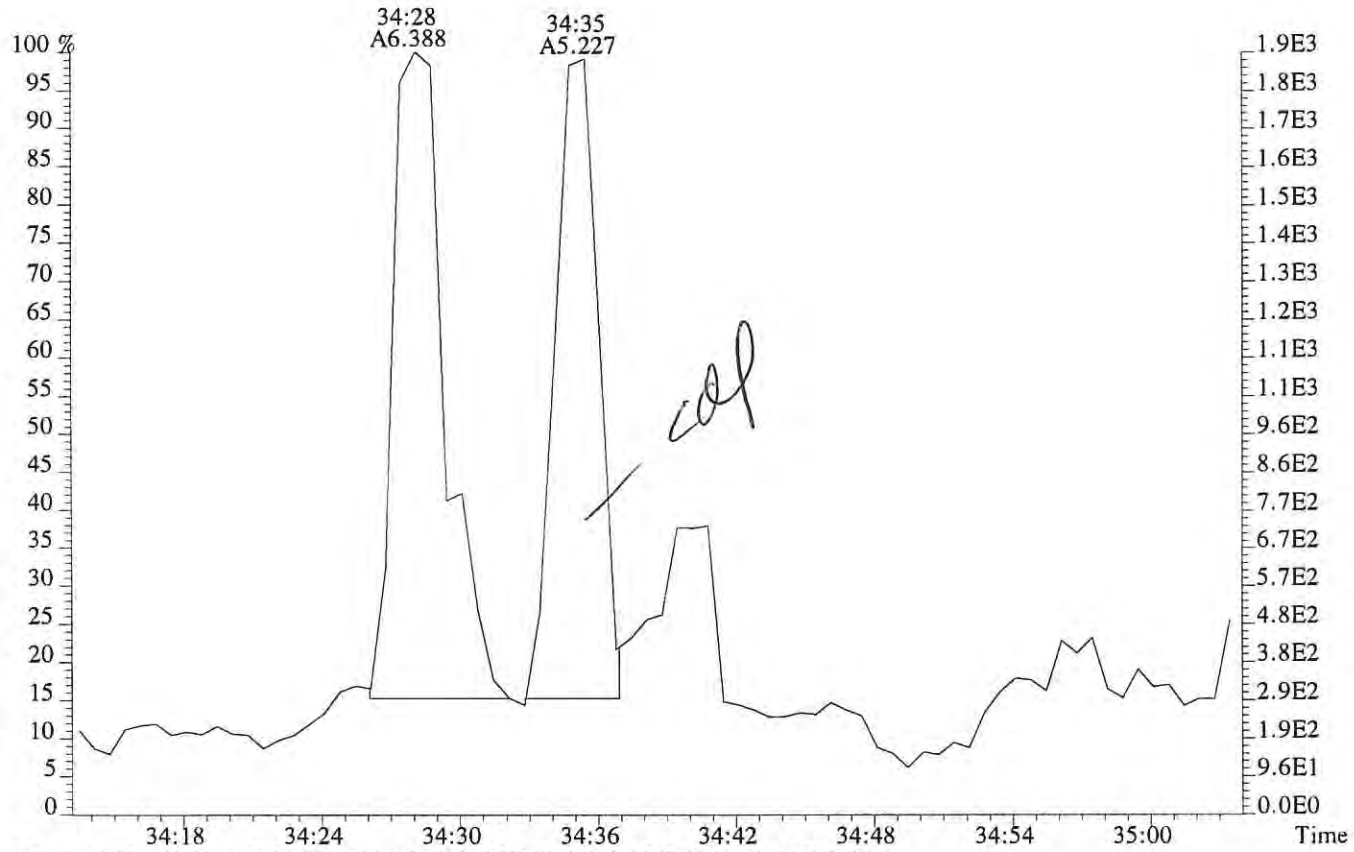
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



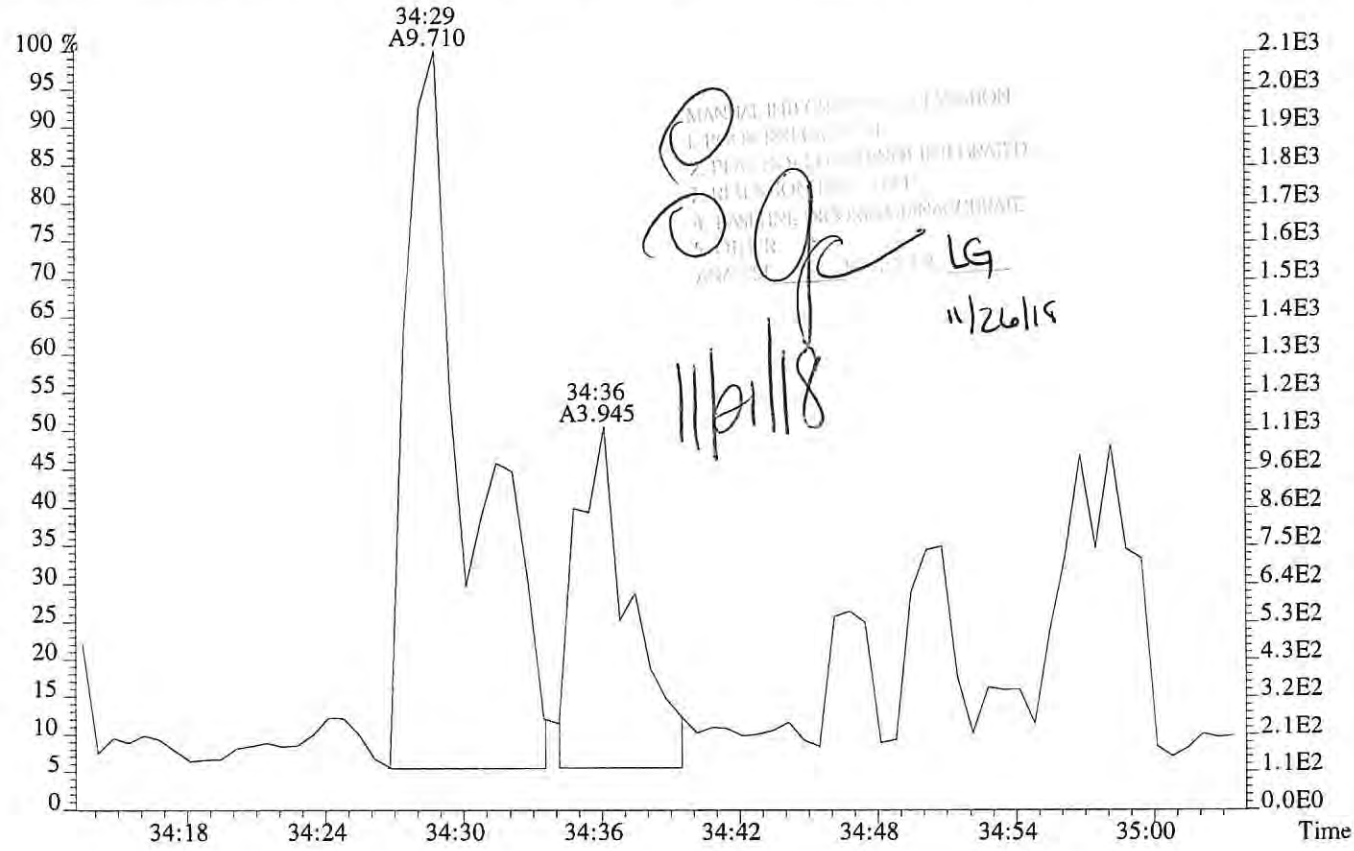
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



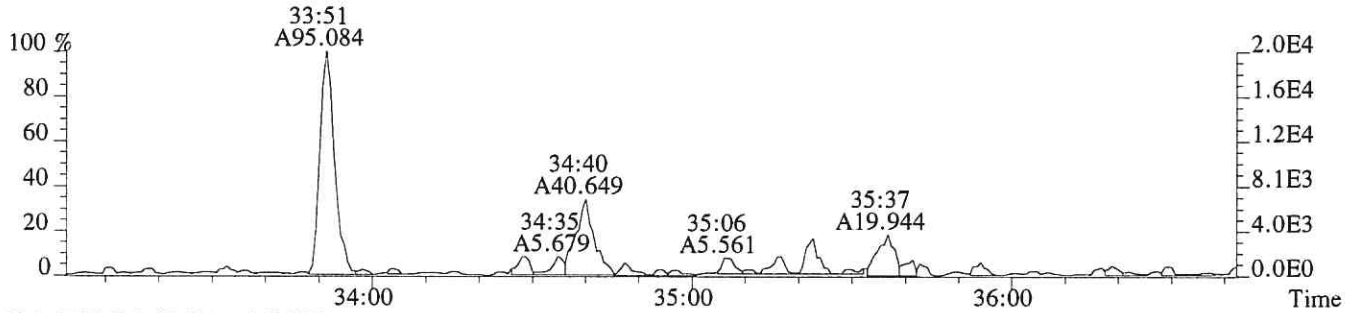
File:P518902 #1-330 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



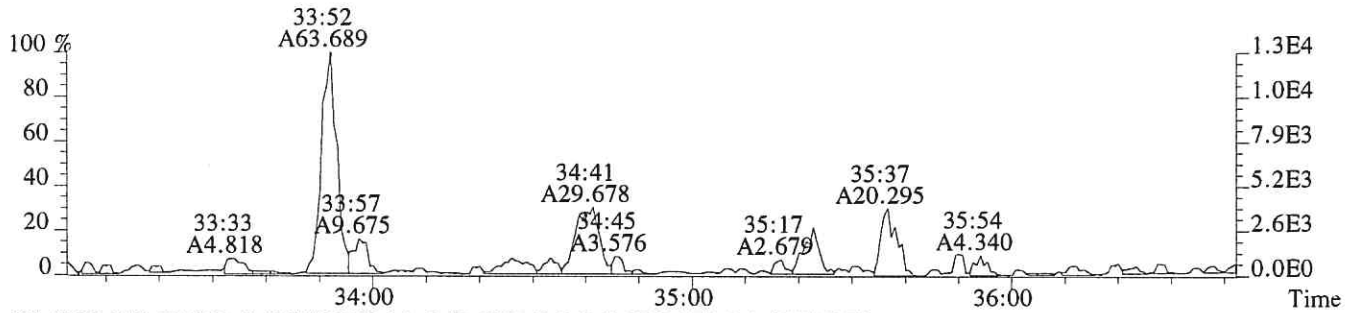
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



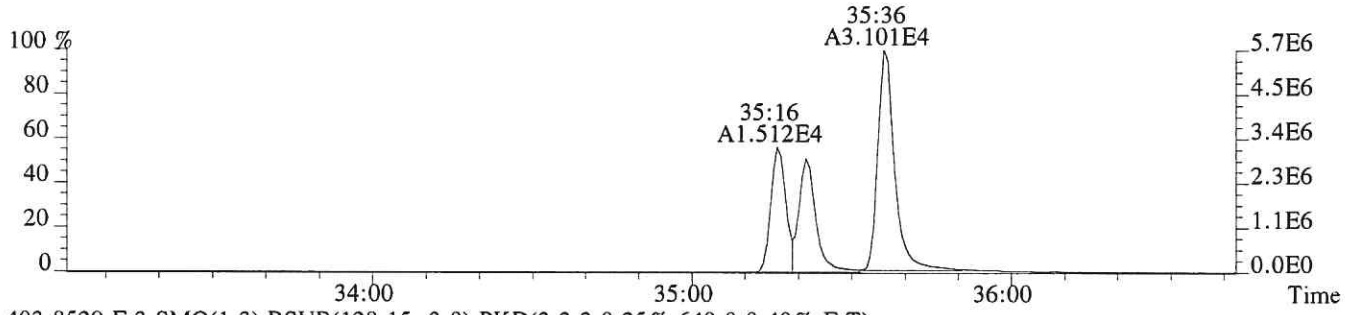
File:P518902 #1-330 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



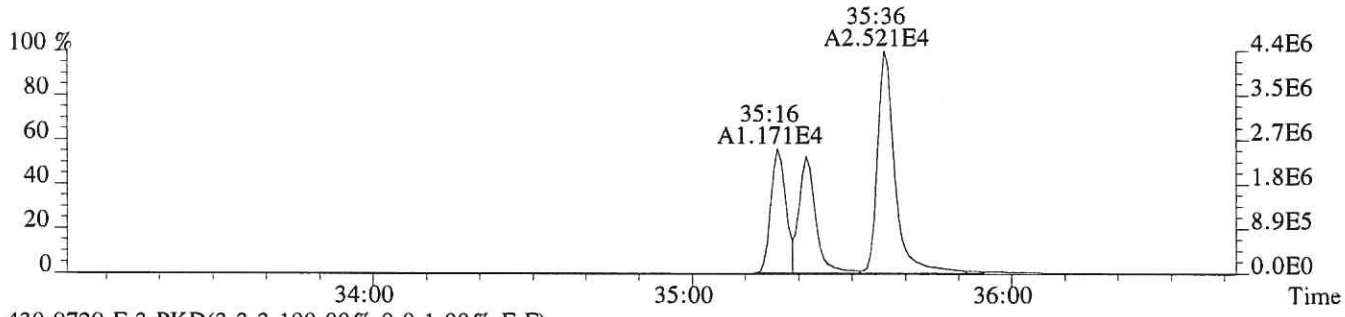
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



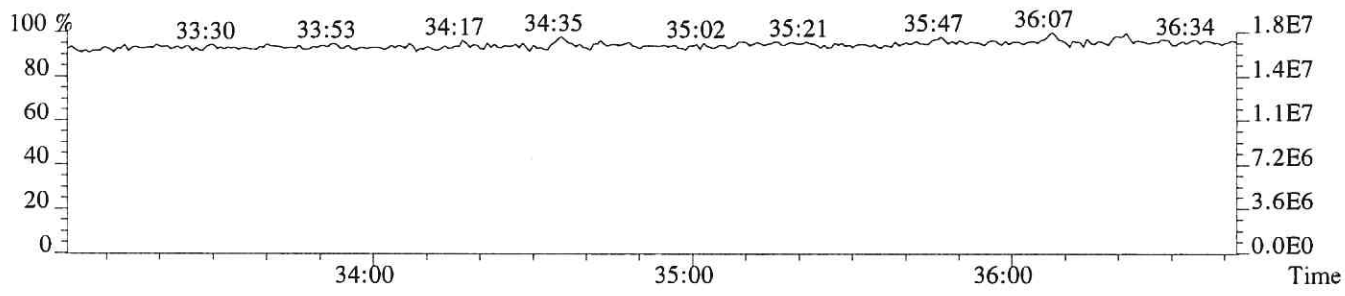
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



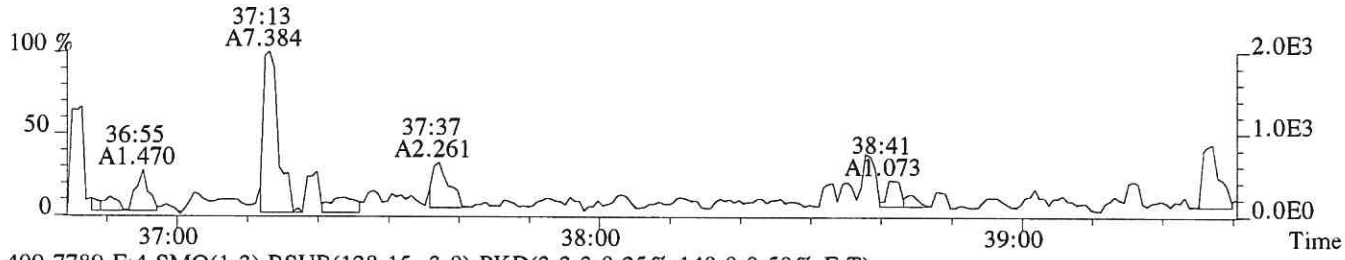
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



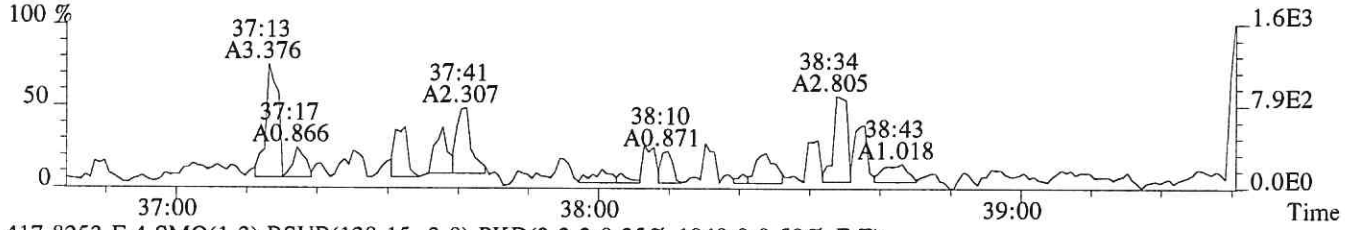
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



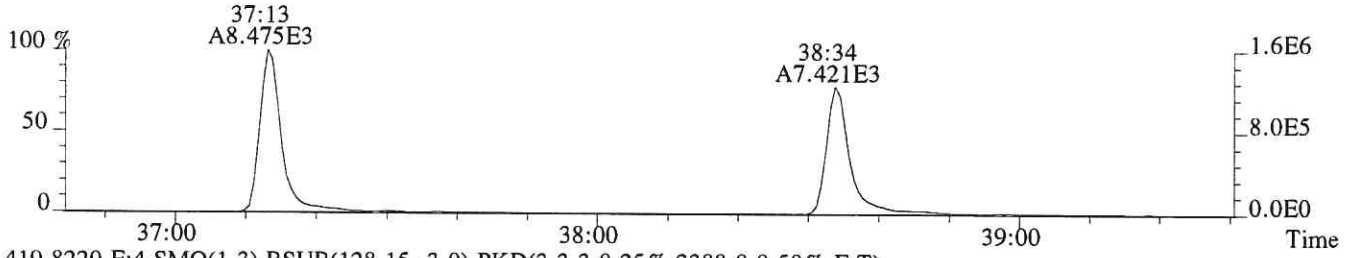
File:P518902 #1-250 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.50%,F,T)



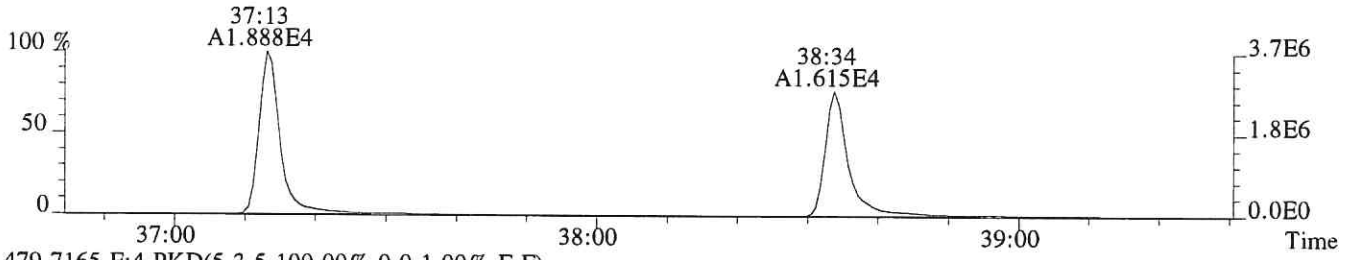
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,148.0,0.50%,F,T)



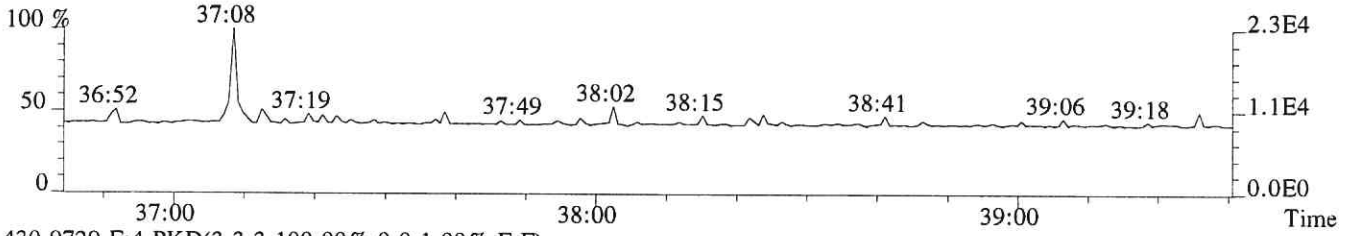
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.50%,F,T)



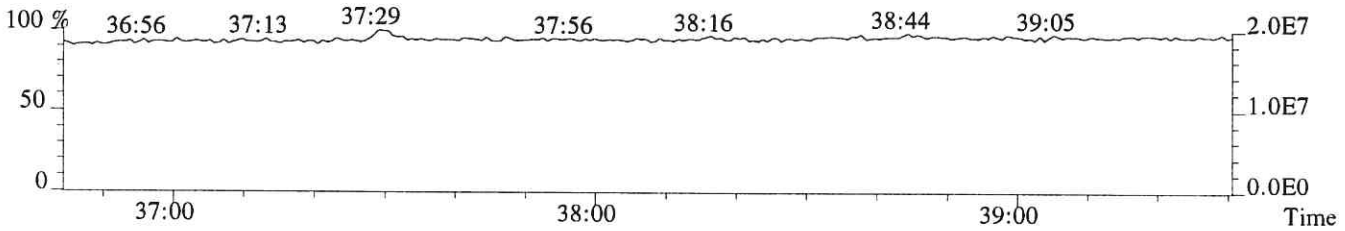
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2388.0,0.50%,F,T)



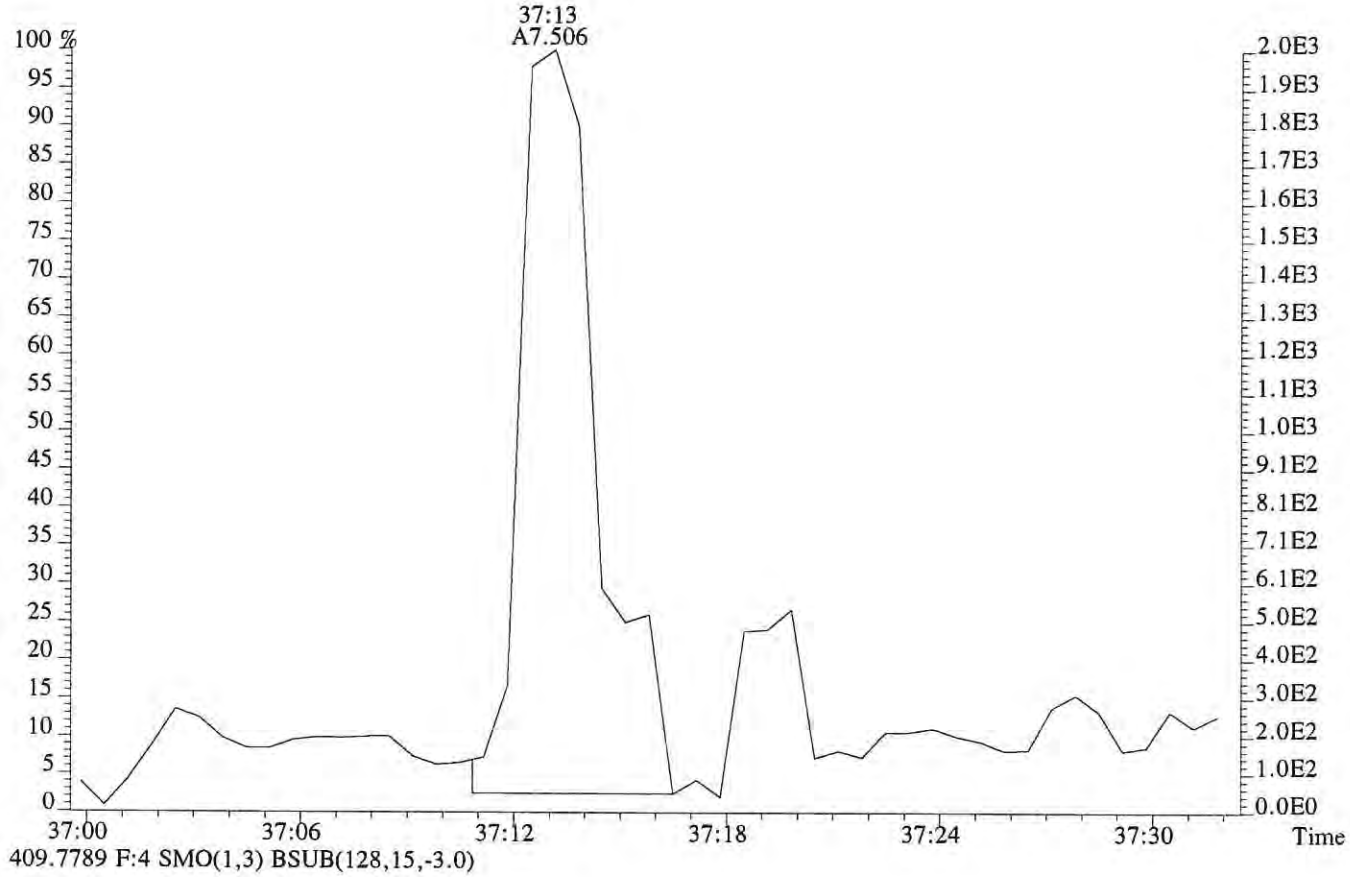
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



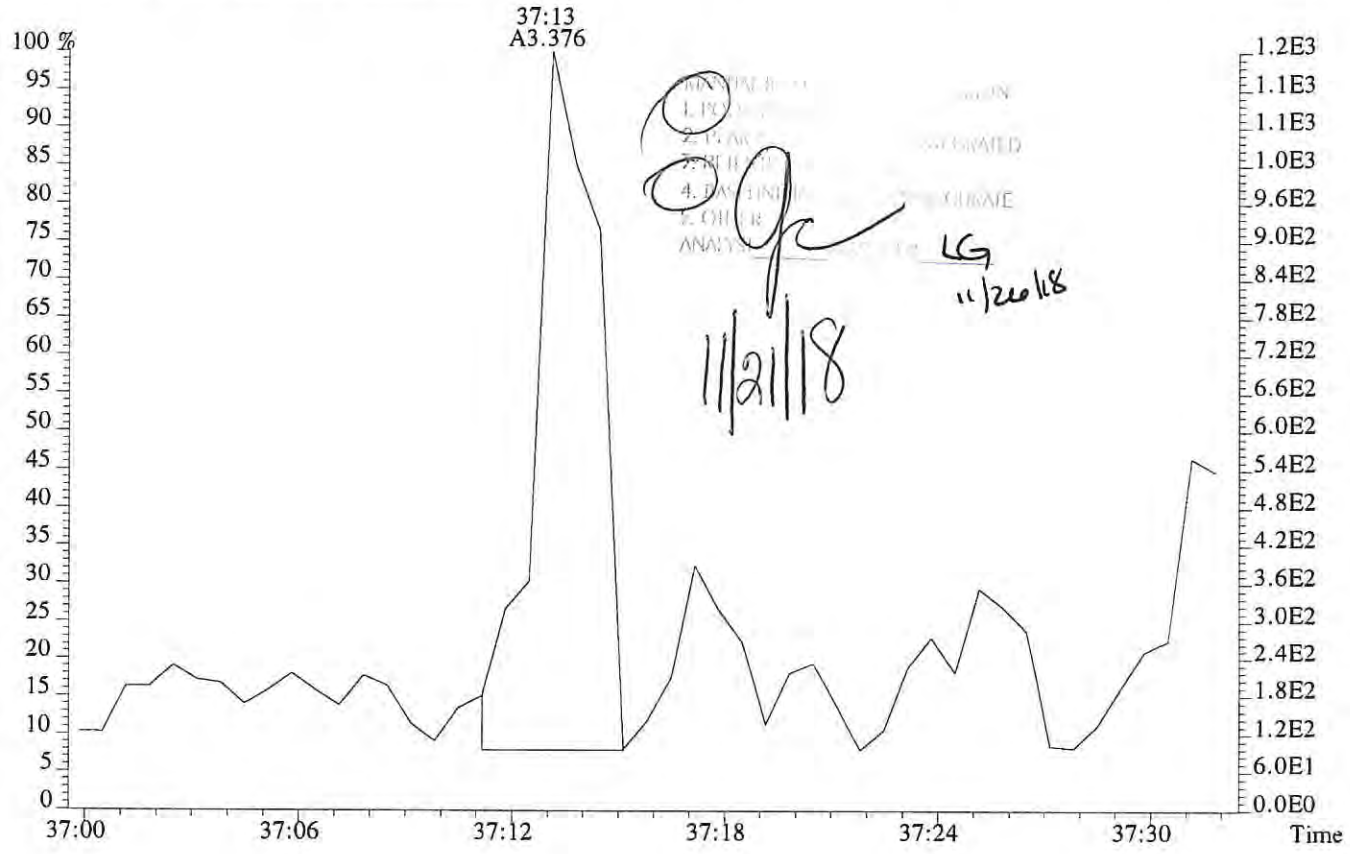
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518902 #1-250 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801038-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0)



409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0)



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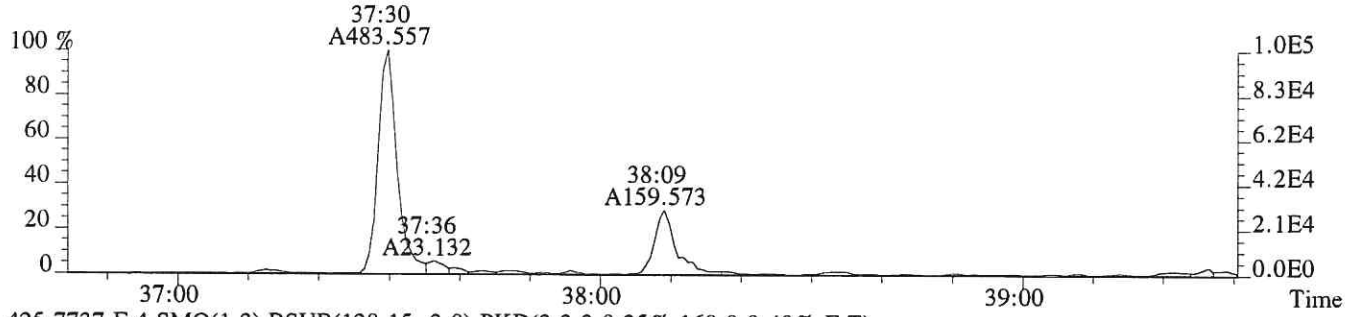
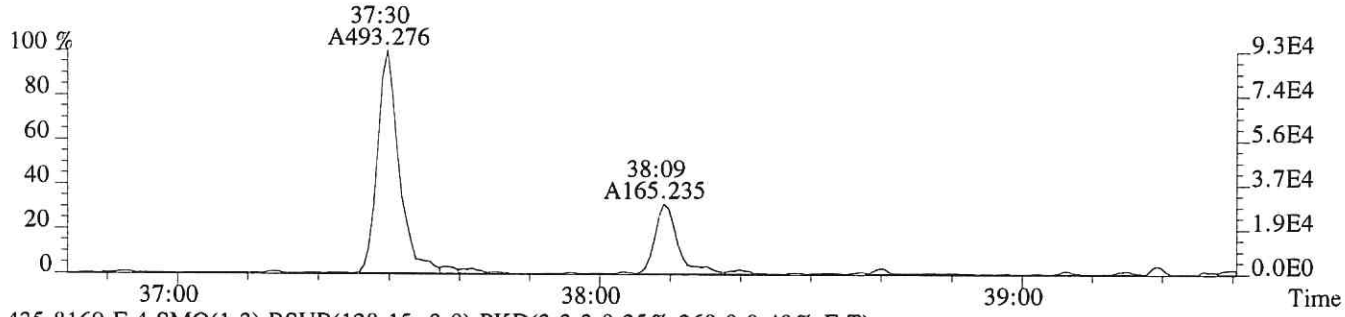
11/20/18
11/21/18

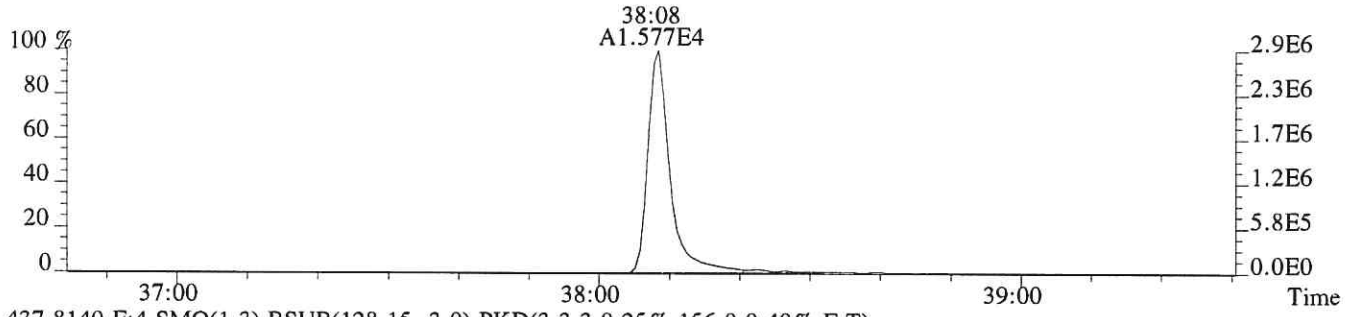
File:P518902 #1-250 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



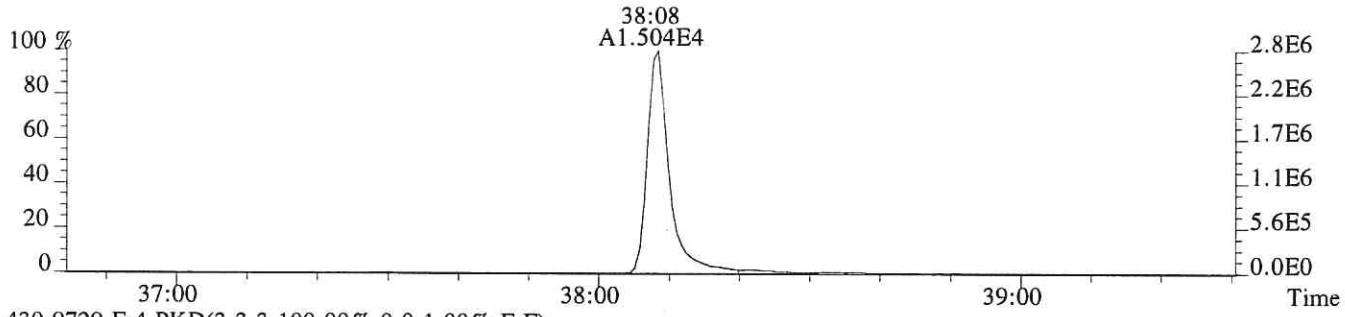
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



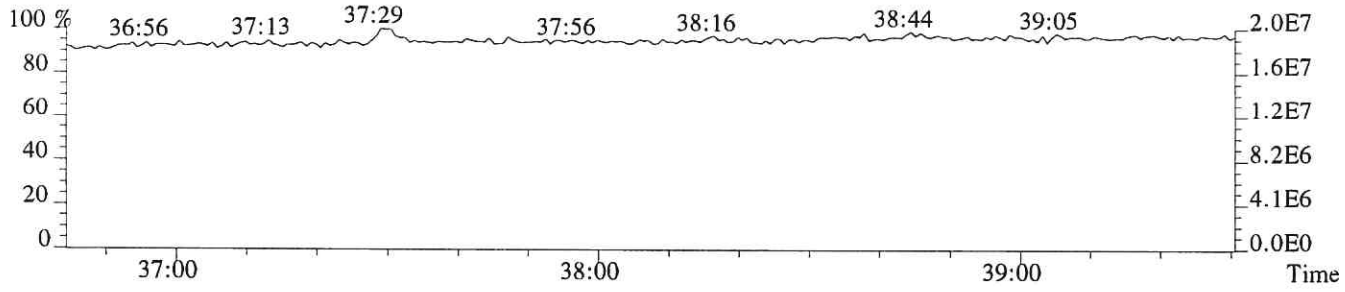
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



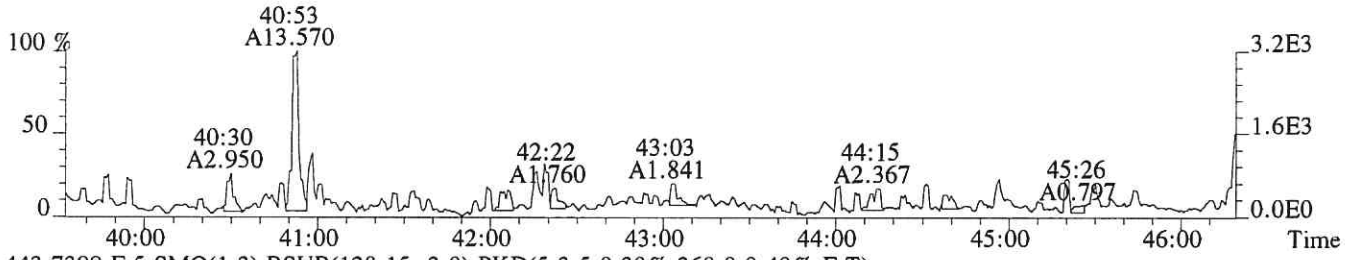
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



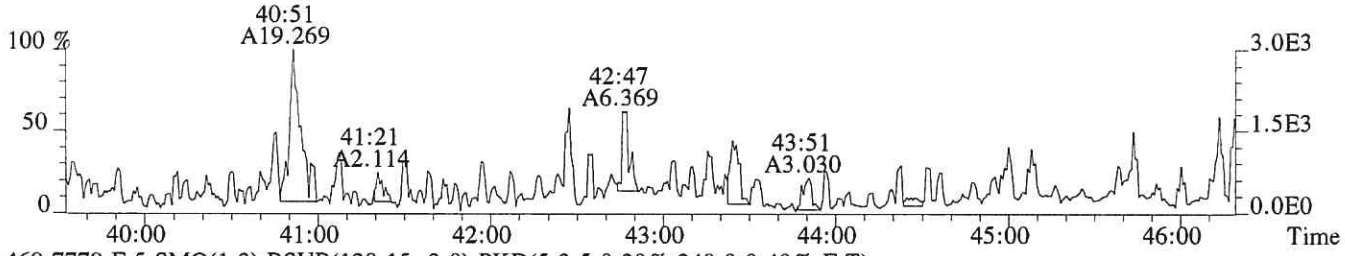
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



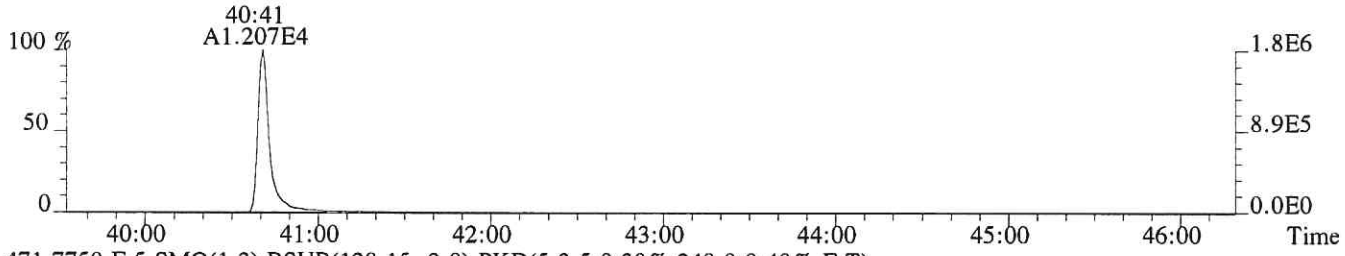
File:P518902 #1-610 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



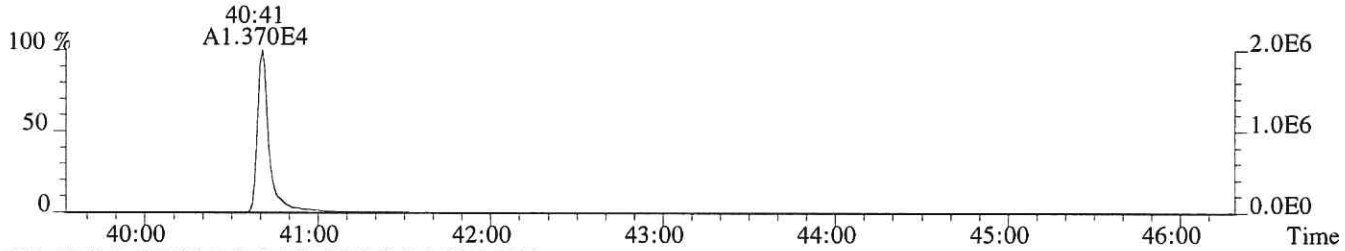
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



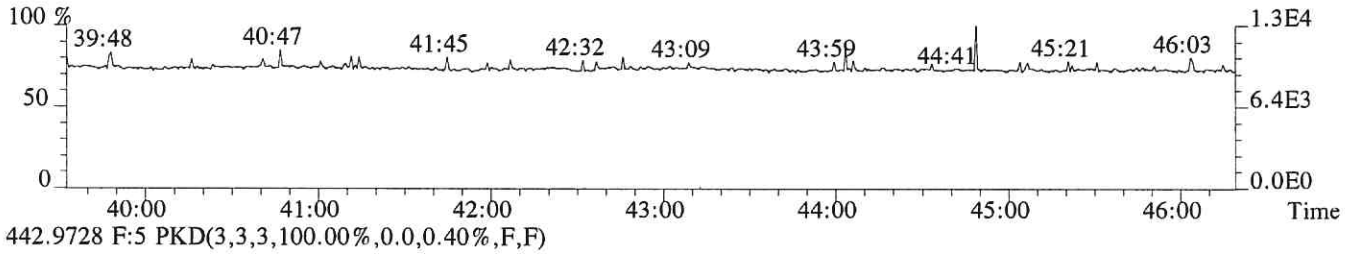
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



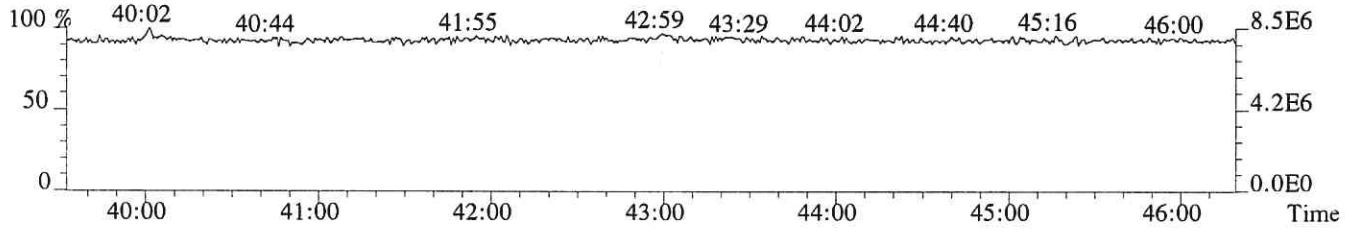
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



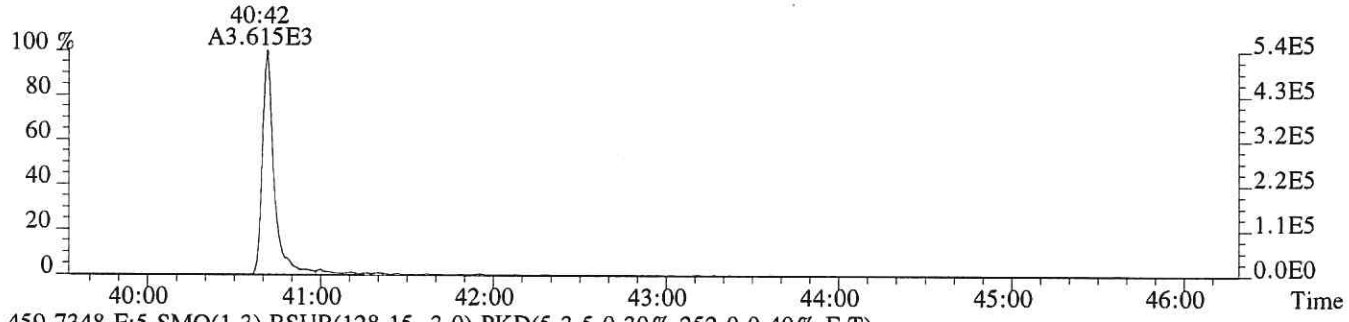
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



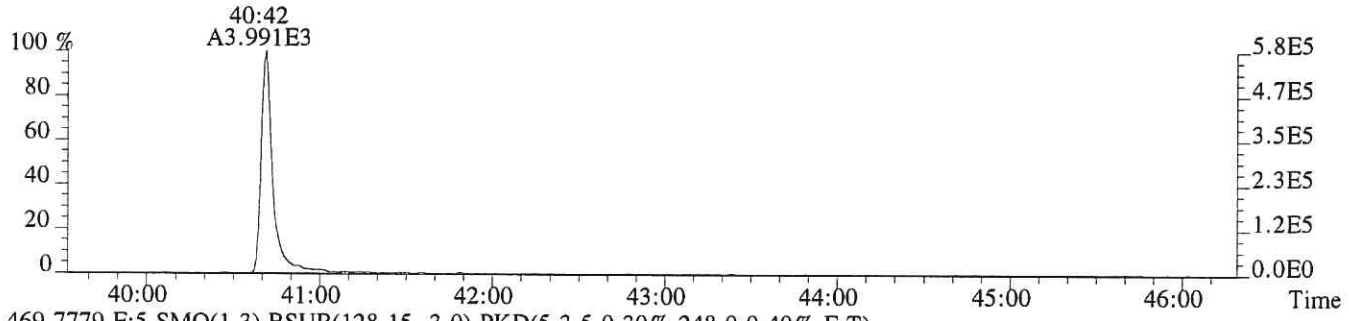
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



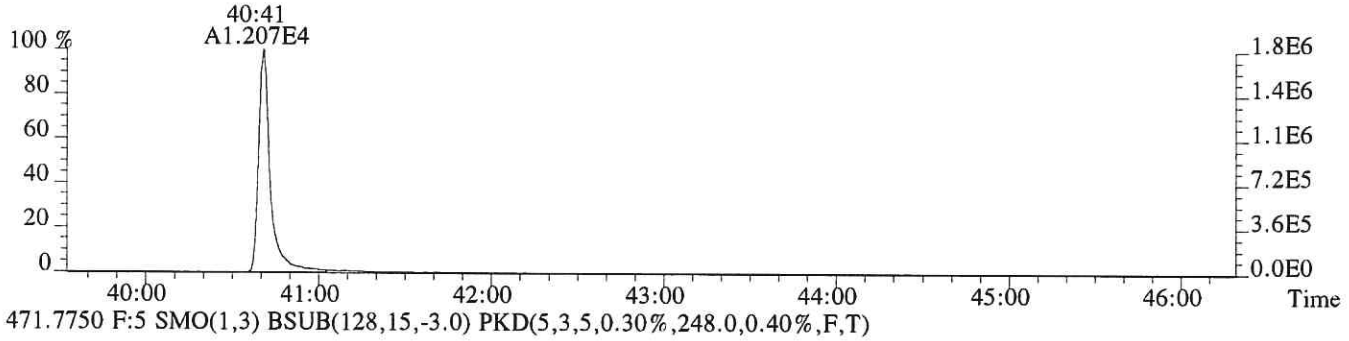
File:P518902 #1-610 Acq:18-NOV-2018 07:35:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



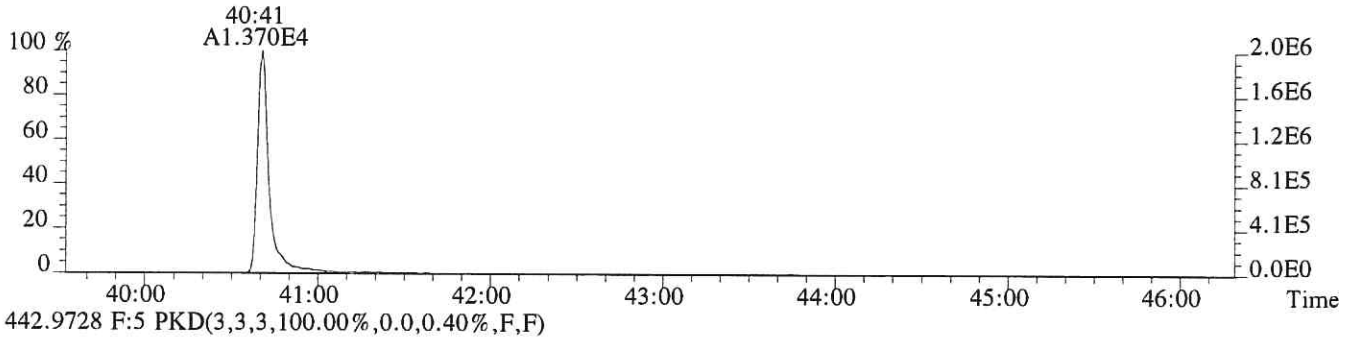
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



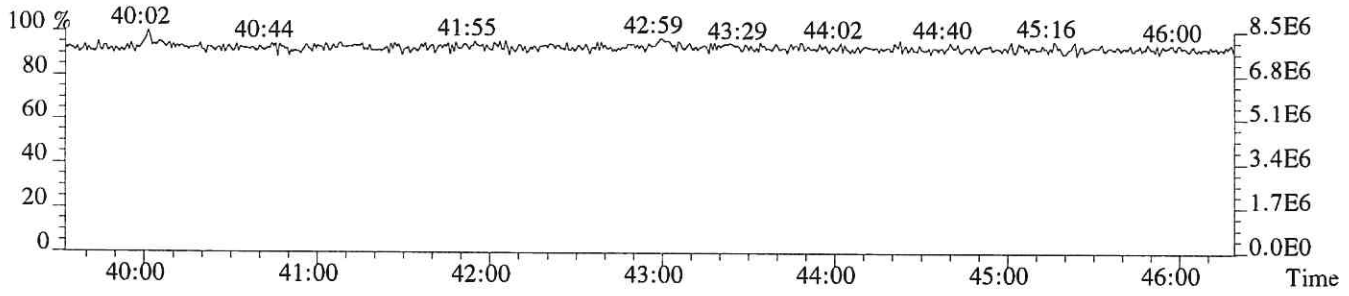
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0527

Run #15 Filename P518903 Samp: 1 Inj: 1 Acquired: 18-NOV-18 08:24:36
Processed: 21-NOV-18 12:44:55 Sample ID: E1801038-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:32	5.927e+01	8.021e+01	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:28	6.833e+00	7.136e+00	0.96	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	7.600e+00	2.950e+00	2.58	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:13	9.382e+00	9.989e+00	0.94	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	2.578e+01	1.643e+01	1.57	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	1.814e+01	2.776e+01	0.65	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:21	1.672e+01	1.198e+01	1.40	yes	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	3.146e+01	2.480e+01	1.27	yes	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	3.719e+02	3.878e+02	0.96	yes	no	1.025
17	Unk	OCDD	40:41	1.051e+04	1.169e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:30	1.114e+04	1.410e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:33	2.319e+04	1.481e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	2.215e+04	1.377e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.063e+04	2.086e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.426e+04	2.768e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.278e+04	2.463e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.055e+04	2.135e+04	0.49	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	8.722e+03	1.984e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.346e+03	1.725e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:31	8.118e+03	9.794e+03	0.83	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:53	1.691e+04	1.047e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.556e+04	1.225e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.691e+04	1.298e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.713e+04	1.649e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	40:40	1.354e+04	1.523e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:47	2.144e+04	2.675e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	3.178e+04	2.480e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:33	8.732e+03				no	1.014

$$\text{OCDD} = \frac{(1.051e+04 + 1.169e+04) \times 4000\ \text{pg} \times 1}{(1.354e+04 + 1.523e+04) \times 10.723\ \text{g} \times 81.8/100 \times 1.118} = 314.7471\ \text{ng/Kg}$$

LG 11/26/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0527

Run #15 Filename P518903 Samp: 1 Inj: 1 Acquired: 18-NOV-18 08:24:36
Processed: 21-NOV-18 12:44:55 LAB. ID: E1801038-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.64e+03	2.12e+02	4.1e+01	1.40e+04	6.40e+02	2.2e+01
2	1,2,3,7,8-PeCDF	*	3.20e+02	*	*	8.08e+02	*
3	2,3,4,7,8-PeCDF	*	3.20e+02	*	*	8.08e+02	*
4	1,2,3,4,7,8-HxCDF	1.40e+03	2.16e+02	6.5e+00	1.40e+03	2.04e+02	6.9e+00
5	1,2,3,6,7,8-HxCDF	2.31e+03	2.16e+02	1.1e+01	7.14e+02	2.04e+02	3.5e+00
6	2,3,4,6,7,8-HxCDF	*	2.16e+02	*	*	2.04e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.16e+02	*	*	2.04e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.91e+03	2.56e+02	7.5e+00	2.02e+03	2.64e+02	7.6e+00
9	1,2,3,4,7,8,9-HpCDF	*	2.56e+02	*	*	2.64e+02	*
10	OCDF	4.49e+03	4.68e+02	9.6e+00	2.17e+03	4.56e+02	4.8e+00
11	2,3,7,8-TCDD	3.14e+03	1.15e+03	2.7e+00	4.03e+03	6.32e+02	6.4e+00
12	1,2,3,7,8-PeCDD	*	3.16e+02	*	*	2.76e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.96e+02	*	*	1.00e+03	*
14	1,2,3,6,7,8-HxCDD	3.36e+03	1.96e+02	1.7e+01	3.63e+03	1.00e+03	3.6e+00
15	1,2,3,7,8,9-HxCDD	8.25e+03	1.96e+02	4.2e+01	4.14e+03	1.00e+03	4.1e+00
16	1,2,3,4,6,7,8-HpCDD	6.91e+04	1.31e+03	5.3e+01	7.48e+04	5.60e+02	1.3e+02
17	OCDD	1.59e+06	2.40e+02	6.6e+03	1.75e+06	2.60e+02	6.7e+03
18	13C-2,3,7,8-TCDF	1.35e+06	1.94e+03	7.0e+02	1.67e+06	8.32e+02	2.0e+03
19	13C-1,2,3,7,8-PeCDF	3.49e+06	2.68e+02	1.3e+04	2.27e+06	3.84e+02	5.9e+03
20	13C-2,3,4,7,8-PeCDF	3.42e+06	2.68e+02	1.3e+04	2.15e+06	3.84e+02	5.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.09e+06	2.32e+02	9.0e+03	4.06e+06	6.24e+02	6.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.60e+06	2.32e+02	1.1e+04	5.03e+06	6.24e+02	8.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.43e+06	2.32e+02	1.0e+04	4.63e+06	6.24e+02	7.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.79e+06	2.32e+02	7.7e+03	3.55e+06	6.24e+02	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.66e+06	2.33e+03	7.1e+02	3.81e+06	4.64e+03	8.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.33e+06	2.33e+03	5.7e+02	2.93e+06	4.64e+03	6.3e+02
27	13C-2,3,7,8-TCDD	1.08e+06	2.46e+03	4.4e+02	1.36e+06	1.60e+03	8.5e+02
28	13C-1,2,3,7,8-PeCDD	2.63e+06	2.56e+02	1.0e+04	1.66e+06	2.44e+02	6.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.35e+06	8.80e+02	3.8e+03	2.62e+06	7.08e+02	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.05e+06	8.80e+02	3.5e+03	2.32e+06	7.08e+02	3.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.00e+06	2.56e+02	1.2e+04	2.85e+06	2.52e+02	1.1e+04
32	13C-OCDD	2.01e+06	3.56e+02	5.7e+03	2.31e+06	1.56e+02	1.5e+04
33	13C-1,2,3,4-TCDD	2.92e+06	2.46e+03	1.2e+03	3.70e+06	1.60e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	5.49e+06	8.80e+02	6.2e+03	4.36e+06	7.08e+02	6.2e+03
35	37Cl-2,3,7,8-TCDD	1.16e+06	1.16e+03	9.9e+02			

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Peak List Summary

CLIENT ID.
SL0527

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P518903 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 08:24:36 Processed: 21-NOV-18 12:44:55

Mass: 303.9020 305.8990 Tot Response: 1.39e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:32	5.93e+01	8.02e+01	0.74	yes	1.39e+02 2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0527

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P518903 Sample:1 Injection:1 Function:2

Acquired: 18-NOV-18 08:24:36 Processed: 21-NOV-18 12:44:55

Mass: 355.8550 357.8520 Tot Response: 3.76e+01 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:52	9.70e+00	5.47e+00	1.77	yes	1.52e+01		n	n
2	31:06	7.30e+00	5.40e+00	1.35	yes	1.27e+01		n	n
3	31:10	5.91e+00	3.81e+00	1.55	yes	9.72e+00		n	n

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Peak List Summary

CLIENT ID.
SL0527

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P518903 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 08:24:36 Processed: 21-NOV-18 12:44:55

Mass: 389.8160 391.8130 Tot Response: 9.42e+02 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:51	3.54e+02	3.21e+02	1.10	yes	6.75e+02		n	n
2	34:39	8.33e+01	7.81e+01	1.07	yes	1.61e+02		n	y
3	34:47	1.09e+01	9.63e+00	1.13	yes	2.06e+01		y	y
4	35:21	1.67e+01	1.20e+01	1.40	yes	2.87e+01	1,2,3,6,7,8-HxCDD	y	y
5	35:37	3.15e+01	2.48e+01	1.27	yes	5.63e+01	1,2,3,7,8,9-HxCDD	y	y

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Peak List Summary

CLIENT ID.
SL0527

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P518903 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 08:24:36 Processed: 21-NOV-18 12:44:55

Mass: 407.7820 409.7790 Tot Response: 1.94e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:13	9.38e+00	9.99e+00 0.94	yes	1.94e+01	1,2,3,4,6,7,8-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0527

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P518903 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 08:24:36 Processed: 21-NOV-18 12:44:55

Mass: 423.7770 425.7740 Tot Response: 3.28e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:29	1.34e+03	1.18e+03 1.14	yes	2.52e+03		n	n
2	38:09	3.72e+02	3.88e+02 0.96	yes	7.60e+02	1,2,3,4,6,7,8-HpCDD	n	n

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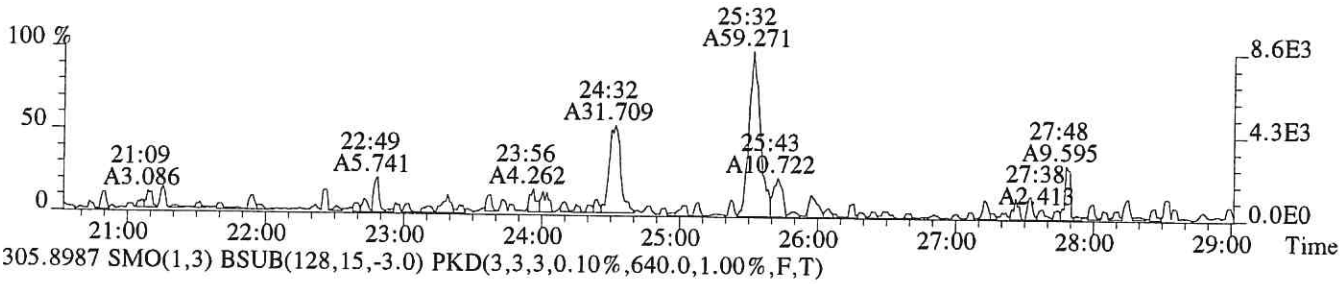
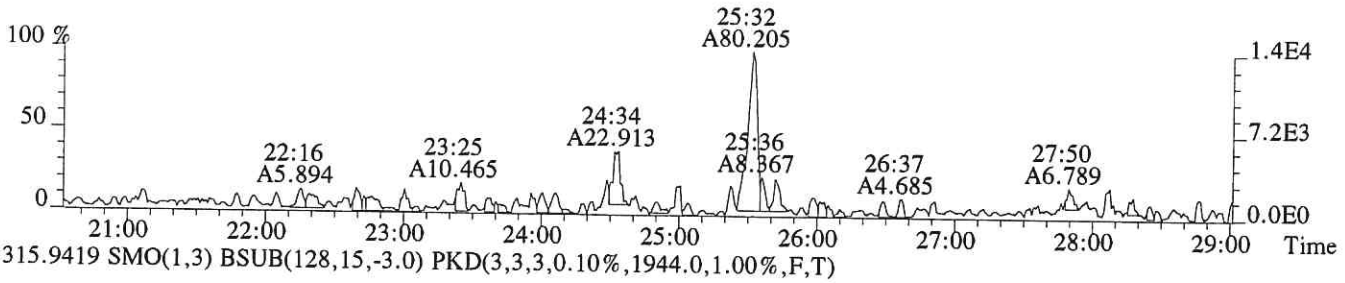
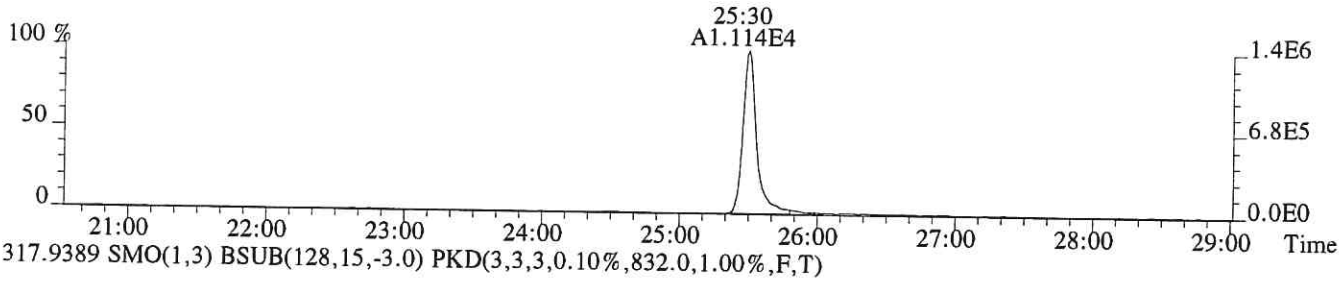
File:P518903 #1-602 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801038-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



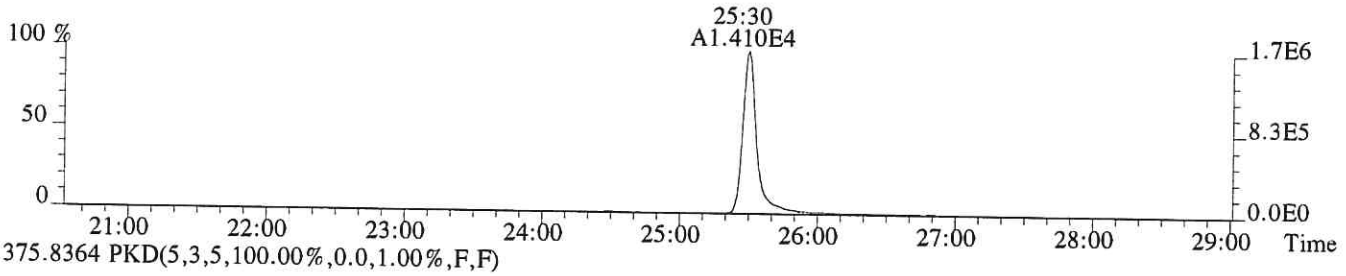
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



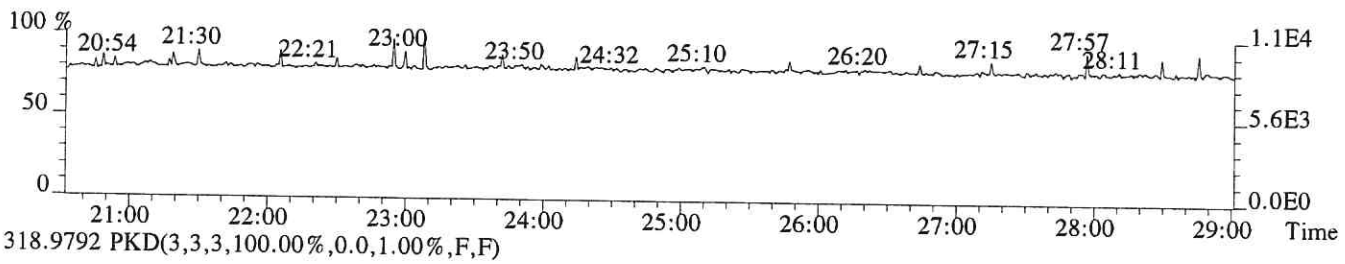
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



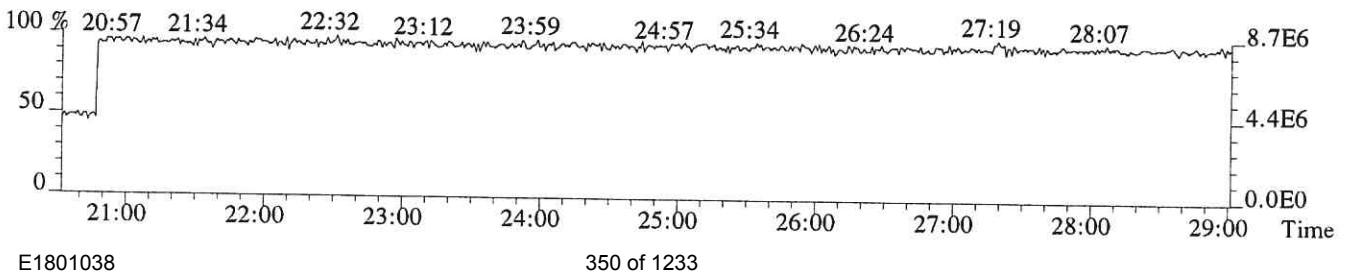
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



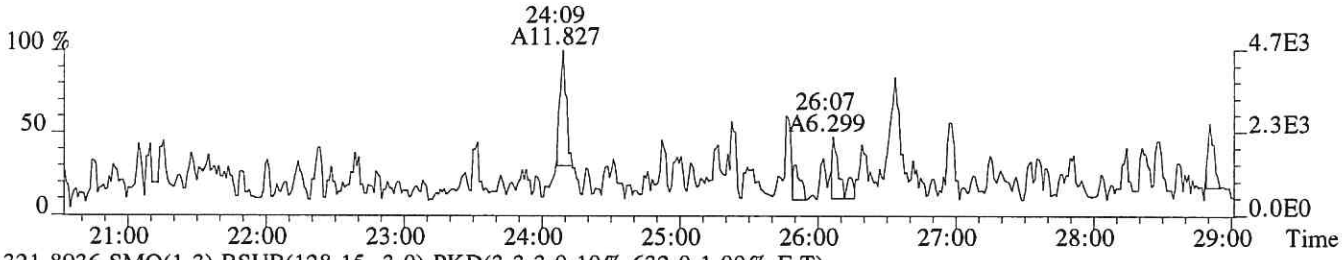
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



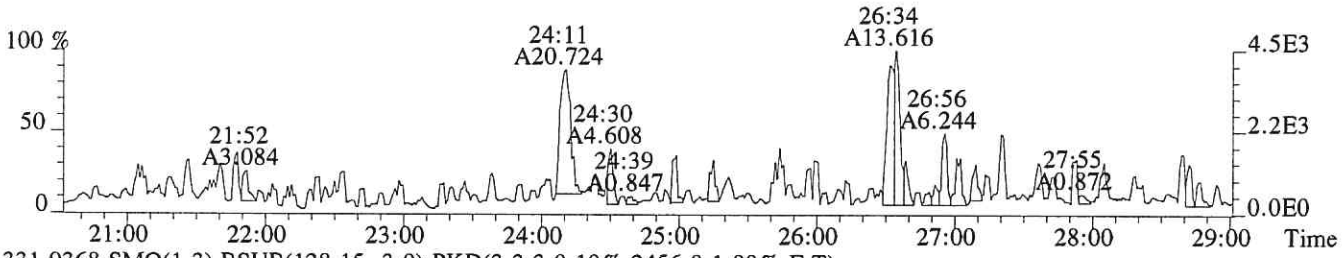
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



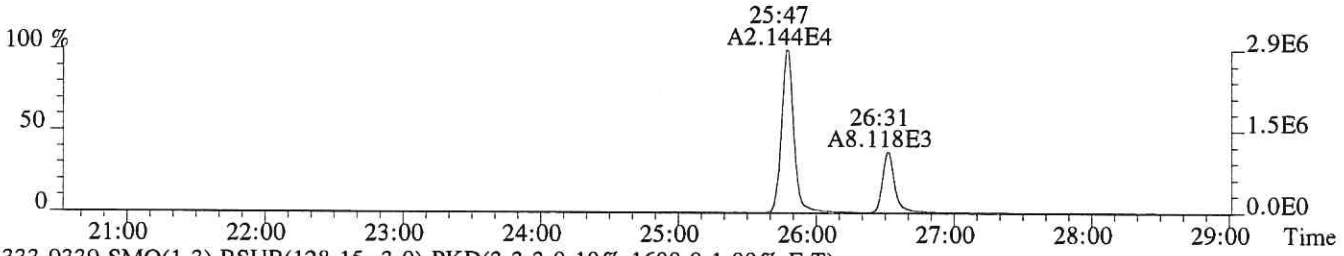
File:P518903 #1-602 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



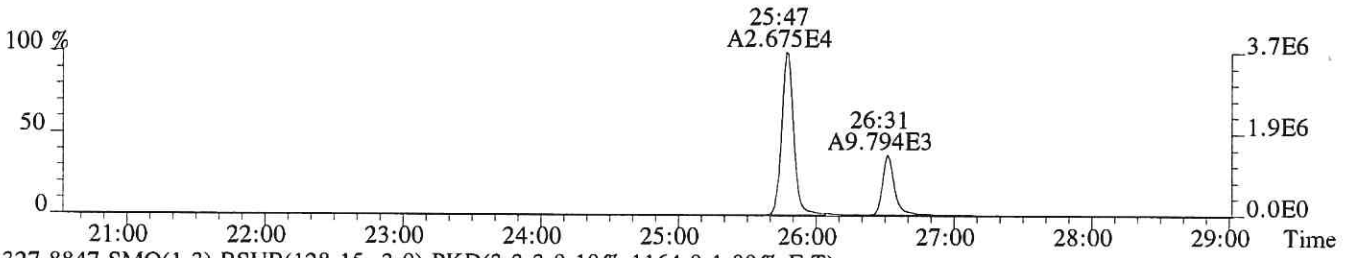
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



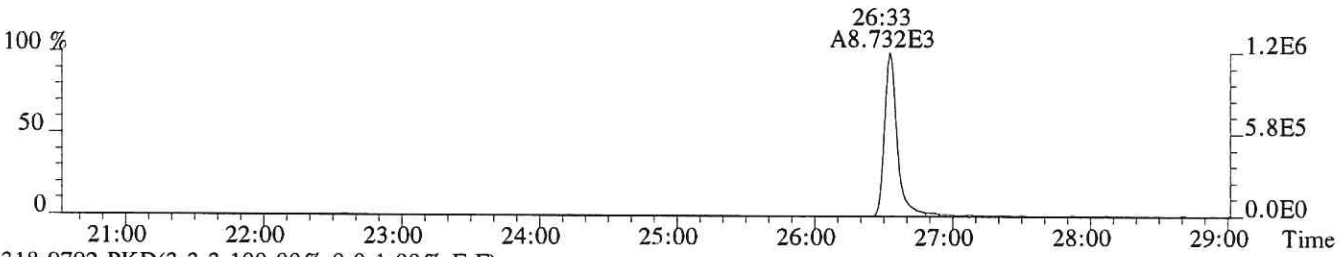
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



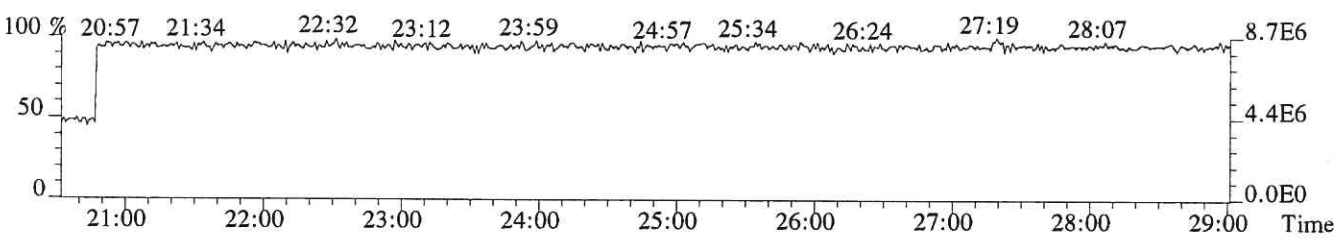
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



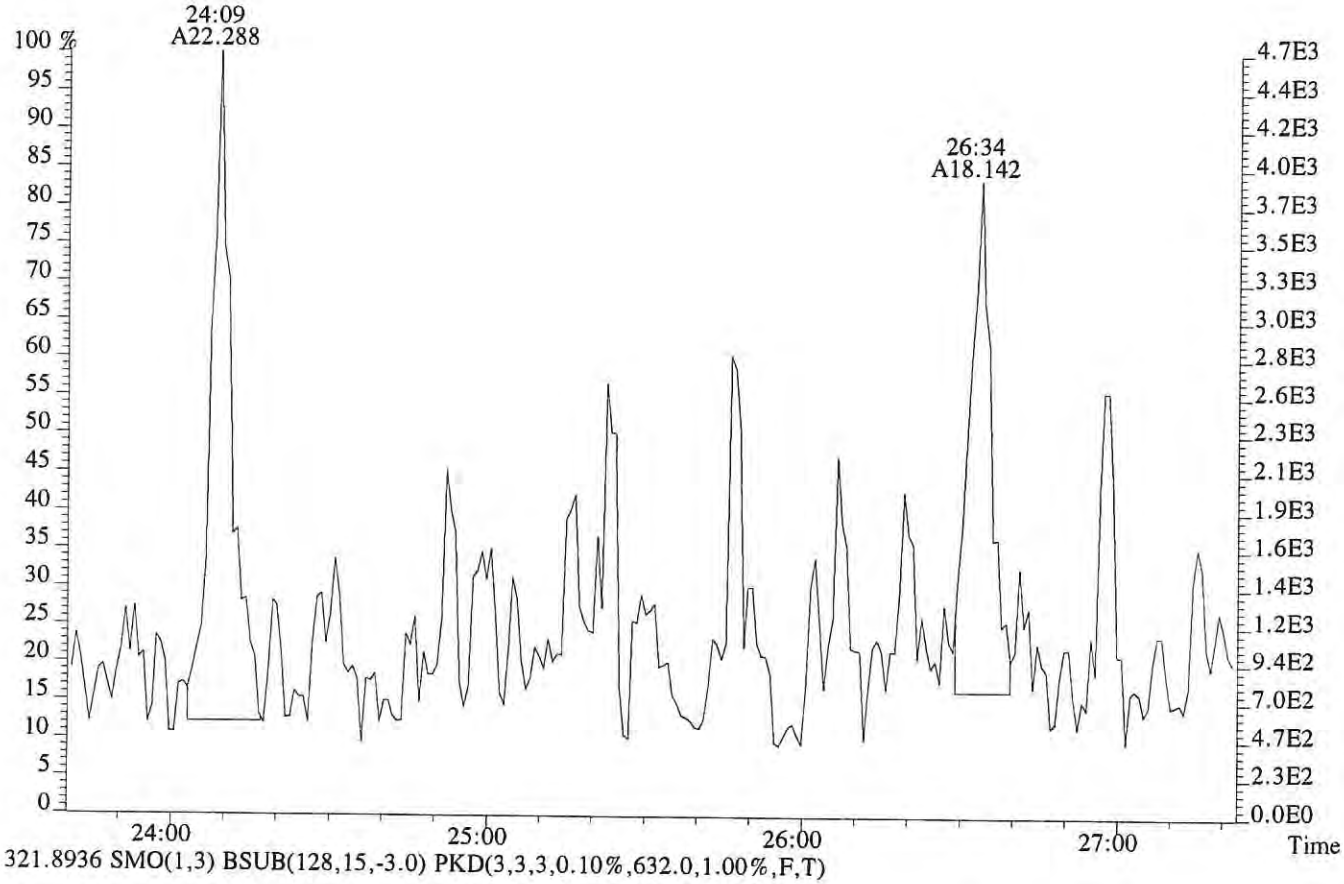
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



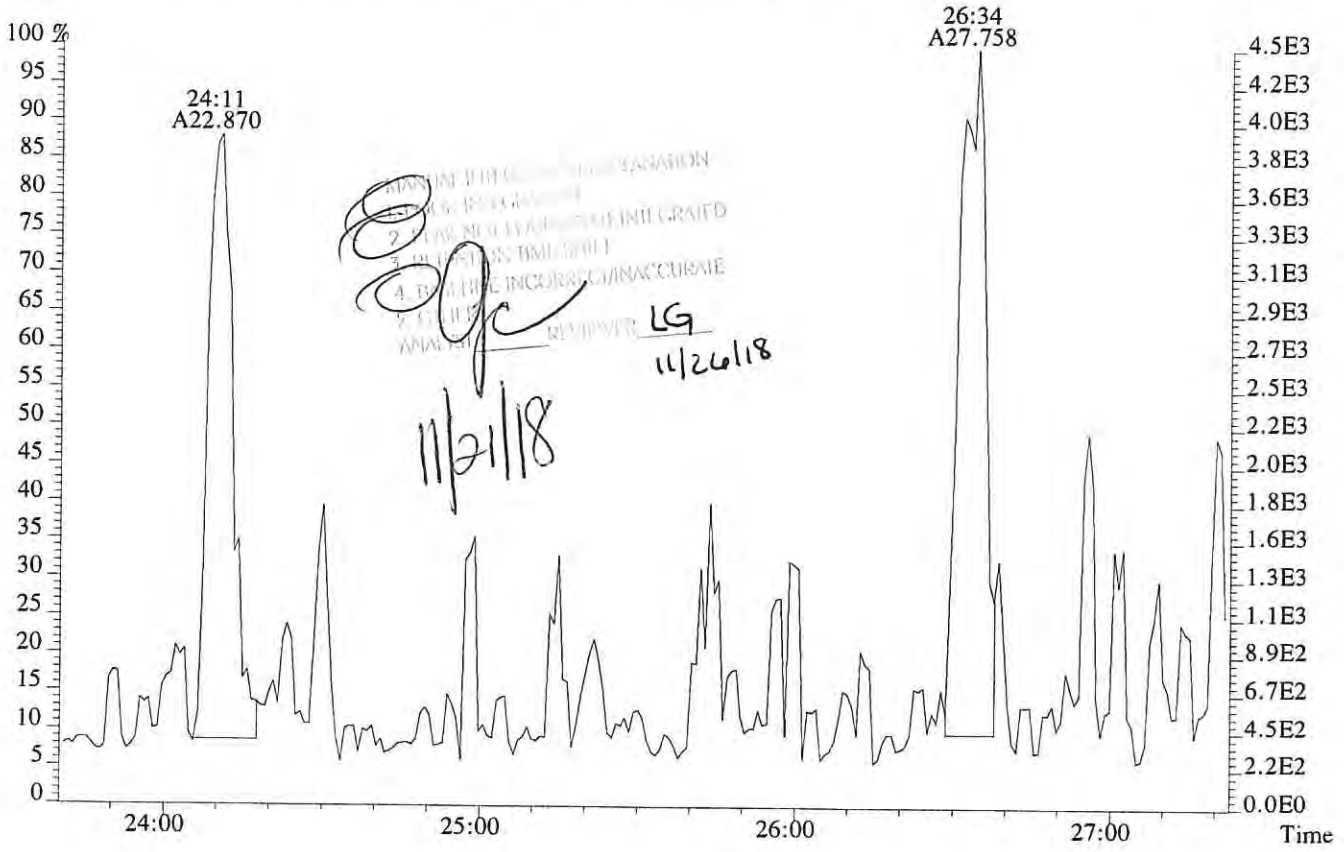
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518903 #1-602 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)

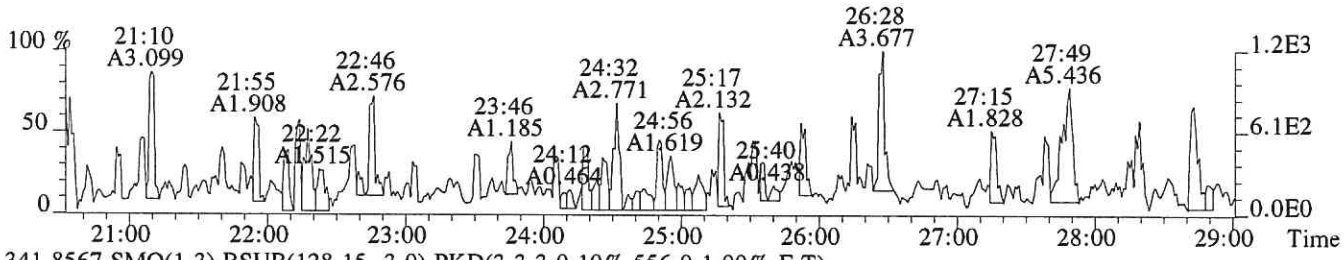


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)

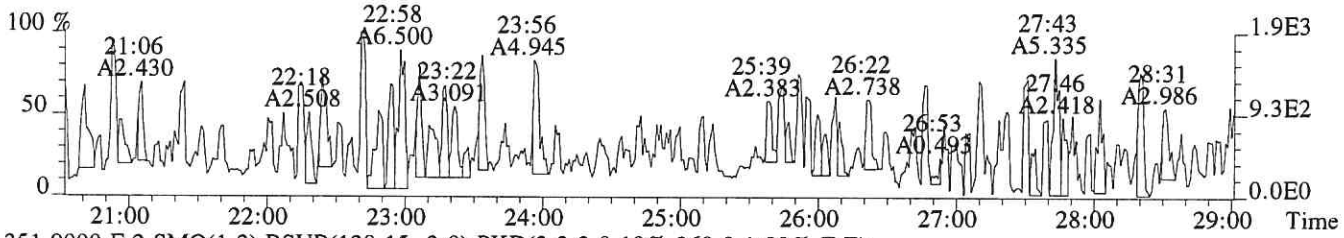


LG
11/26/18
11/21/18

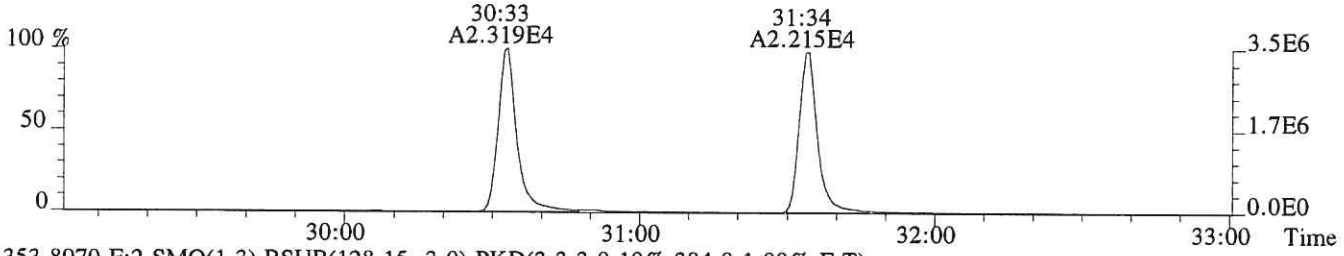
File:P518903 #1-602 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



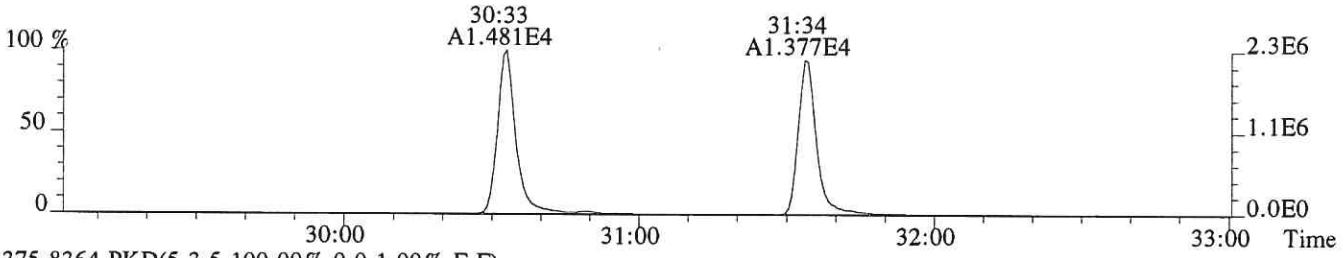
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



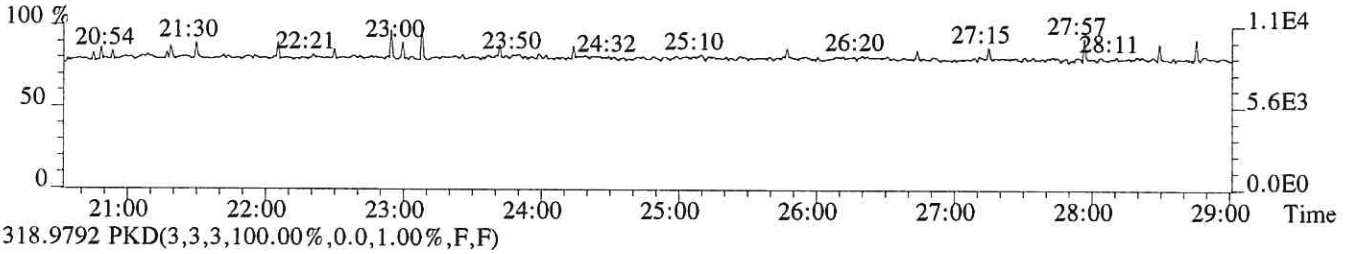
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



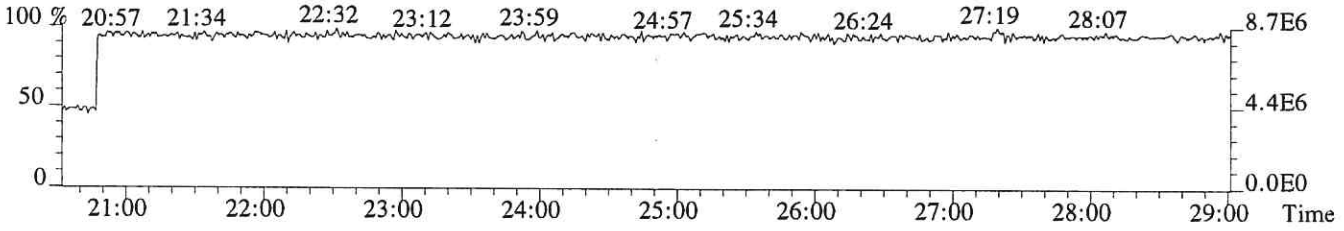
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



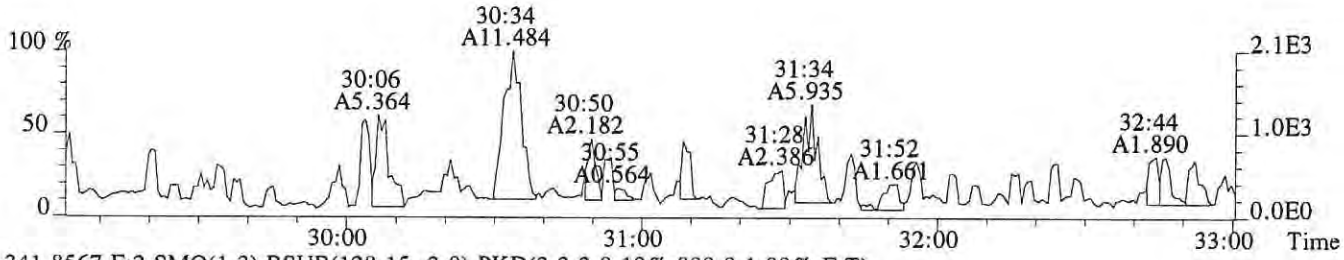
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



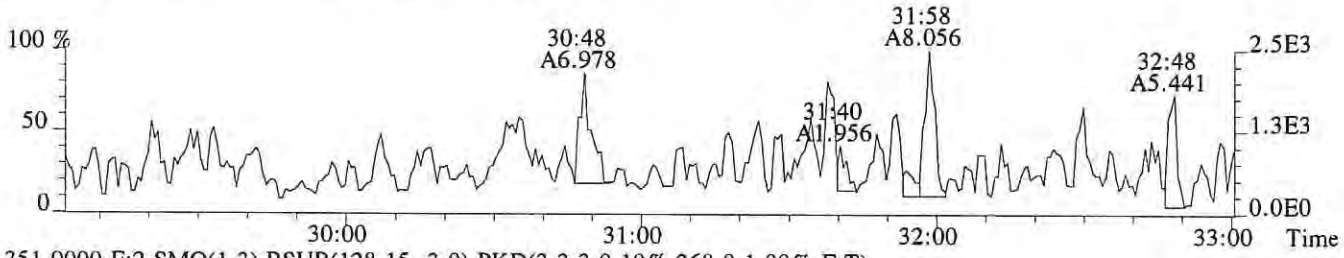
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



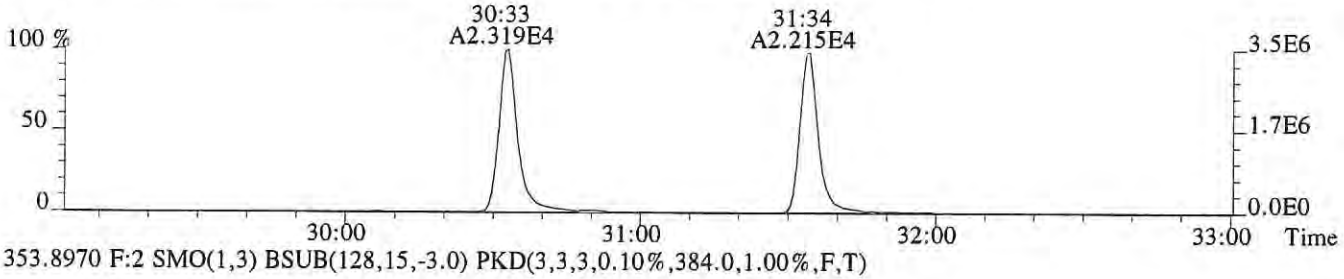
File:P518903 #1-357 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



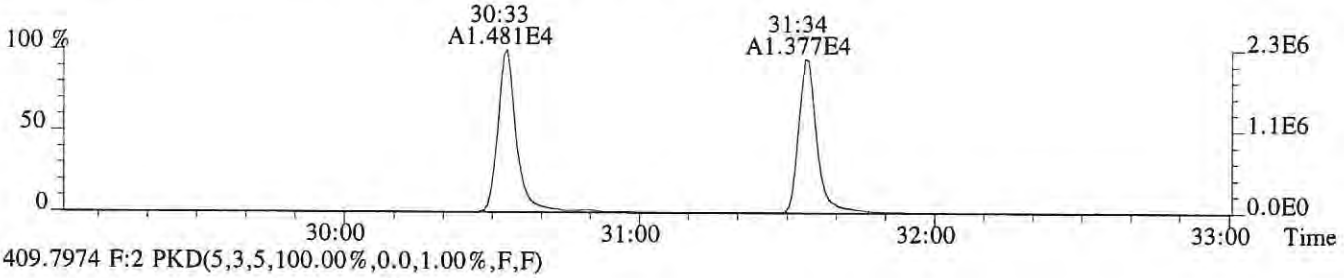
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



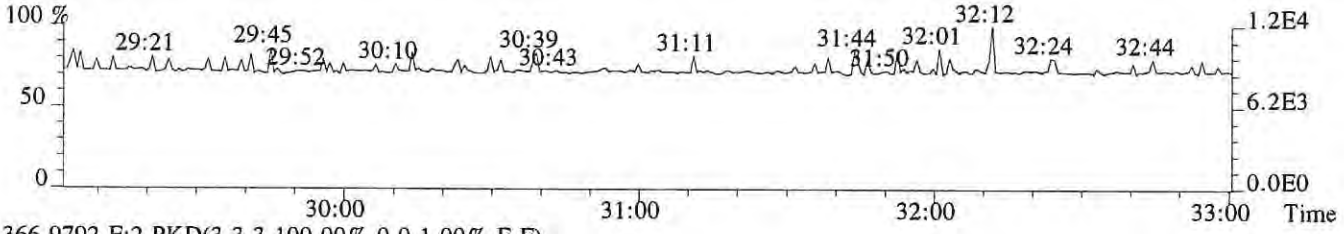
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



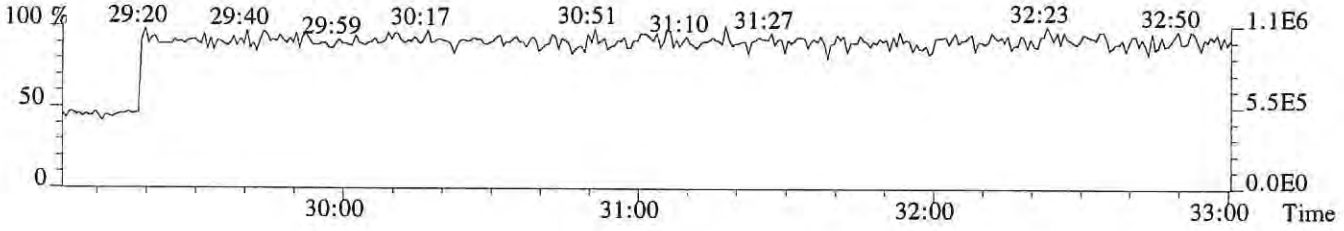
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



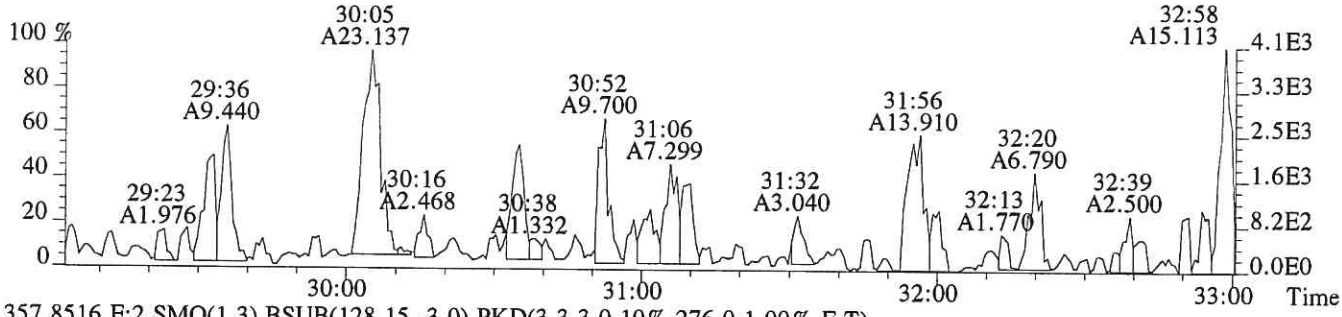
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



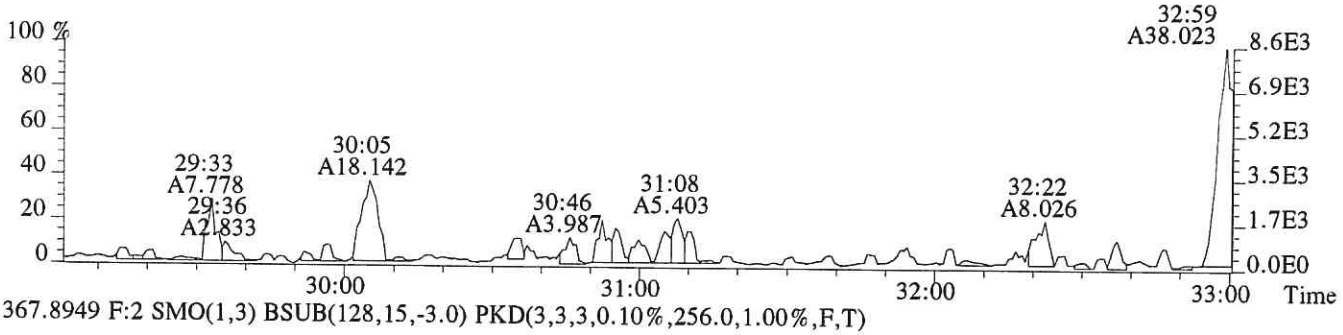
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



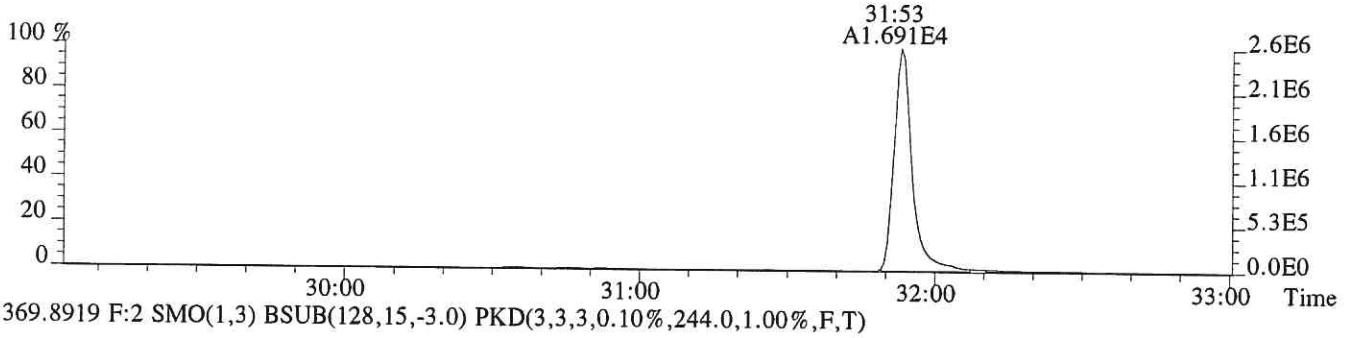
File:P518903 #1-357 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



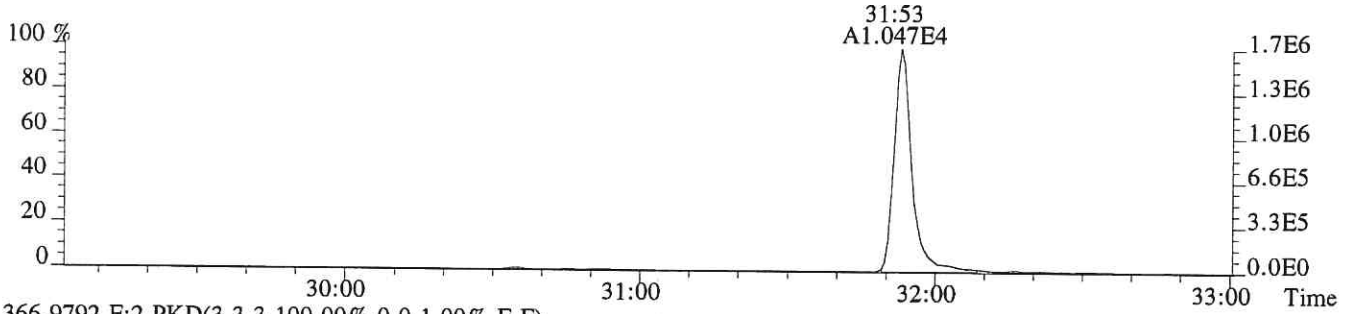
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



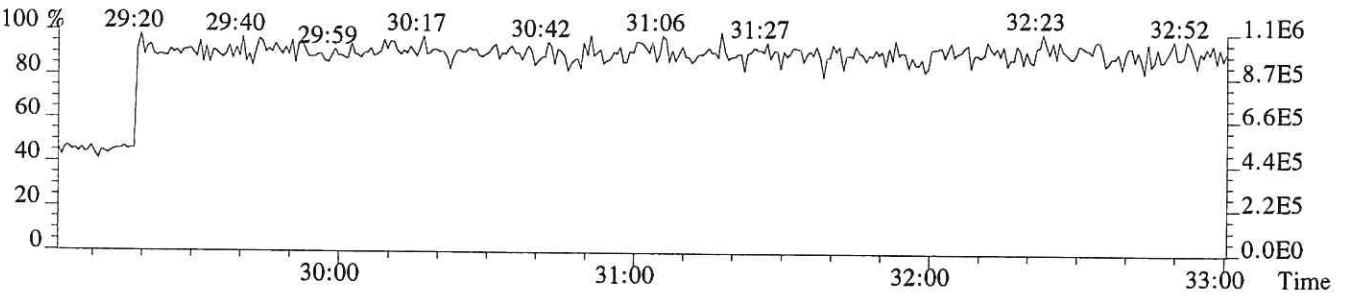
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)

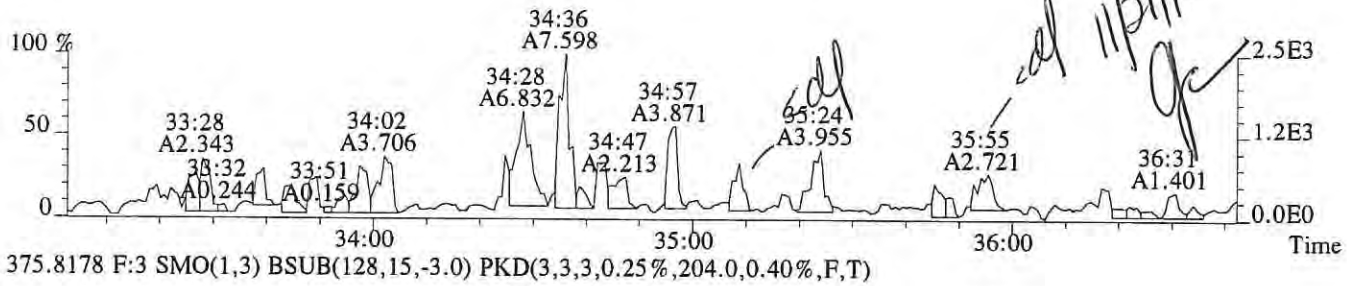


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

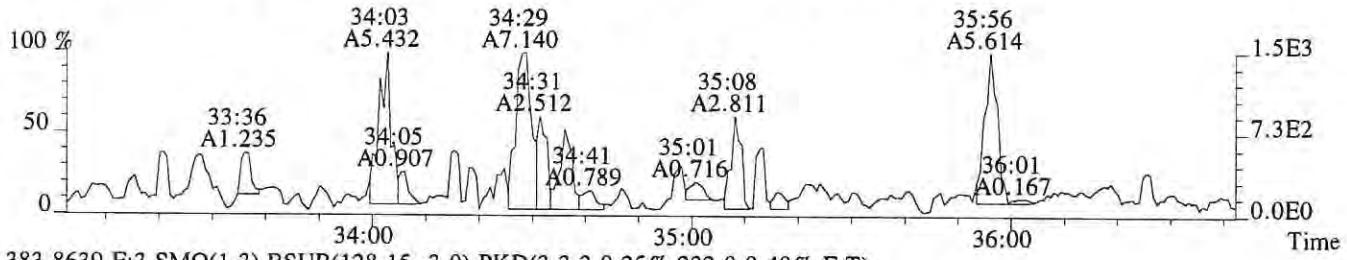


File:P518903 #1-330 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009

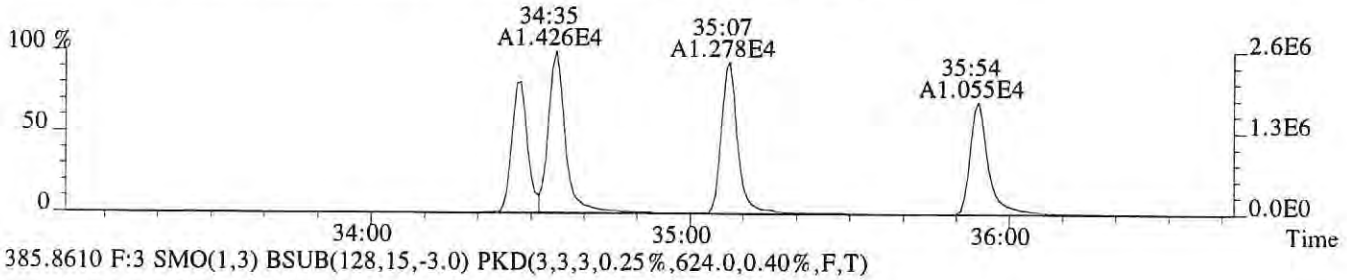
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



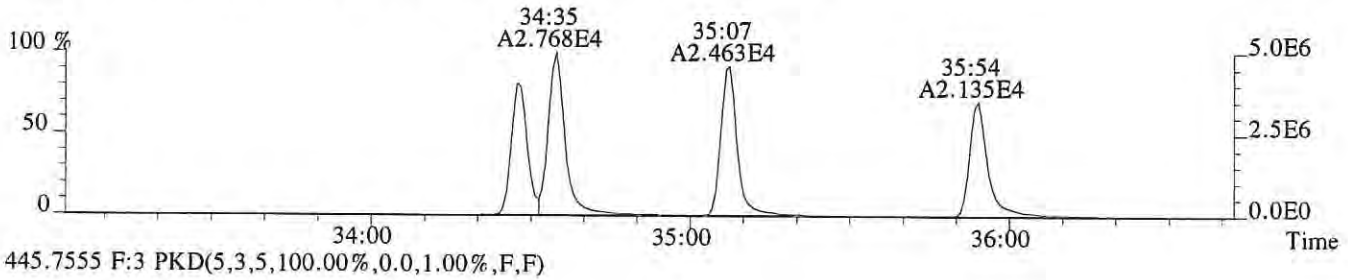
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



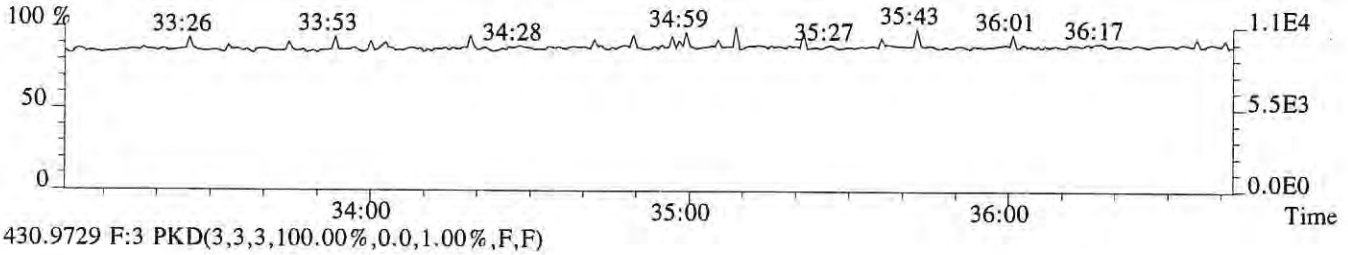
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



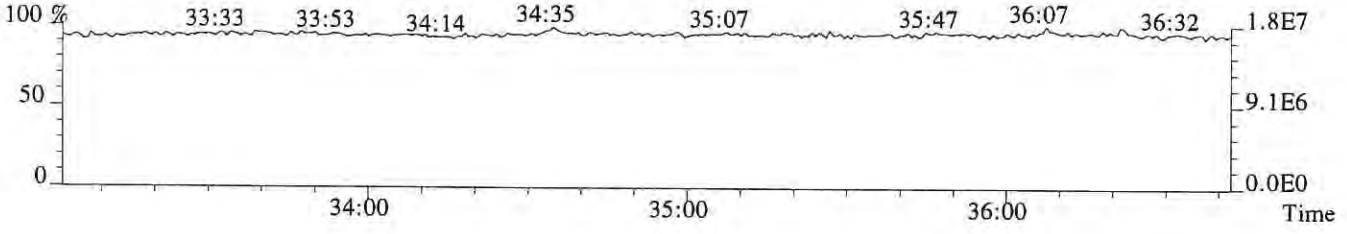
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



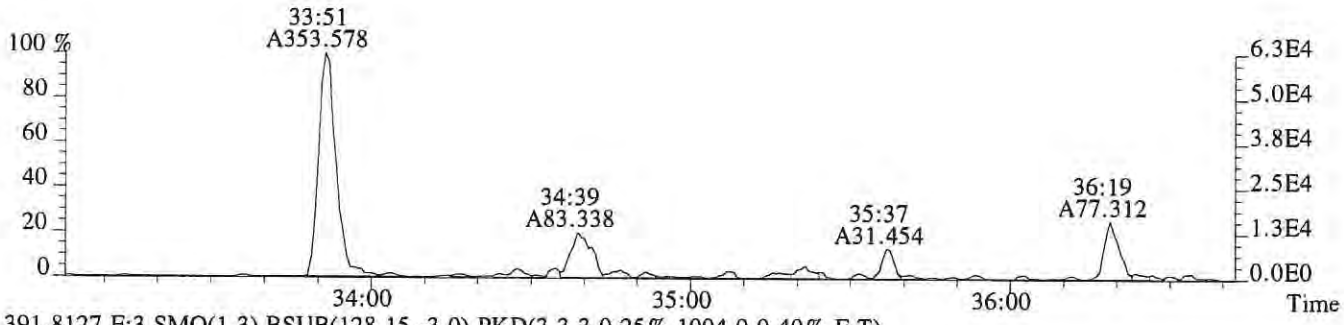
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



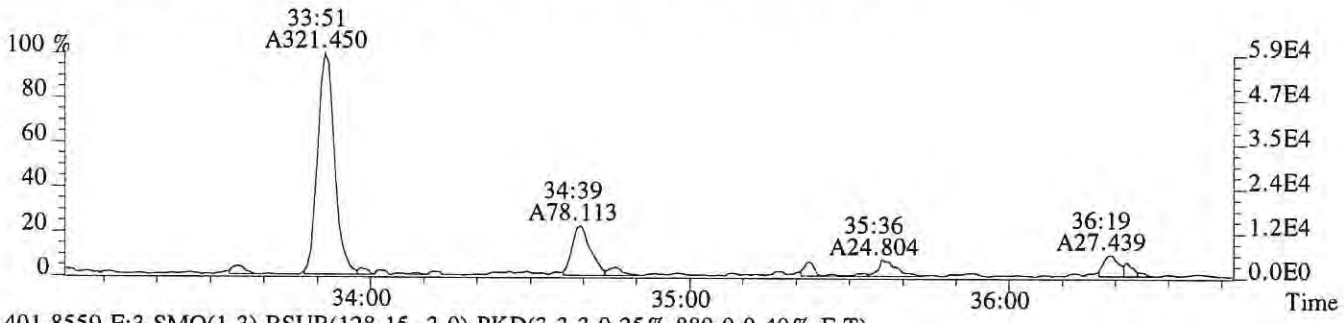
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



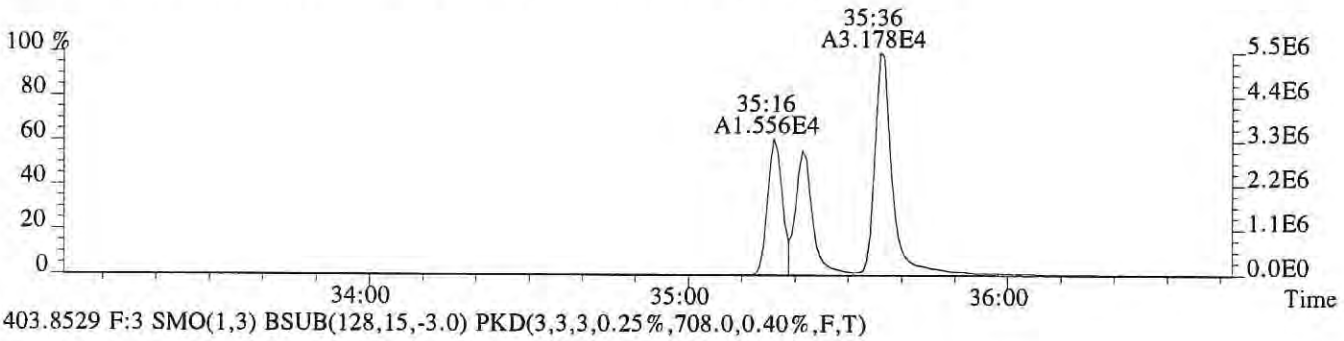
File:P518903 #1-330 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



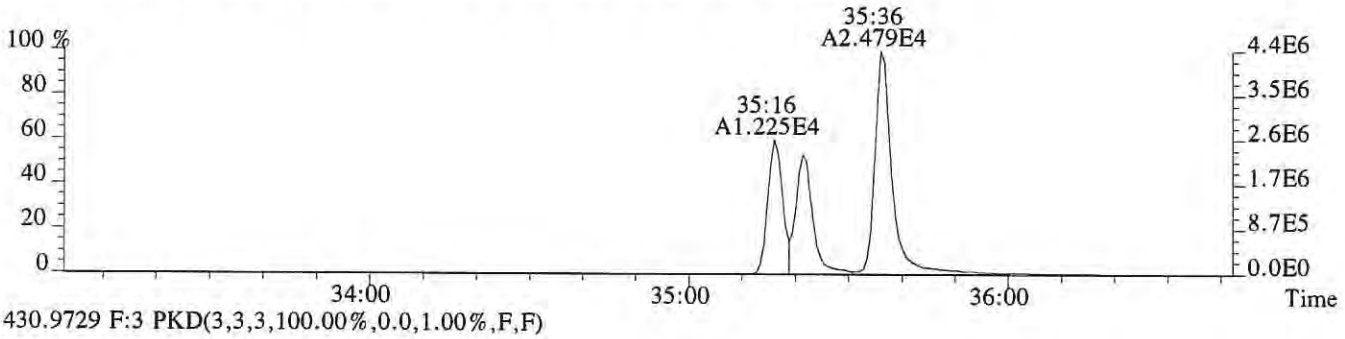
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



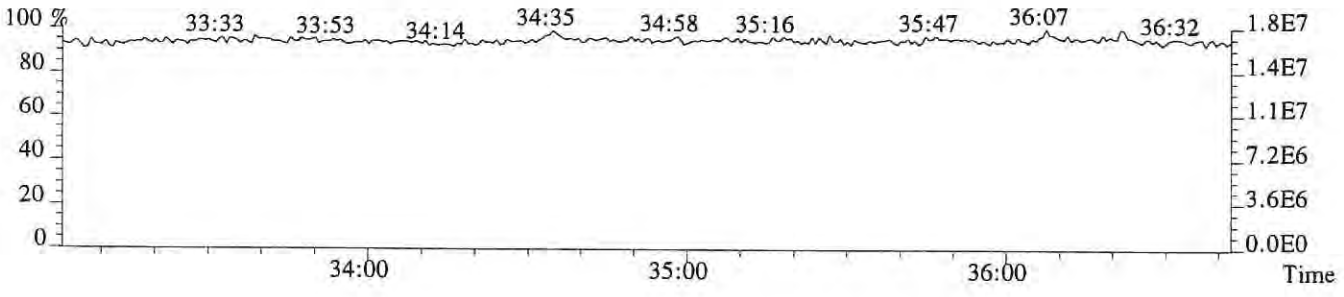
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



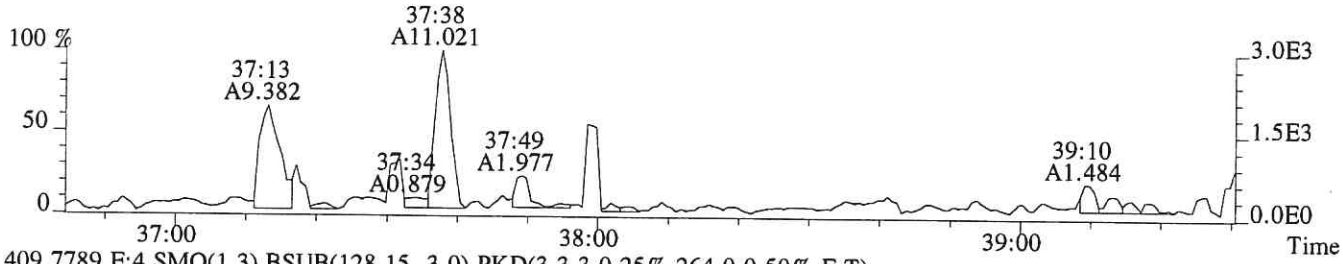
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



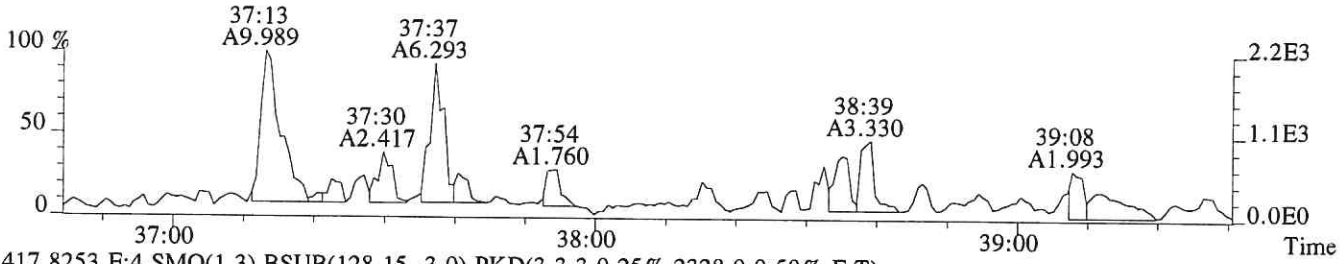
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



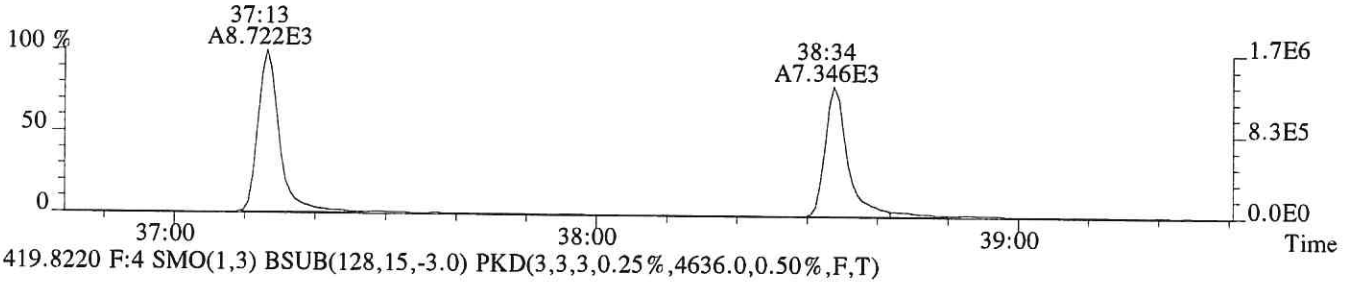
File:P518903 #1-250 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.50%,F,T)



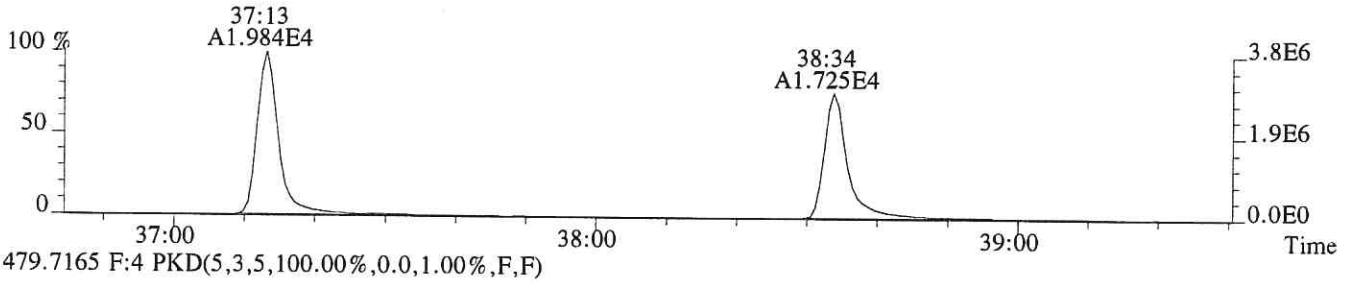
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.50%,F,T)



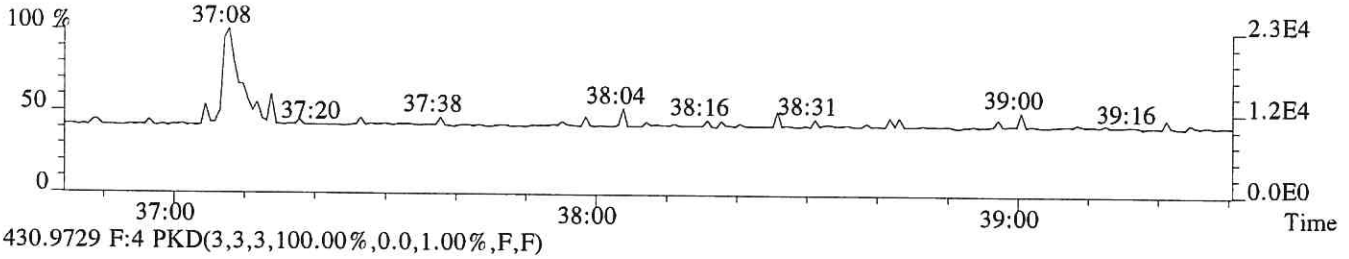
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2328.0,0.50%,F,T)



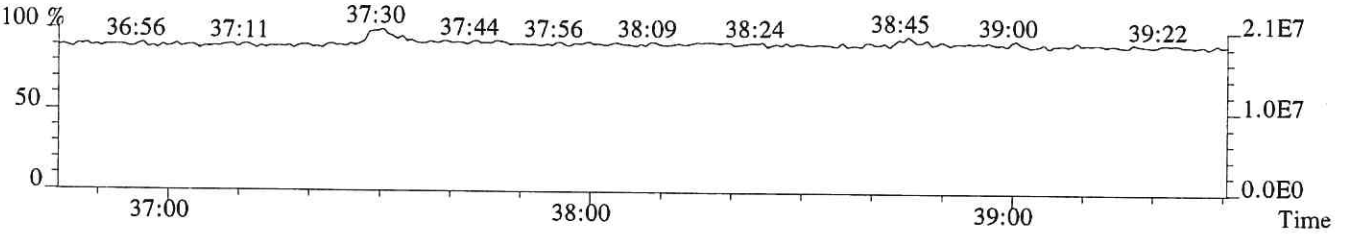
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.50%,F,T)



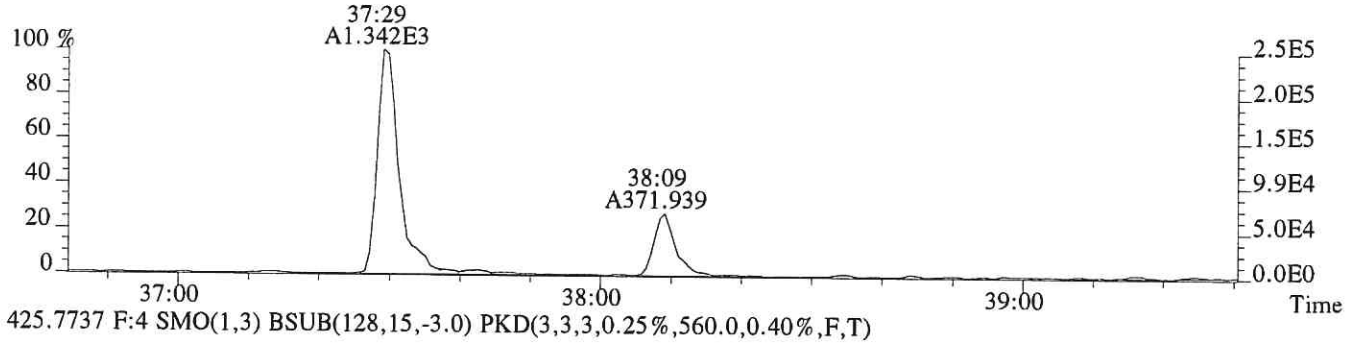
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



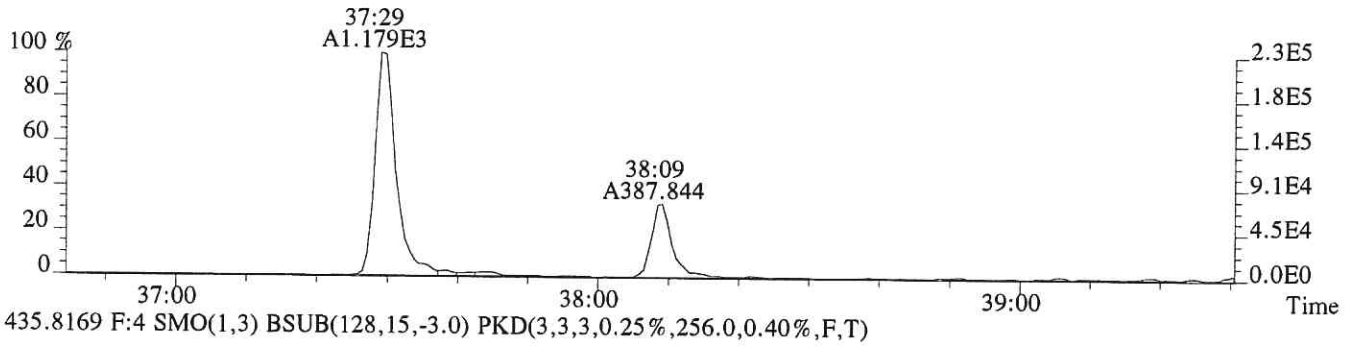
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



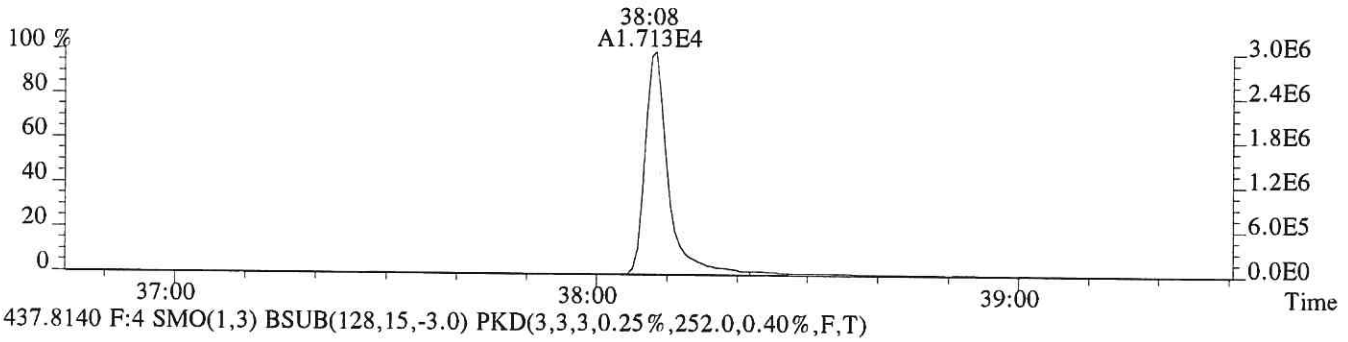
File:P518903 #1-250 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



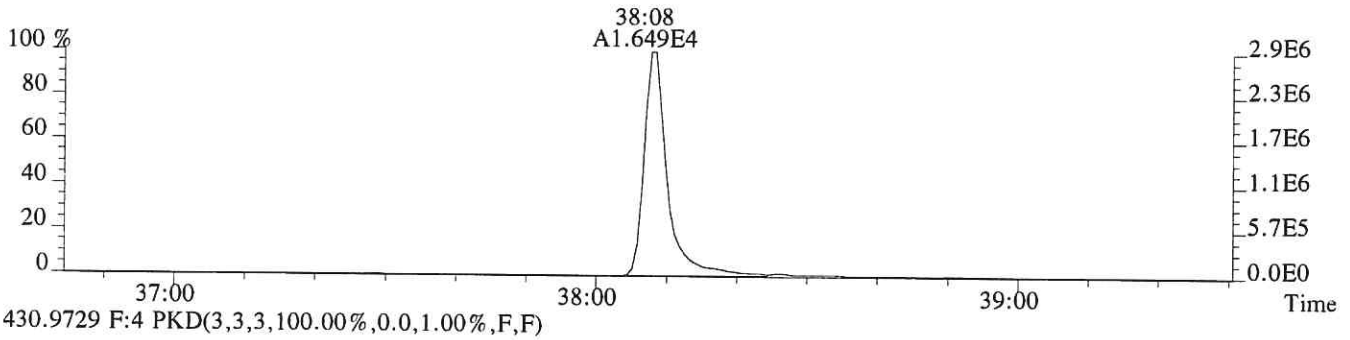
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



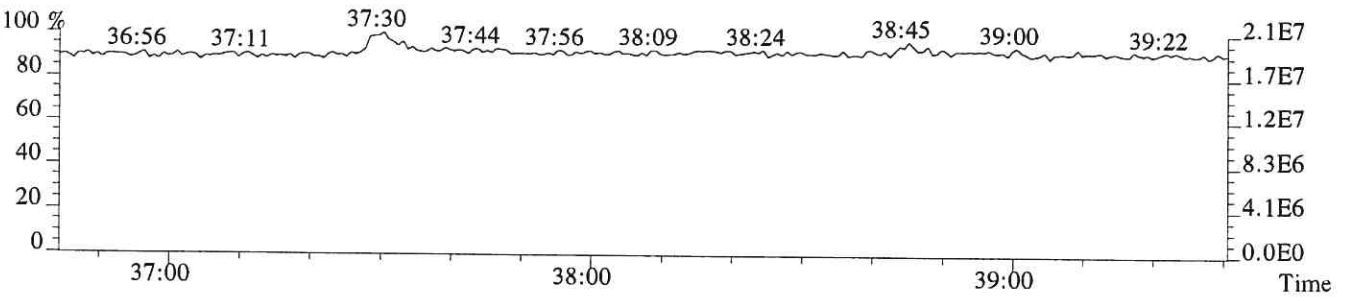
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



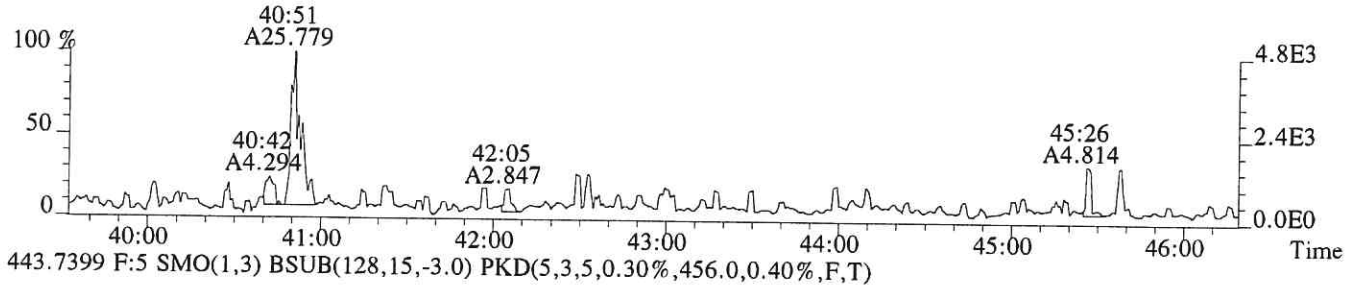
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



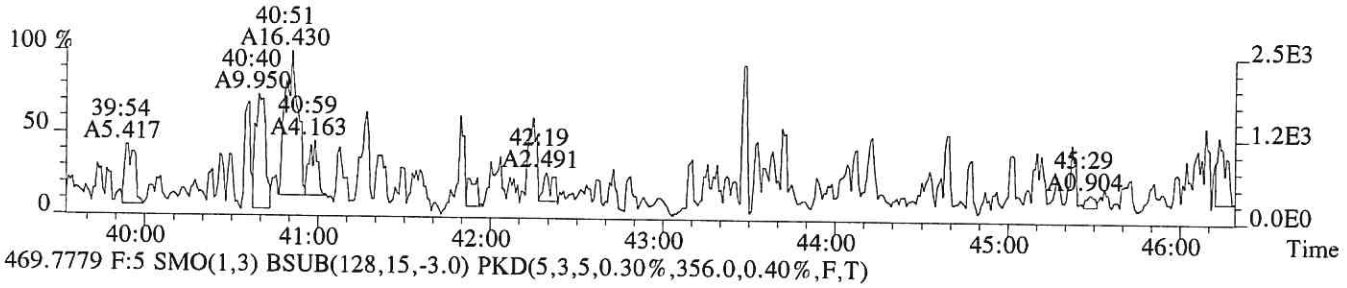
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



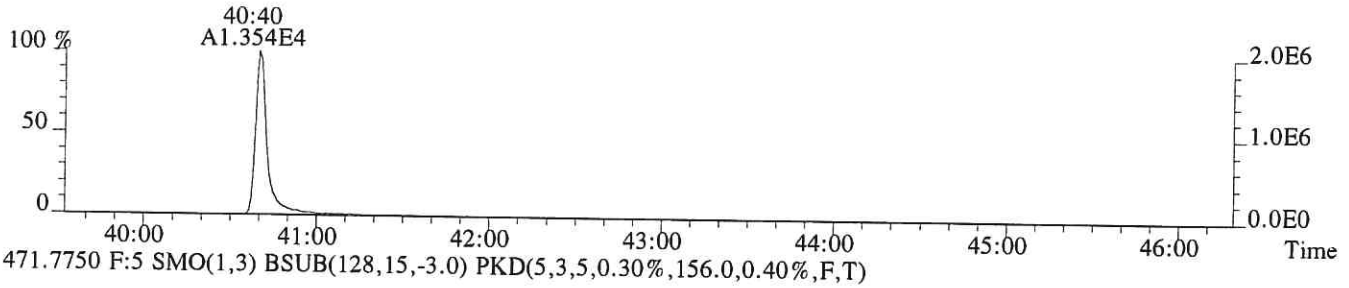
File:P518903 #1-610 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



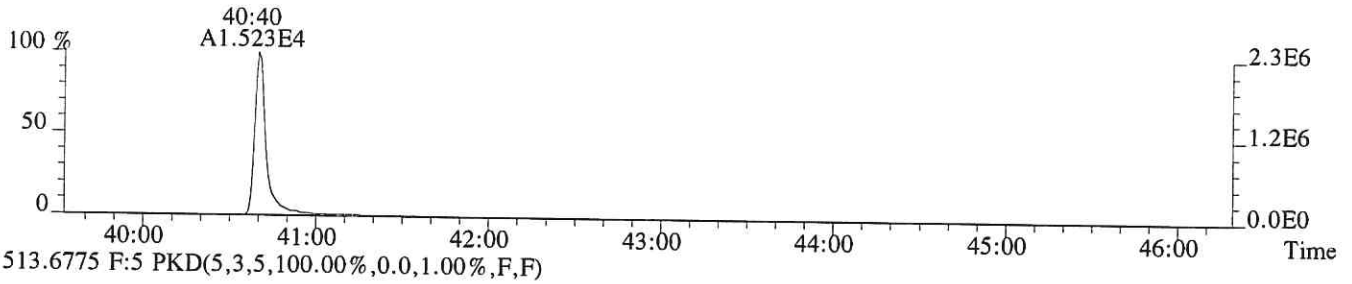
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



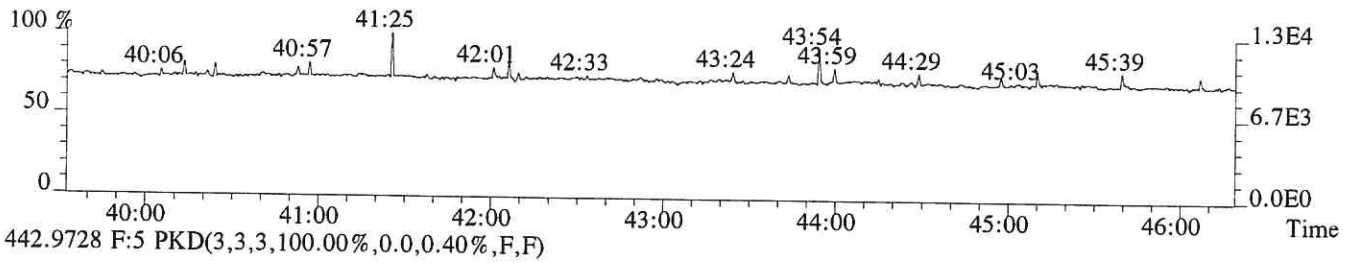
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



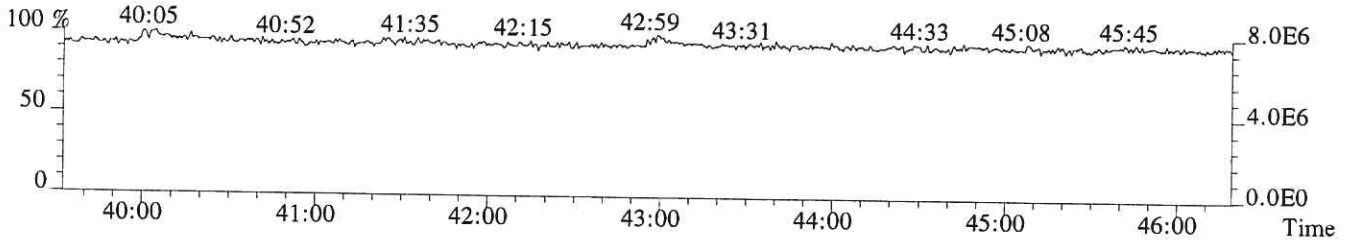
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



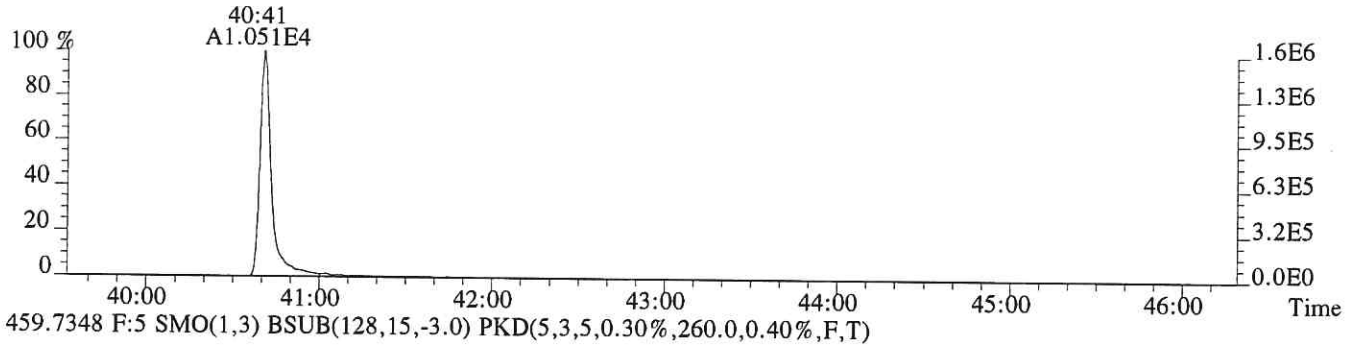
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



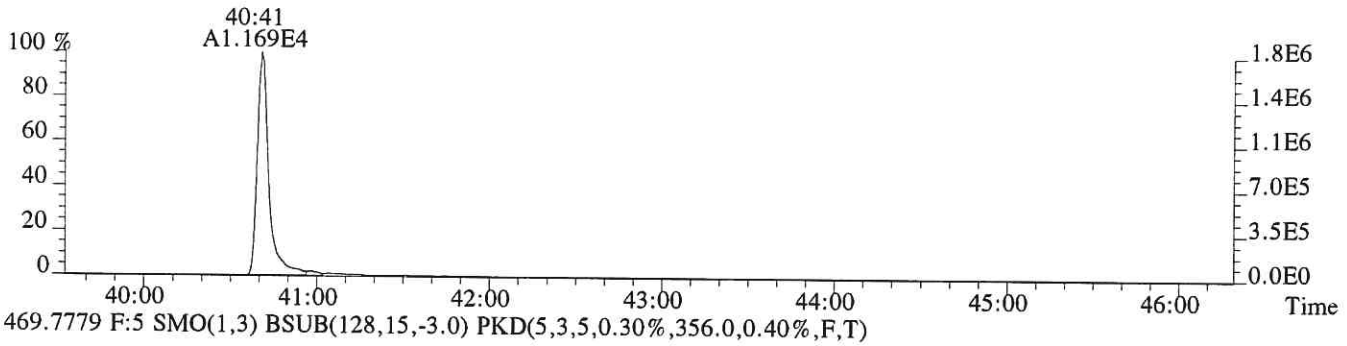
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



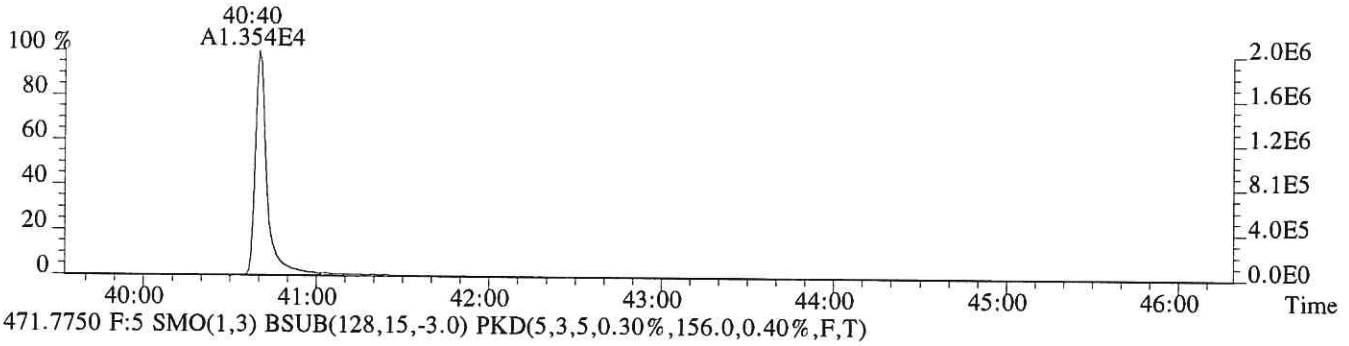
File:P518903 #1-610 Acq:18-NOV-2018 08:24:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-009
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



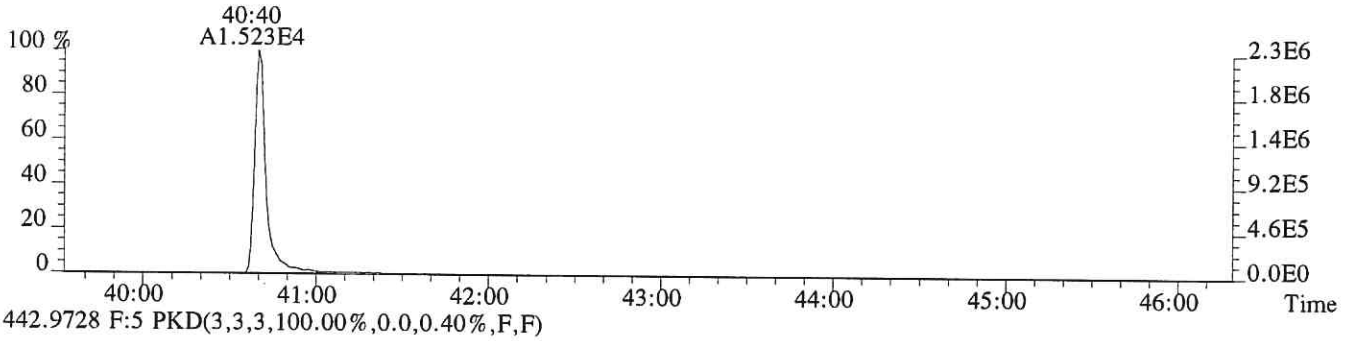
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



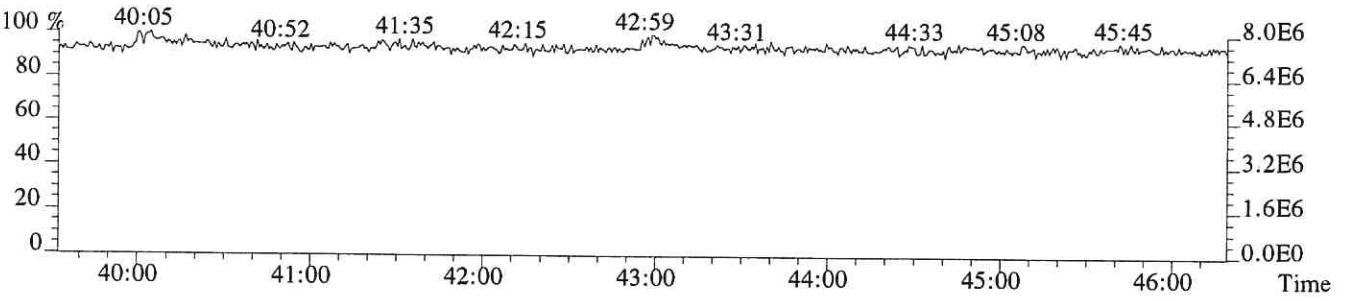
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0528

Run #16 Filename P518904 Samp: 1 Inj: 1 Acquired: 18-NOV-18 09:13:15
Processed: 21-NOV-18 12:44:56 Sample ID: E1801038-010

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	1.318e+02	1.770e+02	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:36	3.751e+01	2.399e+01	1.56	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	4.624e+01	4.722e+01	0.98	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	3.062e+01	2.159e+01	1.42	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:08	1.942e+01	7.447e+00	2.61	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	1.215e+01	6.610e+00	1.84	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	2.090e+02	1.827e+02	1.14	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	40:51	3.012e+02	2.927e+02	1.03	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	4.748e+01	5.100e+01	0.93	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	8.212e+00	6.616e+00	1.24	yes	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	4.375e+01	3.554e+01	1.23	yes	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	2.730e+01	2.551e+01	1.07	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.141e+03	1.169e+03	0.98	yes	no	1.025
17	Unk	OCDD	40:42	8.490e+03	9.640e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:30	1.358e+04	1.682e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.363e+04	1.516e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	2.223e+04	1.374e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.005e+04	1.871e+04	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.225e+04	2.332e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.050e+04	2.052e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	9.187e+03	1.784e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	6.865e+03	1.551e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	5.726e+03	1.253e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	9.816e+03	1.213e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.609e+04	1.025e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.402e+04	1.094e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.445e+04	1.148e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.249e+04	1.181e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:41	6.968e+03	8.099e+03	0.86	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	2.114e+04	2.632e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.056e+04	2.326e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.126e+04				no	1.014

$$\text{OCDD} = \frac{(8.490e+03 + 9.640e+03) \times 4000 \text{ pg} \times 1}{(6.968e+03 + 8.099e+03) \times 10.215 \text{ g} \times 87.6/100 \times 1.118} = 481.1126 \text{ ng/g}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0528

Run #16 Filename P518904 Samp: 1 Inj: 1 Acquired: 18-NOV-18 09:13:15
Processed: 21-NOV-18 12:44:56 LAB. ID: E1801038-010

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.10e+04	3.40e+02	6.2e+01	2.20e+04	6.56e+02	3.4e+01
2	1,2,3,7,8-PeCDF	5.85e+03	6.00e+02	9.7e+00	3.88e+03	1.20e+03	3.2e+00
3	2,3,4,7,8-PeCDF	*	6.00e+02	*	*	1.20e+03	*
4	1,2,3,4,7,8-HxCDF	8.67e+03	4.28e+02	2.0e+01	8.57e+03	2.04e+02	4.2e+01
5	1,2,3,6,7,8-HxCDF	5.08e+03	4.28e+02	1.2e+01	6.63e+03	2.04e+02	3.3e+01
6	2,3,4,6,7,8-HxCDF	4.98e+03	4.28e+02	1.2e+01	2.14e+03	2.04e+02	1.0e+01
7	1,2,3,7,8,9-HxCDF	2.82e+03	4.28e+02	6.6e+00	1.63e+03	2.04e+02	8.0e+00
8	1,2,3,4,6,7,8-HpCDF	4.52e+04	6.64e+02	6.8e+01	3.84e+04	2.76e+02	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	*	6.64e+02	*	*	2.76e+02	*
10	OCDF	4.54e+04	2.88e+02	1.6e+02	4.96e+04	7.44e+02	6.7e+01
11	2,3,7,8-TCDD	6.54e+03	1.10e+03	5.9e+00	8.03e+03	4.04e+02	2.0e+01
12	1,2,3,7,8-PeCDD	*	4.68e+02	*	*	2.96e+02	*
13	1,2,3,4,7,8-HxCDD	2.16e+03	1.40e+02	1.5e+01	1.69e+03	4.88e+02	3.5e+00
14	1,2,3,6,7,8-HxCDD	8.04e+03	1.40e+02	5.7e+01	7.88e+03	4.88e+02	1.6e+01
15	1,2,3,7,8,9-HxCDD	6.50e+03	1.40e+02	4.6e+01	4.79e+03	4.88e+02	9.8e+00
16	1,2,3,4,6,7,8-HpCDD	2.34e+05	5.56e+02	4.2e+02	2.06e+05	1.76e+02	1.2e+03
17	OCDD	1.32e+06	2.60e+02	5.1e+03	1.45e+06	3.12e+02	4.7e+03
18	13C-2,3,7,8-TCDF	1.65e+06	1.98e+03	8.4e+02	2.06e+06	8.28e+02	2.5e+03
19	13C-1,2,3,7,8-PeCDF	3.65e+06	1.28e+02	2.9e+04	2.31e+06	2.68e+02	8.6e+03
20	13C-2,3,4,7,8-PeCDF	3.64e+06	1.28e+02	2.8e+04	2.24e+06	2.68e+02	8.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.97e+06	2.52e+02	7.8e+03	3.68e+06	9.04e+02	4.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.19e+06	2.52e+02	8.7e+03	4.28e+06	9.04e+02	4.7e+03
23	13C-2,3,4,6,7,8-HxCDF	2.03e+06	2.52e+02	8.1e+03	3.97e+06	9.04e+02	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.60e+06	2.52e+02	6.3e+03	3.15e+06	9.04e+02	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.37e+06	8.56e+02	1.6e+03	3.06e+06	2.67e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.01e+06	8.56e+02	1.2e+03	2.18e+06	2.67e+03	8.2e+02
27	13C-2,3,7,8-TCDD	1.45e+06	2.56e+03	5.6e+02	1.77e+06	1.24e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	2.68e+06	2.56e+02	1.0e+04	1.75e+06	2.84e+02	6.2e+03
29	13C-1,2,3,4,7,8-HxCDD	2.94e+06	8.76e+02	3.4e+03	2.25e+06	3.96e+02	5.7e+03
30	13C-1,2,3,6,7,8-HxCDD	2.69e+06	8.76e+02	3.1e+03	2.13e+06	3.96e+02	5.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.30e+06	2.16e+02	1.1e+04	2.12e+06	2.48e+02	8.6e+03
32	13C-OCDD	1.08e+06	1.92e+02	5.6e+03	1.23e+06	3.08e+02	4.0e+03
33	13C-1,2,3,4-TCDD	3.06e+06	2.56e+03	1.2e+03	3.83e+06	1.24e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.46e+06	8.76e+02	6.2e+03	4.30e+06	3.96e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.59e+06	7.88e+02	2.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0528

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P518904 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 303.9020 305.8990 Tot Response: 4.48e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	21:56	3.61e+01	4.77e+01	0.76	yes	8.38e+01		n	n
2	25:33	1.32e+02	1.77e+02	0.74	yes	3.09e+02	2,3,7,8-TCDF	n	n
3	26:00	2.42e+01	3.15e+01	0.77	yes	5.57e+01		n	n

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Peak List Summary

CLIENT ID.
SL0528

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P518904 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 339.8600 341.8570 Tot Response: 1.33e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:47	7.71e+01	5.58e+01 1.38	yes	1.33e+02		n	n

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Peak List Summary

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SL0528

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P518904 Sample:1 Injection:1 Function:2

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 339.8600 341.8570 Tot Response: 1.75e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:32	6.63e+01	4.72e+01 1.40	yes	1.13e+02		n	n
2	30:36	3.75e+01	2.40e+01 1.56	yes	6.15e+01	1,2,3,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0528

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P518904 Sample:1 Injection:1 Function:2

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 355.8550 357.8520 Tot Response: 1.72e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:36	1.09e+01 6.29e+00	1.74	yes	1.72e+01		n	n

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Peak List Summary

CLIENT ID.
SL0528

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P518904 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 373.8210 375.8180 Tot Response: 5.87e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:18	3.01e+01	2.44e+01	1.23	yes	5.46e+01		n	n
2	33:29	1.23e+02	1.08e+02	1.14	yes	2.32e+02		n	n
3	34:02	1.40e+02	1.08e+02	1.30	yes	2.48e+02		n	n
4	34:36	3.06e+01	2.16e+01	1.42	yes	5.22e+01	1,2,3,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0528

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P518904 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 389.8160 391.8130 Tot Response: 1.08e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	3.71e+02	2.74e+02 1.35	yes	6.45e+02		n	n
2	34:25	1.83e+01	1.70e+01 1.08	yes	3.52e+01		n	n
3	34:40	1.39e+02	1.15e+02 1.21	yes	2.54e+02		n	n
4	35:18	8.21e+00	6.62e+00 1.24	yes	1.48e+01	1,2,3,4,7,8-HxCDD	n	y
5	35:23	4.38e+01	3.55e+01 1.23	yes	7.93e+01	1,2,3,6,7,8-HxCDD	n	y
6	35:37	2.73e+01	2.55e+01 1.07	yes	5.28e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0528

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P518904 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 407.7820 409.7790 Tot Response: 1.42e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	2.09e+02	1.83e+02 1.14	yes	3.92e+02	1,2,3,4,6,7,8-HpCDF	n	y
2	37:38	5.23e+02	5.08e+02 1.03	yes	1.03e+03		n	y

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Peak List Summary

CLIENT ID.
SL0528

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P518904 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 09:13:15 Processed: 21-NOV-18 12:44:56

Mass: 423.7770 425.7740 Tot Response: 6.24e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	2.00e+03	1.03	yes	3.93e+03		n	n
2	38:10	1.14e+03	0.98	yes	2.31e+03	1,2,3,4,6,7,8-HpCDD	n	n

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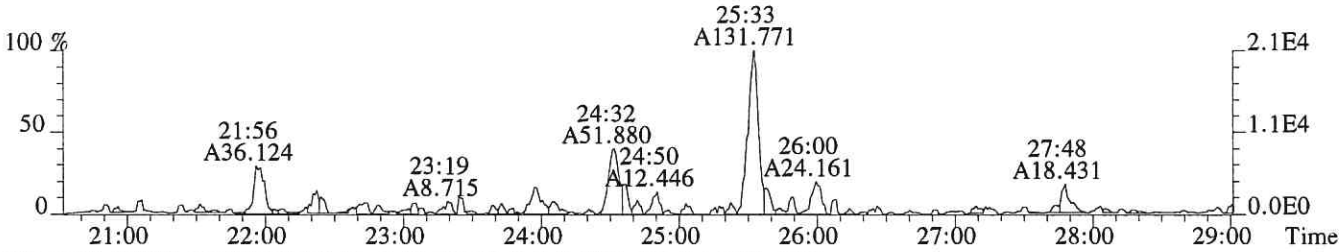
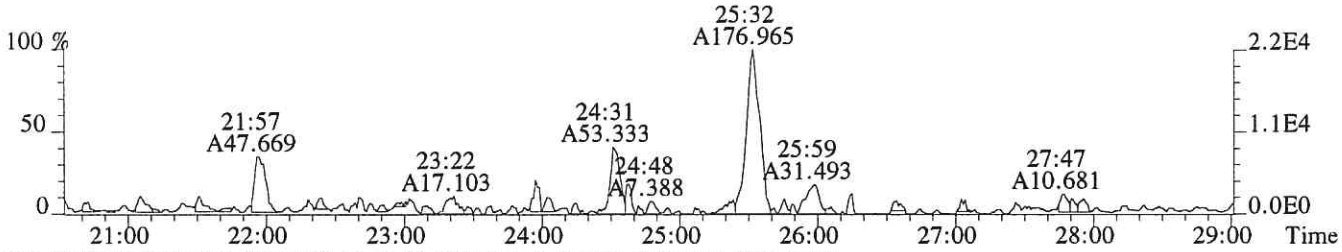
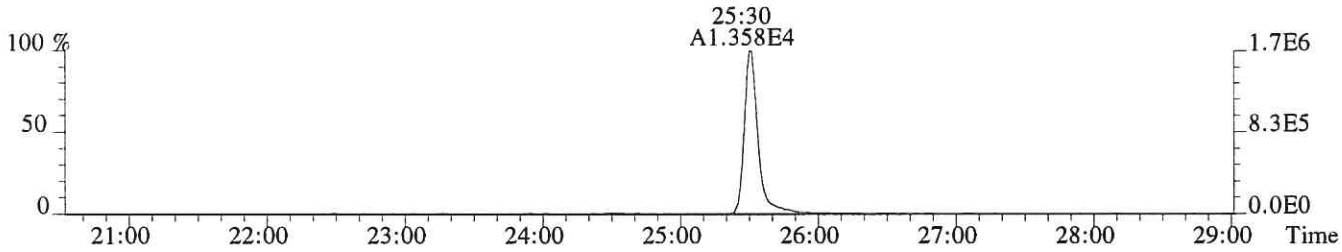
File:P518904 #1-602 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



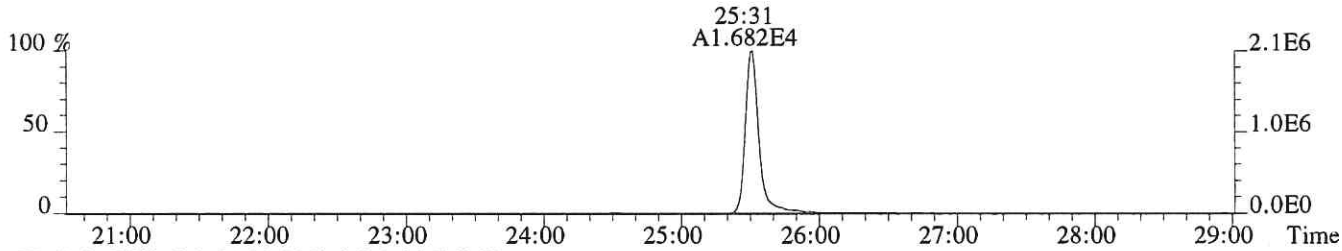
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



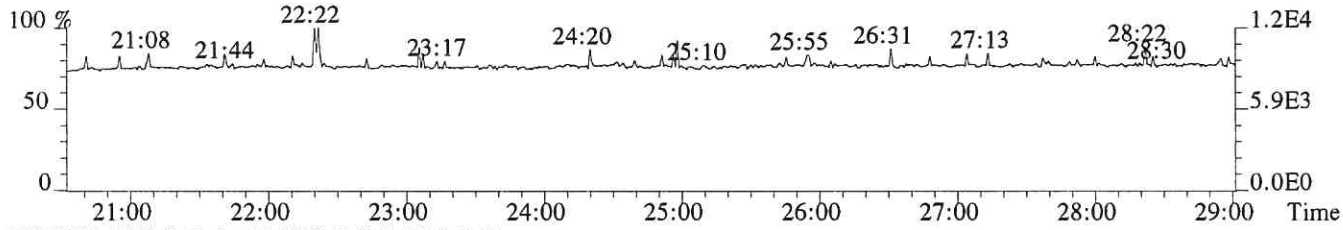
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



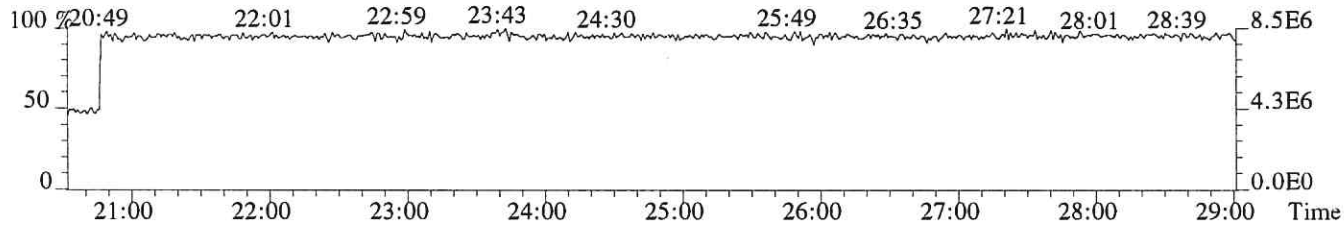
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



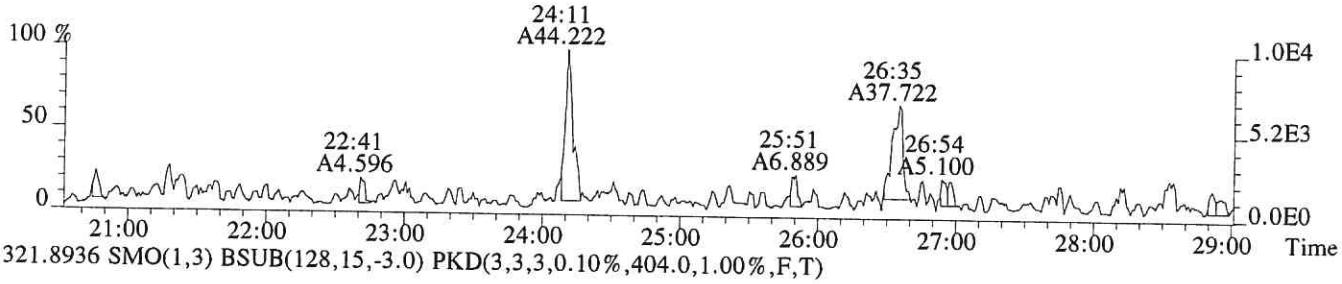
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



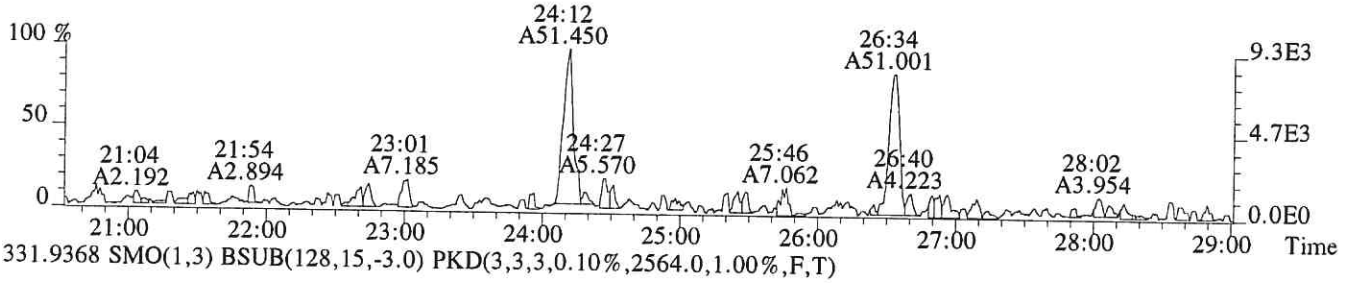
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



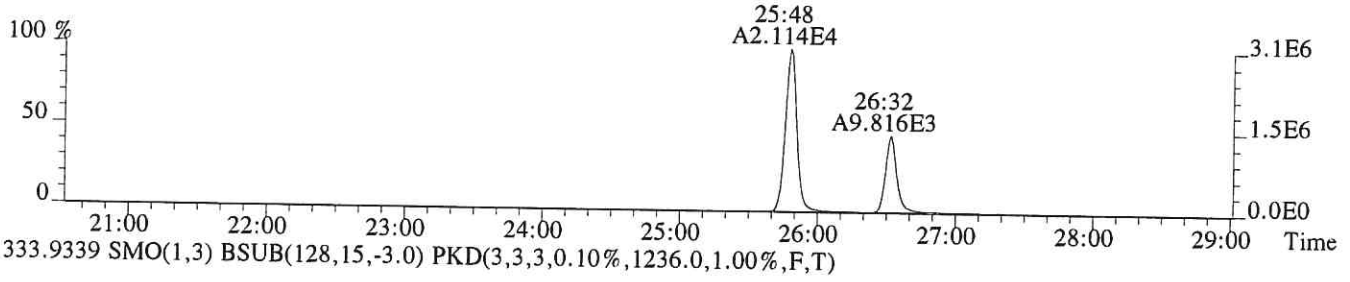
File:P518904 #1-602 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



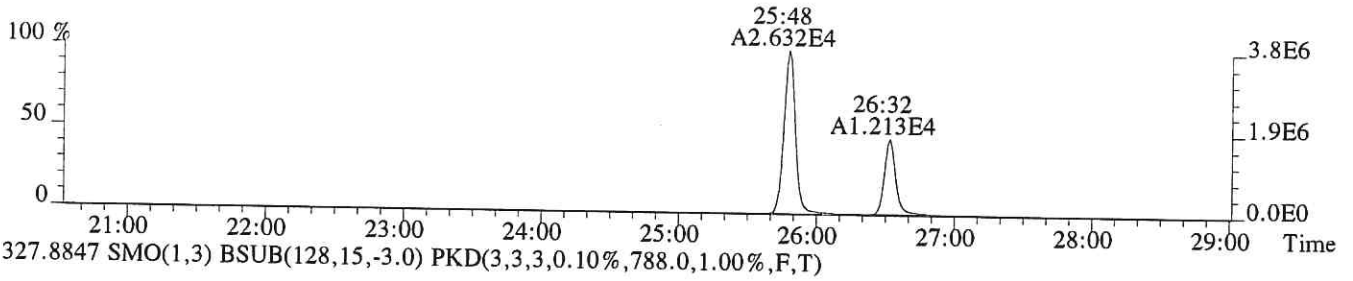
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



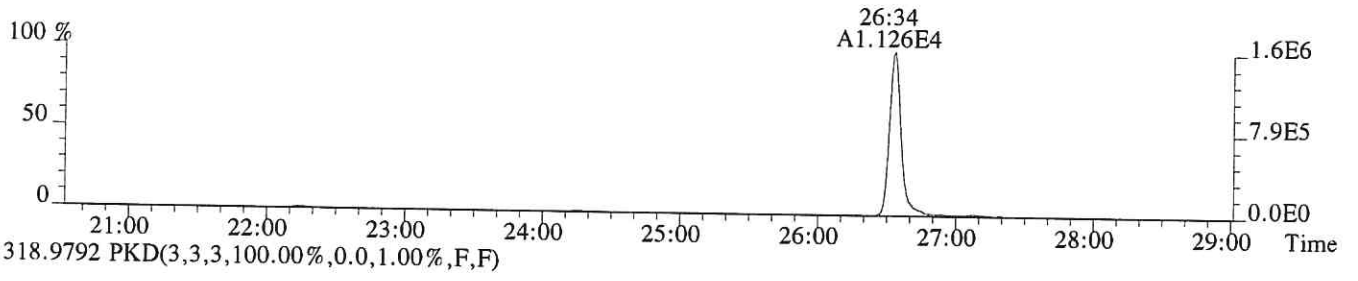
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2564.0,1.00%,F,T)



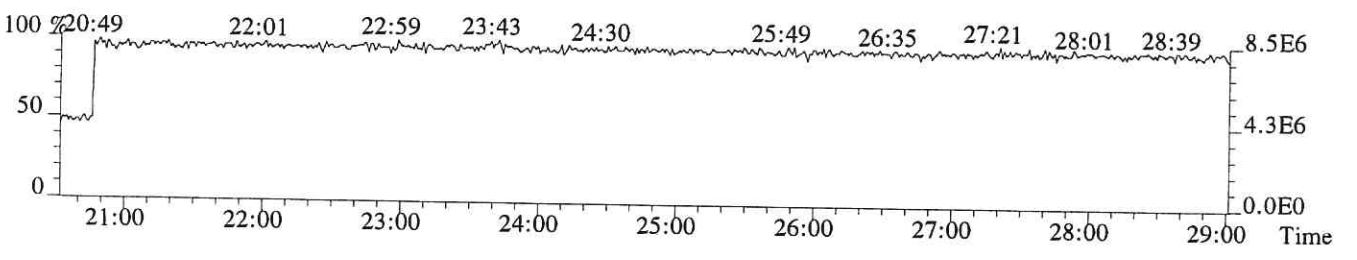
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



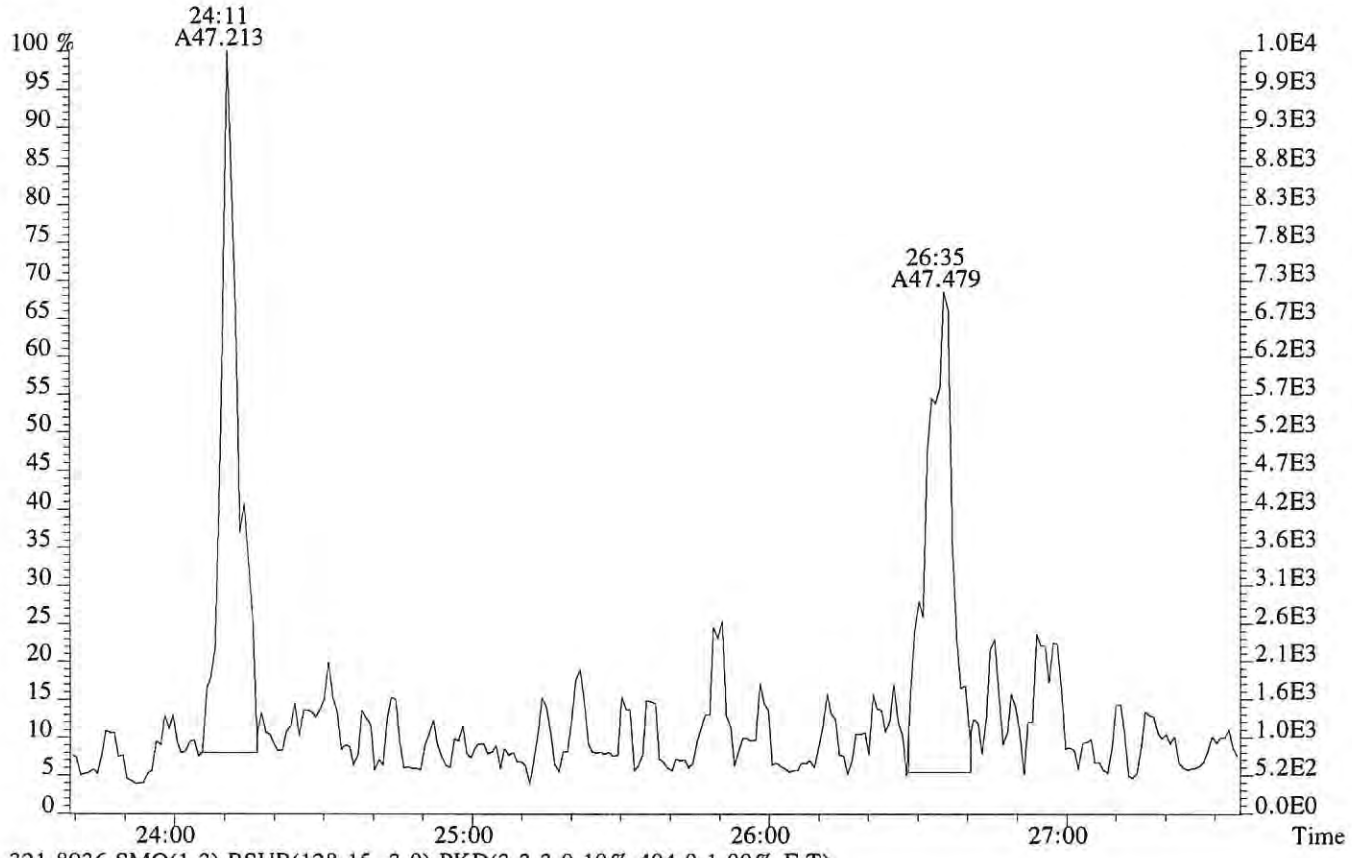
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



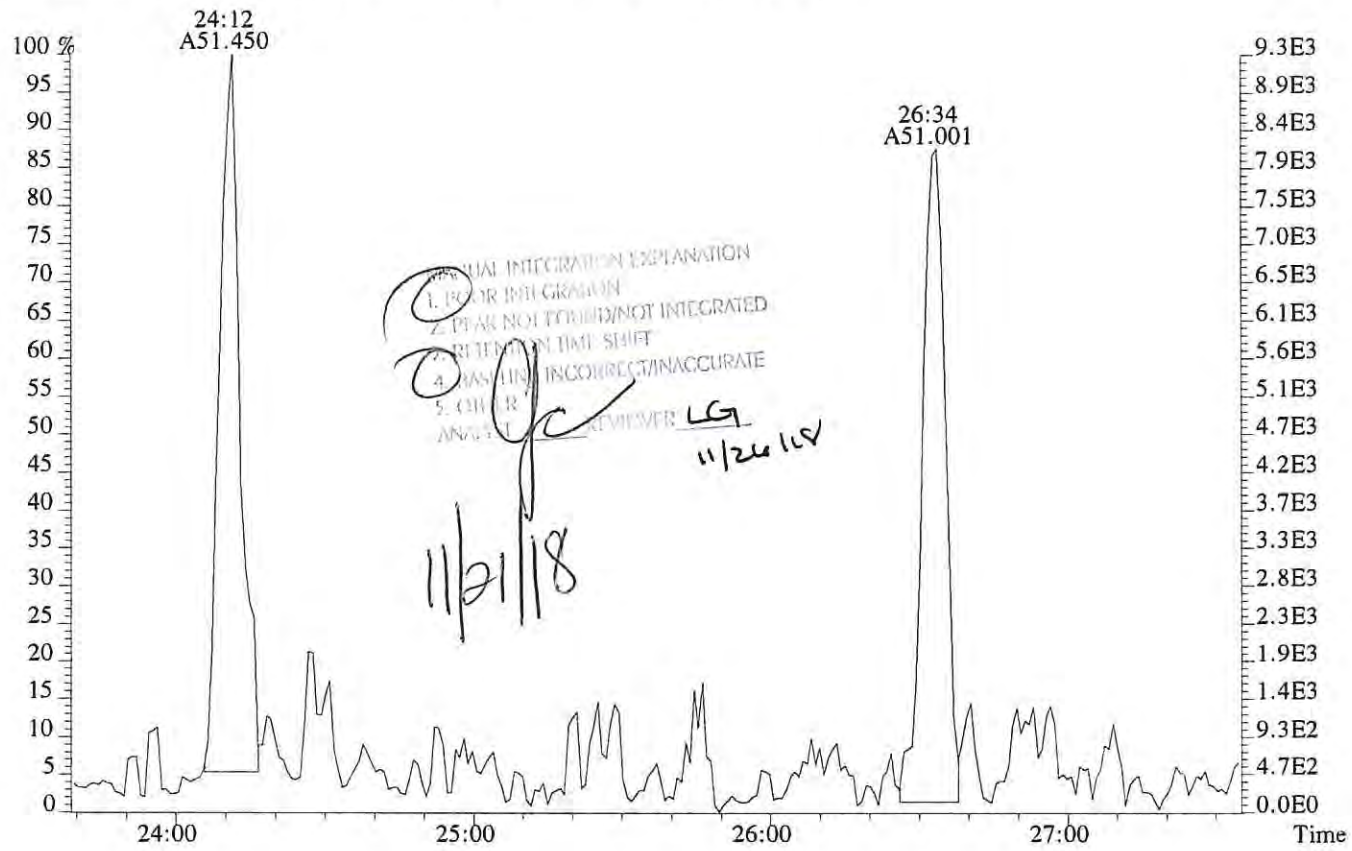
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518904 #1-602 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)

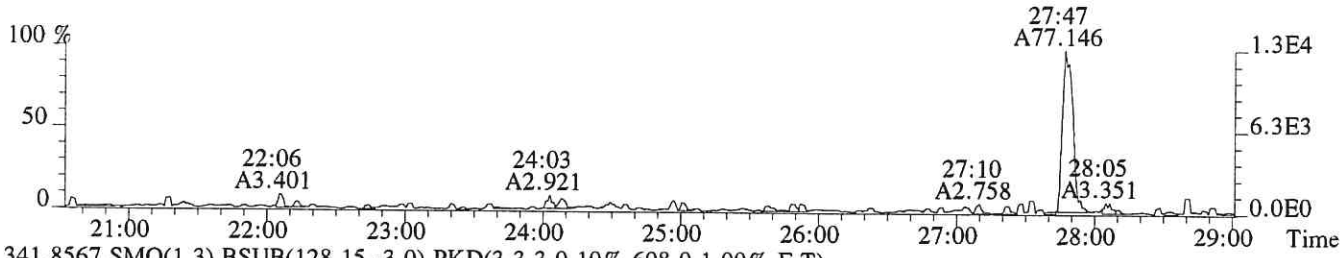


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)

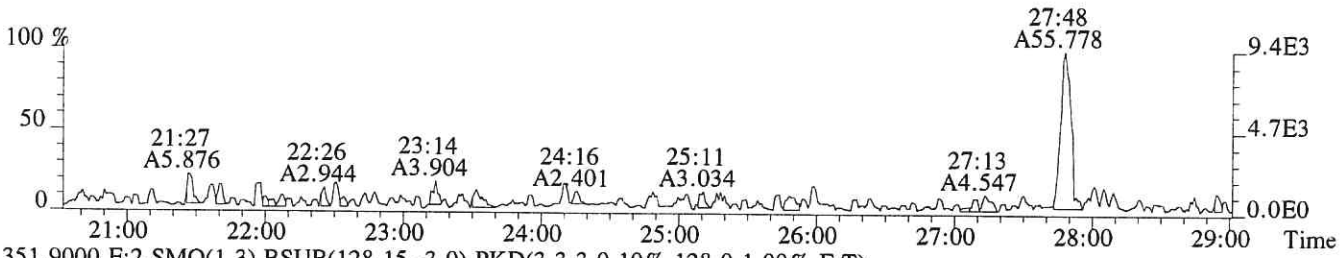


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST
REVIEWER LG
11/26/18
11/21/18

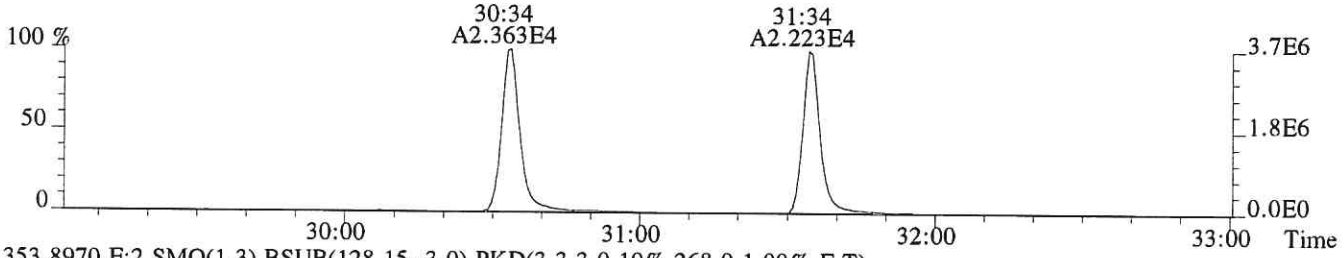
File:P518904 #1-602 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



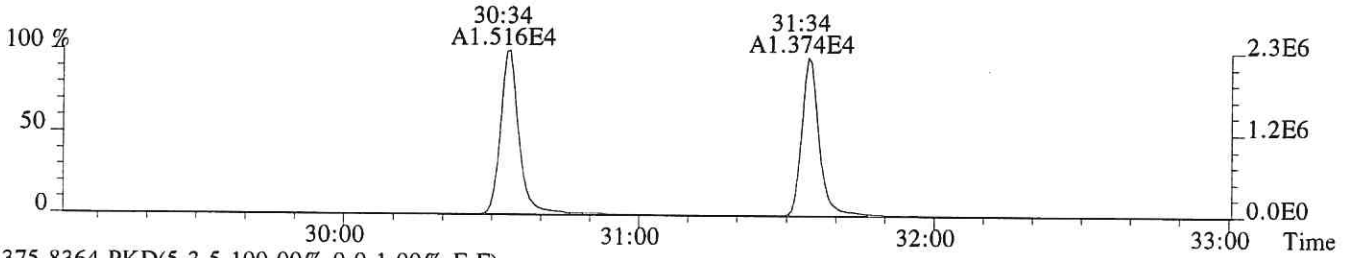
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



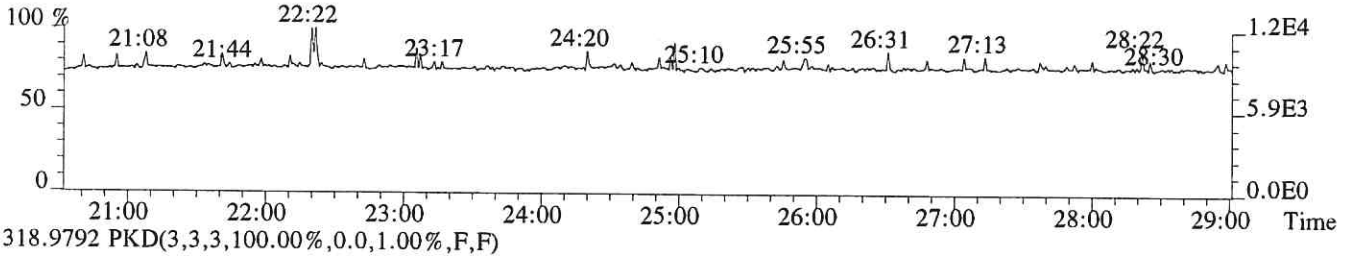
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



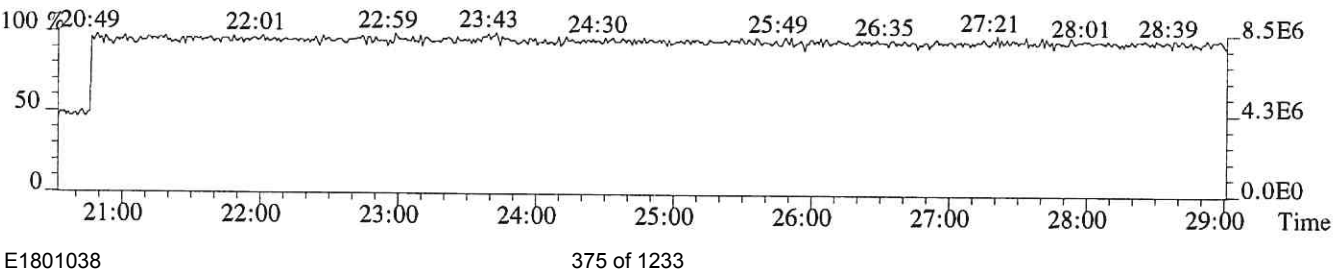
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



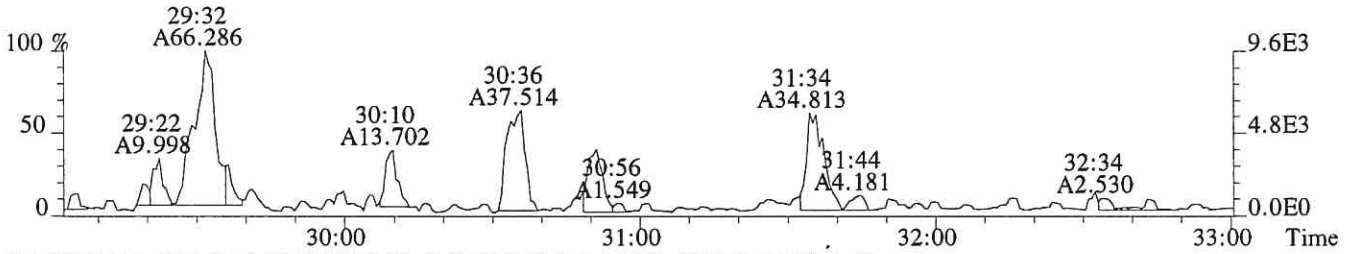
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



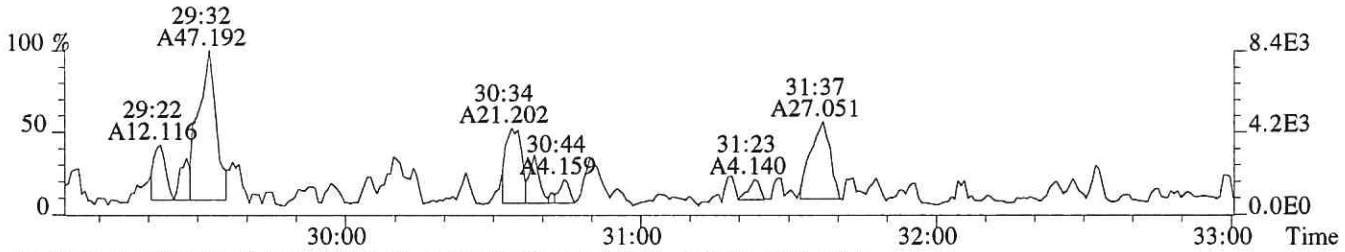
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



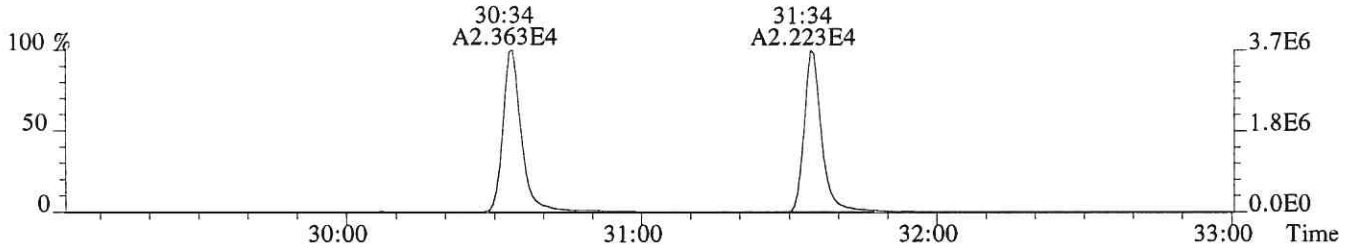
File:P518904 #1-357 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



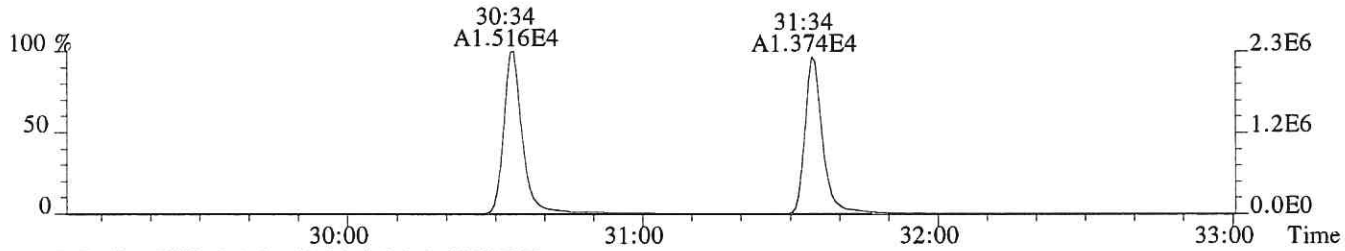
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



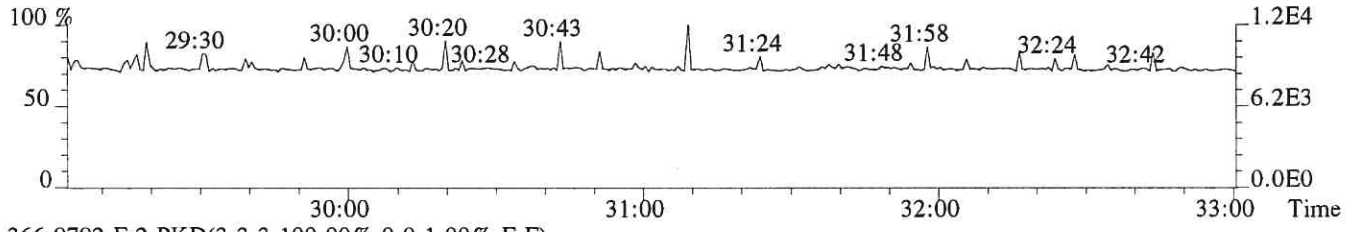
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



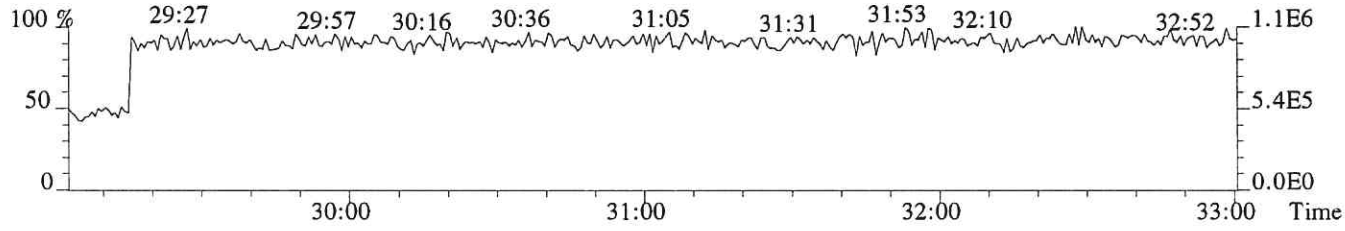
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



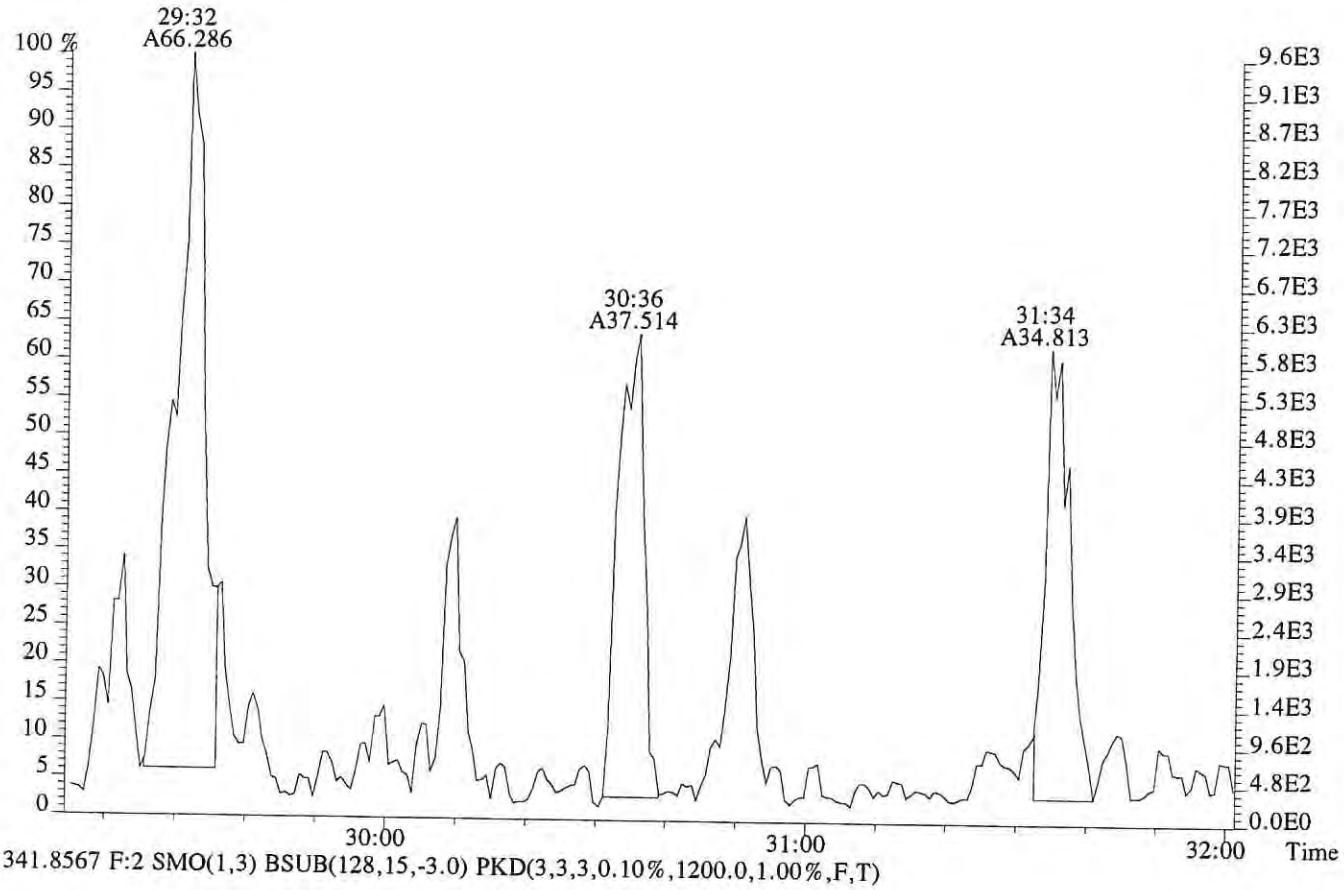
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



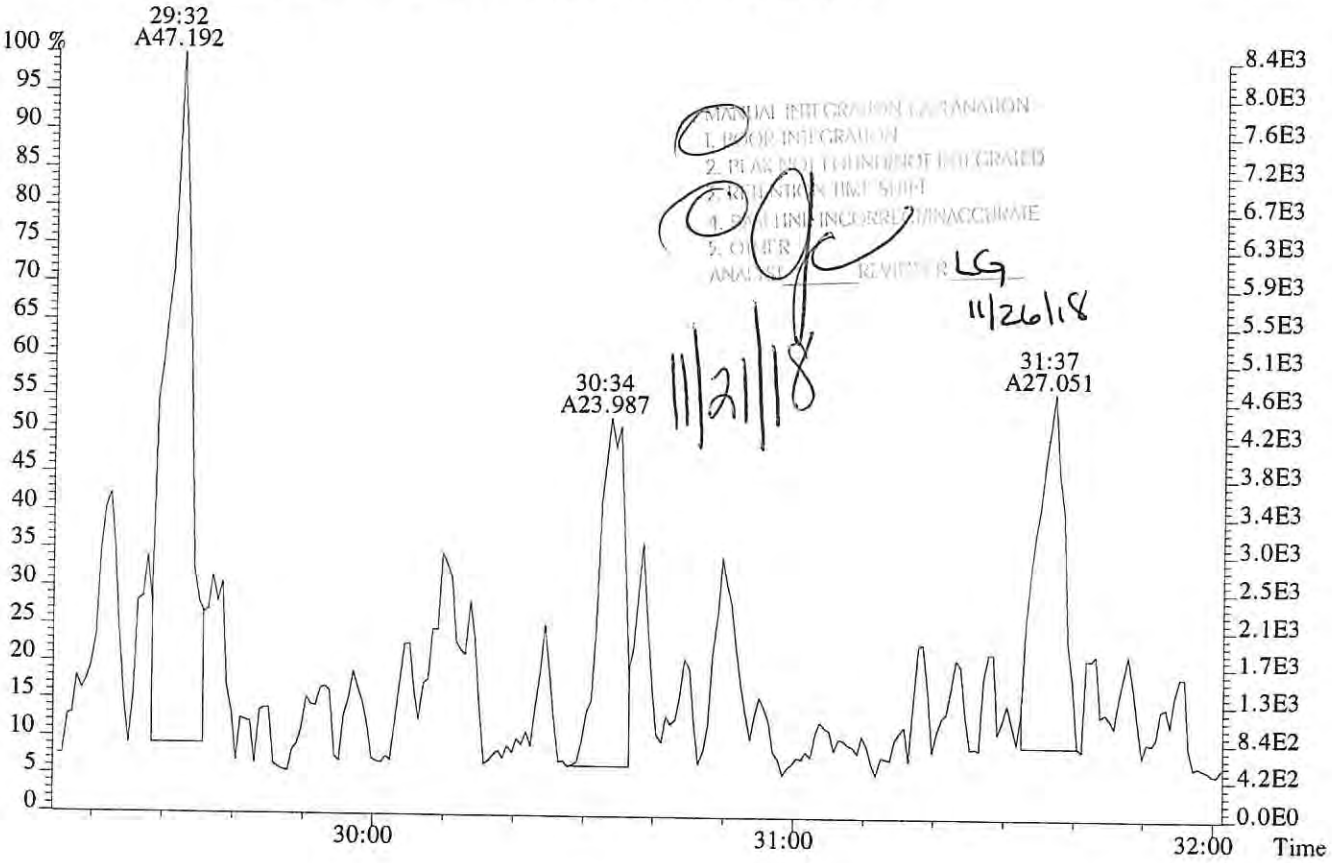
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518904 #1-357 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)

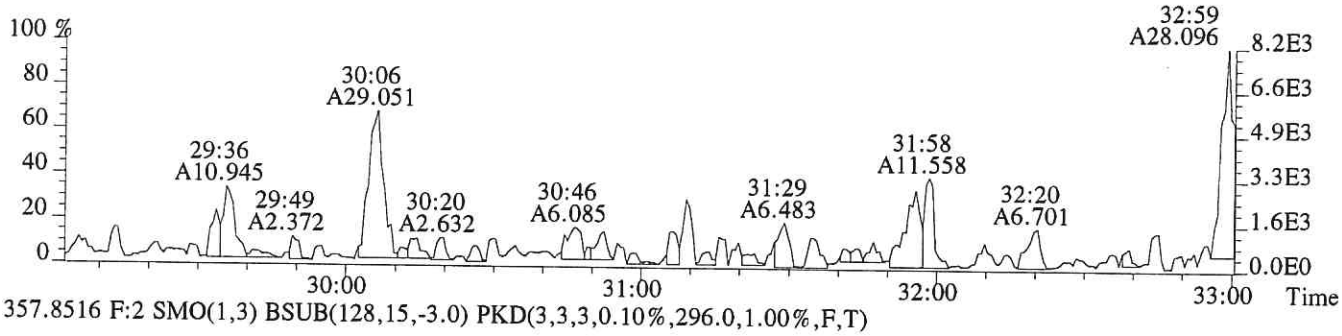


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)

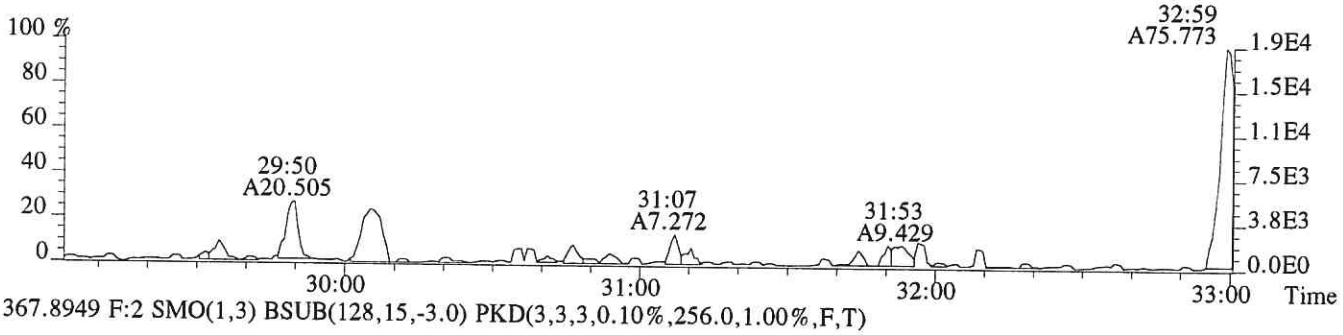


11/21/18
LG
11/26/18

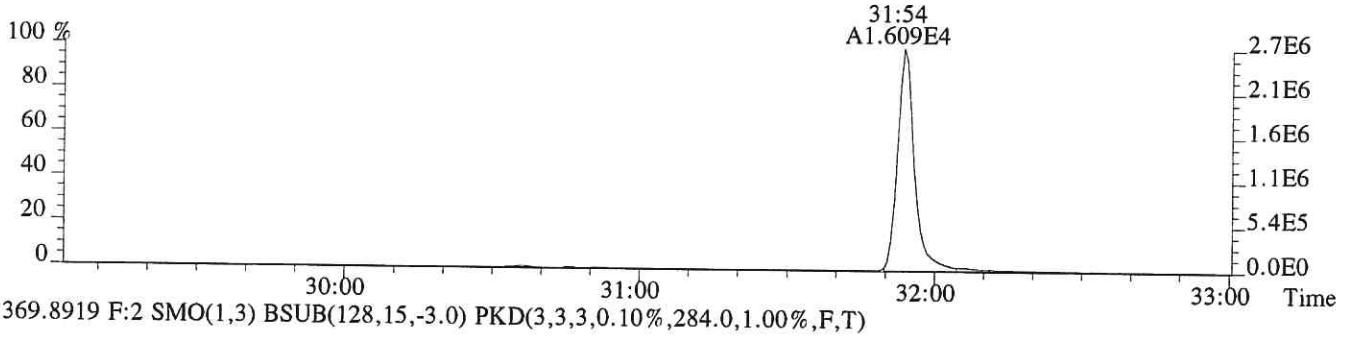
File:P518904 #1-357 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



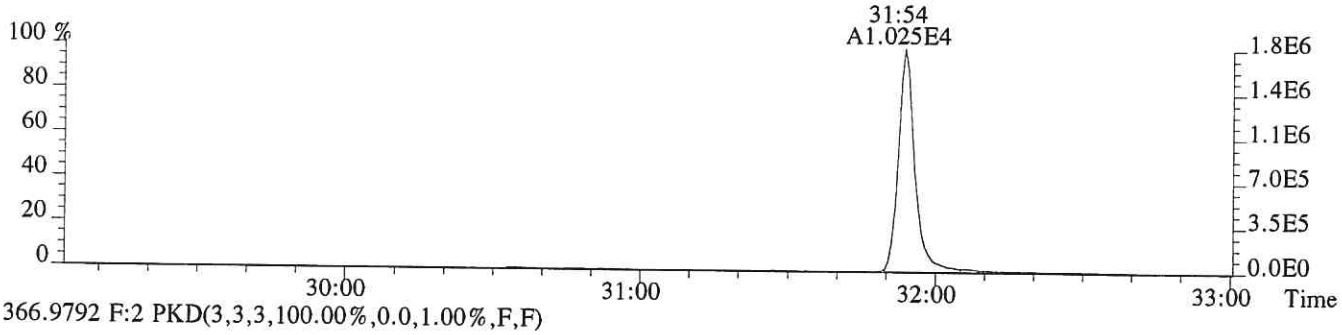
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



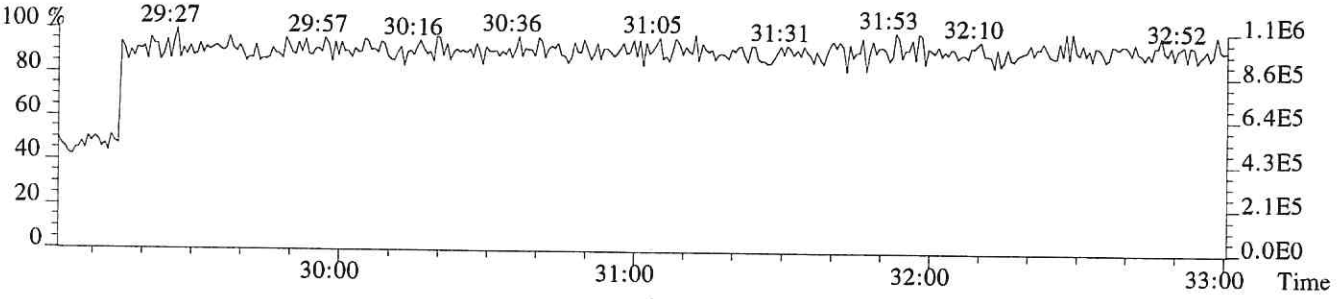
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



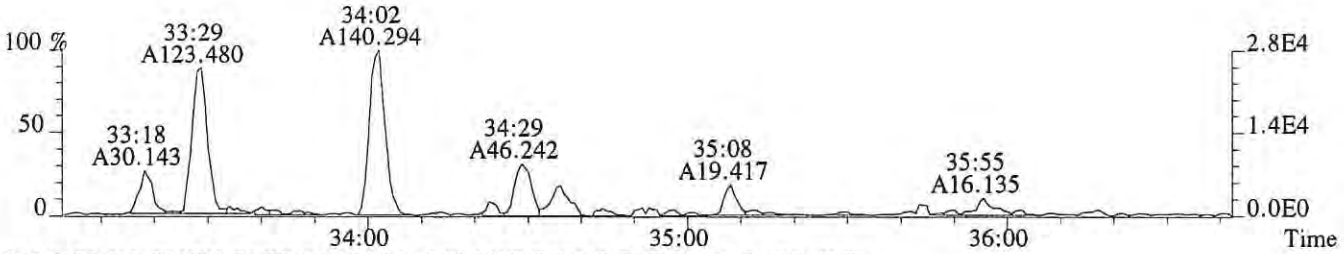
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



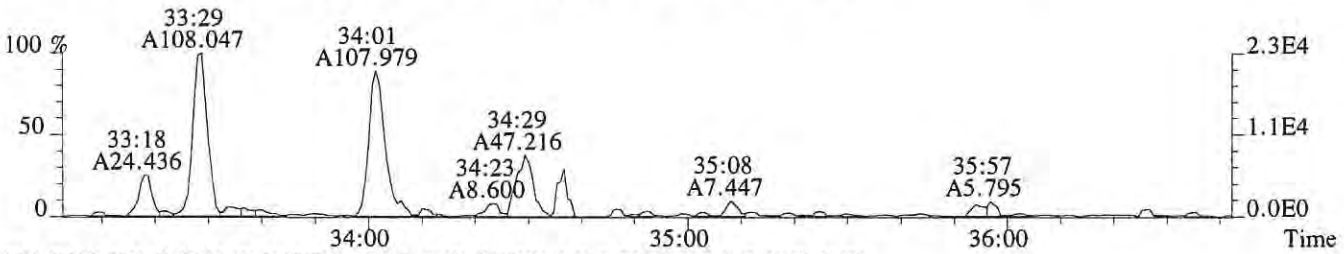
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



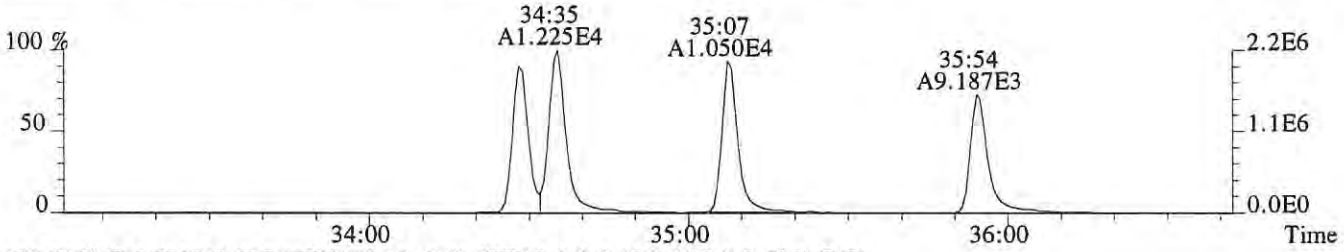
File:P518904 #1-330 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



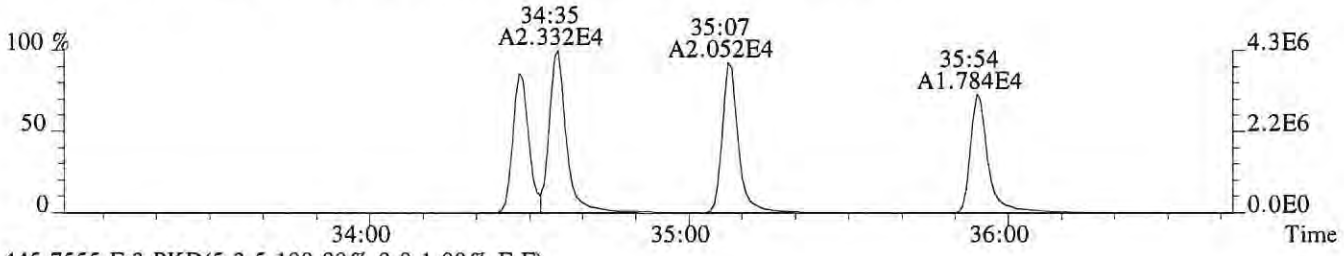
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



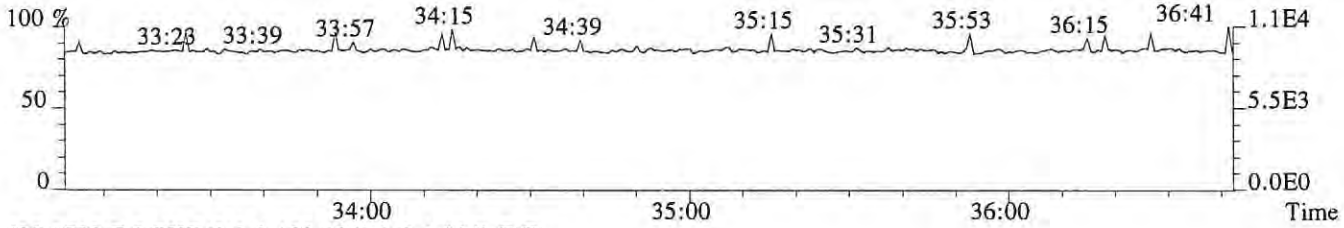
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



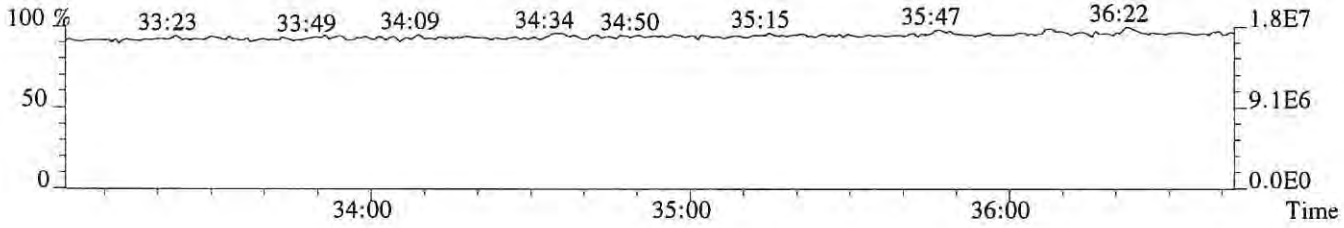
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



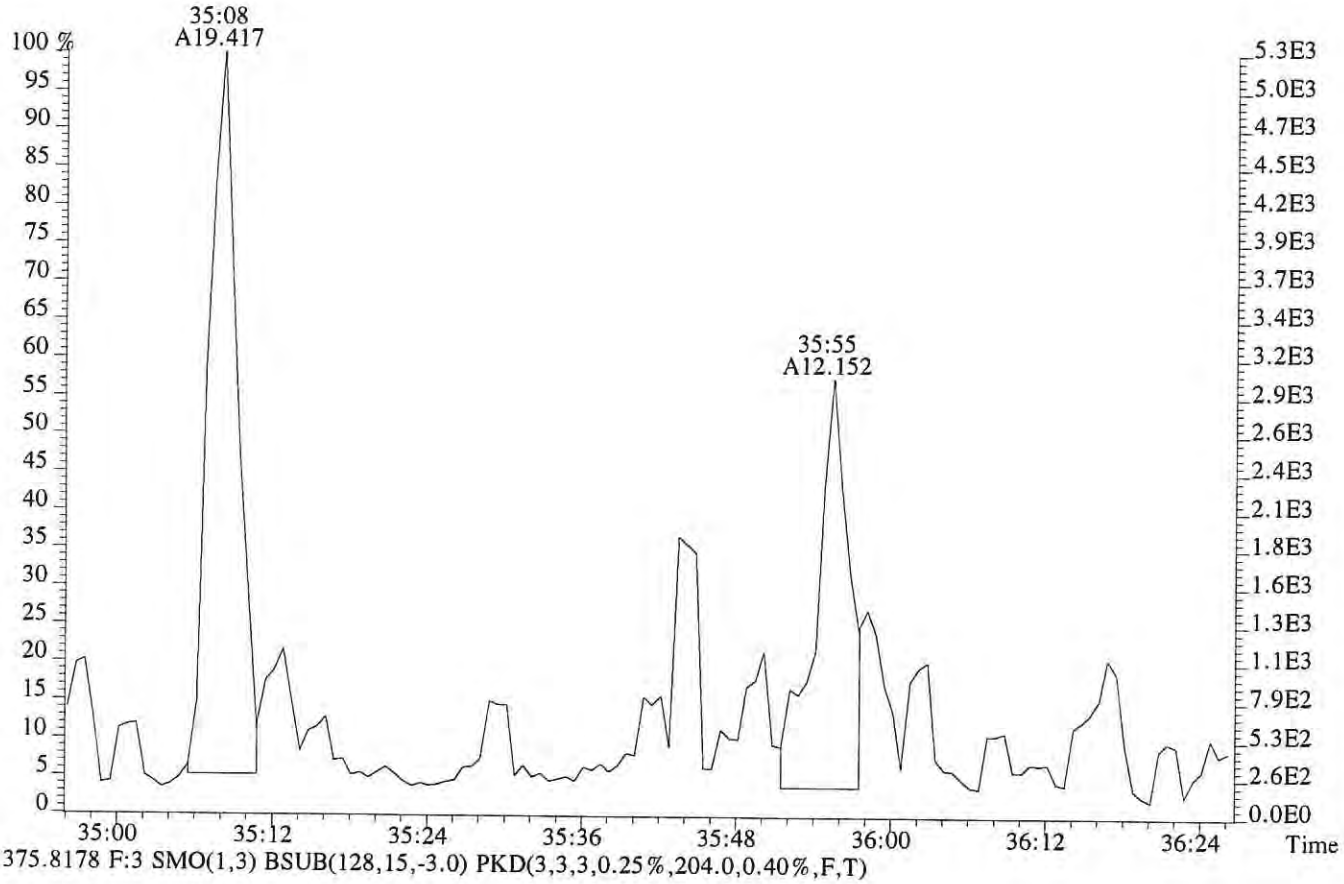
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



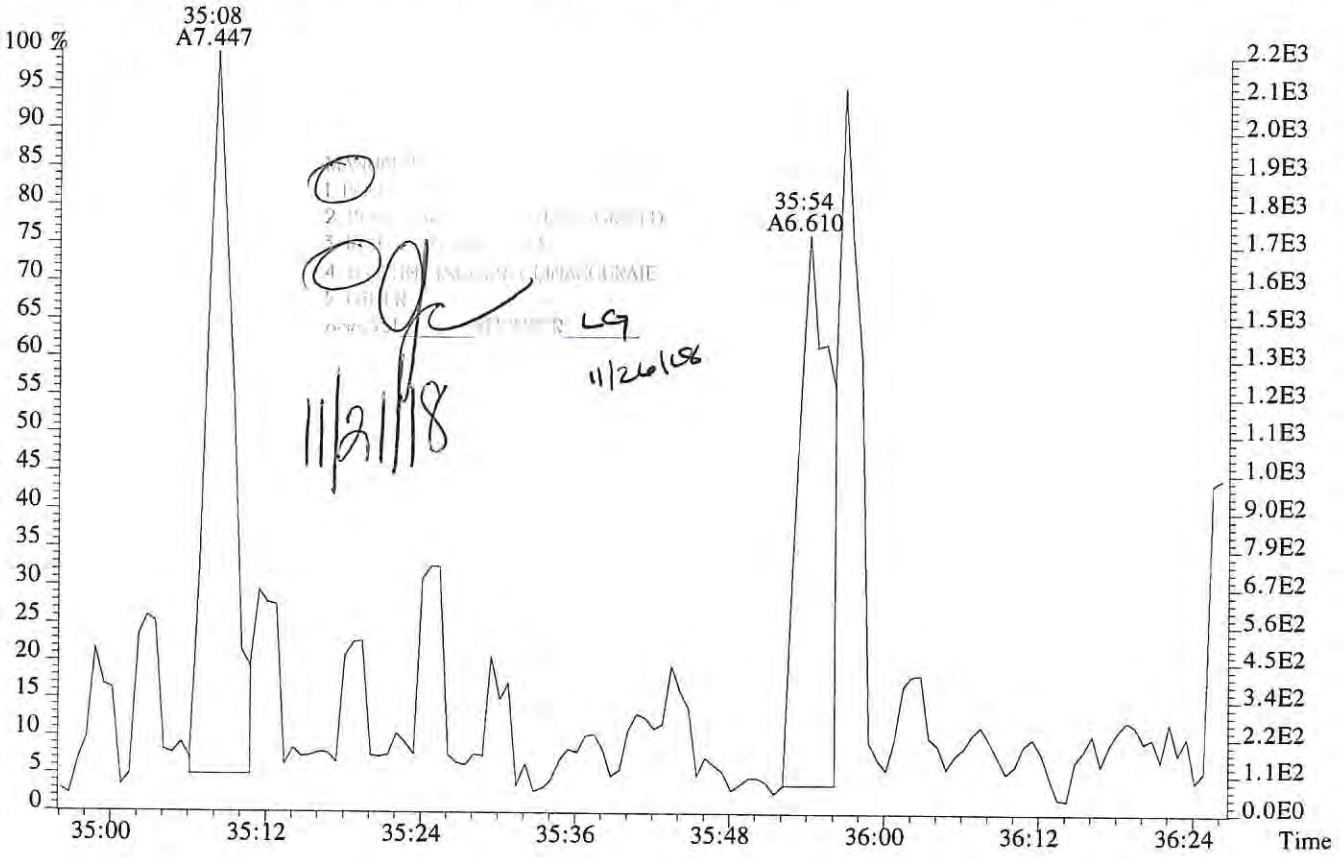
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518904 #1-330 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)

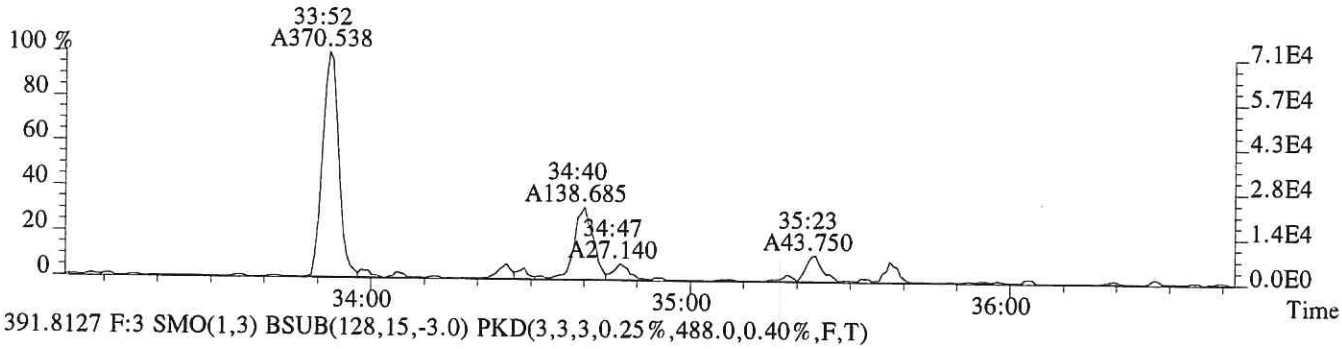


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)

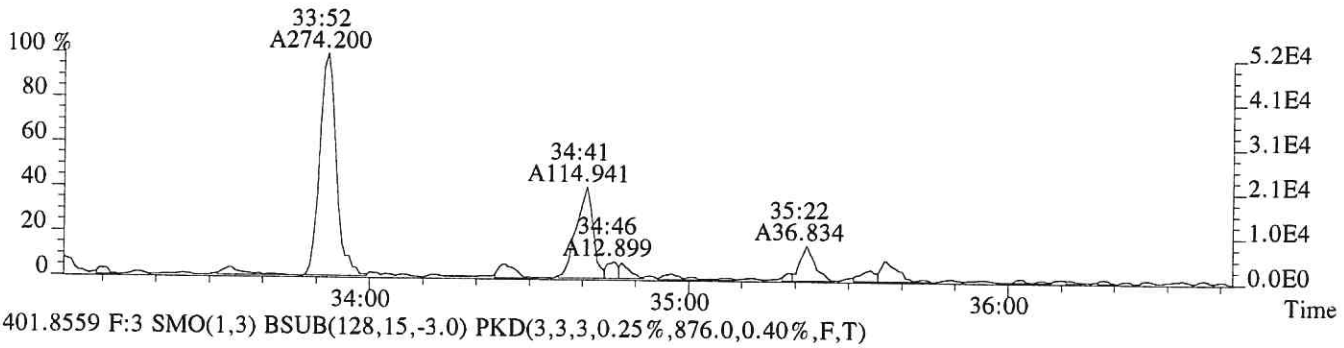


11/21/18
11/26/18

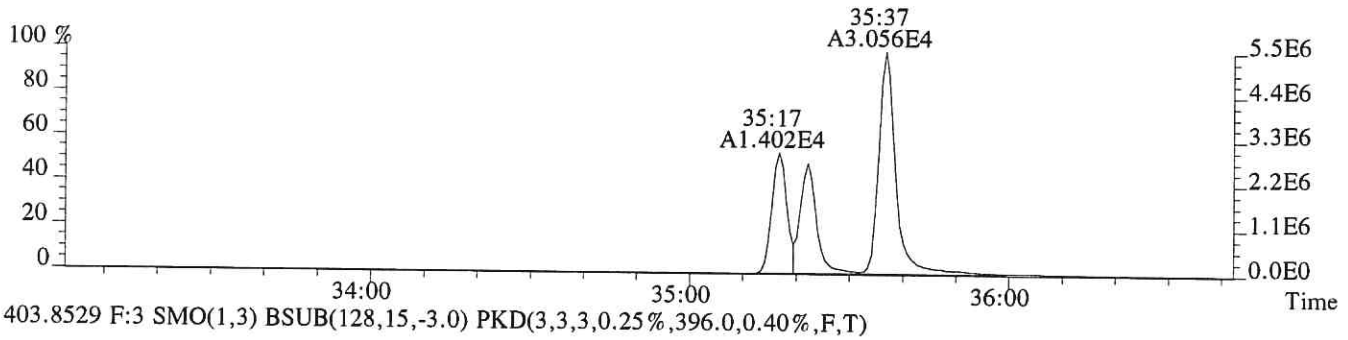
File:P518904 #1-330 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



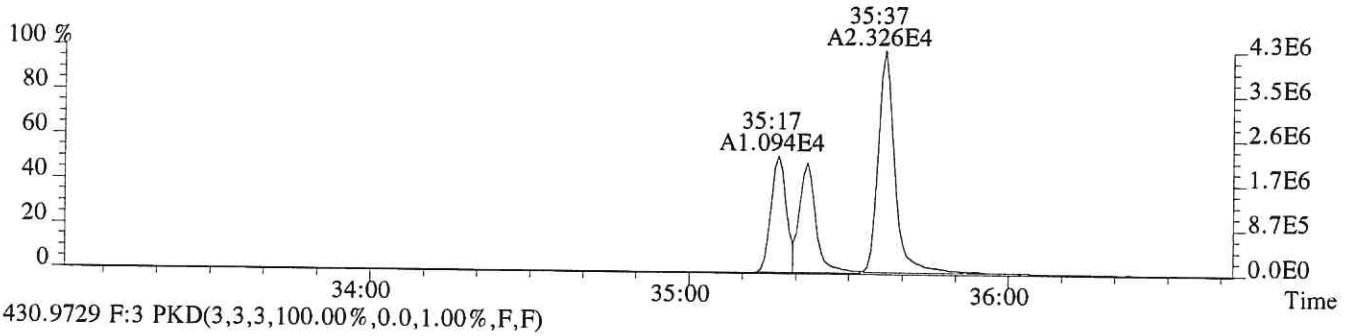
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



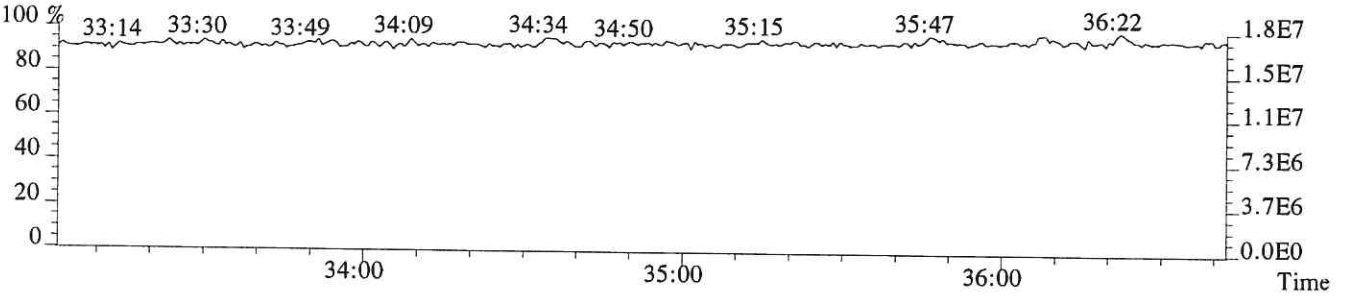
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



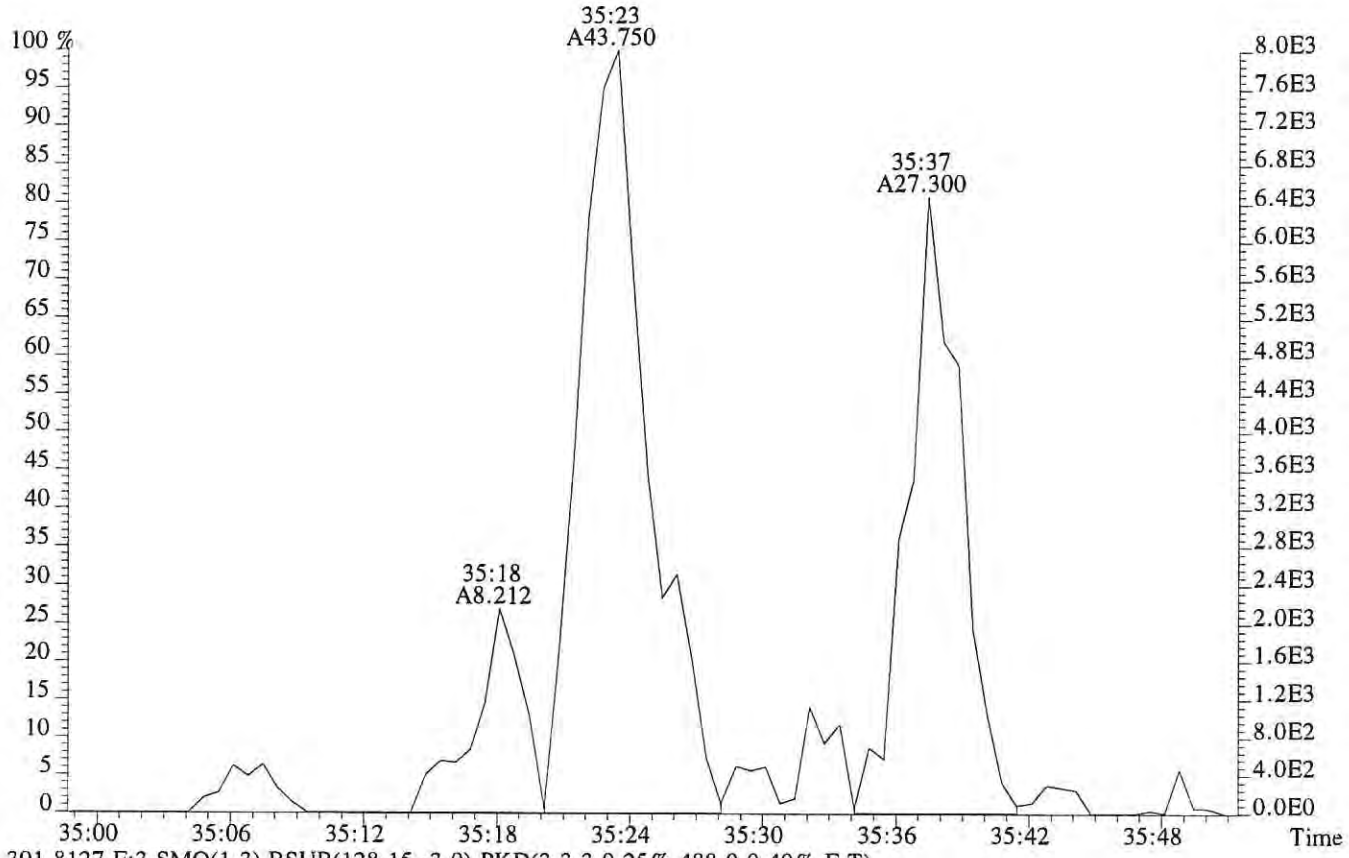
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



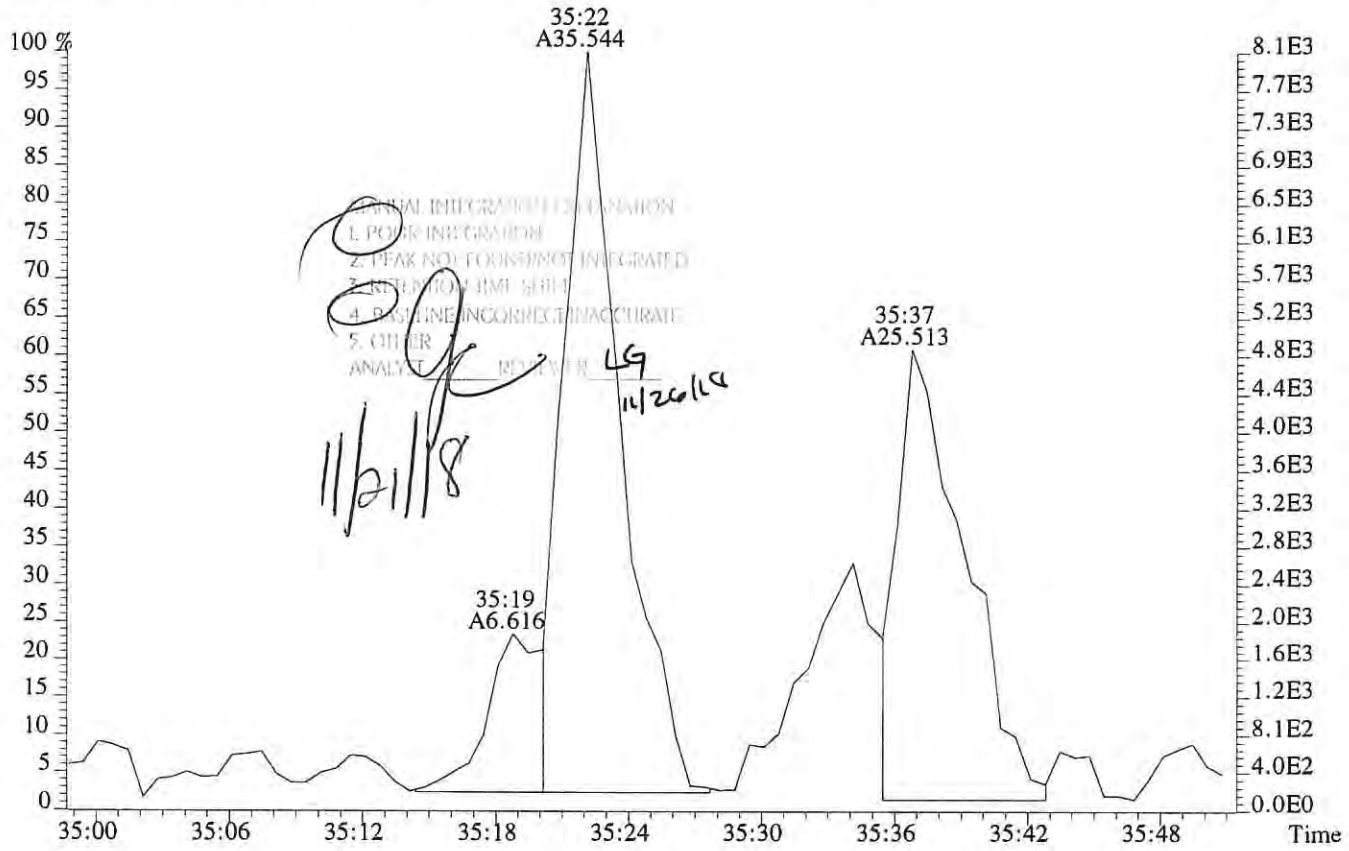
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



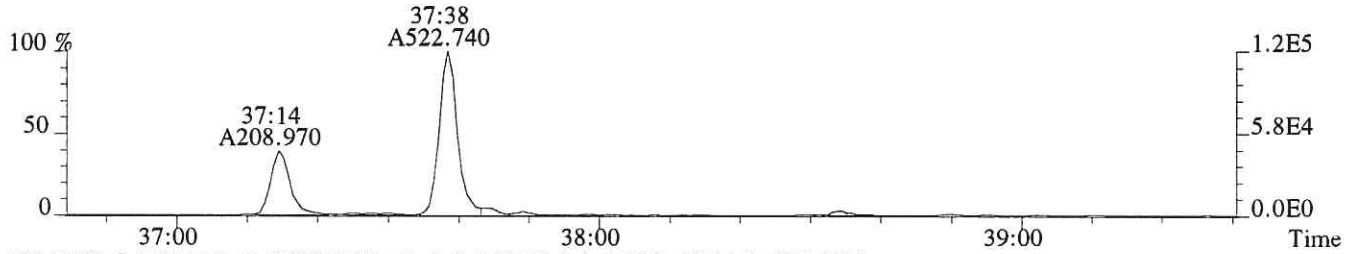
File:P518904 #1-330 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801038-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



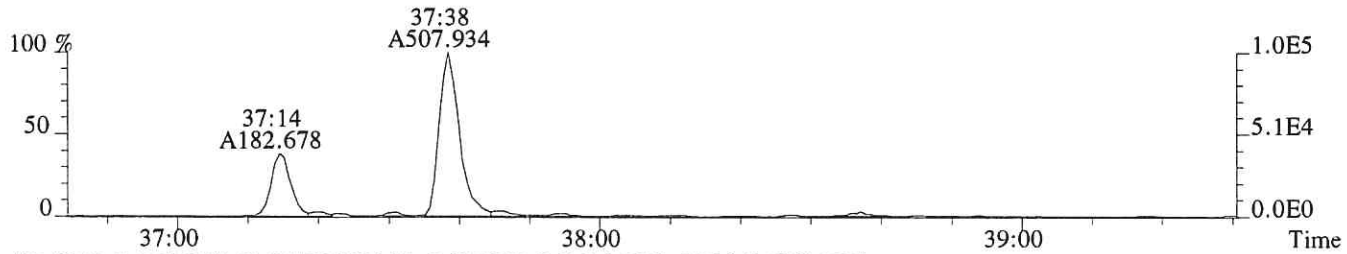
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



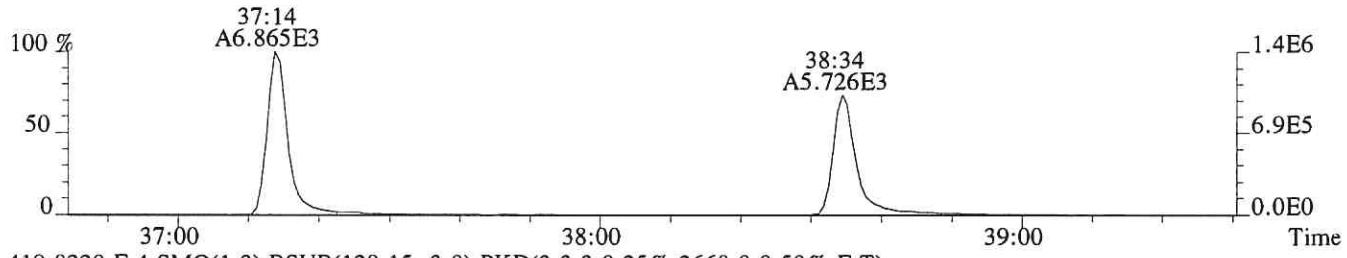
File:P518904 #1-250 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.50%,F,T)



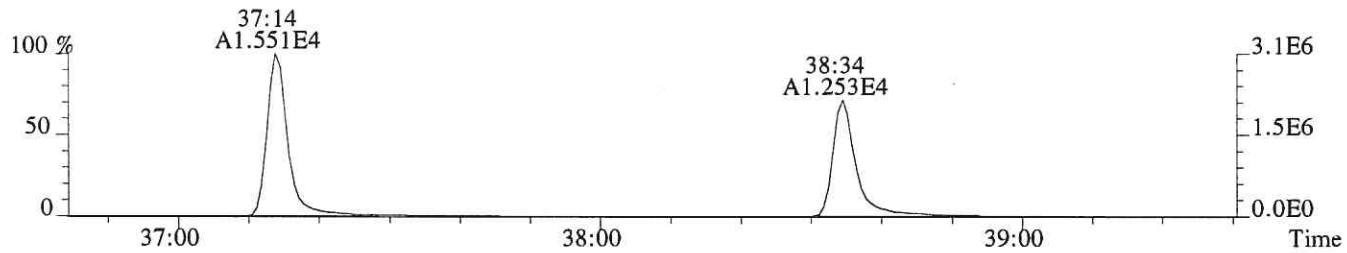
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.50%,F,T)



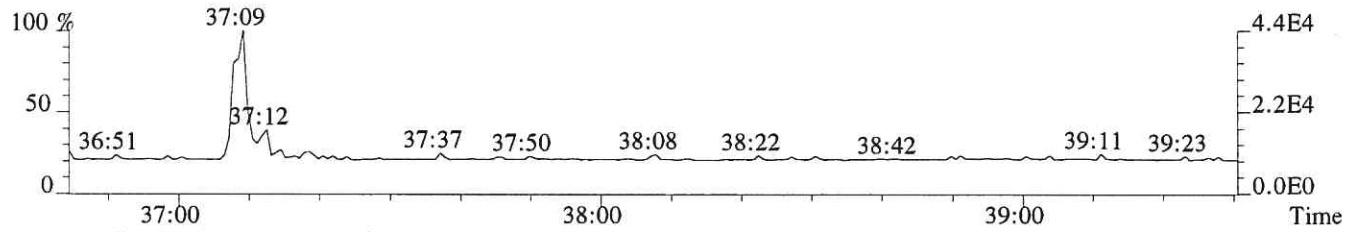
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.50%,F,T)



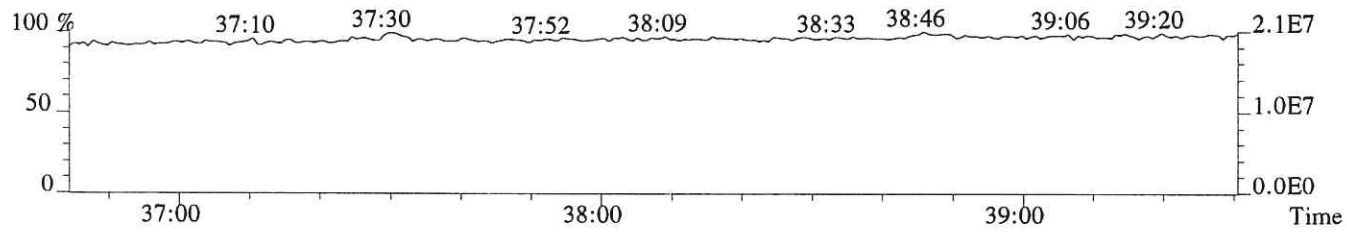
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2668.0,0.50%,F,T)



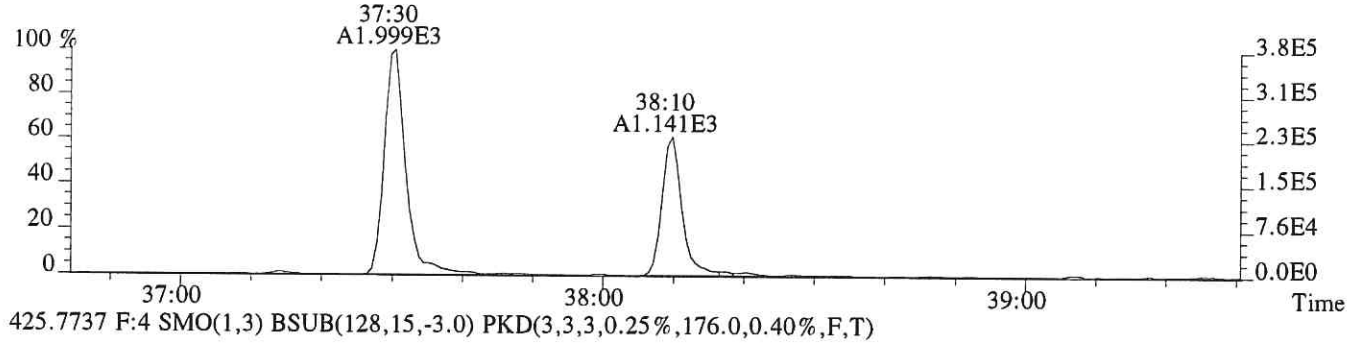
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



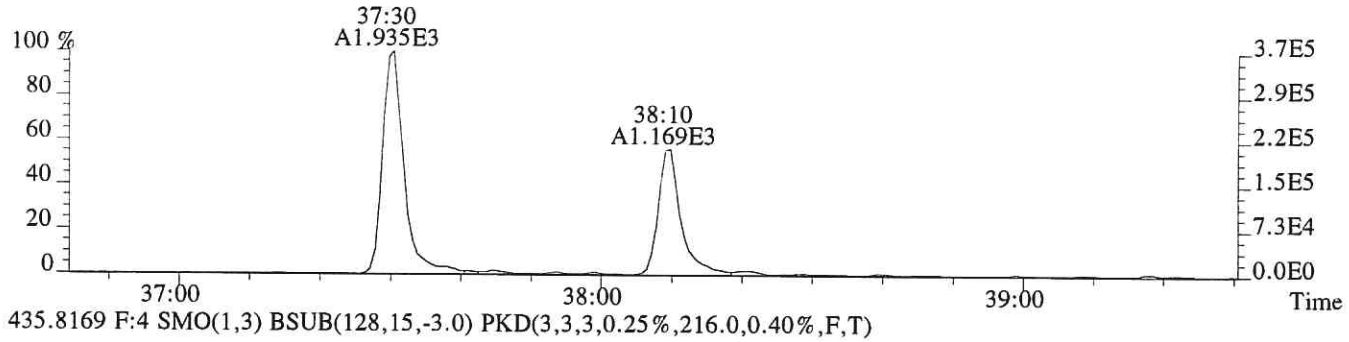
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



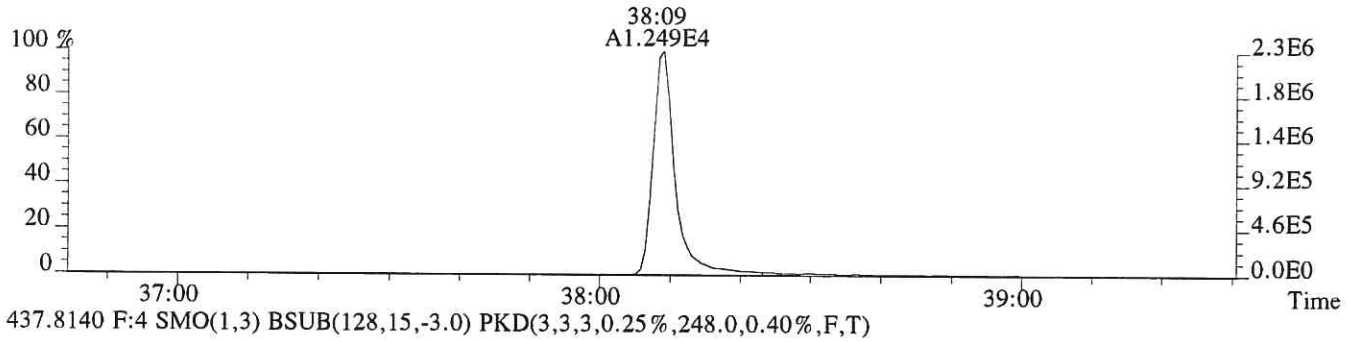
File:P518904 #1-250 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



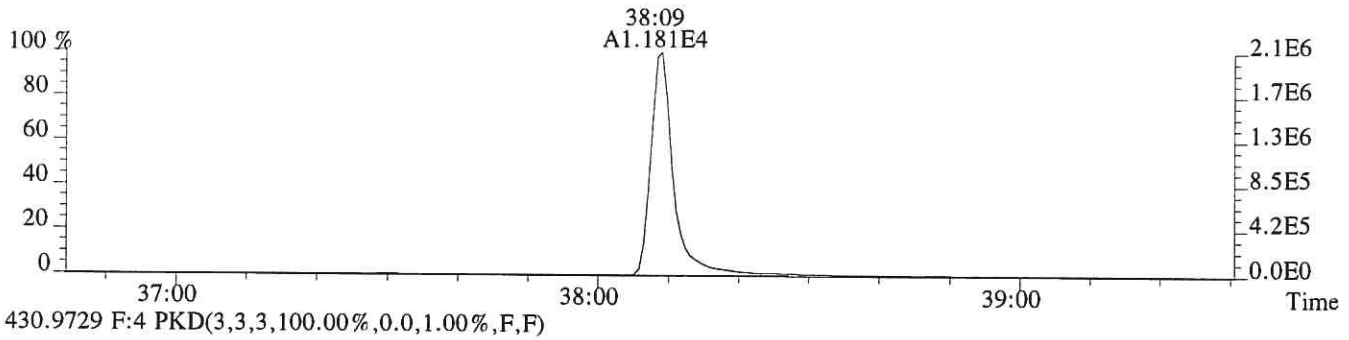
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



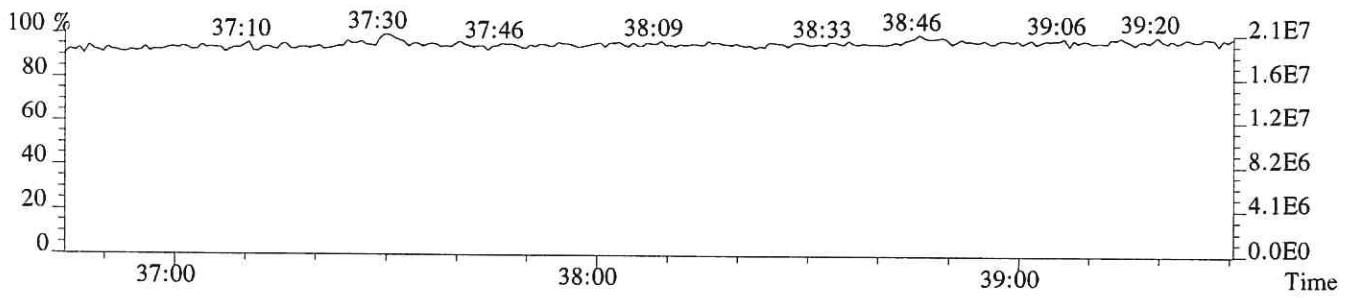
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



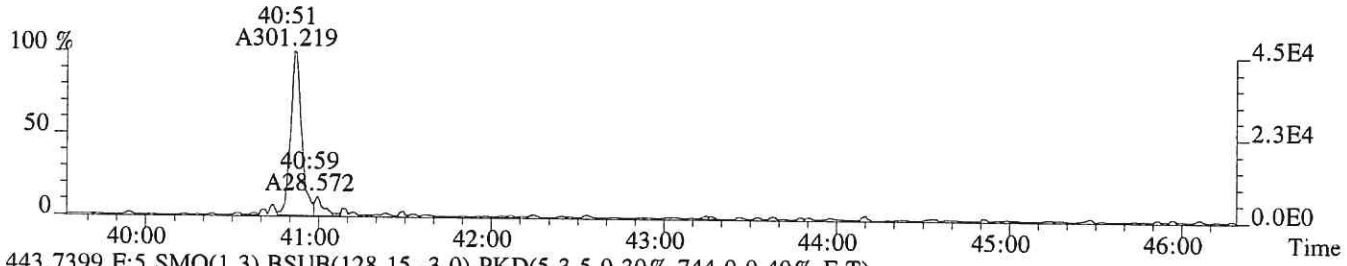
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



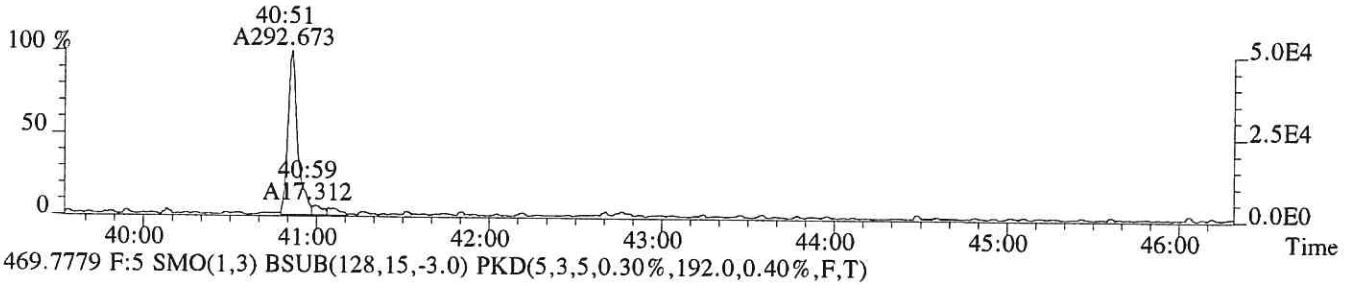
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



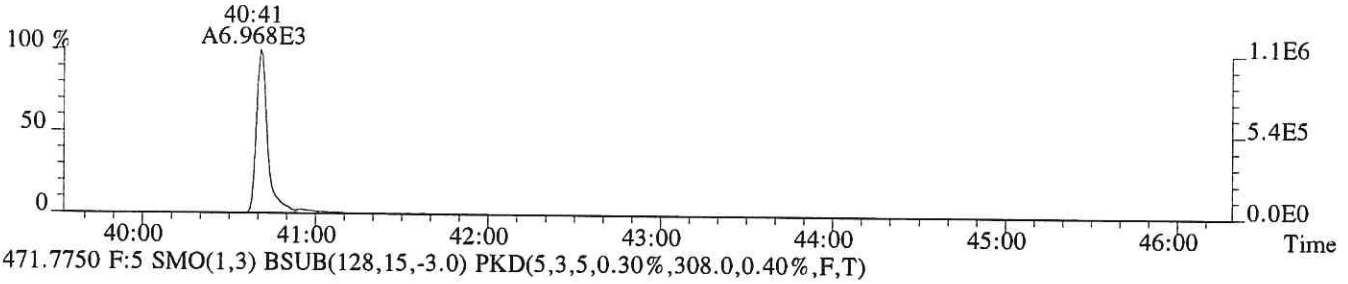
File:P518904 #1-610 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



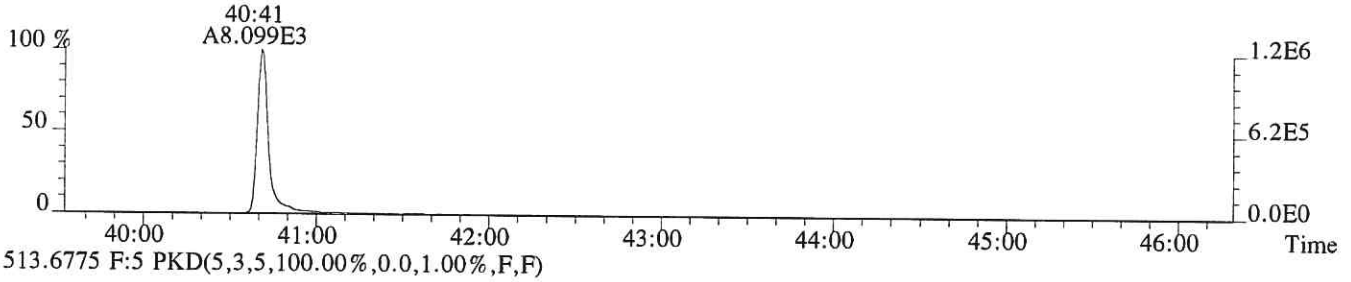
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



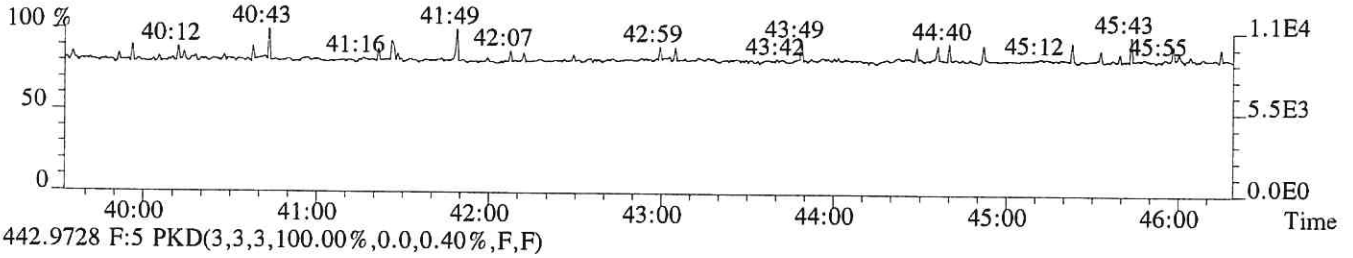
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



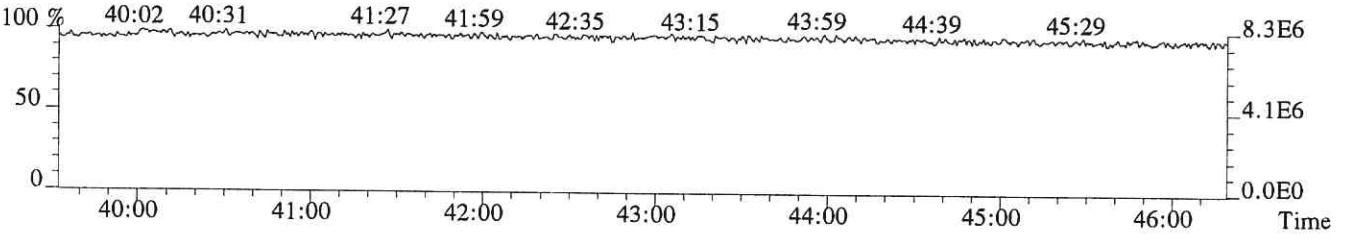
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



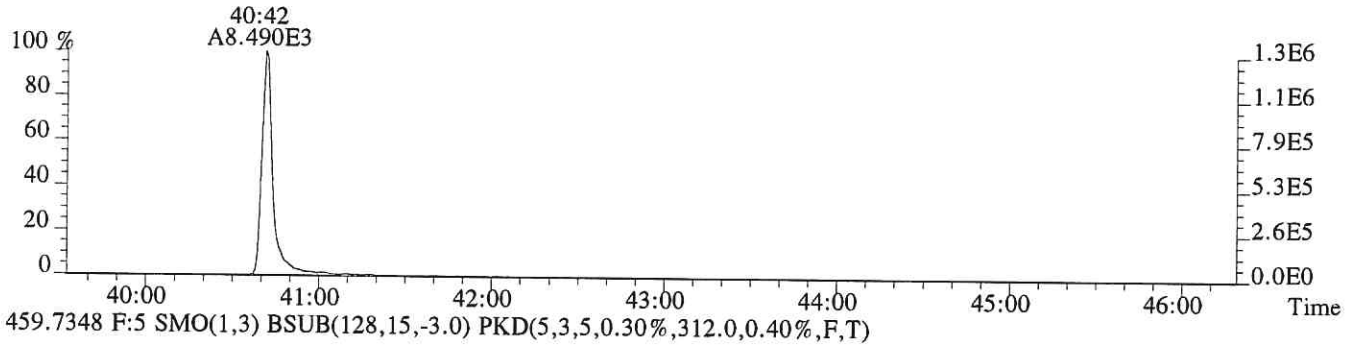
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



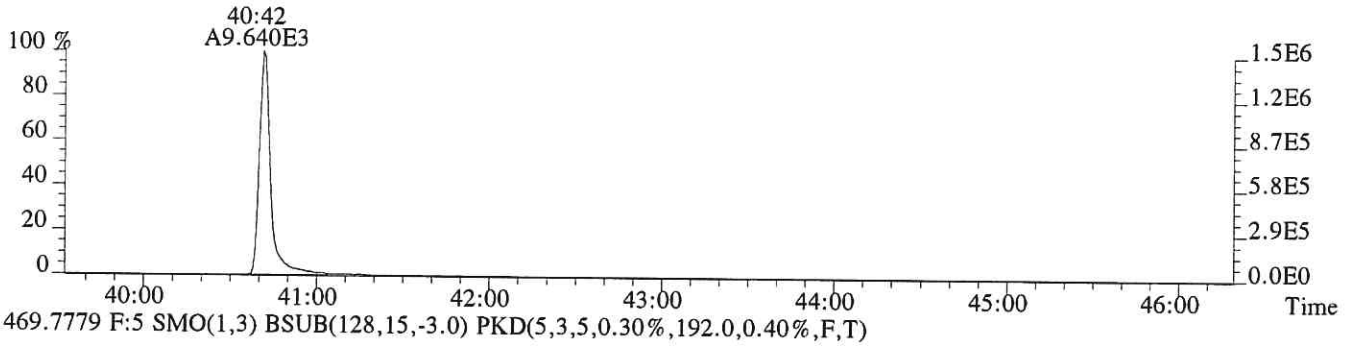
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



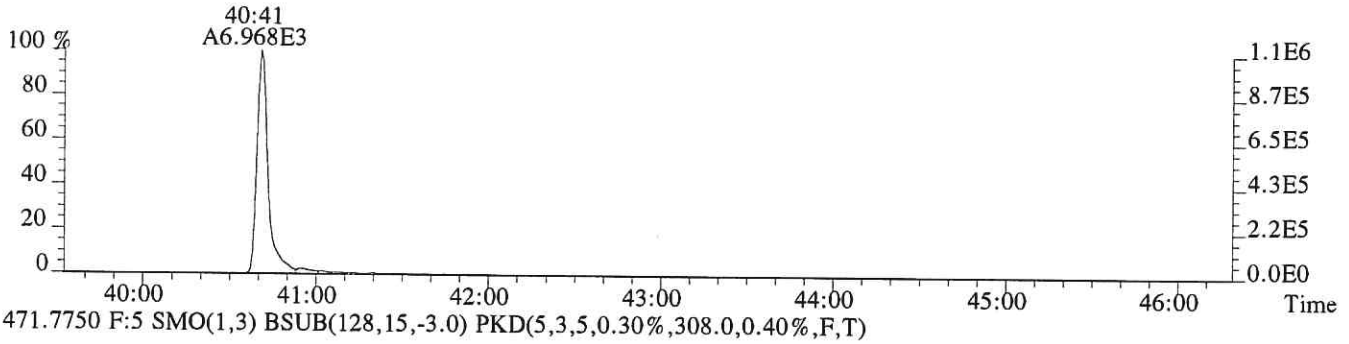
File:P518904 #1-610 Acq:18-NOV-2018 09:13:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-010
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



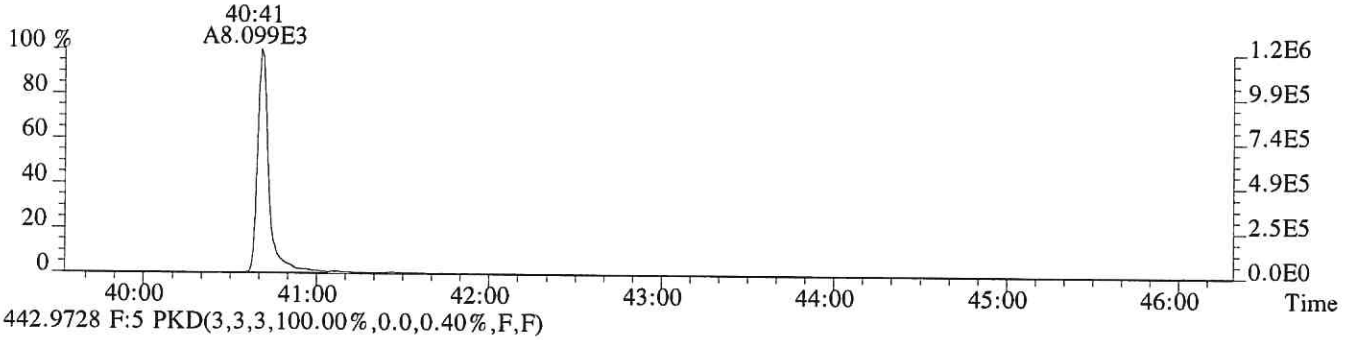
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



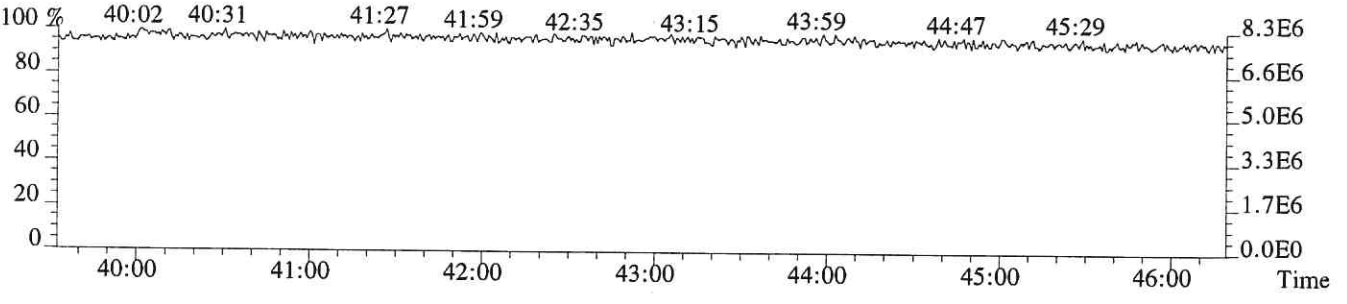
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0529

Run #17 Filename P518905 Samp: 1 Inj: 1 Acquired: 18-NOV-18 10:01:55
Processed: 21-NOV-18 12:44:57 Sample ID: E1801038-011

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	8.634e+01	9.426e+01	0.92	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.111e+01	7.790e+00	1.43	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	8.967e+00	1.794e+01	0.50	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	1.265e+01	1.975e+01	0.64	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.527e+01	1.708e+01	0.89	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	2.068e+02	1.859e+02	1.11	yes	no	1.025
17	Unk	OCDD	40:42	2.176e+03	2.527e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	6.479e+03	8.203e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.915e+04	1.188e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.817e+04	1.151e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	8.935e+03	1.713e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.104e+04	2.145e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.035e+04	1.994e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	8.867e+03	1.812e+04	0.49	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	6.540e+03	1.492e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	5.552e+03	1.285e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	5.220e+03	6.660e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.396e+04	8.784e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.330e+04	1.026e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.407e+04	1.140e+04	1.23	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.262e+04	1.179e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	7.613e+03	8.182e+03	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	2.078e+04	2.597e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	2.887e+04	2.340e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	5.698e+03				no	1.014

$$OCDD = \frac{(2.176e+03 + 2.527e+03) \times 4000\ pg \times 1}{(7.613e+03 + 8.182e+03) \times 10.338\ g \times 85.8/100 \times 1.118} = 120.109\ ng/Kg$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0529

Run #17 Filename P518905 Samp: 1 Inj: 1 Acquired: 18-NOV-18 10:01:55
Processed: 21-NOV-18 12:44:57 LAB. ID: E1801038-011

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.02e+04	3.68e+02	2.8e+01	1.20e+04	7.56e+02	1.6e+01
2	1,2,3,7,8-PeCDF	*	2.12e+02	*	*	8.84e+02	*
3	2,3,4,7,8-PeCDF	*	2.12e+02	*	*	8.84e+02	*
4	1,2,3,4,7,8-HxCDF	2.27e+03	2.44e+02	9.3e+00	1.59e+03	2.24e+02	7.1e+00
5	1,2,3,6,7,8-HxCDF	*	2.44e+02	*	*	2.24e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.44e+02	*	*	2.24e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.44e+02	*	*	2.24e+02	*
8	1,2,3,4,6,7,8-HpCDF	2.43e+03	2.16e+02	1.1e+01	3.64e+03	2.24e+02	1.6e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.16e+02	*	*	2.24e+02	*
10	OCDF	1.95e+03	2.08e+02	9.4e+00	3.33e+03	3.20e+02	1.0e+01
11	2,3,7,8-TCDD	*	9.68e+02	*	*	2.20e+02	*
12	1,2,3,7,8-PeCDD	*	2.88e+02	*	*	2.20e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.52e+02	*	*	2.56e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.52e+02	*	*	2.56e+02	*
15	1,2,3,7,8,9-HxCDD	2.33e+03	2.52e+02	9.2e+00	3.55e+03	2.56e+02	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	3.48e+04	2.48e+02	1.4e+02	3.21e+04	1.44e+02	2.2e+02
17	OCDD	3.27e+05	2.52e+02	1.3e+03	3.88e+05	2.68e+02	1.4e+03
18	13C-2,3,7,8-TCDF	7.74e+05	2.41e+03	3.2e+02	9.76e+05	7.40e+02	1.3e+03
19	13C-1,2,3,7,8-PeCDF	2.85e+06	1.40e+02	2.0e+04	1.78e+06	2.12e+02	8.4e+03
20	13C-2,3,4,7,8-PeCDF	2.87e+06	1.40e+02	2.1e+04	1.80e+06	2.12e+02	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.72e+06	4.00e+02	4.3e+03	3.31e+06	3.00e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	1.98e+06	4.00e+02	4.9e+03	3.74e+06	3.00e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.89e+06	4.00e+02	4.7e+03	3.66e+06	3.00e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.43e+06	4.00e+02	3.6e+03	2.89e+06	3.00e+02	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.23e+06	3.00e+03	4.1e+02	2.80e+06	4.31e+03	6.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	9.59e+05	3.00e+03	3.2e+02	2.15e+06	4.31e+03	5.0e+02
27	13C-2,3,7,8-TCDD	6.88e+05	2.59e+03	2.7e+02	8.30e+05	1.22e+03	6.8e+02
28	13C-1,2,3,7,8-PeCDD	2.13e+06	2.24e+02	9.5e+03	1.35e+06	1.80e+02	7.5e+03
29	13C-1,2,3,4,7,8-HxCDD	2.75e+06	1.10e+03	2.5e+03	2.10e+06	5.12e+02	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	2.53e+06	1.10e+03	2.3e+03	2.04e+06	5.12e+02	4.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.19e+06	2.12e+02	1.0e+04	2.04e+06	2.96e+02	6.9e+03
32	13C-OCDD	1.11e+06	3.68e+02	3.0e+03	1.23e+06	2.16e+02	5.7e+03
33	13C-1,2,3,4-TCDD	2.85e+06	2.59e+03	1.1e+03	3.61e+06	1.22e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	4.96e+06	1.10e+03	4.5e+03	4.03e+06	5.12e+02	7.9e+03
35	37Cl-2,3,7,8-TCDD	7.88e+05	9.20e+02	8.6e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0529

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P518905 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 10:01:55 Processed: 21-NOV-18 12:44:57

Mass: 373.8210 375.8180 Tot Response: 1.89e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:29	1.11e+01	7.79e+00 1.43	yes	1.89e+01	1,2,3,4,7,8-HxCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0529

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P518905 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 10:01:55 Processed: 21-NOV-18 12:44:57

Mass: 423.7770 425.7740 Tot Response: 1.46e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	5.09e+02	5.62e+02	0.91	yes	1.07e+03		n	n
2	38:10	2.07e+02	1.86e+02	1.11	yes	3.93e+02	1,2,3,4,6,7,8-HpCDD	n	n

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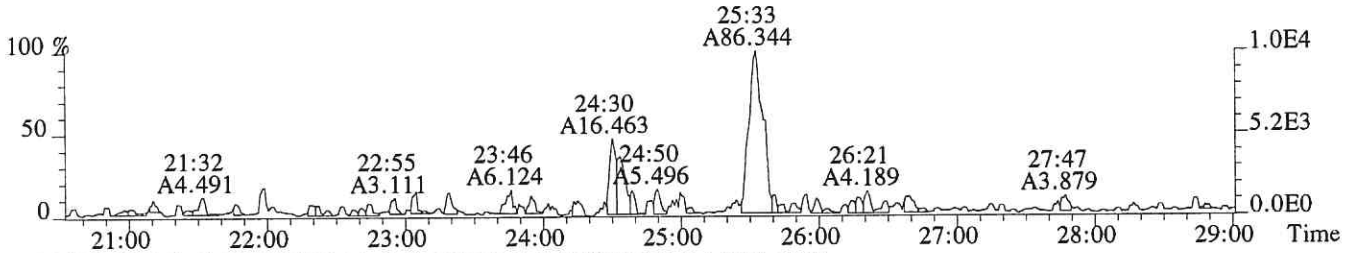
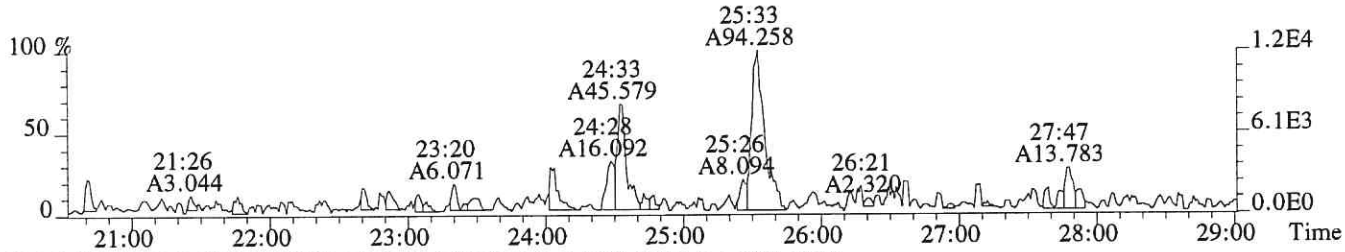
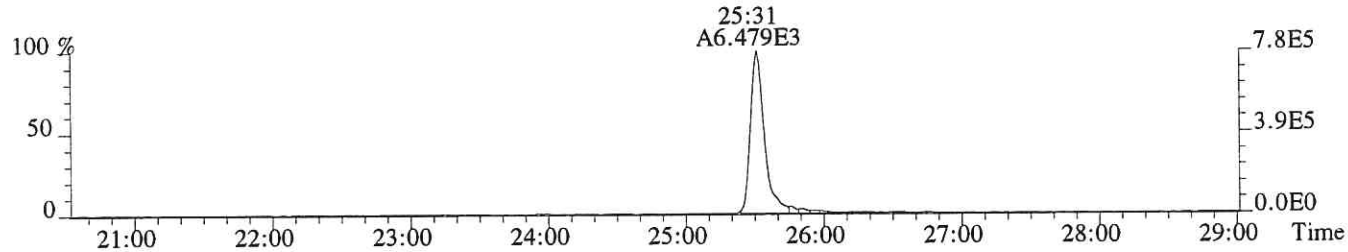
File:P518905 #1-602 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



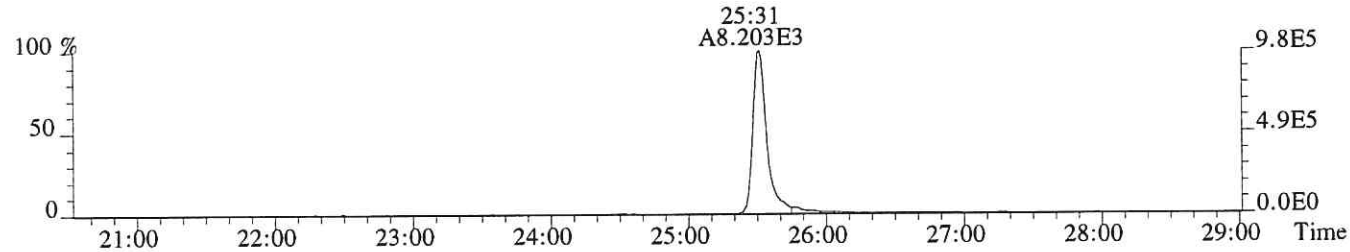
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



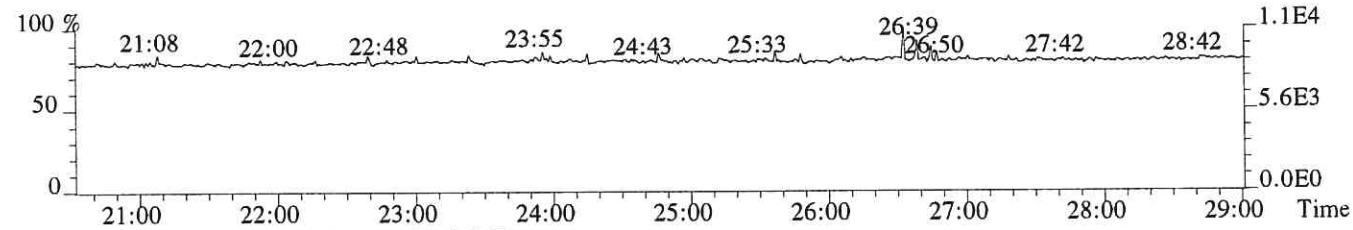
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2412.0,1.00%,F,T)



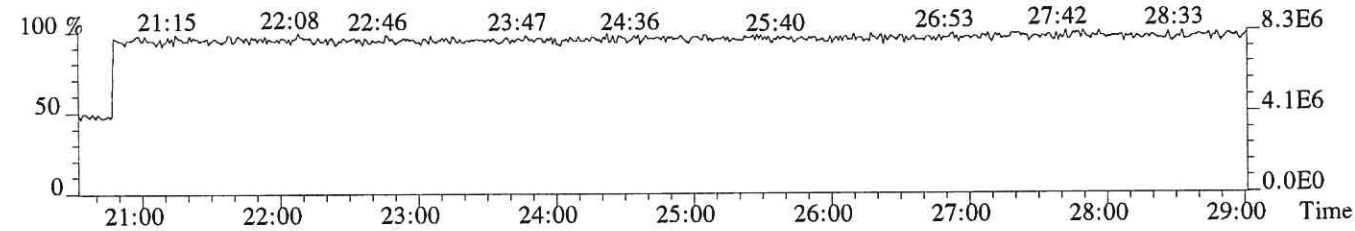
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



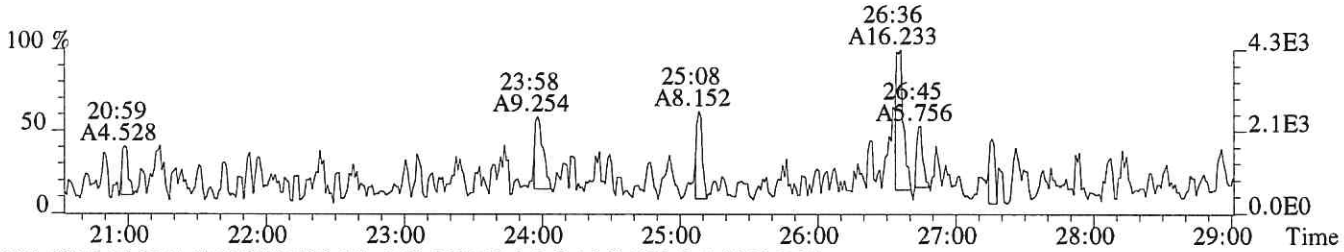
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



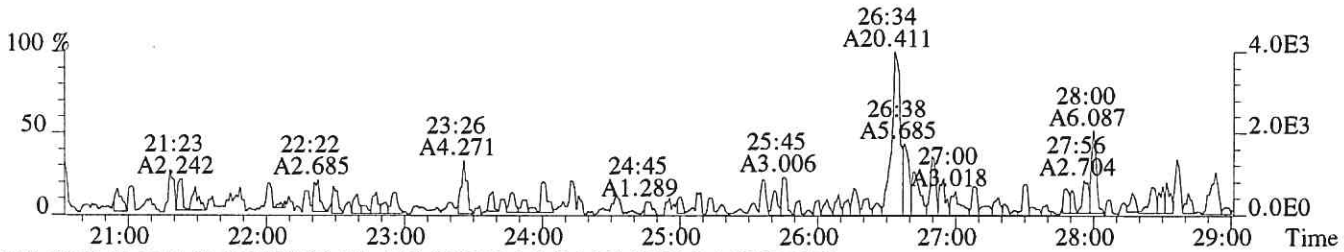
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



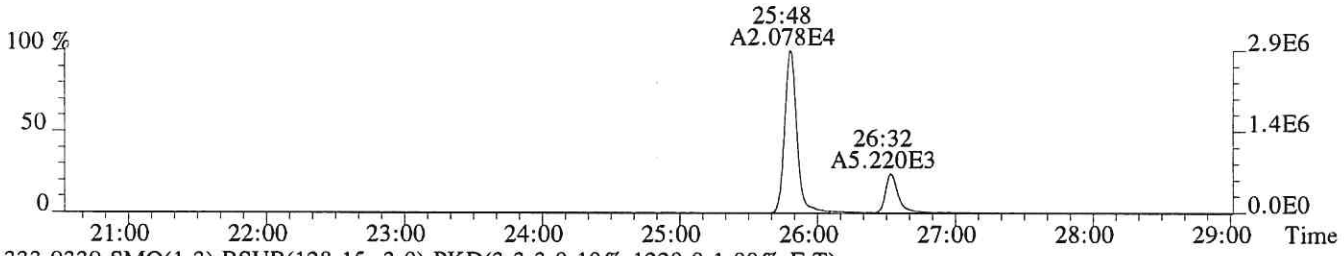
File:P518905 #1-602 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



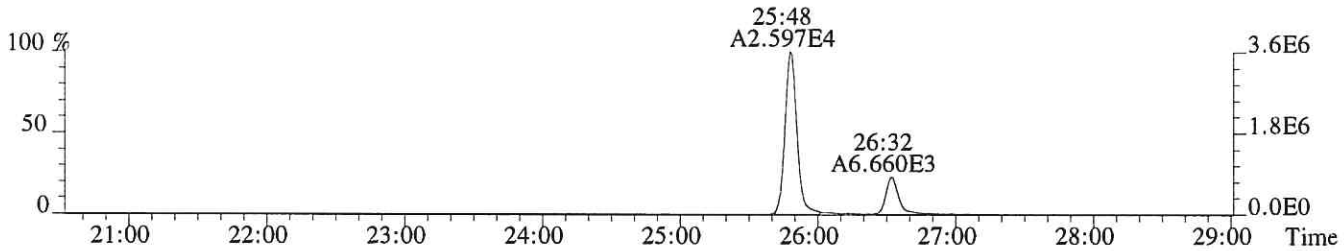
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



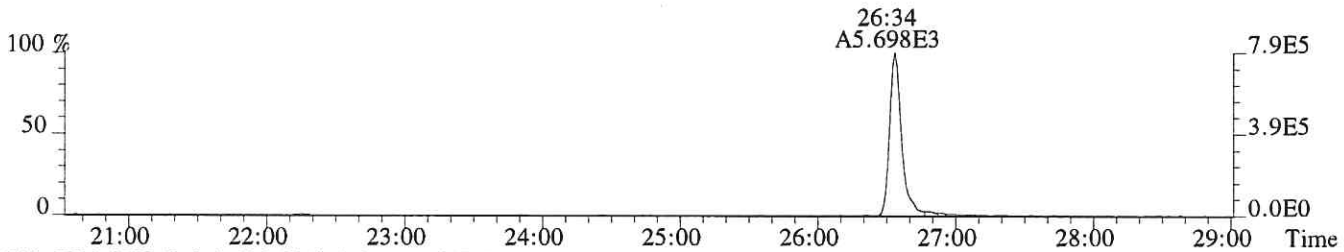
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



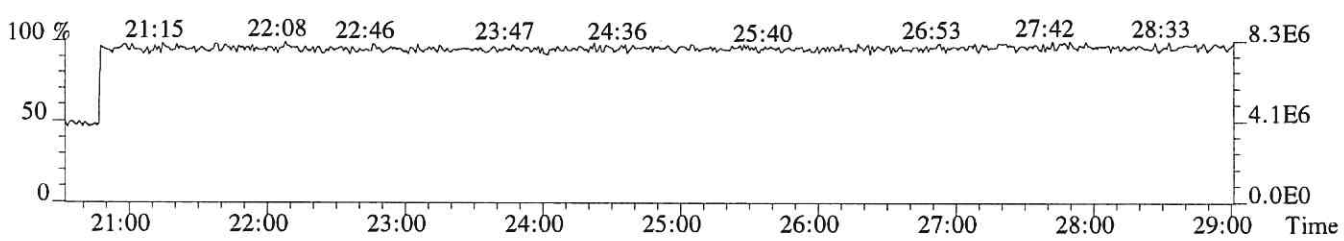
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



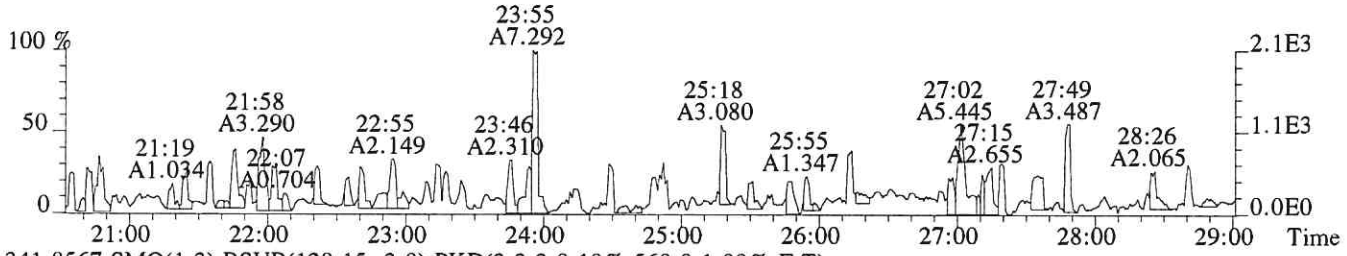
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



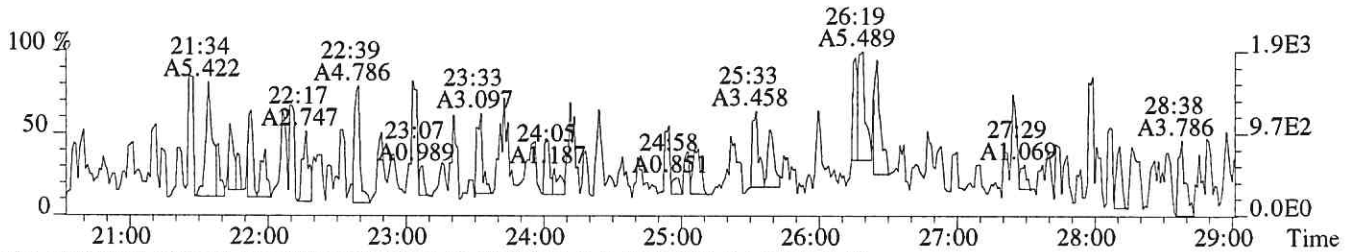
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



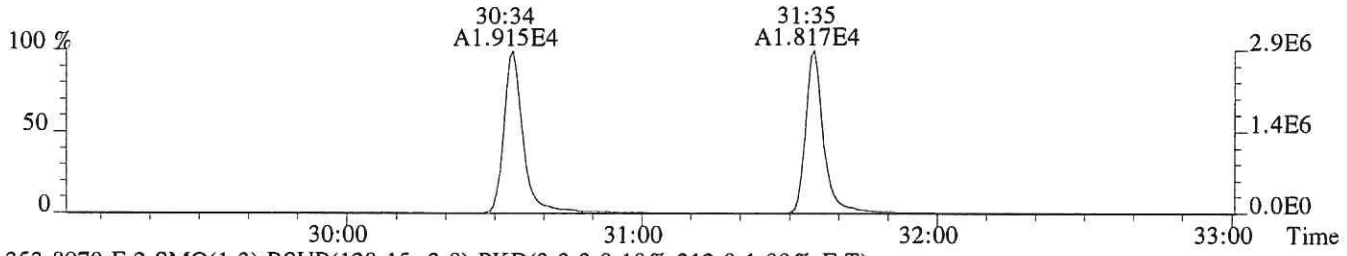
File:P518905 #1-602 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



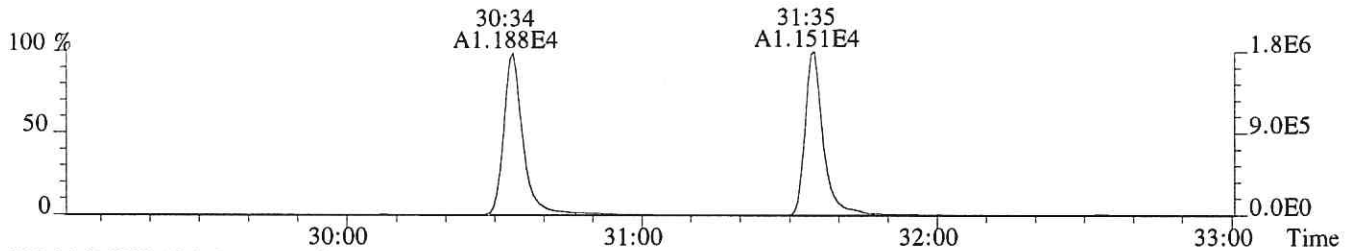
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



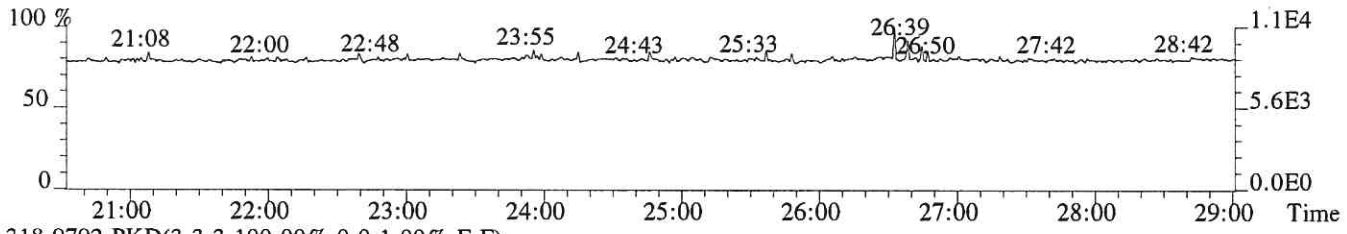
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,140.0,1.00%,F,T)



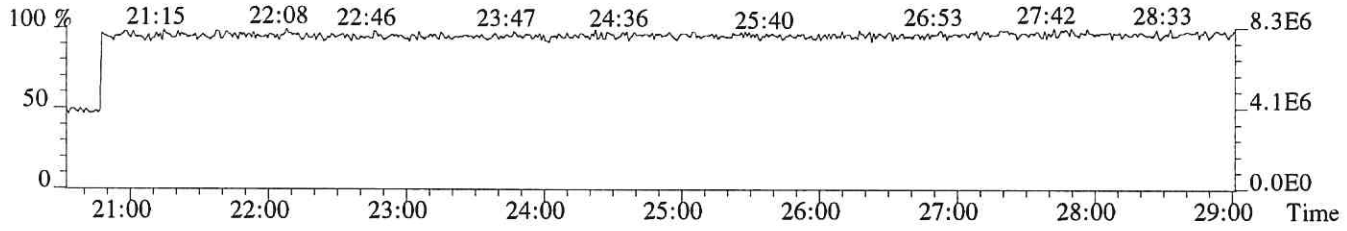
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



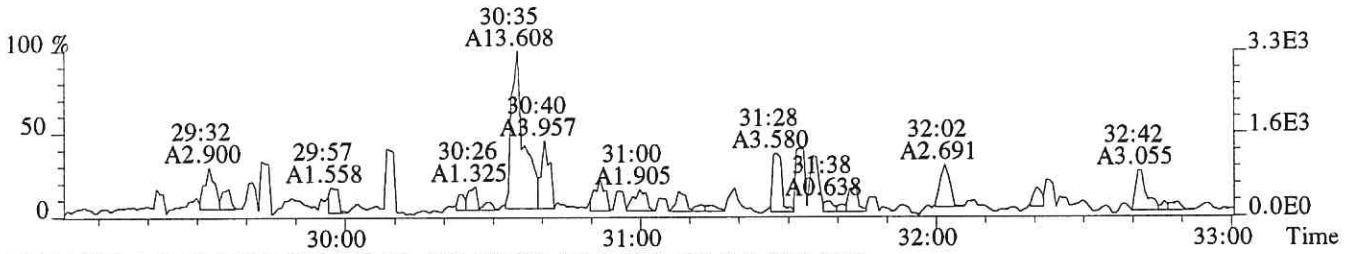
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



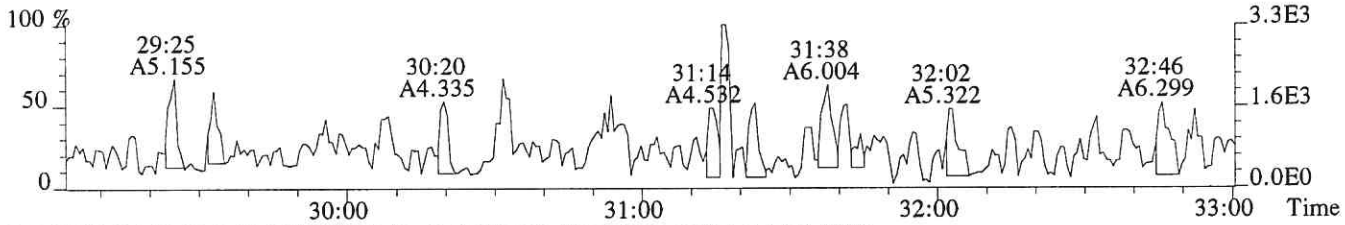
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



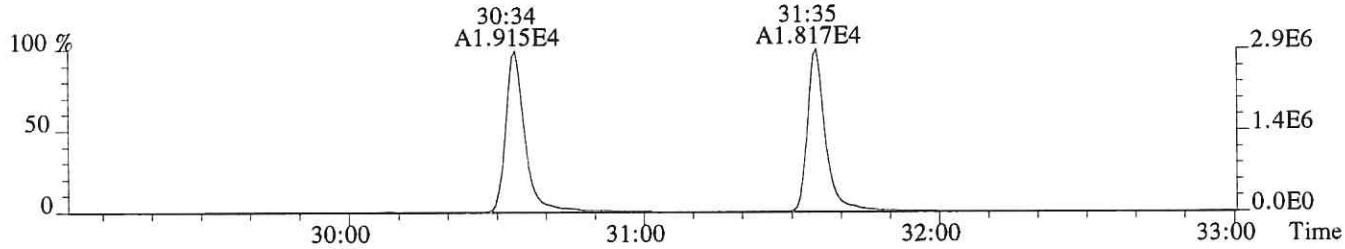
File:P518905 #1-357 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



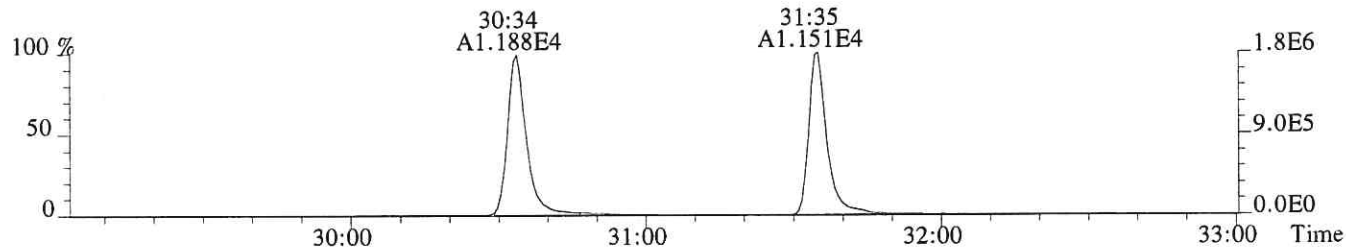
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



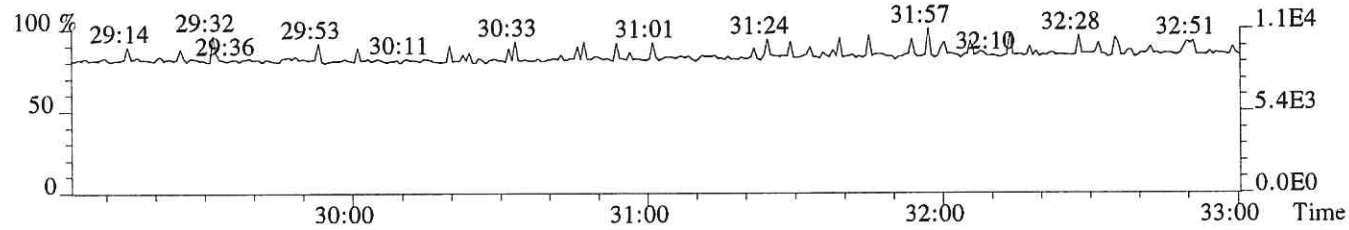
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,140.0,1.00%,F,T)



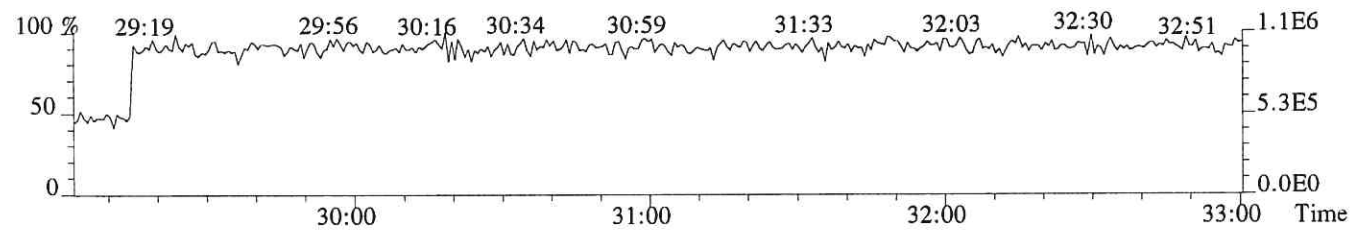
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



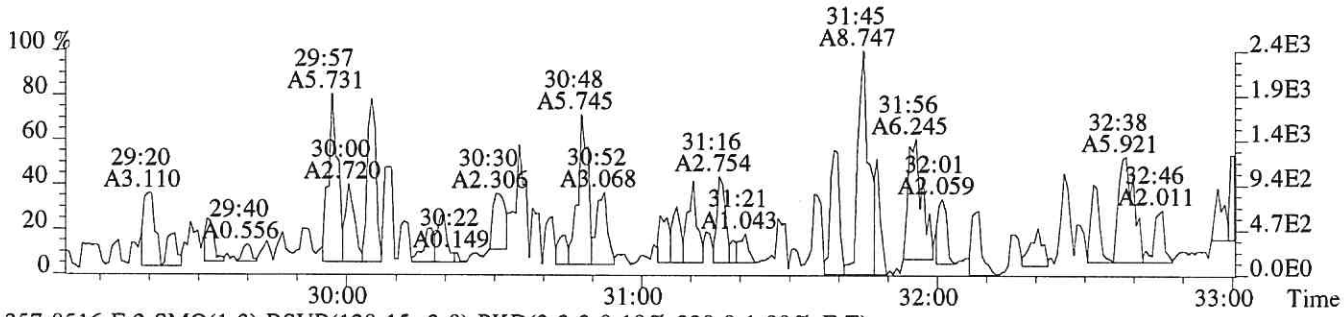
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



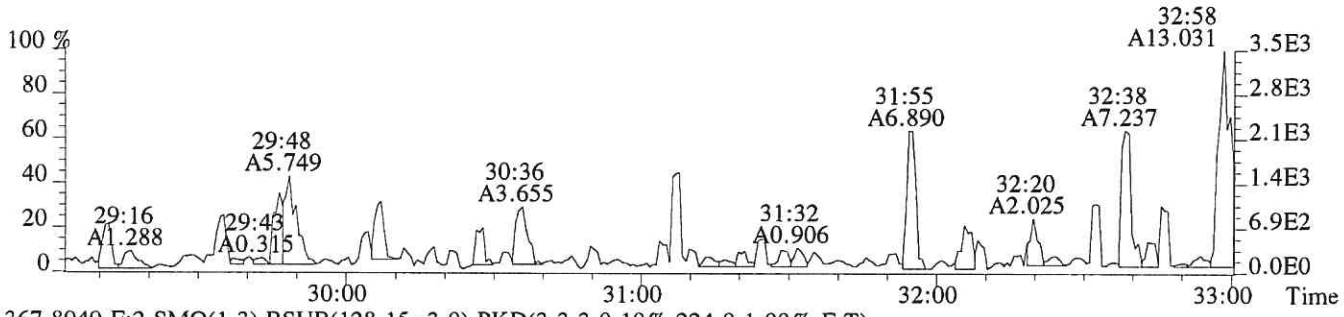
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



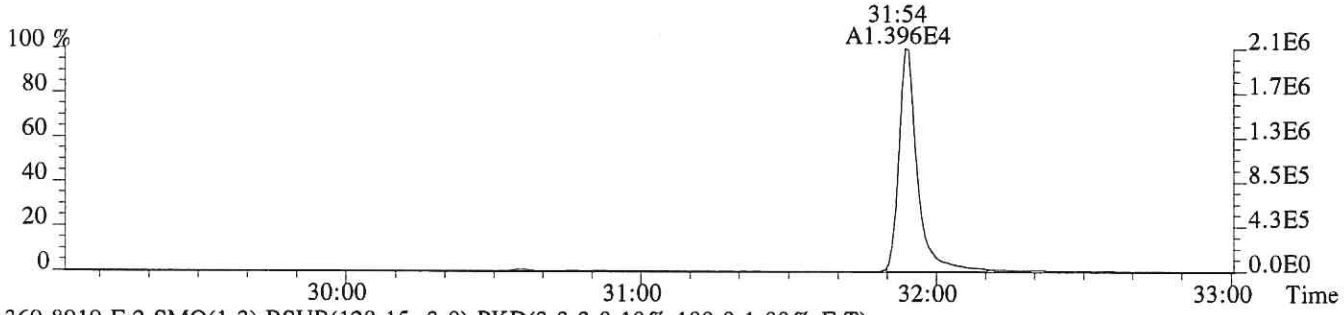
File:P518905 #1-357 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



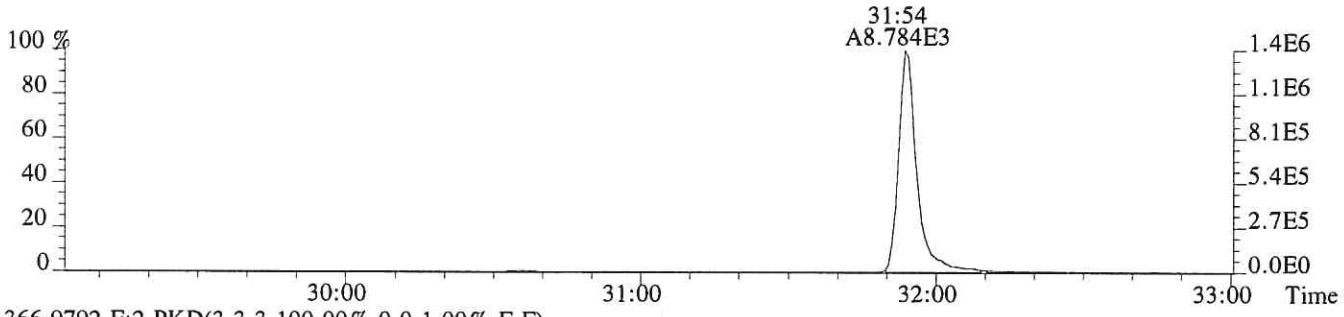
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



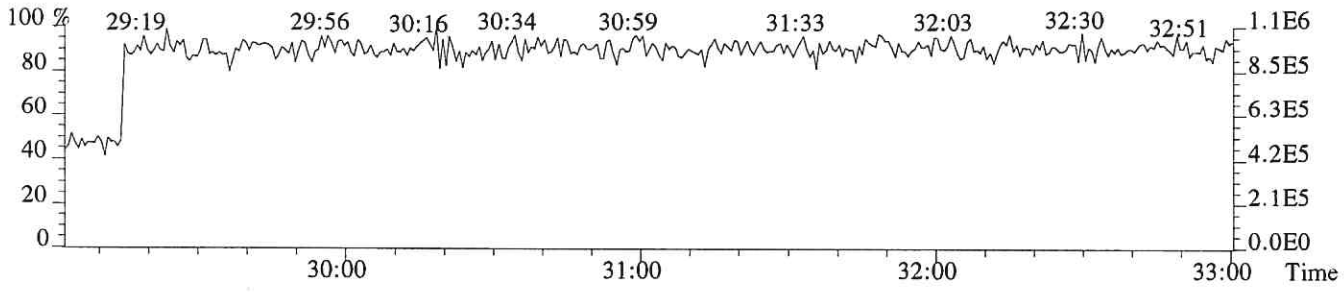
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



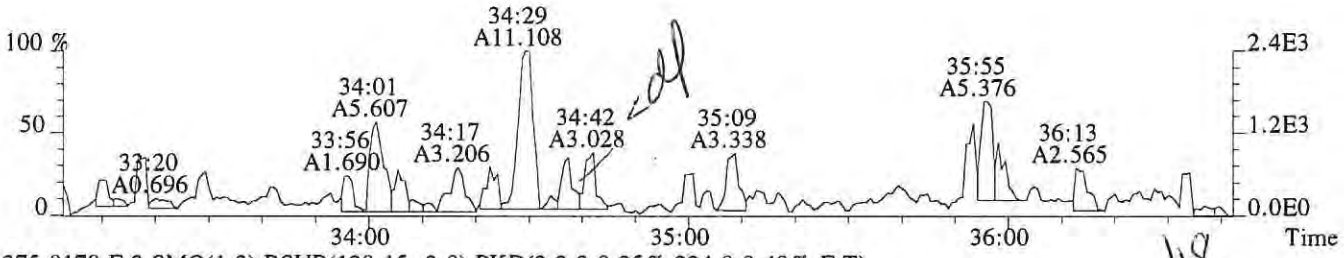
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



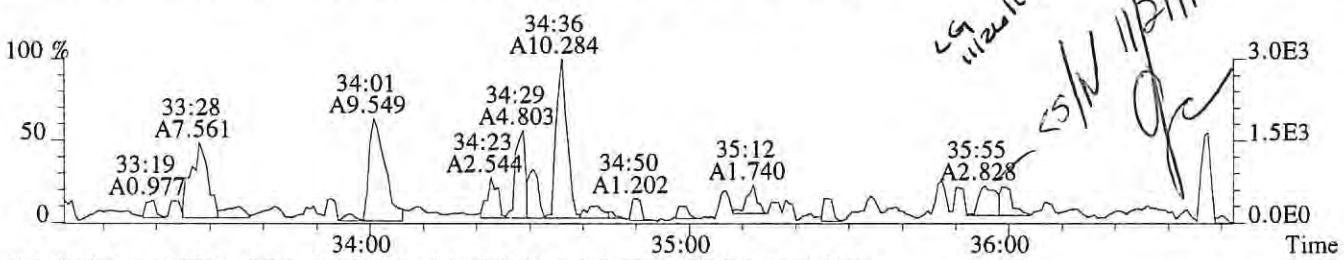
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



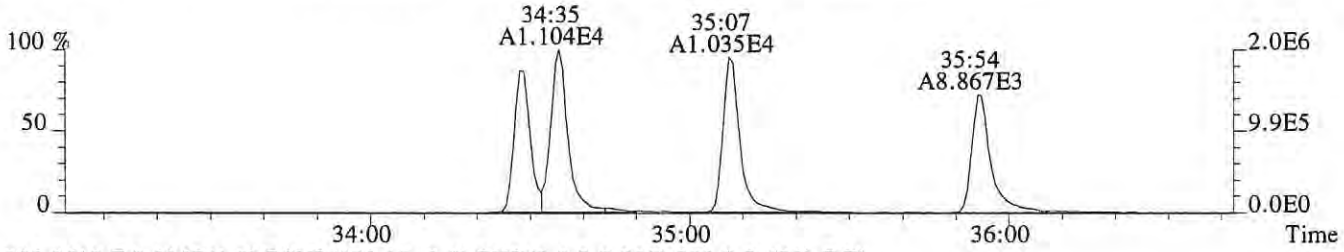
File:P518905 #1-330 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801038-011
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



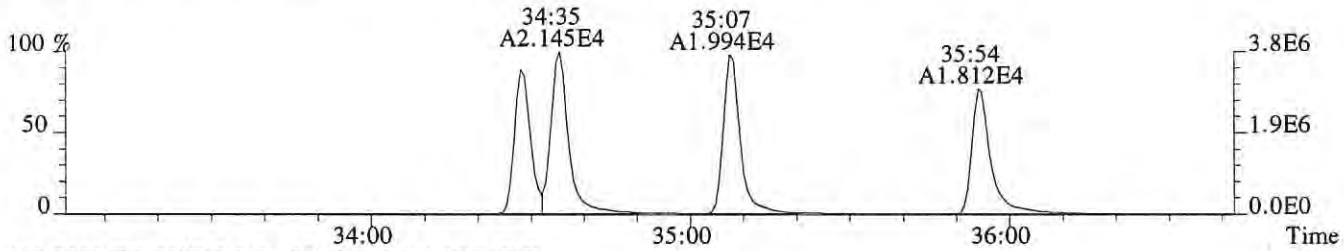
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



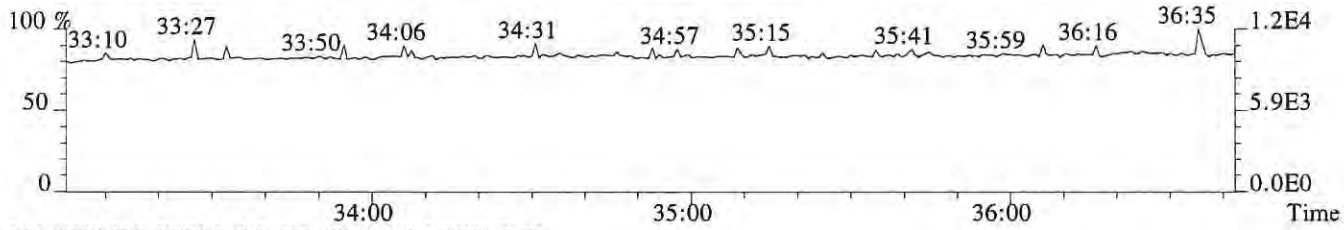
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



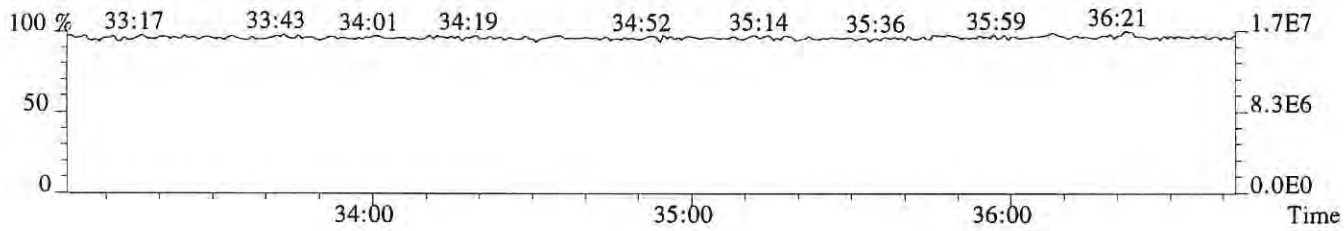
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



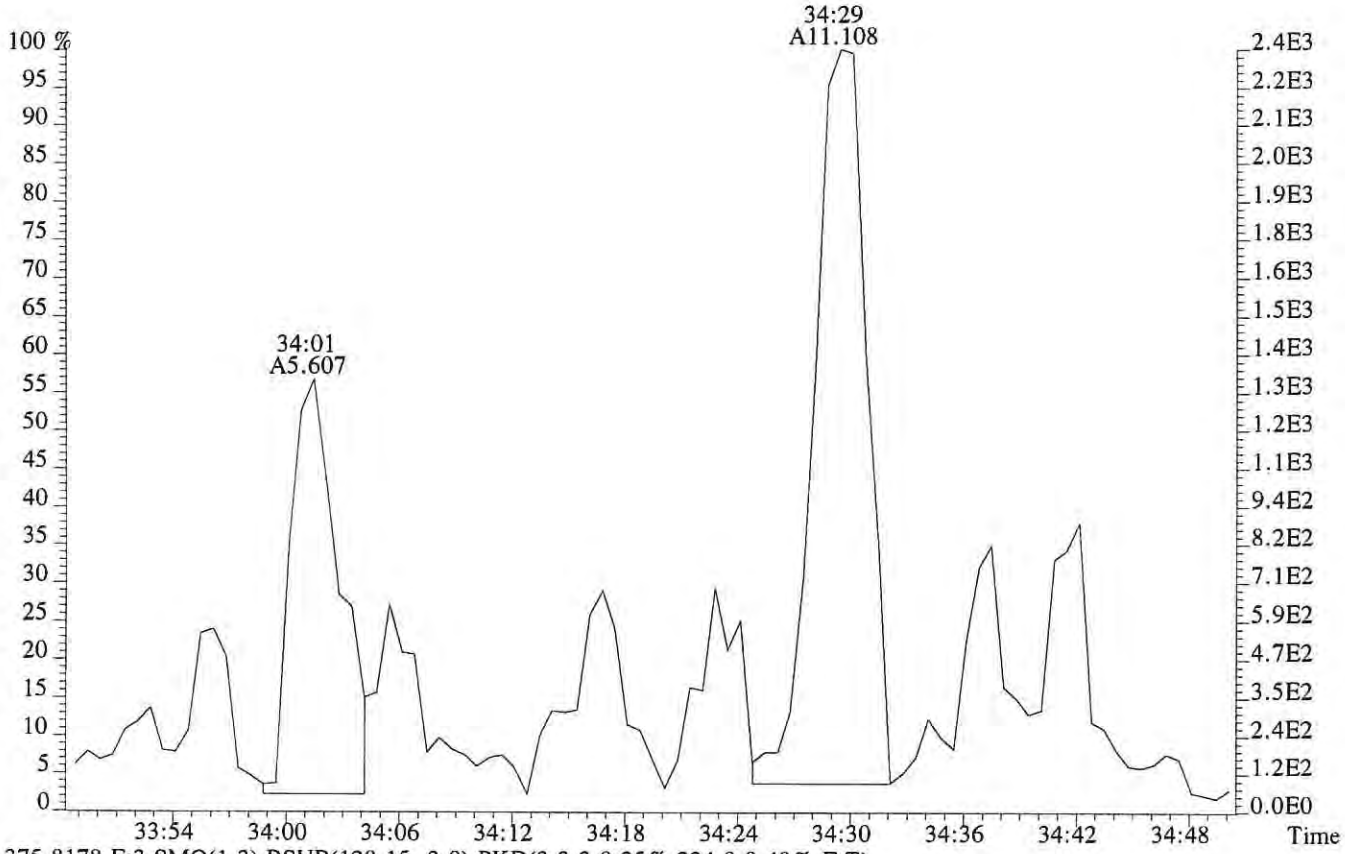
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



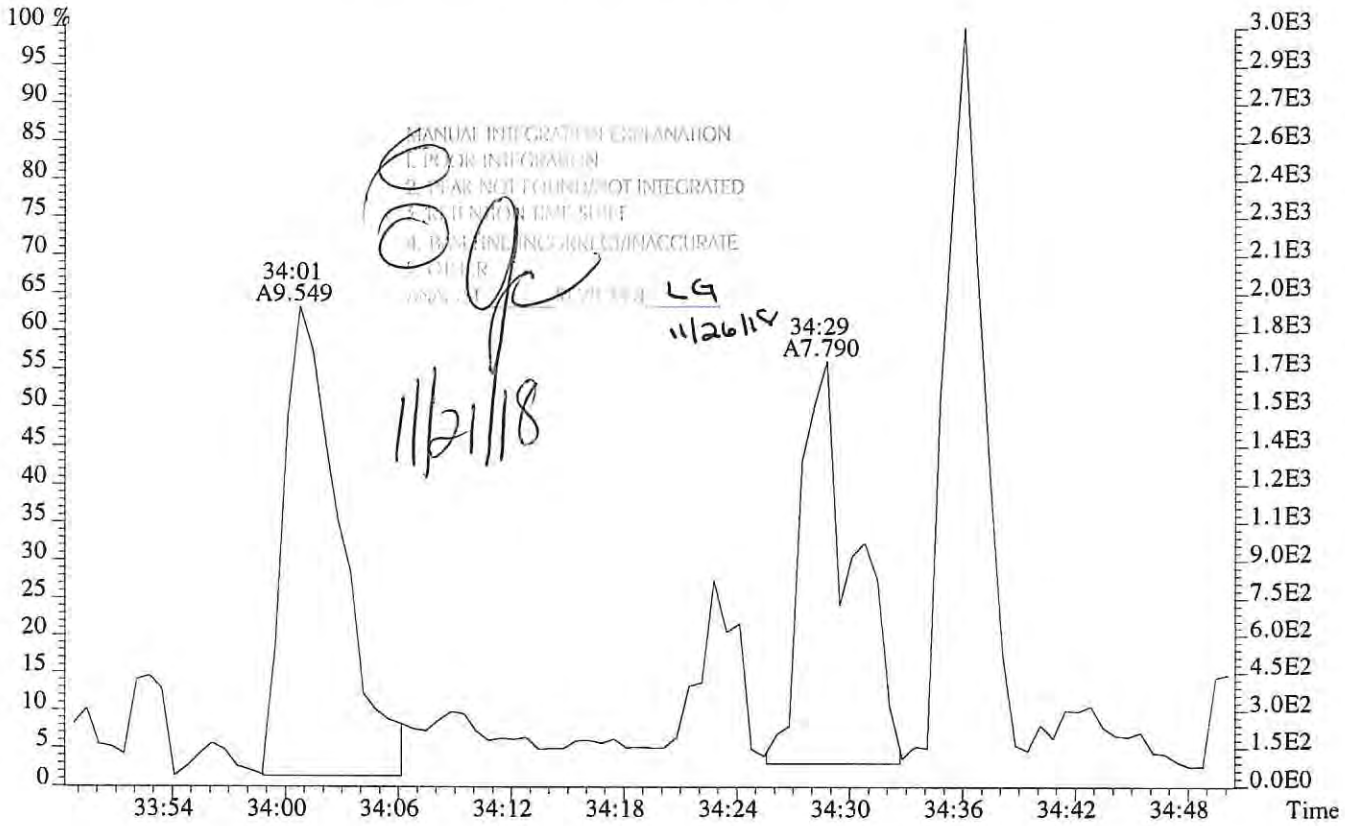
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



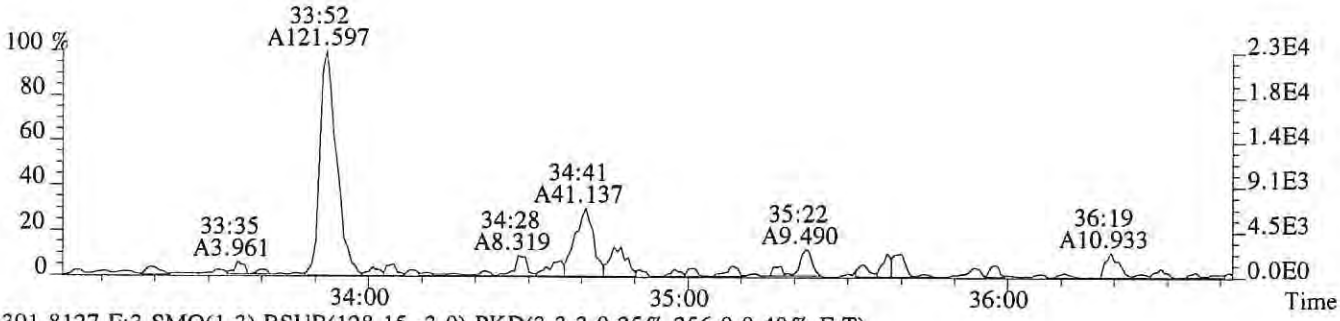
File:P518905 #1-330 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



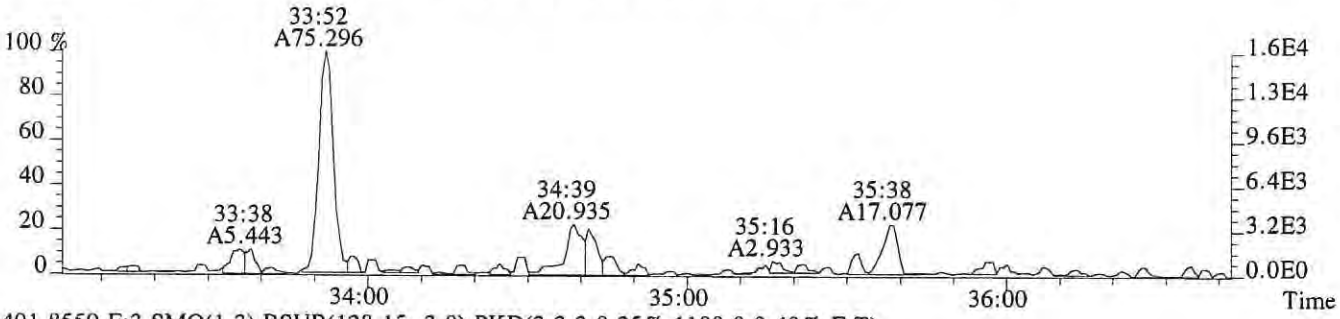
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



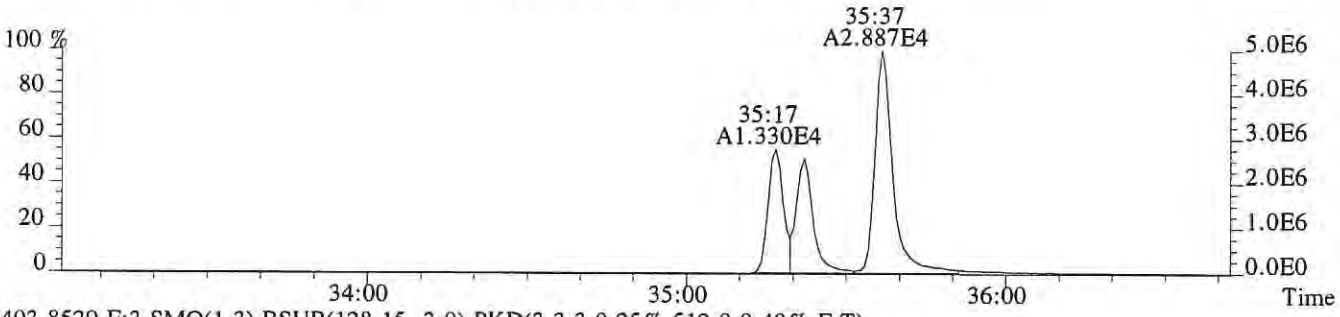
File:P518905 #1-330 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



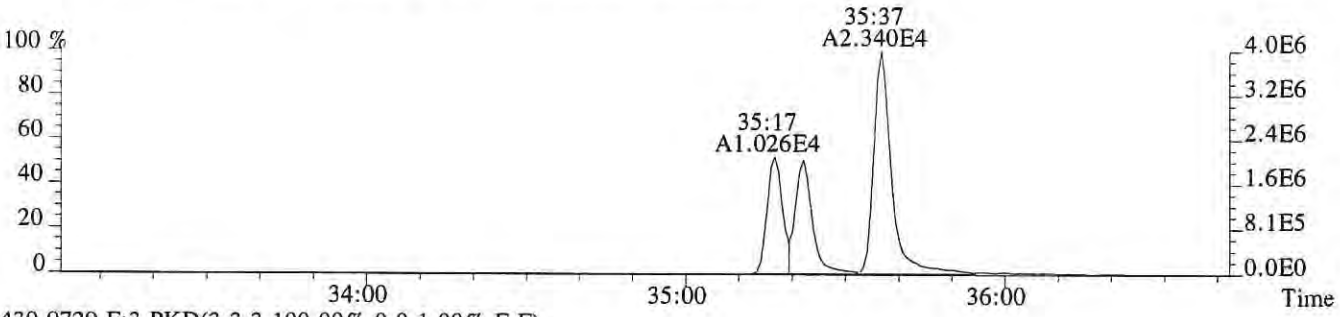
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



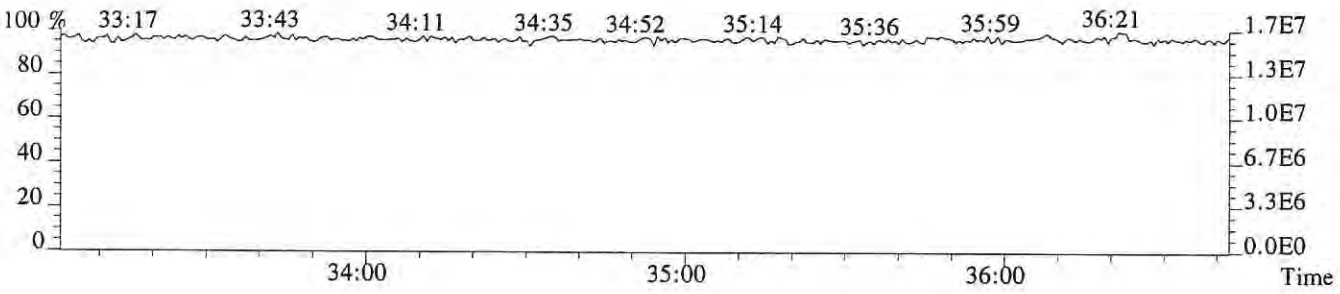
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



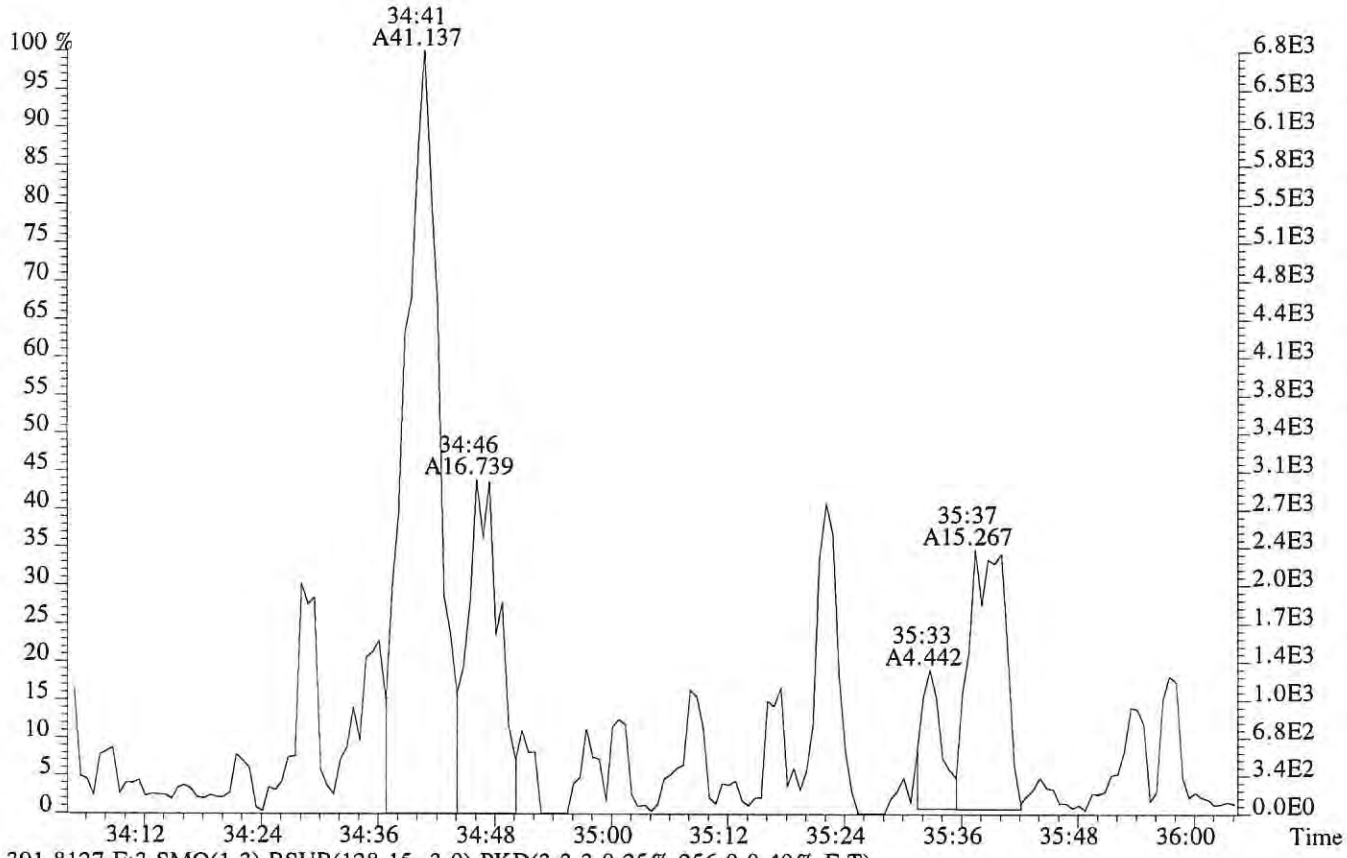
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



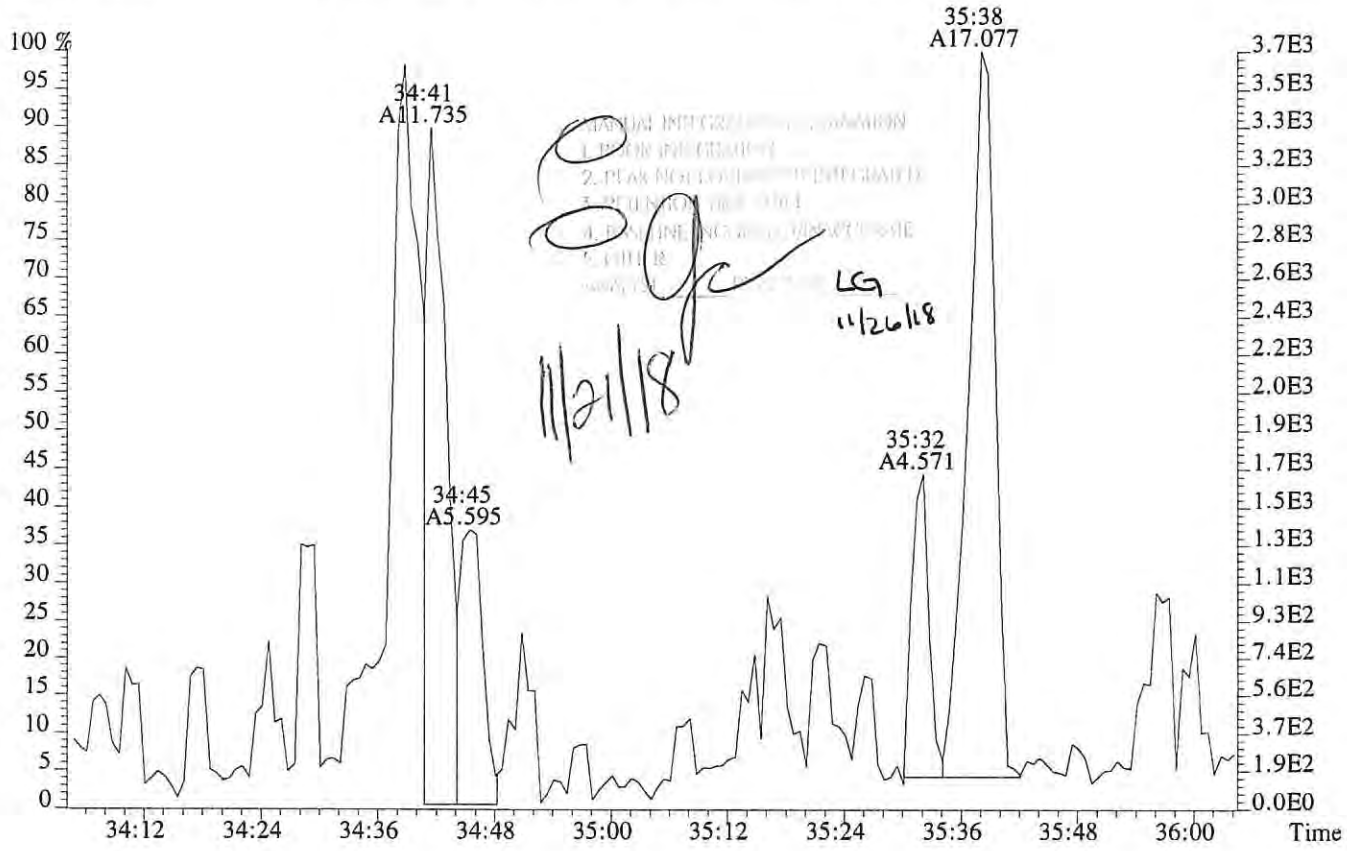
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518905 #1-330 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)

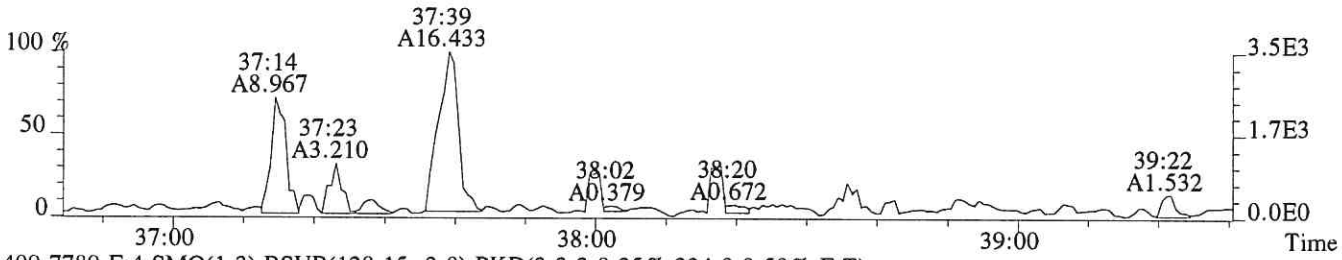


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)

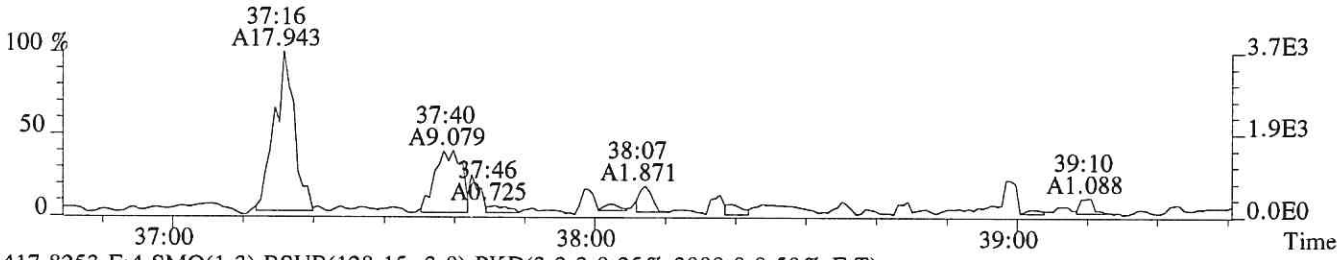


LG
11/26/18
11/21/18

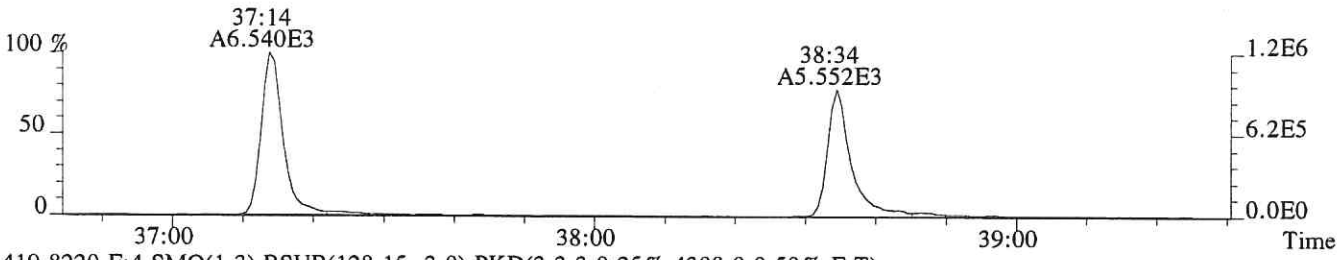
File:P518905 #1-250 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



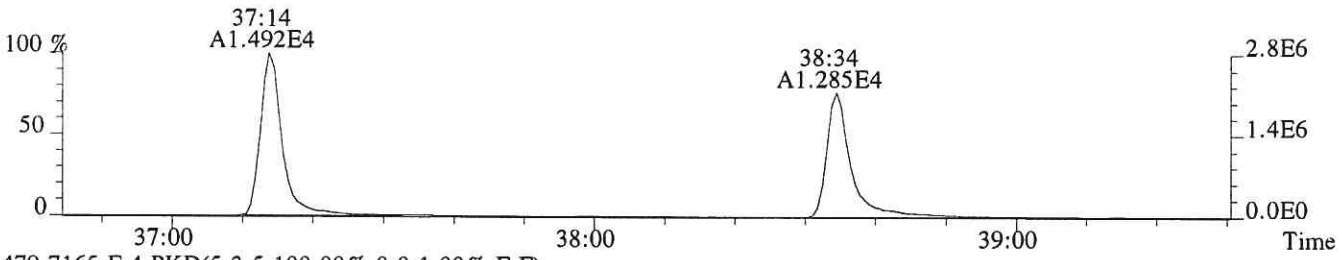
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.50%,F,T)



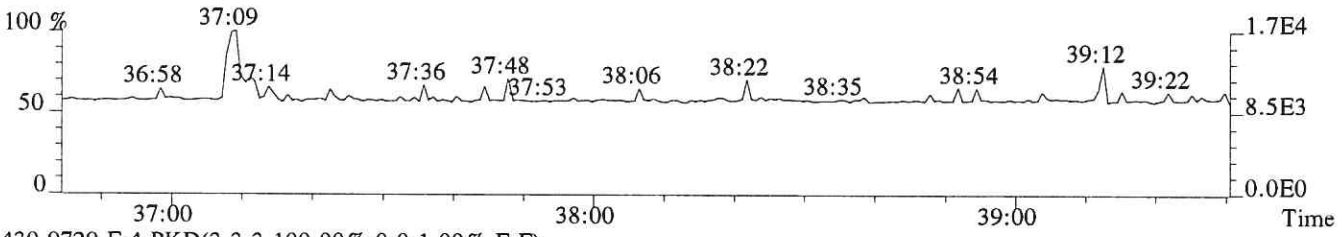
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3000.0,0.50%,F,T)



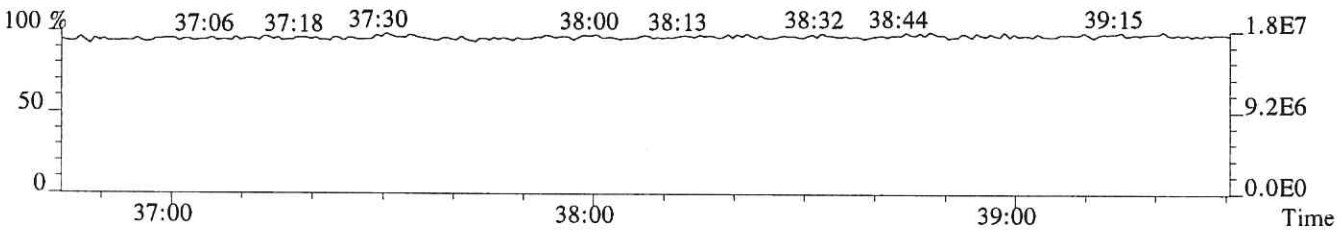
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4308.0,0.50%,F,T)



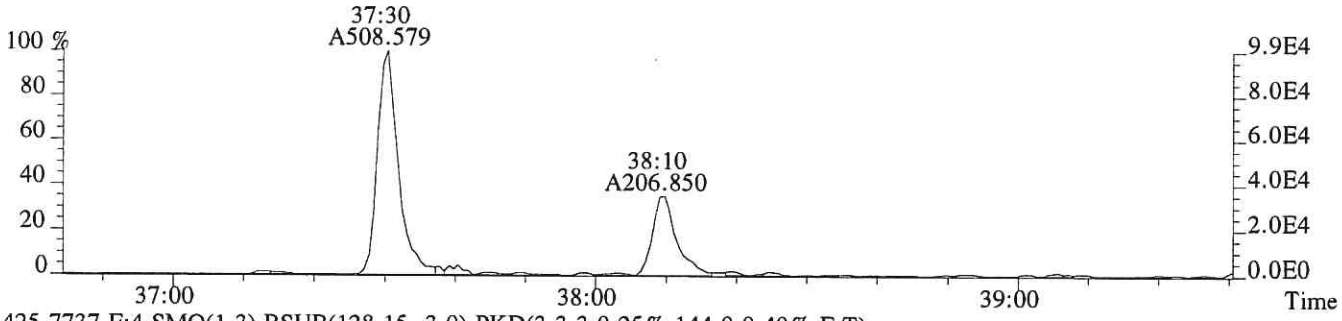
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



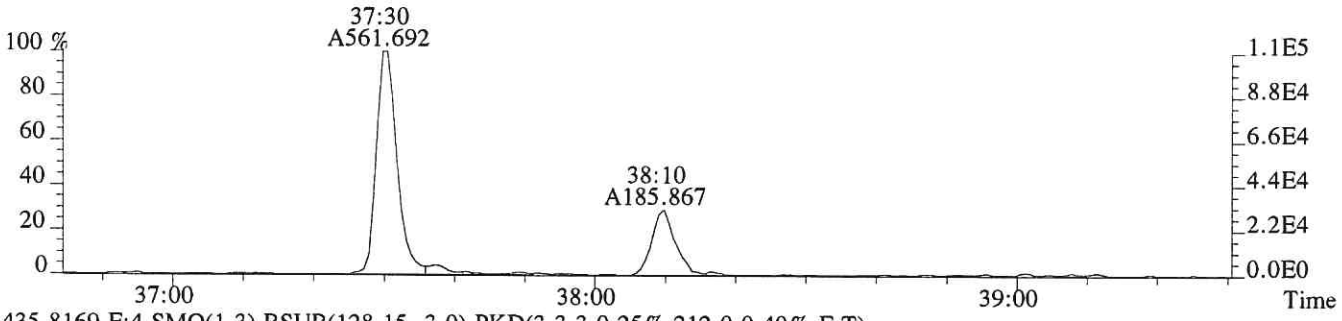
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



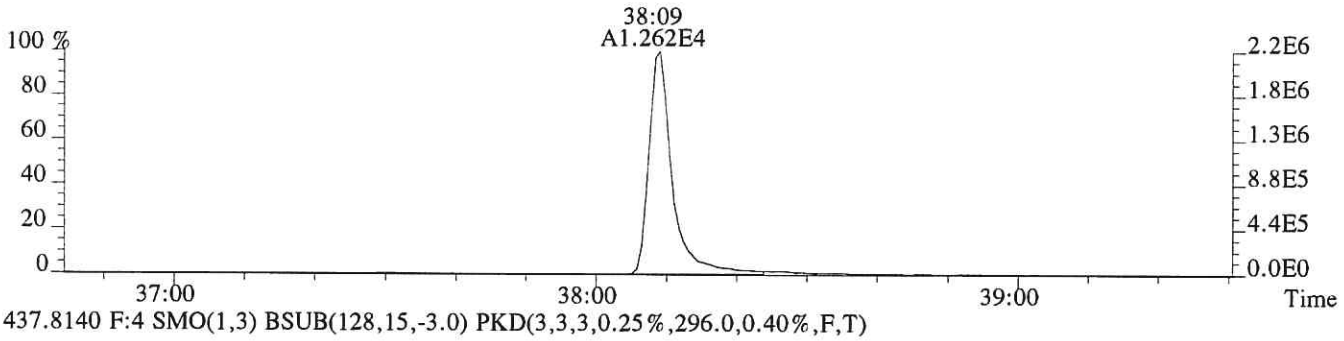
File:P518905 #1-250 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



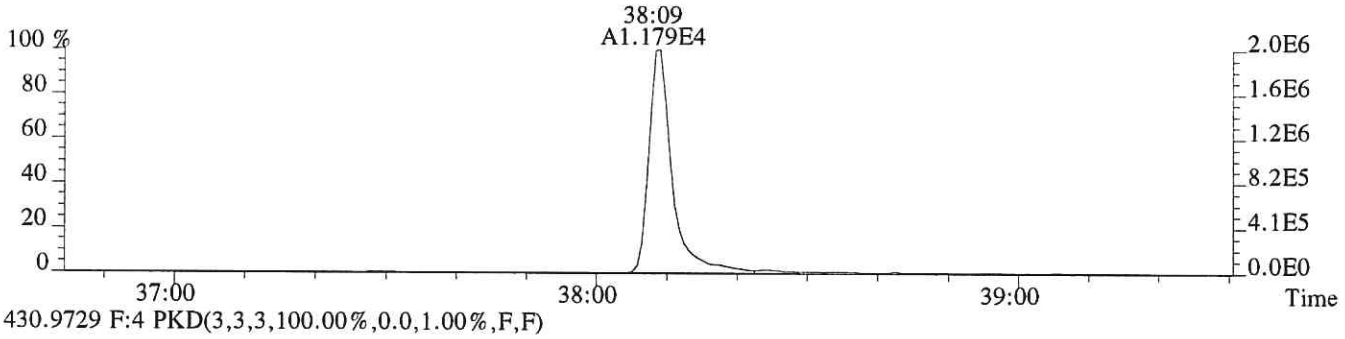
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,144.0,0.40%,F,T)



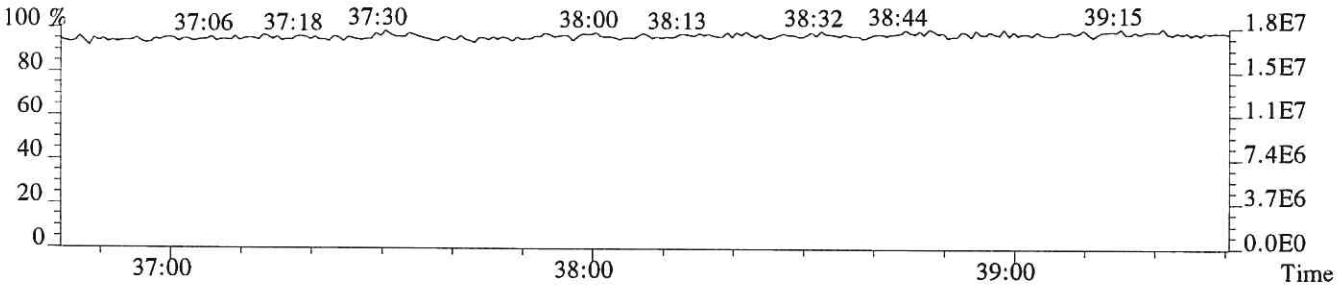
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



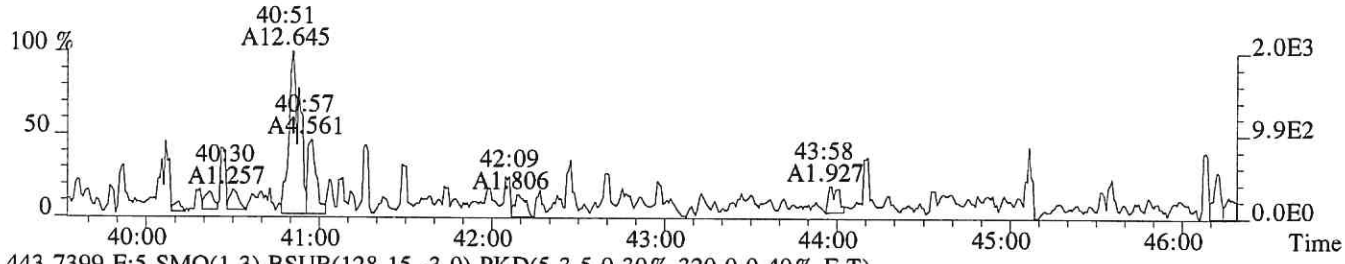
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



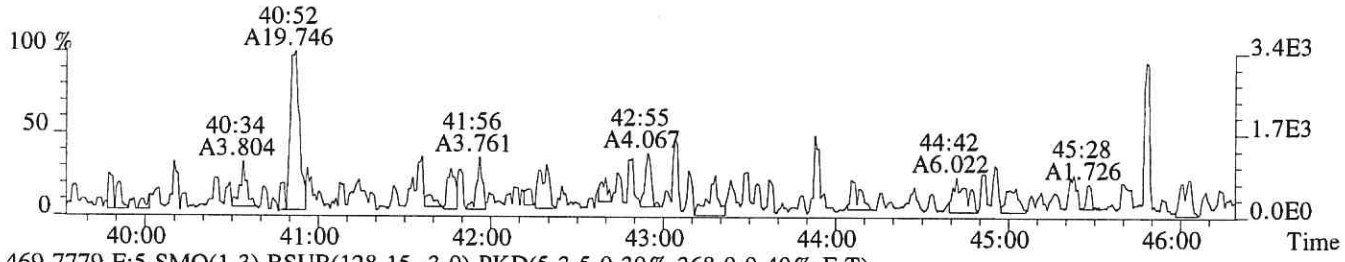
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



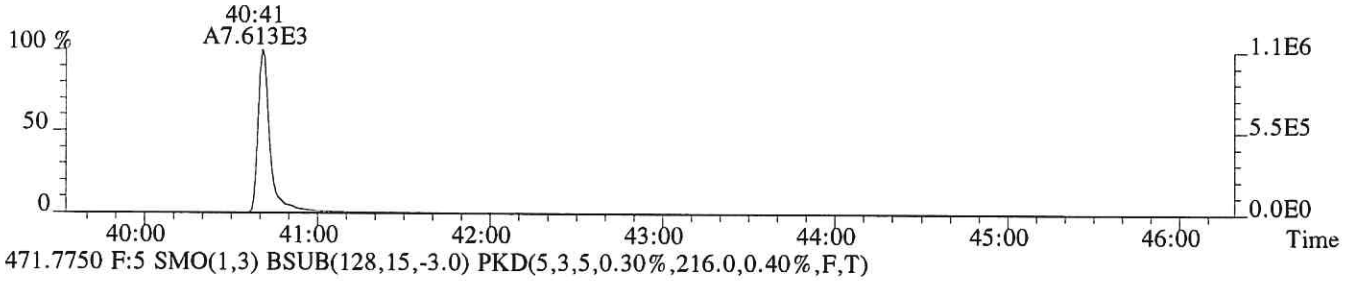
File:P518905 #1-610 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



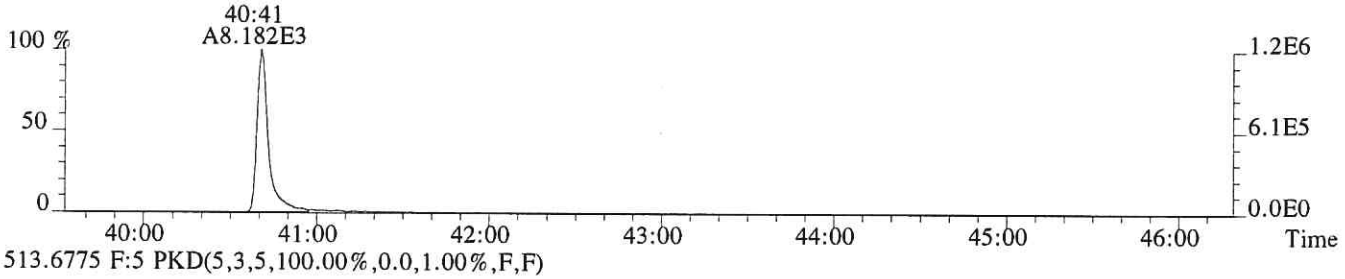
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



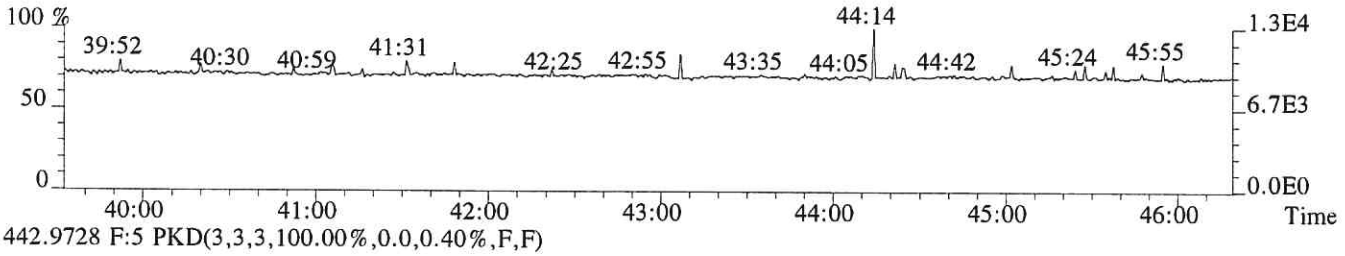
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



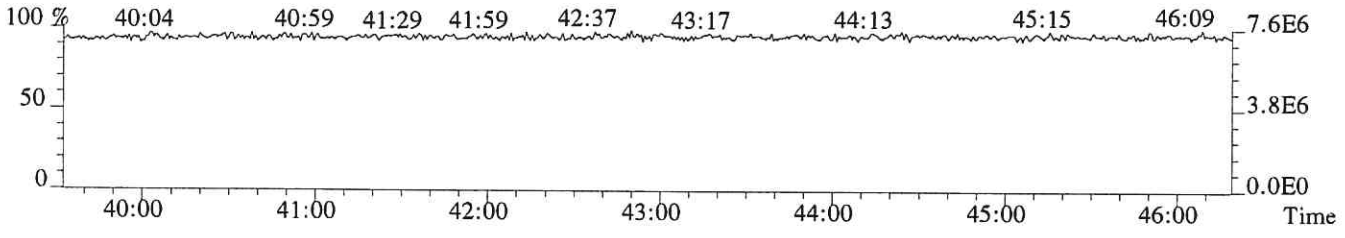
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



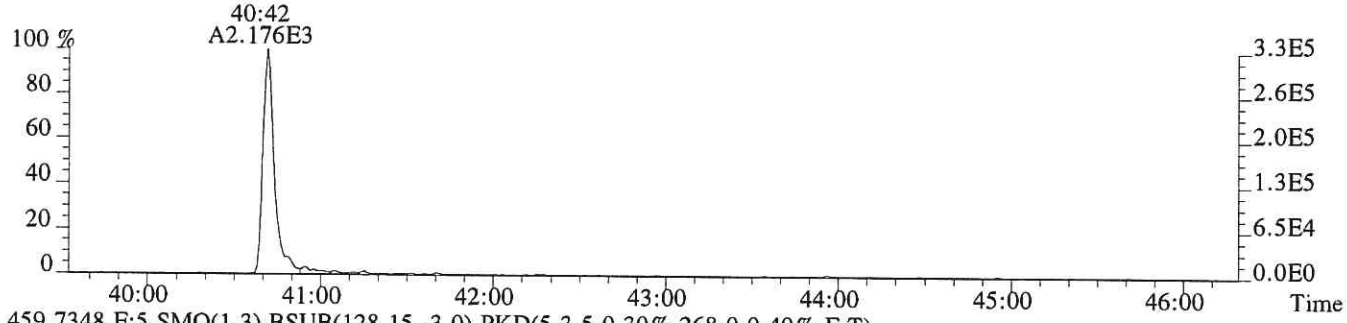
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



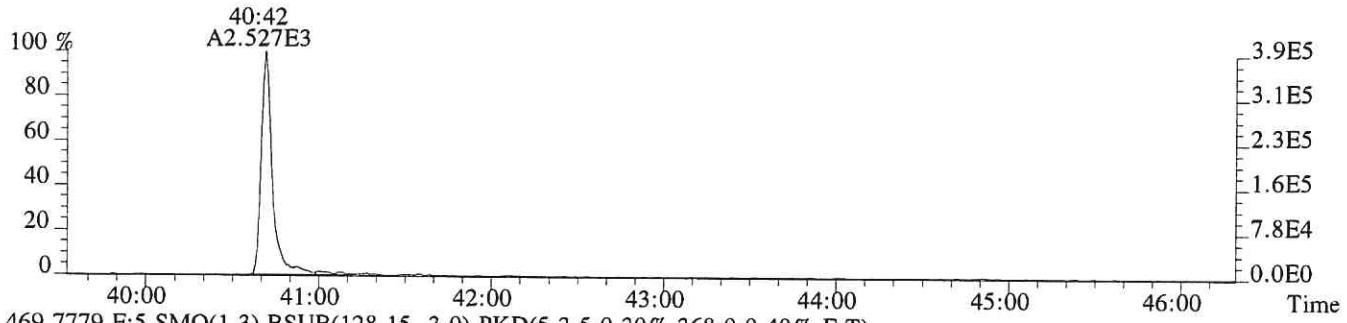
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



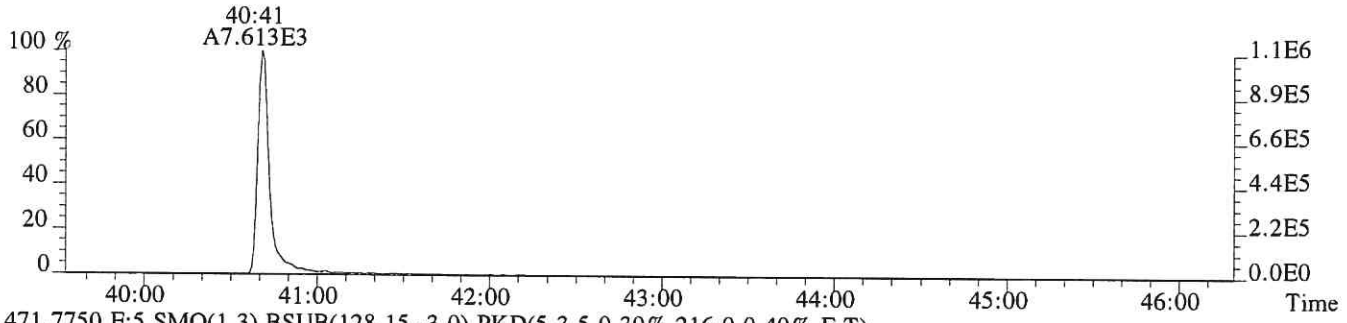
File:P518905 #1-610 Acq:18-NOV-2018 10:01:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



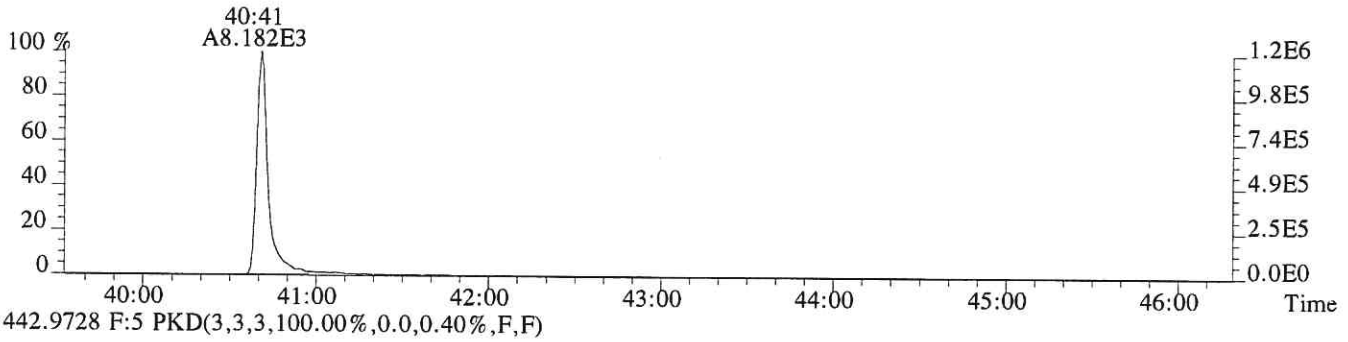
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



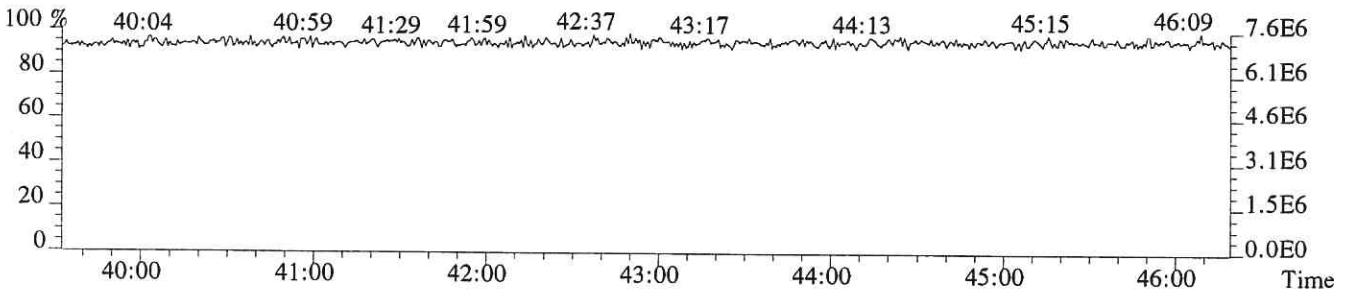
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0530

Run #18 Filename P518906 Samp: 1 Inj: 1 Acquired: 18-NOV-18 10:50:34
Processed: 21-NOV-18 12:44:58 Sample ID: E1801038-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:32	6.928e+01	8.165e+01	0.85	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:28	1.235e+01	7.961e+00	1.55	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.269e+01	2.444e+01	0.52	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	1.100e+01	2.917e+01	0.38	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:33	2.224e+01	3.280e+01	0.68	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	3.515e+01	8.004e+00	4.39	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:08	2.415e+02	2.364e+02	1.02	yes	no	1.025
17	Unk	OCDD	40:42	3.701e+03	4.344e+03	0.85	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:29	1.161e+04	1.446e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:33	2.343e+04	1.496e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	2.342e+04	1.478e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:27	1.124e+04	2.211e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.380e+04	2.657e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.271e+04	2.466e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:53	1.068e+04	2.044e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	8.980e+03	2.000e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.011e+03	1.630e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:31	7.710e+03	9.911e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:53	1.730e+04	1.067e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.660e+04	1.252e+04	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.701e+04	1.336e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.588e+04	1.552e+04	1.02	yes	no	0.858
32	IS	13C-OCDD	40:40	1.124e+04	1.243e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:47	1.957e+04	2.451e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	2.942e+04	2.342e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:33	8.886e+03				no	1.014

$$\text{OCDD} = \frac{(3.701e+03 + 4.344e+03) \times 4000 \text{ pg} \times 1}{(1.124e+04 + 1.243e+04) \times 10.493 \text{ g} \times 82.1 / 100 \times 1.118} = 141.1572 \text{ ng/kg}$$

LG 11/26/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0530

Run #18 Filename P518906 Samp: 1 Inj: 1 Acquired: 18-NOV-18 10:50:34
Processed: 21-NOV-18 12:44:58 LAB. ID: E1801038-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.73e+03	6.84e+02	1.4e+01	1.21e+04	1.08e+03	1.1e+01
2	1,2,3,7,8-PeCDF	*	3.40e+02	*	*	1.03e+03	*
3	2,3,4,7,8-PeCDF	*	3.40e+02	*	*	1.03e+03	*
4	1,2,3,4,7,8-HxCDF	3.14e+03	2.92e+02	1.1e+01	1.63e+03	1.92e+02	8.5e+00
5	1,2,3,6,7,8-HxCDF	*	2.92e+02	*	*	1.92e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.92e+02	*	*	1.92e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.92e+02	*	*	1.92e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.52e+03	2.40e+02	1.5e+01	6.11e+03	1.88e+02	3.2e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.40e+02	*	*	1.88e+02	*
10	OCDF	1.97e+03	2.12e+02	9.3e+00	5.63e+03	3.16e+02	1.8e+01
11	2,3,7,8-TCDD	4.97e+03	1.23e+03	4.1e+00	5.85e+03	3.08e+02	1.9e+01
12	1,2,3,7,8-PeCDD	*	8.28e+02	*	*	2.24e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.44e+02	*	*	5.68e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.44e+02	*	*	5.68e+02	*
15	1,2,3,7,8,9-HxCDD	8.01e+03	2.44e+02	3.3e+01	2.32e+03	5.68e+02	4.1e+00
16	1,2,3,4,6,7,8-HpCDD	4.70e+04	3.52e+02	1.3e+02	4.78e+04	1.44e+03	3.3e+01
17	OCDD	6.01e+05	1.24e+02	4.8e+03	6.87e+05	2.28e+02	3.0e+03
18	13C-2,3,7,8-TCDF	1.45e+06	1.78e+03	8.1e+02	1.86e+06	1.01e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	3.61e+06	6.72e+02	5.4e+03	2.29e+06	5.80e+02	3.9e+03
20	13C-2,3,4,7,8-PeCDF	3.93e+06	6.72e+02	5.8e+03	2.44e+06	5.80e+02	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.21e+06	6.92e+02	3.2e+03	4.36e+06	2.56e+02	1.7e+04
22	13C-1,2,3,6,7,8-HxCDF	2.55e+06	6.92e+02	3.7e+03	4.93e+06	2.56e+02	1.9e+04
23	13C-2,3,4,6,7,8-HxCDF	2.40e+06	6.92e+02	3.5e+03	4.71e+06	2.56e+02	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	1.84e+06	6.92e+02	2.7e+03	3.58e+06	2.56e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.83e+06	1.62e+03	1.1e+03	4.09e+06	3.26e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.34e+06	1.62e+03	8.3e+02	3.00e+06	3.26e+03	9.2e+02
27	13C-2,3,7,8-TCDD	1.13e+06	3.55e+03	3.2e+02	1.41e+06	1.39e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	2.90e+06	2.84e+02	1.0e+04	1.79e+06	1.96e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.53e+06	1.00e+03	3.5e+03	2.66e+06	3.64e+02	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	3.23e+06	1.00e+03	3.2e+03	2.58e+06	3.64e+02	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.03e+06	1.88e+02	1.6e+04	2.87e+06	2.36e+02	1.2e+04
32	13C-OCDD	1.75e+06	2.52e+02	7.0e+03	1.94e+06	1.76e+02	1.1e+04
33	13C-1,2,3,4-TCDD	2.78e+06	3.55e+03	7.8e+02	3.45e+06	1.39e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	5.78e+06	1.00e+03	5.8e+03	4.51e+06	3.64e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.28e+06	3.40e+02	3.8e+03			

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Peak List Summary

CLIENT ID.
SL0530

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P518906 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 10:50:34 Processed: 21-NOV-18 12:44:58

Mass: 303.9020 305.8990 Tot Response: 1.51e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:32	6.93e+01	8.17e+01 0.85	yes	1.51e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0530

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P518906 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 10:50:34 Processed: 21-NOV-18 12:44:58

Mass: 319.8970 321.8940 Tot Response: 5.50e+01 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:33	2.22e+01	3.28e+01	0.68	yes	5.50e+01	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0530

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P518906 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 10:50:34 Processed: 21-NOV-18 12:44:58

Mass: 339.8600 341.8570 Tot Response: 2.75e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:48	1.68e+01	1.08e+01 1.56	yes	2.75e+01		n	n

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Peak List Summary

CLIENT ID.
SL0530

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P518906 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 10:50:34 Processed: 21-NOV-18 12:44:58

Mass: 373.8210 375.8180 Tot Response: 6.77e+00 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:17	3.80e+00	2.97e+00 1.28	yes	6.77e+00		n	n

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Peak List Summary

CLIENT ID.
SL0530

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P518906 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 10:50:34 Processed: 21-NOV-18 12:44:58

Mass: 389.8160 391.8130 Tot Response: 3.14e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:51	1.34e+02	9.68e+01 1.39	yes	2.31e+02		n	n
2	34:39	4.37e+01	3.95e+01 1.11	yes	8.32e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0530

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P518906 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 10:50:34 Processed: 21-NOV-18 12:44:58

Mass: 423.7770 425.7740 Tot Response: 1.91e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	6.99e+02	7.29e+02 0.96	yes	1.43e+03		n	n
2	38:08	2.41e+02	2.36e+02 1.02	yes	4.78e+02	1,2,3,4,6,7,8-HpCDD	n	n

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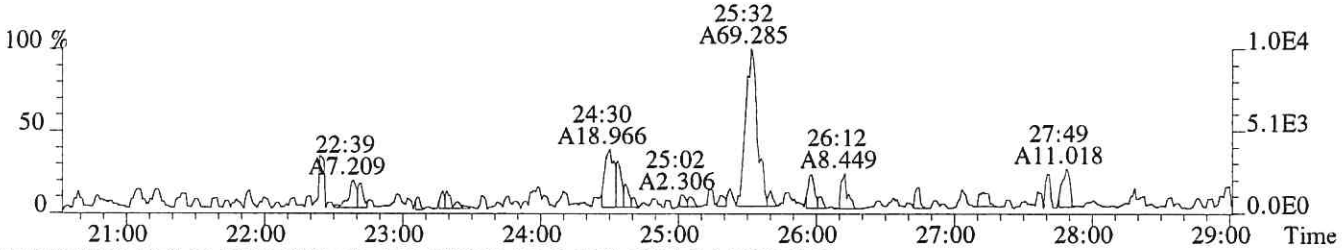
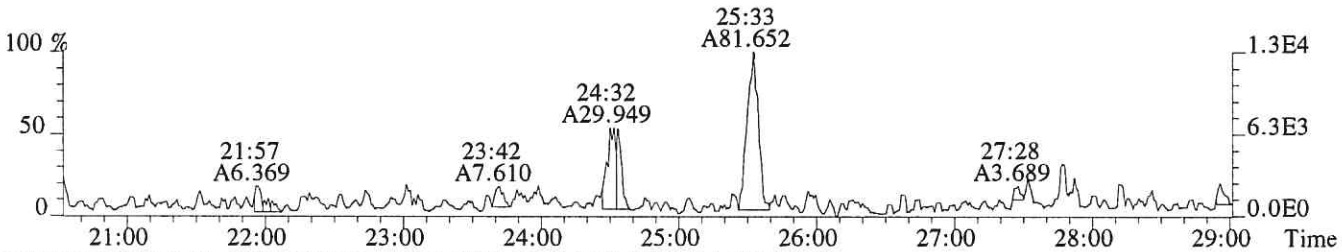
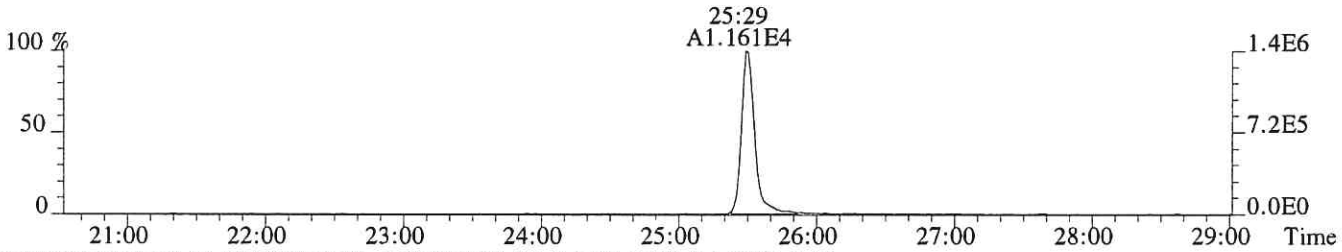
File:P518906 #1-602 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



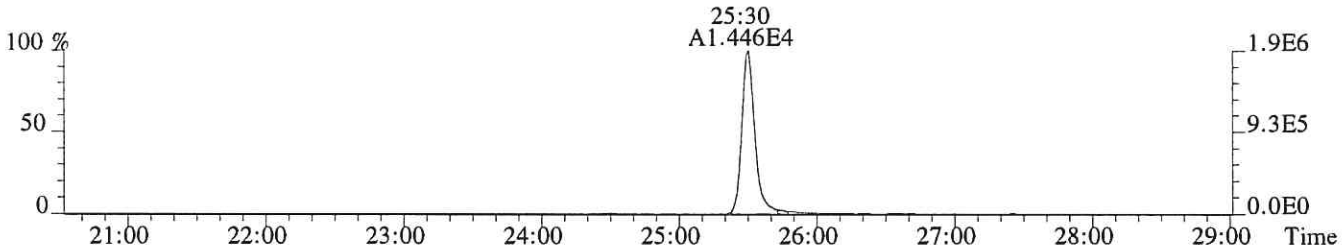
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



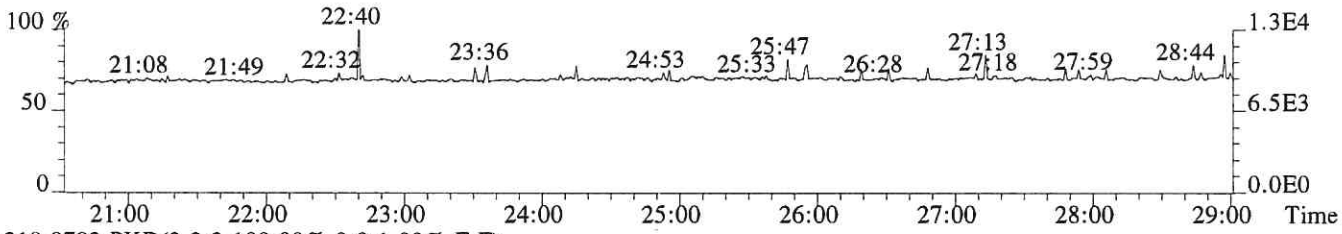
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



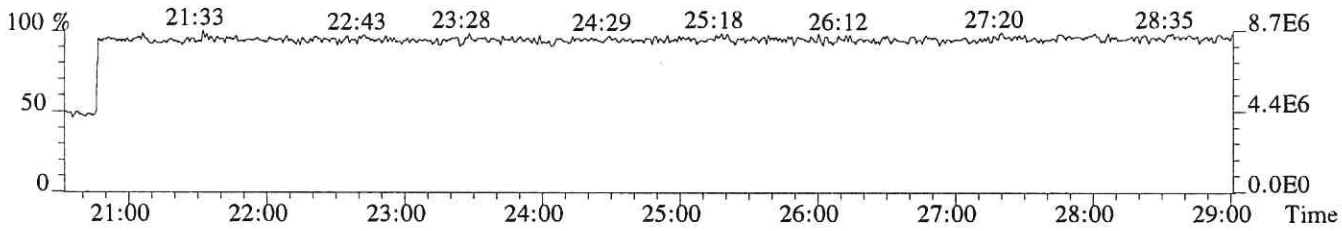
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



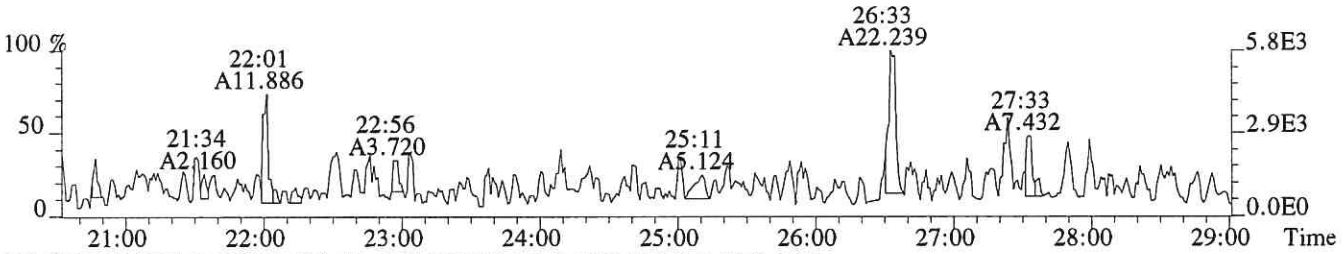
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



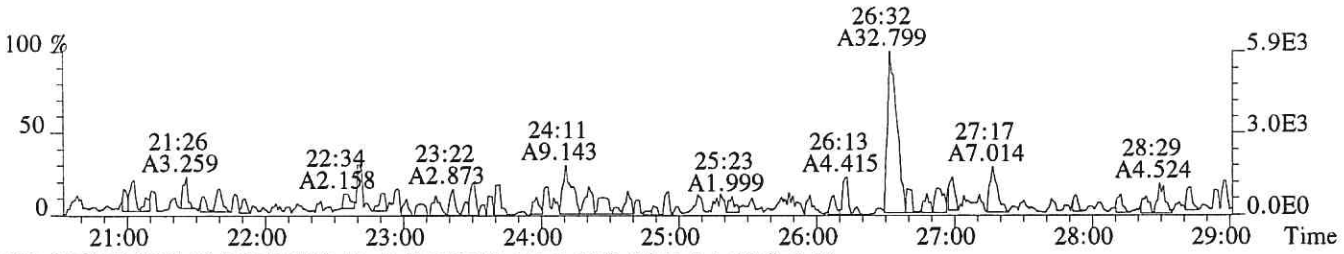
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



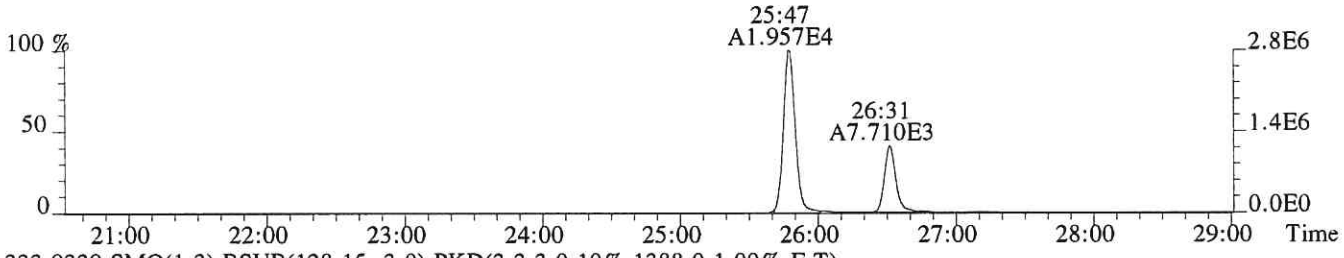
File:P518906 #1-602 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



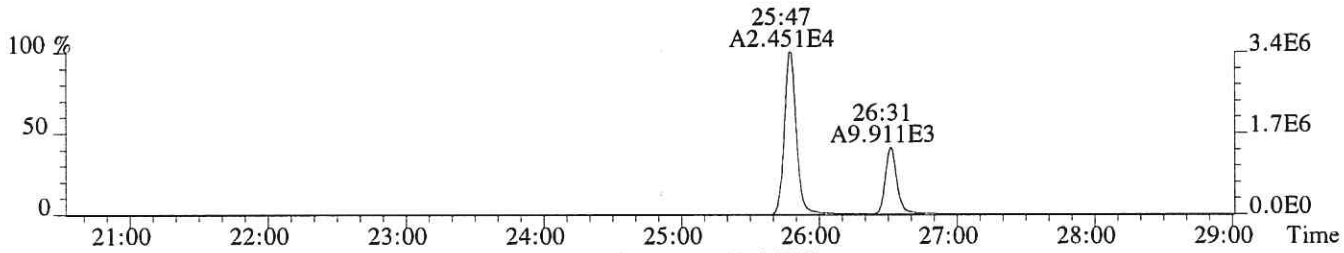
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



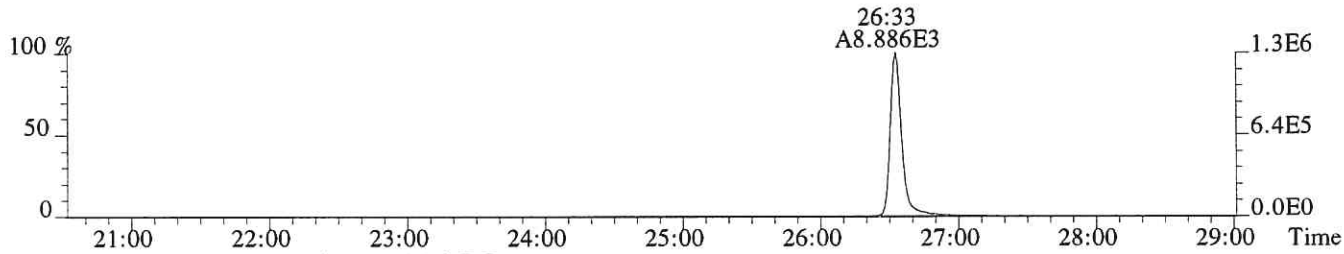
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3552.0,1.00%,F,T)



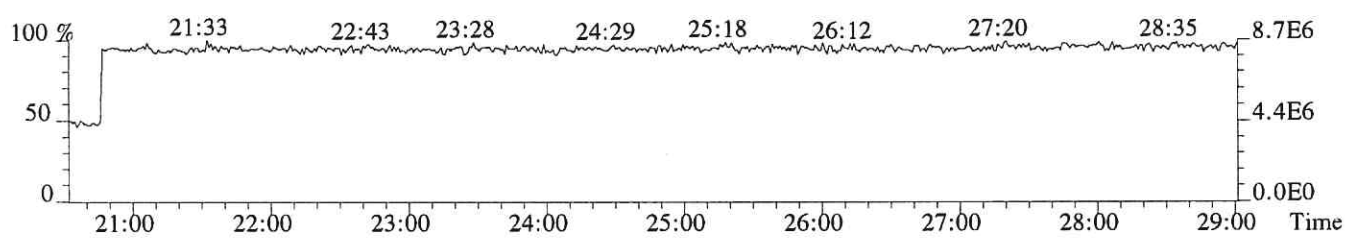
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



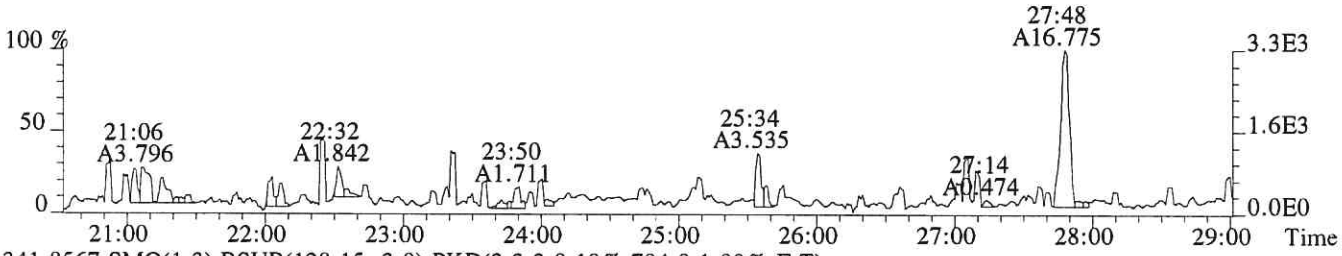
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



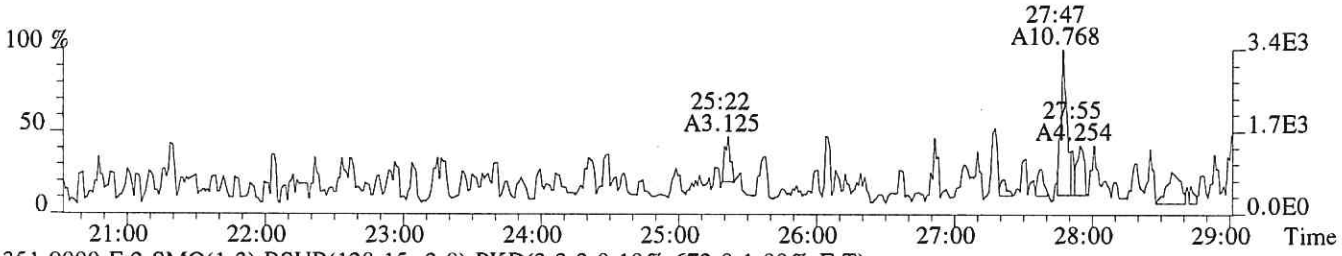
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



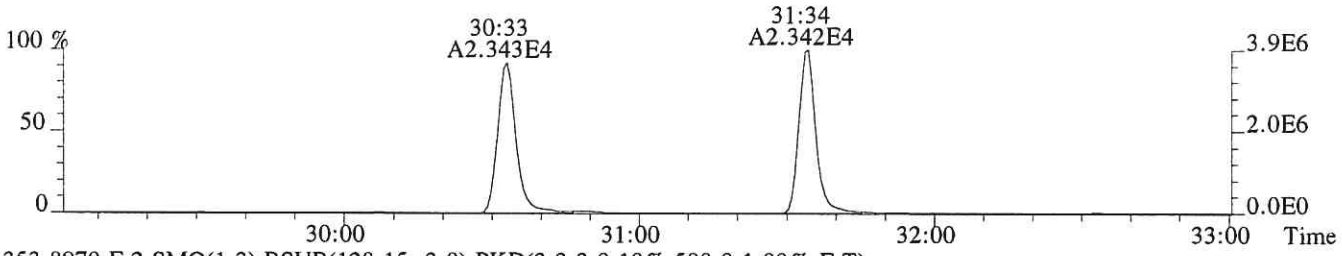
File:P518906 #1-602 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



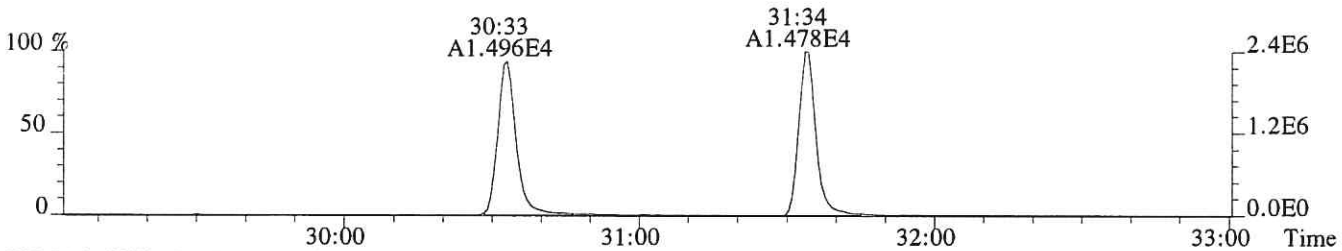
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



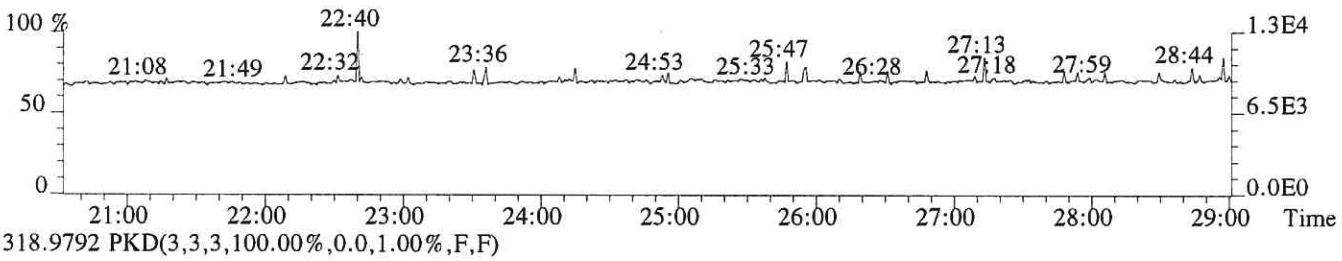
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



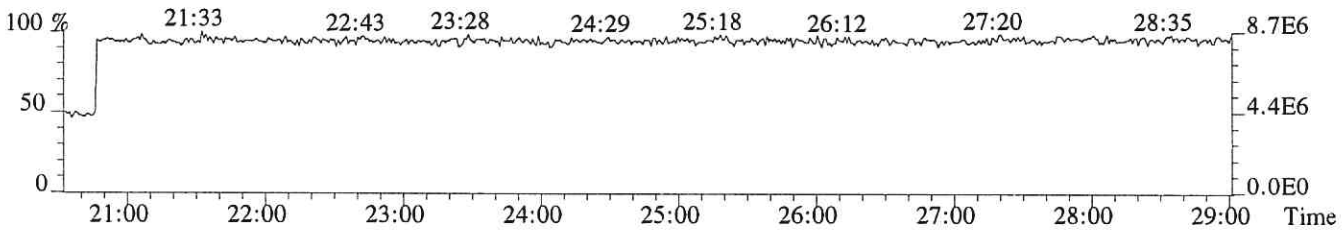
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



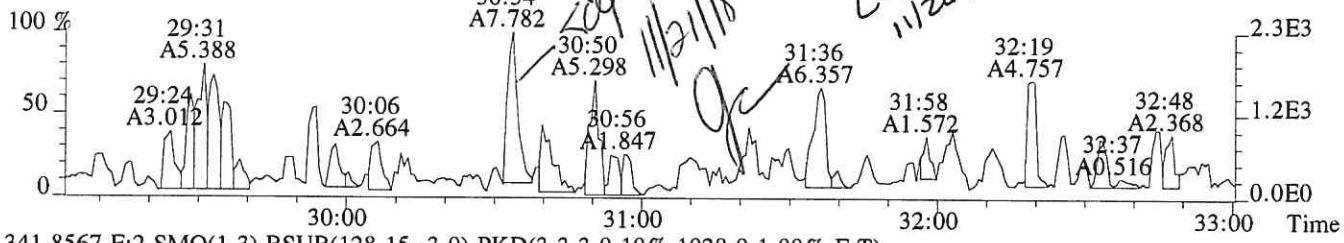
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



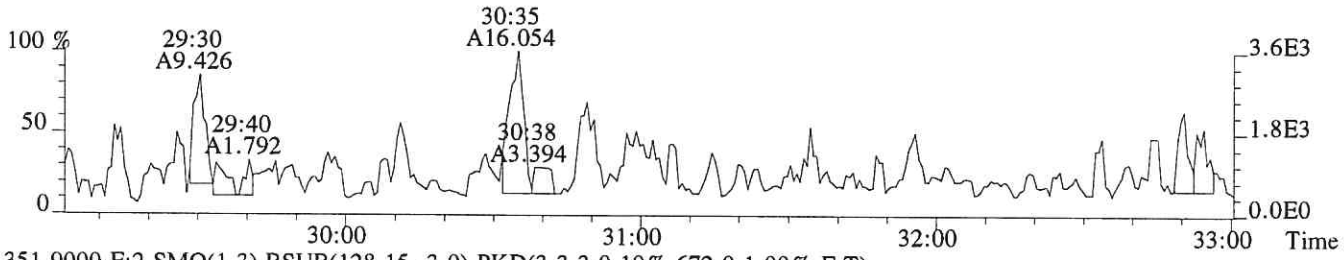
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



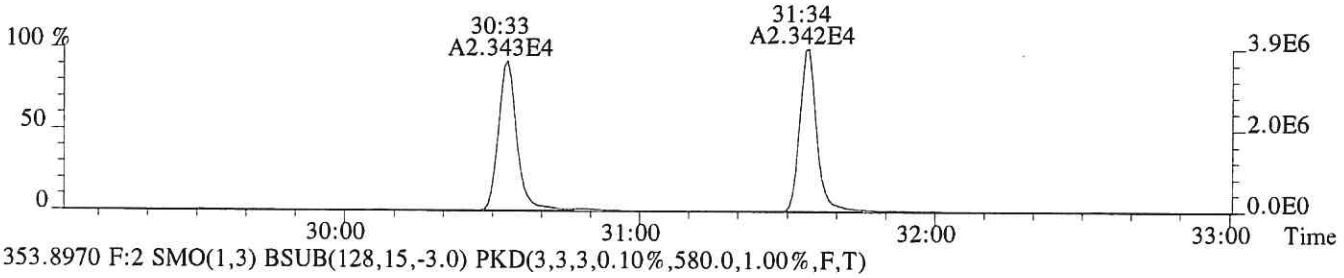
File:P518906 #1-357 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



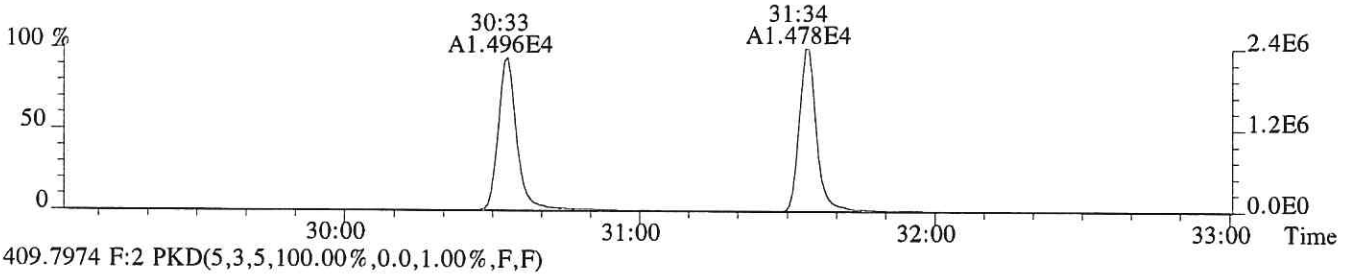
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



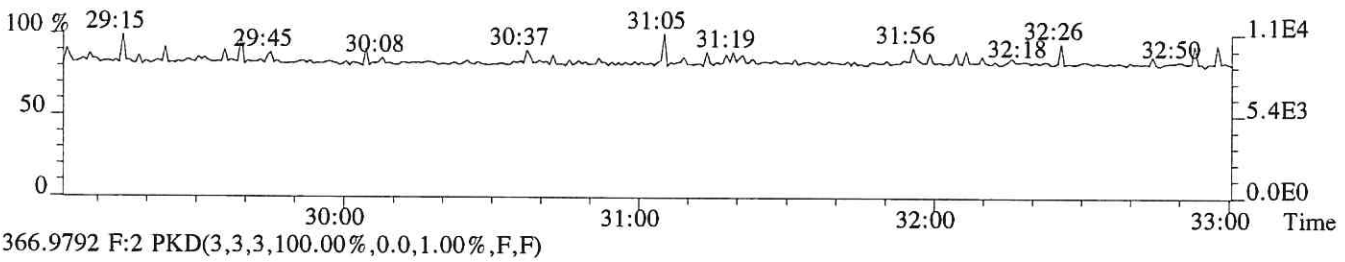
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



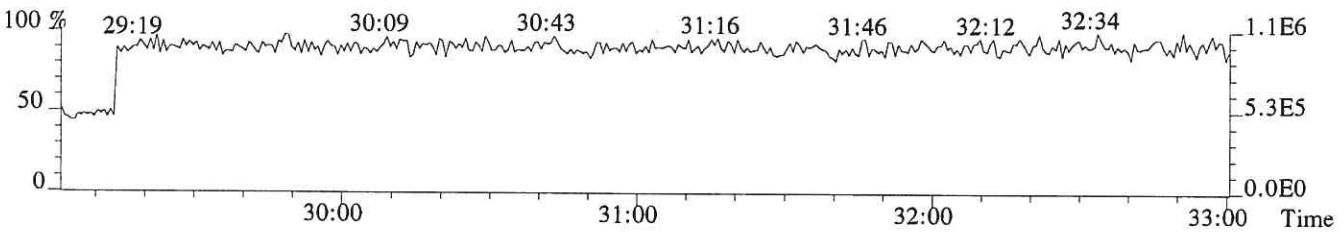
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



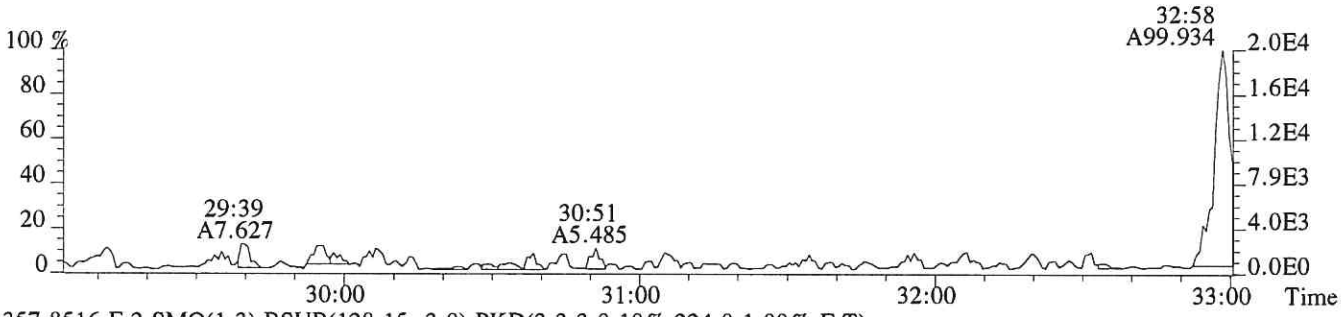
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



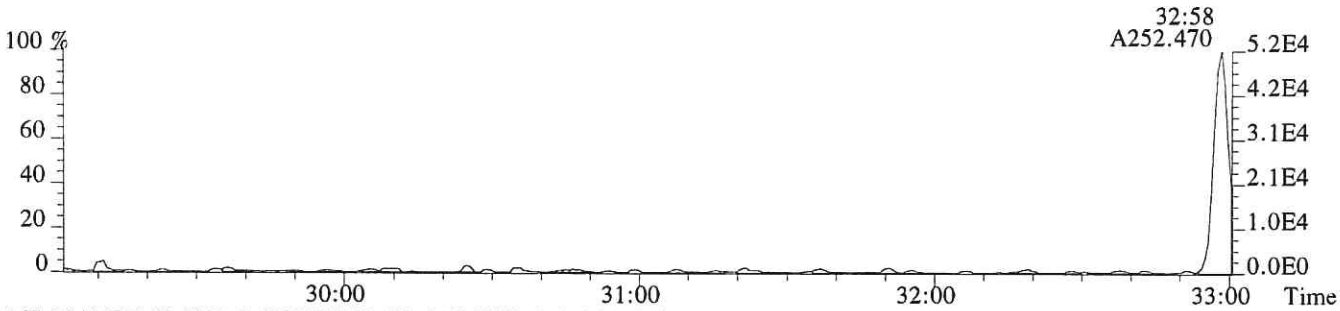
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



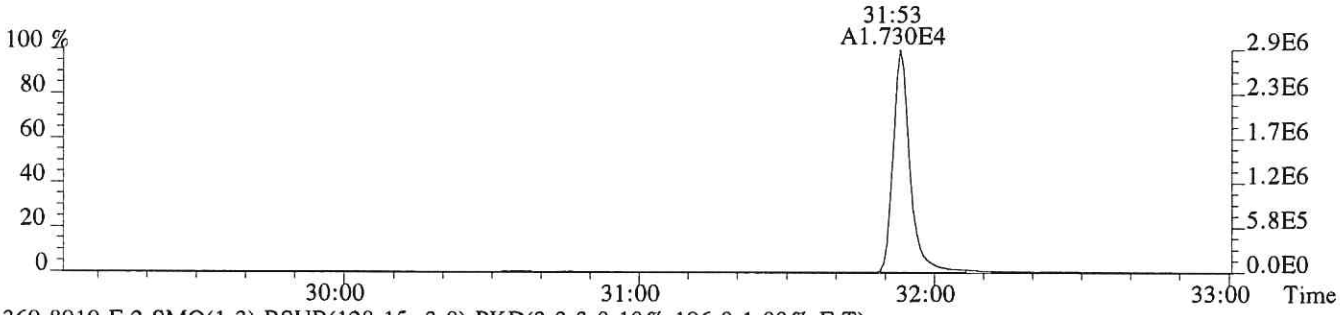
File:P518906 #1-357 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



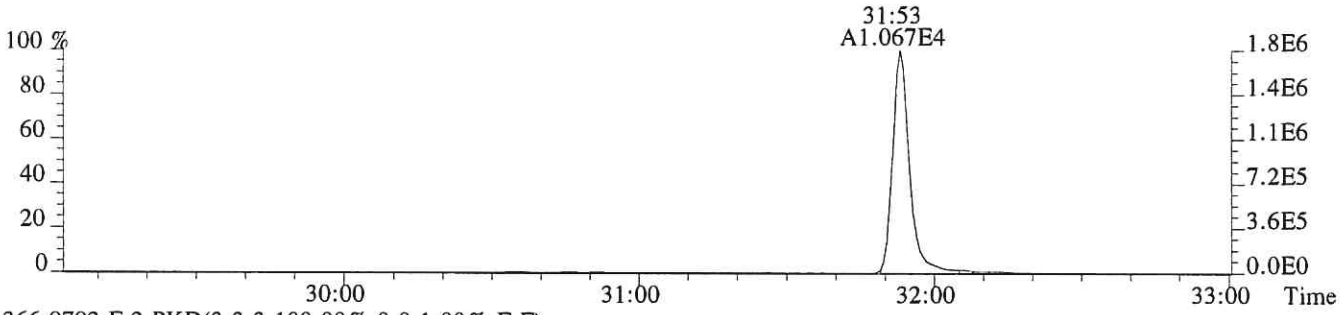
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



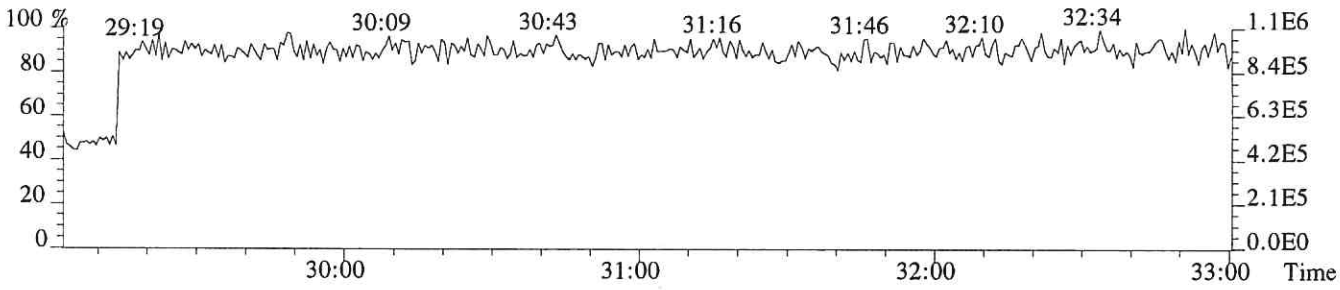
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



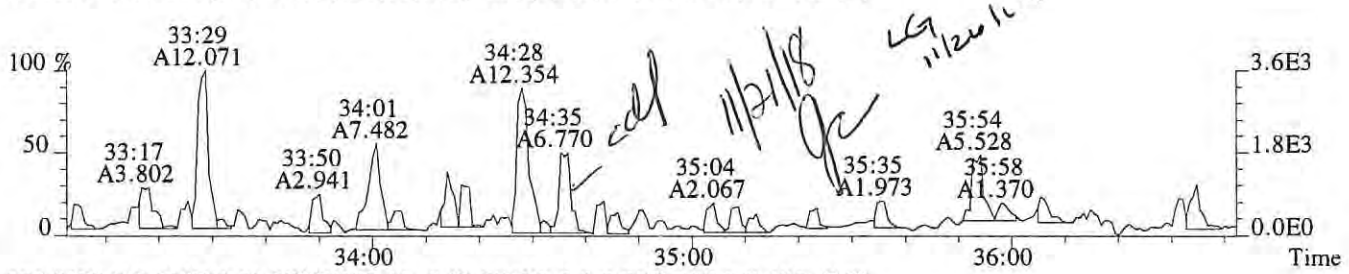
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



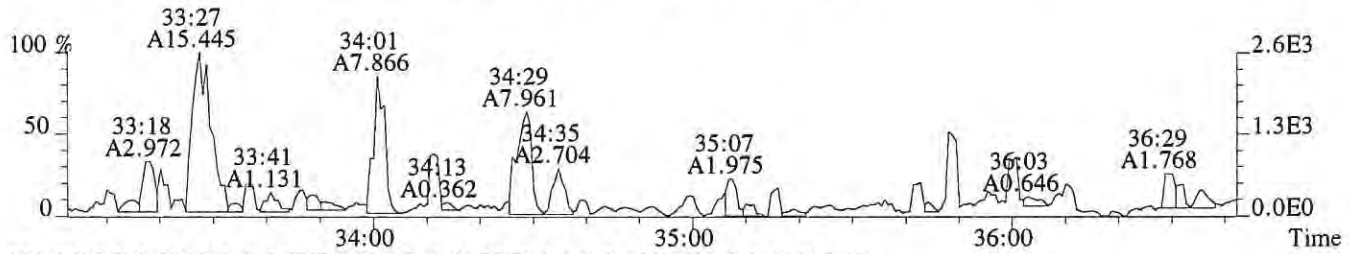
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



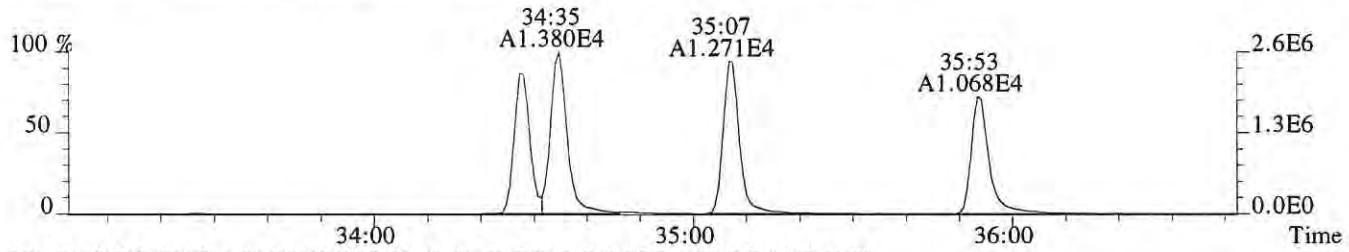
File:P518906 #1-330 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



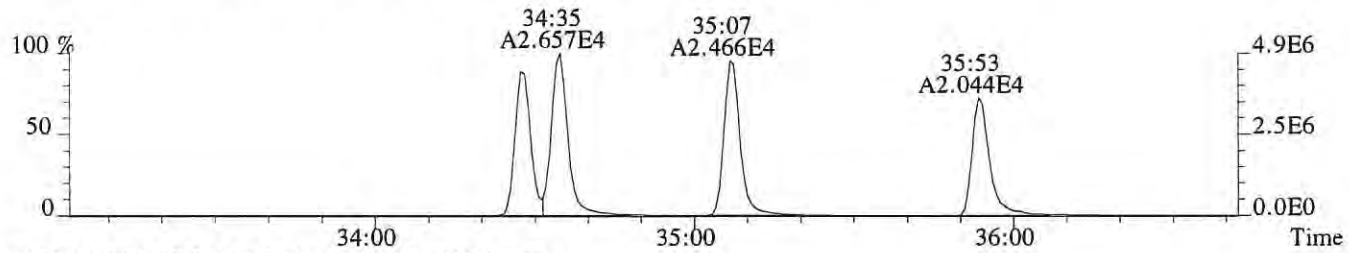
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



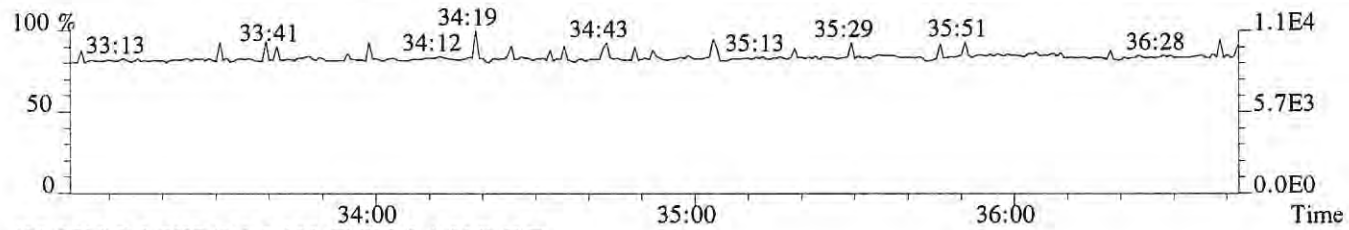
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



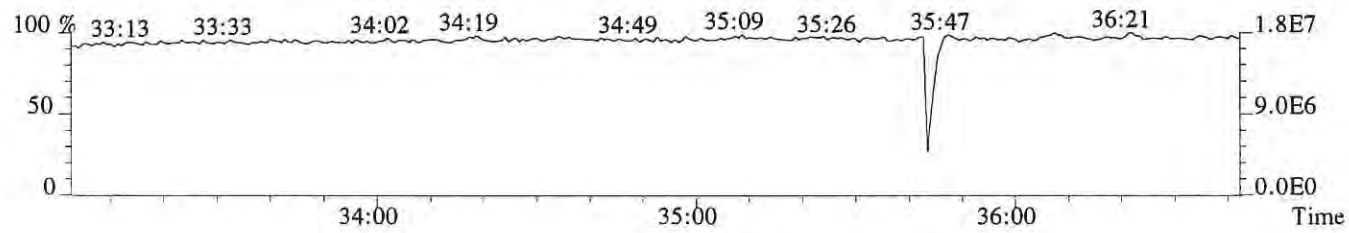
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



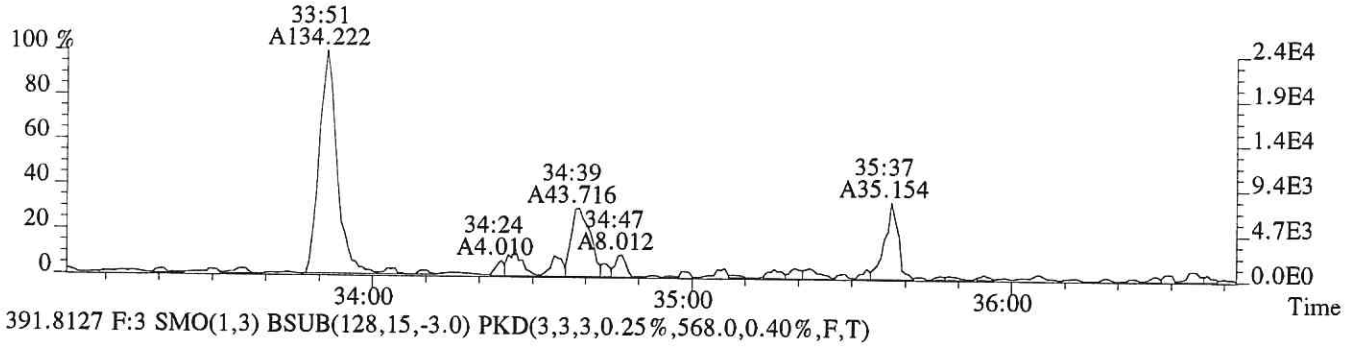
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



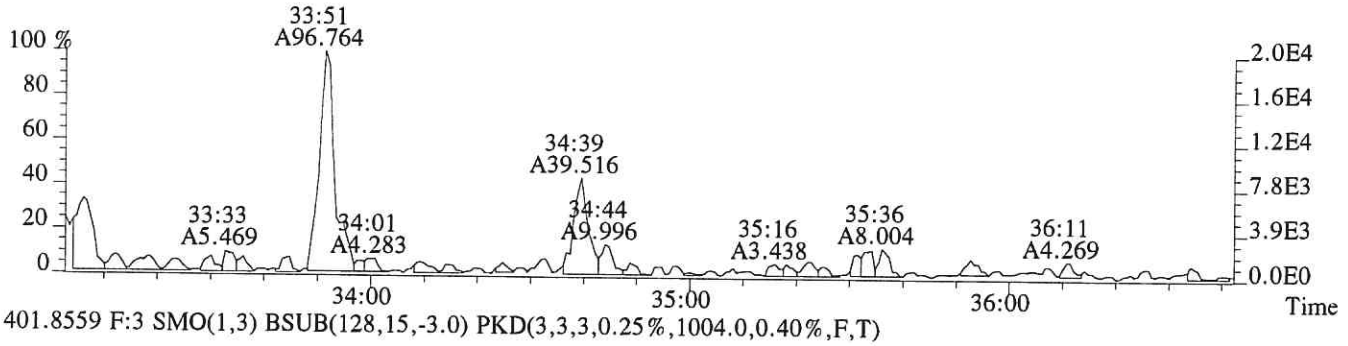
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



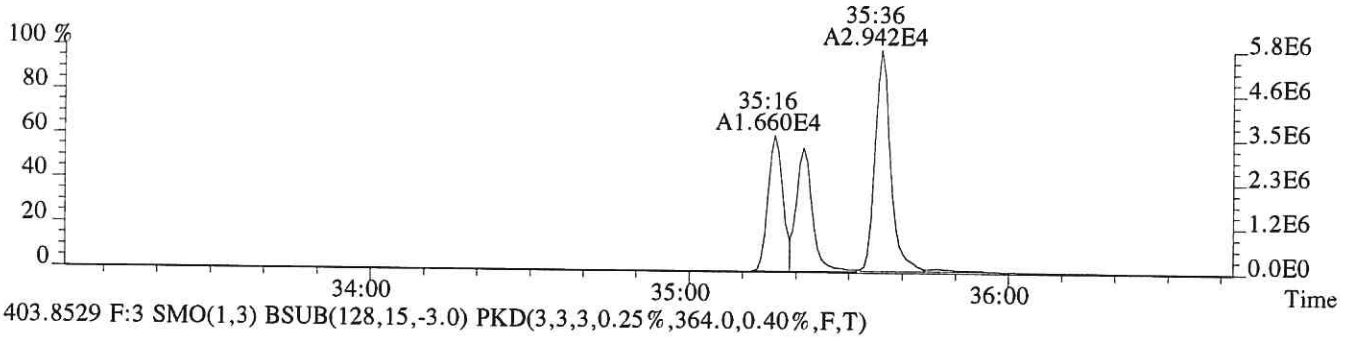
File:P518906 #1-330 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



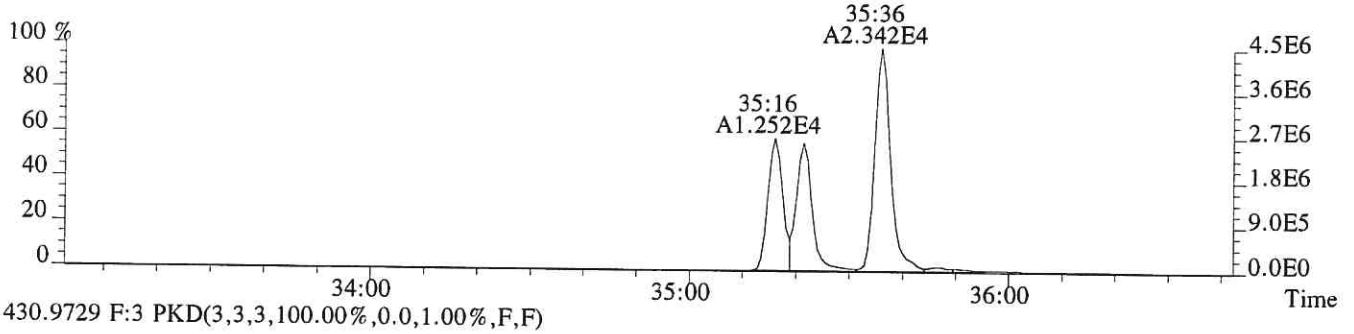
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



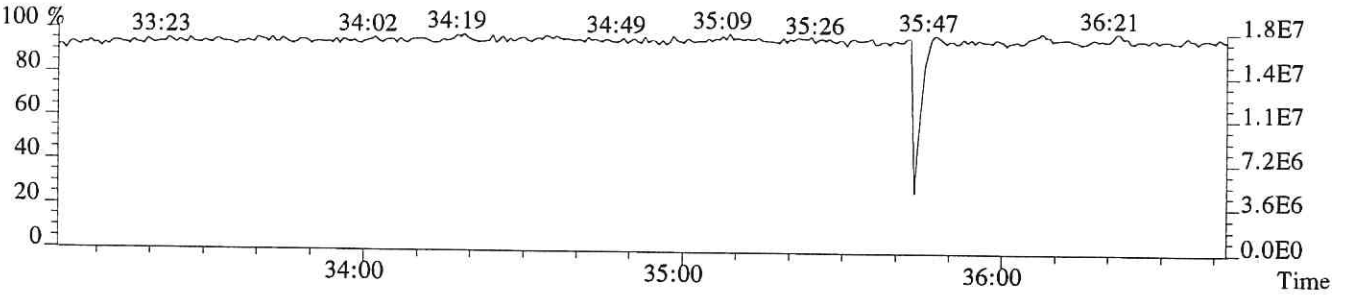
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



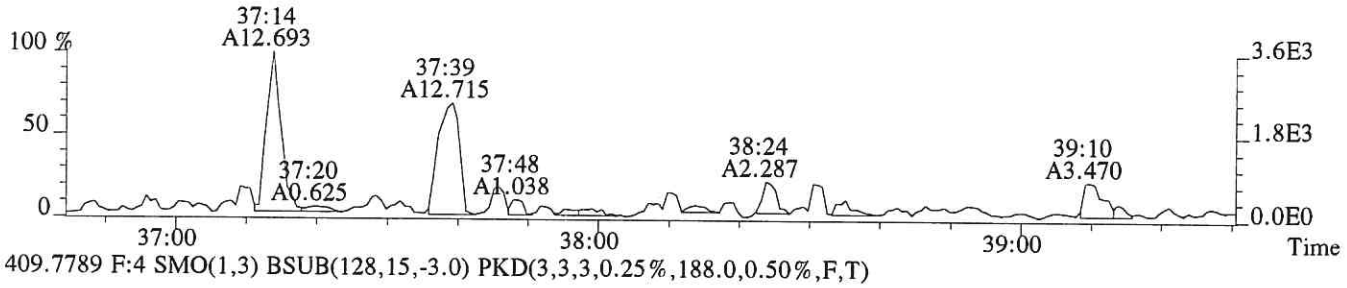
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



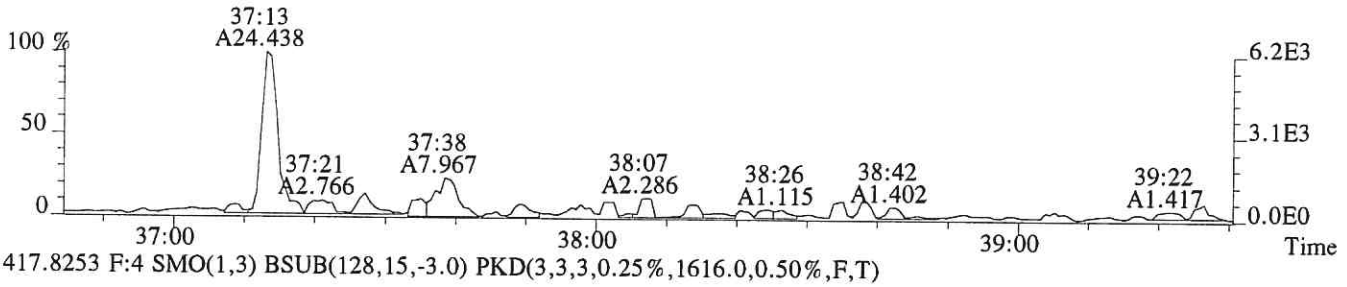
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



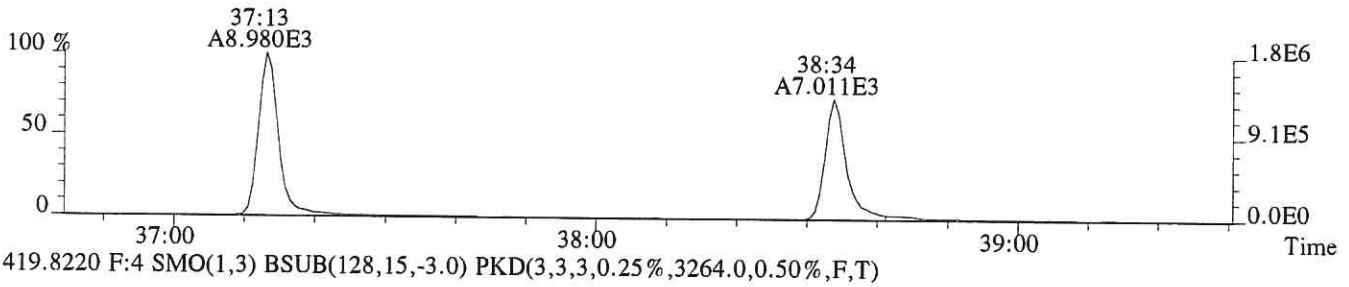
File:P518906 #1-250 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.50%,F,T)



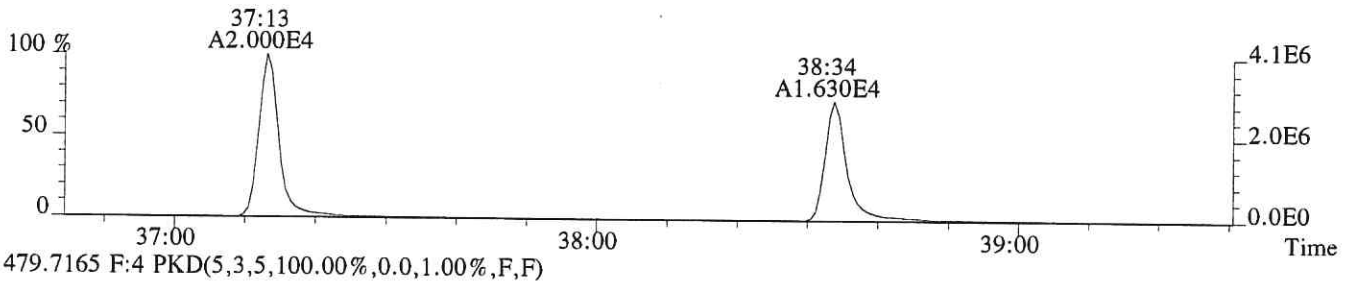
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.50%,F,T)



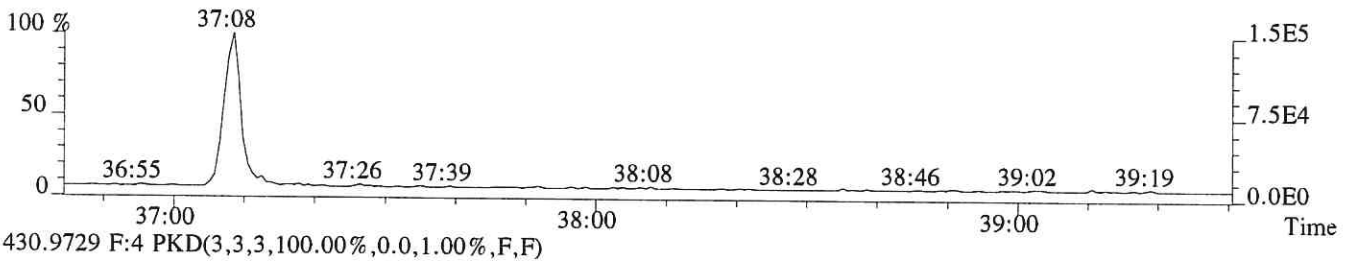
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.50%,F,T)



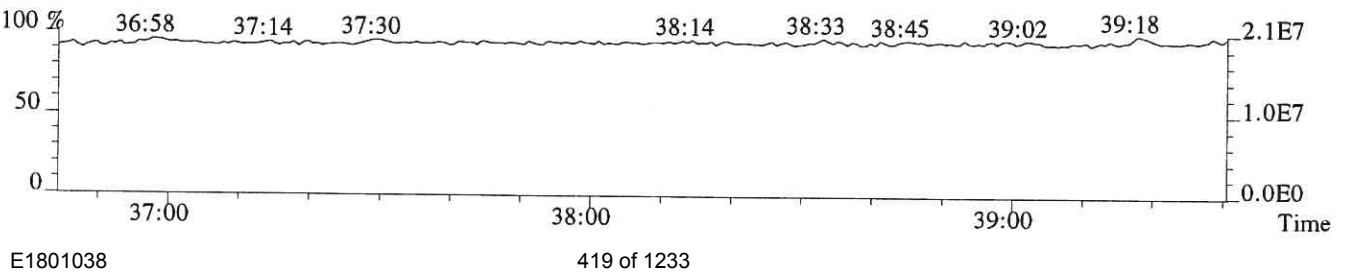
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3264.0,0.50%,F,T)



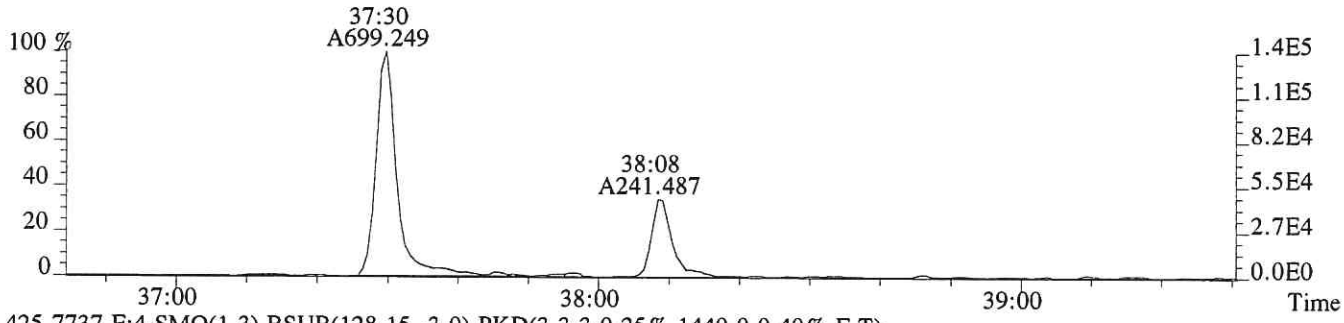
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



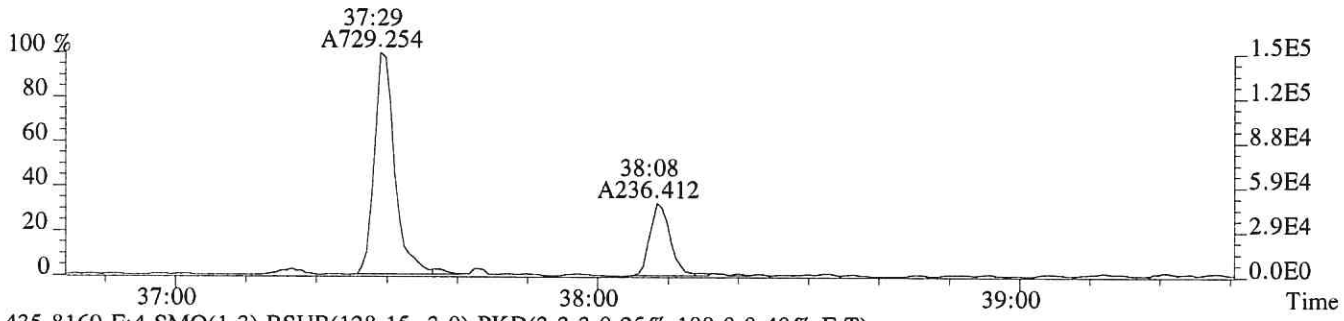
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



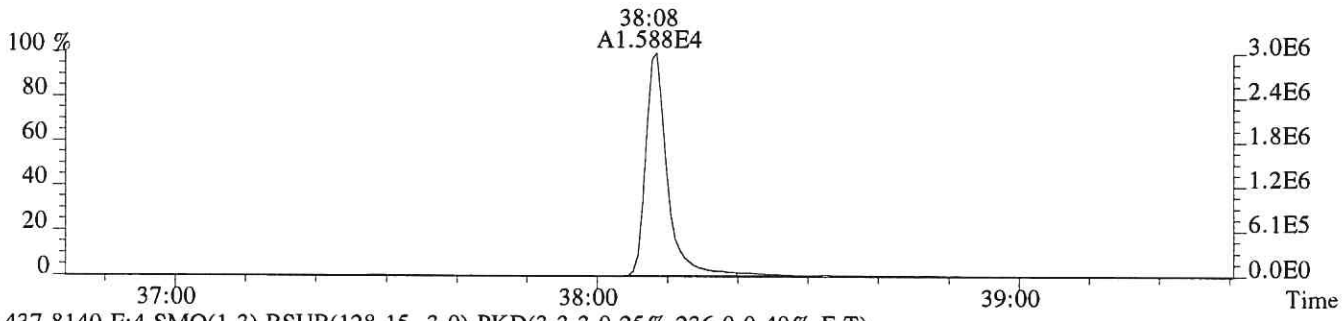
File:P518906 #1-250 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



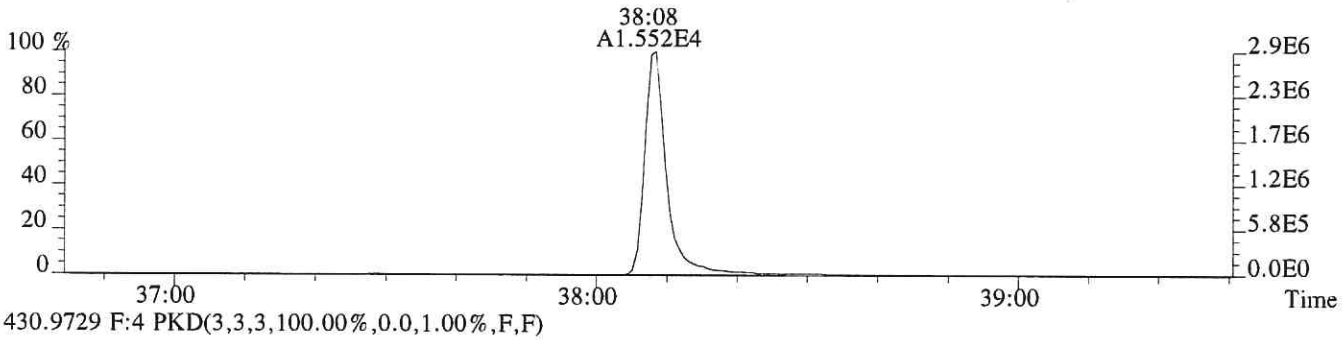
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



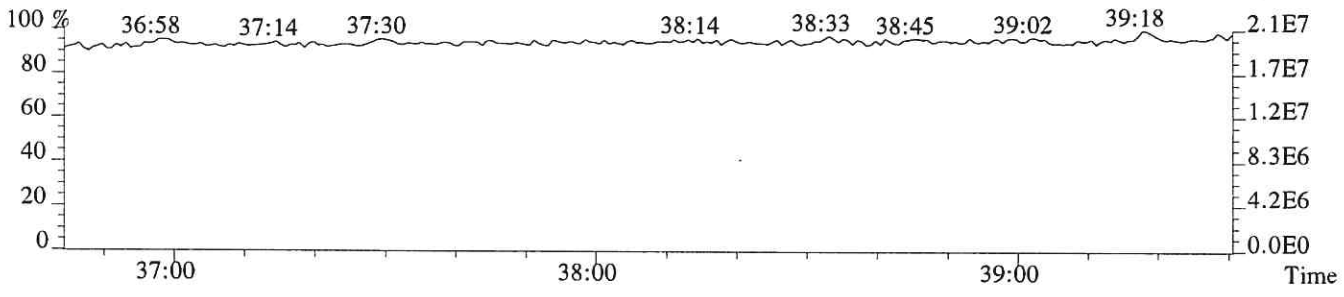
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



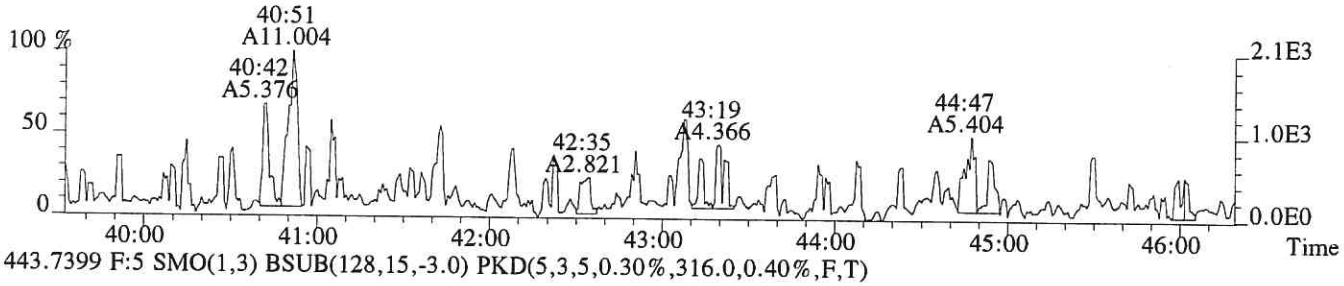
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



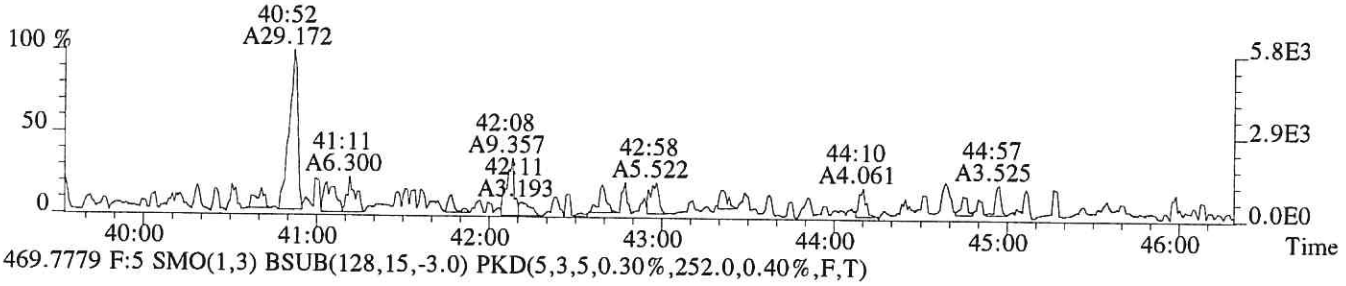
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



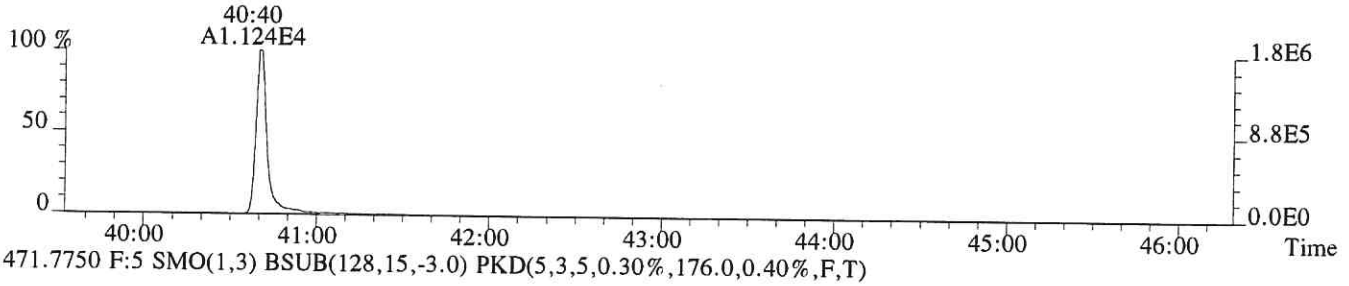
File:P518906 #1-610 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



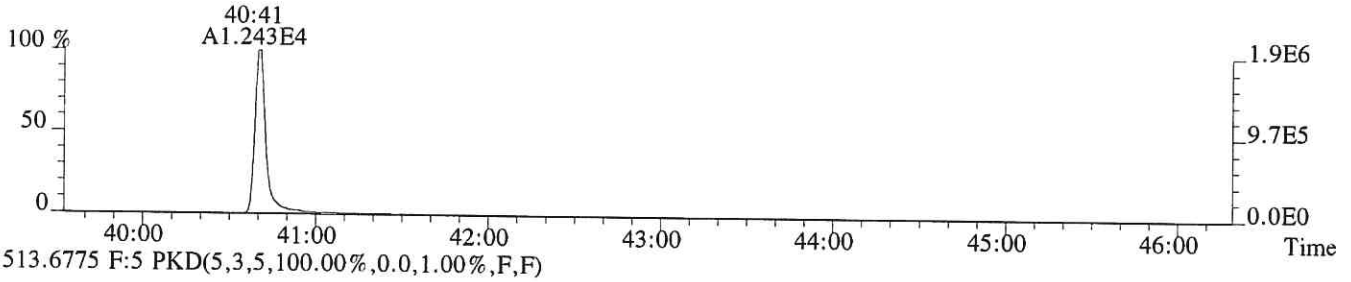
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



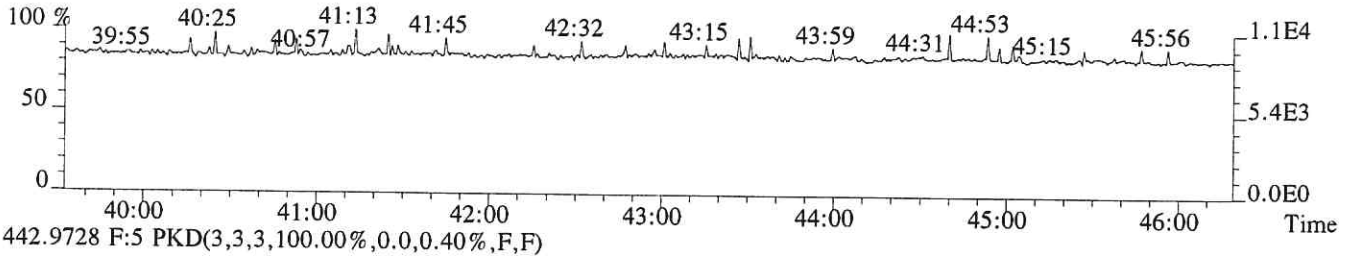
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



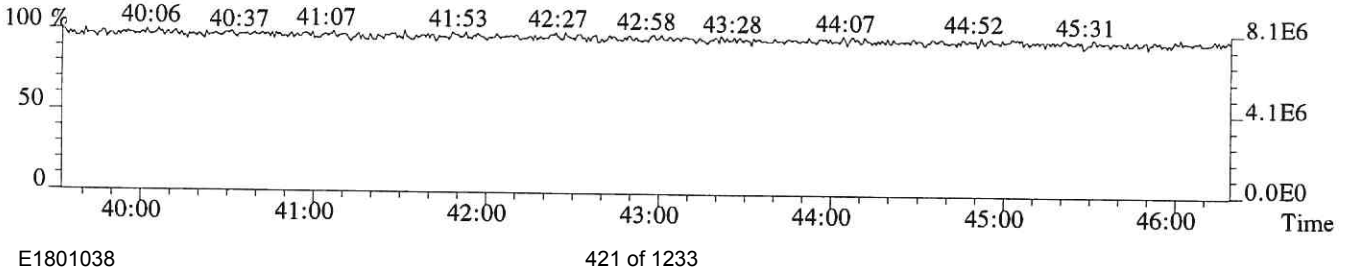
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



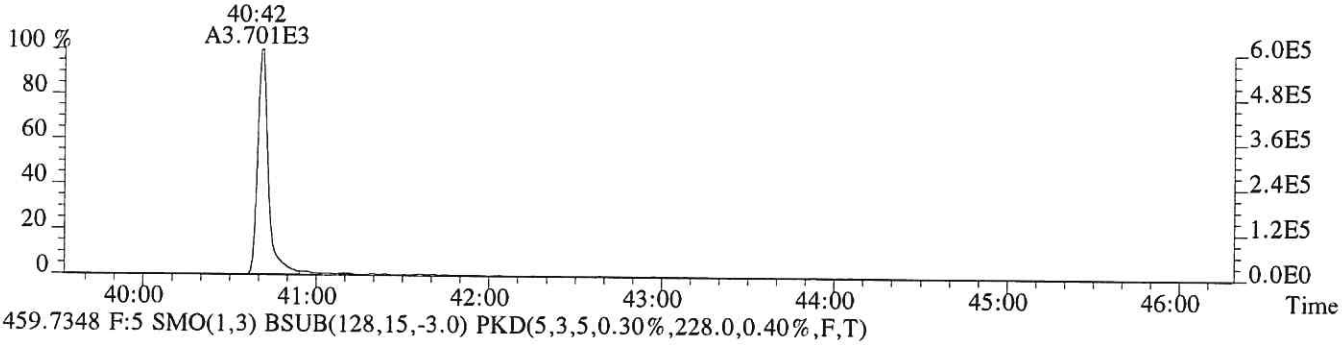
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



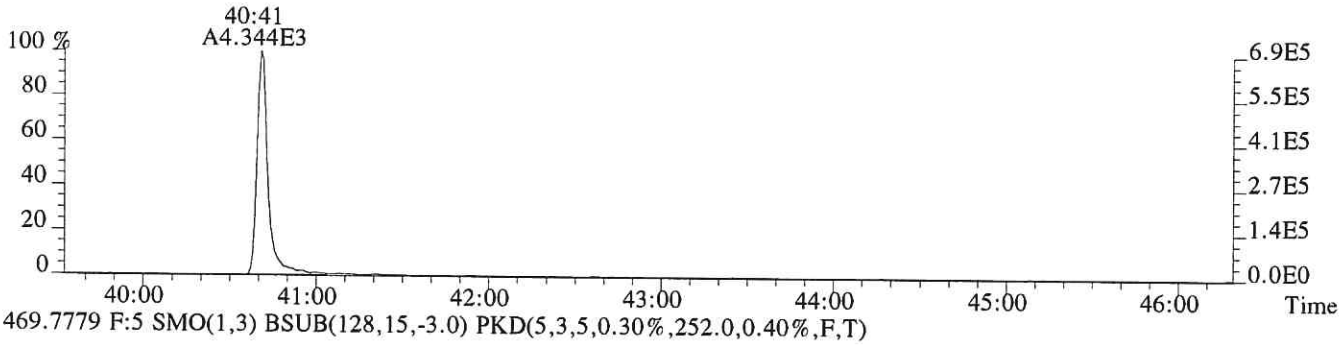
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



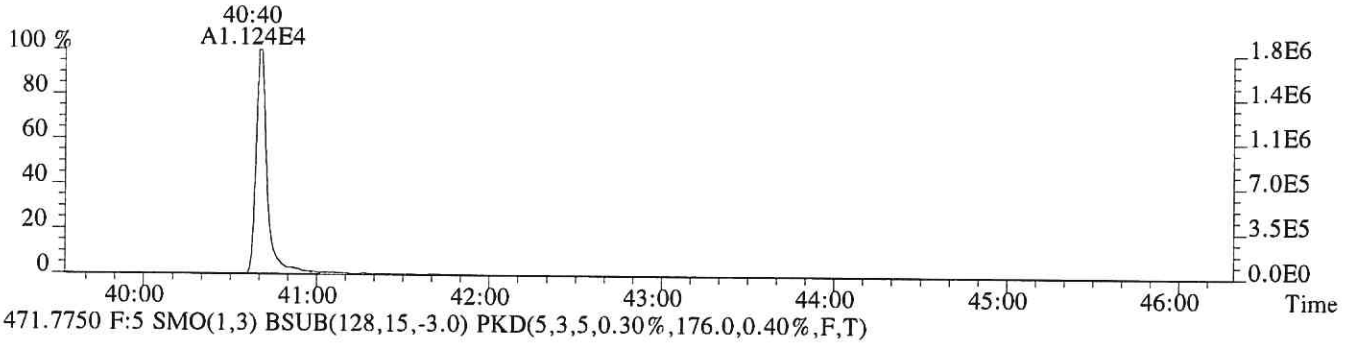
File:P518906 #1-610 Acq:18-NOV-2018 10:50:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



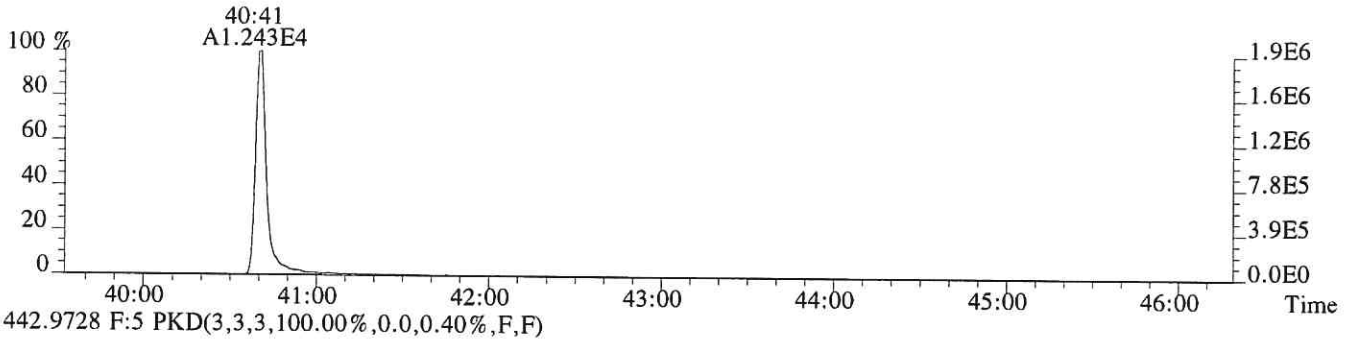
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



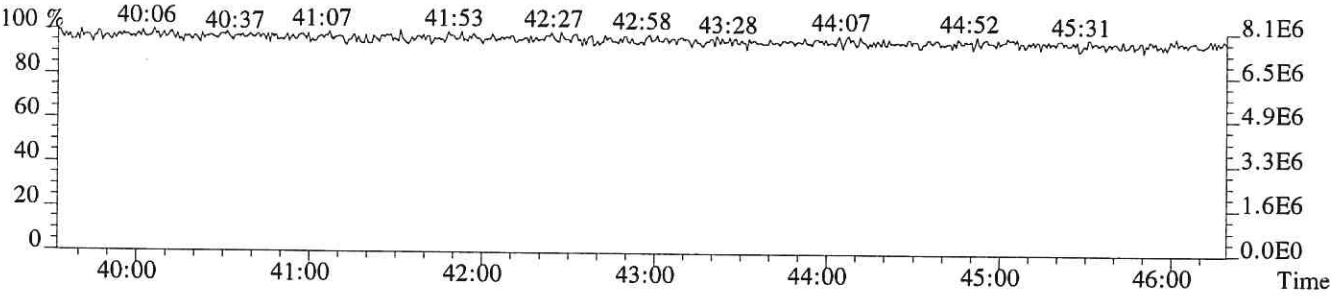
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
SL0531

Run #19 Filename P518907 Samp: 1 Inj: 1 Acquired: 18-NOV-18 11:39:14
Processed: 21-NOV-18 12:44:59 Sample ID: E1801038-013

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:32	7.898e+01	1.059e+02	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	8.948e+00	9.650e+00	0.93	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:35	6.142e+00	4.944e+00	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	1.245e+01	1.709e+01	0.73	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	3.688e+01	4.961e+01	0.74	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	3.045e+01	2.640e+01	1.15	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:54	5.798e+00	1.205e+01	0.48	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:22	2.147e+01	1.684e+01	1.27	yes	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	3.913e+01	2.603e+01	1.50	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	3.768e+02	3.556e+02	1.06	yes	no	1.025
17	Unk	OCDD	40:42	4.475e+03	4.929e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	7.487e+03	9.640e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.156e+04	1.332e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	2.277e+04	1.404e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.109e+04	2.117e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.348e+04	2.615e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.231e+04	2.327e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.068e+04	2.094e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	7.776e+03	1.698e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.631e+03	1.478e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	5.591e+03	6.970e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.670e+04	1.046e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.625e+04	1.226e+04	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.661e+04	1.298e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.439e+04	1.317e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	40:42	8.562e+03	9.319e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	2.340e+04	2.906e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.347e+04	2.654e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	6.561e+03				no	1.014

$$\text{OCDD} = \frac{(4.475e+03 + 4.929e+03) \times 4000\ \text{pg} \times 1}{(8.562e+03 + 9.319e+03) \times 10.619\ \text{g} \times 83\ /\ 100 \times 1.118} = 213.4899\ \text{ng/Kg}$$

LG 11/26/18

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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0531

Run #19 Filename P518907 Samp: 1 Inj: 1 Acquired: 18-NOV-18 11:39:14
Processed: 21-NOV-18 12:44:59 LAB. ID: E1801038-013

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.11e+04	3.00e+02	3.7e+01	1.48e+04	2.96e+02	5.0e+01
2	1,2,3,7,8-PeCDF	*	1.72e+02	*	*	8.44e+02	*
3	2,3,4,7,8-PeCDF	*	1.72e+02	*	*	8.44e+02	*
4	1,2,3,4,7,8-HxCDF	1.86e+03	1.60e+02	1.2e+01	1.81e+03	3.12e+02	5.8e+00
5	1,2,3,6,7,8-HxCDF	1.40e+03	1.60e+02	8.8e+00	1.27e+03	3.12e+02	4.1e+00
6	2,3,4,6,7,8-HxCDF	*	1.60e+02	*	*	3.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.60e+02	*	*	3.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.59e+03	2.00e+02	1.8e+01	3.69e+03	2.64e+02	1.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.00e+02	*	*	2.64e+02	*
10	OCDF	7.33e+03	3.72e+02	2.0e+01	7.67e+03	4.80e+02	1.6e+01
11	2,3,7,8-TCDD	3.78e+03	9.68e+02	3.9e+00	5.09e+03	5.92e+02	8.6e+00
12	1,2,3,7,8-PeCDD	1.31e+03	3.68e+02	3.6e+00	2.73e+03	2.16e+02	1.3e+01
13	1,2,3,4,7,8-HxCDD	*	8.00e+02	*	*	8.76e+02	*
14	1,2,3,6,7,8-HxCDD	6.19e+03	8.00e+02	7.7e+00	2.84e+03	8.76e+02	3.2e+00
15	1,2,3,7,8,9-HxCDD	7.29e+03	8.00e+02	9.1e+00	5.91e+03	8.76e+02	6.7e+00
16	1,2,3,4,6,7,8-HpCDD	7.53e+04	3.08e+02	2.4e+02	6.54e+04	1.68e+02	3.9e+02
17	OCDD	6.82e+05	2.20e+02	3.1e+03	7.40e+05	2.04e+02	3.6e+03
18	13C-2,3,7,8-TCDF	8.92e+05	2.61e+03	3.4e+02	1.14e+06	8.40e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	3.40e+06	3.44e+02	9.9e+03	2.10e+06	3.60e+02	5.8e+03
20	13C-2,3,4,7,8-PeCDF	3.69e+06	3.44e+02	1.1e+04	2.29e+06	3.60e+02	6.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.20e+06	2.08e+02	1.1e+04	4.21e+06	8.40e+02	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.48e+06	2.08e+02	1.2e+04	4.82e+06	8.40e+02	5.7e+03
23	13C-2,3,4,6,7,8-HxCDF	2.31e+06	2.08e+02	1.1e+04	4.41e+06	8.40e+02	5.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	2.08e+02	8.6e+03	3.60e+06	8.40e+02	4.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.50e+06	2.22e+03	6.8e+02	3.37e+06	3.04e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.14e+06	2.22e+03	5.2e+02	2.63e+06	3.04e+03	8.6e+02
27	13C-2,3,7,8-TCDD	7.98e+05	3.59e+03	2.2e+02	9.95e+05	1.36e+03	7.3e+02
28	13C-1,2,3,7,8-PeCDD	2.73e+06	1.76e+02	1.6e+04	1.74e+06	1.76e+02	9.9e+03
29	13C-1,2,3,4,7,8-HxCDD	3.48e+06	1.32e+03	2.6e+03	2.64e+06	2.52e+02	1.0e+04
30	13C-1,2,3,6,7,8-HxCDD	3.12e+06	1.32e+03	2.4e+03	2.45e+06	2.52e+02	9.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.72e+06	2.32e+02	1.2e+04	2.44e+06	2.04e+02	1.2e+04
32	13C-OCDD	1.31e+06	3.08e+02	4.3e+03	1.41e+06	1.76e+02	8.0e+03
33	13C-1,2,3,4-TCDD	3.30e+06	3.59e+03	9.2e+02	4.20e+06	1.36e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.08e+06	1.32e+03	4.6e+03	4.85e+06	2.52e+02	1.9e+04
35	37Cl-2,3,7,8-TCDD	9.11e+05	8.72e+02	1.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0531

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P518907 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 11:39:14 Processed: 21-NOV-18 12:44:59

Mass: 303.9020 305.8990 Tot Response: 1.85e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:32	7.90e+01	1.06e+02 0.75	yes	1.85e+02	2,3,7,8-TCDF	y	n

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Peak List Summary

CLIENT ID.
SL0531

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P518907 Sample:1 Injection:1 Function:2

Acquired: 18-NOV-18 11:39:14 Processed: 21-NOV-18 12:44:59

Mass: 355.8550 357.8520 Tot Response: 4.11e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:06	2.50e+01	1.61e+01 1.56	yes	4.11e+01		n	n

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Peak List Summary

CLIENT ID.
SL0531

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P518907 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 11:39:14 Processed: 21-NOV-18 12:44:59

Mass: 373.8210 375.8180 Tot Response: 2.97e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:35	6.14e+00	4.94e+00	1.24	yes	1.11e+01	1,2,3,6,7,8-HxCDF	n	n
2	35:00	1.00e+01	8.54e+00	1.17	yes	1.86e+01		n	n

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Peak List Summary

CLIENT ID.
SL0531

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P518907 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 11:39:14 Processed: 21-NOV-18 12:44:59

Mass: 389.8160 391.8130 Tot Response: 6.65e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	3.46e+02	2.81e+02 1.23	yes	6.26e+02		n	n
2	35:22	2.15e+01	1.68e+01 1.27	yes	3.83e+01	1,2,3,6,7,8-HxCDD	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0531

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P518907 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 11:39:14 Processed: 21-NOV-18 12:44:59

Mass: 407.7820 409.7790 Tot Response: 7.95e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:38	4.18e+01	3.76e+01 1.11	yes	7.95e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0531

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P518907 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 11:39:14 Processed: 21-NOV-18 12:44:59

Mass: 423.7770 425.7740 Tot Response: 3.27e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	1.29e+03	1.25e+03 1.03	yes	2.54e+03		n	n
2	38:10	3.77e+02	3.56e+02 1.06	yes	7.32e+02	1,2,3,4,6,7,8-HpCDD	n	n

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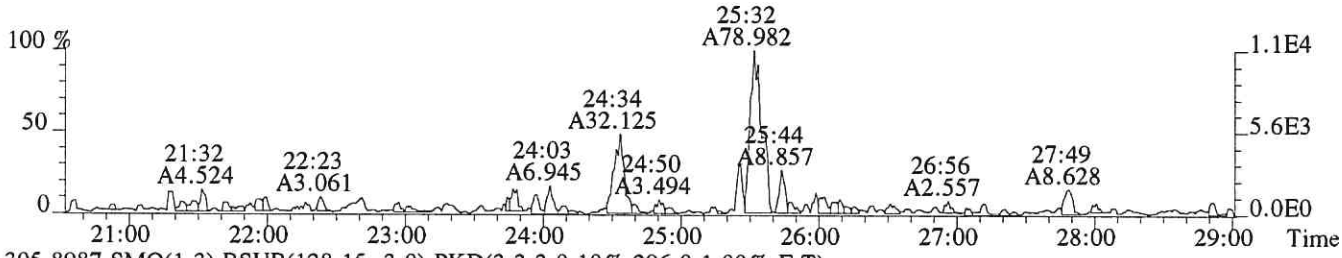
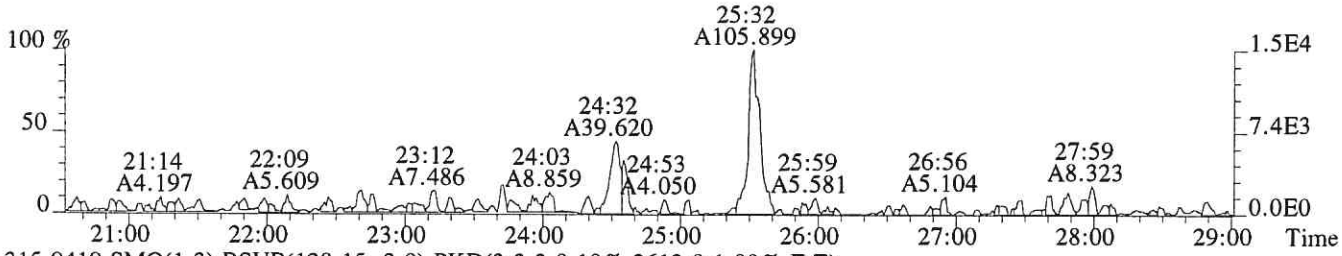
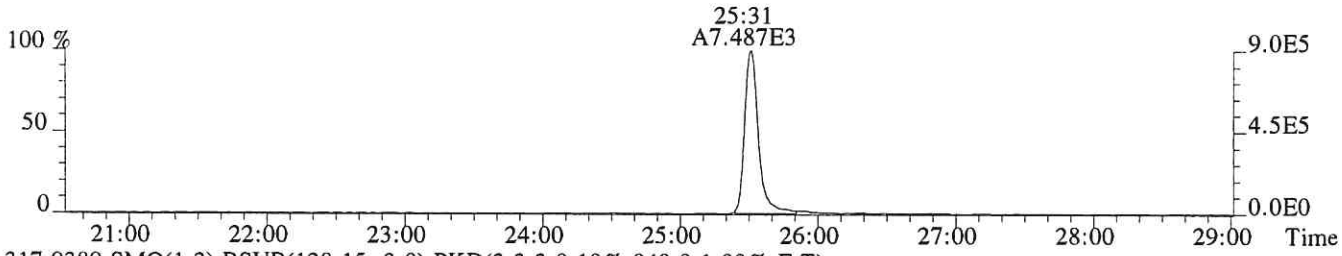
File:P518907 #1-602 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



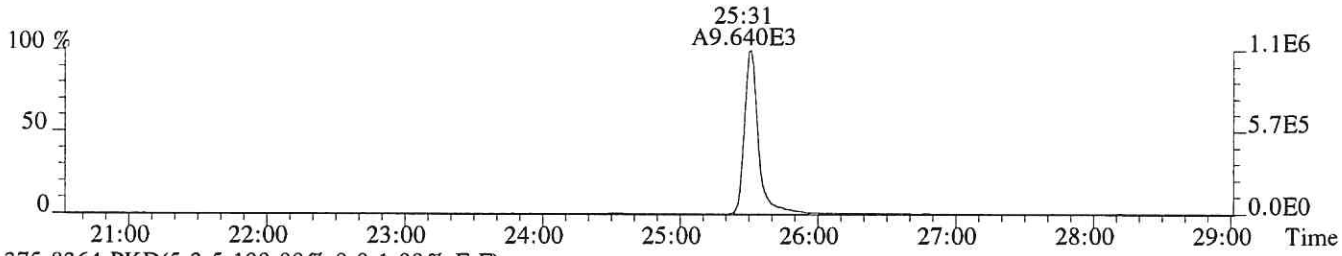
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



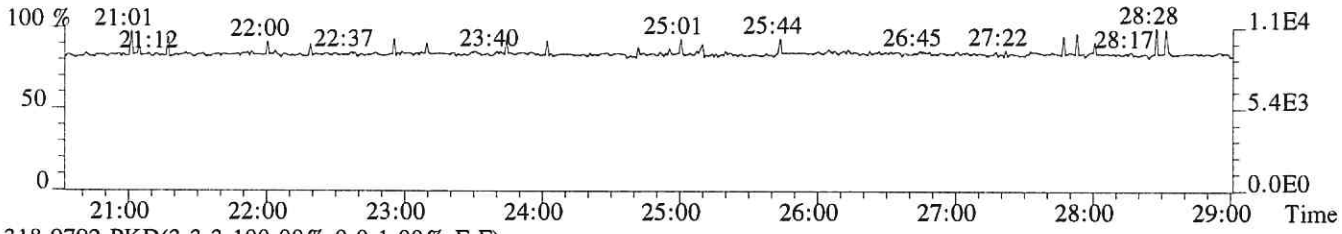
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



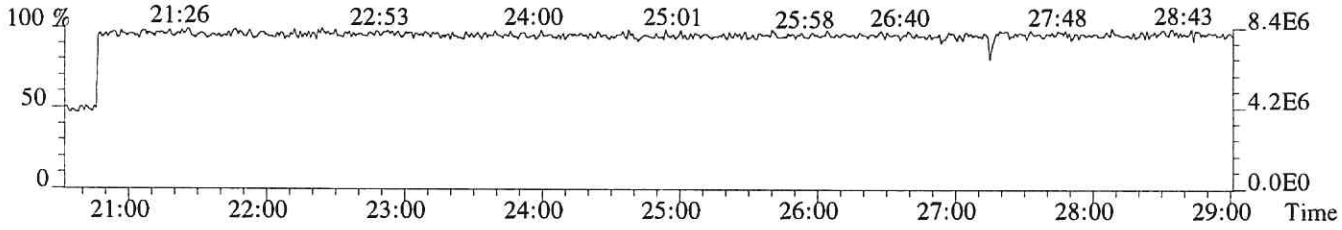
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

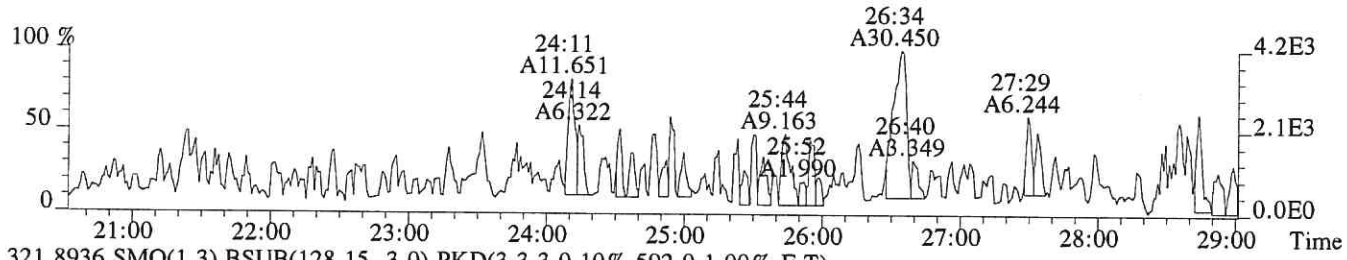


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

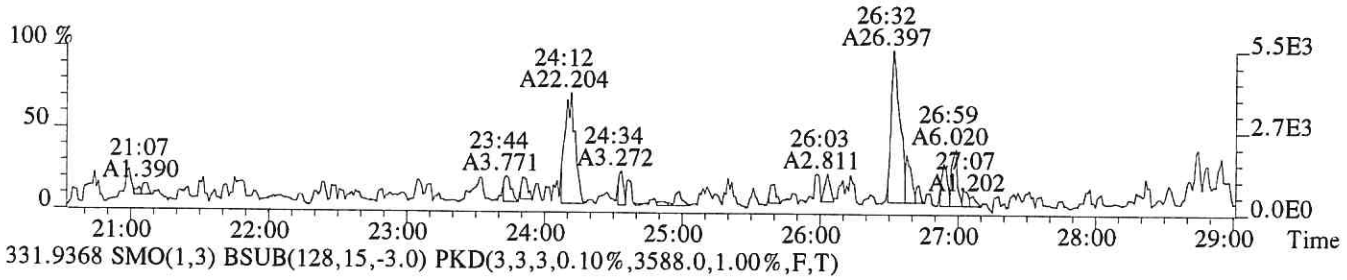


File:P518907 #1-602 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013

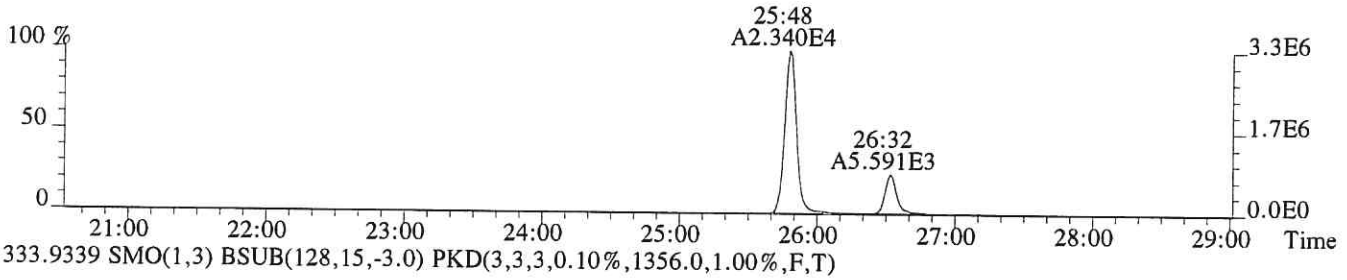
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



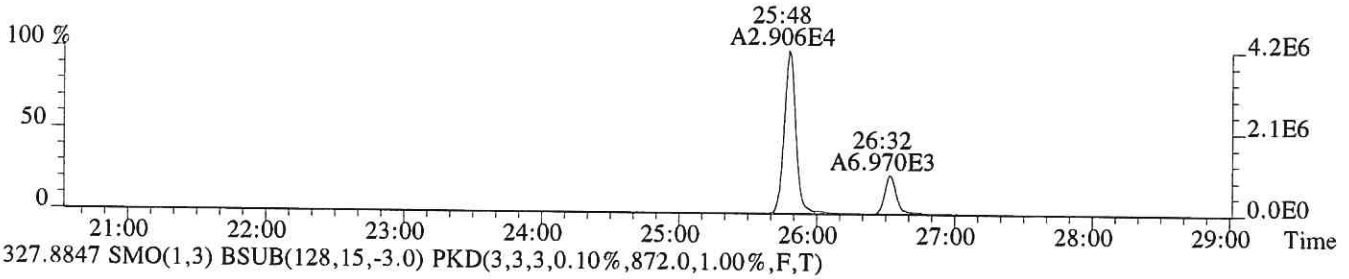
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



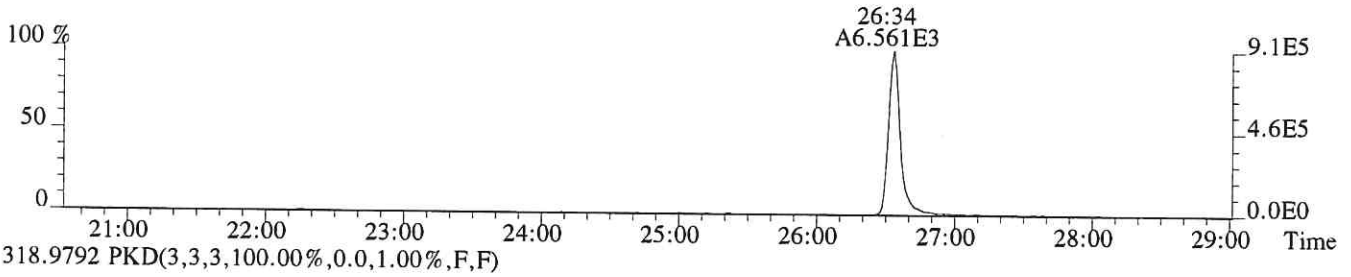
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3588.0,1.00%,F,T)



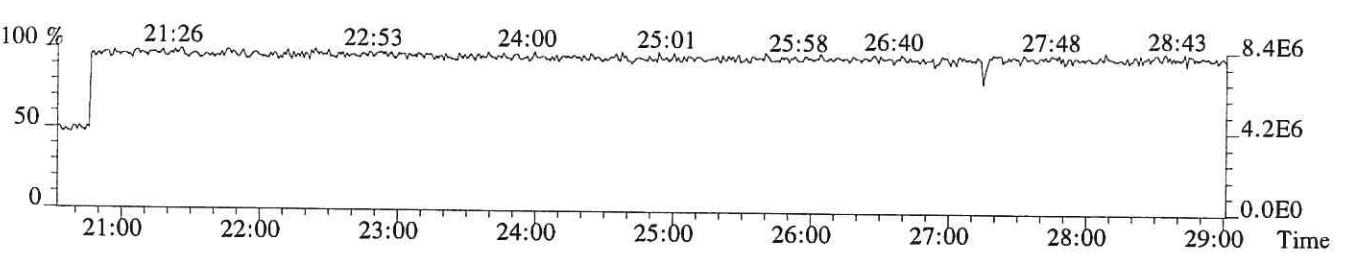
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



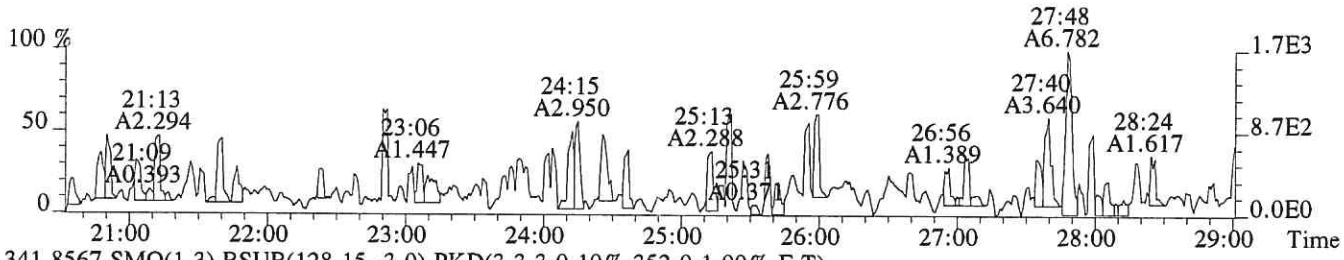
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



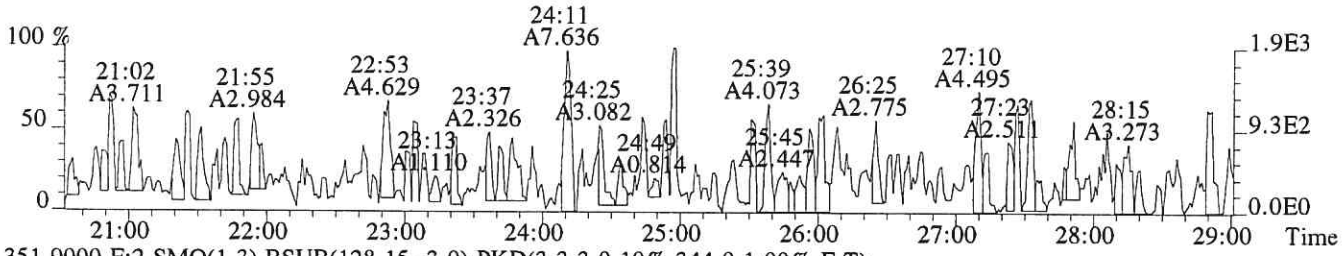
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



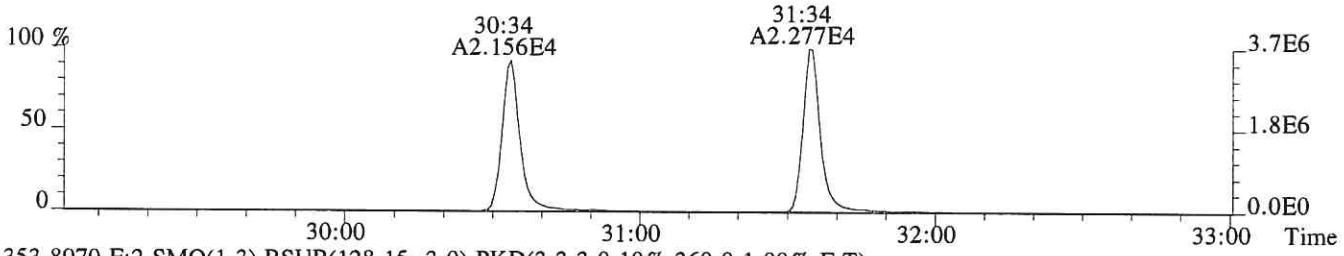
File:P518907 #1-602 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



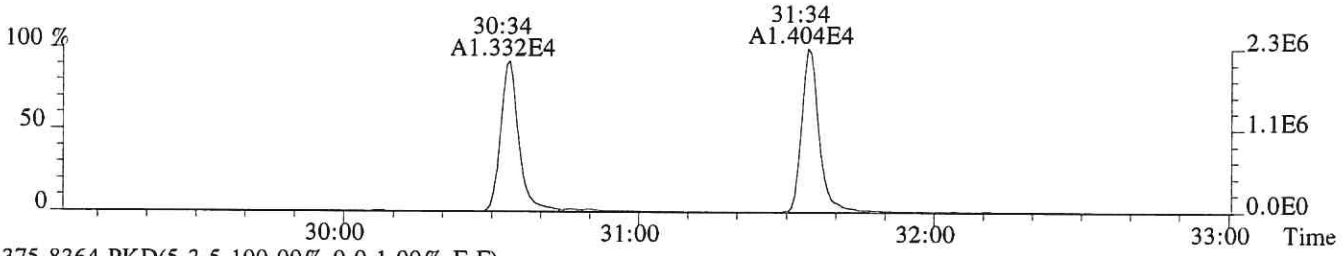
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



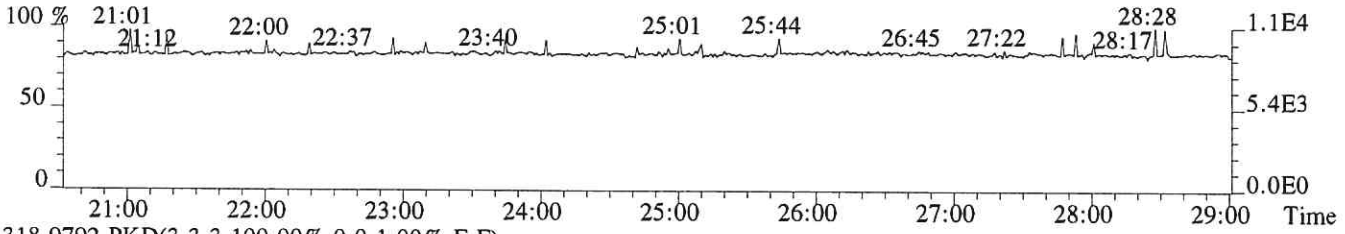
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



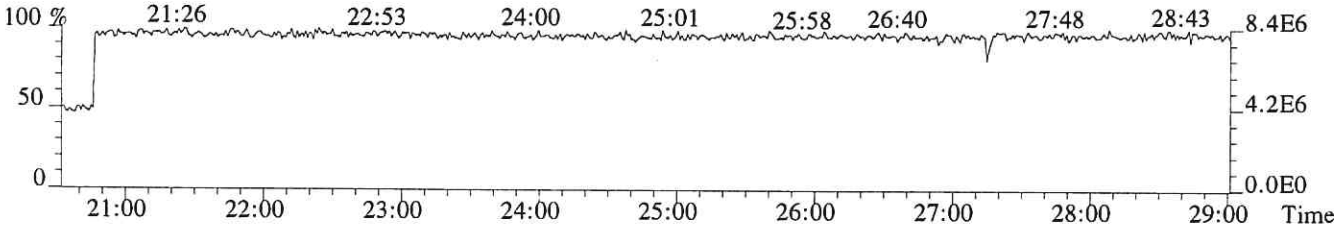
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

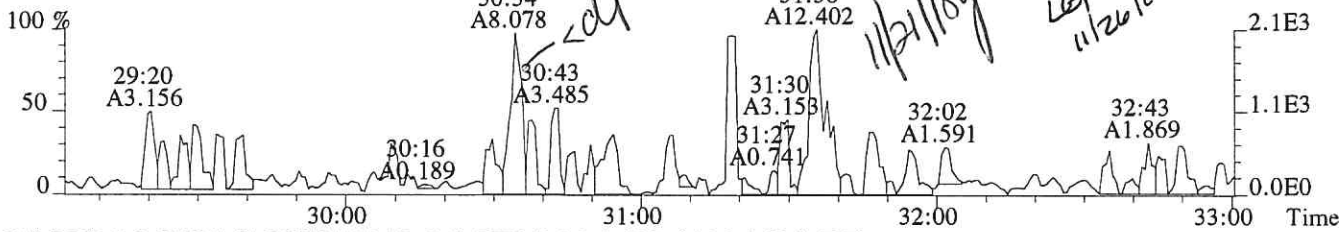


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

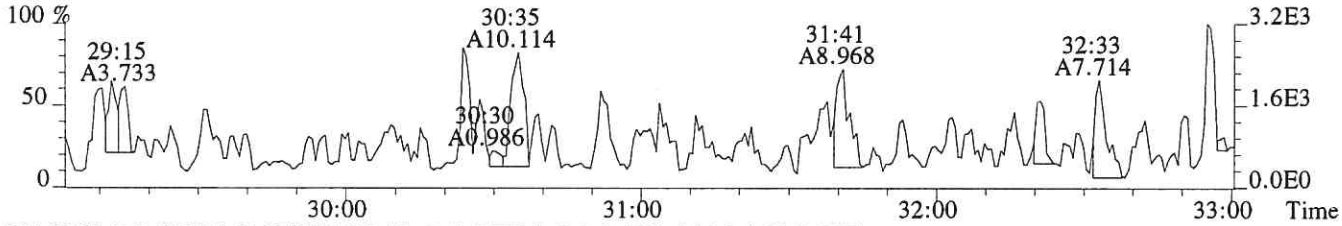


File:P518907 #1-357 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013

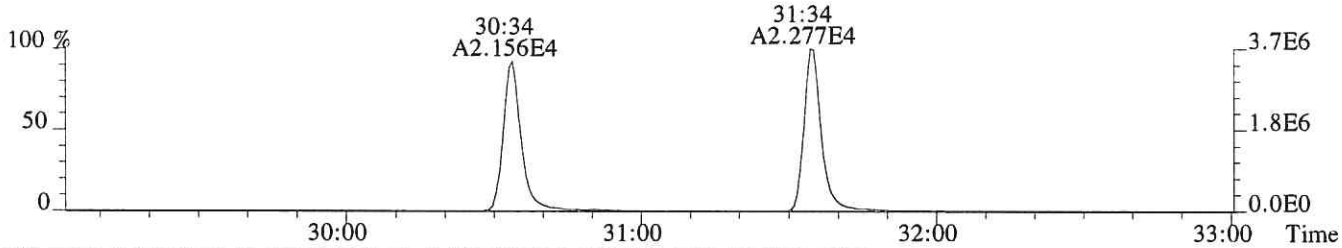
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



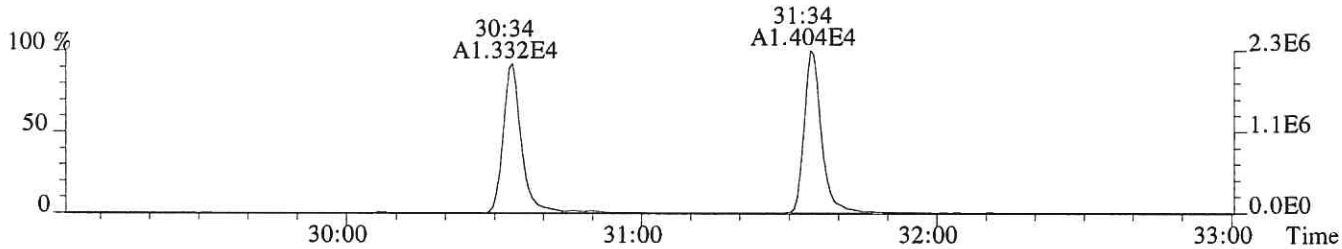
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



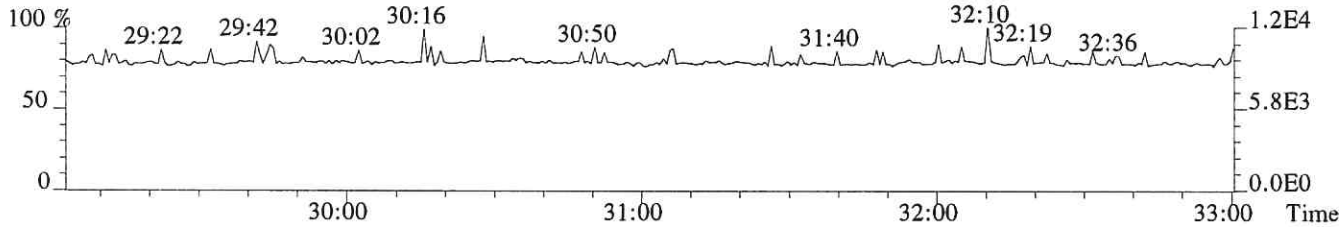
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



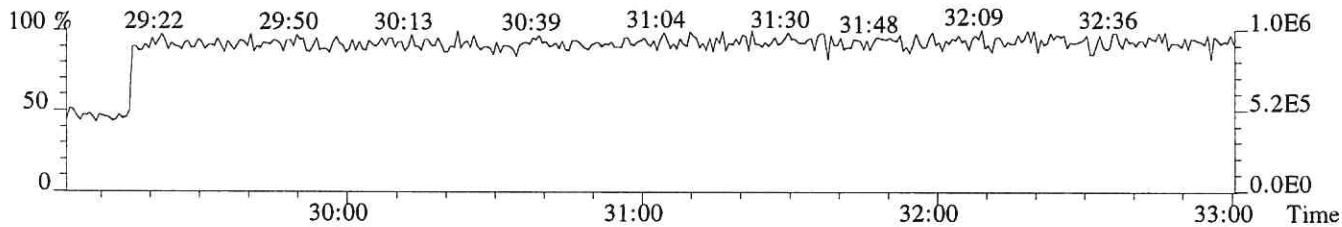
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



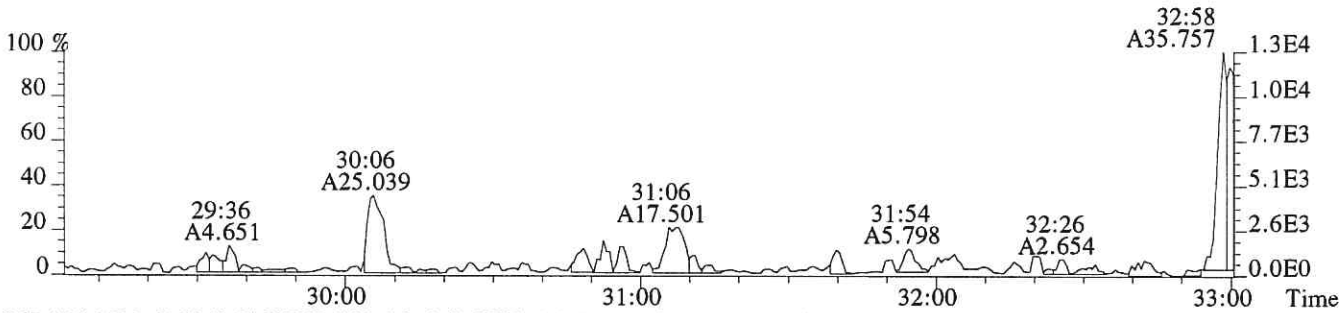
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



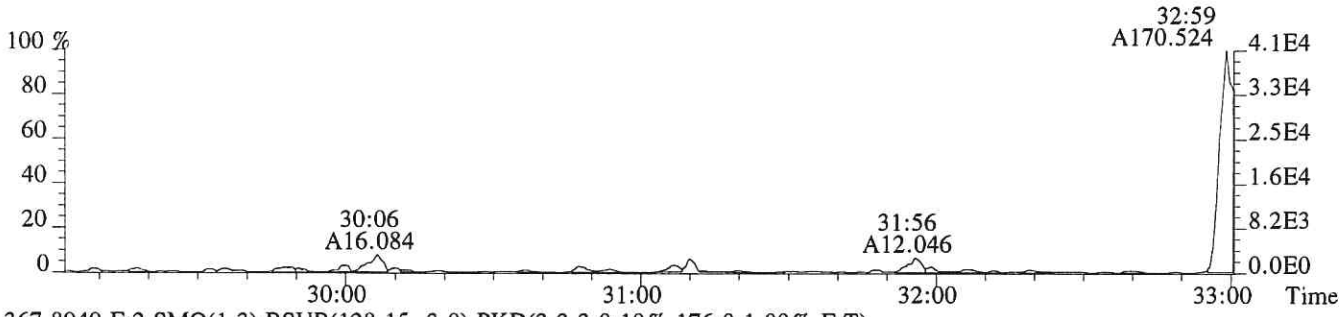
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



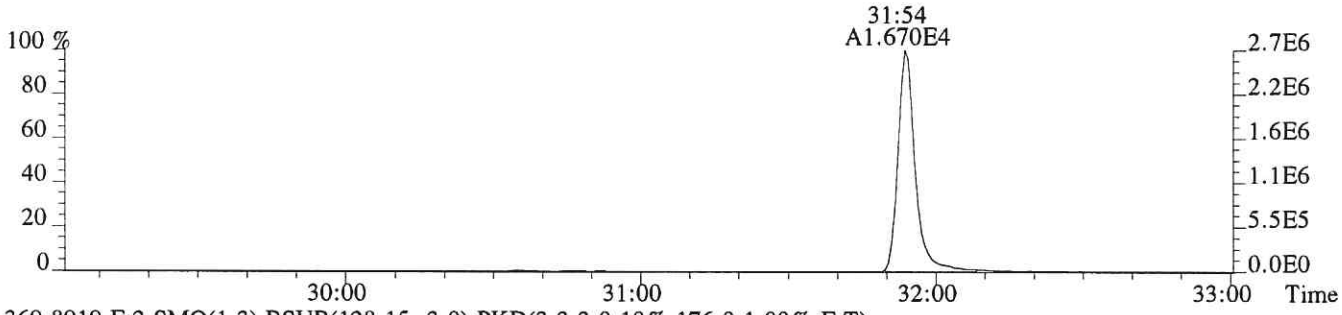
File:P518907 #1-357 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



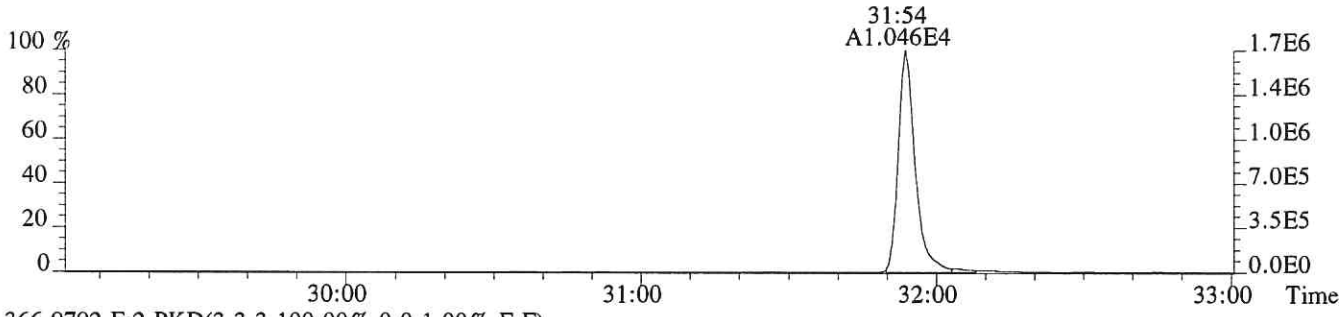
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



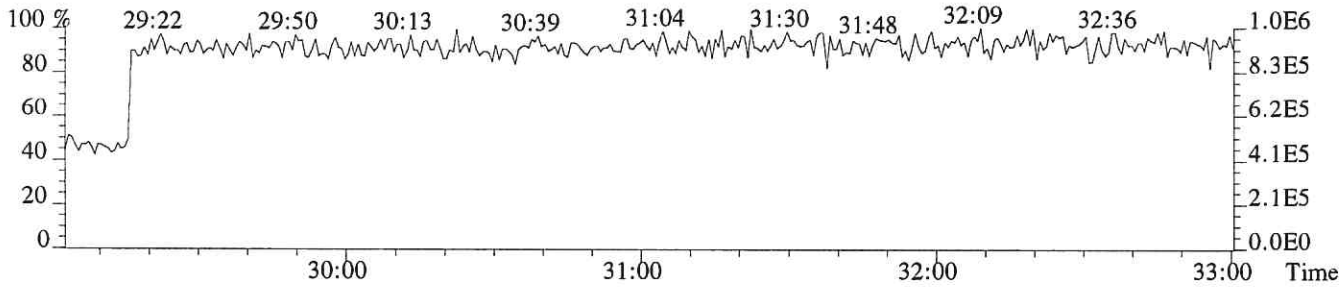
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)



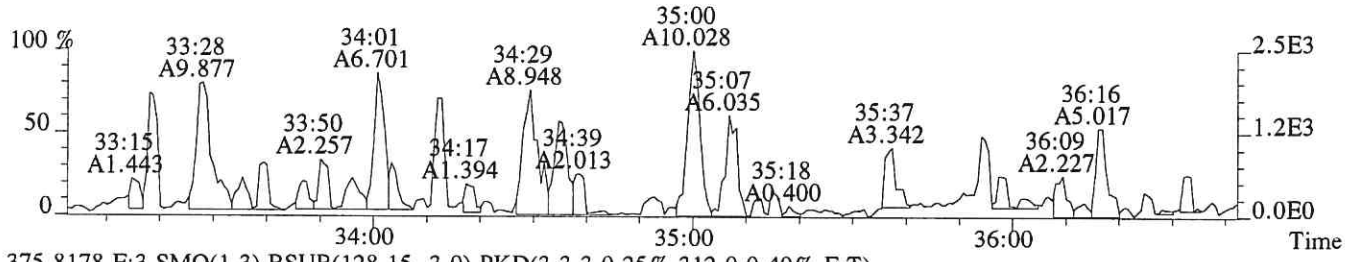
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)



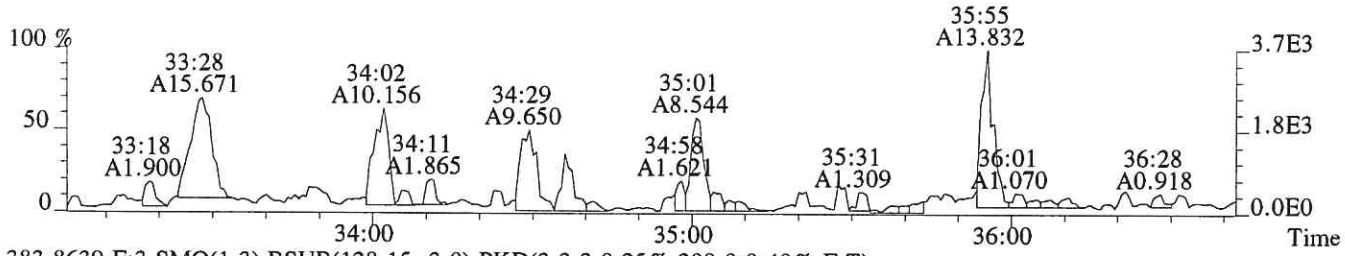
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



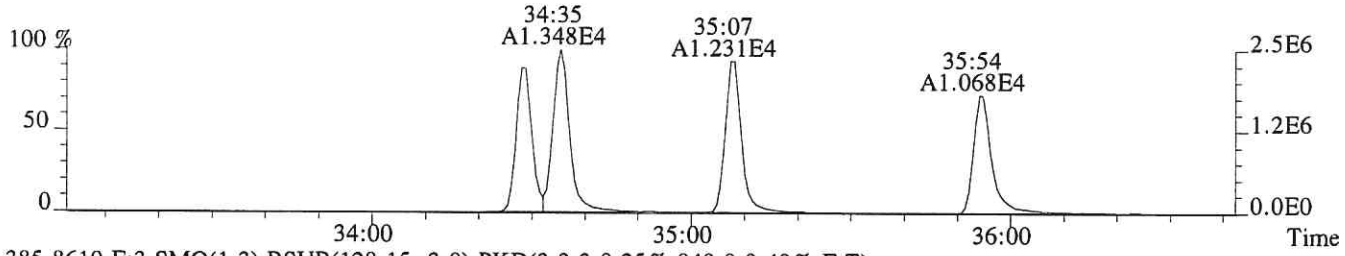
File:P518907 #1-330 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



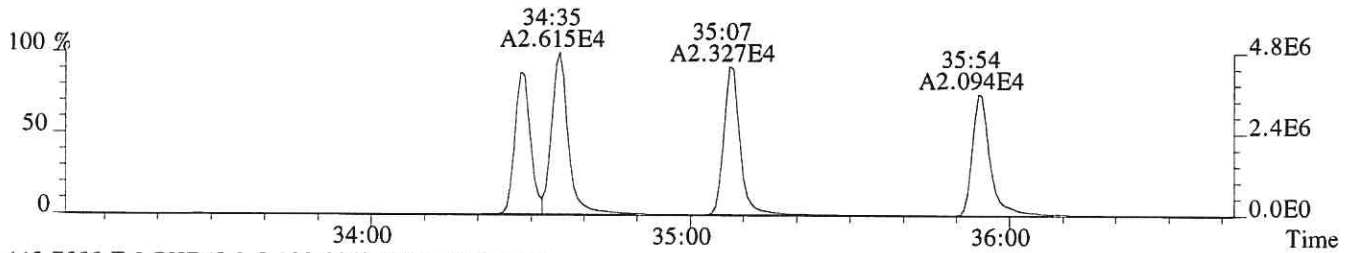
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



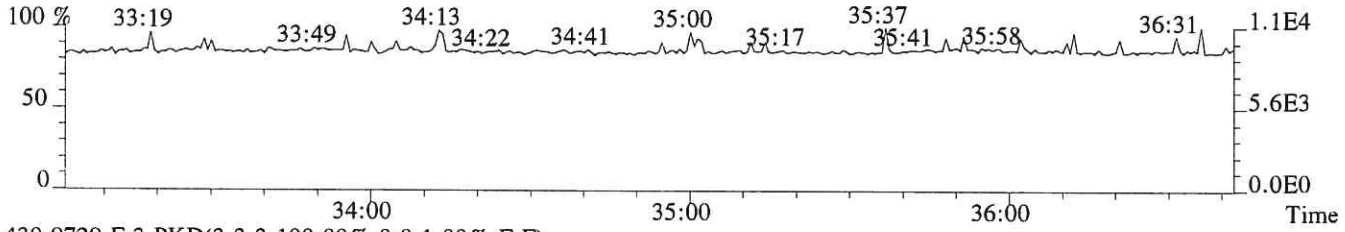
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



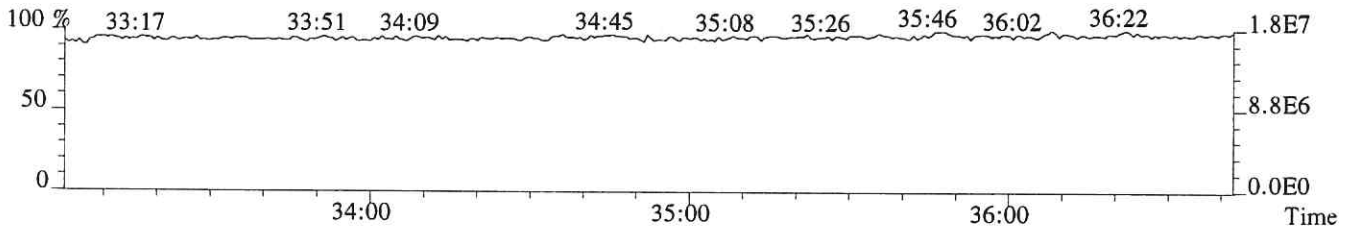
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



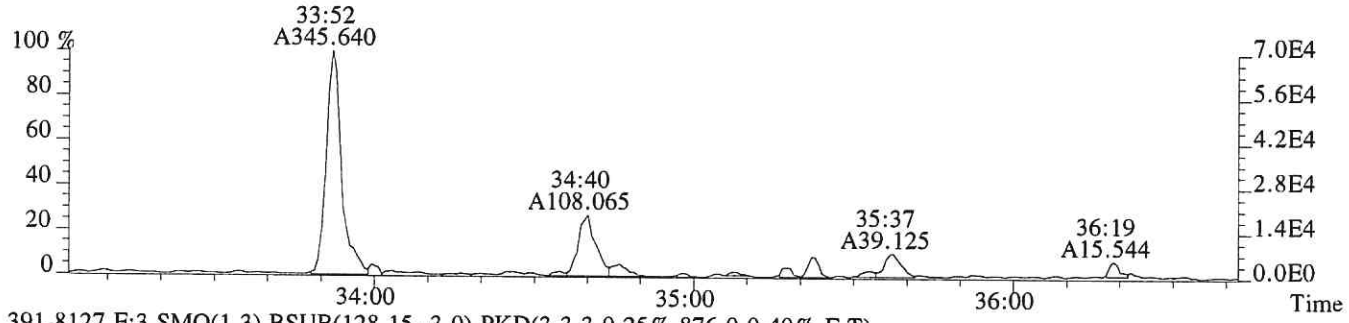
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



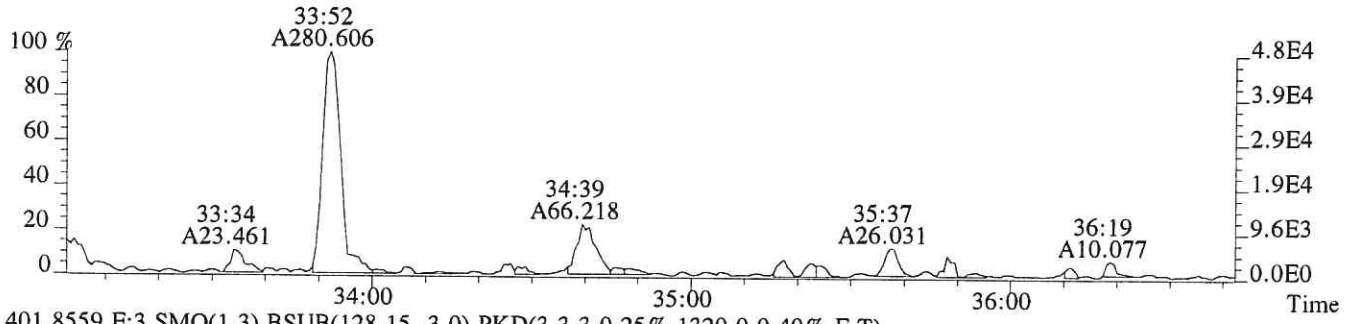
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



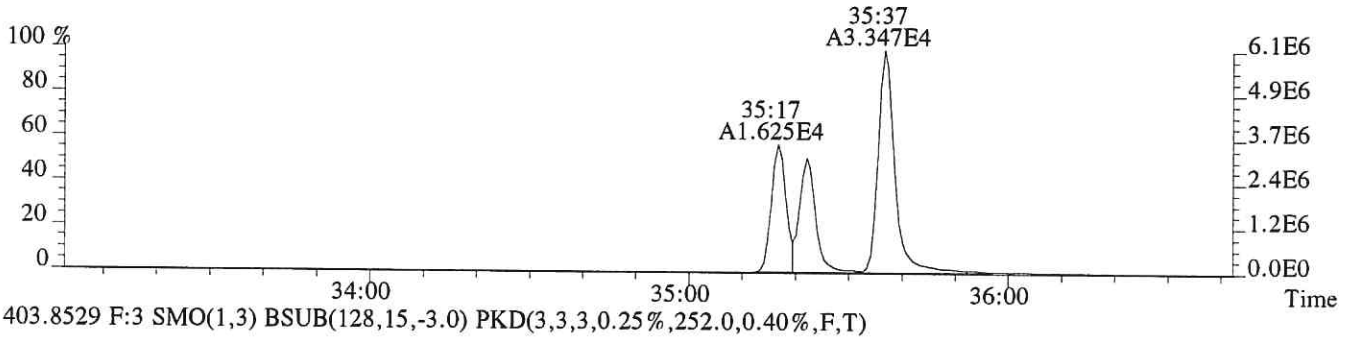
File:P518907 #1-330 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



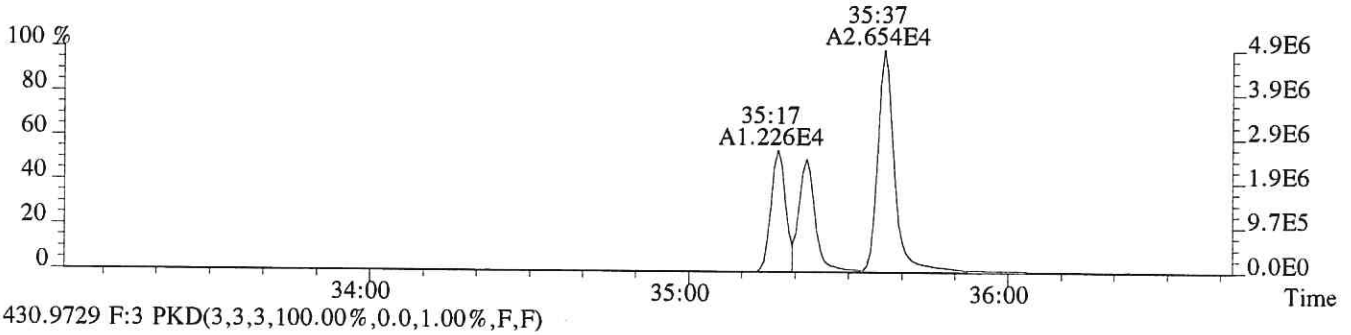
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



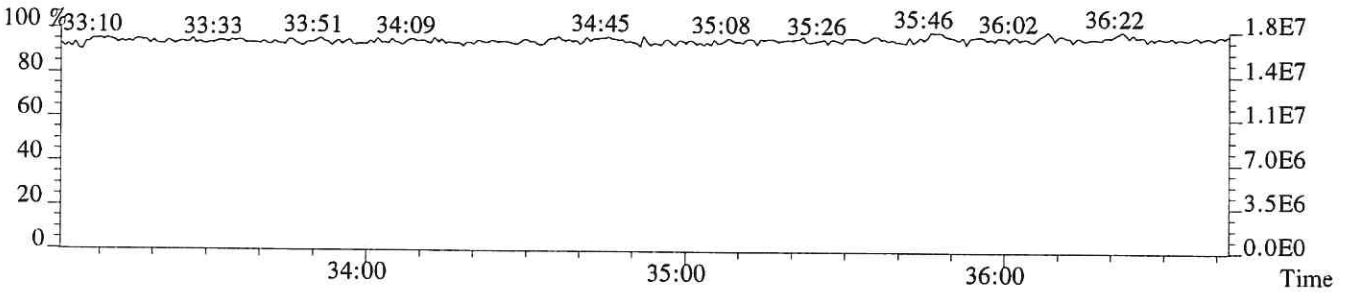
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



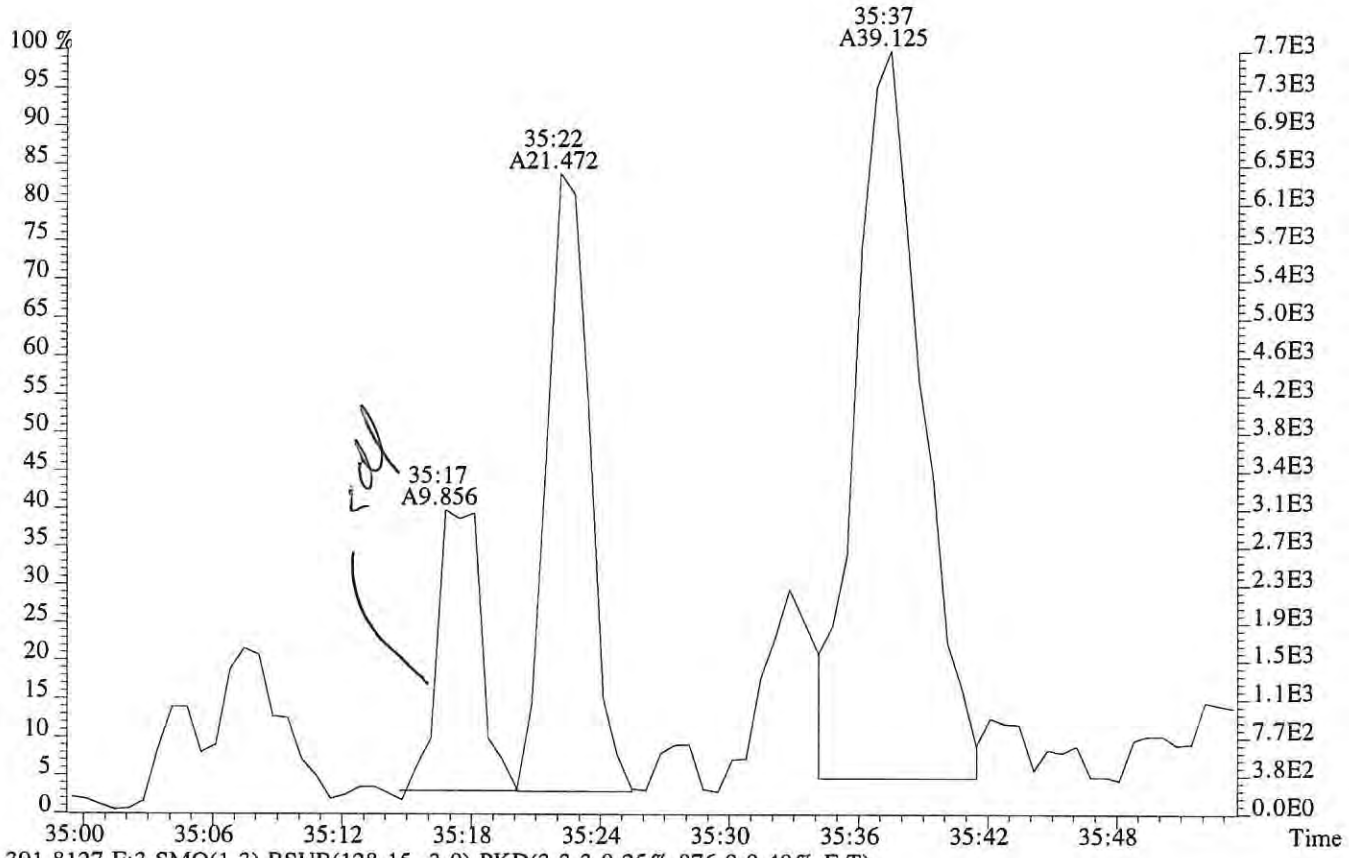
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



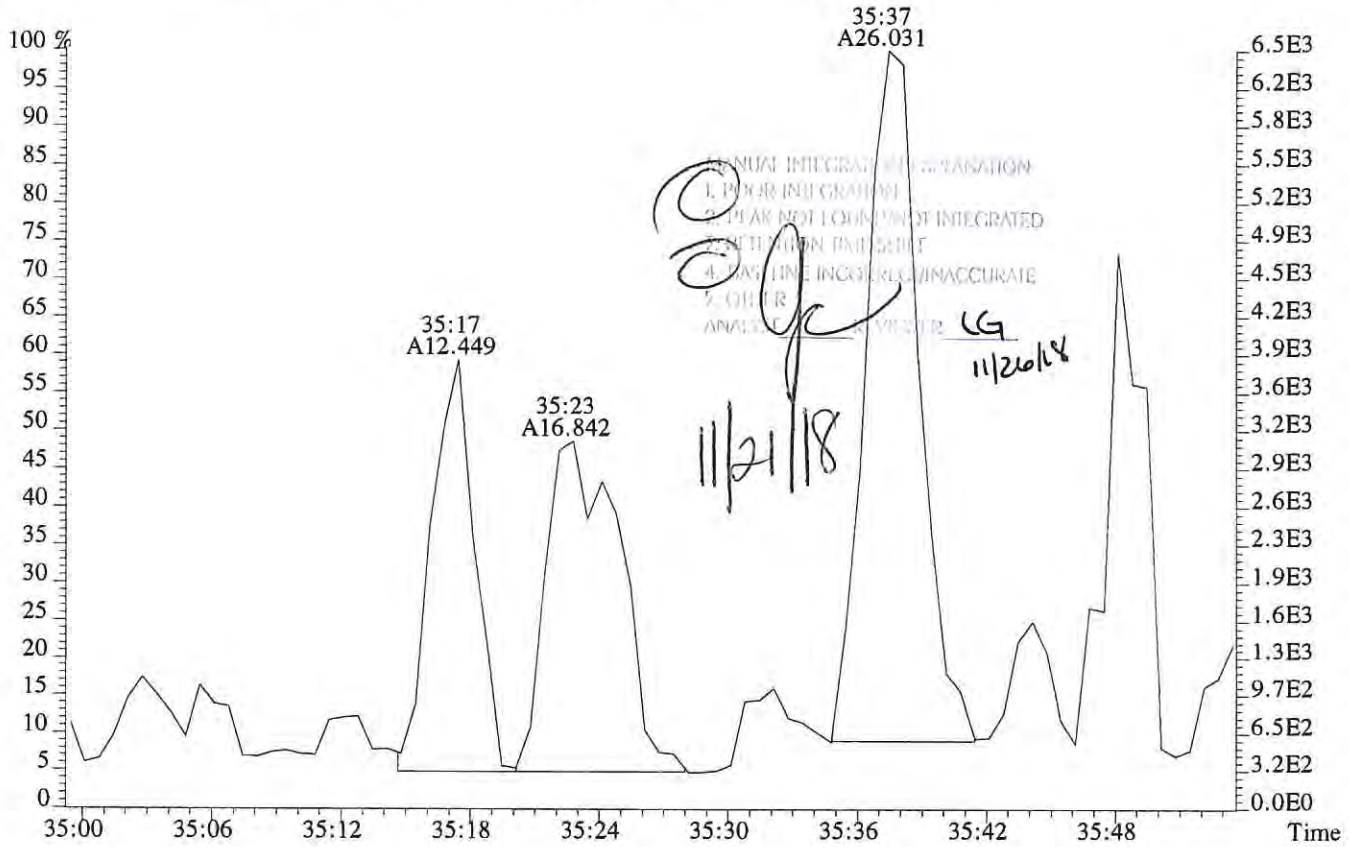
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518907 #1-330 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)

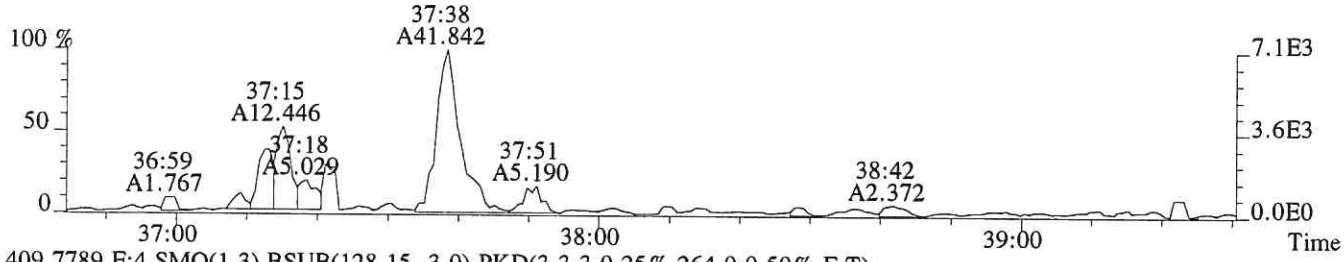


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)

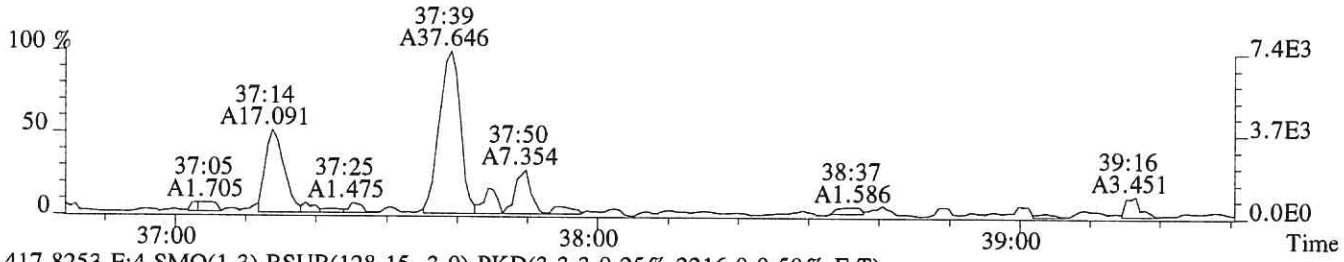


MANUAL INTEGRATION
1. POOR INTEGRATION
2. PEAK NOT LOOKED FOR/NOT INTEGRATED
3. INTEGRATION INCORRECT
4. RETENTION TIME INCONSISTENT/INACCURATE
5. OTHER
ANALYST REVIEW
LG
11/26/18
11/21/18

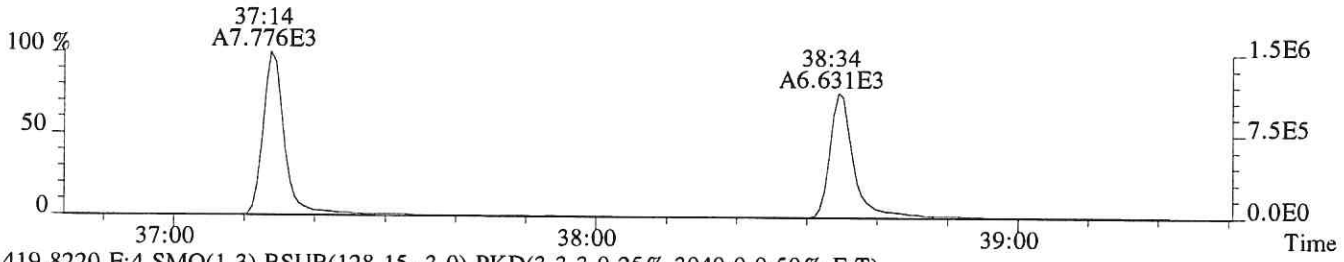
File:P518907 #1-250 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.50%,F,T)



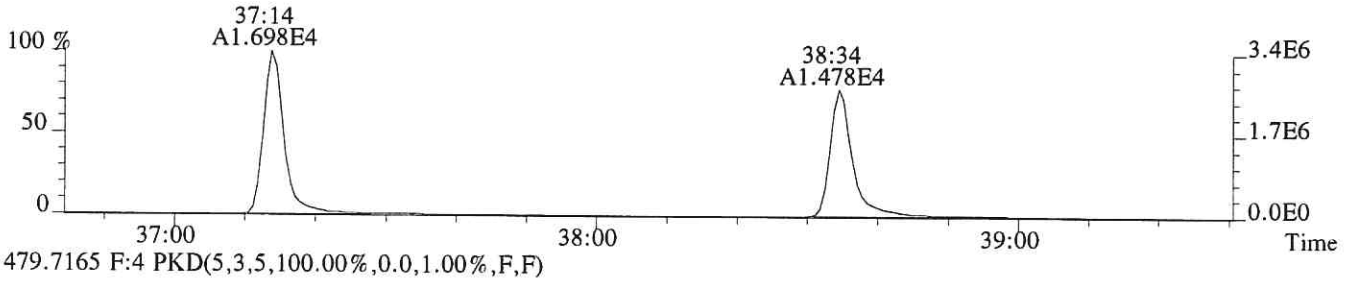
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.50%,F,T)



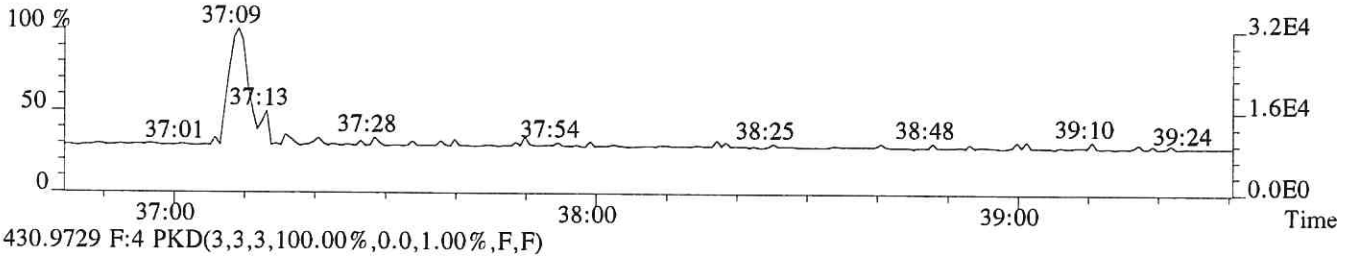
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.50%,F,T)



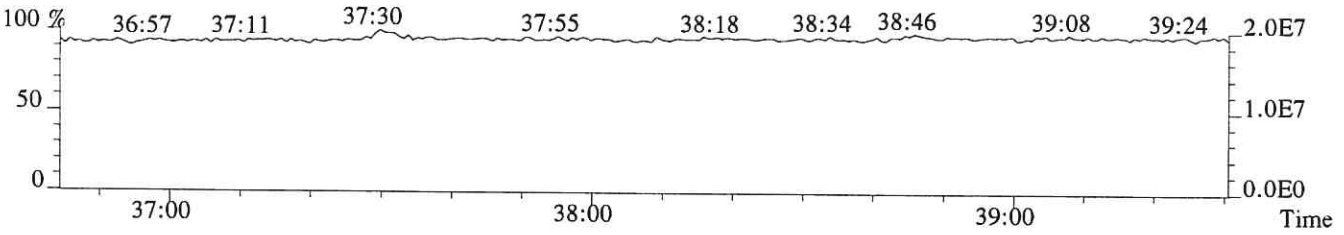
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.50%,F,T)



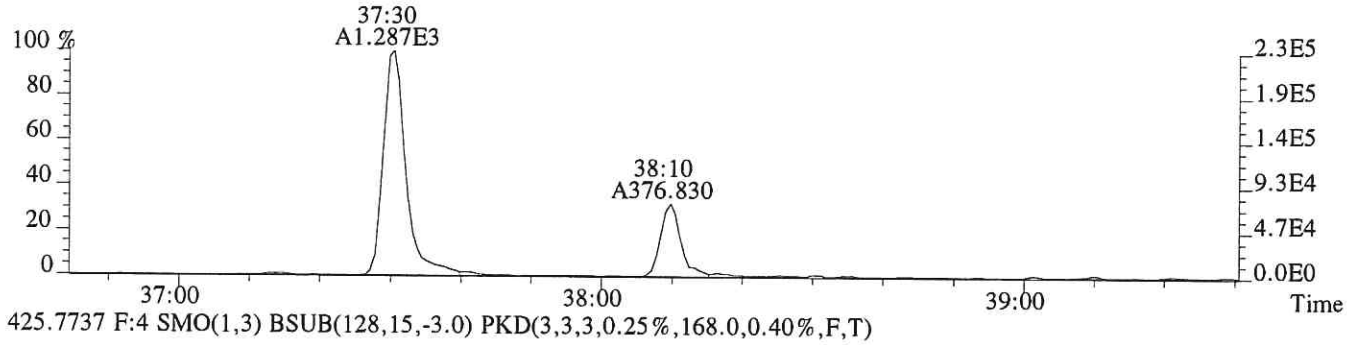
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



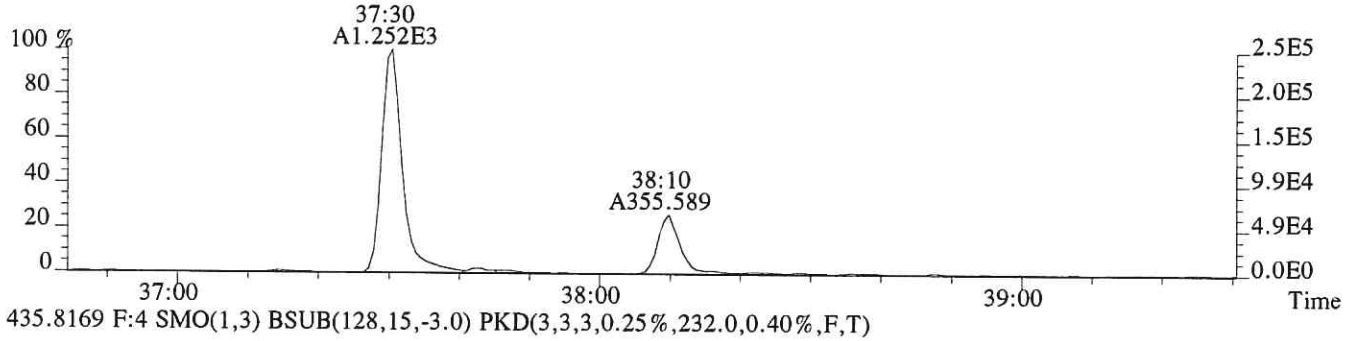
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



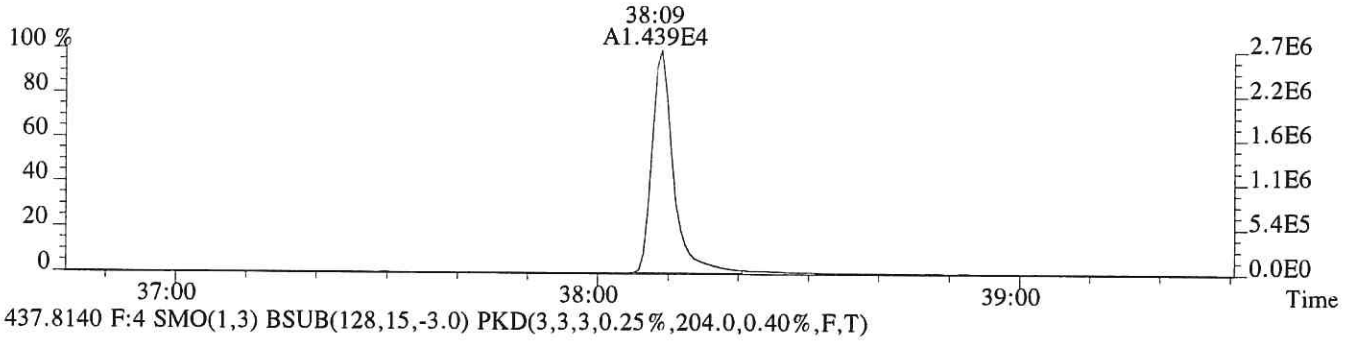
File:P518907 #1-250 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



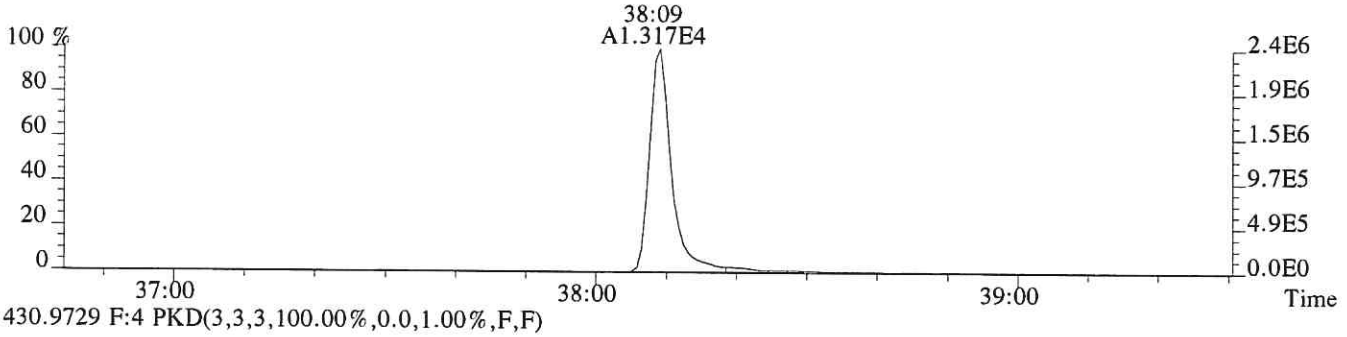
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



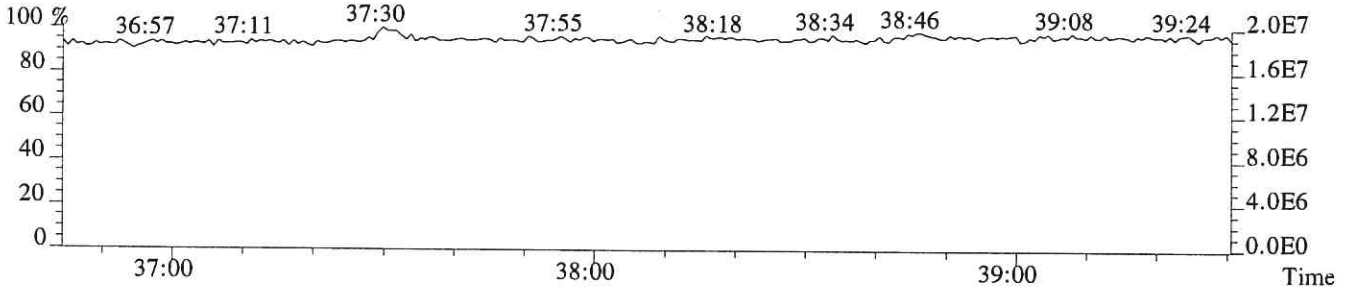
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



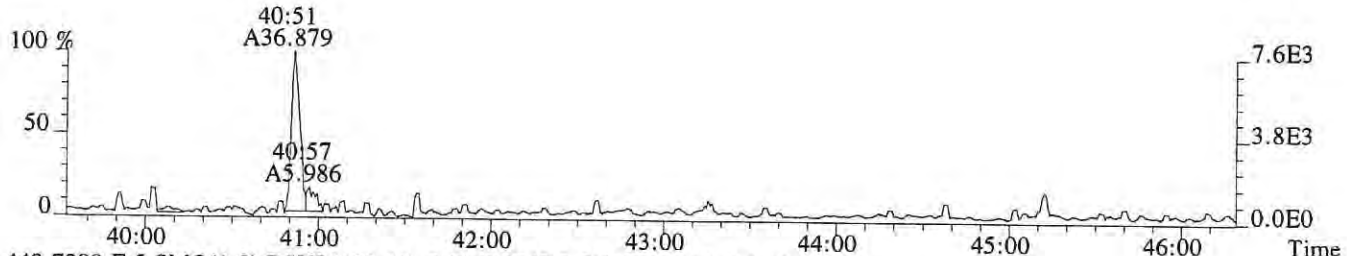
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



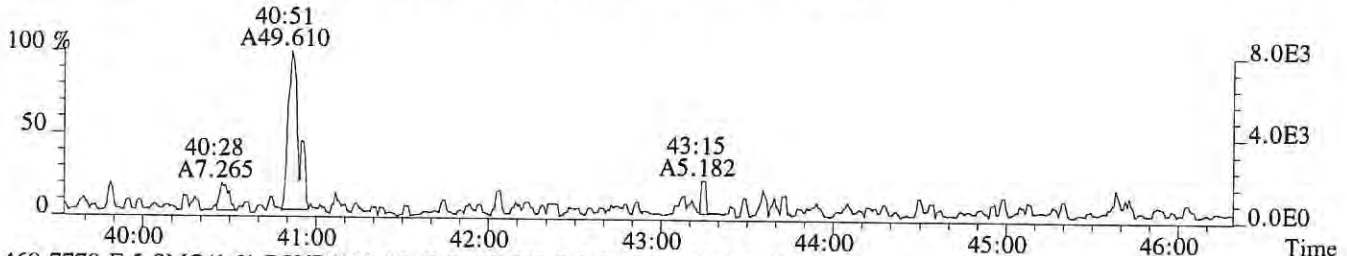
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



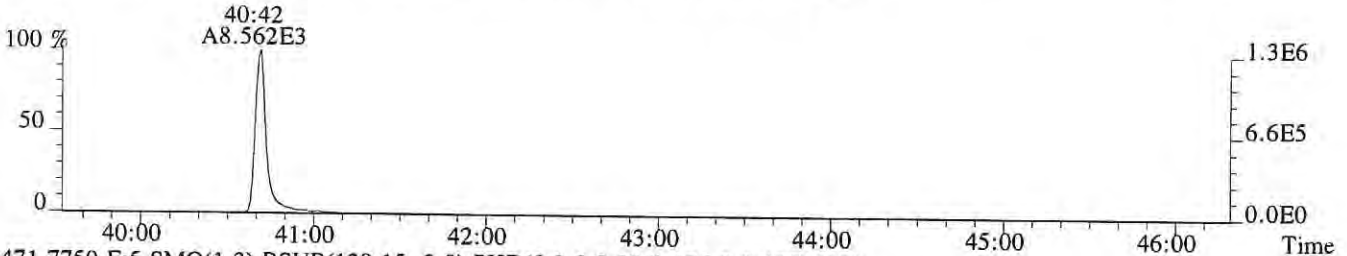
File:P518907 #1-610 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



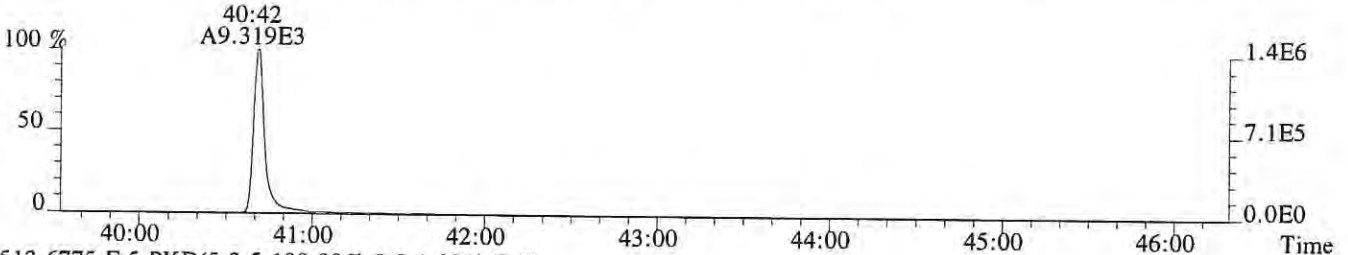
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



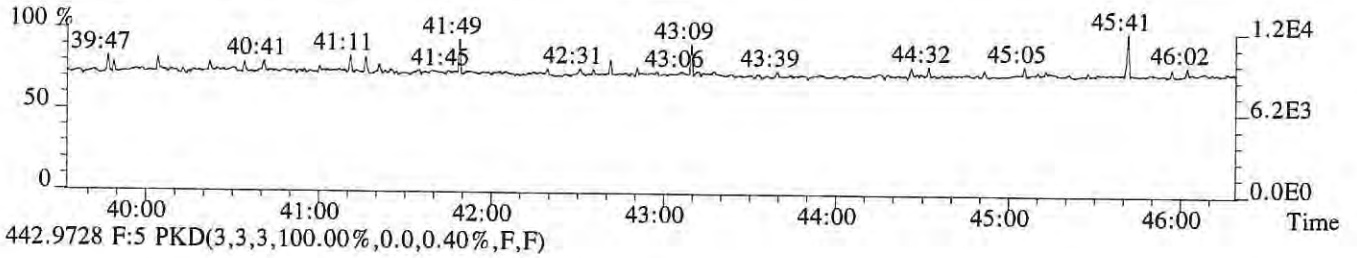
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



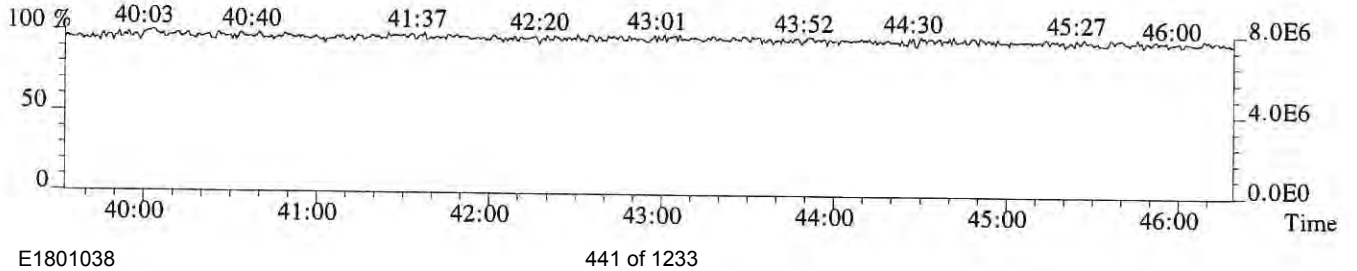
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



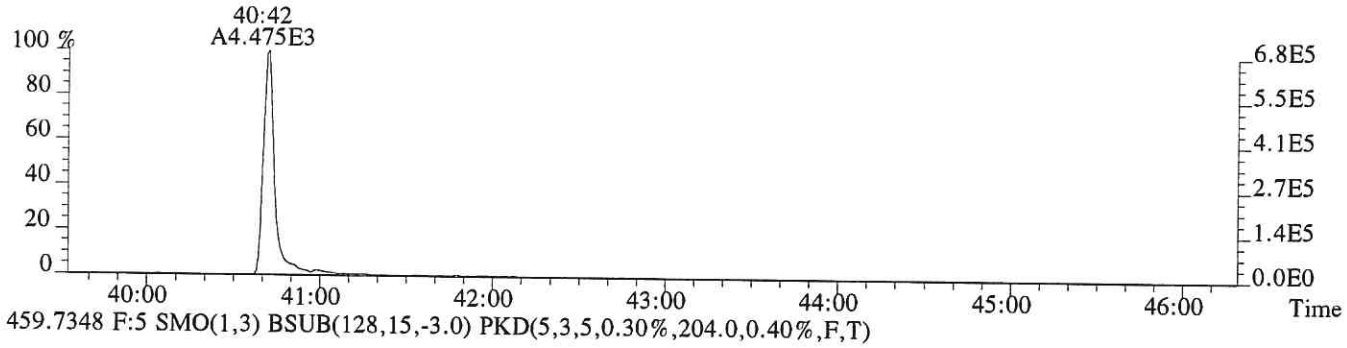
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



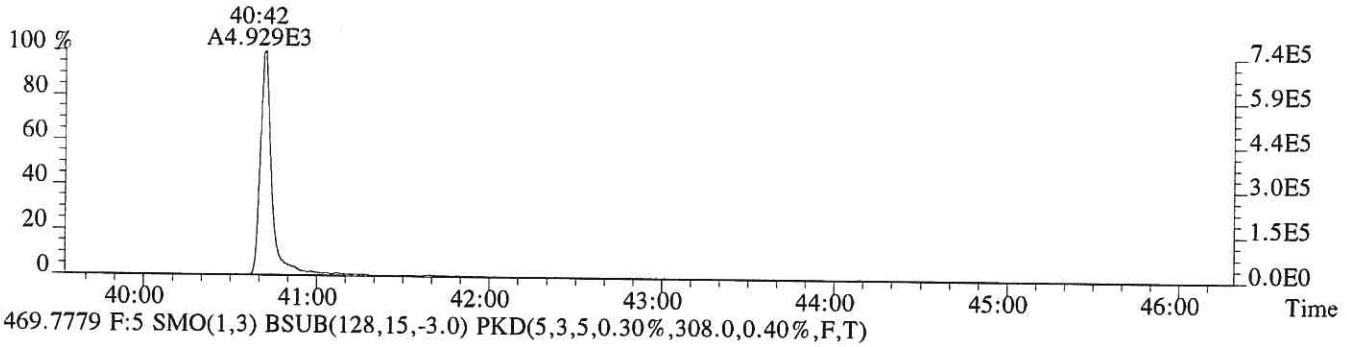
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



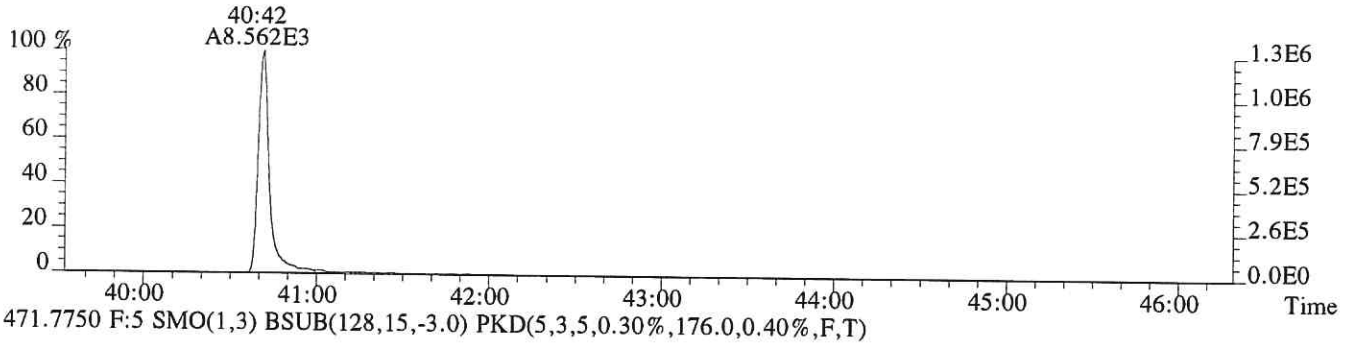
File:P518907 #1-610 Acq:18-NOV-2018 11:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-013
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



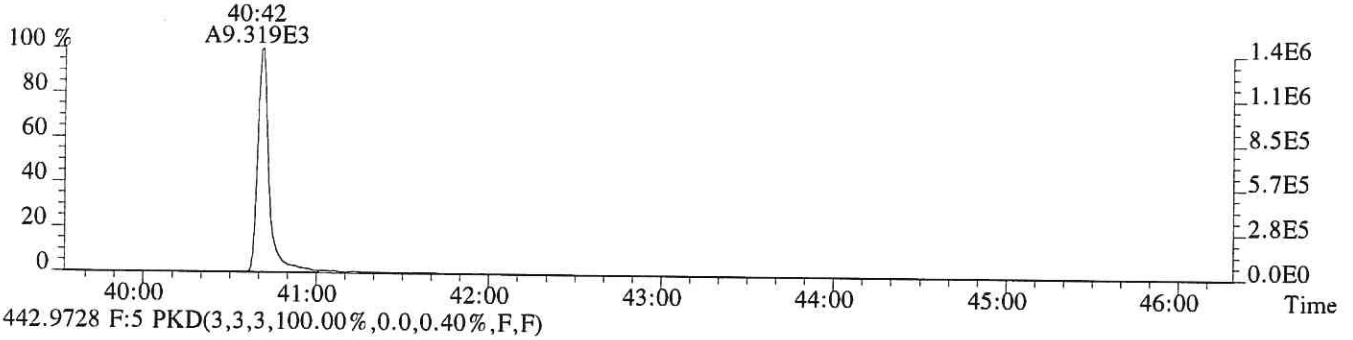
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



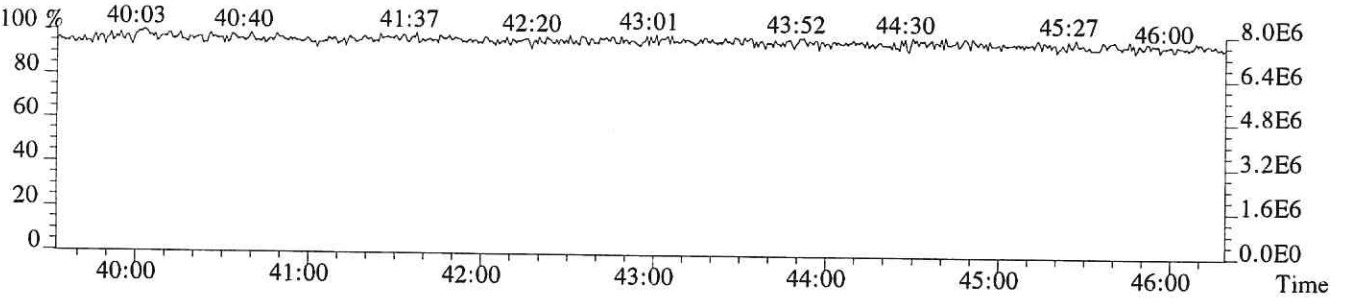
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0532

Run #20 Filename P518908 Samp: 1 Inj: 1 Acquired: 18-NOV-18 12:27:54
Processed: 21-NOV-18 12:45:00 Sample ID: E1801038-014

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:31	1.002e+02	1.132e+02	0.88	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.297e+01	3.095e+01	0.42	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	40:51	3.432e+01	2.957e+01	1.16	no	no	1.359
11	Unk	2,3,7,8-TCDD	26:32	2.366e+01	3.934e+01	0.60	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	2.658e+01	2.275e+01	1.17	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	3.834e+02	3.545e+02	1.08	yes	no	1.025
17	Unk	OCDD	40:42	3.212e+03	3.559e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	1.558e+04	1.961e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.899e+04	1.807e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.828e+04	1.757e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.248e+04	2.400e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.547e+04	2.966e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.354e+04	2.578e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.061e+04	2.069e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.171e+03	1.883e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.405e+03	1.460e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	1.035e+04	1.294e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	2.110e+04	1.318e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.797e+04	1.425e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.872e+04	1.496e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.454e+04	1.435e+04	1.01	yes	no	0.858
32	IS	13C-OCDD	40:42	7.977e+03	8.658e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	2.364e+04	2.961e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.514e+04	2.803e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.186e+04				no	1.014

$$OCDD = \frac{(3.212e+03 + 3.559e+03) \times 4000\ pg \times 1}{(7.977e+03 + 8.658e+03) \times 10.482g \times 80.3/100 \times 1.118} =$$

173.0169 ng/kg
LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0532

Run #20 Filename P518908 Samp: 1 Inj: 1 Acquired: 18-NOV-18 12:27:54
Processed: 21-NOV-18 12:45:00 LAB. ID: E1801038-014

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.23e+04	2.92e+02	4.2e+01	1.41e+04	5.80e+02	2.4e+01
2	1,2,3,7,8-PeCDF	*	1.68e+02	*	*	5.20e+02	*
3	2,3,4,7,8-PeCDF	*	1.68e+02	*	*	5.20e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.96e+02	*	*	2.32e+02	*
5	1,2,3,6,7,8-HxCDF	*	3.96e+02	*	*	2.32e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.96e+02	*	*	2.32e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.96e+02	*	*	2.32e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.72e+03	3.24e+02	1.1e+01	7.62e+03	2.16e+02	3.5e+01
9	1,2,3,4,7,8,9-HpCDF	*	3.24e+02	*	*	2.16e+02	*
10	OCDF	5.79e+03	1.60e+02	3.6e+01	8.35e+03	6.48e+02	1.3e+01
11	2,3,7,8-TCDD	3.63e+03	8.44e+02	4.3e+00	6.89e+03	4.56e+02	1.5e+01
12	1,2,3,7,8-PeCDD	*	7.00e+02	*	*	3.64e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.36e+02	*	*	4.64e+02	*
14	1,2,3,6,7,8-HxCDD	*	8.36e+02	*	*	4.64e+02	*
15	1,2,3,7,8,9-HxCDD	6.79e+03	8.36e+02	8.1e+00	3.95e+03	4.64e+02	8.5e+00
16	1,2,3,4,6,7,8-HpCDD	7.07e+04	6.80e+02	1.0e+02	6.23e+04	3.52e+02	1.8e+02
17	OCDD	5.06e+05	1.88e+02	2.7e+03	5.38e+05	5.20e+02	1.0e+03
18	13C-2,3,7,8-TCDF	2.00e+06	2.86e+03	7.0e+02	2.47e+06	1.26e+03	2.0e+03
19	13C-1,2,3,7,8-PeCDF	4.54e+06	2.20e+02	2.1e+04	2.82e+06	1.15e+03	2.4e+03
20	13C-2,3,4,7,8-PeCDF	4.82e+06	2.20e+02	2.2e+04	2.96e+06	1.15e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.49e+06	6.52e+02	3.8e+03	4.83e+06	2.76e+02	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	2.90e+06	6.52e+02	4.4e+03	5.58e+06	2.76e+02	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.56e+06	6.52e+02	3.9e+03	4.94e+06	2.76e+02	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	1.79e+06	6.52e+02	2.7e+03	3.57e+06	2.76e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.64e+06	1.51e+03	1.1e+03	3.73e+06	2.56e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.17e+06	1.51e+03	7.7e+02	2.65e+06	2.56e+03	1.0e+03
27	13C-2,3,7,8-TCDD	1.52e+06	2.83e+03	5.4e+02	1.84e+06	9.64e+02	1.9e+03
28	13C-1,2,3,7,8-PeCDD	3.53e+06	2.36e+02	1.5e+04	2.26e+06	2.84e+02	7.9e+03
29	13C-1,2,3,4,7,8-HxCDD	3.88e+06	1.48e+03	2.6e+03	3.07e+06	6.88e+02	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	3.53e+06	1.48e+03	2.4e+03	2.82e+06	6.88e+02	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.74e+06	2.56e+02	1.1e+04	2.64e+06	2.56e+02	1.0e+04
32	13C-OCDD	1.23e+06	2.56e+02	4.8e+03	1.36e+06	1.44e+02	9.4e+03
33	13C-1,2,3,4-TCDD	3.39e+06	2.83e+03	1.2e+03	4.29e+06	9.64e+02	4.4e+03
34	13C-1,2,3,7,8,9-HxCDD	6.33e+06	1.48e+03	4.3e+03	5.04e+06	6.88e+02	7.3e+03
35	37Cl-2,3,7,8-TCDD	1.71e+06	7.08e+02	2.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0532

Entry: 36 Totals Name: Total Tetra-Furans

Run: 20 File: P518908 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 12:27:54 Processed: 21-NOV-18 12:45:00

Mass: 303.9020 305.8990 Tot Response: 2.35e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:40	9.79e+00	1.18e+01	0.83	yes	2.16e+01		n	n
2	25:31	1.00e+02	1.13e+02	0.88	yes	2.13e+02	2,3,7,8-TCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0532

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 20 File: P518908 Sample:1 Injection:1 Function:1

Acquired: 18-NOV-18 12:27:54 Processed: 21-NOV-18 12:45:00

Mass: 319.8970 321.8940 Tot Response: 1.07e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:12	5.03e+01	5.69e+01 0.88	yes	1.07e+02		y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0532

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 20 File: P518908 Sample:1 Injection:1 Function:3

Acquired: 18-NOV-18 12:27:54 Processed: 21-NOV-18 12:45:00

Mass: 389.8160 391.8130 Tot Response: 5.92e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	3.01e+02	2.42e+02 1.24	yes	5.43e+02		n	n
2	35:37	2.66e+01	2.27e+01 1.17	yes	4.93e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0532

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 20 File: P518908 Sample:1 Injection:1 Function:4

Acquired: 18-NOV-18 12:27:54 Processed: 21-NOV-18 12:45:00

Mass: 423.7770 425.7740 Tot Response: 2.86e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	1.09e+03	1.03e+03 1.05	yes	2.12e+03		n	n
2	38:10	3.83e+02	3.55e+02 1.08	yes	7.38e+02	1,2,3,4,6,7,8-HpCDD	n	n

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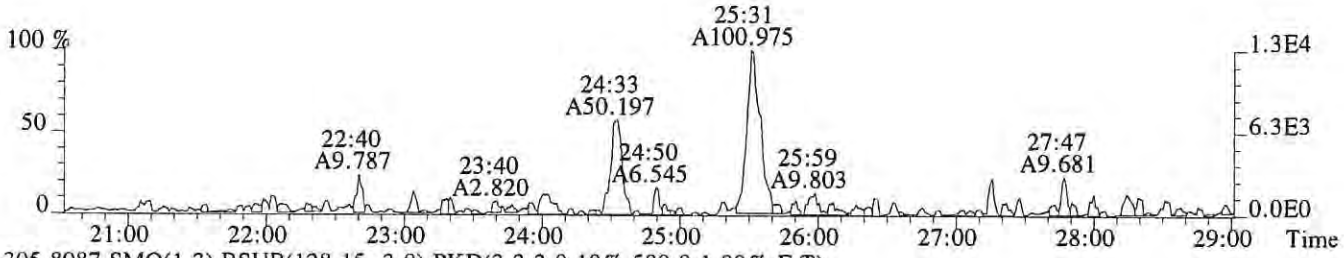
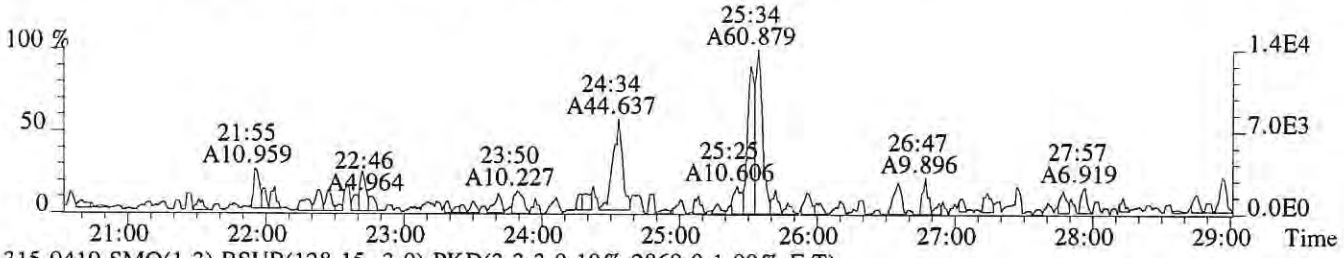
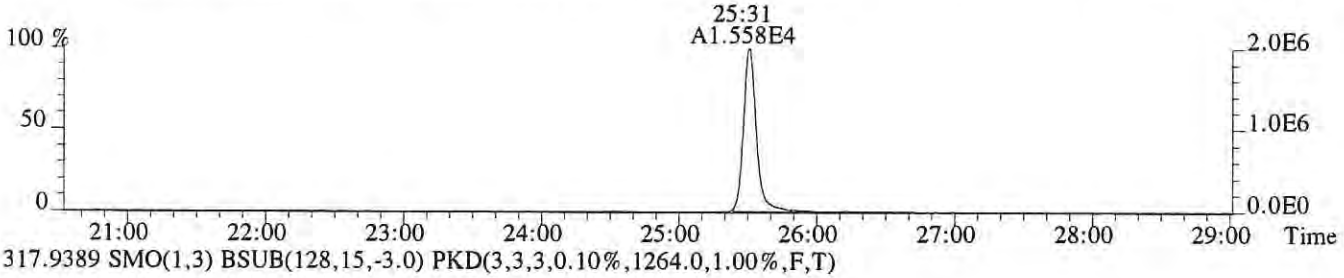
File:P518908 #1-602 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



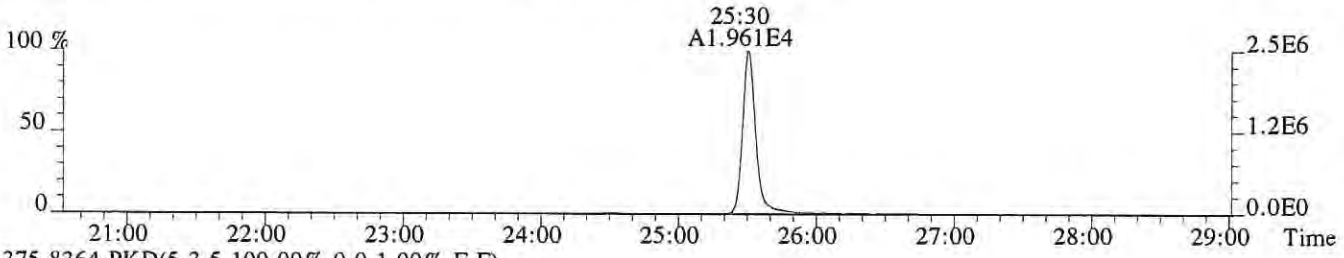
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



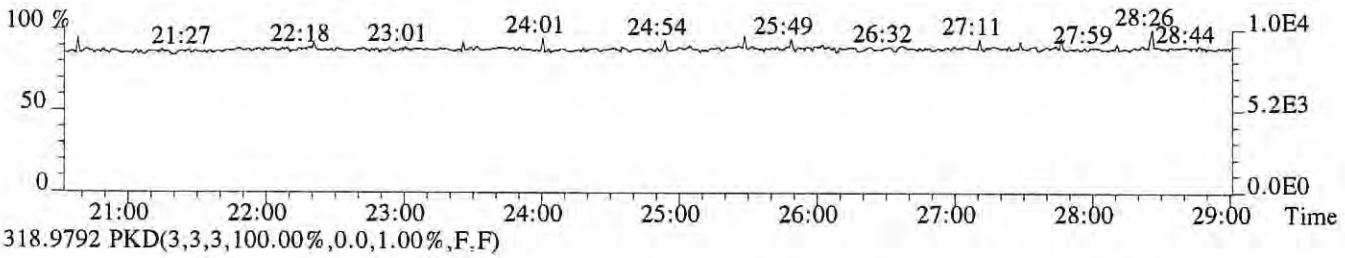
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



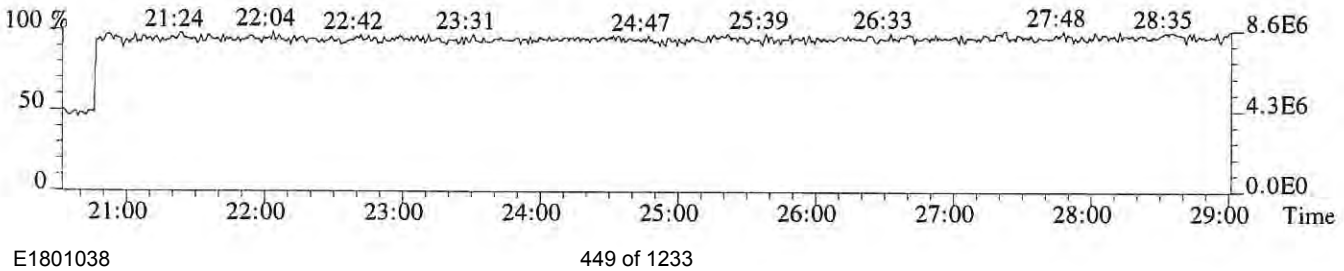
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



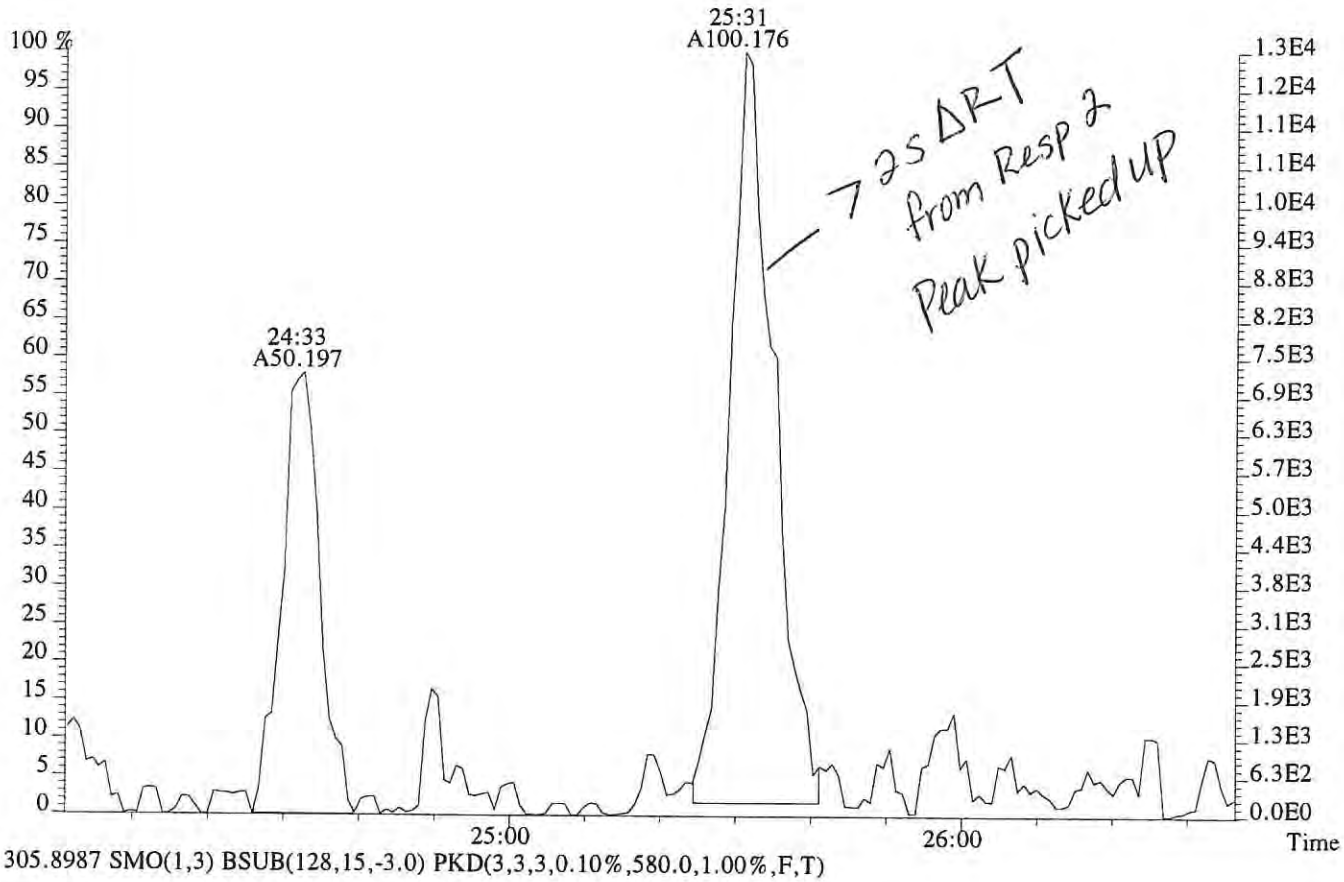
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



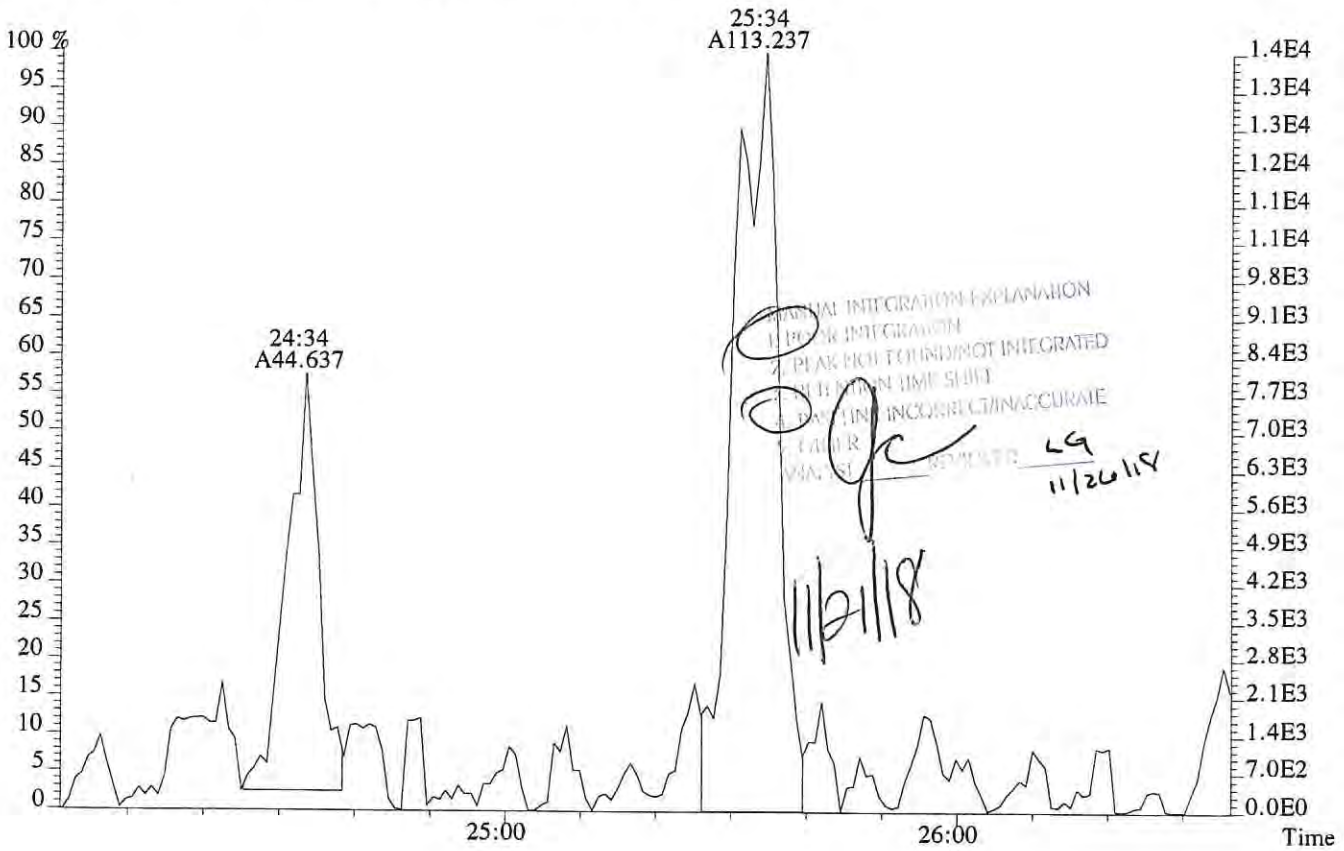
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



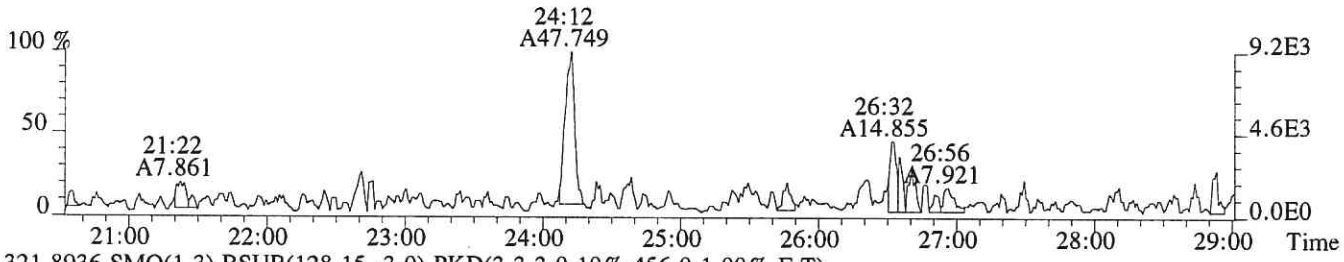
File:P518908 #1-602 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



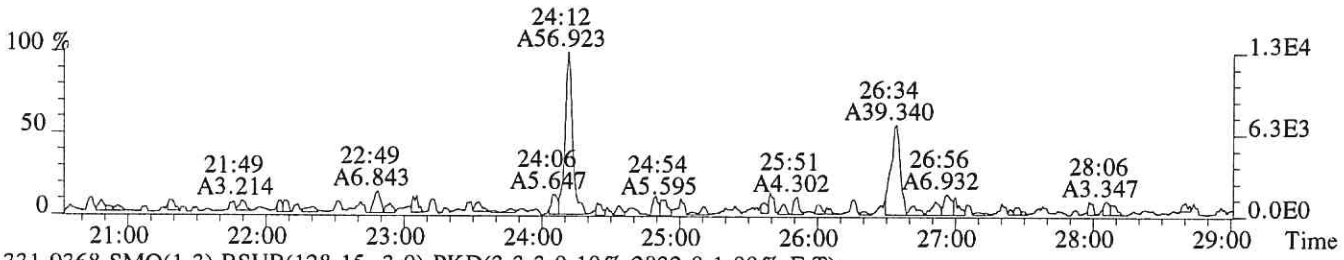
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



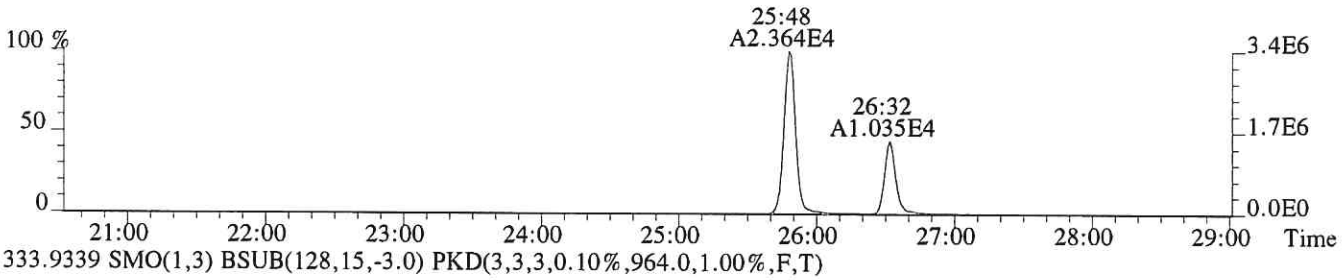
File:P518908 #1-602 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



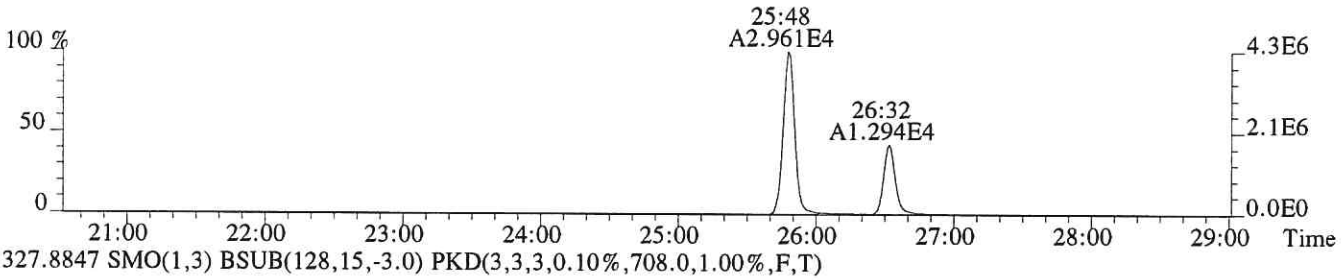
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



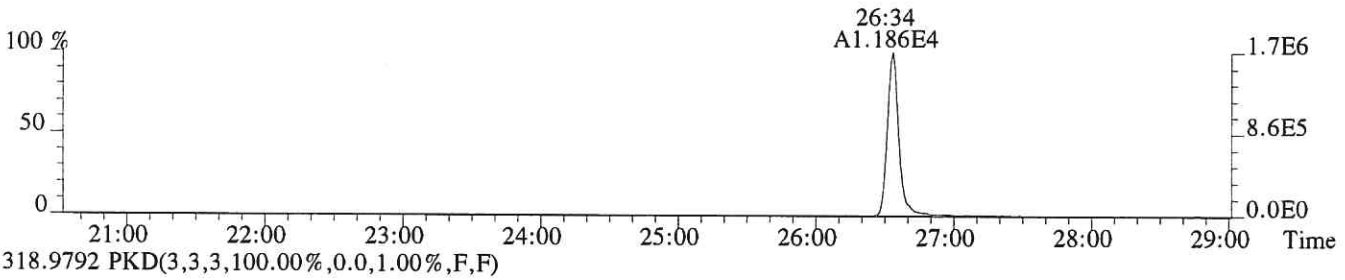
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2832.0,1.00%,F,T)



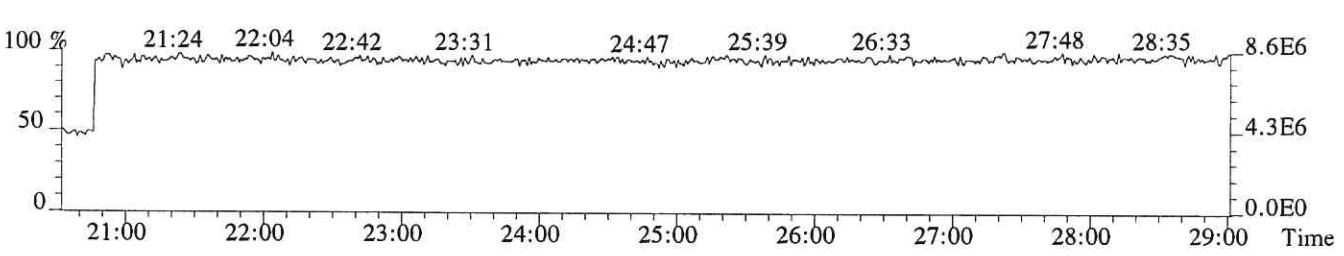
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



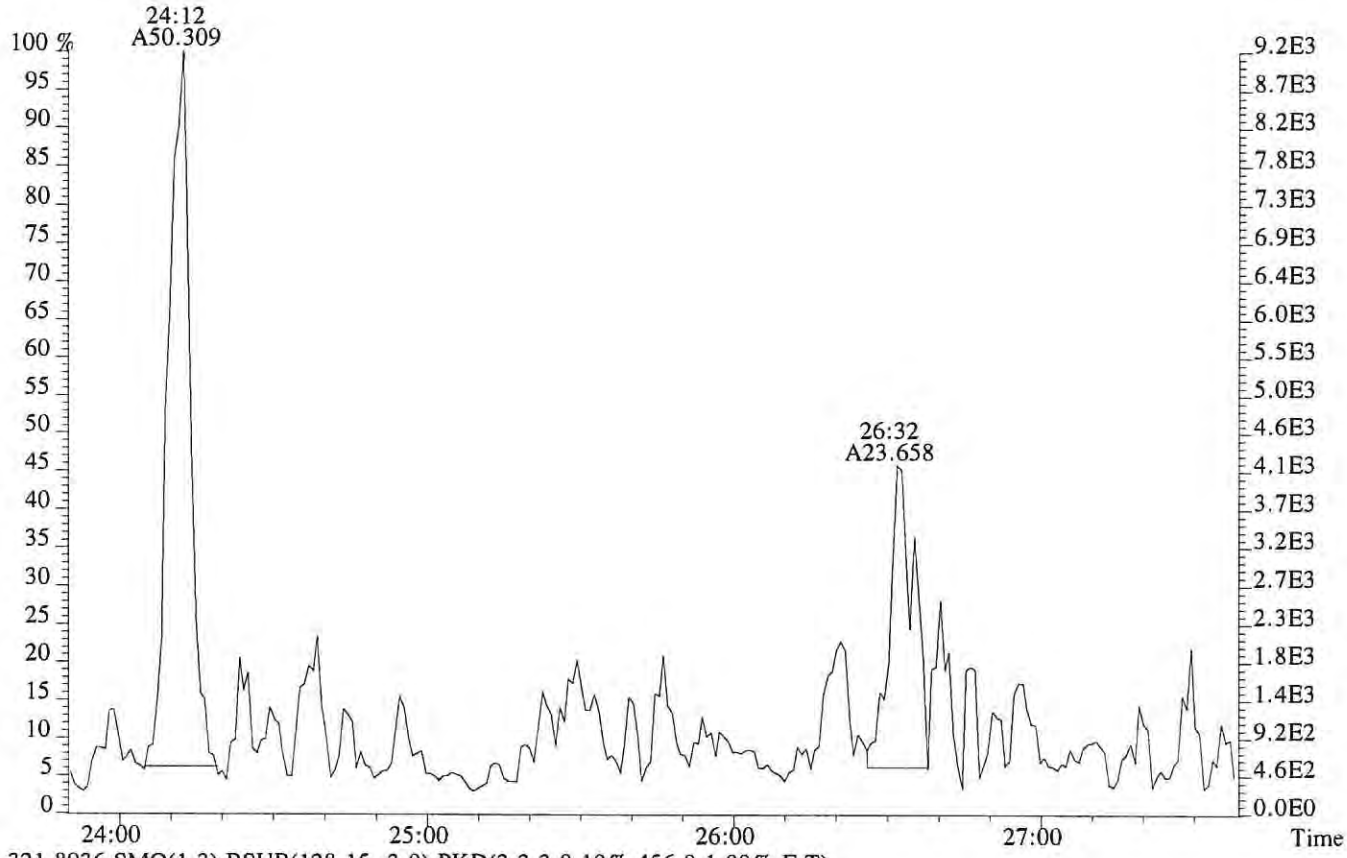
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



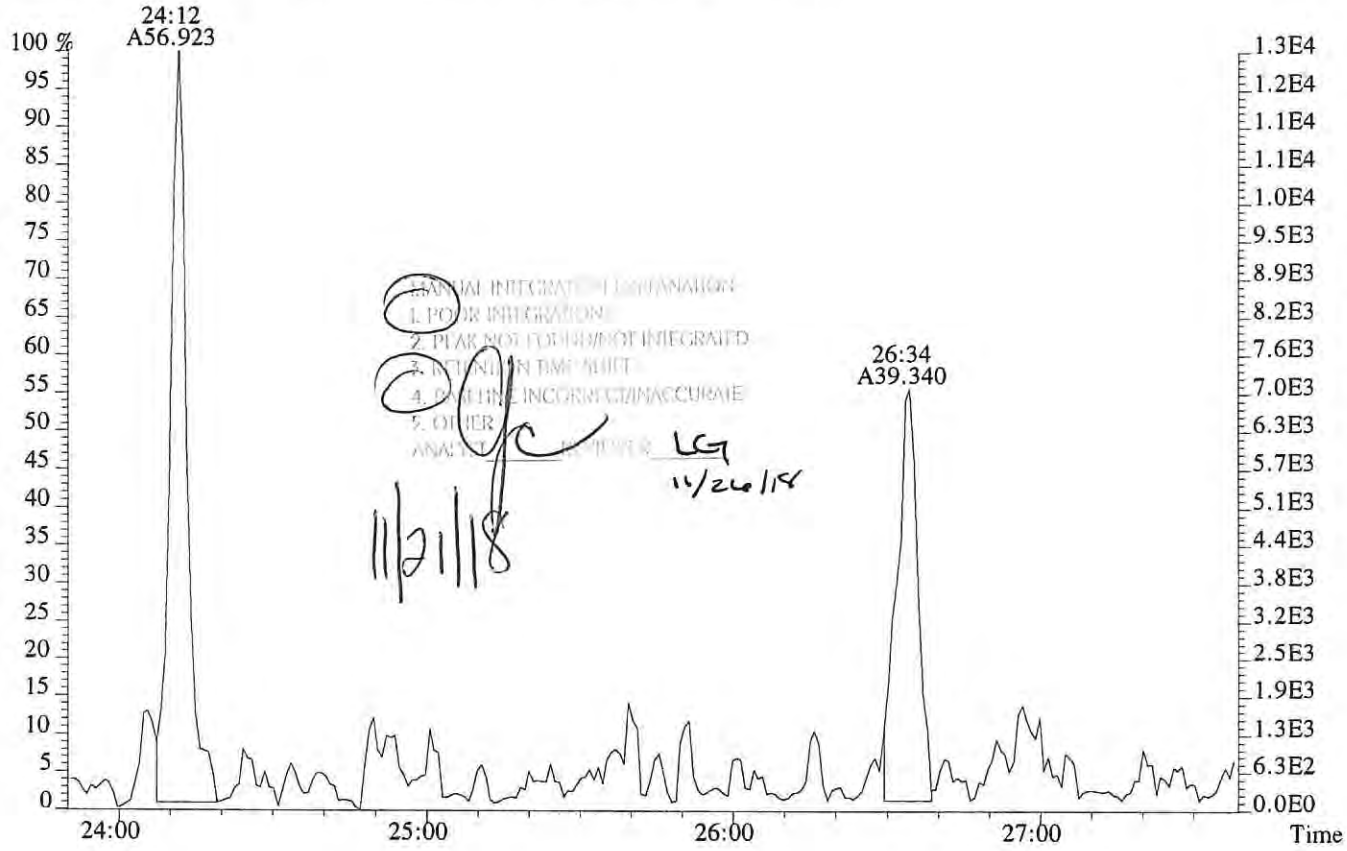
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518908 #1-602 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)

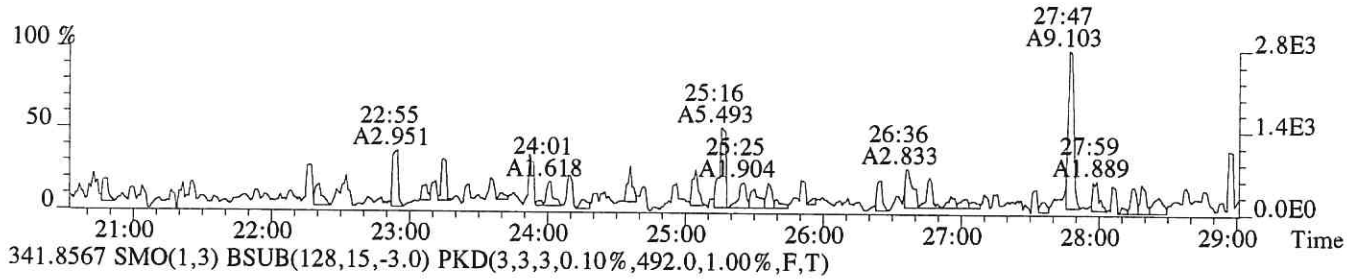


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)

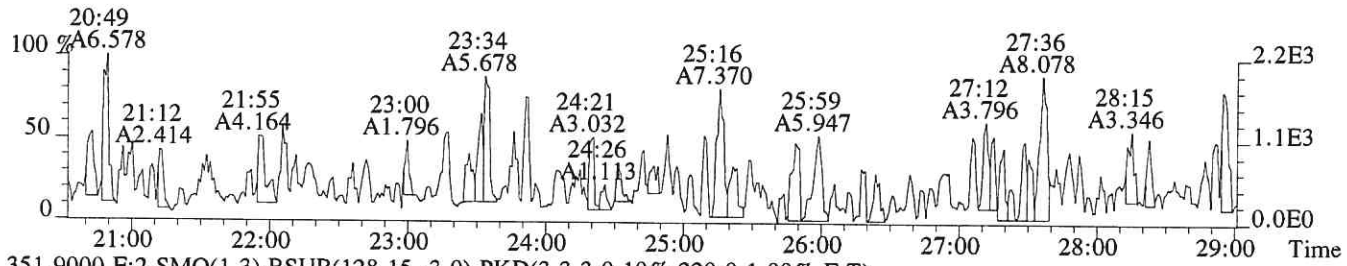


1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
4. BASELINE INCORRECT/INACCURATE
5. OTHER
LG
11/26/18
11/21/18

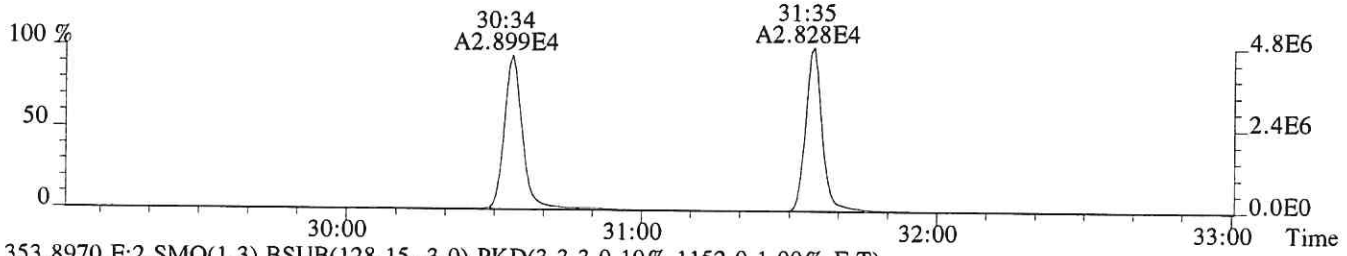
File:P518908 #1-602 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



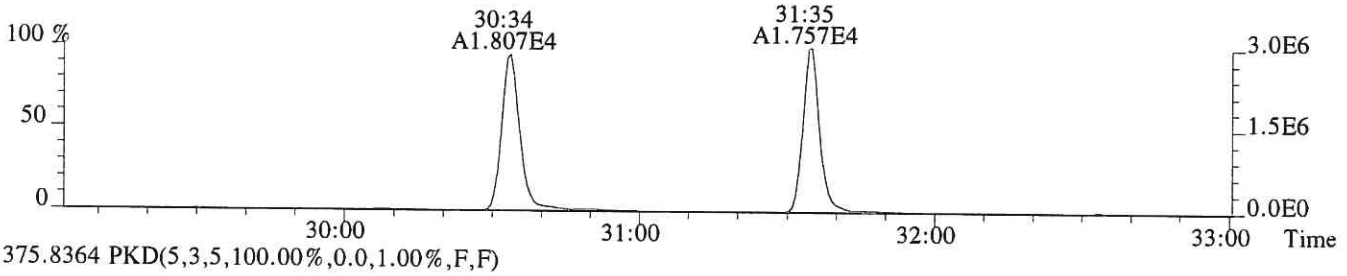
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



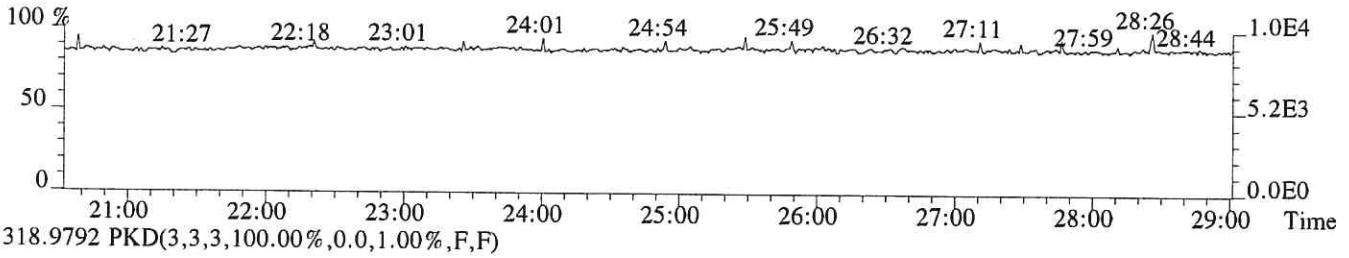
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



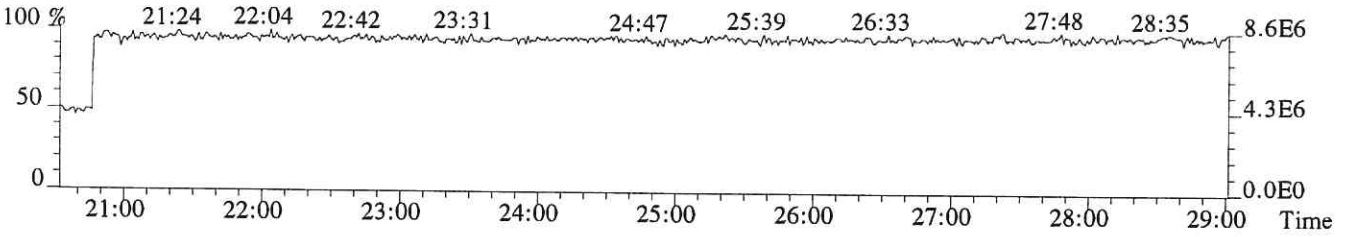
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



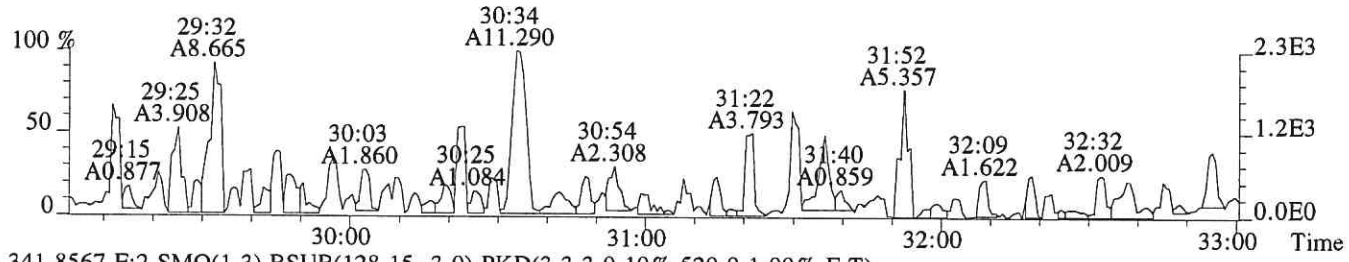
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



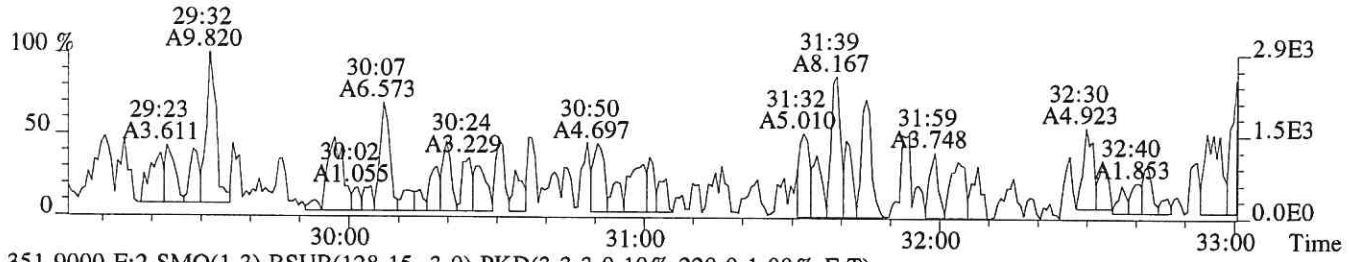
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



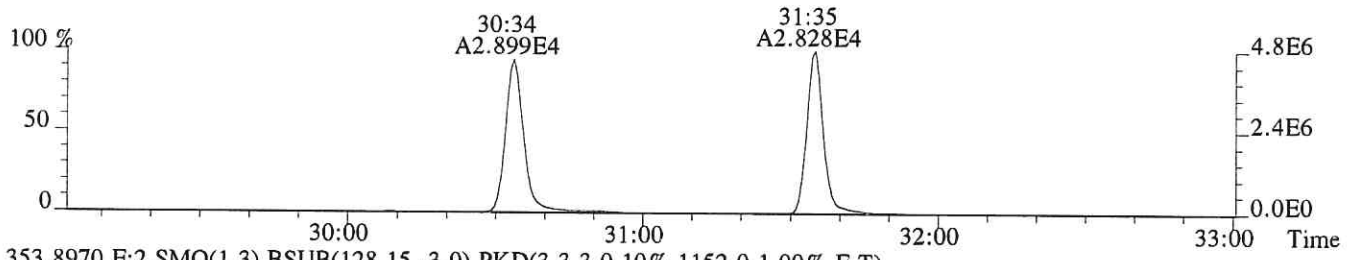
File:P518908 #1-357 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



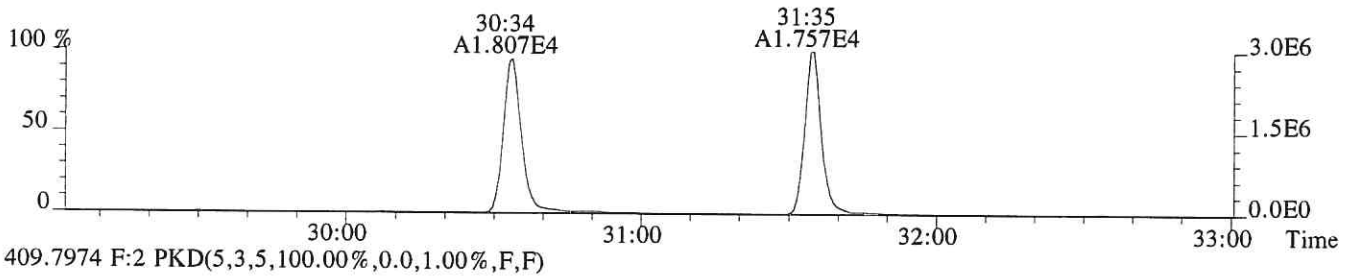
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



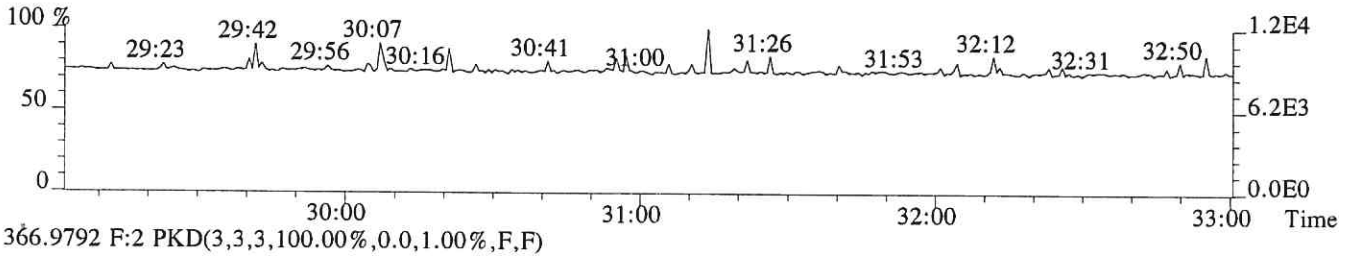
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



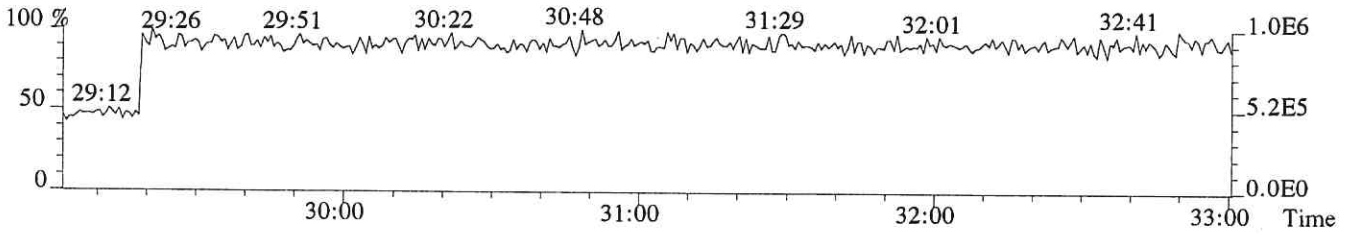
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



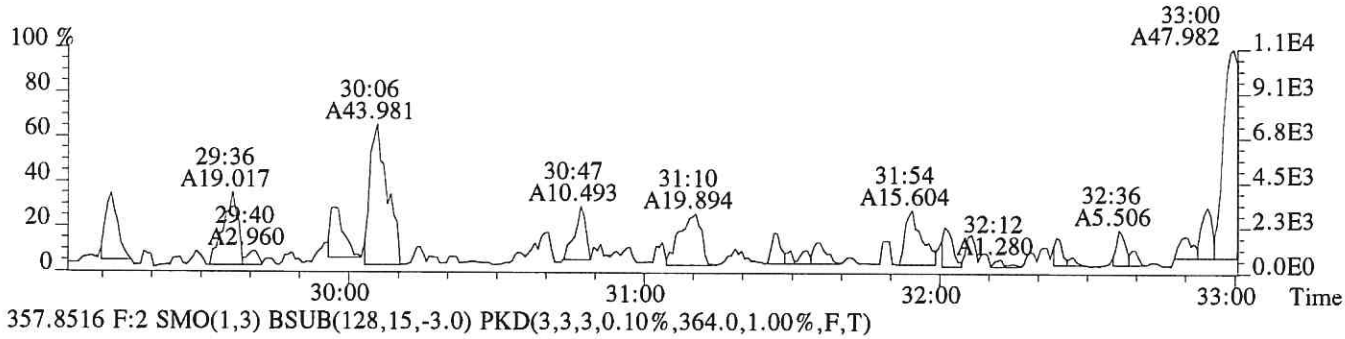
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



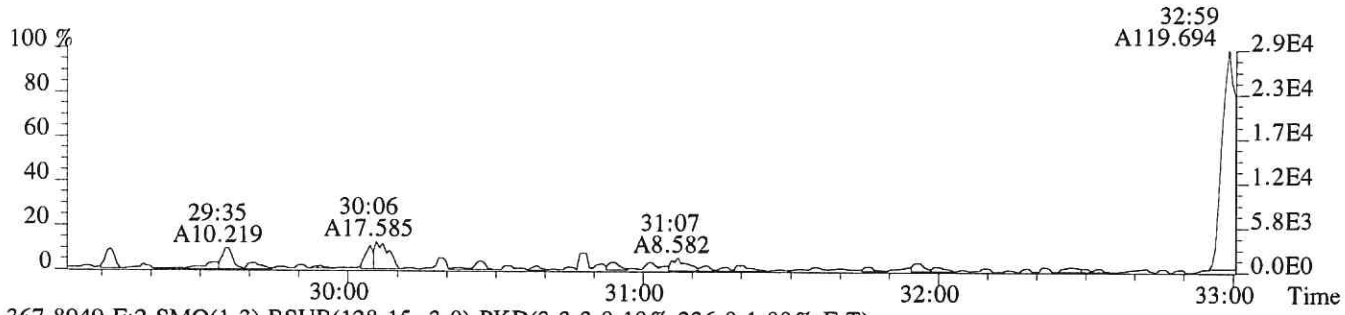
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



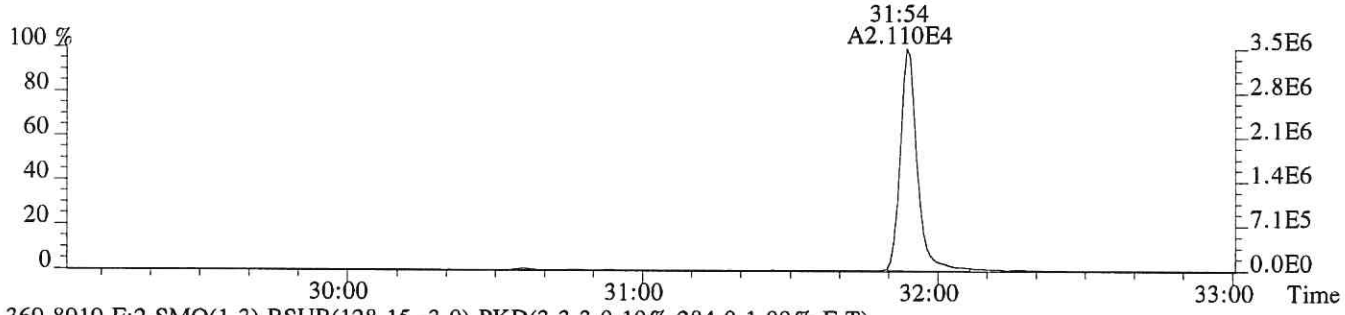
File:P518908 #1-357 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



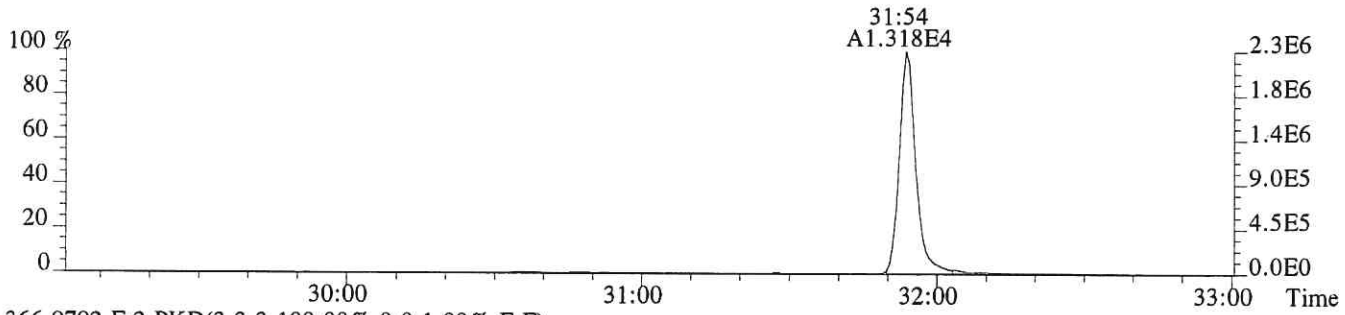
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



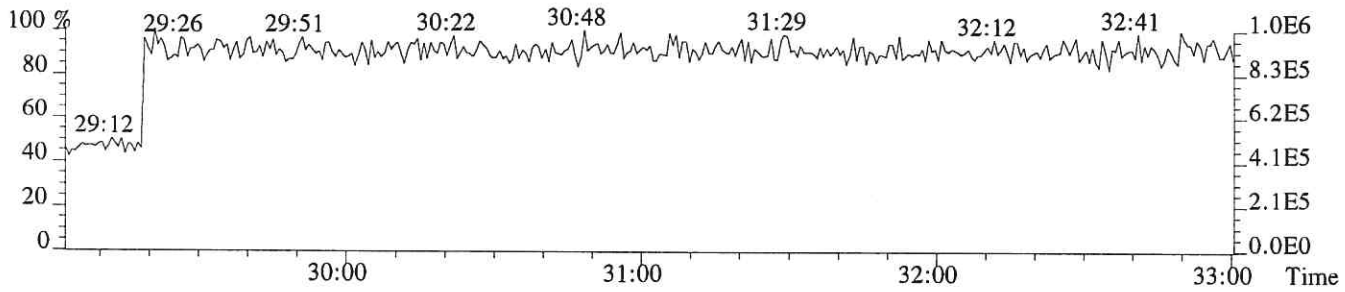
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



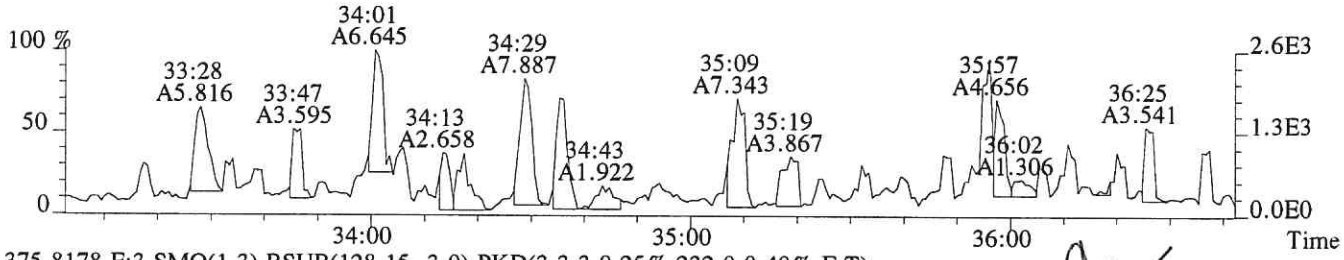
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



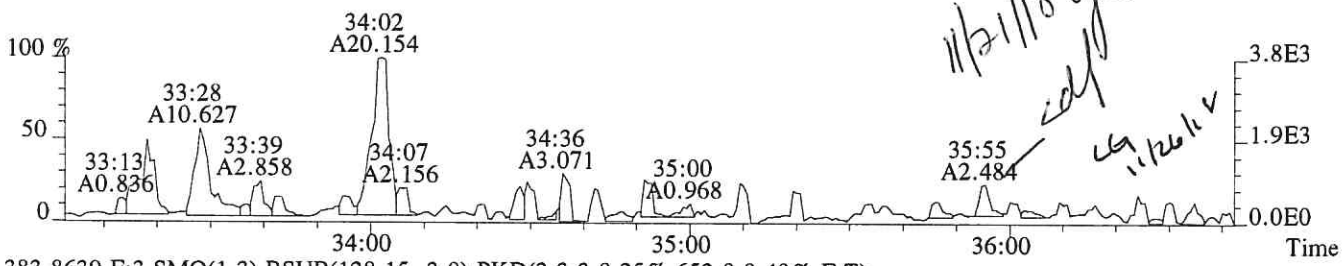
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



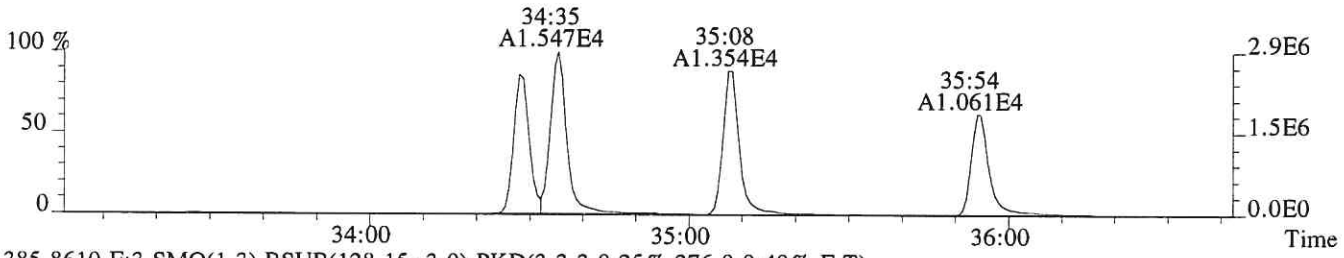
File:P518908 #1-330 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



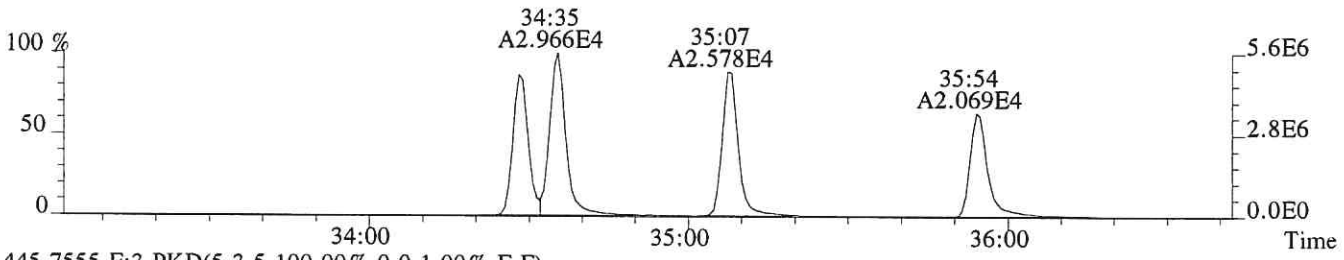
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



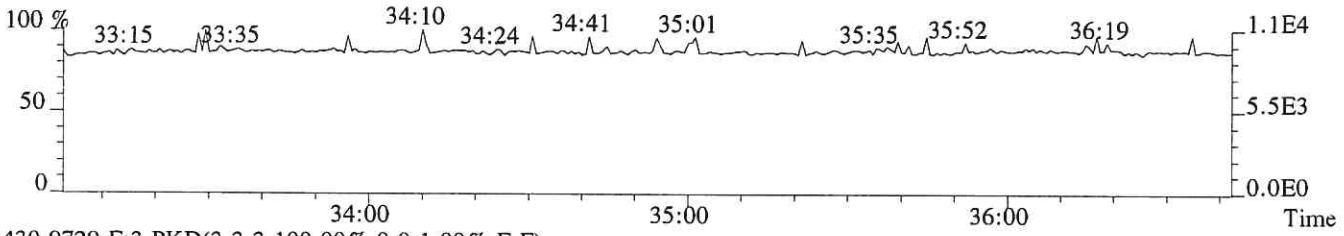
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



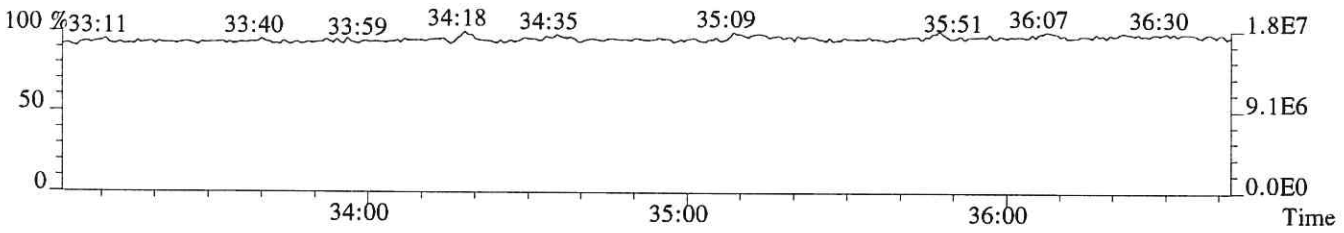
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



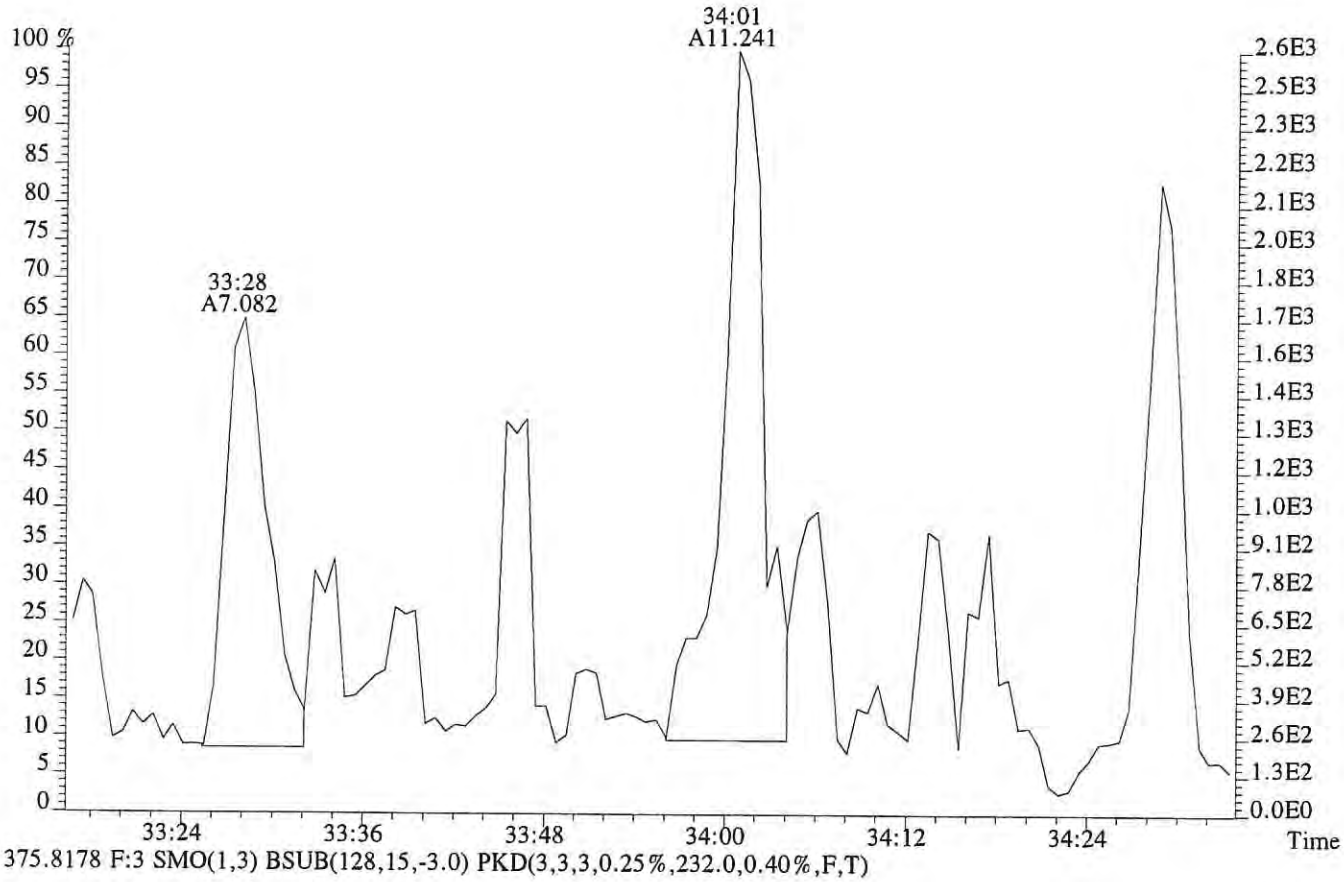
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



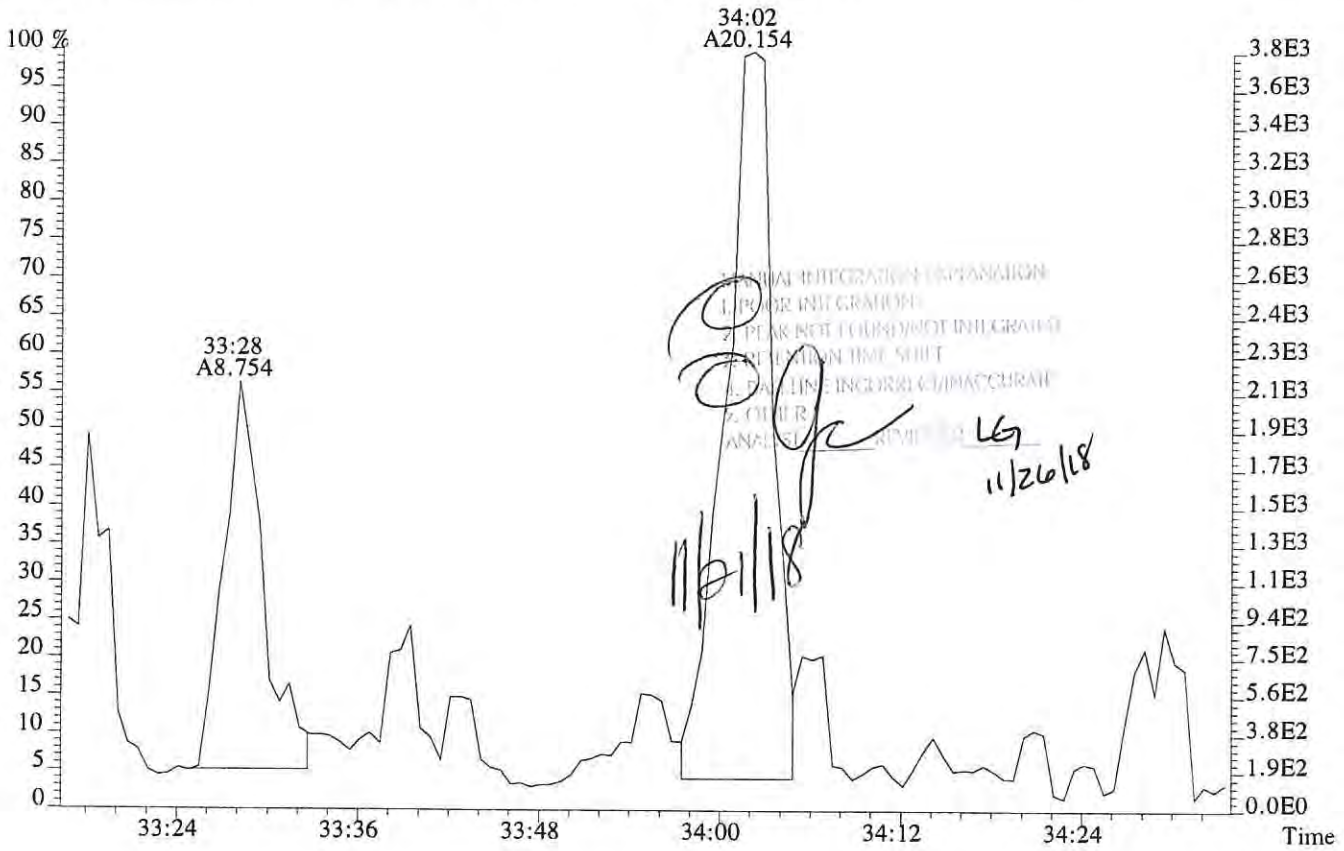
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518908 #1-330 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

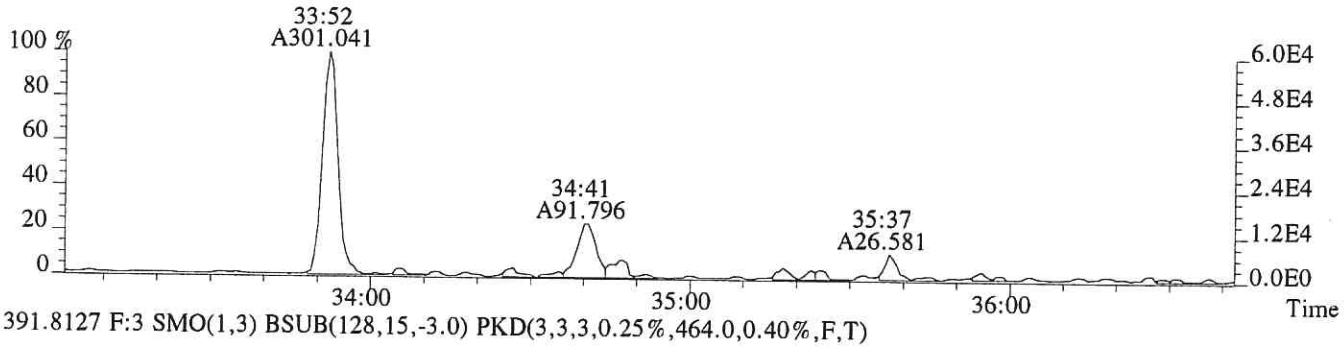


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST COMMENTS

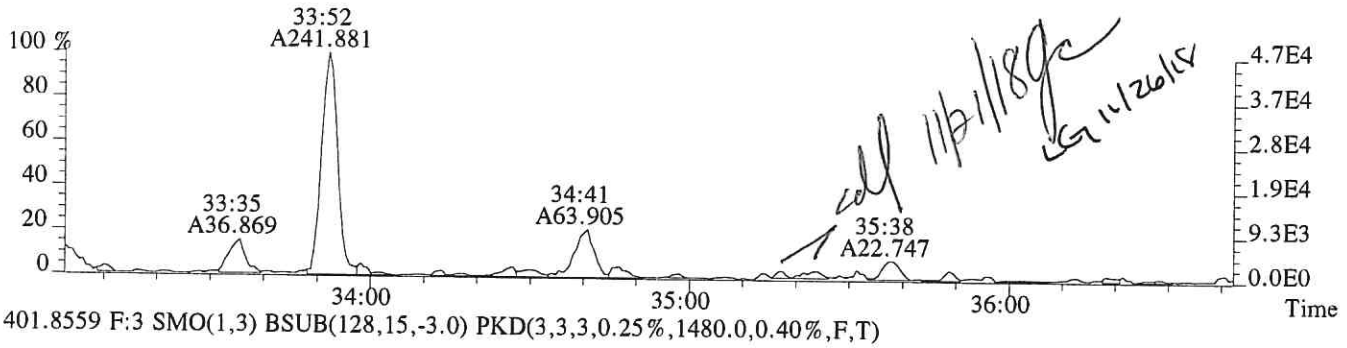
LG 11/26/18

11/21/18

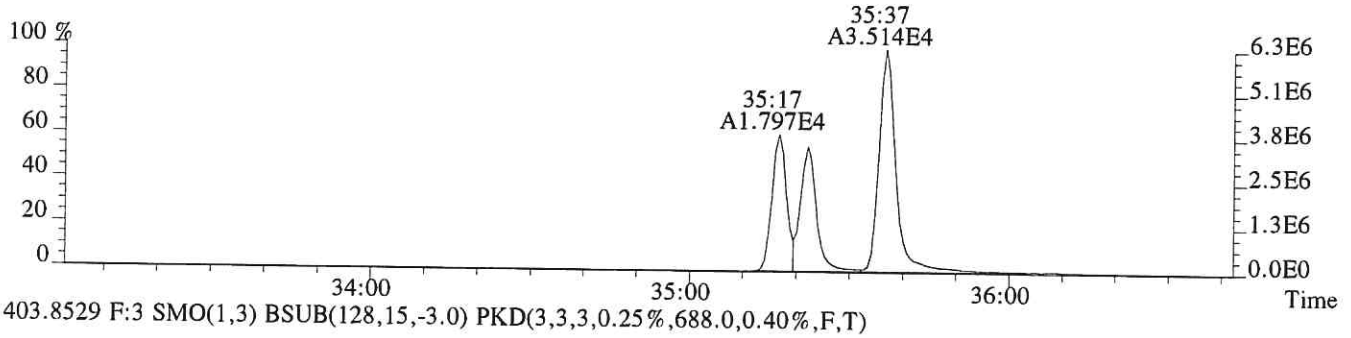
File:P518908 #1-330 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



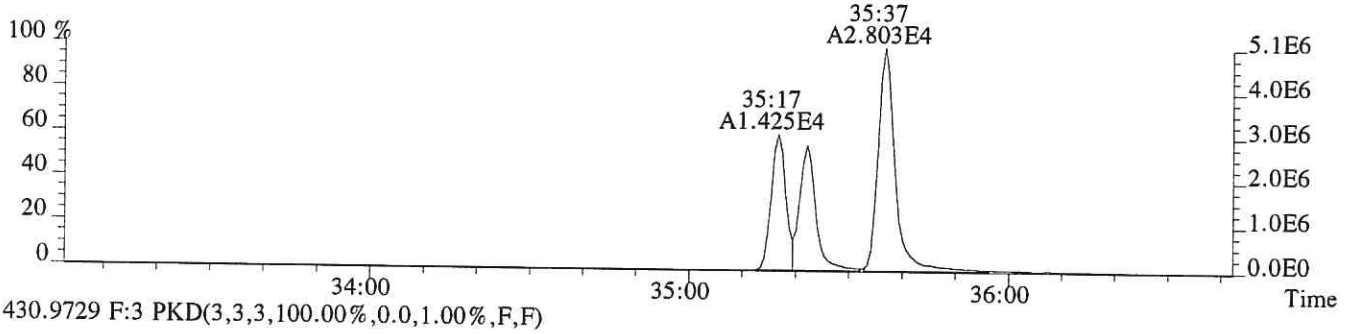
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



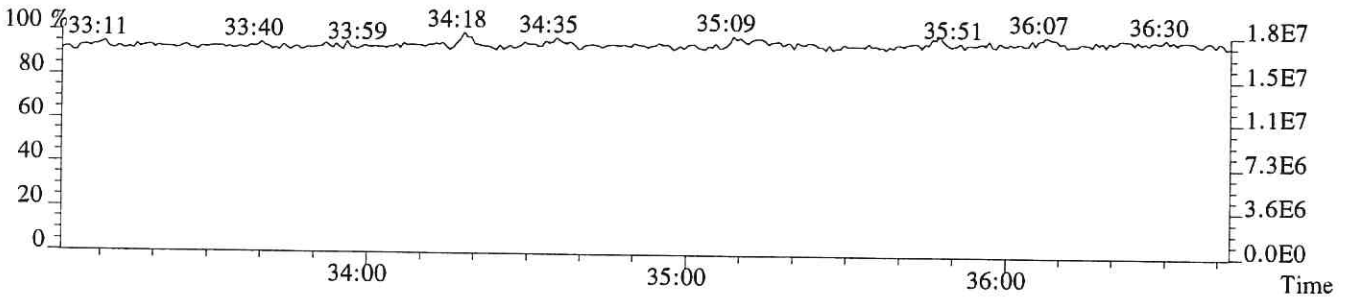
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



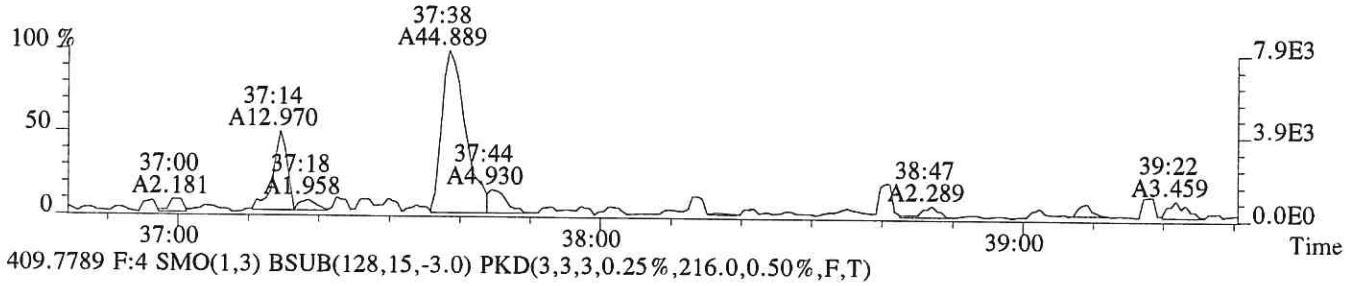
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



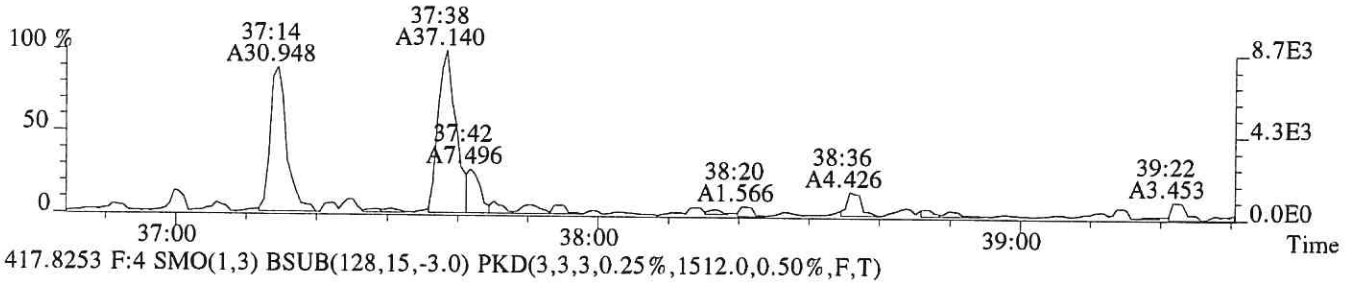
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



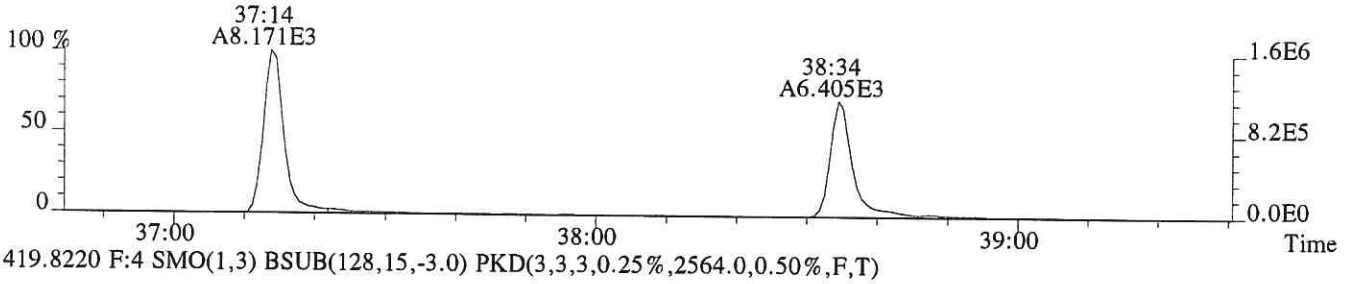
File:P518908 #1-250 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.50%,F,T)



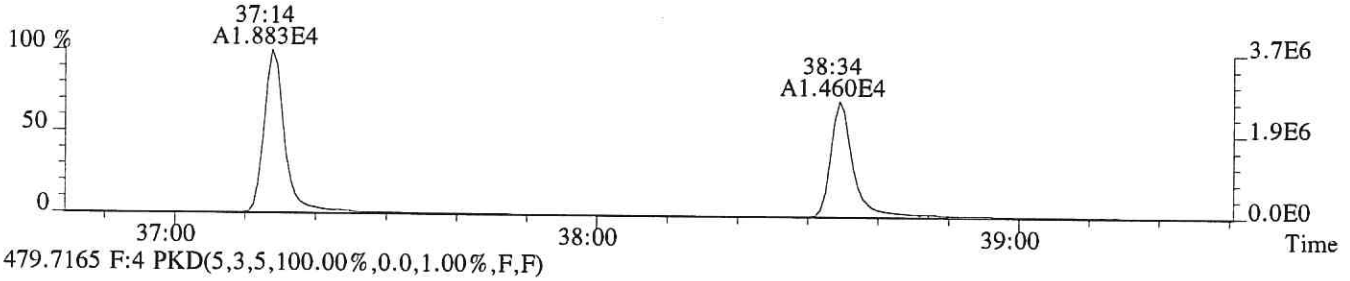
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



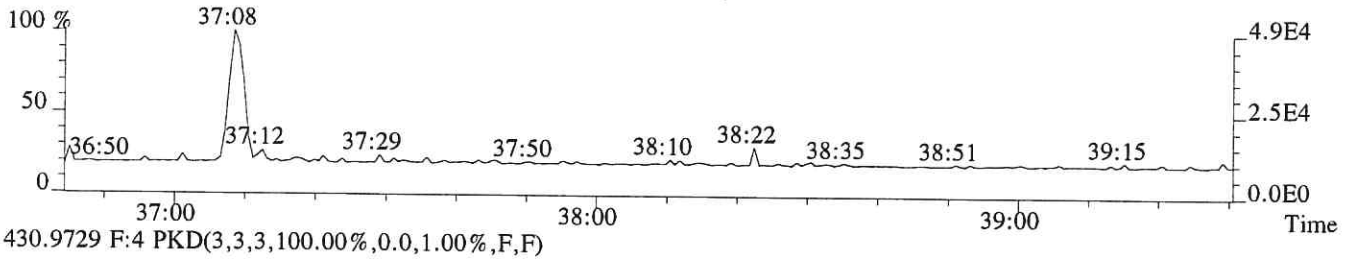
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.50%,F,T)



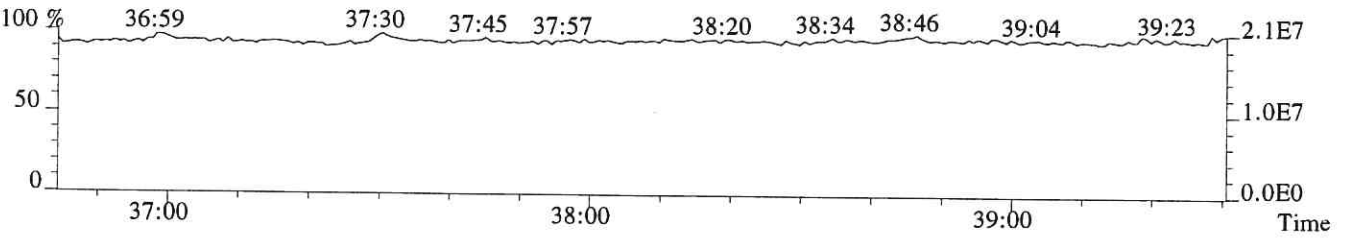
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2564.0,0.50%,F,T)



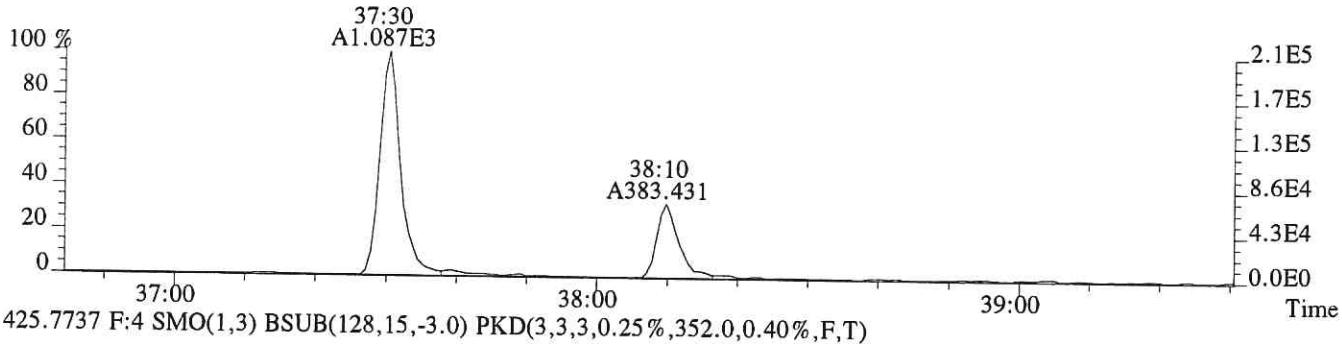
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



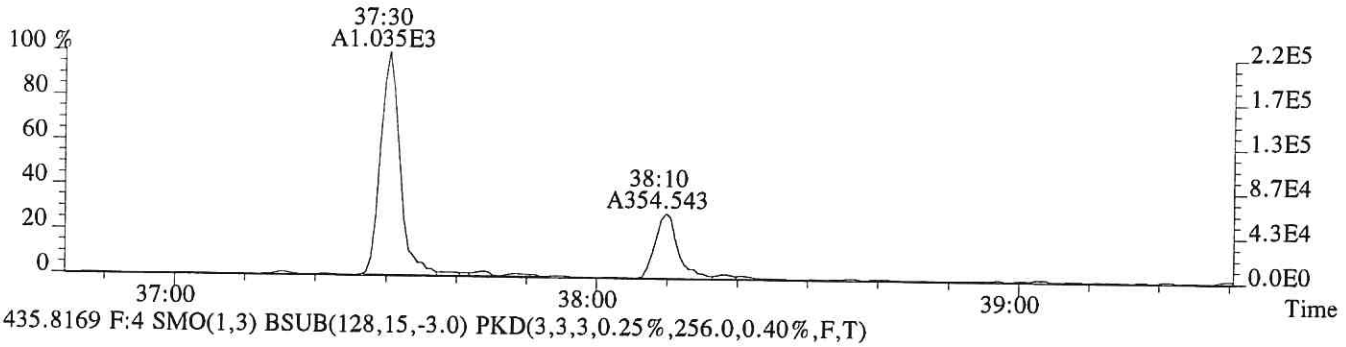
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



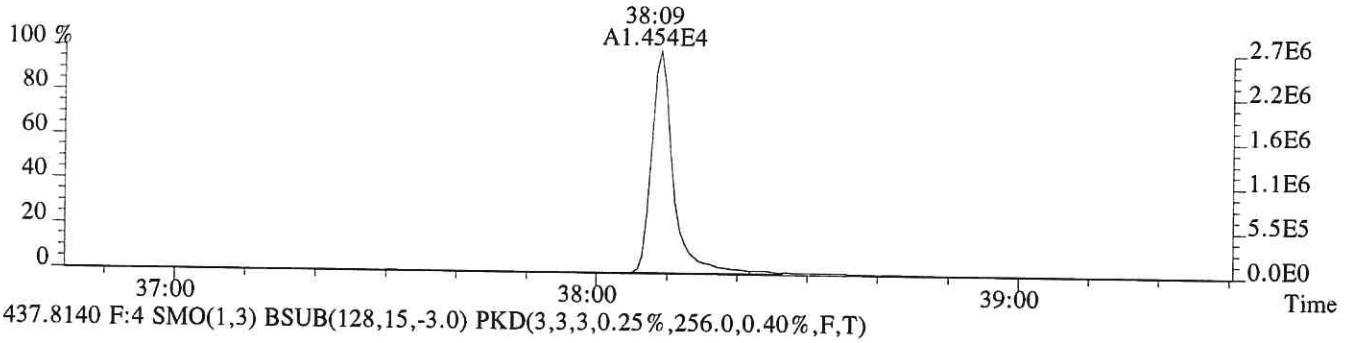
File:P518908 #1-250 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



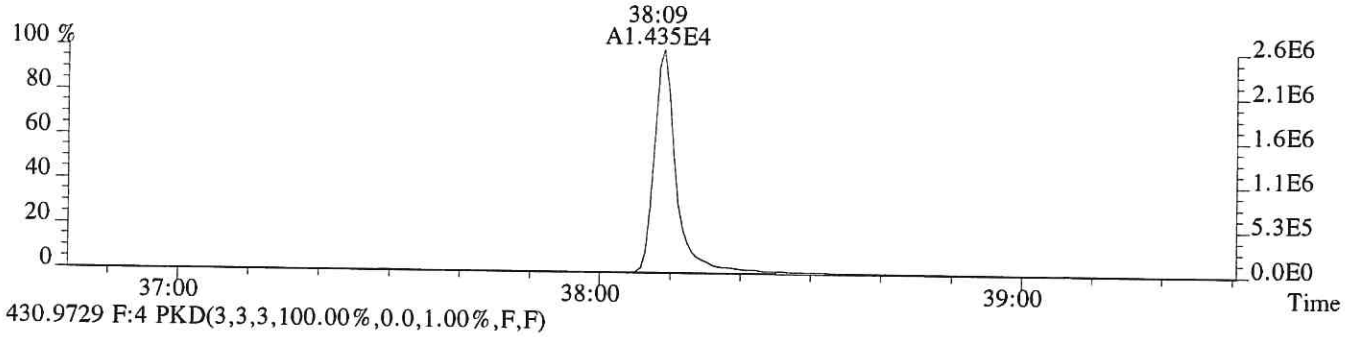
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



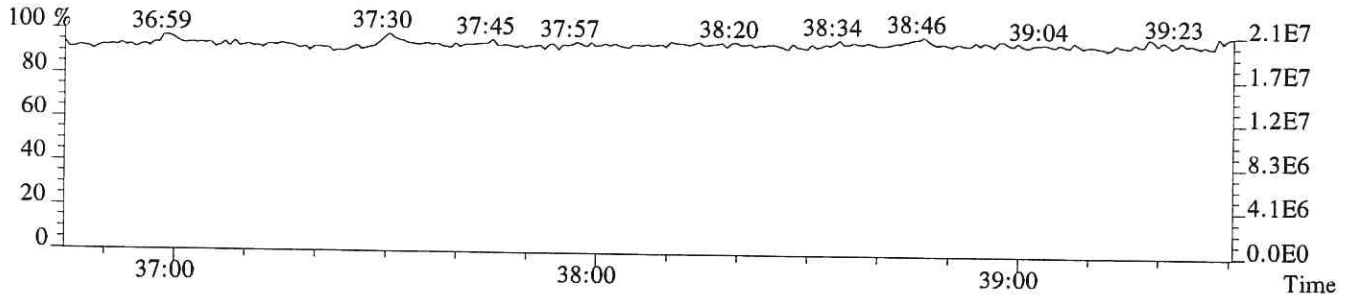
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



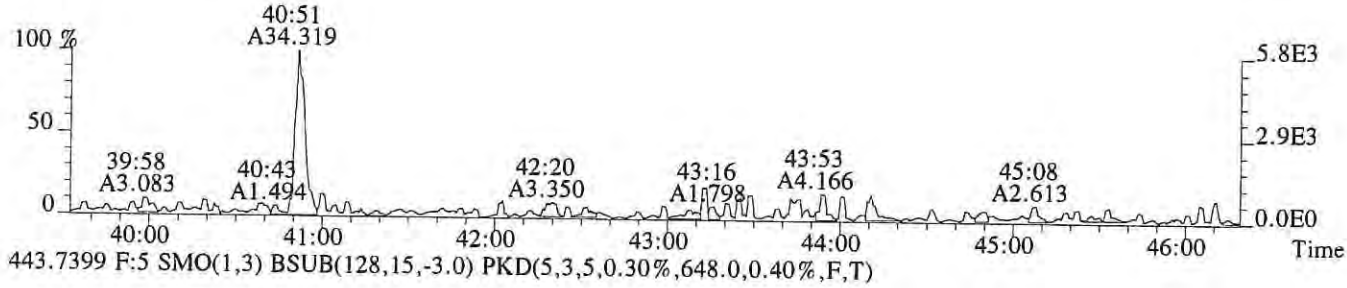
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



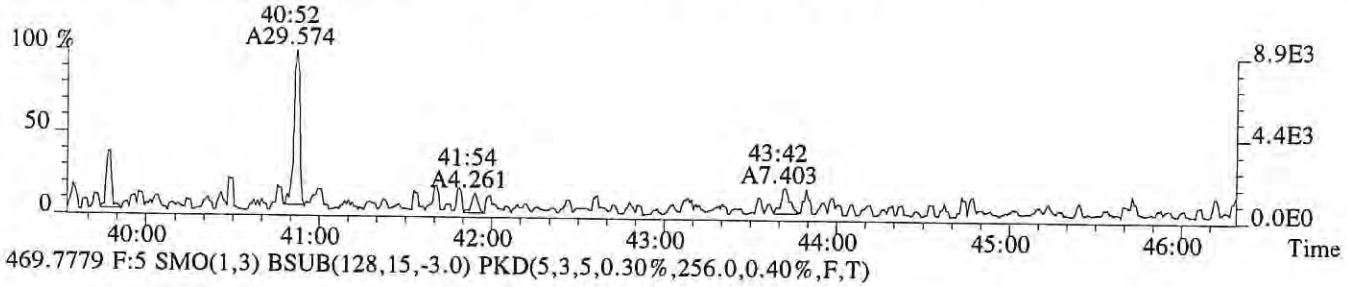
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



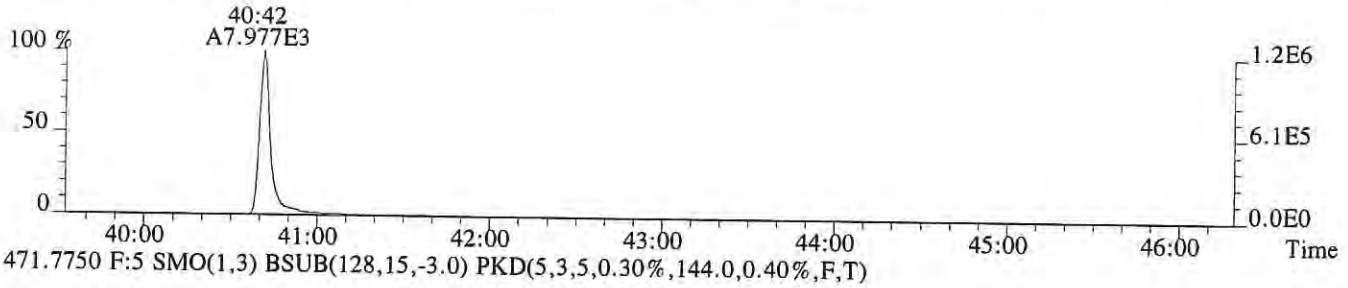
File:P518908 #1-610 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



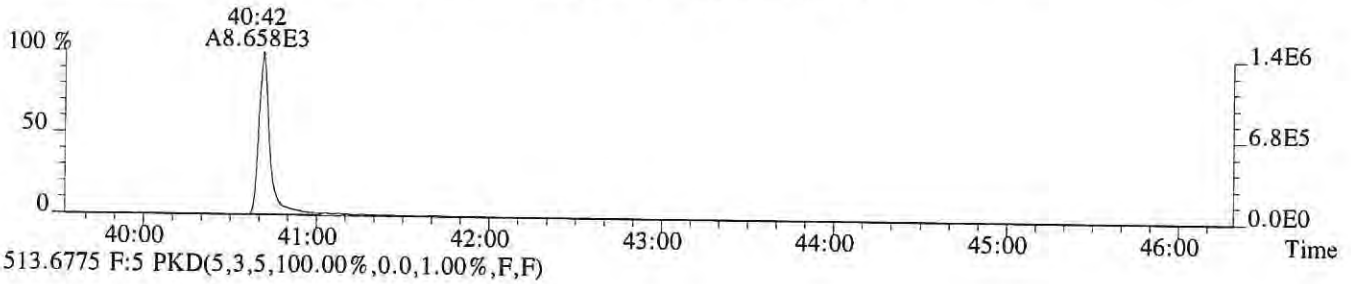
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



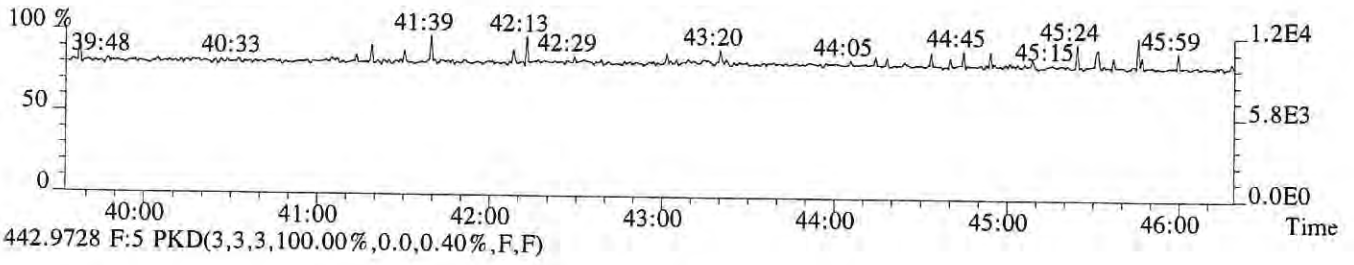
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



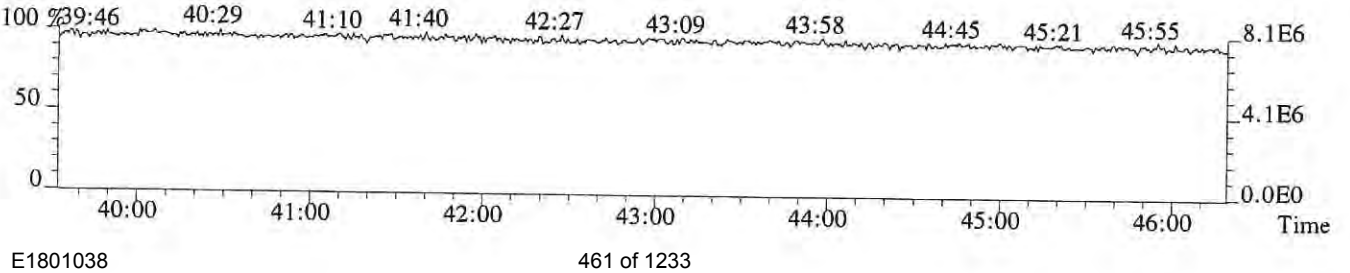
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



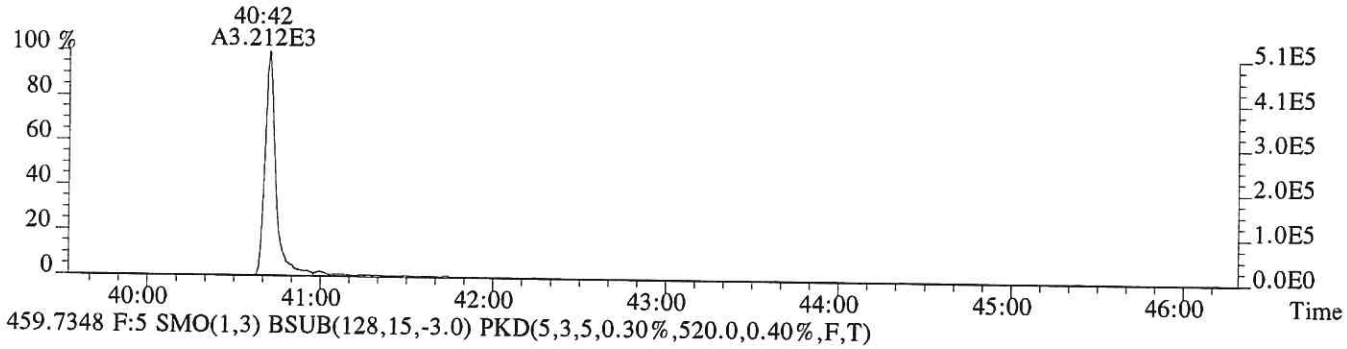
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



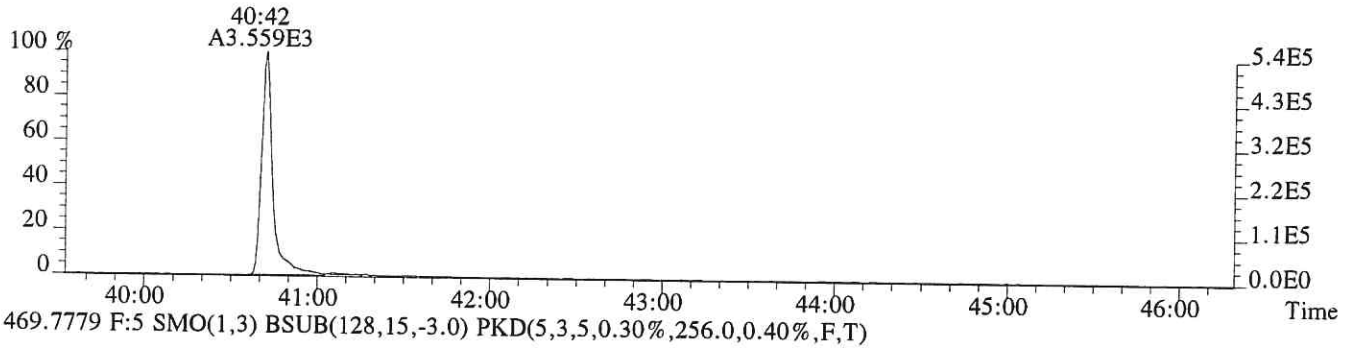
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



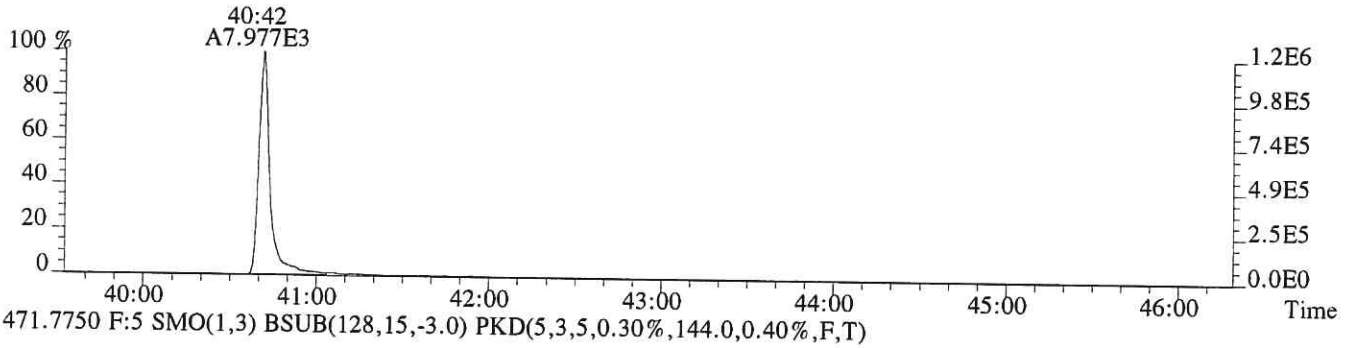
File:P518908 #1-610 Acq:18-NOV-2018 12:27:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-014
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



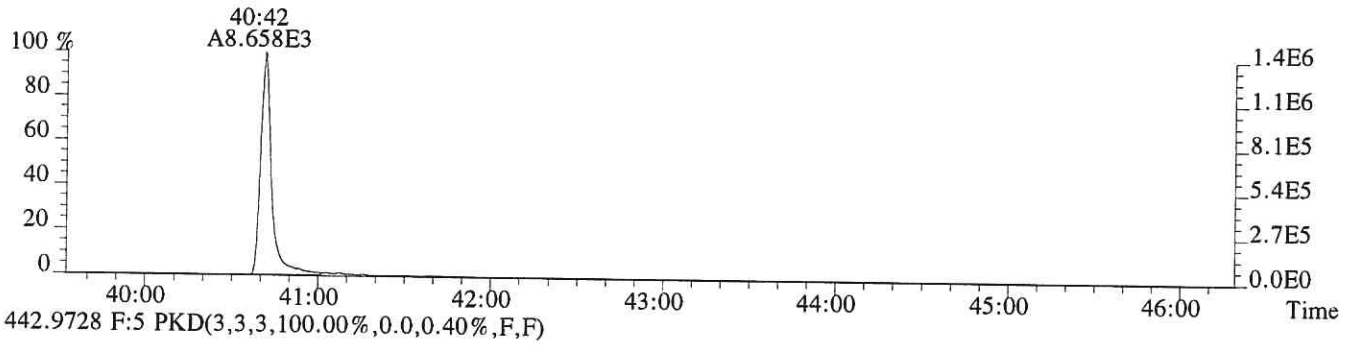
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



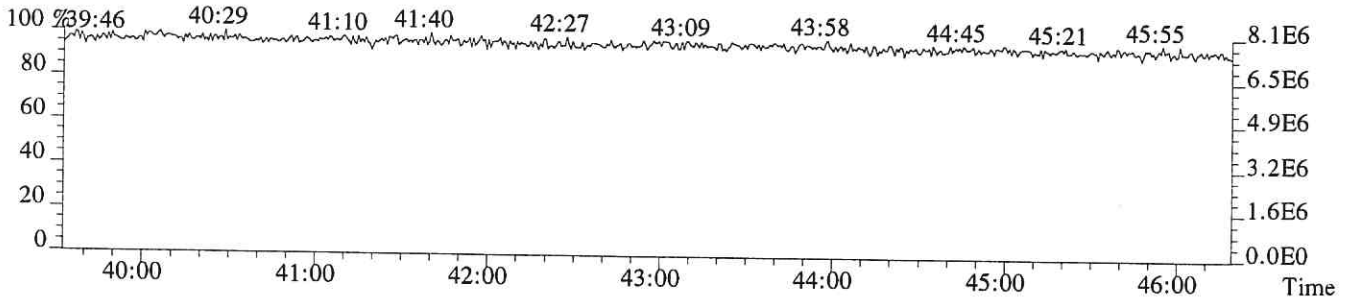
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0533

Run #10 Filename P518968 Samp: 1 Inj: 1 Acquired: 21-NOV-18 13:32:44
Processed: 26-NOV-18 13:47:55 Sample ID: E1801038-015

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.027e+02	1.787e+02	0.57	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:14	1.020e+01	9.736e+00	1.05	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	5.475e+00	1.995e+01	0.27	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:51	2.412e+01	2.386e+01	1.01	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:22	5.767e+01	5.311e+01	1.09	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.810e+01	1.636e+01	1.11	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	2.181e+02	1.956e+02	1.12	yes	no	1.025
17	Unk	OCDD	42:39	6.224e+03	6.932e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	1.141e+04	1.459e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	2.661e+04	1.643e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	2.747e+04	1.707e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.393e+04	2.731e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.562e+04	3.108e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.608e+04	3.080e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.314e+04	2.604e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.180e+04	2.686e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	9.285e+03	1.898e+04	0.49	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	8.515e+03	1.071e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.098e+04	1.289e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	2.129e+04	1.672e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	2.070e+04	1.644e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	2.433e+04	2.250e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:38	2.662e+04	2.956e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	3.613e+04	4.626e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	5.075e+04	4.021e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	9.508e+03				no	1.014

$$\text{OCDD} = \frac{(6.224e+03 + 6.932e+03) \times 4000\ \text{pg} \times 1}{(2.662e+04 + 2.956e+04) \times 10.269\ \text{g} \times 81.8 / 100 \times 1.118} = 99.7422\ \text{ng/kg}$$

LG 11/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0533

Run #10 Filename P518968 Samp: 1 Inj: 1 Acquired: 21-NOV-18 13:32:44
Processed: 26-NOV-18 13:47:55 LAB. ID: E1801038-015

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.94e+04	4.08e+02	4.8e+01	2.99e+04	9.08e+02	3.3e+01
2	1,2,3,7,8-PeCDF	*	5.56e+02	*	*	8.04e+02	*
3	2,3,4,7,8-PeCDF	*	5.56e+02	*	*	8.04e+02	*
4	1,2,3,4,7,8-HxCDF	1.89e+03	5.08e+02	3.7e+00	2.66e+03	3.96e+02	6.7e+00
5	1,2,3,6,7,8-HxCDF	*	5.08e+02	*	*	3.96e+02	*
6	2,3,4,6,7,8-HxCDF	*	5.08e+02	*	*	3.96e+02	*
7	1,2,3,7,8,9-HxCDF	*	5.08e+02	*	*	3.96e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.52e+03	2.48e+02	6.1e+00	5.86e+03	2.36e+02	2.5e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.48e+02	*	*	2.36e+02	*
10	OCDF	4.52e+03	2.96e+02	1.5e+01	4.30e+03	8.52e+02	5.0e+00
11	2,3,7,8-TCDD	8.45e+03	2.93e+03	2.9e+00	1.03e+04	7.16e+02	1.4e+01
12	1,2,3,7,8-PeCDD	*	5.56e+02	*	*	4.04e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.68e+02	*	*	7.56e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.68e+02	*	*	7.56e+02	*
15	1,2,3,7,8,9-HxCDD	5.43e+03	2.68e+02	2.0e+01	4.87e+03	7.56e+02	6.4e+00
16	1,2,3,4,6,7,8-HpCDD	4.15e+04	1.64e+02	2.5e+02	3.68e+04	1.11e+03	3.3e+01
17	OCDD	9.22e+05	3.20e+02	2.9e+03	1.04e+06	3.56e+02	2.9e+03
18	13C-2,3,7,8-TCDF	2.19e+06	7.89e+03	2.8e+02	2.80e+06	5.08e+03	5.5e+02
19	13C-1,2,3,7,8-PeCDF	4.93e+06	4.68e+02	1.1e+04	3.05e+06	5.00e+02	6.1e+03
20	13C-2,3,4,7,8-PeCDF	5.39e+06	4.68e+02	1.2e+04	3.37e+06	5.00e+02	6.7e+03
21	13C-1,2,3,4,7,8-HxCDF	2.95e+06	6.68e+02	4.4e+03	5.72e+06	7.12e+02	8.0e+03
22	13C-1,2,3,6,7,8-HxCDF	3.12e+06	6.68e+02	4.7e+03	6.07e+06	7.12e+02	8.5e+03
23	13C-2,3,4,6,7,8-HxCDF	3.31e+06	6.68e+02	5.0e+03	6.27e+06	7.12e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.57e+06	6.68e+02	3.9e+03	5.10e+06	7.12e+02	7.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.41e+06	2.29e+03	1.1e+03	5.39e+06	2.54e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.96e+06	2.29e+03	8.6e+02	4.56e+06	2.54e+03	1.8e+03
27	13C-2,3,7,8-TCDD	1.73e+06	5.75e+03	3.0e+02	2.12e+06	1.88e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.16e+06	8.00e+02	5.2e+03	2.54e+06	1.28e+03	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.66e+06	9.04e+02	5.2e+03	3.62e+06	6.48e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	4.17e+06	9.04e+02	4.6e+03	3.30e+06	6.48e+02	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.54e+06	2.32e+02	2.0e+04	4.16e+06	2.12e+02	2.0e+04
32	13C-OCDD	3.93e+06	2.84e+02	1.4e+04	4.38e+06	3.76e+02	1.2e+04
33	13C-1,2,3,4-TCDD	7.00e+06	5.75e+03	1.2e+03	8.97e+06	1.88e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.03e+07	9.04e+02	1.1e+04	8.05e+06	6.48e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.87e+06	1.58e+03	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.932e{+}03 + 7.160e{+}02) \times 2000}{(1.729e{+}06 + 2.123e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0533

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P518968 Sample:1 Injection:1 Function:1

Acquired: 21-NOV-18 13:32:44 Processed: 26-NOV-18 13:47:55

Mass: 303.9020 305.8990 Tot Response: 1.24e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:51	5.16e+01	7.27e+01 0.71	yes	1.24e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0533

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P518968 Sample:1 Injection:1 Function:3

Acquired: 21-NOV-18 13:32:44 Processed: 26-NOV-18 13:47:55

Mass: 389.8160 391.8130 Tot Response: 3.45e+01 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:18	1.81e+01	1.64e+01 1.11	yes	3.45e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0533

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P518968 Sample:1 Injection:1 Function:4

Acquired: 21-NOV-18 13:32:44 Processed: 26-NOV-18 13:47:55

Mass: 423.7770 425.7740 Tot Response: 1.71e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	6.74e+02	6.22e+02	1.08	yes	1.30e+03		n	n
2	39:47	2.18e+02	1.96e+02	1.12	yes	4.14e+02	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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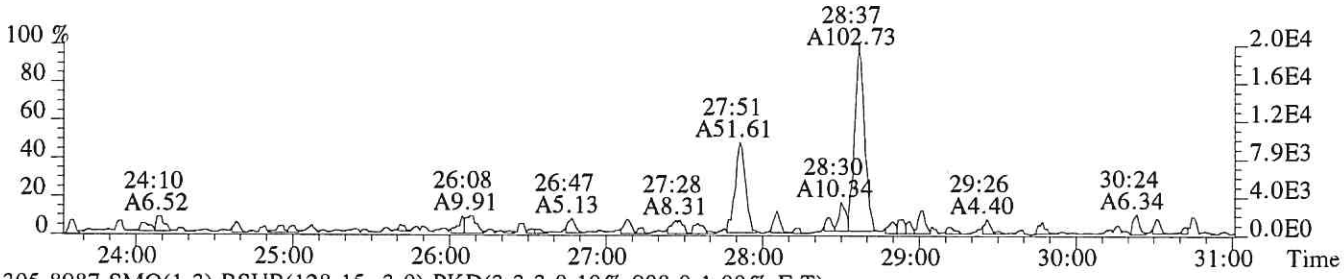
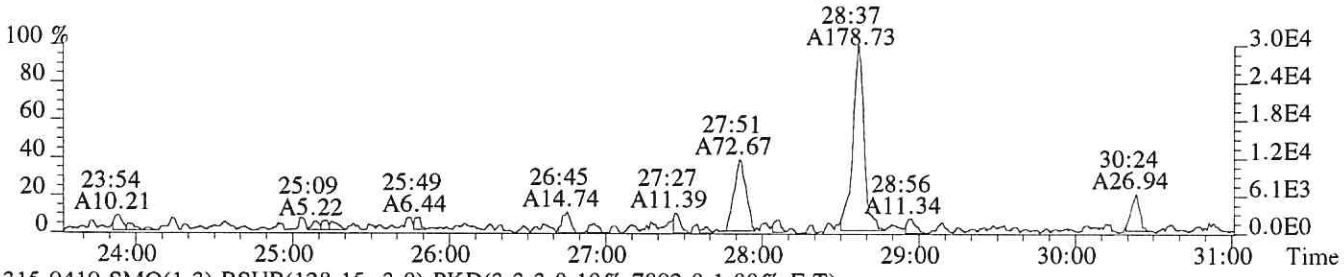
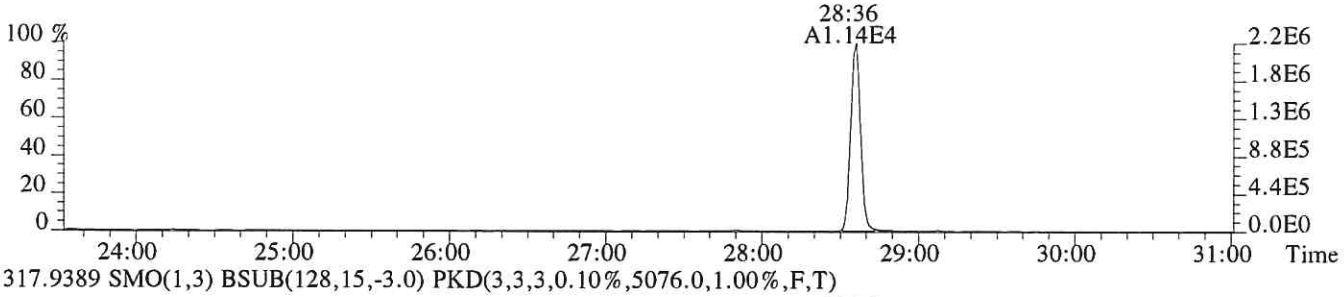
File:P518968 #1-531 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



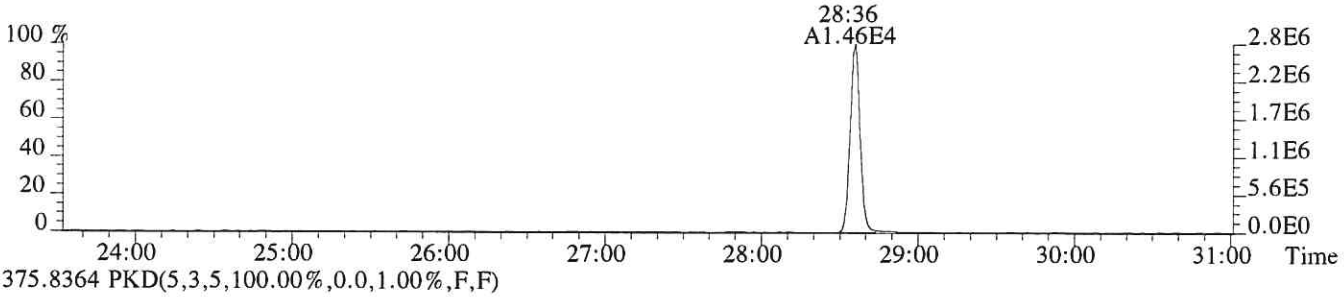
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



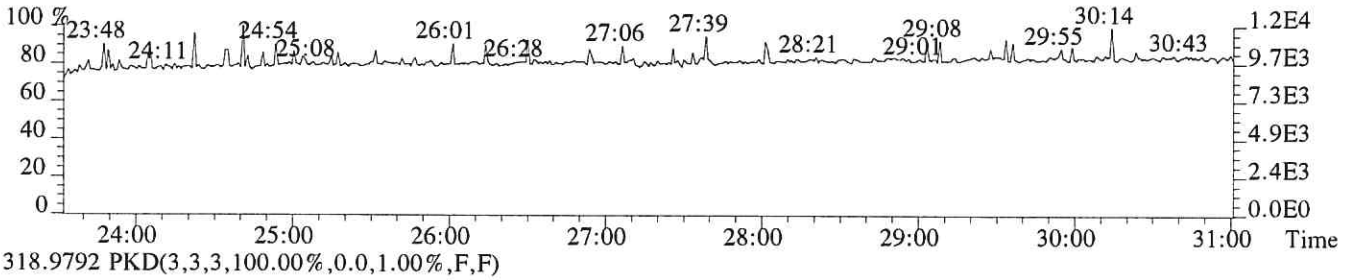
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7892.0,1.00%,F,T)



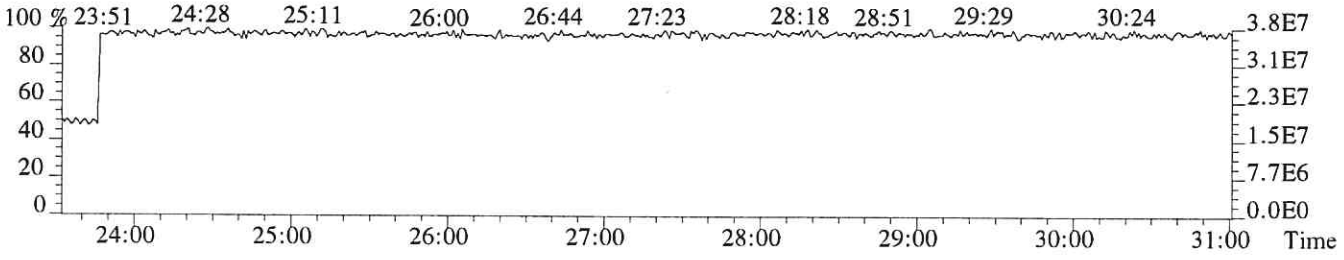
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5076.0,1.00%,F,T)



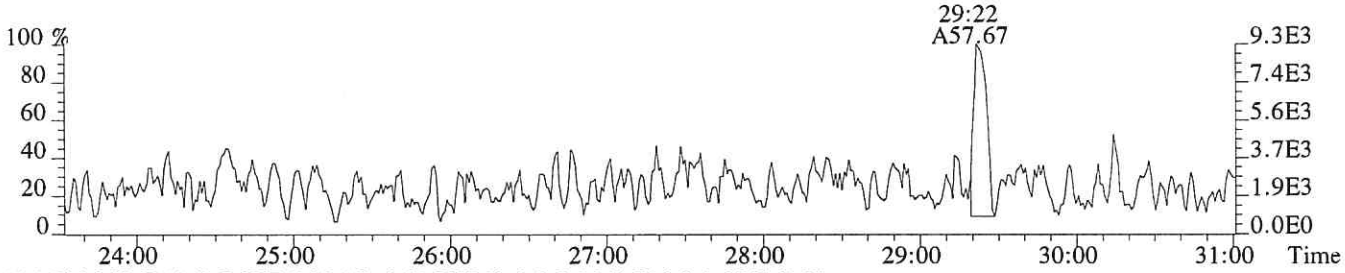
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



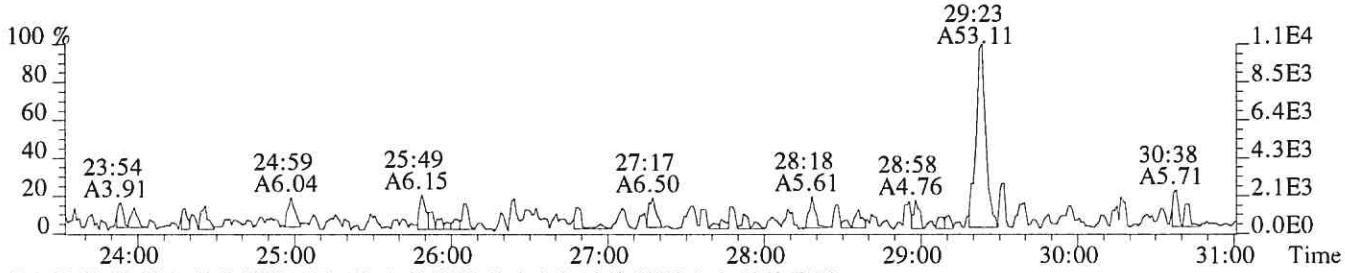
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



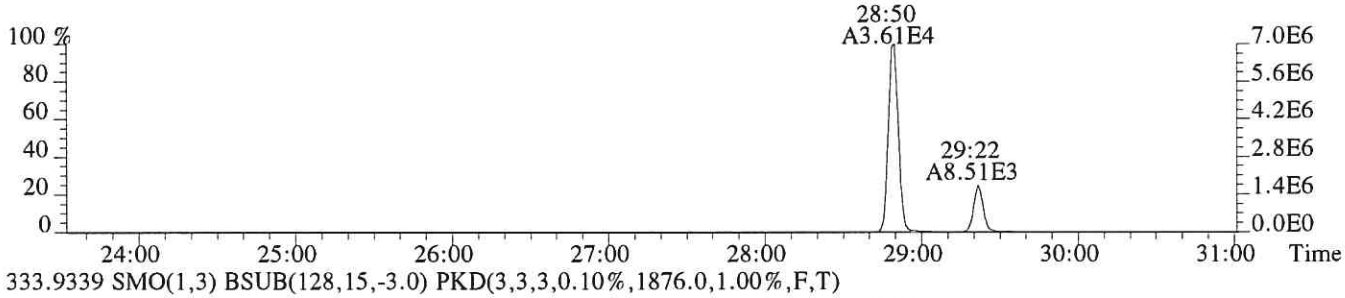
File:P518968 #1-531 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2932.0,1.00%,F,T)



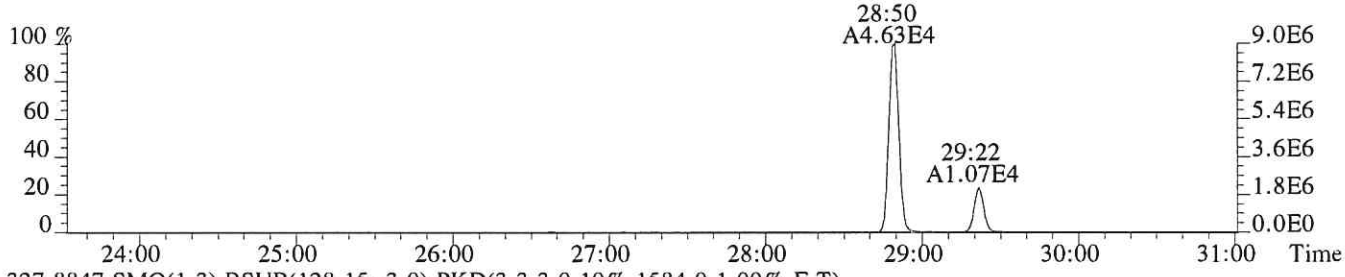
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



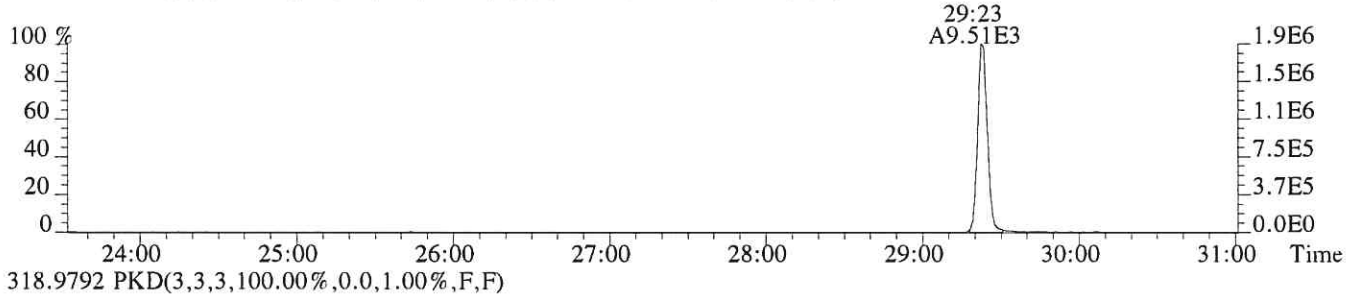
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5752.0,1.00%,F,T)



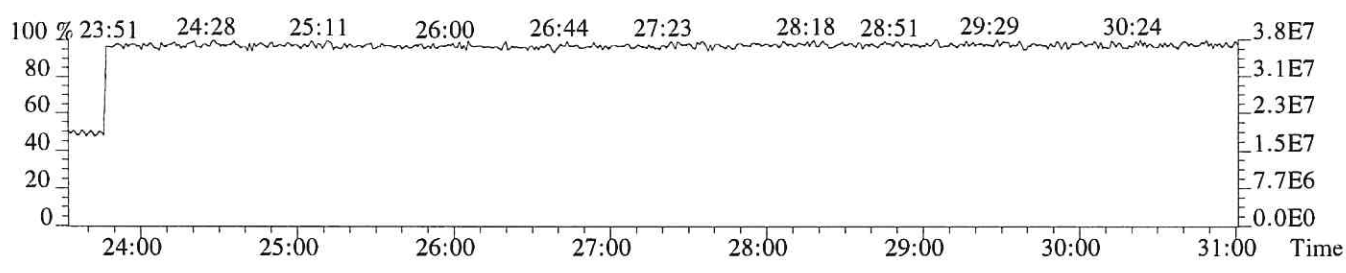
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)

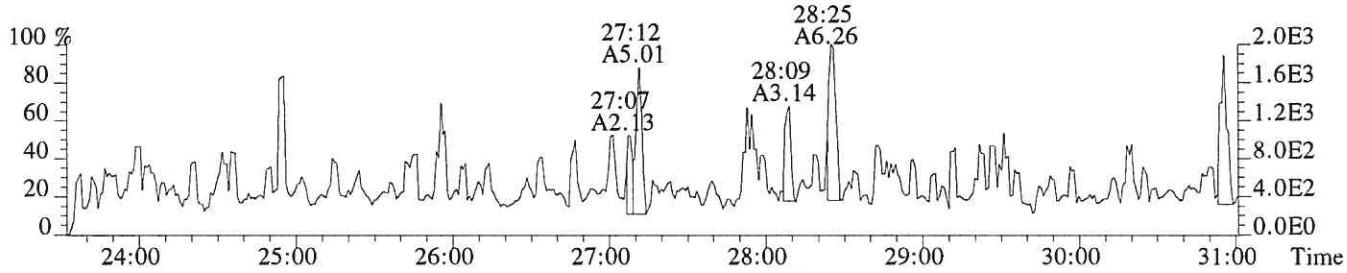


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

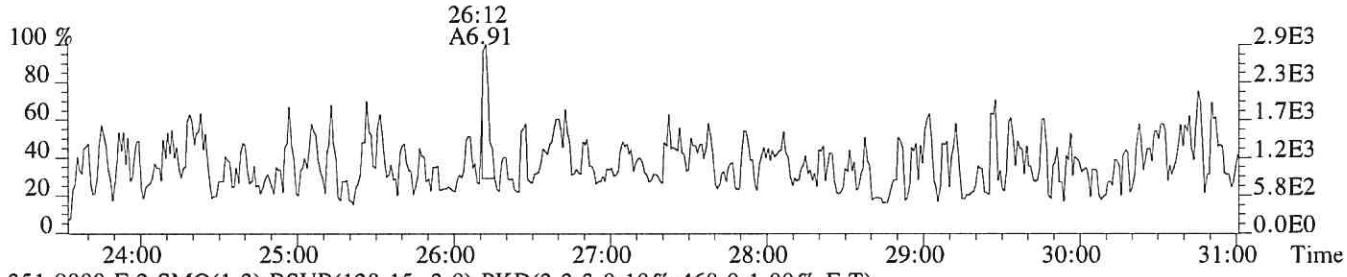


File:P518968 #1-531 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015

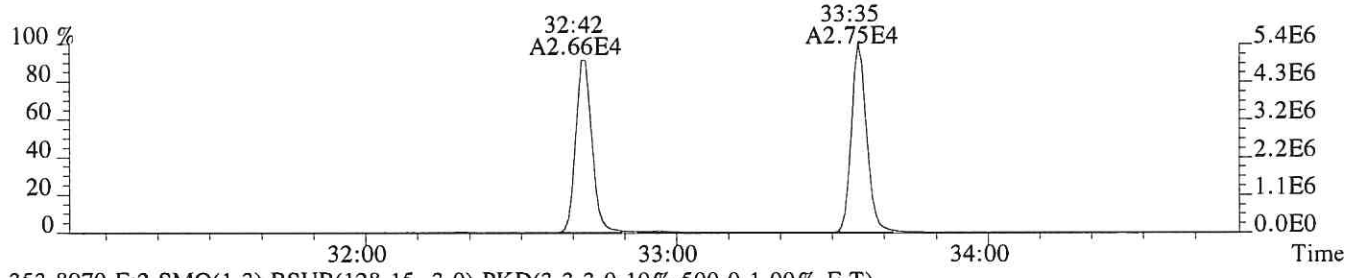
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



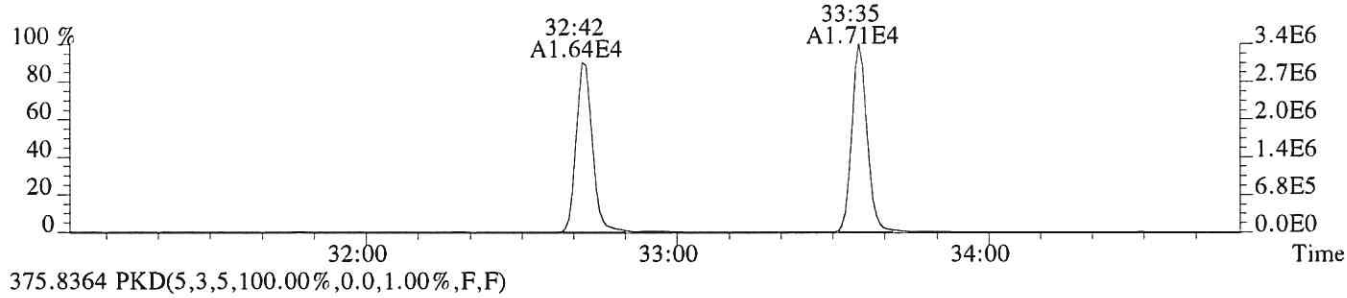
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



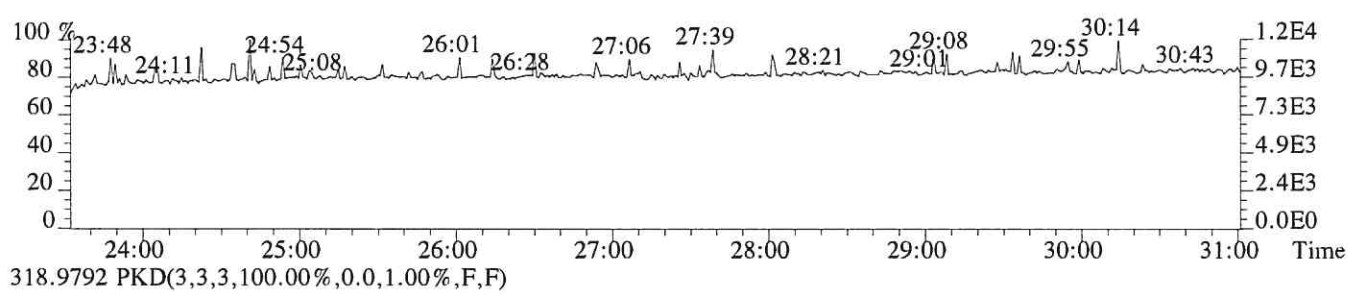
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



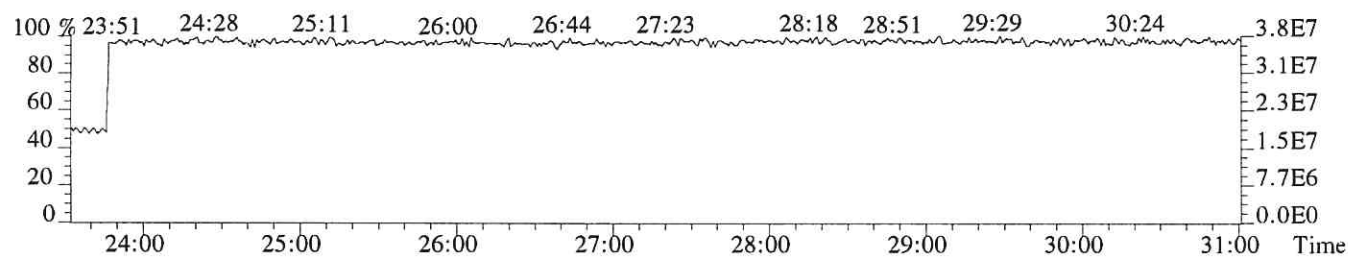
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

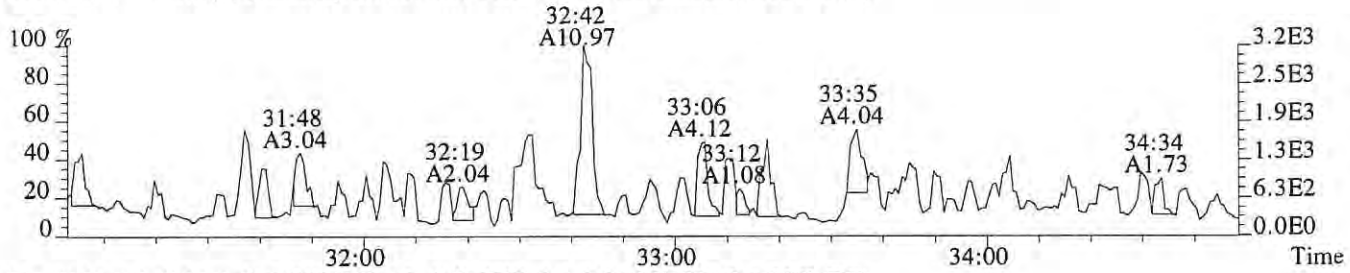


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

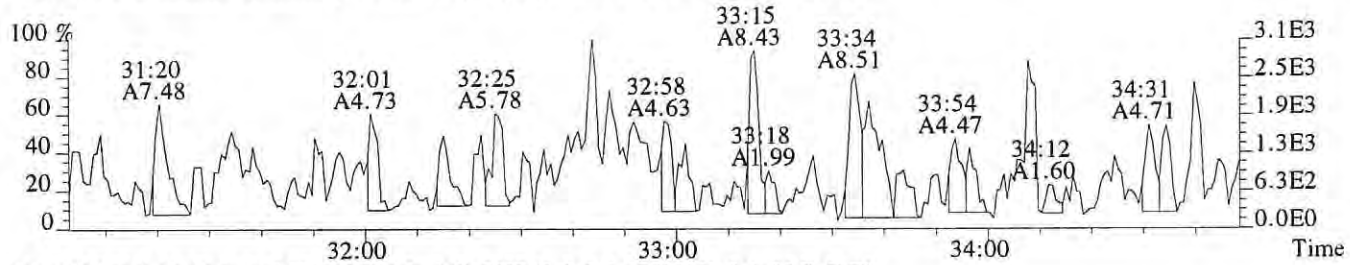


File:P518968 #1-339 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015

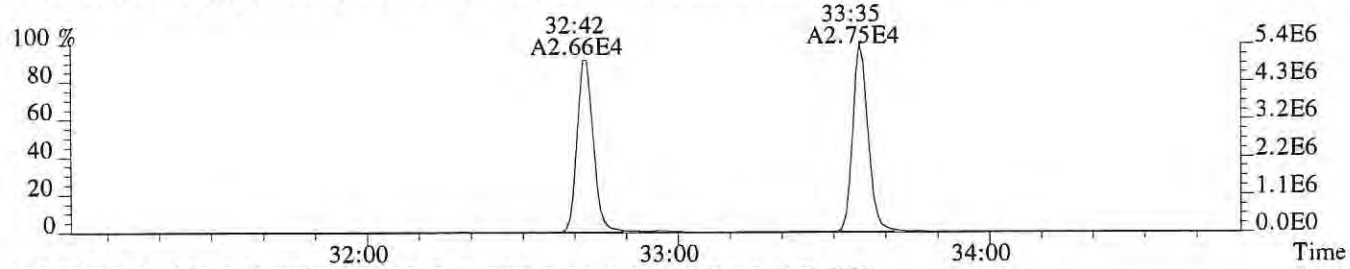
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



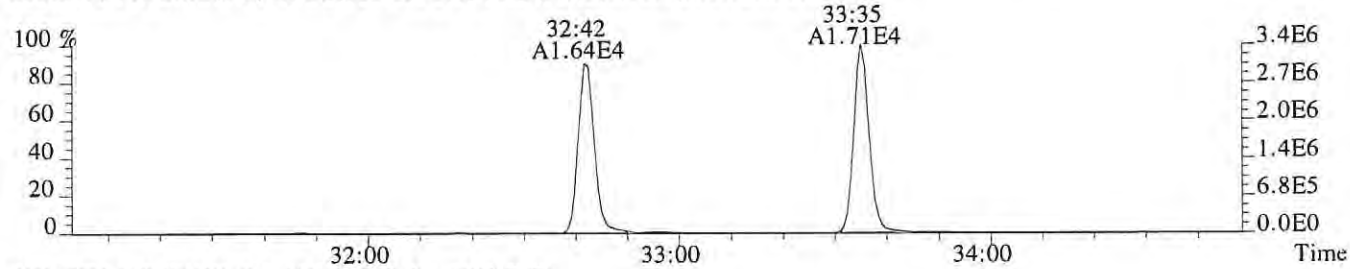
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



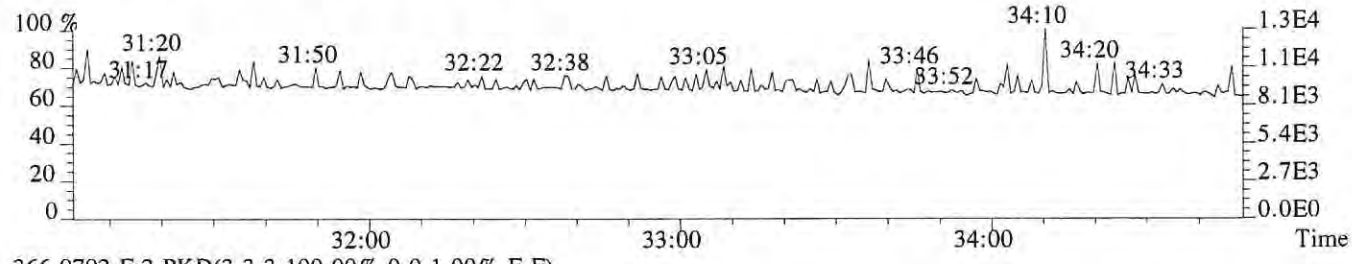
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



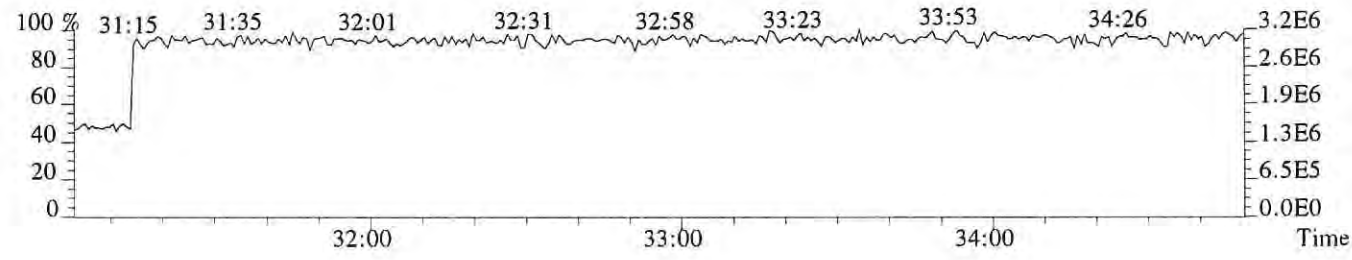
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



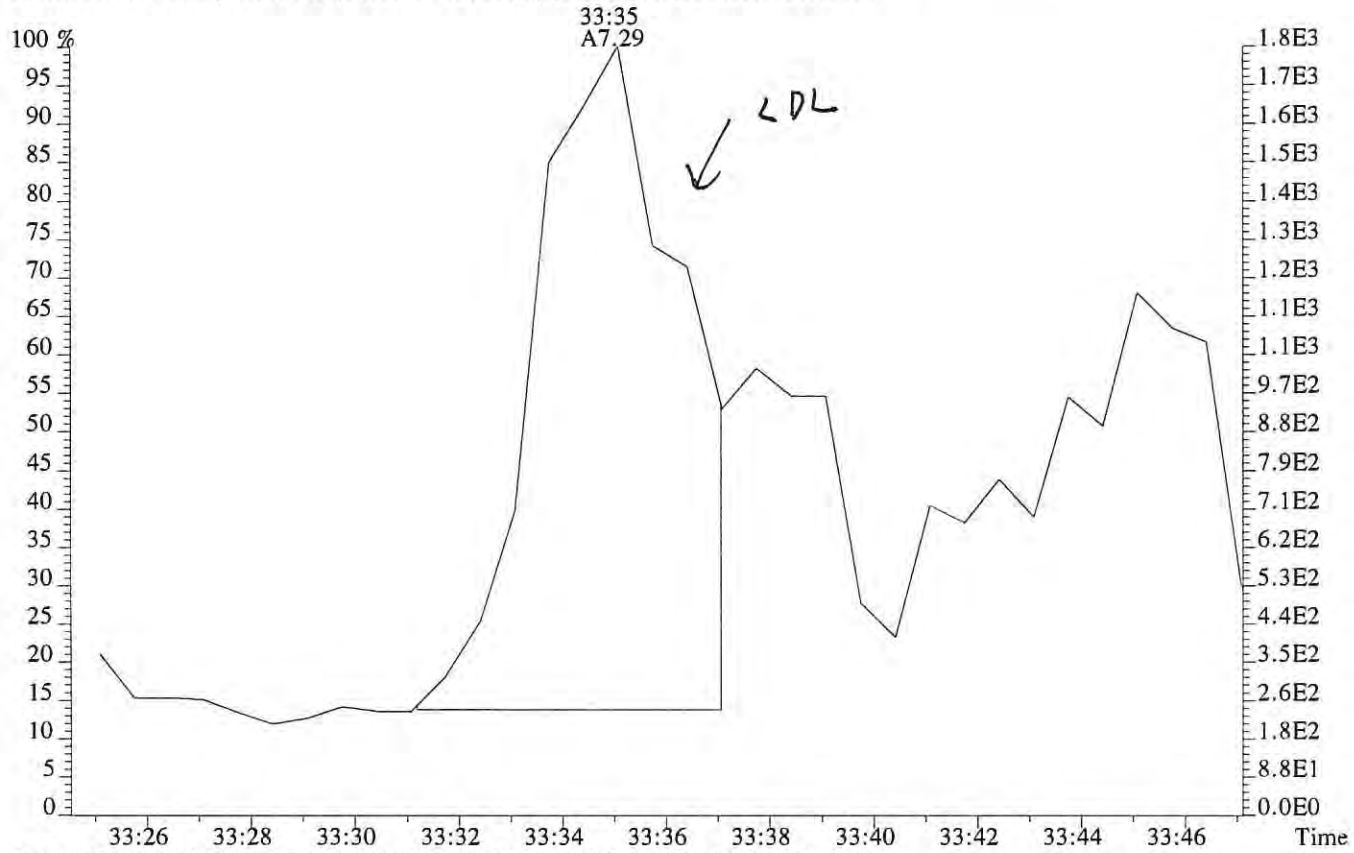
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



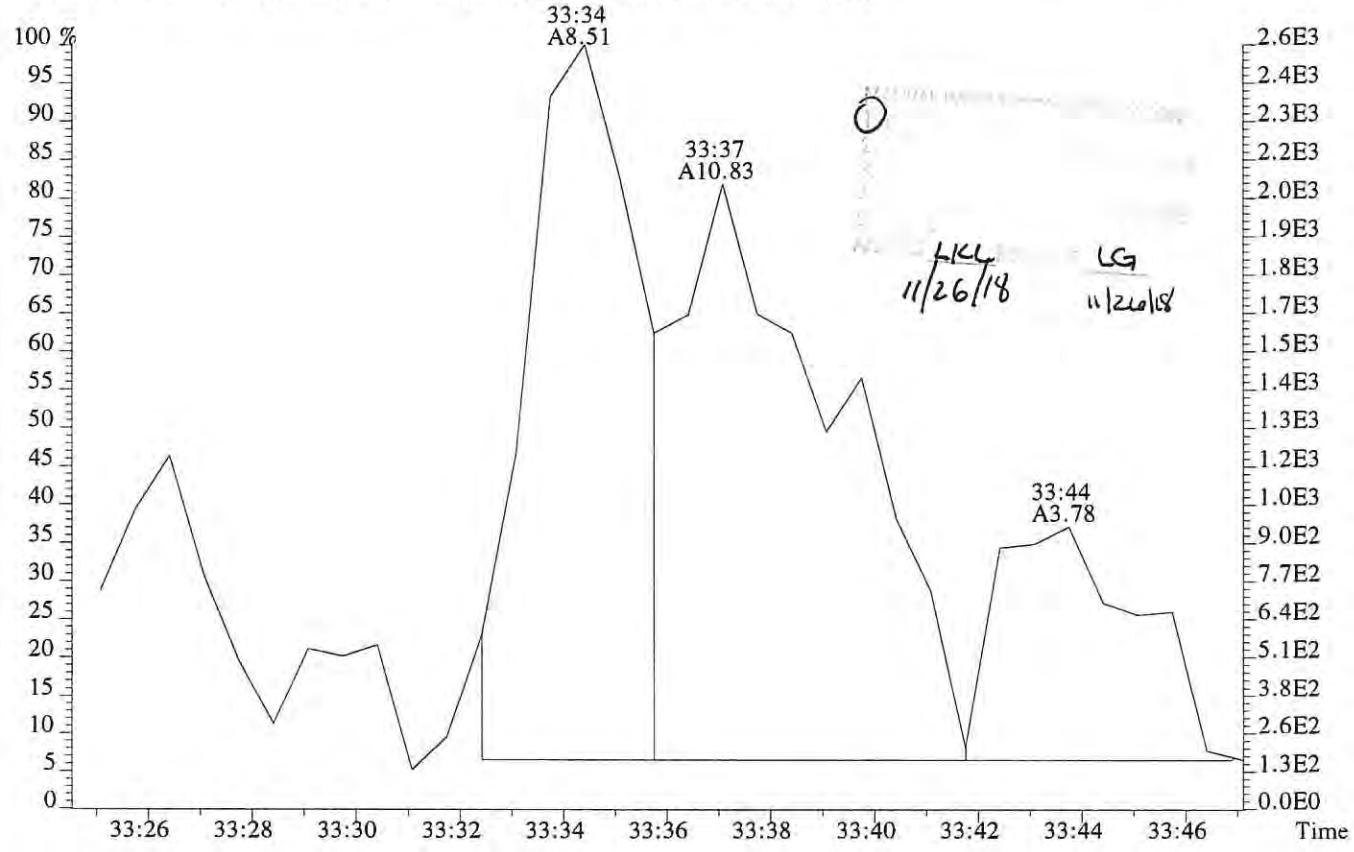
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518968 #1-339 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)

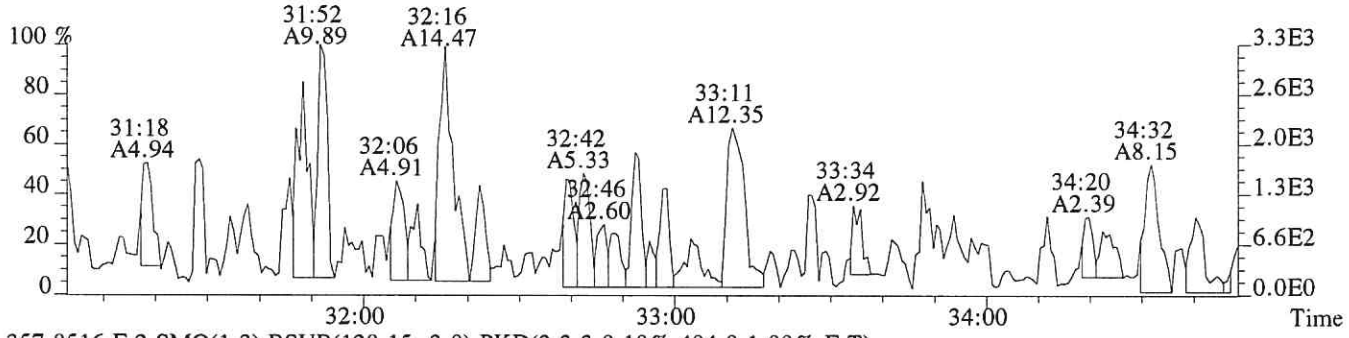


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

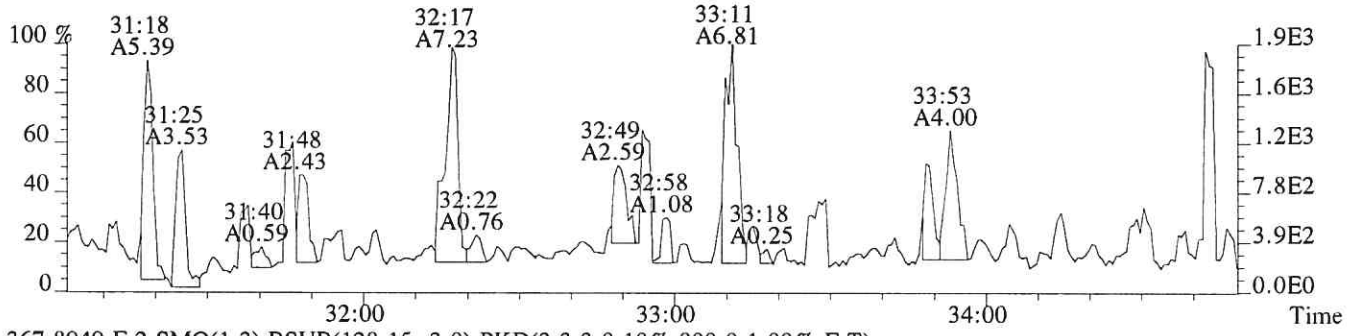


File:P518968 #1-339 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015

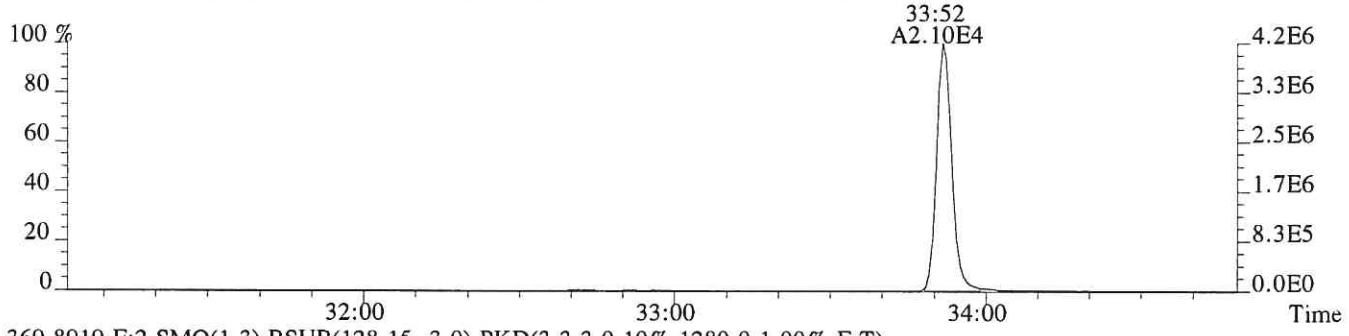
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



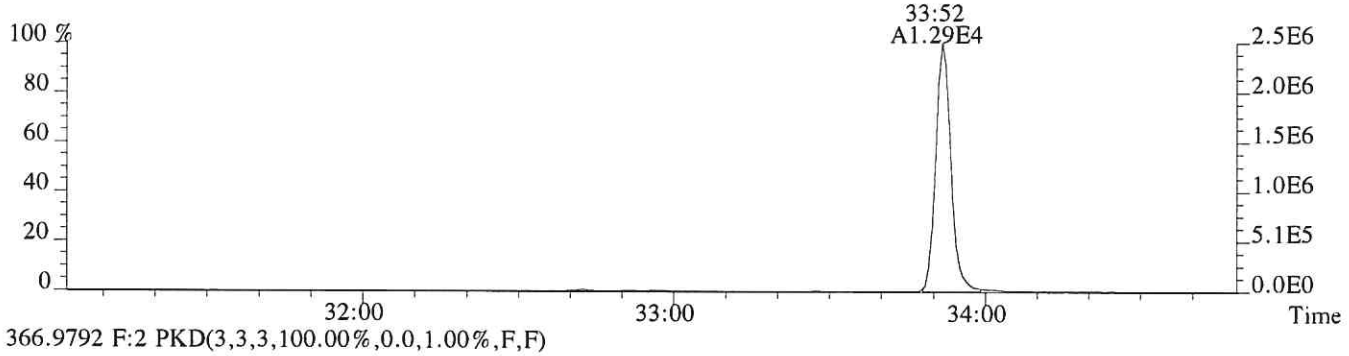
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



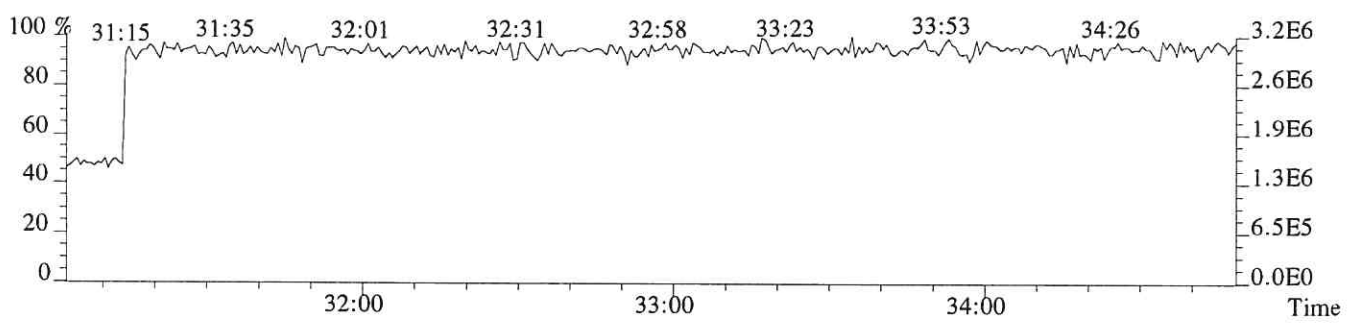
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



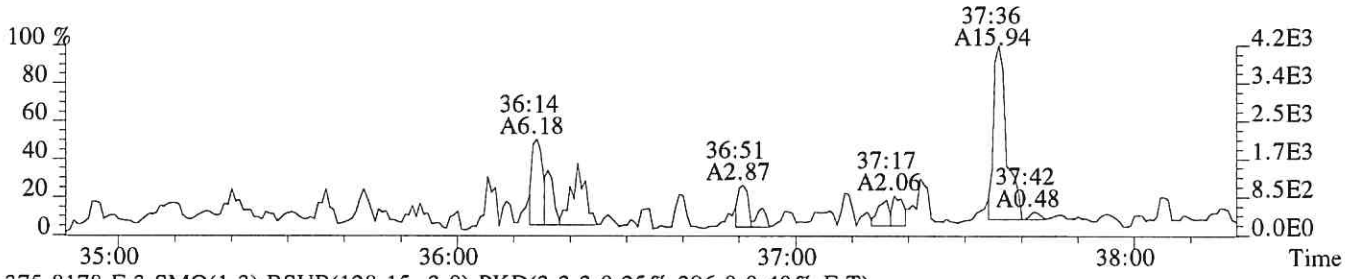
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



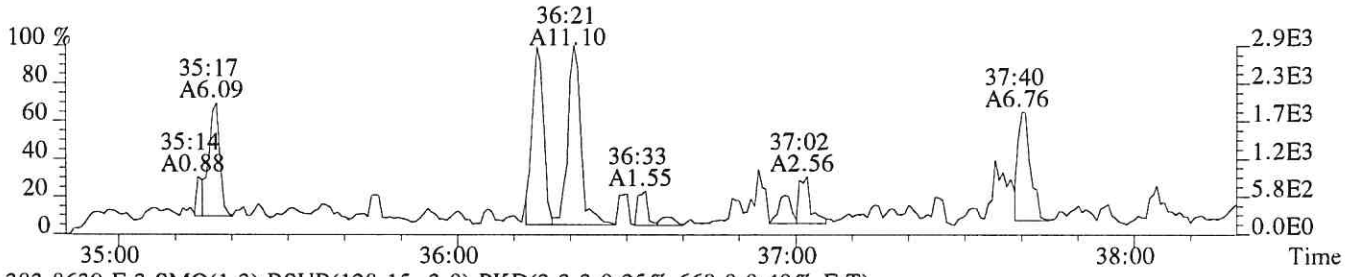
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



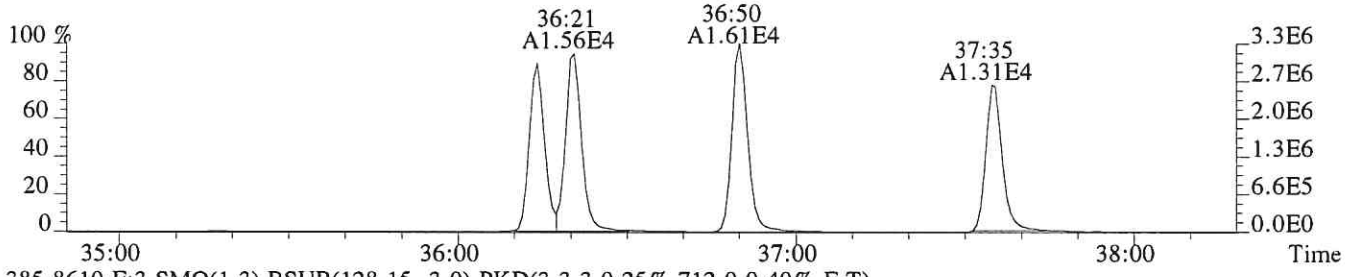
File:P518968 #1-312 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



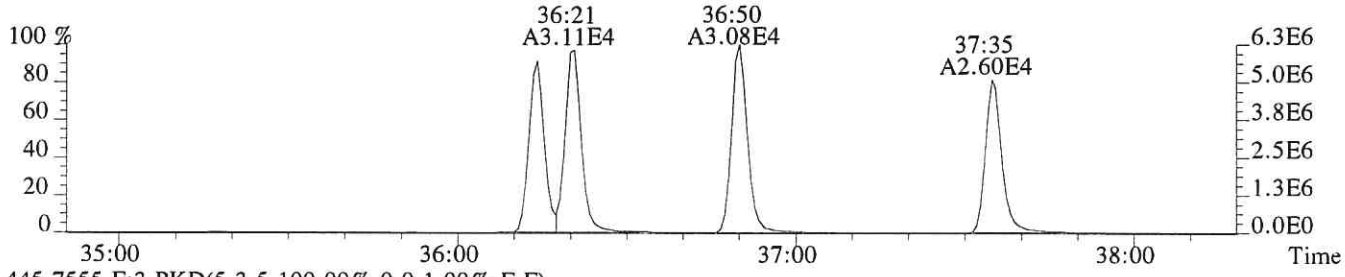
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



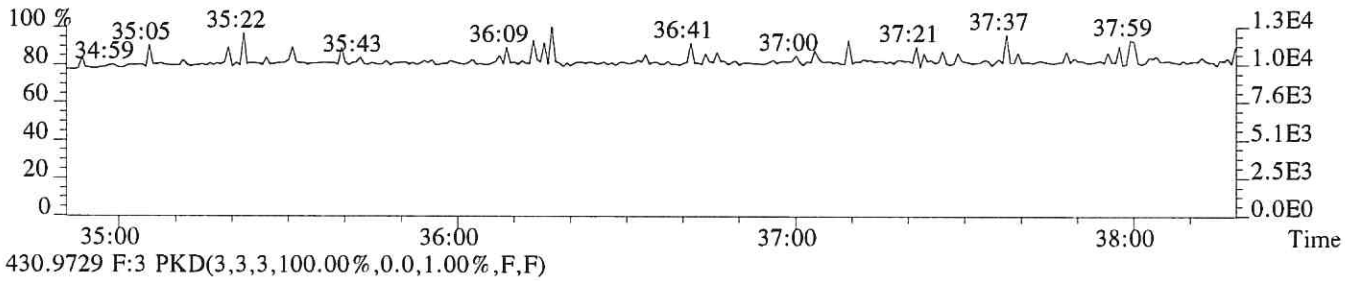
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



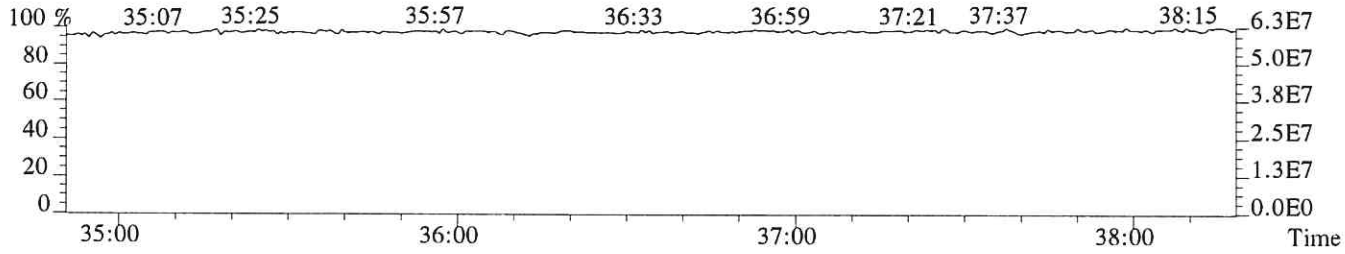
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



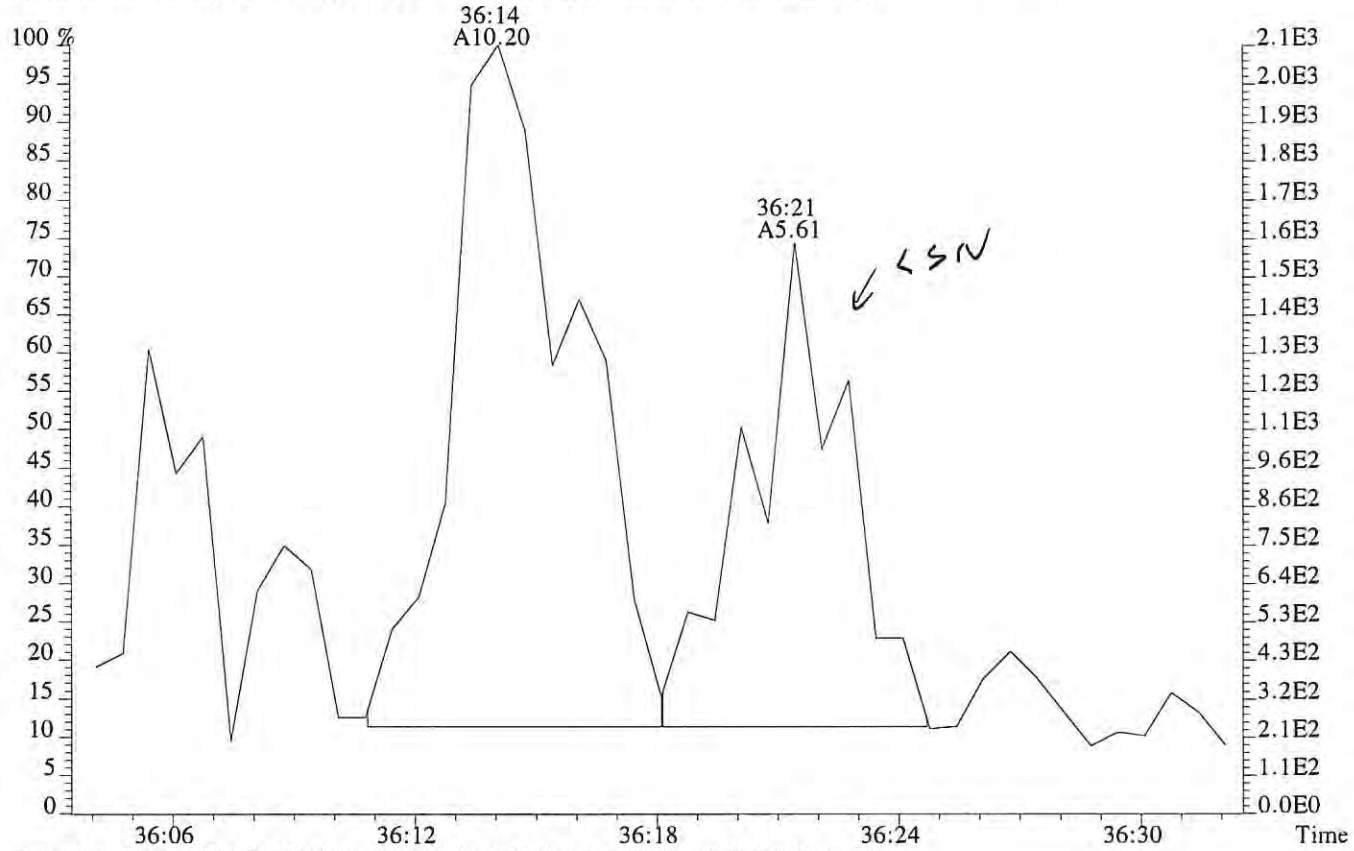
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



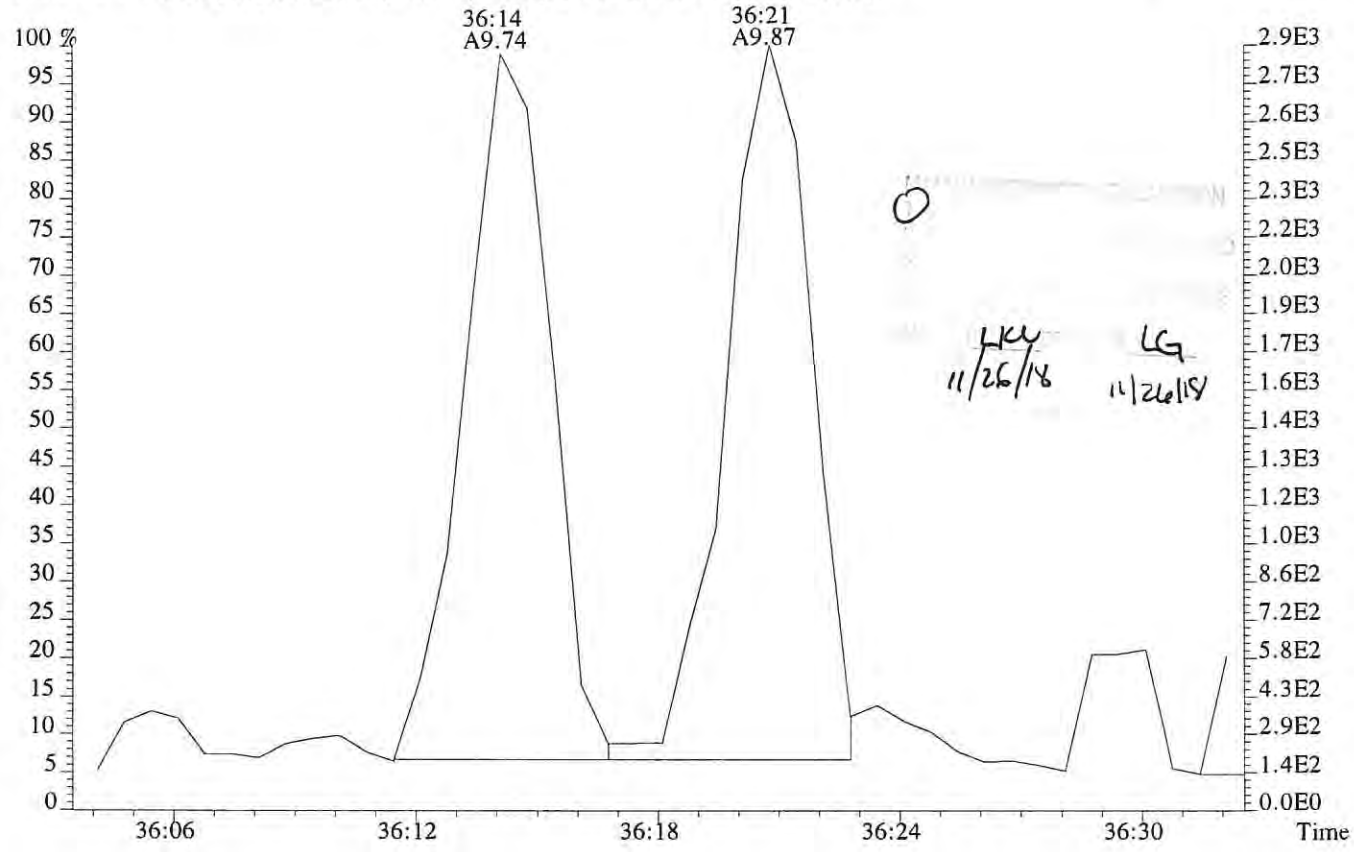
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



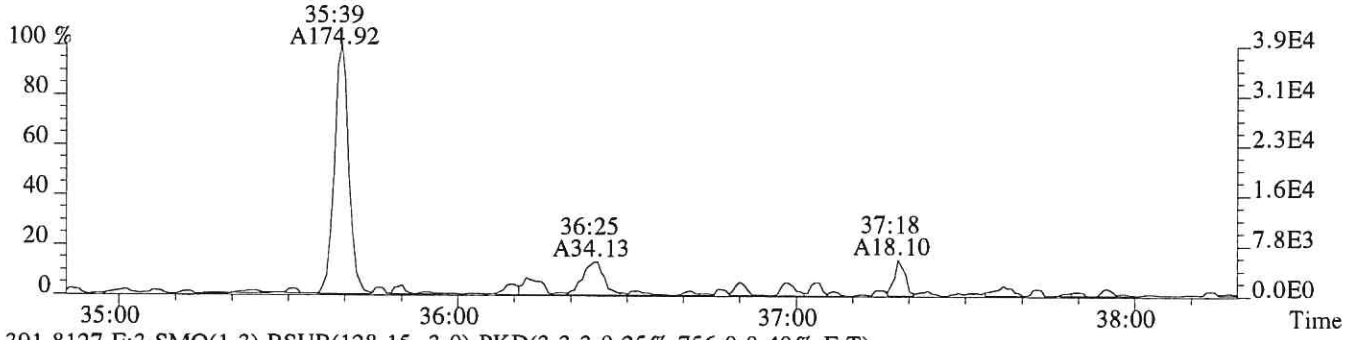
File:P518968 #1-312 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



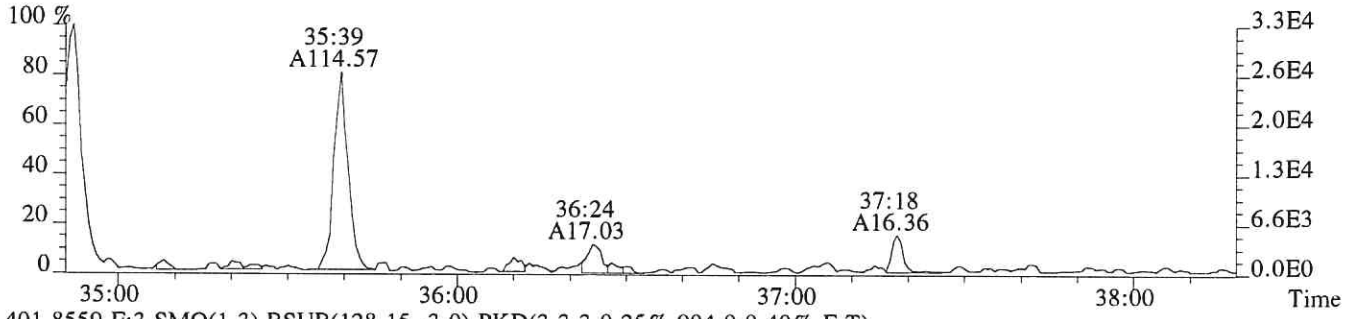
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



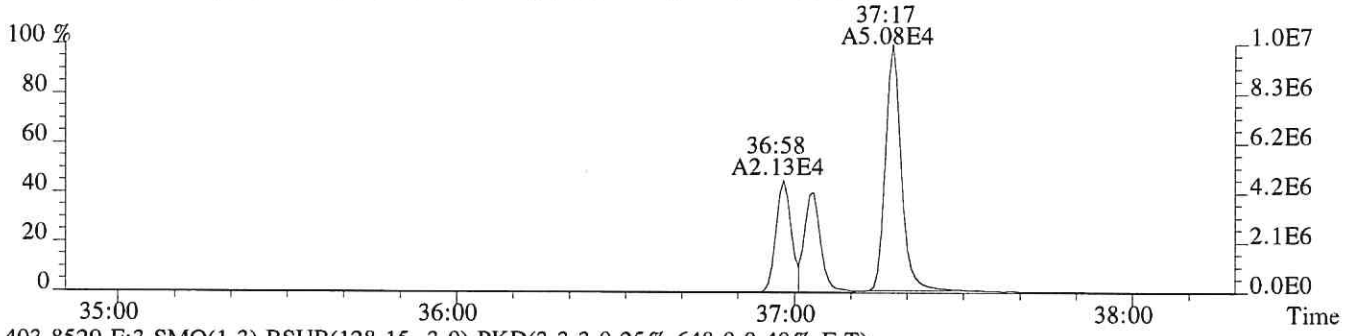
File:P518968 #1-312 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



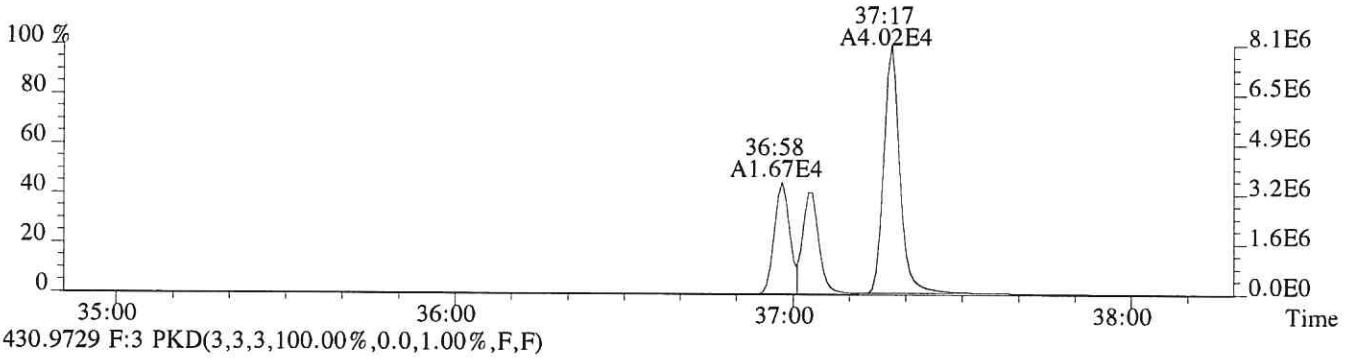
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



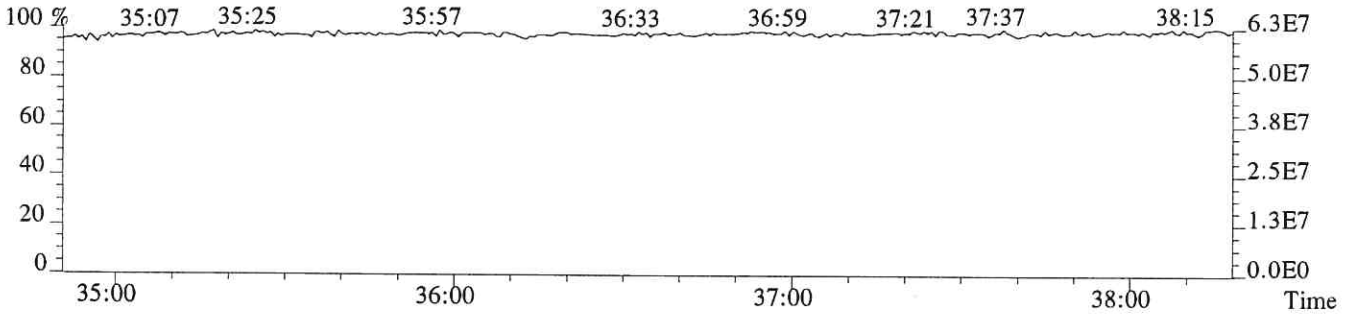
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



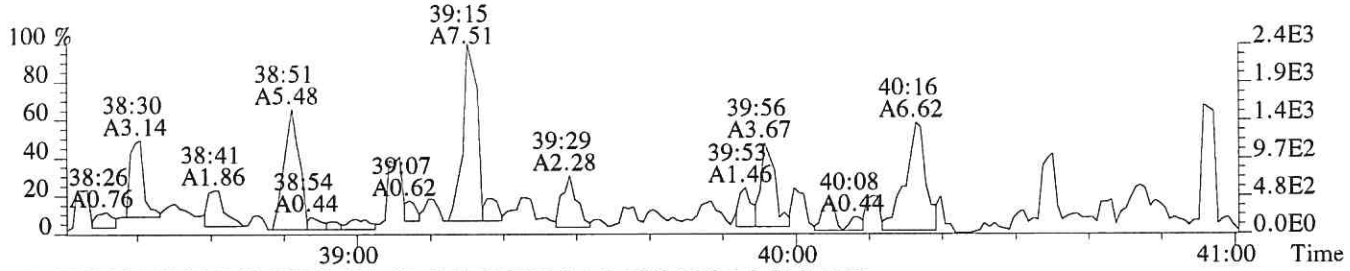
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



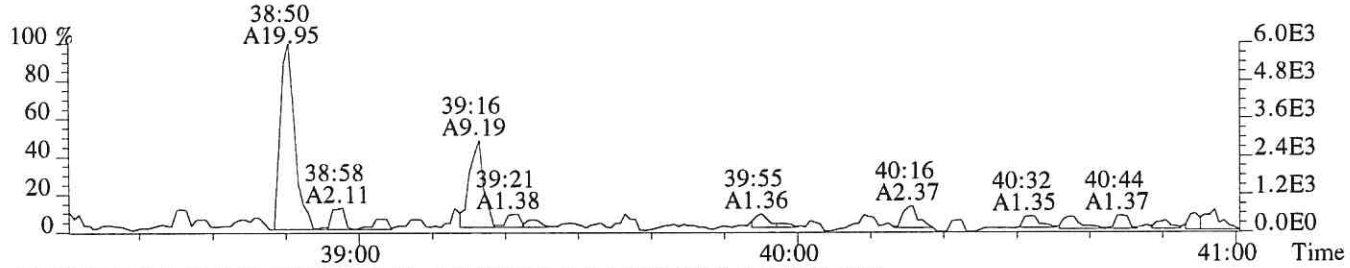
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



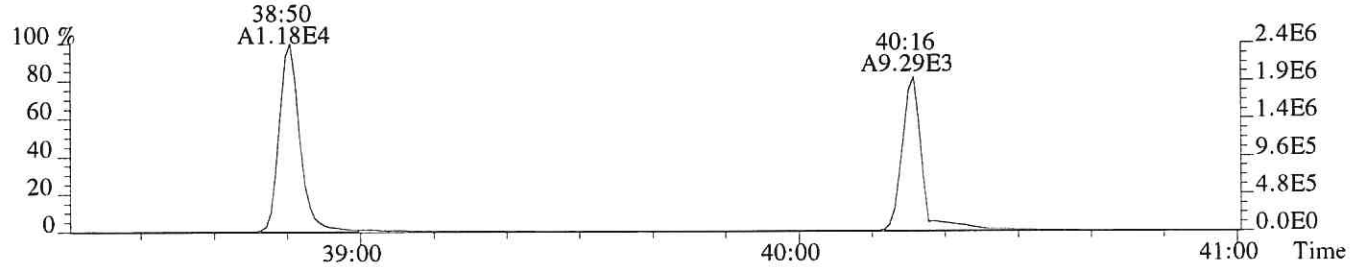
File:P518968 #1-241 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.50%,F,T)



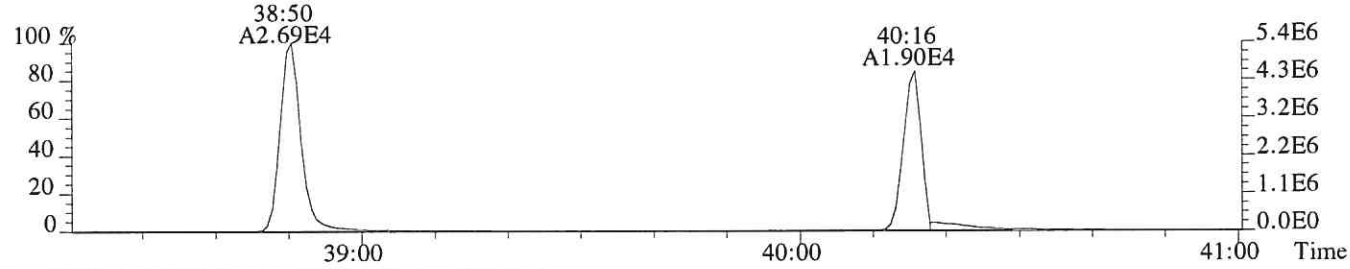
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.50%,F,T)



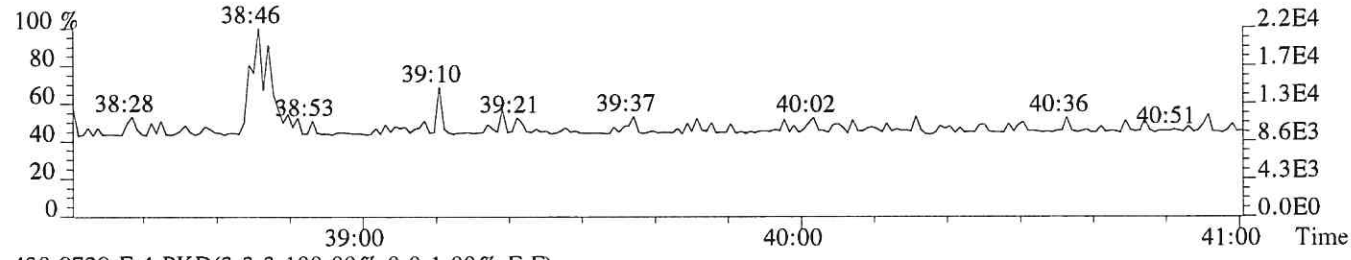
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2288.0,0.50%,F,T)



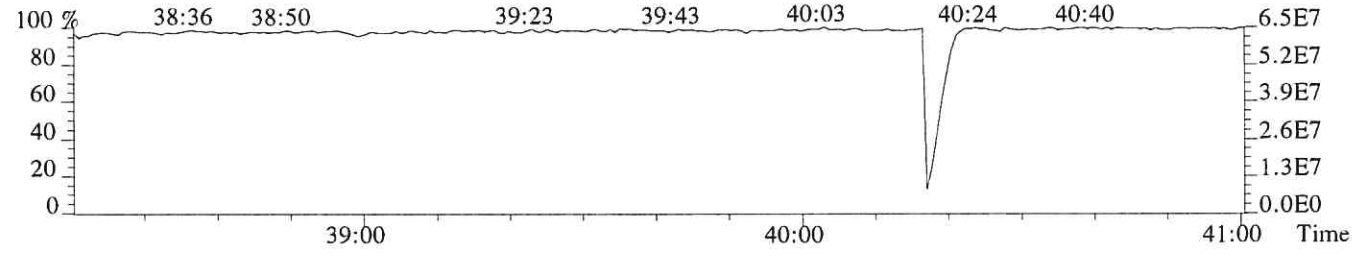
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2536.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

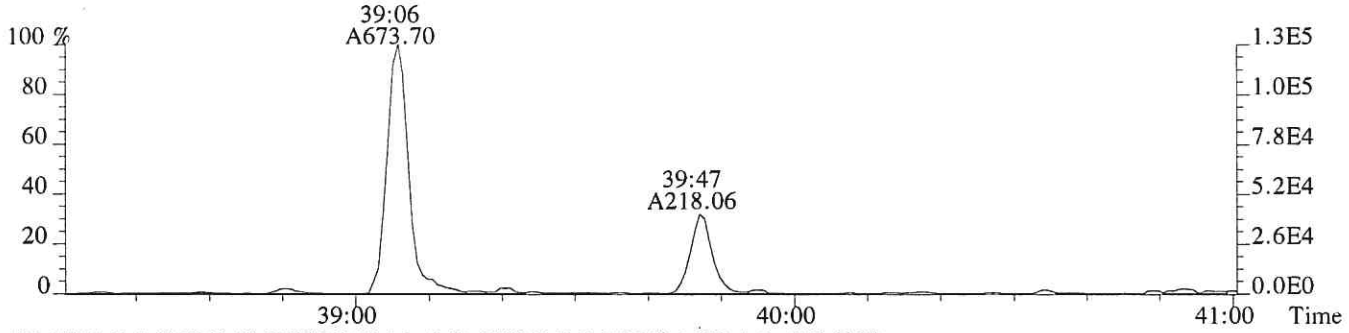


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

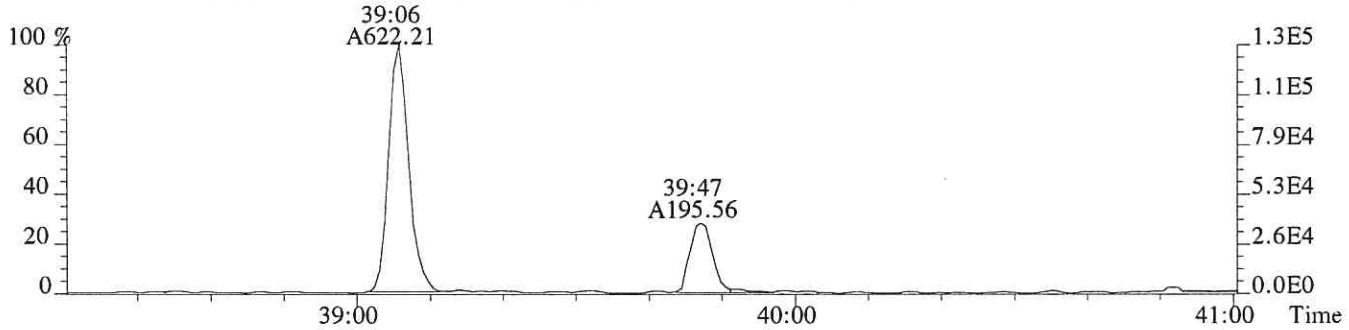


File:P518968 #1-241 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015

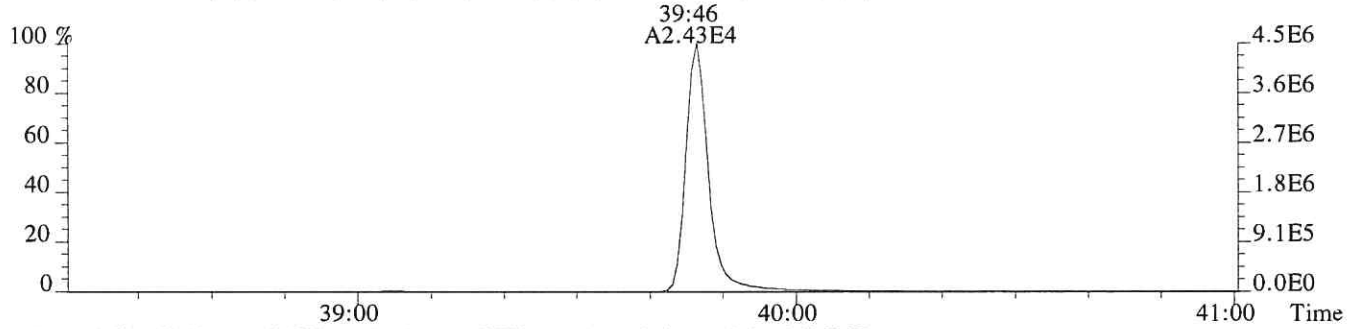
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



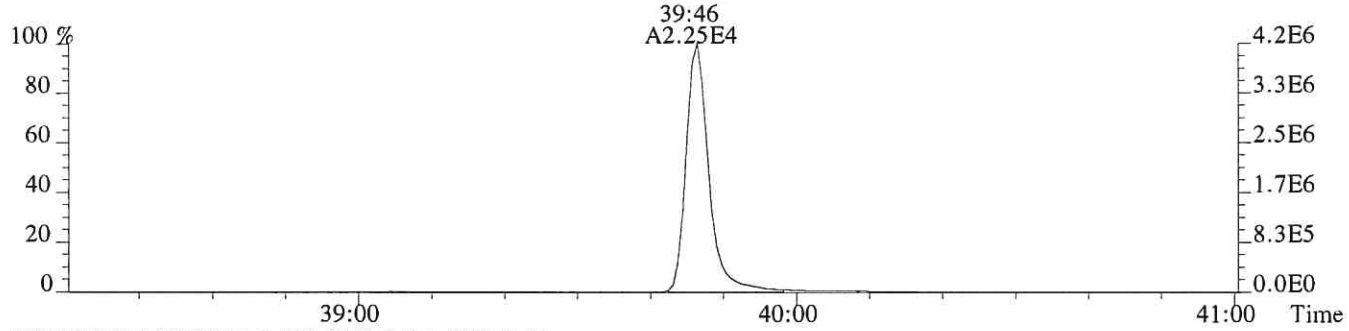
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



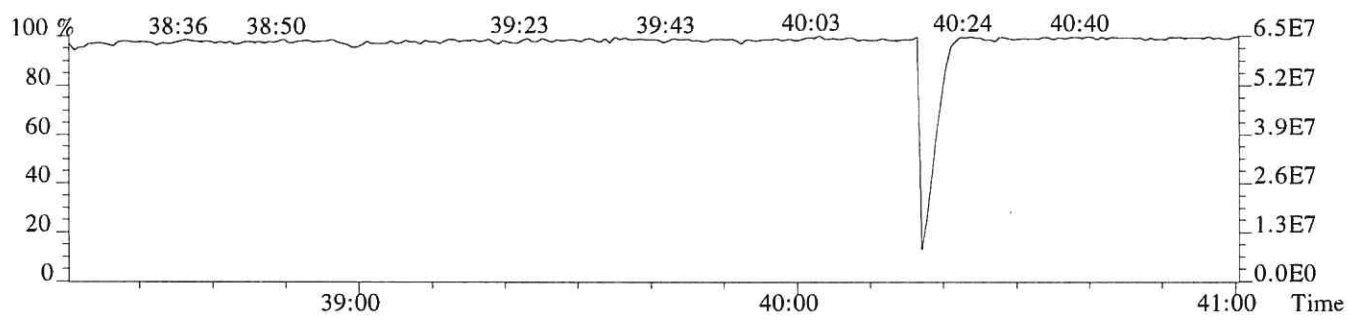
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)

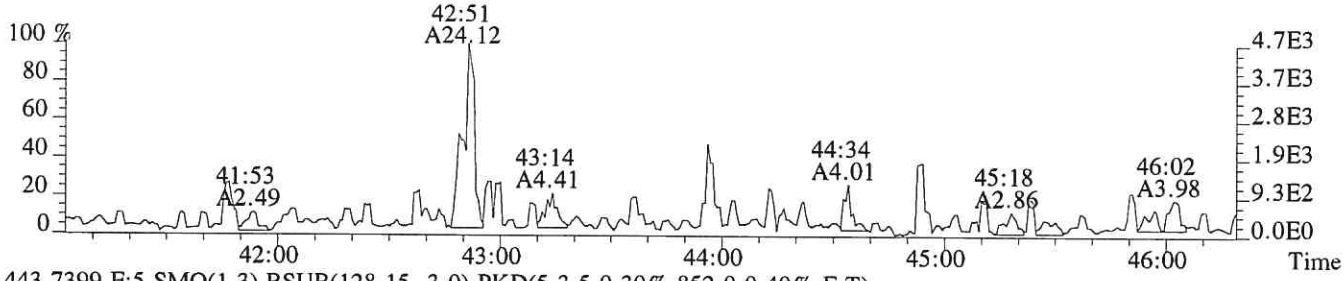


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

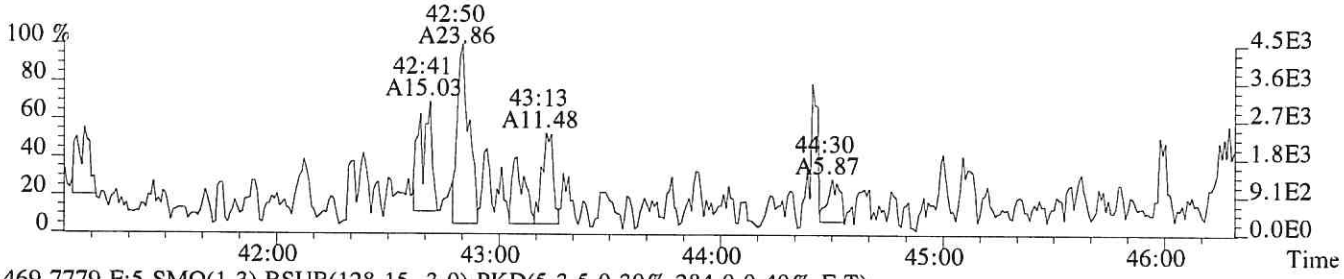


File:P518968 #1-475 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015

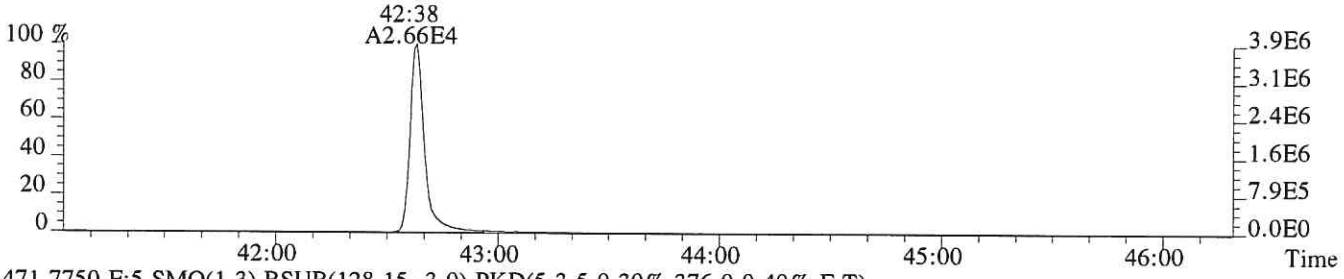
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



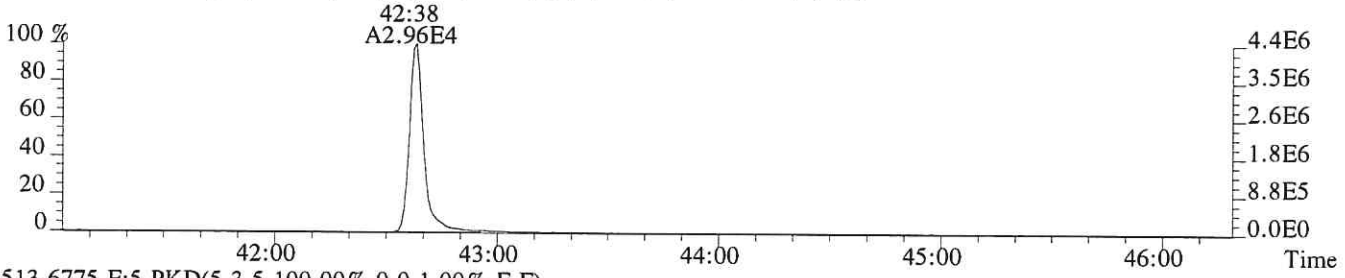
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,852.0,0.40%,F,T)



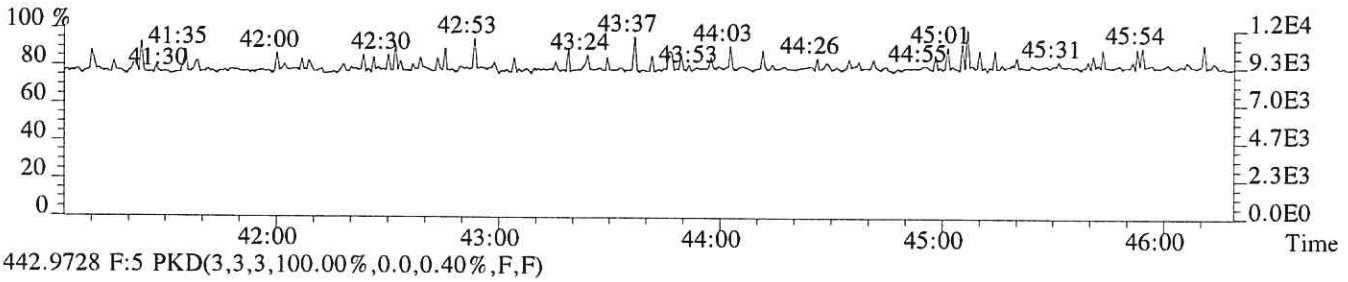
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



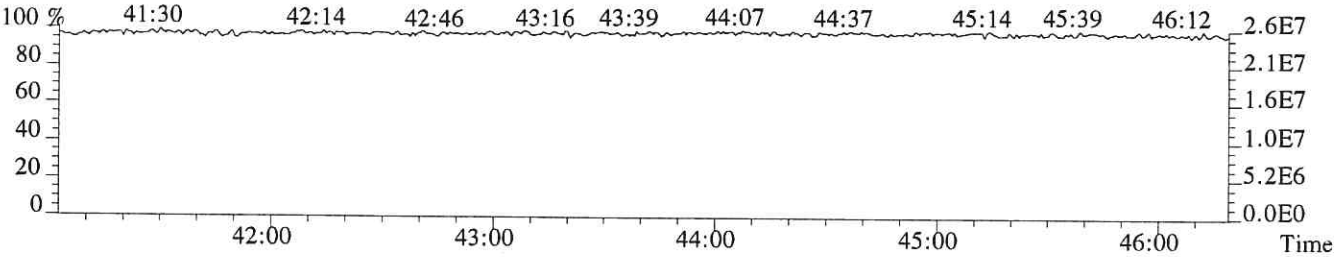
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



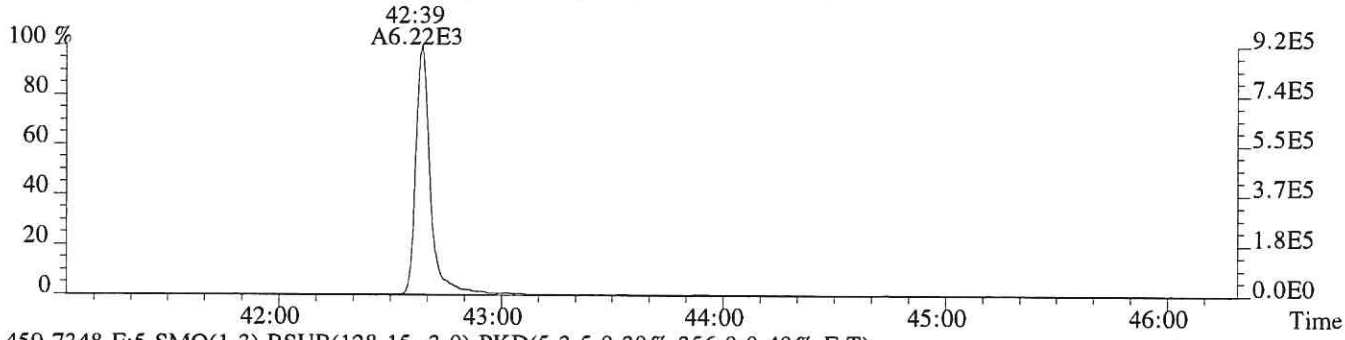
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



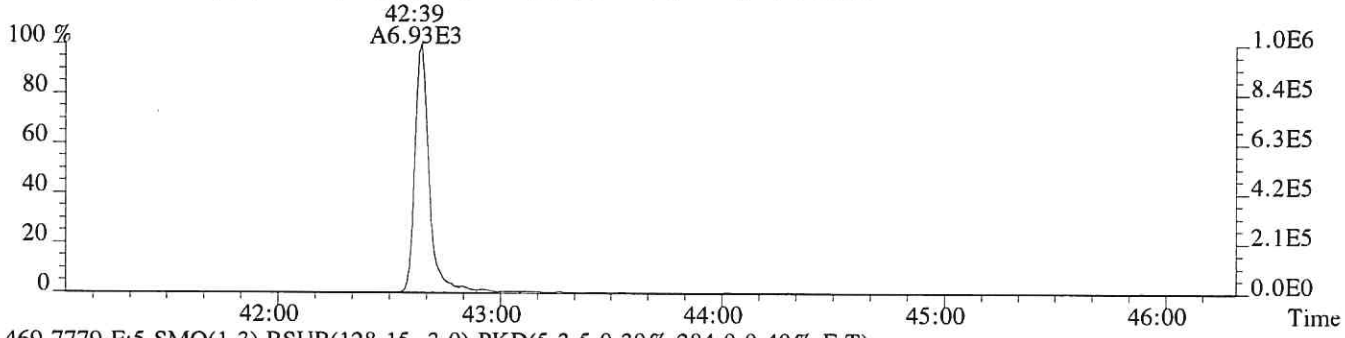
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



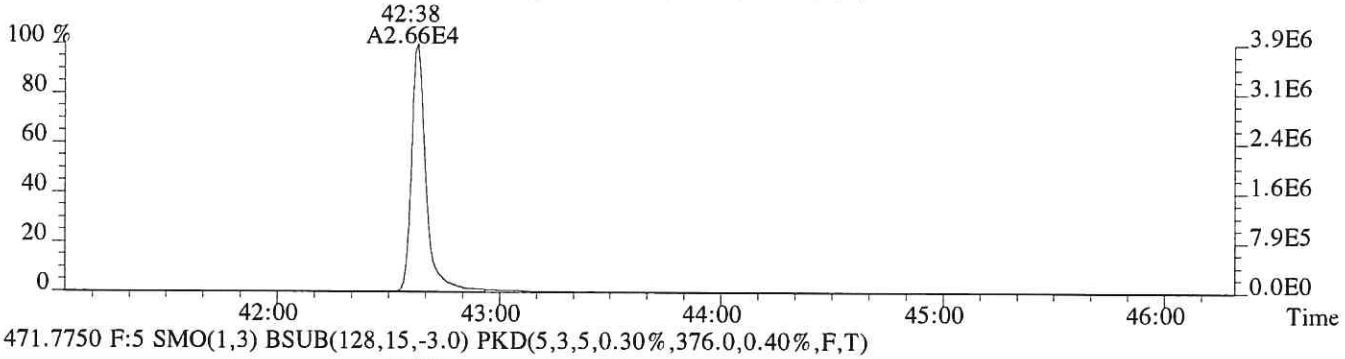
File:P518968 #1-475 Acq:21-NOV-2018 13:32:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-015
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



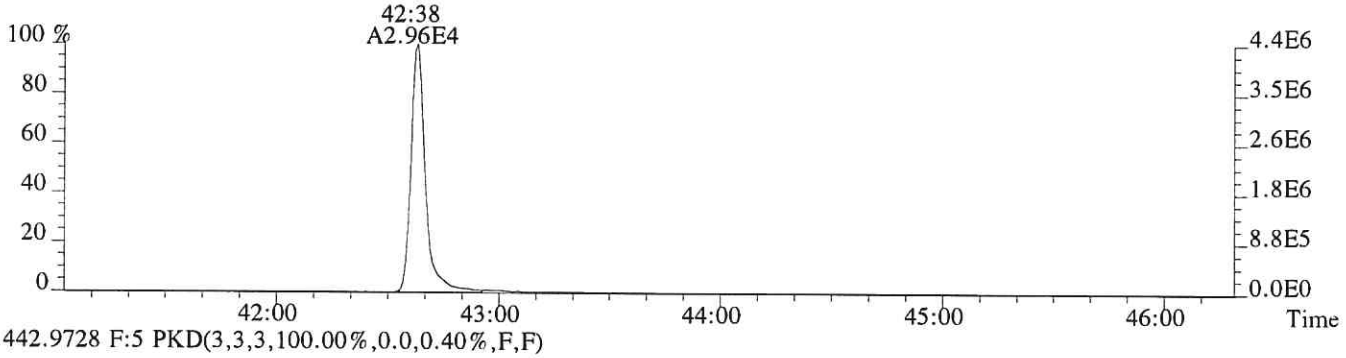
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



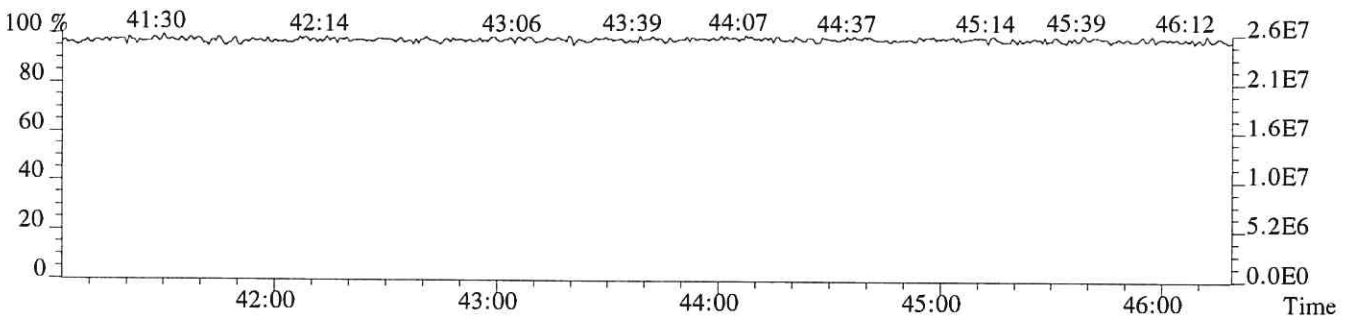
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0534

Run #11 Filename P518969 Samp: 1 Inj: 1 Acquired: 21-NOV-18 14:21:20
Processed: 26-NOV-18 13:48:50 Sample ID: E1801038-016

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.018e+02	1.309e+02	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:44	1.923e+01	3.079e+01	0.62	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	3.150e+01	3.170e+01	0.99	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:50	2.258e+01	2.176e+01	1.04	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:51	7.706e+01	7.770e+01	0.99	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	3.934e+01	6.165e+01	0.64	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	7.786e+00	1.312e+01	0.59	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	3.654e+01	2.372e+01	1.54	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	2.951e+02	2.592e+02	1.14	yes	no	1.025
17	Unk	OCDD	42:39	7.739e+03	8.675e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	7.760e+03	9.543e+03	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	2.095e+04	1.343e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	2.329e+04	1.468e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.321e+04	2.531e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	7.683e+03	1.395e+04	0.55	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.370e+04	2.684e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.231e+04	2.430e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	9.854e+03	2.224e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.020e+04	2.342e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	5.490e+03	6.946e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	1.816e+04	1.145e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	1.902e+04	1.485e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.885e+04	1.467e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	2.053e+04	1.933e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:38	2.203e+04	2.475e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	2.363e+04	2.952e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.942e+04	3.011e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	6.039e+03				no	1.014

$$OCDD = \frac{(7.739e+03 + 8.675e+03) \times 4000\ pg \times 1}{(2.203e+04 + 2.475e+04) \times 10.797\ g \times 83.2/100 \times 1.118} = 139.748\ ng/kg$$

LG 11/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0534

Run #11 Filename P518969 Samp: 1 Inj: 1 Acquired: 21-NOV-18 14:21:20
Processed: 26-NOV-18 13:48:50 LAB. ID: E1801038-016

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.83e+04	5.52e+02	3.3e+01	2.66e+04	1.58e+03	1.7e+01
2	1,2,3,7,8-PeCDF	3.91e+03	2.32e+02	1.7e+01	7.22e+03	1.15e+03	6.3e+00
3	2,3,4,7,8-PeCDF	*	2.32e+02	*	*	1.15e+03	*
4	1,2,3,4,7,8-HxCDF	7.33e+03	6.76e+02	1.1e+01	6.69e+03	6.28e+02	1.1e+01
5	1,2,3,6,7,8-HxCDF	*	6.76e+02	*	*	6.28e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.76e+02	*	*	6.28e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.76e+02	*	*	6.28e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.64e+03	3.40e+02	1.1e+01	3.44e+03	2.76e+02	1.2e+01
9	1,2,3,4,7,8,9-HpCDF	*	3.40e+02	*	*	2.76e+02	*
10	OCDF	1.30e+04	2.08e+02	6.2e+01	1.51e+04	7.60e+02	2.0e+01
11	2,3,7,8-TCDD	7.25e+03	2.54e+03	2.9e+00	9.04e+03	1.10e+03	8.2e+00
12	1,2,3,7,8-PeCDD	*	5.76e+02	*	*	3.76e+02	*
13	1,2,3,4,7,8-HxCDD	*	4.44e+02	*	*	3.24e+02	*
14	1,2,3,6,7,8-HxCDD	2.41e+03	4.44e+02	5.4e+00	4.16e+03	3.24e+02	1.3e+01
15	1,2,3,7,8,9-HxCDD	6.10e+03	4.44e+02	1.4e+01	5.75e+03	3.24e+02	1.8e+01
16	1,2,3,4,6,7,8-HpCDD	5.56e+04	1.16e+03	4.8e+01	4.81e+04	9.12e+02	5.3e+01
17	OCDD	1.15e+06	1.76e+02	6.5e+03	1.34e+06	2.40e+02	5.6e+03
18	13C-2,3,7,8-TCDF	1.48e+06	7.83e+03	1.9e+02	1.81e+06	5.12e+03	3.5e+02
19	13C-1,2,3,7,8-PeCDF	3.87e+06	2.36e+02	1.6e+04	2.47e+06	7.64e+02	3.2e+03
20	13C-2,3,4,7,8-PeCDF	4.60e+06	2.36e+02	1.9e+04	2.93e+06	7.64e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	2.85e+06	1.05e+03	2.7e+03	5.39e+06	5.92e+02	9.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.51e+06	1.05e+03	1.4e+03	2.69e+06	5.92e+02	4.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.93e+06	1.05e+03	2.8e+03	5.68e+06	5.92e+02	9.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.42e+06	1.05e+03	2.3e+03	4.77e+06	5.92e+02	8.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.03e+06	1.56e+03	1.3e+03	4.60e+06	3.86e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.84e+06	1.56e+03	1.2e+03	4.23e+06	3.86e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.11e+06	5.22e+03	2.1e+02	1.39e+06	2.09e+03	6.6e+02
28	13C-1,2,3,7,8-PeCDD	3.45e+06	6.52e+02	5.3e+03	2.14e+06	6.16e+02	3.5e+03
29	13C-1,2,3,4,7,8-HxCDD	4.23e+06	1.16e+03	3.6e+03	3.32e+06	4.92e+02	6.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.80e+06	1.16e+03	3.3e+03	2.98e+06	4.92e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.84e+06	5.04e+02	7.6e+03	3.60e+06	2.96e+02	1.2e+04
32	13C-OCDD	3.40e+06	2.92e+02	1.2e+04	3.73e+06	2.12e+02	1.8e+04
33	13C-1,2,3,4-TCDD	4.60e+06	5.22e+03	8.8e+02	5.66e+06	2.09e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	7.80e+06	1.16e+03	6.7e+03	6.08e+06	4.92e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.18e+06	1.56e+03	7.5e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.540e+03 + 1.104e+03) \times 2000}{(1.108e+06 + 1.386e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0534

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P518969 Sample:1 Injection:1 Function:1

Acquired: 21-NOV-18 14:21:20 Processed: 26-NOV-18 13:48:50

Mass: 303.9020 305.8990 Tot Response: 3.34e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:51	4.76e+01	5.41e+01 0.88	yes	1.02e+02		n	n
2	28:37	1.02e+02	1.31e+02 0.78	yes	2.33e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0534

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P518969 Sample:1 Injection:1 Function:3

Acquired: 21-NOV-18 14:21:20 Processed: 26-NOV-18 13:48:50

Mass: 389.8160 391.8130 Tot Response: 3.04e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:39	1.17e+02	1.18	yes	2.17e+02		n	n
2	36:24	5.00e+01	1.34	yes	8.74e+01		n	n

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Peak List Summary

CLIENT ID.
SL0534

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P518969 Sample:1 Injection:1 Function:4

Acquired: 21-NOV-18 14:21:20 Processed: 26-NOV-18 13:48:50

Mass: 407.7820 409.7790 Tot Response: 4.43e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:50	2.26e+01	2.18e+01 1.04	yes	4.43e+01	1,2,3,4,6,7,8-HpCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0534

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P518969 Sample:1 Injection:1 Function:4

Acquired: 21-NOV-18 14:21:20 Processed: 26-NOV-18 13:48:50

Mass: 423.7770 425.7740 Tot Response: 2.31e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	8.89e+02	8.65e+02 1.03	yes	1.75e+03		n	n
2	39:48	2.95e+02	2.59e+02 1.14	yes	5.54e+02	1,2,3,4,6,7,8-HpCDD	n	n

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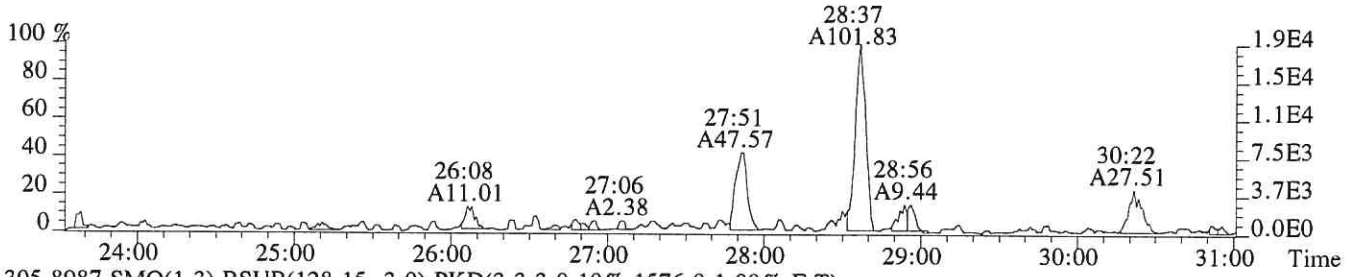
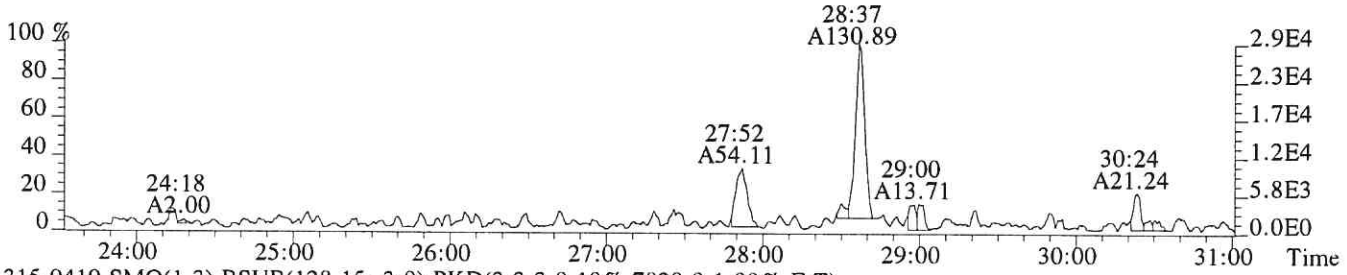
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

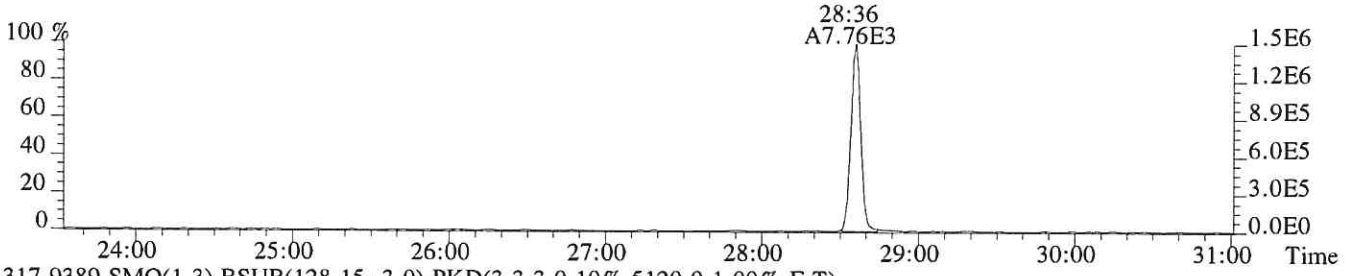
File:P518969 #1-531 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



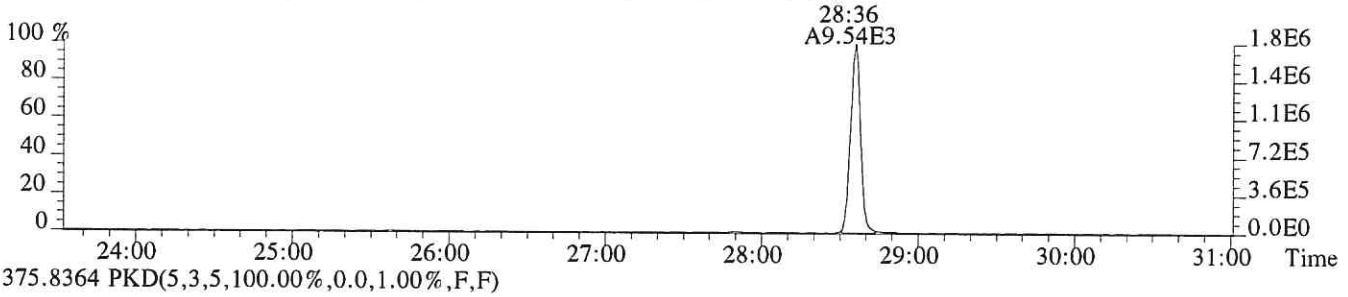
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



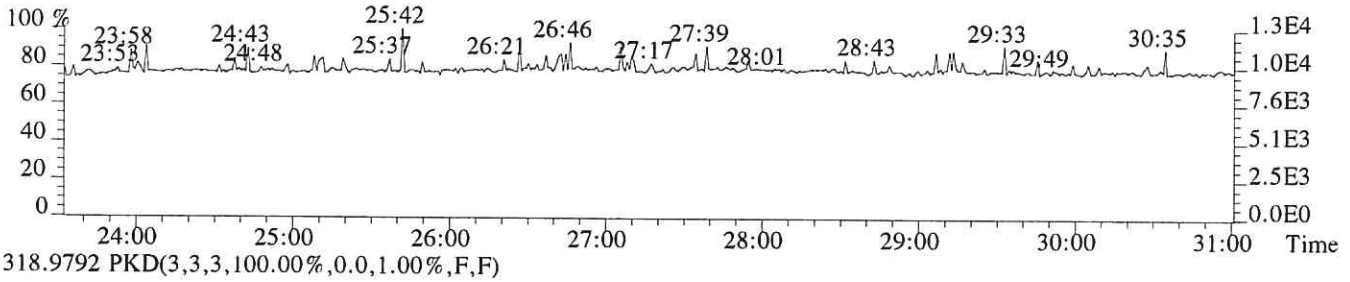
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7828.0,1.00%,F,T)



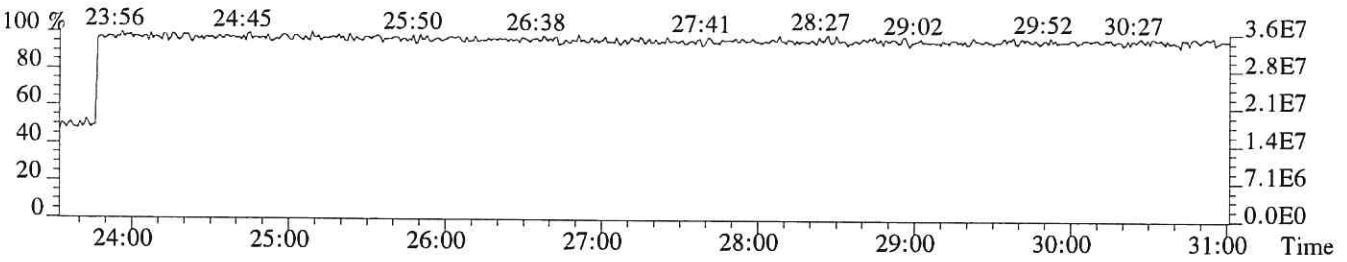
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

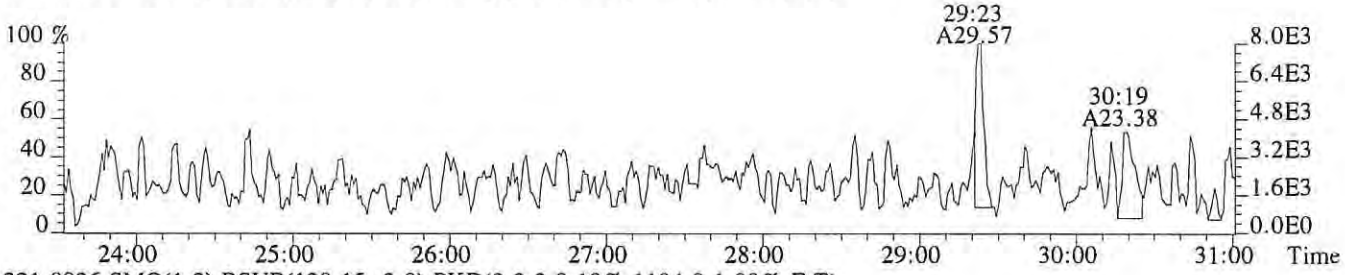


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

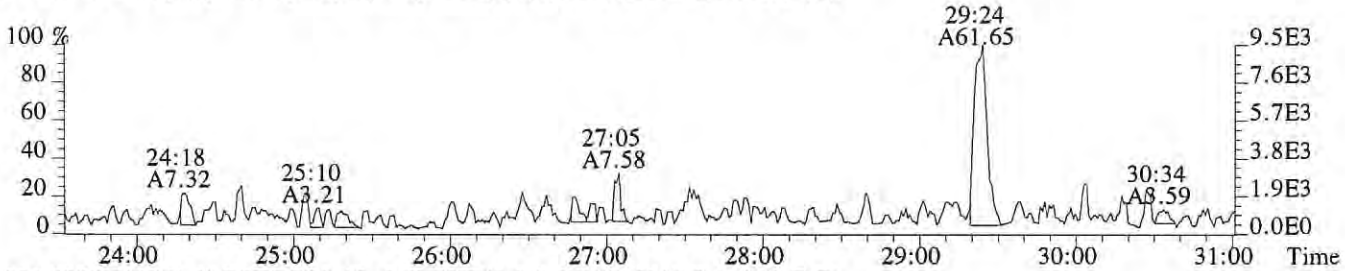


File:P518969 #1-531 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016

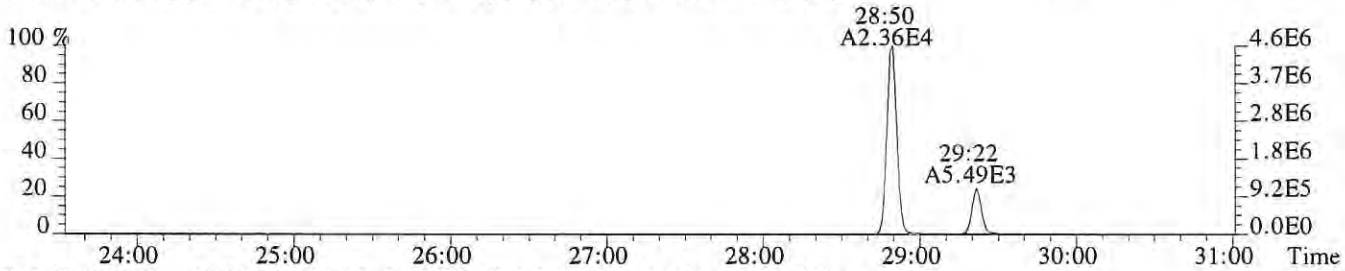
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)



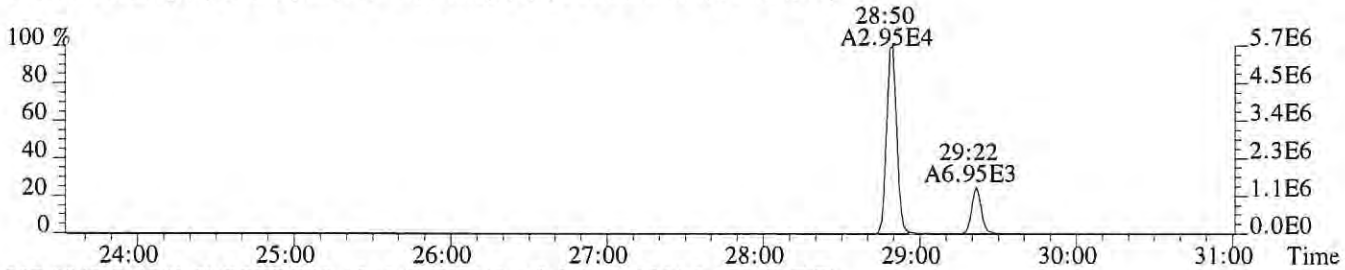
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



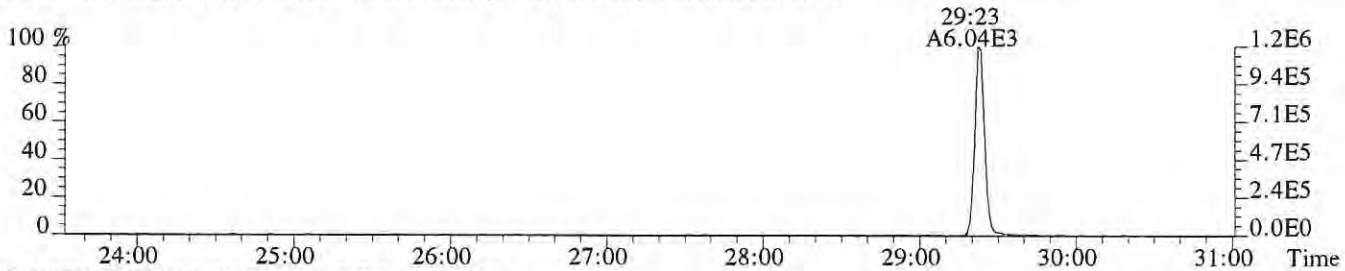
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5216.0,1.00%,F,T)



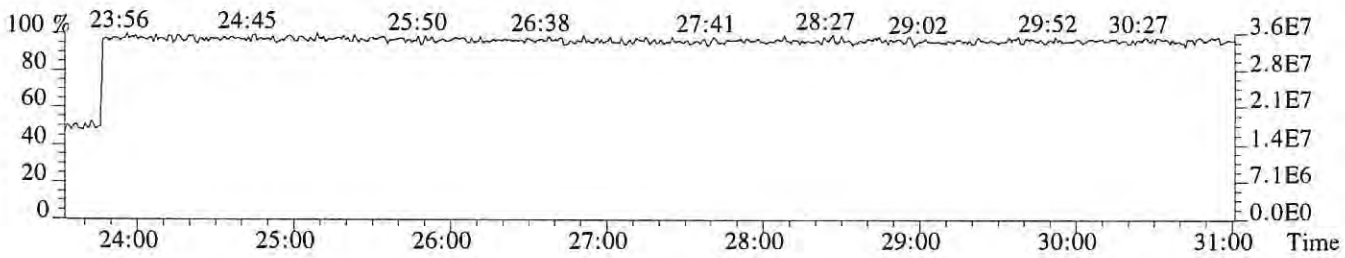
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



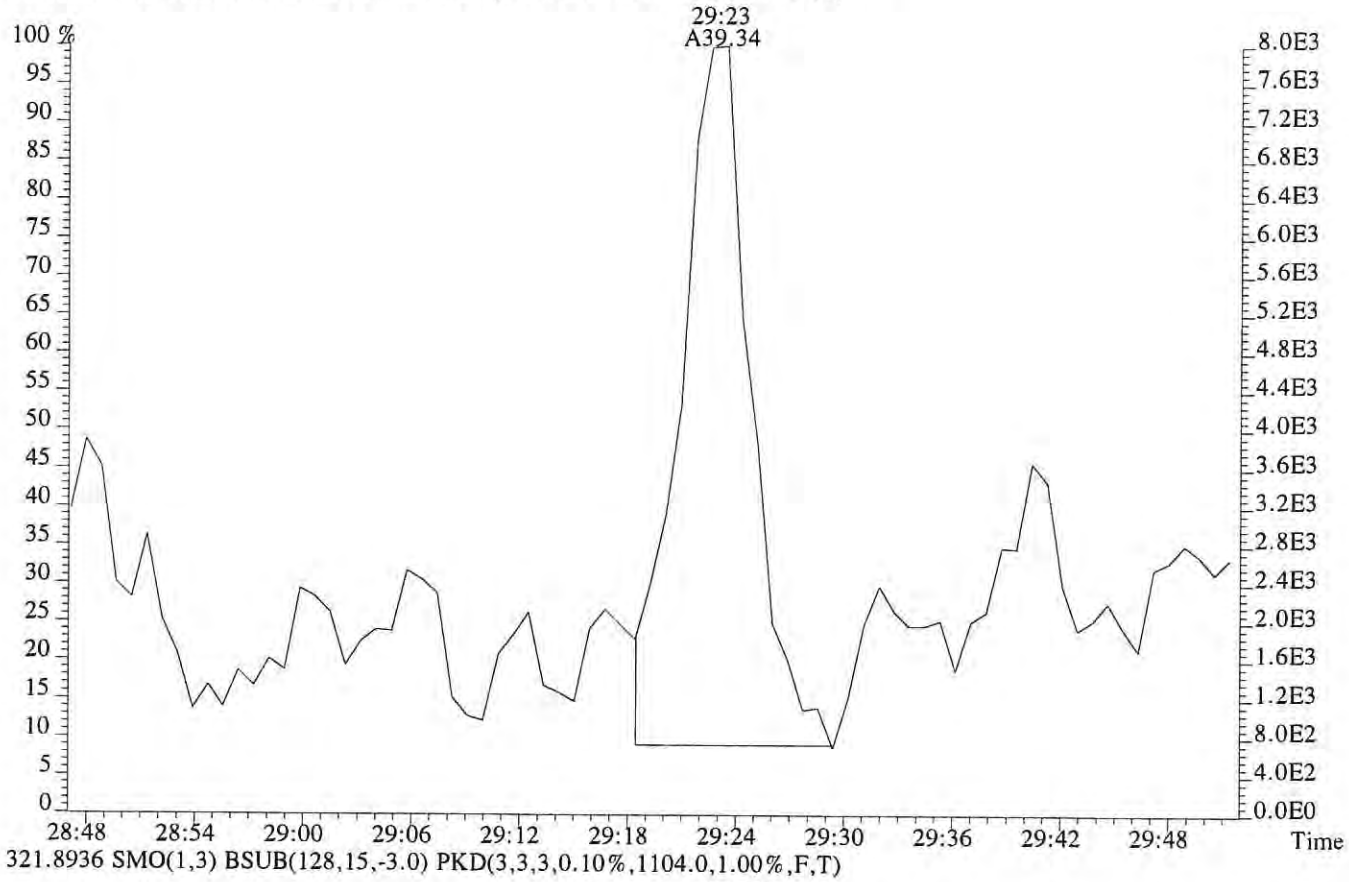
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



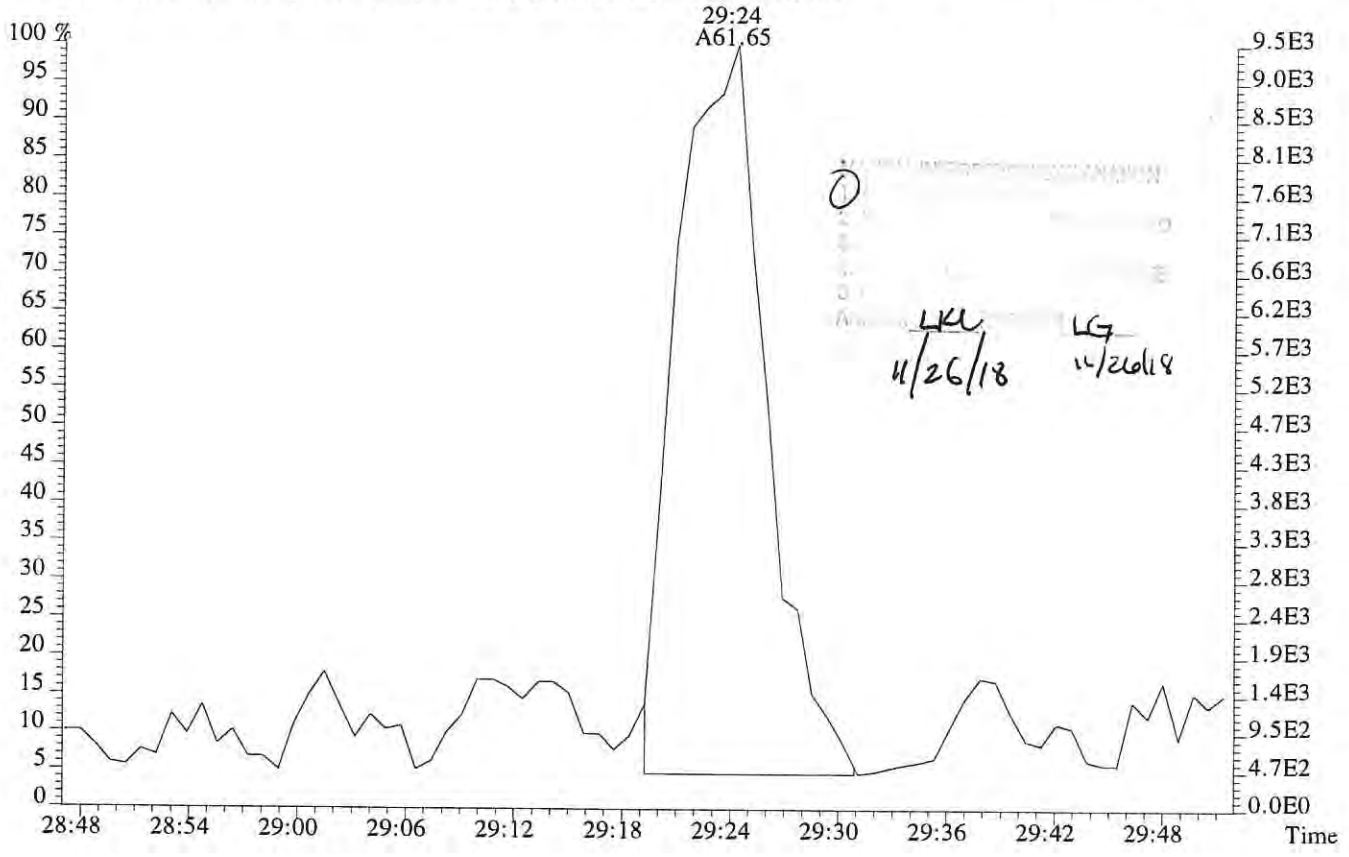
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518969 #1-531 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)

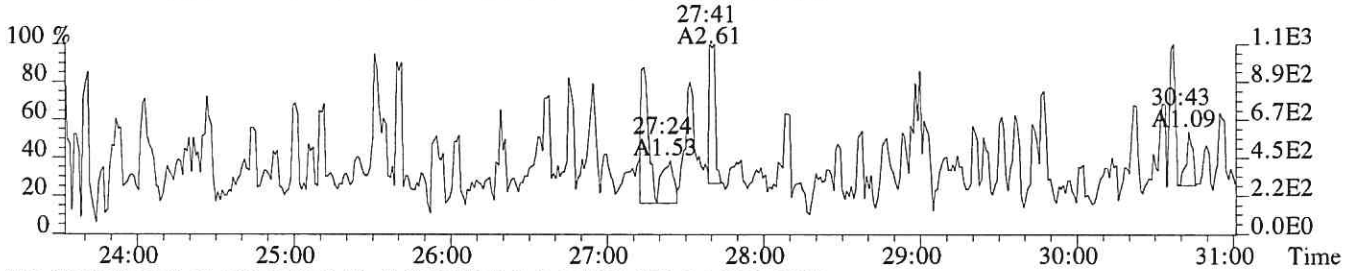


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)

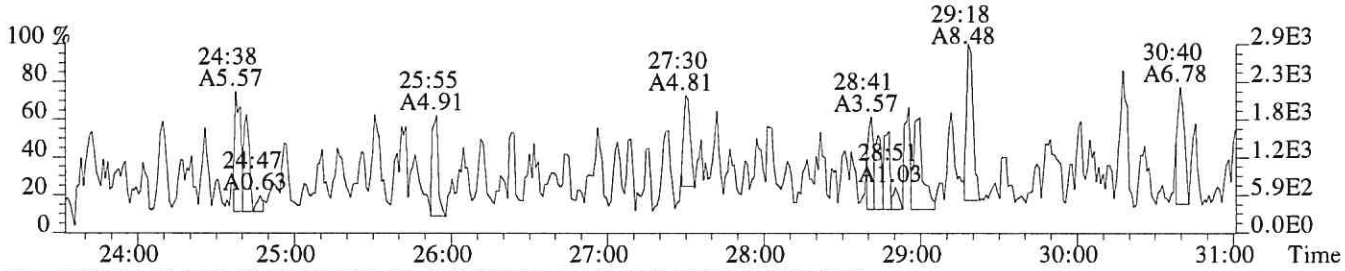


File:P518969 #1-531 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016

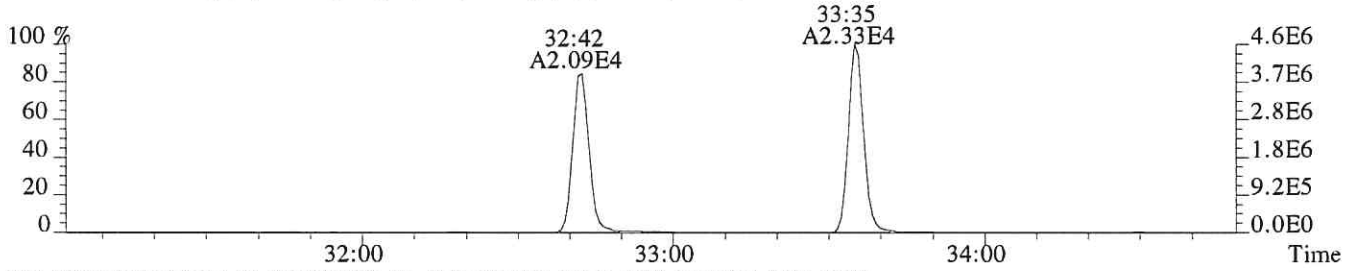
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



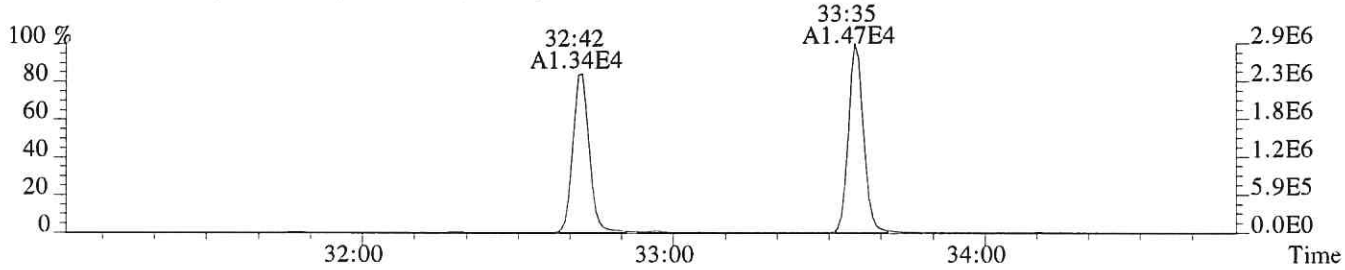
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



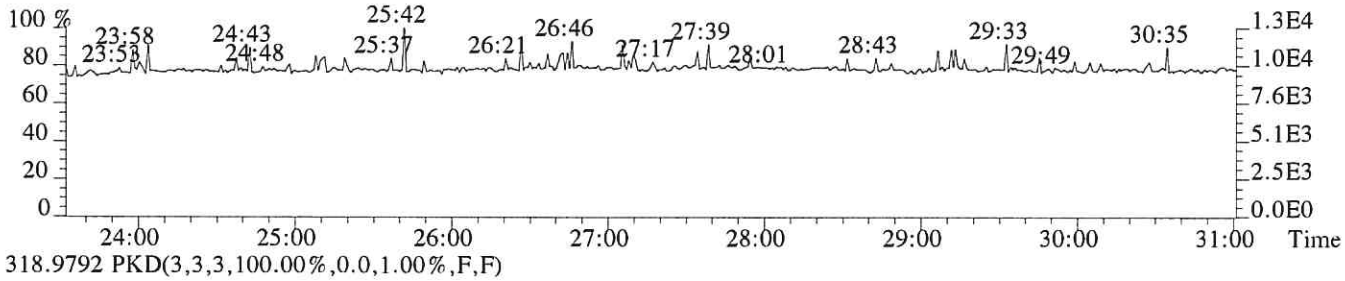
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



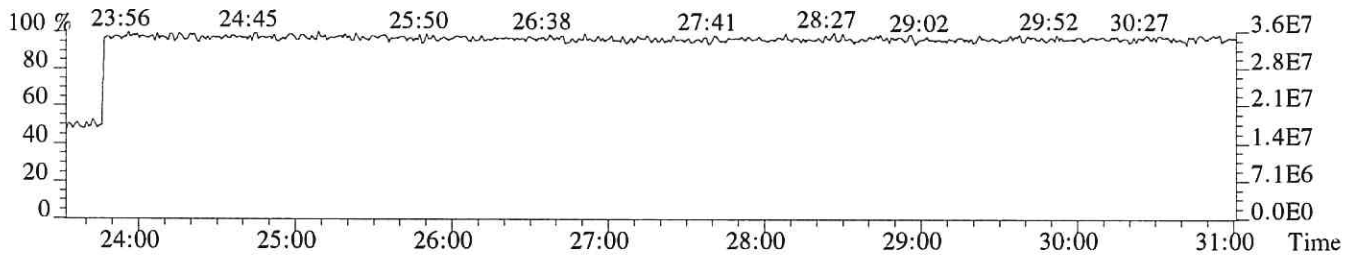
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

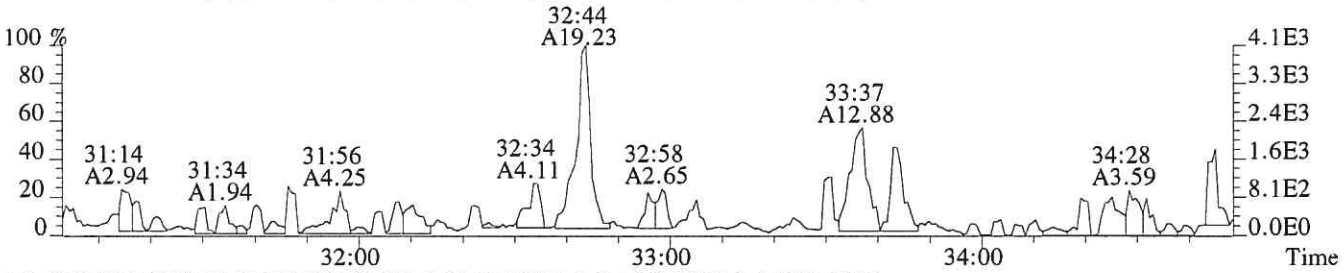


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

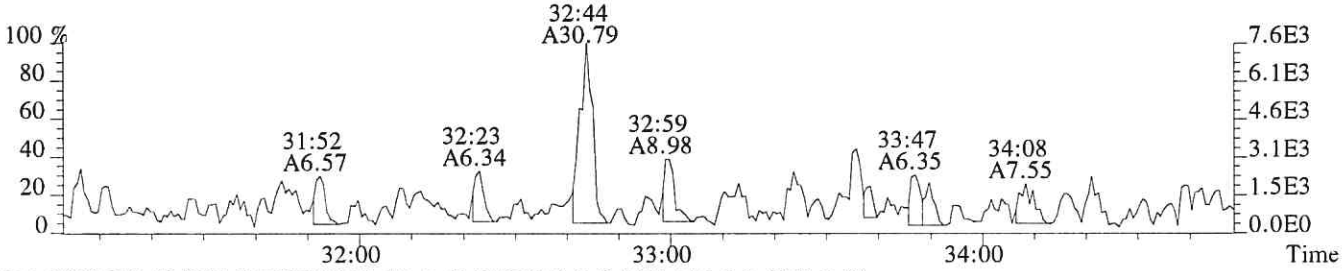


File:P518969 #1-339 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016

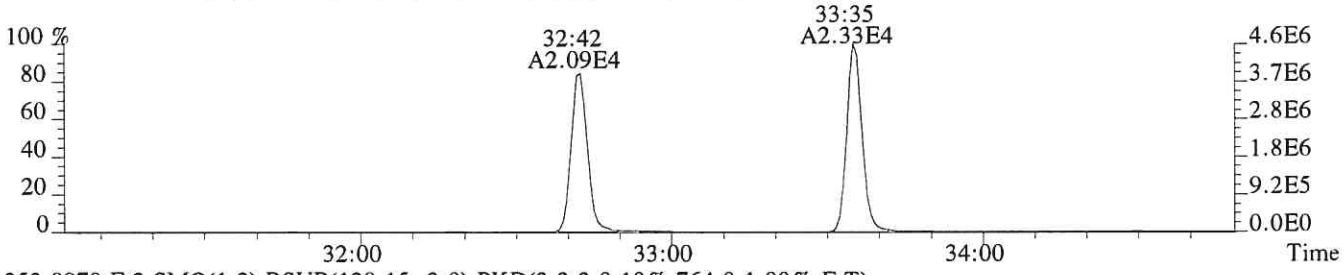
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



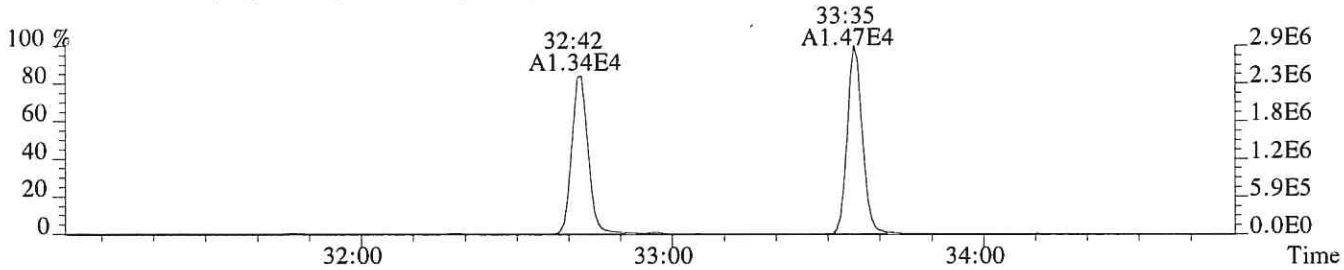
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



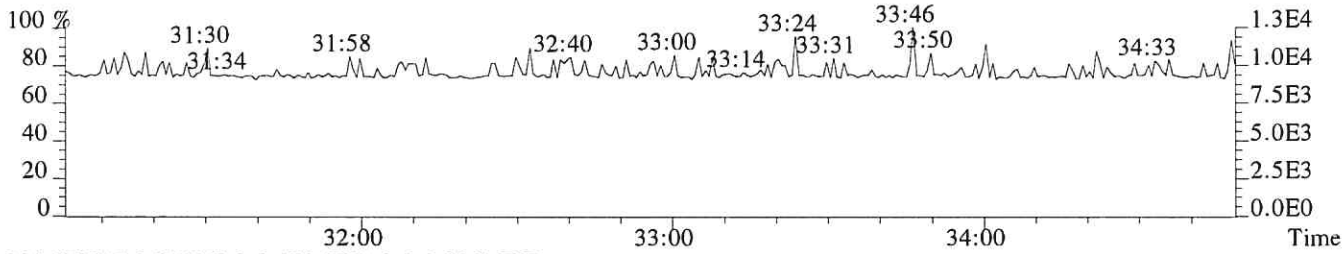
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



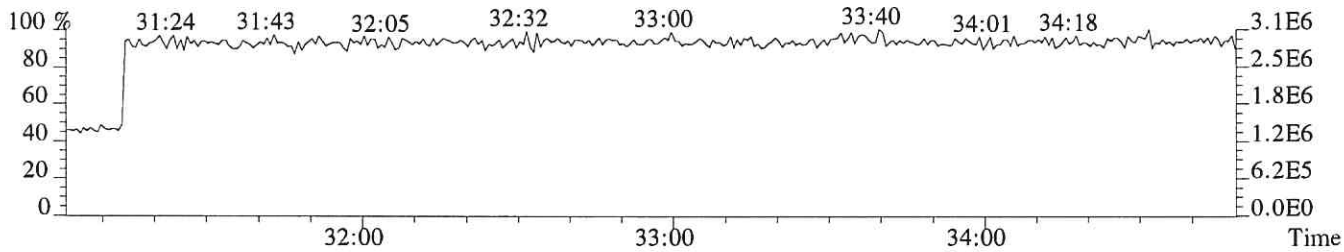
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



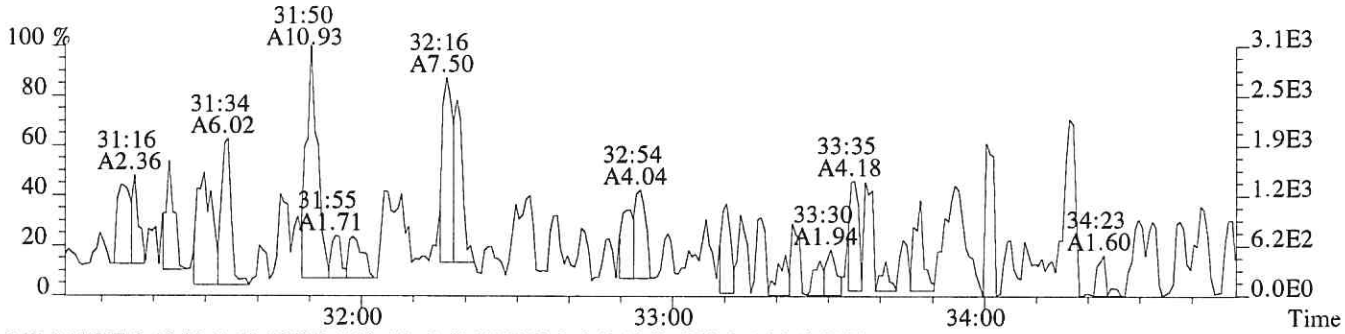
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



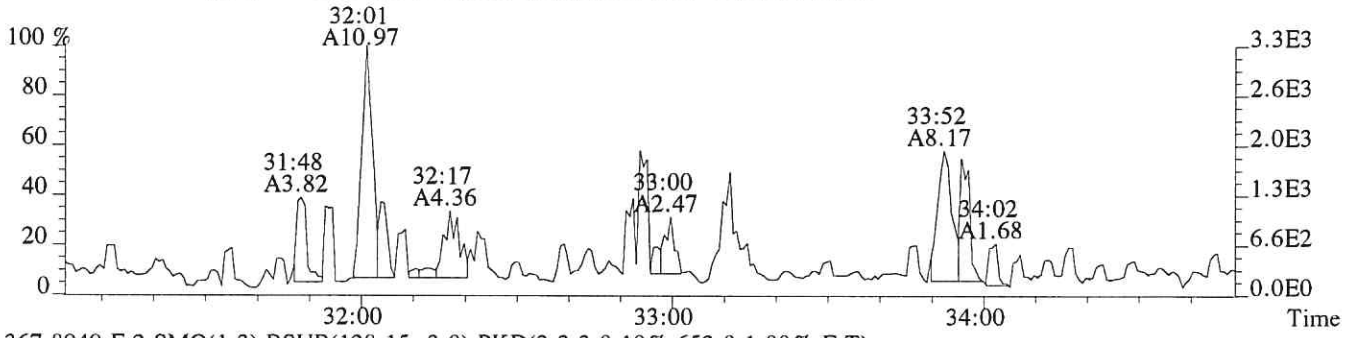
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



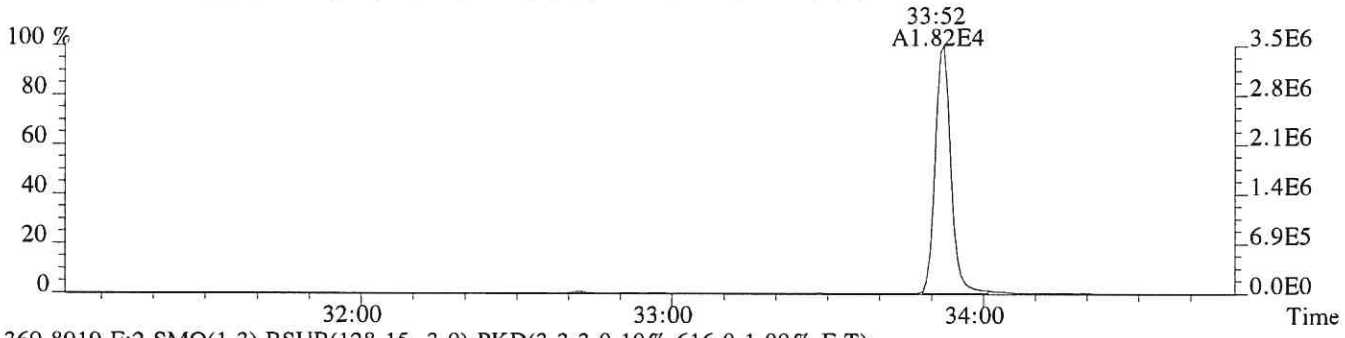
File:P518969 #1-339 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



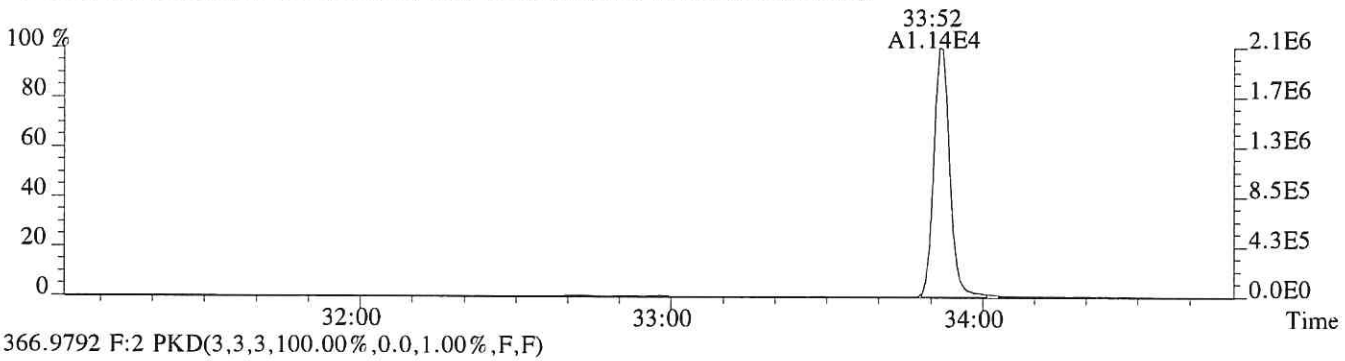
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



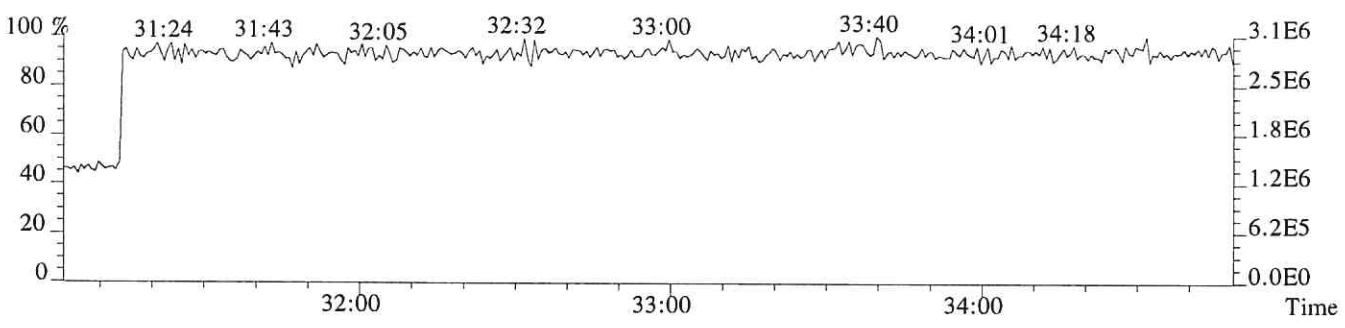
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



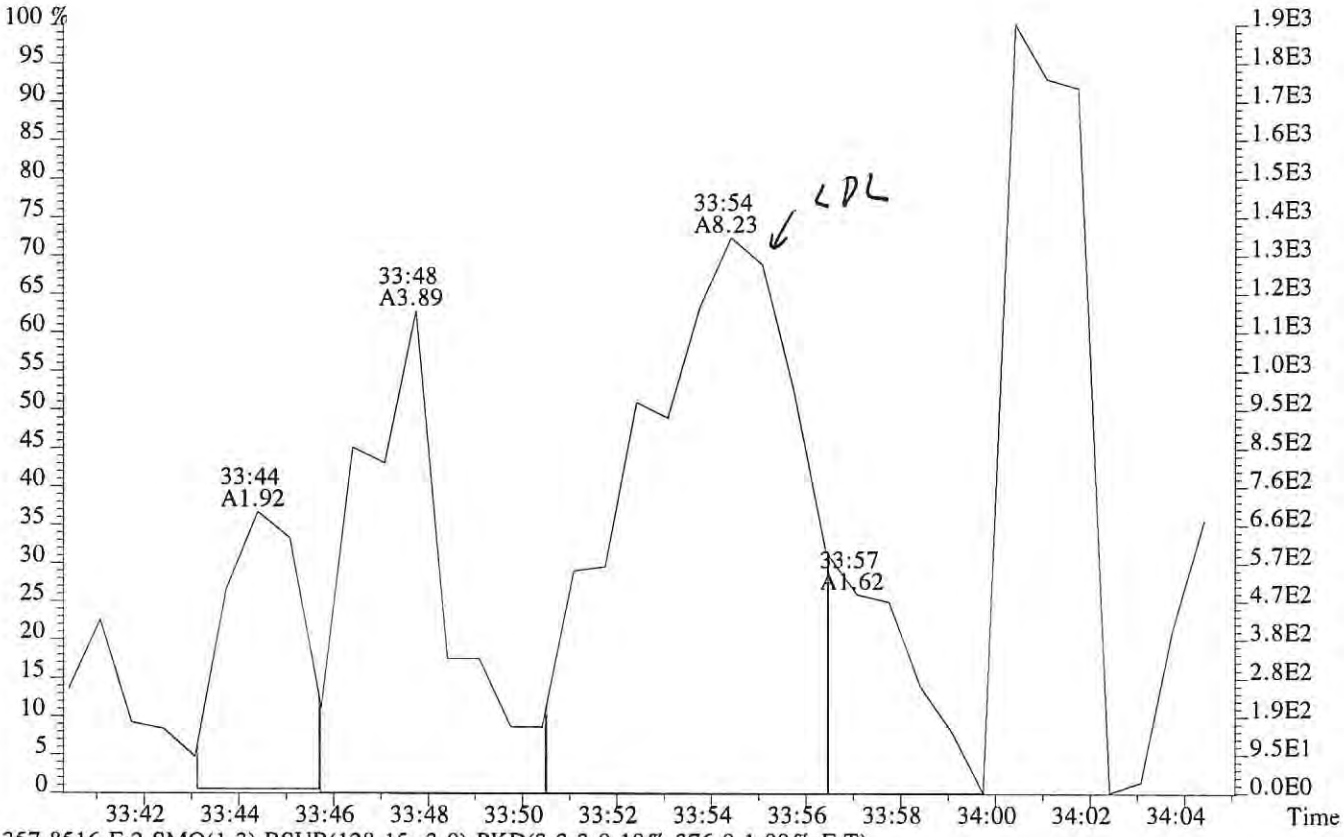
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



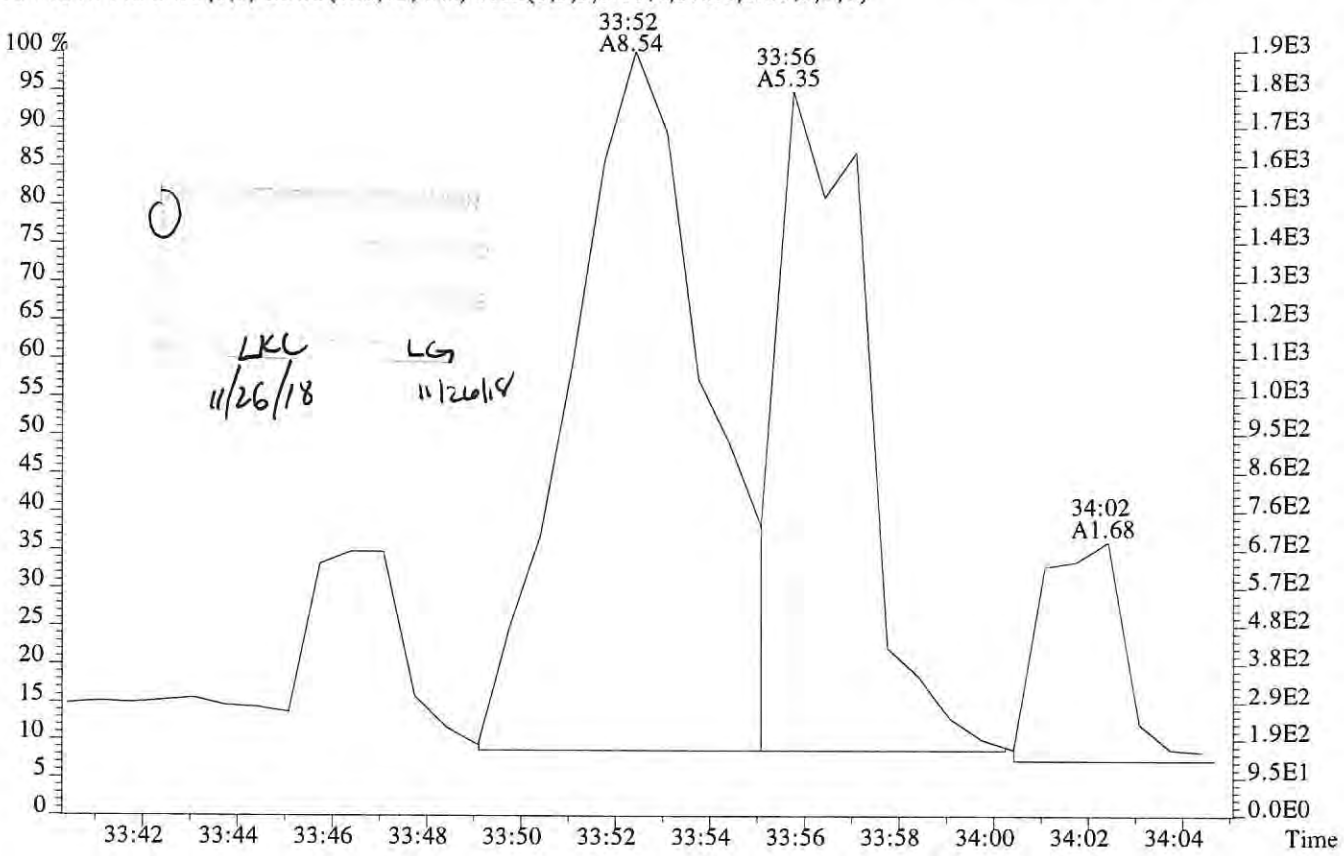
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518969 #1-339 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)

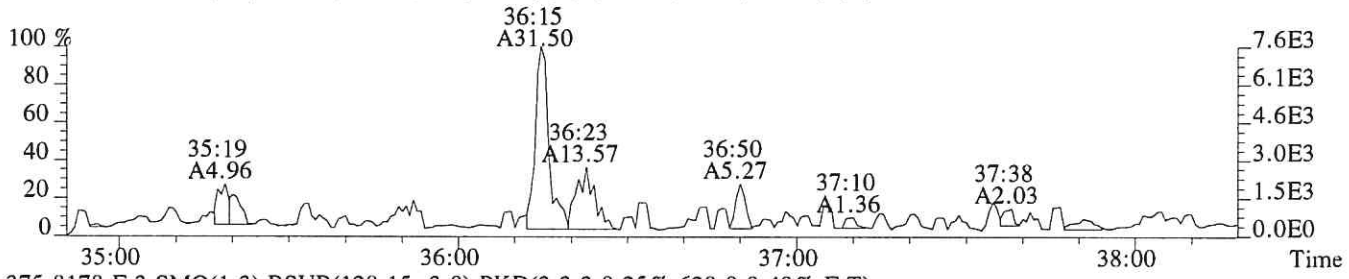


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)

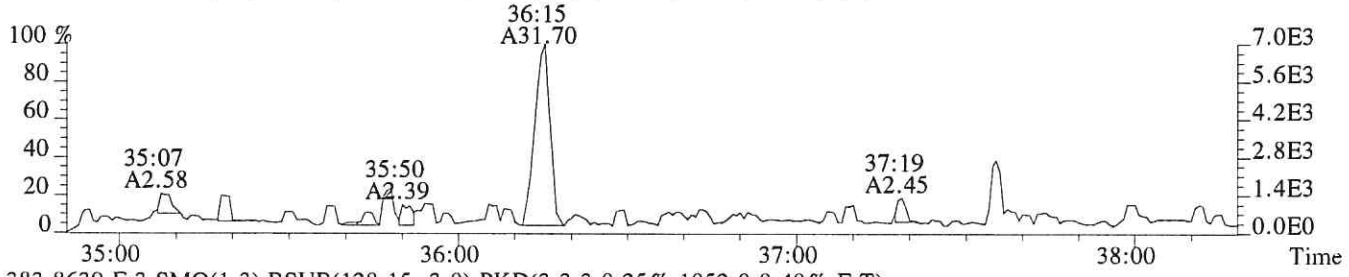


File:P518969 #1-312 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016

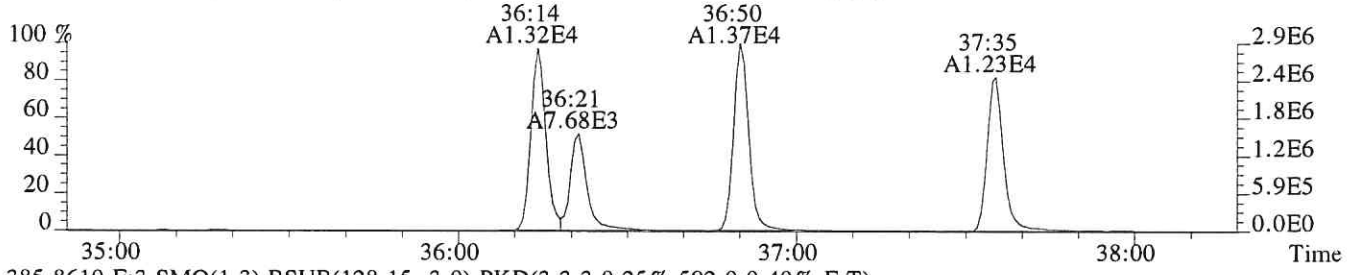
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



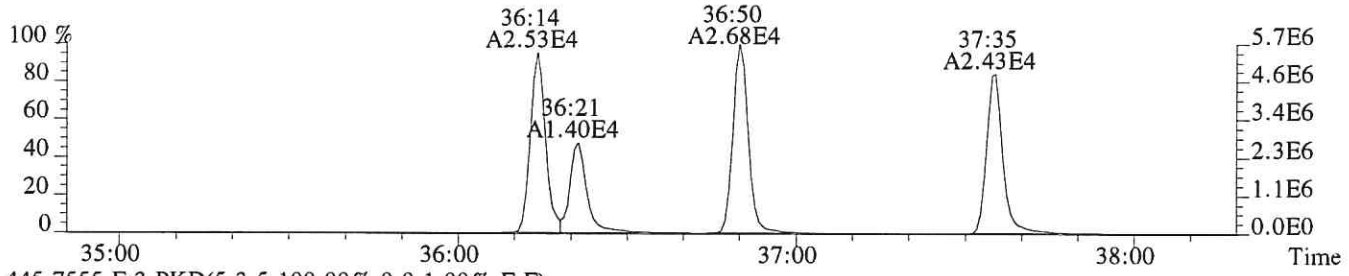
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



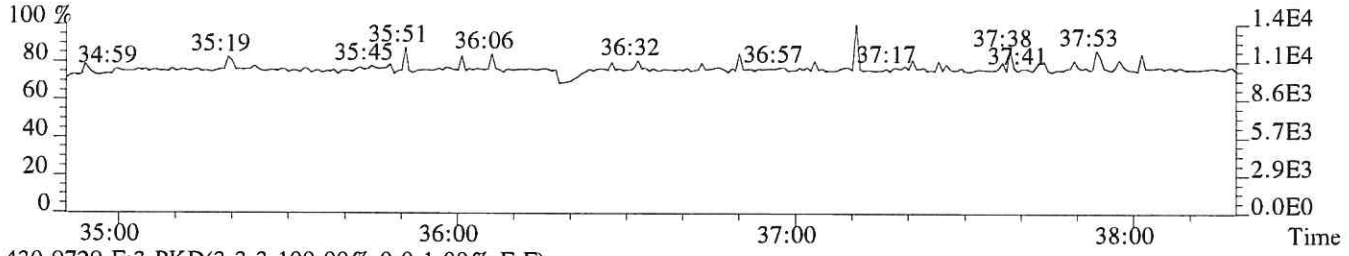
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



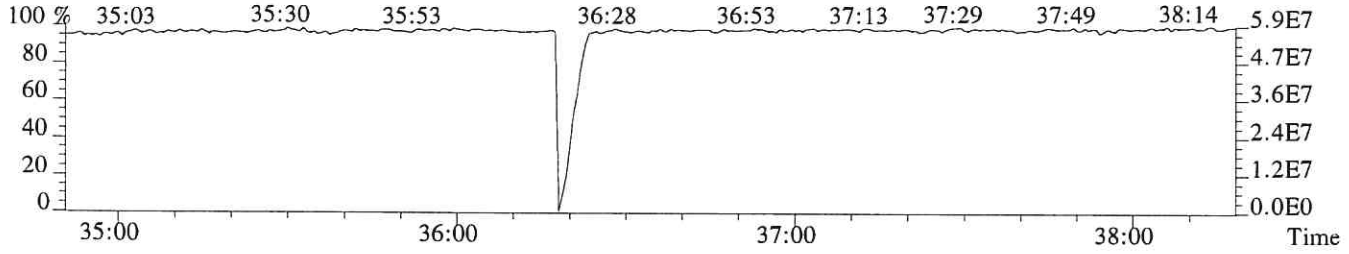
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



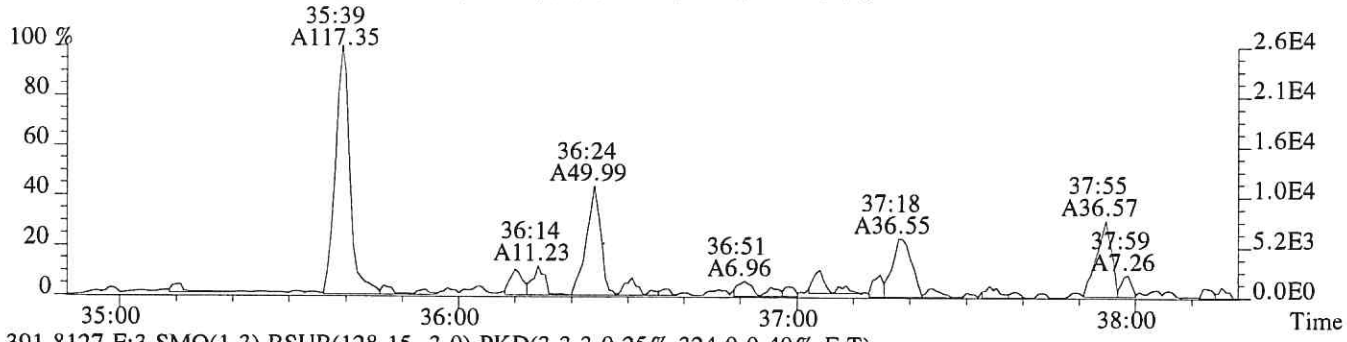
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



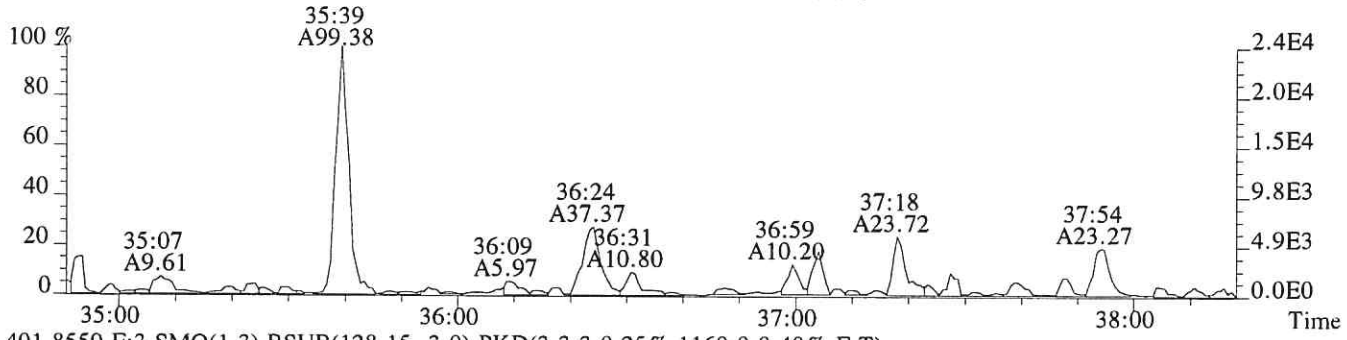
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



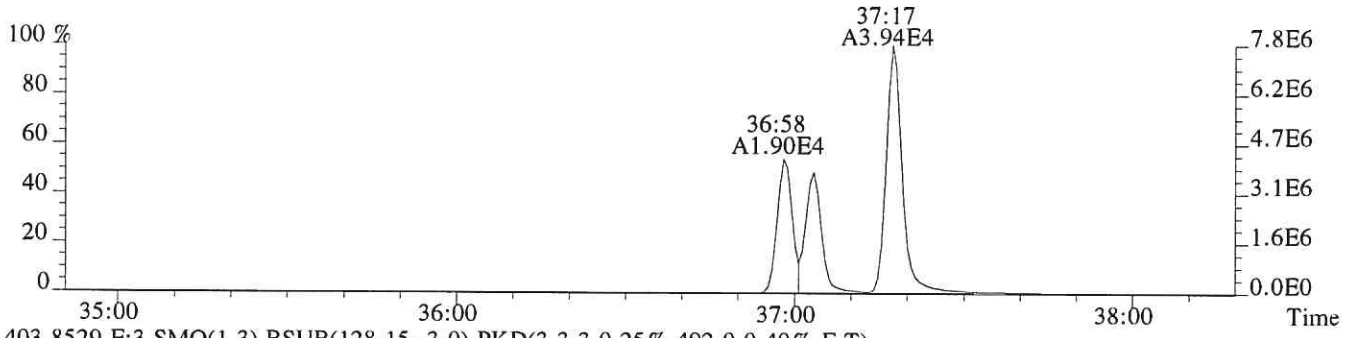
File:P518969 #1-312 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



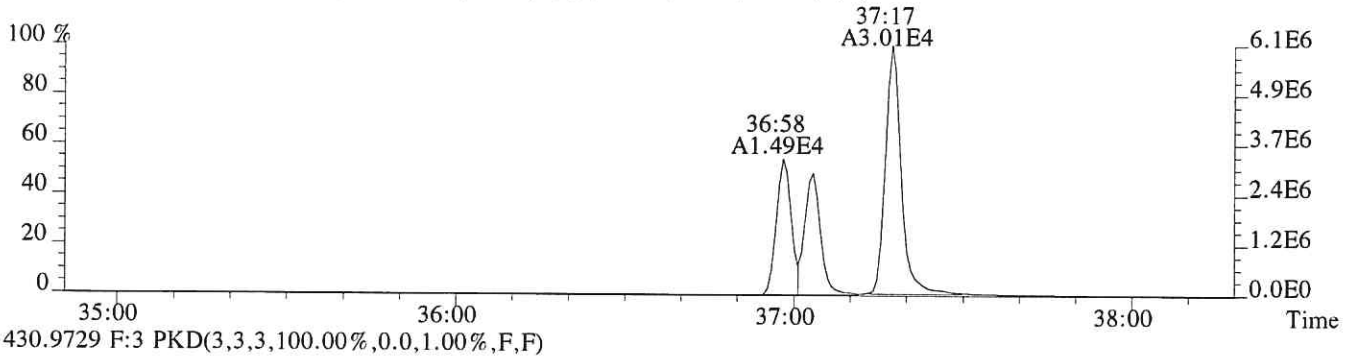
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



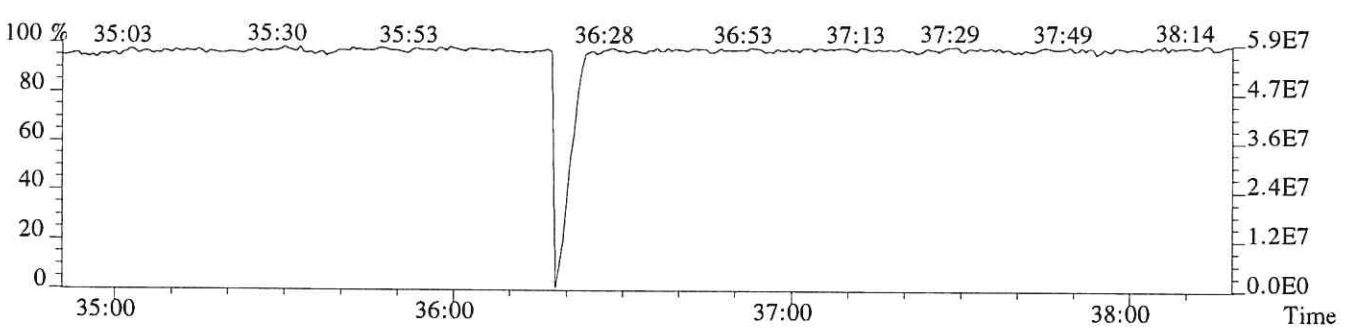
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)

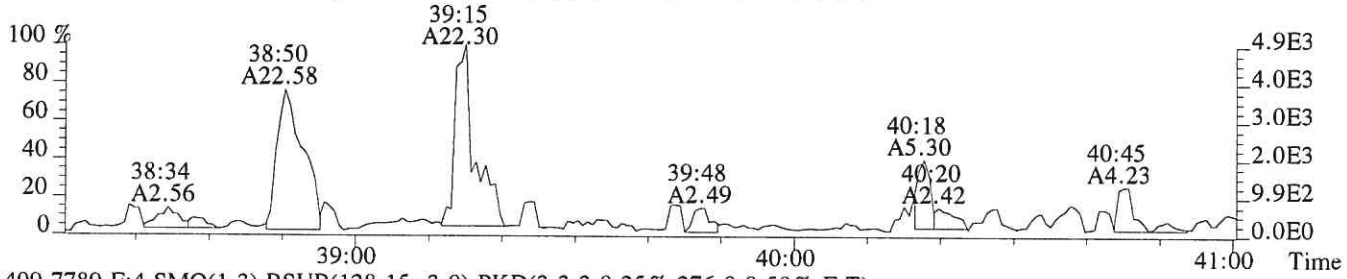


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

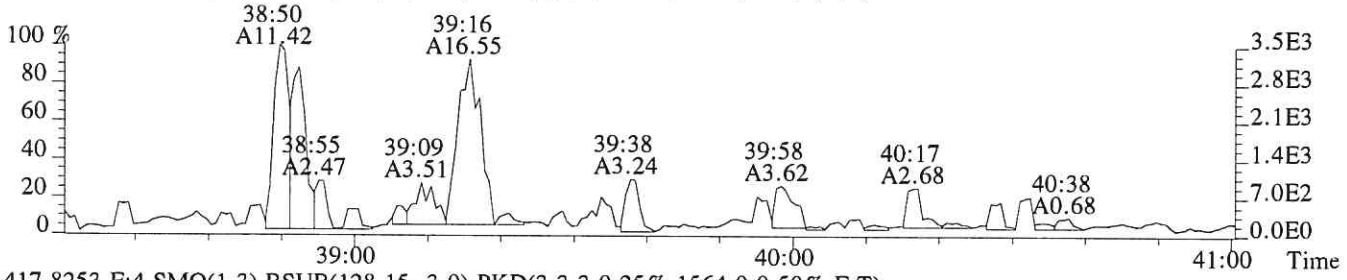


File:P518969 #1-241 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016

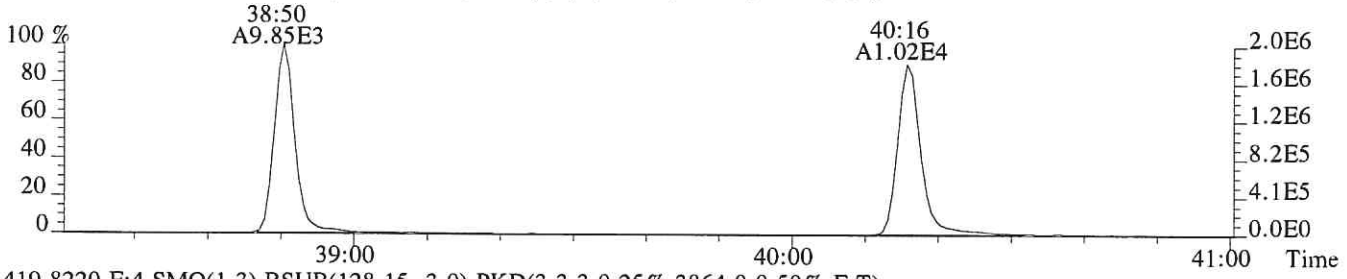
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.50%,F,T)



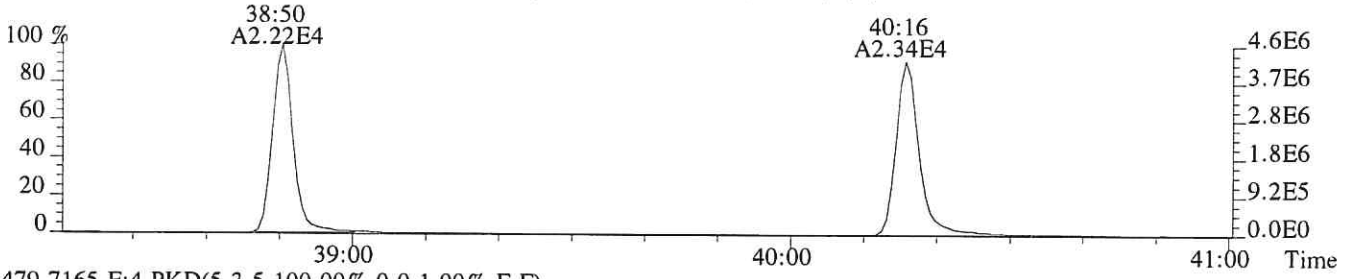
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.50%,F,T)



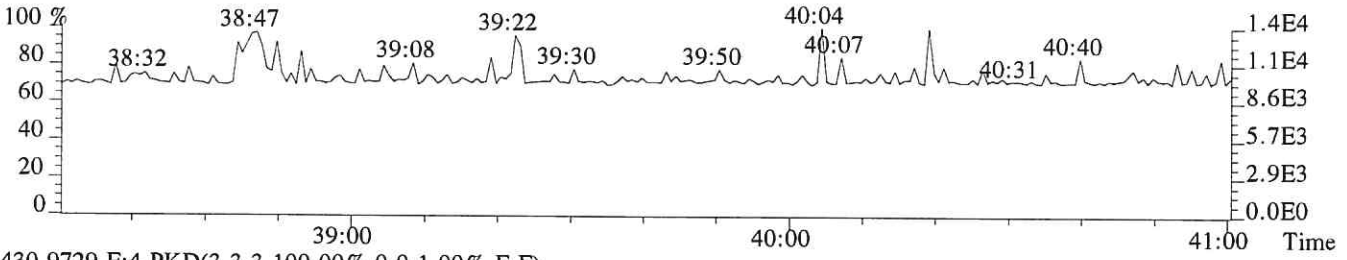
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.50%,F,T)



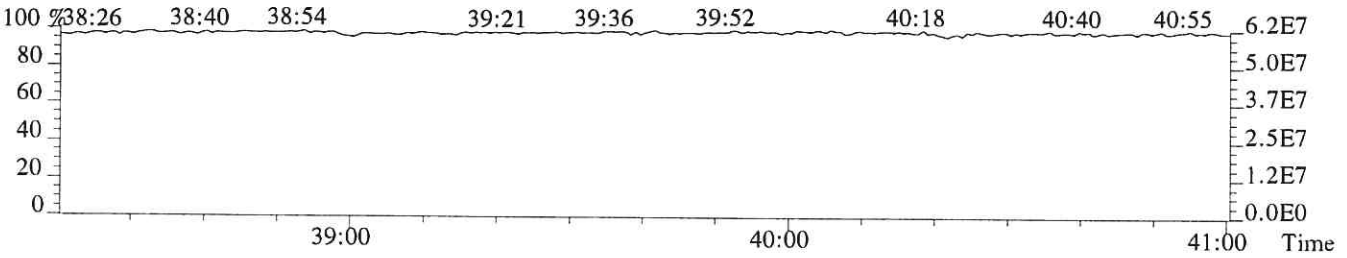
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3864.0,0.50%,F,T)



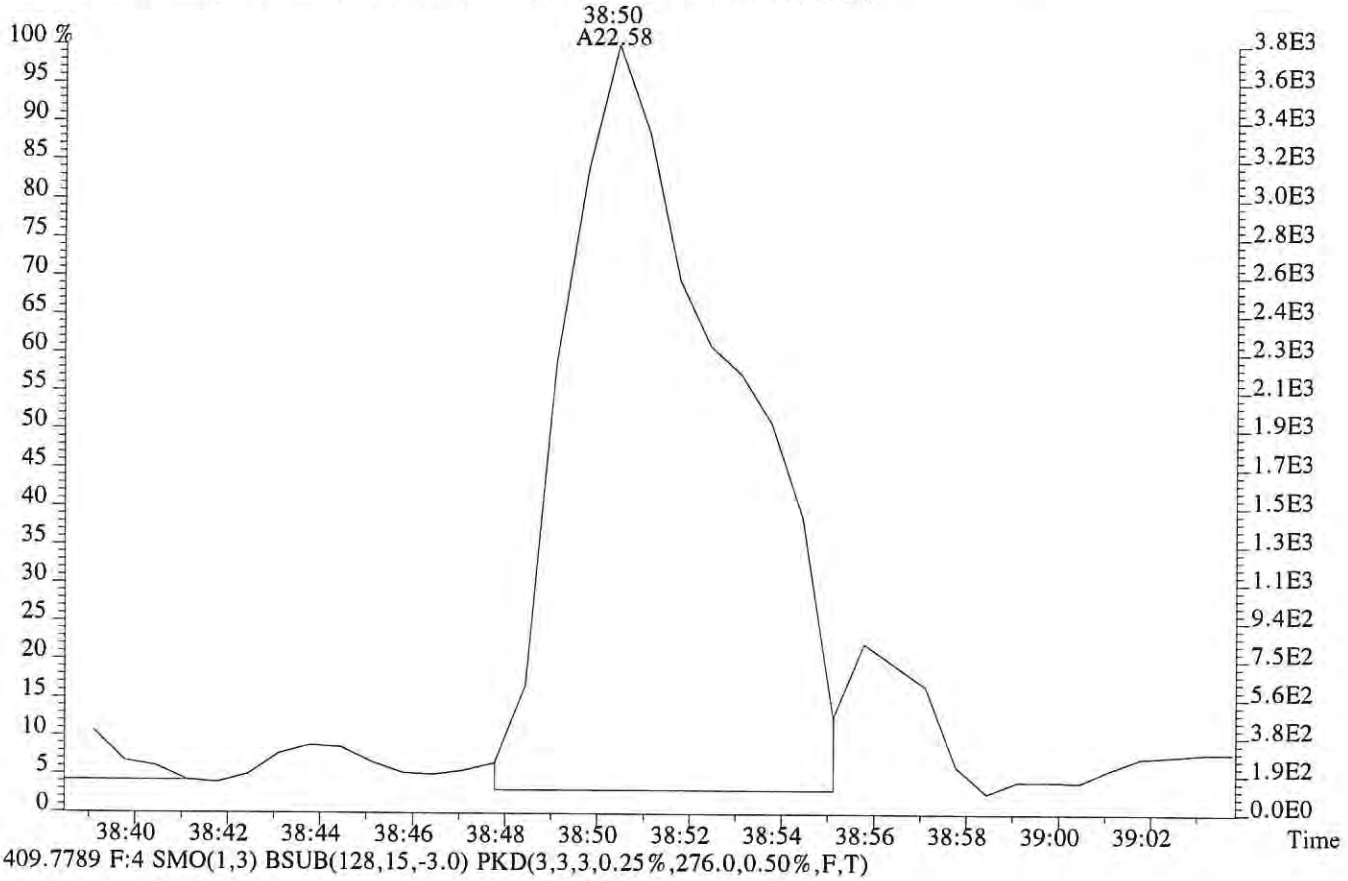
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



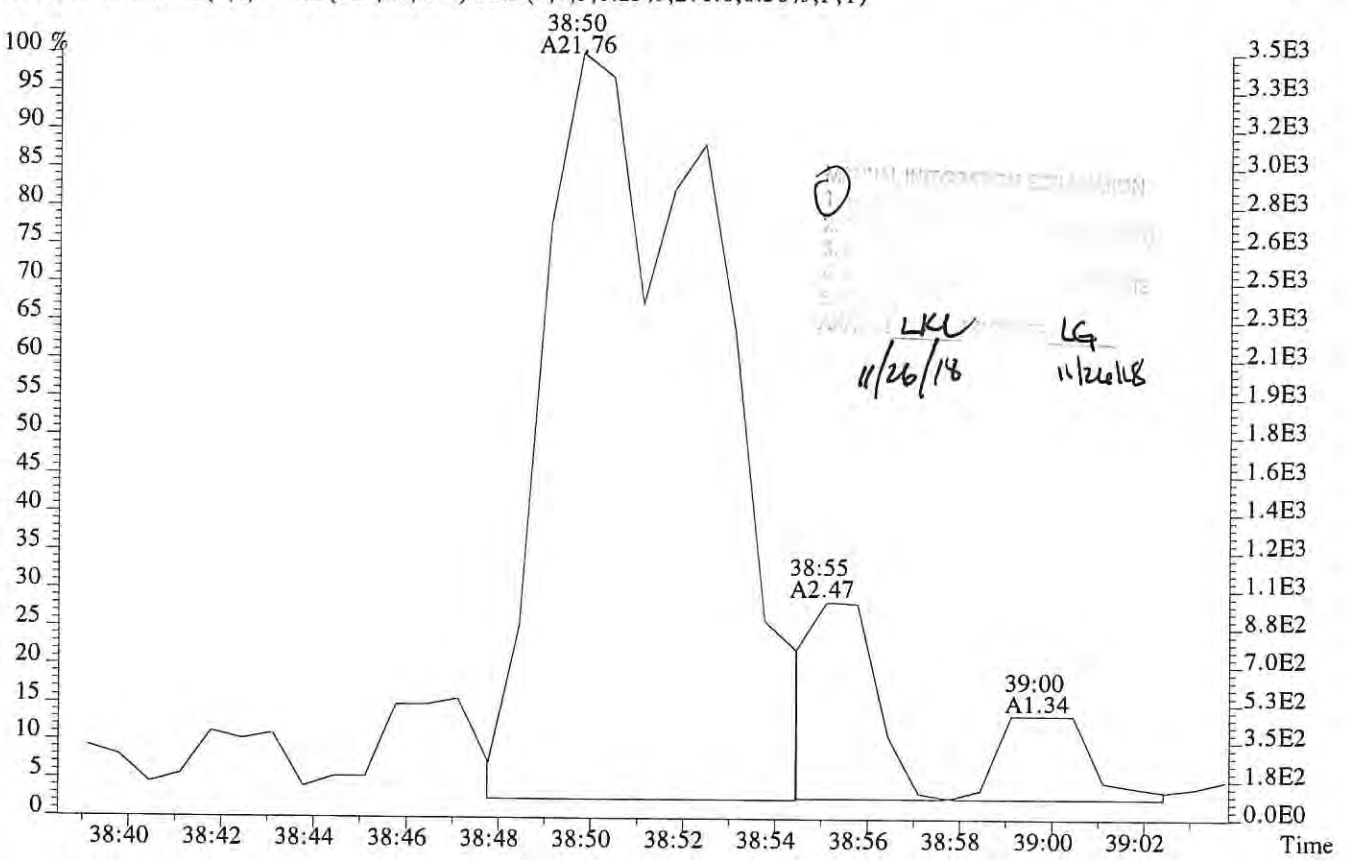
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



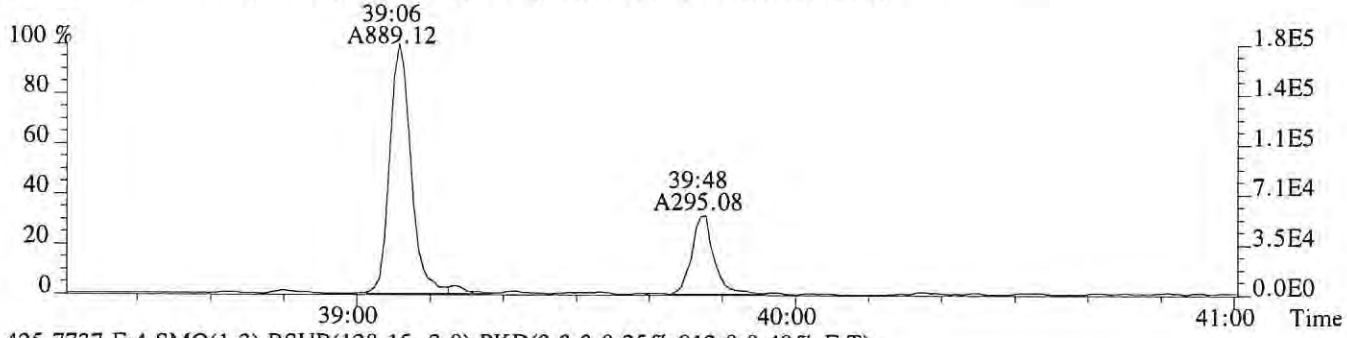
File:P518969 #1-241 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.50%,F,T)



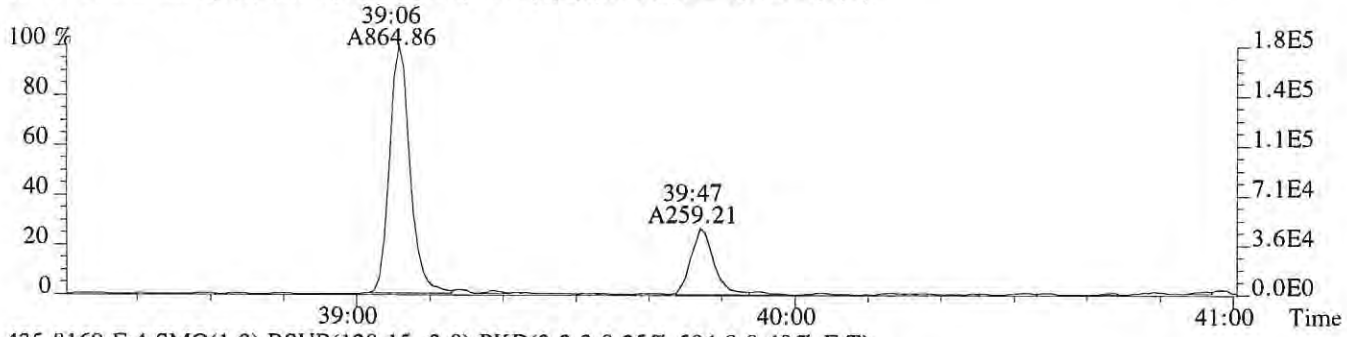
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.50%,F,T)



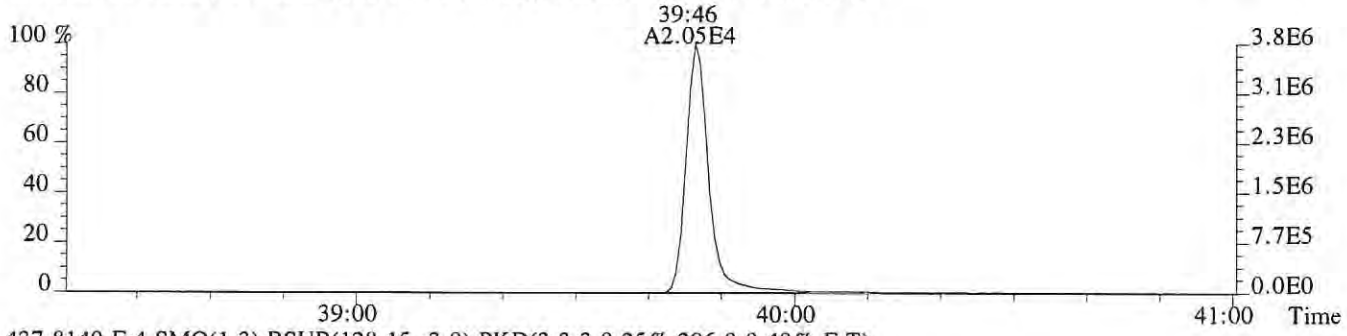
File:P518969 #1-241 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



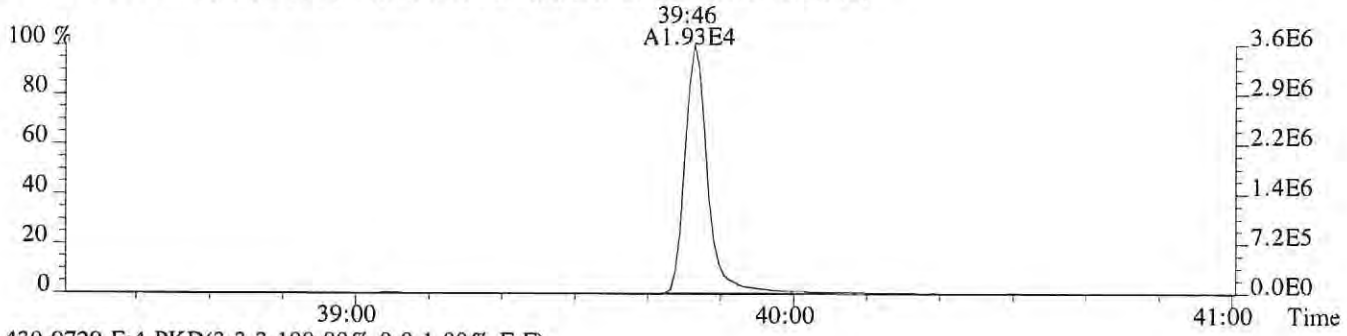
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



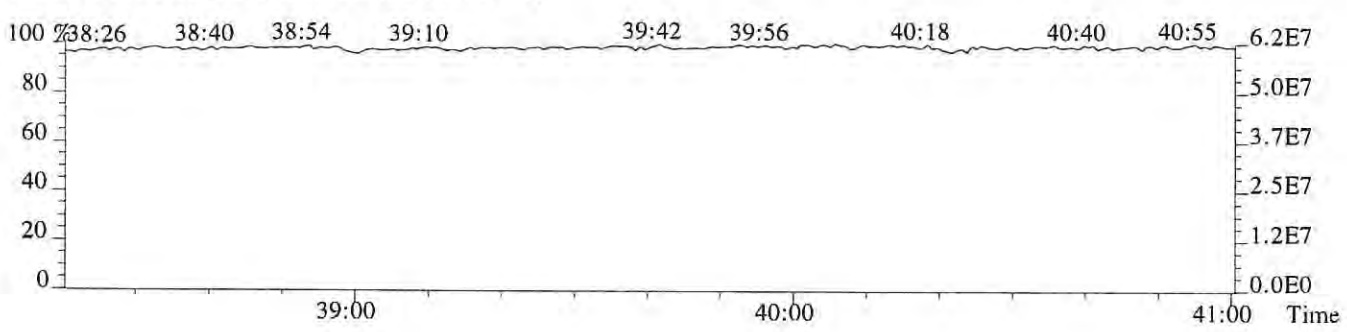
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)

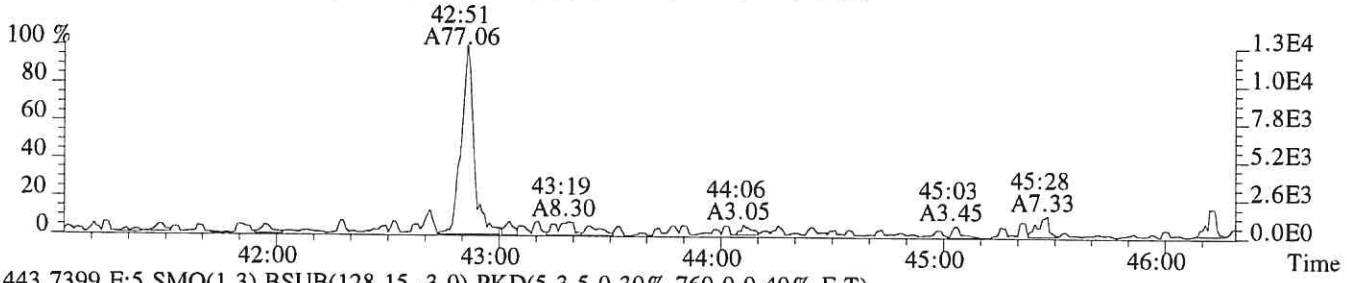


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

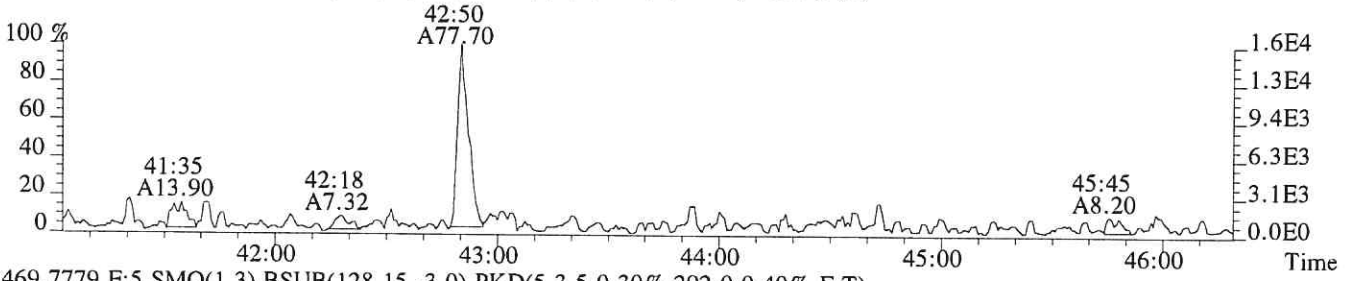


File:P518969 #1-475 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016

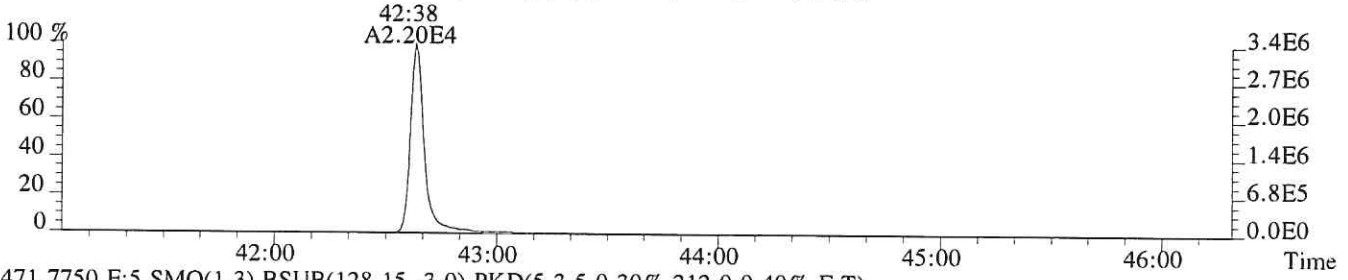
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



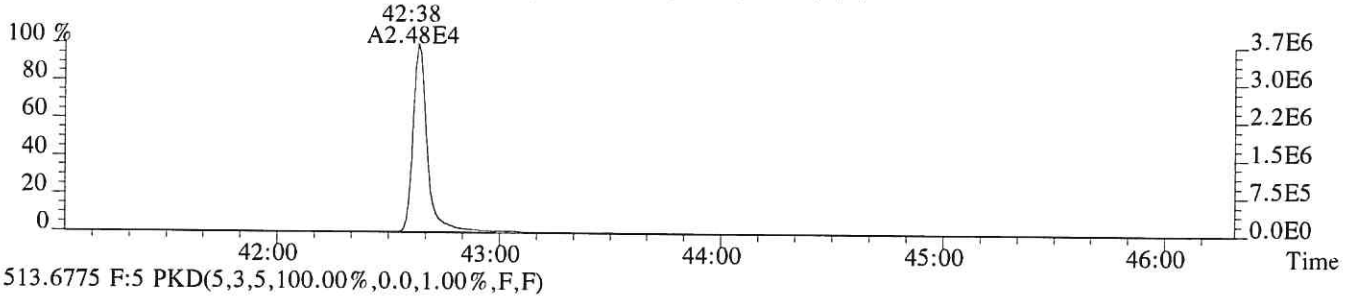
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



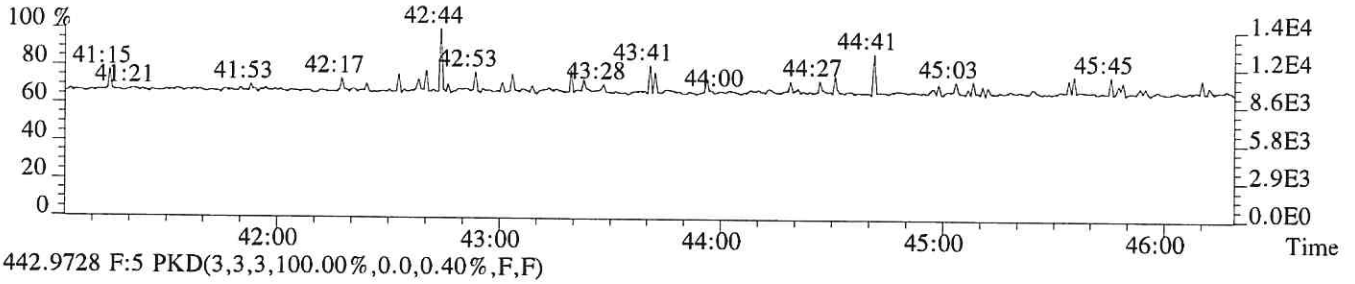
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



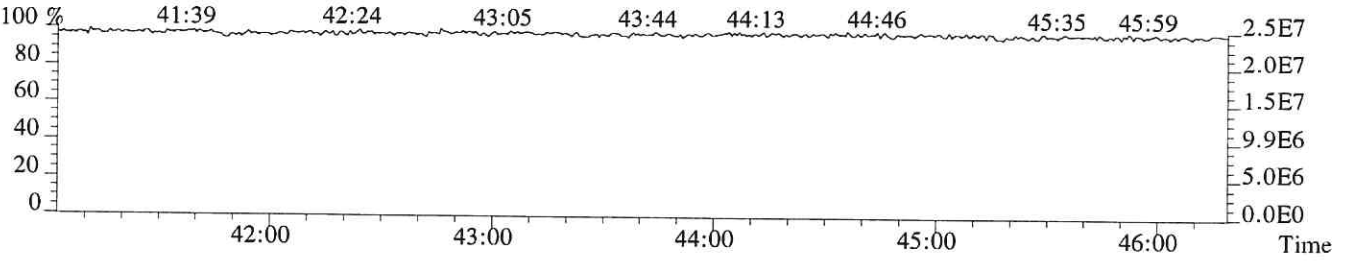
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



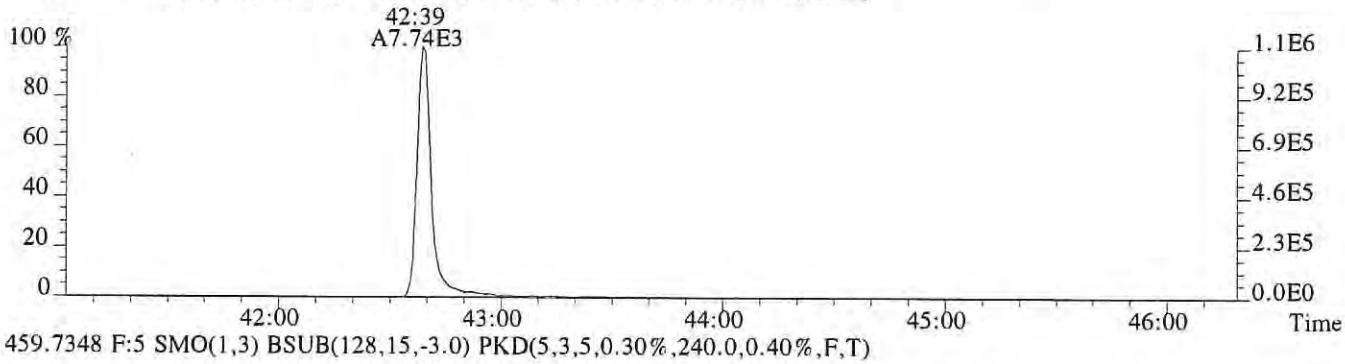
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



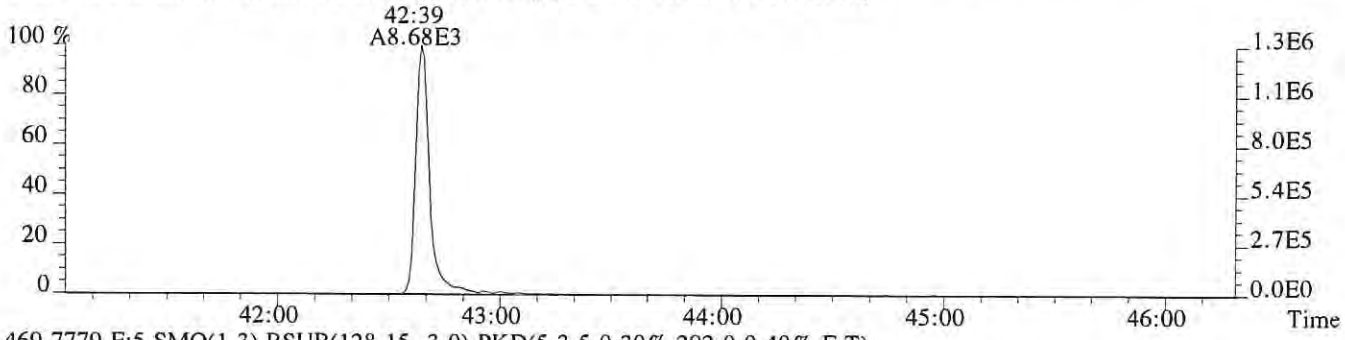
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



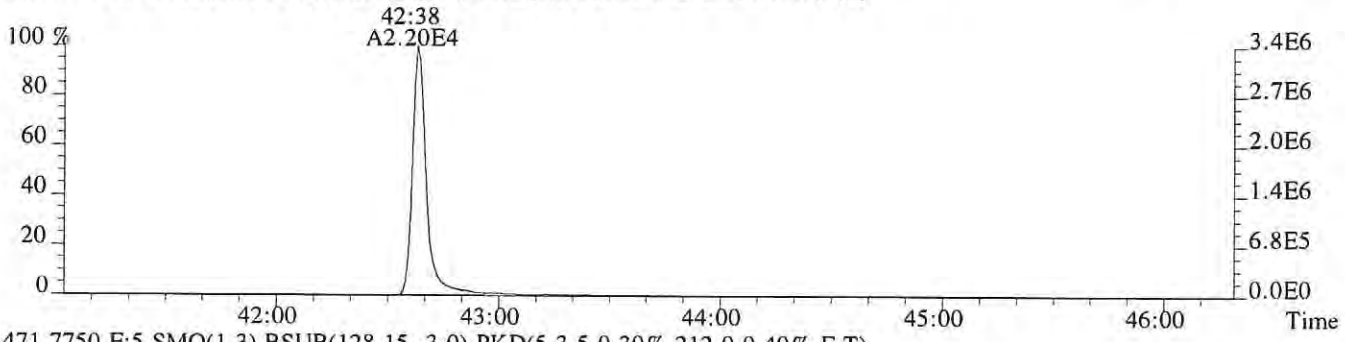
File:P518969 #1-475 Acq:21-NOV-2018 14:21:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-016
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



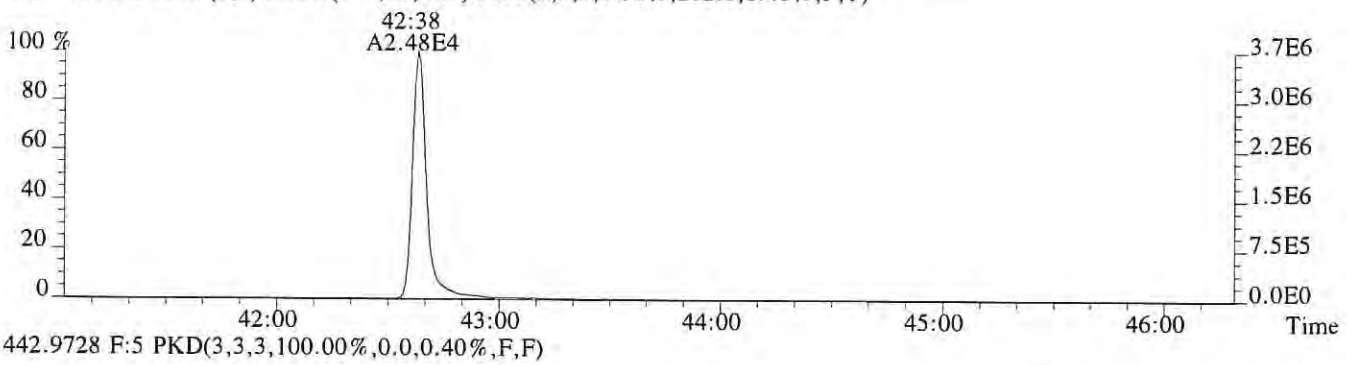
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



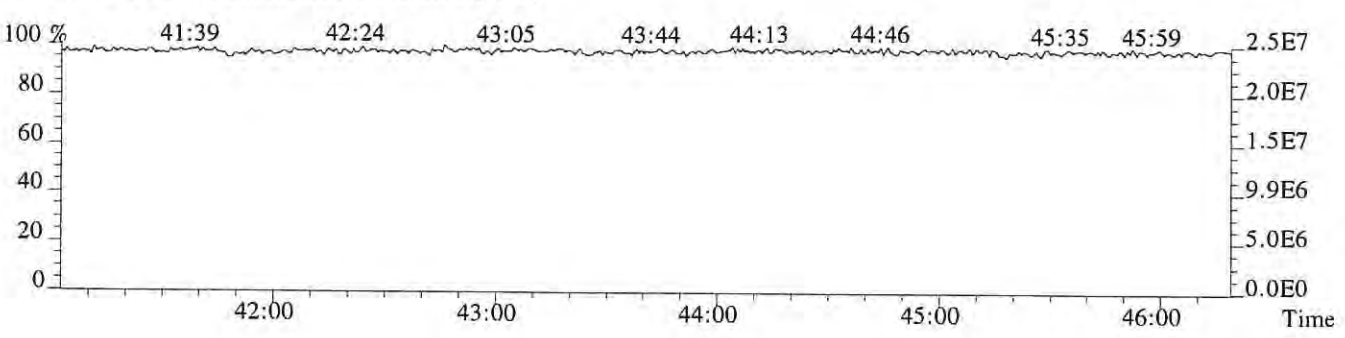
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0535

Run #12 Filename P518970 Samp: 1 Inj: 1 Acquired: 21-NOV-18 15:10:37
Processed: 26-NOV-18 13:49:46 Sample ID: E1801038-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.200e+02	1.527e+02	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	1.360e+01	1.240e+01	1.10	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.125e+01	9.378e+00	1.20	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	6.181e+00	5.989e+00	1.03	yes	no	1.258
10	Unk	OCDF	42:52	5.019e+01	5.446e+01	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:24	4.595e+01	3.972e+01	1.16	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:54	1.907e+01	6.624e+00	2.88	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.506e+01	2.710e+01	0.56	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.978e+01	1.312e+01	1.51	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.562e+01	2.431e+01	1.05	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	3.296e+02	3.473e+02	0.95	yes	no	1.025
17	Unk	OCDD	42:39	7.925e+03	9.226e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	1.038e+04	1.319e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	2.209e+04	1.375e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:36	2.221e+04	1.404e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.182e+04	2.227e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.334e+04	2.629e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.340e+04	2.648e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.180e+04	2.290e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	9.897e+03	2.266e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	9.421e+03	2.176e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	7.580e+03	9.211e+03	0.82	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	1.729e+04	1.076e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.721e+04	1.360e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.865e+04	1.491e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	2.031e+04	1.890e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:39	2.122e+04	2.345e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	2.197e+04	2.796e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	3.561e+04	2.781e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	8.495e+03				no	1.014

$$OCDD = \frac{(7.925e+03 + 9.226e+03) \times 4000\ pg \times 1}{(2.122e+04 + 2.345e+04) \times 10.716\ g \times 81.6 / 100 \times 1.118} = 151.0973\ ng/kg$$

LG 11/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0535

Run #12 Filename P518970 Samp: 1 Inj: 1 Acquired: 21-NOV-18 15:10:37
Processed: 26-NOV-18 13:49:46 LAB. ID: E1801038-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.09e+04	6.28e+02	3.3e+01	2.54e+04	1.32e+03	1.9e+01
2	1,2,3,7,8-PeCDF	*	1.48e+02	*	*	8.60e+02	*
3	2,3,4,7,8-PeCDF	*	1.48e+02	*	*	8.60e+02	*
4	1,2,3,4,7,8-HxCDF	3.11e+03	6.08e+02	5.1e+00	2.93e+03	5.88e+02	5.0e+00
5	1,2,3,6,7,8-HxCDF	*	6.08e+02	*	*	5.88e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.08e+02	*	*	5.88e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.08e+02	*	*	5.88e+02	*
8	1,2,3,4,6,7,8-HpCDF	2.36e+03	4.44e+02	5.3e+00	2.52e+03	3.32e+02	7.6e+00
9	1,2,3,4,7,8,9-HpCDF	1.81e+03	4.44e+02	4.1e+00	1.55e+03	3.32e+02	4.7e+00
10	OCDF	9.06e+03	2.08e+02	4.4e+01	8.58e+03	7.56e+02	1.1e+01
11	2,3,7,8-TCDD	7.55e+03	2.23e+03	3.4e+00	8.66e+03	8.08e+02	1.1e+01
12	1,2,3,7,8-PeCDD	4.39e+03	7.04e+02	6.2e+00	1.72e+03	1.88e+02	9.2e+00
13	1,2,3,4,7,8-HxCDD	4.41e+03	4.76e+02	9.3e+00	8.25e+03	8.08e+02	1.0e+01
14	1,2,3,6,7,8-HxCDD	4.12e+03	4.76e+02	8.7e+00	2.70e+03	8.08e+02	3.3e+00
15	1,2,3,7,8,9-HxCDD	4.21e+03	4.76e+02	8.9e+00	5.53e+03	8.08e+02	6.8e+00
16	1,2,3,4,6,7,8-HpCDD	6.68e+04	1.45e+03	4.6e+01	5.46e+04	7.08e+02	7.7e+01
17	OCDD	1.18e+06	2.40e+02	4.9e+03	1.33e+06	6.48e+02	2.0e+03
18	13C-2,3,7,8-TCDF	1.90e+06	7.43e+03	2.6e+02	2.38e+06	5.04e+03	4.7e+02
19	13C-1,2,3,7,8-PeCDF	3.91e+06	2.68e+02	1.5e+04	2.40e+06	2.68e+02	8.9e+03
20	13C-2,3,4,7,8-PeCDF	4.02e+06	2.68e+02	1.5e+04	2.53e+06	2.68e+02	9.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.32e+06	6.52e+02	3.6e+03	4.54e+06	1.15e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	2.60e+06	6.52e+02	4.0e+03	4.97e+06	1.15e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	2.57e+06	6.52e+02	3.9e+03	5.08e+06	1.15e+03	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.20e+06	6.52e+02	3.4e+03	4.27e+06	1.15e+03	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.88e+06	6.84e+02	2.8e+03	4.35e+06	4.10e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.60e+06	6.84e+02	2.3e+03	3.66e+06	4.10e+03	8.9e+02
27	13C-2,3,7,8-TCDD	1.41e+06	6.02e+03	2.4e+02	1.76e+06	1.74e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	3.19e+06	6.36e+02	5.0e+03	1.97e+06	1.09e+03	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.78e+06	8.88e+02	4.3e+03	2.93e+06	7.56e+02	3.9e+03
30	13C-1,2,3,6,7,8-HxCDD	3.47e+06	8.88e+02	3.9e+03	2.82e+06	7.56e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.65e+06	4.76e+02	7.7e+03	3.36e+06	3.60e+02	9.3e+03
32	13C-OCDD	3.04e+06	2.08e+02	1.5e+04	3.38e+06	4.44e+02	7.6e+03
33	13C-1,2,3,4-TCDD	4.22e+06	6.02e+03	7.0e+02	5.34e+06	1.74e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.62e+06	8.88e+02	7.5e+03	5.27e+06	7.56e+02	7.0e+03
35	37Cl-2,3,7,8-TCDD	1.59e+06	1.34e+03	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.228e{+}03 + 8.080e{+}02) \times 2000}{(1.415e{+}06 + 1.760e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0535

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P518970 Sample:1 Injection:1 Function:1

Acquired: 21-NOV-18 15:10:37 Processed: 26-NOV-18 13:49:46

Mass: 303.9020 305.8990 Tot Response: 4.02e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:51	5.28e+01	7.69e+01	0.69	yes	1.30e+02		n	n
2	28:37	1.20e+02	1.53e+02	0.79	yes	2.73e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0535

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P518970 Sample:1 Injection:1 Function:3

Acquired: 21-NOV-18 15:10:37 Processed: 26-NOV-18 13:49:46

Mass: 373.8210 375.8180 Tot Response: 2.60e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:15	1.36e+01	1.24e+01 1.10	yes	2.60e+01	1,2,3,4,7,8-HxCDF	y	n

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Peak List Summary

CLIENT ID.
SL0535

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P518970 Sample:1 Injection:1 Function:3

Acquired: 21-NOV-18 15:10:37 Processed: 26-NOV-18 13:49:46

Mass: 389.8160 391.8130 Tot Response: 5.46e+01 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:31	3.05e+01	2.41e+01 1.26	yes	5.46e+01		n	n

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Peak List Summary

CLIENT ID.
SL0535

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P518970 Sample:1 Injection:1 Function:4

Acquired: 21-NOV-18 15:10:37 Processed: 26-NOV-18 13:49:46

Mass: 407.7820 409.7790 Tot Response: 1.22e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	40:18	6.18e+00	5.99e+00 1.03	yes	1.22e+01	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0535

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P518970 Sample:1 Injection:1 Function:4

Acquired: 21-NOV-18 15:10:37 Processed: 26-NOV-18 13:49:46

Mass: 423.7770 425.7740 Tot Response: 2.52e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	9.19e+02	9.23e+02 1.00	yes	1.84e+03		n	n
2	39:48	3.30e+02	3.47e+02 0.95	yes	6.77e+02	1,2,3,4,6,7,8-HpCDD	n	n

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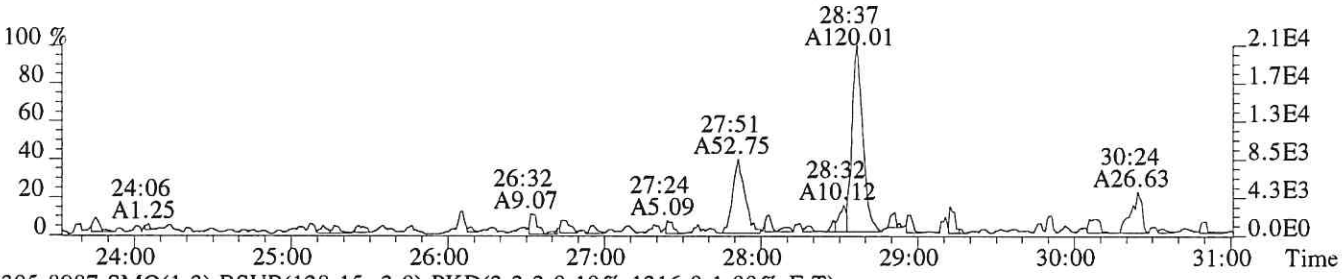
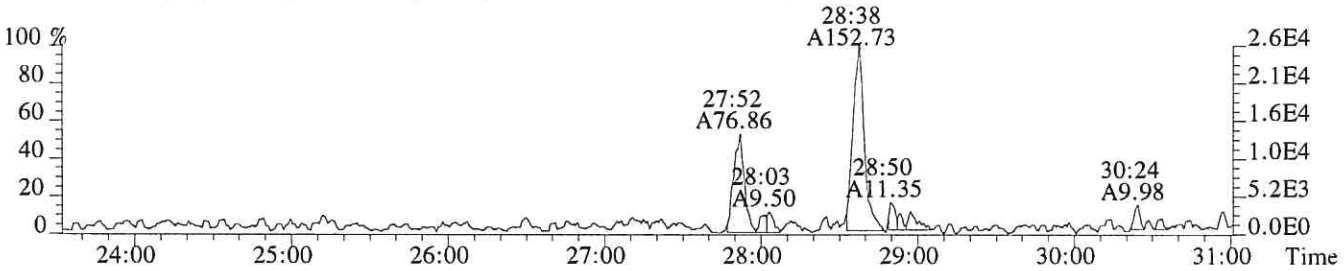
File:P518970 #1-531 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017

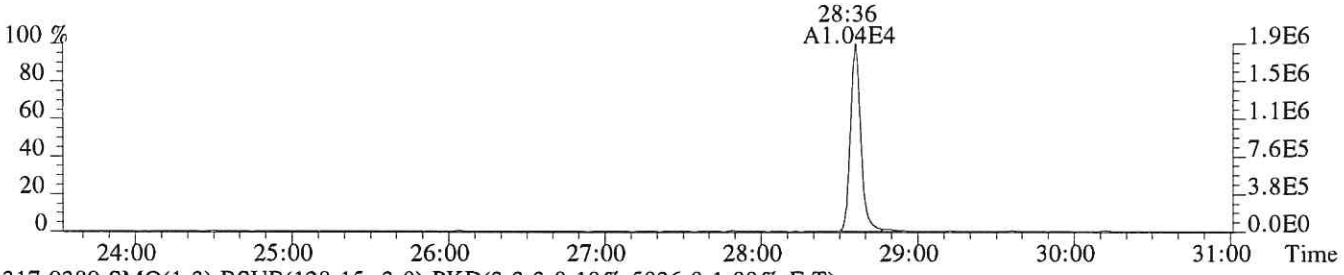
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



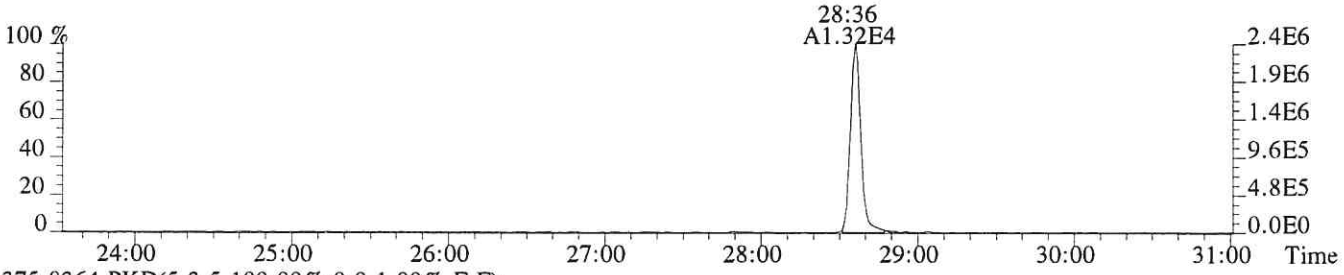
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



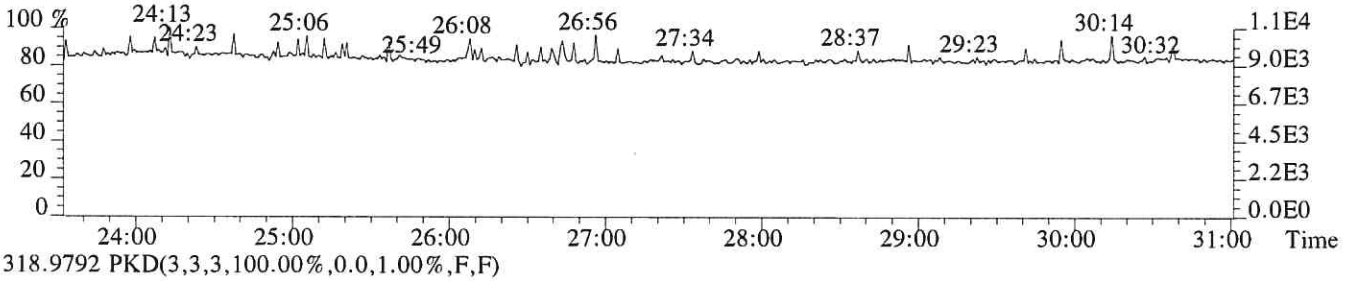
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7432.0,1.00%,F,T)



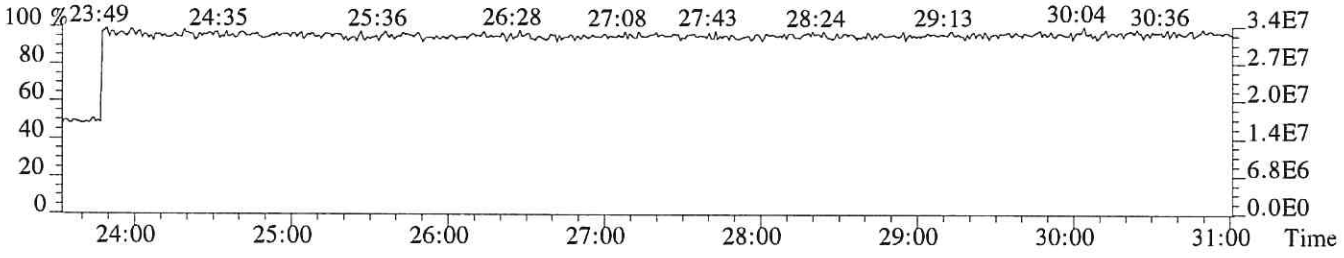
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5036.0,1.00%,F,T)



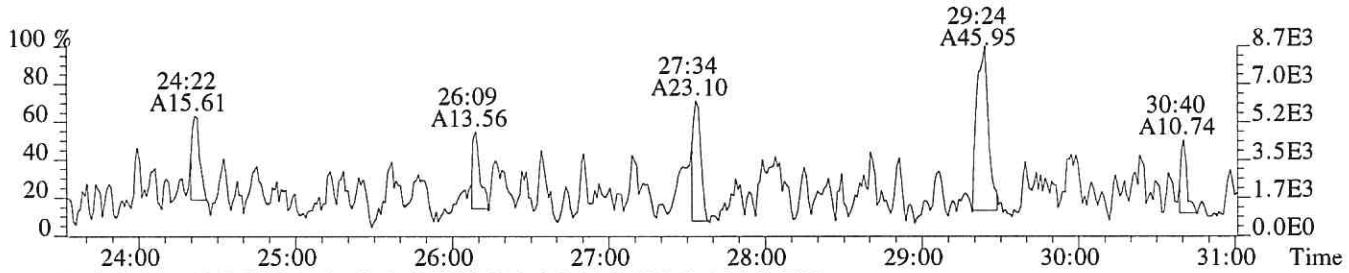
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



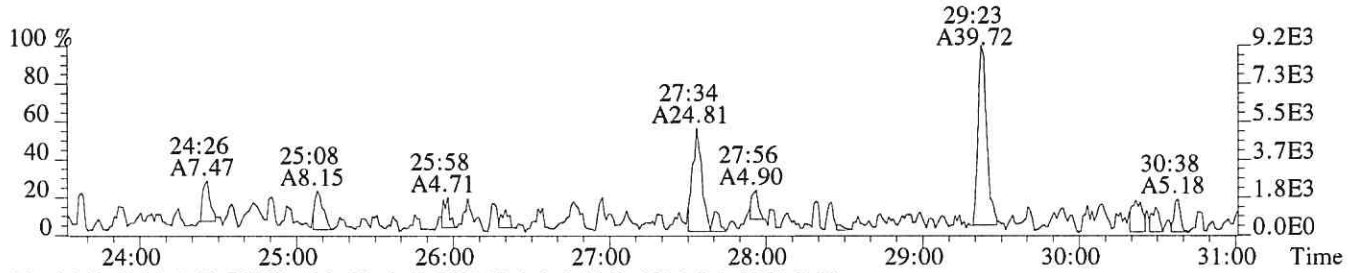
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



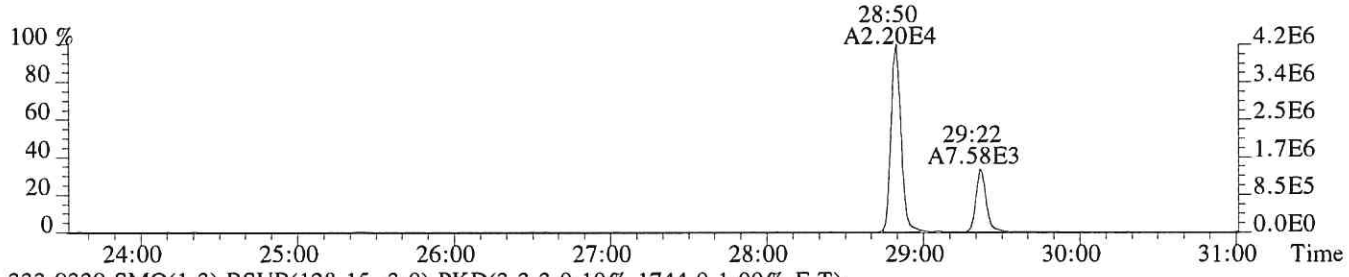
File:P518970 #1-531 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



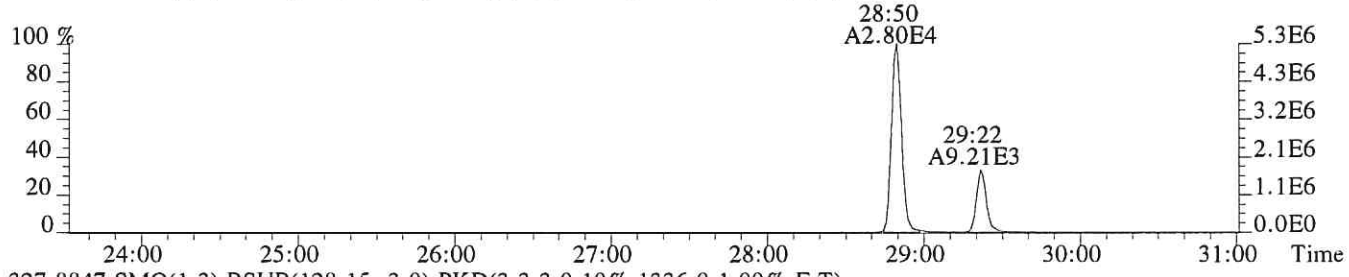
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



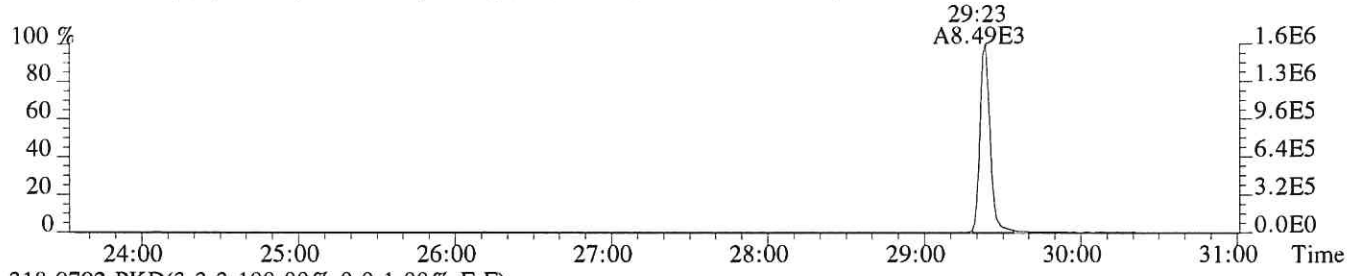
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6016.0,1.00%,F,T)



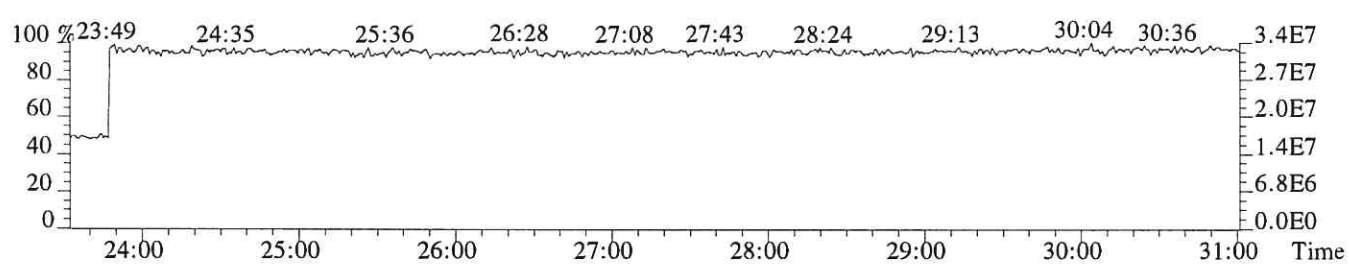
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



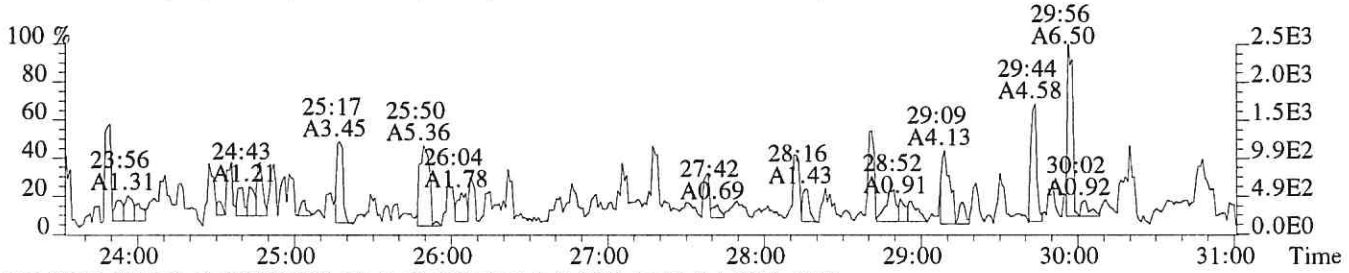
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



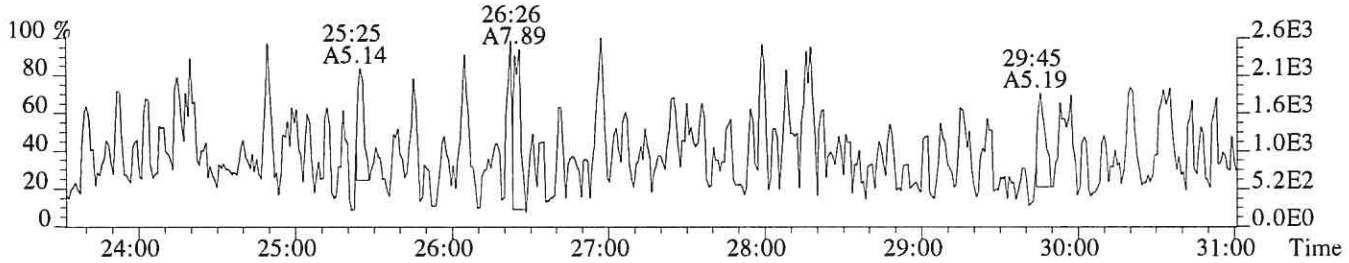
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



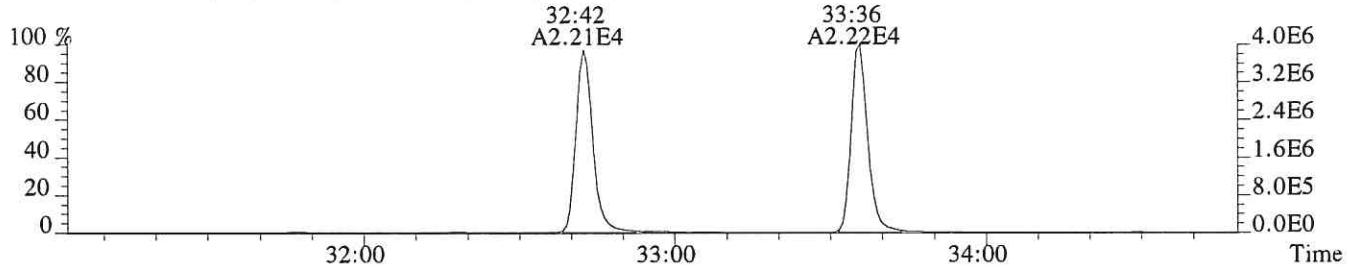
File:P518970 #1-531 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



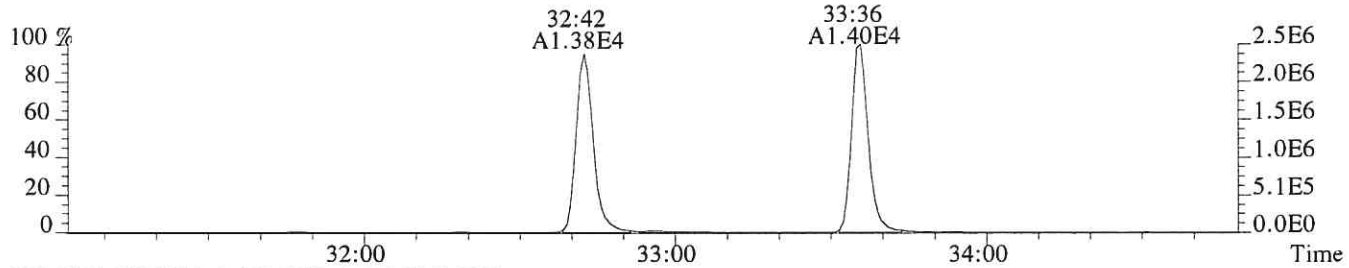
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



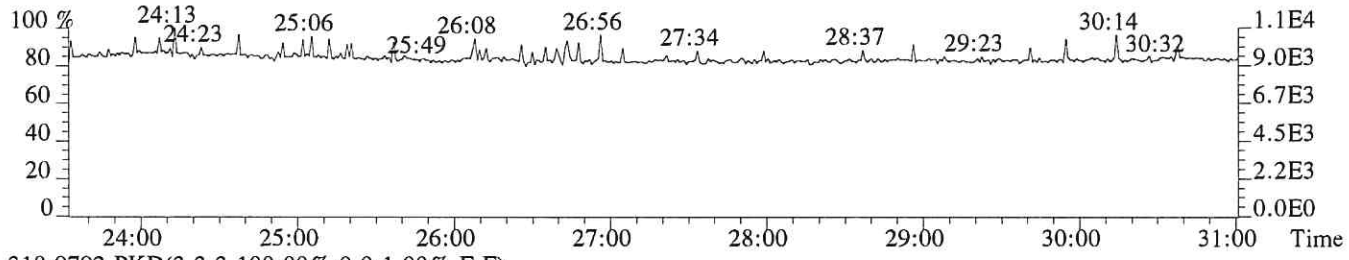
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



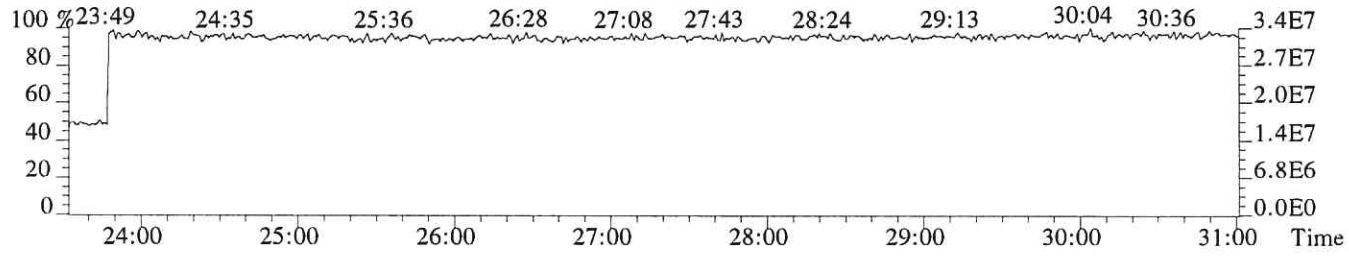
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

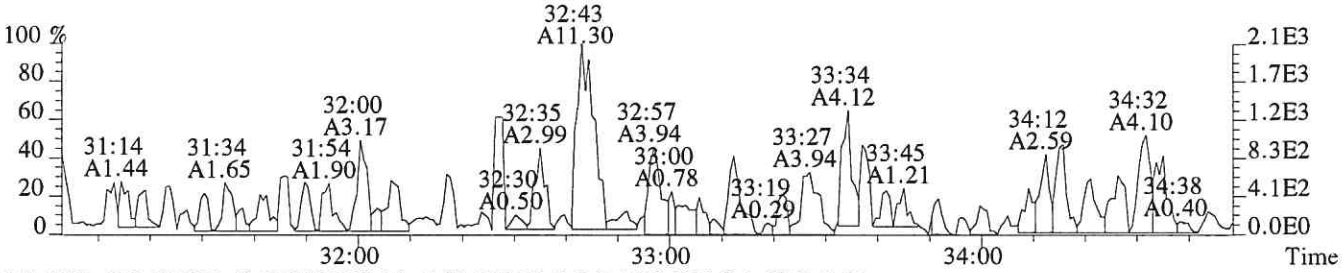


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

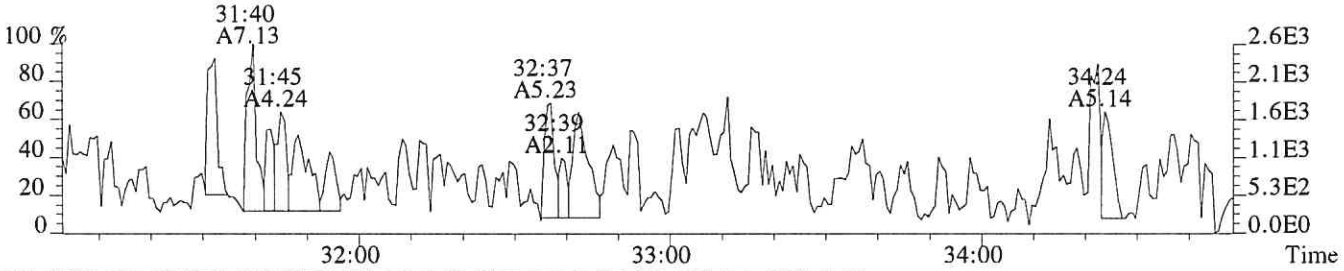


File:P518970 #1-339 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017

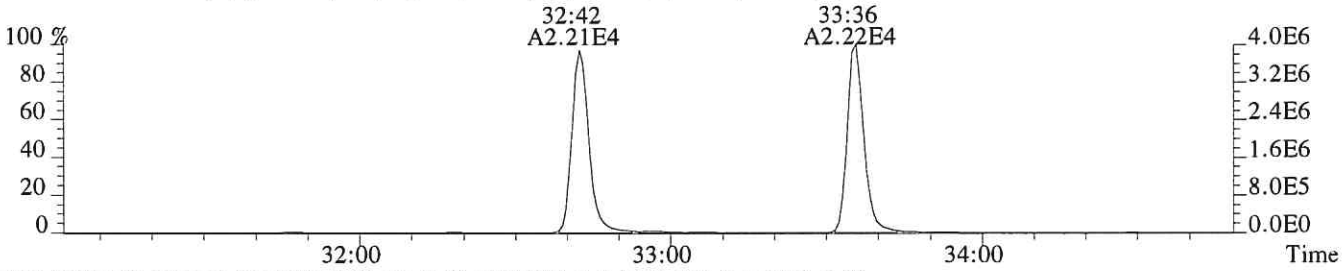
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



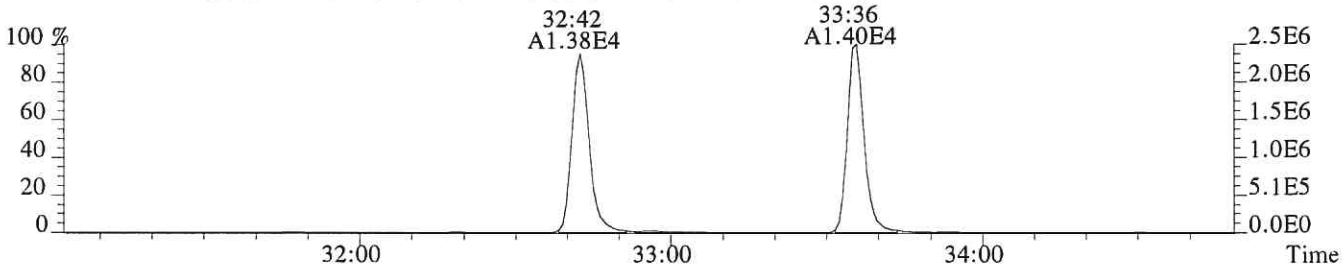
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



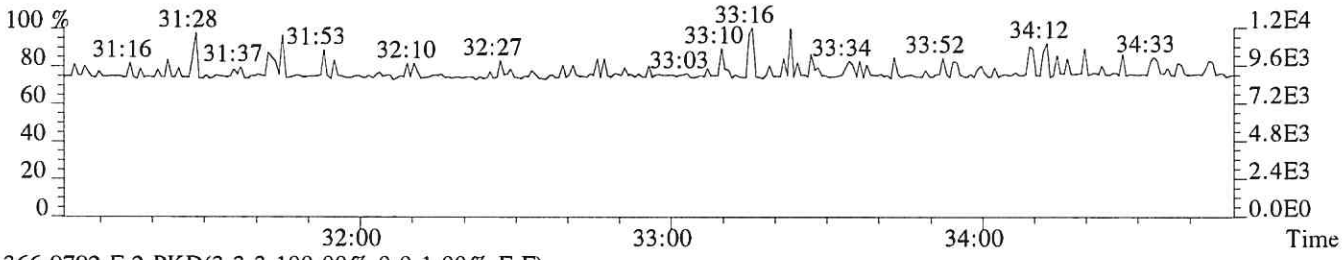
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



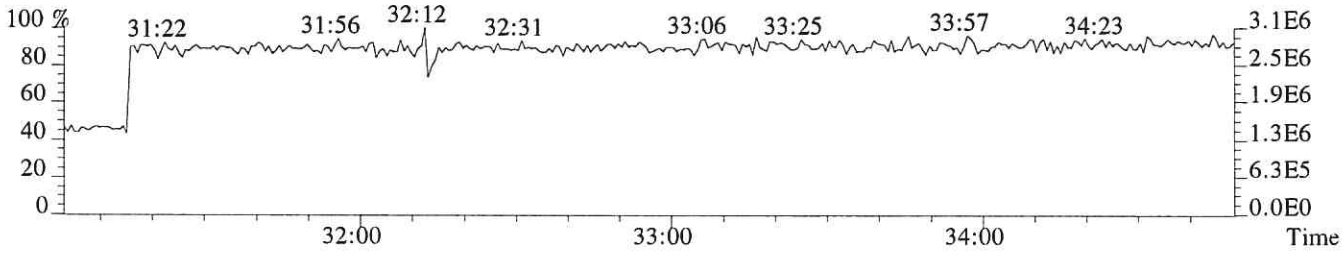
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



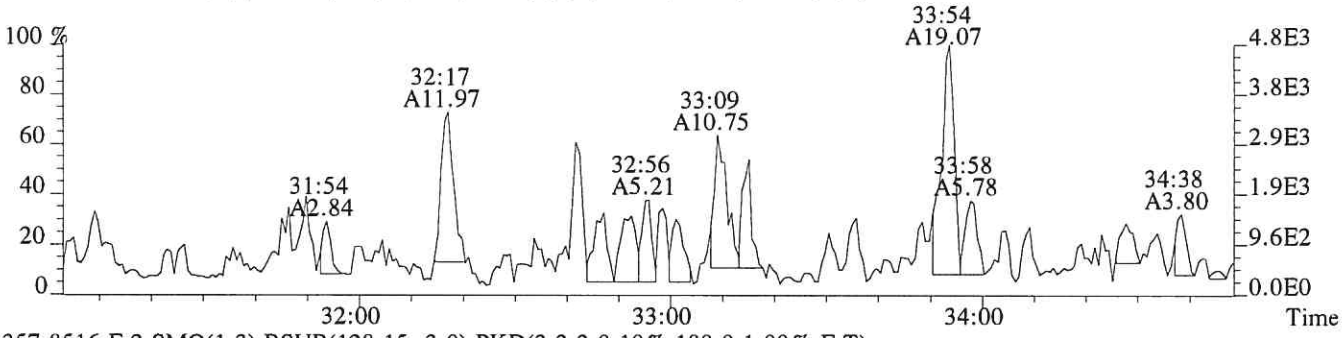
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



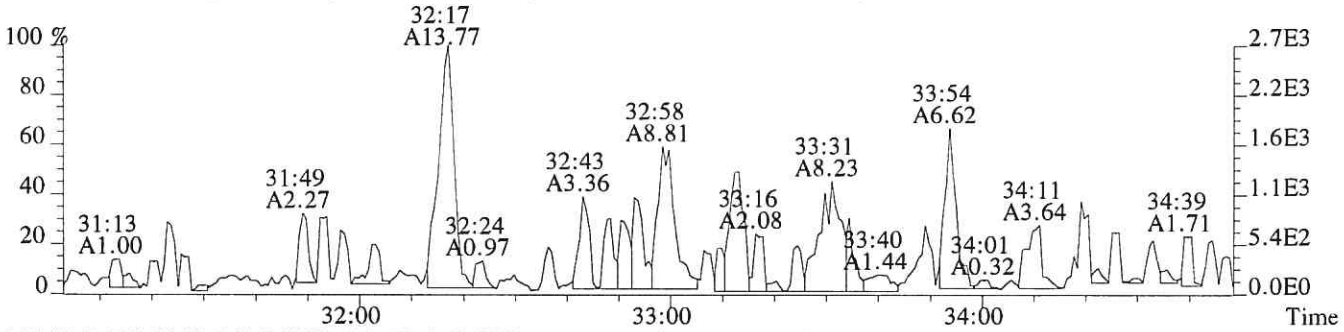
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



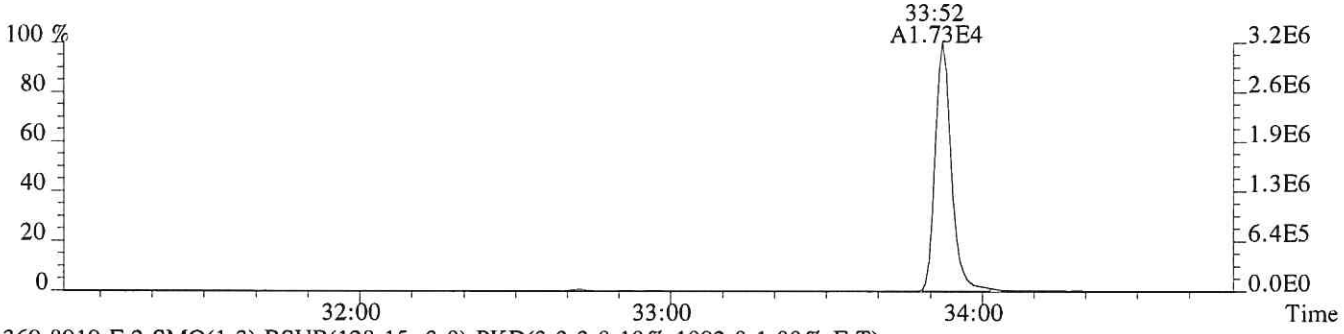
File:P518970 #1-339 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



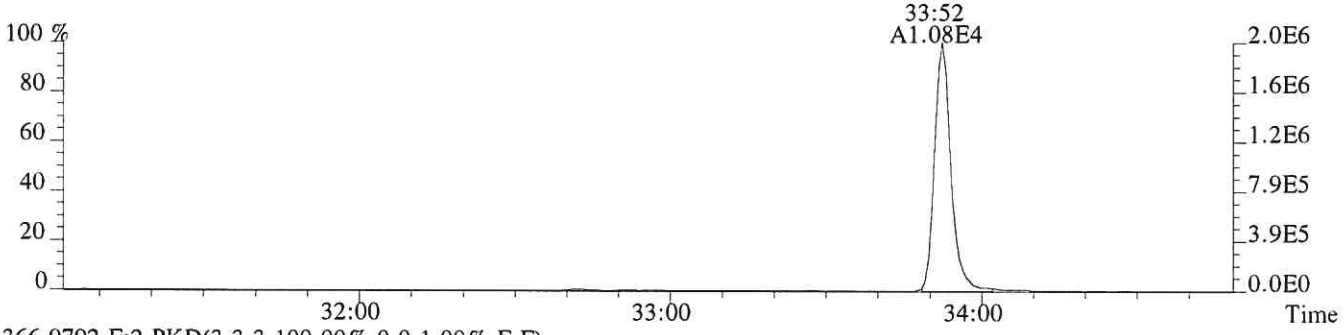
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



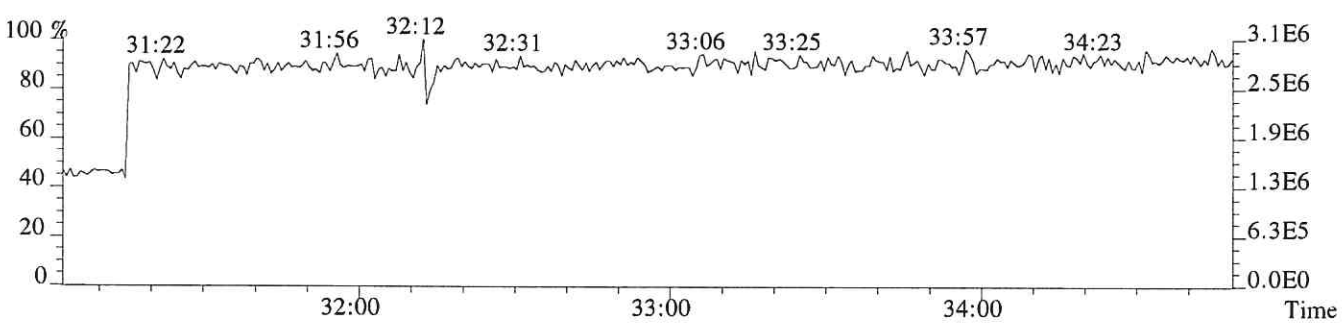
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)

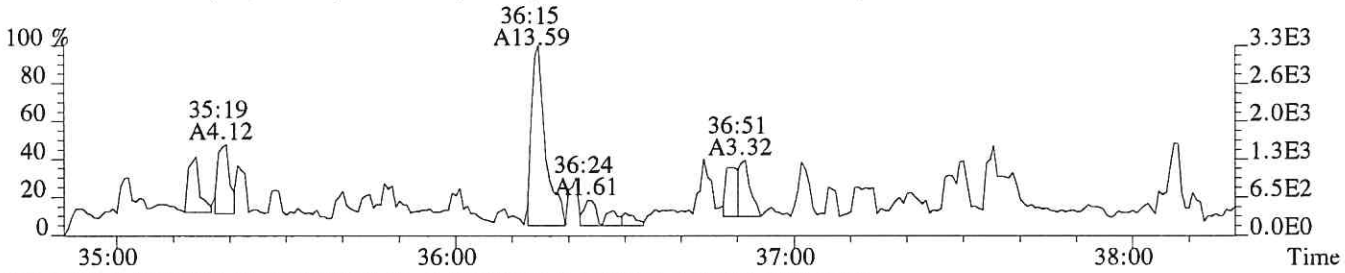


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

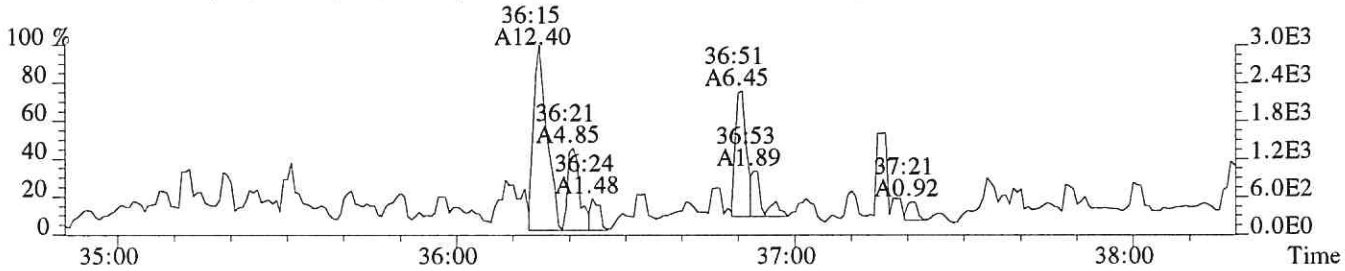


File:P518970 #1-312 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017

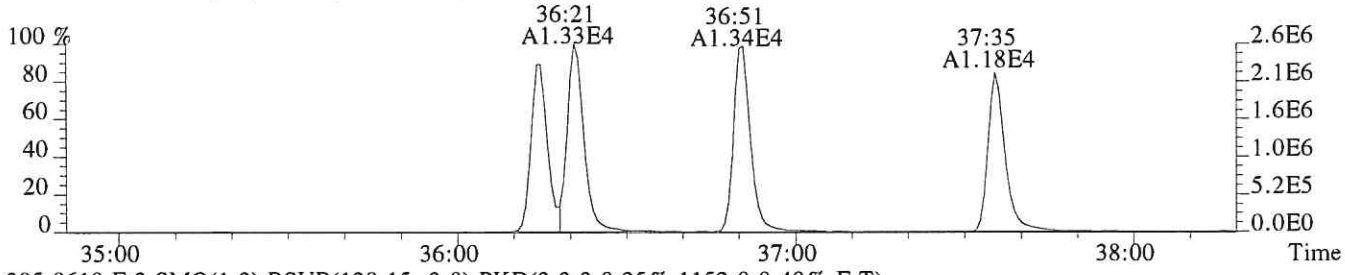
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



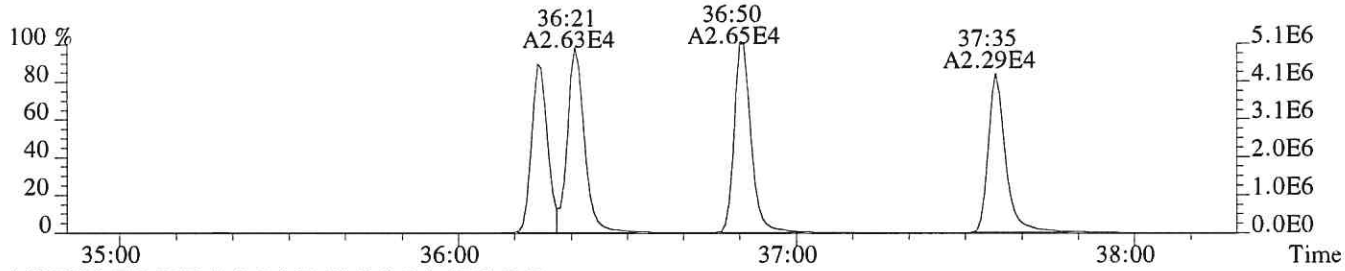
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



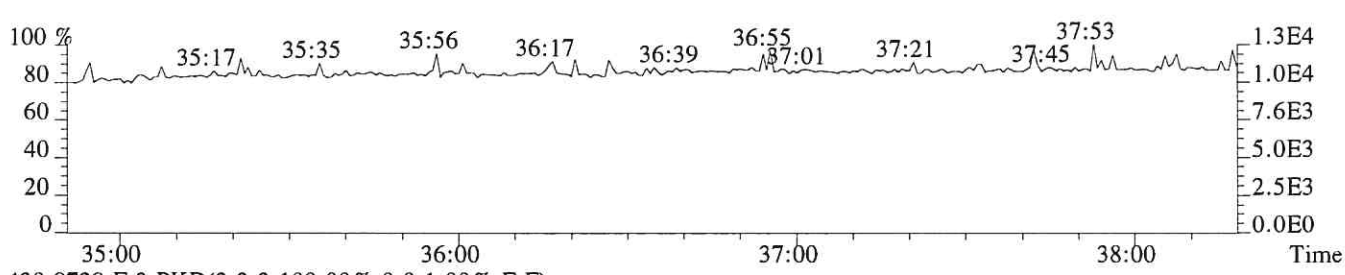
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



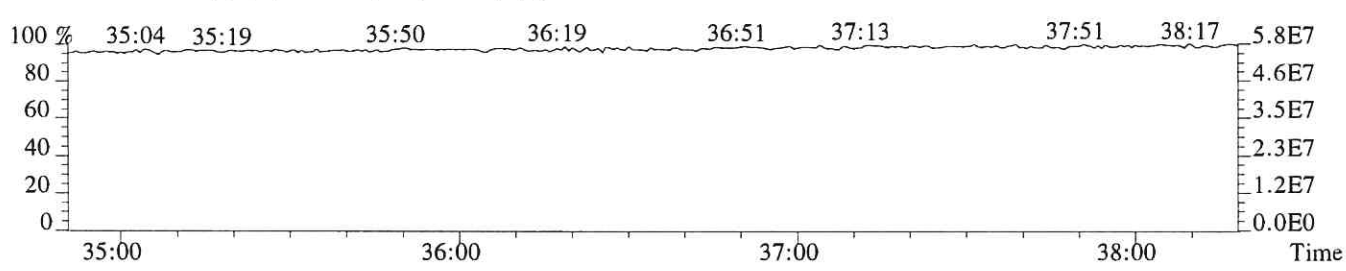
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



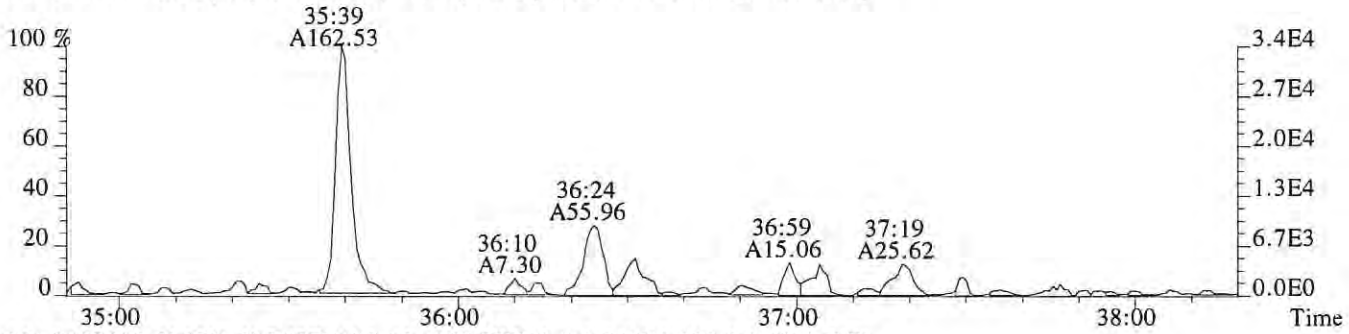
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



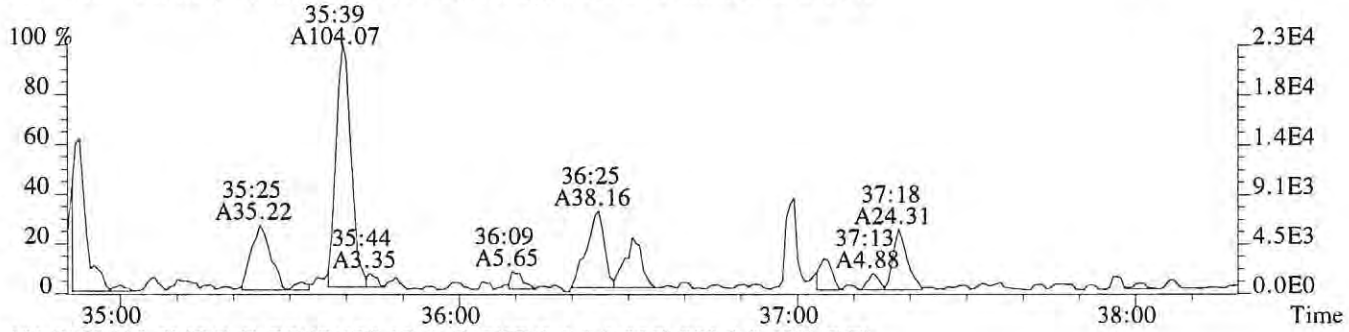
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



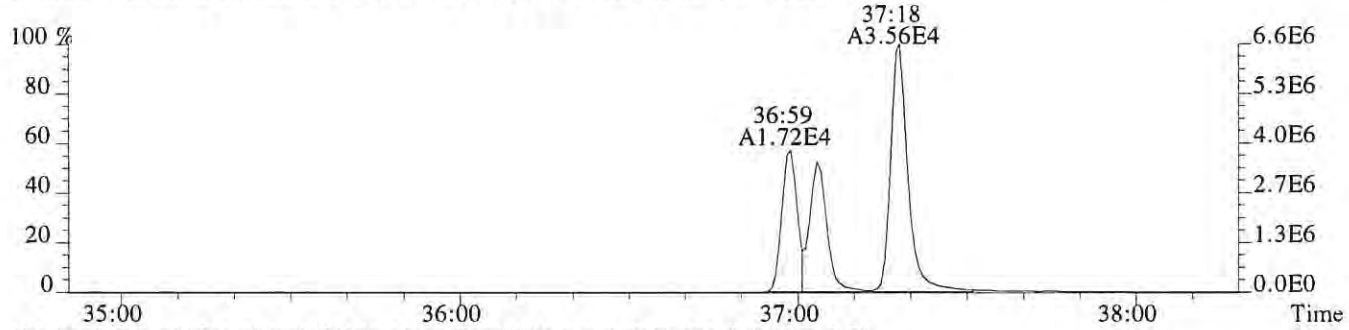
File:P518970 #1-312 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



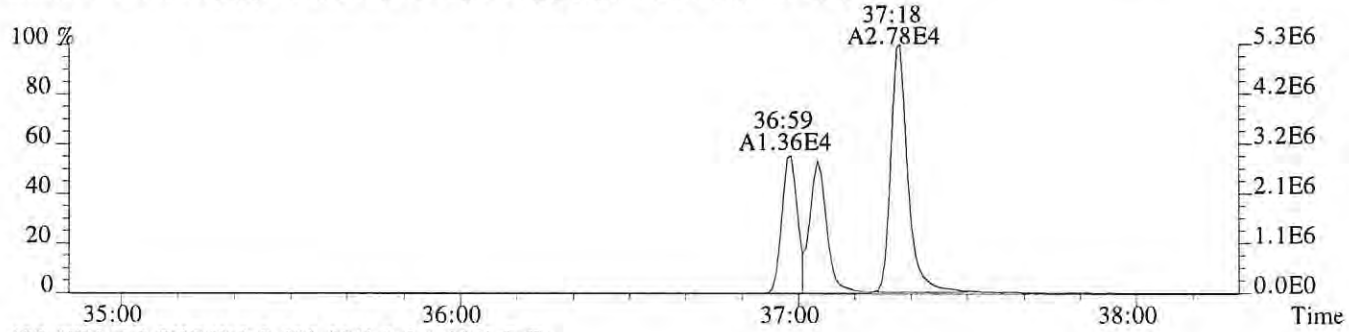
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



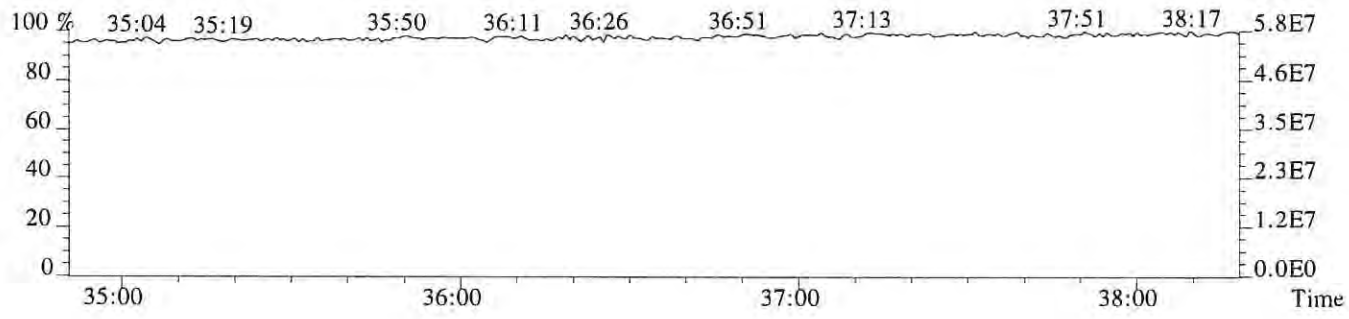
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



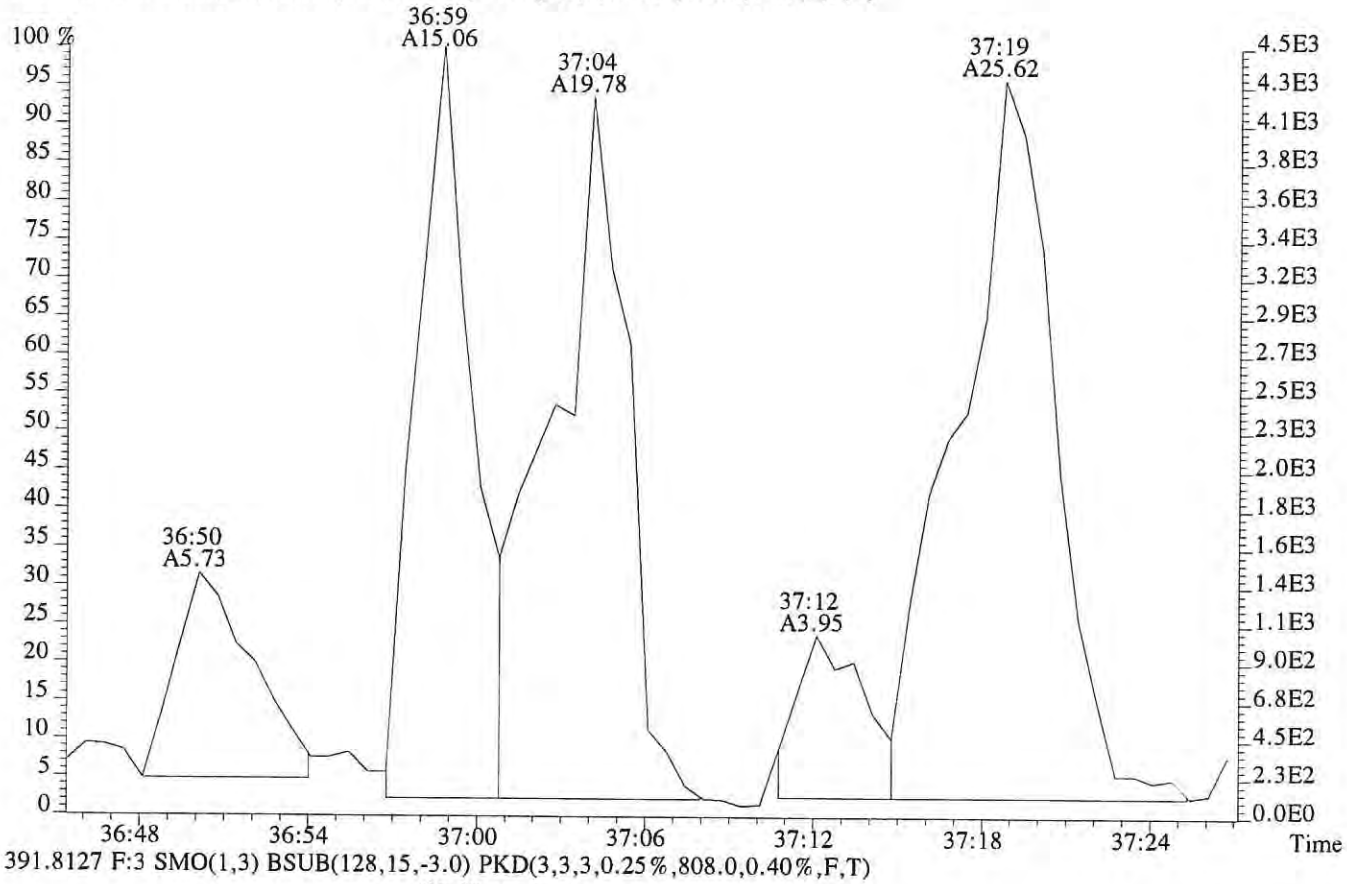
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



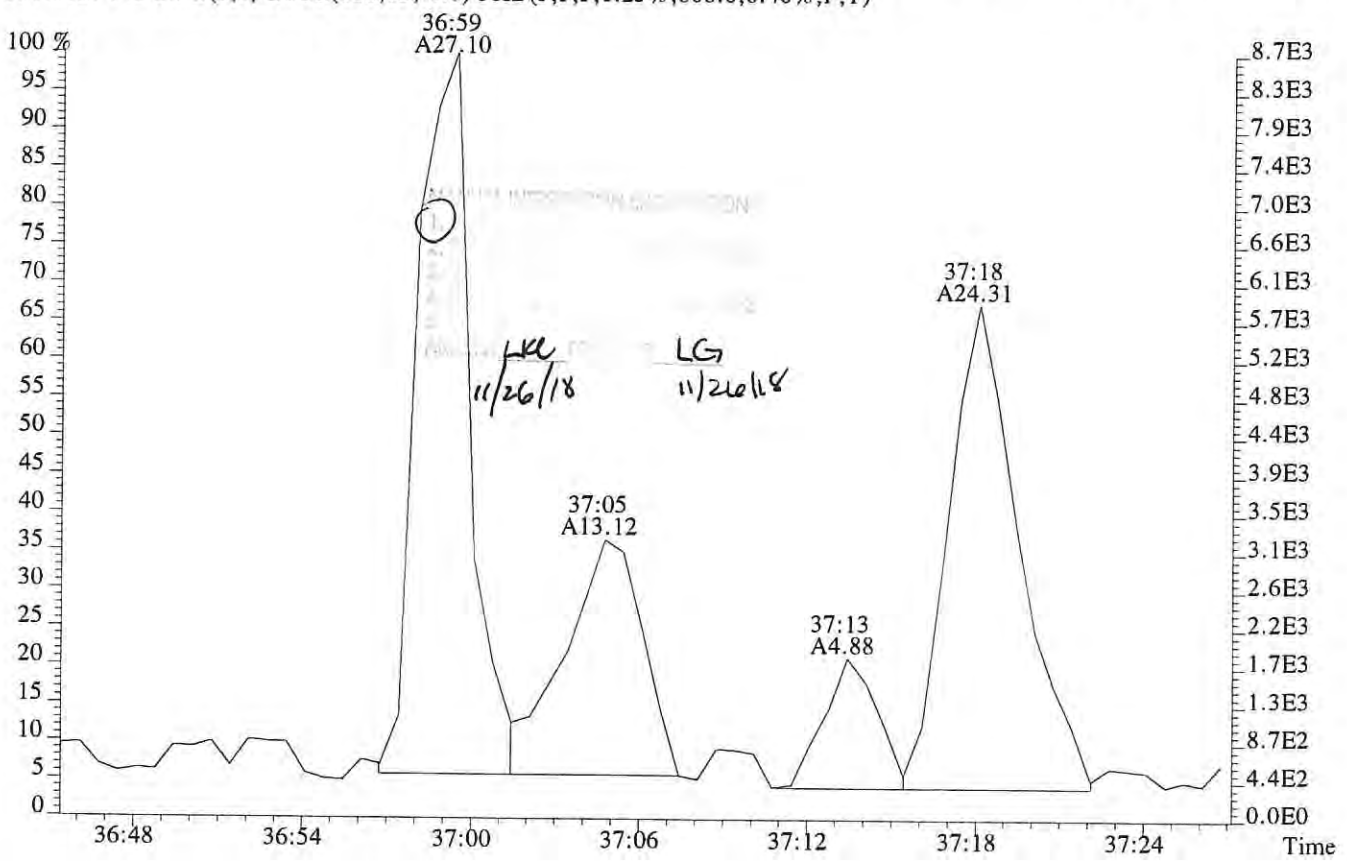
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518970 #1-312 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)

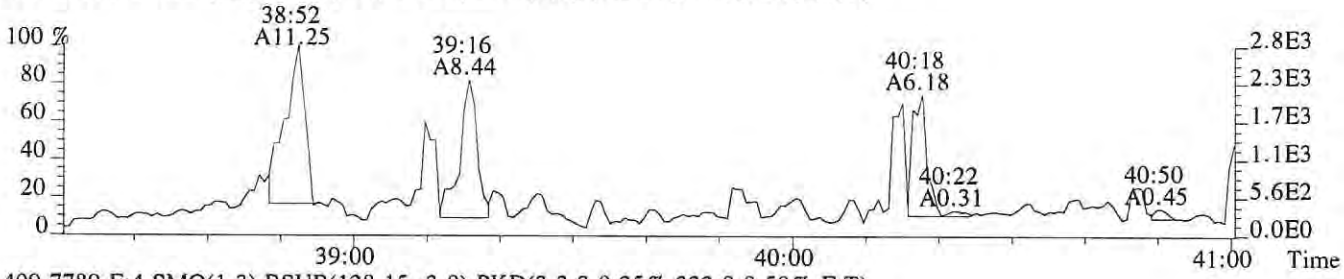


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)

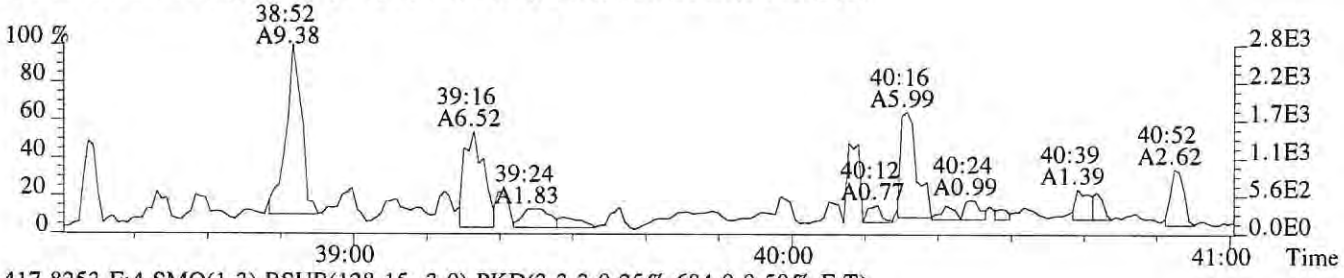


File:P518970 #1-241 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017

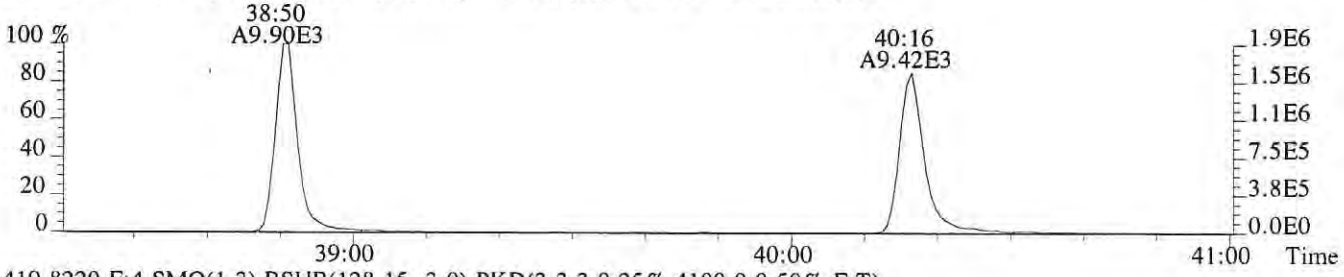
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.50%,F,T)



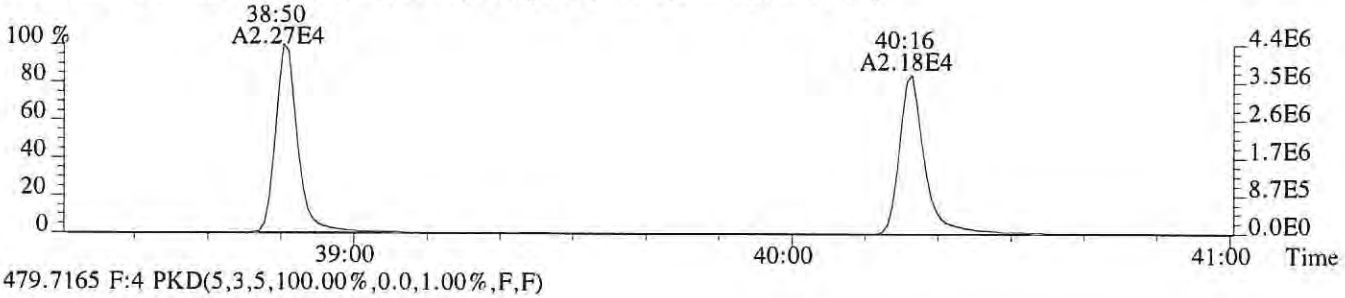
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



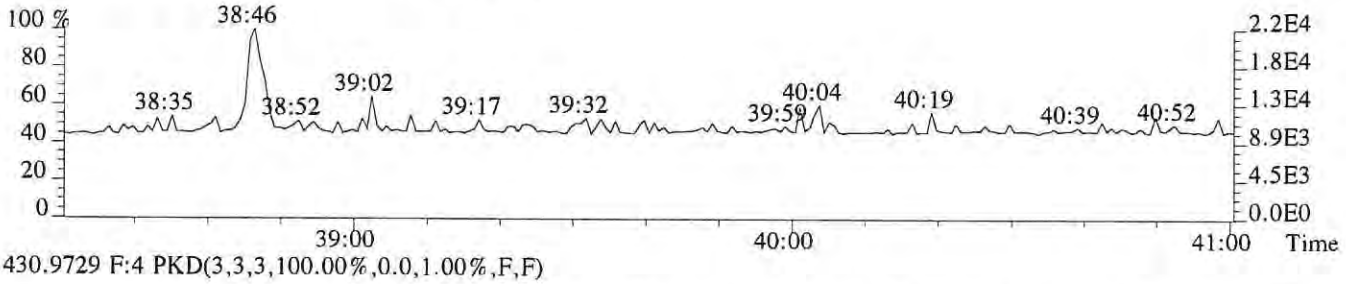
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.50%,F,T)



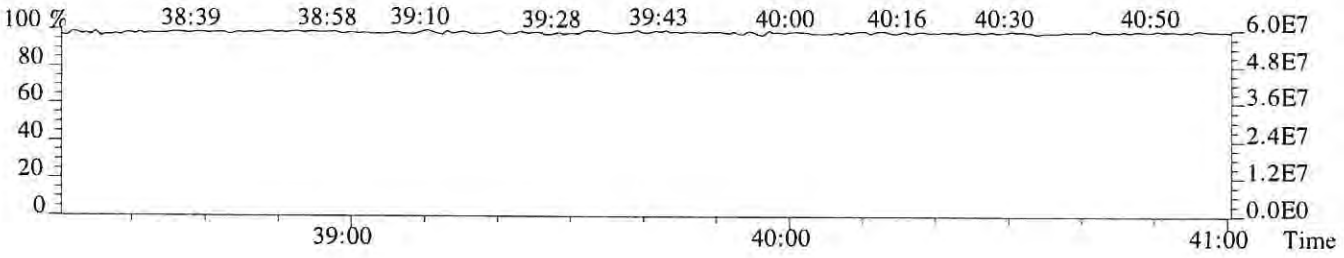
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4100.0,0.50%,F,T)



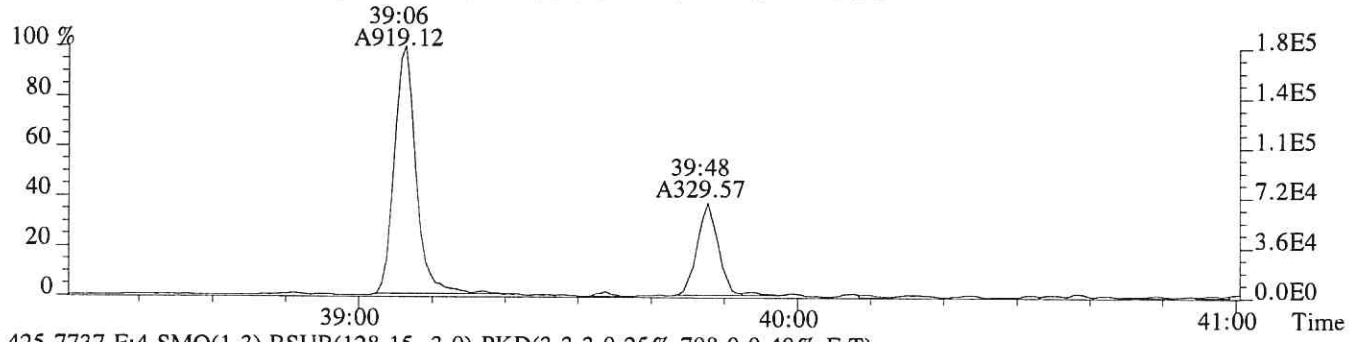
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



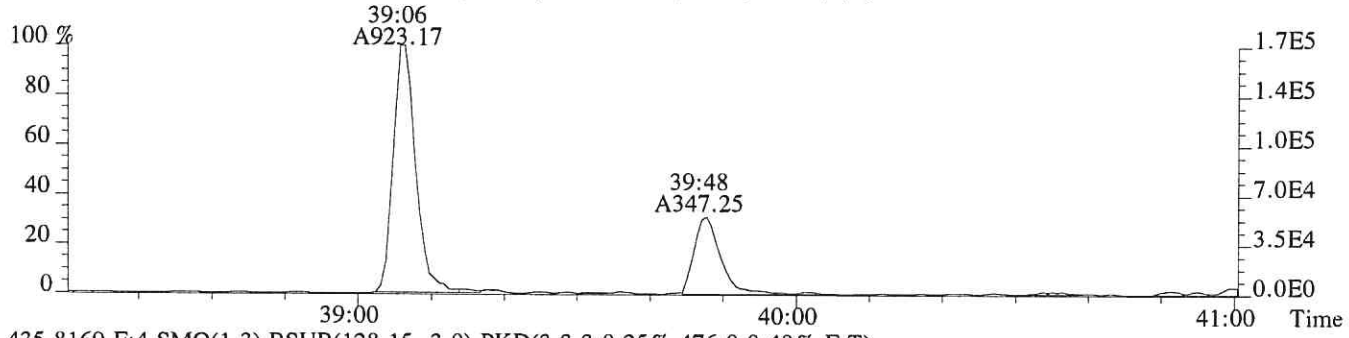
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



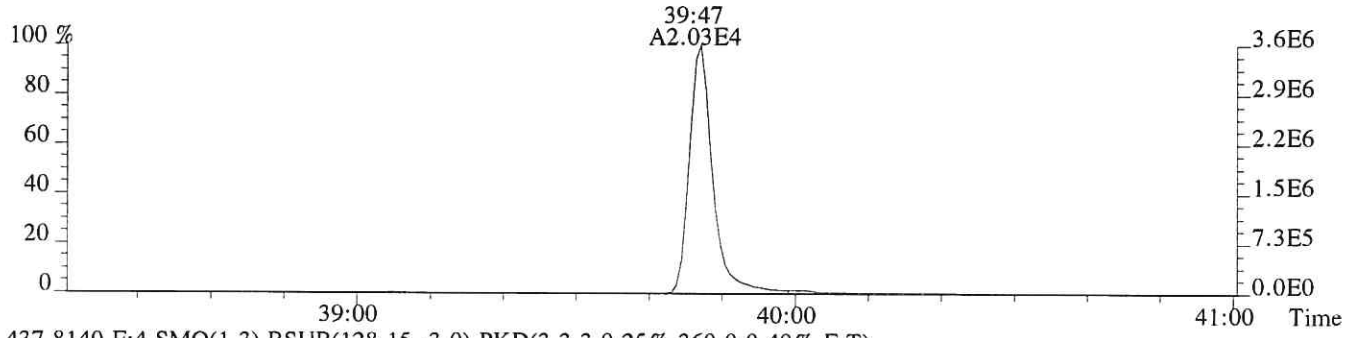
File:P518970 #1-241 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)



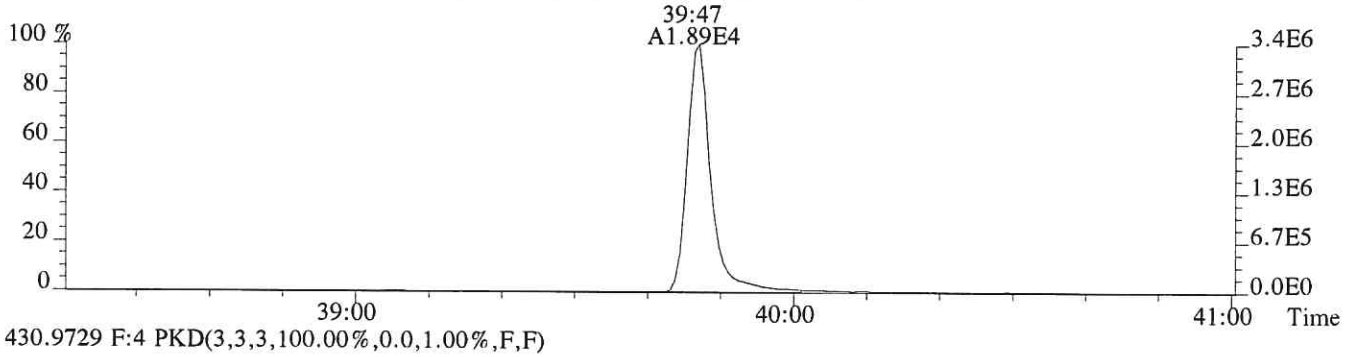
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



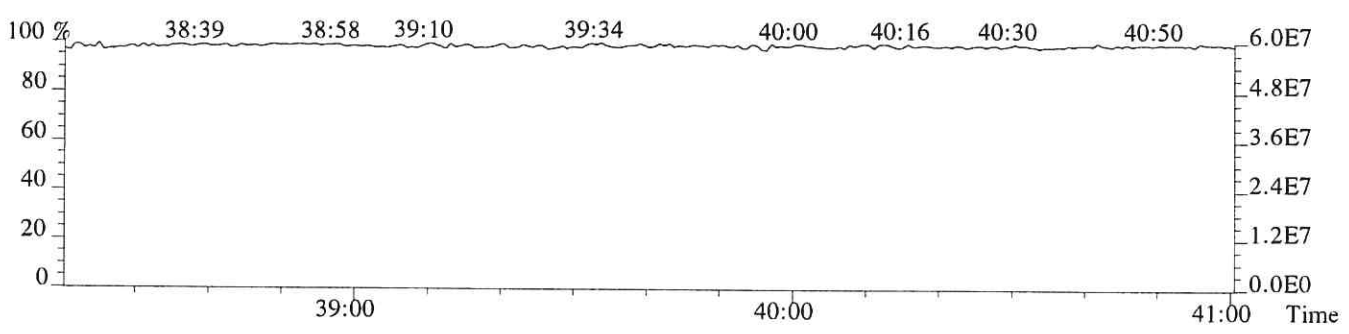
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



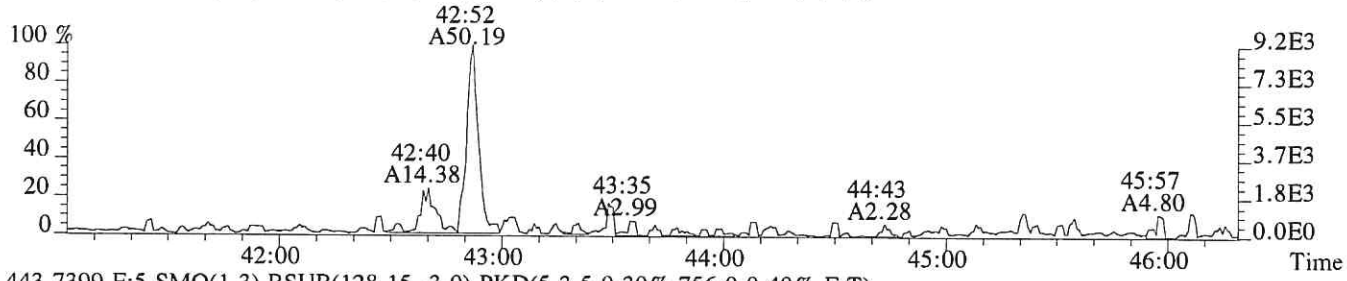
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



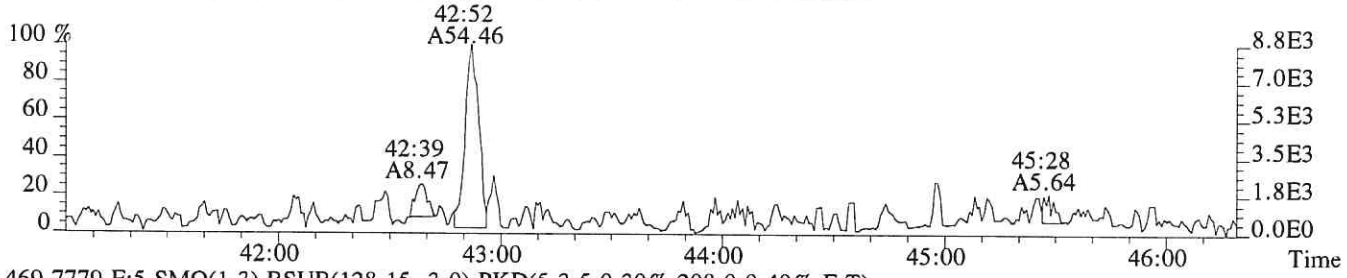
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



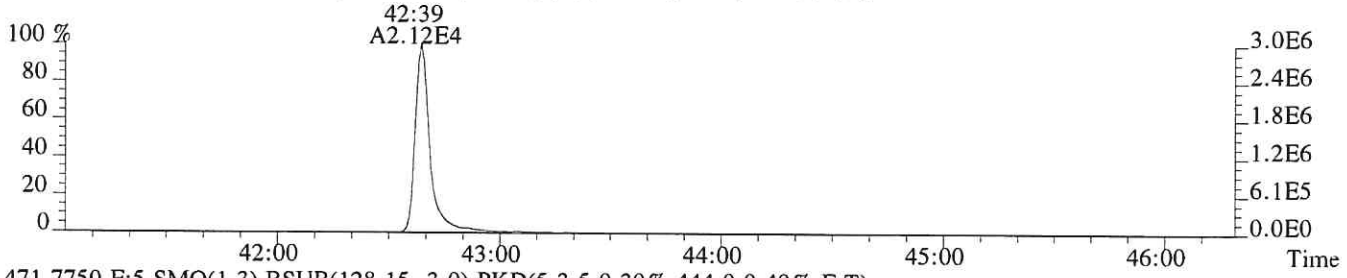
File:P518970 #1-475 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



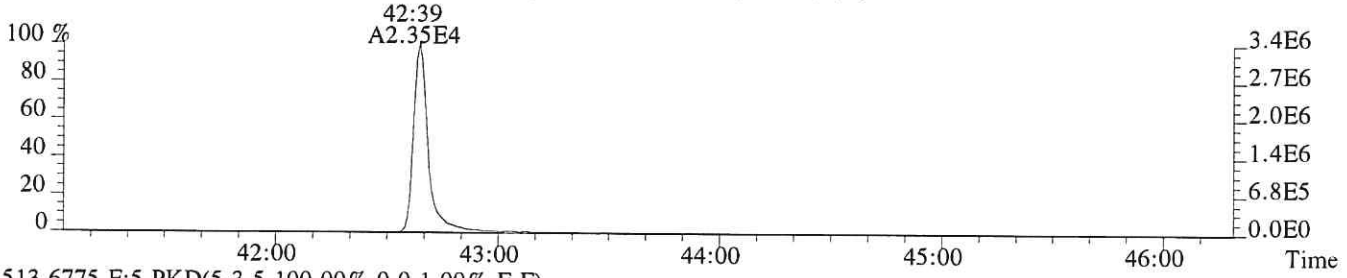
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



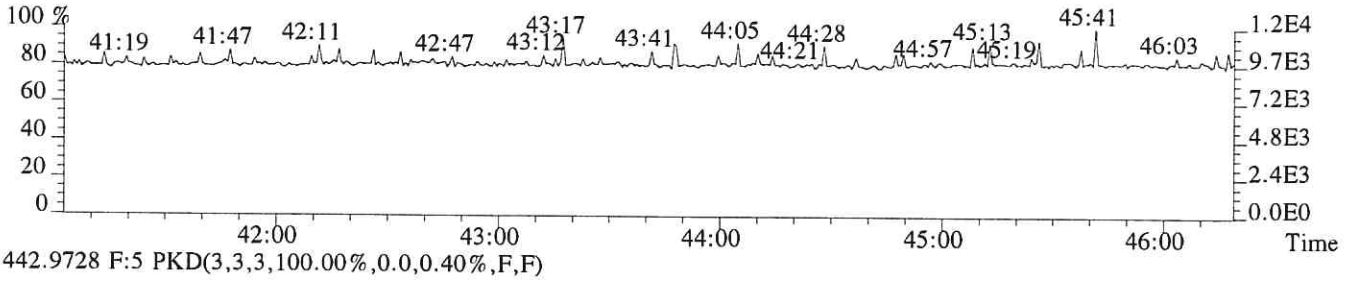
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



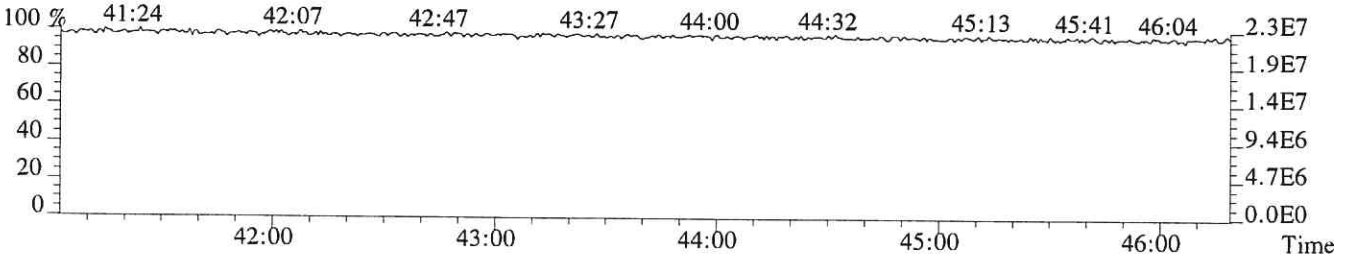
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



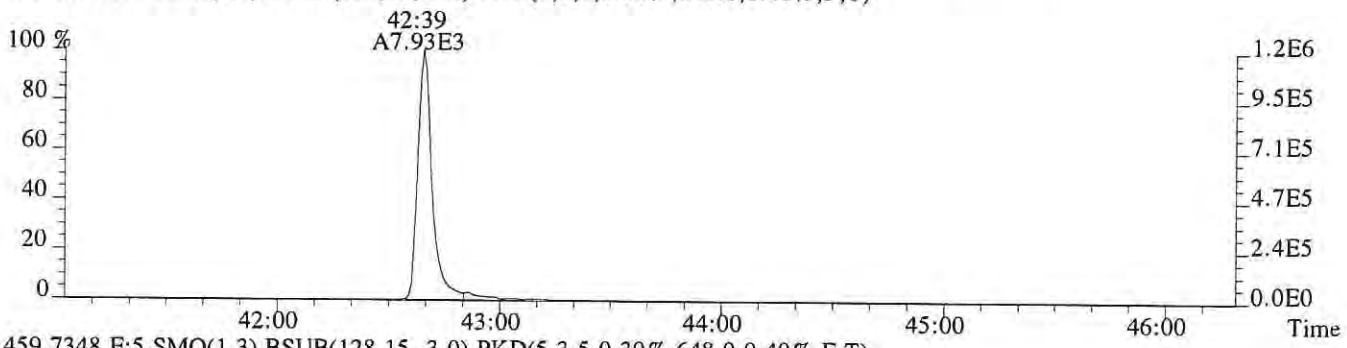
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



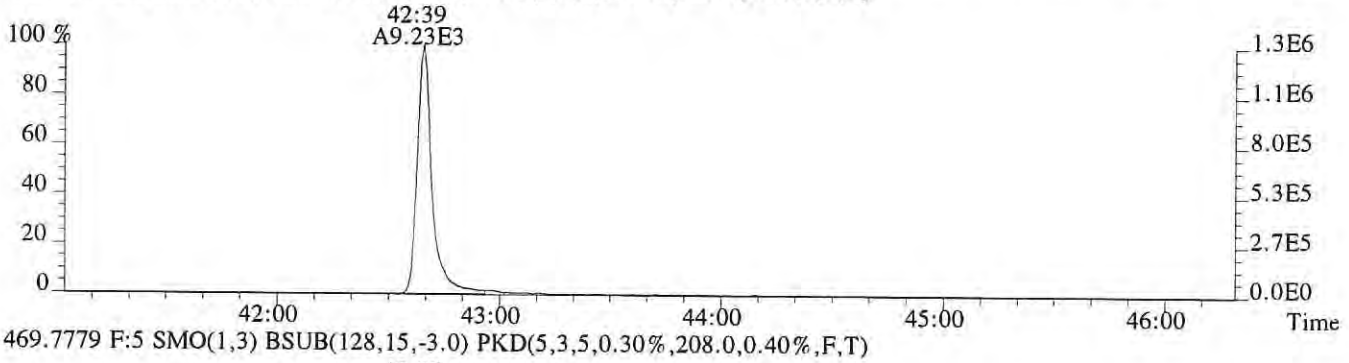
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



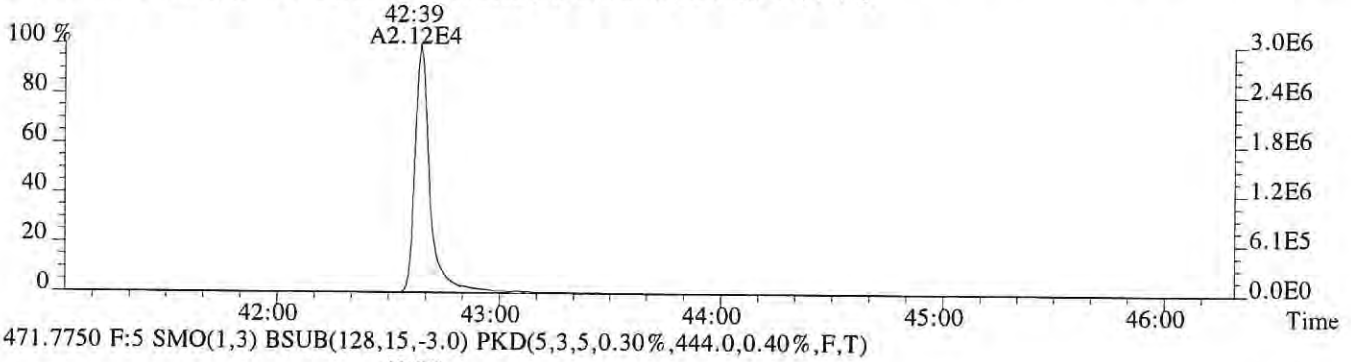
File:P518970 #1-475 Acq:21-NOV-2018 15:10:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



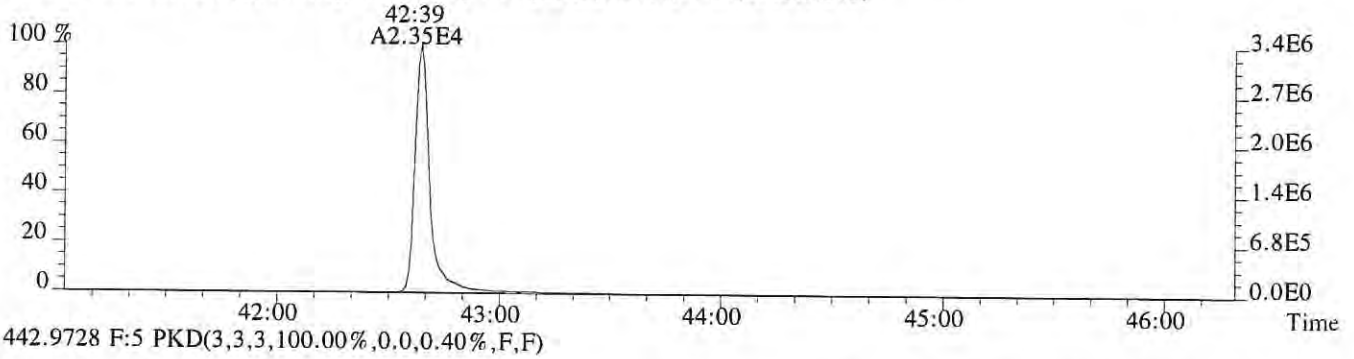
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



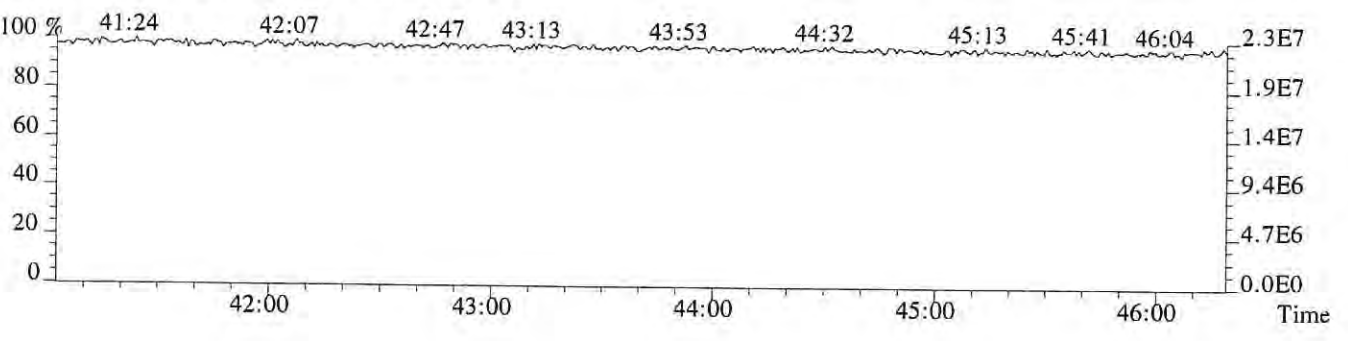
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0536

Run #14 Filename P519125 Samp: 1 Inj: 1 Acquired: 1-DEC-18 22:52:52
Processed: 4-DEC-18 18:24:56 Sample ID: E1801038-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	3.418e+01	4.071e+01	0.84	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	1.233e+01	1.388e+01	0.89	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	1.154e+01	8.793e+00	1.31	yes	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	2.741e+01	1.699e+01	1.61	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	8.397e+00	6.800e+00	1.23	no	no	1.258
10	Unk	OCDF	42:37	3.658e+01	3.077e+01	1.19	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	3.482e+01	4.042e+01	0.86	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	6.233e+01	3.657e+01	1.70	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	4.242e+02	4.694e+02	0.90	yes	no	1.025
17	Unk	OCDD	42:24	2.637e+03	3.118e+03	0.85	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	3.324e+04	4.234e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.432e+04	3.444e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	5.113e+04	3.291e+04	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.302e+04	4.377e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.569e+04	4.999e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.120e+04	4.087e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.796e+04	3.496e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.148e+04	2.528e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	8.460e+03	2.016e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	2.369e+04	2.973e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	4.104e+04	2.580e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	3.028e+04	2.414e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.128e+04	2.484e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.032e+04	1.896e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:23	9.082e+03	1.007e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	5.066e+04	6.384e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.536e+04	4.343e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.481e+04				no	1.014

$$OCDD = \frac{(2.637e+03 + 3.118e+03) \times 4000\ pg \times 1}{(9.082e+03 + 1.007e+04) \times 10.050\ g \times 79.5\ /\ 100 \times 1.118} = 127\ ng/kg$$

KW 12/5/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0536

Run #14 Filename P519125 Samp: 1 Inj: 1 Acquired: 1-DEC-18 22:52:52
Processed: 4-DEC-18 18:24:56 LAB. ID: E1801038-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.40e+03	4.84e+02	1.7e+01	8.95e+03	1.19e+03	7.5e+00
2	1,2,3,7,8-PeCDF	*	8.08e+02	*	*	1.21e+03	*
3	2,3,4,7,8-PeCDF	*	8.08e+02	*	*	1.21e+03	*
4	1,2,3,4,7,8-HxCDF	2.32e+03	5.88e+02	3.9e+00	2.87e+03	5.68e+02	5.1e+00
5	1,2,3,6,7,8-HxCDF	*	5.88e+02	*	*	5.68e+02	*
6	2,3,4,6,7,8-HxCDF	*	5.88e+02	*	*	5.68e+02	*
7	1,2,3,7,8,9-HxCDF	2.91e+03	5.88e+02	5.0e+00	1.62e+03	5.68e+02	2.9e+00
8	1,2,3,4,6,7,8-HpCDF	5.41e+03	3.96e+02	1.4e+01	4.22e+03	4.52e+02	9.3e+00
9	1,2,3,4,7,8,9-HpCDF	2.57e+03	3.96e+02	6.5e+00	1.25e+03	4.52e+02	2.8e+00
10	OCDF	5.79e+03	4.00e+02	1.4e+01	5.14e+03	6.60e+02	7.8e+00
11	2,3,7,8-TCDD	*	1.64e+03	*	*	7.84e+02	*
12	1,2,3,7,8-PeCDD	*	1.28e+03	*	*	6.72e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.64e+02	*	*	6.32e+02	*
14	1,2,3,6,7,8-HxCDD	6.82e+03	6.64e+02	1.0e+01	8.17e+03	6.32e+02	1.3e+01
15	1,2,3,7,8,9-HxCDD	1.17e+04	6.64e+02	1.8e+01	9.23e+03	6.32e+02	1.5e+01
16	1,2,3,4,6,7,8-HpCDD	7.93e+04	6.24e+02	1.3e+02	9.30e+04	6.20e+02	1.5e+02
17	OCDD	3.93e+05	2.08e+02	1.9e+03	4.55e+05	6.24e+02	7.3e+02
18	13C-2,3,7,8-TCDF	6.12e+06	3.22e+03	1.9e+03	7.78e+06	1.83e+03	4.2e+03
19	13C-1,2,3,7,8-PeCDF	9.97e+06	1.07e+03	9.3e+03	6.40e+06	5.24e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	9.95e+06	1.07e+03	9.3e+03	6.42e+06	5.24e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	4.73e+06	8.88e+02	5.3e+03	9.25e+06	1.02e+03	9.1e+03
22	13C-1,2,3,6,7,8-HxCDF	5.07e+06	8.88e+02	5.7e+03	9.89e+06	1.02e+03	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.50e+06	8.88e+02	5.1e+03	8.67e+06	1.02e+03	8.5e+03
24	13C-1,2,3,7,8,9-HxCDF	3.53e+06	8.88e+02	4.0e+03	6.86e+06	1.02e+03	6.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.36e+06	2.16e+03	1.1e+03	5.18e+06	3.62e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.52e+06	2.16e+03	7.1e+02	3.57e+06	3.62e+03	9.9e+02
27	13C-2,3,7,8-TCDD	4.53e+06	4.85e+03	9.3e+02	5.64e+06	2.30e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	7.93e+06	9.00e+02	8.8e+03	5.03e+06	7.84e+02	6.4e+03
29	13C-1,2,3,4,7,8-HxCDD	6.77e+06	1.38e+03	4.9e+03	5.43e+06	1.01e+03	5.4e+03
30	13C-1,2,3,6,7,8-HxCDD	6.30e+06	1.38e+03	4.6e+03	5.02e+06	1.01e+03	5.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.78e+06	4.00e+02	9.5e+03	3.55e+06	3.68e+02	9.6e+03
32	13C-OCDD	1.34e+06	4.72e+02	2.8e+03	1.48e+06	2.32e+02	6.4e+03
33	13C-1,2,3,4-TCDD	9.71e+06	4.85e+03	2.0e+03	1.22e+07	2.30e+03	5.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.11e+07	1.38e+03	8.0e+03	8.66e+06	1.01e+03	8.6e+03
35	37Cl-2,3,7,8-TCDD	4.81e+06	1.66e+03	2.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.644e+03 + 7.840e+02) \times 2000}{(4.528e+06 + 5.642e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0536

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519125 Sample:1 Injection:1 Function:1

Acquired: 1-DEC-18 22:52:52 Processed: 4-DEC-18 18:24:56

Mass: 303.9020 305.8990 Tot Response: 7.49e+01 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:15	3.42e+01	4.07e+01	0.84	yes	7.49e+01 2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0536

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519125 Sample:1 Injection:1 Function:1

Acquired: 1-DEC-18 22:52:52 Processed: 4-DEC-18 18:24:56

Mass: 319.8970 321.8940 Tot Response: 2.57e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:23	1.76e+01	0.85	yes	3.83e+01		n	n
2	27:10	5.87e+01	0.69	yes	1.44e+02		n	n
3	28:24	3.28e+01	0.77	yes	7.52e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0536

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519125 Sample:1 Injection:1 Function:2

Acquired: 1-DEC-18 22:52:52 Processed: 4-DEC-18 18:24:56

Mass: 355.8550 357.8520 Tot Response: 3.21e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	1.27e+02	7.55e+01	1.69	yes	2.03e+02		n	y
2	32:55	7.14e+01	4.71e+01	1.52	yes	1.18e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0536

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519125 Sample:1 Injection:1 Function:3

Acquired: 1-DEC-18 22:52:52 Processed: 4-DEC-18 18:24:56

Mass: 373.8210 375.8180 Tot Response: 6.77e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:30	2.55e+01	1.17	yes	4.73e+01		n	n
2	37:23	1.15e+01	1.31	yes	2.03e+01	1,2,3,7,8,9-HxCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0536

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519125 Sample:1 Injection:1 Function:3

Acquired: 1-DEC-18 22:52:52 Processed: 4-DEC-18 18:24:56

Mass: 389.8160 391.8130 Tot Response: 1.28e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	6.61e+02	5.76e+02 1.15	yes	1.24e+03		n	n
2	36:18	2.55e+01	2.07e+01 1.23	yes	4.62e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0536

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519125 Sample:1 Injection:1 Function:4

Acquired: 1-DEC-18 22:52:52 Processed: 4-DEC-18 18:24:56

Mass: 407.7820 409.7790 Tot Response: 3.21e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	1.51e+01	1.70e+01	0.89	yes	3.21e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0536

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519125 Sample:1 Injection:1 Function:4

Acquired: 1-DEC-18 22:52:52 Processed: 4-DEC-18 18:24:56

Mass: 423.7770 425.7740 Tot Response: 3.51e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.33e+03	1.29e+03 1.03	yes	2.61e+03		n	n
2	39:35	4.24e+02	4.69e+02 0.90	yes	8.94e+02	1,2,3,4,6,7,8-HpCDD	n	n

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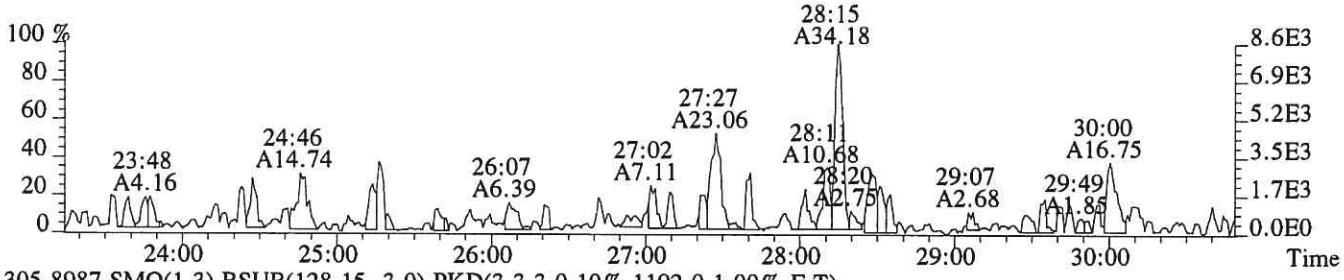
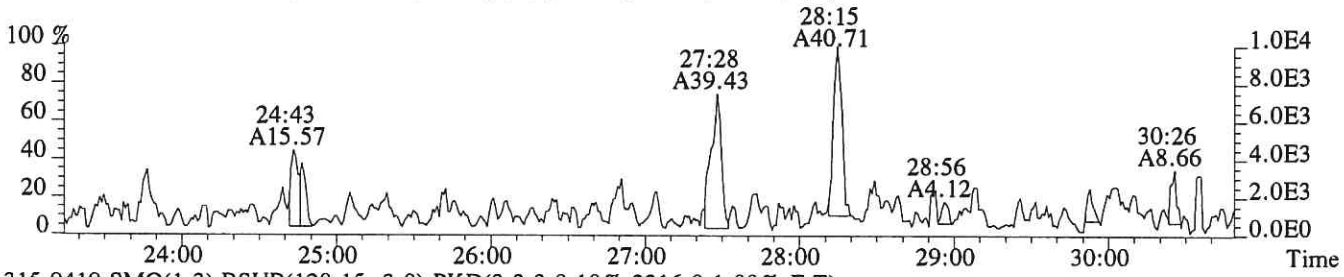
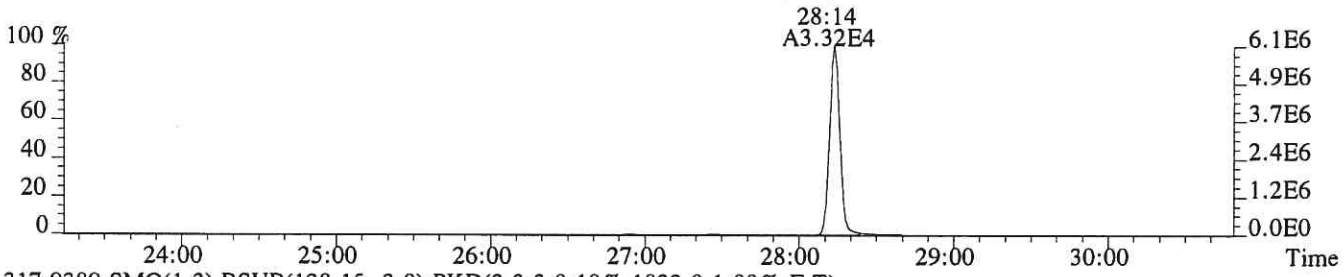
File:P519125 #1-538 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



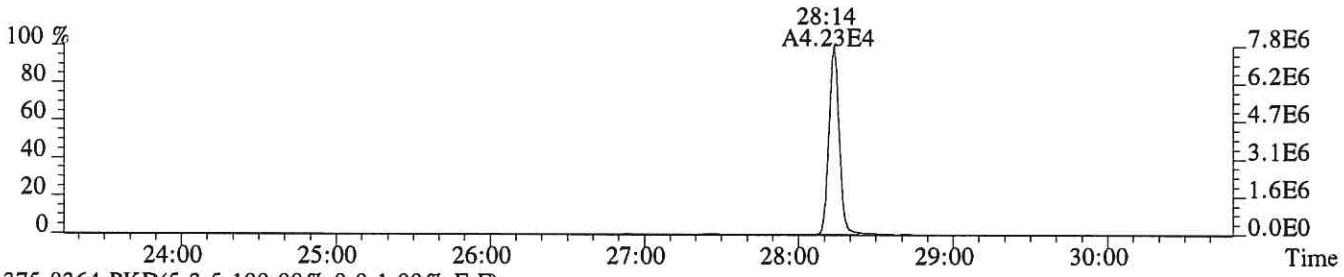
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



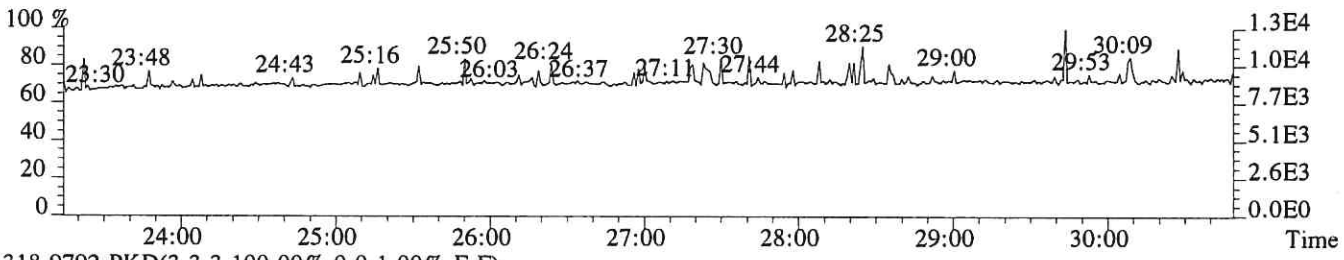
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3216.0,1.00%,F,T)



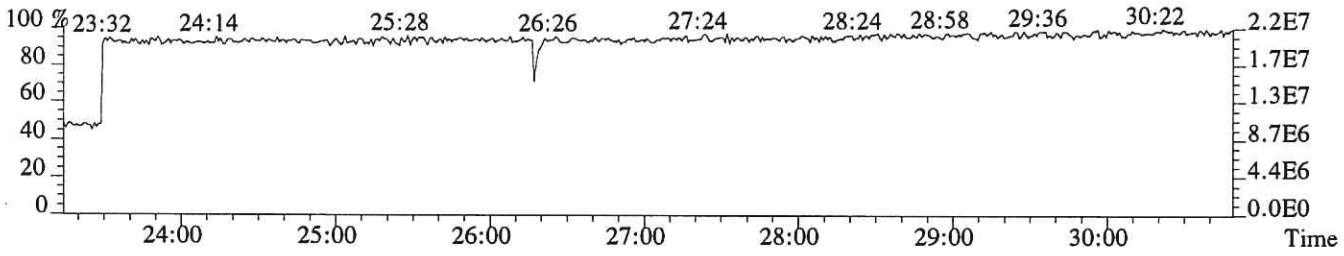
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

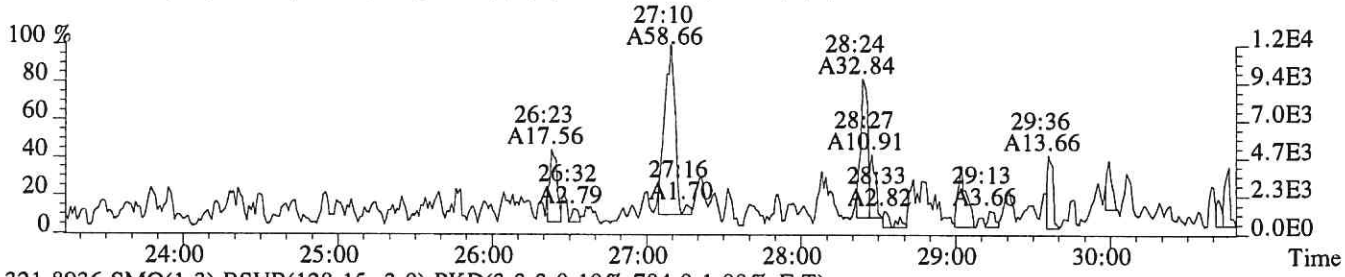


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

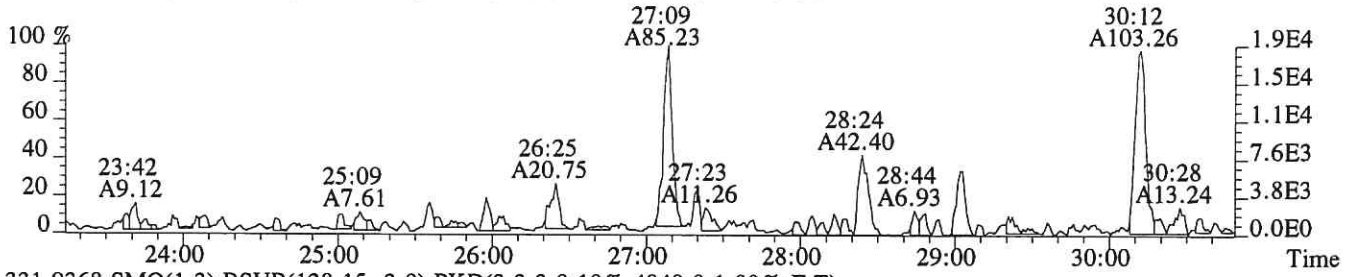


File:P519125 #1-538 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018

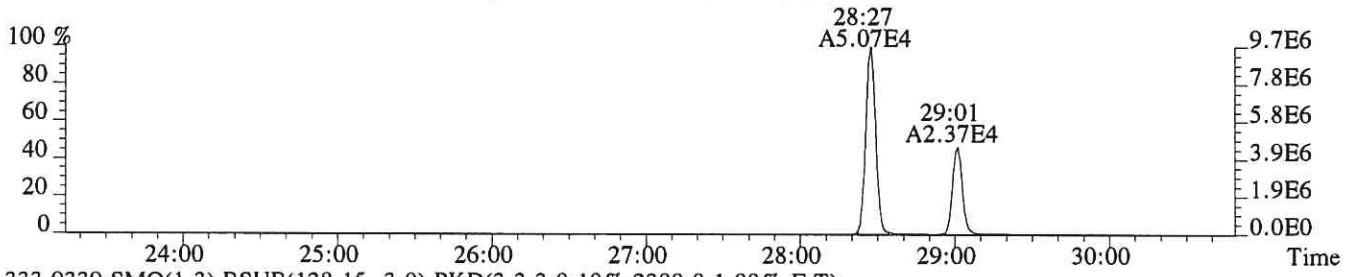
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



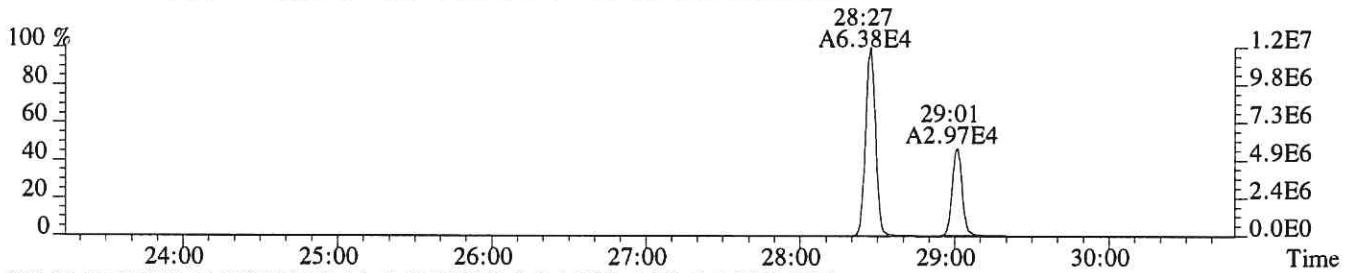
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



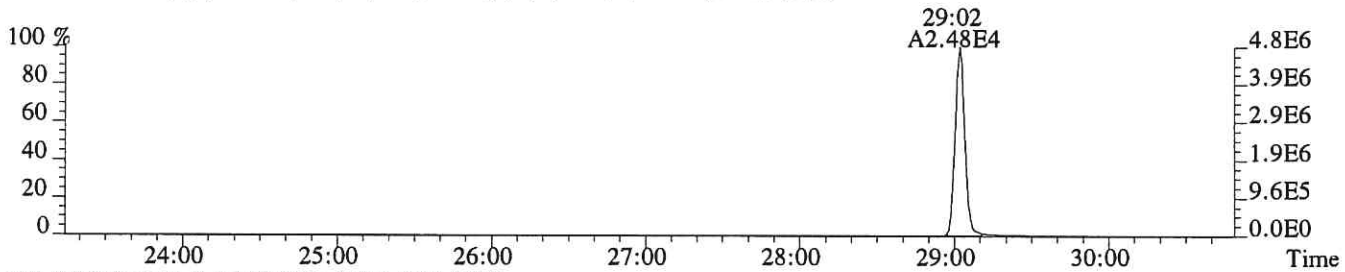
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4848.0,1.00%,F,T)



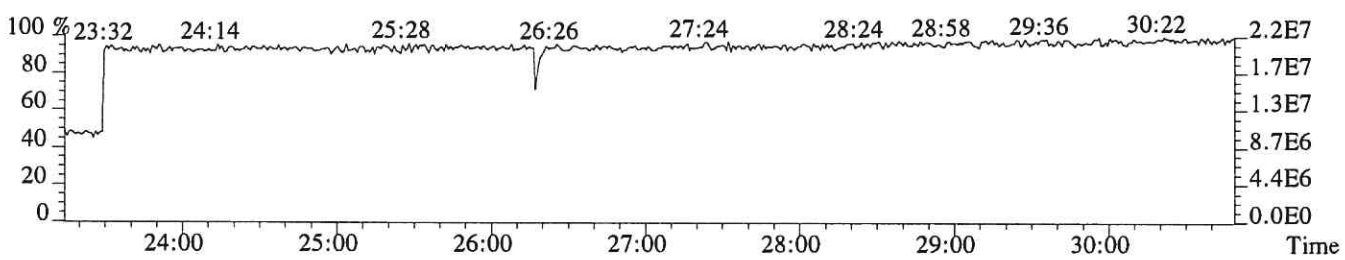
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2300.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)

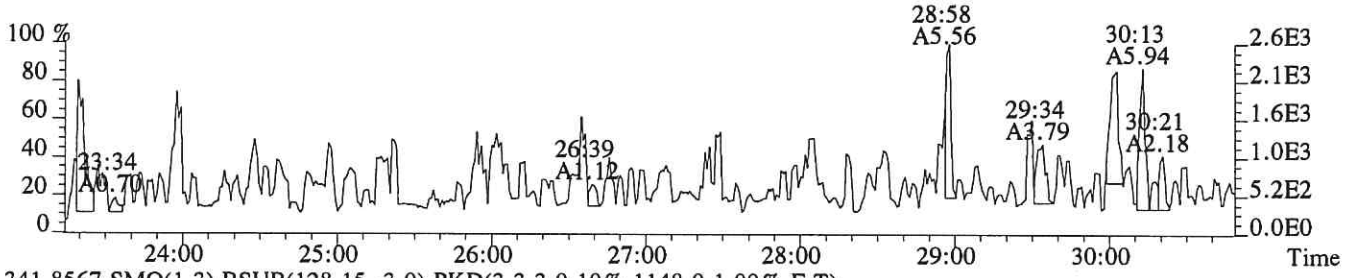


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

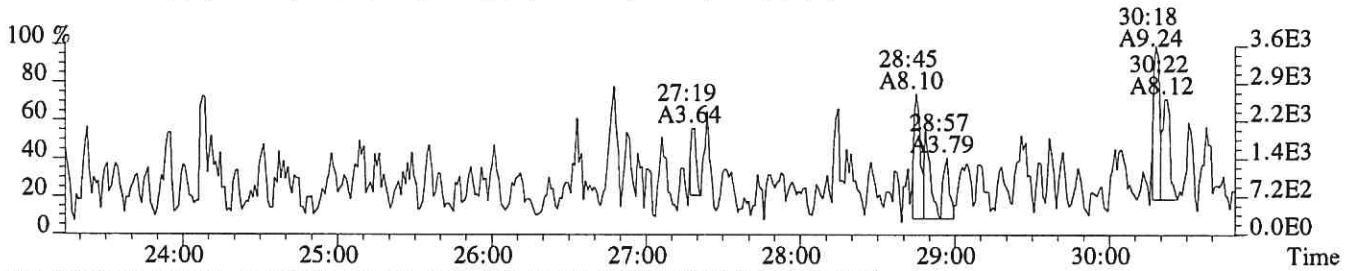


File:P519125 #1-538 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018

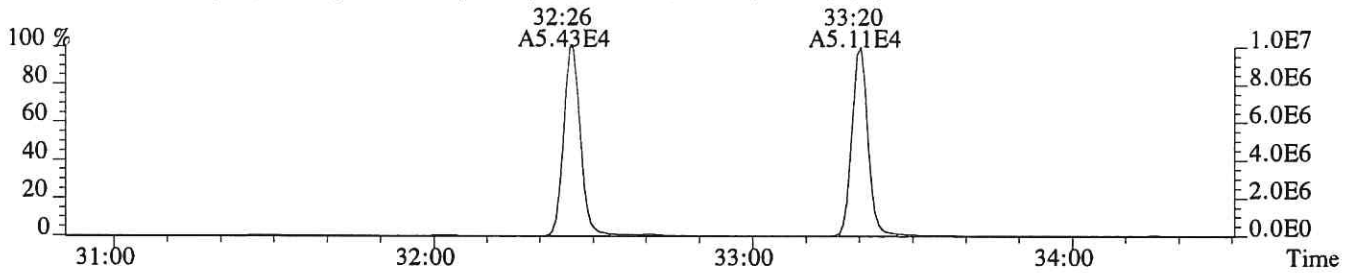
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



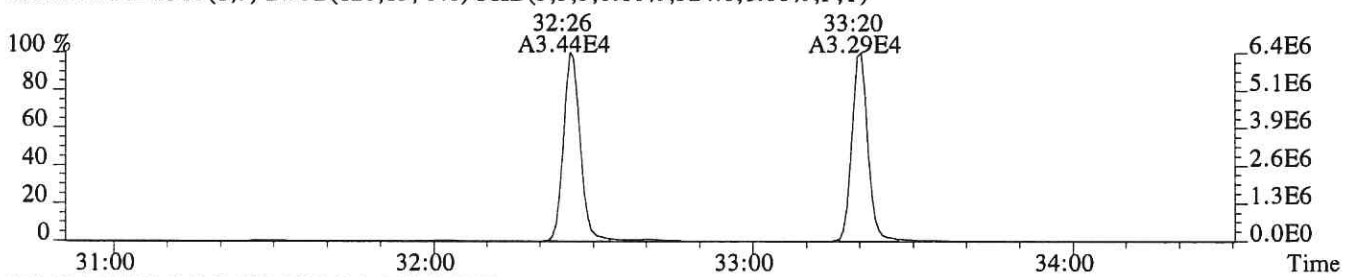
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



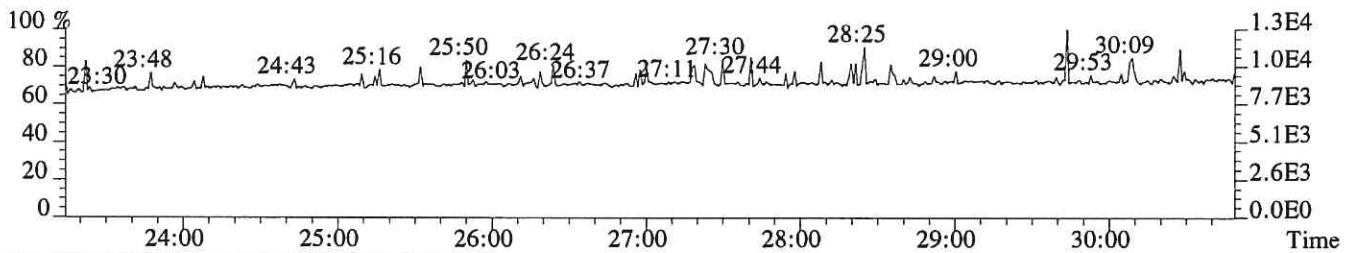
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



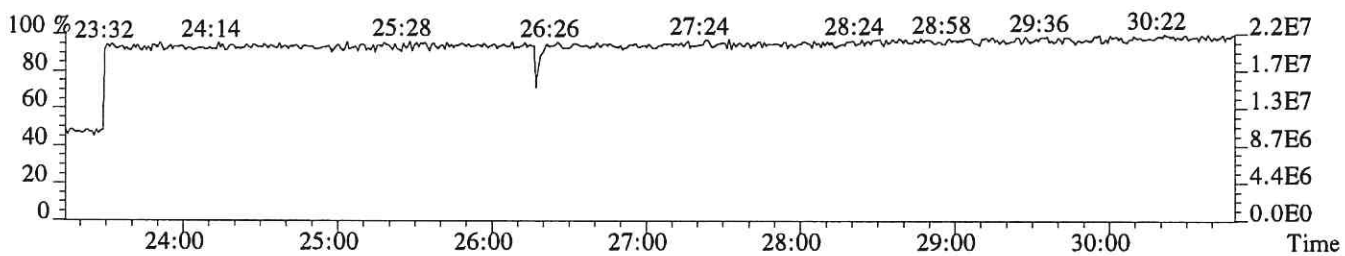
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



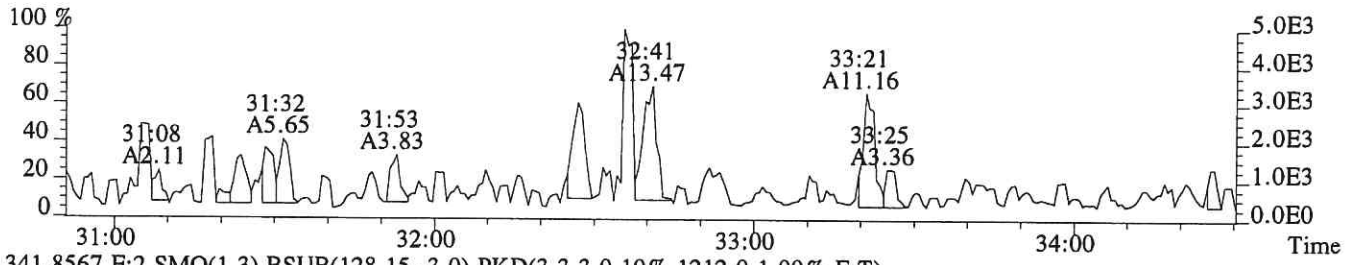
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



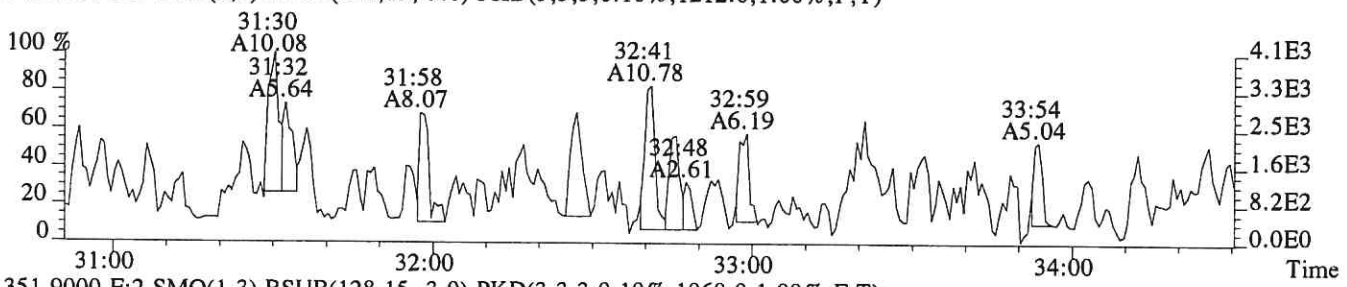
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



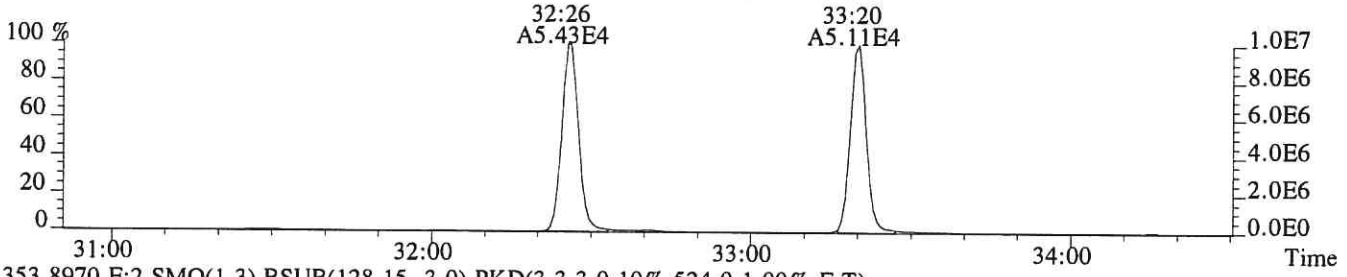
File:P519125 #1-330 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



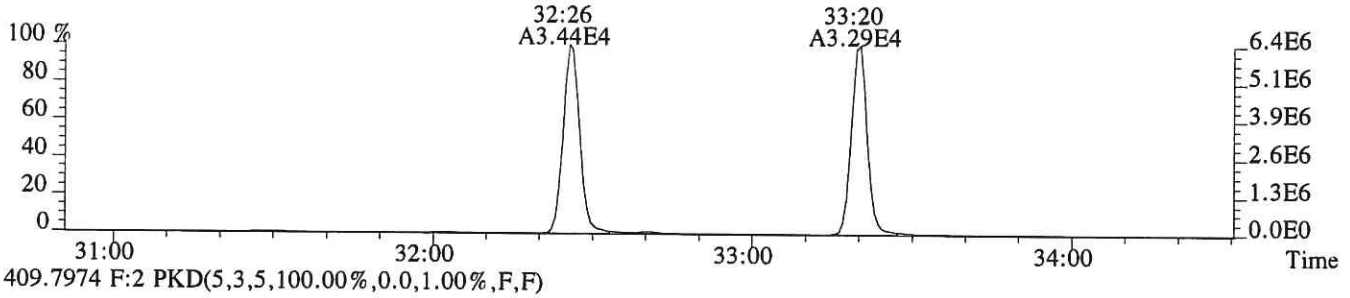
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



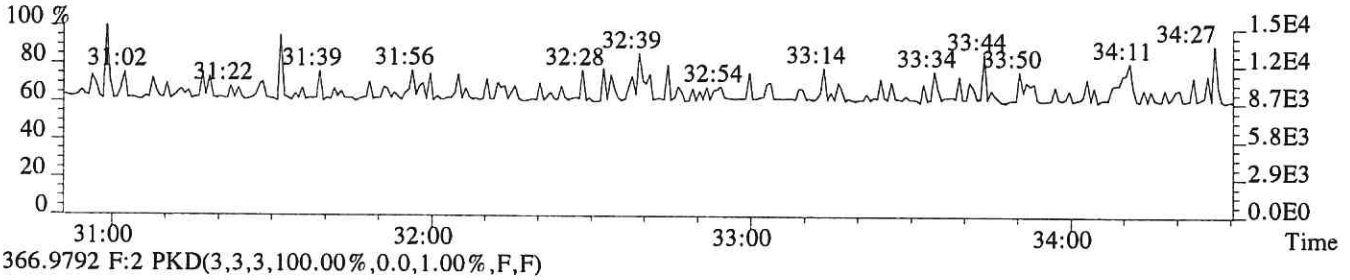
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



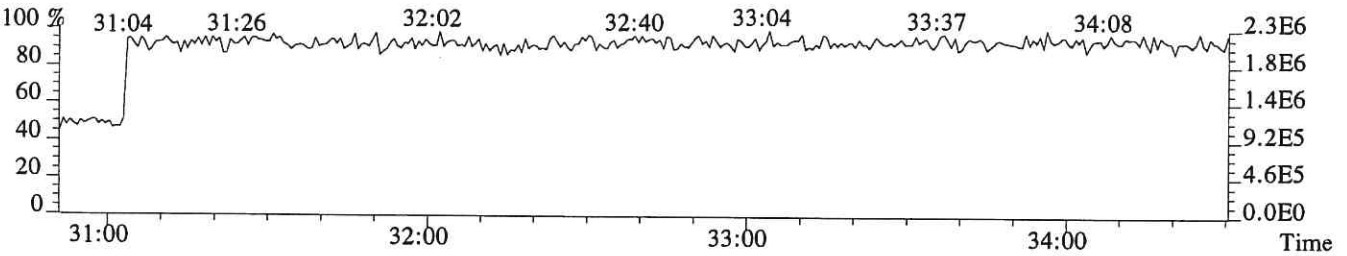
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



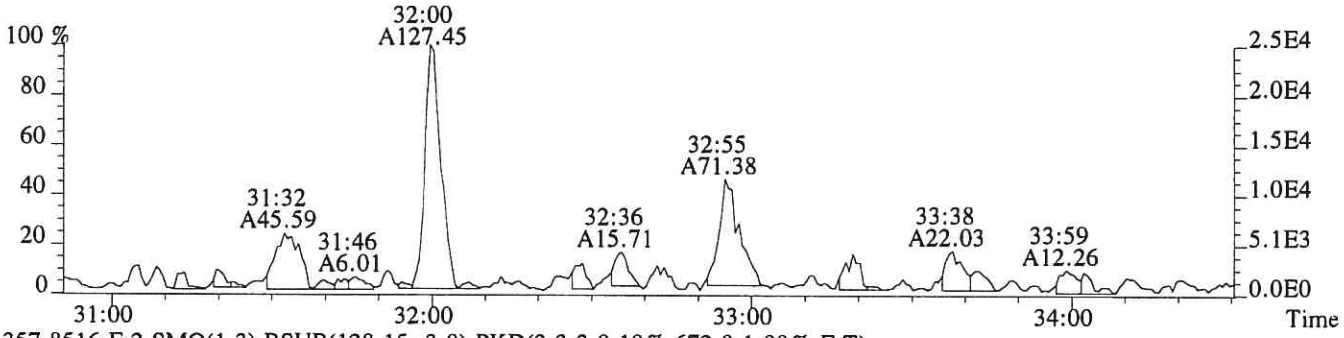
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



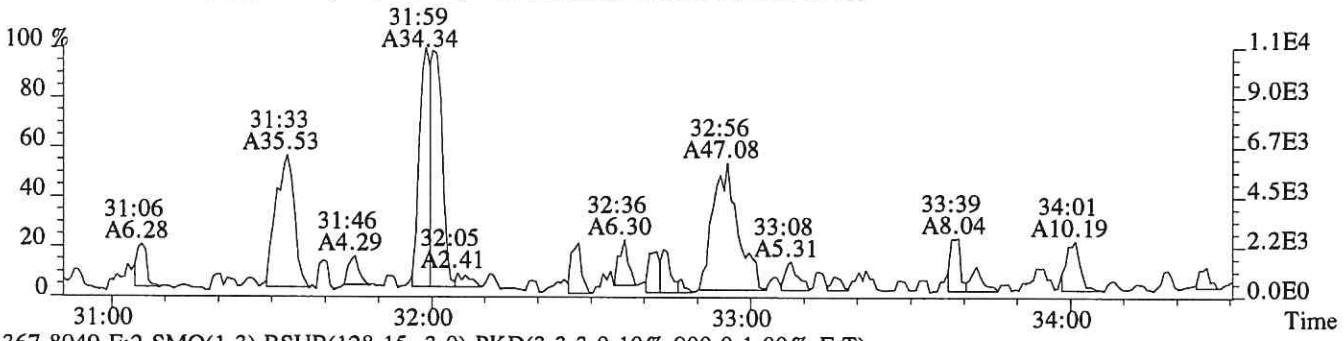
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



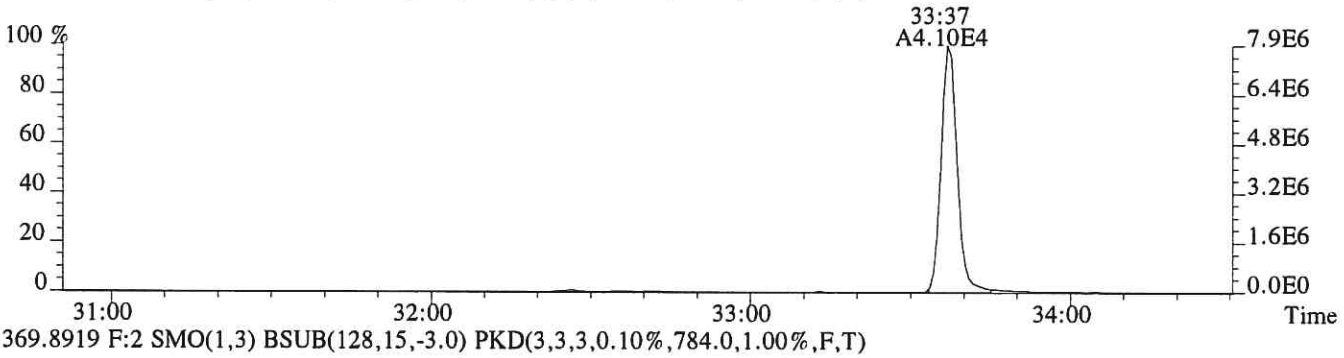
File:P519125 #1-330 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



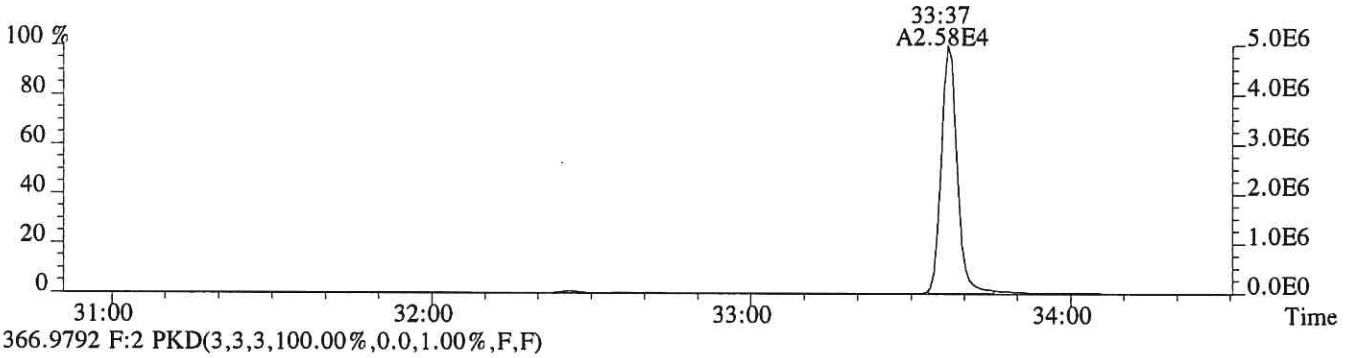
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



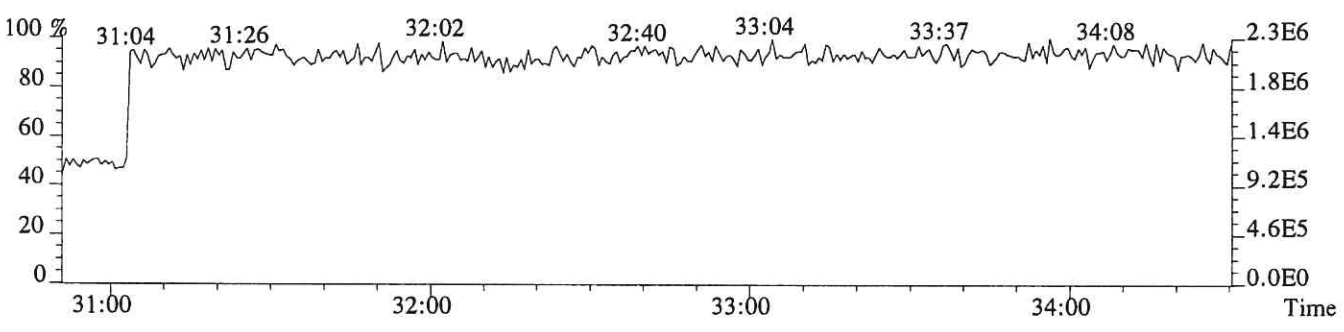
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



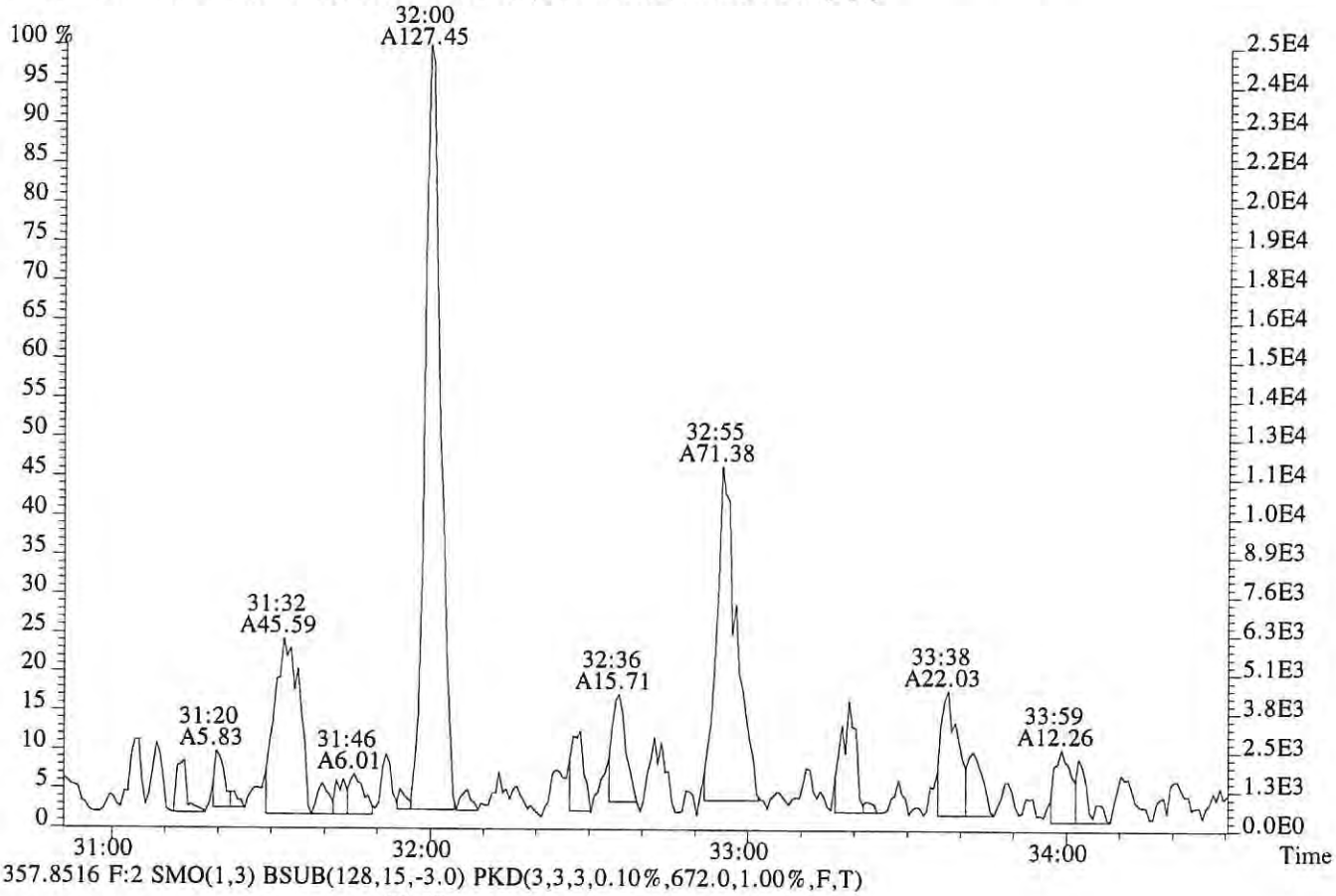
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



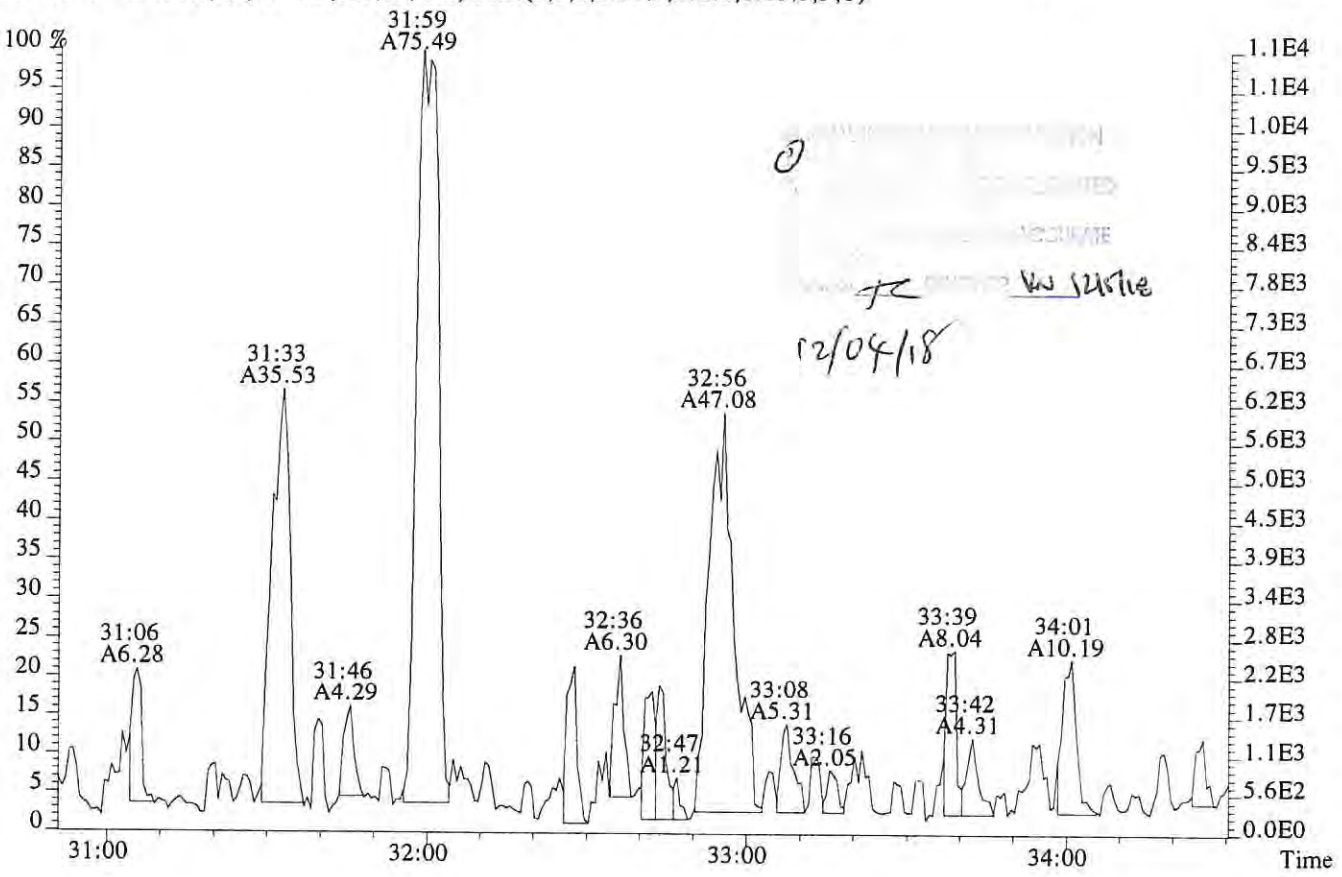
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519125 #1-330 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



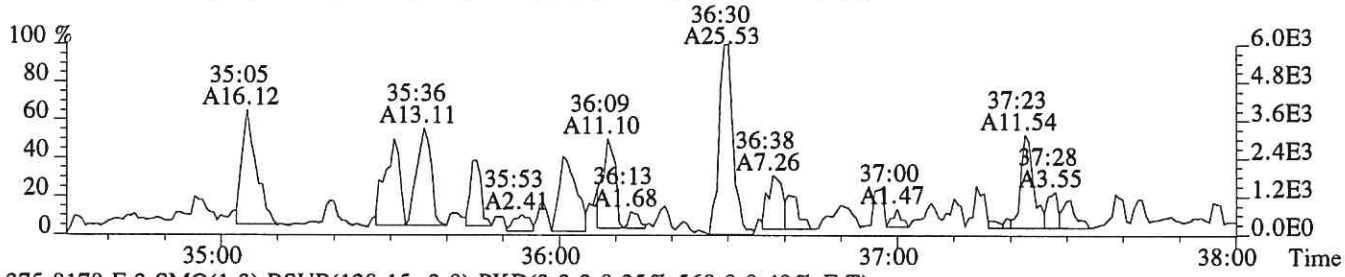
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



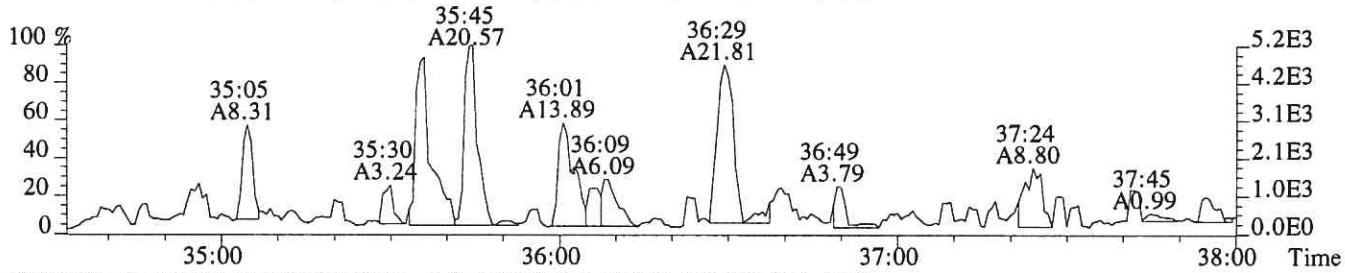
12/04/18

File:P519125 #1-312 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018

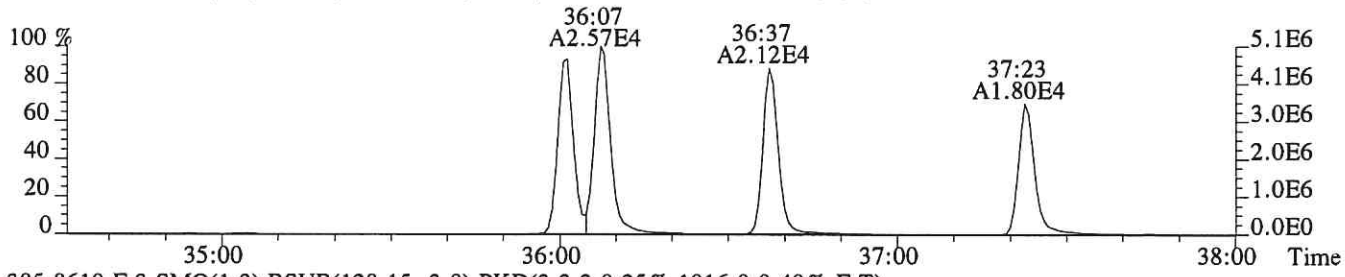
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



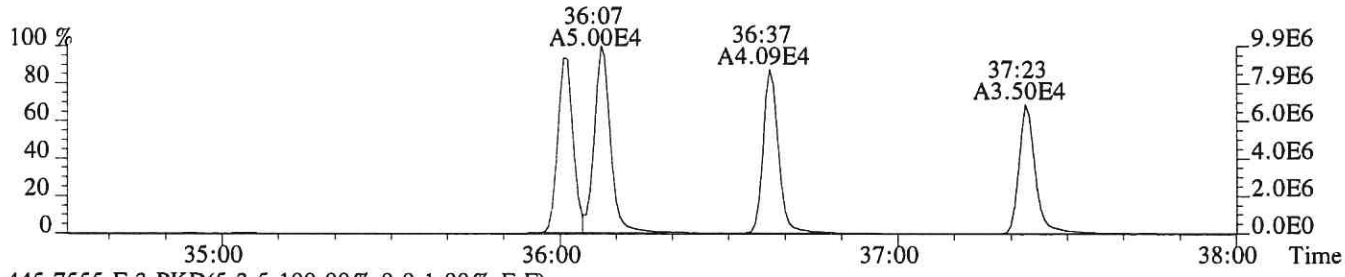
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



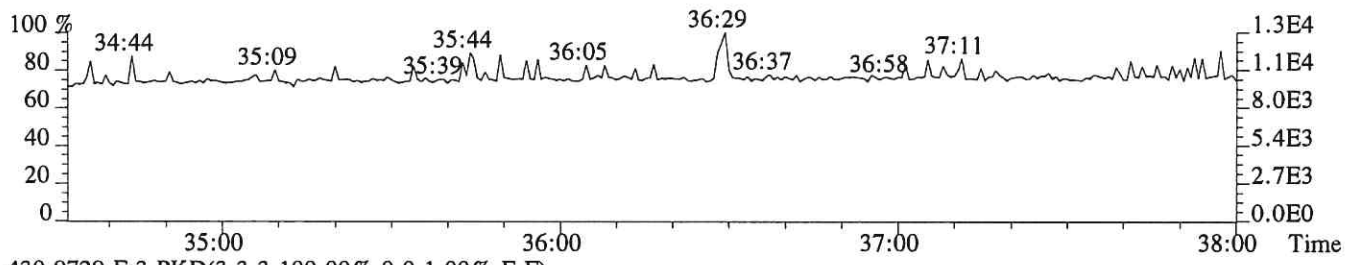
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



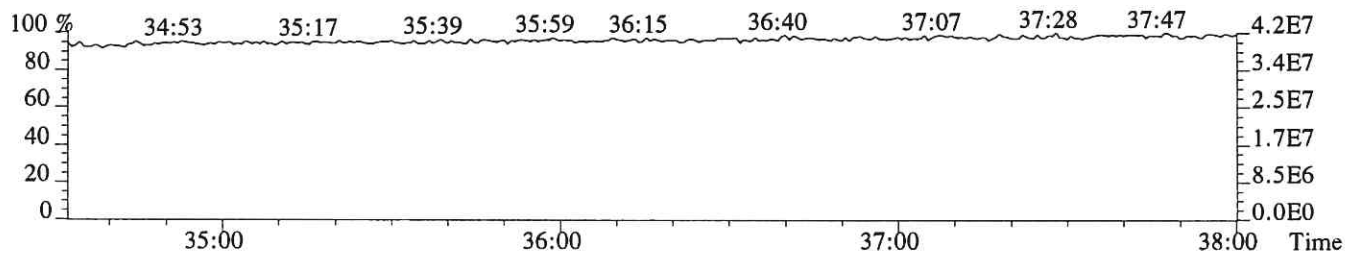
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



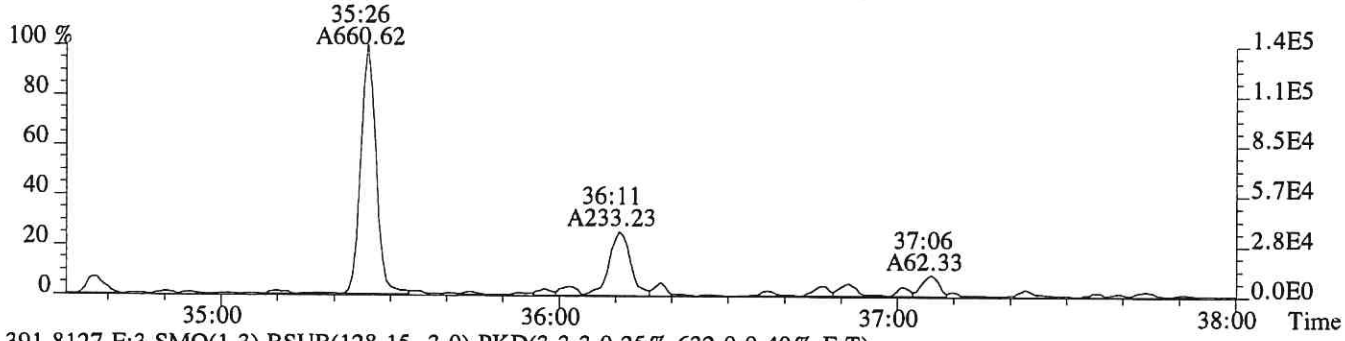
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



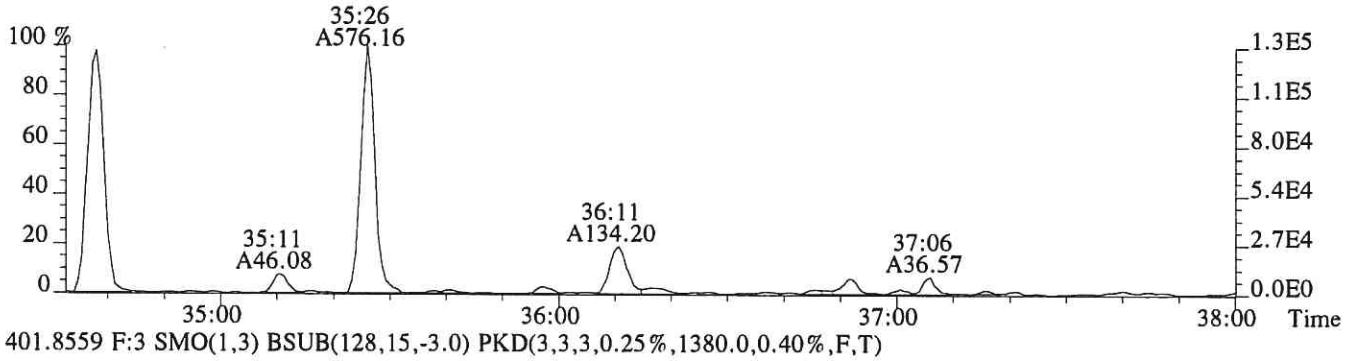
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



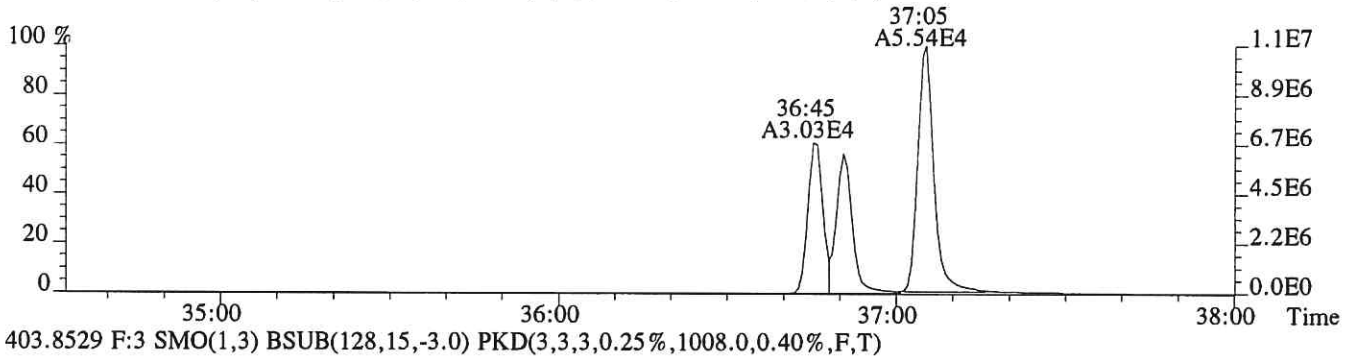
File:P519125 #1-312 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



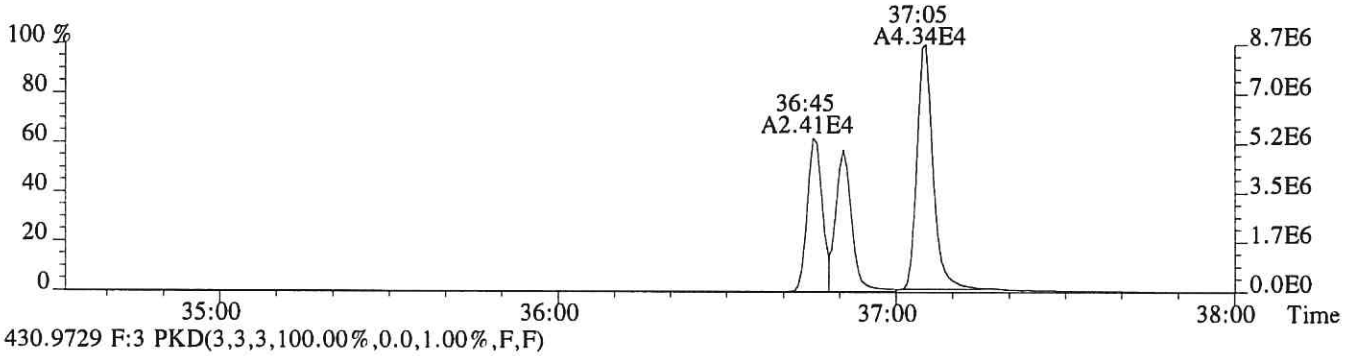
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



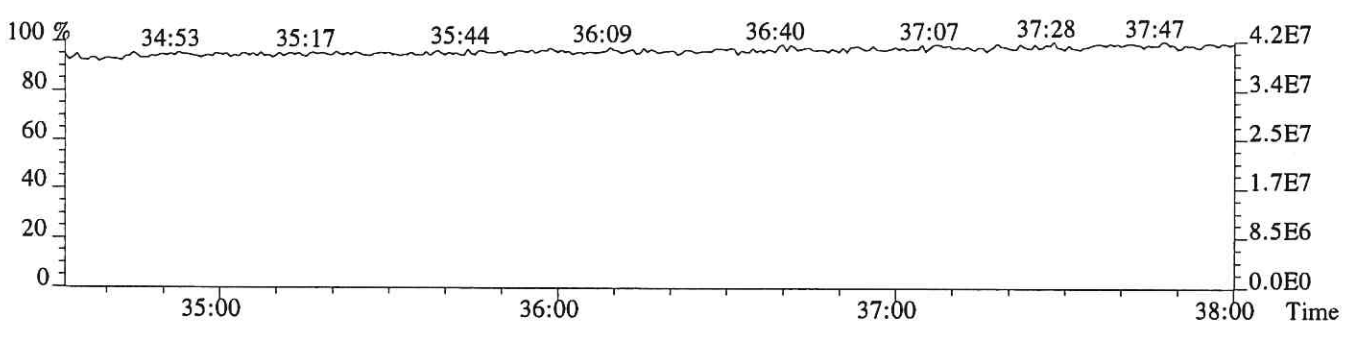
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)

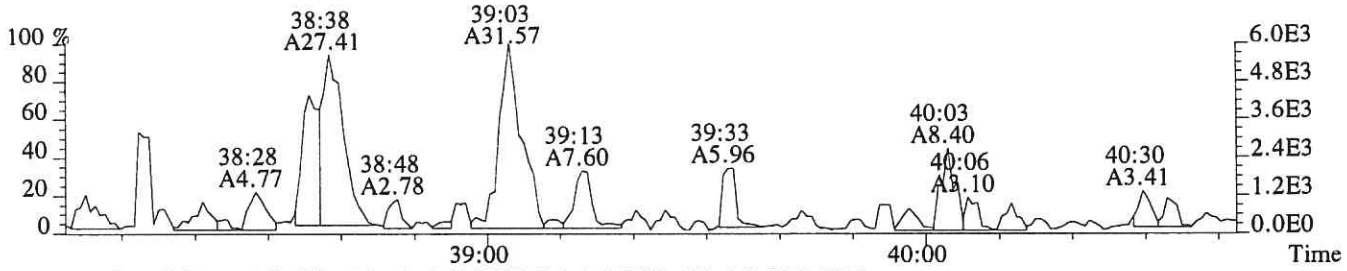


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

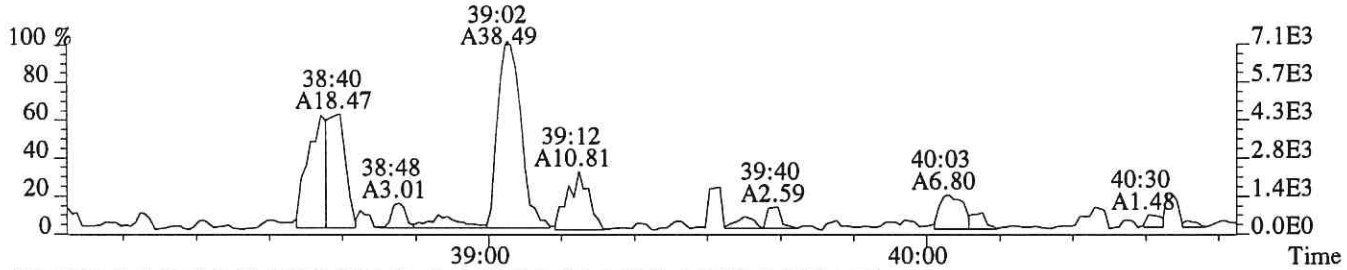


File:P519125 #1-241 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018

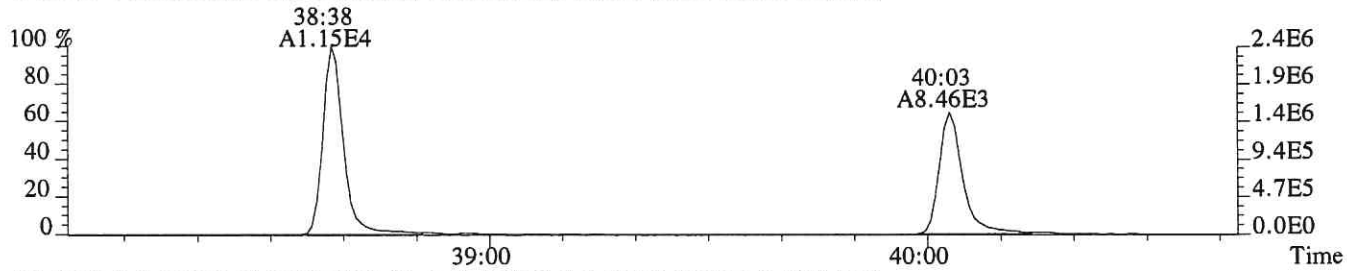
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.50%,F,T)



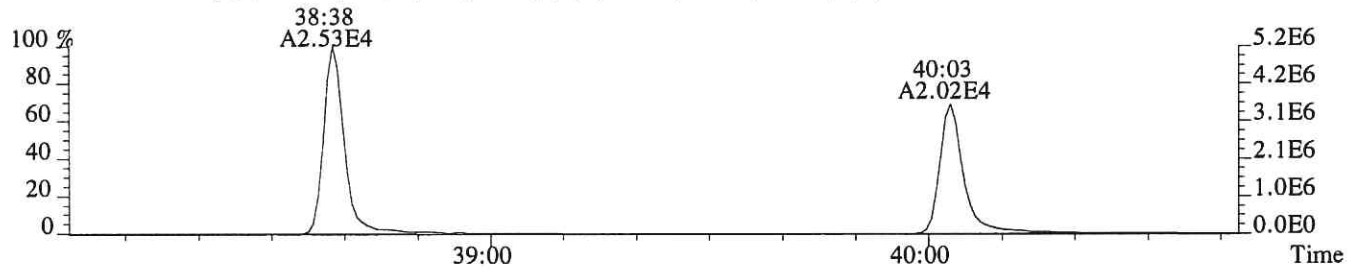
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.50%,F,T)



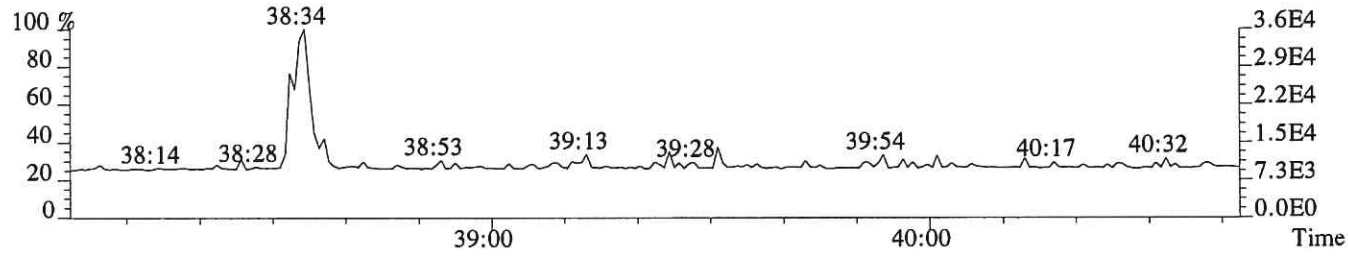
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.50%,F,T)



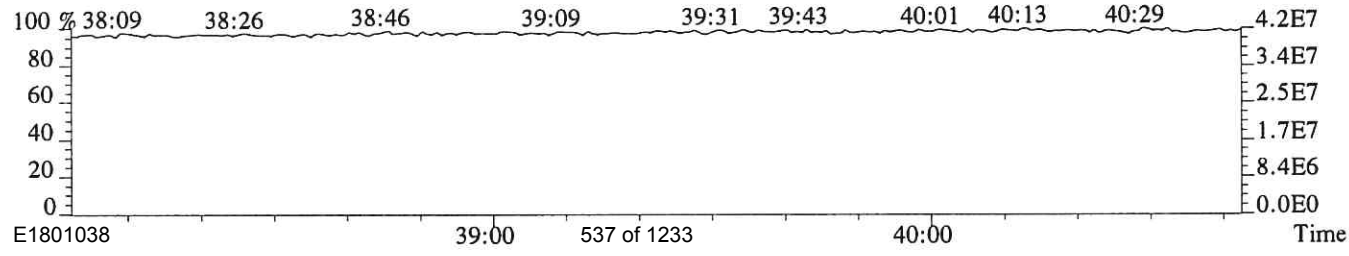
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3616.0,0.50%,F,T)



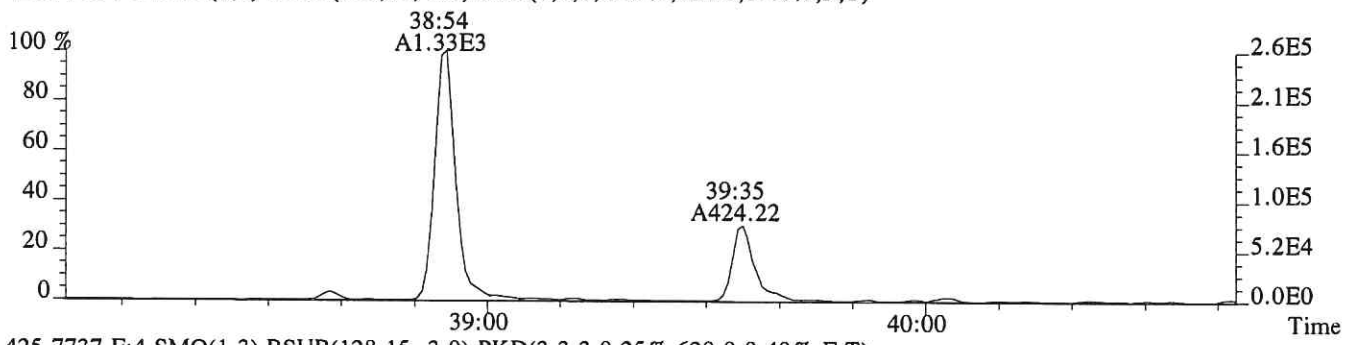
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



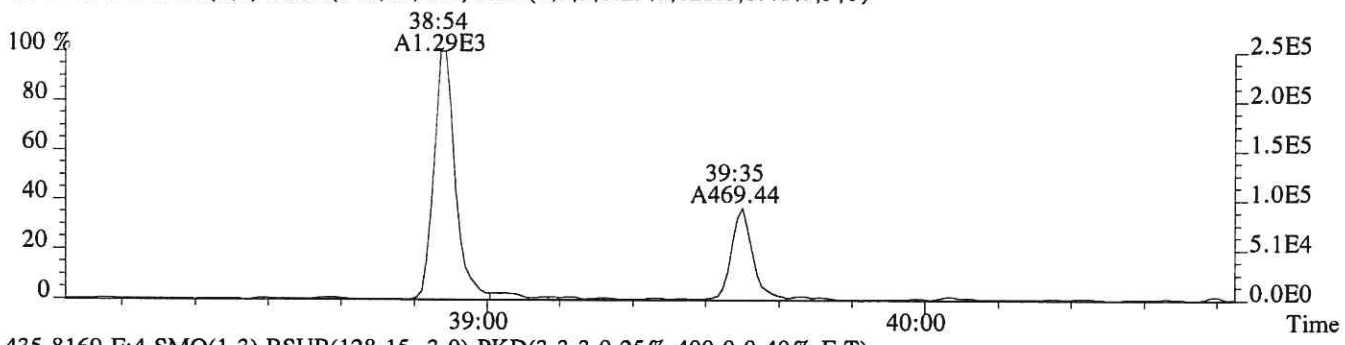
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



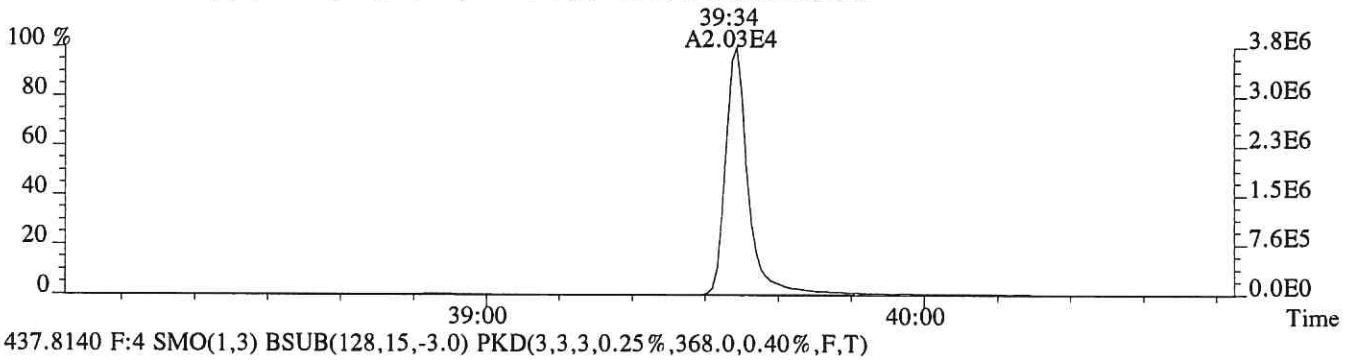
File:P519125 #1-241 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



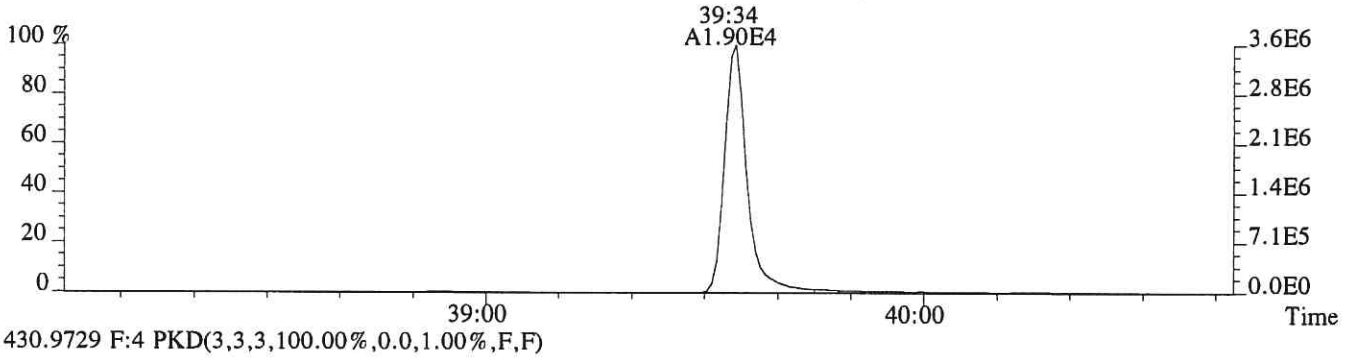
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



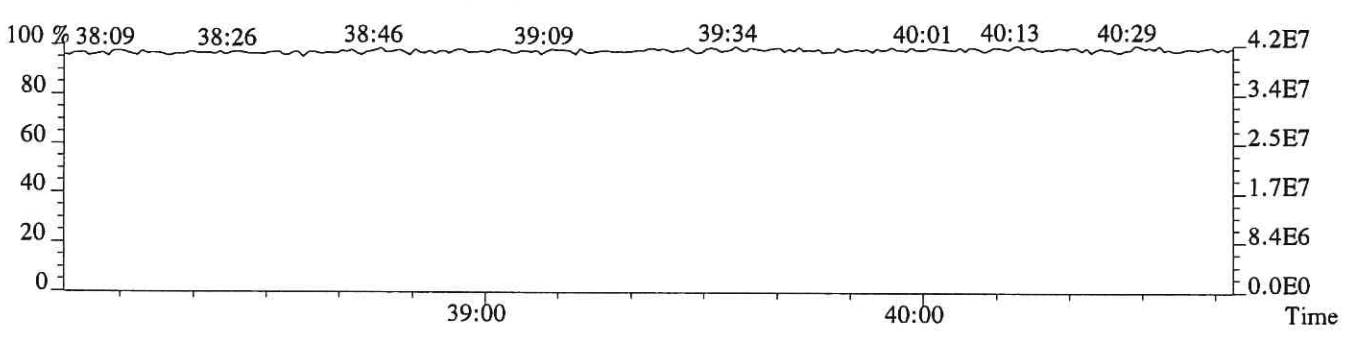
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



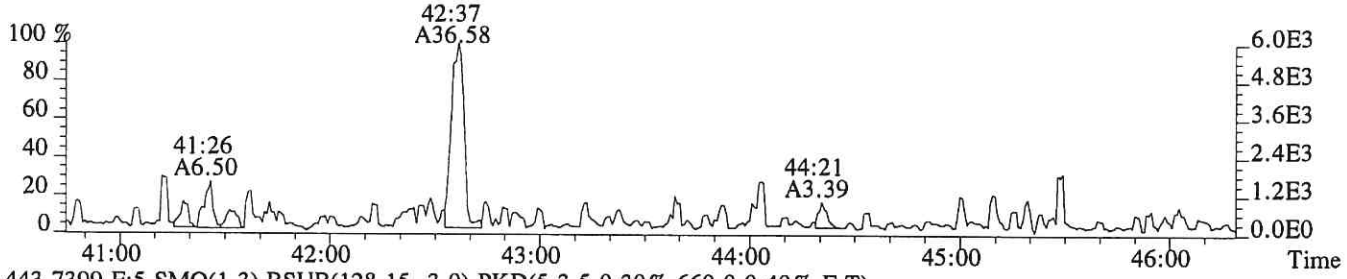
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



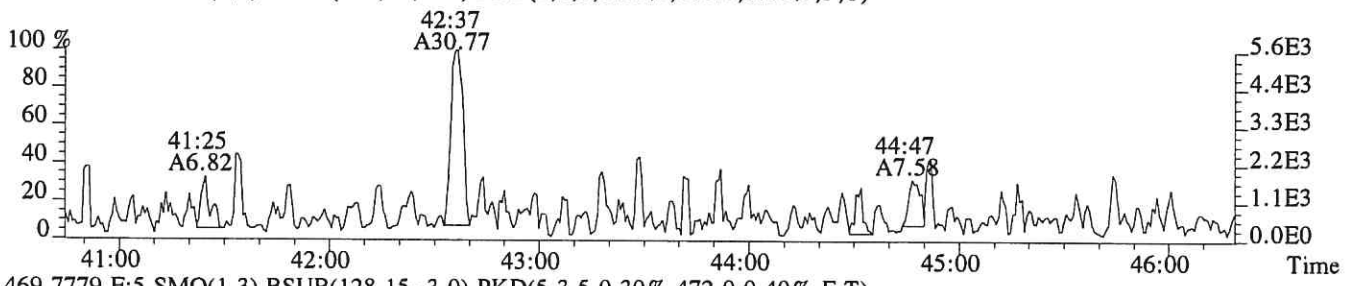
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



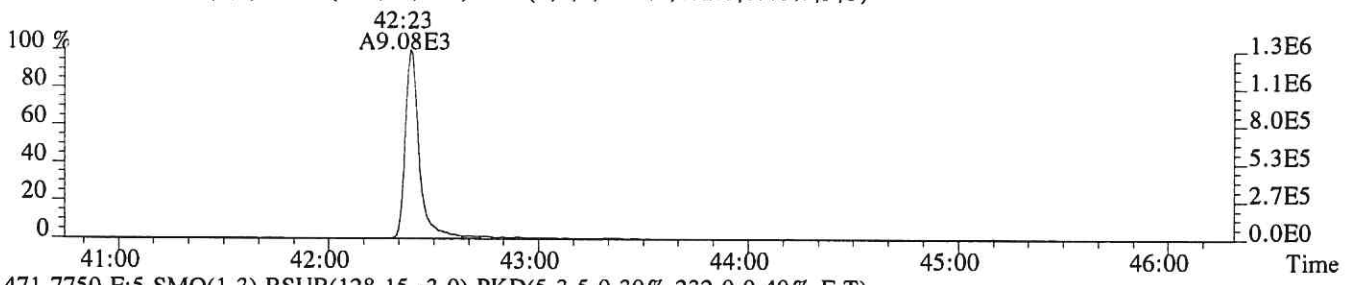
File:P519125 #1-502 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



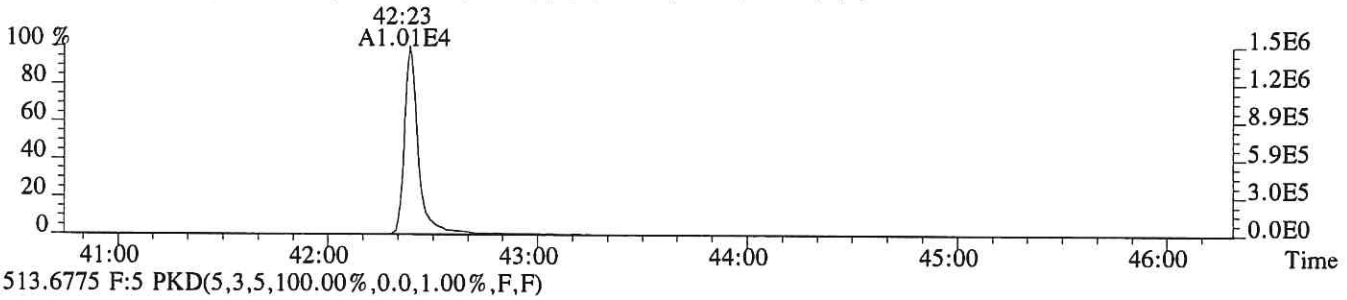
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



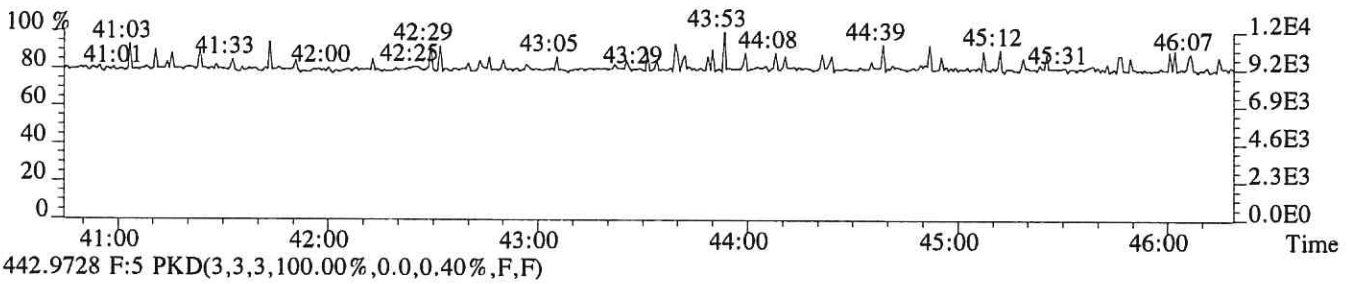
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



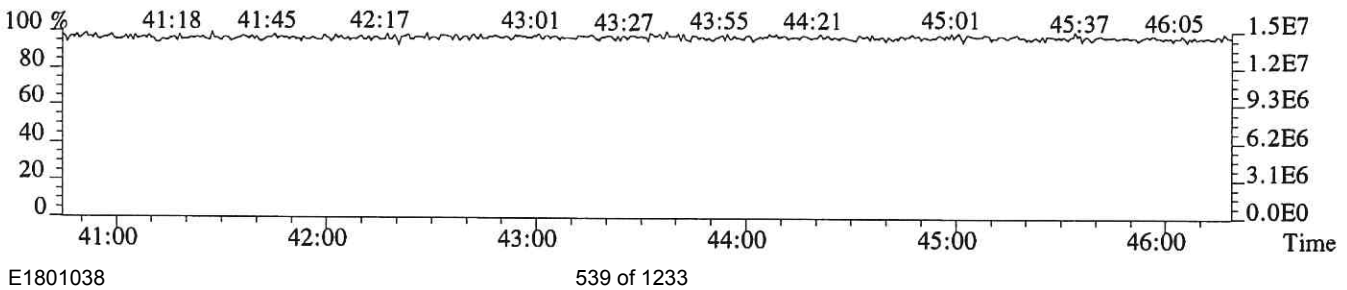
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



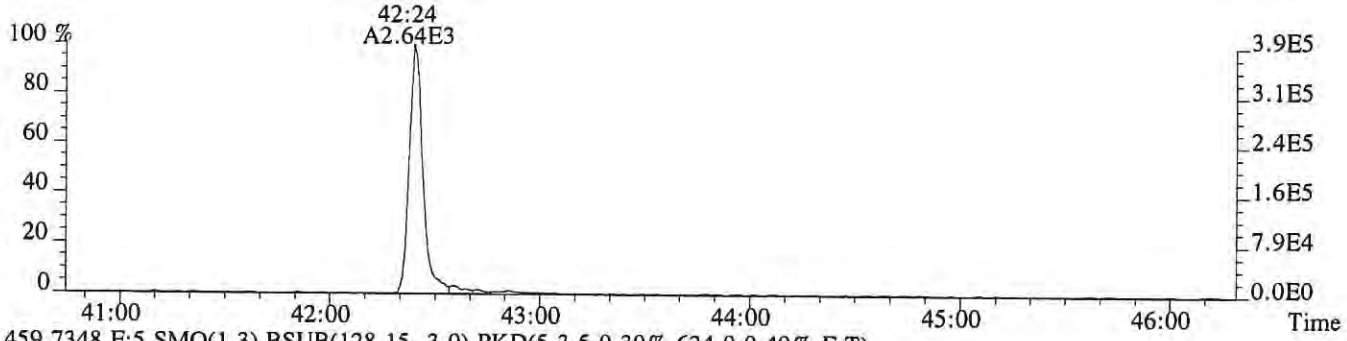
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



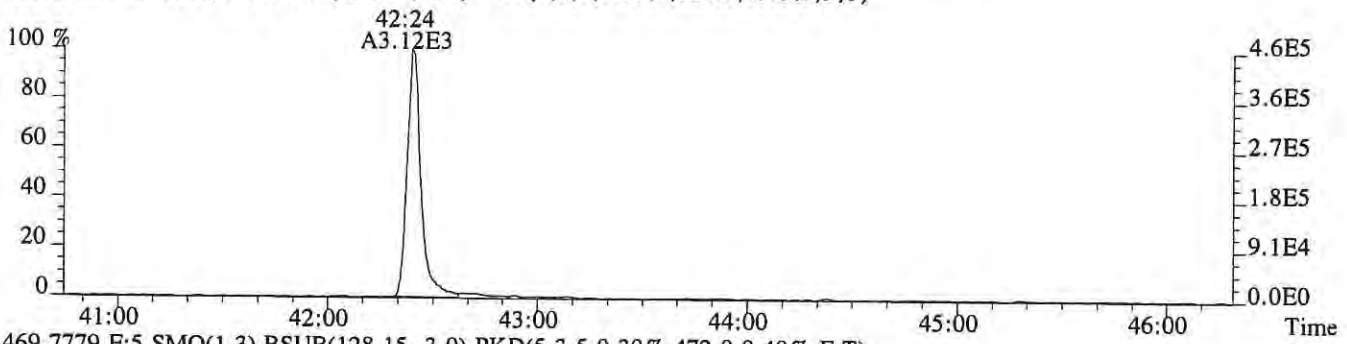
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



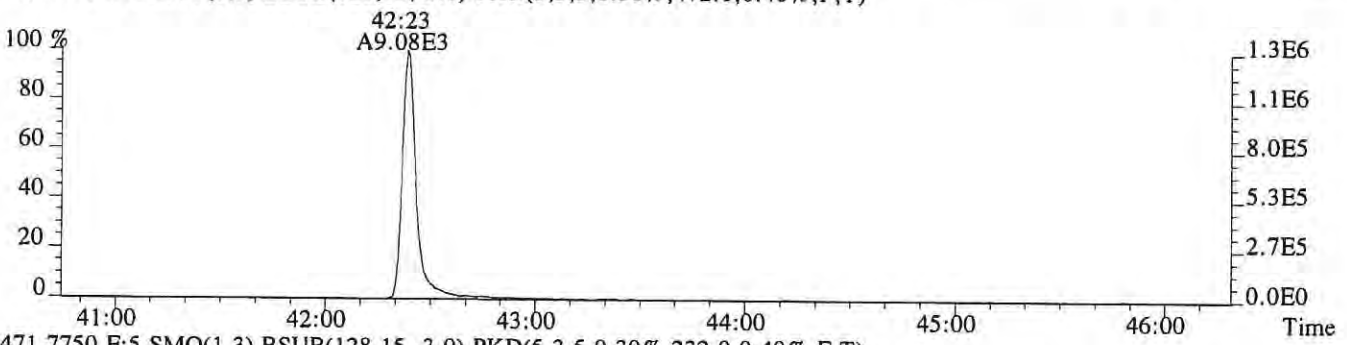
File:P519125 #1-502 Acq: 1-DEC-2018 22:52:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-018
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



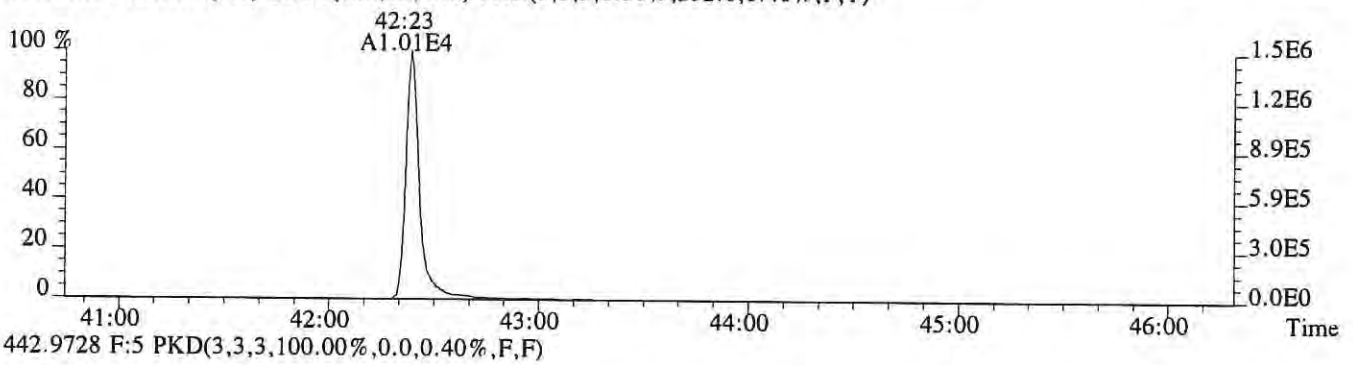
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



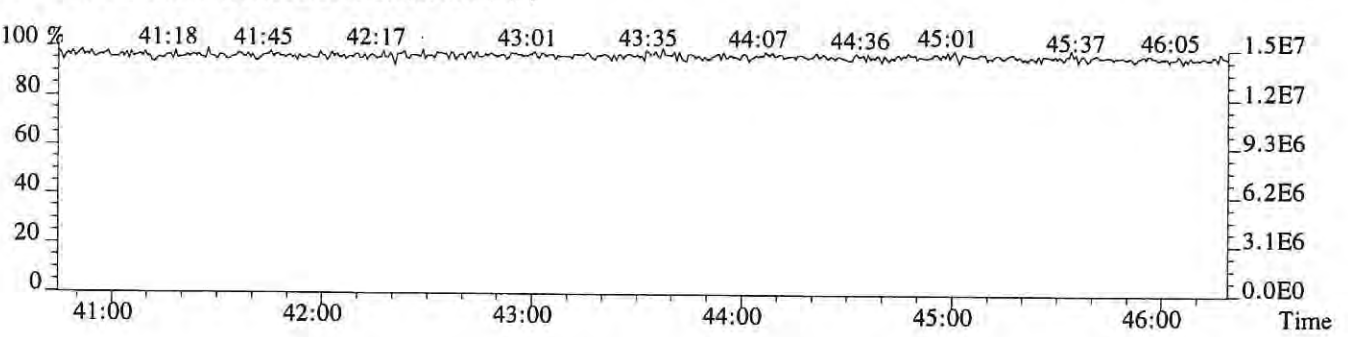
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0537

Run #15 Filename P519126 Samp: 1 Inj: 1 Acquired: 1-DEC-18 23:41:31
Processed: 4-DEC-18 18:32:11 Sample ID: E1801038-019

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	9.367e+00	4.310e+00	2.17	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.074e+01	9.422e+00	1.14	yes	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.010e+01	1.468e+01	0.69	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	7.405e+00	4.749e+00	1.56	no	no	1.258
10	Unk	OCDF	42:38	2.949e+01	3.821e+01	0.77	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.513e+01	1.347e+01	1.12	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:45	7.504e+00	1.075e+01	0.70	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	2.603e+01	1.004e+01	2.59	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	4.820e+01	3.358e+01	1.44	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.265e+02	2.733e+02	1.19	yes	no	1.025
17	Unk	OCDD	42:25	6.981e+03	7.793e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	2.901e+04	3.697e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.139e+04	3.296e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.969e+04	3.168e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.269e+04	4.373e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.662e+04	5.159e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.552e+04	4.882e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	2.167e+04	4.195e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.501e+04	3.488e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.200e+04	2.699e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	2.078e+04	2.621e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	3.863e+04	2.474e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	3.221e+04	2.504e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.364e+04	2.646e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.859e+04	2.644e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:24	2.033e+04	2.257e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.838e+04	6.139e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.241e+04	4.982e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.169e+04				no	1.014

$$OCDD = \frac{(6.981e+03 + 7.793e+03) \times 4000\ pg \times 1}{(2.033e+04 + 2.257e+04) \times 10.24\ g \times 83.0 / 100 \times 1.118} = 1.44\ ng/kg$$

6W 12/5/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0537

Run #15 Filename P519126 Samp: 1 Inj: 1 Acquired: 1-DEC-18 23:41:31
Processed: 4-DEC-18 18:32:11 LAB. ID: E1801038-019

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	7.64e+02	*	*	1.27e+03	*
2	1,2,3,7,8-PeCDF	*	5.52e+02	*	*	7.72e+02	*
3	2,3,4,7,8-PeCDF	*	5.52e+02	*	*	7.72e+02	*
4	1,2,3,4,7,8-HxCDF	*	5.84e+02	*	*	2.04e+02	*
5	1,2,3,6,7,8-HxCDF	*	5.84e+02	*	*	2.04e+02	*
6	2,3,4,6,7,8-HxCDF	2.79e+03	5.84e+02	4.8e+00	7.13e+02	2.04e+02	3.5e+00
7	1,2,3,7,8,9-HxCDF	2.44e+03	5.84e+02	4.2e+00	2.35e+03	2.04e+02	1.2e+01
8	1,2,3,4,6,7,8-HpCDF	2.31e+03	2.04e+02	1.1e+01	2.84e+03	3.04e+02	9.3e+00
9	1,2,3,4,7,8,9-HpCDF	1.76e+03	2.04e+02	8.6e+00	9.83e+02	3.04e+02	3.2e+00
10	OCDF	4.24e+03	2.84e+02	1.5e+01	1.03e+04	9.36e+02	1.1e+01
11	2,3,7,8-TCDD	*	1.45e+03	*	*	8.84e+02	*
12	1,2,3,7,8-PeCDD	2.86e+03	6.12e+02	4.7e+00	2.38e+03	3.40e+02	7.0e+00
13	1,2,3,4,7,8-HxCDD	1.78e+03	4.60e+02	3.9e+00	2.31e+03	7.00e+02	3.3e+00
14	1,2,3,6,7,8-HxCDD	6.00e+03	4.60e+02	1.3e+01	2.65e+03	7.00e+02	3.8e+00
15	1,2,3,7,8,9-HxCDD	1.07e+04	4.60e+02	2.3e+01	8.00e+03	7.00e+02	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	6.83e+04	6.84e+02	1.0e+02	5.23e+04	2.16e+02	2.4e+02
17	OCDD	1.05e+06	3.36e+02	3.1e+03	1.15e+06	7.00e+02	1.6e+03
18	13C-2,3,7,8-TCDF	5.21e+06	4.02e+03	1.3e+03	6.61e+06	1.28e+03	5.1e+03
19	13C-1,2,3,7,8-PeCDF	9.48e+06	4.04e+02	2.3e+04	6.04e+06	7.12e+02	8.5e+03
20	13C-2,3,4,7,8-PeCDF	9.52e+06	4.04e+02	2.4e+04	6.08e+06	7.12e+02	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.75e+06	5.24e+02	9.1e+03	9.28e+06	1.26e+03	7.3e+03
22	13C-1,2,3,6,7,8-HxCDF	5.29e+06	5.24e+02	1.0e+04	1.03e+07	1.26e+03	8.2e+03
23	13C-2,3,4,6,7,8-HxCDF	5.36e+06	5.24e+02	1.0e+04	1.03e+07	1.26e+03	8.1e+03
24	13C-1,2,3,7,8,9-HxCDF	4.11e+06	5.24e+02	7.8e+03	8.01e+06	1.26e+03	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.04e+06	3.62e+03	8.4e+02	7.00e+06	2.76e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.07e+06	3.62e+03	5.7e+02	4.75e+06	2.76e+03	1.7e+03
27	13C-2,3,7,8-TCDD	3.94e+06	6.05e+03	6.5e+02	4.90e+06	2.02e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	7.41e+06	6.32e+02	1.2e+04	4.78e+06	6.00e+02	8.0e+03
29	13C-1,2,3,4,7,8-HxCDD	7.19e+06	1.90e+03	3.8e+03	5.59e+06	8.72e+02	6.4e+03
30	13C-1,2,3,6,7,8-HxCDD	6.62e+06	1.90e+03	3.5e+03	5.28e+06	8.72e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.38e+06	5.20e+02	1.0e+04	4.92e+06	4.32e+02	1.1e+04
32	13C-OCDD	3.02e+06	5.60e+02	5.4e+03	3.28e+06	6.32e+02	5.2e+03
33	13C-1,2,3,4-TCDD	9.41e+06	6.05e+03	1.6e+03	1.18e+07	2.02e+03	5.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.18e+07	1.90e+03	6.2e+03	9.33e+06	8.72e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	4.14e+06	1.79e+03	2.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.452e+03 + 8.840e+02) \times 2000}{(3.938e+06 + 4.898e+06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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Office:(281)530-5656. Fax:(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0537

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519126 Sample:1 Injection:1 Function:2

Acquired: 1-DEC-18 23:41:31 Processed: 4-DEC-18 18:32:11

Mass: 355.8550 357.8520 Tot Response: 2.06e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	1.18e+01	8.81e+00 1.34	yes	2.06e+01		n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0537

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519126 Sample:1 Injection:1 Function:3

Acquired: 1-DEC-18 23:41:31 Processed: 4-DEC-18 18:32:11

Mass: 373.8210 375.8180 Tot Response: 2.02e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:25	1.07e+01	9.42e+00 1.14	yes	2.02e+01	1,2,3,7,8,9-HxCDF	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SL0537

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519126 Sample:1 Injection:1 Function:3

Acquired: 1-DEC-18 23:41:31 Processed: 4-DEC-18 18:32:11

Mass: 389.8160 391.8130 Tot Response: 4.55e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	2.42e+02	1.80e+02 1.35	yes	4.22e+02		n	n
2	36:01	1.92e+01	1.42e+01 1.35	yes	3.33e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SL0537

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519126 Sample:1 Injection:1 Function:4

Acquired: 1-DEC-18 23:41:31 Processed: 4-DEC-18 18:32:11

Mass: 423.7770 425.7740 Tot Response: 2.53e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	9.70e+02	9.63e+02 1.01	yes	1.93e+03		n	n
2	39:35	3.26e+02	2.73e+02 1.19	yes	6.00e+02	1,2,3,4,6,7,8-HpCDD	n	n

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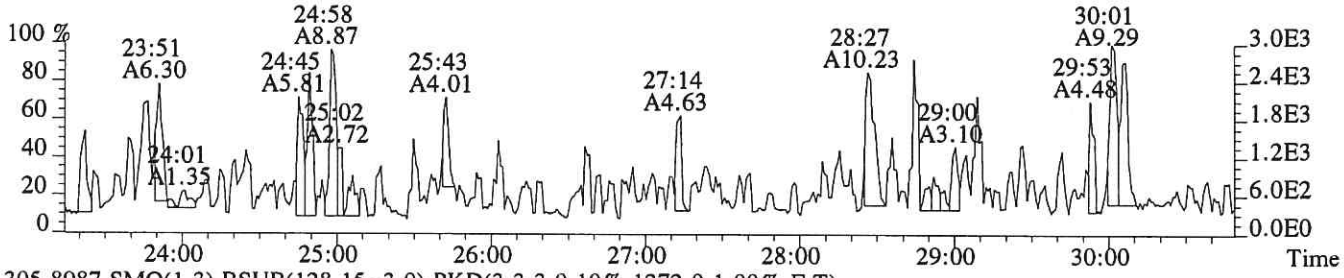
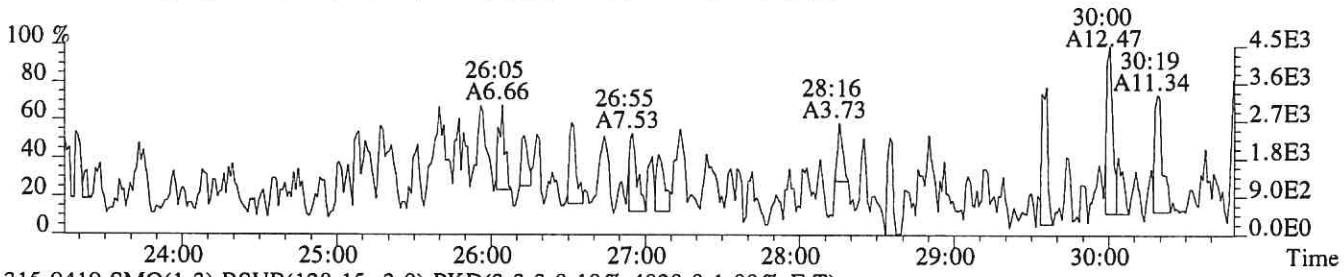
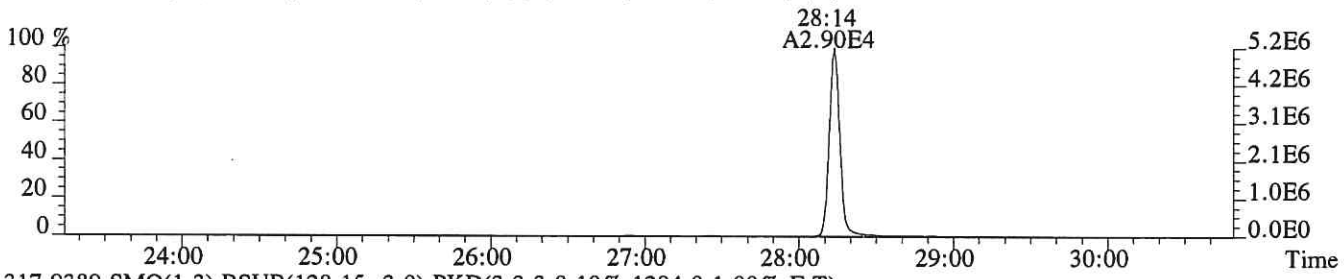
File:P519126 #1-538 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



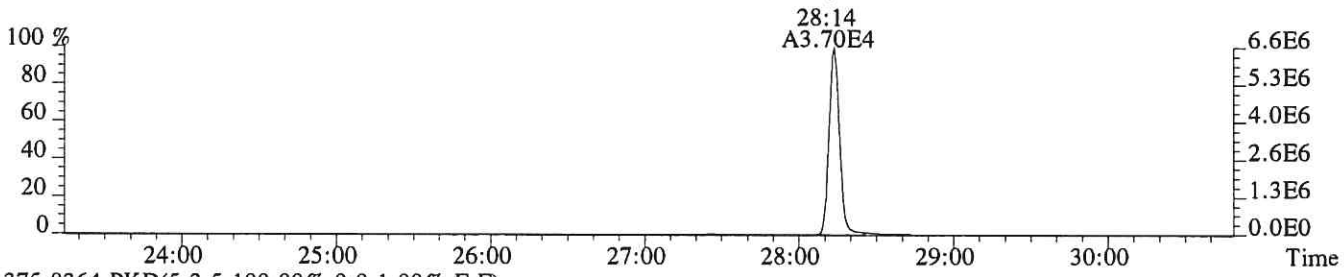
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



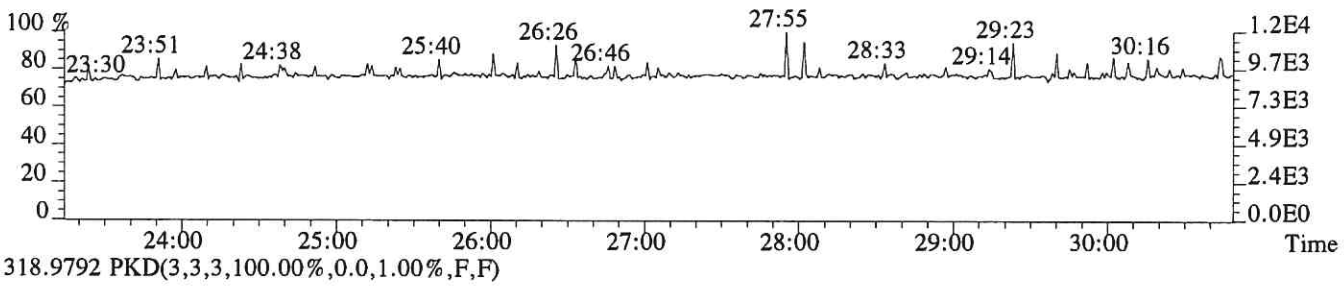
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4020.0,1.00%,F,T)



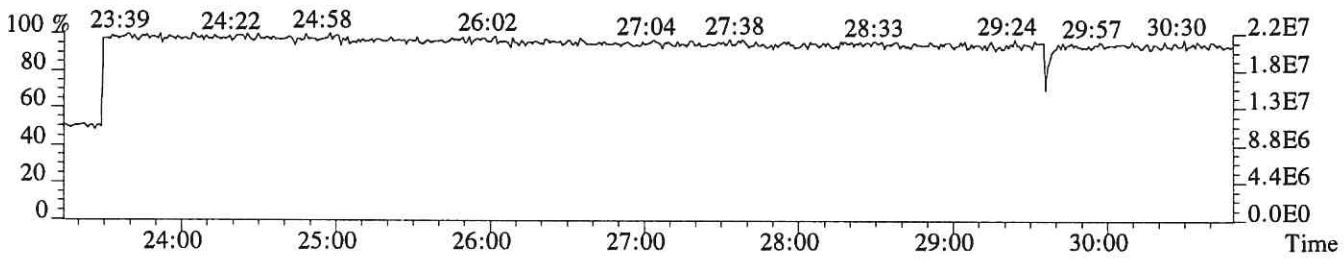
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



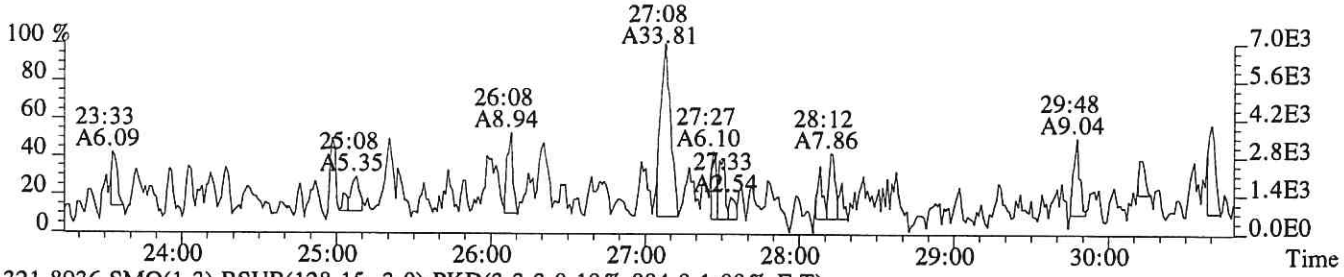
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



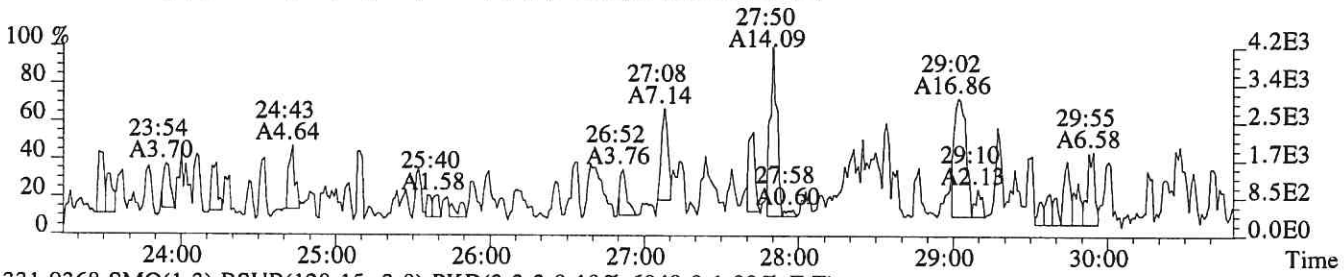
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



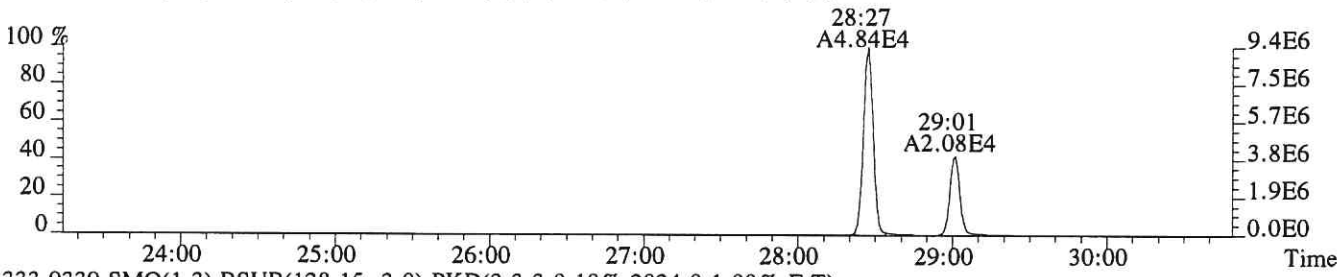
File:P519126 #1-538 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



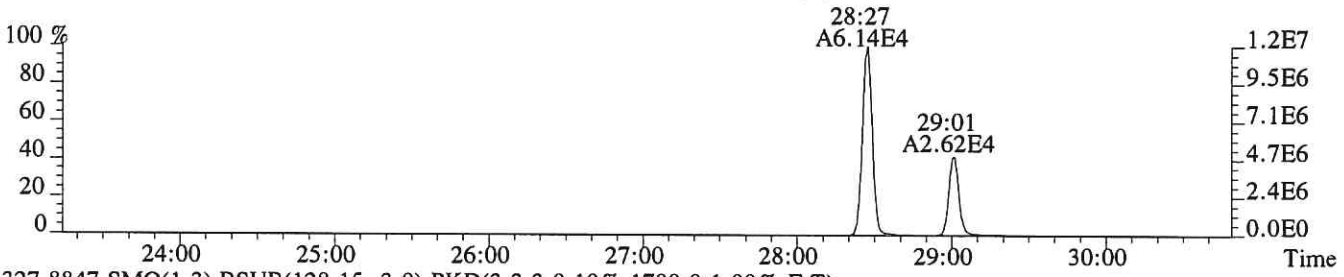
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



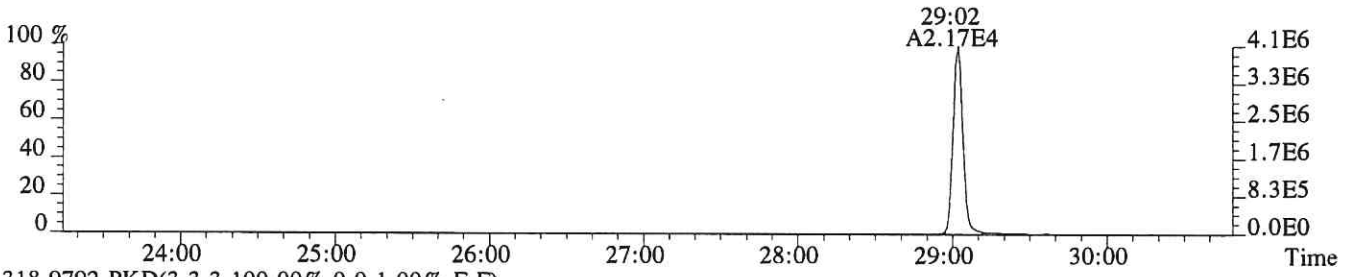
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6048.0,1.00%,F,T)



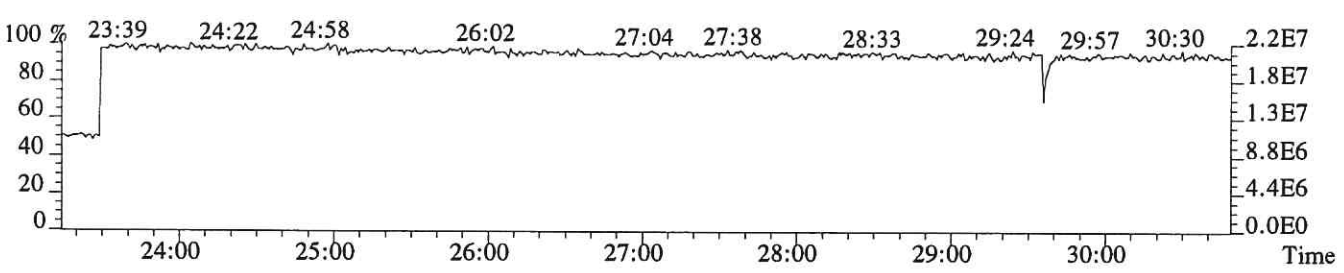
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



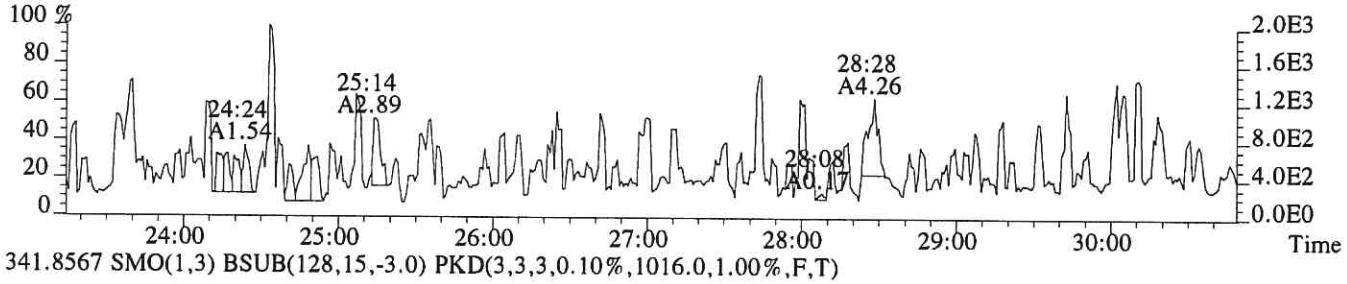
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



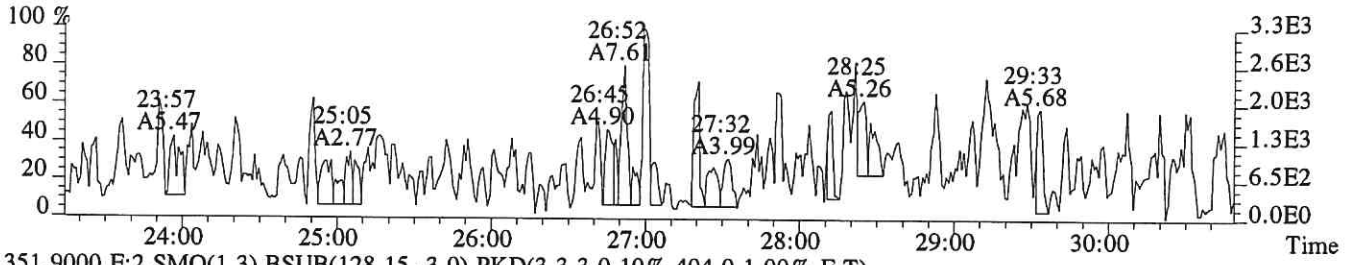
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



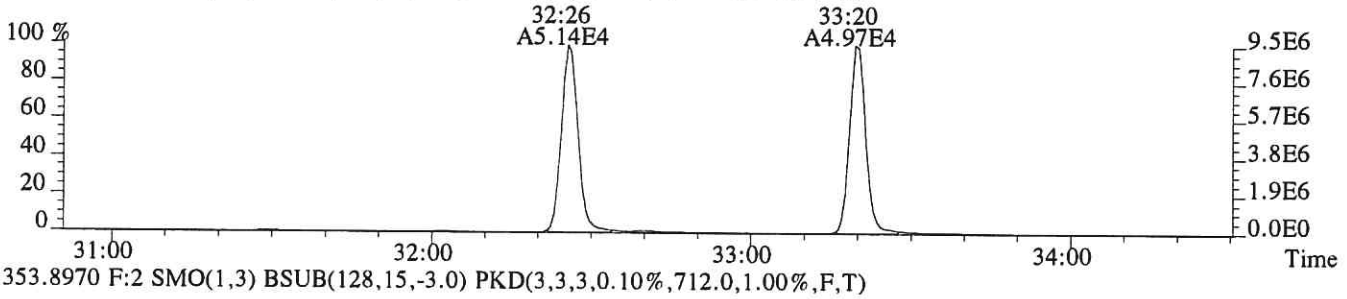
File:P519126 #1-538 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



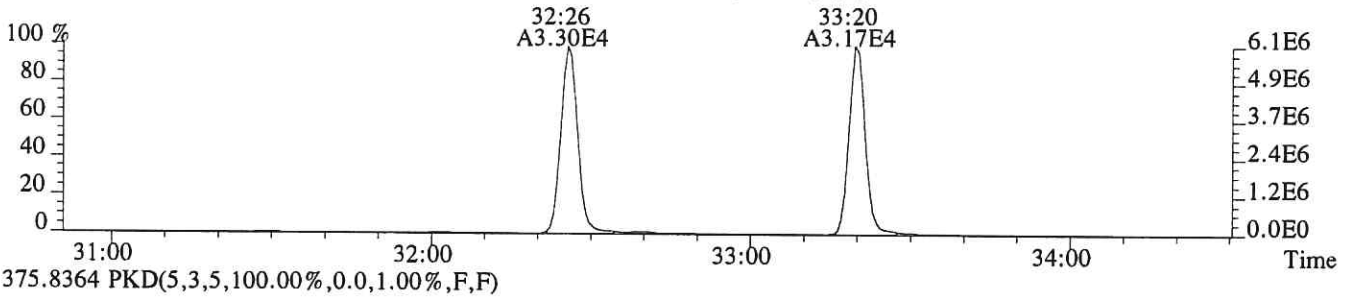
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



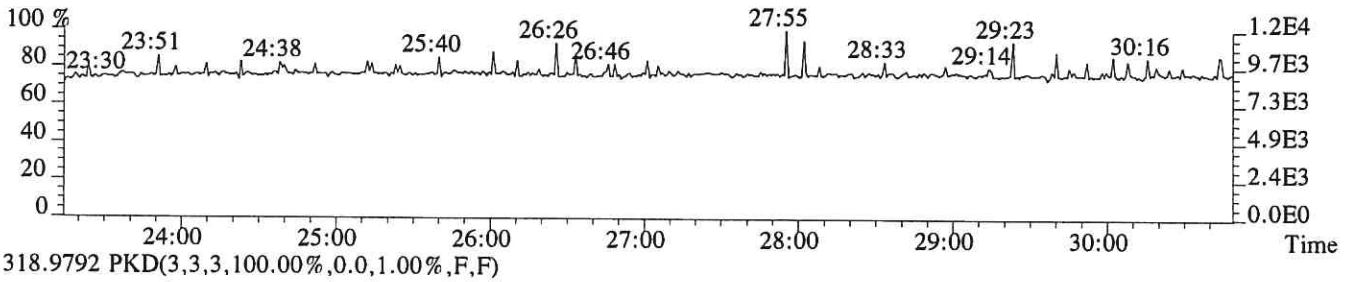
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



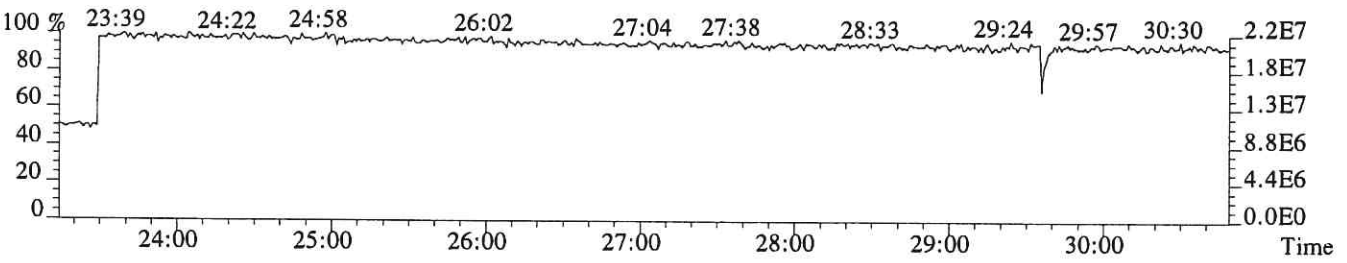
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



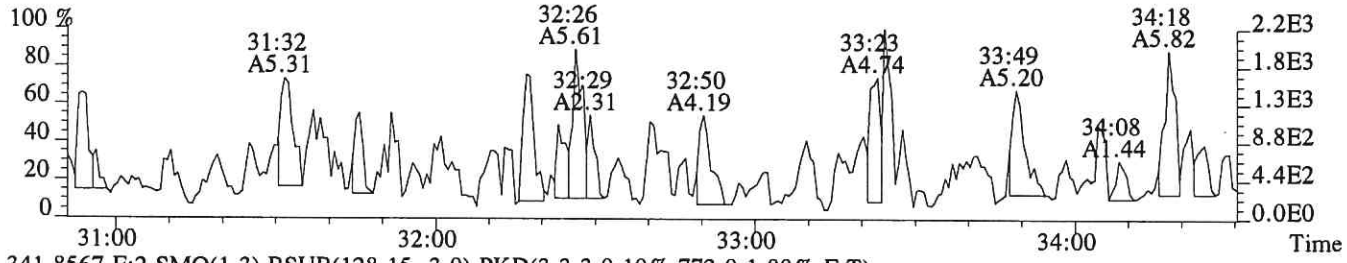
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



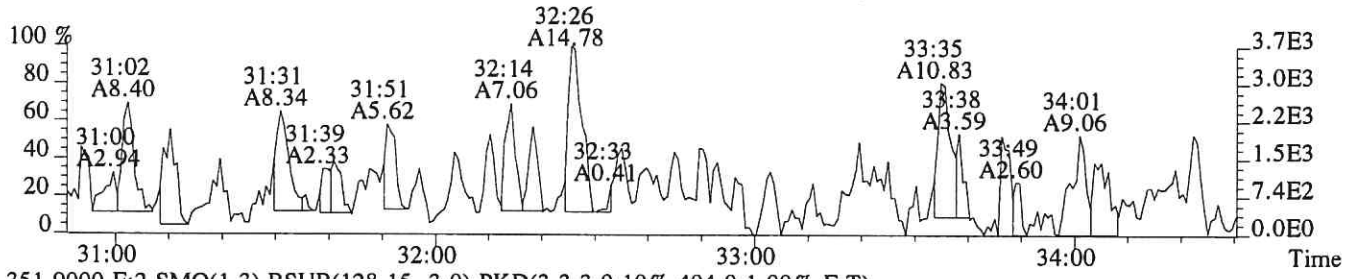
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



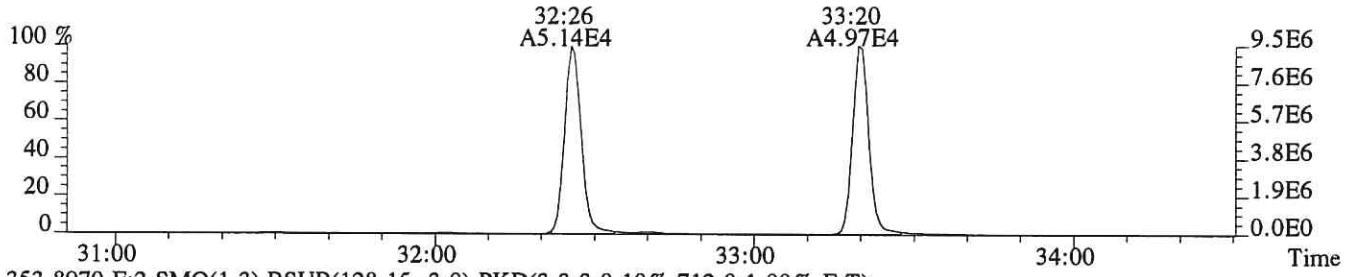
File:P519126 #1-330 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



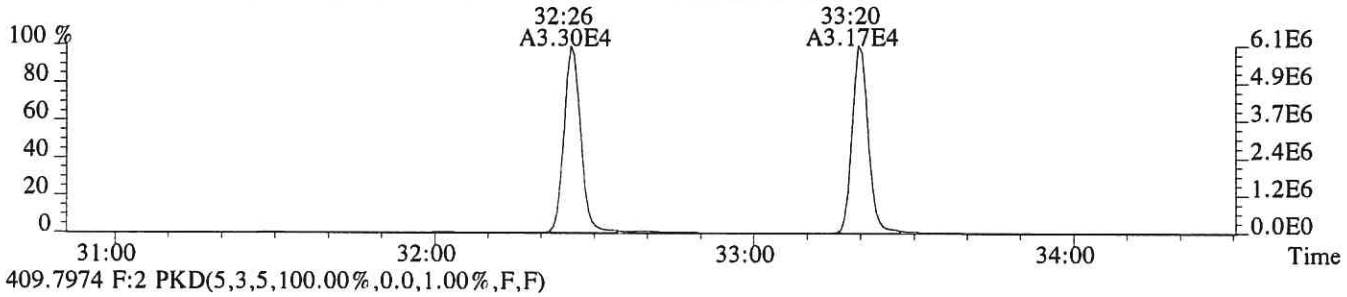
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



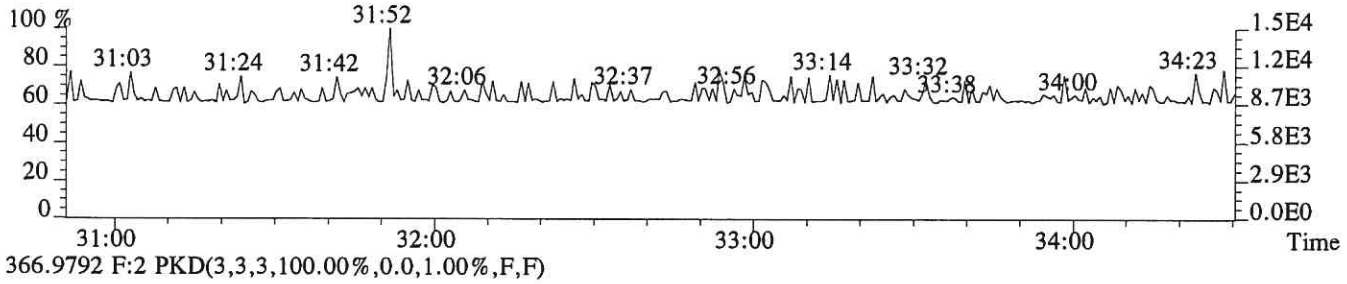
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



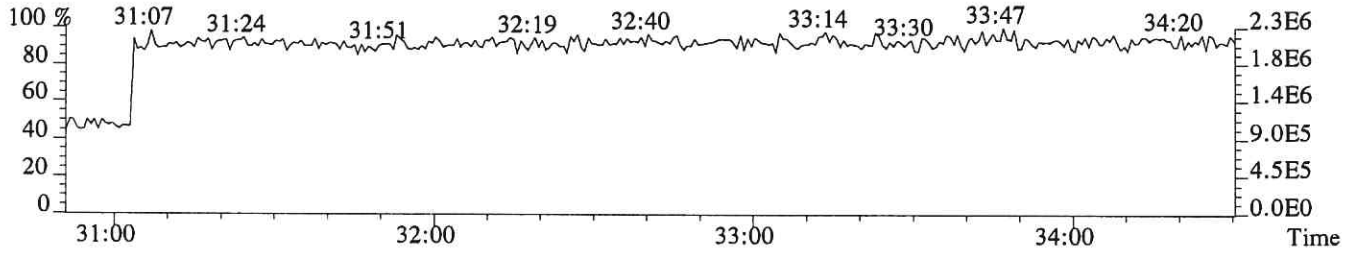
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



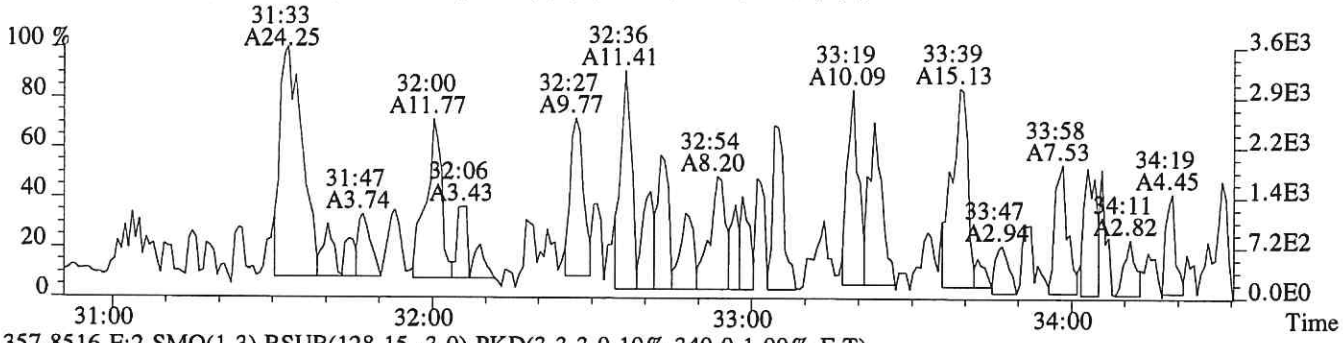
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



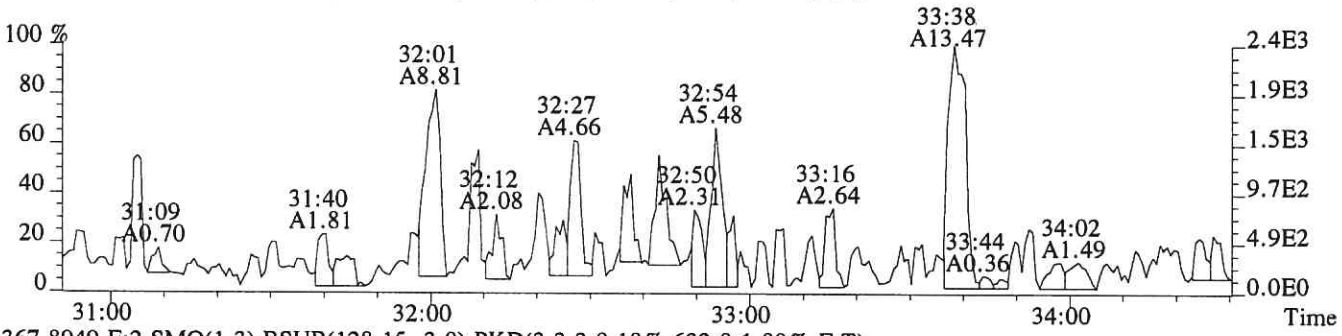
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



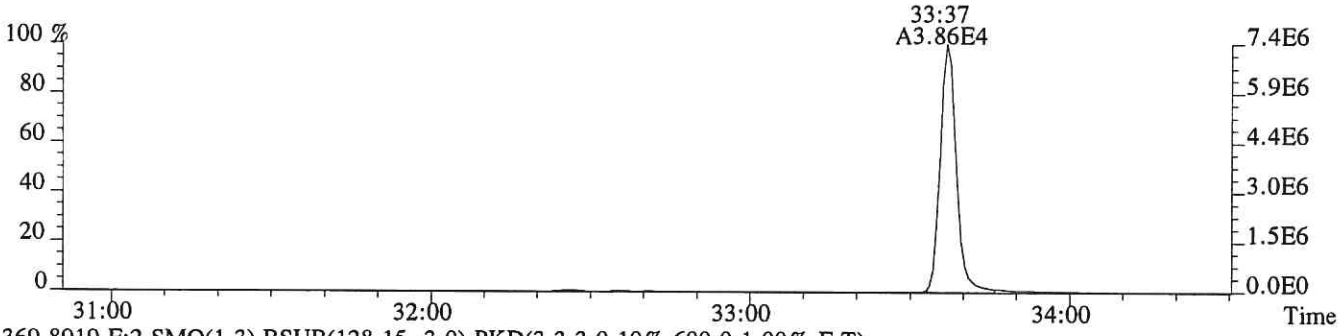
File:P519126 #1-330 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



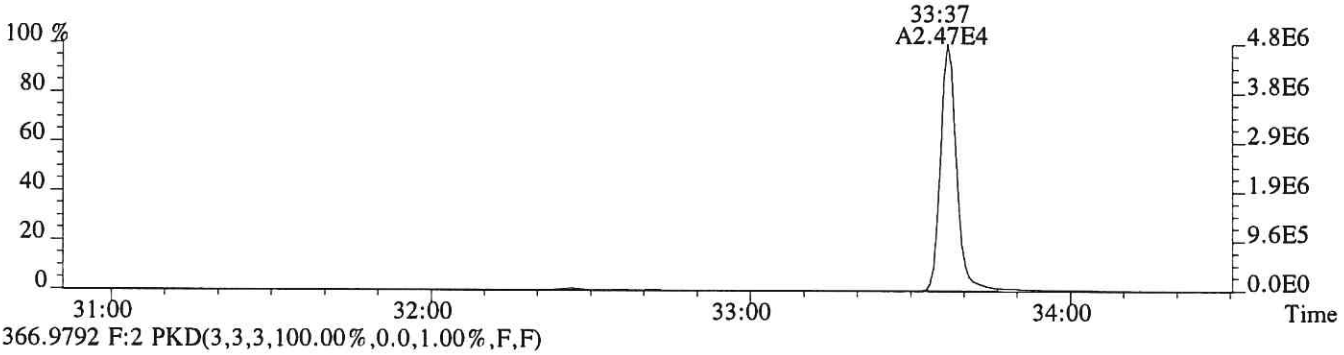
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



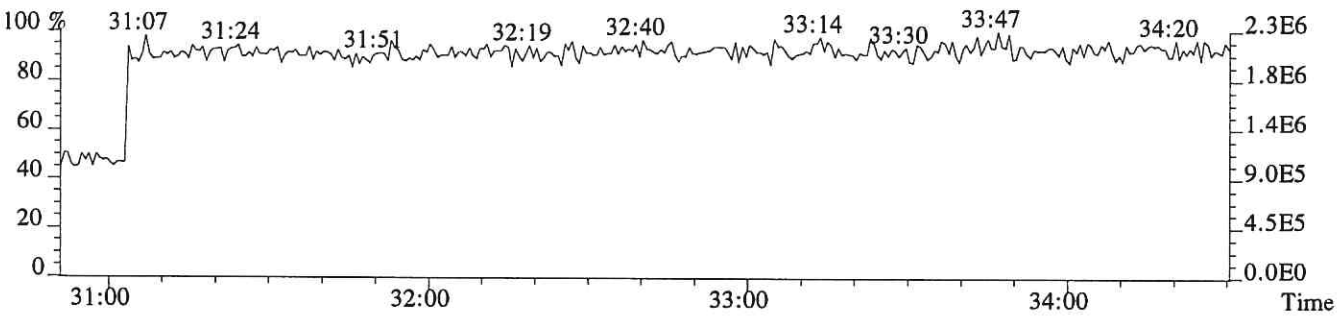
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



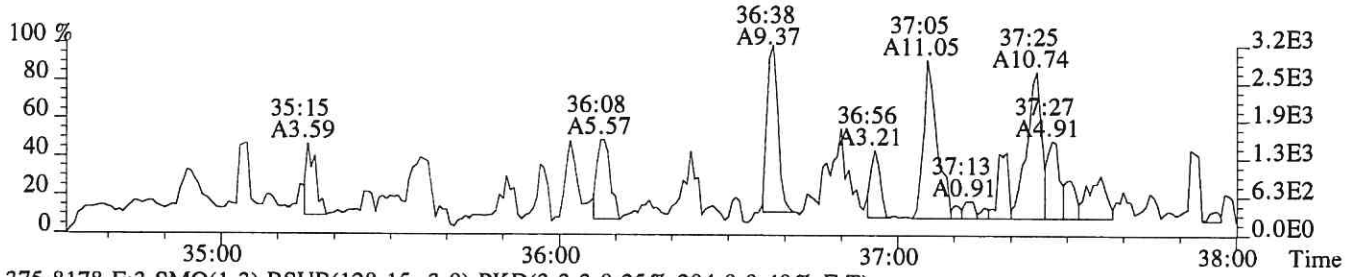
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



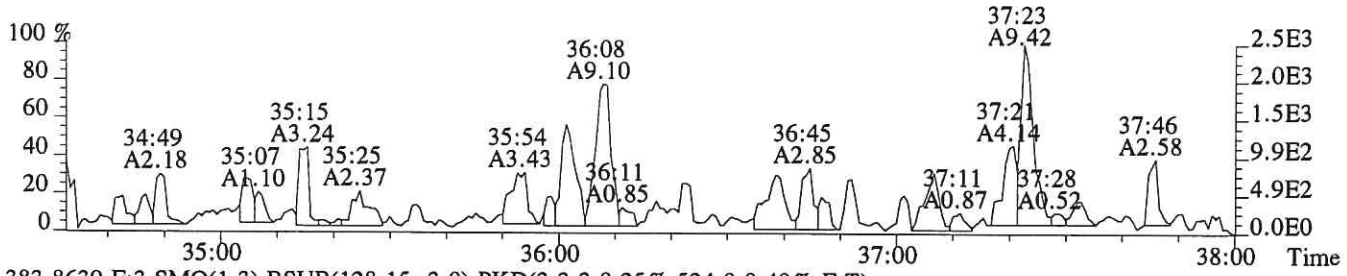
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



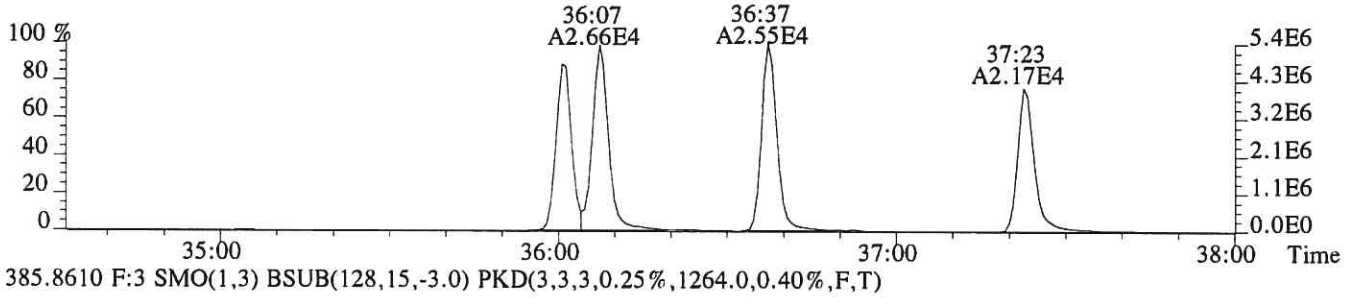
File:P519126 #1-312 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



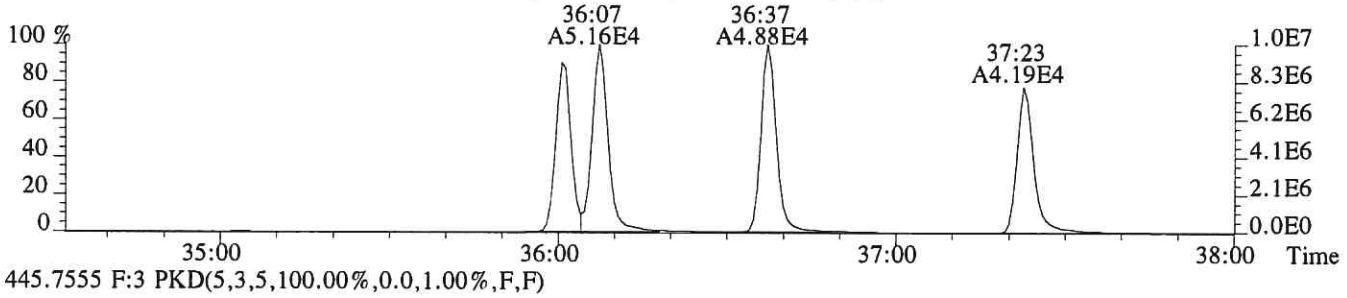
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



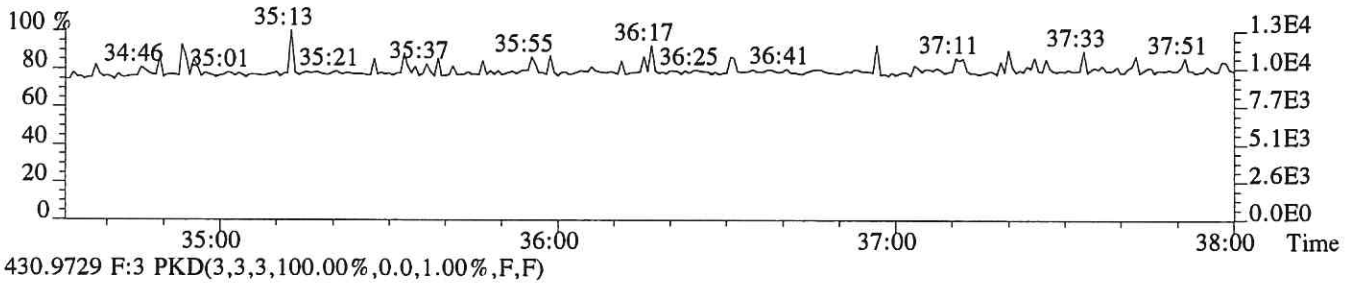
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



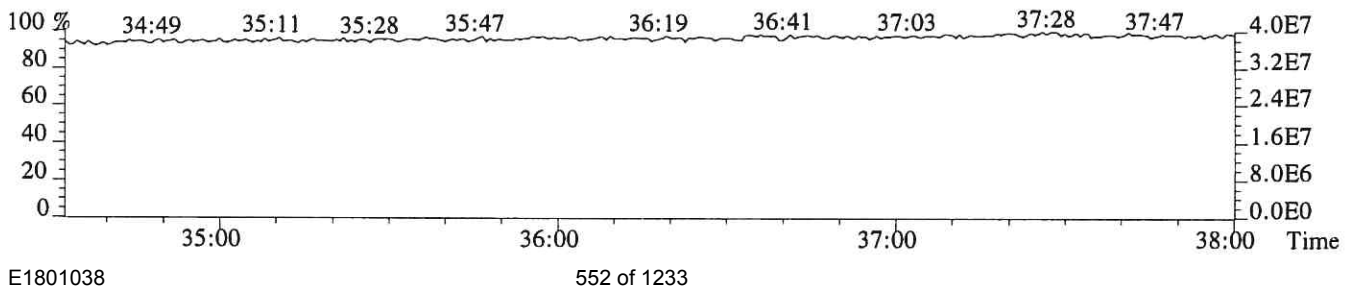
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)



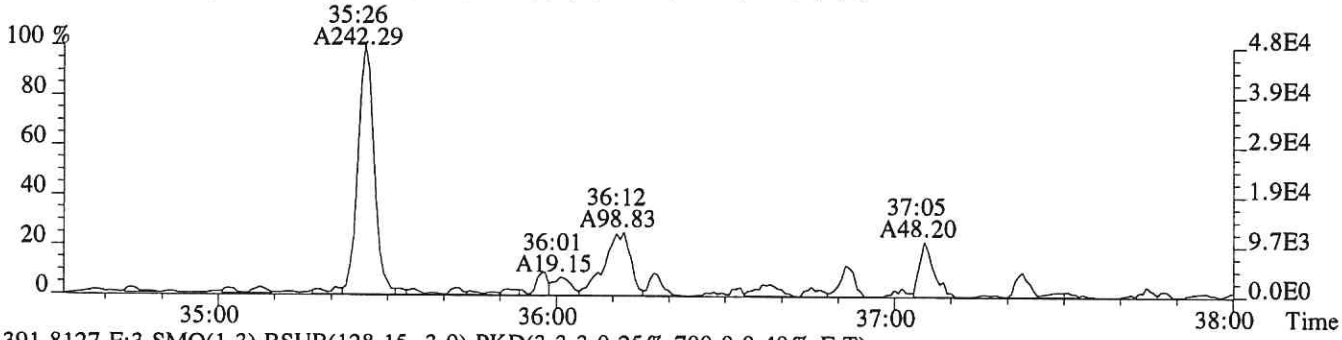
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



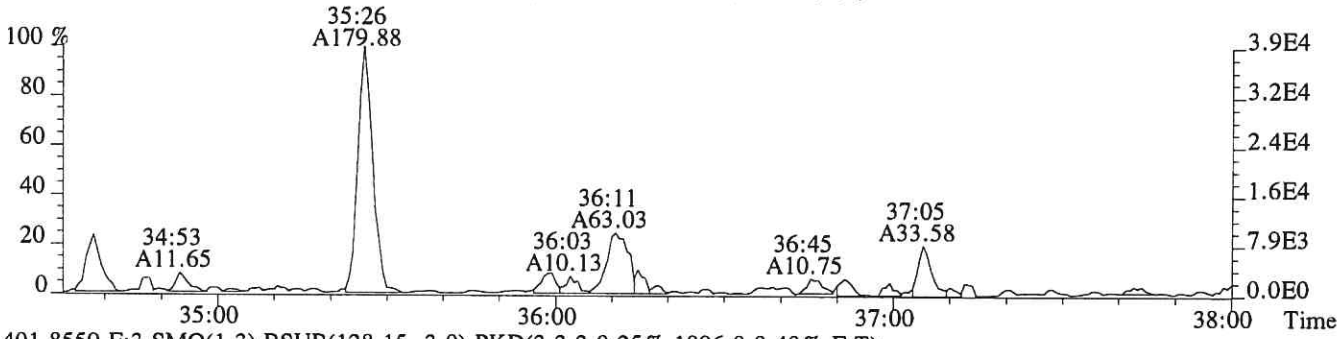
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



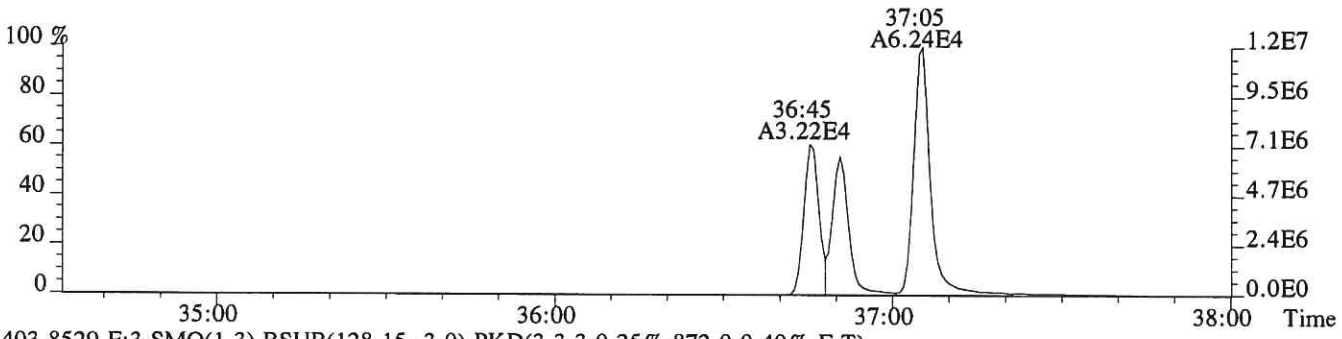
File:P519126 #1-312 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



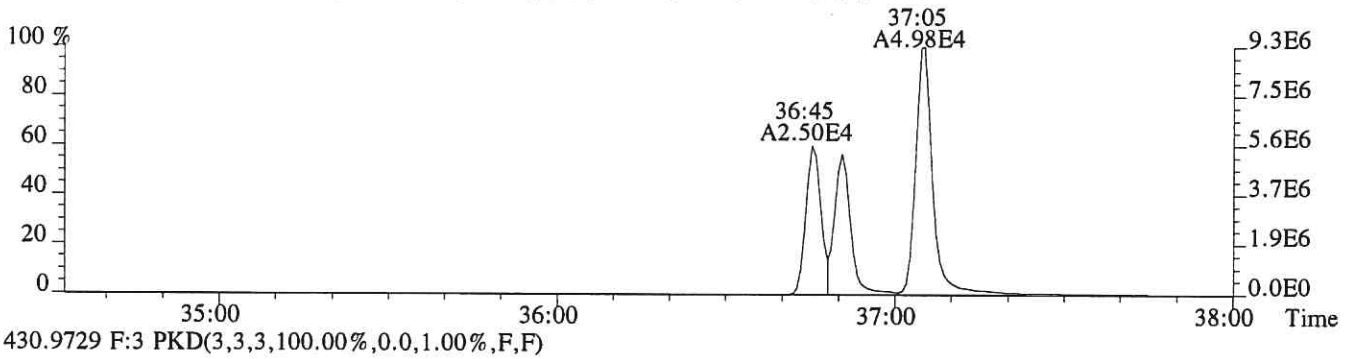
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



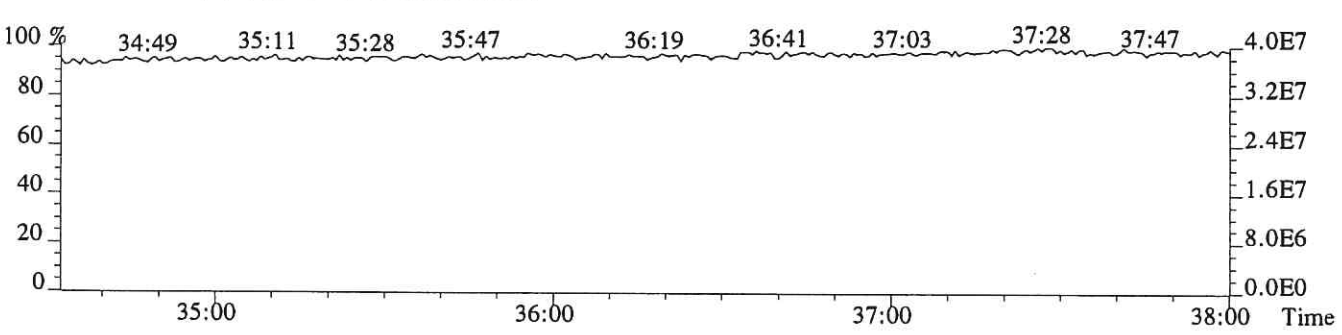
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)

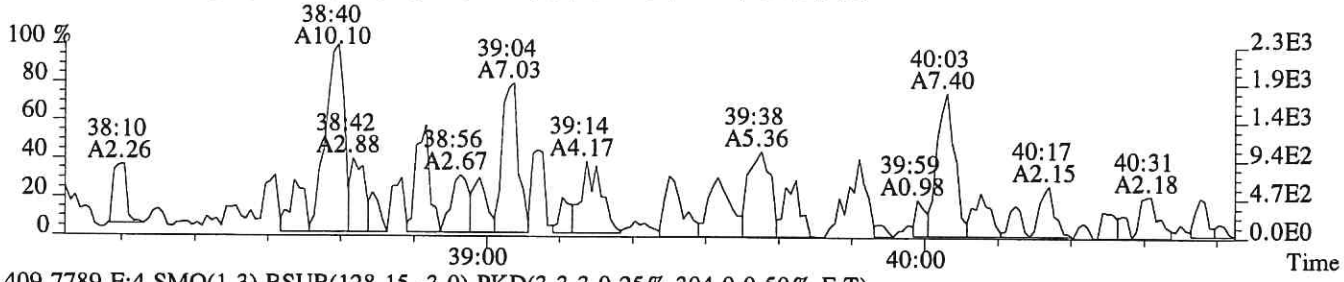


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

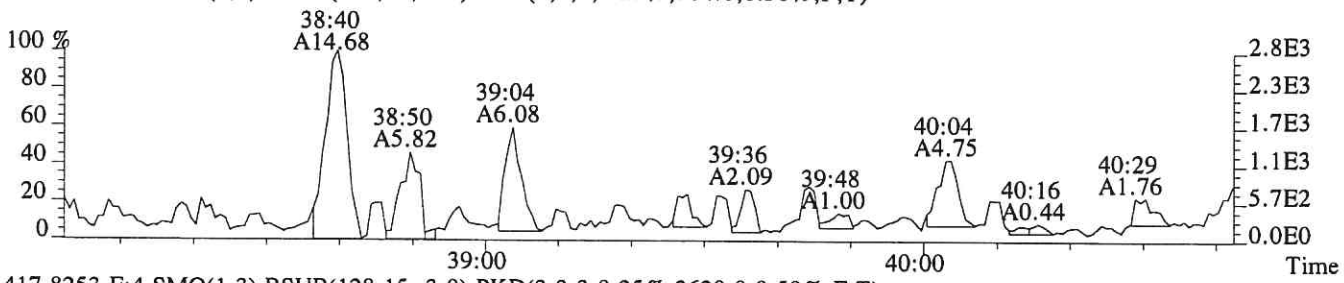


File:P519126 #1-241 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019

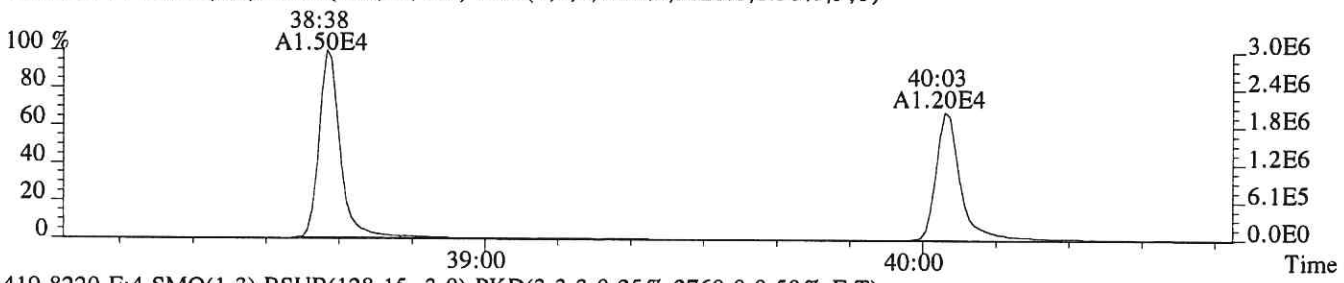
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



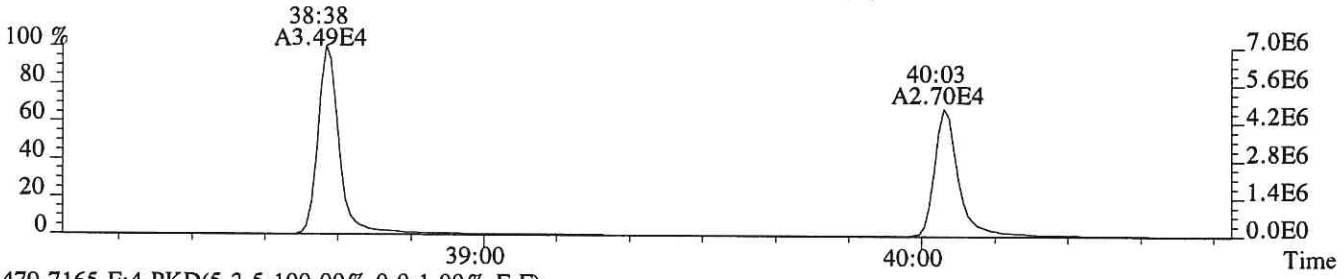
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



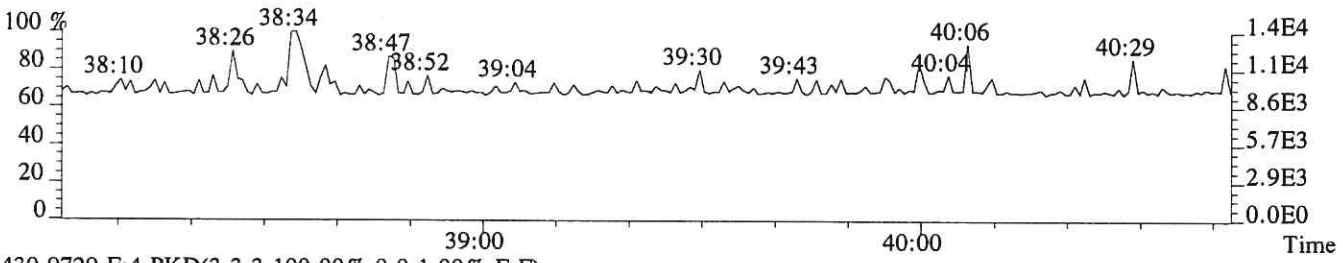
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3620.0,0.50%,F,T)



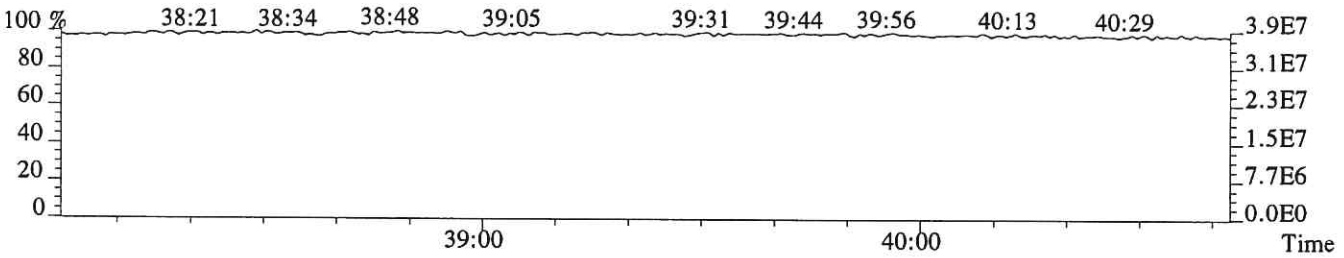
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2760.0,0.50%,F,T)



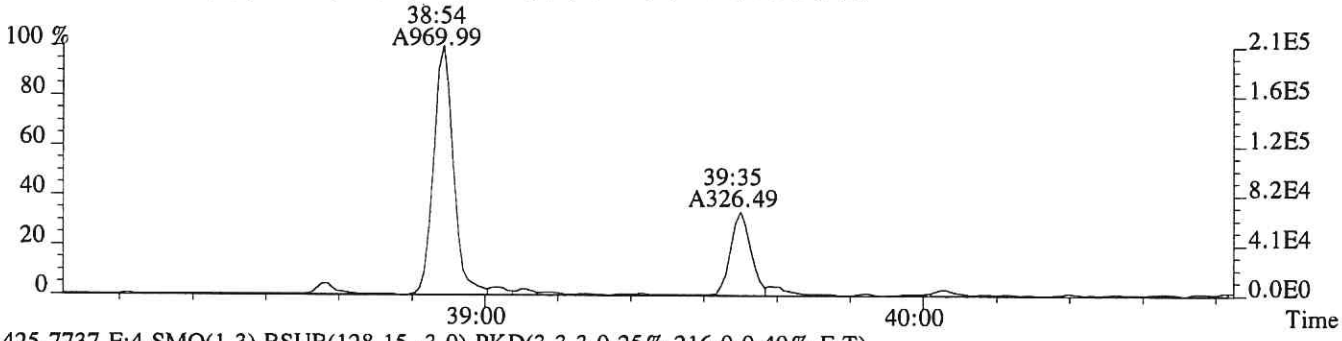
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



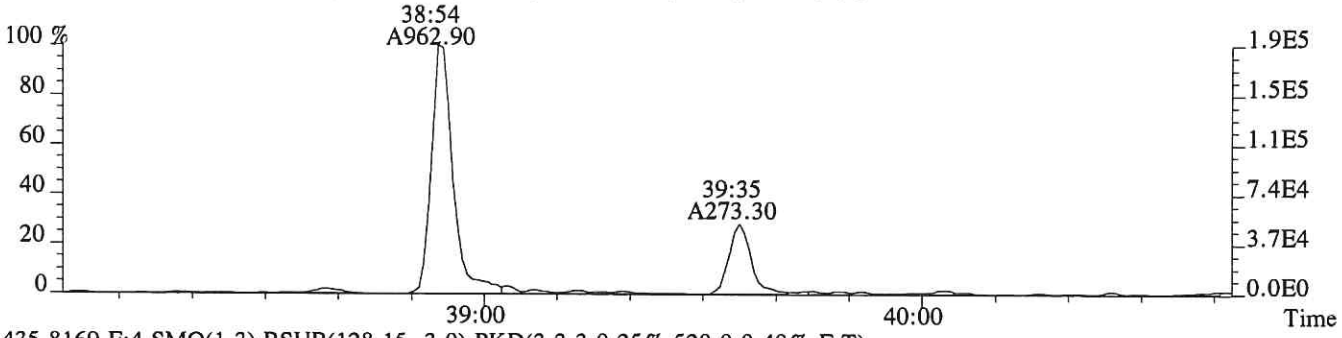
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



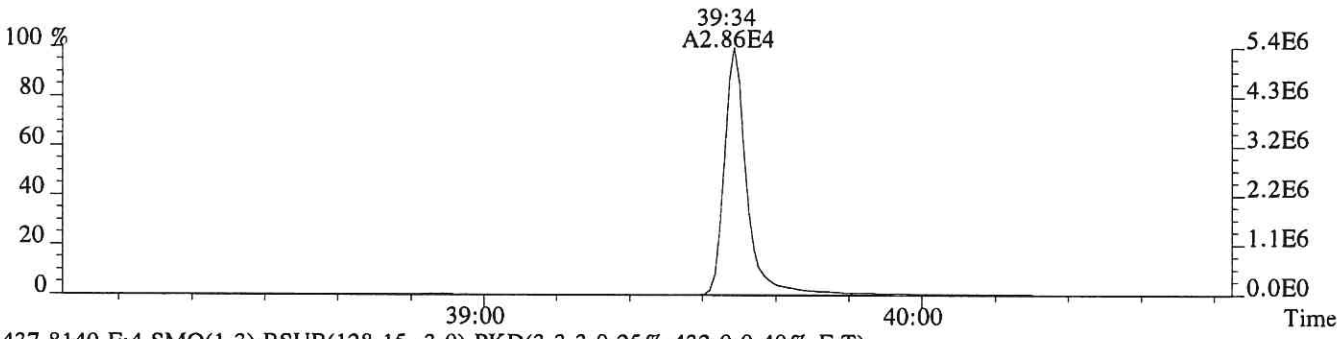
File:P519126 #1-241 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



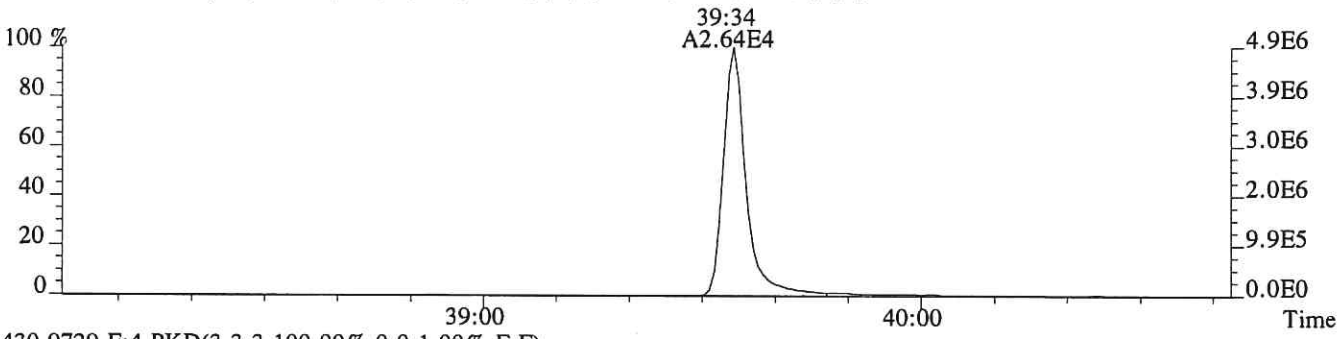
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



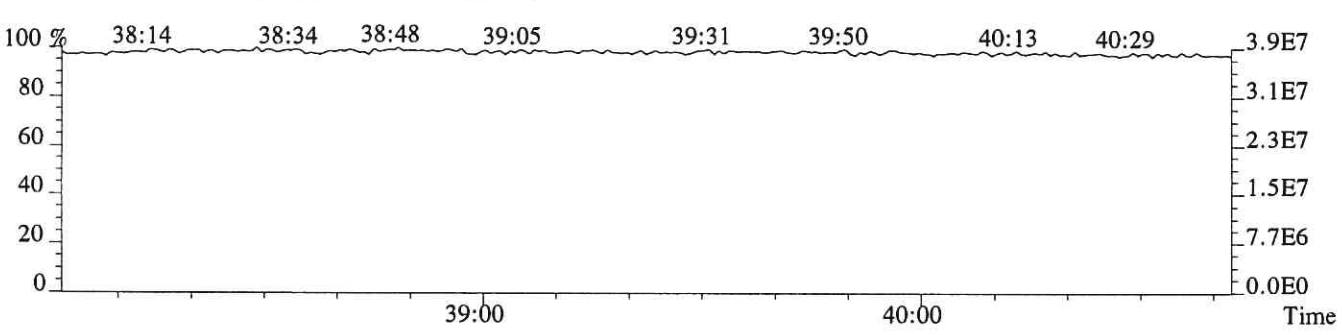
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)

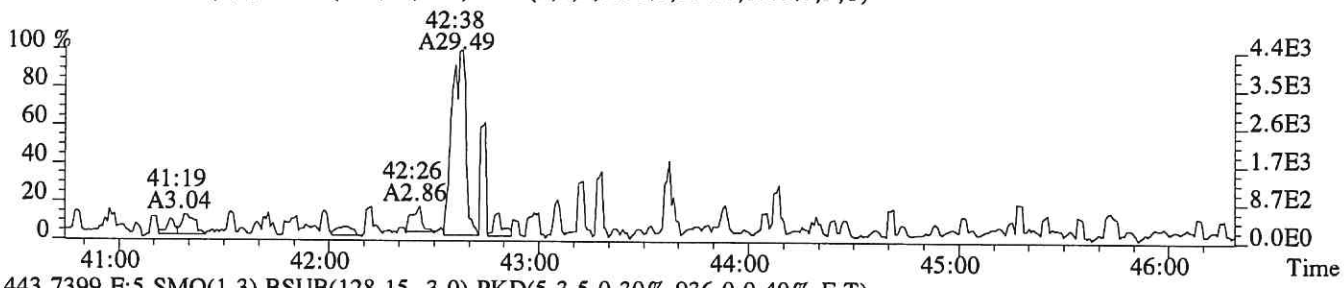


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

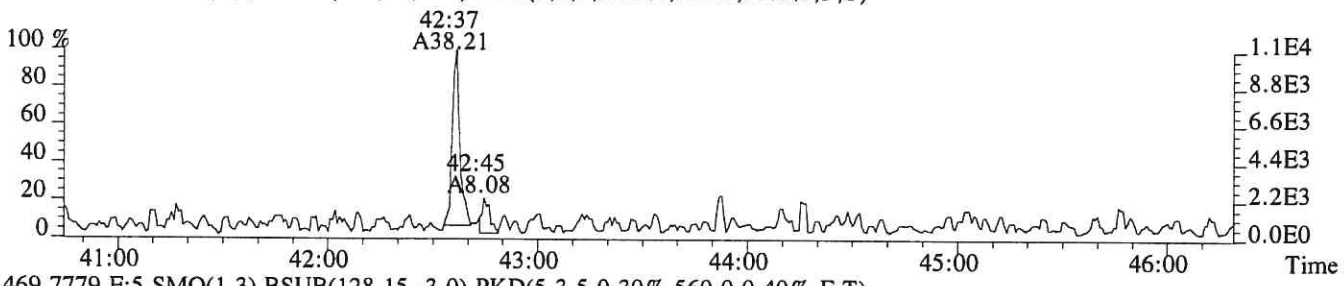


File:P519126 #1-502 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019

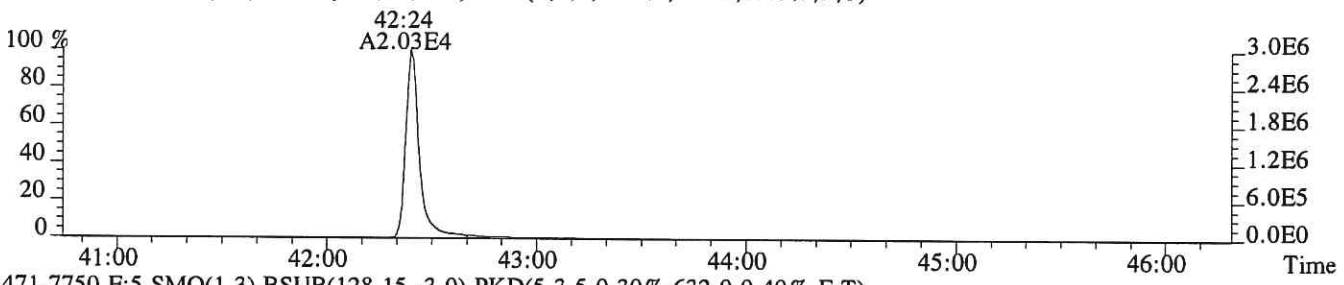
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



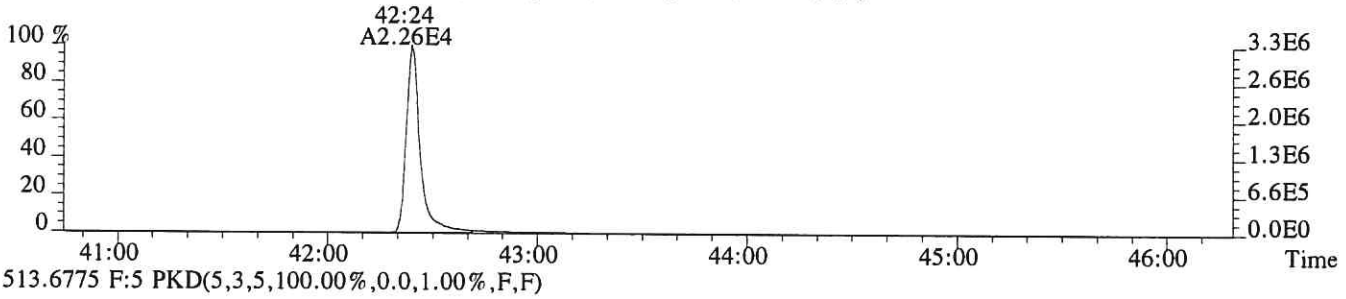
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



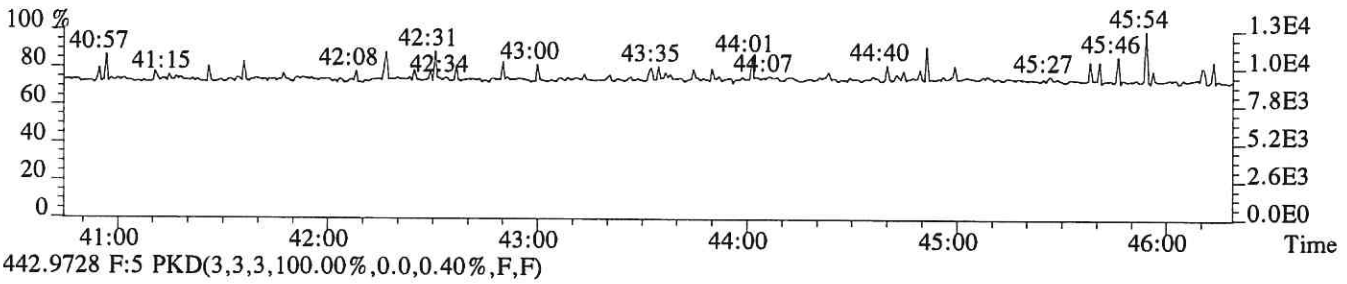
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



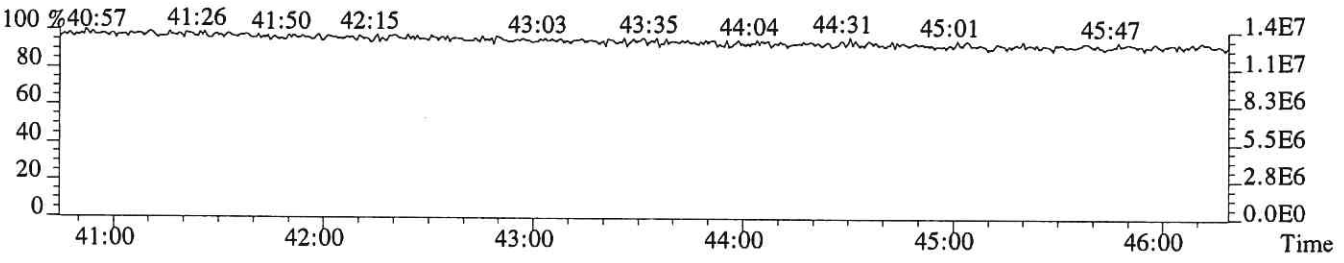
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



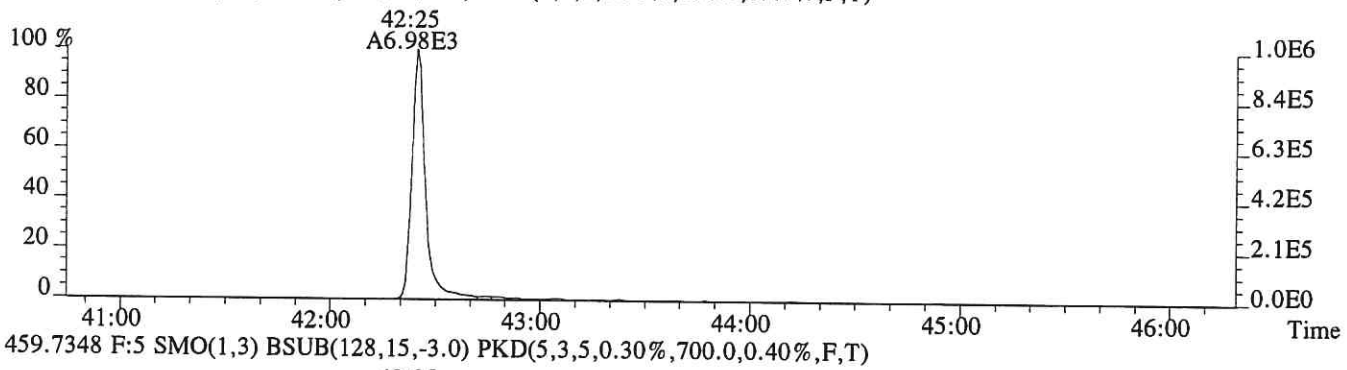
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



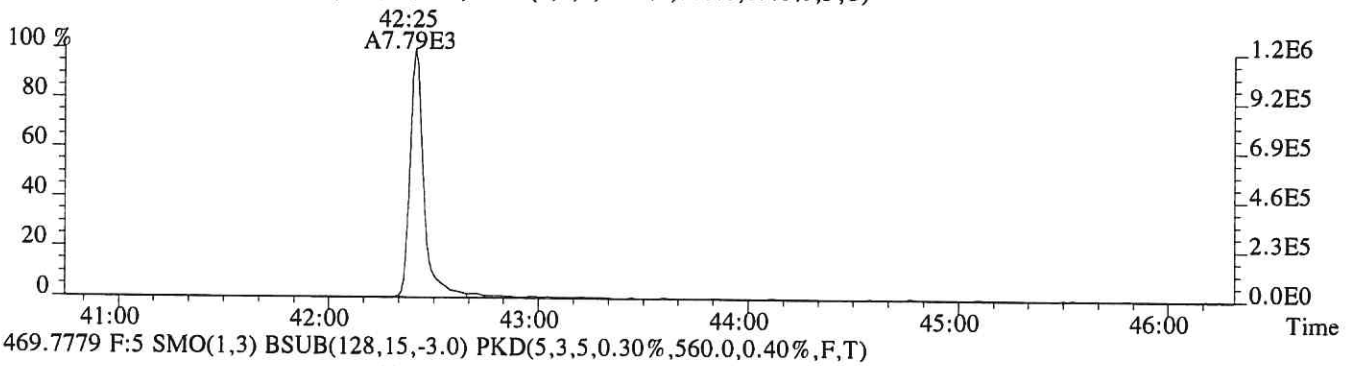
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



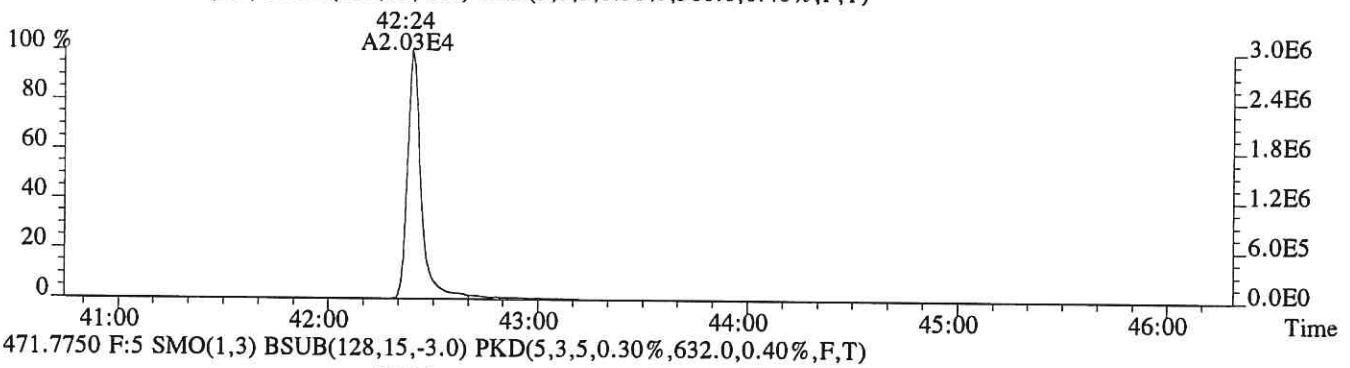
File:P519126 #1-502 Acq: 1-DEC-2018 23:41:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-019
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



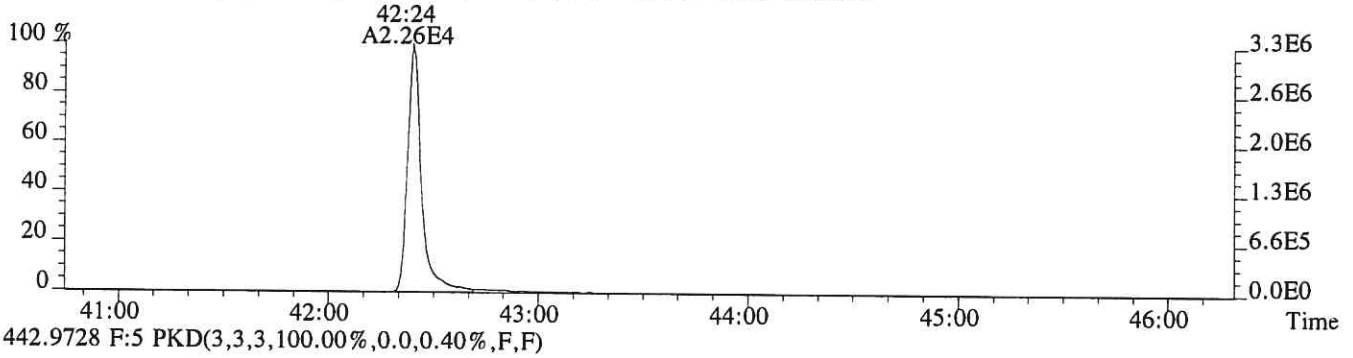
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



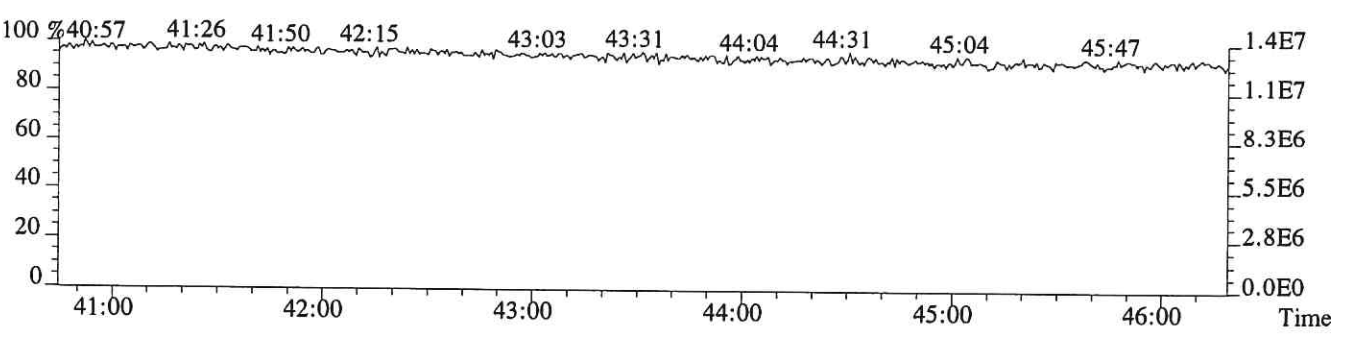
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0515

Run #16 Filename P519127 Samp: 1 Inj: 1 Acquired: 2-DEC-18 00:30:10
Processed: 4-DEC-18 18:42:16 Sample ID: E1801038-020

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	1.540e+02	1.857e+02	0.83	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:26	3.139e+01	2.618e+01	1.20	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	4.586e+01	2.708e+01	1.69	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	1.602e+01	1.639e+01	0.98	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.982e+01	1.266e+01	1.57	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	7.015e+01	6.013e+01	1.17	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:35	9.836e+01	1.232e+02	0.80	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	2.080e+01	7.049e+01	0.30	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:37	1.087e+01	1.074e+01	1.01	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	1.352e+01	2.094e+01	0.65	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	2.209e+01	2.208e+01	1.00	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	4.640e+01	2.620e+01	1.77	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	5.311e+02	5.500e+02	0.97	yes	no	1.025
17	Unk	OCDD	42:23	5.990e+03	7.049e+03	0.85	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:13	3.685e+04	4.716e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.931e+04	3.703e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	5.425e+04	3.451e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.649e+04	5.179e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.935e+04	5.688e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.642e+04	5.136e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:22	2.359e+04	4.611e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.618e+04	3.570e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	1.349e+04	3.046e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	2.670e+04	3.450e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:36	4.335e+04	2.713e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	3.616e+04	2.712e+04	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	3.412e+04	2.825e+04	1.21	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.088e+04	2.910e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:23	2.198e+04	2.484e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.911e+04	6.209e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.294e+04	5.029e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:01	2.783e+04				no	1.014

$$\text{OCDD} = \frac{(5.990e+03 + 7.049e+03) \times 4000\ \text{pg} \times 1}{(2.198e+04 + 2.484e+04) \times 10.753\ \text{g} \times 82.2/100 \times 1.118} = 113\ \text{ng/kg}$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0515

Run #16 Filename P519127 Samp: 1 Inj: 1 Acquired: 2-DEC-18 00:30:10
Processed: 4-DEC-18 18:42:16 LAB. ID: E1801038-020

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.38e+04	7.72e+02	3.1e+01	3.17e+04	9.20e+02	3.4e+01
2	1,2,3,7,8-PeCDF	6.73e+03	6.08e+02	1.1e+01	6.08e+03	1.46e+03	4.2e+00
3	2,3,4,7,8-PeCDF	*	6.08e+02	*	*	1.46e+03	*
4	1,2,3,4,7,8-HxCDF	1.11e+04	3.52e+02	3.1e+01	5.37e+03	4.08e+02	1.3e+01
5	1,2,3,6,7,8-HxCDF	3.49e+03	3.52e+02	9.9e+00	4.34e+03	4.08e+02	1.1e+01
6	2,3,4,6,7,8-HxCDF	3.40e+03	3.52e+02	9.6e+00	2.52e+03	4.08e+02	6.2e+00
7	1,2,3,7,8,9-HxCDF	*	3.52e+02	*	*	4.08e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.49e+04	6.16e+02	2.4e+01	1.26e+04	3.76e+02	3.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	6.16e+02	*	*	3.76e+02	*
10	OCDF	1.56e+04	2.20e+02	7.1e+01	1.86e+04	5.76e+02	3.2e+01
11	2,3,7,8-TCDD	6.63e+03	1.96e+03	3.4e+00	1.16e+04	8.72e+02	1.3e+01
12	1,2,3,7,8-PeCDD	2.76e+03	7.20e+02	3.8e+00	1.87e+03	4.00e+02	4.7e+00
13	1,2,3,4,7,8-HxCDD	4.12e+03	1.04e+03	4.0e+00	5.65e+03	3.60e+02	1.6e+01
14	1,2,3,6,7,8-HxCDD	5.38e+03	1.04e+03	5.2e+00	4.80e+03	3.60e+02	1.3e+01
15	1,2,3,7,8,9-HxCDD	5.92e+03	1.04e+03	5.7e+00	4.92e+03	3.60e+02	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	1.08e+05	1.92e+02	5.6e+02	1.07e+05	7.24e+02	1.5e+02
17	OCDD	9.21e+05	2.04e+02	4.5e+03	1.04e+06	6.28e+02	1.7e+03
18	13C-2,3,7,8-TCDF	6.77e+06	3.24e+03	2.1e+03	8.66e+06	2.14e+03	4.0e+03
19	13C-1,2,3,7,8-PeCDF	1.10e+07	2.16e+02	5.1e+04	6.84e+06	6.16e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	1.06e+07	2.16e+02	4.9e+04	6.74e+06	6.16e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.72e+06	5.48e+02	1.0e+04	1.09e+07	1.08e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	5.72e+06	5.48e+02	1.0e+04	1.12e+07	1.08e+03	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	5.54e+06	5.48e+02	1.0e+04	1.08e+07	1.08e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.52e+06	5.48e+02	8.3e+03	8.91e+06	1.08e+03	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.31e+06	3.31e+03	1.0e+03	7.22e+06	3.20e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.47e+06	3.31e+03	7.5e+02	5.47e+06	3.20e+03	1.7e+03
27	13C-2,3,7,8-TCDD	5.28e+06	5.36e+03	9.8e+02	6.77e+06	2.14e+03	3.2e+03
28	13C-1,2,3,7,8-PeCDD	8.40e+06	6.28e+02	1.3e+04	5.30e+06	8.60e+02	6.2e+03
29	13C-1,2,3,4,7,8-HxCDD	7.82e+06	1.73e+03	4.5e+03	6.13e+06	6.60e+02	9.3e+03
30	13C-1,2,3,6,7,8-HxCDD	7.13e+06	1.73e+03	4.1e+03	5.65e+06	6.60e+02	8.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.83e+06	4.16e+02	1.4e+04	5.45e+06	3.00e+02	1.8e+04
32	13C-OCDD	3.30e+06	3.20e+02	1.0e+04	3.73e+06	3.52e+02	1.1e+04
33	13C-1,2,3,4-TCDD	9.46e+06	5.36e+03	1.8e+03	1.21e+07	2.14e+03	5.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.31e+07	1.73e+03	7.6e+03	1.03e+07	6.60e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	5.42e+06	2.18e+03	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.964e{+}03 + 8.720e{+}02\ ) \times 2000}{(5.280e{+}06 + 6.771e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0515

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519127 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 00:30:10 Processed: 4-DEC-18 18:42:16

Mass: 303.9020 305.8990 Tot Response: 4.81e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:27	5.86e+01	8.28e+01	0.71	yes	1.41e+02		n	n
2	28:14	1.54e+02	1.86e+02	0.83	yes	3.40e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0515

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P519127 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 00:30:10 Processed: 4-DEC-18 18:42:16

Mass: 339.8600 341.8570 Tot Response: 7.90e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:02	4.96e+01	2.94e+01 1.69	yes	7.90e+01		n	n

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Peak List Summary

CLIENT ID.
SL0515

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519127 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 00:30:10 Processed: 4-DEC-18 18:42:16

Mass: 355.8550 357.8520 Tot Response: 1.79e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:56	1.05e+01	7.39e+00 1.42	yes	1.79e+01		n	n

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Peak List Summary

CLIENT ID.
SL0515

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519127 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 00:30:10 Processed: 4-DEC-18 18:42:16

Mass: 373.8210 375.8180 Tot Response: 4.74e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:35	2.53e+01	2.21e+01 1.15	yes	4.74e+01		n	n

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Peak List Summary

CLIENT ID.
SL0515

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519127 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 00:30:10 Processed: 4-DEC-18 18:42:16

Mass: 389.8160 391.8130 Tot Response: 7.97e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:25	3.07e+02	2.42e+02 1.27	yes	5.49e+02		n	n
2	36:11	1.35e+02	1.13e+02 1.20	yes	2.48e+02		n	n

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Peak List Summary

CLIENT ID.
SL0515

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519127 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 00:30:10 Processed: 4-DEC-18 18:42:16

Mass: 407.7820 409.7790 Tot Response: 3.36e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	7.01e+01	1.17	yes	1.30e+02	1,2,3,4,6,7,8-HpCDF	n	y
2	39:03	1.05e+02	1.05	yes	2.05e+02		n	n

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Peak List Summary

CLIENT ID.
SL0515

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519127 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 00:30:10 Processed: 4-DEC-18 18:42:16

Mass: 423.7770 425.7740 Tot Response: 3.40e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.19e+03	1.05	yes	2.32e+03		n	n
2	39:34	5.31e+02	0.97	yes	1.08e+03	1,2,3,4,6,7,8-HpCDD	n	n

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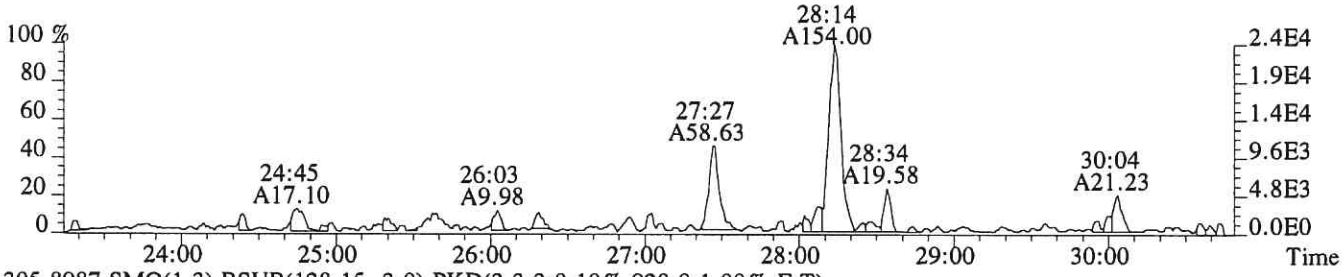
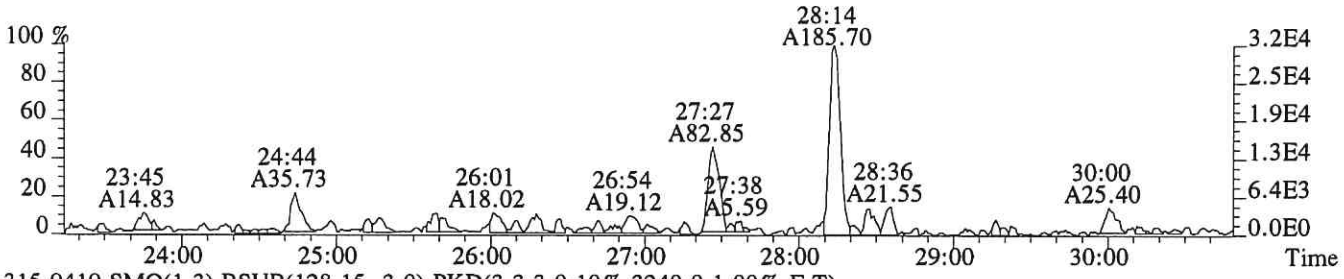
File:P519127 #1-538 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020

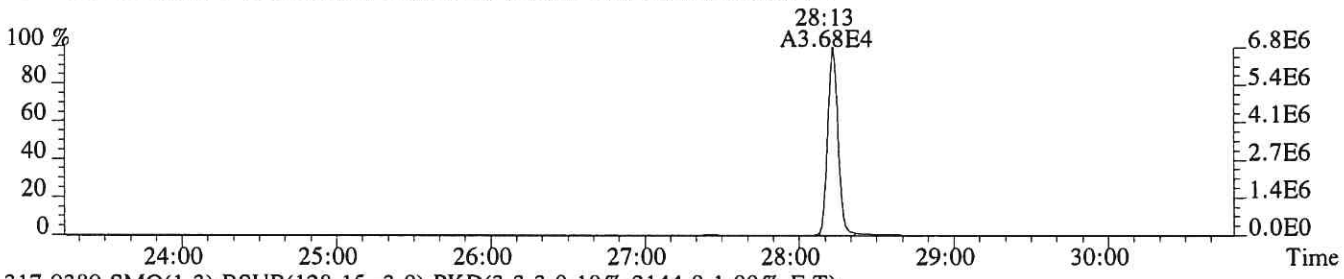
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



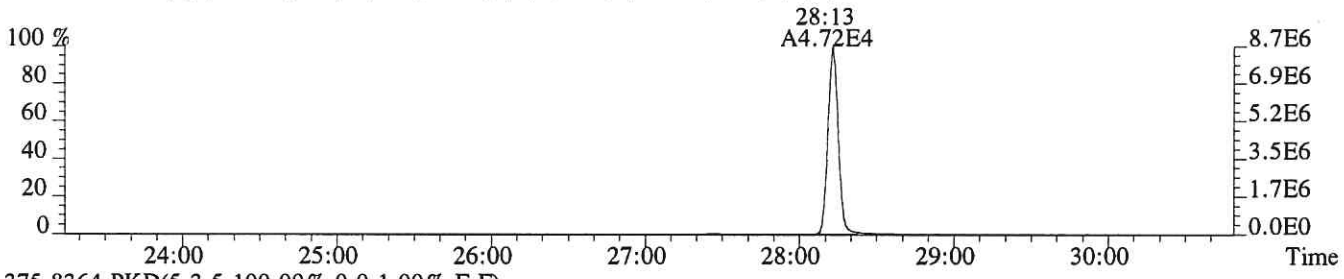
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



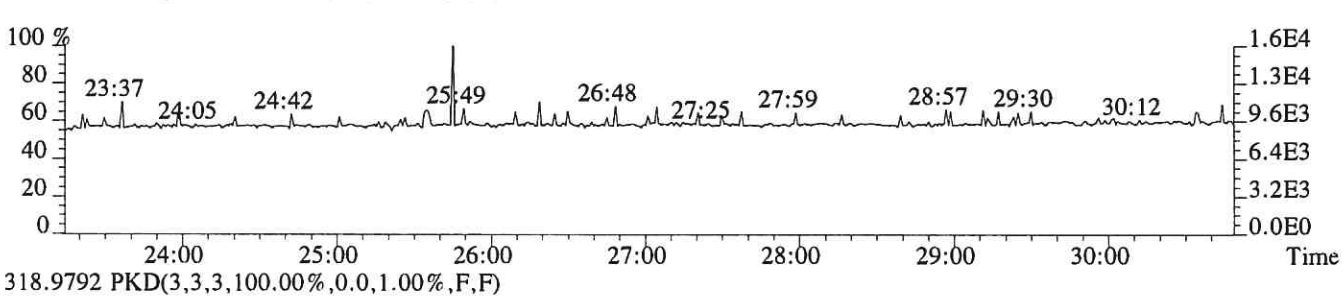
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



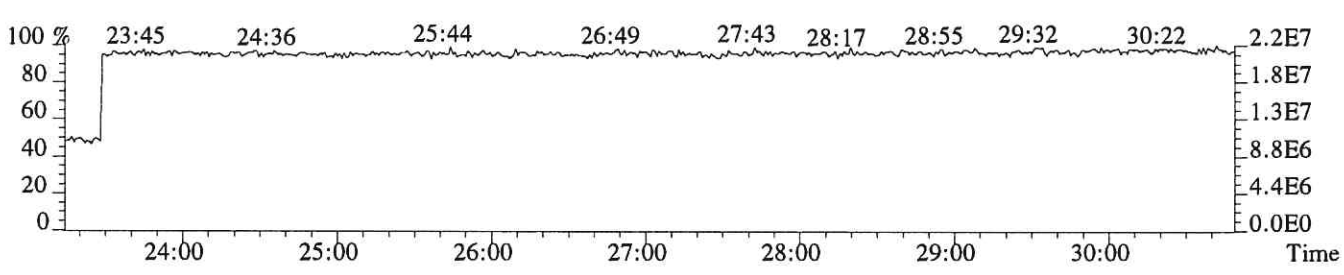
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



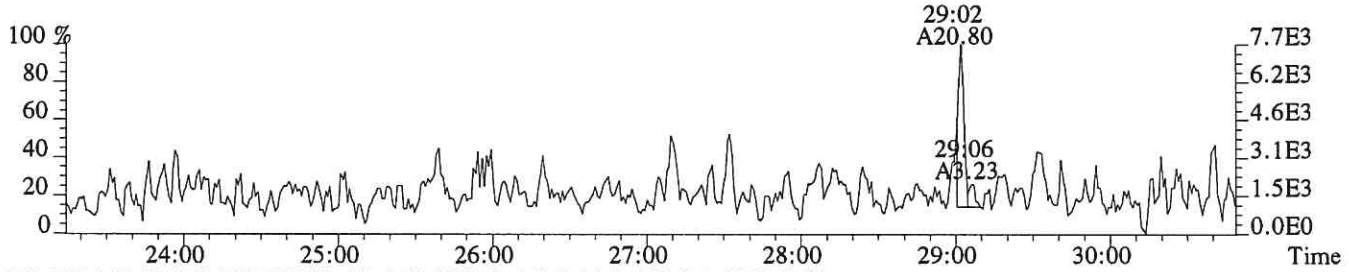
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



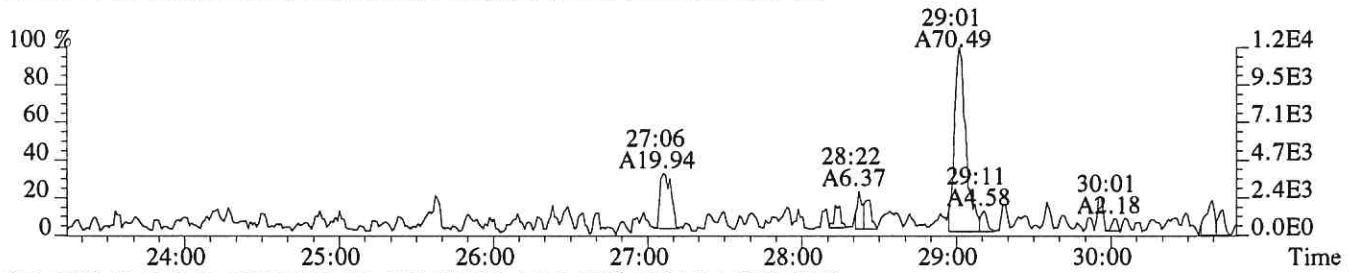
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



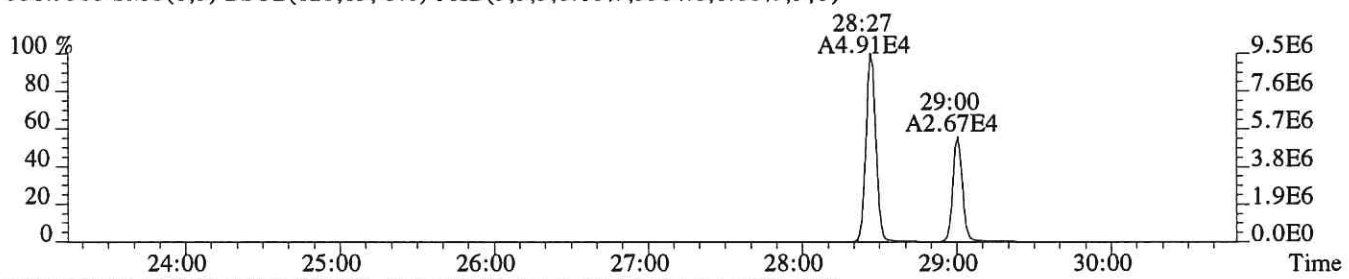
File:P519127 #1-538 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



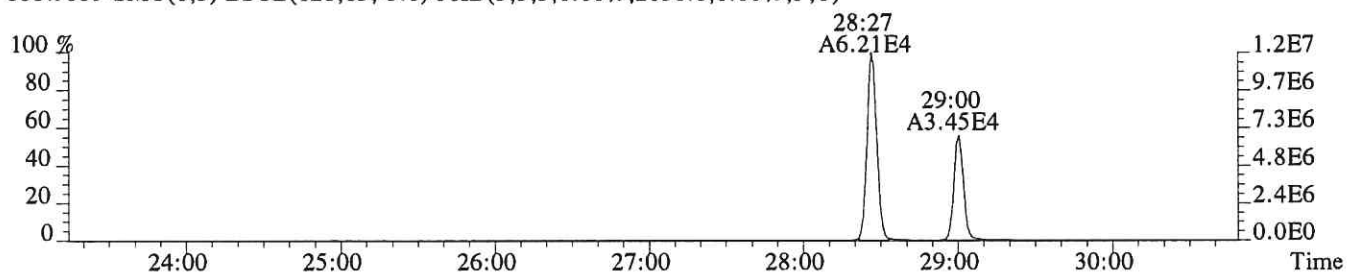
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



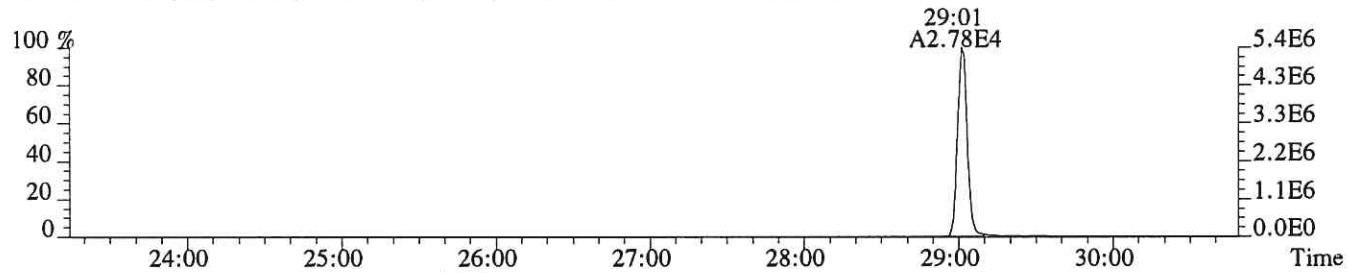
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



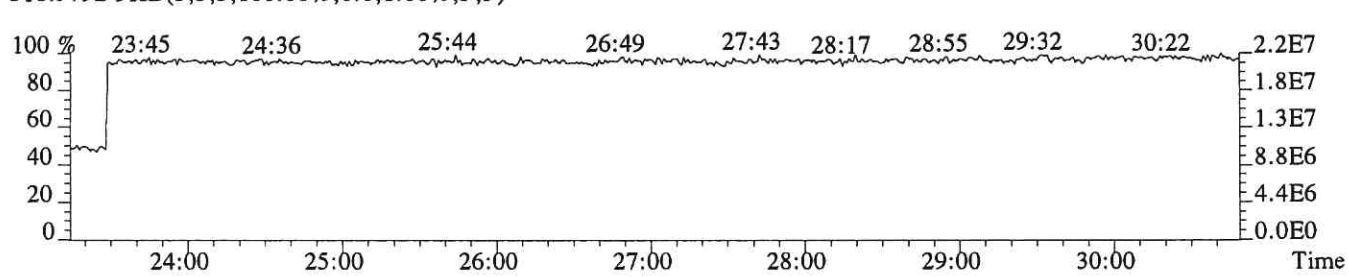
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



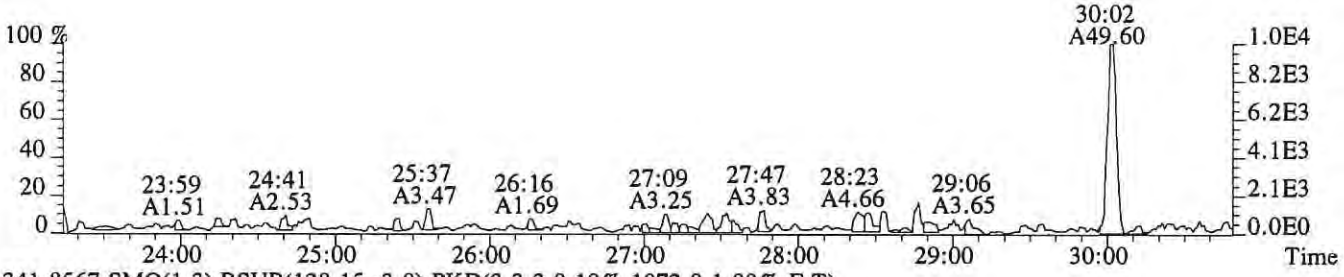
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)



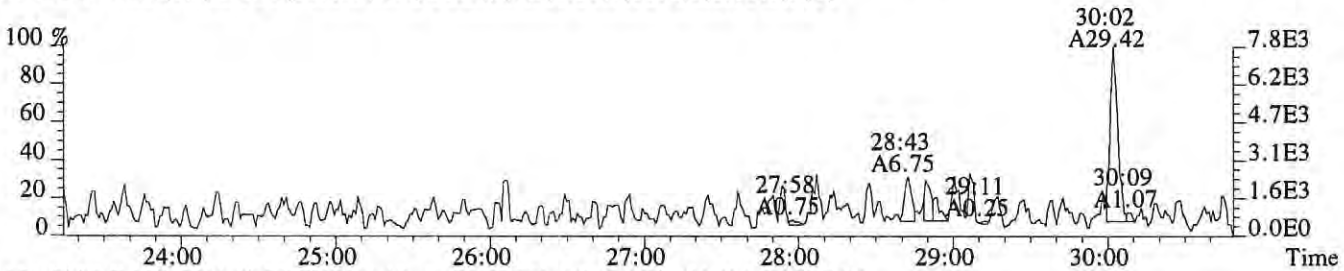
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



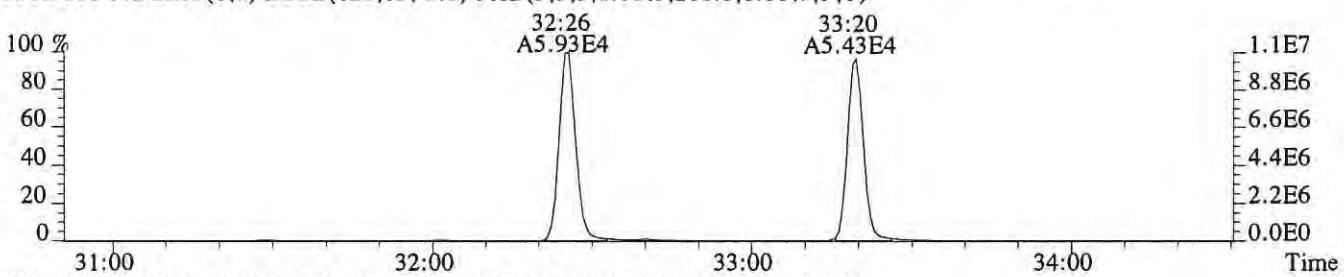
File:P519127 #1-538 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



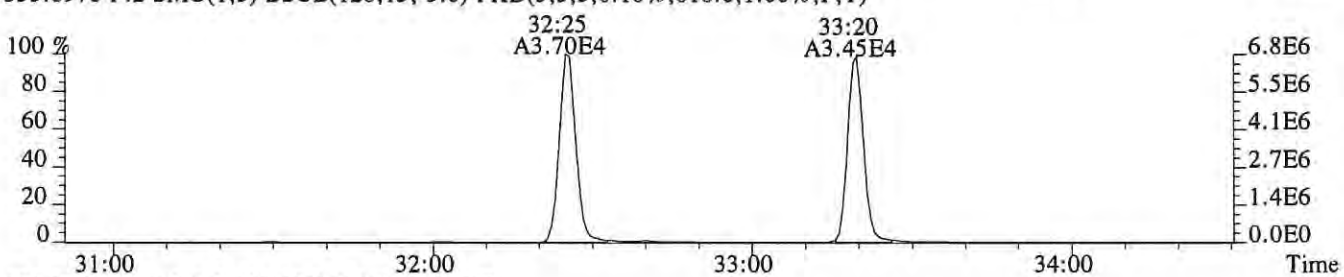
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



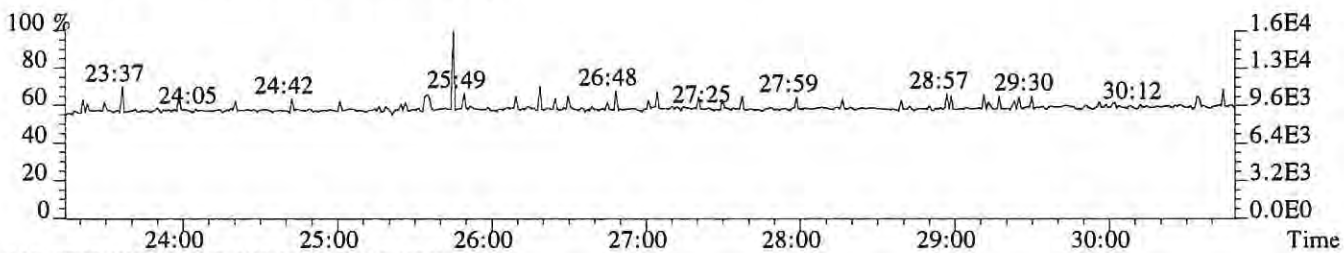
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



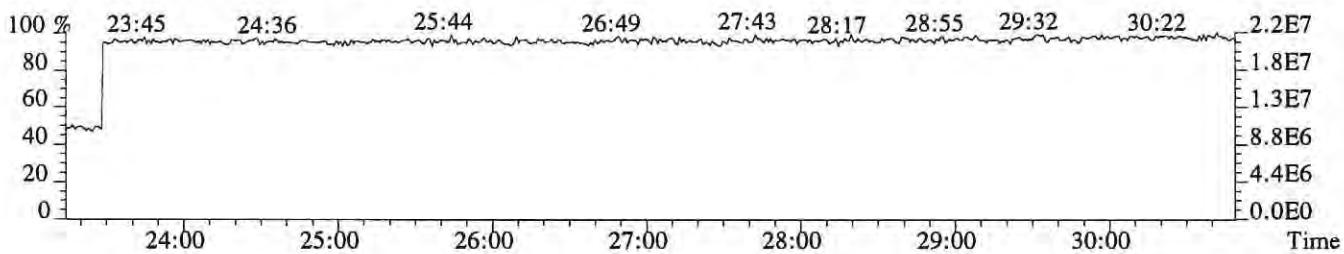
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



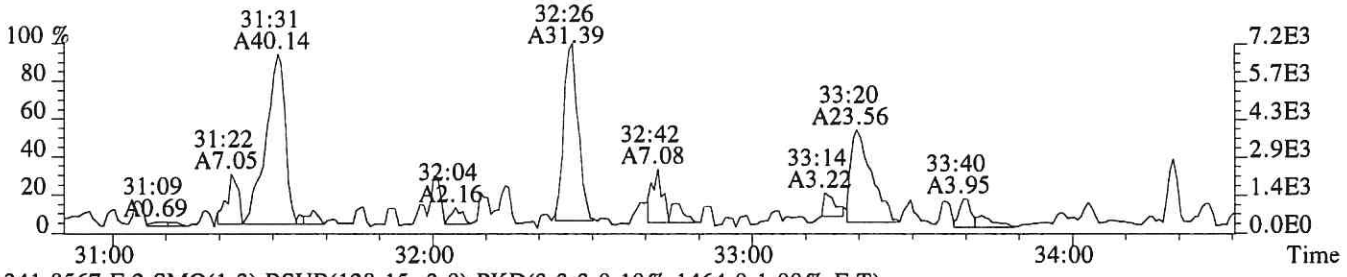
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



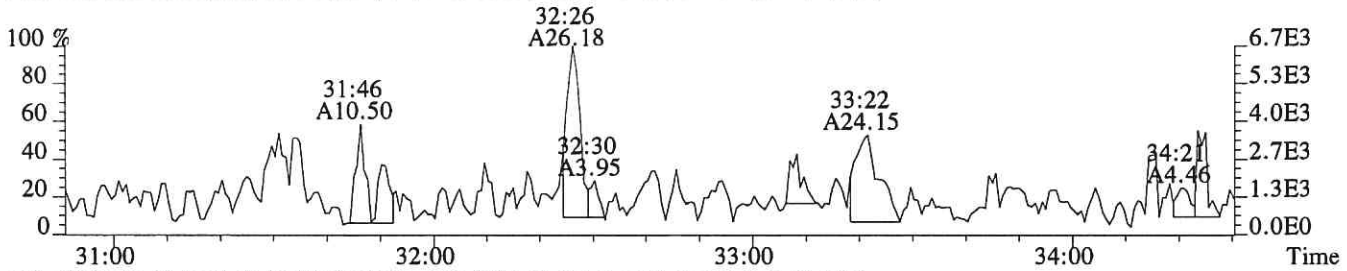
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



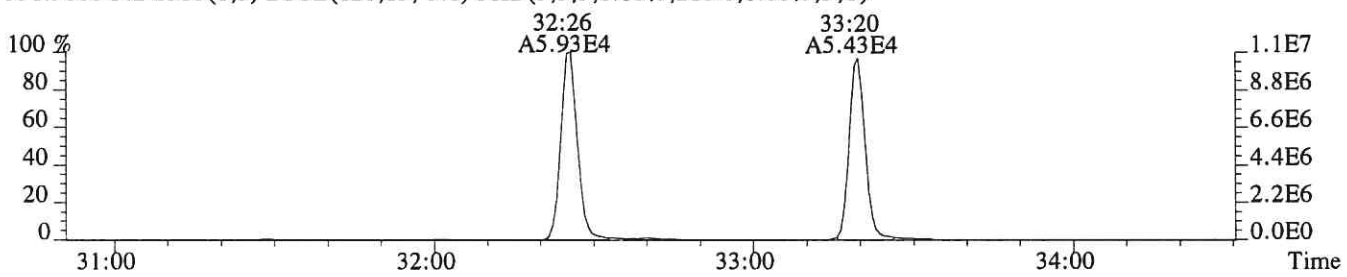
File:P519127 #1-330 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



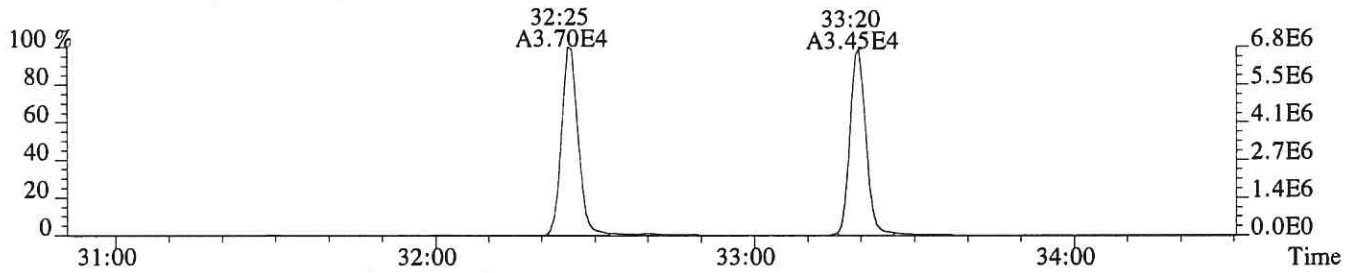
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



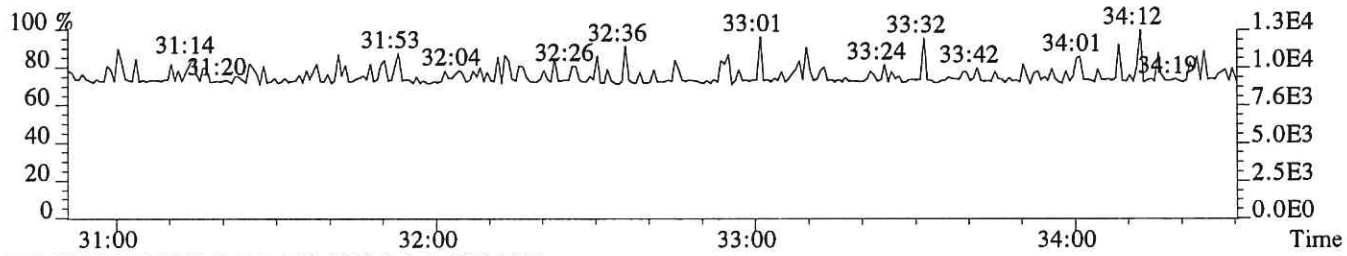
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



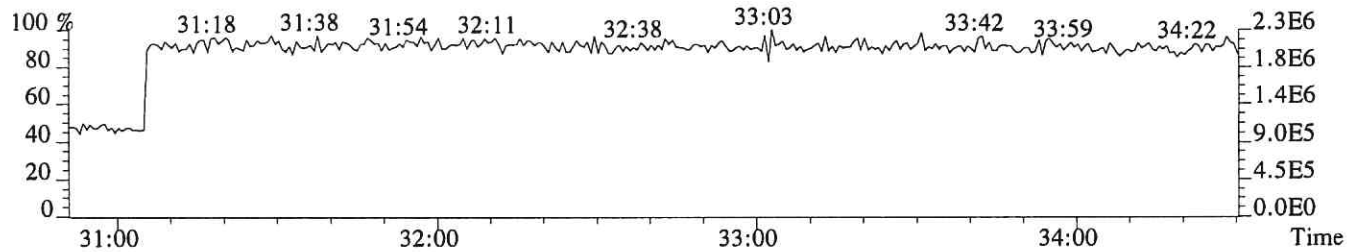
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



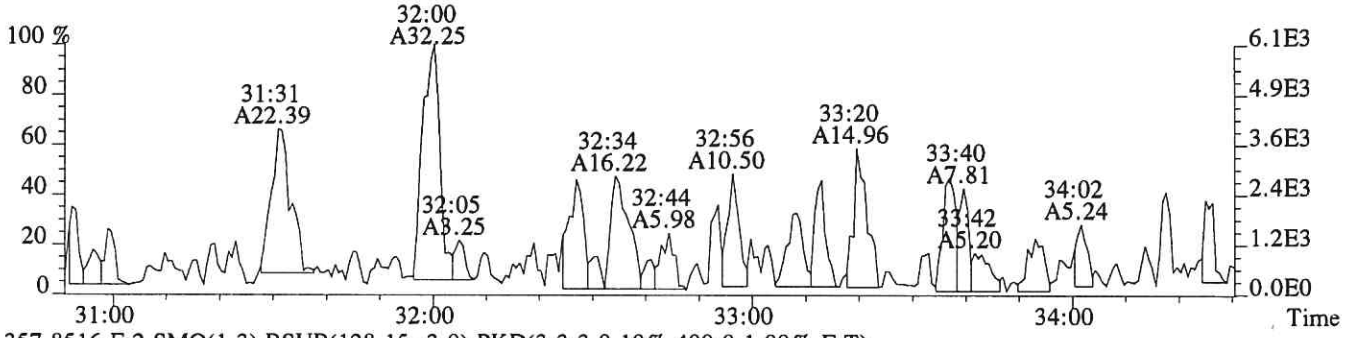
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



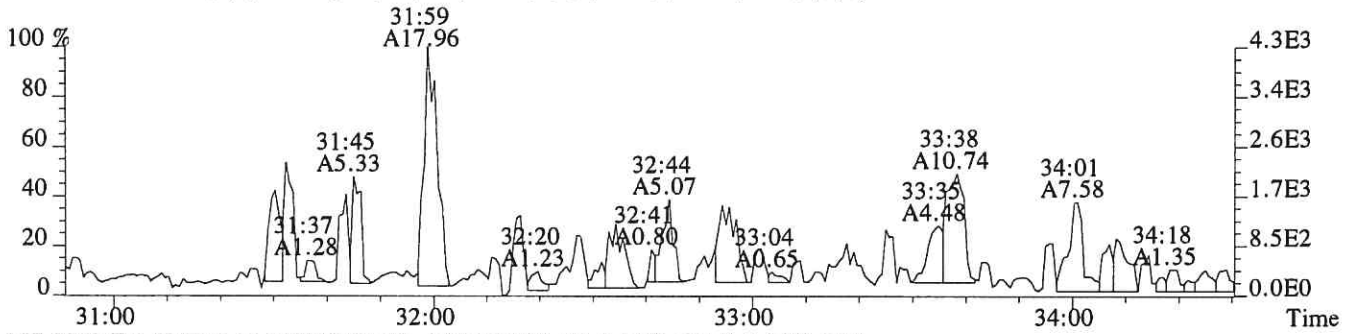
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



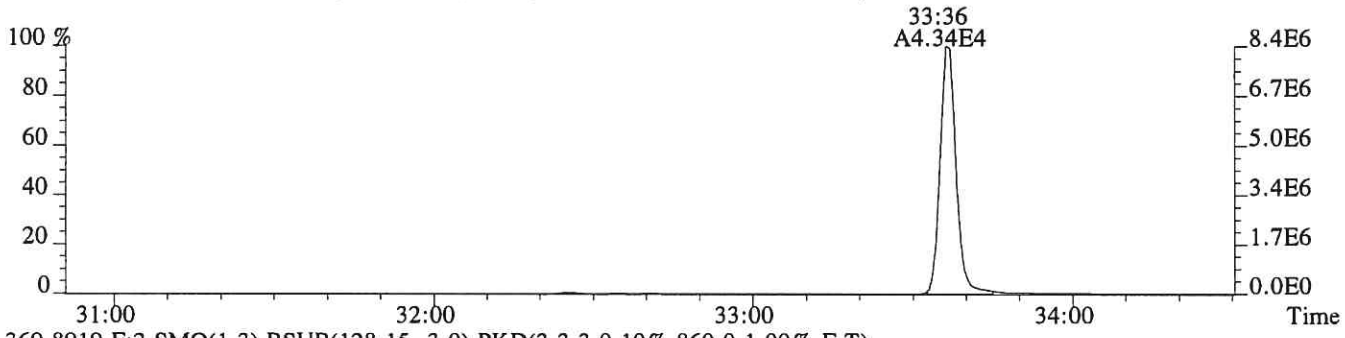
File:P519127 #1-330 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



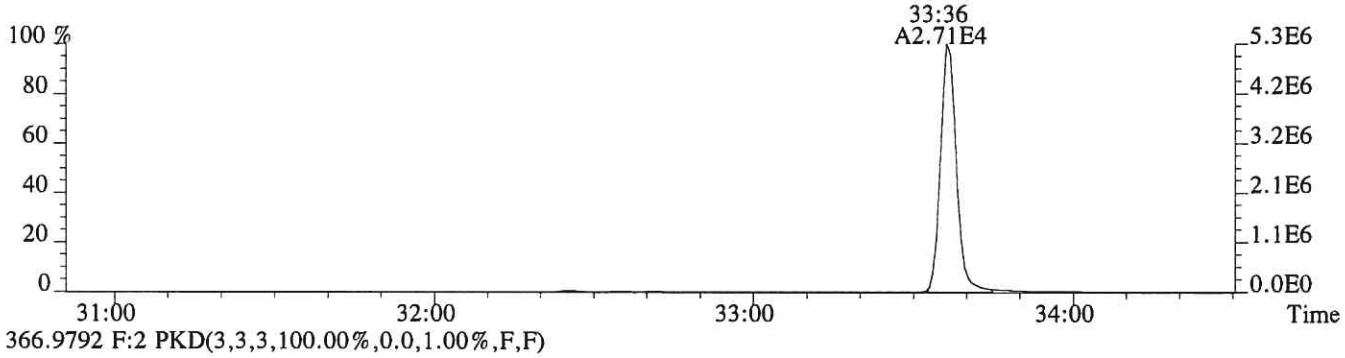
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



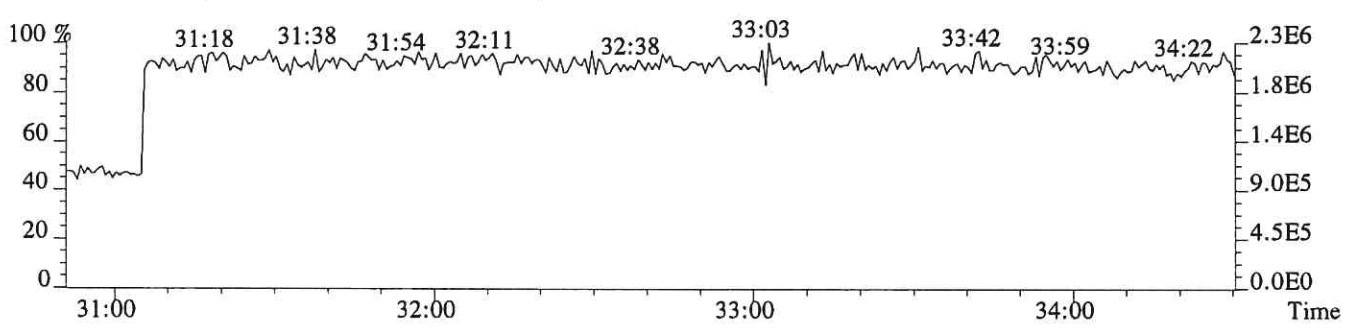
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)

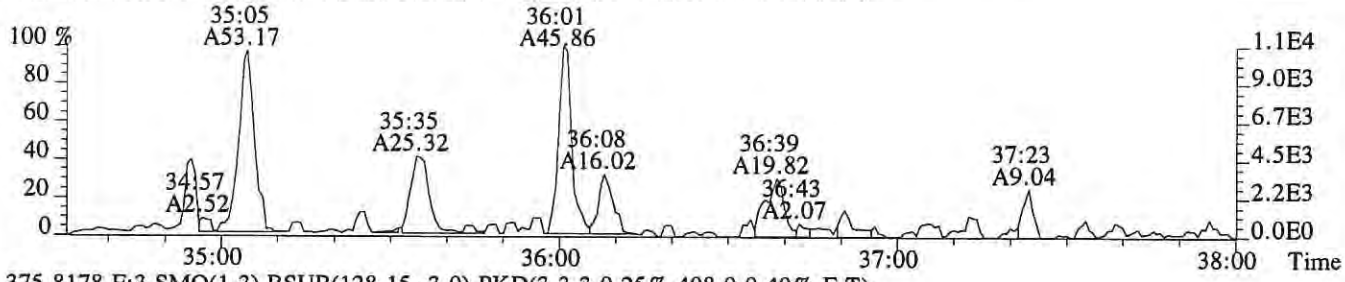


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

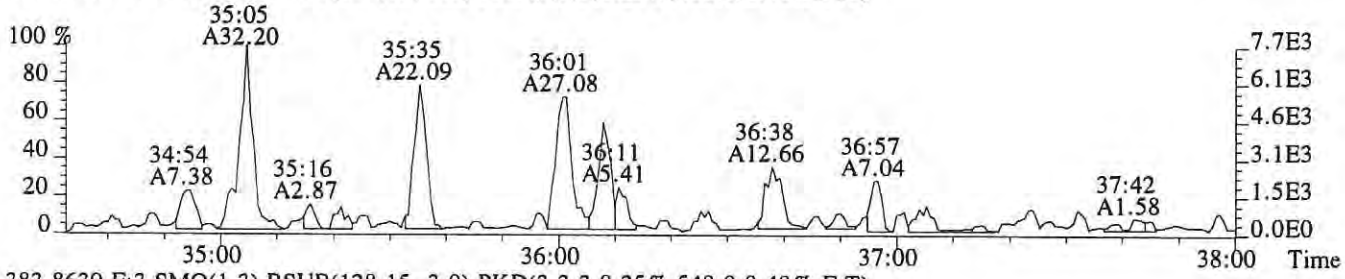


File:P519127 #1-312 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020

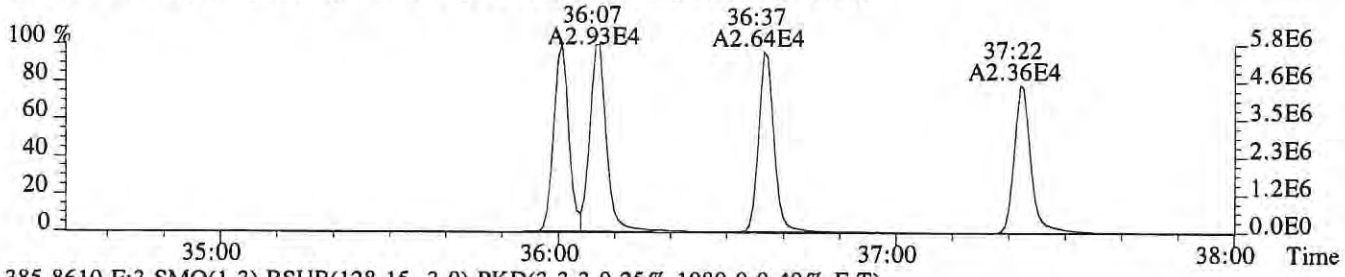
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



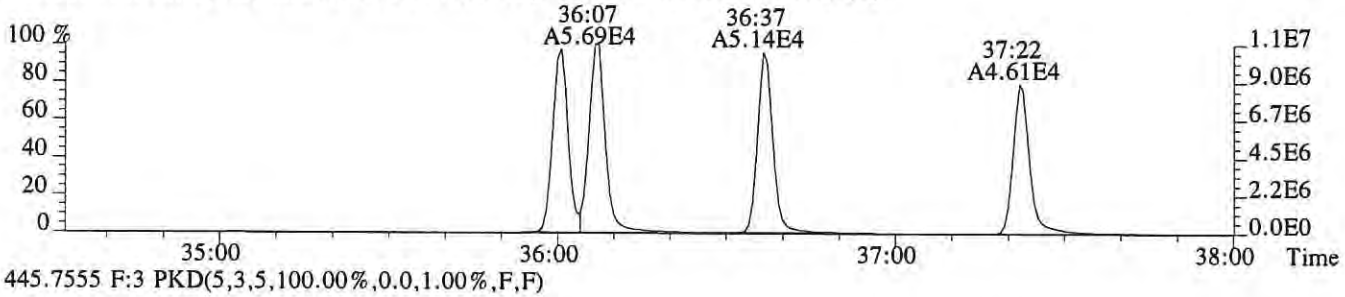
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



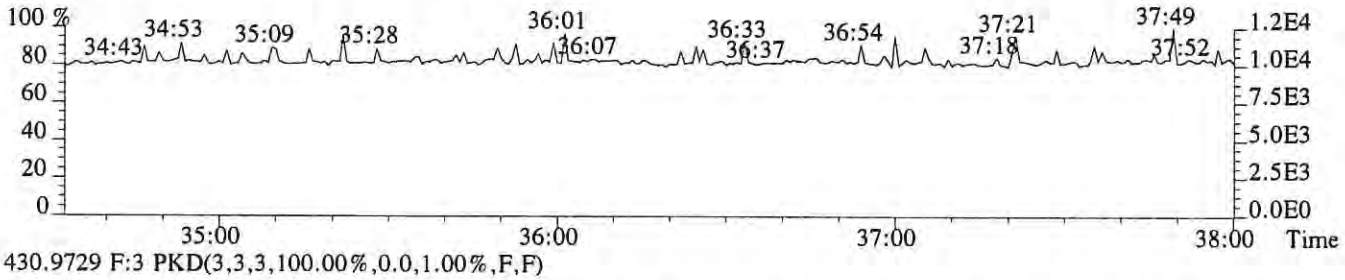
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



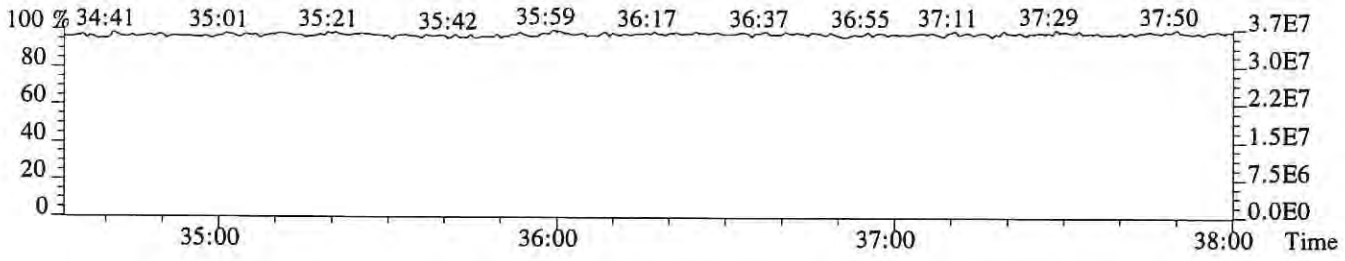
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



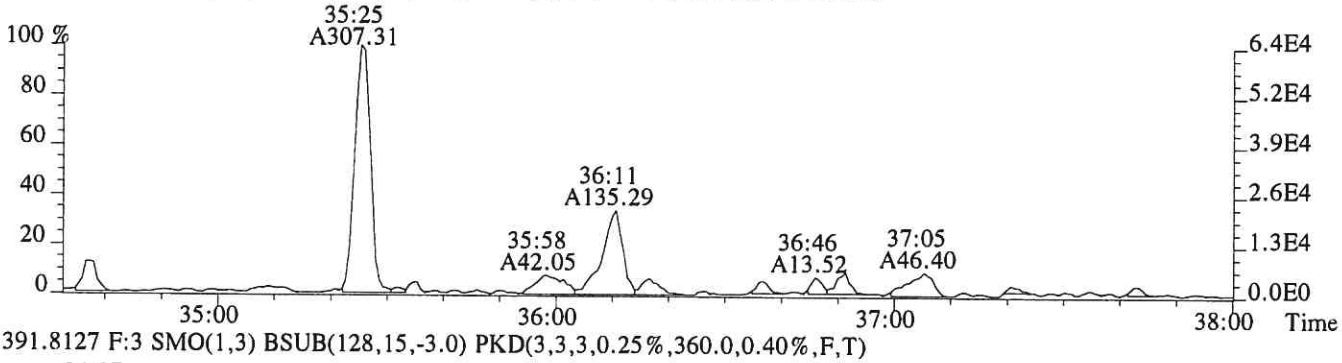
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



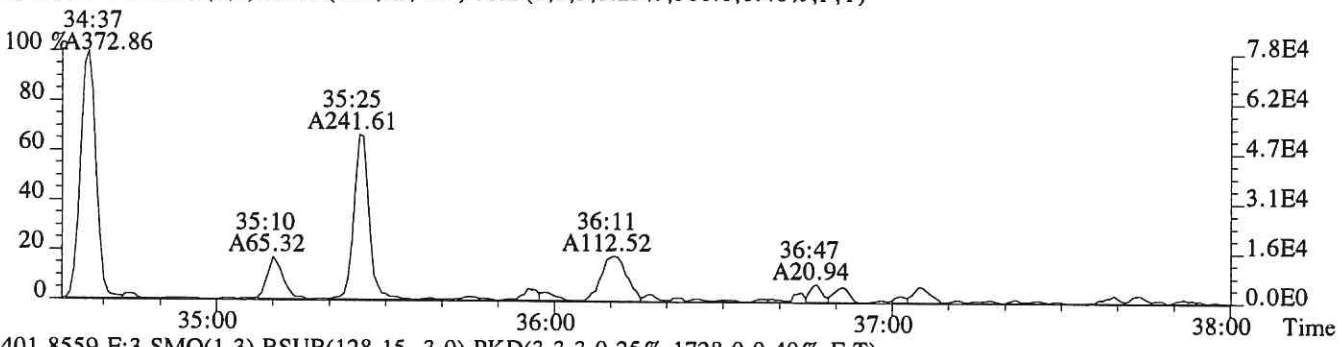
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



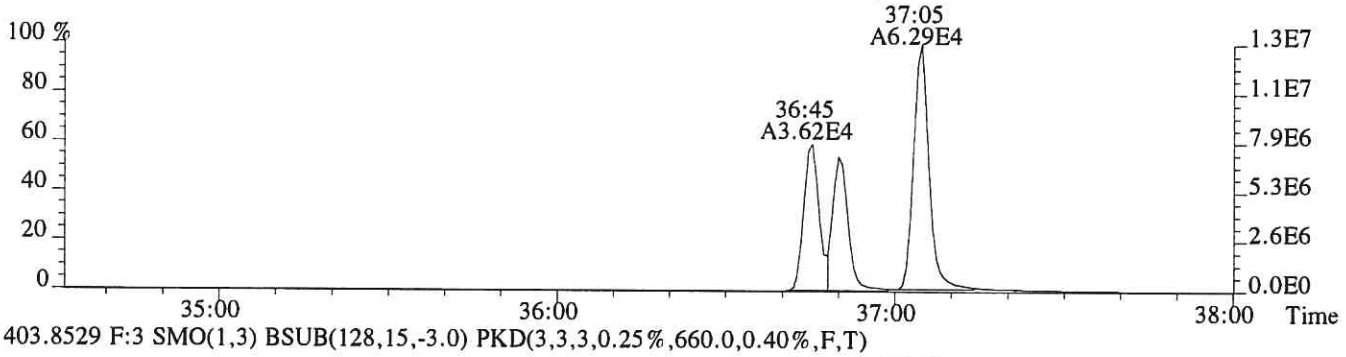
File:P519127 #1-312 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



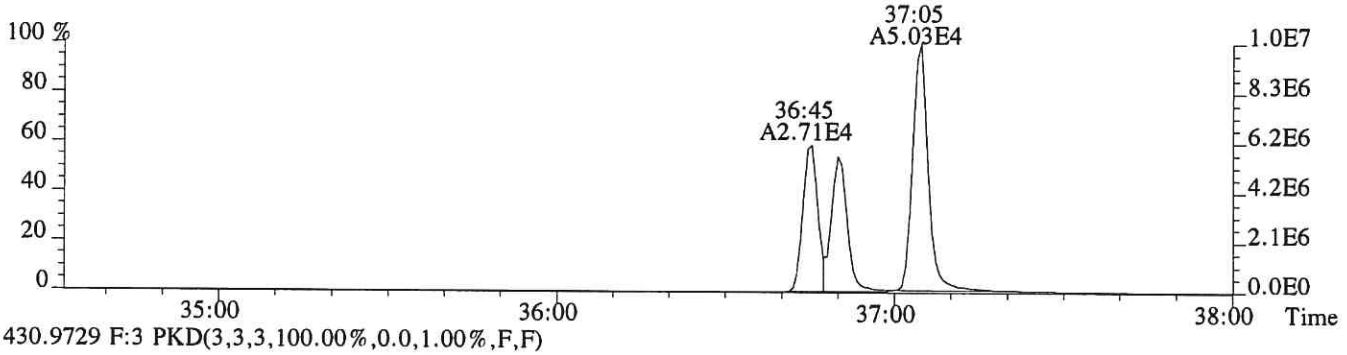
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



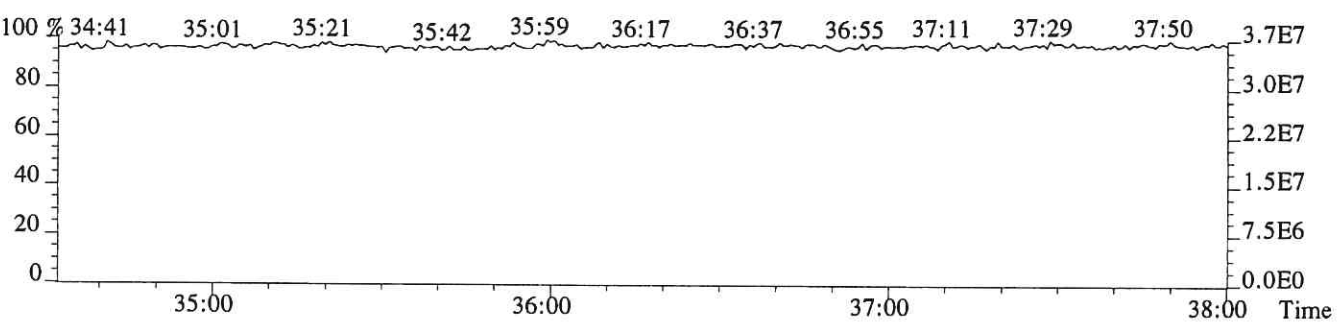
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



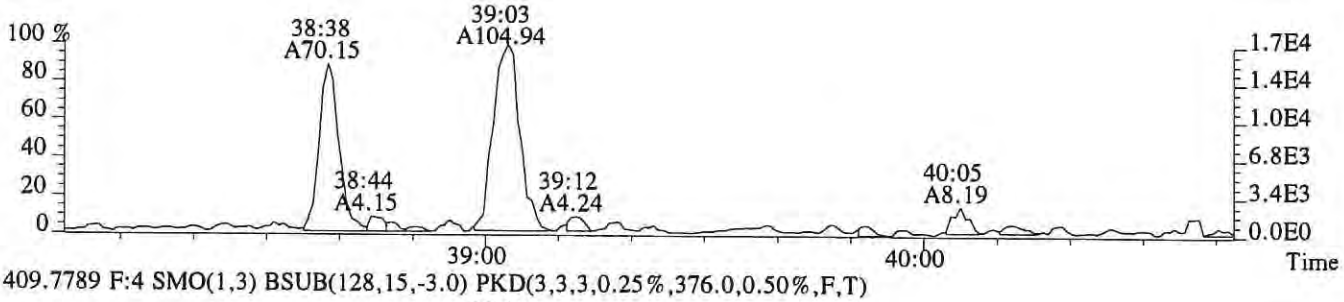
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



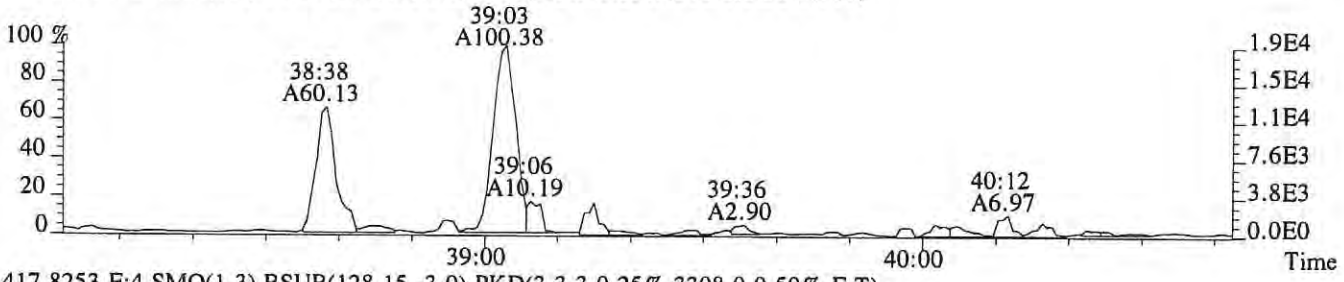
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



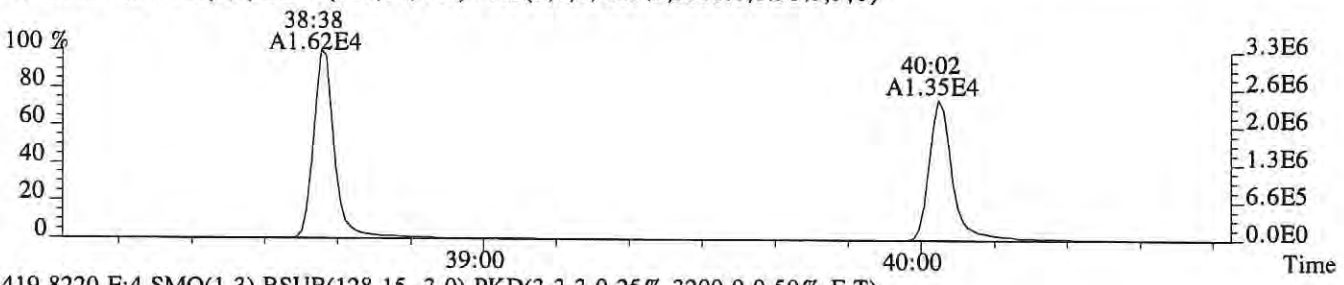
File:P519127 #1-241 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.50%,F,T)



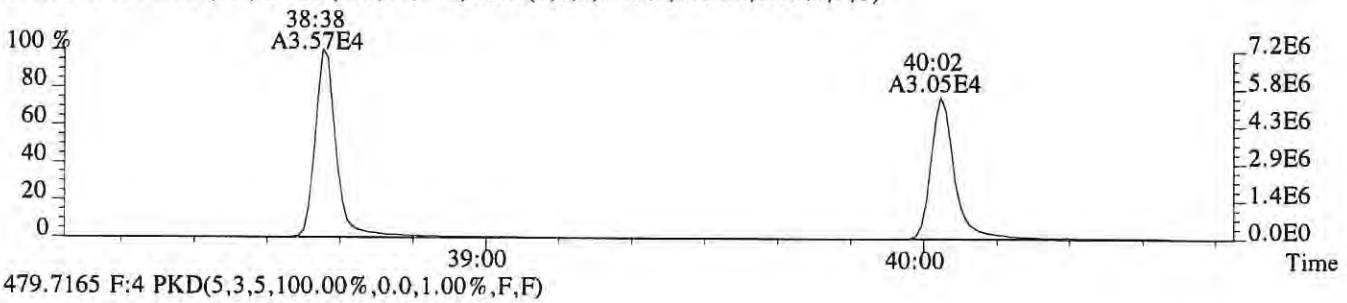
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.50%,F,T)



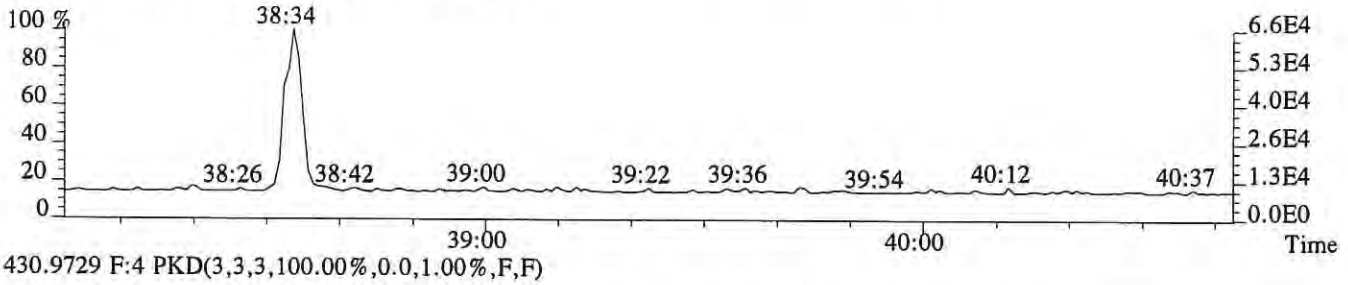
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3308.0,0.50%,F,T)



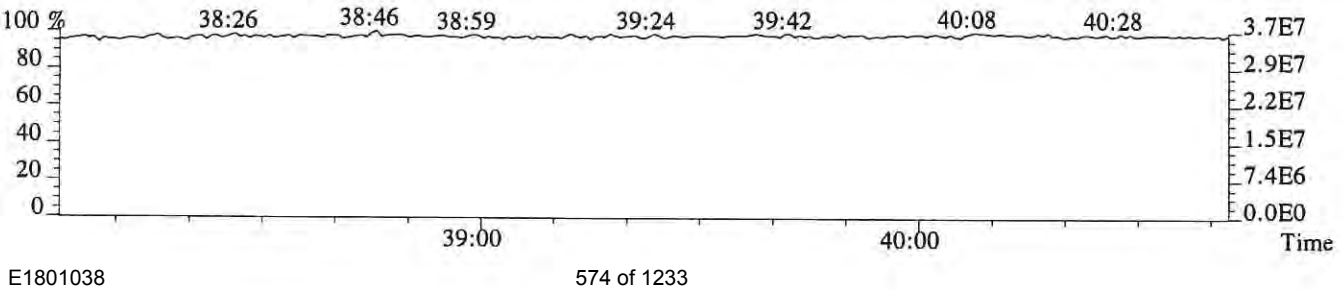
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3200.0,0.50%,F,T)



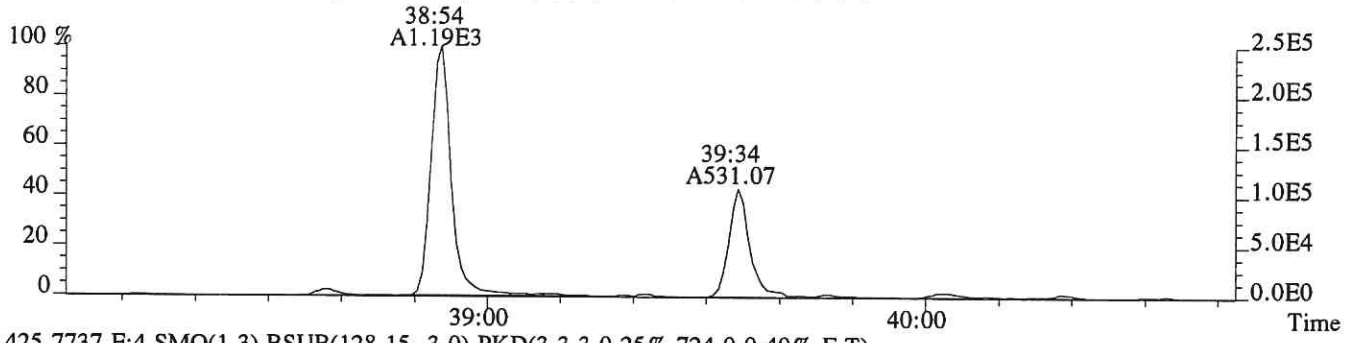
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



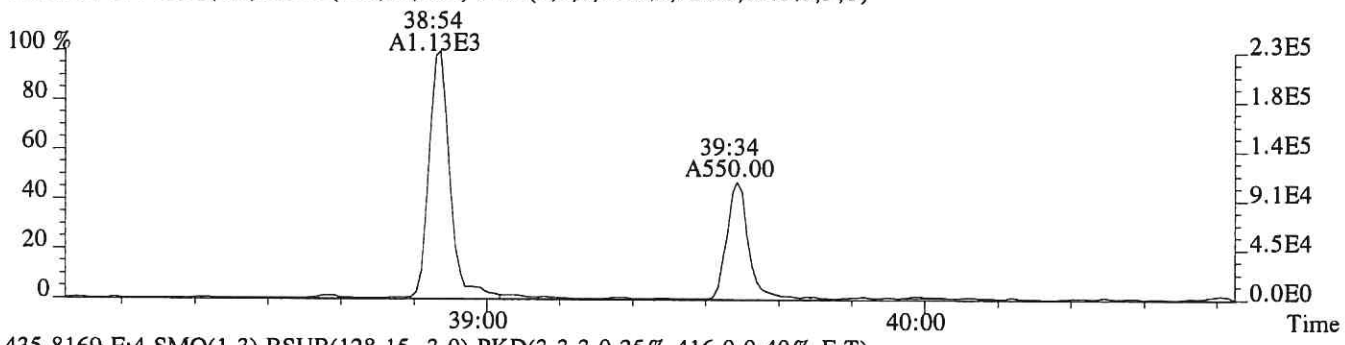
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



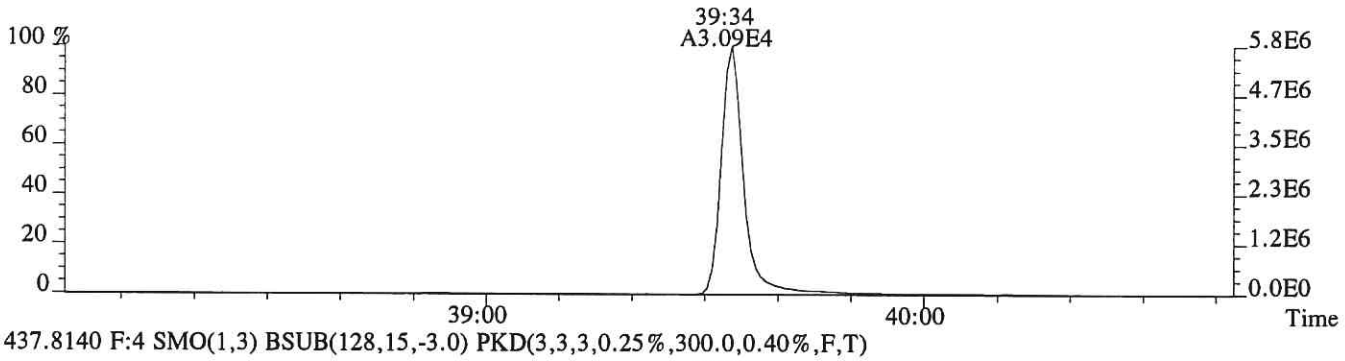
File:P519127 #1-241 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



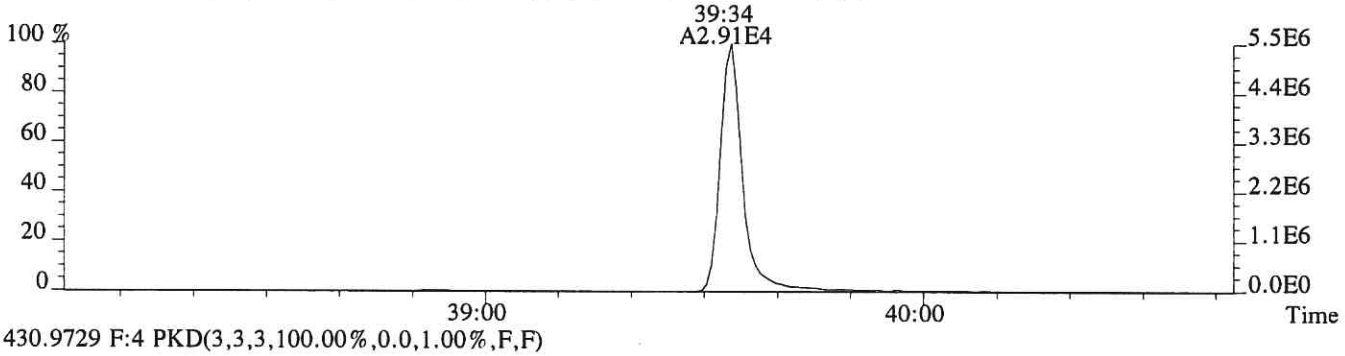
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



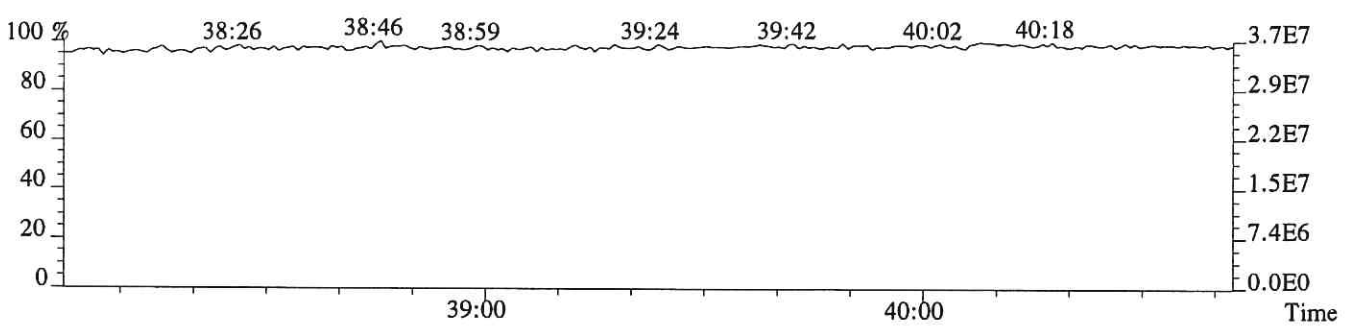
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)

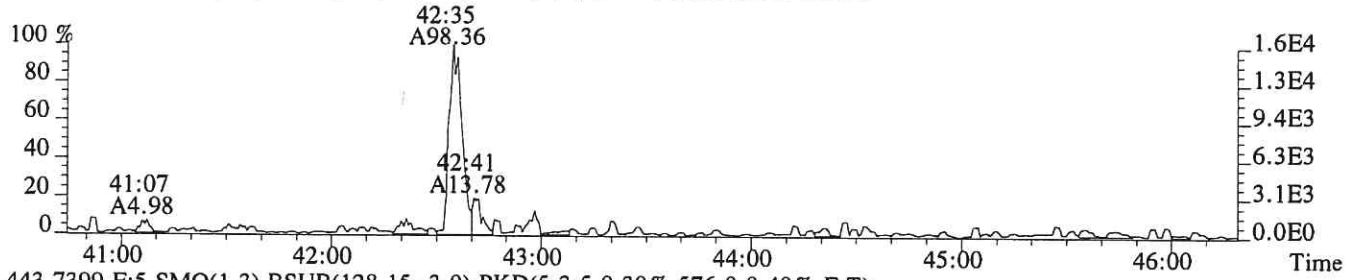


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

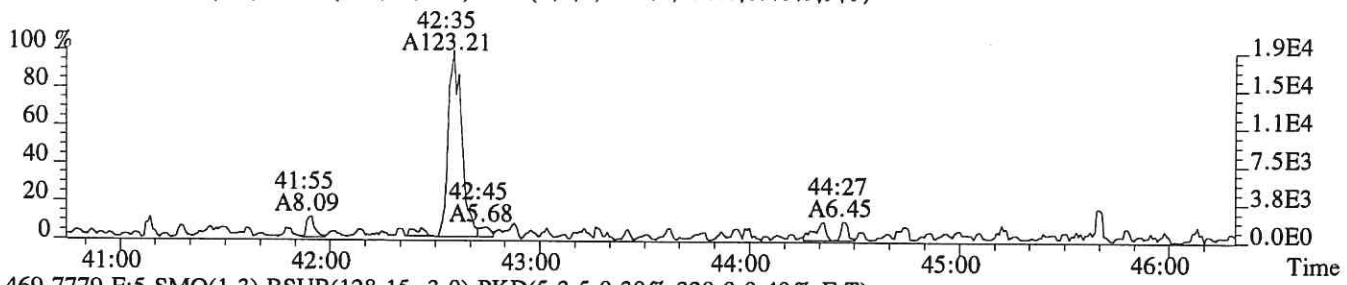


File:P519127 #1-502 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020

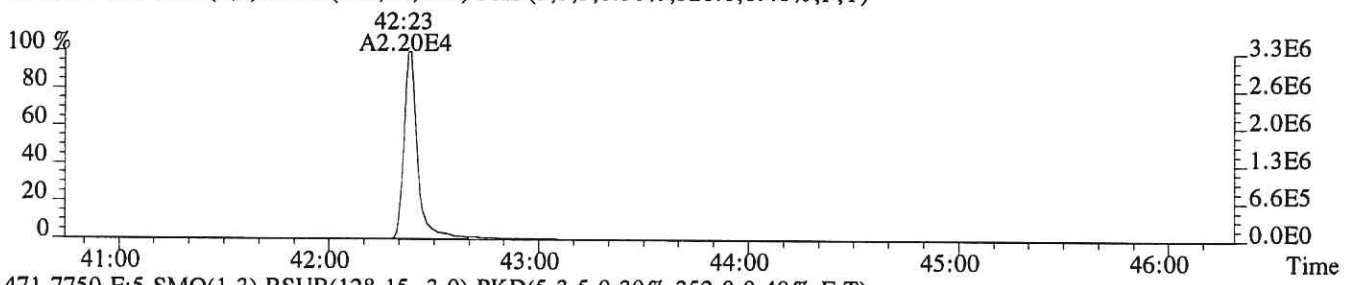
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



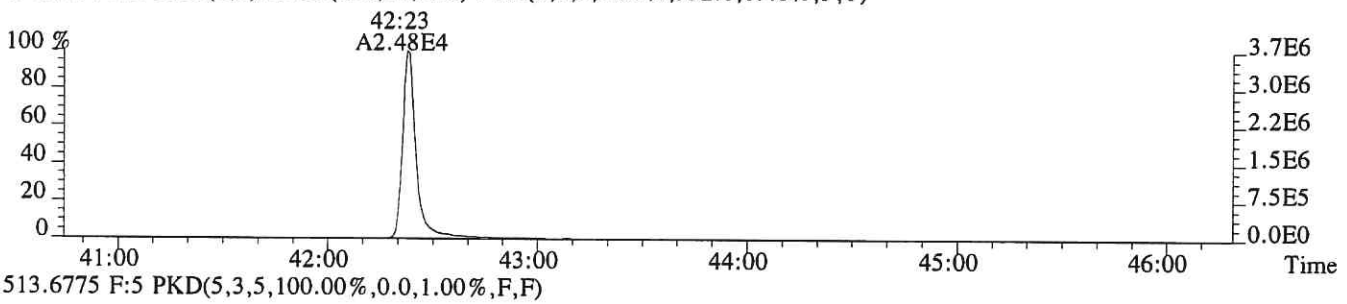
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



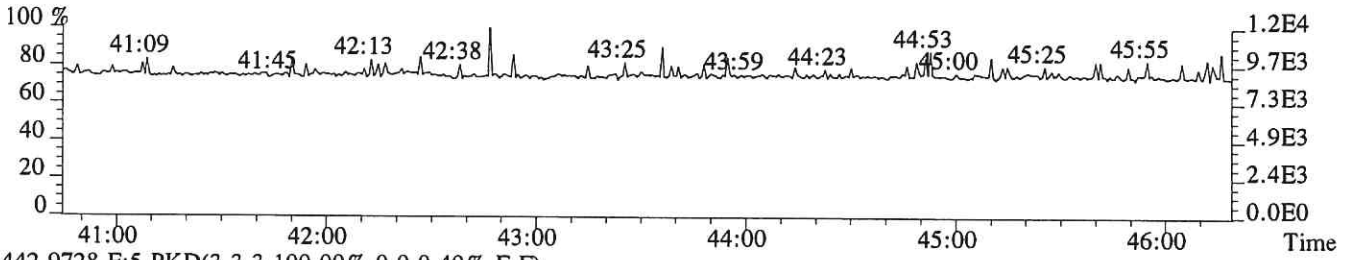
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



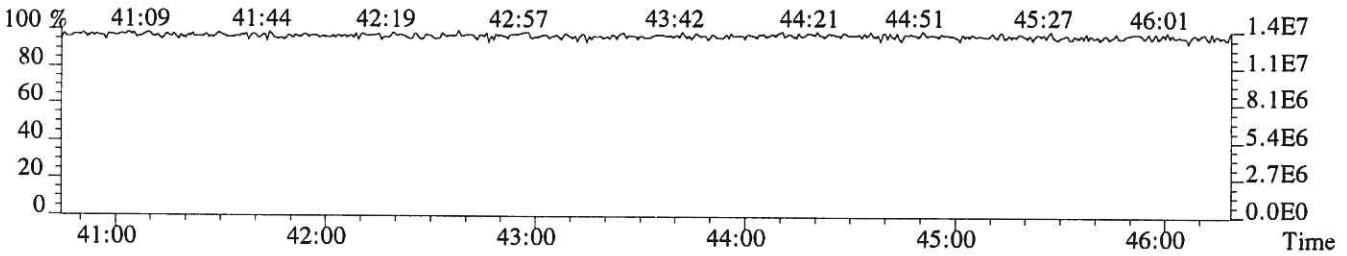
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



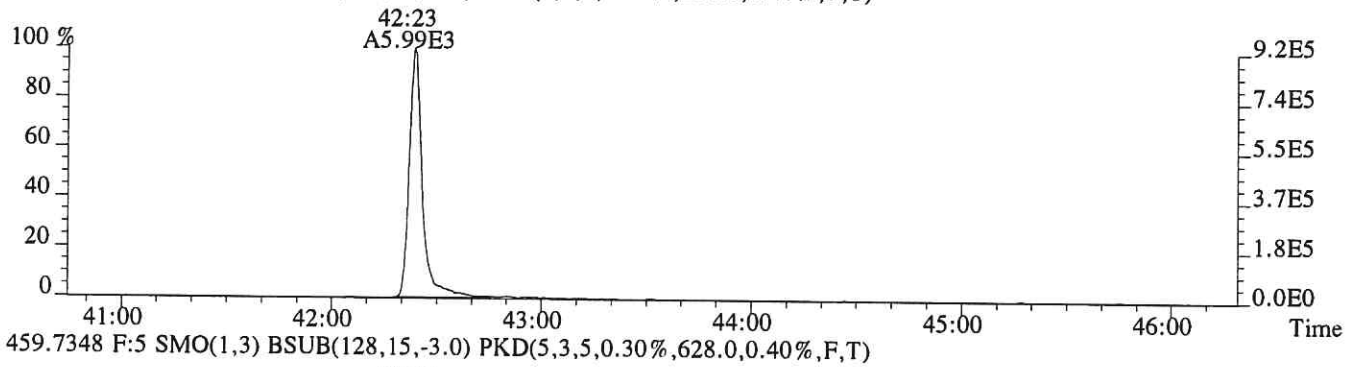
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



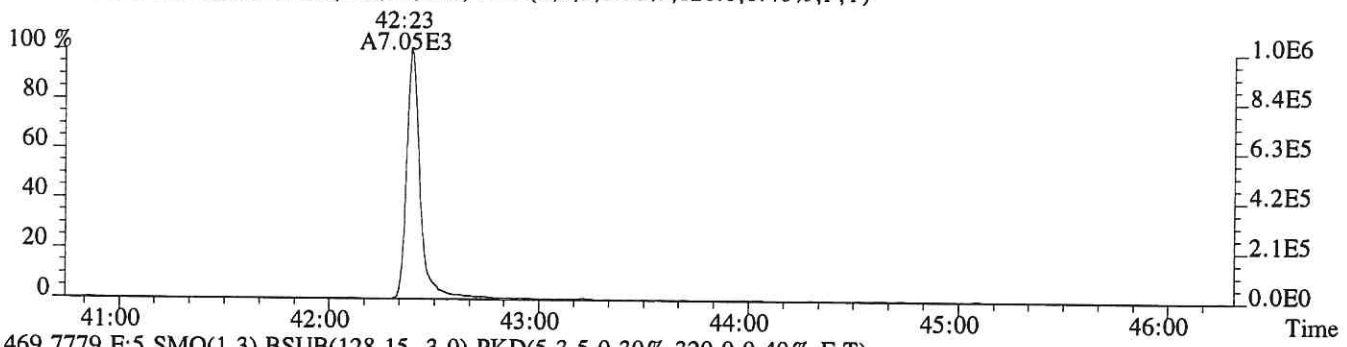
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



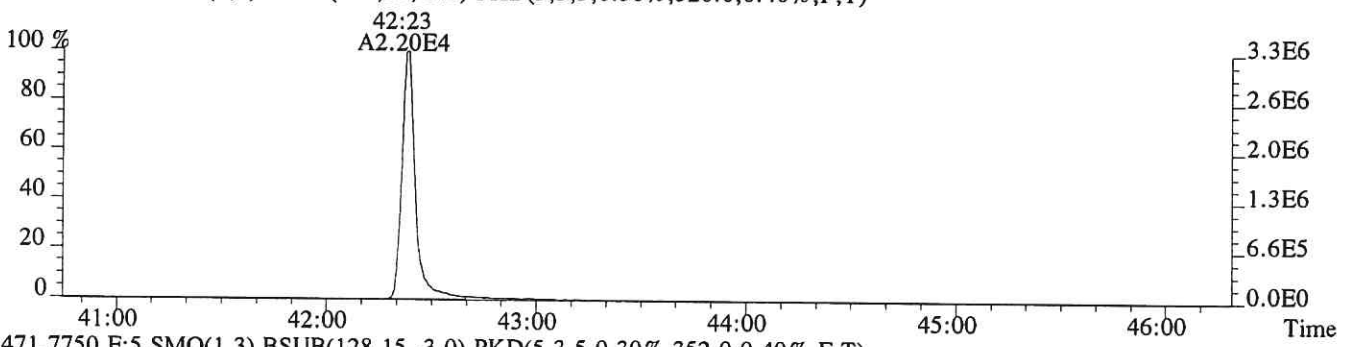
File:P519127 #1-502 Acq: 2-DEC-2018 00:30:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-020
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



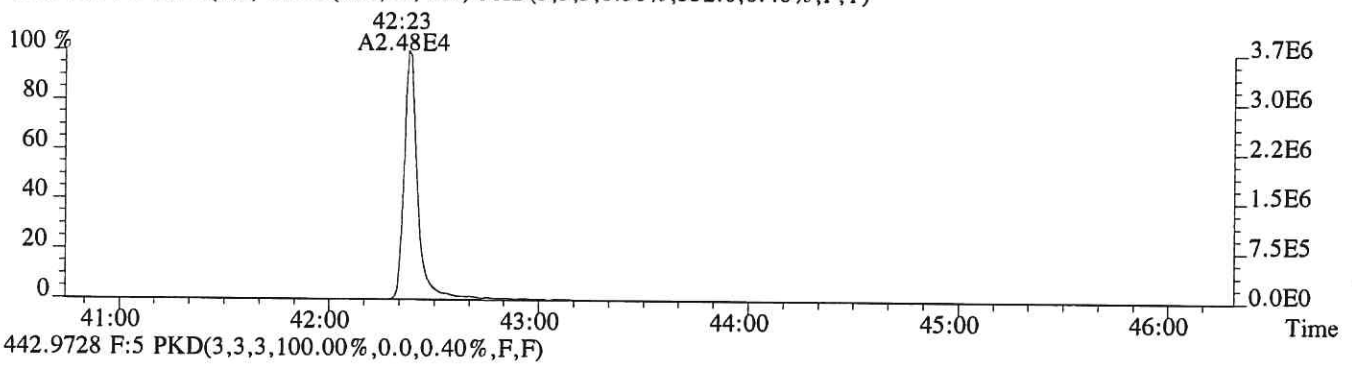
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



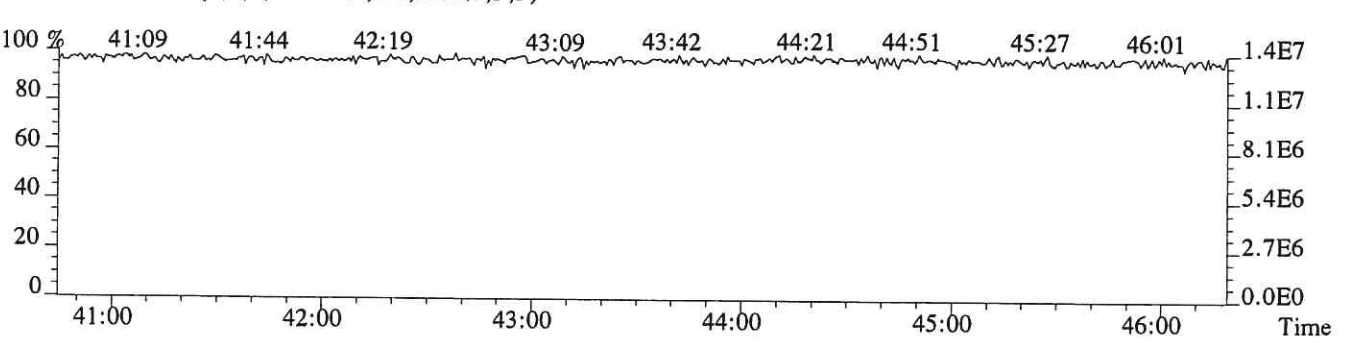
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0516

Run #10 Filename P519135 Samp: 1 Inj: 1 Acquired: 2-DEC-18 07:48:35
Processed: 3-DEC-18 17:19:06 Sample ID: E1801038-021

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	6.455e+01	1.108e+02	0.58	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	3.700e+01	1.497e+01	2.47	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	2.252e+01	4.188e+01	0.54	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	2.445e+01	4.813e+01	0.51	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	2.991e+01	1.540e+01	1.94	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	3.068e+01	2.154e+01	1.42	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	3.488e+01	1.659e+01	2.10	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	9.952e+01	9.060e+01	1.10	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	2.913e+01	1.429e+01	2.04	no	no	1.258
10	Unk	OCDF	42:37	1.544e+02	1.690e+02	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	2.146e+01	2.028e+01	1.06	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	3.792e+01	2.674e+01	1.42	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	4.099e+01	3.901e+01	1.05	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	7.949e+02	7.891e+02	1.01	yes	no	1.025
17	Unk	OCDD	42:25	1.030e+04	1.157e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	3.045e+04	3.863e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.253e+04	3.330e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.916e+04	3.064e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.314e+04	4.471e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.546e+04	4.910e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.367e+04	4.620e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	2.098e+04	3.989e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.485e+04	3.317e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.241e+04	2.840e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	2.250e+04	2.888e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.821e+04	2.432e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	3.275e+04	2.621e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.146e+04	2.453e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.737e+04	2.579e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:24	1.868e+04	2.055e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.813e+04	6.114e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.789e+04	5.490e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.388e+04				no	1.014

$$\text{OCDD} = \frac{(1.030e+04 + 1.157e+04) \times 4000\ \text{pg} \times 1}{(1.868e+04 + 2.055e+04) \times 10.207\ \text{g} \times 81.9 / 100 \times 1.118} = 238.6\ \text{ng/kg}$$

LLM 12/05/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0516

Run #10 Filename P519135 Samp: 1 Inj: 1 Acquired: 2-DEC-18 07:48:35
Processed: 3-DEC-18 17:19:06 LAB. ID: E1801038-021

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.16e+04	7.52e+02	1.5e+01	2.05e+04	1.98e+03	1.0e+01
2	1,2,3,7,8-PeCDF	6.98e+03	5.04e+02	1.4e+01	3.63e+03	1.43e+03	2.5e+00
3	2,3,4,7,8-PeCDF	5.75e+03	5.04e+02	1.1e+01	5.45e+03	1.43e+03	3.8e+00
4	1,2,3,4,7,8-HxCDF	5.34e+03	7.40e+02	7.2e+00	7.66e+03	6.40e+02	1.2e+01
5	1,2,3,6,7,8-HxCDF	4.45e+03	7.40e+02	6.0e+00	2.86e+03	6.40e+02	4.5e+00
6	2,3,4,6,7,8-HxCDF	6.44e+03	7.40e+02	8.7e+00	5.45e+03	6.40e+02	8.5e+00
7	1,2,3,7,8,9-HxCDF	6.17e+03	7.40e+02	8.3e+00	2.23e+03	6.40e+02	3.5e+00
8	1,2,3,4,6,7,8-HpCDF	1.93e+04	6.92e+02	2.8e+01	1.99e+04	4.56e+02	4.4e+01
9	1,2,3,4,7,8,9-HpCDF	6.19e+03	6.92e+02	8.9e+00	3.39e+03	4.56e+02	7.4e+00
10	OCDF	2.16e+04	2.80e+02	7.7e+01	2.65e+04	1.07e+03	2.5e+01
11	2,3,7,8-TCDD	*	2.62e+03	*	*	1.53e+03	*
12	1,2,3,7,8-PeCDD	3.93e+03	9.20e+02	4.3e+00	2.82e+03	2.88e+02	9.8e+00
13	1,2,3,4,7,8-HxCDD	*	8.68e+02	*	*	1.34e+03	*
14	1,2,3,6,7,8-HxCDD	7.68e+03	8.68e+02	8.8e+00	4.64e+03	1.34e+03	3.5e+00
15	1,2,3,7,8,9-HxCDD	8.53e+03	8.68e+02	9.8e+00	8.60e+03	1.34e+03	6.4e+00
16	1,2,3,4,6,7,8-HpCDD	1.41e+05	6.92e+02	2.0e+02	1.43e+05	7.64e+02	1.9e+02
17	OCDD	1.54e+06	2.40e+02	6.4e+03	1.75e+06	5.76e+02	3.0e+03
18	13C-2,3,7,8-TCDF	5.59e+06	8.59e+03	6.5e+02	7.00e+06	6.72e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	9.83e+06	5.52e+02	1.8e+04	6.18e+06	6.52e+02	9.5e+03
20	13C-2,3,4,7,8-PeCDF	9.62e+06	5.52e+02	1.7e+04	6.09e+06	6.52e+02	9.3e+03
21	13C-1,2,3,4,7,8-HxCDF	5.08e+06	9.40e+02	5.4e+03	9.60e+06	1.49e+03	6.4e+03
22	13C-1,2,3,6,7,8-HxCDF	5.02e+06	9.40e+02	5.3e+03	9.58e+06	1.49e+03	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	4.89e+06	9.40e+02	5.2e+03	9.50e+06	1.49e+03	6.4e+03
24	13C-1,2,3,7,8,9-HxCDF	4.10e+06	9.40e+02	4.4e+03	7.96e+06	1.49e+03	5.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.98e+06	2.84e+03	1.0e+03	6.73e+06	5.49e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.22e+06	2.84e+03	7.8e+02	5.03e+06	5.49e+03	9.2e+02
27	13C-2,3,7,8-TCDD	4.35e+06	5.64e+03	7.7e+02	5.58e+06	2.92e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	7.25e+06	1.15e+03	6.3e+03	4.64e+06	9.32e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	7.10e+06	1.10e+03	6.5e+03	5.67e+06	1.20e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.47e+06	1.10e+03	5.9e+03	5.12e+06	1.20e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.25e+06	8.28e+02	6.3e+03	4.90e+06	3.80e+02	1.3e+04
32	13C-OCDD	2.80e+06	7.76e+02	3.6e+03	3.06e+06	2.72e+02	1.1e+04
33	13C-1,2,3,4-TCDD	9.37e+06	5.64e+03	1.7e+03	1.19e+07	2.92e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.40e+07	1.10e+03	1.3e+04	1.11e+07	1.20e+03	9.2e+03
35	37Cl-2,3,7,8-TCDD	4.61e+06	2.02e+03	2.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.624e{+}03 + 1.532e{+}03\ ) \times 2000}{(4.352e{+}06 + 5.579e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0516

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P519135 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 07:48:35 Processed: 3-DEC-18 17:19:06

Mass: 355.8550 357.8520 Tot Response: 1.24e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:59	3.58e+01	2.09e+01 1.71	yes	5.67e+01		n	n
2	32:36	1.85e+01	1.05e+01 1.76	yes	2.90e+01		n	n
3	32:55	2.18e+01	1.59e+01 1.37	yes	3.78e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0516

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519135 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 07:48:35 Processed: 3-DEC-18 17:19:06

Mass: 373.8210 375.8180 Tot Response: 1.99e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	1.39e+01	1.10e+01 1.27	yes	2.48e+01		n	n
2	35:36	6.25e+01	5.92e+01 1.06	yes	1.22e+02		n	n
3	36:38	3.07e+01	2.15e+01 1.42	yes	5.22e+01	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0516

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519135 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 07:48:35 Processed: 3-DEC-18 17:19:06

Mass: 389.8160 391.8130 Tot Response: 1.17e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	4.10e+02	3.27e+02 1.25	yes	7.36e+02		n	n
2	36:11	1.79e+02	1.41e+02 1.27	yes	3.19e+02		n	n
3	36:17	2.80e+01	2.38e+01 1.18	yes	5.17e+01		n	n
4	36:51	3.79e+01	2.67e+01 1.42	yes	6.47e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0516

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519135 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 07:48:35 Processed: 3-DEC-18 17:19:06

Mass: 407.7820 409.7790 Tot Response: 4.83e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:40	9.95e+01	9.06e+01 1.10	yes	1.90e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:03	1.47e+02	1.46e+02 1.00	yes	2.93e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0516

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519135 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 07:48:35 Processed: 3-DEC-18 17:19:06

Mass: 423.7770 425.7740 Tot Response: 5.47e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	2.03e+03	1.85e+03 1.09	yes	3.88e+03		n	n
2	39:35	7.95e+02	7.89e+02 1.01	yes	1.58e+03	1,2,3,4,6,7,8-HpCDD	n	n

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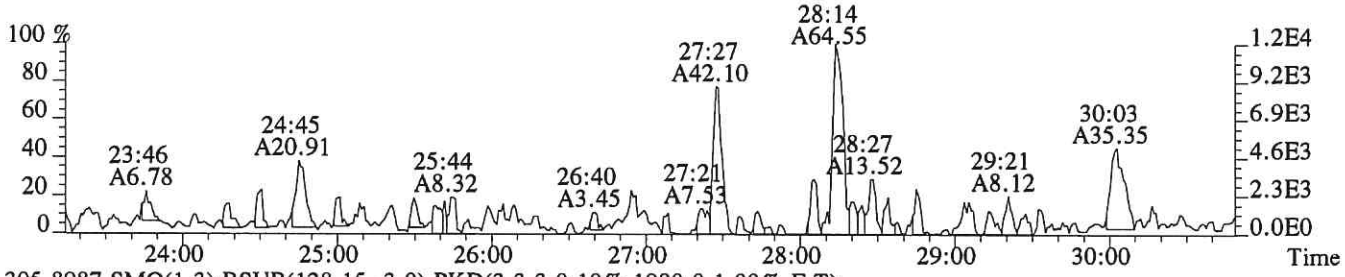
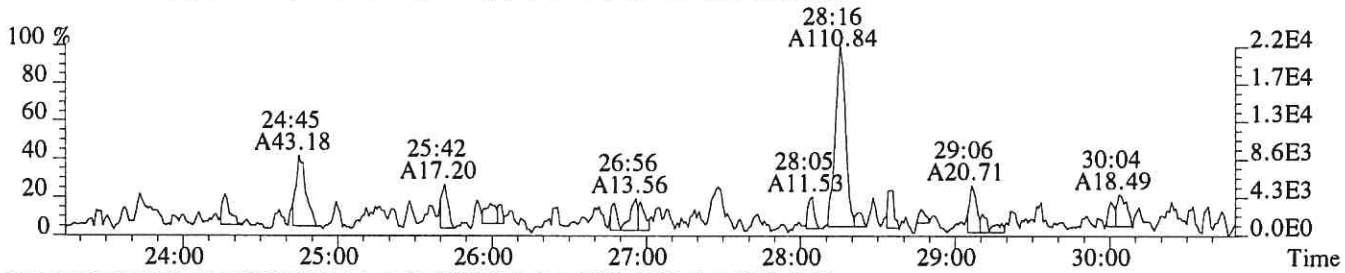
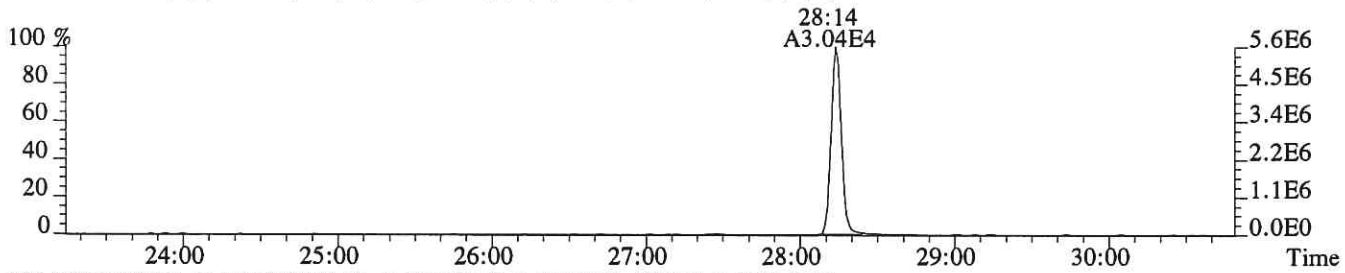
File:P519135 #1-538 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



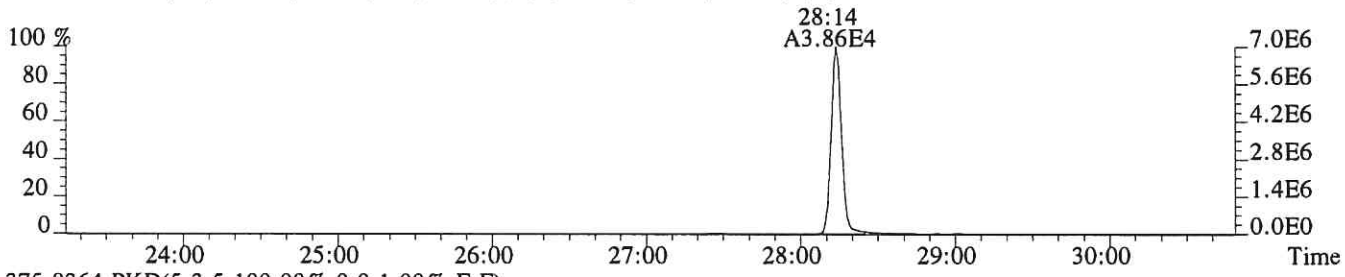
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



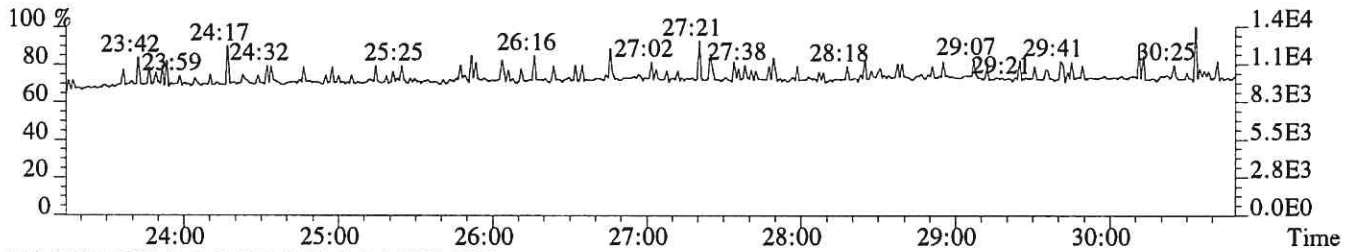
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8592.0,1.00%,F,T)



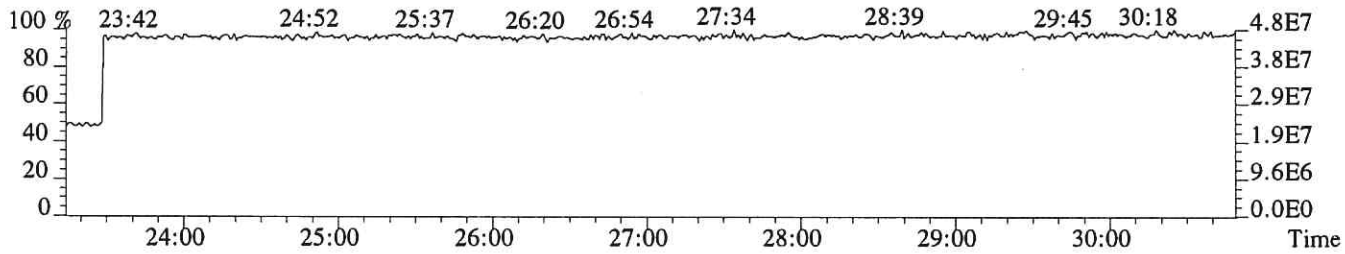
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6716.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

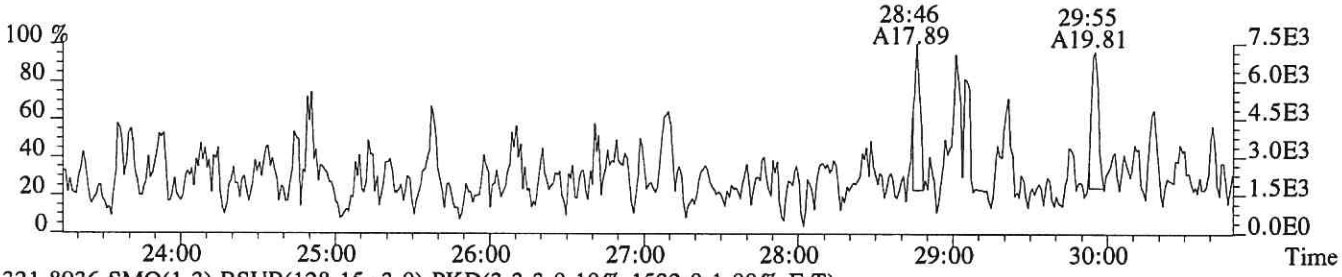


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

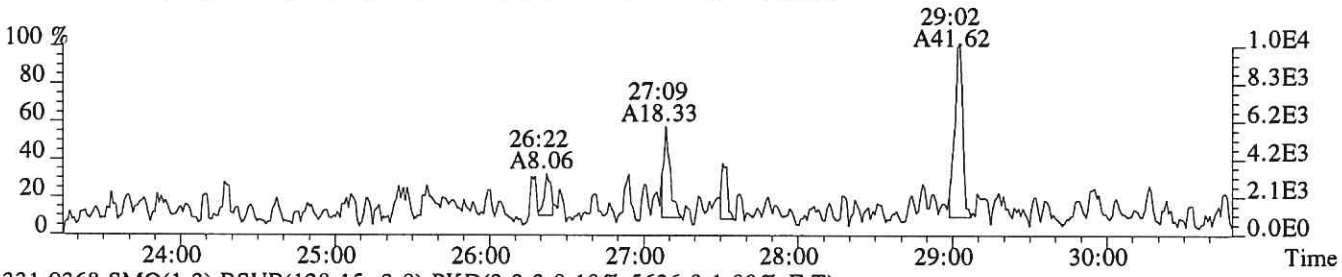


File:P519135 #1-538 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021

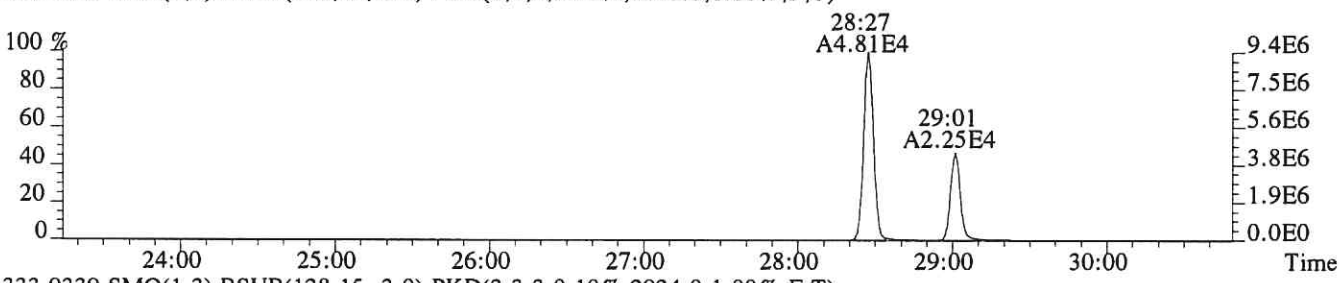
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2624.0,1.00%,F,T)



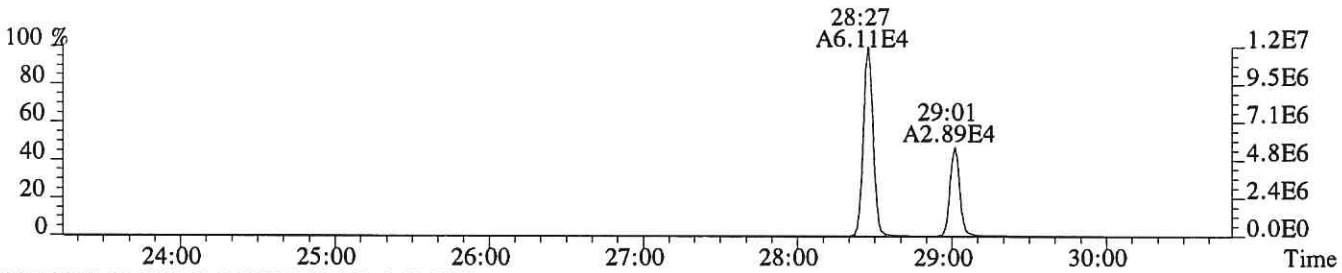
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



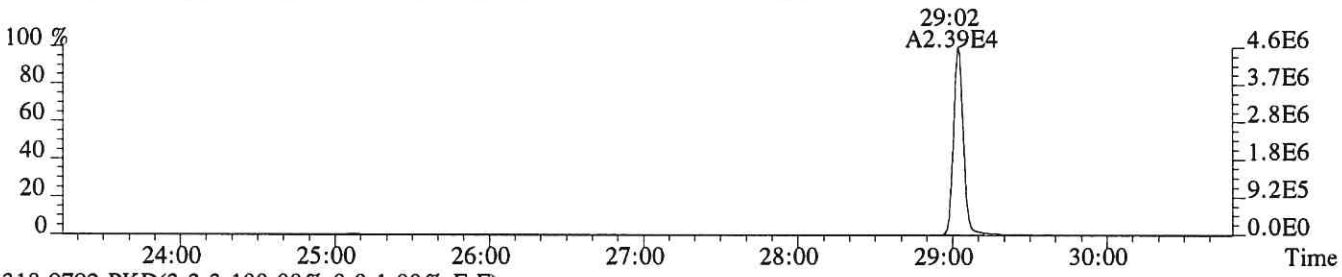
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5636.0,1.00%,F,T)



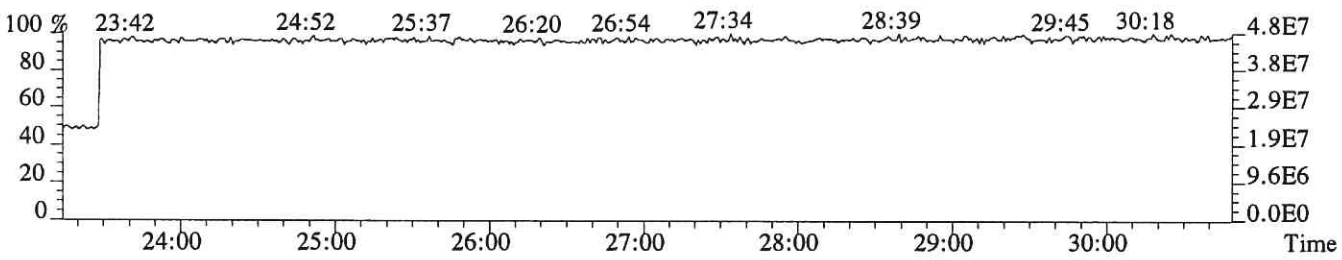
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2924.0,1.00%,F,T)



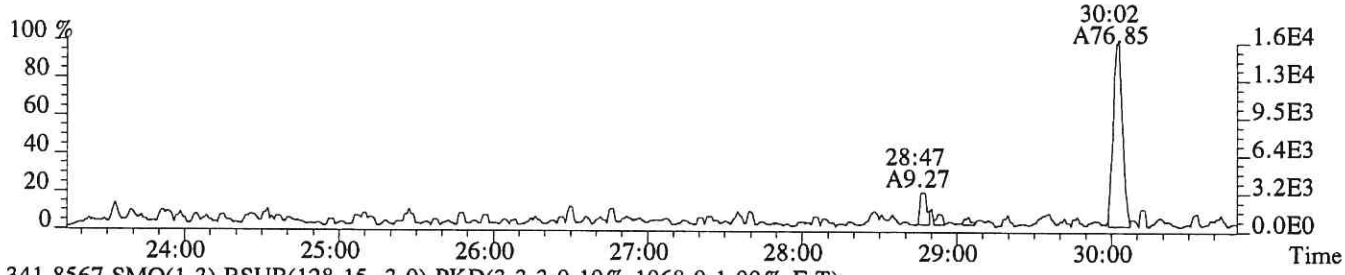
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



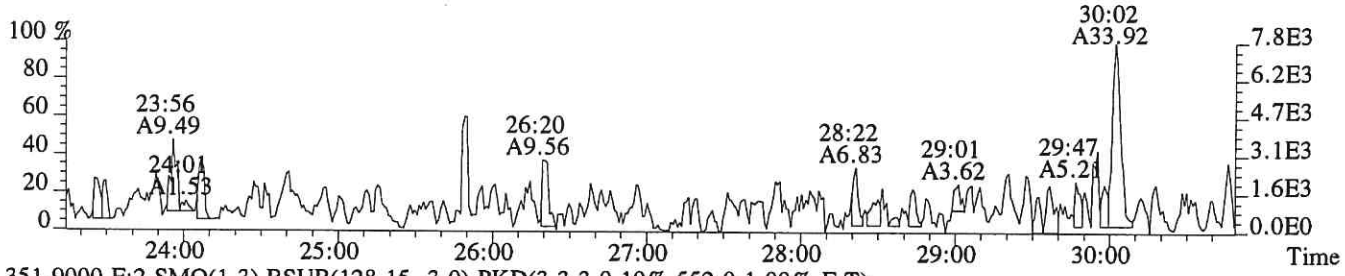
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



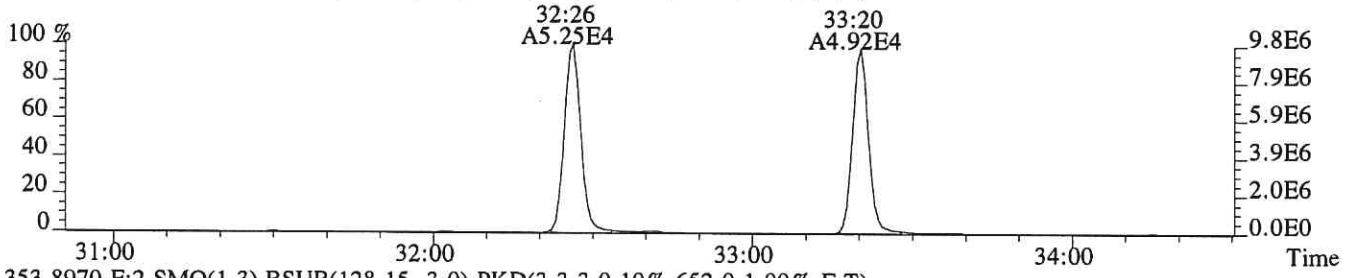
File:P519135 #1-538 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



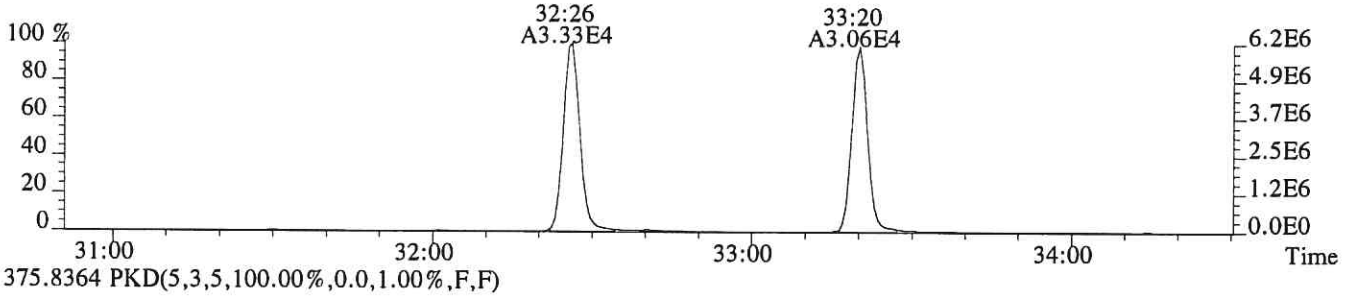
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



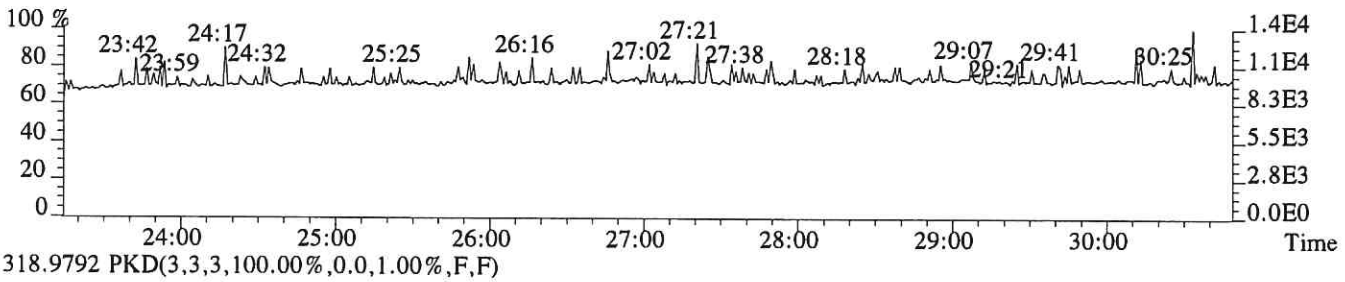
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



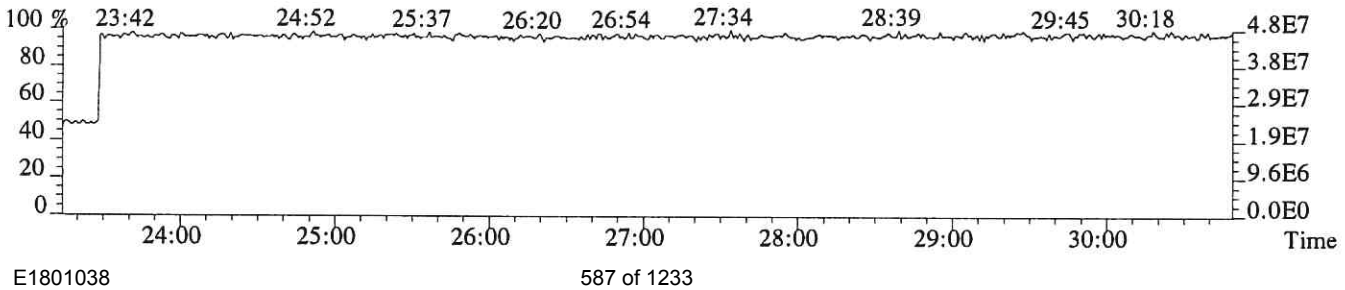
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



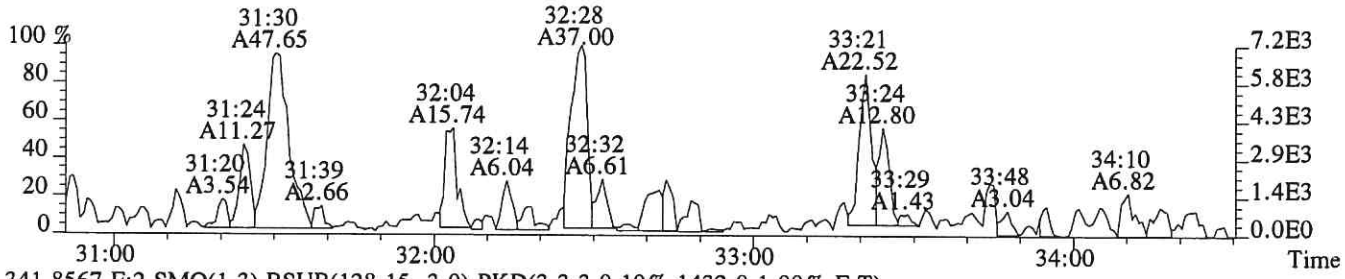
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



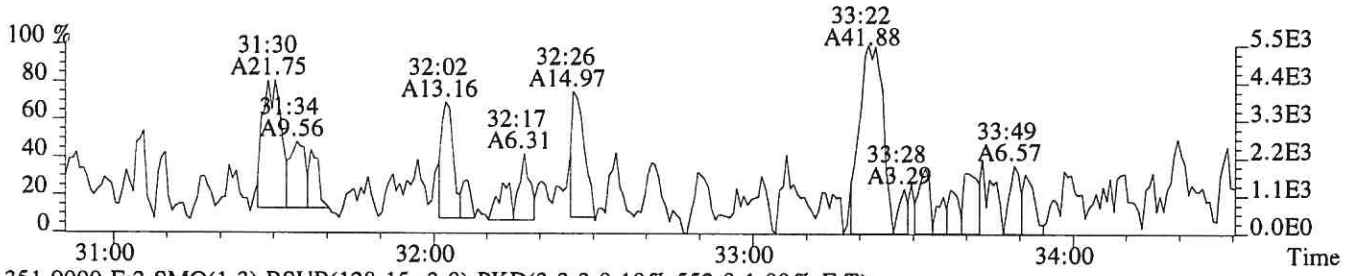
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



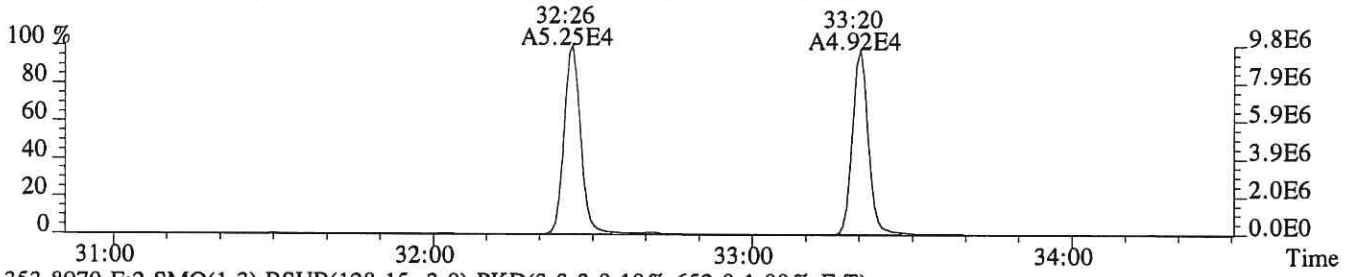
File:P519135 #1-330 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



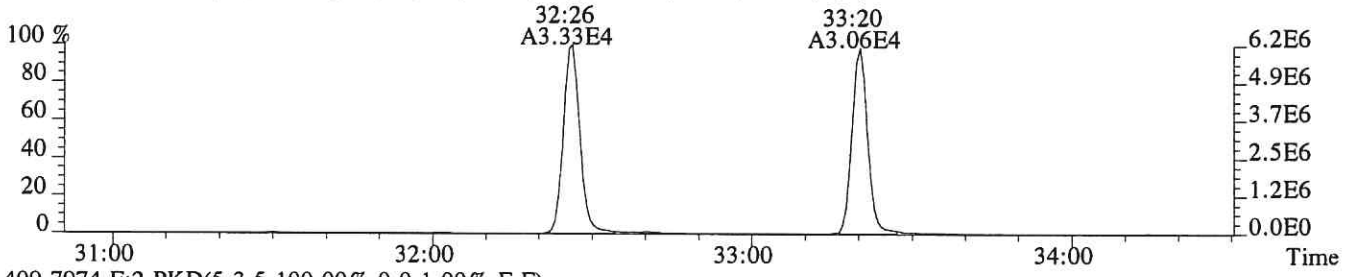
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



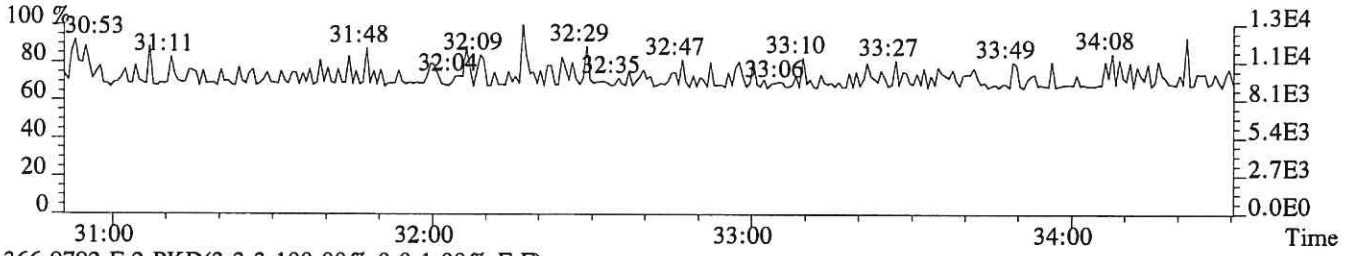
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



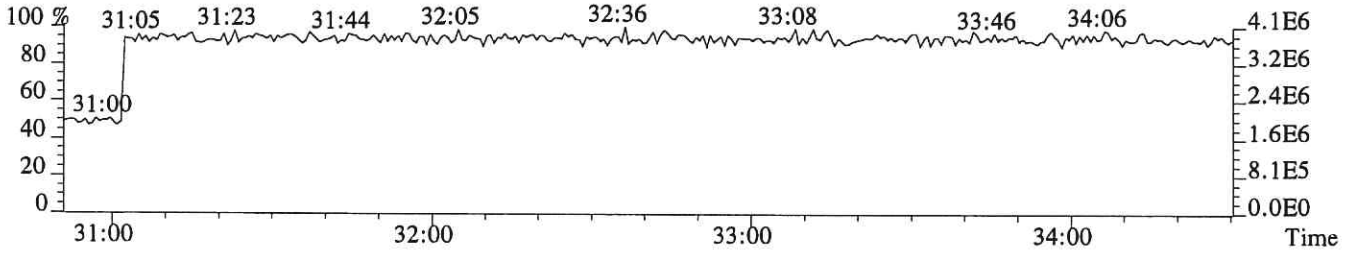
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



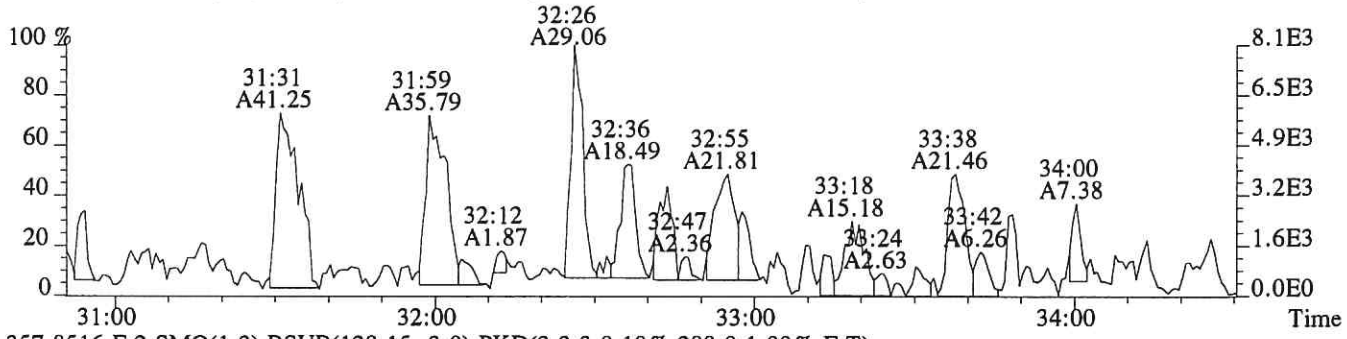
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



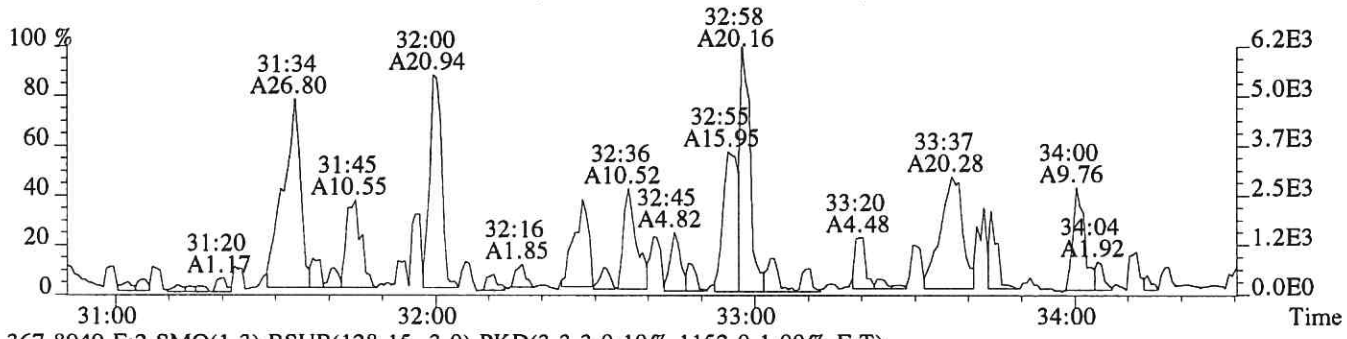
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



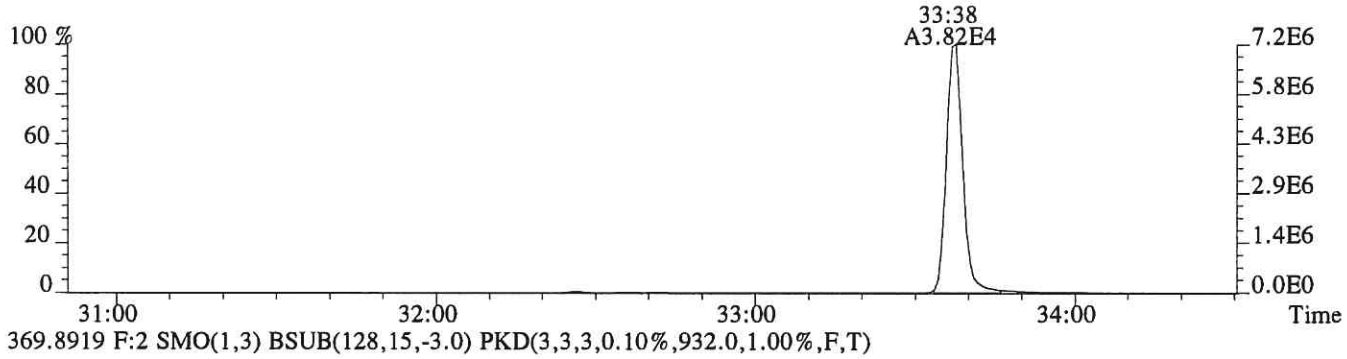
File:P519135 #1-330 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



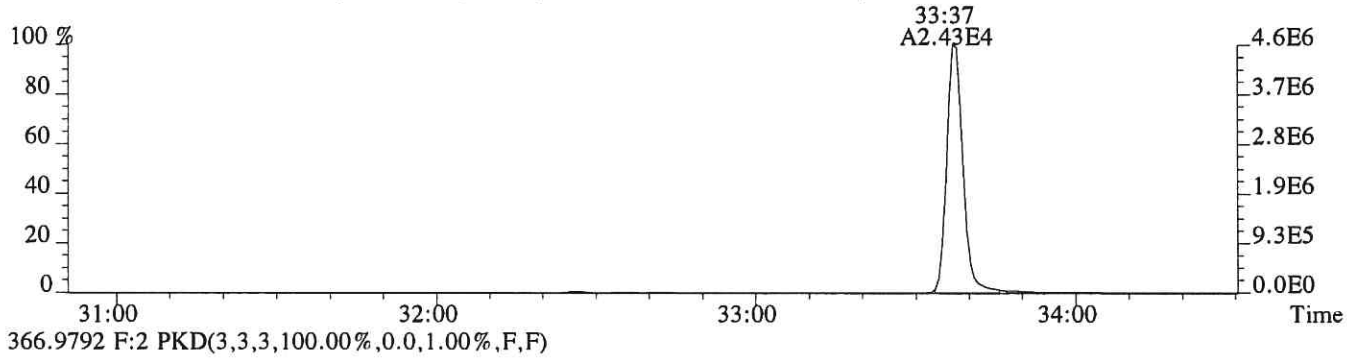
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



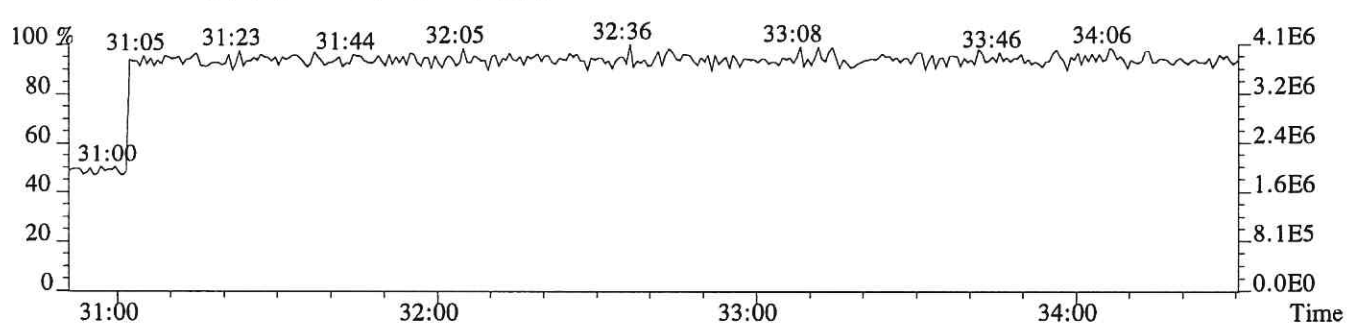
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



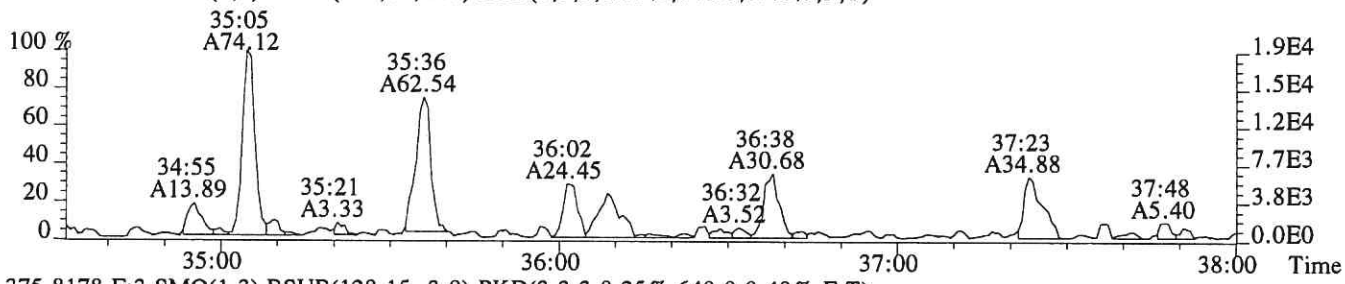
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



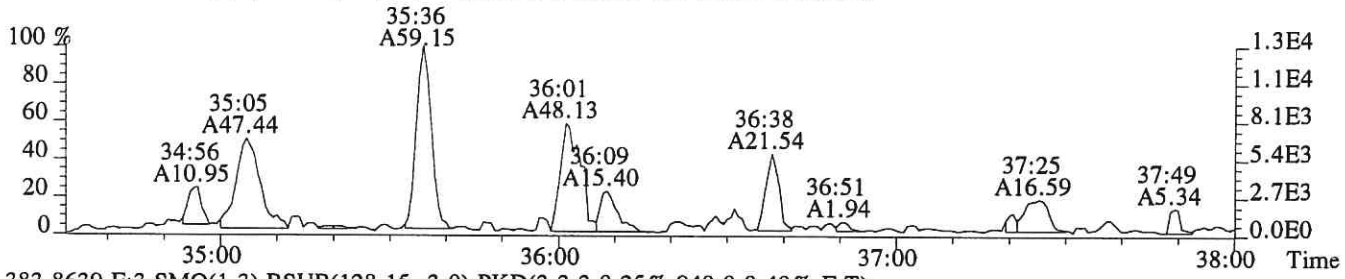
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



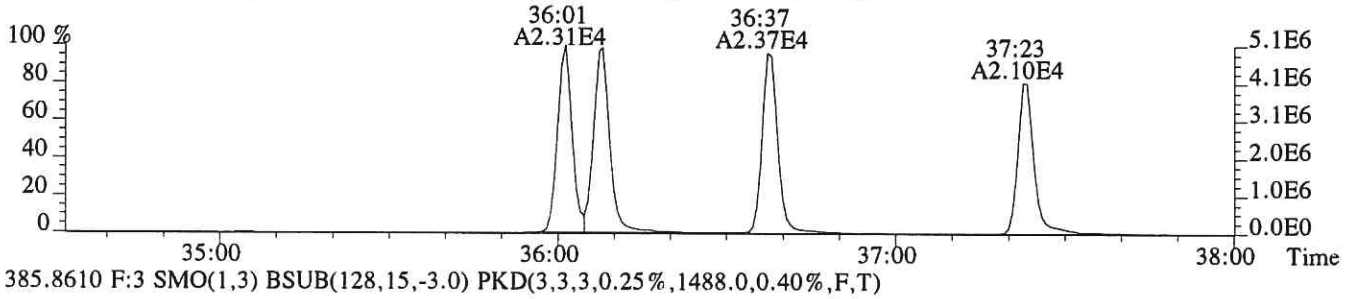
File:P519135 #1-312 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



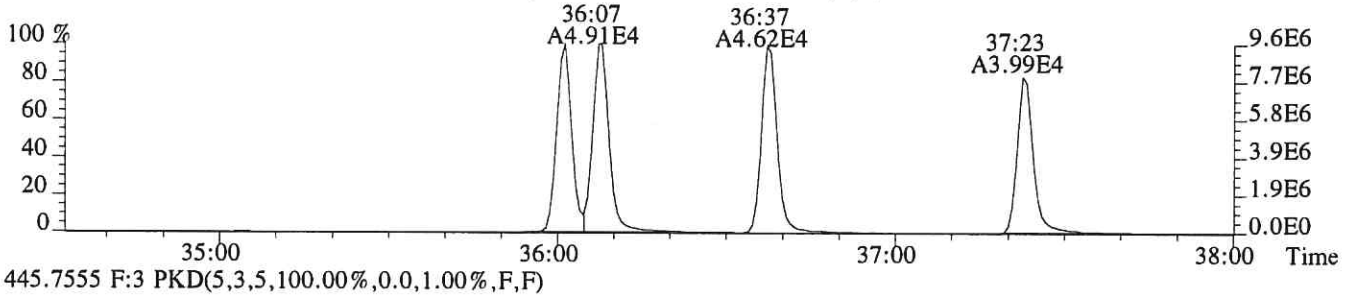
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



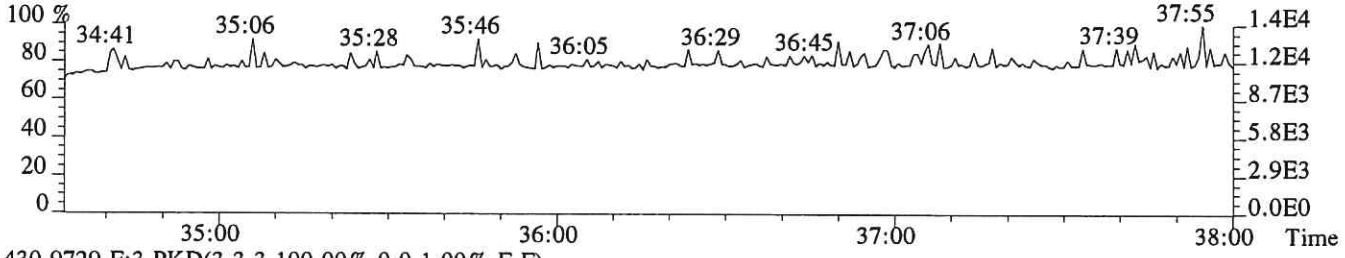
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



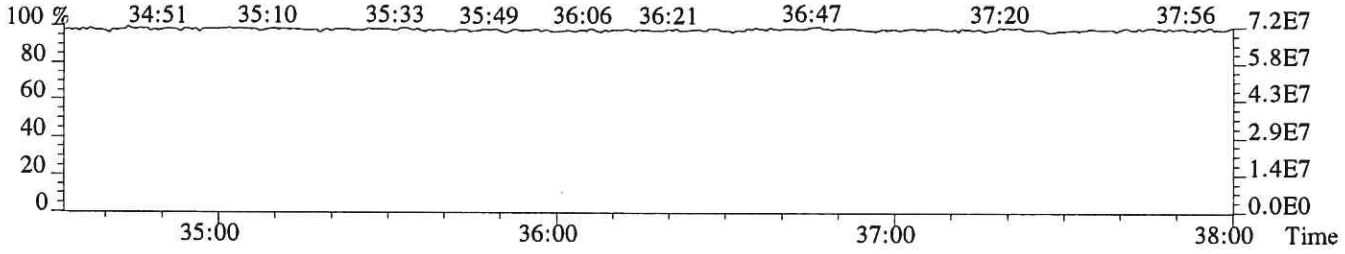
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



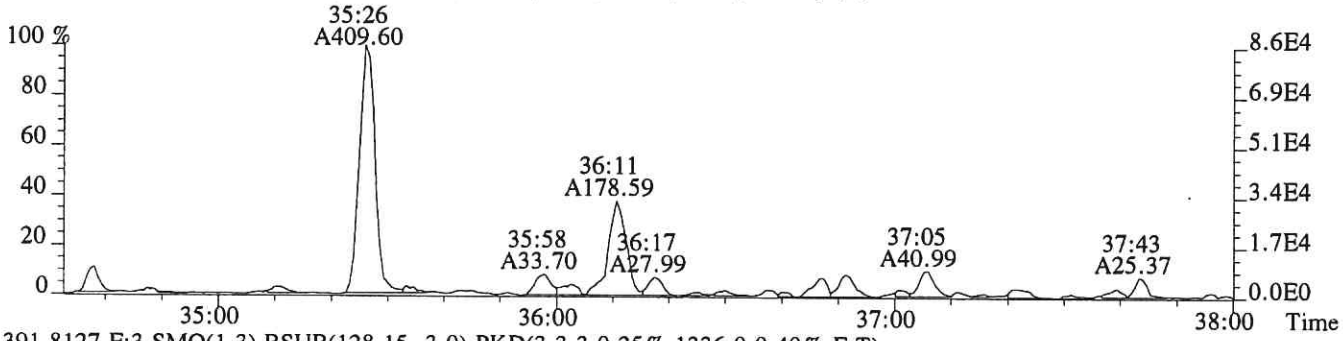
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



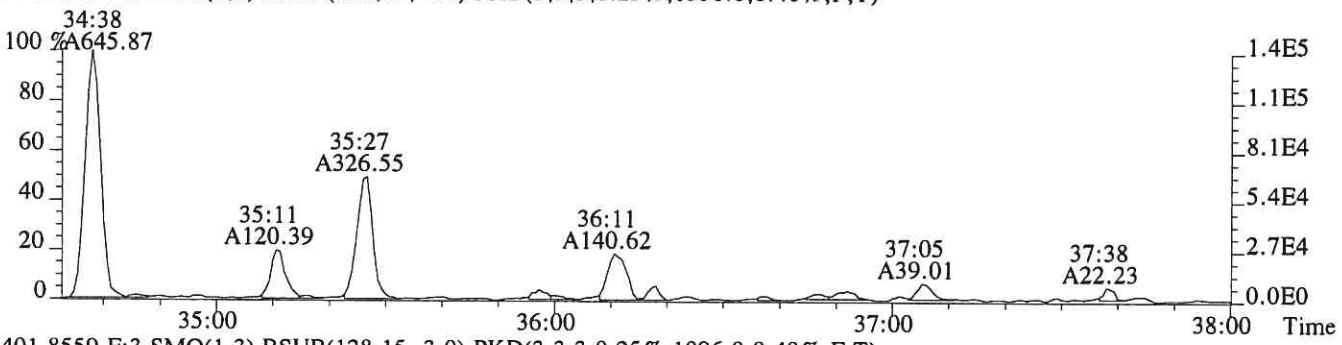
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



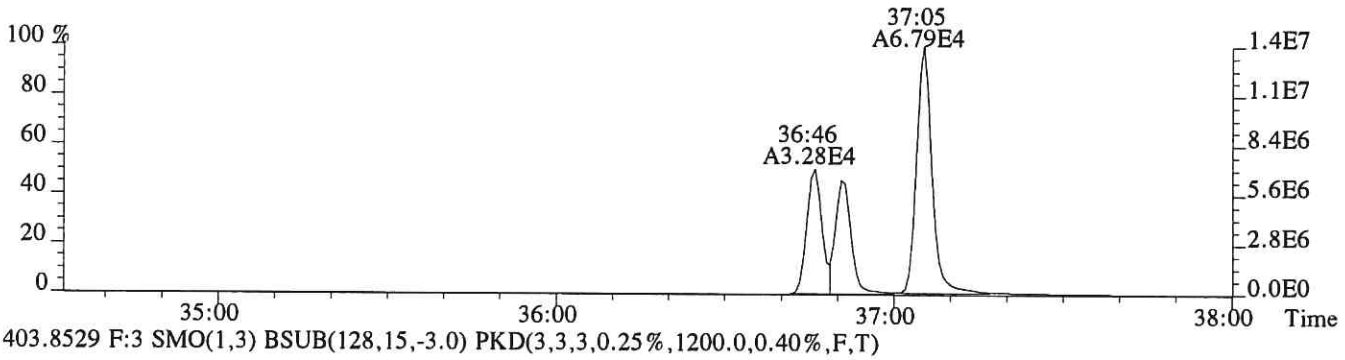
File:P519135 #1-312 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



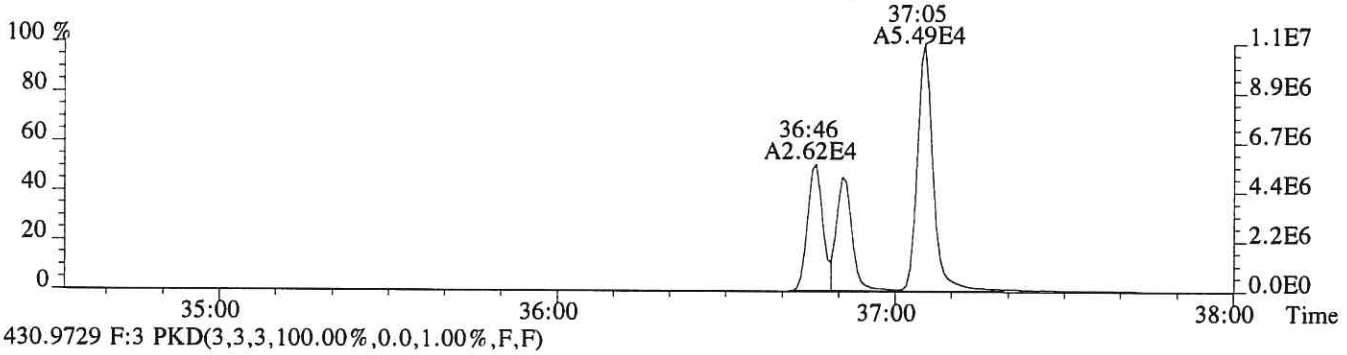
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.40%,F,T)



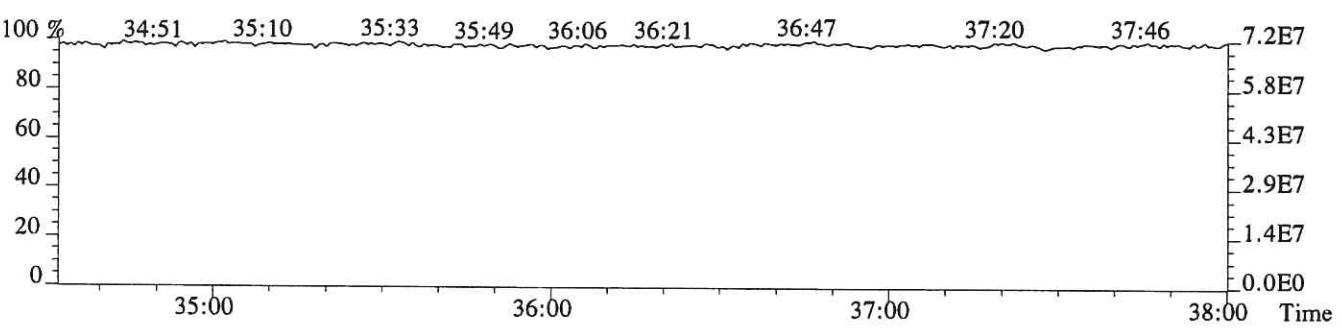
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)

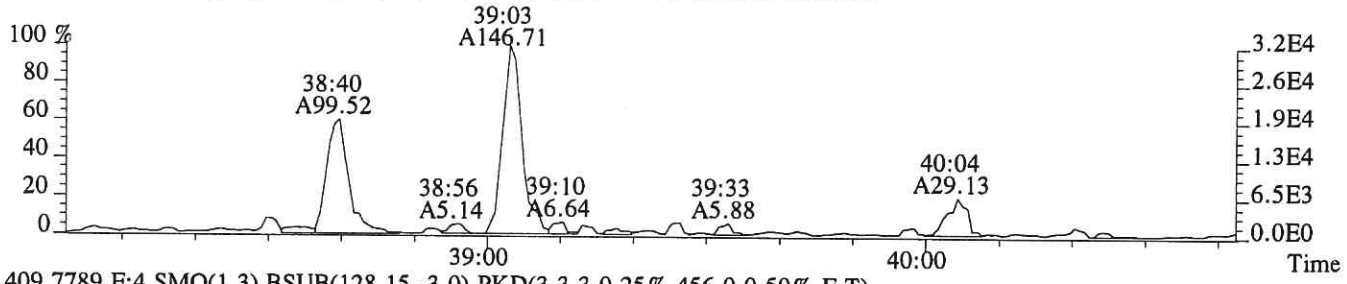


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

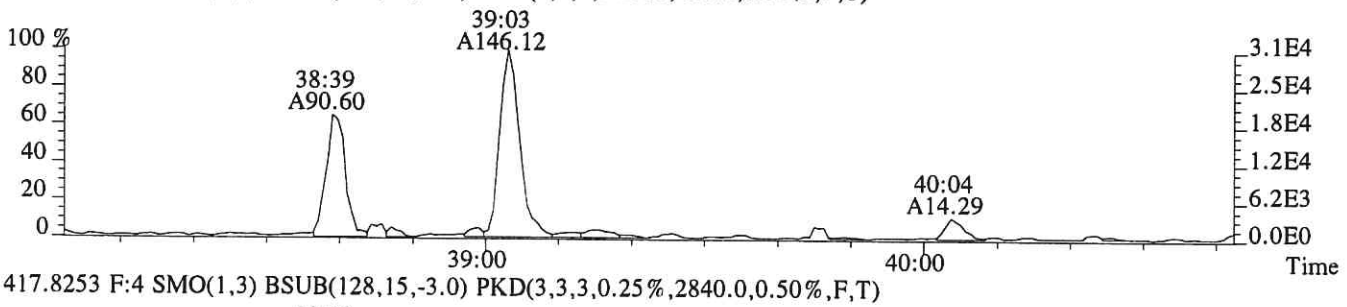


File:P519135 #1-241 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021

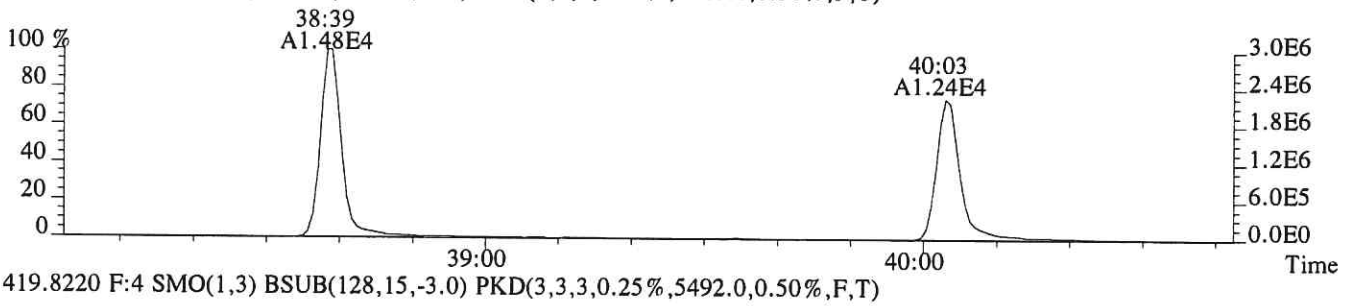
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.50%,F,T)



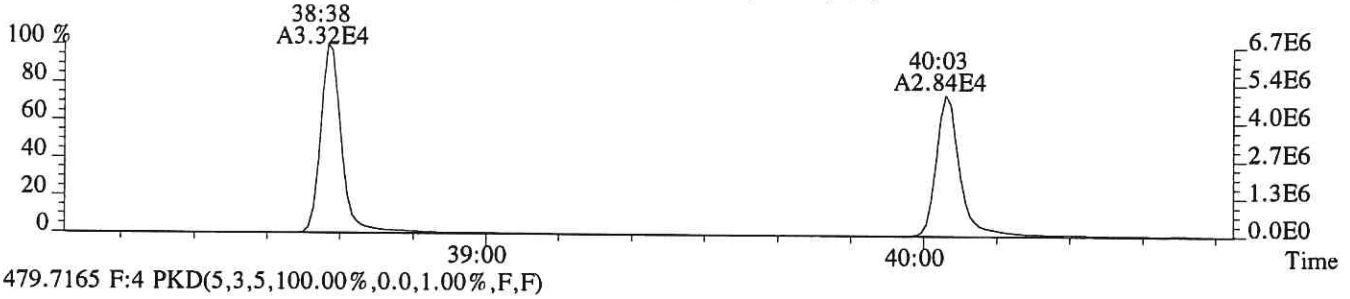
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.50%,F,T)



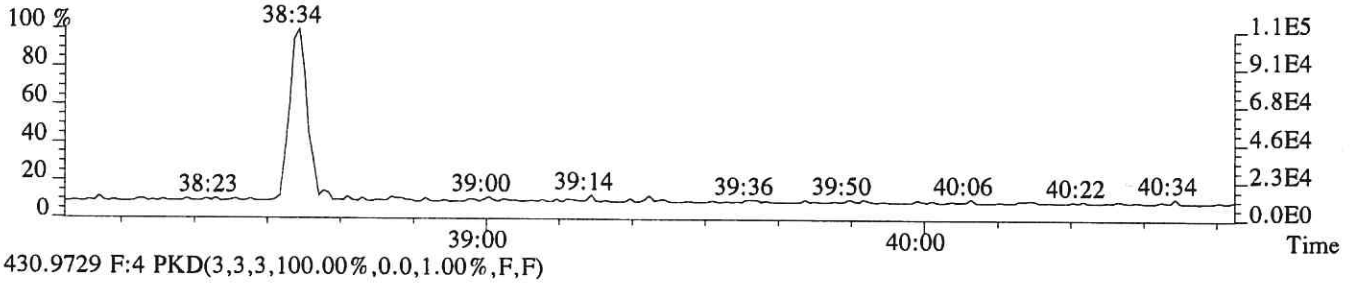
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2840.0,0.50%,F,T)



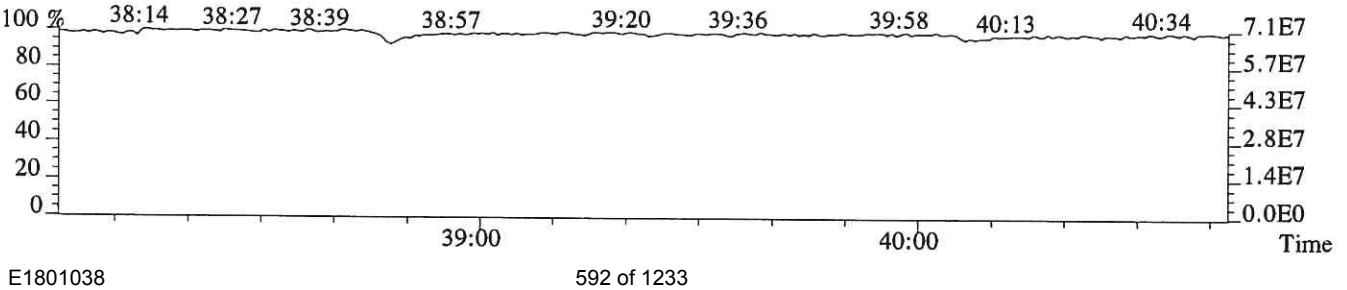
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5492.0,0.50%,F,T)



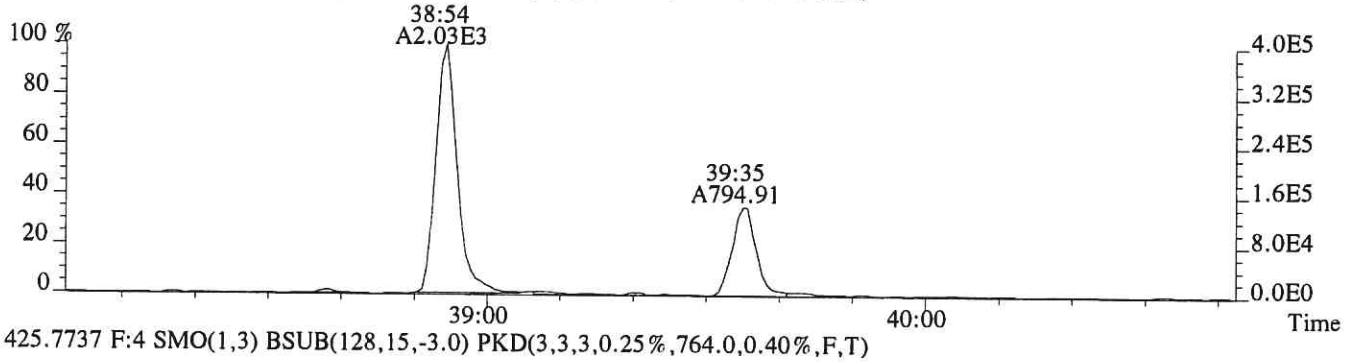
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



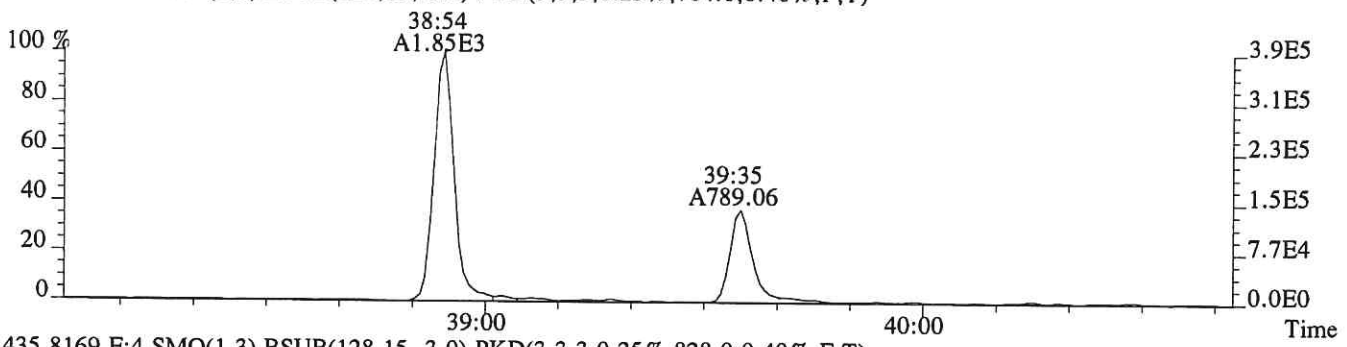
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



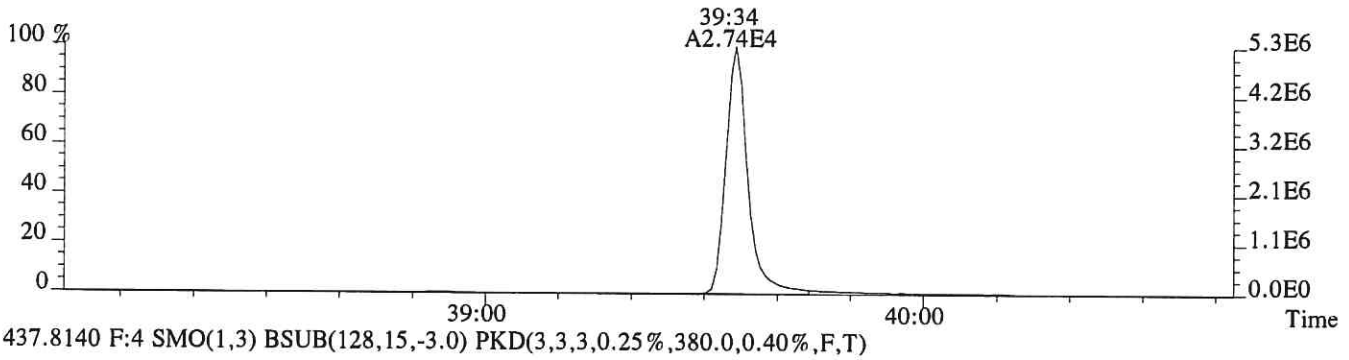
File:P519135 #1-241 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



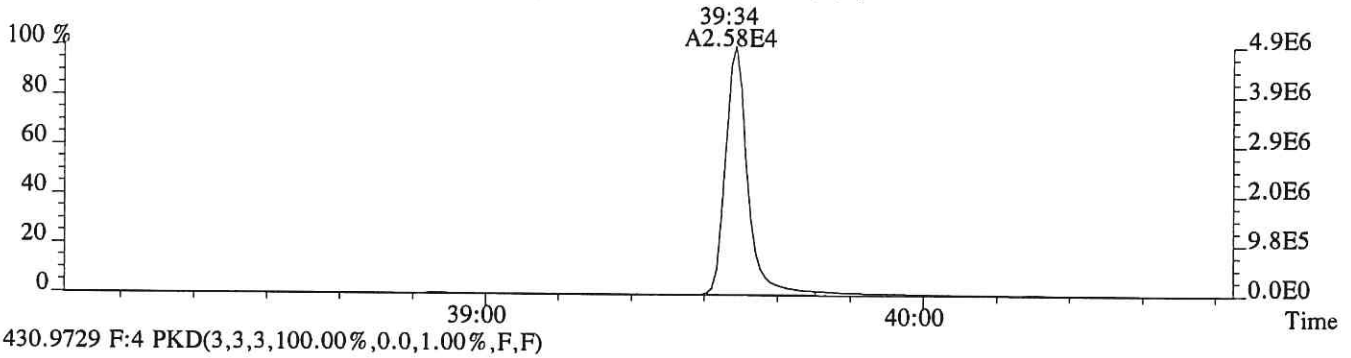
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



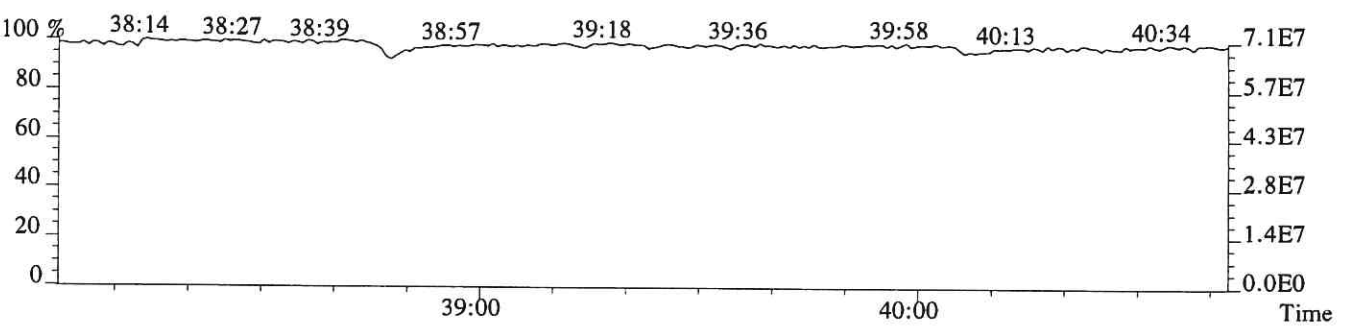
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



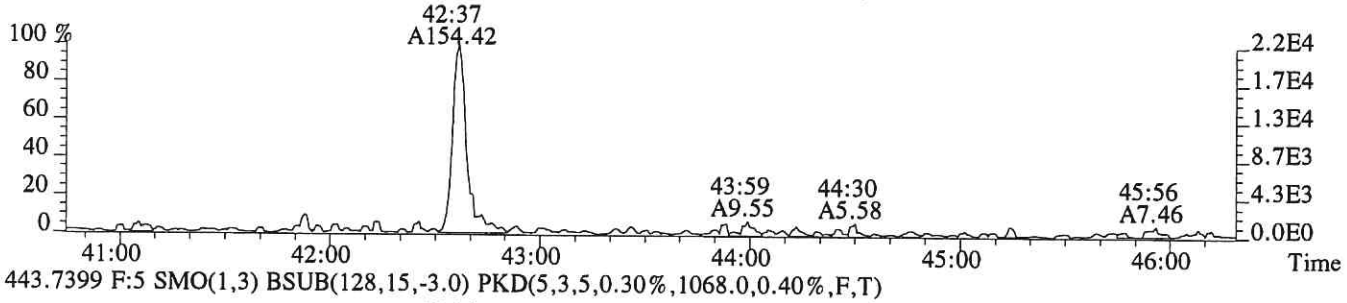
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



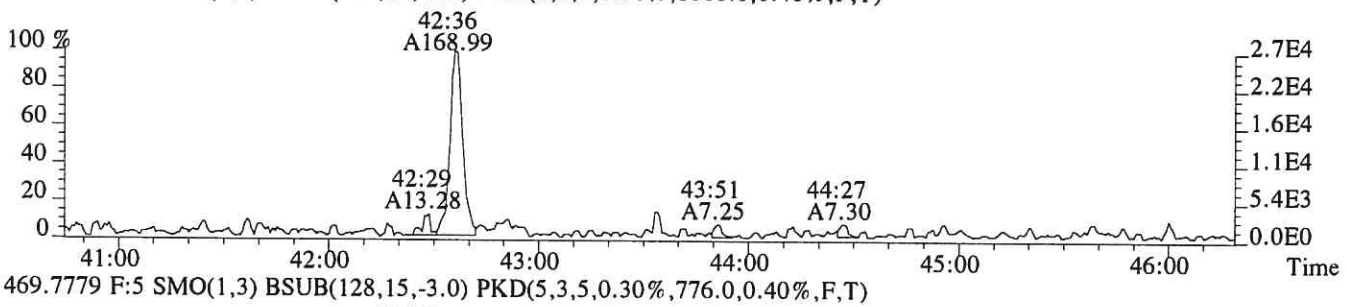
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



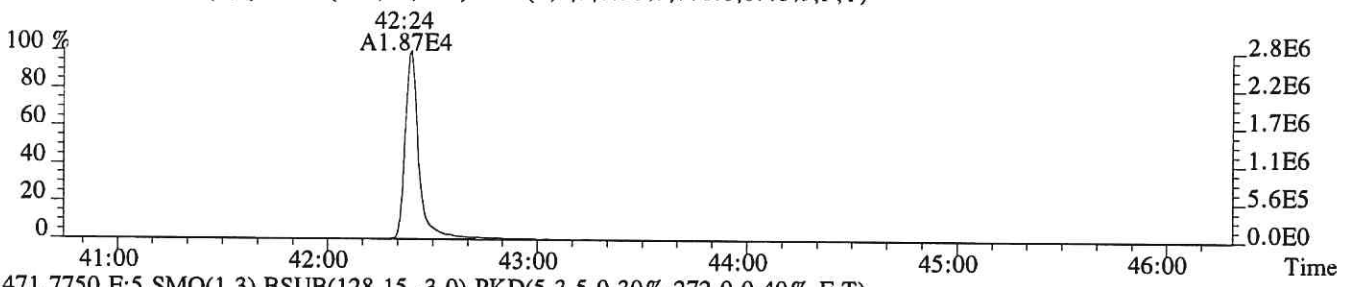
File:P519135 #1-502 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



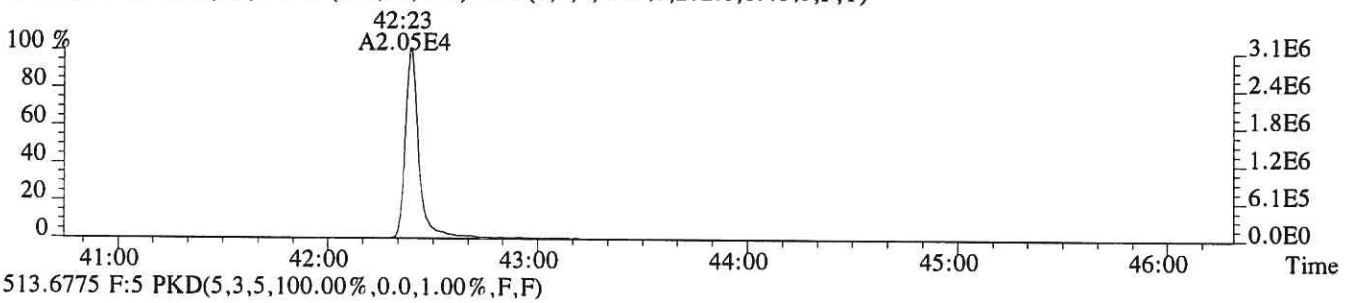
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



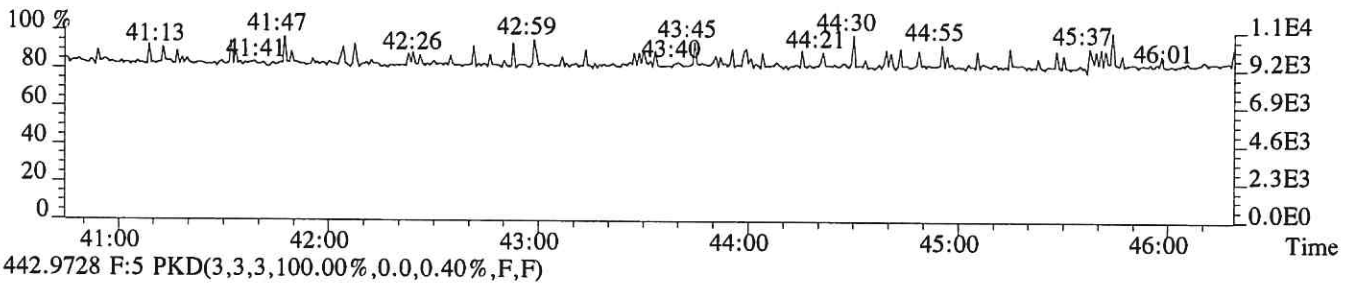
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



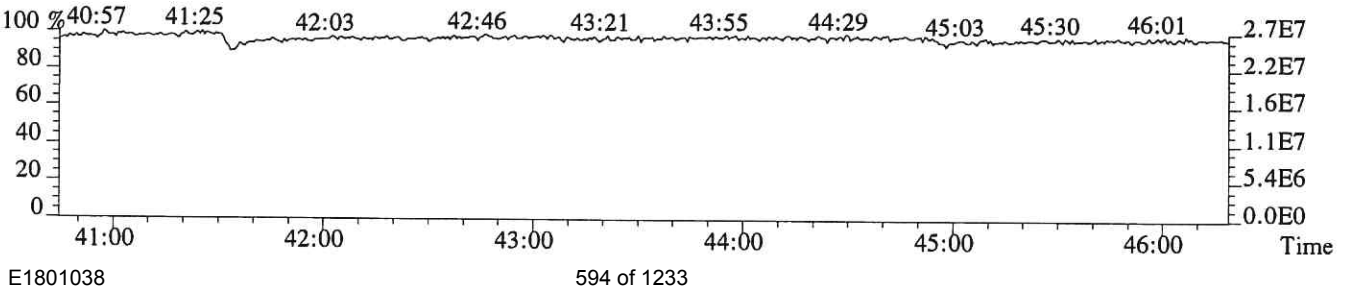
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



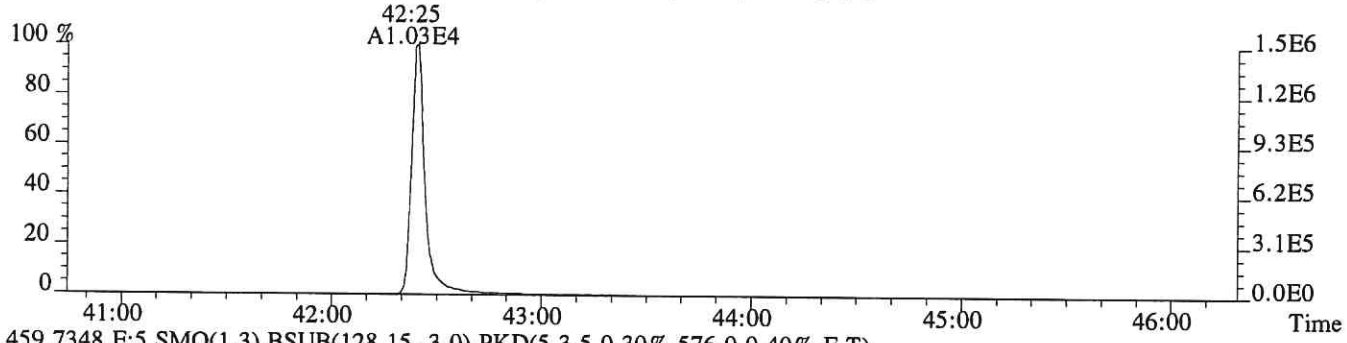
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



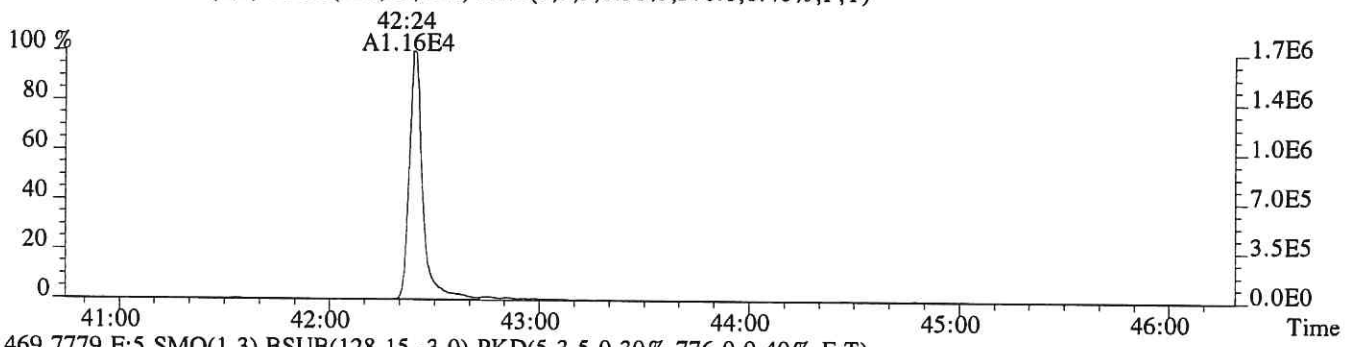
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



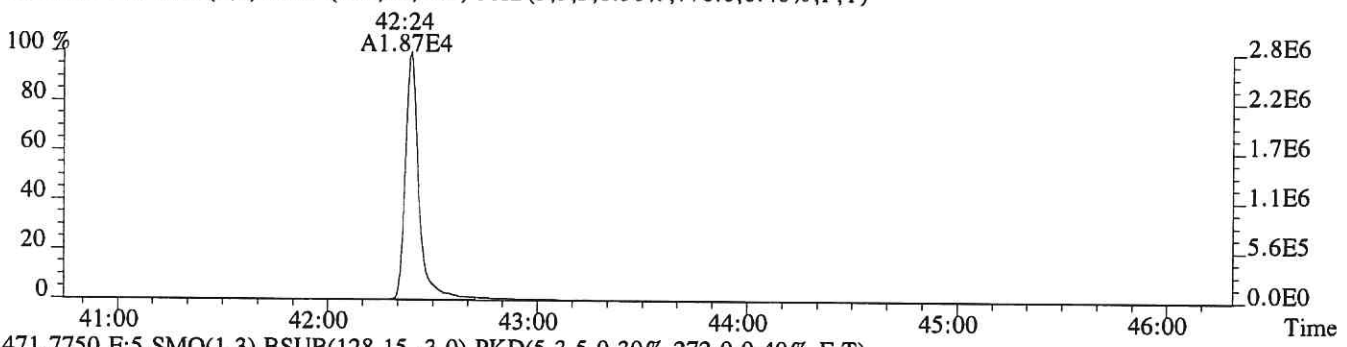
File:P519135 #1-502 Acq: 2-DEC-2018 07:48:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-021
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



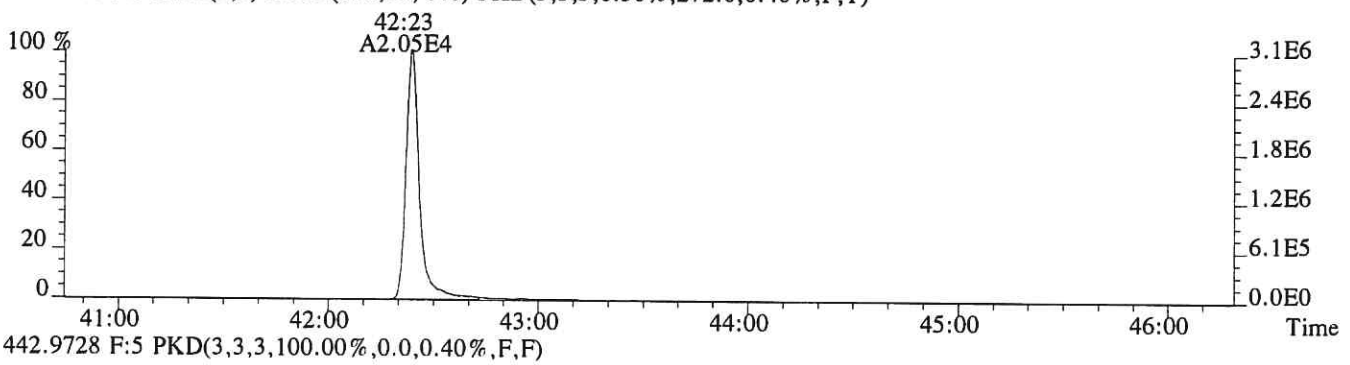
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



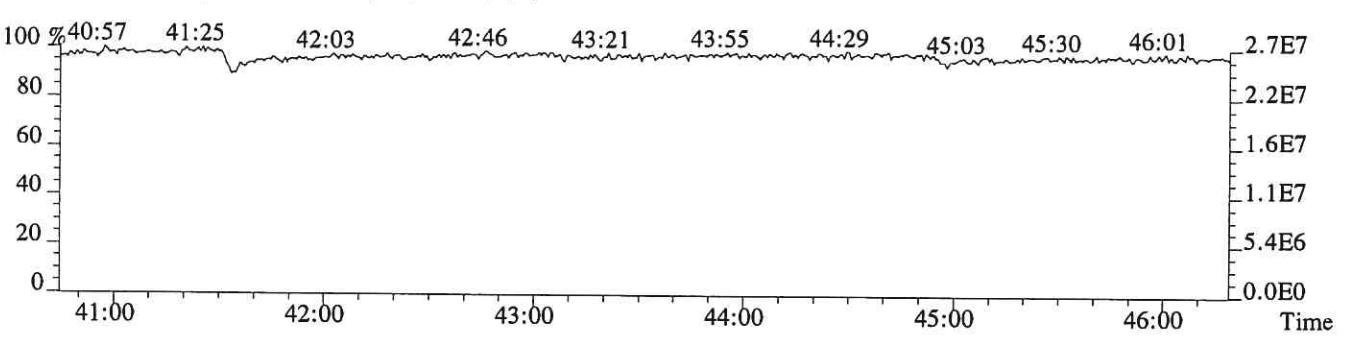
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0517

Run #11 Filename P519136 Samp: 1 Inj: 1 Acquired: 2-DEC-18 08:36:31
Processed: 3-DEC-18 17:26:01 Sample ID: E1801038-022

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.837e+01	1.259e+01	1.46	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	3.280e+01	2.551e+01	1.29	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:35	5.796e+01	6.428e+01	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	1.802e+01	1.599e+01	1.13	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	1.916e+01	1.537e+01	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	5.279e+01	4.016e+01	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	6.134e+01	6.131e+01	1.00	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	9.241e+02	8.745e+02	1.06	yes	no	1.025
17	Unk	OCDD	42:23	9.737e+03	1.104e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:13	3.656e+04	4.646e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	6.473e+04	4.111e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	6.026e+04	3.826e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.907e+04	5.608e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	3.297e+04	6.377e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	3.083e+04	5.846e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:22	2.601e+04	5.063e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.895e+04	4.363e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	1.576e+04	3.599e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	2.642e+04	3.323e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:36	4.750e+04	3.021e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	4.160e+04	3.125e+04	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	3.926e+04	3.278e+04	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.711e+04	3.539e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:23	2.790e+04	3.051e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.760e+04	6.050e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.657e+04	5.326e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:01	2.849e+04				no	1.014

$$\text{OCDD} = \frac{(9.737e+03 + 1.104e+04) \times 4000 \text{ pg} \times 1}{(2.790e+04 + 3.051e+04) \times 10.135 \text{ g} \times 75.9 / 100 \times 1.118} = 165.4 \text{ ng/kg}$$

MM 12/05/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0517

Run #11 Filename P519136 Samp: 1 Inj: 1 Acquired: 2-DEC-18 08:36:31
Processed: 3-DEC-18 17:26:01 LAB. ID: E1801038-022

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.88e+02	*	*	1.98e+03	*
2	1,2,3,7,8-PeCDF	*	2.92e+02	*	*	2.00e+03	*
3	2,3,4,7,8-PeCDF	*	2.92e+02	*	*	2.00e+03	*
4	1,2,3,4,7,8-HxCDF	*	5.00e+02	*	*	1.01e+03	*
5	1,2,3,6,7,8-HxCDF	*	5.00e+02	*	*	1.01e+03	*
6	2,3,4,6,7,8-HxCDF	*	5.00e+02	*	*	1.01e+03	*
7	1,2,3,7,8,9-HxCDF	4.36e+03	5.00e+02	8.7e+00	4.27e+03	1.01e+03	4.2e+00
8	1,2,3,4,6,7,8-HpCDF	7.30e+03	2.64e+02	2.8e+01	4.04e+03	4.08e+02	9.9e+00
9	1,2,3,4,7,8,9-HpCDF	*	2.64e+02	*	*	4.08e+02	*
10	OCDF	1.09e+04	3.40e+02	3.2e+01	9.06e+03	1.15e+03	7.9e+00
11	2,3,7,8-TCDD	*	2.74e+03	*	*	1.35e+03	*
12	1,2,3,7,8-PeCDD	4.30e+03	1.03e+03	4.2e+00	3.13e+03	3.24e+02	9.7e+00
13	1,2,3,4,7,8-HxCDD	4.58e+03	9.80e+02	4.7e+00	4.21e+03	1.16e+03	3.6e+00
14	1,2,3,6,7,8-HxCDD	9.62e+03	9.80e+02	9.8e+00	8.40e+03	1.16e+03	7.3e+00
15	1,2,3,7,8,9-HxCDD	1.50e+04	9.80e+02	1.5e+01	1.17e+04	1.16e+03	1.0e+01
16	1,2,3,4,6,7,8-HpCDD	1.61e+05	9.20e+02	1.8e+02	1.60e+05	1.42e+03	1.1e+02
17	OCDD	1.44e+06	3.60e+02	4.0e+03	1.68e+06	5.88e+02	2.9e+03
18	13C-2,3,7,8-TCDF	6.69e+06	8.64e+03	7.7e+02	8.40e+06	5.53e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	1.18e+07	1.44e+03	8.2e+03	7.46e+06	1.07e+03	7.0e+03
20	13C-2,3,4,7,8-PeCDF	1.18e+07	1.44e+03	8.2e+03	7.50e+06	1.07e+03	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	6.26e+06	7.20e+02	8.7e+03	1.20e+07	8.80e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	6.50e+06	7.20e+02	9.0e+03	1.25e+07	8.80e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	6.43e+06	7.20e+02	8.9e+03	1.22e+07	8.80e+02	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.09e+06	7.20e+02	7.1e+03	9.86e+06	8.80e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.89e+06	5.42e+03	7.2e+02	8.95e+06	4.68e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.81e+06	5.42e+03	5.2e+02	6.45e+06	4.68e+03	1.4e+03
27	13C-2,3,7,8-TCDD	5.09e+06	6.43e+03	7.9e+02	6.38e+06	3.09e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	8.80e+06	1.25e+03	7.1e+03	5.62e+06	1.01e+03	5.6e+03
29	13C-1,2,3,4,7,8-HxCDD	8.92e+06	1.78e+03	5.0e+03	6.97e+06	7.84e+02	8.9e+03
30	13C-1,2,3,6,7,8-HxCDD	8.15e+06	1.78e+03	4.6e+03	6.49e+06	7.84e+02	8.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.81e+06	8.16e+02	8.3e+03	6.45e+06	4.12e+02	1.6e+04
32	13C-OCDD	4.05e+06	9.32e+02	4.3e+03	4.57e+06	4.04e+02	1.1e+04
33	13C-1,2,3,4-TCDD	9.11e+06	6.43e+03	1.4e+03	1.15e+07	3.09e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.36e+07	1.78e+03	7.6e+03	1.09e+07	7.84e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	5.56e+06	2.61e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.740e+03 + 1.348e+03) \times 2000}{(5.086e+06 + 6.381e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0517

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519136 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 08:36:31 Processed: 3-DEC-18 17:26:01

Mass: 319.8970 321.8940 Tot Response: 1.96e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:08	8.30e+01	1.13e+02 0.74	yes	1.96e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0517

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519136 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 08:36:31 Processed: 3-DEC-18 17:26:01

Mass: 355.8550 357.8520 Tot Response: 2.71e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	1.56e+02	1.16e+02 1.35	yes	2.71e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0517

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519136 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 08:36:31 Processed: 3-DEC-18 17:26:01

Mass: 373.8210 375.8180 Tot Response: 2.02e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:05	1.08e+01	9.35e+00 1.16	yes	2.02e+01		n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0517

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519136 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 08:36:31 Processed: 3-DEC-18 17:26:01

Mass: 389.8160 391.8130 Tot Response: 2.44e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:25	8.64e+02	7.21e+02	1.20	yes	1.58e+03		n	n
2	36:11	3.62e+02	2.98e+02	1.21	yes	6.60e+02		n	n
3	36:17	3.84e+01	2.70e+01	1.42	yes	6.54e+01		n	n
4	36:46	1.92e+01	1.54e+01	1.25	yes	3.45e+01	1,2,3,4,7,8-HxCDD	n	n
5	36:51	5.28e+01	4.02e+01	1.31	yes	9.30e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0517

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519136 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 08:36:31 Processed: 3-DEC-18 17:26:01

Mass: 423.7770 425.7740 Tot Response: 6.34e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	2.28e+03	2.26e+03	1.01	yes	4.54e+03		n	n
2	39:34	9.24e+02	8.74e+02	1.06	yes	1.80e+03	1,2,3,4,6,7,8-HpCDD	n	n

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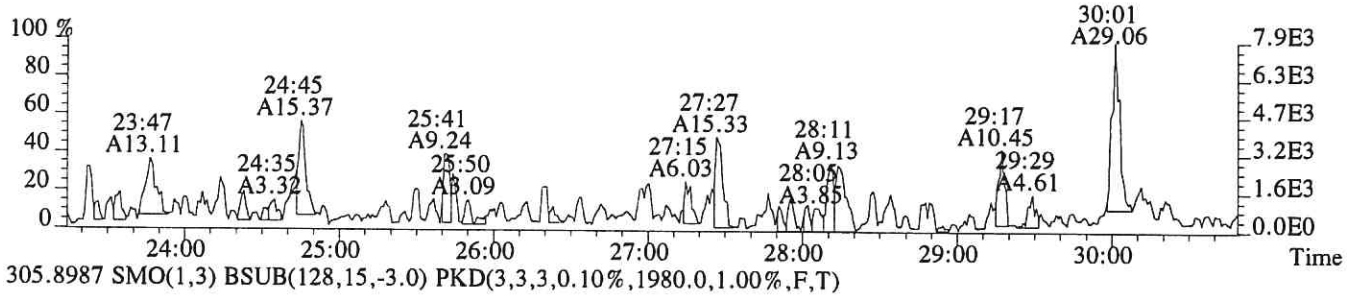
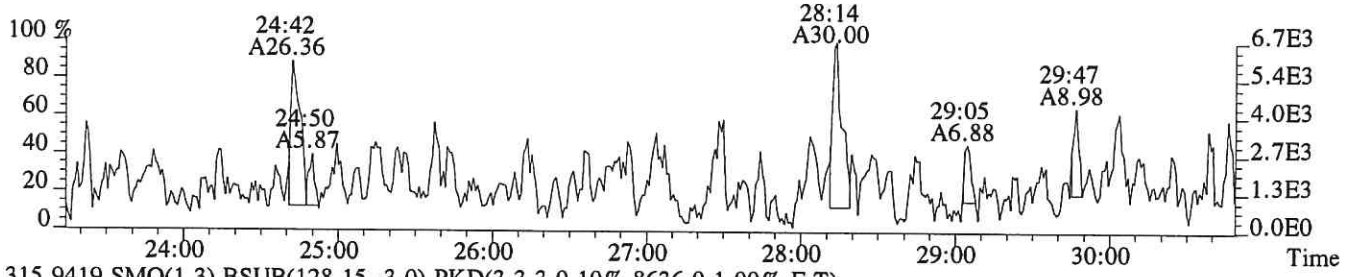
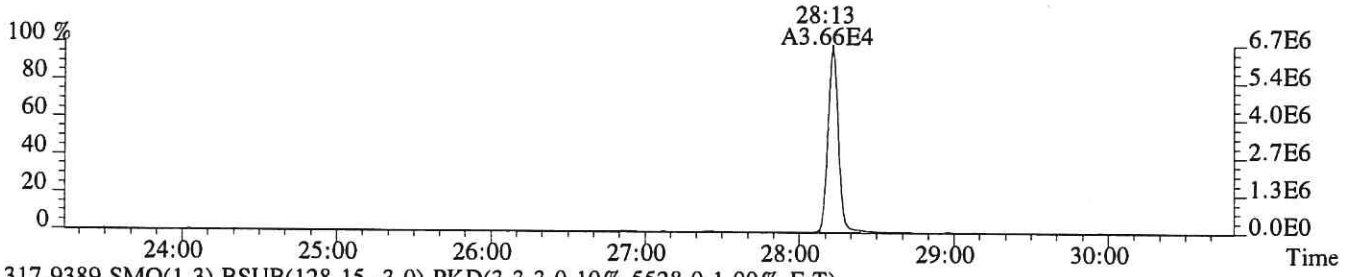
File:P519136 #1-538 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



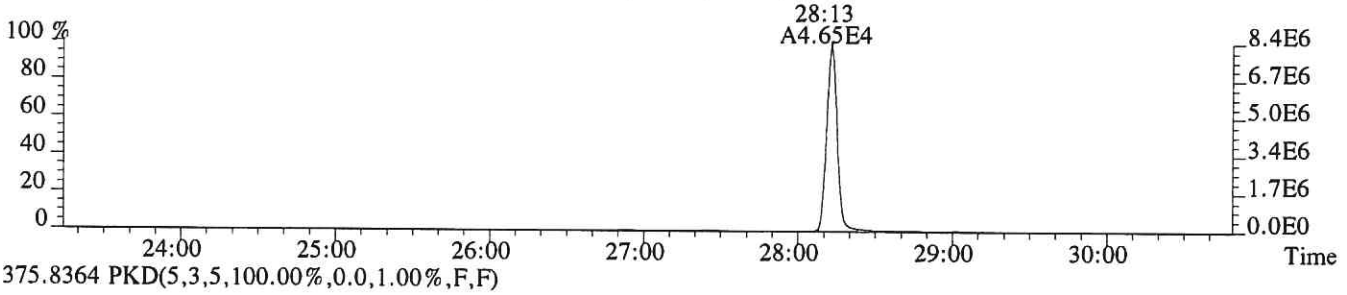
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



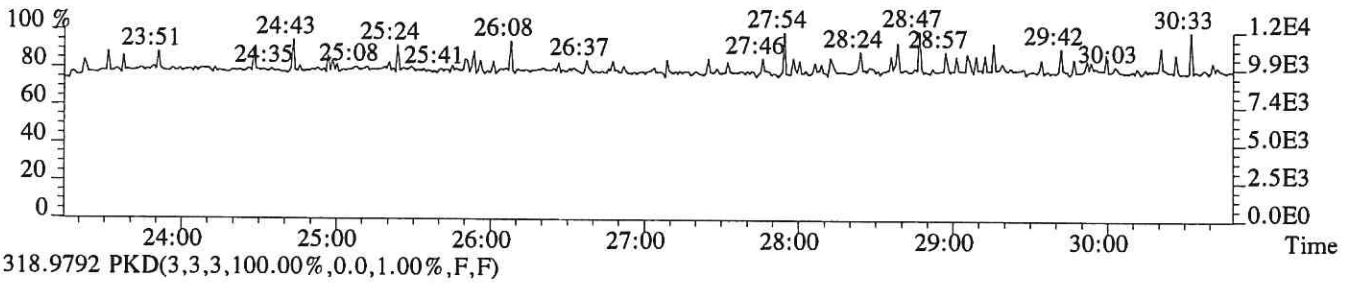
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8636.0,1.00%,F,T)



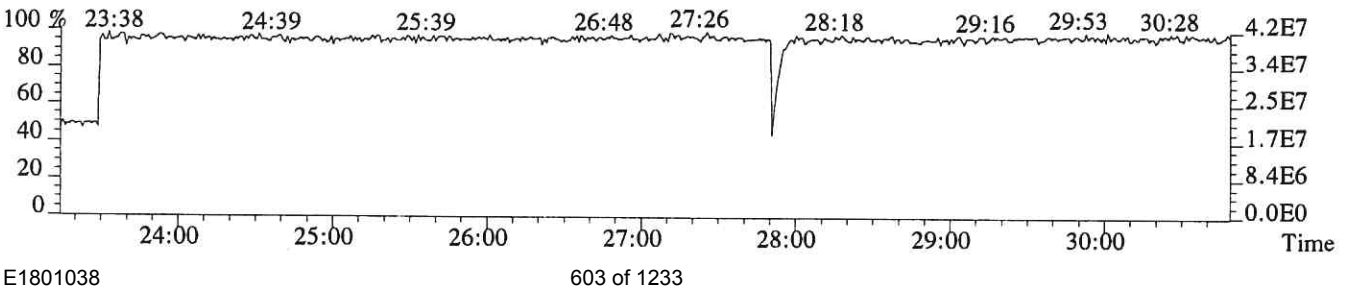
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5528.0,1.00%,F,T)



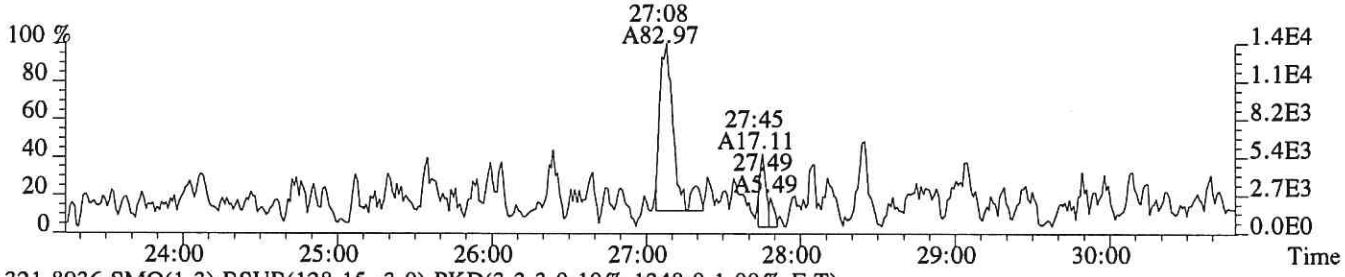
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



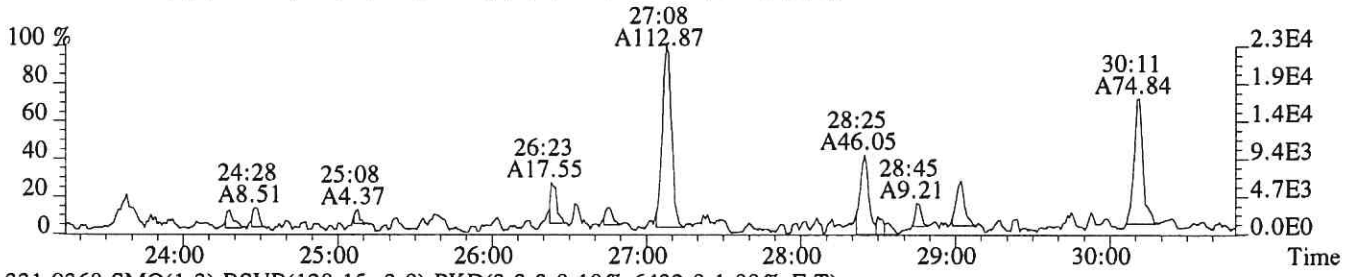
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



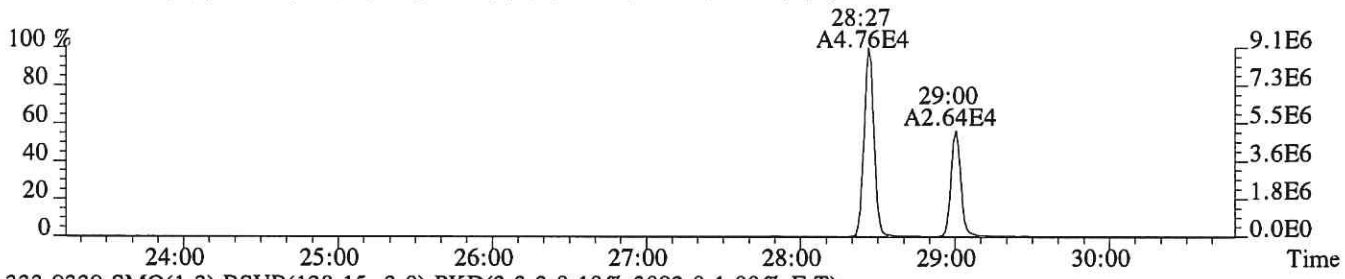
File:P519136 #1-538 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2740.0,1.00%,F,T)



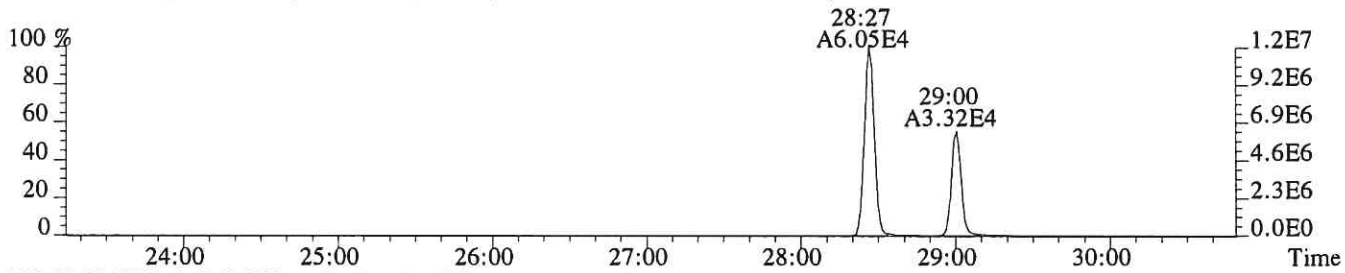
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



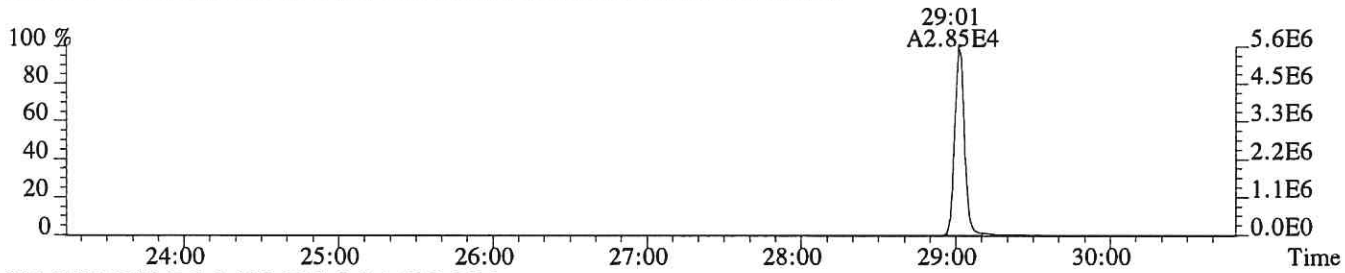
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6432.0,1.00%,F,T)



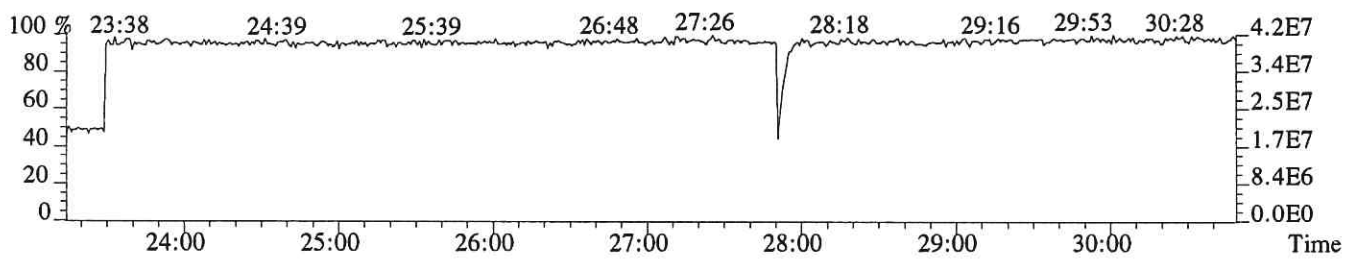
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3092.0,1.00%,F,T)



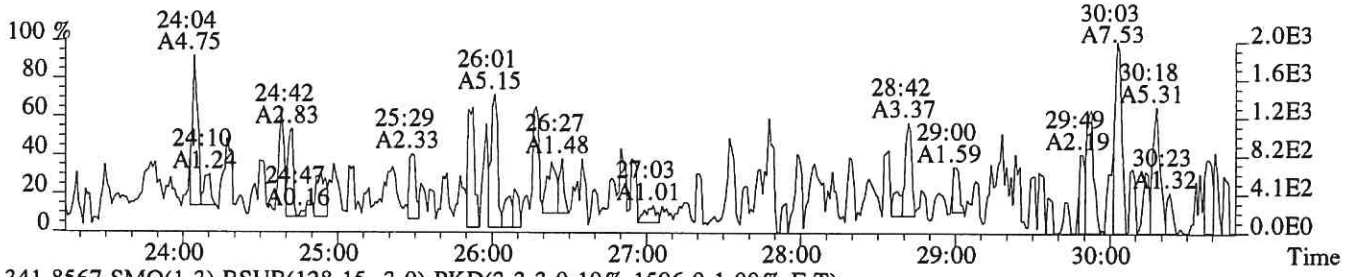
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



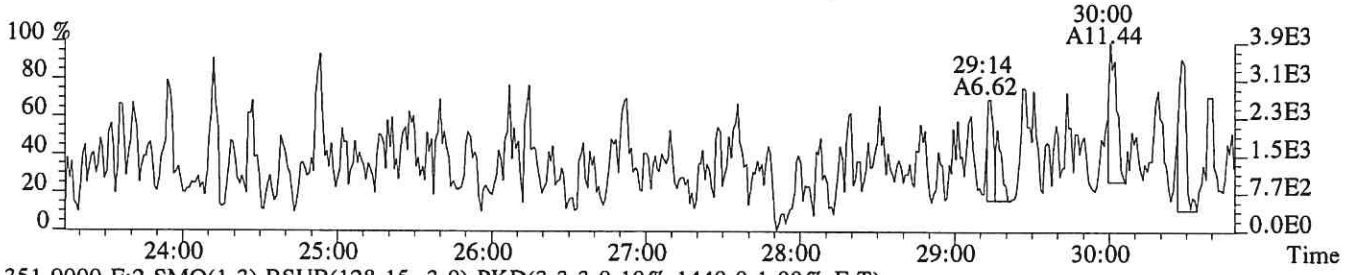
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



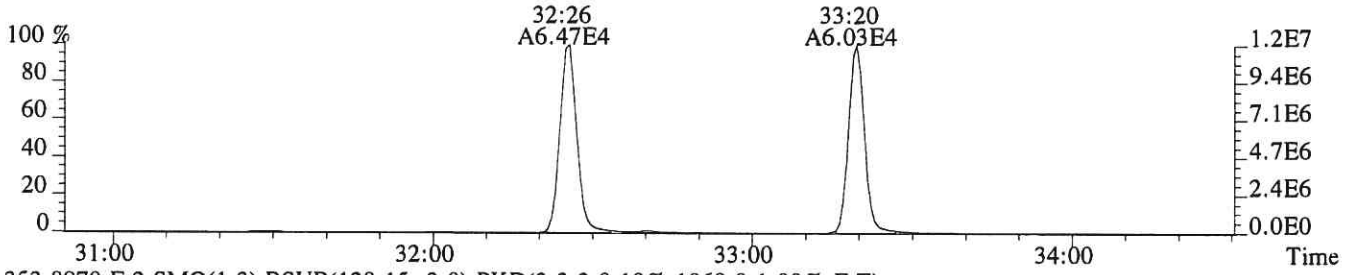
File:P519136 #1-538 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



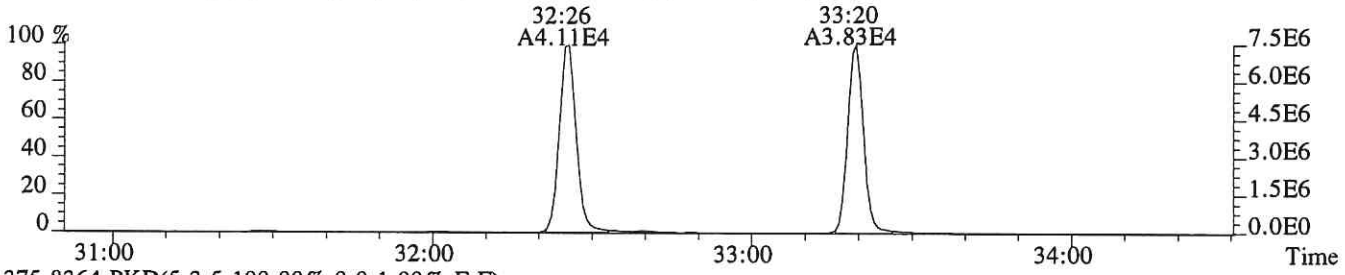
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)



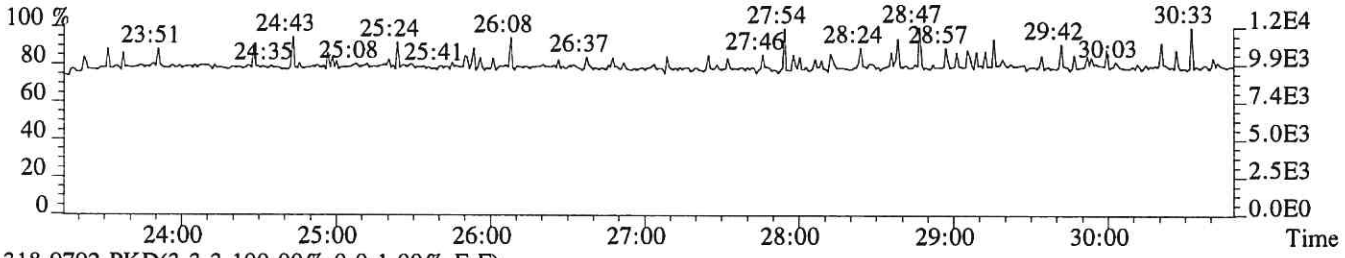
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



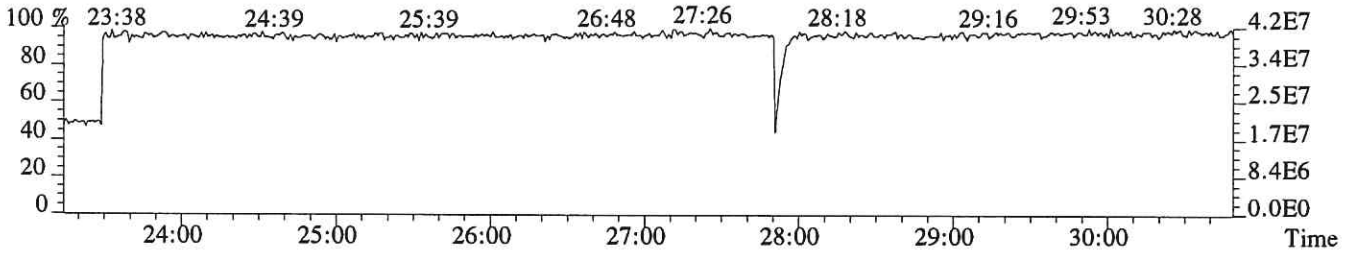
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

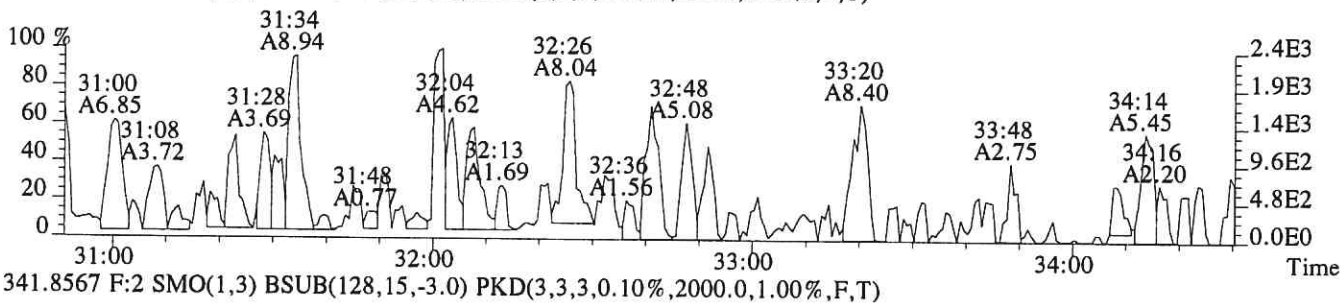


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

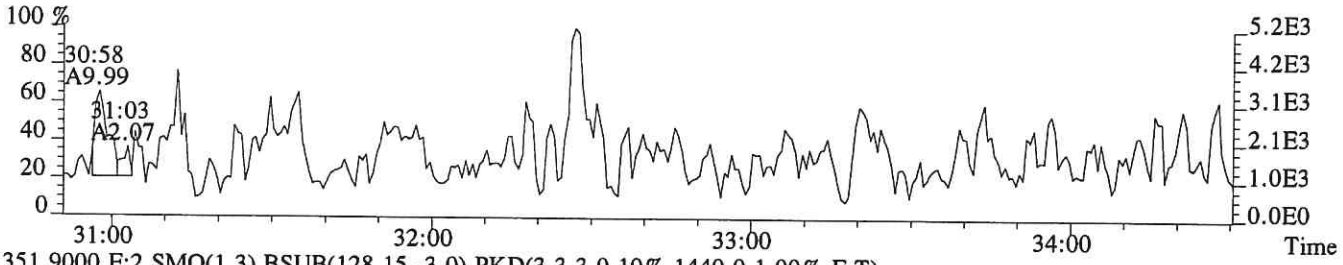


File:P519136 #1-330 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022

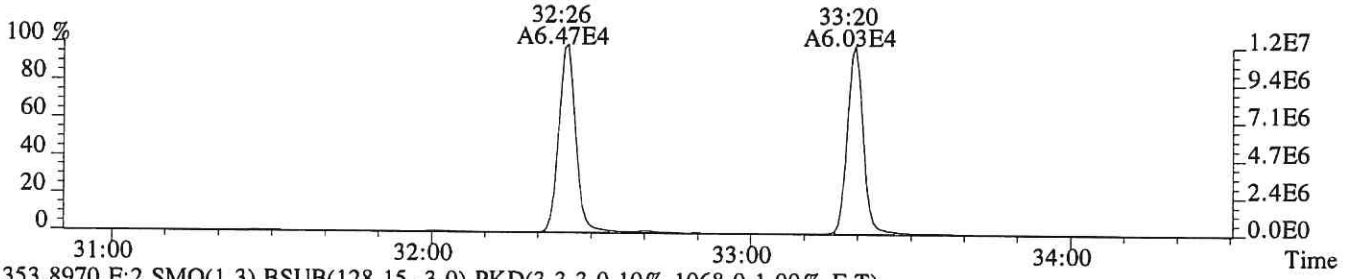
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



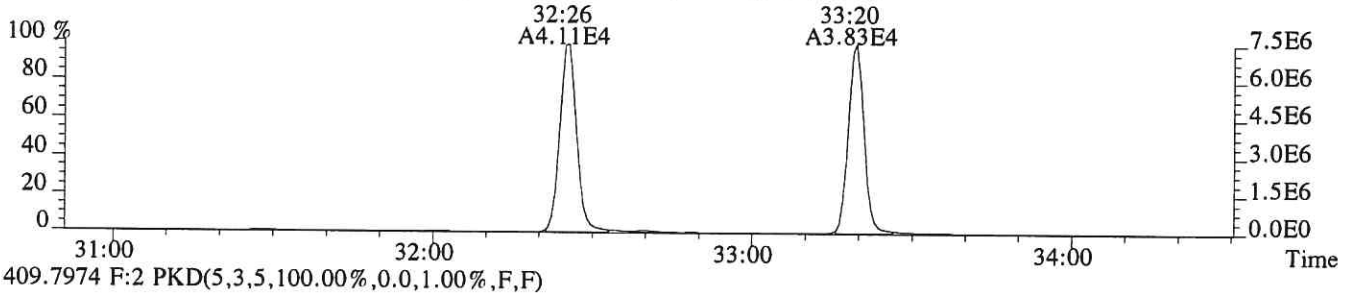
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



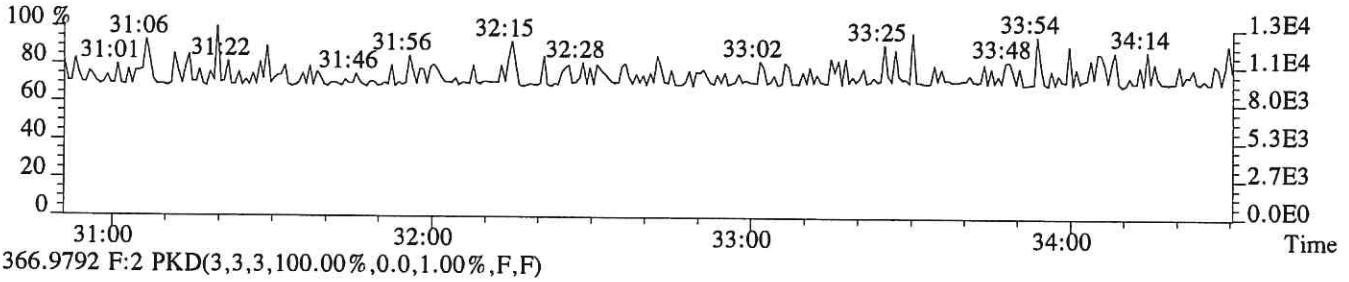
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



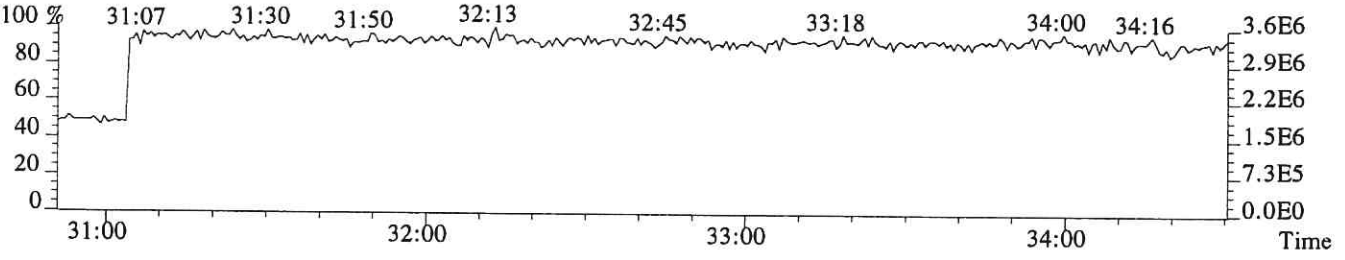
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



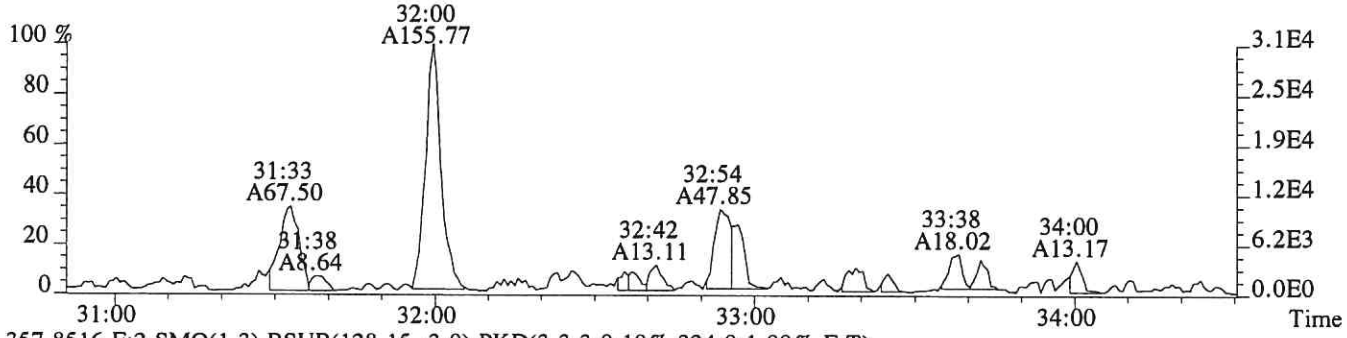
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



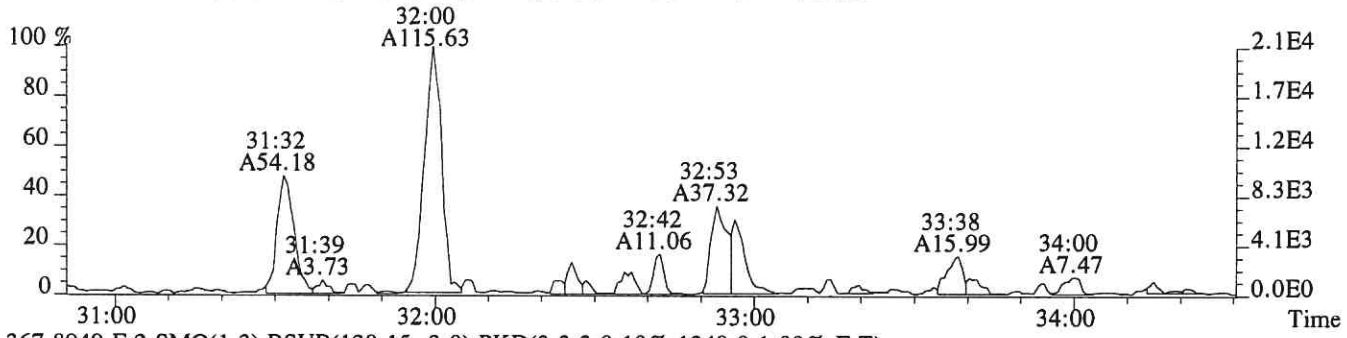
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



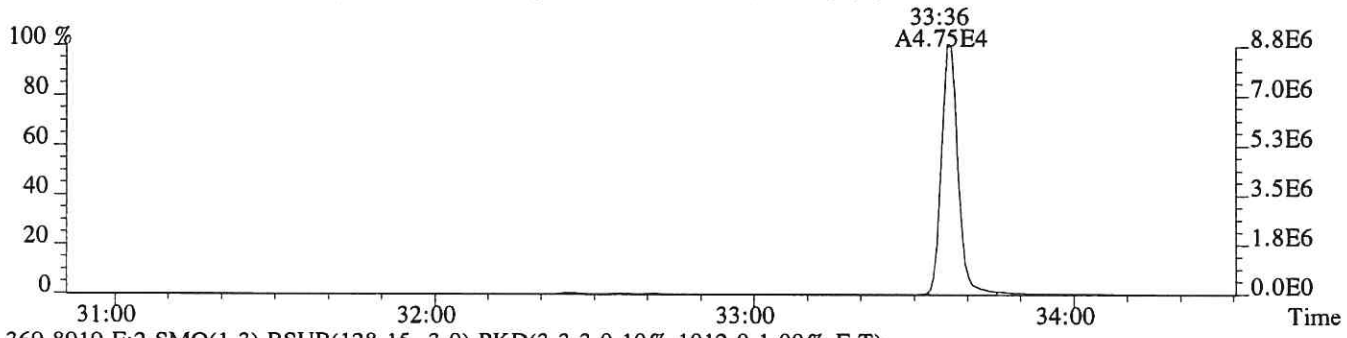
File:P519136 #1-330 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



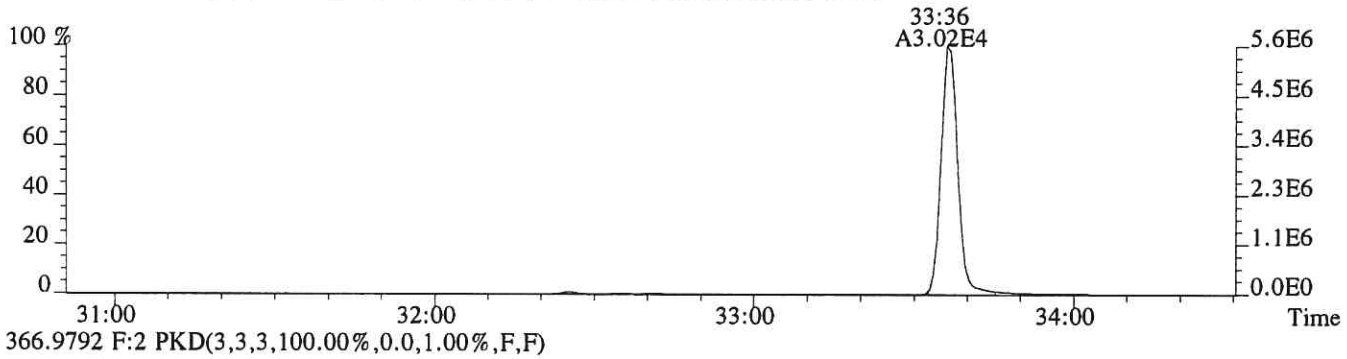
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



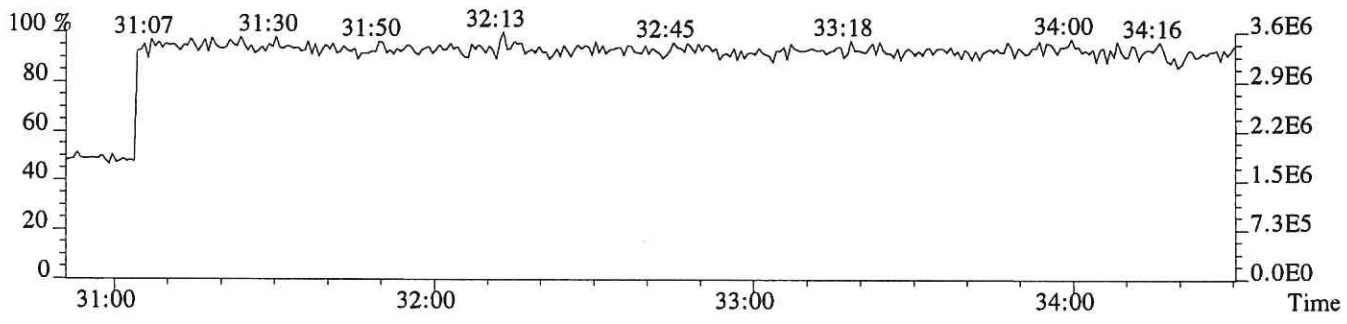
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



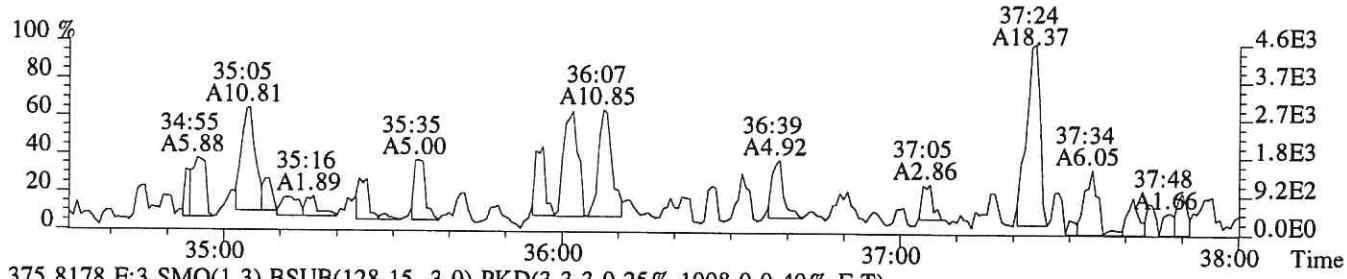
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



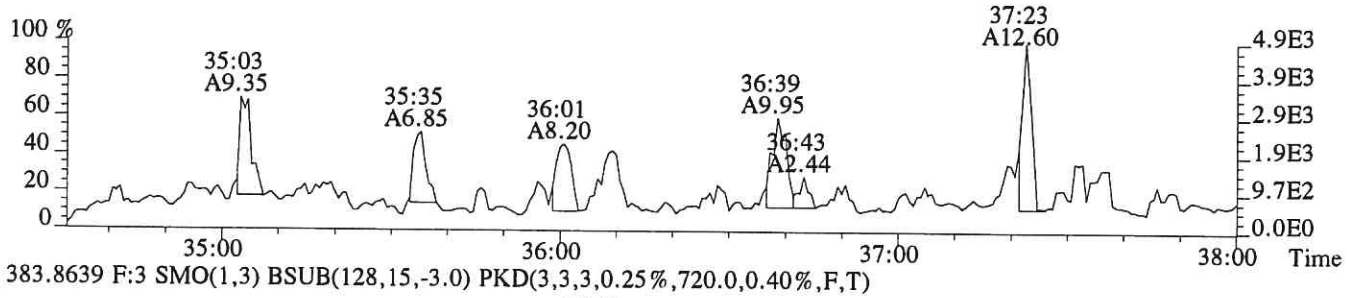
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



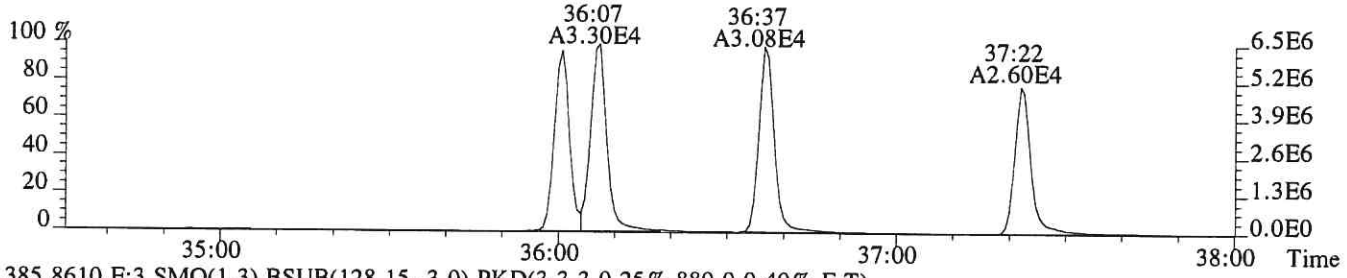
File:P519136 #1-312 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



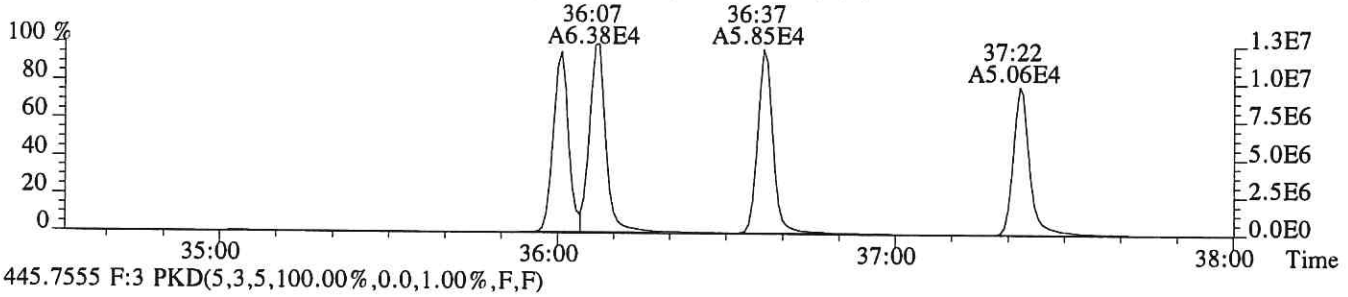
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



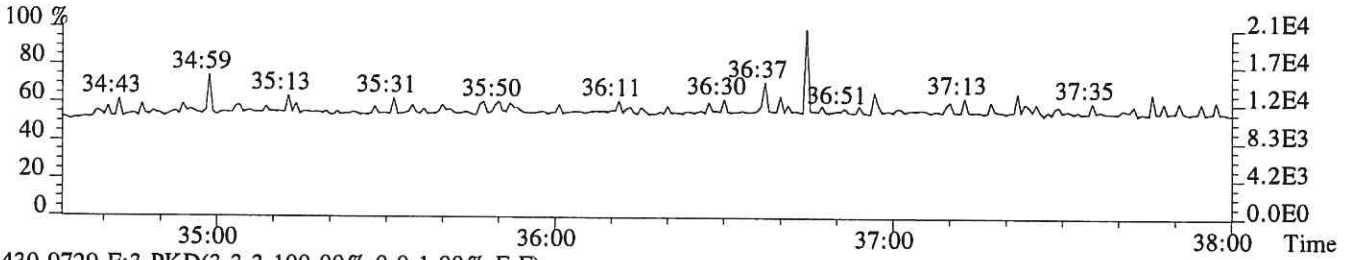
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



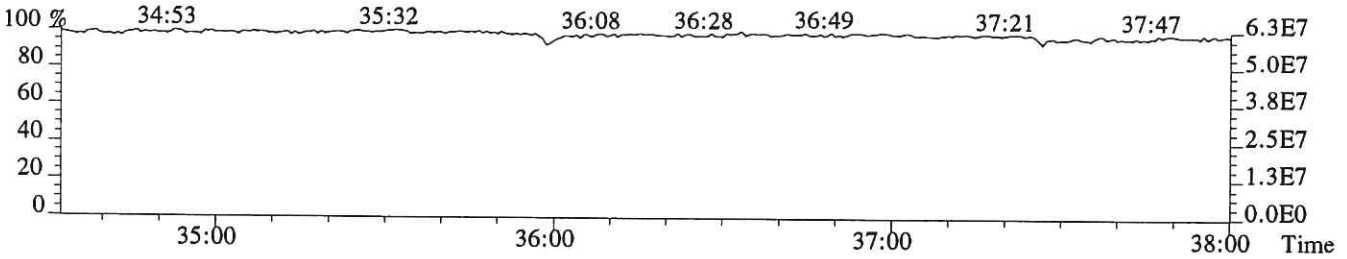
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



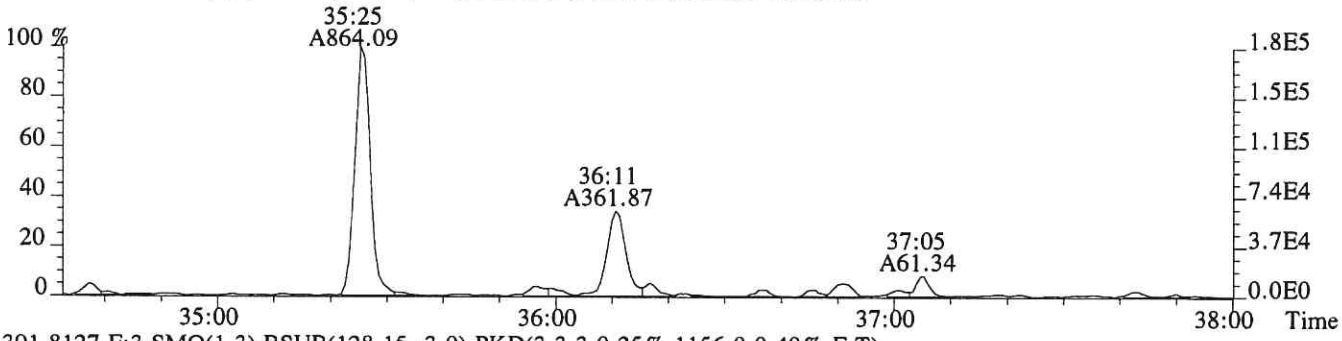
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



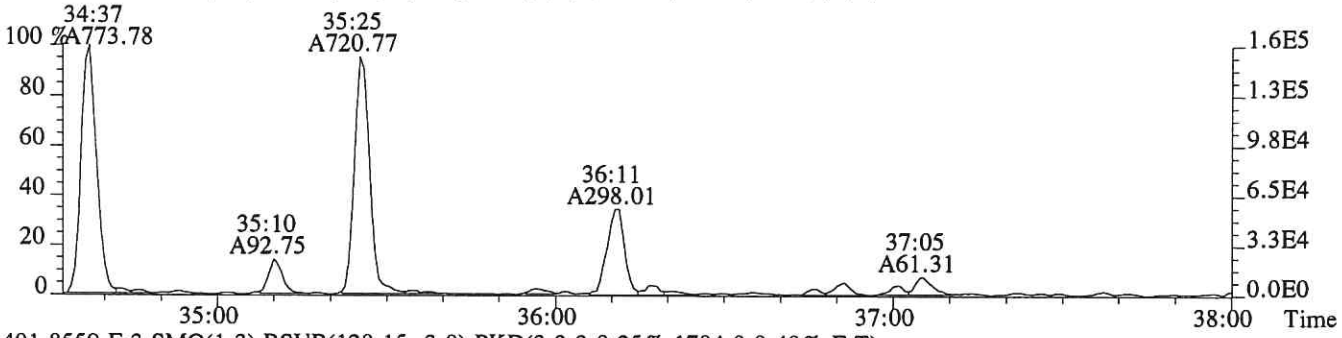
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



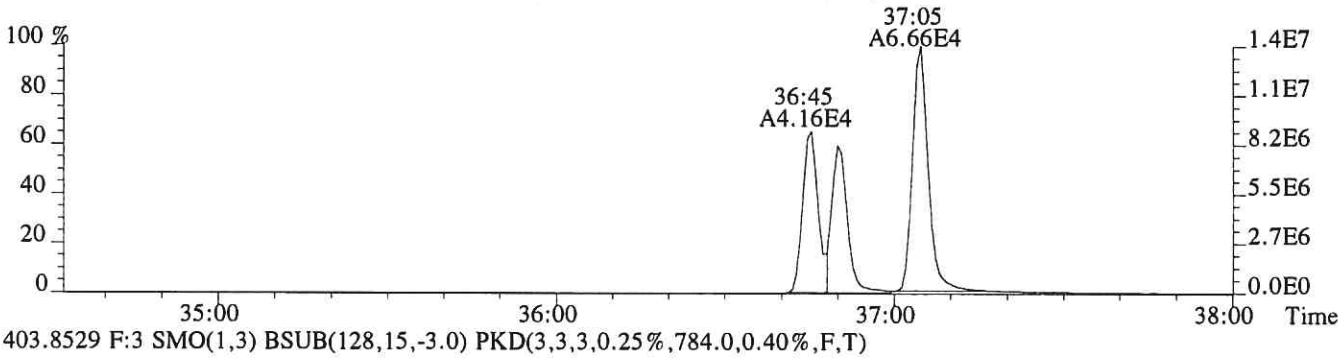
File:P519136 #1-312 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



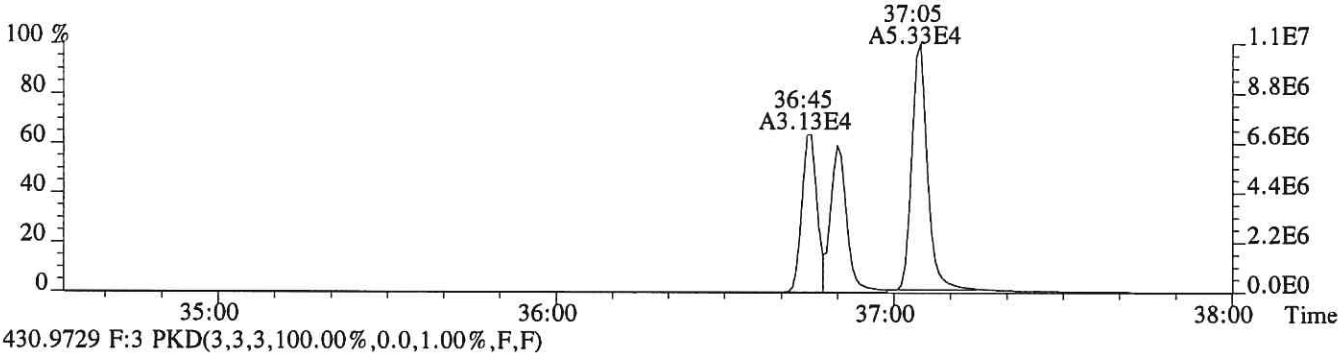
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



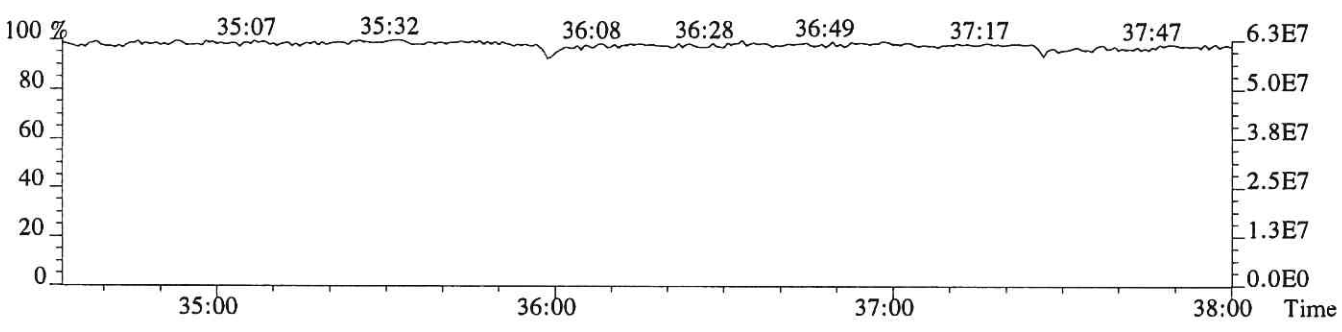
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



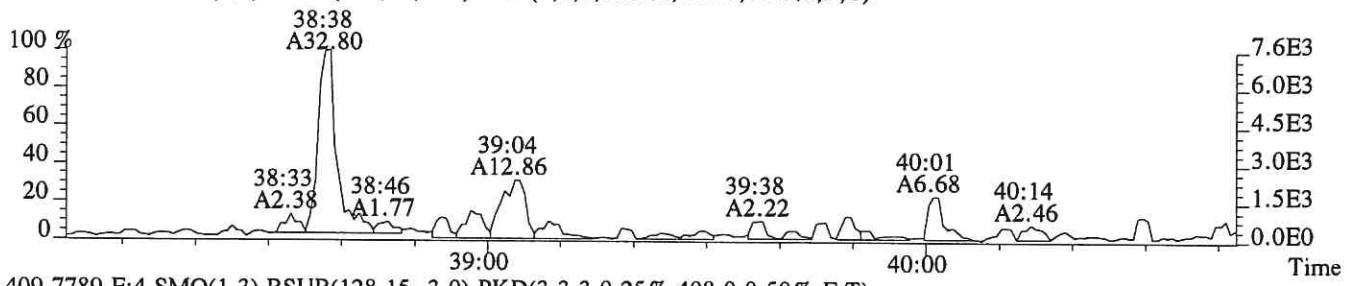
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



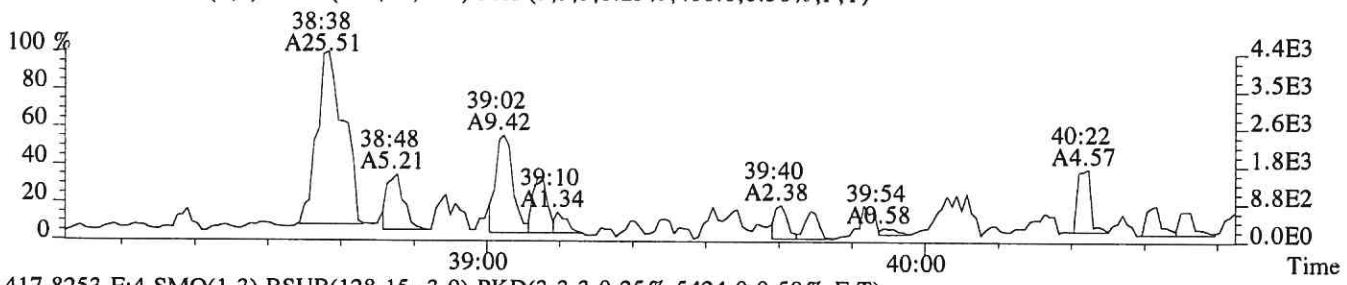
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



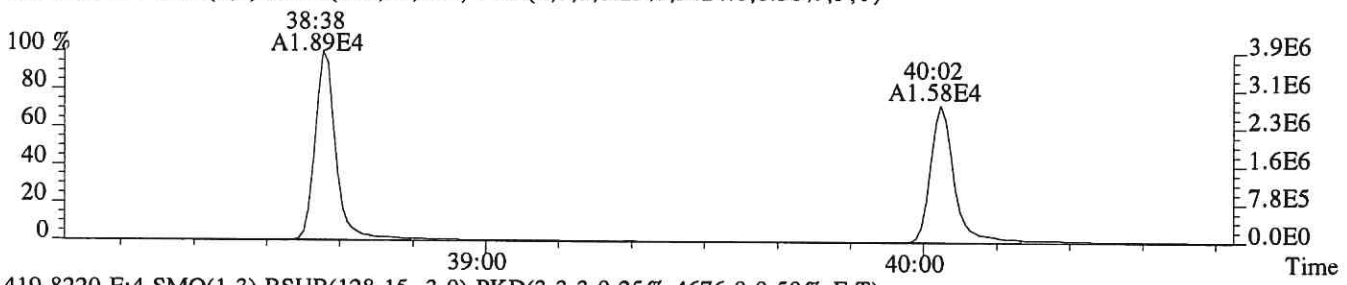
File:P519136 #1-241 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.50%,F,T)



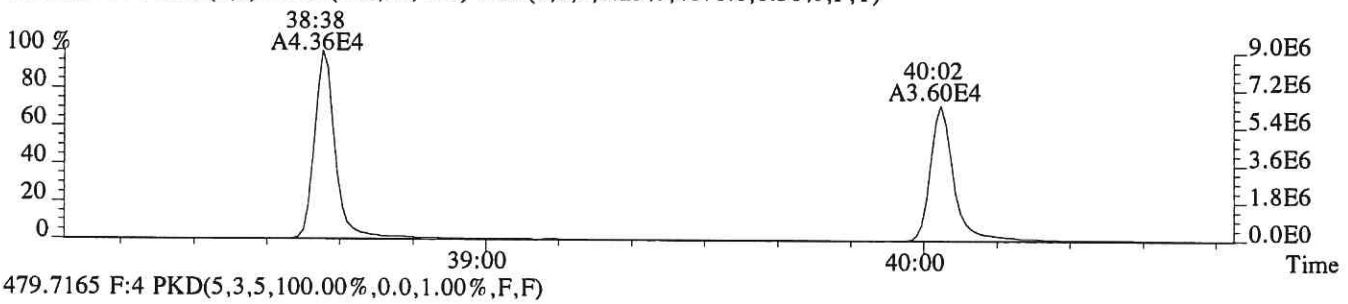
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.50%,F,T)



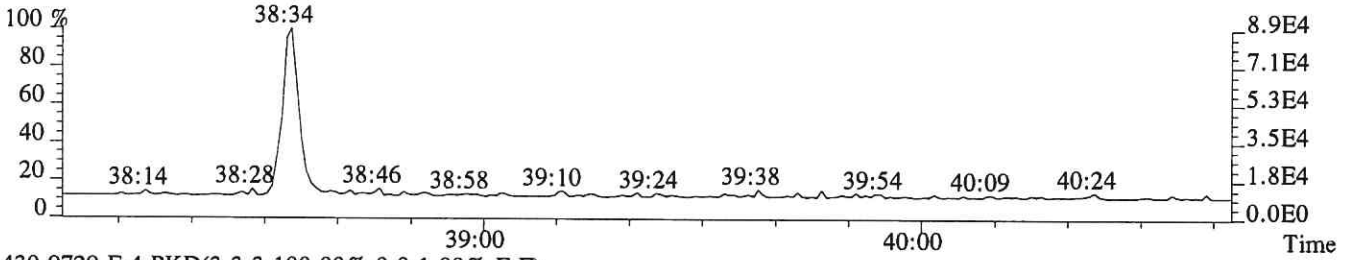
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5424.0,0.50%,F,T)



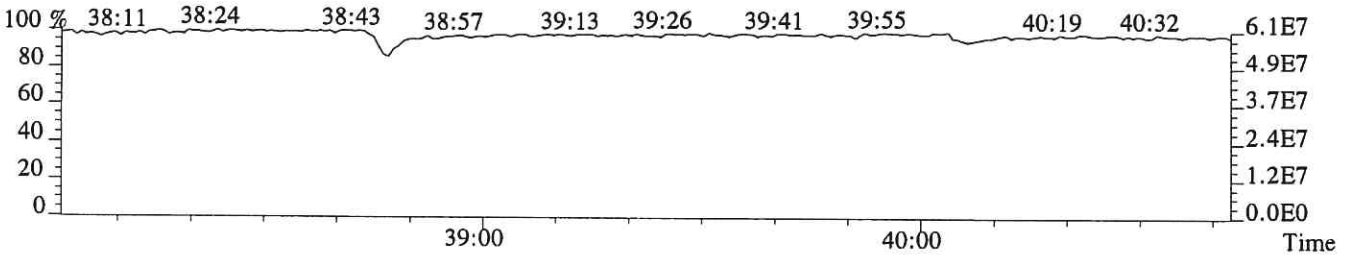
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4676.0,0.50%,F,T)



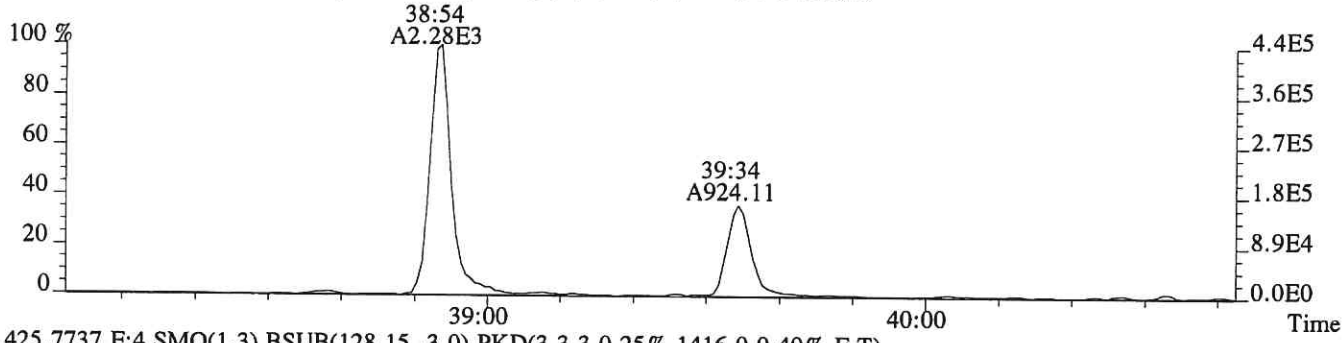
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



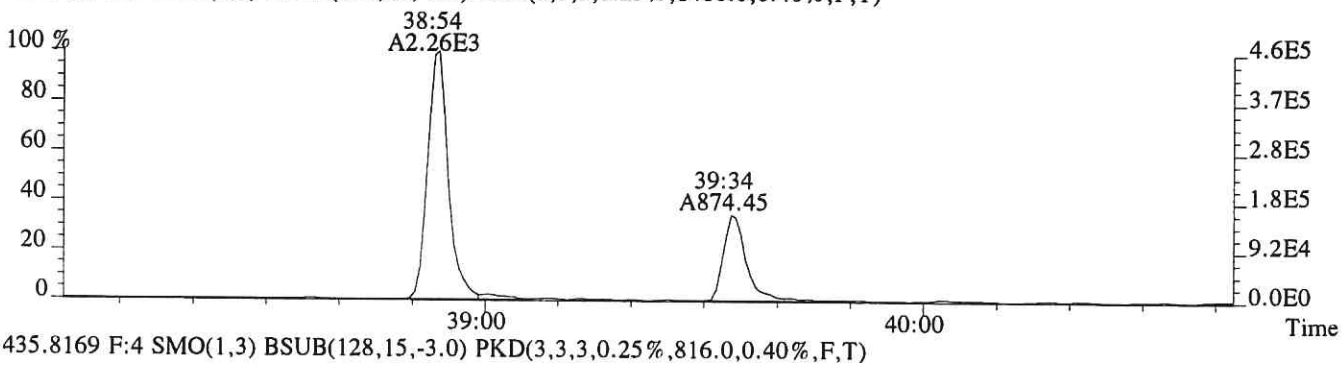
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



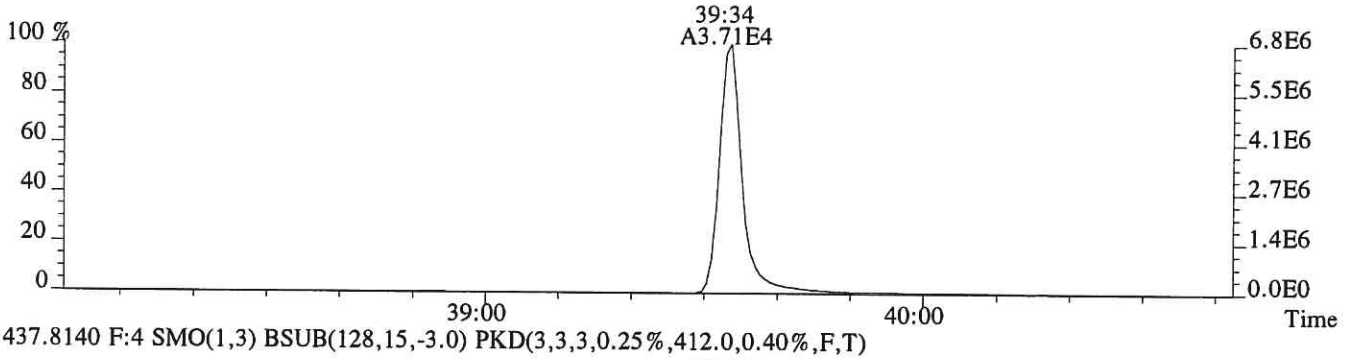
File:P519136 #1-241 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



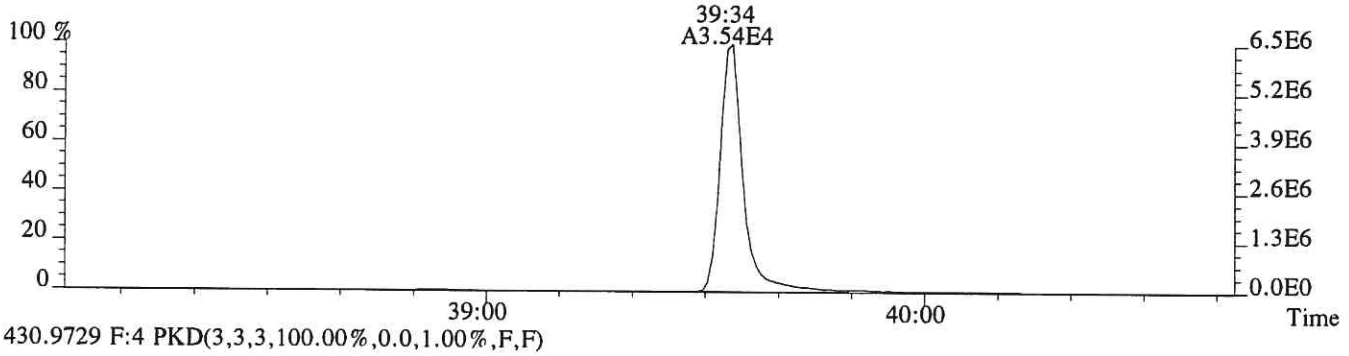
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.40%,F,T)



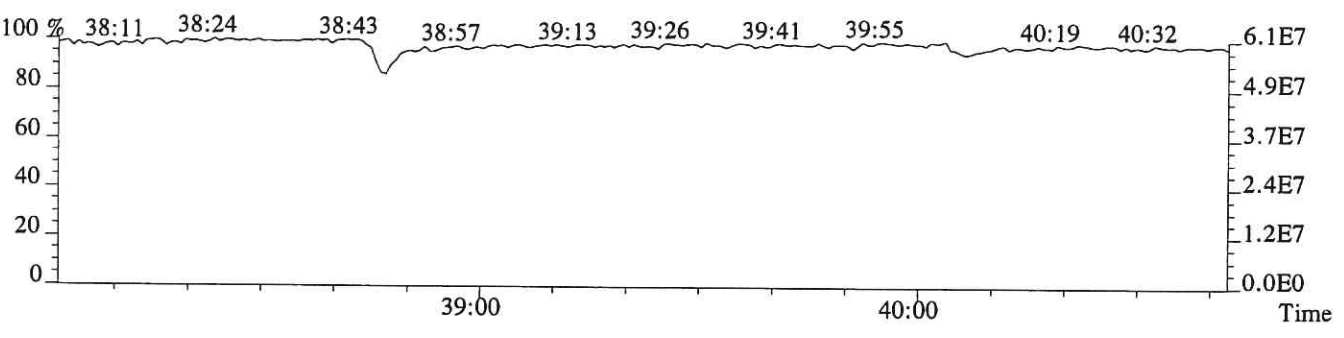
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



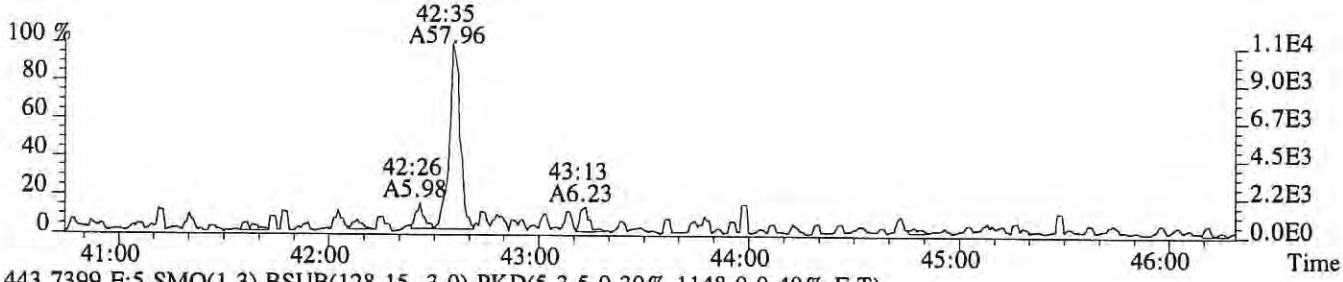
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



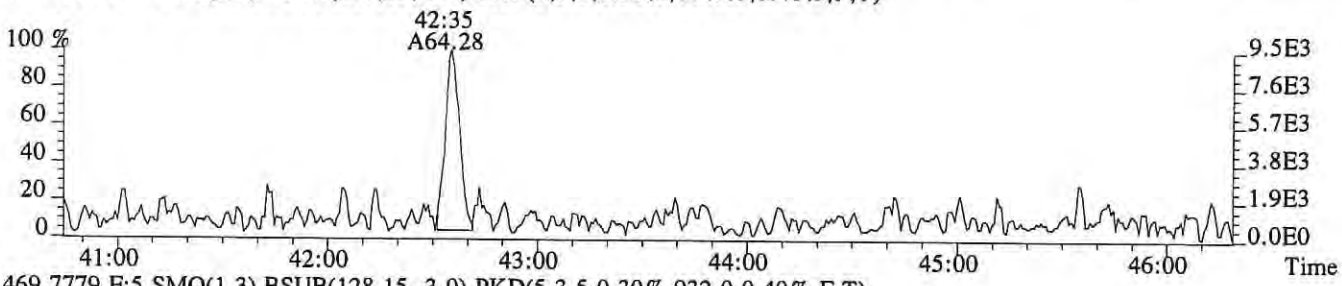
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



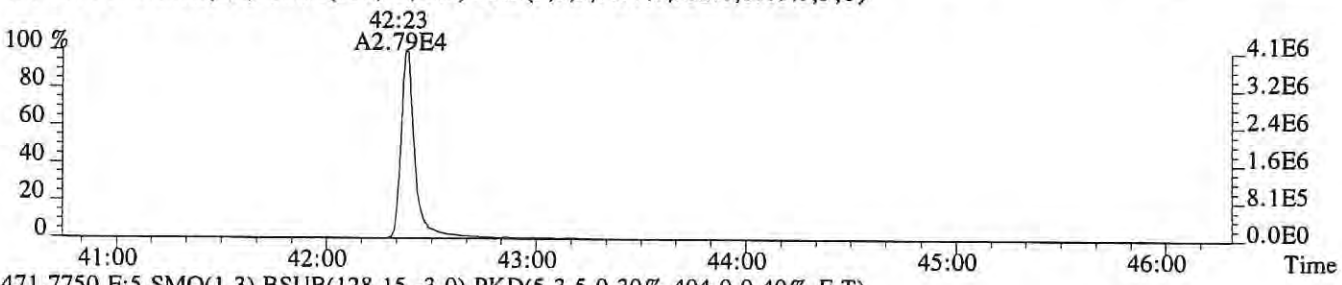
File:P519136 #1-502 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



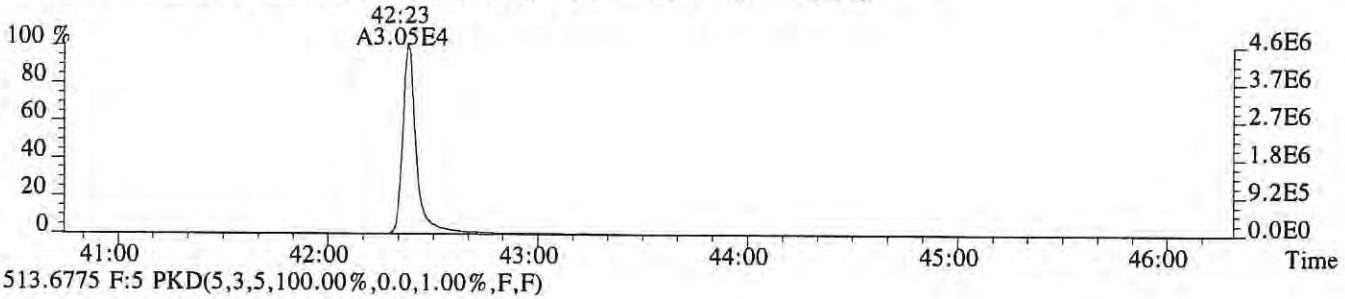
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1148.0,0.40%,F,T)



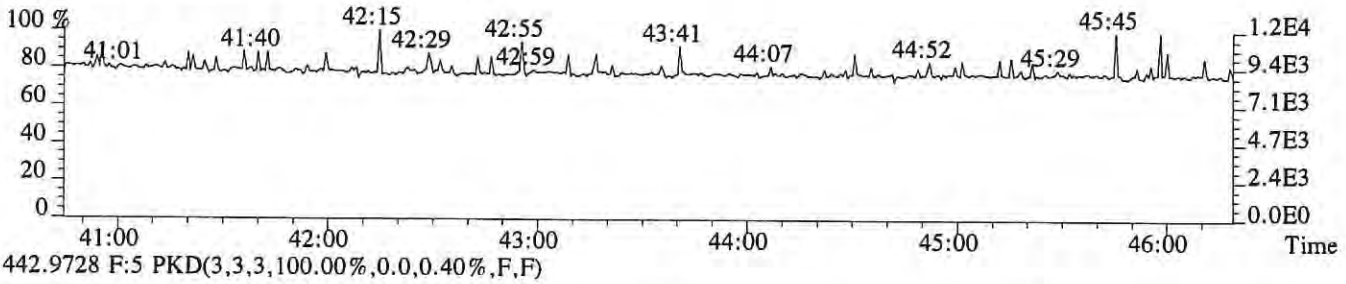
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



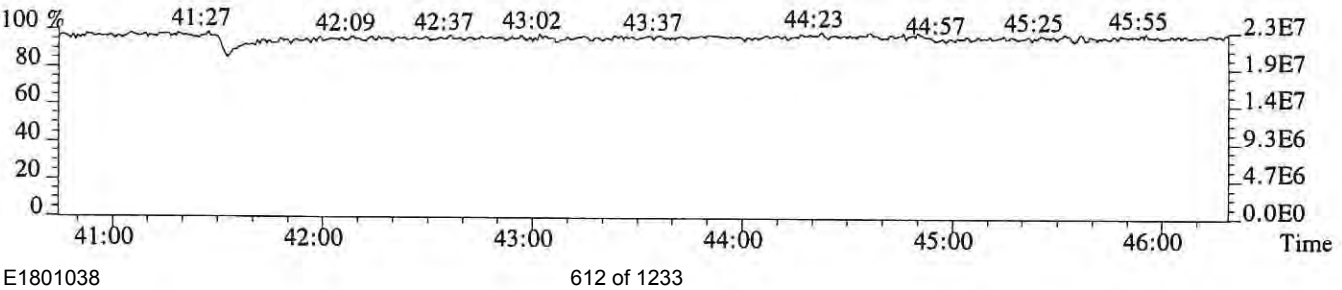
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



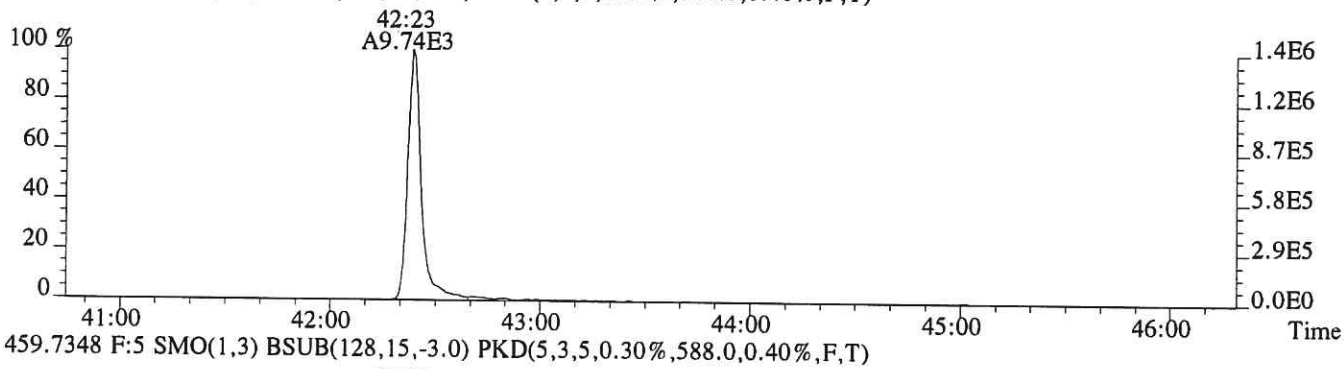
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



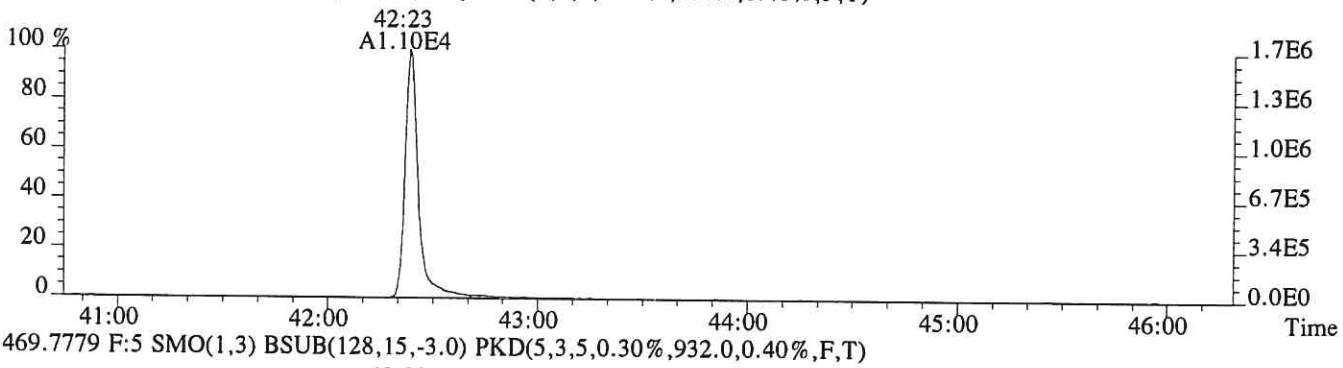
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



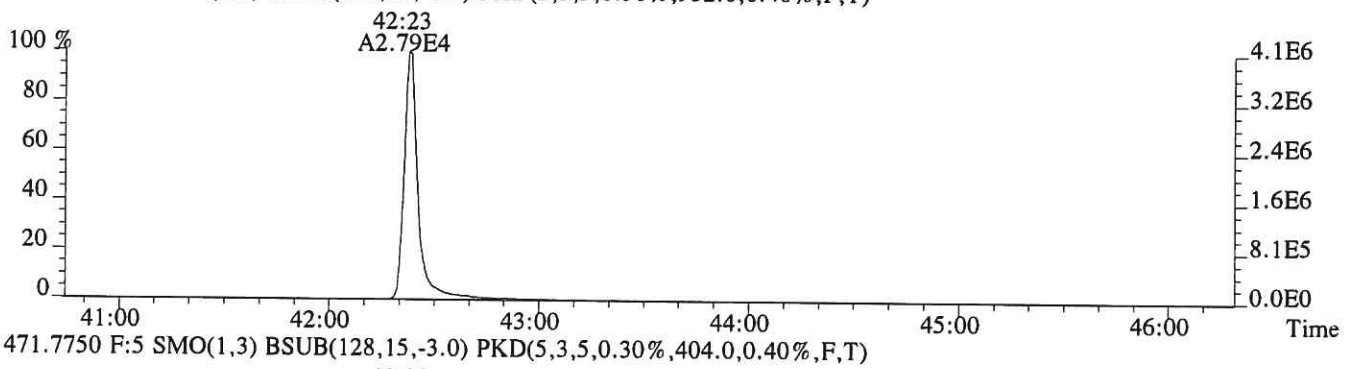
File:P519136 #1-502 Acq: 2-DEC-2018 08:36:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-022
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



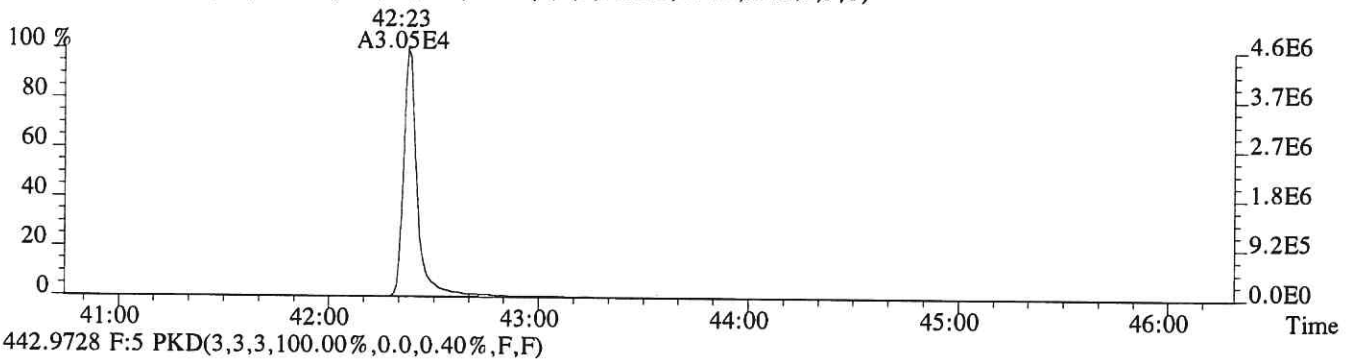
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



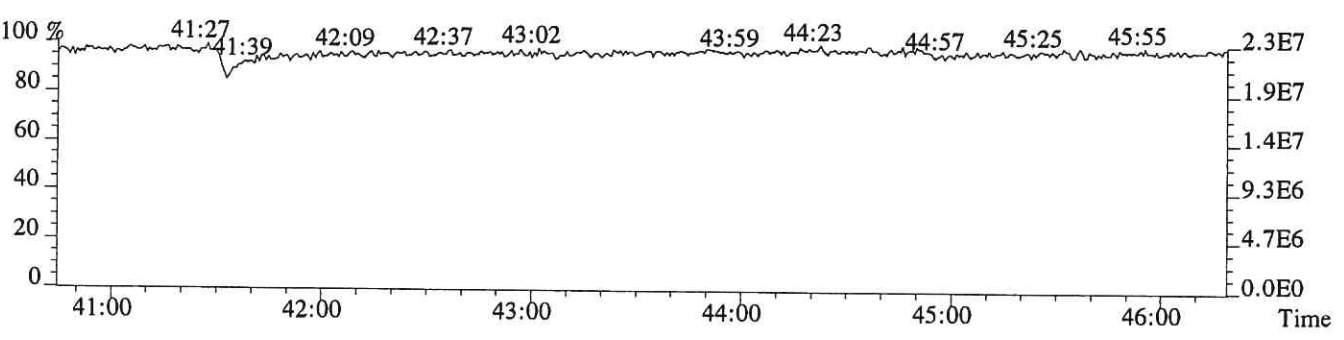
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
FW0050

Run #18 Filename P615726 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:04:50
Processed: 28-NOV-18 10:26:12 Sample ID: E1801038-023

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	5.135e+01	5.572e+01	0.92	no	yes	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	1.150e+02	1.454e+02	0.79	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.463
10	Unk	OCDF	43:30	7.481e+02	8.915e+02	0.84	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.079e+02	1.071e+02	1.01	yes	no	1.112
17	Unk	OCDD	43:17	7.081e+02	7.380e+02	0.96	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:13	3.905e+04	4.998e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	5.772e+04	3.788e+04	1.52	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	7.436e+04	4.751e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	3.606e+04	7.076e+04	0.51	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	3.964e+04	7.608e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	3.772e+04	7.207e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	3.493e+04	6.652e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	2.470e+04	5.510e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.336e+04	5.093e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.935e+04	3.773e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	5.772e+04	3.694e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	5.304e+04	4.099e+04	1.29	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	4.768e+04	3.809e+04	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	4.594e+04	4.462e+04	1.03	yes	no	0.857
32	IS	13C-OCDD	43:16	4.332e+04	4.812e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	6.823e+04	8.720e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	1.022e+05	8.166e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:57	2.923e+04				no	1.086

$$\text{OCDD} = \frac{(7.081e+02 + 7.380e+02) \times 4000\ \text{pg} \times 1 \times 2}{(4.332e+04 + 4.812e+04) \times \text{g} \times / 100 \times 1.157} = 109.3560\ \text{pg}$$

LG 11/28/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0050

Run #18 Filename P615726 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:04:50
Processed: 28-NOV-18 10:26:12 LAB. ID: E1801038-023

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.68e+03	*	*	3.12e+03	*
2	1,2,3,7,8-PeCDF	*	1.96e+03	*	*	3.72e+03	*
3	2,3,4,7,8-PeCDF	*	1.96e+03	*	*	3.72e+03	*
4	1,2,3,4,7,8-HxCDF	1.22e+04	2.70e+03	4.5e+00	9.77e+03	1.93e+03	5.1e+00
5	1,2,3,6,7,8-HxCDF	*	2.70e+03	*	*	1.93e+03	*
6	2,3,4,6,7,8-HxCDF	*	2.70e+03	*	*	1.93e+03	*
7	1,2,3,7,8,9-HxCDF	*	2.70e+03	*	*	1.93e+03	*
8	1,2,3,4,6,7,8-HpCDF	2.39e+04	1.78e+03	1.3e+01	3.05e+04	1.99e+03	1.5e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.78e+03	*	*	1.99e+03	*
10	OCDF	1.10e+05	1.22e+03	9.1e+01	1.32e+05	2.00e+03	6.6e+01
11	2,3,7,8-TCDD	*	2.72e+03	*	*	1.70e+03	*
12	1,2,3,7,8-PeCDD	*	1.81e+03	*	*	1.54e+03	*
13	1,2,3,4,7,8-HxCDD	*	1.20e+03	*	*	1.39e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.20e+03	*	*	1.39e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.20e+03	*	*	1.39e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.99e+04	9.28e+02	2.1e+01	2.15e+04	9.36e+02	2.3e+01
17	OCDD	1.06e+05	6.04e+02	1.8e+02	1.14e+05	1.41e+03	8.1e+01
18	13C-2,3,7,8-TCDF	7.82e+06	1.11e+04	7.0e+02	1.01e+07	6.56e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	9.49e+06	1.19e+03	8.0e+03	6.41e+06	2.52e+03	2.5e+03
20	13C-2,3,4,7,8-PeCDF	1.53e+07	1.19e+03	1.3e+04	9.79e+06	2.52e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	8.05e+06	1.54e+03	5.2e+03	1.58e+07	2.36e+03	6.7e+03
22	13C-1,2,3,6,7,8-HxCDF	8.64e+06	1.54e+03	5.6e+03	1.67e+07	2.36e+03	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	8.34e+06	1.54e+03	5.4e+03	1.60e+07	2.36e+03	6.8e+03
24	13C-1,2,3,7,8,9-HxCDF	7.57e+06	1.54e+03	4.9e+03	1.43e+07	2.36e+03	6.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.17e+06	4.80e+03	1.1e+03	1.16e+07	3.20e+03	3.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.48e+06	4.80e+03	9.3e+02	9.73e+06	3.20e+03	3.0e+03
27	13C-2,3,7,8-TCDD	6.18e+06	1.45e+04	4.2e+02	8.02e+06	5.91e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	1.19e+07	1.70e+03	7.0e+03	7.76e+06	1.80e+03	4.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.23e+07	4.28e+03	2.9e+03	9.34e+06	2.91e+03	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.04e+07	4.28e+03	2.4e+03	8.27e+06	2.91e+03	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.08e+06	1.16e+03	7.9e+03	8.83e+06	1.60e+03	5.5e+03
32	13C-OCDD	6.66e+06	1.34e+03	5.0e+03	7.42e+06	6.20e+02	1.2e+04
33	13C-1,2,3,4-TCDD	1.44e+07	1.45e+04	9.9e+02	1.84e+07	5.91e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.26e+07	4.28e+03	5.3e+03	1.77e+07	2.91e+03	6.1e+03
35	37Cl-2,3,7,8-TCDD	6.07e+06	1.38e+03	4.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.724e{+}03 + 1.700e{+}03\ ) \times 2000}{(6.180e{+}06 + 8.023e{+}06\ ) \times (\qquad\qquad) \times 1.049} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0050

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P615726 Sample:1 Injection:1 Function:4

Acquired: 27-NOV-18 20:04:50 Processed: 28-NOV-18 10:26:12

Mass: 423.7770 425.7740 Tot Response: 2.15e+02 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	40:15	1.08e+02	1.07e+02 1.01	yes	2.15e+02	1,2,3,4,6,7,8-HpCDD	n	n

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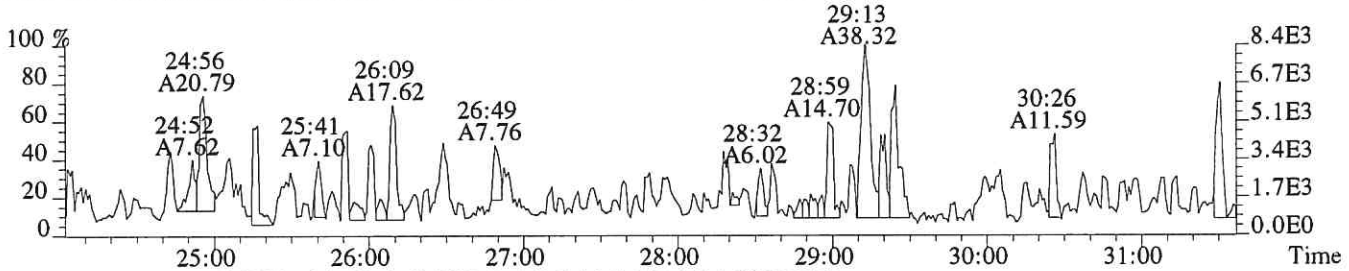
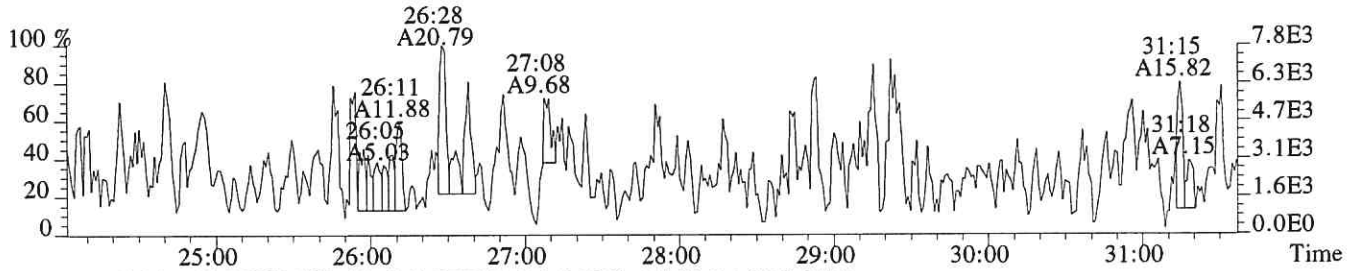
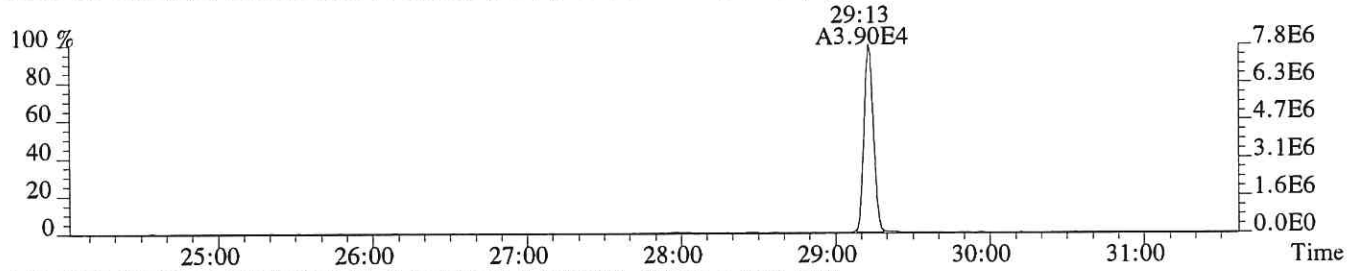
File:P615726 #1-538 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



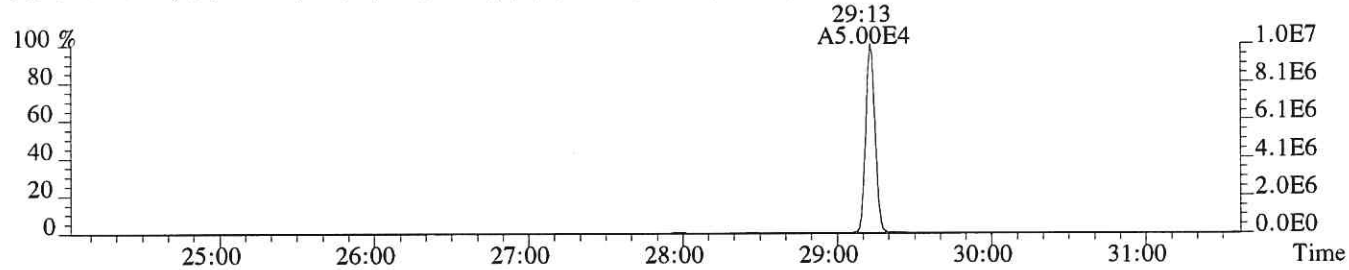
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3124.0,1.00%,F,T)



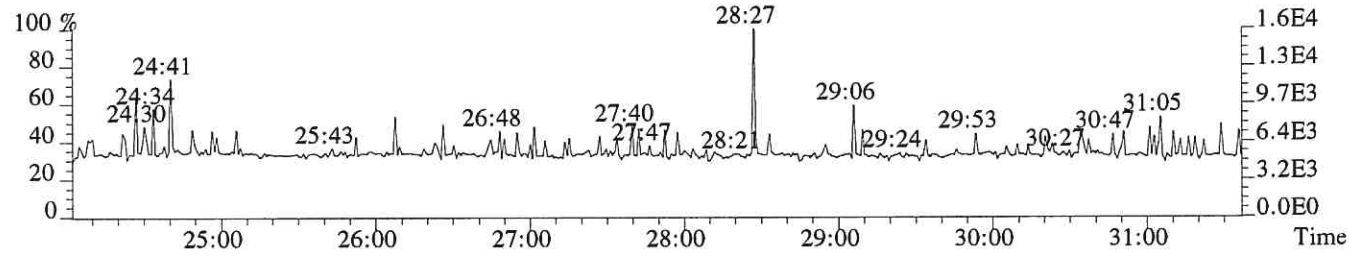
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11128.0,1.00%,F,T)



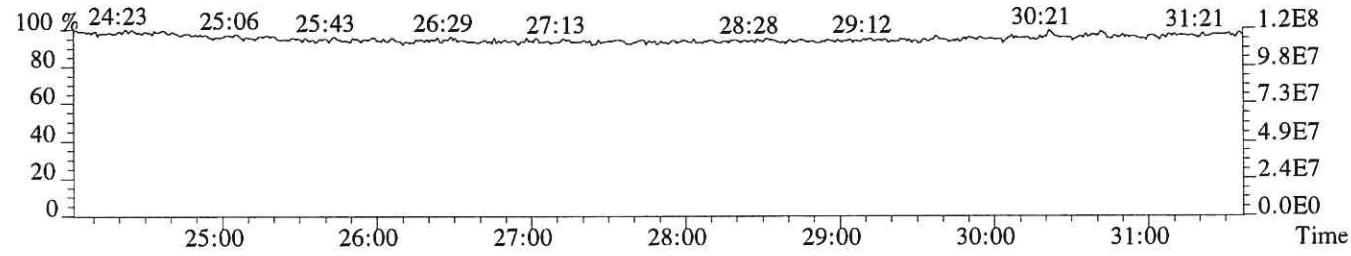
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6556.0,1.00%,F,T)



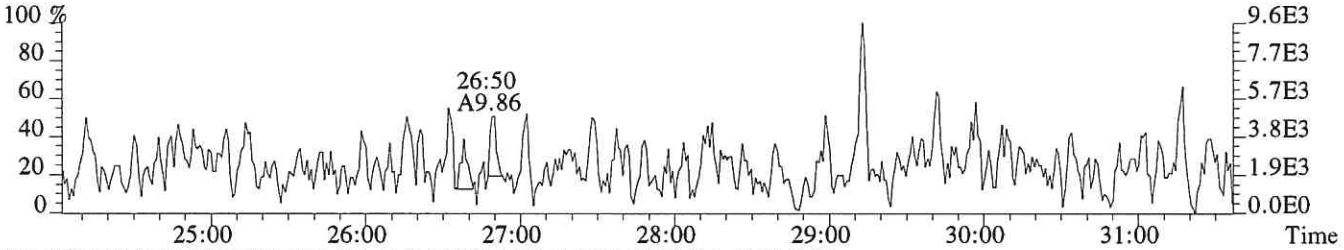
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



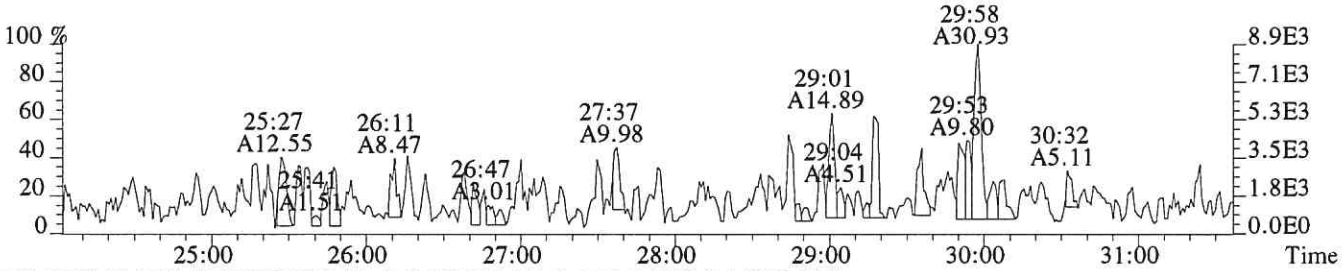
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



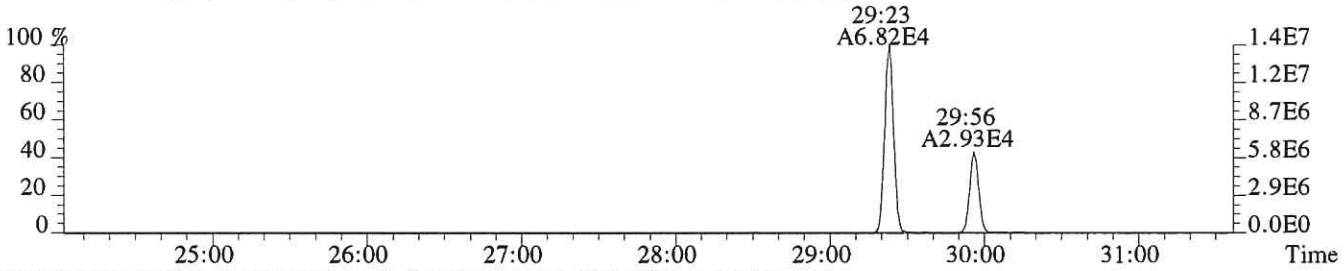
File:P615726 #1-538 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



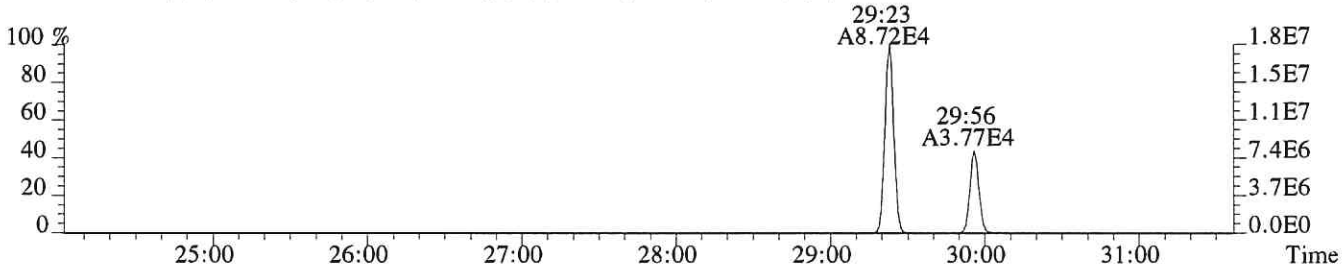
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



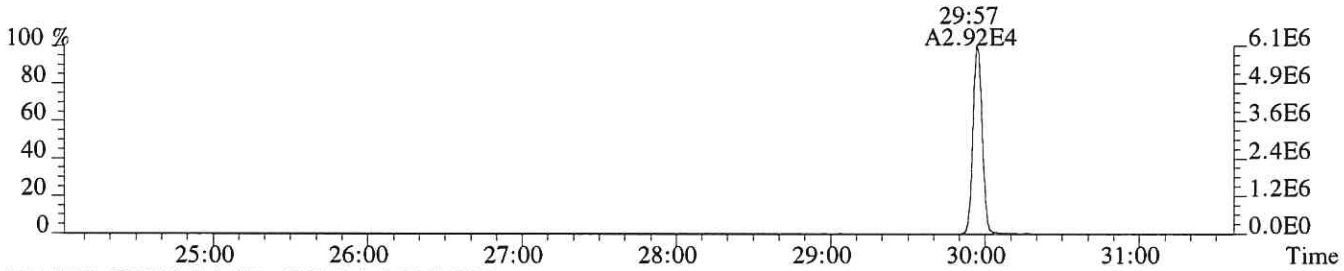
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14548.0,1.00%,F,T)



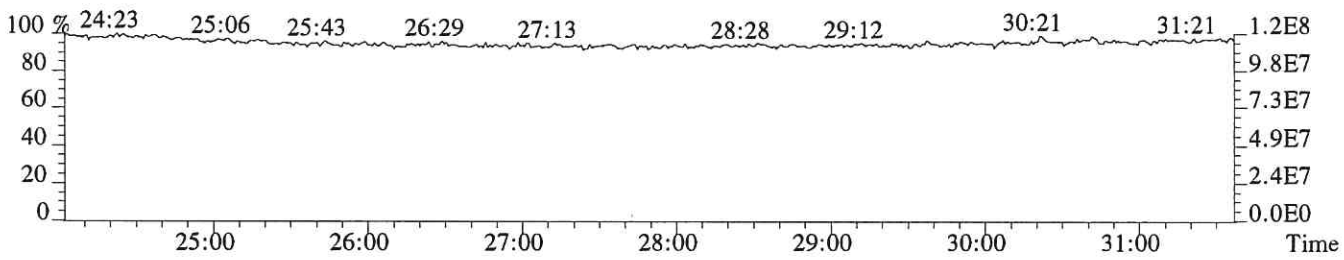
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5912.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)

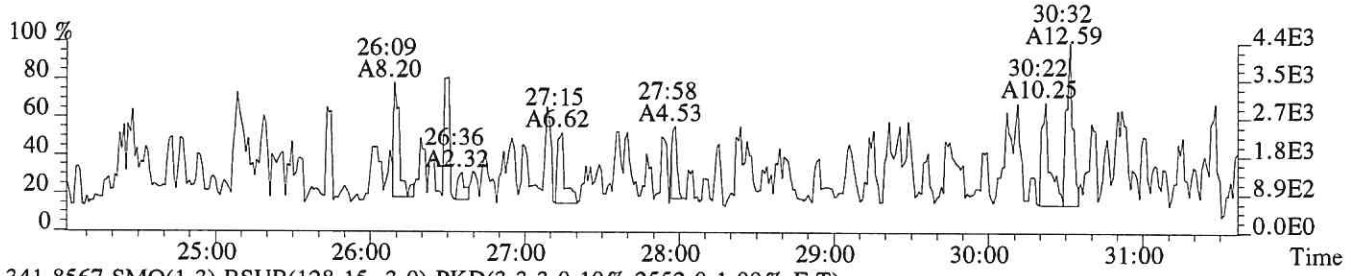


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

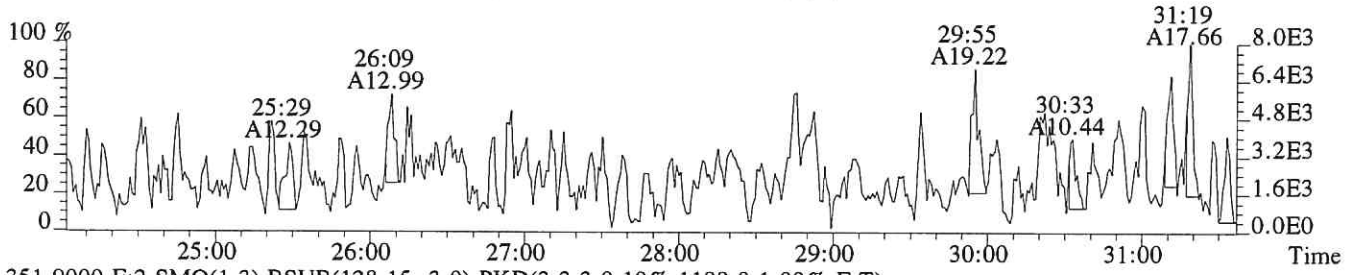


File:P615726 #1-538 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023

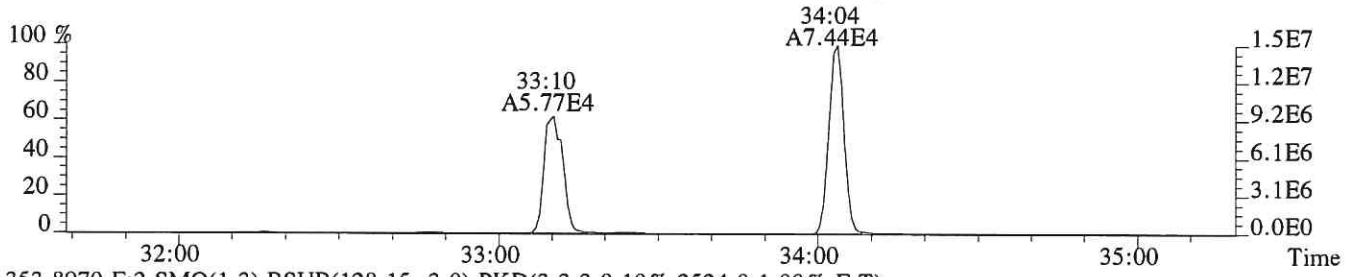
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



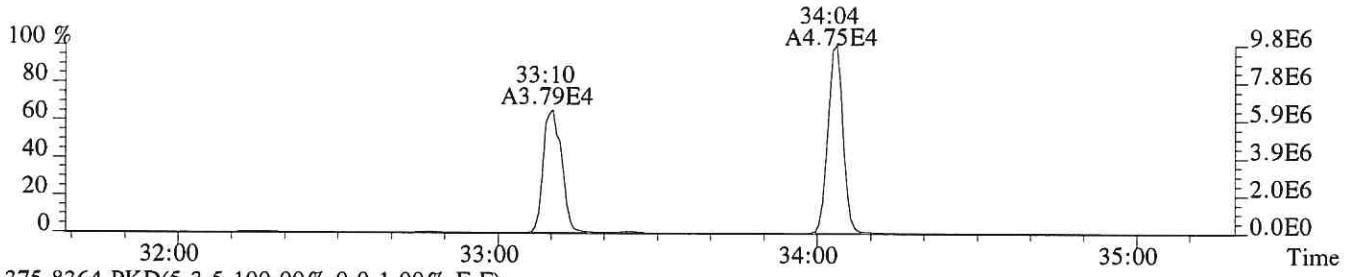
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



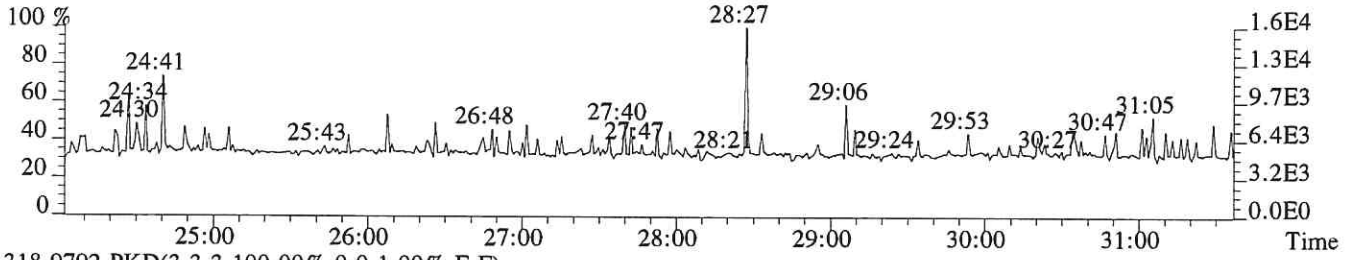
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



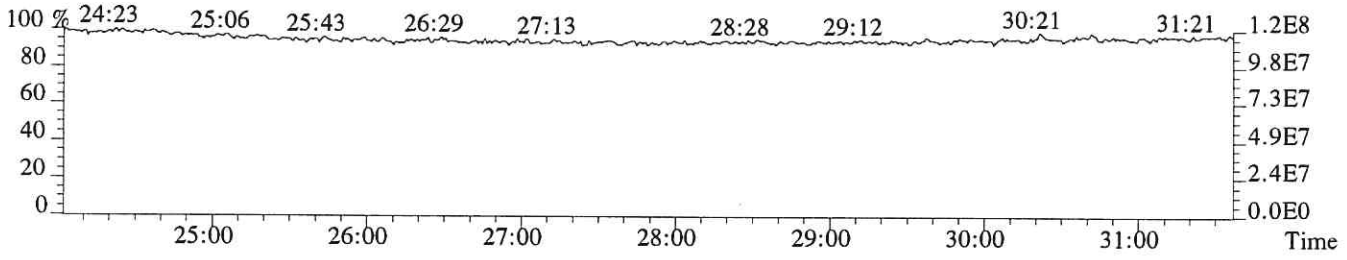
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

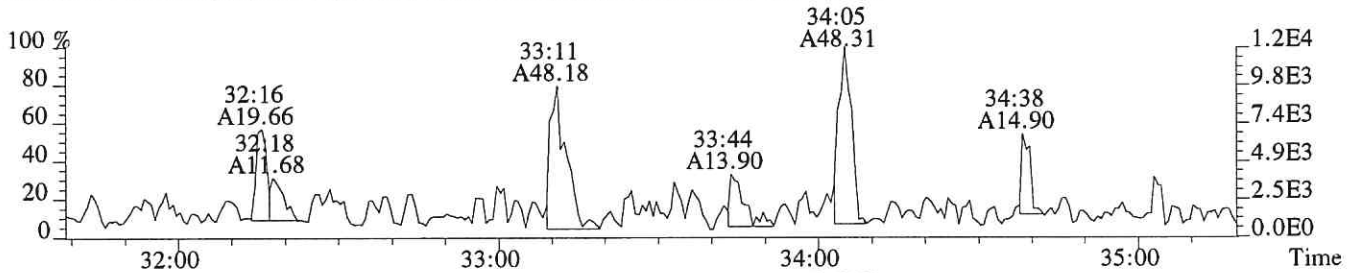


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

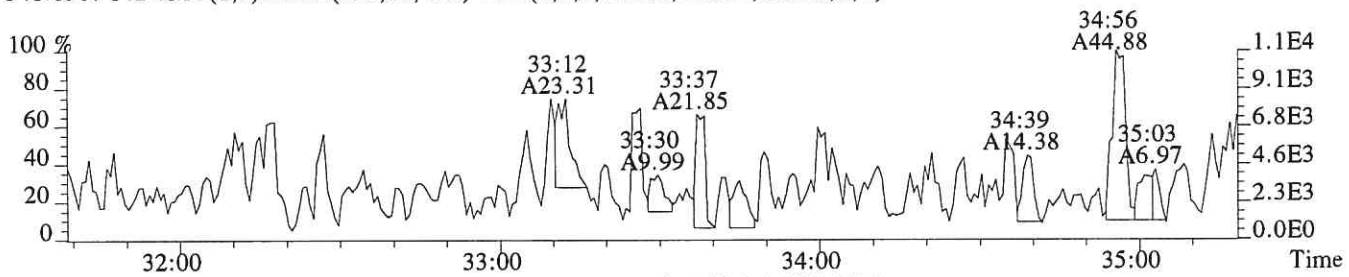


File:P615726 #1-330 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023

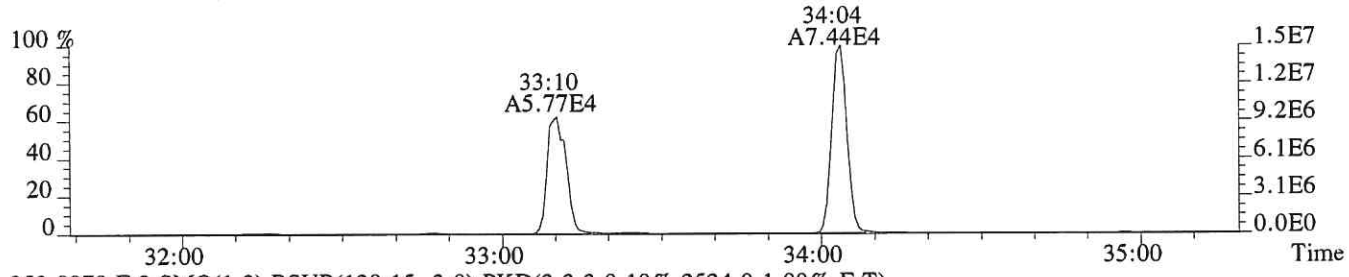
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



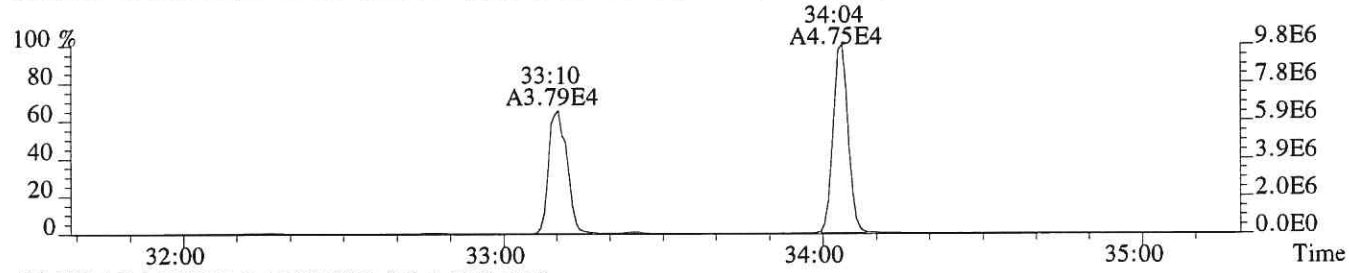
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3716.0,1.00%,F,T)



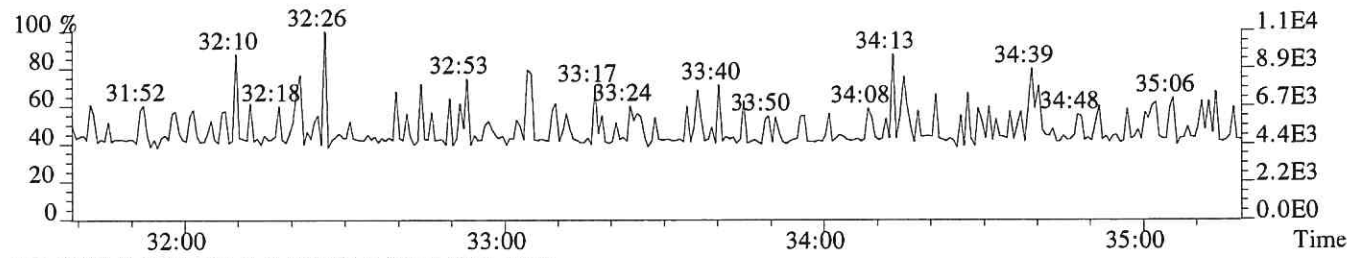
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



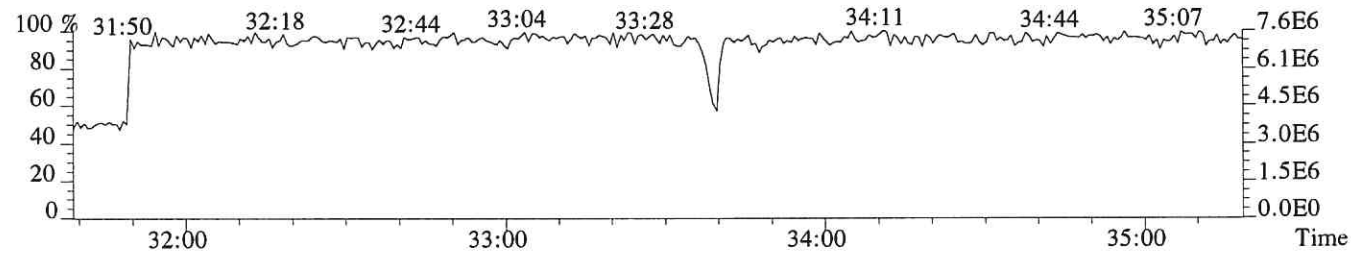
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



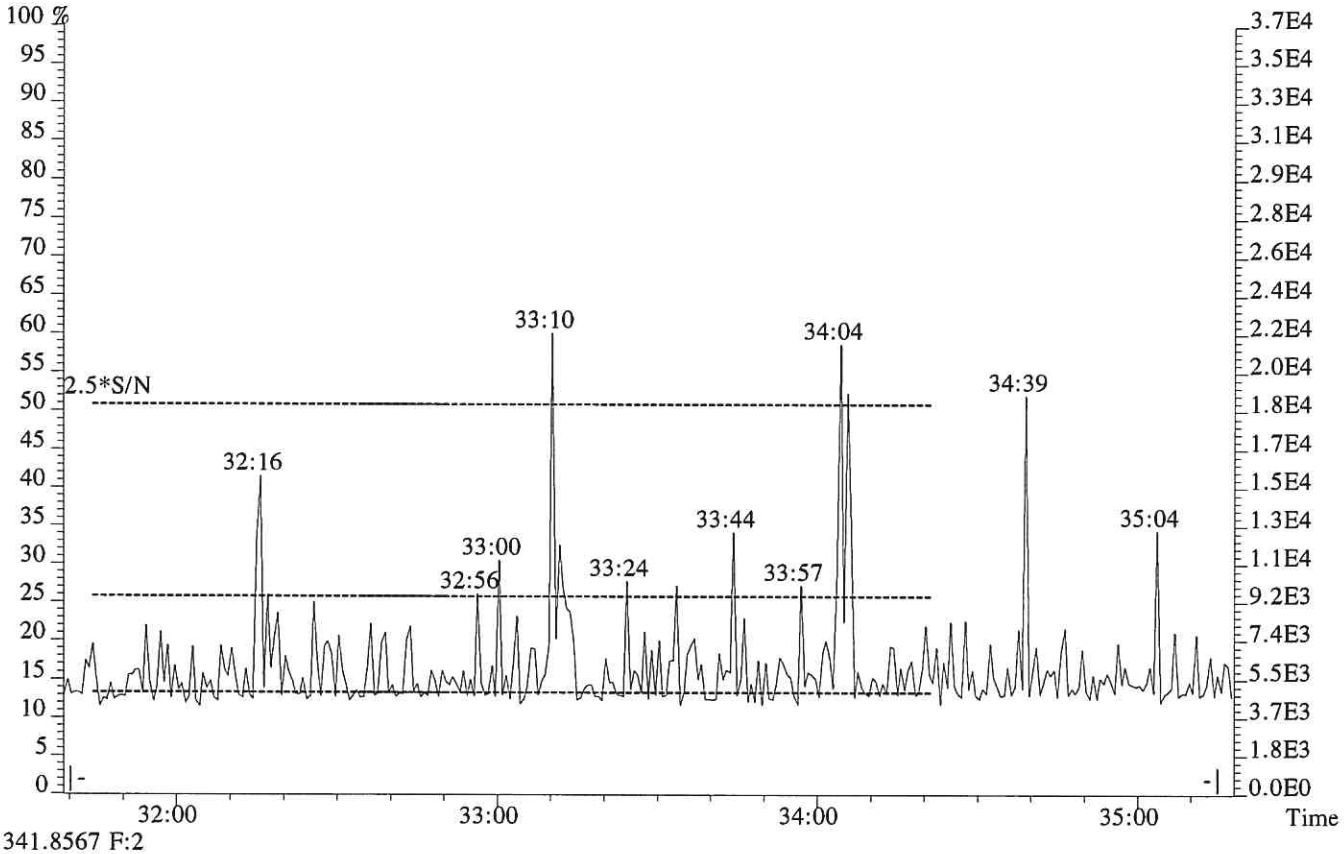
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



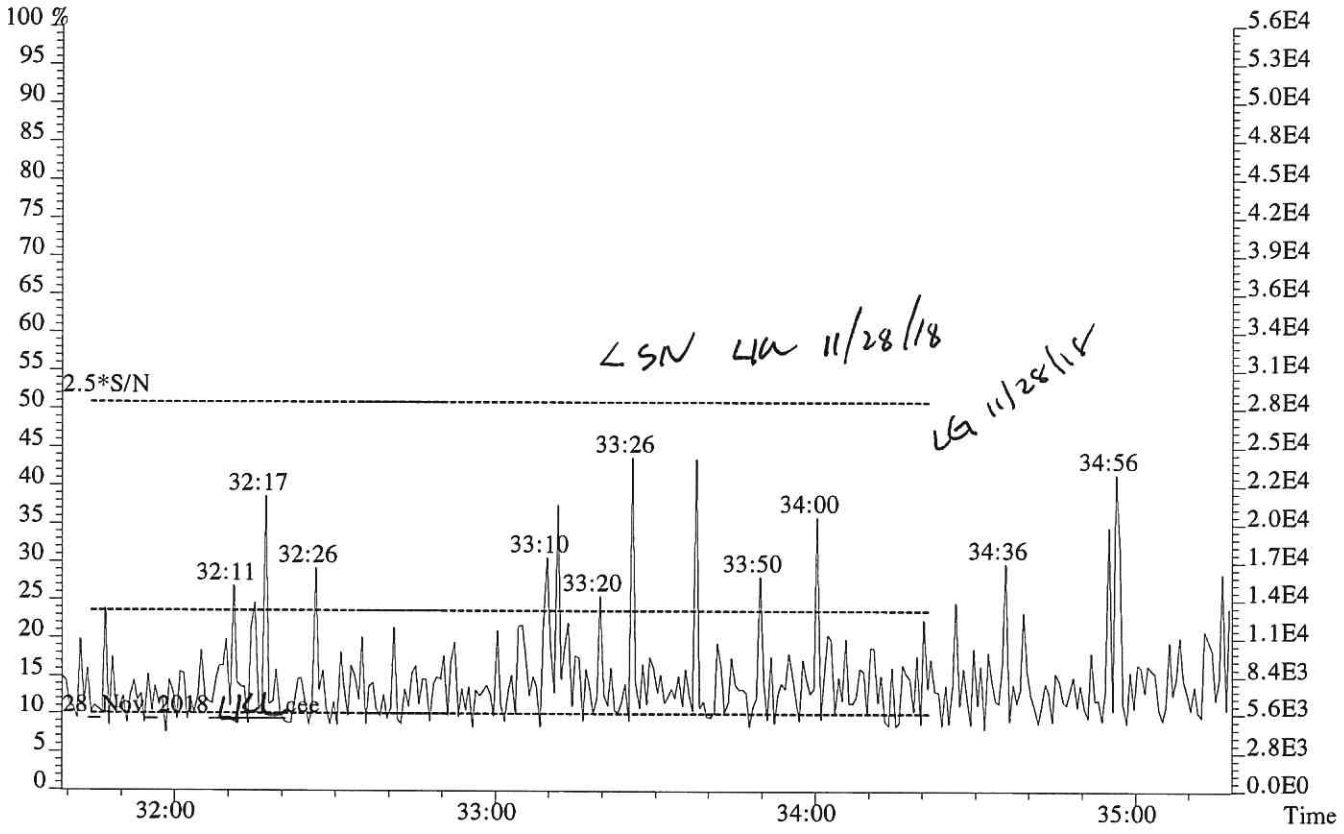
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615726 #1-330 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023
339.8597 F:2

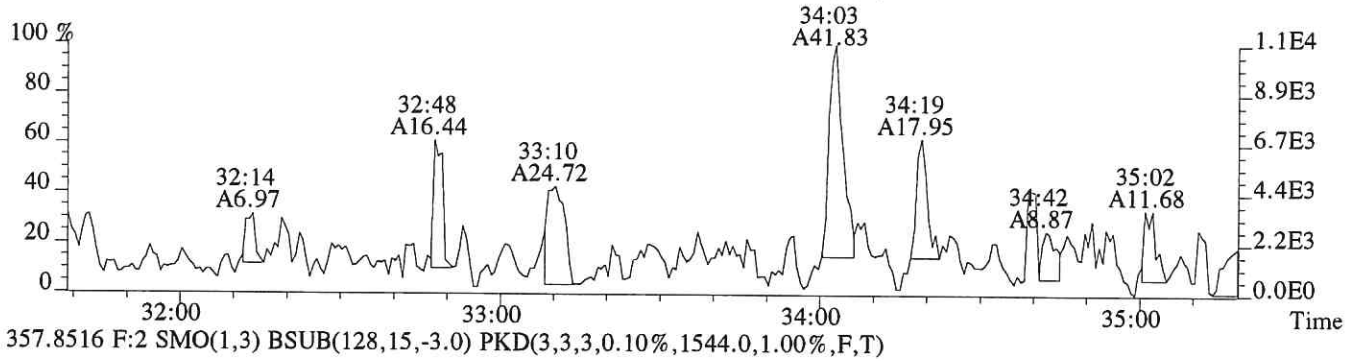


341.8567 F:2

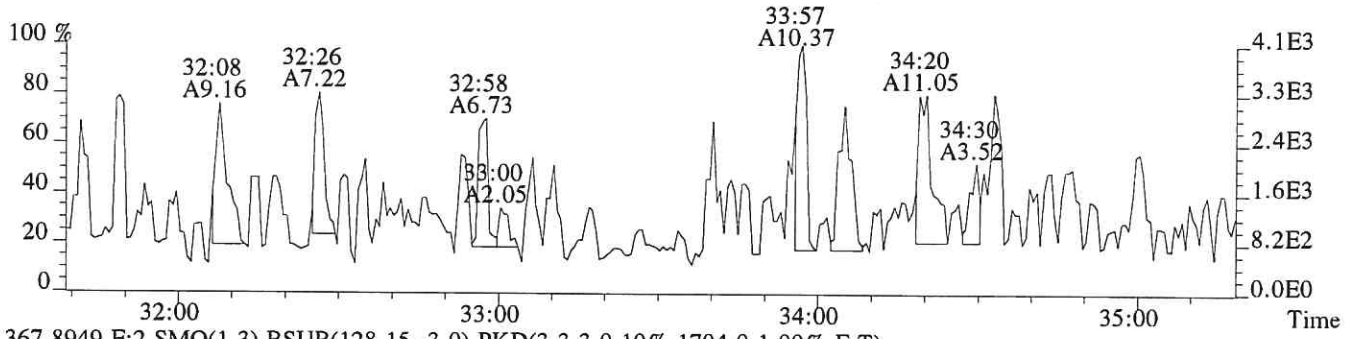


File:P615726 #1-330 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023

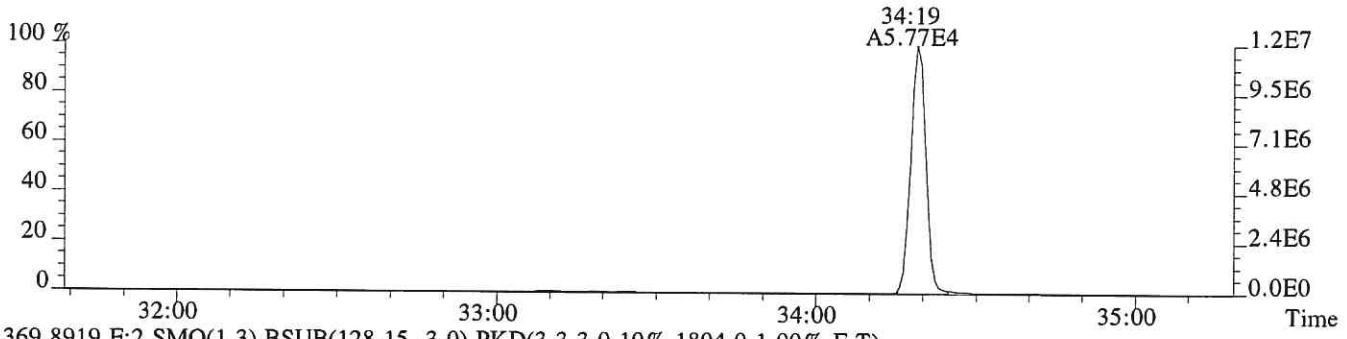
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



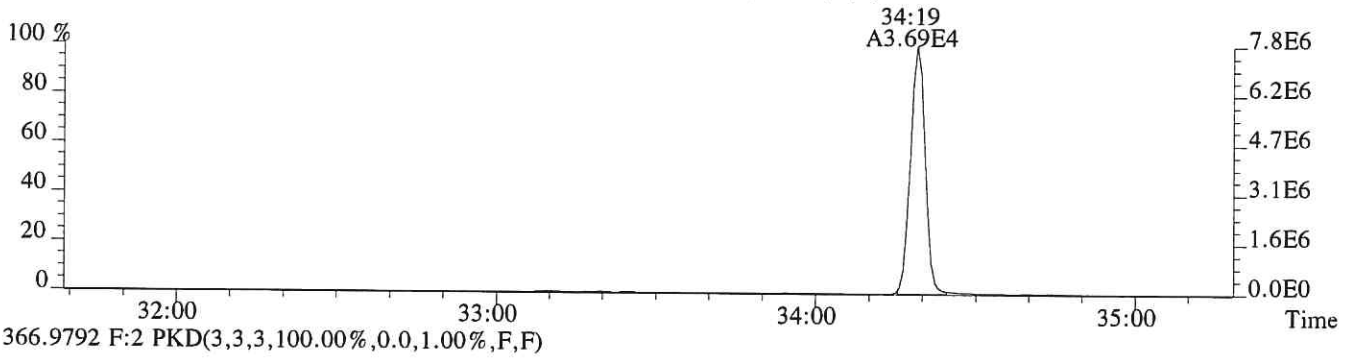
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



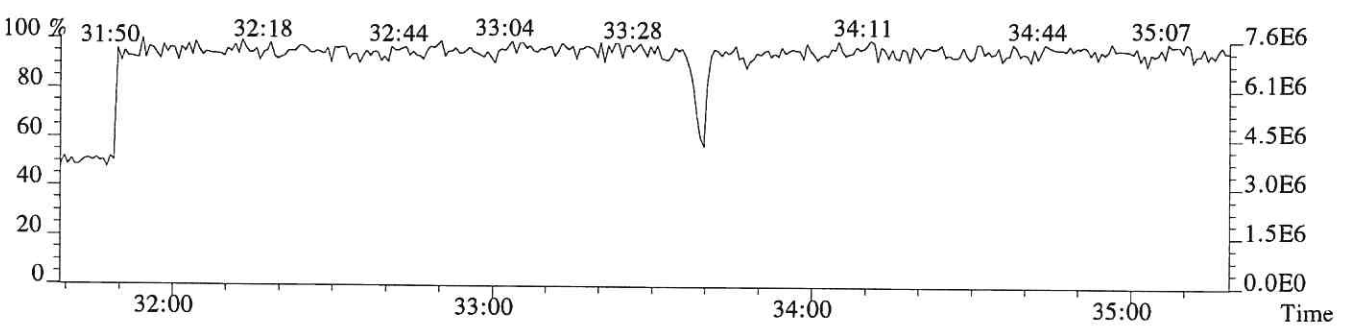
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)

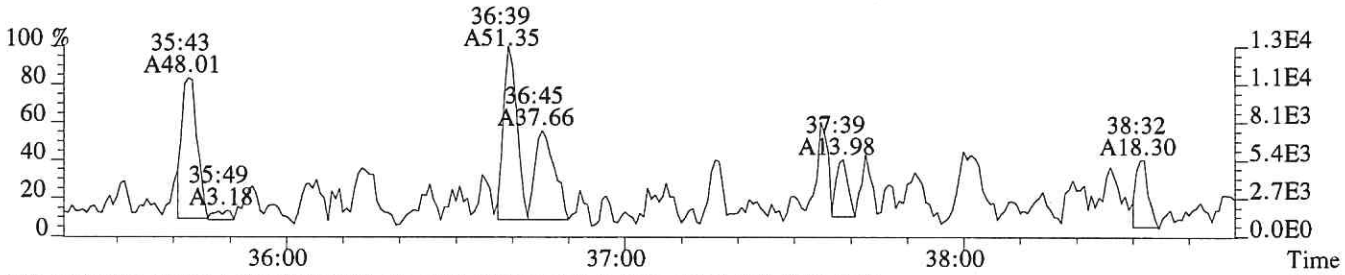


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

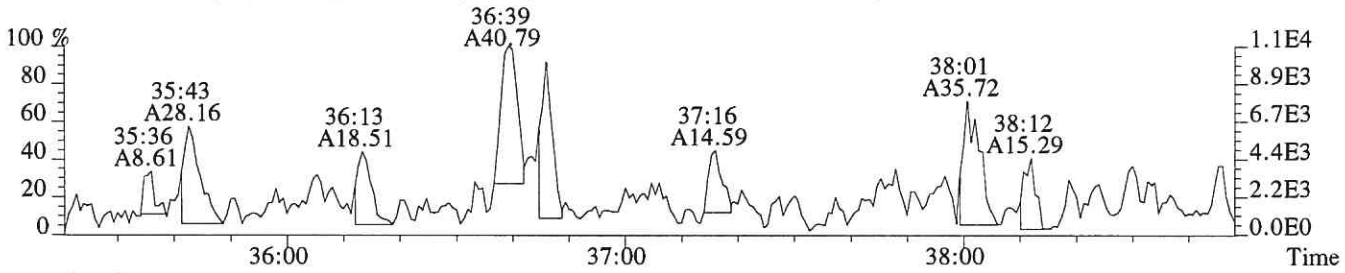


File:P615726 #1-312 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023

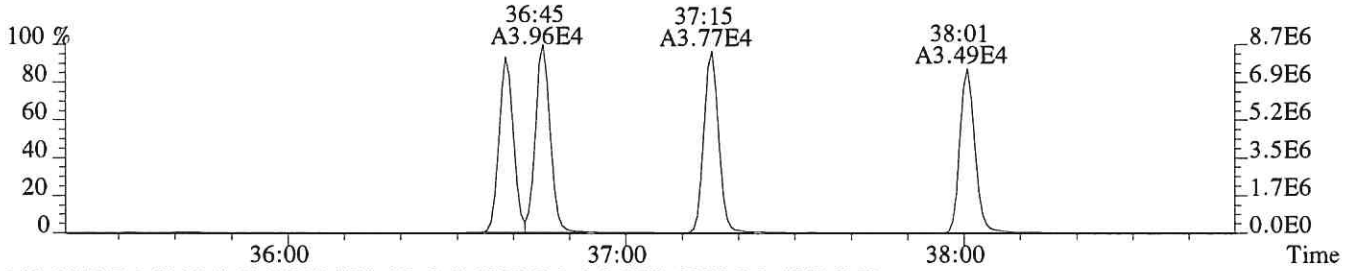
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2696.0,0.40%,F,T)



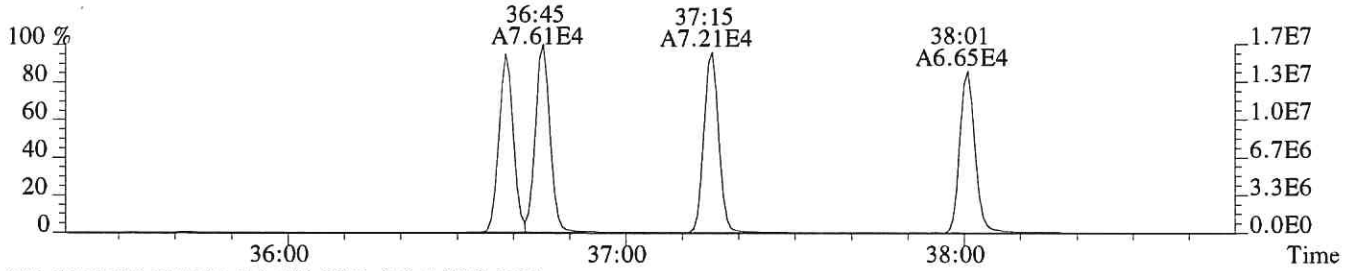
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



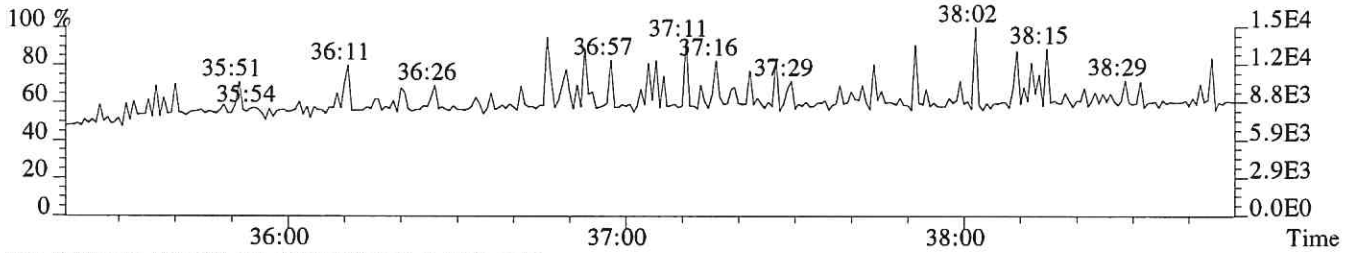
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



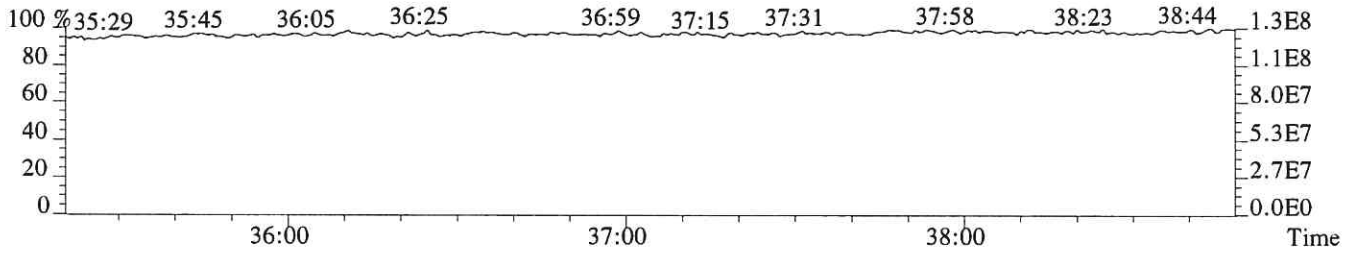
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2356.0,0.40%,F,T)



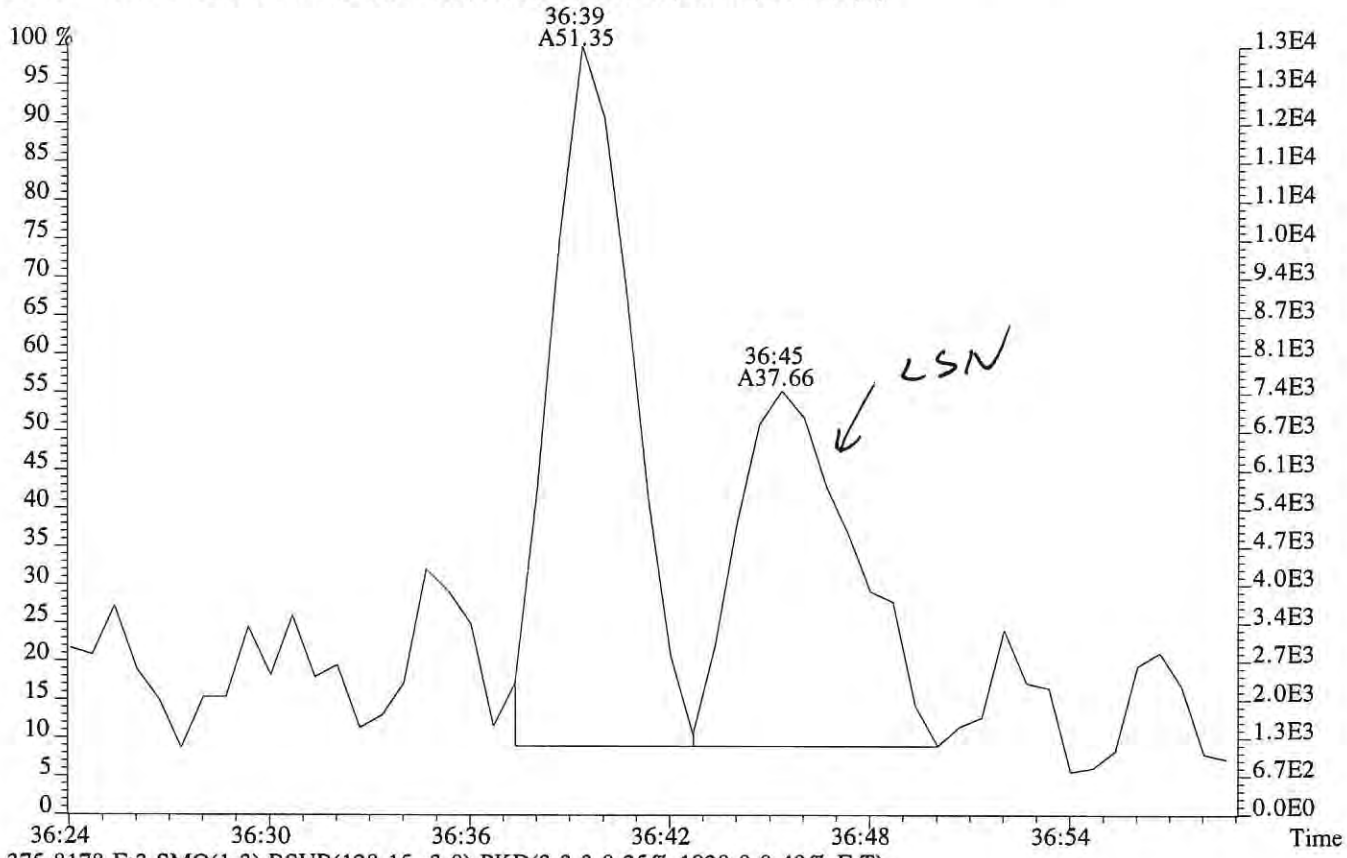
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



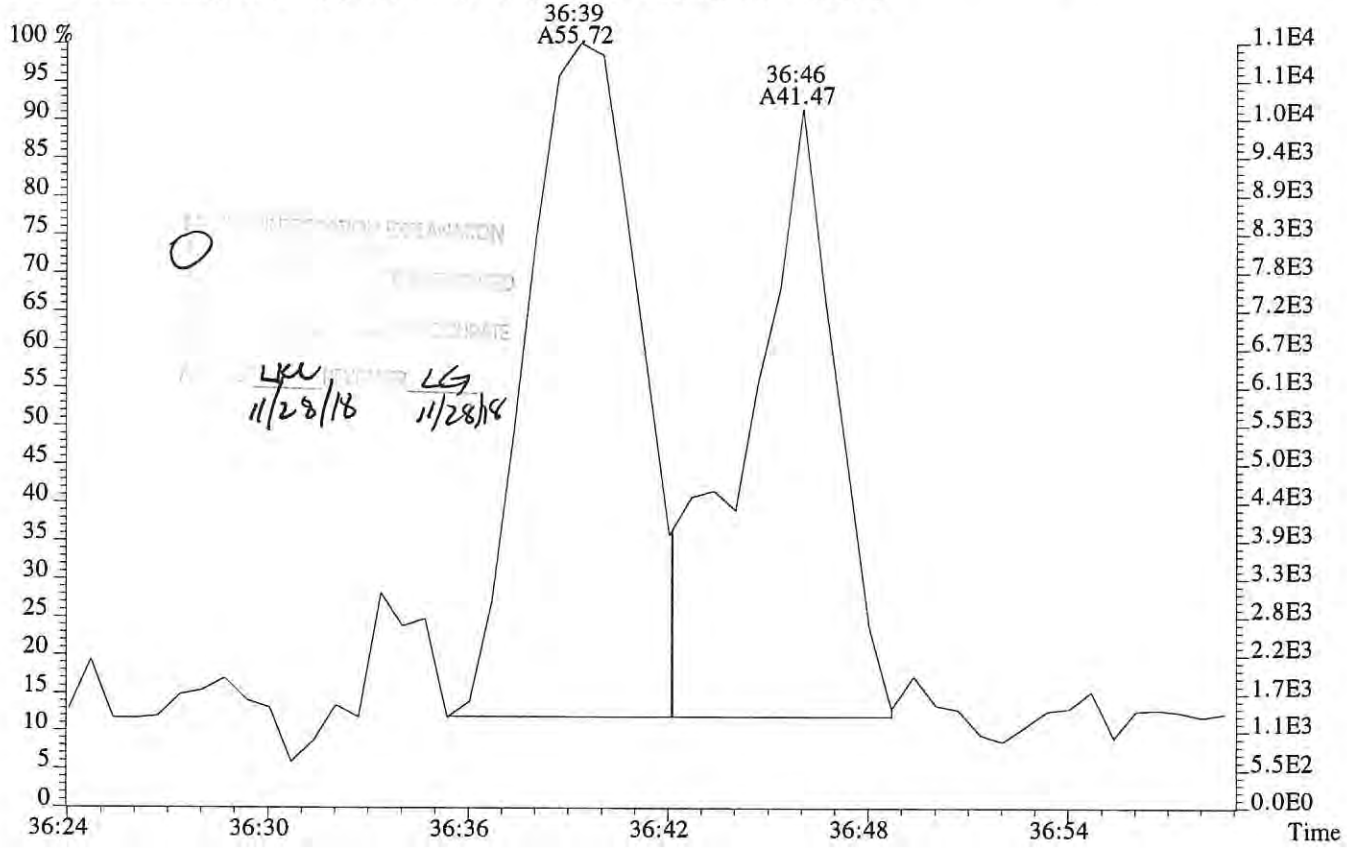
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615726 #1-312 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2696.0,0.40%,F,T)



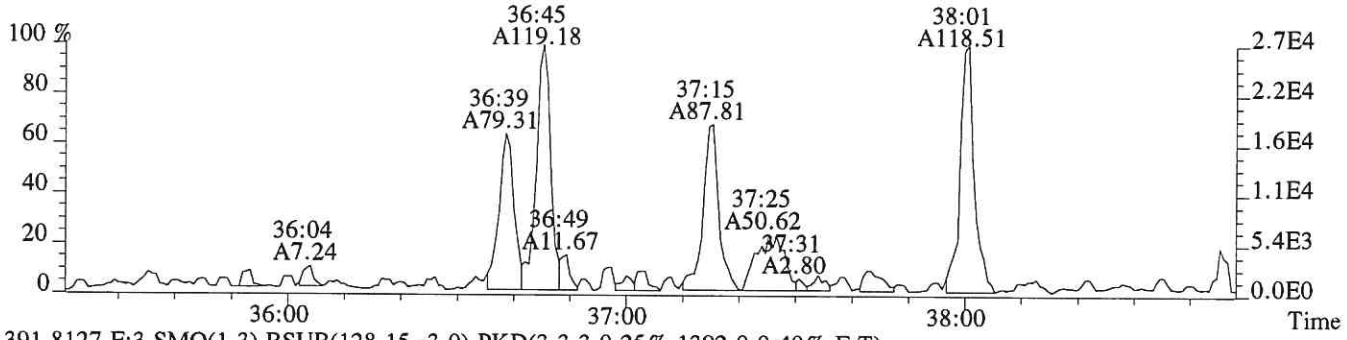
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



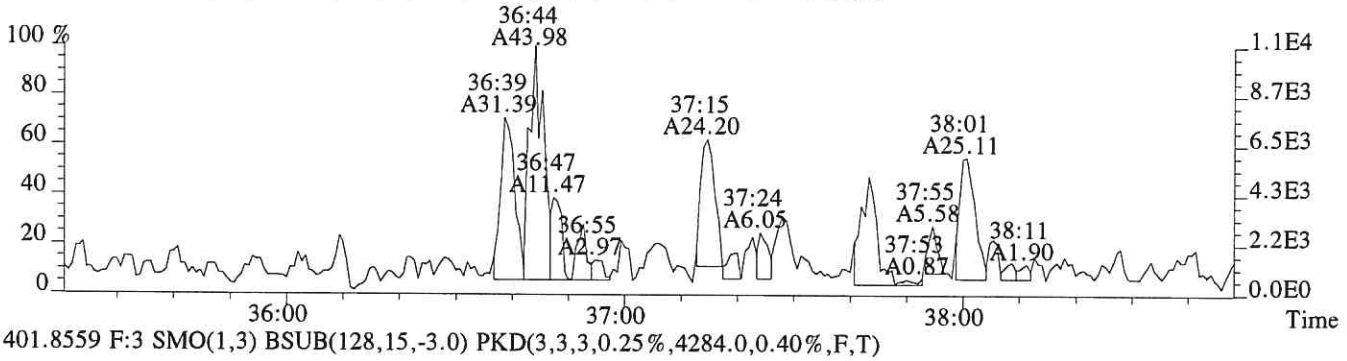
11/28/18 11/28/18

File:P615726 #1-312 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023

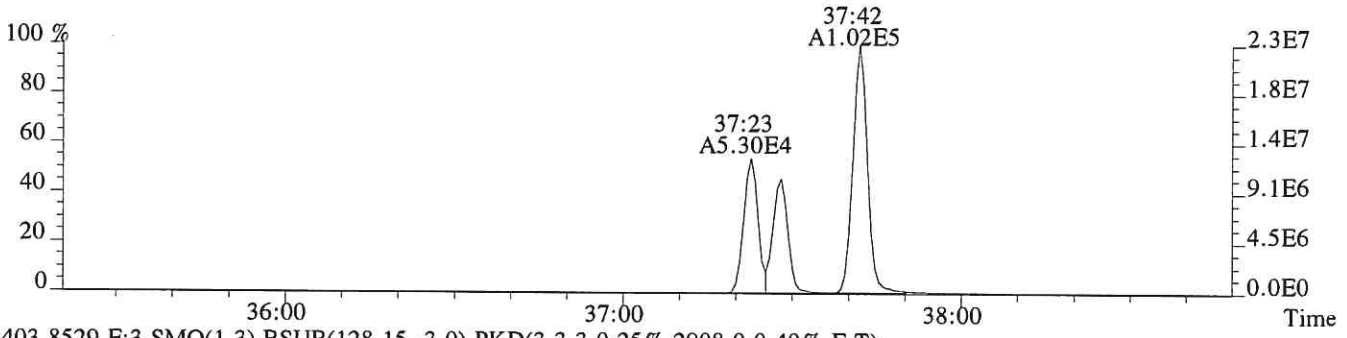
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



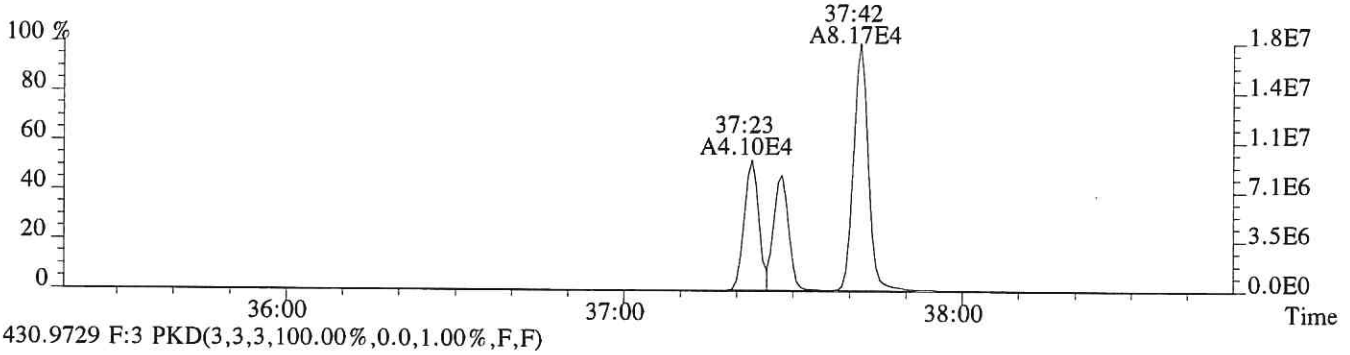
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



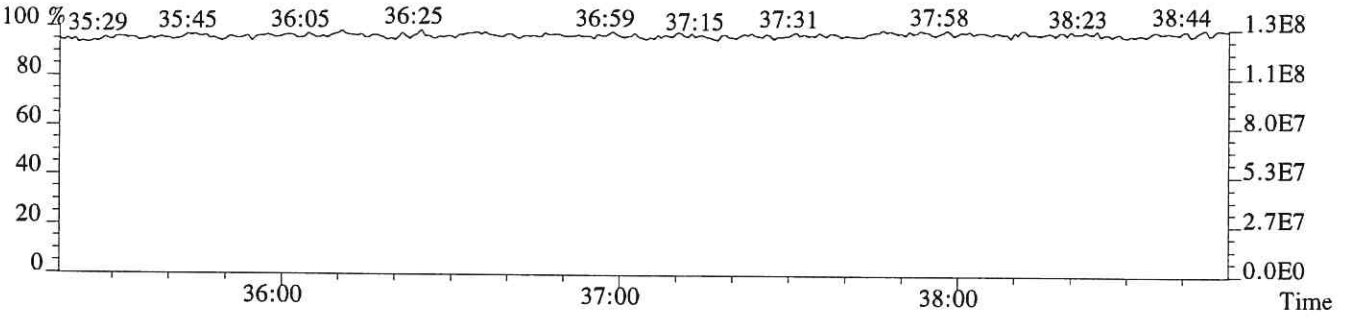
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4284.0,0.40%,F,T)



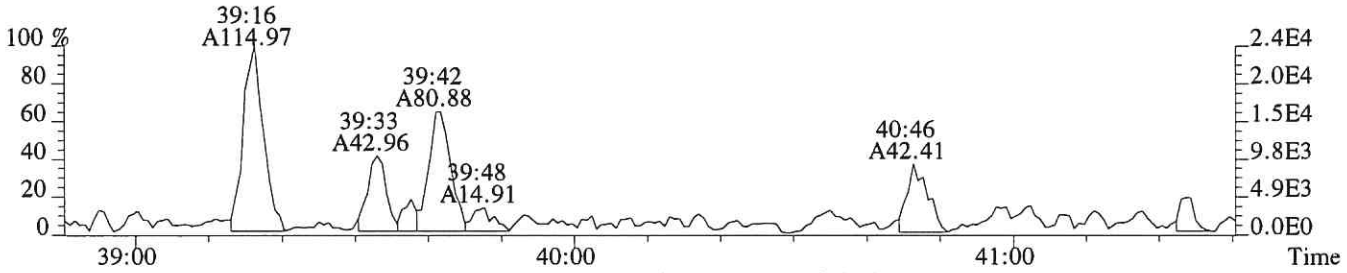
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2908.0,0.40%,F,T)



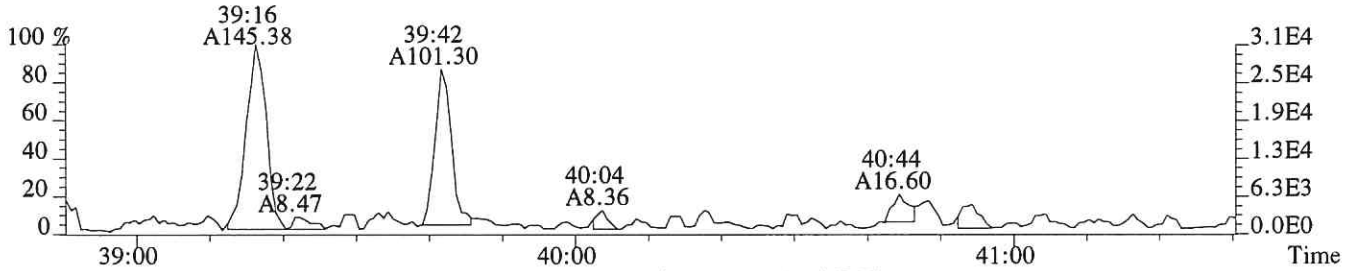
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



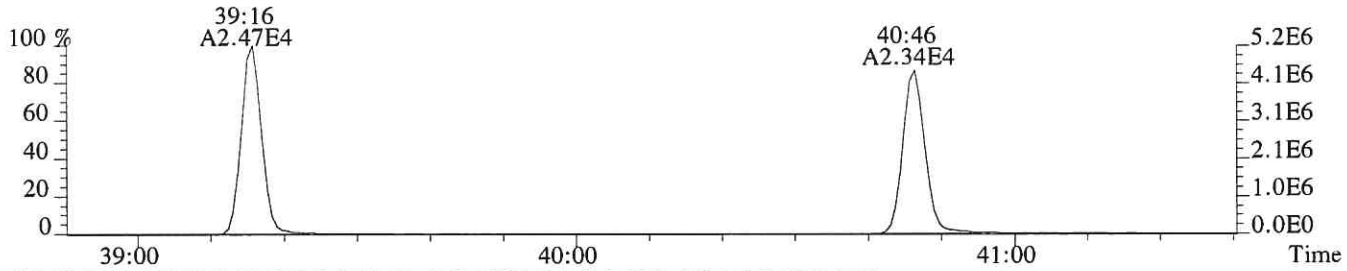
File:P615726 #1-241 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.50%,F,T)



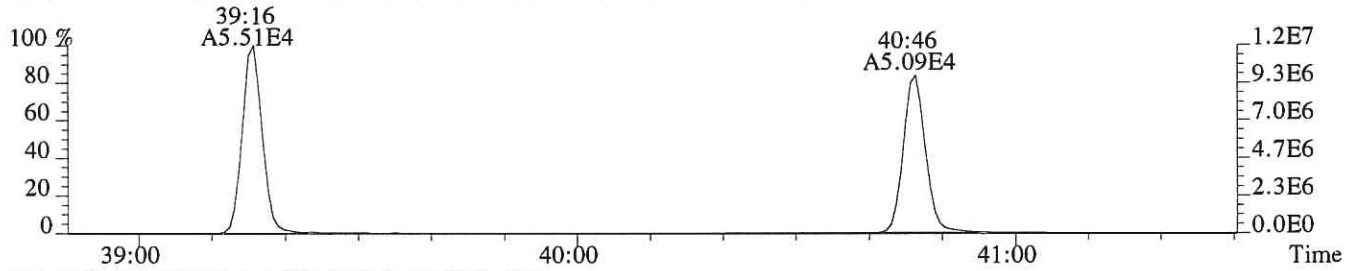
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1992.0,0.50%,F,T)



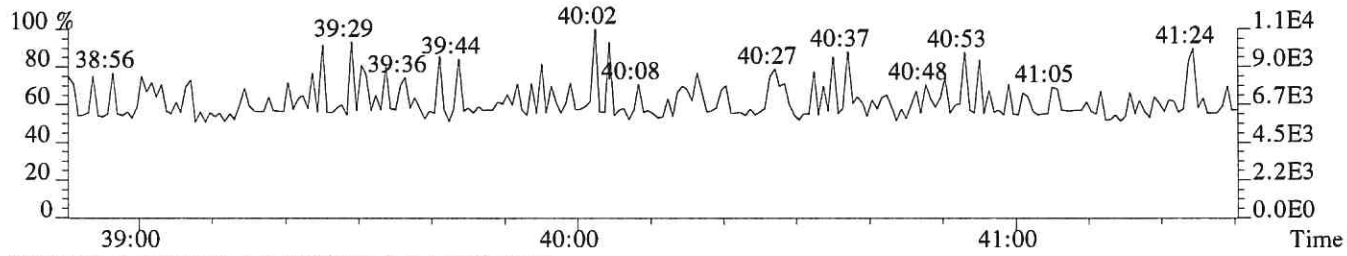
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4800.0,0.50%,F,T)



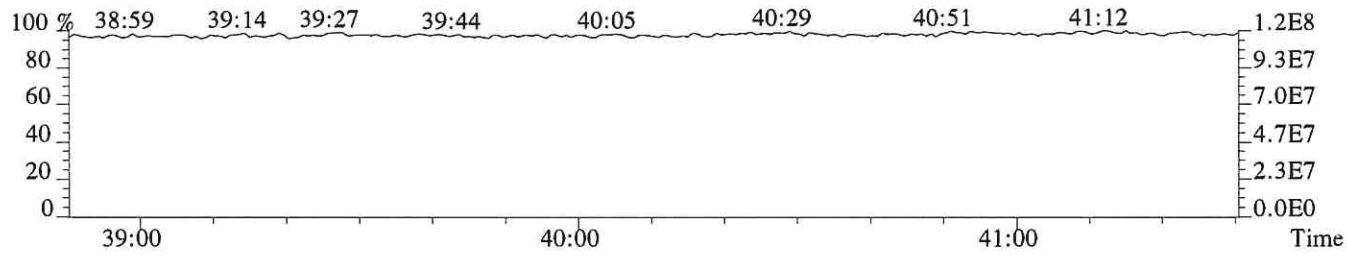
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3204.0,0.50%,F,T)



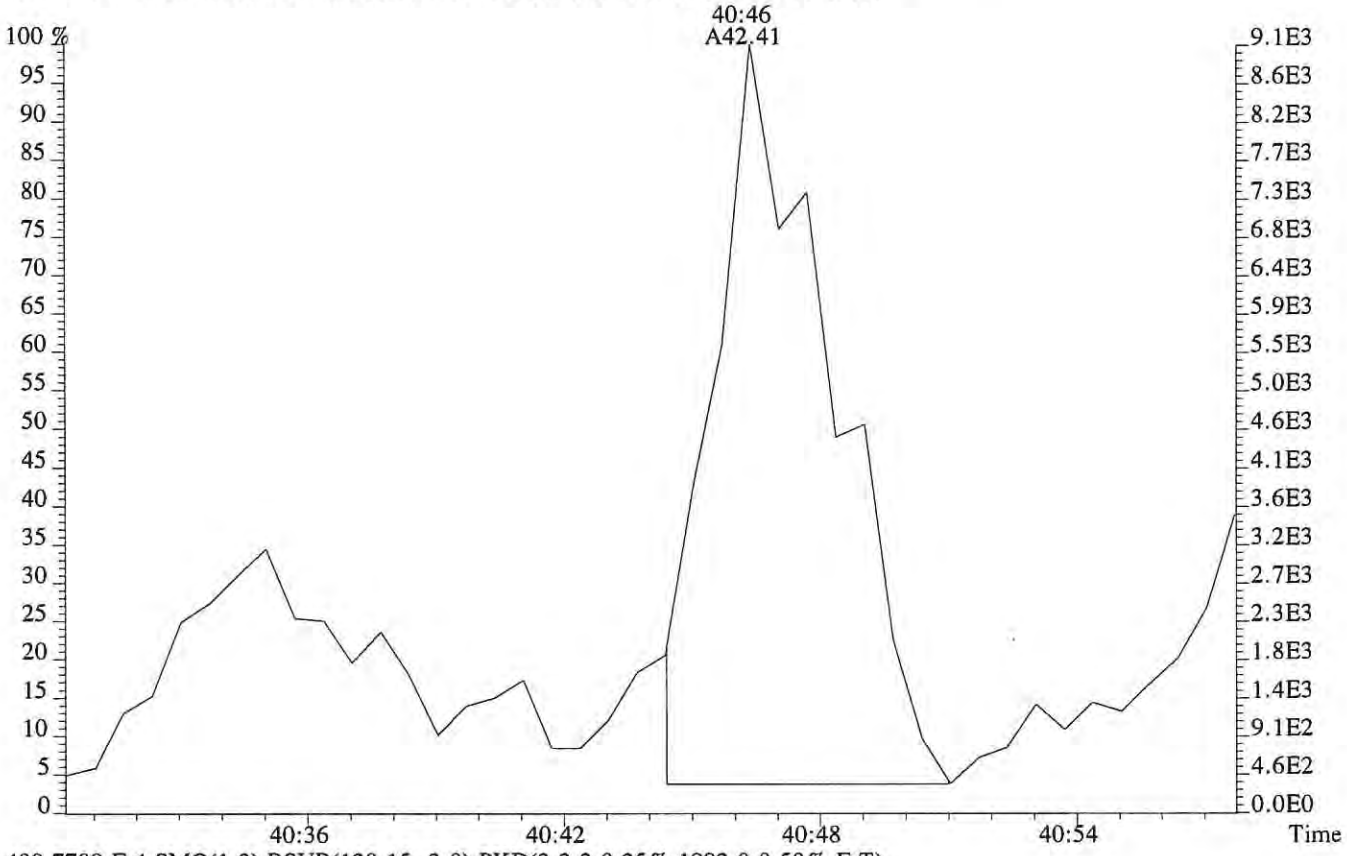
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



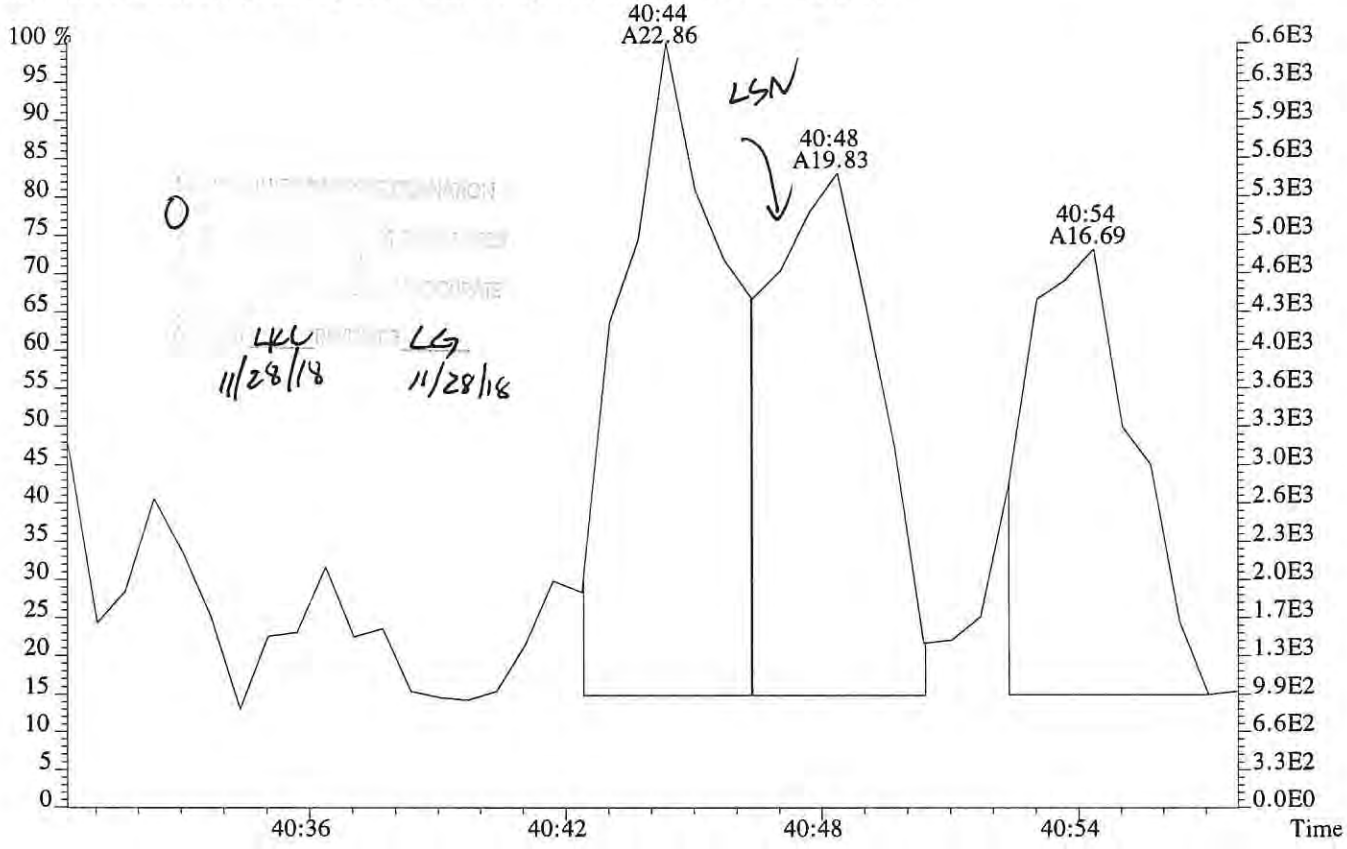
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



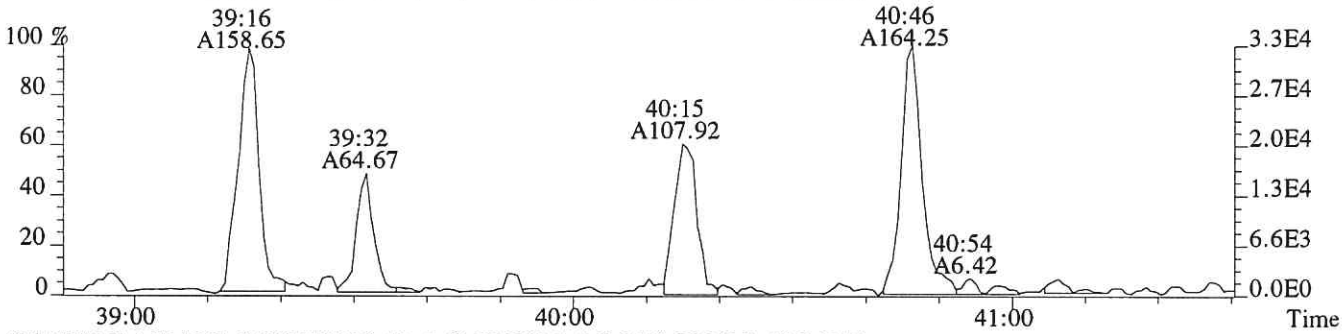
File:P615726 #1-241 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.50%,F,T)



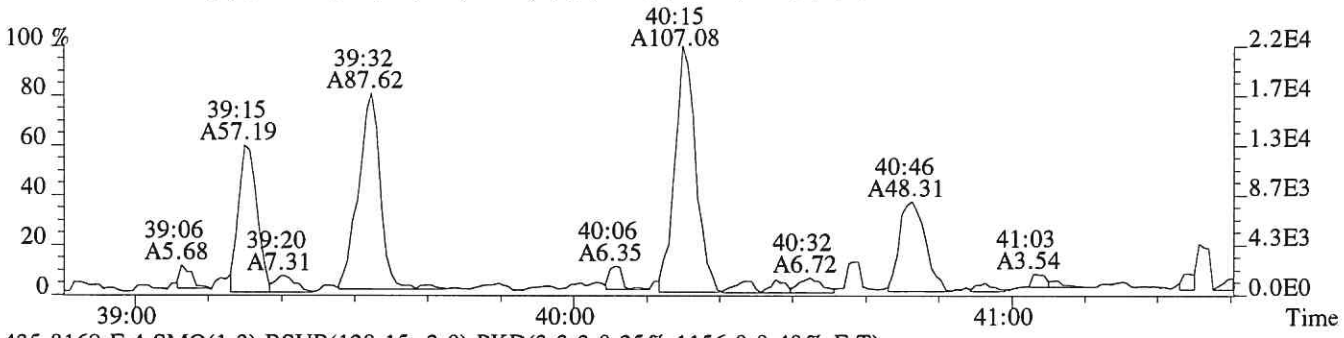
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1992.0,0.50%,F,T)



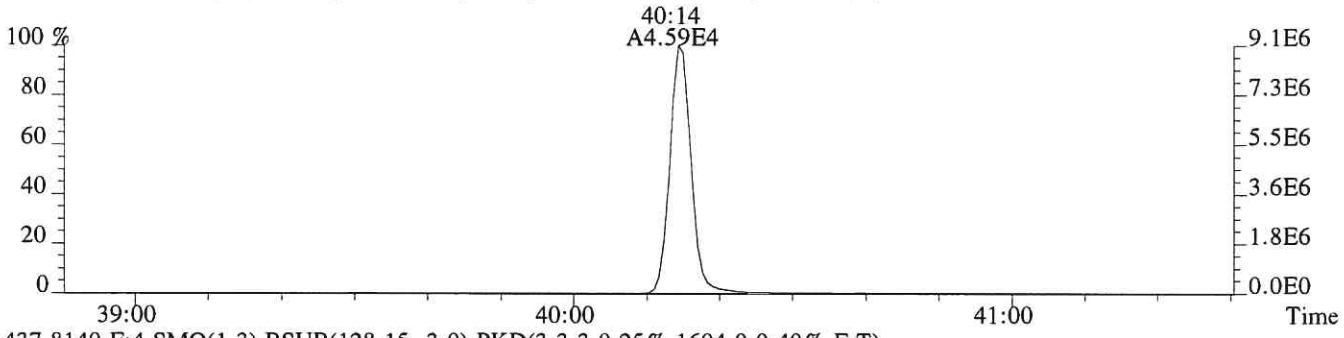
File:P615726 #1-241 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



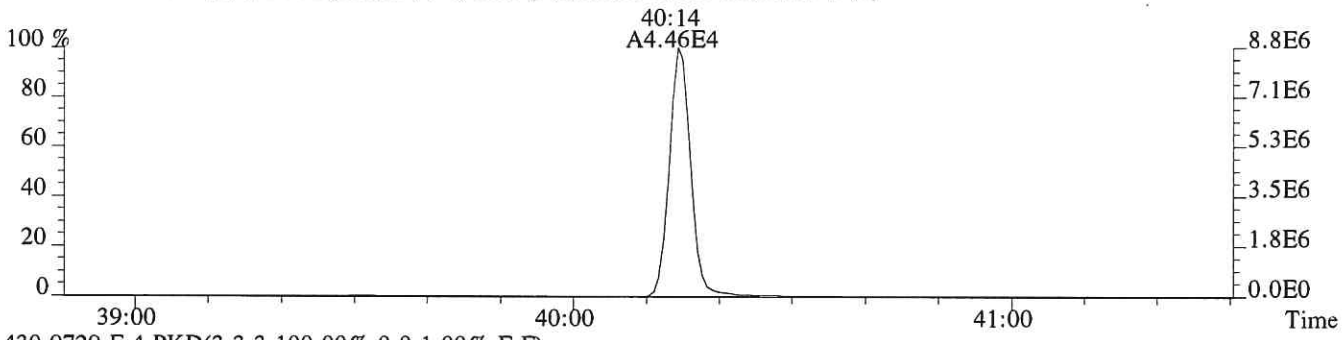
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



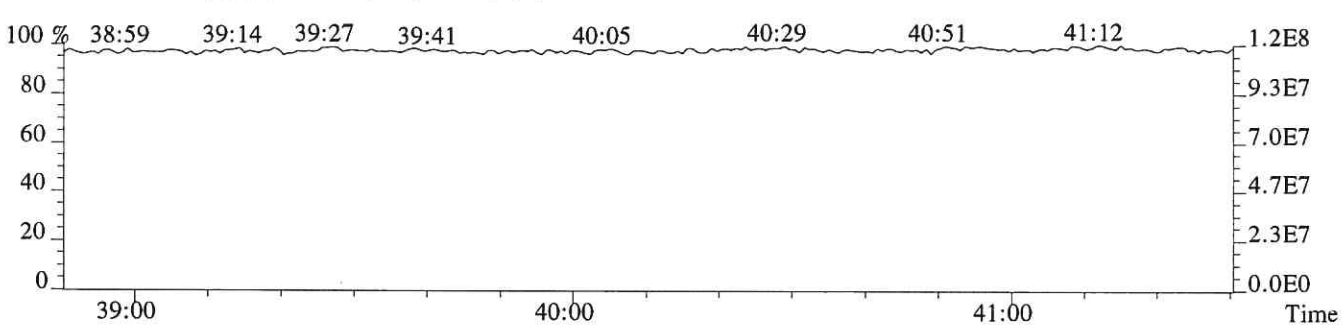
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)

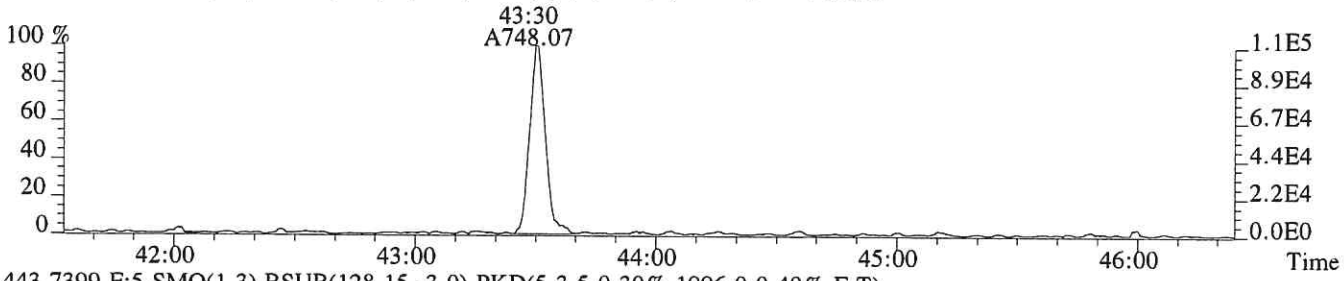


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

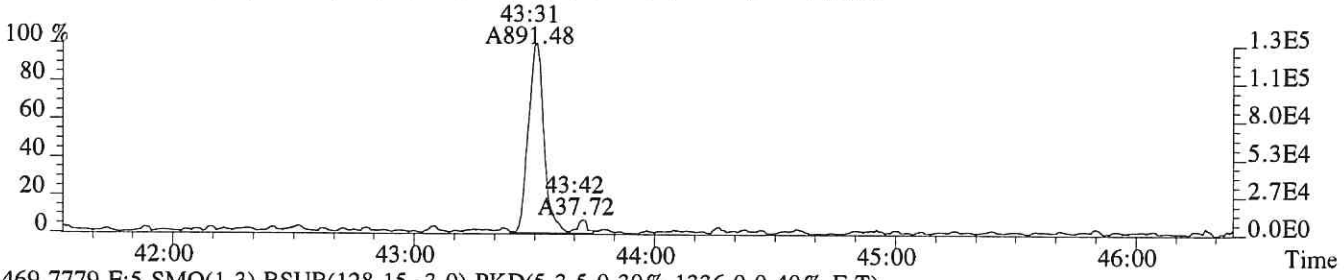


File:P615726 #1-438 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023

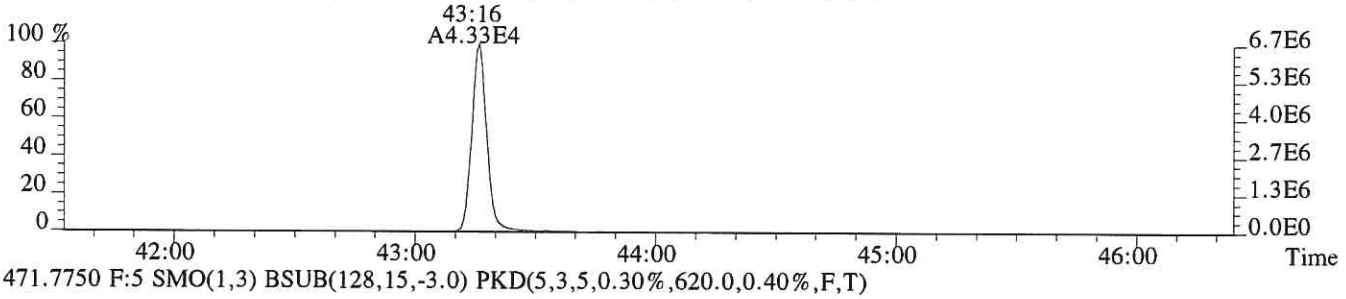
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1216.0,0.40%,F,T)



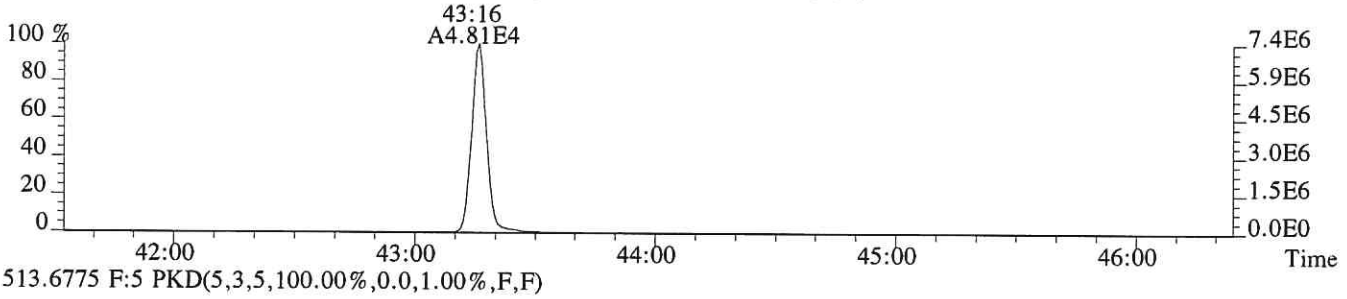
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1996.0,0.40%,F,T)



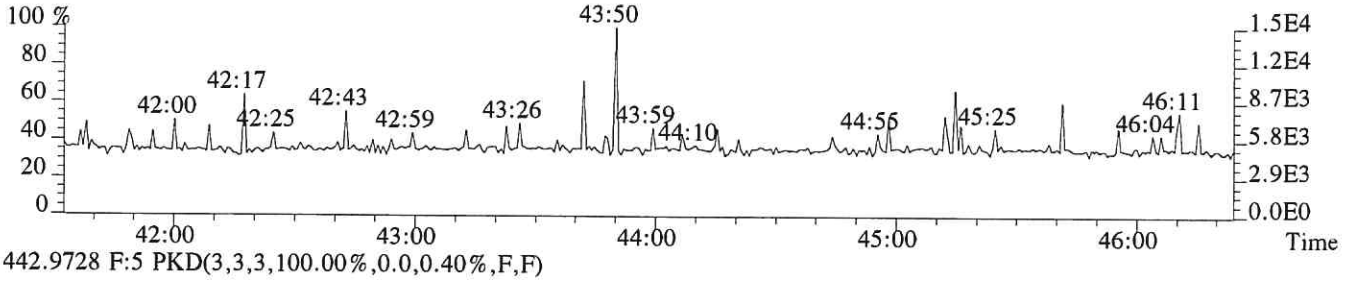
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1336.0,0.40%,F,T)



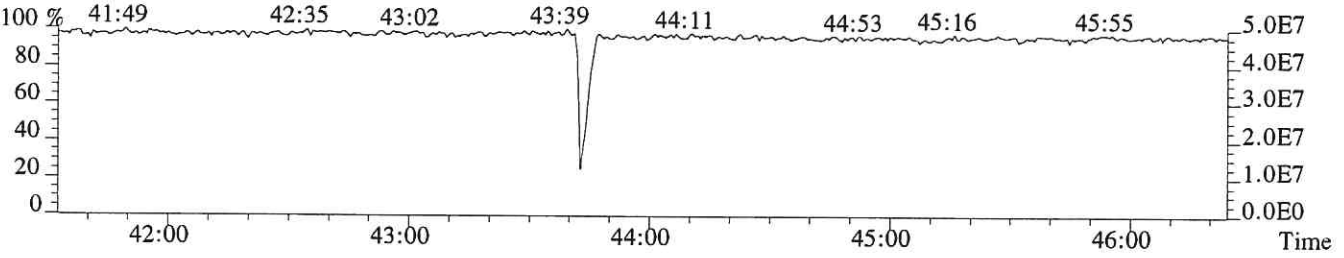
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

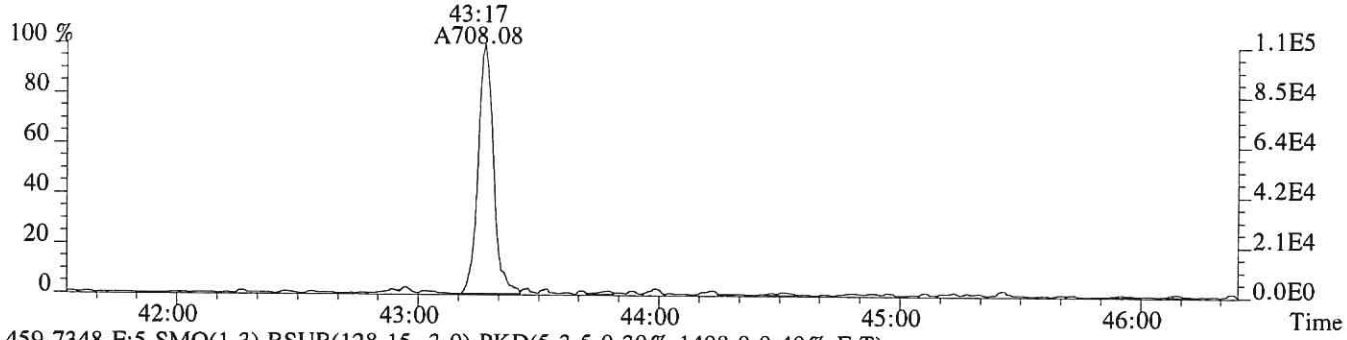


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

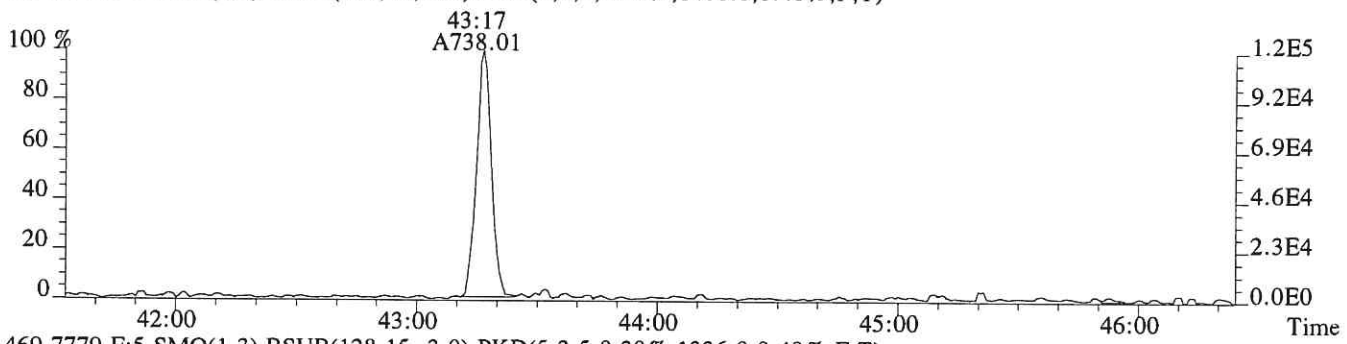


File:P615726 #1-438 Acq:27-NOV-2018 20:04:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801038-023

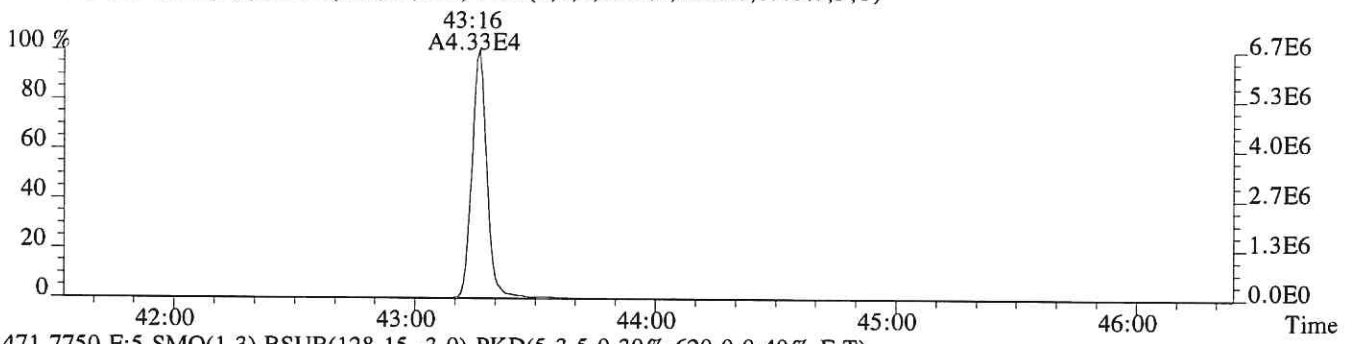
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



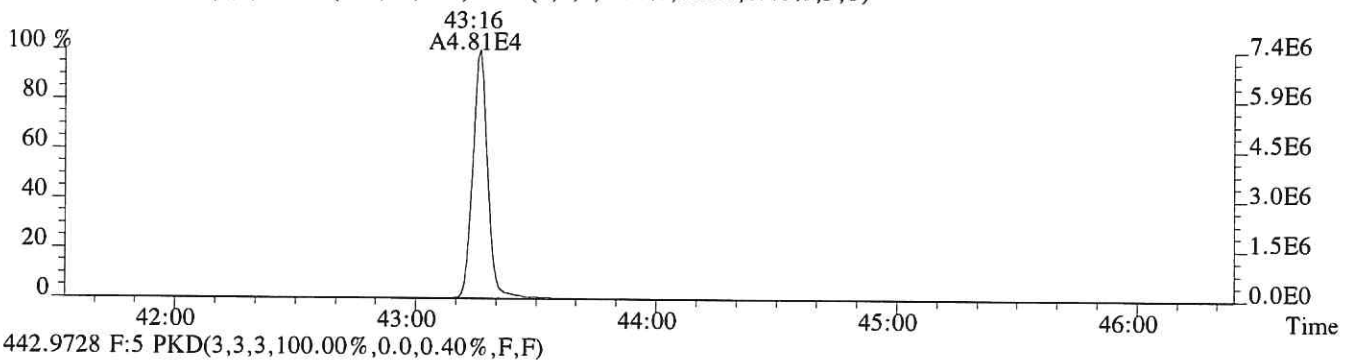
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1408.0,0.40%,F,T)



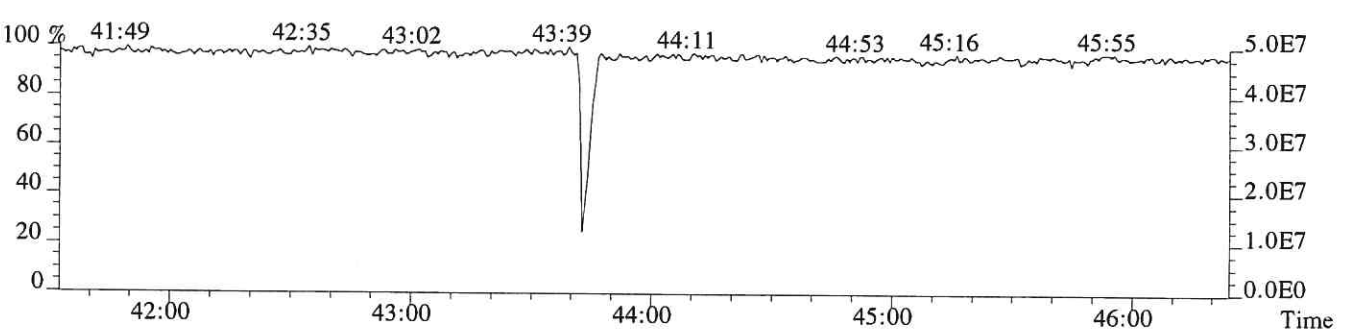
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1336.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 Sample ID: EQ1800467-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:30	9.705e+01	1.207e+02	0.80	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.025e+01	1.475e+01	0.69	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	1.291e+01	1.539e+01	0.84	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:41	1.746e+01	1.565e+01	1.12	yes	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.393e+01	1.664e+01	1.44	no	no	1.112
17	Unk	OCDD	43:17	1.149e+02	1.077e+02	1.07	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	3.244e+04	4.150e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	5.504e+04	3.464e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	5.225e+04	3.244e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.328e+04	4.400e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.617e+04	4.795e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.538e+04	4.798e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	2.258e+04	4.327e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.515e+04	3.344e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.504e+04	3.371e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.451e+04	3.161e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	3.954e+04	2.530e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	3.374e+04	2.687e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	3.117e+04	2.438e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	2.852e+04	2.692e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:16	2.308e+04	2.579e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	5.342e+04	6.689e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	6.632e+04	5.325e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	2.367e+04				no	1.086

ALS ENVIRONMENTAL
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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 LAB. ID: EQ1800467-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.10e+03	*	*	3.04e+03	*
2	1,2,3,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
3	2,3,4,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
4	1,2,3,4,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
5	1,2,3,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
6	2,3,4,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
7	1,2,3,7,8,9-HxCDF	*	3.98e+03	*	*	3.79e+03	*
8	1,2,3,4,6,7,8-HpCDF	*	4.51e+03	*	*	4.14e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	4.51e+03	*	*	4.14e+03	*
10	OCDF	1.19e+04	6.24e+02	1.9e+01	1.87e+04	1.50e+03	1.2e+01
11	2,3,7,8-TCDD	*	3.26e+03	*	*	2.15e+03	*
12	1,2,3,7,8-PeCDD	*	1.47e+03	*	*	9.20e+02	*
13	1,2,3,4,7,8-HxCDD	2.34e+03	5.76e+02	4.1e+00	4.15e+03	6.52e+02	6.4e+00
14	1,2,3,6,7,8-HxCDD	3.94e+03	5.76e+02	6.8e+00	2.80e+03	6.52e+02	4.3e+00
15	1,2,3,7,8,9-HxCDD	5.24e+03	5.76e+02	9.1e+00	3.61e+03	6.52e+02	5.5e+00
16	1,2,3,4,6,7,8-HpCDD	5.06e+03	9.00e+02	5.6e+00	3.65e+03	5.52e+02	6.6e+00
17	OCDD	1.87e+04	4.44e+02	4.2e+01	1.66e+04	8.96e+02	1.9e+01
18	13C-2,3,7,8-TCDF	6.51e+06	1.18e+04	5.5e+02	8.17e+06	6.07e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	1.11e+07	2.14e+03	5.2e+03	7.08e+06	4.52e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.14e+03	5.2e+03	6.94e+06	4.52e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	5.27e+06	1.44e+03	3.7e+03	9.96e+06	1.12e+03	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.84e+06	1.44e+03	4.1e+03	1.08e+07	1.12e+03	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	5.69e+06	1.44e+03	4.0e+03	1.06e+07	1.12e+03	9.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.08e+06	1.44e+03	3.5e+03	9.63e+06	1.12e+03	8.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.26e+06	2.70e+03	1.2e+03	7.20e+06	1.69e+03	4.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.01e+06	2.70e+03	1.1e+03	6.80e+06	1.69e+03	4.0e+03
27	13C-2,3,7,8-TCDD	5.27e+06	1.78e+04	3.0e+02	6.76e+06	4.41e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	8.48e+06	1.56e+03	5.4e+03	5.43e+06	1.43e+03	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	7.85e+06	2.93e+03	2.7e+03	6.23e+06	1.53e+03	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	7.03e+06	2.93e+03	2.4e+03	5.50e+06	1.53e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.72e+06	1.08e+03	5.3e+03	5.43e+06	1.12e+03	4.9e+03
32	13C-OCDD	3.72e+06	6.52e+02	5.7e+03	4.06e+06	5.88e+02	6.9e+03
33	13C-1,2,3,4-TCDD	1.11e+07	1.78e+04	6.2e+02	1.39e+07	4.41e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.49e+07	2.93e+03	5.1e+03	1.19e+07	1.53e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	4.99e+06	1.06e+03	4.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.256e+03 + 2.152e+03) \times 2000}{(5.272e+06 + 6.761e+06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(281)530-5656. Fax:(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P615718 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 13:29:29 Processed: 28-NOV-18 10:17:27

Mass: 389.8160 391.8130 Tot Response: 3.31e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:41	1.75e+01	1.56e+01 1.12	yes	3.31e+01	1,2,3,7,8,9-HxCDD	y	y

ALS ENVIRONMENTAL
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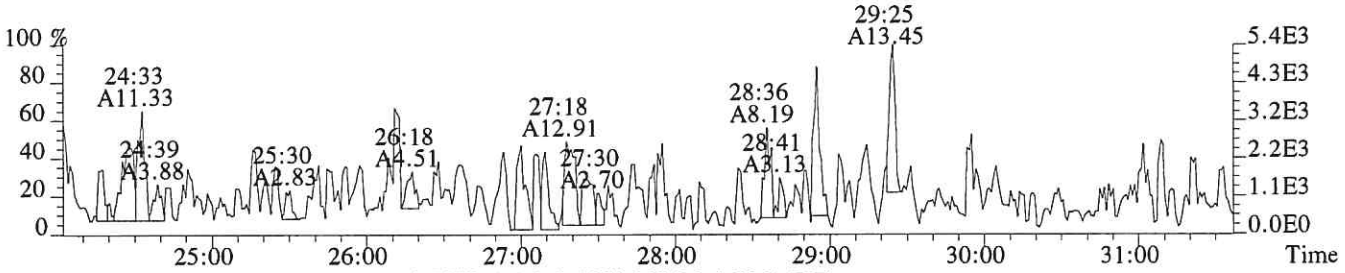
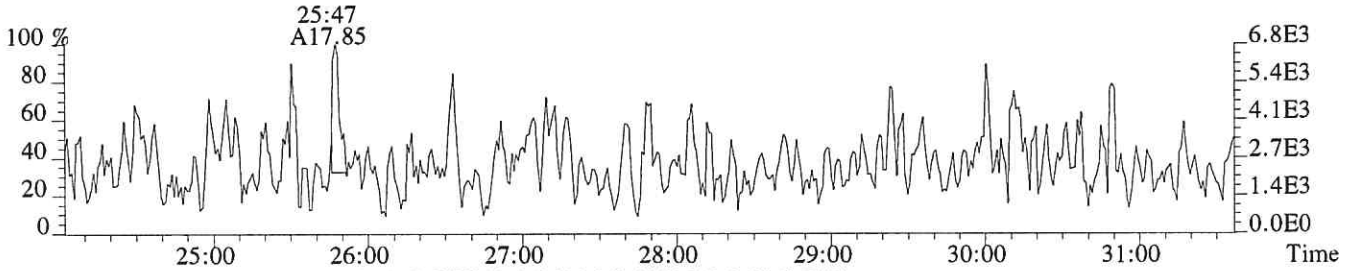
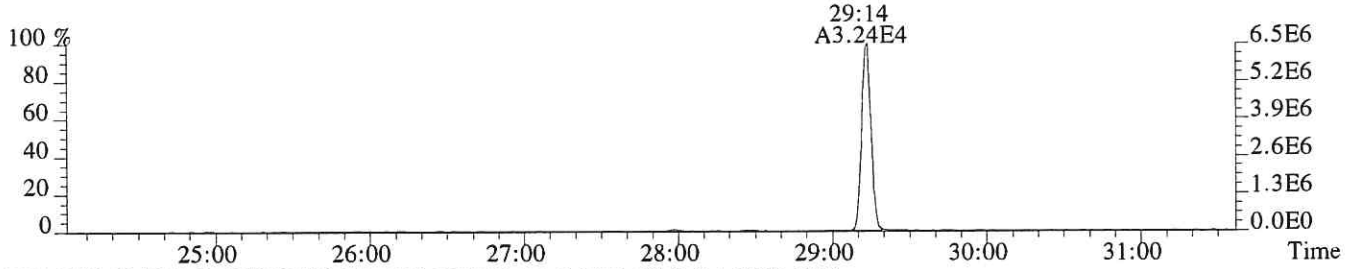
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



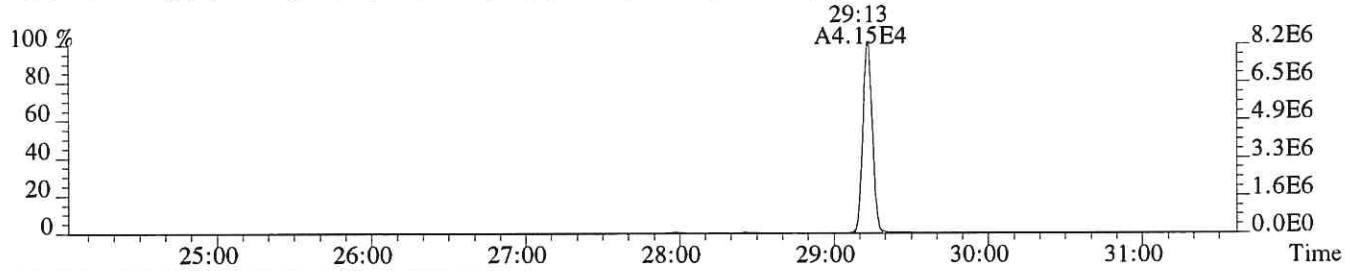
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3036.0,1.00%,F,T)



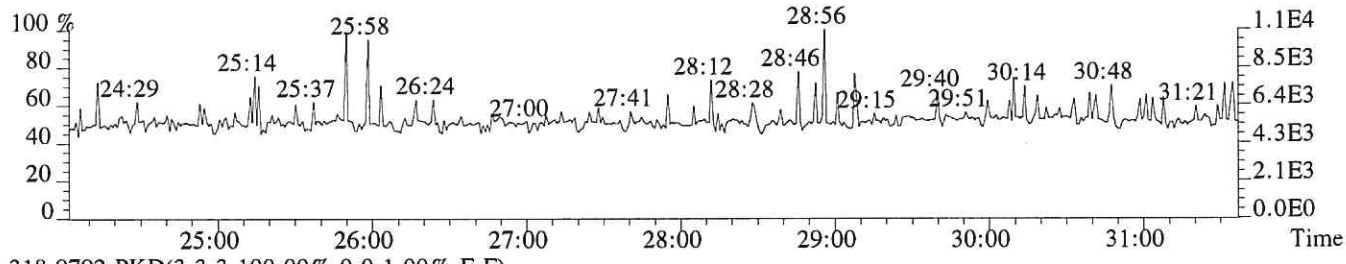
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11816.0,1.00%,F,T)



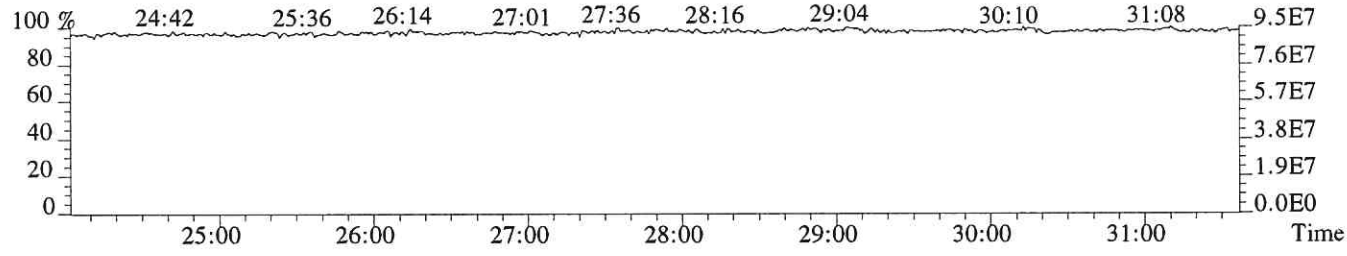
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6072.0,1.00%,F,T)



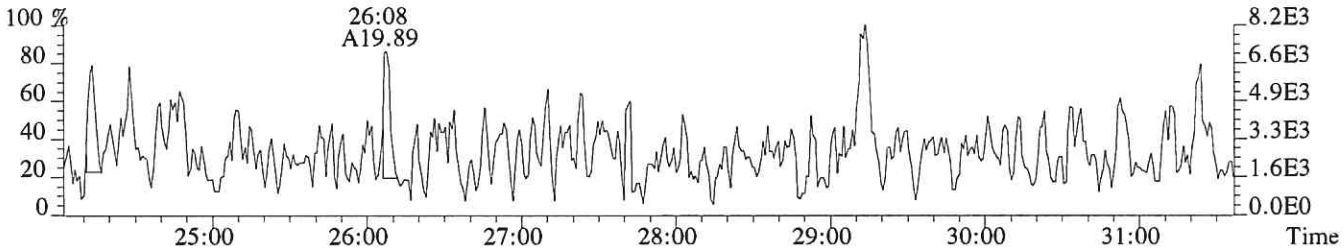
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



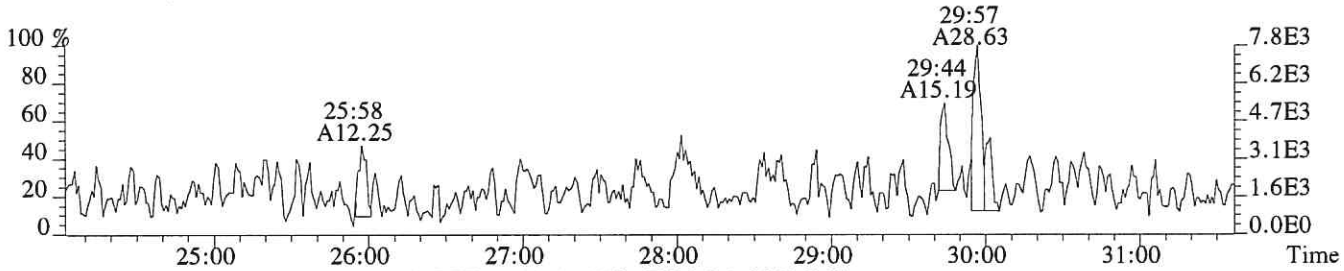
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



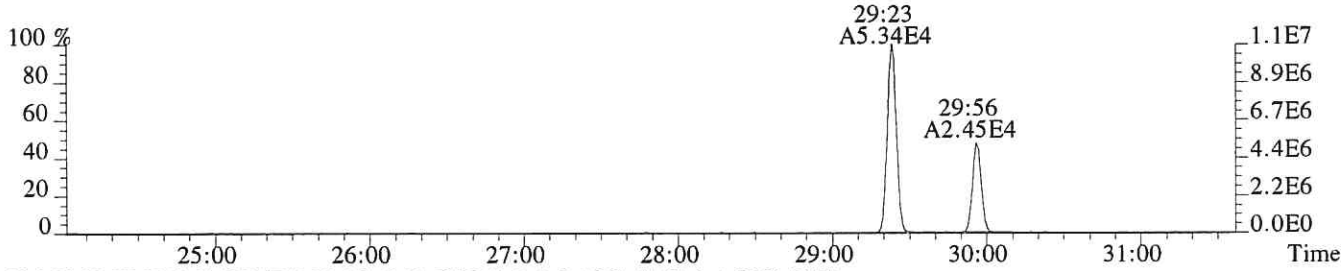
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



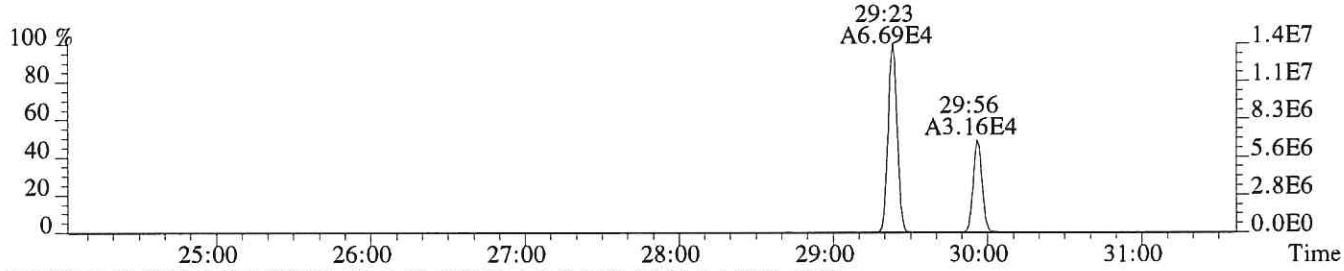
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



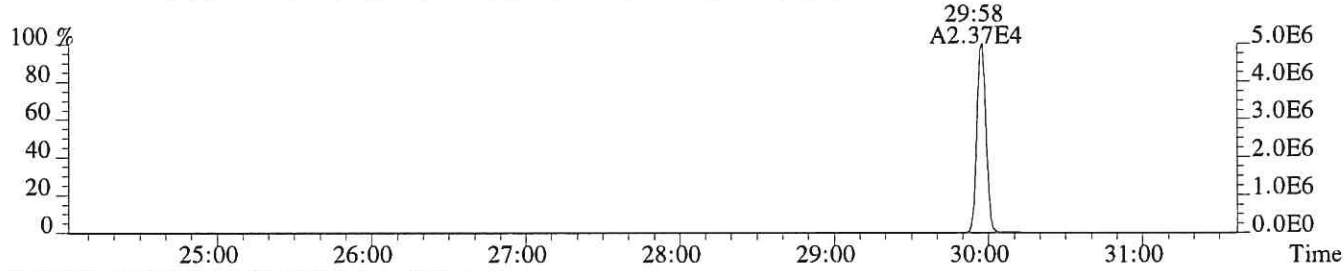
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17780.0,1.00%,F,T)



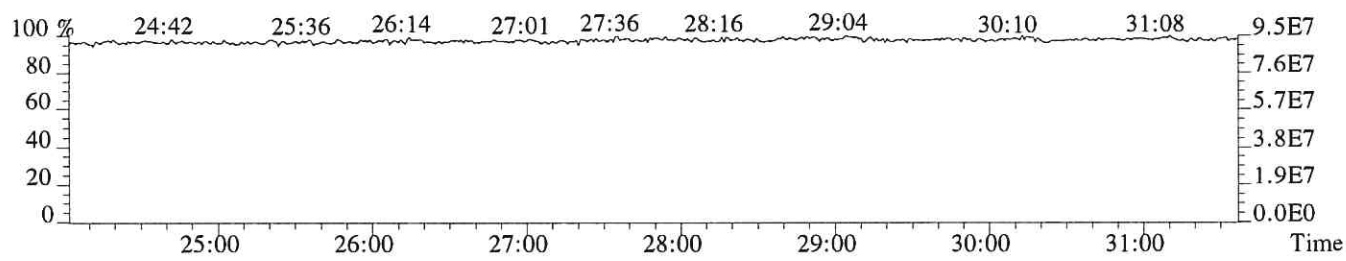
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



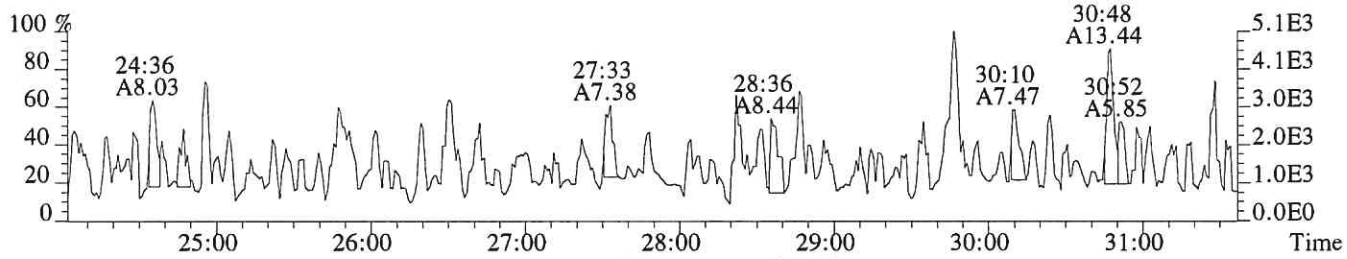
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



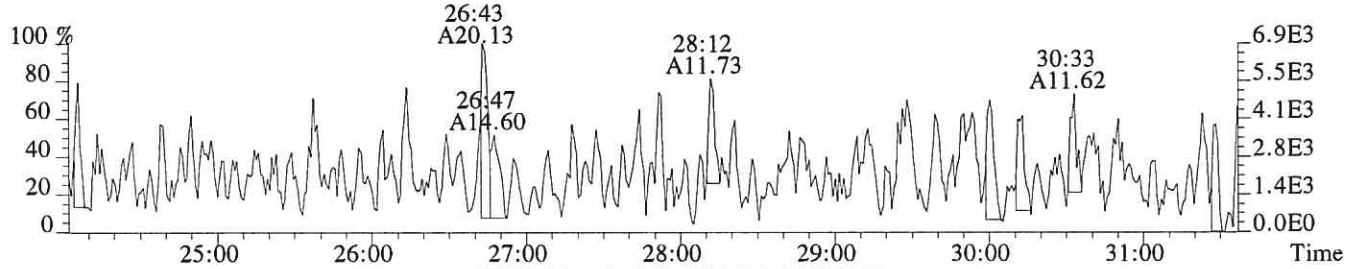
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



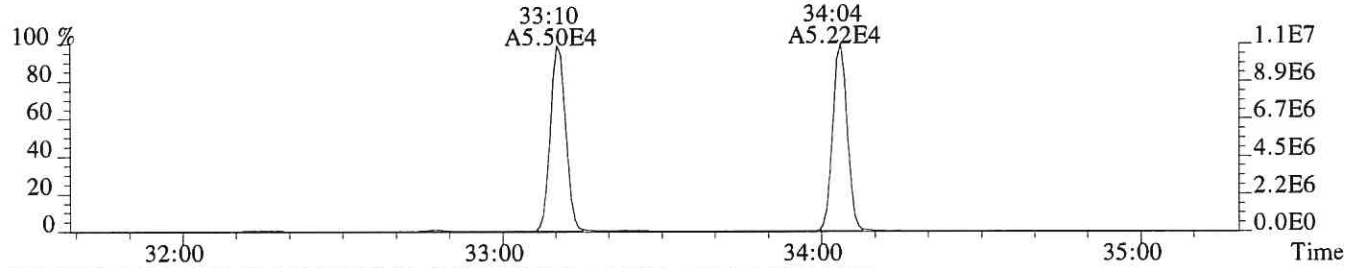
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



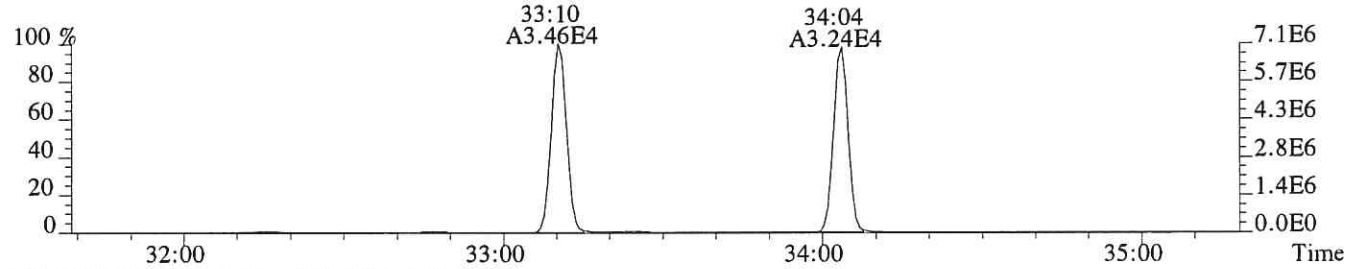
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



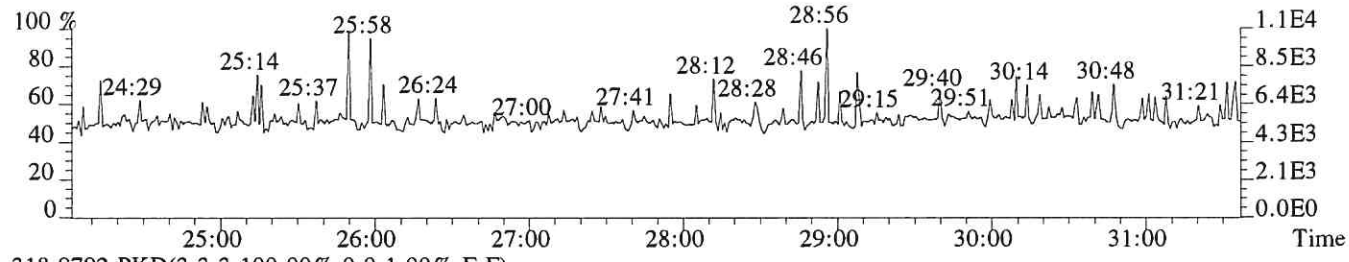
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



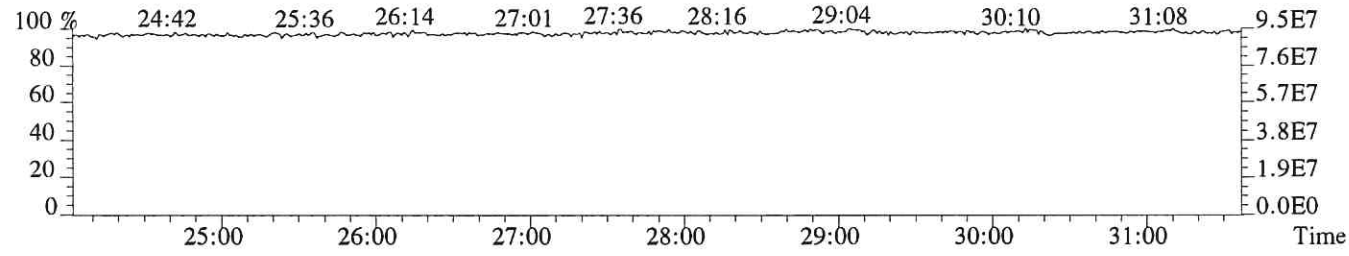
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

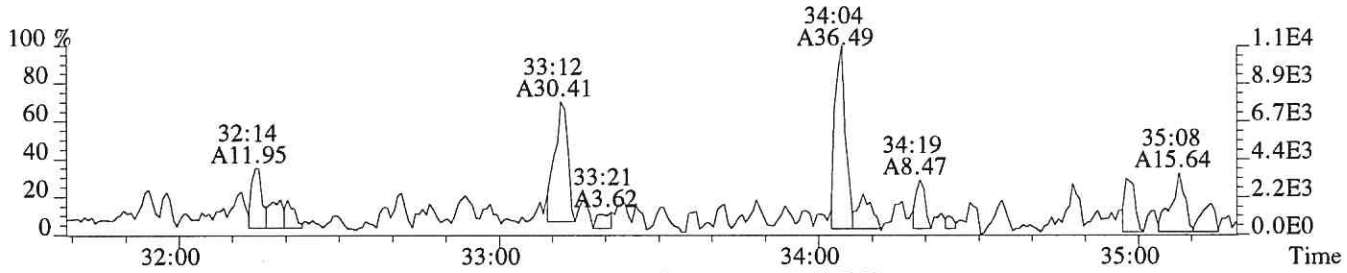


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

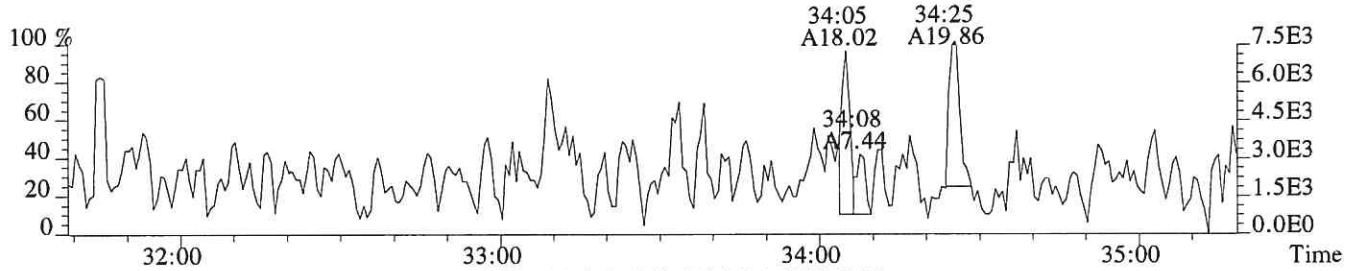


File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

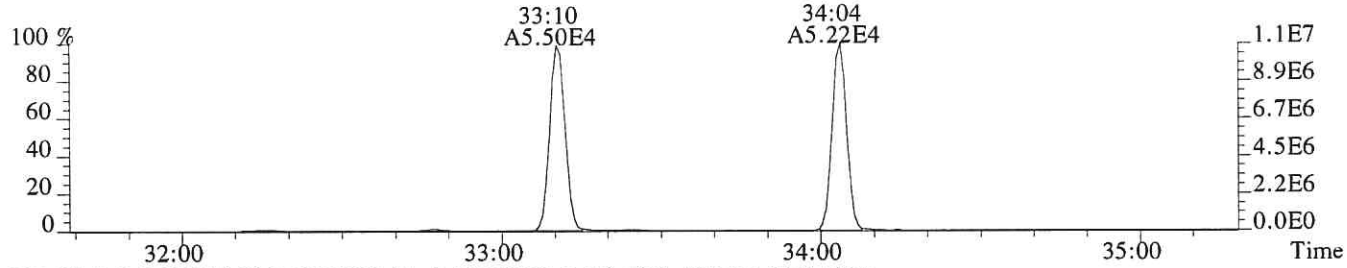
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



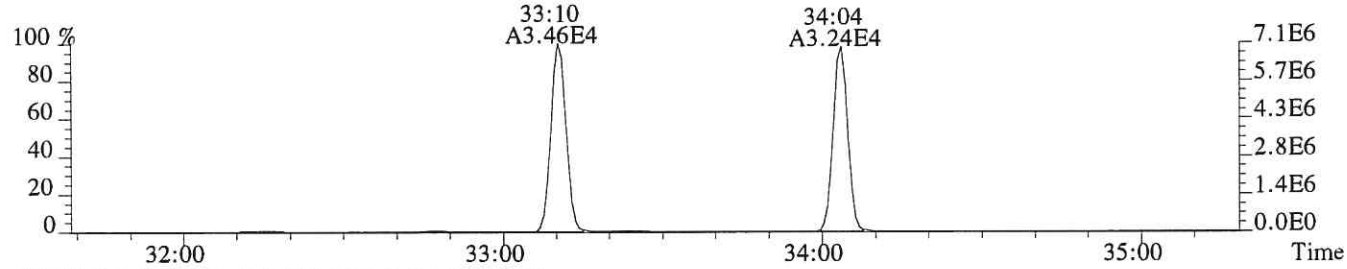
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



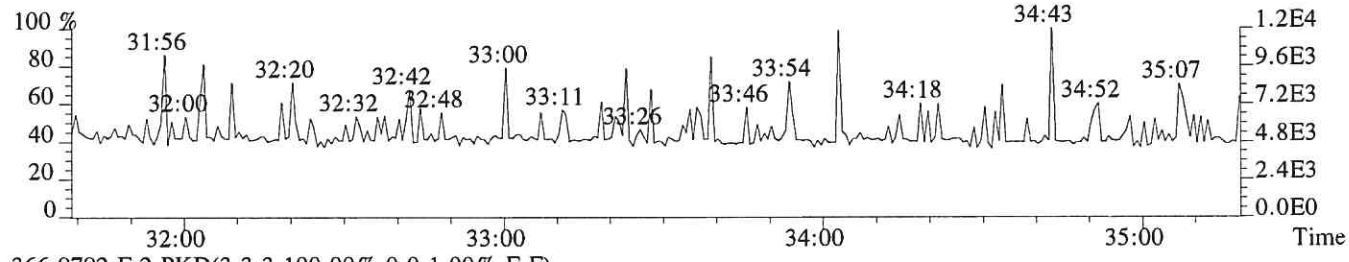
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



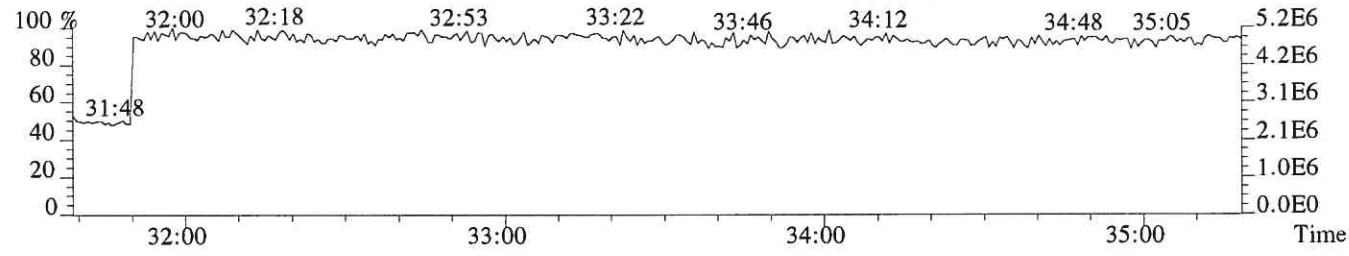
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



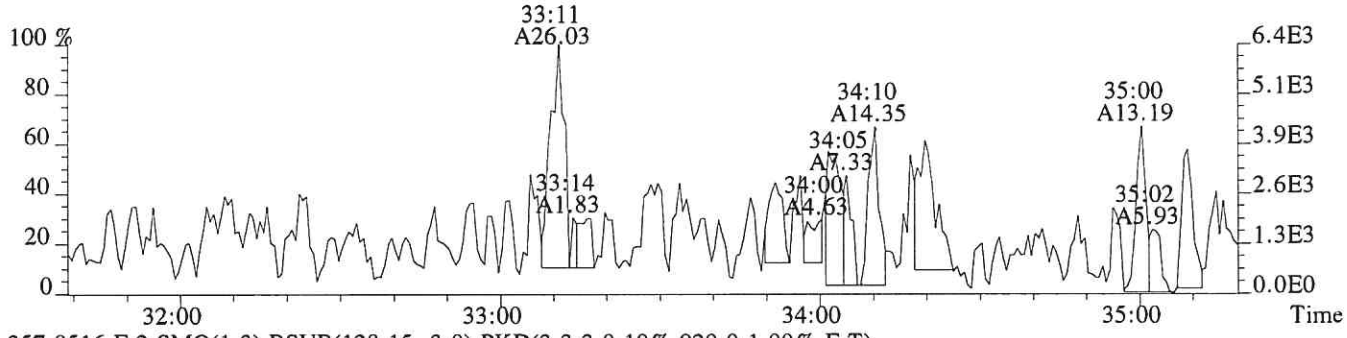
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



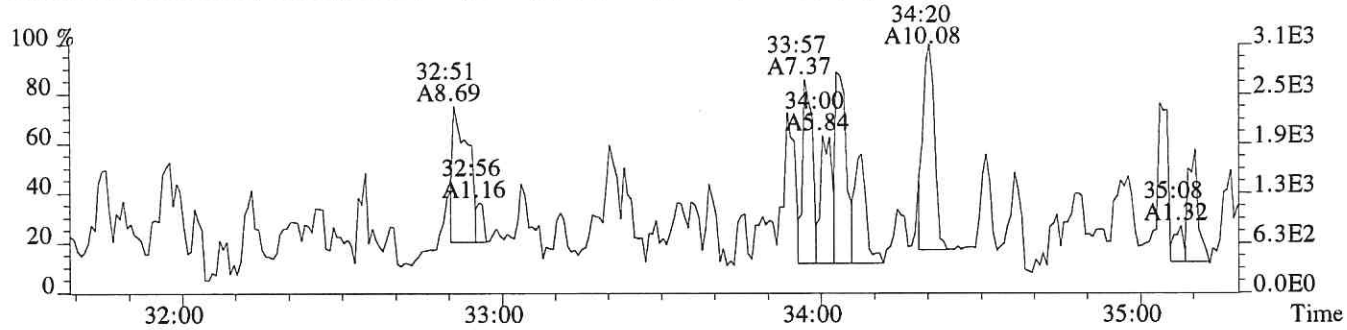
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



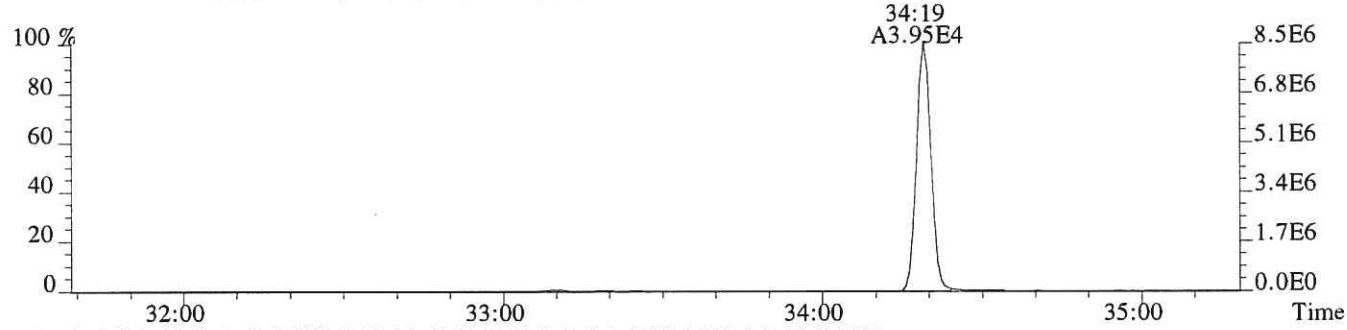
File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



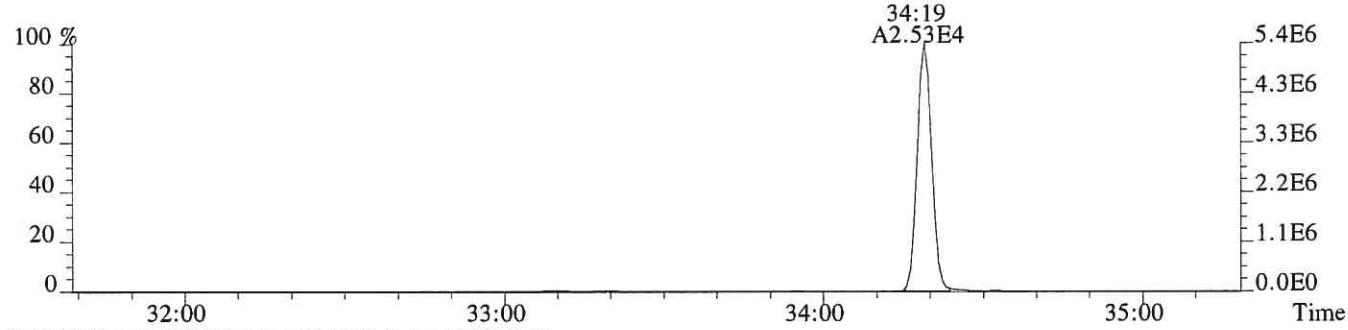
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



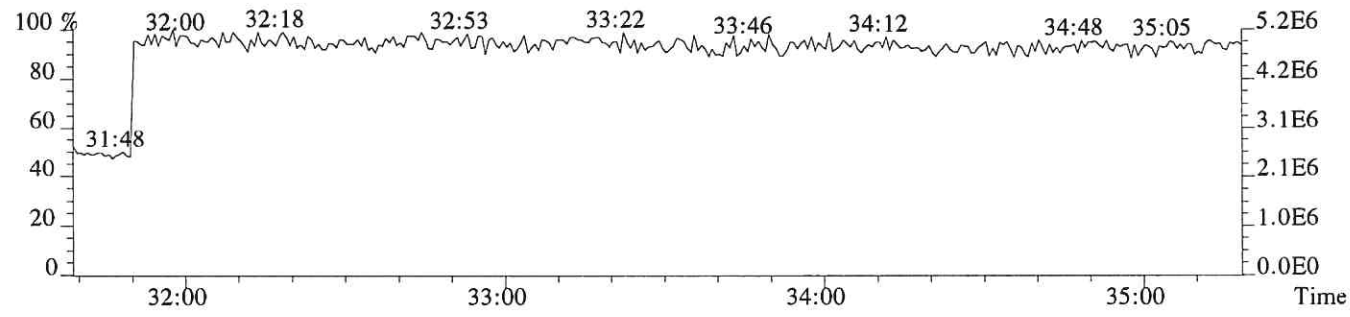
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



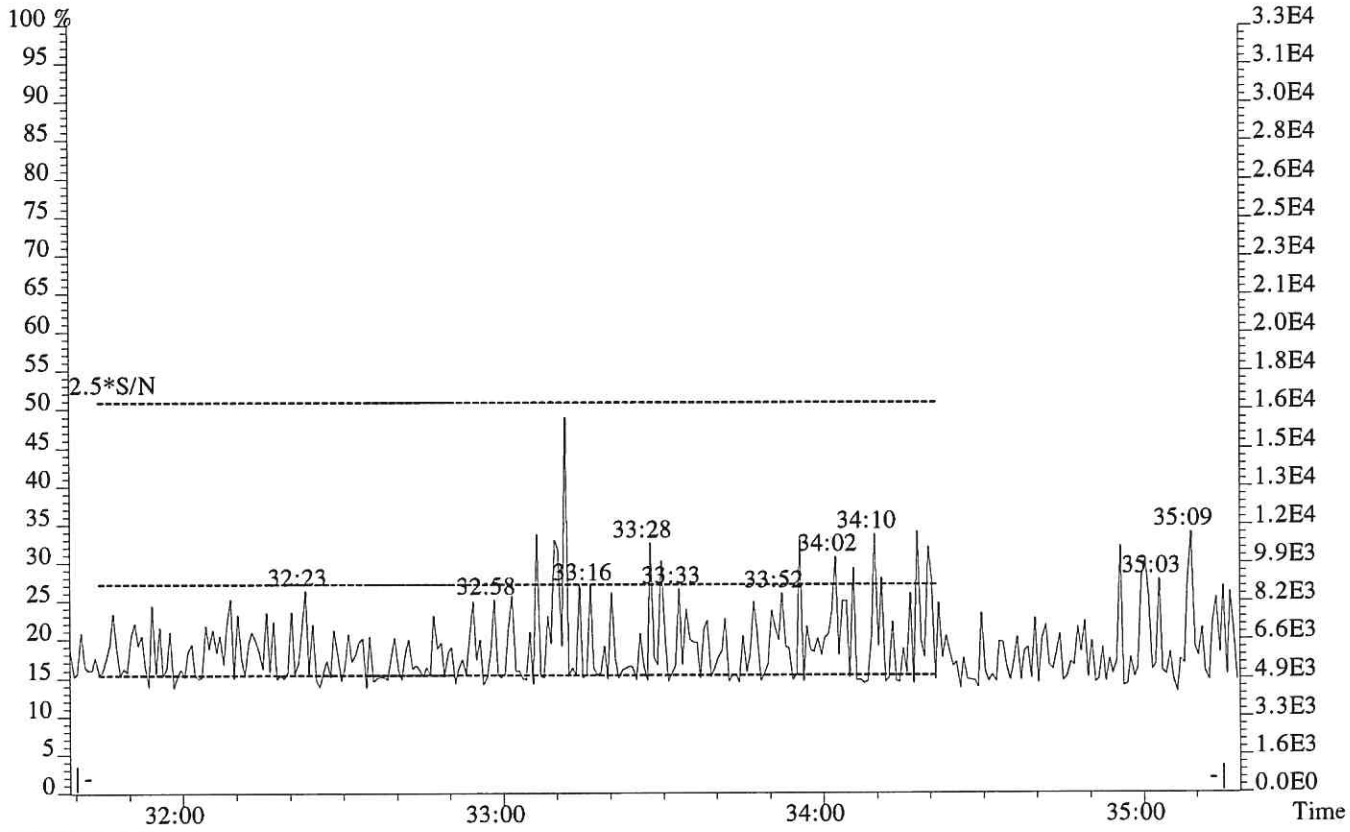
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



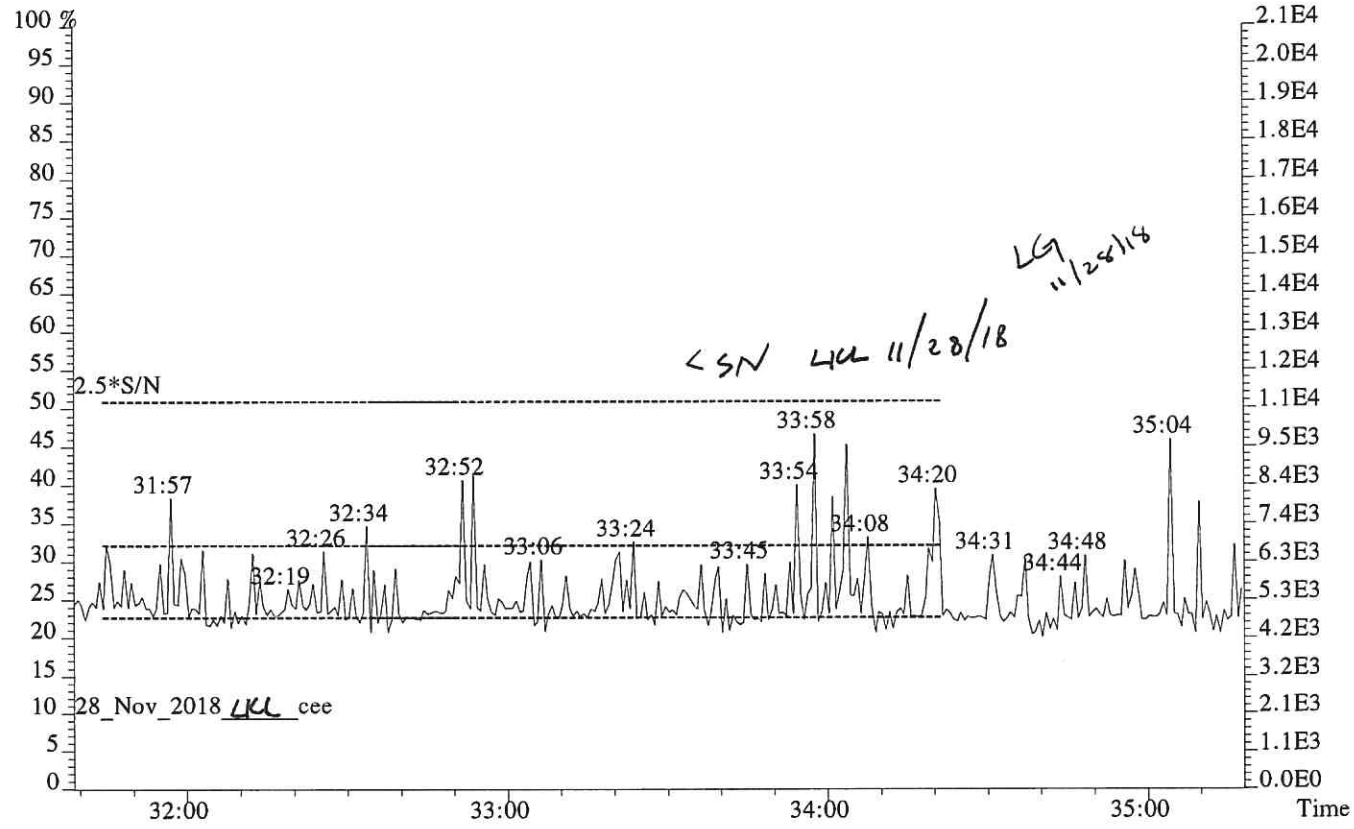
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2

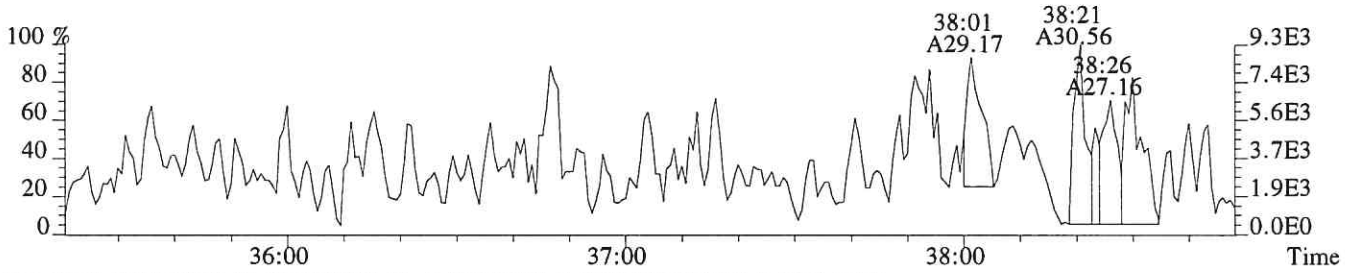


357.8516 F:2

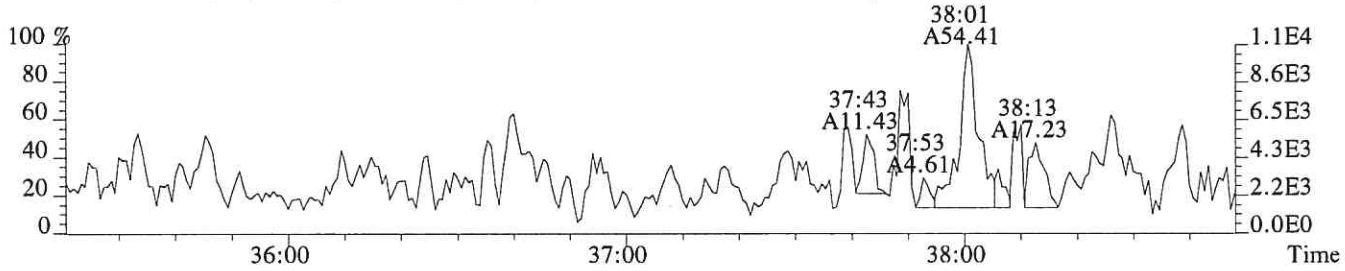


File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

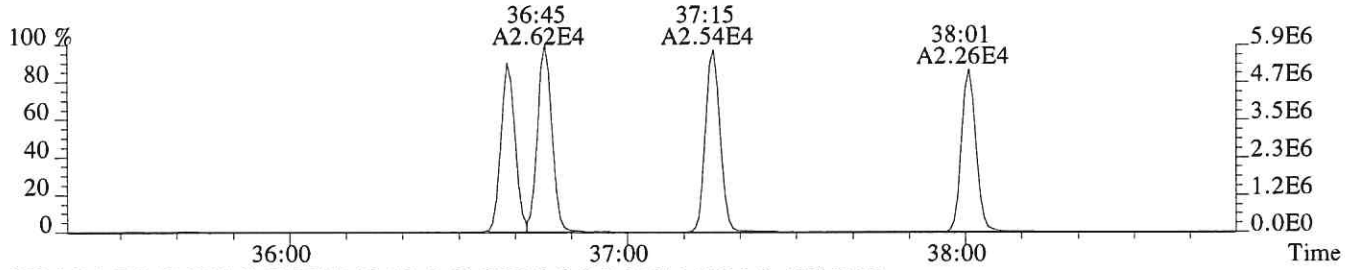
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3984.0,0.40%,F,T)



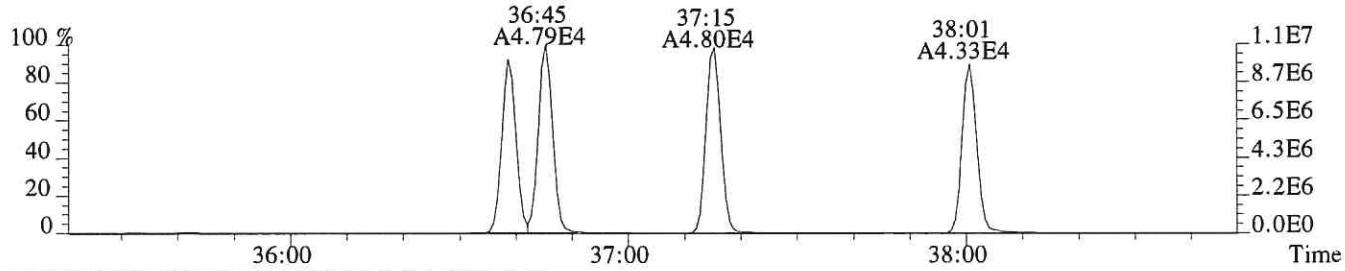
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3792.0,0.40%,F,T)



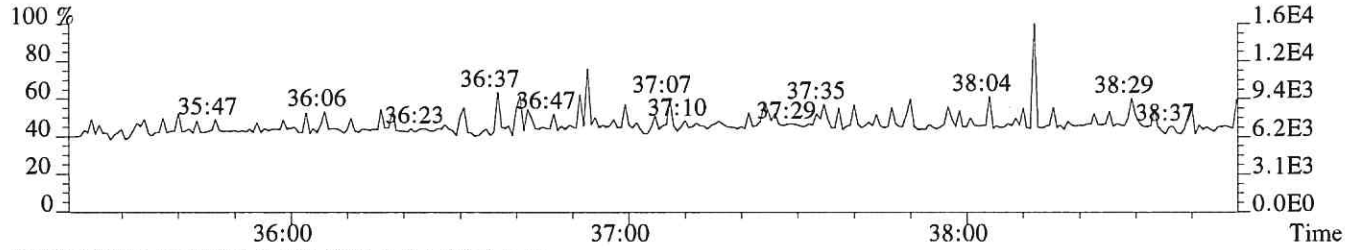
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.40%,F,T)



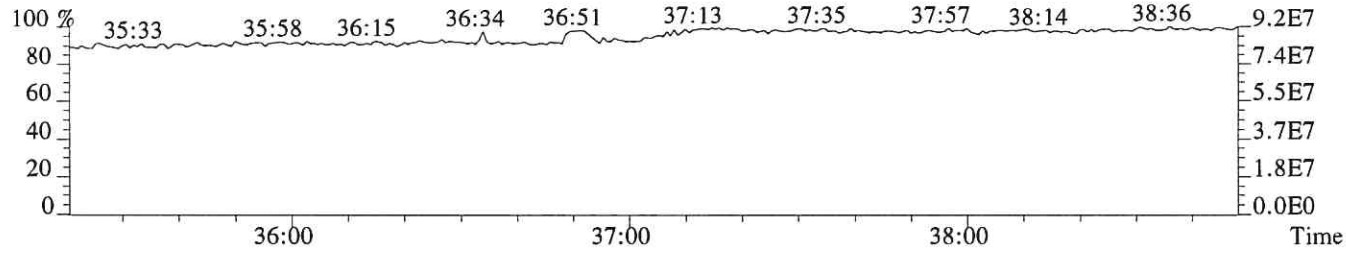
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



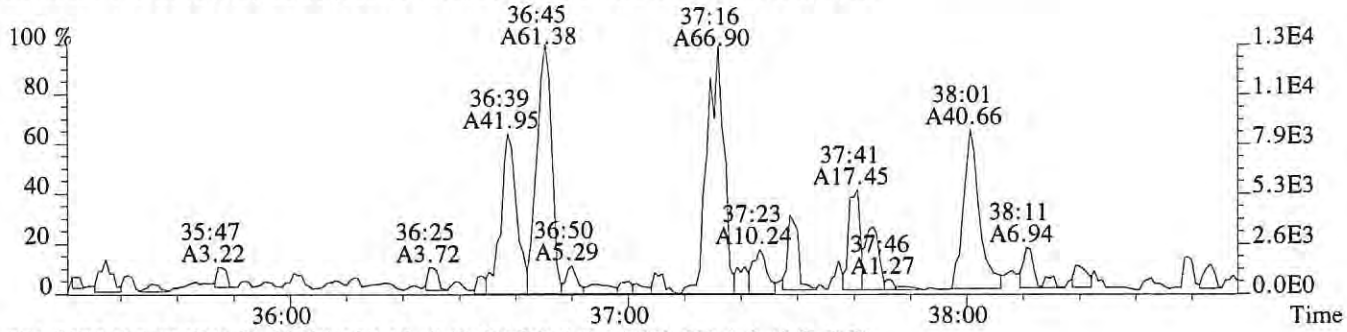
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



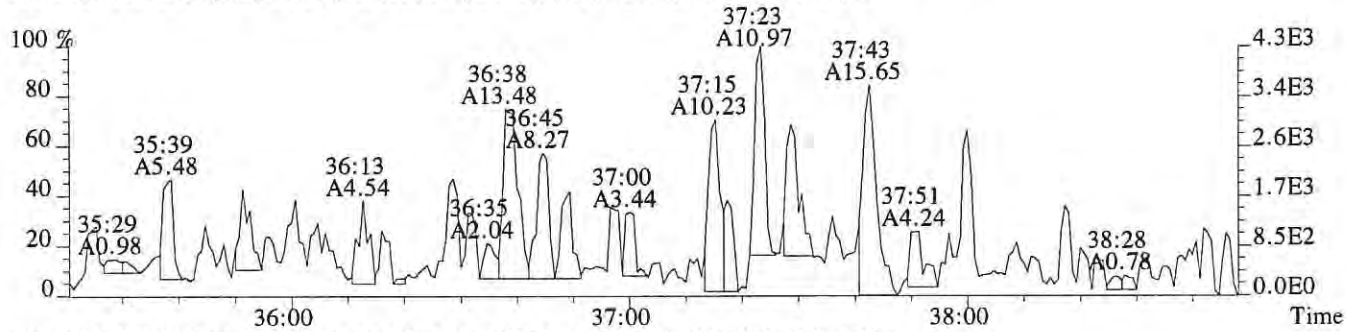
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



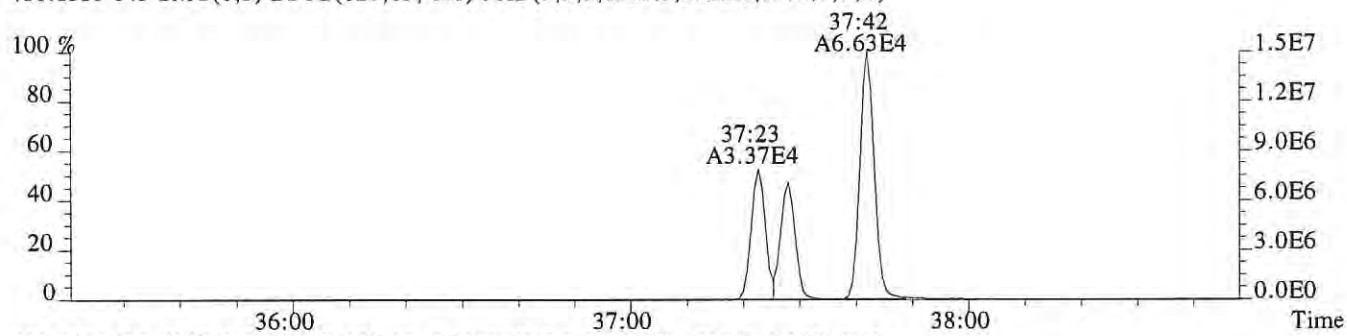
File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



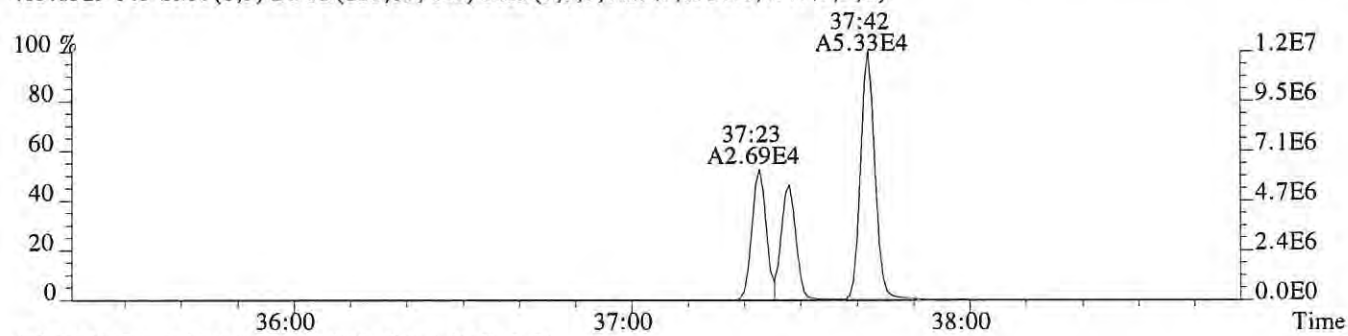
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



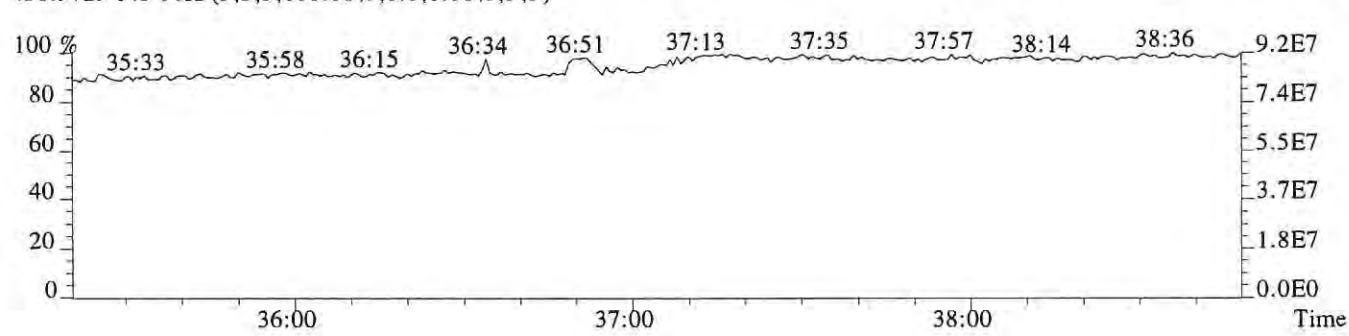
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



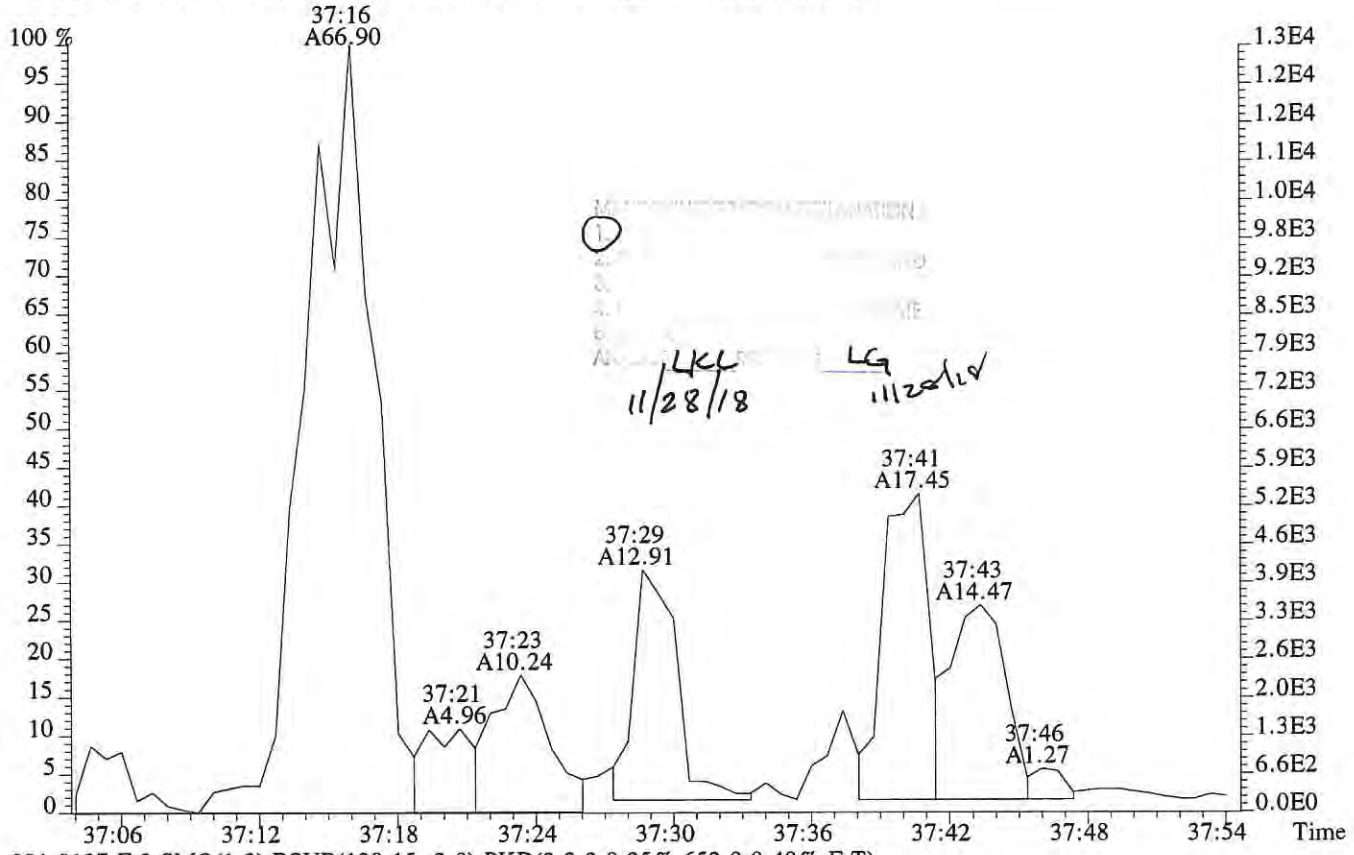
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



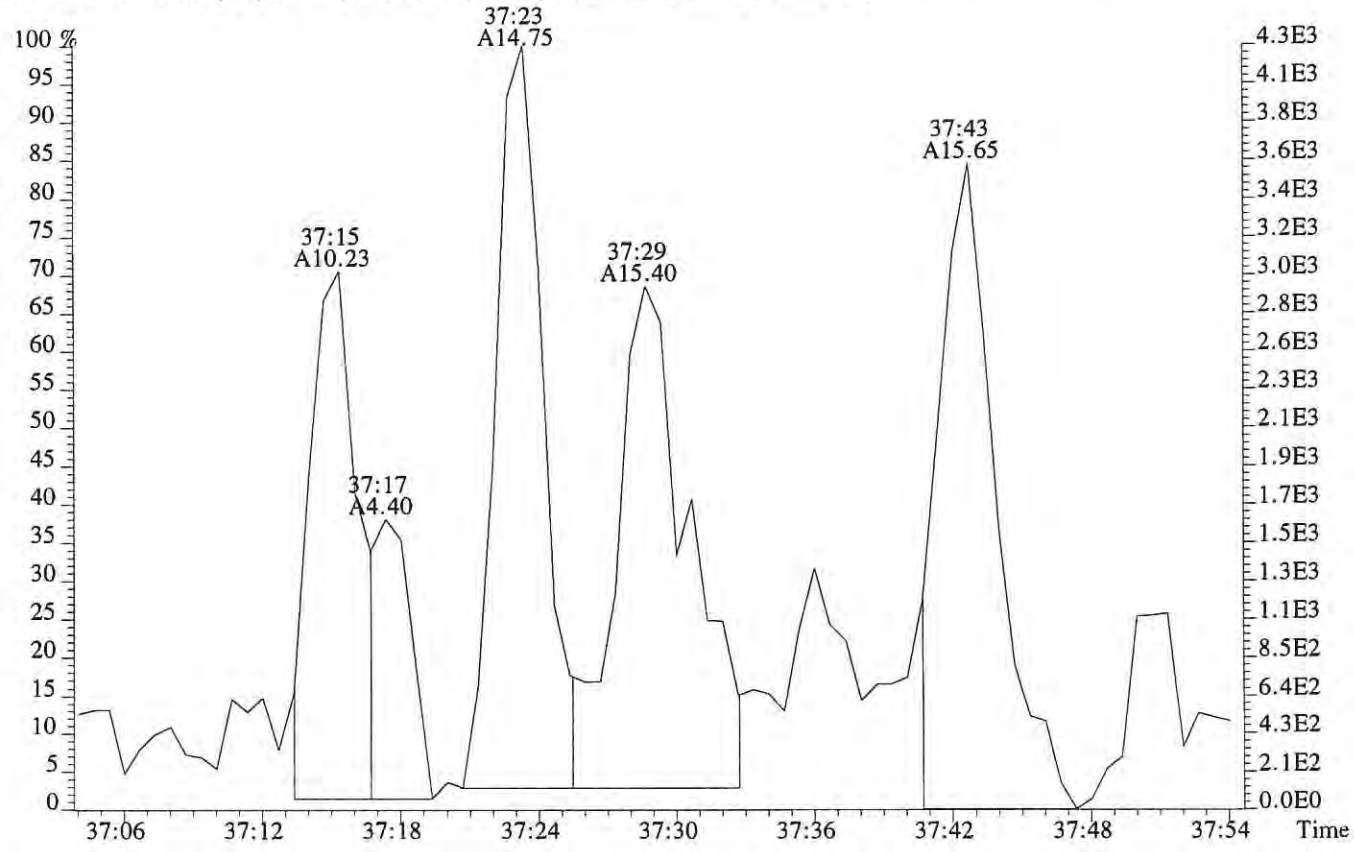
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



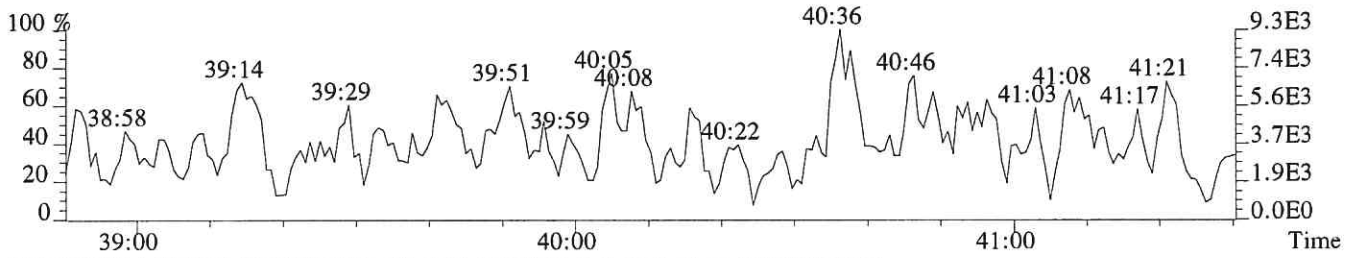
File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



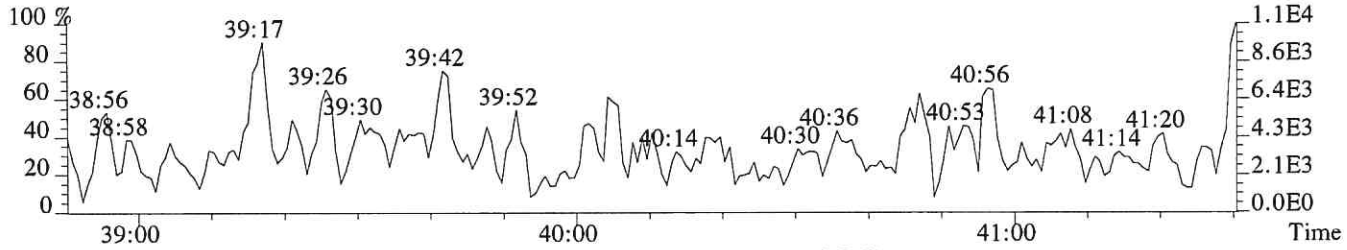
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



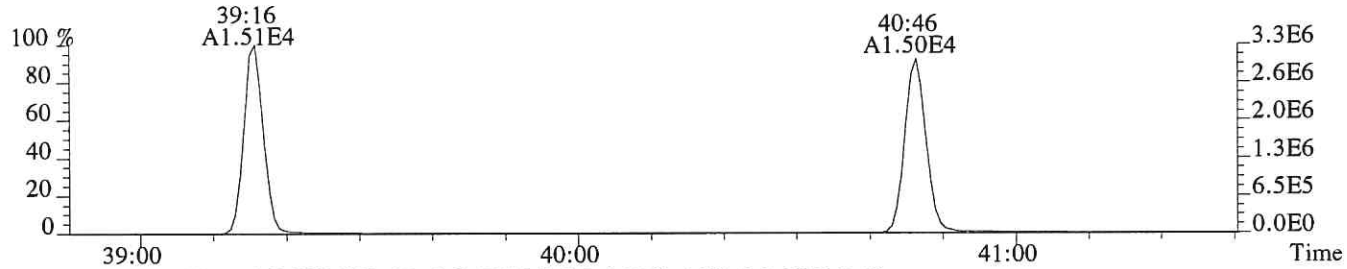
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4512.0,0.50%,F,T)



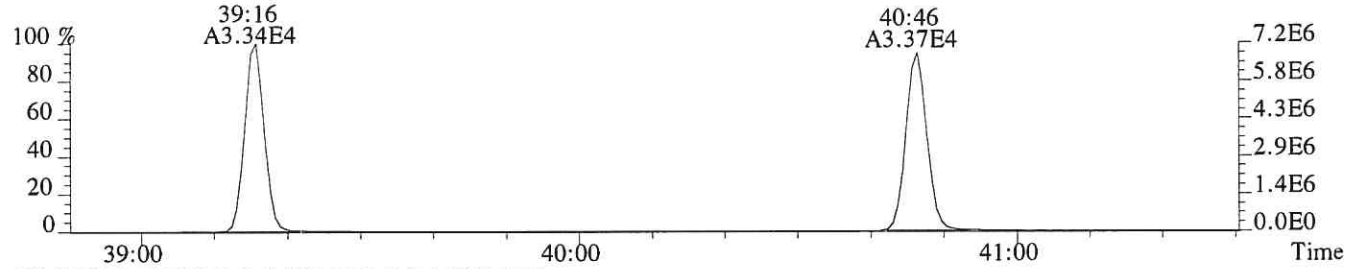
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4144.0,0.50%,F,T)



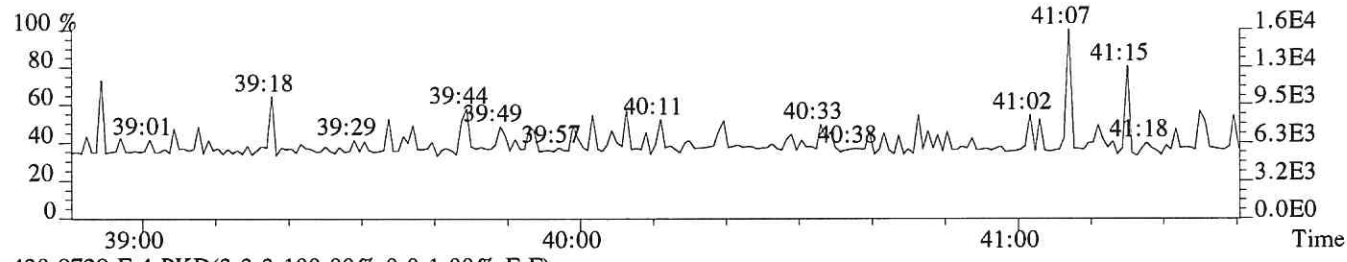
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2696.0,0.50%,F,T)



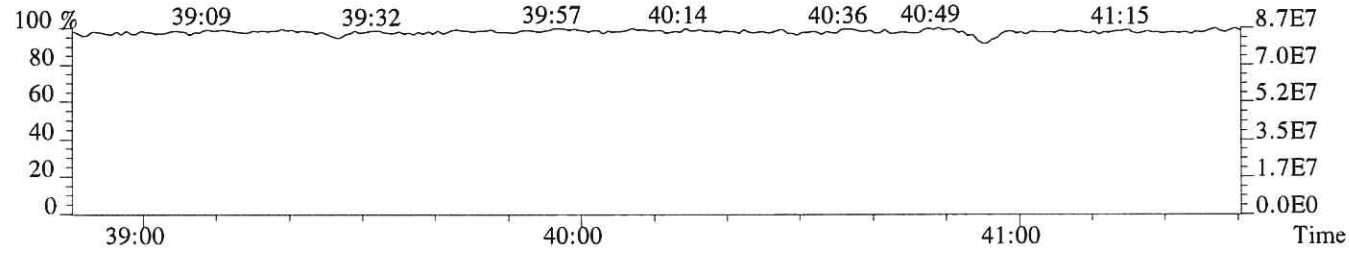
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1692.0,0.50%,F,T)



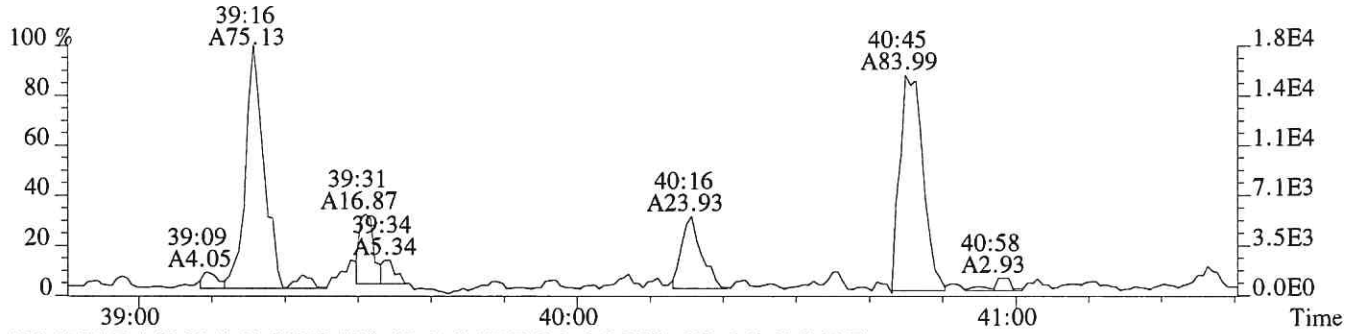
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



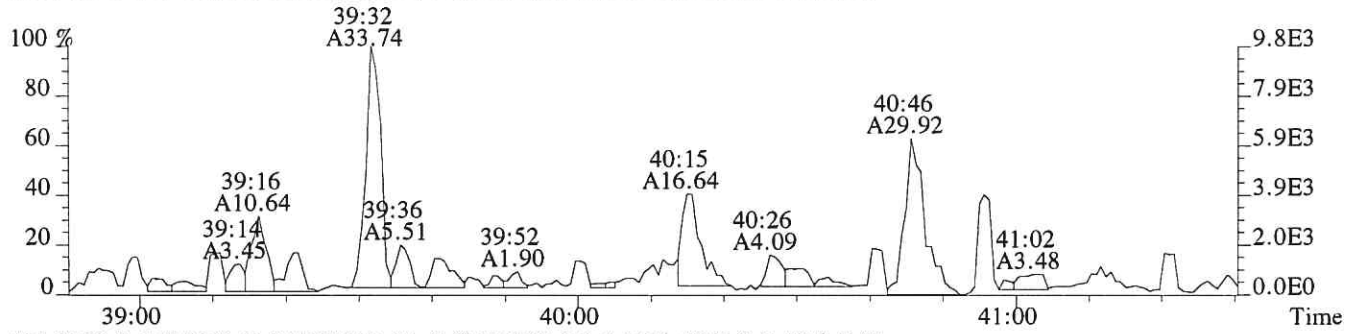
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



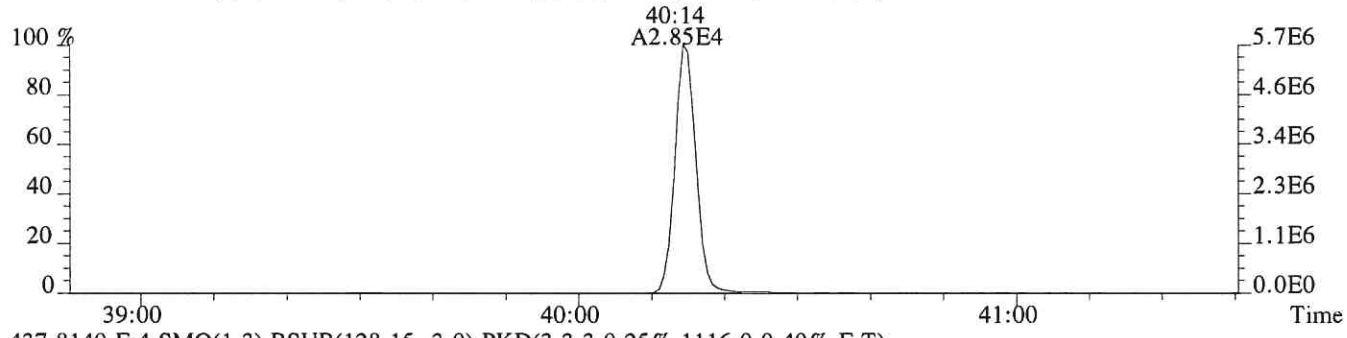
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



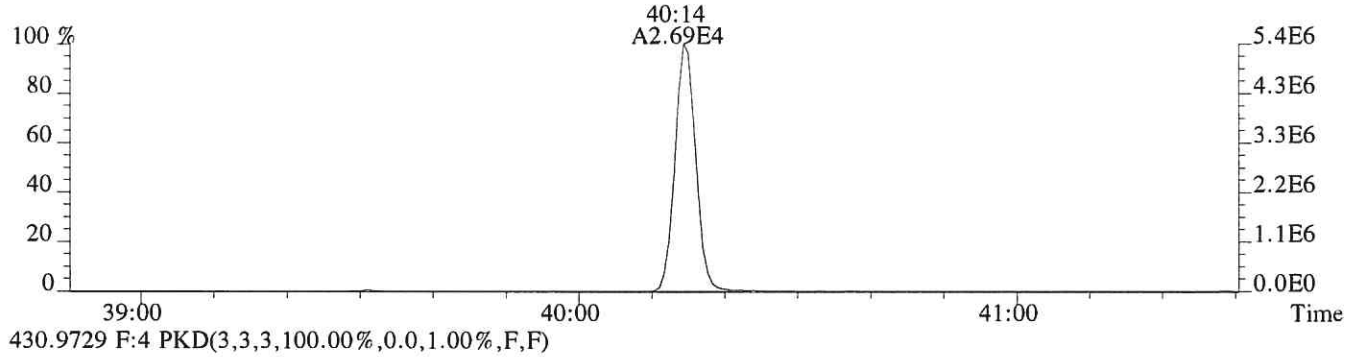
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



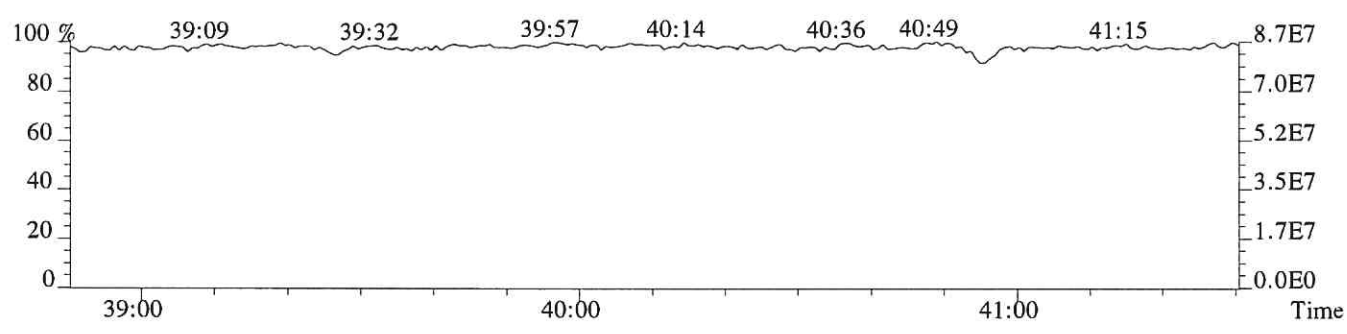
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)

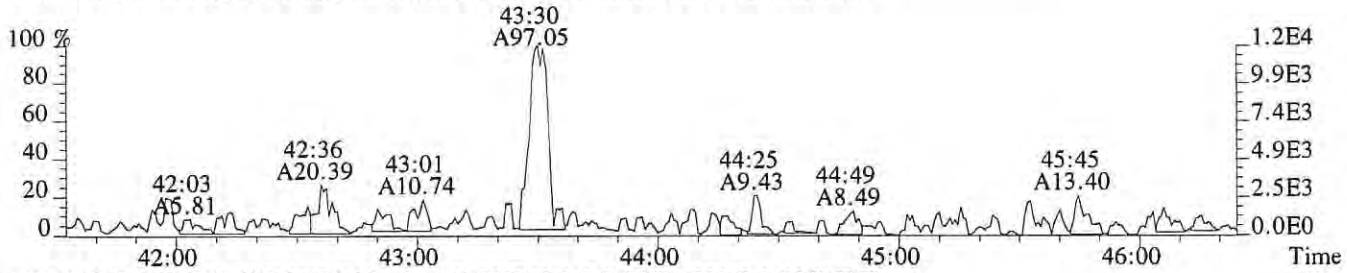


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

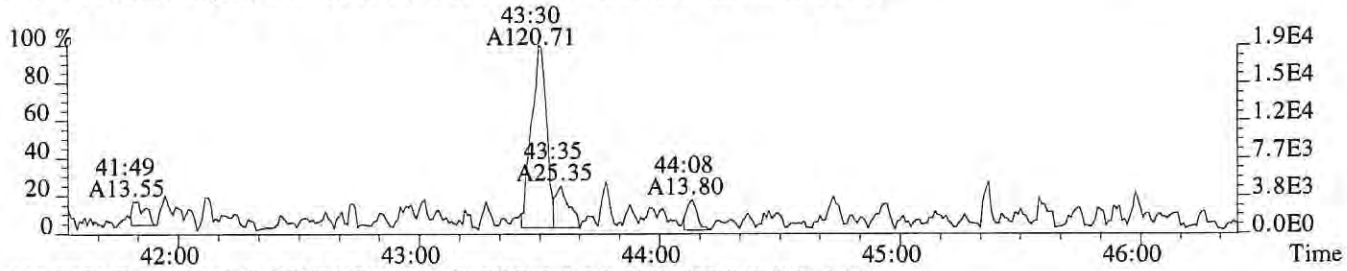


File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

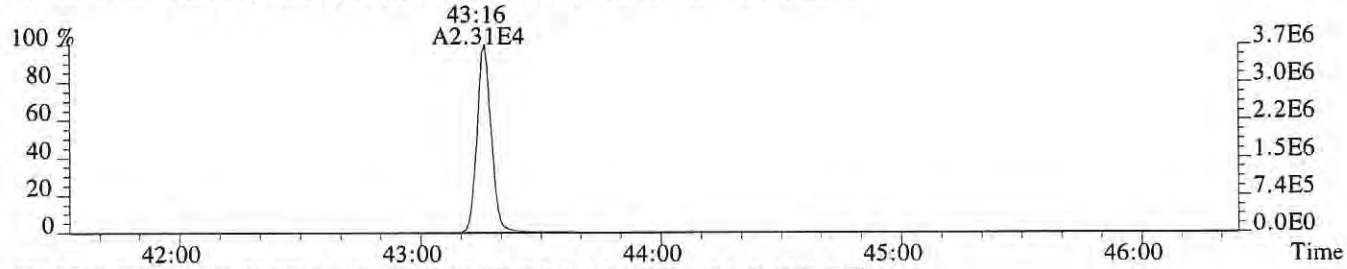
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



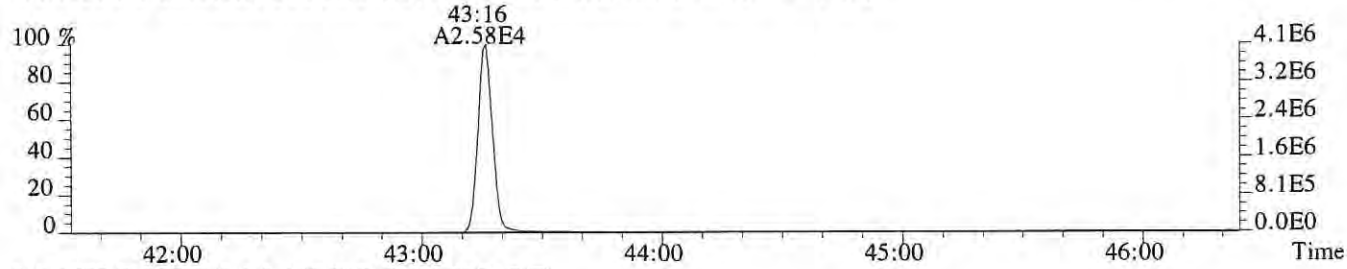
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



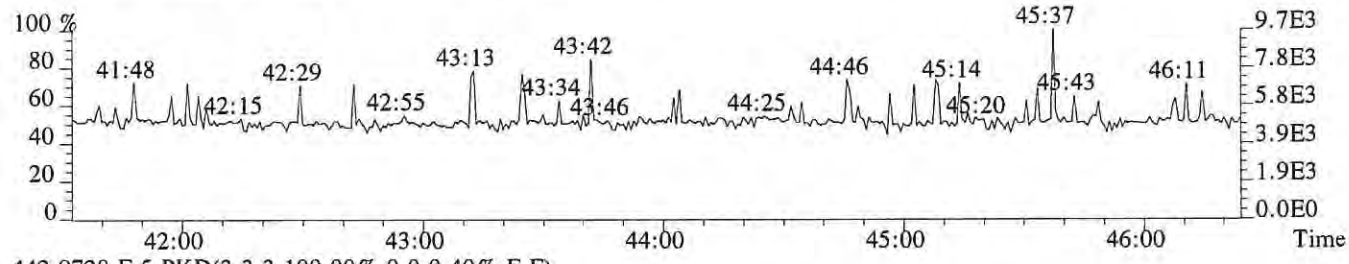
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



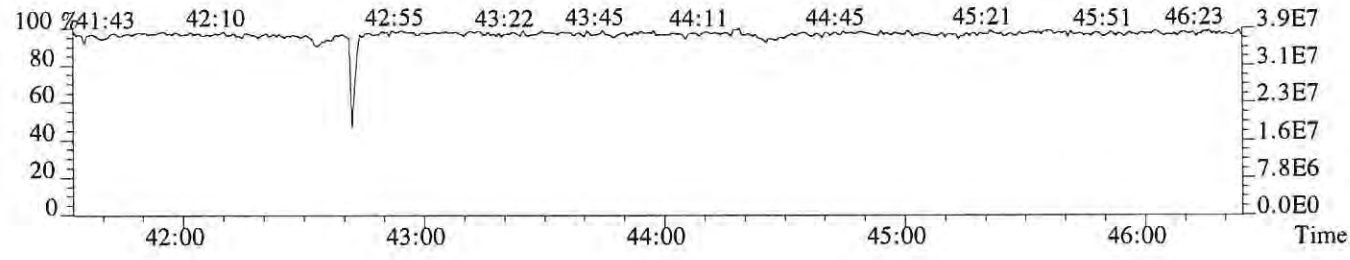
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

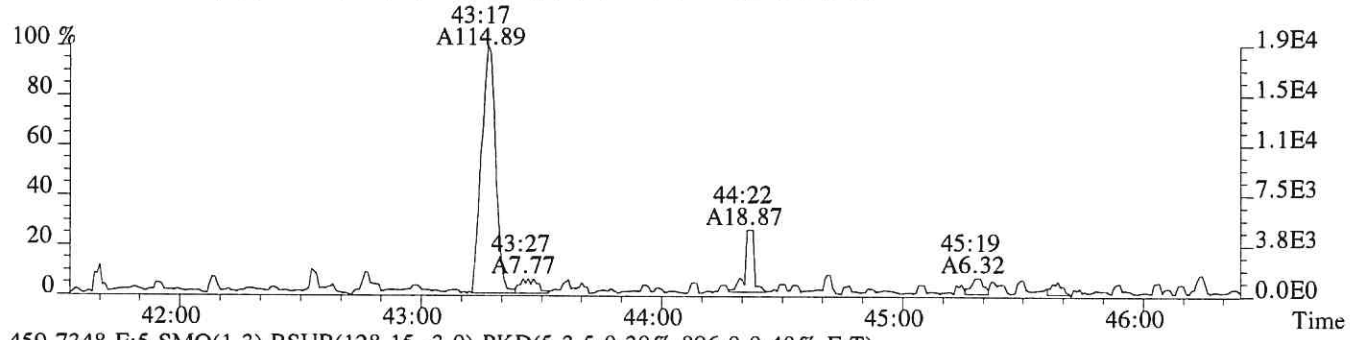


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

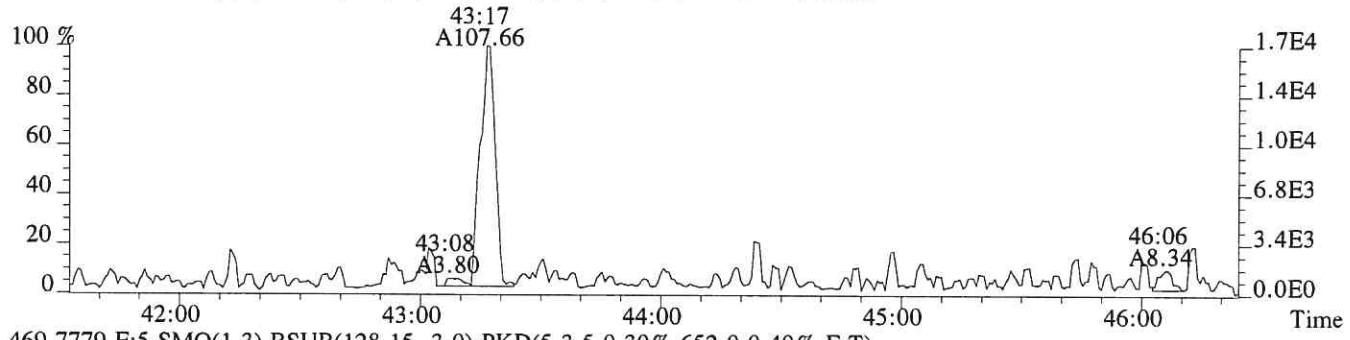


File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

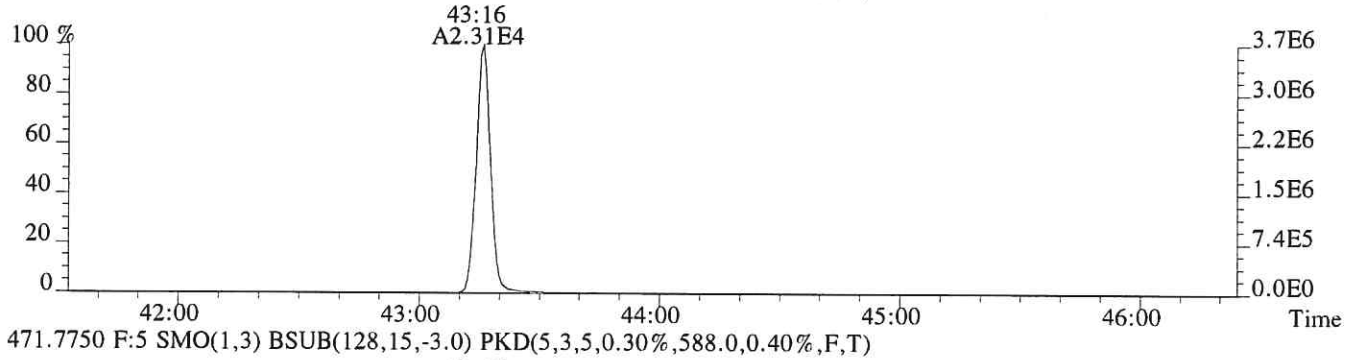
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



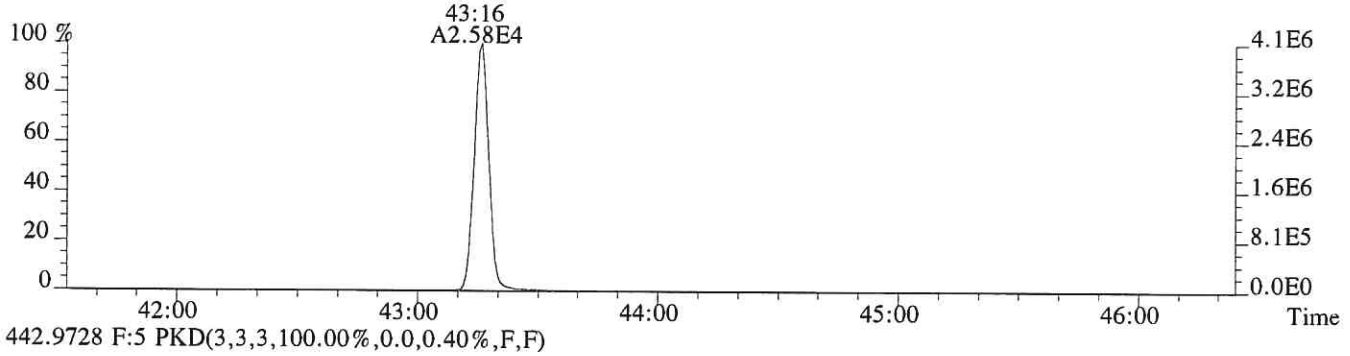
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



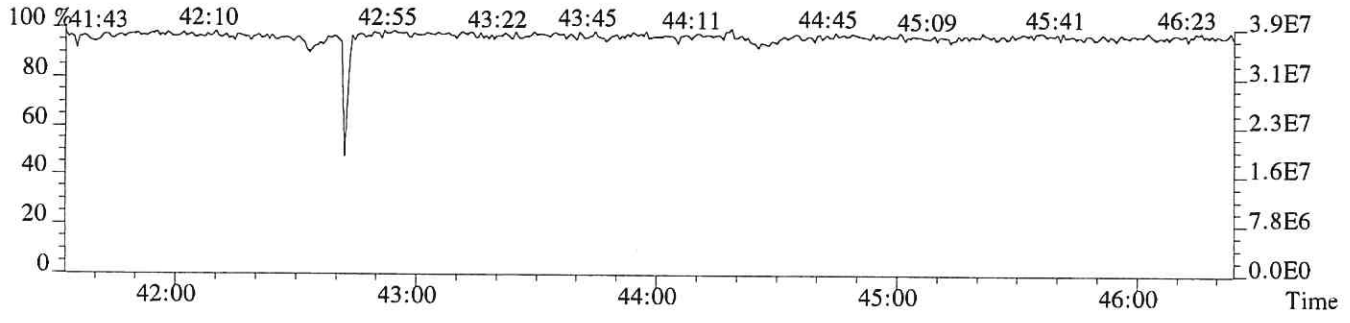
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 Sample ID: EQ1800467-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.839e+03	3.728e+03	0.76	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:11	2.929e+04	1.872e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.995e+04	1.934e+04	1.55	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.949e+04	2.370e+04	1.24	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	3.003e+04	2.429e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.929e+04	2.401e+04	1.22	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.697e+04	2.217e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	2.416e+04	2.352e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	2.136e+04	2.014e+04	1.06	yes	no	1.463
10	Unk	OCDF	43:30	2.959e+04	3.246e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	2.217e+03	2.743e+03	0.81	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	2.134e+04	1.350e+04	1.58	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	2.084e+04	1.698e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	2.063e+04	1.648e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	2.160e+04	1.746e+04	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.706e+04	1.612e+04	1.06	yes	no	1.112
17	Unk	OCDD	43:16	2.146e+04	2.375e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:13	2.965e+04	3.765e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	6.391e+04	3.983e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	6.376e+04	3.995e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	3.145e+04	6.095e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	3.421e+04	6.542e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	3.413e+04	6.444e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	3.108e+04	6.007e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:15	2.331e+04	5.162e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.170e+04	4.680e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.216e+04	2.833e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	4.907e+04	3.149e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	4.694e+04	3.498e+04	1.34	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	4.172e+04	3.451e+04	1.21	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	4.358e+04	4.186e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	43:15	4.346e+04	4.768e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	6.840e+04	8.723e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	9.620e+04	7.591e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:57	2.190e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 LAB. ID: EQ1800467-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.73e+05	1.22e+03	4.7e+02	7.32e+05	3.20e+03	2.3e+02
2	1,2,3,7,8-PeCDF	5.93e+06	1.92e+03	3.1e+03	3.78e+06	3.14e+03	1.2e+03
3	2,3,4,7,8-PeCDF	6.10e+06	1.92e+03	3.2e+03	3.94e+06	3.14e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	6.49e+06	2.08e+03	3.1e+03	5.14e+06	3.02e+03	1.7e+03
5	1,2,3,6,7,8-HxCDF	6.33e+06	2.08e+03	3.0e+03	5.23e+06	3.02e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	6.42e+06	2.08e+03	3.1e+03	5.24e+06	3.02e+03	1.7e+03
7	1,2,3,7,8,9-HxCDF	5.69e+06	2.08e+03	2.7e+03	4.58e+06	3.02e+03	1.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.10e+06	4.58e+03	1.1e+03	5.03e+06	2.89e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.01e+06	4.58e+03	8.7e+02	3.80e+06	2.89e+03	1.3e+03
10	OCDF	4.56e+06	1.08e+03	4.2e+03	5.02e+06	2.34e+03	2.1e+03
11	2,3,7,8-TCDD	4.80e+05	3.94e+03	1.2e+02	5.75e+05	1.60e+03	3.6e+02
12	1,2,3,7,8-PeCDD	4.46e+06	2.00e+03	2.2e+03	2.85e+06	6.80e+02	4.2e+03
13	1,2,3,4,7,8-HxCDD	4.60e+06	9.08e+02	5.1e+03	3.66e+06	7.56e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	4.53e+06	9.08e+02	5.0e+03	3.64e+06	7.56e+02	4.8e+03
15	1,2,3,7,8,9-HxCDD	4.65e+06	9.08e+02	5.1e+03	3.76e+06	7.56e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	3.36e+06	1.16e+03	2.9e+03	3.23e+06	8.72e+02	3.7e+03
17	OCDD	3.26e+06	7.36e+02	4.4e+03	3.61e+06	1.76e+03	2.0e+03
18	13C-2,3,7,8-TCDF	5.88e+06	1.30e+04	4.5e+02	7.66e+06	6.90e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.28e+07	1.00e+03	1.3e+04	7.94e+06	1.58e+03	5.0e+03
20	13C-2,3,4,7,8-PeCDF	1.34e+07	1.00e+03	1.3e+04	8.48e+06	1.58e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	2.20e+03	3.1e+03	1.32e+07	2.00e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.42e+06	2.20e+03	3.4e+03	1.42e+07	2.00e+03	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	7.56e+06	2.20e+03	3.4e+03	1.43e+07	2.00e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	6.44e+06	2.20e+03	2.9e+03	1.25e+07	2.00e+03	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.93e+06	2.46e+03	2.0e+03	1.10e+07	3.38e+03	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.11e+06	2.46e+03	1.7e+03	8.74e+06	3.38e+03	2.6e+03
27	13C-2,3,7,8-TCDD	4.74e+06	1.38e+04	3.4e+02	6.07e+06	5.33e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.02e+07	1.83e+03	5.6e+03	6.51e+06	2.04e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.04e+07	3.97e+03	2.6e+03	7.98e+06	1.58e+03	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.21e+06	3.97e+03	2.3e+03	7.36e+06	1.58e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.64e+06	1.35e+03	6.4e+03	8.32e+06	8.48e+02	9.8e+03
32	13C-OCDD	6.68e+06	5.80e+02	1.2e+04	7.45e+06	7.68e+02	9.7e+03
33	13C-1,2,3,4-TCDD	1.41e+07	1.38e+04	1.0e+03	1.80e+07	5.33e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.07e+07	3.97e+03	5.2e+03	1.63e+07	1.58e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	4.63e+06	2.23e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.936e+03 + 1.600e+03) \times 2000}{(4.745e+06 + 6.071e+06) \times (\quad) \times 1.049} =$$

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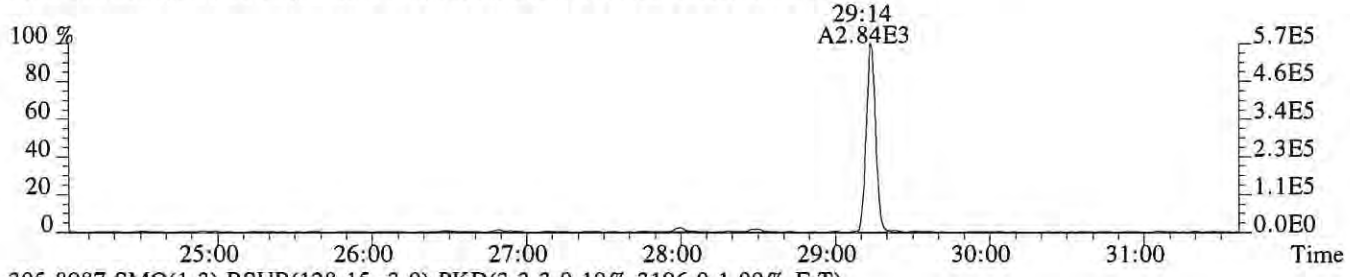
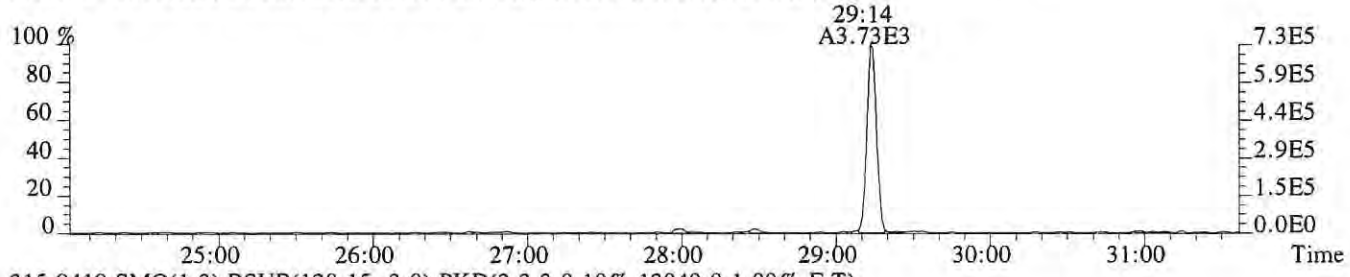
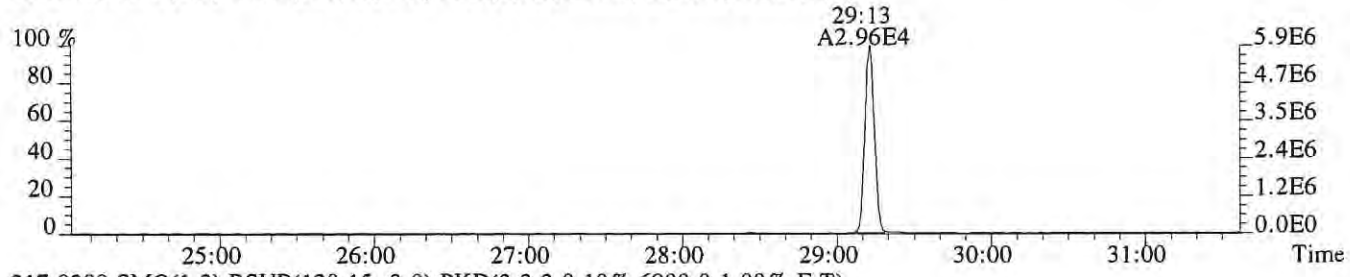
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



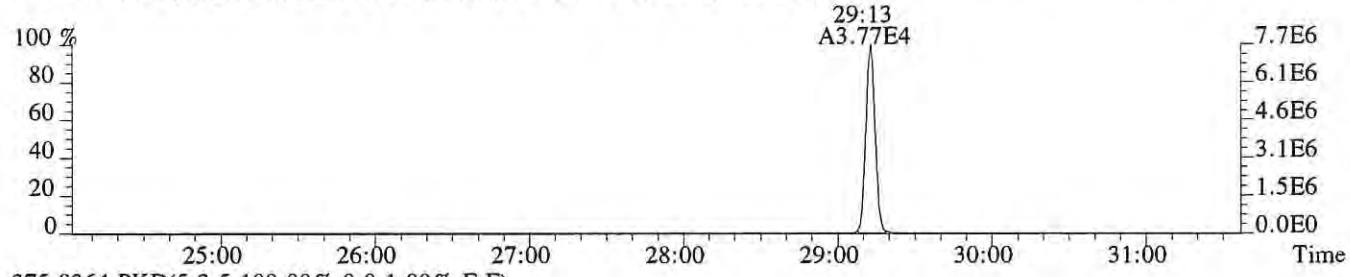
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



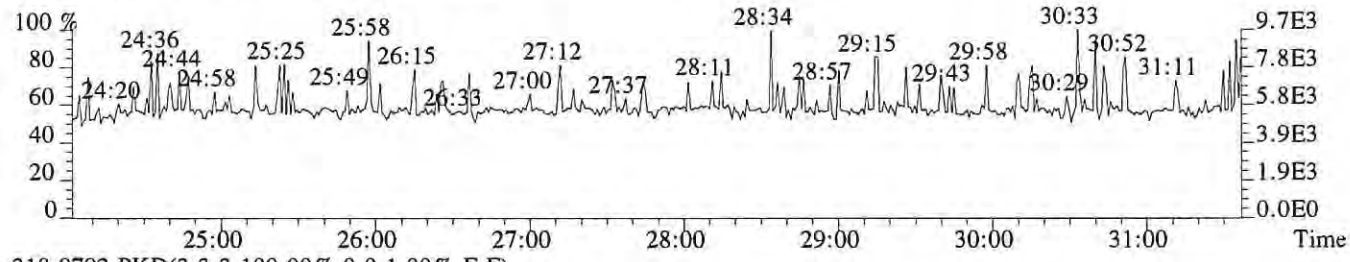
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13040.0,1.00%,F,T)



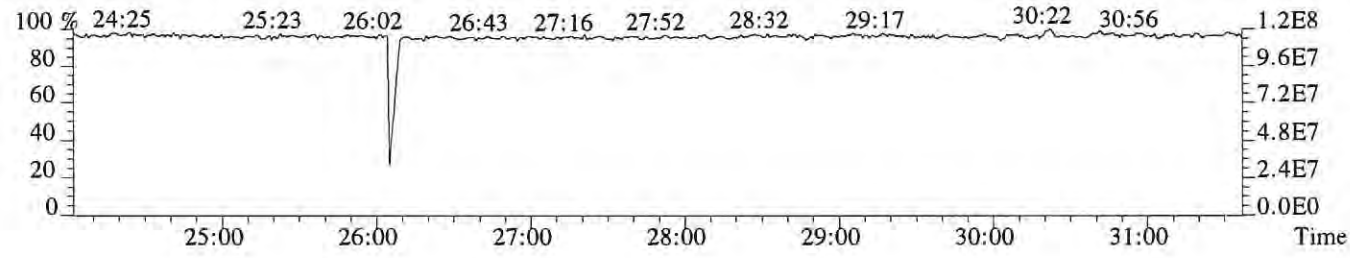
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6900.0,1.00%,F,T)



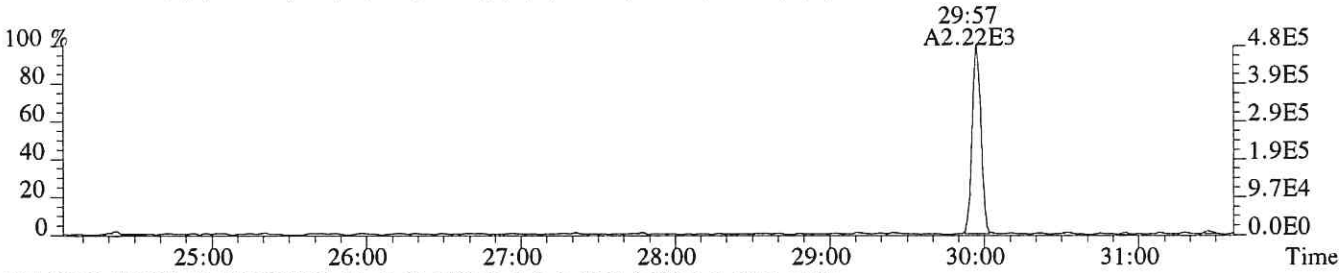
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



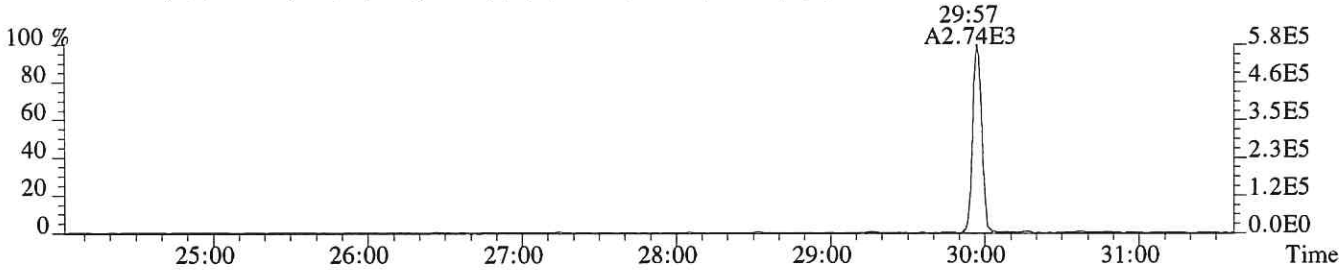
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



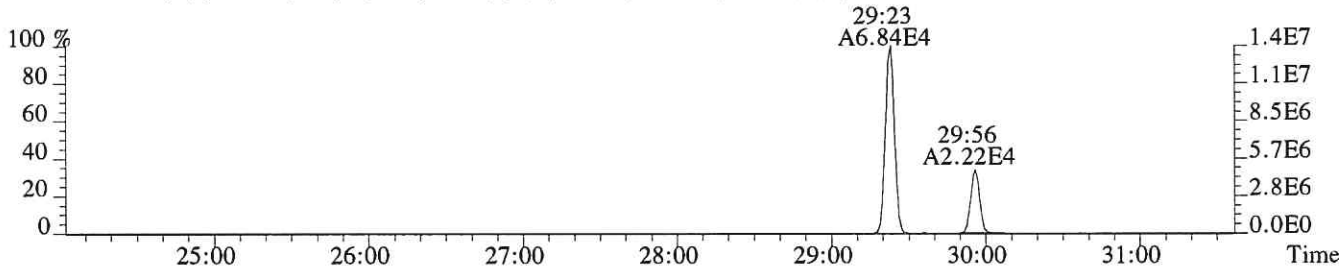
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



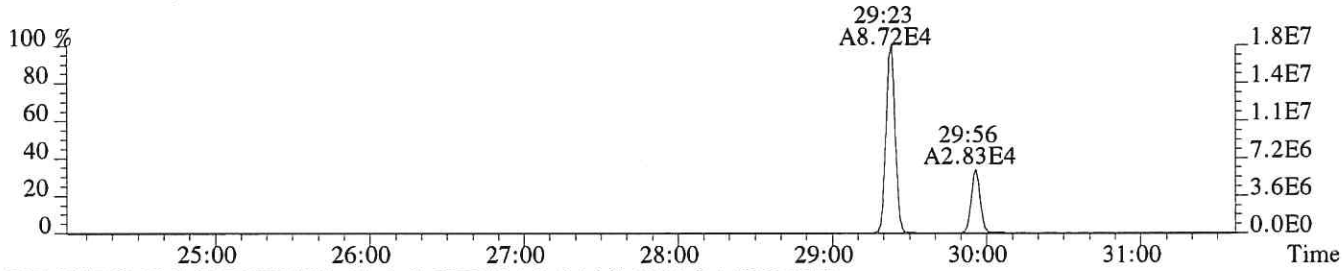
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



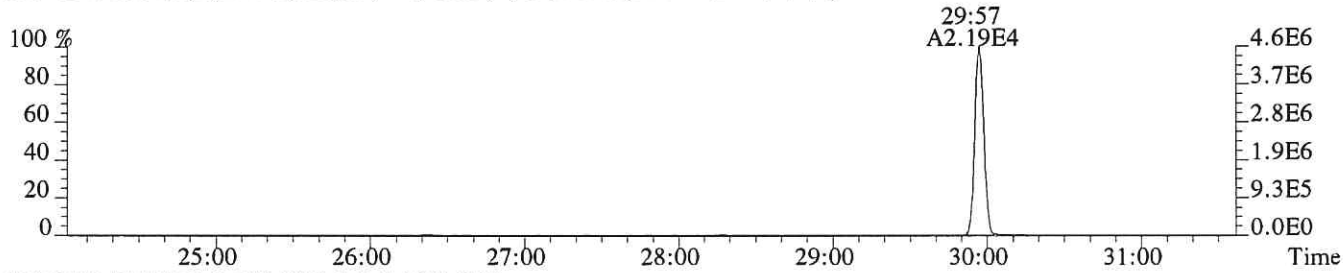
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



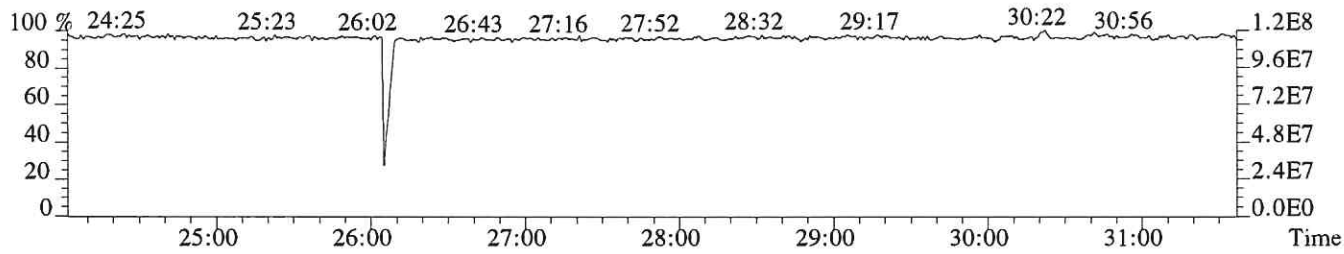
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5332.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)

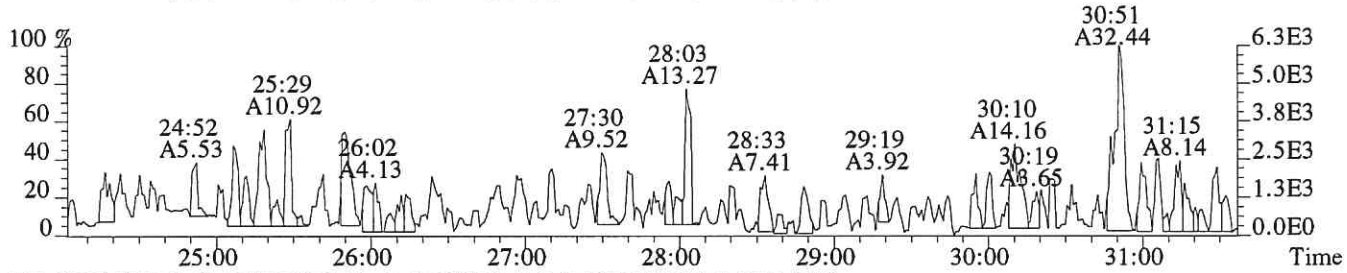


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

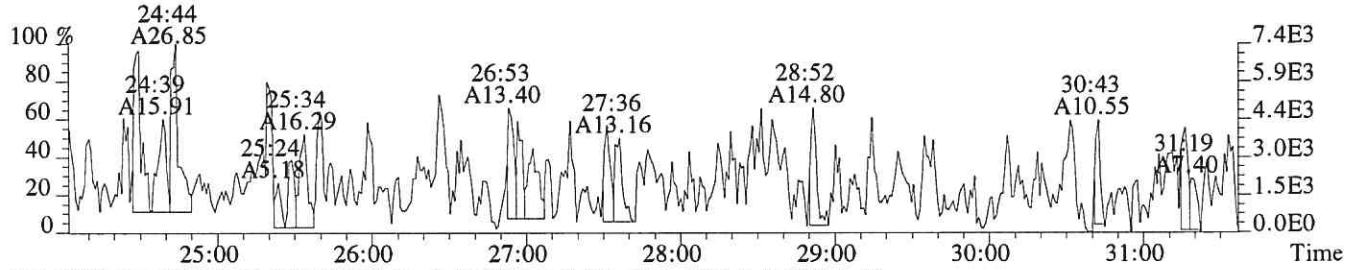


File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

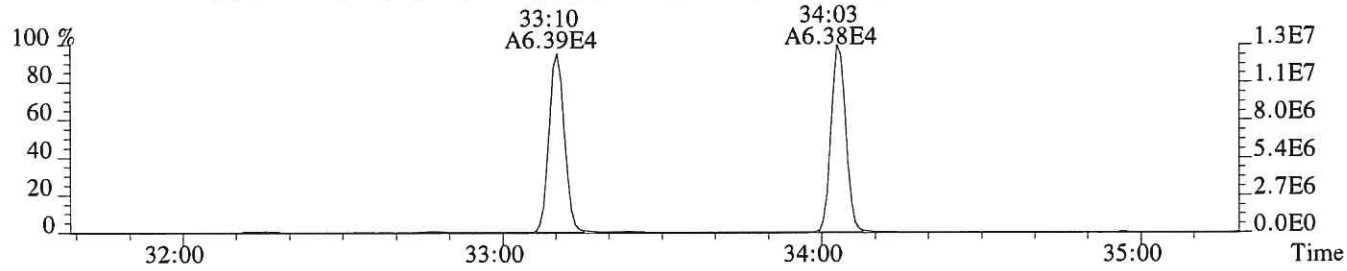
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



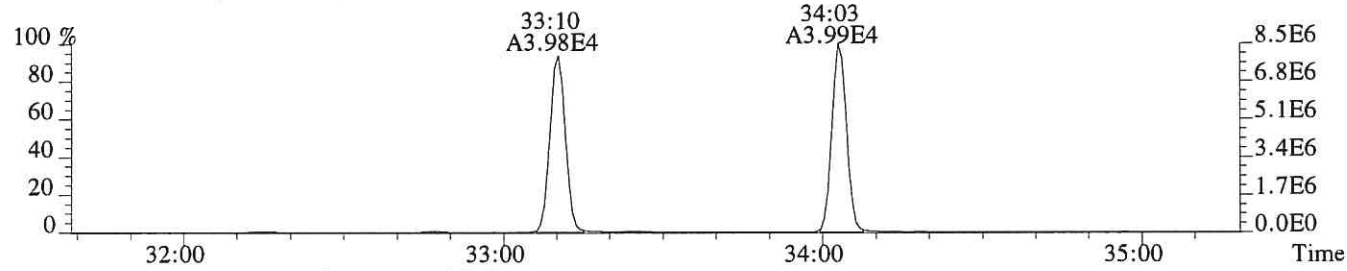
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2332.0,1.00%,F,T)



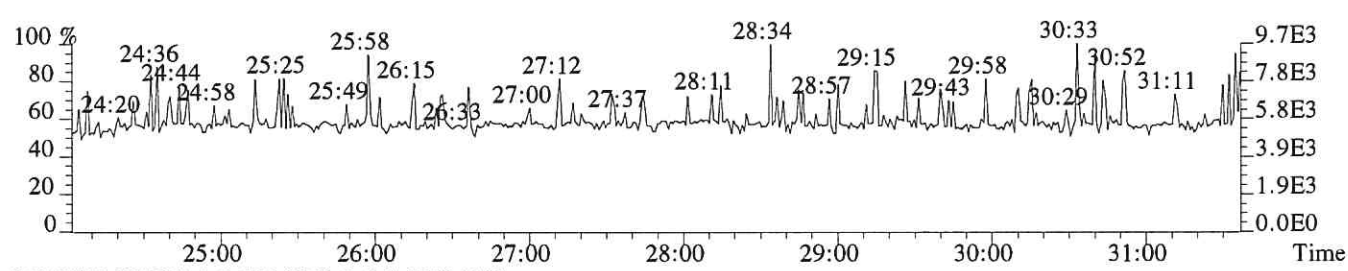
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



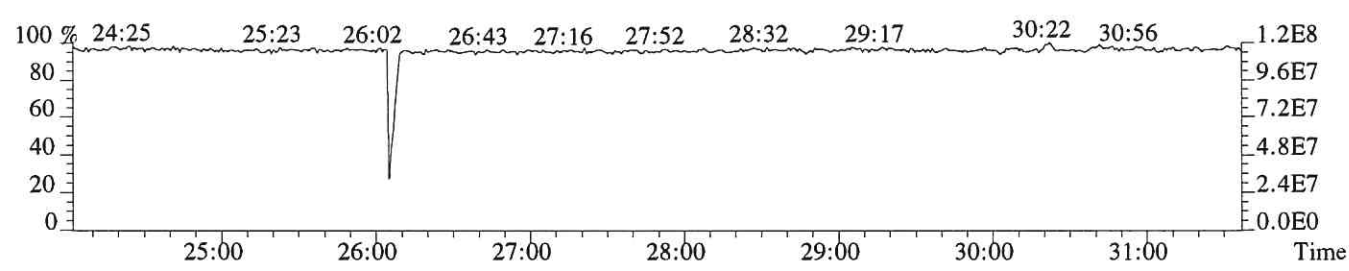
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

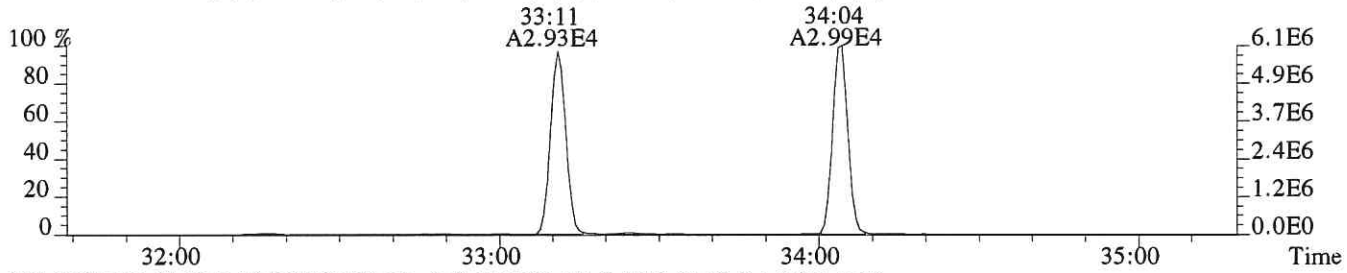


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

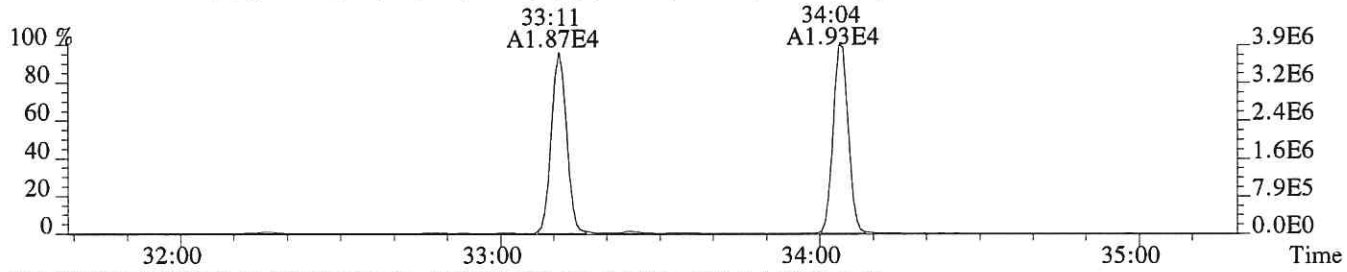


File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

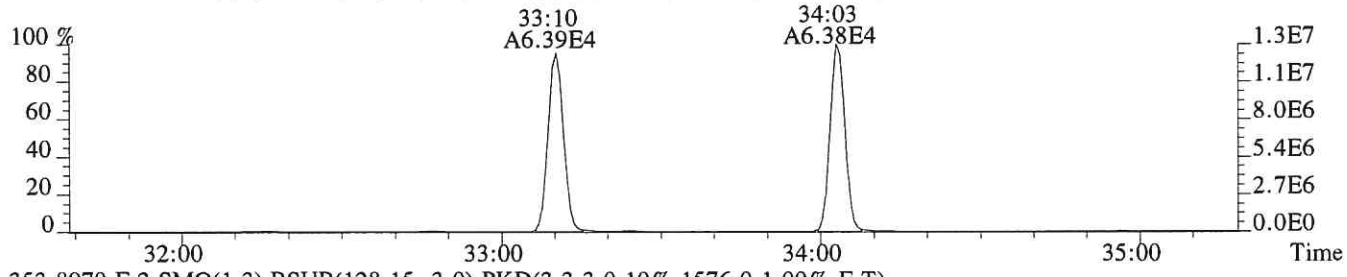
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



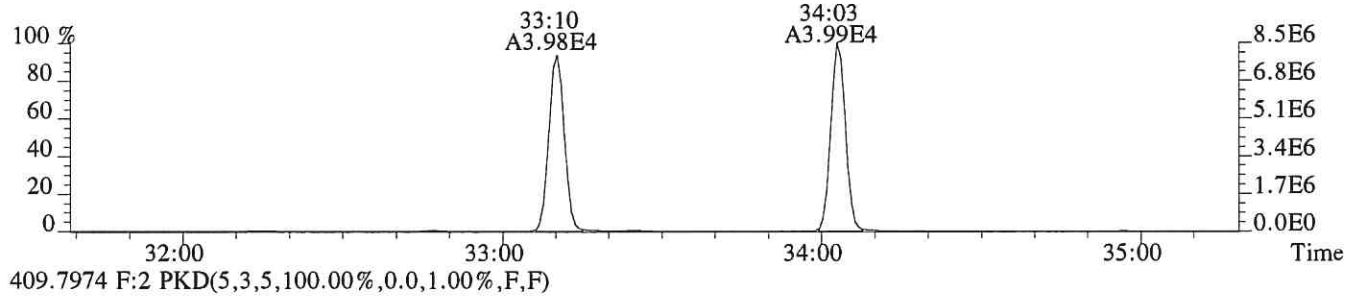
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



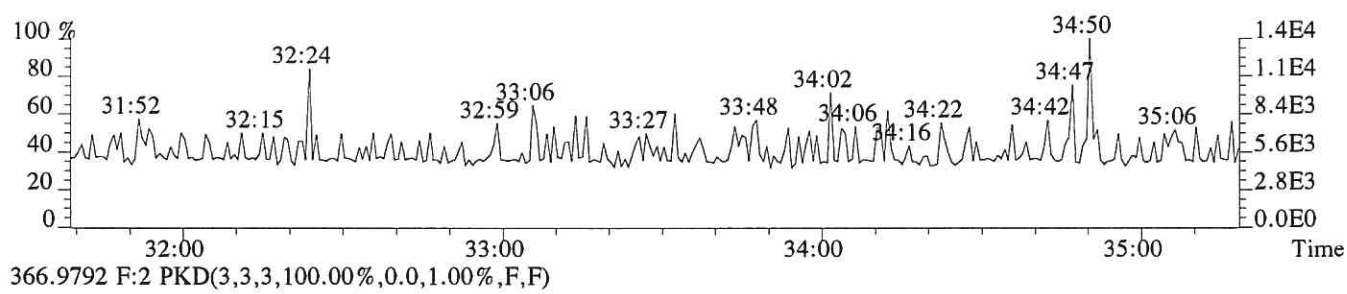
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



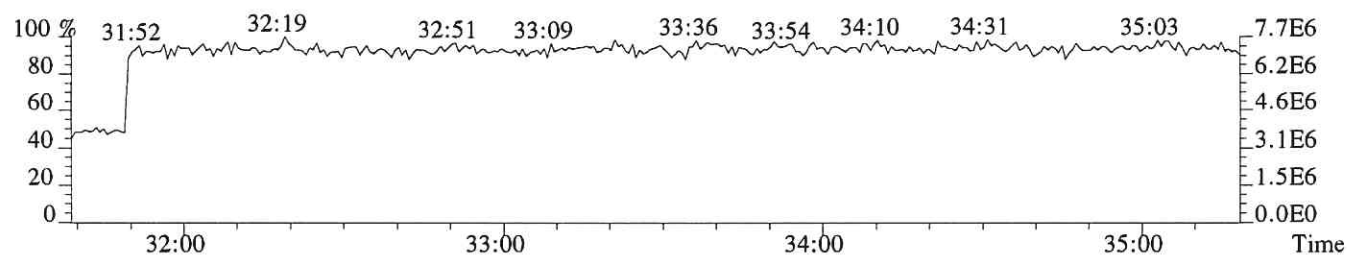
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



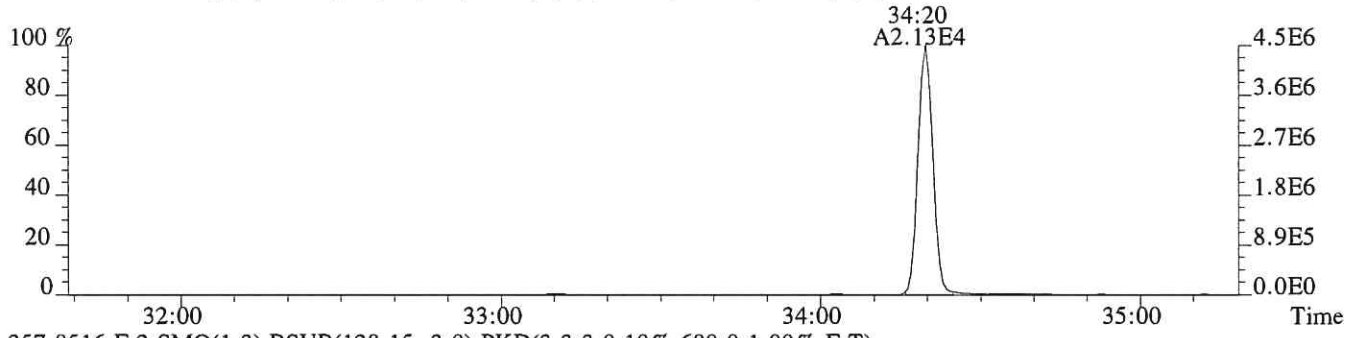
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



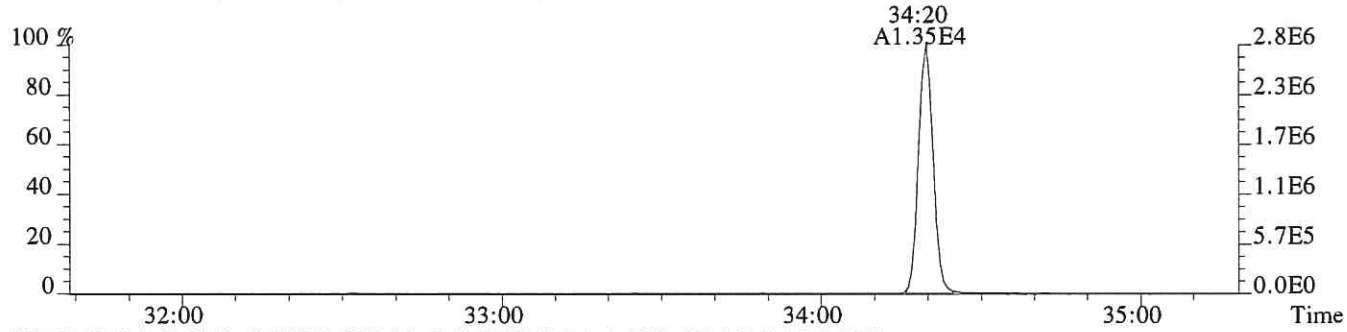
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



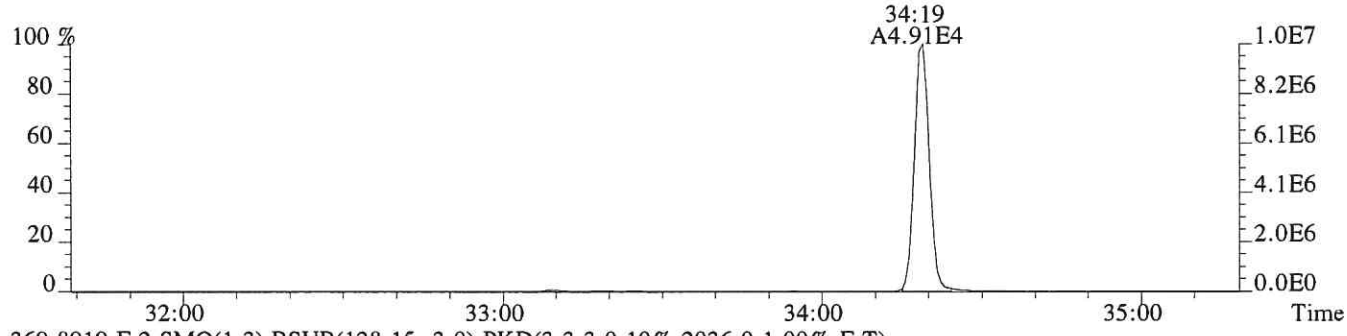
File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



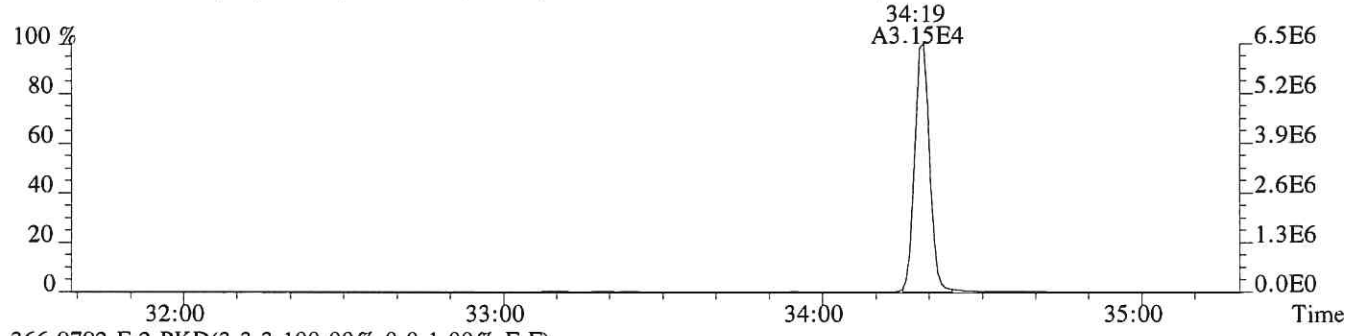
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



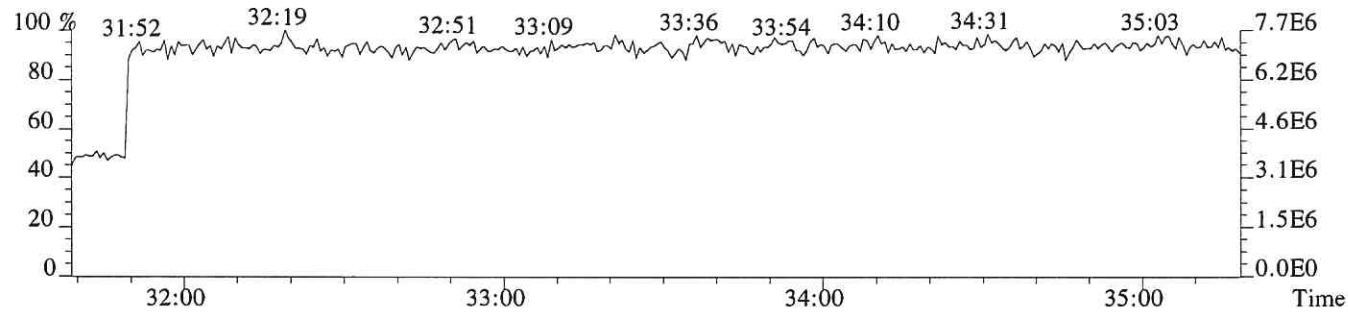
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)

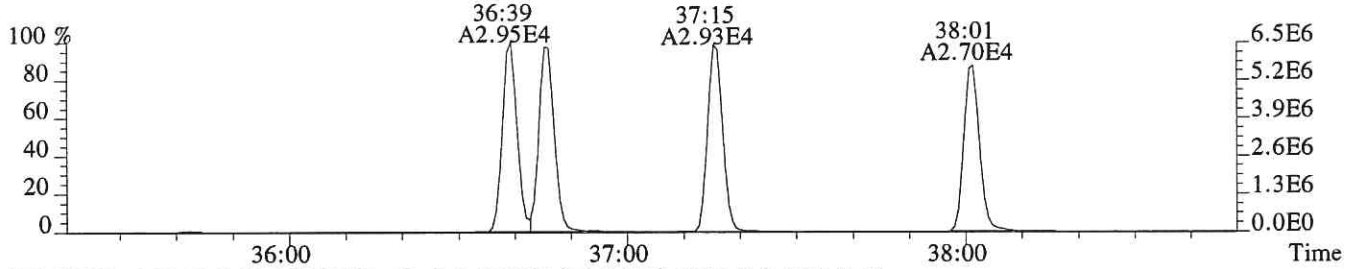


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

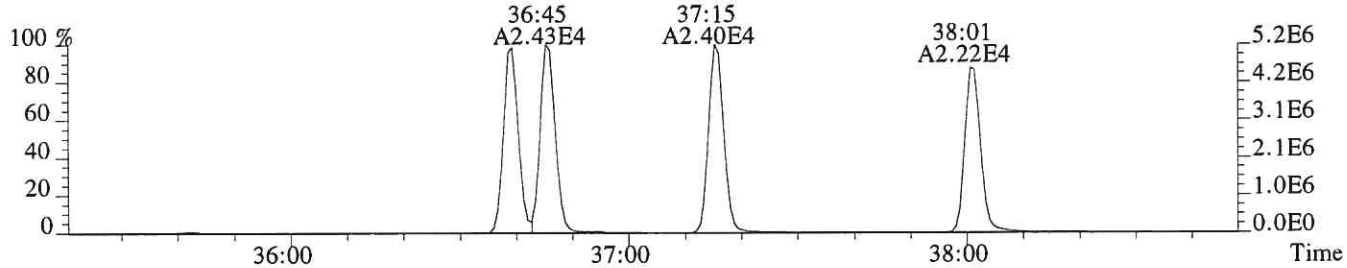


File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

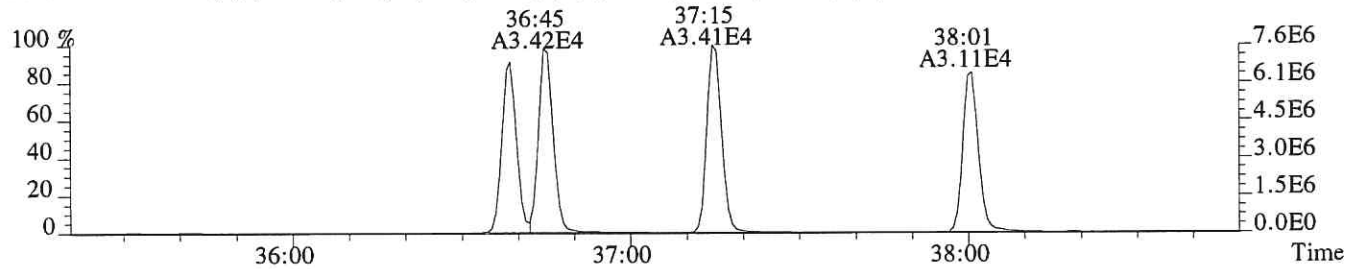
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



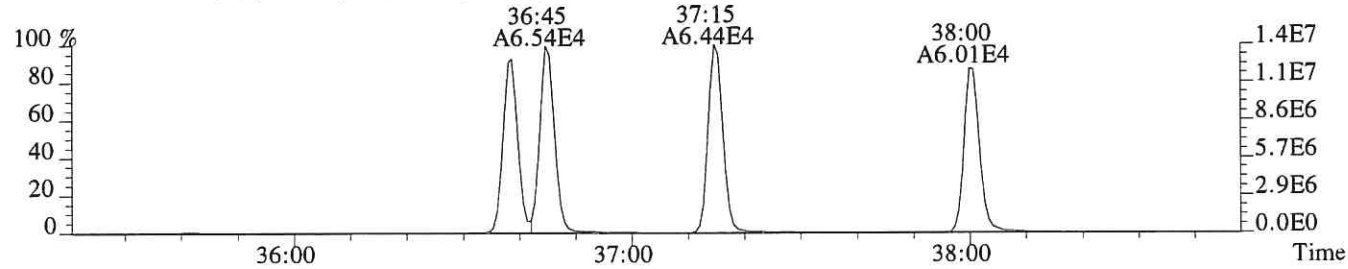
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.40%,F,T)



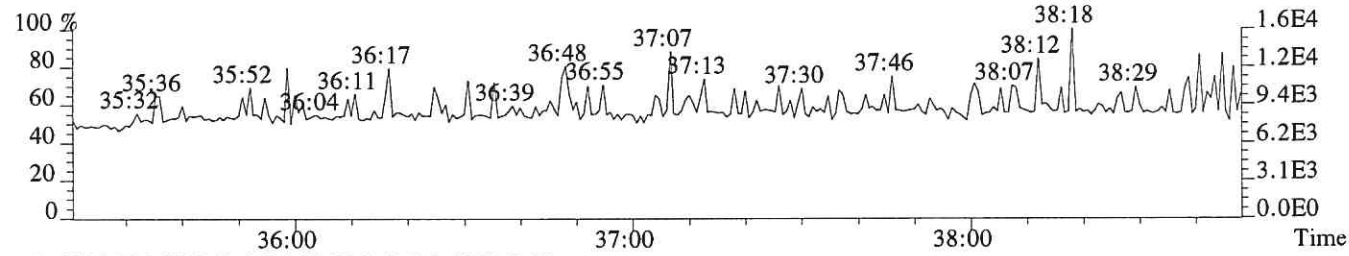
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



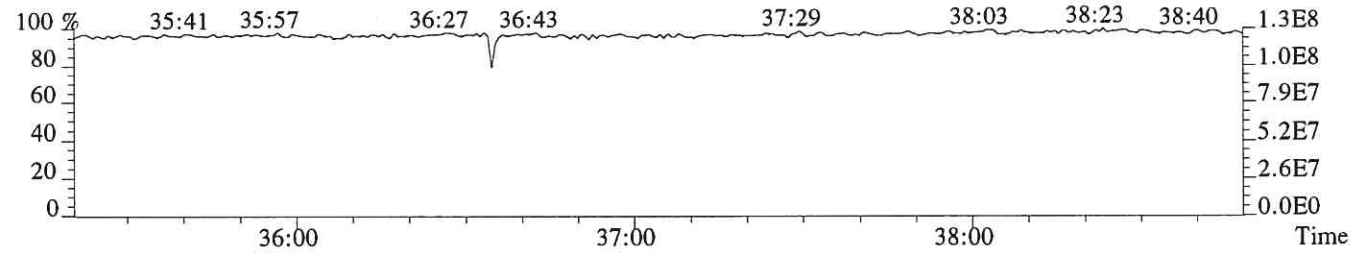
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



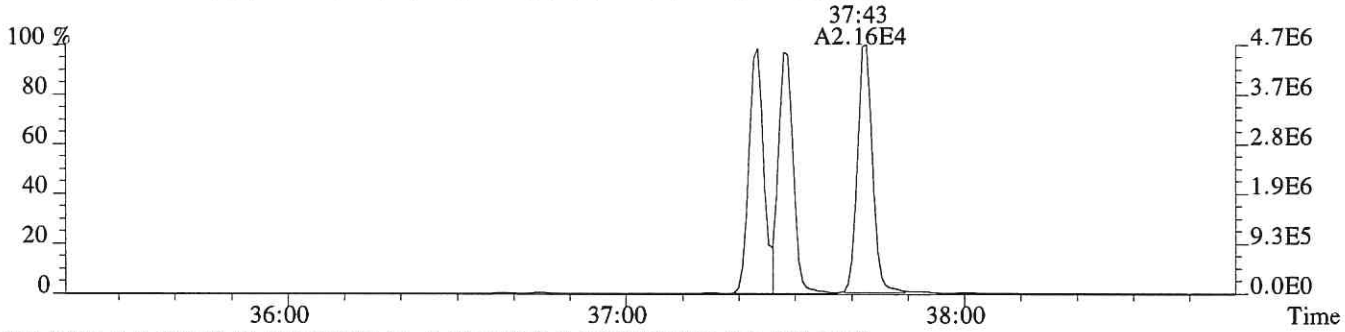
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



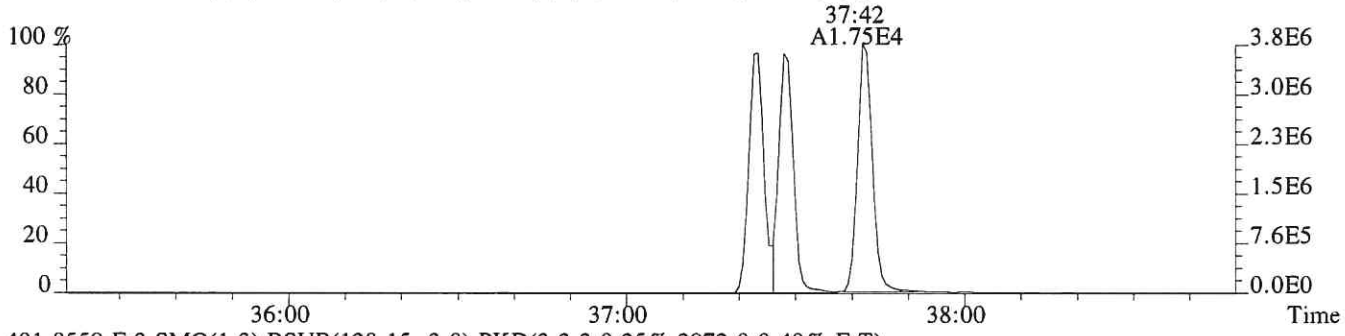
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



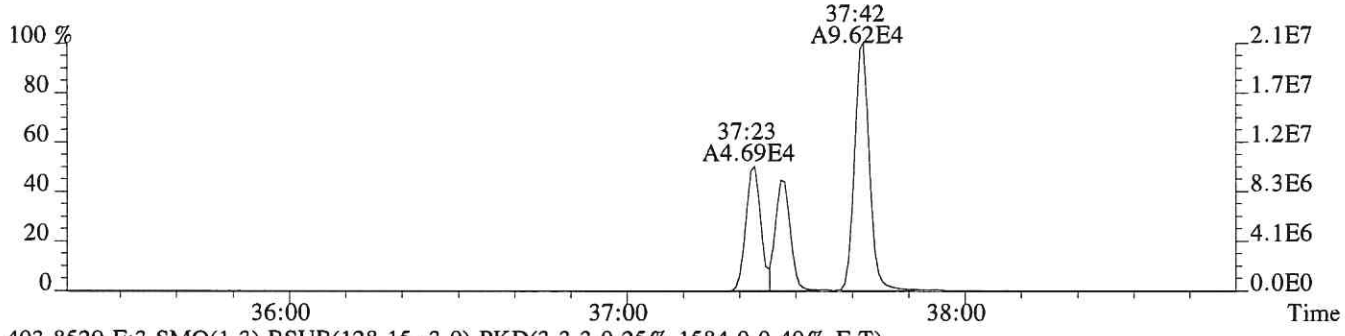
File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



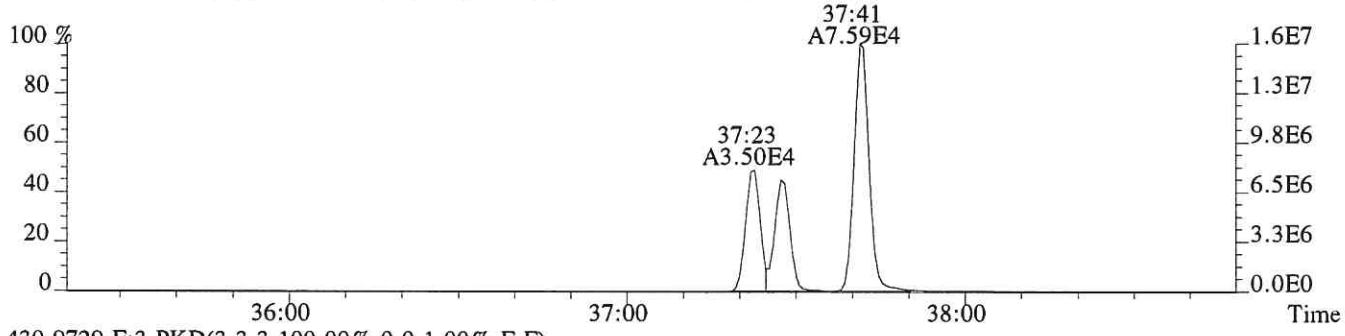
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



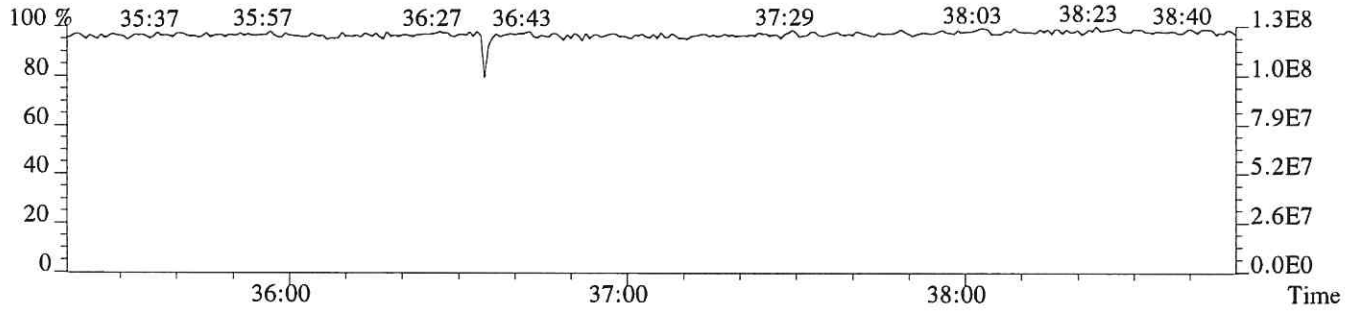
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3972.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)

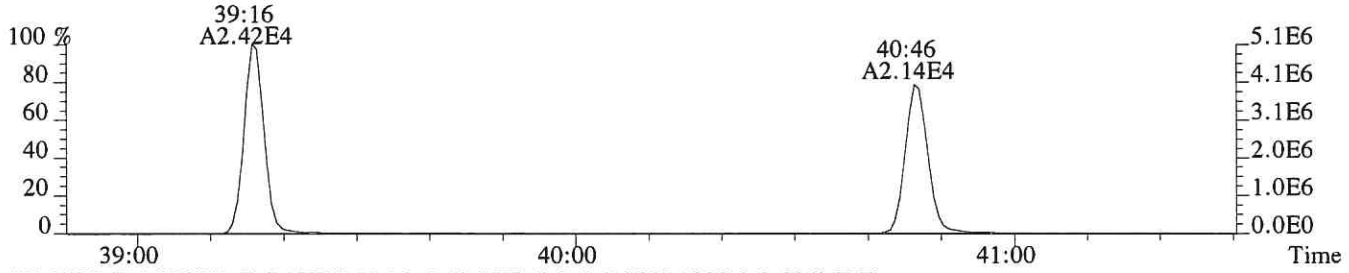


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

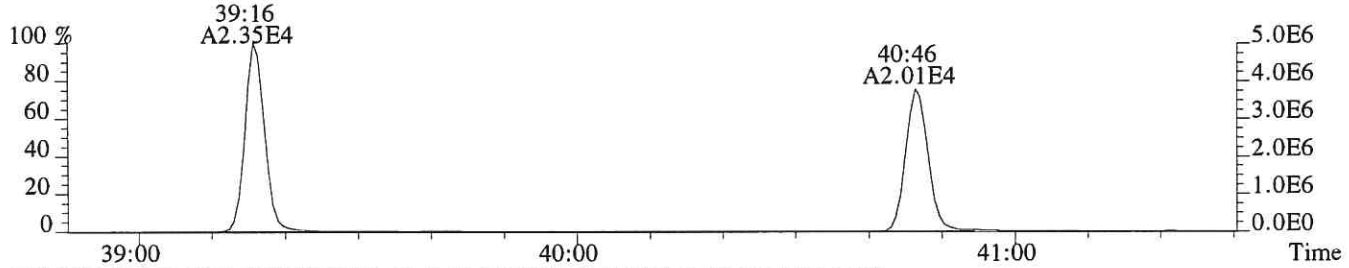


File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

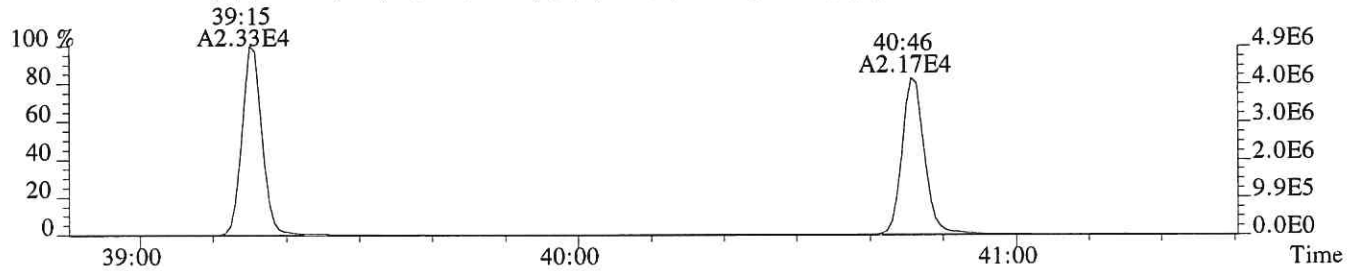
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4584.0,0.50%,F,T)



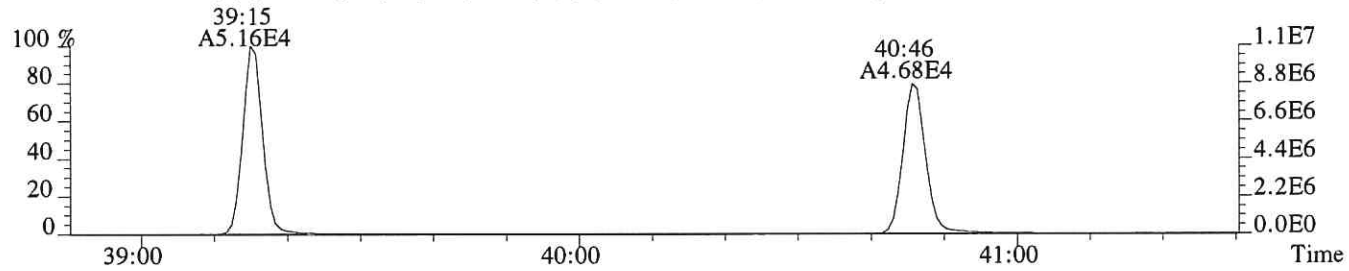
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



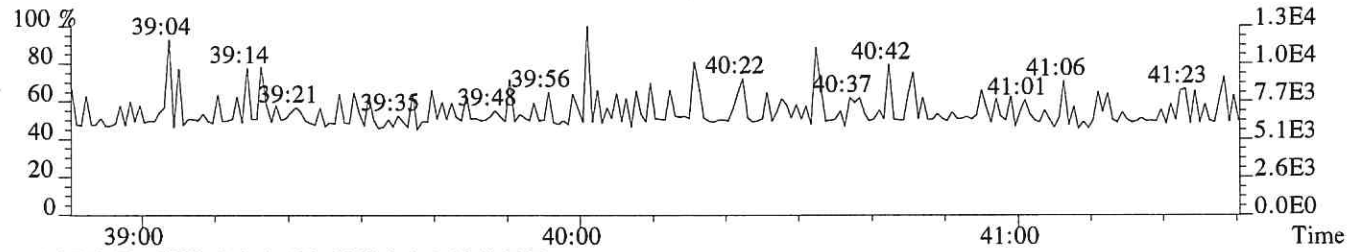
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.50%,F,T)



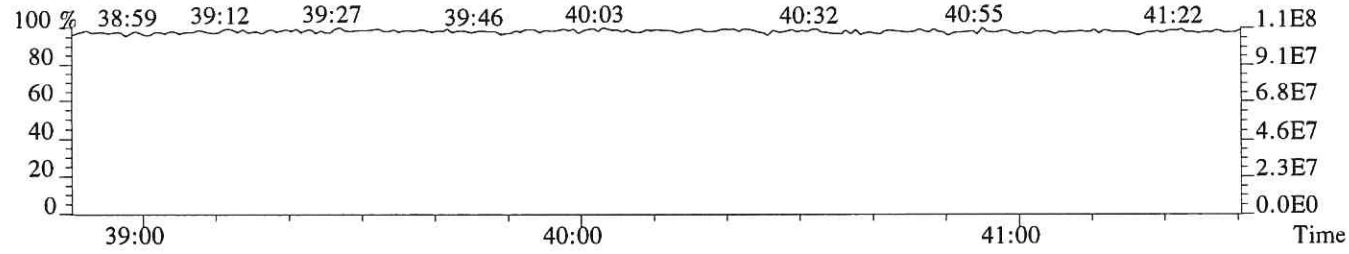
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3376.0,0.50%,F,T)



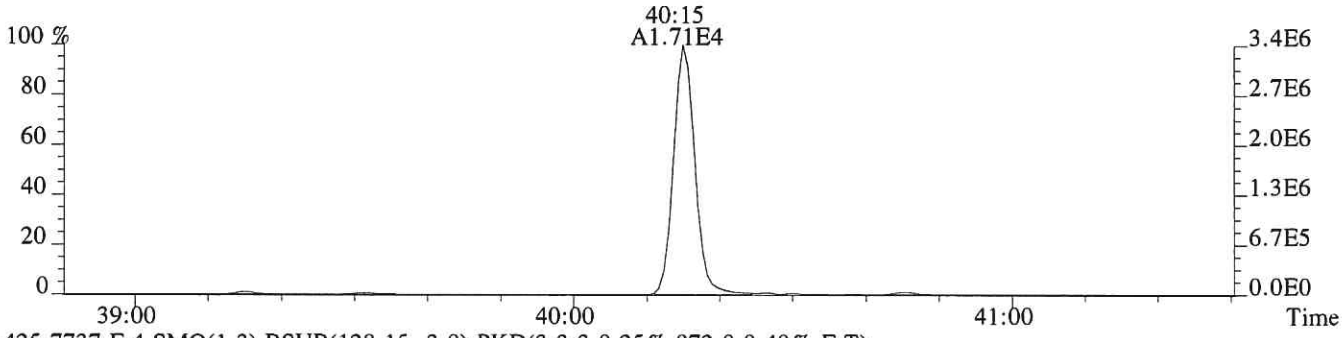
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



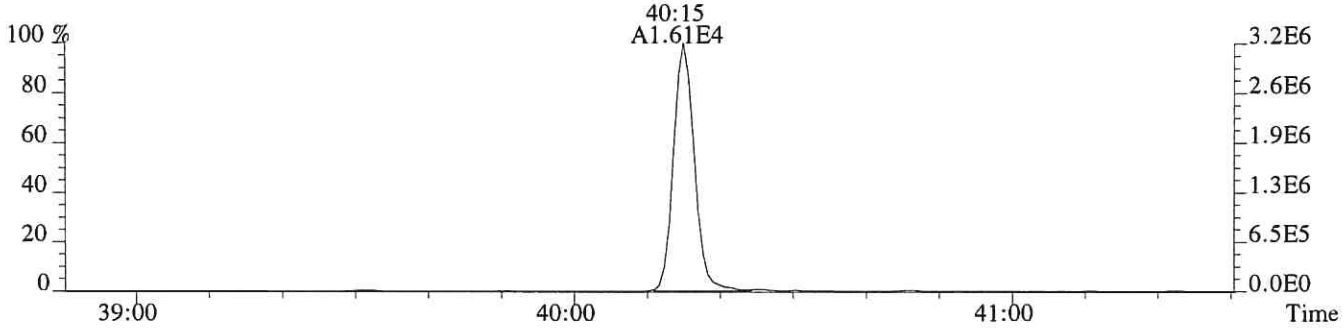
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



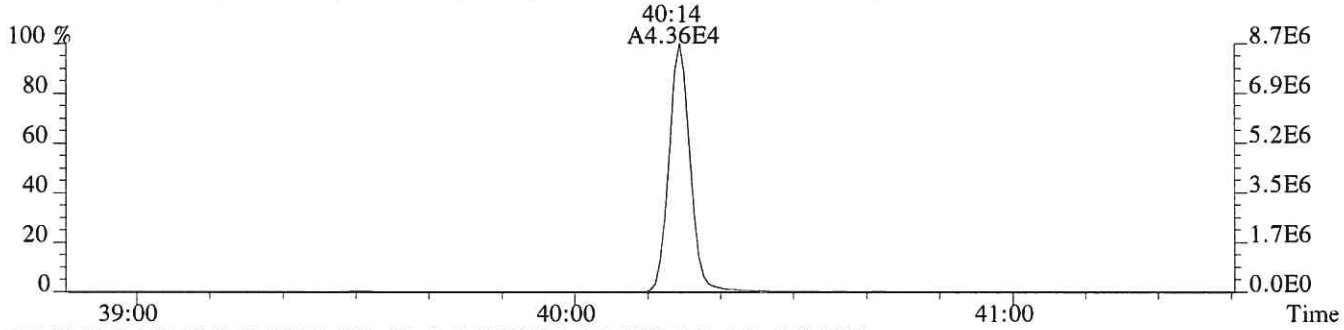
File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



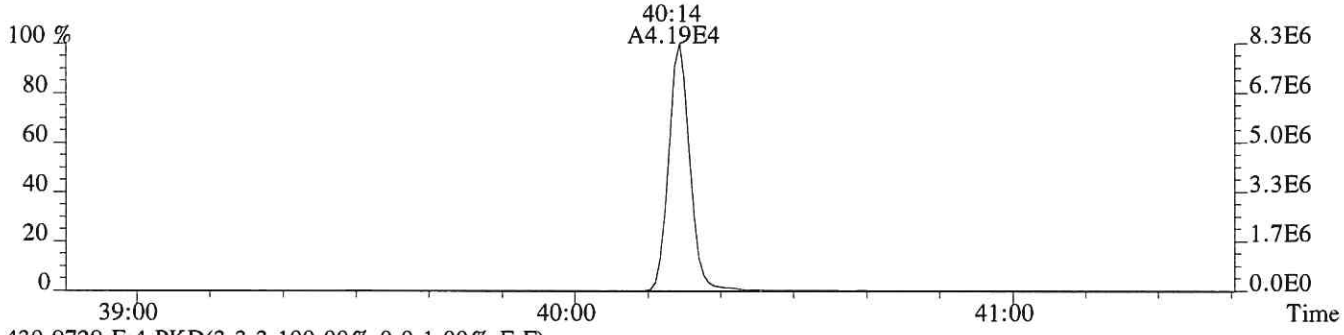
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



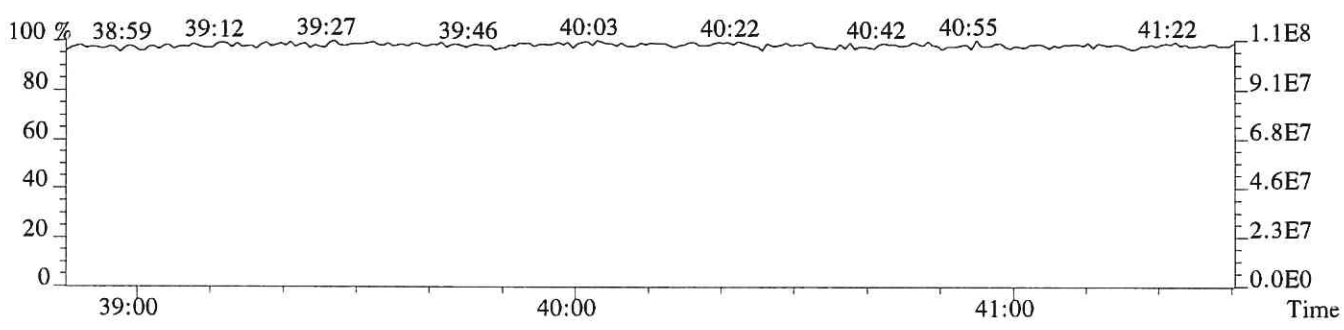
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)

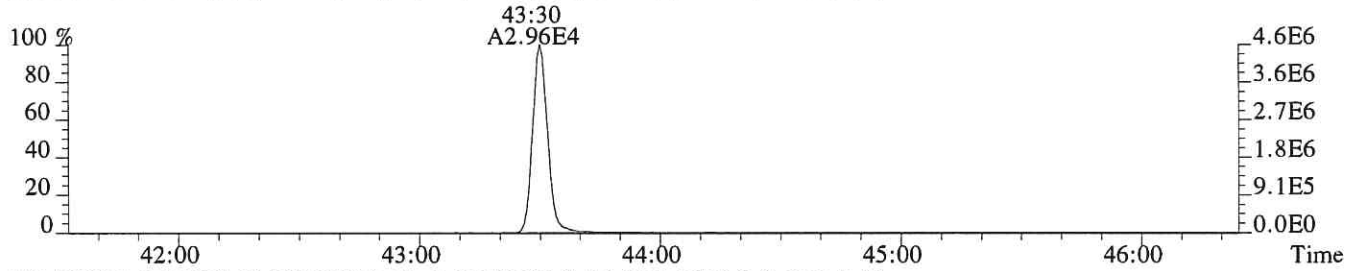


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

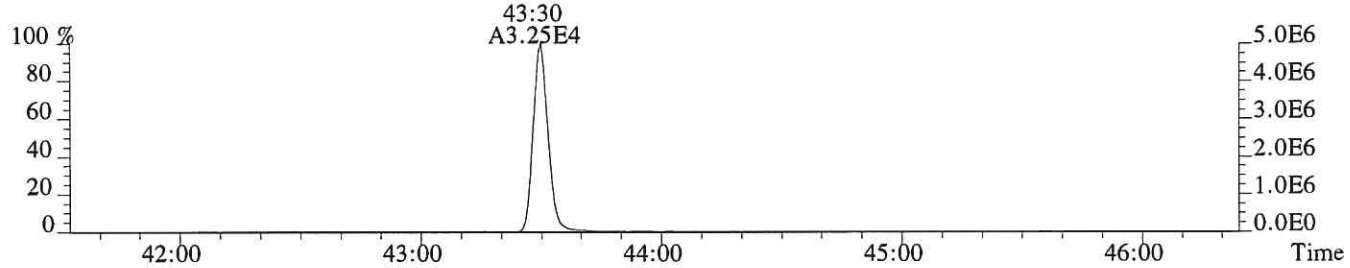


File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

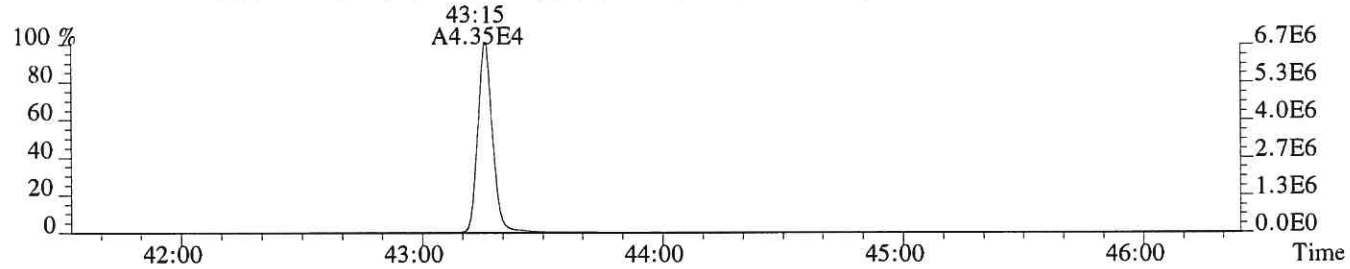
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



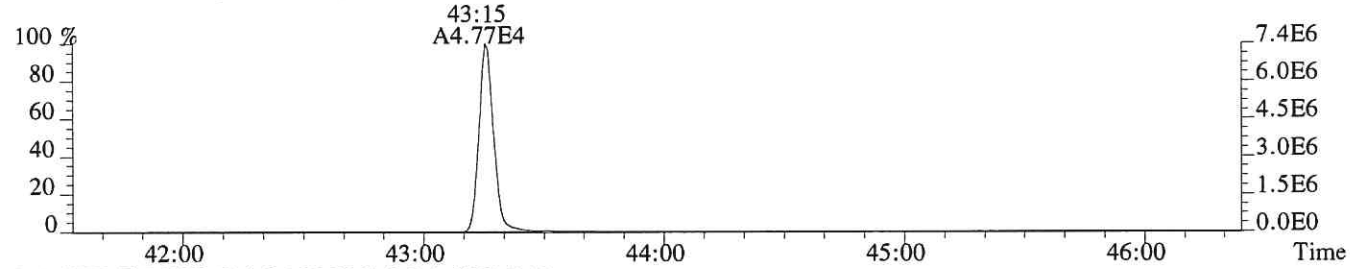
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2344.0,0.40%,F,T)



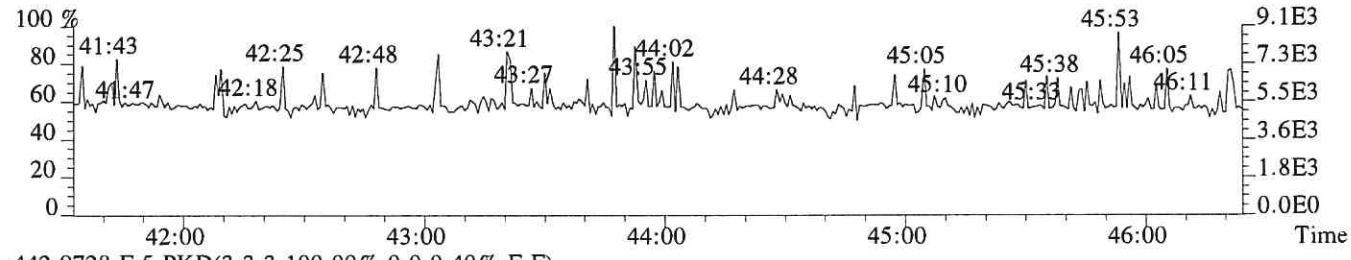
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



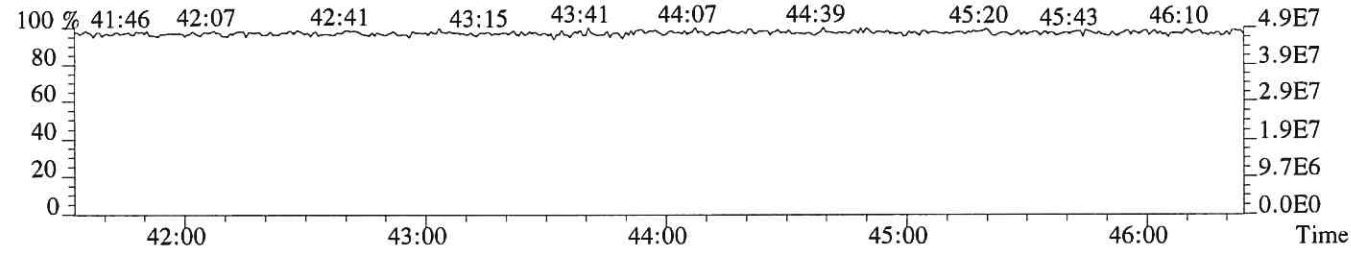
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

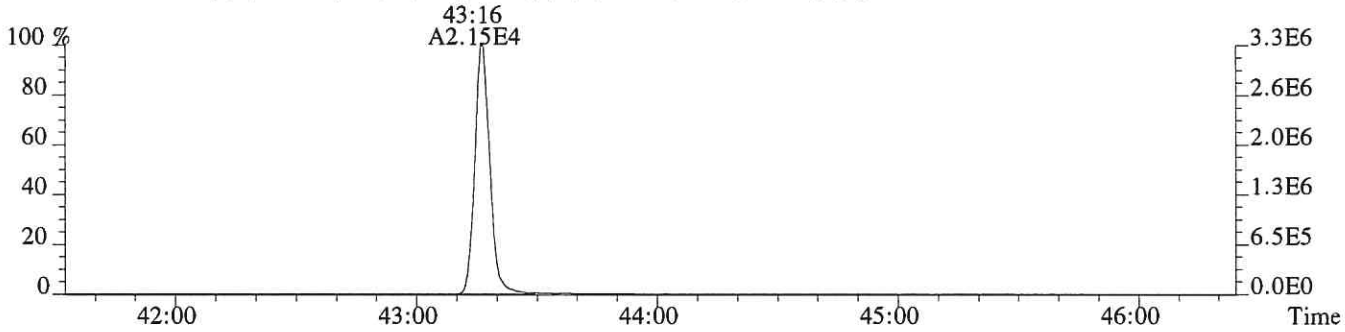


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

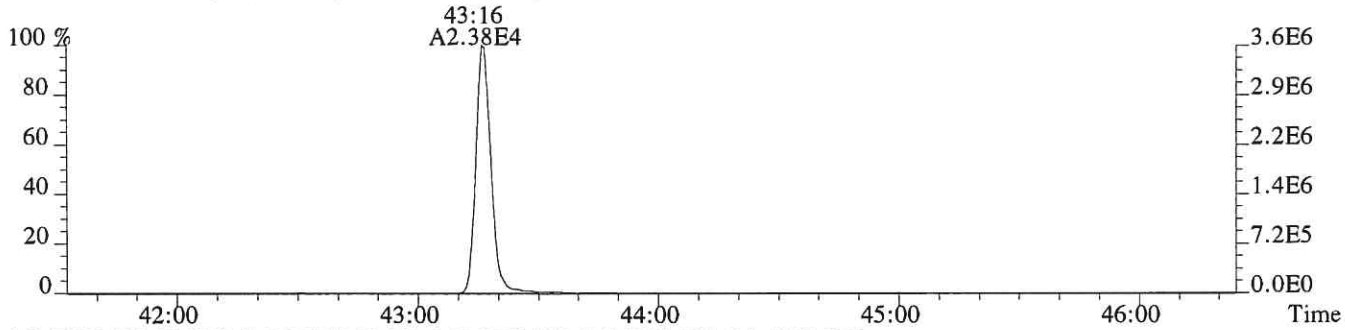


File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

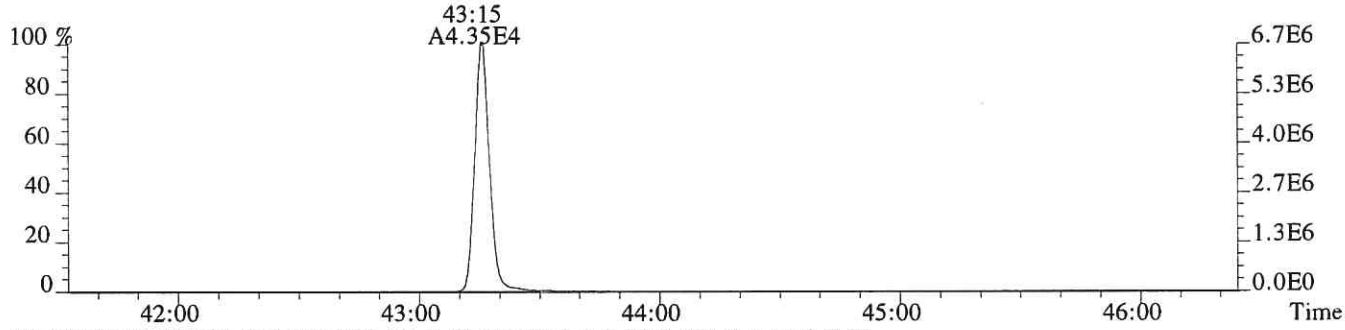
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



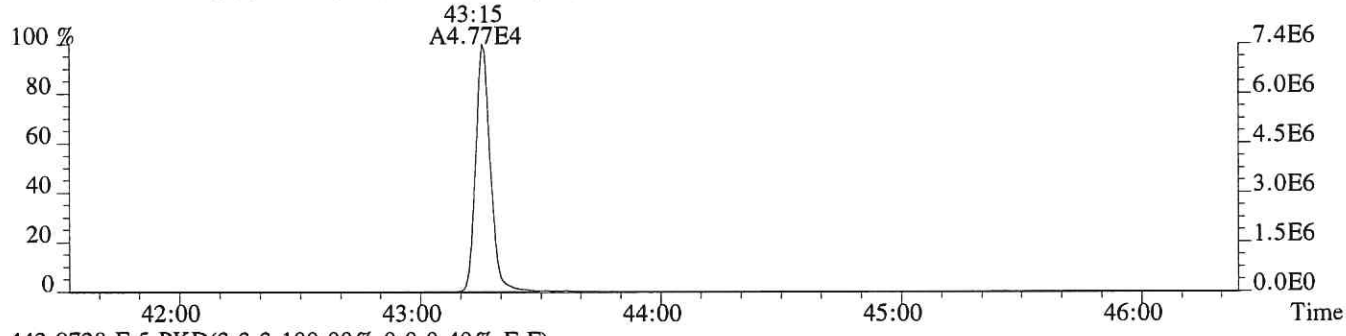
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1764.0,0.40%,F,T)



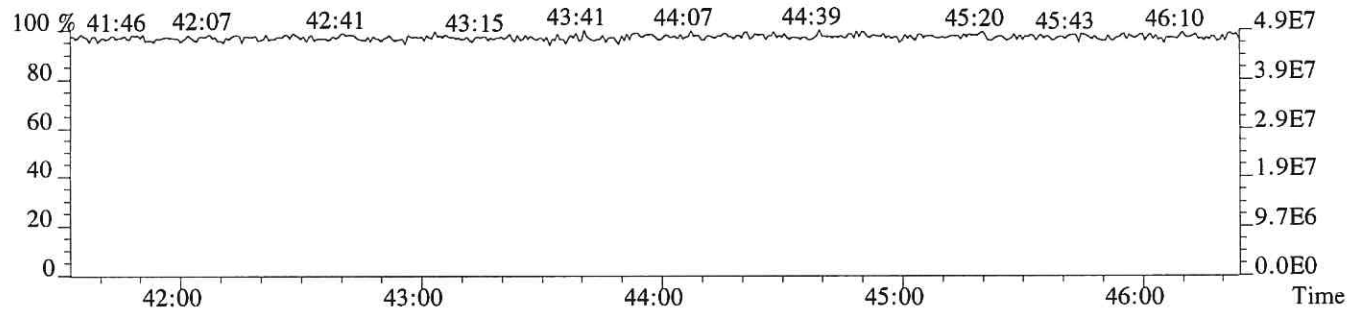
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 Sample ID: EQ1800467-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.241e+03	2.853e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:10	2.312e+04	1.452e+04	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.313e+04	1.472e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.398e+04	1.910e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	2.479e+04	1.987e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.583e+04	2.075e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.380e+04	1.933e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:15	2.245e+04	2.175e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.963e+04	1.929e+04	1.02	yes	no	1.463
10	Unk	OCDF	43:29	2.922e+04	3.339e+04	0.88	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	1.617e+03	2.157e+03	0.75	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:19	1.557e+04	1.015e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.724e+04	1.338e+04	1.29	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	1.700e+04	1.357e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:42	1.921e+04	1.520e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:14	1.566e+04	1.506e+04	1.04	yes	no	1.112
17	Unk	OCDD	43:15	2.053e+04	2.304e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:12	2.326e+04	2.922e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	4.801e+04	3.031e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	4.693e+04	2.930e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:38	2.412e+04	4.653e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.734e+04	5.176e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.843e+04	5.528e+04	0.51	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:00	2.601e+04	4.986e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:14	2.061e+04	4.579e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.968e+04	4.339e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:55	1.778e+04	2.234e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:18	3.518e+04	2.274e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:22	3.702e+04	2.883e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	3.411e+04	2.611e+04	1.31	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	3.899e+04	3.694e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:15	4.012e+04	4.431e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:22	6.603e+04	8.282e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:41	8.059e+04	6.453e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:56	1.802e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 LAB. ID: EQ1800467-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.46e+05	1.36e+03	3.3e+02	5.76e+05	2.39e+03	2.4e+02
2	1,2,3,7,8-PeCDF	4.68e+06	1.18e+03	4.0e+03	2.94e+06	4.42e+03	6.6e+02
3	2,3,4,7,8-PeCDF	4.85e+06	1.18e+03	4.1e+03	3.08e+06	4.42e+03	7.0e+02
4	1,2,3,4,7,8-HxCDF	5.37e+06	1.10e+03	4.9e+03	4.25e+06	1.48e+03	2.9e+03
5	1,2,3,6,7,8-HxCDF	5.34e+06	1.10e+03	4.8e+03	4.26e+06	1.48e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	5.57e+06	1.10e+03	5.0e+03	4.47e+06	1.48e+03	3.0e+03
7	1,2,3,7,8,9-HxCDF	5.02e+06	1.10e+03	4.5e+03	4.12e+06	1.48e+03	2.8e+03
8	1,2,3,4,6,7,8-HpCDF	4.67e+06	3.65e+03	1.3e+03	4.52e+06	2.52e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+06	3.65e+03	1.0e+03	3.63e+06	2.52e+03	1.4e+03
10	OCDF	4.48e+06	8.72e+02	5.1e+03	5.13e+06	1.95e+03	2.6e+03
11	2,3,7,8-TCDD	3.37e+05	2.49e+03	1.4e+02	4.39e+05	1.98e+03	2.2e+02
12	1,2,3,7,8-PeCDD	3.29e+06	2.30e+03	1.4e+03	2.15e+06	1.17e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	3.89e+06	1.20e+03	3.2e+03	3.03e+06	1.36e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	3.69e+06	1.20e+03	3.1e+03	2.93e+06	1.36e+03	2.2e+03
15	1,2,3,7,8,9-HxCDD	4.15e+06	1.20e+03	3.4e+03	3.19e+06	1.36e+03	2.4e+03
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	1.47e+03	2.1e+03	2.97e+06	9.08e+02	3.3e+03
17	OCDD	3.14e+06	6.52e+02	4.8e+03	3.58e+06	8.36e+02	4.3e+03
18	13C-2,3,7,8-TCDF	4.54e+06	1.28e+04	3.5e+02	5.72e+06	6.21e+03	9.2e+02
19	13C-1,2,3,7,8-PeCDF	9.67e+06	9.96e+02	9.7e+03	6.08e+06	1.79e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	9.59e+06	9.96e+02	9.6e+03	5.91e+06	1.79e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	5.33e+06	1.44e+03	3.7e+03	1.04e+07	2.61e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	5.82e+06	1.44e+03	4.0e+03	1.12e+07	2.61e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	6.28e+06	1.44e+03	4.4e+03	1.19e+07	2.61e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	5.58e+06	1.44e+03	3.9e+03	1.05e+07	2.61e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.23e+06	2.14e+03	2.0e+03	9.60e+06	3.43e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.66e+06	2.14e+03	1.7e+03	8.21e+06	3.43e+03	2.4e+03
27	13C-2,3,7,8-TCDD	3.73e+06	1.48e+04	2.5e+02	4.74e+06	5.73e+03	8.3e+02
28	13C-1,2,3,7,8-PeCDD	7.46e+06	2.04e+03	3.7e+03	4.78e+06	1.83e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	8.51e+06	4.12e+03	2.1e+03	6.51e+06	1.86e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	7.31e+06	4.12e+03	1.8e+03	5.73e+06	1.86e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.57e+06	2.04e+03	3.7e+03	7.32e+06	4.28e+02	1.7e+04
32	13C-OCDD	6.11e+06	8.40e+02	7.3e+03	6.95e+06	6.92e+02	1.0e+04
33	13C-1,2,3,4-TCDD	1.38e+07	1.48e+04	9.4e+02	1.73e+07	5.73e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.76e+07	4.12e+03	4.3e+03	1.39e+07	1.86e+03	7.5e+03
35	37Cl-2,3,7,8-TCDD	3.72e+06	1.96e+03	1.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.492e{+}03 + 1.980e{+}03) \times 2000}{(3.726e{+}06 + 4.740e{+}06) \times (\quad) \times 1.049} =$$

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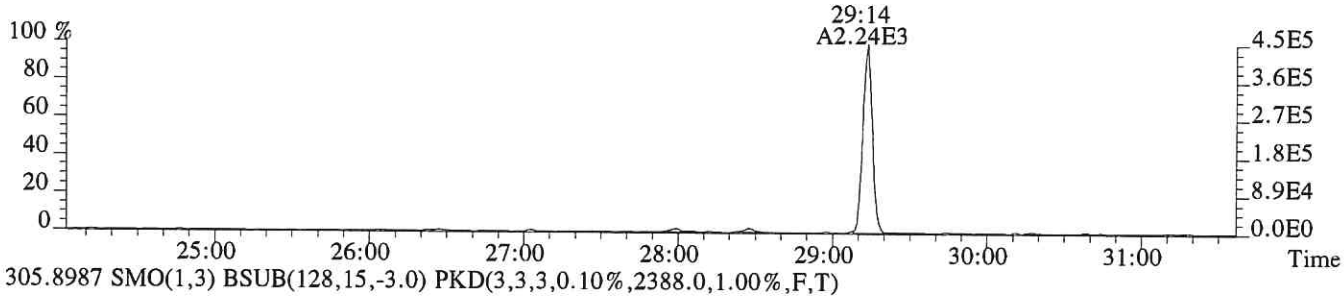
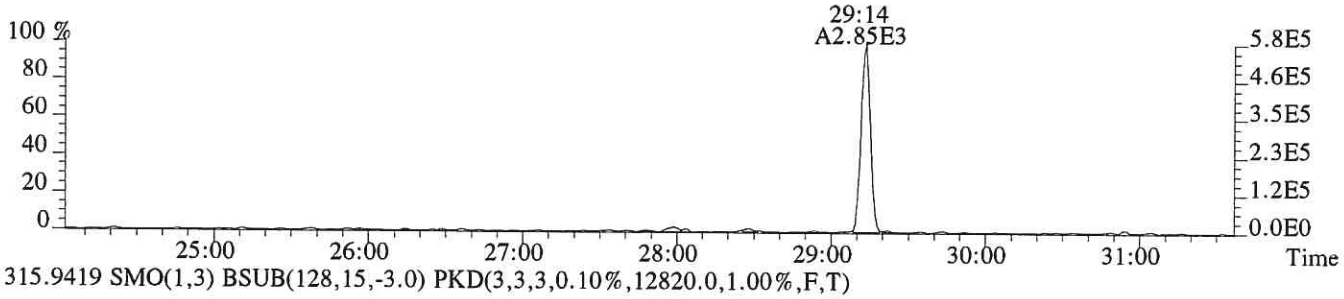
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

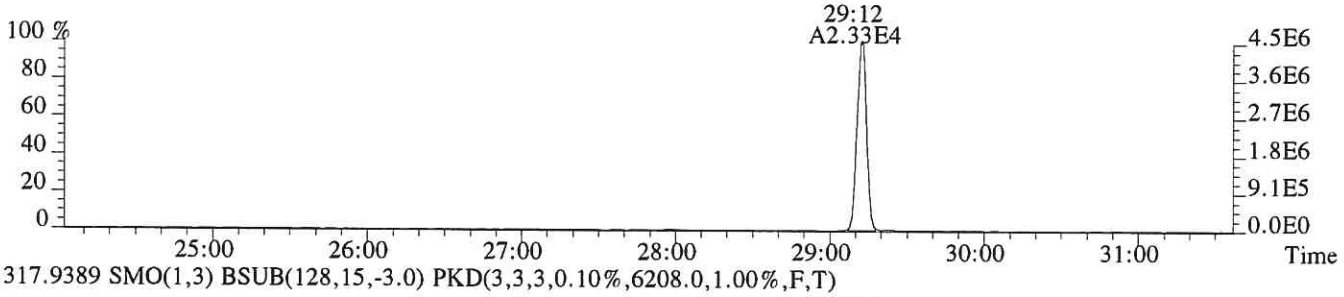
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



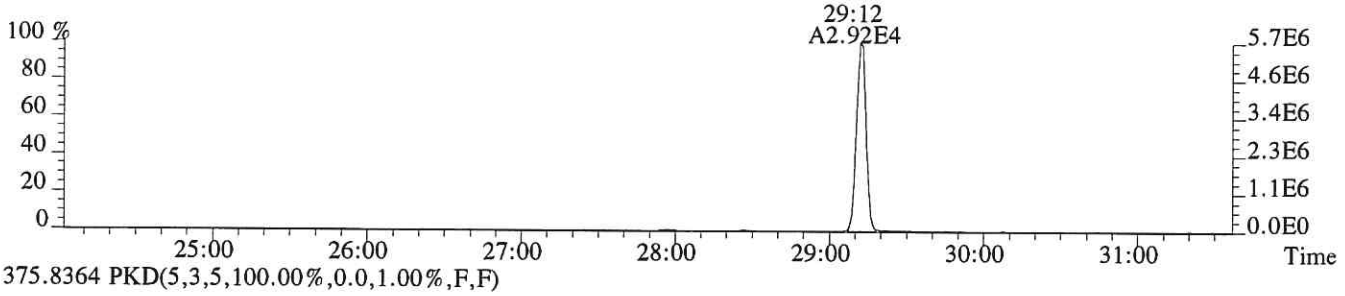
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



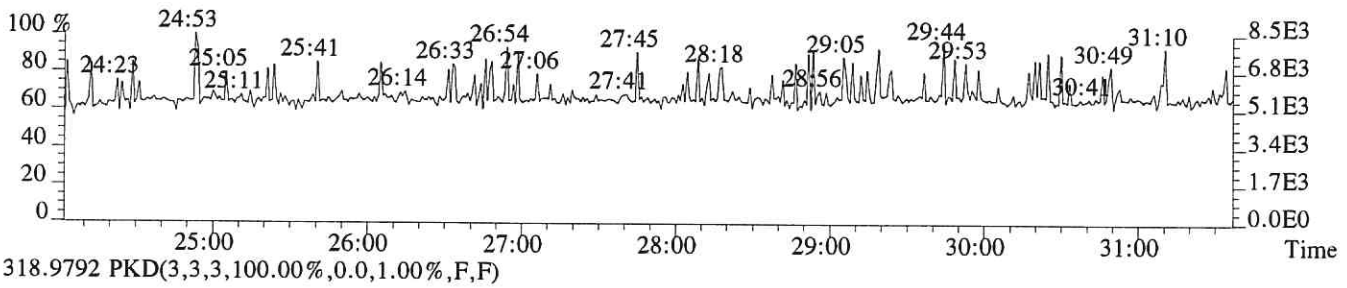
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12820.0,1.00%,F,T)



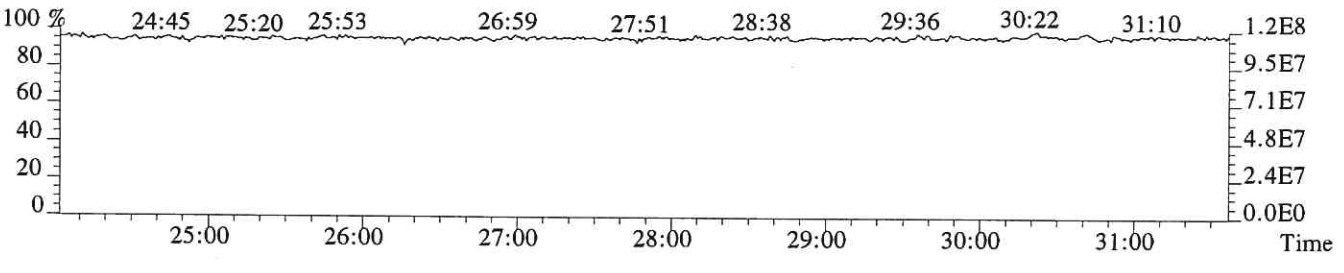
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6208.0,1.00%,F,T)



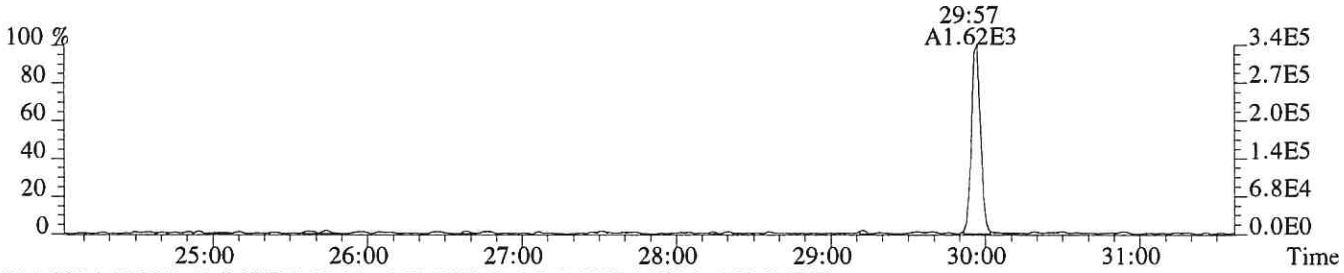
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



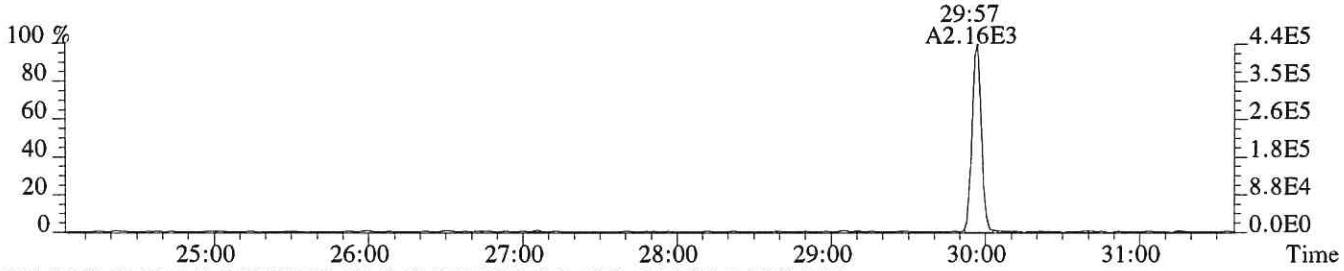
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



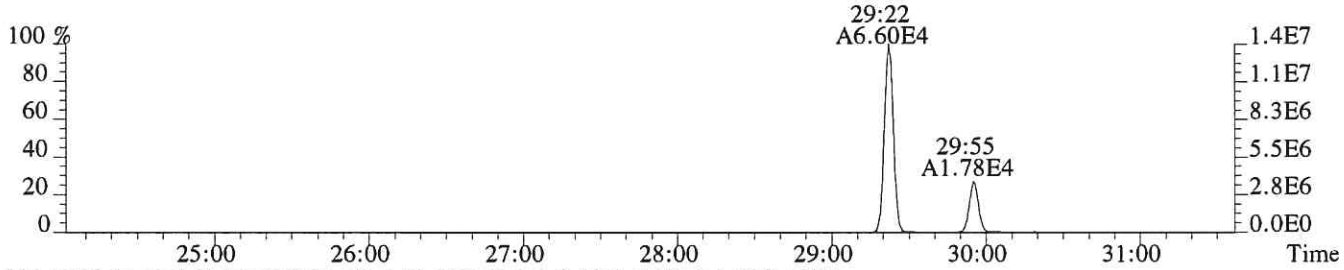
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



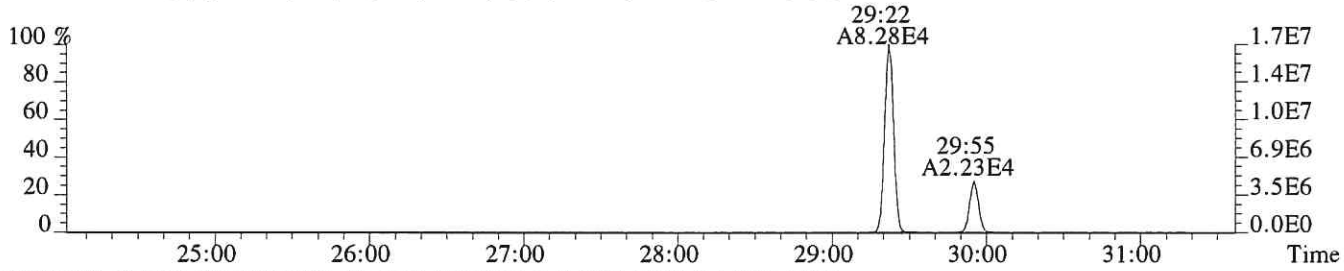
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



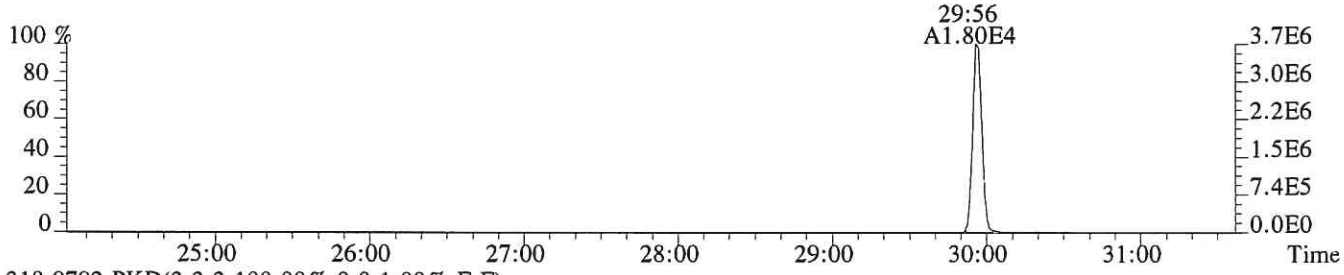
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14796.0,1.00%,F,T)



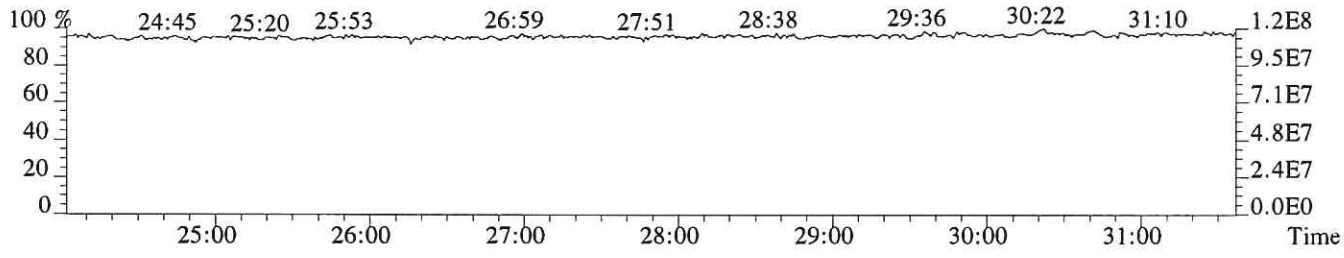
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5732.0,1.00%,F,T)



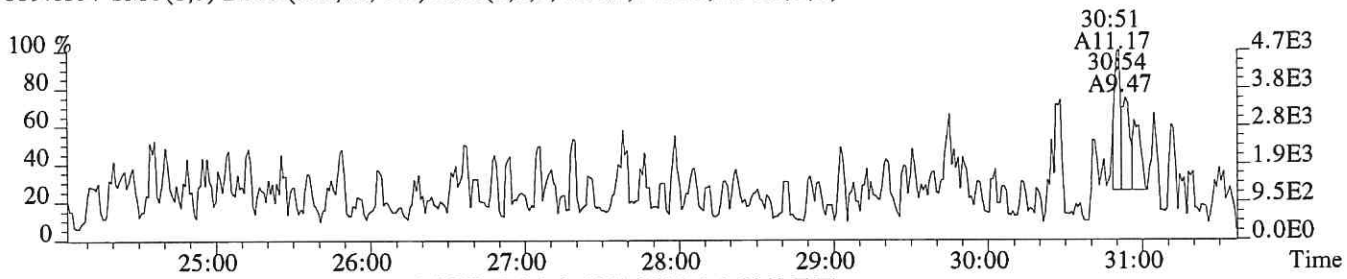
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



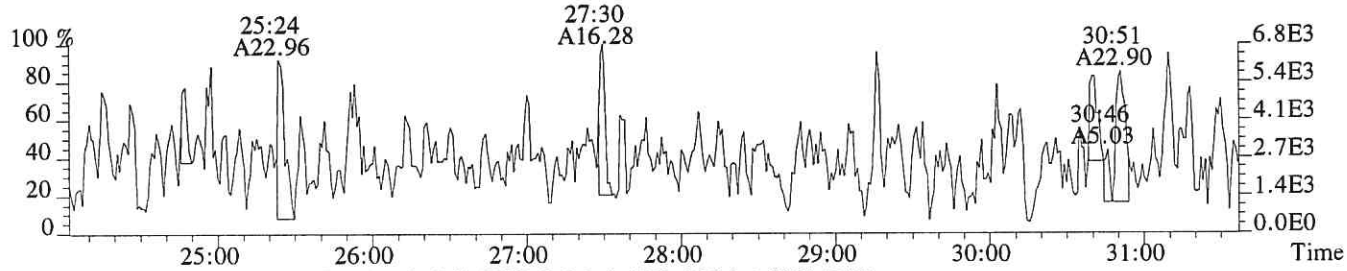
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



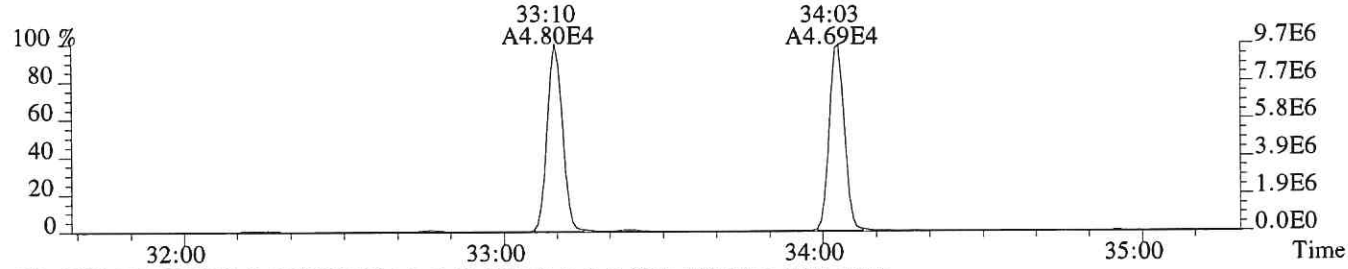
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



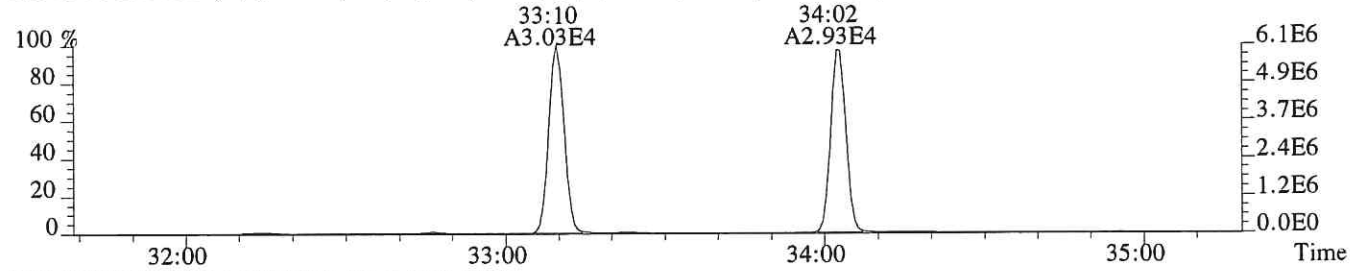
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



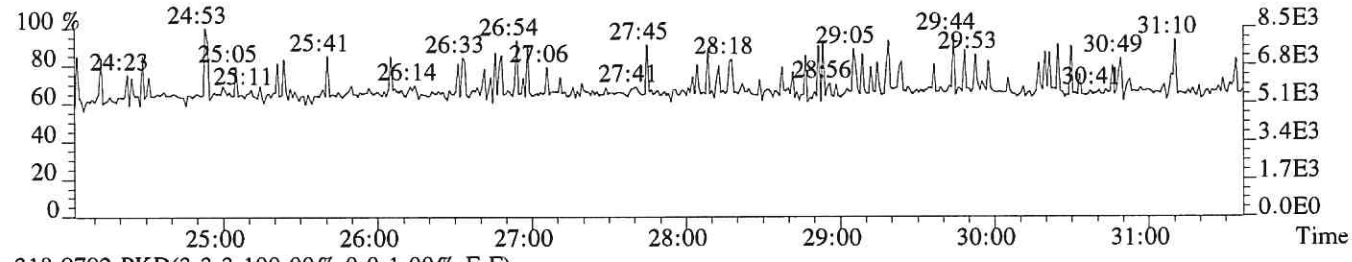
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



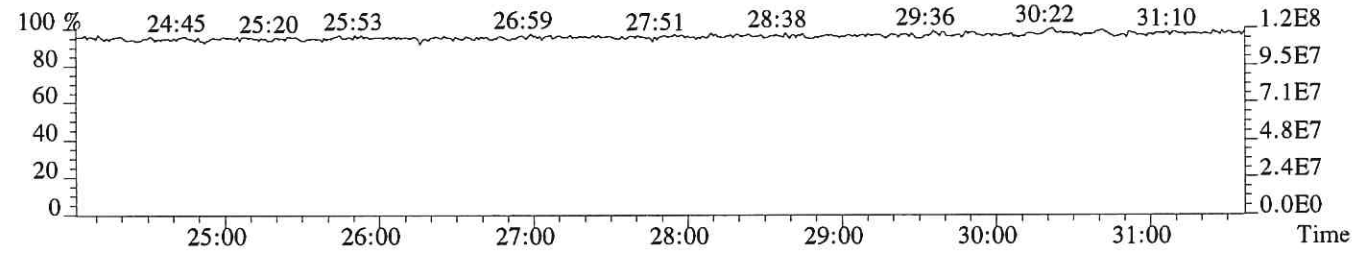
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



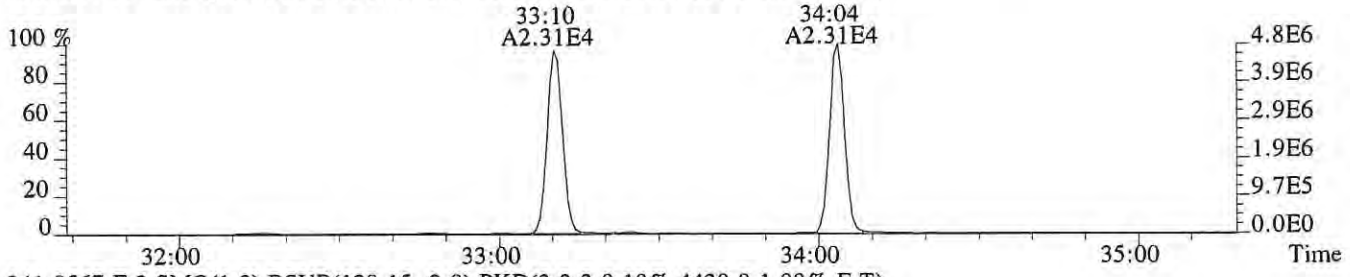
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



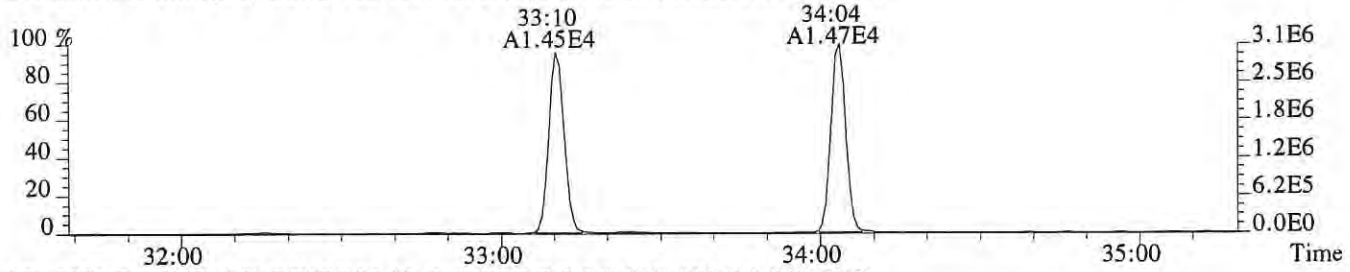
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



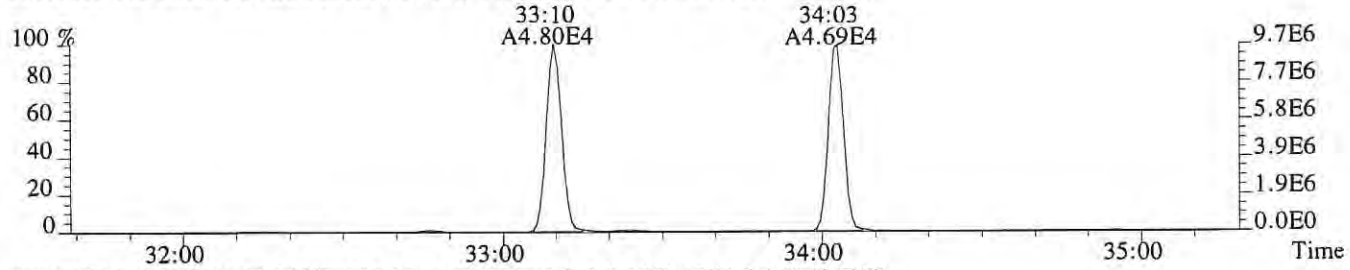
File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



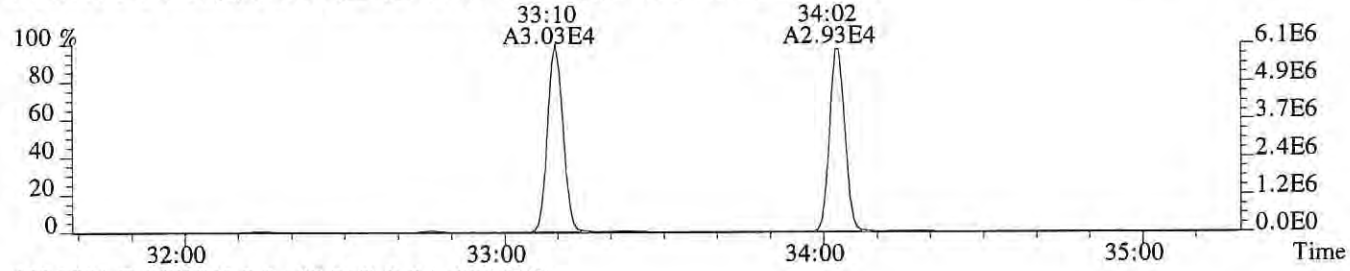
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4420.0,1.00%,F,T)



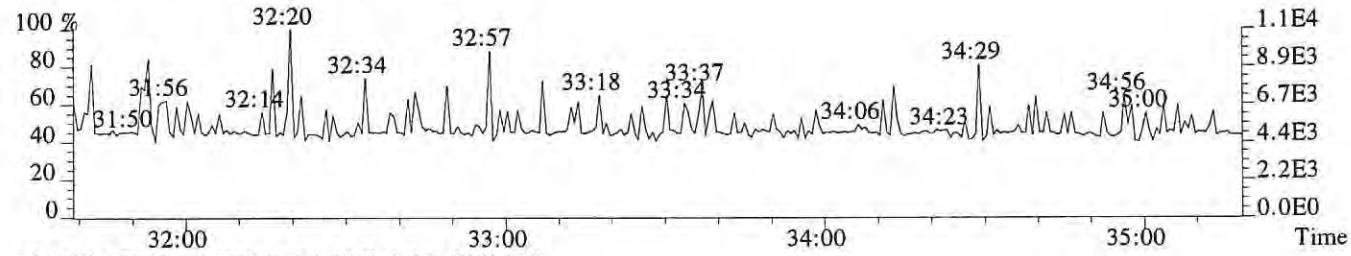
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



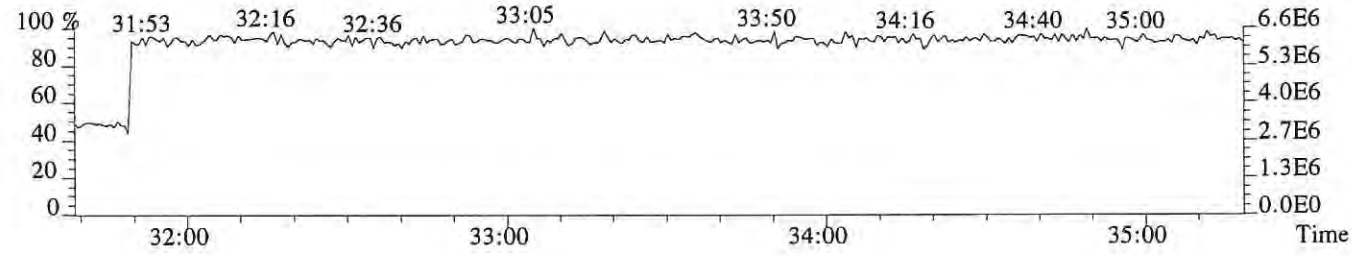
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



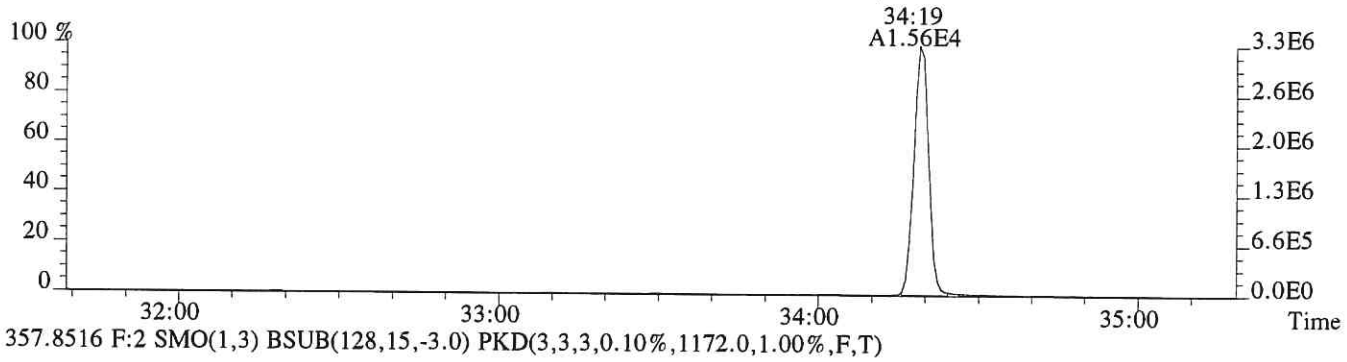
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



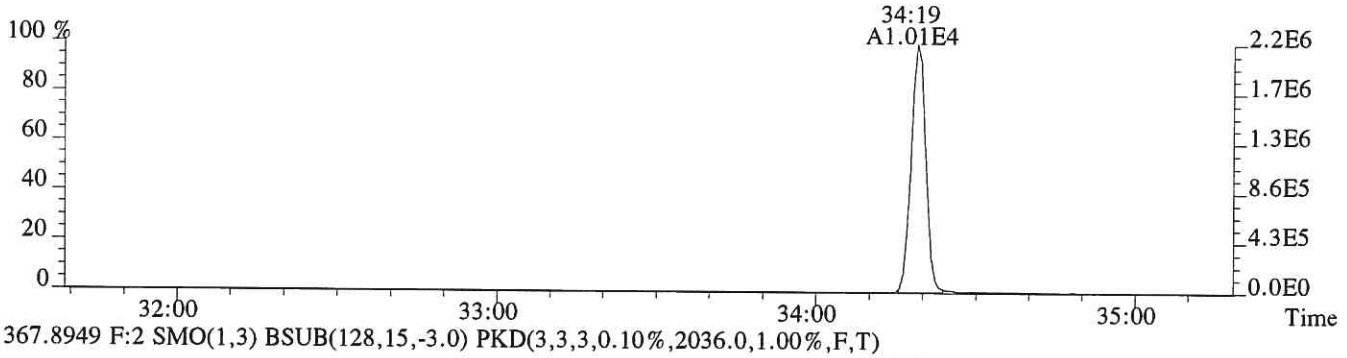
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



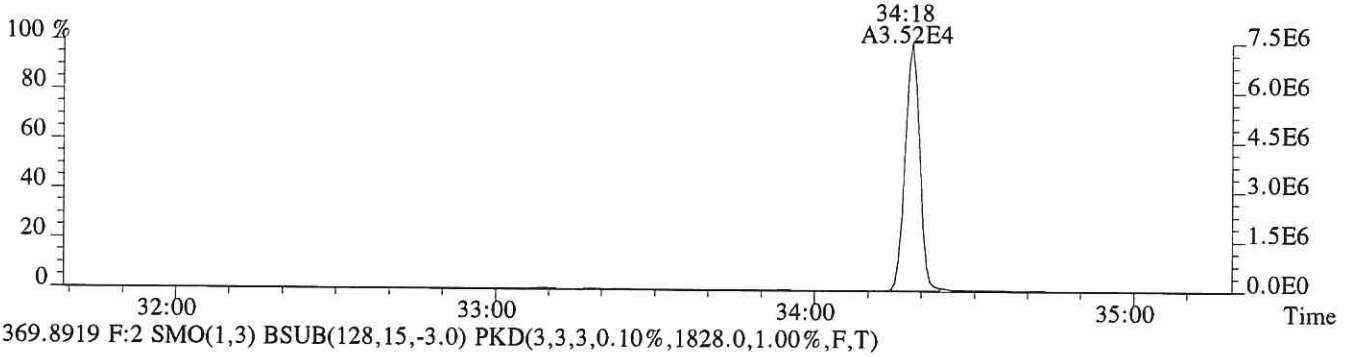
File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



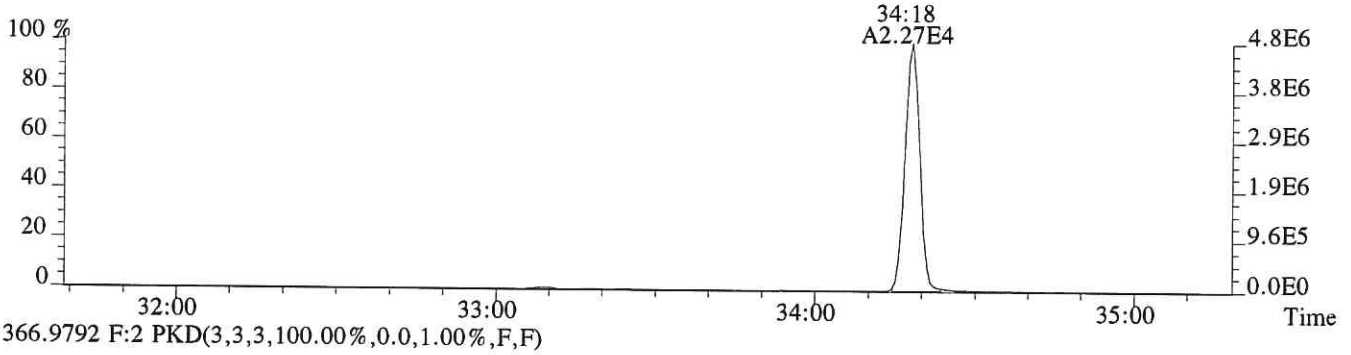
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



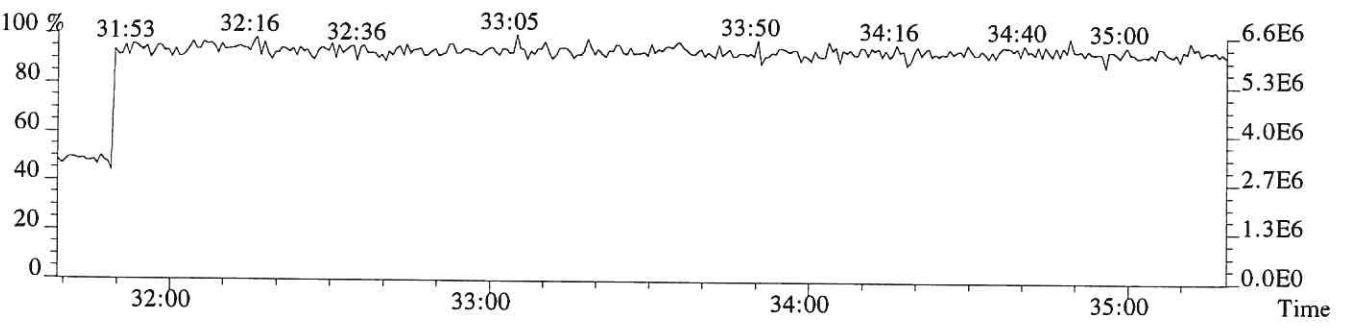
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)

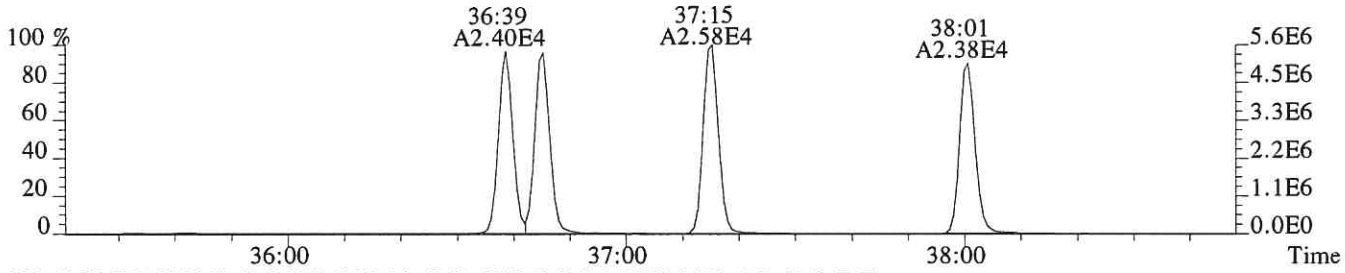


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

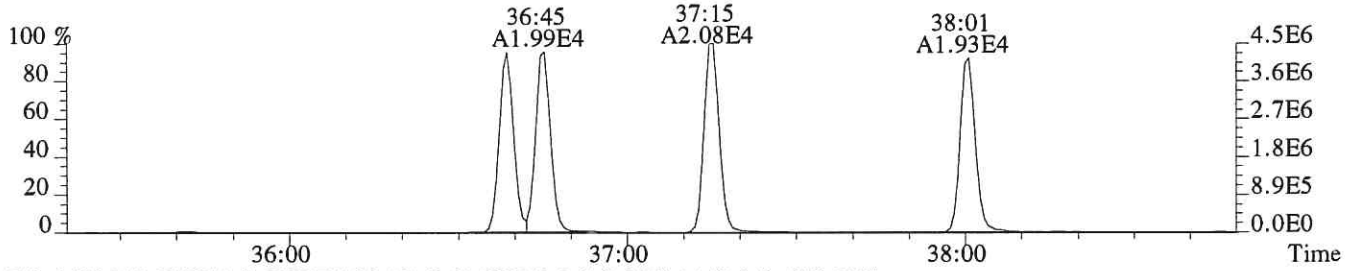


File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

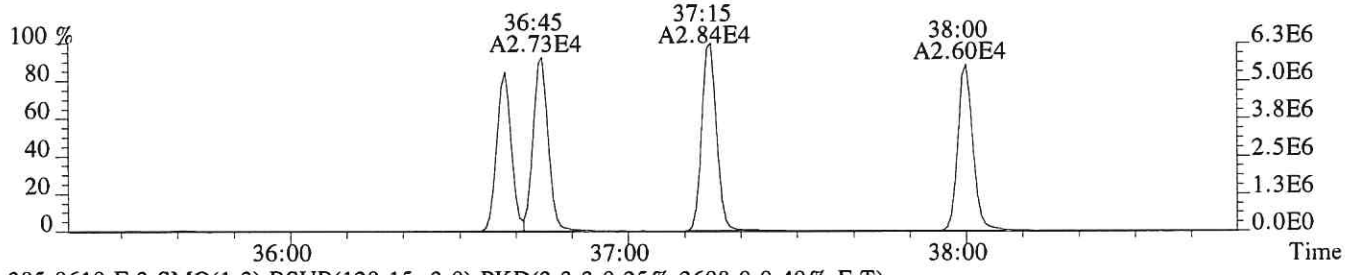
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



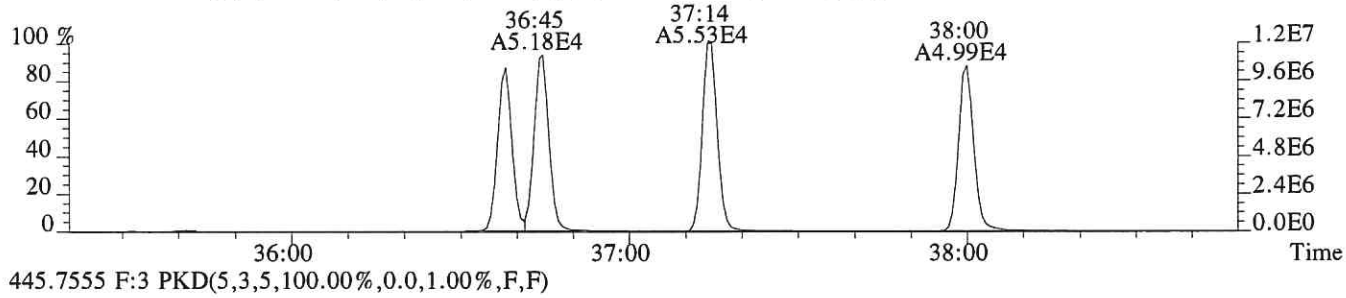
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



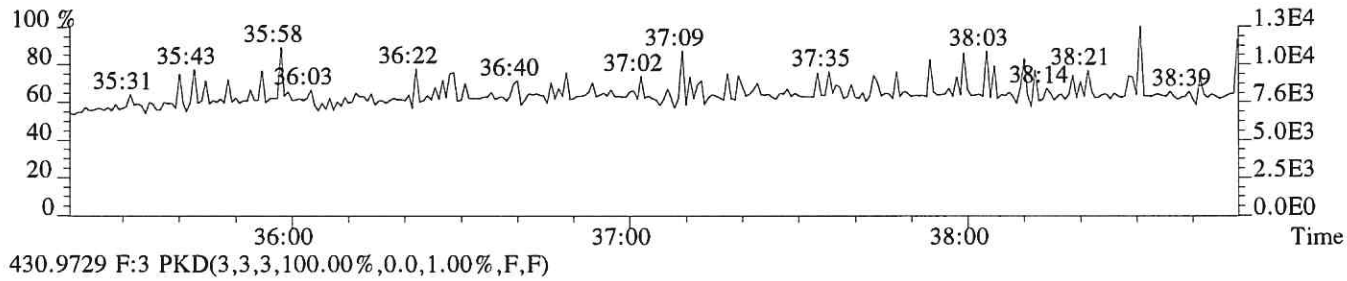
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



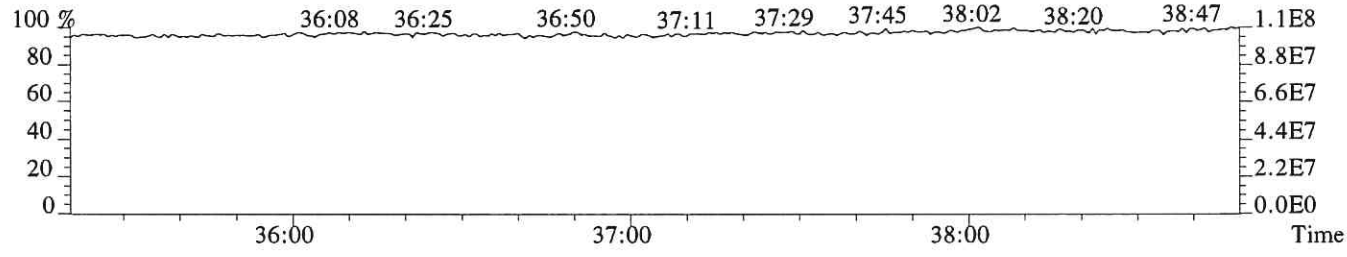
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

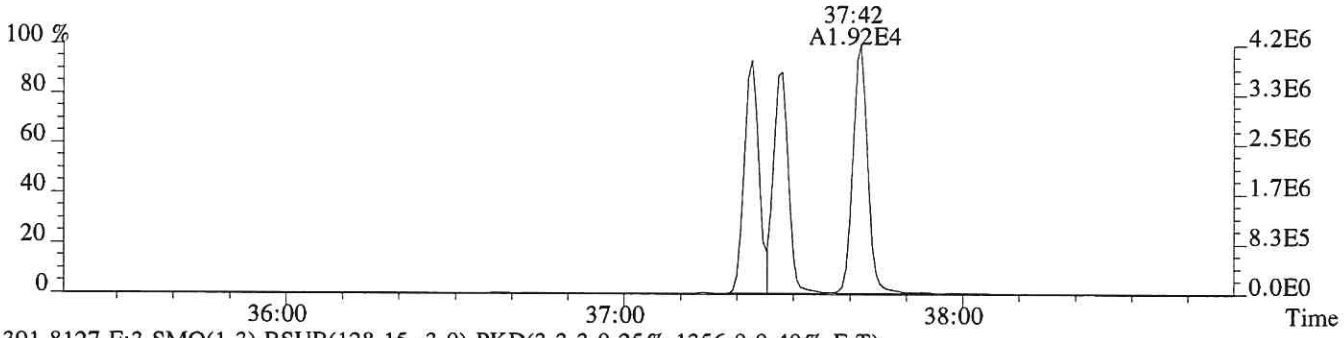


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

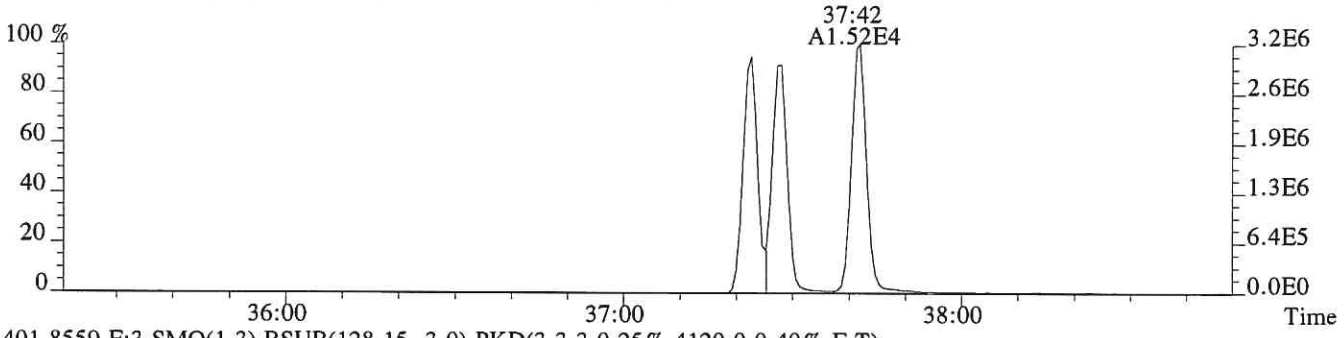


File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

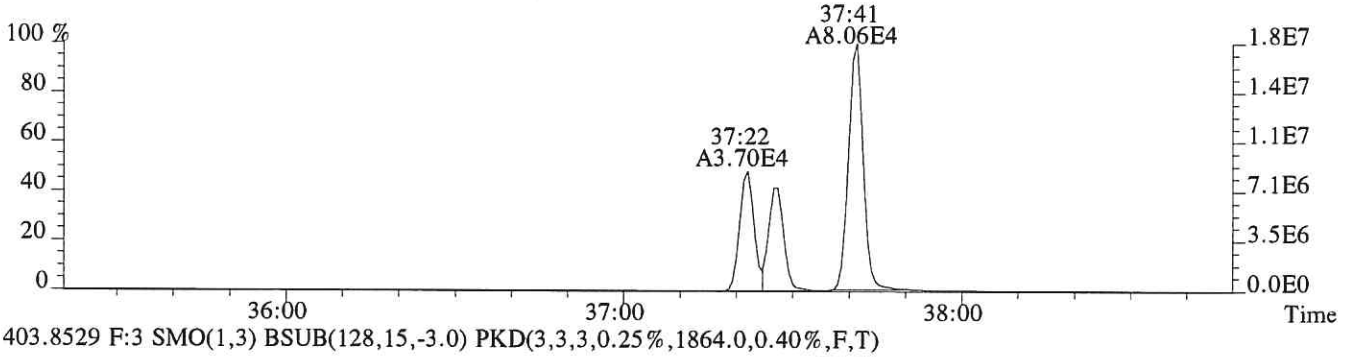
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



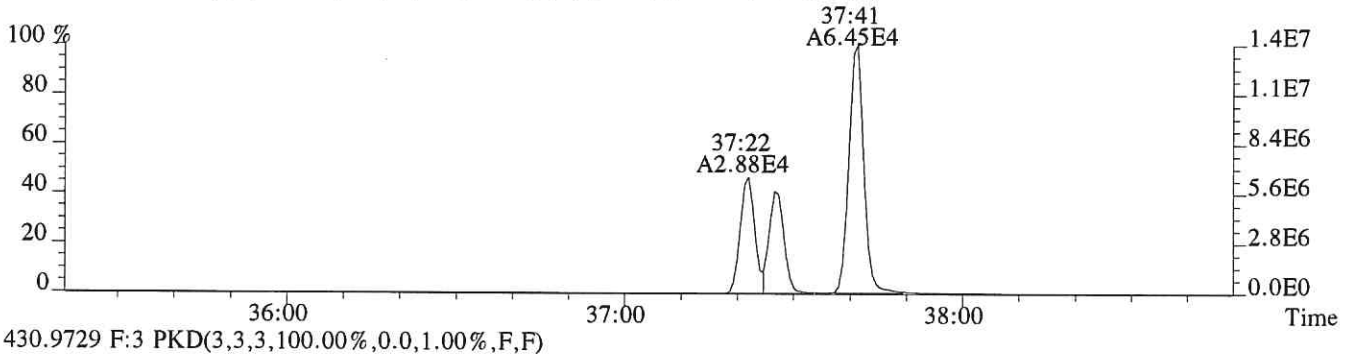
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)



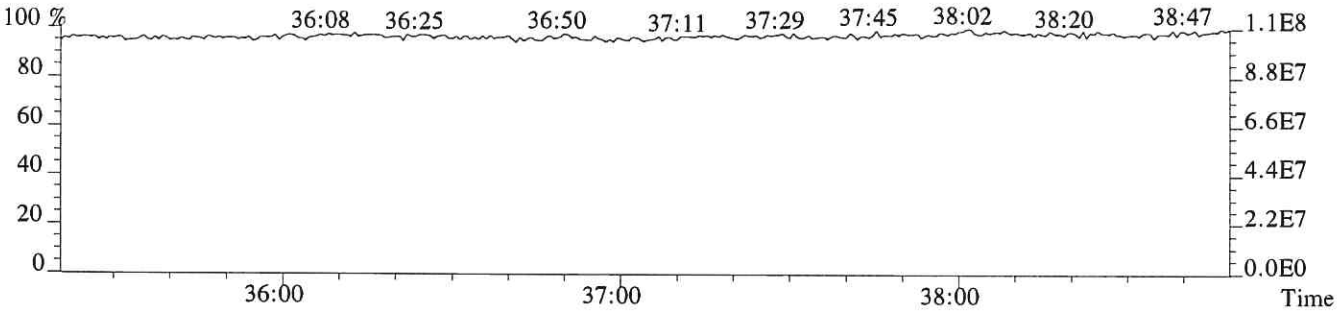
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4120.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.40%,F,T)

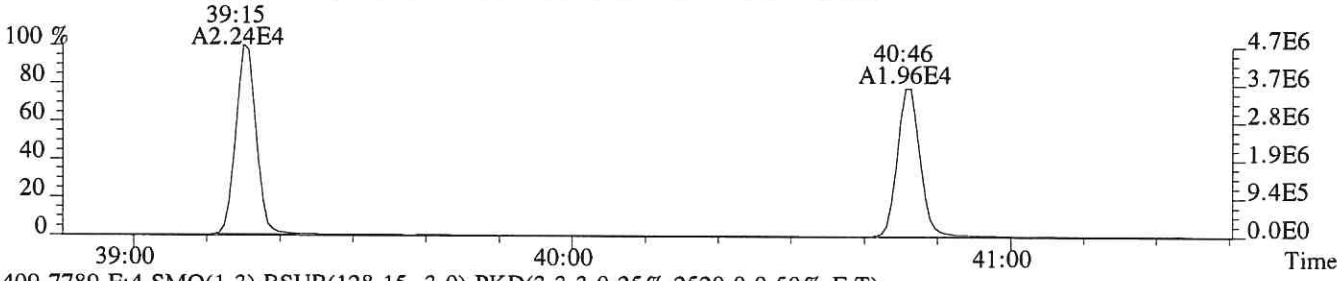


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

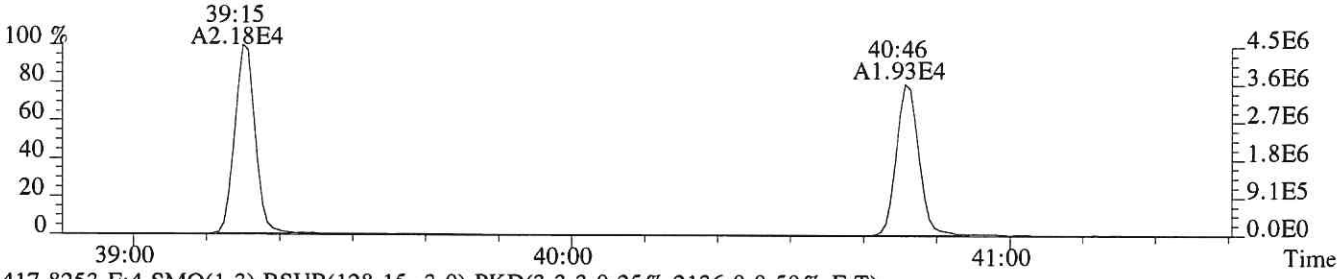


File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

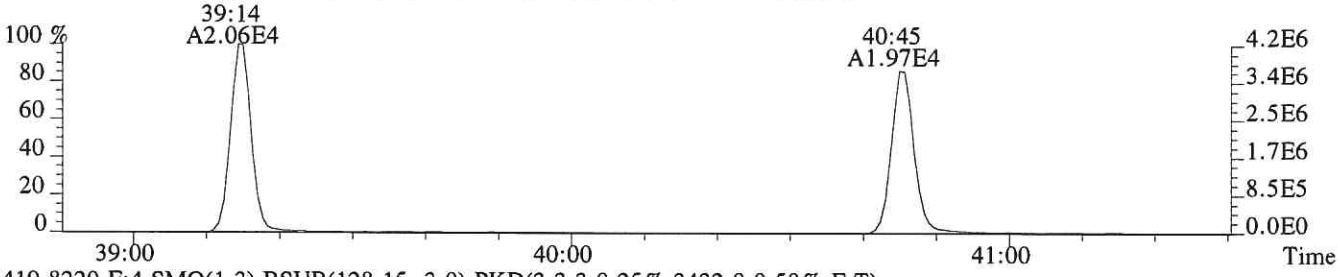
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3652.0,0.50%,F,T)



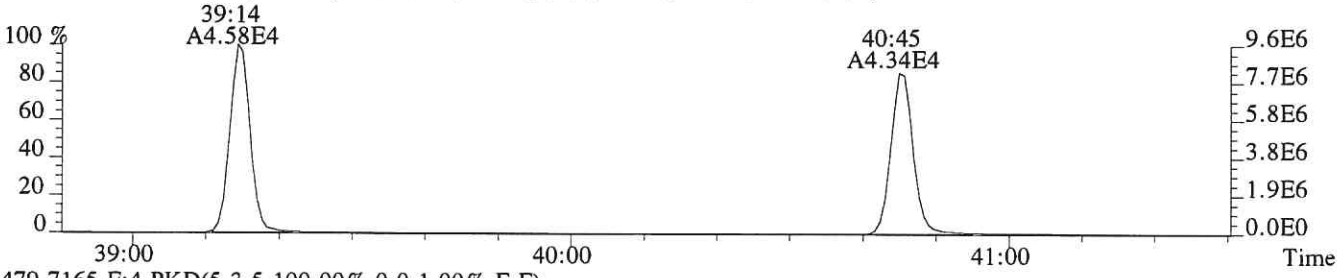
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2520.0,0.50%,F,T)



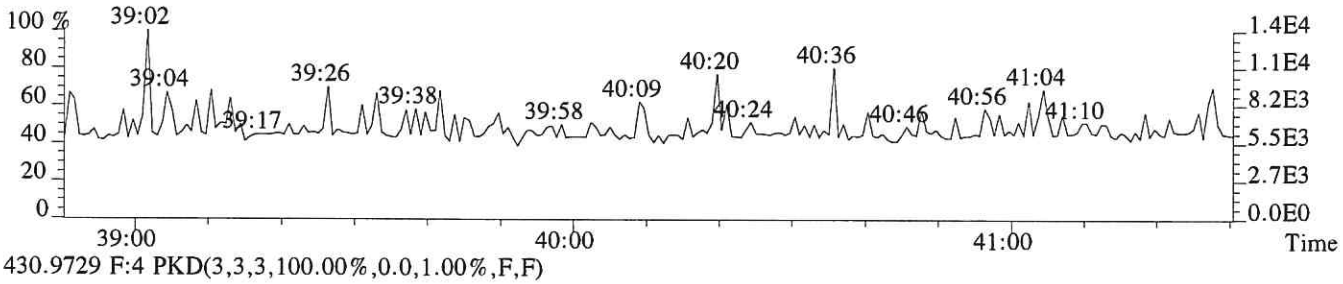
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.50%,F,T)



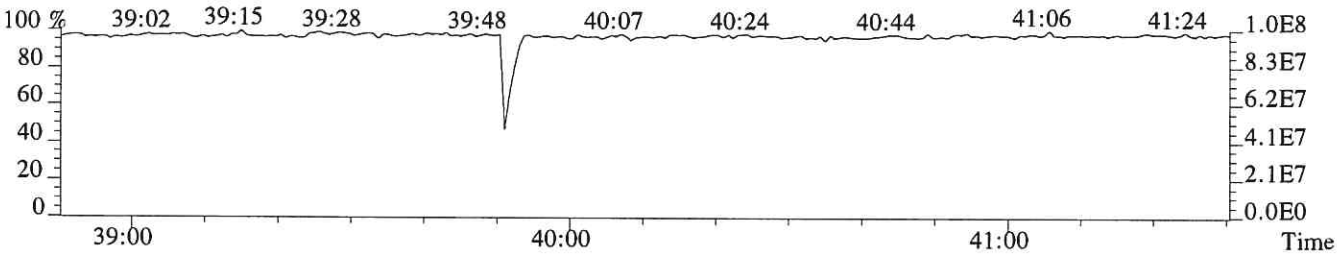
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

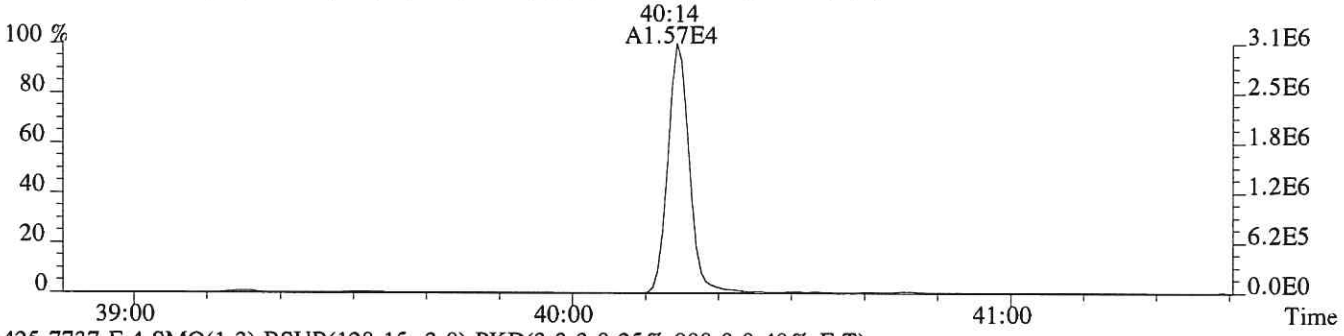


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

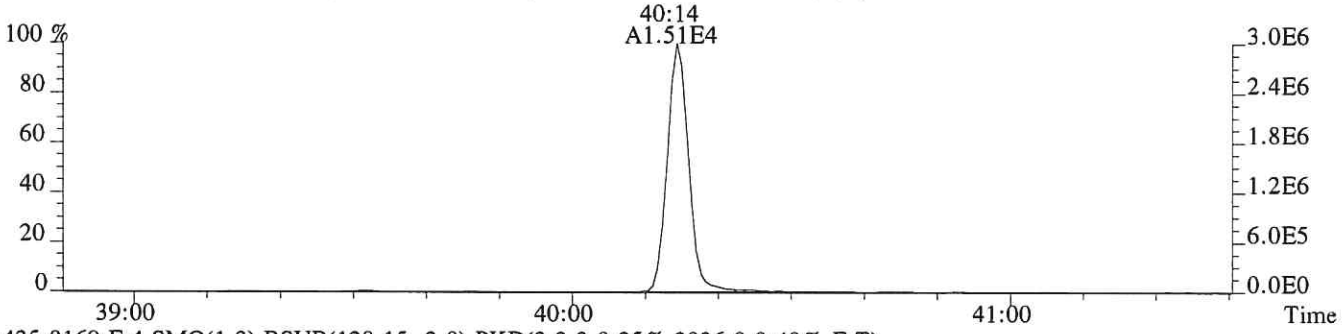


File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

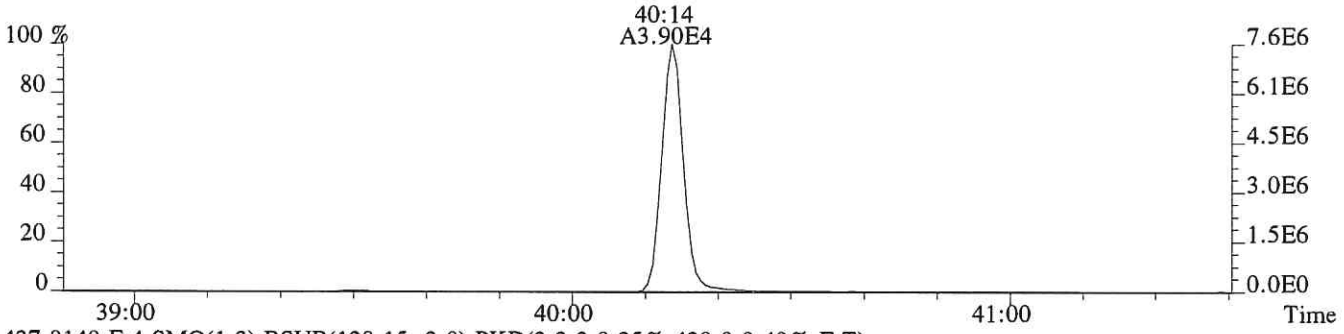
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.40%,F,T)



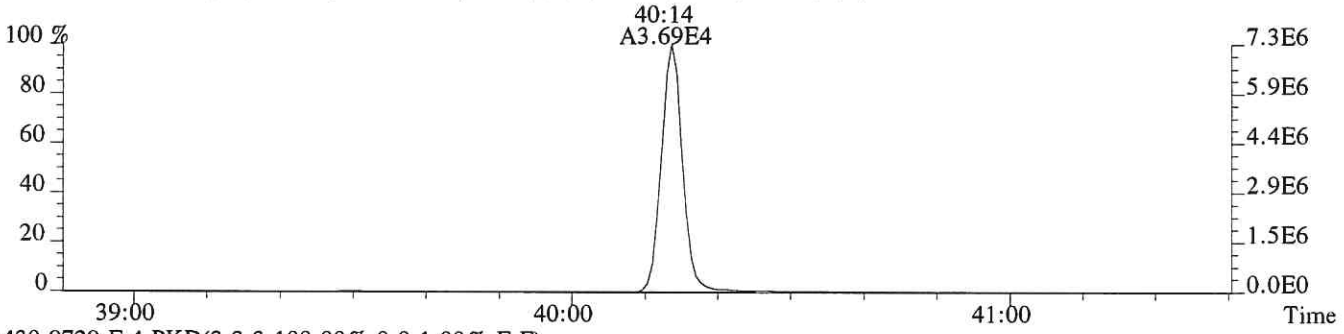
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



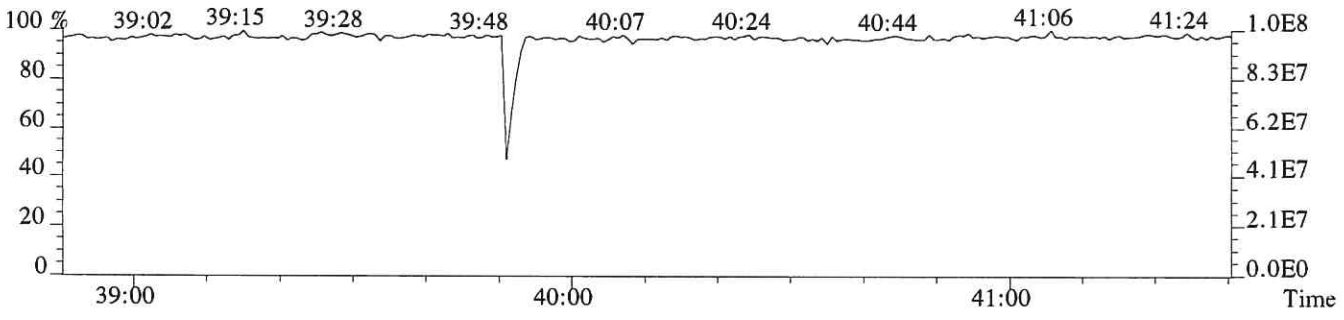
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)

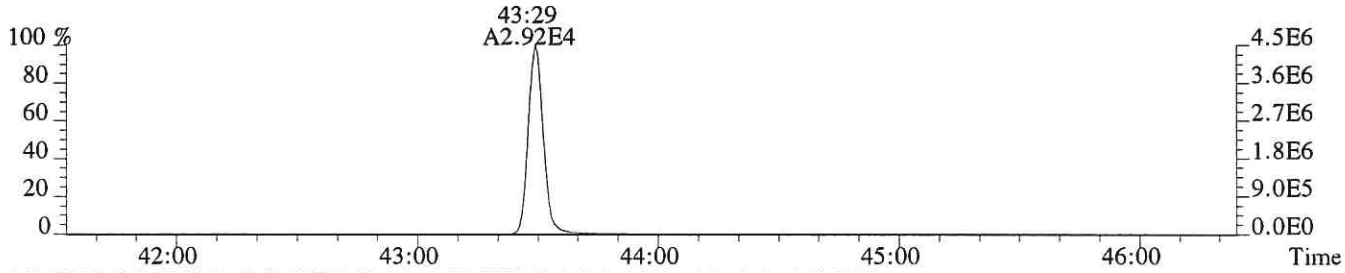


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

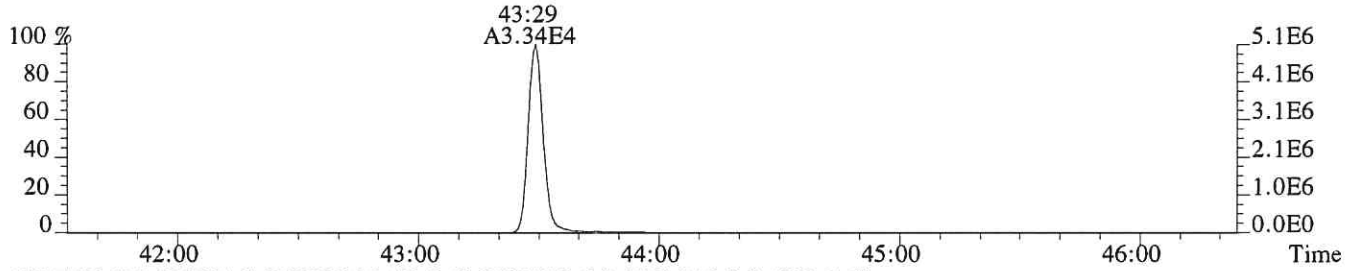


File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

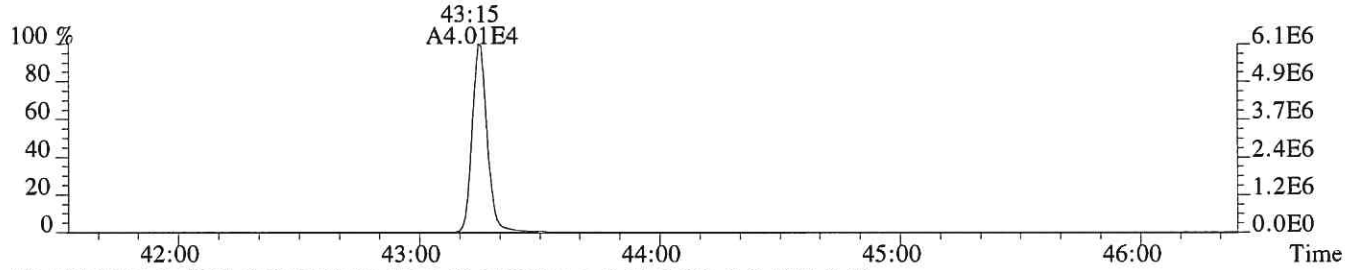
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



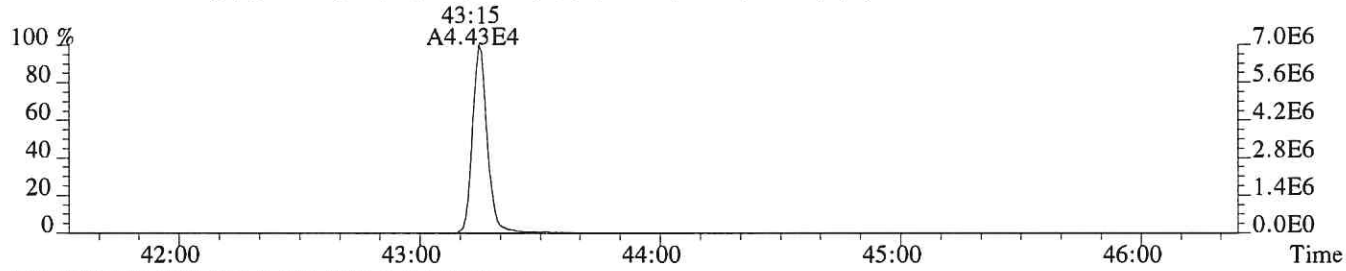
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1948.0,0.40%,F,T)



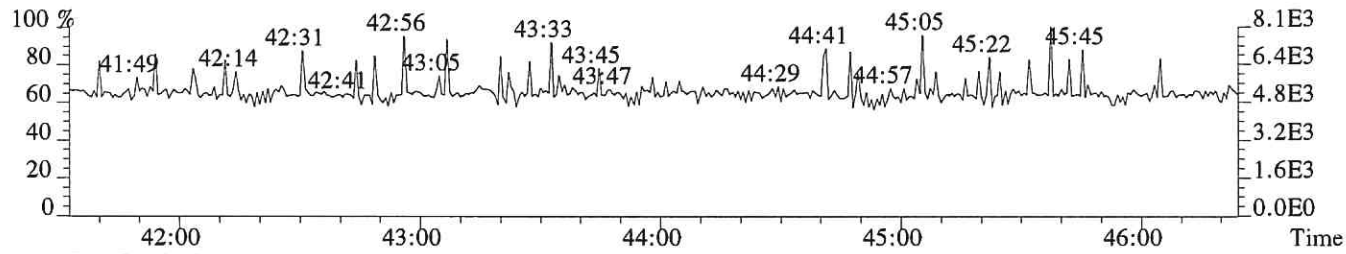
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



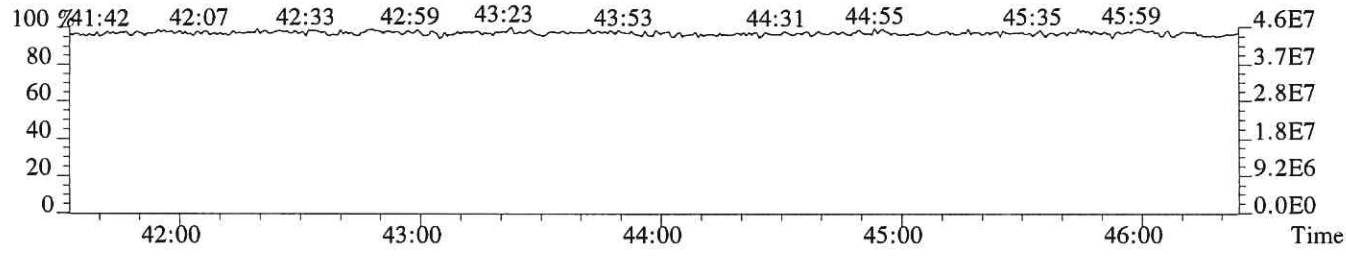
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

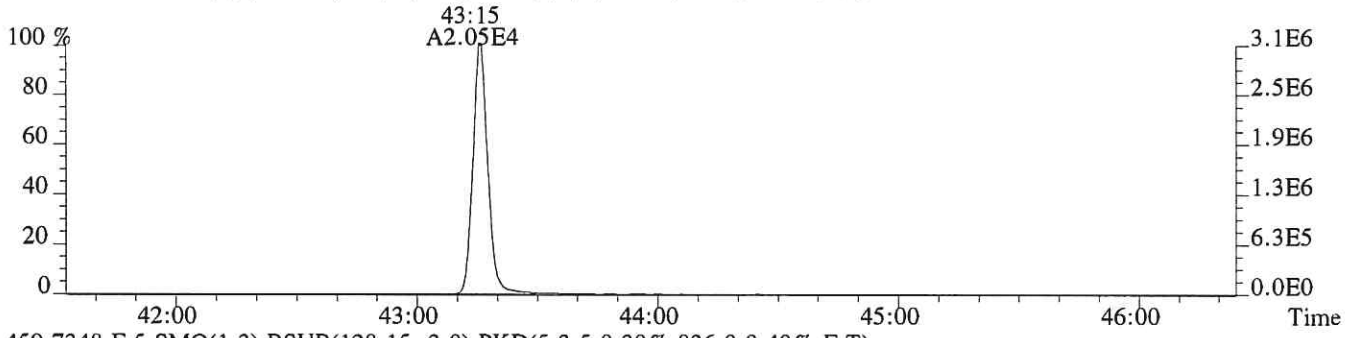


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

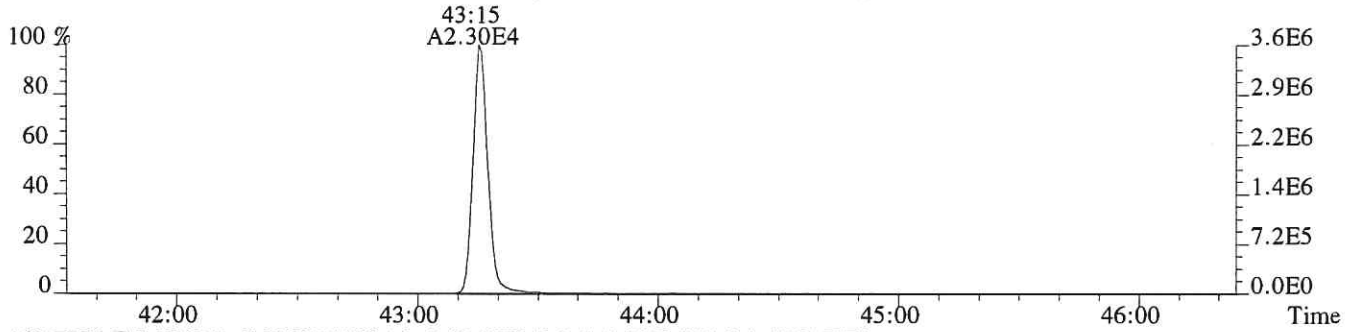


File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

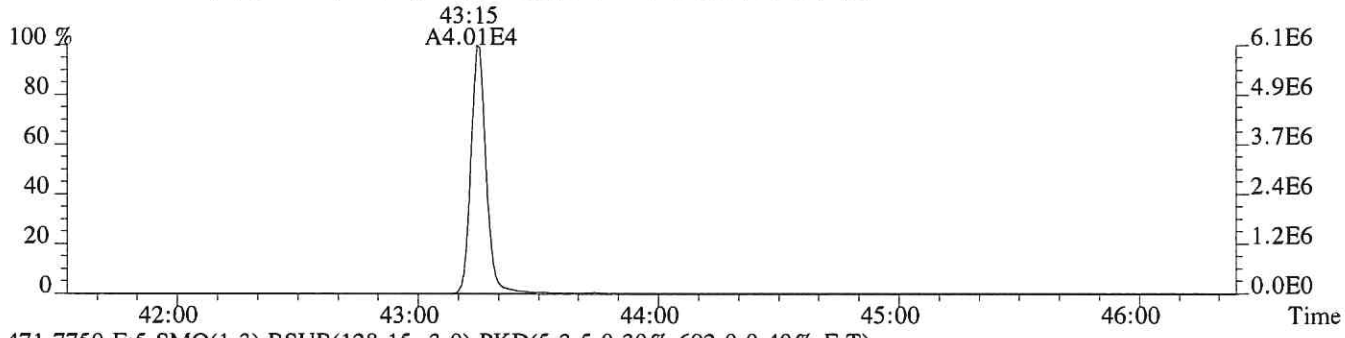
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



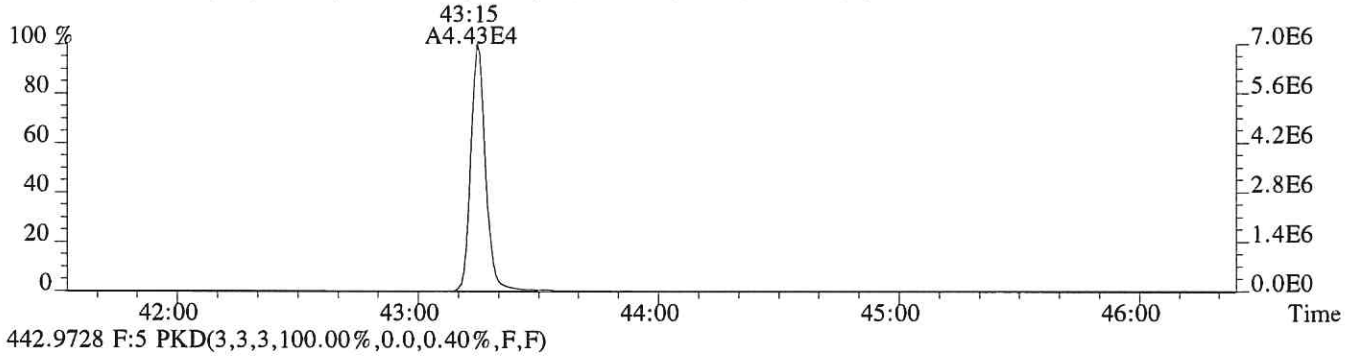
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



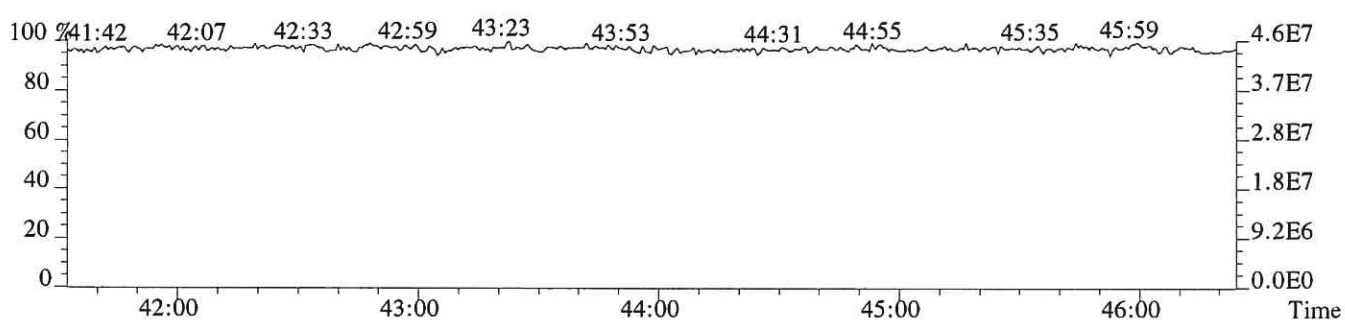
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518868 Samp: 1 Inj: 1 Acquired: 17-NOV-18 03:32:53
Processed: 21-NOV-18 09:19:28 Sample ID: EQ1800468-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	6.283e+00	5.113e+00	1.23	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	5.752e+00	3.203e+00	1.80	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	1.080e+01	5.199e+00	2.08	no	yes	1.258
10	Unk	OCDF	40:51	1.505e+01	2.233e+01	0.67	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:08	6.711e+00	1.094e+01	0.61	no	yes	1.025
17	Unk	OCDD	40:42	9.653e+01	9.362e+01	1.03	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:30	5.586e+03	7.169e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:33	1.637e+04	1.018e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	1.790e+04	1.133e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	9.492e+03	1.818e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.238e+04	2.326e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.171e+04	2.305e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.082e+04	2.055e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.210e+03	2.048e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.717e+03	1.941e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	3.964e+03	4.965e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.346e+04	8.441e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.411e+04	1.110e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.605e+04	1.237e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.836e+04	1.715e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	1.995e+04	2.206e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	1.989e+04	2.532e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	3.185e+04	2.585e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	4.430e+03				no	1.014

$$\text{OCDD} = \frac{(9.653e+01 + 9.362e+01) \times 4000\ \text{pg} \times 1}{(1.995e+04 + 2.206e+04) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518868 Samp: 1 Inj: 1 Acquired: 17-NOV-18 03:32:53
Processed: 21-NOV-18 09:19:28 LAB. ID: EQ1800468-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	3.00e+02	*	*	1.12e+03	*
2	1,2,3,7,8-PeCDF	*	2.88e+02	*	*	8.92e+02	*
3	2,3,4,7,8-PeCDF	*	2.88e+02	*	*	8.92e+02	*
4	1,2,3,4,7,8-HxCDF	1.13e+03	2.24e+02	5.0e+00	1.32e+03	2.72e+02	4.9e+00
5	1,2,3,6,7,8-HxCDF	1.31e+03	2.24e+02	5.8e+00	9.24e+02	2.72e+02	3.4e+00
6	2,3,4,6,7,8-HxCDF	*	2.24e+02	*	*	2.72e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.24e+02	*	*	2.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	2.84e+02	*	*	3.32e+02	*
9	1,2,3,4,7,8,9-HpCDF	2.15e+03	2.84e+02	7.6e+00	1.21e+03	3.32e+02	3.6e+00
10	OCDF	2.06e+03	2.12e+02	9.7e+00	5.42e+03	4.48e+02	1.2e+01
11	2,3,7,8-TCDD	*	1.48e+03	*	*	6.64e+02	*
12	1,2,3,7,8-PeCDD	*	3.16e+02	*	*	3.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.84e+02	*	*	3.00e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.84e+02	*	*	3.00e+02	*
15	1,2,3,7,8,9-HxCDD	*	1.84e+02	*	*	3.00e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.95e+03	3.24e+02	6.0e+00	2.03e+03	3.52e+02	5.8e+00
17	OCDD	1.33e+04	2.28e+02	5.9e+01	1.43e+04	4.12e+02	3.5e+01
18	13C-2,3,7,8-TCDF	6.86e+05	3.64e+03	1.9e+02	9.05e+05	2.20e+03	4.1e+02
19	13C-1,2,3,7,8-PeCDF	2.58e+06	2.00e+02	1.3e+04	1.56e+06	3.88e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	3.06e+06	2.00e+02	1.5e+04	1.94e+06	3.88e+02	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.88e+06	7.32e+02	2.6e+03	3.64e+06	5.88e+02	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.23e+06	7.32e+02	3.0e+03	4.19e+06	5.88e+02	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.23e+06	7.32e+02	3.0e+03	4.36e+06	5.88e+02	7.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.86e+06	7.32e+02	2.5e+03	3.55e+06	5.88e+02	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.74e+06	1.48e+03	1.2e+03	3.83e+06	2.89e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.51e+06	1.48e+03	1.0e+03	3.39e+06	2.89e+03	1.2e+03
27	13C-2,3,7,8-TCDD	5.90e+05	4.67e+03	1.3e+02	7.16e+05	1.69e+03	4.2e+02
28	13C-1,2,3,7,8-PeCDD	2.20e+06	4.92e+02	4.5e+03	1.40e+06	1.06e+03	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.98e+06	1.21e+03	2.5e+03	2.35e+06	5.88e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.74e+06	1.21e+03	2.3e+03	2.15e+06	5.88e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.38e+06	5.28e+02	6.4e+03	3.14e+06	3.92e+02	8.0e+03
32	13C-OCDD	2.99e+06	5.28e+02	5.7e+03	3.33e+06	2.28e+02	1.5e+04
33	13C-1,2,3,4-TCDD	2.95e+06	4.67e+03	6.3e+02	3.67e+06	1.69e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.64e+06	1.21e+03	4.7e+03	4.42e+06	5.88e+02	7.5e+03
35	37Cl-2,3,7,8-TCDD	6.18e+05	8.44e+02	7.3e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518868 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 03:32:53 Processed: 21-NOV-18 09:19:28

Mass: 373.8210 375.8180 Tot Response: 1.14e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:30	6.28e+00	5.11e+00	1.23	yes	1.14e+01	1,2,3,4,7,8-HxCDF	y	n

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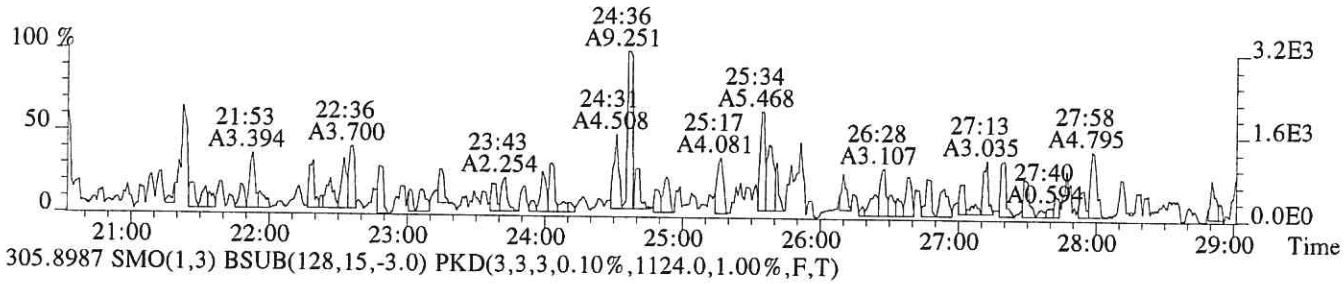
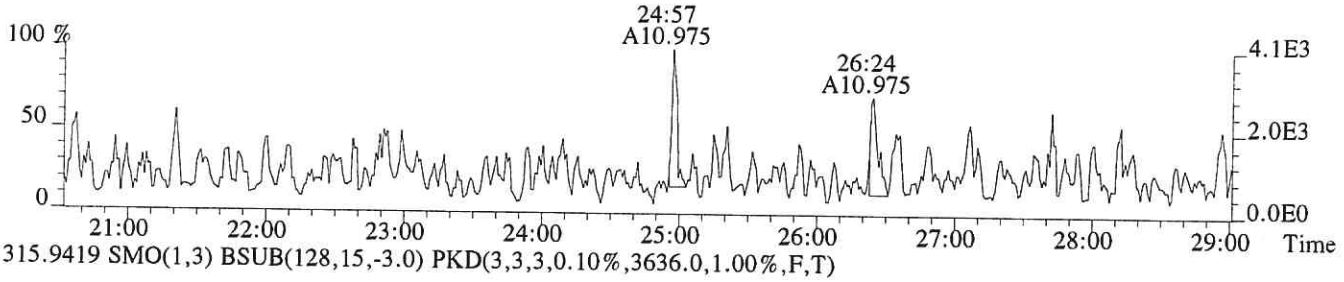
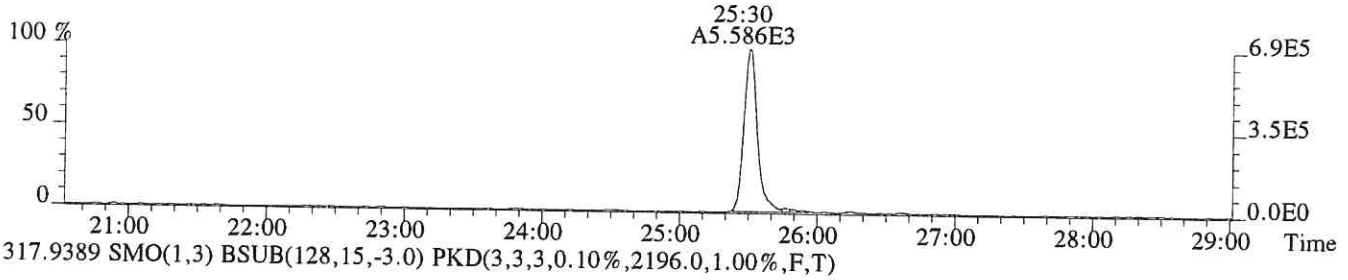
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



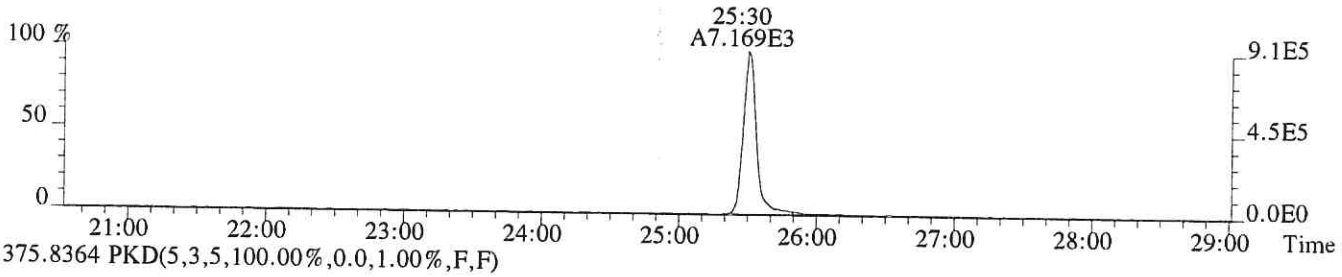
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



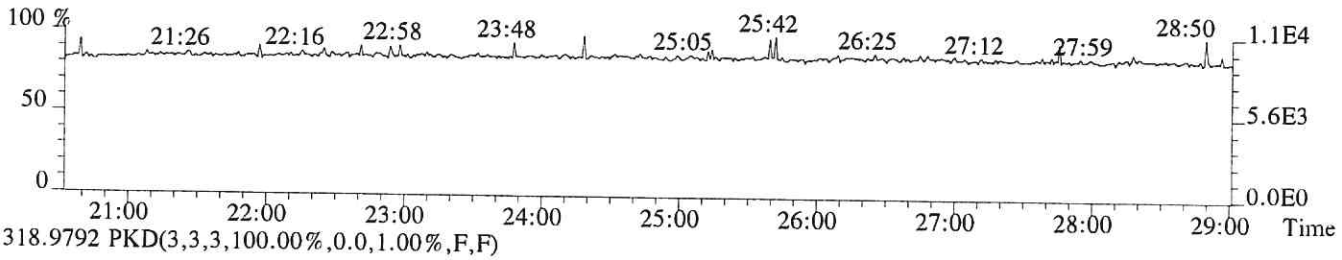
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3636.0,1.00%,F,T)



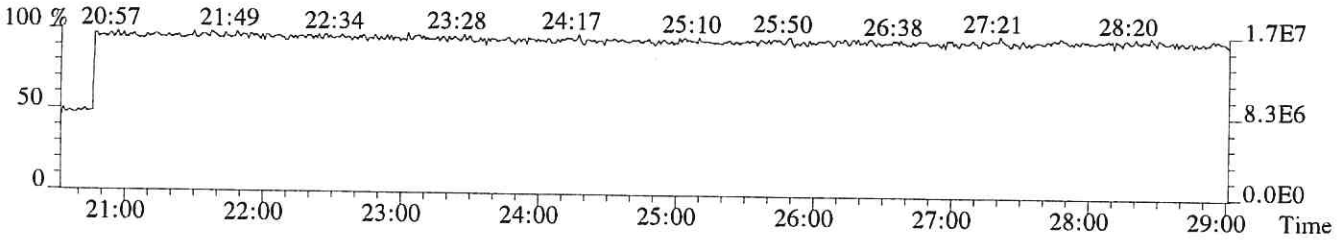
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



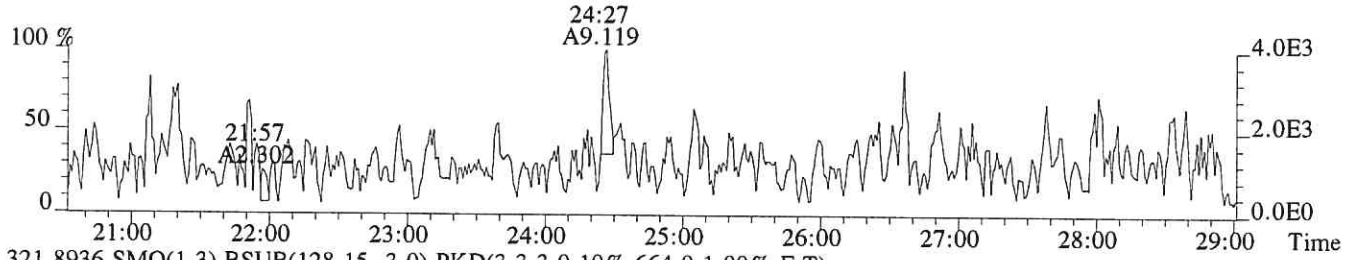
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



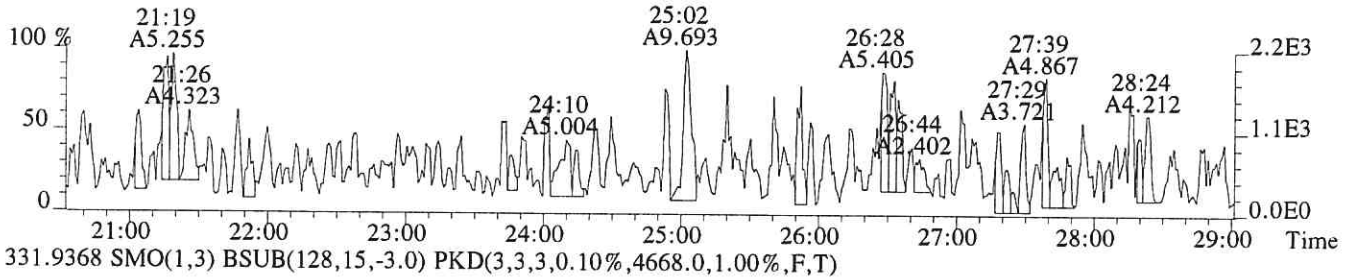
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



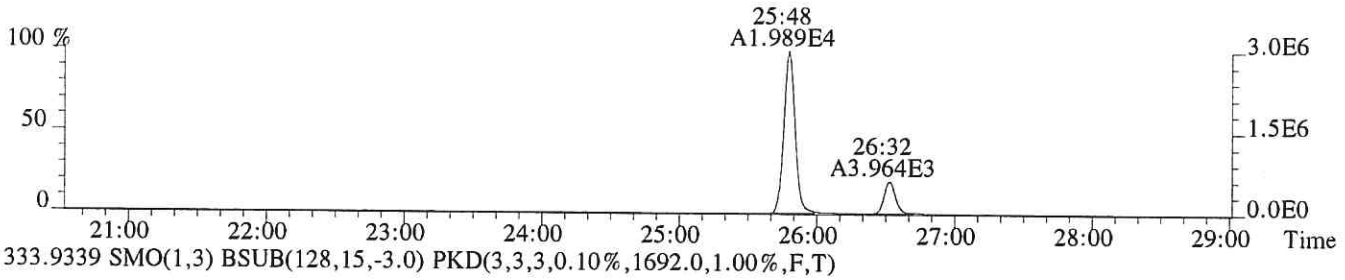
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



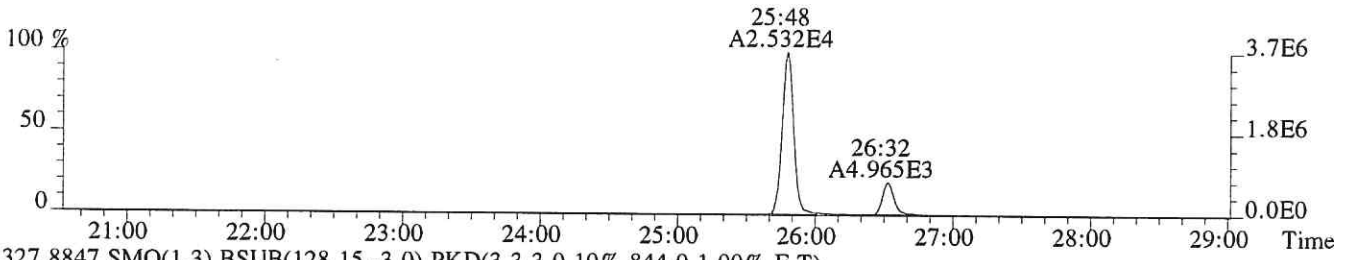
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



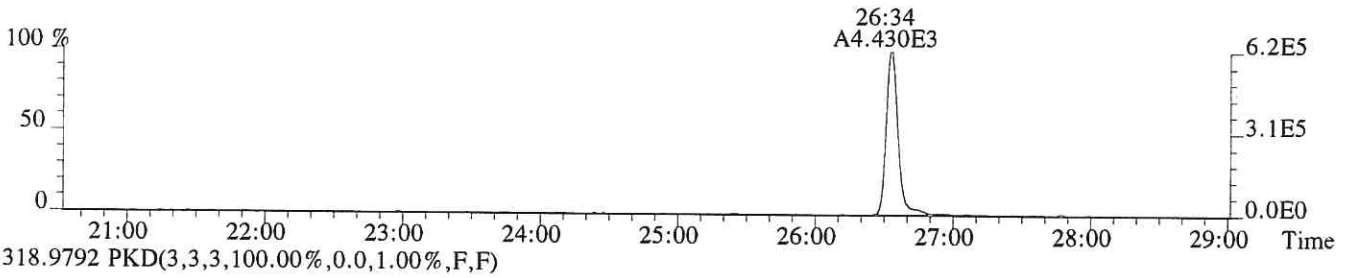
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4668.0,1.00%,F,T)



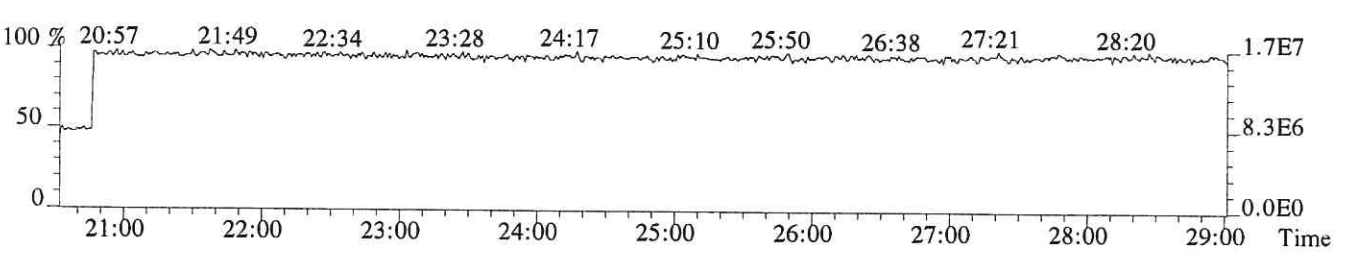
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



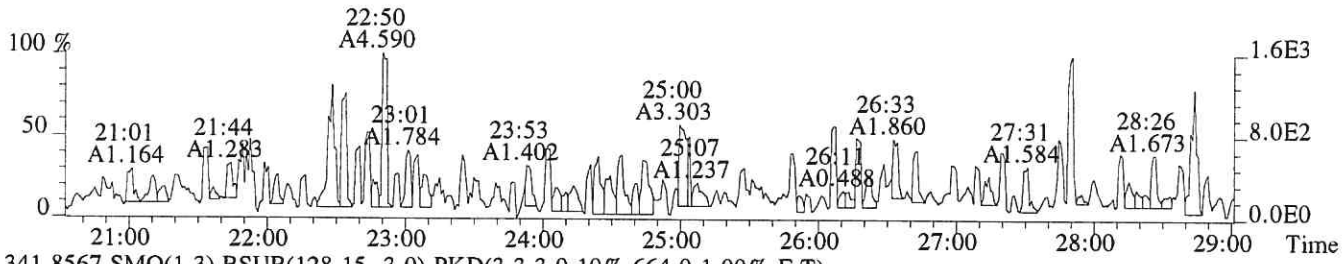
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



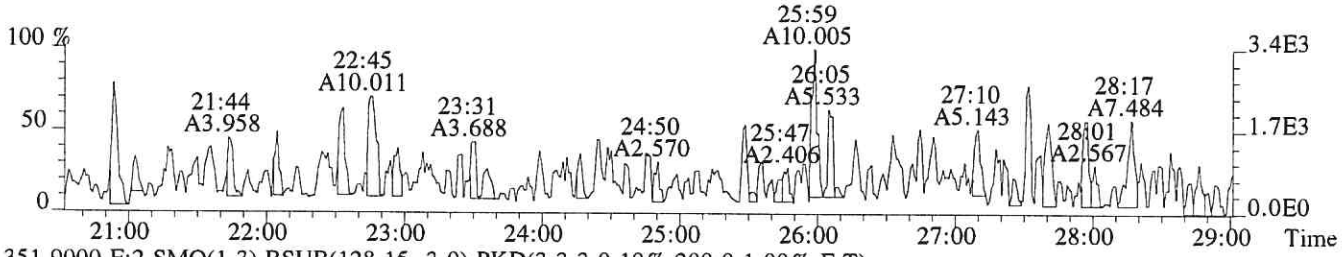
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



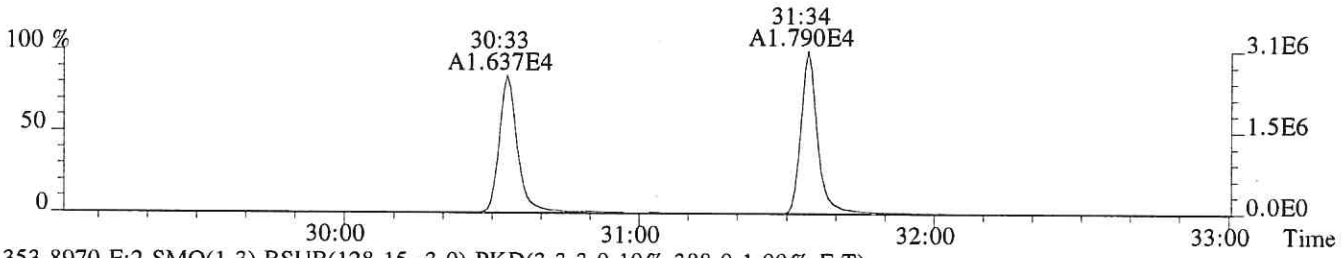
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



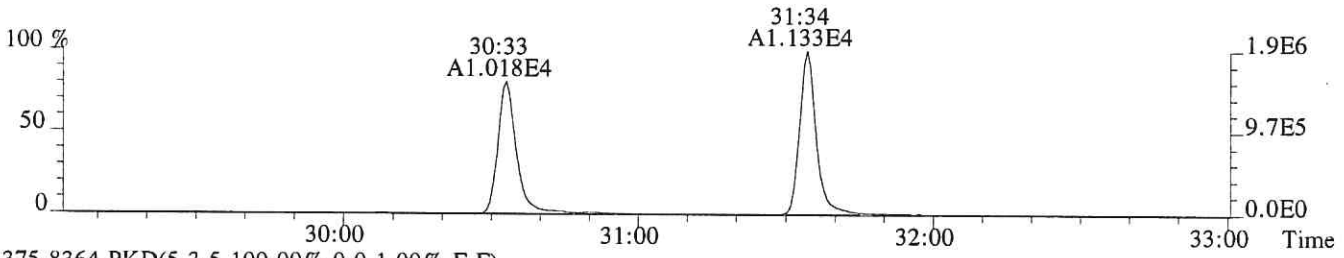
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



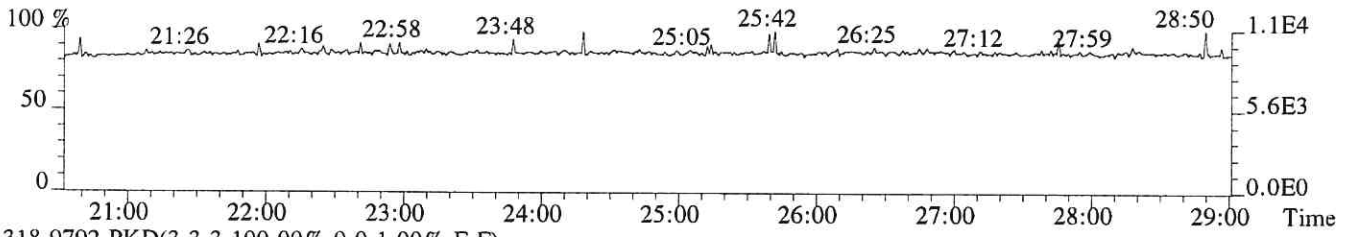
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



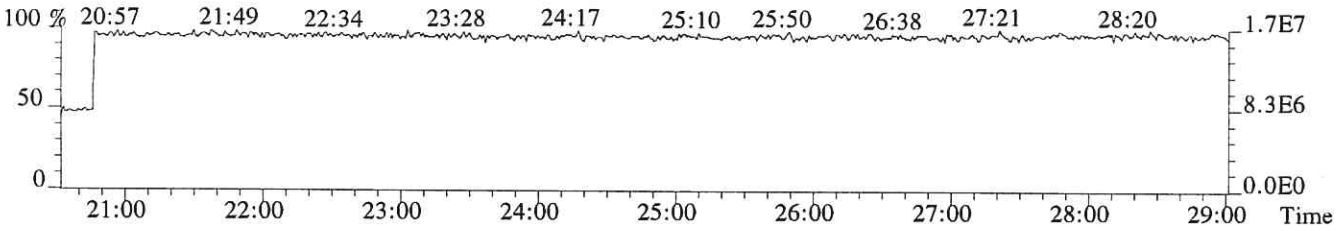
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



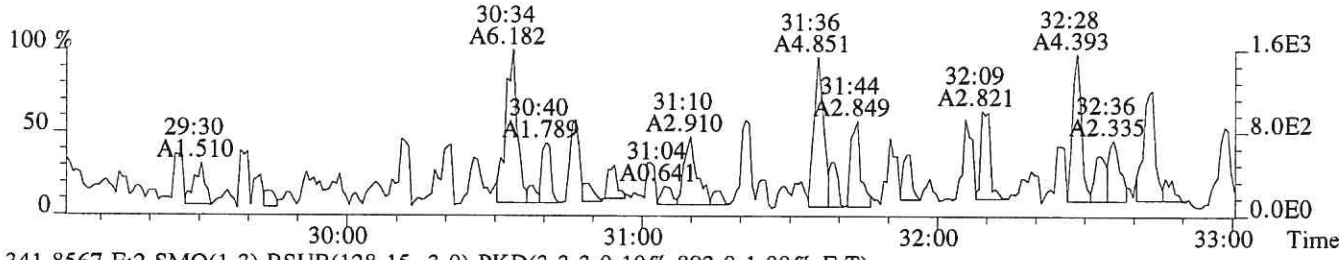
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



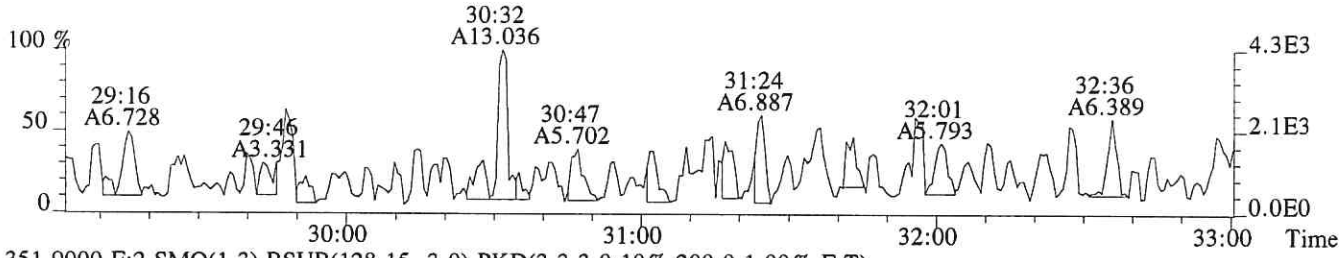
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



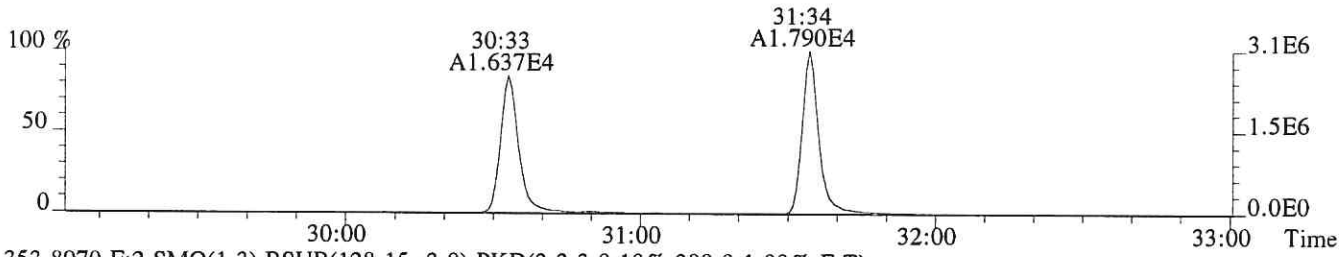
File:P518868 #1-357 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



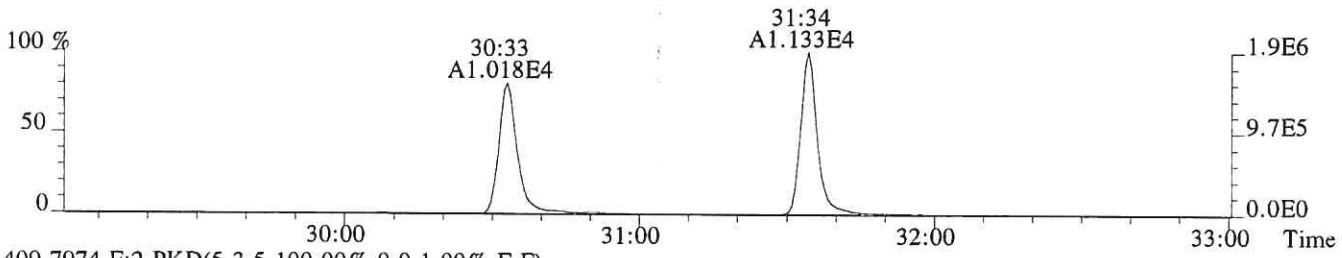
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



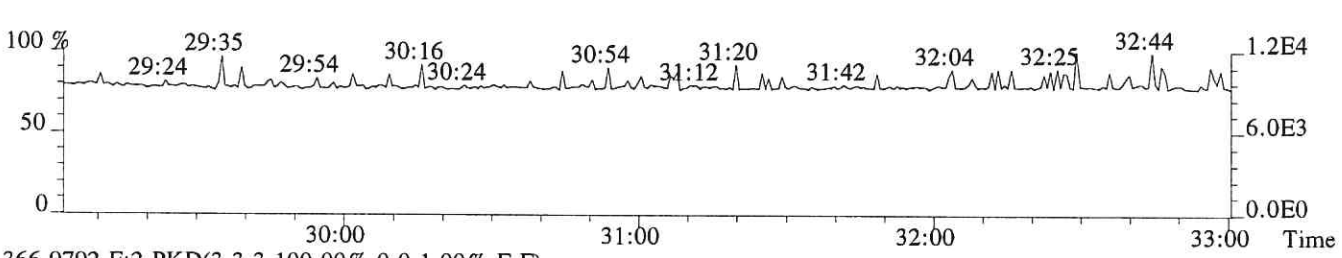
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



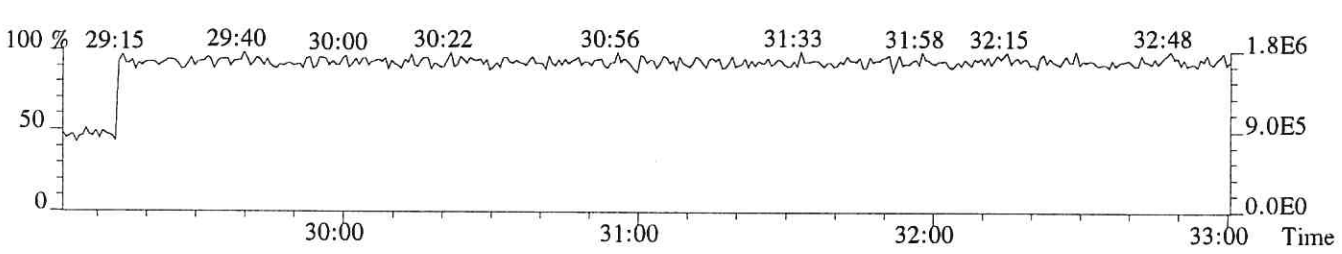
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



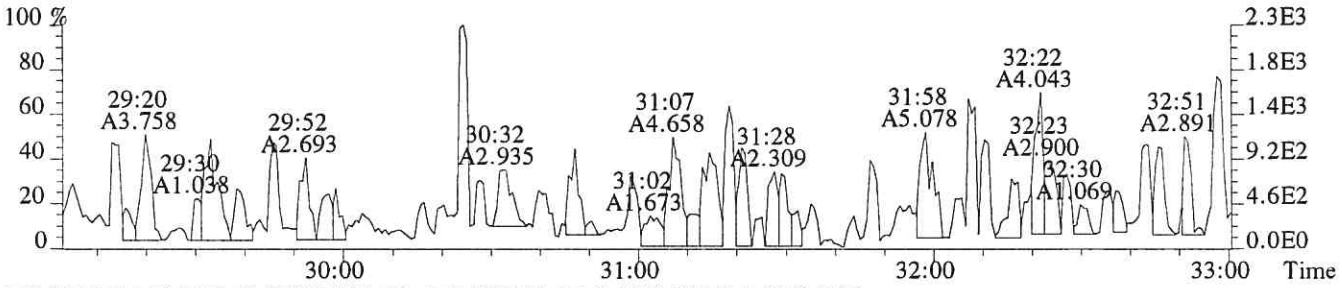
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



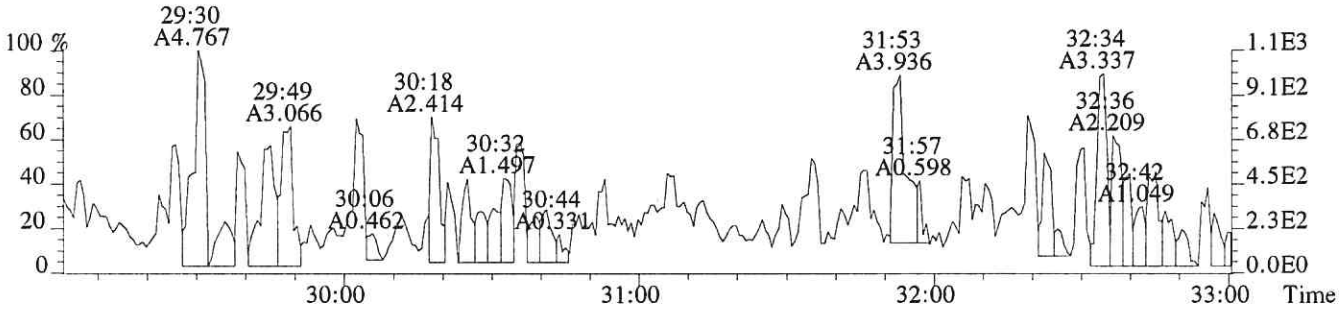
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



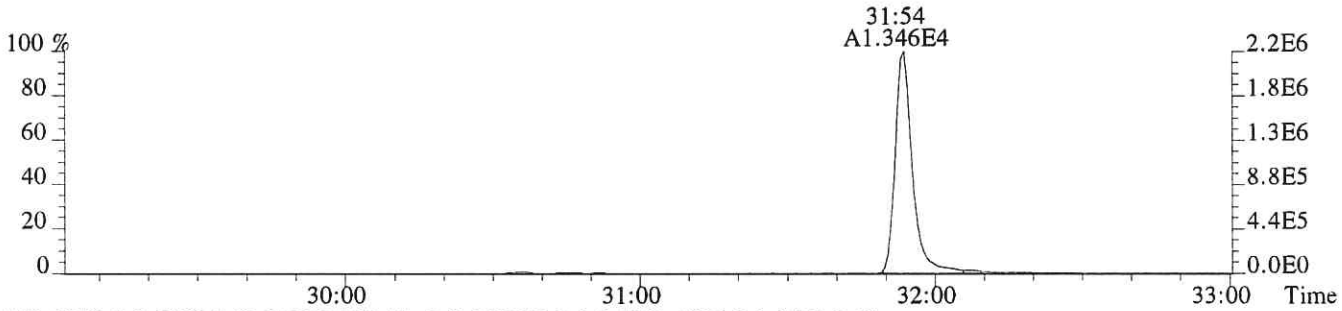
File:P518868 #1-357 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



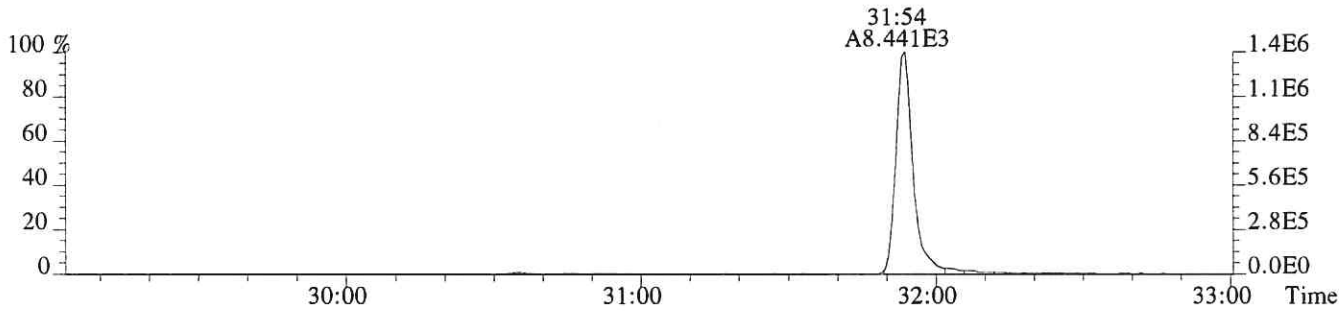
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



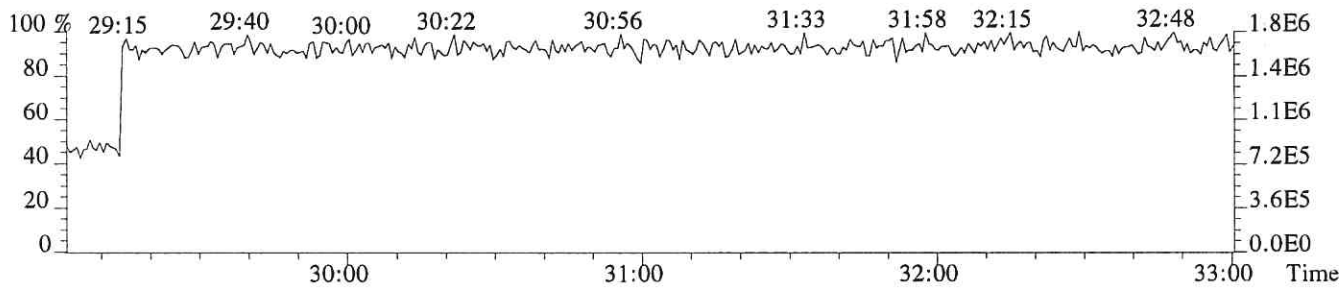
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



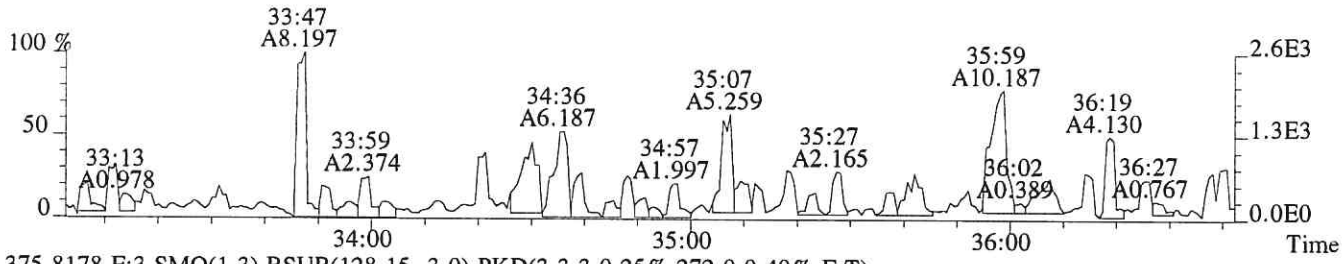
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



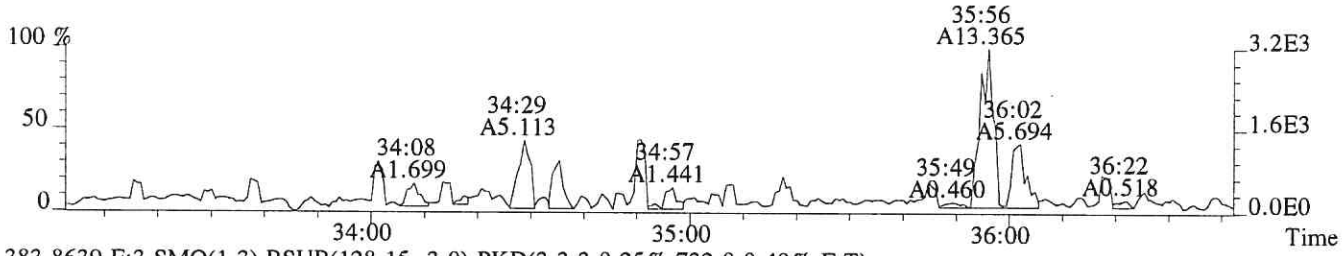
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



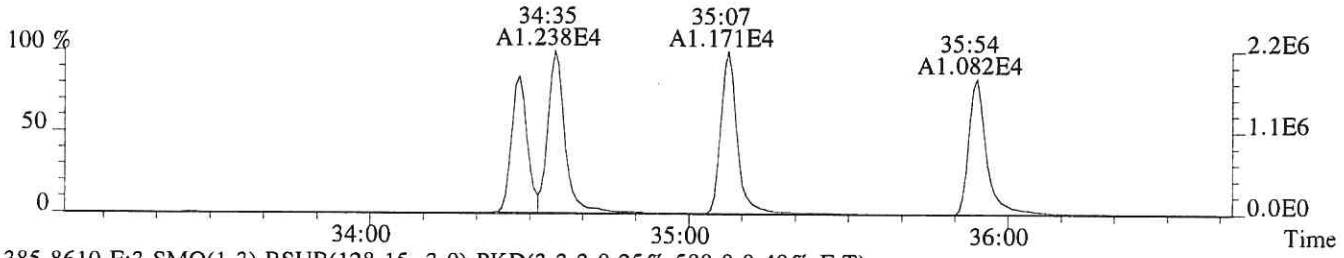
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



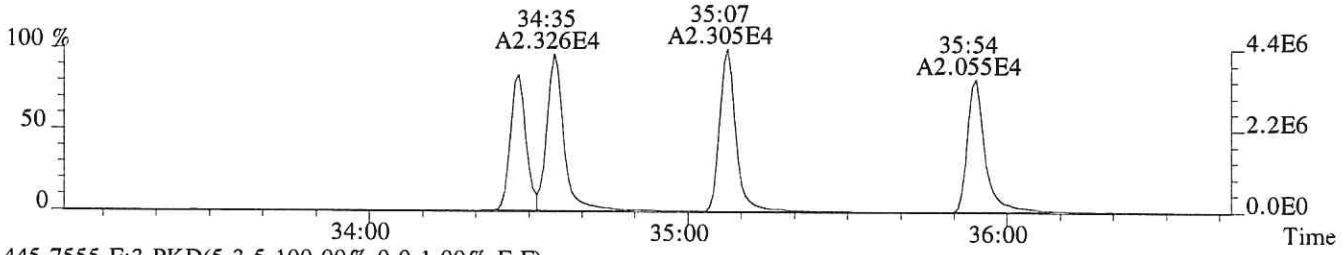
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



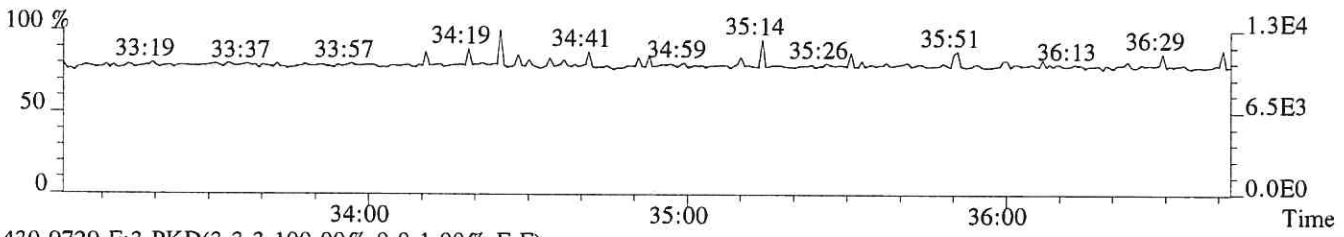
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



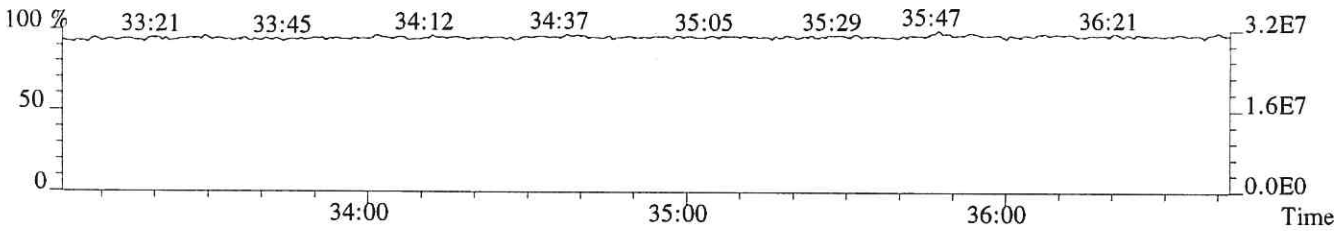
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



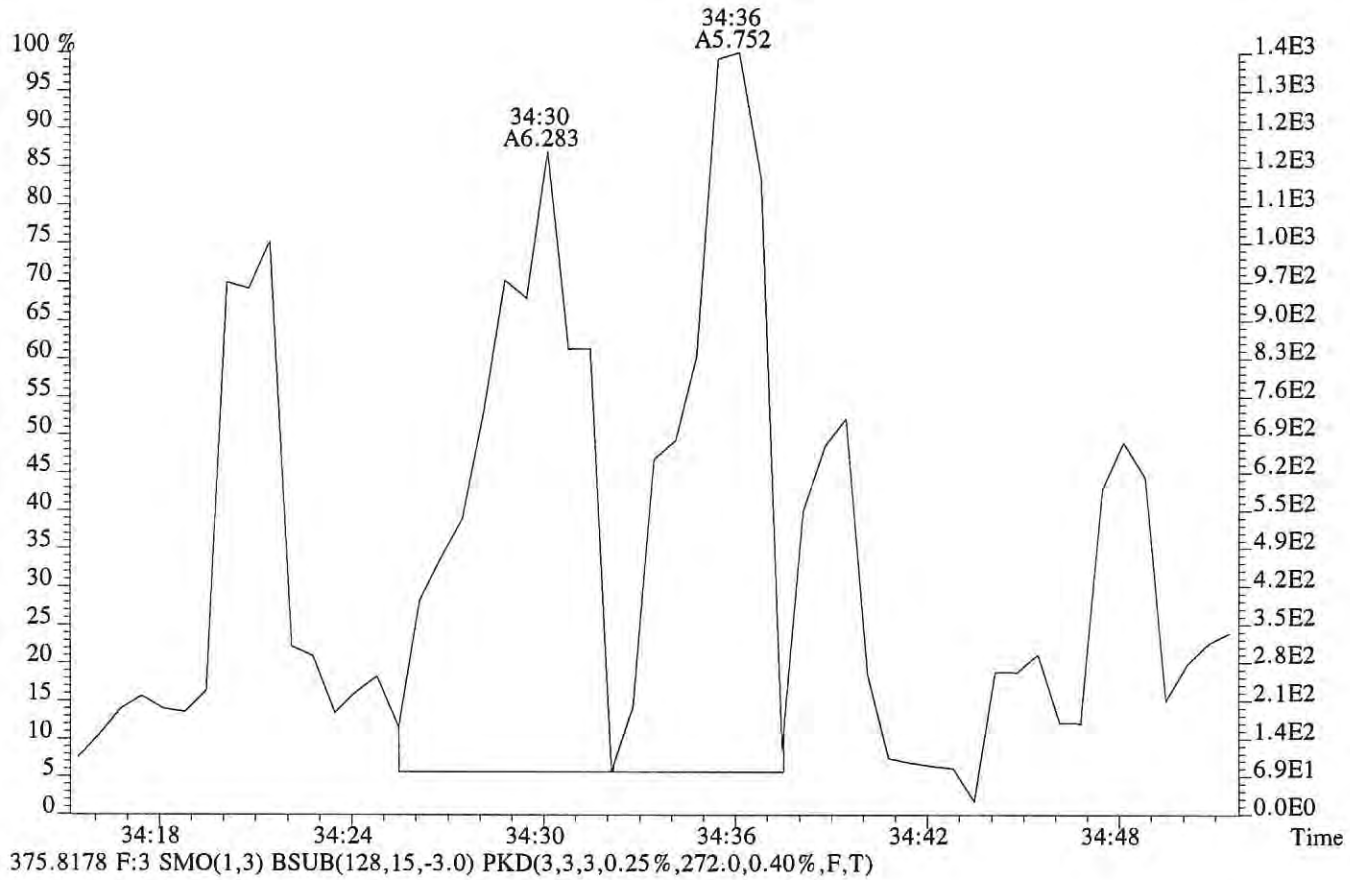
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



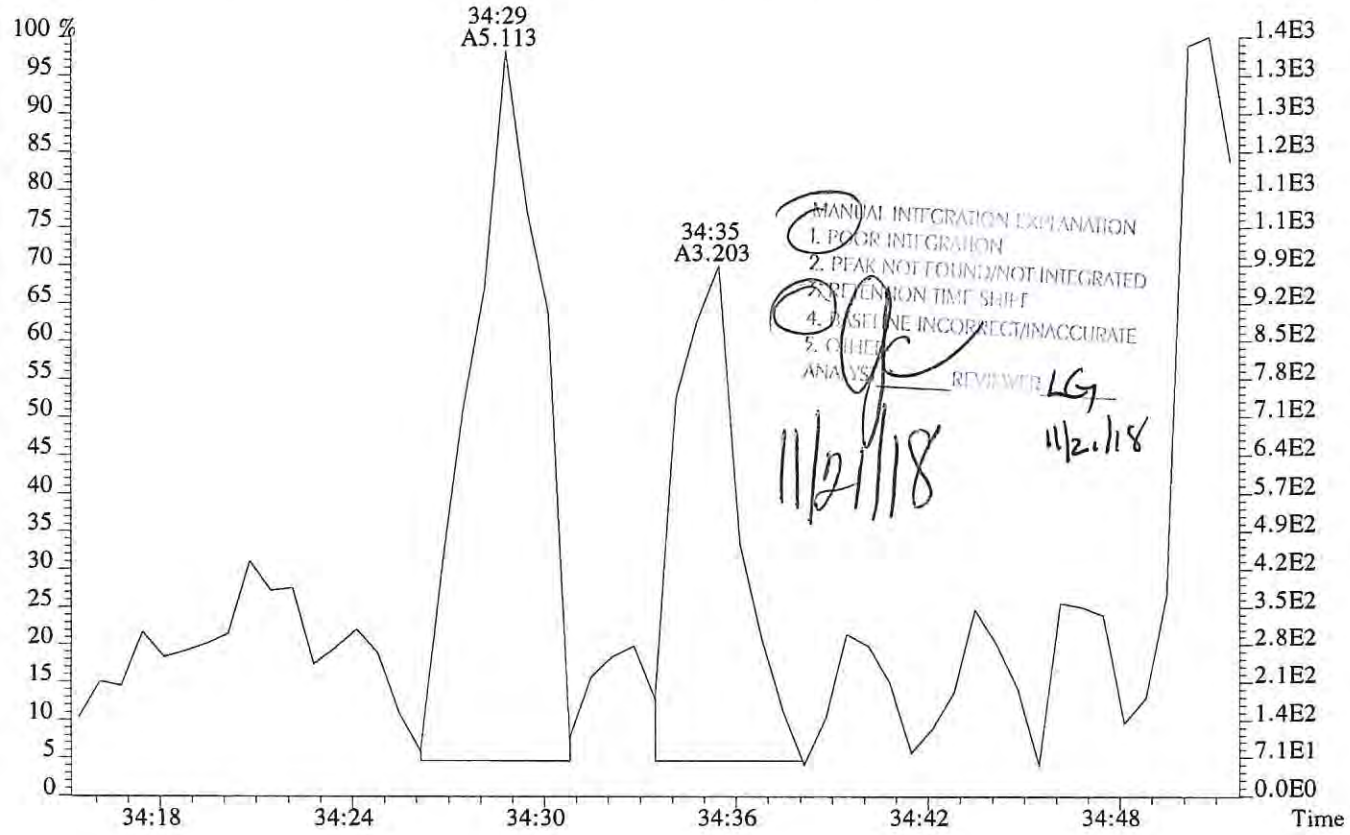
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)

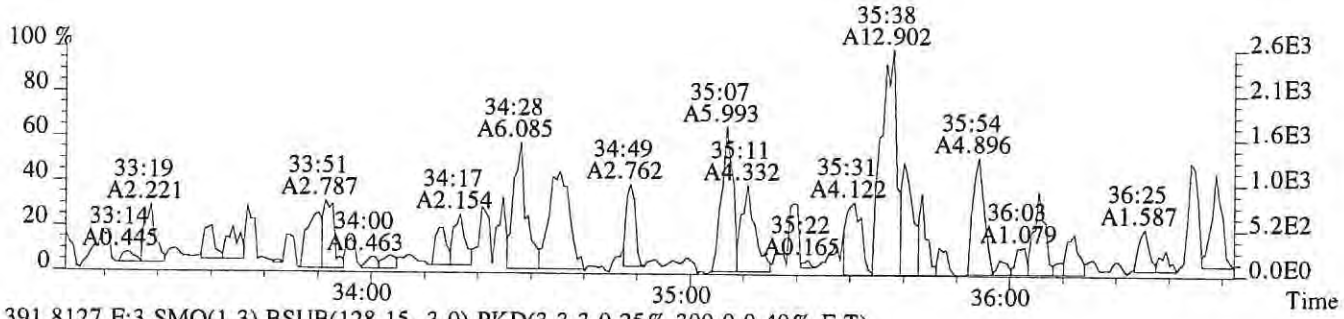


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)

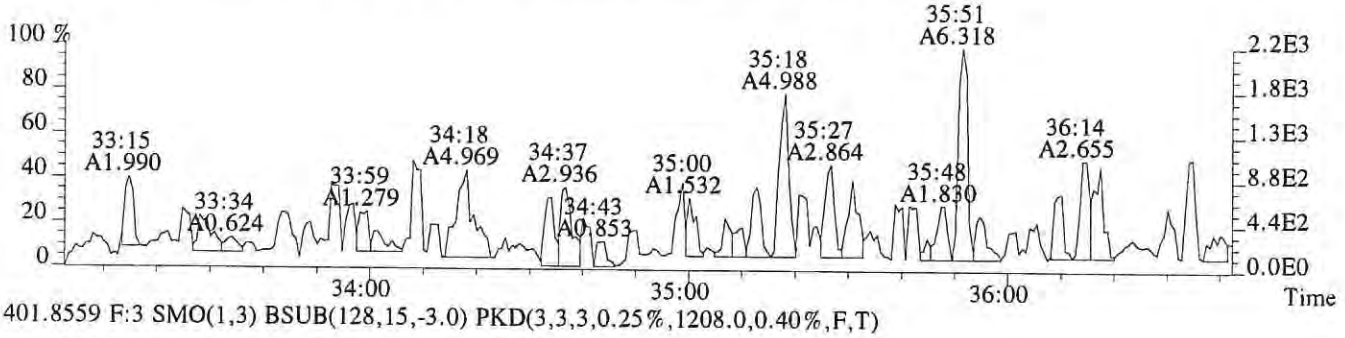


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST
REVIEWER LG
11/21/18
11/21/18

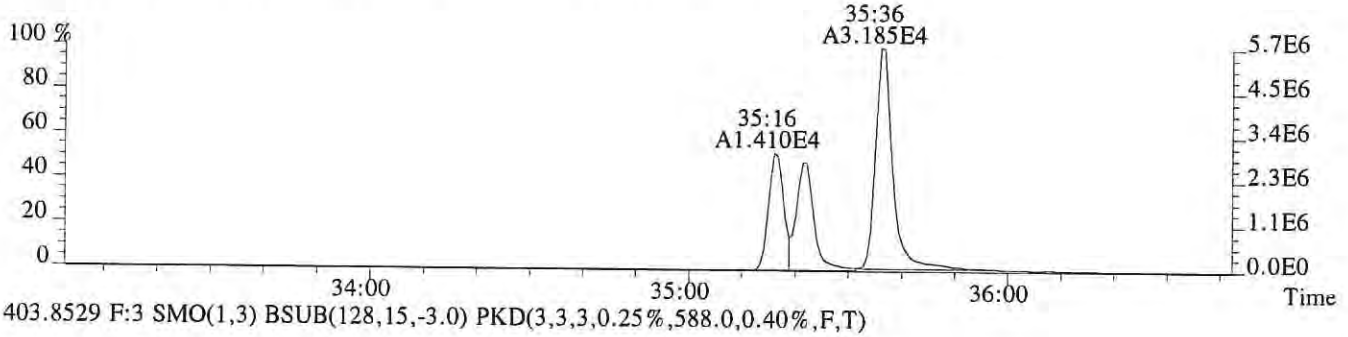
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



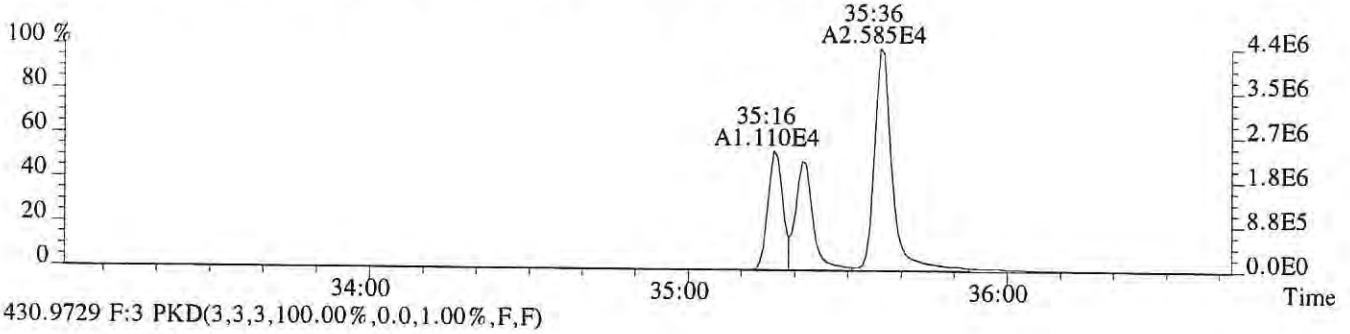
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



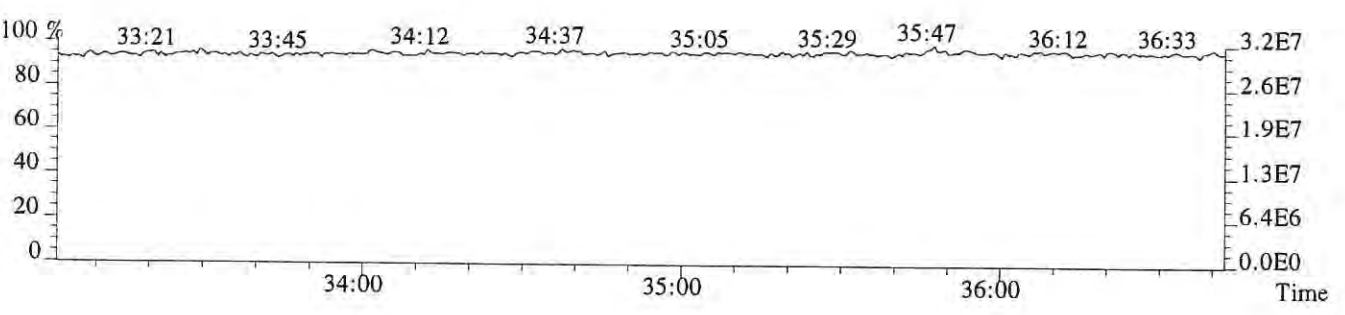
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



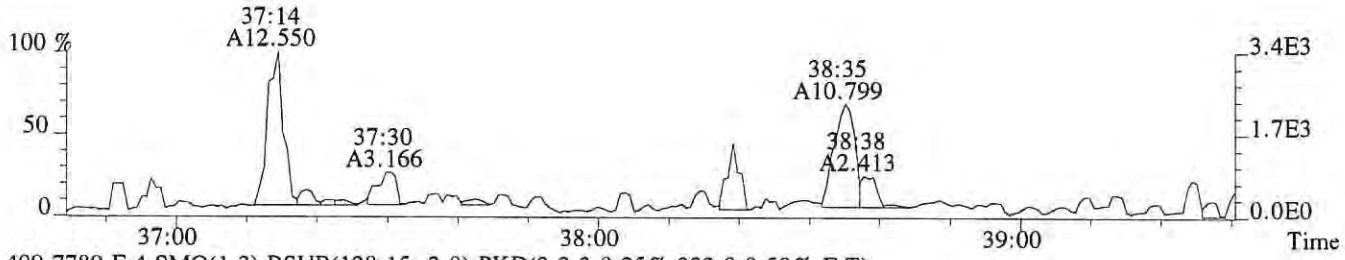
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



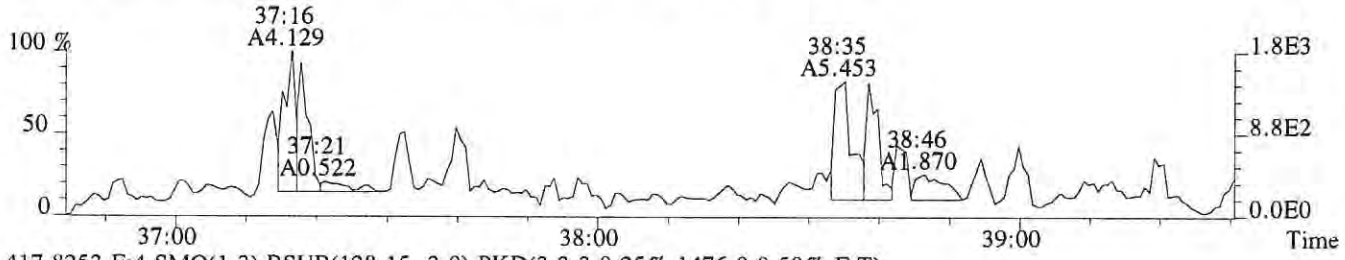
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



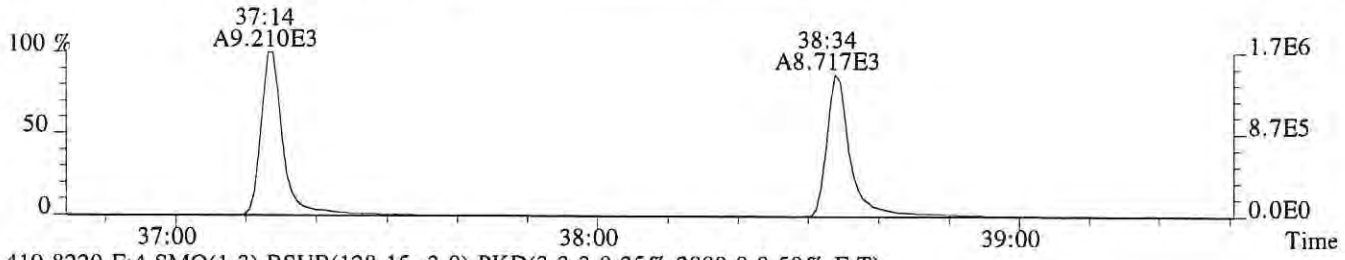
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



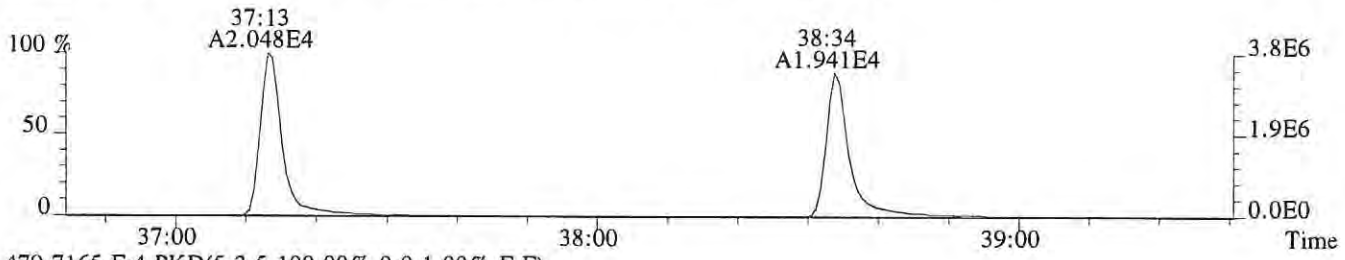
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



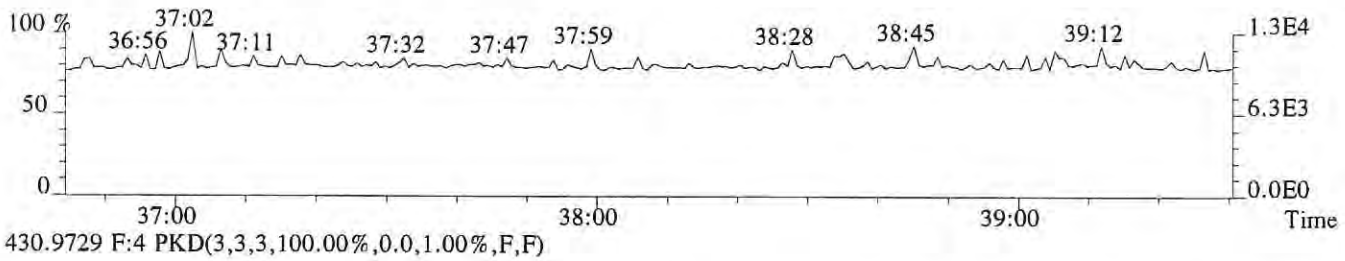
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.50%,F,T)



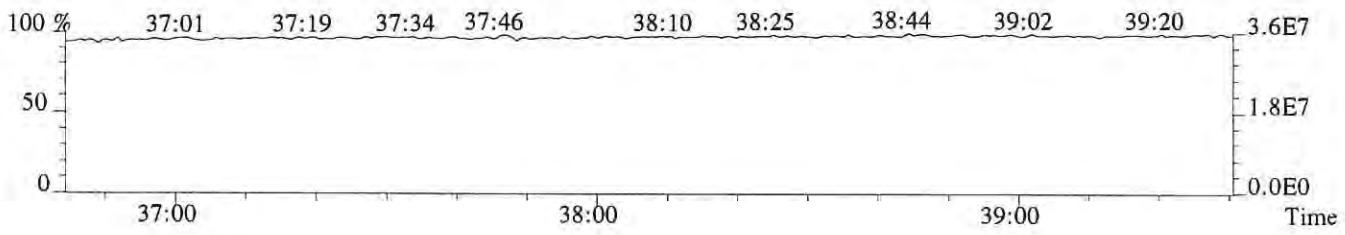
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



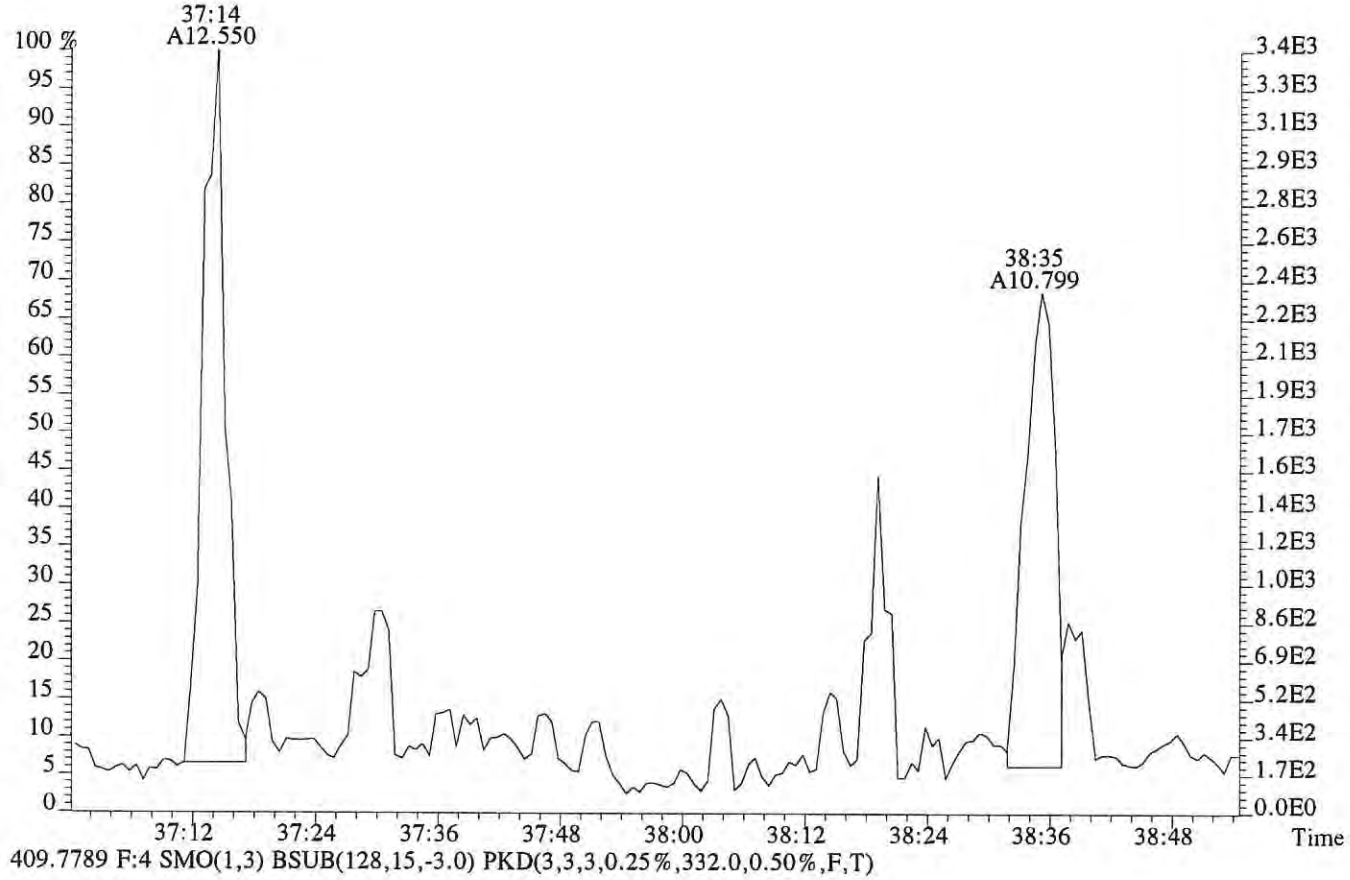
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



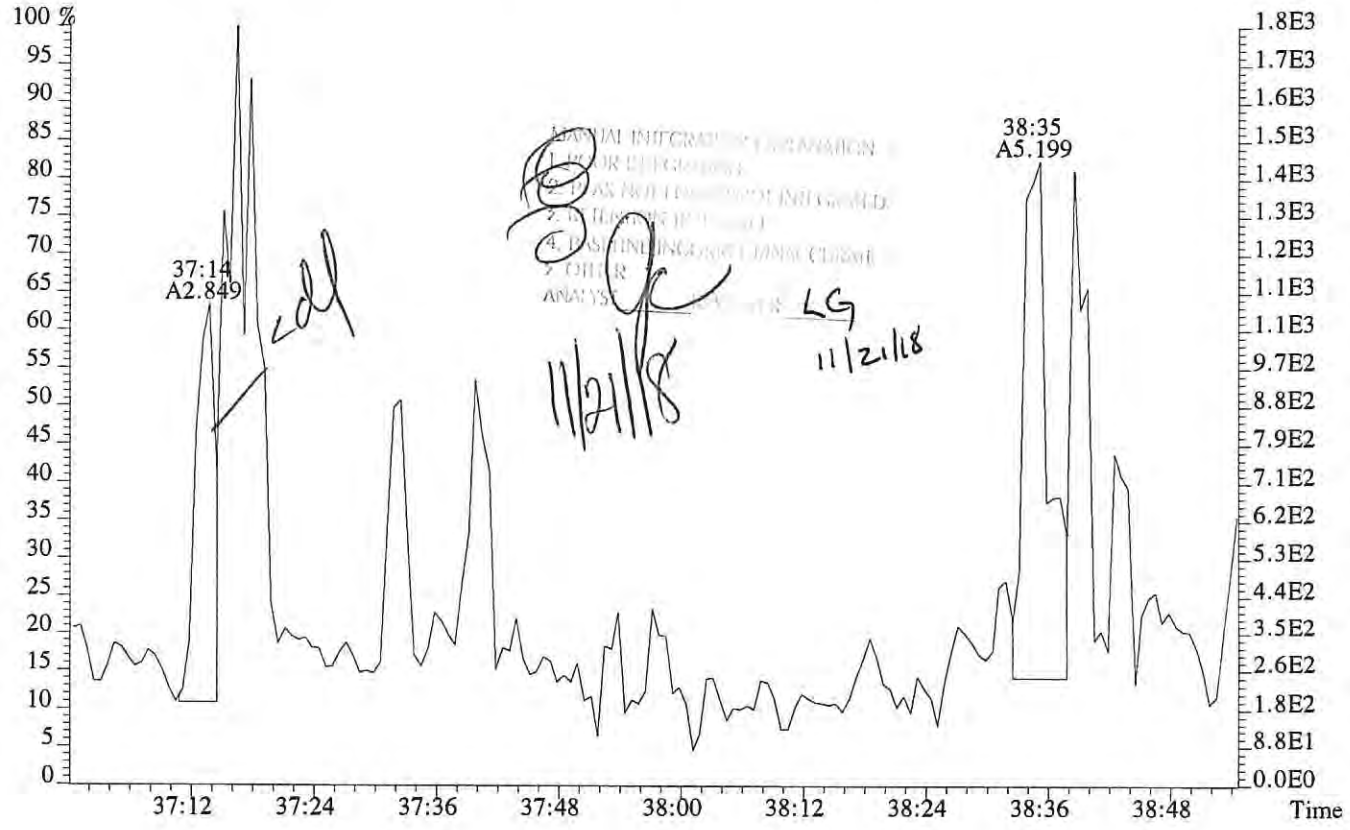
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



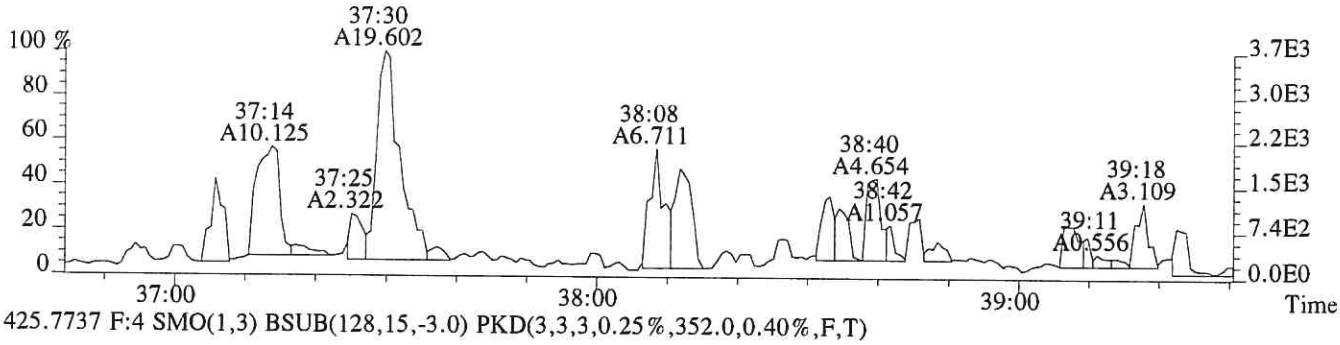
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



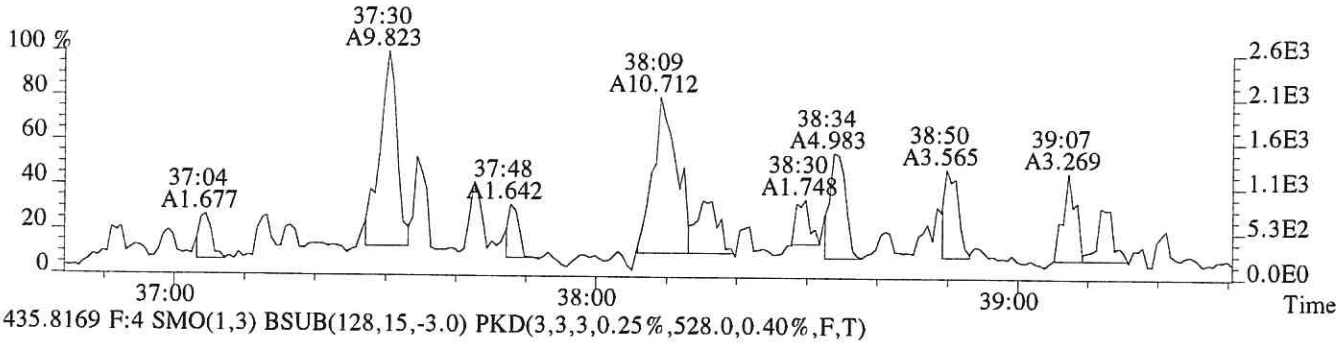
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



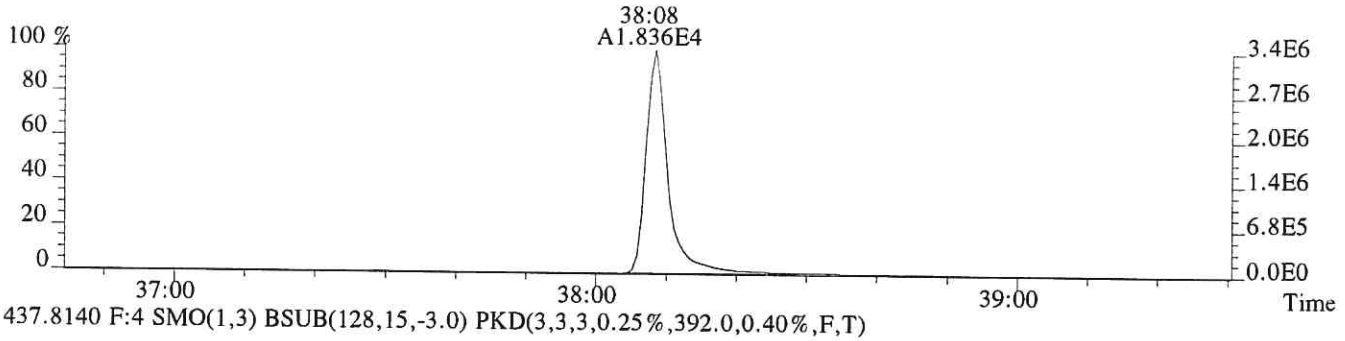
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



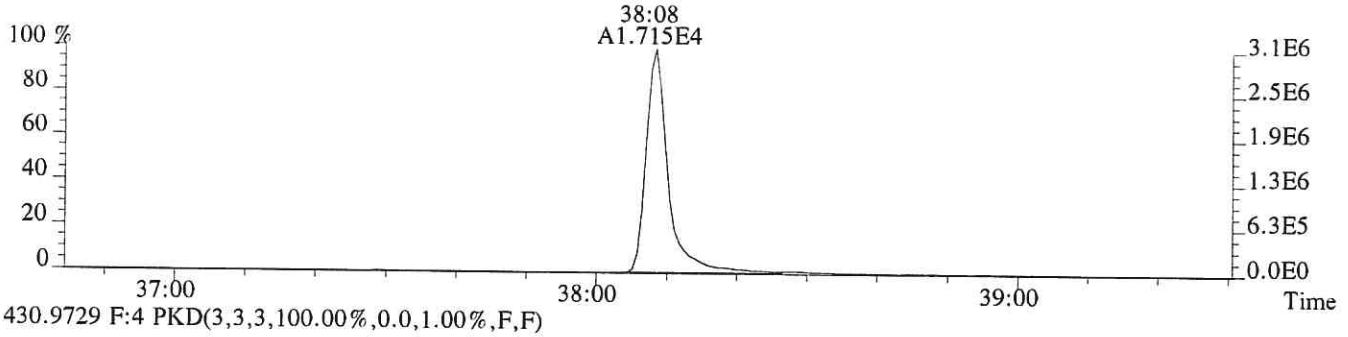
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



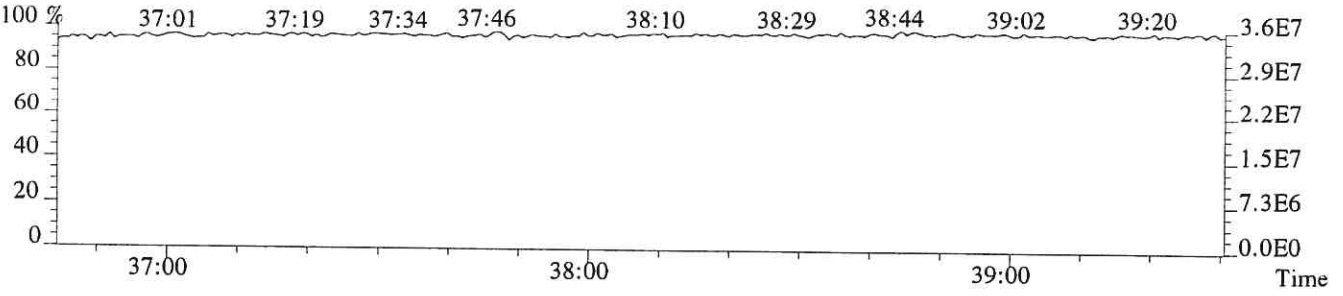
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



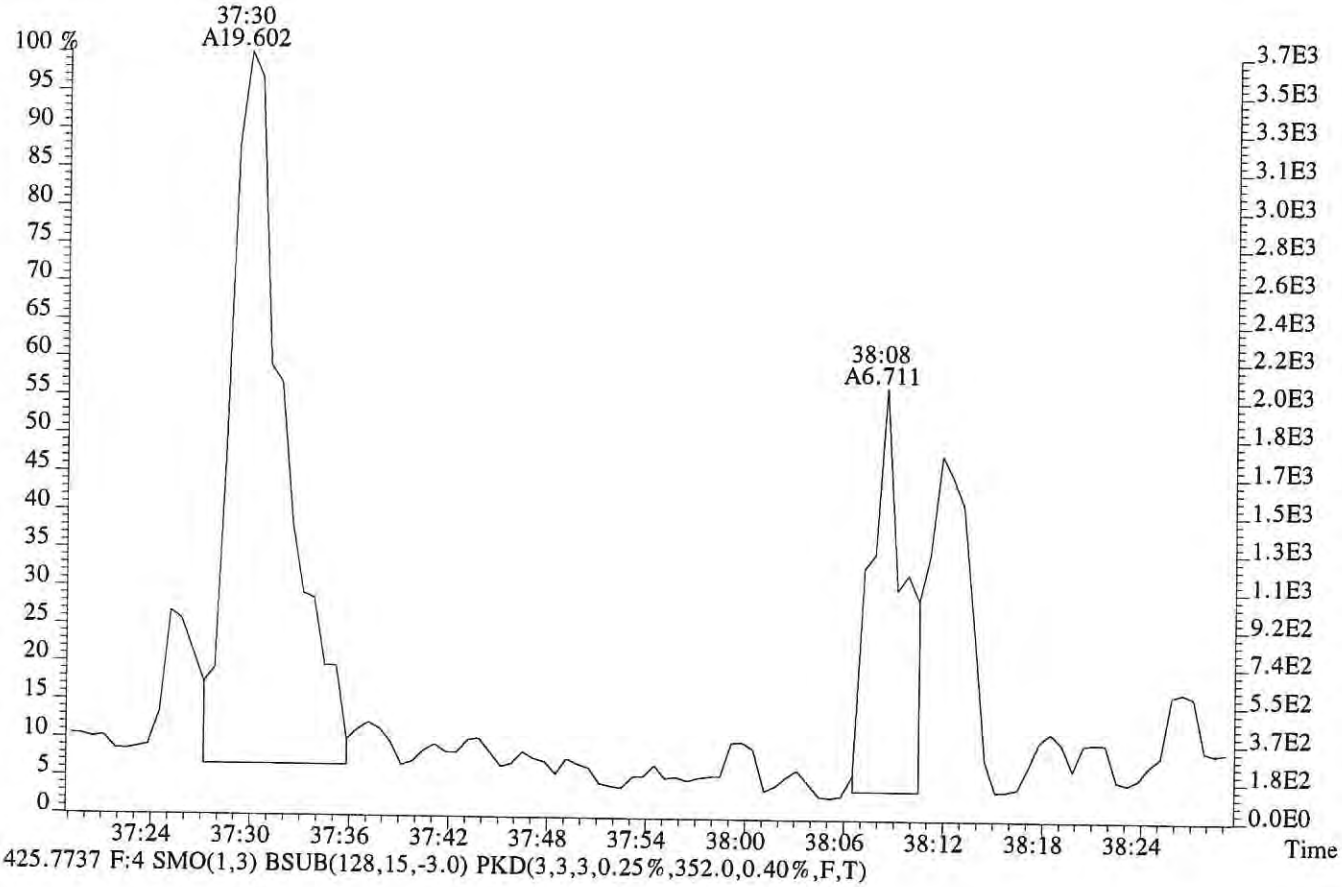
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



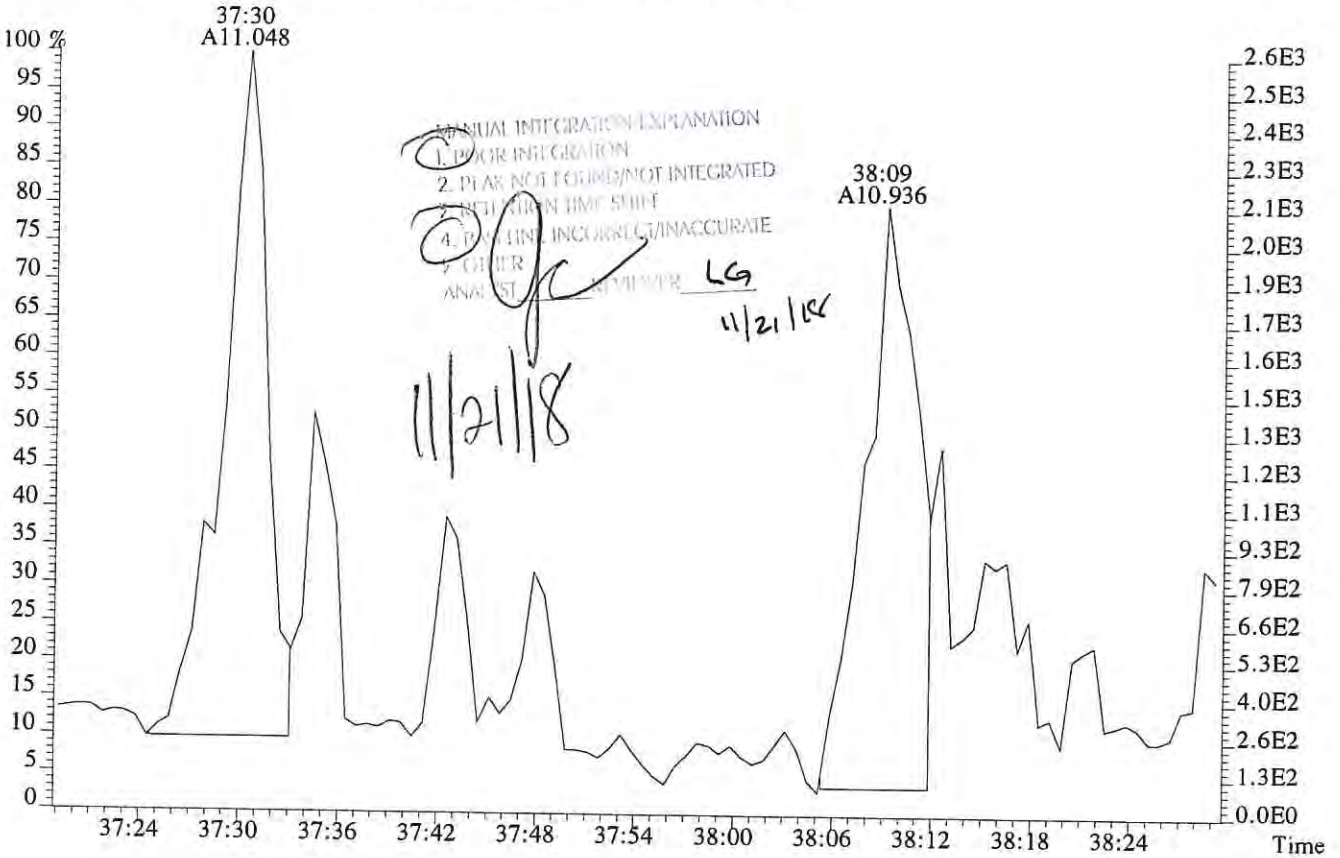
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)

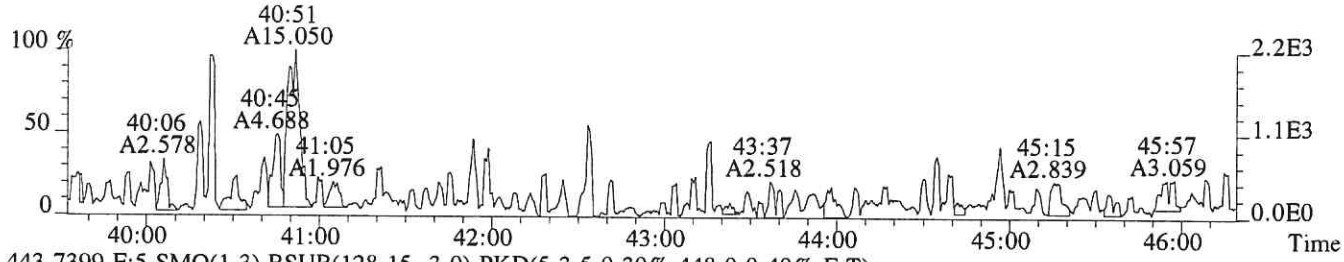


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)

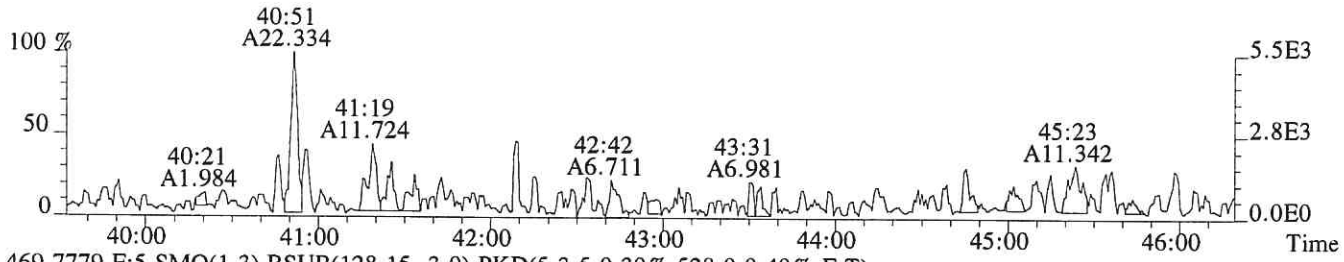


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. PEAK LIST INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
11/21/18
11/21/18

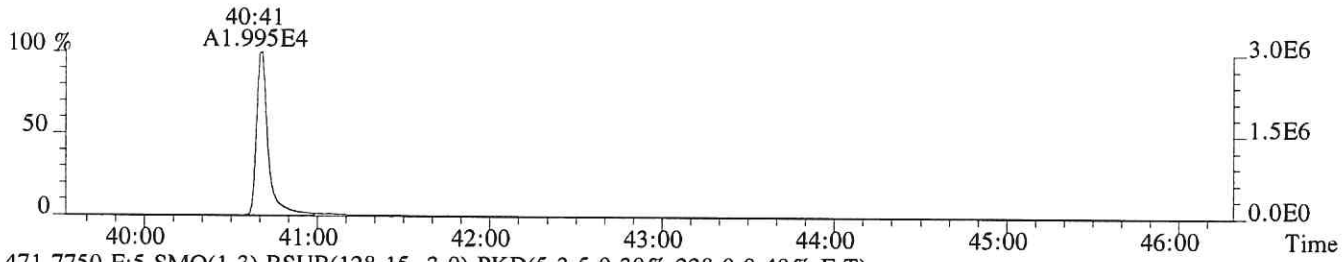
File:P518868 #1-610 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



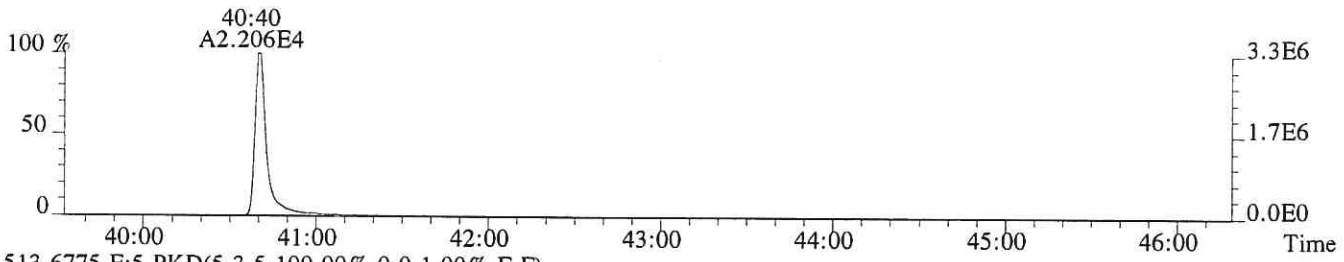
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



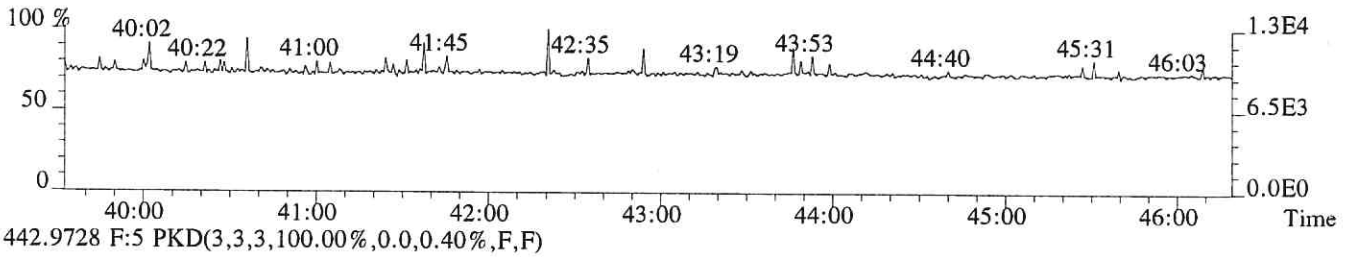
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



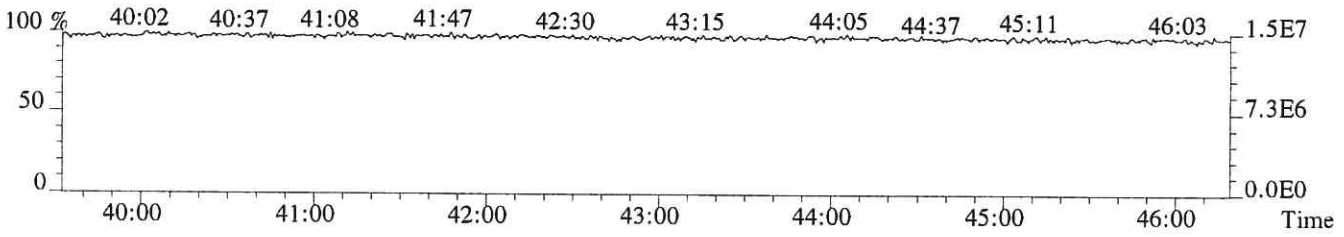
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



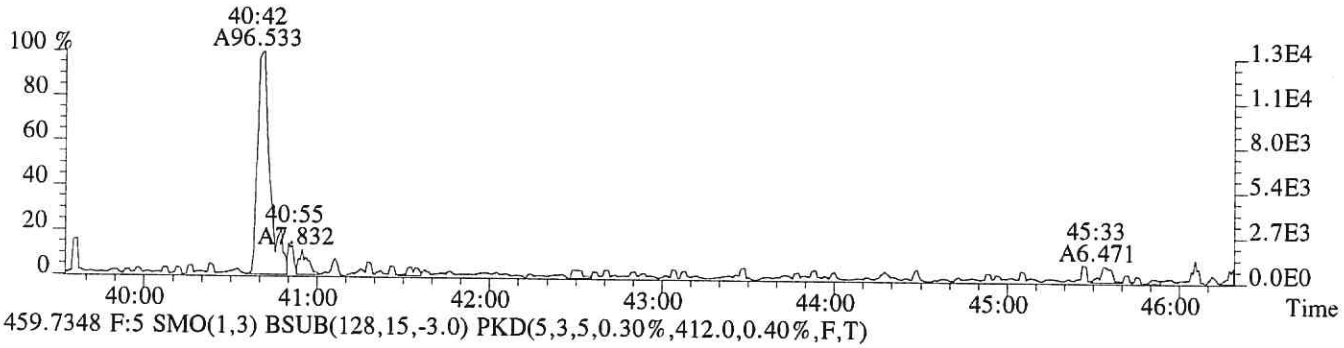
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



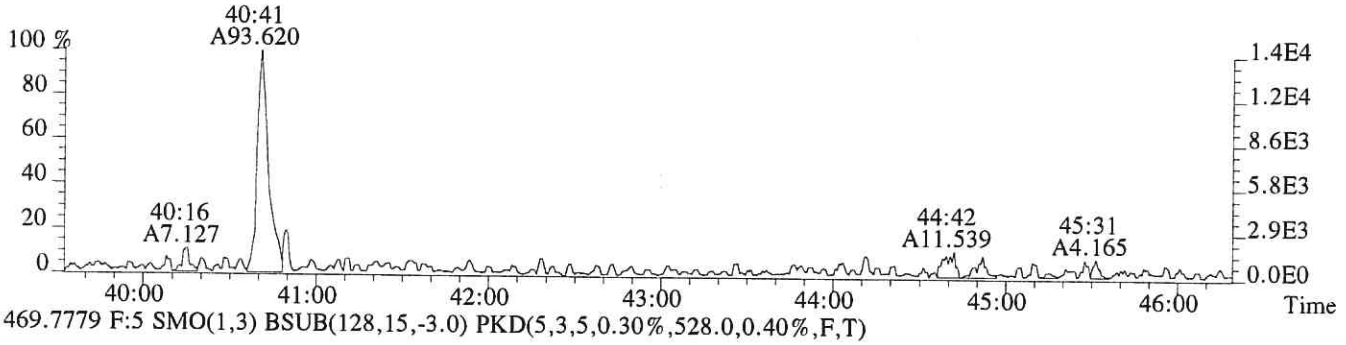
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



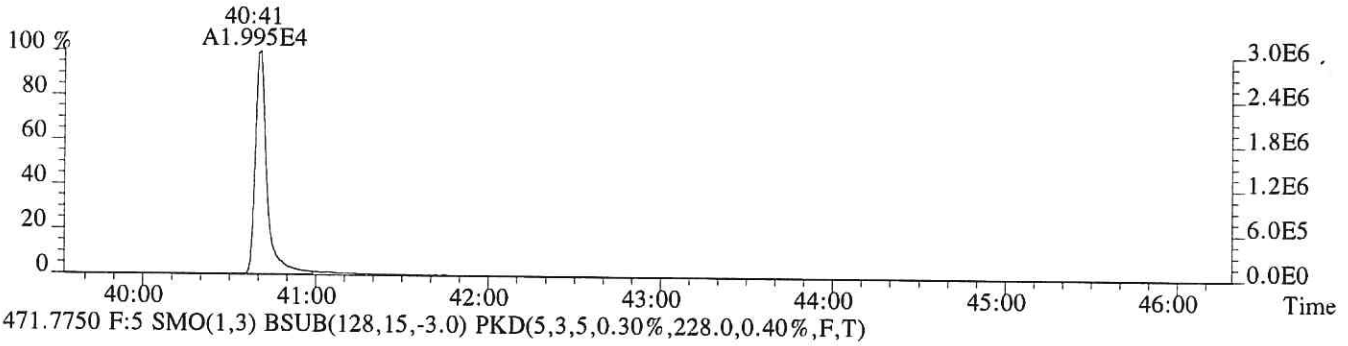
File:P518868 #1-610 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



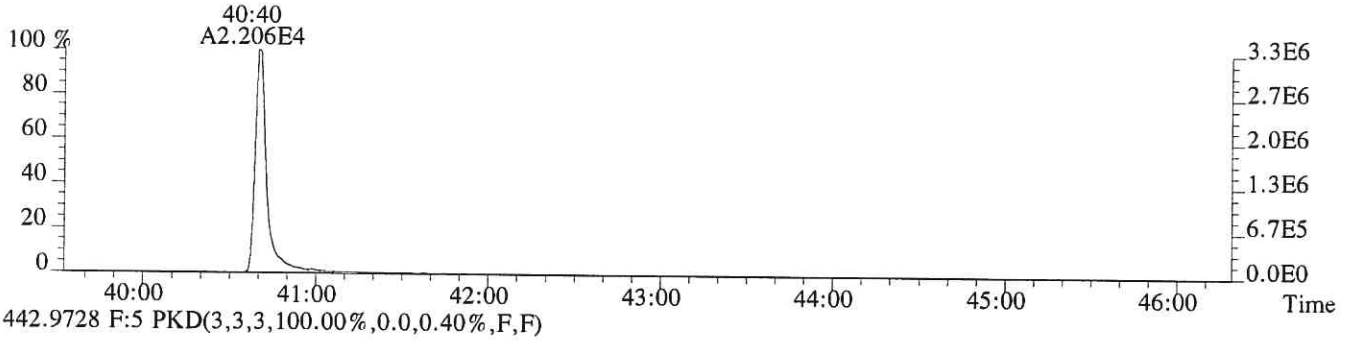
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



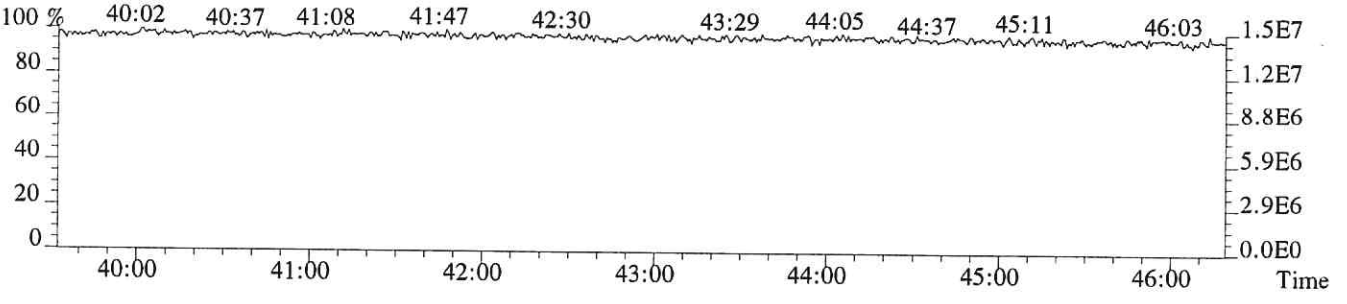
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P518877 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:50:36
Processed: 21-NOV-18 09:19:36 Sample ID: EQ1800468-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	1.261e+03	1.780e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.121e+04	7.480e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.193e+04	8.027e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.054e+04	8.511e+03	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.273e+04	1.039e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.062e+04	8.881e+03	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	8.802e+03	7.144e+03	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	8.025e+03	8.001e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.628e+03	6.603e+03	1.00	yes	no	1.258
10	Unk	OCDF	40:52	6.257e+03	6.976e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	9.199e+02	1.212e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	8.849e+03	5.501e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	7.526e+03	6.122e+03	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.342e+03	6.580e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	8.214e+03	6.788e+03	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.626e+03	5.359e+03	1.05	yes	no	1.025
17	Unk	OCDD	40:43	2.679e+03	2.937e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.323e+04	1.708e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.419e+04	1.541e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.467e+04	1.552e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.069e+04	2.099e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.393e+04	2.697e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.196e+04	2.395e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.021e+04	1.960e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	7.725e+03	1.722e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.540e+03	1.457e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	8.607e+03	1.076e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.789e+04	1.128e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.573e+04	1.266e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.587e+04	1.261e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.410e+04	1.268e+04	1.11	yes	no	0.858
32	IS	13C-OCDD	40:43	4.387e+03	5.320e+03	0.82	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.214e+04	2.788e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.389e+04	2.618e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	9.764e+03				no	1.014

$$\text{OCDD} = \frac{(2.679e+03 + 2.937e+03) \times 4000\ \text{pg} \times 1}{(4.387e+03 + 5.320e+03) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P518877 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:50:36
Processed: 21-NOV-18 09:19:36 LAB. ID: EQ1800468-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.65e+05	2.08e+02	7.9e+02	2.37e+05	1.08e+03	2.2e+02
2	1,2,3,7,8-PeCDF	1.83e+06	3.88e+02	4.7e+03	1.24e+06	1.18e+03	1.0e+03
3	2,3,4,7,8-PeCDF	2.07e+06	3.88e+02	5.3e+03	1.41e+06	1.18e+03	1.2e+03
4	1,2,3,4,7,8-HxCDF	2.09e+06	1.32e+02	1.6e+04	1.77e+06	1.48e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	2.35e+06	1.32e+02	1.8e+04	1.90e+06	1.48e+02	1.3e+04
6	2,3,4,6,7,8-HxCDF	2.13e+06	1.32e+02	1.6e+04	1.74e+06	1.48e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	1.55e+06	1.32e+02	1.2e+04	1.26e+06	1.48e+02	8.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.59e+06	2.49e+03	6.4e+02	1.53e+06	2.74e+03	5.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.10e+06	2.49e+03	4.4e+02	1.16e+06	2.74e+03	4.2e+02
10	OCDF	9.83e+05	1.84e+02	5.3e+03	1.10e+06	6.12e+02	1.8e+03
11	2,3,7,8-TCDD	1.39e+05	1.13e+03	1.2e+02	1.71e+05	4.00e+02	4.3e+02
12	1,2,3,7,8-PeCDD	1.52e+06	5.00e+02	3.0e+03	9.42e+05	2.04e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	1.57e+06	1.84e+02	8.5e+03	1.22e+06	1.64e+02	7.4e+03
14	1,2,3,6,7,8-HxCDD	1.62e+06	1.84e+02	8.8e+03	1.26e+06	1.64e+02	7.7e+03
15	1,2,3,7,8,9-HxCDD	1.46e+06	1.84e+02	7.9e+03	1.17e+06	1.64e+02	7.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.05e+06	2.00e+02	5.2e+03	1.01e+06	2.00e+02	5.0e+03
17	OCDD	3.56e+05	2.64e+02	1.3e+03	3.86e+05	1.84e+02	2.1e+03
18	13C-2,3,7,8-TCDF	1.74e+06	3.09e+03	5.6e+02	2.27e+06	1.05e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	3.95e+06	3.28e+02	1.2e+04	2.48e+06	7.72e+02	3.2e+03
20	13C-2,3,4,7,8-PeCDF	4.31e+06	3.28e+02	1.3e+04	2.68e+06	7.72e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.20e+06	3.44e+02	6.4e+03	4.29e+06	3.80e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.56e+06	3.44e+02	7.4e+03	4.94e+06	3.80e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.35e+06	3.44e+02	6.8e+03	4.71e+06	3.80e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	3.44e+02	5.2e+03	3.49e+06	3.80e+02	9.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.55e+06	1.84e+03	8.4e+02	3.36e+06	2.08e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.17e+06	1.84e+03	6.3e+02	2.58e+06	2.08e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.27e+06	4.36e+03	2.9e+02	1.61e+06	1.76e+03	9.2e+02
28	13C-1,2,3,7,8-PeCDD	3.12e+06	6.40e+02	4.9e+03	1.96e+06	4.84e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.25e+06	1.14e+03	2.9e+03	2.56e+06	4.60e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	3.00e+06	1.14e+03	2.6e+03	2.40e+06	4.60e+02	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.62e+06	2.40e+02	1.1e+04	2.40e+06	4.80e+02	5.0e+03
32	13C-OCDD	4.73e+05	3.88e+02	1.2e+03	6.17e+05	1.76e+02	3.5e+03
33	13C-1,2,3,4-TCDD	3.26e+06	4.36e+03	7.5e+02	4.08e+06	1.76e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	6.09e+06	1.14e+03	5.4e+03	4.71e+06	4.60e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	1.42e+06	1.10e+03	1.3e+03			

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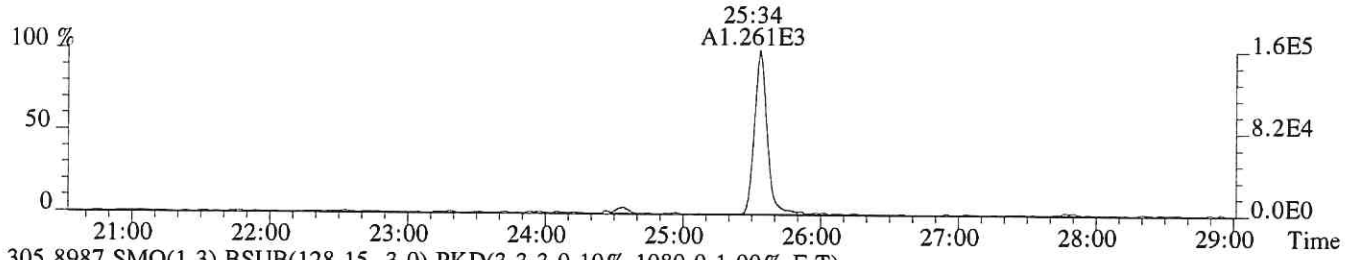
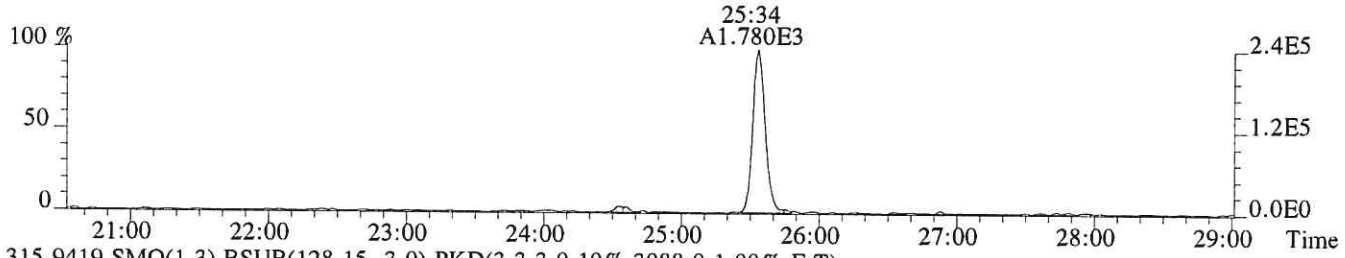
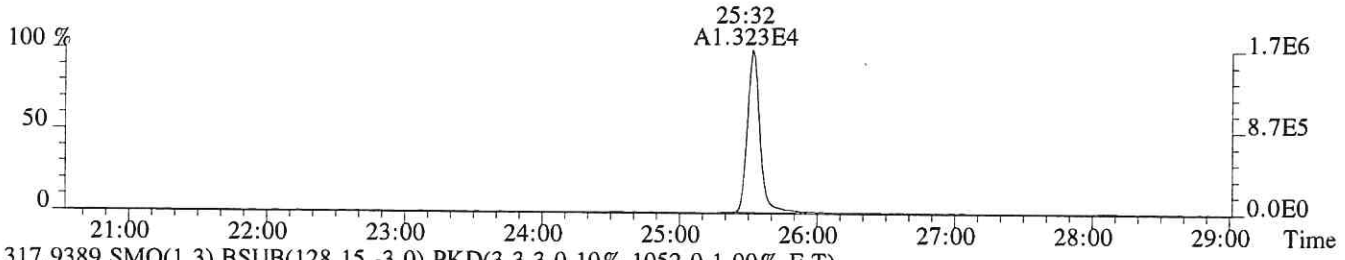
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



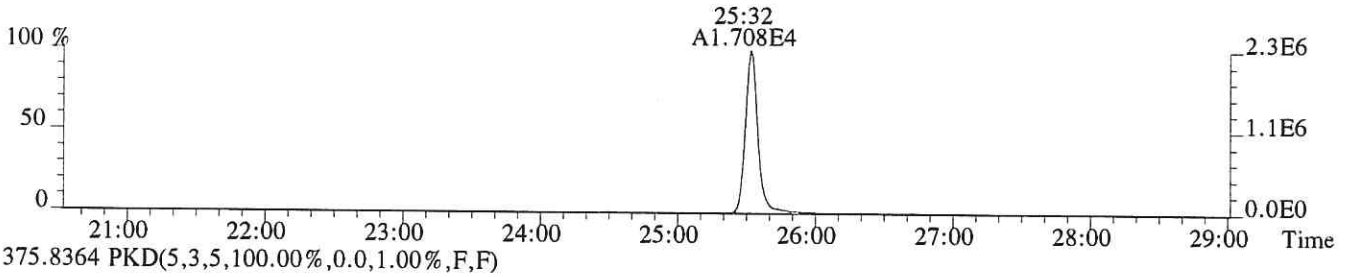
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



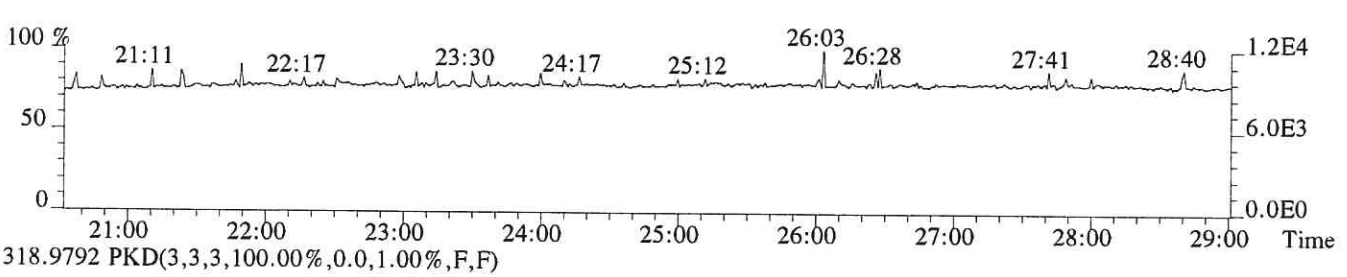
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3088.0,1.00%,F,T)



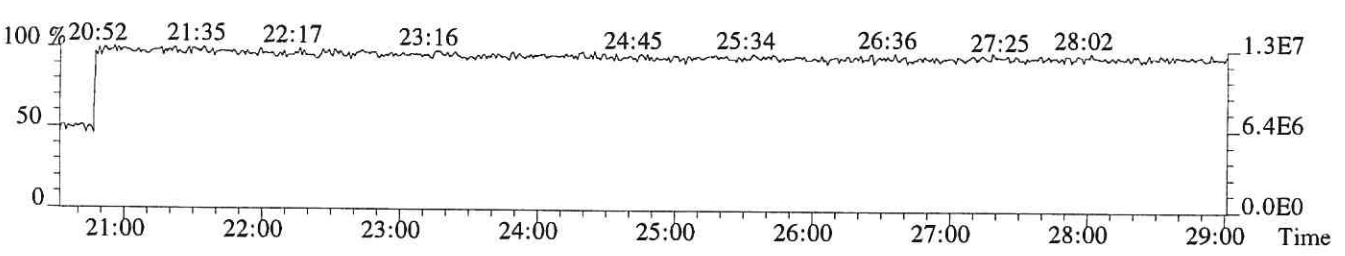
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



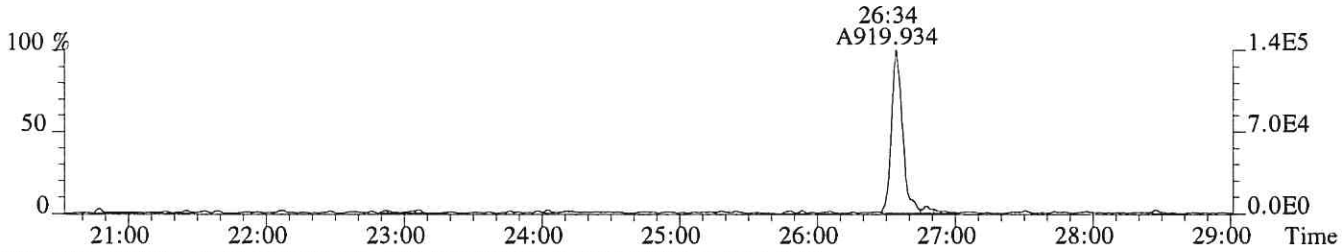
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



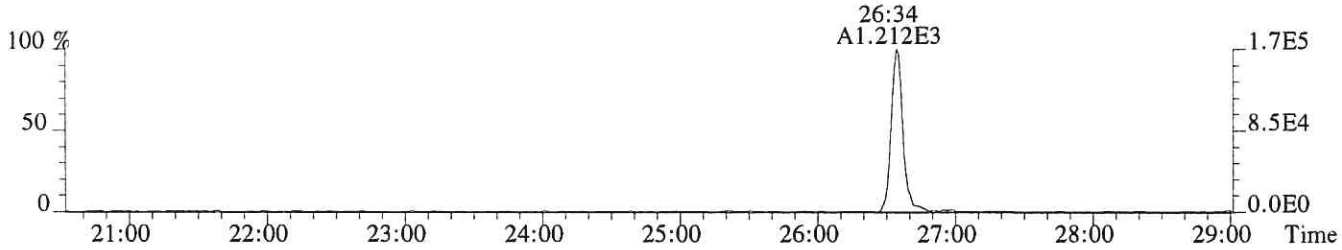
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



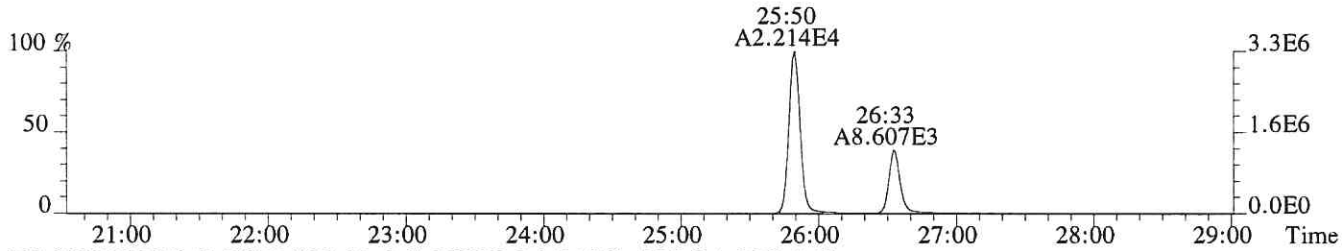
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



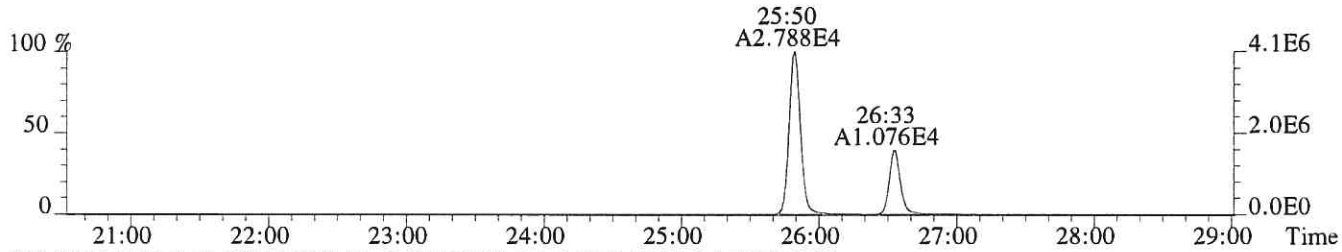
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



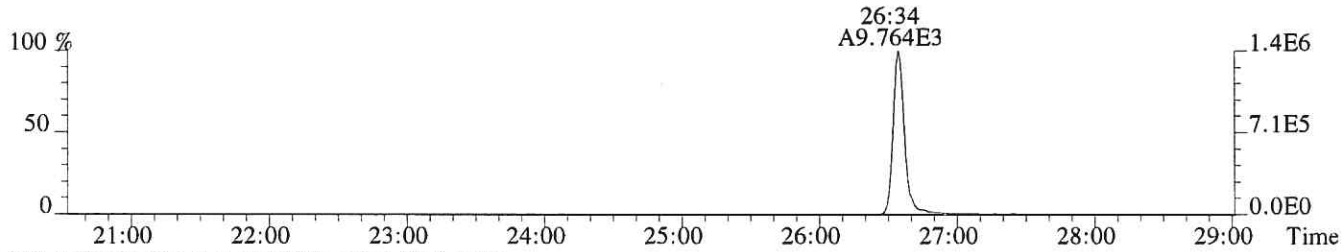
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4360.0,1.00%,F,T)



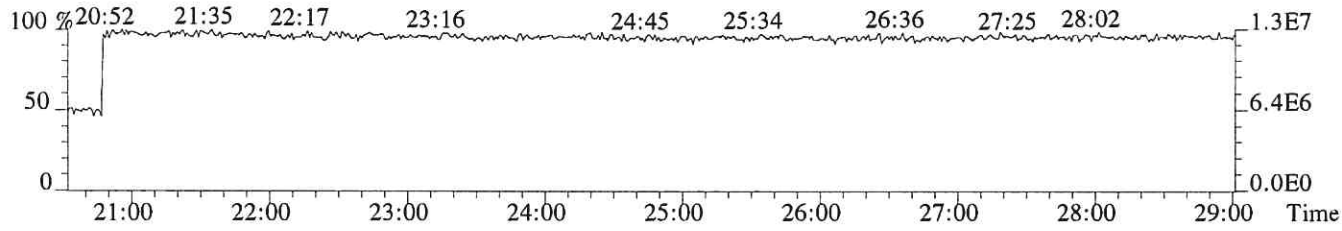
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



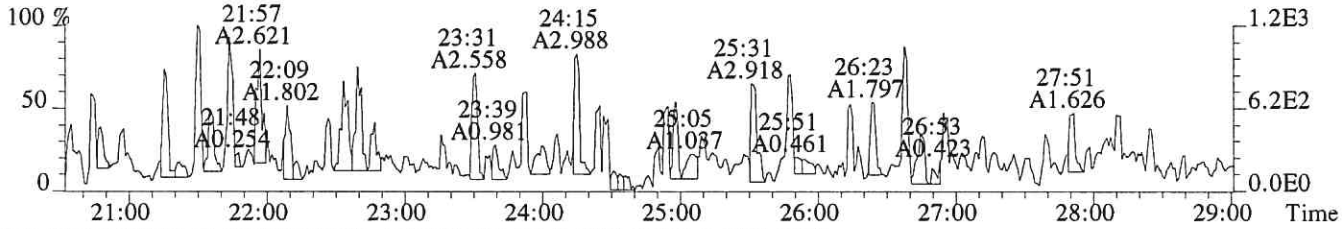
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



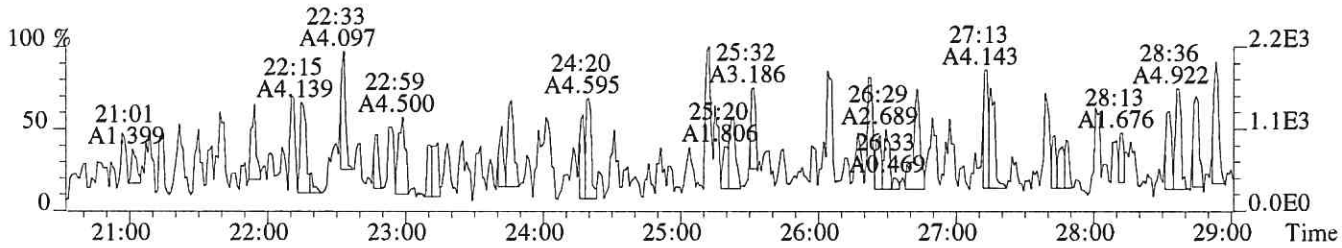
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



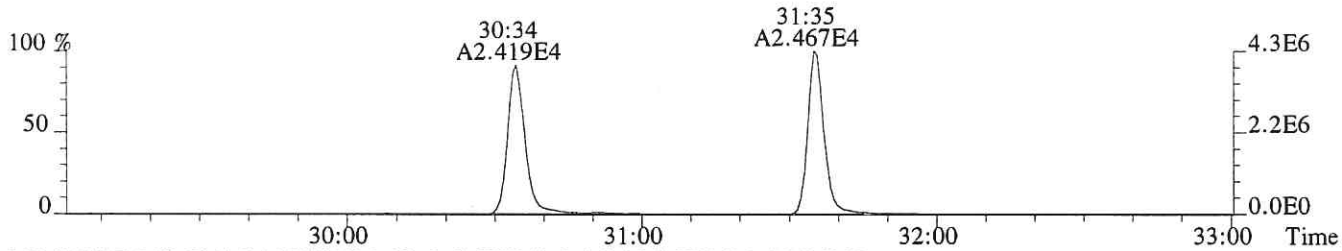
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



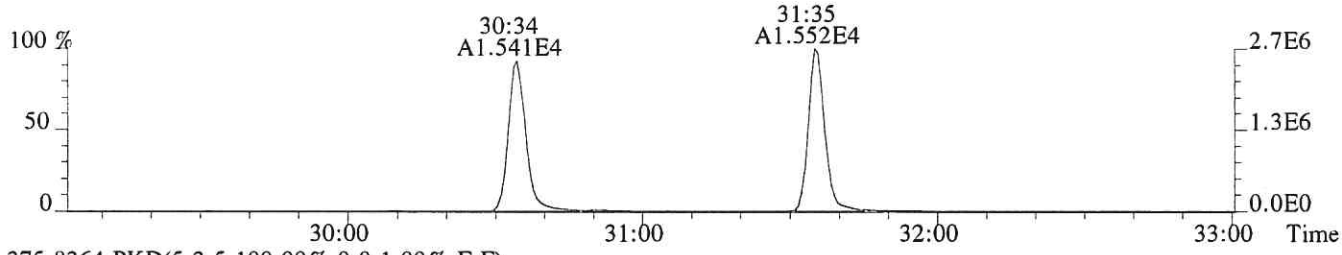
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



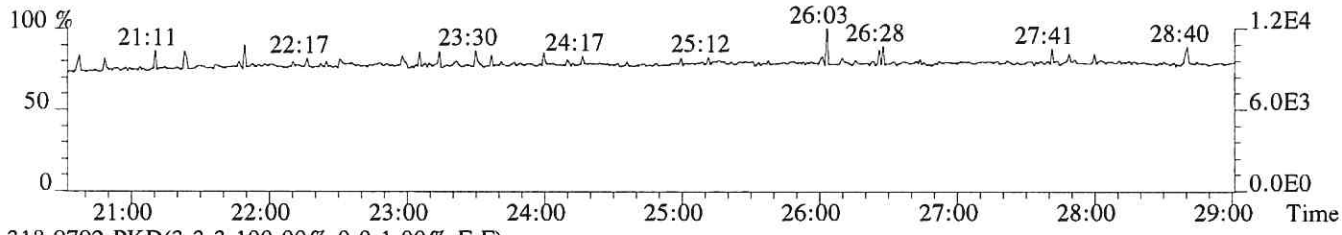
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



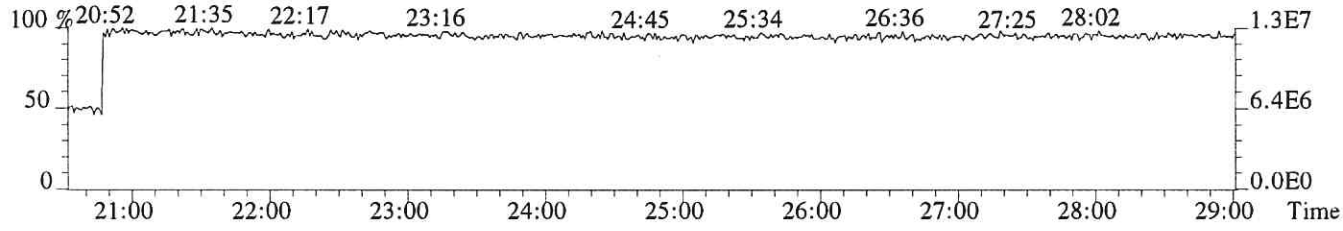
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



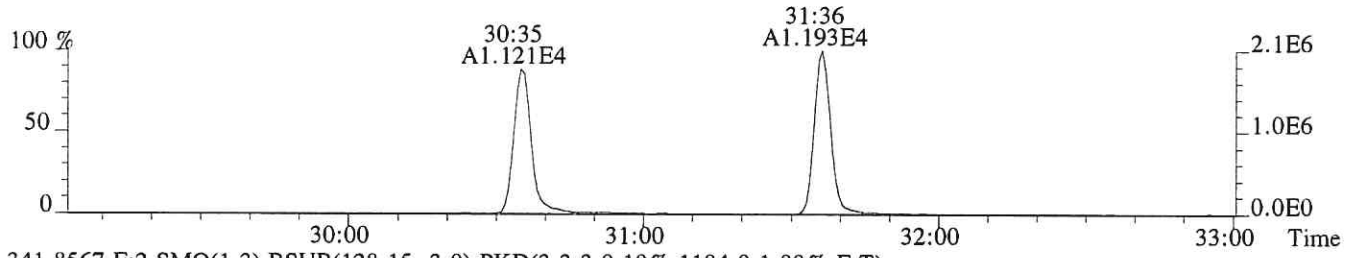
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



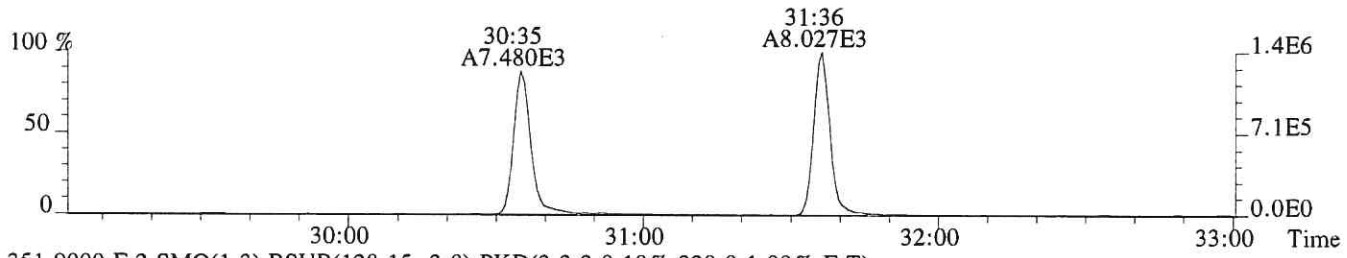
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



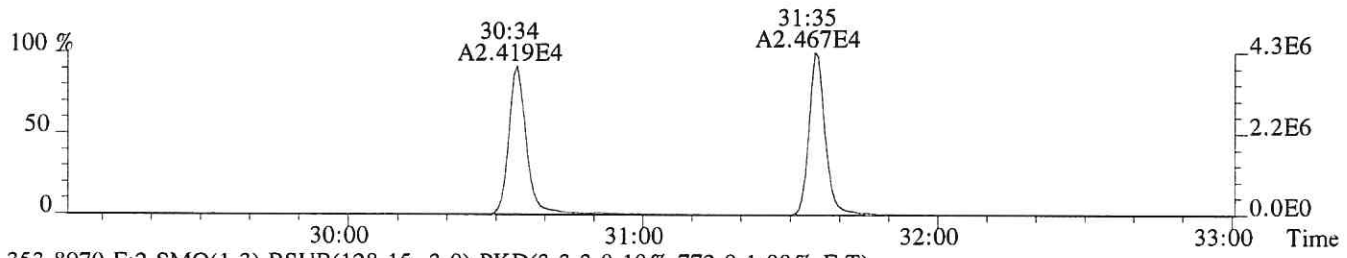
File:P518877 #1-357 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



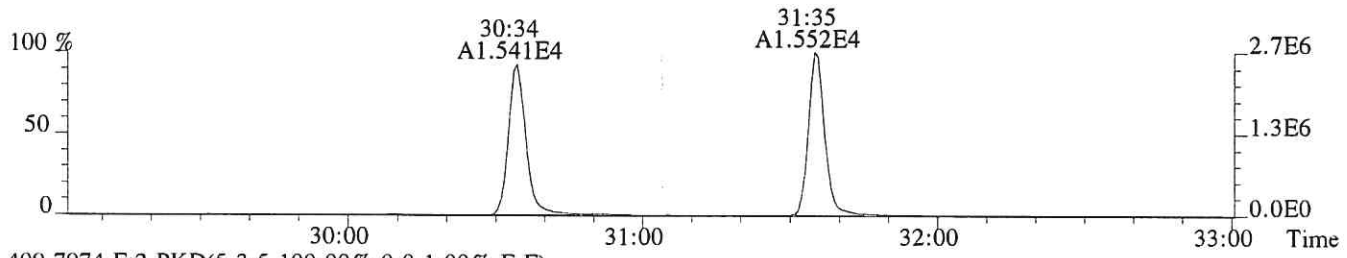
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



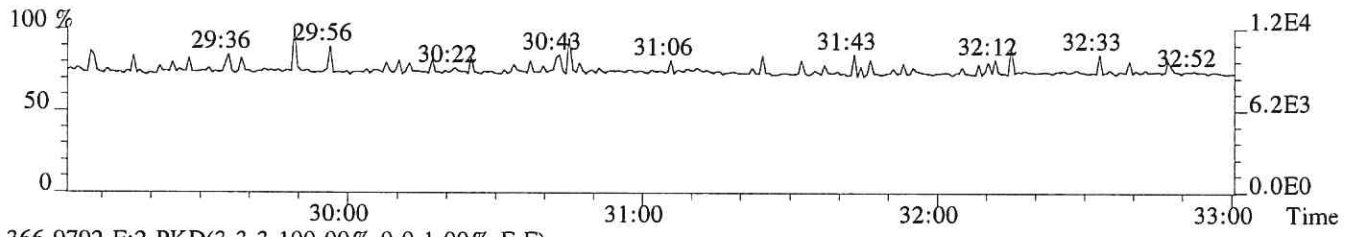
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



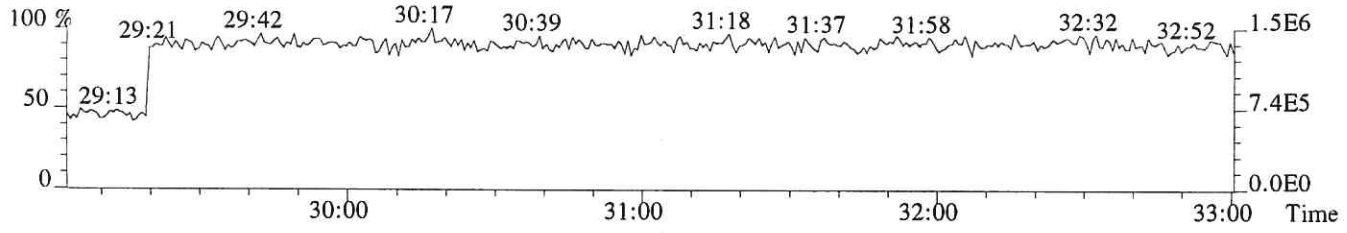
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



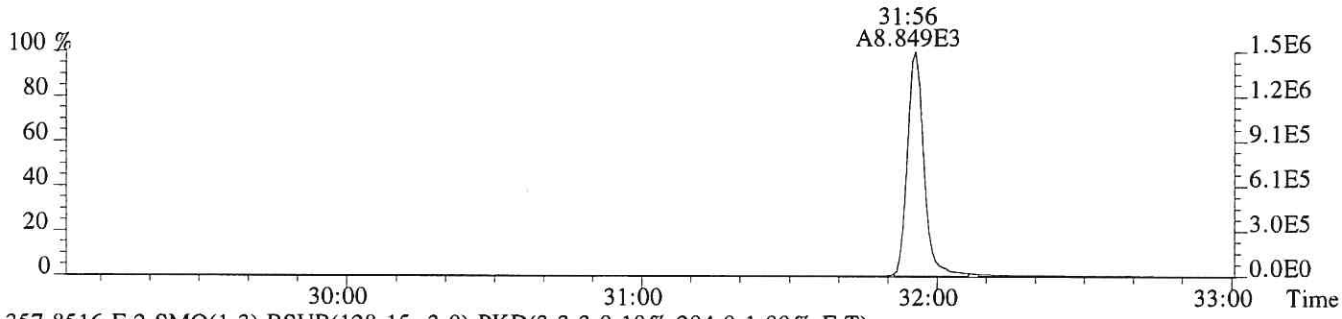
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



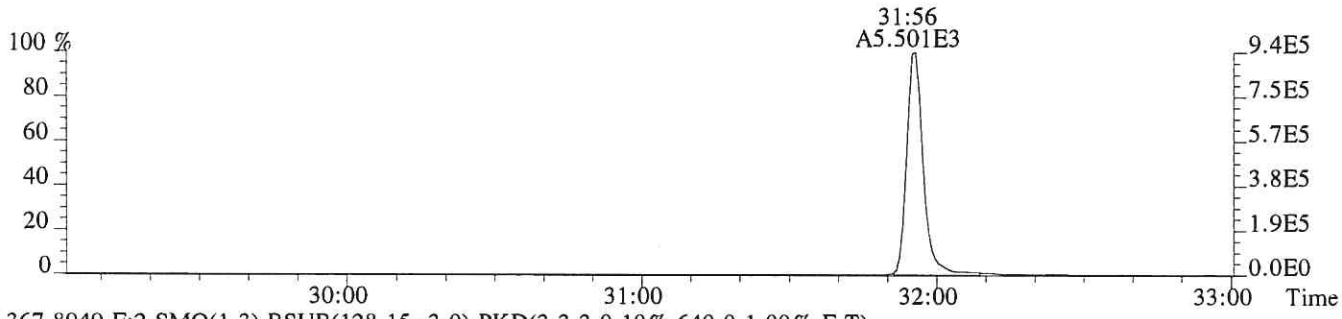
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



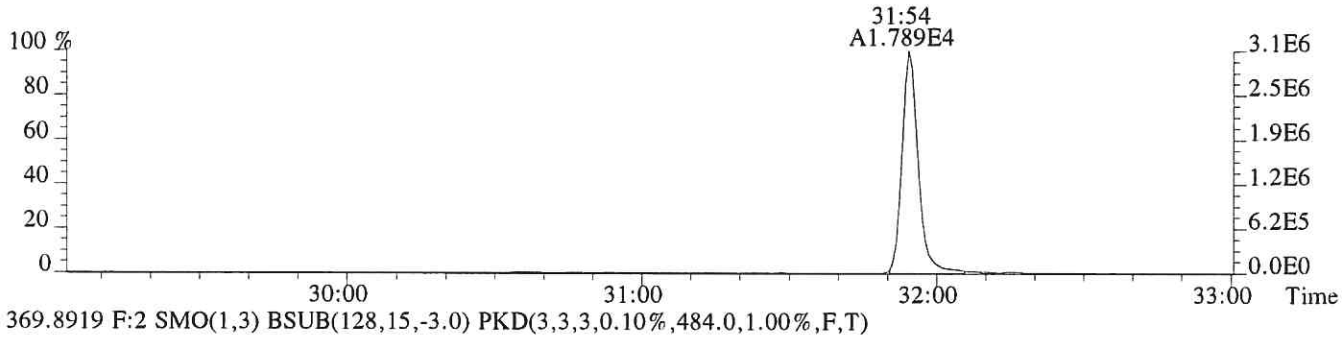
File:P518877 #1-357 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



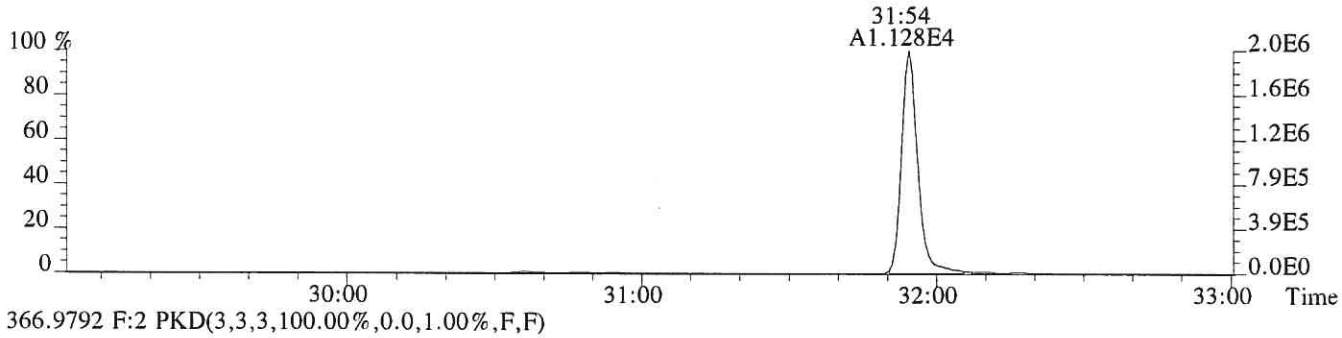
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



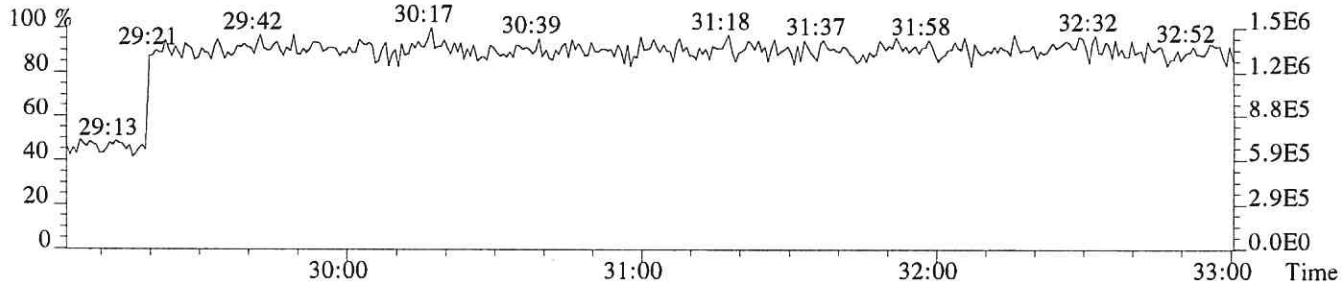
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



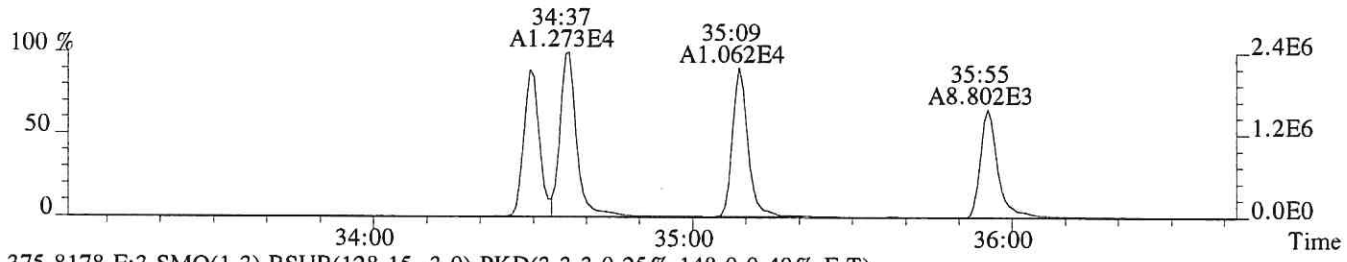
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



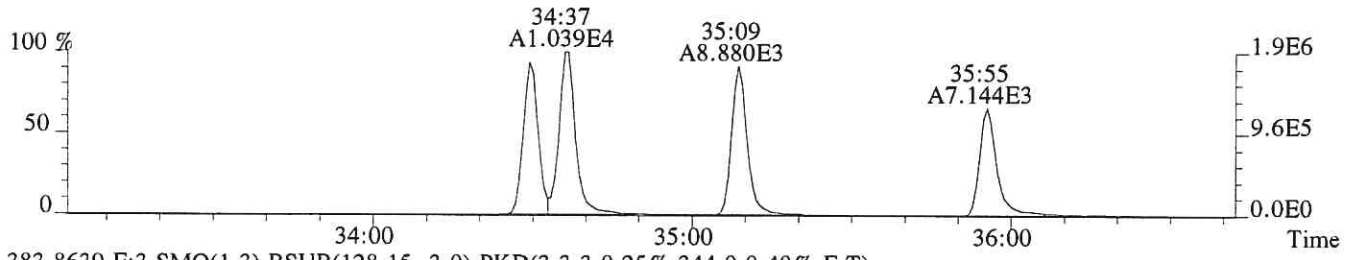
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



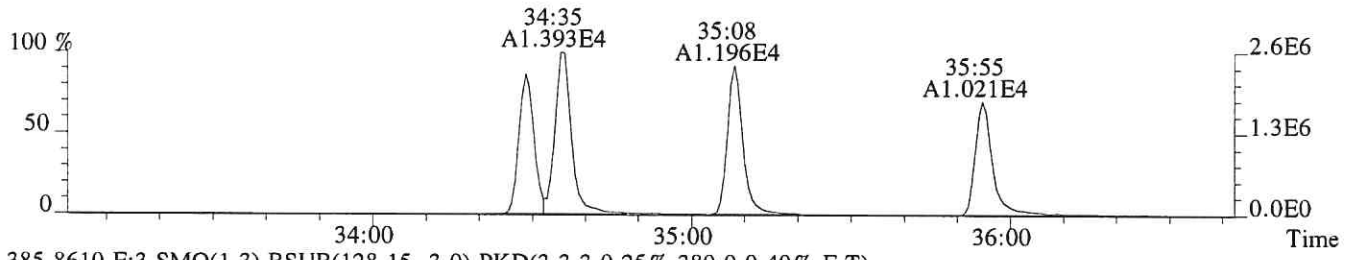
File:P518877 #1-330 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



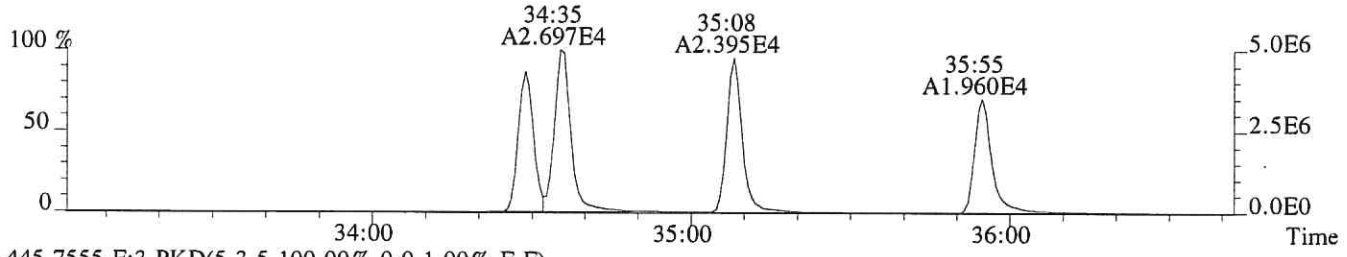
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,148.0,0.40%,F,T)



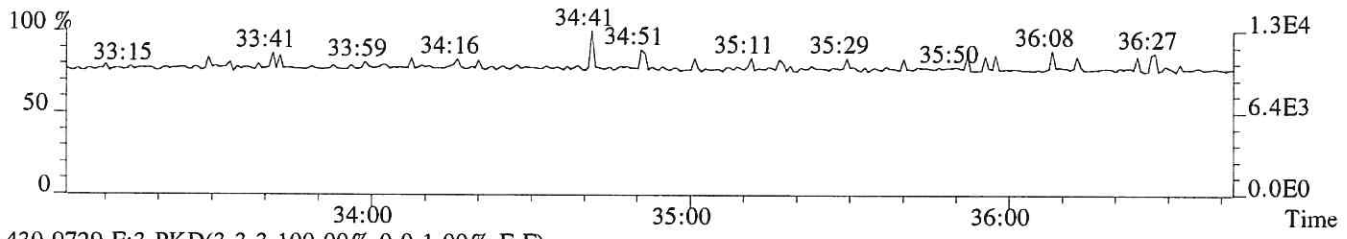
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



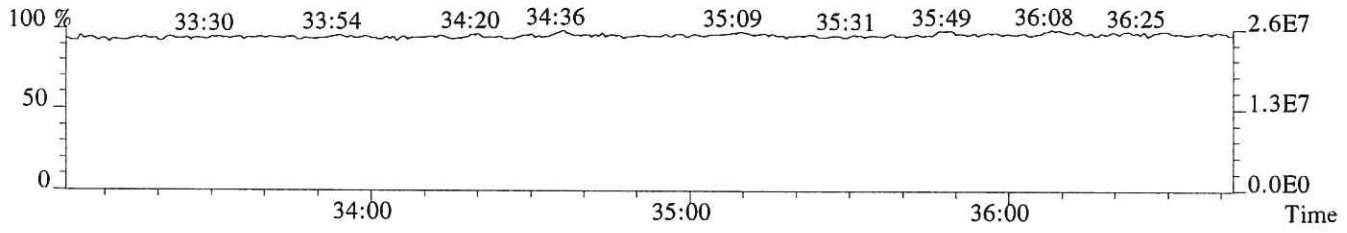
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



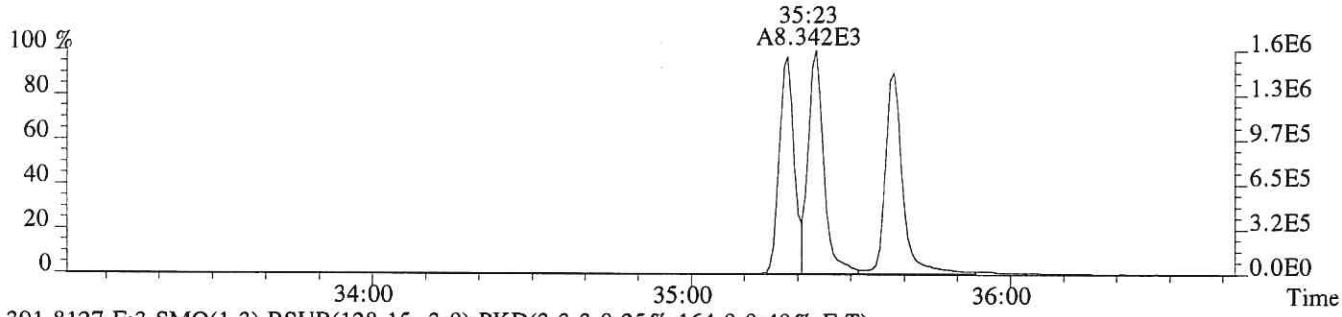
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



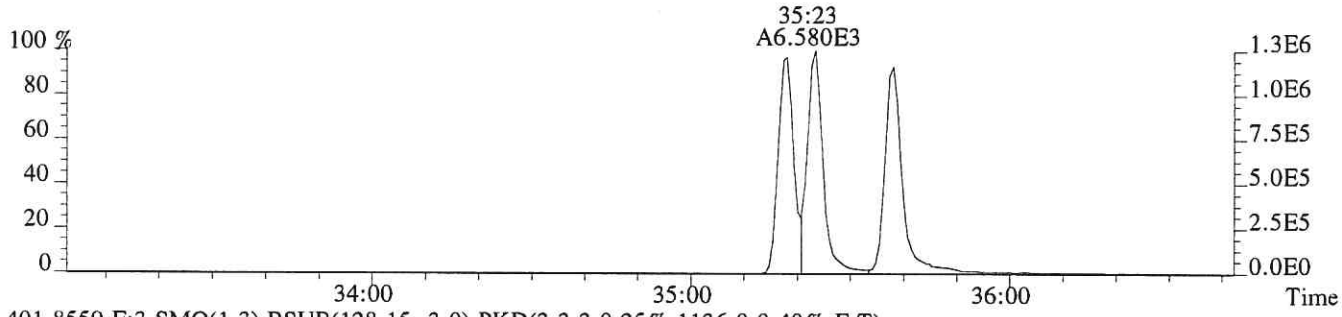
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



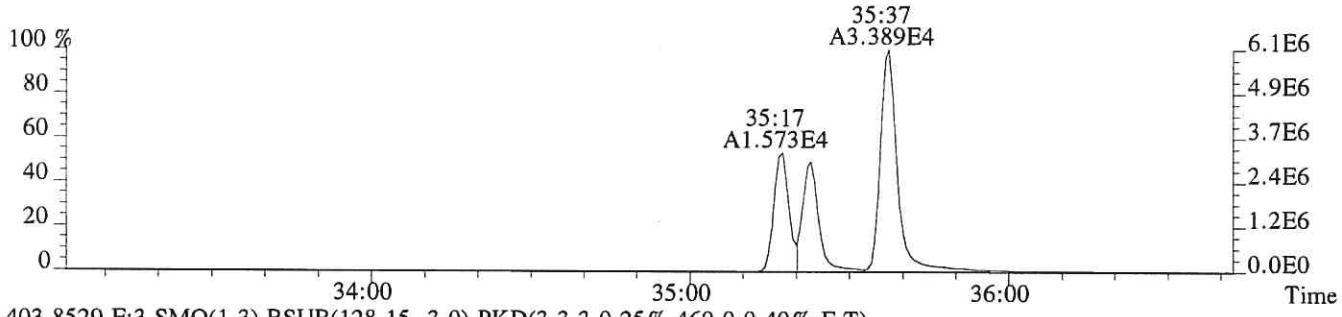
File:P518877 #1-330 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



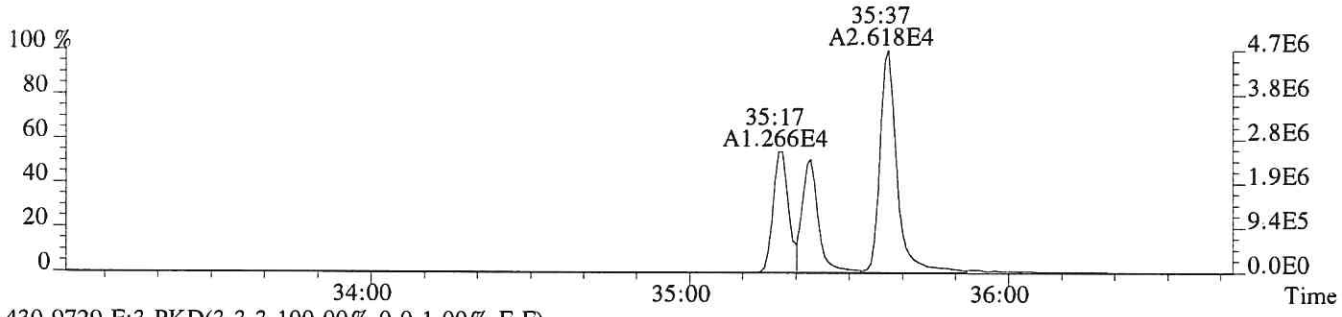
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



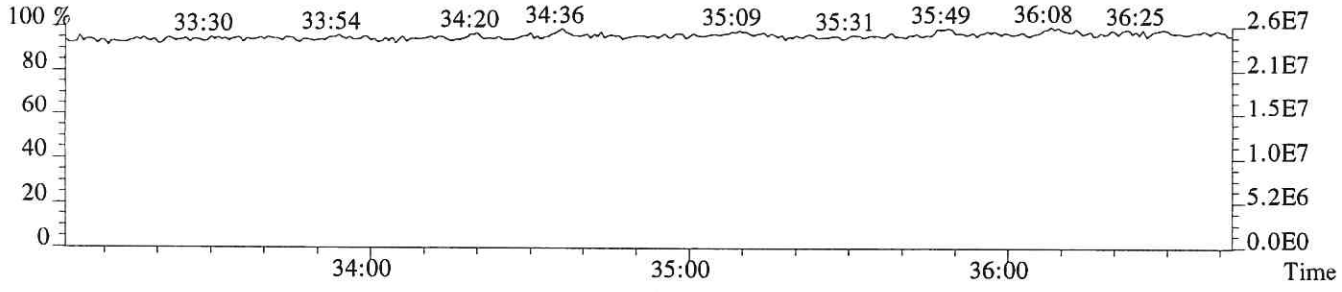
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



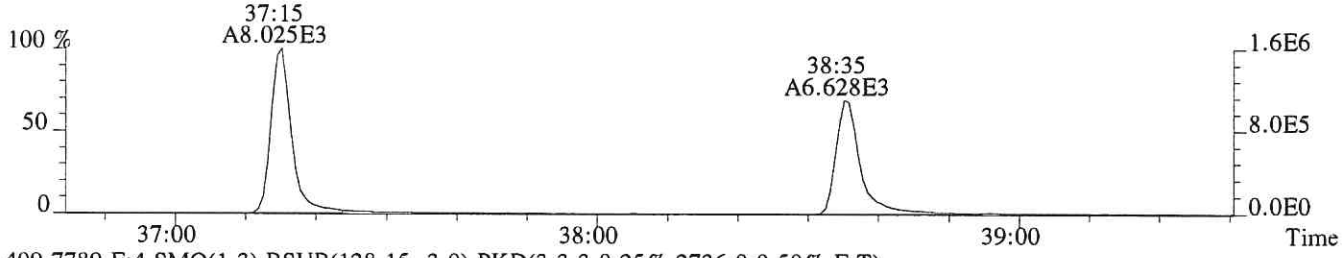
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



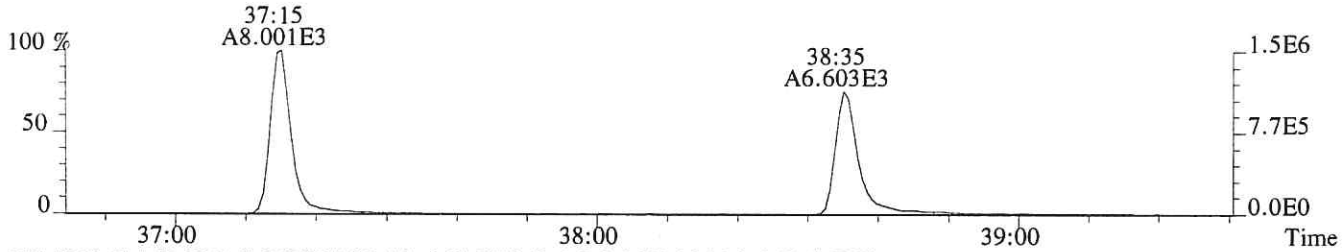
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



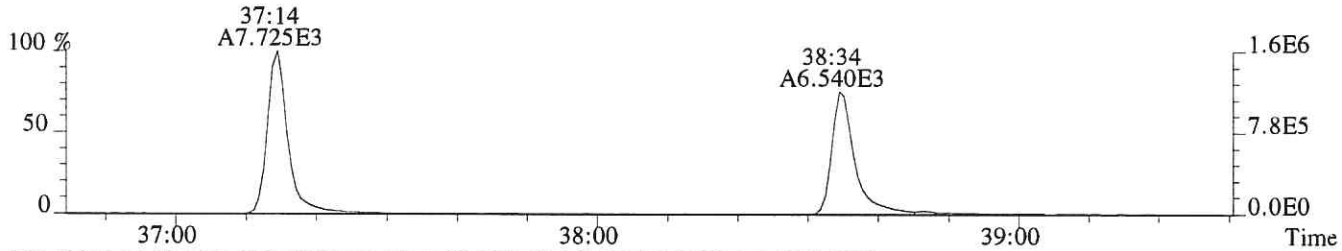
File:P518877 #1-250 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2492.0,0.50%,F,T)



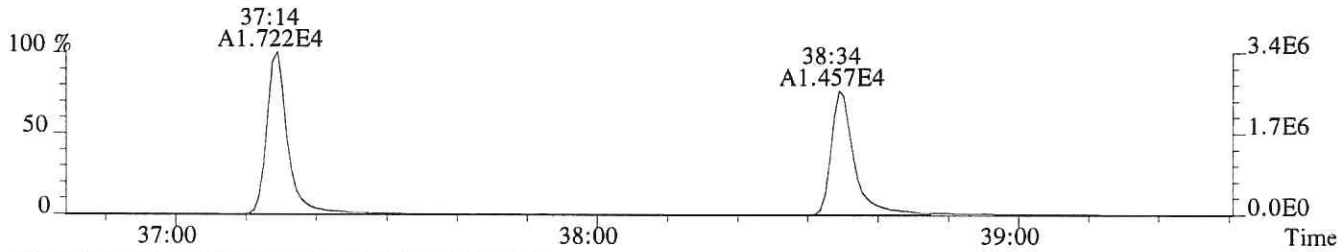
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2736.0,0.50%,F,T)



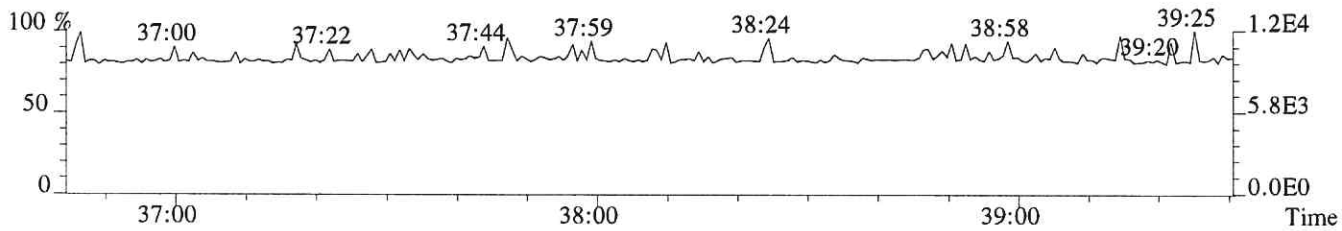
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



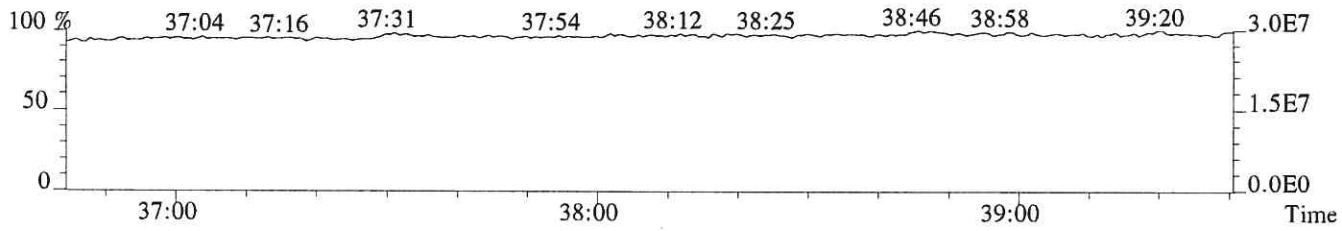
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.50%,F,T)



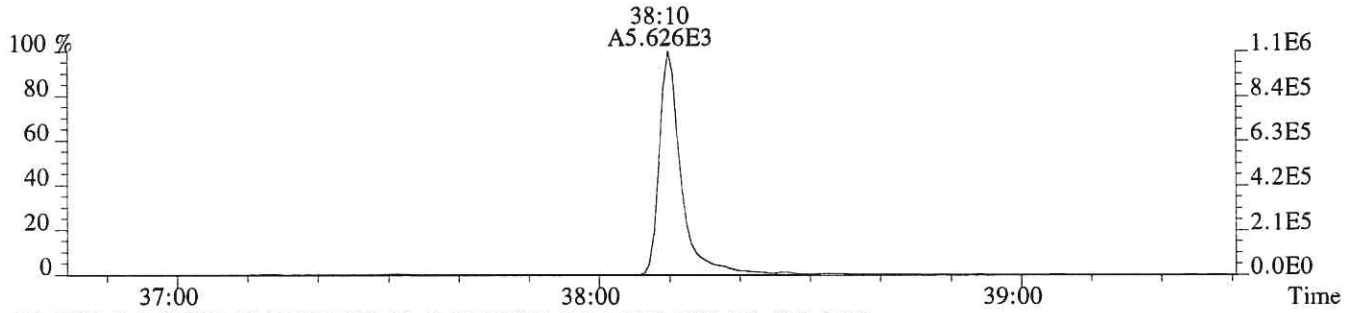
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



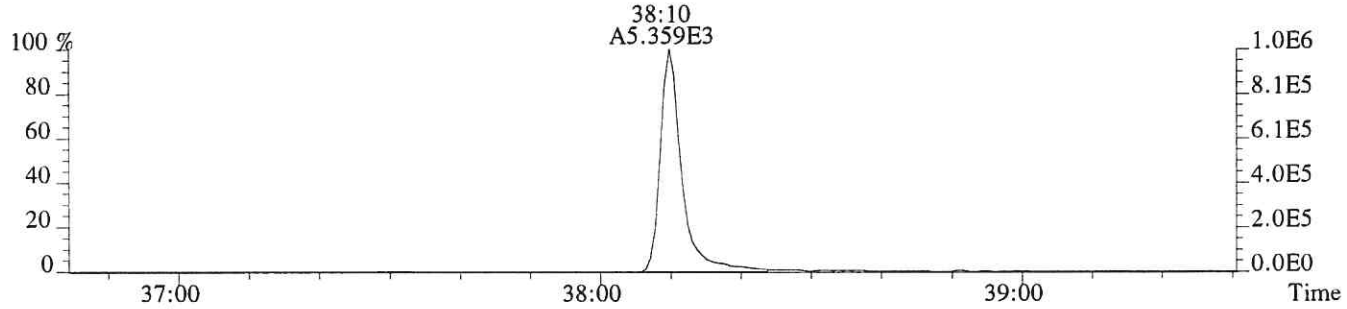
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



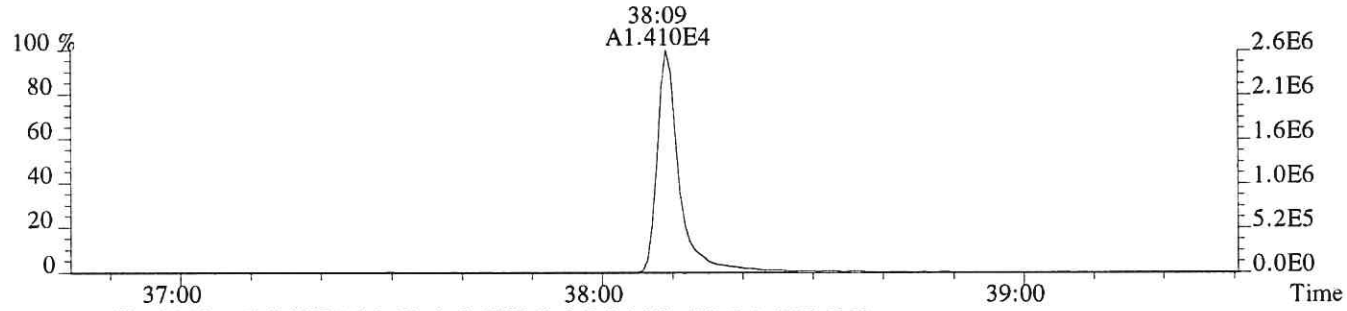
File:P518877 #1-250 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



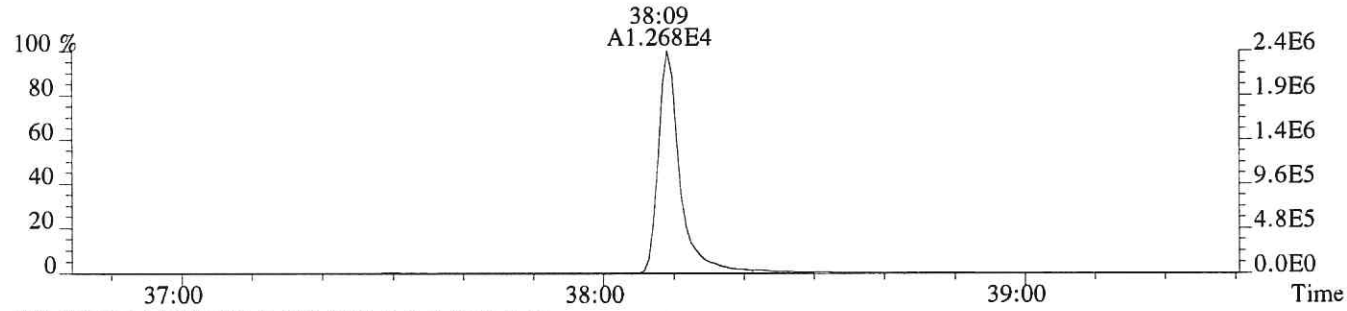
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



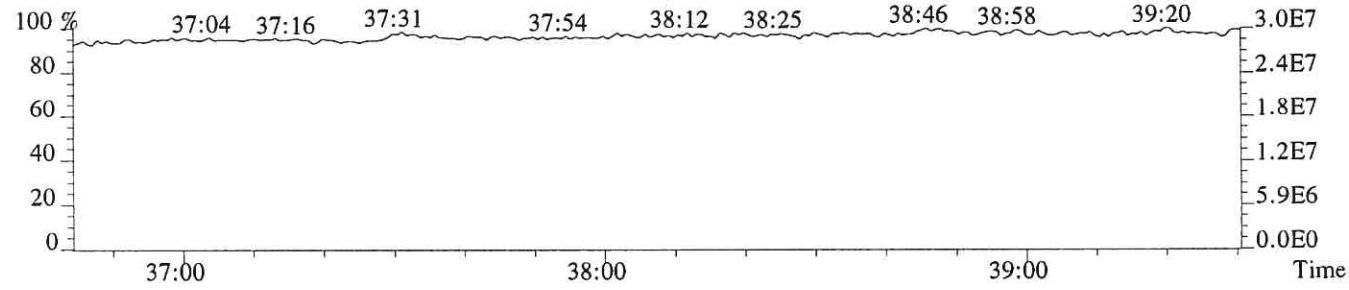
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



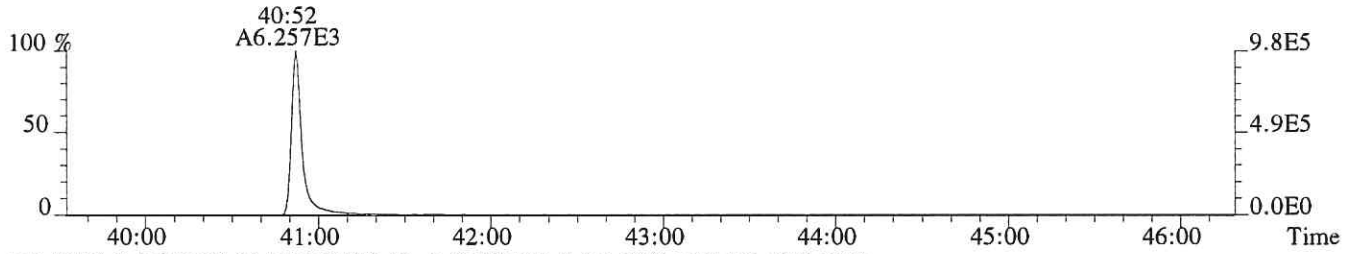
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



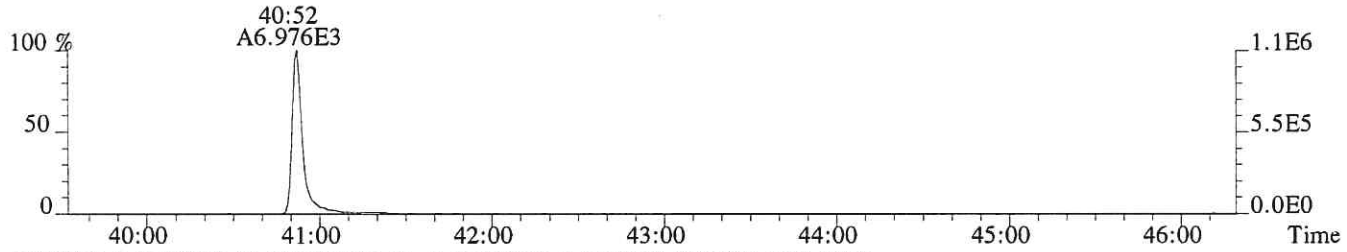
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



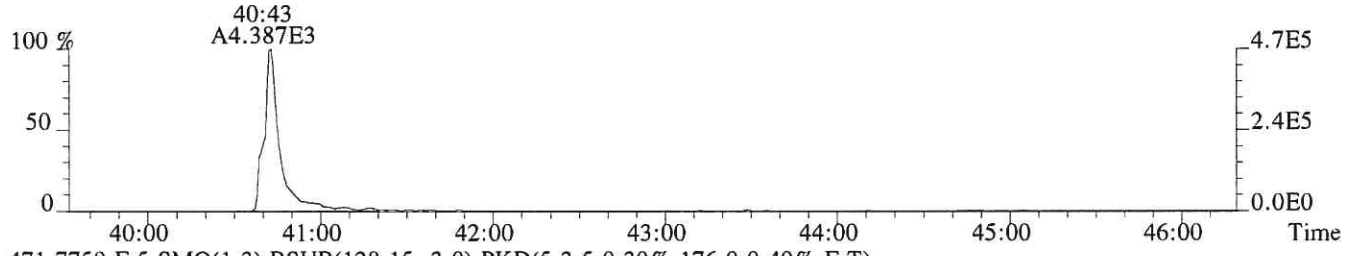
File:P518877 #1-610 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



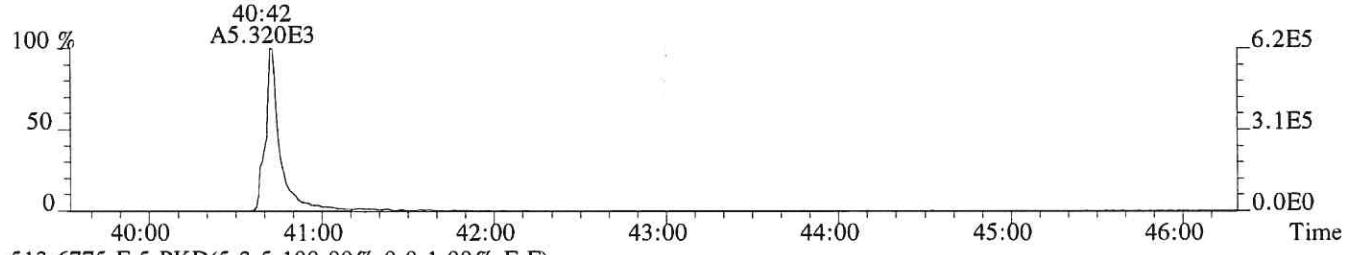
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



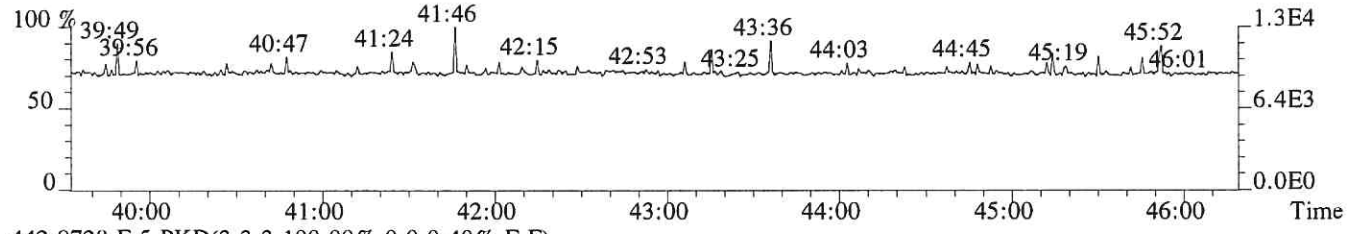
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



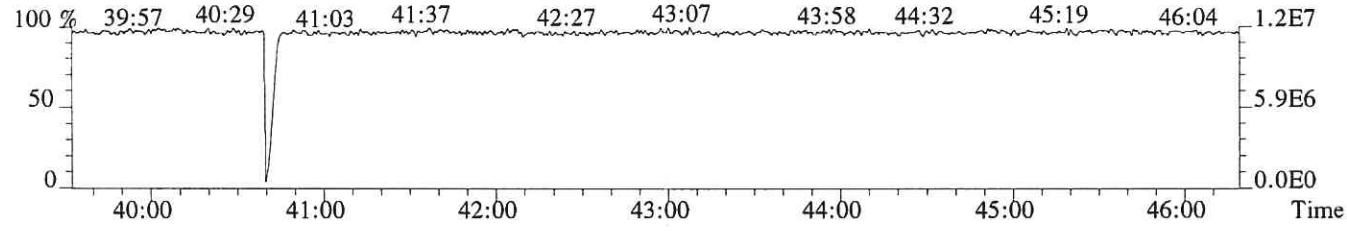
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



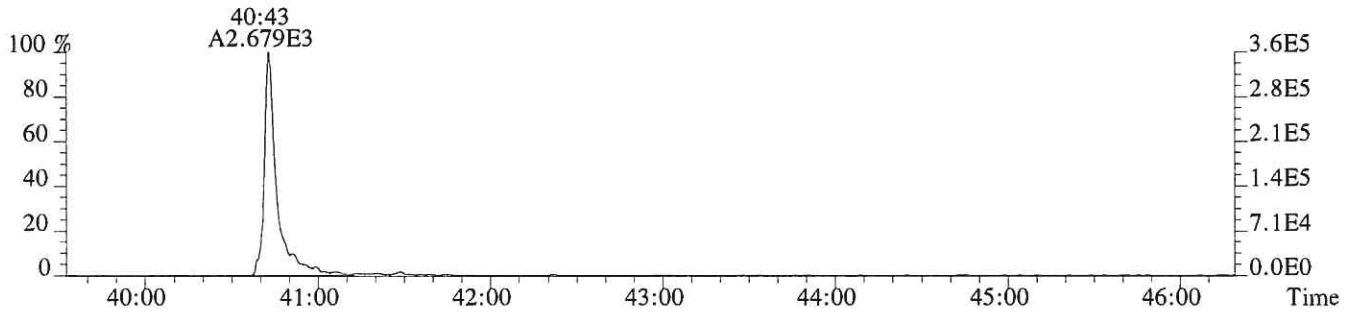
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



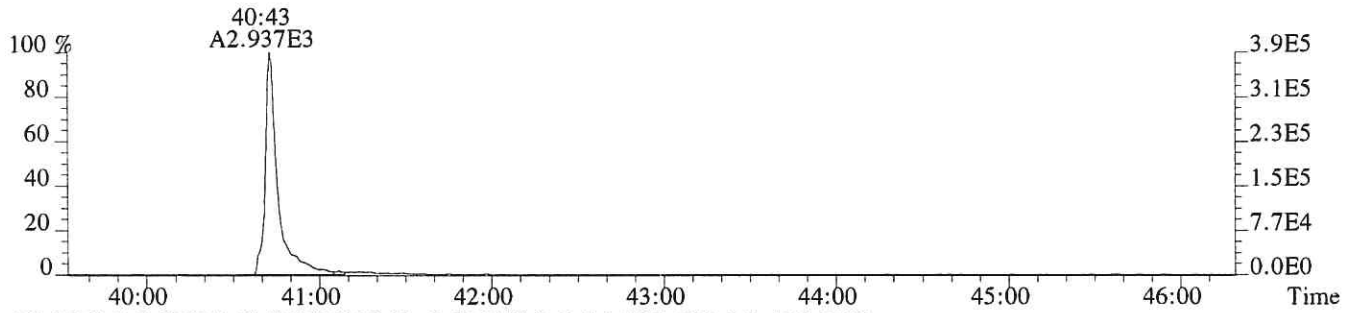
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



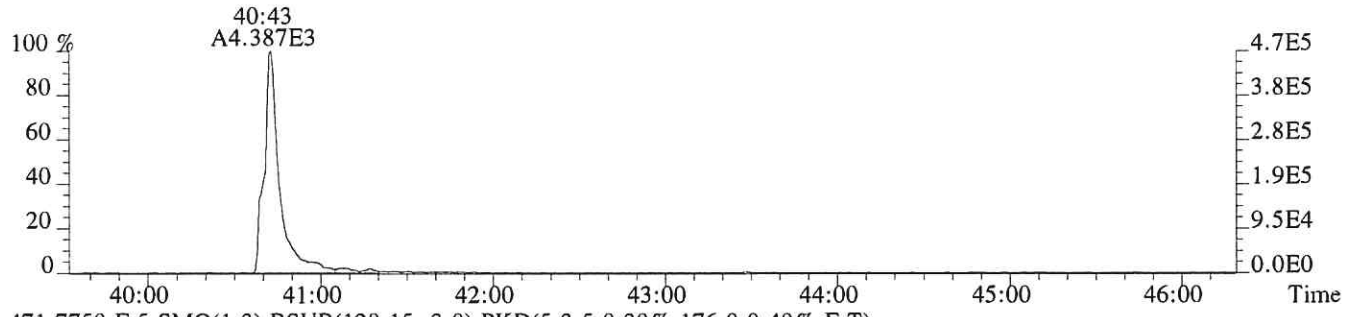
File:P518877 #1-610 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



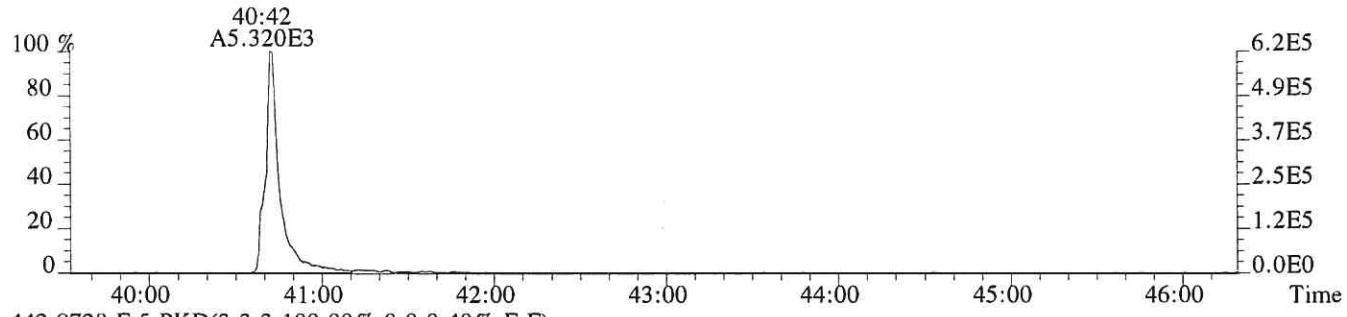
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



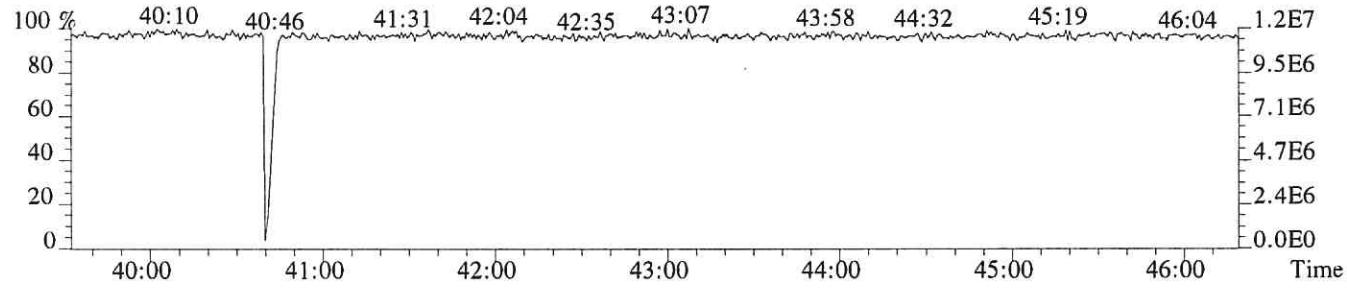
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P518878 Samp: 1 Inj: 1 Acquired: 17-NOV-18 11:39:16
Processed: 21-NOV-18 09:19:36 Sample ID: EQ1800468-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	7.823e+02	9.874e+02	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	8.993e+03	5.723e+03	1.57	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.664e+03	6.345e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.482e+03	7.948e+03	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.062e+04	8.906e+03	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	9.688e+03	8.021e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.122e+03	7.499e+03	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	7.564e+03	7.423e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.497e+03	6.389e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:51	6.617e+03	7.801e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	5.026e+02	7.286e+02	0.69	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	7.286e+03	4.727e+03	1.54	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.095e+03	5.514e+03	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	7.580e+03	5.895e+03	1.29	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	7.900e+03	6.199e+03	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.478e+03	5.184e+03	1.06	yes	no	1.025
17	Unk	OCDD	40:42	5.373e+03	6.023e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	7.276e+03	9.204e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.849e+04	1.144e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.015e+04	1.247e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	9.973e+03	1.942e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.204e+04	2.312e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.140e+04	2.157e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.035e+04	2.014e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	6.941e+03	1.604e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.317e+03	1.450e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	5.095e+03	6.069e+03	0.84	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.474e+04	9.060e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.397e+04	1.099e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.483e+04	1.151e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.311e+04	1.252e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:41	9.688e+03	1.063e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.195e+04	2.783e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.128e+04	2.471e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	5.326e+03				no	1.014

$$\text{OCDD} = \frac{(5.373\text{e+}03 + 6.023\text{e+}03) \times 4000\ \text{pg} \times 1}{(9.688\text{e+}03 + 1.063\text{e+}04) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P518878 Samp: 1 Inj: 1 Acquired: 17-NOV-18 11:39:16
Processed: 21-NOV-18 09:19:36 LAB. ID: EQ1800468-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+05	7.16e+02	1.4e+02	1.32e+05	6.76e+02	2.0e+02
2	1,2,3,7,8-PeCDF	1.47e+06	7.04e+02	2.1e+03	9.19e+05	1.42e+03	6.5e+02
3	2,3,4,7,8-PeCDF	1.68e+06	7.04e+02	2.4e+03	1.12e+06	1.42e+03	7.9e+02
4	1,2,3,4,7,8-HxCDF	1.98e+06	4.04e+02	4.9e+03	1.64e+06	3.24e+02	5.1e+03
5	1,2,3,6,7,8-HxCDF	2.01e+06	4.04e+02	5.0e+03	1.65e+06	3.24e+02	5.1e+03
6	2,3,4,6,7,8-HxCDF	1.93e+06	4.04e+02	4.8e+03	1.60e+06	3.24e+02	4.9e+03
7	1,2,3,7,8,9-HxCDF	1.55e+06	4.04e+02	3.8e+03	1.30e+06	3.24e+02	4.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.51e+06	2.62e+03	5.8e+02	1.48e+06	1.28e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.15e+06	2.62e+03	4.4e+02	1.16e+06	1.28e+03	9.1e+02
10	OCDF	1.04e+06	4.44e+02	2.3e+03	1.21e+06	3.40e+02	3.6e+03
11	2,3,7,8-TCDD	7.59e+04	1.56e+03	4.9e+01	1.07e+05	4.56e+02	2.3e+02
12	1,2,3,7,8-PeCDD	1.26e+06	2.92e+02	4.3e+03	7.94e+05	2.16e+02	3.7e+03
13	1,2,3,4,7,8-HxCDD	1.47e+06	3.00e+02	4.9e+03	1.16e+06	4.00e+02	2.9e+03
14	1,2,3,6,7,8-HxCDD	1.45e+06	3.00e+02	4.8e+03	1.14e+06	4.00e+02	2.8e+03
15	1,2,3,7,8,9-HxCDD	1.44e+06	3.00e+02	4.8e+03	1.14e+06	4.00e+02	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	9.75e+05	1.04e+02	9.4e+03	9.52e+05	2.88e+02	3.3e+03
17	OCDD	8.62e+05	2.36e+02	3.7e+03	9.29e+05	2.04e+02	4.6e+03
18	13C-2,3,7,8-TCDF	9.26e+05	3.75e+03	2.5e+02	1.20e+06	1.66e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	3.01e+06	2.24e+02	1.3e+04	1.86e+06	2.40e+02	7.7e+03
20	13C-2,3,4,7,8-PeCDF	3.50e+06	2.24e+02	1.6e+04	2.18e+06	2.40e+02	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.04e+06	7.40e+02	2.8e+03	4.03e+06	4.32e+02	9.3e+03
22	13C-1,2,3,6,7,8-HxCDF	2.23e+06	7.40e+02	3.0e+03	4.31e+06	4.32e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.24e+06	7.40e+02	3.0e+03	4.30e+06	4.32e+02	9.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	7.40e+02	2.4e+03	3.44e+06	4.32e+02	8.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.37e+06	3.16e+03	4.3e+02	3.25e+06	8.88e+02	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.15e+06	3.16e+03	3.6e+02	2.61e+06	8.88e+02	2.9e+03
27	13C-2,3,7,8-TCDD	7.37e+05	3.84e+03	1.9e+02	8.85e+05	1.76e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	2.49e+06	3.48e+02	7.2e+03	1.52e+06	2.88e+02	5.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.01e+06	1.14e+03	2.6e+03	2.39e+06	2.92e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+06	1.14e+03	2.3e+03	2.12e+06	2.92e+02	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.43e+06	2.84e+02	8.6e+03	2.33e+06	3.44e+02	6.8e+03
32	13C-OCDD	1.51e+06	2.48e+02	6.1e+03	1.68e+06	2.16e+02	7.8e+03
33	13C-1,2,3,4-TCDD	3.17e+06	3.84e+03	8.3e+02	4.01e+06	1.76e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	5.95e+06	1.14e+03	5.2e+03	4.71e+06	2.92e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	7.45e+05	8.24e+02	9.0e+02			

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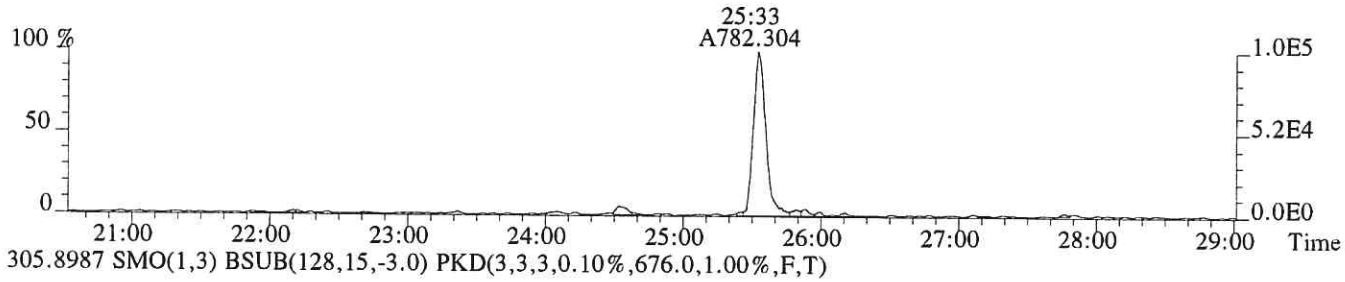
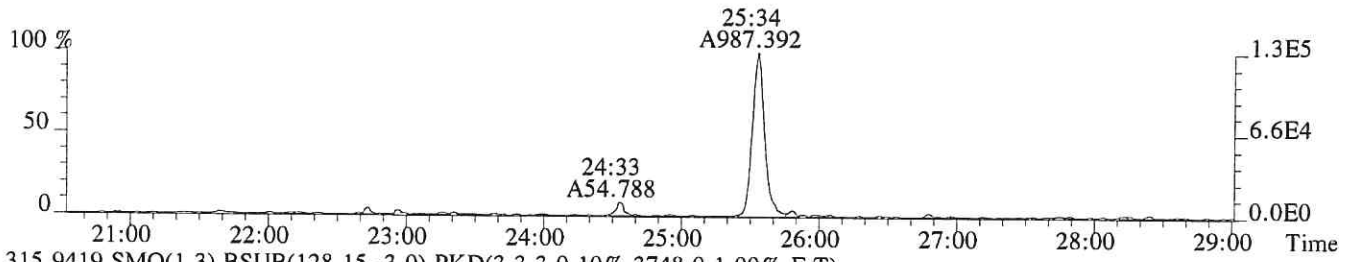
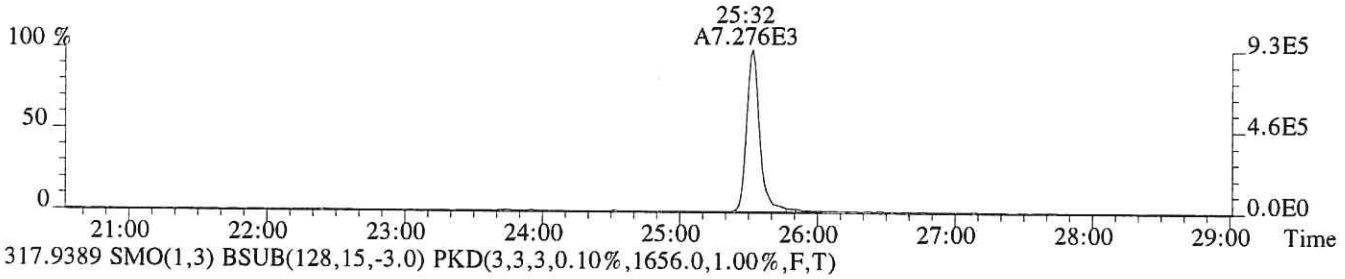
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



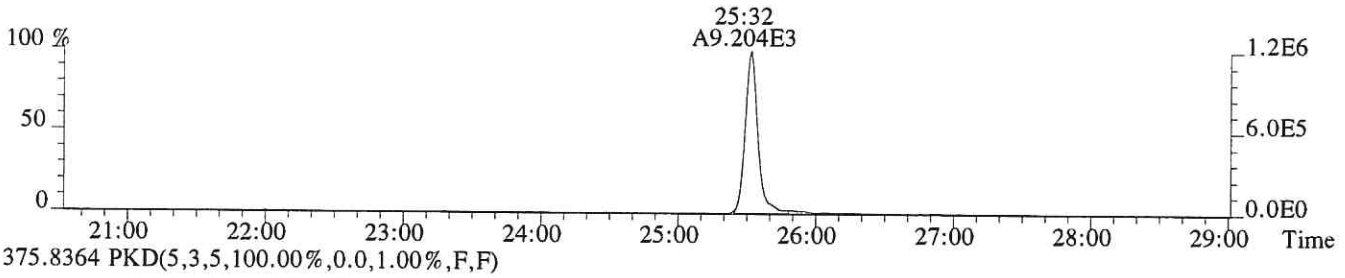
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



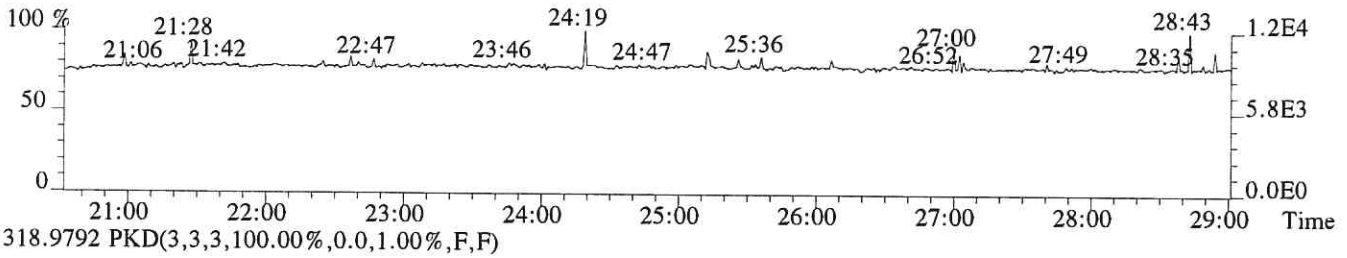
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



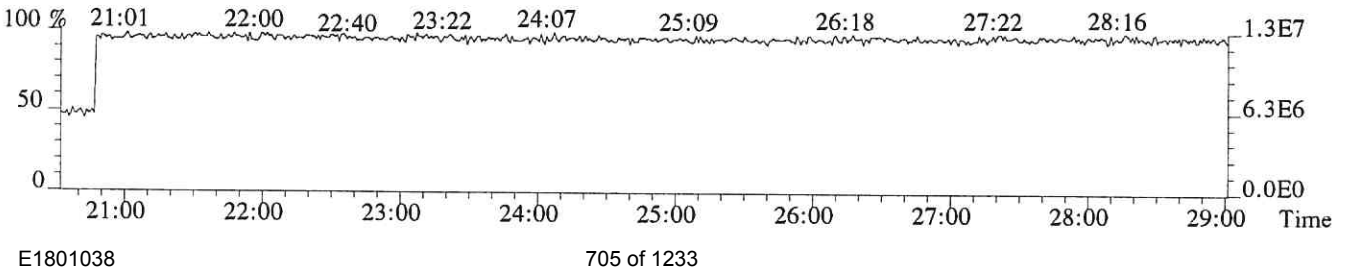
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



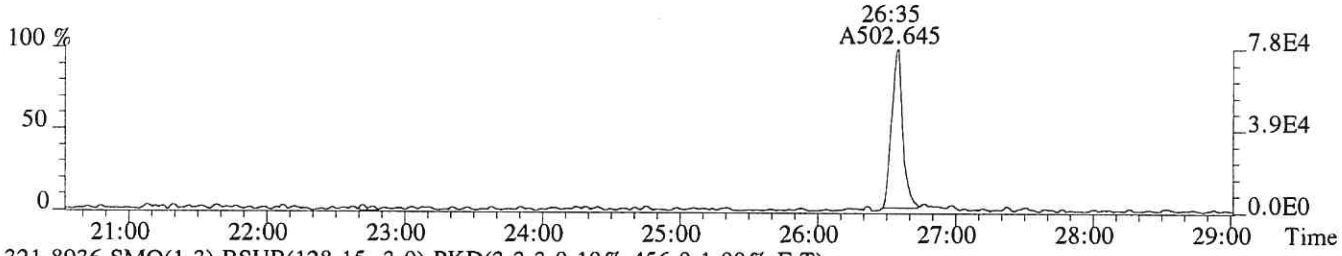
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



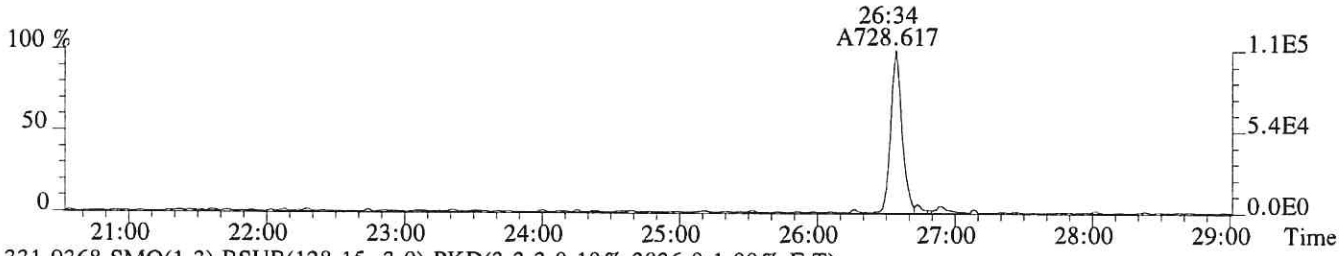
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



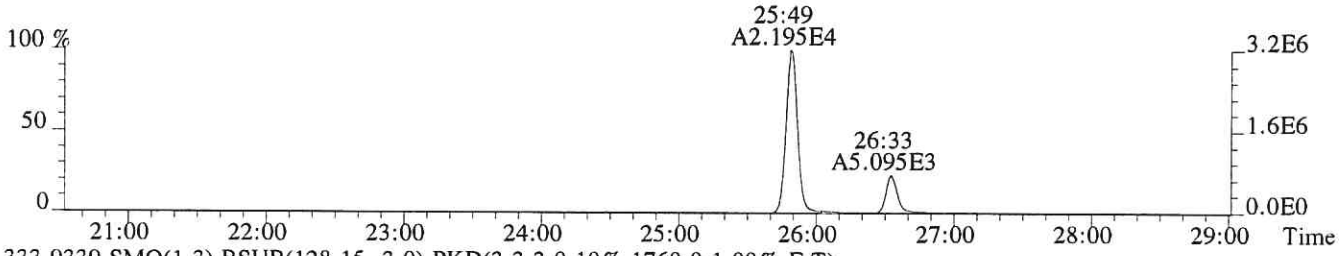
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



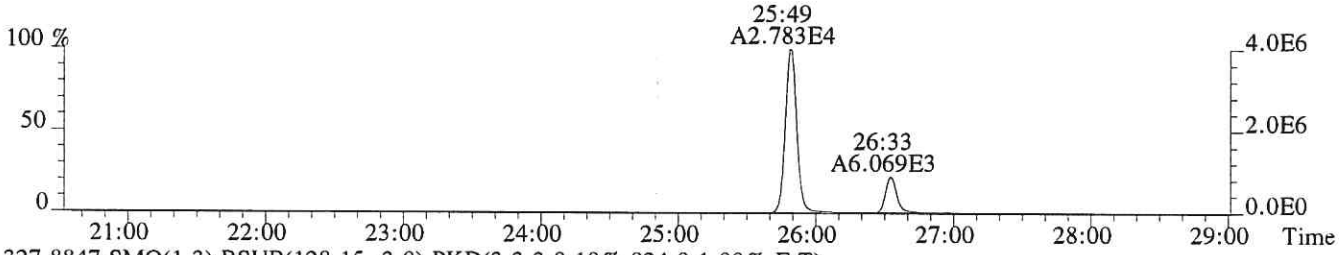
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



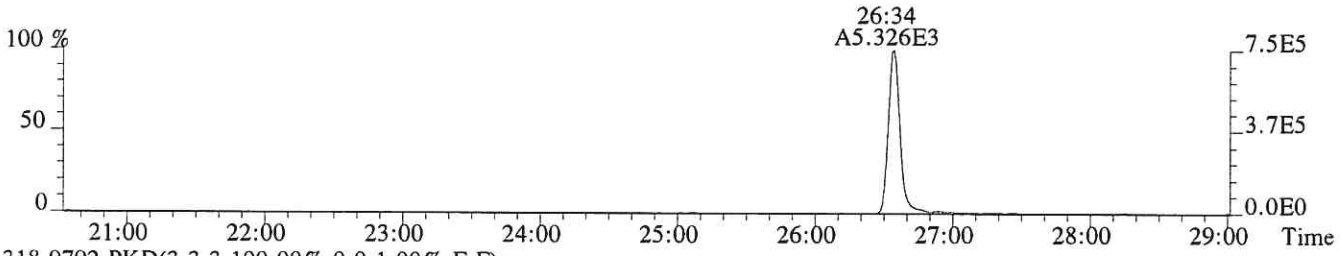
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



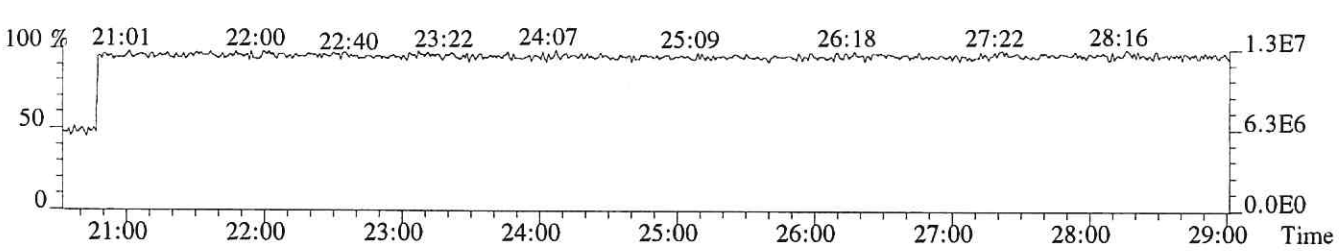
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



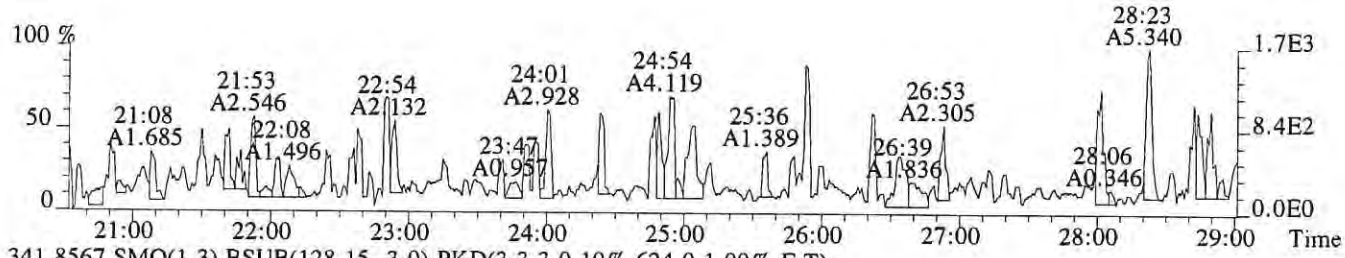
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



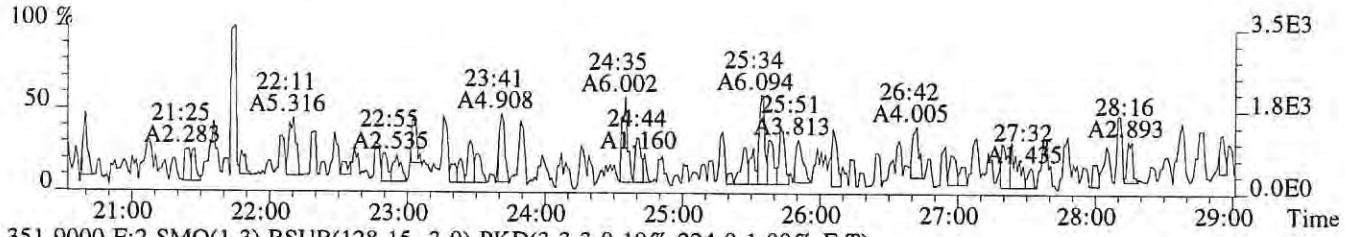
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



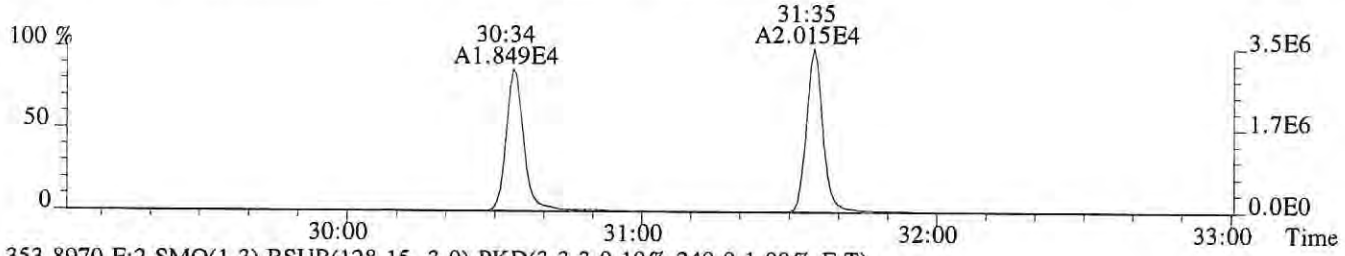
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



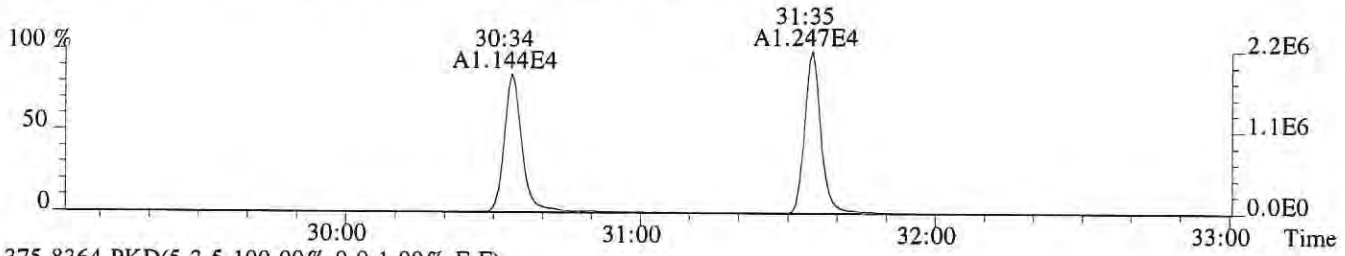
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



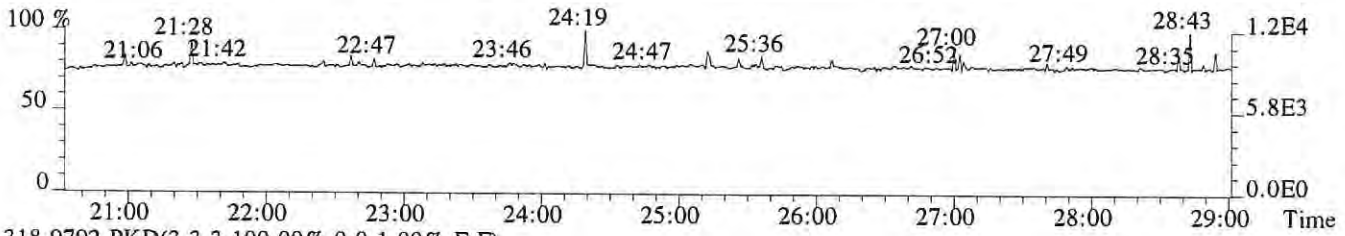
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



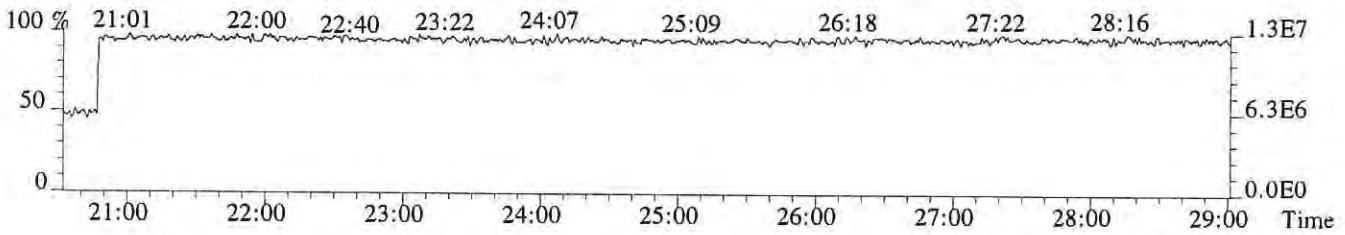
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



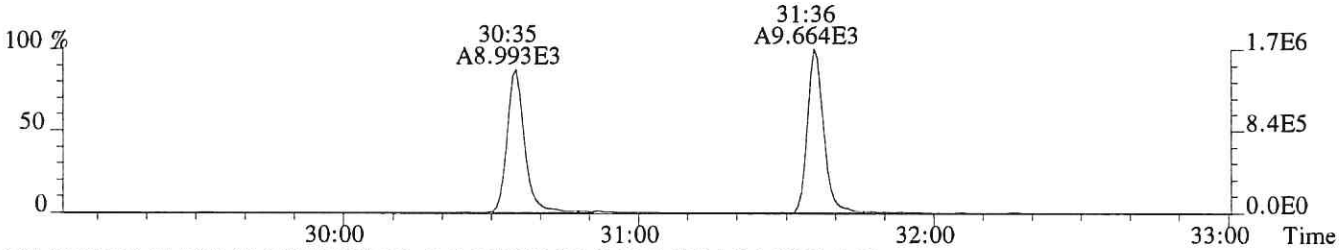
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



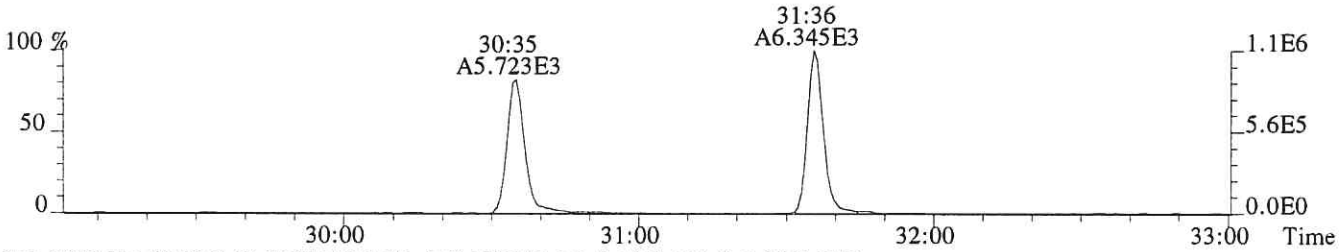
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



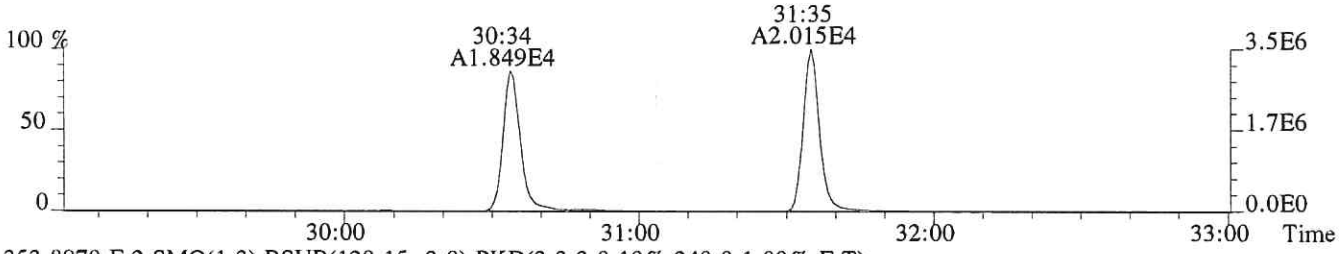
File:P518878 #1-357 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



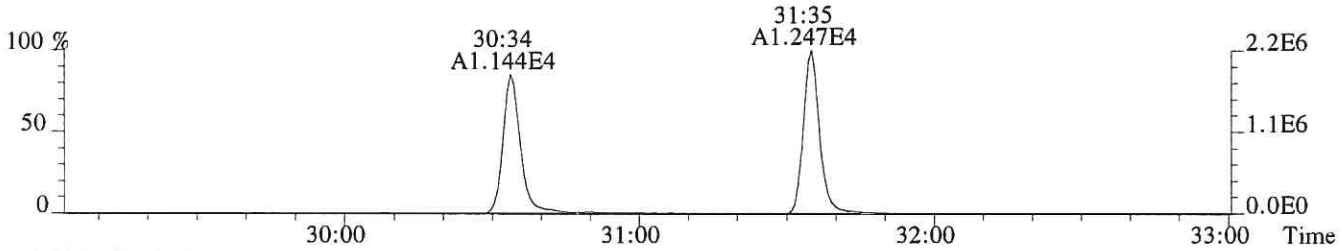
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



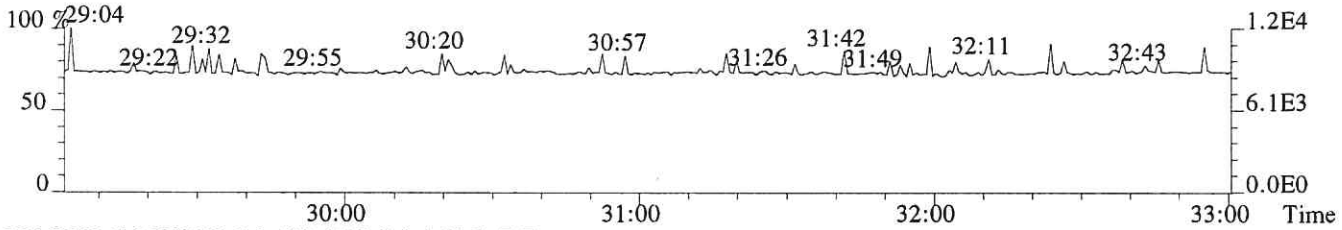
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



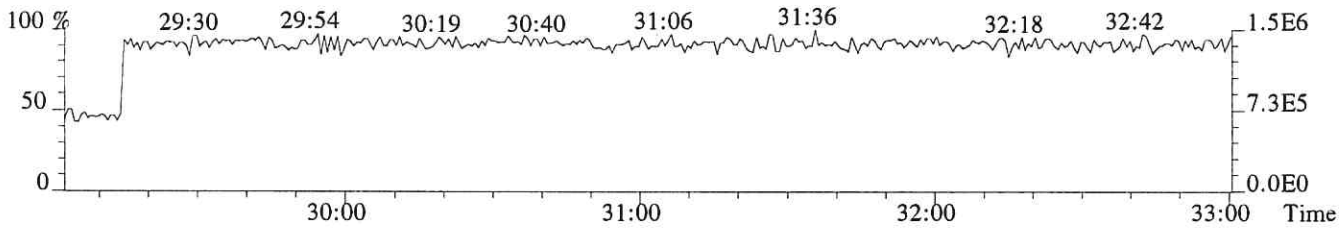
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



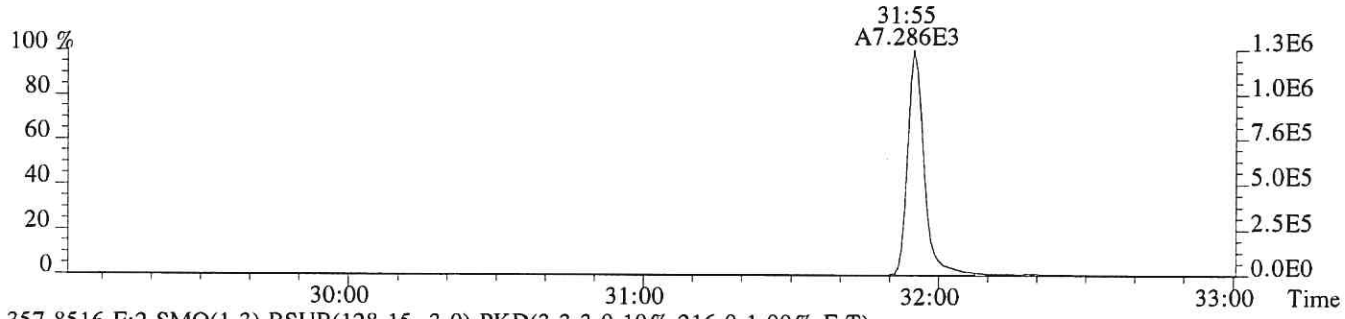
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



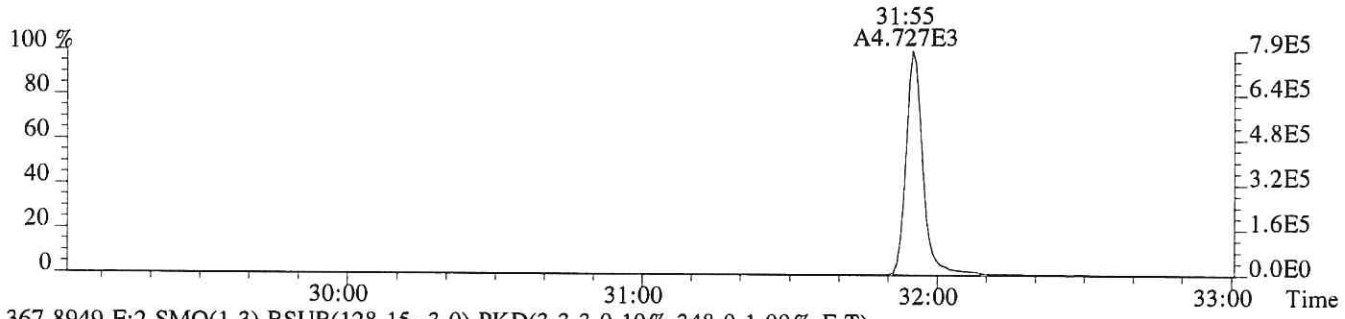
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



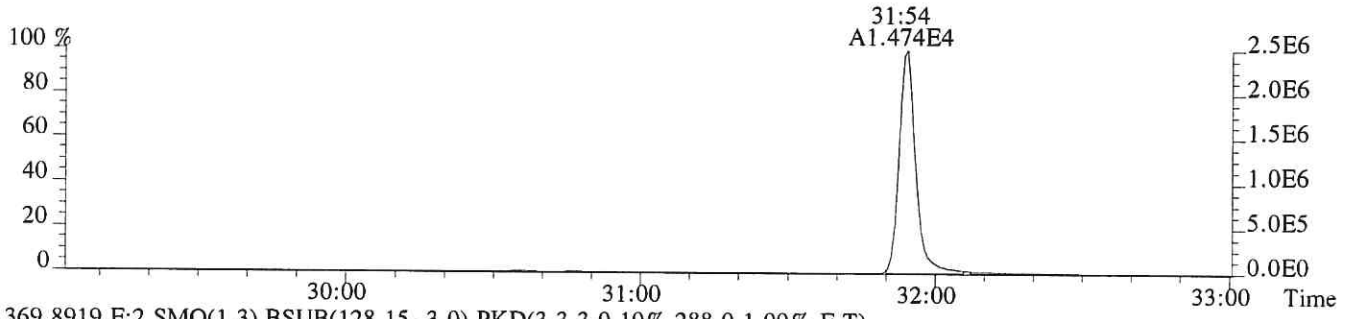
File:P518878 #1-357 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



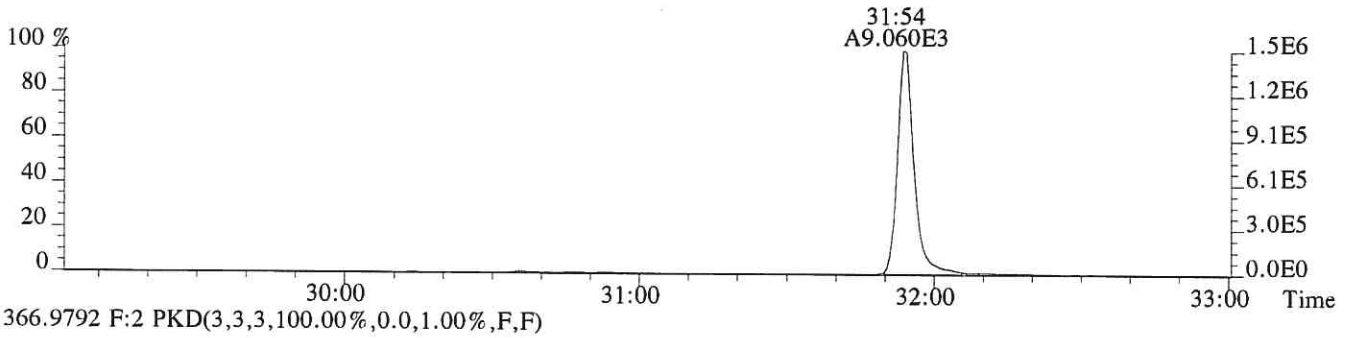
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



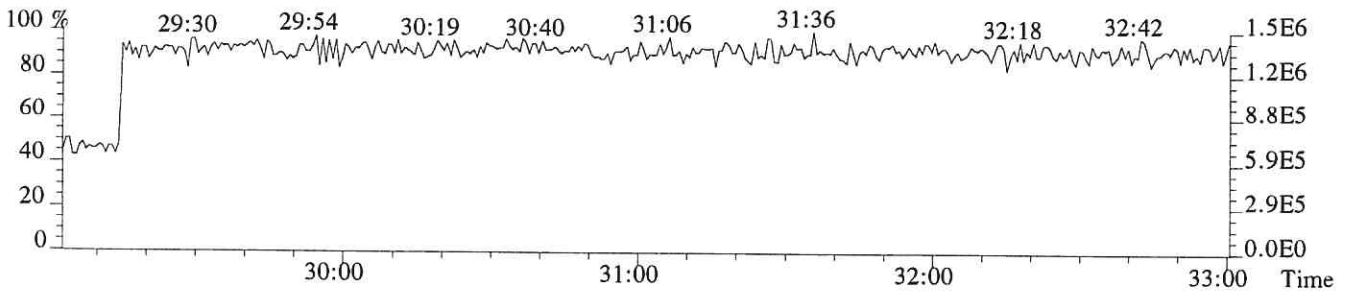
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



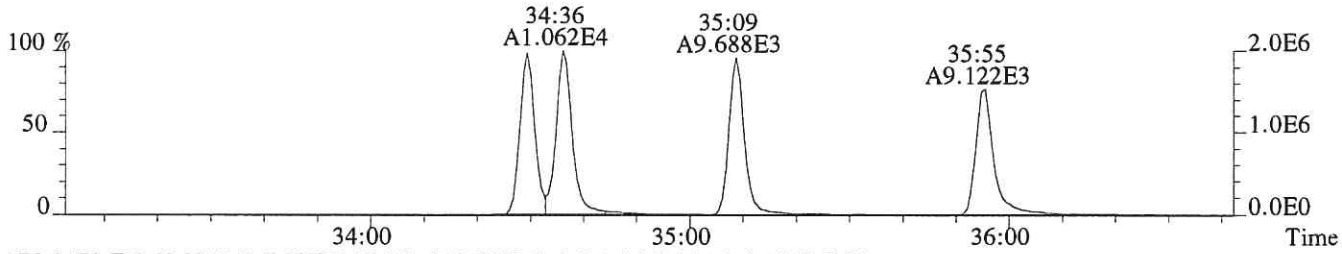
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



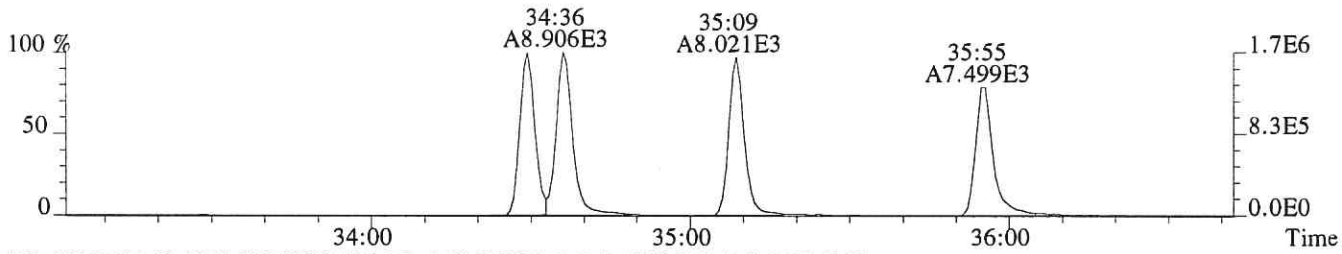
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



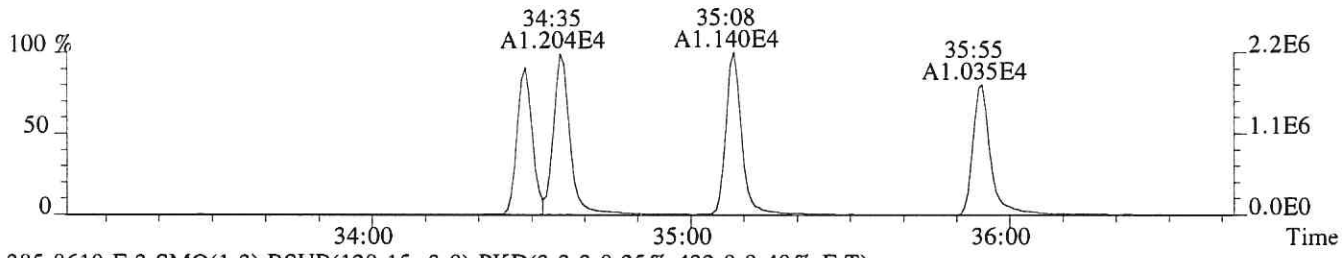
File:P518878 #1-330 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



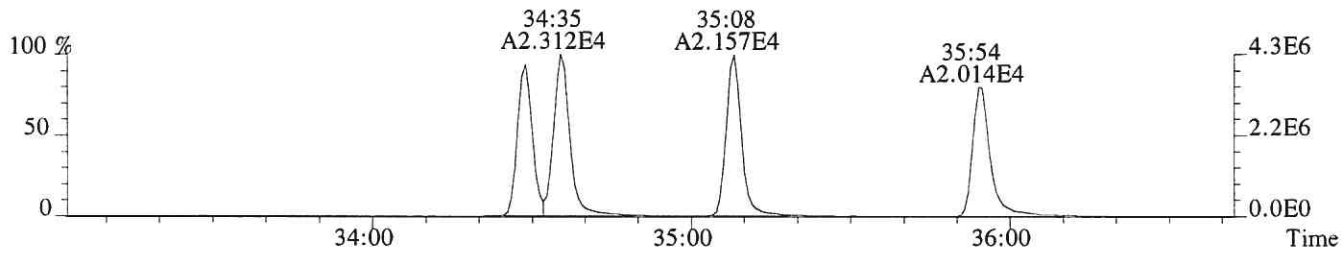
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



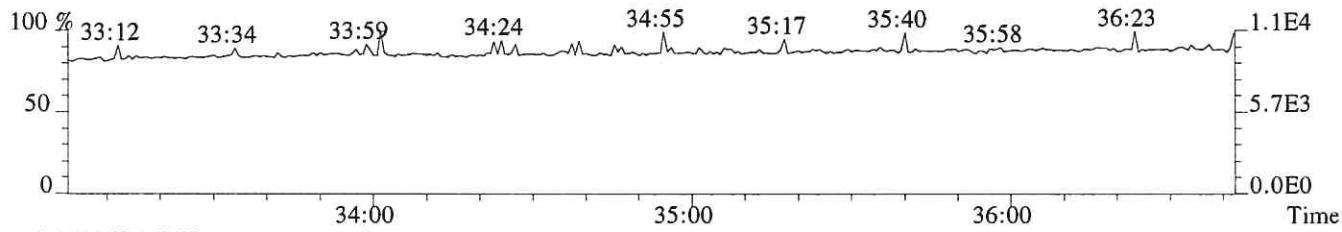
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



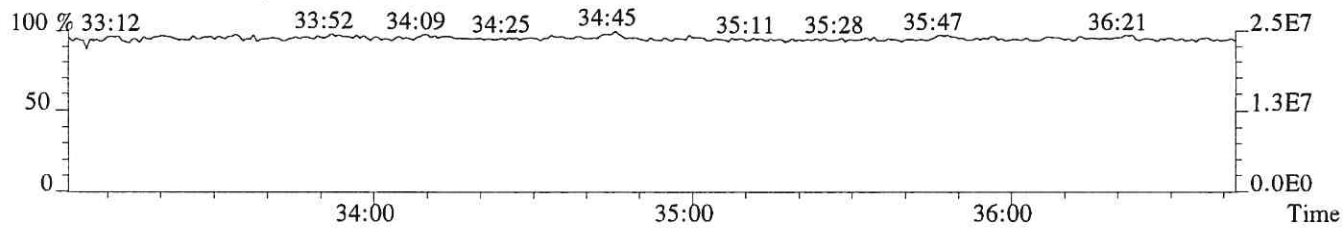
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



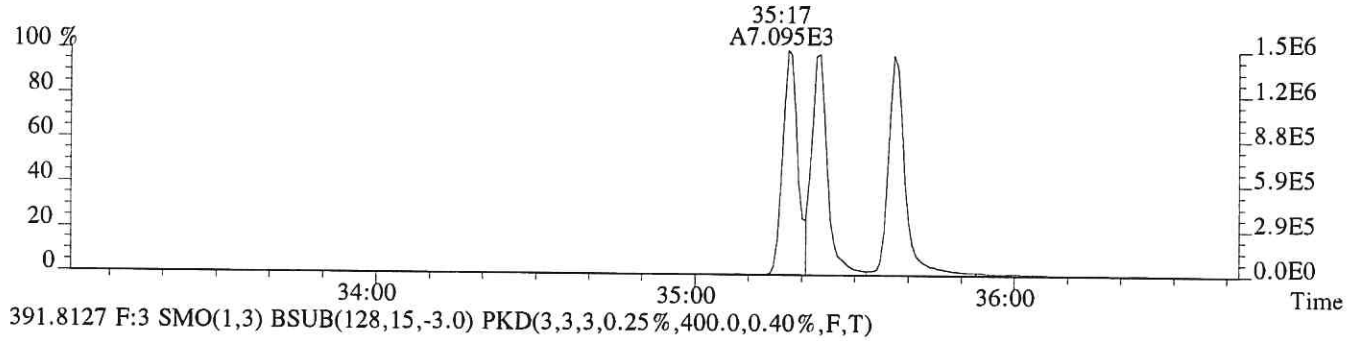
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



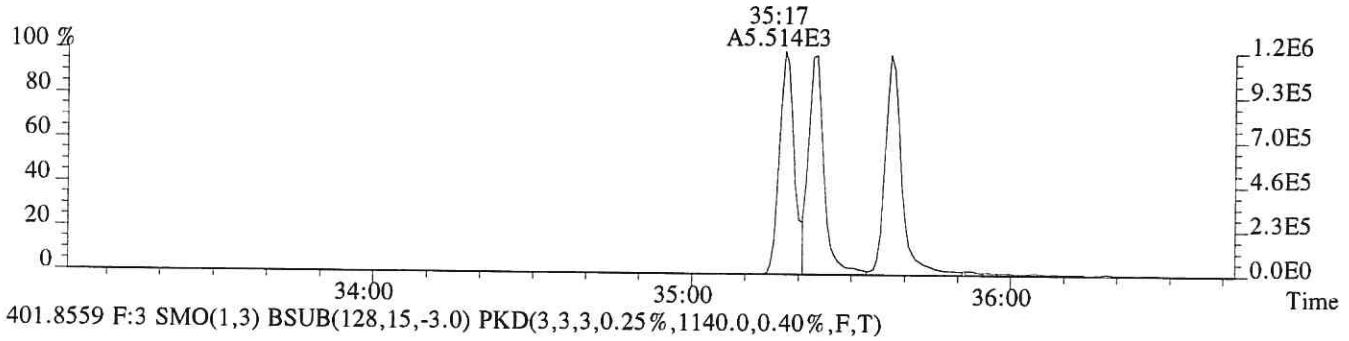
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



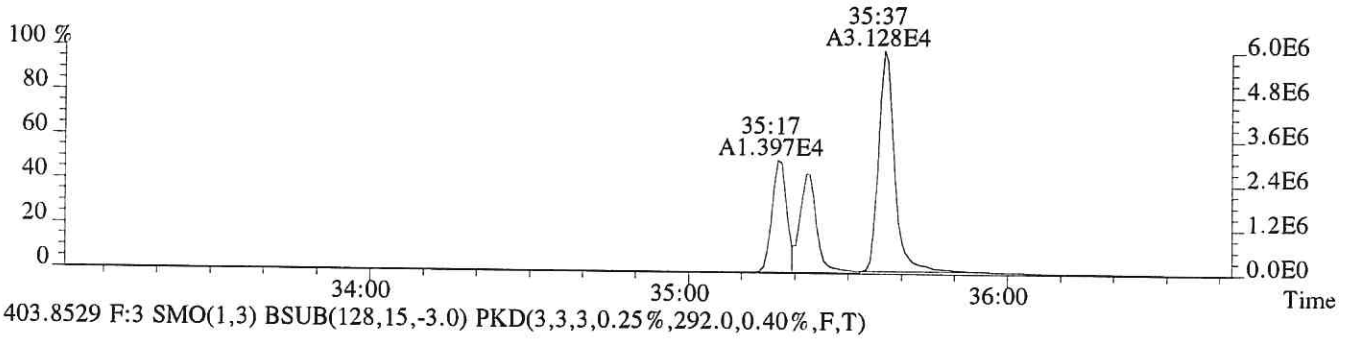
File:P518878 #1-330 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



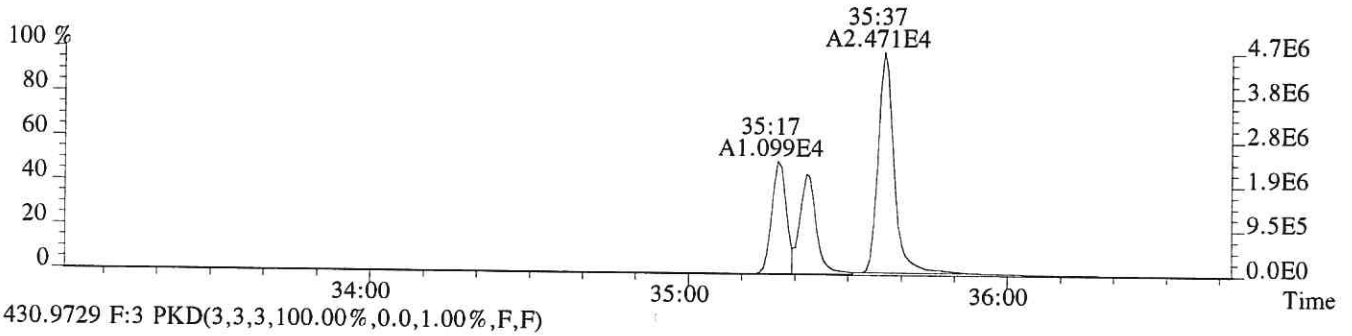
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



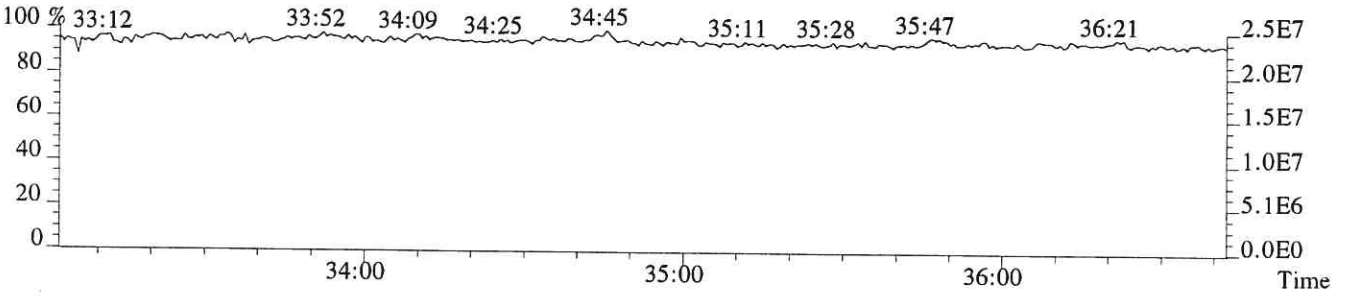
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



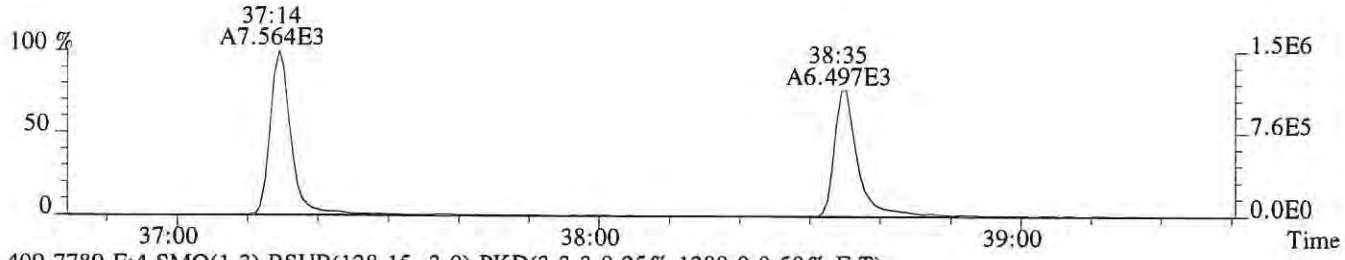
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



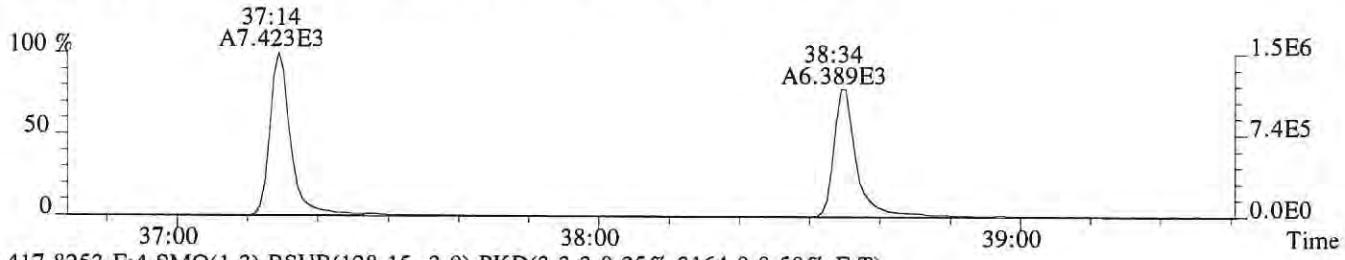
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



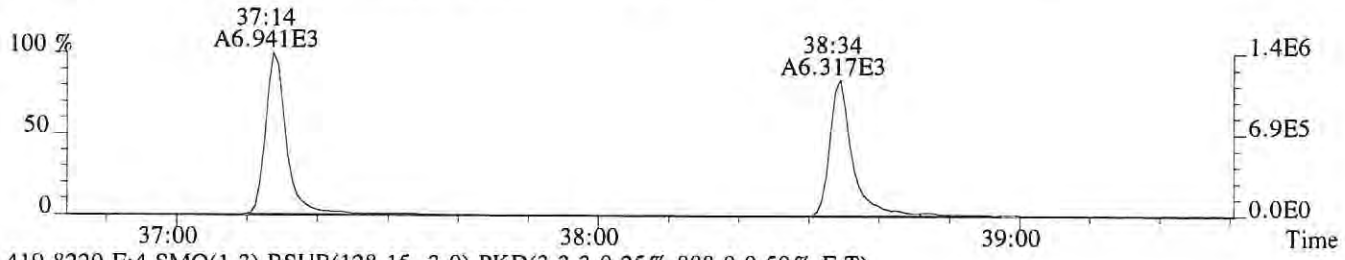
File:P518878 #1-250 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2616.0,0.50%,F,T)



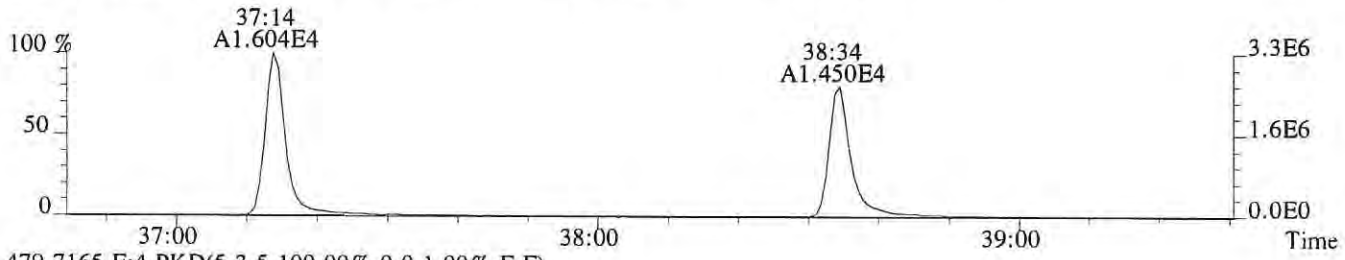
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.50%,F,T)



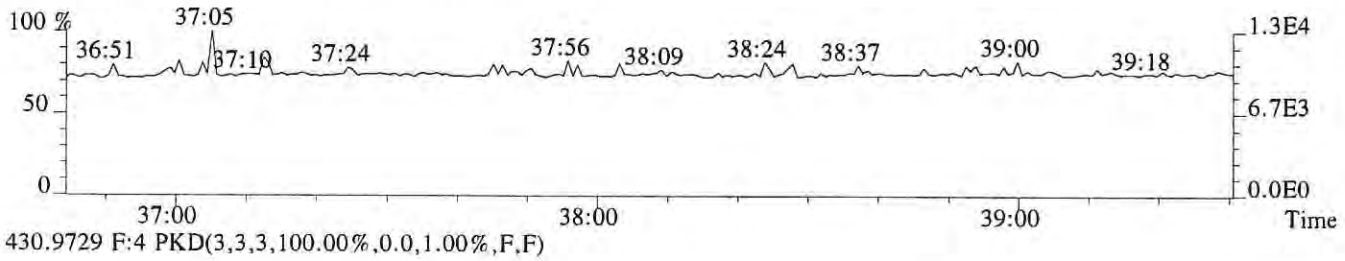
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3164.0,0.50%,F,T)



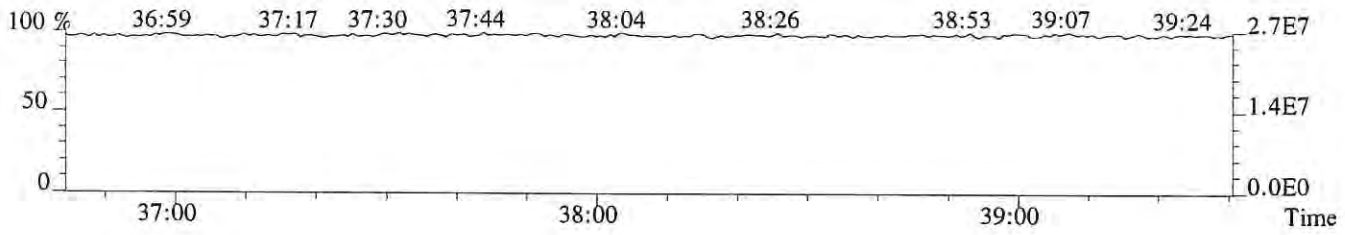
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.50%,F,T)



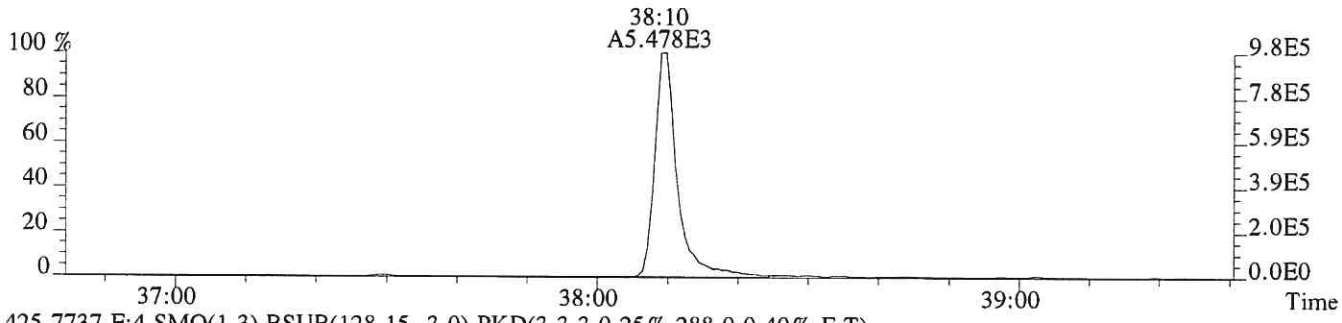
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



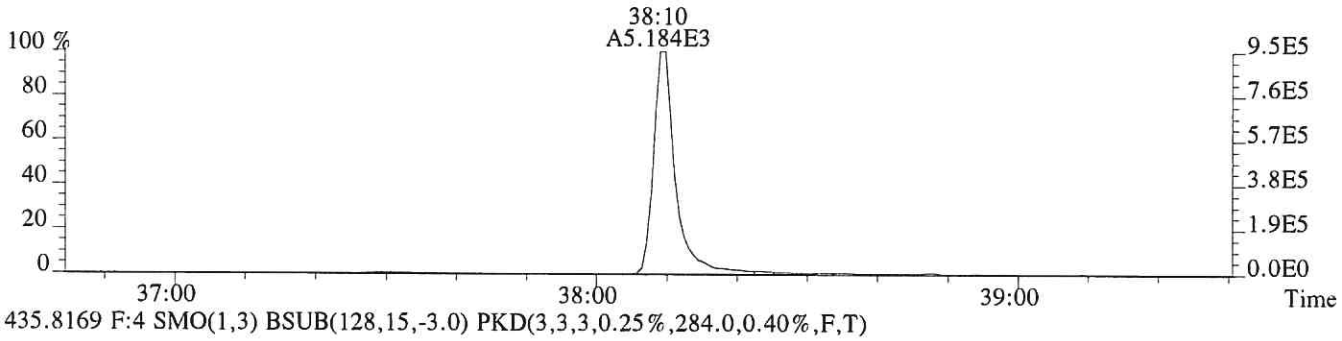
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



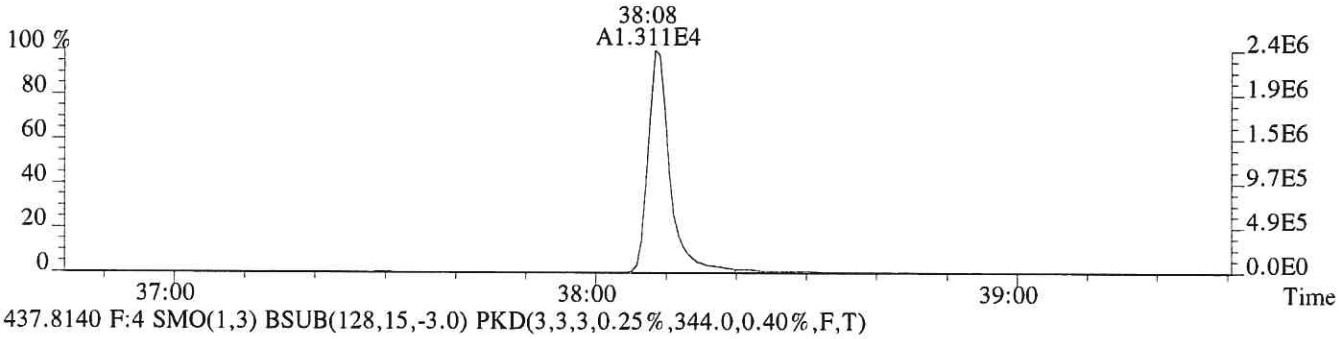
File:P518878 #1-250 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



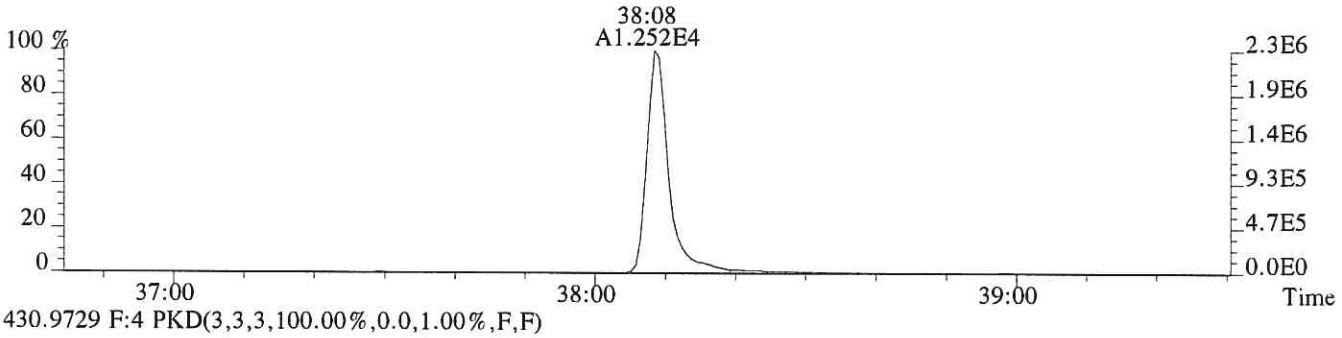
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



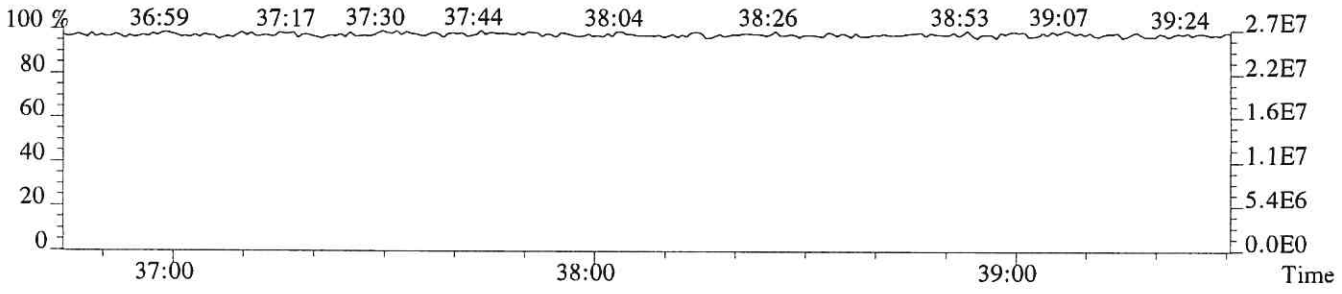
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



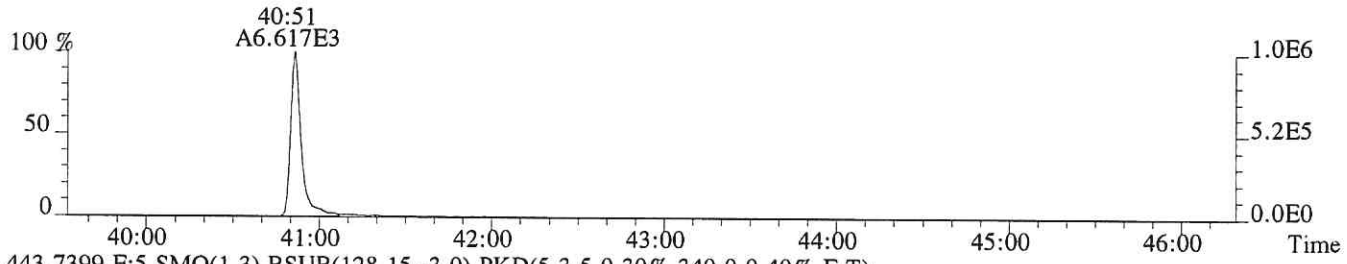
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



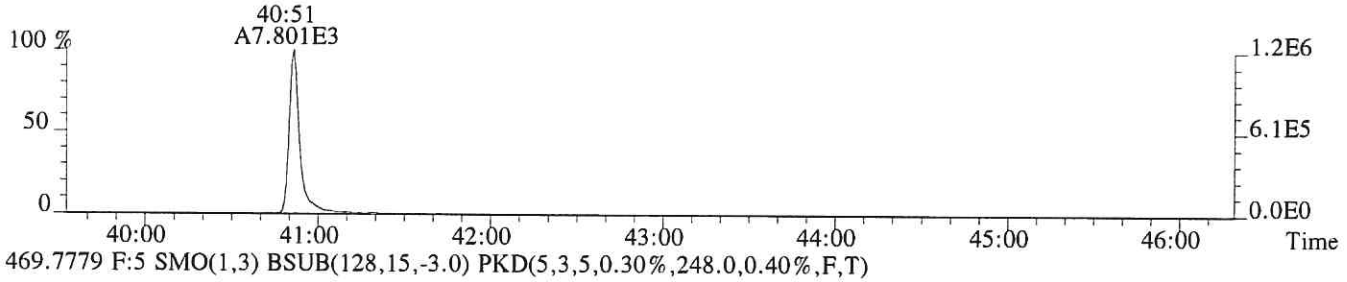
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



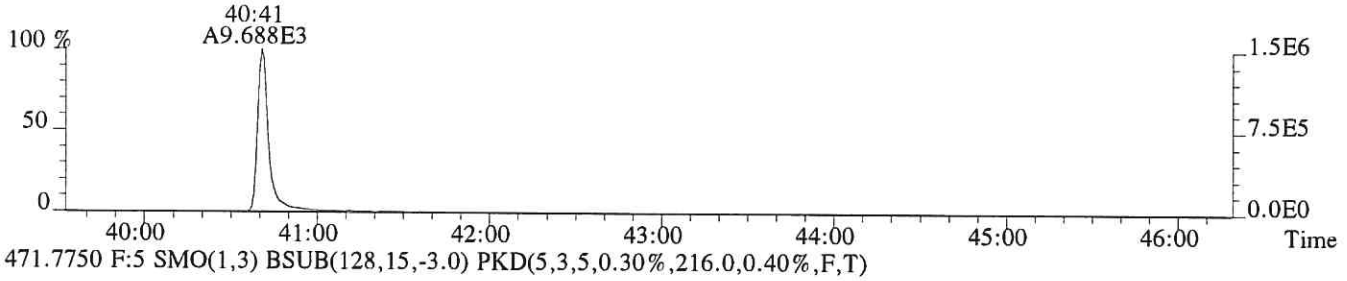
File:P518878 #1-610 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



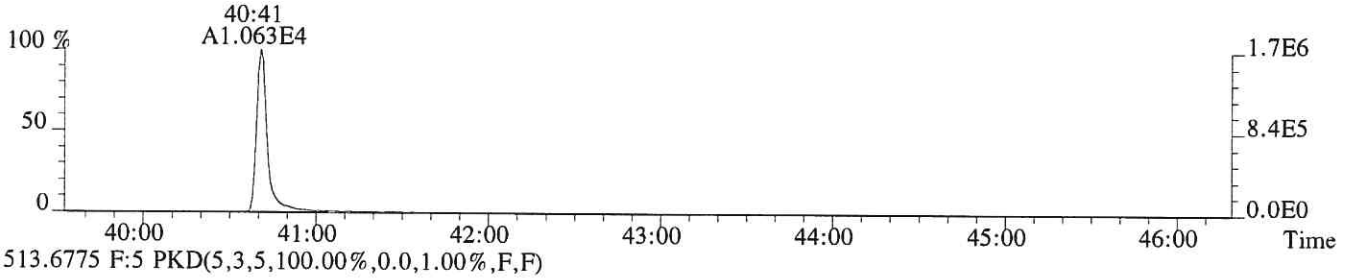
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



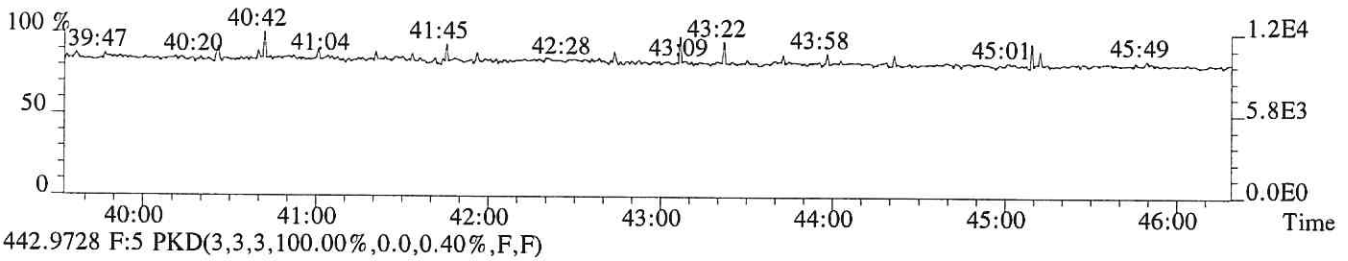
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



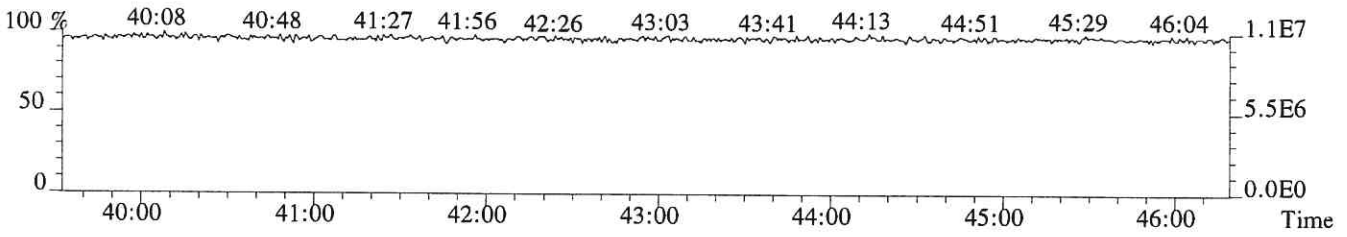
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



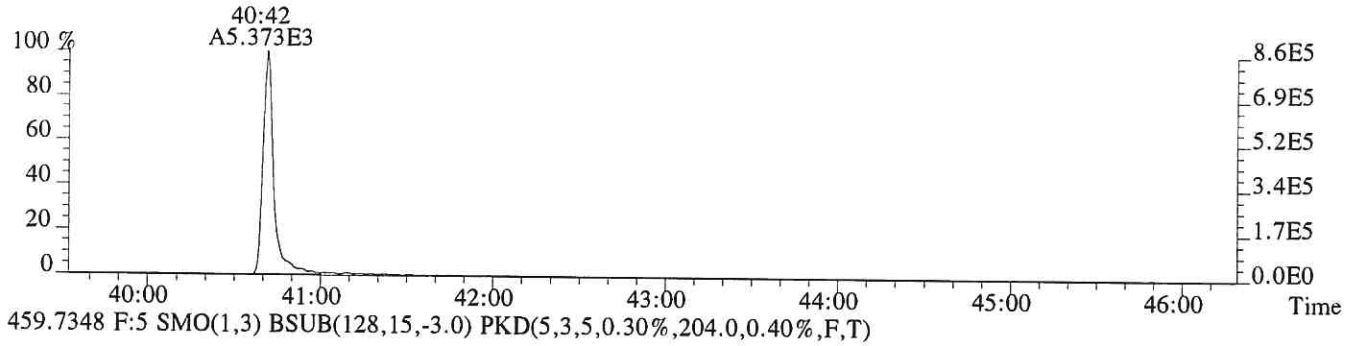
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



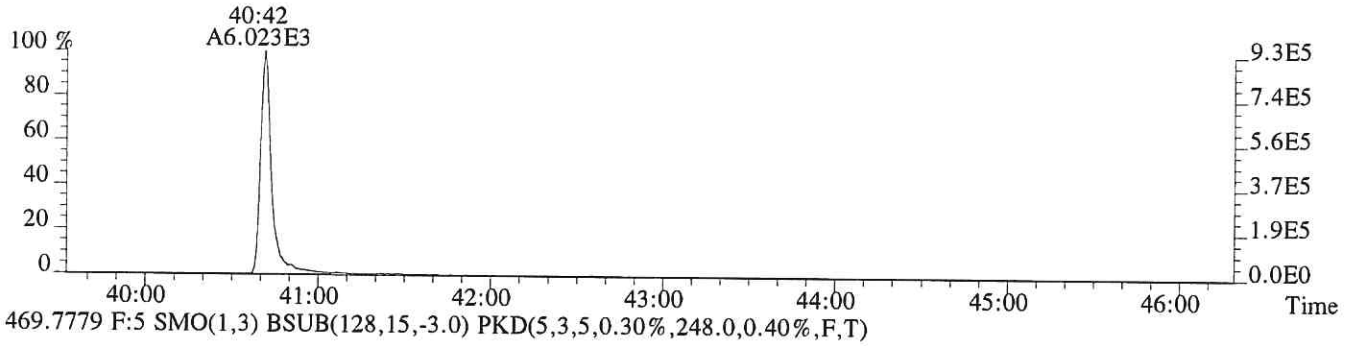
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



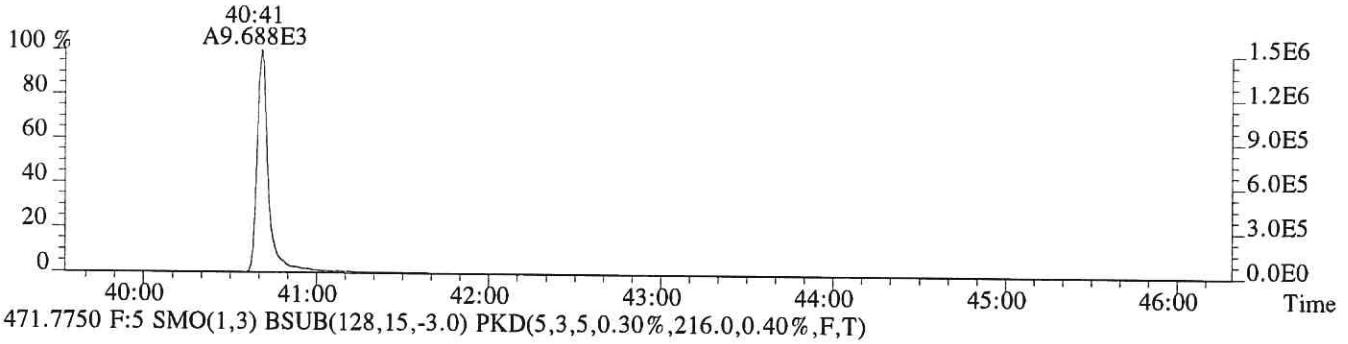
File:P518878 #1-610 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



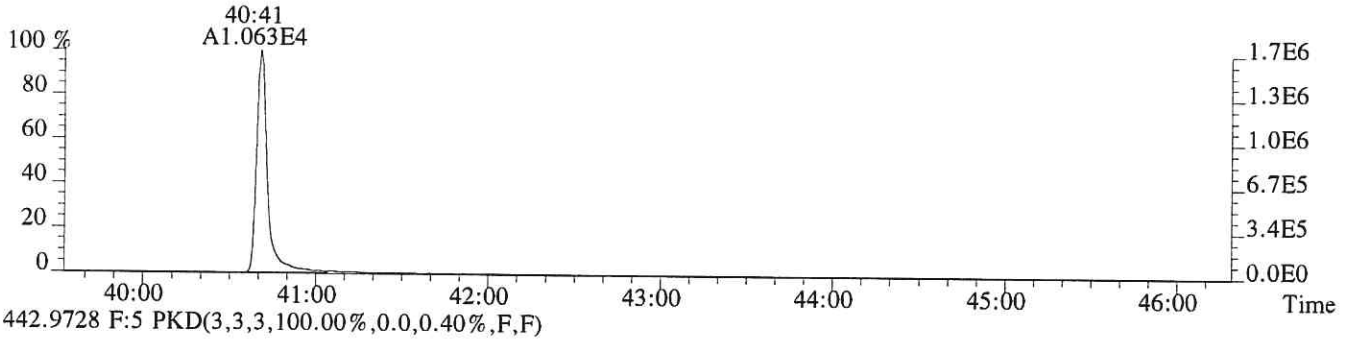
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



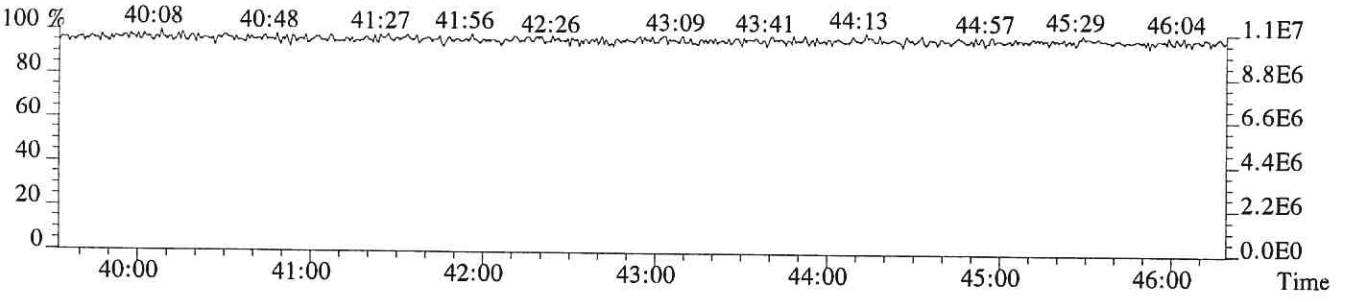
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 Sample ID: EQ1800469-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.025
17	Unk	OCDD	42:14	2.891e+01	2.976e+01	0.97	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:00	8.577e+03	1.118e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	2.013e+04	1.258e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	1.987e+04	1.251e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.199e+04	2.309e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.375e+04	2.583e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.298e+04	2.498e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.211e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.125e+04	2.507e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.099e+04	2.499e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	6.062e+03	7.842e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.567e+04	9.758e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.780e+04	1.422e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.769e+04	1.358e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.305e+04	2.207e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:14	2.849e+04	3.204e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	8.552e+03	1.054e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.051e+04	1.617e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.418e+03				no	1.014

$$\text{OCDD} = \frac{(2.891e+01 + 2.976e+01) \times 4000\ \text{pg} \times 1}{(2.849e+04 + 3.204e+04) \times \text{g} \times / 100 \times 1.118} =$$

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Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 LAB. ID: EQ1800469-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.48e+02	*	*	1.29e+03	*
2	1,2,3,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
3	2,3,4,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.40e+02	*	*	2.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	3.88e+02	*	*	3.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.88e+02	*	*	3.64e+02	*
10	OCDF	*	2.00e+02	*	*	8.04e+02	*
11	2,3,7,8-TCDD	*	1.43e+03	*	*	8.48e+02	*
12	1,2,3,7,8-PeCDD	*	3.68e+02	*	*	2.36e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.44e+02	*	*	2.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	4.52e+02	*	*	3.80e+02	*
17	OCDD	5.81e+03	2.36e+02	2.5e+01	6.08e+03	2.32e+02	2.6e+01
18	13C-2,3,7,8-TCDF	1.53e+06	4.88e+03	3.1e+02	2.00e+06	5.08e+03	3.9e+02
19	13C-1,2,3,7,8-PeCDF	3.78e+06	4.00e+02	9.4e+03	2.38e+06	8.24e+02	2.9e+03
20	13C-2,3,4,7,8-PeCDF	3.91e+06	4.00e+02	9.8e+03	2.51e+06	8.24e+02	3.0e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+06	4.00e+02	6.6e+03	5.12e+06	6.28e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.50e+06	6.28e+02	8.8e+03
23	13C-2,3,4,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.53e+06	6.28e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.60e+06	4.00e+02	6.5e+03	5.02e+06	6.28e+02	8.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.38e+06	1.70e+03	1.4e+03	5.42e+06	3.68e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.13e+06	1.70e+03	1.3e+03	4.91e+06	3.68e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.19e+06	3.89e+03	3.0e+02	1.50e+06	2.08e+03	7.2e+02
28	13C-1,2,3,7,8-PeCDD	3.11e+06	7.00e+02	4.4e+03	1.90e+06	6.48e+02	2.9e+03
29	13C-1,2,3,4,7,8-HxCDD	4.08e+06	9.60e+02	4.3e+03	3.25e+06	4.76e+02	6.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.76e+06	9.60e+02	3.9e+03	2.90e+06	4.76e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.58e+06	1.37e+03	3.3e+03	4.36e+06	1.25e+03	3.5e+03
32	13C-OCDD	4.85e+06	2.64e+02	1.8e+04	5.43e+06	1.64e+02	3.3e+04
33	13C-1,2,3,4-TCDD	1.62e+06	3.89e+03	4.2e+02	1.98e+06	2.08e+03	9.5e+02
34	13C-1,2,3,7,8,9-HxCDD	4.26e+06	9.60e+02	4.4e+03	3.30e+06	4.76e+02	6.9e+03
35	37Cl-2,3,7,8-TCDD	1.24e+06	8.96e+02	1.4e+03			

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519219 Sample:1 Injection:1 Function:4

Acquired: 5-DEC-18 08:32:35 Processed: 6-DEC-18 10:05:53

Mass: 423.7770 425.7740 Tot Response: 2.43e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	1.17e+01	1.26e+01 0.94	yes	2.43e+01		n	n

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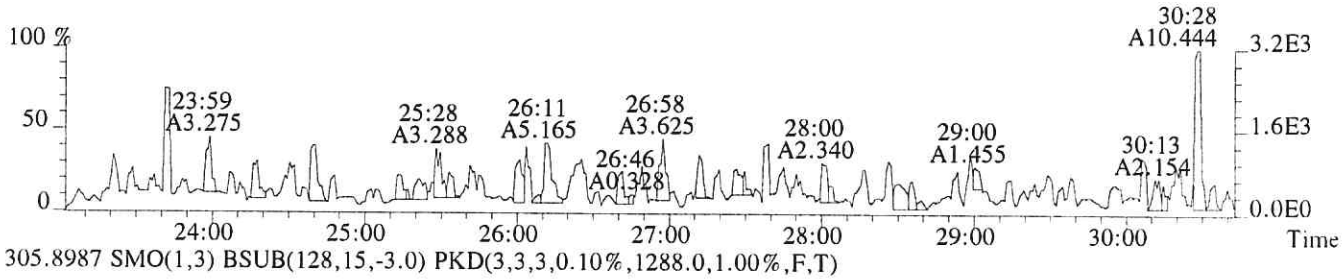
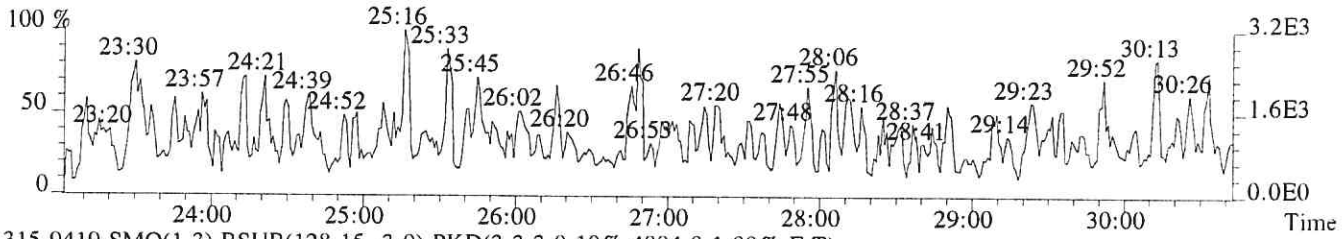
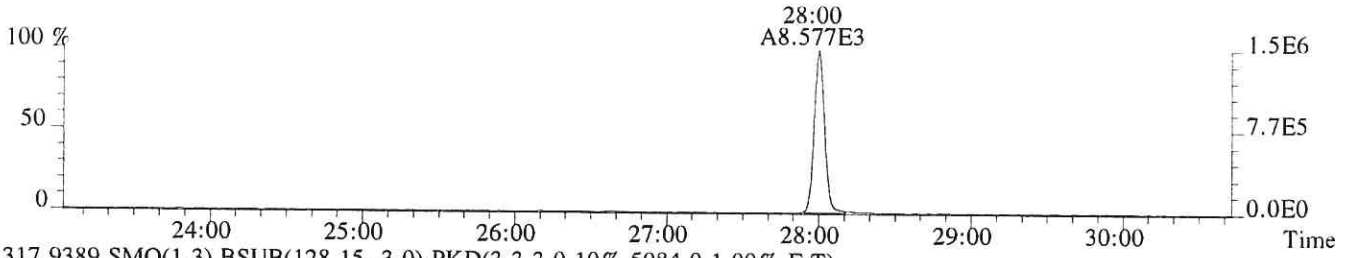
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



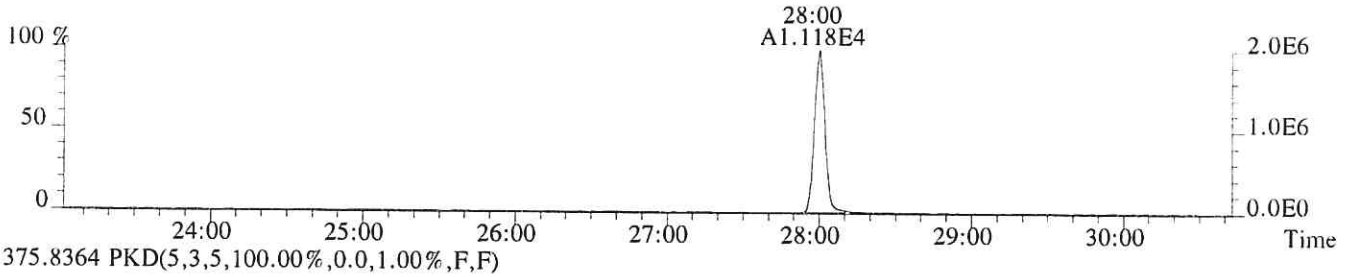
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



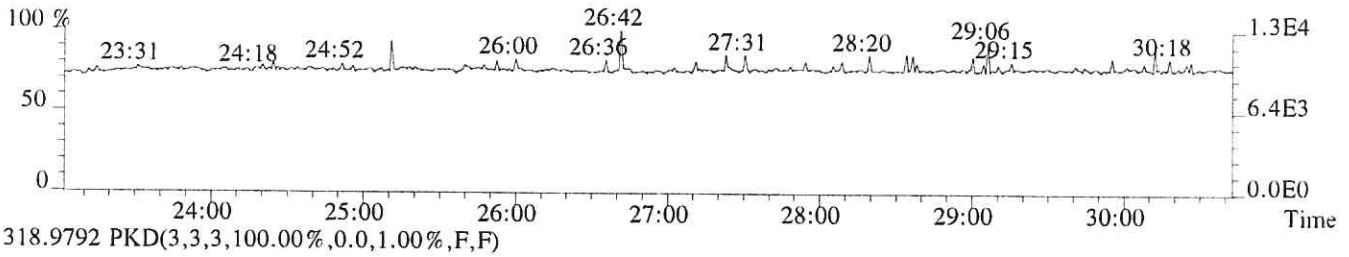
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4884.0,1.00%,F,T)



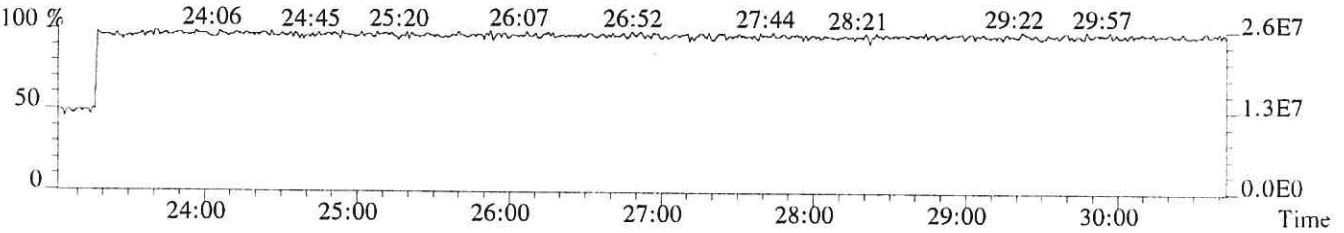
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5084.0,1.00%,F,T)



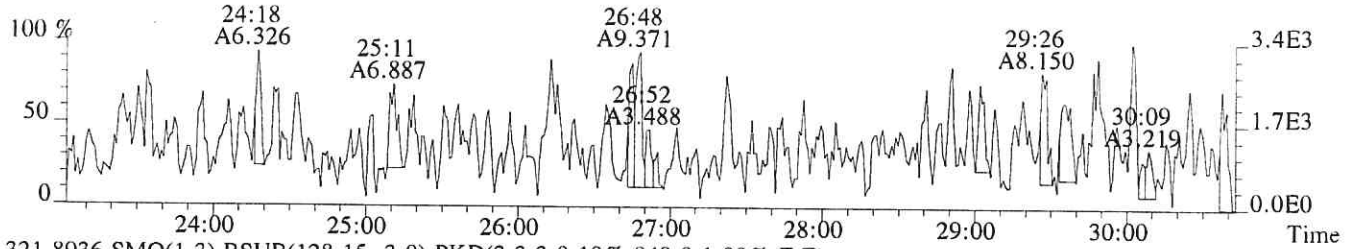
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



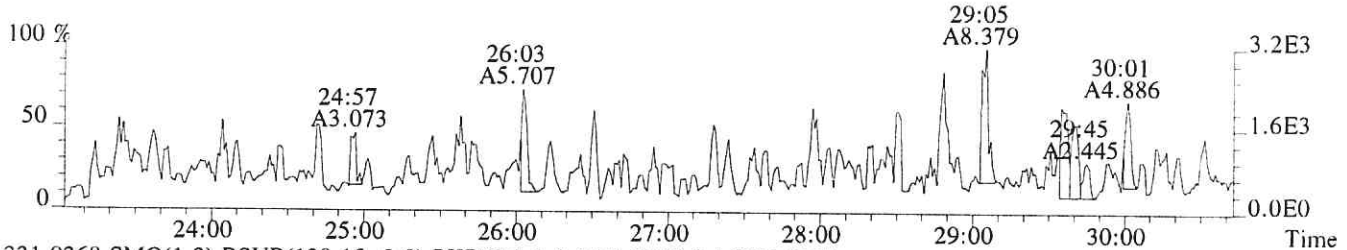
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



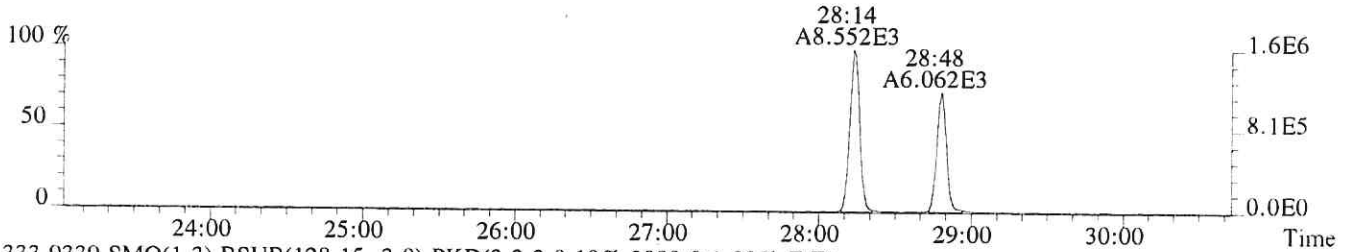
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



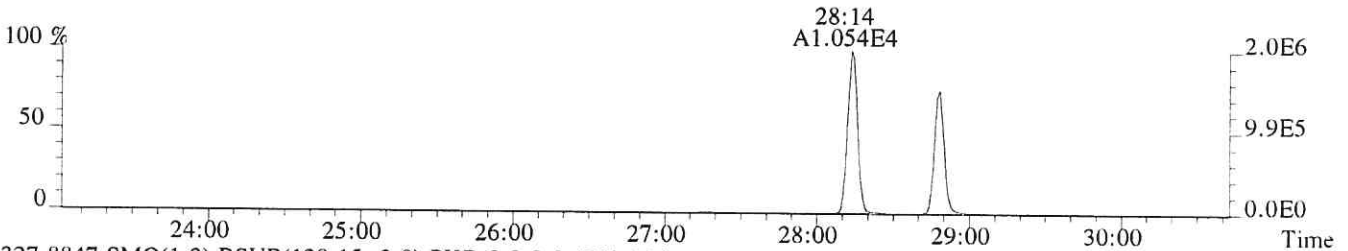
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



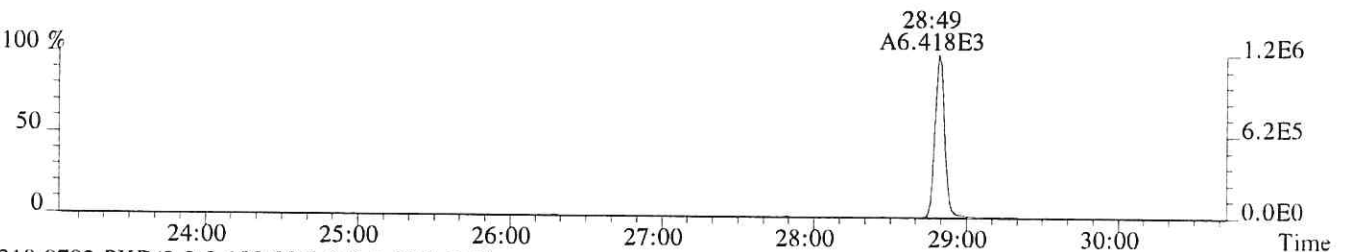
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3888.0,1.00%,F,T)



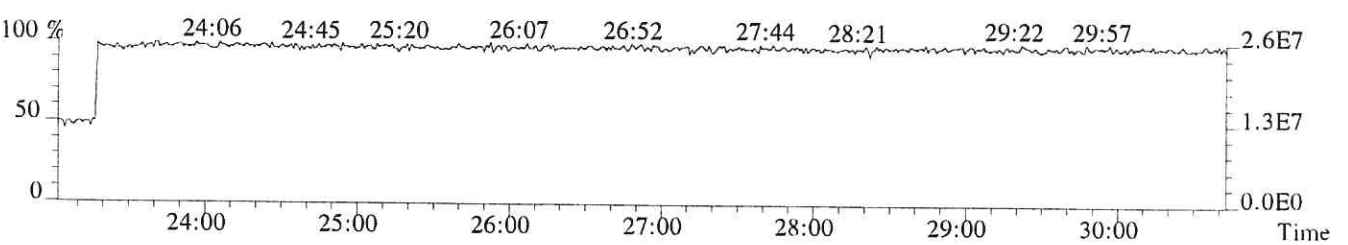
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



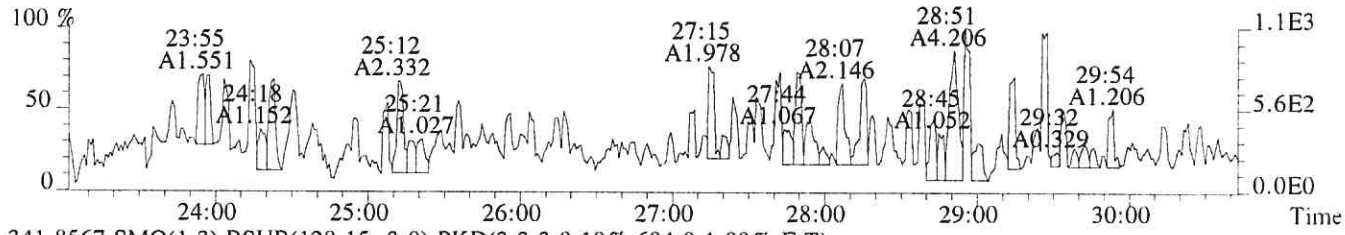
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



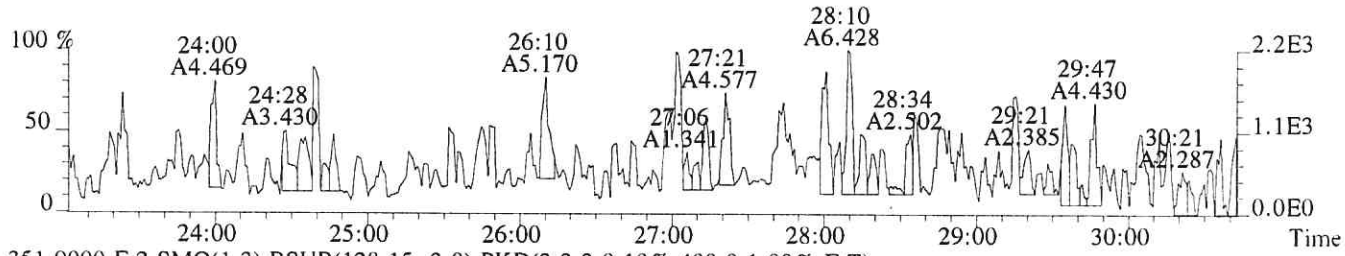
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



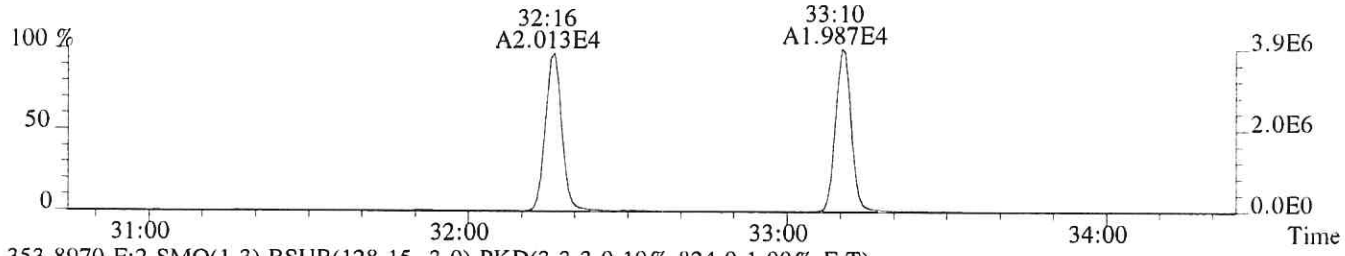
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



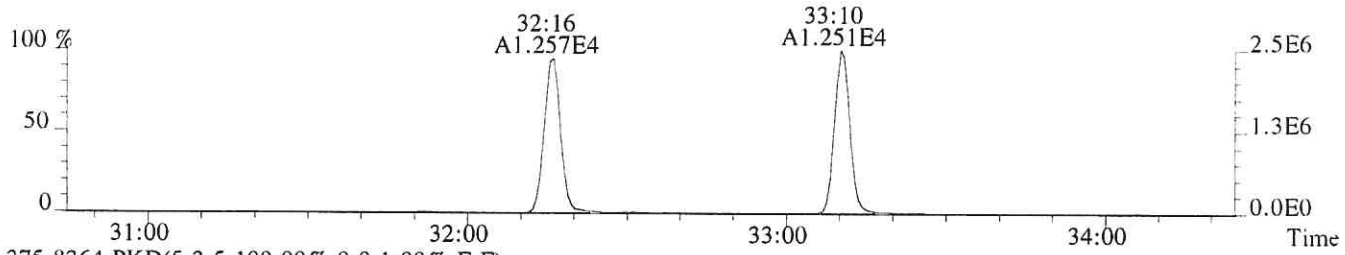
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



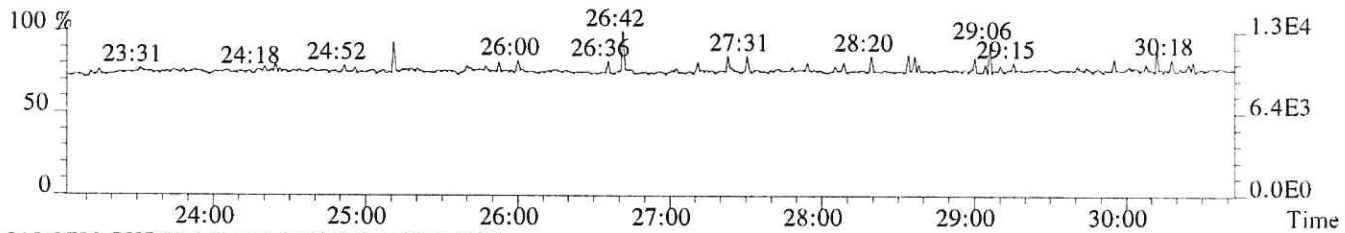
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



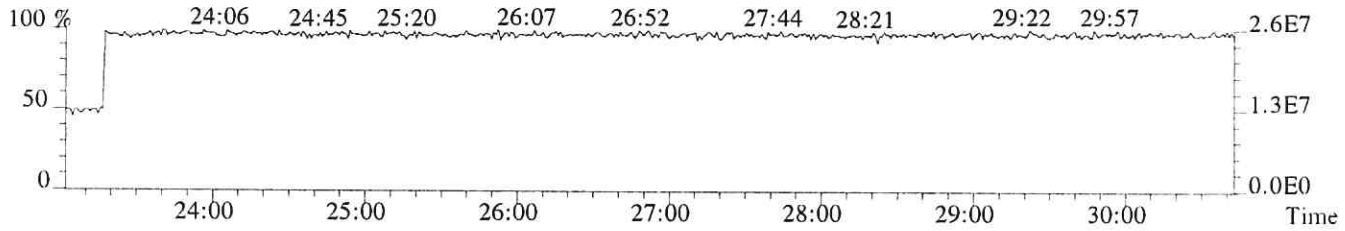
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



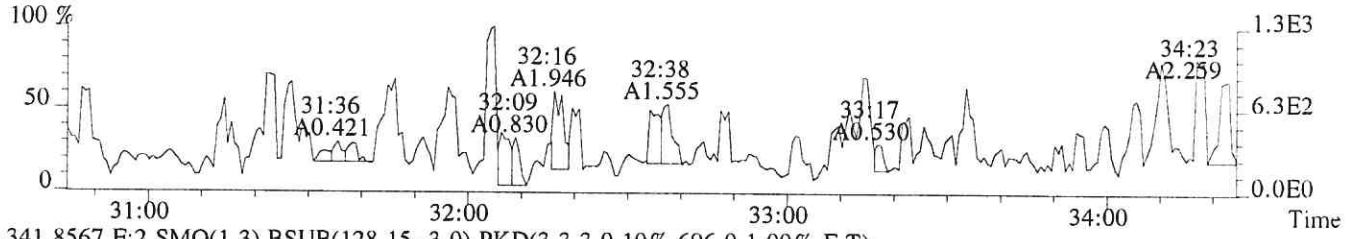
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



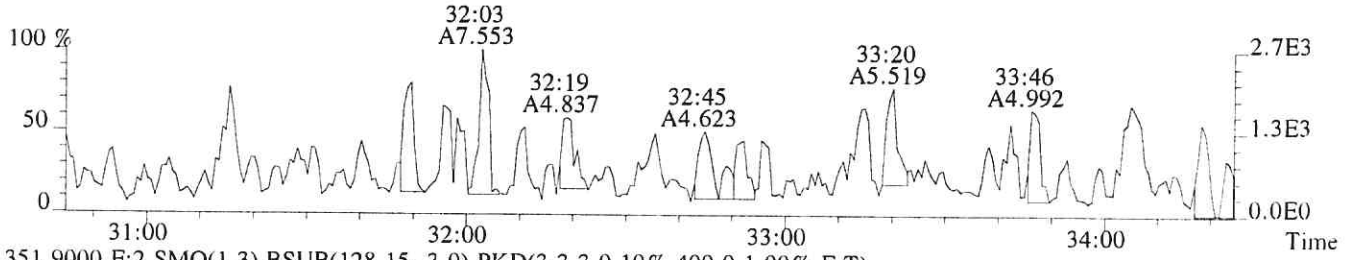
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



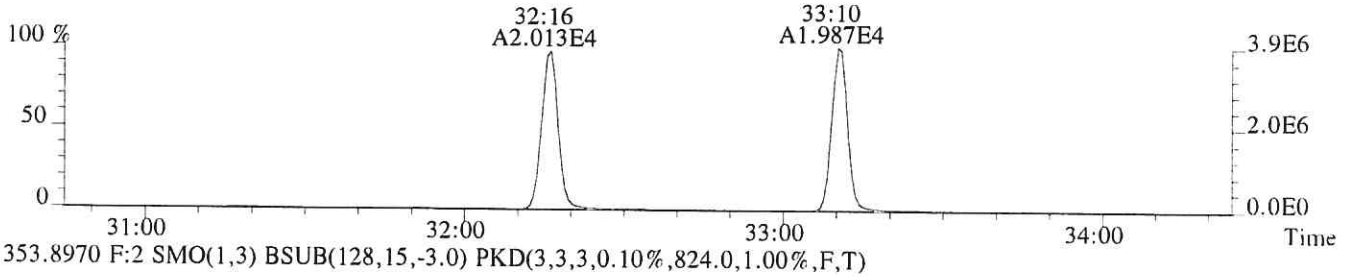
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



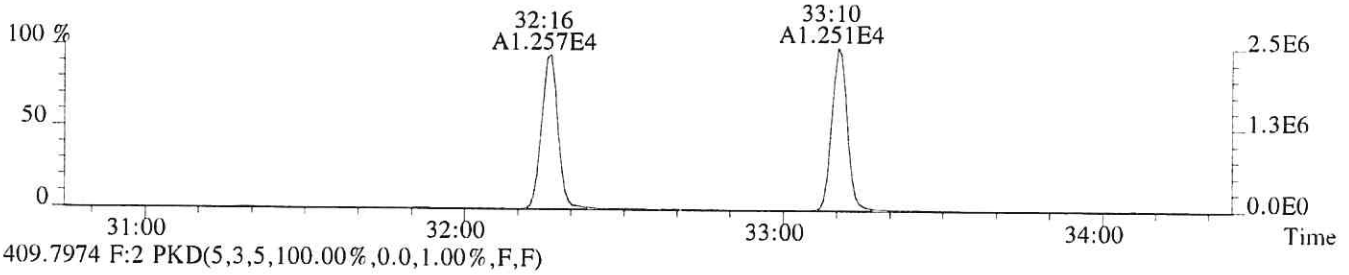
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



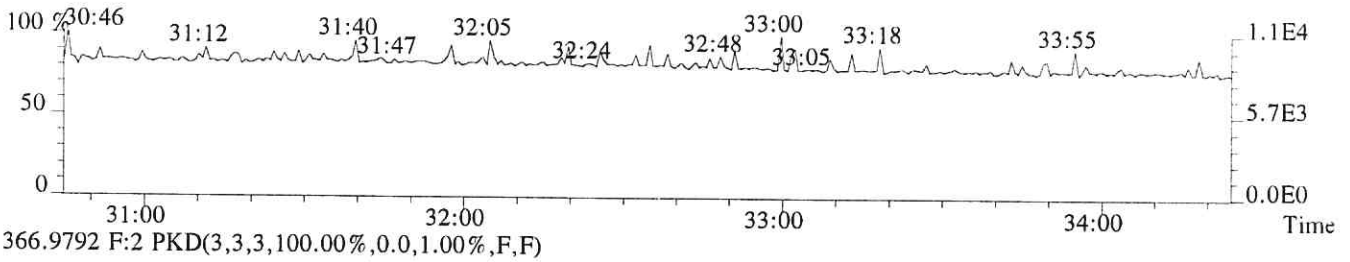
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



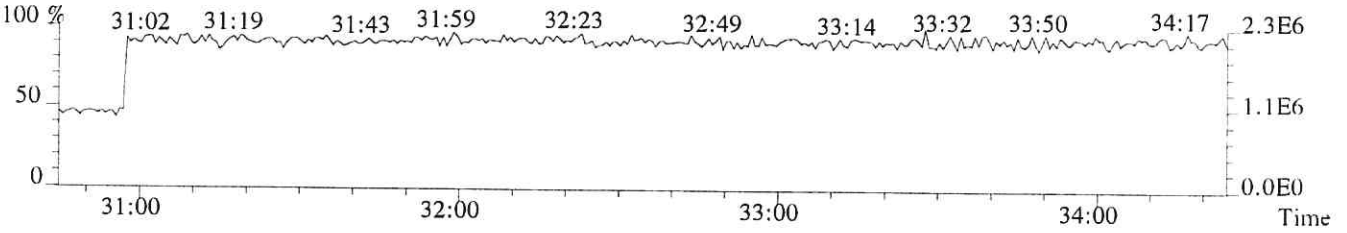
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



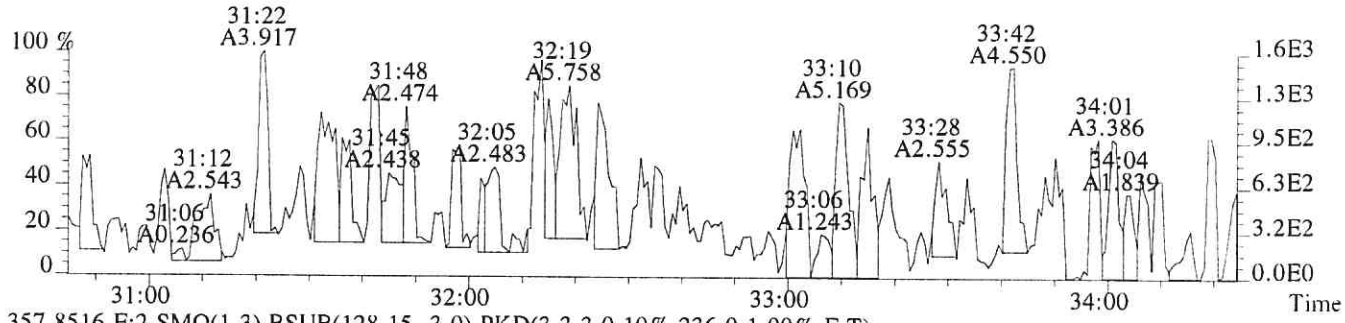
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



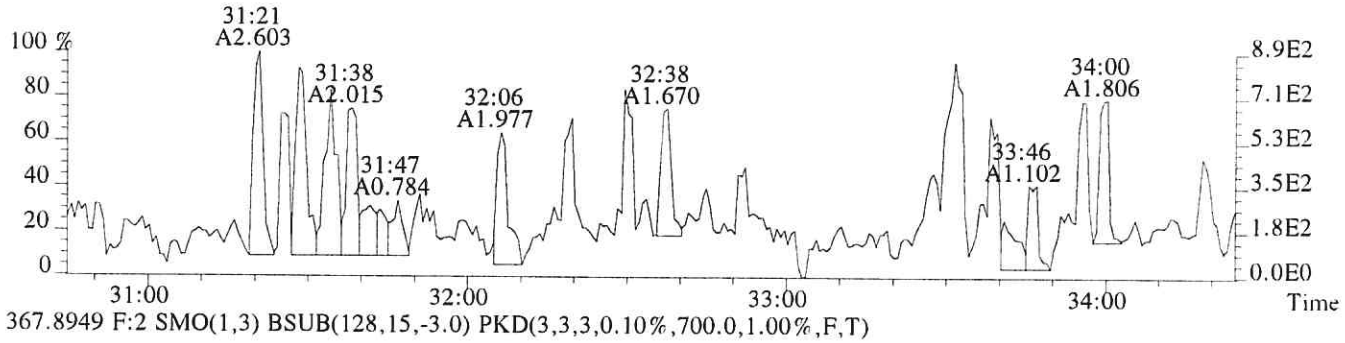
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



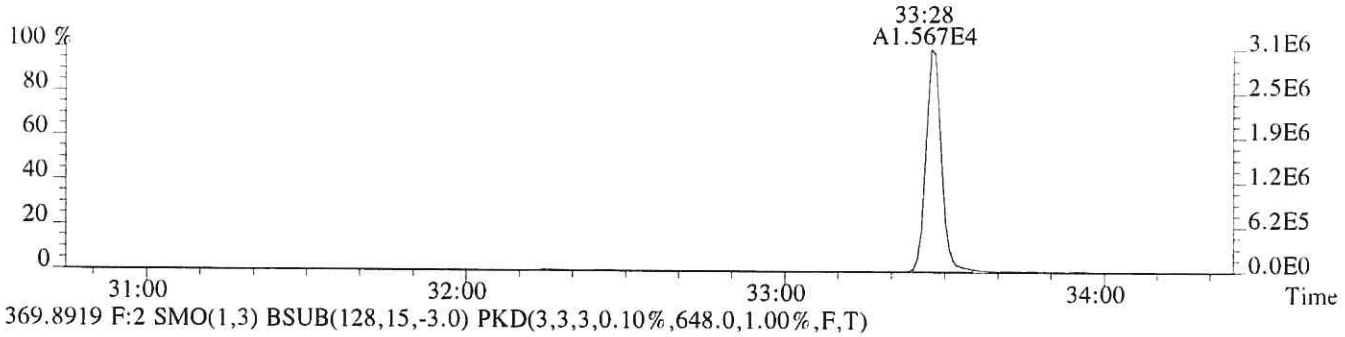
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



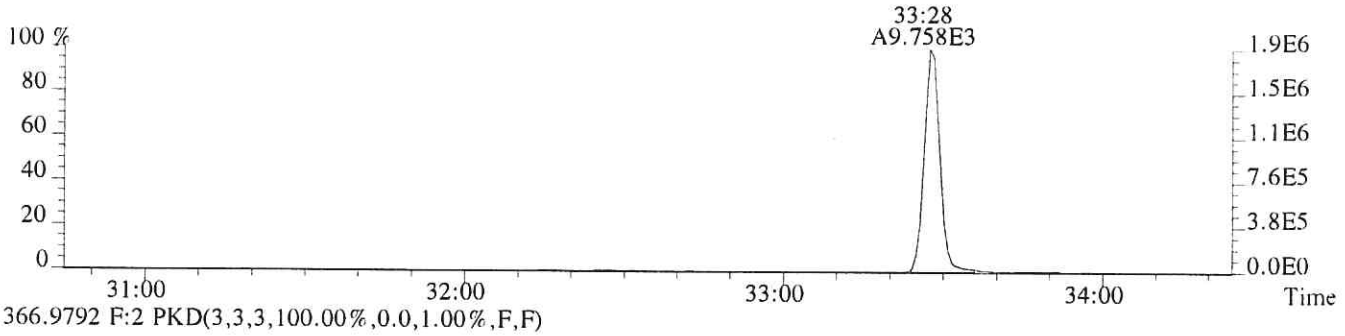
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



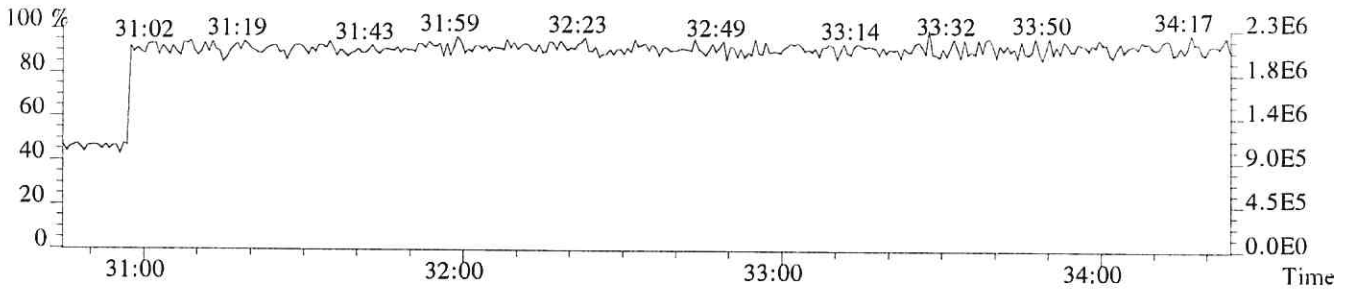
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



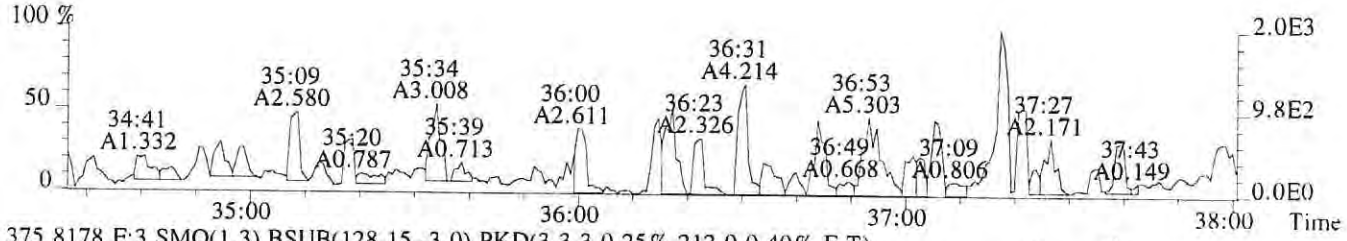
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)

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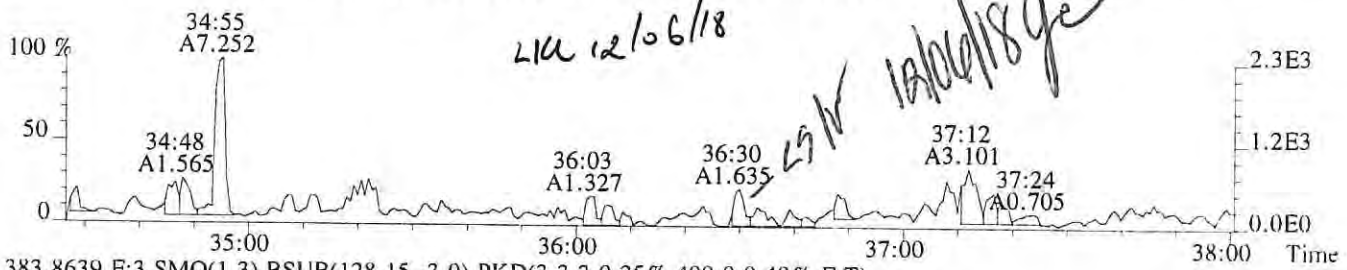
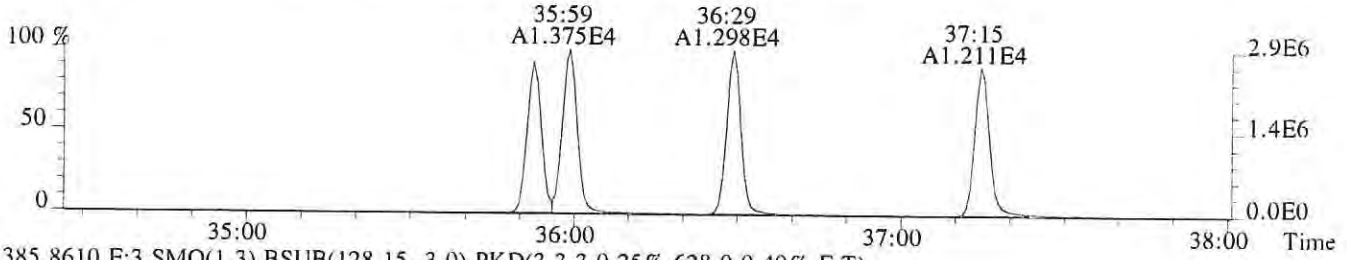
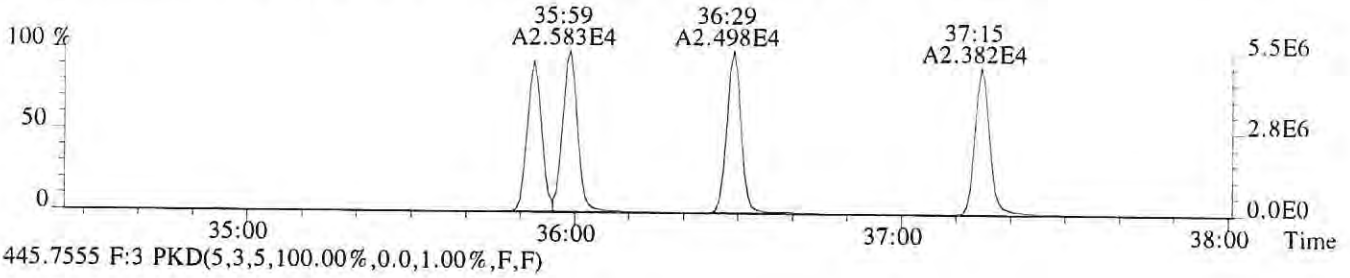
LSN 12/06/18 ge



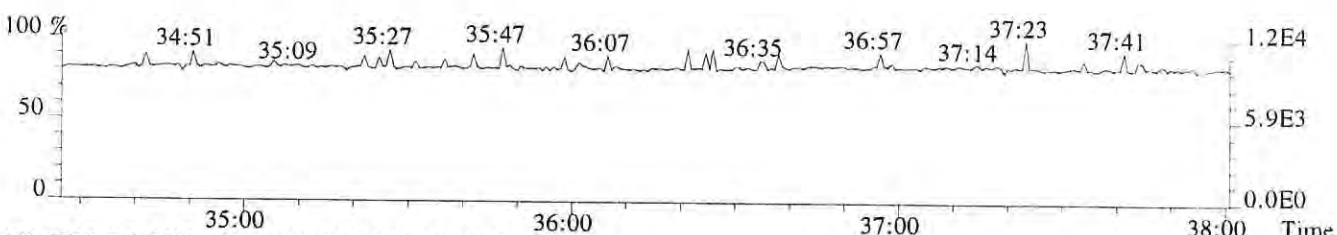
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



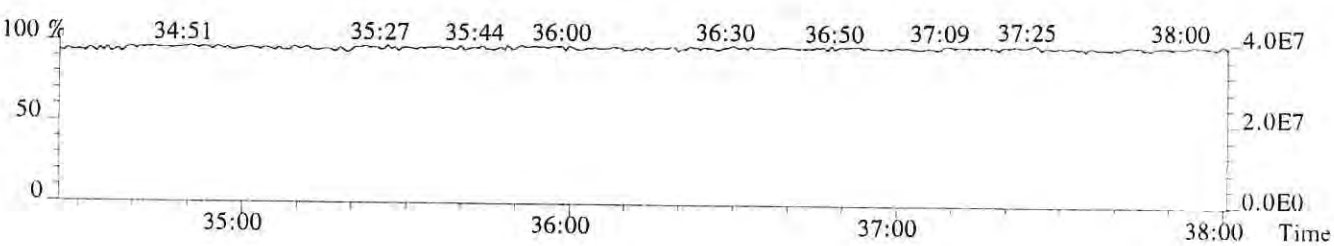
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



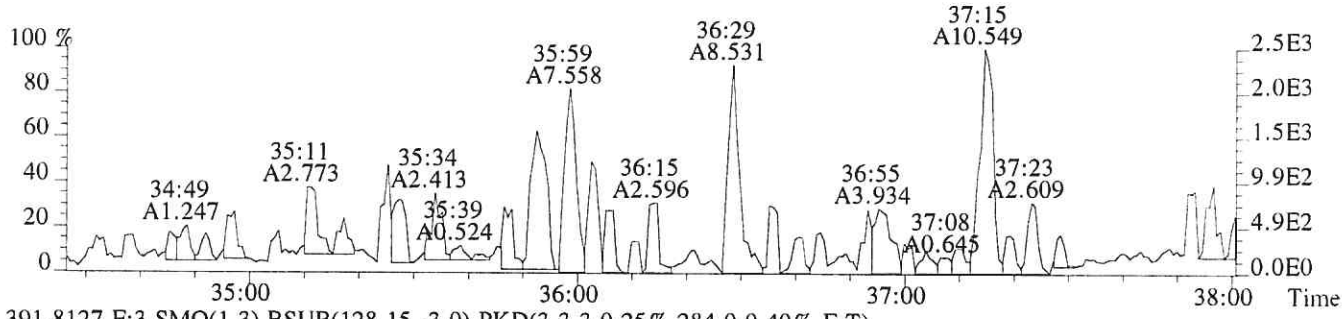
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



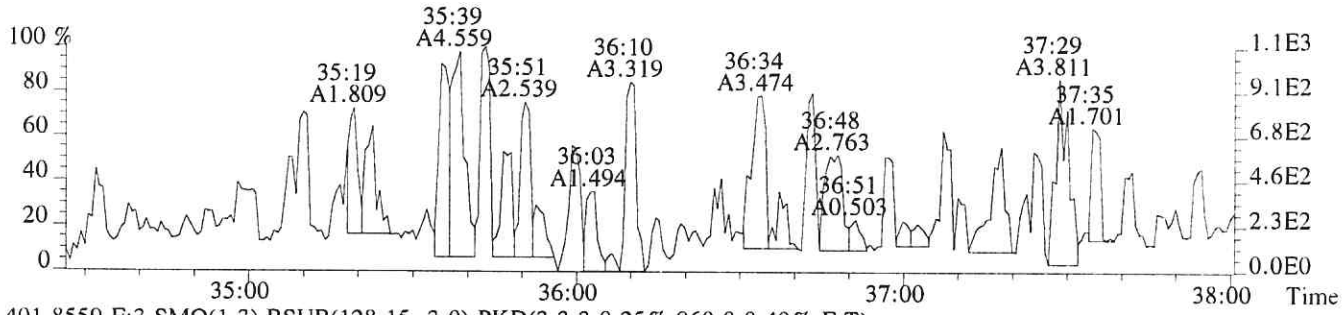
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



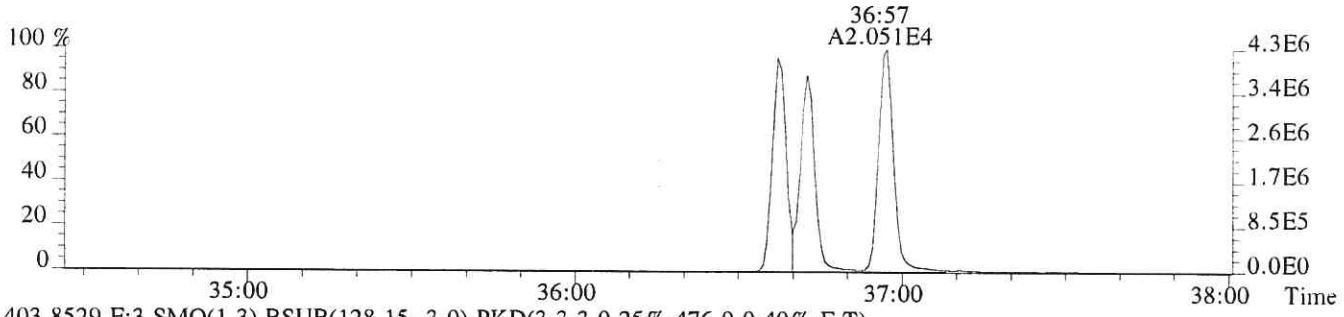
File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



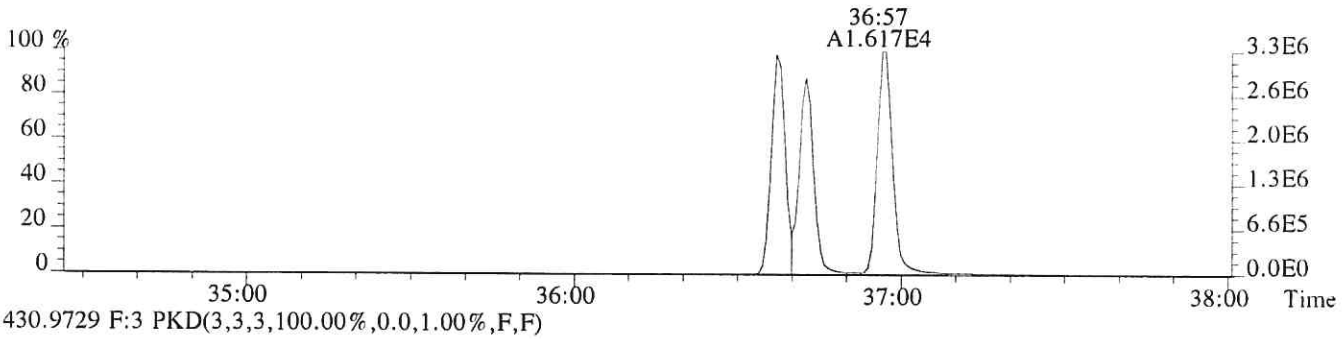
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



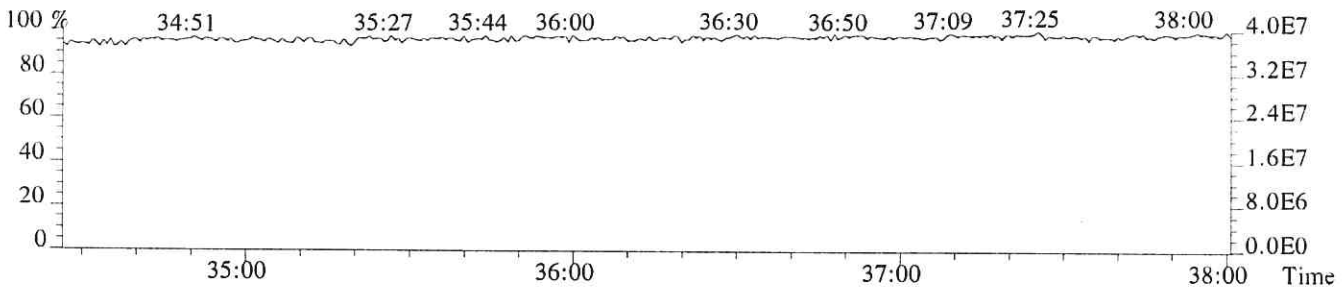
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



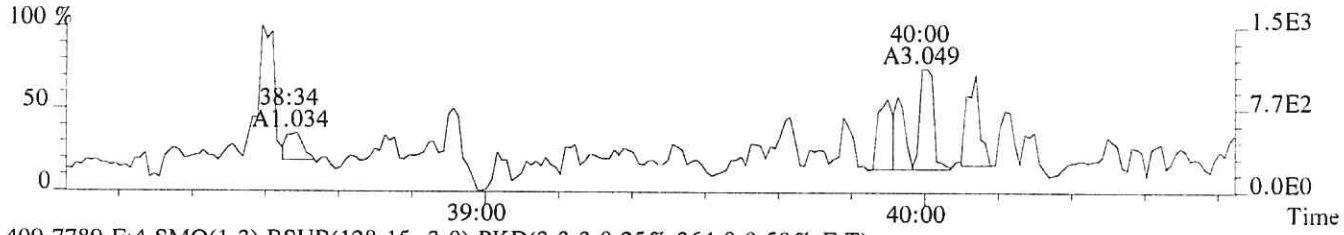
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



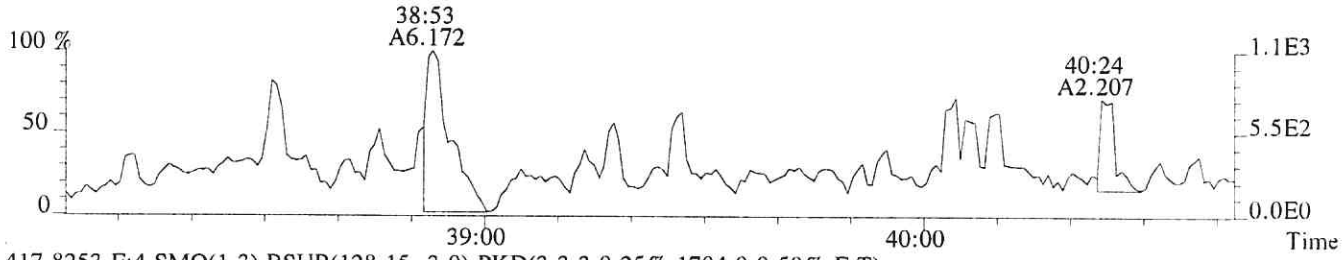
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



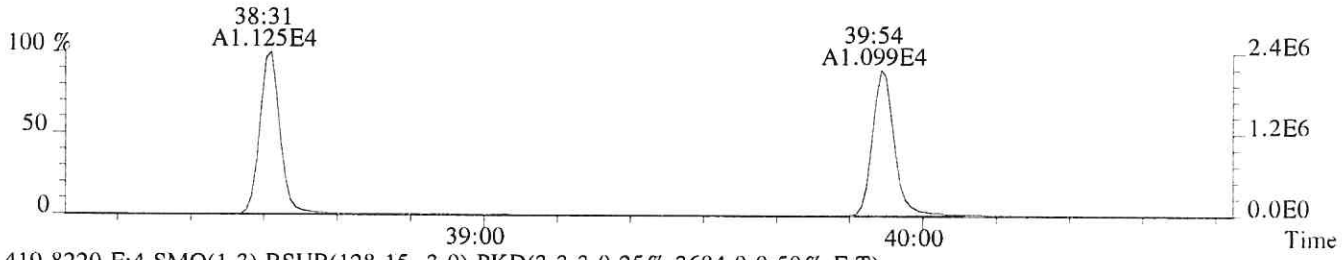
File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.50%,F,T)



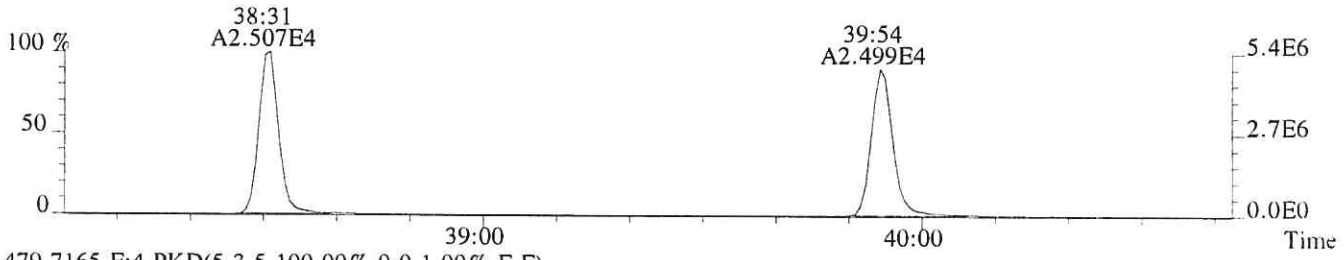
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



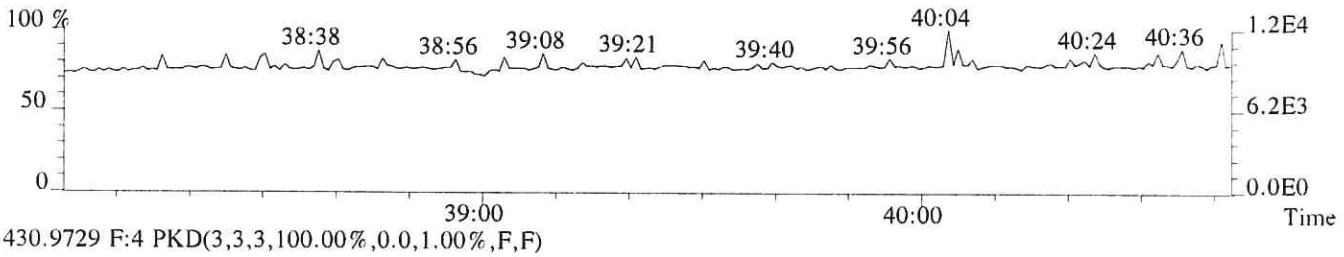
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.50%,F,T)



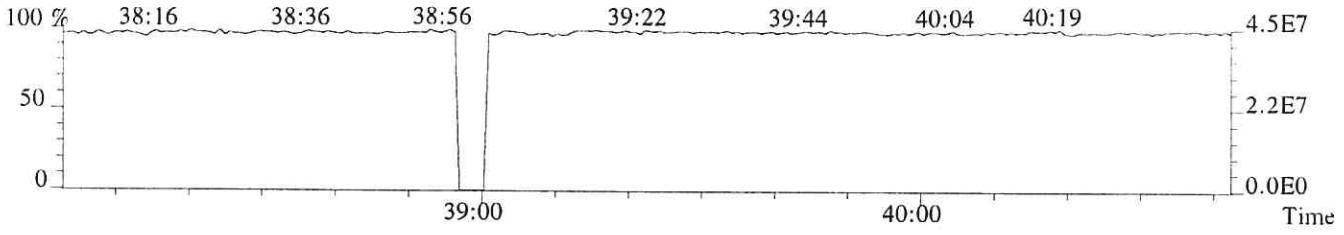
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



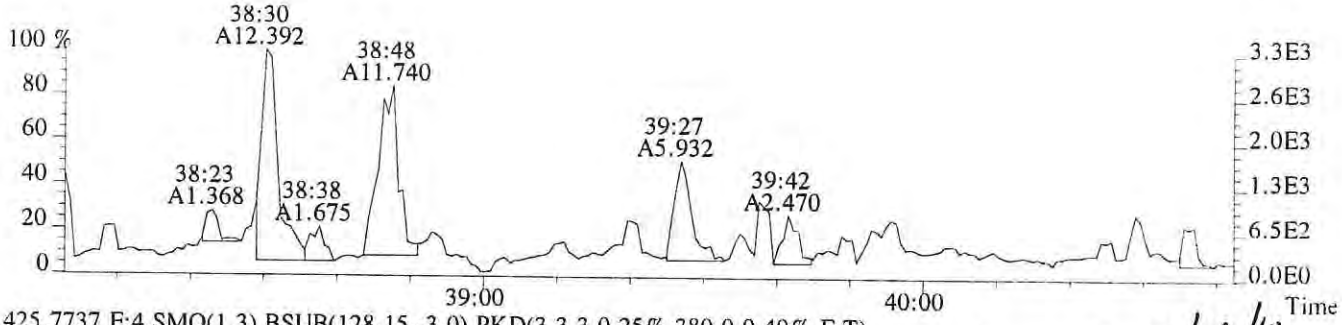
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)

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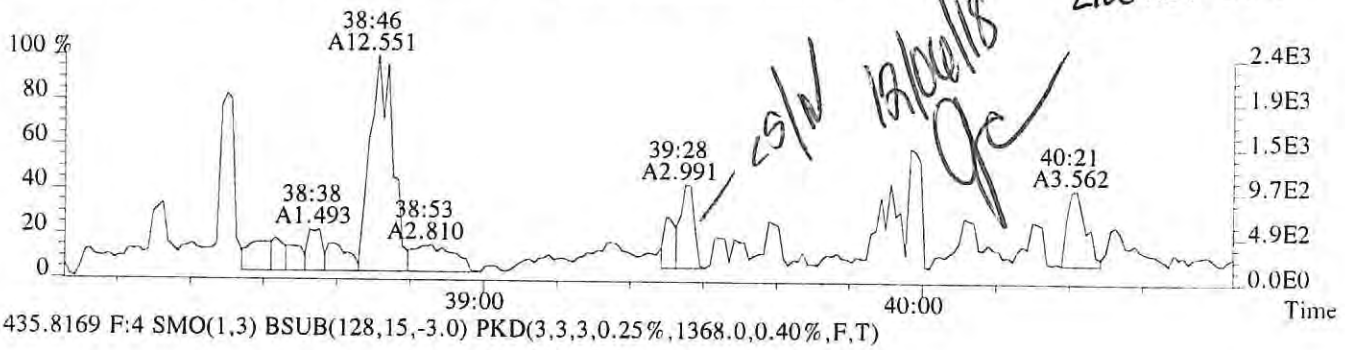
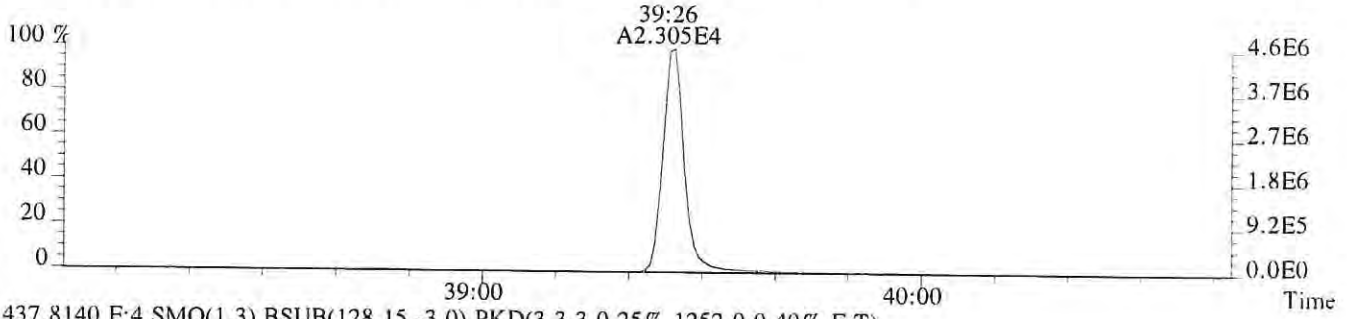
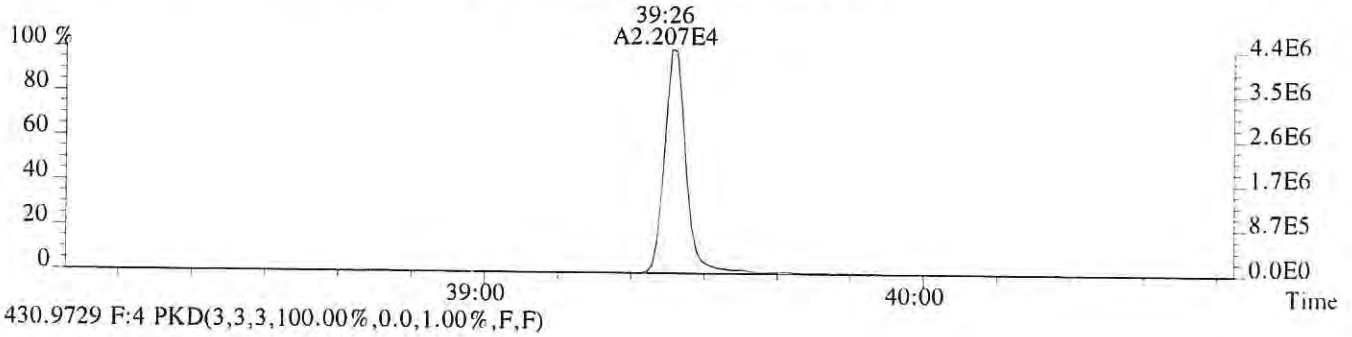


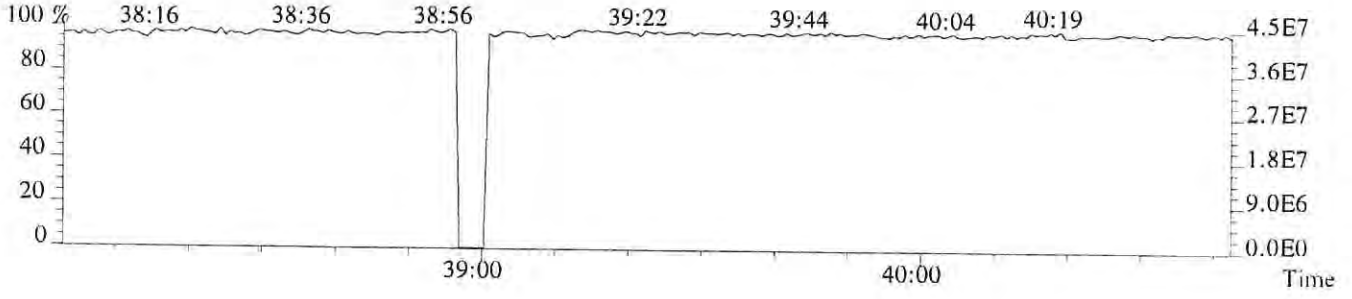
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



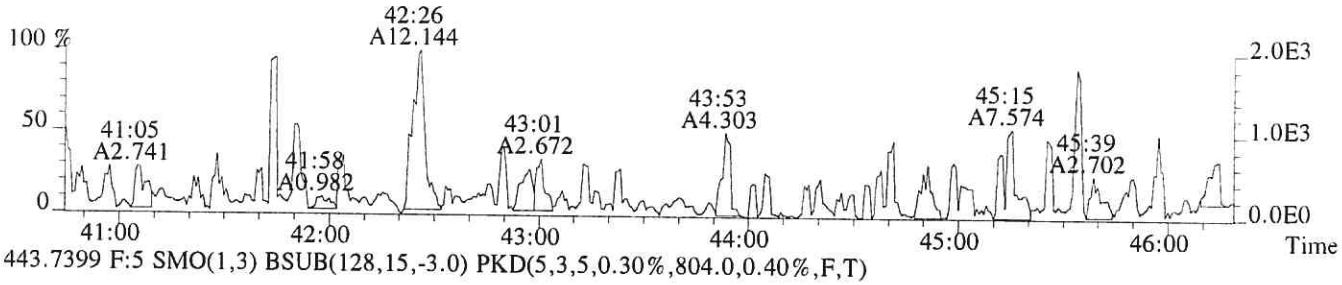
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



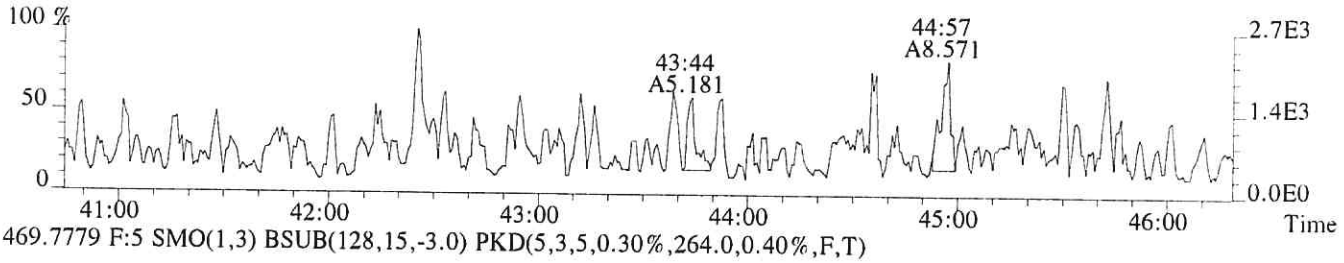
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



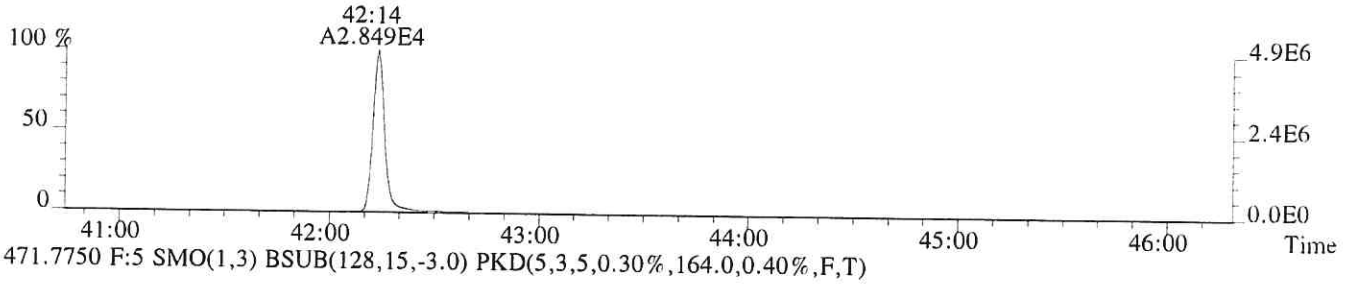
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



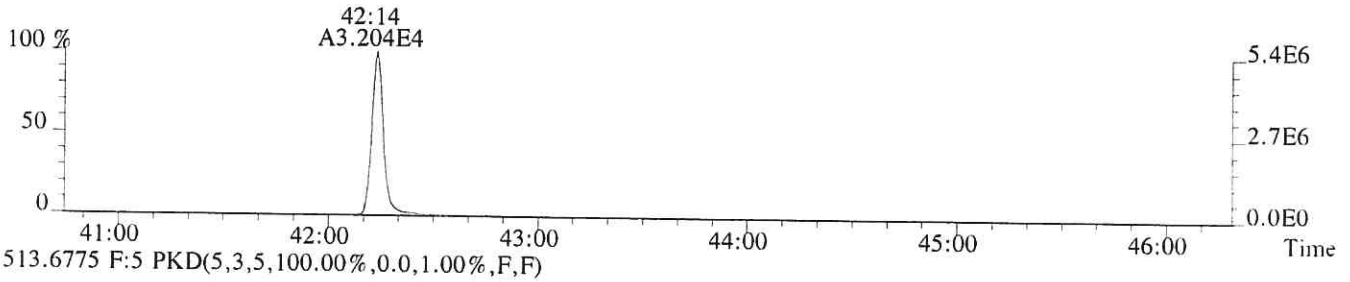
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,804.0,0.40%,F,T)



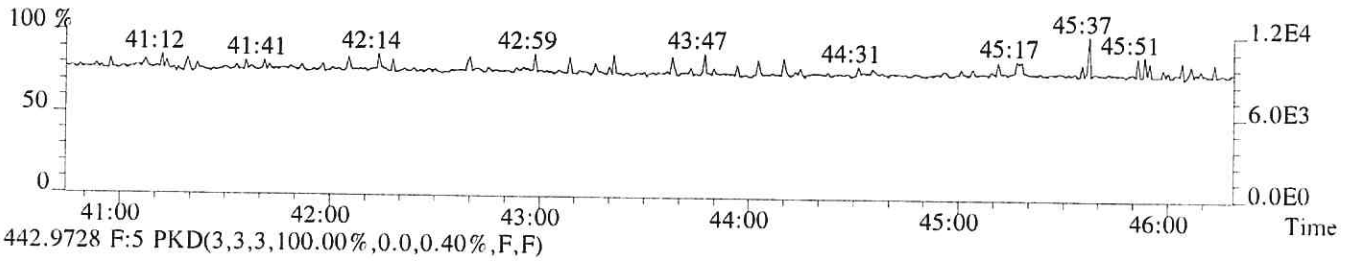
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



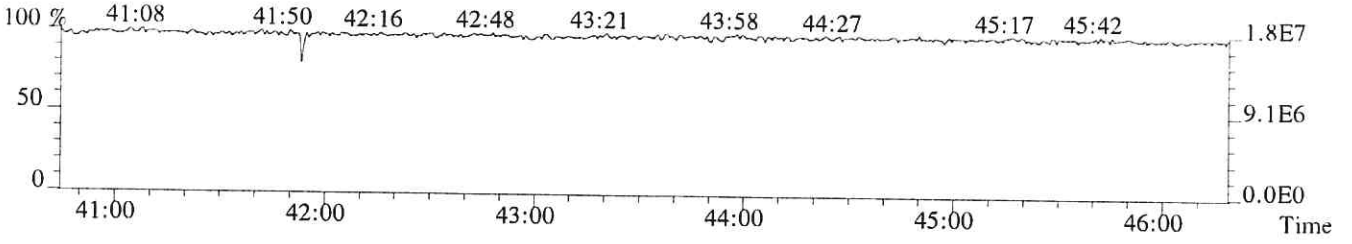
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



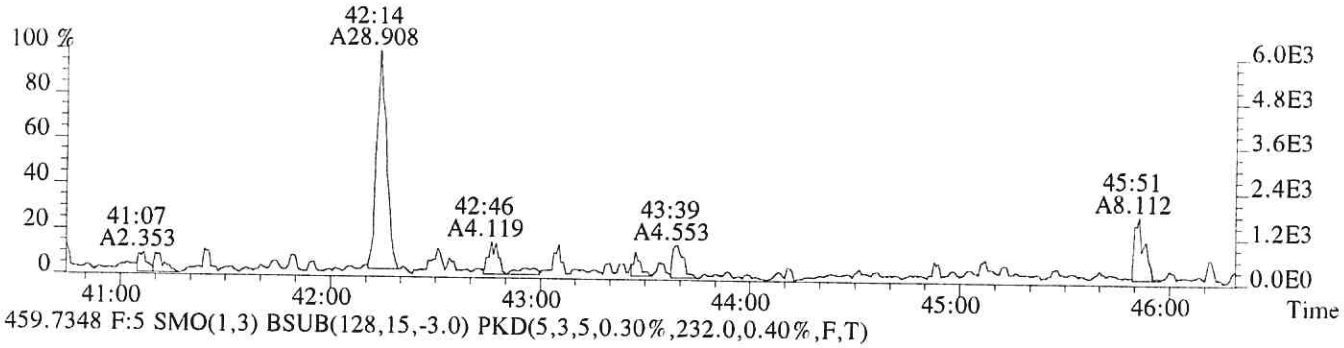
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



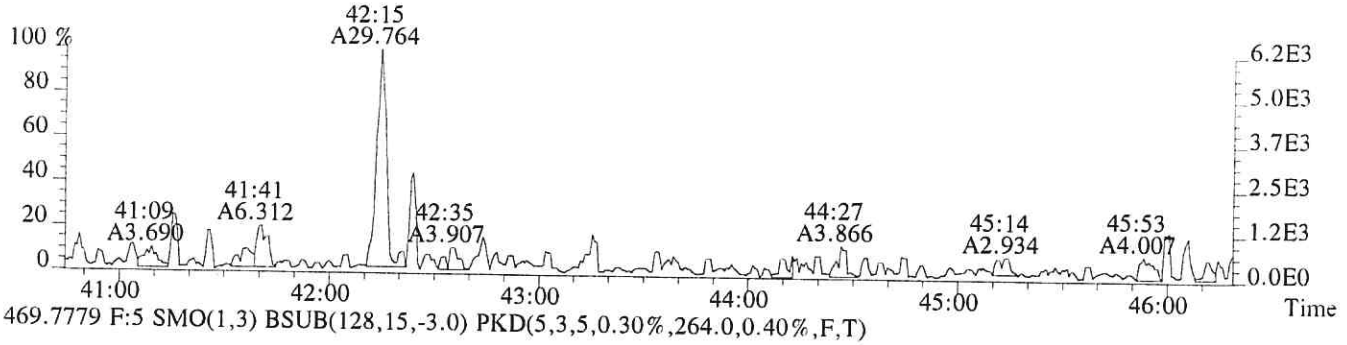
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



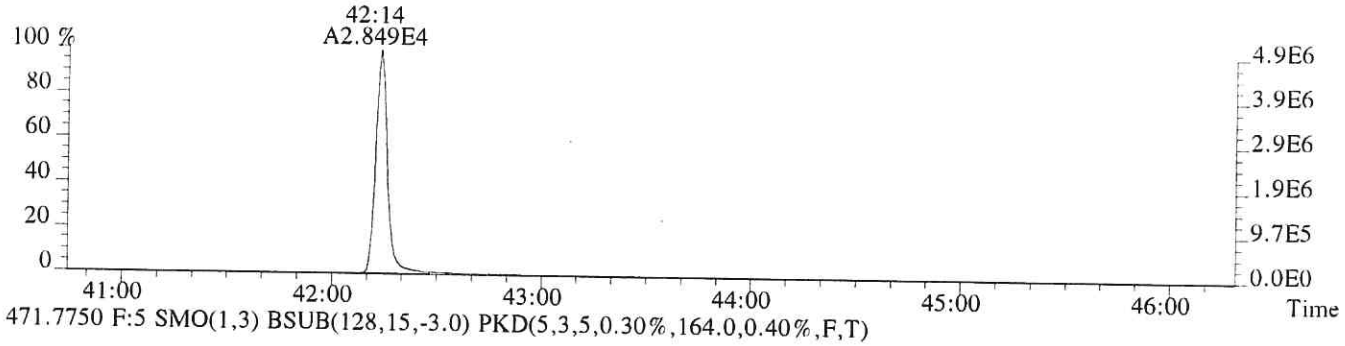
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



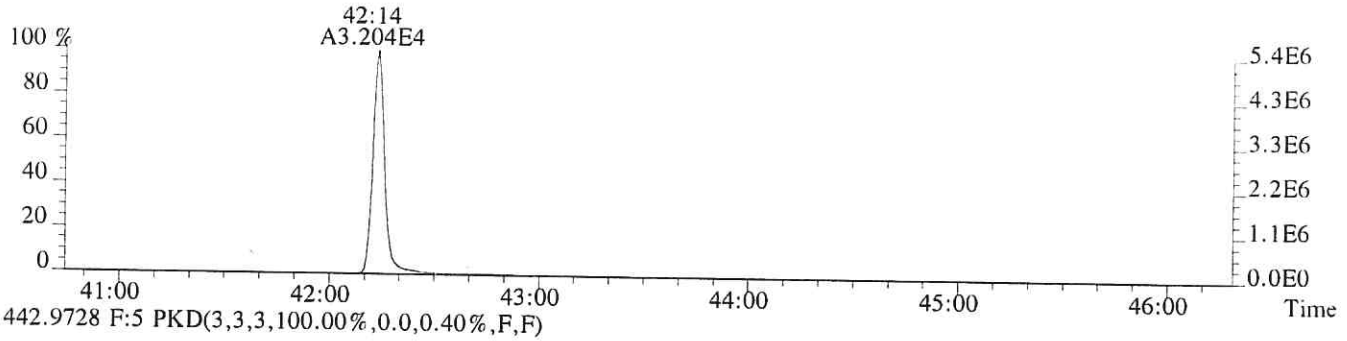
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



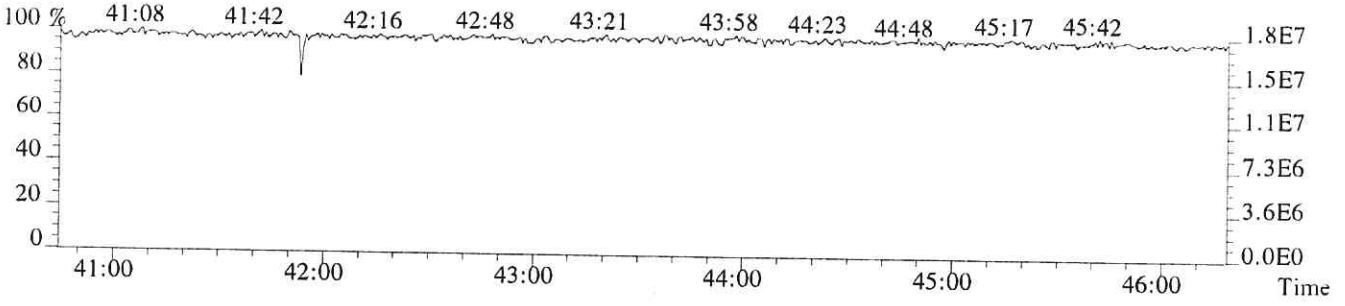
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 Sample ID: EQ1800469-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	1.763e+03	2.346e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.094e+04	1.361e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.275e+04	1.507e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.772e+04	1.516e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.978e+04	1.654e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.842e+04	1.555e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.426e+04	1.184e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.075e+04	1.115e+04	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	7.465e+03	7.911e+03	0.94	yes	no	1.258
10	Unk	OCDF	42:37	7.167e+03	7.956e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	1.426e+03	1.876e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.735e+04	1.105e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.334e+04	1.047e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.416e+04	1.132e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.477e+04	1.184e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.504e+03	7.052e+03	1.06	yes	no	1.025
17	Unk	OCDD	42:25	6.267e+03	7.106e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.019e+04	2.570e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	4.560e+04	2.907e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.716e+04	2.986e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.894e+04	3.643e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.211e+04	4.254e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.122e+04	4.103e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.648e+04	3.171e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.051e+04	2.346e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	7.394e+03	1.741e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	1.424e+04	1.827e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.588e+04	2.276e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.746e+04	2.154e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.756e+04	2.193e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.881e+04	1.747e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:25	1.163e+04	1.296e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.873e+04	6.186e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.119e+04	4.012e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	1.517e+04				no	1.014

$$\text{OCDD} = \frac{(6.267\text{e+}03 + 7.106\text{e+}03) \times 4000\ \text{pg} \times 1}{(1.163\text{e+}04 + 1.296\text{e+}04) \times \text{g} \times / 100 \times 1.118}$$

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Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 LAB. ID: EQ1800469-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.17e+05	7.52e+02	4.2e+02	4.15e+05	1.26e+03	3.3e+02
2	1,2,3,7,8-PeCDF	3.85e+06	4.92e+02	7.8e+03	2.47e+06	9.40e+02	2.6e+03
3	2,3,4,7,8-PeCDF	4.38e+06	4.92e+02	8.9e+03	2.88e+06	9.40e+02	3.1e+03
4	1,2,3,4,7,8-HxCDF	3.88e+06	4.88e+02	7.9e+03	3.33e+06	4.12e+02	8.1e+03
5	1,2,3,6,7,8-HxCDF	4.05e+06	4.88e+02	8.3e+03	3.39e+06	4.12e+02	8.2e+03
6	2,3,4,6,7,8-HxCDF	3.95e+06	4.88e+02	8.1e+03	3.29e+06	4.12e+02	8.0e+03
7	1,2,3,7,8,9-HxCDF	2.87e+06	4.88e+02	5.9e+03	2.35e+06	4.12e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.30e+06	2.13e+03	1.1e+03	2.36e+06	1.62e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	1.40e+06	2.13e+03	6.5e+02	1.43e+06	1.62e+03	8.8e+02
10	OCDF	1.09e+06	3.36e+02	3.3e+03	1.26e+06	1.03e+03	1.2e+03
11	2,3,7,8-TCDD	2.67e+05	1.90e+03	1.4e+02	3.48e+05	9.72e+02	3.6e+02
12	1,2,3,7,8-PeCDD	3.33e+06	8.52e+02	3.9e+03	2.16e+06	2.28e+02	9.5e+03
13	1,2,3,4,7,8-HxCDD	3.00e+06	2.88e+02	1.0e+04	2.36e+06	2.56e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	2.94e+06	2.88e+02	1.0e+04	2.32e+06	2.56e+02	9.1e+03
15	1,2,3,7,8,9-HxCDD	2.89e+06	2.88e+02	1.0e+04	2.39e+06	2.56e+02	9.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.40e+06	5.28e+02	2.6e+03	1.33e+06	3.60e+02	3.7e+03
17	OCDD	9.61e+05	2.60e+02	3.7e+03	1.06e+06	6.80e+02	1.6e+03
18	13C-2,3,7,8-TCDF	3.65e+06	5.41e+03	6.7e+02	4.59e+06	2.97e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	8.33e+06	1.00e+03	8.3e+03	5.47e+06	5.88e+02	9.3e+03
20	13C-2,3,4,7,8-PeCDF	9.37e+06	1.00e+03	9.3e+03	5.99e+06	5.88e+02	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	4.16e+06	5.12e+02	8.1e+03	8.04e+06	7.20e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.68e+06	7.20e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.81e+06	7.20e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	3.31e+06	5.12e+02	6.5e+03	6.31e+06	7.20e+02	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.16e+06	1.60e+03	1.3e+03	4.89e+06	5.50e+03	8.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.32e+06	1.60e+03	8.2e+02	3.13e+06	5.50e+03	5.7e+02
27	13C-2,3,7,8-TCDD	2.67e+06	5.44e+03	4.9e+02	3.44e+06	2.73e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	7.02e+06	5.68e+02	1.2e+04	4.50e+06	6.56e+02	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.16e+06	1.70e+03	3.6e+03	4.80e+06	1.08e+03	4.4e+03
30	13C-1,2,3,6,7,8-HxCDD	5.64e+06	1.70e+03	3.3e+03	4.45e+06	1.08e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.46e+06	5.68e+02	6.1e+03	3.24e+06	3.64e+02	8.9e+03
32	13C-OCDD	1.77e+06	2.16e+02	8.2e+03	1.96e+06	2.96e+02	6.6e+03
33	13C-1,2,3,4-TCDD	9.20e+06	5.44e+03	1.7e+03	1.17e+07	2.73e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.70e+03	6.0e+03	7.99e+06	1.08e+03	7.4e+03
35	37Cl-2,3,7,8-TCDD	2.89e+06	1.83e+03	1.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.904e{+}03 + 9.720e{+}02\ ) \times 2000}{(2.673e{+}06 + 3.443e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 1.085} =$$

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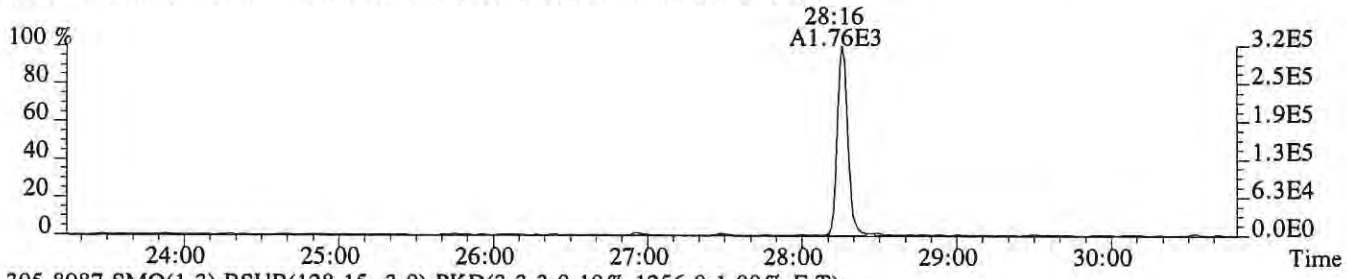
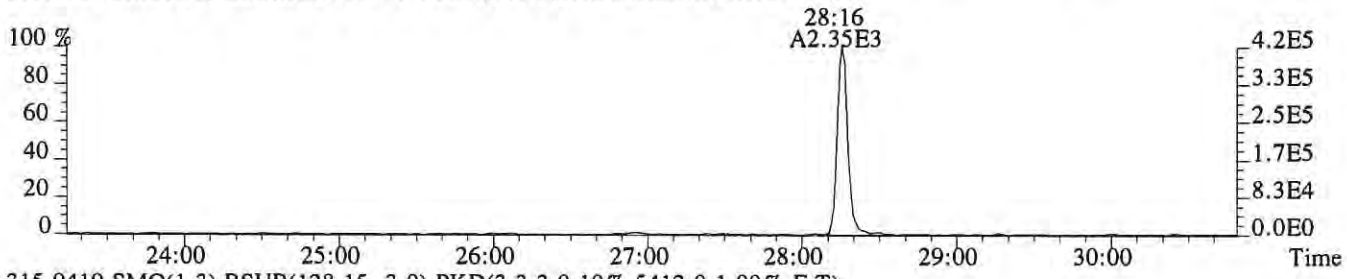
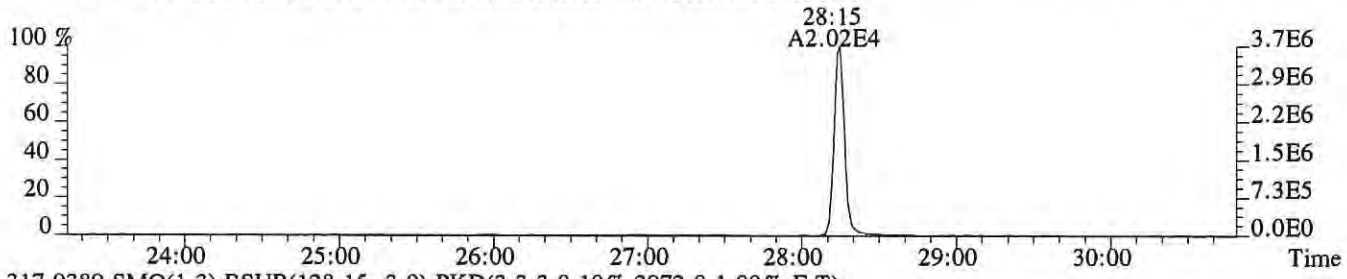
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



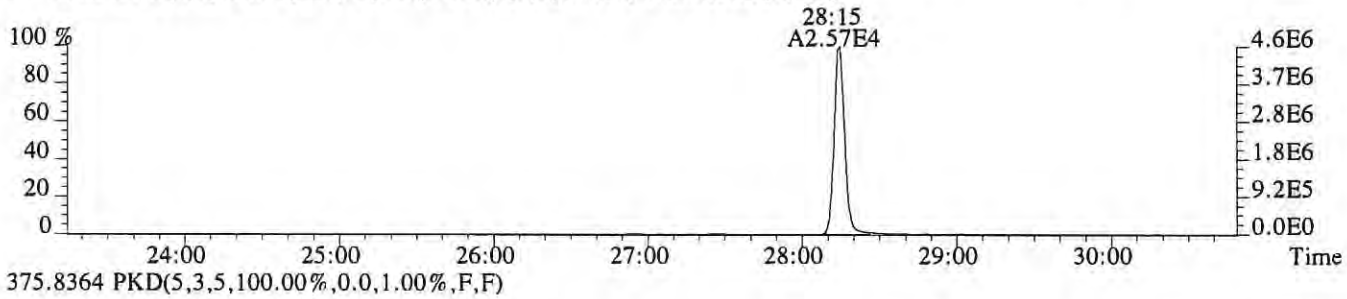
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



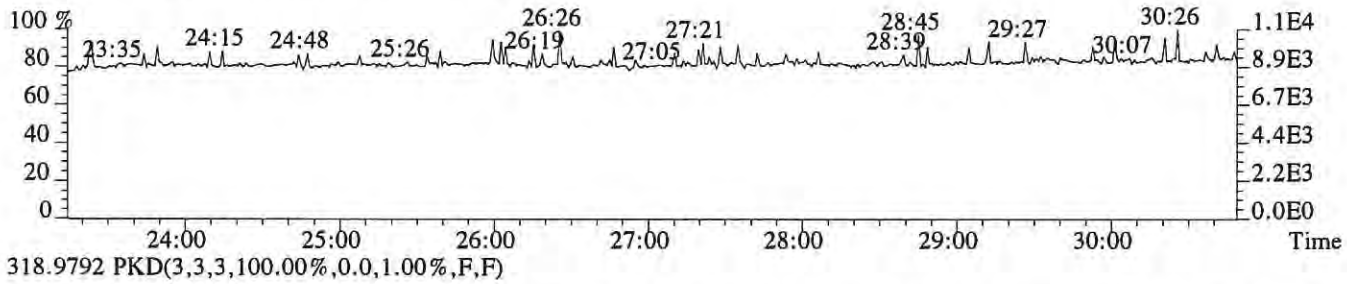
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5412.0,1.00%,F,T)



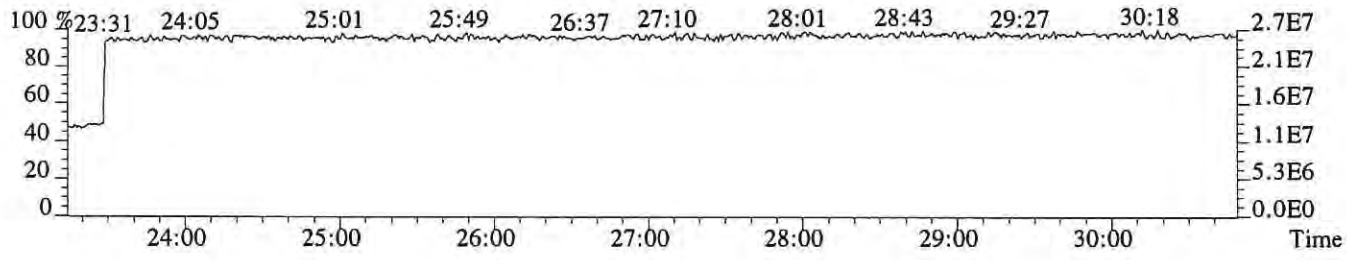
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



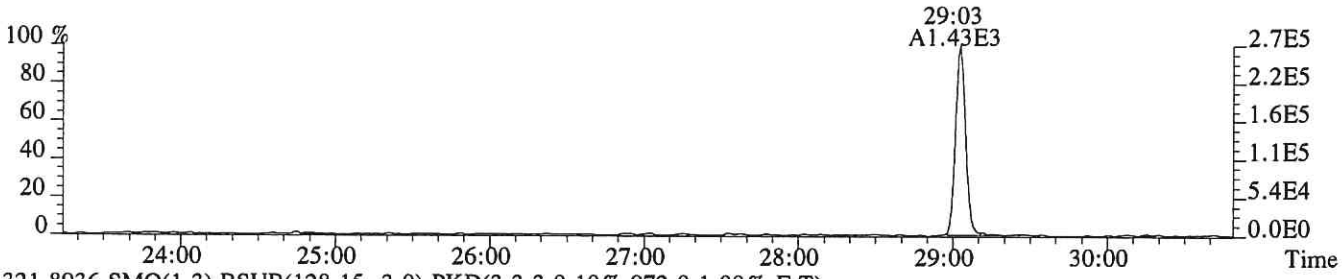
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



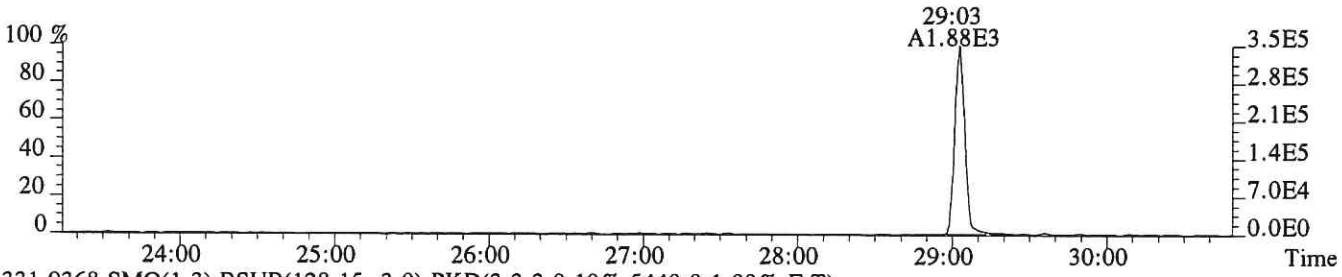
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



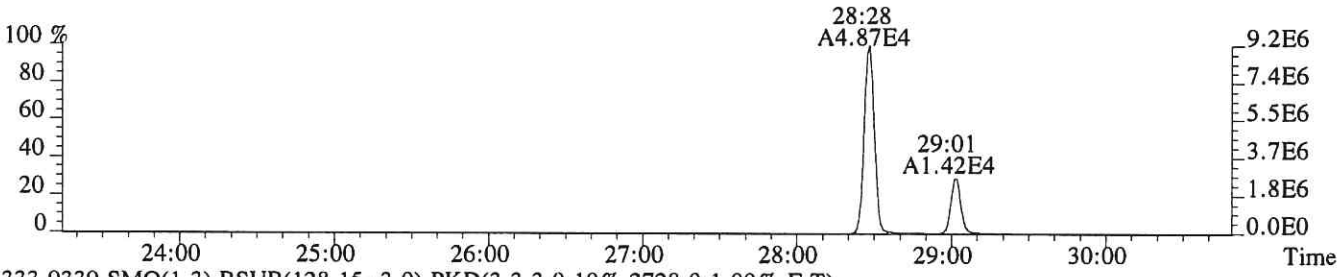
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



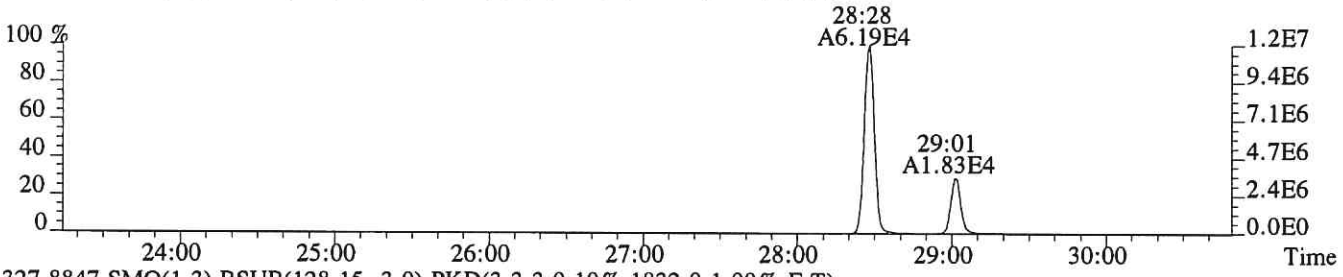
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



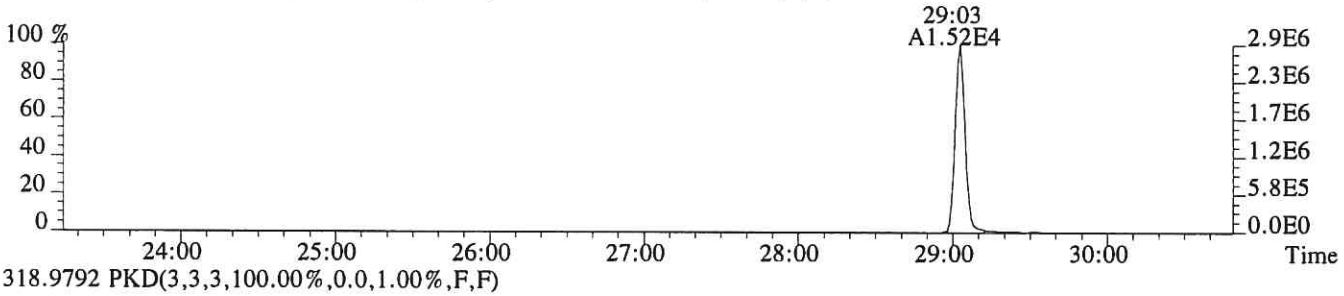
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5440.0,1.00%,F,T)



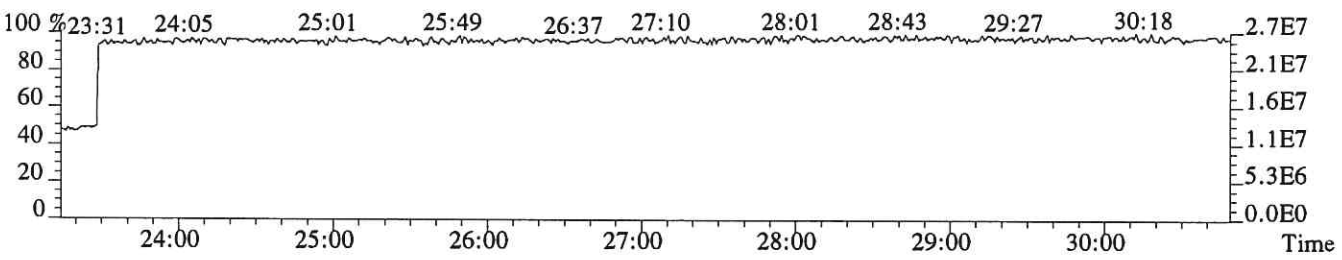
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2728.0,1.00%,F,T)



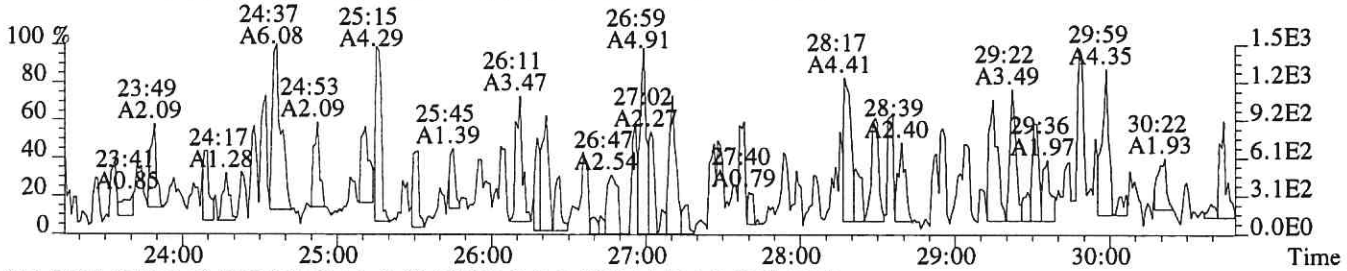
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



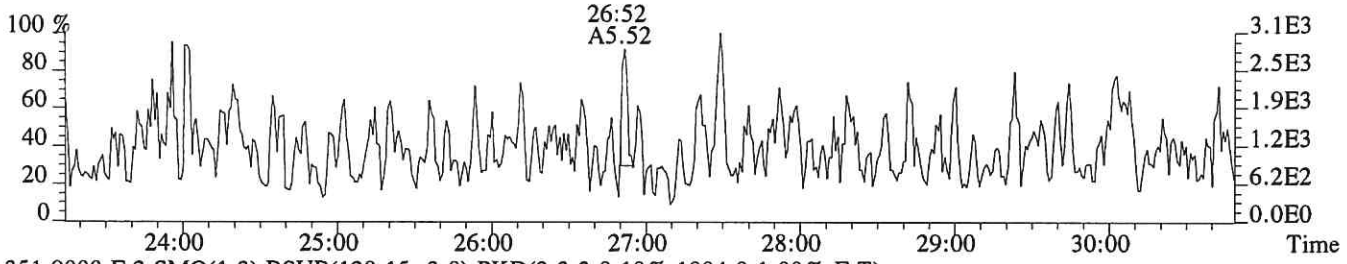
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



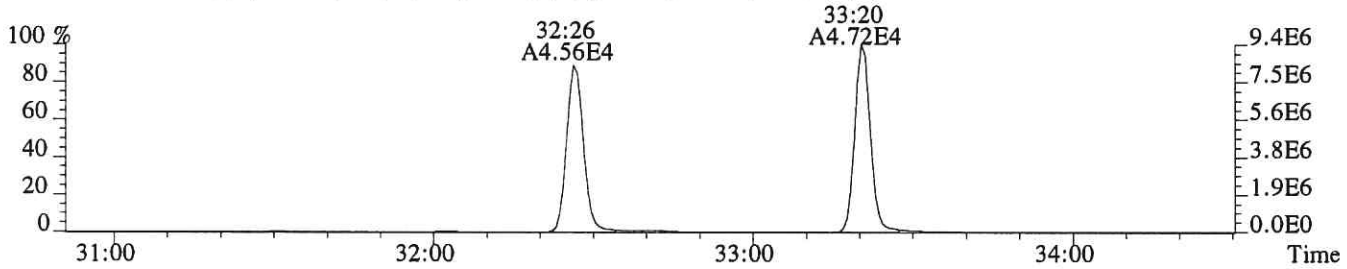
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



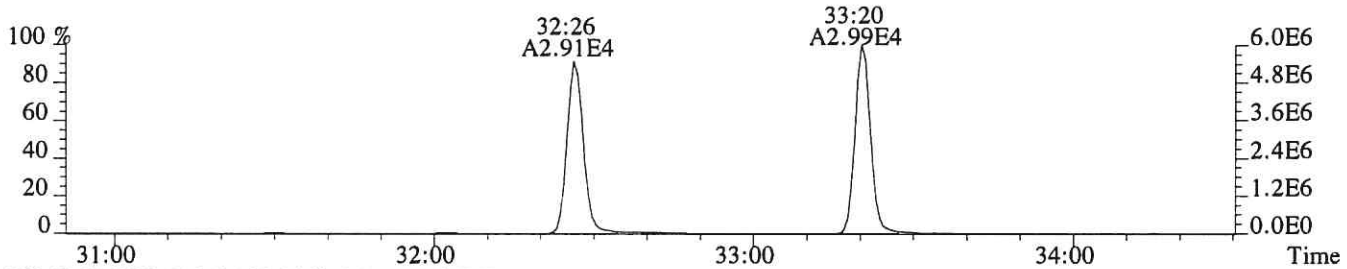
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



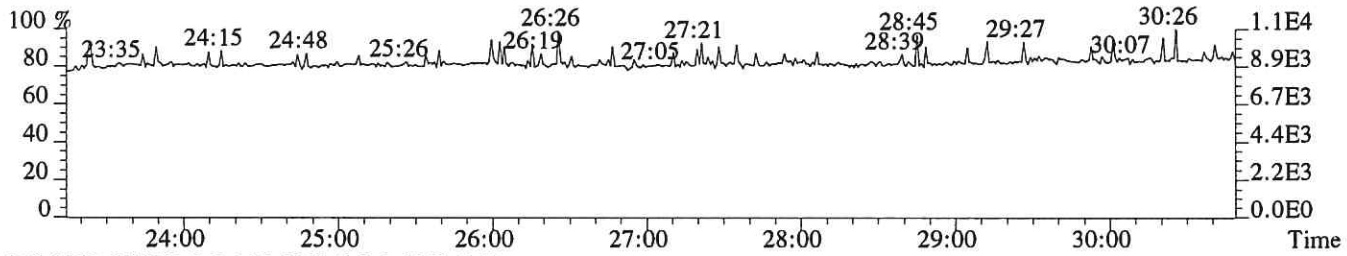
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



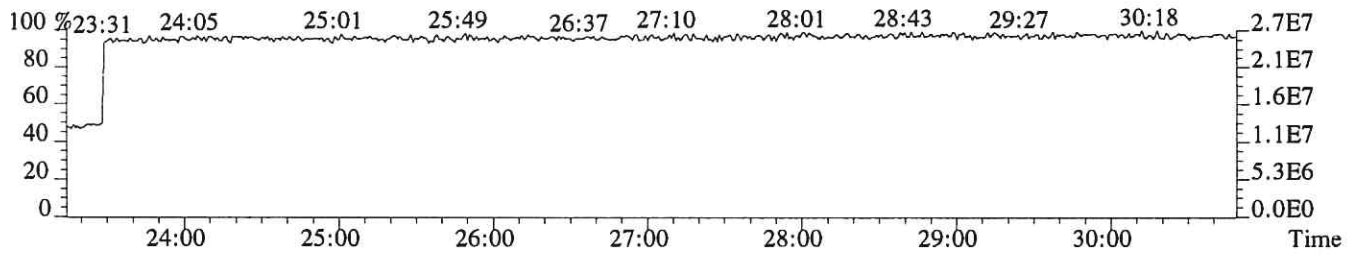
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



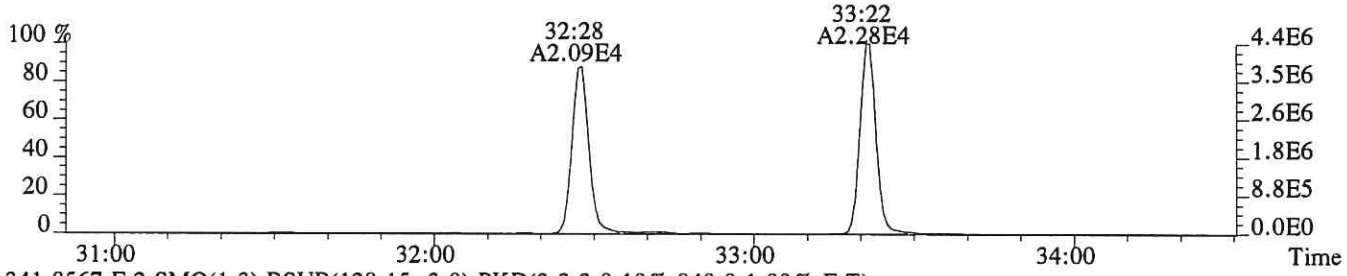
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



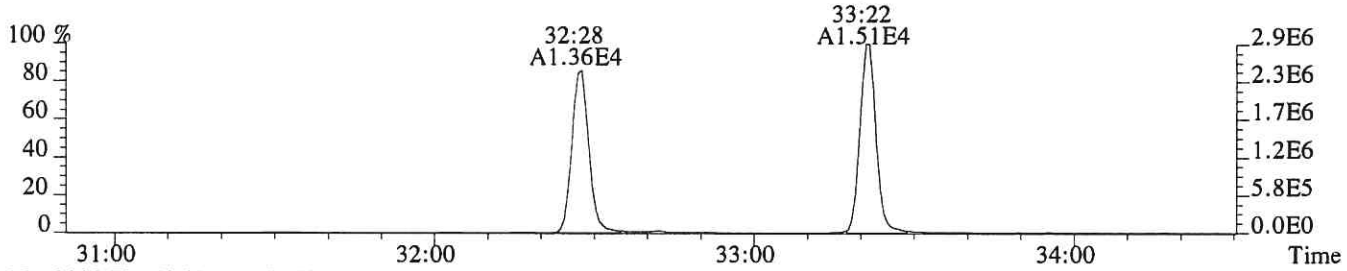
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



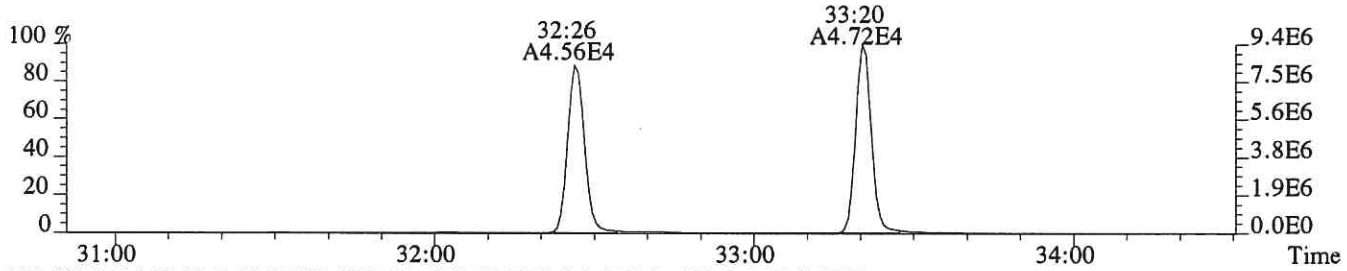
File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



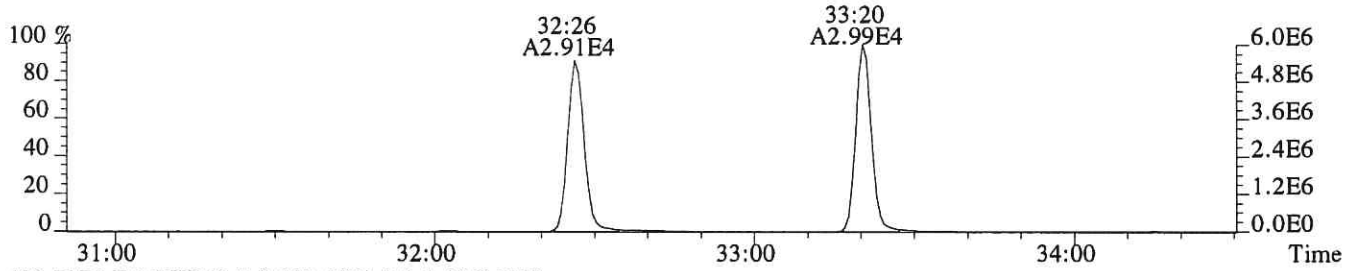
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



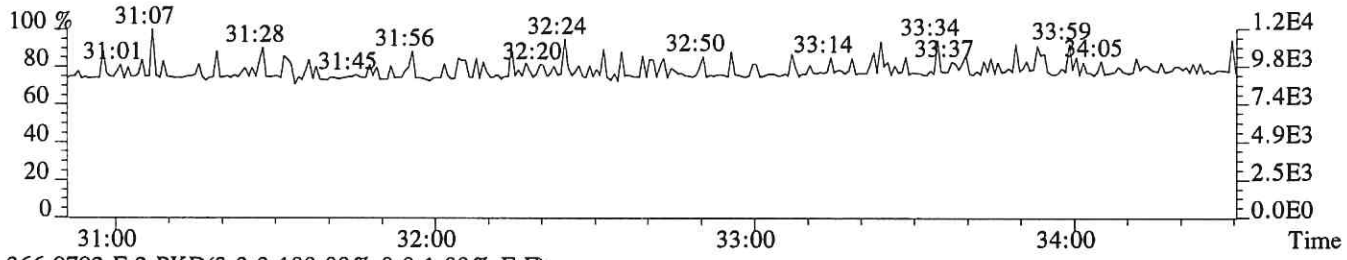
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



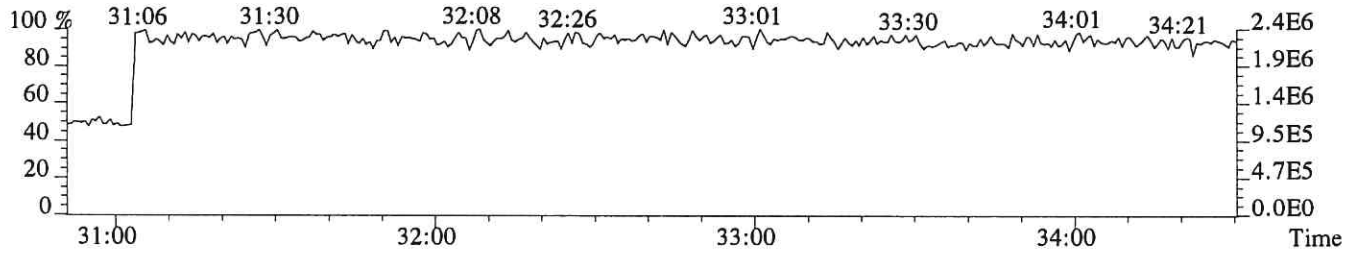
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



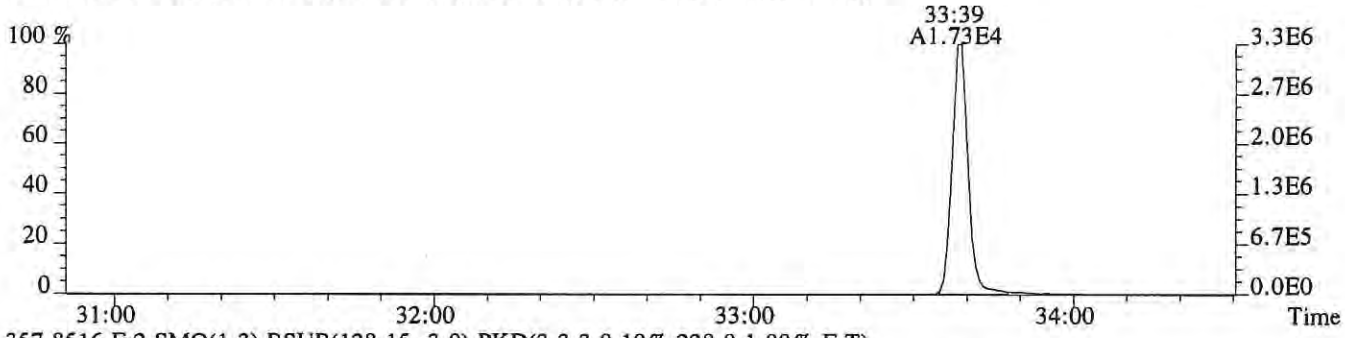
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



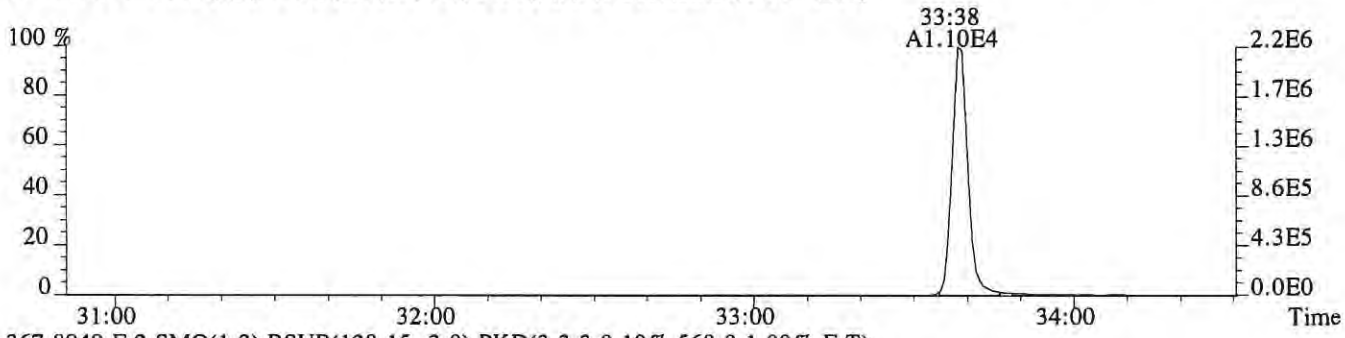
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



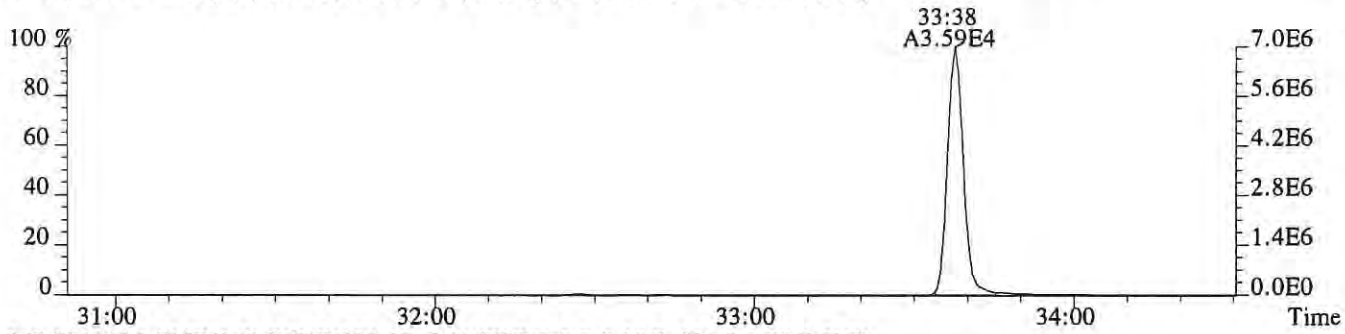
File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



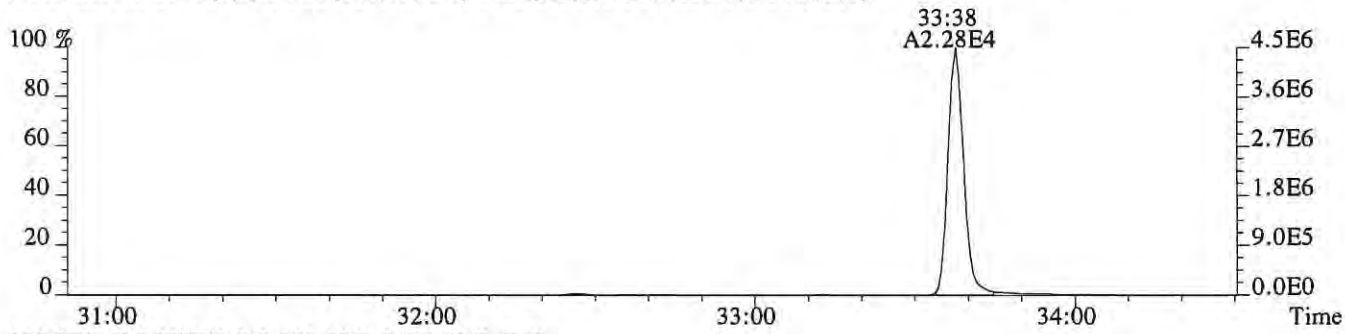
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



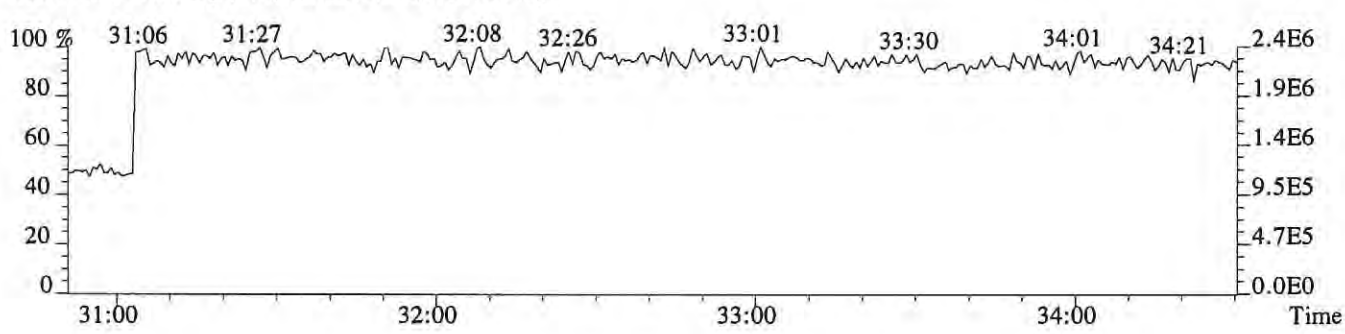
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)

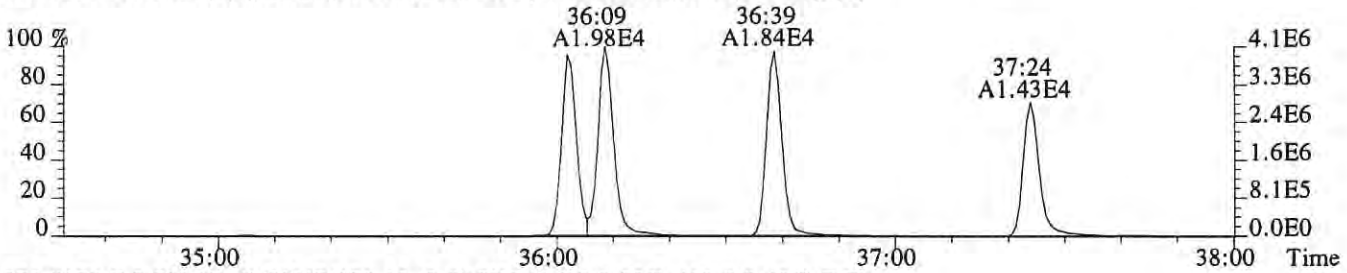


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

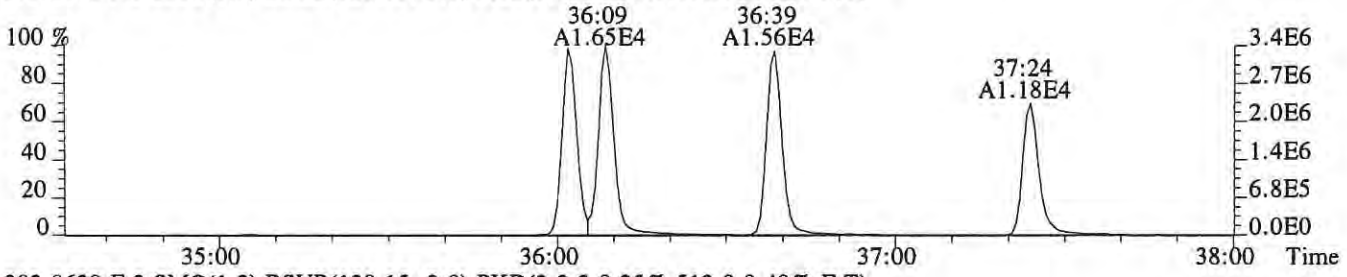


File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

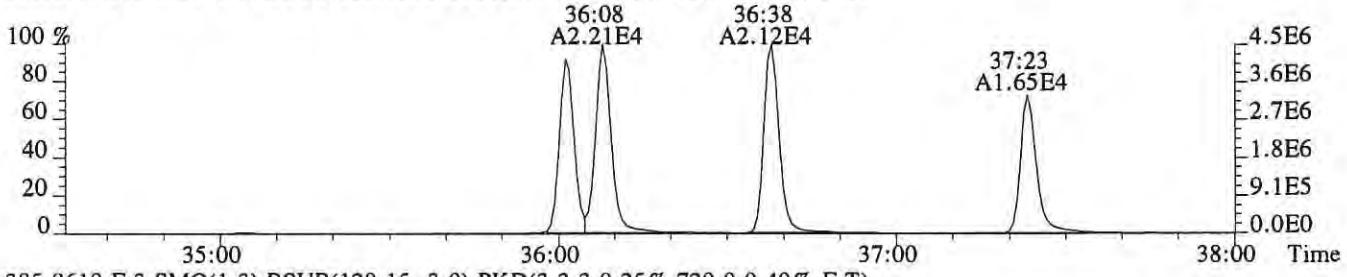
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



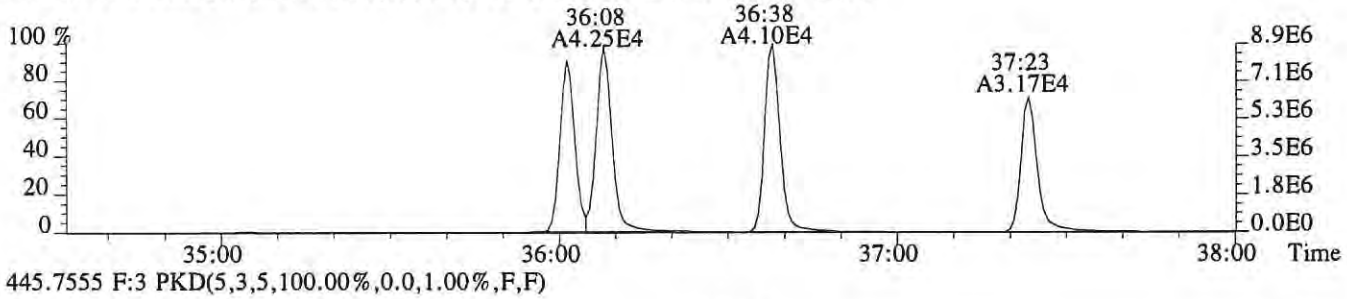
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



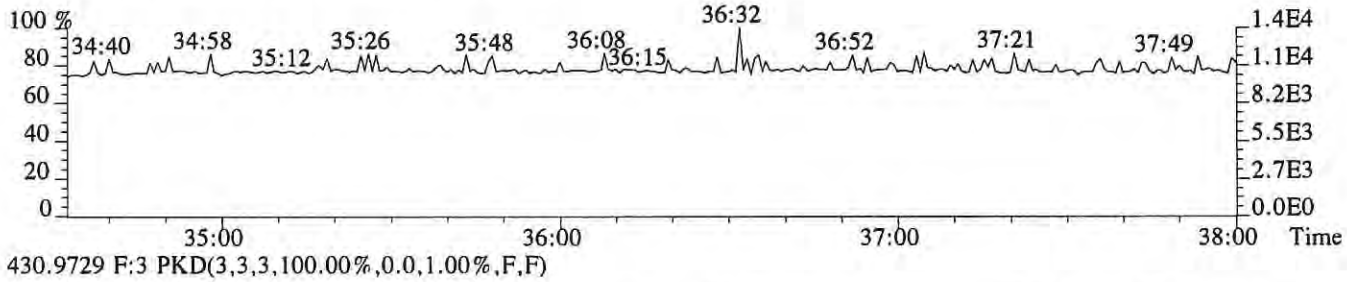
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



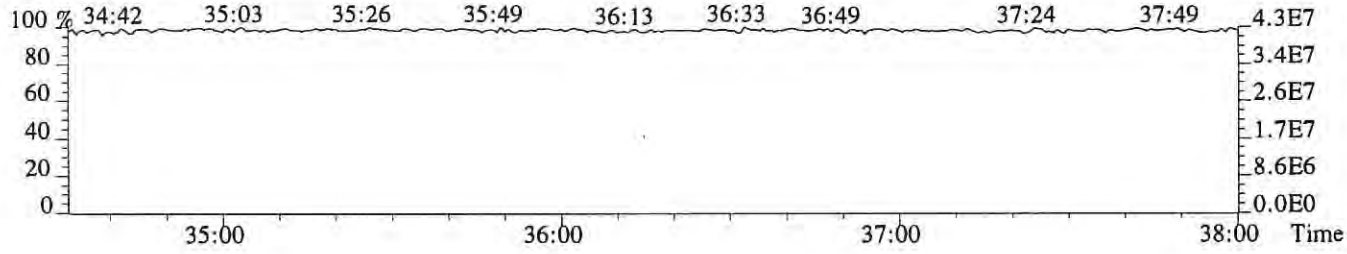
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



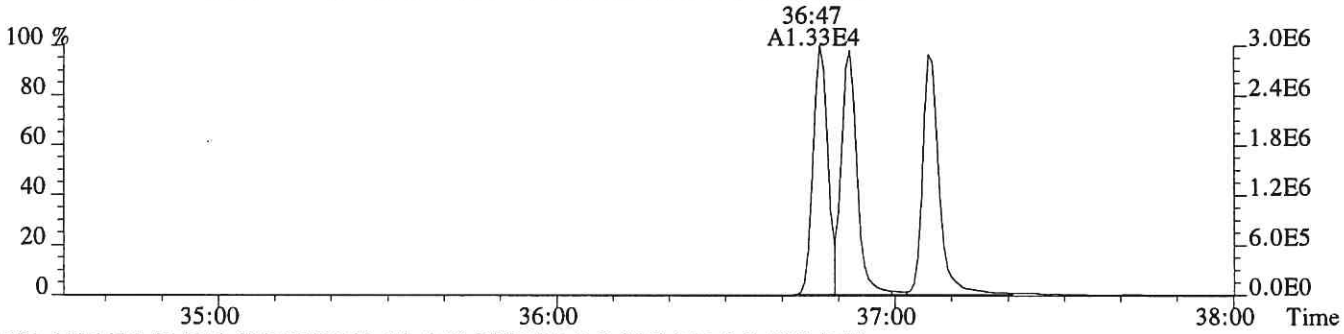
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



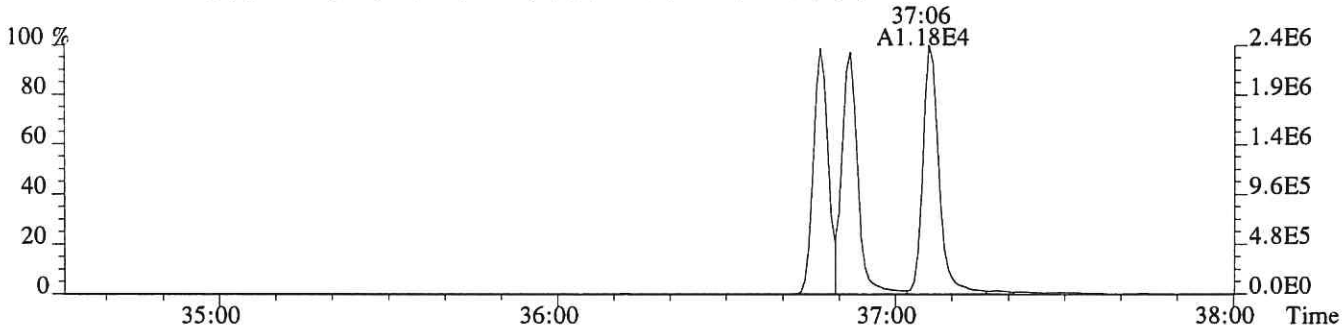
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



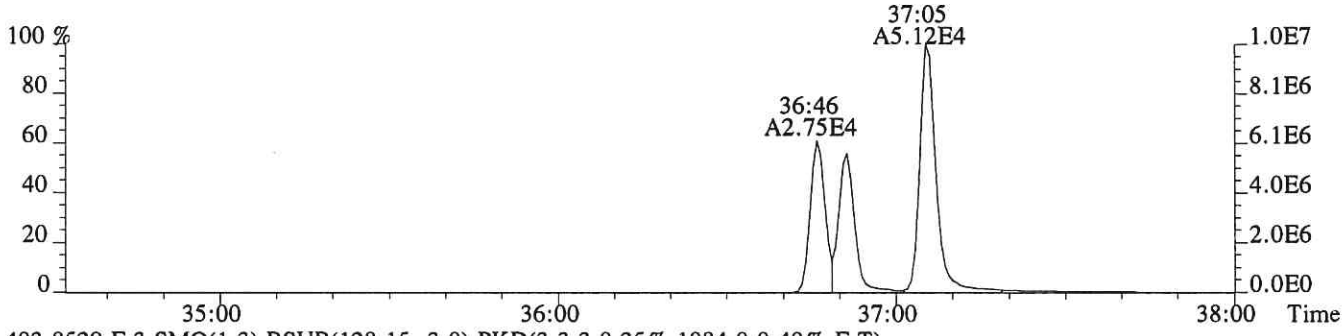
File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



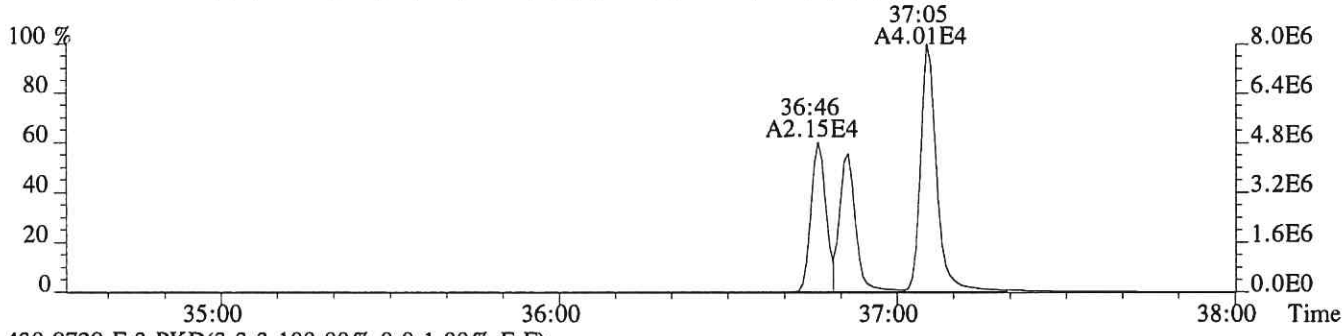
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



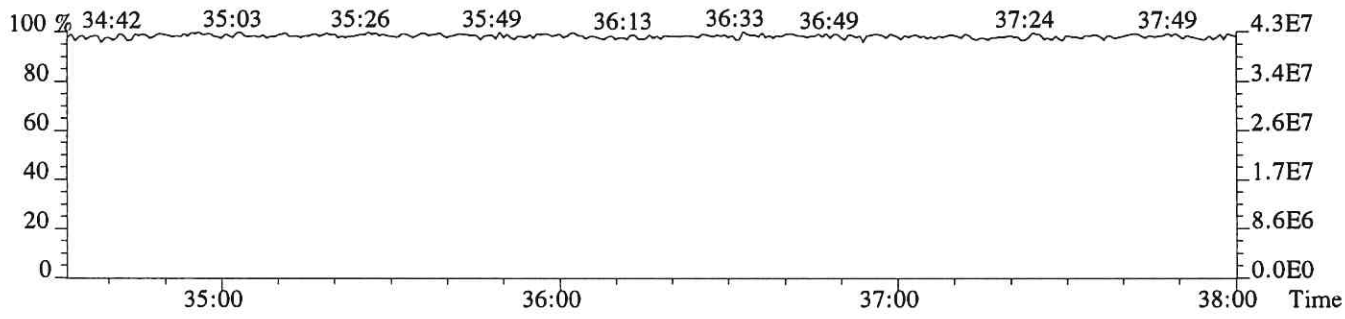
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1696.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)

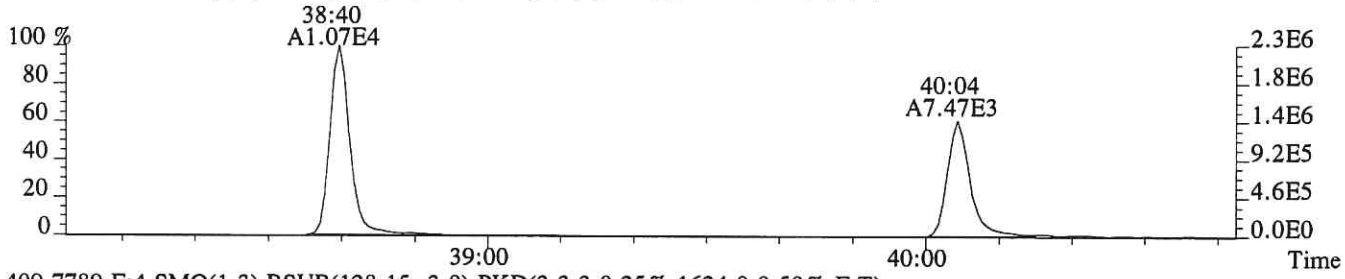


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

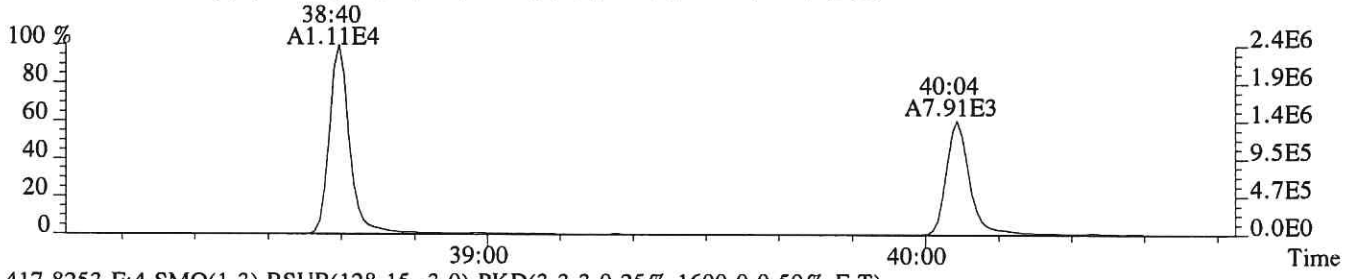


File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

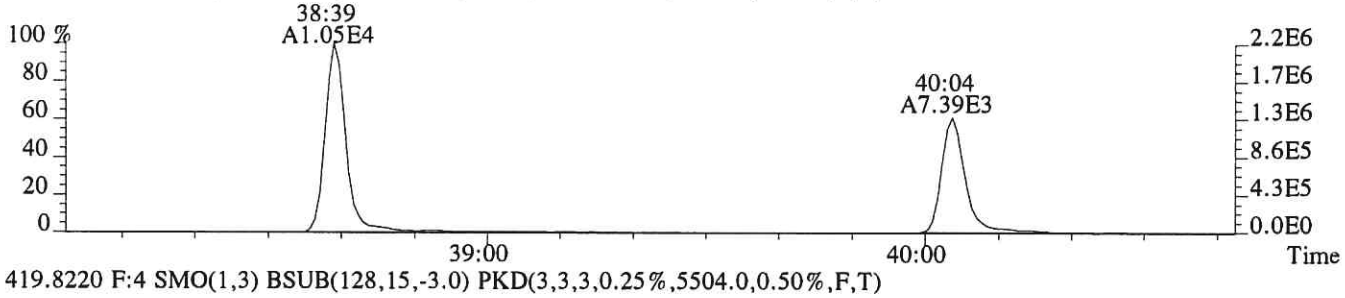
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.50%,F,T)



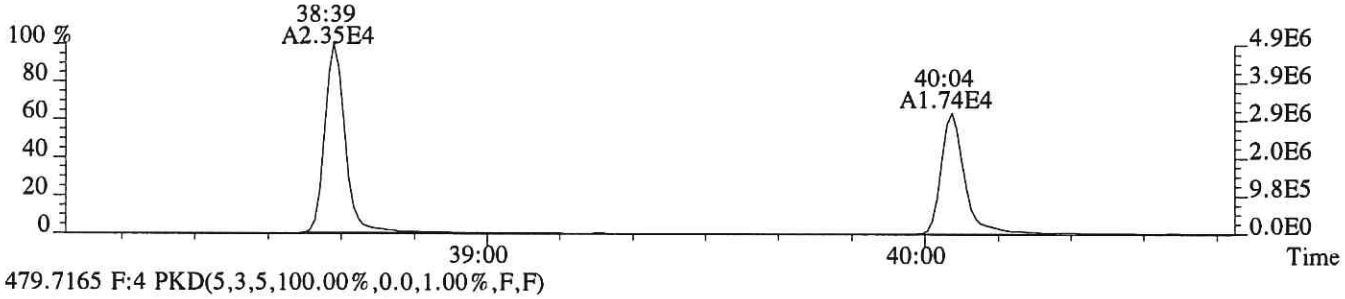
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.50%,F,T)



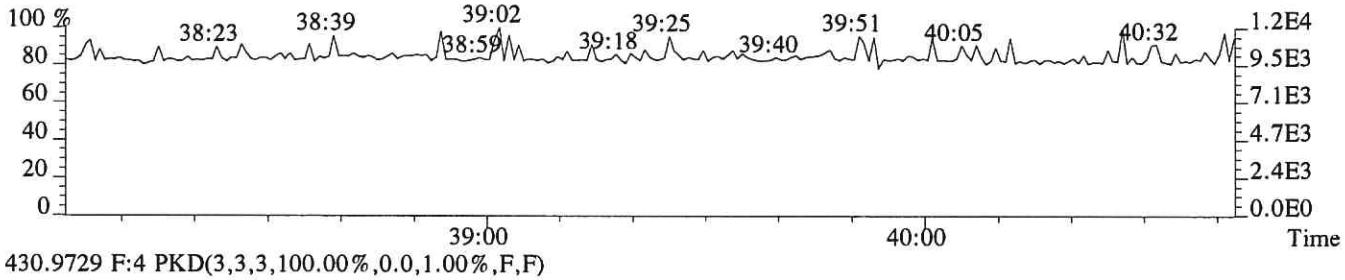
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)



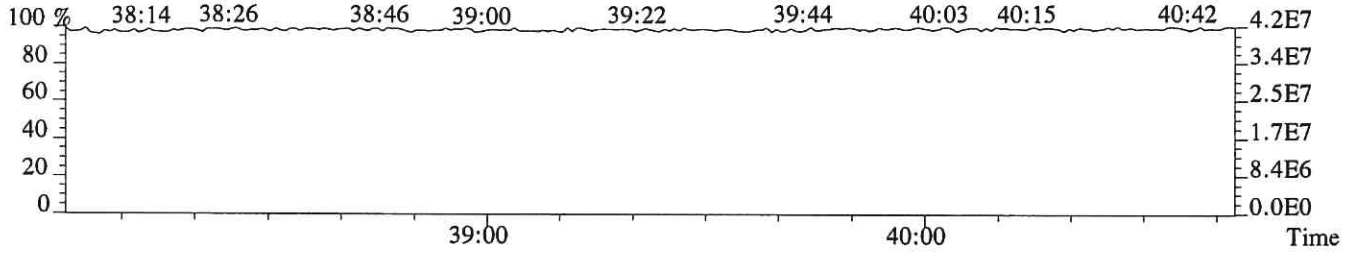
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5504.0,0.50%,F,T)



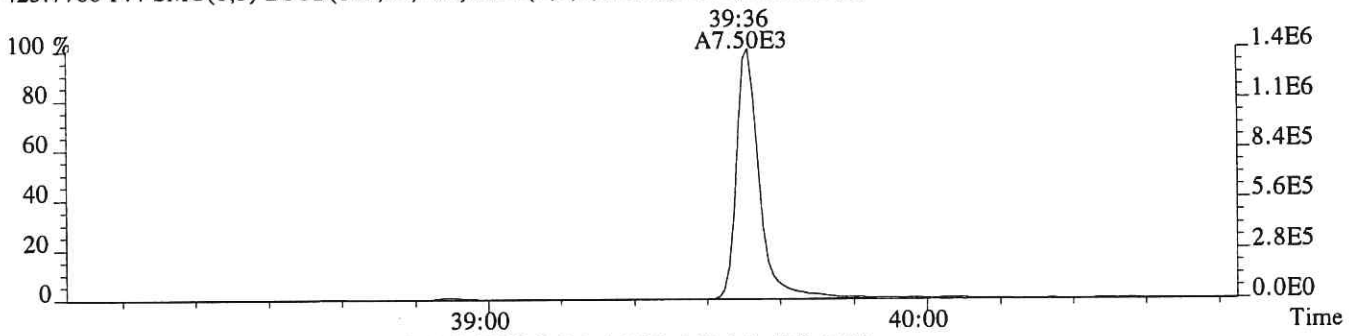
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



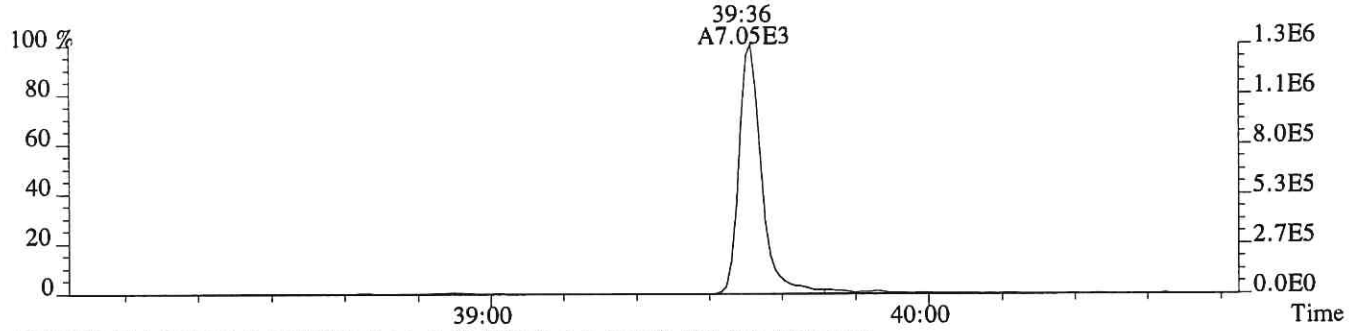
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



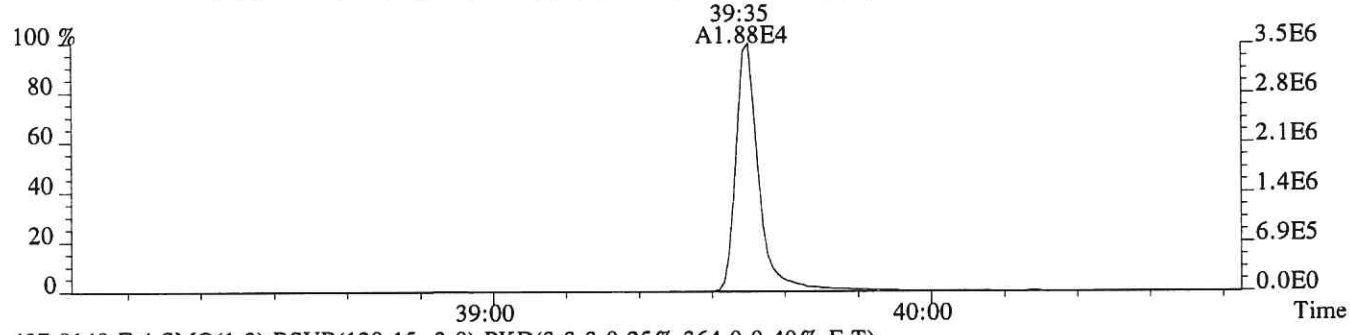
File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



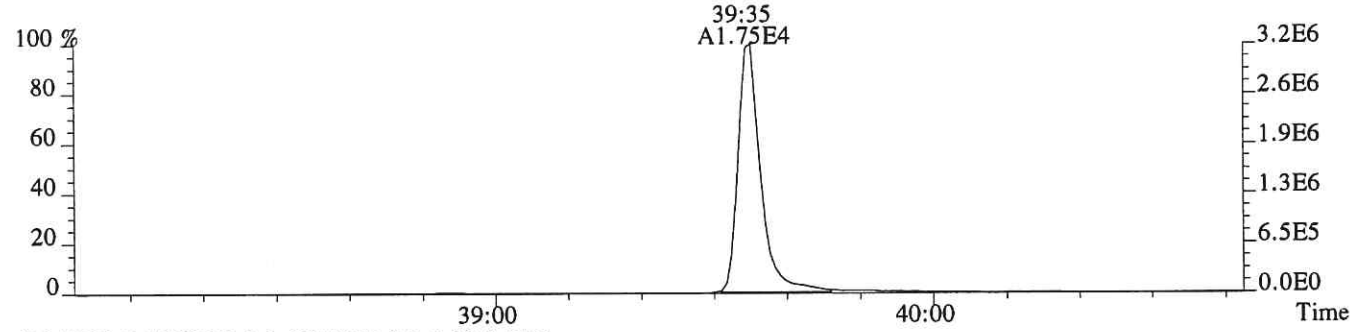
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



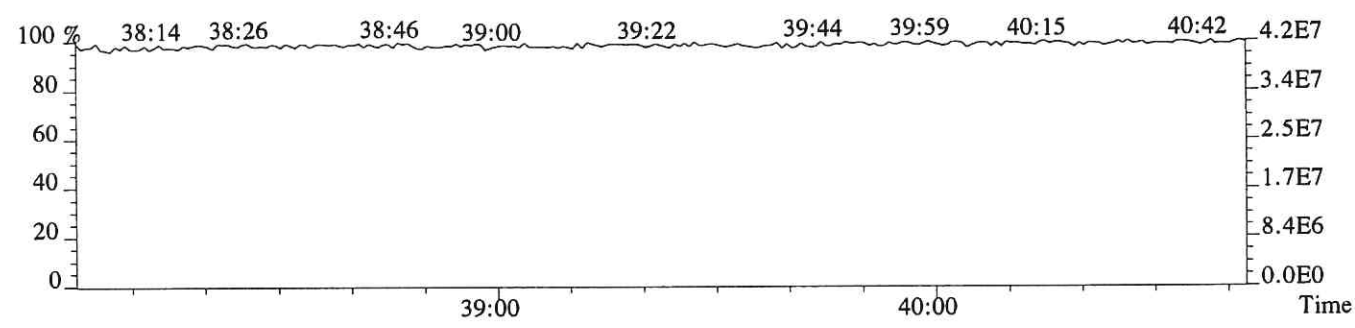
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



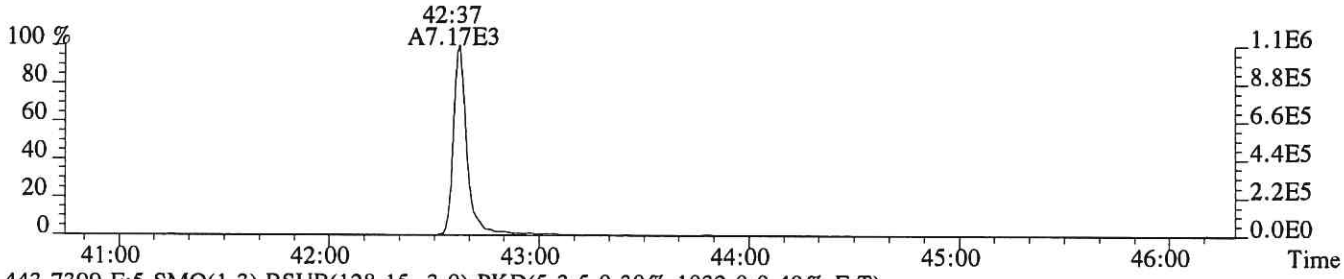
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



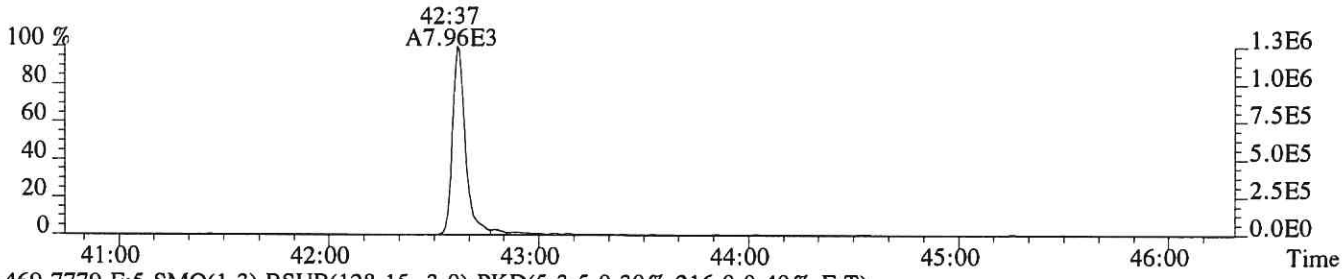
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



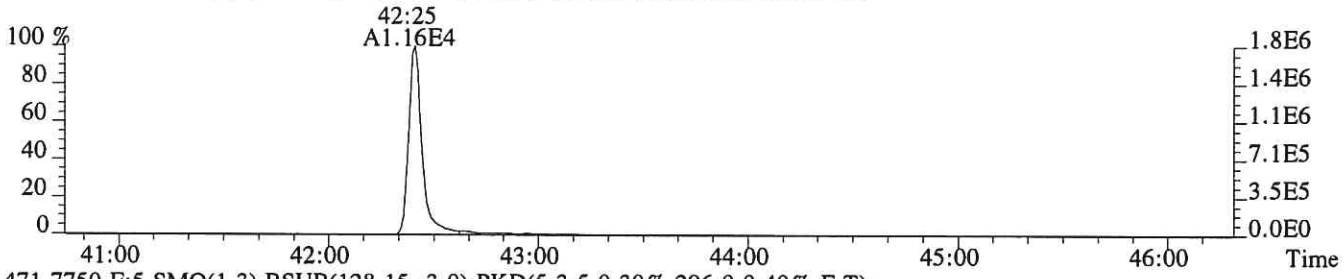
File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



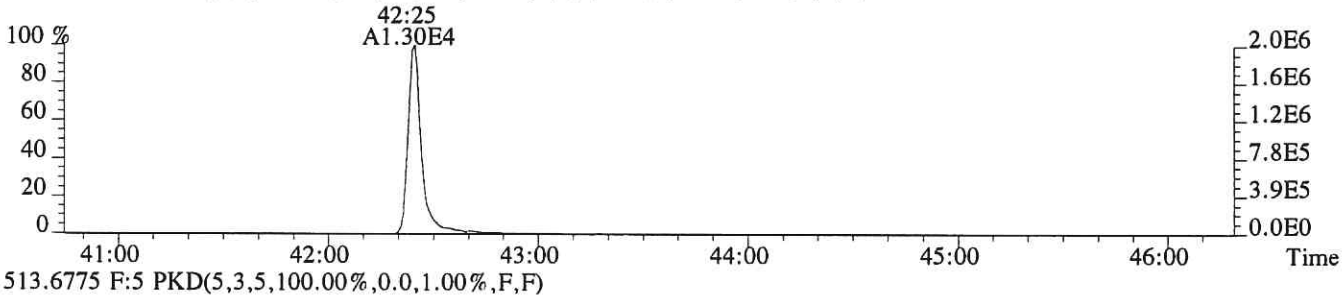
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



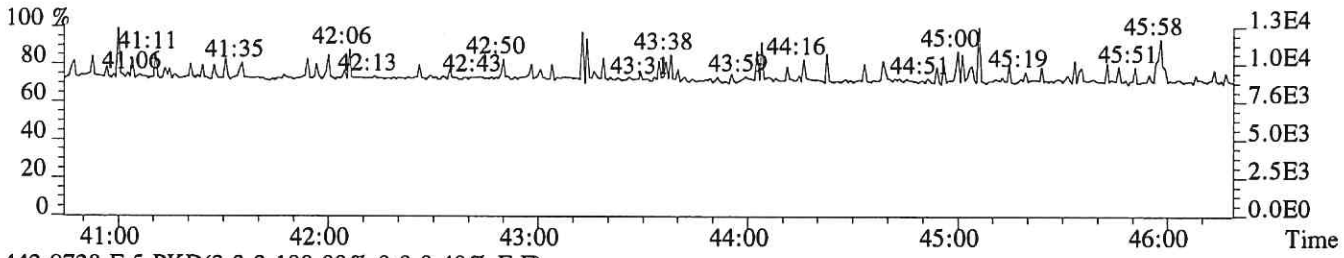
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



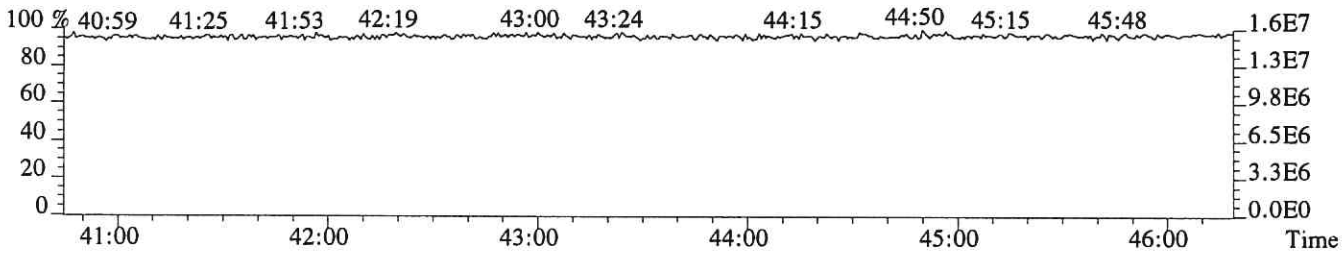
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



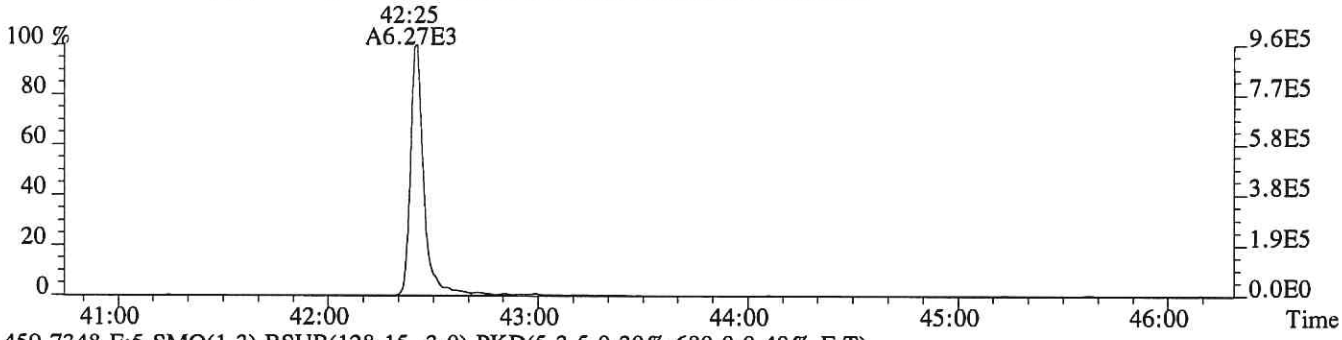
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



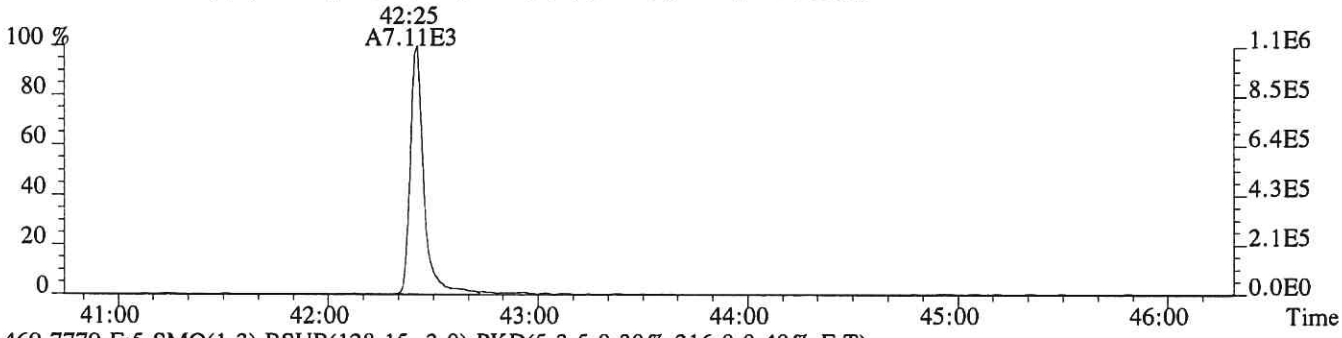
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



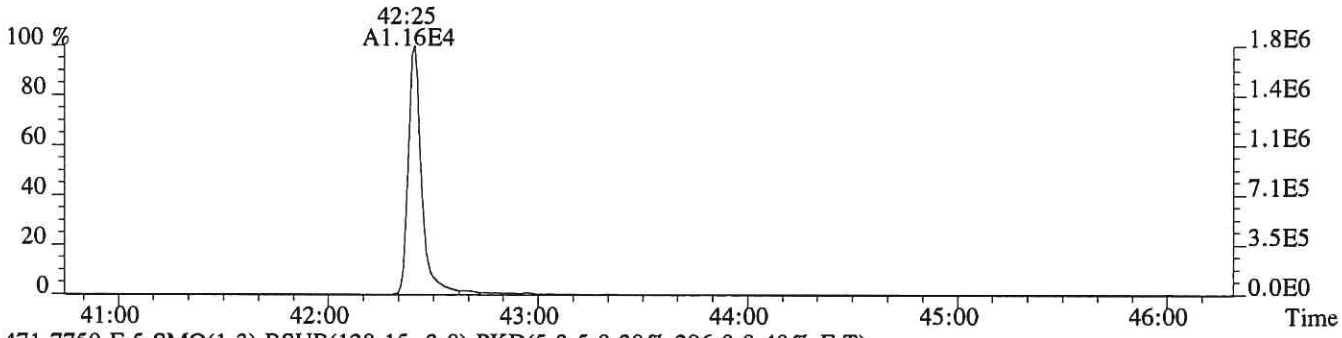
File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



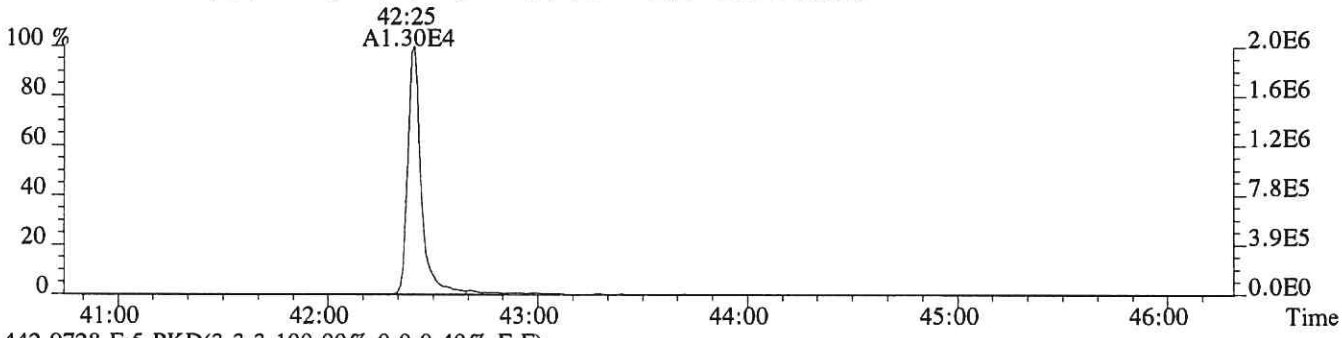
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



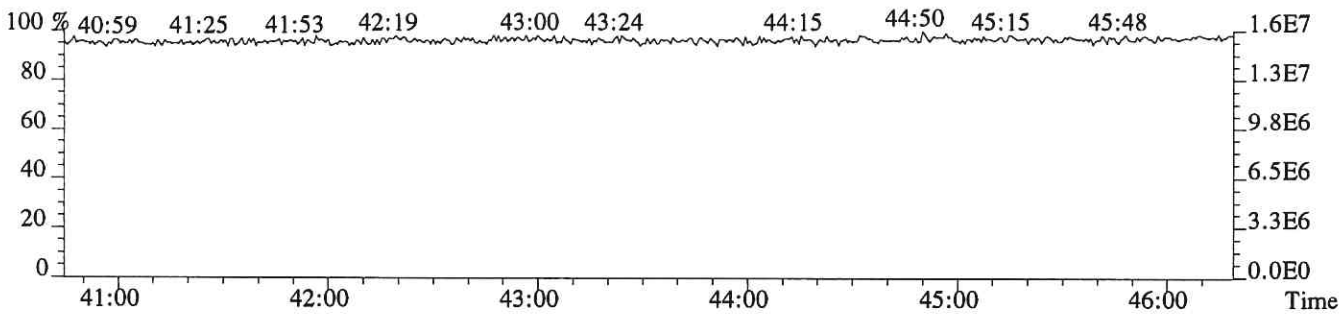
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 Sample ID: EQ1800469-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	2.385e+03	3.249e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.404e+04	1.587e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.431e+04	1.603e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:03	2.046e+04	1.714e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	2.201e+04	1.820e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	2.040e+04	1.677e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.668e+04	1.376e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.427e+04	1.423e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	1.003e+04	1.012e+04	0.99	yes	no	1.258
10	Unk	OCDF	42:38	9.891e+03	1.144e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	2.031e+03	2.694e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.855e+04	1.168e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.477e+04	1.181e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.611e+04	1.296e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:07	1.632e+04	1.274e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	9.608e+03	9.185e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:25	8.572e+03	9.614e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.722e+04	3.435e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:27	5.183e+04	3.232e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.907e+04	3.137e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	2.149e+04	4.099e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.425e+04	4.726e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.332e+04	4.558e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.870e+04	3.714e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.316e+04	2.965e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	9.679e+03	2.184e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:02	1.981e+04	2.508e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.885e+04	2.426e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	3.120e+04	2.422e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.118e+04	2.454e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	2.351e+04	2.197e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:25	1.608e+04	1.768e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.411e+04	5.620e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	5.036e+04	4.002e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	2.096e+04				no	1.014

$$\text{OCDD} = \frac{(8.572e+03 + 9.614e+03) \times 4000\ \text{pg} \times 1}{(1.608e+04 + 1.768e+04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 LAB. ID: EQ1800469-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.39e+05	6.44e+02	6.8e+02	5.82e+05	1.16e+03	5.0e+02
2	1,2,3,7,8-PeCDF	4.63e+06	6.48e+02	7.1e+03	3.07e+06	1.44e+03	2.1e+03
3	2,3,4,7,8-PeCDF	4.82e+06	6.48e+02	7.4e+03	3.17e+06	1.44e+03	2.2e+03
4	1,2,3,4,7,8-HxCDF	4.32e+06	3.84e+02	1.1e+04	3.65e+06	3.00e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	4.50e+06	3.84e+02	1.2e+04	3.75e+06	3.00e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	4.39e+06	3.84e+02	1.1e+04	3.66e+06	3.00e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	3.34e+06	3.84e+02	8.7e+03	2.75e+06	3.00e+02	9.2e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+06	1.60e+03	1.9e+03	2.95e+06	3.08e+03	9.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.87e+06	1.60e+03	1.2e+03	1.91e+06	3.08e+03	6.2e+02
10	OCDF	1.51e+06	4.28e+02	3.5e+03	1.80e+06	6.92e+02	2.6e+03
11	2,3,7,8-TCDD	4.02e+05	1.75e+03	2.3e+02	5.19e+05	8.68e+02	6.0e+02
12	1,2,3,7,8-PeCDD	3.63e+06	7.68e+02	4.7e+03	2.29e+06	2.44e+02	9.4e+03
13	1,2,3,4,7,8-HxCDD	3.30e+06	4.84e+02	6.8e+03	2.62e+06	5.40e+02	4.9e+03
14	1,2,3,6,7,8-HxCDD	3.29e+06	4.84e+02	6.8e+03	2.64e+06	5.40e+02	4.9e+03
15	1,2,3,7,8,9-HxCDD	3.22e+06	4.84e+02	6.6e+03	2.62e+06	5.40e+02	4.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.87e+06	5.08e+02	3.7e+03	1.81e+06	4.64e+02	3.9e+03
17	OCDD	1.37e+06	3.40e+02	4.0e+03	1.50e+06	5.60e+02	2.7e+03
18	13C-2,3,7,8-TCDF	4.93e+06	5.69e+03	8.7e+02	6.19e+06	3.28e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	9.68e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
20	13C-2,3,4,7,8-PeCDF	9.51e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.57e+06	6.04e+02	7.6e+03	8.70e+06	9.80e+02	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.93e+06	6.04e+02	8.2e+03	9.49e+06	9.80e+02	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.96e+06	6.04e+02	8.2e+03	9.91e+06	9.80e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	3.80e+06	6.04e+02	6.3e+03	7.54e+06	9.80e+02	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.75e+06	1.65e+03	1.7e+03	6.25e+06	2.98e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.81e+06	1.65e+03	1.1e+03	4.06e+06	2.98e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.82e+06	4.67e+03	8.2e+02	4.84e+06	2.28e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	7.56e+06	5.96e+02	1.3e+04	4.76e+06	6.24e+02	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	6.91e+06	1.18e+03	5.9e+03	5.40e+06	6.56e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.33e+06	1.18e+03	5.4e+03	5.05e+06	6.56e+02	7.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.67e+06	4.60e+02	1.0e+04	4.27e+06	3.32e+02	1.3e+04
32	13C-OCDD	2.48e+06	6.04e+02	4.1e+03	2.78e+06	2.88e+02	9.7e+03
33	13C-1,2,3,4-TCDD	8.63e+06	4.67e+03	1.8e+03	1.09e+07	2.28e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.05e+07	1.18e+03	8.9e+03	8.26e+06	6.56e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	4.08e+06	1.62e+03	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.748e+03 + 8.680e+02) \times 2000}{(3.822e+06 + 4.841e+06) \times (\quad) \times 1.085} =$$

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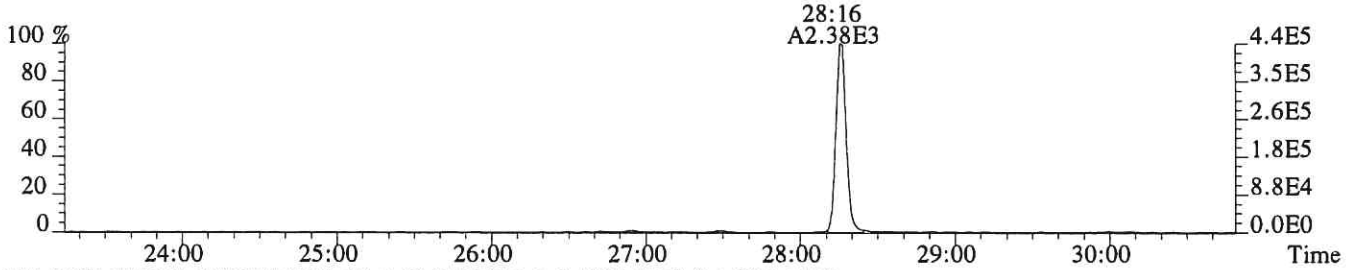
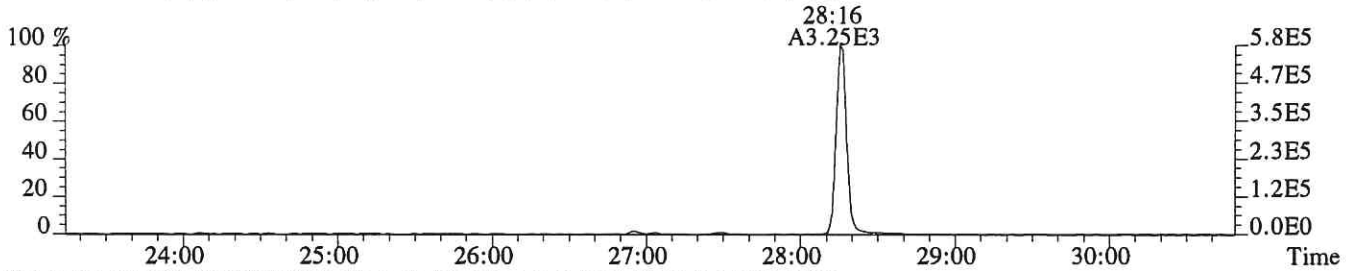
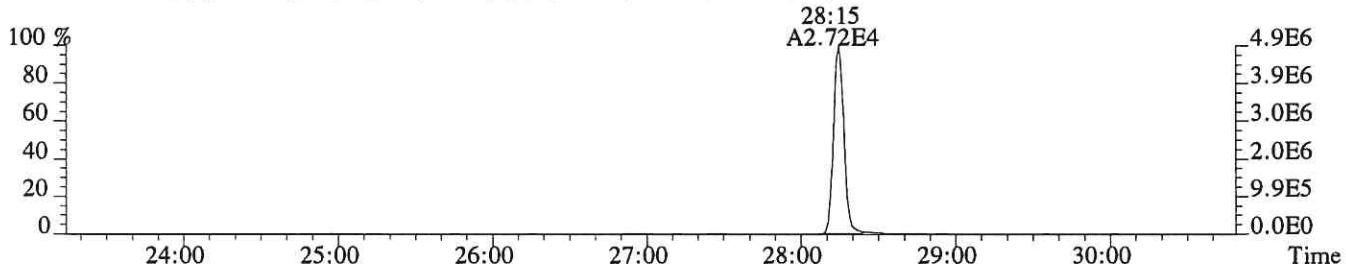
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



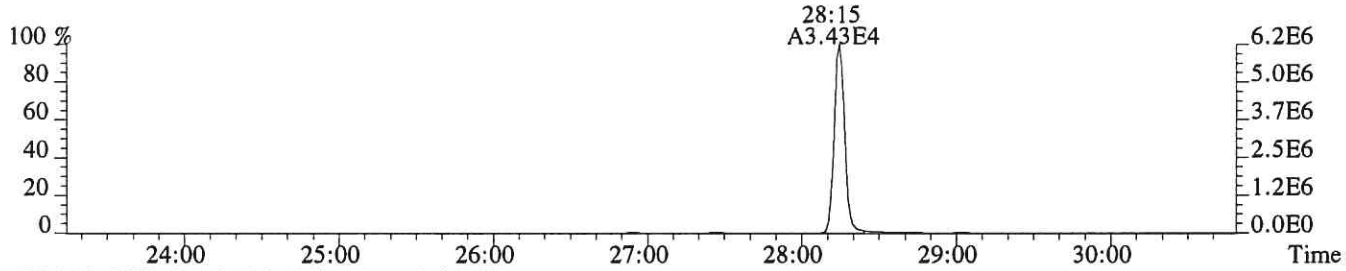
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



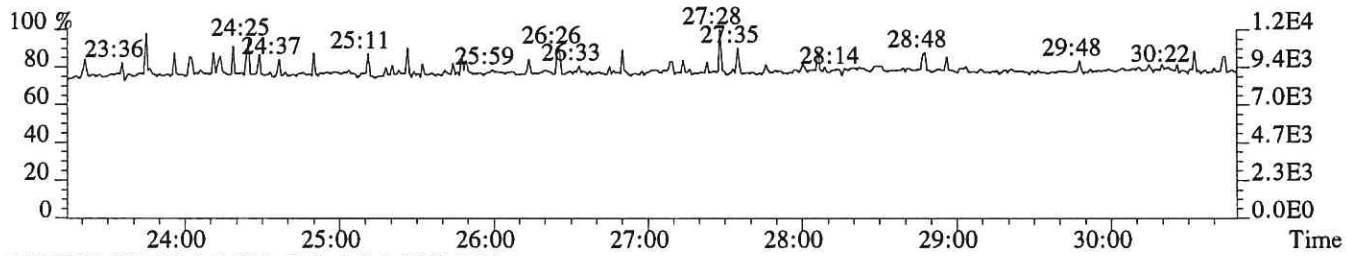
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5692.0,1.00%,F,T)



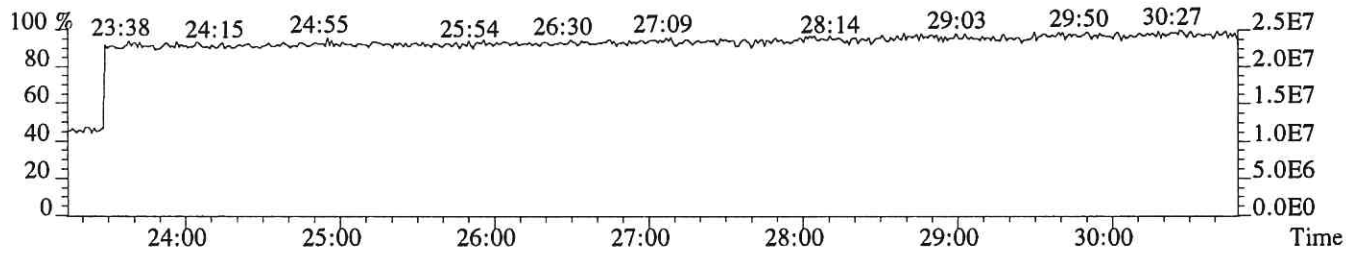
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3276.0,1.00%,F,T)



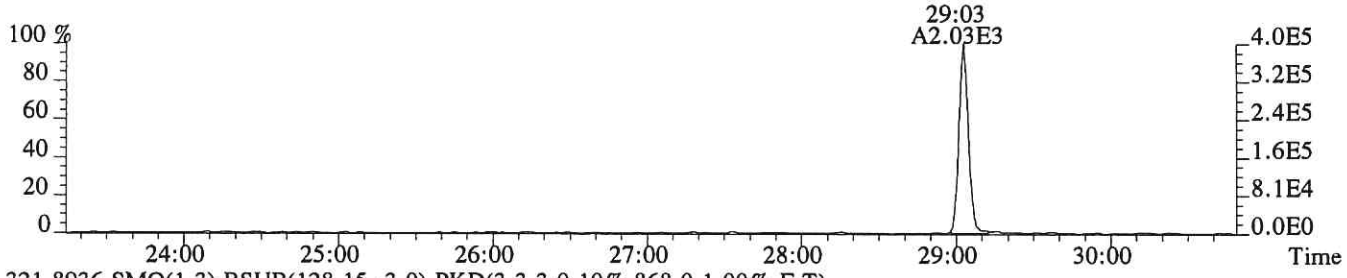
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



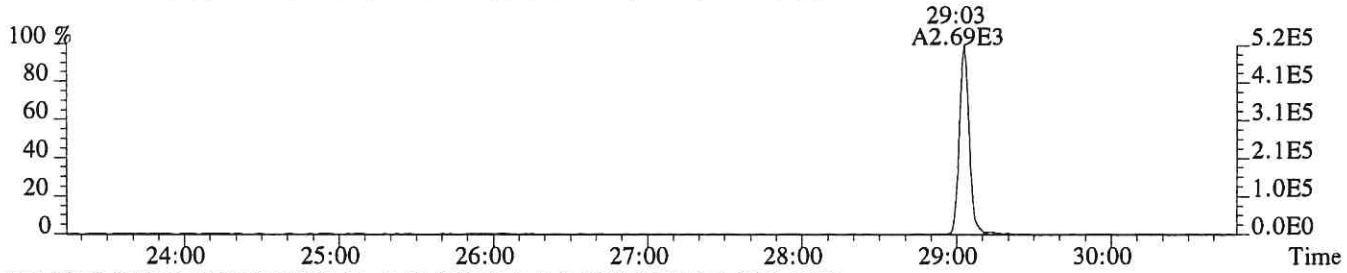
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



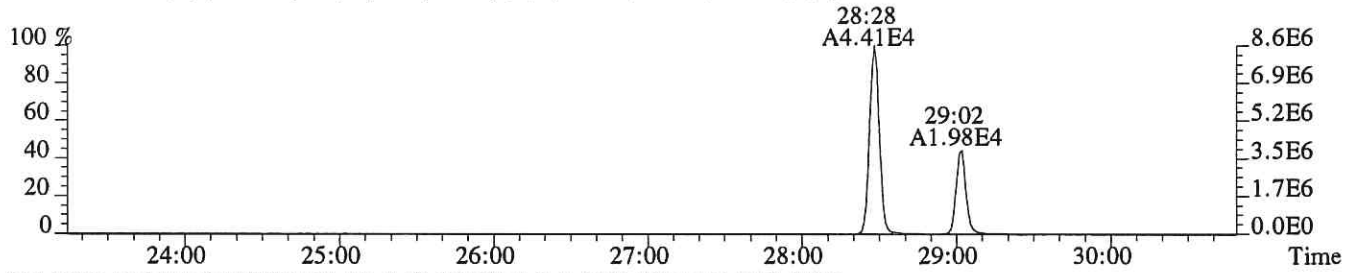
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe El+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1748.0,1.00%,F,T)



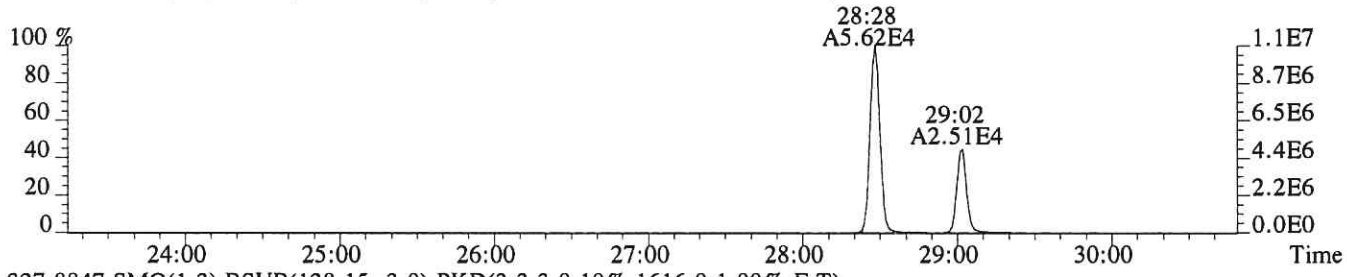
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



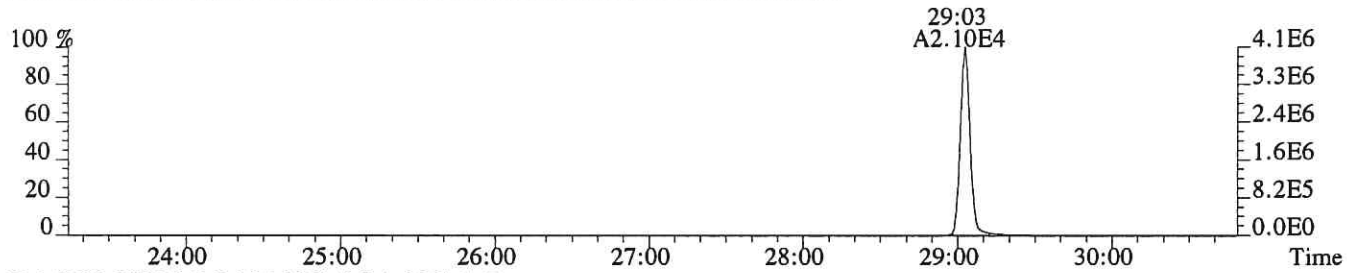
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



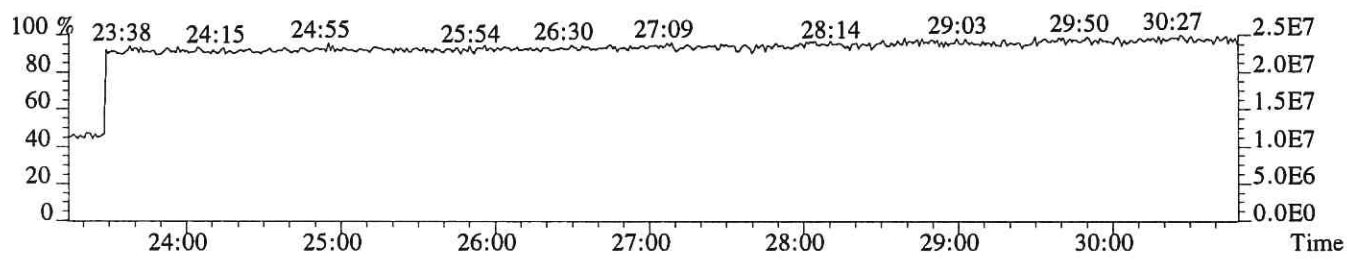
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



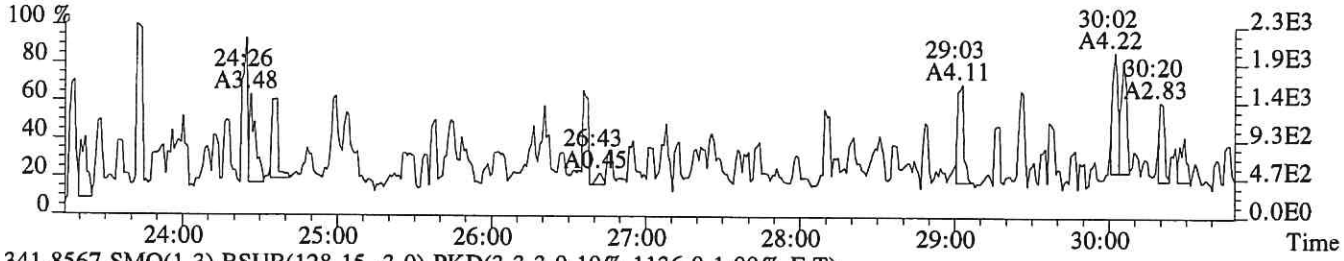
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



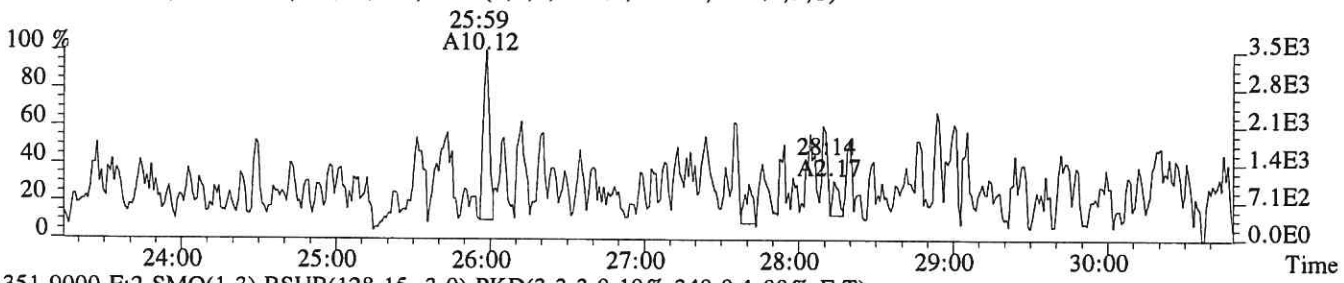
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



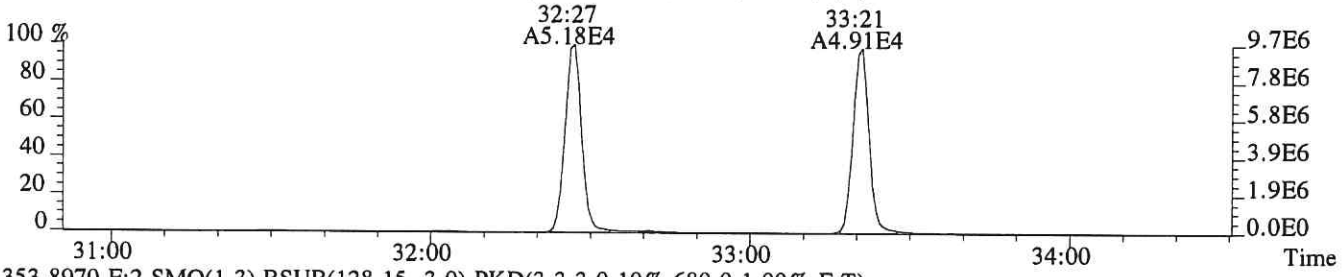
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



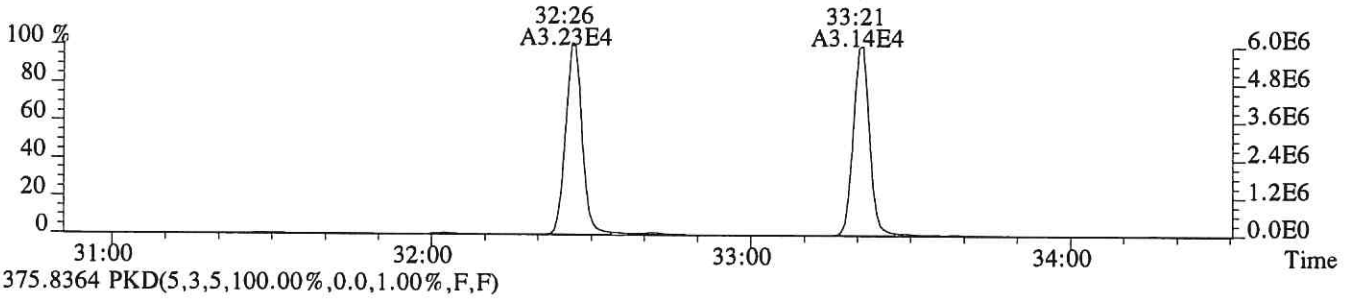
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



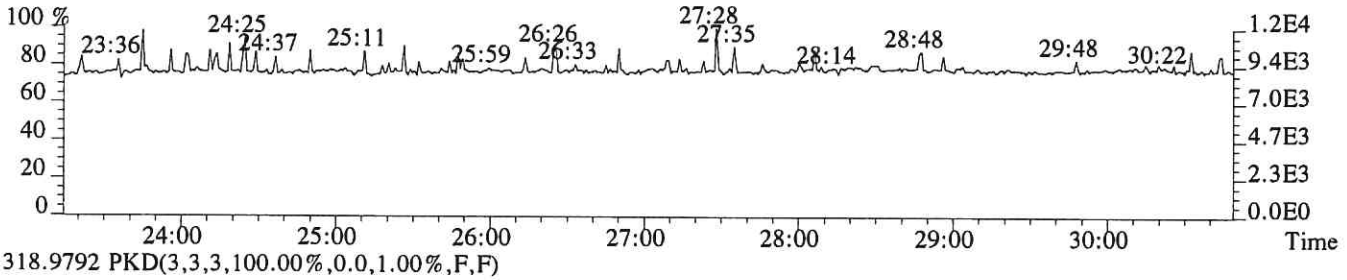
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



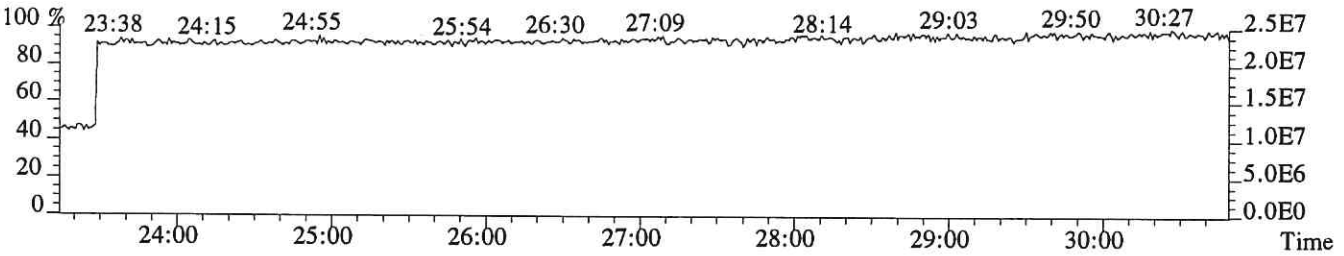
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



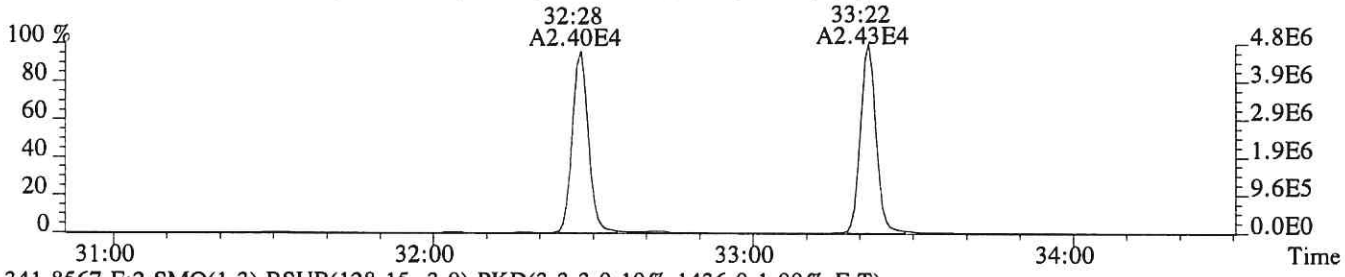
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



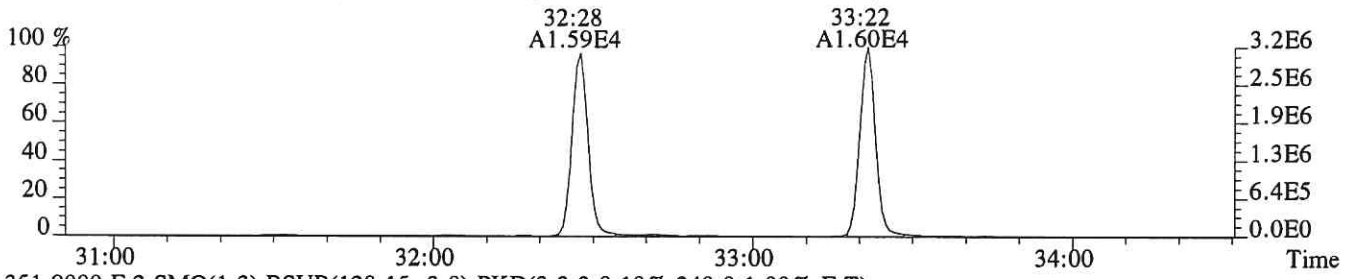
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



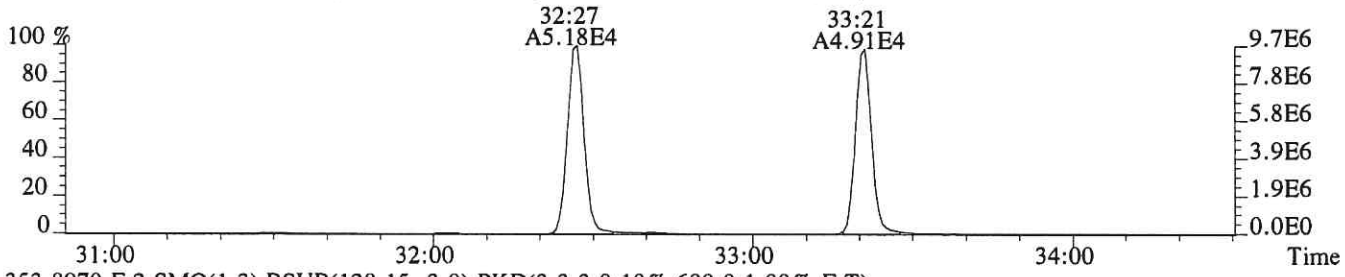
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



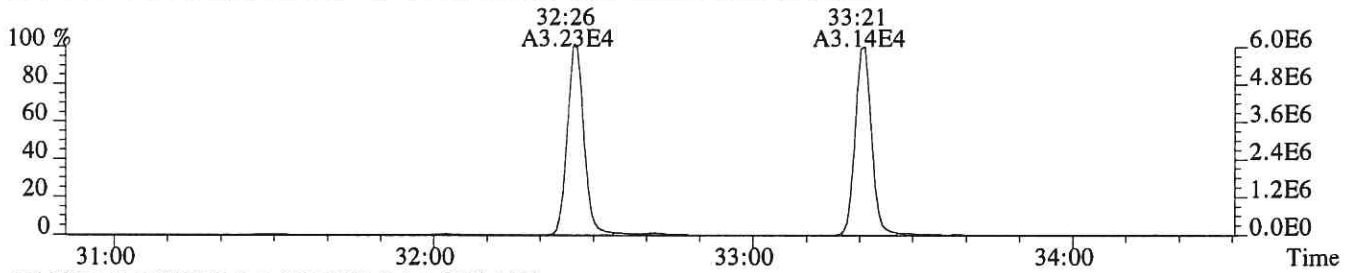
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



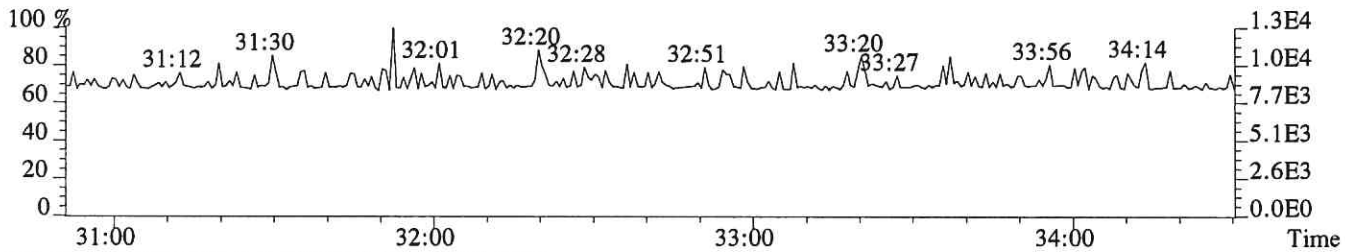
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



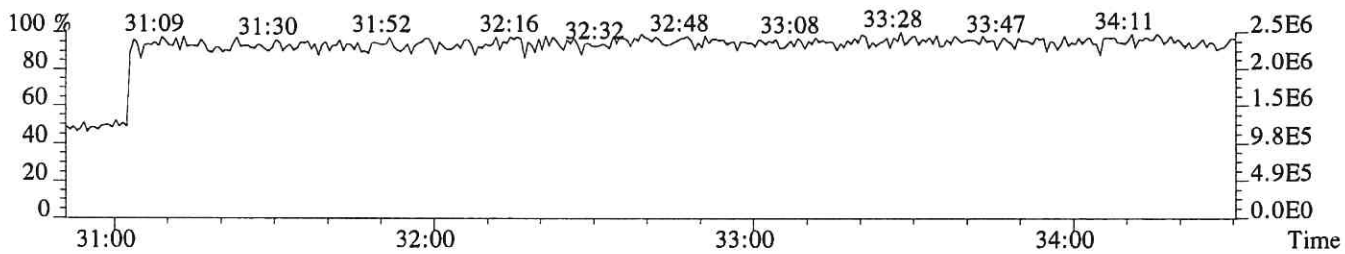
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



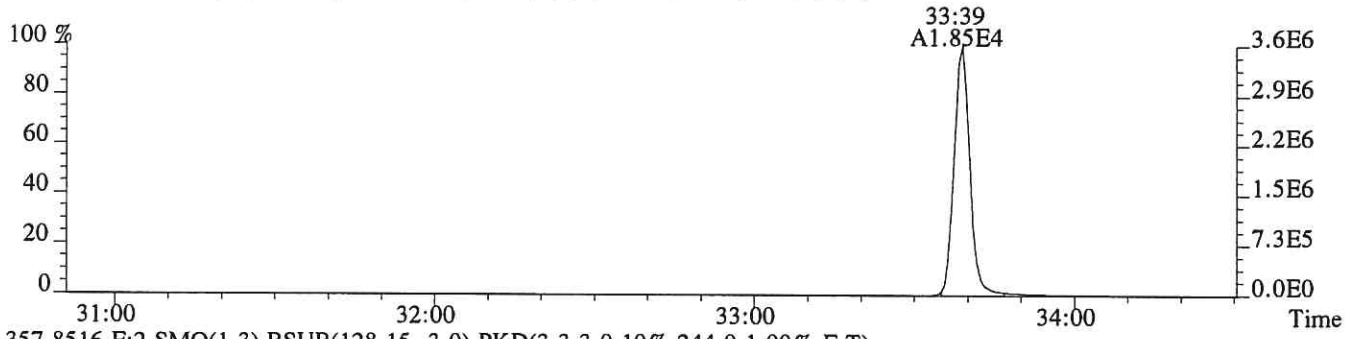
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



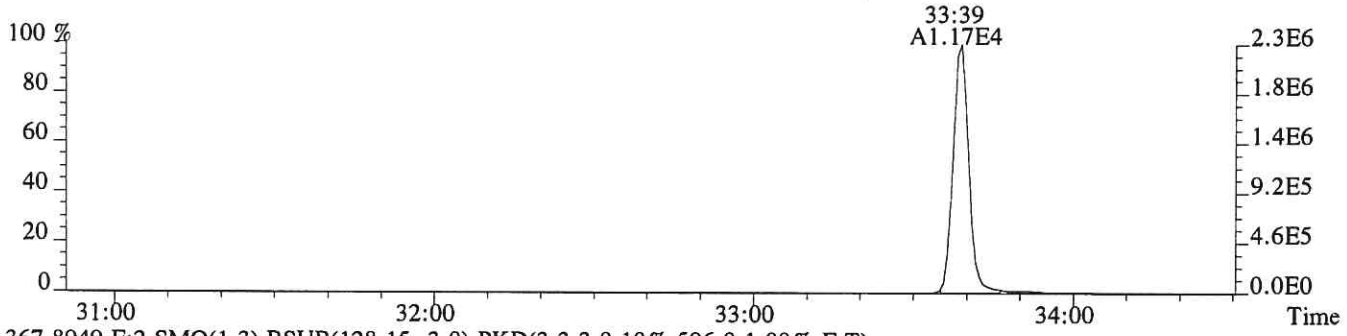
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



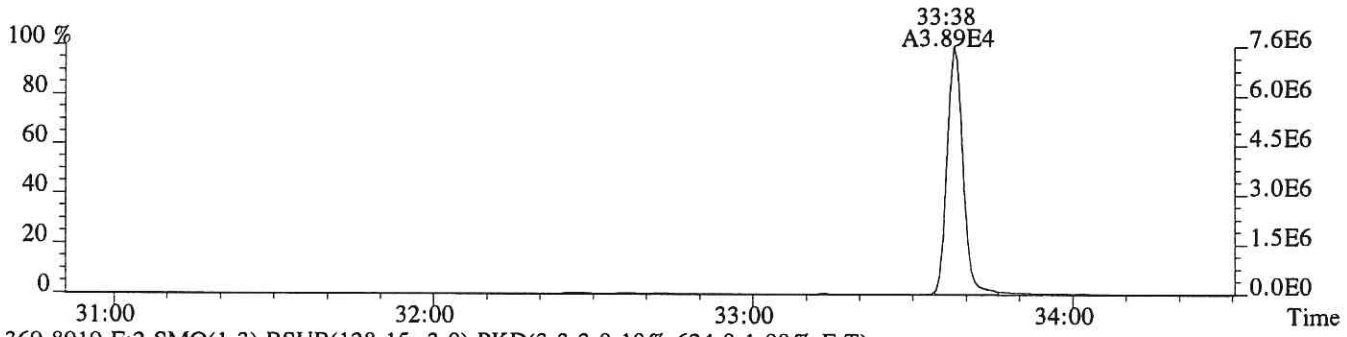
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



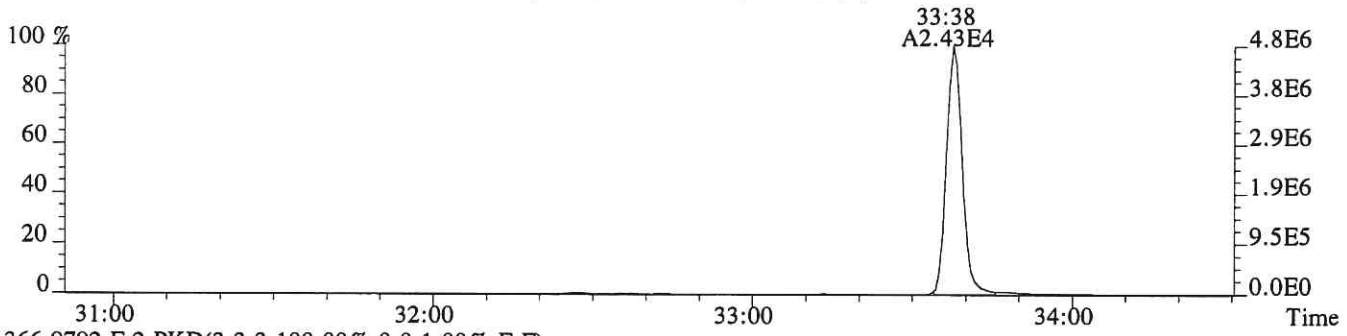
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



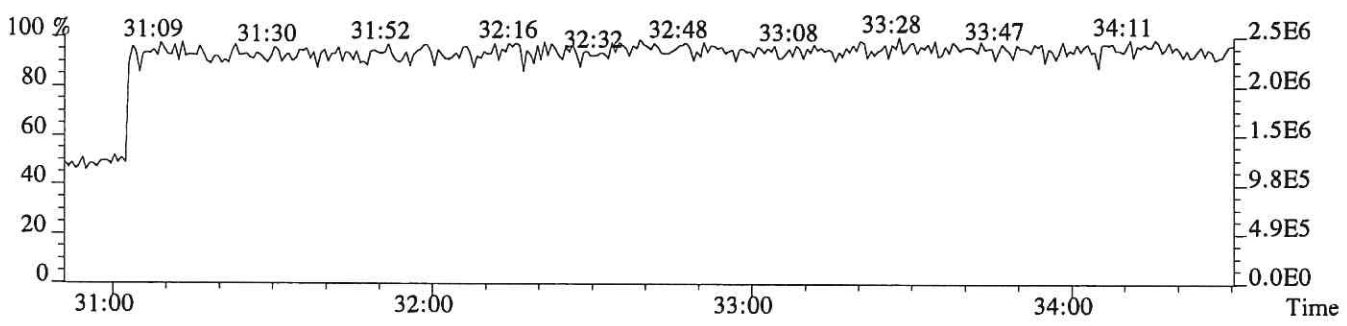
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)

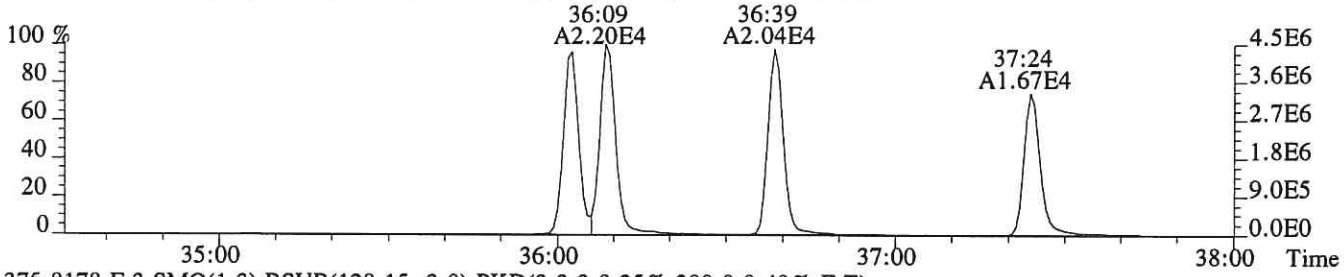


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

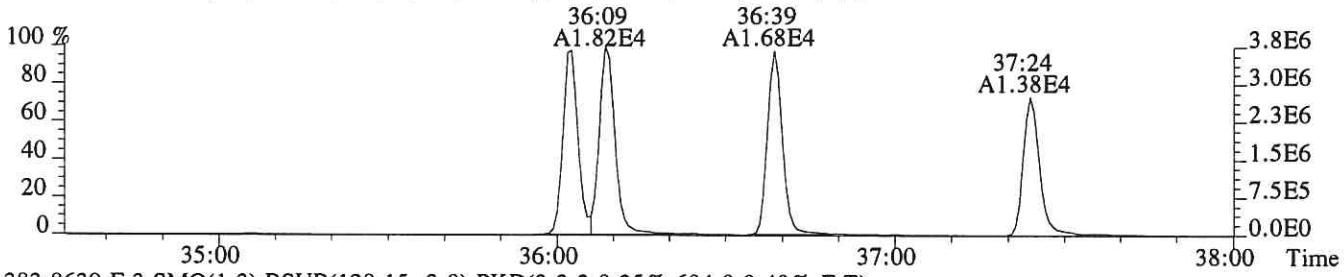


File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

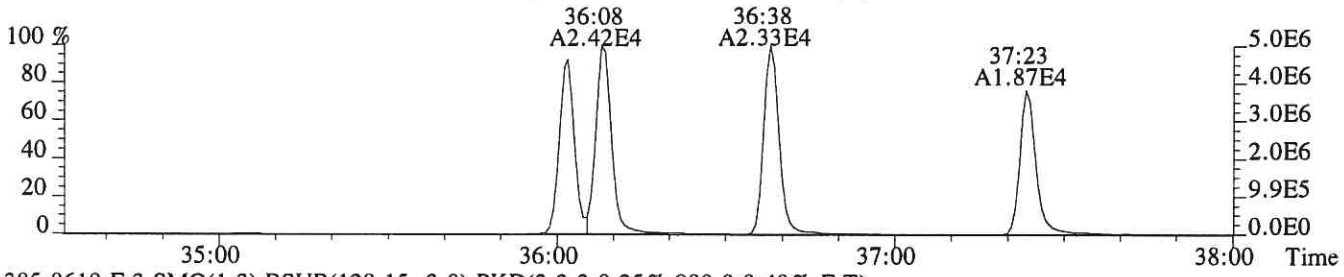
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



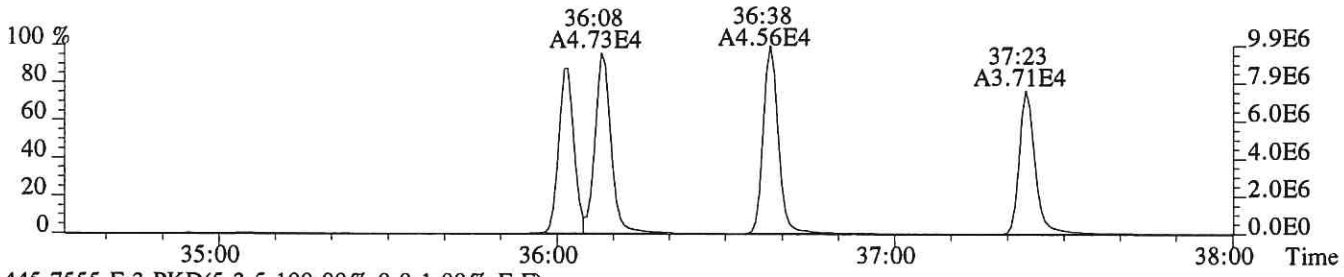
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



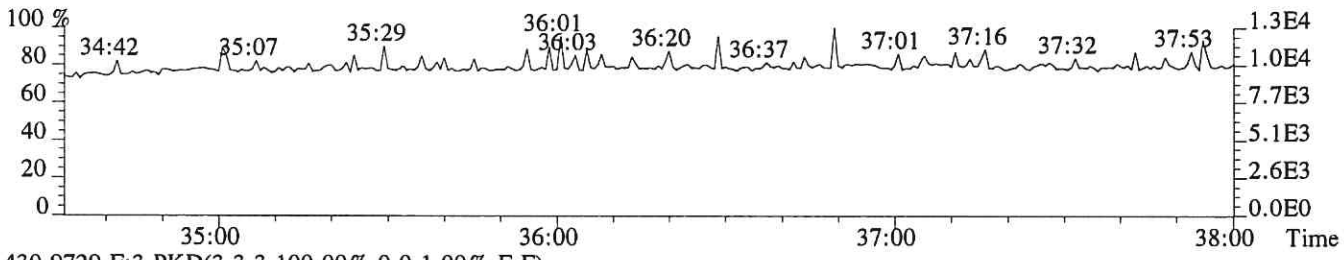
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



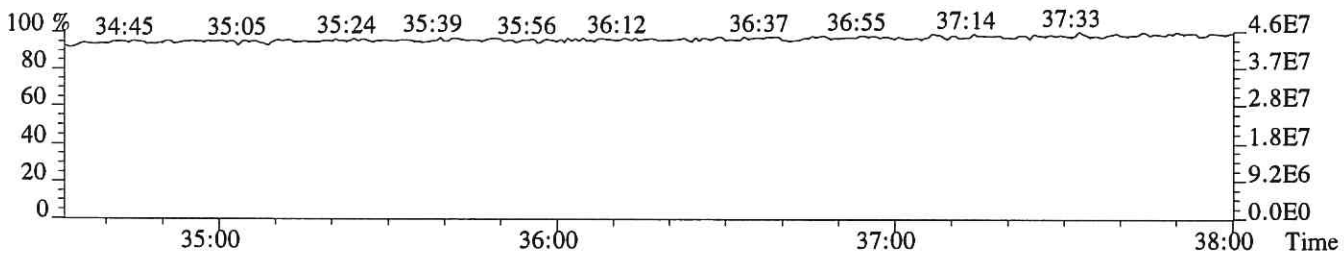
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



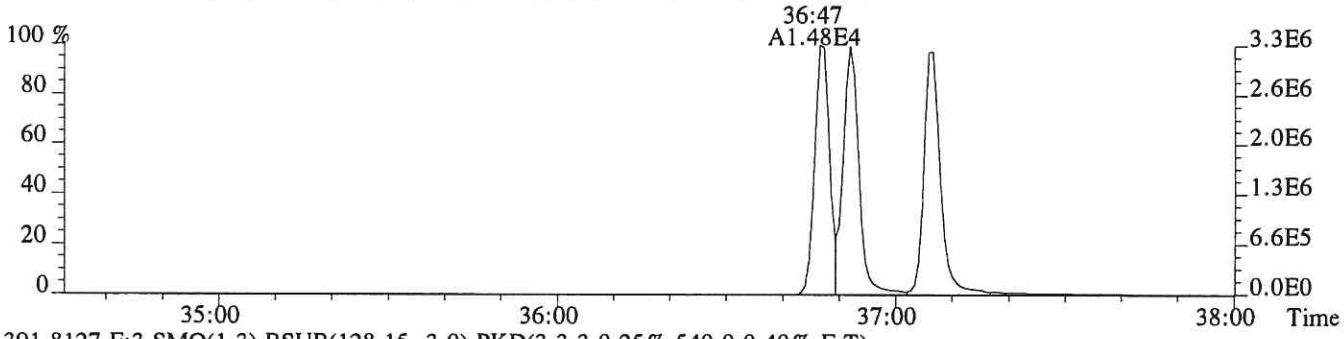
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



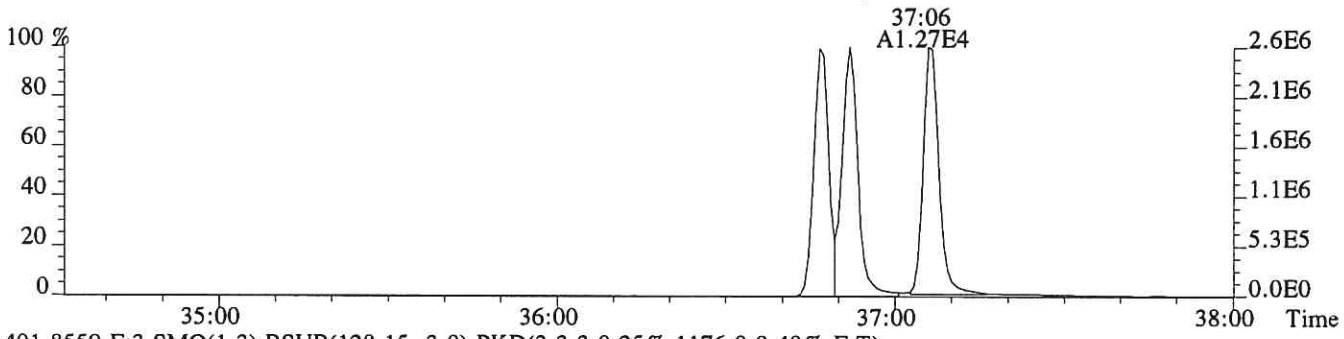
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



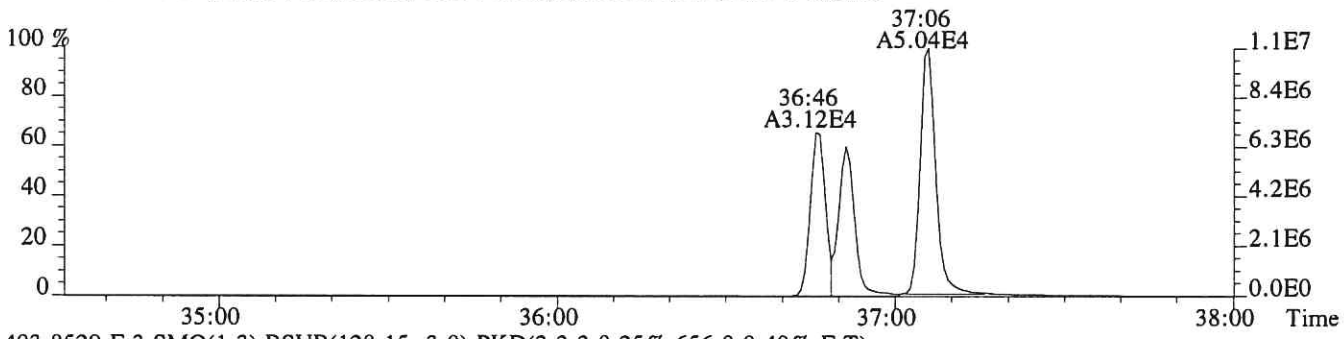
File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



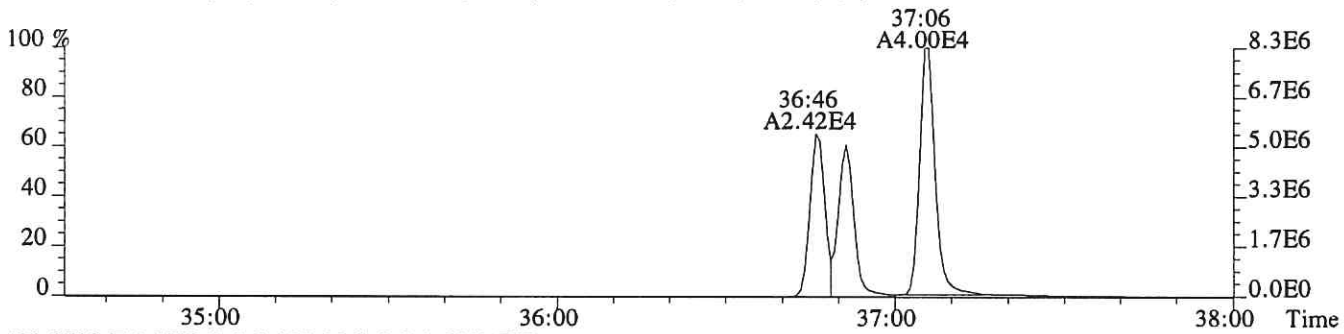
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



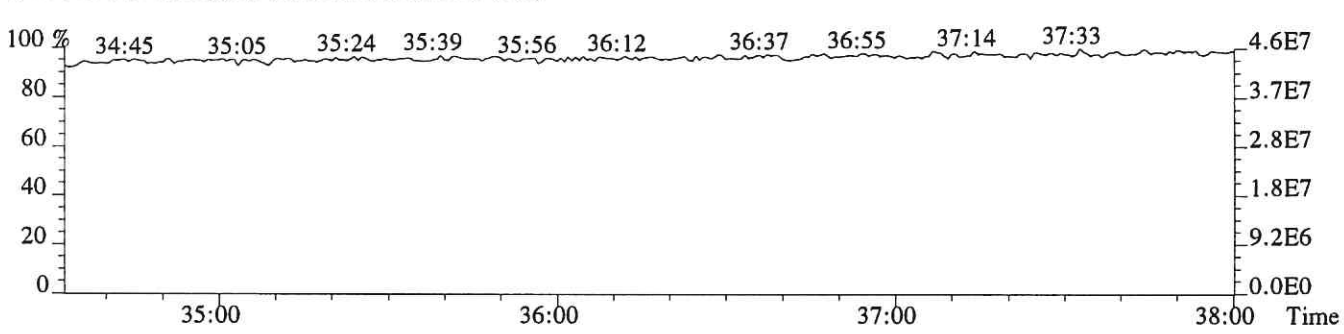
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



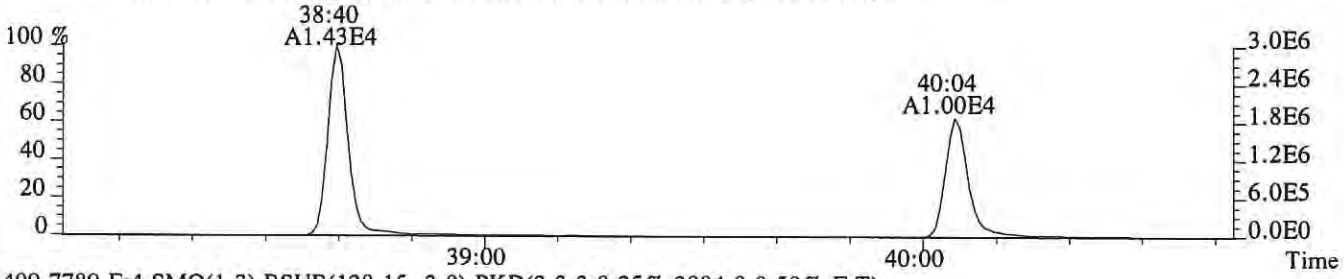
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



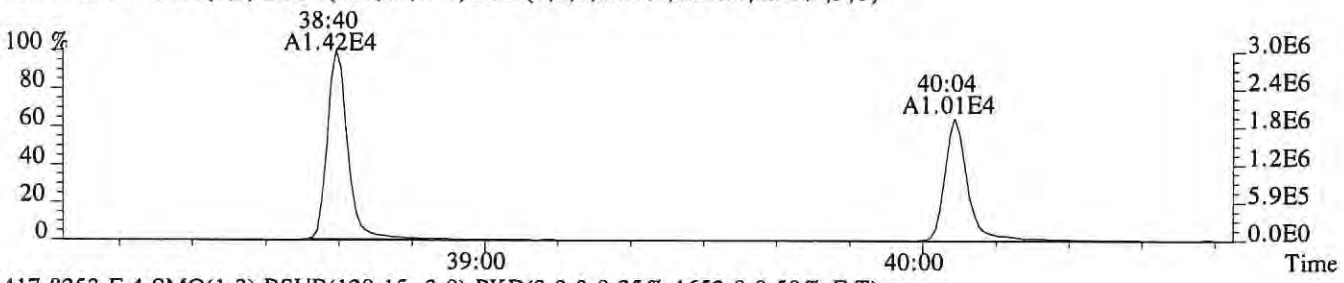
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



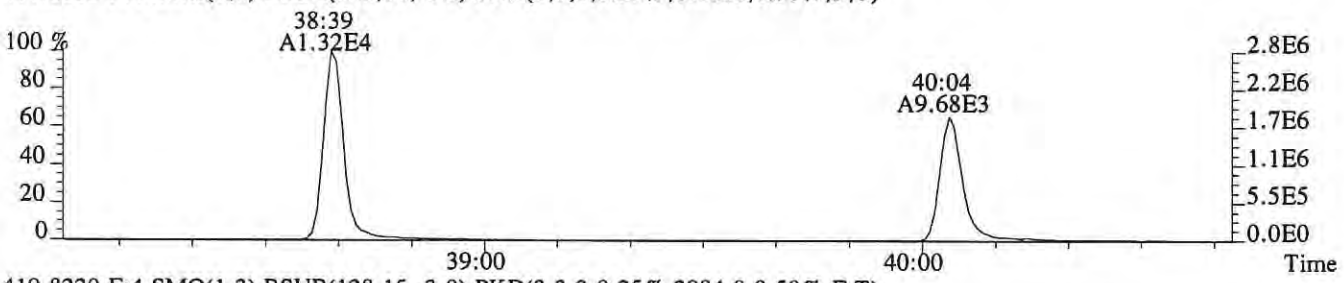
File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



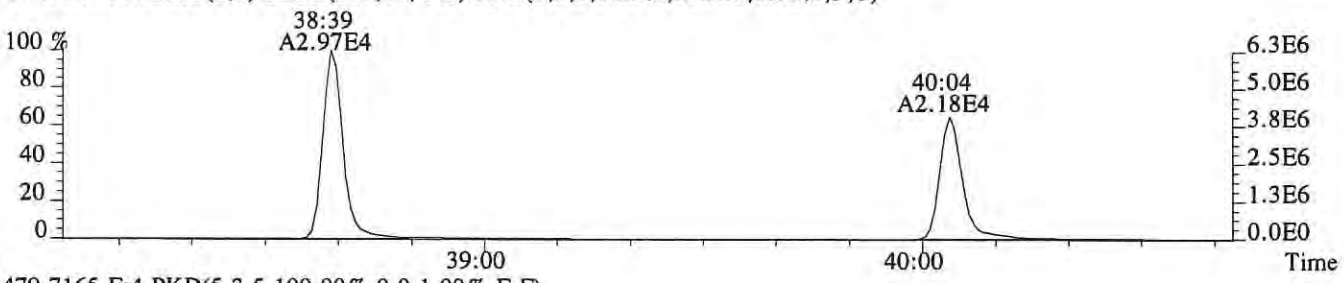
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.50%,F,T)



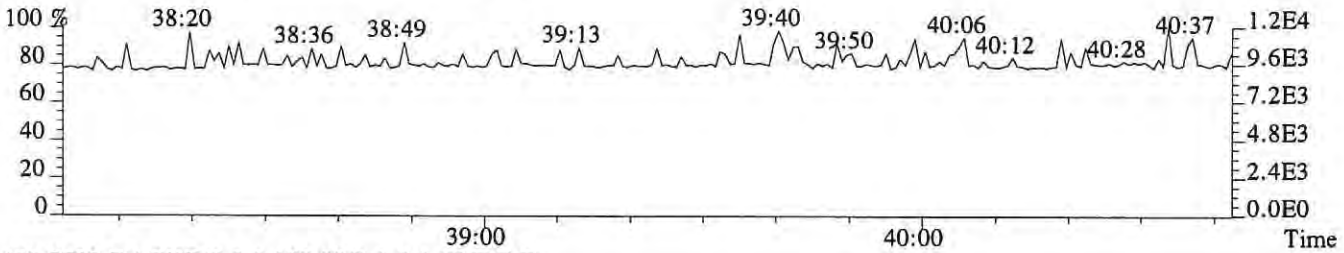
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



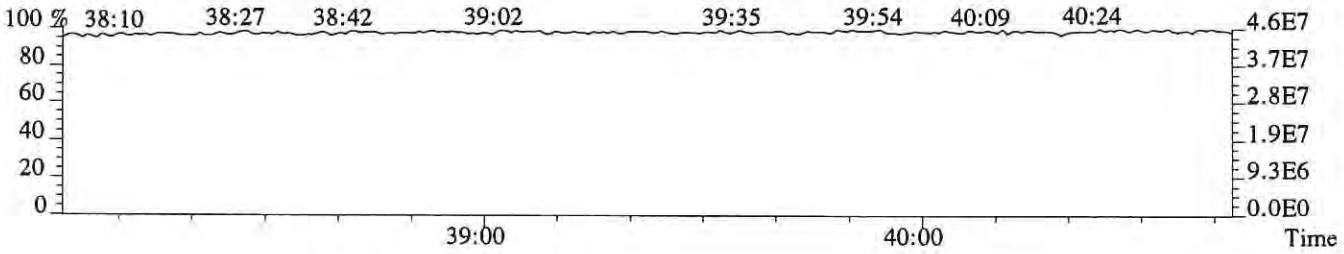
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.50%,F,T)



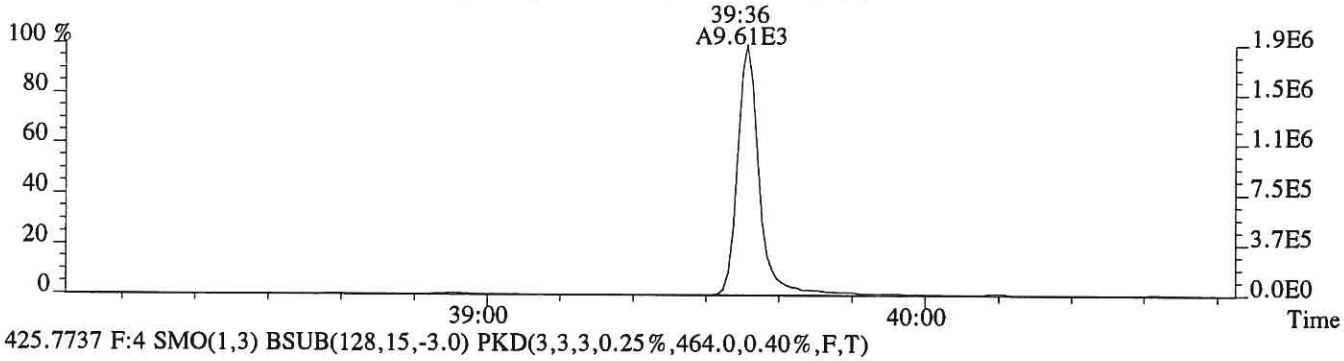
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



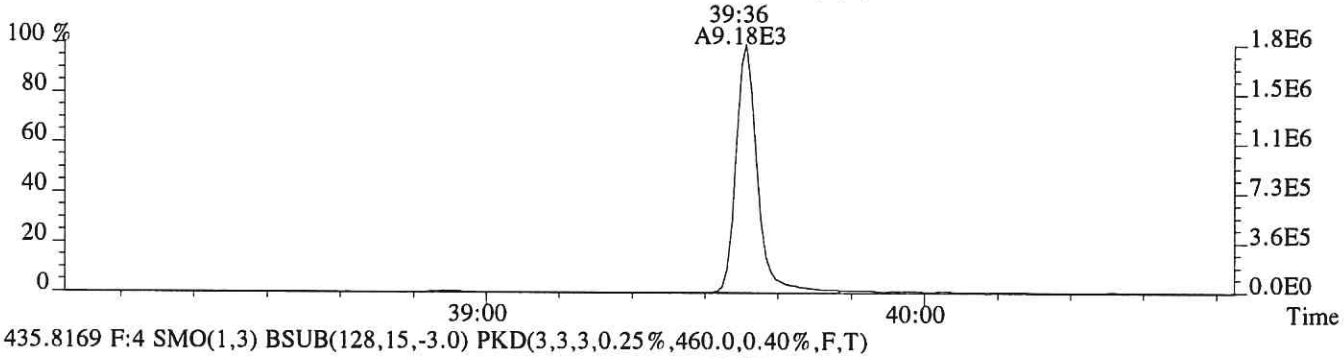
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



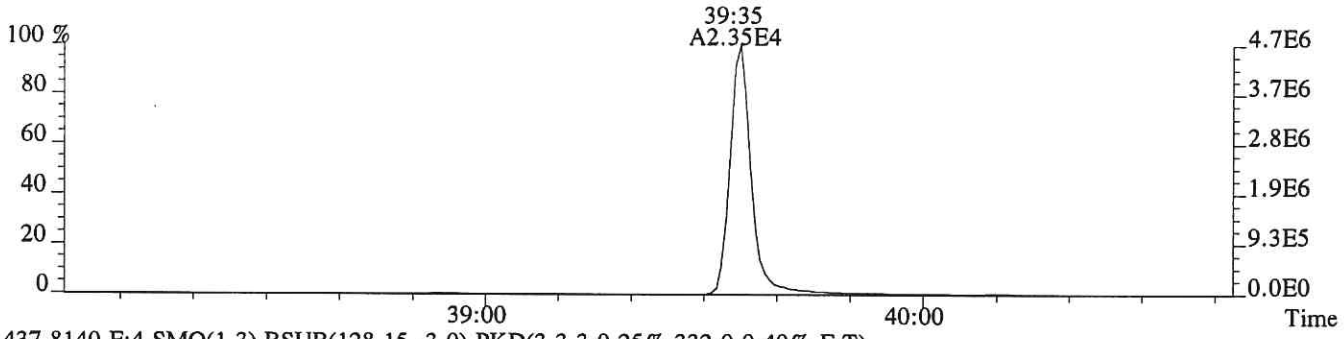
File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



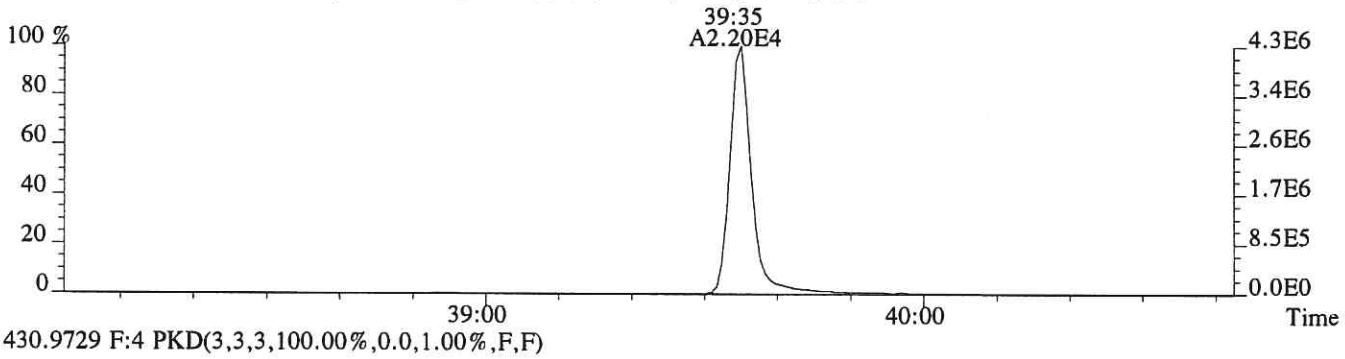
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



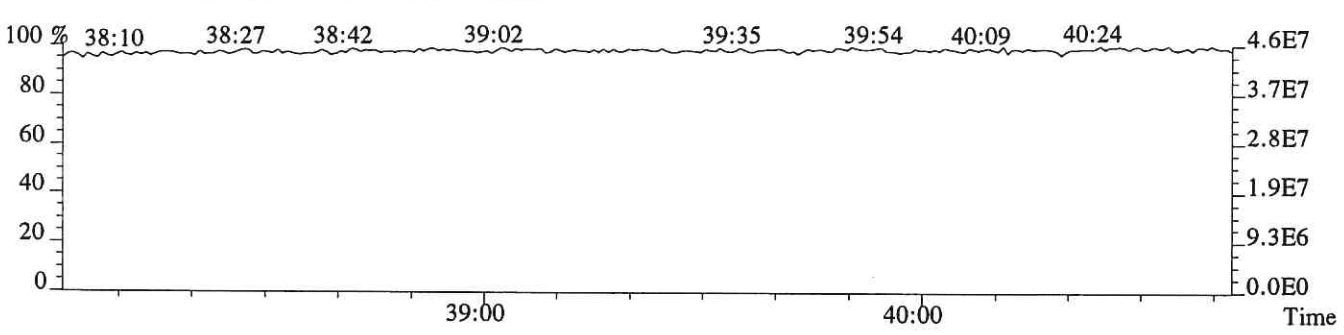
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

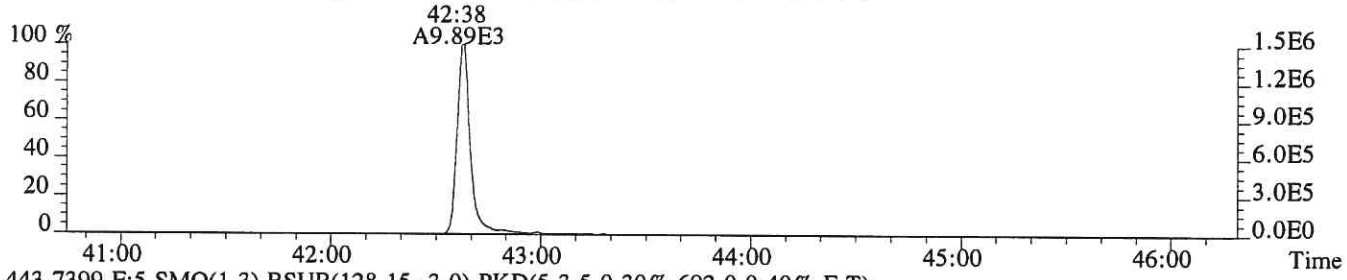


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

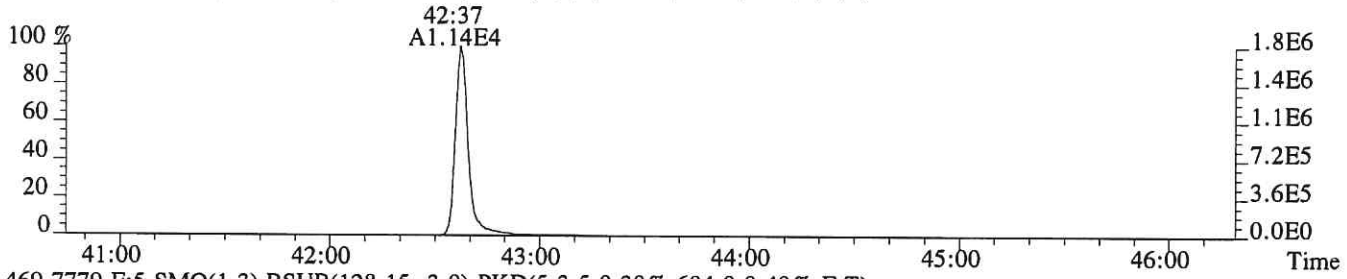


File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

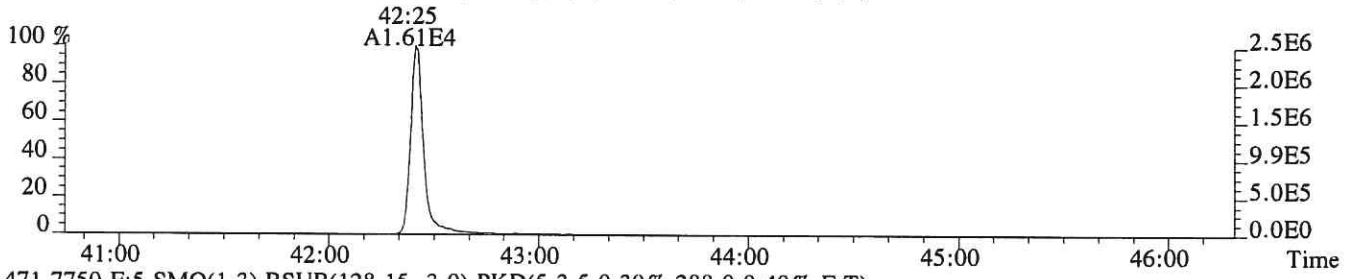
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



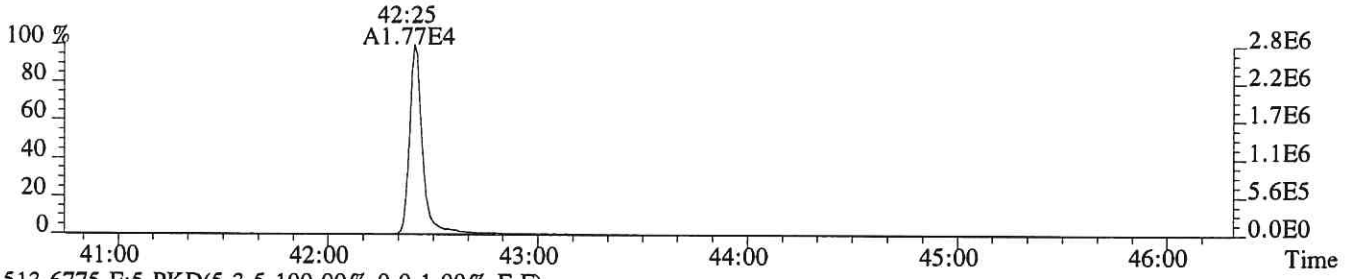
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



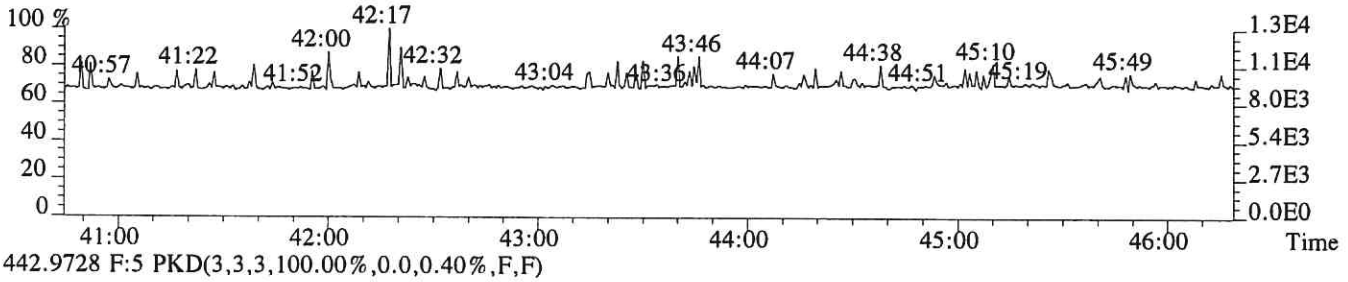
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



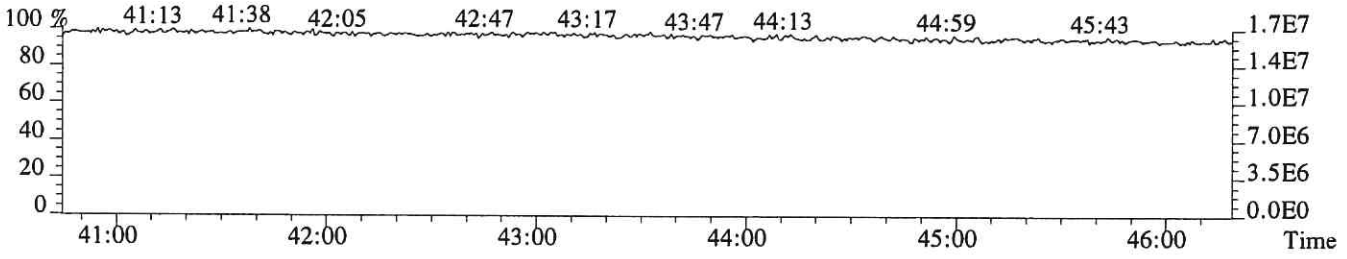
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



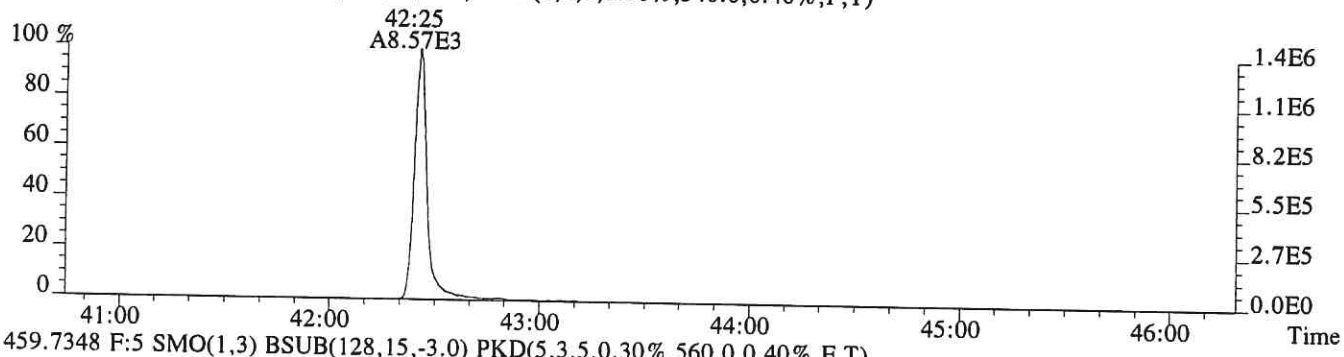
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



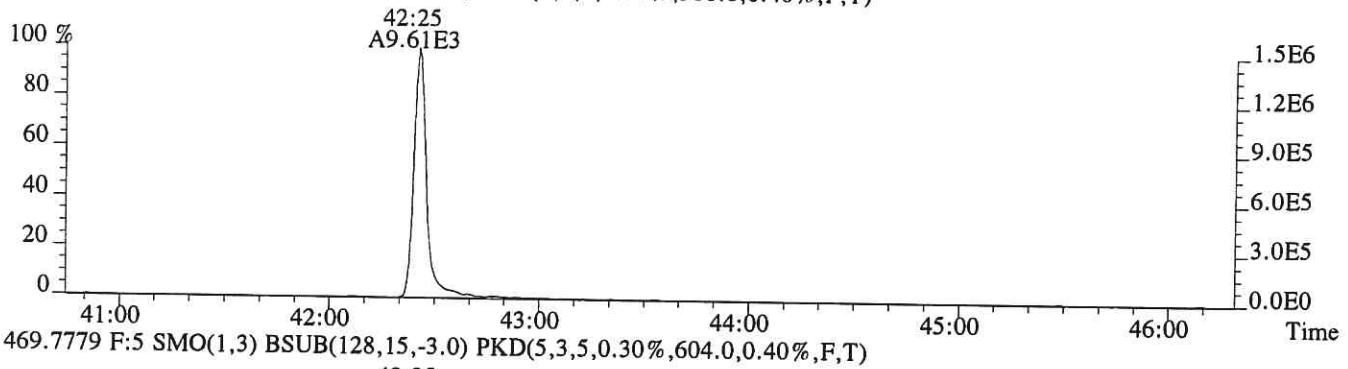
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



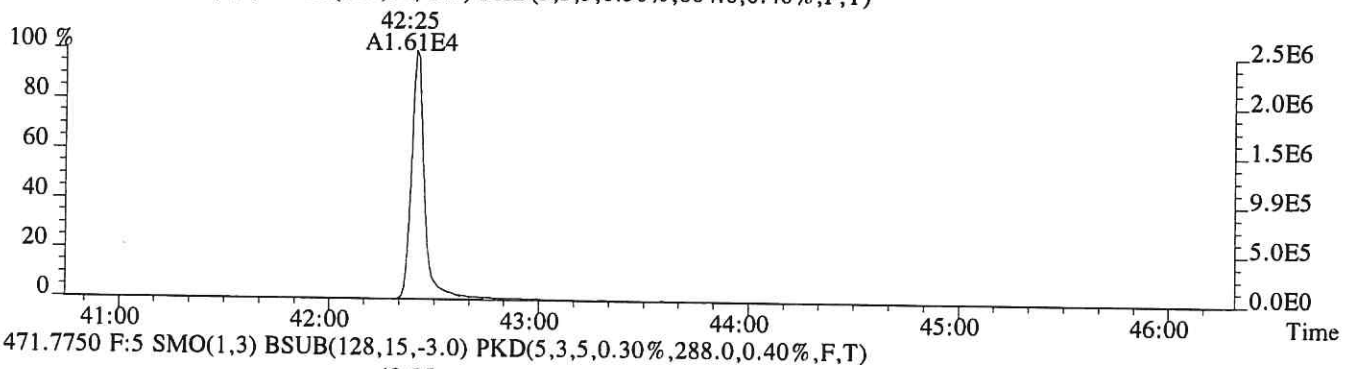
File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



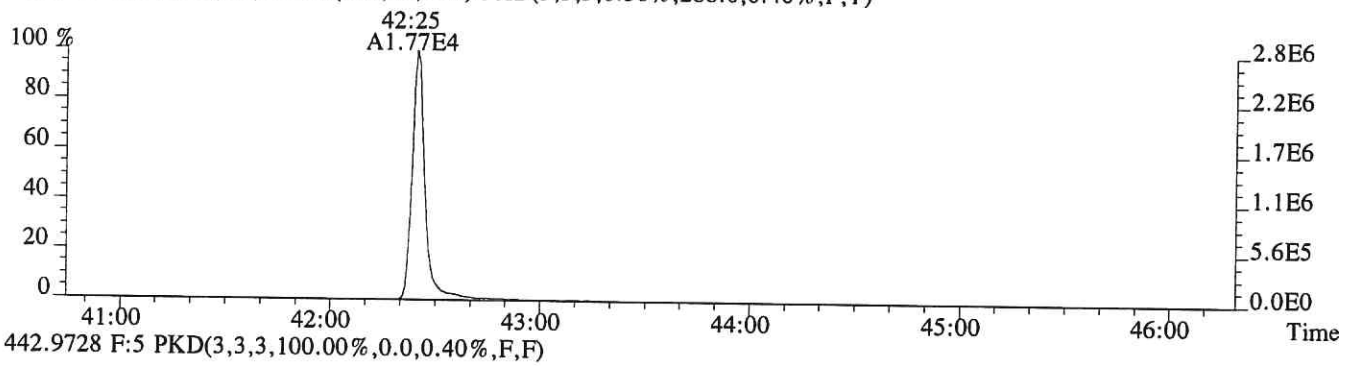
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



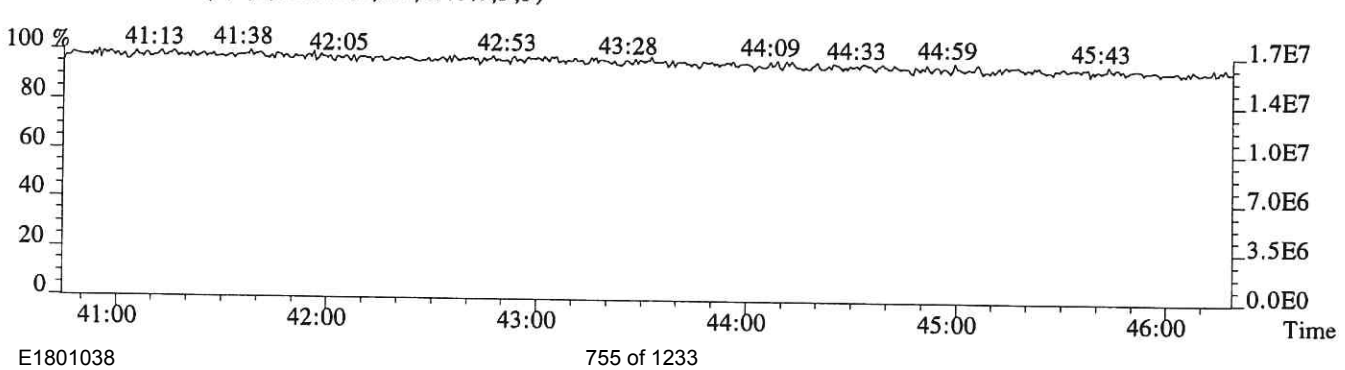
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5188605

Date: 11/17/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LG

ccalqc.xls 07/17/12

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P518865	17-NOV-18	01:07:48
192977	WINDOW DEFINE	P518866	17-NOV-18	01:55:35
METHOD BLANK	EQ1800457-01	P518867	17-NOV-18	02:44:15
METHOD BLANK	EQ1800468-01	P518868	17-NOV-18	03:32:53
SL0022	E1801020-018	P518869	17-NOV-18	04:21:31
SL0011	E1801020-034	P518870	17-NOV-18	05:10:10
SL0033	E1801020-045	P518871	17-NOV-18	05:58:47
SL0034	E1801020-051	P518872	17-NOV-18	06:47:25
SL0046	E1801020-052	P518873	17-NOV-18	07:36:04
SL0072	E1801012-020	P518874	17-NOV-18	08:24:42
SL0084	E1801035-006	P518875	17-NOV-18	09:13:20
SL0519	E1801038-001	P518876	17-NOV-18	10:01:58
LCS	EQ1800468-02	P518877	17-NOV-18	10:50:36
DLCS	EQ1800468-03	P518878	17-NOV-18	11:39:16

E1801038

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181116B.SPL
Last Modified: Monday, November 19, 2018 07:44:12 Central Standard Time
Printed: Monday, November 19, 2018 07:44:15 Central Standard Time

Page Position (1, 1)

OPUS 4: P518865res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst LG for LKL	Comments
1	11/17/18	01:07	P518865	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMS check 01:07
2		01:55	P518866	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:44	P518867	MB	EQ1800457-01	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		03:32	P518868	MB	EQ1800468-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:21	P518869	E1801020-018	E1801020-018	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:10	P518870	E1801020-034	E1801020-034	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		05:58	P518871	E1801020-045	E1801020-045	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		06:47	P518872	E1801020-051	E1801020-051	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:36	P518873	E1801020-052	E1801020-052	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:24	P518874	E1801012-020	E1801012-020	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:13	P518875	E1801035-006	E1801035-006	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:01	P518876	E1801038-001	E1801038-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:50	P518877	LCS	EQ1800468-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
14		11:39	P518878	DLCS	EQ1800468-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		12:36	P518879	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMS check 12:36
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---

759 of 1233

LG 11/21/18

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

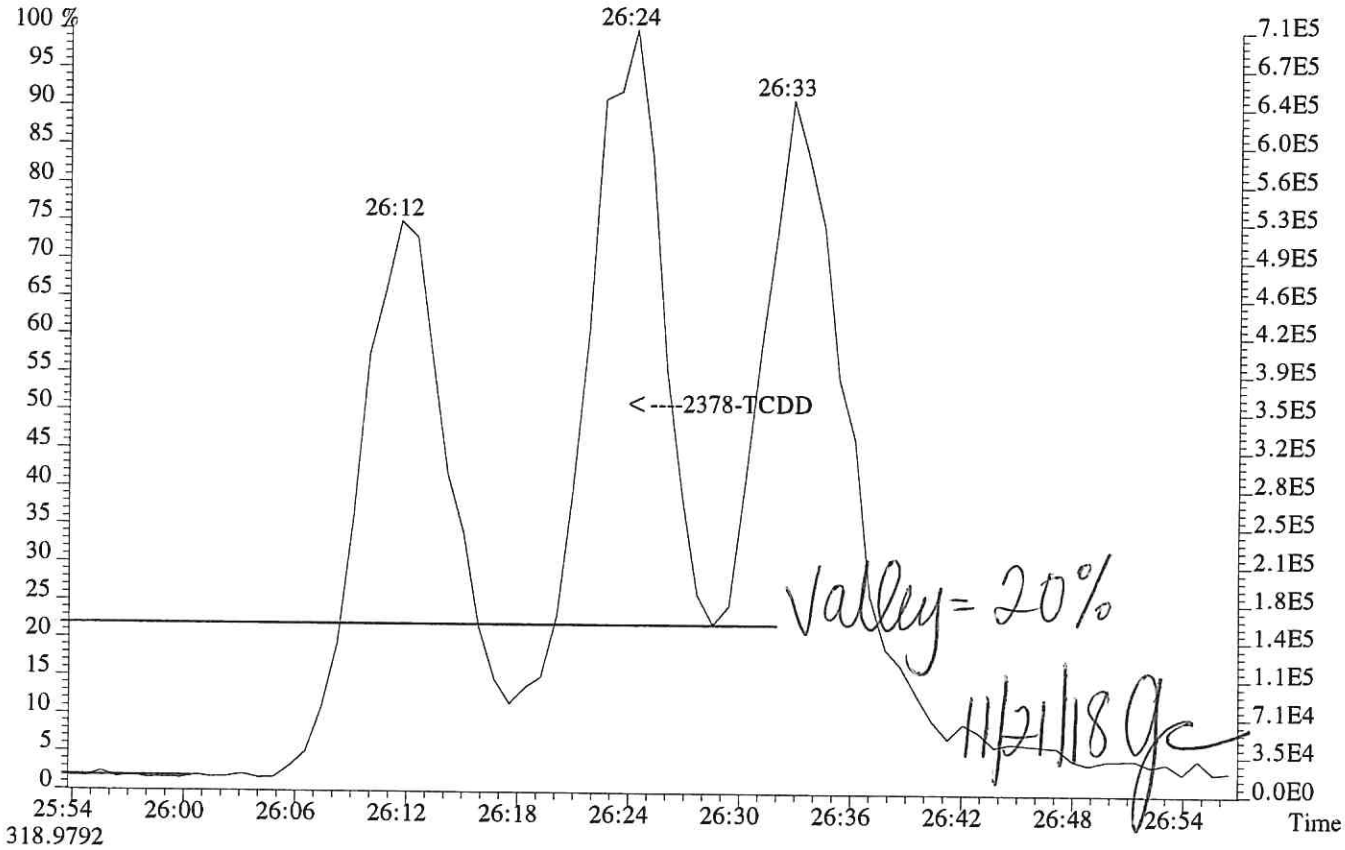
Case No.: _____ SDG No.:
ID: 0.25 (mm)

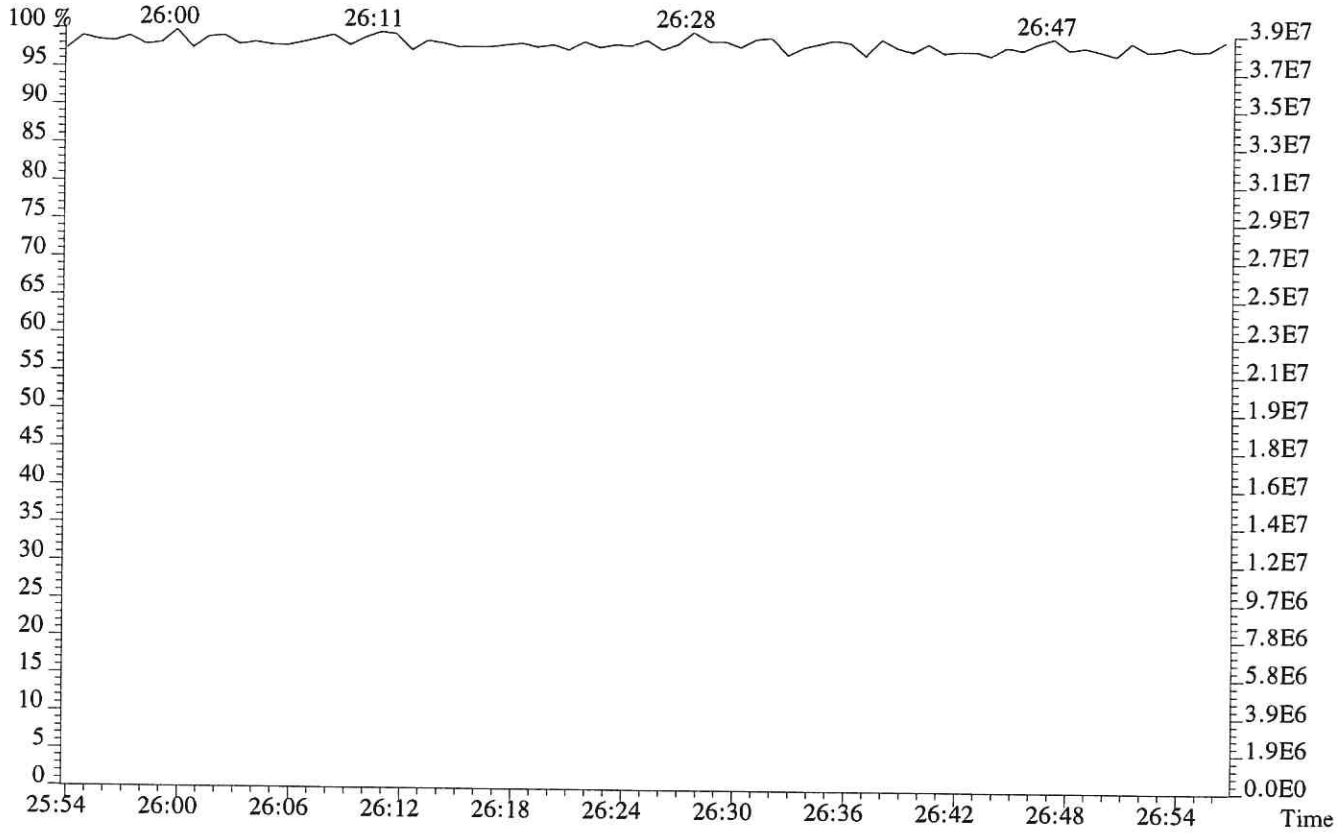
Lab File ID: P518866
Date Analyzed: 17-NOV-2018
Time Analyzed: 01:55:35

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:06	27:48
TCDD	22:40	27:38
PeCDF	27:46	32:34
PeCDD	29:35	32:18
HxCDF	33:17	35:57
HxCDD	33:51	35:32
HpCDF	37:14	38:34
HpCDD	37:30	38:08

% Valley 2378-TCDD: 20 %

File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965





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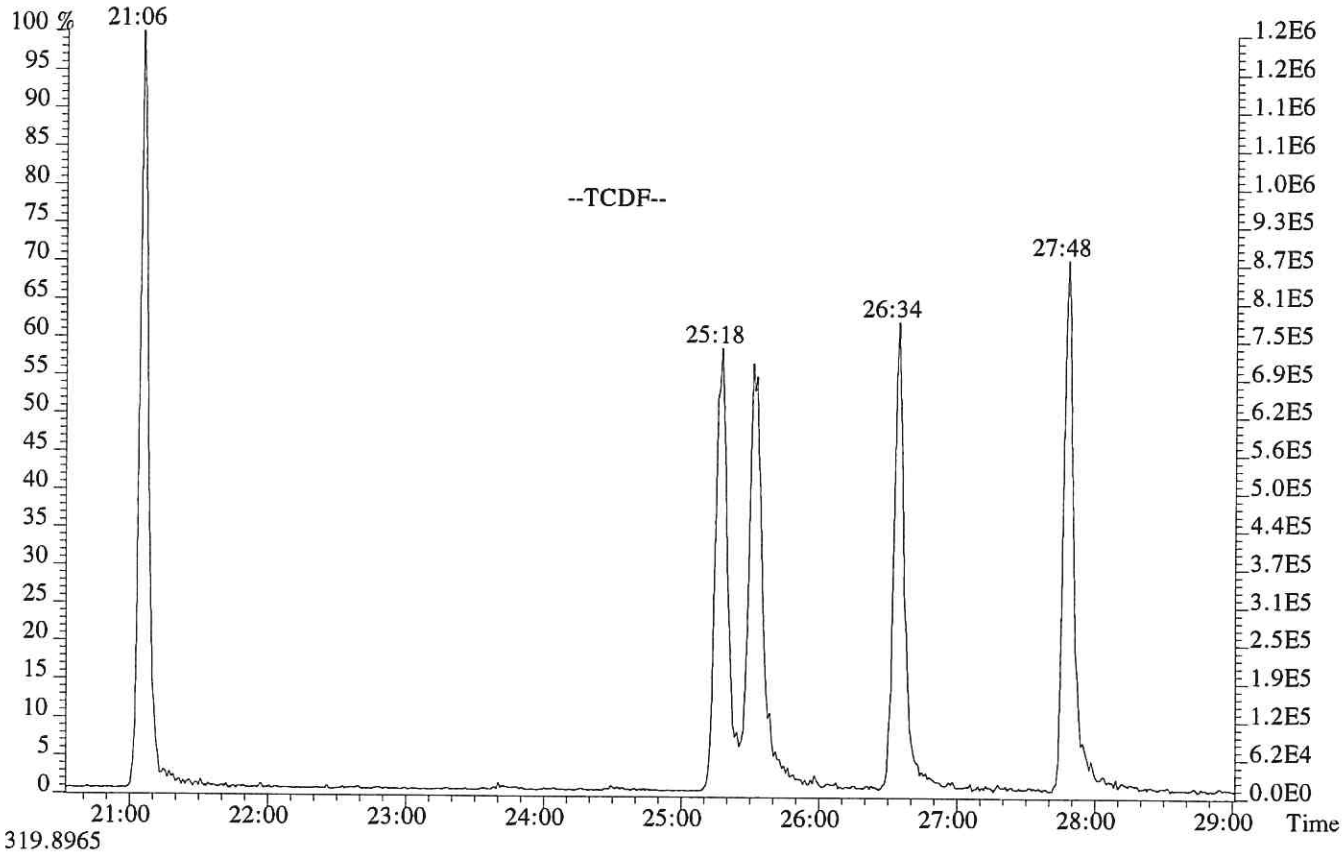
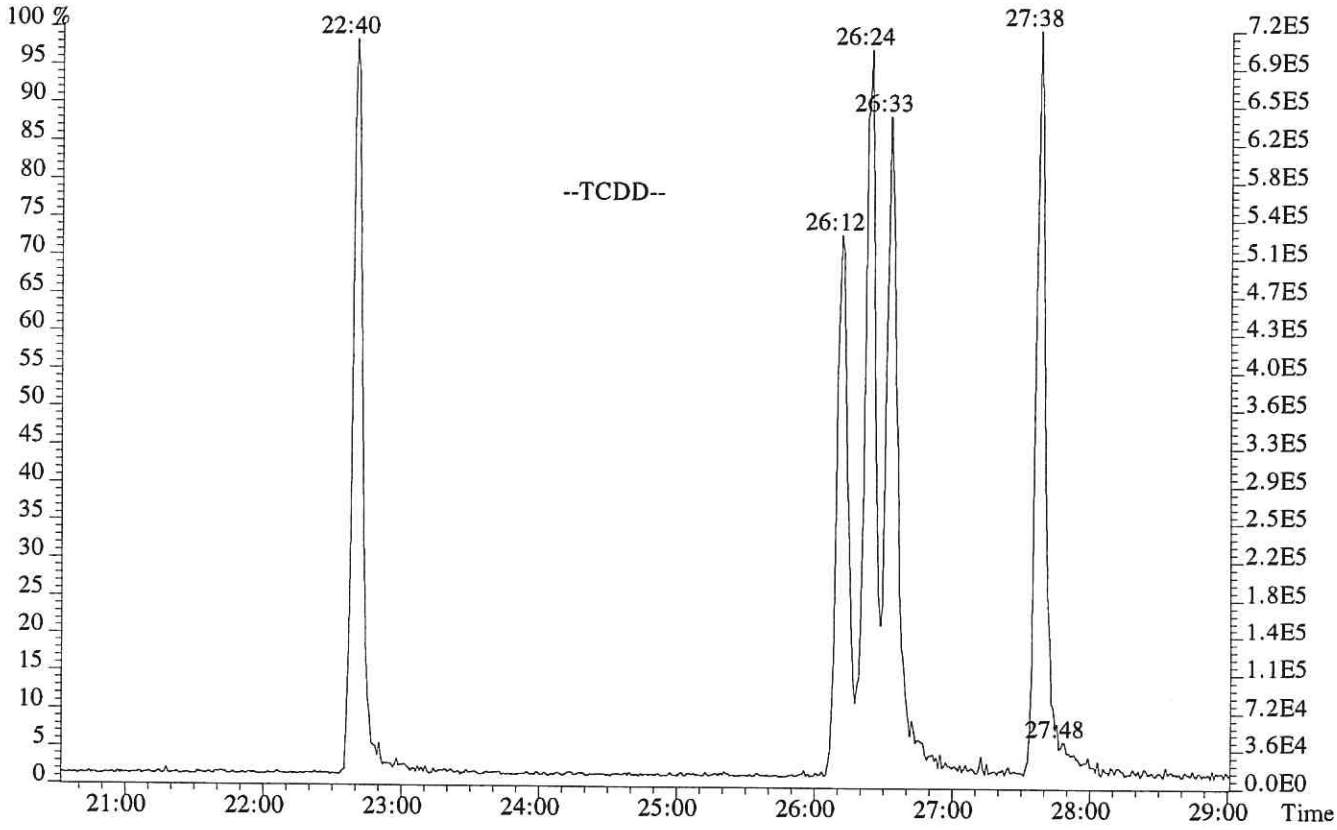
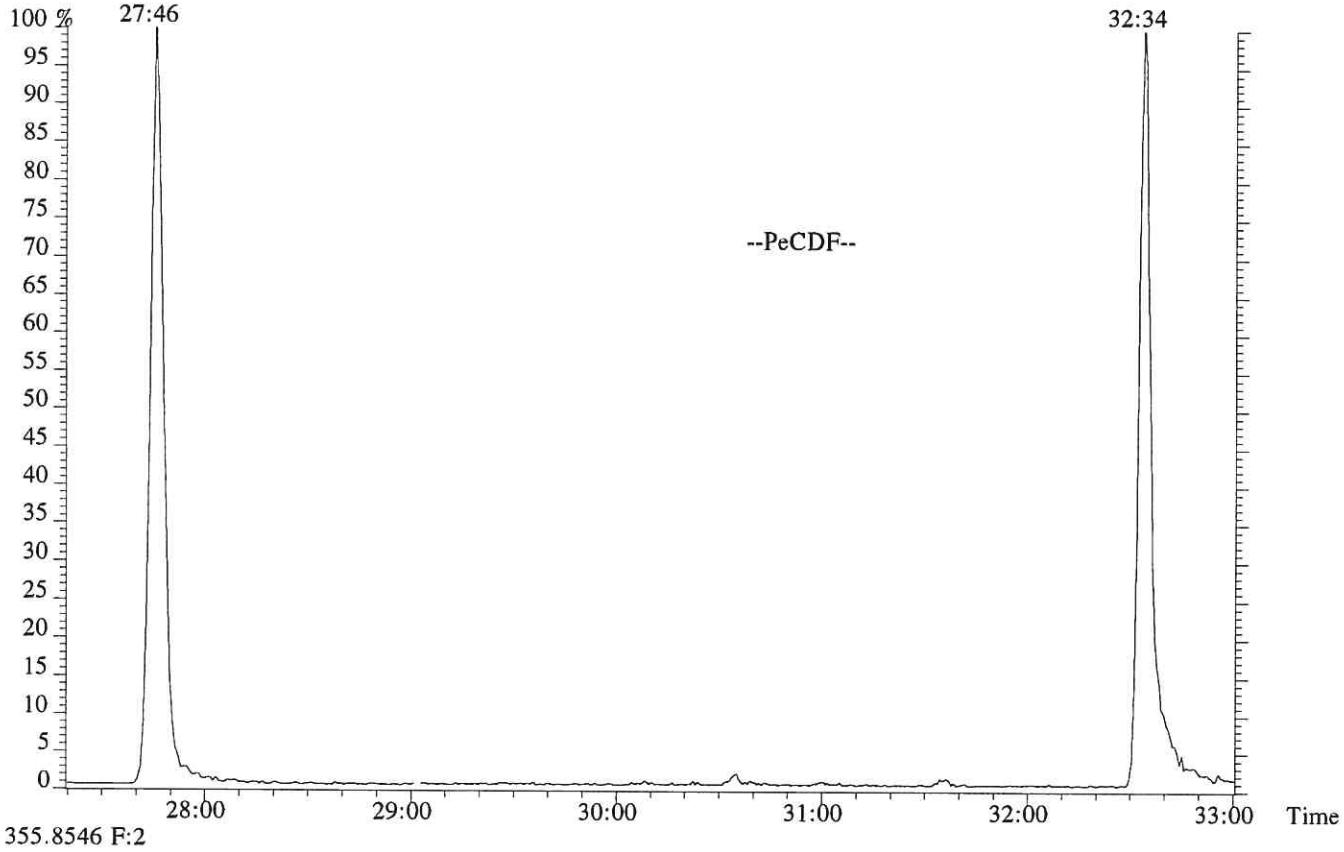
Sample#1 Exp:192977
303.9016

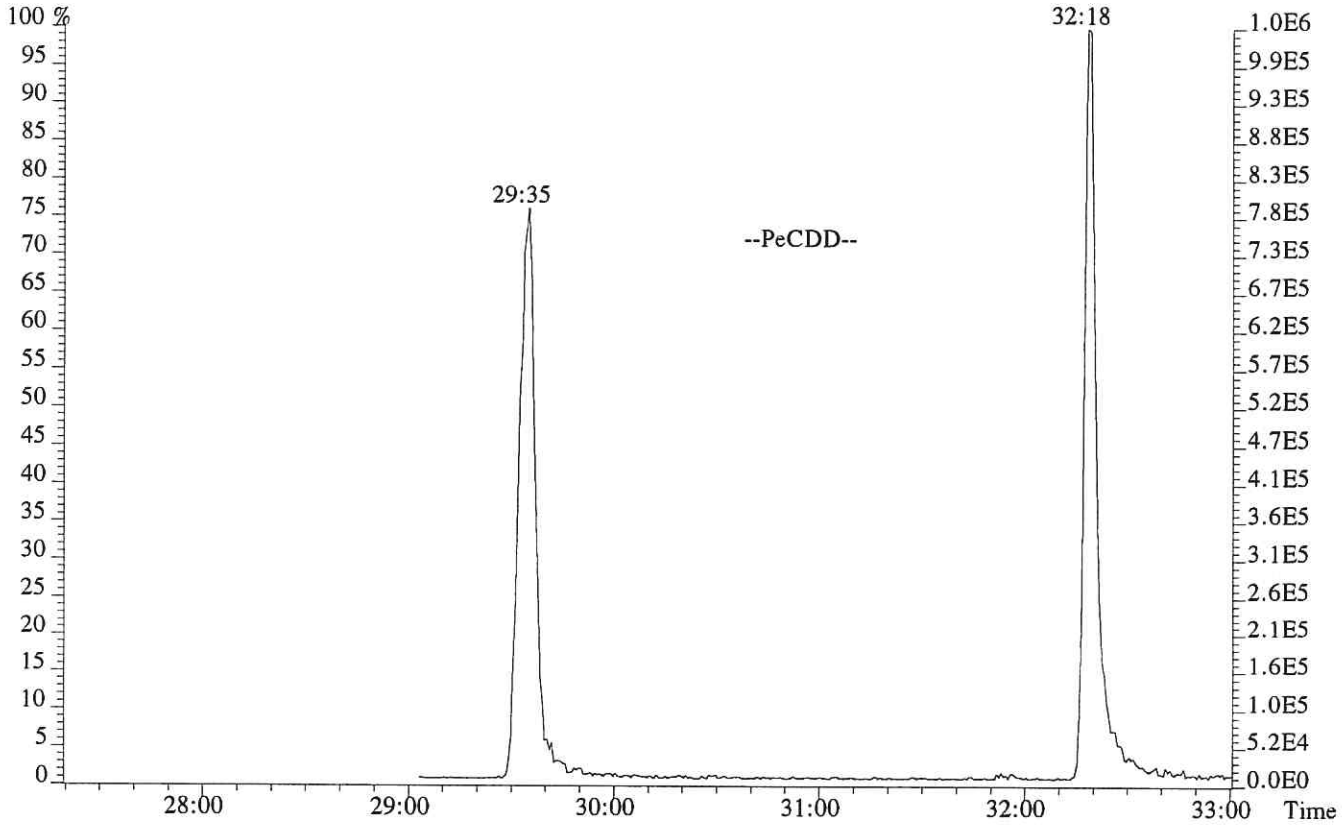




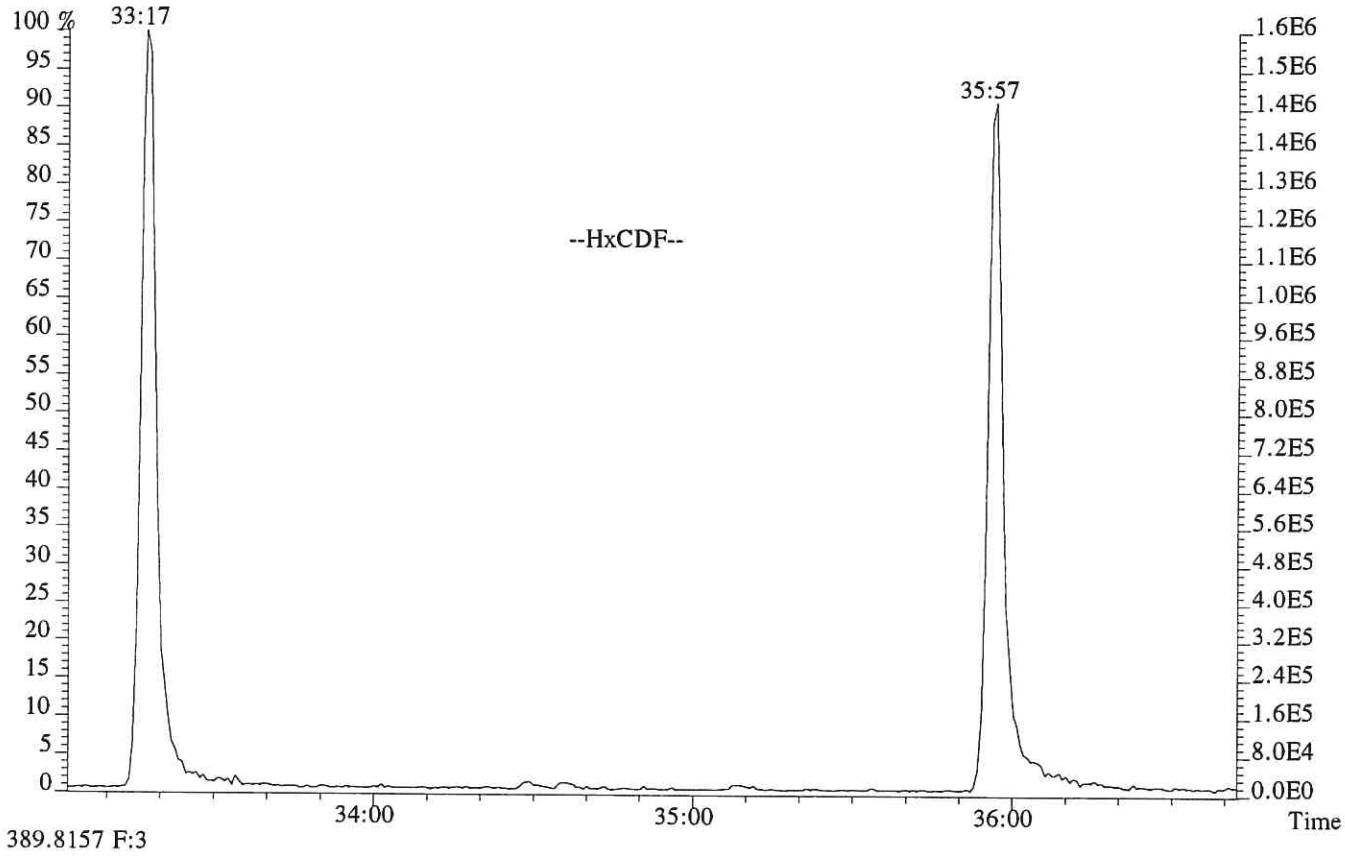
File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



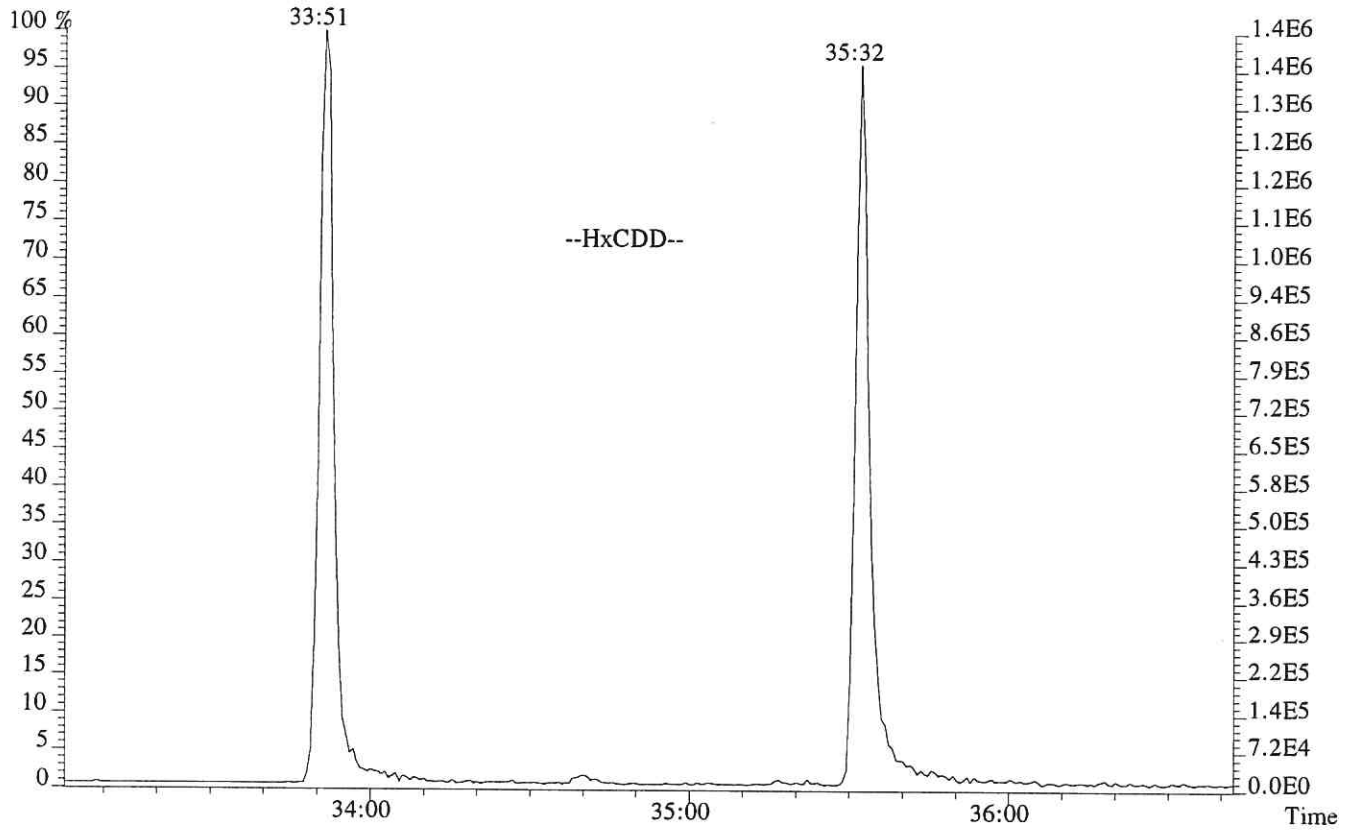
355.8546 F:2



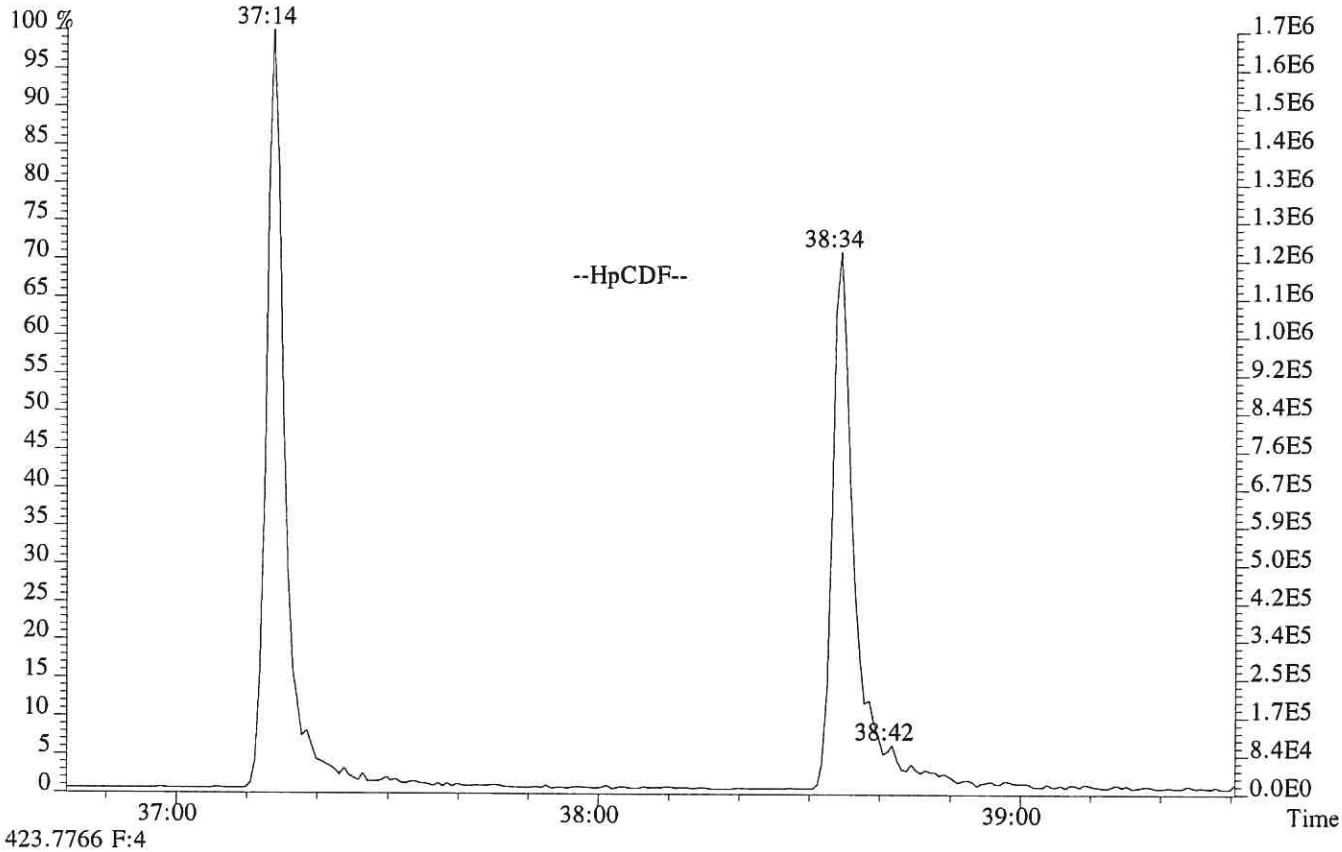
File:P518866 #1-330 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



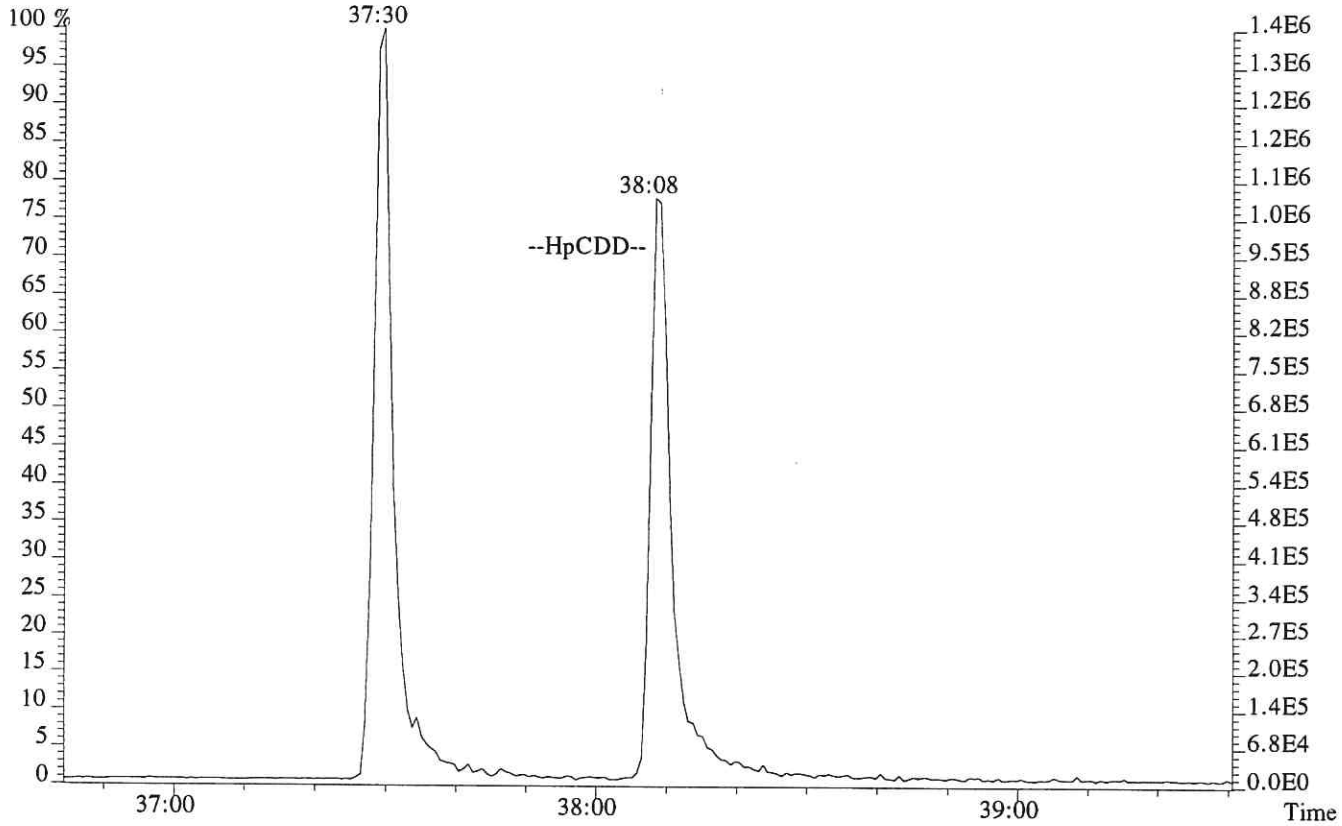
389.8157 F:3



File:P518866 #1-250 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4

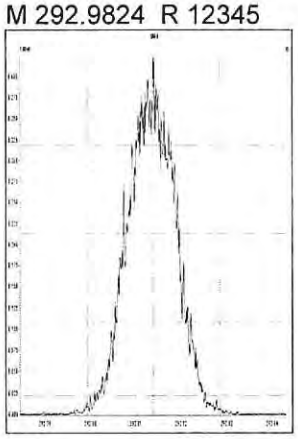


423.7766 F:4

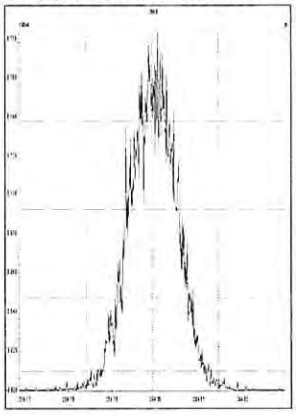


Printed: Saturday, November 17, 2018 01:07:46 Central Standard Time

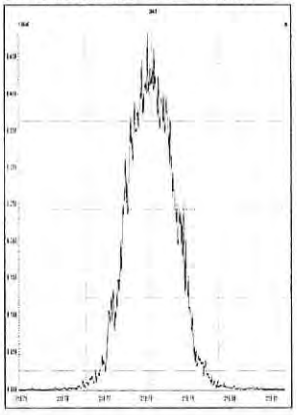
M 292.9824 R 12345



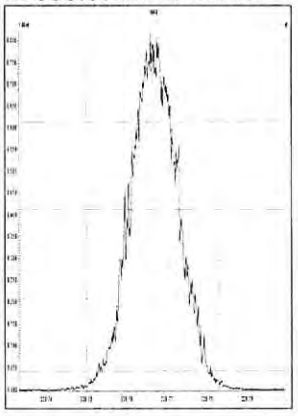
M 304.9824 R 12502



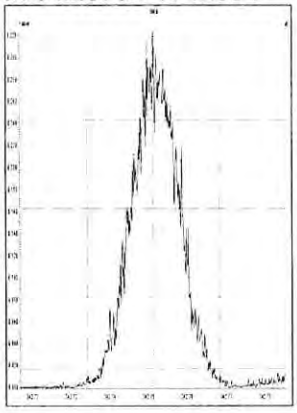
M 318.9792 R 12537



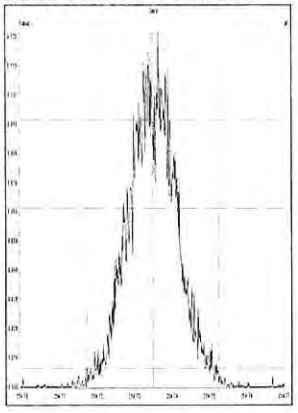
M 330.9792 R 12515



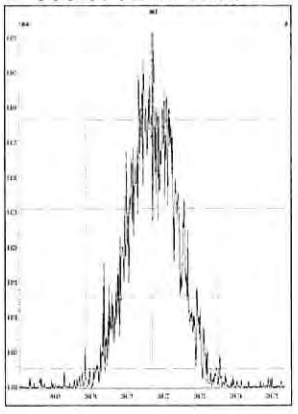
M 342.9792 R 12594



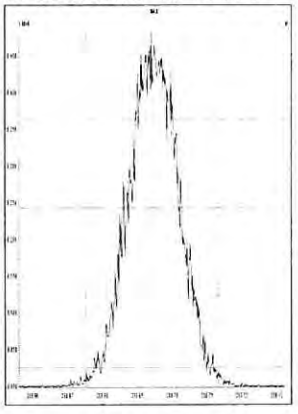
M 354.9792 R 12705



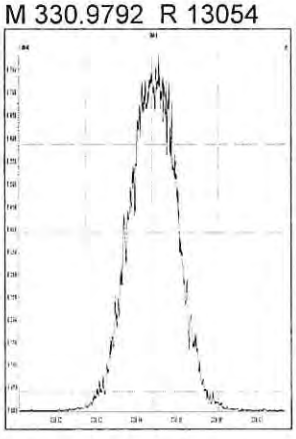
M 366.9792 R 12954



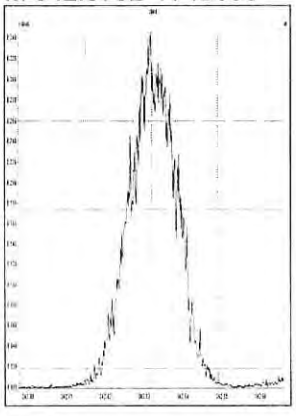
M 380.9760 R 12410



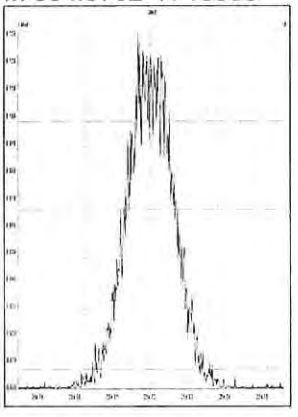
M 330.9792 R 13054



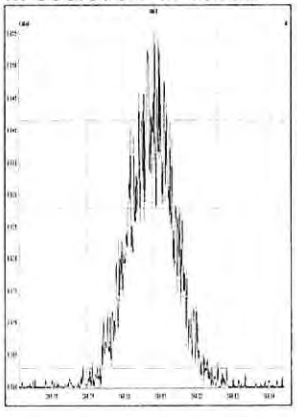
M 342.9792 R 12690



M 354.9792 R 13368



M 366.9792 R 13065



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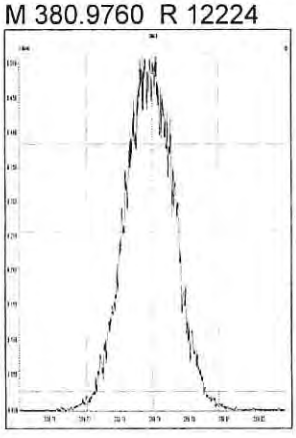

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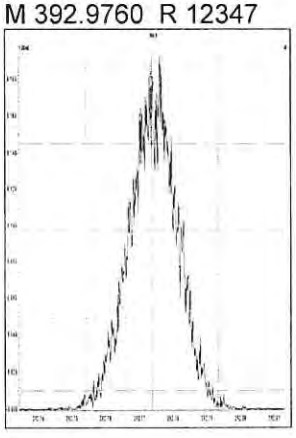

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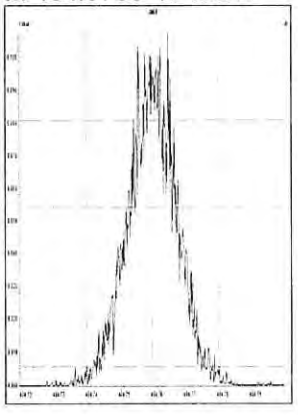

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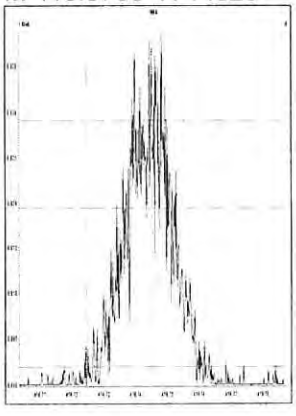

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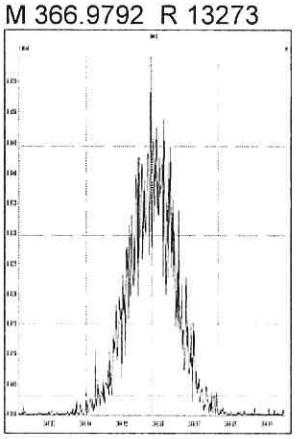

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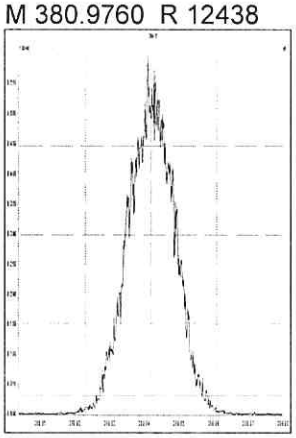

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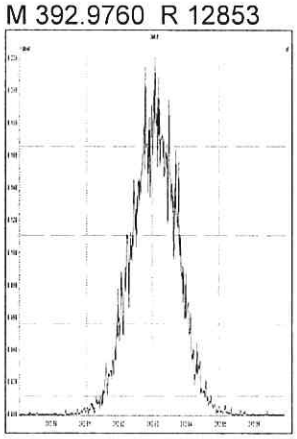

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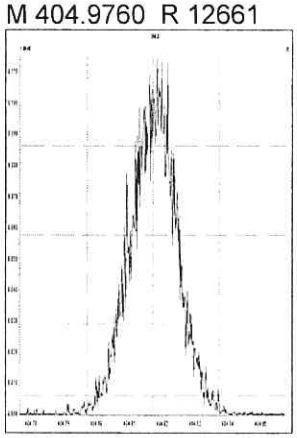

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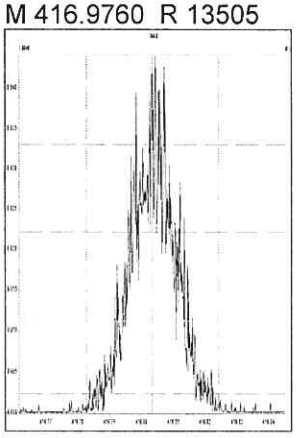
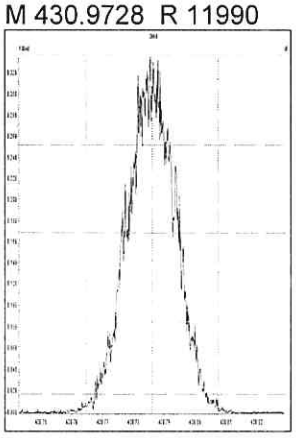


M 430.9728 R 11990



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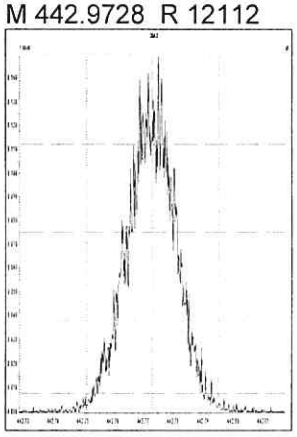

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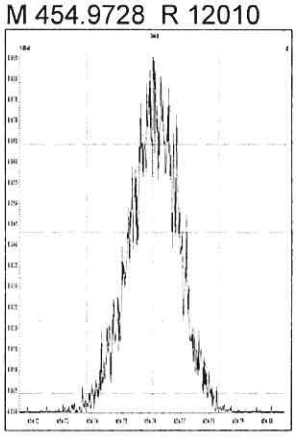

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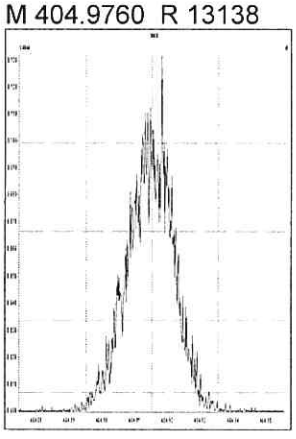

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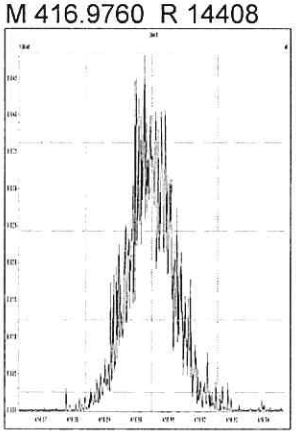

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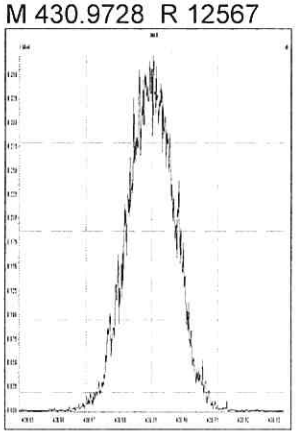

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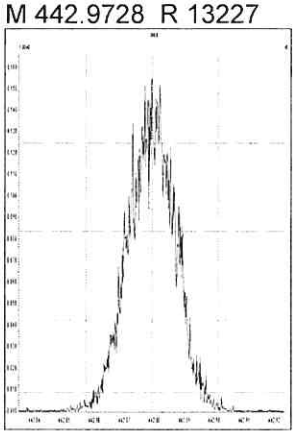

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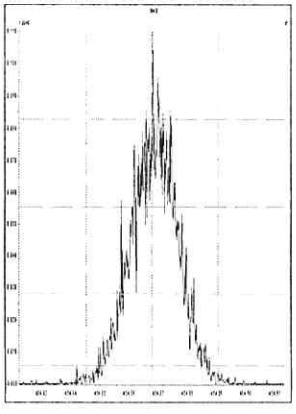

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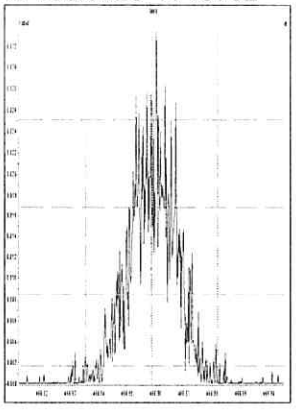

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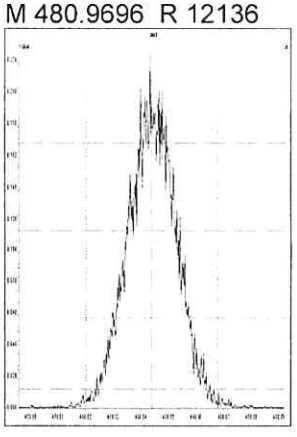

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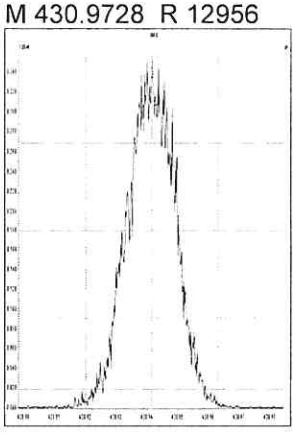

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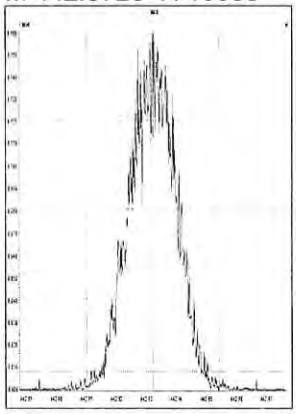

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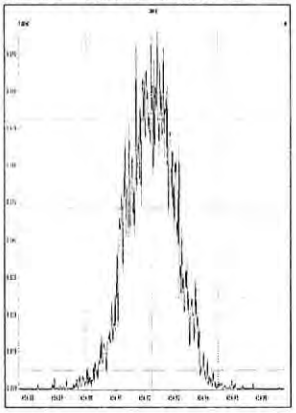

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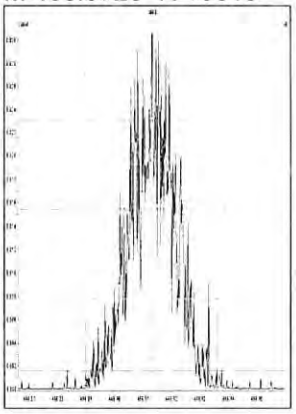

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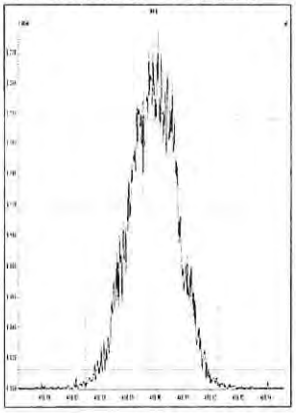

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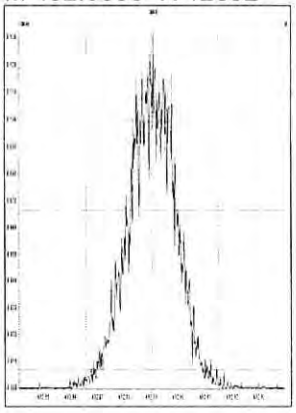

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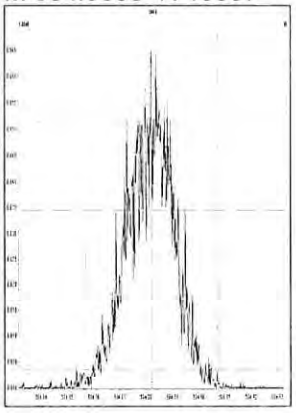

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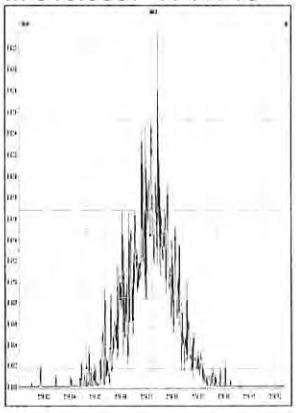

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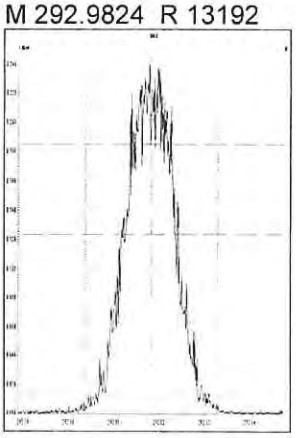

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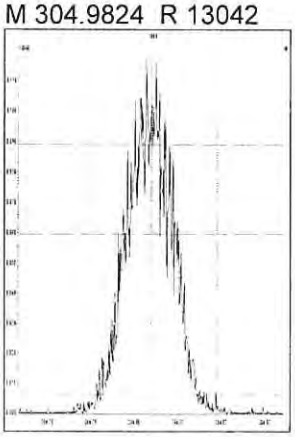

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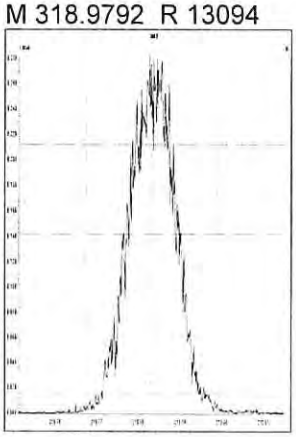

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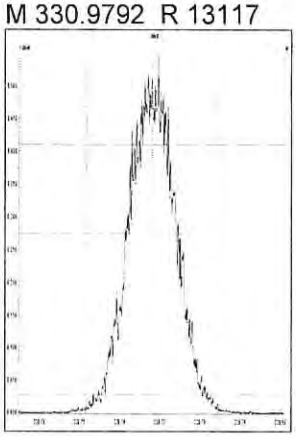

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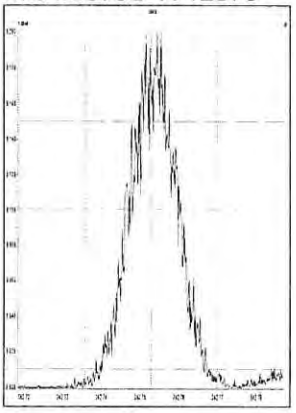

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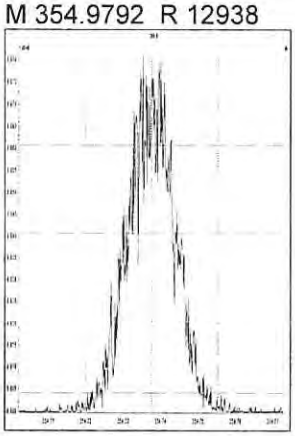
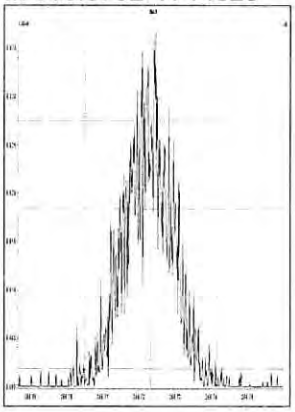


M 366.9792 R 14825



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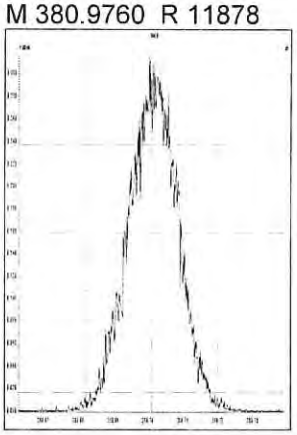

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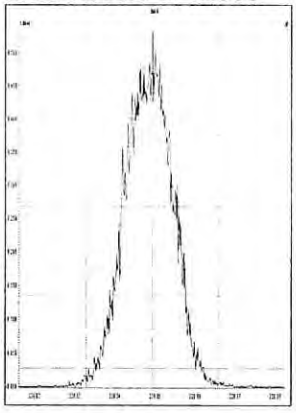

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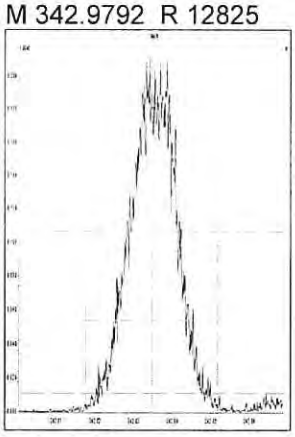

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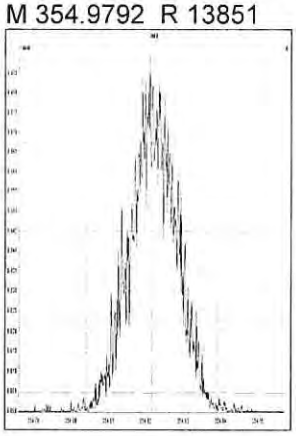

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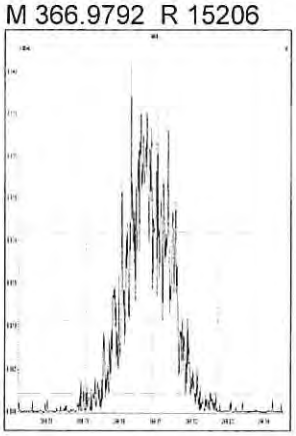

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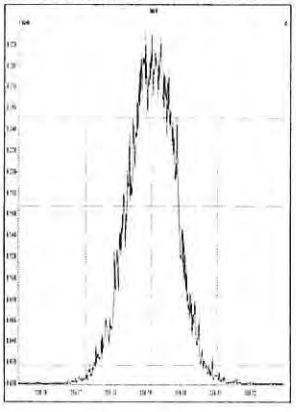

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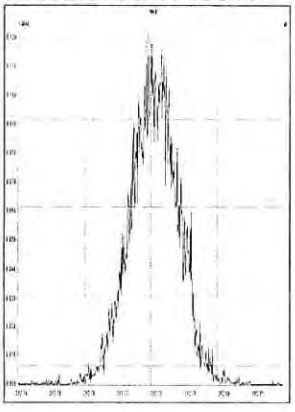

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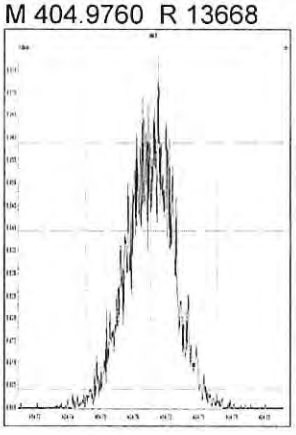

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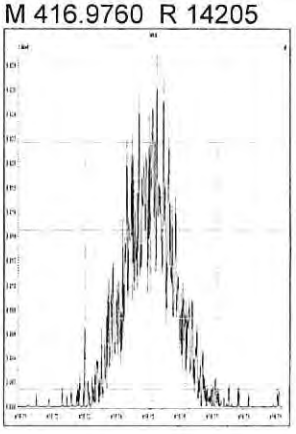

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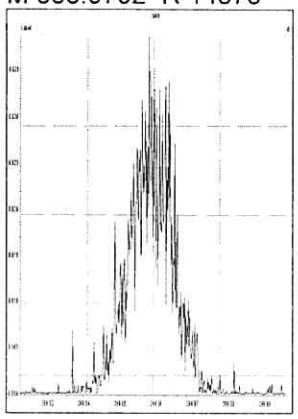

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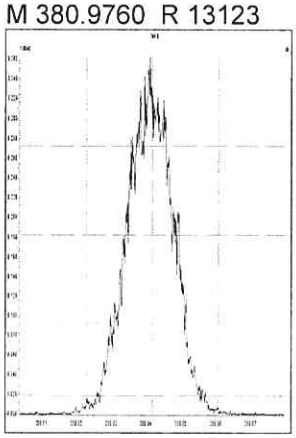

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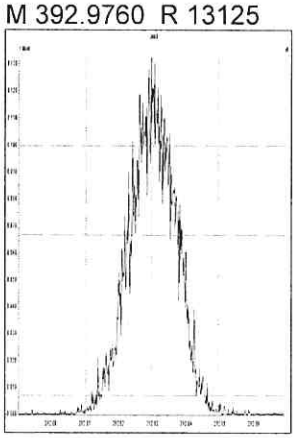

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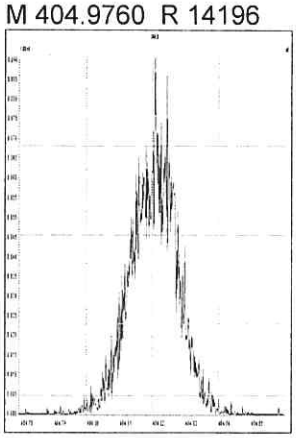
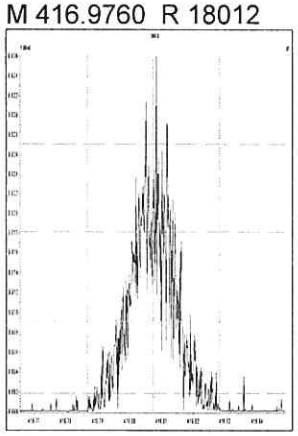


M 416.9760 R 18012



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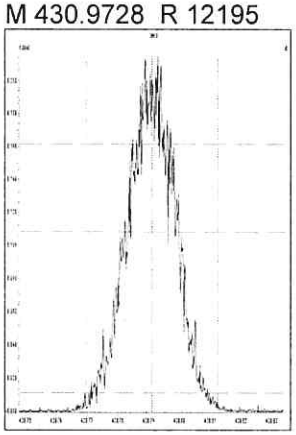

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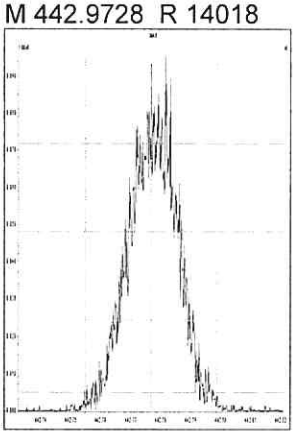
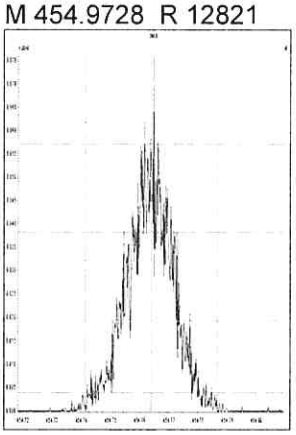


M 454.9728 R 12821



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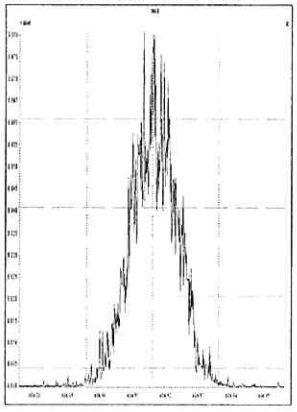

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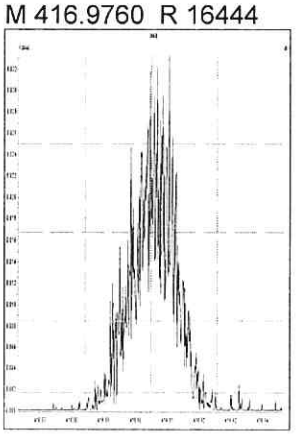

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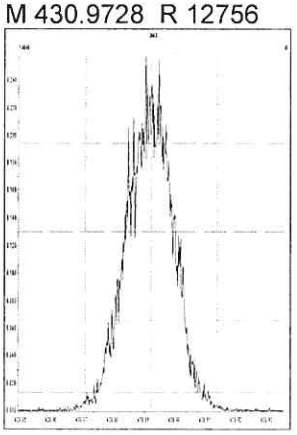

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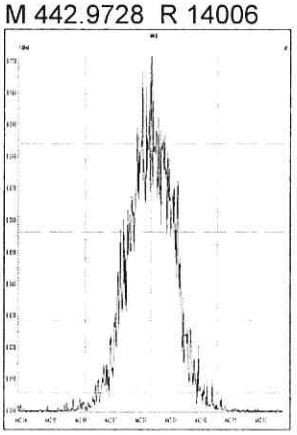

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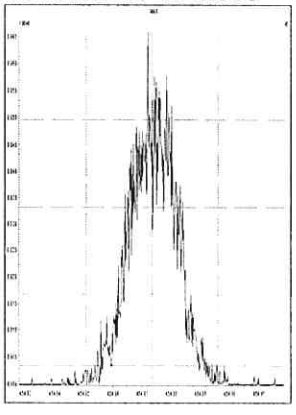
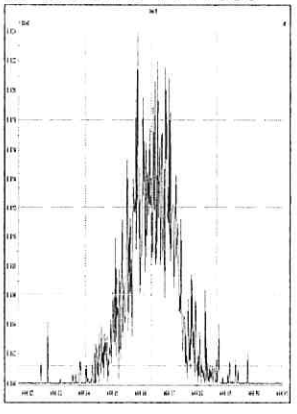
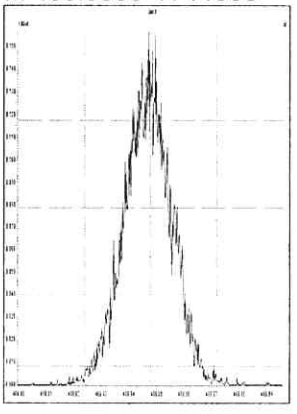


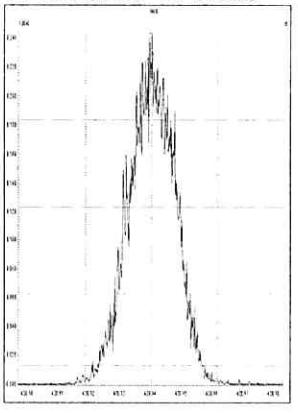
M 466.9728 R 17085



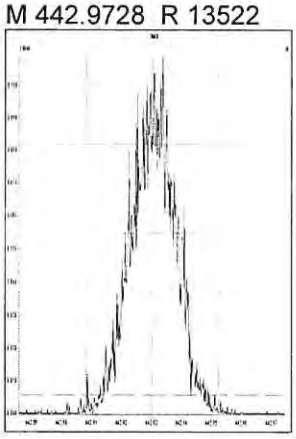
M 480.9696 R 11990



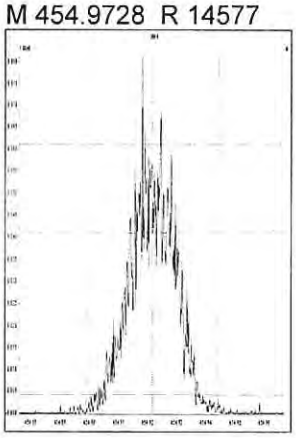
M 430.9728 R 12626



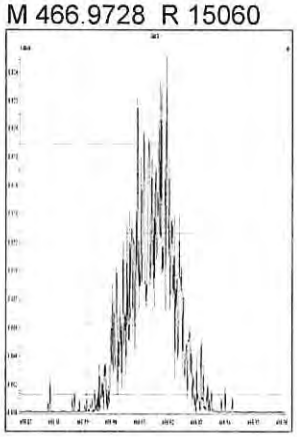
M 442.9728 R 13522



M 454.9728 R 14577



M 466.9728 R 15060



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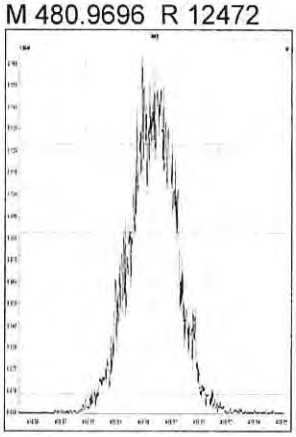

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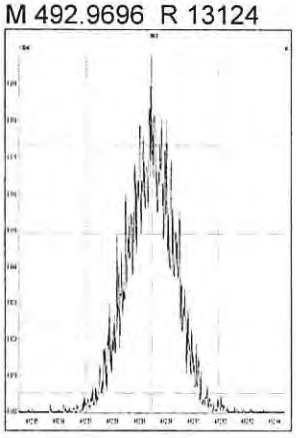
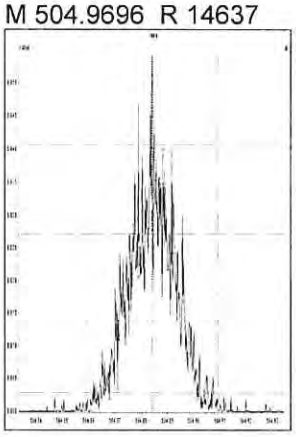


M 504.9696 R 14637



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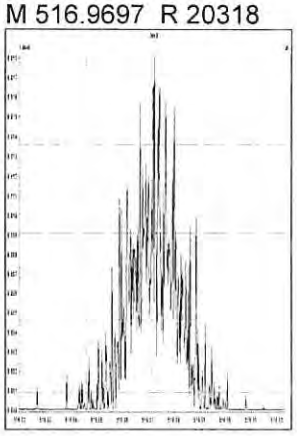

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.5	7.8 - 12.9	-5.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	1.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	3.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	53	41 - 61	5.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.2
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	1.3
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 60	0.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-2.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	1.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	92	82 - 121	-7.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	117	62 - 160	17.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-13.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 118	-2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	120	72 - 138	20.4
13C-OCDD	M+2/M+4	0.88	0.76-1.02	338	96 - 415	68.8
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	81	71 - 140	-18.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	110	76 - 130	9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	114	77 - 130	14.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	76 - 131	-22.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	89	70 - 143	-11.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	90	74 - 135	-9.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	73 - 137	-10.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	109	78 - 129	9.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	123	77 - 129	22.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-8.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	1.058e+03	1.395e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.035e+04	6.889e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.827e+03	6.465e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.727e+03	7.981e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.212e+04	9.936e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.067e+04	8.730e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.476e+03	7.955e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.128e+04	1.104e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	1.012e+04	9.667e+03	1.05	yes	no	1.258
10	Unk	OCDF	40:51	1.961e+04	2.183e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	8.230e+02	1.011e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	7.059e+03	4.549e+03	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.247e+03	5.748e+03	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.642e+03	6.763e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	8.205e+03	6.703e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	8.491e+03	8.003e+03	1.06	yes	no	1.025
17	Unk	OCDD	40:41	1.604e+04	1.828e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.122e+04	1.449e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.092e+04	1.288e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.131e+04	1.357e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.003e+04	1.945e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.291e+04	2.543e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.179e+04	2.287e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.014e+04	2.012e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.014e+04	2.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.382e+03	2.166e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.775e+03	1.008e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.459e+04	9.324e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.389e+04	1.069e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.602e+04	1.256e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.650e+04	1.531e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:41	2.839e+04	3.220e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	9.224e+03	1.171e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	1.746e+04	1.335e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.941e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.29e+05	2.84e+02	4.5e+02	1.72e+05	7.12e+02	2.4e+02
2	1,2,3,7,8-PeCDF	1.50e+06	5.92e+02	2.5e+03	9.78e+05	1.23e+03	7.9e+02
3	2,3,4,7,8-PeCDF	1.54e+06	5.92e+02	2.6e+03	1.04e+06	1.23e+03	8.4e+02
4	1,2,3,4,7,8-HxCDF	1.92e+06	2.64e+02	7.3e+03	1.56e+06	3.96e+02	3.9e+03
5	1,2,3,6,7,8-HxCDF	2.19e+06	2.64e+02	8.3e+03	1.73e+06	3.96e+02	4.4e+03
6	2,3,4,6,7,8-HxCDF	1.90e+06	2.64e+02	7.2e+03	1.57e+06	3.96e+02	4.0e+03
7	1,2,3,7,8,9-HxCDF	1.59e+06	2.64e+02	6.0e+03	1.25e+06	3.96e+02	3.2e+03
8	1,2,3,4,6,7,8-HpCDF	2.16e+06	1.13e+03	1.9e+03	2.07e+06	2.58e+03	8.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.74e+06	1.13e+03	1.5e+03	1.74e+06	2.58e+03	6.7e+02
10	OCDF	2.99e+06	2.44e+02	1.2e+04	3.38e+06	2.76e+02	1.2e+04
11	2,3,7,8-TCDD	1.10e+05	1.70e+03	6.5e+01	1.28e+05	7.56e+02	1.7e+02
12	1,2,3,7,8-PeCDD	1.09e+06	9.64e+02	1.1e+03	7.07e+05	4.16e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.22e+06	4.96e+02	2.5e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.18e+06	4.96e+02	2.4e+03
15	1,2,3,7,8,9-HxCDD	1.47e+06	5.60e+02	2.6e+03	1.16e+06	4.96e+02	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+06	3.72e+02	4.3e+03	1.50e+06	5.12e+02	2.9e+03
17	OCDD	2.51e+06	2.92e+02	8.6e+03	2.91e+06	2.16e+02	1.3e+04
18	13C-2,3,7,8-TCDF	1.33e+06	4.16e+03	3.2e+02	1.68e+06	2.32e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	3.07e+06	2.24e+02	1.4e+04	1.95e+06	3.80e+02	5.1e+03
20	13C-2,3,4,7,8-PeCDF	3.49e+06	2.24e+02	1.6e+04	2.17e+06	3.80e+02	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.94e+06	5.92e+02	3.3e+03	3.73e+06	1.05e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.29e+06	5.92e+02	3.9e+03	4.41e+06	1.05e+03	4.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.09e+06	5.92e+02	3.5e+03	4.16e+06	1.05e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.67e+06	5.92e+02	2.8e+03	3.35e+06	1.05e+03	3.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.97e+06	3.72e+03	5.3e+02	4.36e+06	1.27e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.64e+06	3.72e+03	4.4e+02	3.73e+06	1.27e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.01e+06	4.52e+03	2.2e+02	1.27e+06	2.09e+03	6.1e+02
28	13C-1,2,3,7,8-PeCDD	2.32e+06	5.12e+02	4.5e+03	1.45e+06	6.28e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.86e+06	1.30e+03	2.2e+03	2.24e+06	8.12e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.81e+06	1.30e+03	2.2e+03	2.20e+06	8.12e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.03e+06	3.32e+02	9.1e+03	2.84e+06	2.20e+02	1.3e+04
32	13C-OCDD	4.40e+06	6.88e+02	6.4e+03	5.01e+06	2.72e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.27e+06	4.52e+03	2.8e+02	1.61e+06	2.09e+03	7.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.91e+06	1.30e+03	2.2e+03	2.37e+06	8.12e+02	2.9e+03
35	37Cl-2,3,7,8-TCDD	2.53e+05	1.16e+03	2.2e+02			

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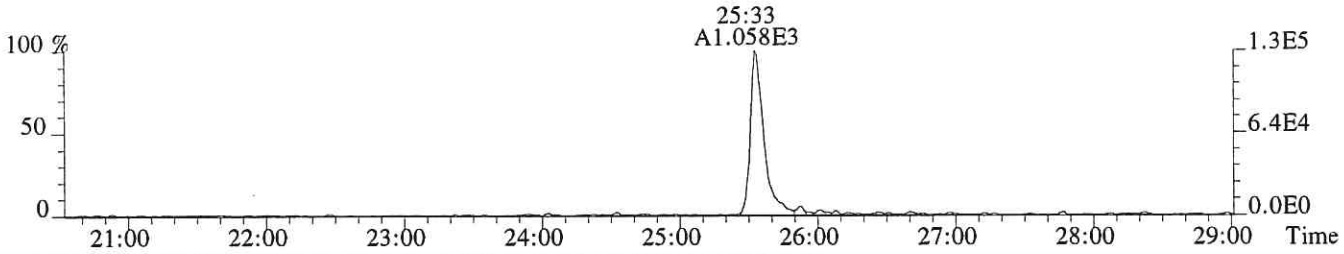
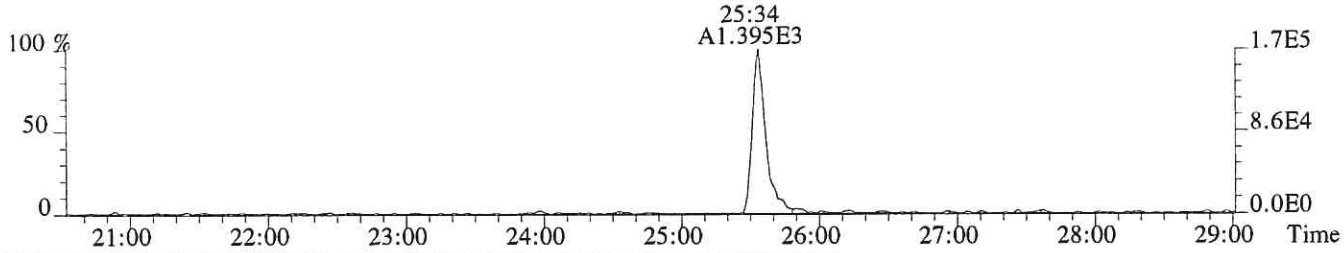
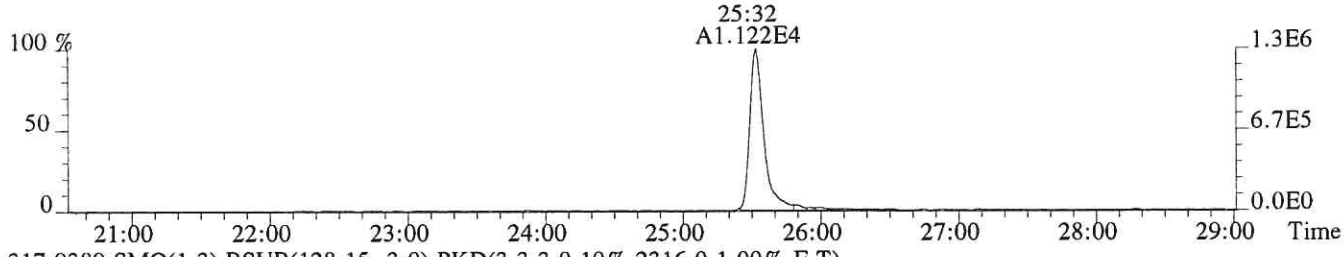
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



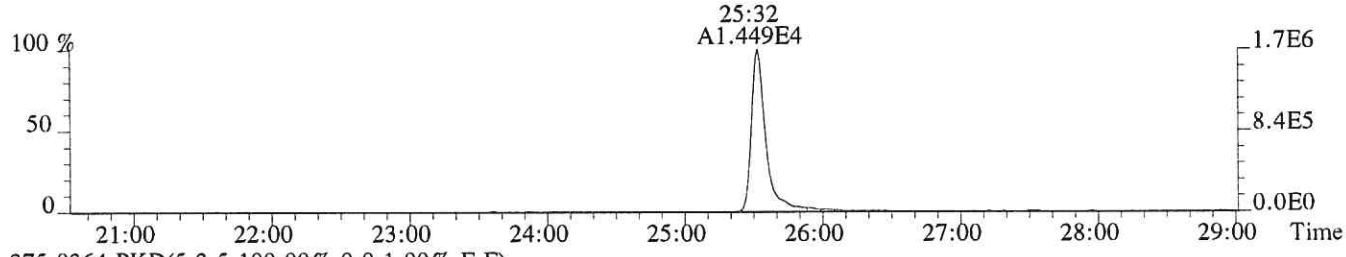
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



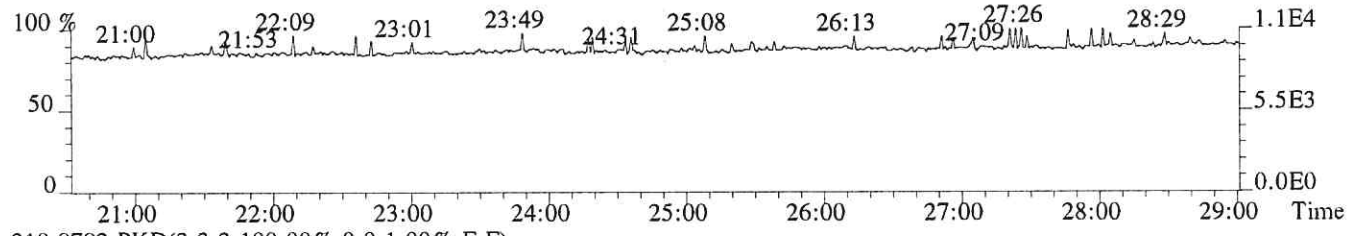
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4164.0,1.00%,F,T)



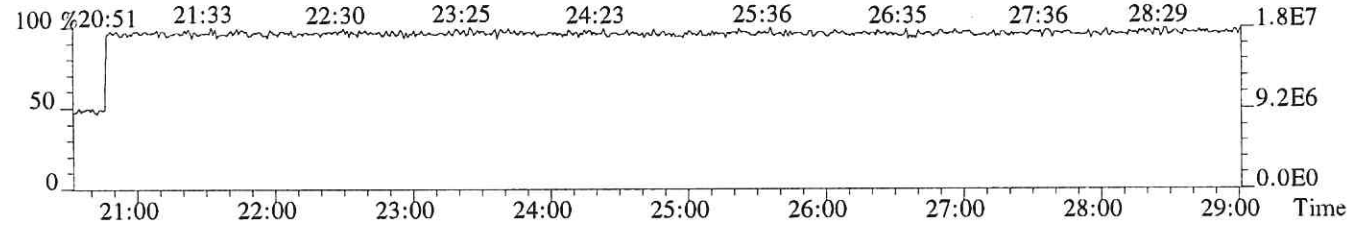
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



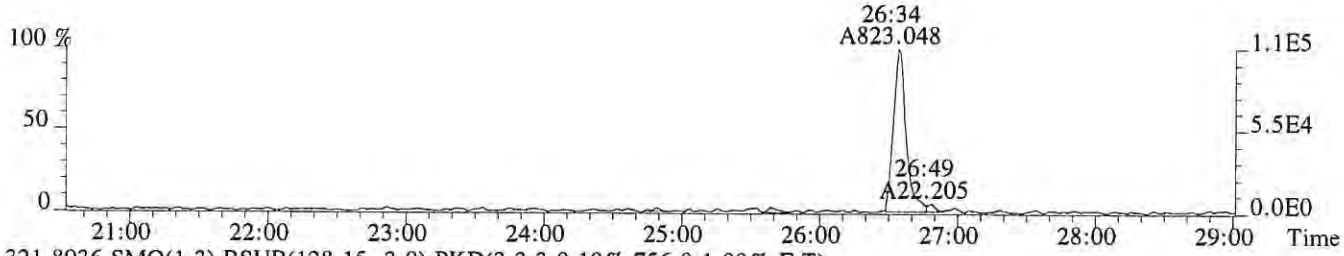
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



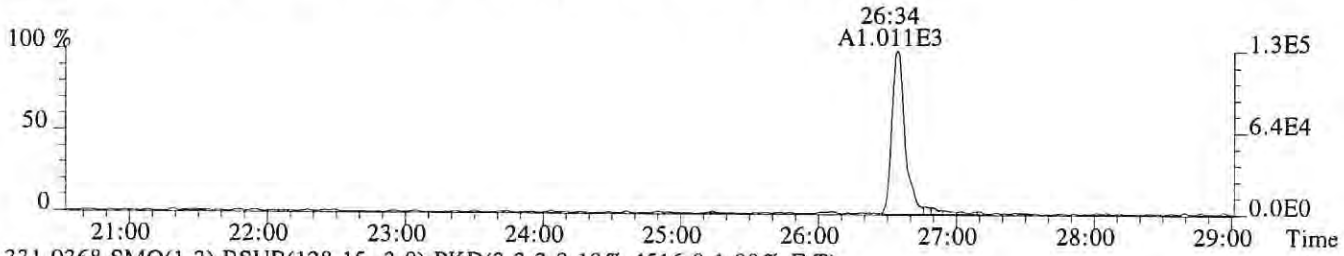
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



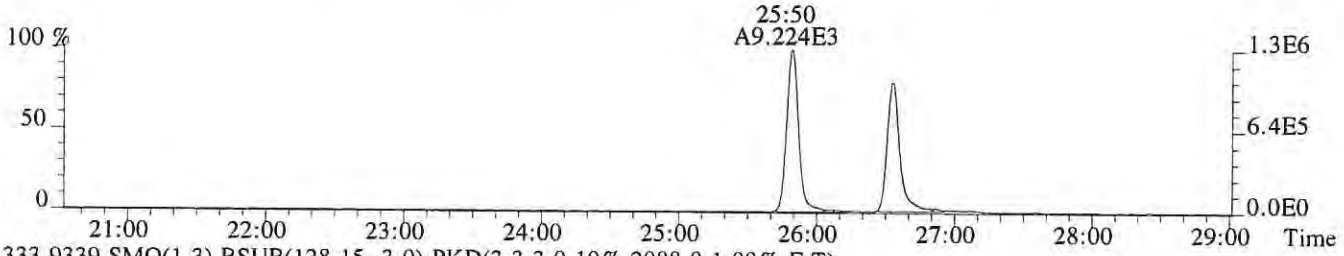
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



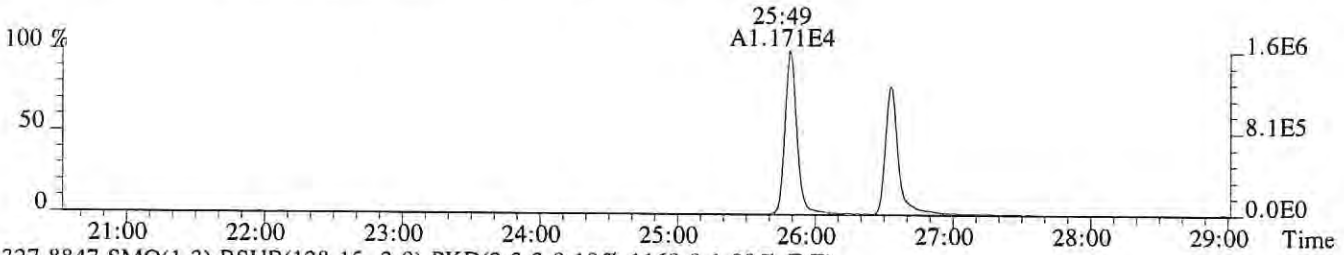
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



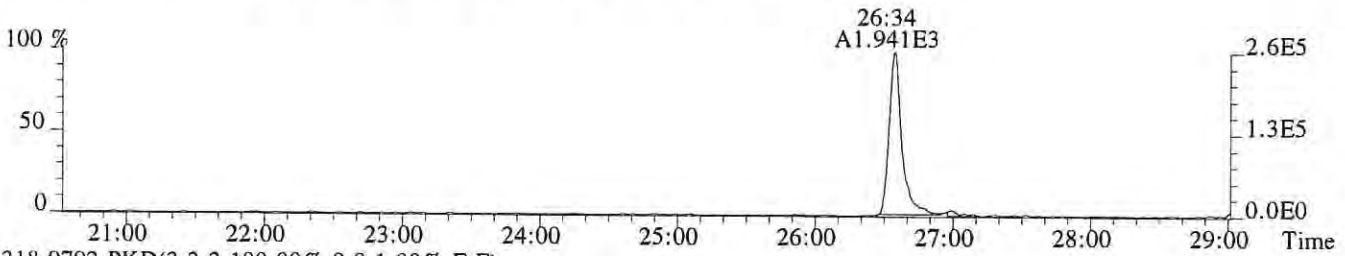
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



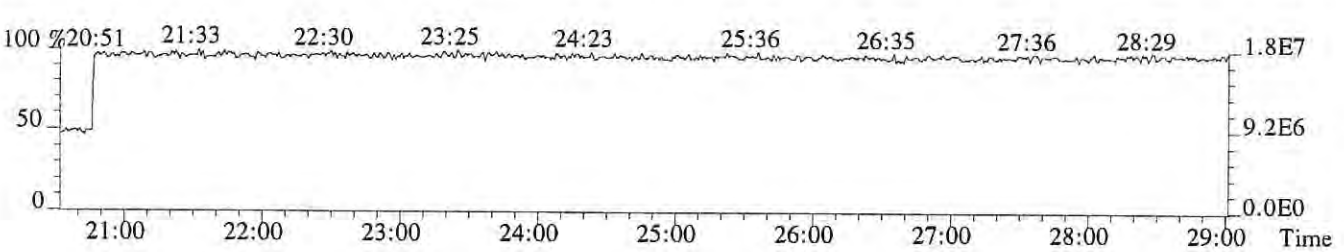
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



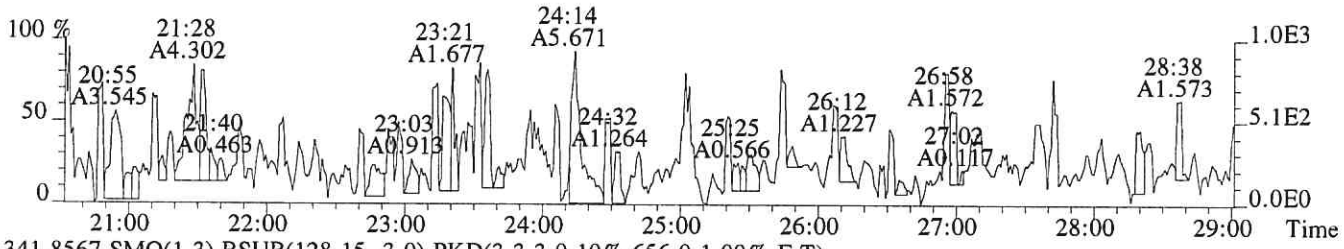
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



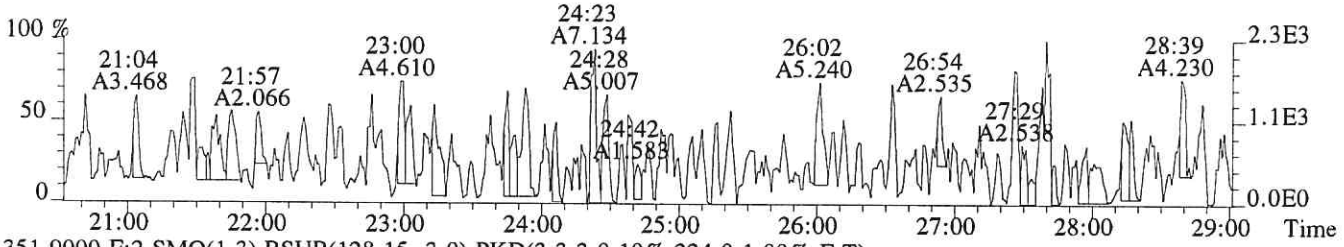
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



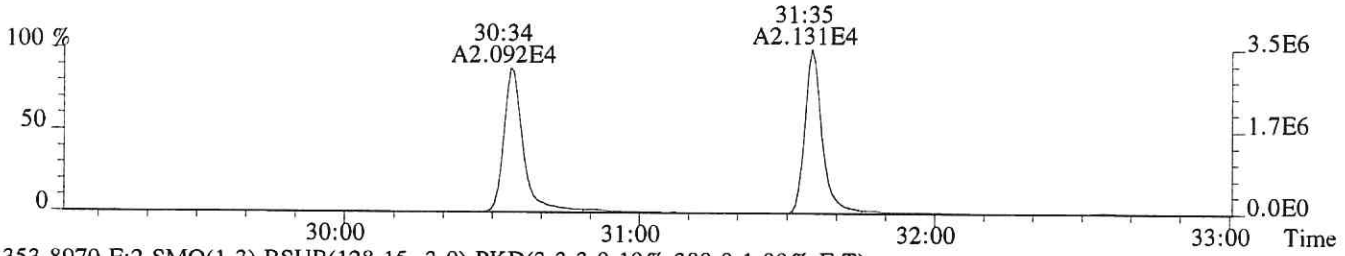
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



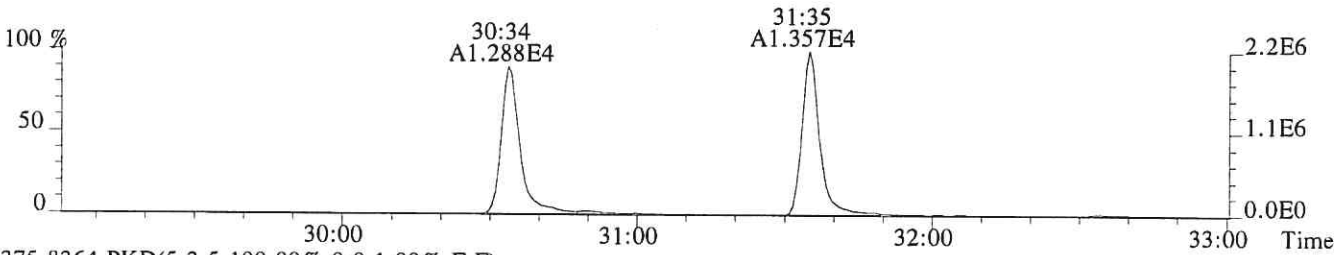
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



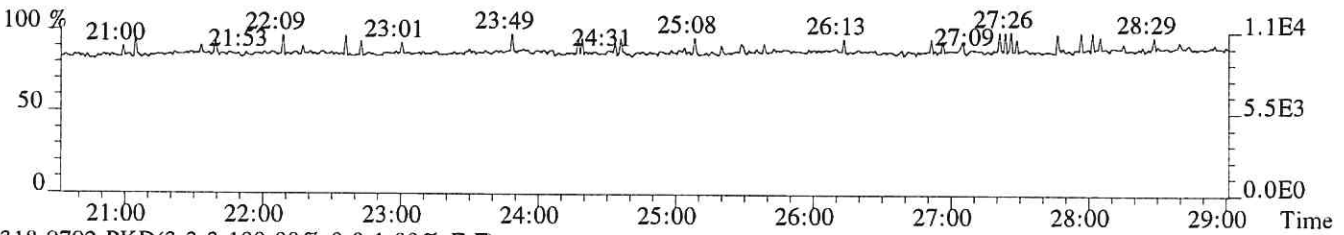
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



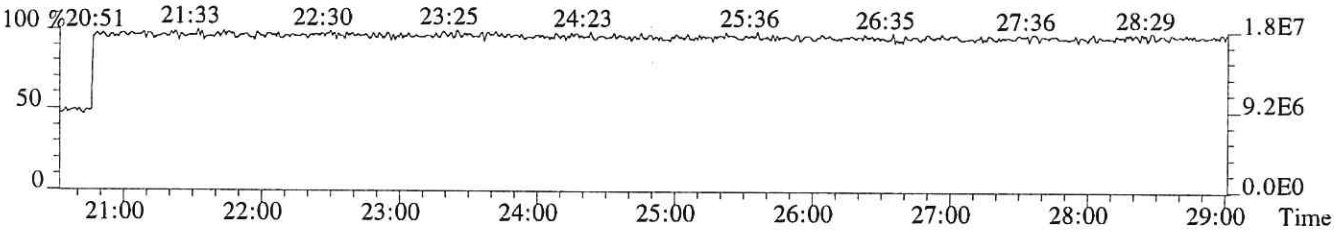
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



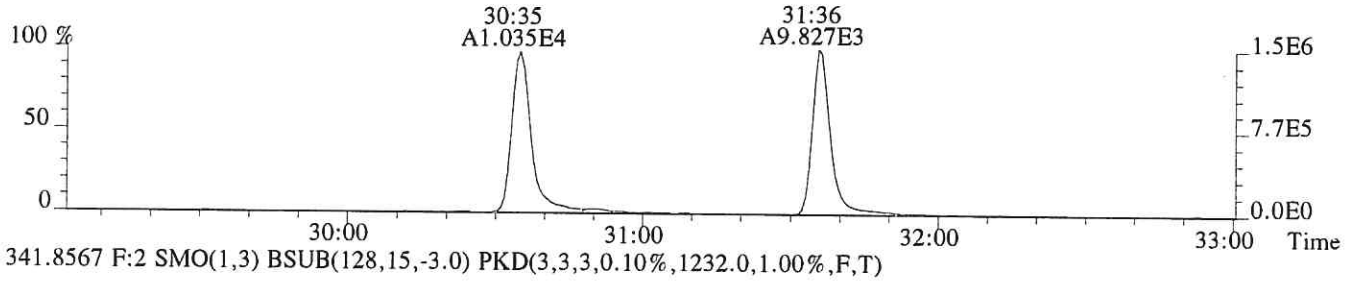
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



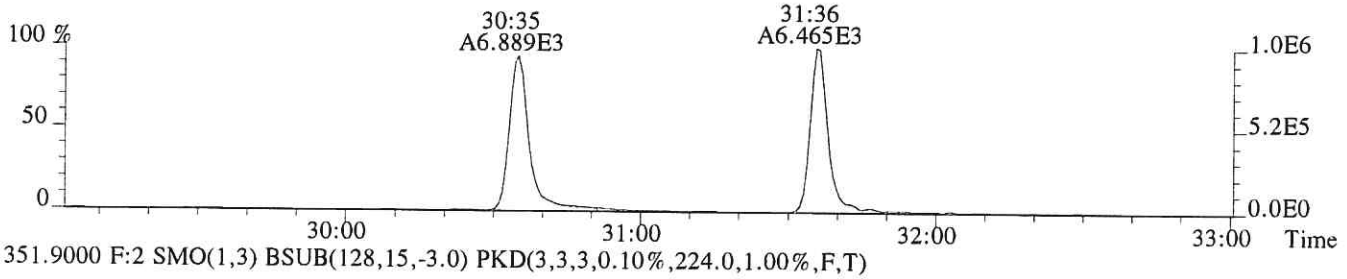
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



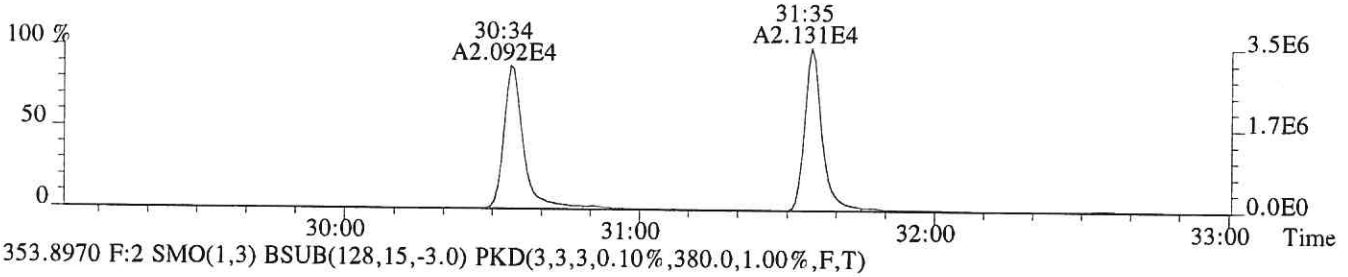
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



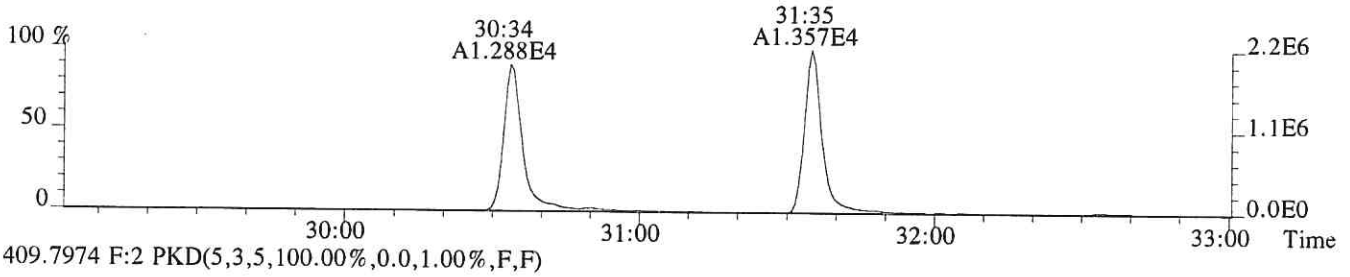
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



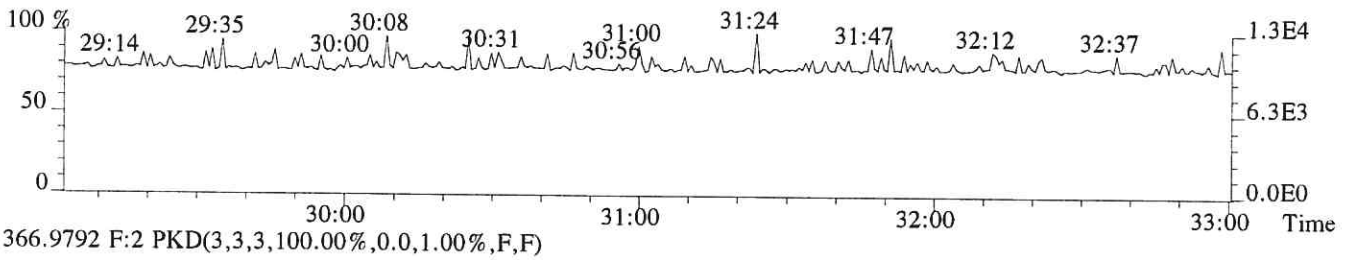
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



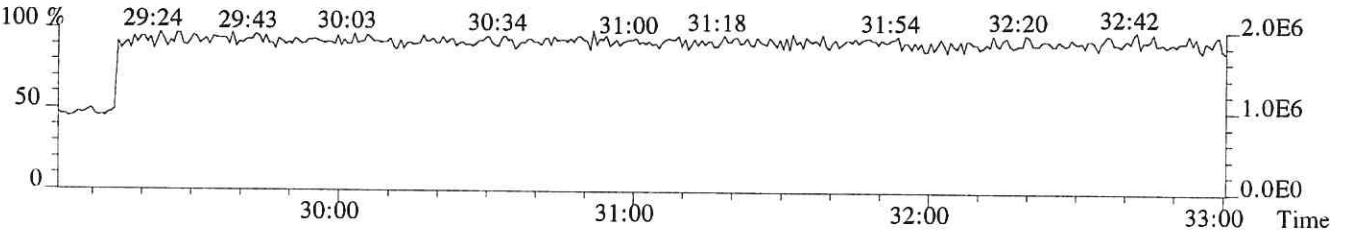
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



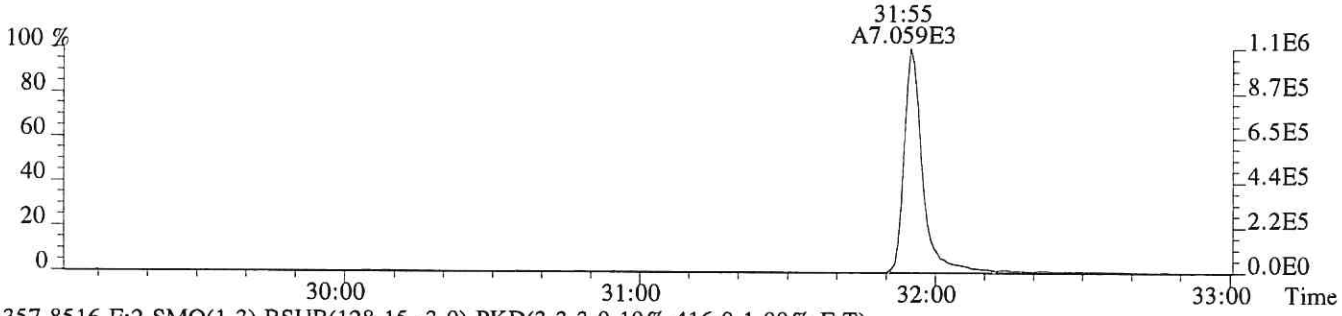
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



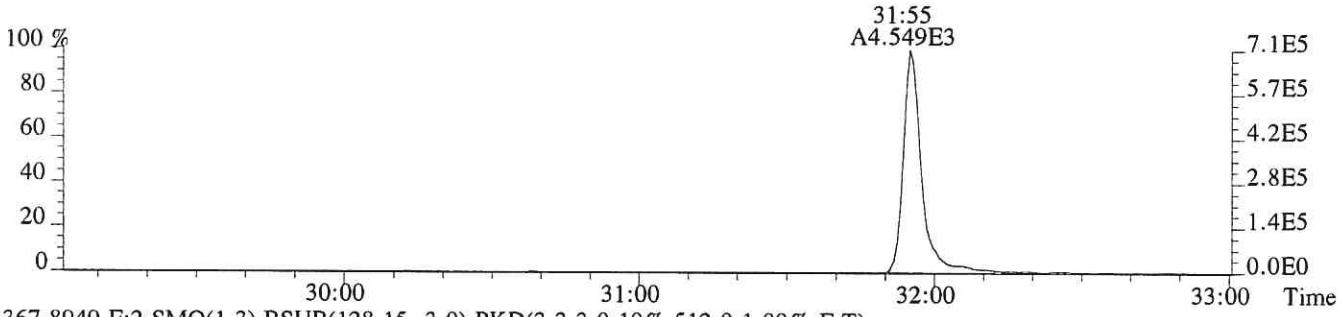
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



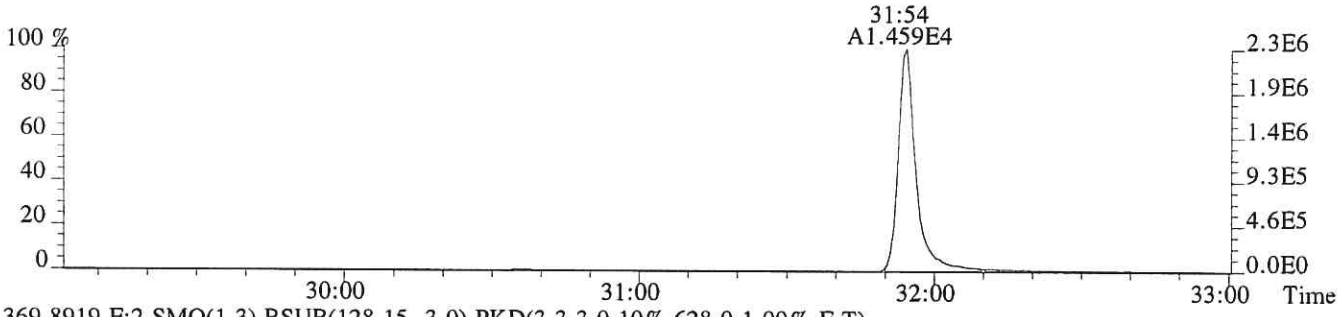
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



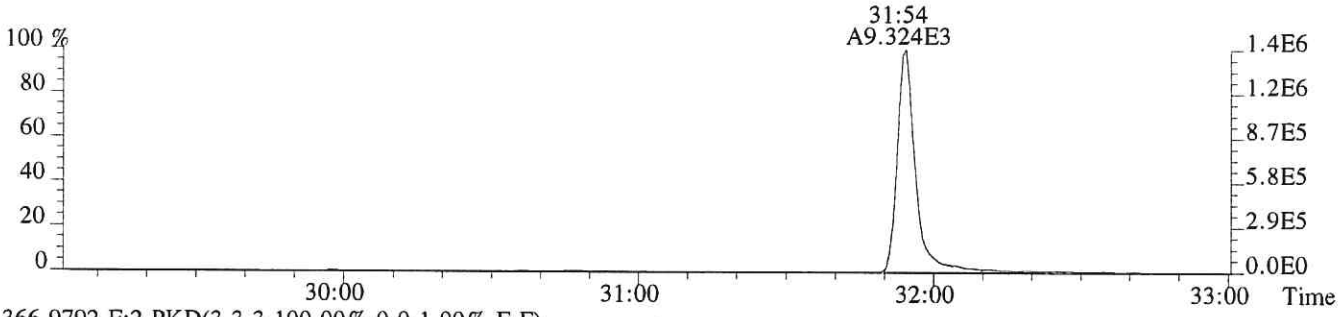
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



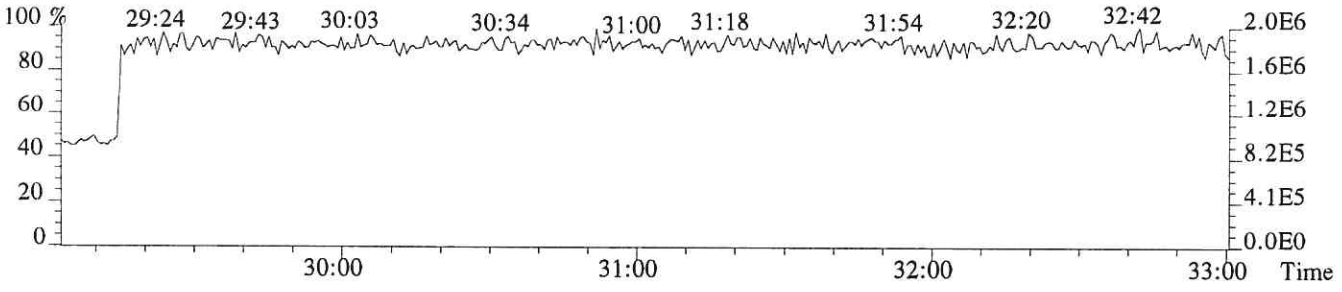
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



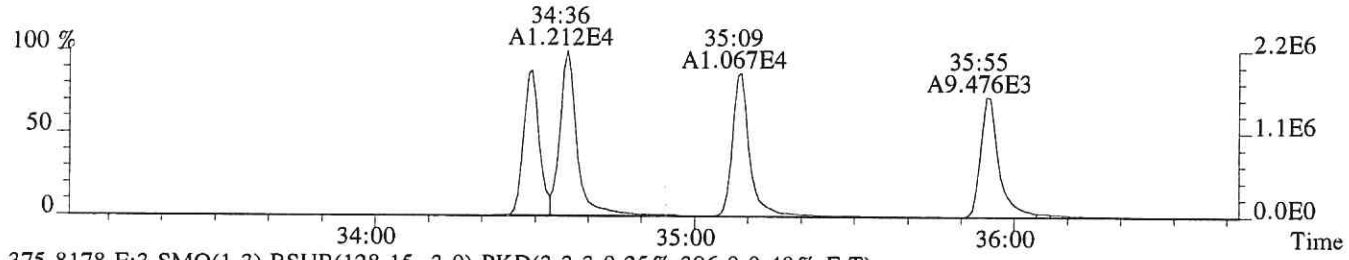
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



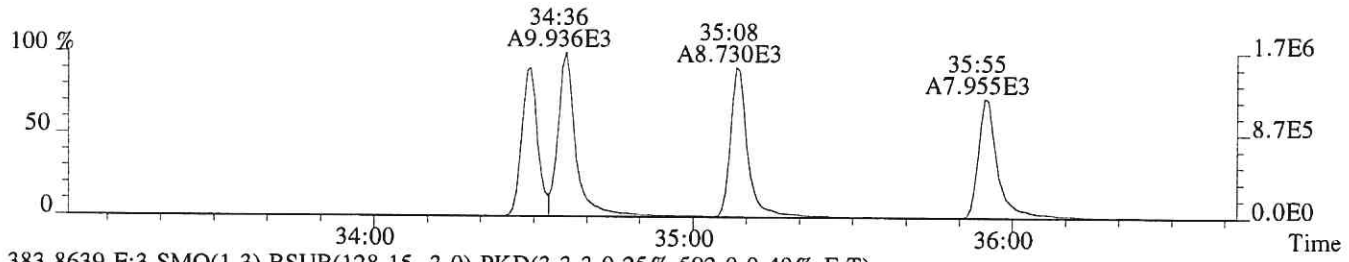
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



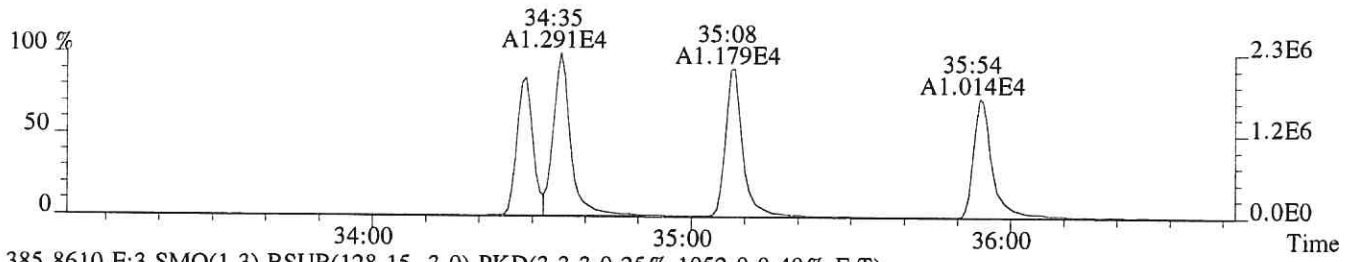
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



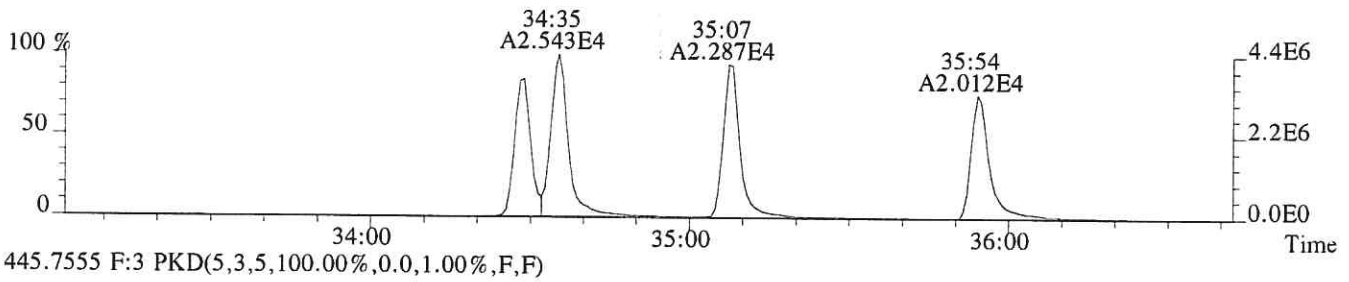
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



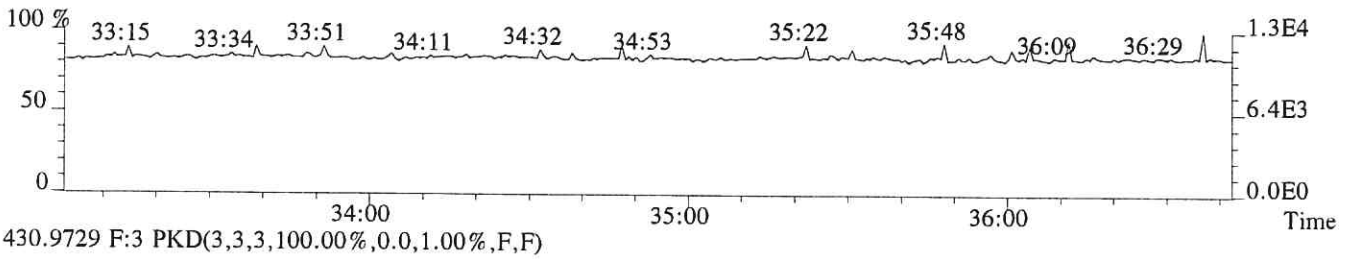
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



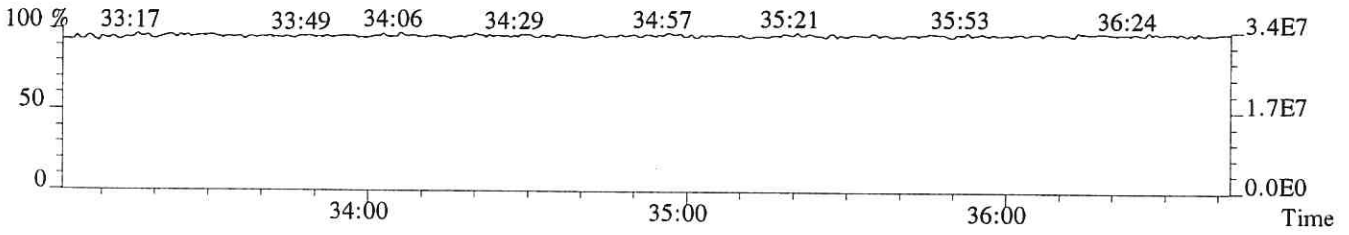
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



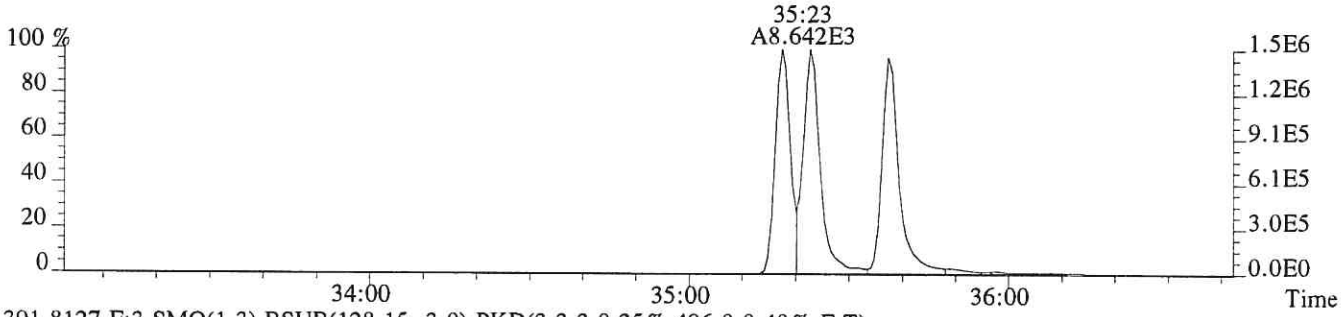
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



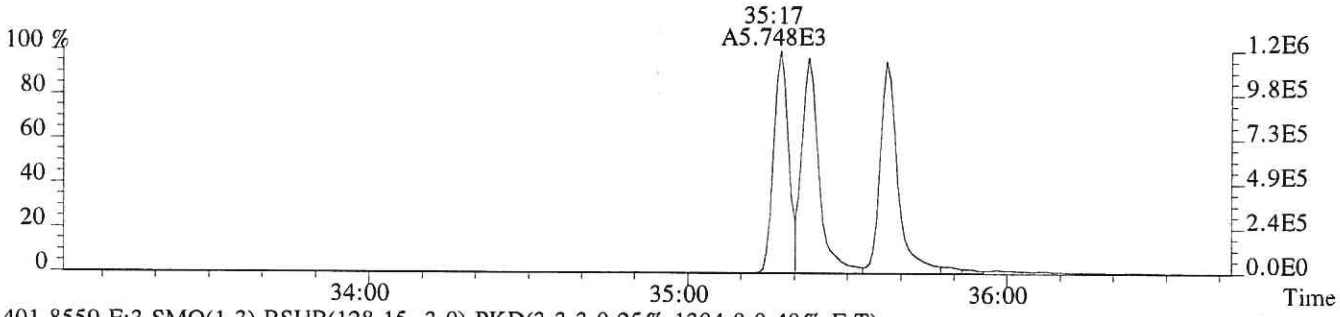
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



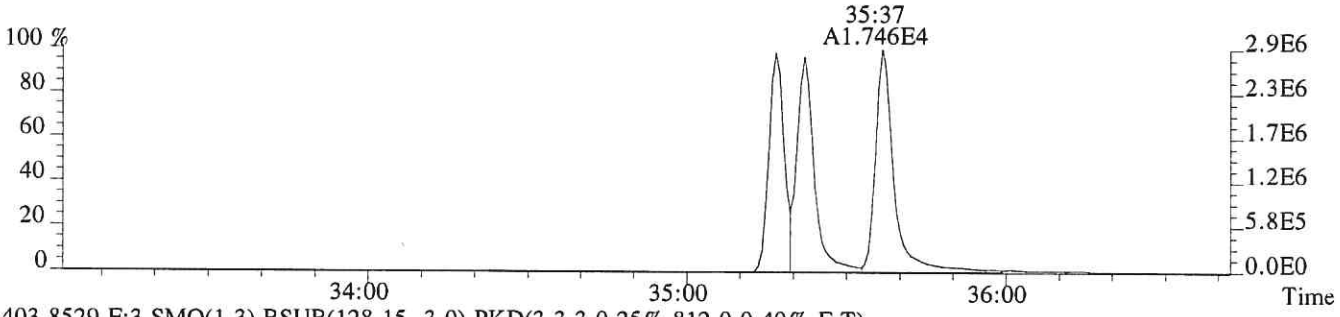
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



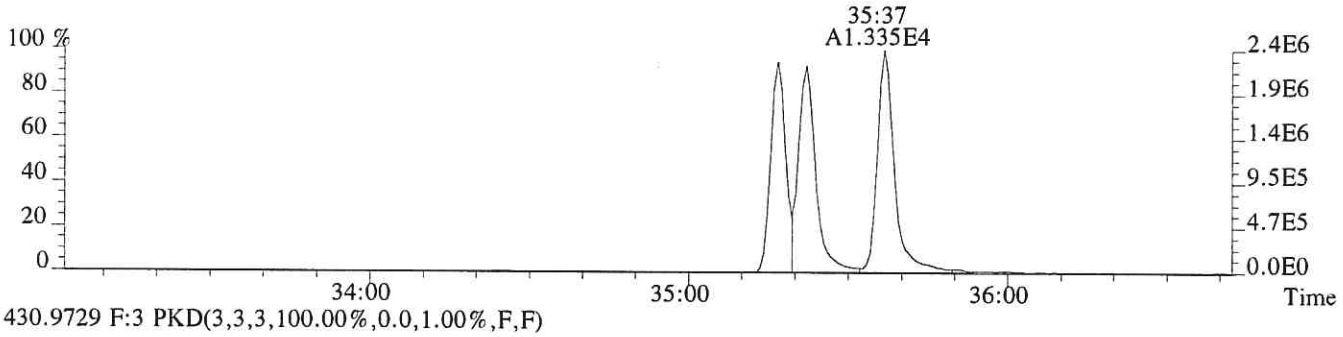
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



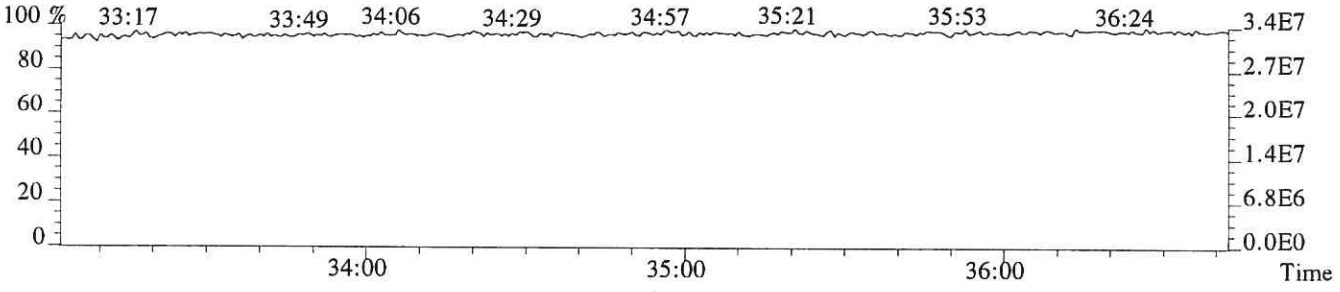
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1304.0,0.40%,F,T)



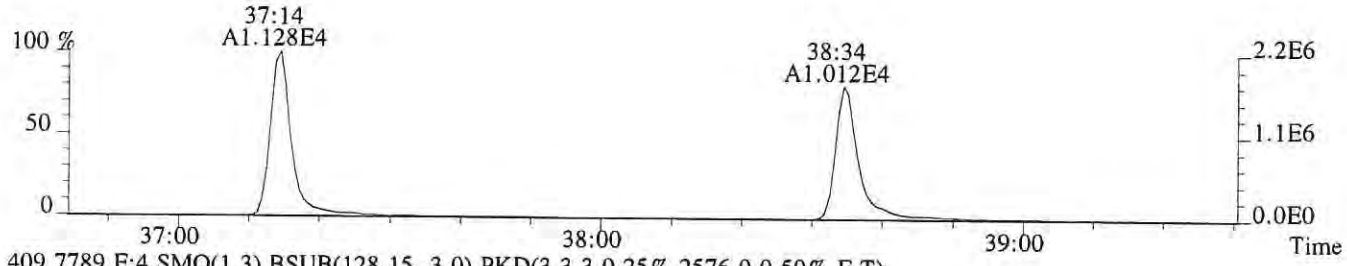
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



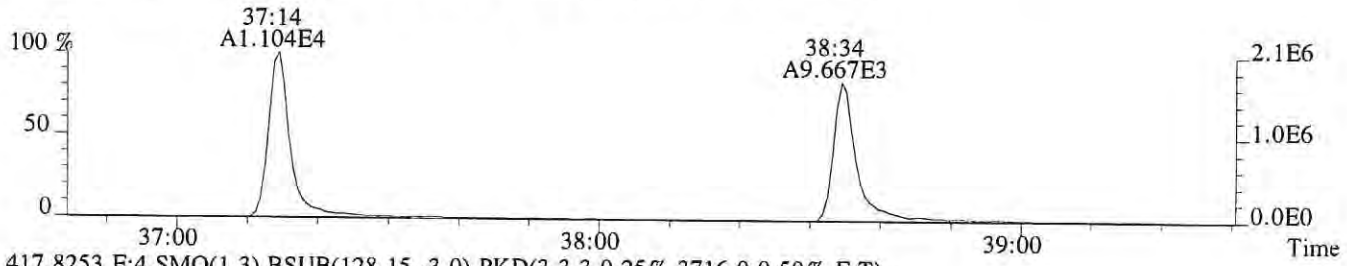
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



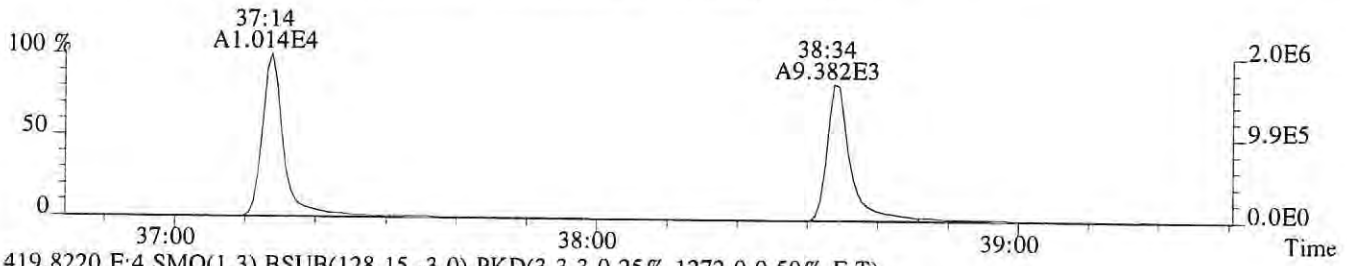
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.50%,F,T)



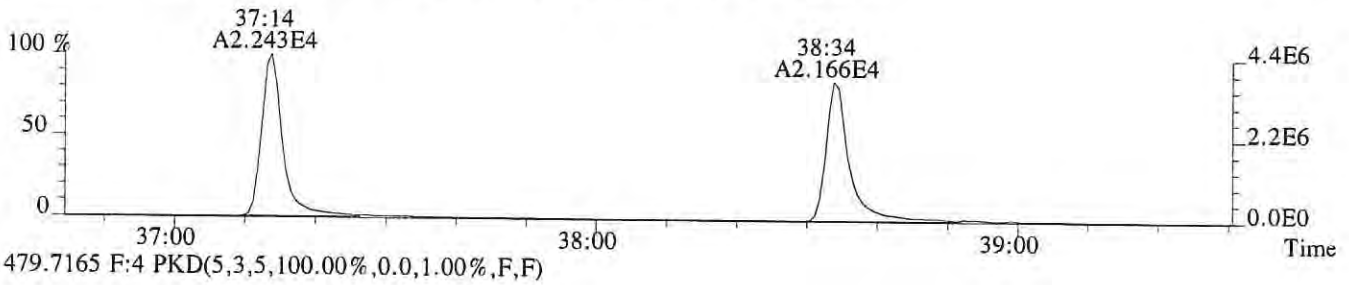
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



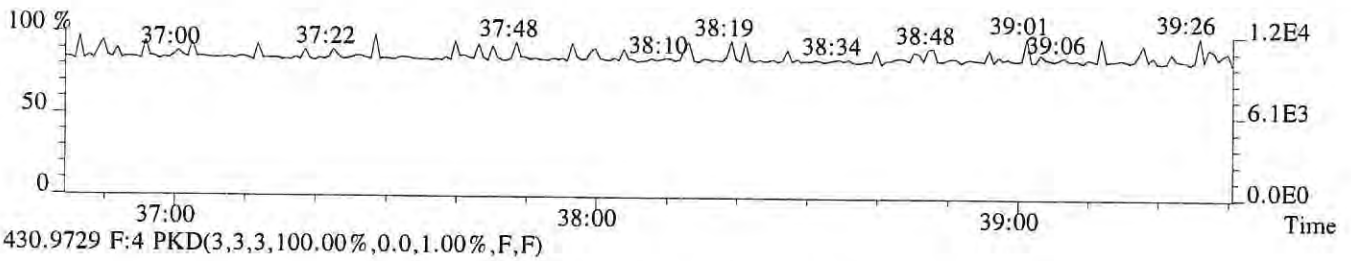
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3716.0,0.50%,F,T)



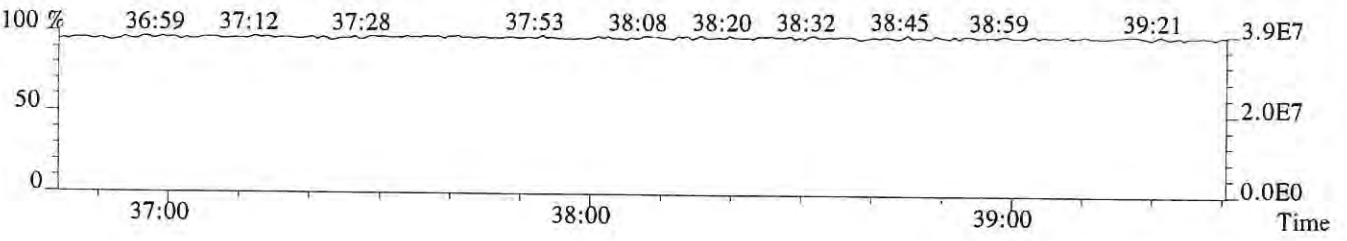
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.50%,F,T)



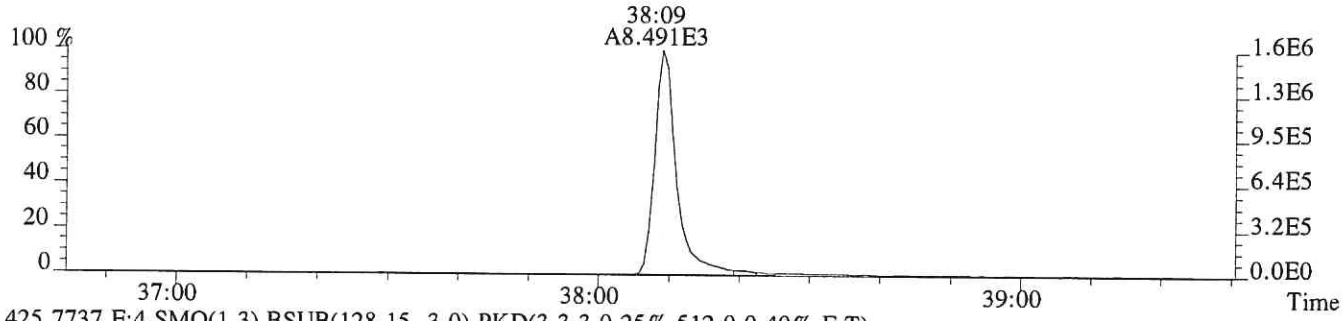
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



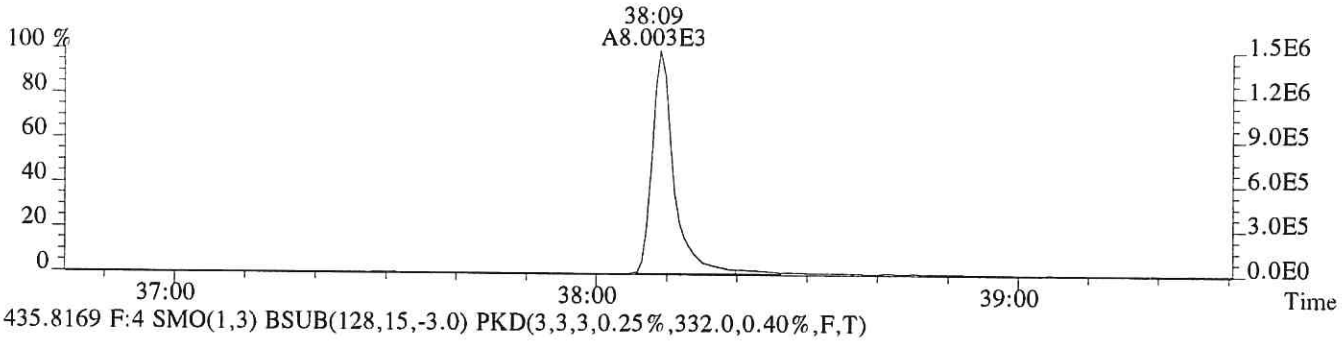
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



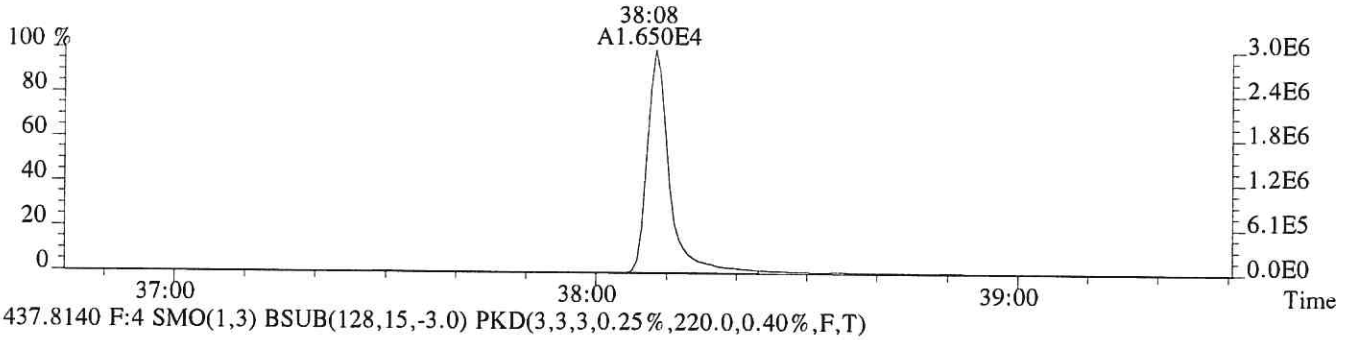
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



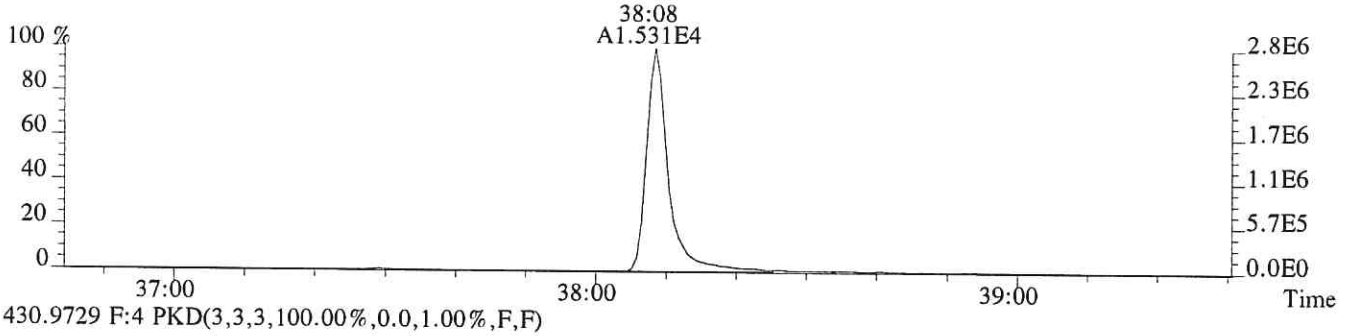
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



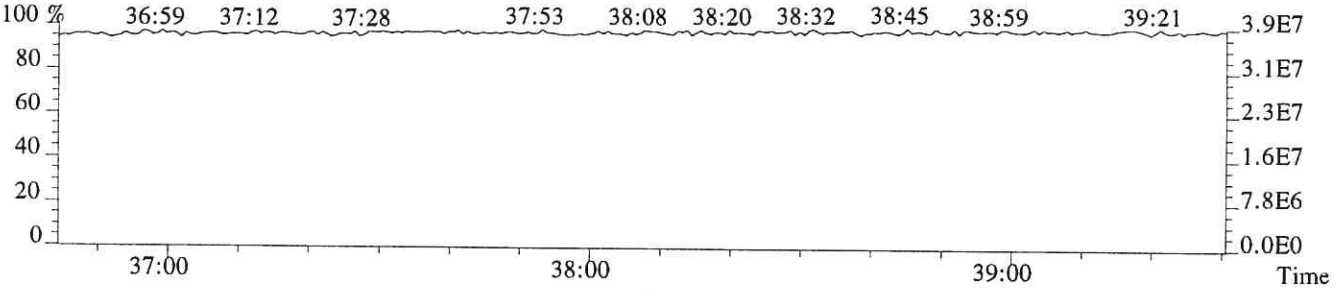
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



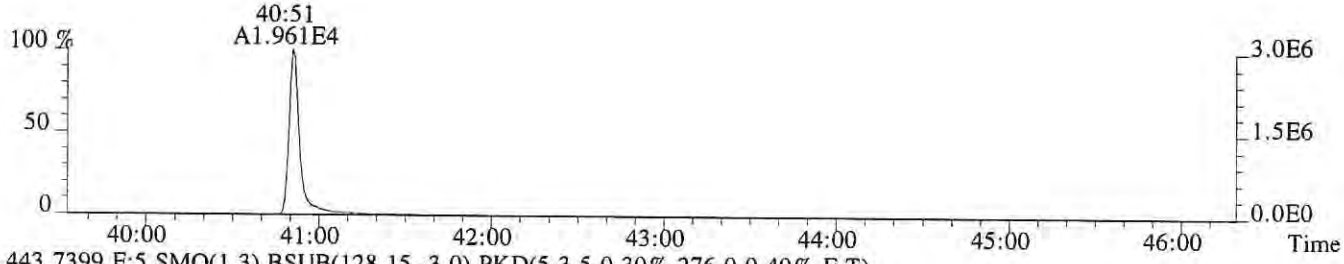
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



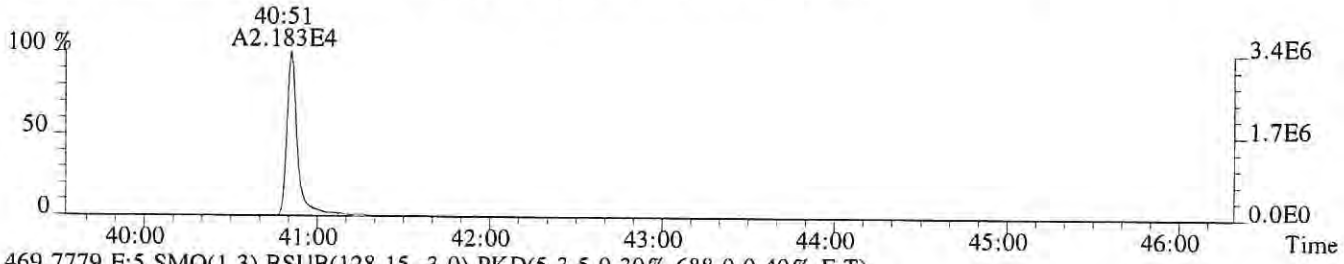
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



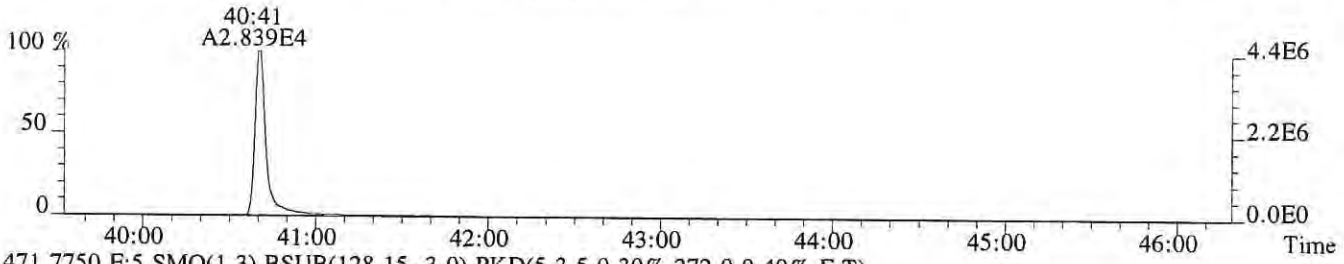
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



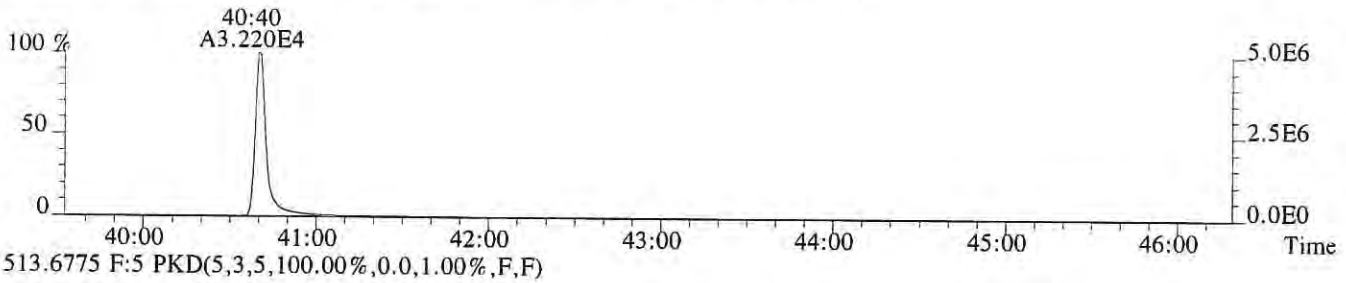
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



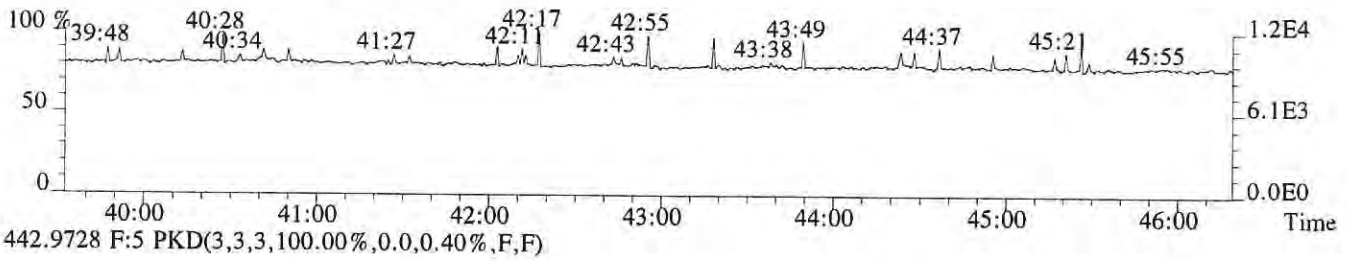
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



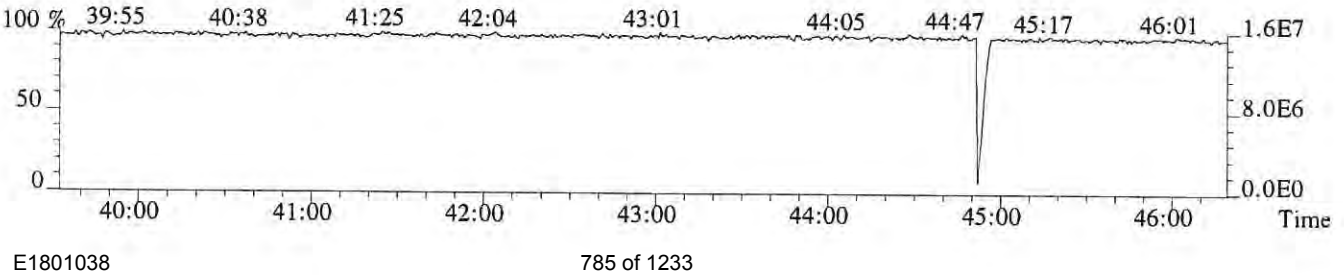
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



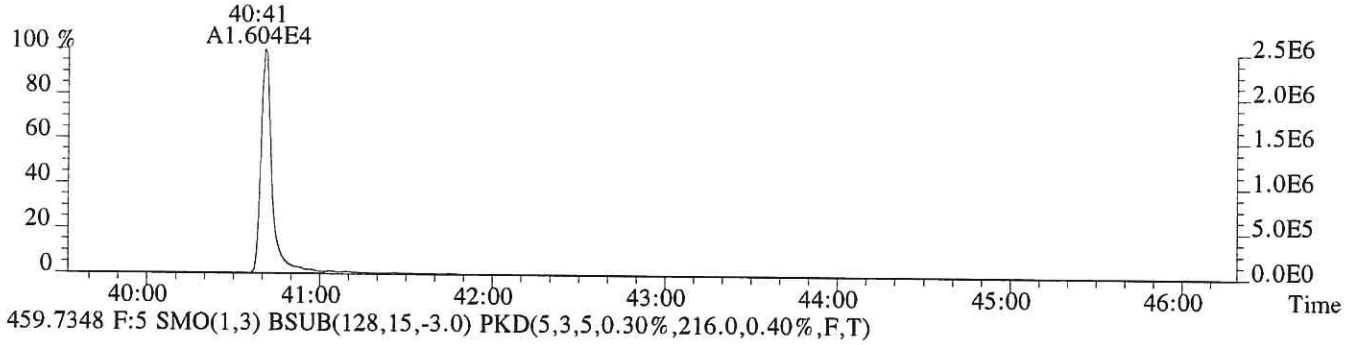
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



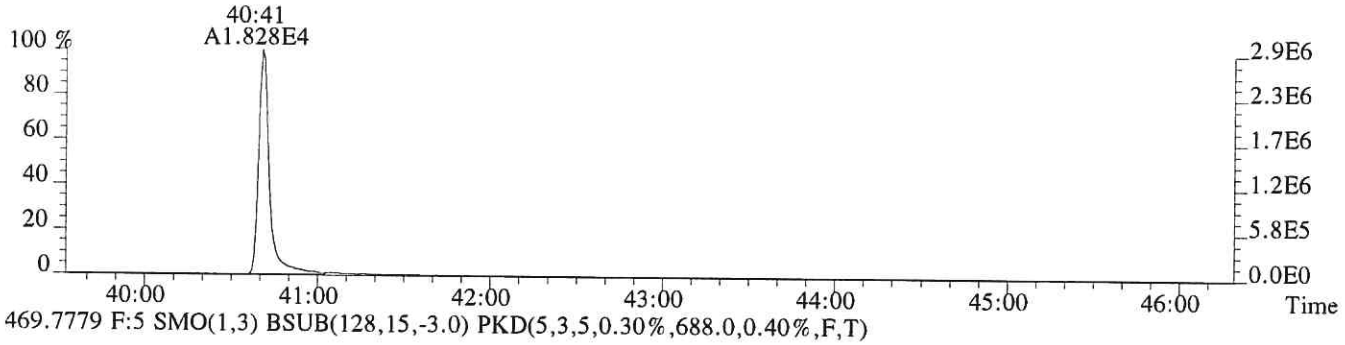
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



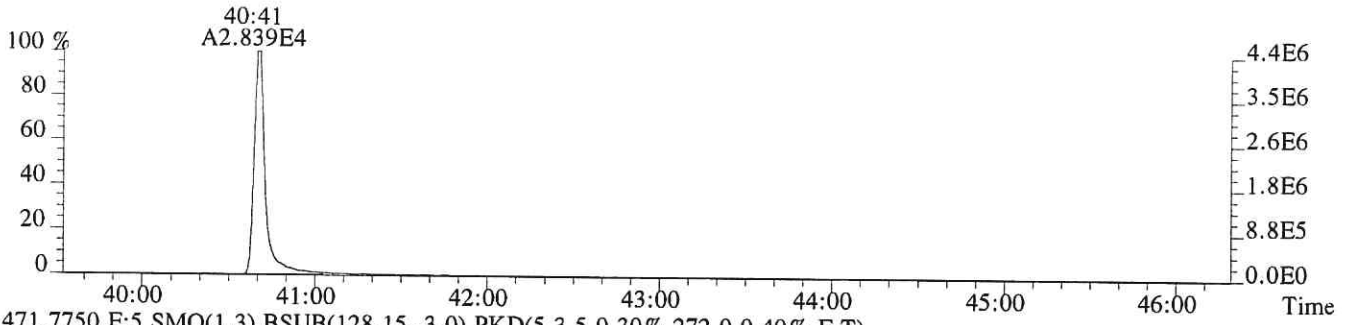
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



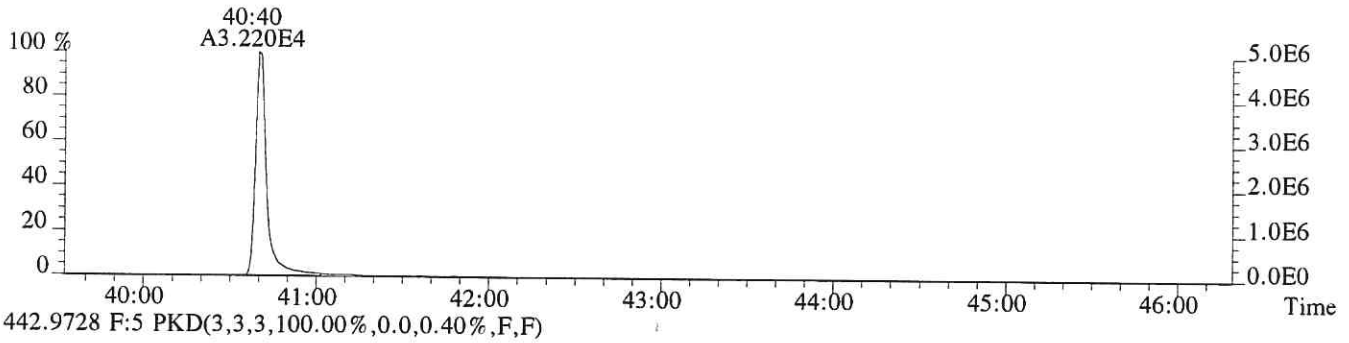
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



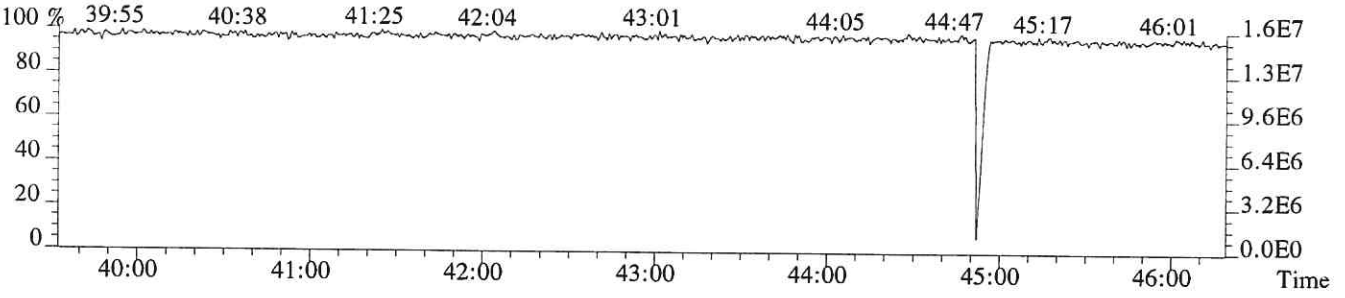
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518880

Date: 11/17/18 - 11/18/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P518880	17-NOV-18	13:32:05
192977	WINDOW DEFINE	P518881	17-NOV-18	14:19:52
METHOD BLANK	EQ1800461-01	P518882	17-NOV-18	15:08:30
METHOD BLANK	EQ1800466-01	P518883	17-NOV-18	15:57:08
L18-PC15	E1801019-004	P518884	17-NOV-18	16:45:46
L12-PC10	E1801019-005	P518885	17-NOV-18	17:34:24
L11-PC9	E1801019-006	P518886	17-NOV-18	18:23:01
L10-PC8	E1801019-007	P518887	17-NOV-18	19:11:40
L9-PC7	E1801019-008	P518888	17-NOV-18	20:00:18
L13-PC11	E1801019-009	P518889	17-NOV-18	20:48:56
SL0520	E1801038-002	P518890	17-NOV-18	21:37:35
SL0521	E1801038-003	P518891	17-NOV-18	22:26:13
LCS	EQ1800466-02	P518892	17-NOV-18	23:14:52
DLCS	EQ1800466-03	P518893	18-NOV-18	00:03:33

E1801038

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181116C.SPL
Last Modified: Monday, November 19, 2018 07:45:16 Central Standard Time
Printed: Monday, November 19, 2018 07:45:18 Central Standard Time

Page Position (1, 1)

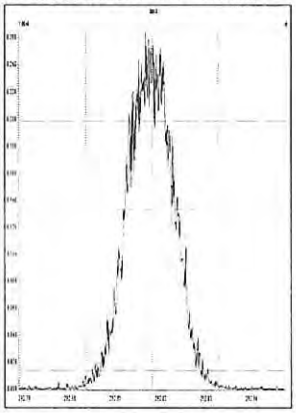
OPUS4: P518880res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
									LG for LKL	
1	11/17/18	13:32	P518880	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMS check 13:32
2		14:19	P518881	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		15:08	P518882	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		15:57	P518883	MB	EQ1800466-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		16:45	P518884	E1801019-004	E1801019-004	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		17:34	P518885	E1801019-005	E1801019-005	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		18:23	P518886	E1801019-006	E1801019-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		19:11	P518887	E1801019-007	E1801019-007	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		20:00	P518888	E1801019-008	E1801019-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:48	P518889	E1801019-009	E1801019-009	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		21:37	P518890	E1801038-002	E1801038-002	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		22:26	P518891	E1801038-003	E1801038-003	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		23:14	P518892	LCS	EQ1800466-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
14	11/18/18	00:03	P518893	DLCS	EQ1800466-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		01:00	P518894	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMS check 01:00
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:59	---	---

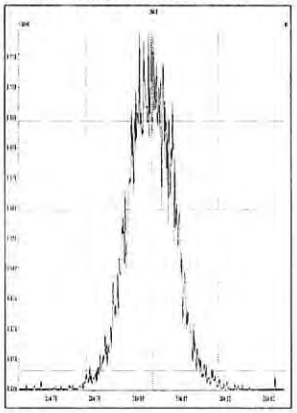
11/20/18

Printed: Saturday, November 17, 2018 13:32:03 Central Standard Time

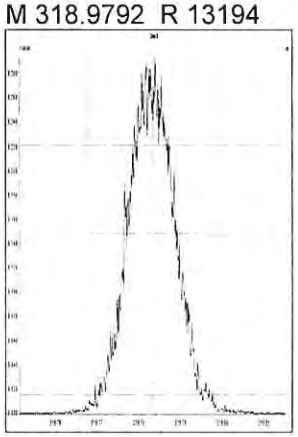
M 292.9824 R 13090



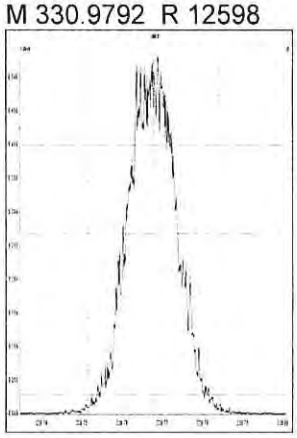
M 304.9824 R 12724



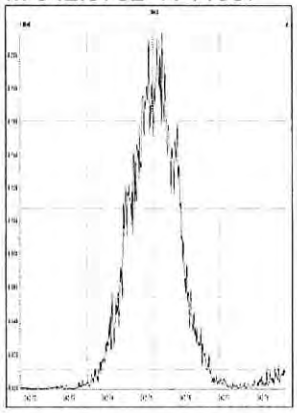
M 318.9792 R 13194



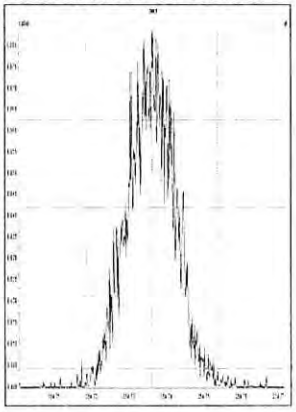
M 330.9792 R 12598



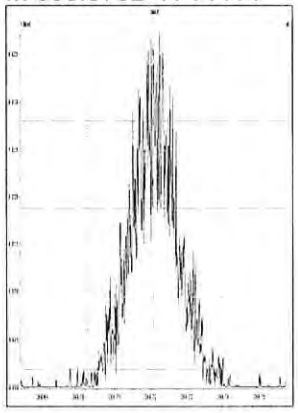
M 342.9792 R 11907



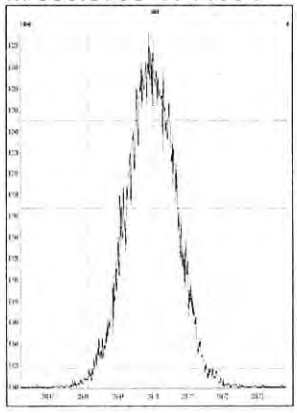
M 354.9792 R 13160



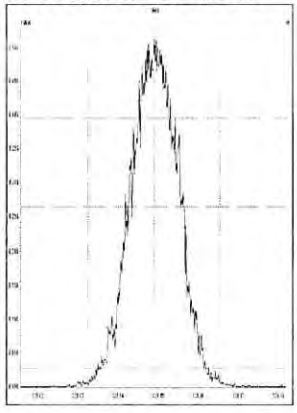
M 366.9792 R 14414



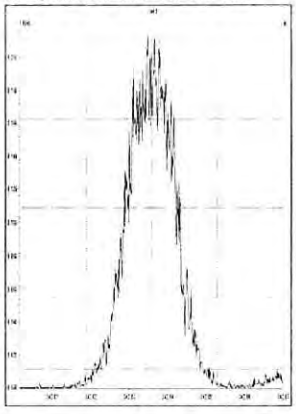
M 380.9760 R 11904



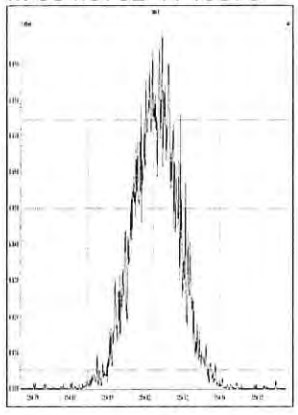
M 330.9792 R 12756



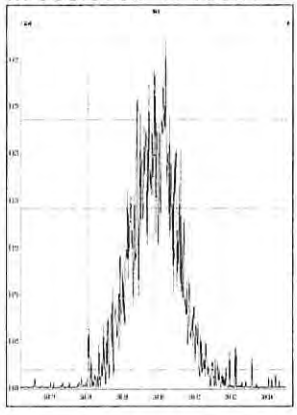
M 342.9792 R 12122



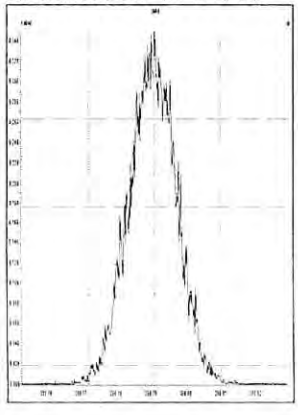
M 354.9792 R 13873



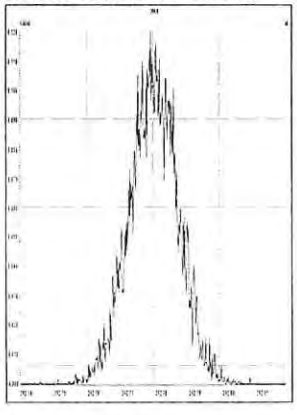
M 366.9792 R 15021



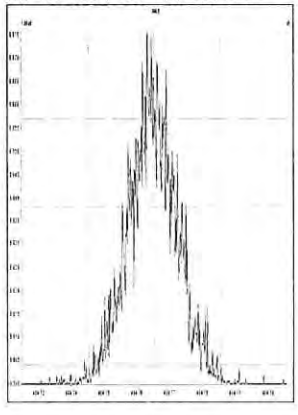
M 380.9760 R 12410



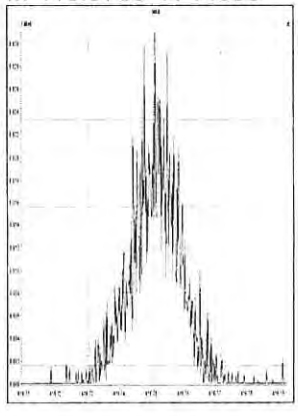
M 392.9760 R 12442



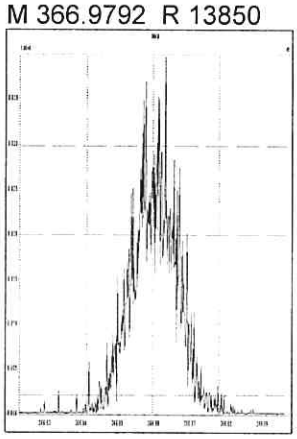
M 404.9760 R 12954



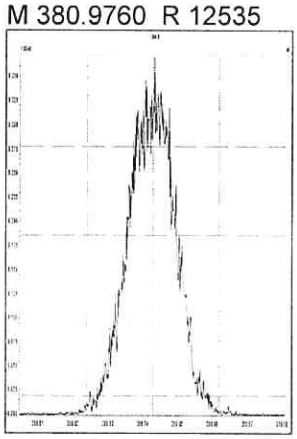
M 416.9760 R 14398



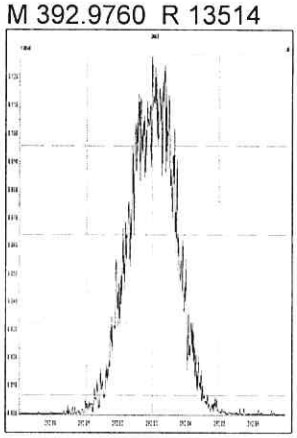
M 366.9792 R 13850



M 380.9760 R 12535



M 392.9760 R 13514



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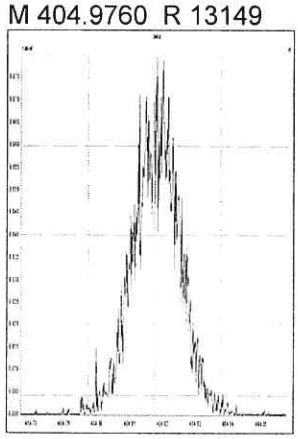
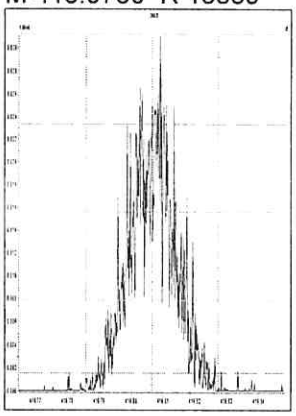
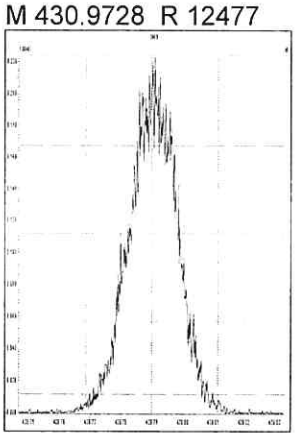


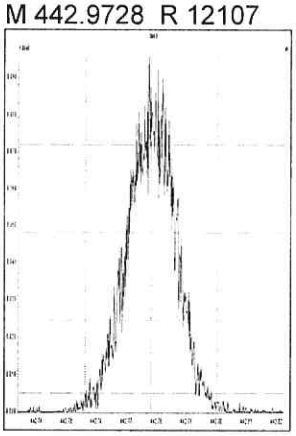
M 416.9760 R 13839



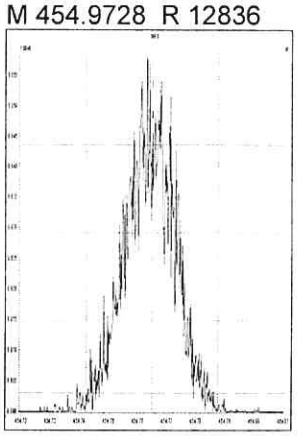
M 430.9728 R 12477



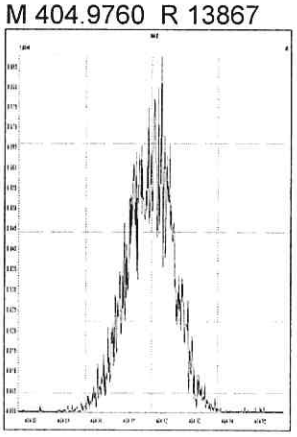
M 442.9728 R 12107



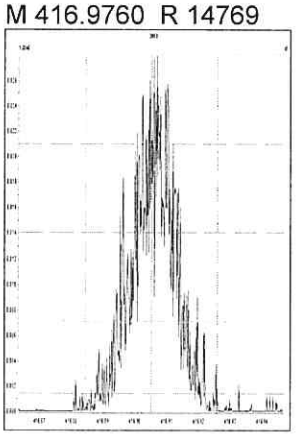
M 454.9728 R 12836



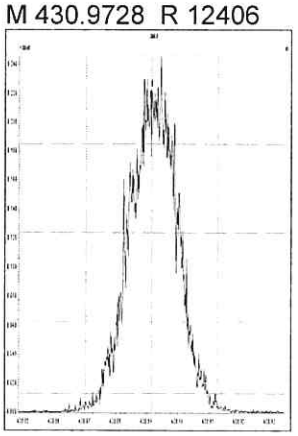
M 404.9760 R 13867



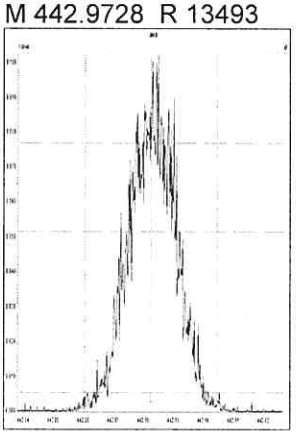
M 416.9760 R 14769



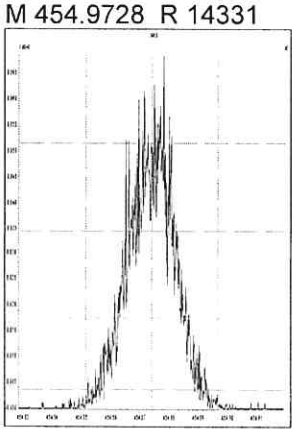
M 430.9728 R 12406



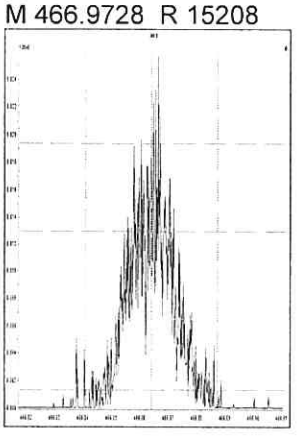
M 442.9728 R 13493



M 454.9728 R 14331



M 466.9728 R 15208



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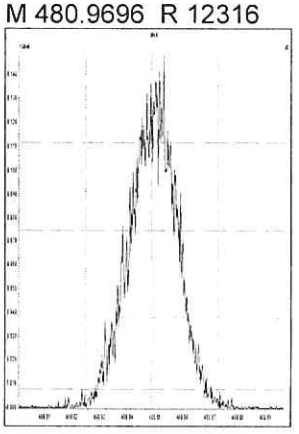
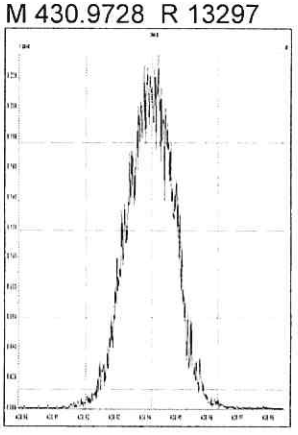
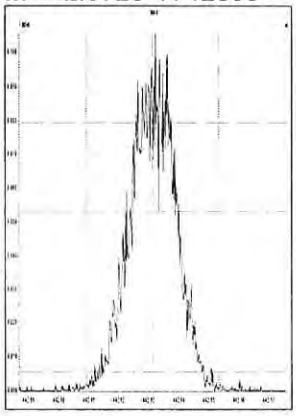


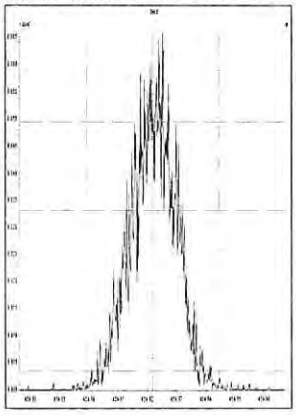
M 430.9728 R 13297



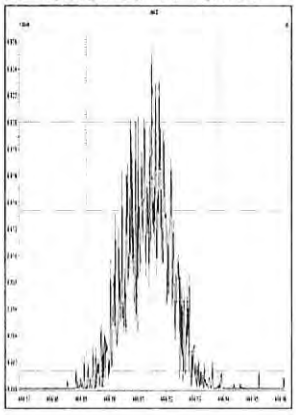
M 442.9728 R 12859



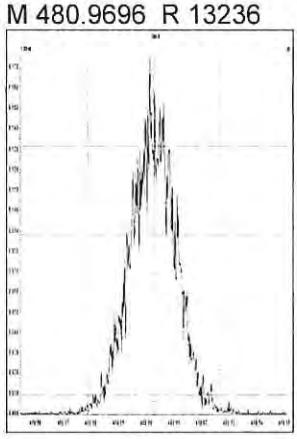
M 454.9728 R 14124



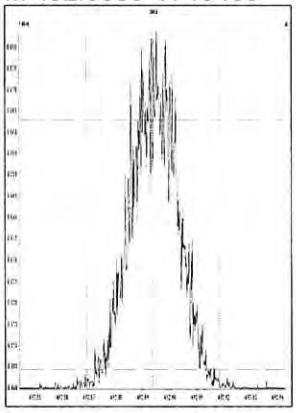
M 466.9728 R 16114



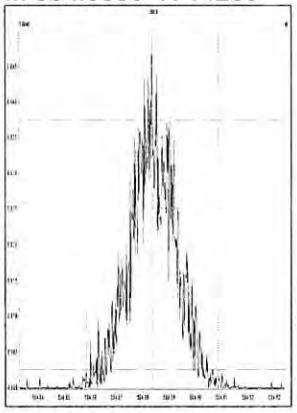
M 480.9696 R 13236



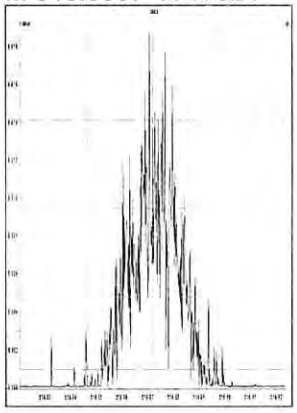
M 492.9696 R 13409



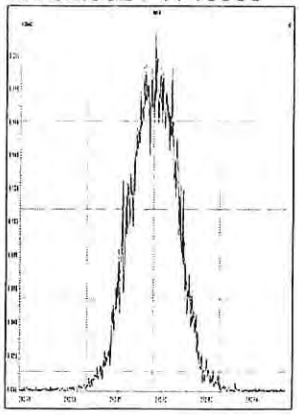
M 504.9696 R 14208



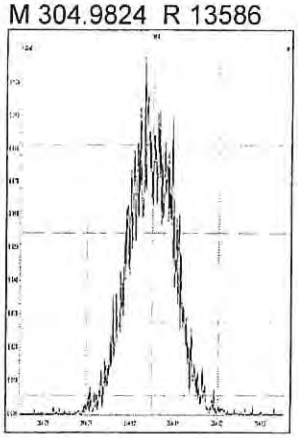
M 516.9697 R 17921



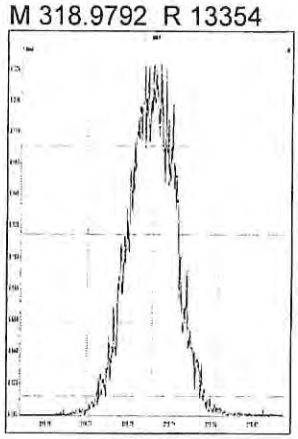
M 292.9824 R 13368



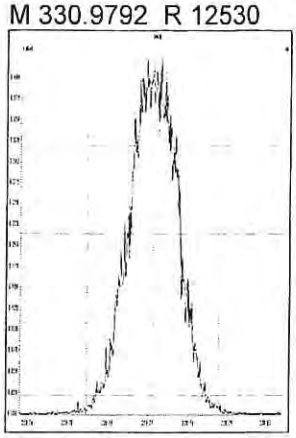
M 304.9824 R 13586



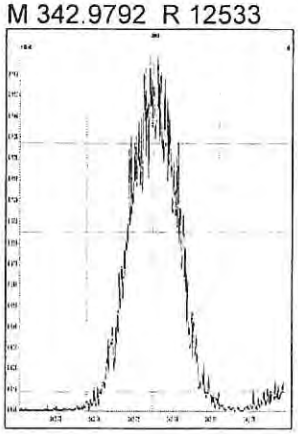
M 318.9792 R 13354



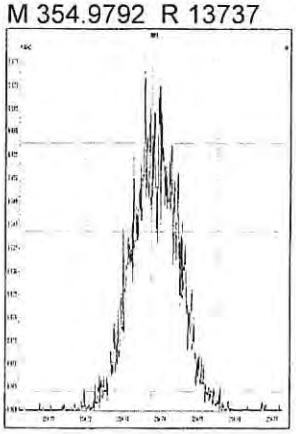
M 330.9792 R 12530



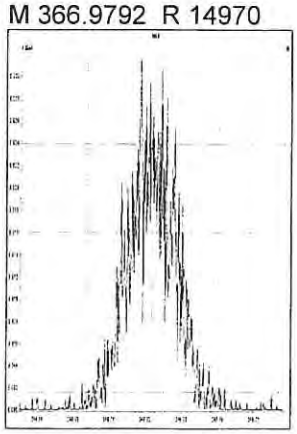
M 342.9792 R 12533



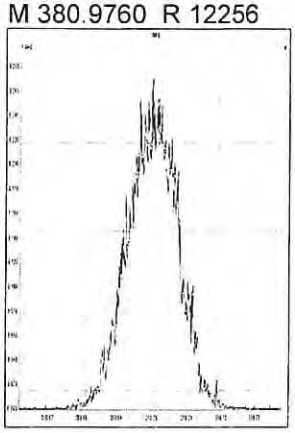
M 354.9792 R 13737



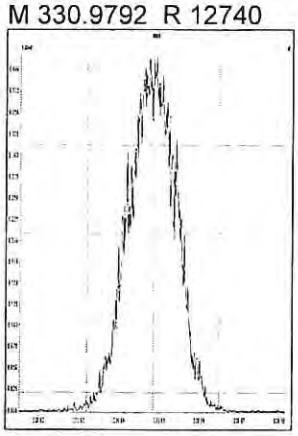
M 366.9792 R 14970



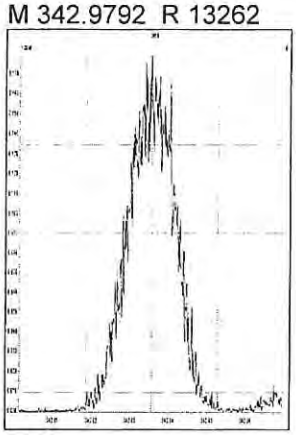
M 380.9760 R 12256



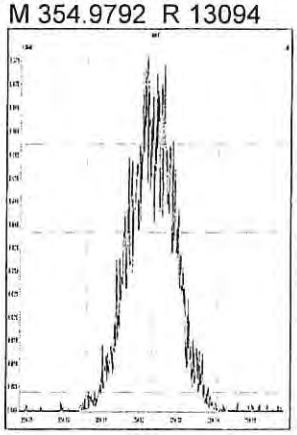
M 330.9792 R 12740



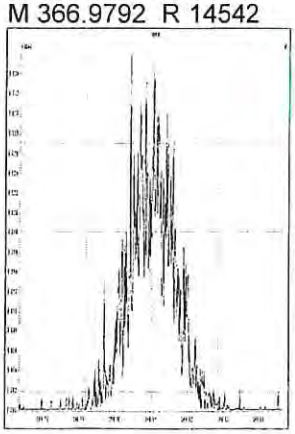
M 342.9792 R 13262



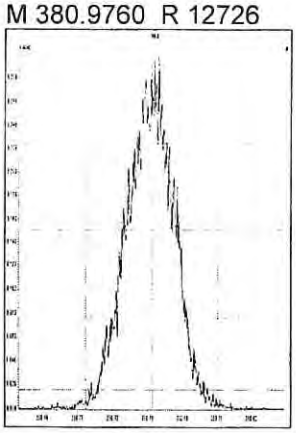
M 354.9792 R 13094



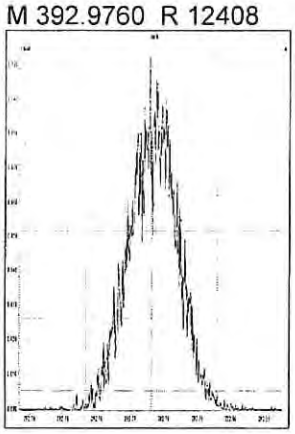
M 366.9792 R 14542



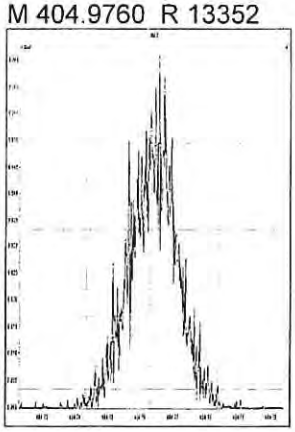
M 380.9760 R 12726



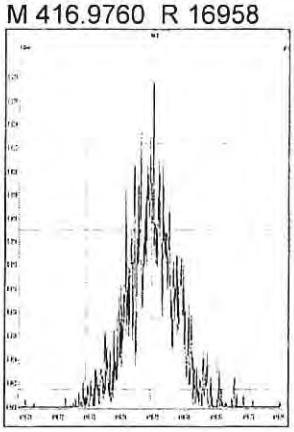
M 392.9760 R 12408



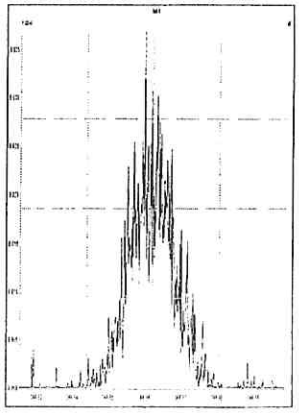
M 404.9760 R 13352



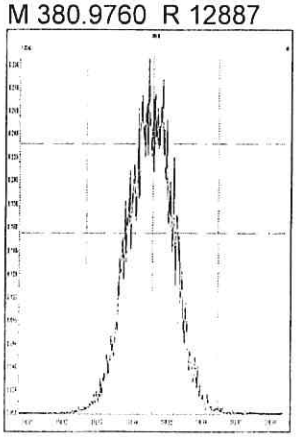
M 416.9760 R 16958



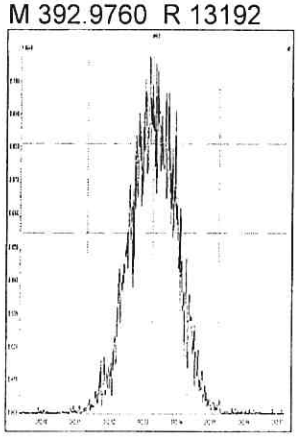
M 366.9792 R 14247



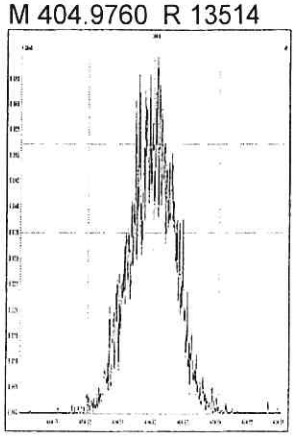
M 380.9760 R 12887



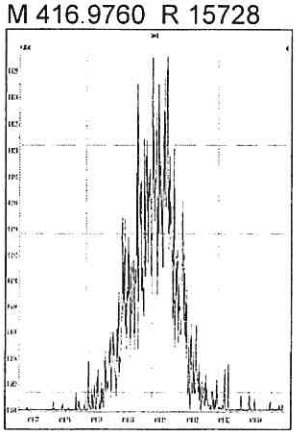
M 392.9760 R 13192



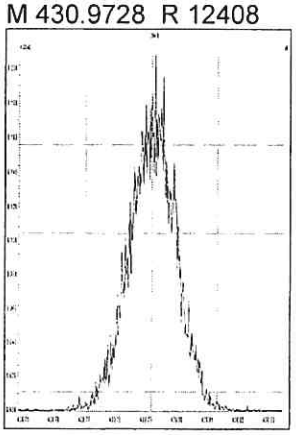
M 404.9760 R 13514



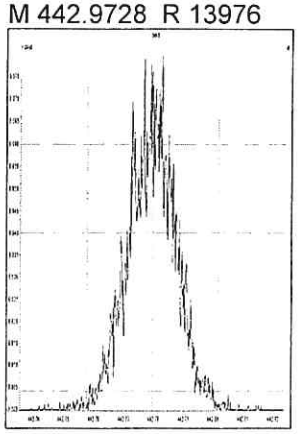
M 416.9760 R 15728



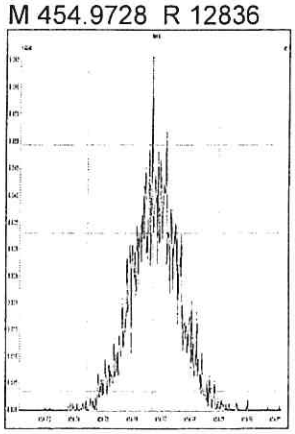
M 430.9728 R 12408



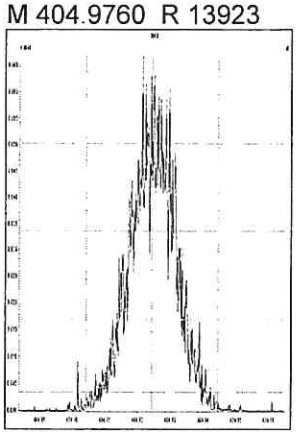
M 442.9728 R 13976



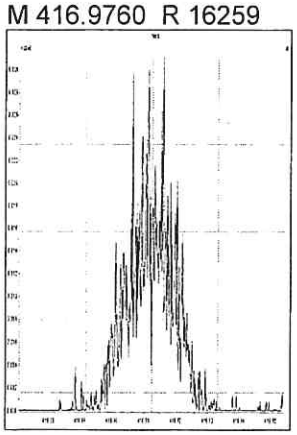
M 454.9728 R 12836



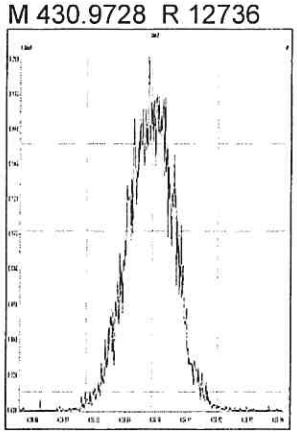
M 404.9760 R 13923



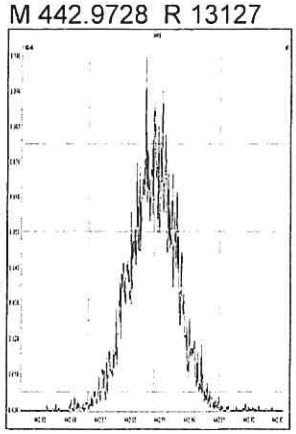
M 416.9760 R 16259



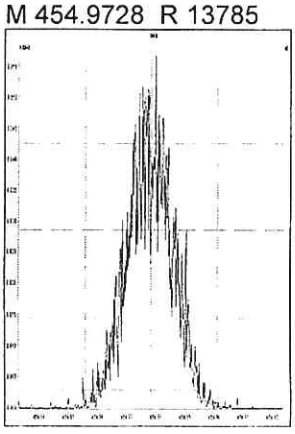
M 430.9728 R 12736



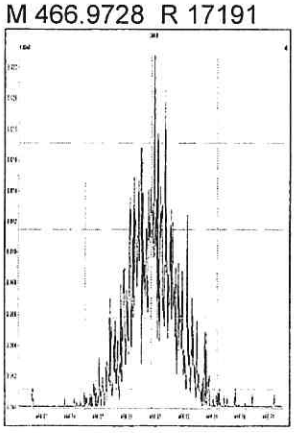
M 442.9728 R 13127



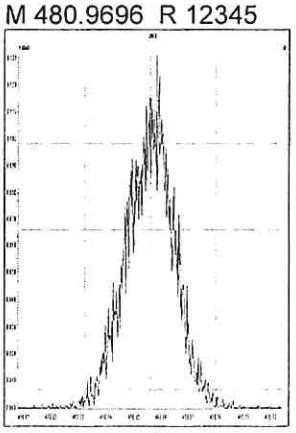
M 454.9728 R 13785



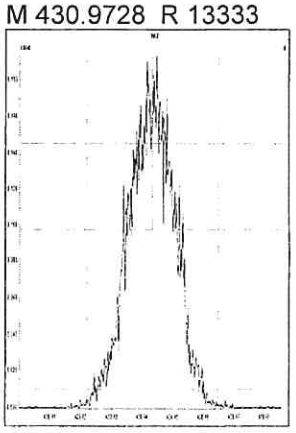
M 466.9728 R 17191



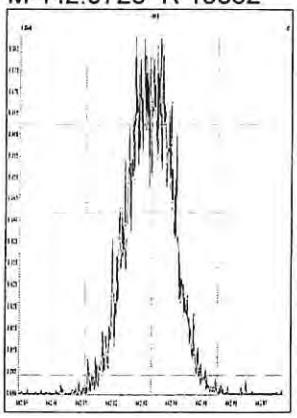
M 480.9696 R 12345



M 430.9728 R 13333



M 442.9728 R 13862



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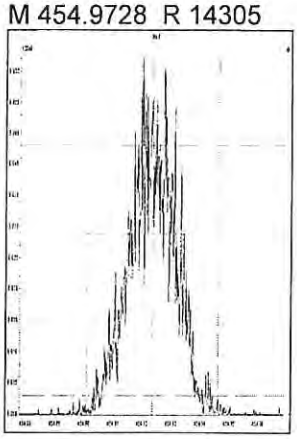
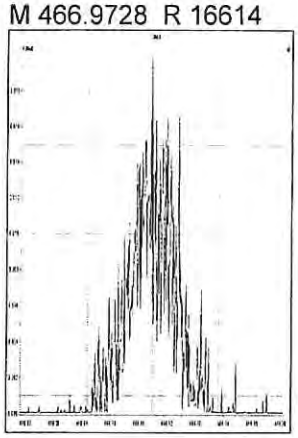
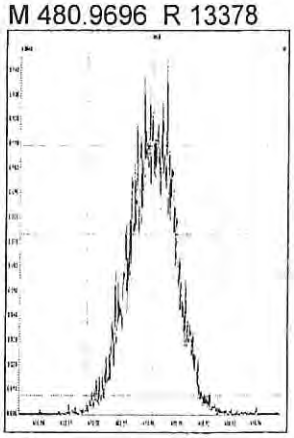


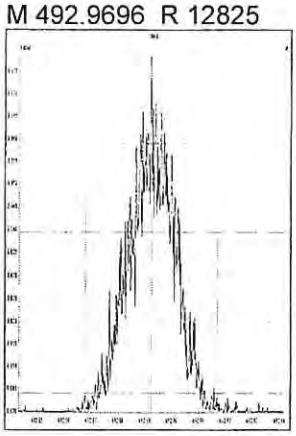
M 466.9728 R 16614



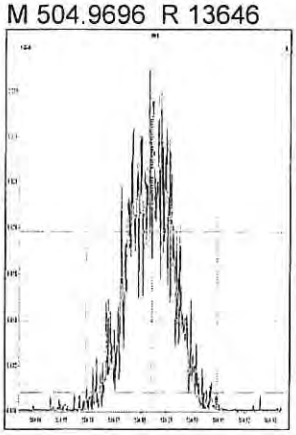
M 480.9696 R 13378



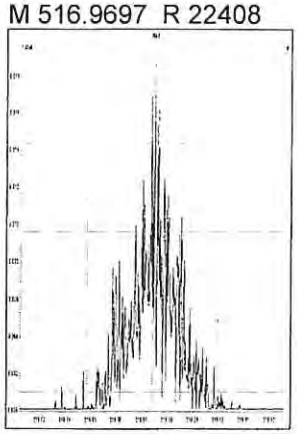
M 492.9696 R 12825



M 504.9696 R 13646



M 516.9697 R 22408



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

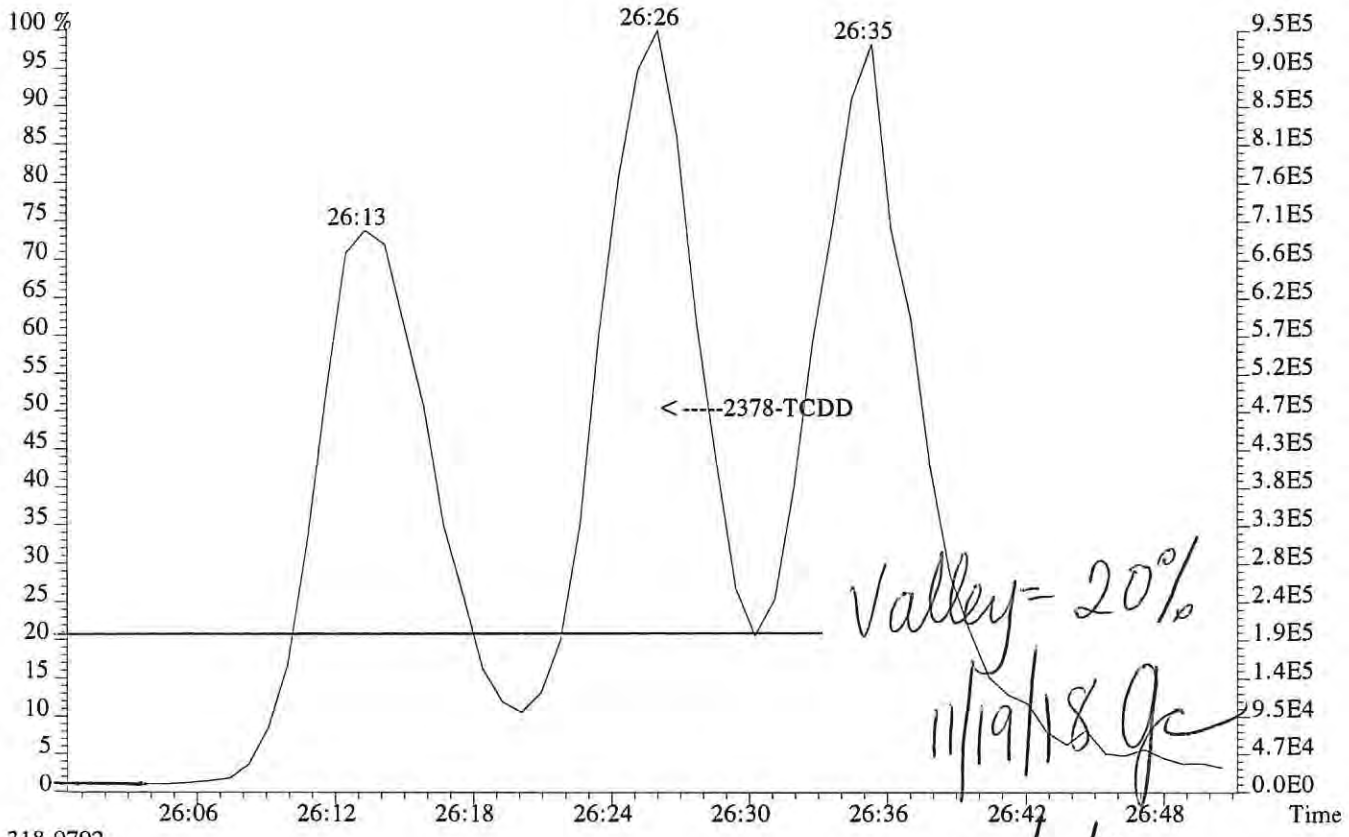
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518881
Date Analyzed: 17-NOV-2018
Time Analyzed: 14:19:52

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:08	27:50
TCDD	22:43	27:40
PeCDF	27:48	32:35
PeCDD	29:36	32:20
HxCDF	33:19	35:58
HxCDD	33:53	35:33
HpCDF	37:15	38:36
HpCDD	37:31	38:10

% Valley 2378-TCDD: 20 %

File:P518881 #1-602 Acq:17-NOV-2018 14:19:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LKL 11/20/18



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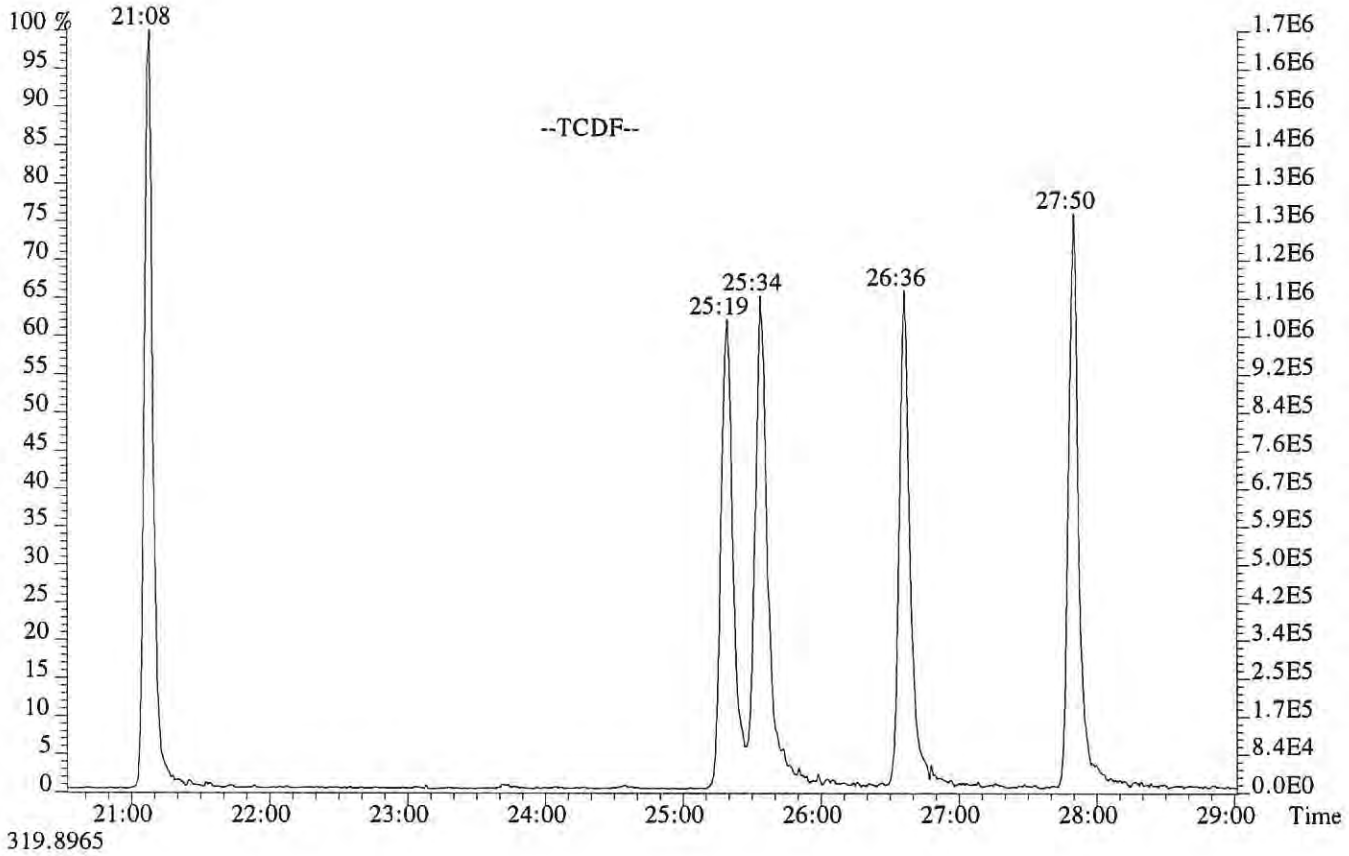
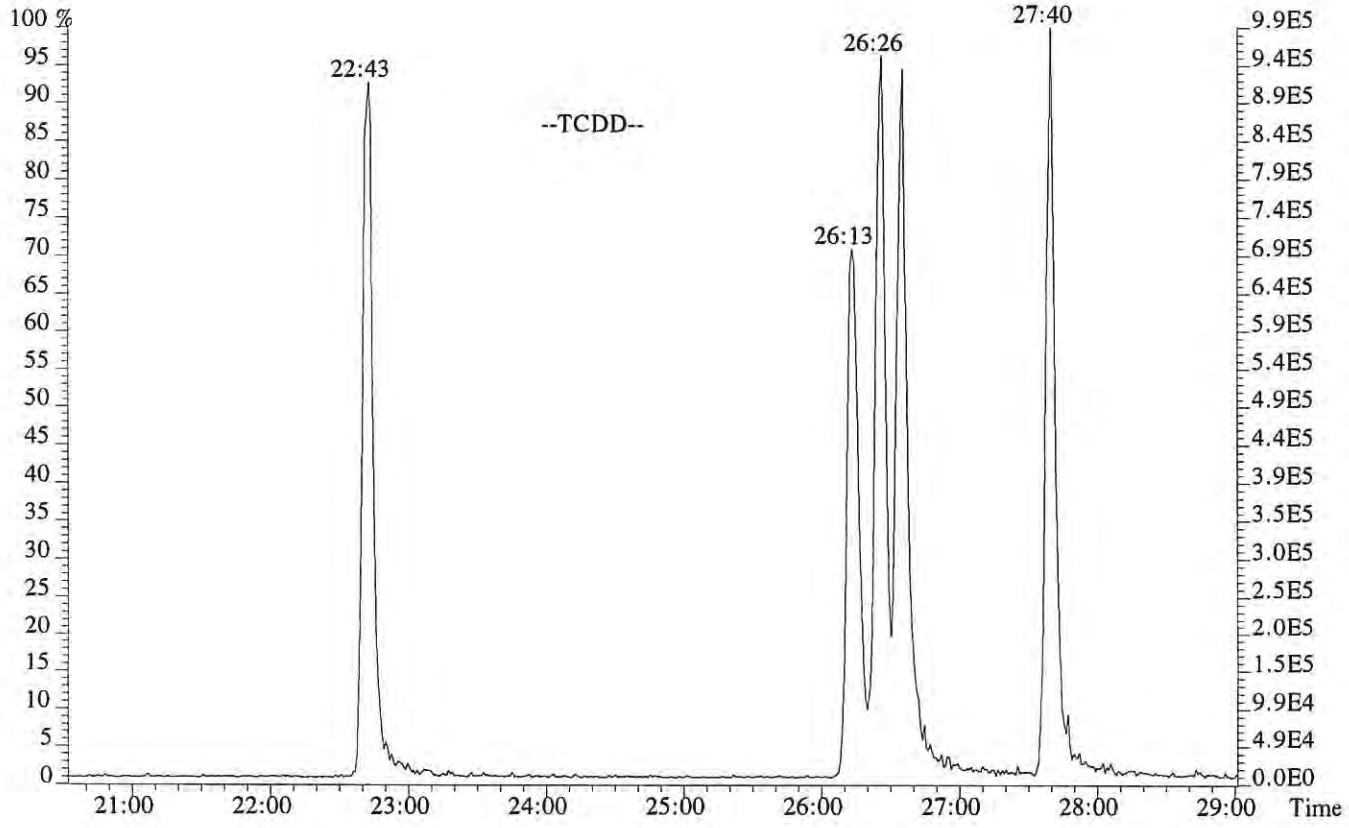
Sample#1 Exp:192977
303.9016



319.8965



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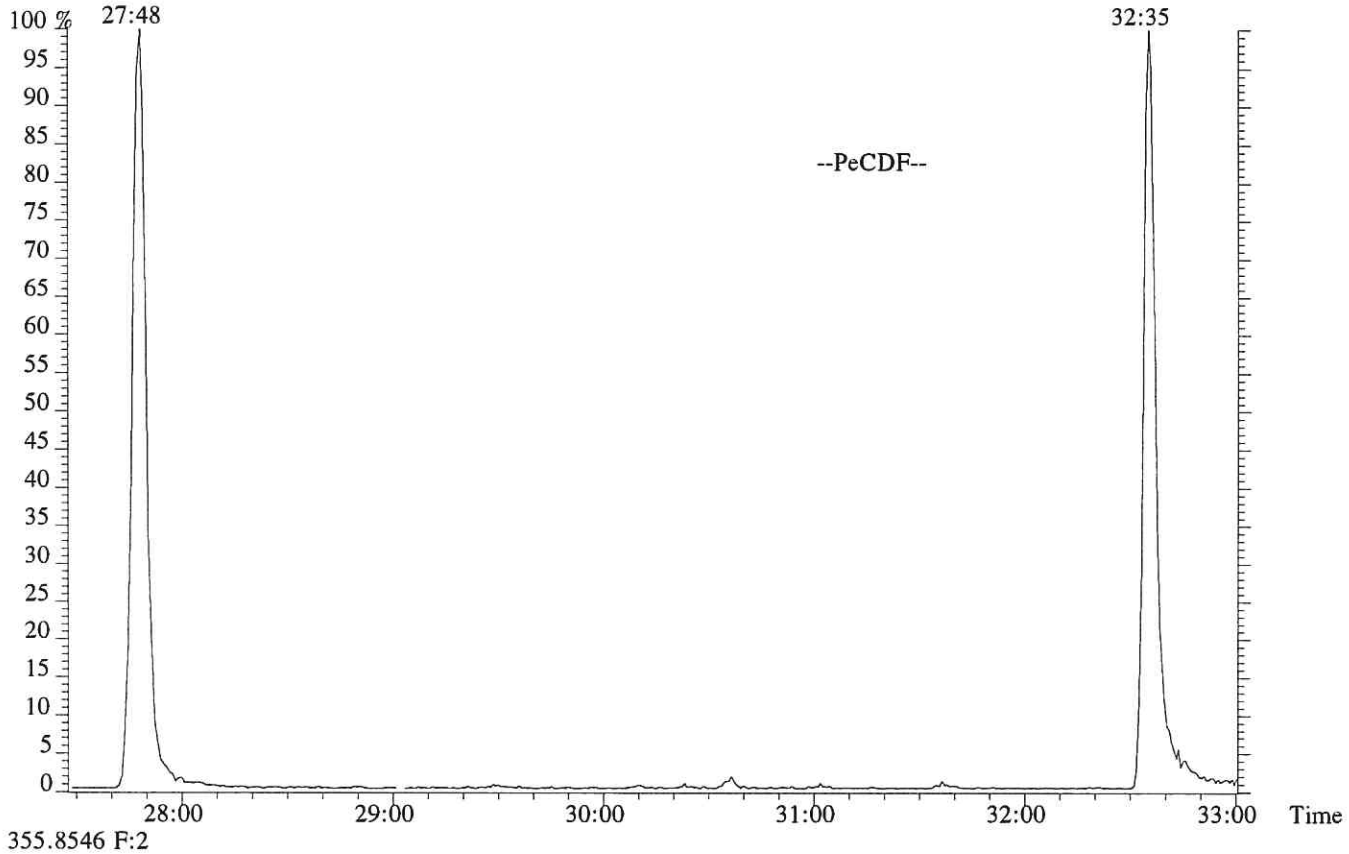
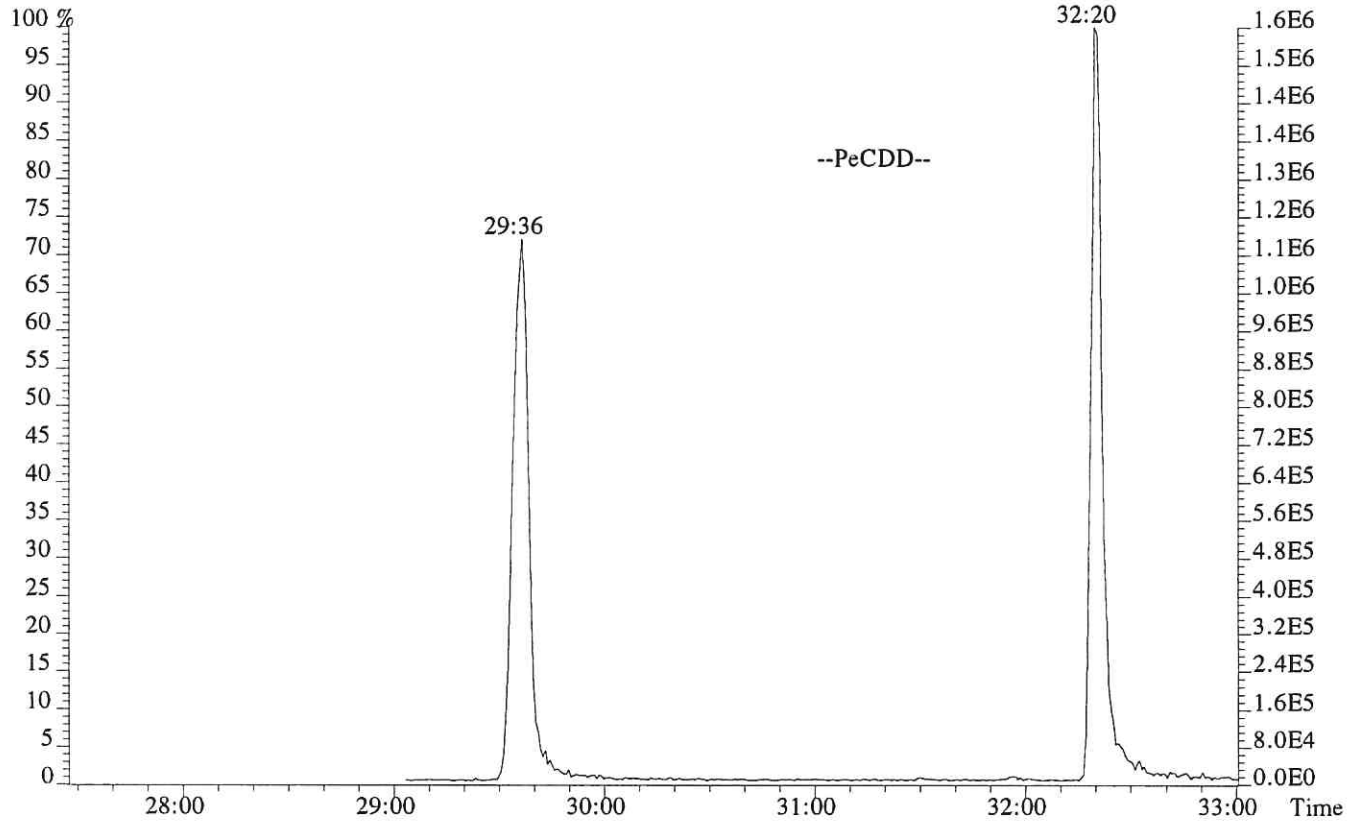
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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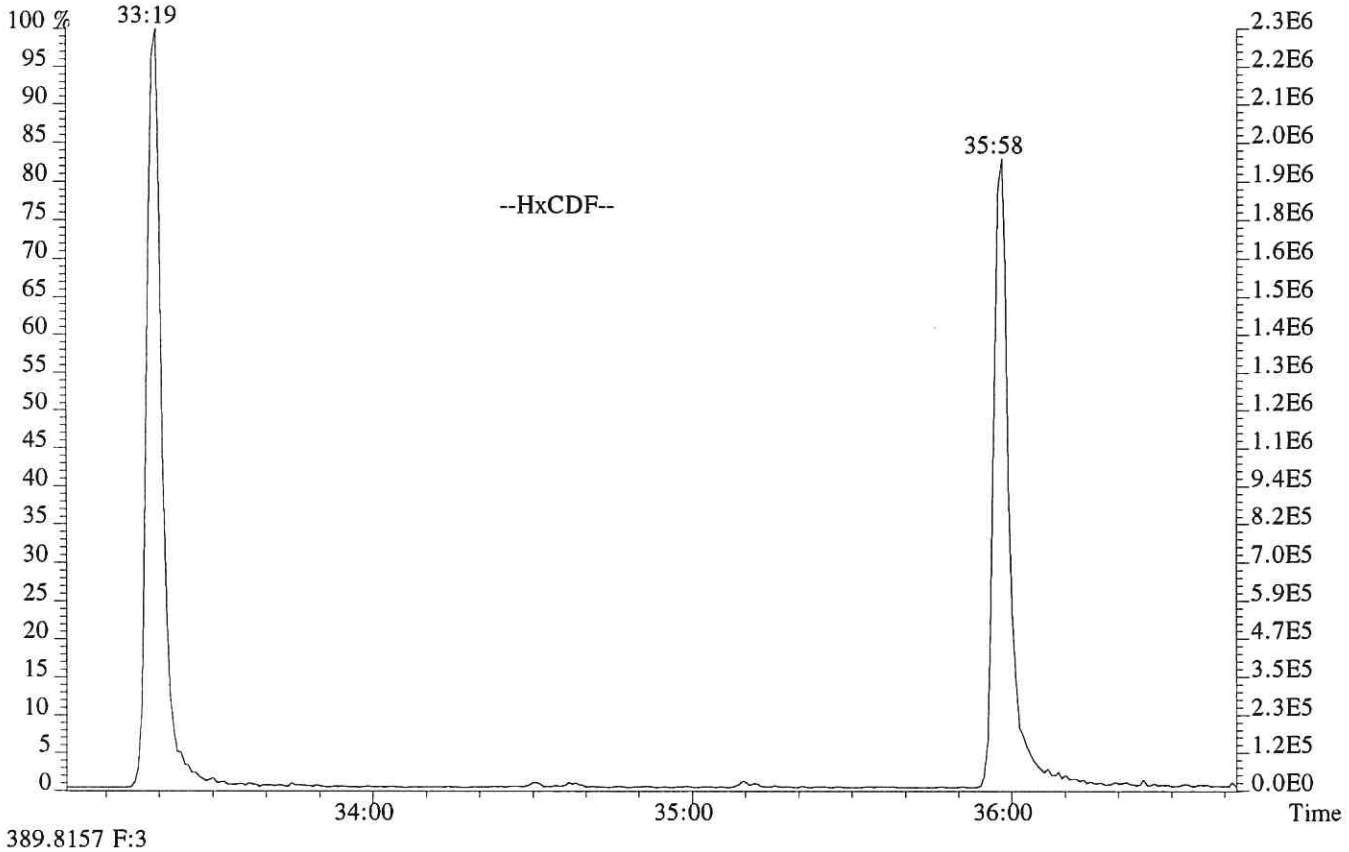
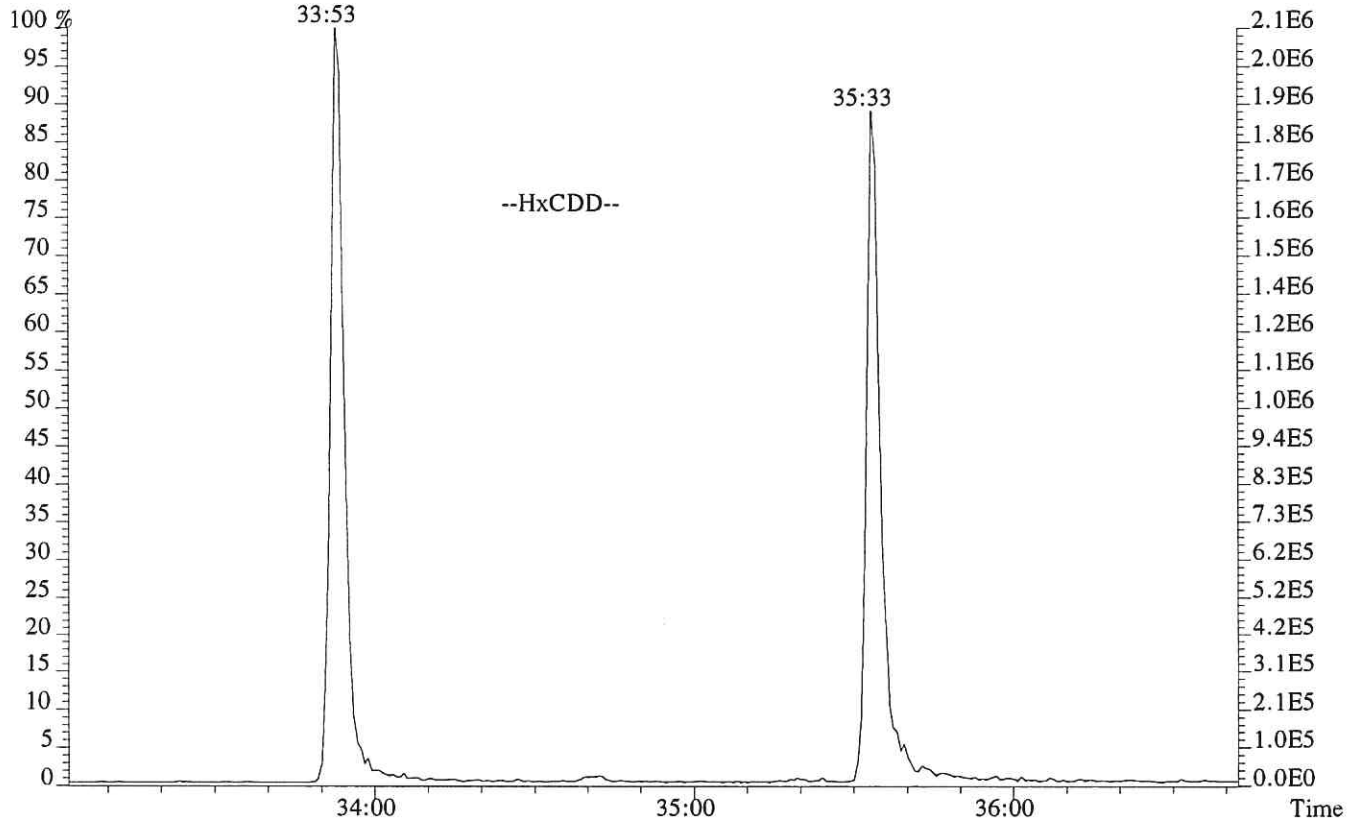
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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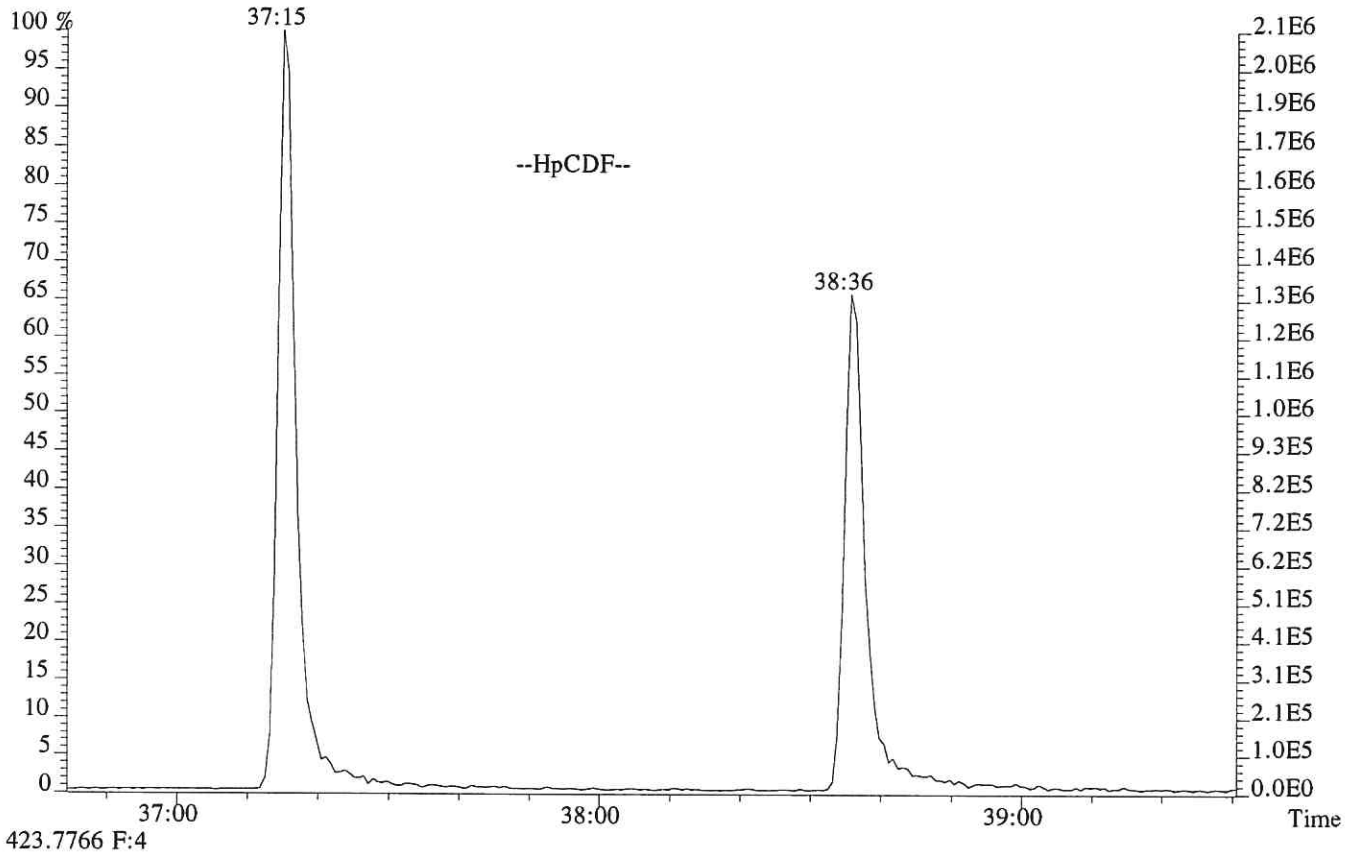
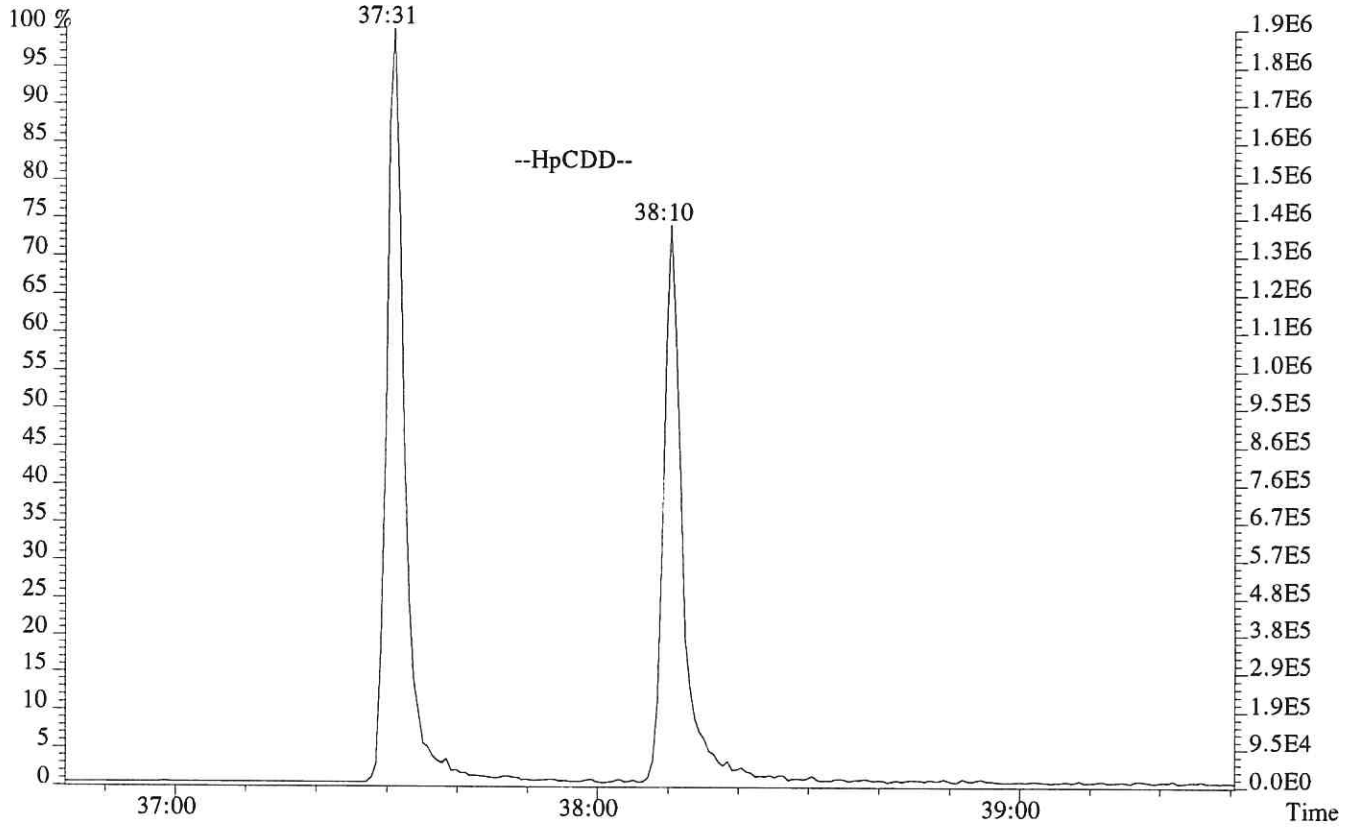
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518880 Analysis Date: 17-NOV-18 Time: 13:32:05

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.5	7.8 - 12.9	-5.1
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	50	39 - 65	0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	2.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	55	41 - 61	10.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	1.0
OCDD	M+2/M+4	0.89	0.76-1.02	100	79 - 126	0.4
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.9	8.4 - 12.0	-1.4
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.4
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	50	41 - 61	-0.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	51	44 - 57	1.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	50	45 - 55	-0.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	49	43 - 58	-2.4
OCDF	M+2/M+4	0.87	0.76-1.02	98	63 - 159	-1.9

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518880 Analysis Date: 17-NOV-18 Time: 13:32:05

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	105	82 - 121	5.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.63	1.32-1.78	112	62 - 160	11.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	90	85 - 117	-9.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	99	85 - 118	-1.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	95	72 - 138	-5.3
13C-OCDD	M+2/M+4	0.91	0.76-1.02	169	96 - 415	-15.5
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	97	71 - 140	-3.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	111	76 - 130	10.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	111	77 - 130	10.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	86	76 - 131	-13.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-5.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	93	74 - 135	-7.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-3.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	93	78 - 129	-6.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	90	77 - 129	-10.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518880 Samp: 1 Inj: 1 Acquired: 17-NOV-18 13:32:05
Processed: 19-NOV-18 14:30:18 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	3.080e+03	3.943e+03	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:36	2.527e+04	1.666e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	2.388e+04	1.584e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	2.018e+04	1.664e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	2.353e+04	1.975e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	2.104e+04	1.737e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	1.823e+04	1.488e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	1.760e+04	1.711e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	1.307e+04	1.268e+04	1.03	yes	no	1.258
10	Unk	OCDF	40:52	1.748e+04	2.002e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	2.259e+03	2.911e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	1.649e+04	1.052e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	1.390e+04	1.101e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.589e+04	1.259e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	1.642e+04	1.326e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.223e+04	1.178e+04	1.04	yes	no	1.025
17	Unk	OCDD	40:42	1.492e+04	1.668e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	3.335e+04	4.227e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	5.181e+04	3.216e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	5.137e+04	3.182e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	2.057e+04	4.013e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	2.604e+04	4.988e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	2.354e+04	4.571e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.927e+04	3.819e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.579e+04	3.567e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	1.309e+04	2.887e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	2.220e+04	2.801e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:55	3.485e+04	2.141e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	2.682e+04	2.100e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	3.001e+04	2.364e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:10	2.382e+04	2.259e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:42	2.684e+04	2.944e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:51	2.290e+04	2.868e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.175e+04	2.540e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:35	5.340e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518880 Samp: 1 Inj: 1 Acquired: 17-NOV-18 13:32:05
Processed: 19-NOV-18 14:30:18 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.76e+05	4.08e+02	9.2e+02	5.03e+05	5.56e+02	9.1e+02
2	1,2,3,7,8-PeCDF	3.99e+06	3.96e+02	1.0e+04	2.63e+06	1.23e+03	2.1e+03
3	2,3,4,7,8-PeCDF	4.05e+06	3.96e+02	1.0e+04	2.68e+06	1.23e+03	2.2e+03
4	1,2,3,4,7,8-HxCDF	4.09e+06	2.40e+02	1.7e+04	3.40e+06	2.88e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	4.36e+06	2.40e+02	1.8e+04	3.60e+06	2.88e+02	1.3e+04
6	2,3,4,6,7,8-HxCDF	4.00e+06	2.40e+02	1.7e+04	3.34e+06	2.88e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	3.15e+06	2.40e+02	1.3e+04	2.60e+06	2.88e+02	9.0e+03
8	1,2,3,4,6,7,8-HpCDF	3.56e+06	1.46e+03	2.4e+03	3.46e+06	2.37e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	2.42e+06	1.46e+03	1.7e+03	2.31e+06	2.37e+03	9.7e+02
10	OCDF	2.69e+06	1.92e+02	1.4e+04	3.10e+06	2.28e+02	1.4e+04
11	2,3,7,8-TCDD	3.38e+05	1.23e+03	2.7e+02	4.15e+05	4.12e+02	1.0e+03
12	1,2,3,7,8-PeCDD	2.81e+06	3.16e+02	8.9e+03	1.82e+06	3.24e+02	5.6e+03
13	1,2,3,4,7,8-HxCDD	3.01e+06	2.96e+02	1.0e+04	2.38e+06	1.96e+02	1.2e+04
14	1,2,3,6,7,8-HxCDD	2.97e+06	2.96e+02	1.0e+04	2.41e+06	1.96e+02	1.2e+04
15	1,2,3,7,8,9-HxCDD	3.03e+06	2.96e+02	1.0e+04	2.41e+06	1.96e+02	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	2.26e+06	2.96e+02	7.6e+03	2.15e+06	2.08e+02	1.0e+04
17	OCDD	2.38e+06	1.84e+02	1.3e+04	2.65e+06	3.64e+02	7.3e+03
18	13C-2,3,7,8-TCDF	4.22e+06	2.76e+03	1.5e+03	5.38e+06	1.88e+03	2.9e+03
19	13C-1,2,3,7,8-PeCDF	7.92e+06	3.64e+02	2.2e+04	5.00e+06	5.16e+02	9.7e+03
20	13C-2,3,4,7,8-PeCDF	8.77e+06	3.64e+02	2.4e+04	5.47e+06	5.16e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	4.19e+06	1.08e+02	3.9e+04	8.04e+06	7.84e+02	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	4.82e+06	1.08e+02	4.5e+04	9.16e+06	7.84e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.45e+06	1.08e+02	4.1e+04	8.56e+06	7.84e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	3.35e+06	1.08e+02	3.1e+04	6.60e+06	7.84e+02	8.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.20e+06	4.36e+02	7.3e+03	7.09e+06	2.45e+03	2.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.38e+06	4.36e+02	5.5e+03	5.26e+06	2.45e+03	2.1e+03
27	13C-2,3,7,8-TCDD	3.18e+06	3.86e+03	8.2e+02	4.02e+06	1.88e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	5.81e+06	3.84e+02	1.5e+04	3.57e+06	3.56e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	5.77e+06	7.64e+02	7.6e+03	4.48e+06	5.28e+02	8.5e+03
30	13C-1,2,3,6,7,8-HxCDD	5.66e+06	7.64e+02	7.4e+03	4.45e+06	5.28e+02	8.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.37e+06	5.00e+02	8.7e+03	4.12e+06	3.92e+02	1.1e+04
32	13C-OCDD	4.14e+06	4.80e+02	8.6e+03	4.63e+06	1.56e+02	3.0e+04
33	13C-1,2,3,4-TCDD	3.25e+06	3.86e+03	8.4e+02	4.04e+06	1.88e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.81e+06	7.64e+02	7.6e+03	4.67e+06	5.28e+02	8.9e+03
35	37Cl-2,3,7,8-TCDD	7.49e+05	9.72e+02	7.7e+02			

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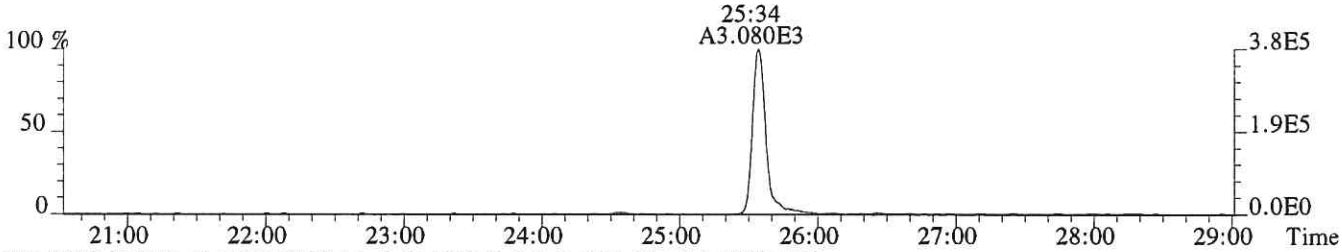
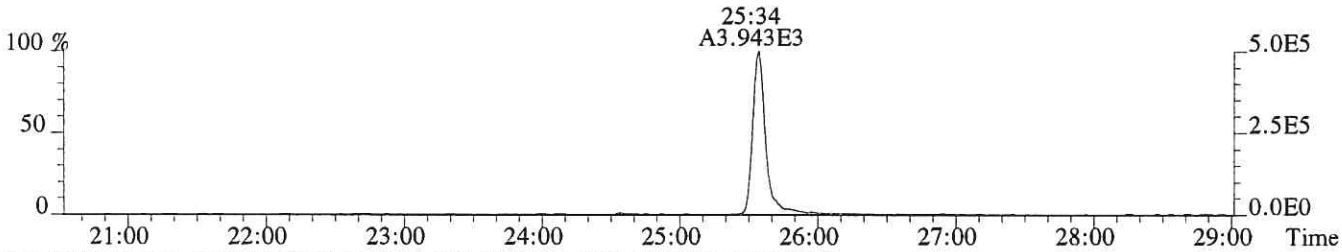
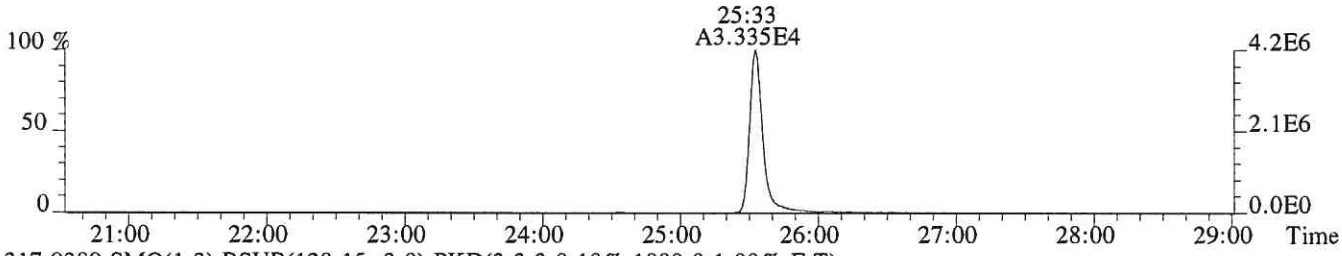
File:P518880 #1-602 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



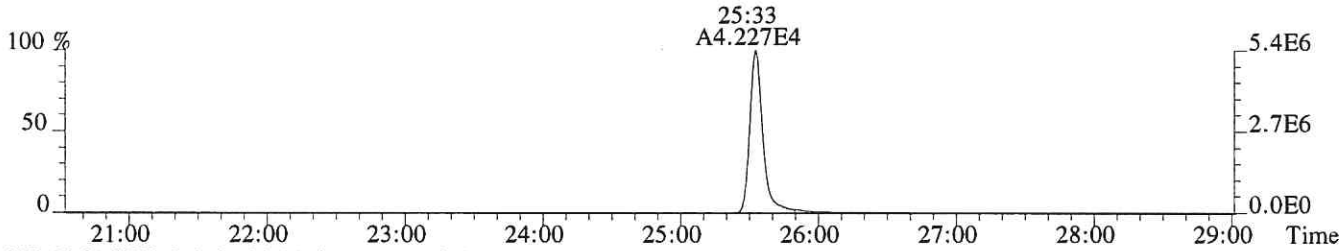
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



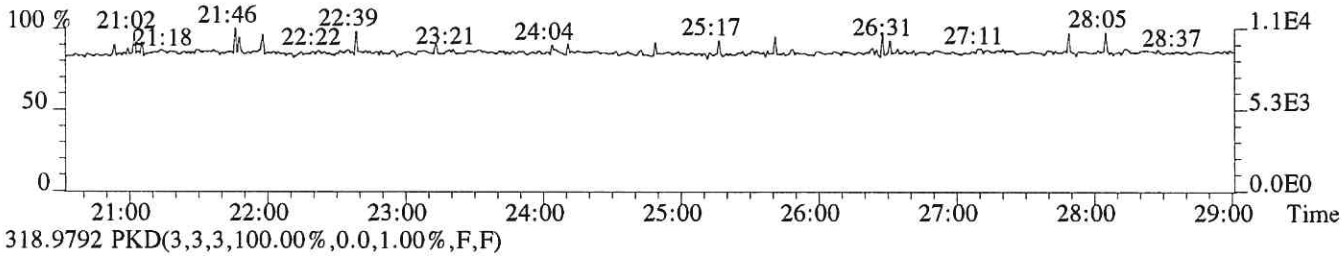
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



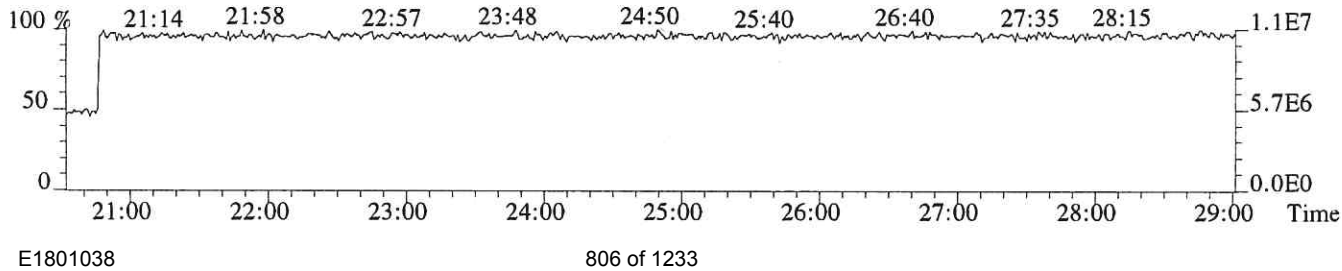
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



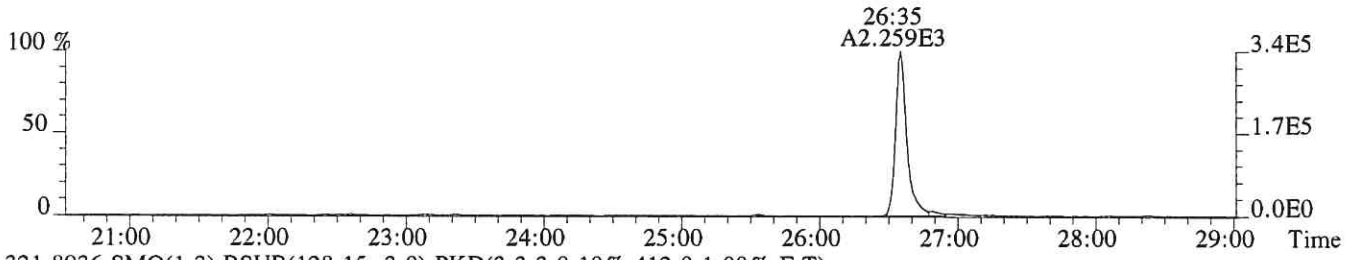
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



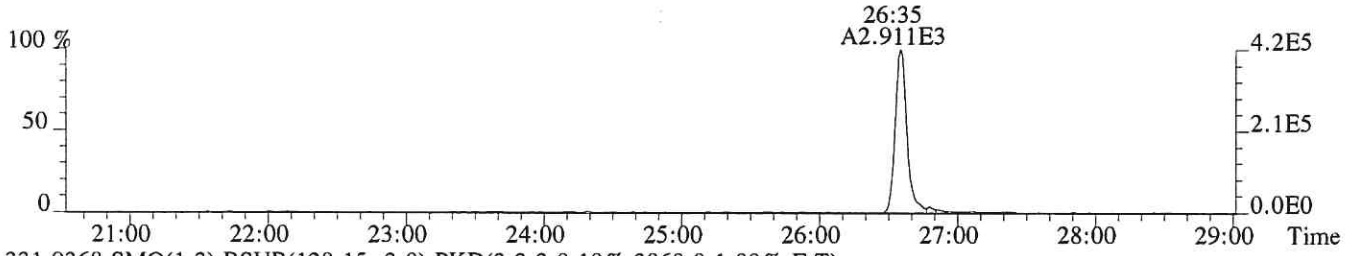
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



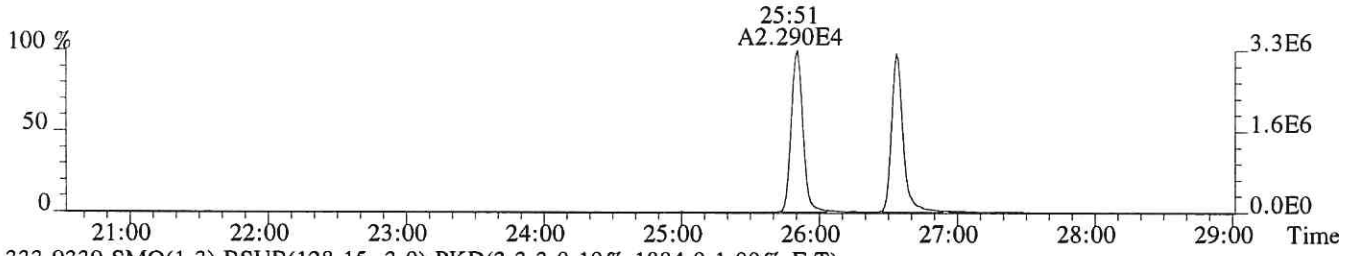
File:P518880 #1-602 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



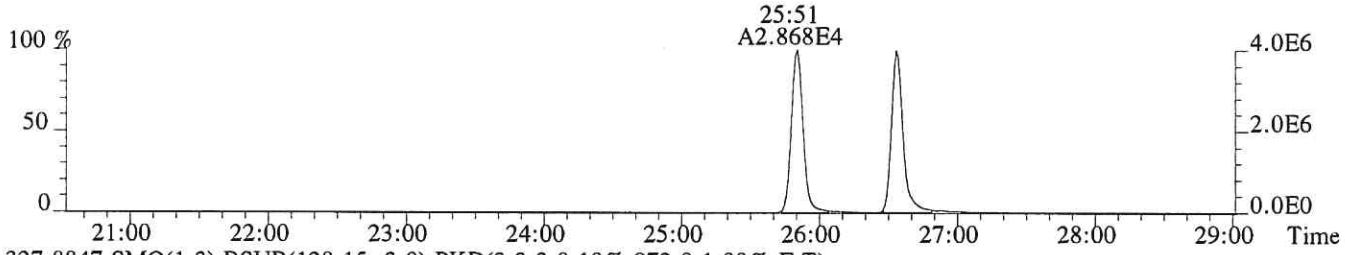
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



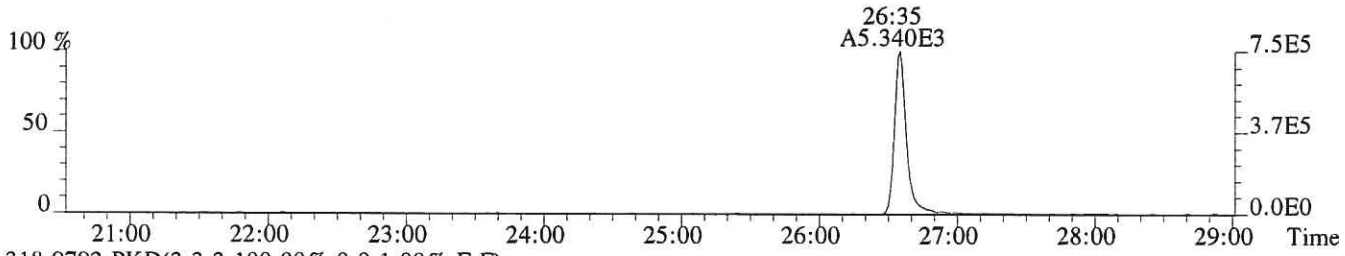
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3860.0,1.00%,F,T)



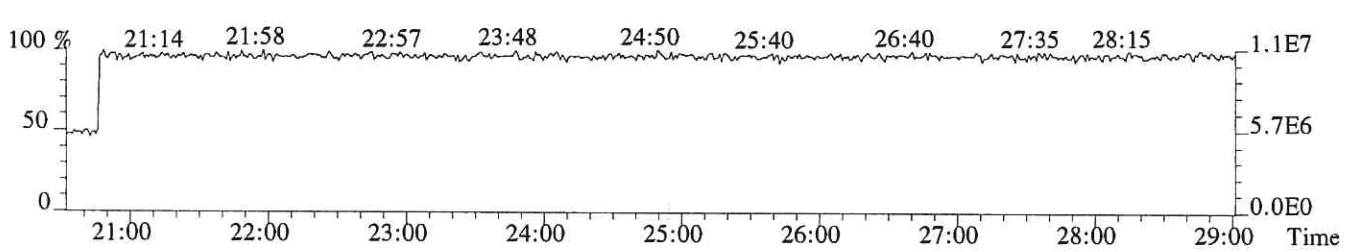
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



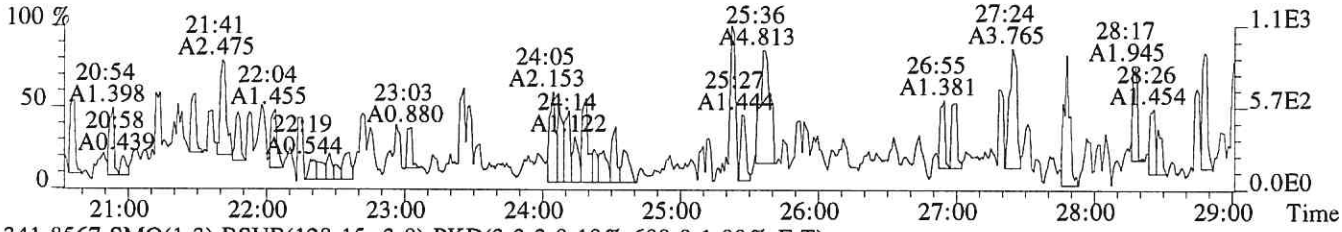
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



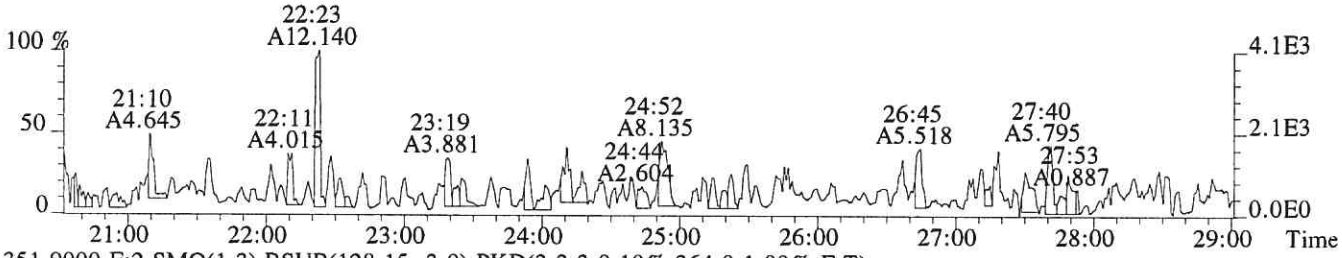
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



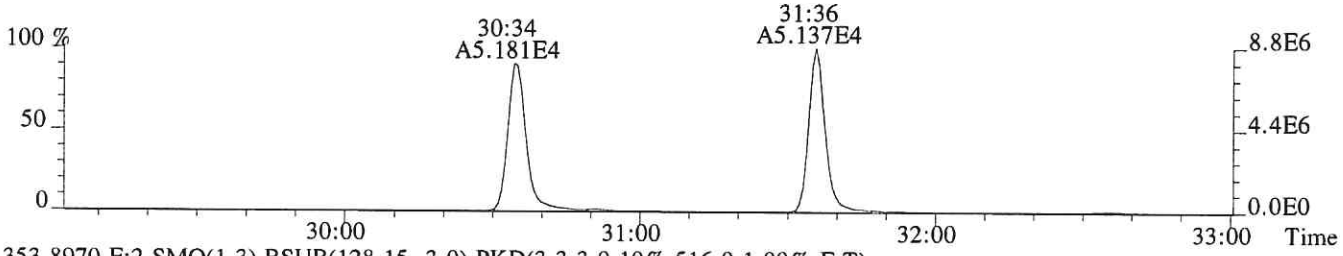
File:P518880 #1-602 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



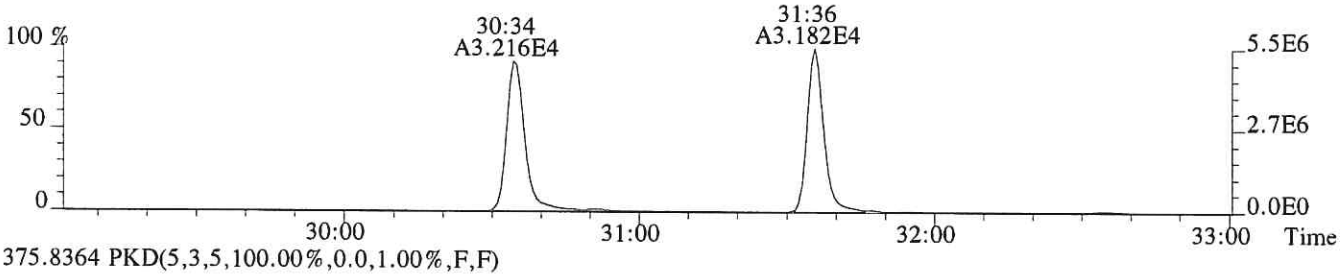
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



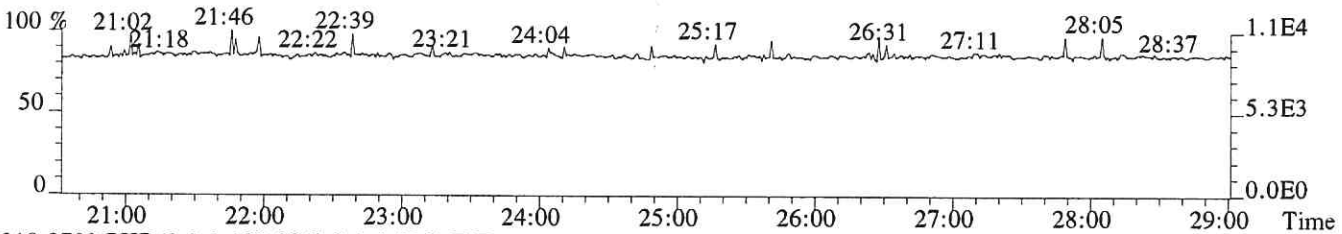
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



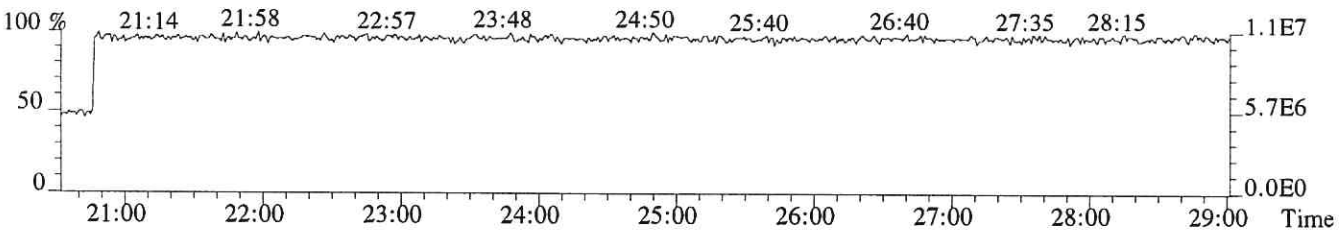
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

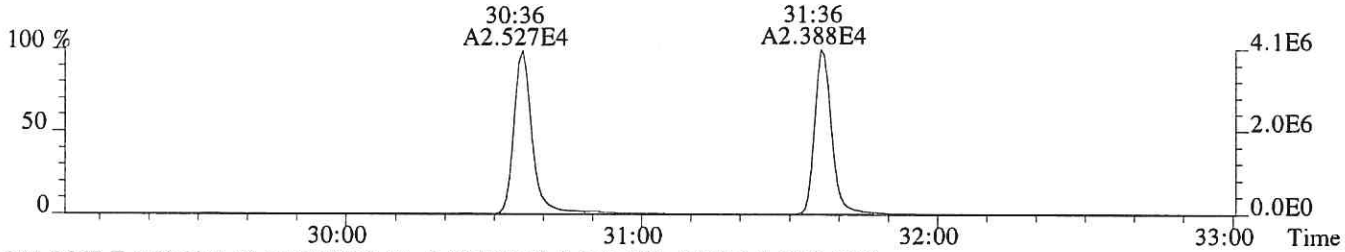


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

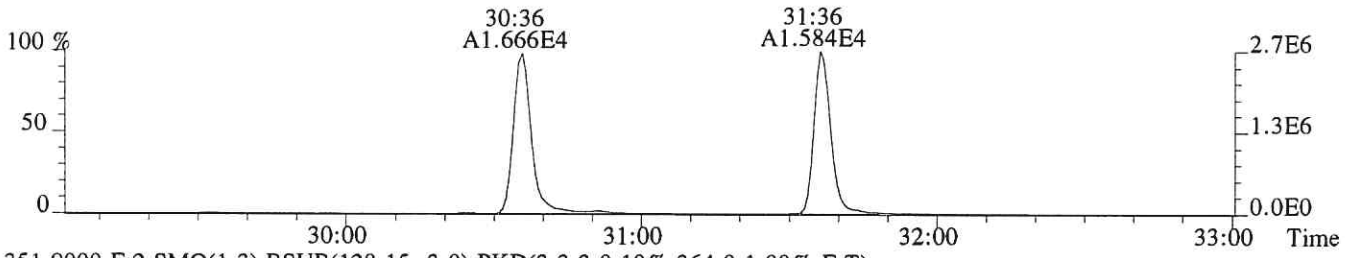


File:P518880 #1-357 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

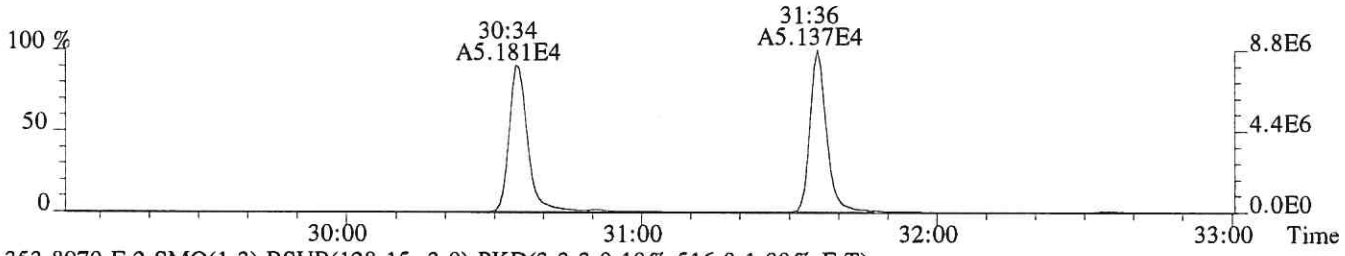
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



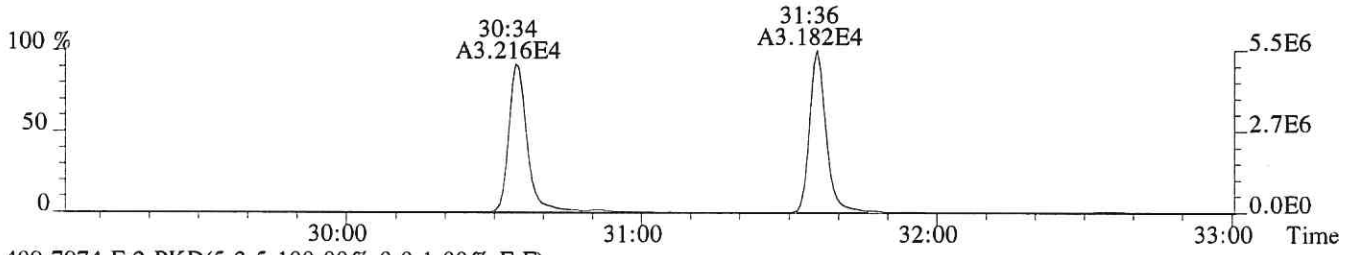
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



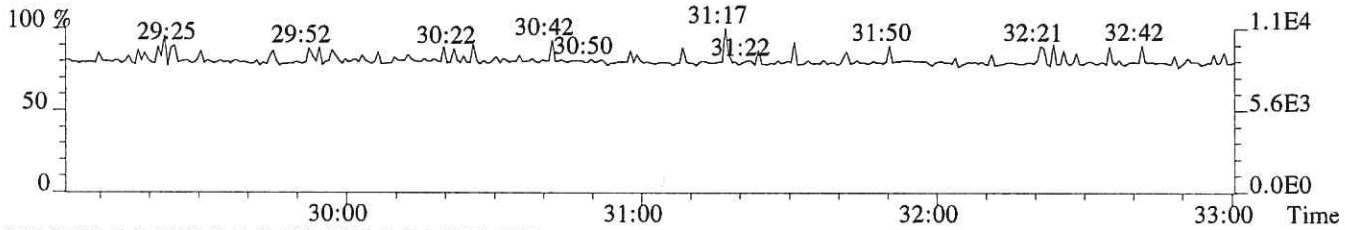
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



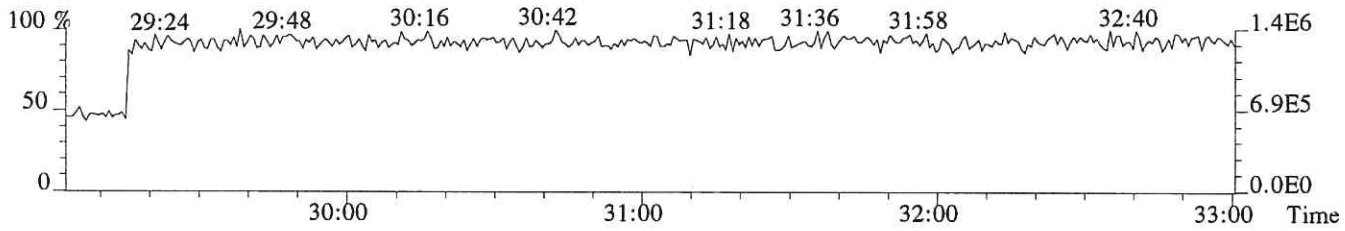
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



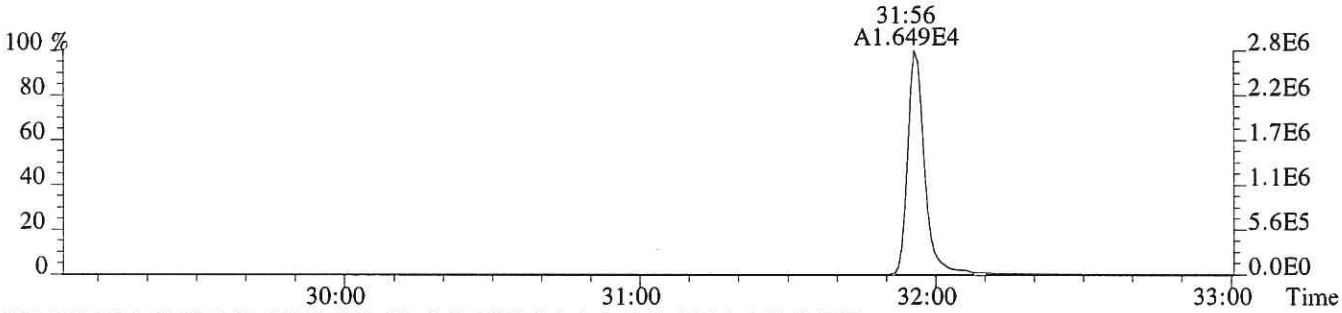
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



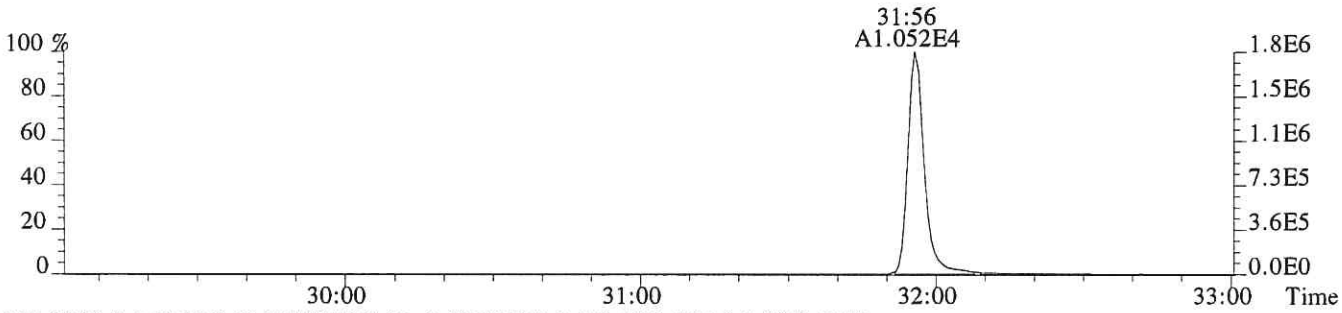
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



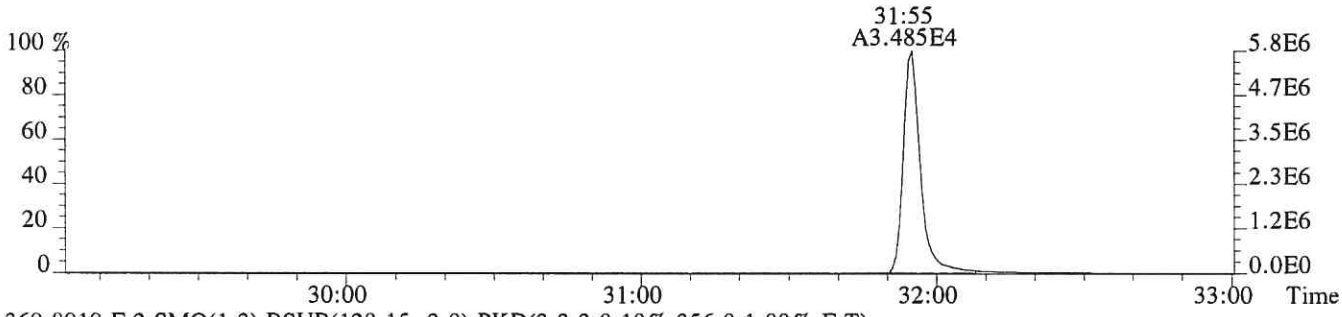
File:P518880 #1-357 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



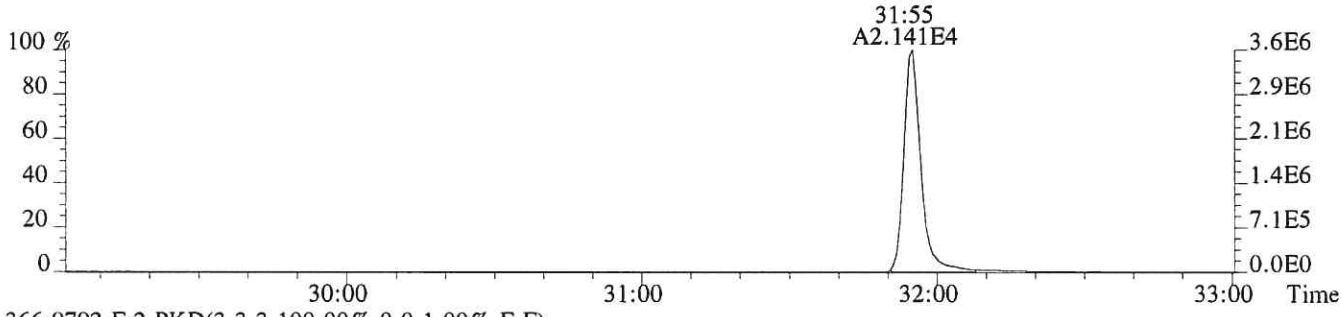
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



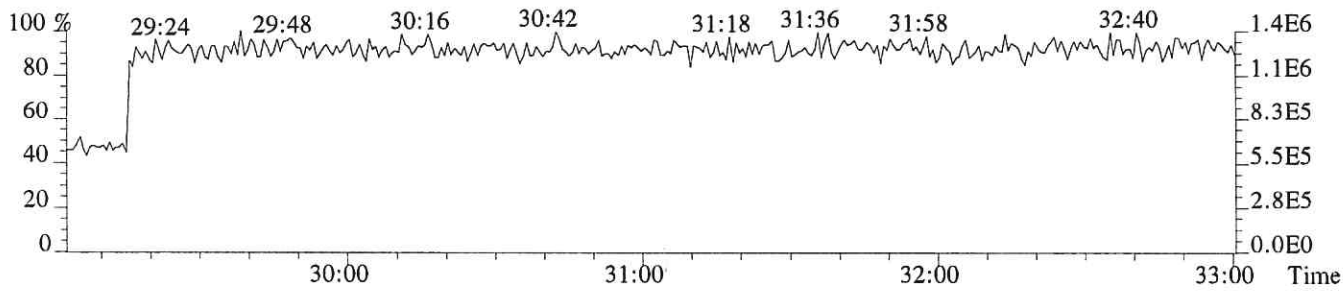
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



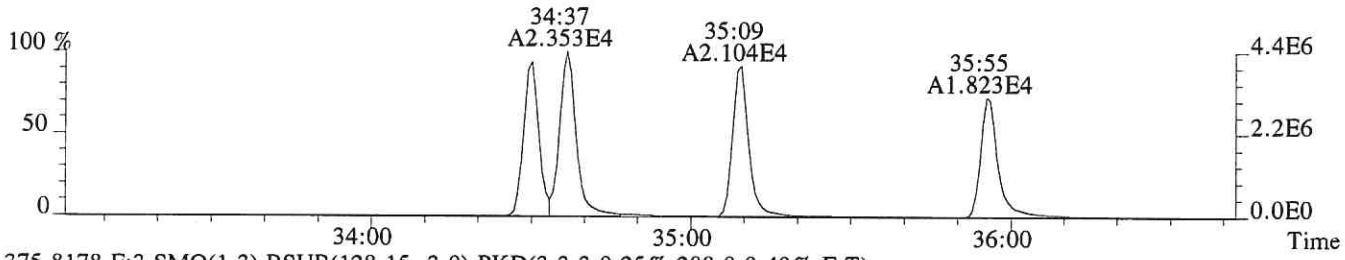
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



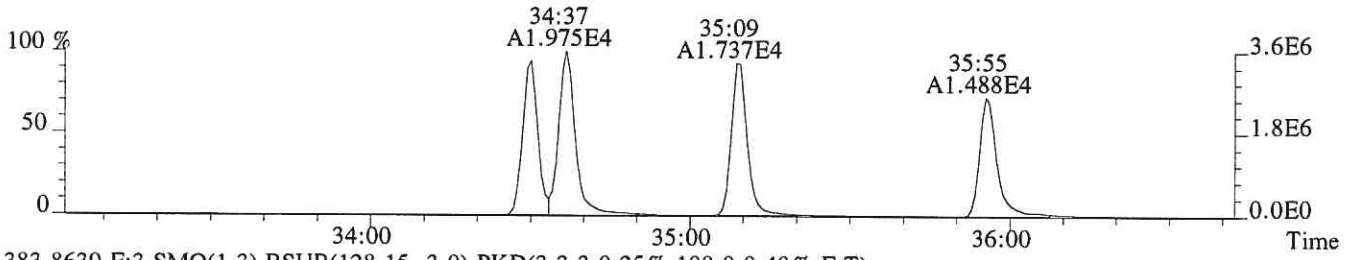
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



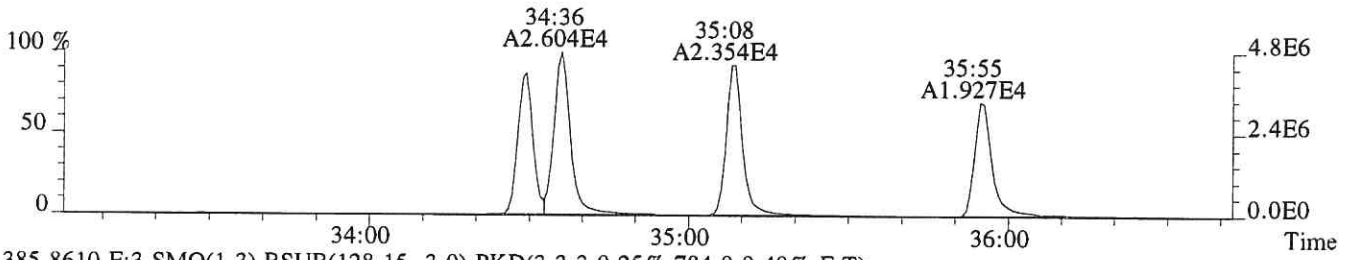
File:P518880 #1-330 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



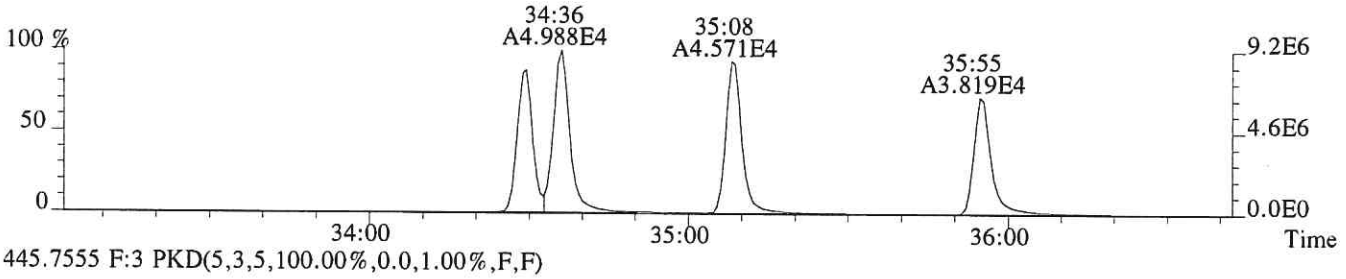
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



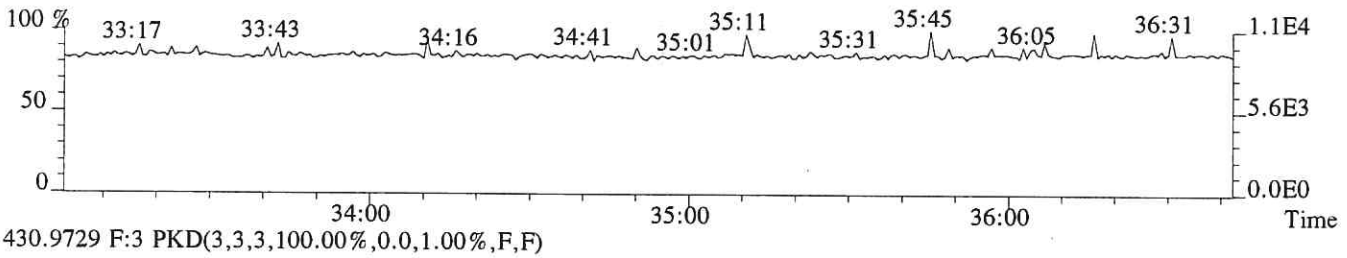
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



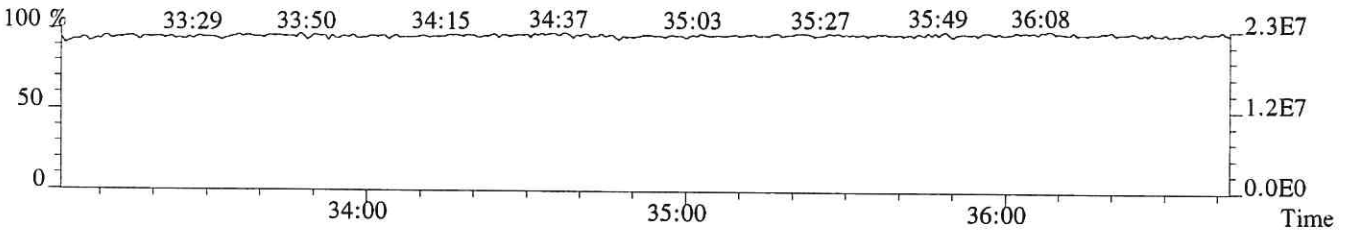
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



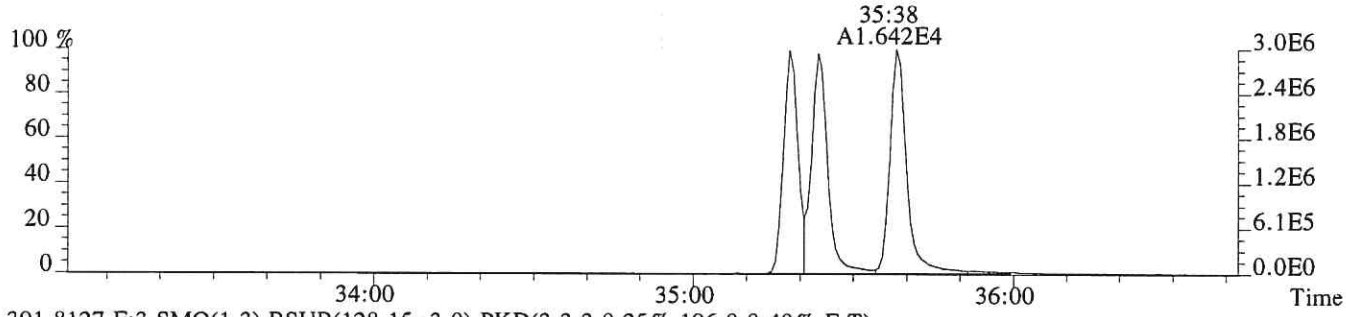
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



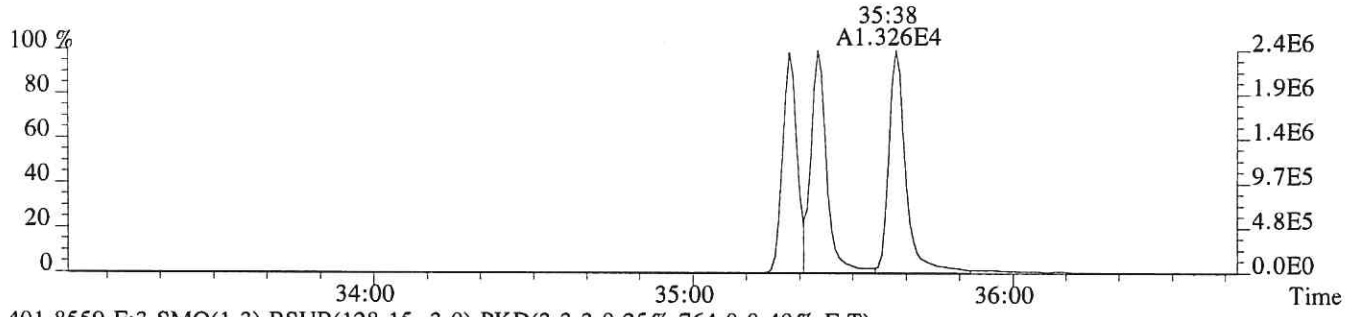
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



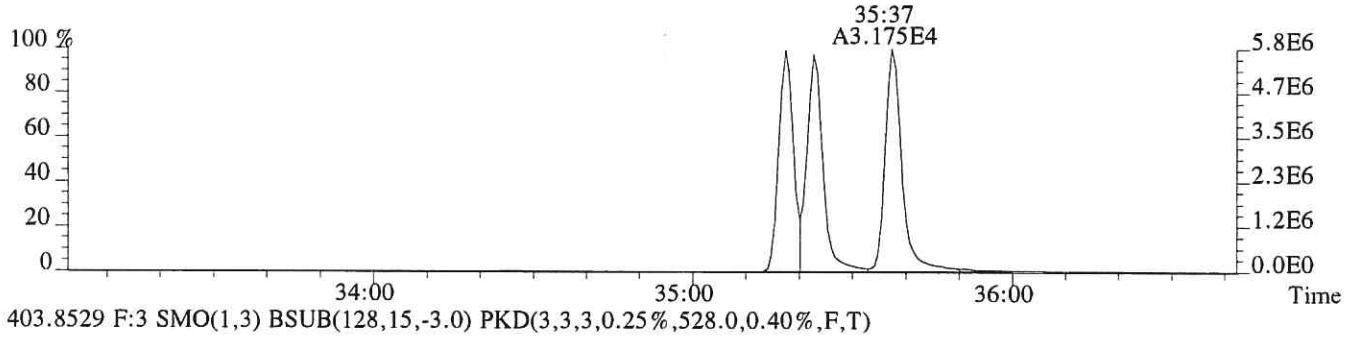
File:P518880 #1-330 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



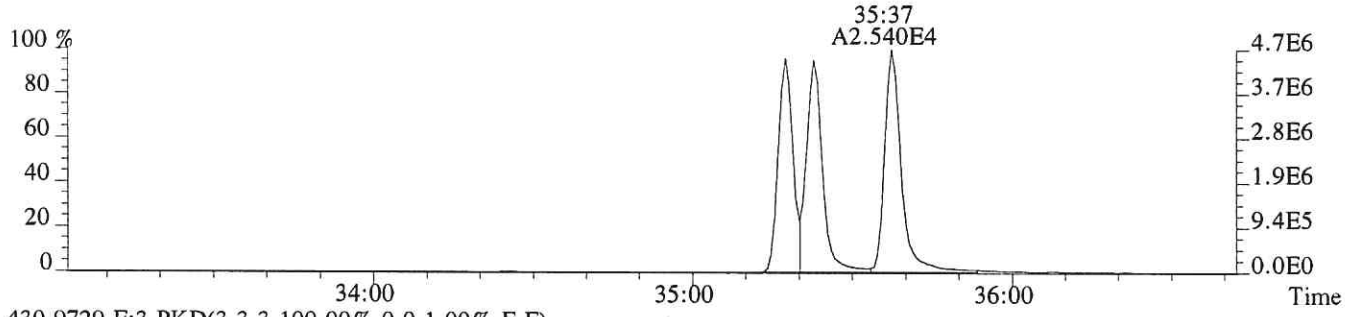
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



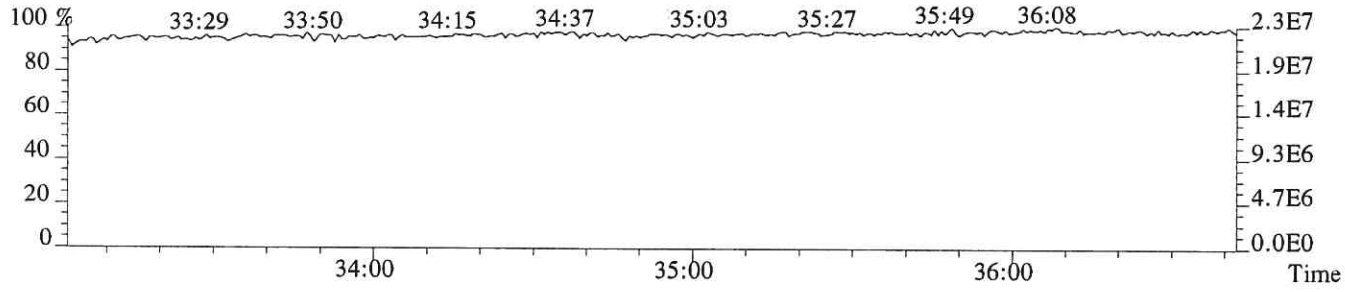
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



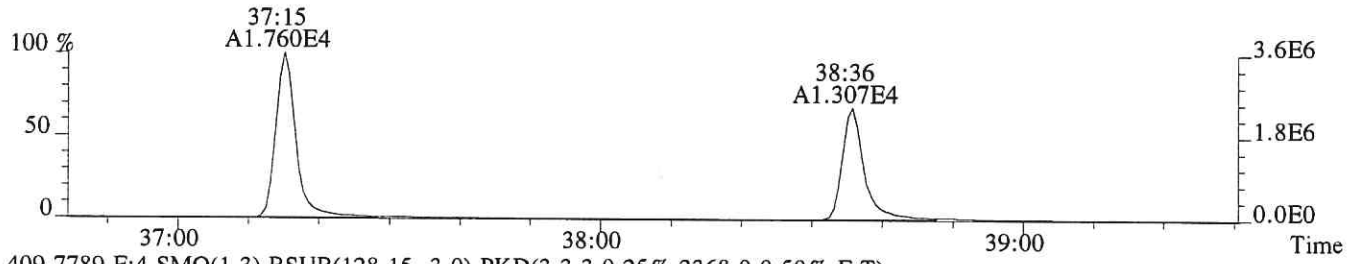
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



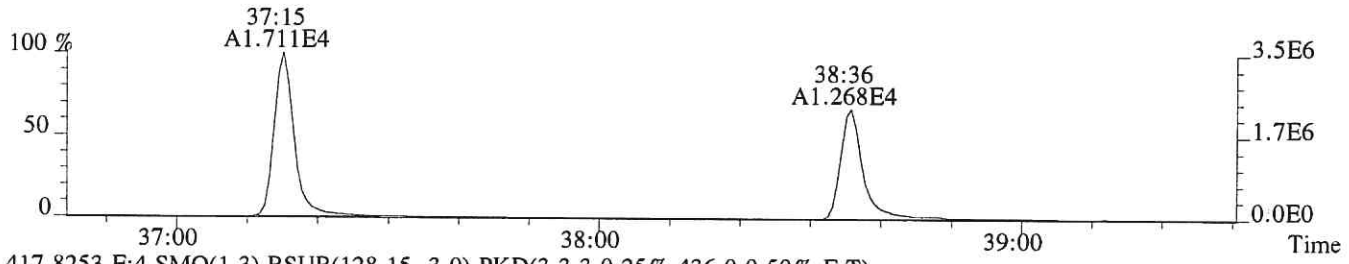
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



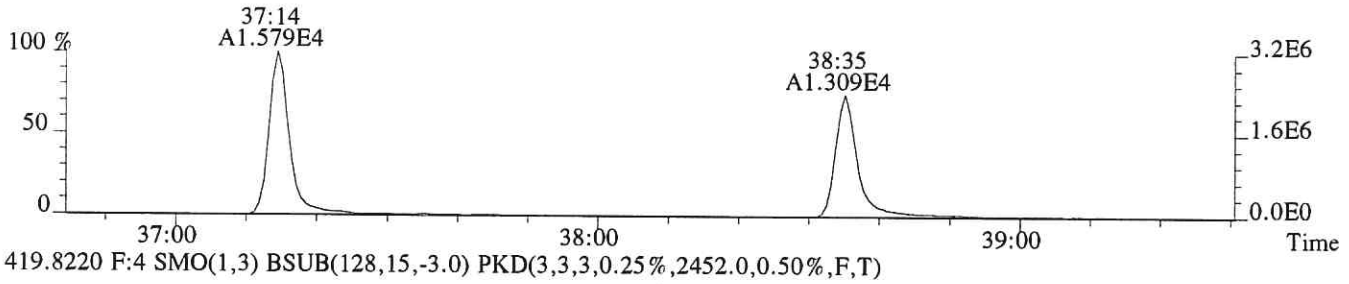
File:P518880 #1-250 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.50%,F,T)



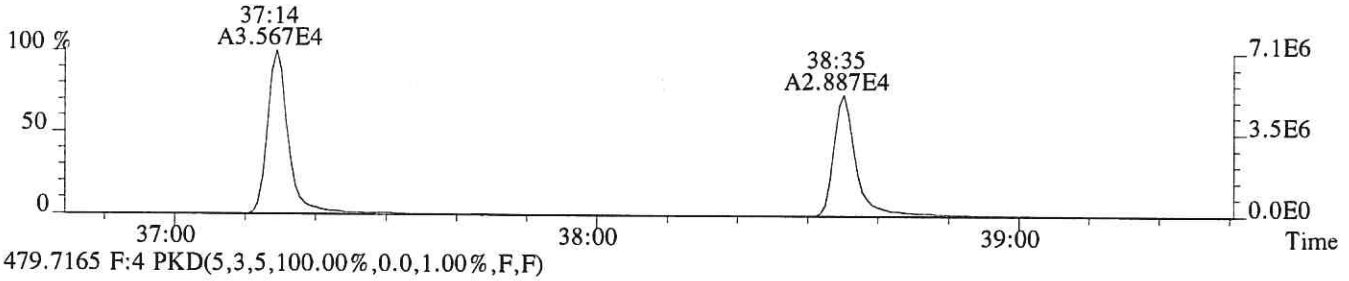
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2368.0,0.50%,F,T)



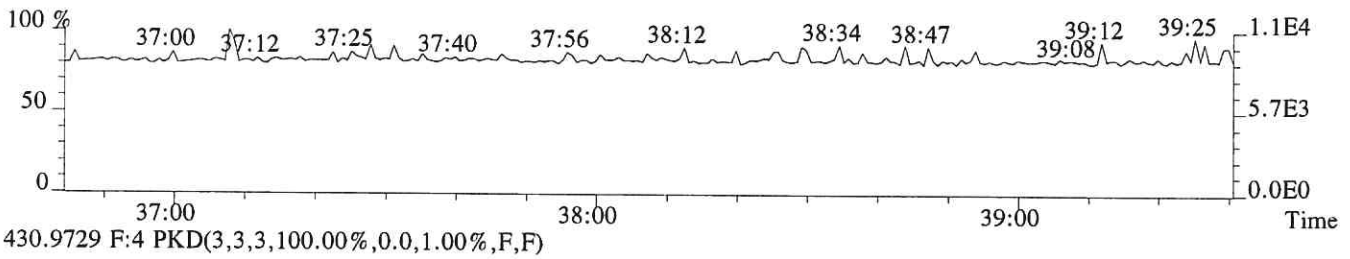
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.50%,F,T)



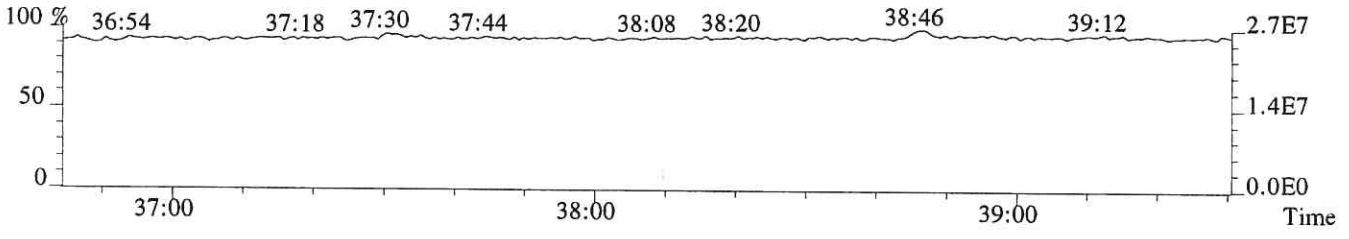
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2452.0,0.50%,F,T)



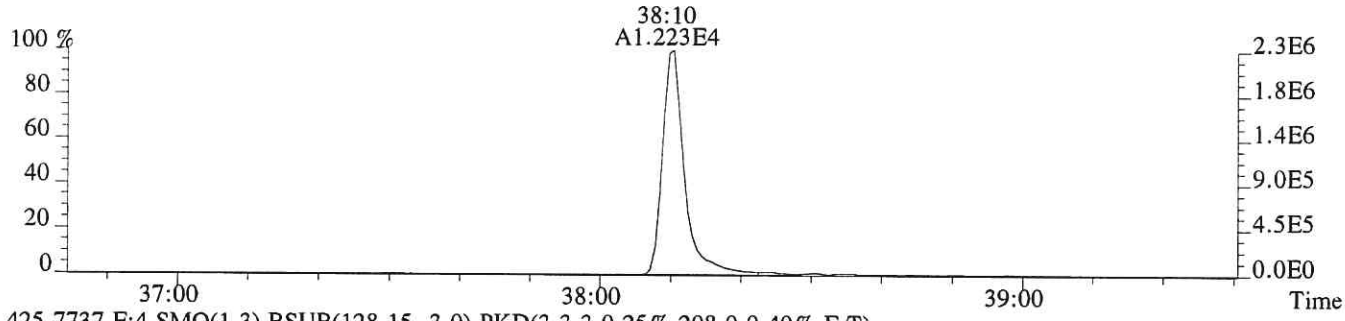
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



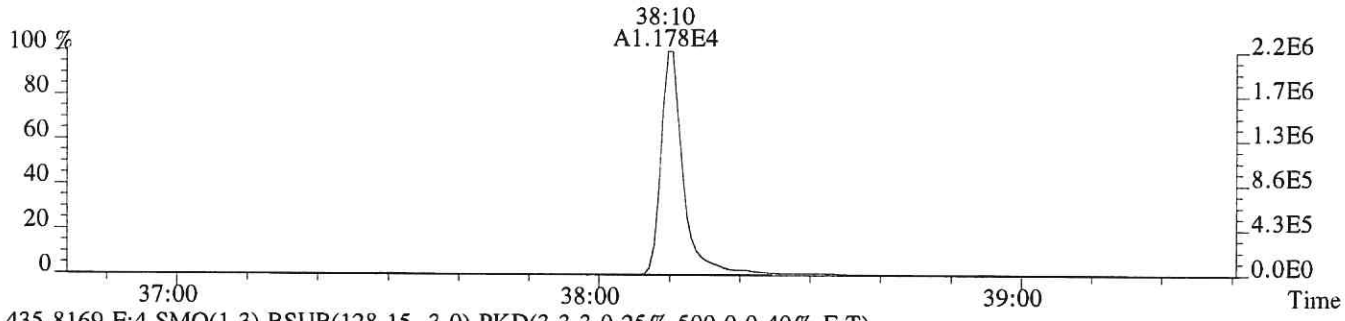
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



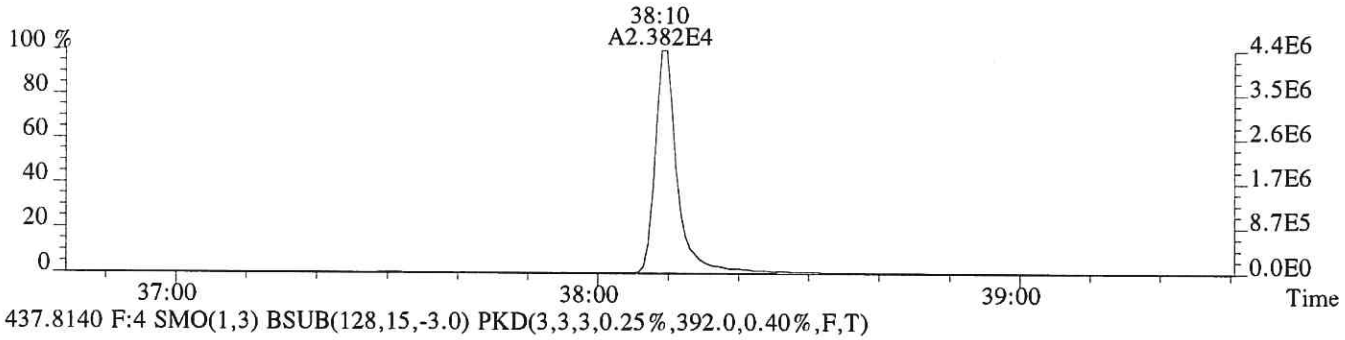
File:P518880 #1-250 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



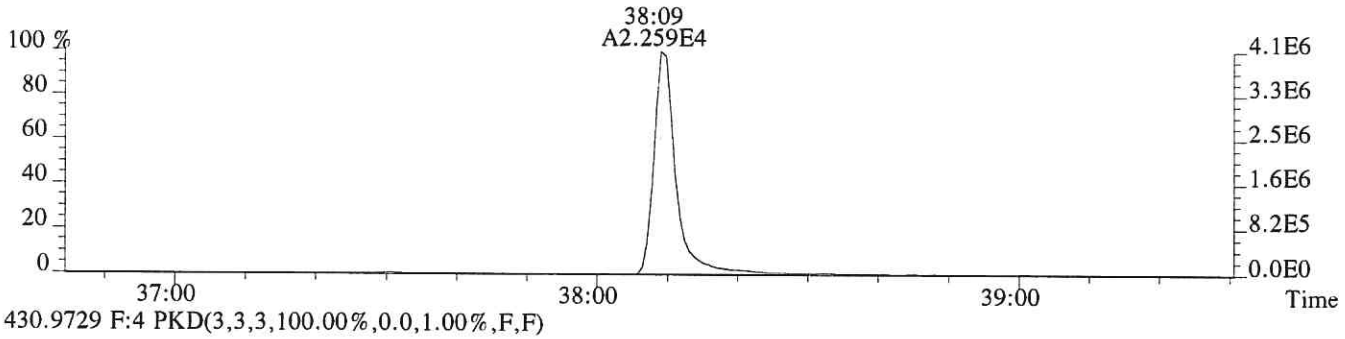
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



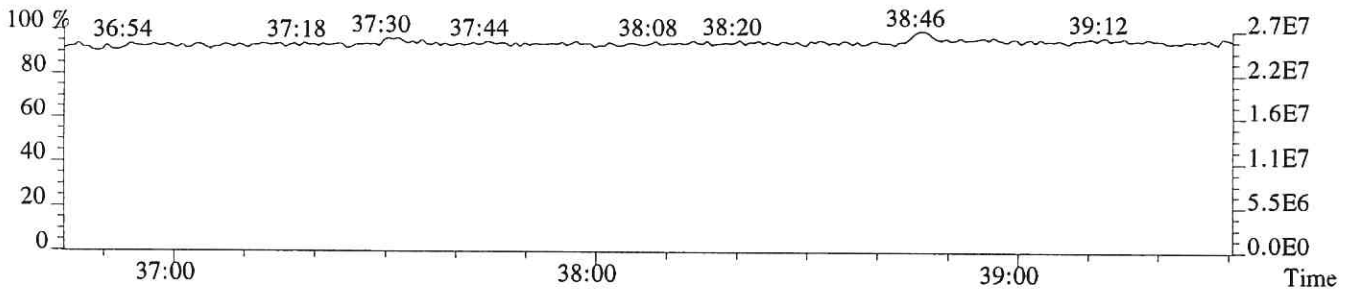
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



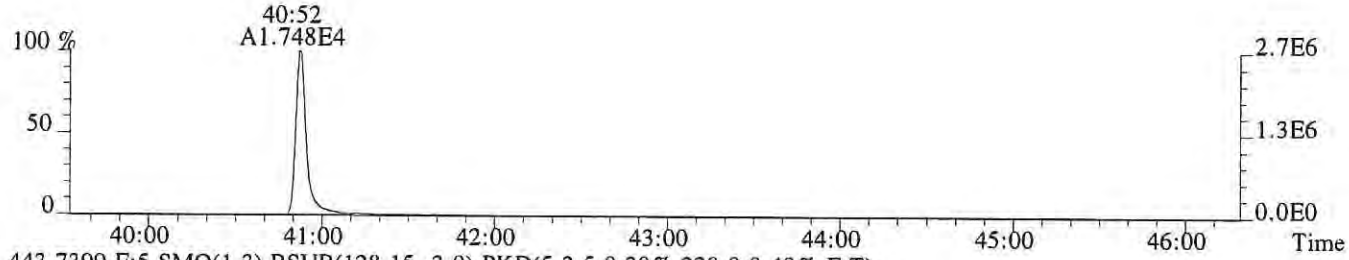
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



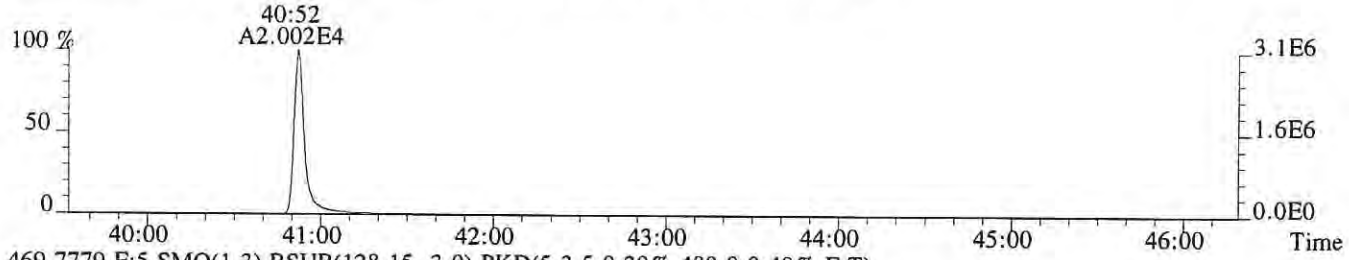
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



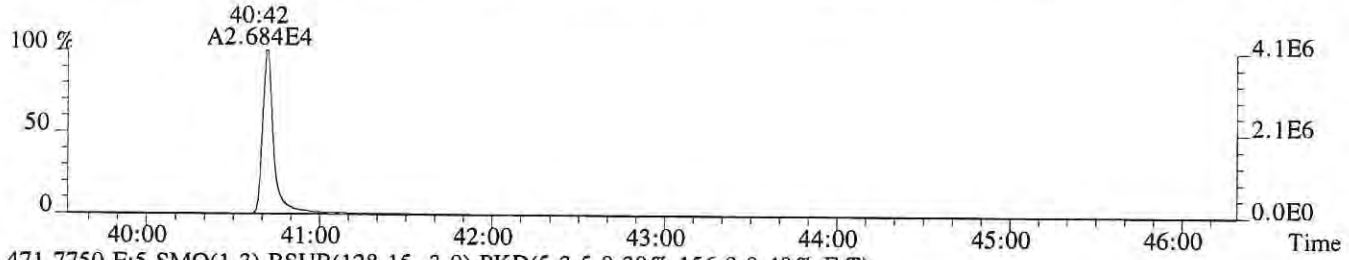
File:P518880 #1-610 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



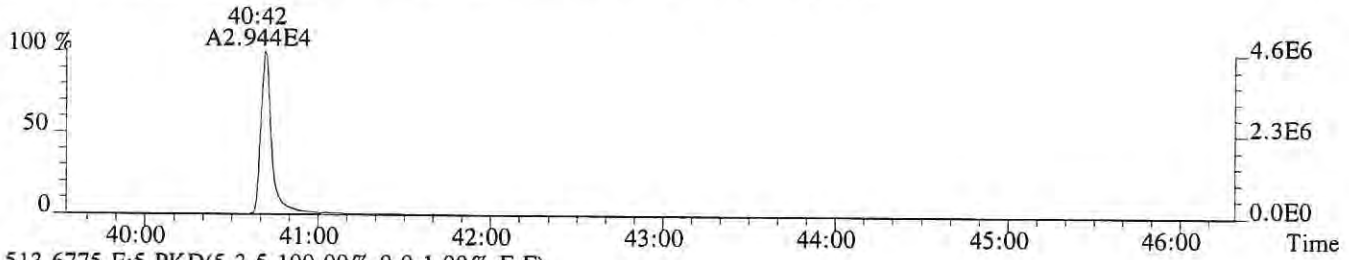
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



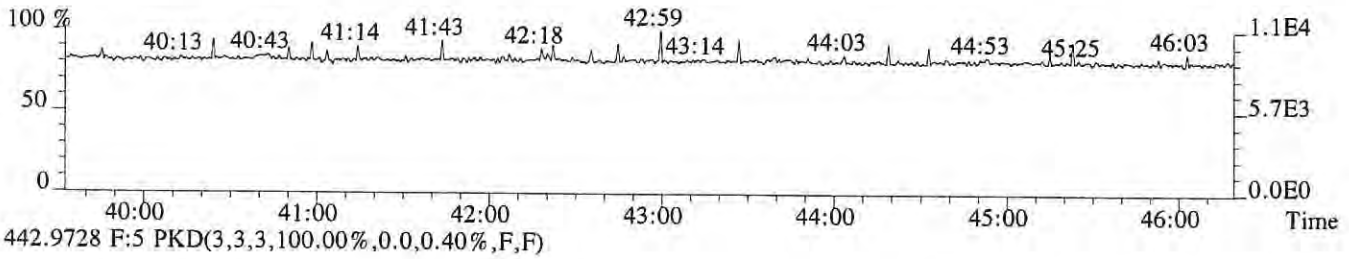
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



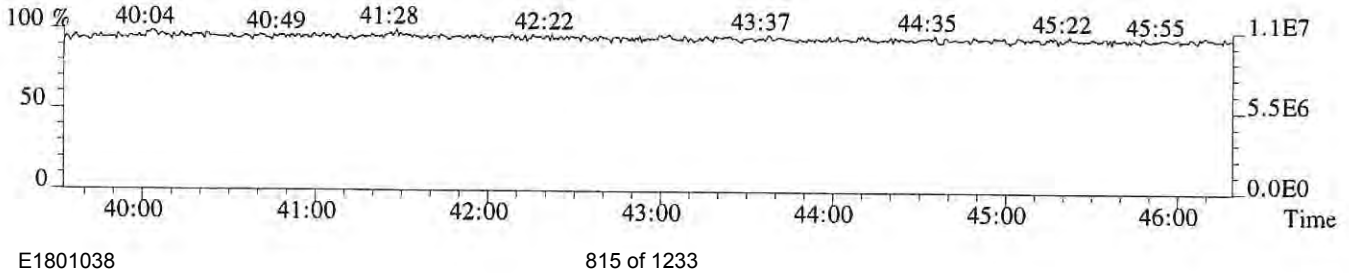
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



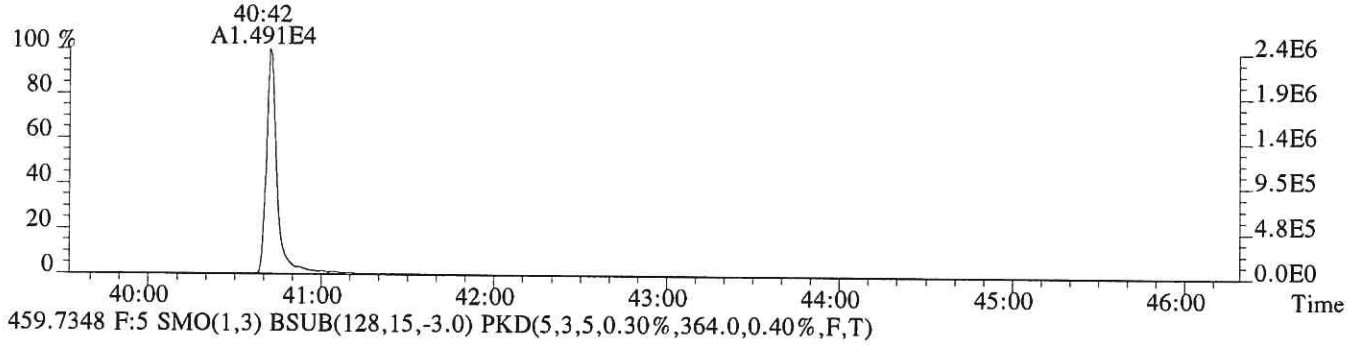
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



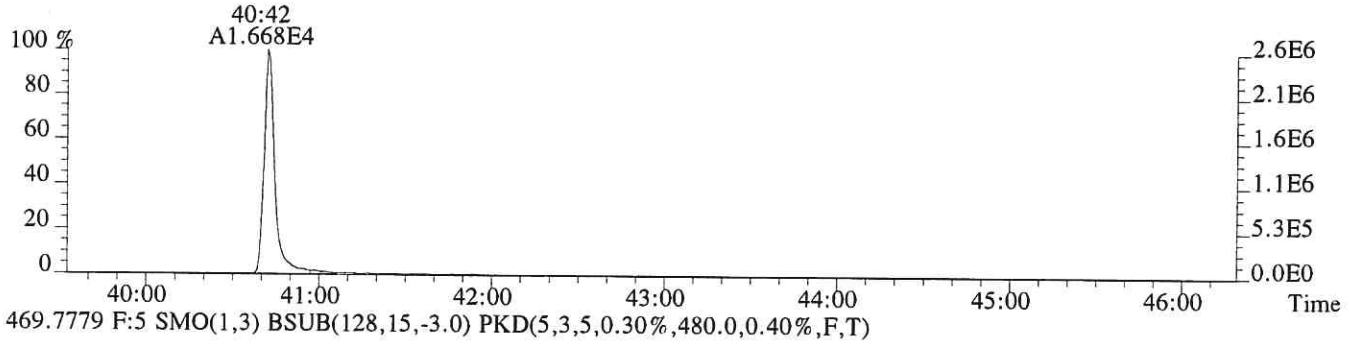
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



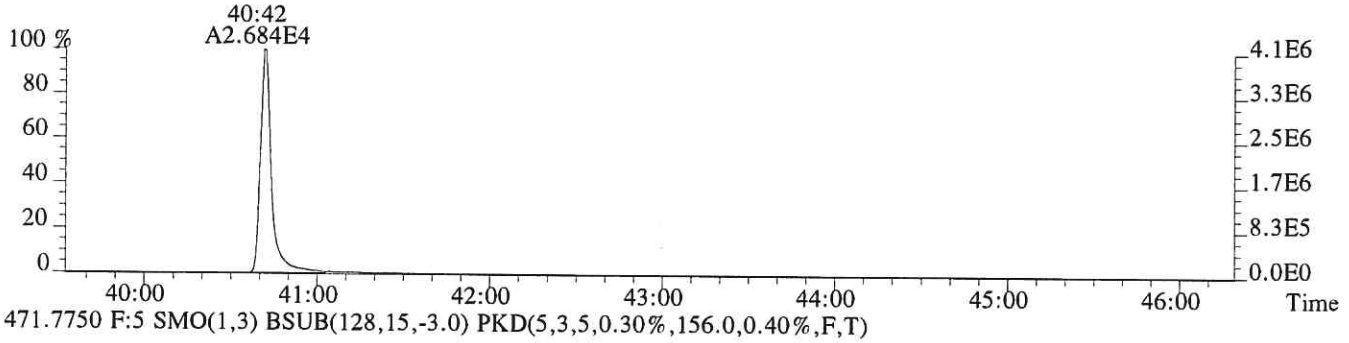
File:P518880 #1-610 Acq:17-NOV-2018 13:32:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



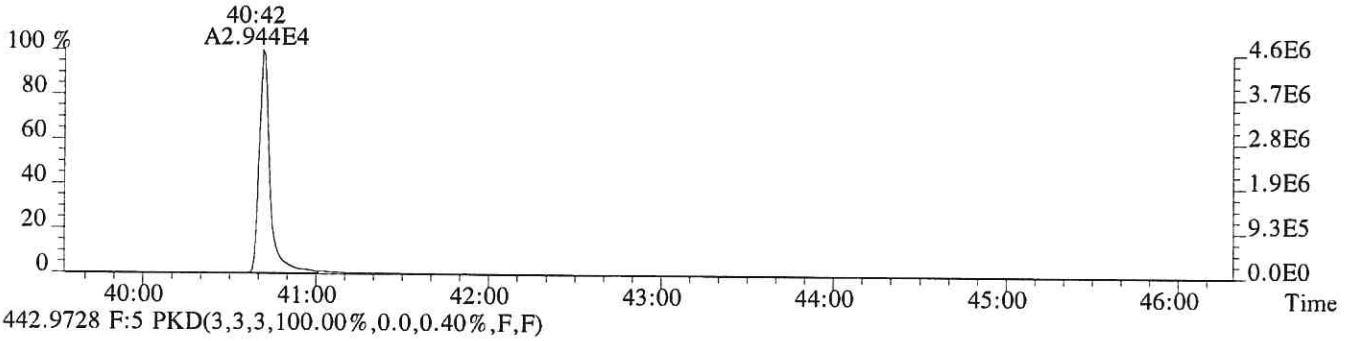
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



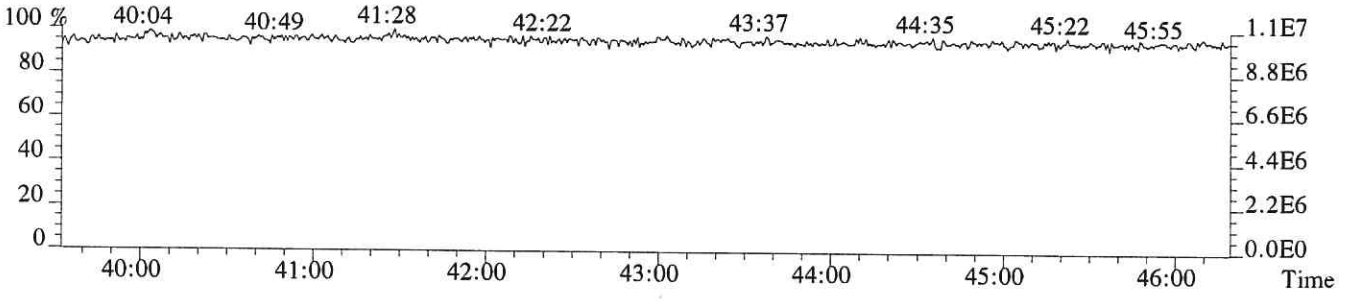
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518895

Date: 11/18/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P518895	18-NOV-18	01:56:23
192977	WINDOW DEFINE	P518896	18-NOV-18	02:44:09
METHOD BLANK	EQ1800460-01	P518897	18-NOV-18	03:32:48
SL0522	E1801038-004	P518898	18-NOV-18	04:21:25
SL0523	E1801038-005	P518899	18-NOV-18	05:10:02
SL0524	E1801038-006	P518900	18-NOV-18	05:58:40
SL0525	E1801038-007	P518901	18-NOV-18	06:47:18
SL0526	E1801038-008	P518902	18-NOV-18	07:35:57
SL0527	E1801038-009	P518903	18-NOV-18	08:24:36
SL0528	E1801038-010	P518904	18-NOV-18	09:13:15
SL0529	E1801038-011	P518905	18-NOV-18	10:01:55
SL0530	E1801038-012	P518906	18-NOV-18	10:50:34
SL0531	E1801038-013	P518907	18-NOV-18	11:39:14
SL0532	E1801038-014	P518908	18-NOV-18	12:27:54

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181116D.SPL
Last Modified: Monday, November 19, 2018 07:46:39 Central Standard Time
Printed: Monday, November 19, 2018 07:46:41 Central Standard Time

Page Position (1, 1)

Opus 4: P518895res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/18/18	01:56	P518895	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG for LKL	HRMS check 01:00
2		02:44	P518896	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		03:32	P518897	MB	EQ1800460-01	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		04:21	P518898	E1801038-004	E1801038-004	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		05:10	P518899	E1801038-005	E1801038-005	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:58	P518900	E1801038-006	E1801038-006	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:47	P518901	E1801038-007	E1801038-007	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		07:35	P518902	E1801038-008	E1801038-008	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		08:24	P518903	E1801038-009	E1801038-009	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		09:13	P518904	E1801038-010	E1801038-010	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		10:01	P518905	E1801038-011	E1801038-011	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:50	P518906	E1801038-012	E1801038-012	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		11:39	P518907	E1801038-013	E1801038-013	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		12:27	P518908	E1801038-014	E1801038-014	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		13:24	P518909	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 13:24
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---

LG 11/21/18

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

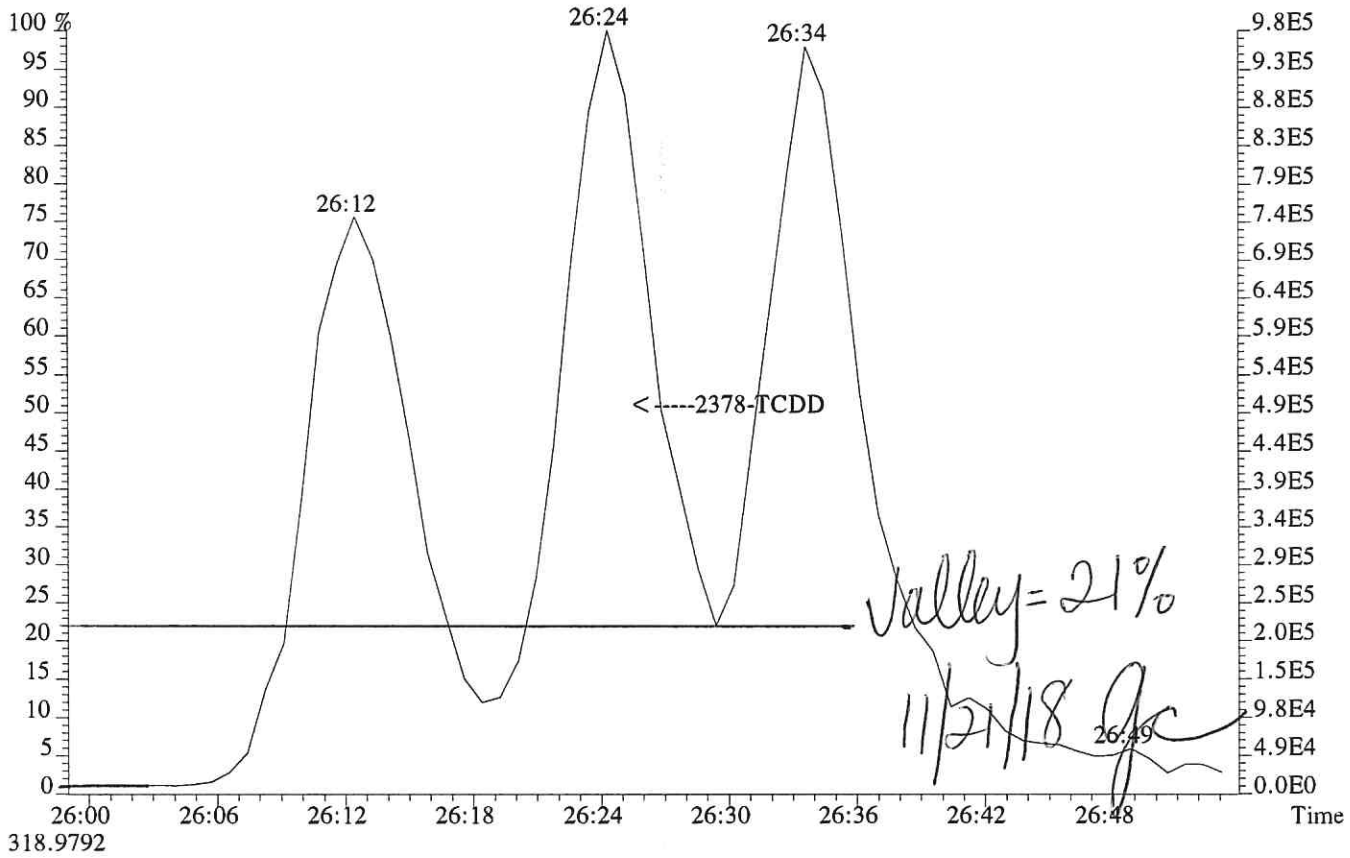
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P518896
Date Analyzed: 18-NOV-2018
Time Analyzed: 02:44:09

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:06	27:49
TCDD	22:41	27:39
PeCDF	27:46	32:34
PeCDD	29:35	32:20
HxCDF	33:19	35:57
HxCDD	33:52	35:33
HpCDF	37:14	38:36
HpCDD	37:30	38:10

% Valley 2378-TCDD: 21 %

File:P518896 #1-602 Acq:18-NOV-2018 02:44:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



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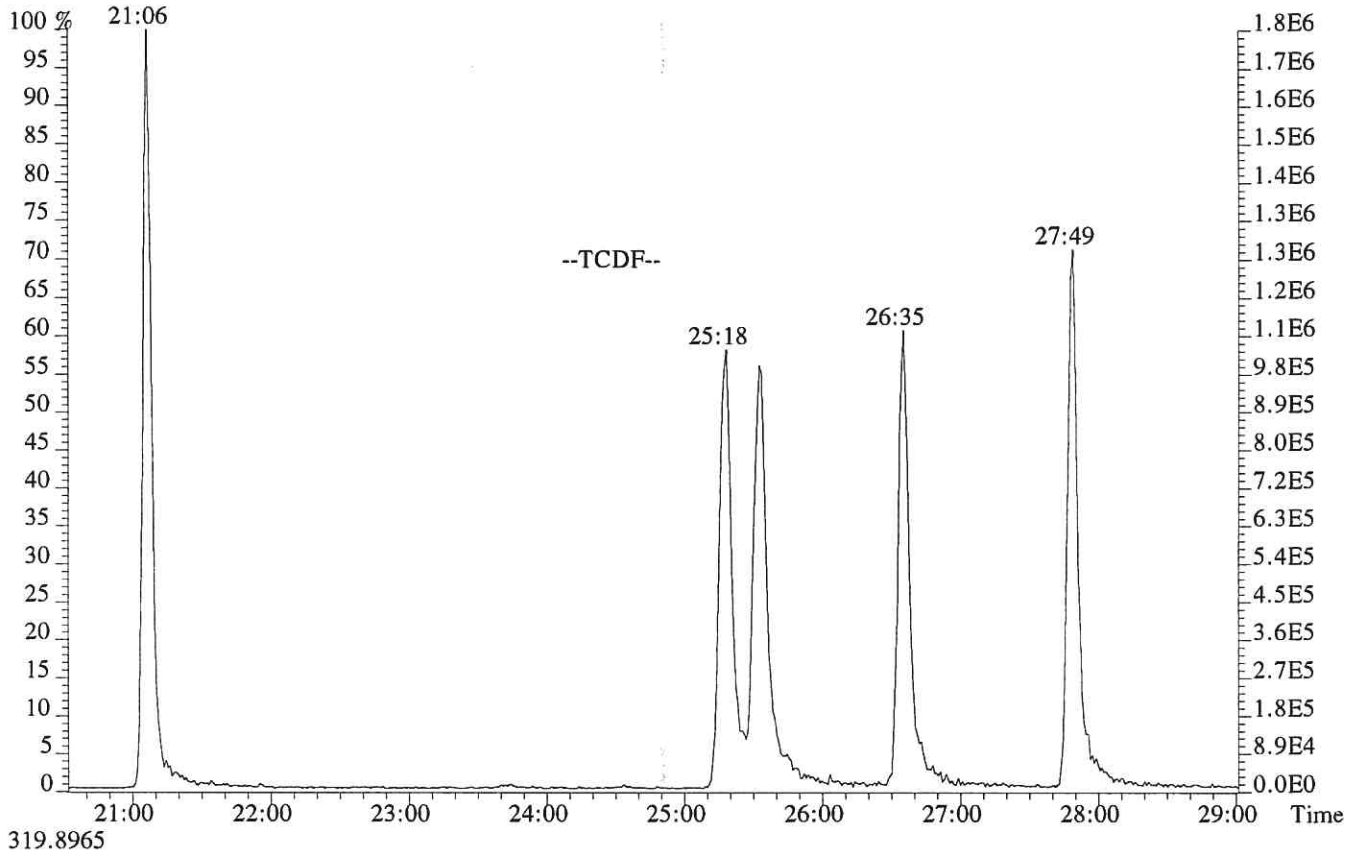
303.9016



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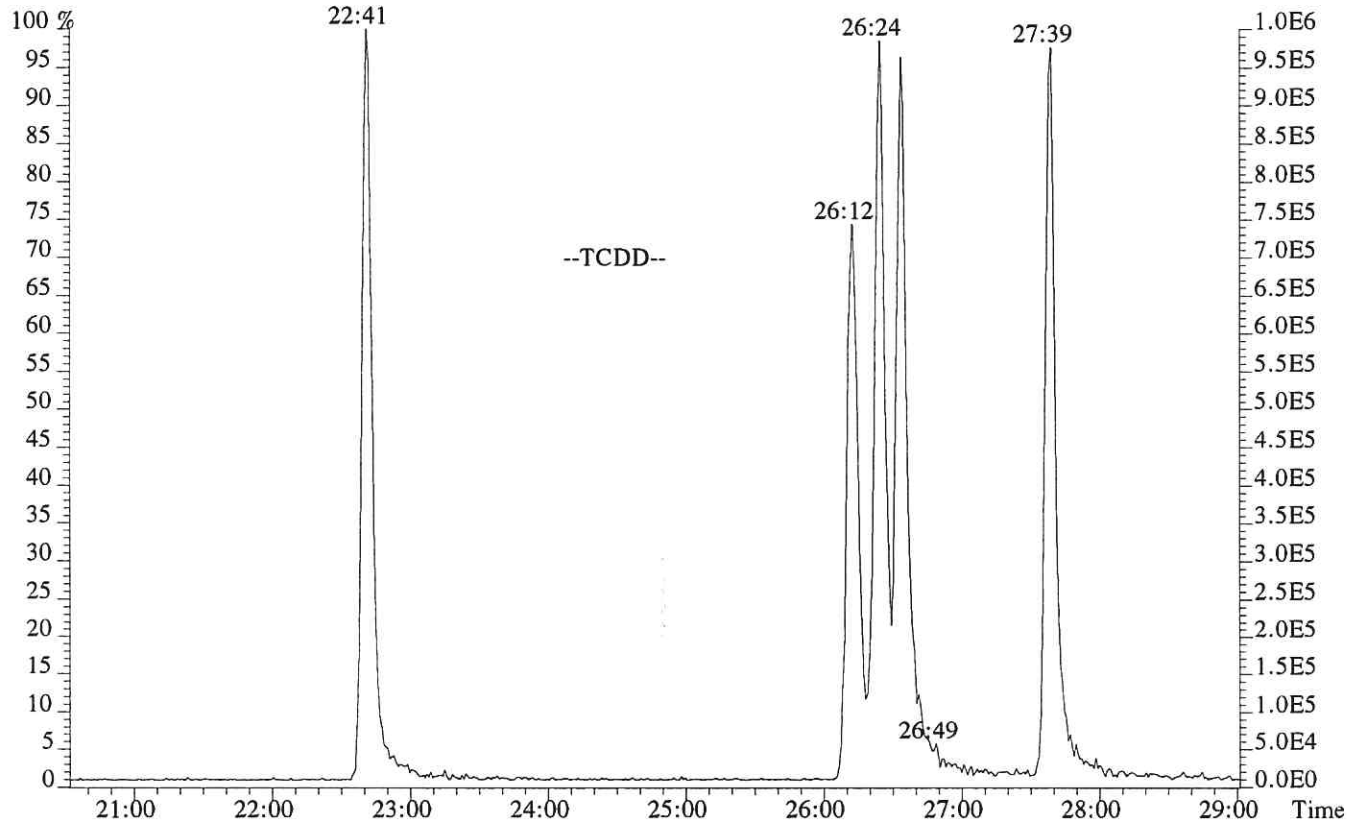
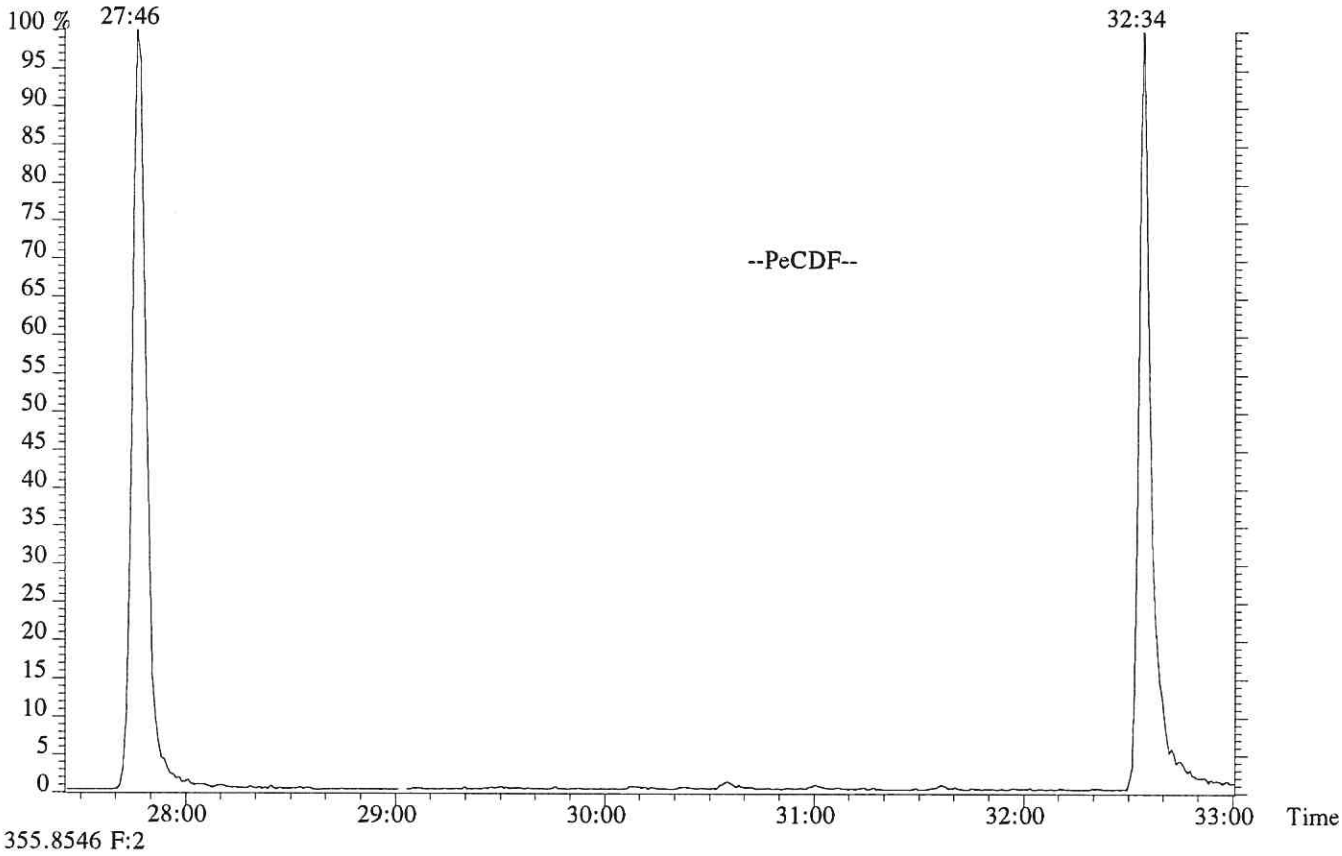


File:P518896 #1-602 Acq:18-NOV-2018 02:44:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



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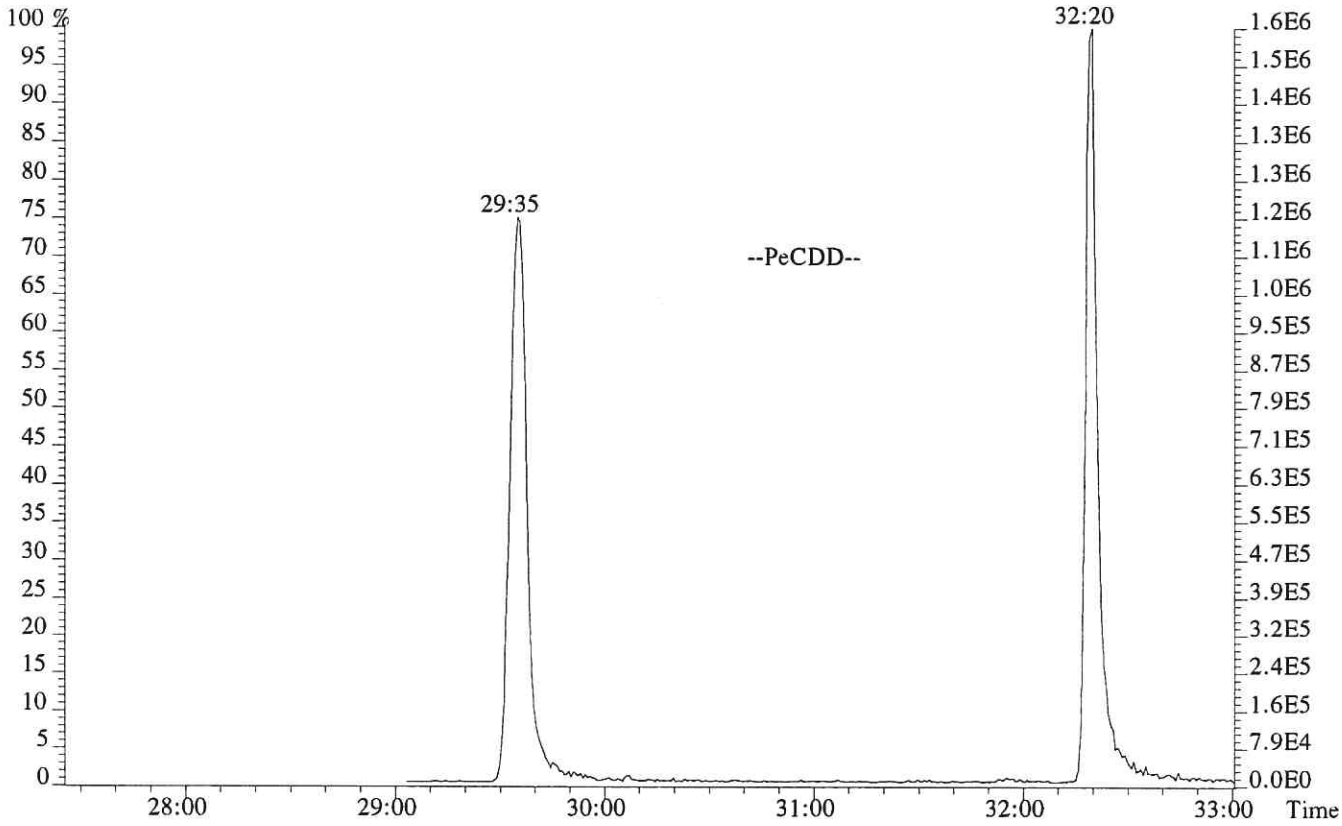

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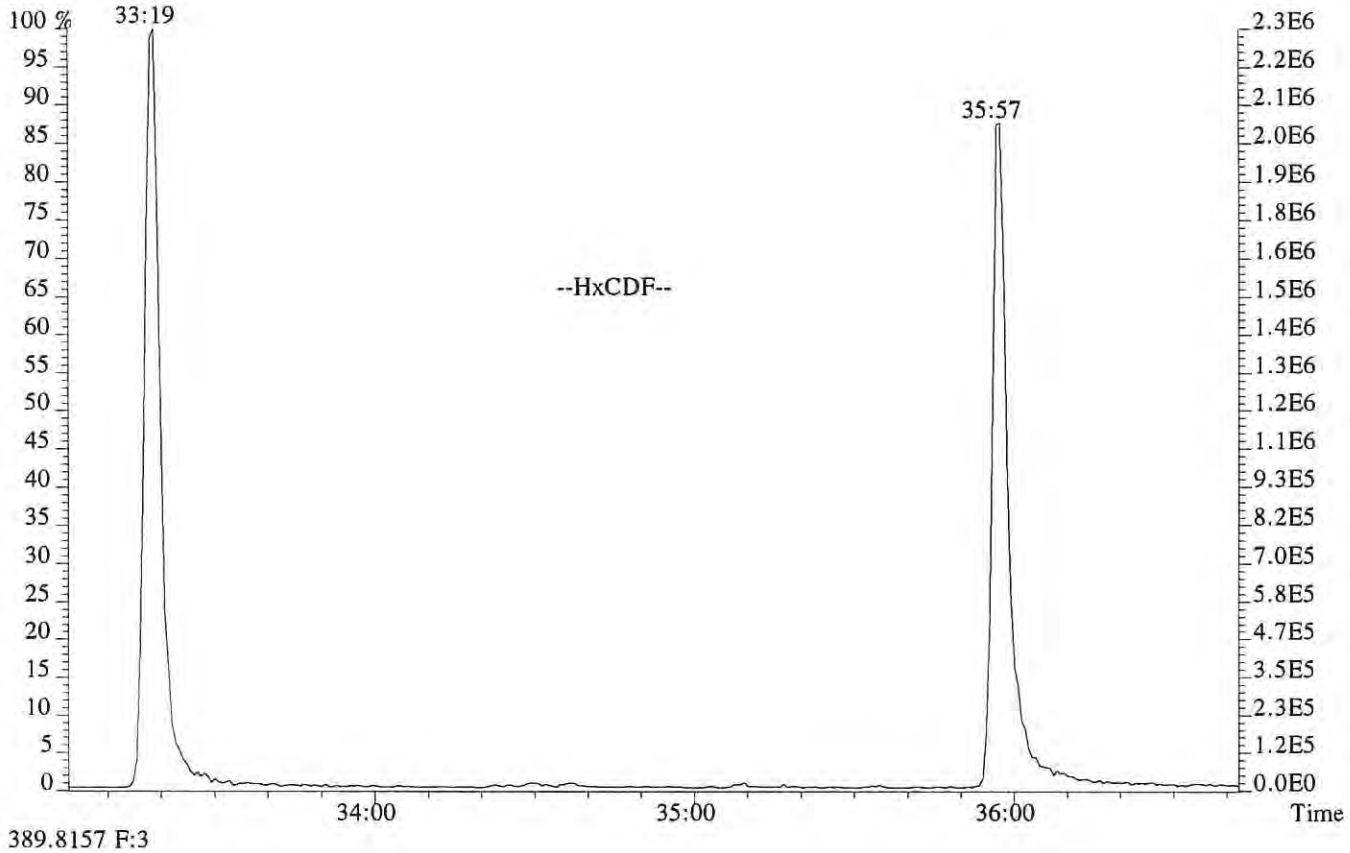
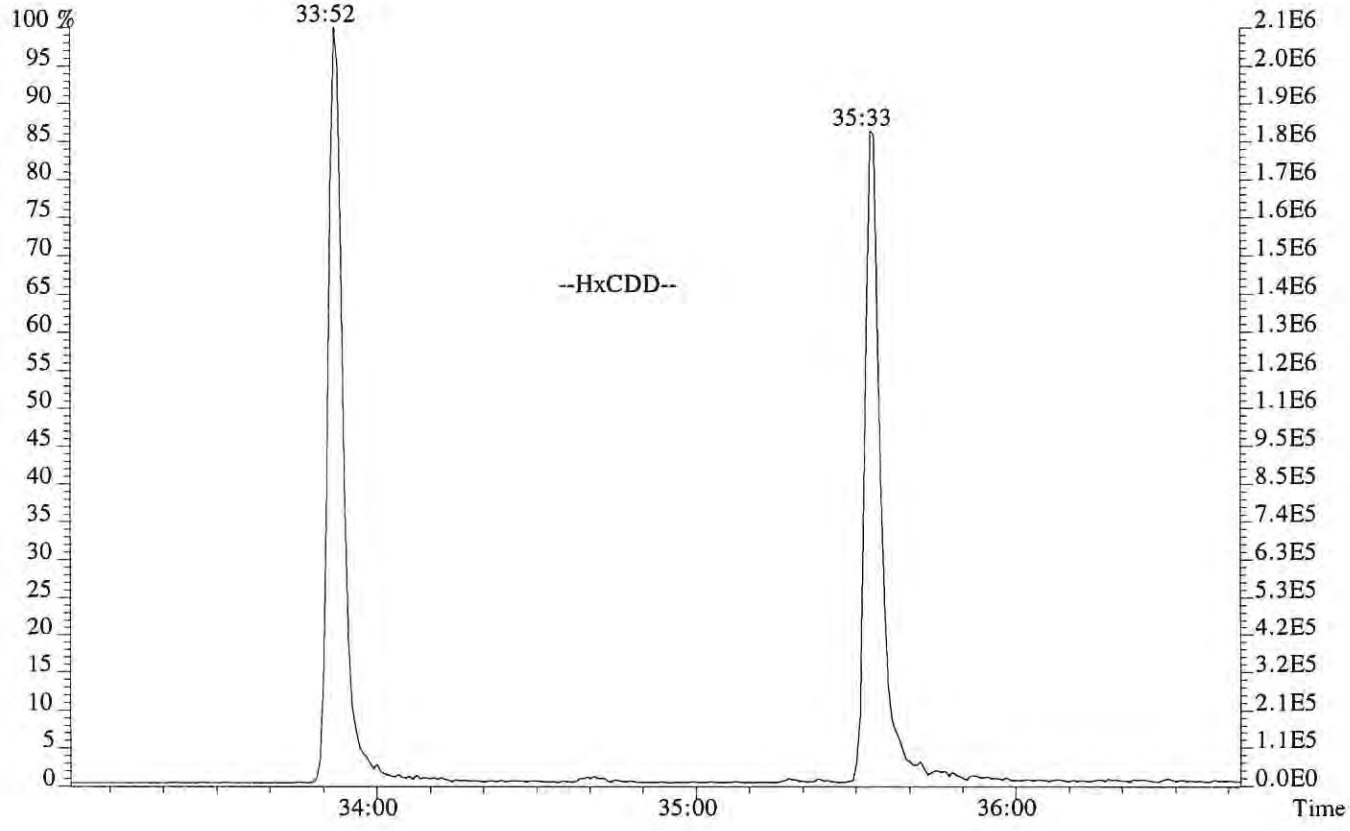
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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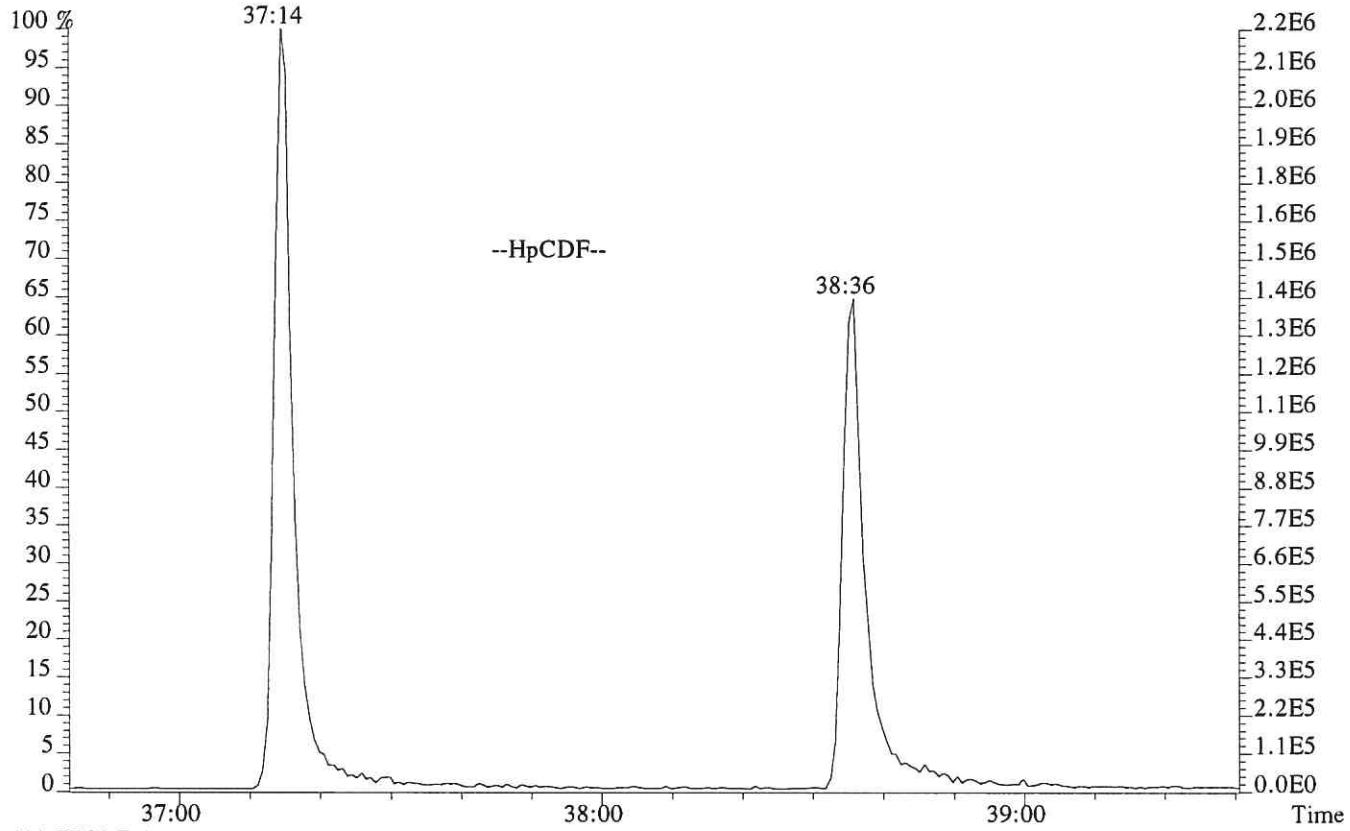
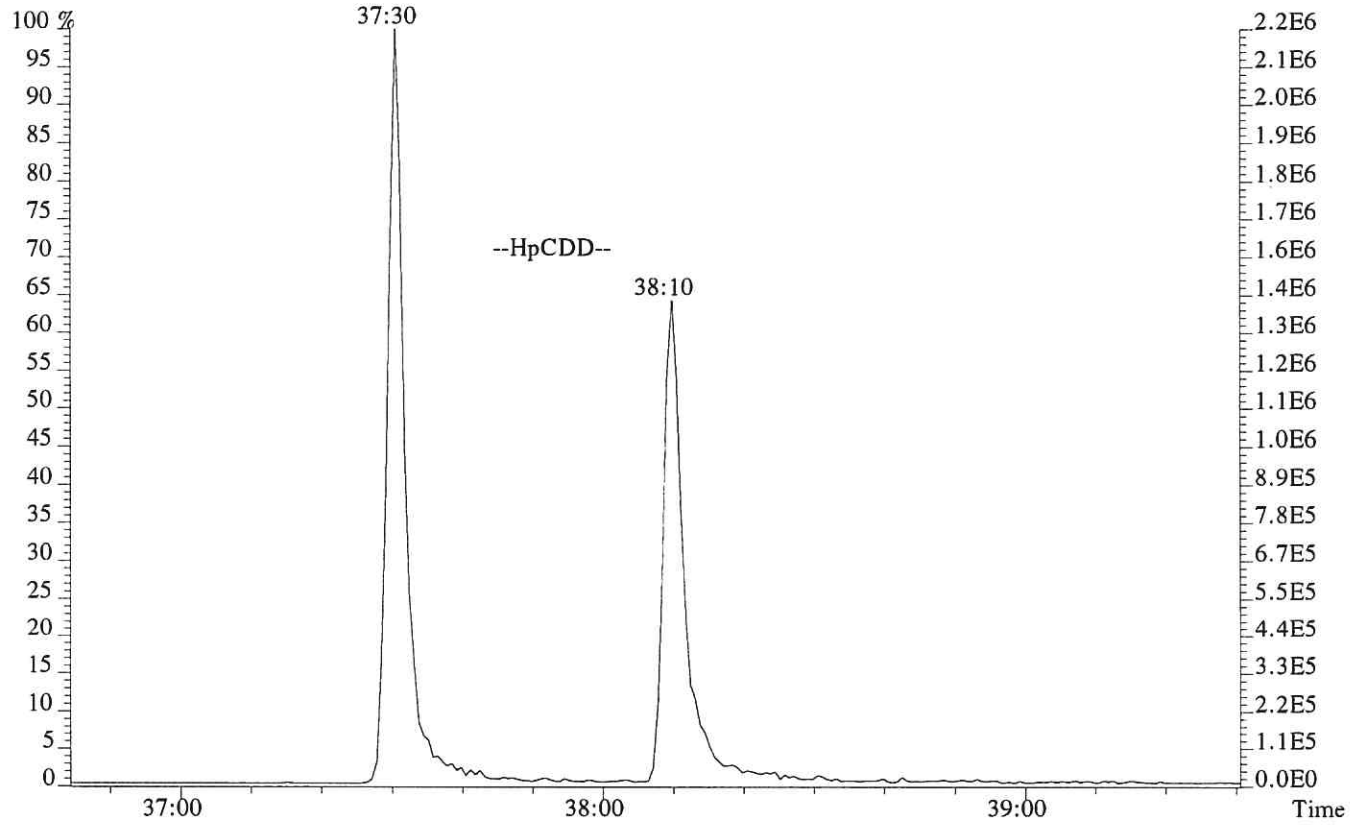
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



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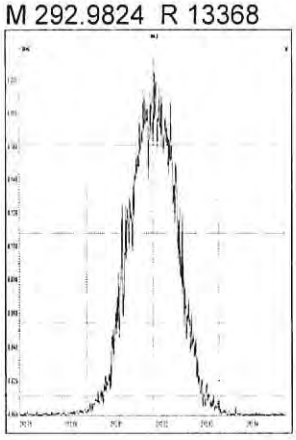
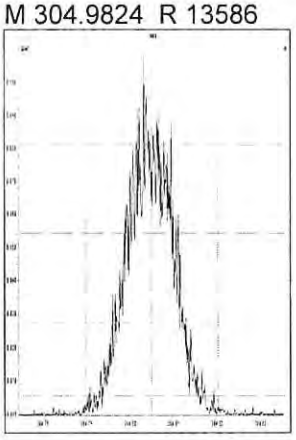
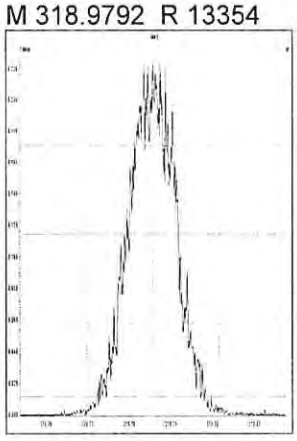
M 292.9824 R 13368



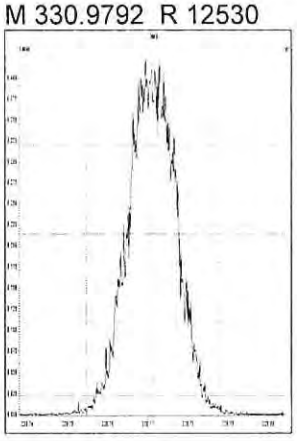
M 304.9824 R 13586



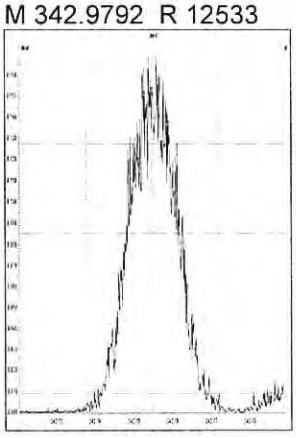
M 318.9792 R 13354



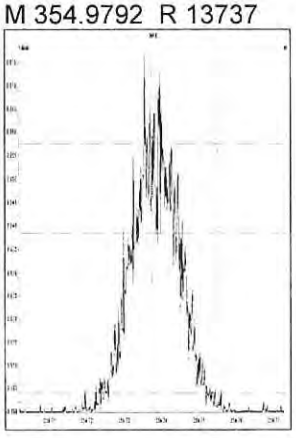
M 330.9792 R 12530



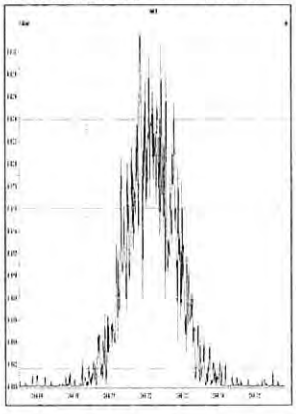
M 342.9792 R 12533



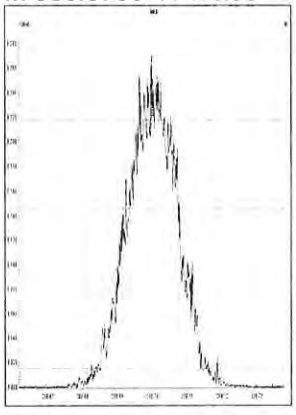
M 354.9792 R 13737



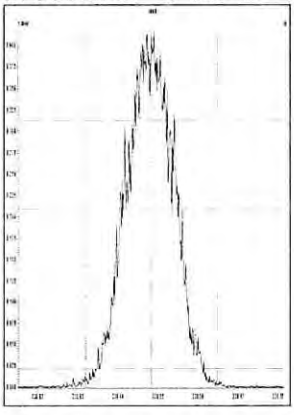
M 366.9792 R 14970



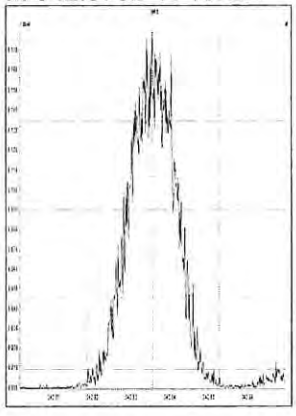
M 380.9760 R 12256



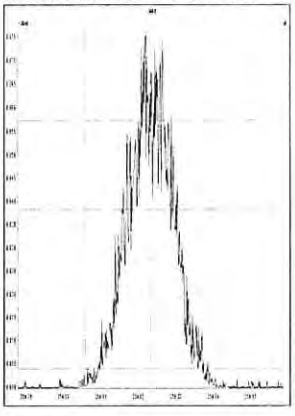
M 330.9792 R 12740



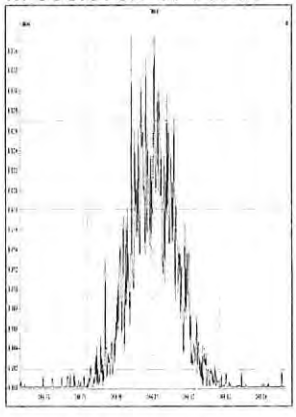
M 342.9792 R 13262



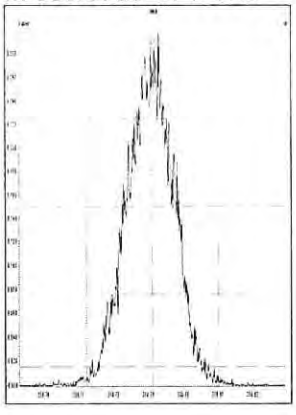
M 354.9792 R 13094



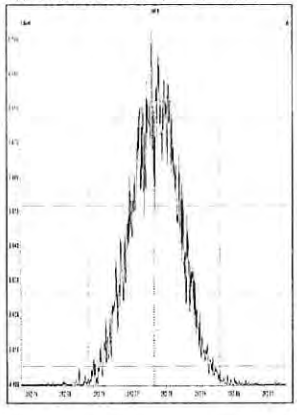
M 366.9792 R 14542



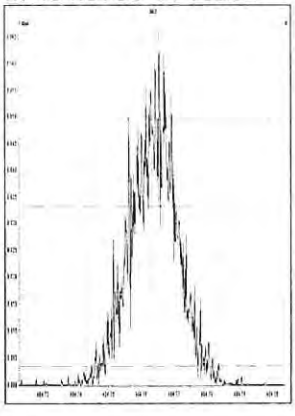
M 380.9760 R 12726



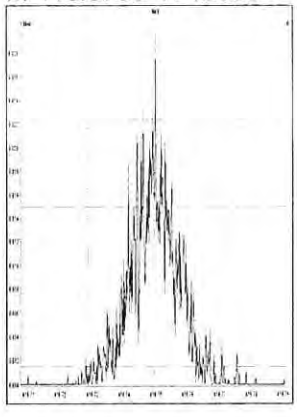
M 392.9760 R 12408



M 404.9760 R 13352



M 416.9760 R 16958



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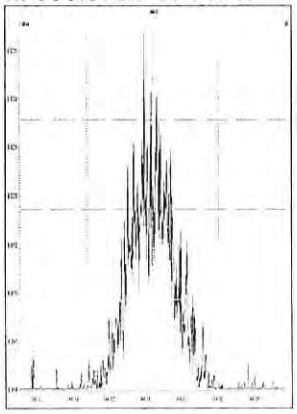
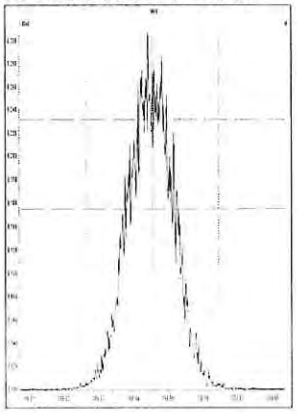
M 366.9792 R 14247



M 380.9760 R 12887



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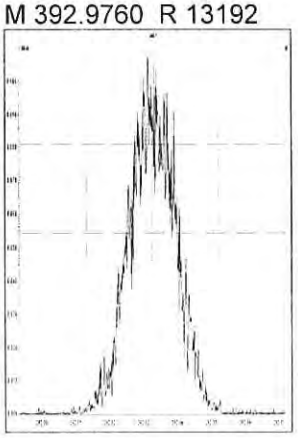
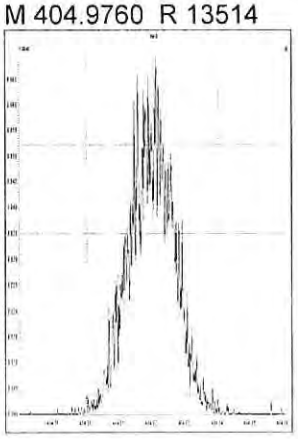
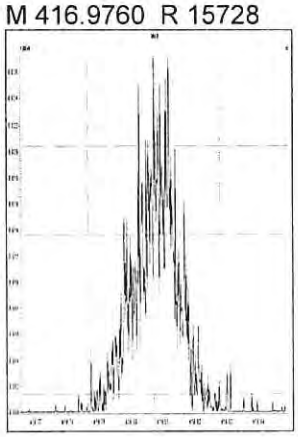


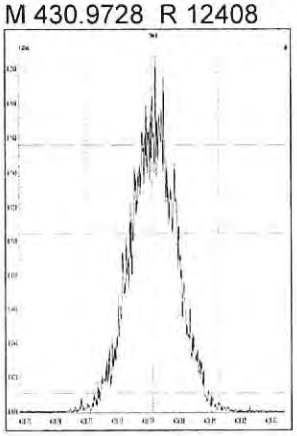
M 404.9760 R 13514



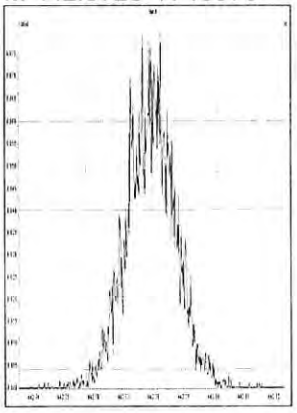
M 416.9760 R 15728



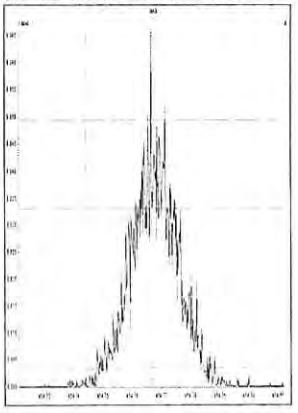
M 430.9728 R 12408



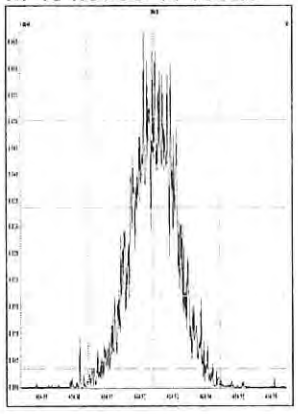
M 442.9728 R 13976



M 454.9728 R 12836



M 404.9760 R 13923



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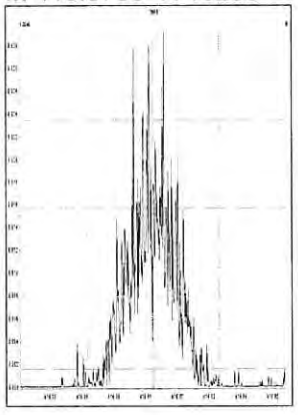

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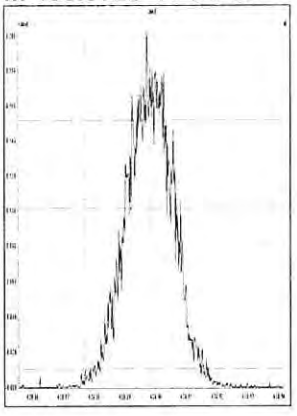

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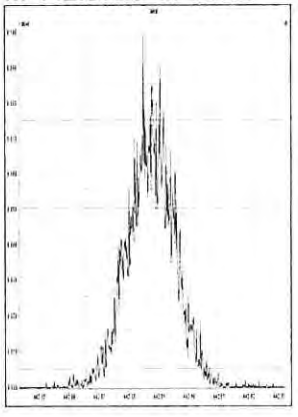
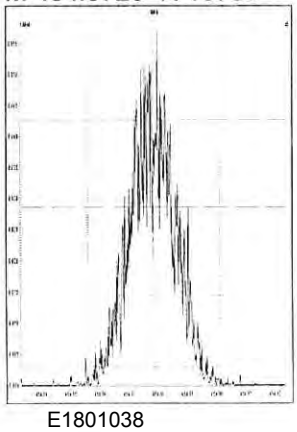
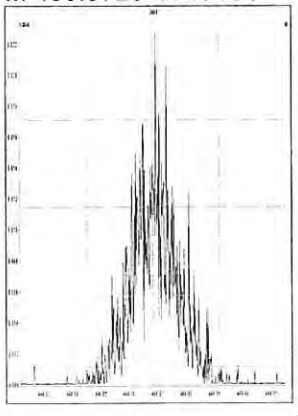


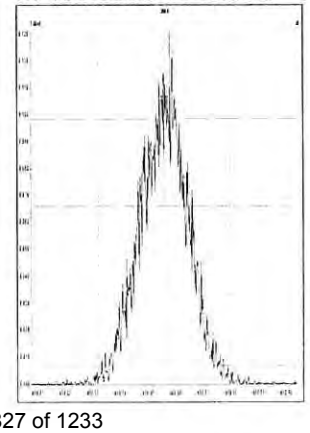
M 454.9728 R 13785



M 466.9728 R 17191



M 480.9696 R 12345



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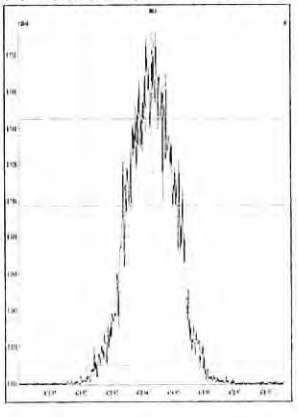

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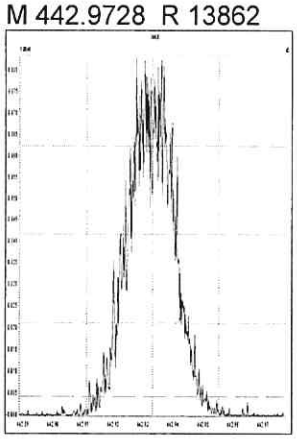

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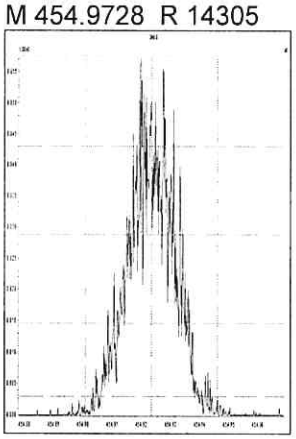
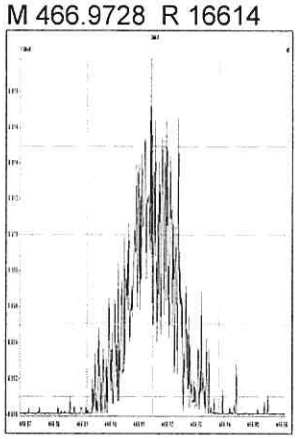


M 466.9728 R 16614



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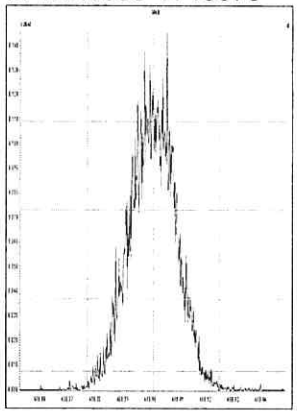

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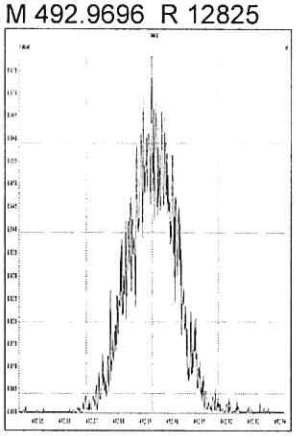
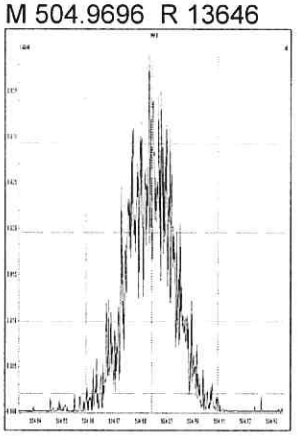


M 504.9696 R 13646



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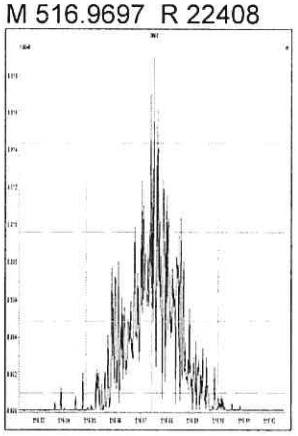
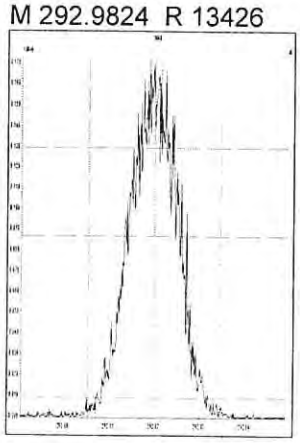
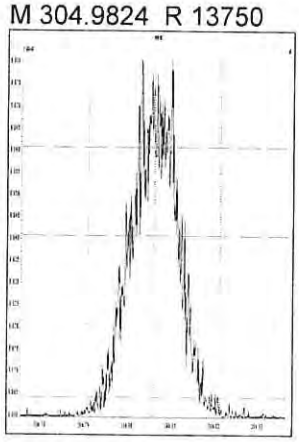


M 292.9824 R 13426



M 304.9824 R 13750



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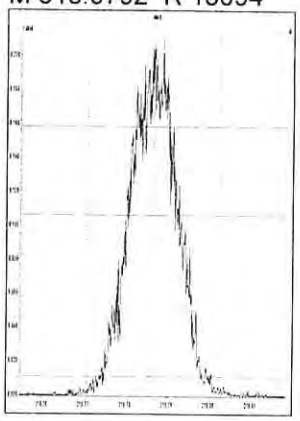
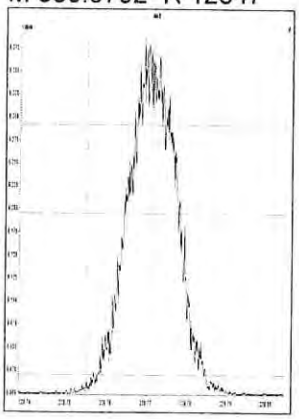


M 330.9792 R 12347



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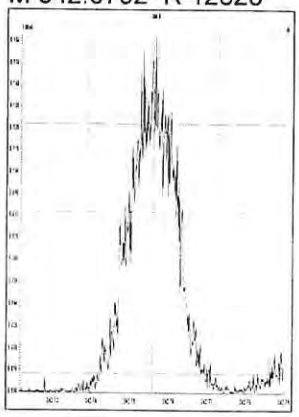
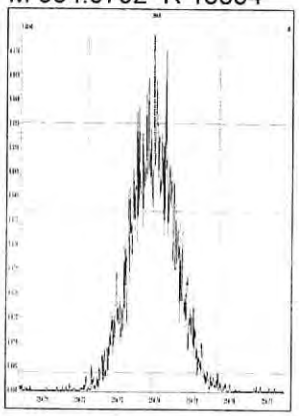


M 354.9792 R 13854



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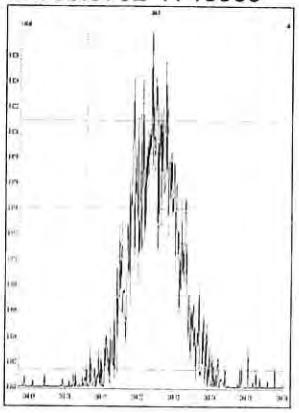

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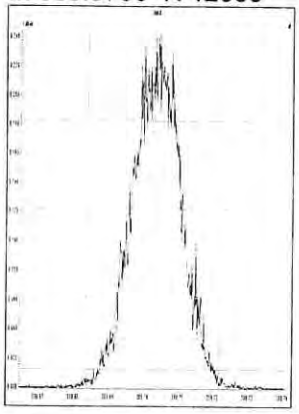

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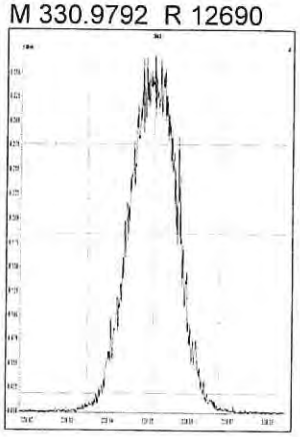

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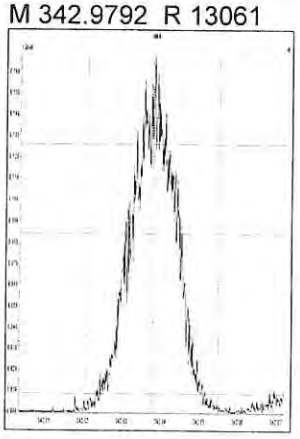

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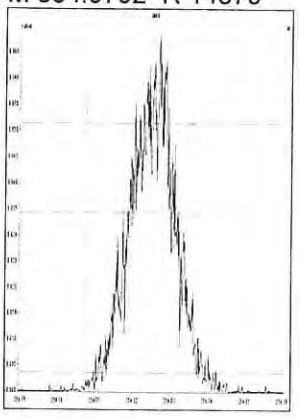

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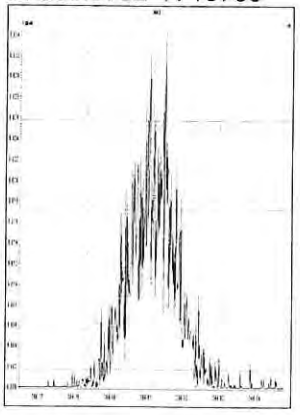

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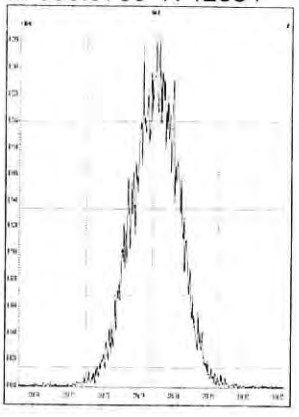

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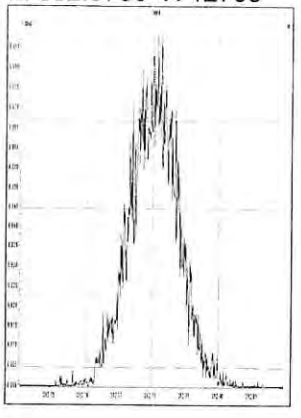

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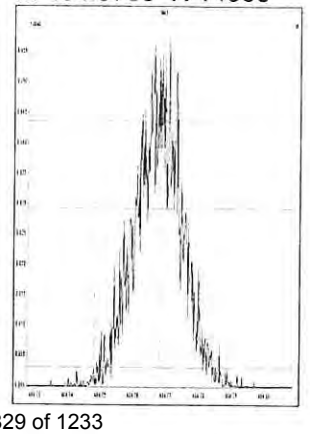

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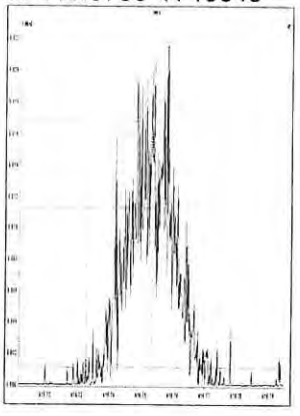

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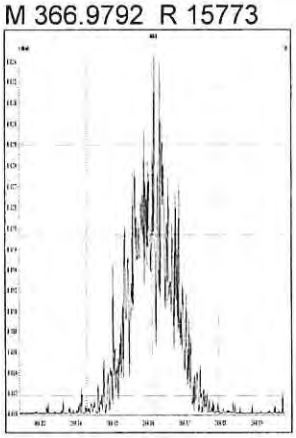

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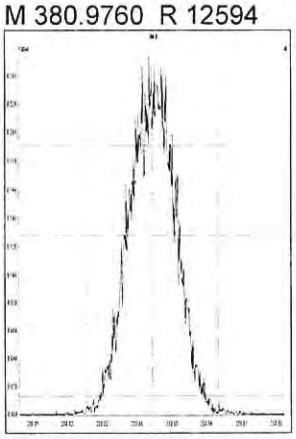
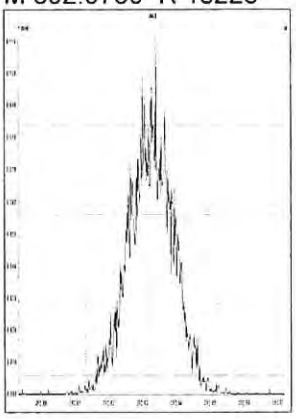


M 392.9760 R 13228



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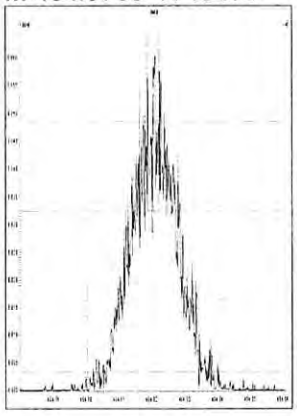

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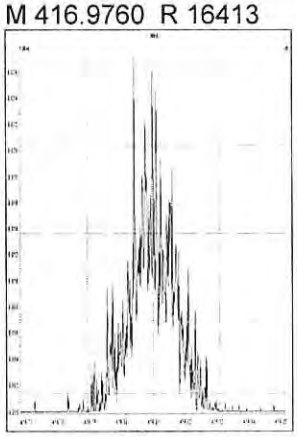

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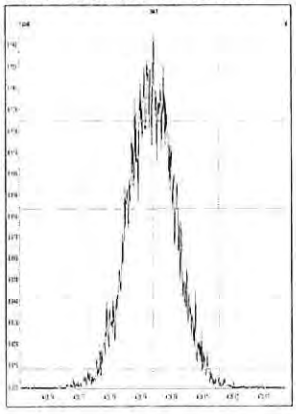

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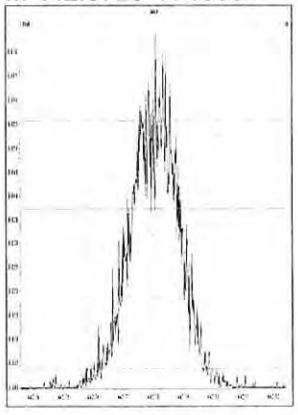

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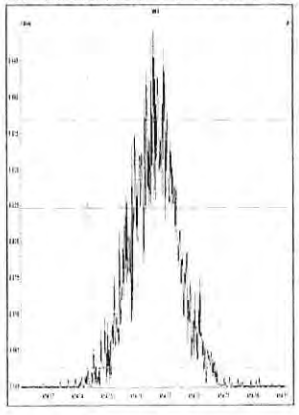

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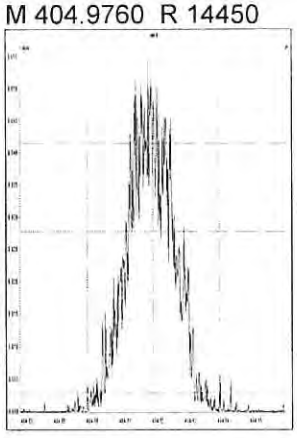

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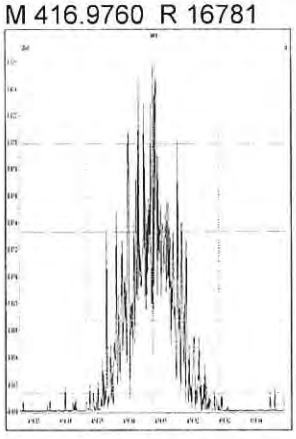

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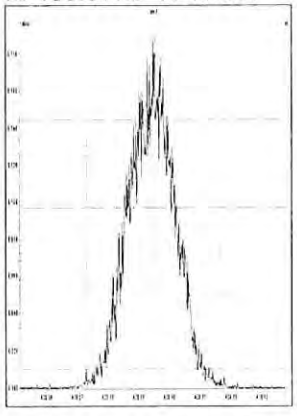

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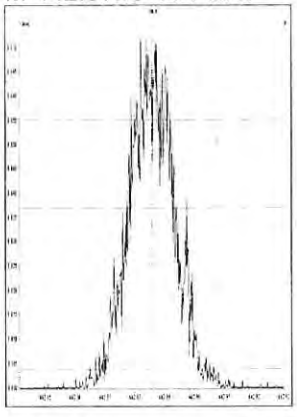

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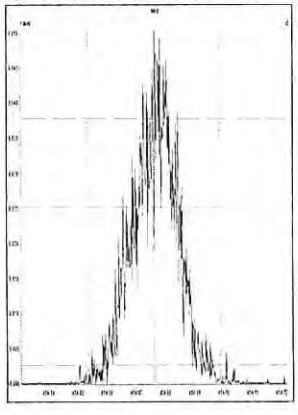

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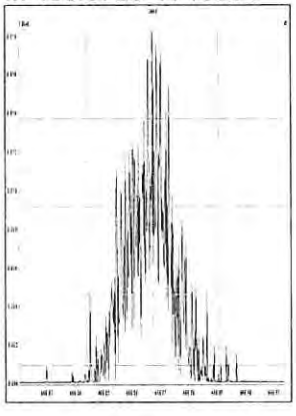

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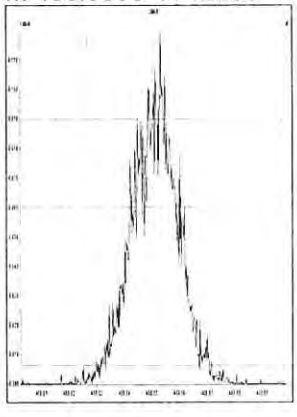

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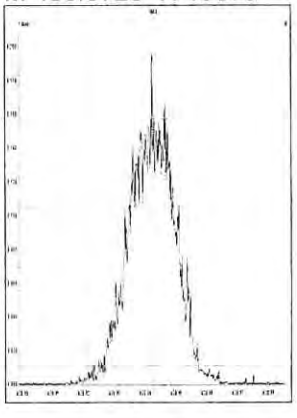

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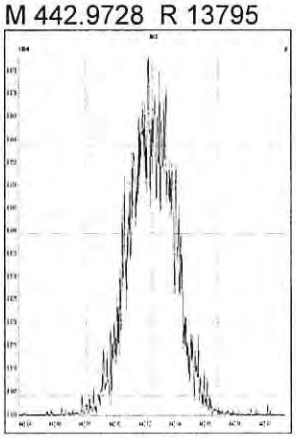

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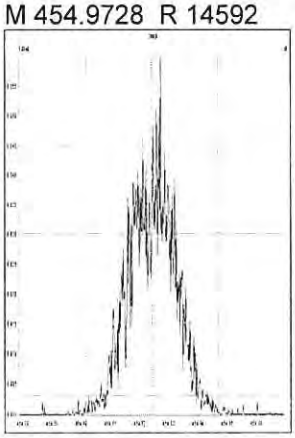

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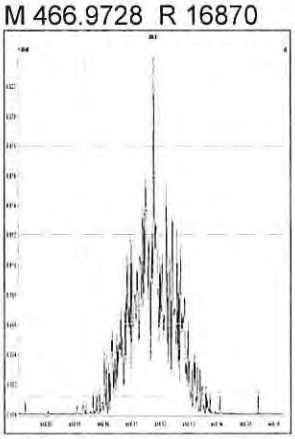

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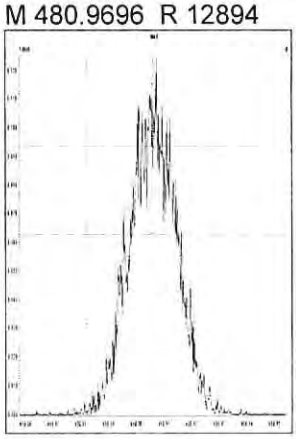

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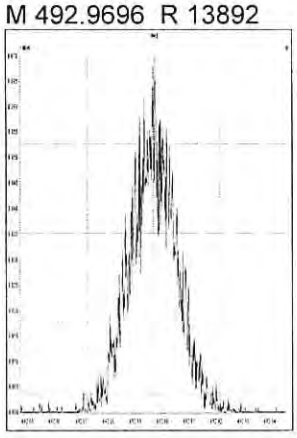

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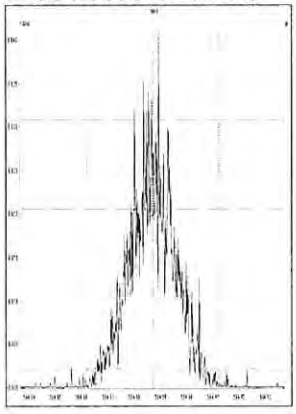

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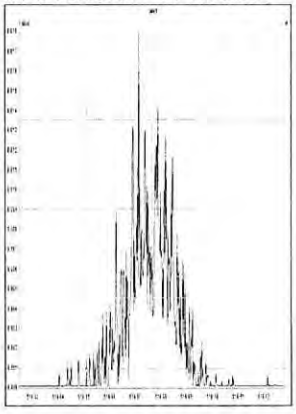

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518895 Analysis Date: 18-NOV-18 Time: 01:56:23

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.4	7.8 - 12.9	-6.3
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	51	39 - 65	1.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	50	39 - 64	0.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	51	39 - 64	1.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.29	1.05-1.43	55	41 - 61	9.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.1
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.5
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.8	8.4 - 12.0	-2.3
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	49	41 - 61	-1.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	51	44 - 57	2.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	51	45 - 56	2.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.97	0.88-1.20	49	43 - 58	-2.3
OCDF	M+2/M+4	0.87	0.76-1.02	96	63 - 159	-3.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518895 Analysis Date: 18-NOV-18 Time: 01:56:23

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	104	82 - 121	4.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	114	62 - 160	13.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	90	85 - 117	-10.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	94	85 - 118	-5.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	97	72 - 138	-2.9
13C-OCDD	M+2/M+4	0.89	0.76-1.02	183	96 - 415	-8.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	95	71 - 140	-4.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	110	76 - 130	9.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	111	77 - 130	11.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	80	76 - 131	-19.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	93	70 - 143	-7.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.56	0.43-0.59	86	74 - 135	-14.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	92	73 - 137	-8.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	94	78 - 129	-5.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	93	77 - 129	-7.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-4.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518895 Samp: 1 Inj: 1 Acquired: 18-NOV-18 01:56:23
Processed: 21-NOV-18 12:44:47 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	2.902e+03	3.875e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	2.538e+04	1.603e+04	1.58	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	2.360e+04	1.569e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	2.003e+04	1.639e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	2.448e+04	2.062e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	2.112e+04	1.738e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	1.828e+04	1.474e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	1.871e+04	1.846e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	1.380e+04	1.428e+04	0.97	yes	no	1.258
10	Unk	OCDF	40:52	1.949e+04	2.249e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	2.215e+03	2.778e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	1.681e+04	1.058e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	1.456e+04	1.161e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.577e+04	1.244e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	1.710e+04	1.324e+04	1.29	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.311e+04	1.257e+04	1.04	yes	no	1.025
17	Unk	OCDD	40:42	1.745e+04	1.930e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	3.251e+04	4.119e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	5.105e+04	3.163e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	5.055e+04	3.231e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	2.028e+04	3.936e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	2.633e+04	5.171e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	2.335e+04	4.600e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	2.002e+04	3.606e+04	0.56	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.670e+04	3.814e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	1.402e+04	3.170e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	2.146e+04	2.764e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	3.470e+04	2.194e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	2.809e+04	2.194e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	3.005e+04	2.375e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	2.604e+04	2.402e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:42	3.026e+04	3.389e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.264e+04	2.848e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.377e+04	2.635e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	4.959e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518895 Samp: 1 Inj: 1 Acquired: 18-NOV-18 01:56:23
Processed: 21-NOV-18 12:44:47 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.61e+05	1.52e+02	2.4e+03	4.52e+05	5.16e+02	8.8e+02
2	1,2,3,7,8-PeCDF	3.75e+06	4.04e+02	9.3e+03	2.40e+06	1.26e+03	1.9e+03
3	2,3,4,7,8-PeCDF	3.82e+06	4.04e+02	9.5e+03	2.57e+06	1.26e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	4.10e+06	4.04e+02	1.0e+04	3.33e+06	2.16e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	4.20e+06	4.04e+02	1.0e+04	3.50e+06	2.16e+02	1.6e+04
6	2,3,4,6,7,8-HxCDF	4.10e+06	4.04e+02	1.0e+04	3.29e+06	2.16e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	3.14e+06	4.04e+02	7.8e+03	2.56e+06	2.16e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	3.55e+06	3.54e+03	1.0e+03	3.51e+06	4.66e+03	7.5e+02
9	1,2,3,4,7,8,9-HpCDF	2.52e+06	3.54e+03	7.1e+02	2.57e+06	4.66e+03	5.5e+02
10	OCDF	3.12e+06	1.32e+02	2.4e+04	3.51e+06	3.00e+02	1.2e+04
11	2,3,7,8-TCDD	2.92e+05	5.92e+02	4.9e+02	3.71e+05	1.64e+02	2.3e+03
12	1,2,3,7,8-PeCDD	2.68e+06	2.84e+02	9.5e+03	1.67e+06	2.44e+02	6.8e+03
13	1,2,3,4,7,8-HxCDD	2.94e+06	2.04e+02	1.4e+04	2.30e+06	2.04e+02	1.1e+04
14	1,2,3,6,7,8-HxCDD	2.97e+06	2.04e+02	1.5e+04	2.28e+06	2.04e+02	1.1e+04
15	1,2,3,7,8,9-HxCDD	2.99e+06	2.04e+02	1.5e+04	2.38e+06	2.04e+02	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	2.44e+06	2.16e+02	1.1e+04	2.42e+06	2.12e+02	1.1e+04
17	OCDD	2.79e+06	2.44e+02	1.1e+04	3.16e+06	1.40e+02	2.3e+04
18	13C-2,3,7,8-TCDF	3.83e+06	2.20e+03	1.7e+03	4.93e+06	7.28e+02	6.8e+03
19	13C-1,2,3,7,8-PeCDF	7.45e+06	3.64e+02	2.0e+04	4.68e+06	1.14e+03	4.1e+03
20	13C-2,3,4,7,8-PeCDF	8.29e+06	3.64e+02	2.3e+04	5.25e+06	1.14e+03	4.6e+03
21	13C-1,2,3,4,7,8-HxCDF	4.11e+06	2.96e+02	1.4e+04	7.94e+06	5.84e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	4.65e+06	2.96e+02	1.6e+04	8.96e+06	5.84e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	4.49e+06	2.96e+02	1.5e+04	8.77e+06	5.84e+02	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.51e+06	2.96e+02	1.2e+04	6.52e+06	5.84e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.28e+06	3.50e+03	9.4e+02	7.32e+06	4.77e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.53e+06	3.50e+03	7.2e+02	5.53e+06	4.77e+03	1.2e+03
27	13C-2,3,7,8-TCDD	2.92e+06	3.64e+03	8.0e+02	3.64e+06	1.20e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	5.57e+06	2.32e+02	2.4e+04	3.51e+06	2.44e+02	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	5.56e+06	8.64e+02	6.4e+03	4.34e+06	6.92e+02	6.3e+03
30	13C-1,2,3,6,7,8-HxCDD	5.52e+06	8.64e+02	6.4e+03	4.35e+06	6.92e+02	6.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.89e+06	4.12e+02	1.2e+04	4.51e+06	3.36e+02	1.3e+04
32	13C-OCDD	4.85e+06	2.72e+02	1.8e+04	5.45e+06	1.88e+02	2.9e+04
33	13C-1,2,3,4-TCDD	3.10e+06	3.64e+03	8.5e+02	3.85e+06	1.20e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.79e+06	8.64e+02	6.7e+03	4.59e+06	6.92e+02	6.6e+03
35	37Cl-2,3,7,8-TCDD	6.76e+05	6.28e+02	1.1e+03			

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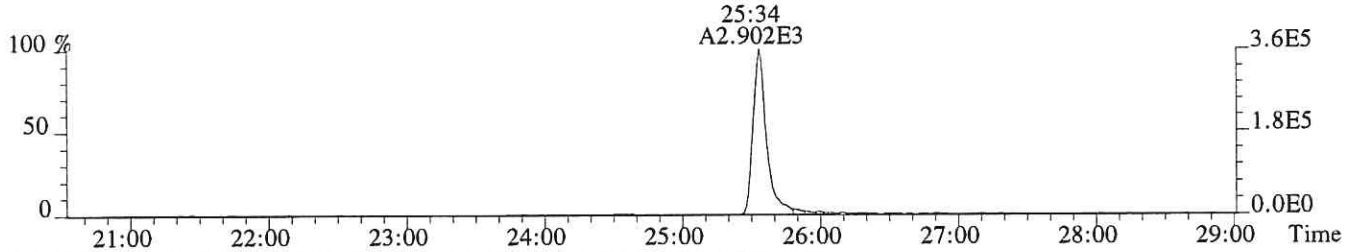
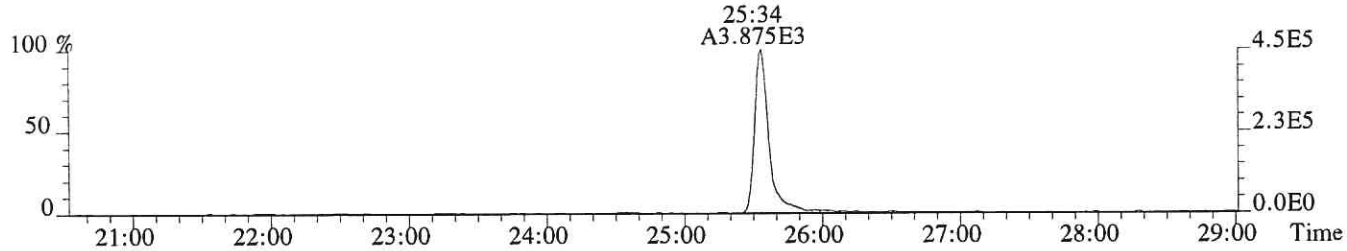
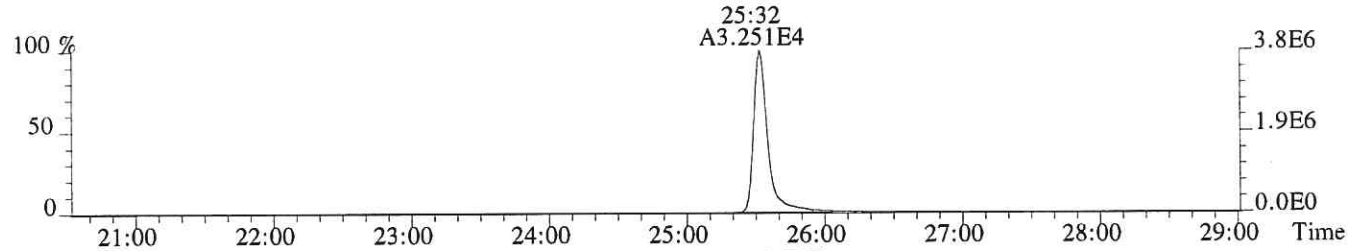
File:P518895 #1-602 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,152.0,1.00%,F,T)



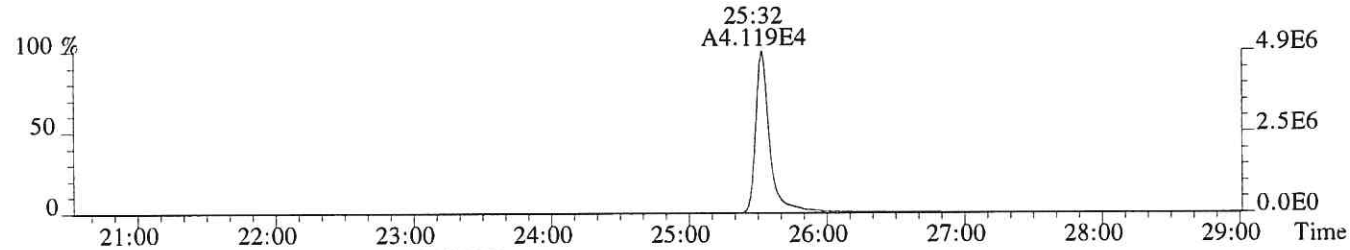
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



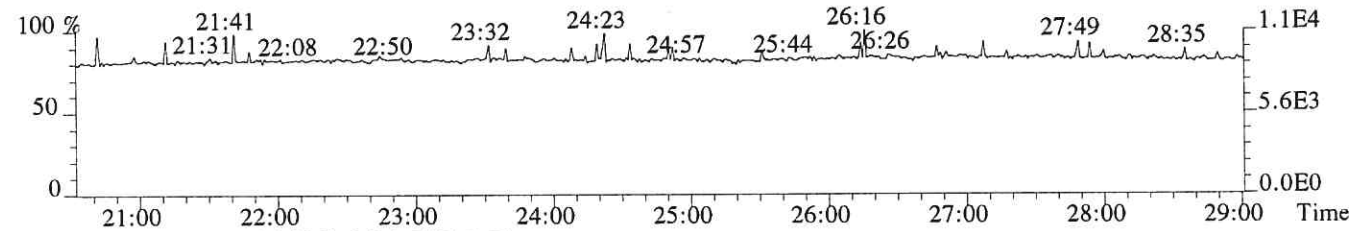
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



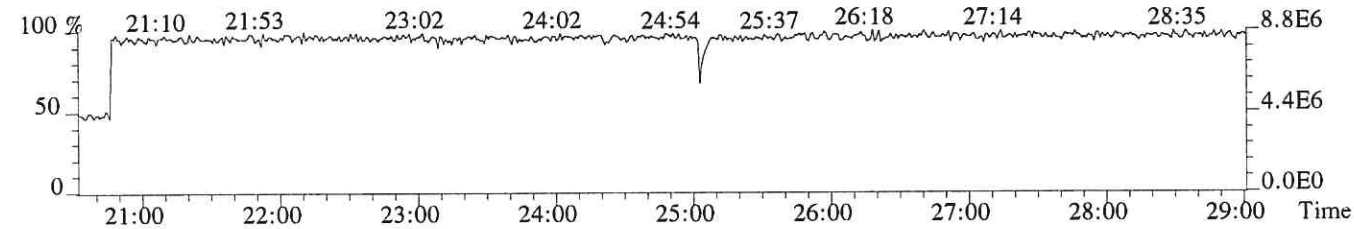
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



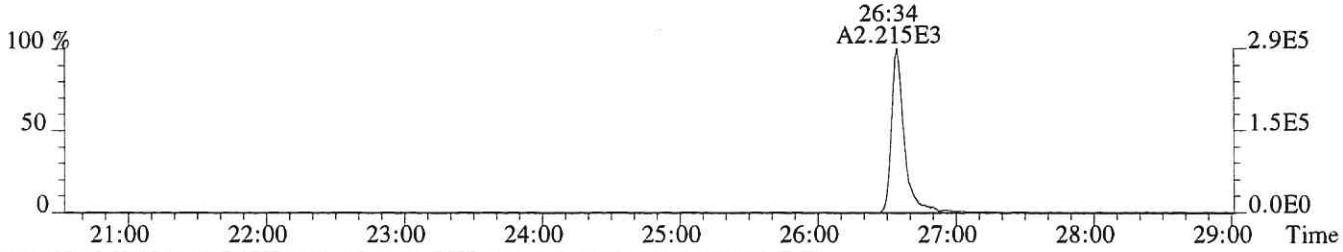
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



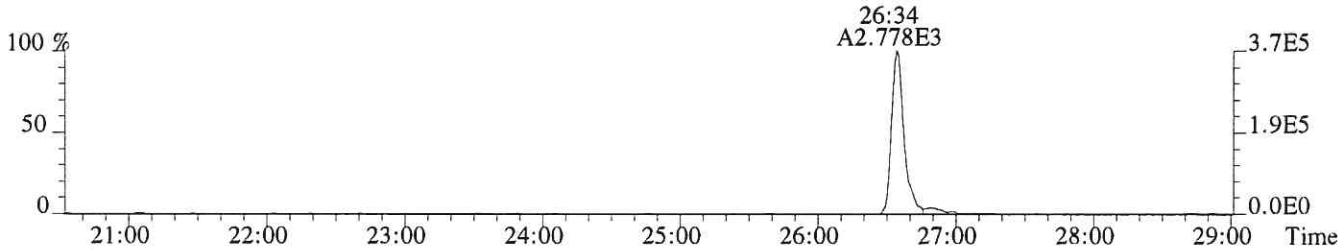
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



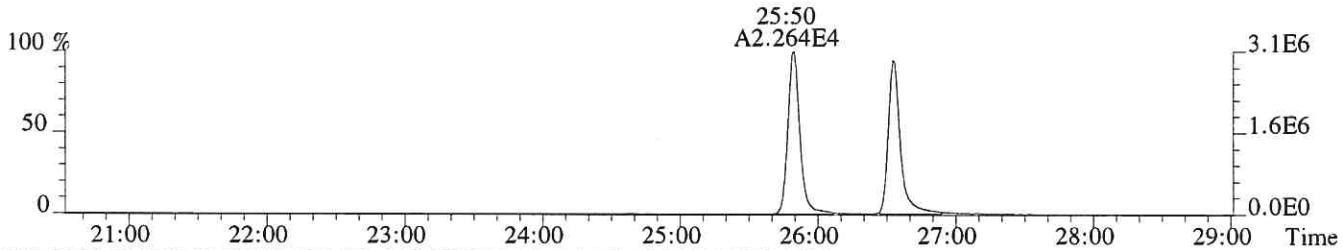
File:P518895 #1-602 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



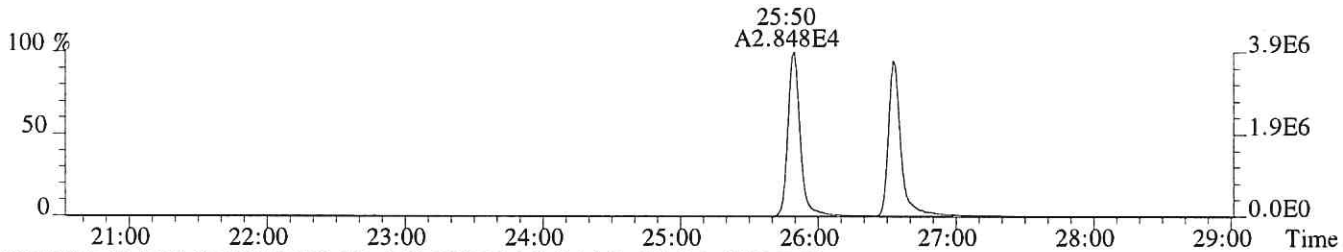
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



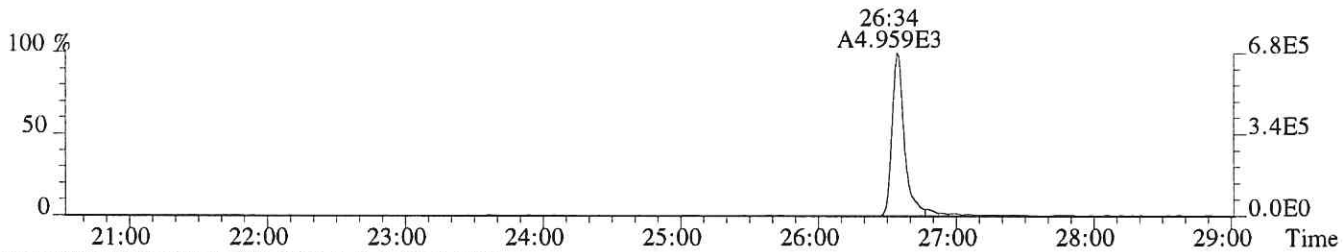
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3644.0,1.00%,F,T)



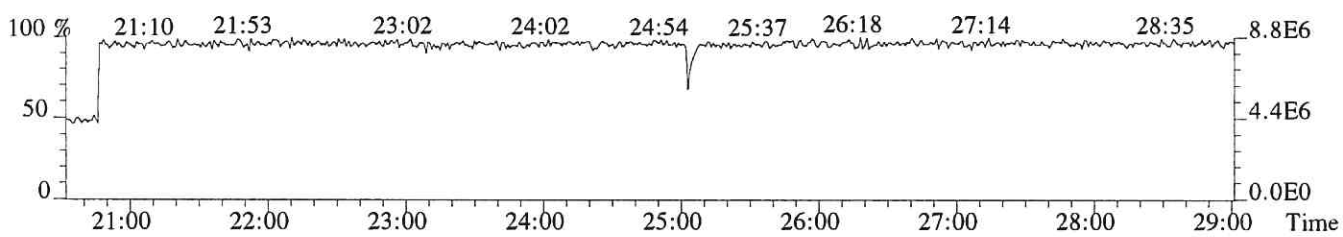
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



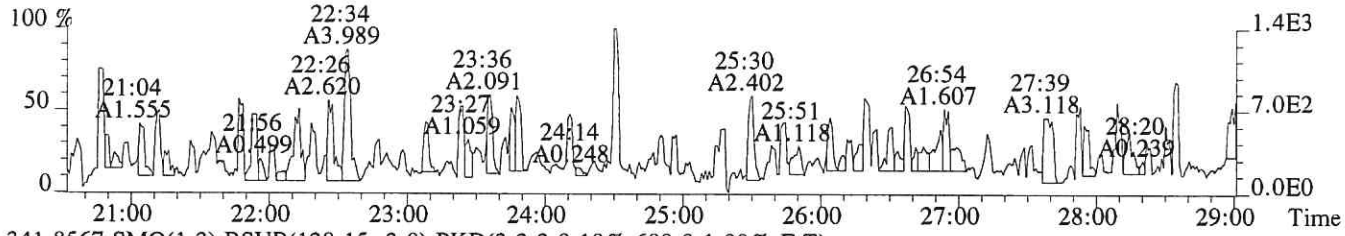
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



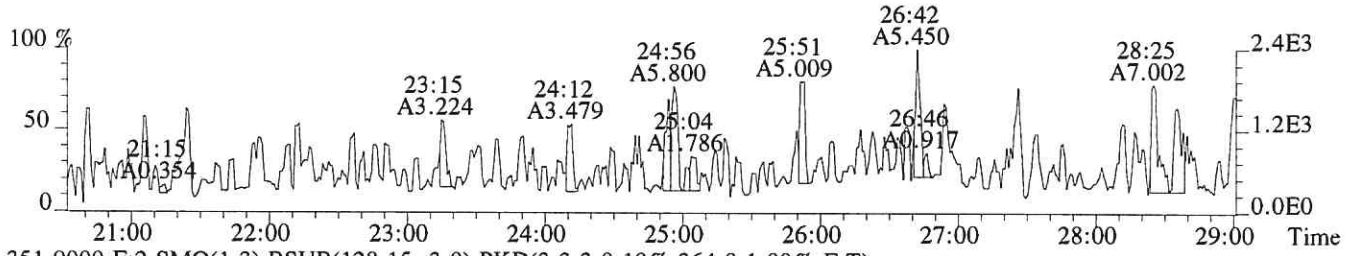
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



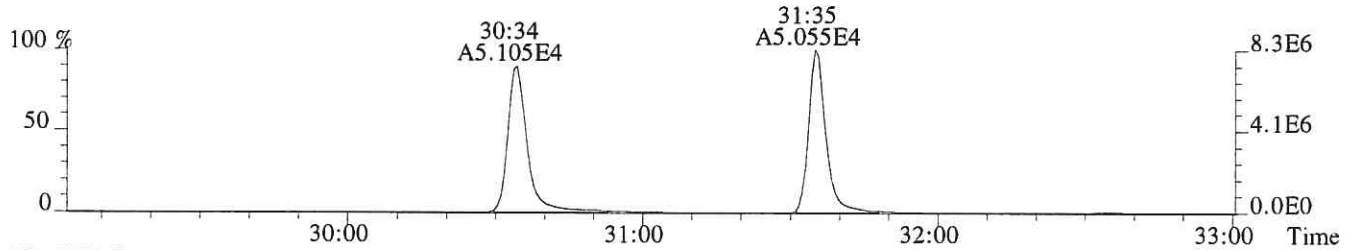
File:P518895 #1-602 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



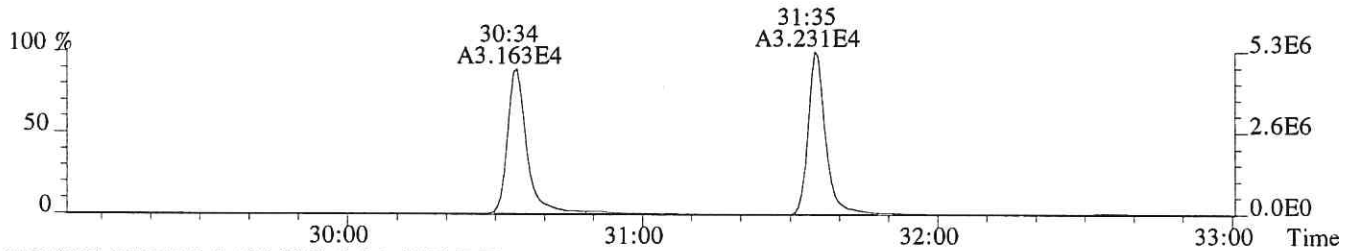
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



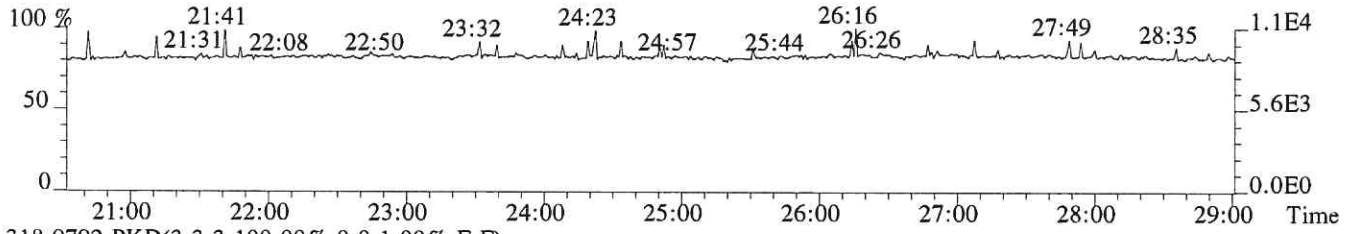
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



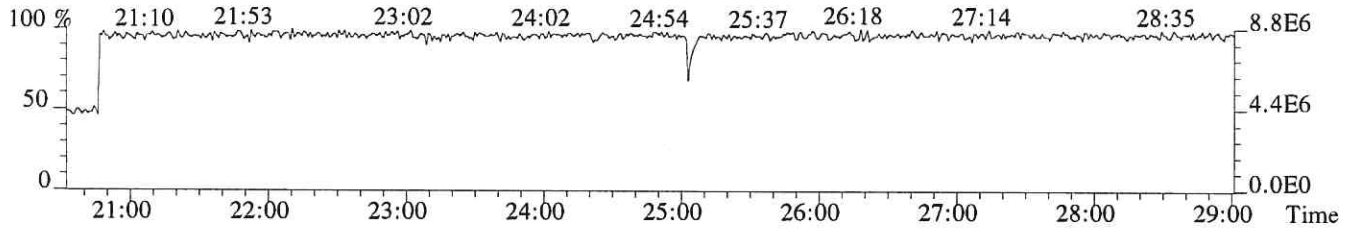
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



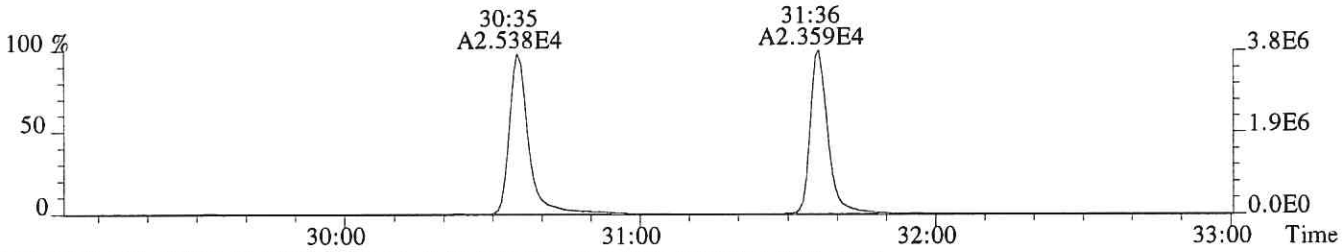
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



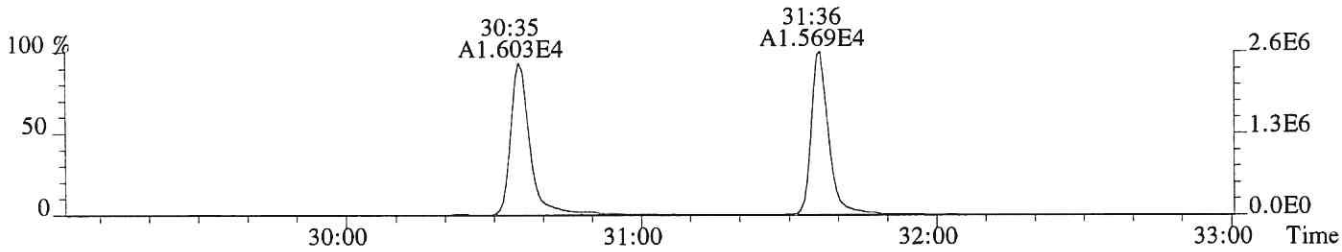
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



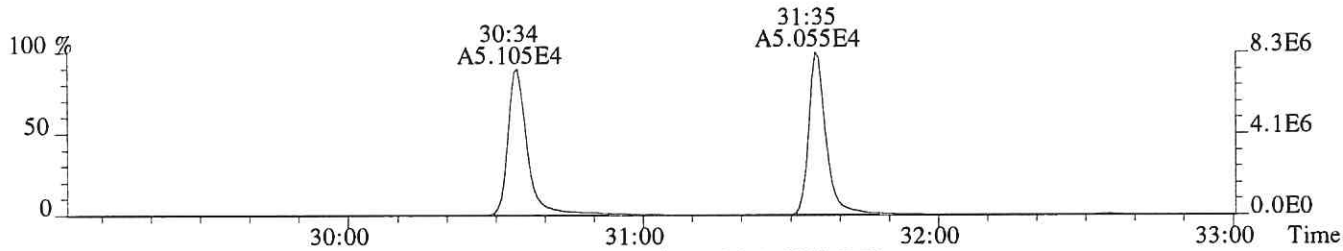
File:P518895 #1-357 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



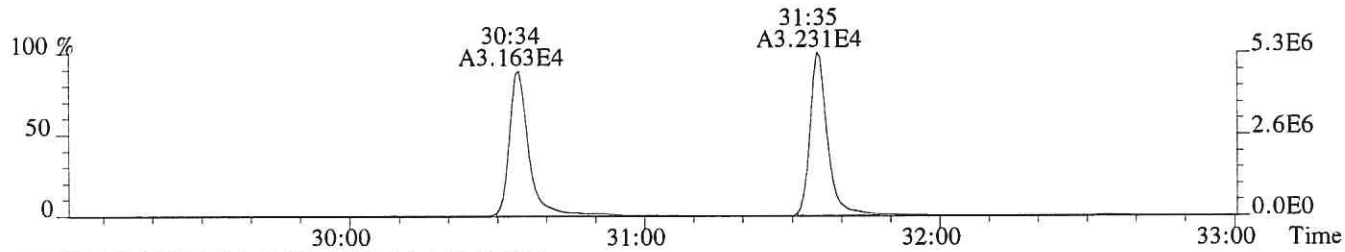
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



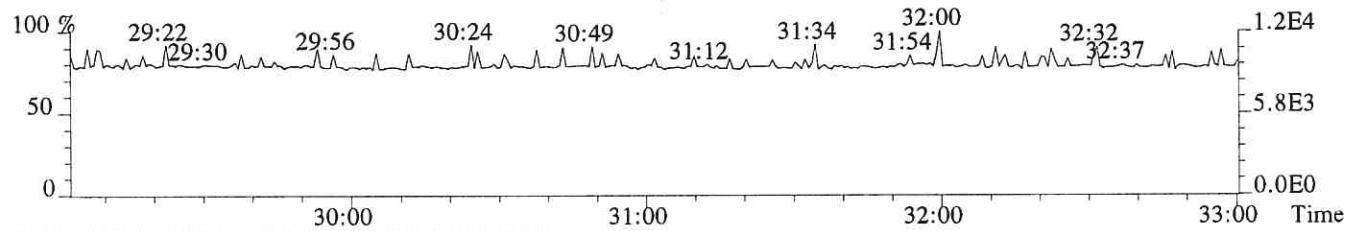
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



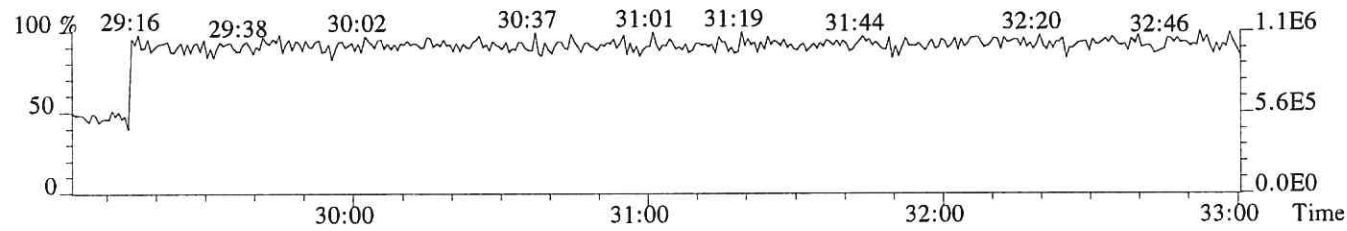
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



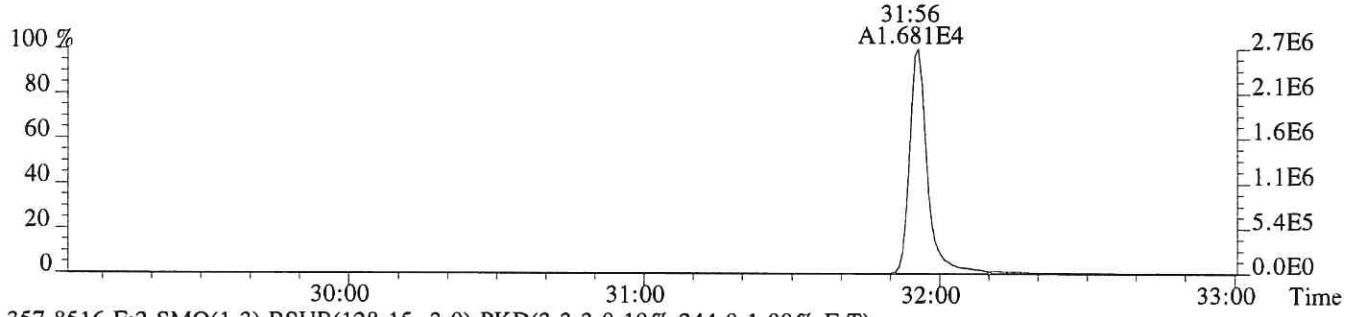
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



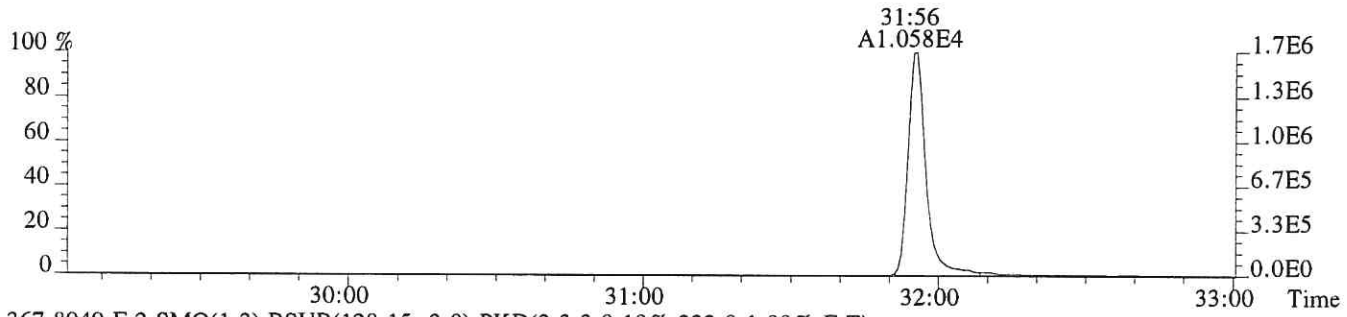
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



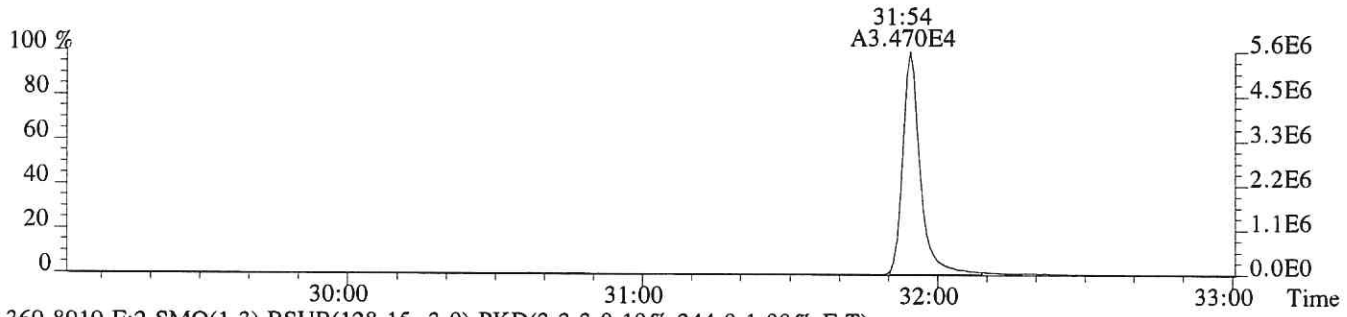
File:P518895 #1-357 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



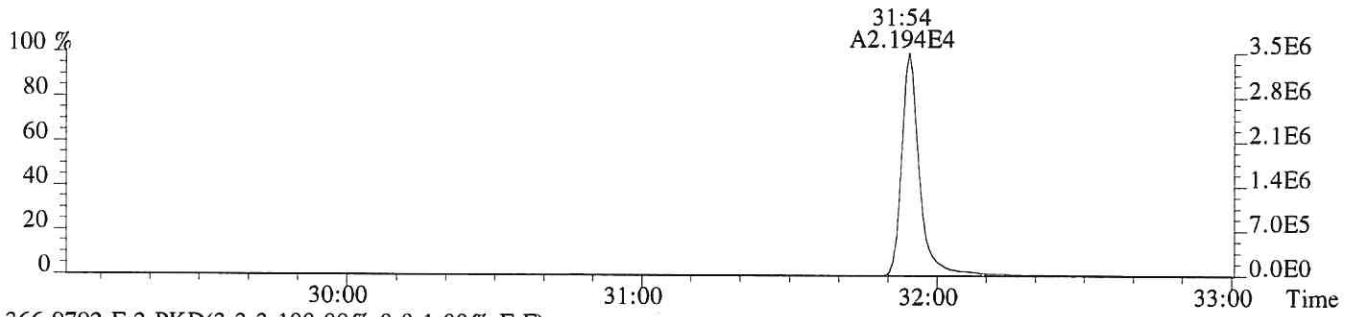
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



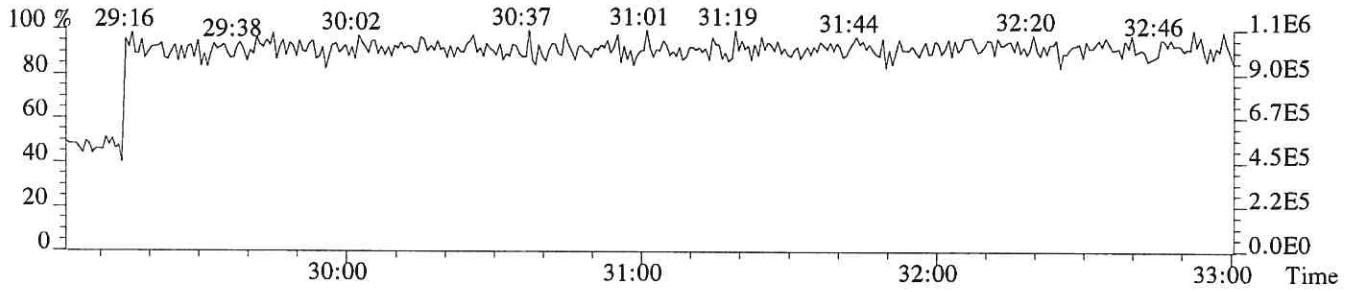
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



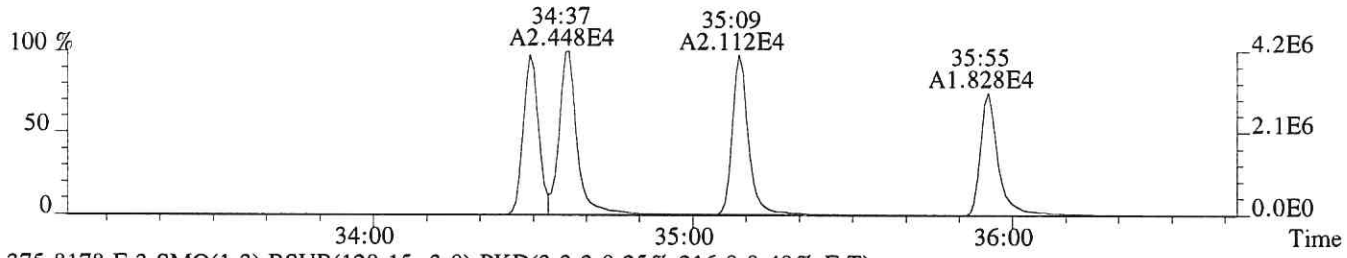
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



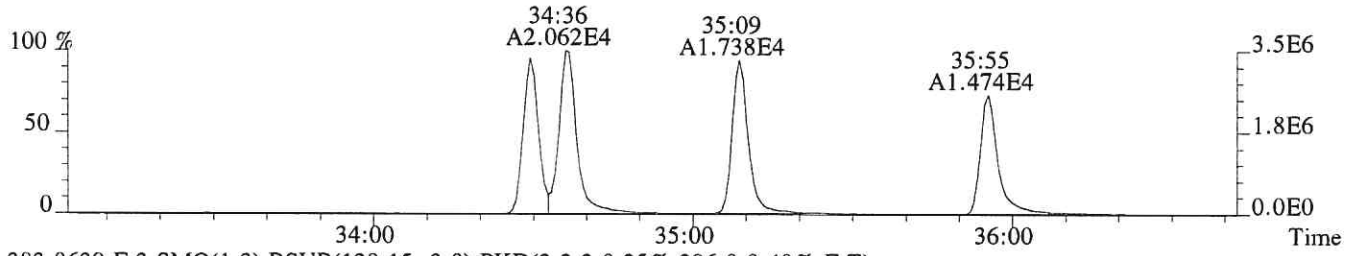
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



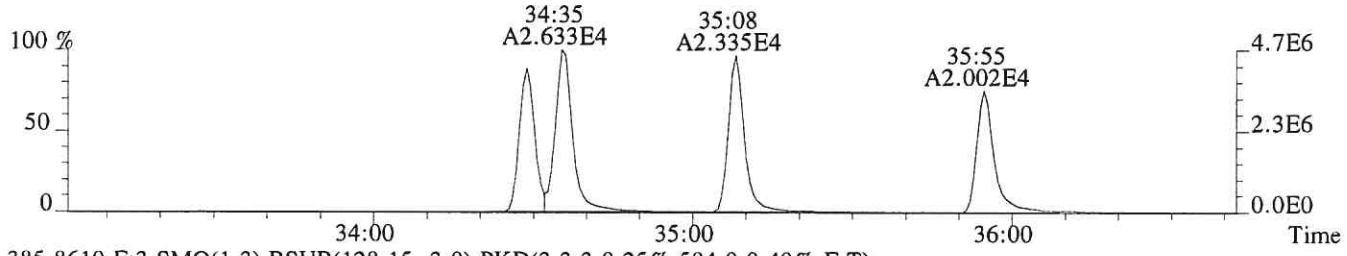
File:P518895 #1-330 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



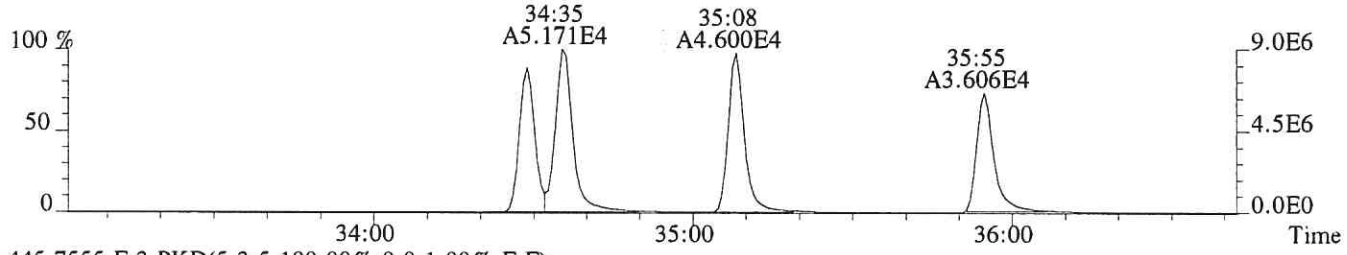
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



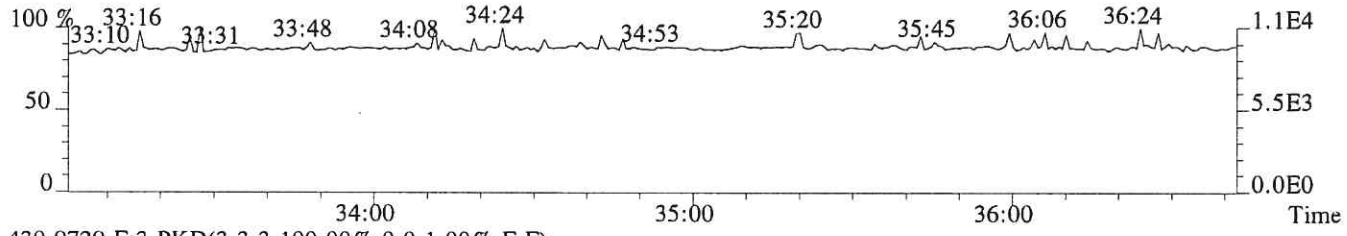
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



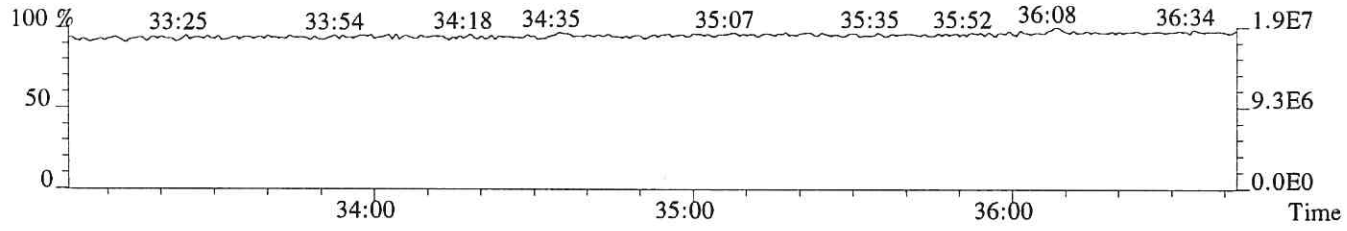
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



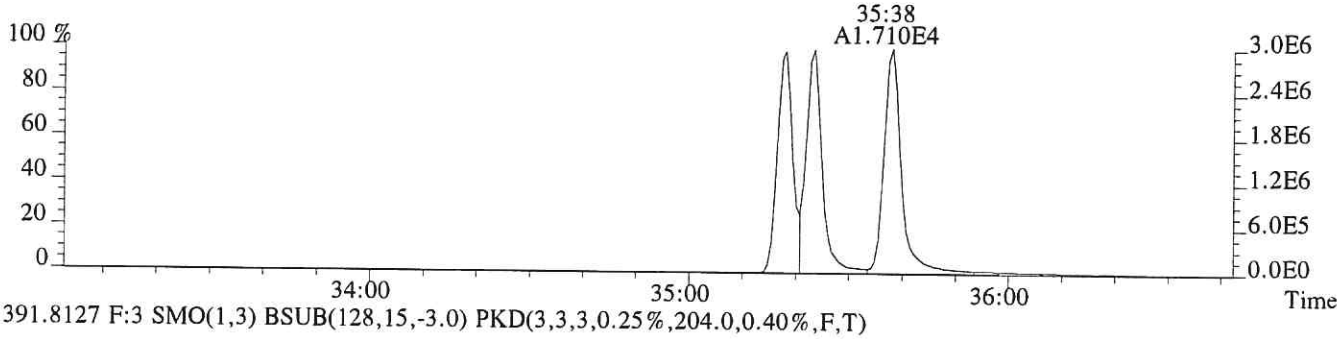
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



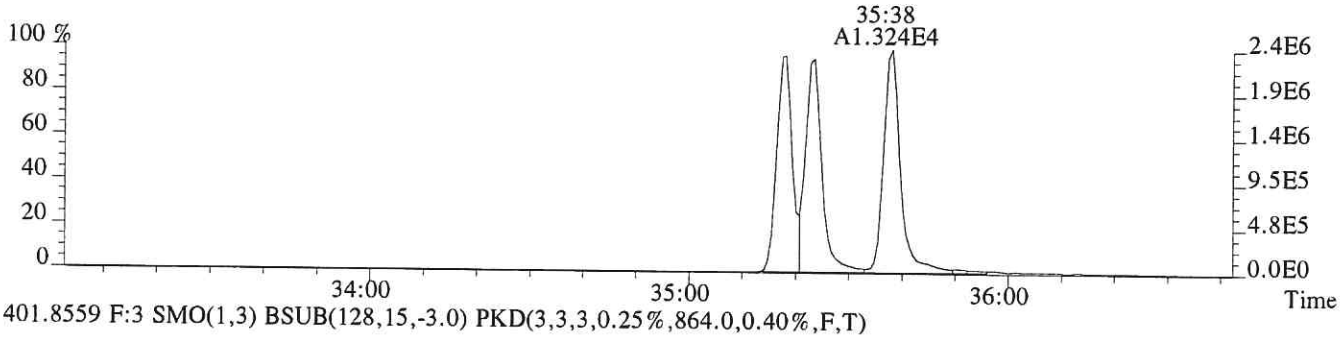
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



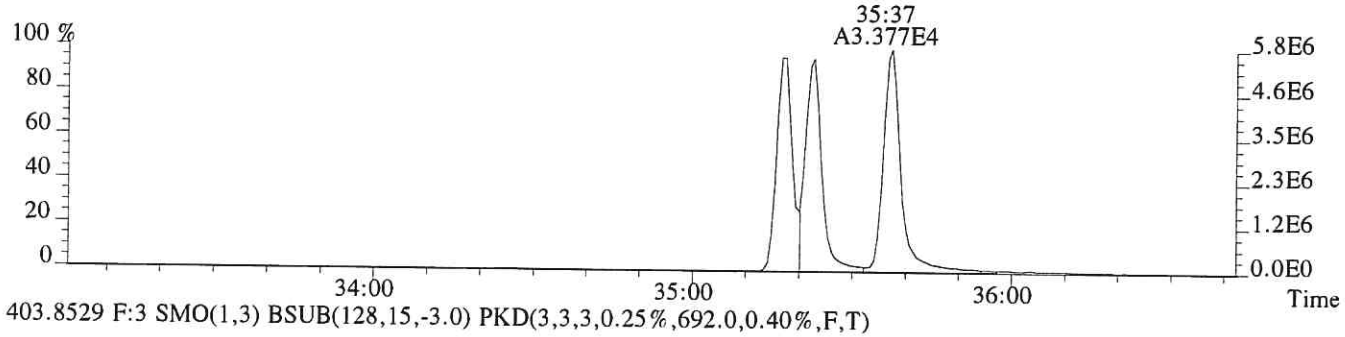
File:P518895 #1-330 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



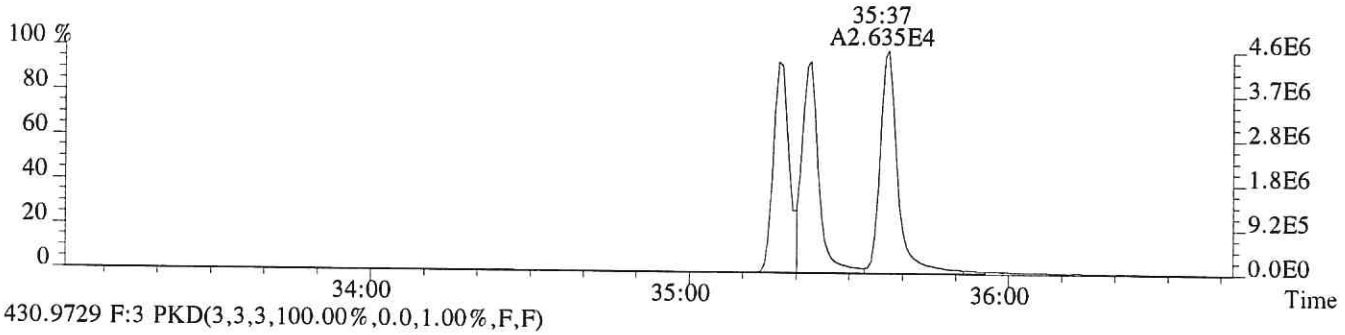
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



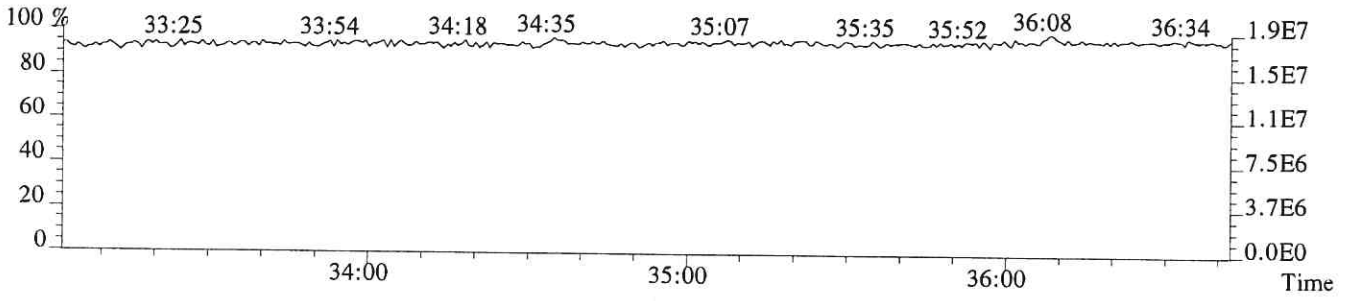
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



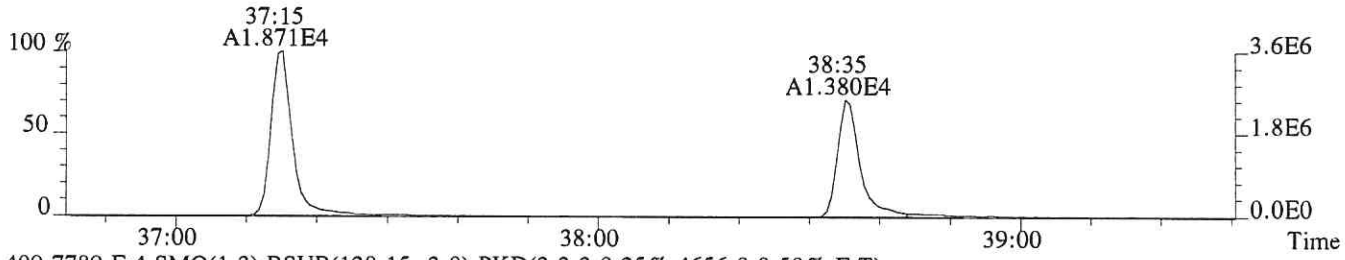
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



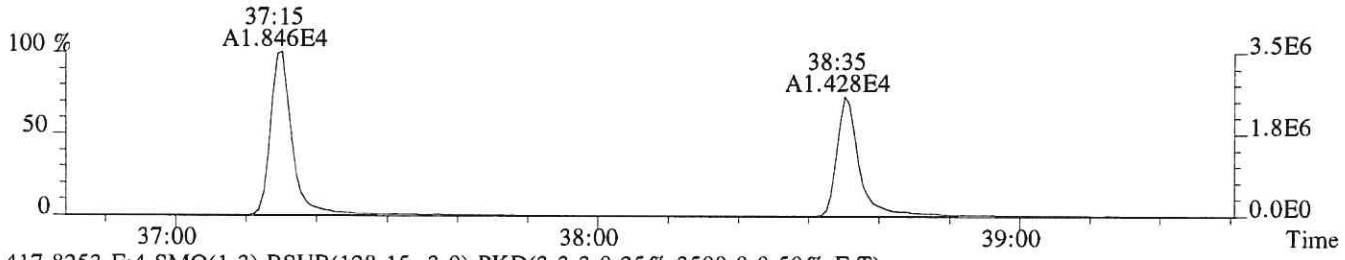
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



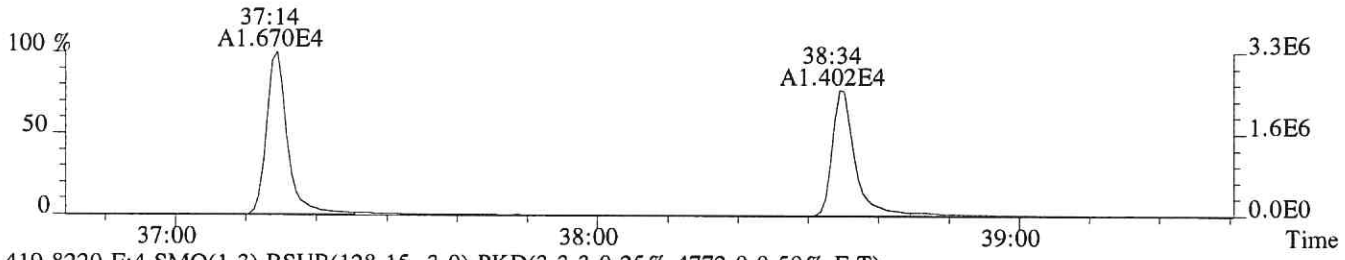
File:P518895 #1-250 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3544.0,0.50%,F,T)



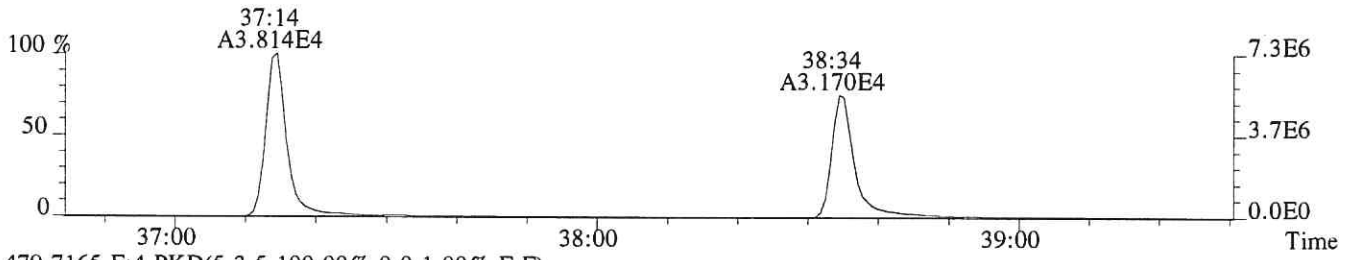
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4656.0,0.50%,F,T)



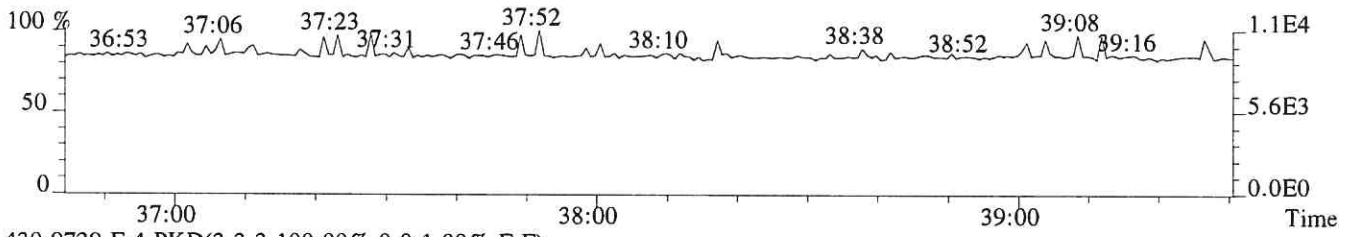
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3500.0,0.50%,F,T)



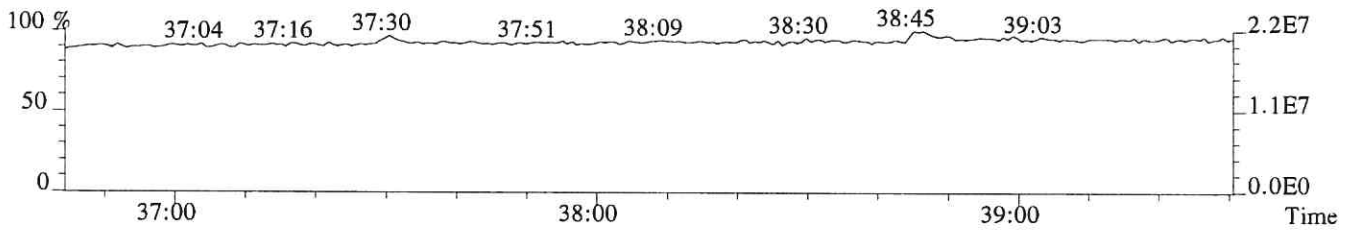
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4772.0,0.50%,F,T)



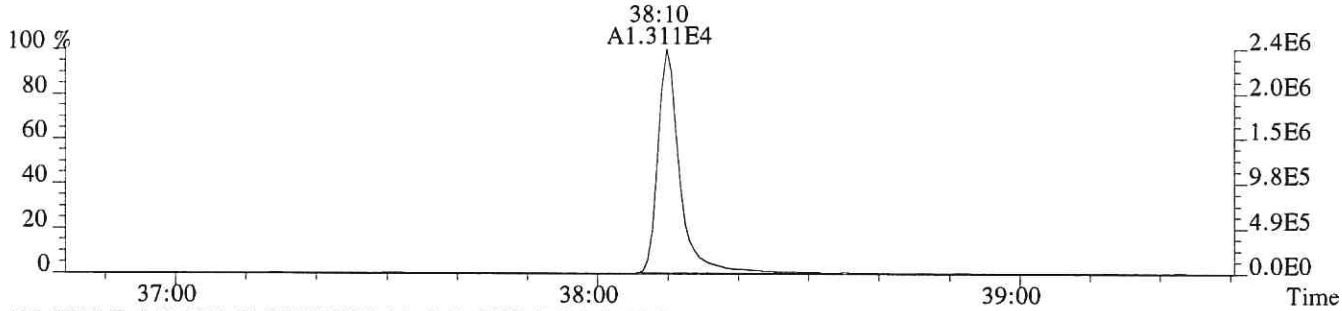
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



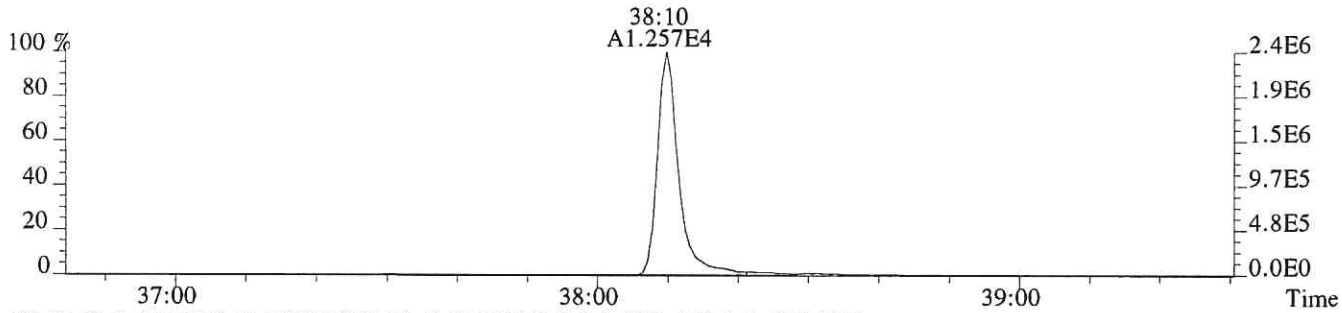
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



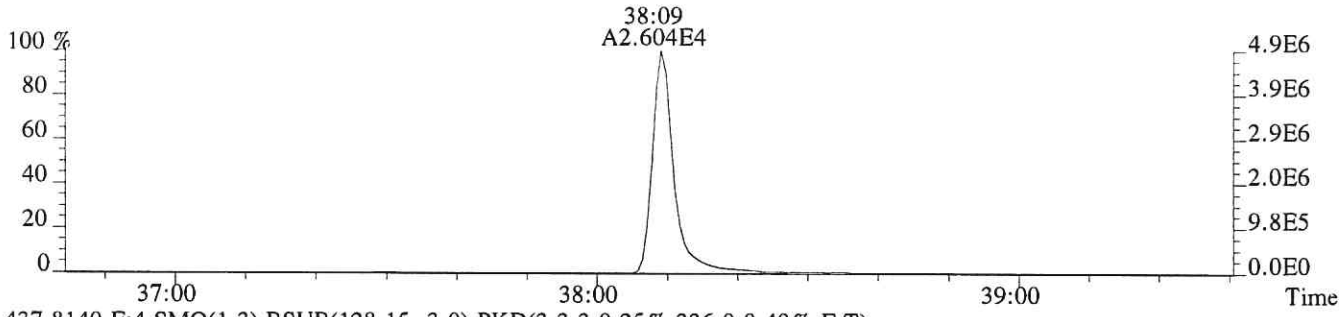
File:P518895 #1-250 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



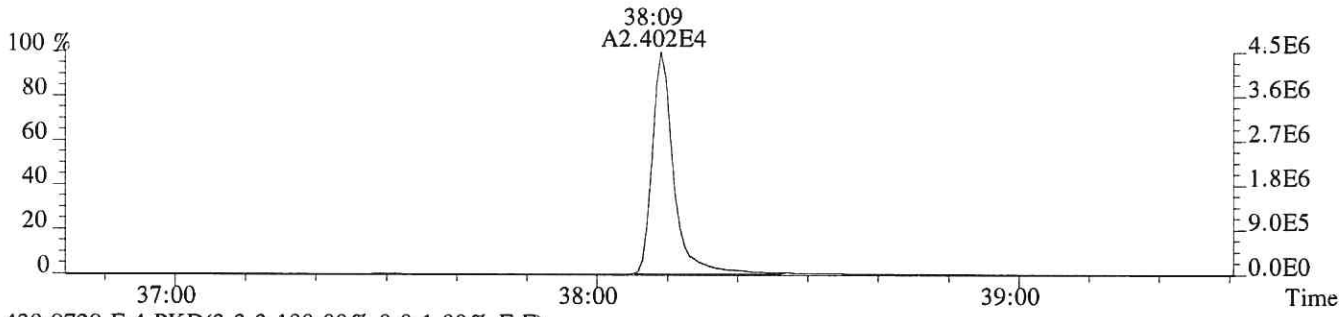
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



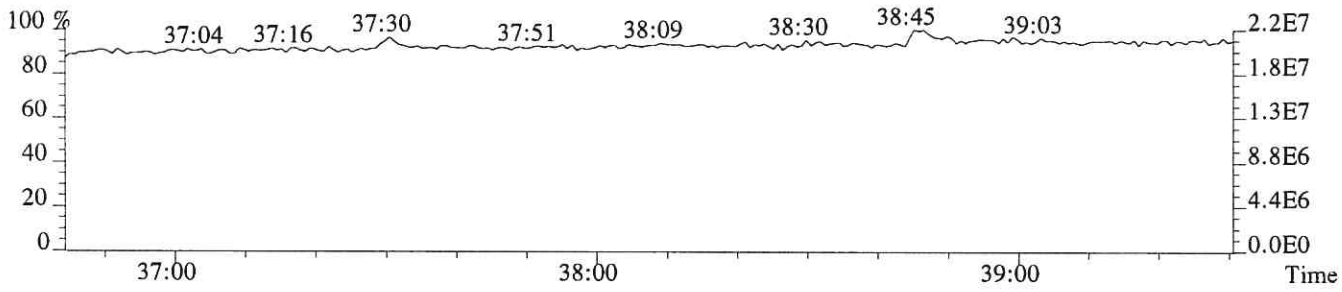
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



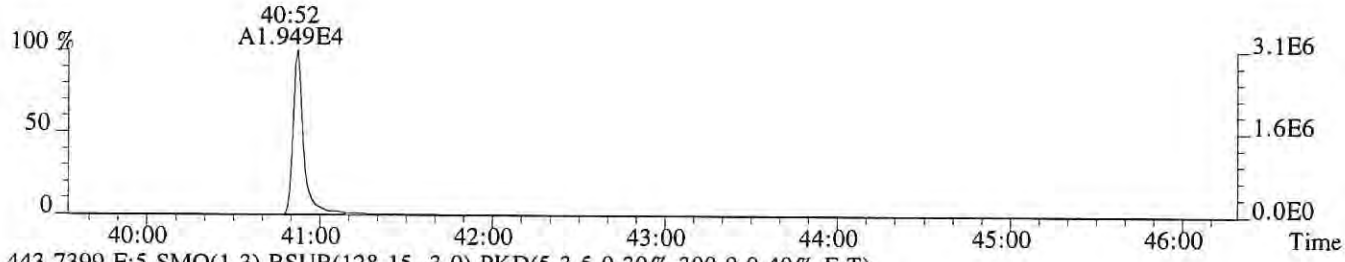
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



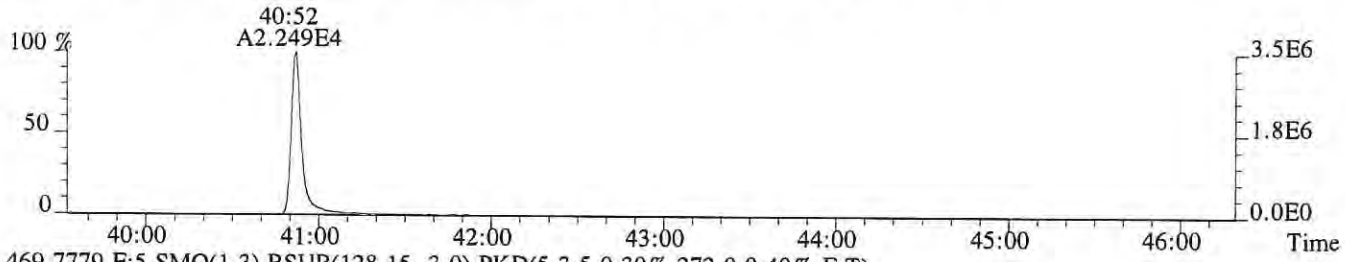
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



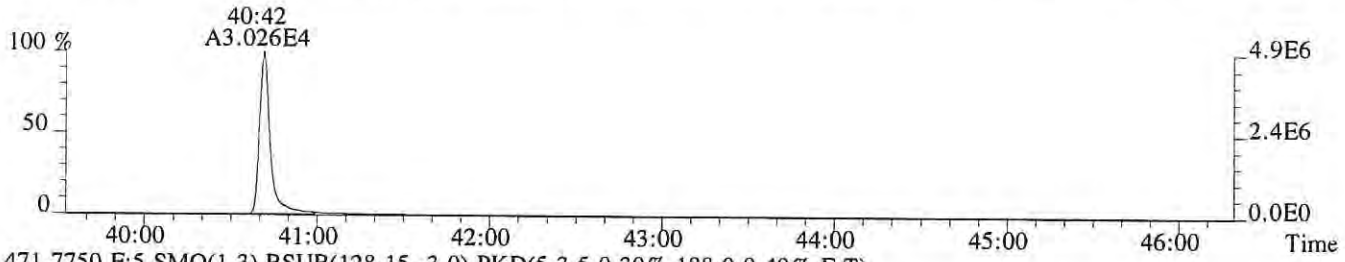
File:P518895 #1-610 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



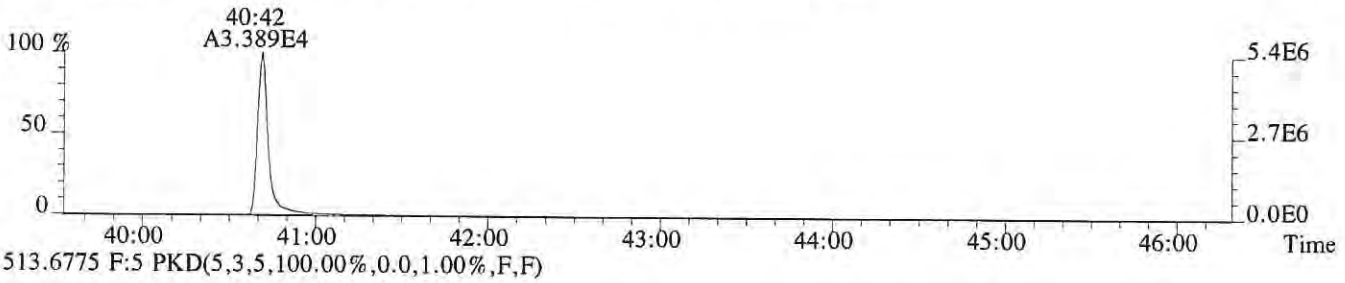
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



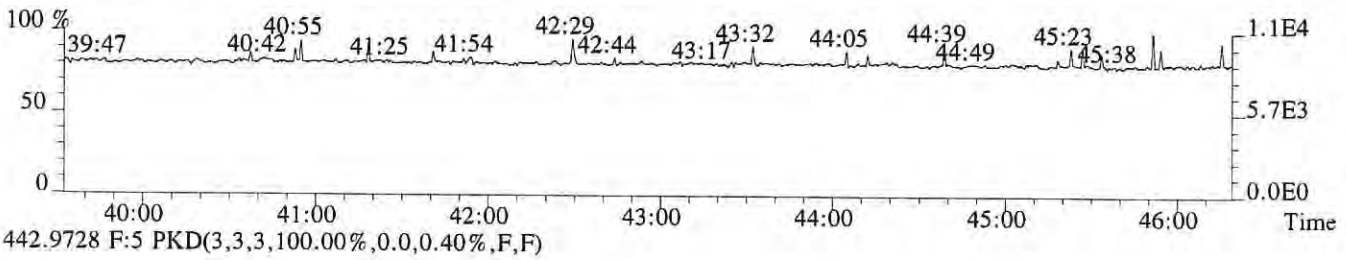
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



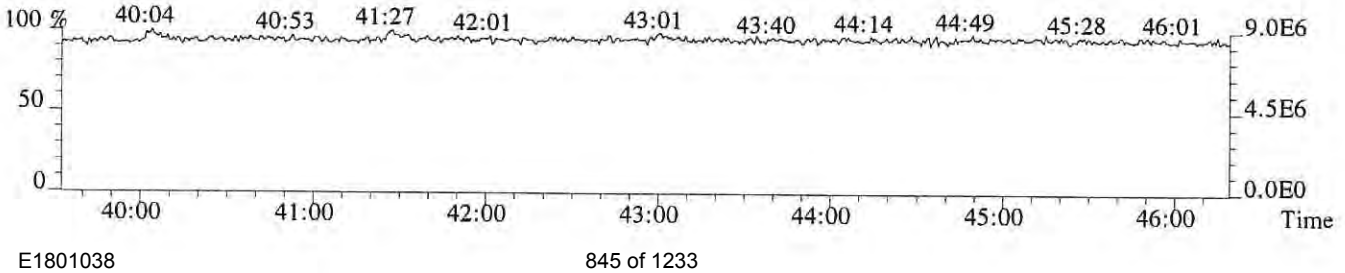
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



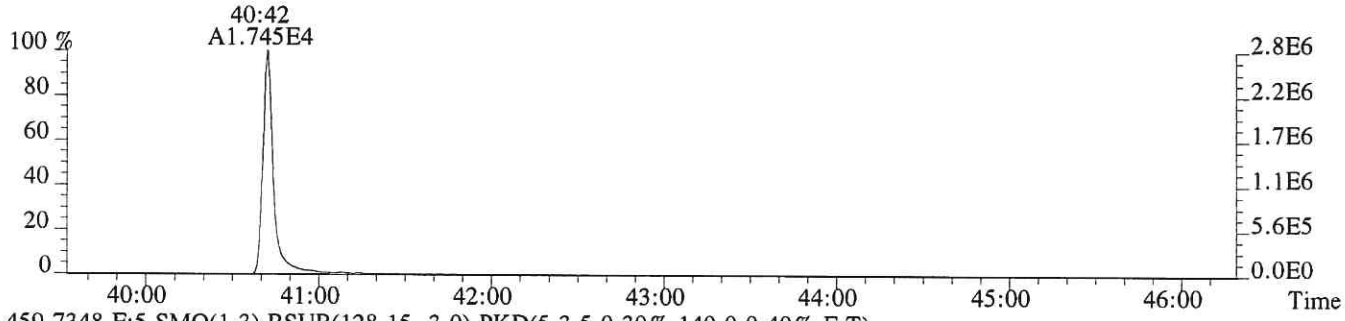
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



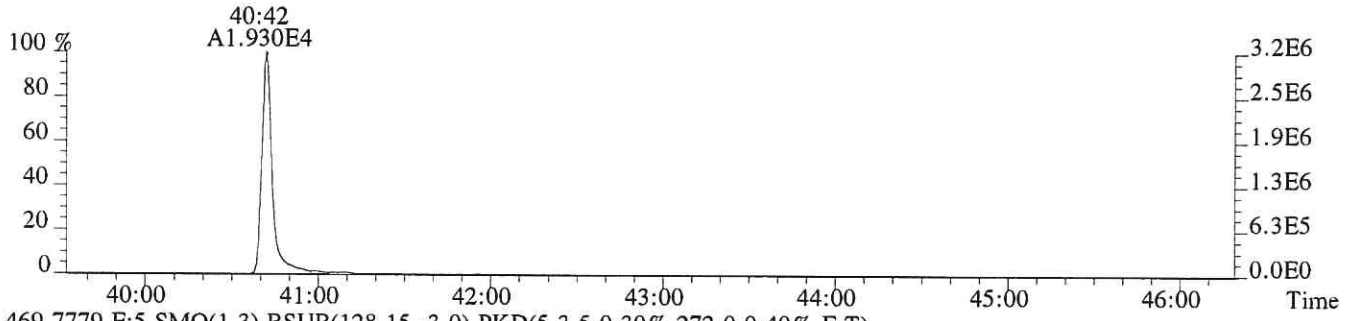
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



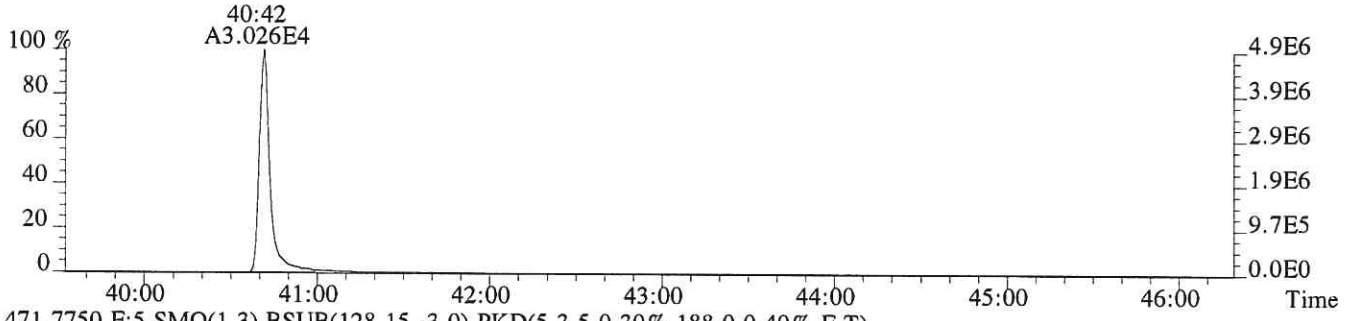
File:P518895 #1-610 Acq:18-NOV-2018 01:56:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



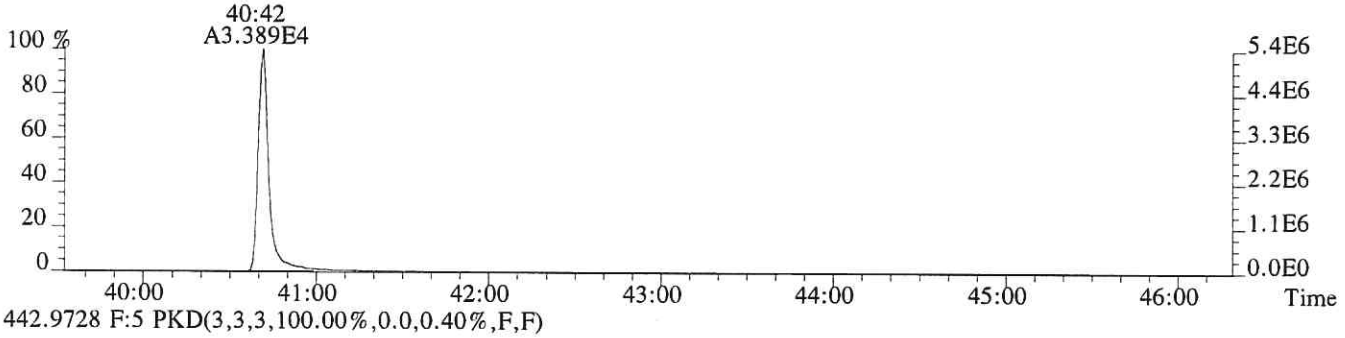
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



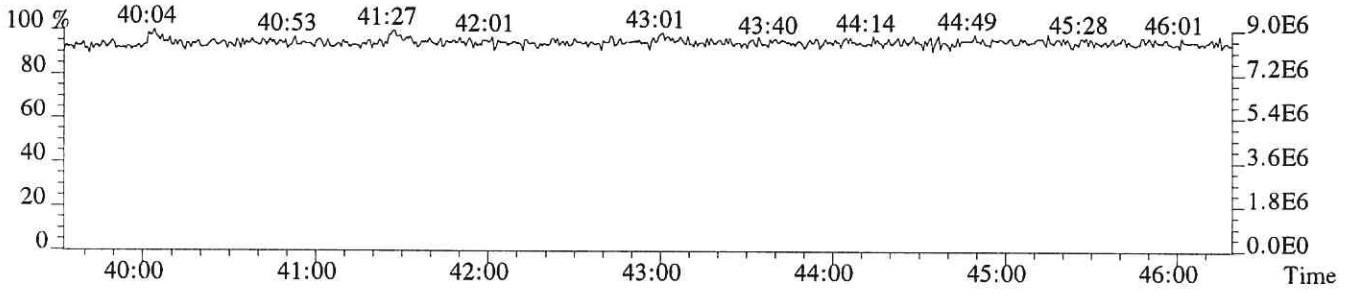
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P578965

Date: 11/21/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518964	21-NOV-18	10:03:43
194503	CS3	P518965	21-NOV-18	10:51:31
METHOD BLANK	EQ1800458-01	P518966	21-NOV-18	11:56:15
METHOD BLANK	EQ1800464-01	P518967	21-NOV-18	12:44:03
SL0533	E1801038-015	P518968	21-NOV-18	13:32:44
SL0534	E1801038-016	P518969	21-NOV-18	14:21:20
SL0535	E1801038-017	P518970	21-NOV-18	15:10:37
SL0058	E1801012-006DL	P518971	21-NOV-18	15:58:41
SL0064	E1801012-012DL	P518972	21-NOV-18	16:47:22
SL0071	E1801012-018DL	P518973	21-NOV-18	17:35:58
SL0065	E1801012-019DL	P518974	21-NOV-18	18:24:39
SL0022	E1801020-018DL	P518975	21-NOV-18	19:13:19
SL0011	E1801020-034DL	P518976	21-NOV-18	20:02:00
SL0033	E1801020-045DL	P518977	21-NOV-18	20:50:38
SL0034	E1801020-051DL	P518978	21-NOV-18	21:39:14

E1801038

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181121.SPL
Last Modified: Monday, November 26, 2018 06:47:13 Central Standard Time
Printed: Monday, November 26, 2018 06:47:15 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P518965 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/21/18	09:14	P518963	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	Not used
2		10:03	P518964	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMS check 09:11
3		10:51	P518965	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		11:56	P518966	MB	EQ1800458-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:44	P518967	MB	EQ1800464-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:32	P518968	E1801038-015	E1801038-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:21	P518969	E1801038-016	E1801038-016	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:10	P518970	E1801038-017	E1801038-017	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:58	P518971	E1801012-006DL	E1801012-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:47	P518972	E1801012-0012DL	E1801012-0012DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:35	P518973	E1801012-018DL	E1801012-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:24	P518974	E1801012-019DL	E1801012-019DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:13	P518975	E1801020-018DL	E1801020-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:02	P518976	E1801020-034DL	E1801020-034DL	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:50	P518977	E1801020-045DL	E1801020-045DL	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:39	P518978	E1801020-051DL	E1801020-051DL	EPA1613_ALS	Dioxin_ALS	Tray1:16		HRMS check 22:36
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 11/26/18

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:11:41 Central Standard Time

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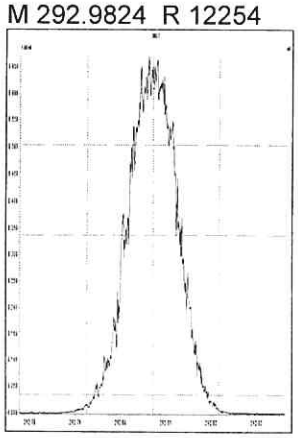

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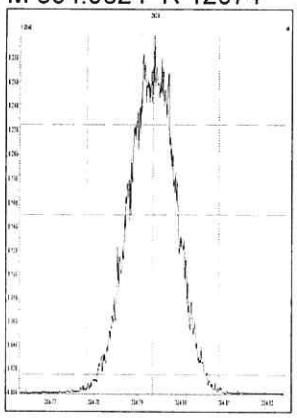
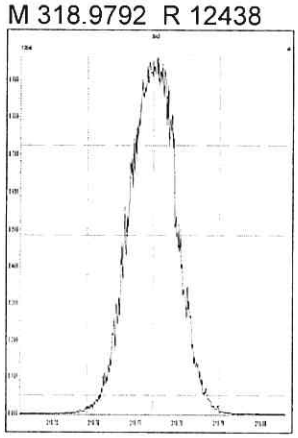
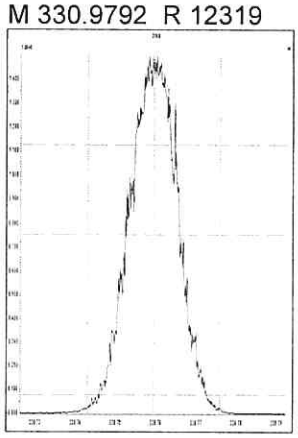


M 318.9792 R 12438



M 330.9792 R 12319



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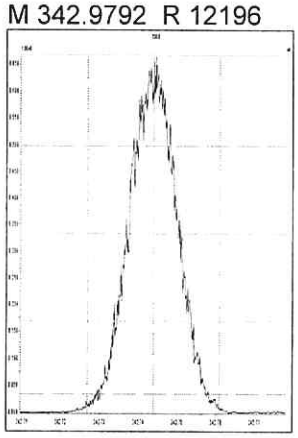

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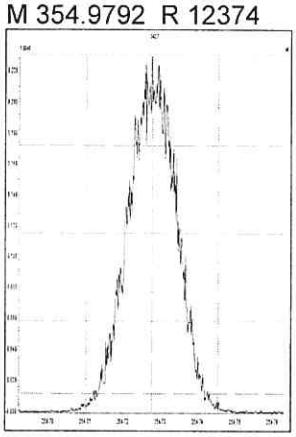
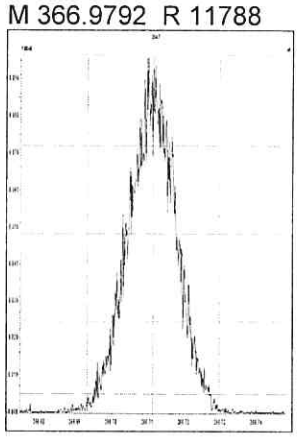
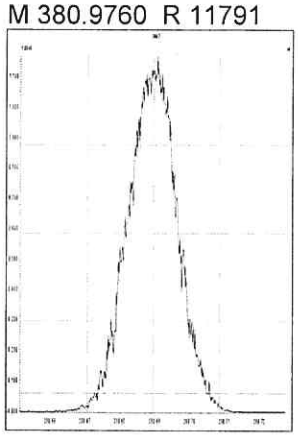


M 366.9792 R 11788



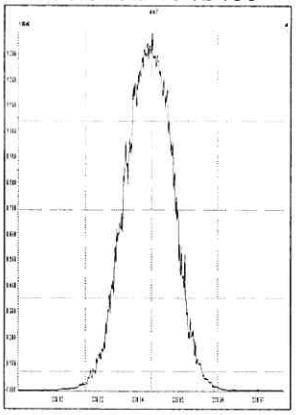
M 380.9760 R 11791



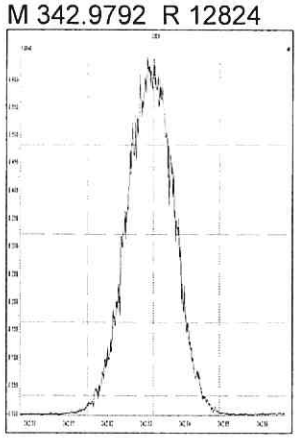
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:12:16 Central Standard Time

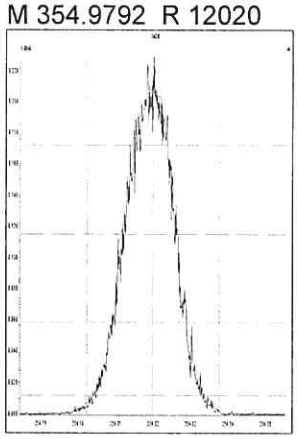
M 330.9792 R 12439



M 342.9792 R 12824



M 354.9792 R 12020



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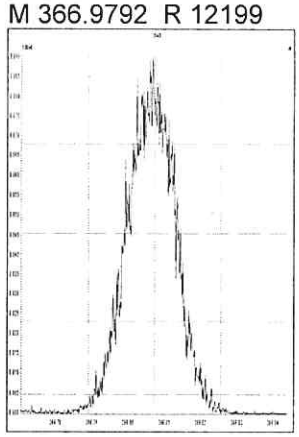
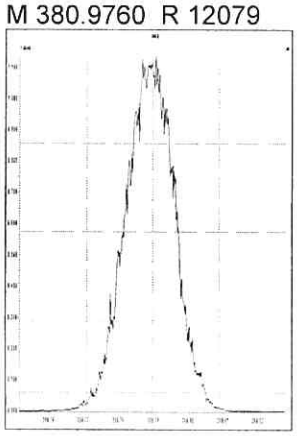


M 380.9760 R 12079



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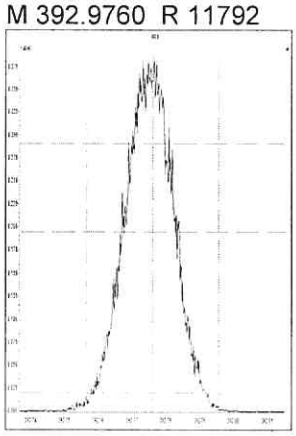
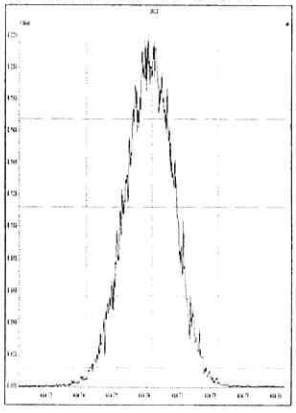
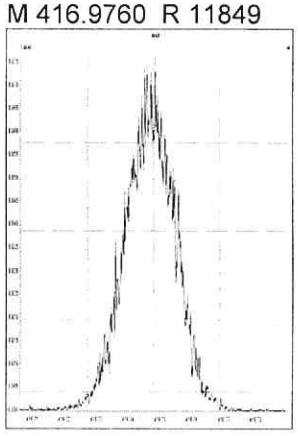


M 404.9760 R 12017



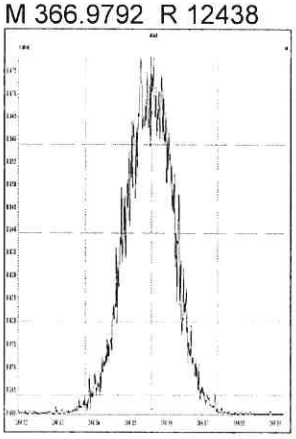
M 416.9760 R 11849



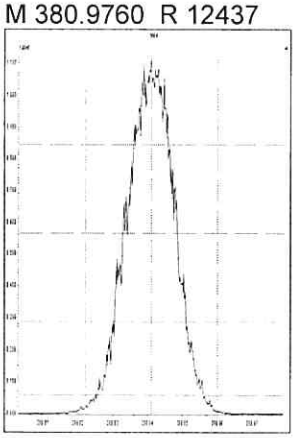
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:12:43 Central Standard Time

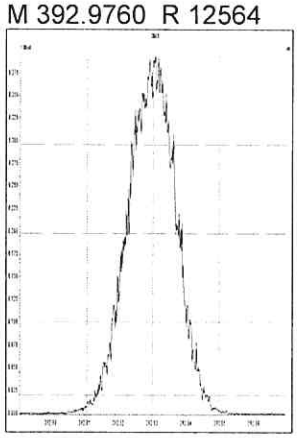
M 366.9792 R 12438



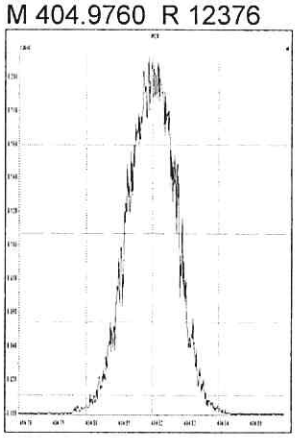
M 380.9760 R 12437



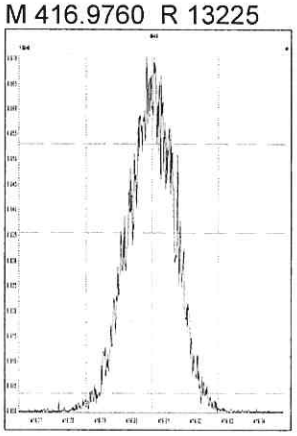
M 392.9760 R 12564



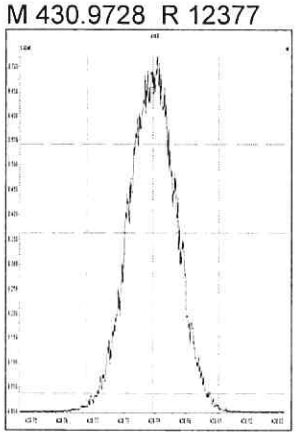
M 404.9760 R 12376



M 416.9760 R 13225



M 430.9728 R 12377



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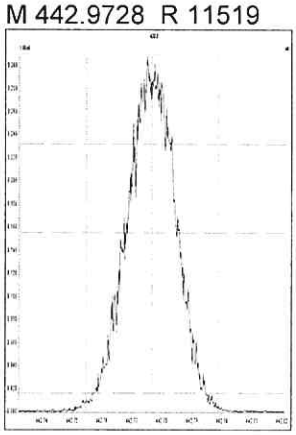
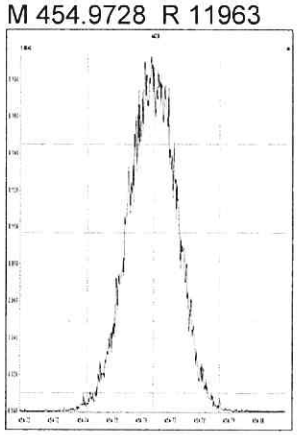


M 454.9728 R 11963



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Printed: Wednesday, November 21, 2018 09:13:26 Central Standard Time

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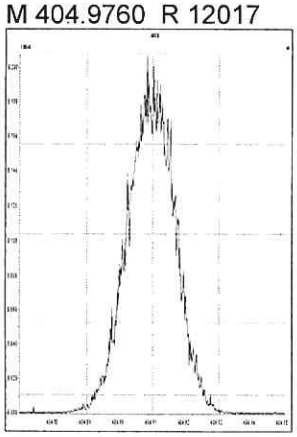

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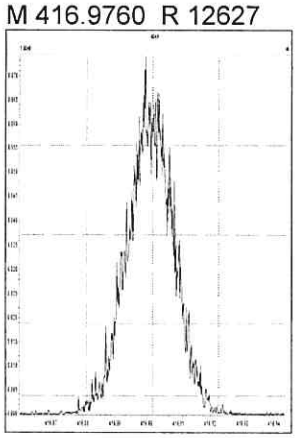

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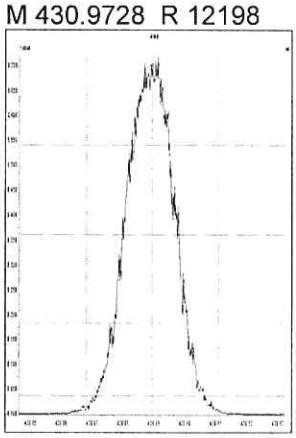

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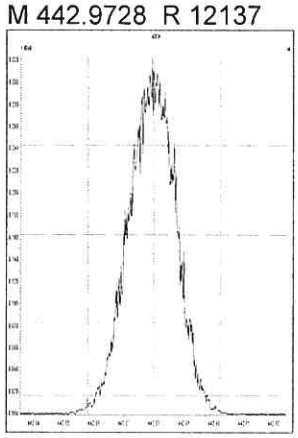

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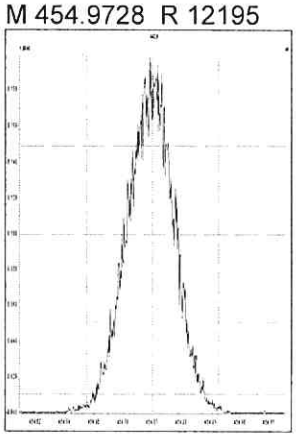

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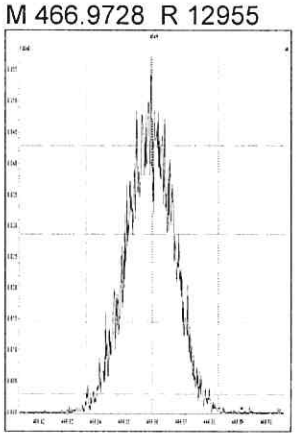

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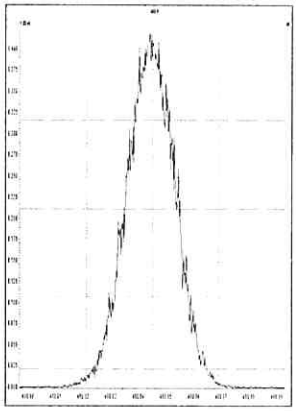

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:14:12 Central Standard Time

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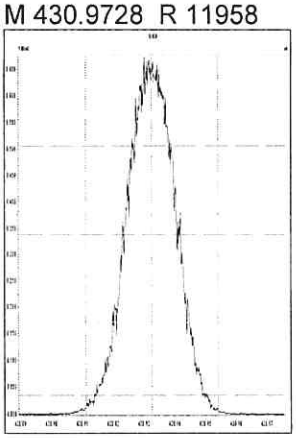

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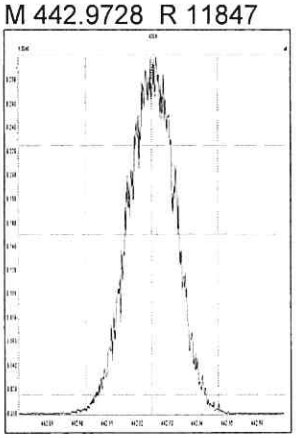

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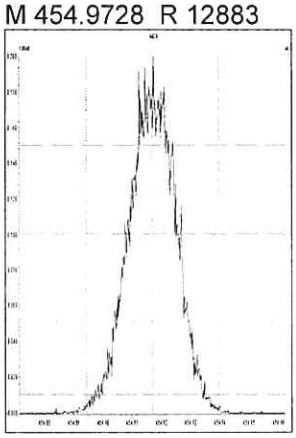
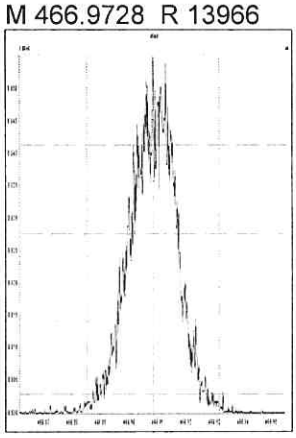


M 466.9728 R 13966



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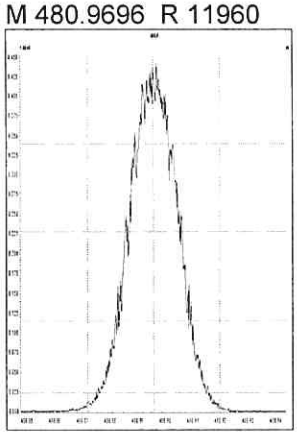

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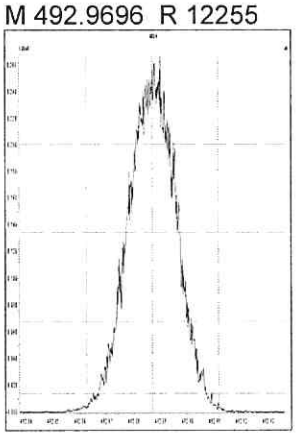
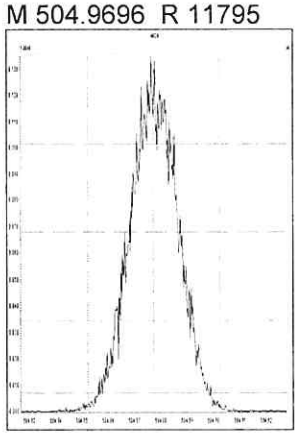
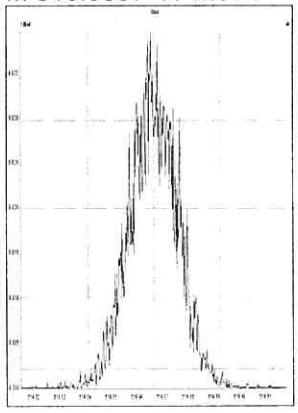


M 504.9696 R 11795



M 516.9697 R 12074



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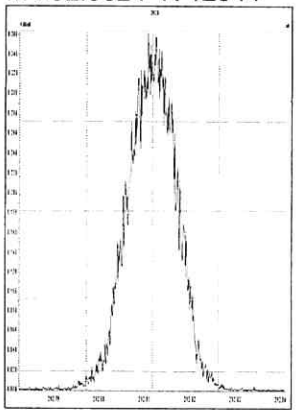

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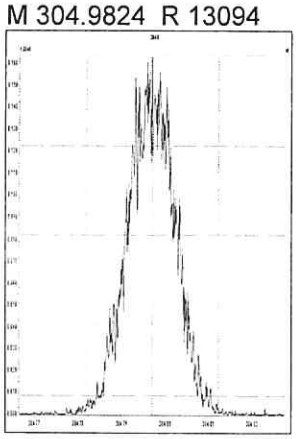
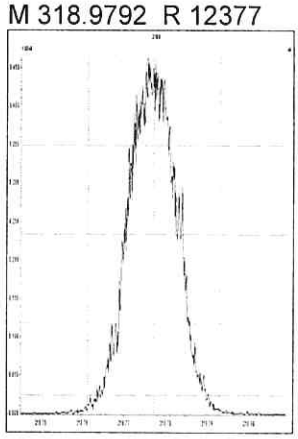
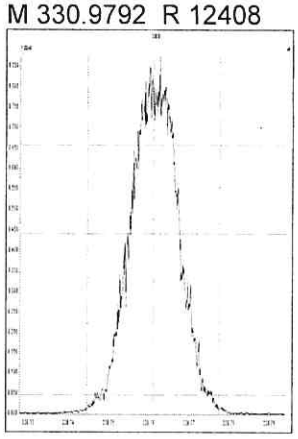


M 318.9792 R 12377



M 330.9792 R 12408



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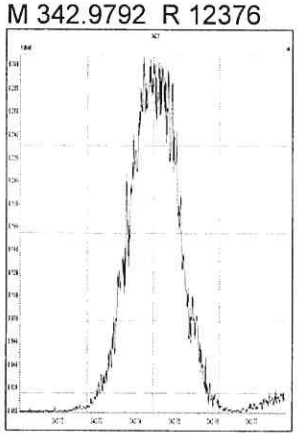

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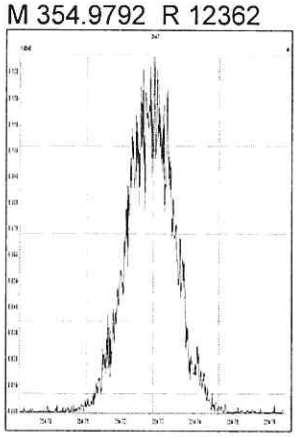

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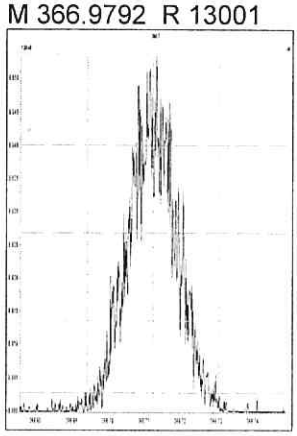
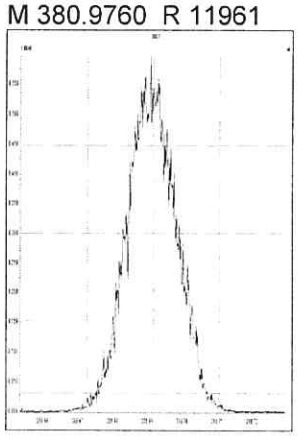


M 380.9760 R 11961



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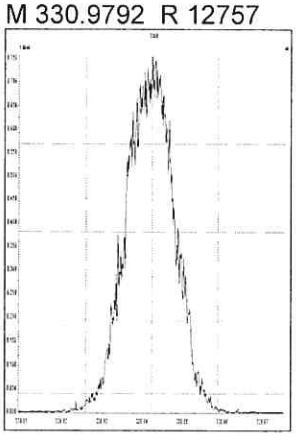
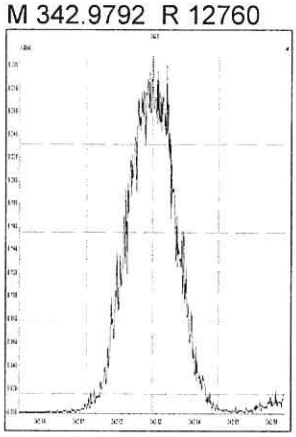


M 342.9792 R 12760



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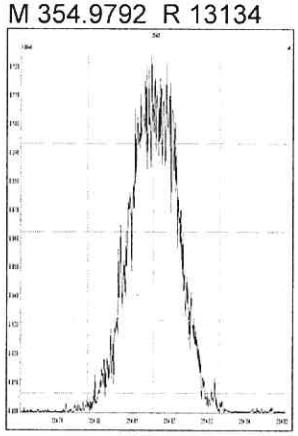

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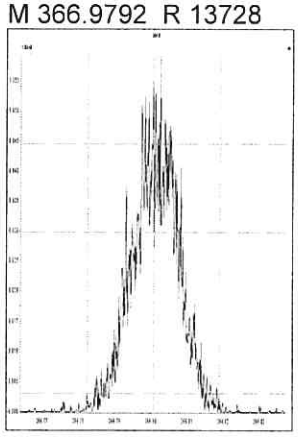
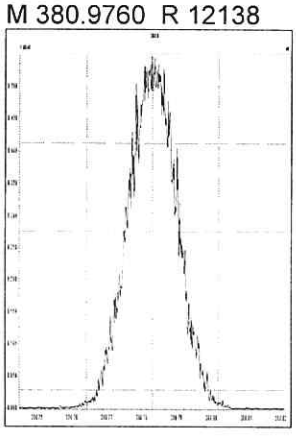


M 380.9760 R 12138



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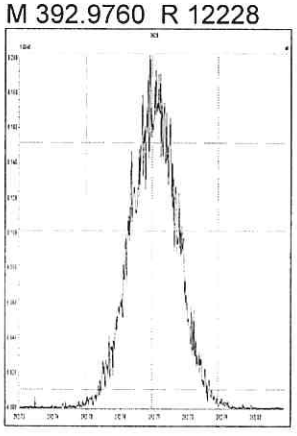

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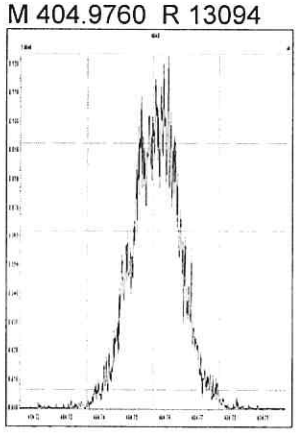

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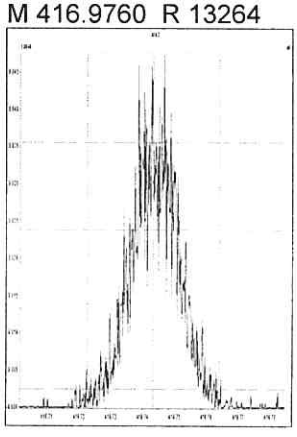

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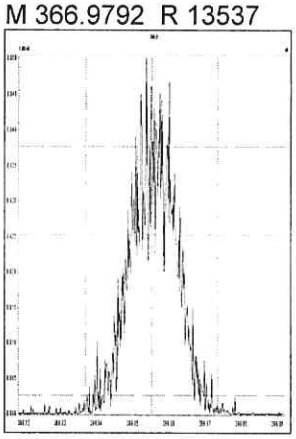

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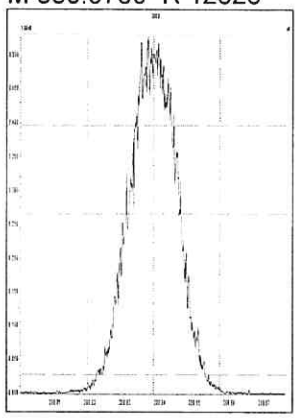

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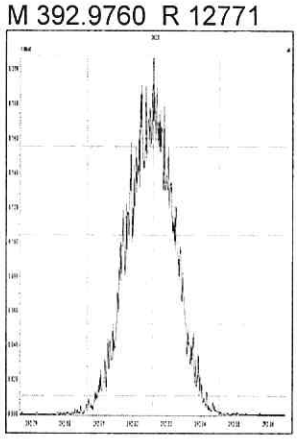
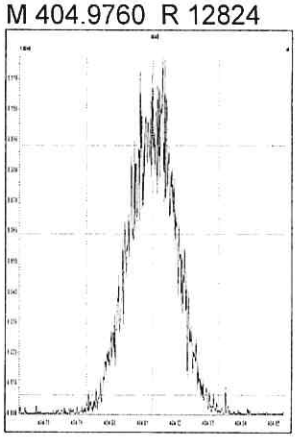


M 404.9760 R 12824



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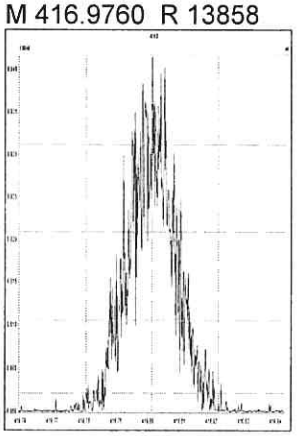
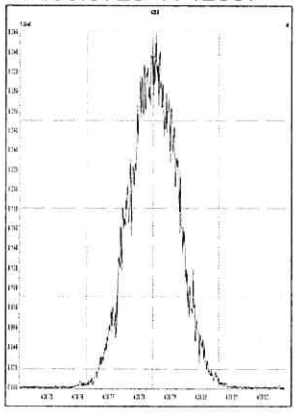
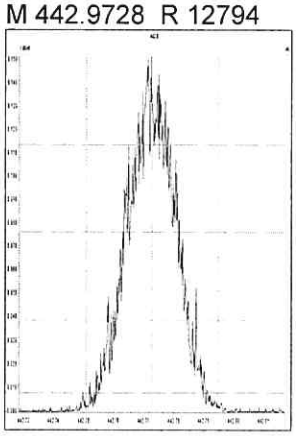


M 430.9728 R 12387



M 442.9728 R 12794



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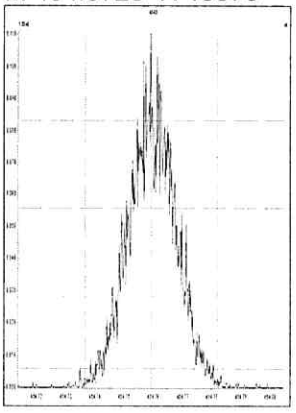

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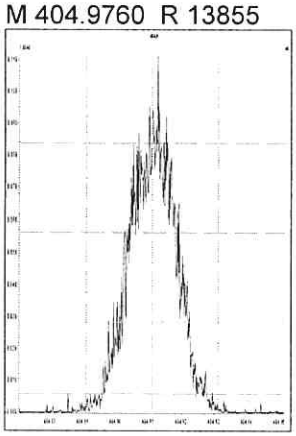

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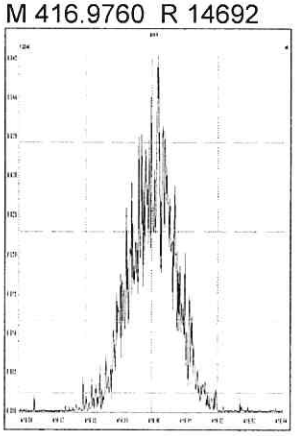

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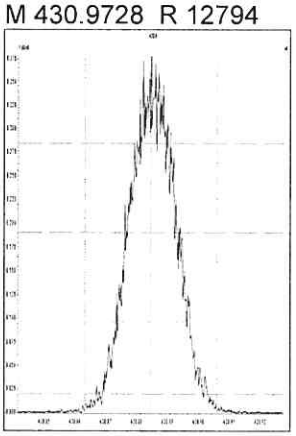

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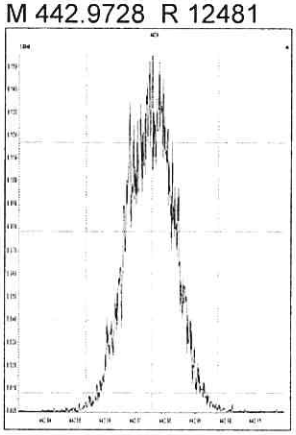
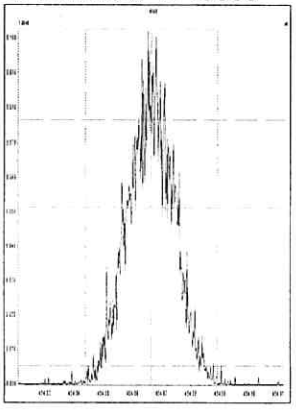
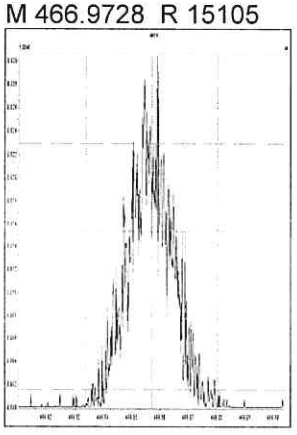


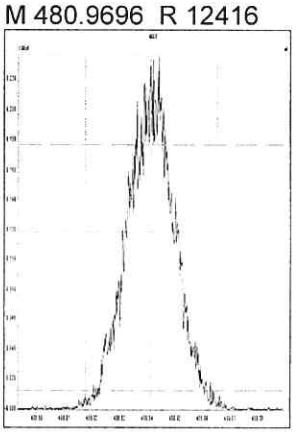
M 454.9728 R 13368



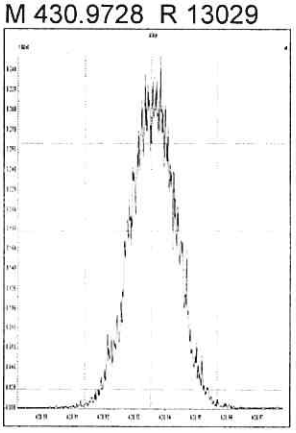
M 466.9728 R 15105



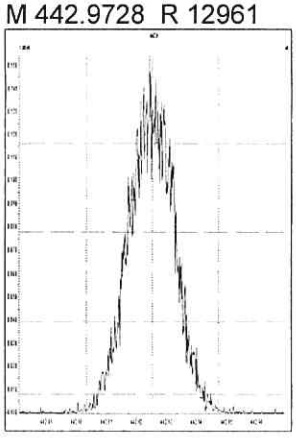
M 480.9696 R 12416



M 430.9728 R 13029



M 442.9728 R 12961



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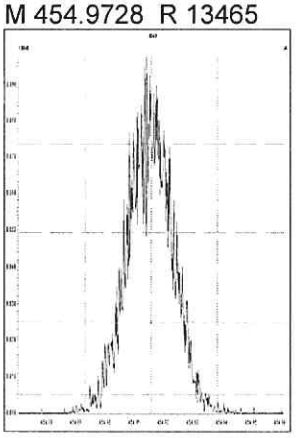
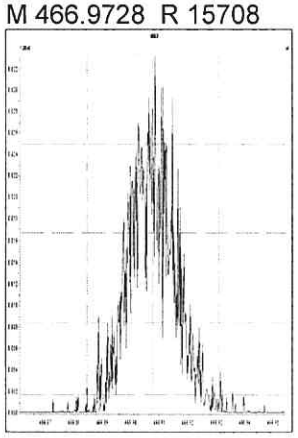
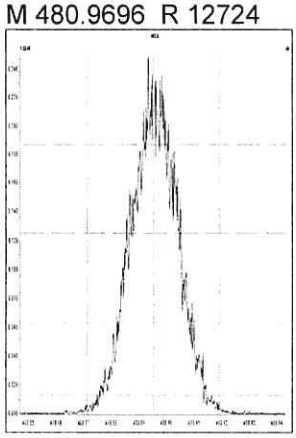


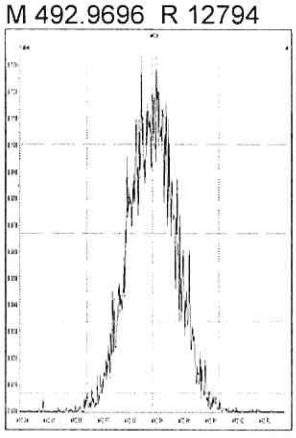
M 466.9728 R 15708



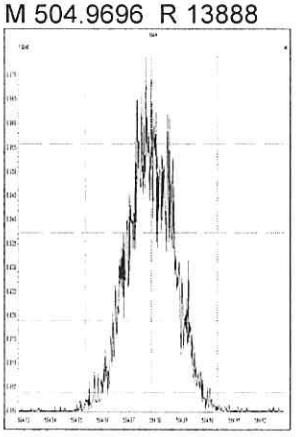
M 480.9696 R 12724



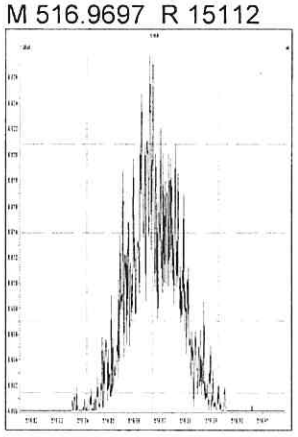
M 492.9696 R 12794



M 504.9696 R 13888



M 516.9697 R 15112



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

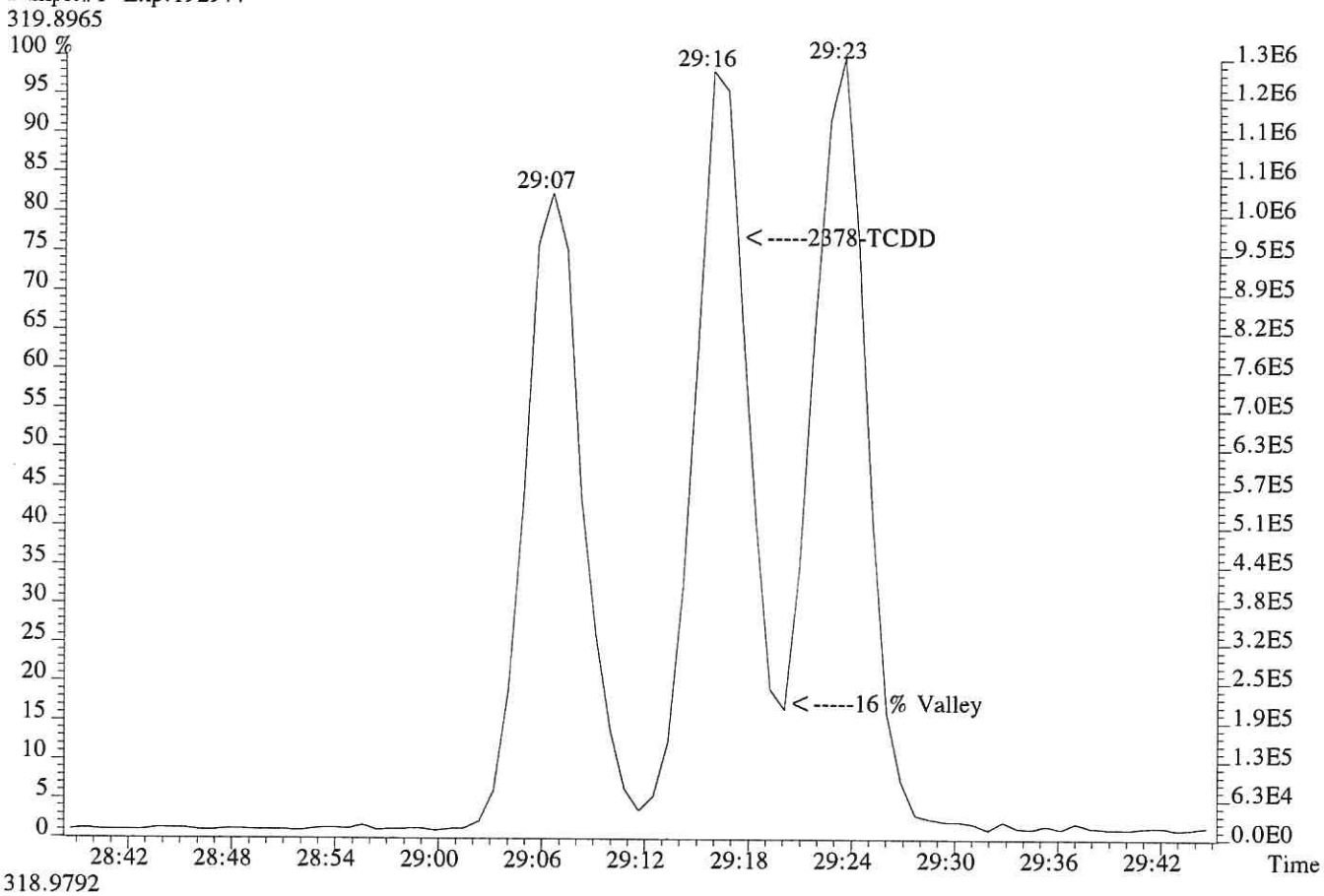
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

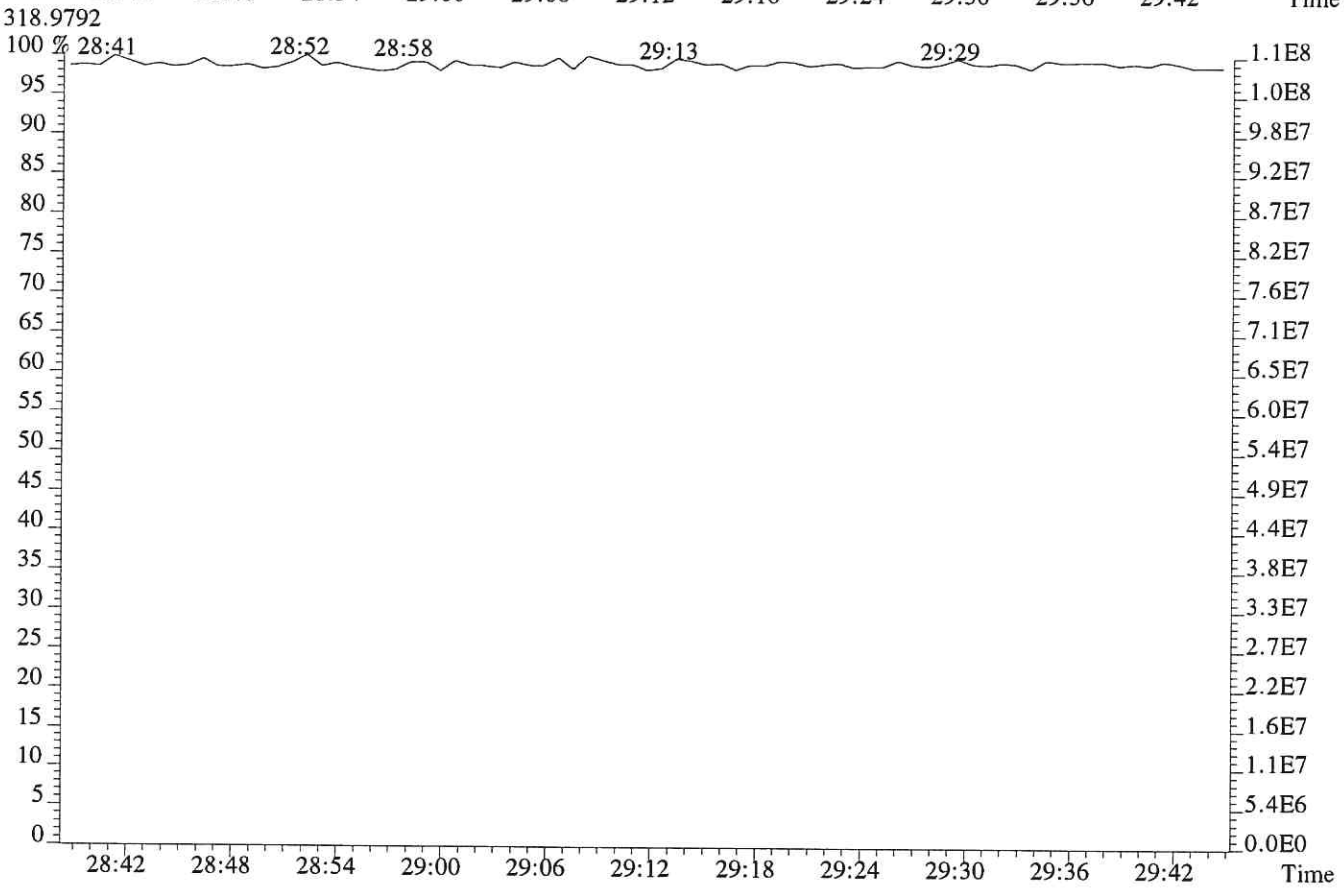
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P518964
Date Analyzed: 21-NOV-18
Time Analyzed: 10:03:43

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:14	30:24
TCDD	26:06	30:14
PeCDF	30:20	34:30
PeCDD	31:50	34:15
HxCDF	35:09	37:37
HxCDD	35:39	37:13
HpCDF	38:51	40:16
HpCDD	39:06	39:47

% Valley 2378-TCDD: 16 %

File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





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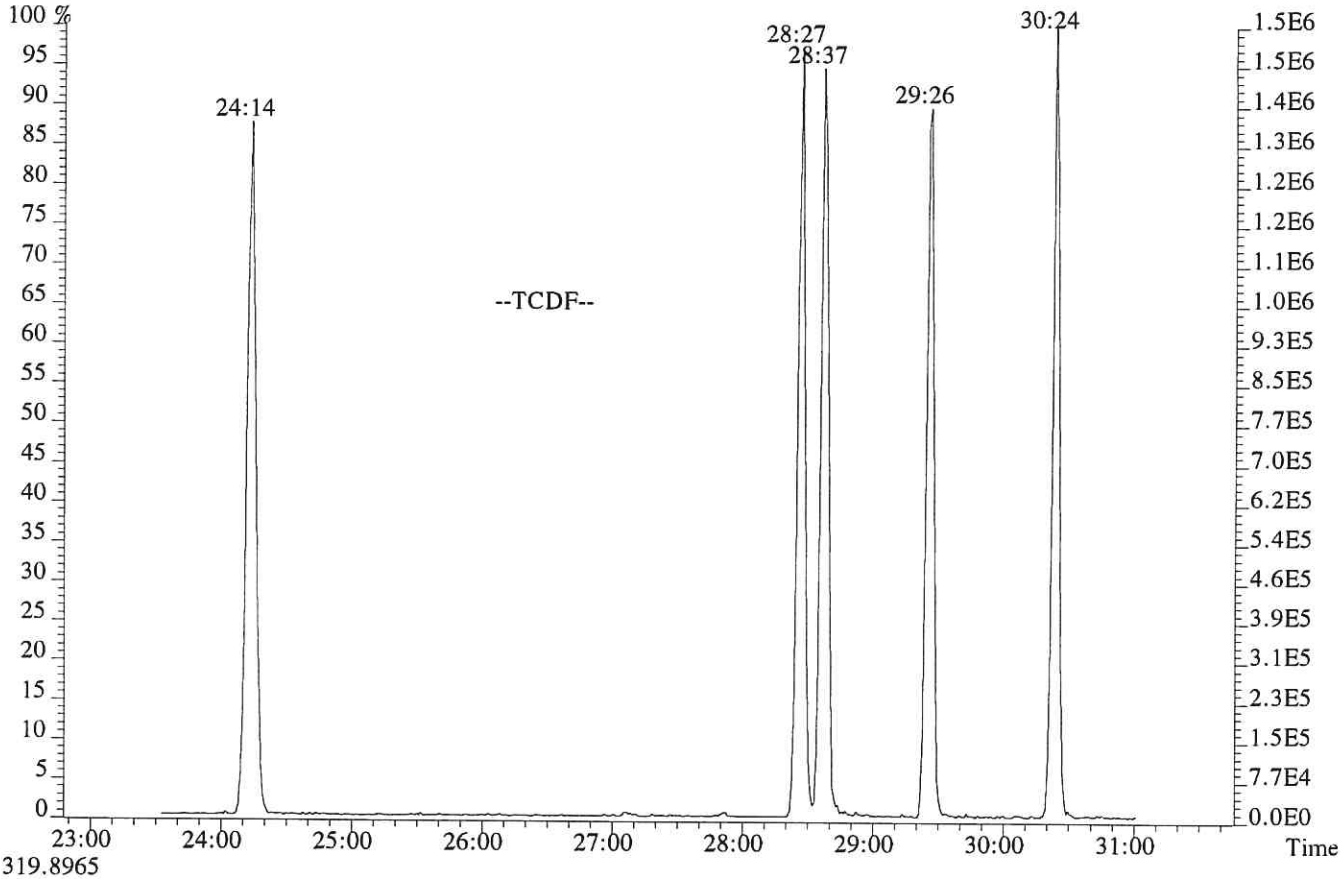
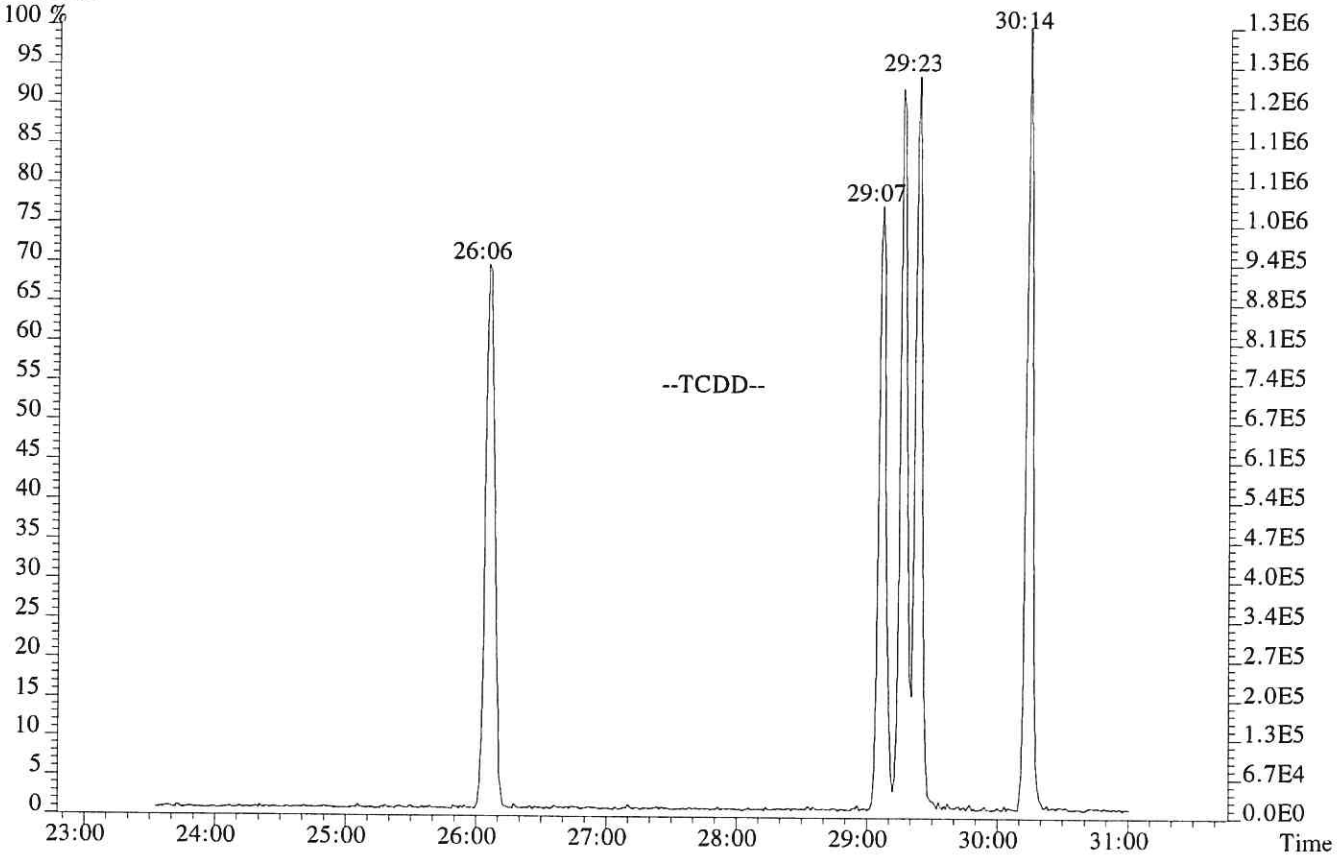
Sample#1 Exp:192977

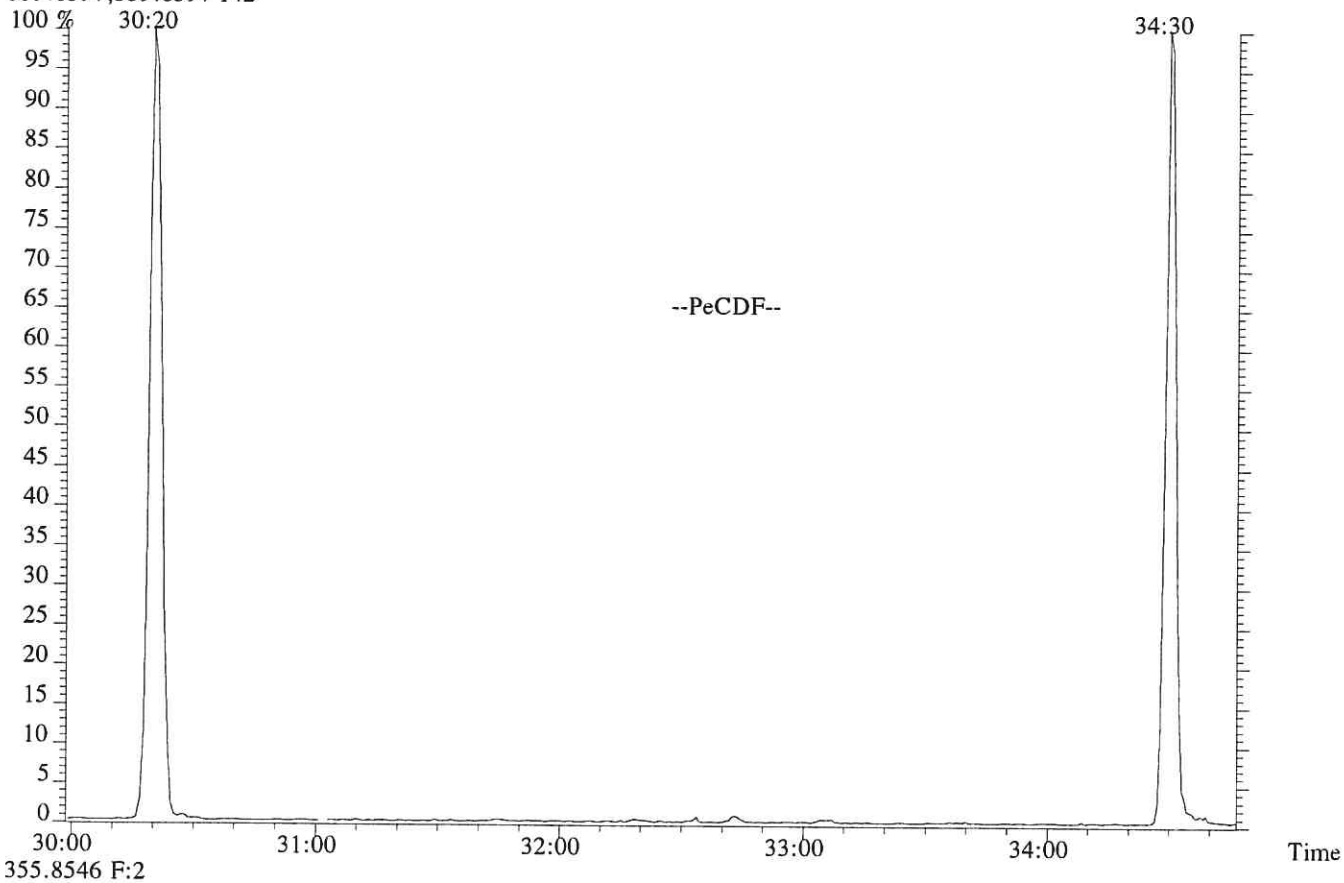
303.9016



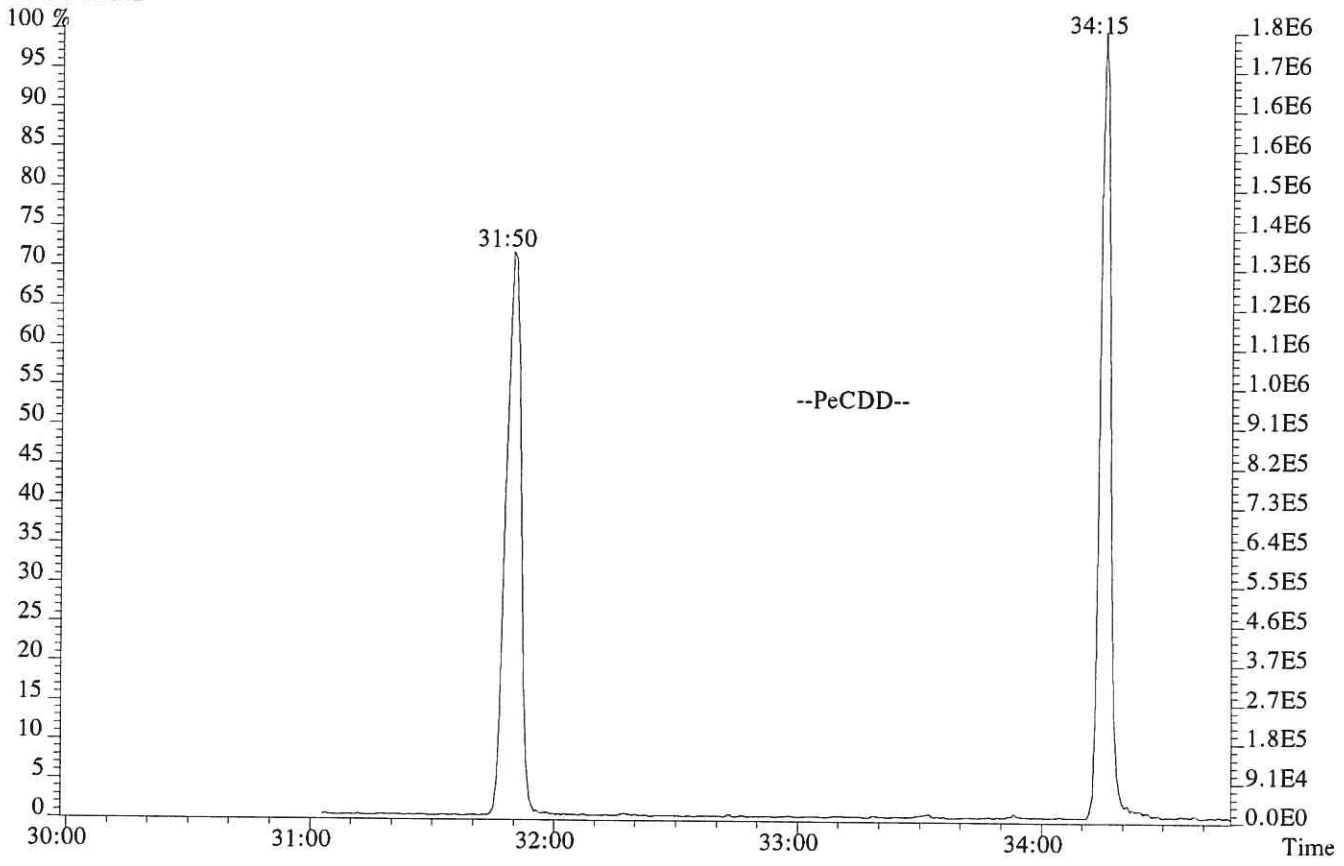
319.8965



File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
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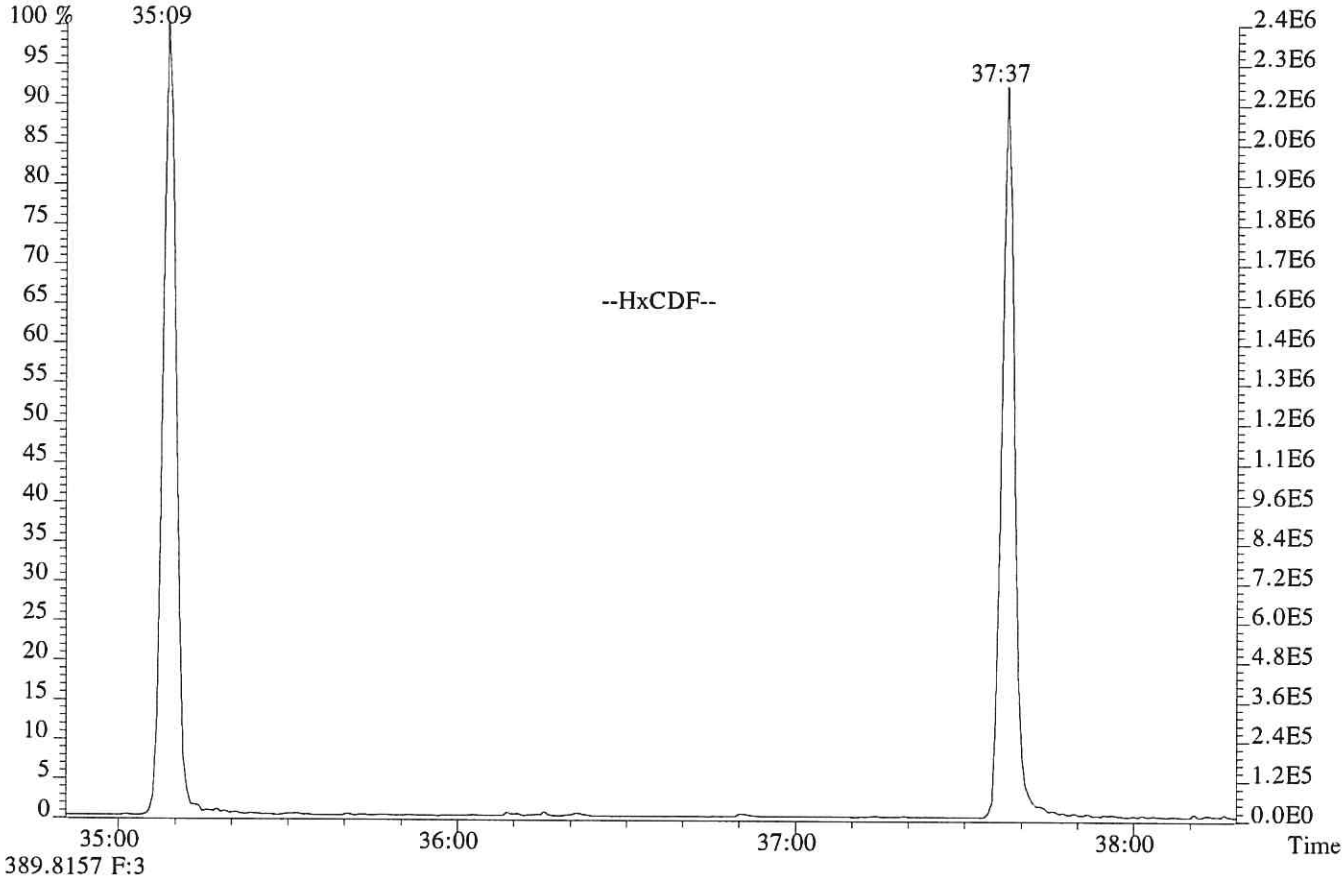
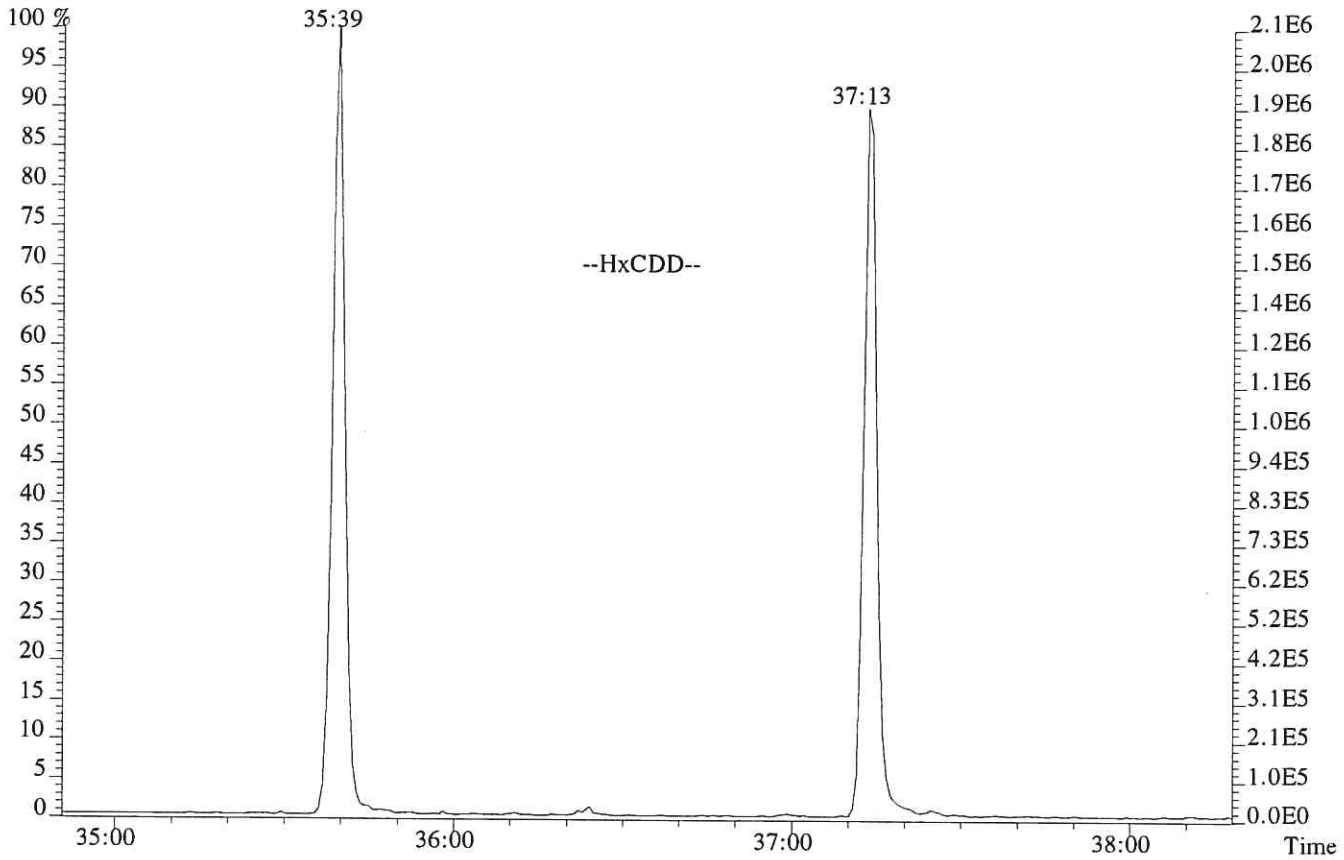
373.8208 F:3



389.8157 F:3



File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
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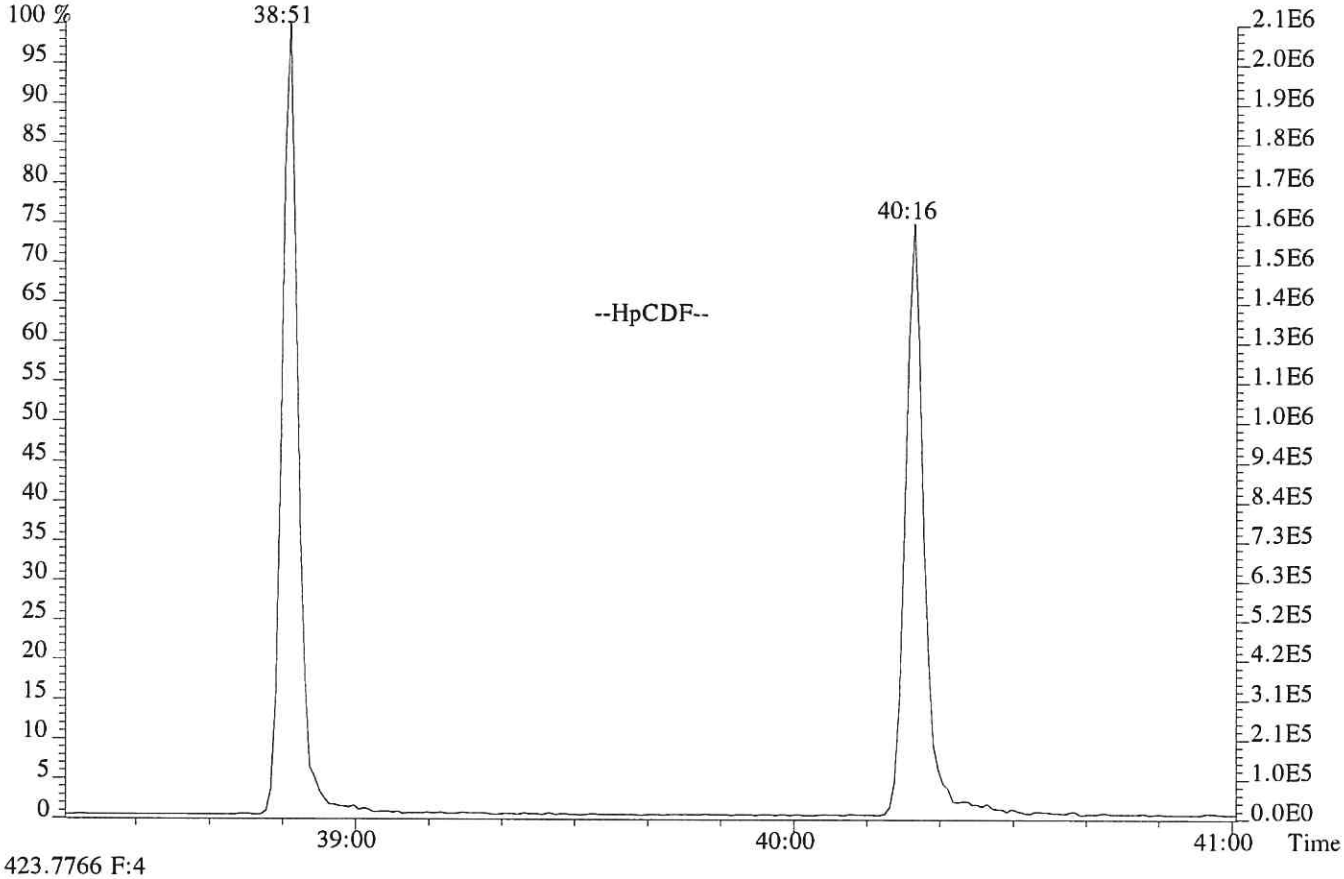
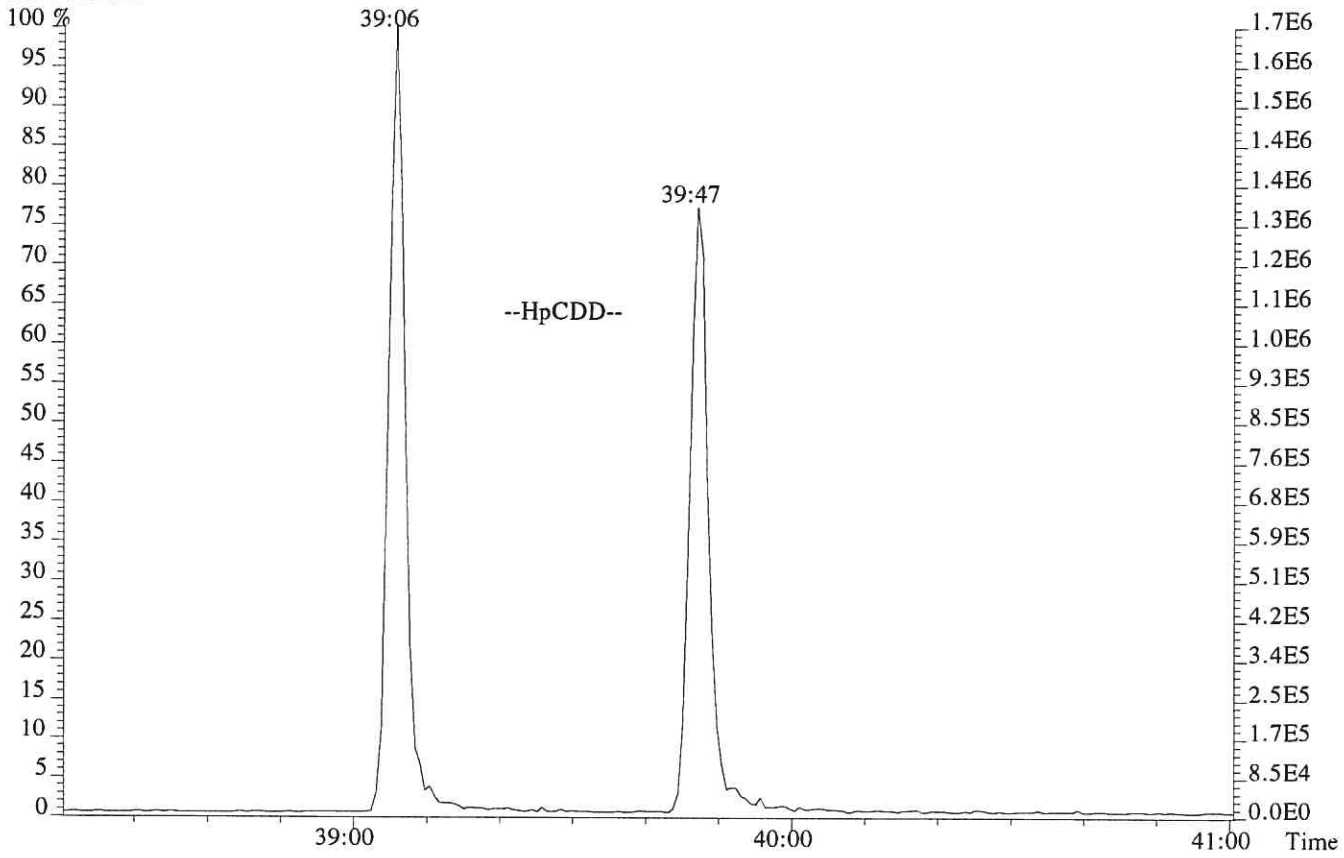
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518965 Analysis Date: 21-NOV-18 Time: 10:51:31

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.0	7.8 - 12.9	-9.8
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	49	39 - 64	-1.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	51	41 - 61	1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.87	0.76-1.02	100	79 - 126	-0.3
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.5	8.4 - 12.0	-5.0
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 60	-1.7
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 61	-2.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-1.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-1.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.1
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-3.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518965 Analysis Date: 21-NOV-18 Time: 10:51:31

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	105	82 - 121	4.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	113	62 - 160	12.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	97	85 - 117	-2.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	97	85 - 118	-3.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	4.7
13C-OCDD	M+2/M+4	0.90	0.76-1.02	255	96 - 415	27.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	91	71 - 140	-9.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	102	76 - 130	2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	104	77 - 130	4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	84	76 - 131	-15.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	70 - 143	-14.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	92	73 - 137	-8.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	96	78 - 129	-4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	103	77 - 129	3.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	0.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518965 Samp: 1 Inj: 1 Acquired: 21-NOV-18 10:51:31
Processed: 26-NOV-18 13:37:01 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	4.225e+03	5.461e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:43	3.595e+04	2.299e+04	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	3.390e+04	2.180e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	3.012e+04	2.463e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	3.216e+04	2.684e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	3.064e+04	2.503e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	2.770e+04	2.301e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	2.738e+04	2.677e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:16	2.355e+04	2.328e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:51	4.015e+04	4.575e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	3.291e+03	4.163e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:53	2.474e+04	1.574e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.283e+04	1.776e+04	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	2.310e+04	1.818e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	2.410e+04	1.893e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	2.111e+04	1.958e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:39	3.381e+04	3.892e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	4.787e+04	6.040e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	7.264e+04	4.580e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	7.344e+04	4.599e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	3.161e+04	5.974e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.562e+04	6.910e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	3.426e+04	6.677e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	3.074e+04	5.947e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	2.500e+04	5.646e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	2.308e+04	5.146e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	3.355e+04	4.257e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	5.306e+04	3.364e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	4.402e+04	3.508e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	4.531e+04	3.520e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	4.057e+04	3.829e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:38	6.199e+04	6.851e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	3.512e+04	4.370e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	4.948e+04	3.835e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	8.007e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518965 Samp: 1 Inj: 1 Acquired: 21-NOV-18 10:51:31
Processed: 26-NOV-18 13:37:01 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.24e+05	8.64e+02	9.5e+02	1.08e+06	7.64e+02	1.4e+03
2	1,2,3,7,8-PeCDF	6.90e+06	1.80e+02	3.8e+04	4.42e+06	6.92e+02	6.4e+03
3	2,3,4,7,8-PeCDF	6.55e+06	1.80e+02	3.6e+04	4.24e+06	6.92e+02	6.1e+03
4	1,2,3,4,7,8-HxCDF	6.55e+06	8.88e+02	7.4e+03	5.42e+06	6.08e+02	8.9e+03
5	1,2,3,6,7,8-HxCDF	6.79e+06	8.88e+02	7.6e+03	5.48e+06	6.08e+02	9.0e+03
6	2,3,4,6,7,8-HxCDF	6.68e+06	8.88e+02	7.5e+03	5.34e+06	6.08e+02	8.8e+03
7	1,2,3,7,8,9-HxCDF	5.62e+06	8.88e+02	6.3e+03	4.55e+06	6.08e+02	7.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.90e+06	1.09e+03	5.4e+03	5.66e+06	1.97e+03	2.9e+03
9	1,2,3,4,7,8,9-HpCDF	4.46e+06	1.09e+03	4.1e+03	4.43e+06	1.97e+03	2.3e+03
10	OCDF	6.29e+06	2.44e+02	2.6e+04	7.19e+06	1.04e+03	6.9e+03
11	2,3,7,8-TCDD	6.46e+05	2.44e+03	2.6e+02	8.33e+05	1.32e+03	6.3e+02
12	1,2,3,7,8-PeCDD	4.96e+06	8.60e+02	5.8e+03	3.15e+06	2.04e+02	1.5e+04
13	1,2,3,4,7,8-HxCDD	5.11e+06	5.72e+02	8.9e+03	4.02e+06	4.60e+02	8.7e+03
14	1,2,3,6,7,8-HxCDD	4.86e+06	5.72e+02	8.5e+03	3.82e+06	4.60e+02	8.3e+03
15	1,2,3,7,8,9-HxCDD	5.07e+06	5.72e+02	8.9e+03	3.97e+06	4.60e+02	8.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.11e+06	5.52e+02	7.5e+03	3.83e+06	3.24e+02	1.2e+04
17	OCDD	5.45e+06	1.64e+02	3.3e+04	6.35e+06	3.56e+02	1.8e+04
18	13C-2,3,7,8-TCDF	9.35e+06	9.62e+03	9.7e+02	1.18e+07	6.70e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	1.36e+07	4.32e+02	3.2e+04	8.52e+06	3.40e+02	2.5e+04
20	13C-2,3,4,7,8-PeCDF	1.44e+07	4.32e+02	3.3e+04	9.14e+06	3.40e+02	2.7e+04
21	13C-1,2,3,4,7,8-HxCDF	6.87e+06	9.56e+02	7.2e+03	1.30e+07	9.48e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	7.40e+06	9.56e+02	7.7e+03	1.42e+07	9.48e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	7.34e+06	9.56e+02	7.7e+03	1.42e+07	9.48e+02	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	6.29e+06	9.56e+02	6.6e+03	1.19e+07	9.48e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	3.15e+03	1.7e+03	1.19e+07	4.87e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.31e+06	3.15e+03	1.4e+03	9.63e+06	4.87e+03	2.0e+03
27	13C-2,3,7,8-TCDD	6.94e+06	7.18e+03	9.7e+02	8.72e+06	2.20e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	1.04e+07	1.20e+03	8.6e+03	6.55e+06	1.12e+03	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	9.75e+06	6.00e+02	1.6e+04	7.83e+06	3.96e+02	2.0e+04
30	13C-1,2,3,6,7,8-HxCDD	9.37e+06	6.00e+02	1.6e+04	7.32e+06	3.96e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.99e+06	6.08e+02	1.3e+04	7.59e+06	2.92e+02	2.6e+04
32	13C-OCDD	1.01e+07	5.64e+02	1.8e+04	1.11e+07	2.72e+02	4.1e+04
33	13C-1,2,3,4-TCDD	6.85e+06	7.18e+03	9.5e+02	8.47e+06	2.20e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	6.00e+02	1.7e+04	8.01e+06	3.96e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	1.63e+06	1.60e+03	1.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.440e{+}03 + 1.324e{+}03) \times 100}{(6.938e{+}06 + 8.717e{+}06) \times (\quad) \times 1.085} =$$

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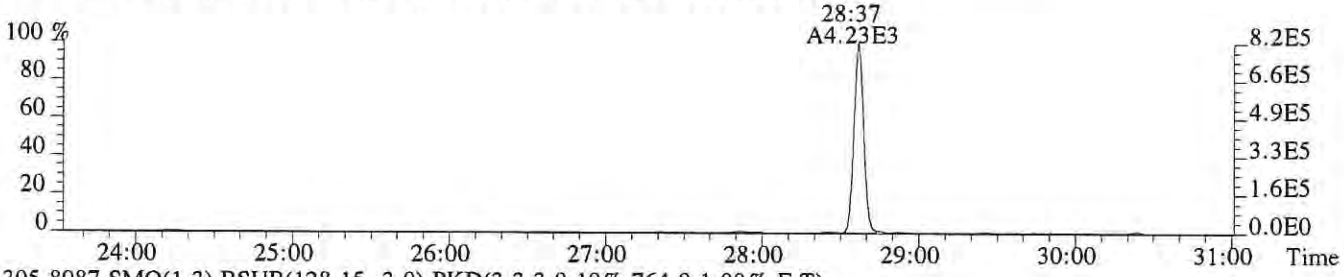
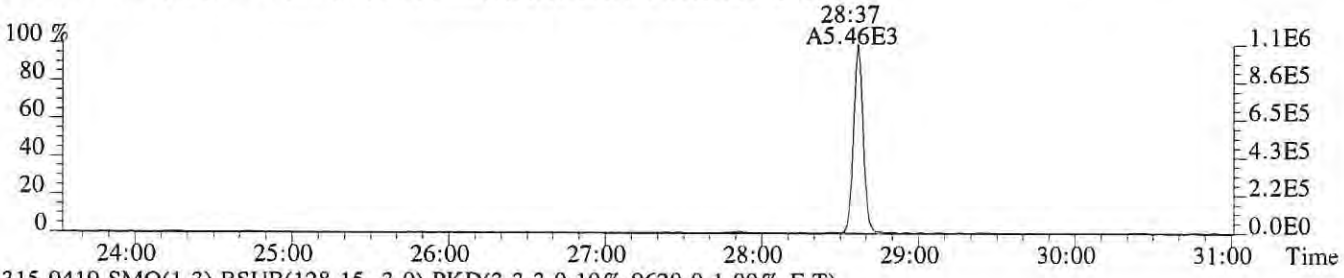
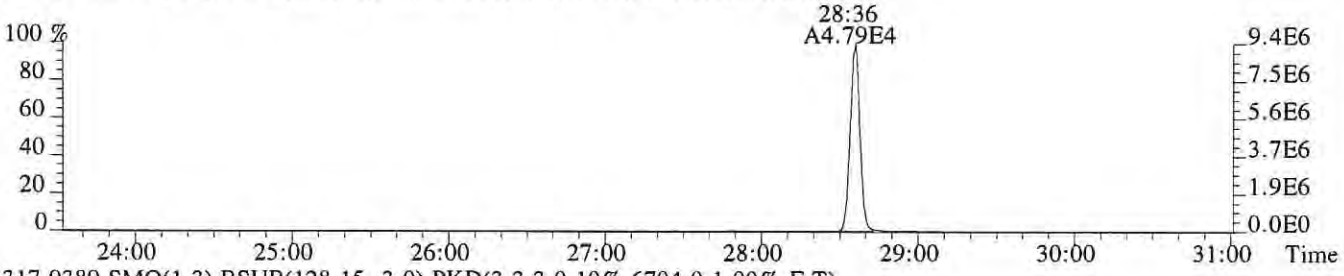
File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



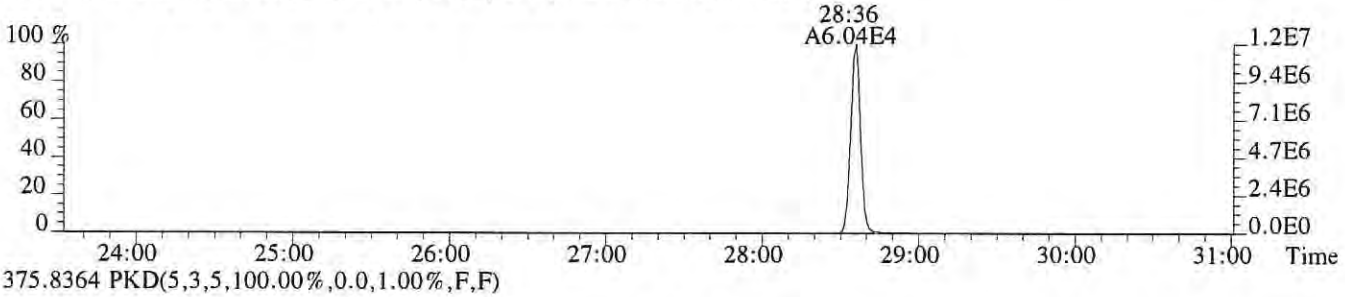
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



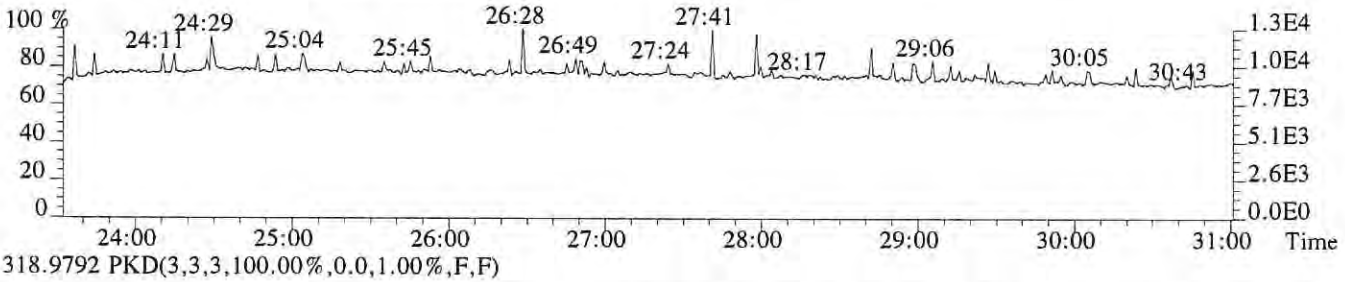
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9620.0,1.00%,F,T)



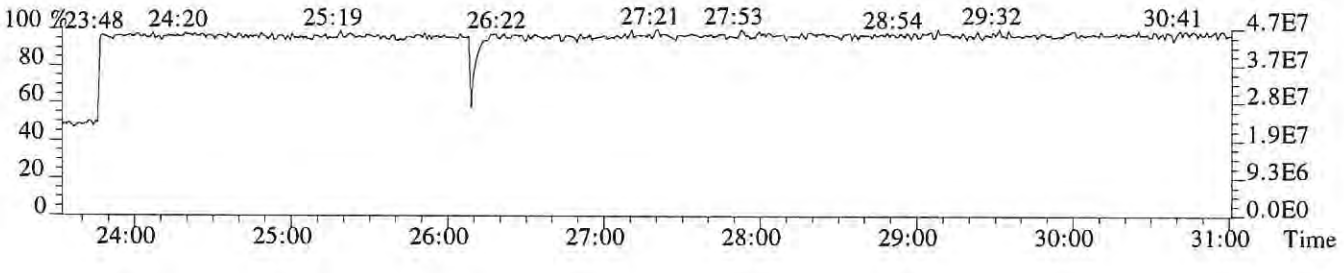
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6704.0,1.00%,F,T)



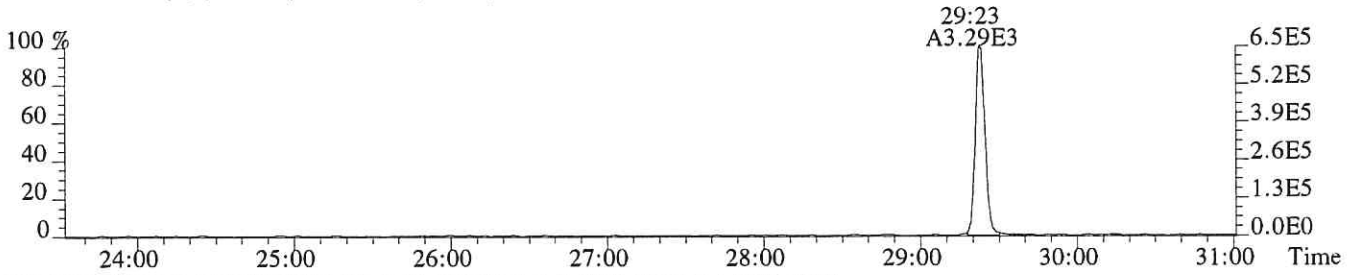
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



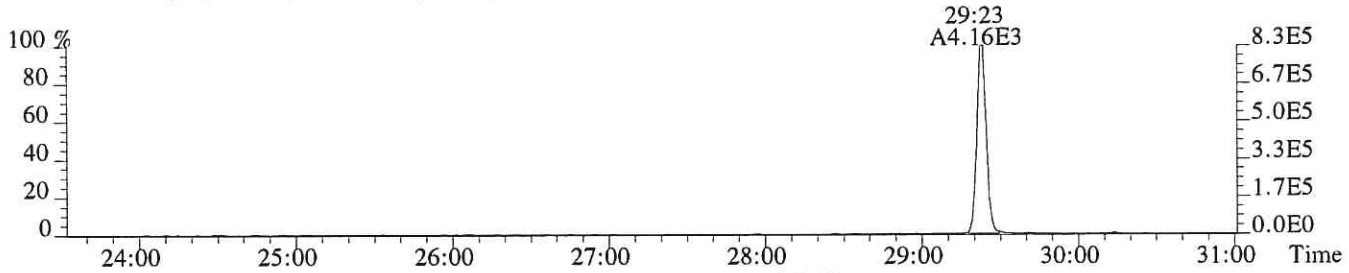
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



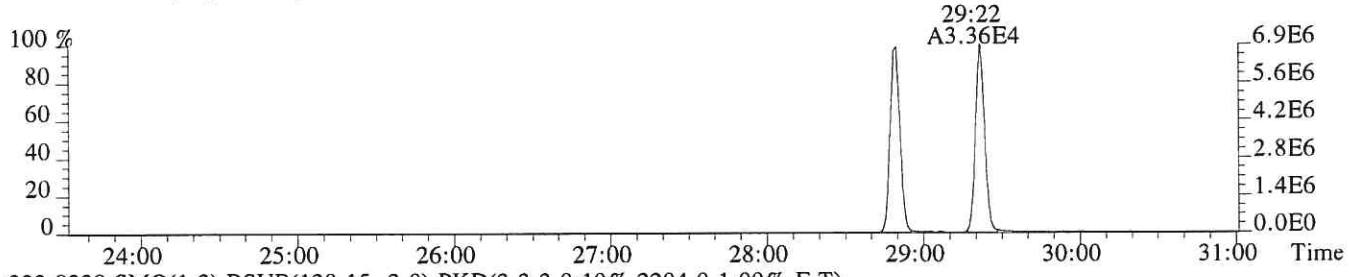
File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2440.0,1.00%,F,T)



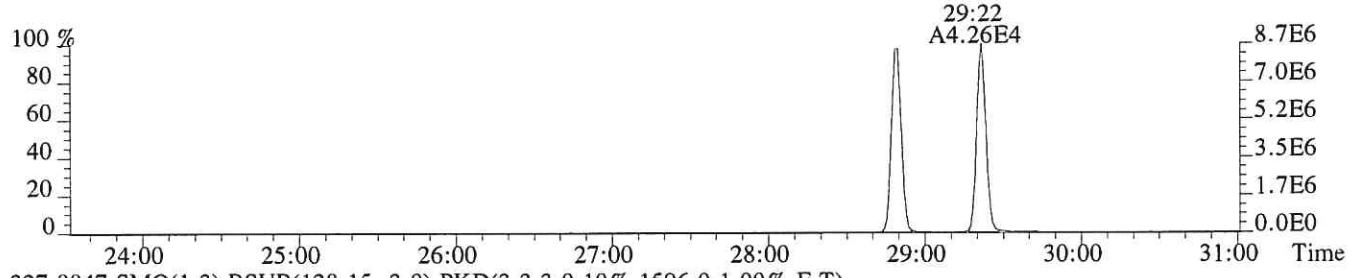
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



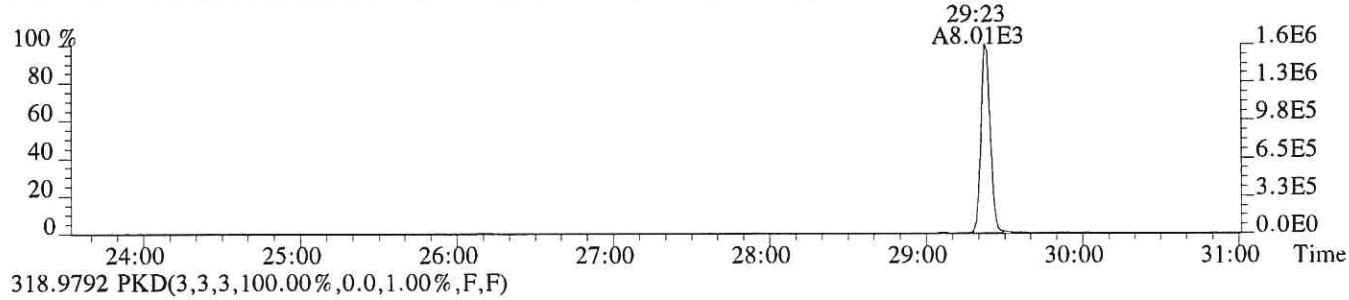
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7184.0,1.00%,F,T)



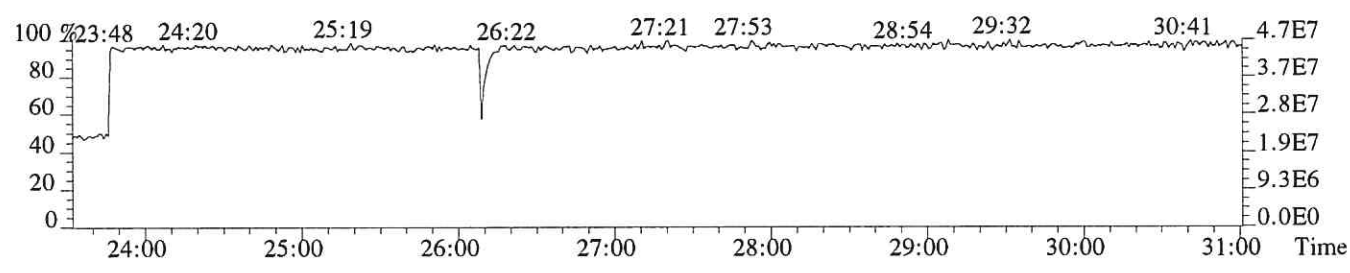
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



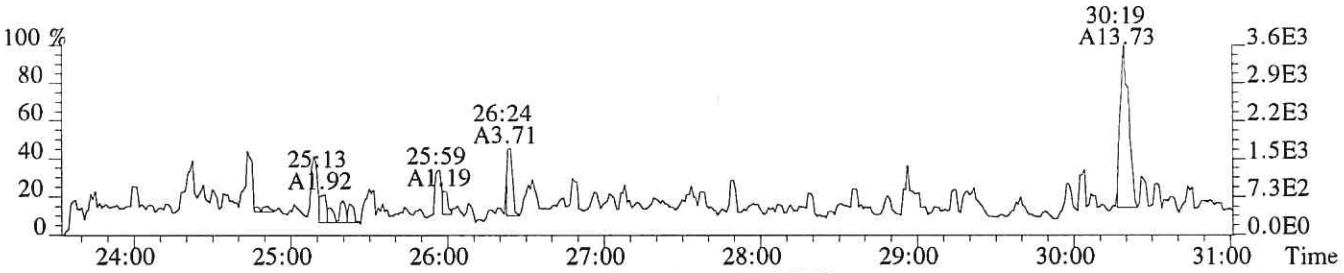
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)



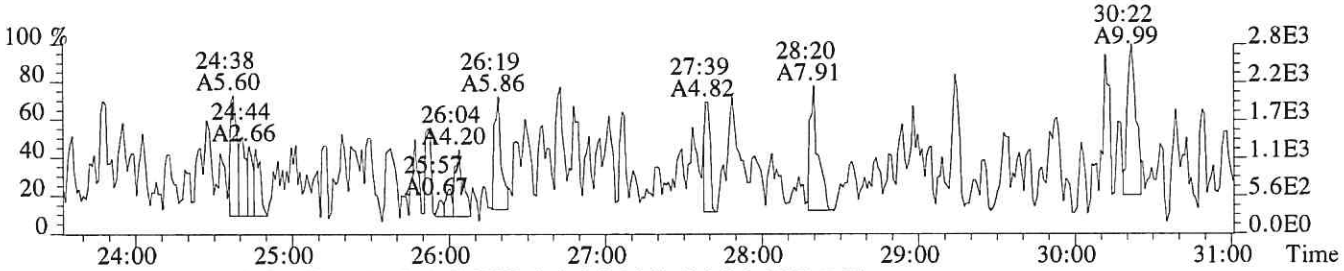
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



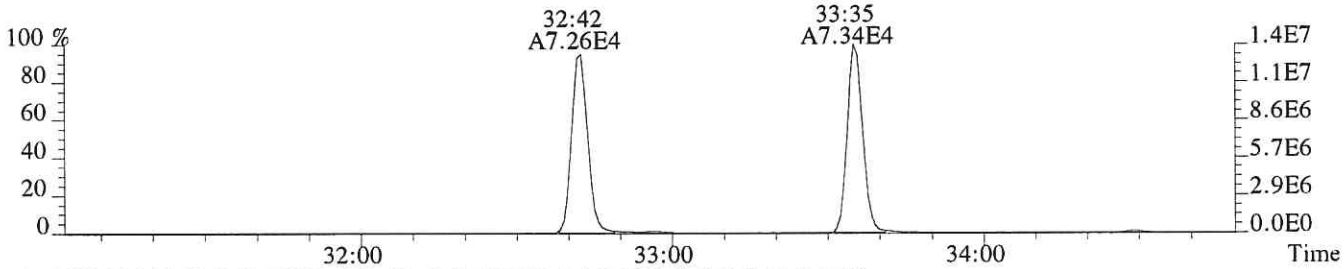
File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



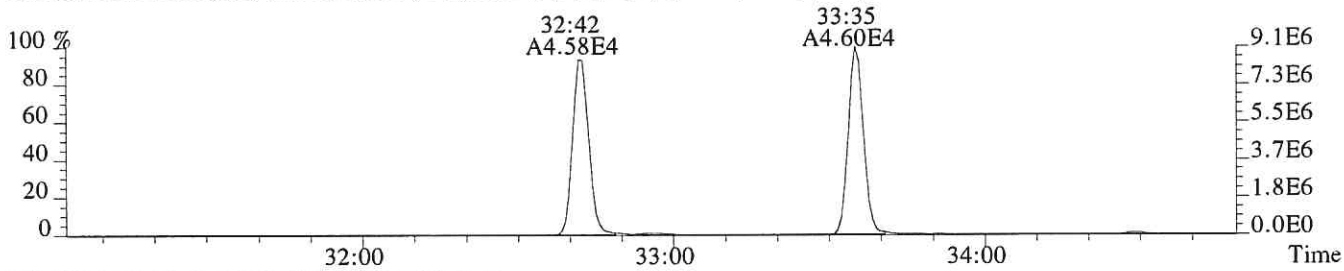
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



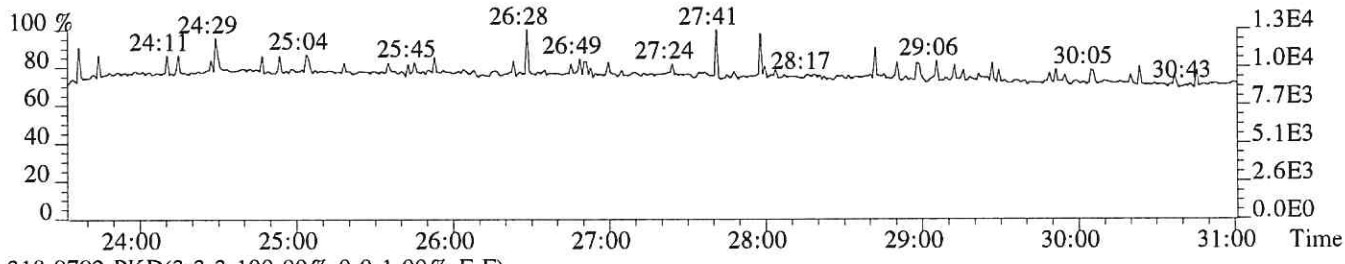
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



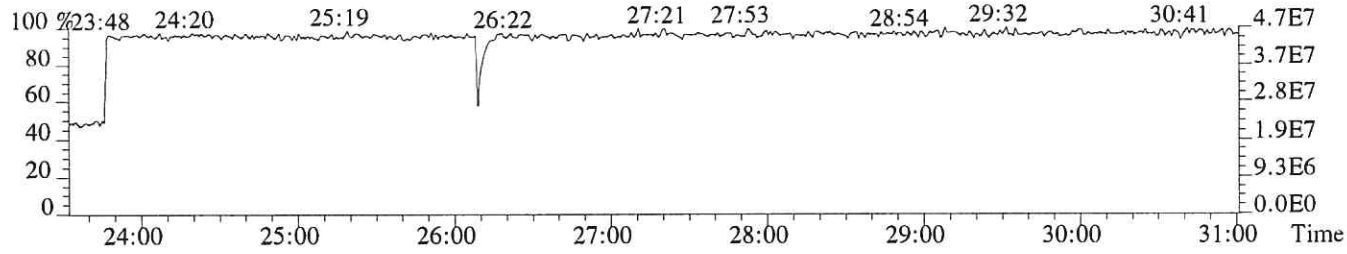
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

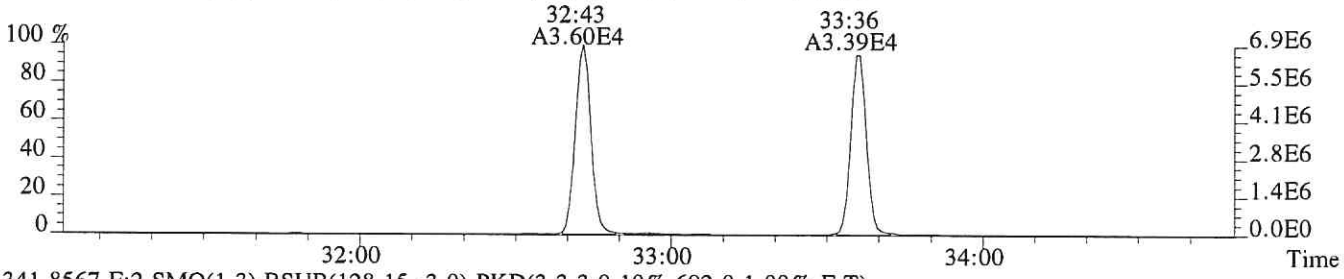


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

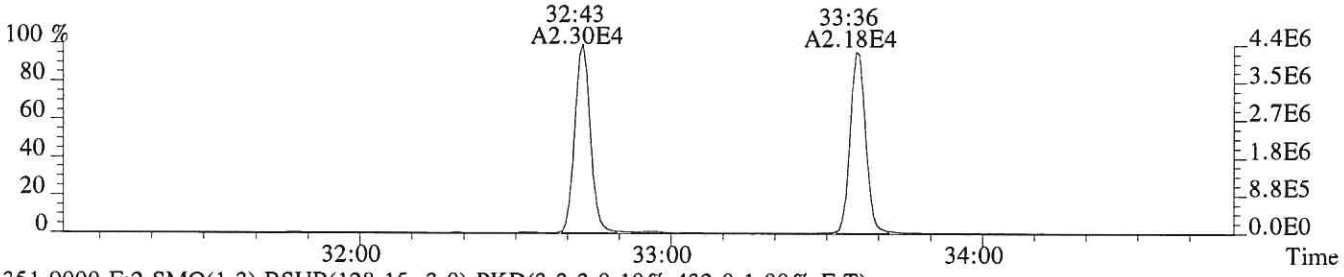


File:P518965 #1-339 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

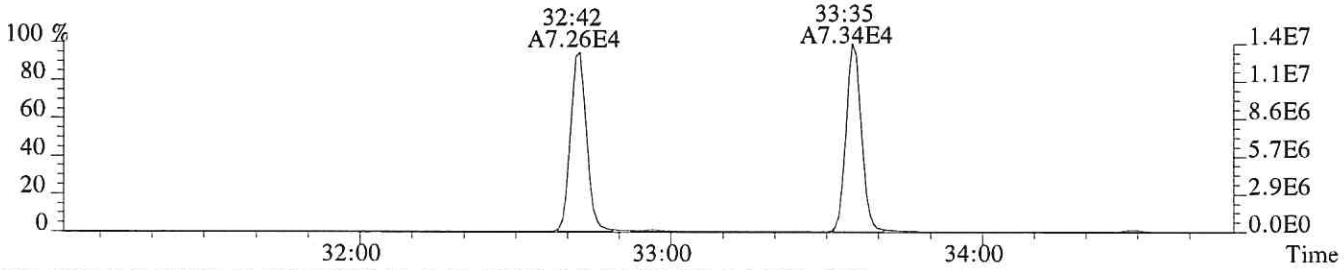
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



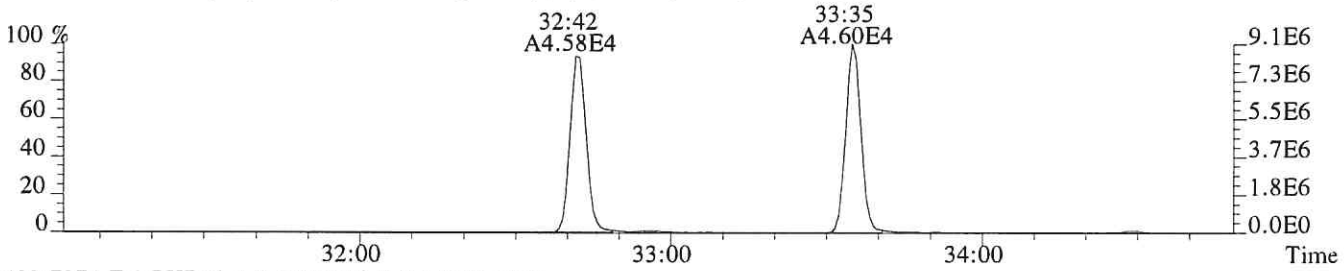
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



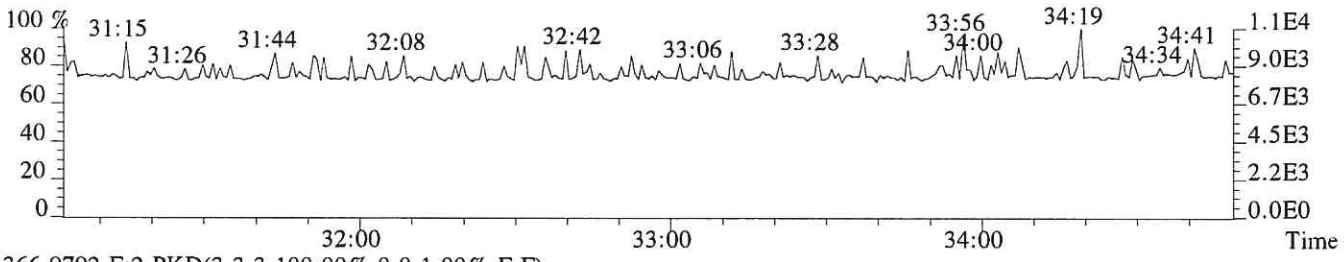
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



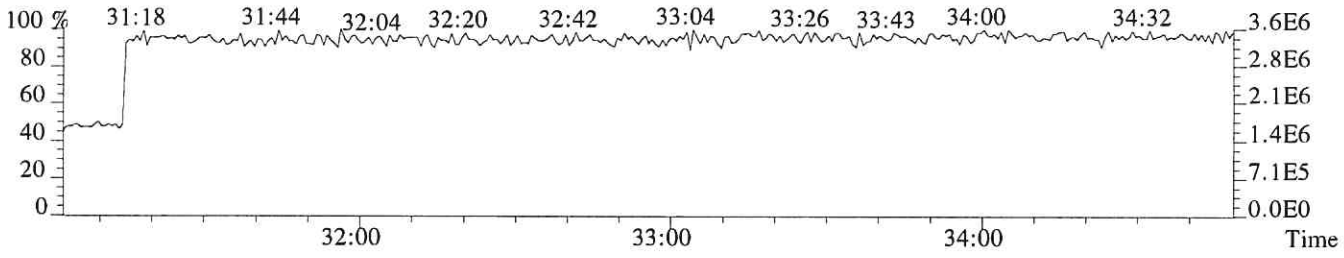
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



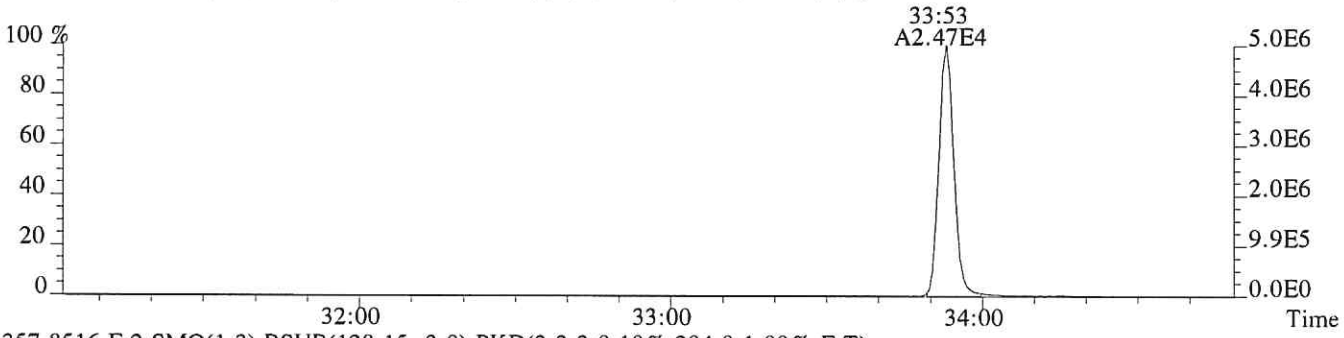
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



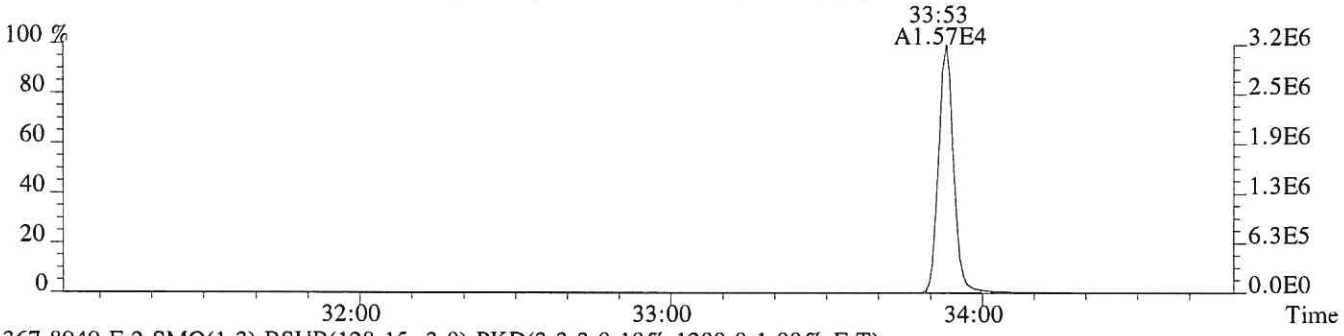
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



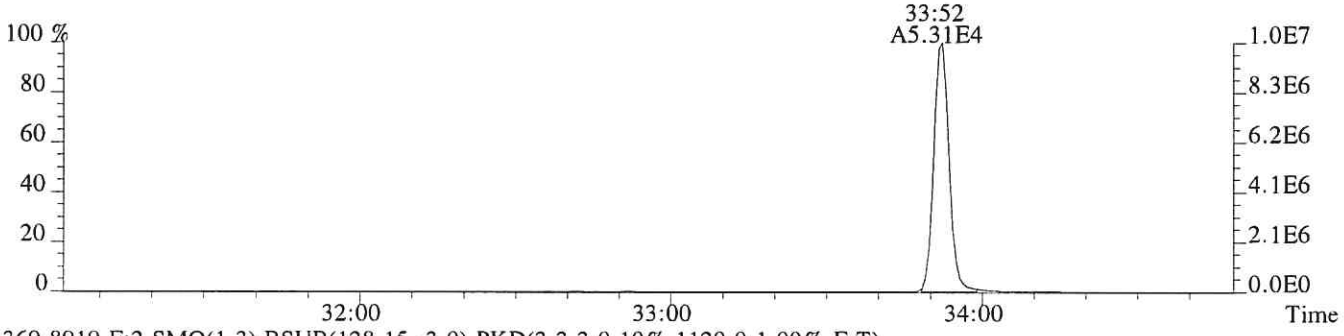
File:P518965 #1-339 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



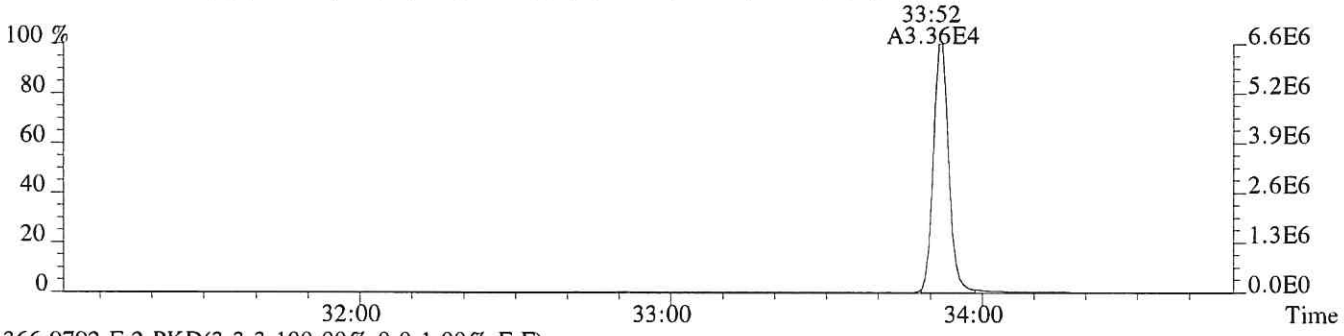
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



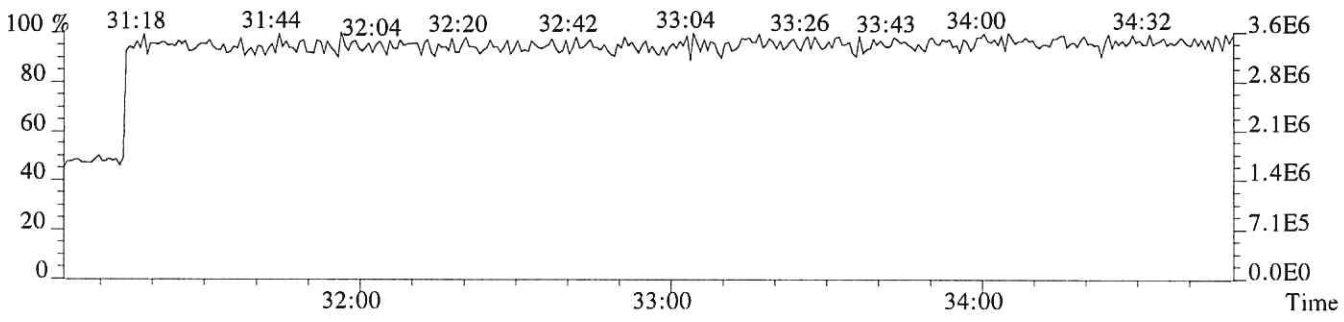
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)

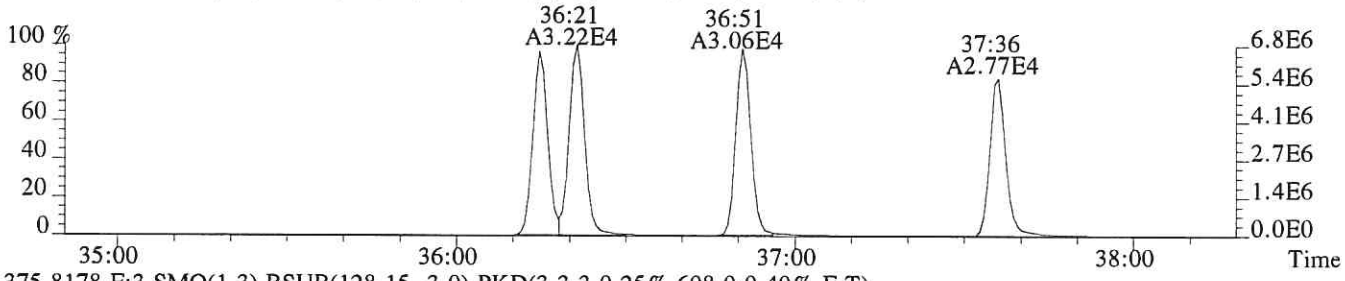


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

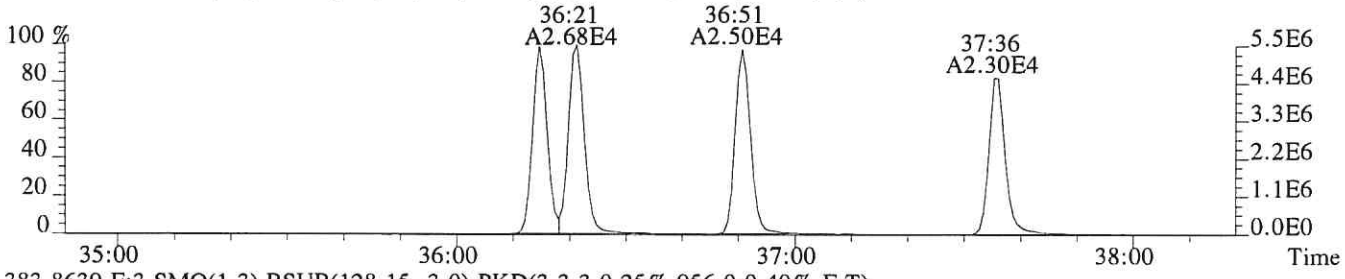


File:P518965 #1-312 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

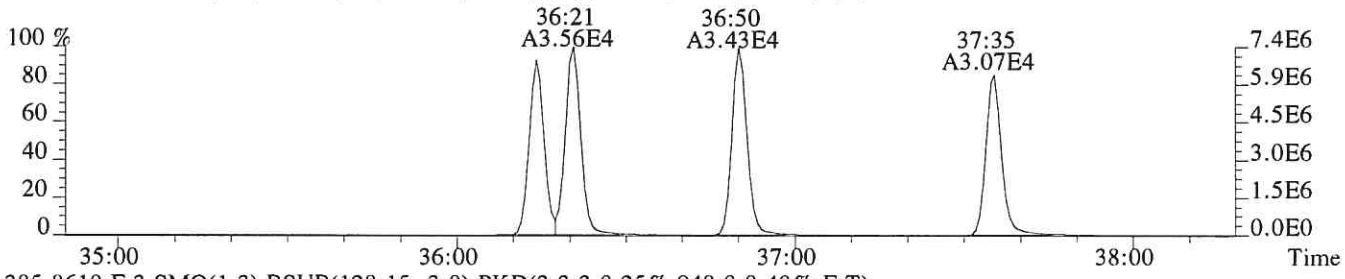
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



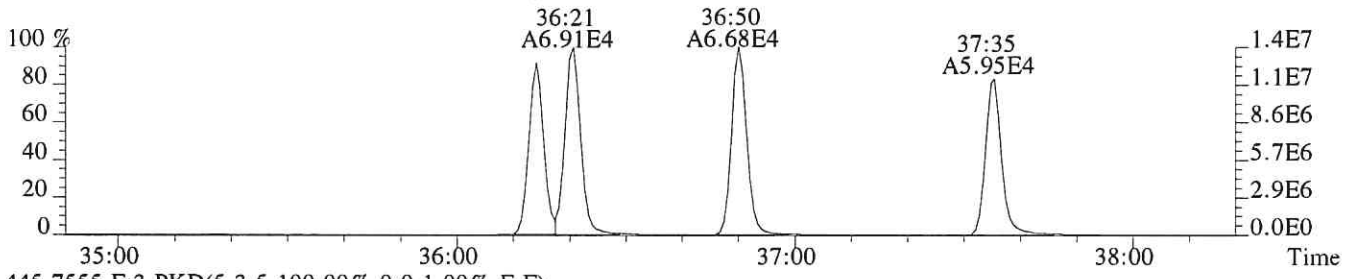
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



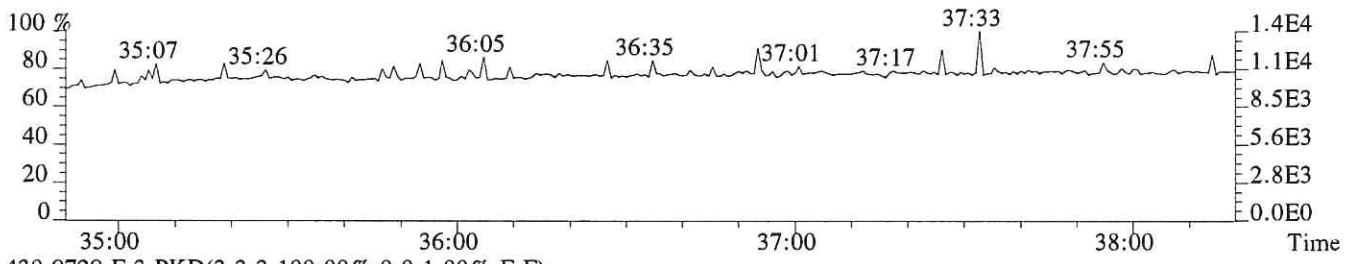
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



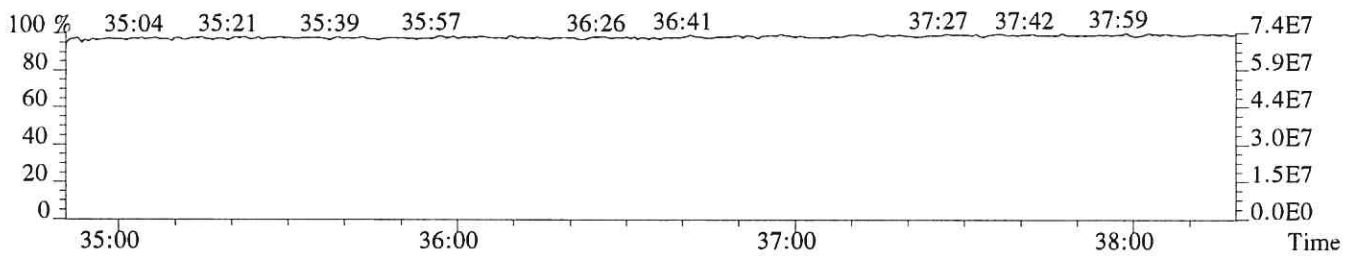
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



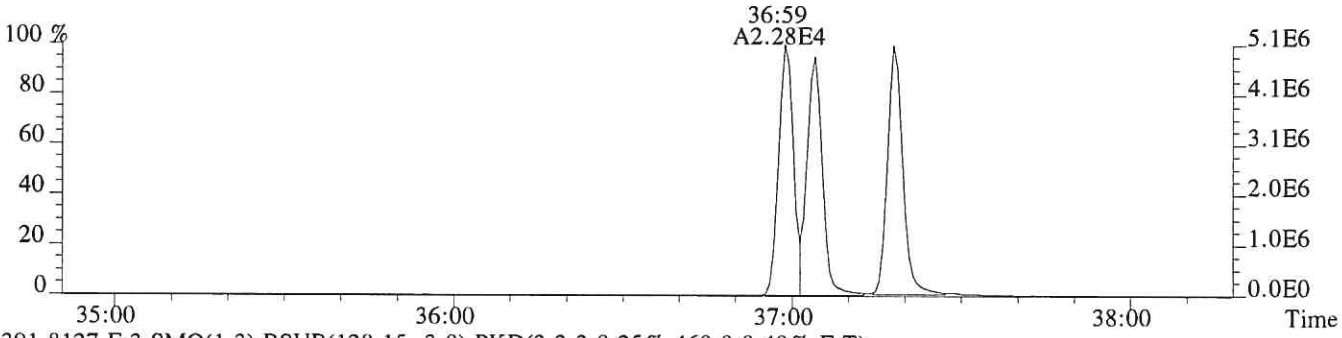
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



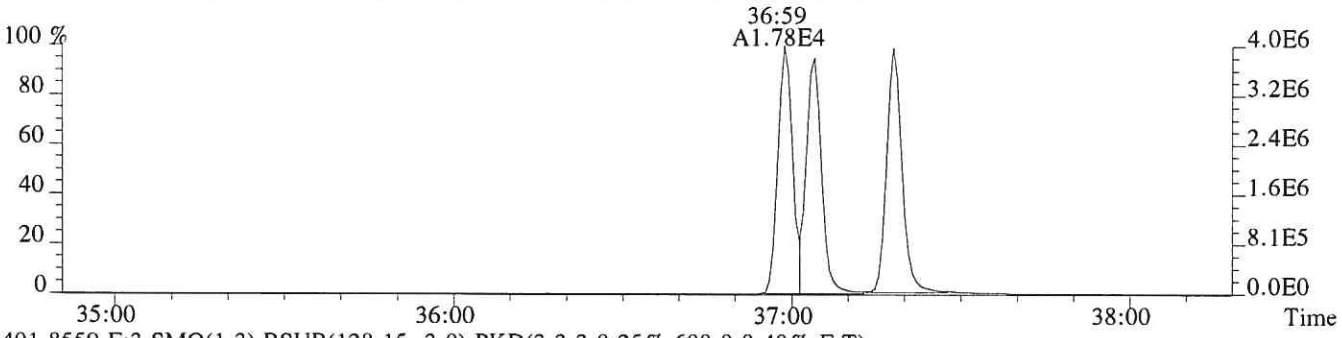
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



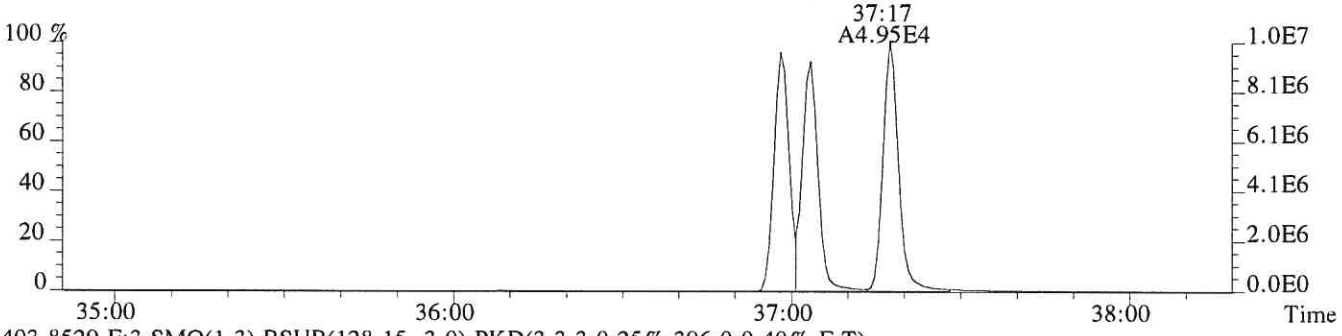
File:P518965 #1-312 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



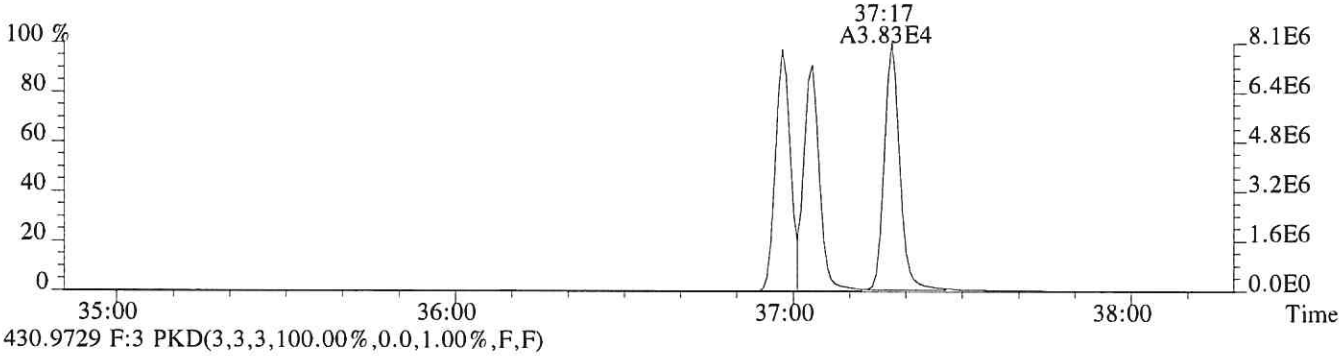
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



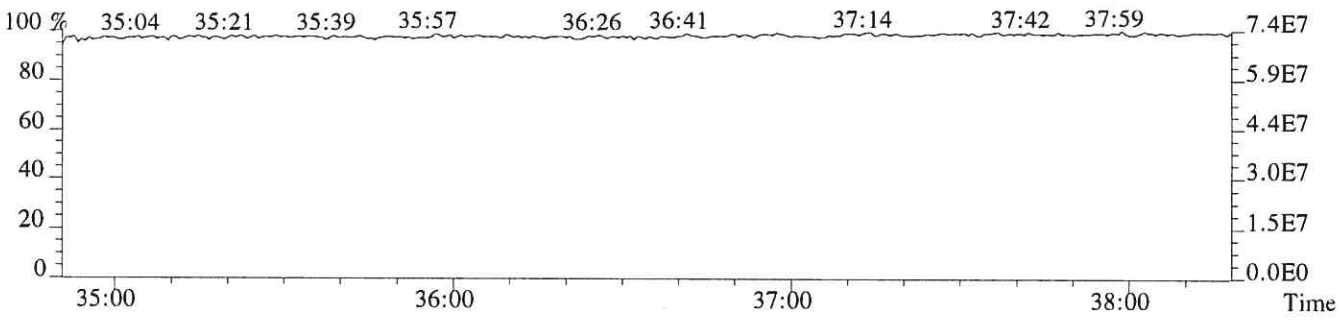
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)

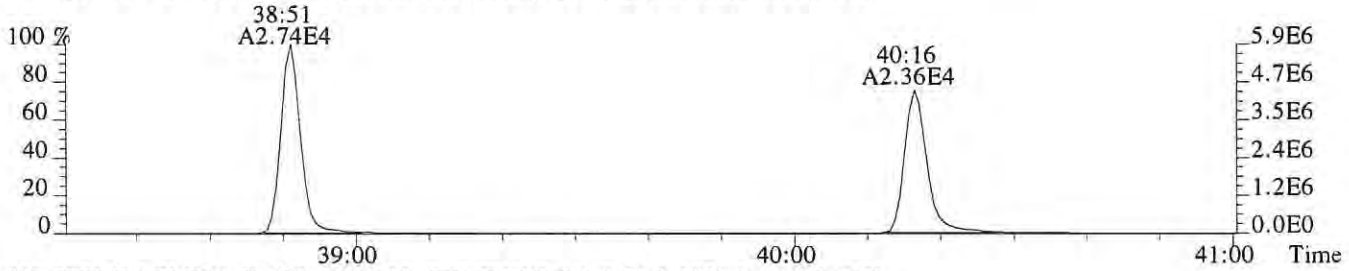


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

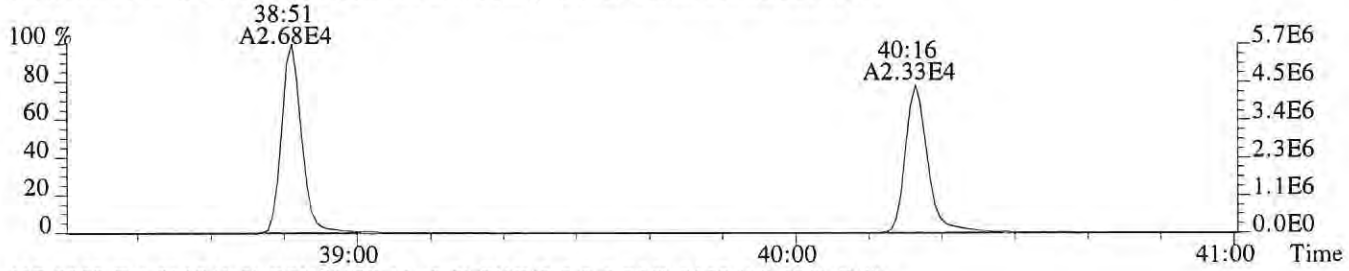


File:P518965 #1-241 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

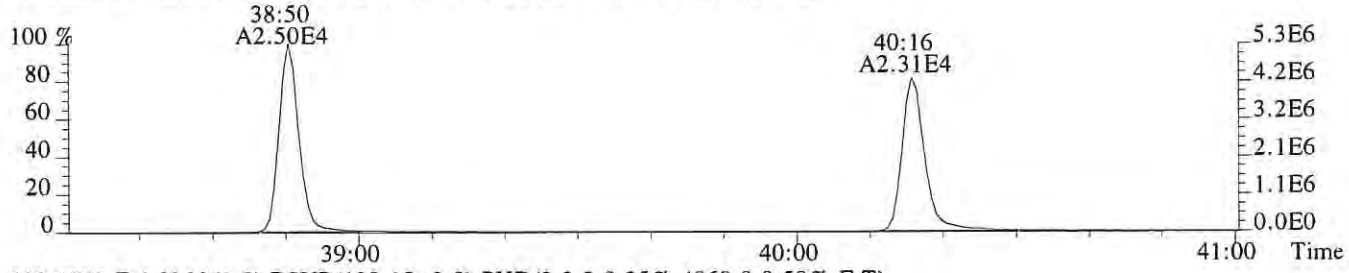
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.50%,F,T)



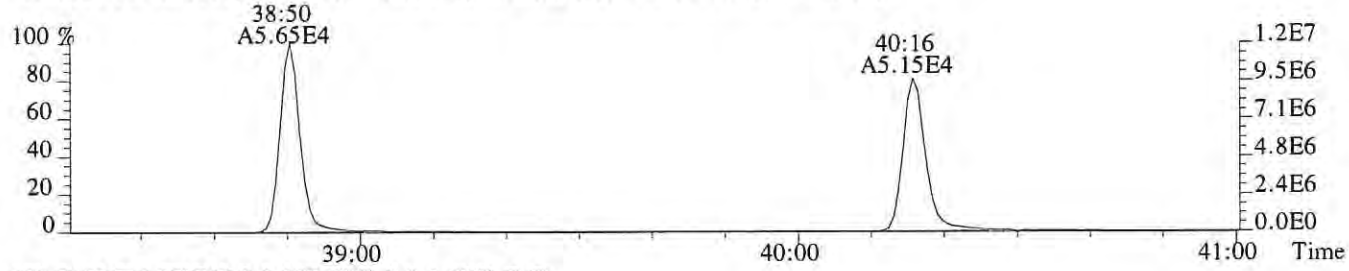
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



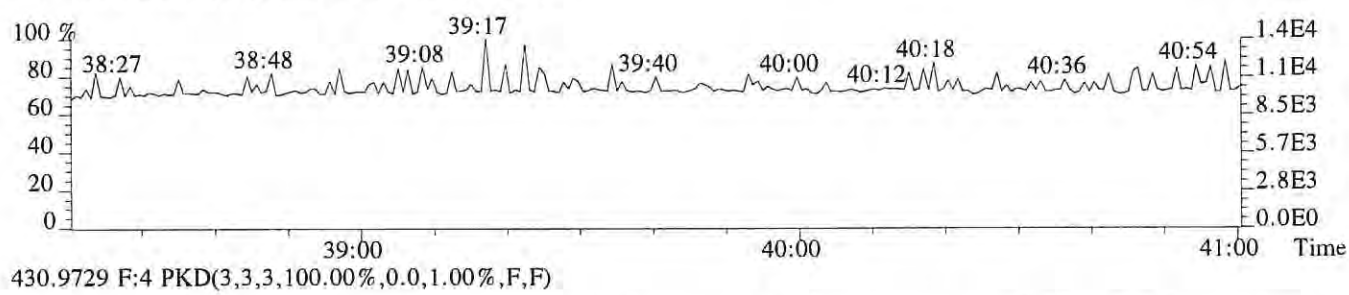
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3152.0,0.50%,F,T)



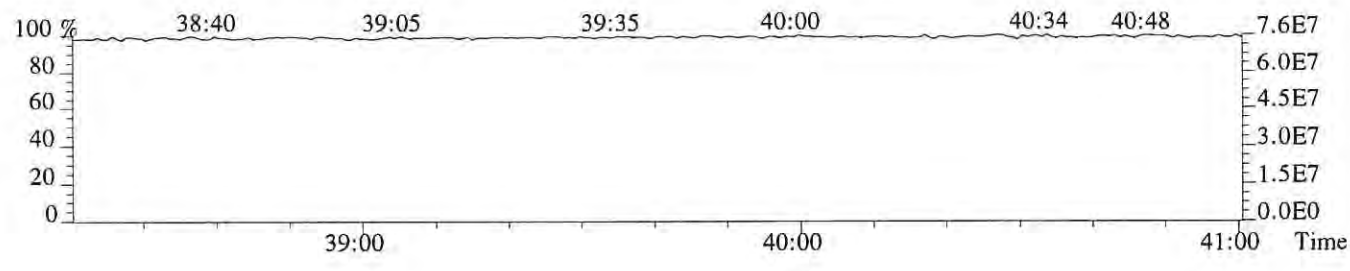
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4868.0,0.50%,F,T)



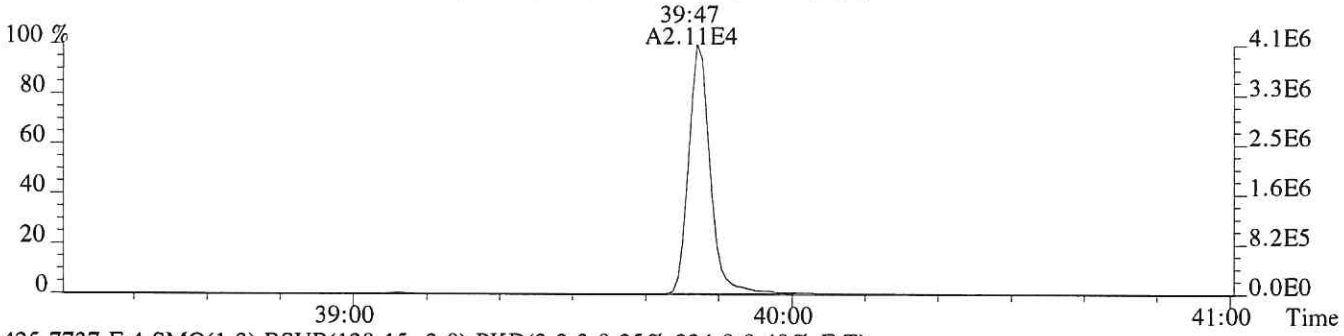
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



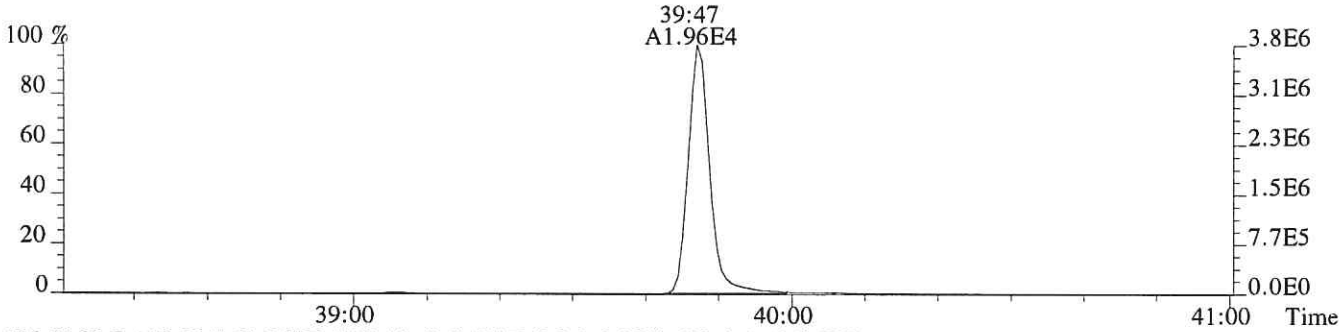
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



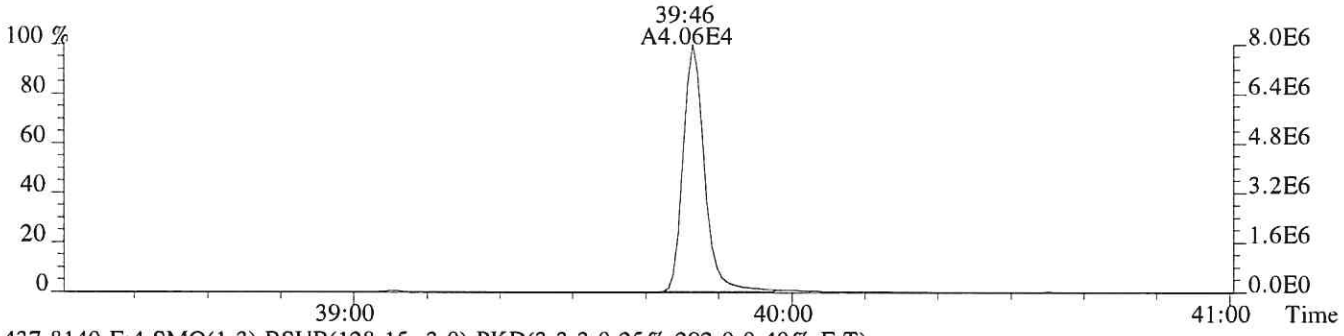
File:P518965 #1-241 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



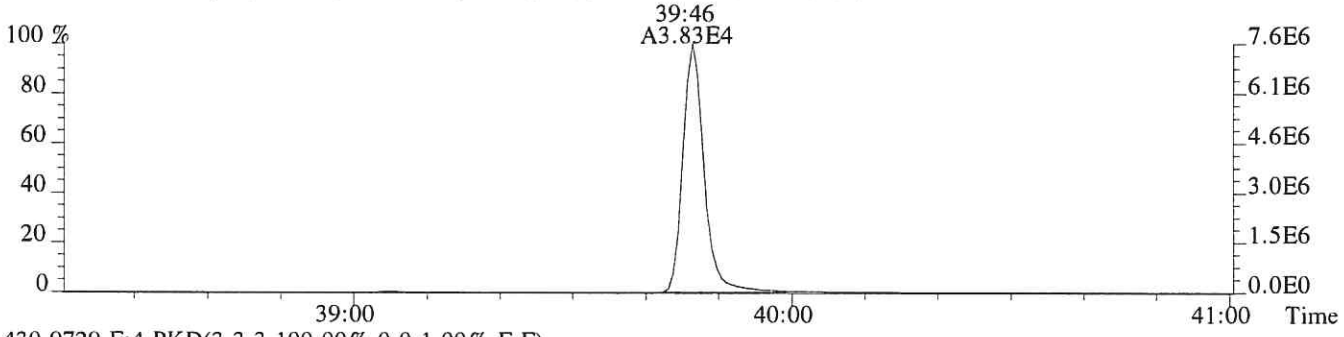
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



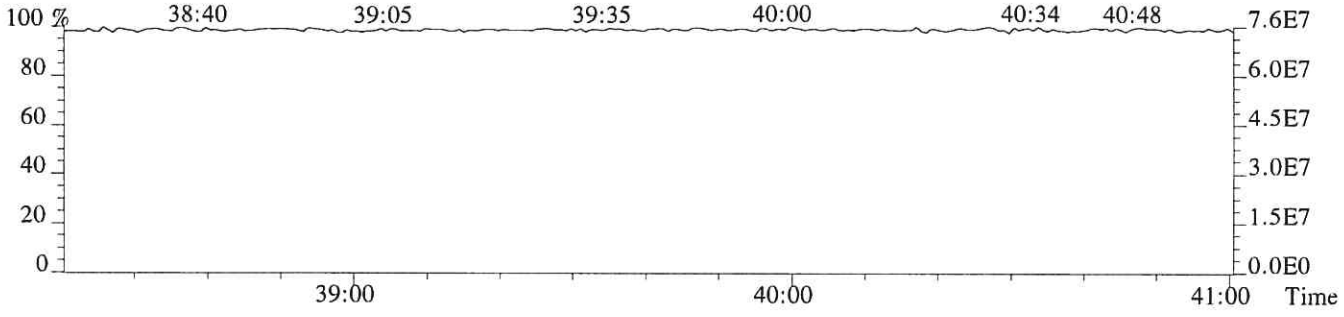
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)

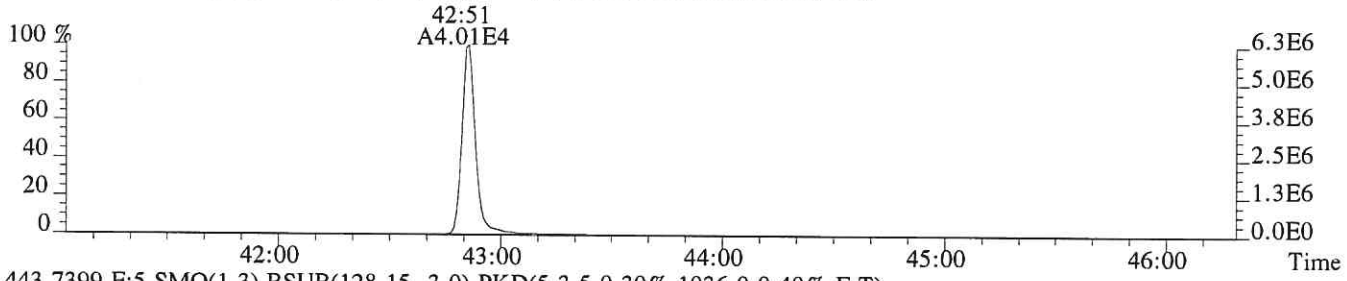


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

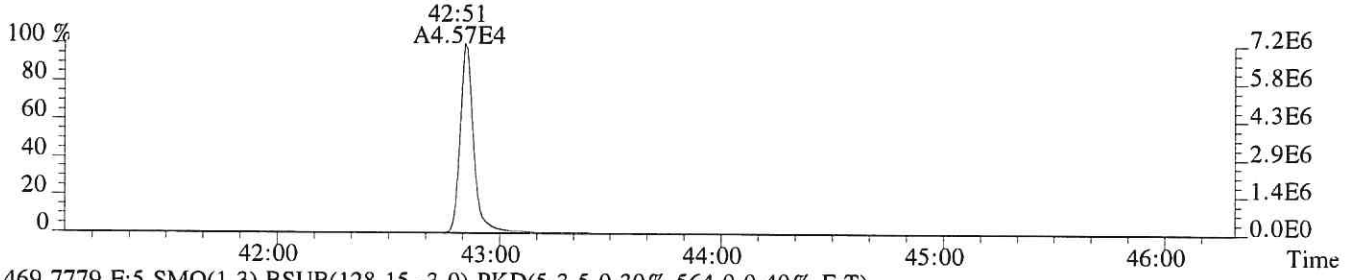


File:P518965 #1-475 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

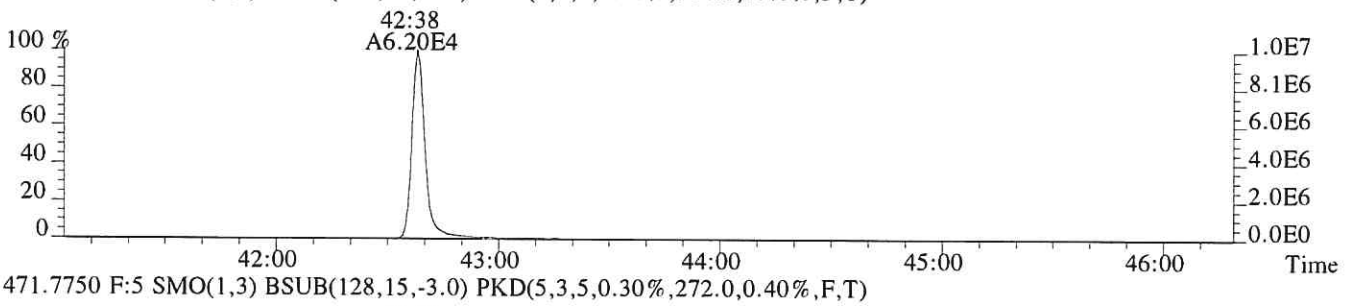
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



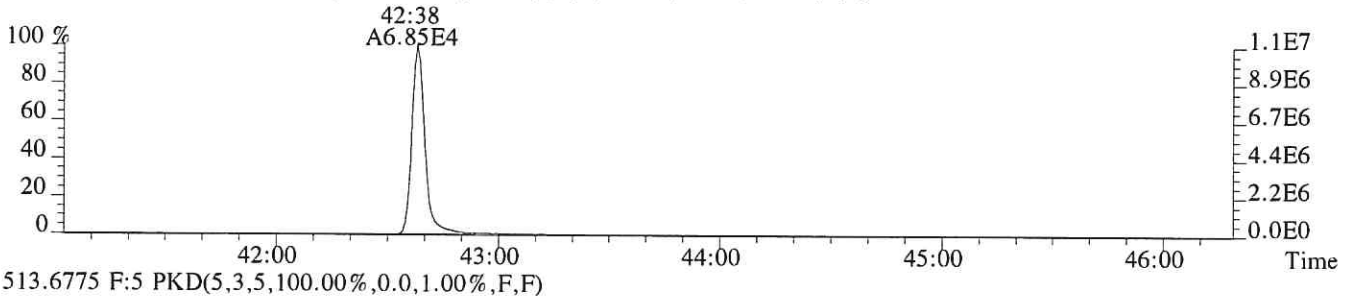
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



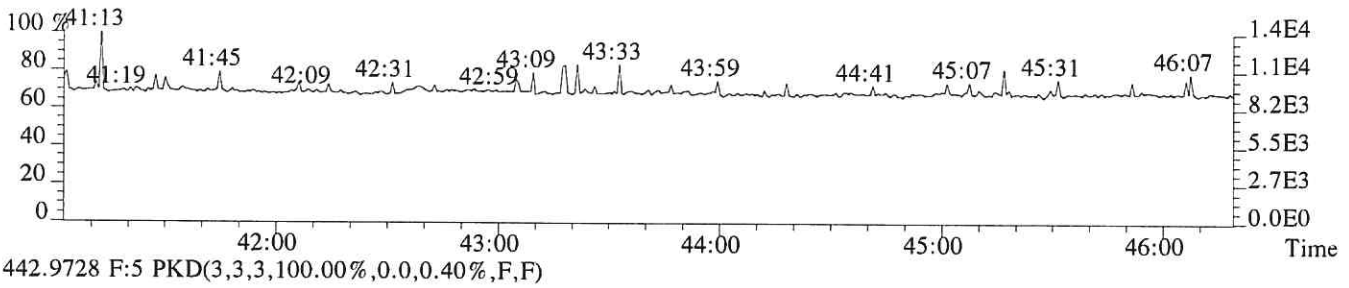
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



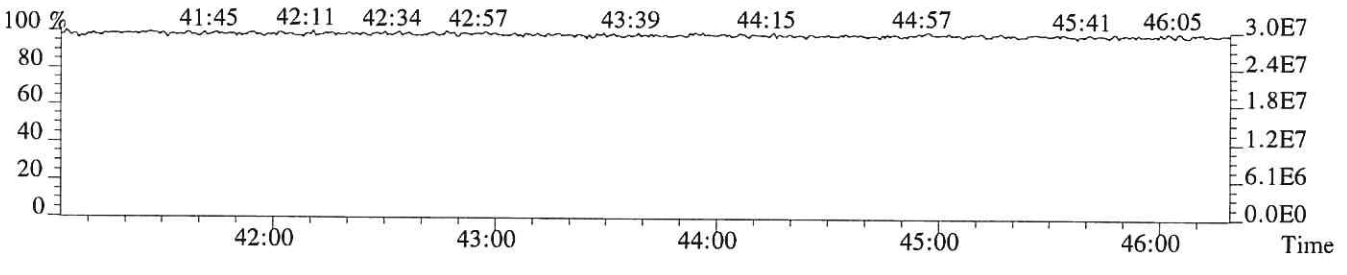
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



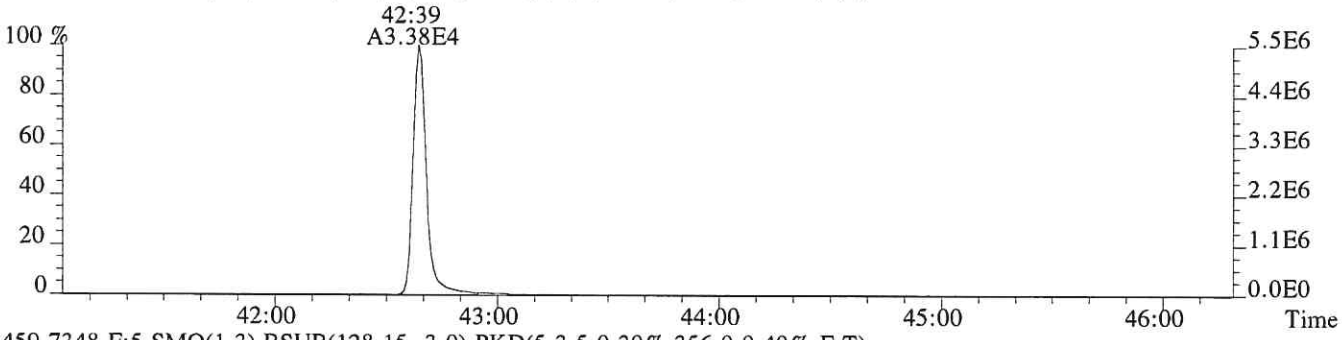
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



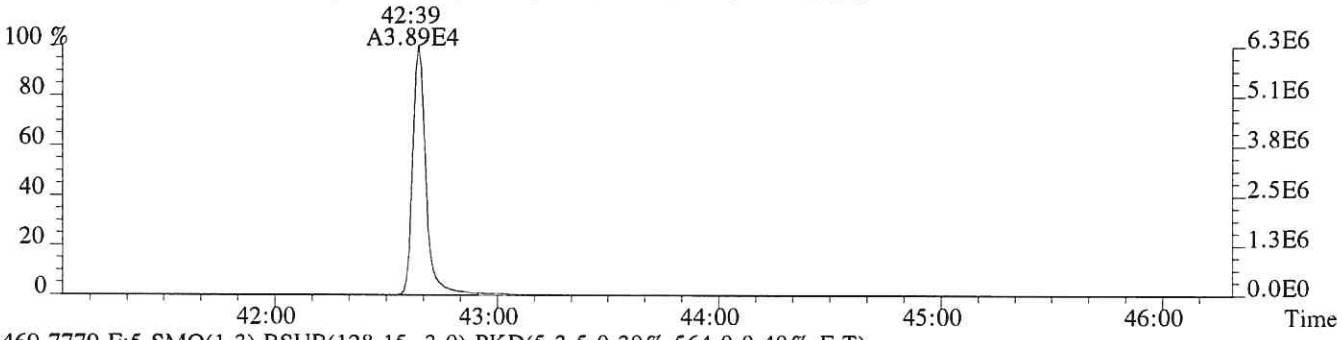
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



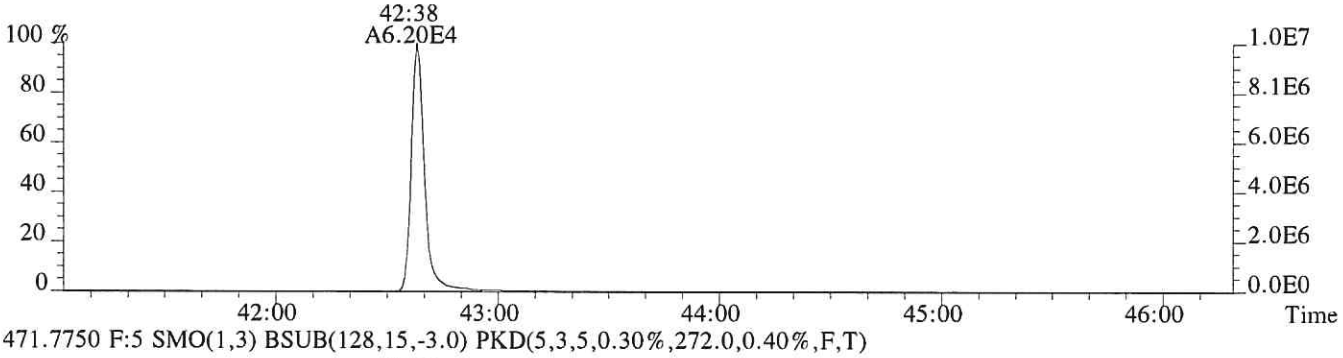
File:P518965 #1-475 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



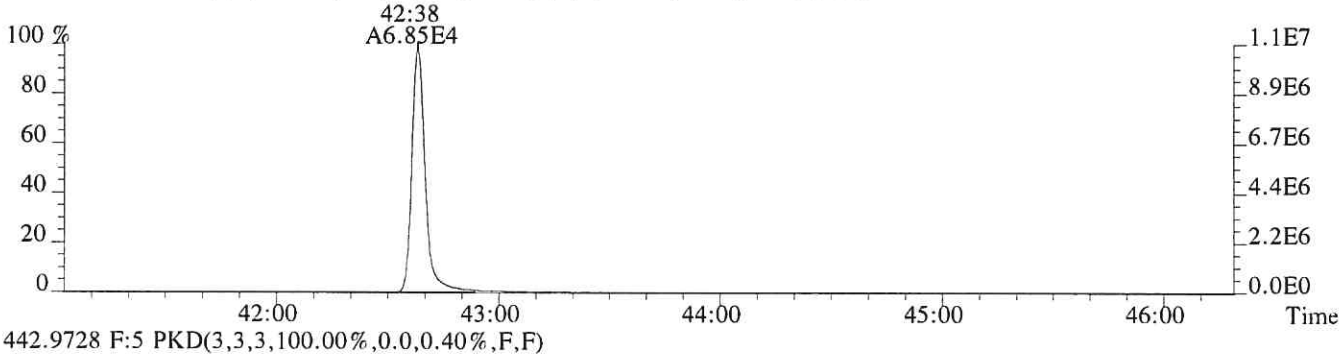
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



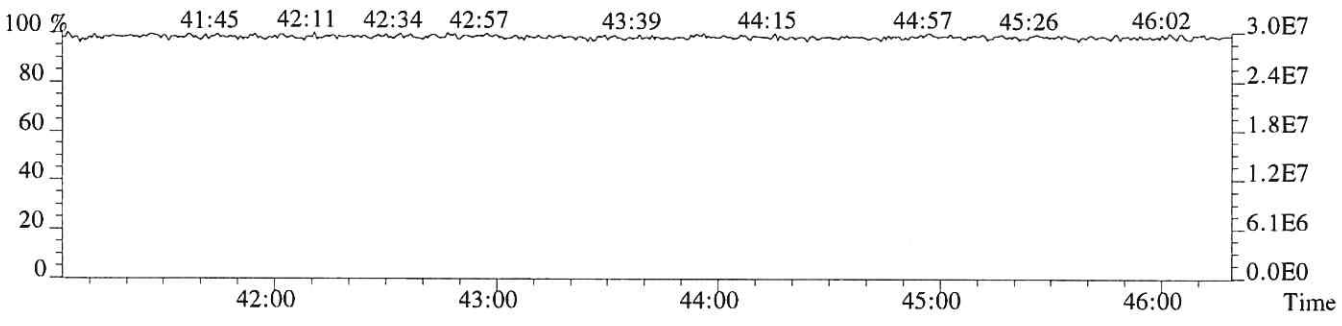
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519116

Date: 12/01/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / (TCDD Only) / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	√	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	√	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	√	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	√	✓
All relative abundance ratios meet method criteria	√	✓
No QC ion deflections of greater than 20% (HRMS Only)	√	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	√	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	√	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	√	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	NA	N/A

Analyst: TC

Second QC: KW.

ccalqc.xls 07/17/12

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181130D.SPL
Last Modified: Monday, December 03, 2018 07:45:30 Central Standard Time
Printed: Monday, December 03, 2018 07:45:32 Central Standard Time

Page Position (1, 1)

OPUS-5: P519116RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/1/18	15:35	P519116	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1RUNcheck 05:03
2		16:23	P519117	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		—	P519118	MB	EQ1800470-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		18:01	P519119	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		18:49	P519120	E1801048-001	E1801048-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		19:38	P519121	E1801049-001	E1801049-001	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		20:26	P519122	E1801051-001	E1801051-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		21:15	P519123	E1801052-001	E1801052-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		22:04	P519124	E1801035-017	E1801035-017	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		22:52	P519125	E1801038-018	E1801038-018	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		23:41	P519126	E1801038-019	E1801038-019	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12	12/2/18	00:30	P519127	E1801038-020	E1801038-020	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		01:18	P519128	E1801050-001	E1801050-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		02:07	P519129	K1811038-004	K1811038-004	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		02:56	P519130	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:15		1RUNcheck 06:57
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

TL 12/04/18

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID:E-HRMS-07

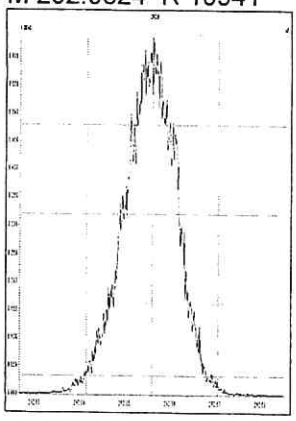
Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

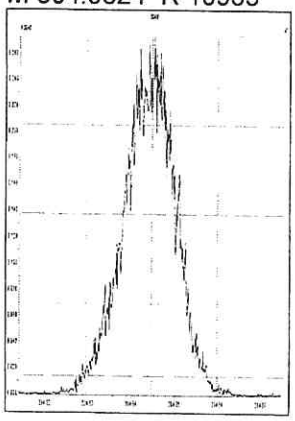
THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519117	1-DEC-18	16:23:43
194503	CS3	P519116	1-DEC-18	15:35:05
METHOD BLANK	EQ1800469-01	P519119	1-DEC-18	18:01:01
EFF-RCL	E1801048-001	P519120	1-DEC-18	18:49:39
001A	E1801049-001	P519121	1-DEC-18	19:38:19
1K81183-01	E1801051-001	P519122	1-DEC-18	20:26:56
SCL-7644-004	E1801052-001	P519123	1-DEC-18	21:15:35
SL0078	E1801035-017	P519124	1-DEC-18	22:04:14
SL0536	E1801038-018	P519125	1-DEC-18	22:52:52
SL0537	E1801038-019	P519126	1-DEC-18	23:41:31
SL0515	E1801038-020	P519127	2-DEC-18	00:30:10
002A	E1801050-001	P519128	2-DEC-18	01:18:49
UU03602	K1811038-004	P519129	2-DEC-18	02:07:28

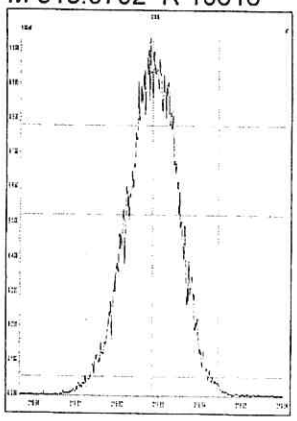
M 292.9824 R 10941



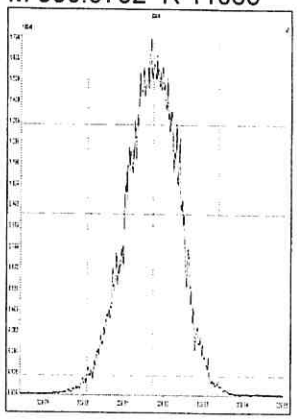
M 304.9824 R 10933



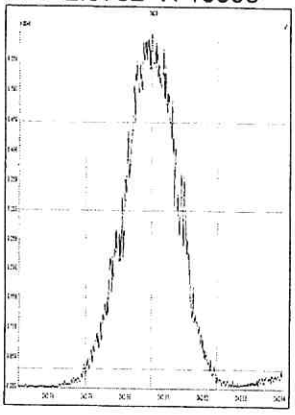
M 318.9792 R 10616



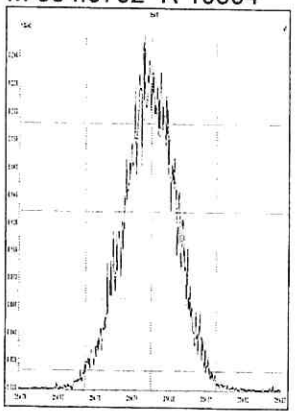
M 330.9792 R 11065



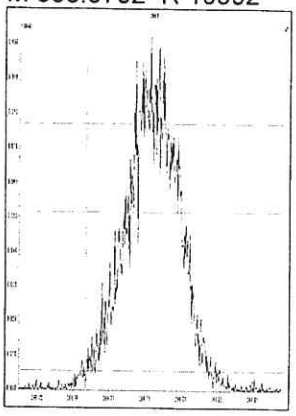
M 342.9792 R 10593



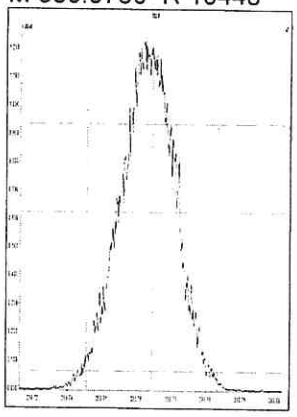
M 354.9792 R 10504



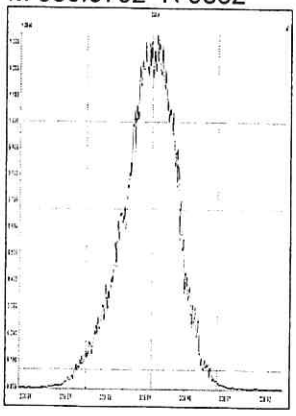
M 366.9792 R 10992



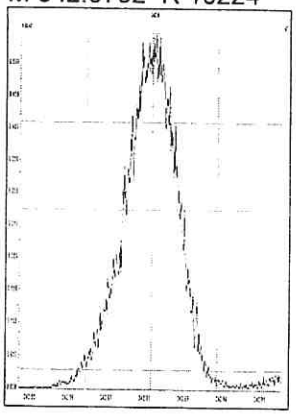
M 380.9760 R 10448



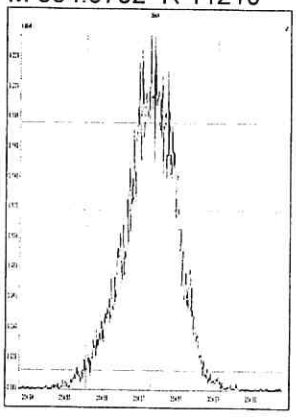
M 330.9792 R 9862



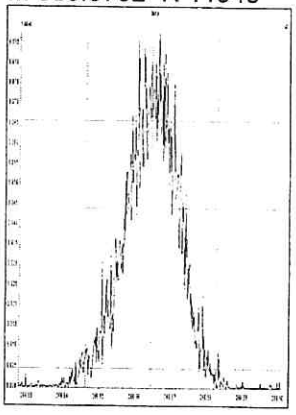
M 342.9792 R 10224



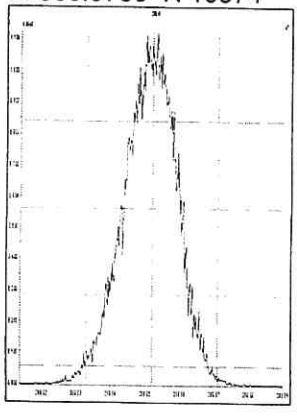
M 354.9792 R 11210



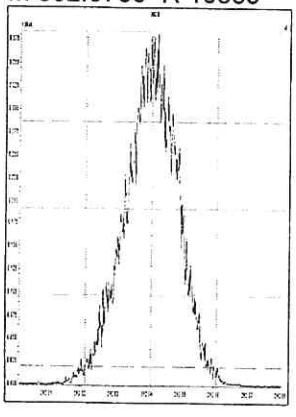
M 366.9792 R 11948



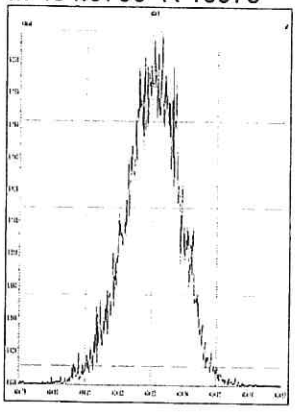
M 380.9760 R 10374



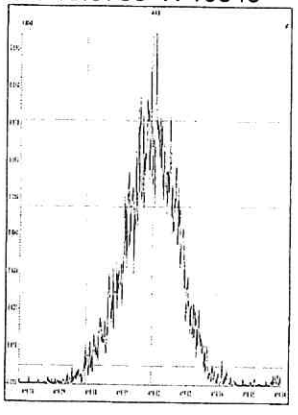
M 392.9760 R 10889



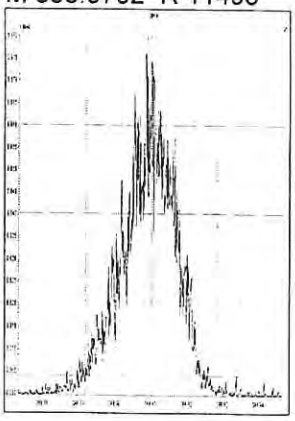
M 404.9760 R 10975



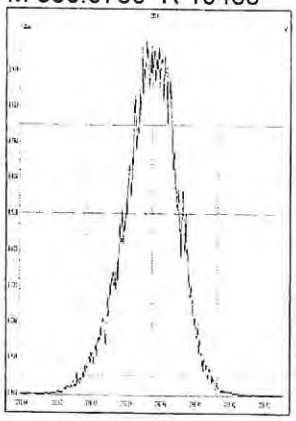
M 416.9760 R 10846



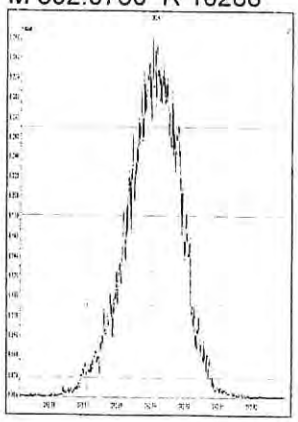
M 366.9792 R 11495



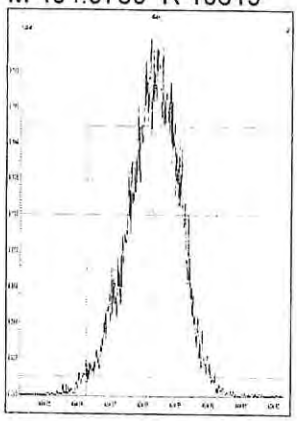
M 380.9760 R 10485



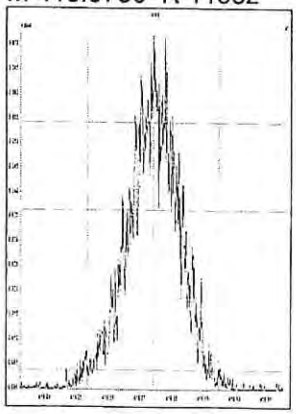
M 392.9760 R 10288



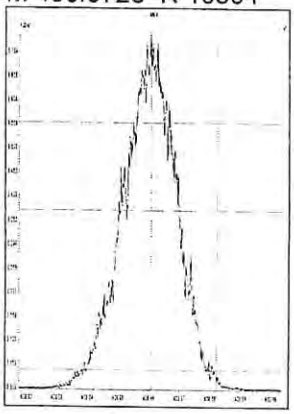
M 404.9760 R 10619



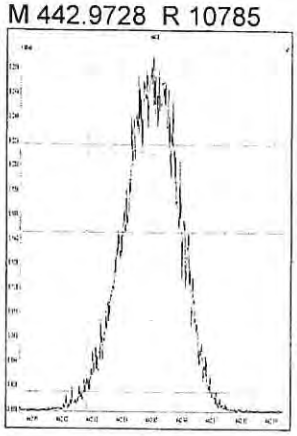
M 416.9760 R 11532



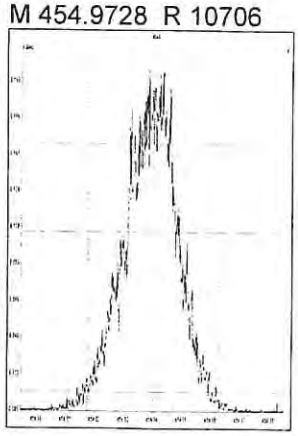
M 430.9728 R 10504



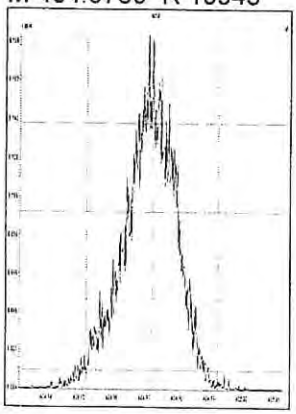
M 442.9728 R 10785



M 454.9728 R 10706



M 404.9760 R 10943



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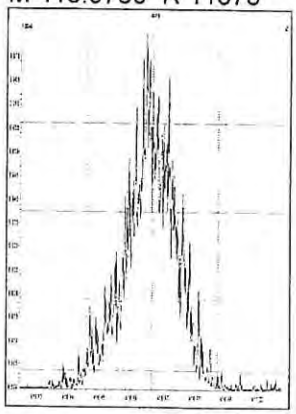
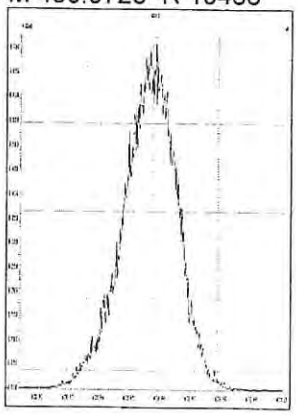
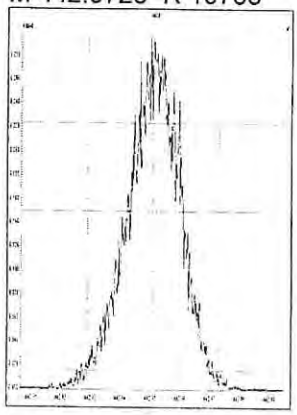


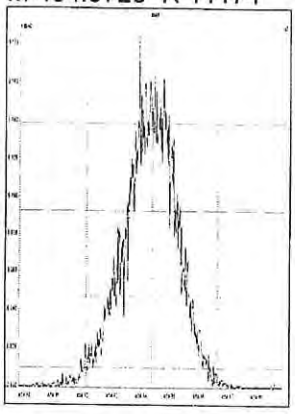
M 430.9728 R 10466



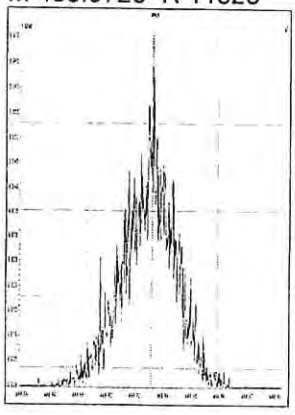
M 442.9728 R 10753



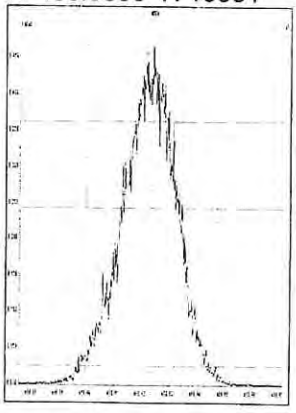
M 454.9728 R 11174



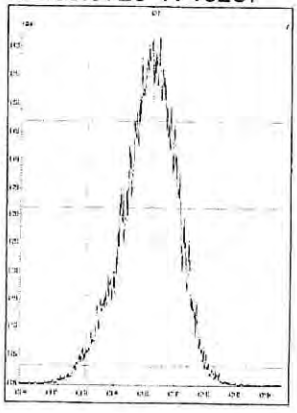
M 466.9728 R 11823



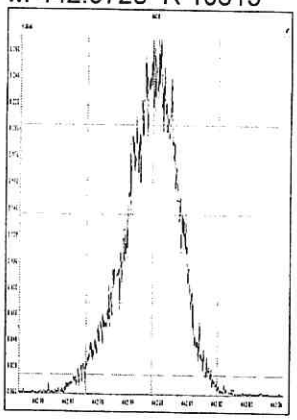
M 480.9696 R 10531



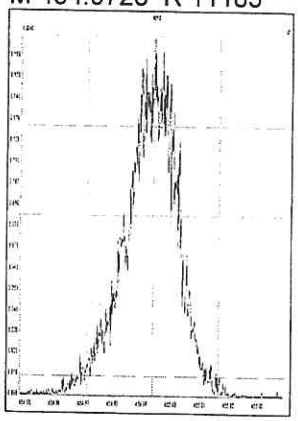
M 430.9728 R 10287



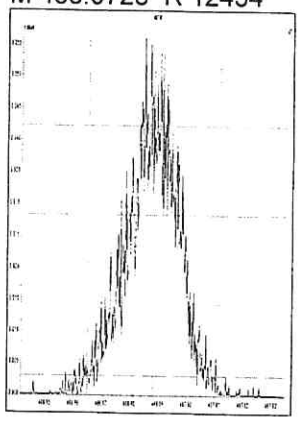
M 442.9728 R 10615



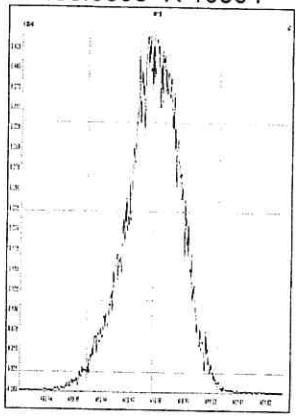
M 454.9728 R 11185



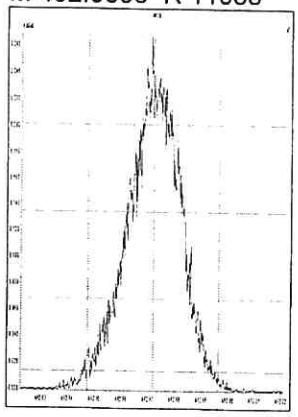
M 466.9728 R 12454



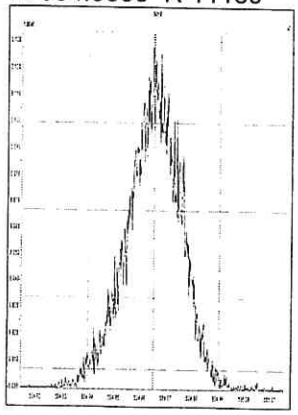
M 480.9696 R 10504



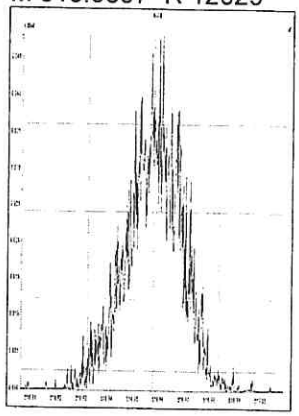
M 492.9696 R 11038



M 504.9696 R 11189



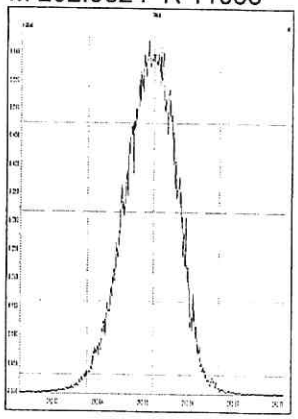
M 516.9697 R 12029



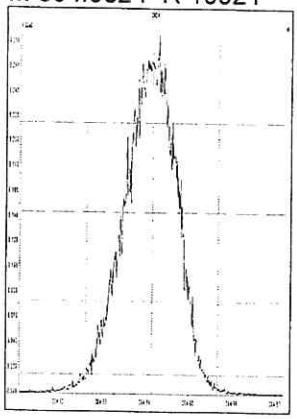
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:51:03 Central Standard Time

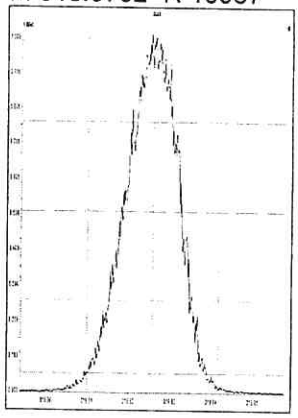
M 292.9824 R 11063



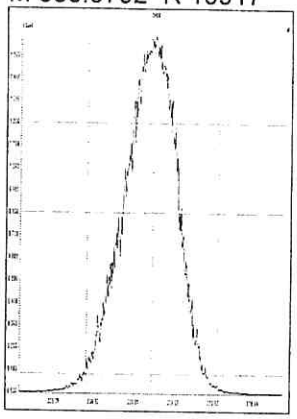
M 304.9824 R 10921



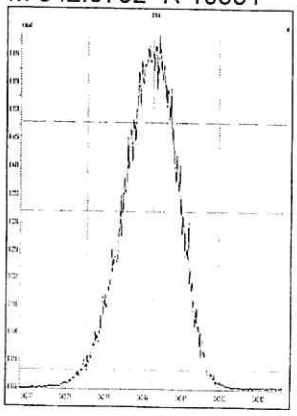
M 318.9792 R 10967



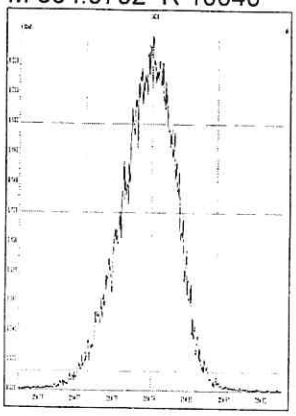
M 330.9792 R 10917



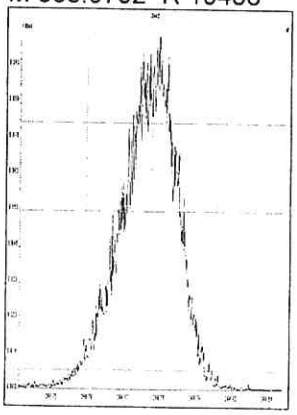
M 342.9792 R 10551



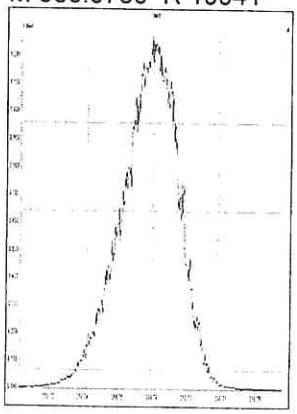
M 354.9792 R 10040



M 366.9792 R 10458



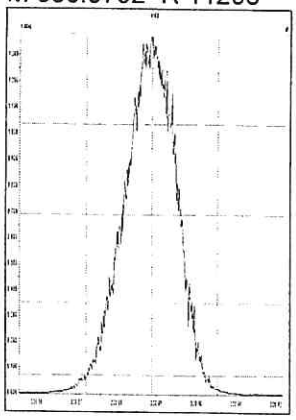
M 380.9760 R 10041



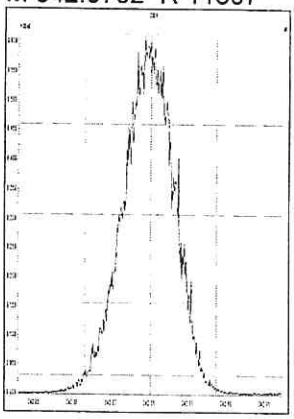
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:51:46 Central Standard Time

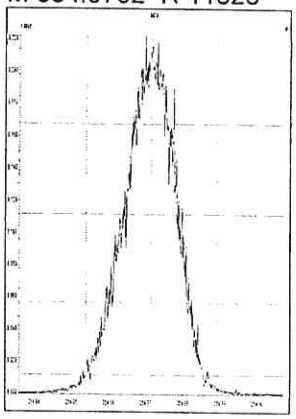
M 330.9792 R 11208



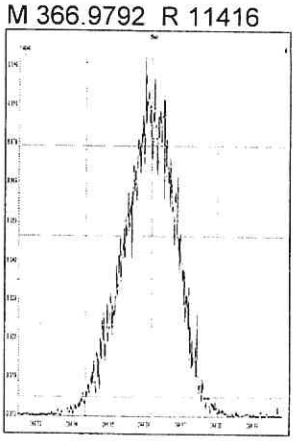
M 342.9792 R 11307



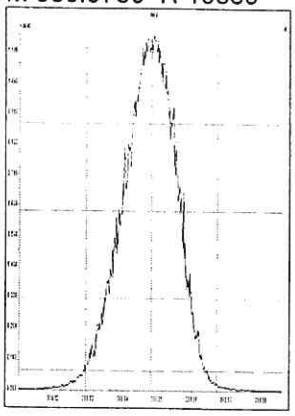
M 354.9792 R 11626



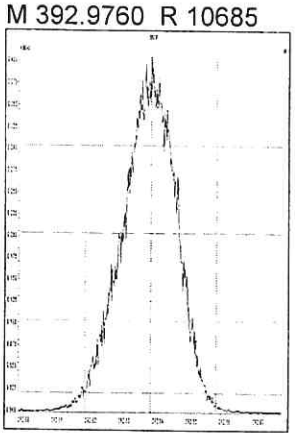
M 366.9792 R 11416



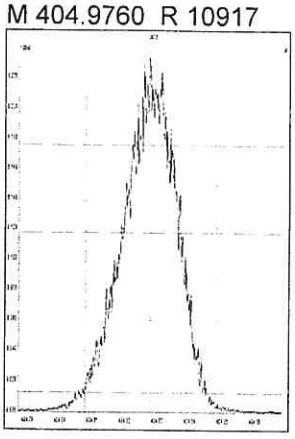
M 380.9760 R 10869



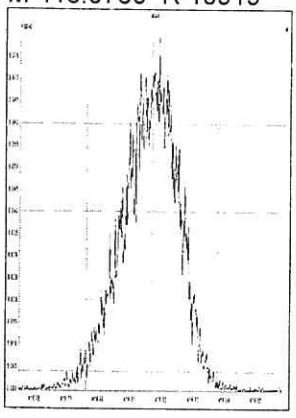
M 392.9760 R 10685



M 404.9760 R 10917



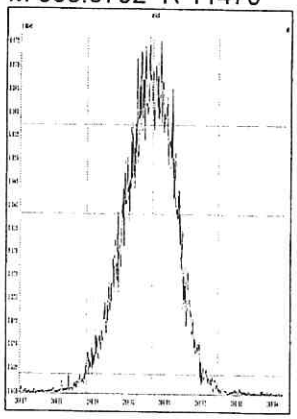
M 416.9760 R 10919



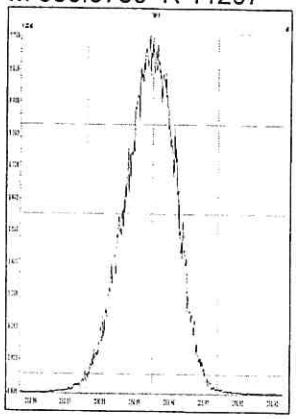
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:52:47 Central Standard Time

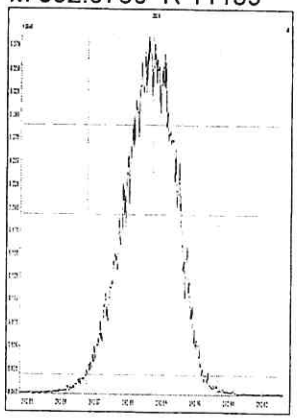
M 366.9792 R 11470



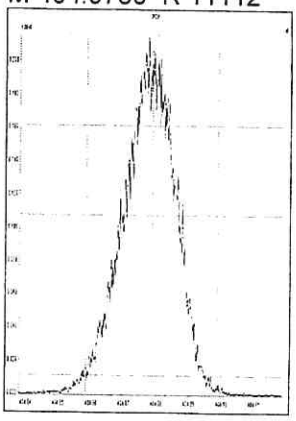
M 380.9760 R 11207



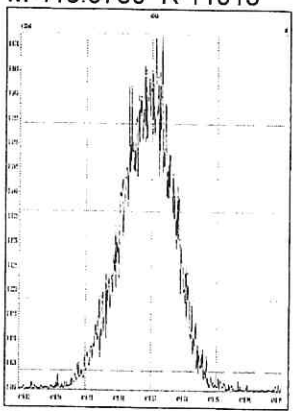
M 392.9760 R 11159



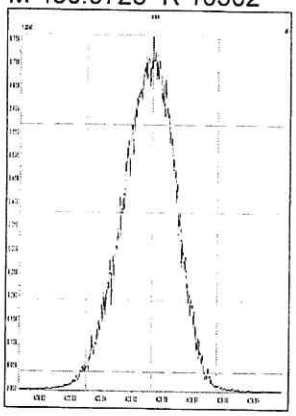
M 404.9760 R 11112



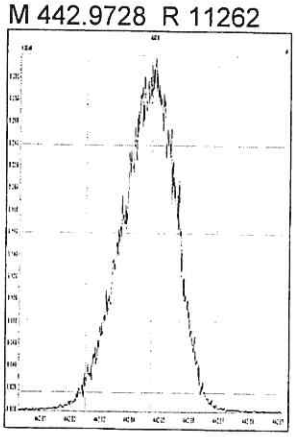
M 416.9760 R 11013



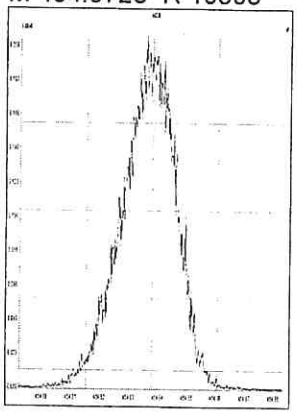
M 430.9728 R 10502



M 442.9728 R 11262



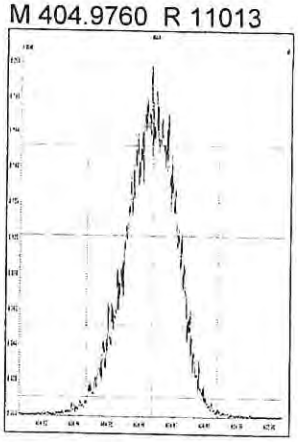
M 454.9728 R 10503



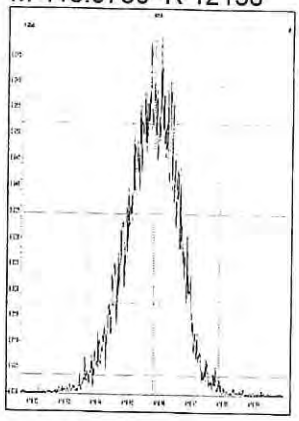
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:53:23 Central Standard Time

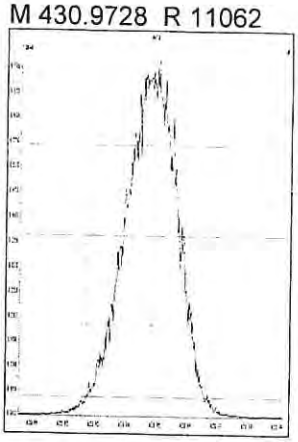
M 404.9760 R 11013



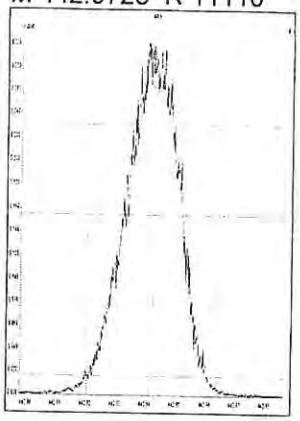
M 416.9760 R 12138



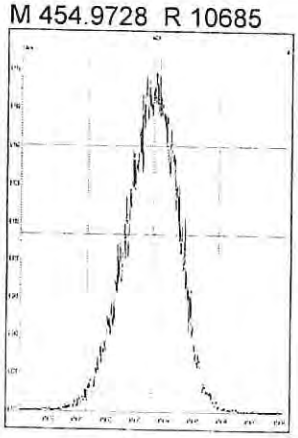
M 430.9728 R 11062



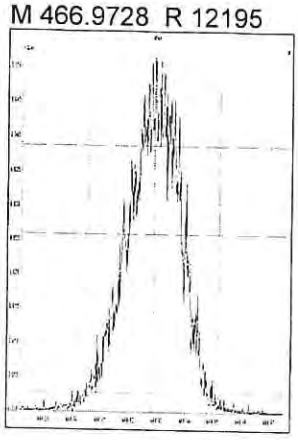
M 442.9728 R 11110



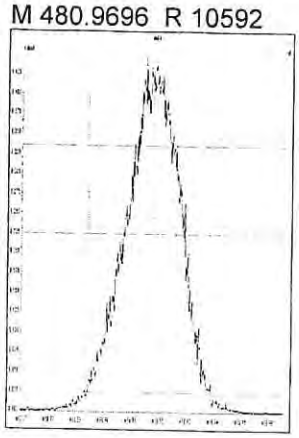
M 454.9728 R 10685



M 466.9728 R 12195



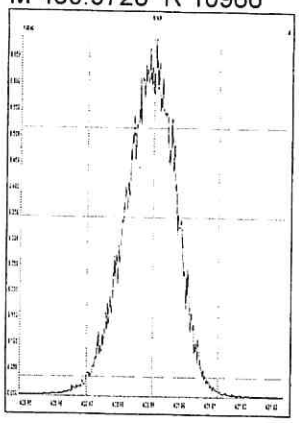
M 480.9696 R 10592



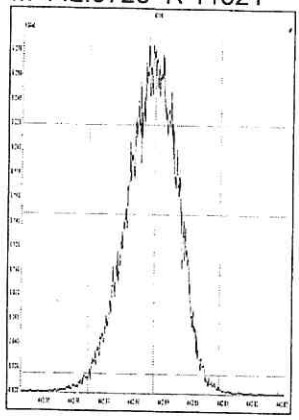
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:54:13 Central Standard Time

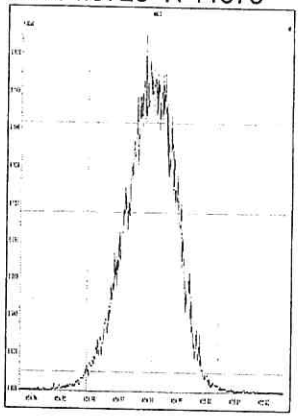
M 430.9728 R 10966



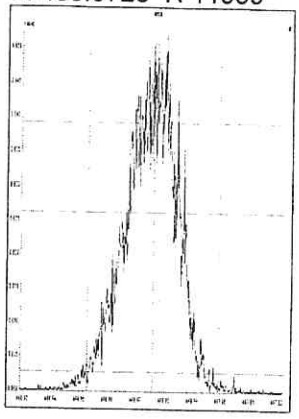
M 442.9728 R 11521



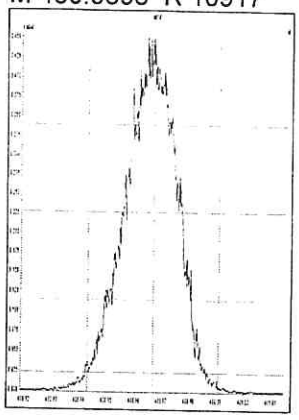
M 454.9728 R 11573



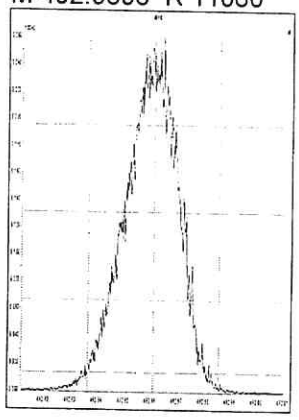
M 466.9728 R 11959



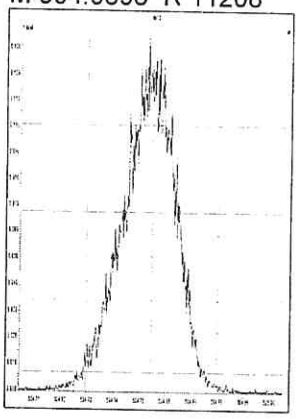
M 480.9696 R 10917



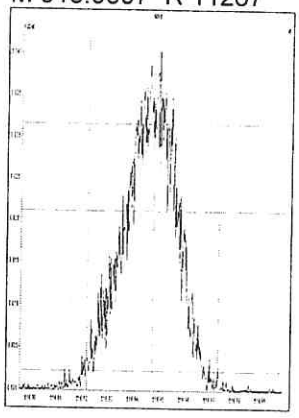
M 492.9696 R 11060



M 504.9696 R 11208



M 516.9697 R 11267



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

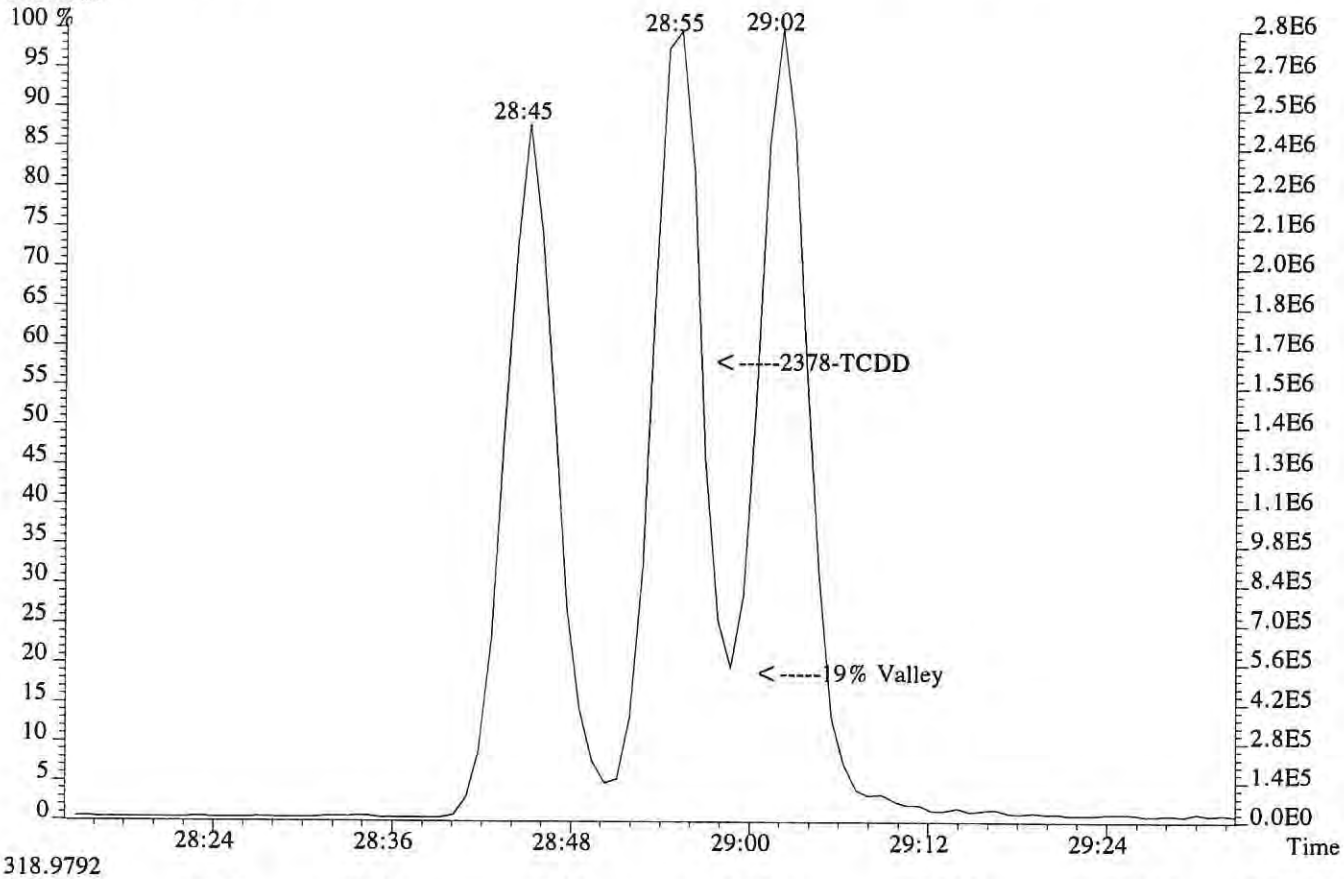
Case No.: _____ SDG No.:
ID: 0.25 (mm)

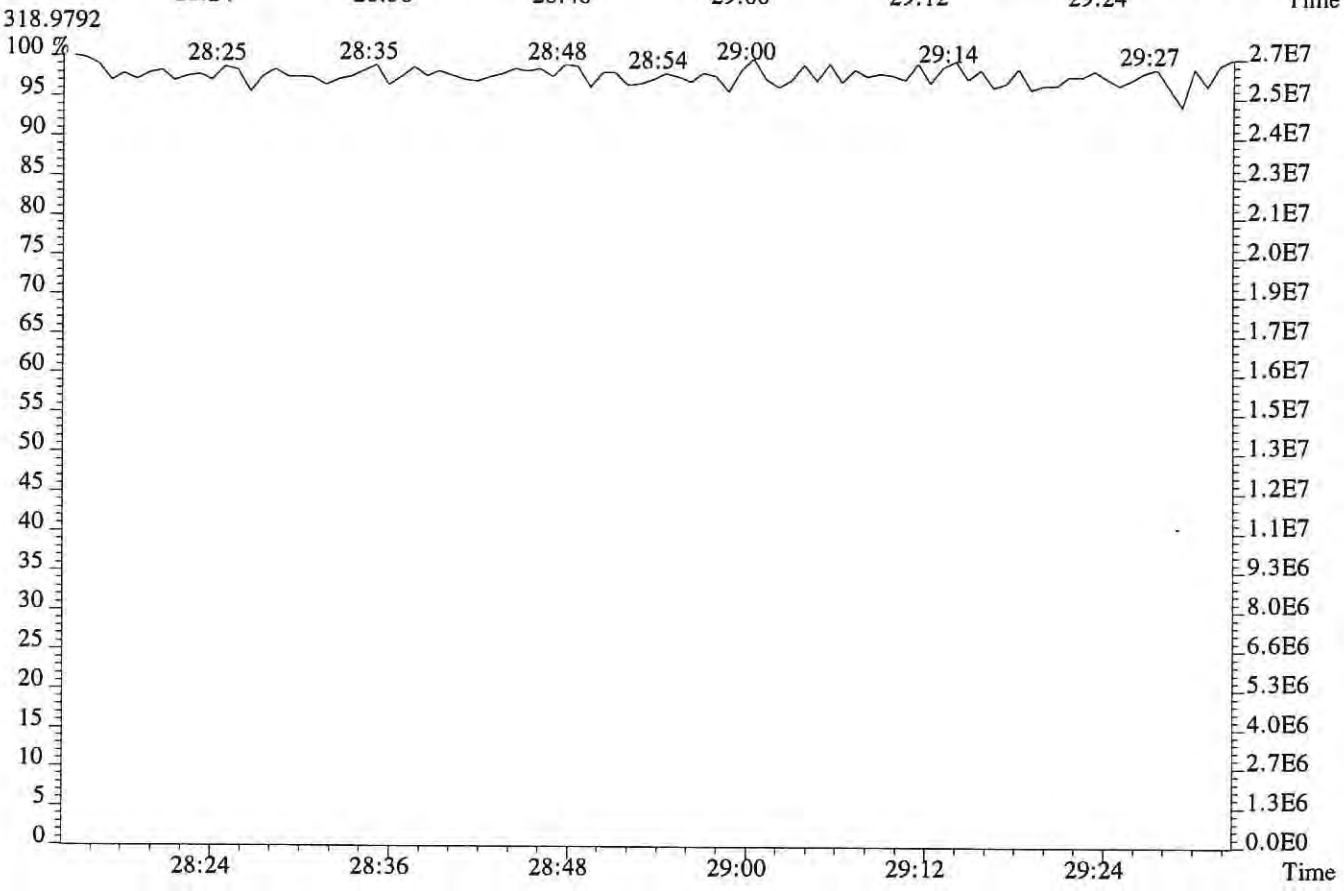
Lab File ID: P519117
Date Analyzed: 1-DEC-2018
Time Analyzed: 16:23:43

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:46	30:04
TCDD	25:37	29:55
PeCDF	30:01	34:16
PeCDD	31:33	34:00
HxCDF	34:55	37:25
HxCDD	35:26	37:01
HpCDF	38:39	40:04
HpCDD	38:54	39:35

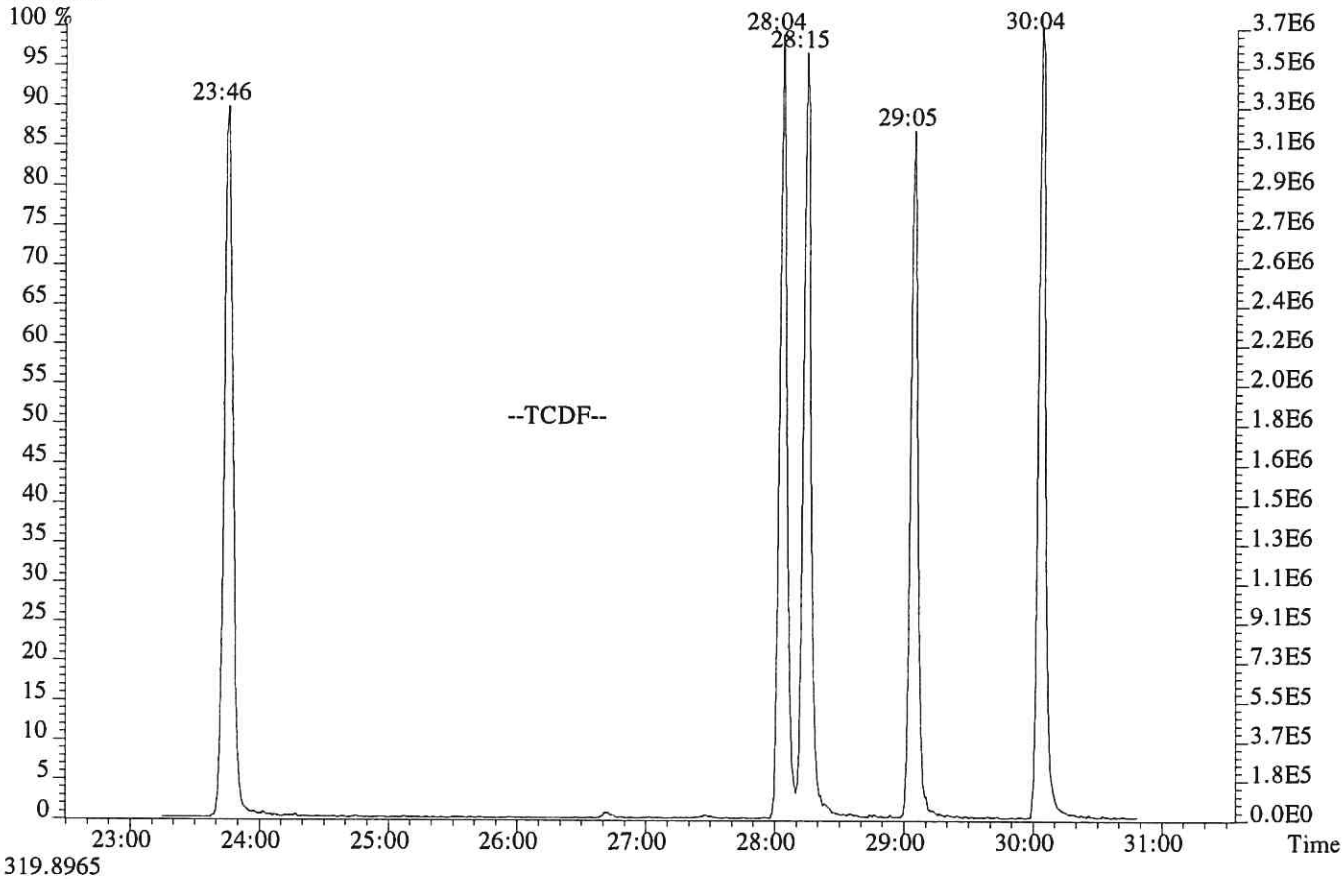
% Valley 2378-TCDD: 19 %

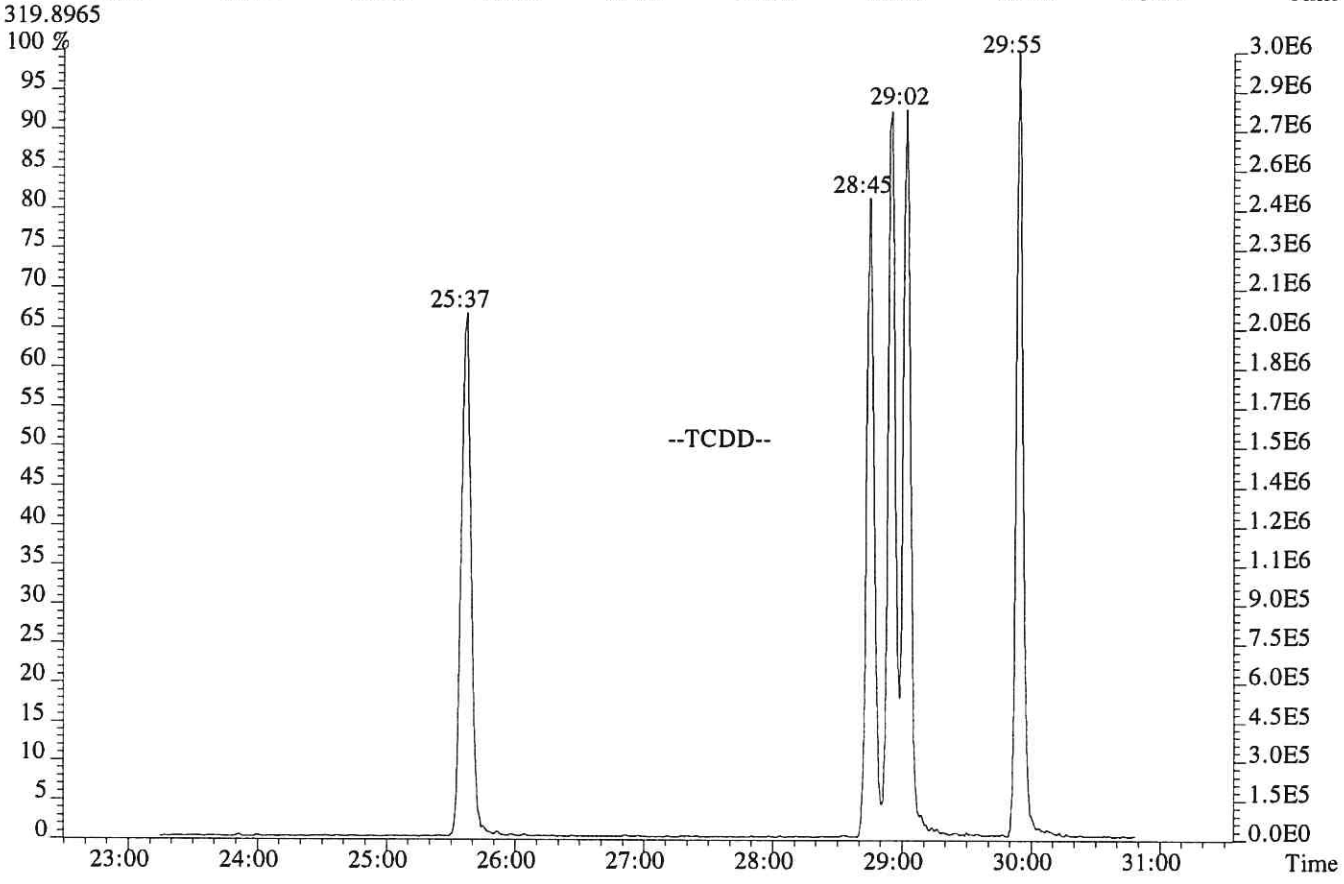
File:P519117 #1-538 Acq: 1-DEC-2018 16:23:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





File:P519117 #1-538 Acq: 1-DEC-2018 16:23:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





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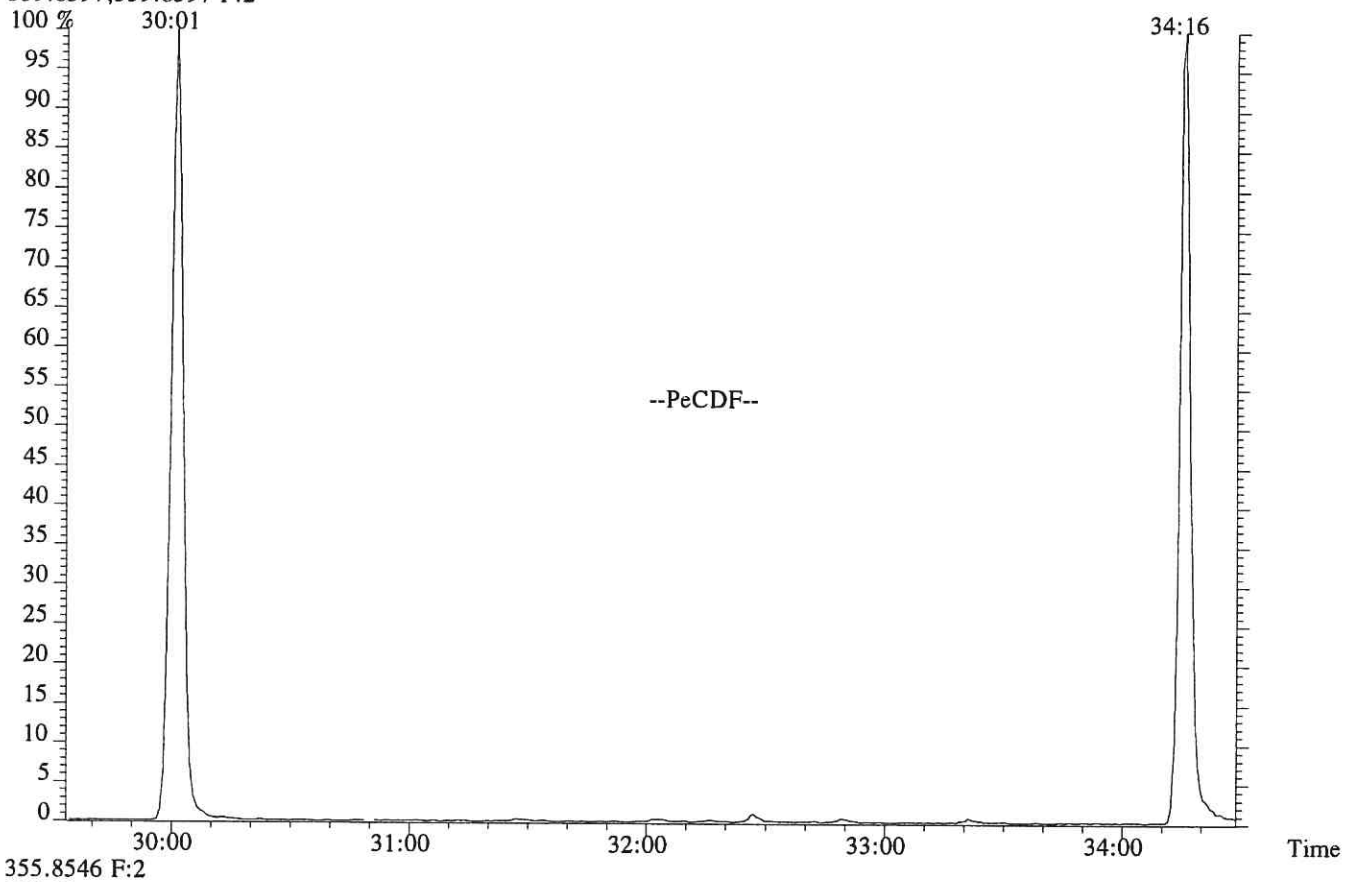
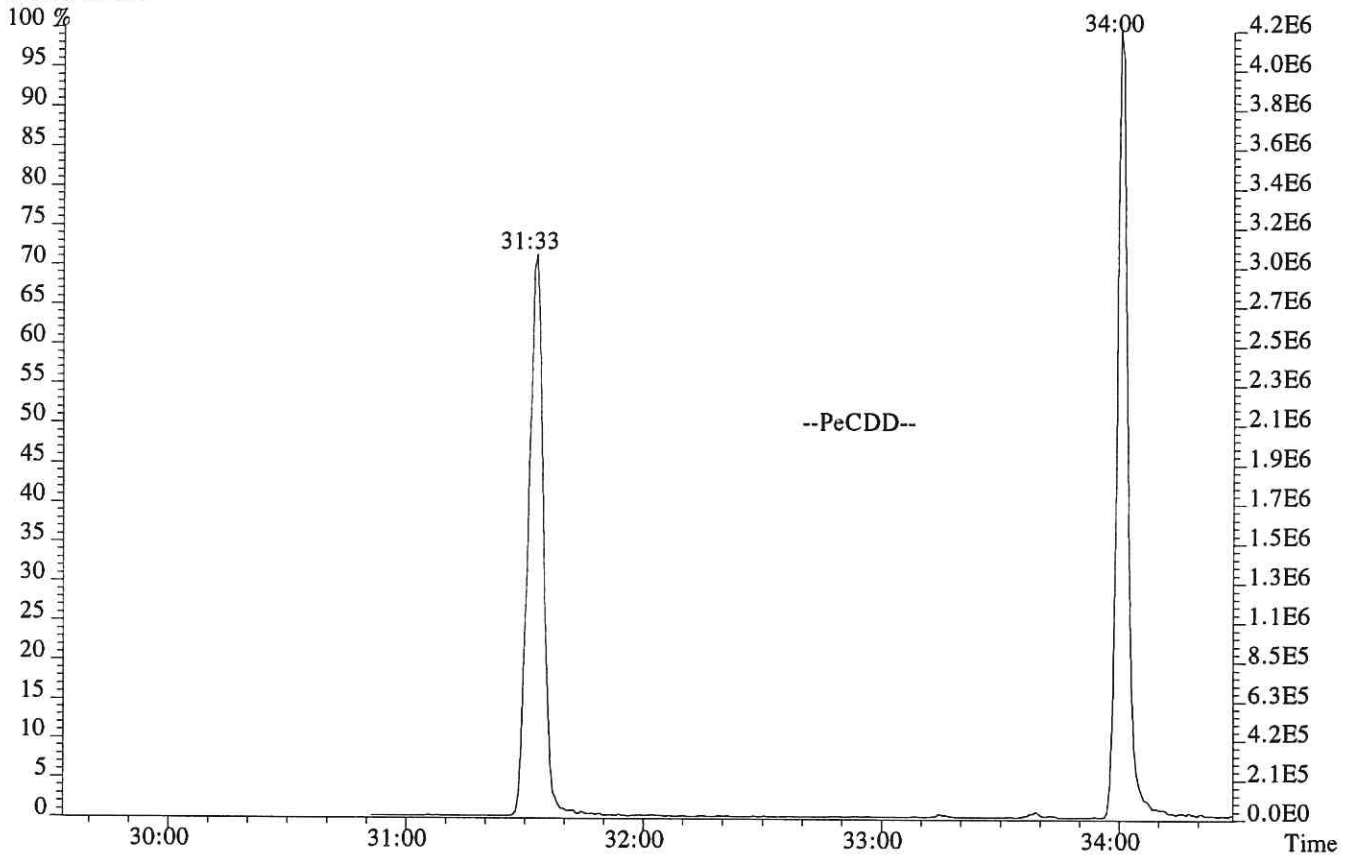
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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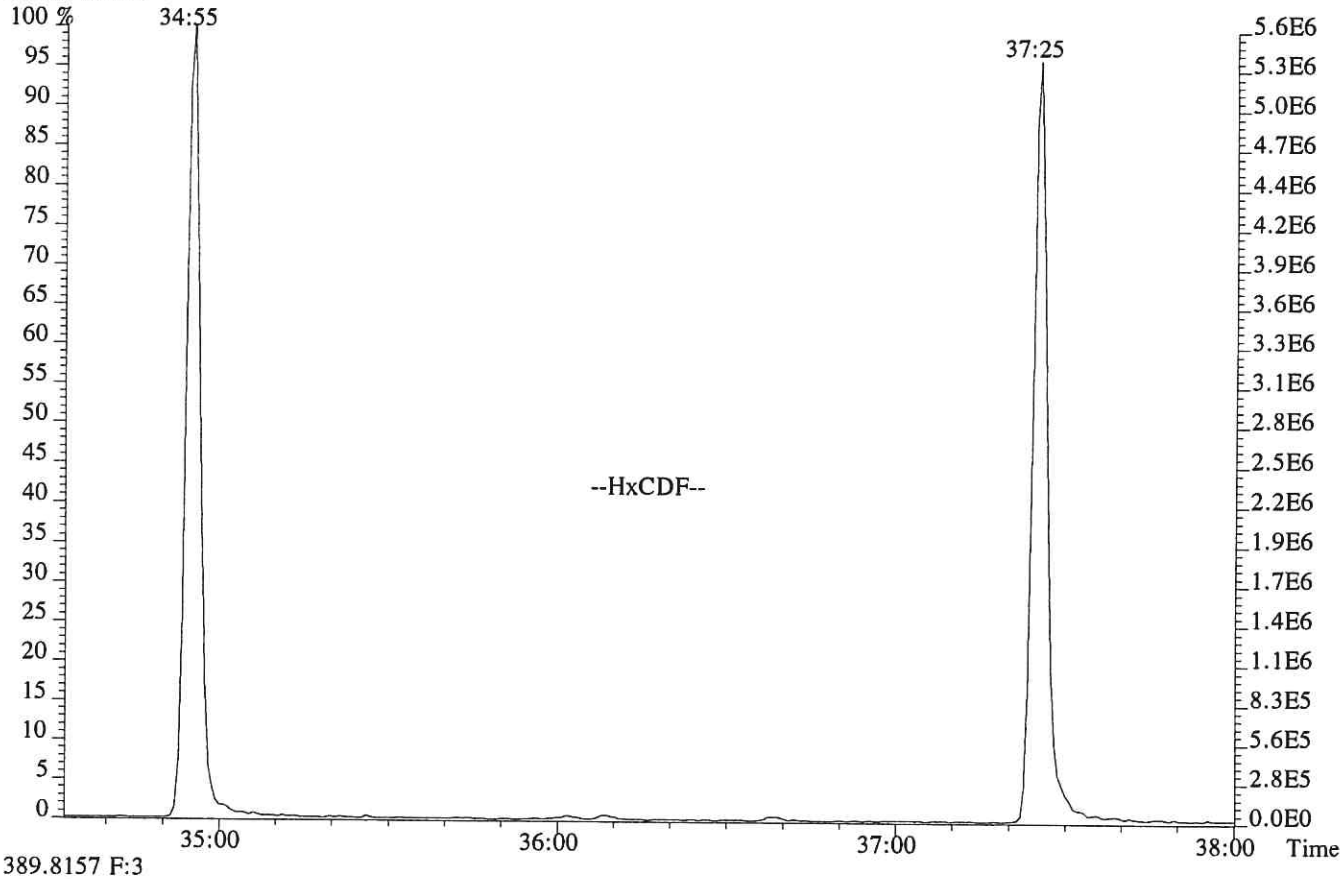
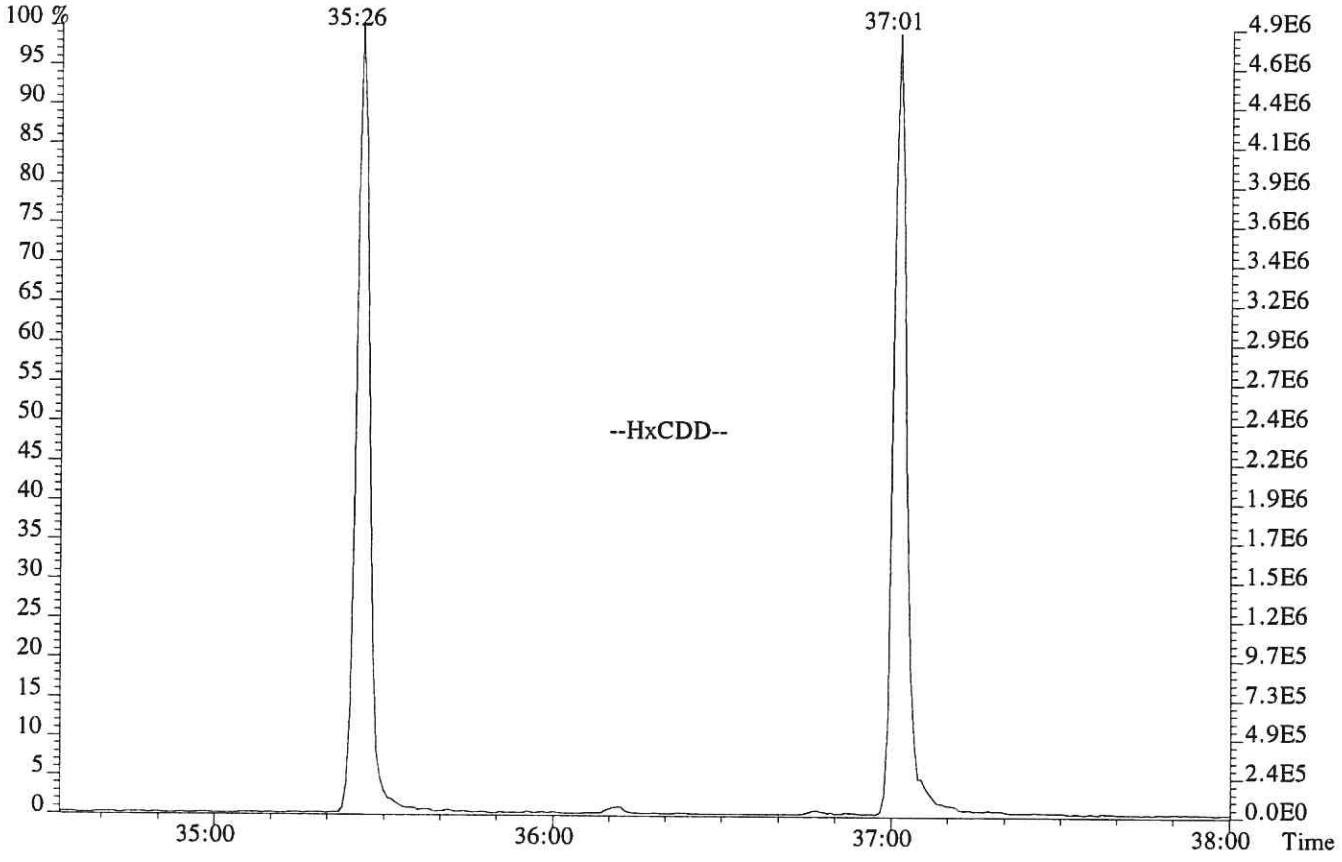
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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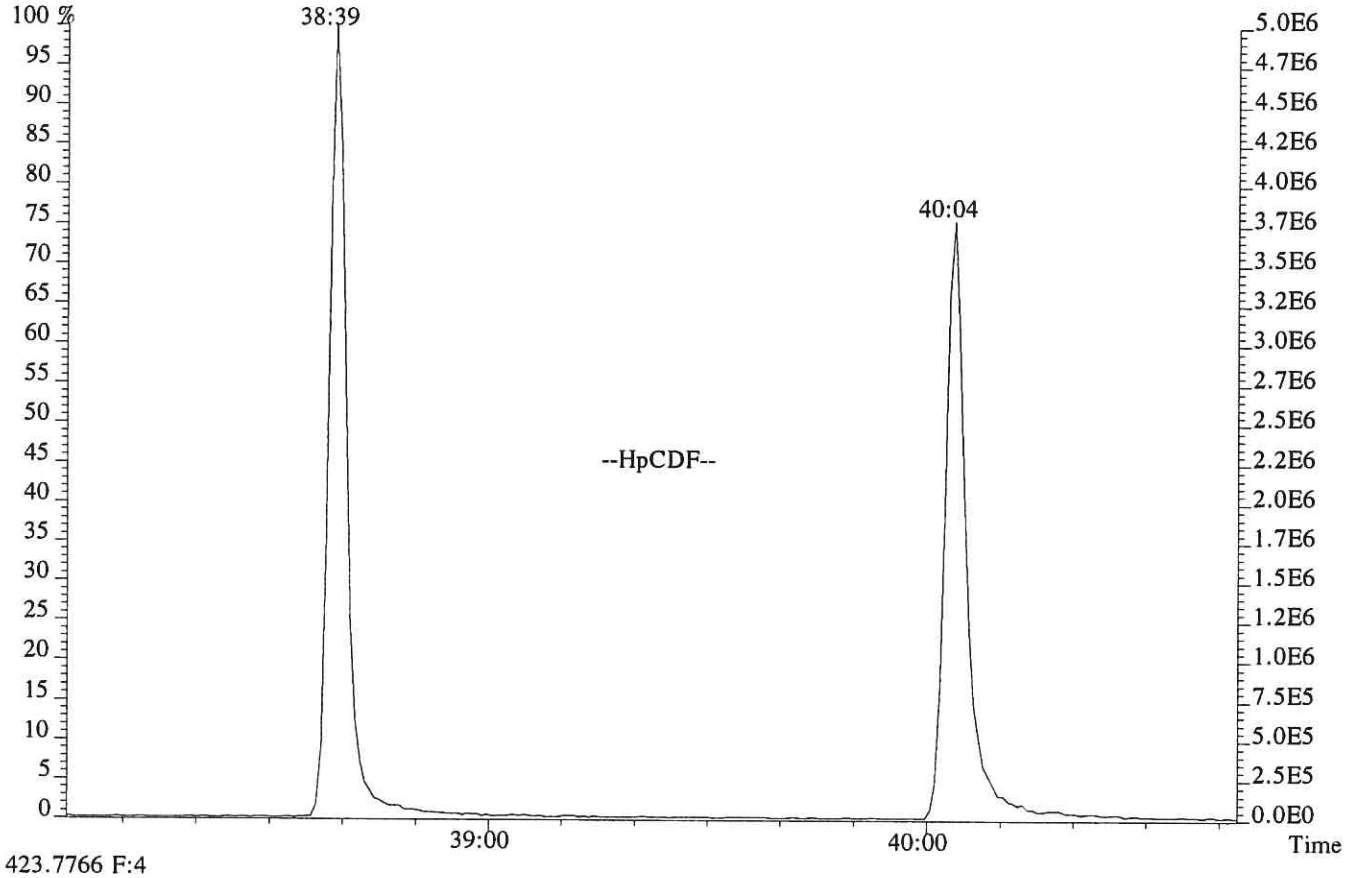
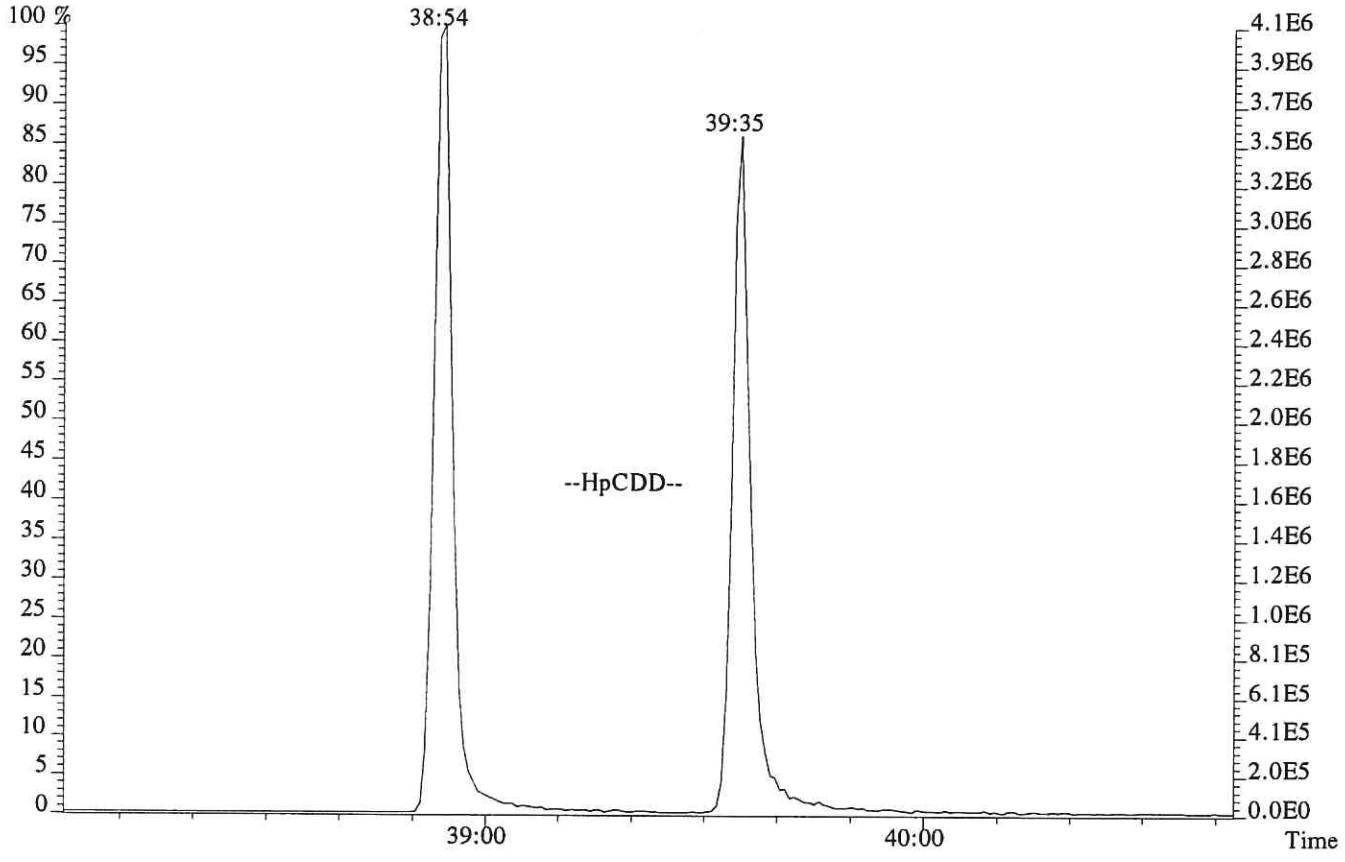
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519116 Analysis Date: 1-DEC-18 Time: 15:35:05

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.2	7.8 - 12.9	-8.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	48	39 - 65	-3.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-2.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.19	1.05-1.43	52	41 - 61	3.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-1.6
OCDD	M+2/M+4	0.88	0.76-1.02	99	79 - 126	-1.4
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	9.5	8.4 - 12.0	-5.0
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	48	41 - 60	-3.5
2,3,4,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	49	41 - 61	-2.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	-0.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	49	44 - 57	-2.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	48	45 - 56	-3.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	48	45 - 55	-3.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	49	43 - 58	-1.5
OCDF	M+2/M+4	0.89	0.76-1.02	94	63 - 159	-6.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519116 Analysis Date: 1-DEC-18 Time: 15:35:05

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	6.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	110	62 - 160	10.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	93	85 - 117	-6.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	100	85 - 118	0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	103	72 - 138	3.1
13C-OCDD	M+2/M+4	0.89	0.76-1.02	207	96 - 415	3.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	76 - 130	1.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	1.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	76 - 131	-13.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	70 - 143	-12.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	96	74 - 135	-4.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	93	73 - 137	-7.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	94	78 - 129	-5.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	99	77 - 129	-1.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.3	7.8 - 12.7	2.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519116 Samp: 1 Inj: 1 Acquired: 1-DEC-18 15:35:05
Processed: 4-DEC-18 18:04:57 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	8.395e+03	1.170e+04	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	7.141e+04	4.659e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	6.715e+04	4.474e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	6.034e+04	5.044e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.418e+04	5.378e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	6.035e+04	4.931e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	5.518e+04	4.550e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.225e+04	5.159e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	4.379e+04	4.353e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:36	6.297e+04	7.066e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	6.757e+03	9.019e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	4.906e+04	3.134e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	4.210e+04	3.420e+04	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	4.678e+04	3.753e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	4.711e+04	3.969e+04	1.19	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.974e+04	3.802e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:24	5.434e+04	6.156e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	9.932e+04	1.252e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	1.478e+05	9.378e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	1.471e+05	9.323e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	6.375e+04	1.228e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	7.299e+04	1.414e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	6.947e+04	1.333e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.173e+04	1.200e+05	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.938e+04	1.092e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.338e+04	9.766e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	7.033e+04	8.848e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	1.068e+05	6.754e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	8.397e+04	6.622e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	9.256e+04	7.318e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	7.939e+04	7.483e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:23	9.886e+04	1.115e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	7.185e+04	9.005e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	9.899e+04	7.537e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.683e+04				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519116 Samp: 1 Inj: 1 Acquired: 1-DEC-18 15:35:05
Processed: 4-DEC-18 18:04:57 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.57e+06	5.68e+02	2.8e+03	2.13e+06	1.21e+03	1.8e+03
2	1,2,3,7,8-PeCDF	1.32e+07	6.88e+02	1.9e+04	8.64e+06	2.16e+03	4.0e+03
3	2,3,4,7,8-PeCDF	1.32e+07	6.88e+02	1.9e+04	8.80e+06	2.16e+03	4.1e+03
4	1,2,3,4,7,8-HxCDF	1.29e+07	9.40e+02	1.4e+04	1.06e+07	4.60e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	1.30e+07	9.40e+02	1.4e+04	1.09e+07	4.60e+02	2.4e+04
6	2,3,4,6,7,8-HxCDF	1.28e+07	9.40e+02	1.4e+04	1.05e+07	4.60e+02	2.3e+04
7	1,2,3,7,8,9-HxCDF	1.09e+07	9.40e+02	1.2e+04	9.08e+06	4.60e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.09e+07	6.93e+03	1.6e+03	1.08e+07	5.24e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	8.13e+06	6.93e+03	1.2e+03	8.05e+06	5.24e+03	1.5e+03
10	OCDF	9.75e+06	4.56e+02	2.1e+04	1.09e+07	6.08e+02	1.8e+04
11	2,3,7,8-TCDD	1.32e+06	1.85e+03	7.1e+02	1.75e+06	1.59e+03	1.1e+03
12	1,2,3,7,8-PeCDD	9.63e+06	1.15e+03	8.4e+03	6.18e+06	2.44e+02	2.5e+04
13	1,2,3,4,7,8-HxCDD	9.46e+06	3.92e+02	2.4e+04	7.62e+06	4.64e+02	1.6e+04
14	1,2,3,6,7,8-HxCDD	9.44e+06	3.92e+02	2.4e+04	7.59e+06	4.64e+02	1.6e+04
15	1,2,3,7,8,9-HxCDD	9.70e+06	3.92e+02	2.5e+04	7.93e+06	4.64e+02	1.7e+04
16	1,2,3,4,6,7,8-HpCDD	7.65e+06	8.44e+02	9.1e+03	7.37e+06	5.92e+02	1.2e+04
17	OCDD	8.32e+06	4.48e+02	1.9e+04	9.46e+06	6.48e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.85e+07	3.85e+03	4.8e+03	2.32e+07	2.37e+03	9.8e+03
19	13C-1,2,3,7,8-PeCDF	2.68e+07	7.28e+02	3.7e+04	1.68e+07	7.40e+02	2.3e+04
20	13C-2,3,4,7,8-PeCDF	2.84e+07	7.28e+02	3.9e+04	1.80e+07	7.40e+02	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.35e+07	7.56e+02	1.8e+04	2.58e+07	1.40e+03	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	1.49e+07	7.56e+02	2.0e+04	2.89e+07	1.40e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.46e+07	7.56e+02	1.9e+04	2.81e+07	1.40e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.21e+07	7.56e+02	1.6e+04	2.36e+07	1.40e+03	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	3.86e+03	2.6e+03	2.25e+07	8.77e+03	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.93e+06	3.86e+03	2.1e+03	1.79e+07	8.77e+03	2.0e+03
27	13C-2,3,7,8-TCDD	1.34e+07	5.78e+03	2.3e+03	1.69e+07	1.94e+03	8.7e+03
28	13C-1,2,3,7,8-PeCDD	2.02e+07	6.20e+02	3.3e+04	1.29e+07	6.48e+02	2.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.89e+07	1.64e+03	1.2e+04	1.48e+07	8.64e+02	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	1.85e+07	1.64e+03	1.1e+04	1.48e+07	8.64e+02	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.51e+07	8.96e+02	1.7e+04	1.42e+07	6.92e+02	2.1e+04
32	13C-OCDD	1.51e+07	7.88e+02	1.9e+04	1.70e+07	4.28e+02	4.0e+04
33	13C-1,2,3,4-TCDD	1.38e+07	5.78e+03	2.4e+03	1.73e+07	1.94e+03	8.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.98e+07	1.64e+03	1.2e+04	1.56e+07	8.64e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	3.24e+06	1.88e+03	1.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.852e{+}03 + 1.588e{+}03) \times 100}{(1.342e{+}07 + 1.691e{+}07) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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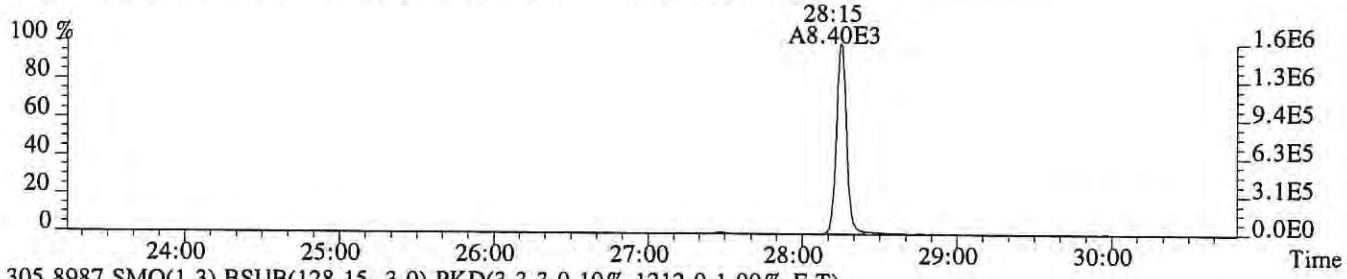
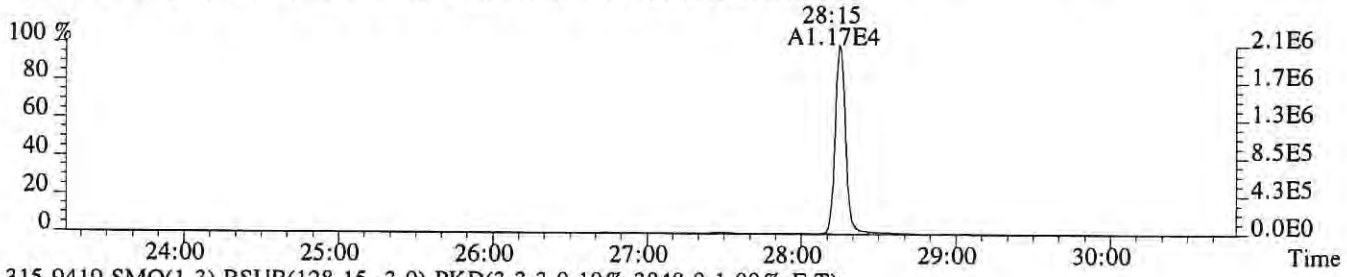
Office:(281)530-5656. Fax:(281)530-5887

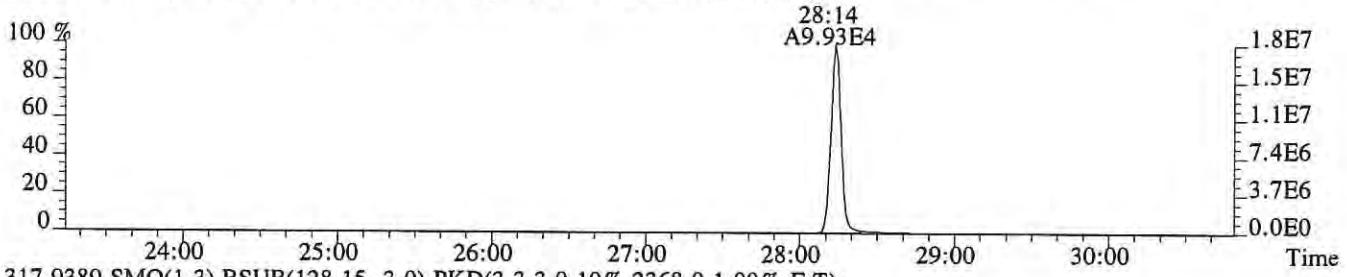
File:P519116 #1-538 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



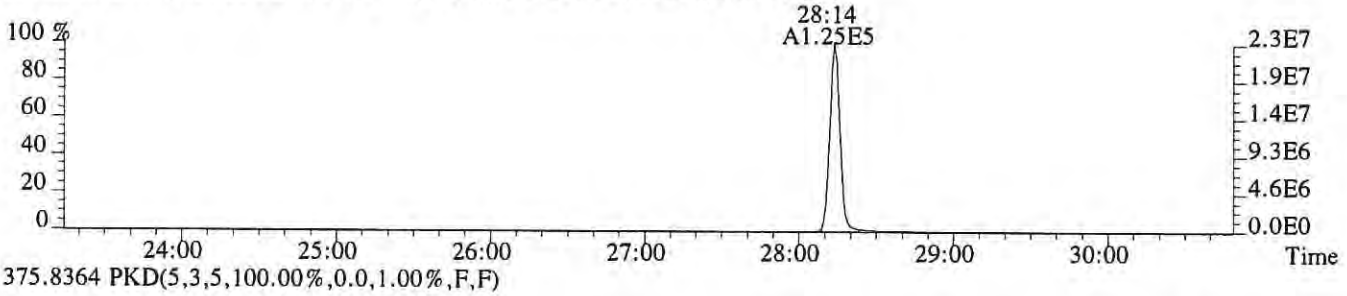
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



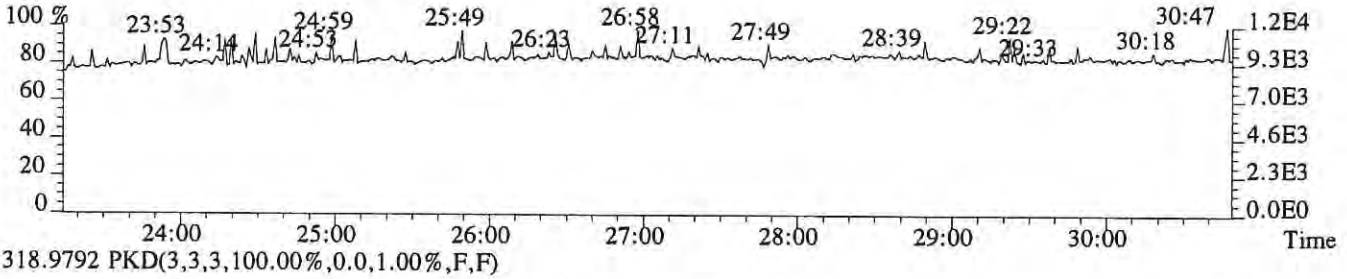
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3848.0,1.00%,F,T)



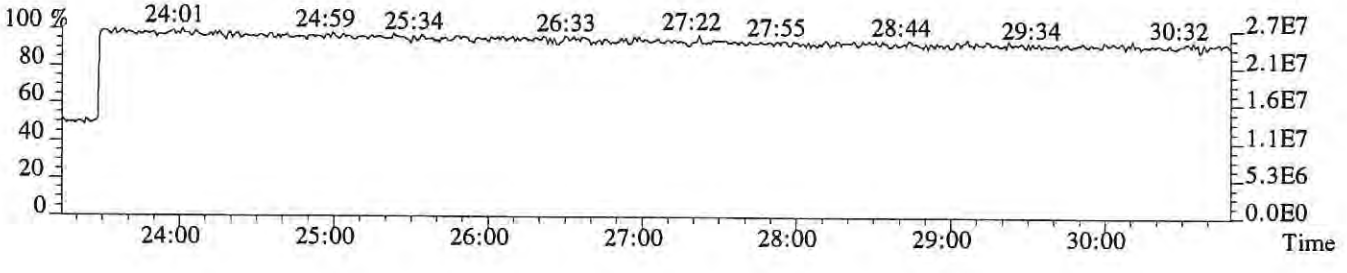
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



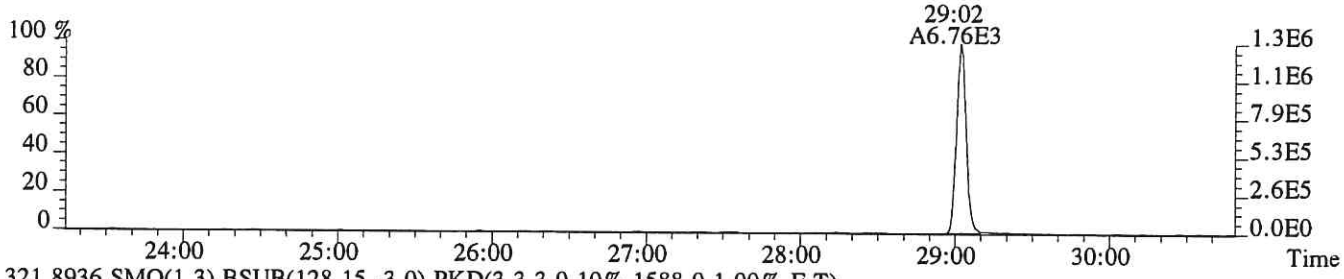
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



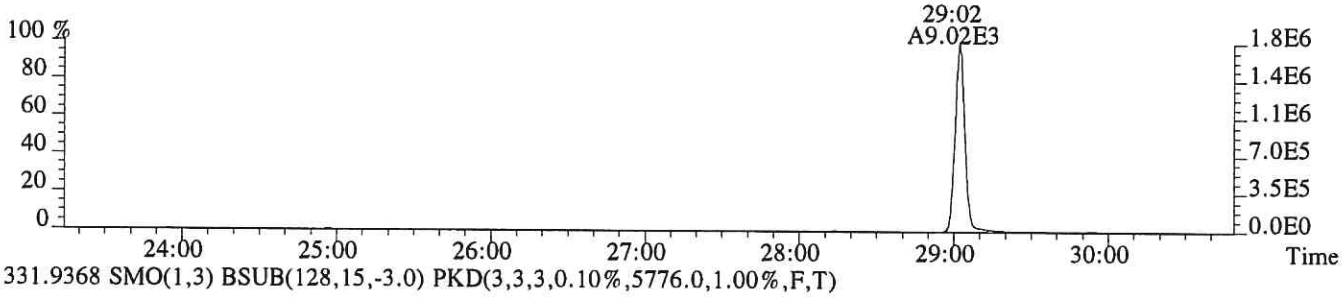
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



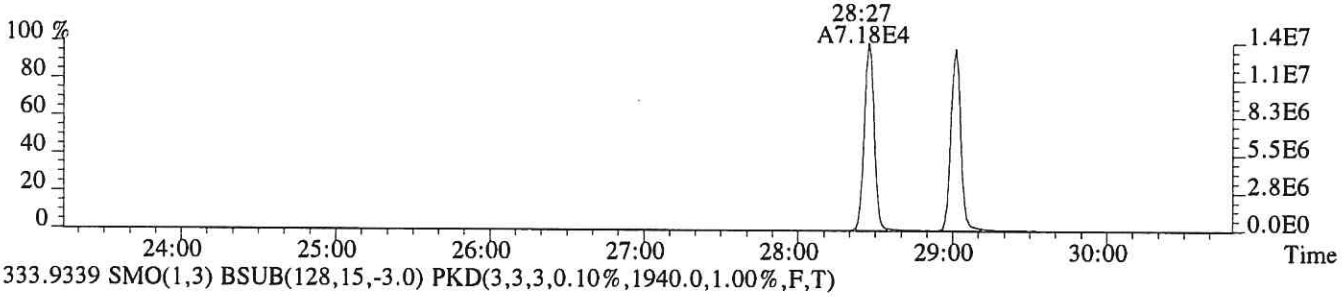
File:P519116 #1-538 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



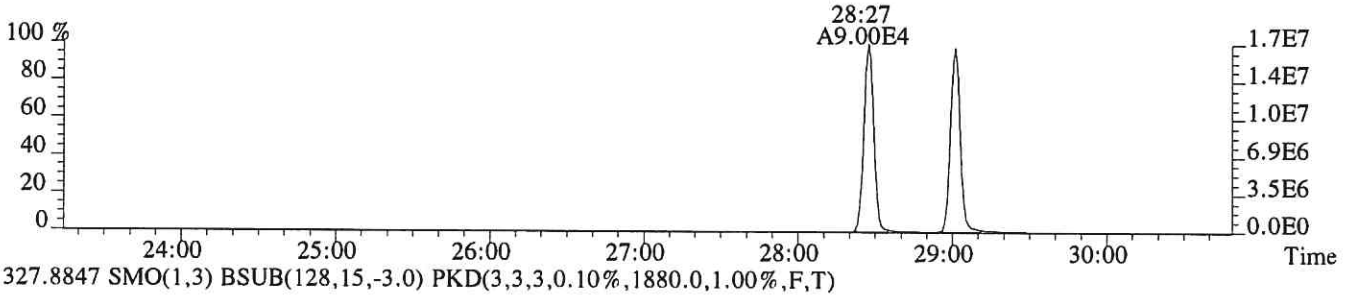
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



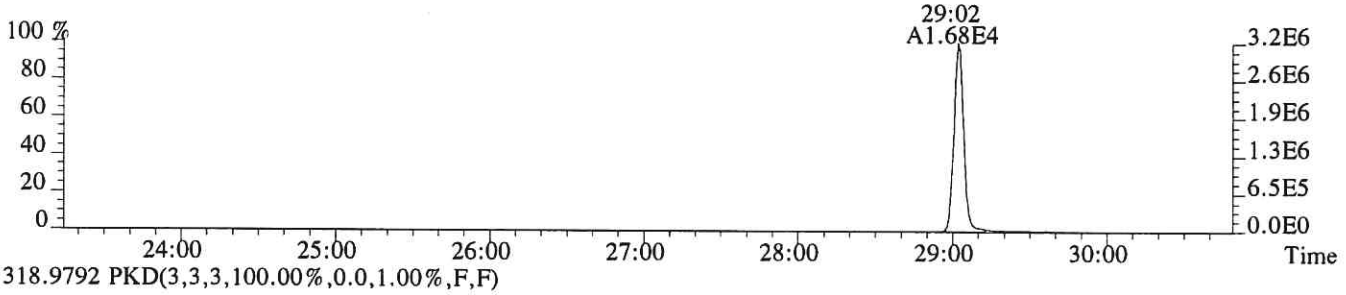
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5776.0,1.00%,F,T)



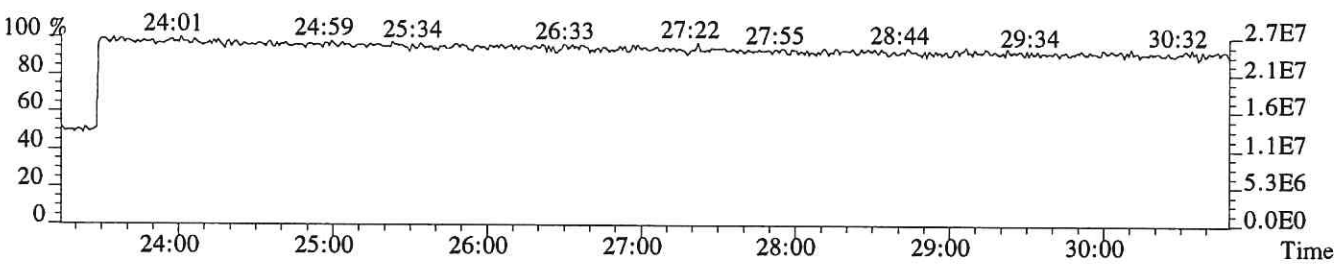
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



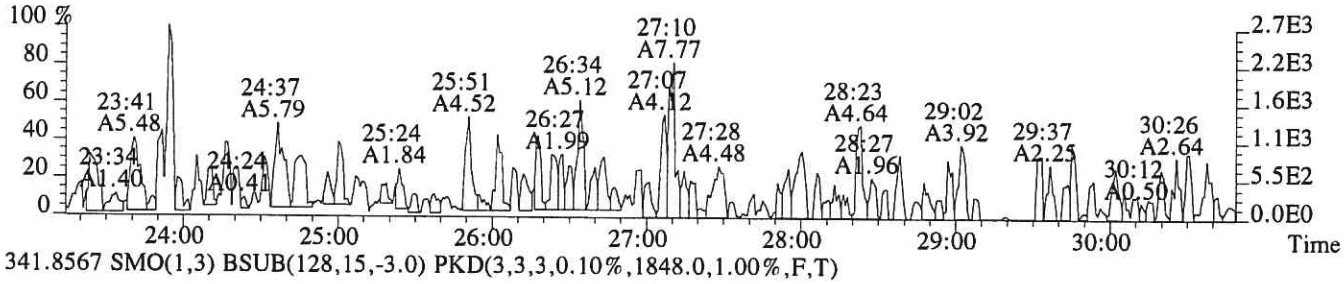
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



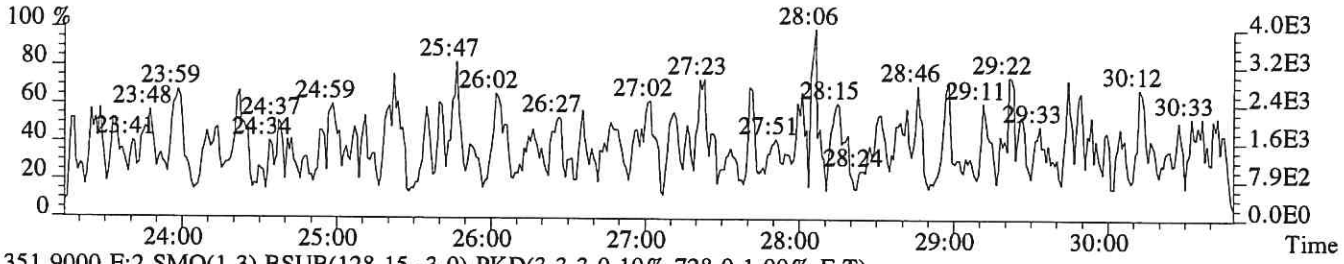
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



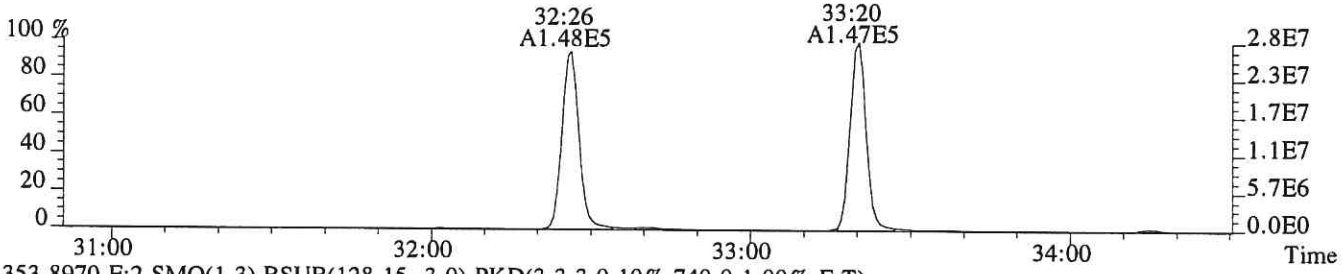
File:P519116 #1-538 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



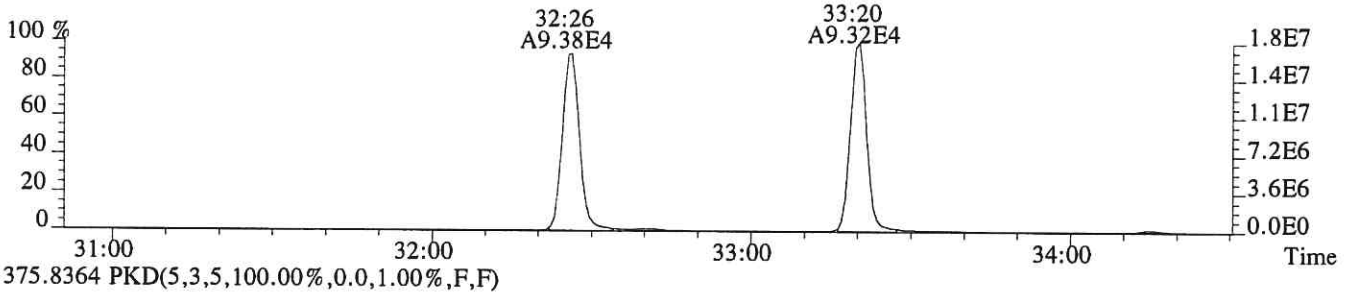
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



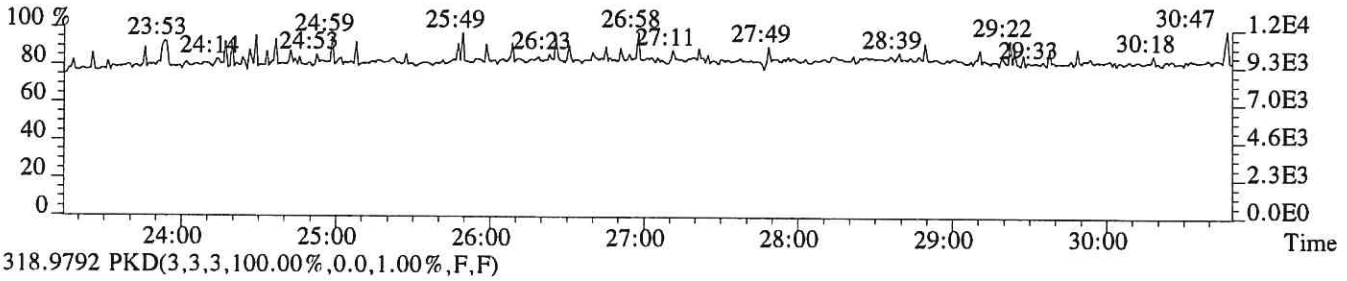
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



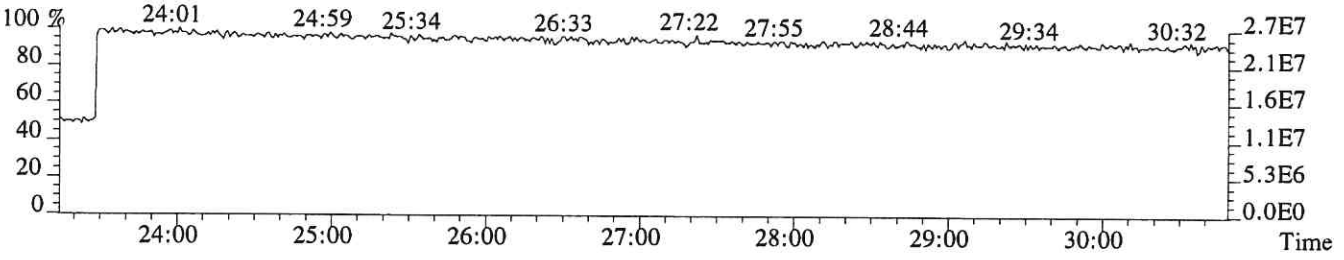
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



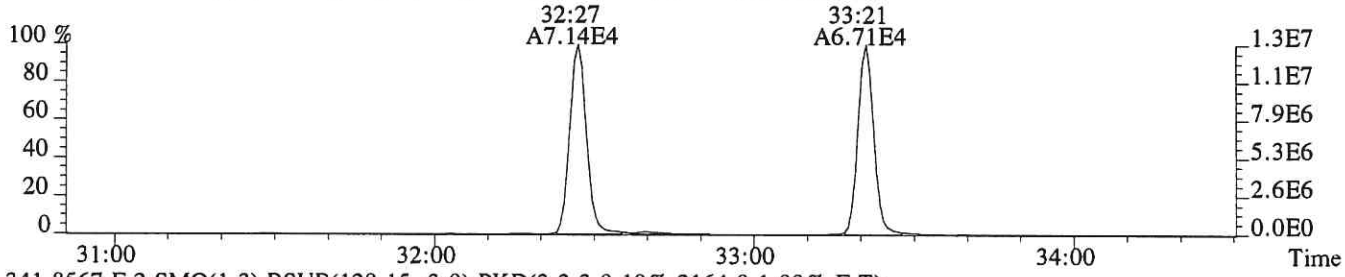
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



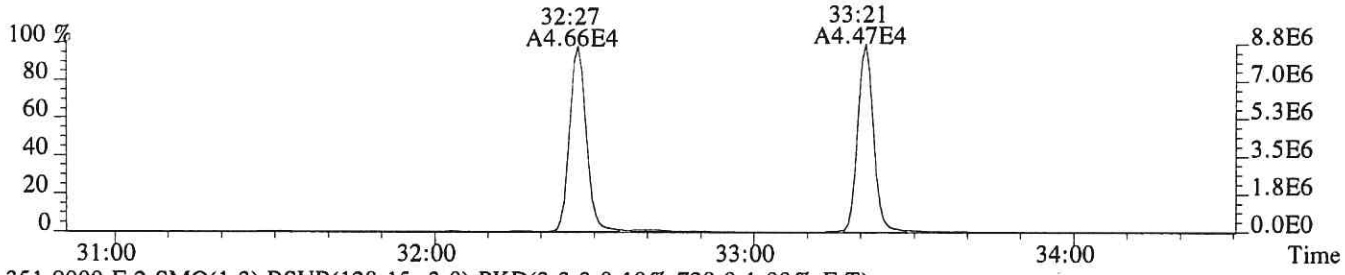
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



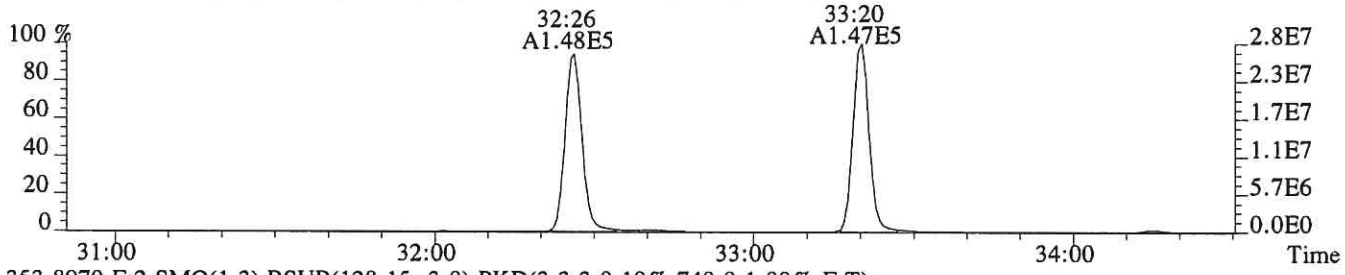
File:P519116 #1-330 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



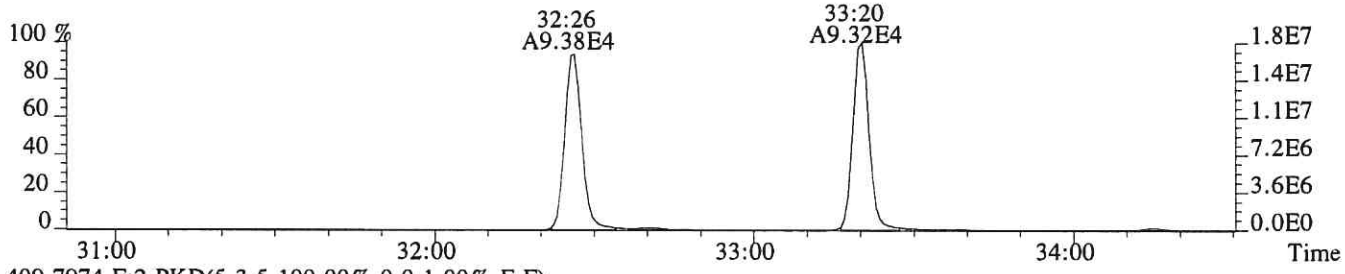
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2164.0,1.00%,F,T)



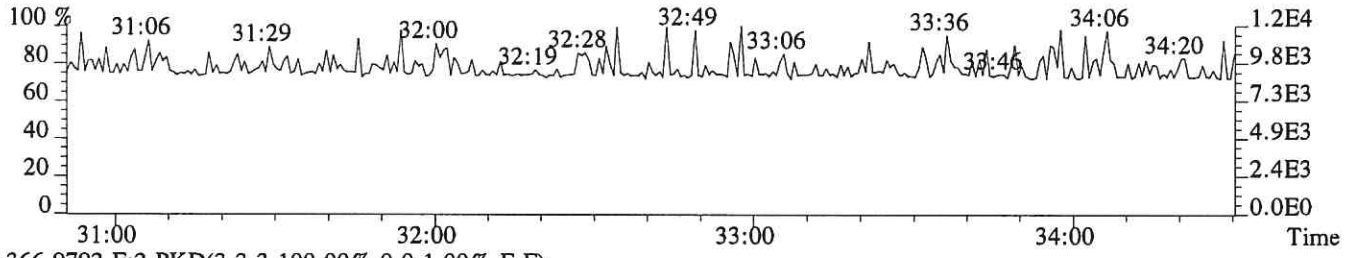
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



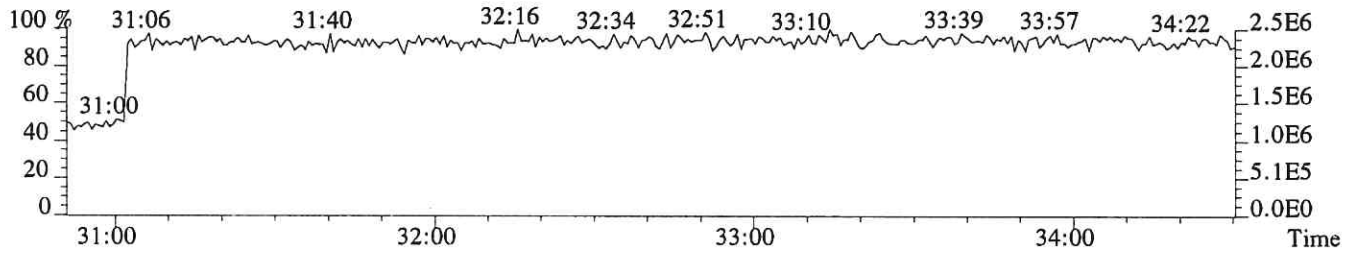
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



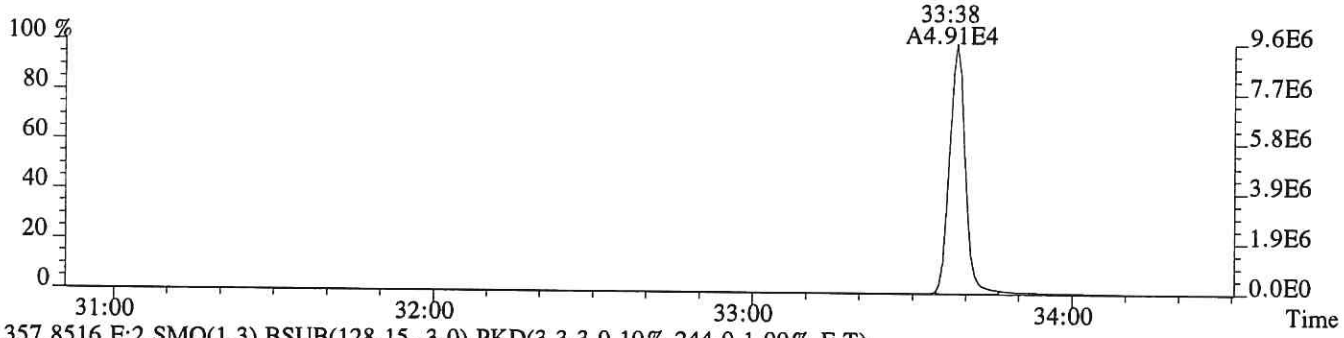
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



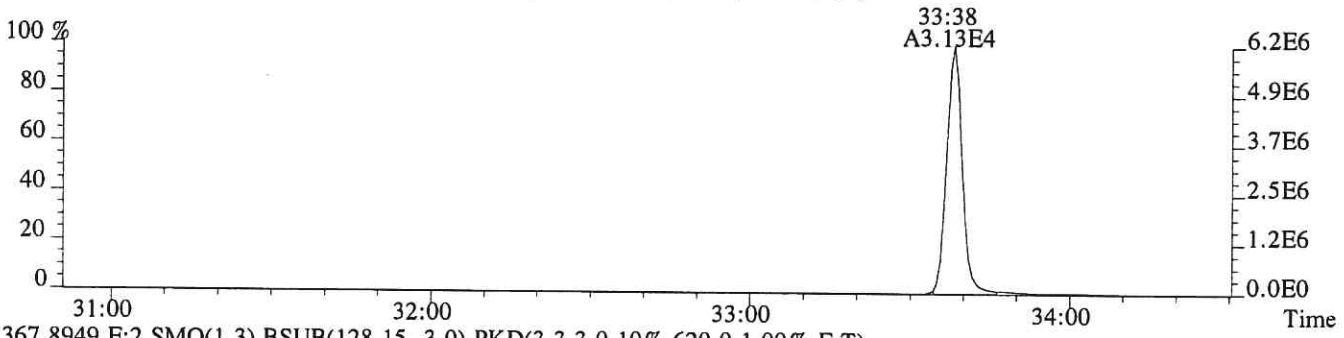
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



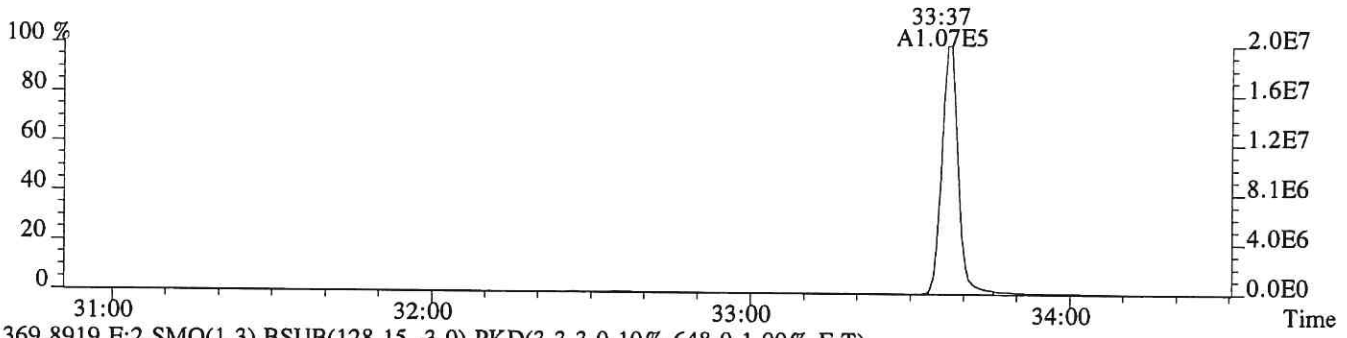
File:P519116 #1-330 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



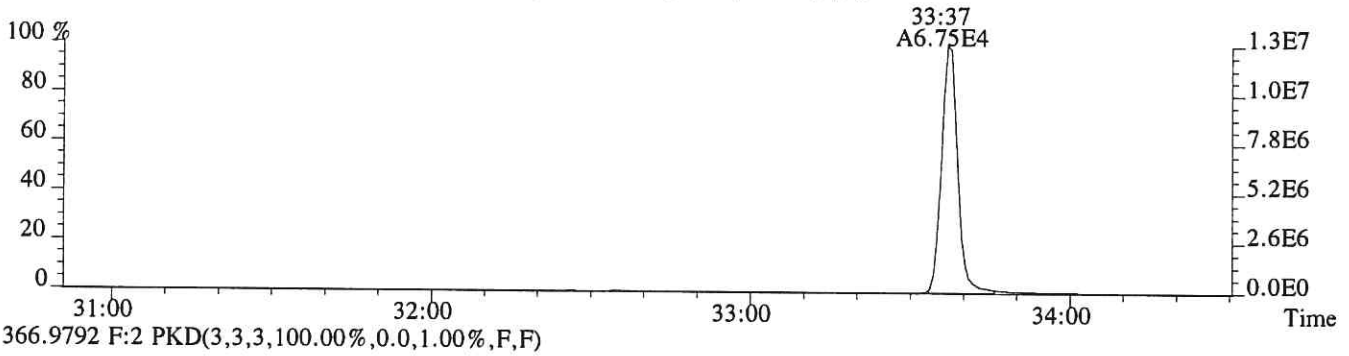
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



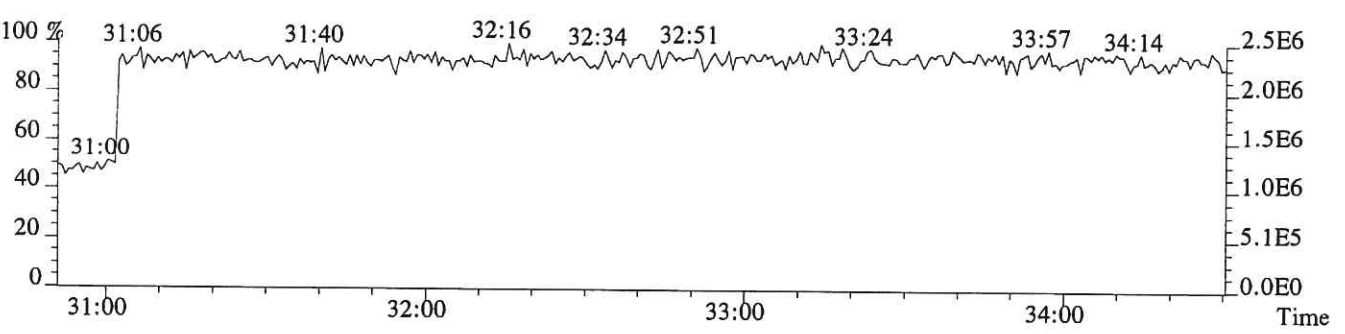
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)

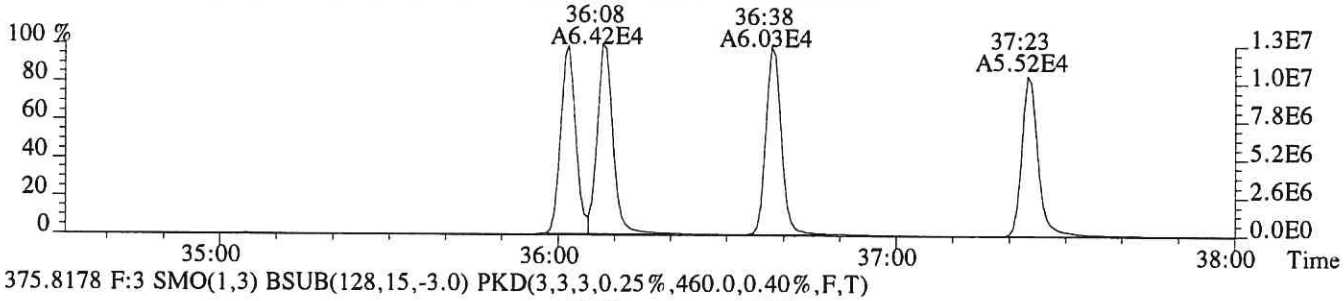


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

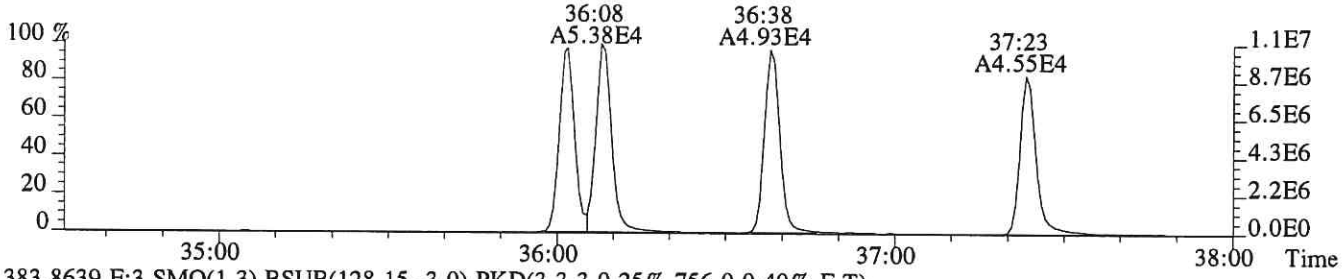


File:P519116 #1-312 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

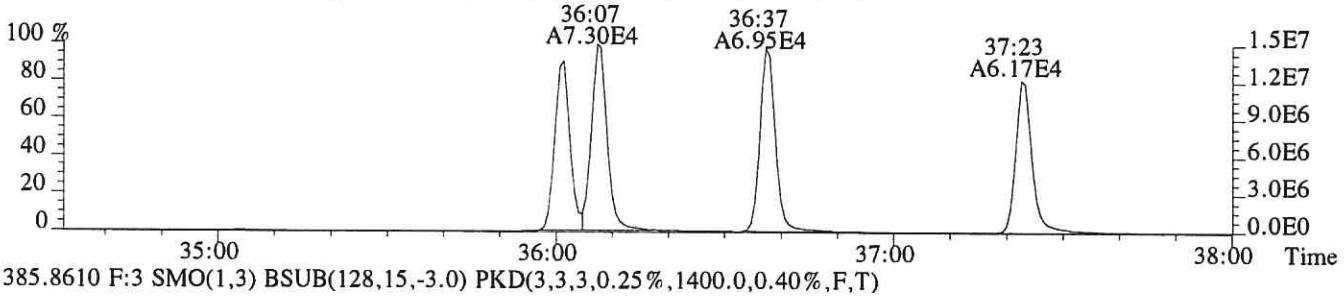
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



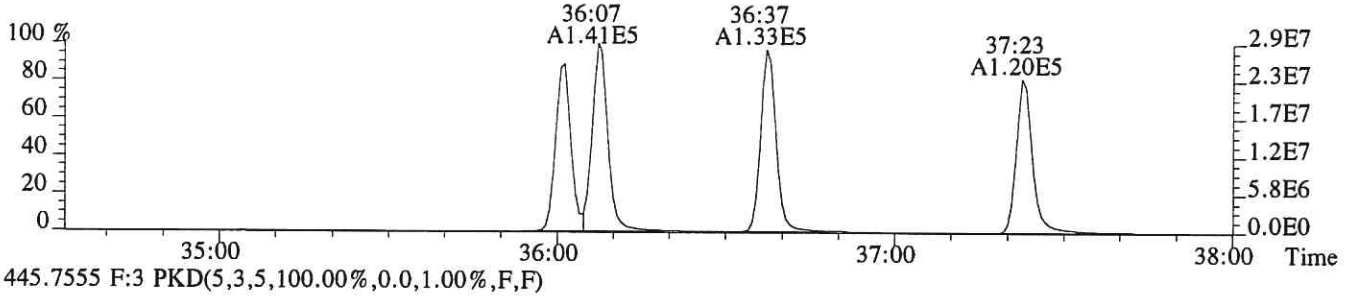
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



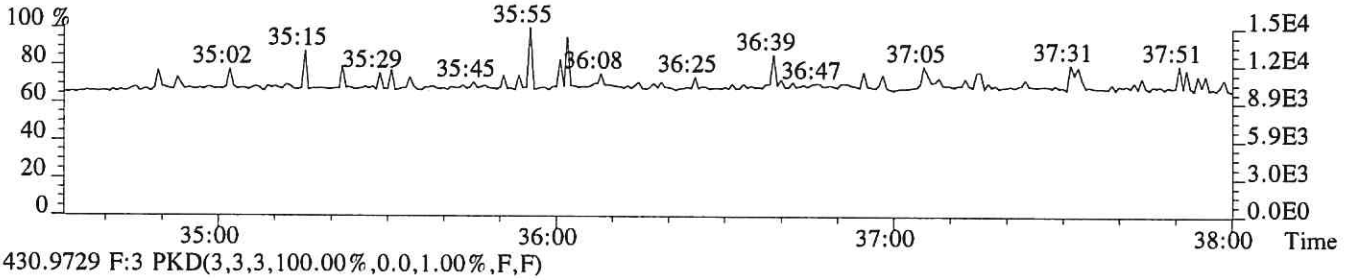
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



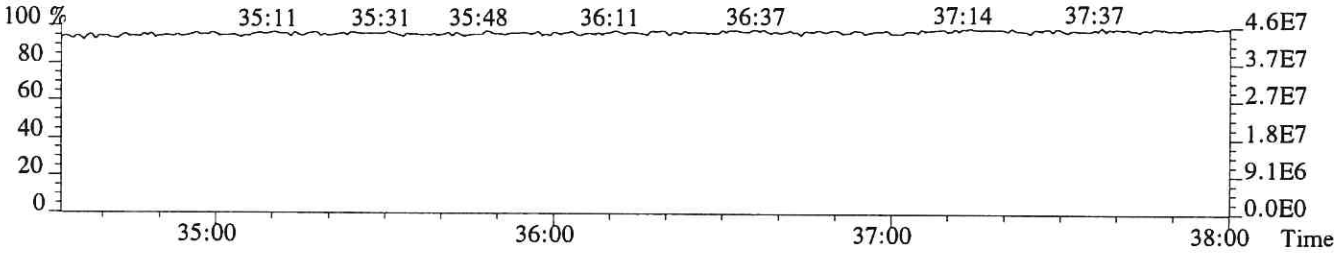
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



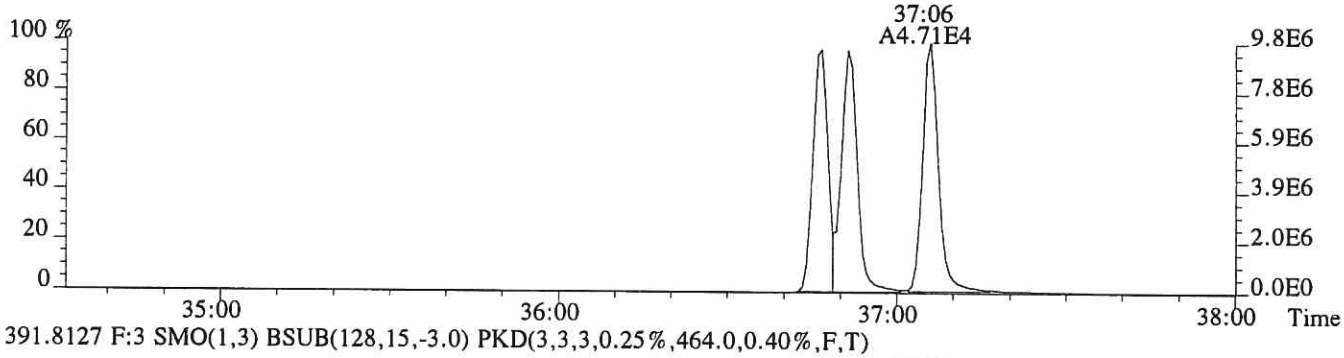
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



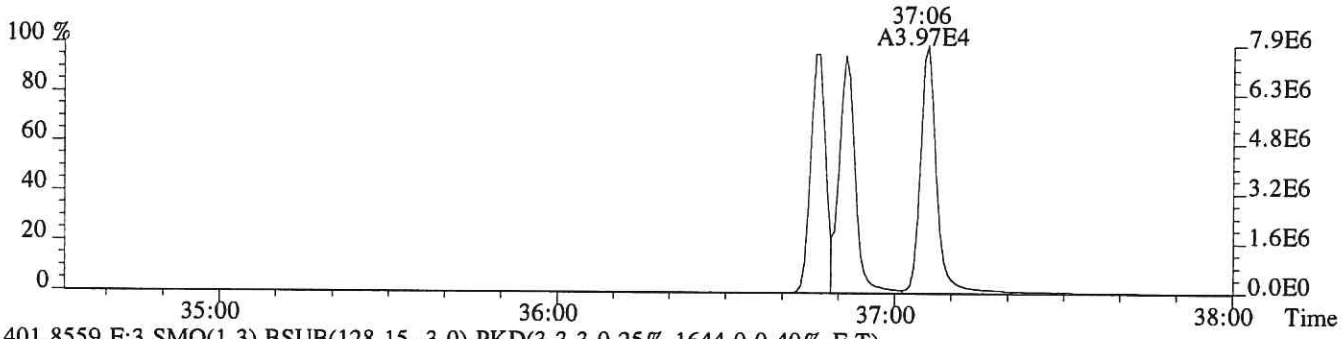
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



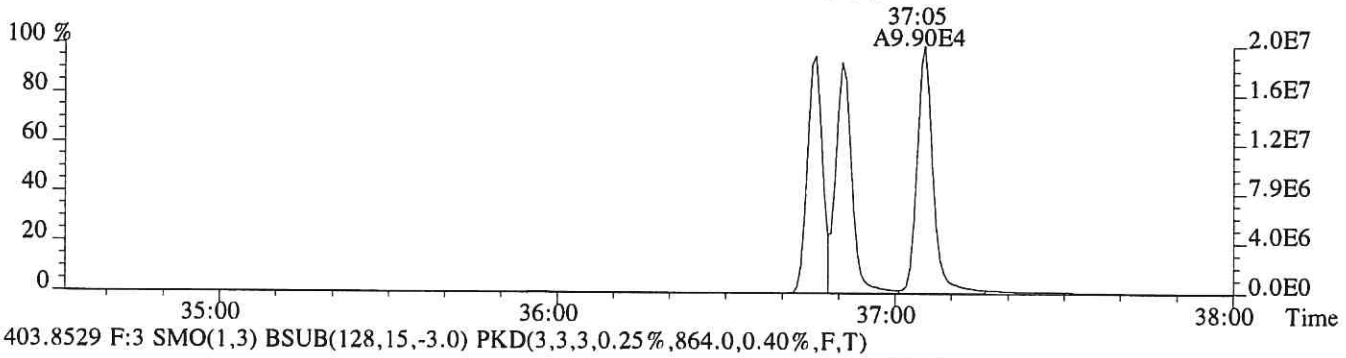
File:P519116 #1-312 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



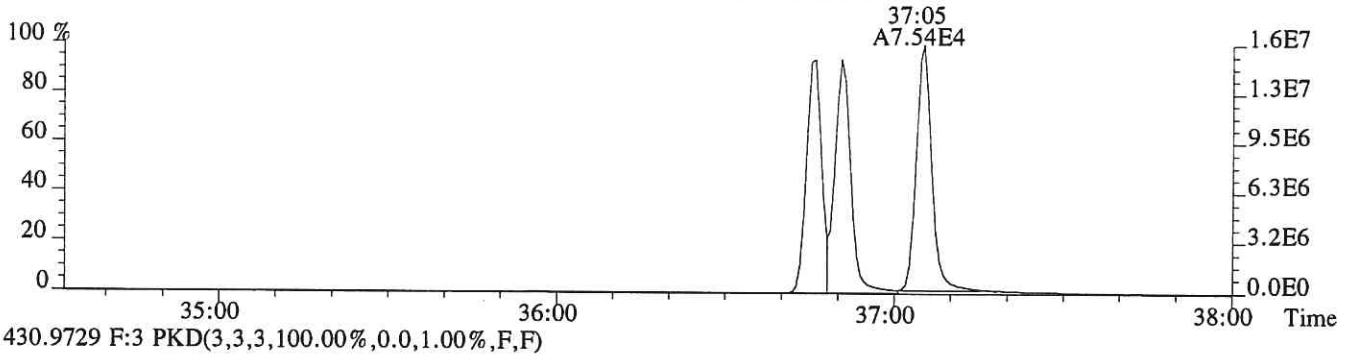
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



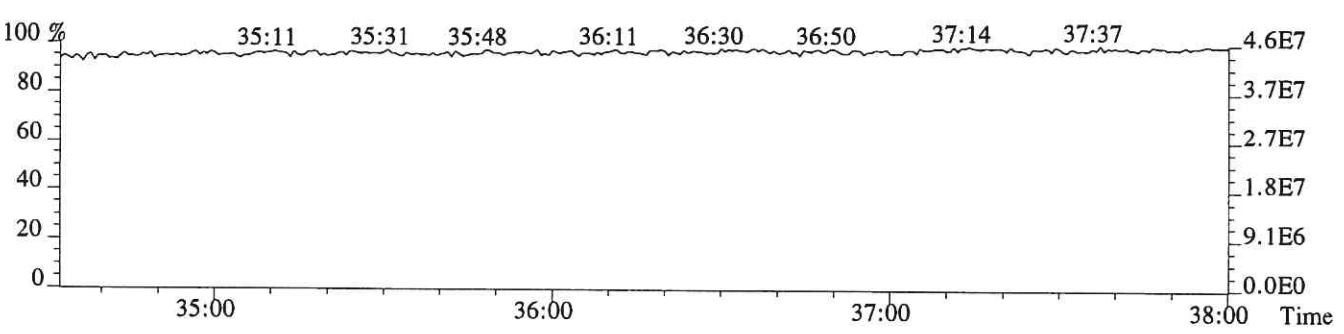
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)

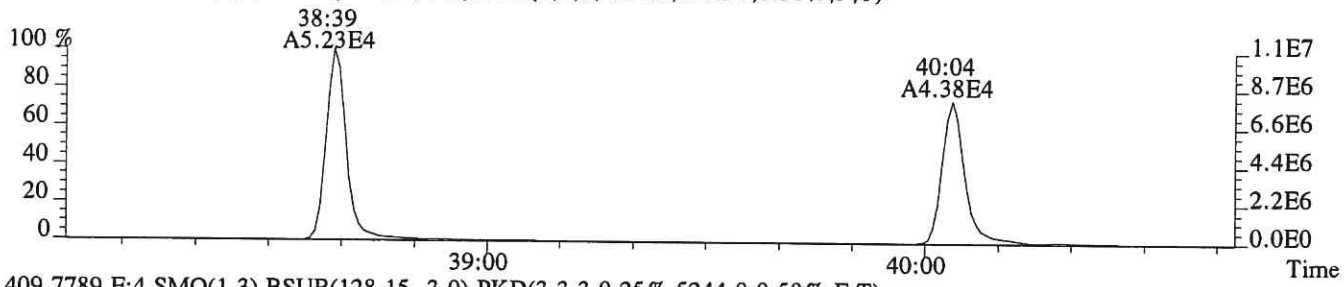


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

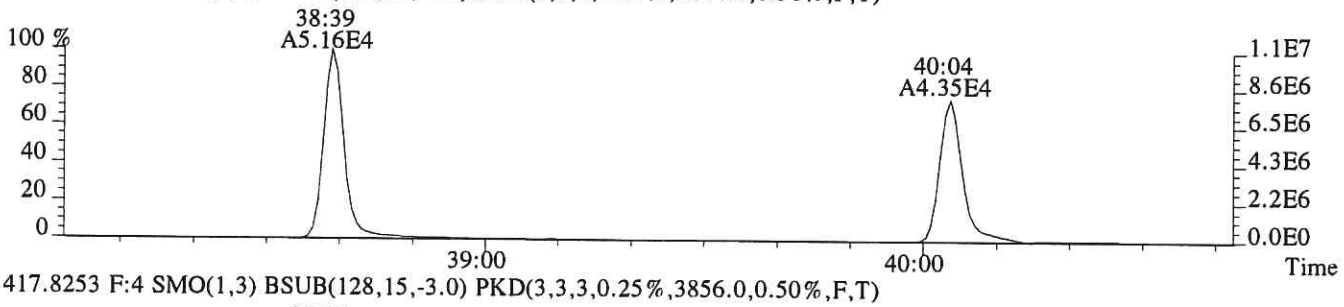


File:P519116 #1-241 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

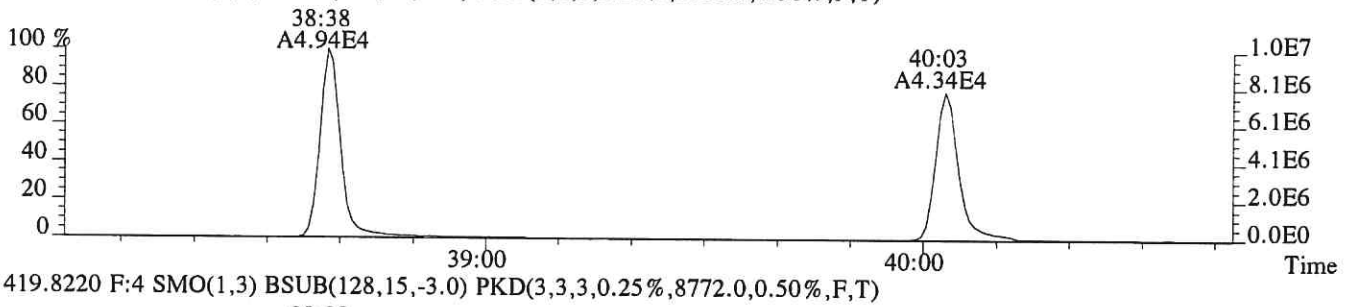
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6932.0,0.50%,F,T)



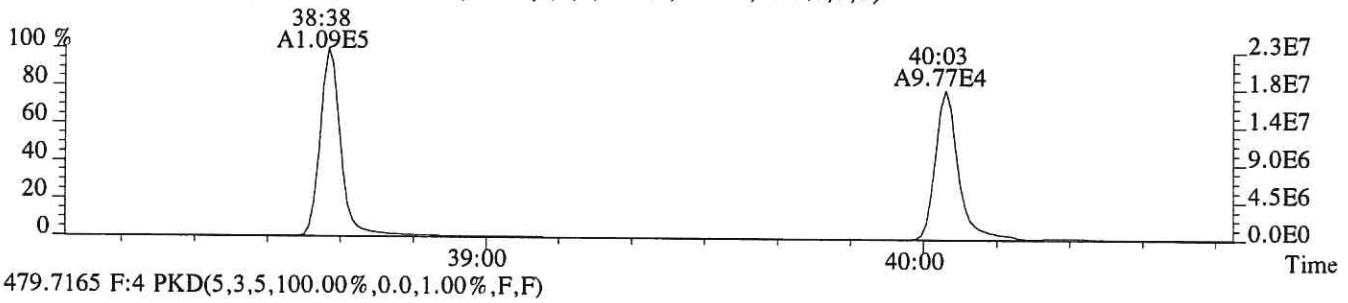
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5244.0,0.50%,F,T)



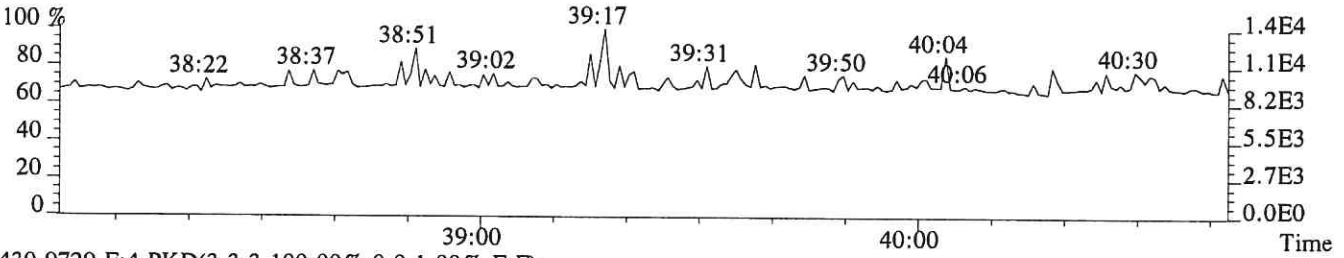
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3856.0,0.50%,F,T)



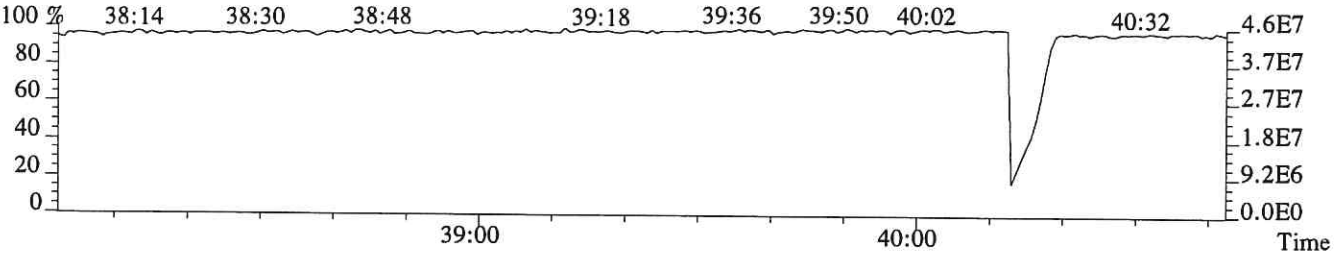
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8772.0,0.50%,F,T)



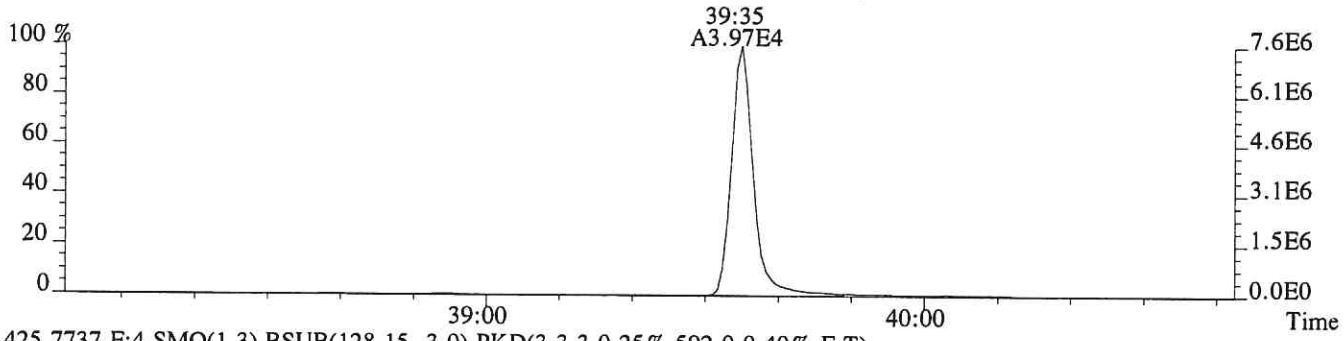
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



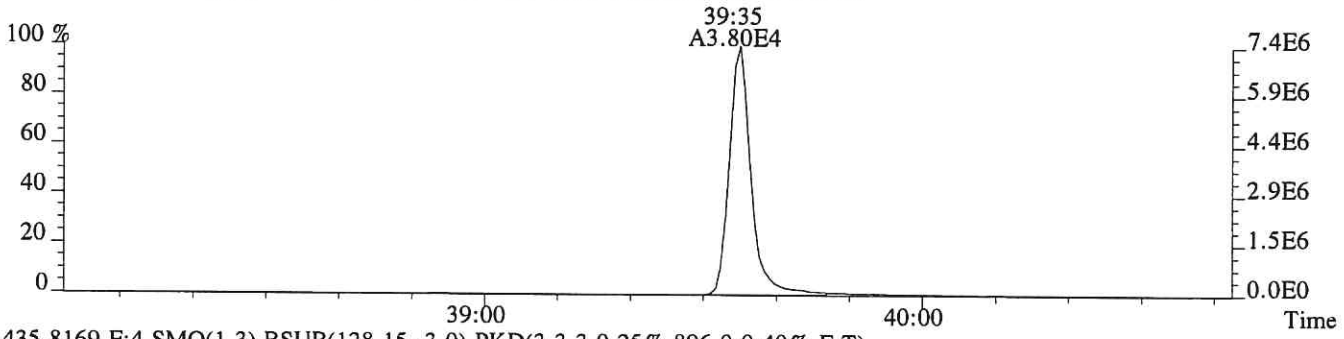
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



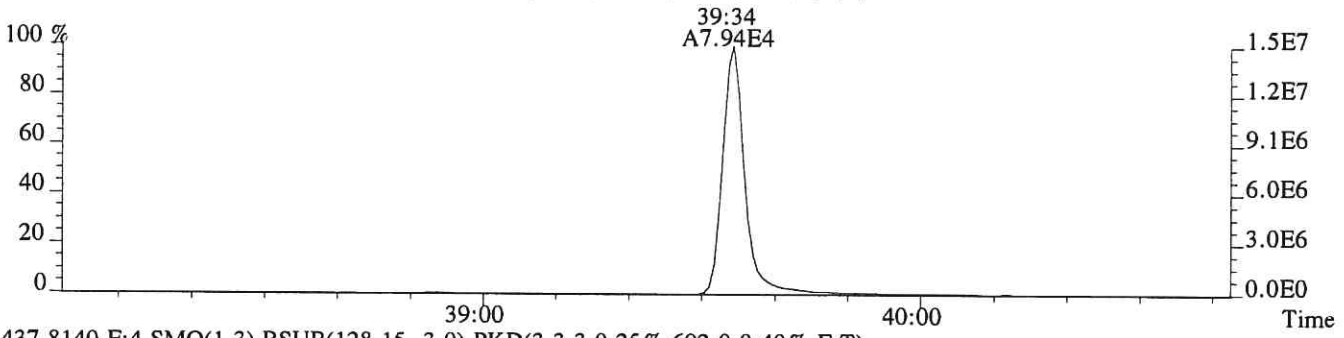
File:P519116 #1-241 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



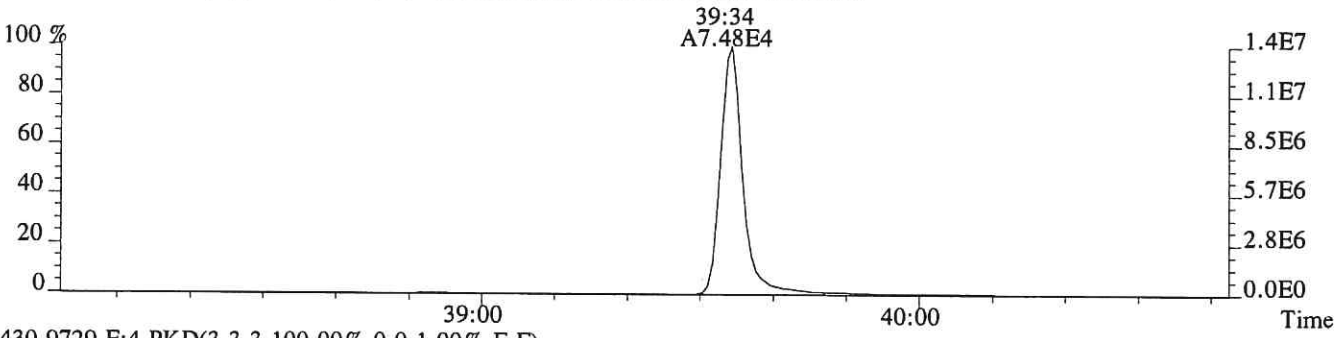
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



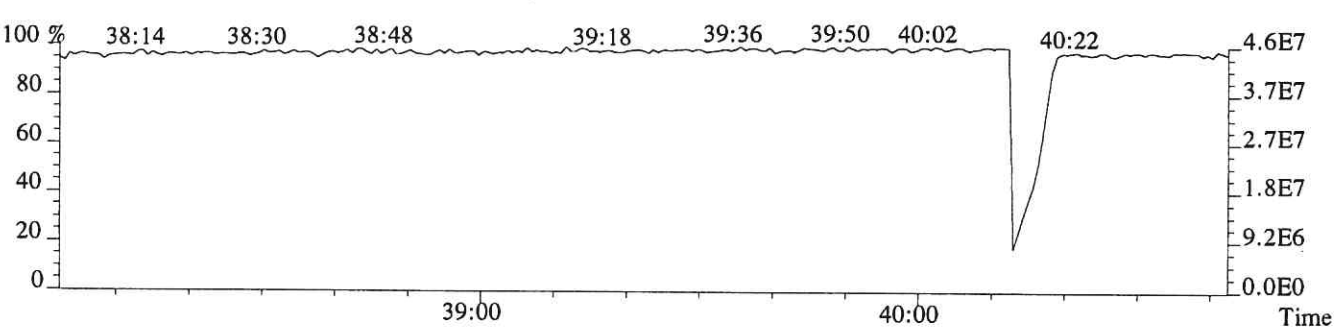
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)

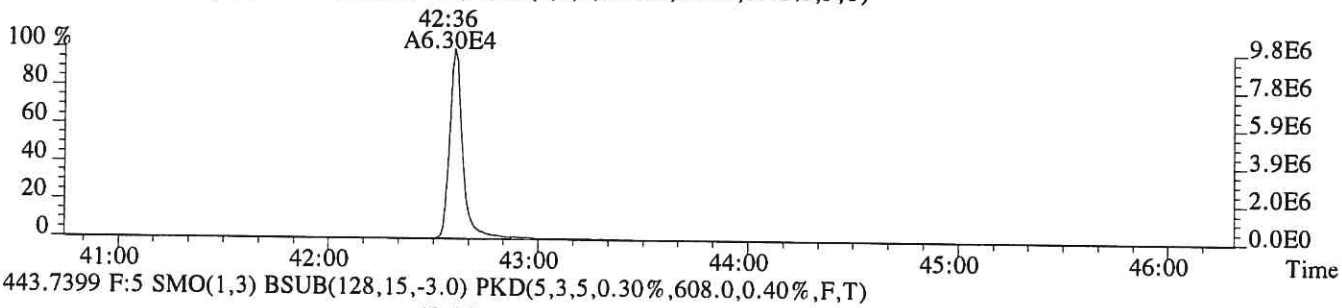


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

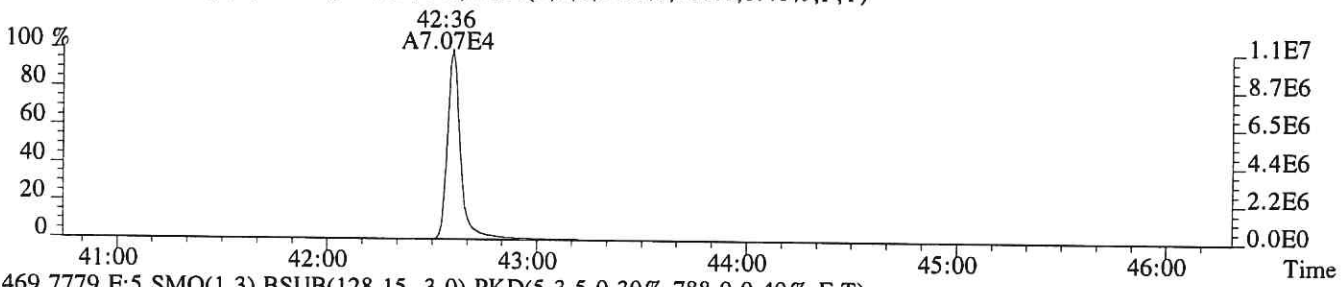


File:P519116 #1-502 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

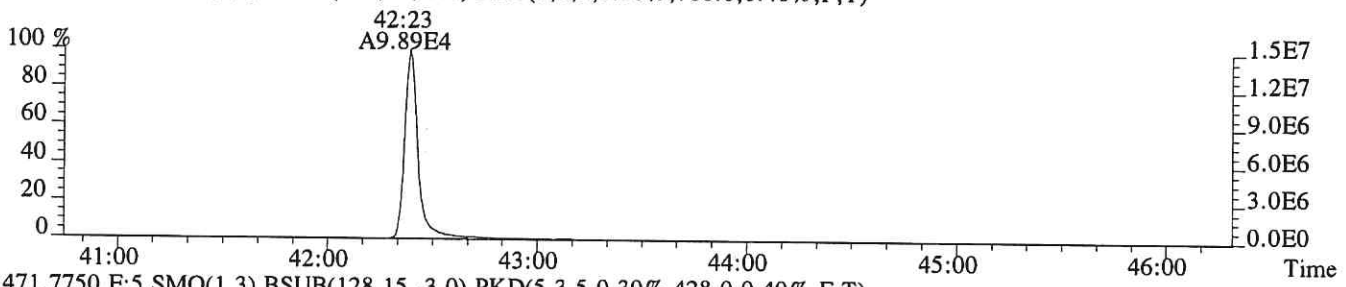
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



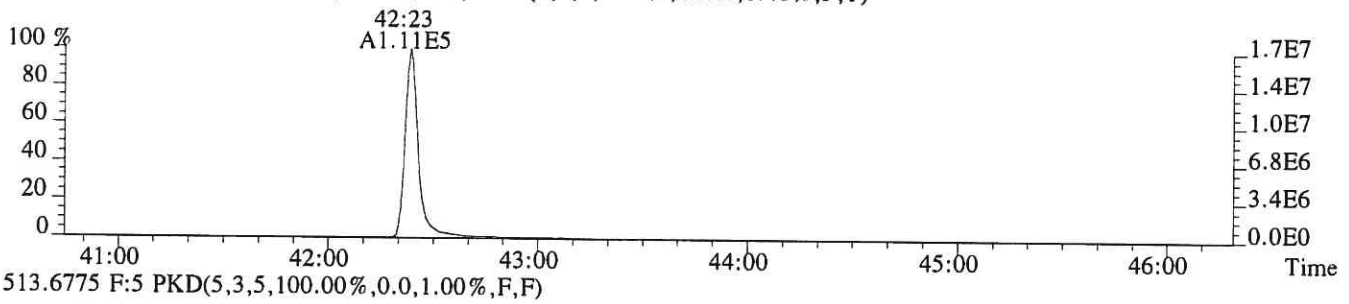
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



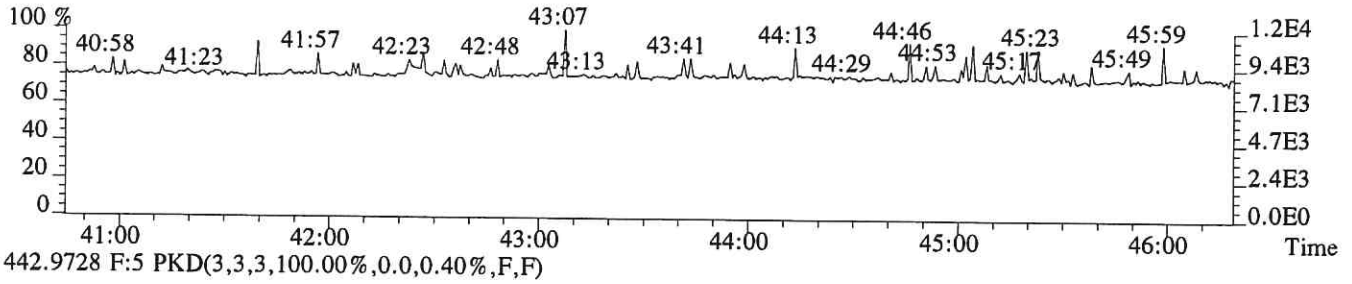
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



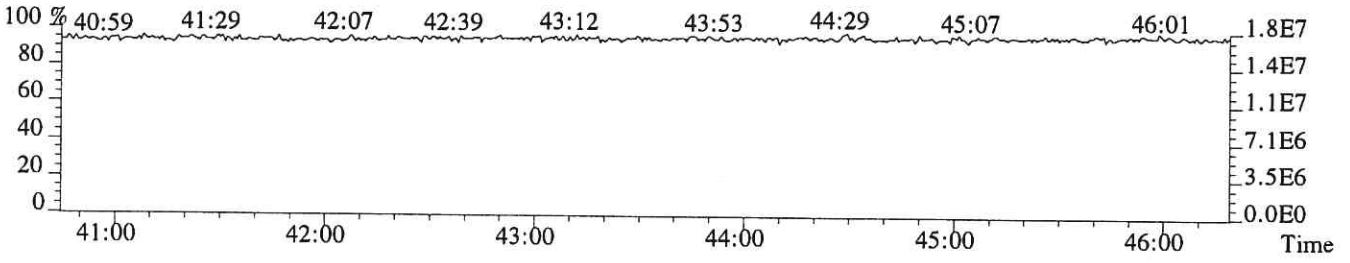
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

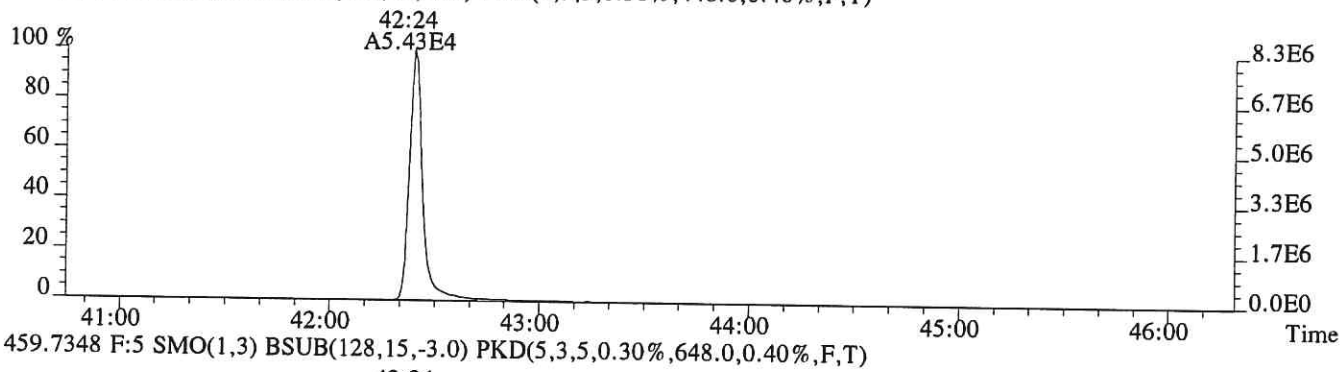


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

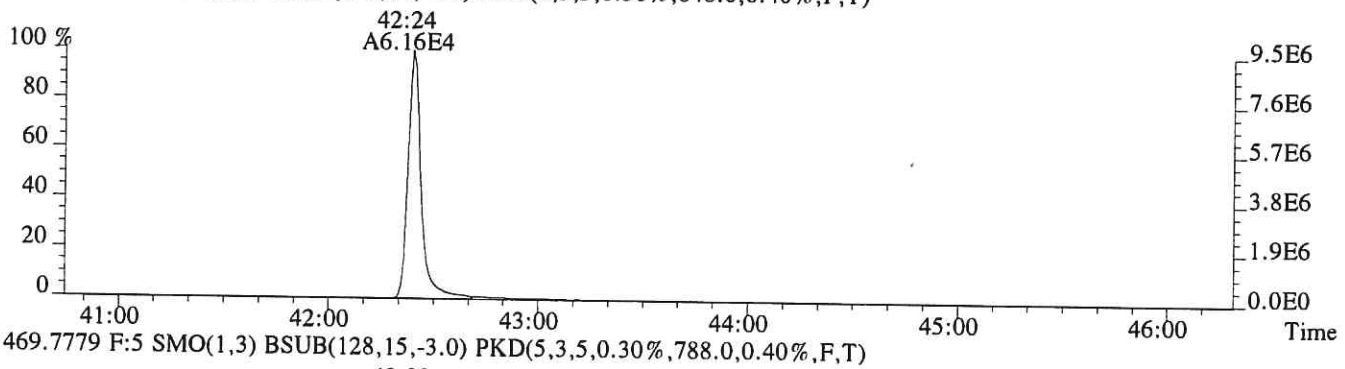


File:P519116 #1-502 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

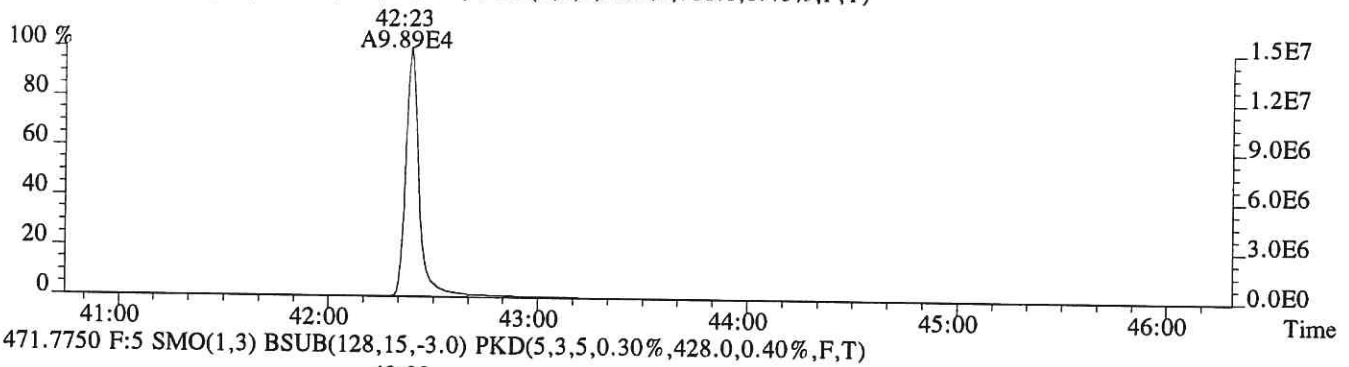
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



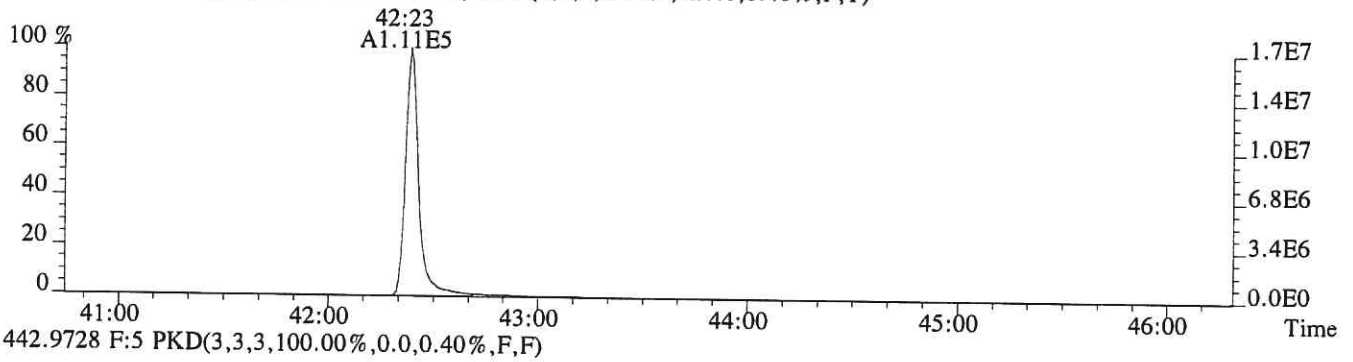
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



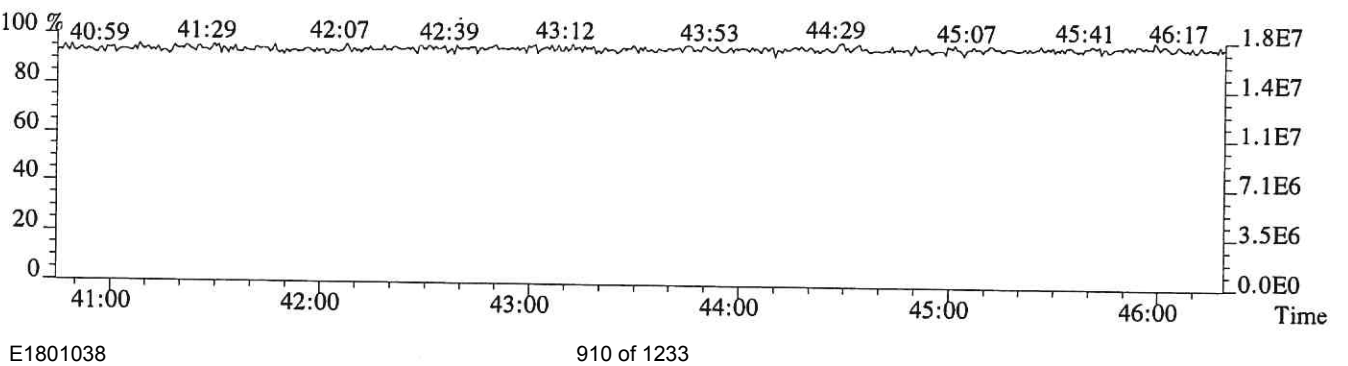
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: R519131

Date: 12/02/18

Circle one: (Beginning) / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519132	2-DEC-18	04:33:24
194503	CS3	P519131	2-DEC-18	03:44:46
METHOD BLANK	EQ1800458-01	P519133	2-DEC-18	05:22:03
SL0108	E1801039-031	P519134	2-DEC-18	07:00:00
SL0516	E1801038-021	P519135	2-DEC-18	07:48:35
SL0517	E1801038-022	P519136	2-DEC-18	08:36:31
SL0100	E1801039-006	P519137	2-DEC-18	09:25:10
SL0107	E1801039-017	P519138	2-DEC-18	10:13:48
SL0129	E1801039-036	P519139	2-DEC-18	11:02:27
SL0130	E1801039-037	P519140	2-DEC-18	11:51:07
SL0101	E1801039-038	P519141	2-DEC-18	12:39:46
SL0509	E1801040-001	P519142	2-DEC-18	13:28:25
LCS	EQ1800469-02	P519143	2-DEC-18	14:17:05
DLCS	EQ1800469-03	P519144	2-DEC-18	15:05:44

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181202A.SPL
Last Modified: Monday, December 03, 2018 07:46:34 Central Standard Time
Printed: Monday, December 03, 2018 07:46:35 Central Standard Time

Page Position (1, 1)

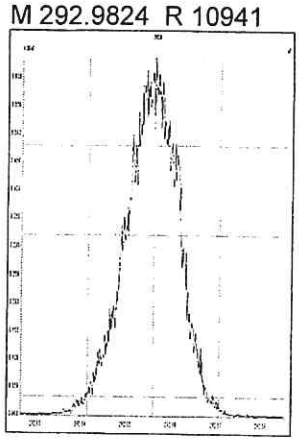
OPUS5: P519131RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/2/18	03:44	P519131	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	dRMScheck 05:03 12/4/18
2		04:35	P519132	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		05:22	P519133	MB	EQ1800458-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		07:00	P519134	E1801039-031	E1801039-031	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		07:48	P519135	E1801038-021	E1801038-021	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		08:36	P519136	E1801038-022	E1801038-022	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		09:25	P519137	E1801039-006	E1801039-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		10:13	P519138	E1801039-017	E1801039-017	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		11:02	P519139	E1801039-036	E1801039-036	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		11:51	P519140	E1801039-037	E1801039-037	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		12:39	P519141	E1801039-038	E1801039-038	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		13:28	P519142	E1801040-001	E1801040-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		14:17	P519143	LCS	EQ1800469-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		15:05	P519144	DLCS	EQ1800469-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		16:02	P519145	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		dRMScheck 16:02
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

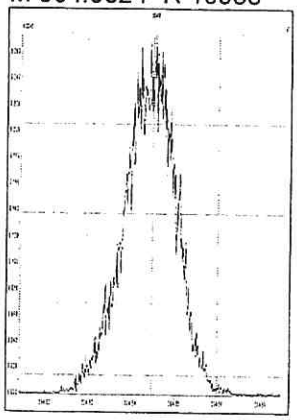
JC 12/03/18

033

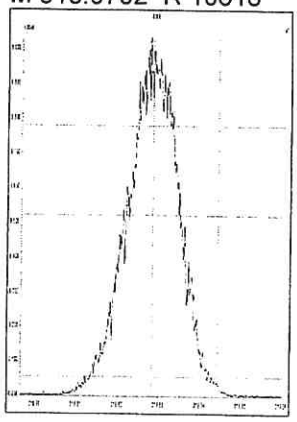
M 292.9824 R 10941



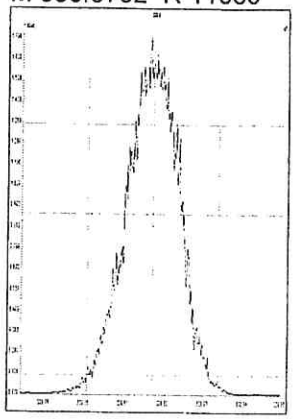
M 304.9824 R 10933



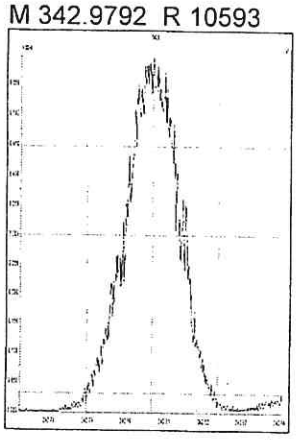
M 318.9792 R 10616



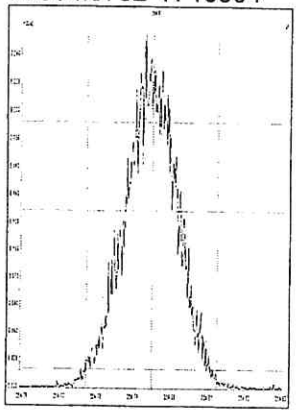
M 330.9792 R 11065



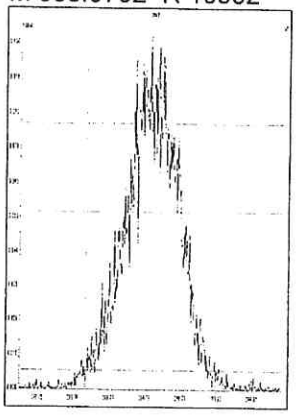
M 342.9792 R 10593



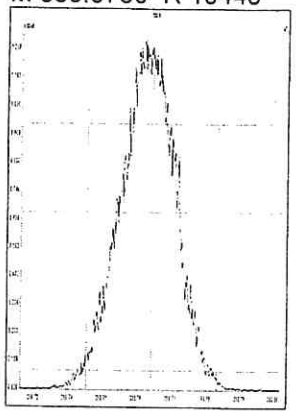
M 354.9792 R 10504



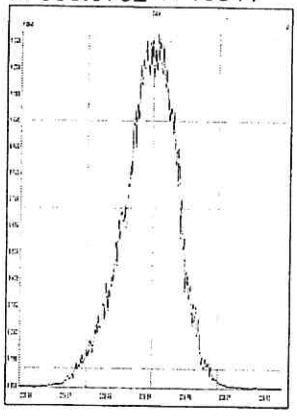
M 366.9792 R 10992



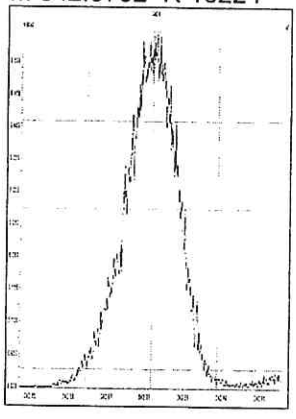
M 380.9760 R 10448



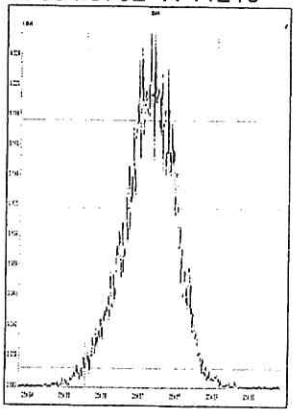
M 330.9792 R 10641



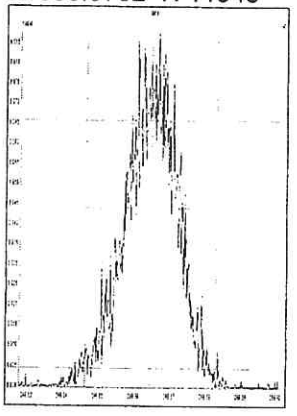
M 342.9792 R 10224



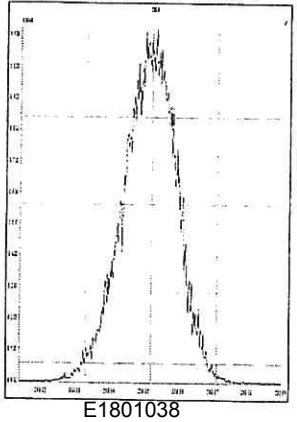
M 354.9792 R 11210



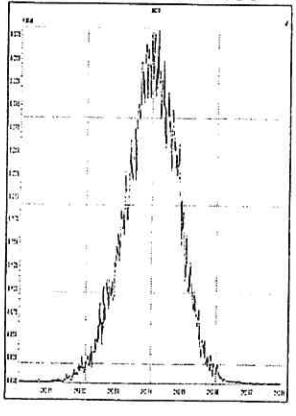
M 366.9792 R 11948



M 380.9760 R 10374



M 392.9760 R 10889



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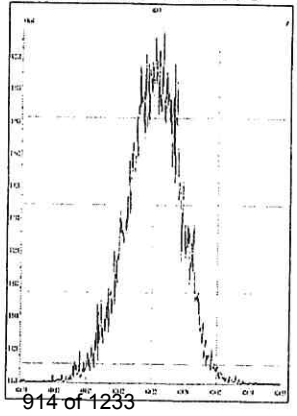

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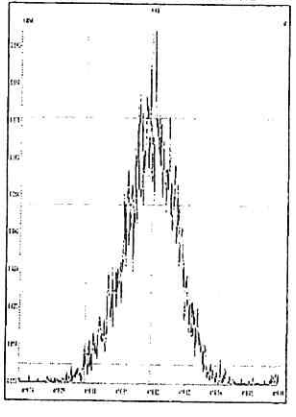
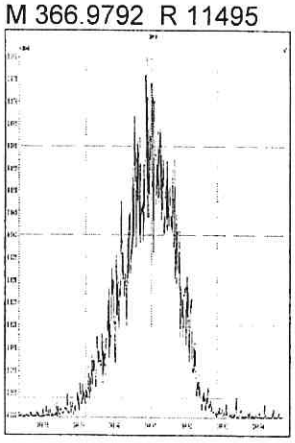


M 366.9792 R 11495



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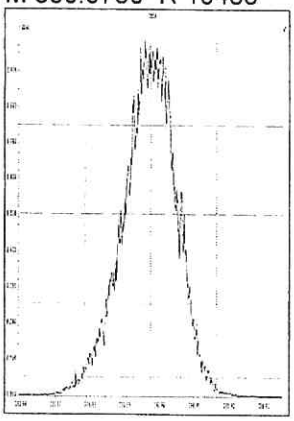

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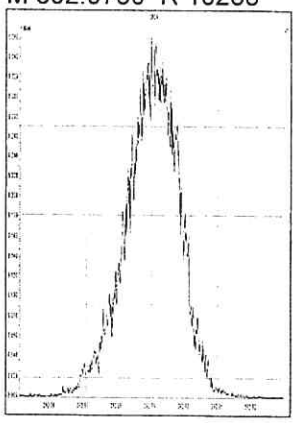

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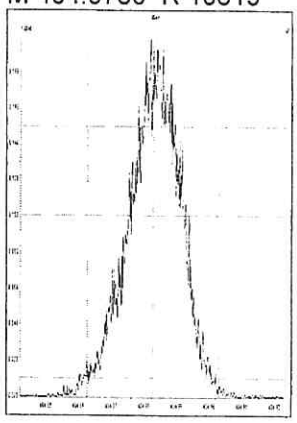

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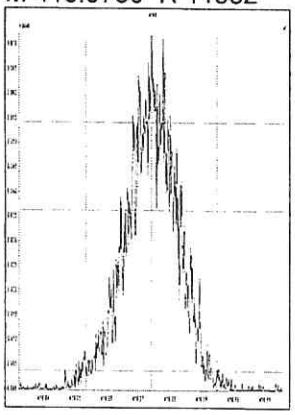
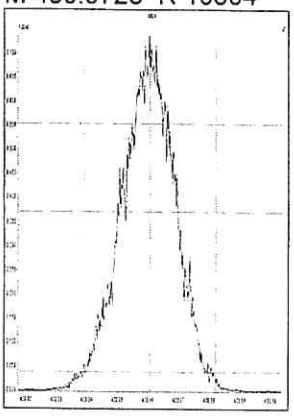
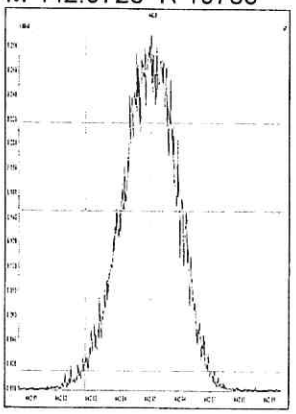


M 430.9728 R 10504



M 442.9728 R 10785



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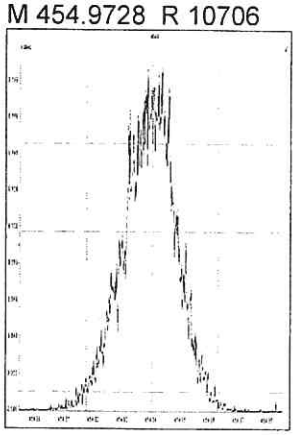

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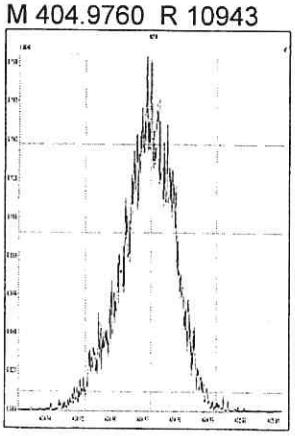

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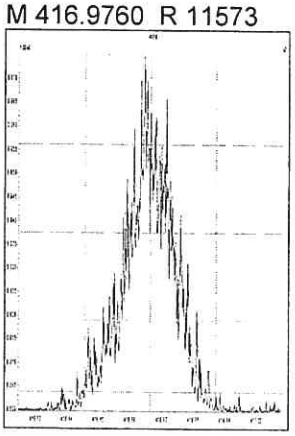

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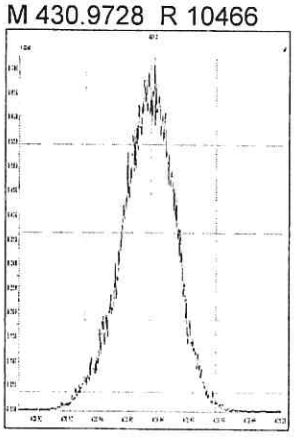

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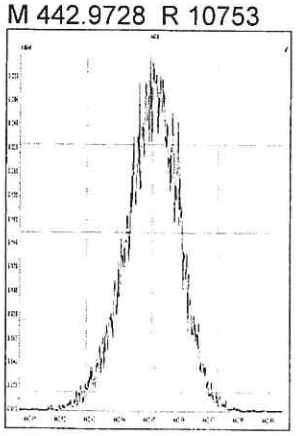
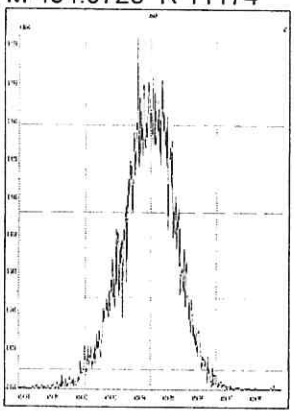


M 454.9728 R 11174



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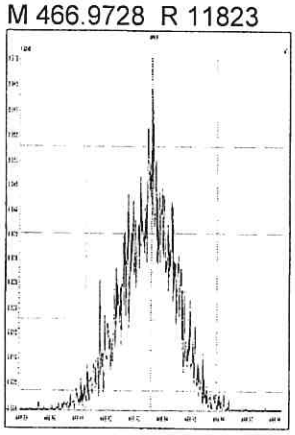
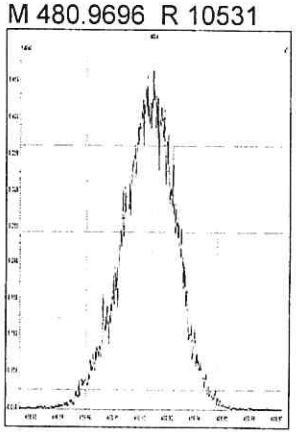
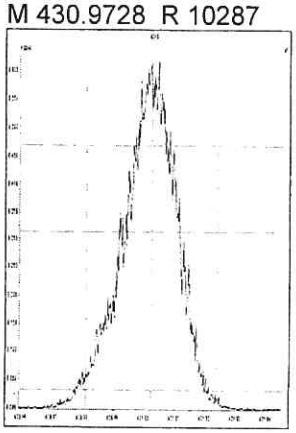


M 480.9696 R 10531



M 430.9728 R 10287



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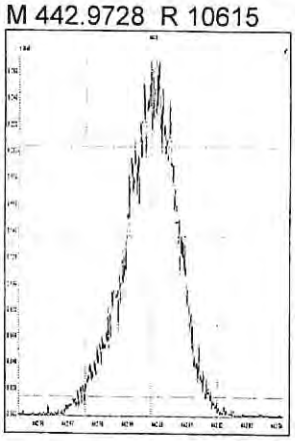

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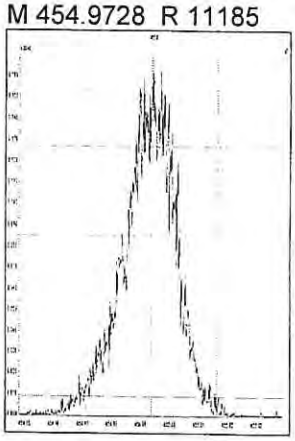
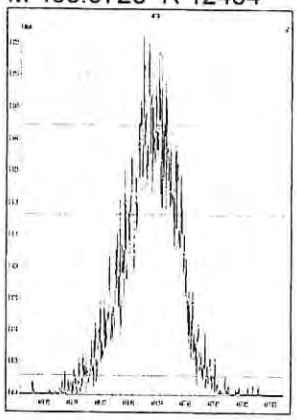
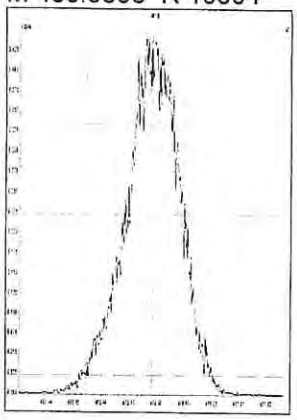


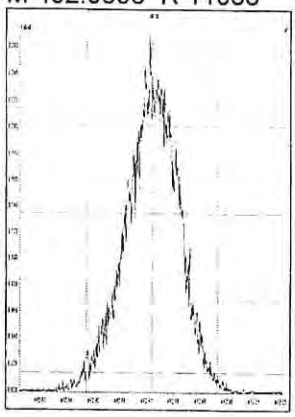
M 466.9728 R 12454



M 480.9696 R 10504



M 492.9696 R 11038



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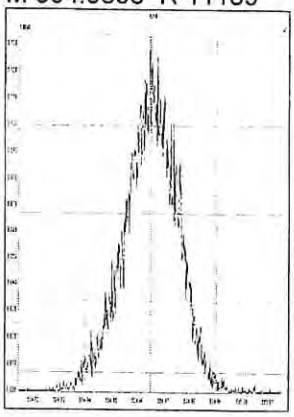

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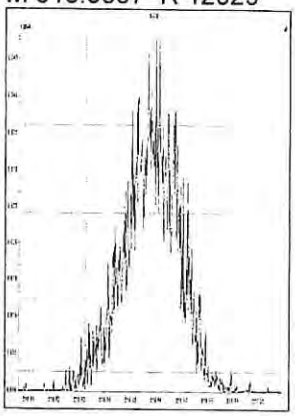

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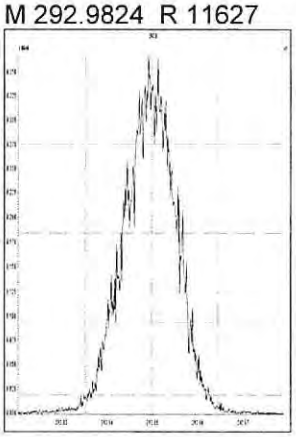

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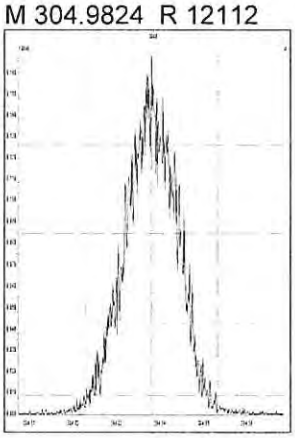

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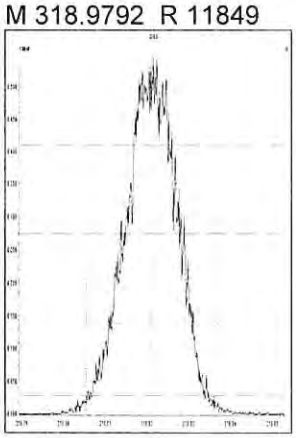
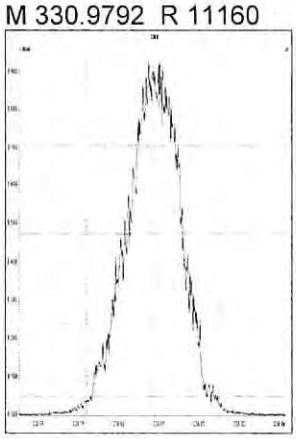


M 330.9792 R 11160



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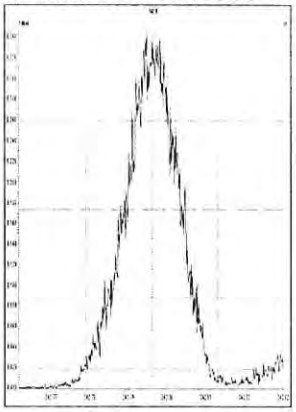
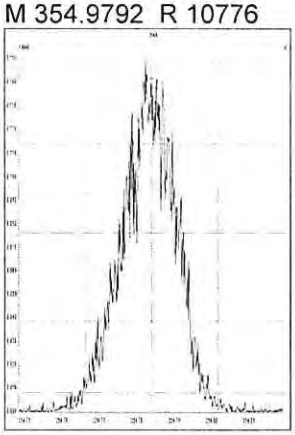
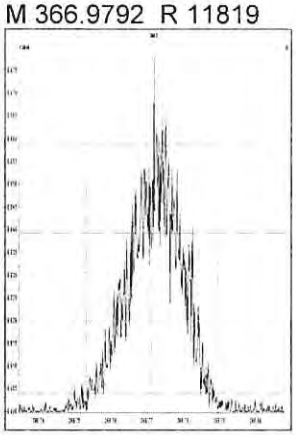


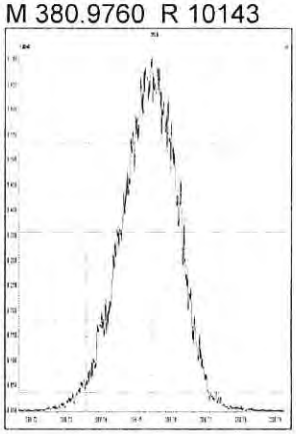
M 354.9792 R 10776



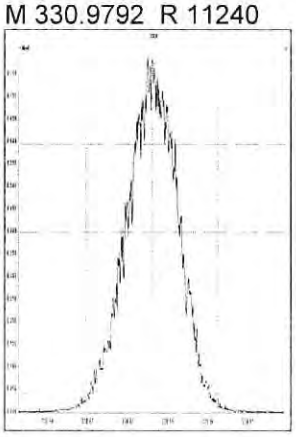
M 366.9792 R 11819



M 380.9760 R 10143



M 330.9792 R 11240



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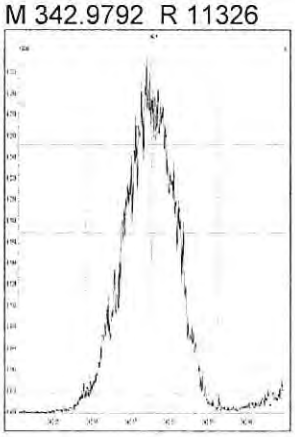

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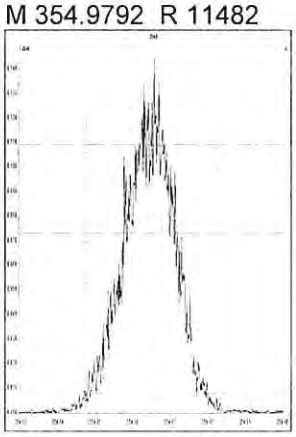

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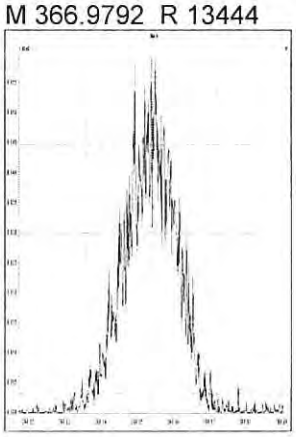

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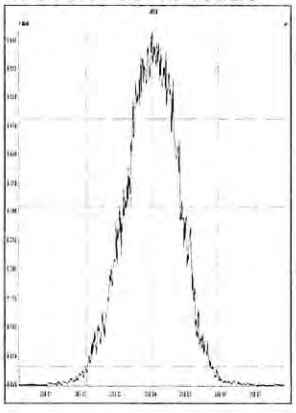

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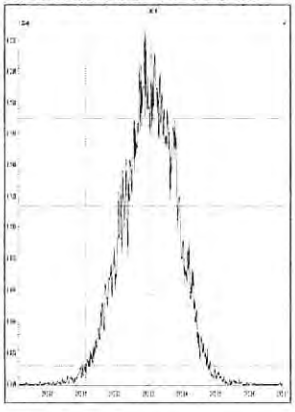

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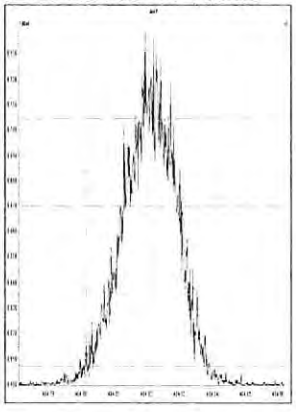

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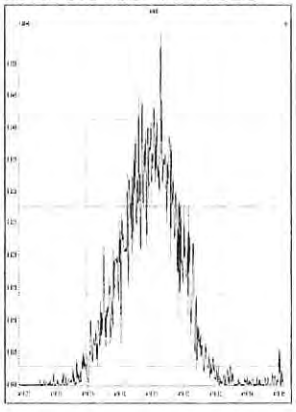

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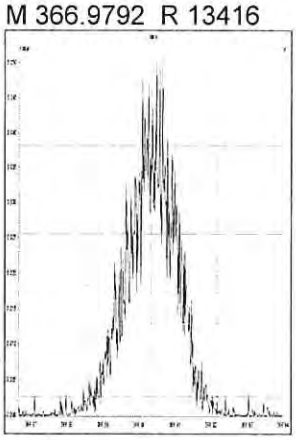

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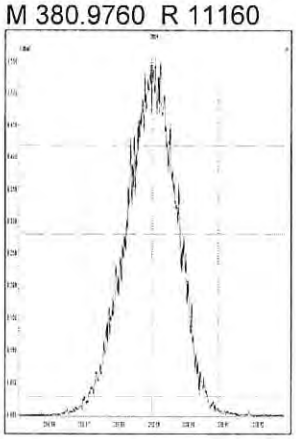

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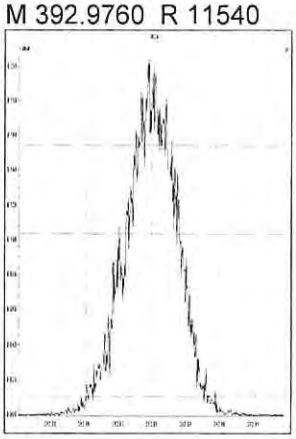

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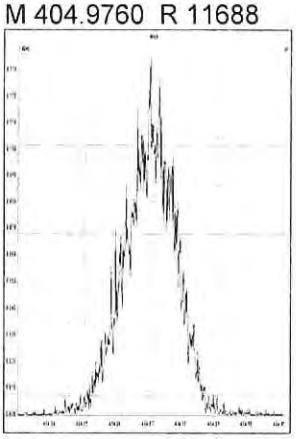

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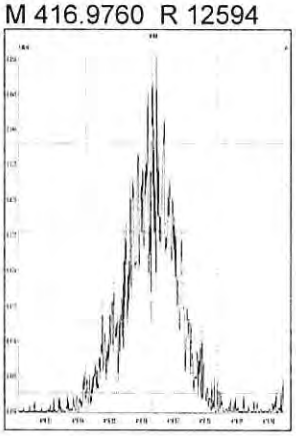

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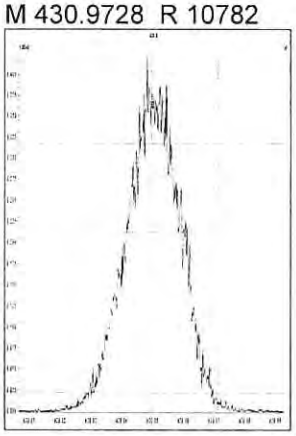
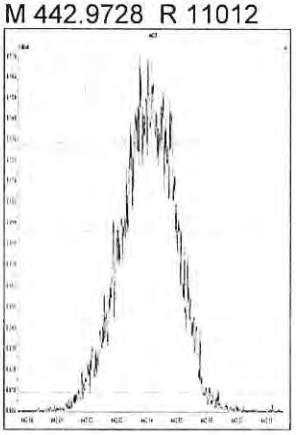
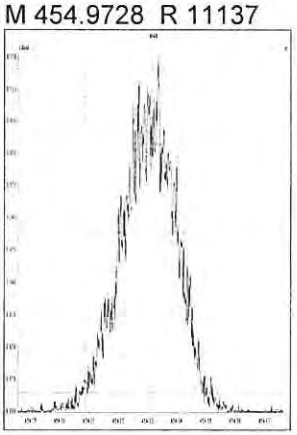


M 442.9728 R 11012



M 454.9728 R 11137



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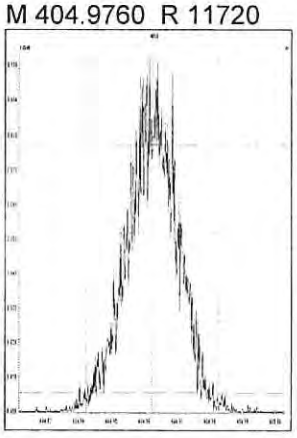
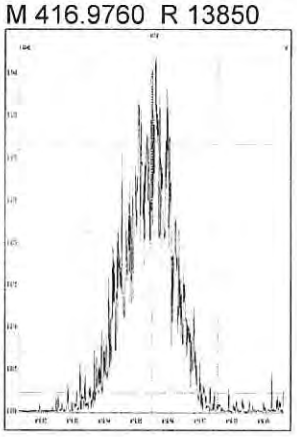
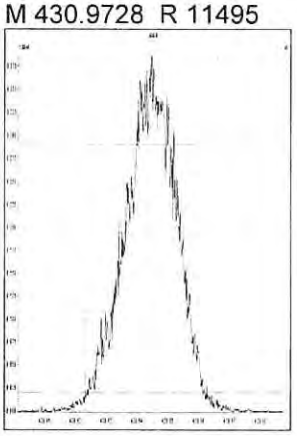


M 416.9760 R 13850



M 430.9728 R 11495



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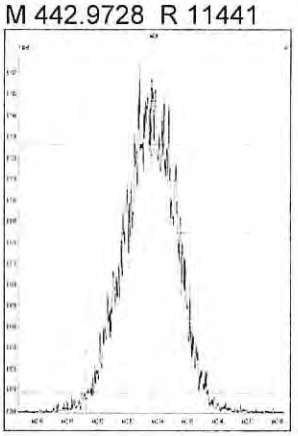
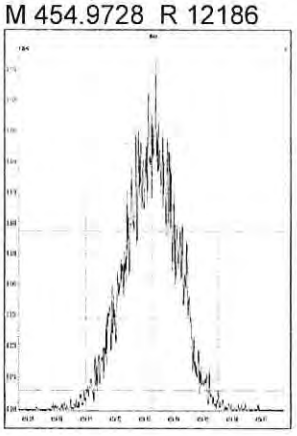
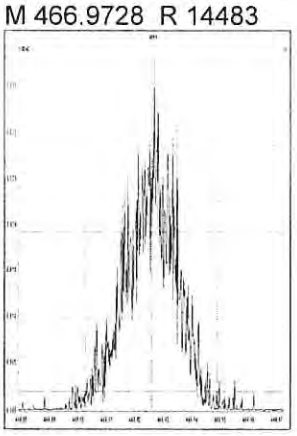


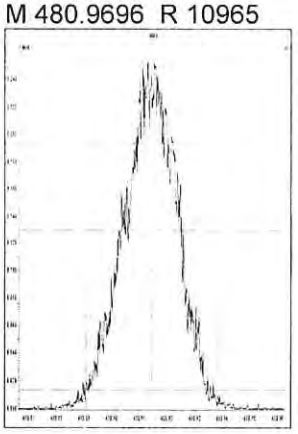
M 454.9728 R 12186



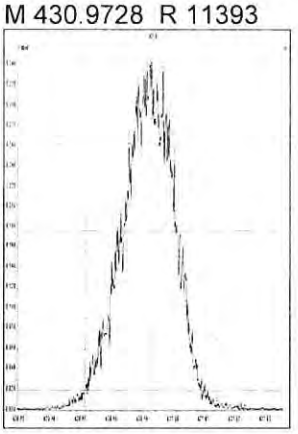
M 466.9728 R 14483



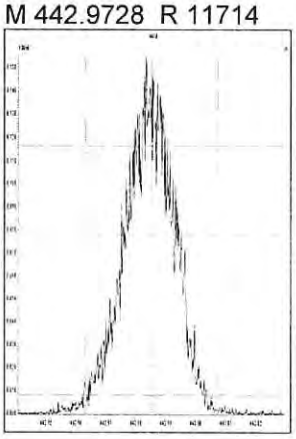
M 480.9696 R 10965



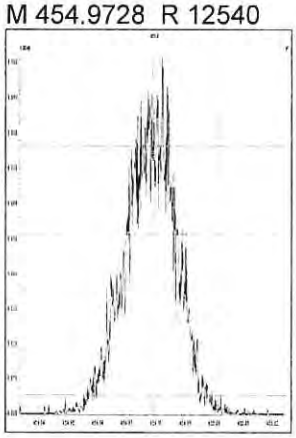
M 430.9728 R 11393



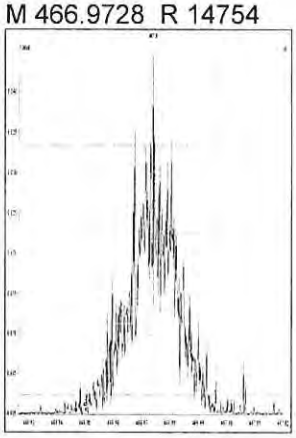
M 442.9728 R 11714



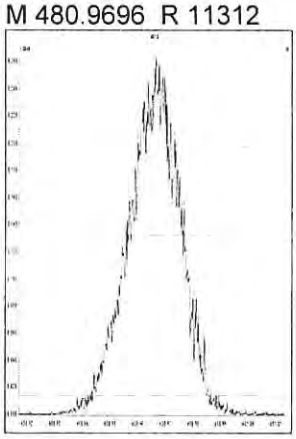
M 454.9728 R 12540



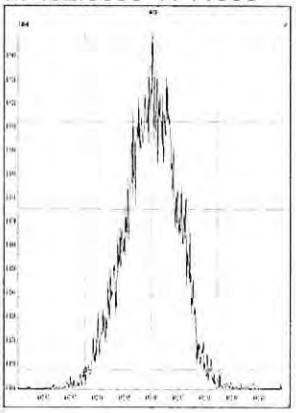
M 466.9728 R 14754



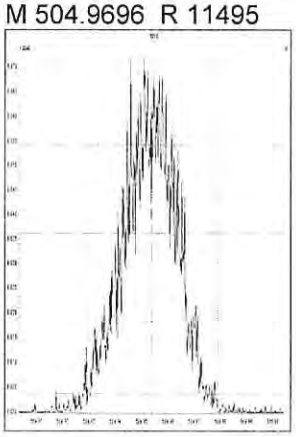
M 480.9696 R 11312



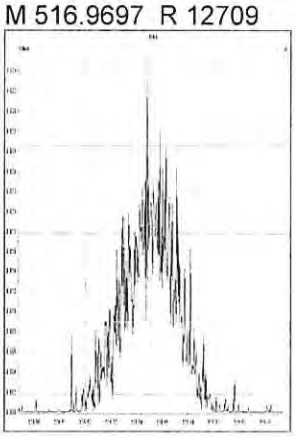
M 492.9696 R 11393



M 504.9696 R 11495



M 516.9697 R 12709



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

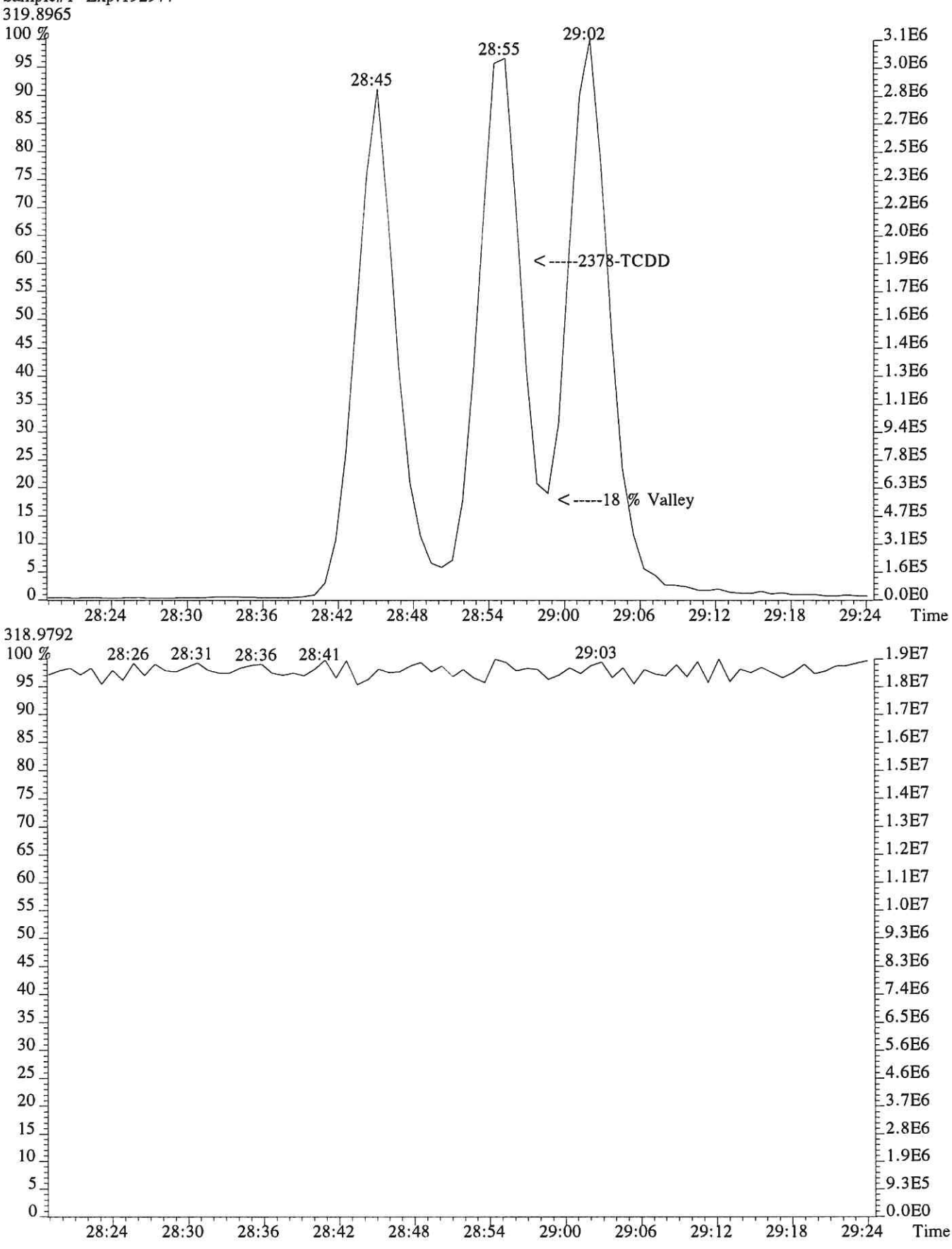
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519132
Date Analyzed: 2-DEC-2018
Time Analyzed: 04:33:24

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:45	30:04
TCDD	25:37	29:54
PeCDF	30:01	34:15
PeCDD	31:33	34:00
HxCDF	34:55	37:25
HxCDD	35:26	37:01
HpCDF	38:39	40:04
HpCDD	38:54	39:35

% Valley 2378-TCDD: 18 %

File:P519132 #1-538 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977



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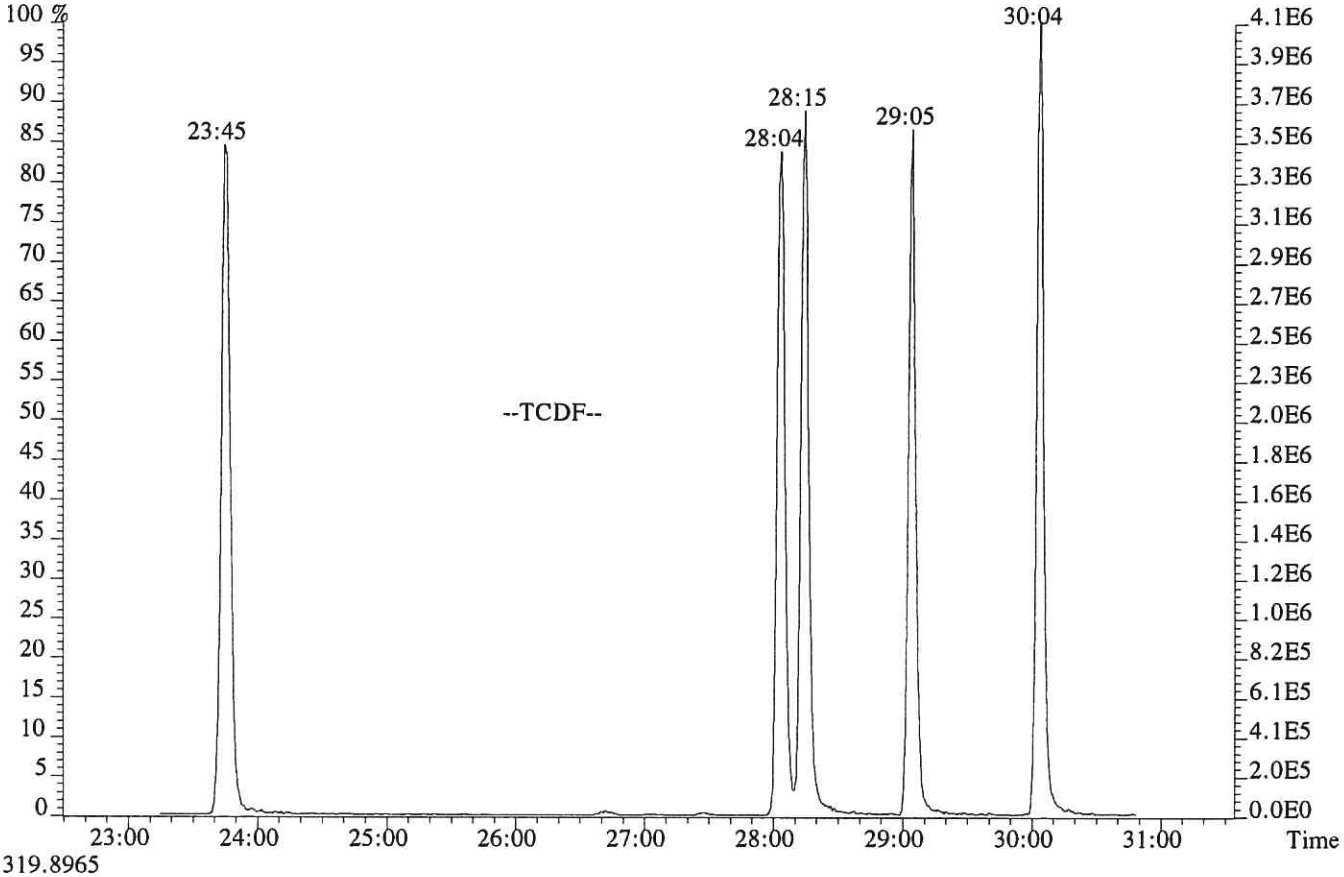
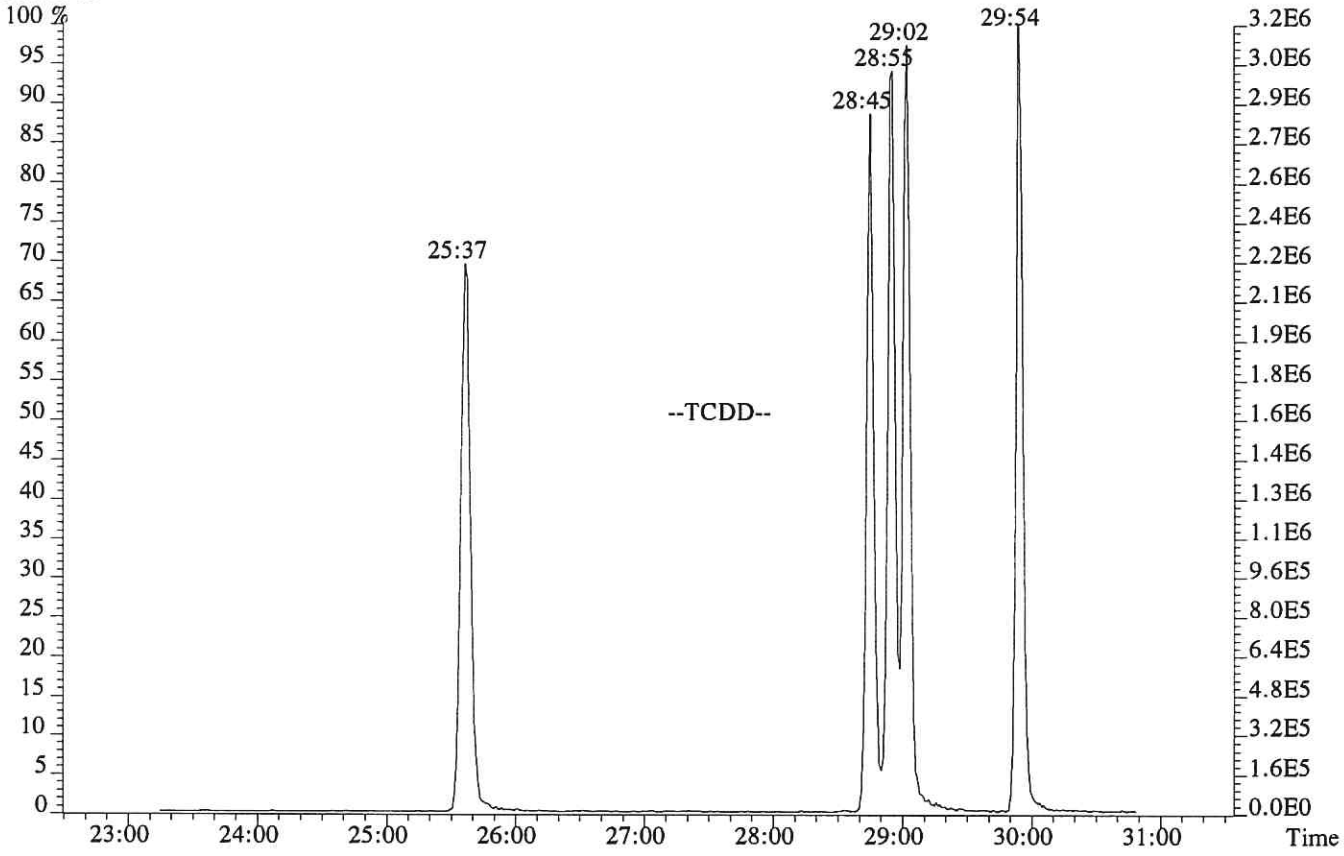
Sample#1 Exp:192977

303.9016



319.8965



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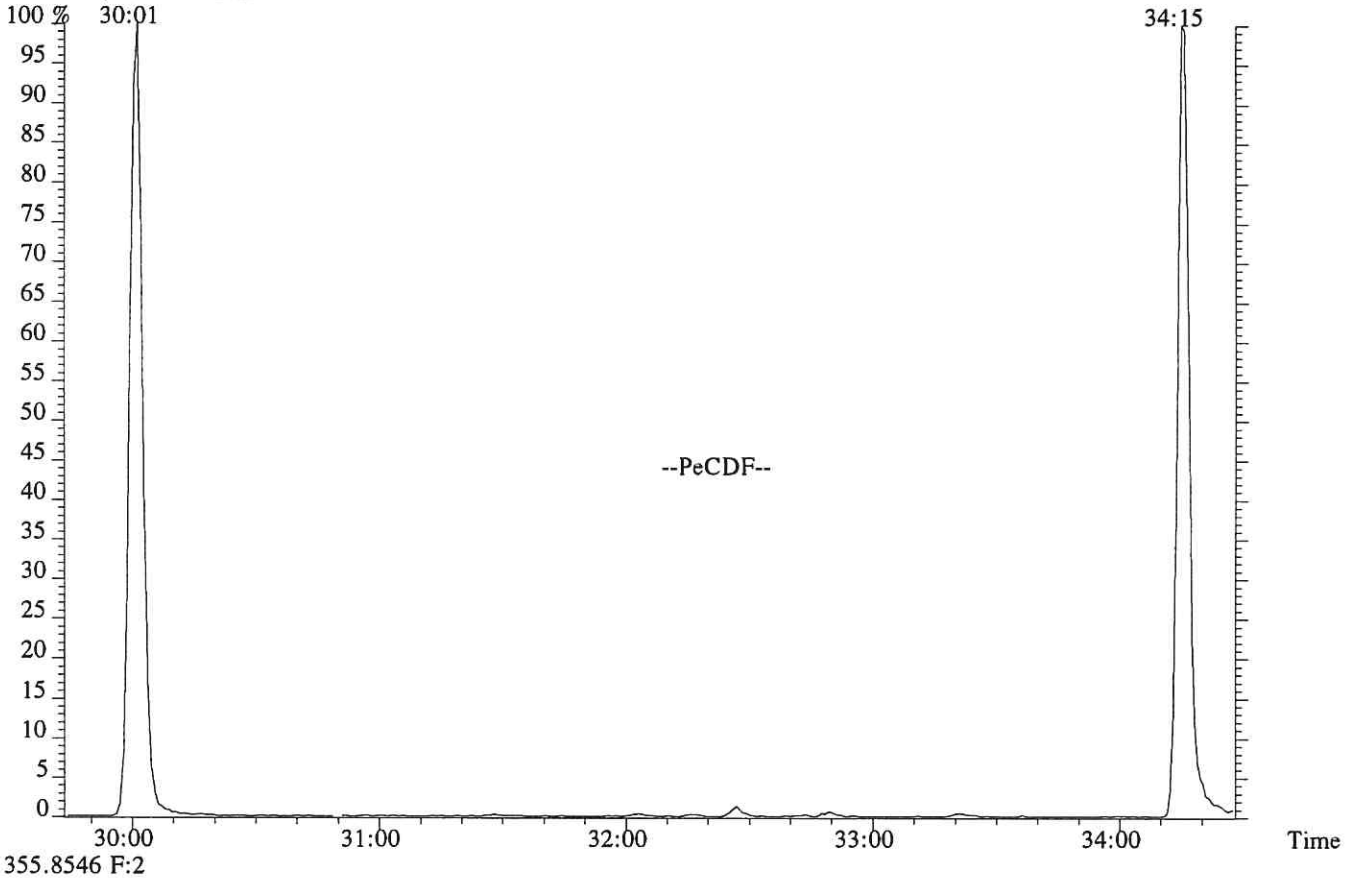
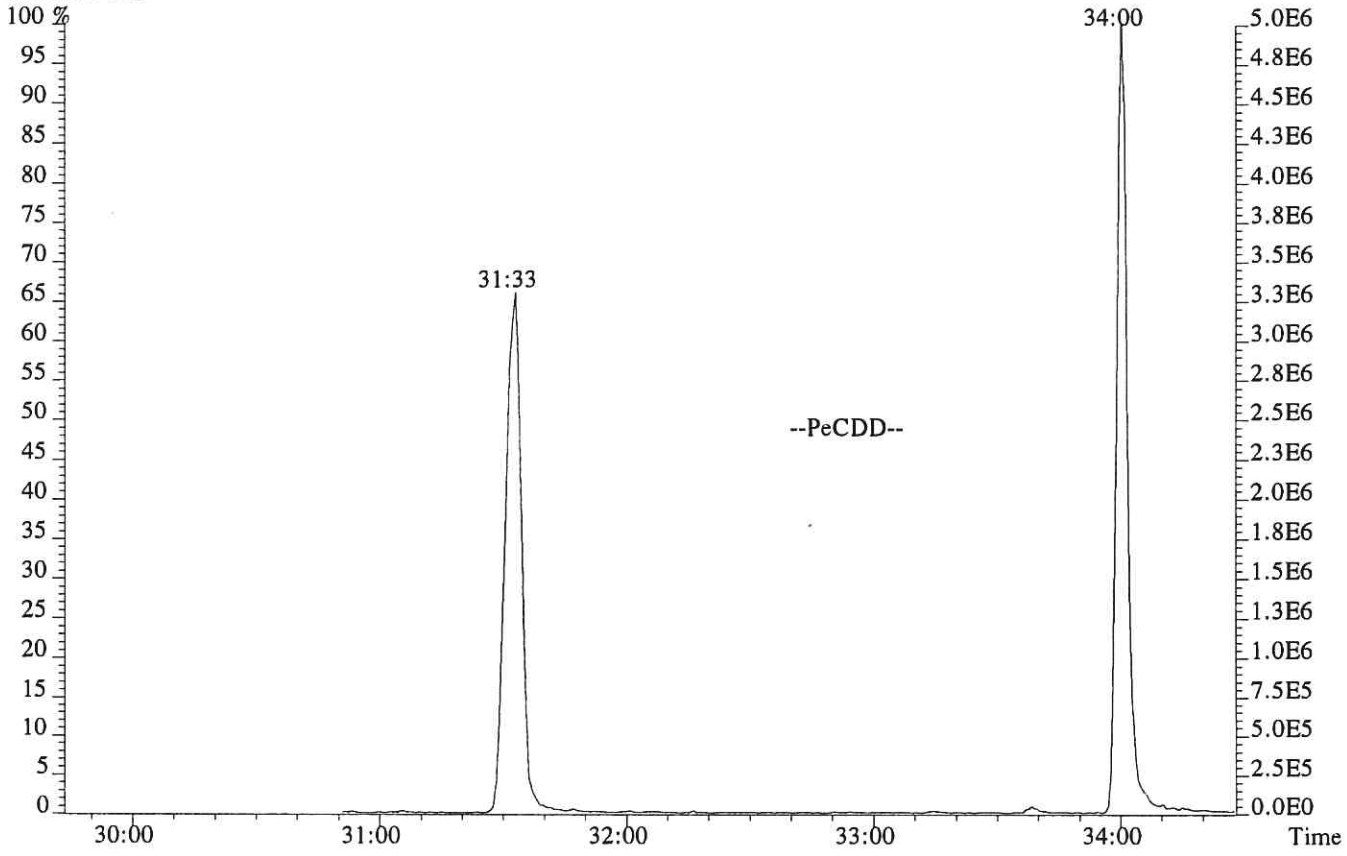
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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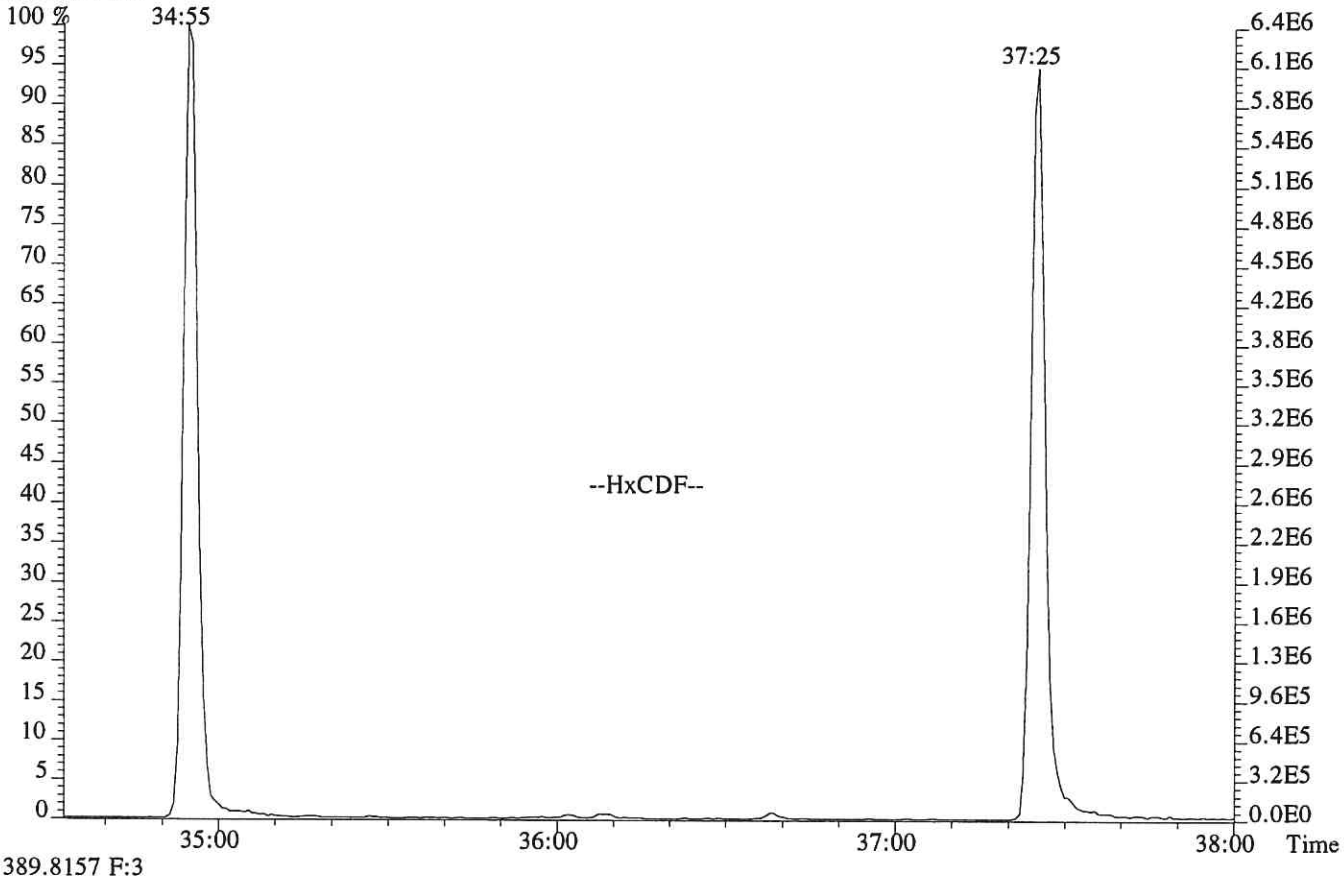
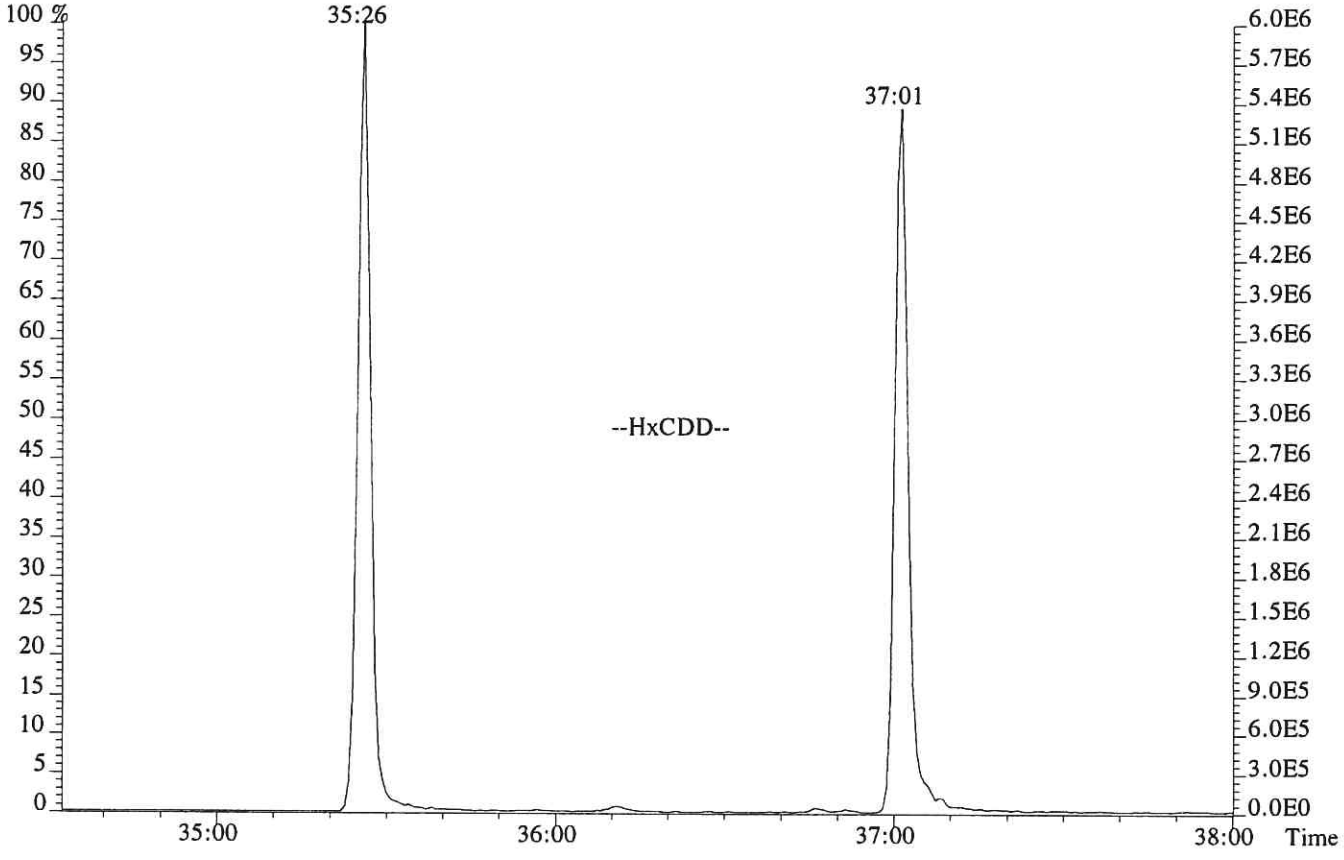
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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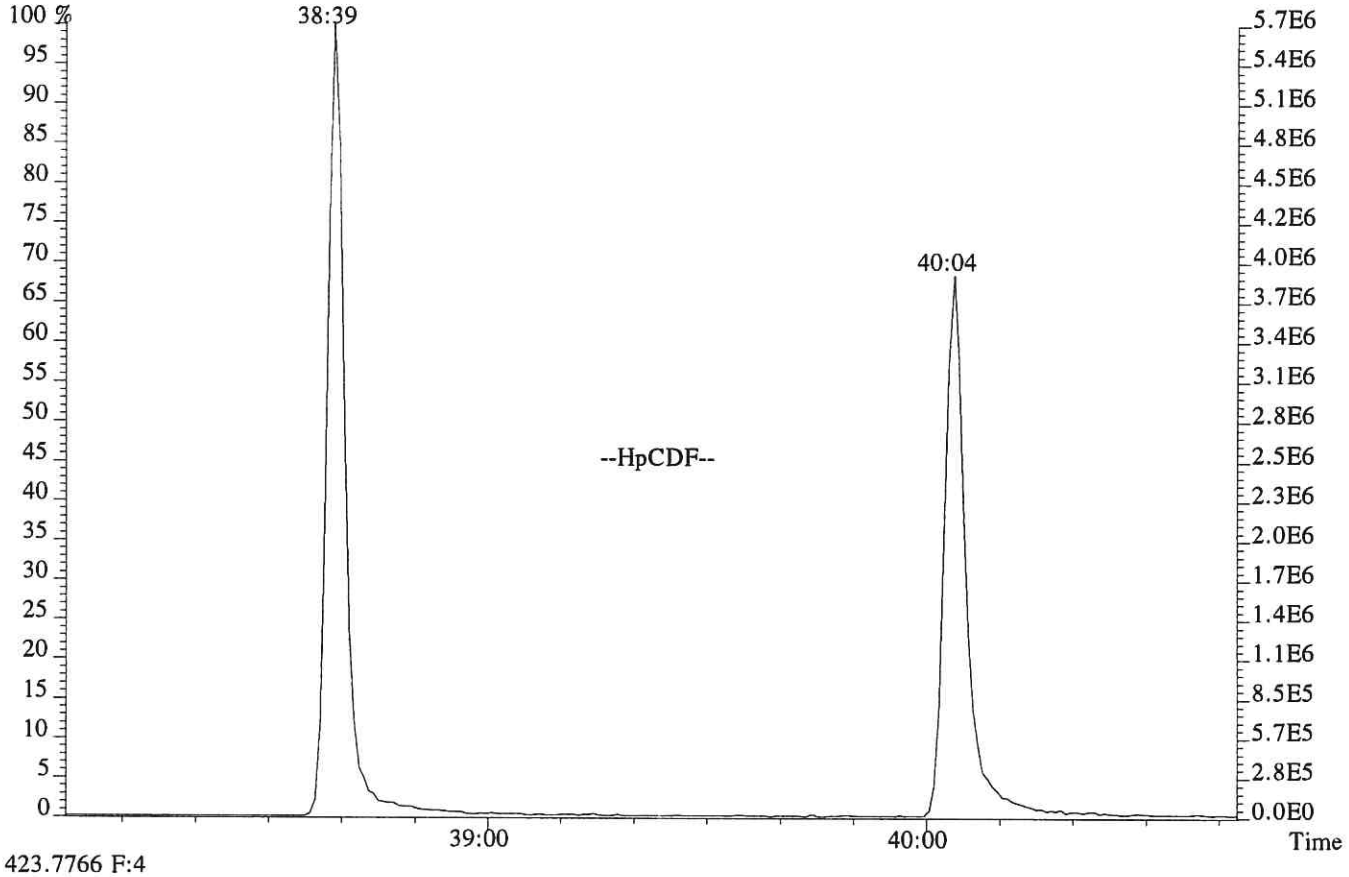
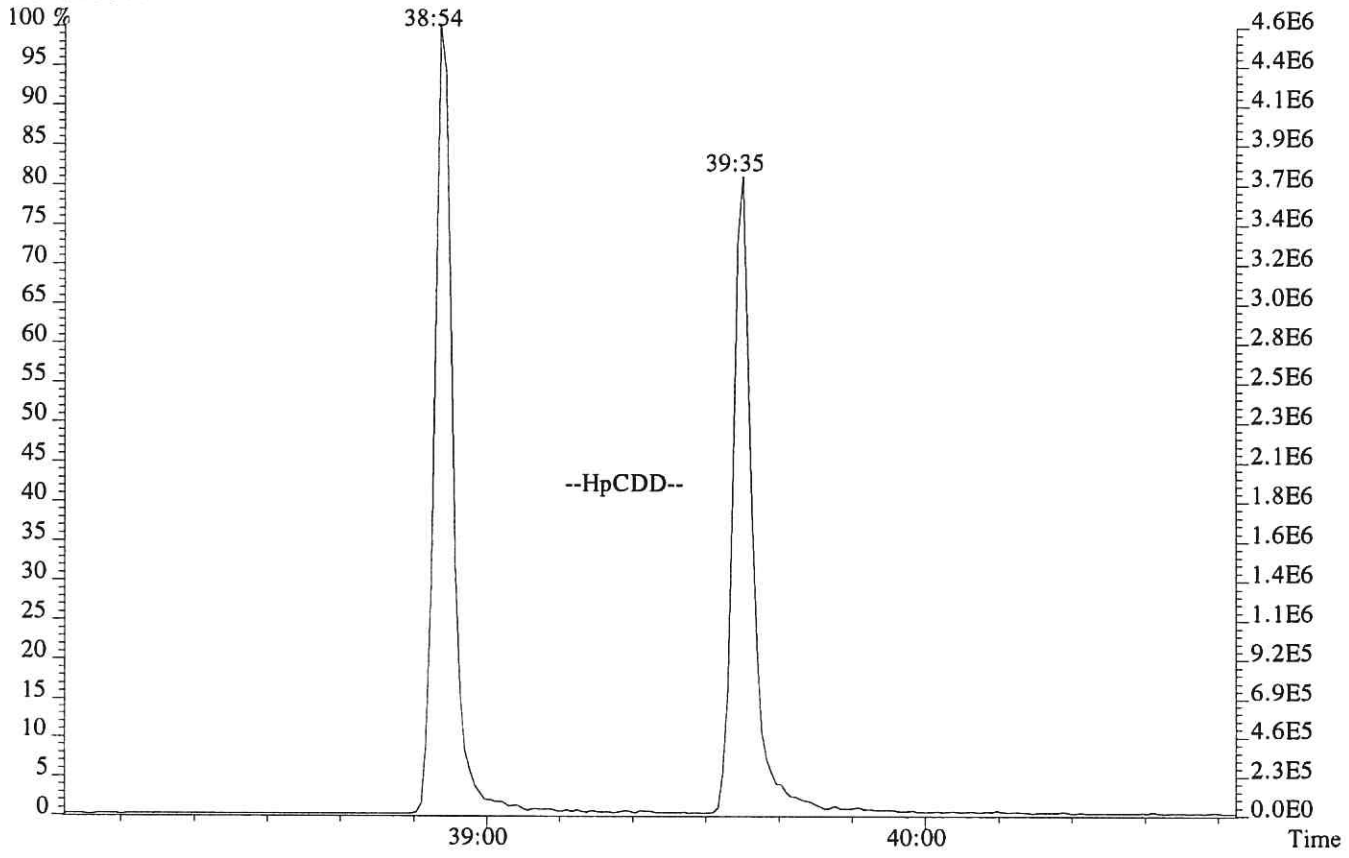
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.2	7.8 - 12.9	-8.2
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	1.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-1.8
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.4	8.4 - 12.0	-5.9
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 60	-2.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 61	-2.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	49	45 - 56	-2.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	49	44 - 57	-2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-2.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	92	63 - 159	-8.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	6.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	110	62 - 160	9.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	93	85 - 117	-6.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 118	-1.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	95	72 - 138	-4.5
13C-OCDD	M+2/M+4	0.90	0.76-1.02	176	96 - 415	-11.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	100	76 - 130	0.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	1.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	76 - 131	-14.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	70 - 143	-10.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	94	74 - 135	-5.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	93	73 - 137	-7.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	89	78 - 129	-11.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-11.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.1	7.8 - 12.7	1.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	9.114e+03	1.228e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	7.652e+04	5.000e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	7.288e+04	4.760e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	6.524e+04	5.256e+04	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.863e+04	5.820e+04	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	6.353e+04	5.329e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	5.837e+04	4.776e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.256e+04	5.202e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	4.159e+04	4.168e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:37	5.570e+04	6.280e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	7.411e+03	9.578e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	5.254e+04	3.365e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	4.502e+04	3.621e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	4.884e+04	3.942e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	4.995e+04	4.009e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.902e+04	3.720e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:24	4.923e+04	5.554e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	1.063e+05	1.350e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	1.568e+05	9.968e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	1.573e+05	9.980e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	6.753e+04	1.289e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	7.935e+04	1.518e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	7.340e+04	1.427e+05	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.478e+04	1.250e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.915e+04	1.100e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.162e+04	9.290e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	7.546e+04	9.506e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	1.135e+05	7.219e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	8.864e+04	7.082e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	9.671e+04	7.669e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	7.710e+04	7.436e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:23	9.016e+04	9.972e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	7.713e+04	9.656e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	1.012e+05	8.379e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.783e+04				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.68e+06	4.92e+02	3.4e+03	2.29e+06	9.16e+02	2.5e+03
2	1,2,3,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.25e+06	1.07e+03	8.7e+03
3	2,3,4,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.24e+06	1.07e+03	8.7e+03
4	1,2,3,4,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.13e+07	4.80e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+07	3.36e+02	4.2e+04	1.18e+07	4.80e+02	2.5e+04
6	2,3,4,6,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.15e+07	4.80e+02	2.4e+04
7	1,2,3,7,8,9-HxCDF	1.17e+07	3.36e+02	3.5e+04	9.65e+06	4.80e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.09e+07	6.86e+03	1.6e+03	1.08e+07	4.81e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	7.62e+06	6.86e+03	1.1e+03	7.58e+06	4.81e+03	1.6e+03
10	OCDF	8.50e+06	3.32e+02	2.6e+04	9.67e+06	4.20e+02	2.3e+04
11	2,3,7,8-TCDD	1.45e+06	1.42e+03	1.0e+03	1.93e+06	6.96e+02	2.8e+03
12	1,2,3,7,8-PeCDD	1.03e+07	6.96e+02	1.5e+04	6.45e+06	1.72e+02	3.8e+04
13	1,2,3,4,7,8-HxCDD	9.89e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
14	1,2,3,6,7,8-HxCDD	9.96e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
15	1,2,3,7,8,9-HxCDD	1.03e+07	3.80e+02	2.7e+04	8.22e+06	5.48e+02	1.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.50e+06	5.20e+02	1.4e+04	7.12e+06	5.08e+02	1.4e+04
17	OCDD	7.51e+06	2.60e+02	2.9e+04	8.49e+06	4.72e+02	1.8e+04
18	13C-2,3,7,8-TCDF	1.95e+07	3.97e+03	4.9e+03	2.45e+07	2.38e+03	1.0e+04
19	13C-1,2,3,7,8-PeCDF	2.87e+07	6.32e+02	4.5e+04	1.85e+07	4.28e+02	4.3e+04
20	13C-2,3,4,7,8-PeCDF	3.00e+07	6.32e+02	4.7e+04	1.92e+07	4.28e+02	4.5e+04
21	13C-1,2,3,4,7,8-HxCDF	1.45e+07	9.64e+02	1.5e+04	2.77e+07	9.16e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.61e+07	9.64e+02	1.7e+04	3.08e+07	9.16e+02	3.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.56e+07	9.64e+02	1.6e+04	3.04e+07	9.16e+02	3.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.29e+07	9.64e+02	1.3e+04	2.49e+07	9.16e+02	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	3.27e+03	3.1e+03	2.27e+07	6.58e+03	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.60e+06	3.27e+03	2.3e+03	1.67e+07	6.58e+03	2.5e+03
27	13C-2,3,7,8-TCDD	1.42e+07	3.70e+03	3.8e+03	1.80e+07	2.32e+03	7.8e+03
28	13C-1,2,3,7,8-PeCDD	2.21e+07	7.04e+02	3.1e+04	1.40e+07	8.04e+02	1.7e+04
29	13C-1,2,3,4,7,8-HxCDD	1.95e+07	1.10e+03	1.8e+04	1.56e+07	8.36e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	1.96e+07	1.10e+03	1.8e+04	1.57e+07	8.36e+02	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.47e+07	8.56e+02	1.7e+04	1.39e+07	3.32e+02	4.2e+04
32	13C-OCDD	1.36e+07	3.68e+02	3.7e+04	1.51e+07	2.84e+02	5.3e+04
33	13C-1,2,3,4-TCDD	1.49e+07	3.70e+03	4.0e+03	1.86e+07	2.32e+03	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	2.06e+07	1.10e+03	1.9e+04	1.64e+07	8.36e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	3.51e+06	1.64e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.420e+03 + 6.960e+02) \times 100}{(1.417e+07 + 1.799e+07) \times (\quad) \times 1.085} =$$

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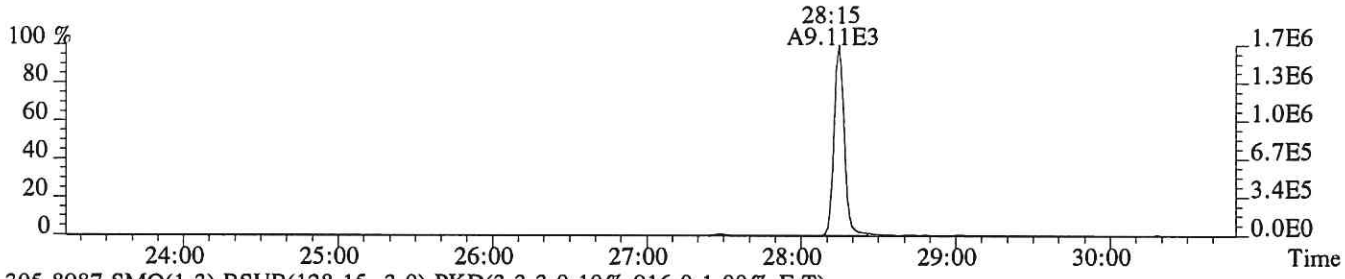
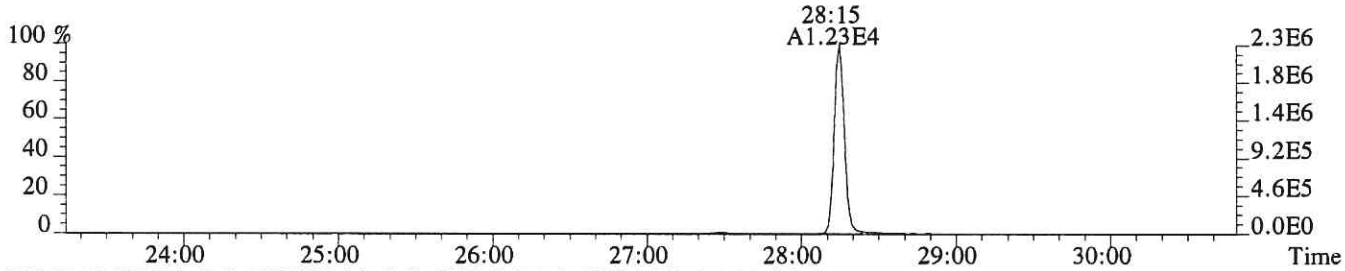
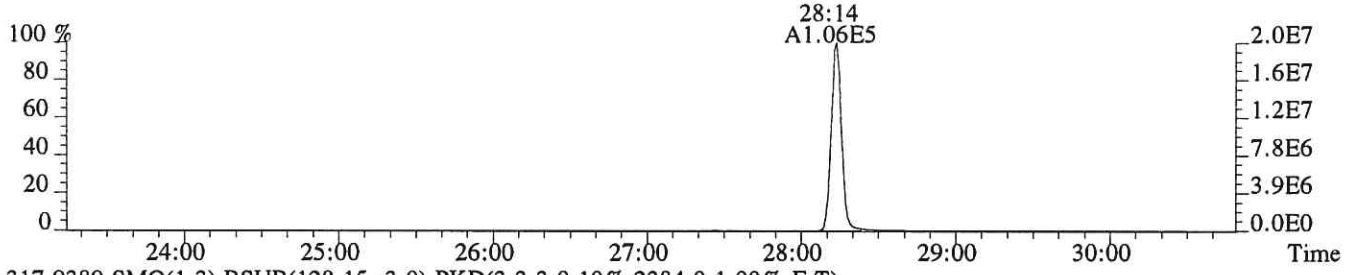
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



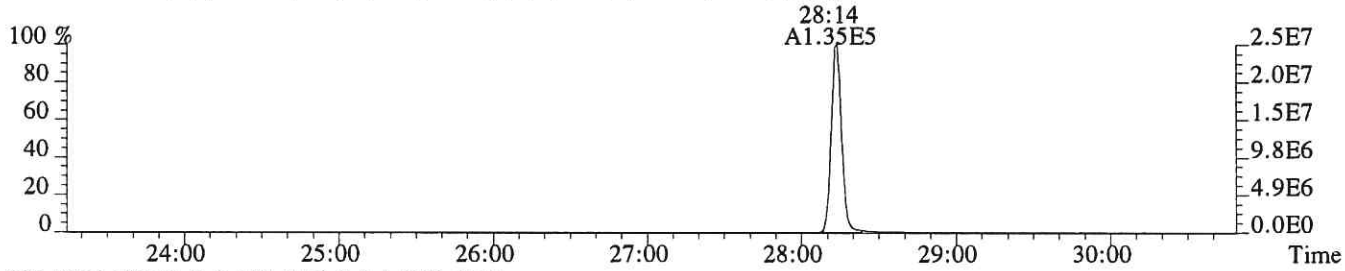
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



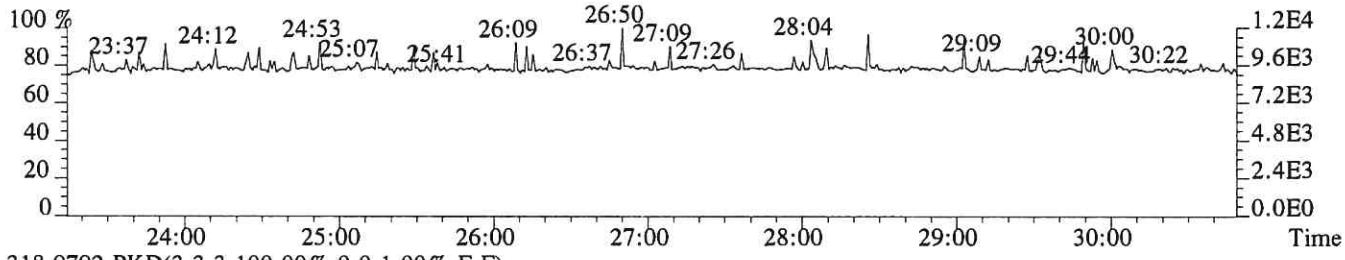
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3968.0,1.00%,F,T)



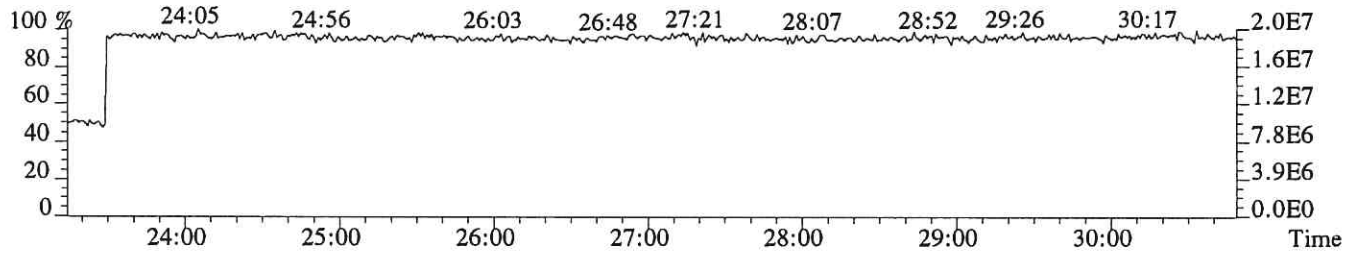
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2384.0,1.00%,F,T)



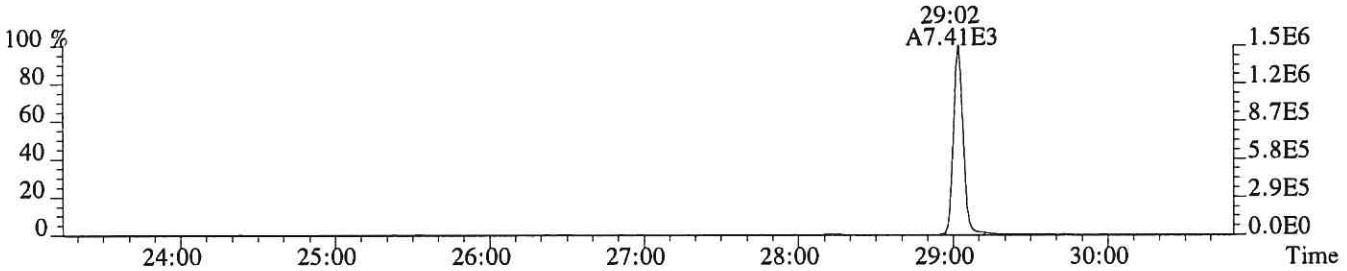
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



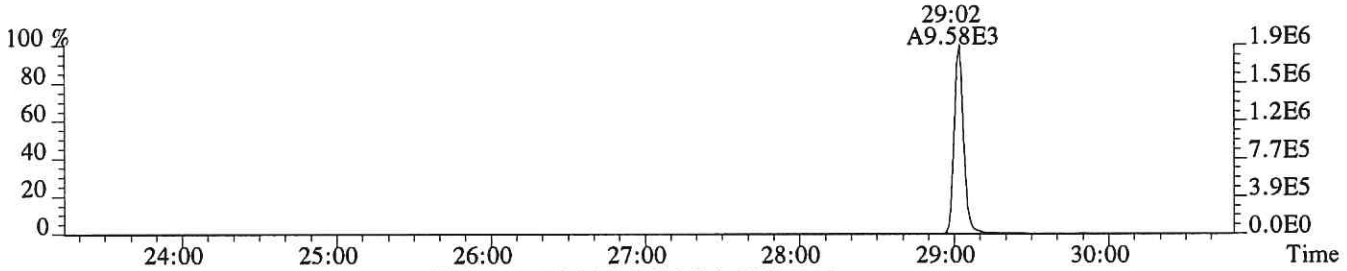
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



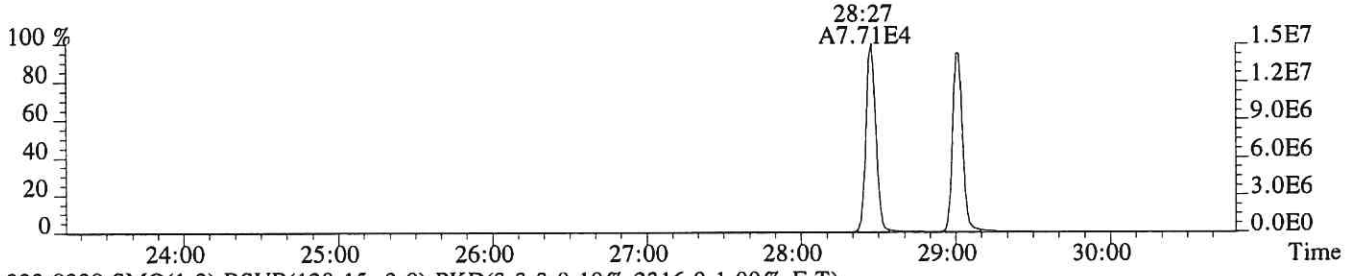
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



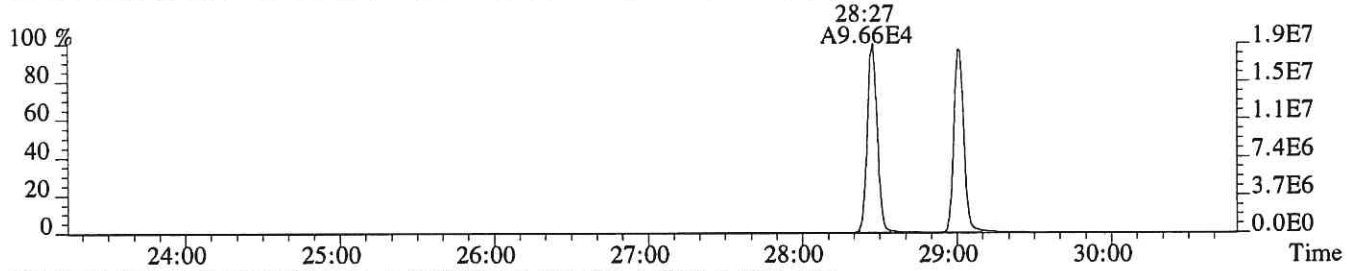
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



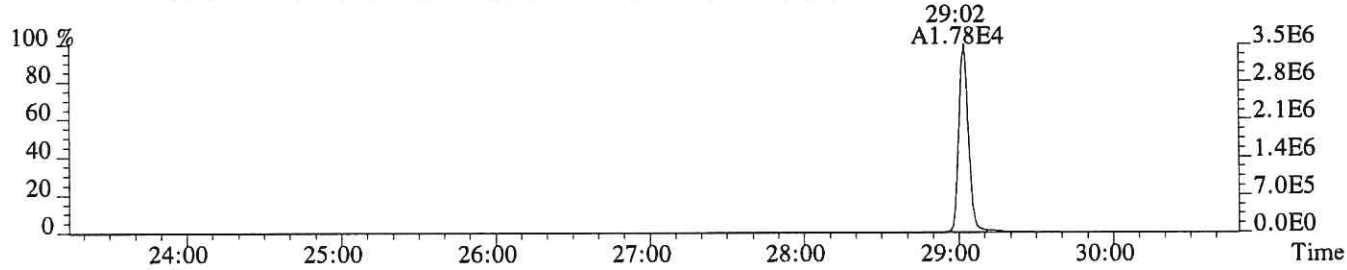
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3696.0,1.00%,F,T)



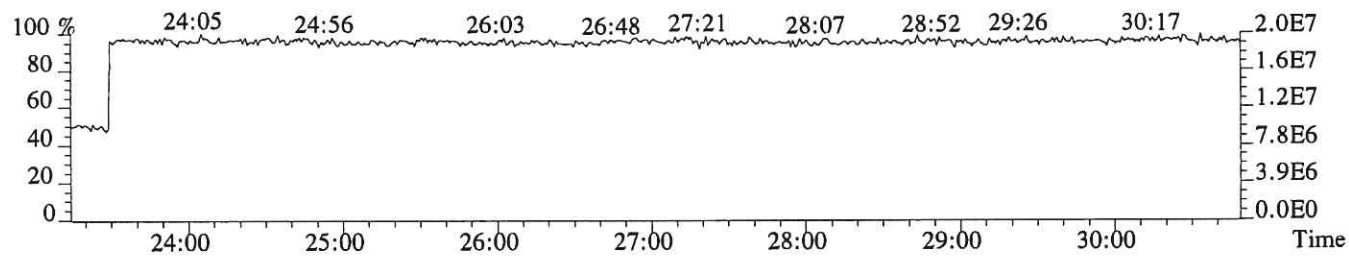
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



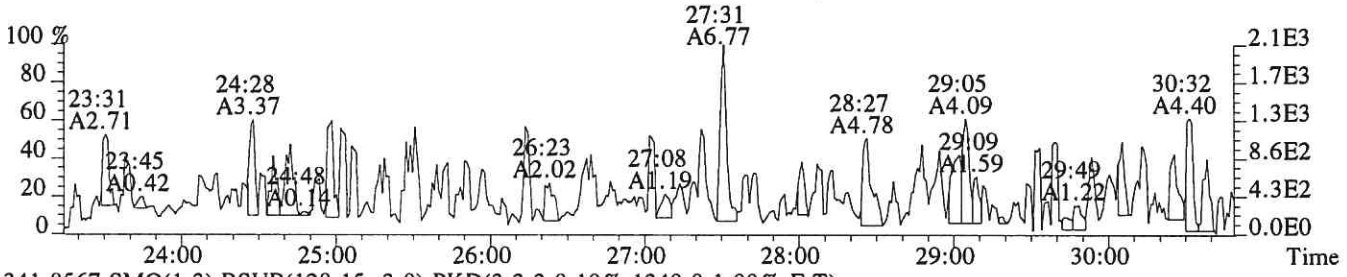
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



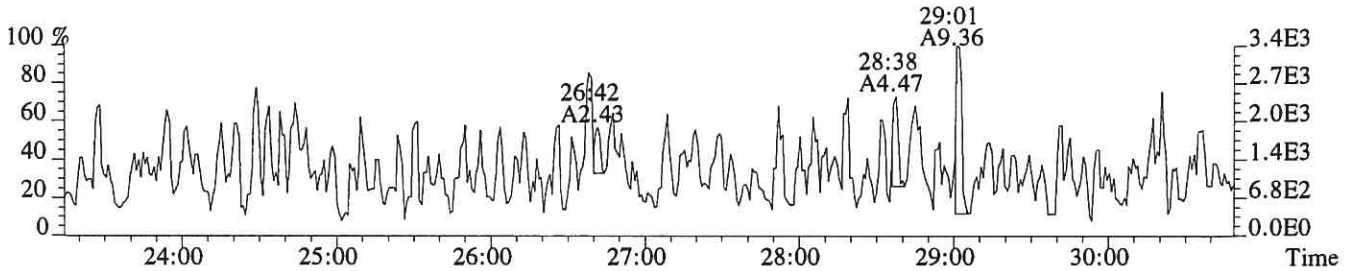
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



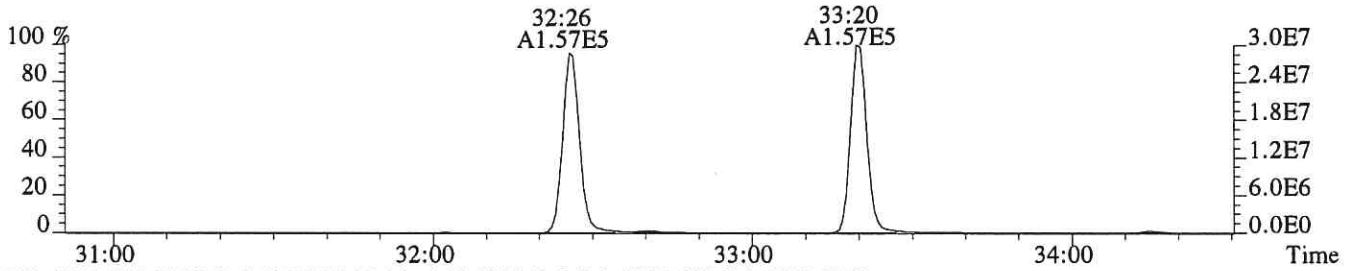
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



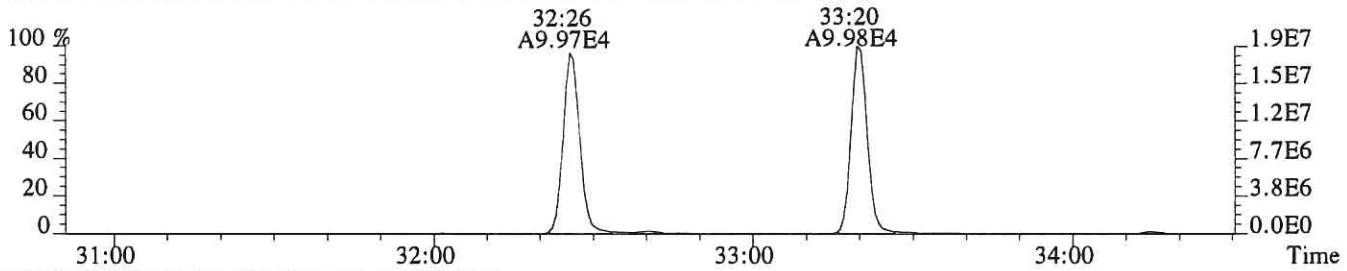
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



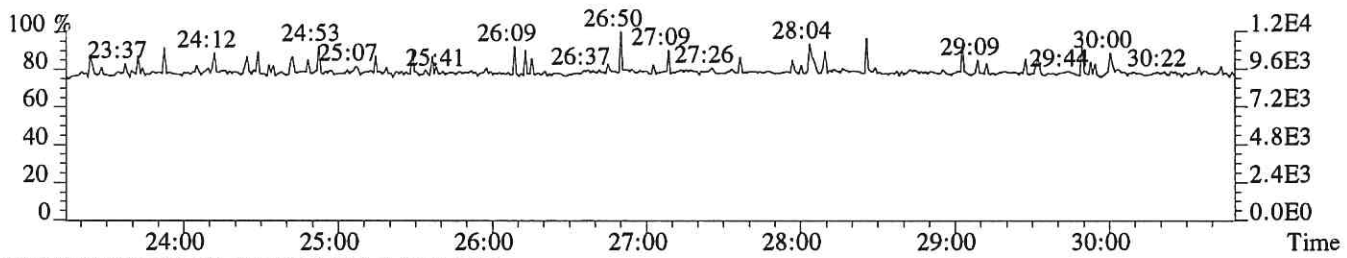
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



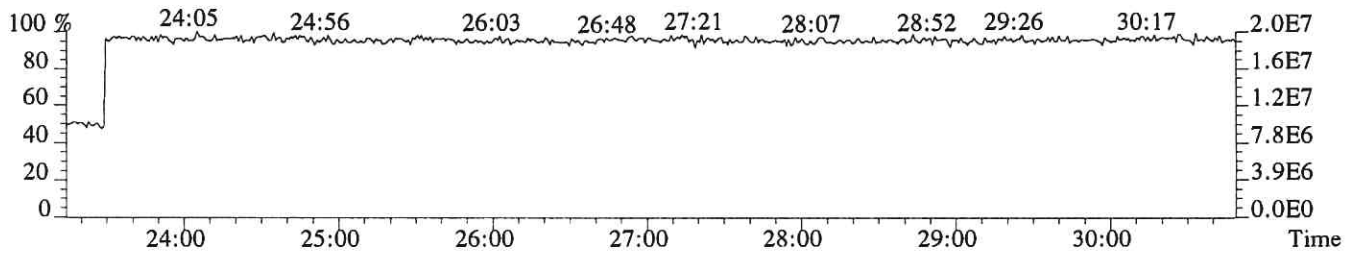
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



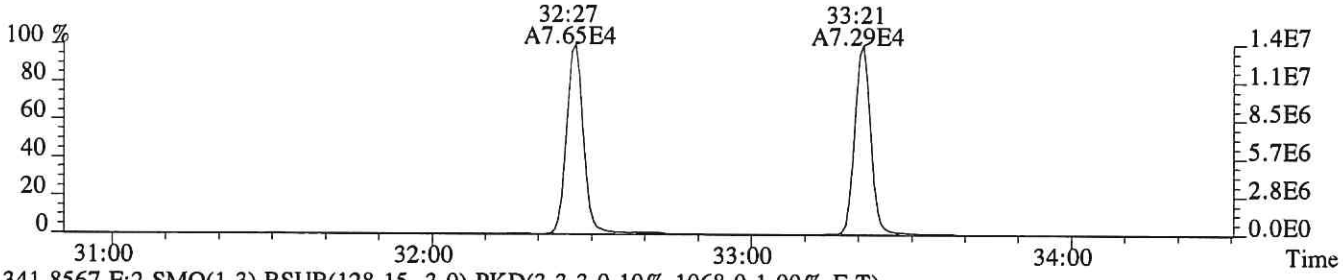
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



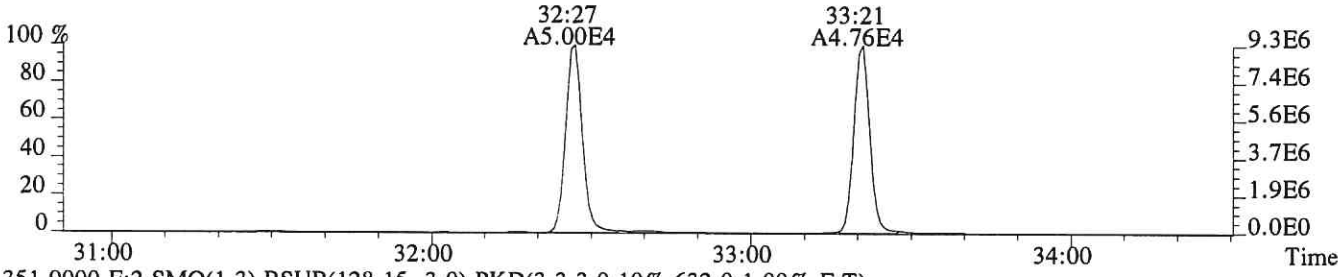
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



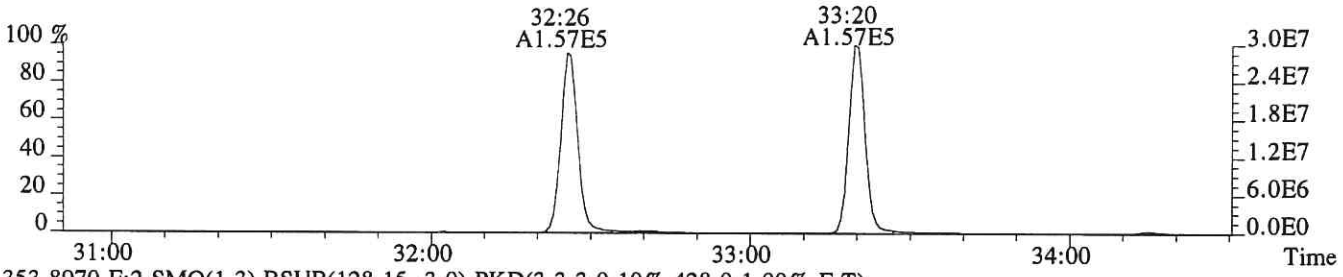
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



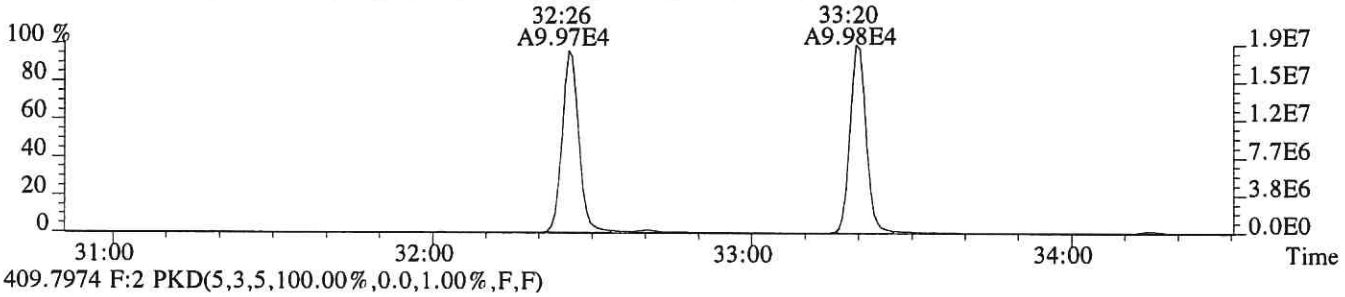
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



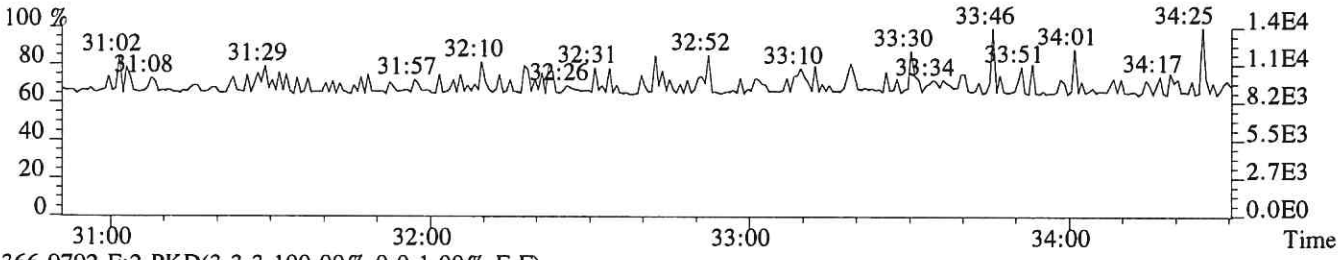
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



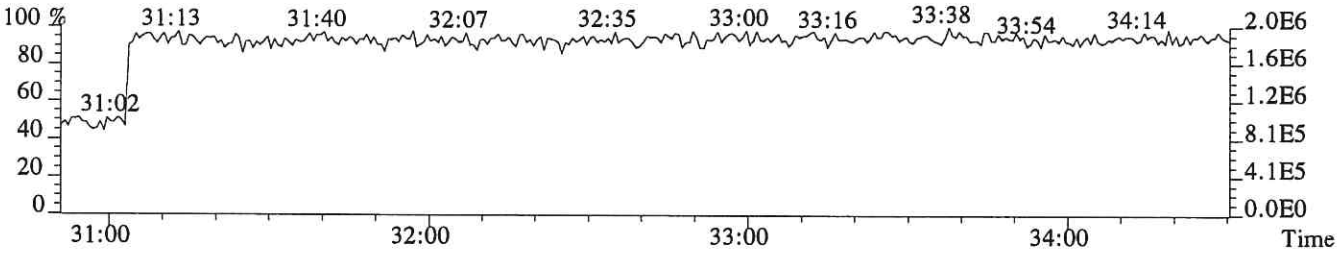
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



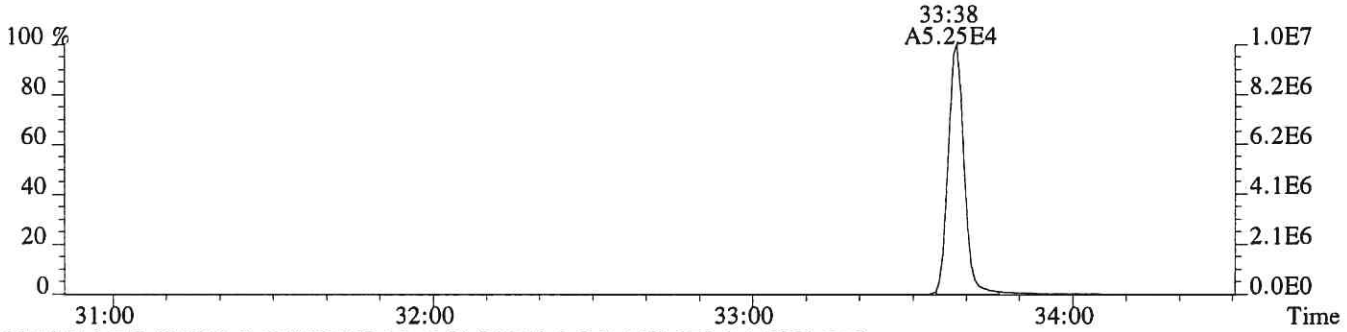
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



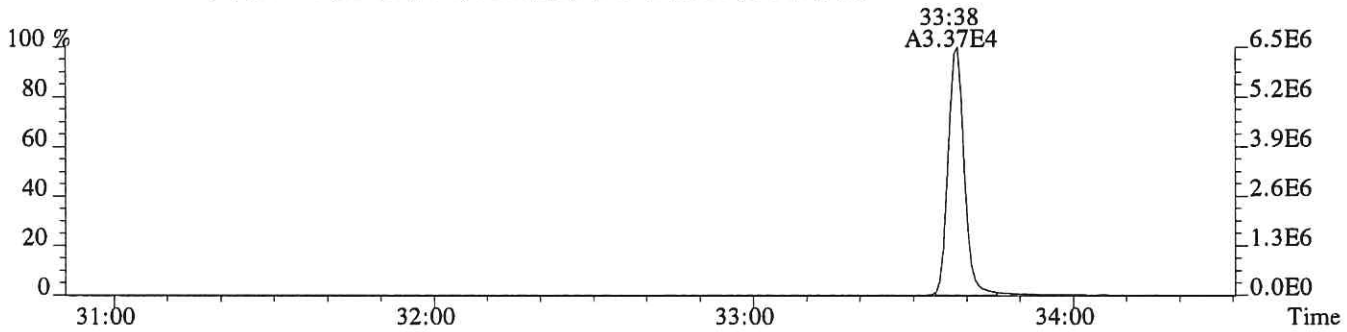
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



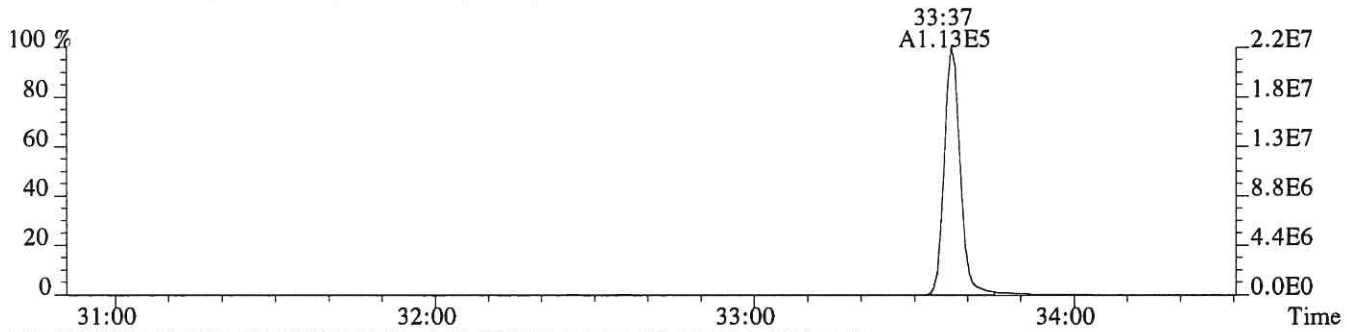
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



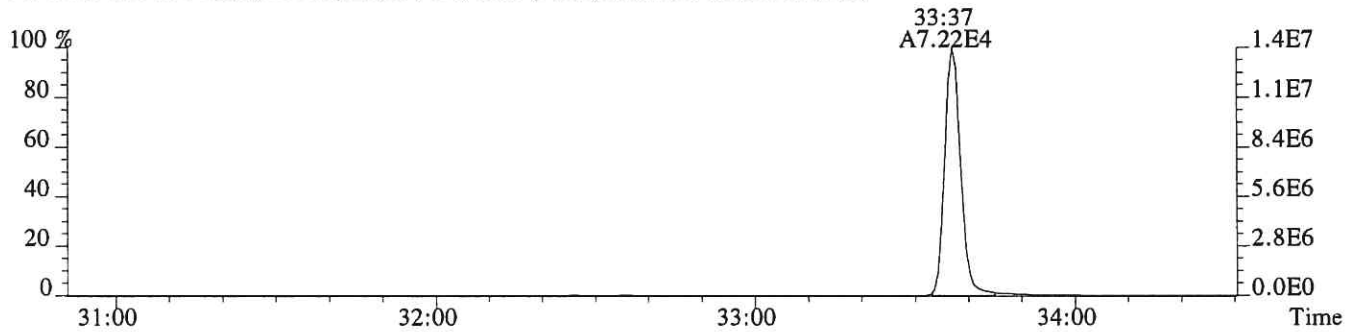
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



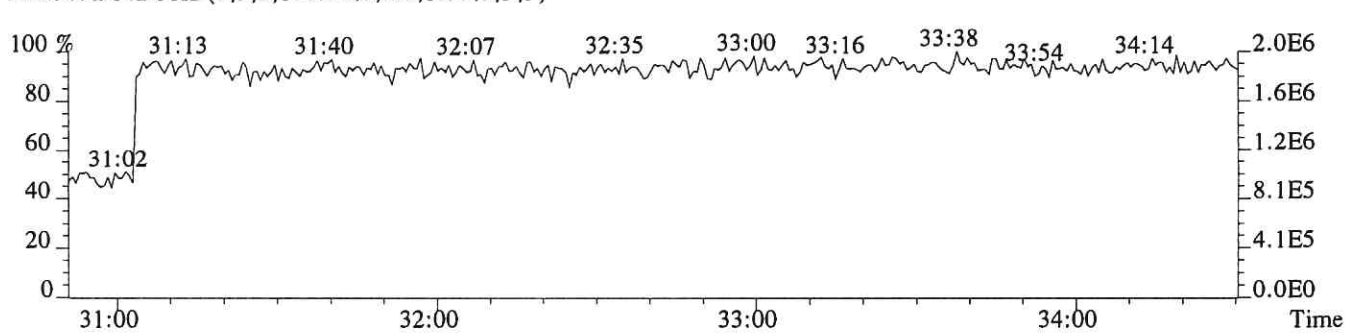
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

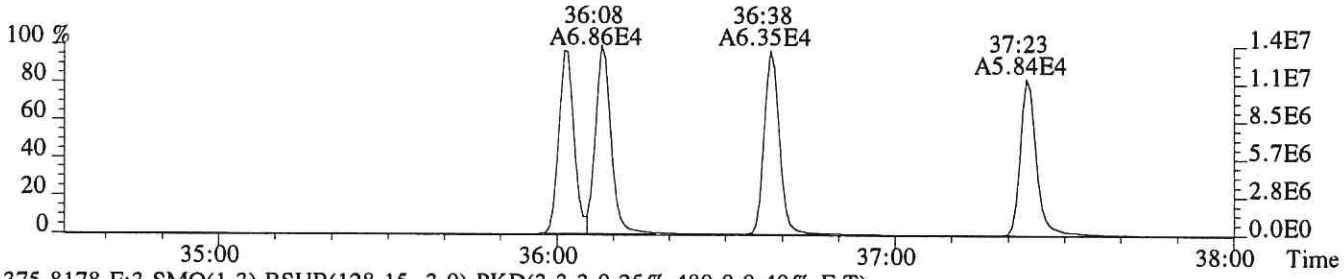


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

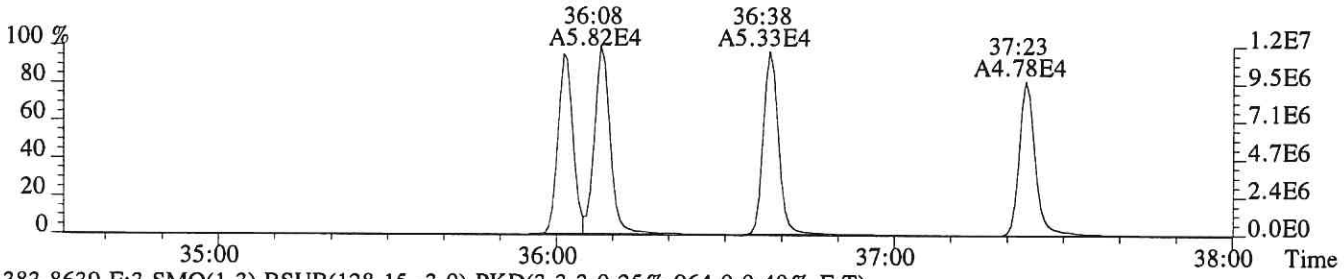


File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

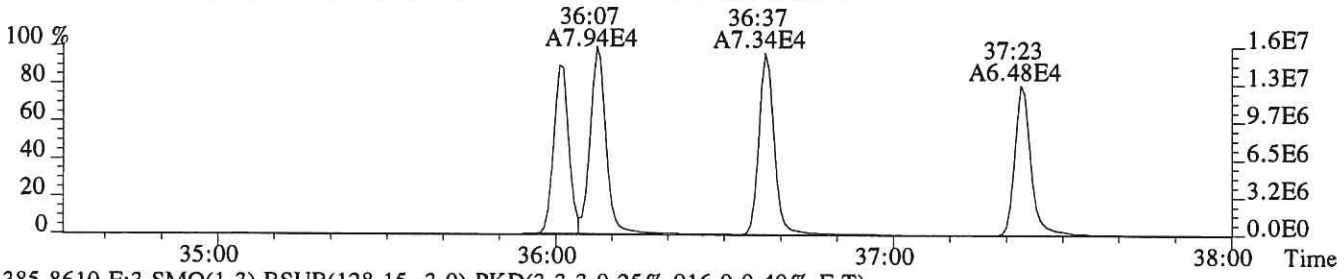
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



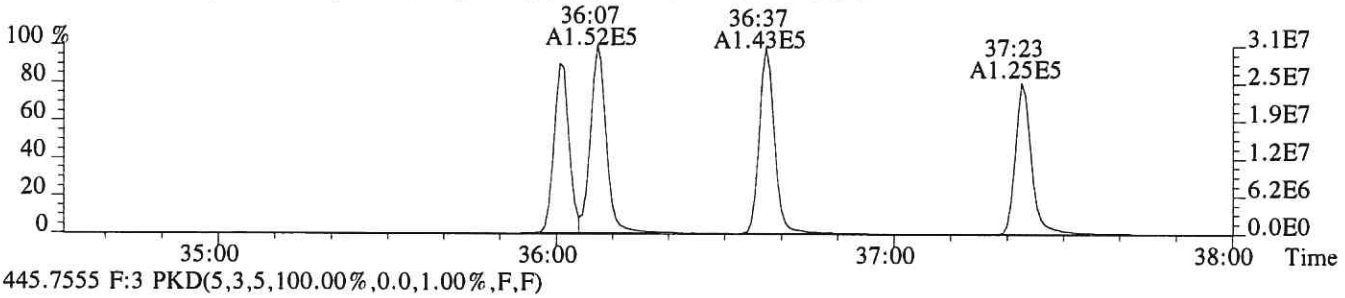
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



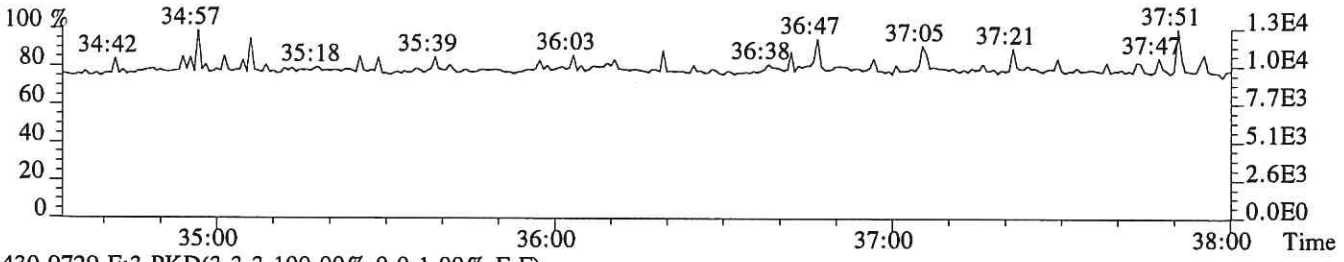
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



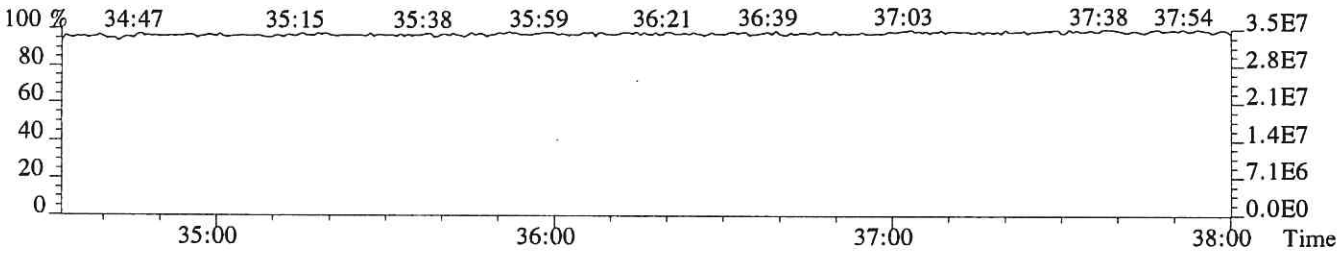
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



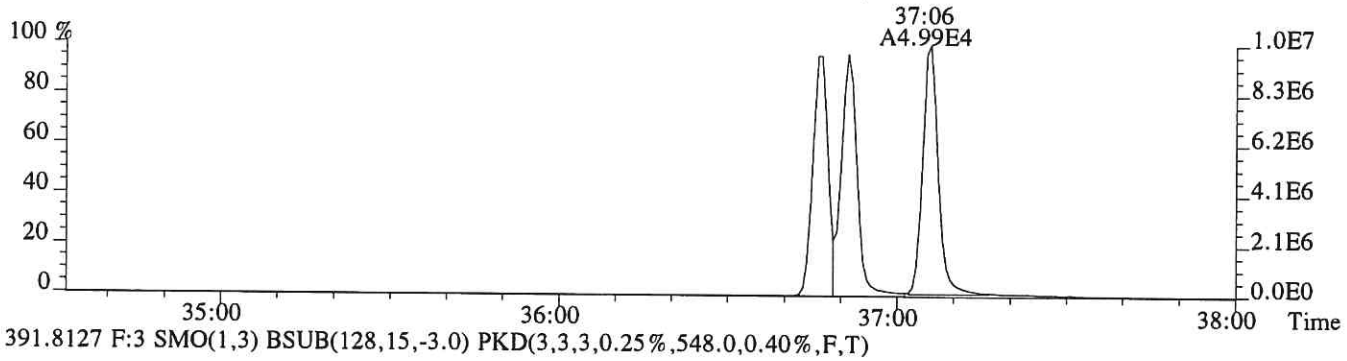
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



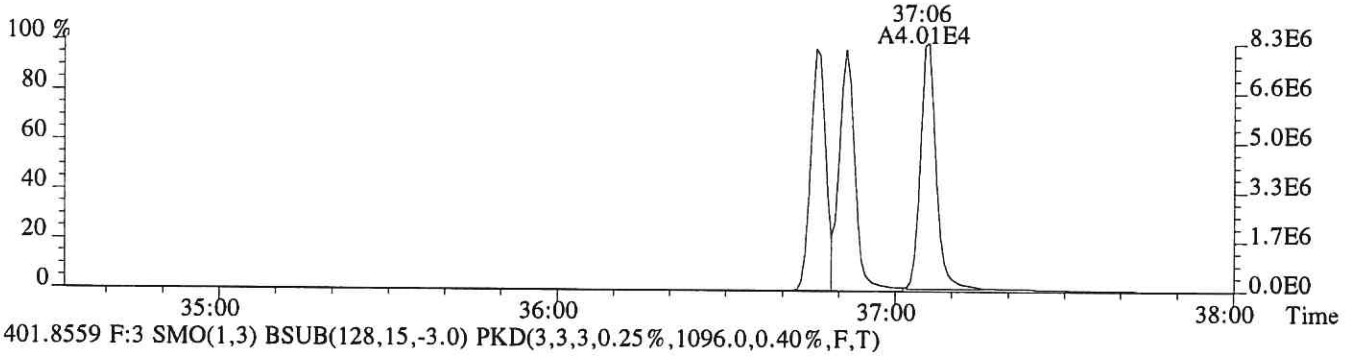
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



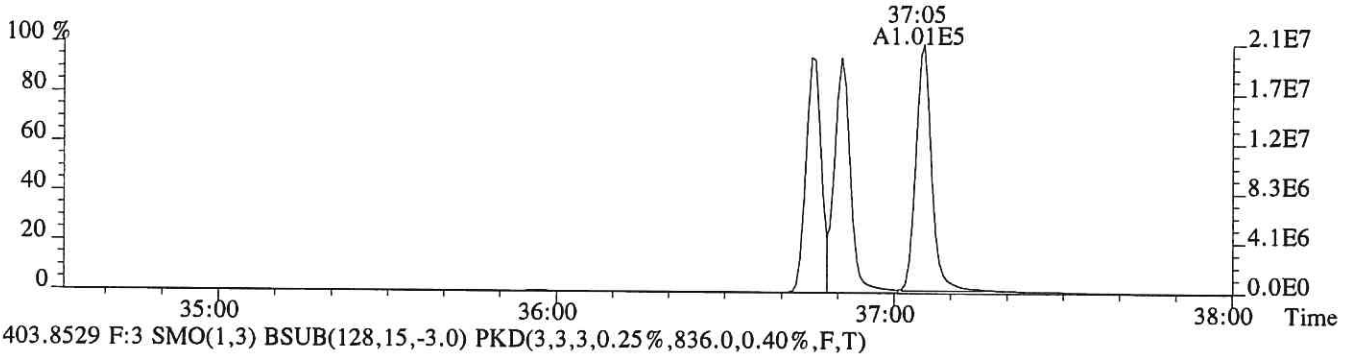
File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



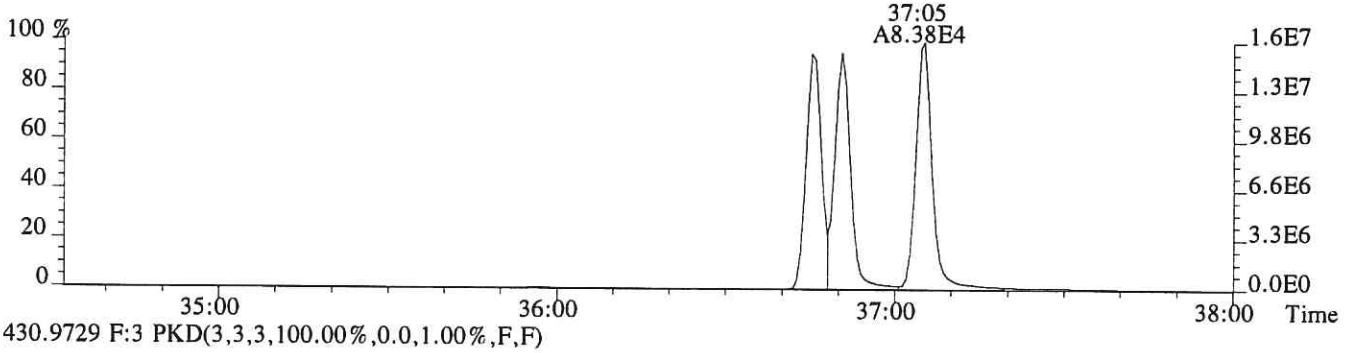
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



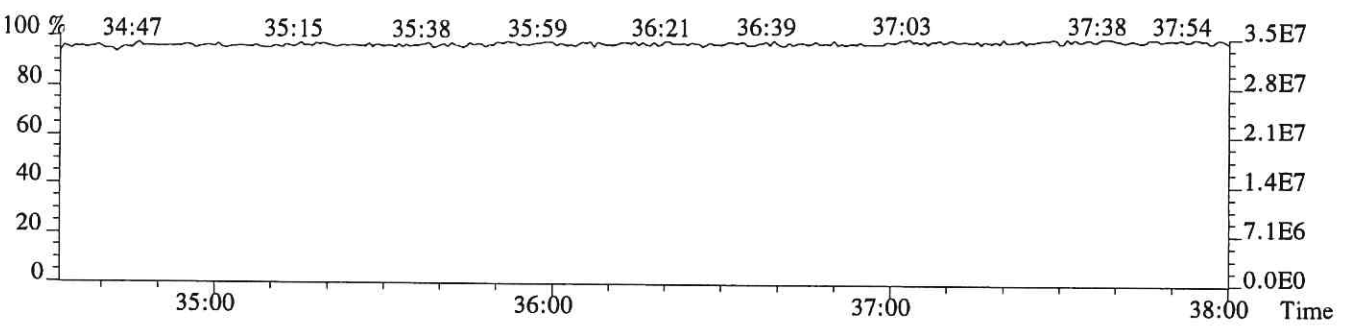
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)

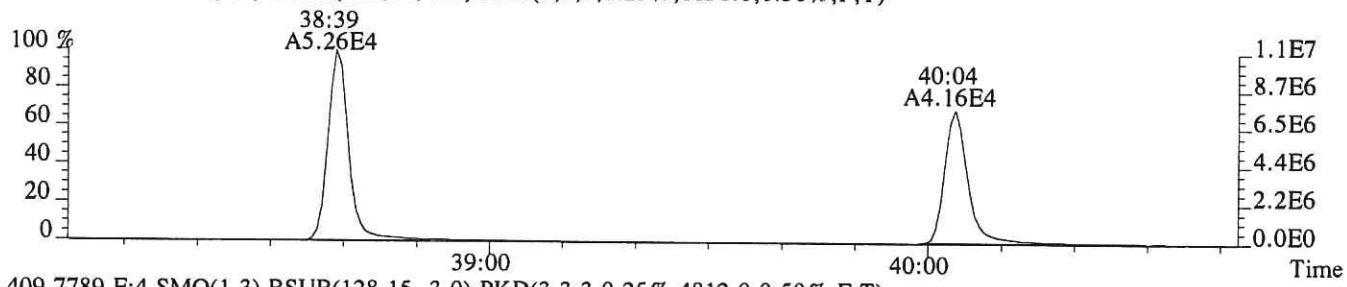


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

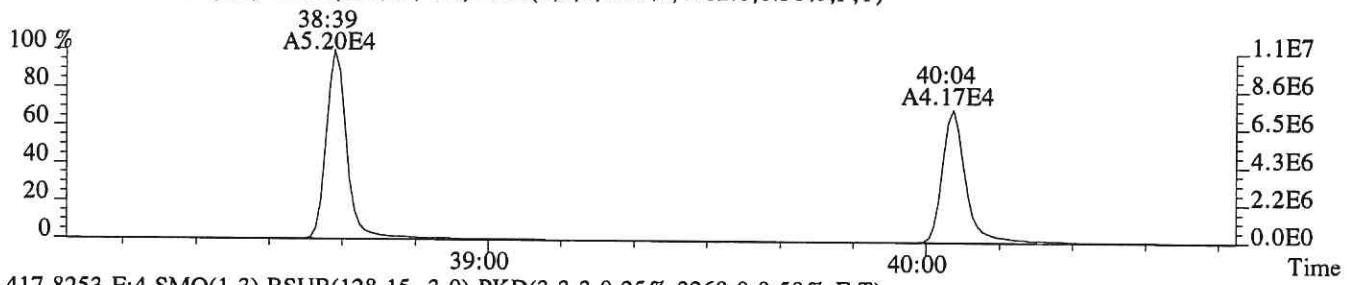


File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

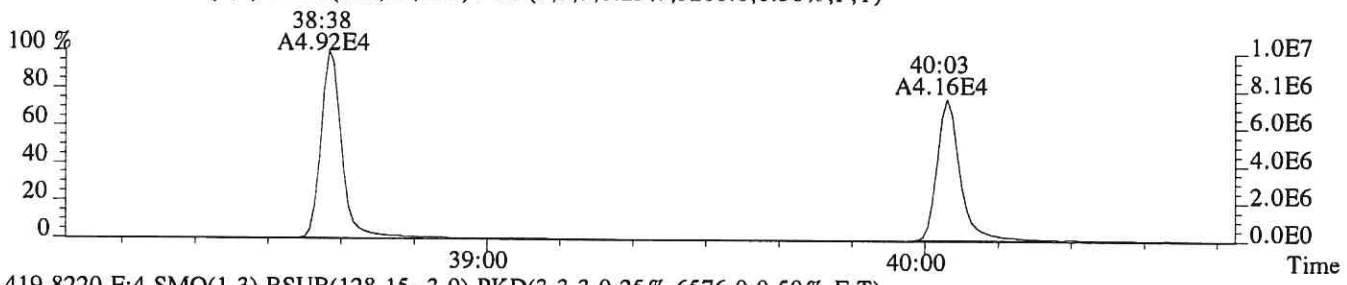
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6856.0,0.50%,F,T)



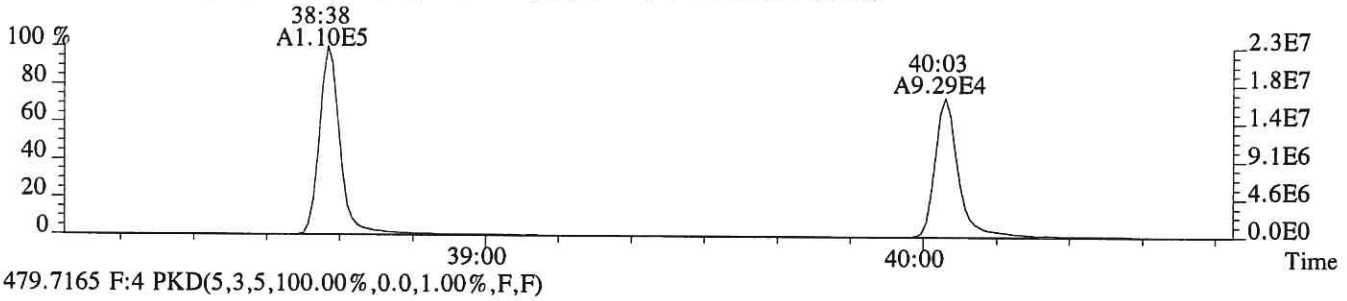
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4812.0,0.50%,F,T)



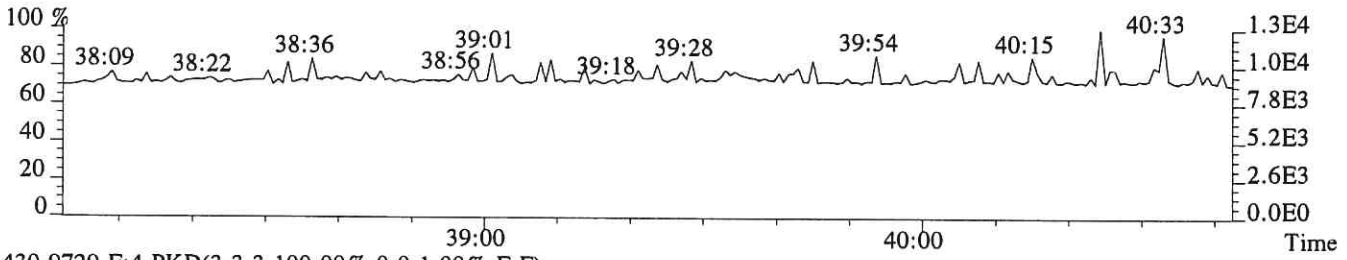
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3268.0,0.50%,F,T)



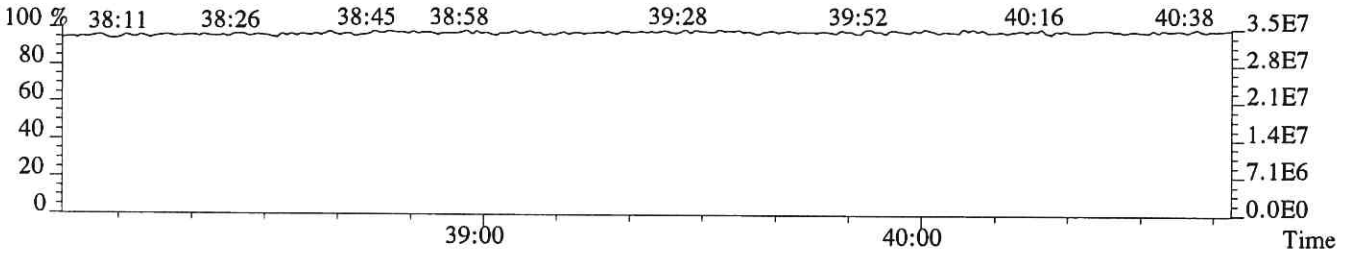
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6576.0,0.50%,F,T)



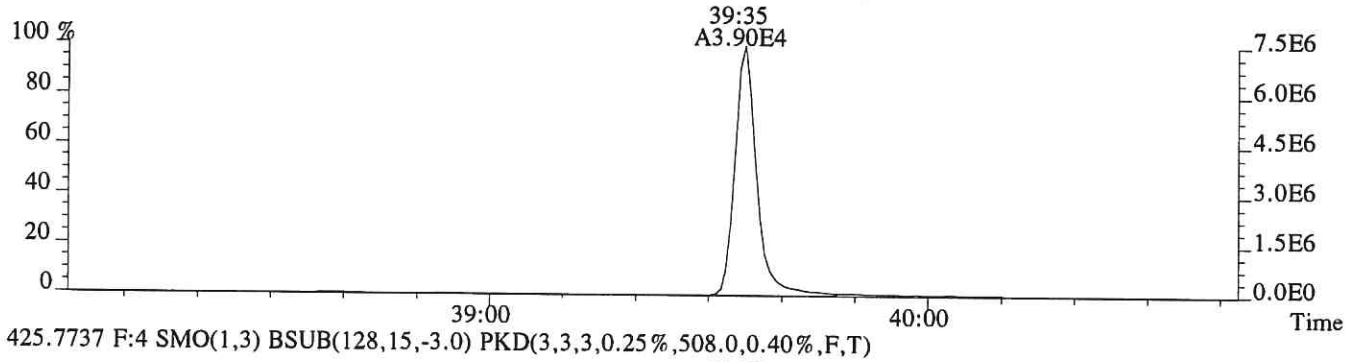
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



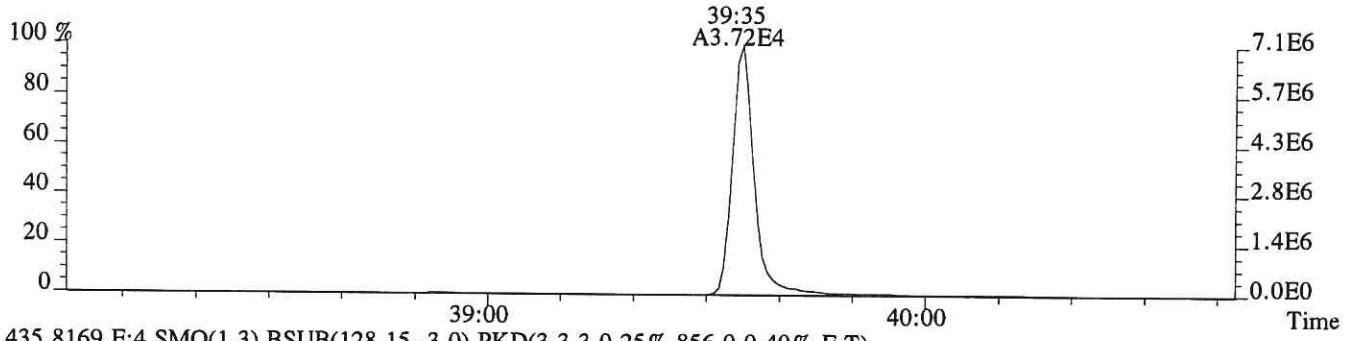
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



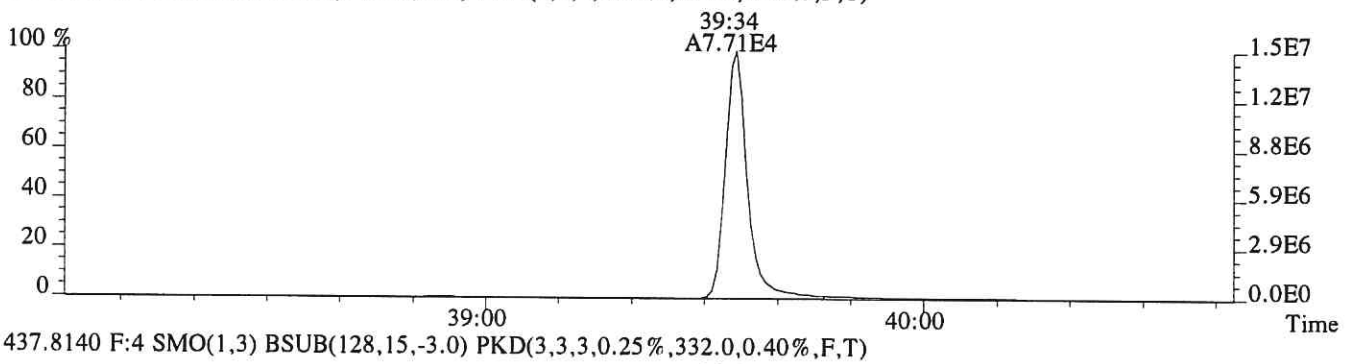
File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



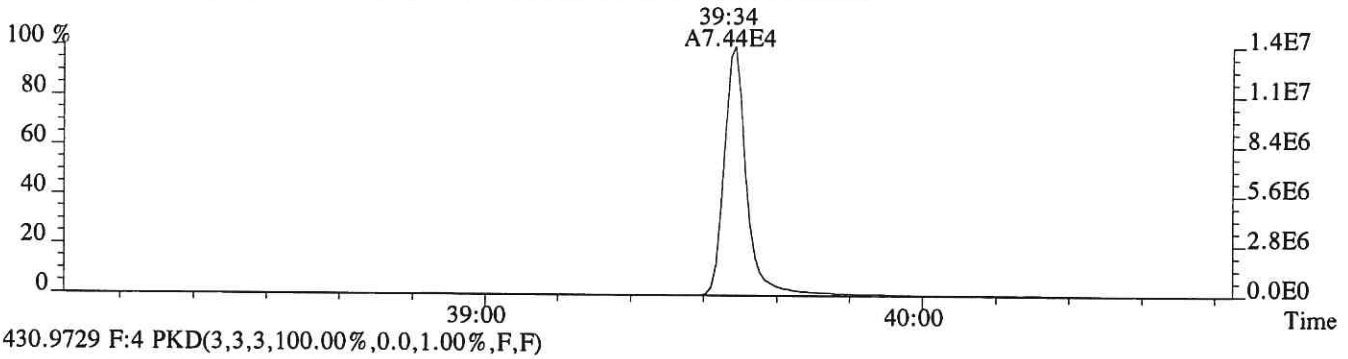
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



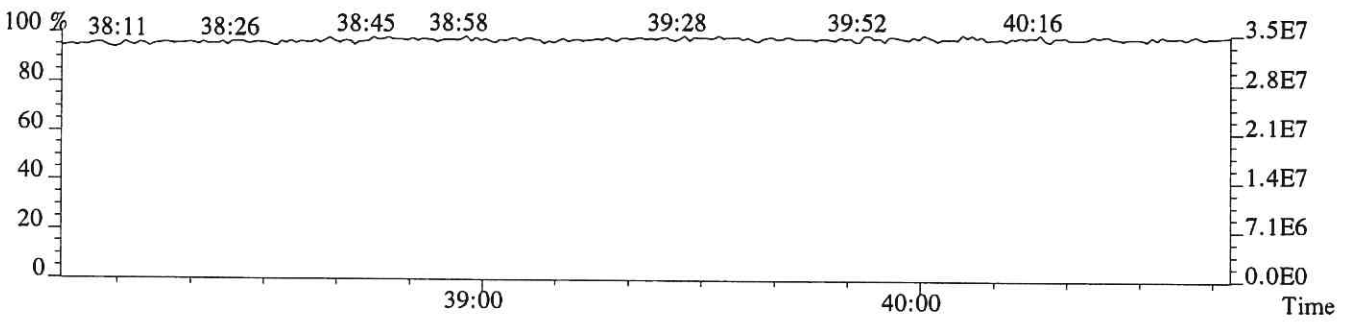
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

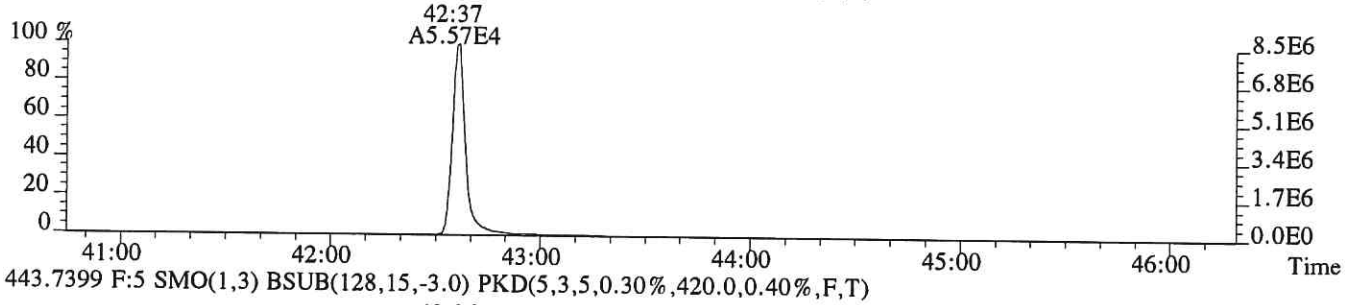


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

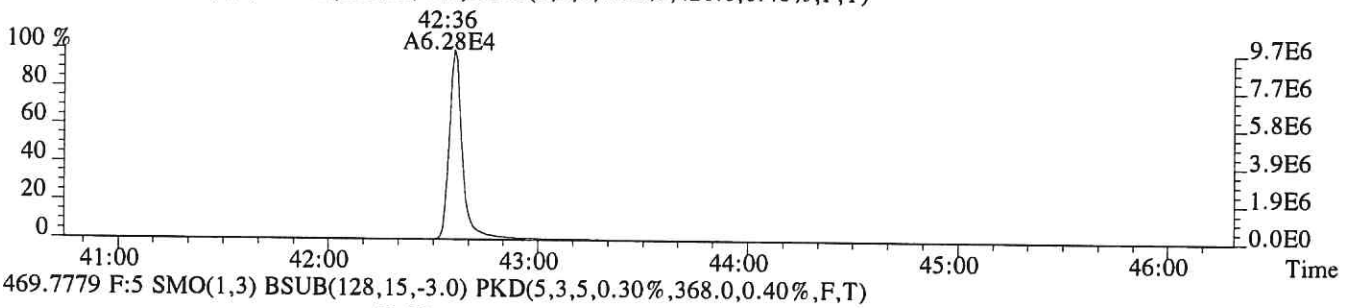


File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

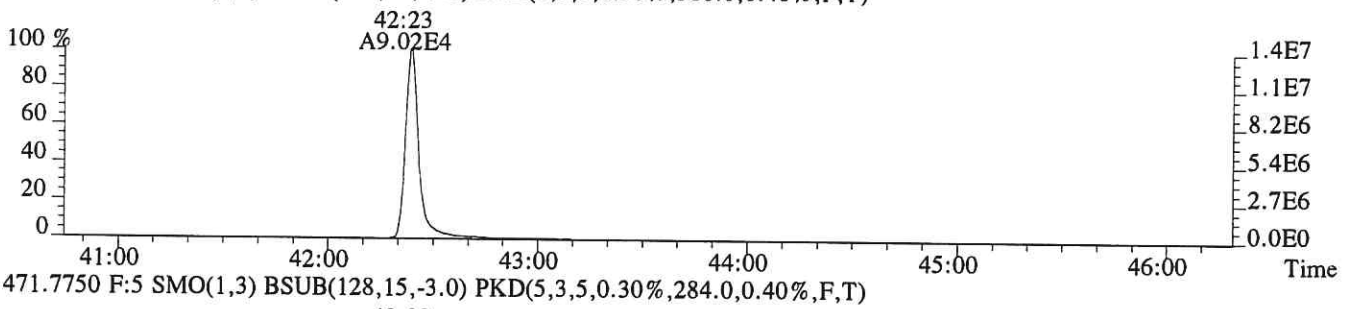
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



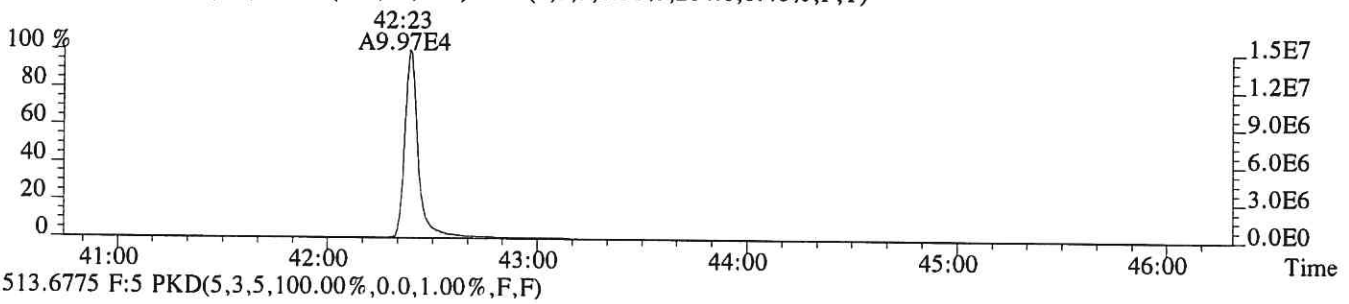
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



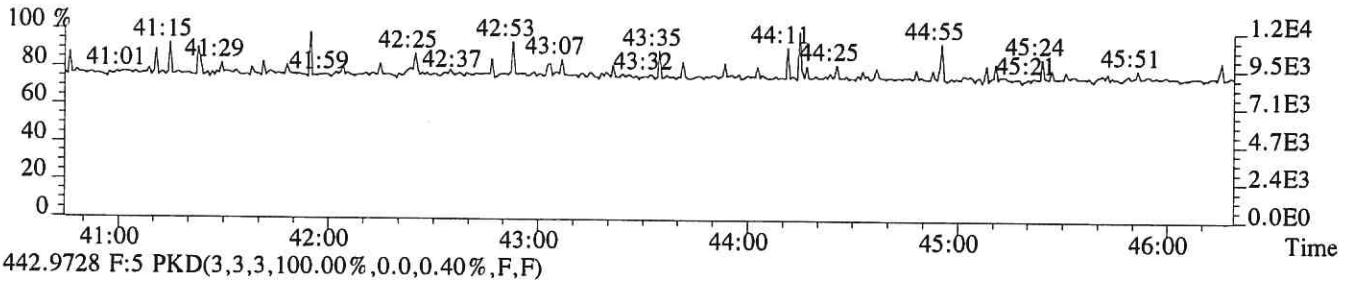
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



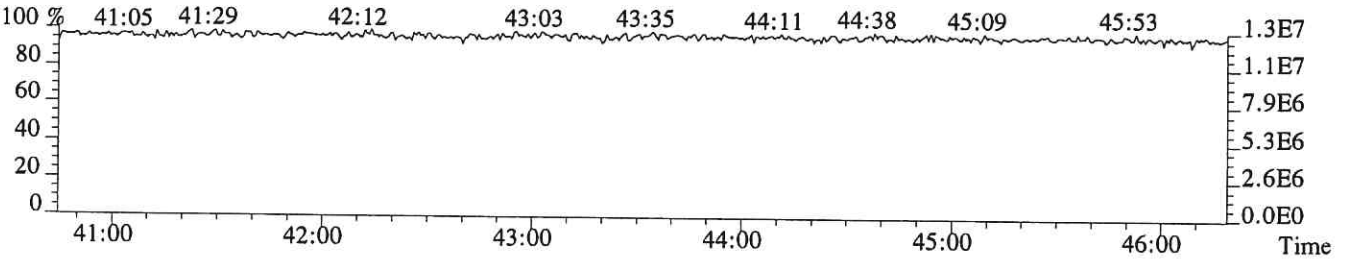
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



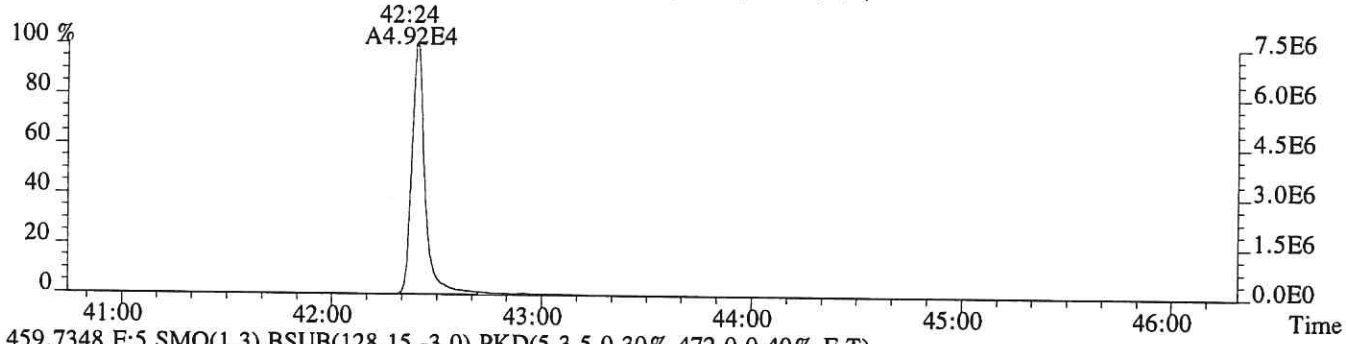
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



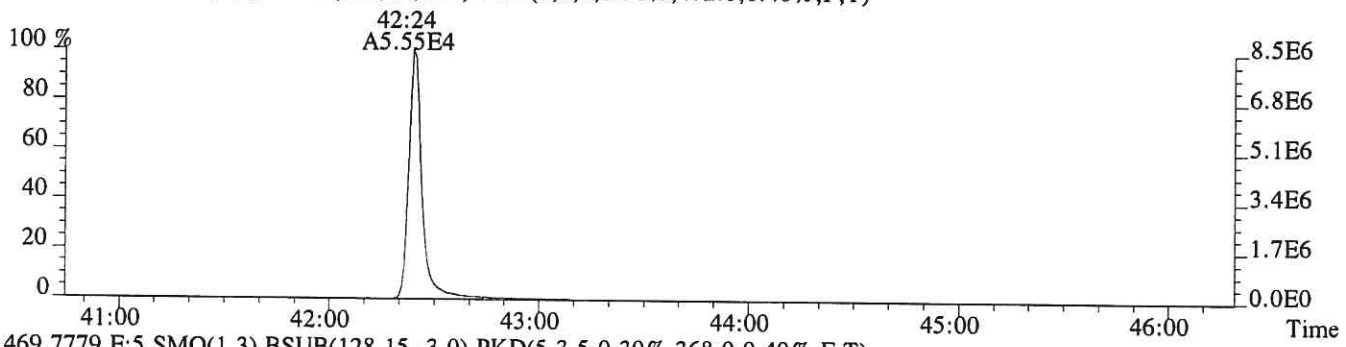
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



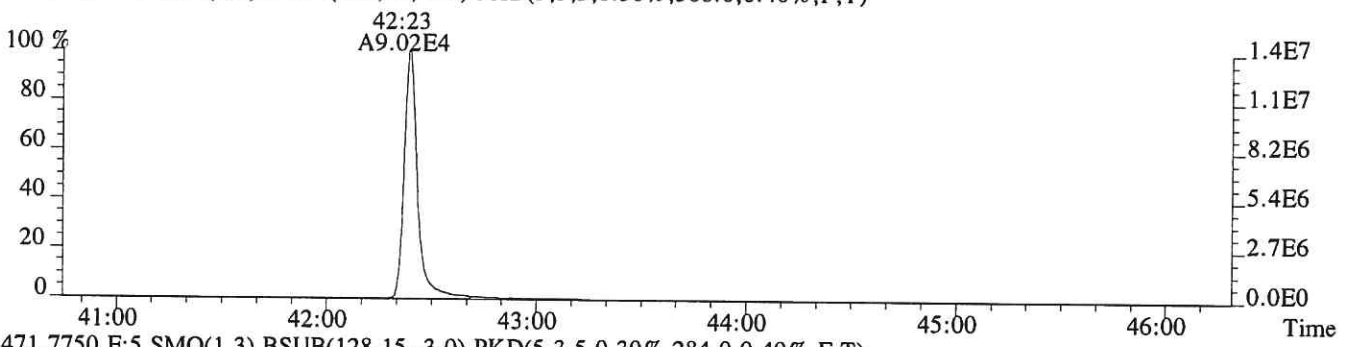
File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



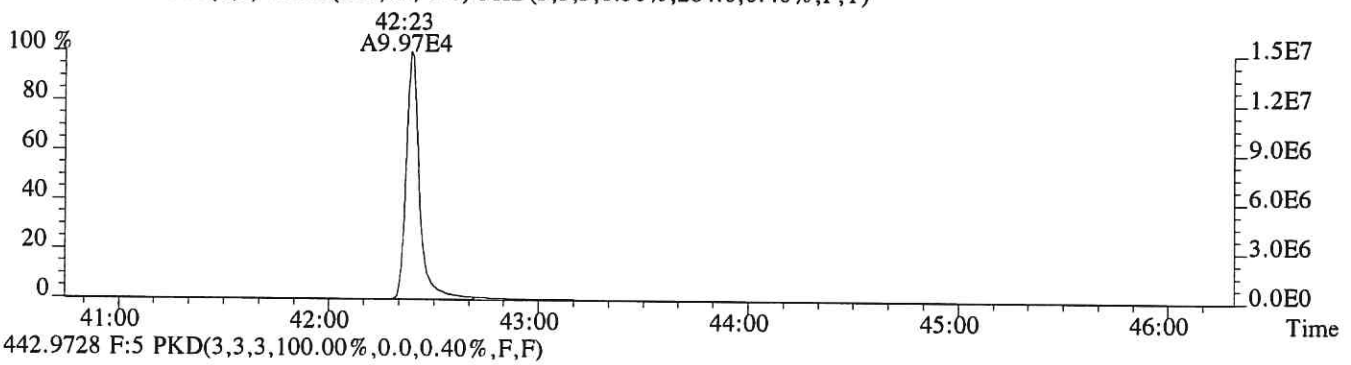
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



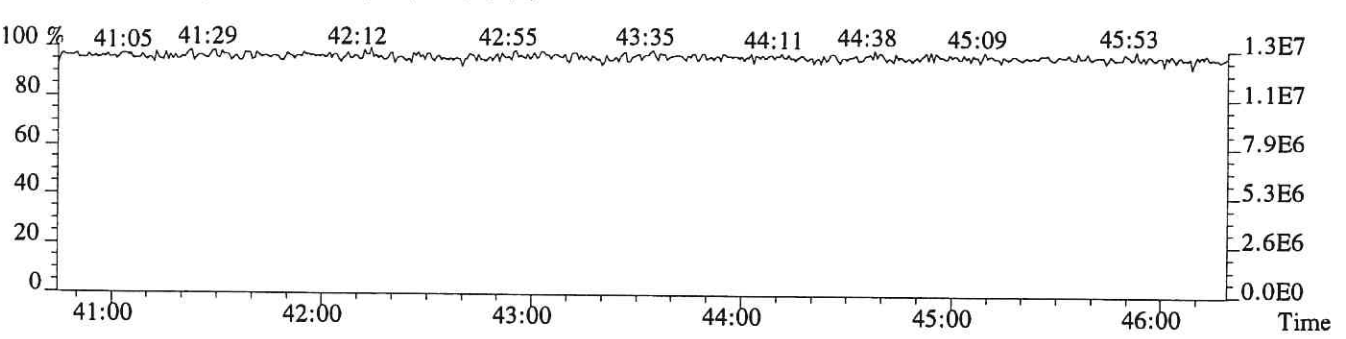
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519210

Date: 12/05/18

Circle one: (Beginning) / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519210	5-DEC-18	01:15:25
192977	WINDOW DEFINE	P519211	5-DEC-18	02:03:12
METHOD BLANK	EQ1800481-01	P519212	5-DEC-18	02:51:49
METHOD BLANK	EQ1800487-01	P519213	5-DEC-18	03:40:26
PRIMARY SLUDGE 4Q18	E1801025-001	P519214	5-DEC-18	04:29:03
SECONDARY SLUDGE 4╗	E1801025-002	P519215	5-DEC-18	05:17:40
18315B01BA	E1801053-001	P519216	5-DEC-18	06:06:19
CT-09C-2018	J1807948-015	P519217	5-DEC-18	06:56:09
NONANE	NONANE	P519218	5-DEC-18	07:43:57
METHOD BLANK	EQ1800469-01	P519219	5-DEC-18	08:32:35
SL0129	E1801039-036DL	P519220	5-DEC-18	09:21:17
SL0130	E1801039-037DL	P519221	5-DEC-18	10:09:57
LCS	EQ1800485-02	P519222	5-DEC-18	10:58:35
DLCS	EQ1800485-03	P519223	5-DEC-18	11:47:11

E1801038

943 of 1233

Sample List Report

MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181204B.SPL
Last Modified: Wednesday, December 05, 2018 12:27:49 Central Standard Time
Printed: Wednesday, December 05, 2018 12:27:50 Central Standard Time

Page Position (1, 1)

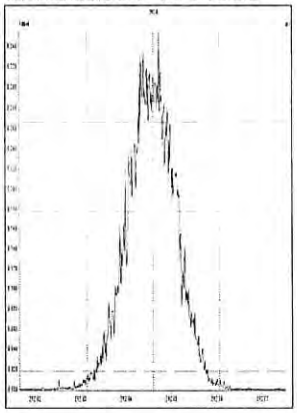
Opus4: P519210res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/5/18	01:15	P519210	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 01:15
2		02:05	P519211	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:51	P519212	MB	EQ1800481-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		03:40	P519213	MB	EQ1800487-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:29	P519214	E1801025-001	E1801025-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:17	P519215	E1801025-002	E1801025-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:06	P519216	E1801053-001	E1801053-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		need to reinjection
8		06:56	P519217	J1807948-015	J1807948-015	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:43	P519218	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:32	P519219	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:21	P519220	E1801039-036DL	E1801039-036DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:09	P519221	E1801039-037DL	E1801039-037DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:58	P519222	LCS	EQ1800485-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		11:47	P519223	DLCS	EQ1800485-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMScheck 12:41
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/06/18

Printed: Wednesday, December 05, 2018 01:15:23 Central Standard Time

M 292.9824 R 11966



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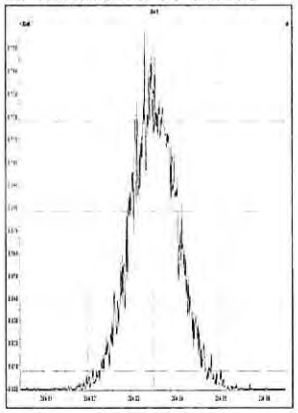
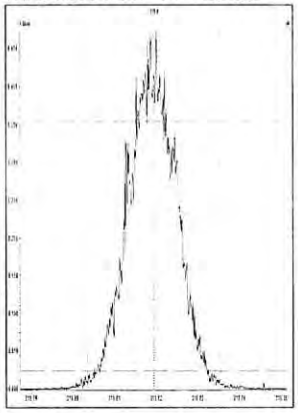
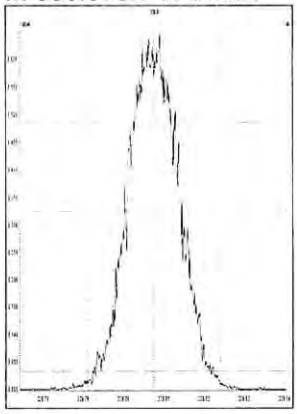


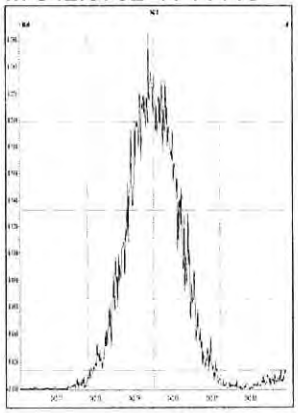
M 318.9792 R 12233



M 330.9792 R 11854



M 342.9792 R 11118



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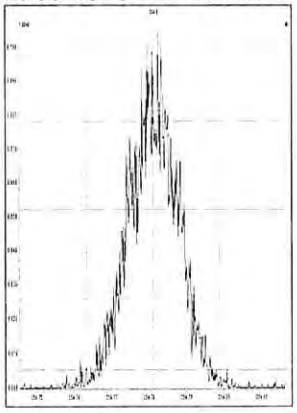
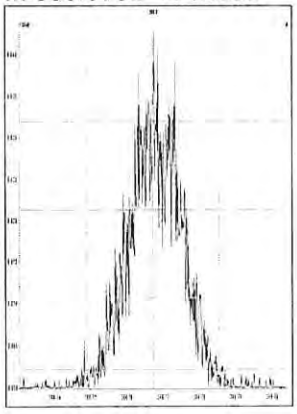
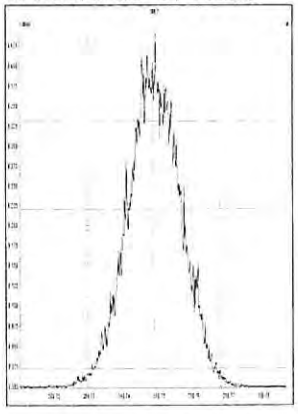


M 366.9792 R 12600



M 380.9760 R 11037



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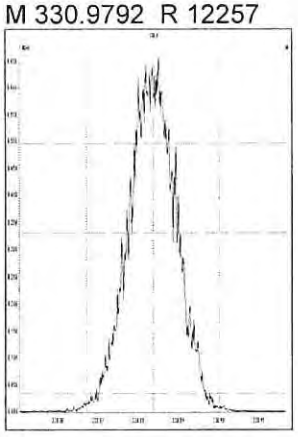

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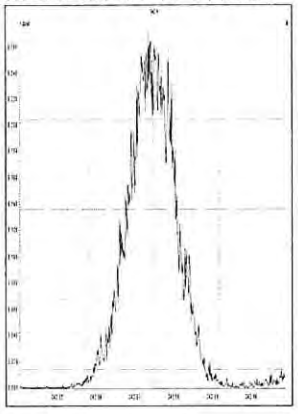
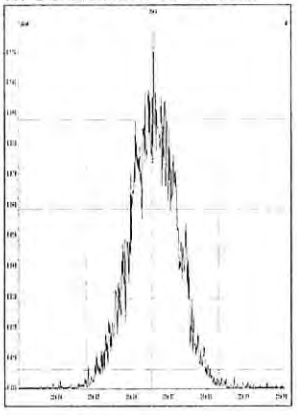


M 354.9792 R 12820



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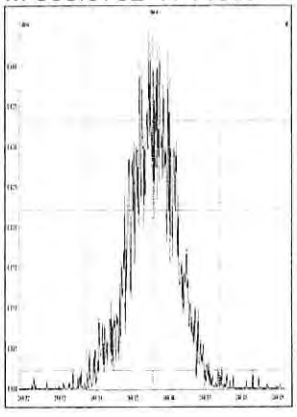
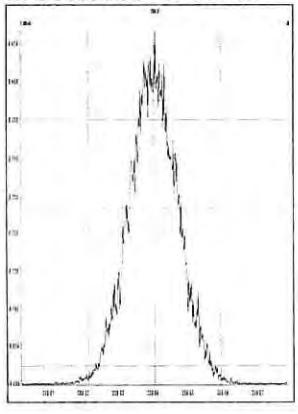


M 380.9760 R 11709



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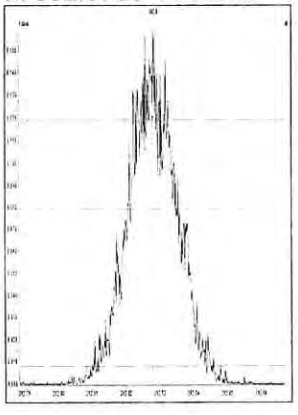

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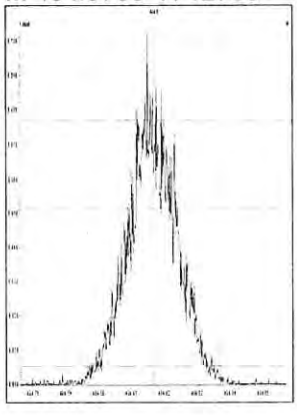

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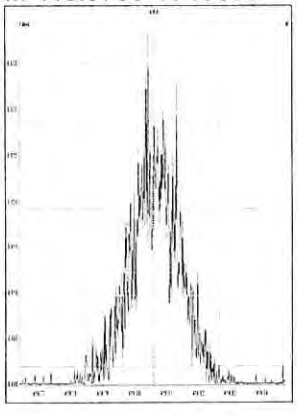

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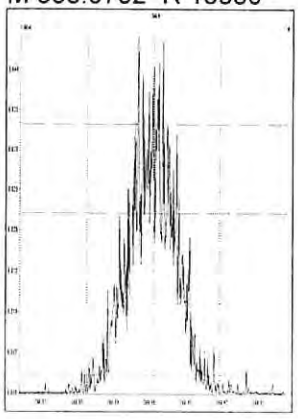

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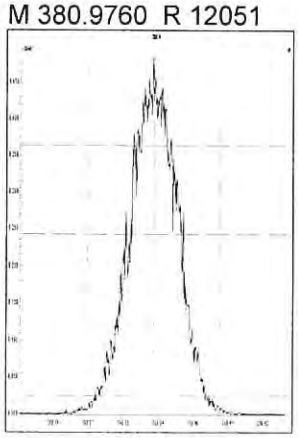

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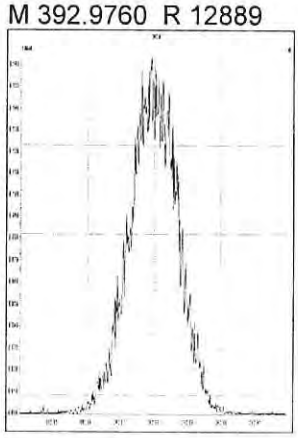

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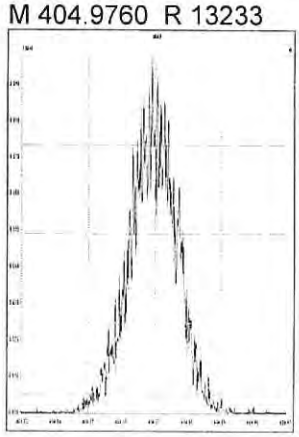

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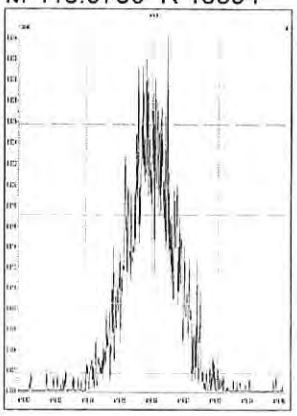
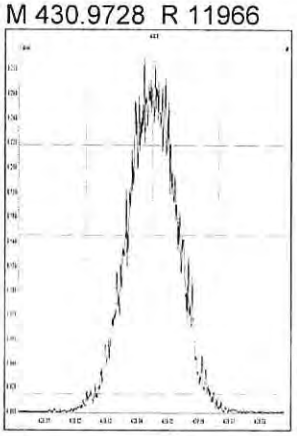
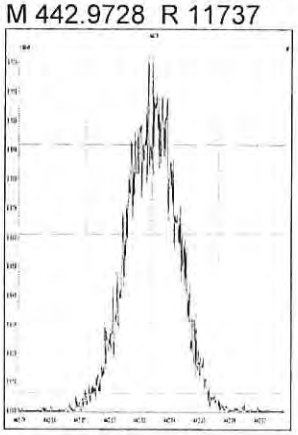


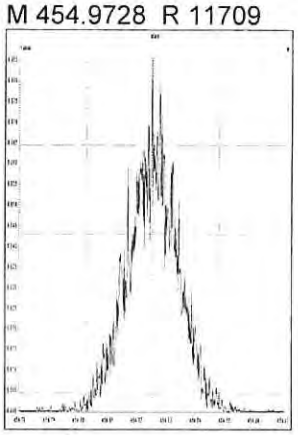
M 430.9728 R 11966



M 442.9728 R 11737



M 454.9728 R 11709



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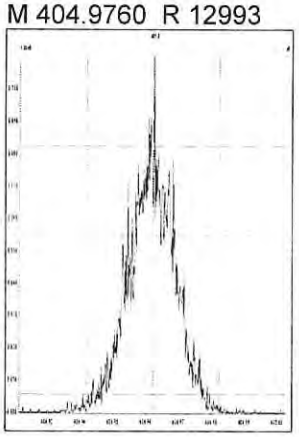
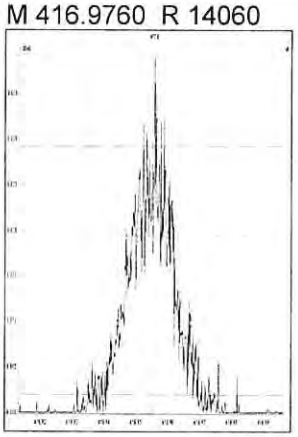


M 416.9760 R 14060



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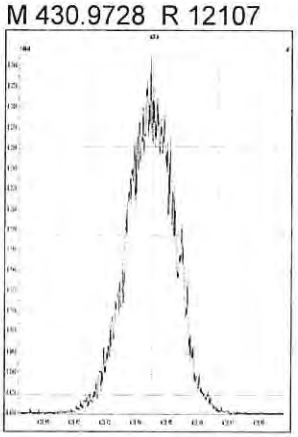
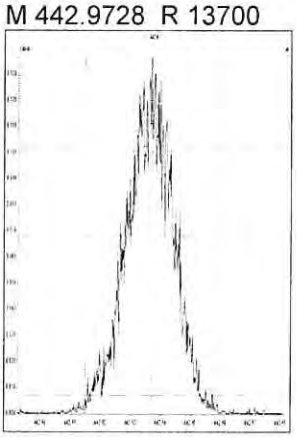


M 442.9728 R 13700



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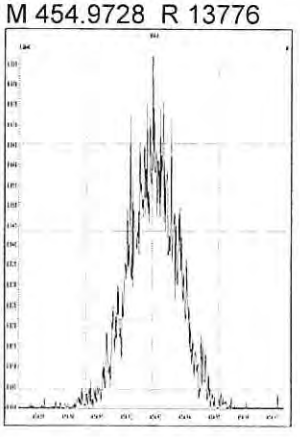

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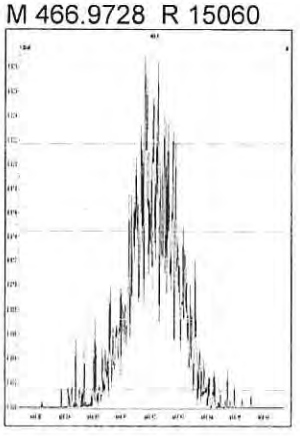
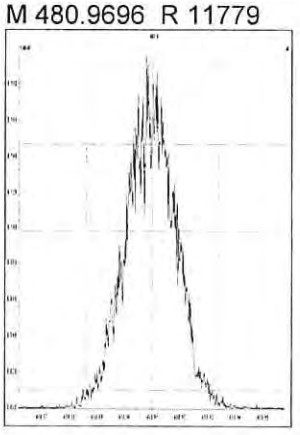


M 480.9696 R 11779



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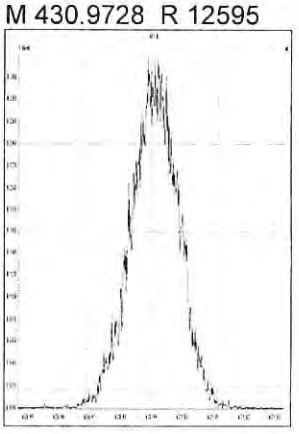
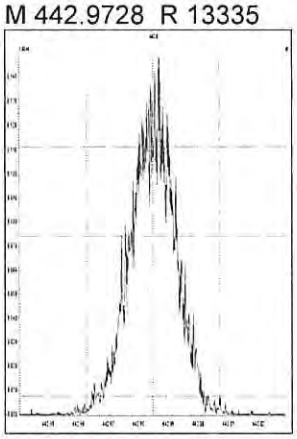
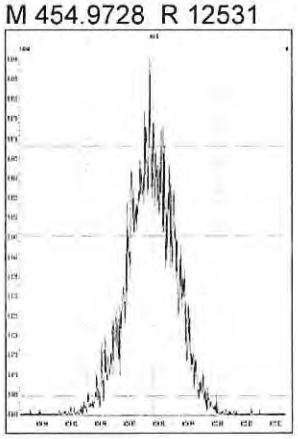


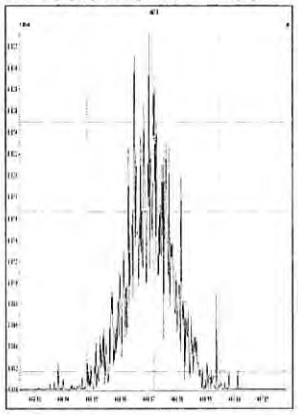
M 442.9728 R 13335



M 454.9728 R 12531



M 466.9728 R 14408



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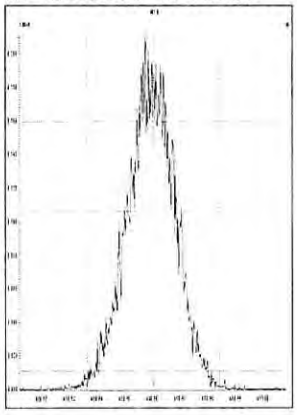

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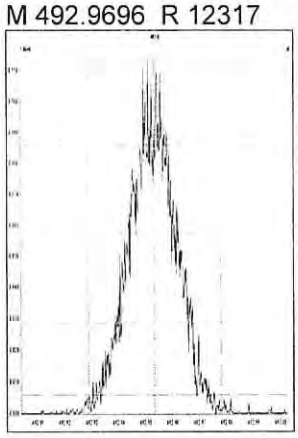

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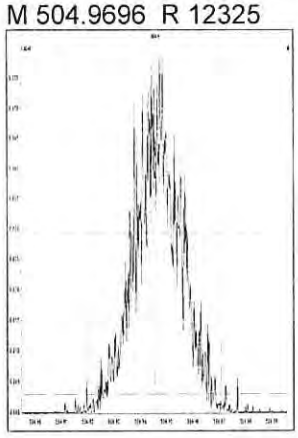

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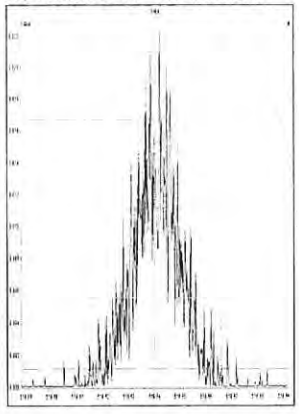
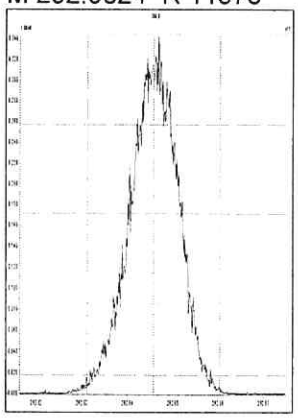


File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:41:54 Central Standard Time

M 292.9824 R 11575



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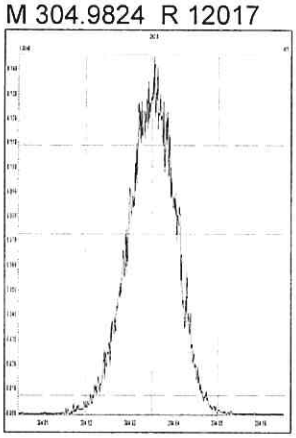
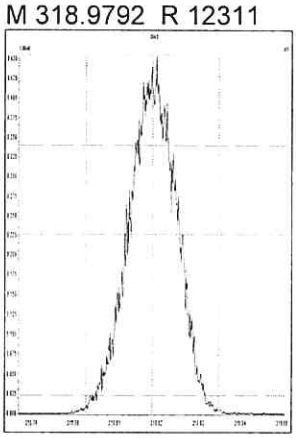
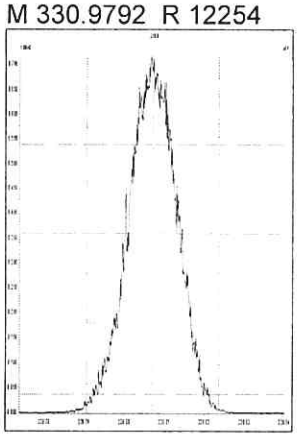


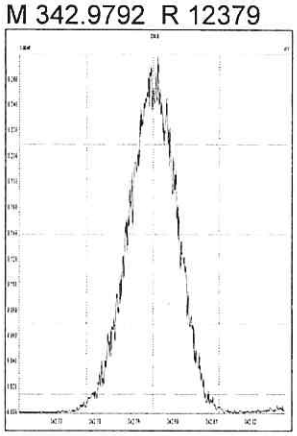
M 318.9792 R 12311



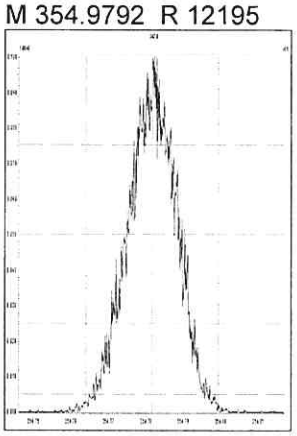
M 330.9792 R 12254



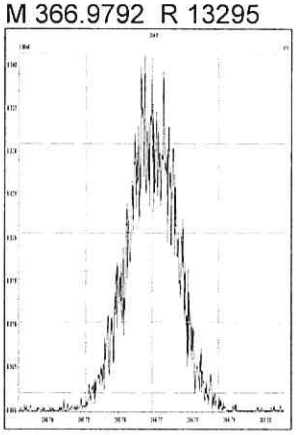
M 342.9792 R 12379



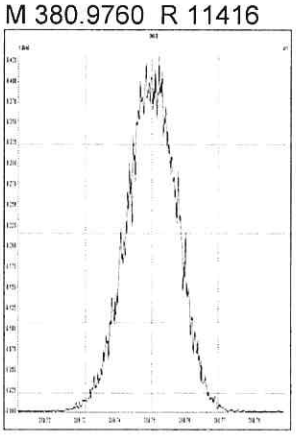
M 354.9792 R 12195



M 366.9792 R 13295



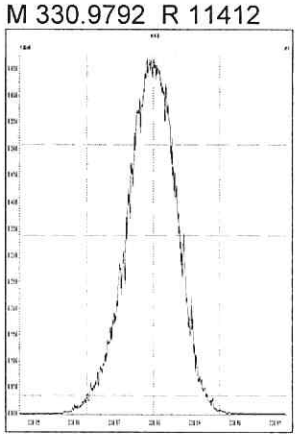
M 380.9760 R 11416



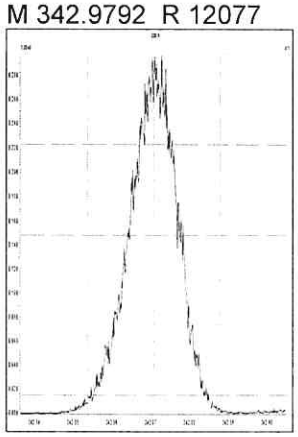
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:42:50 Central Standard Time

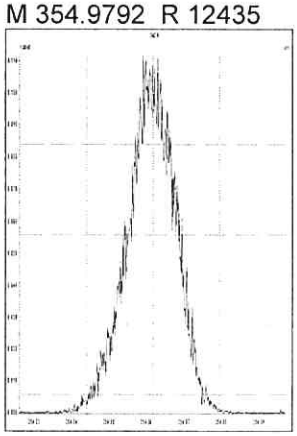
M 330.9792 R 11412



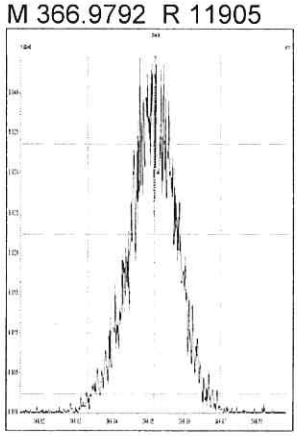
M 342.9792 R 12077



M 354.9792 R 12435



M 366.9792 R 11905



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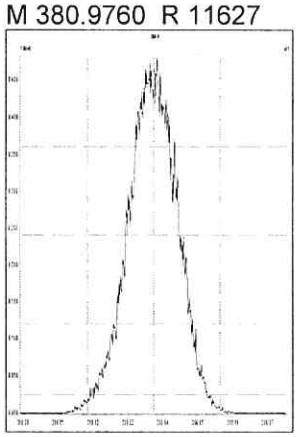

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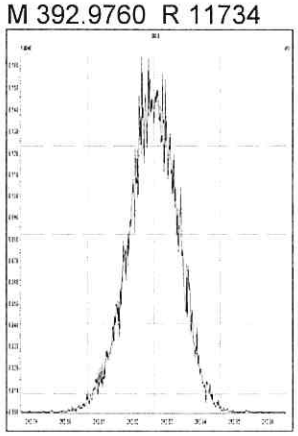

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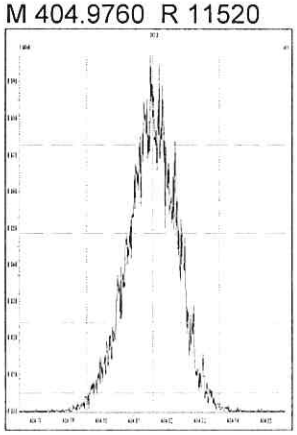
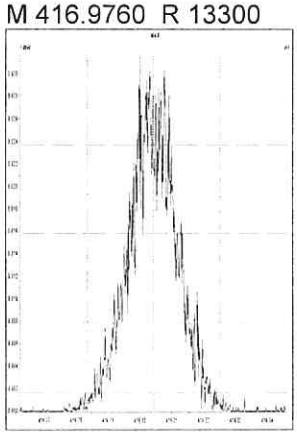


M 416.9760 R 13300



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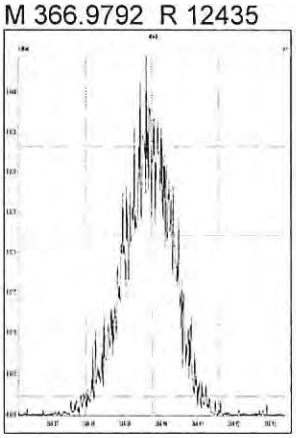
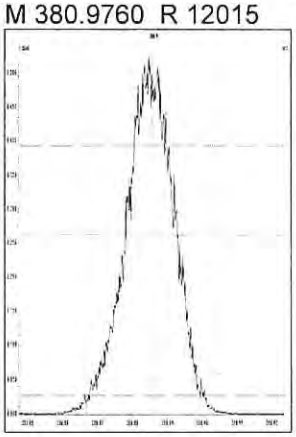
Printed: Wednesday, December 05, 2018 12:43:38 Central Standard Time

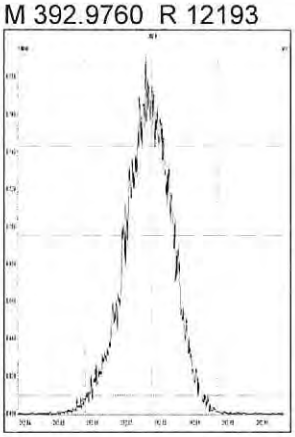
M 366.9792 R 12435



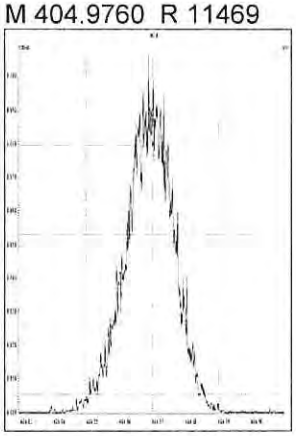
M 380.9760 R 12015



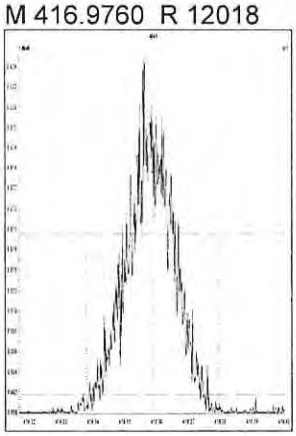
M 392.9760 R 12193



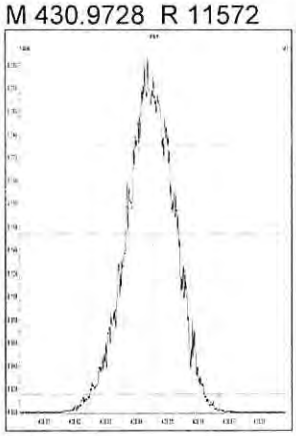
M 404.9760 R 11469



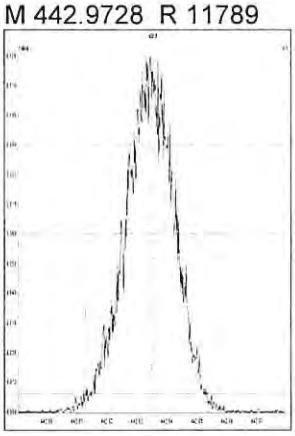
M 416.9760 R 12018



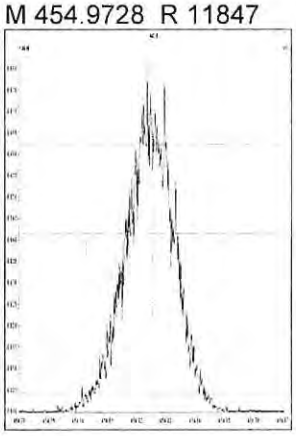
M 430.9728 R 11572



M 442.9728 R 11789



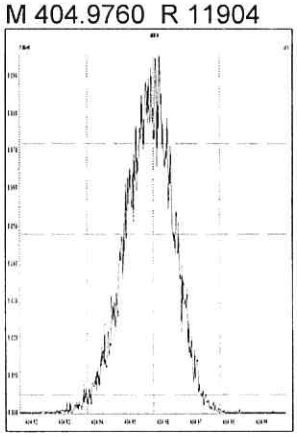
M 454.9728 R 11847



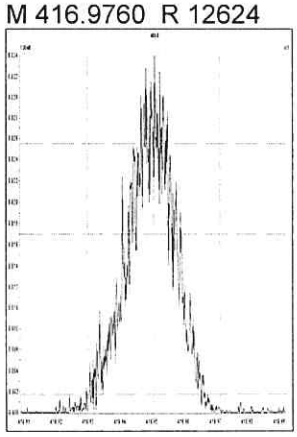
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:44:15 Central Standard Time

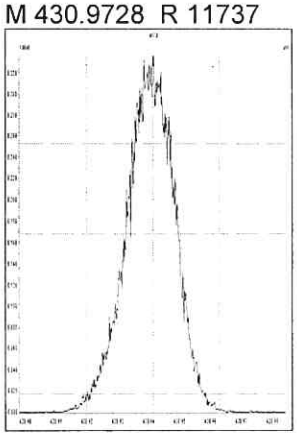
M 404.9760 R 11904



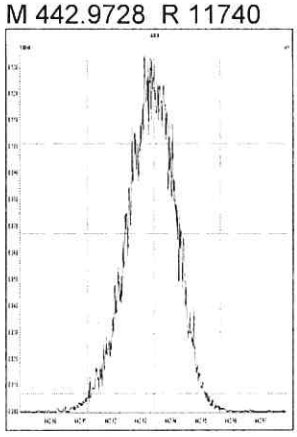
M 416.9760 R 12624



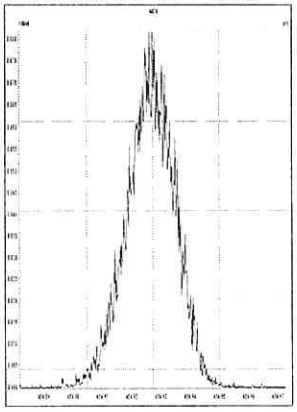
M 430.9728 R 11737



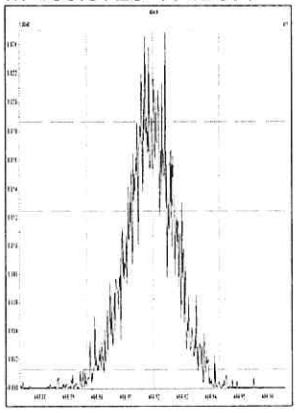
M 442.9728 R 11740



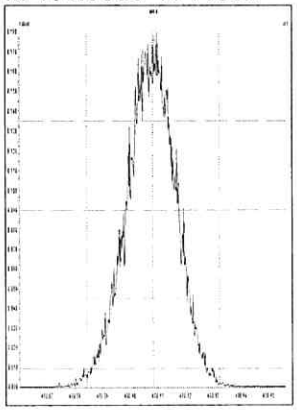
M 454.9728 R 11963



M 466.9728 R 12077



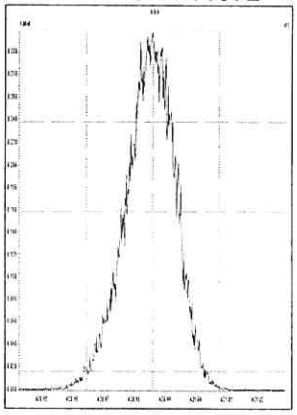
M 480.9696 R 11630



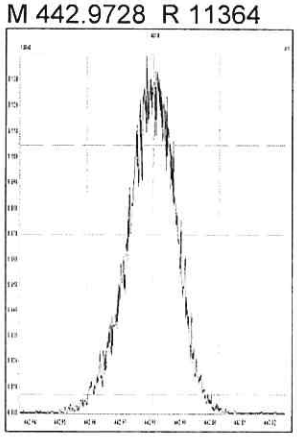
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:44:52 Central Standard Time

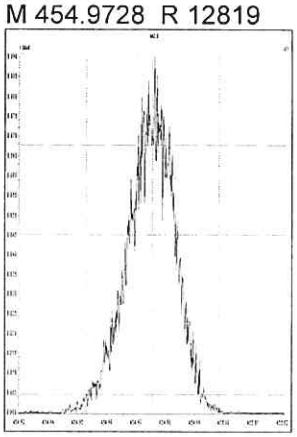
M 430.9728 R 11572



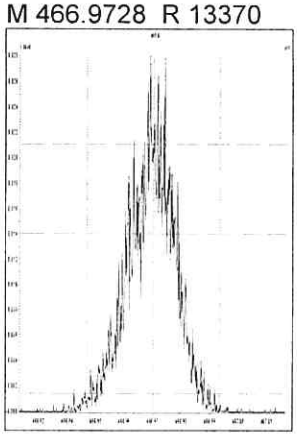
M 442.9728 R 11364



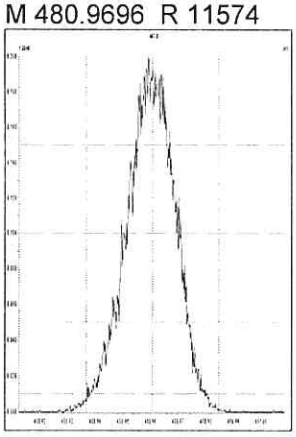
M 454.9728 R 12819



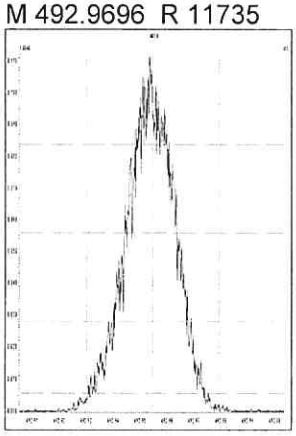
M 466.9728 R 13370



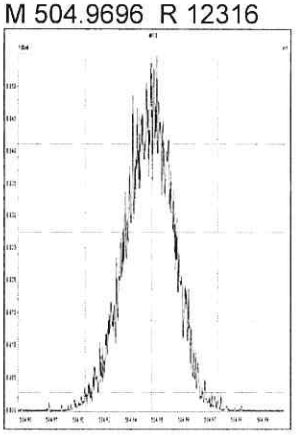
M 480.9696 R 11574



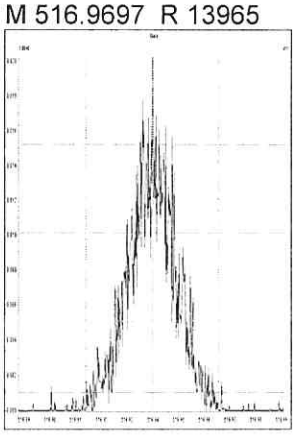
M 492.9696 R 11735



M 504.9696 R 12316



M 516.9697 R 13965



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

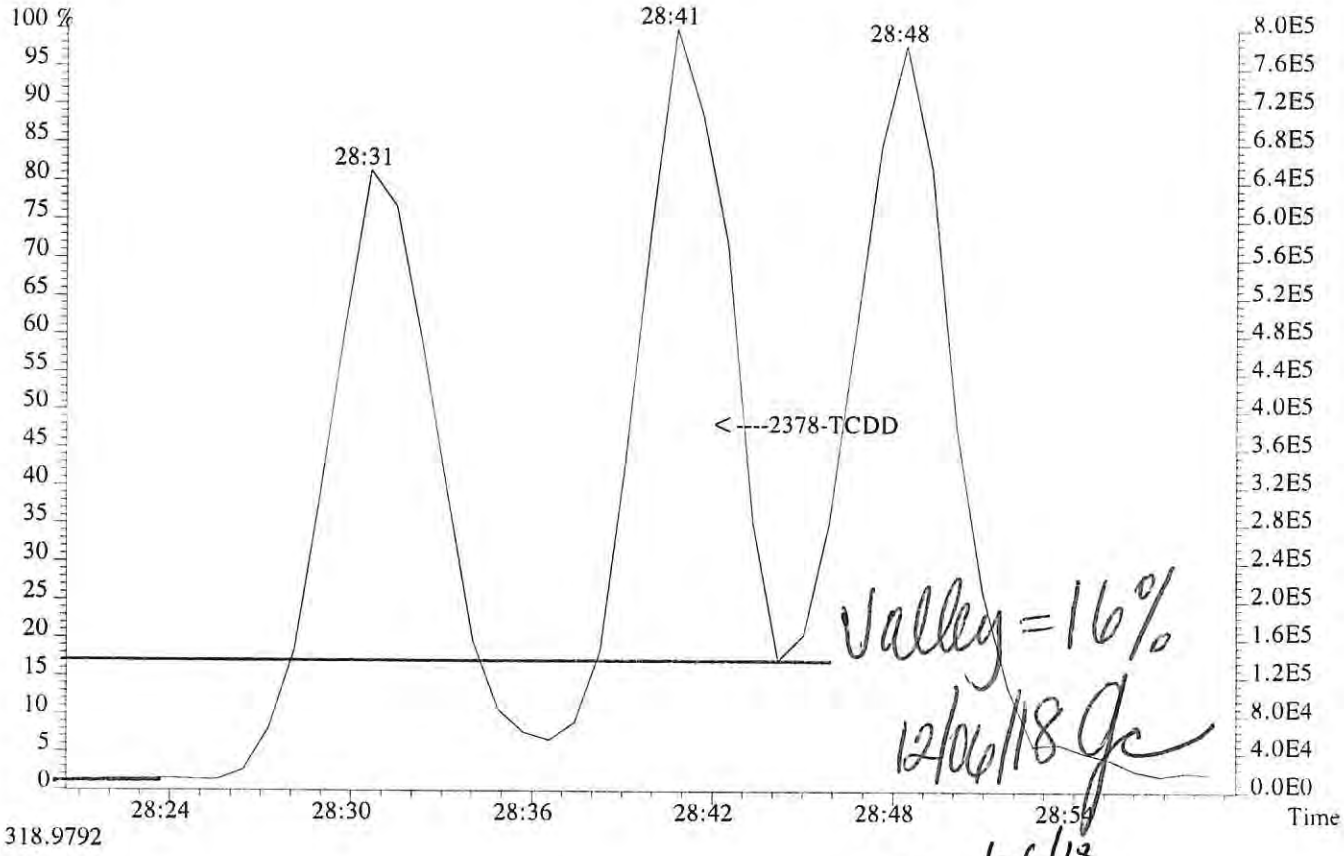
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519211
Date Analyzed: 5-DEC-2018
Time Analyzed: 02:03:12

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:51
TCDD	25:18	29:42
PeCDF	29:48	34:06
PeCDD	31:21	33:50
HxCDF	34:45	37:16
HxCDD	35:17	36:53
HpCDF	38:30	39:54
HpCDD	38:45	39:26

% Valley 2378-TCDD: 16 %

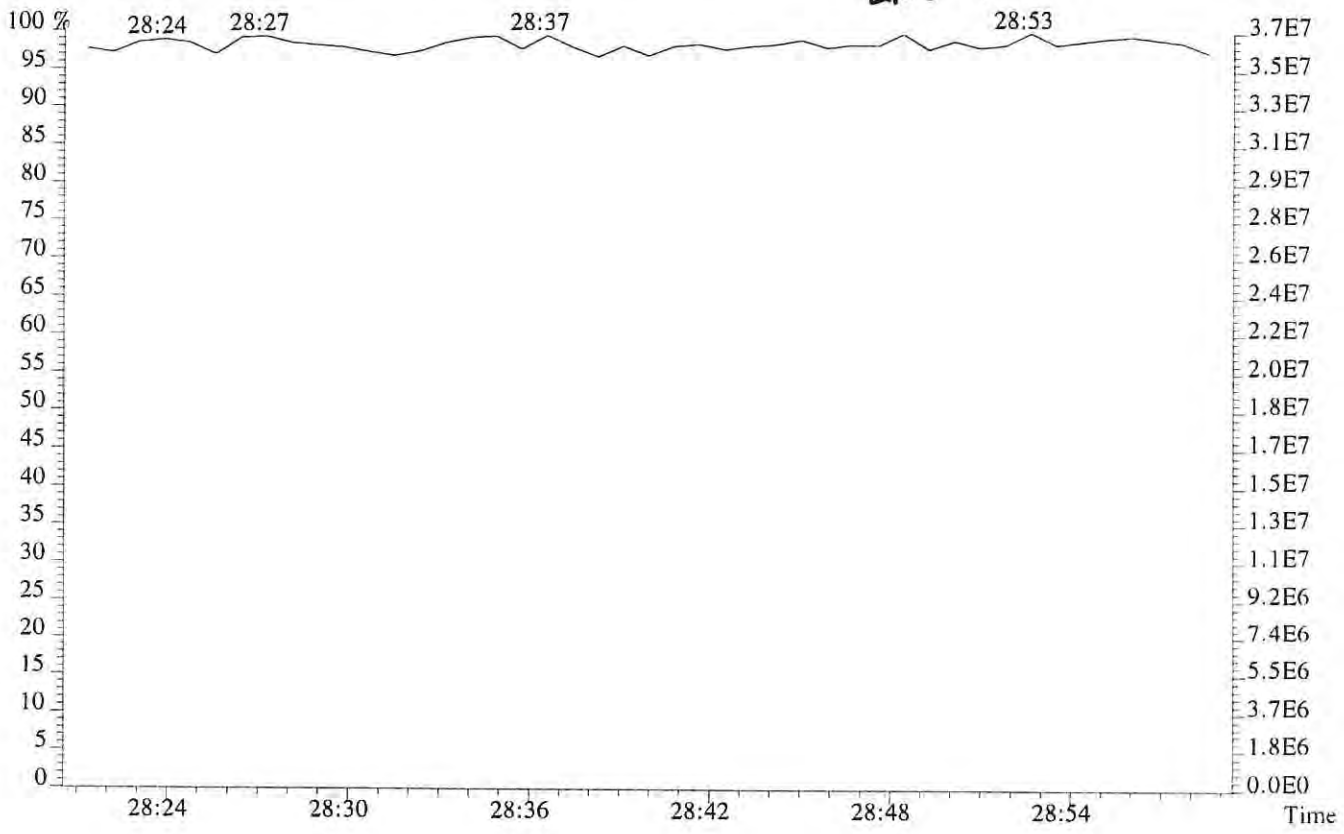
File:P519211 #1-545 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



Valley = 16%
12/06/18 JC

318.9792

LIU 12/06/18



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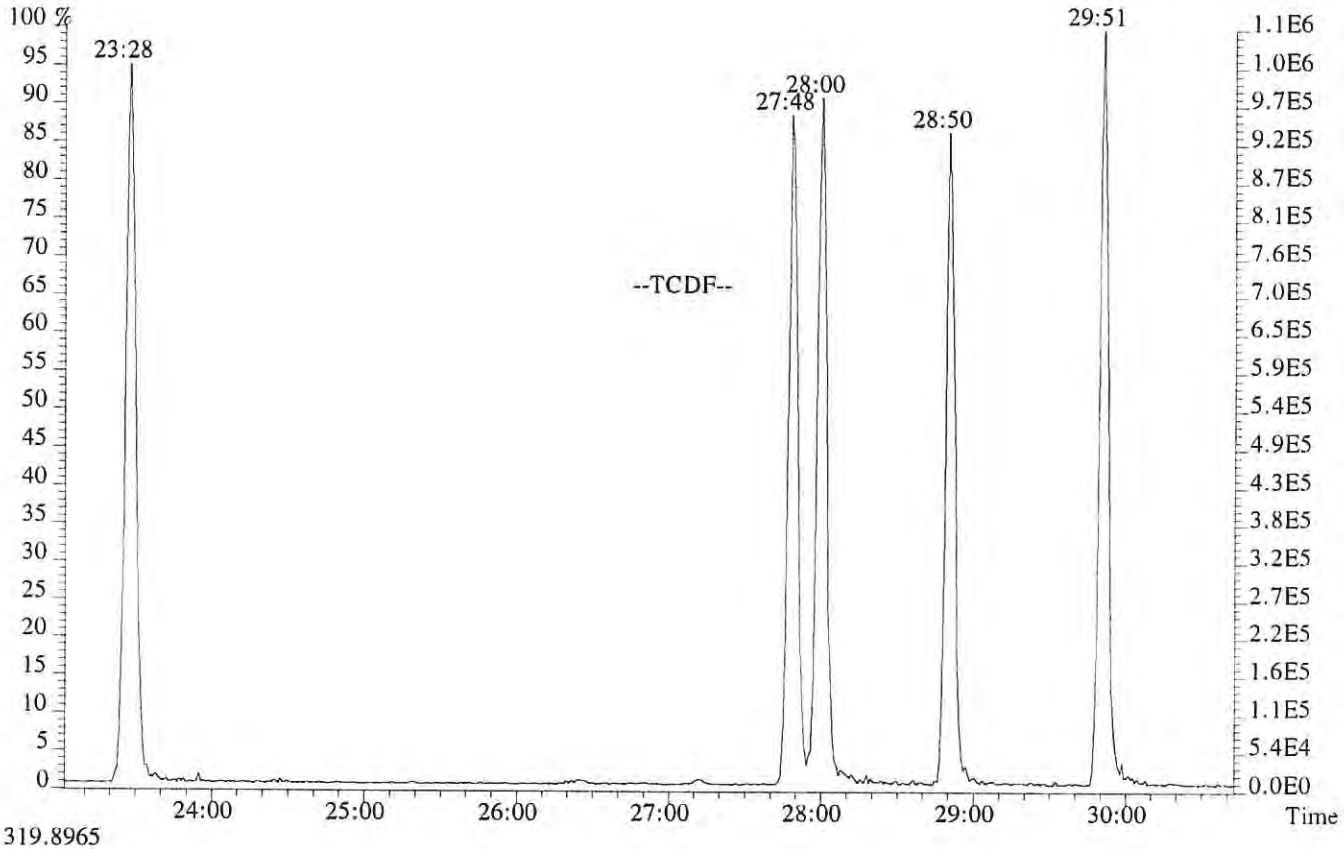
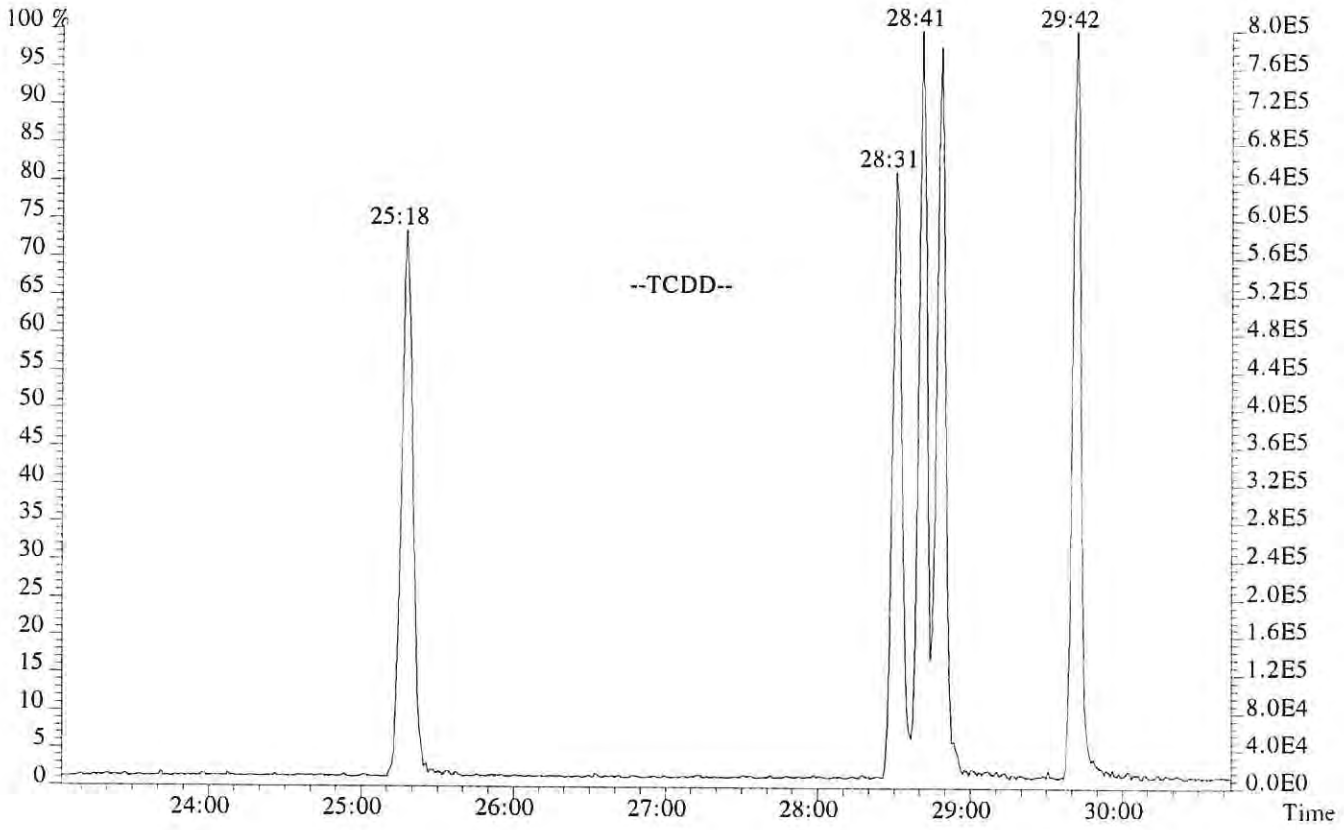
Sample#1 Exp:192977
303.9016



319.8965



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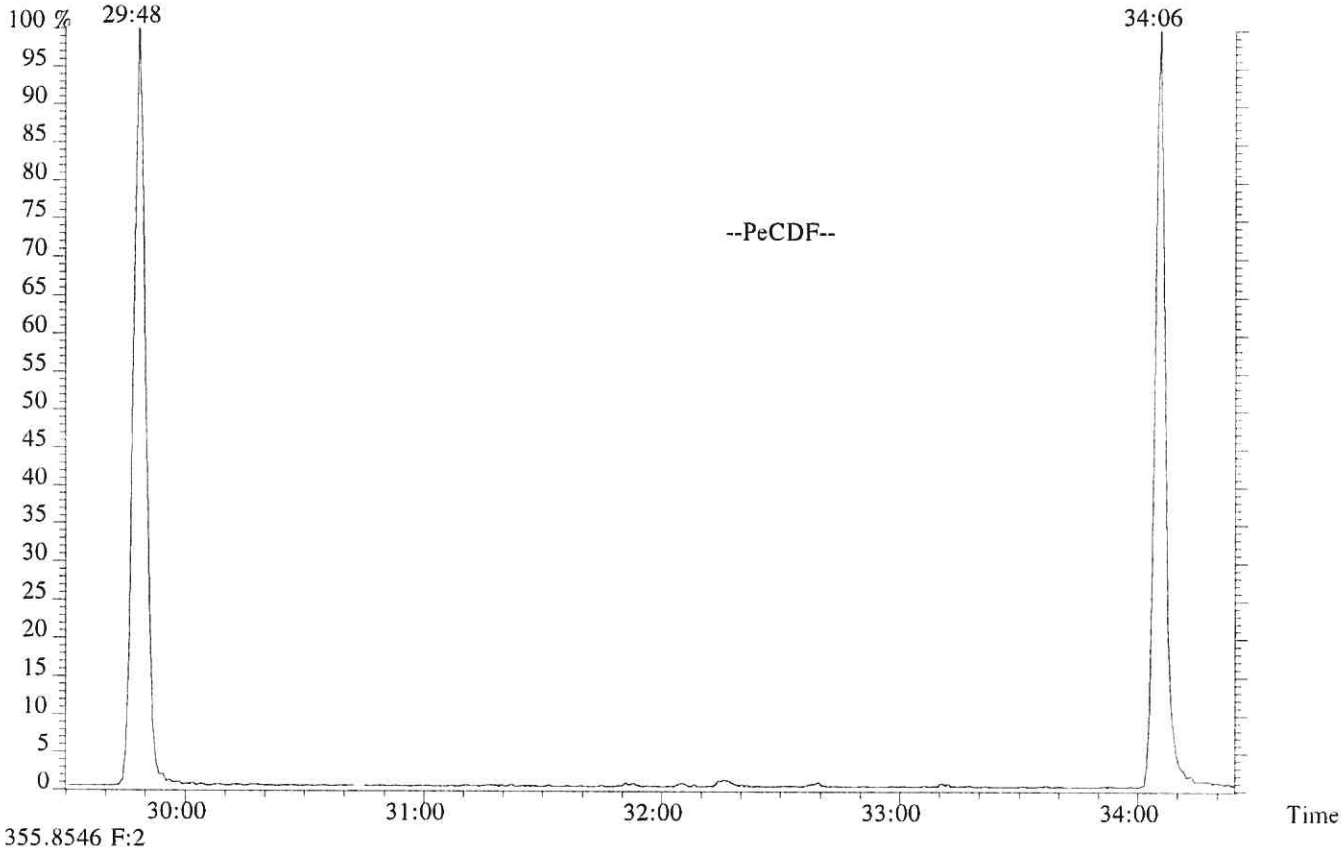
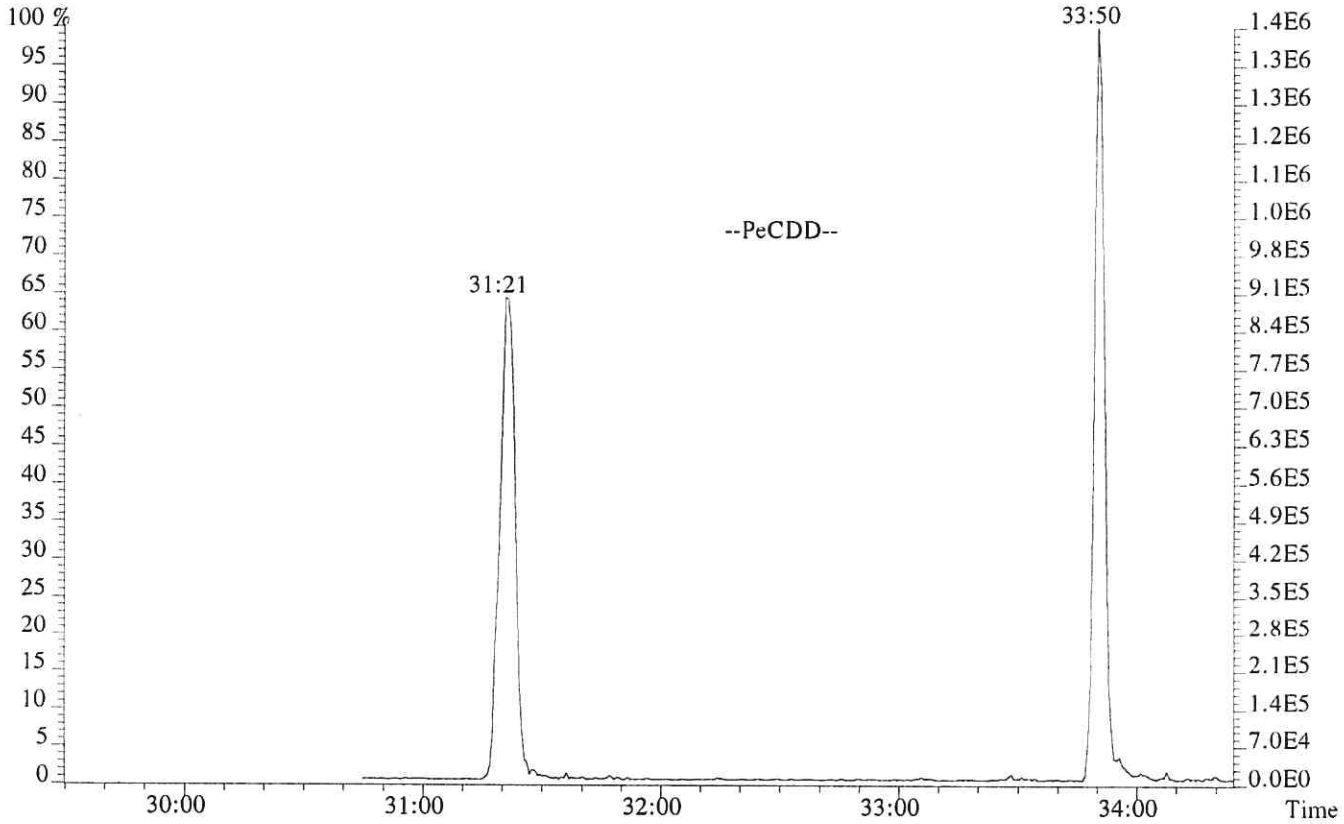
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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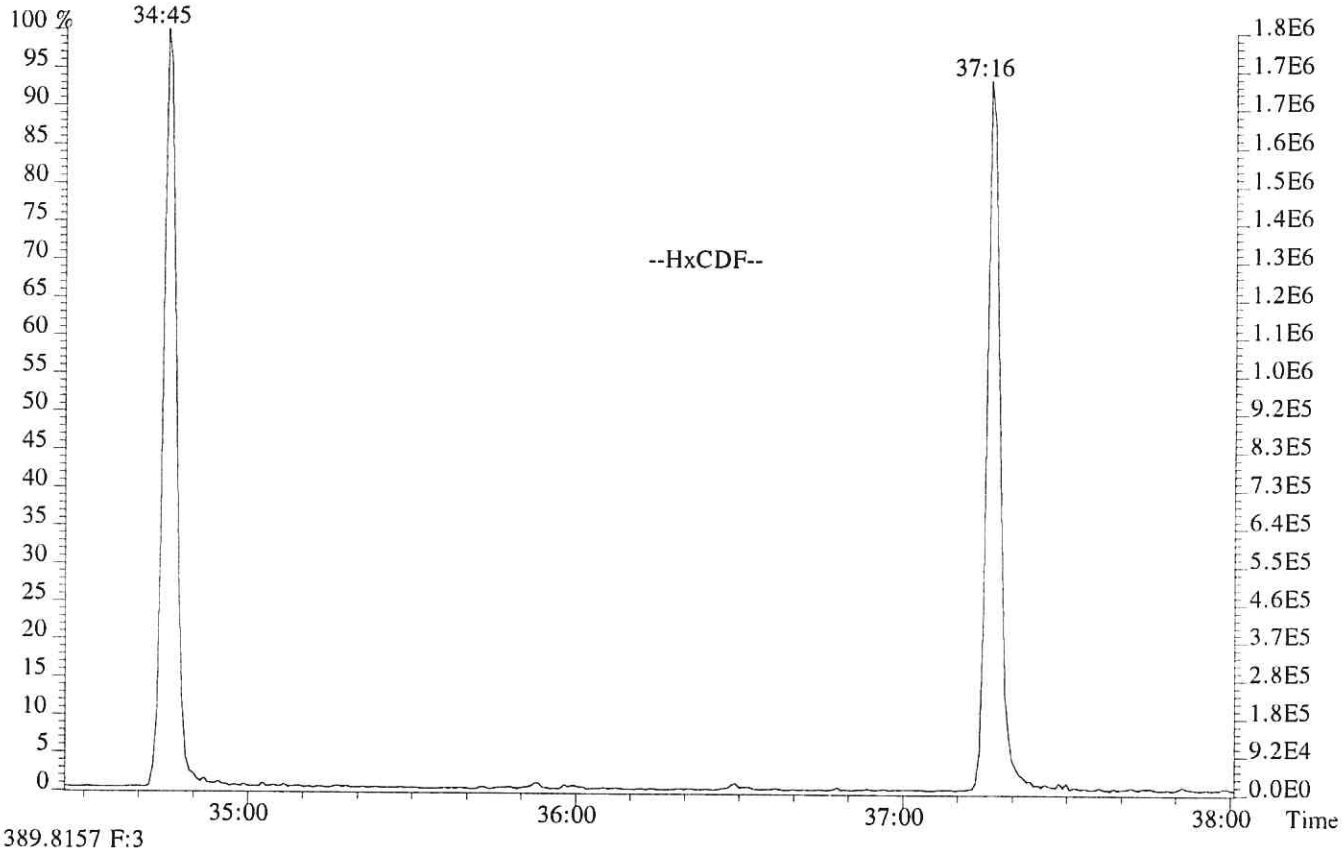
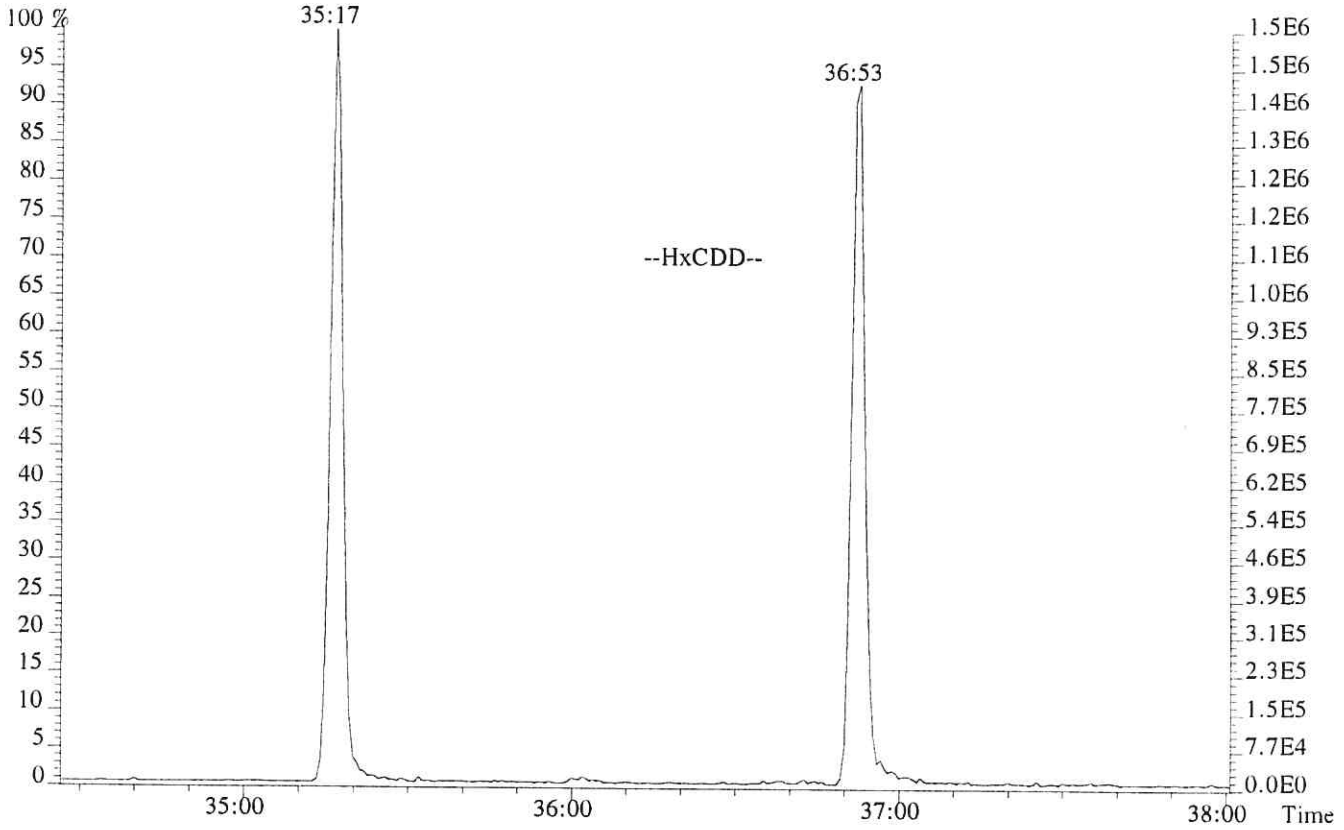
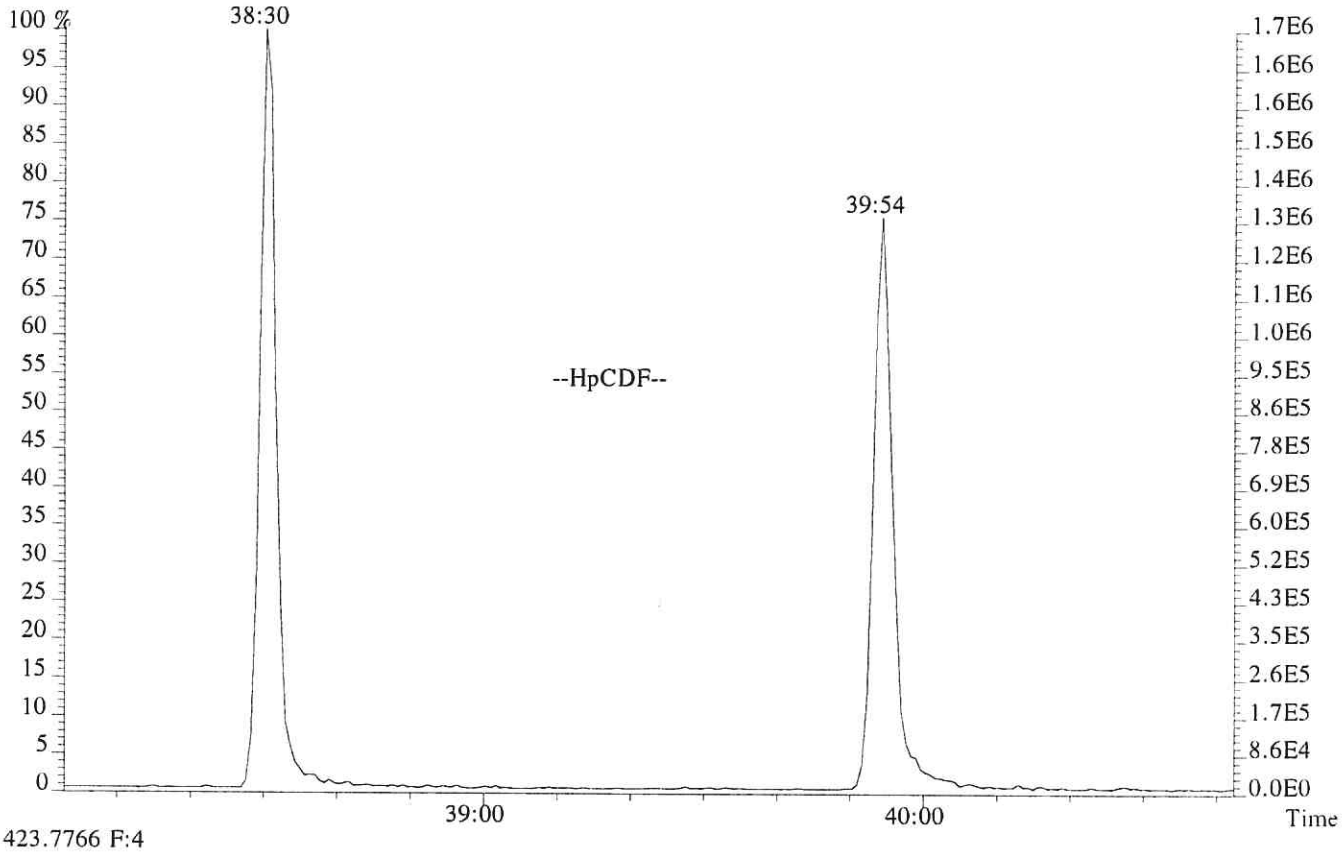
Sample#1 Exp:192977
373.8208 F:3



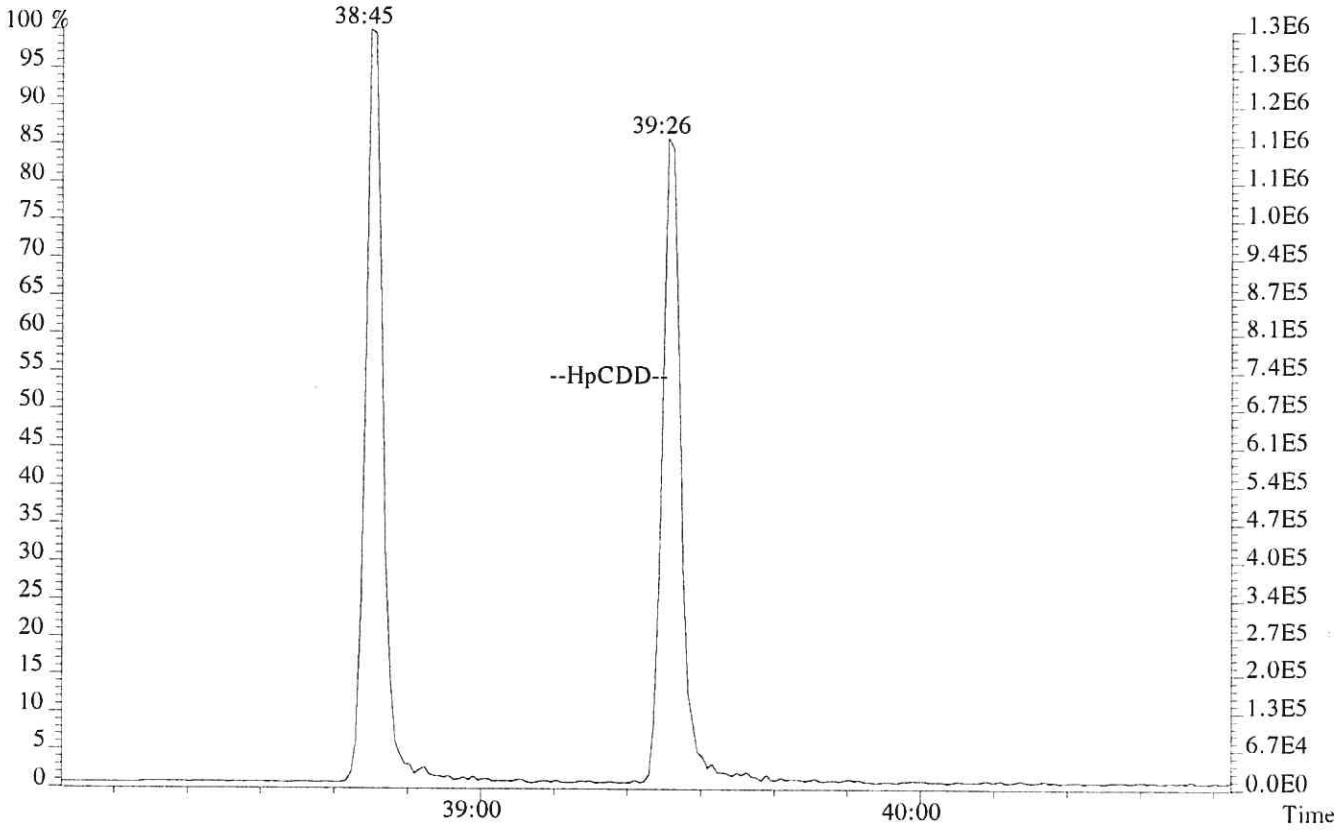
389.8157 F:3



File:P519211 #1-240 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.5	7.8 - 12.9	-5.1
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	2.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	52	39 - 64	3.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	54	41 - 61	8.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.6
OCDD	M+2/M+4	0.90	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.9	8.4 - 12.0	-0.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	51	41 - 61	2.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.17	1.05-1.43	52	45 - 56	3.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	49	43 - 58	-1.2
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	107	82 - 121	6.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	123	62 - 160	23.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	98	85 - 117	-2.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	96	85 - 118	-3.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	12.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	270	96 - 415	35.2
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-1.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	119	76 - 130	18.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	120	77 - 130	20.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	76 - 131	-9.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	90	70 - 143	-10.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	73 - 137	-2.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	117	77 - 129	17.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.5	7.8 - 12.7	4.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	2.756e+03	3.737e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	2.513e+04	1.656e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.440e+04	1.601e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.185e+04	1.866e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.313e+04	1.900e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.198e+04	1.867e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	2.056e+04	1.659e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.101e+04	2.060e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	1.756e+04	1.785e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:26	3.016e+04	3.369e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:49	2.095e+03	2.645e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	1.679e+04	1.086e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.592e+04	1.245e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.628e+04	1.278e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.751e+04	1.368e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	1.516e+04	1.442e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:14	2.503e+04	2.792e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	3.084e+04	3.862e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	5.032e+04	3.128e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	5.047e+04	3.162e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	2.267e+04	4.334e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	2.537e+04	4.931e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	2.491e+04	4.766e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	2.233e+04	4.212e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	1.904e+04	4.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.768e+04	3.932e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	2.058e+04	2.546e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	3.451e+04	2.172e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	3.032e+04	2.344e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.054e+04	2.374e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.958e+04	2.781e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:13	4.442e+04	4.904e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	2.079e+04	2.598e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.291e+04	2.646e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	4.962e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.22e+05	1.96e+02	2.7e+03	6.82e+05	9.16e+02	7.4e+02
2	1,2,3,7,8-PeCDF	4.71e+06	2.48e+02	1.9e+04	3.12e+06	8.20e+02	3.8e+03
3	2,3,4,7,8-PeCDF	4.97e+06	2.48e+02	2.0e+04	3.23e+06	8.20e+02	3.9e+03
4	1,2,3,4,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	4.03e+06	2.76e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	3.98e+06	2.76e+02	1.4e+04
6	2,3,4,6,7,8-HxCDF	4.76e+06	5.32e+02	9.0e+03	3.97e+06	2.76e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	4.41e+06	5.32e+02	8.3e+03	3.41e+06	2.76e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	4.68e+06	1.79e+03	2.6e+03	4.61e+06	2.40e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.79e+03	1.9e+03	3.46e+06	2.40e+03	1.4e+03
10	OCDF	5.03e+06	2.28e+02	2.2e+04	5.70e+06	4.16e+02	1.4e+04
11	2,3,7,8-TCDD	3.97e+05	1.16e+03	3.4e+02	5.22e+05	5.12e+02	1.0e+03
12	1,2,3,7,8-PeCDD	3.33e+06	3.92e+02	8.5e+03	2.15e+06	2.72e+02	7.9e+03
13	1,2,3,4,7,8-HxCDD	3.64e+06	2.64e+02	1.4e+04	2.83e+06	2.36e+02	1.2e+04
14	1,2,3,6,7,8-HxCDD	3.50e+06	2.64e+02	1.3e+04	2.75e+06	2.36e+02	1.2e+04
15	1,2,3,7,8,9-HxCDD	3.76e+06	2.64e+02	1.4e+04	2.94e+06	2.36e+02	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	3.16e+06	2.80e+02	1.1e+04	3.02e+06	2.56e+02	1.2e+04
17	OCDD	4.25e+06	2.28e+02	1.9e+04	4.76e+06	2.52e+02	1.9e+04
18	13C-2,3,7,8-TCDF	5.51e+06	3.96e+03	1.4e+03	6.80e+06	2.42e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	9.58e+06	5.48e+02	1.7e+04	5.97e+06	3.00e+02	2.0e+04
20	13C-2,3,4,7,8-PeCDF	1.02e+07	5.48e+02	1.9e+04	6.39e+06	3.00e+02	2.1e+04
21	13C-1,2,3,4,7,8-HxCDF	4.87e+06	4.64e+02	1.1e+04	9.25e+06	8.44e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	5.32e+06	4.64e+02	1.1e+04	1.04e+07	8.44e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	5.34e+06	4.64e+02	1.2e+04	1.00e+07	8.44e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	4.68e+06	4.64e+02	1.0e+04	8.77e+06	8.44e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.18e+06	3.02e+03	1.4e+03	9.31e+06	6.16e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	3.02e+03	1.1e+03	7.55e+06	6.16e+03	1.2e+03
27	13C-2,3,7,8-TCDD	3.95e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	7.00e+06	4.64e+02	1.5e+04	4.44e+06	8.04e+02	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	6.92e+06	8.88e+02	7.8e+03	5.33e+06	2.56e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	6.59e+06	8.88e+02	7.4e+03	5.11e+06	2.56e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.98e+06	8.80e+02	6.8e+03	5.67e+06	5.08e+02	1.1e+04
32	13C-OCDD	7.60e+06	4.68e+02	1.6e+04	8.41e+06	3.28e+02	2.6e+04
33	13C-1,2,3,4-TCDD	3.97e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.17e+06	8.88e+02	8.1e+03	5.65e+06	2.56e+02	2.2e+04
35	37Cl-2,3,7,8-TCDD	9.46e+05	9.20e+02	1.0e+03			

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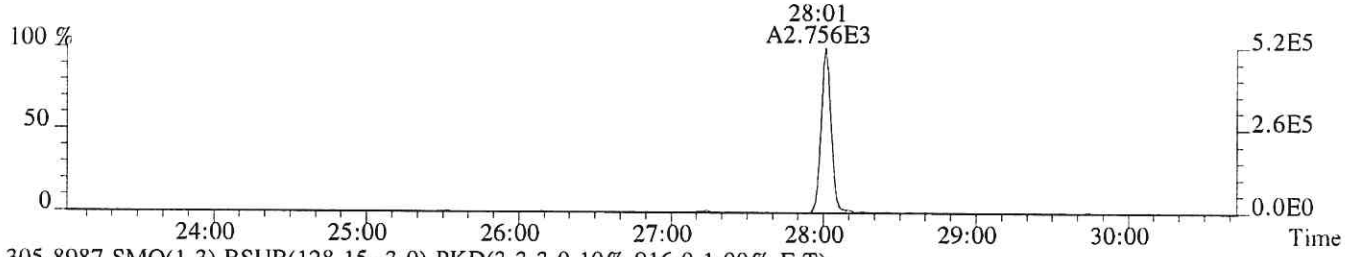
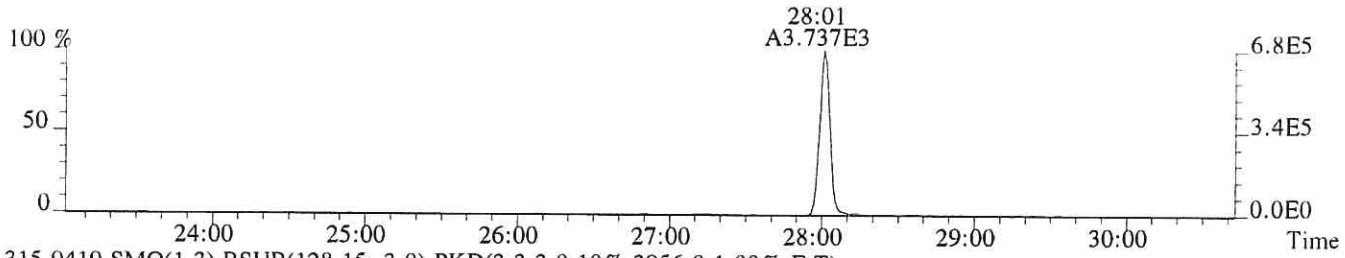
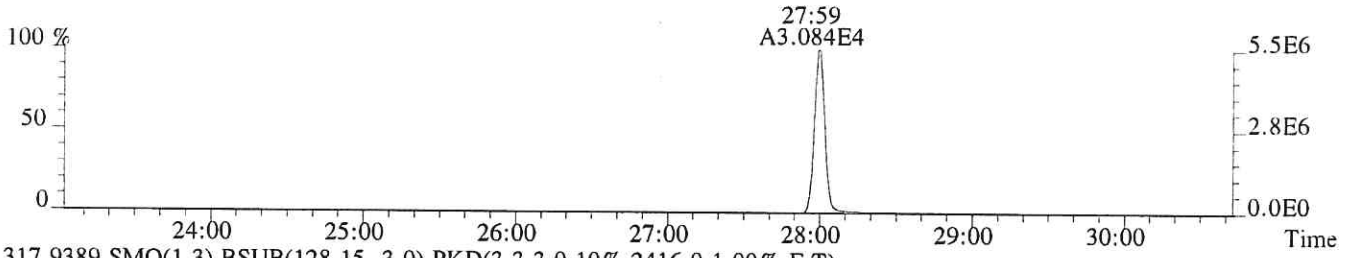
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



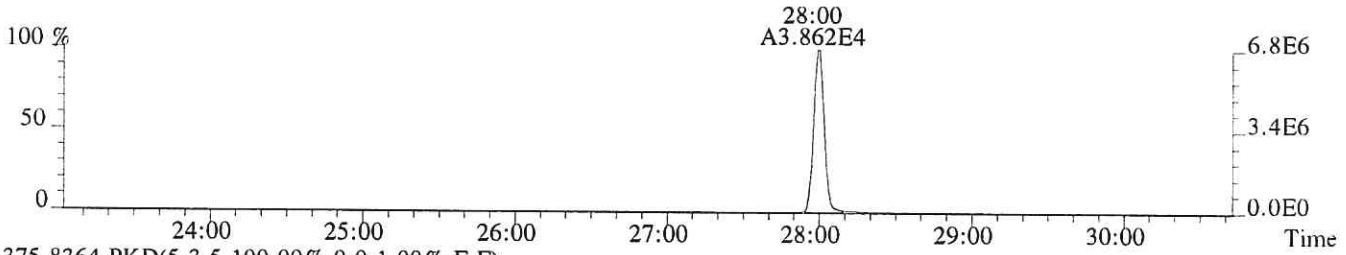
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



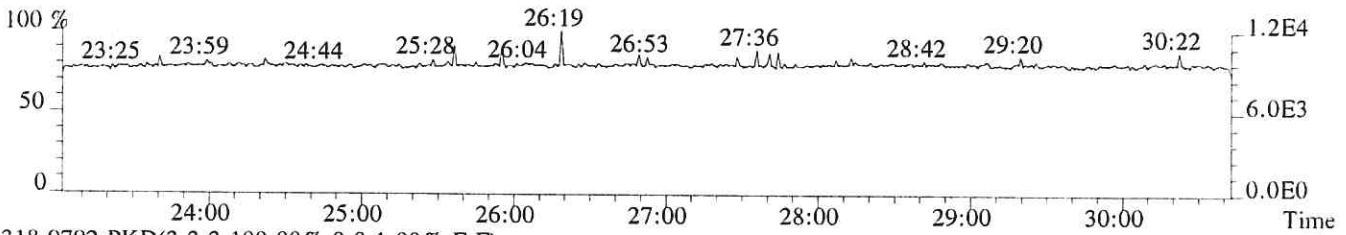
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3956.0,1.00%,F,T)



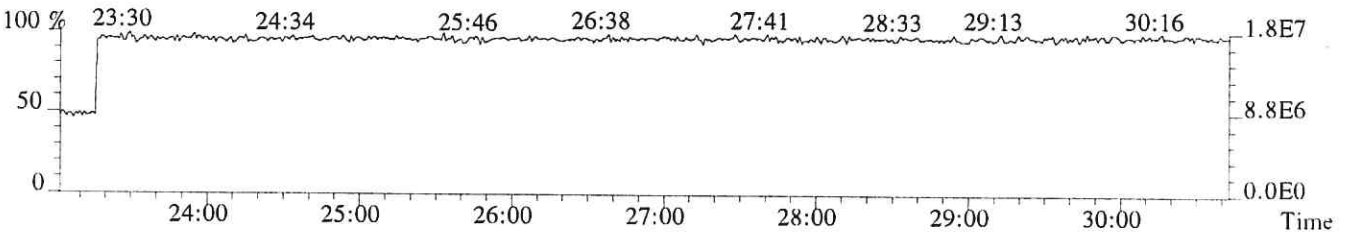
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



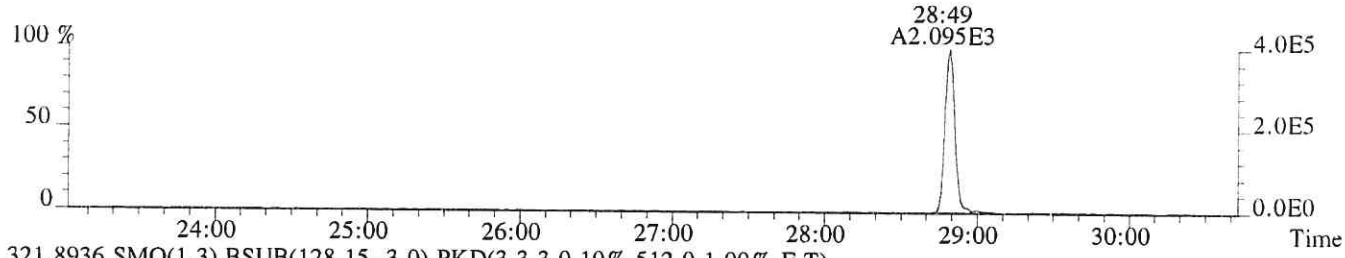
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



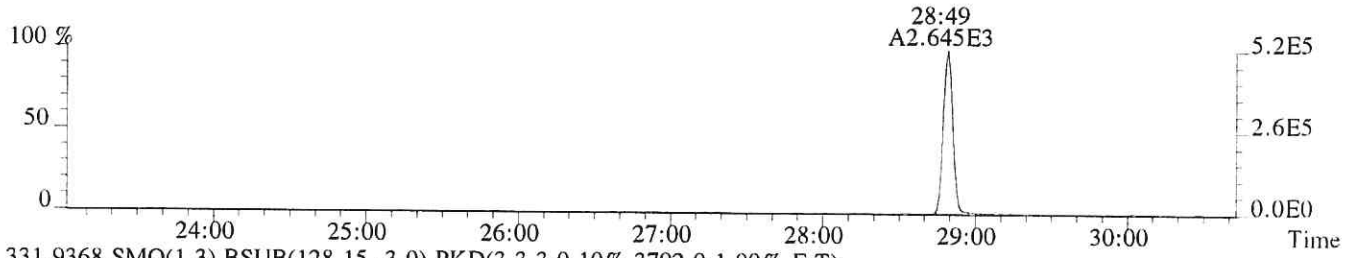
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



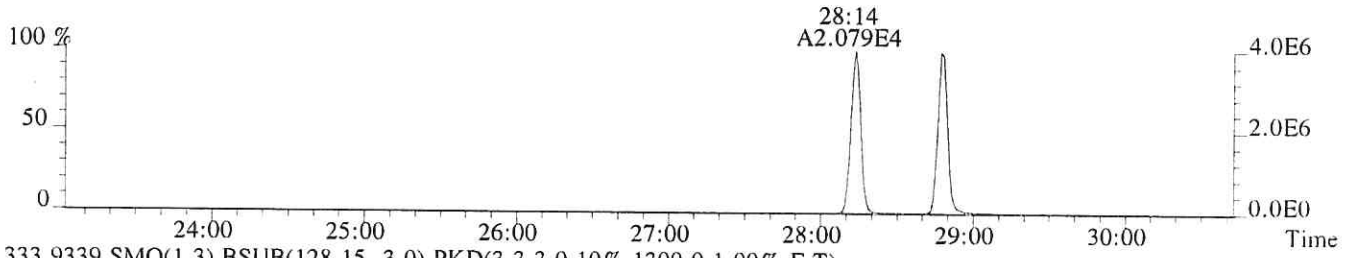
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



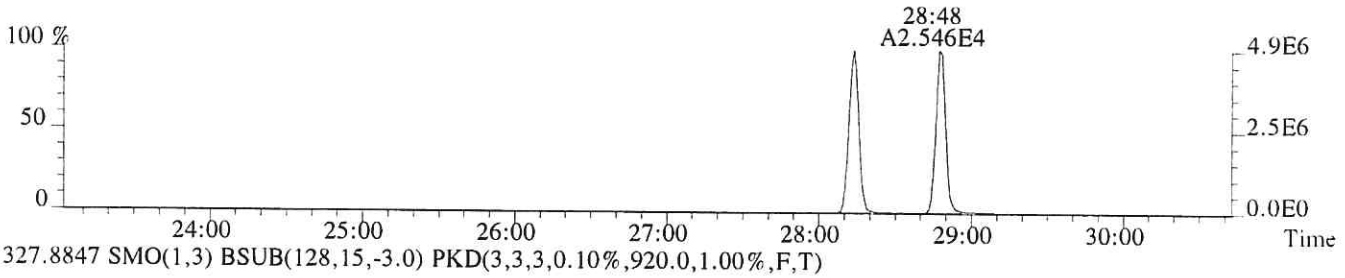
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



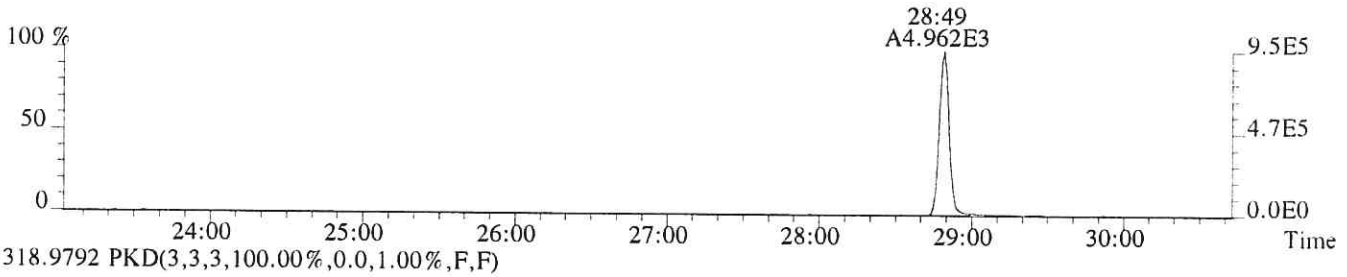
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



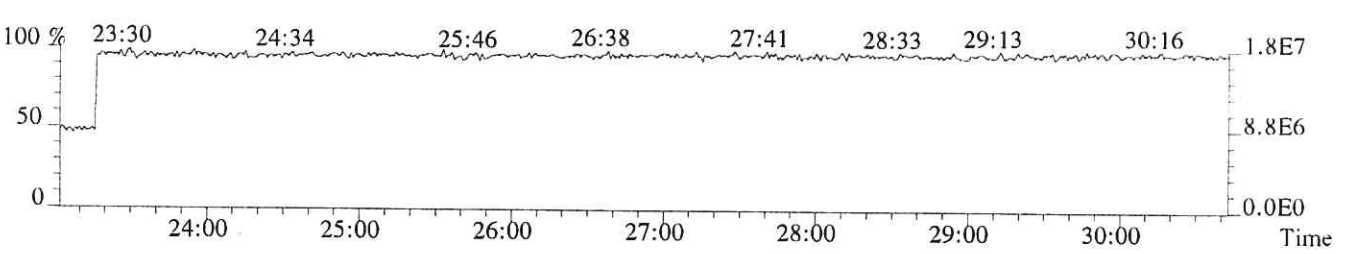
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



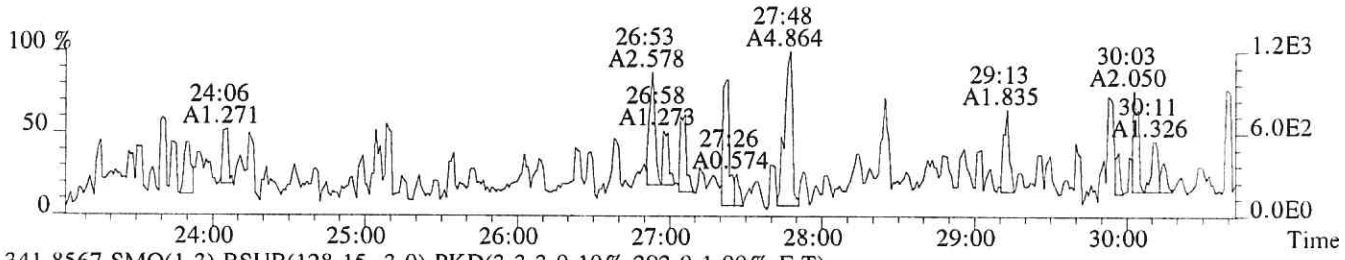
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



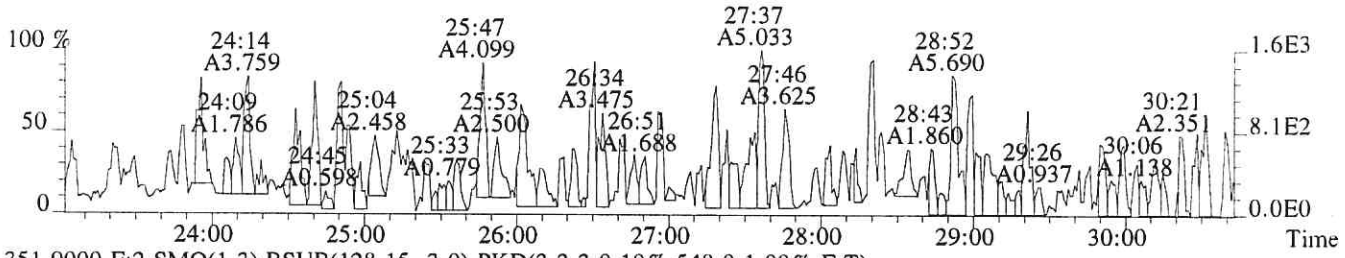
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



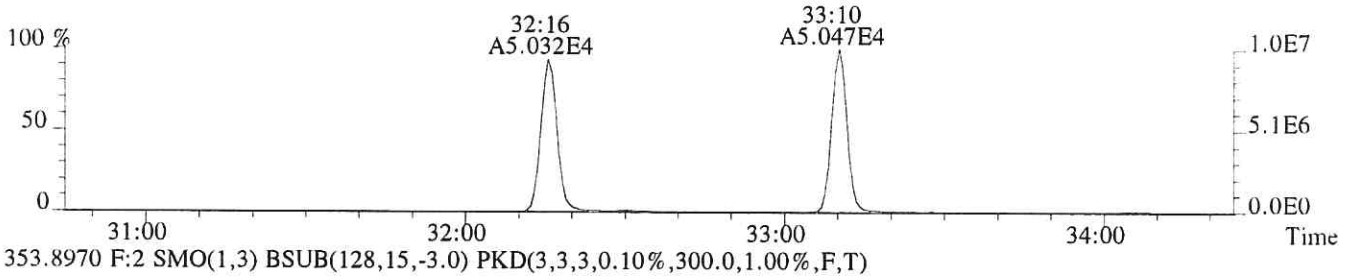
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



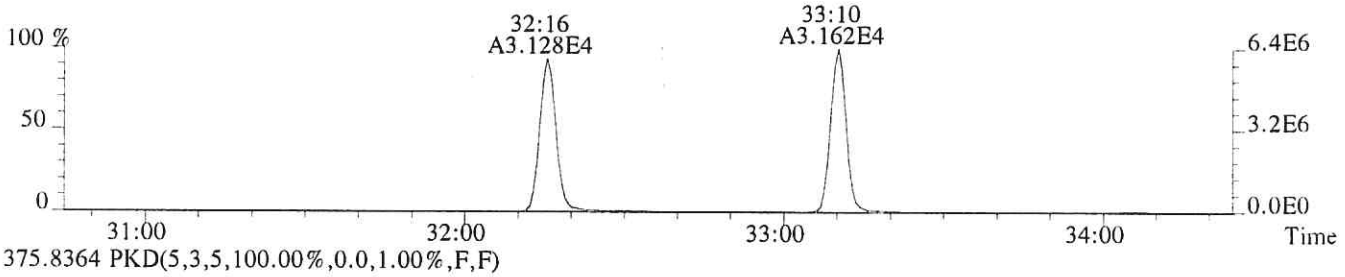
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



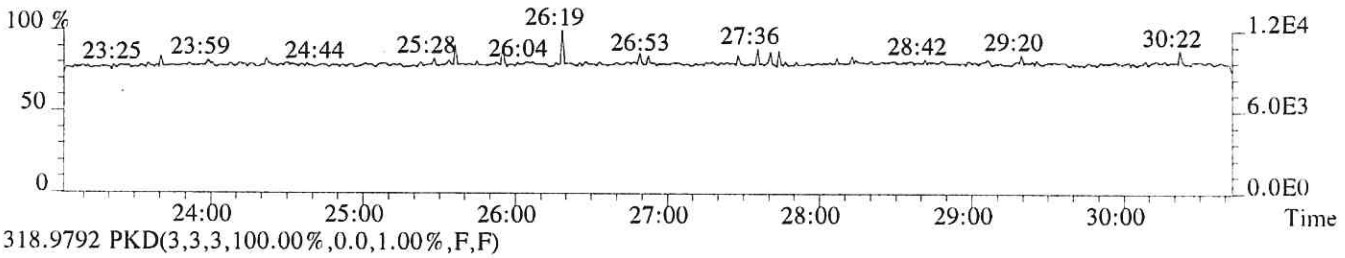
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



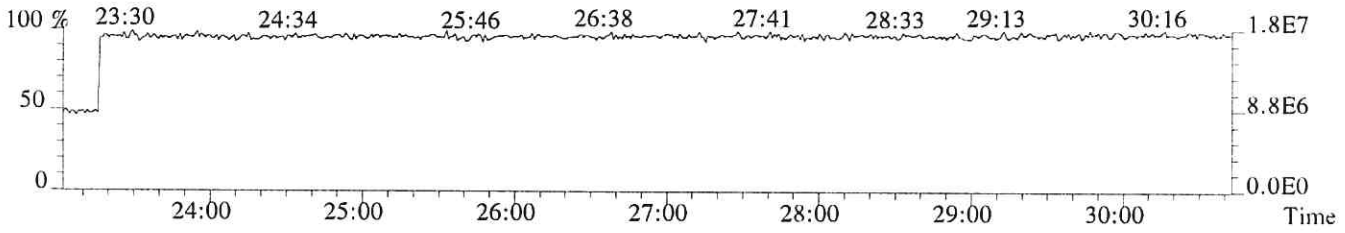
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



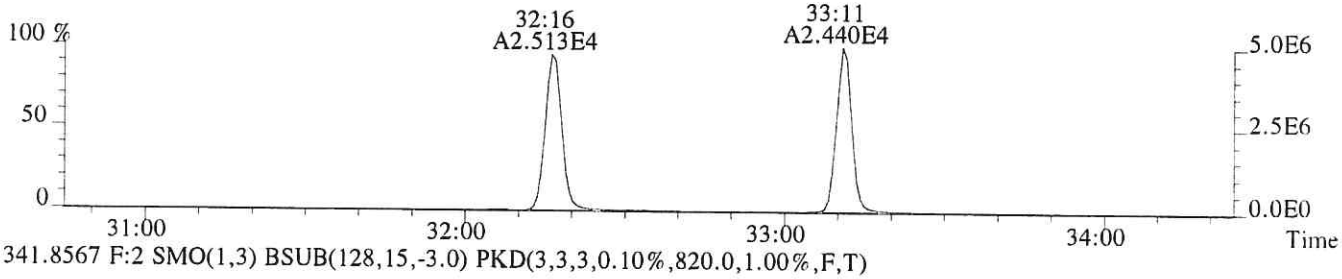
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



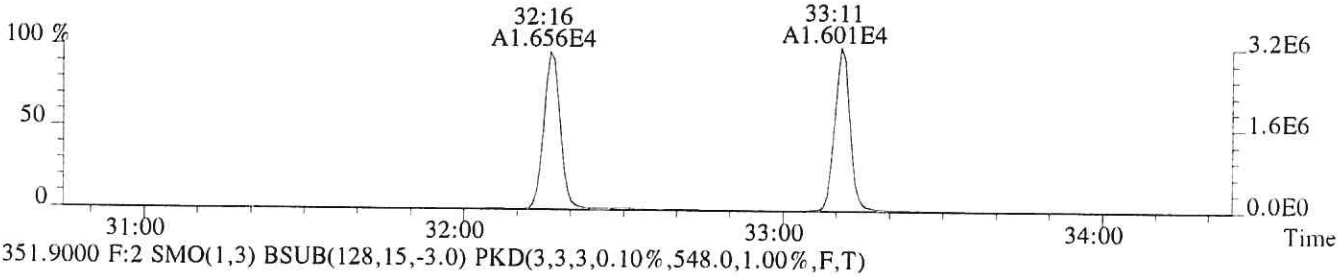
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



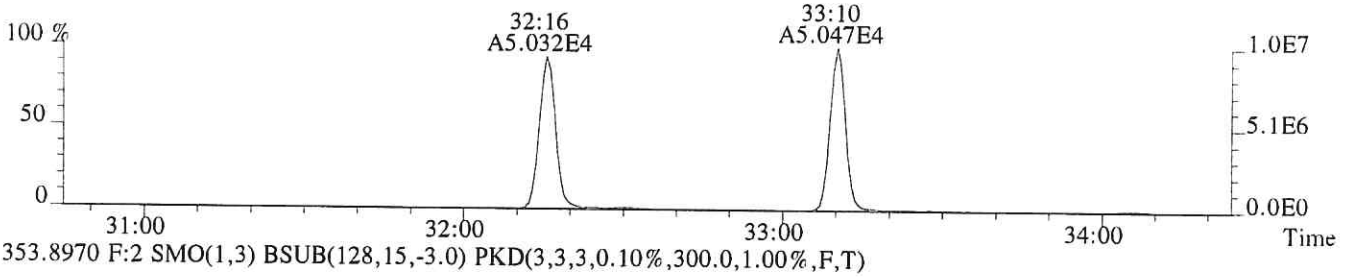
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



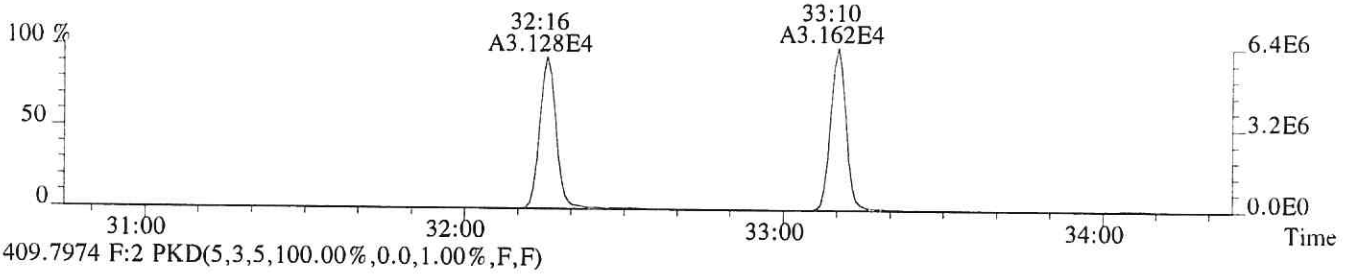
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



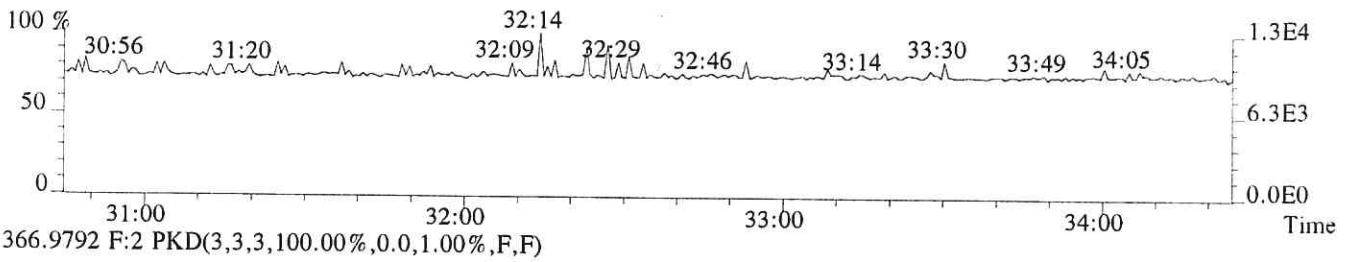
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



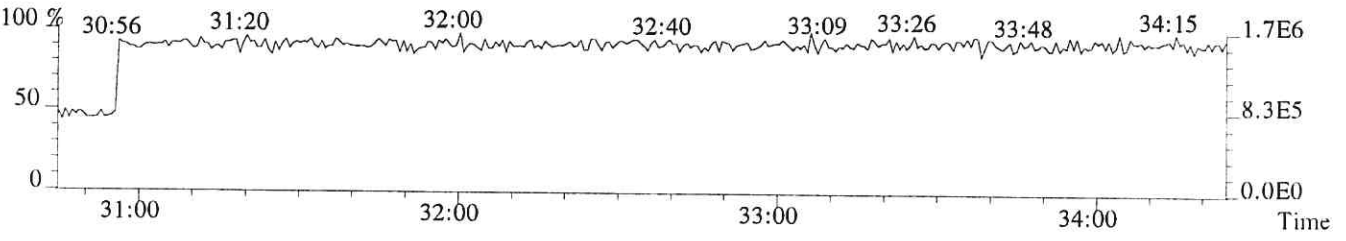
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



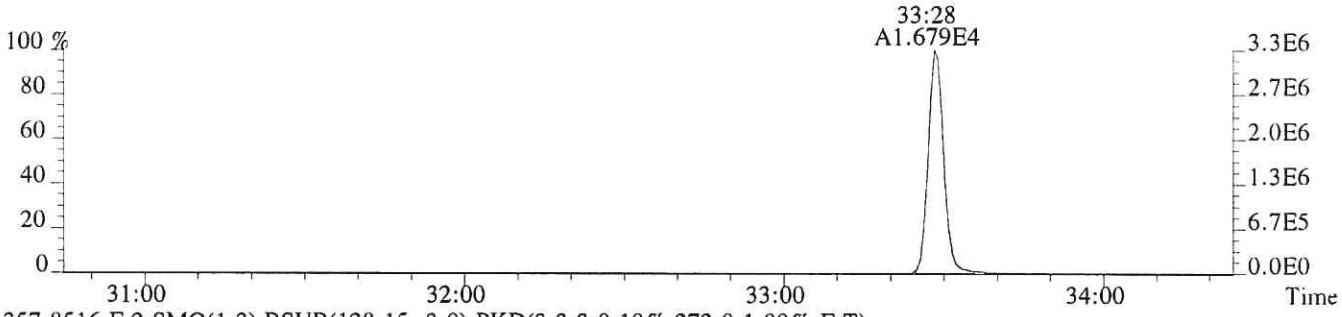
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



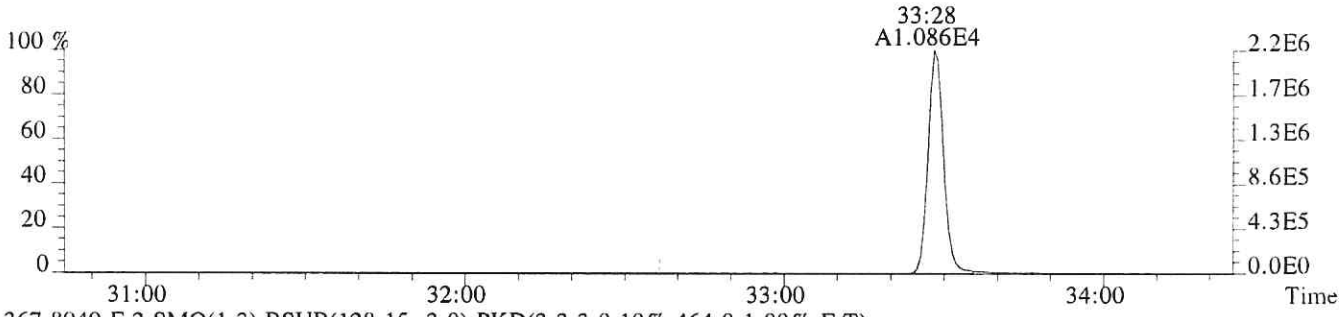
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



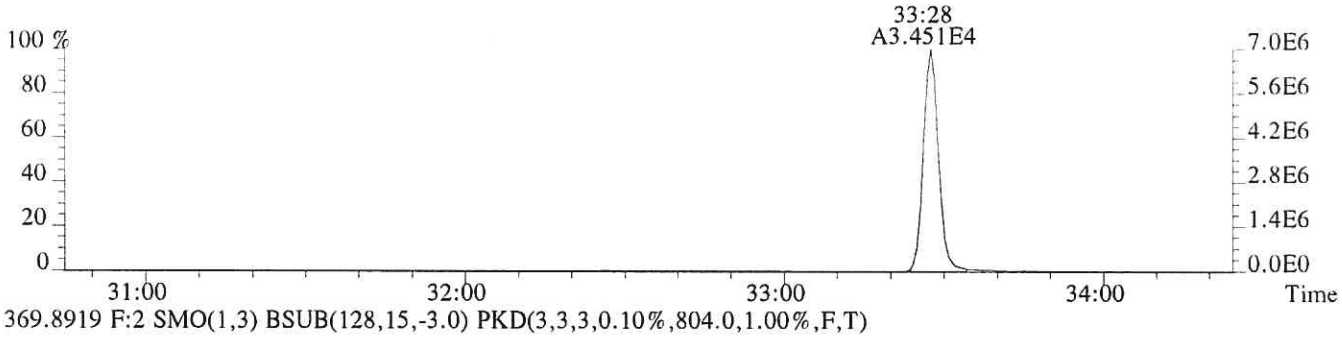
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



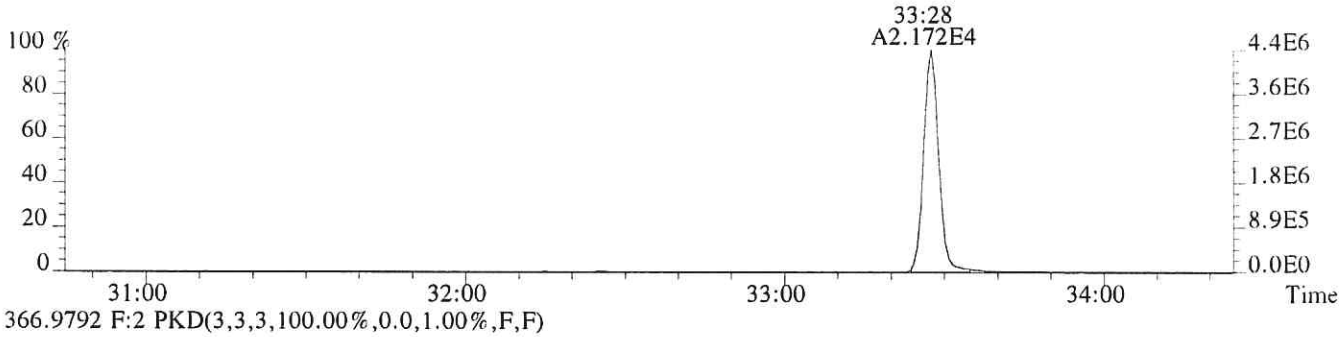
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



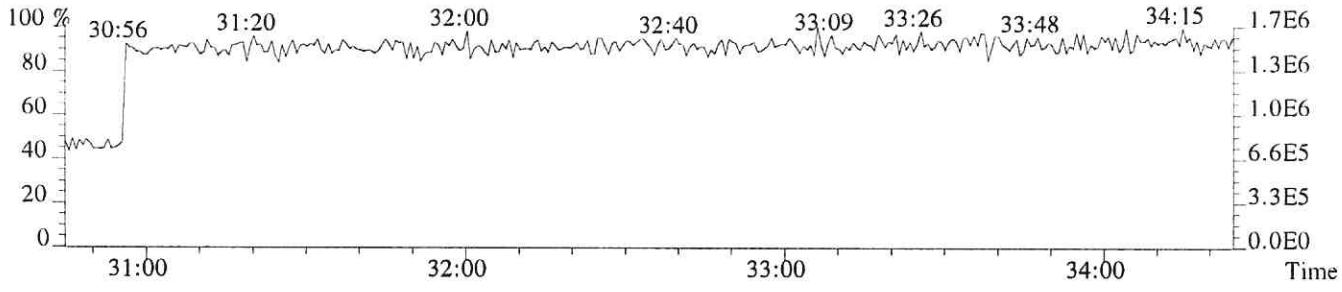
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



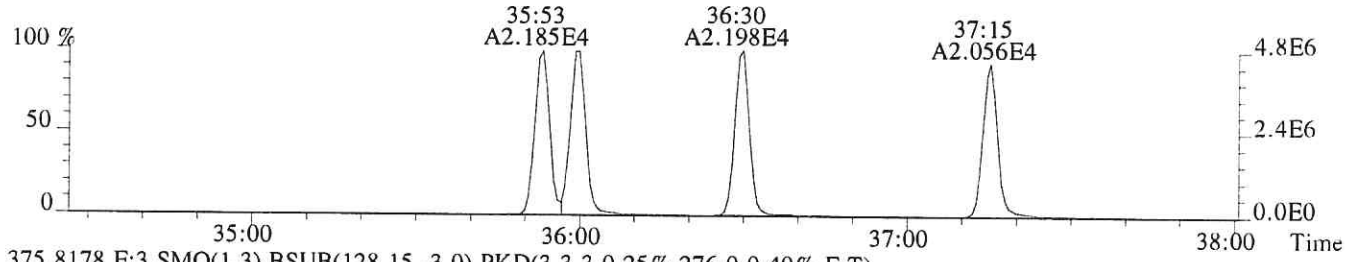
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



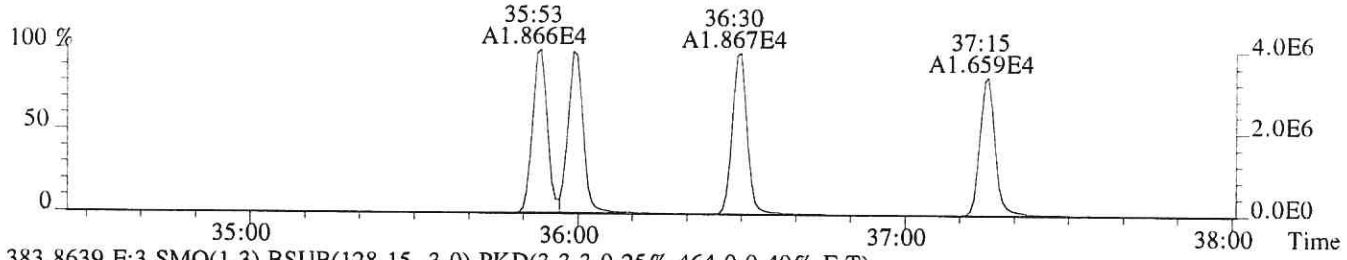
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



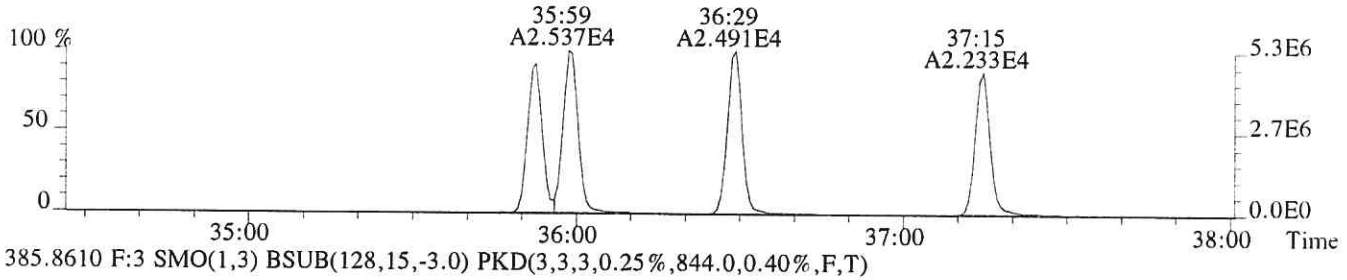
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



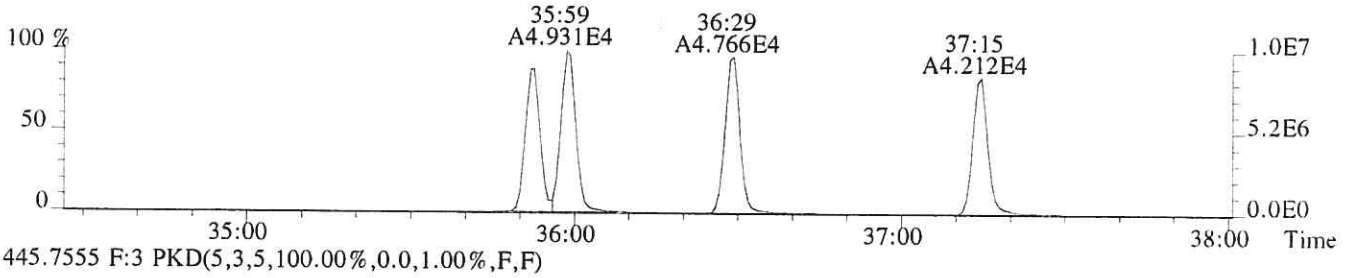
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



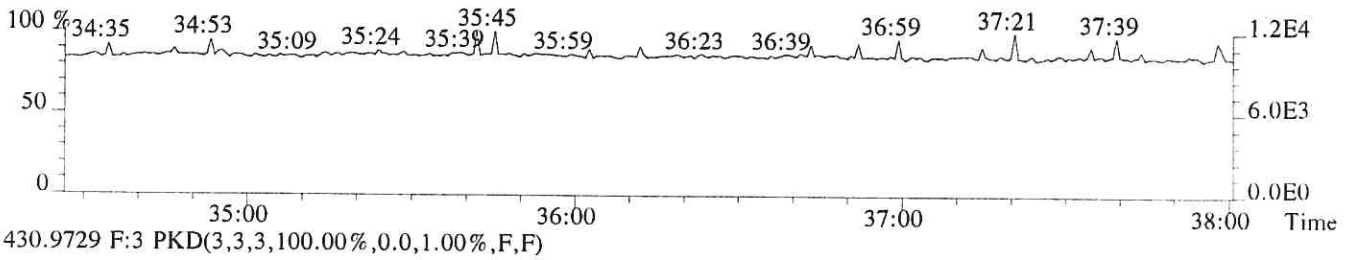
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



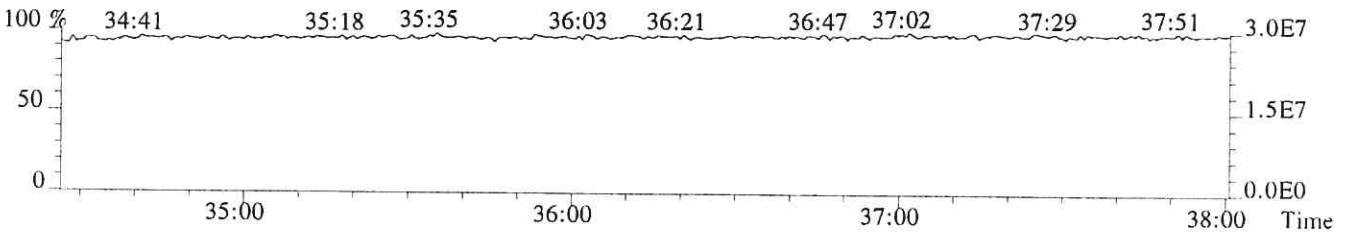
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



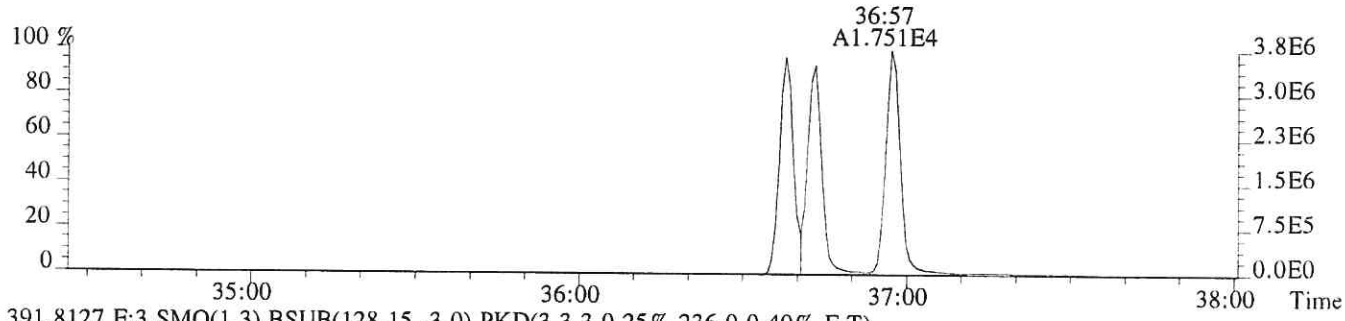
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



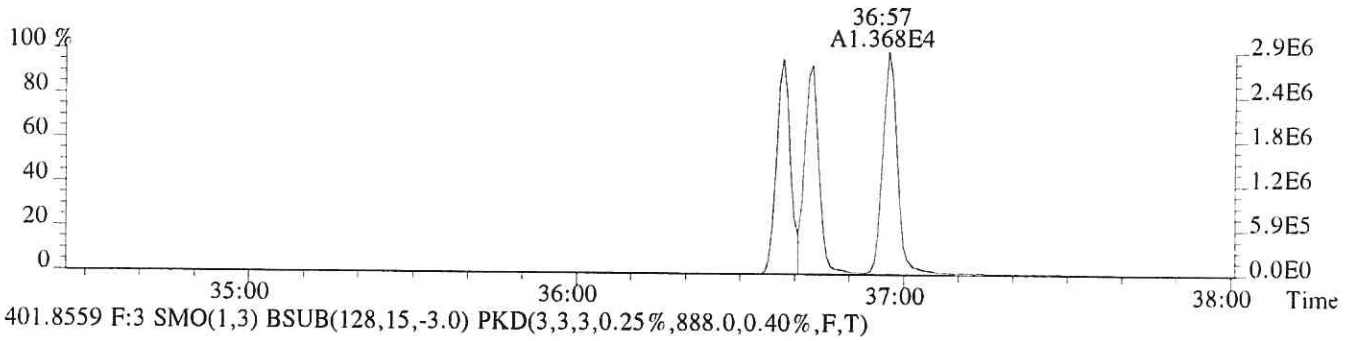
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



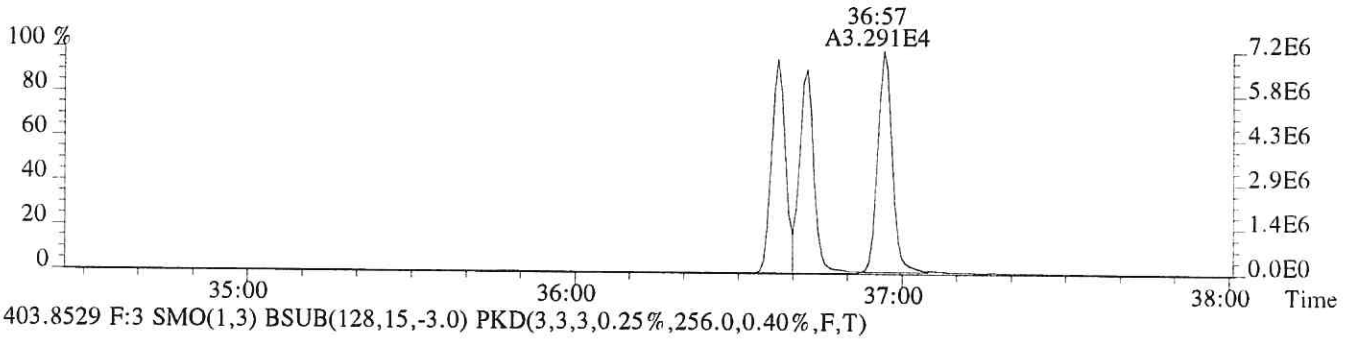
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



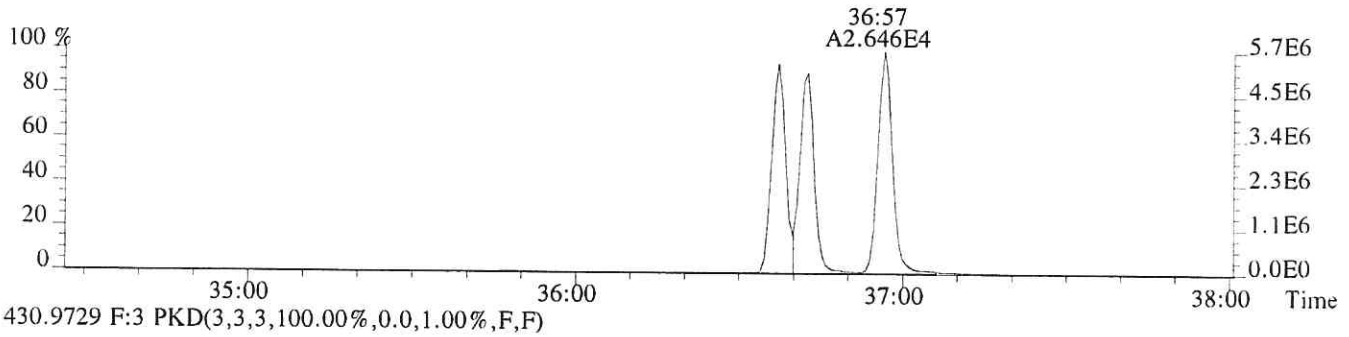
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



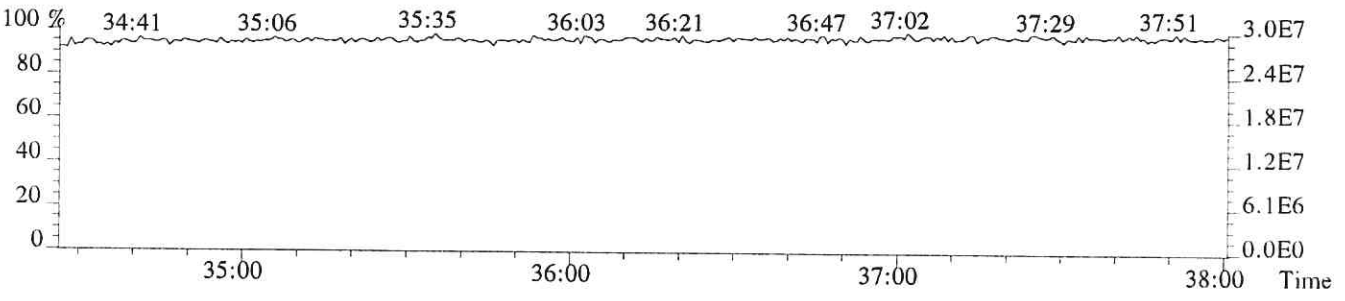
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



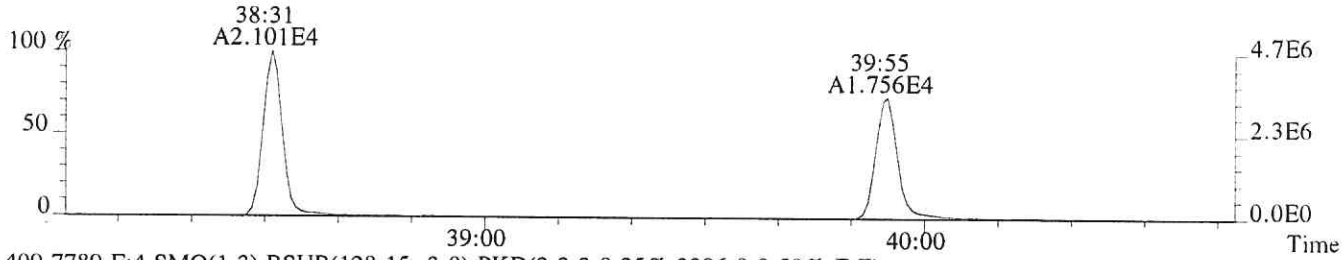
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



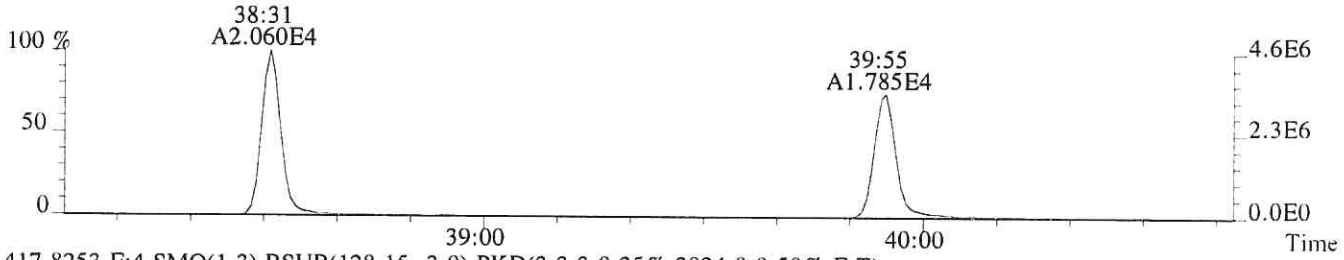
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



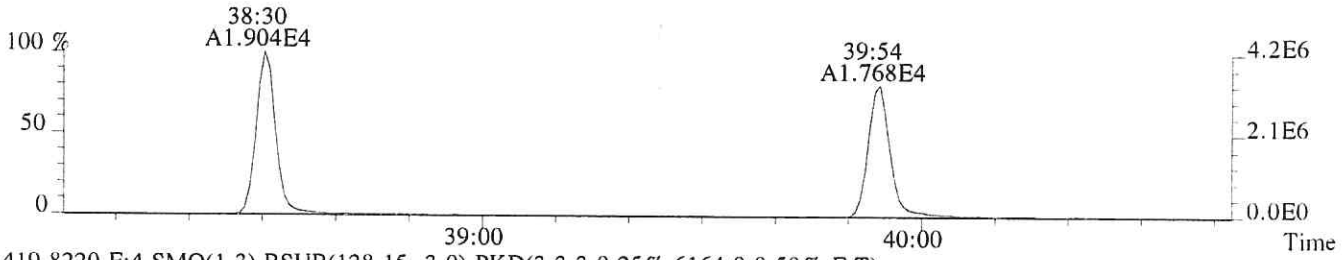
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.50%,F,T)



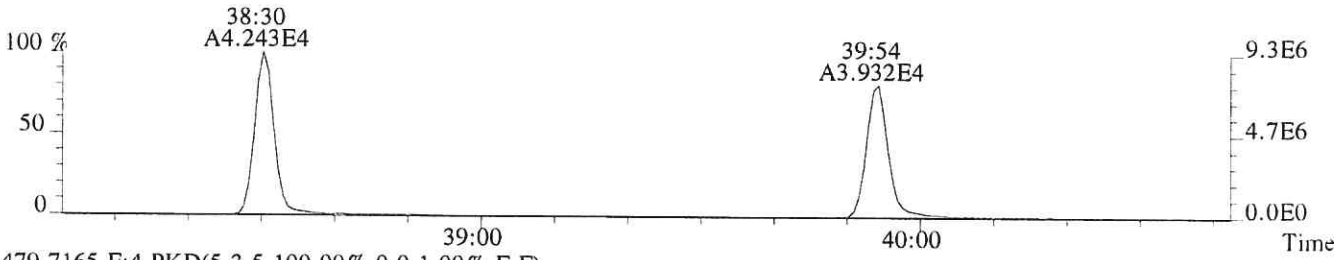
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.50%,F,T)



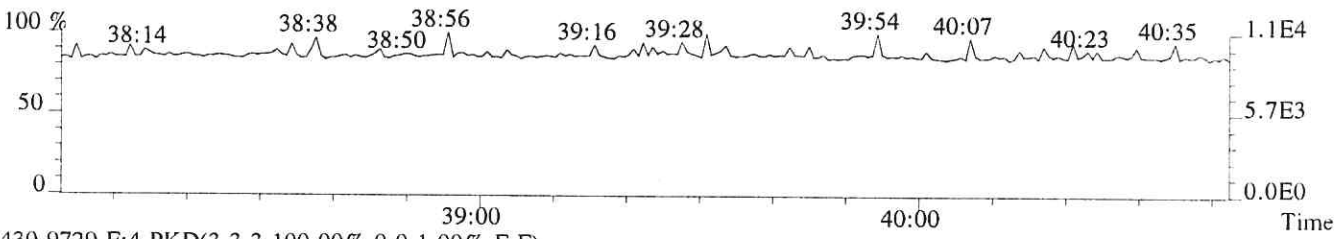
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3024.0,0.50%,F,T)



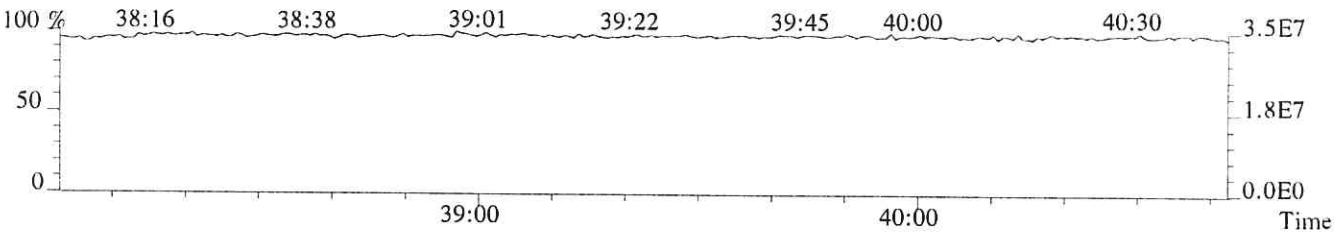
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6164.0,0.50%,F,T)



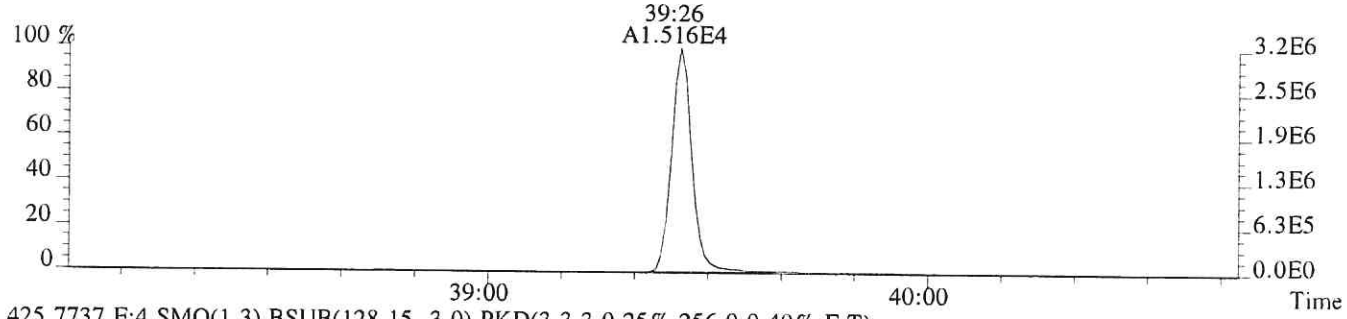
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



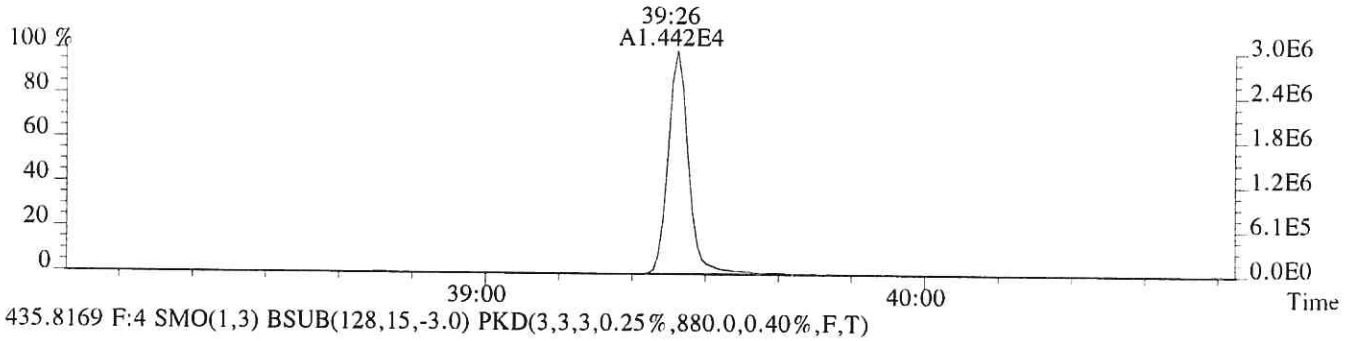
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



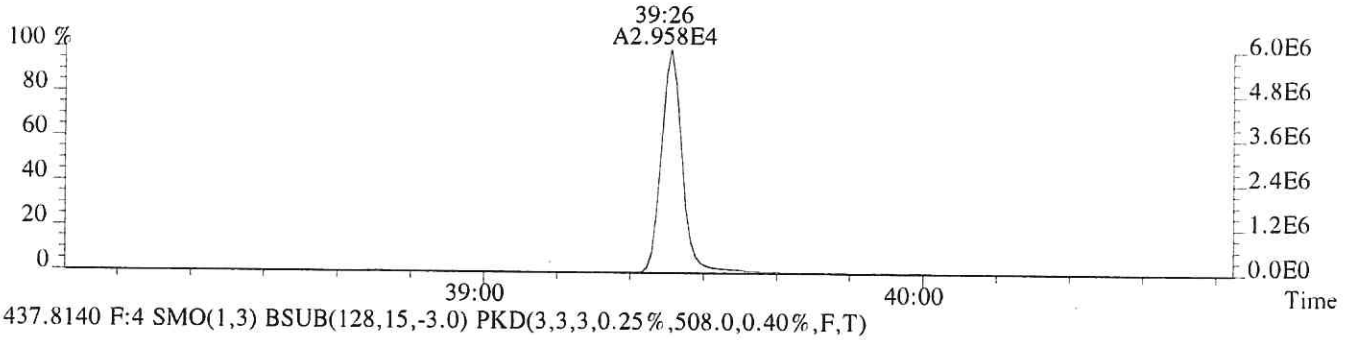
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



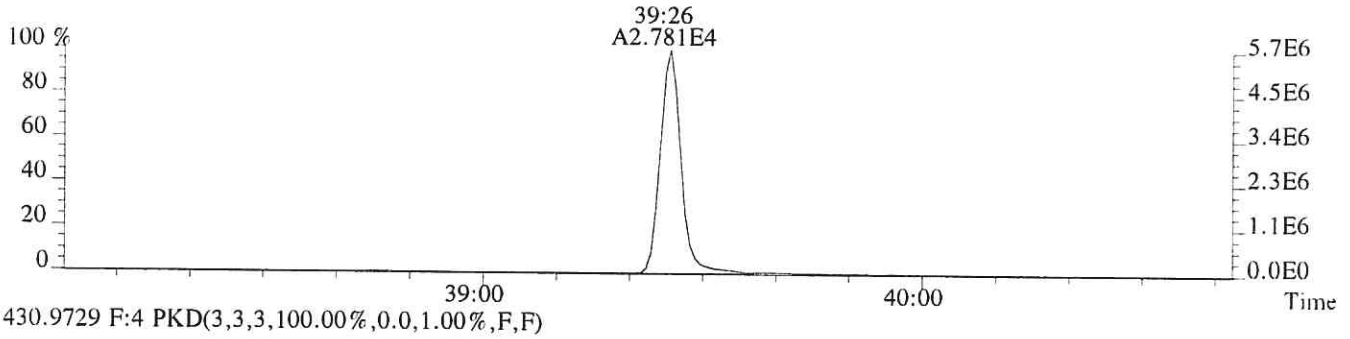
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



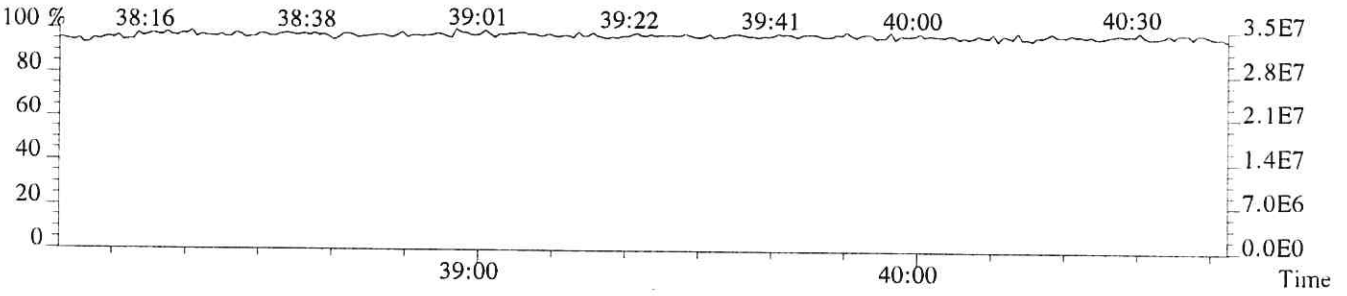
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



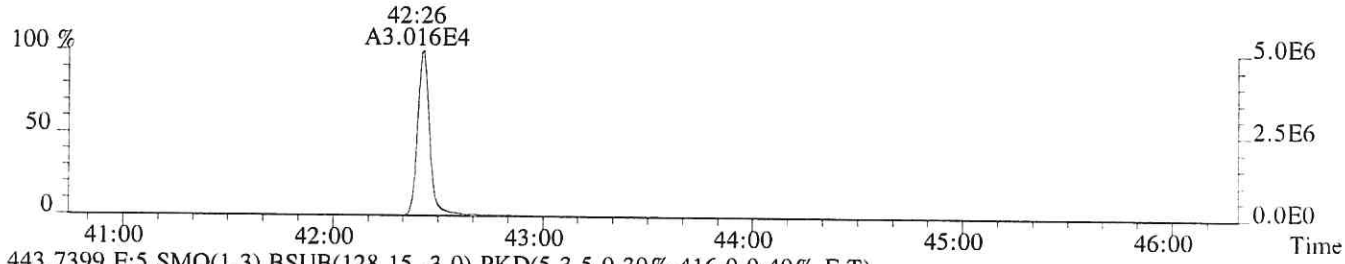
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



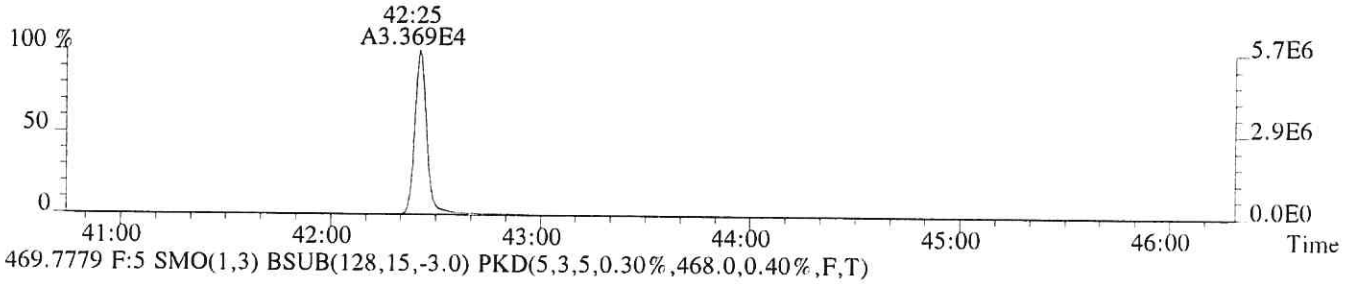
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



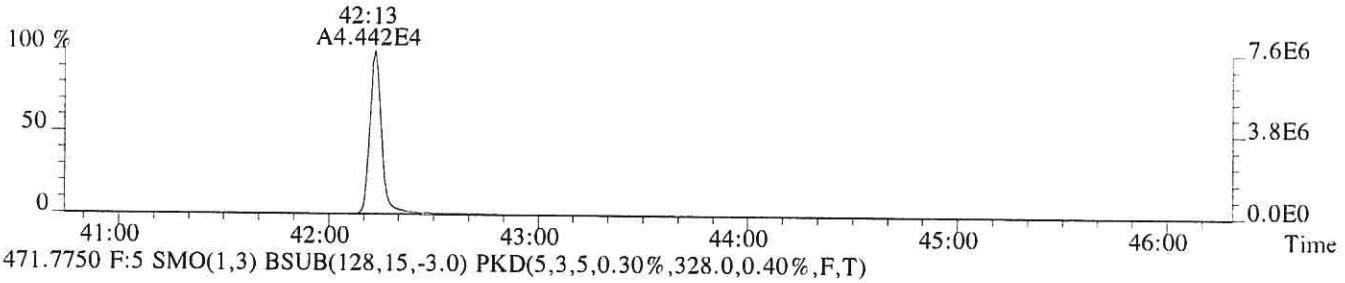
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



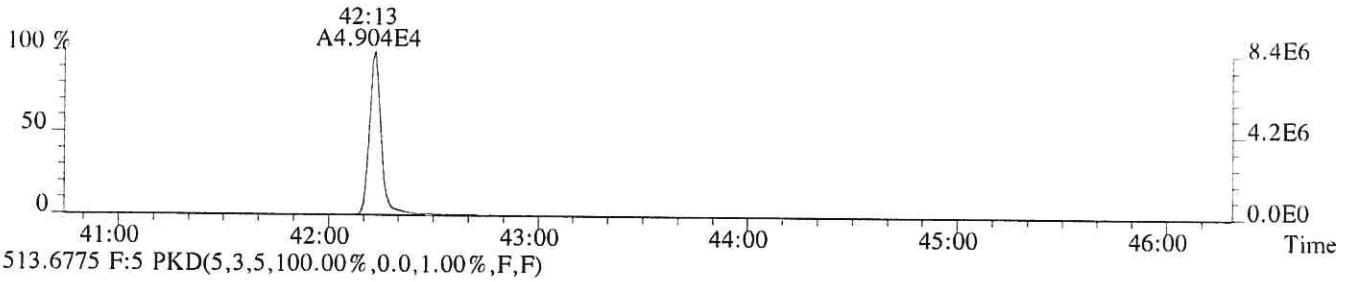
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



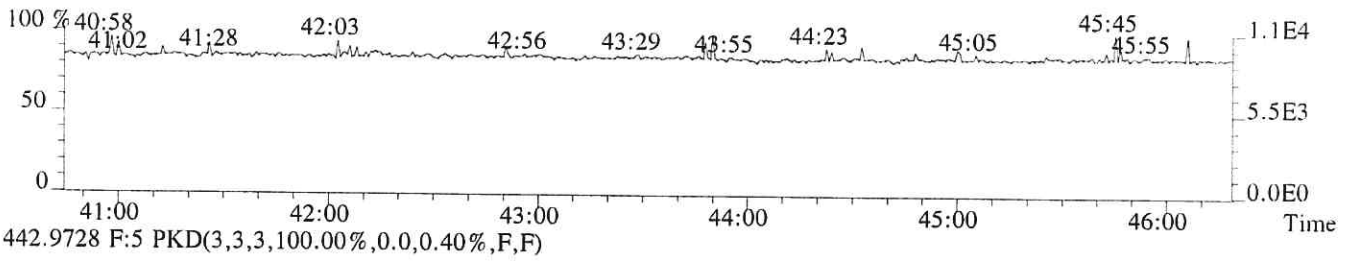
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



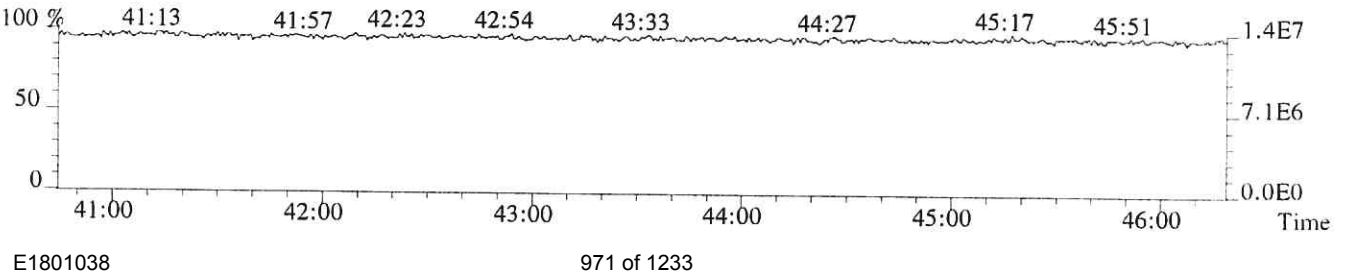
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



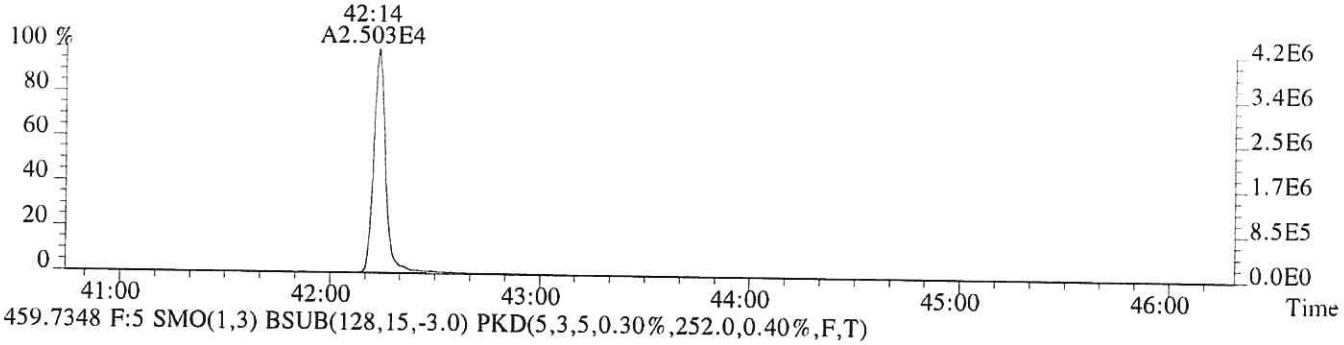
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



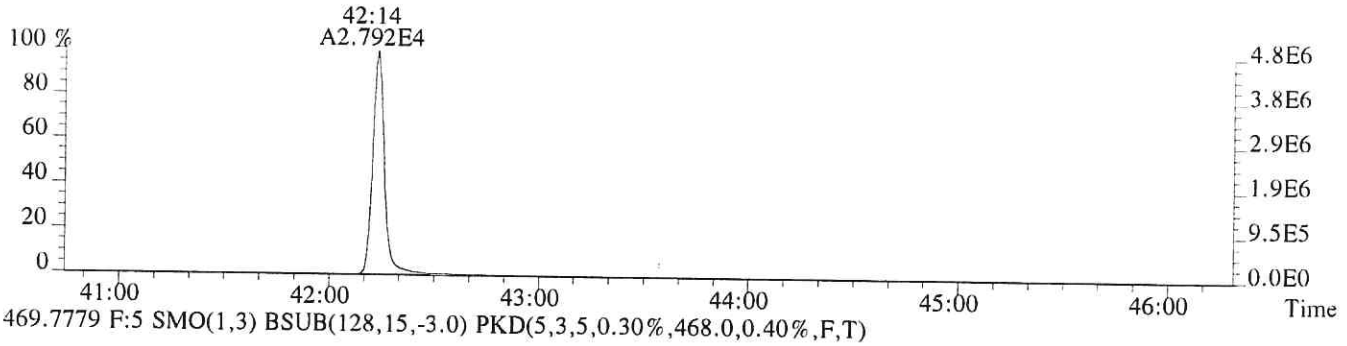
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



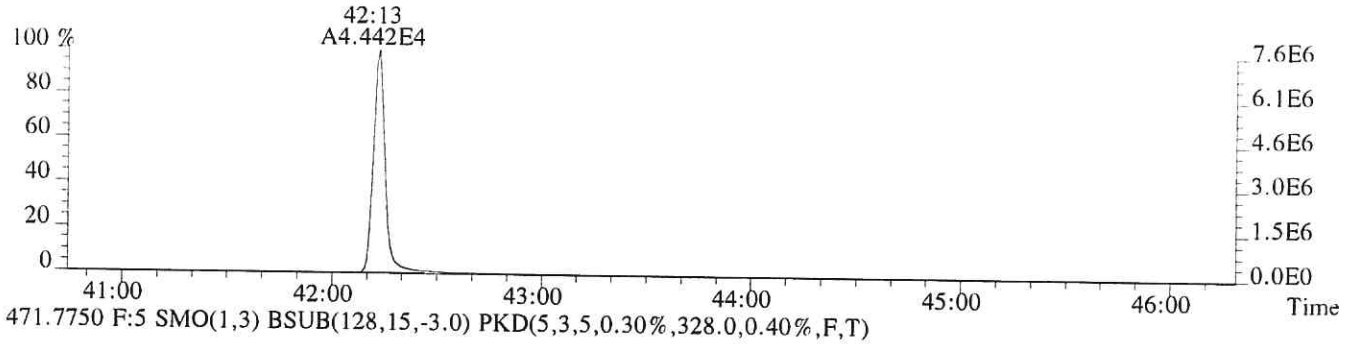
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



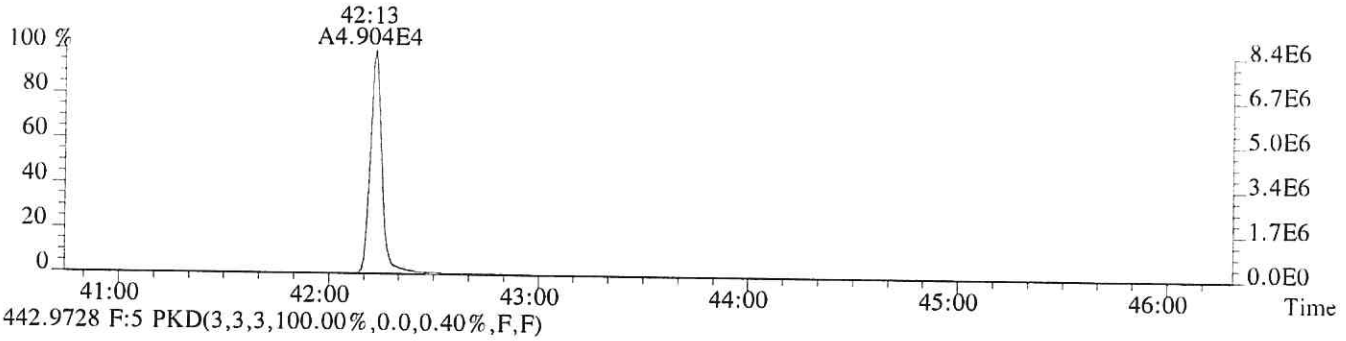
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



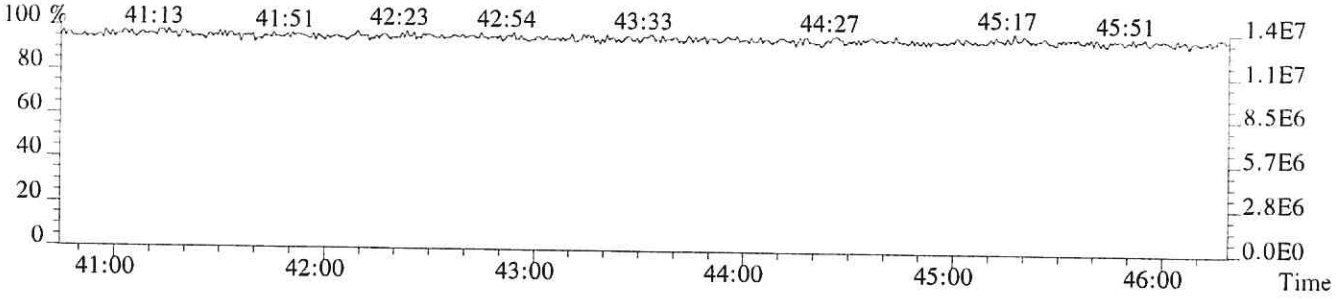
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P615714

Date: 11/27/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615715	27-NOV-18	11:03:06
194503	CS3	P615714	27-NOV-18	10:04:16
METHOD BLANK	EQ1800466-01	P615716	27-NOV-18	11:51:24
METHOD BLANK	EQ1800474-01	P615717	27-NOV-18	12:40:25
METHOD BLANK	EQ1800467-01	P615718	27-NOV-18	13:29:29
FW0002	E1801012-021	P615719	27-NOV-18	14:18:43
FW0003	E1801012-022	P615720	27-NOV-18	15:07:45
FW0001	E1801020-053	P615721	27-NOV-18	15:59:49
FB001	E1801020-054	P615722	27-NOV-18	16:48:08
183384-D/F WIPE OF╗	E1801036-001	P615723	27-NOV-18	17:37:19
183391-D/F WIPE OF╗	E1801036-002	P615724	27-NOV-18	18:26:25
183392-D/F WIPE OF╗	E1801036-003	P615725	27-NOV-18	19:15:37
FW0050	E1801038-023	P615726	27-NOV-18	20:04:50
LCS	EQ1800467-02	P615727	27-NOV-18	20:53:53
DLCS	EQ1800467-03	P615728	27-NOV-18	21:43:01

E1801038

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181127A.SPL
Last Modified: Wednesday, November 28, 2018 10:35:01 Central Standard Time
Printed: Wednesday, November 28, 2018 10:35:03 Central Standard Time

Page Position (1, 1)

OPUS5NET: P615714 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/27/18	10:04	P615714	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMScheck 10:59
2		11:03	P615715	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		11:51	P615716	EQ1800466-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:40	P615717	EQ1800474-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:29	P615718	EQ1800467-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		14:18	P615719	E1801012-021	E1801012-021	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		15:07	P615720	E1801012-022	E1801012-022	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:59	P615721	E1801020-053	E1801020-053	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:48	P615722	E1801020-054	E1801020-054	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:37	P615723	E1801036-001	E1801036-001	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:26	P615724	E1801036-002	E1801036-002	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		19:15	P615725	E1801036-003	E1801036-003	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		20:04	P615726	E1801038-023	E1801038-023	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:53	P615727	EQ1800467-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:43	P615728	EQ1800467-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:40	P615729	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 22:40
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

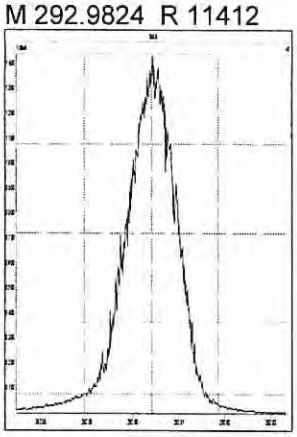
LKL 11/28/18

PE-093

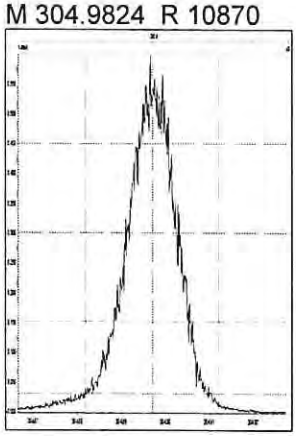
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 10:59:40 Central Standard Time

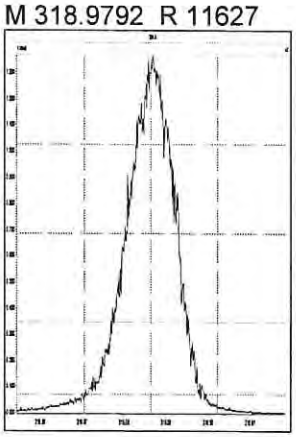
M 292.9824 R 11412



M 304.9824 R 10870



M 318.9792 R 11627



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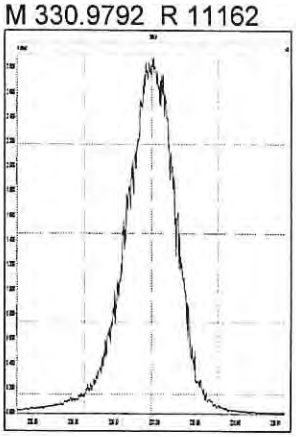
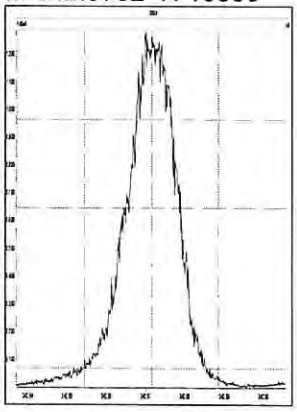
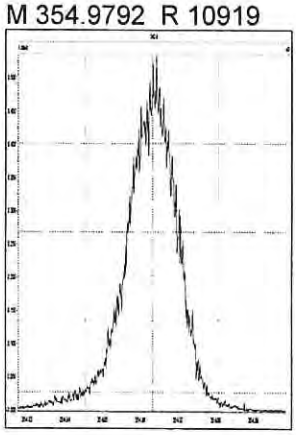


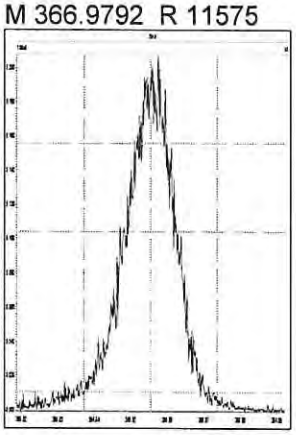
M 342.9792 R 10869



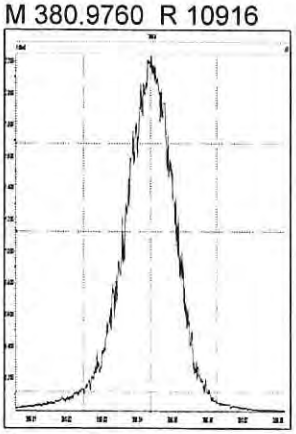
M 354.9792 R 10919



M 366.9792 R 11575



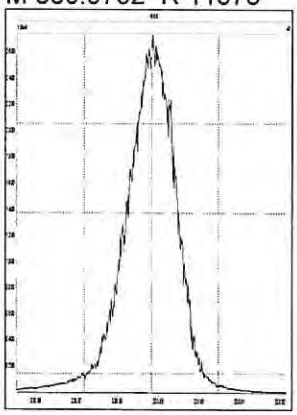
M 380.9760 R 10916



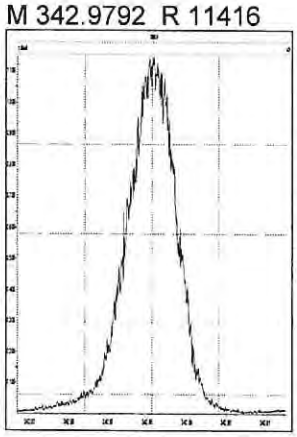
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:00:33 Central Standard Time

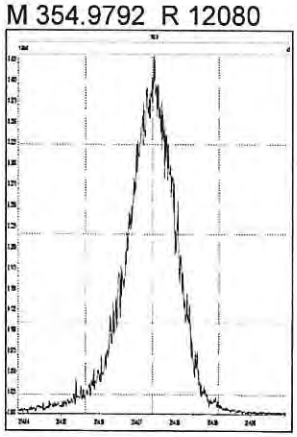
M 330.9792 R 11576



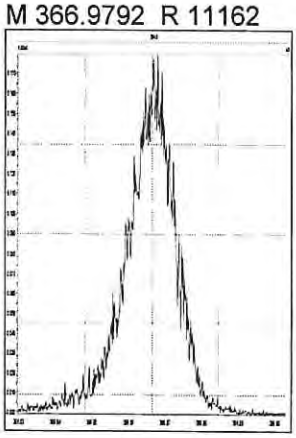
M 342.9792 R 11416



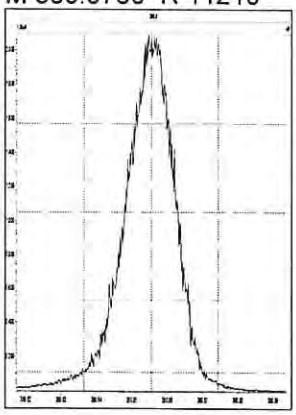
M 354.9792 R 12080



M 366.9792 R 11162



M 380.9760 R 11210



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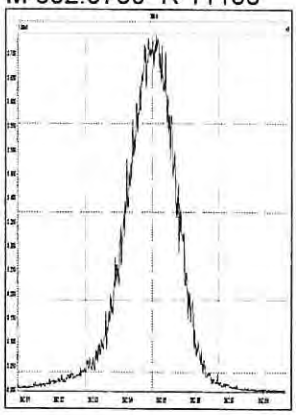
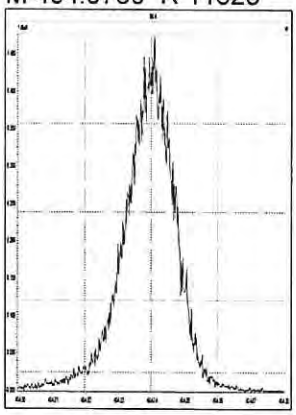
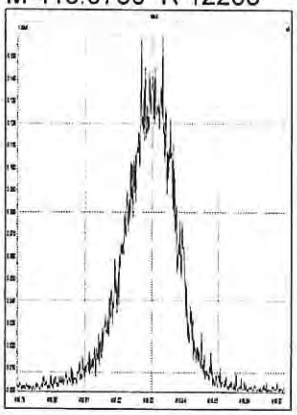


M 404.9760 R 11628



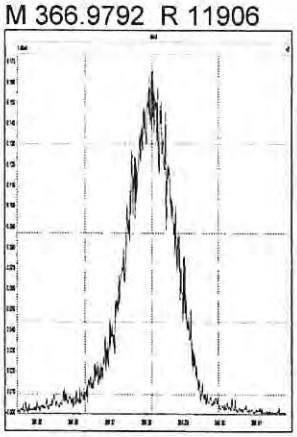
M 416.9760 R 12253



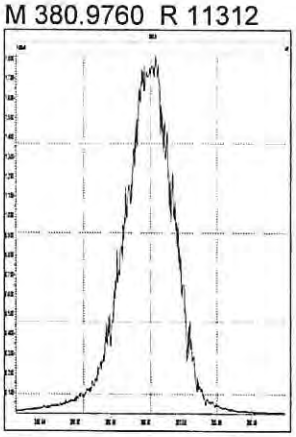
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:01:08 Central Standard Time

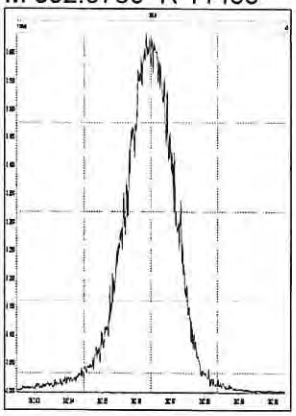
M 366.9792 R 11906



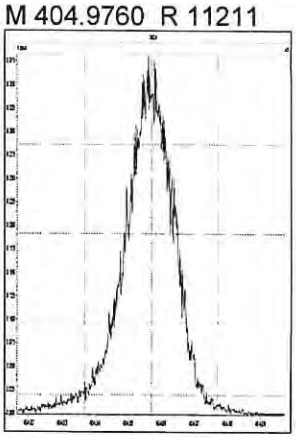
M 380.9760 R 11312



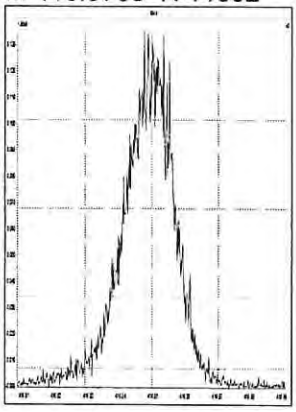
M 392.9760 R 11466



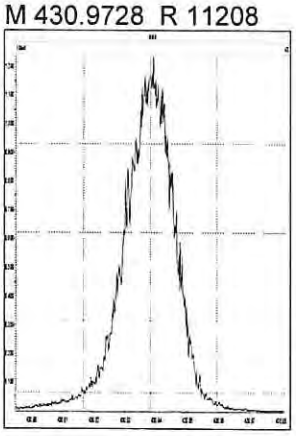
M 404.9760 R 11211



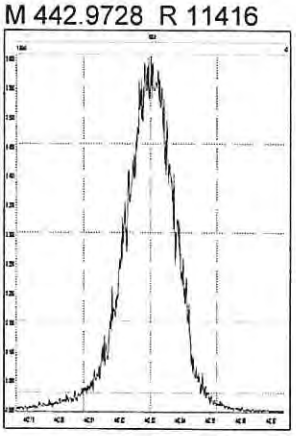
M 416.9760 R 11852



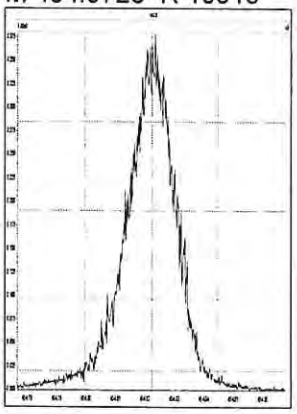
M 430.9728 R 11208



M 442.9728 R 11416



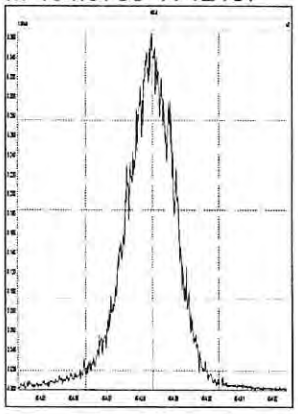
M 454.9728 R 10915



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:01:36 Central Standard Time

M 404.9760 R 12137



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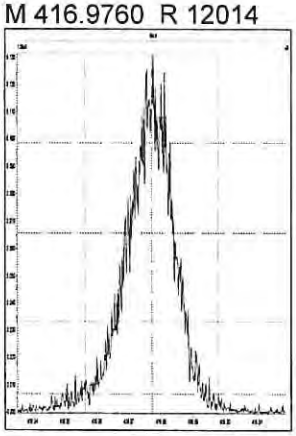

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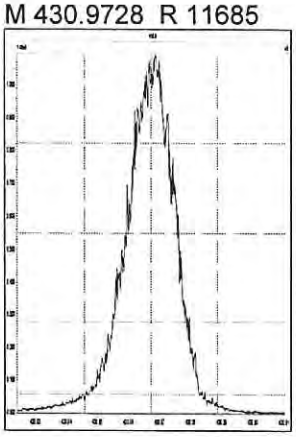
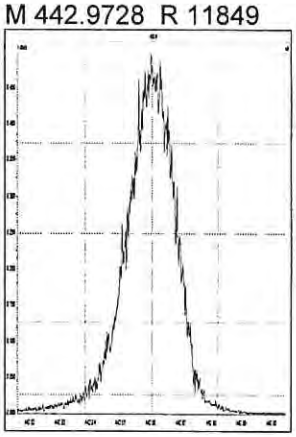
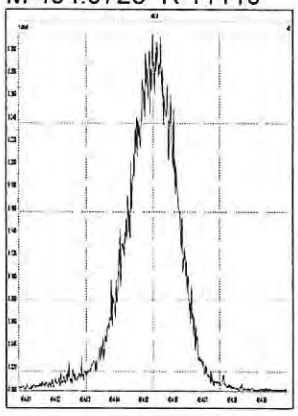


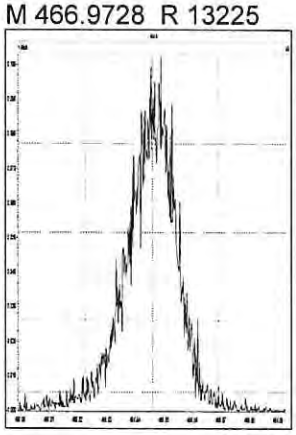
M 442.9728 R 11849



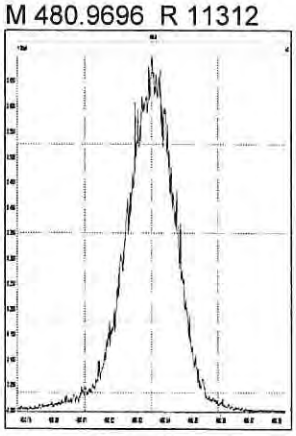
M 454.9728 R 11110



M 466.9728 R 13225



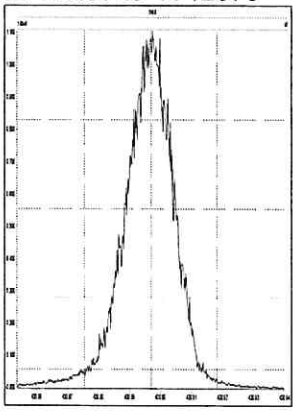
M 480.9696 R 11312



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:02:11 Central Standard Time

M 430.9728 R 12375



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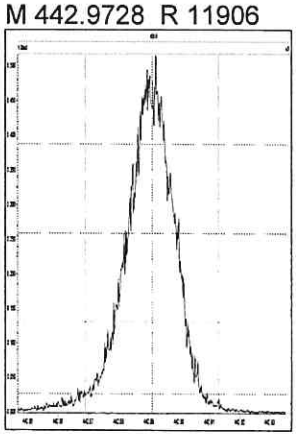

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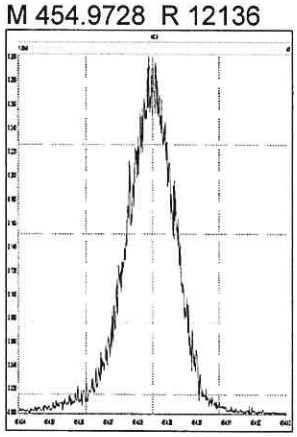

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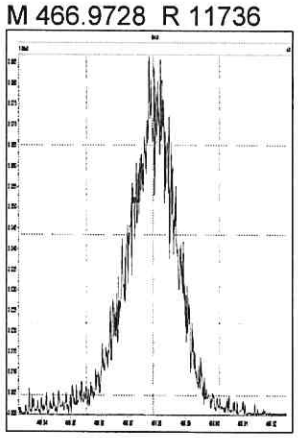
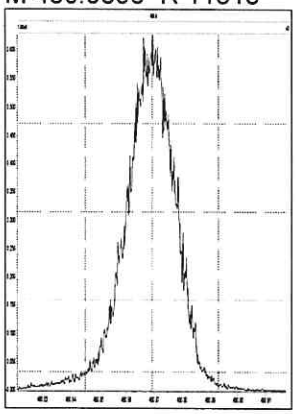
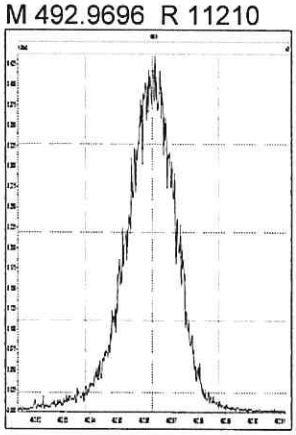


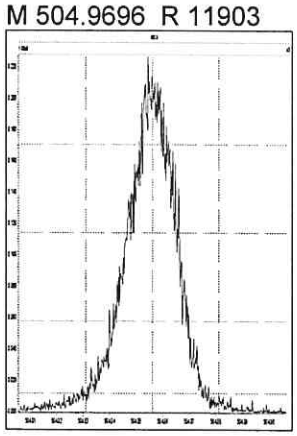
M 480.9696 R 11313



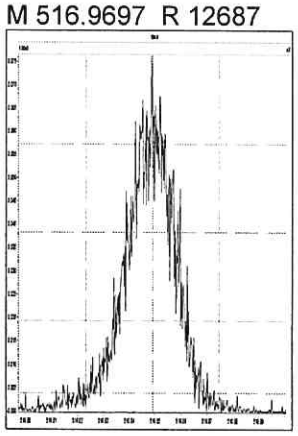
M 492.9696 R 11210



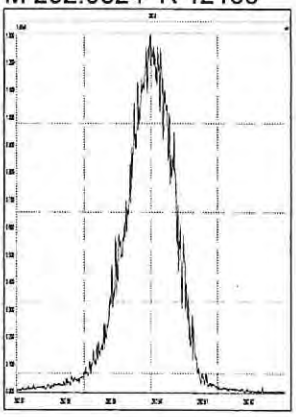
M 504.9696 R 11903



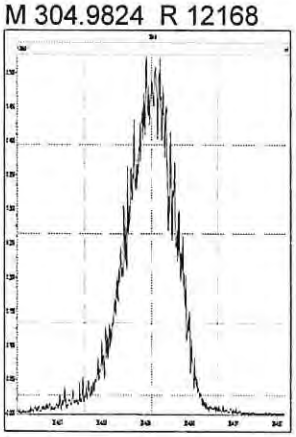
M 516.9697 R 12687



M 292.9824 R 12165



M 304.9824 R 12168



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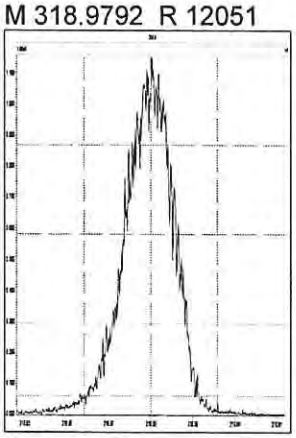

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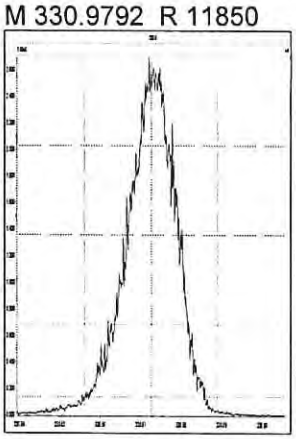

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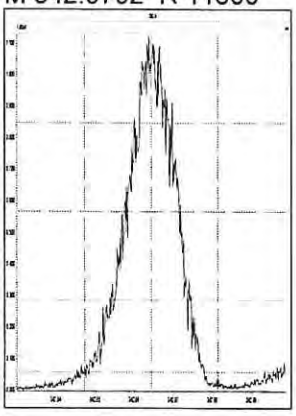

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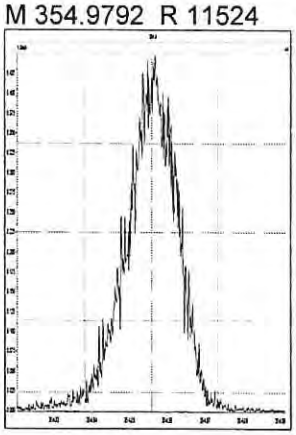

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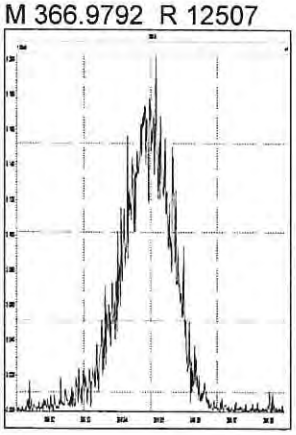

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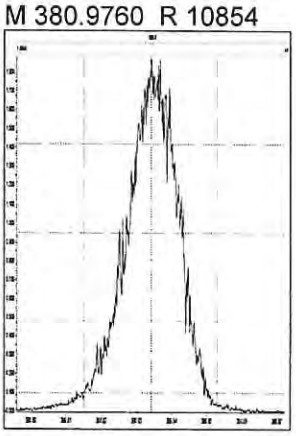

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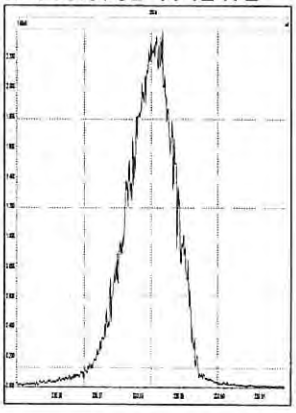

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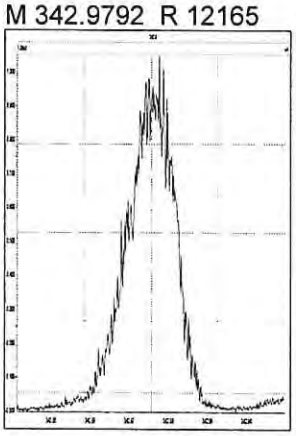

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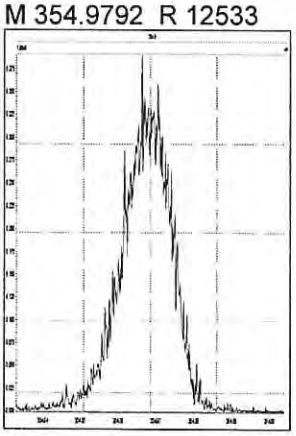

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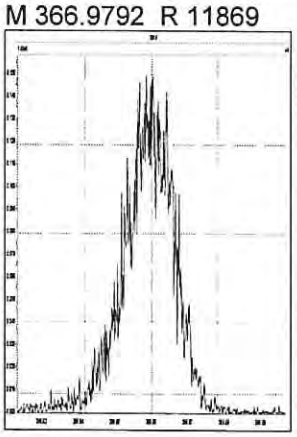

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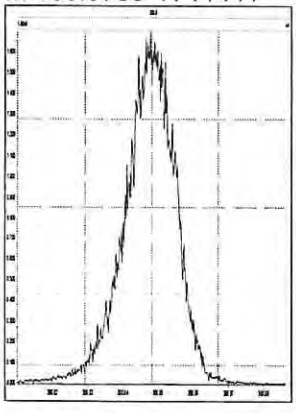
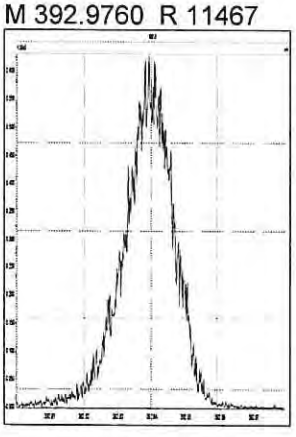
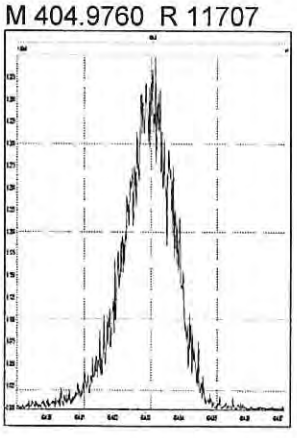


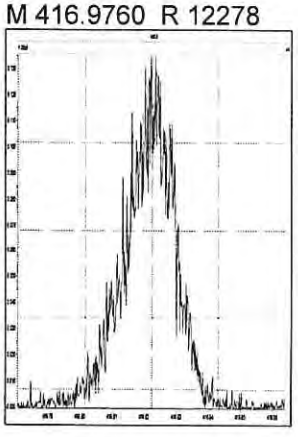
M 392.9760 R 11467



M 404.9760 R 11707



M 416.9760 R 12278



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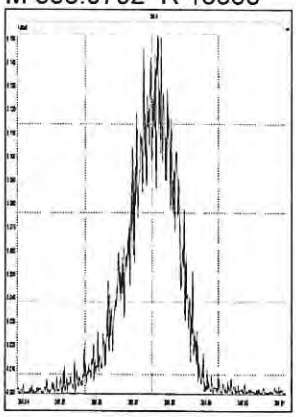
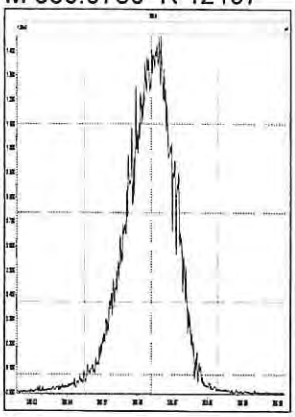


M 380.9760 R 12197



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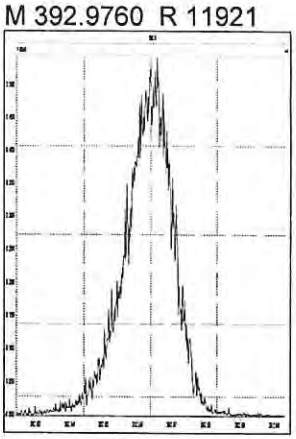

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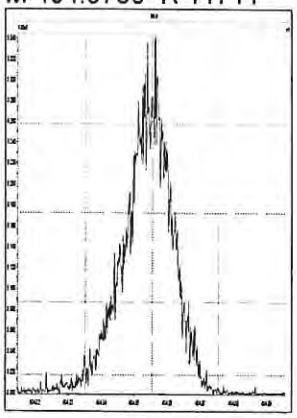

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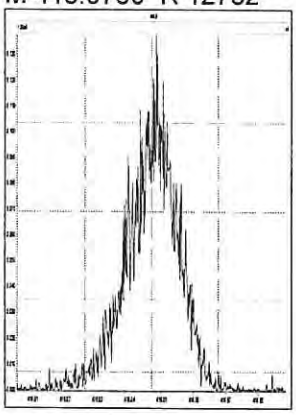
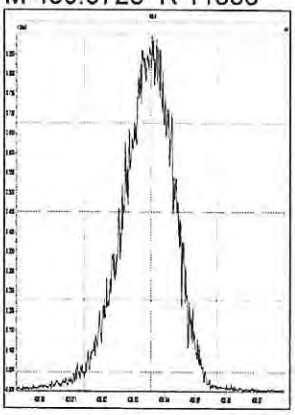
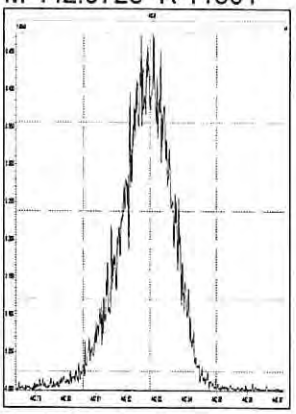


M 430.9728 R 11338



M 442.9728 R 11601



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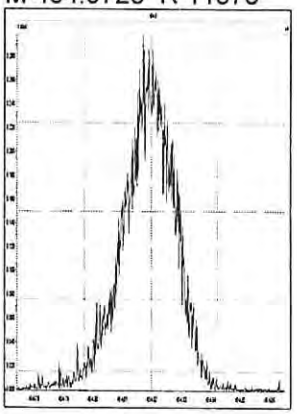
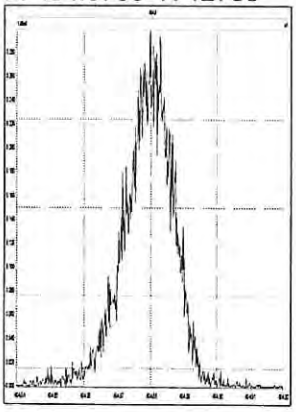


M 404.9760 R 12788



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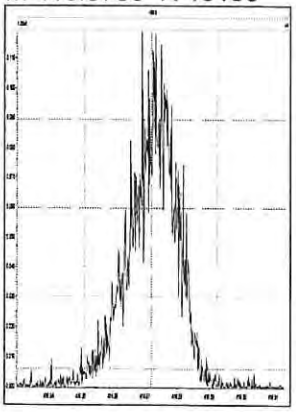

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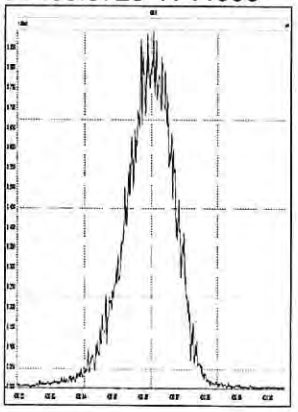

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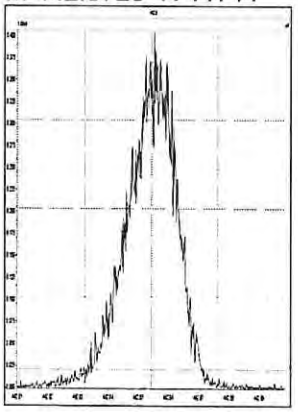
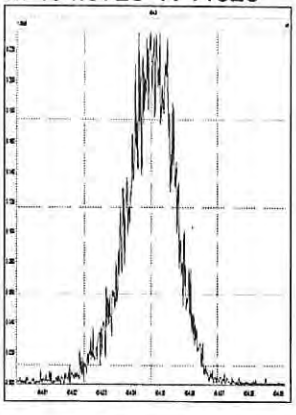
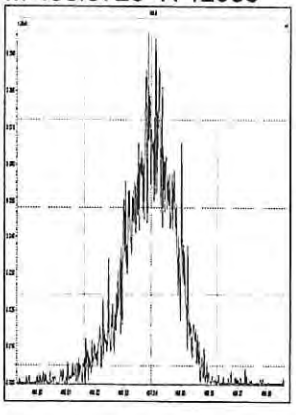


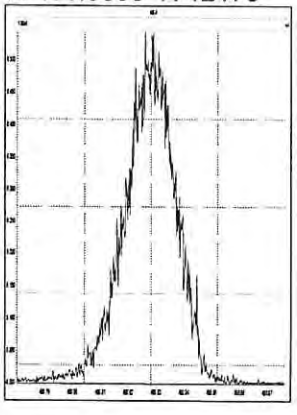
M 454.9728 R 11628



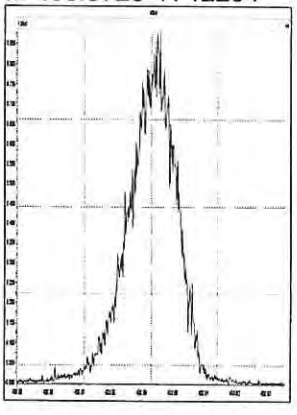
M 466.9728 R 12988



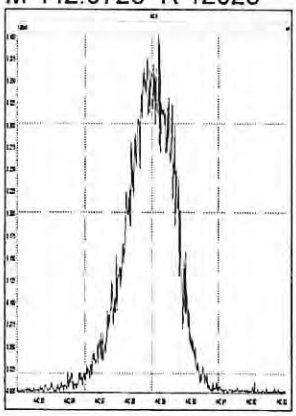
M 480.9696 R 12170



M 430.9728 R 12254



M 442.9728 R 12023



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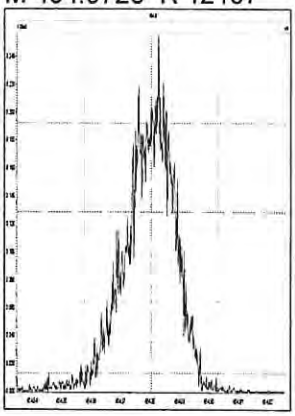

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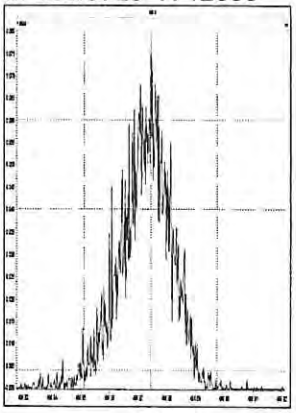
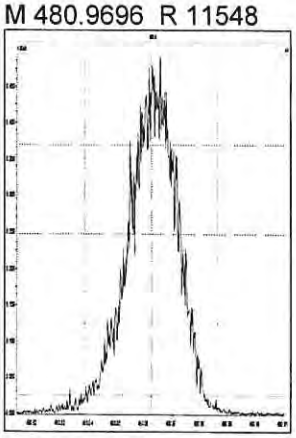
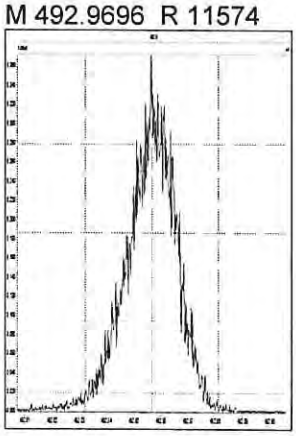


M 480.9696 R 11548



M 492.9696 R 11574



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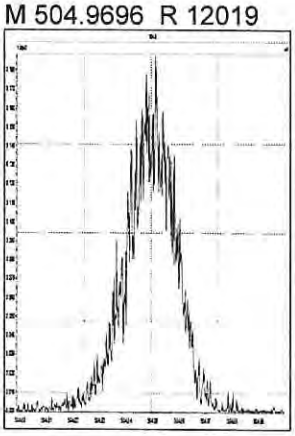
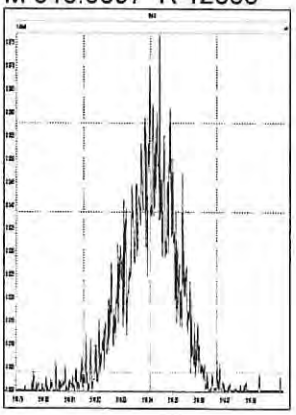


M 516.9697 R 12863



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

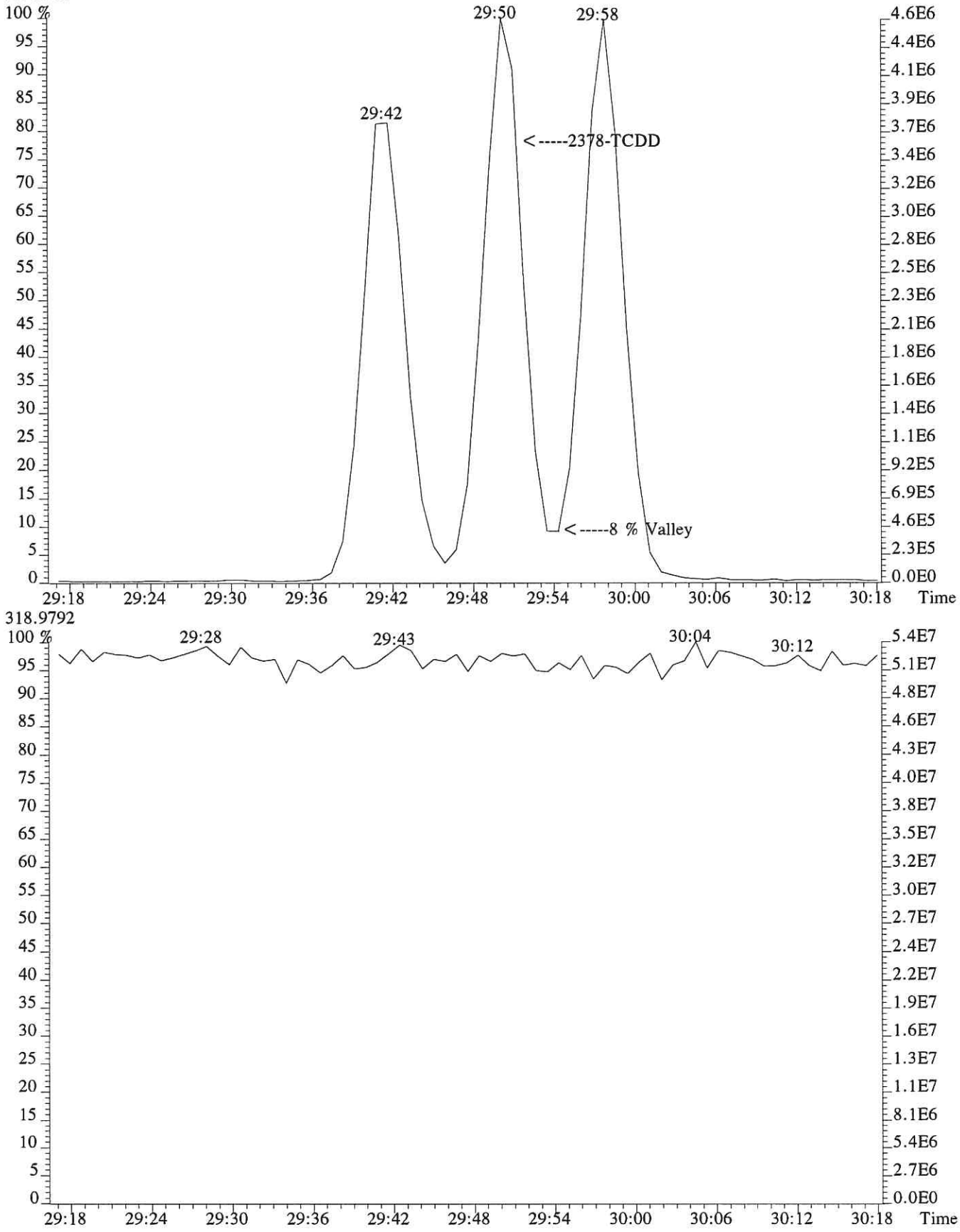
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P615715
Date Analyzed: 27-NOV-18
Time Analyzed: 11:03:06

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:57	30:58
TCDD	26:47	30:47
PeCDF	30:51	34:58
PeCDD	32:18	34:42
HxCDF	35:33	38:03
HxCDD	36:03	37:38
HpCDF	39:16	40:47
HpCDD	39:31	40:15

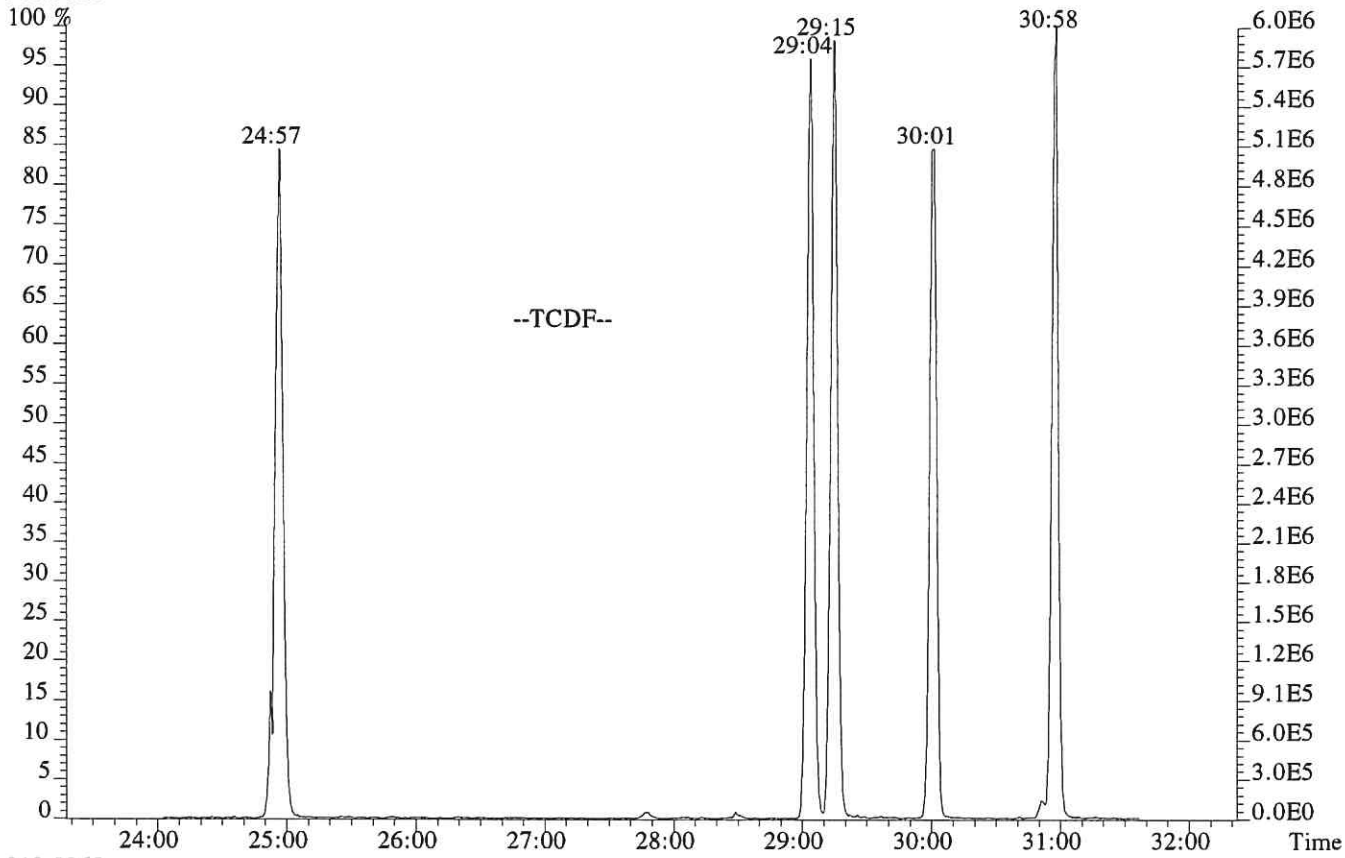
% Valley 2378-TCDD: 8 %

File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

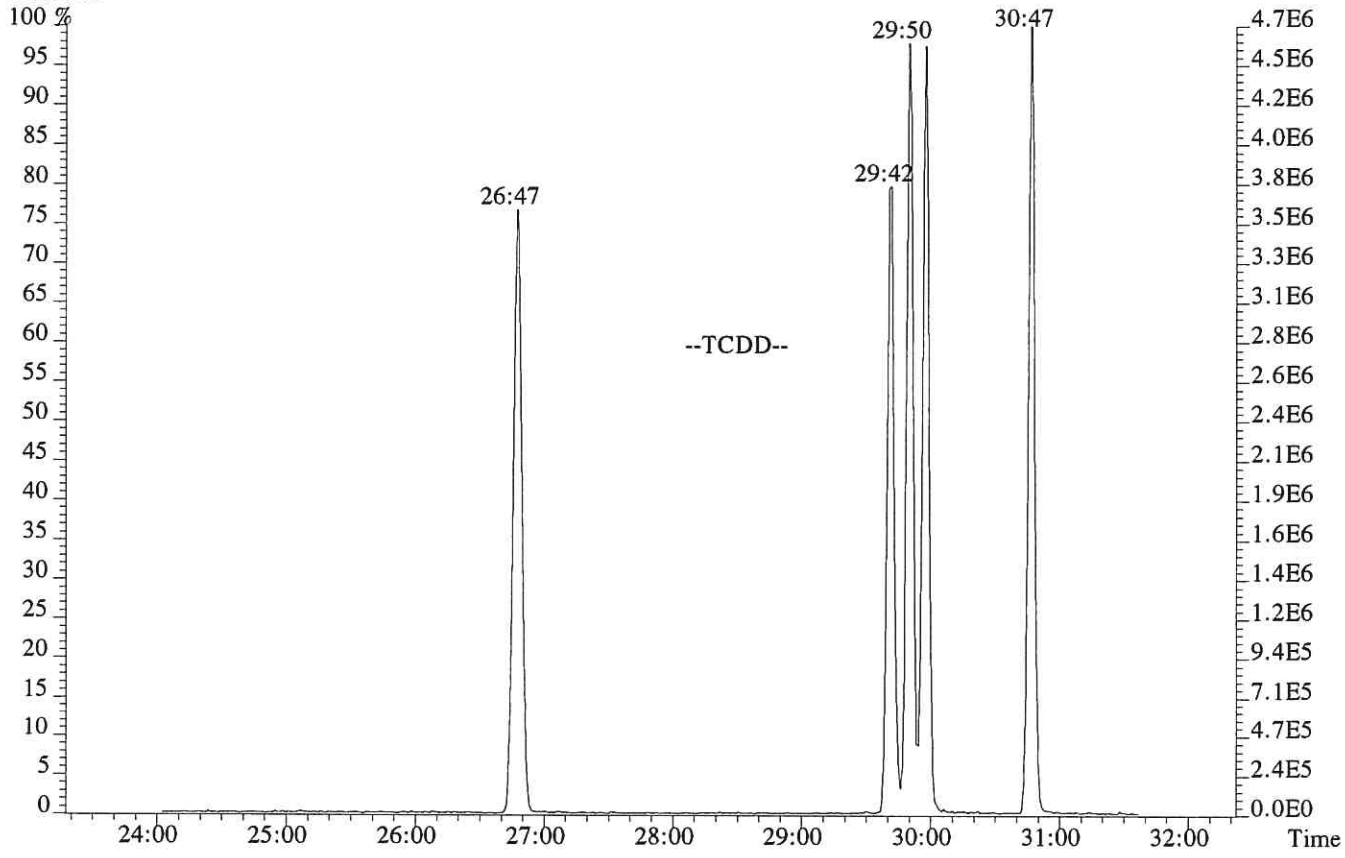


File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

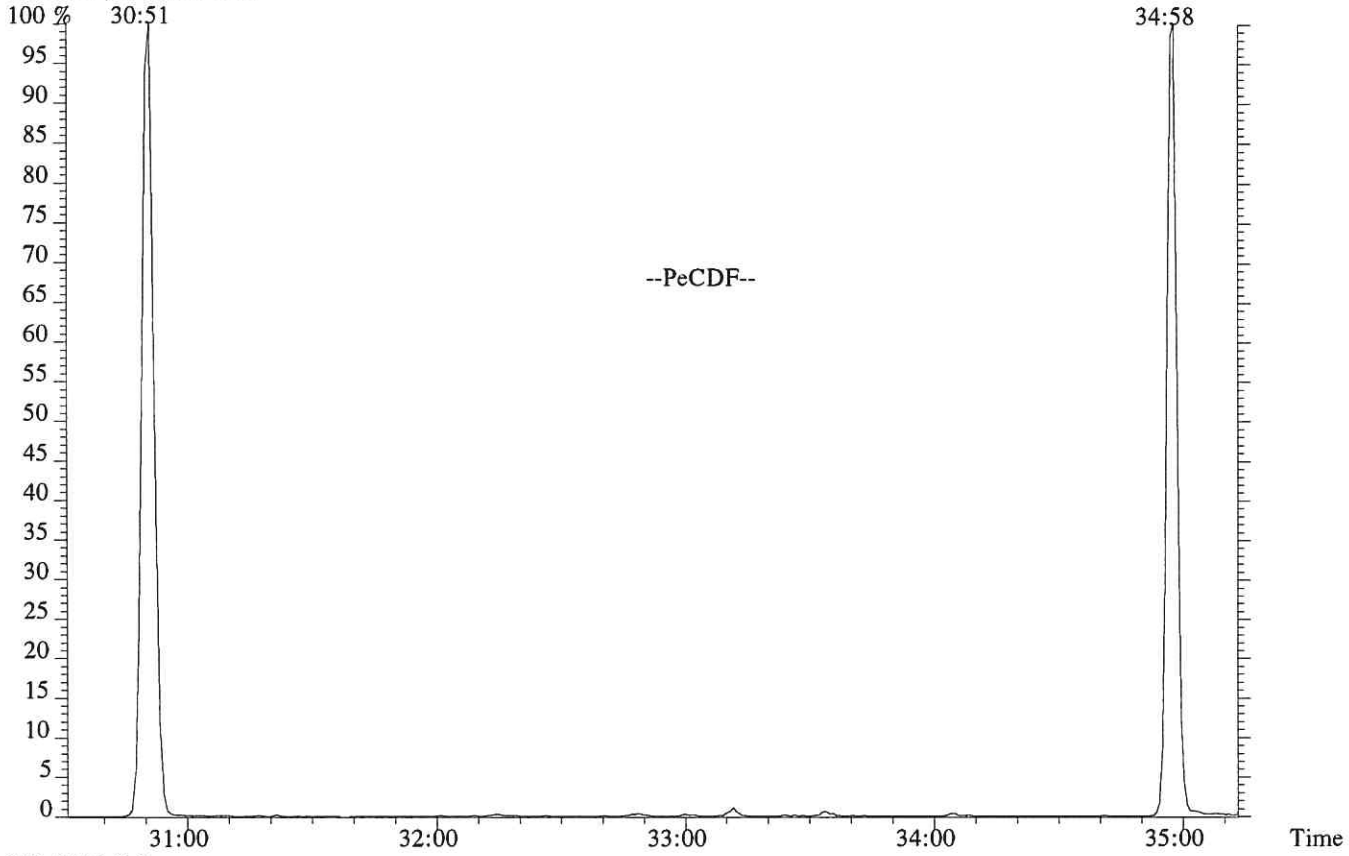
303.9016



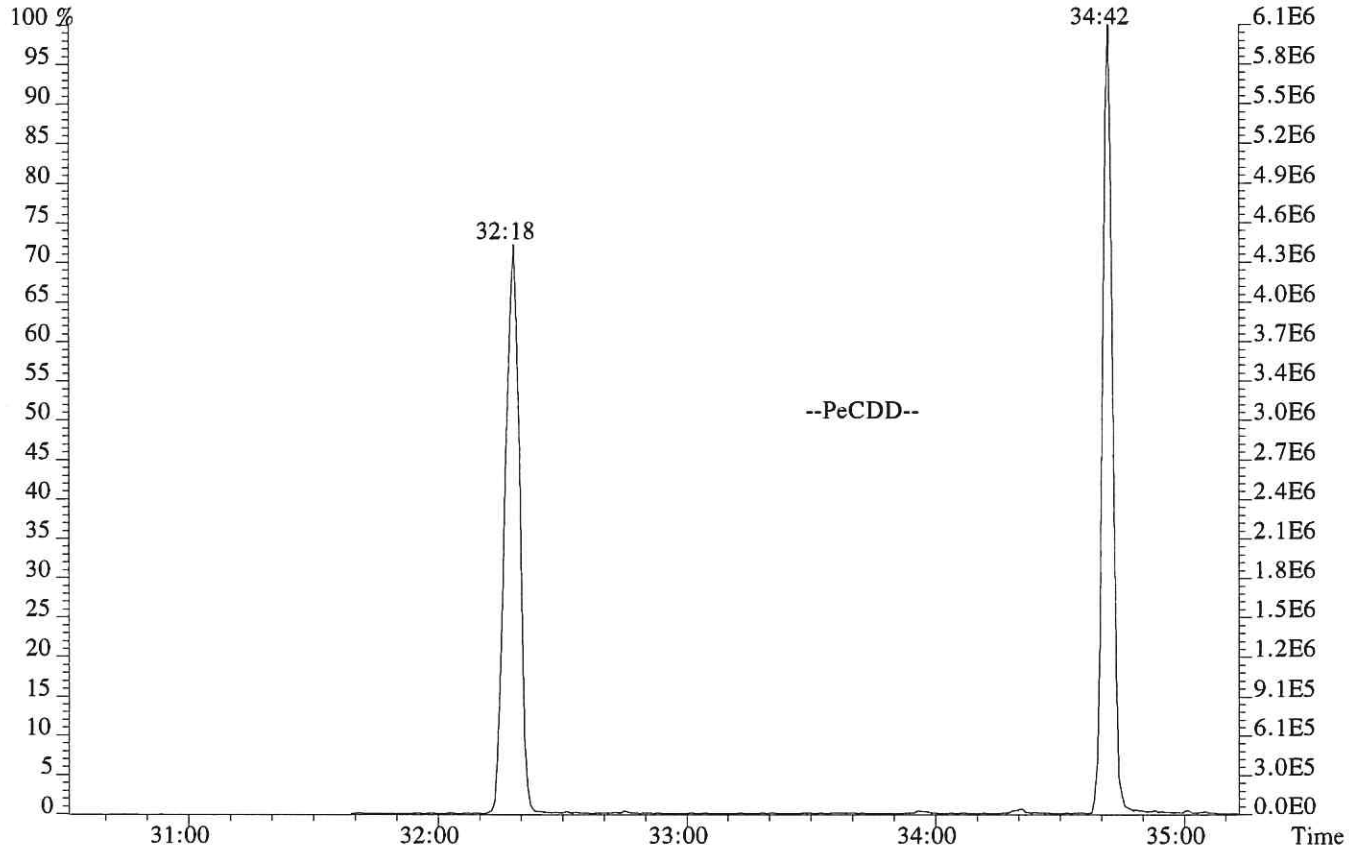
319.8965



File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

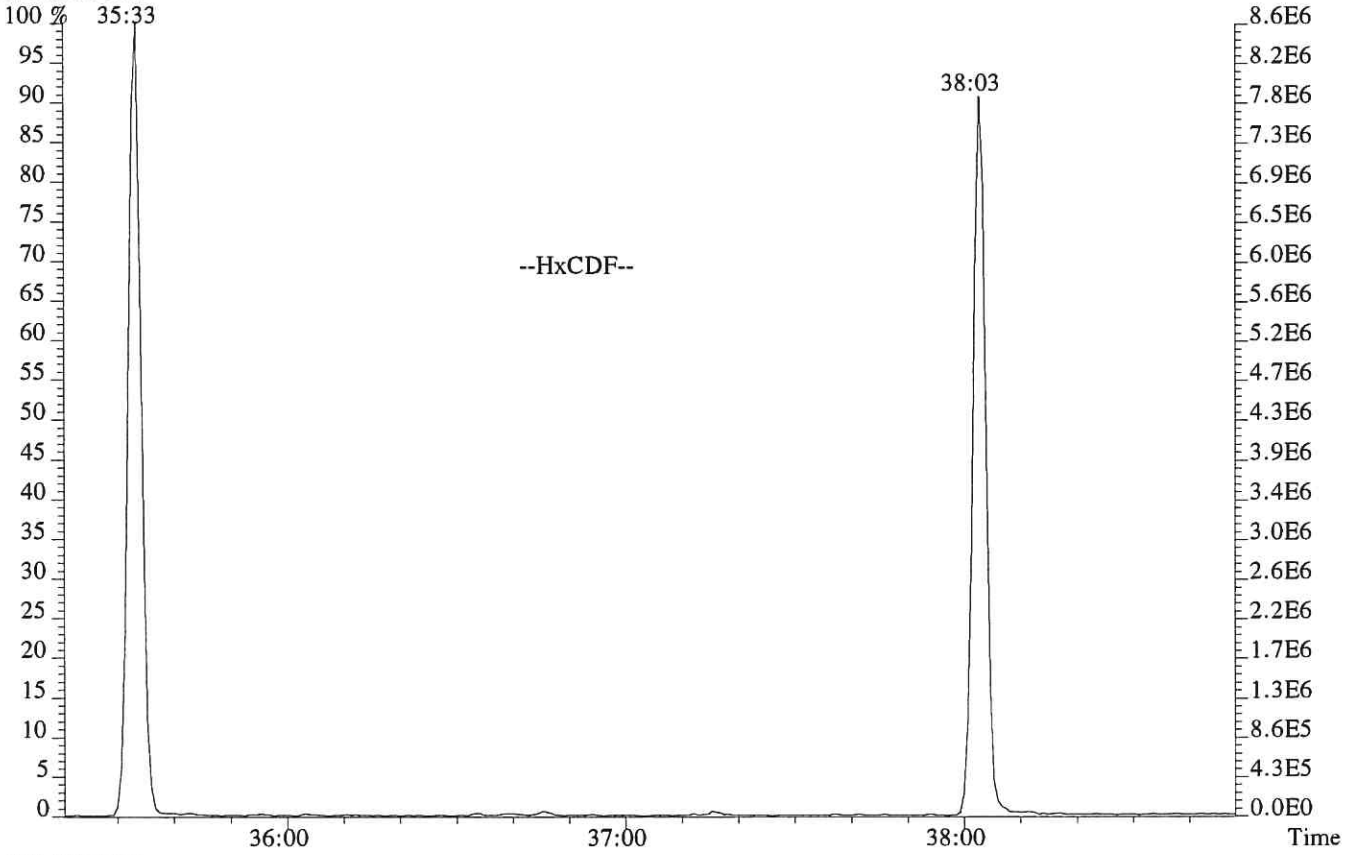


355.8546 F:2

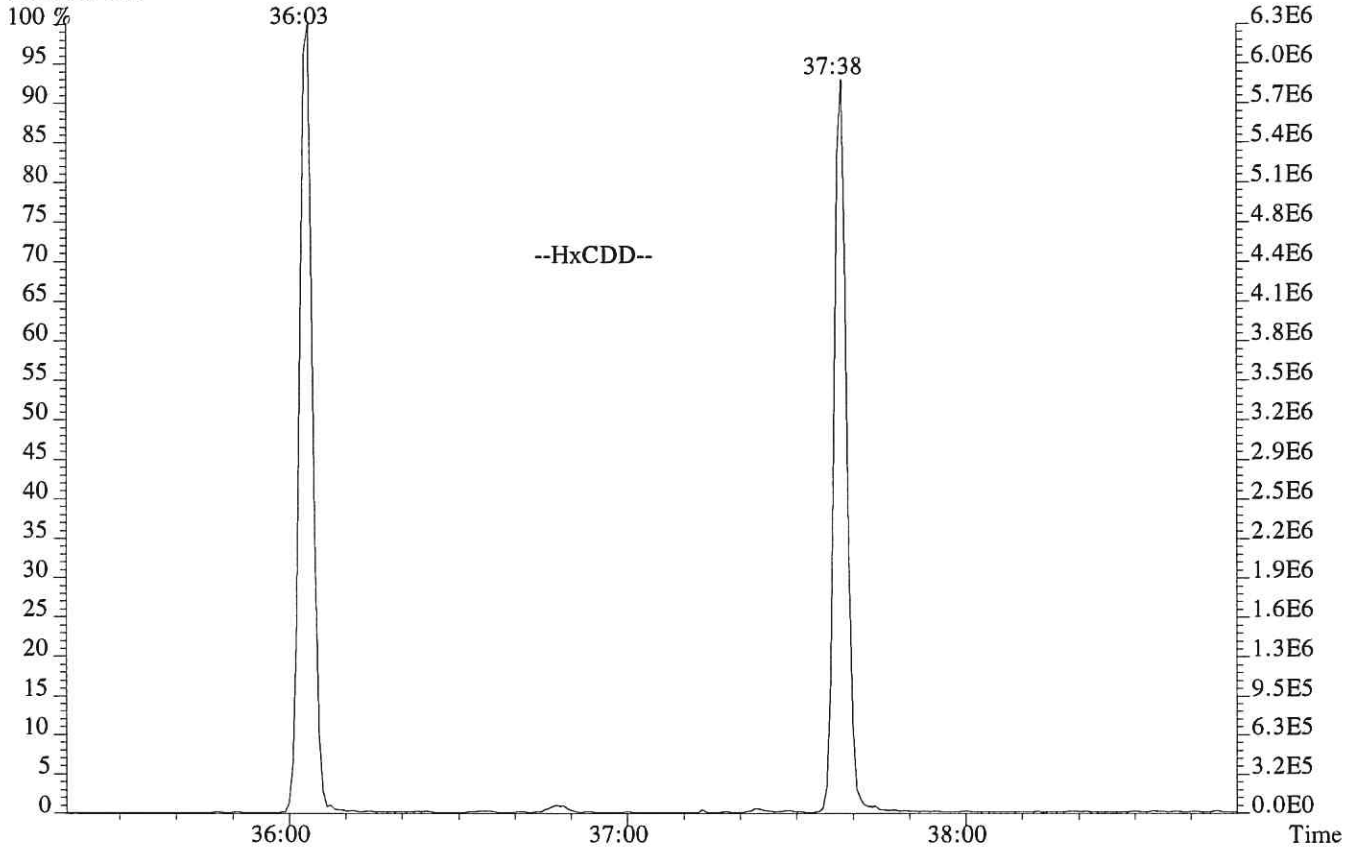


File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

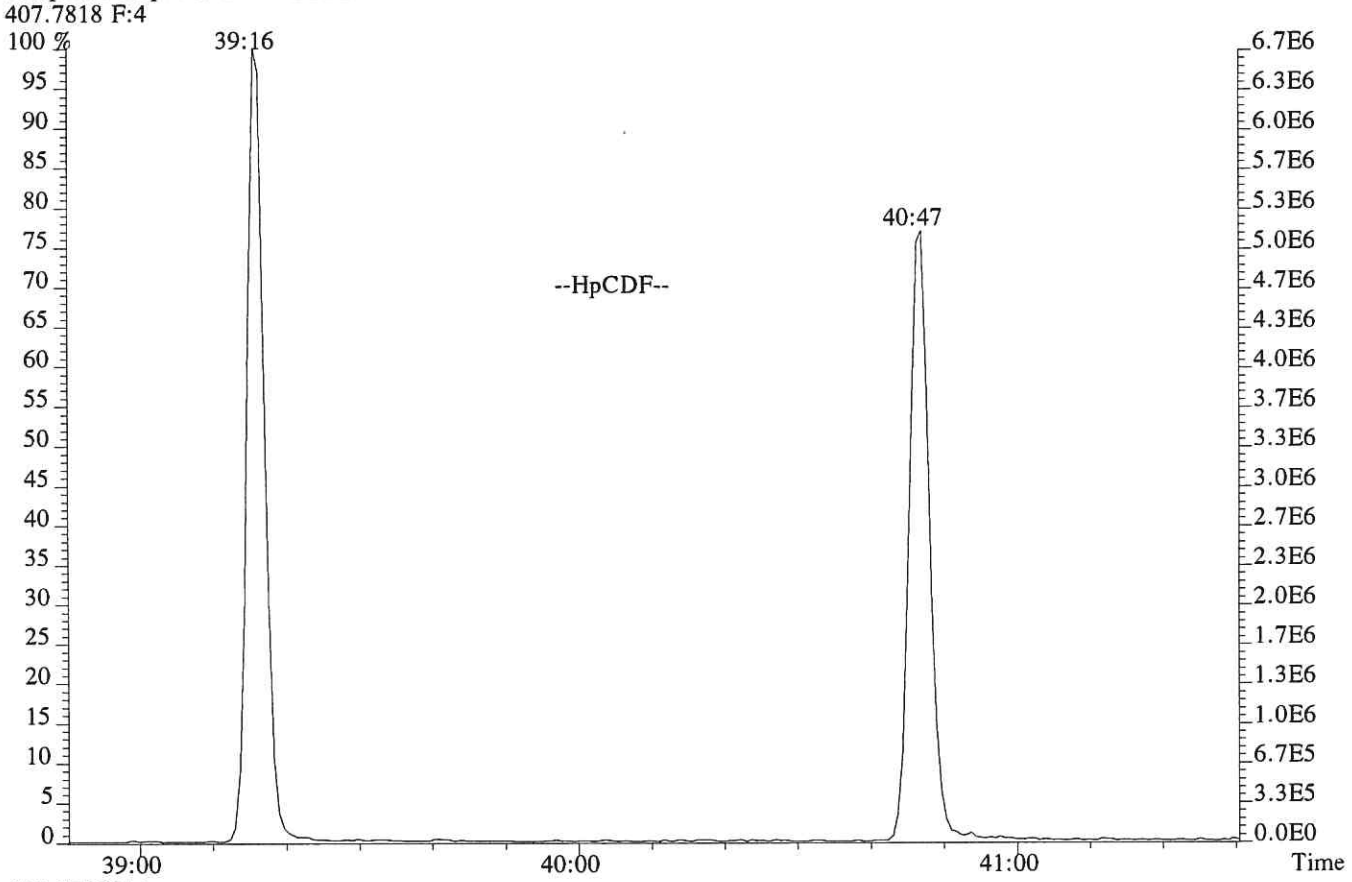
373.8208 F:3

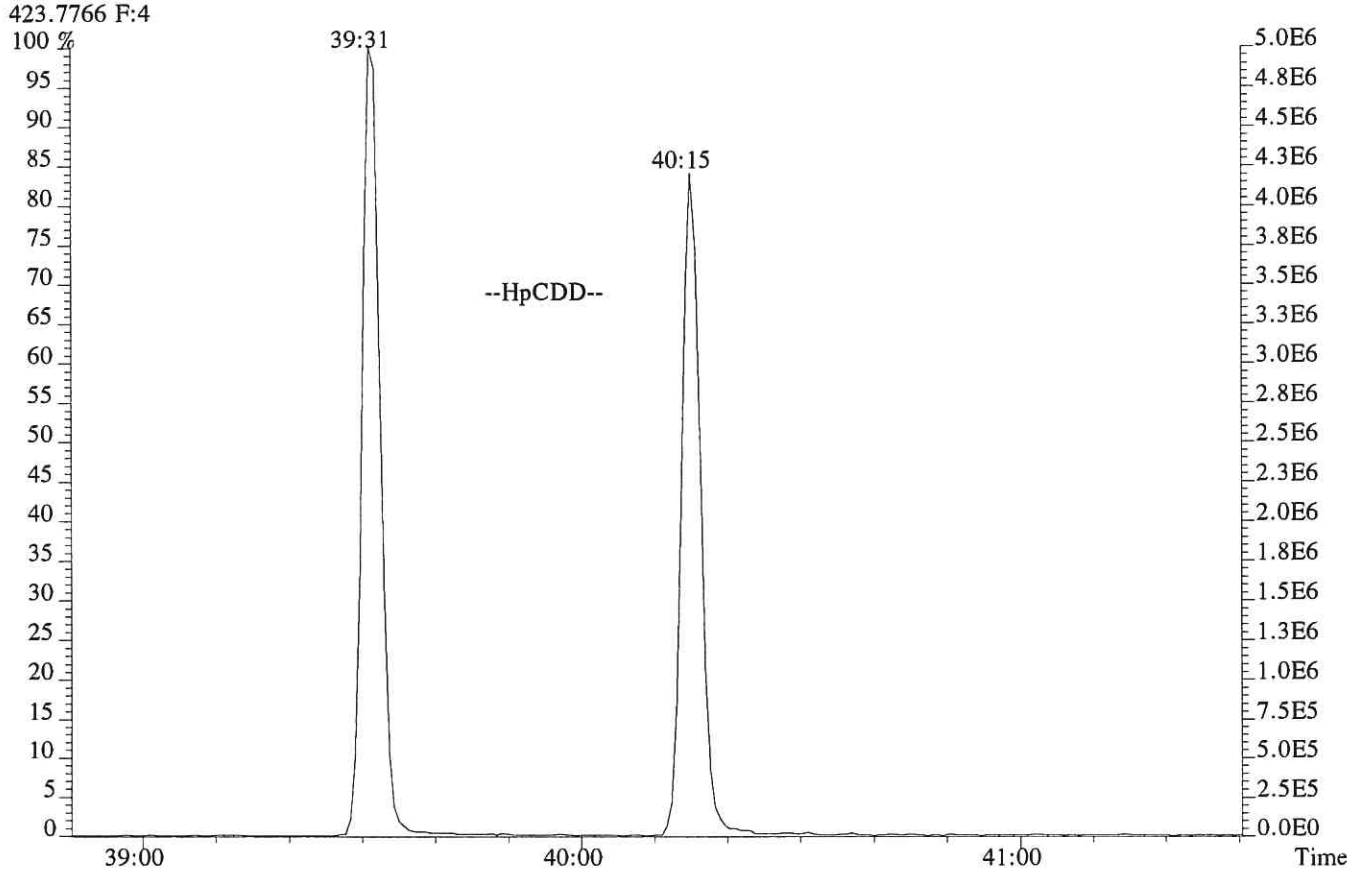


389.8157 F:3



File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.4	7.8 - 12.9	-6.2
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-1.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-2.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	47	43 - 58	-6.8
OCDD	M+2/M+4	0.89	0.76-1.02	95	79 - 126	-4.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.1	8.4 - 12.0	-9.2
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	46	41 - 60	-7.5
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	46	41 - 61	-8.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	45	45 - 56	-10.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-7.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	46	45 - 56	-7.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	45	45 - 55	-9.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	45	43 - 58	-10.9
OCDF	M+2/M+4	0.91	0.76-1.02	85	63 - 159	-15.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	103	82 - 121	3.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	92	62 - 160	-7.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	103	85 - 117	2.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	98	85 - 118	-2.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	107	72 - 138	7.3
13C-OCDD	M+2/M+4	0.91	0.76-1.02	222	96 - 415	10.9
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	94	71 - 140	-5.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	90	76 - 130	-9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	91	77 - 130	-9.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	76 - 131	-2.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	70 - 143	-7.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	95	74 - 135	-5.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	98	73 - 137	-2.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	96	78 - 129	-3.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	97	77 - 129	-3.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:15	1.940e+04	2.505e+04	0.77	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:12	1.591e+05	1.013e+05	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	1.498e+05	9.482e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	1.303e+05	1.046e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:46	1.347e+05	1.084e+05	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:16	1.299e+05	1.046e+05	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	1.171e+05	9.560e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	1.133e+05	1.097e+05	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	9.515e+04	9.243e+04	1.03	yes	no	1.463
10	Unk	OCDF	43:30	1.516e+05	1.674e+05	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:58	1.500e+04	1.868e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	9.766e+04	6.288e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	8.865e+04	7.065e+04	1.25	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	8.430e+04	6.698e+04	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	9.215e+04	7.325e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	8.006e+04	7.591e+04	1.05	yes	no	1.112
17	Unk	OCDD	43:17	1.241e+05	1.389e+05	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	1.991e+05	2.537e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	2.981e+05	1.889e+05	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	2.965e+05	1.872e+05	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	1.276e+05	2.411e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	1.414e+05	2.648e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	1.387e+05	2.602e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	1.209e+05	2.298e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.008e+05	2.232e+05	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	8.959e+04	1.982e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	1.506e+05	1.916e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	2.126e+05	1.388e+05	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	1.702e+05	1.336e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	1.618e+05	1.271e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	1.543e+05	1.467e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	43:16	2.277e+05	2.503e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	1.493e+05	1.890e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	1.823e+05	1.449e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	3.548e+04				no	1.086

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.97e+06	1.68e+03	2.4e+03	5.13e+06	2.93e+03	1.8e+03
2	1,2,3,7,8-PeCDF	3.18e+07	1.23e+03	2.6e+04	2.01e+07	4.35e+03	4.6e+03
3	2,3,4,7,8-PeCDF	3.24e+07	1.23e+03	2.6e+04	2.05e+07	4.35e+03	4.7e+03
4	1,2,3,4,7,8-HxCDF	2.97e+07	5.67e+03	5.2e+03	2.38e+07	3.38e+03	7.1e+03
5	1,2,3,6,7,8-HxCDF	3.01e+07	5.67e+03	5.3e+03	2.42e+07	3.38e+03	7.2e+03
6	2,3,4,6,7,8-HxCDF	2.92e+07	5.67e+03	5.2e+03	2.33e+07	3.38e+03	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.57e+07	5.67e+03	4.5e+03	2.06e+07	3.38e+03	6.1e+03
8	1,2,3,4,6,7,8-HpCDF	2.43e+07	9.67e+03	2.5e+03	2.38e+07	6.98e+03	3.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.86e+07	9.67e+03	1.9e+03	1.77e+07	6.98e+03	2.5e+03
10	OCDF	2.43e+07	1.32e+03	1.8e+04	2.71e+07	2.55e+03	1.1e+04
11	2,3,7,8-TCDD	3.20e+06	3.18e+03	1.0e+03	3.97e+06	1.90e+03	2.1e+03
12	1,2,3,7,8-PeCDD	2.02e+07	1.78e+03	1.1e+04	1.32e+07	7.76e+02	1.7e+04
13	1,2,3,4,7,8-HxCDD	2.01e+07	2.02e+03	1.0e+04	1.59e+07	6.80e+02	2.3e+04
14	1,2,3,6,7,8-HxCDD	1.92e+07	2.02e+03	9.5e+03	1.51e+07	6.80e+02	2.2e+04
15	1,2,3,7,8,9-HxCDD	2.09e+07	2.02e+03	1.0e+04	1.66e+07	6.80e+02	2.4e+04
16	1,2,3,4,6,7,8-HpCDD	1.64e+07	2.62e+03	6.3e+03	1.56e+07	1.80e+03	8.7e+03
17	OCDD	2.02e+07	3.84e+02	5.3e+04	2.25e+07	9.76e+02	2.3e+04
18	13C-2,3,7,8-TCDF	4.03e+07	1.28e+04	3.1e+03	5.06e+07	9.08e+03	5.6e+03
19	13C-1,2,3,7,8-PeCDF	6.01e+07	1.80e+03	3.3e+04	3.84e+07	2.20e+03	1.7e+04
20	13C-2,3,4,7,8-PeCDF	6.34e+07	1.80e+03	3.5e+04	3.98e+07	2.20e+03	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	2.89e+07	1.82e+03	1.6e+04	5.48e+07	2.92e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	3.14e+07	1.82e+03	1.7e+04	5.86e+07	2.92e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.13e+07	1.82e+03	1.7e+04	5.78e+07	2.92e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.67e+07	1.82e+03	1.5e+04	5.07e+07	2.92e+03	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.15e+07	3.80e+03	5.7e+03	4.81e+07	1.04e+04	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+07	3.80e+03	4.6e+03	3.76e+07	1.04e+04	3.6e+03
27	13C-2,3,7,8-TCDD	3.15e+07	1.98e+04	1.6e+03	4.02e+07	7.29e+03	5.5e+03
28	13C-1,2,3,7,8-PeCDD	4.54e+07	2.14e+03	2.1e+04	2.96e+07	2.84e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.81e+07	3.04e+03	1.3e+04	2.99e+07	1.55e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	3.67e+07	3.04e+03	1.2e+04	2.85e+07	1.55e+03	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.16e+07	2.06e+03	1.5e+04	2.99e+07	2.33e+03	1.3e+04
32	13C-OCDD	3.65e+07	4.56e+02	8.0e+04	4.00e+07	4.44e+02	9.0e+04
33	13C-1,2,3,4-TCDD	3.09e+07	1.98e+04	1.6e+03	3.92e+07	7.29e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	4.17e+07	3.04e+03	1.4e+04	3.28e+07	1.55e+03	2.1e+04
35	37Cl-2,3,7,8-TCDD	7.60e+06	1.66e+03	4.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.180e{+}03 + 1.896e{+}03) \times 100}{(3.149e{+}07 + 4.025e{+}07) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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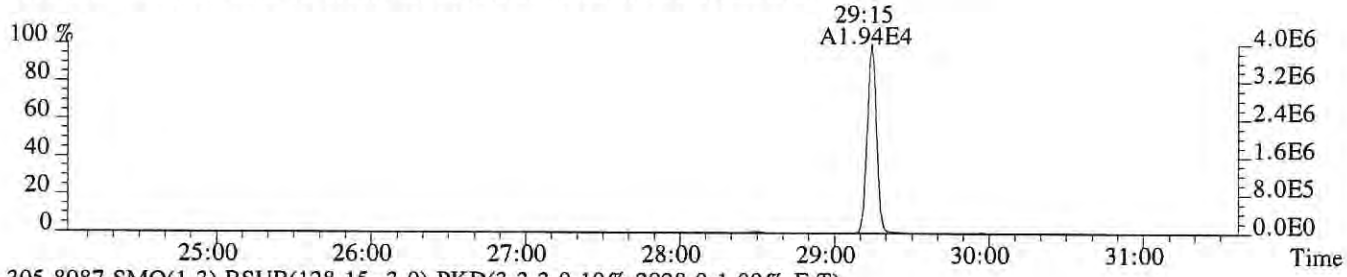
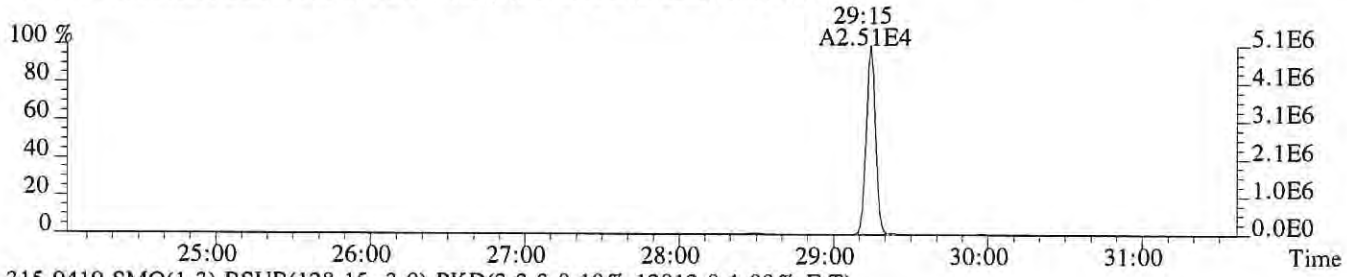
Office:(281)530-5656. Fax:(281)530-5887

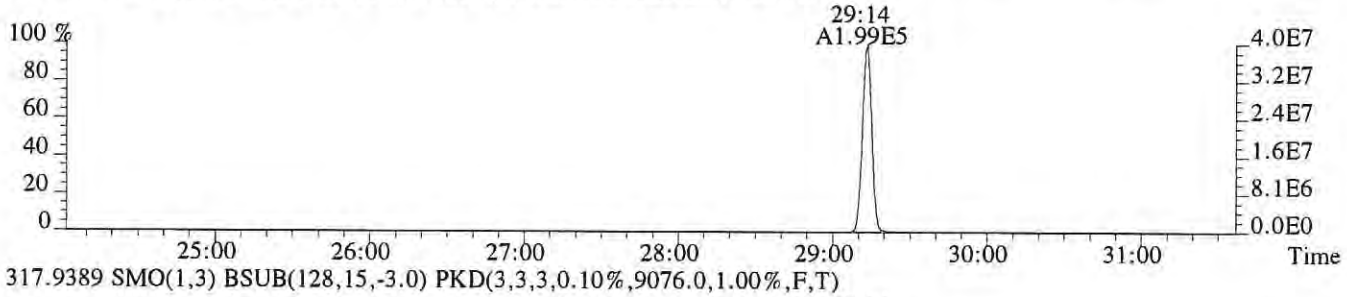
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



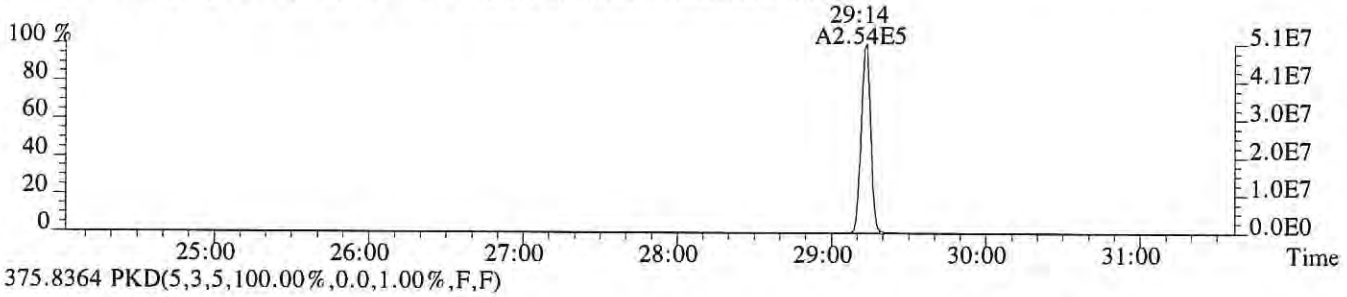
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



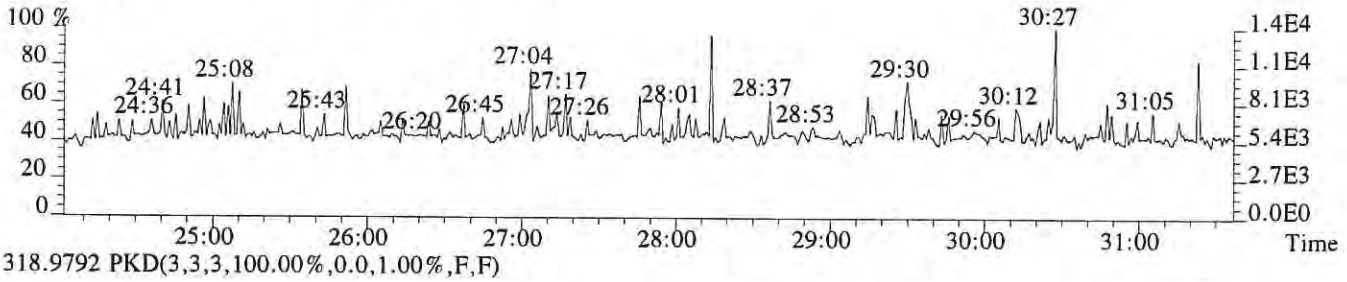
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12812.0,1.00%,F,T)



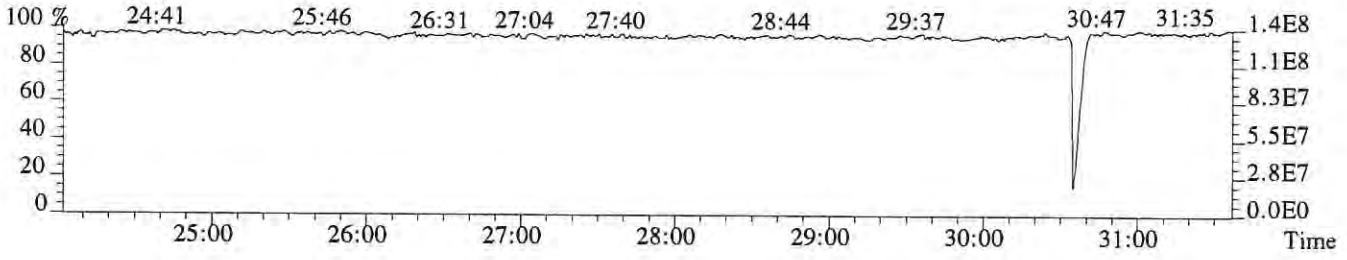
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9076.0,1.00%,F,T)



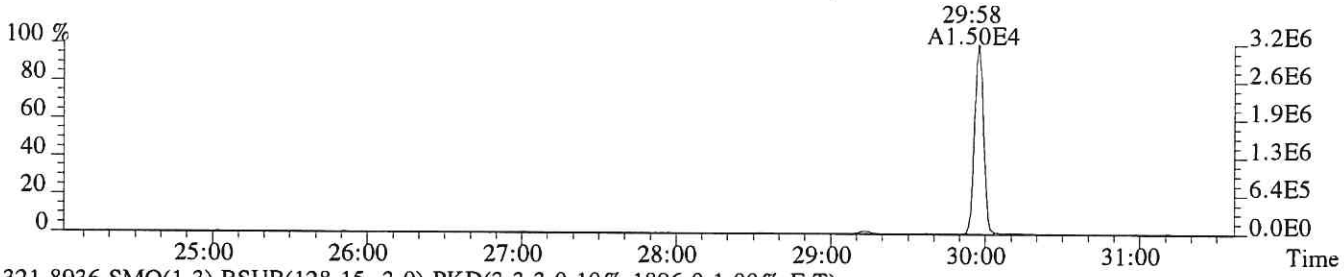
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



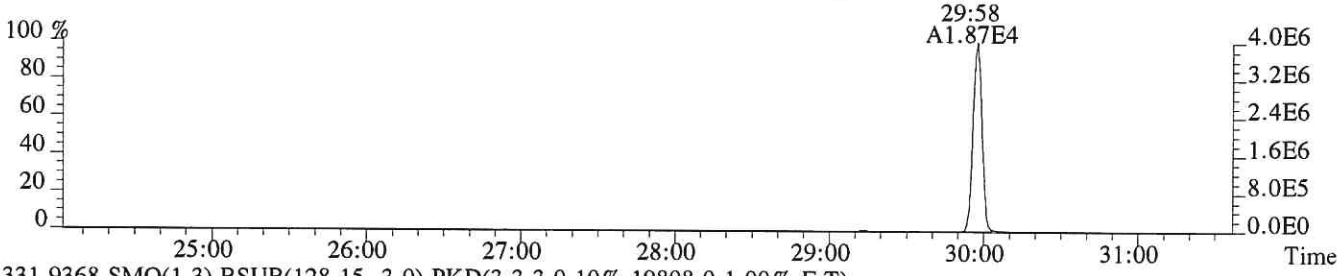
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



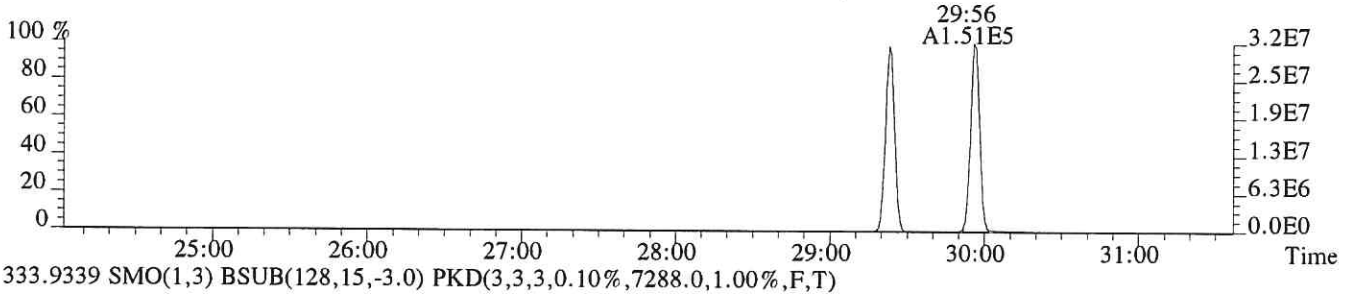
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



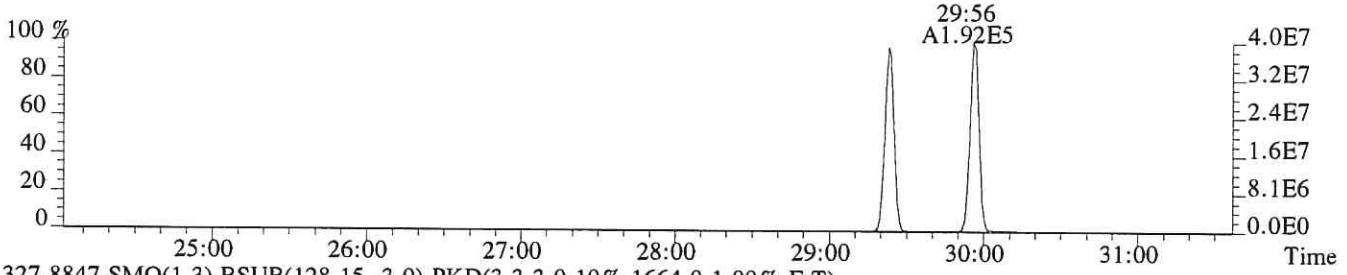
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



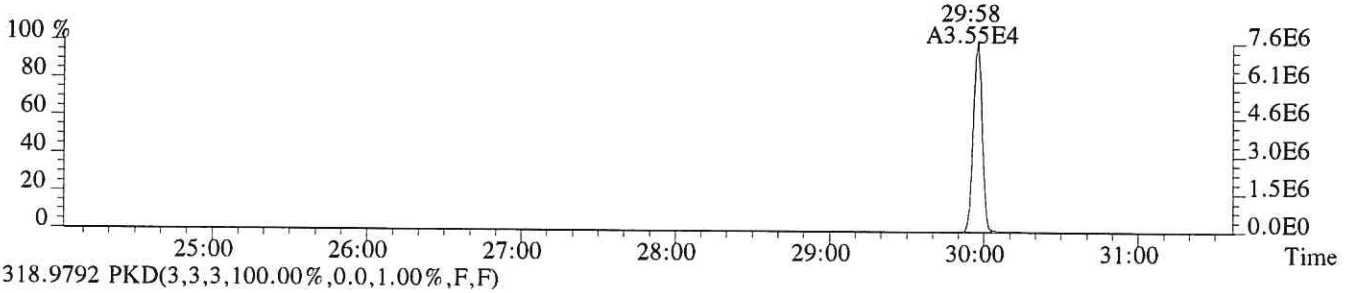
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19808.0,1.00%,F,T)



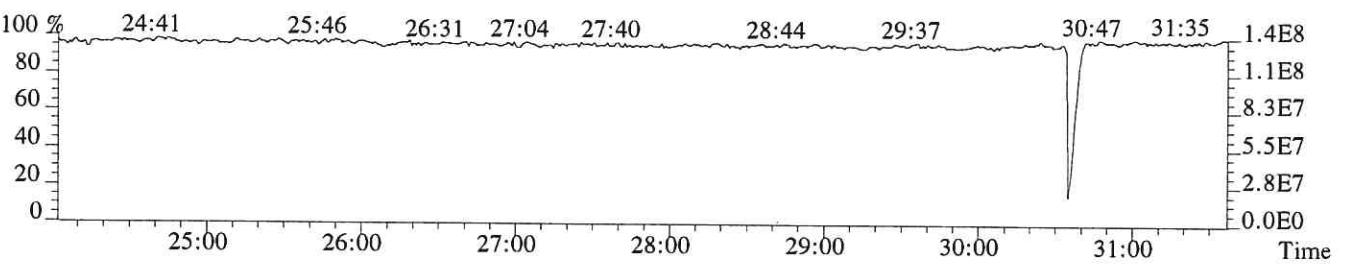
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7288.0,1.00%,F,T)



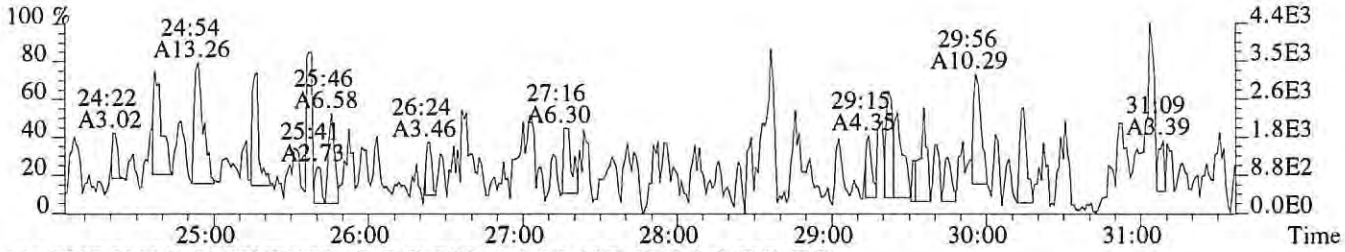
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



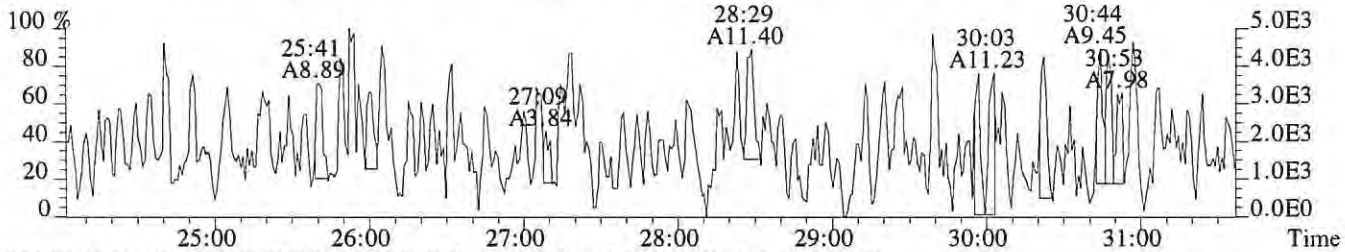
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



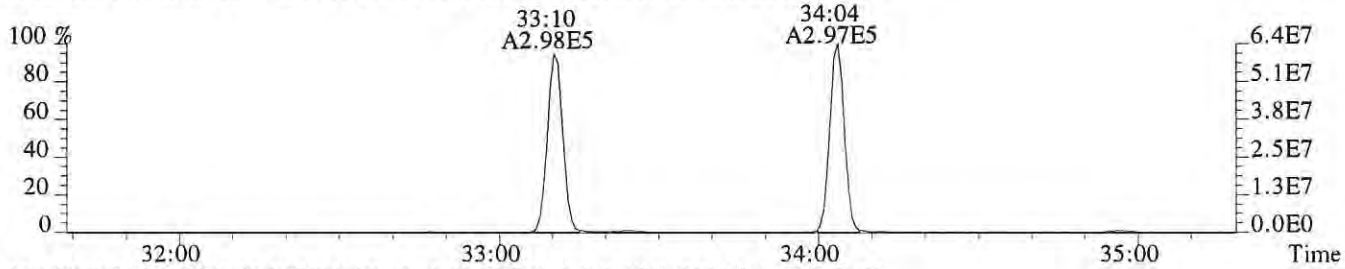
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



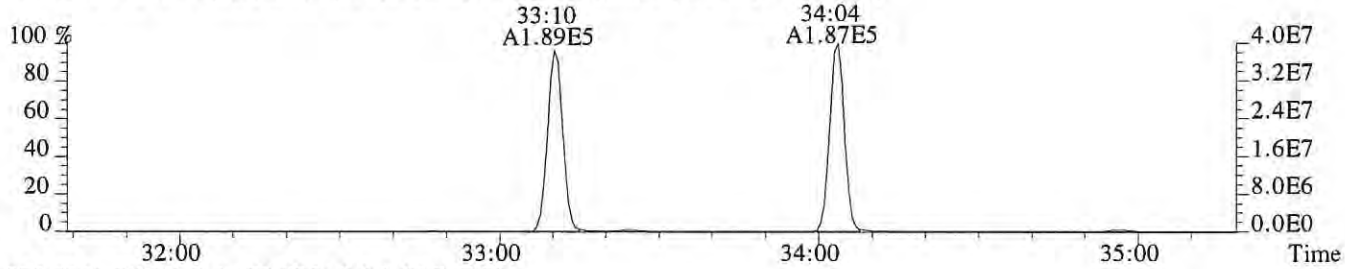
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



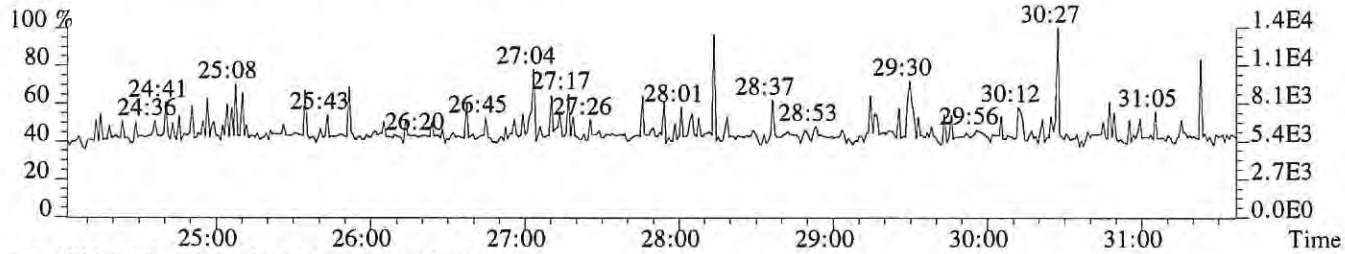
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



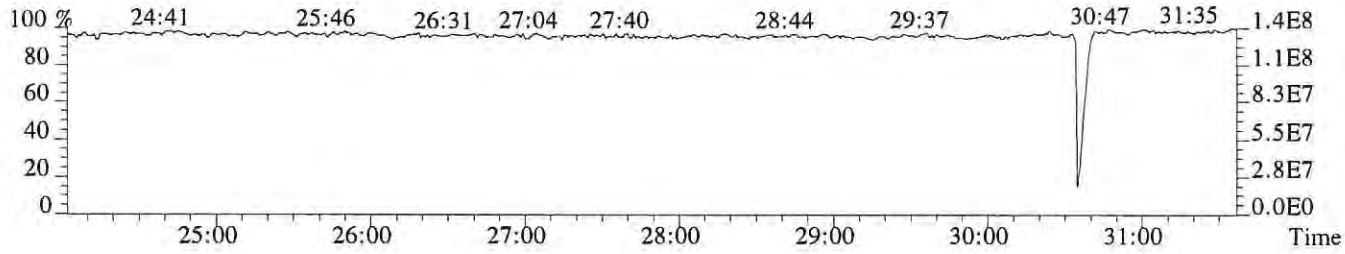
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

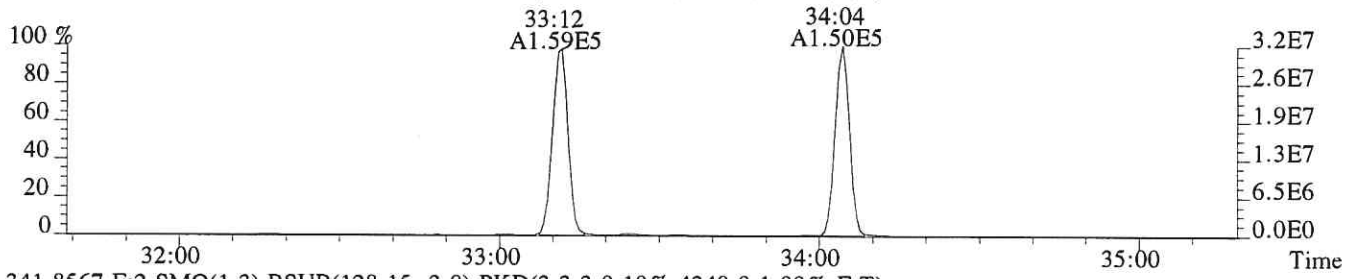


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

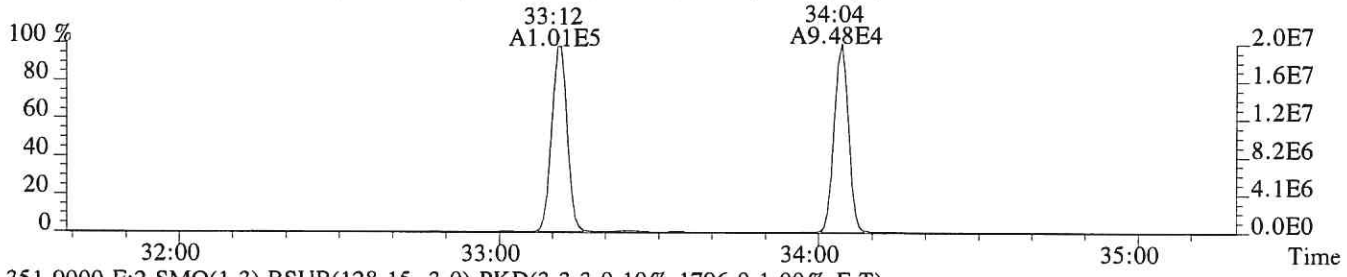


File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

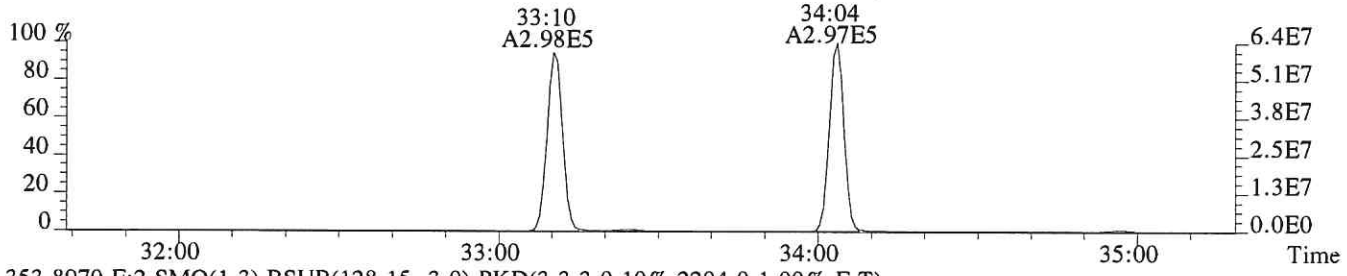
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



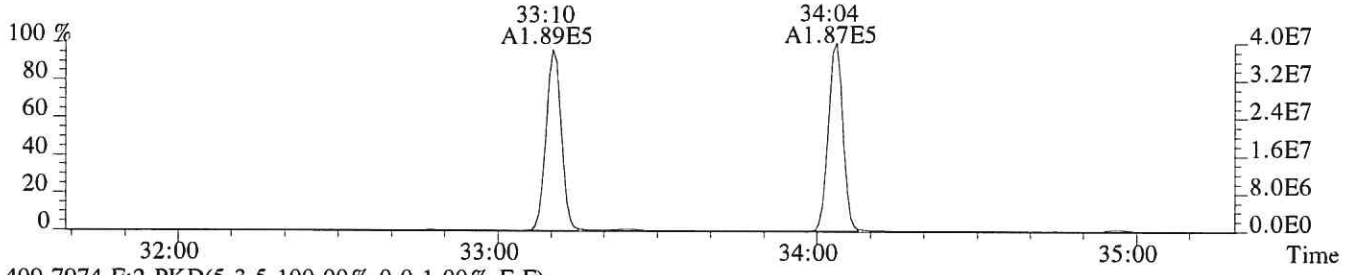
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



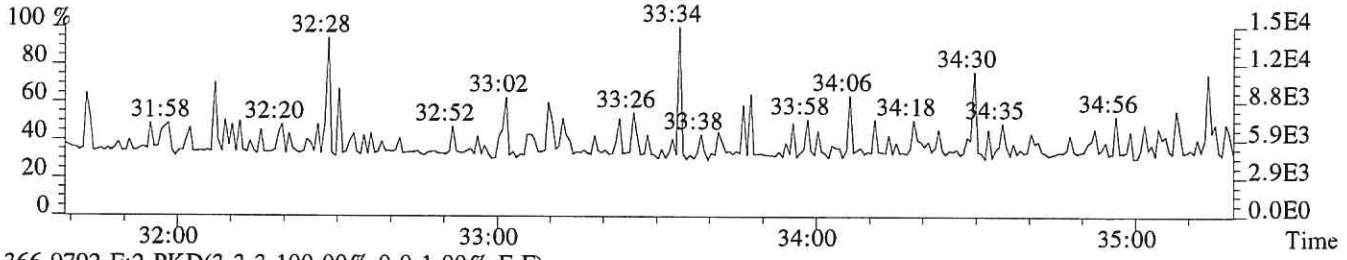
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



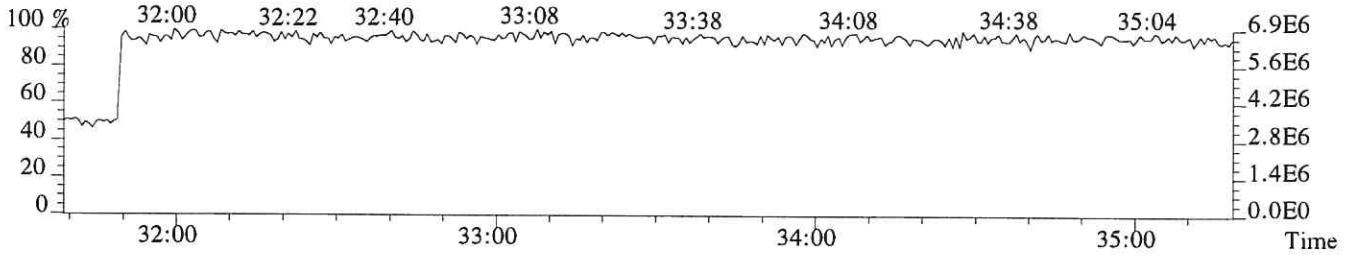
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



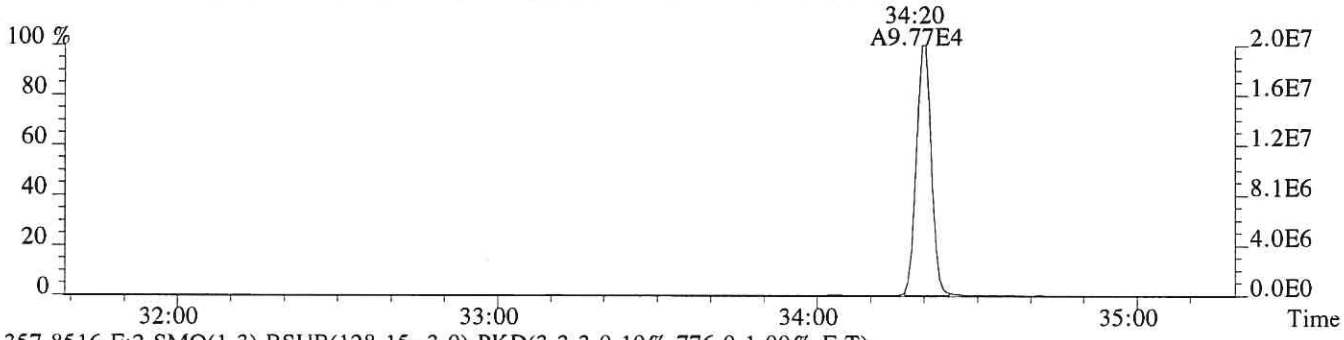
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



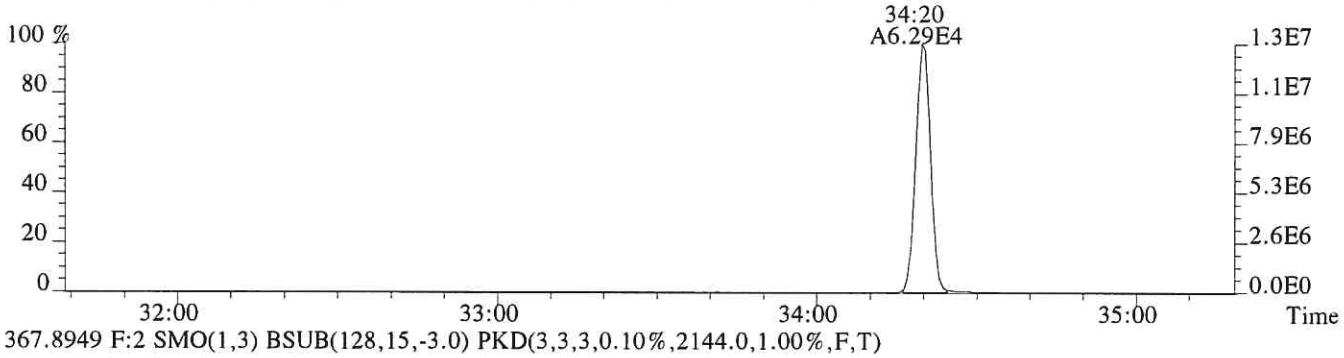
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



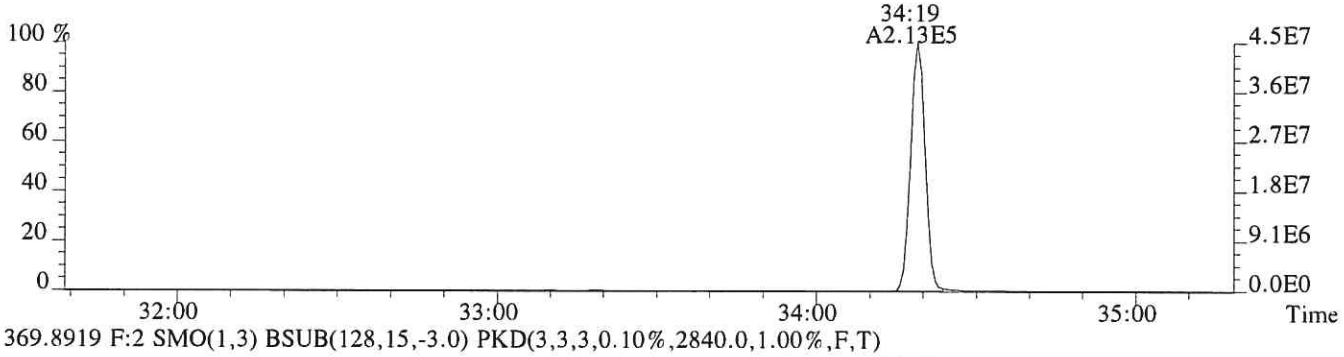
File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



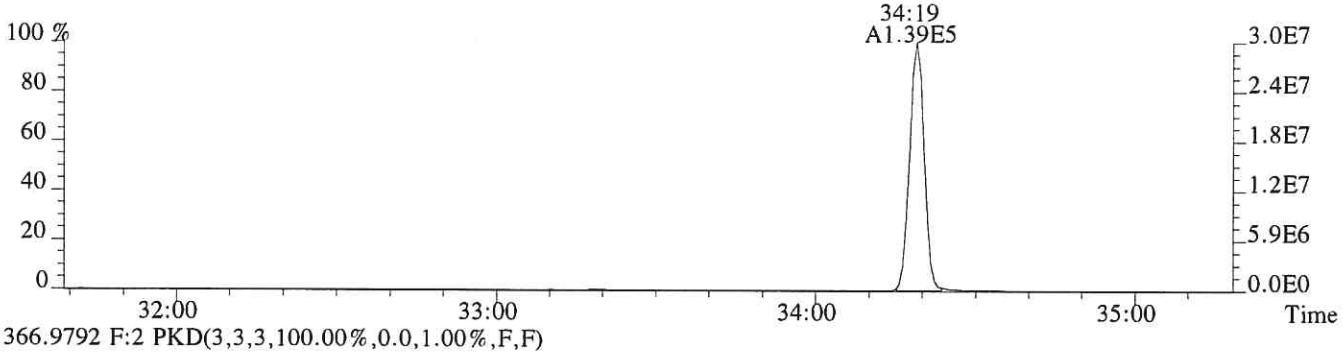
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



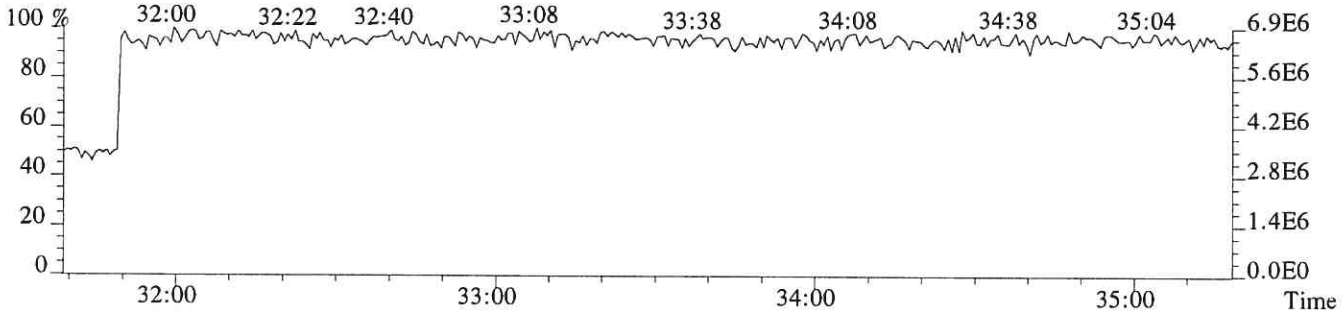
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)

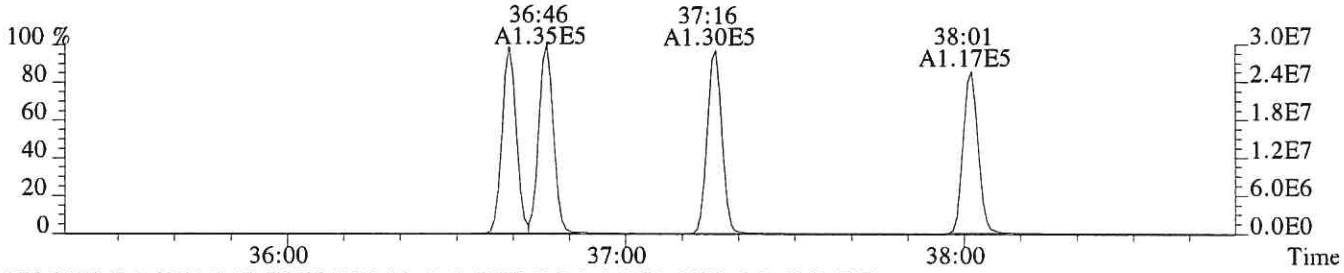


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

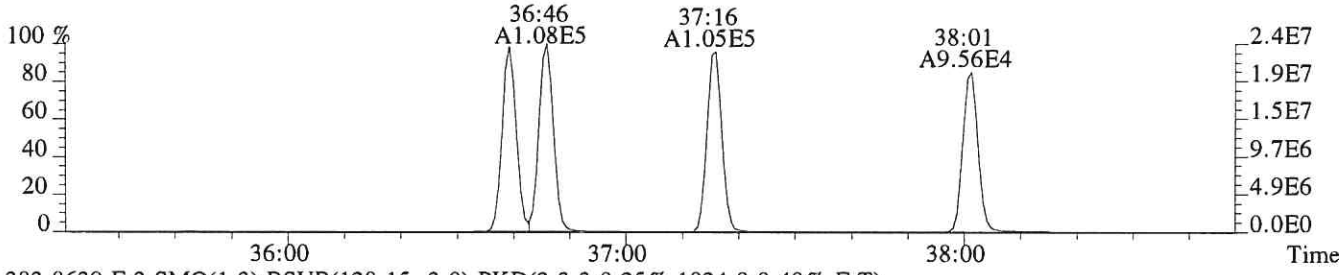


File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

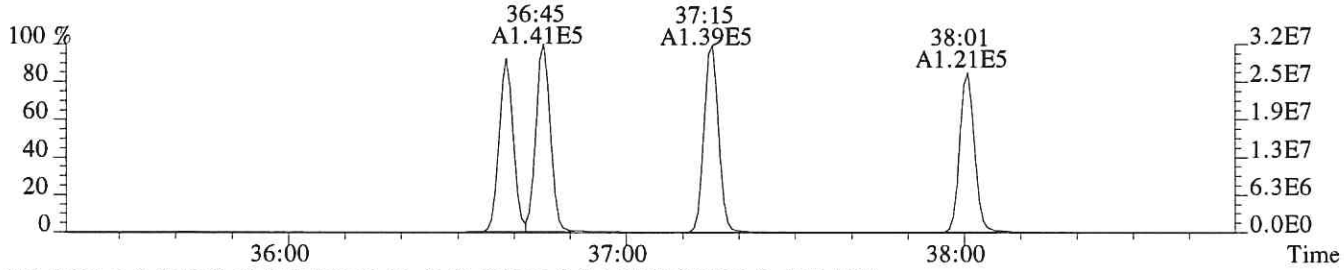
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5668.0,0.40%,F,T)



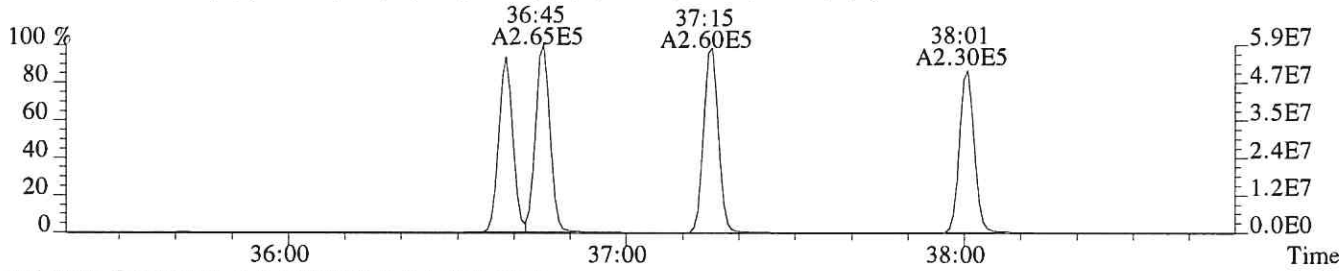
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3380.0,0.40%,F,T)



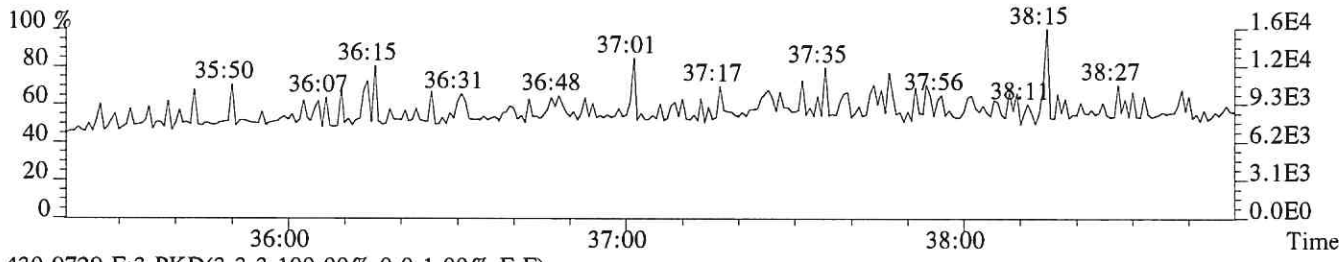
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



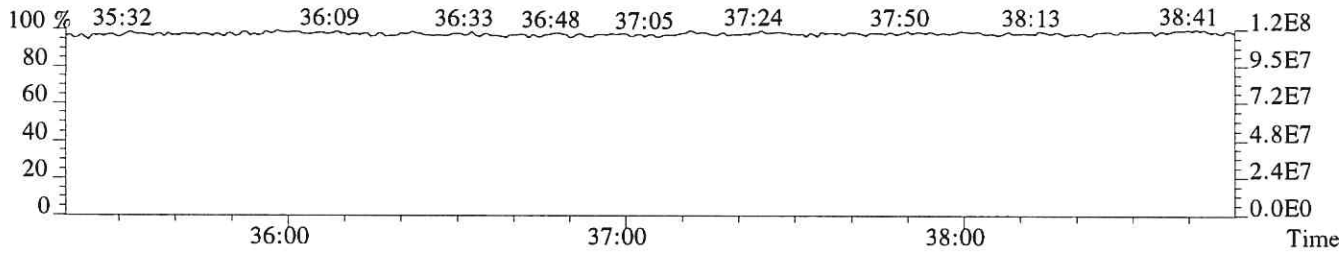
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2916.0,0.40%,F,T)



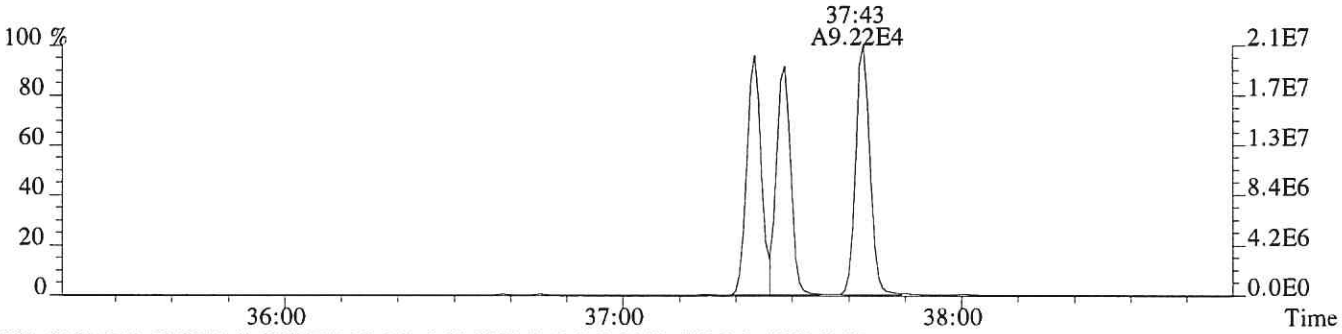
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



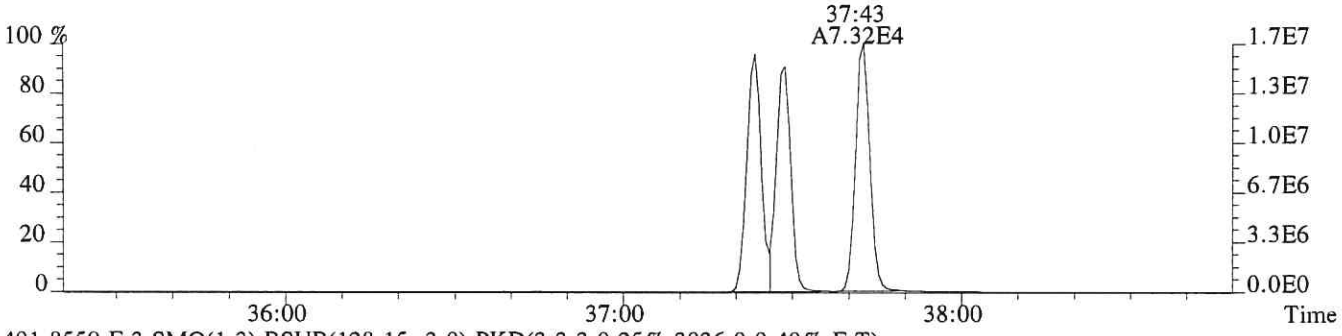
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



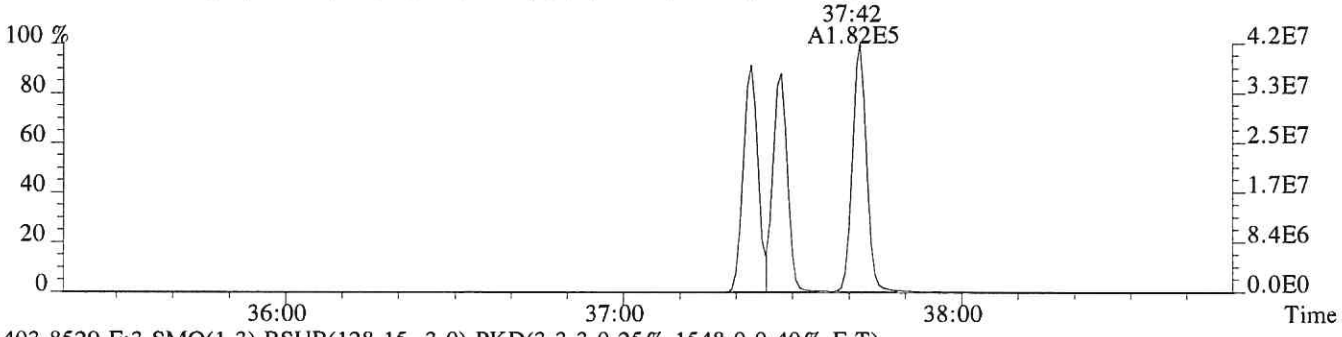
File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.40%,F,T)



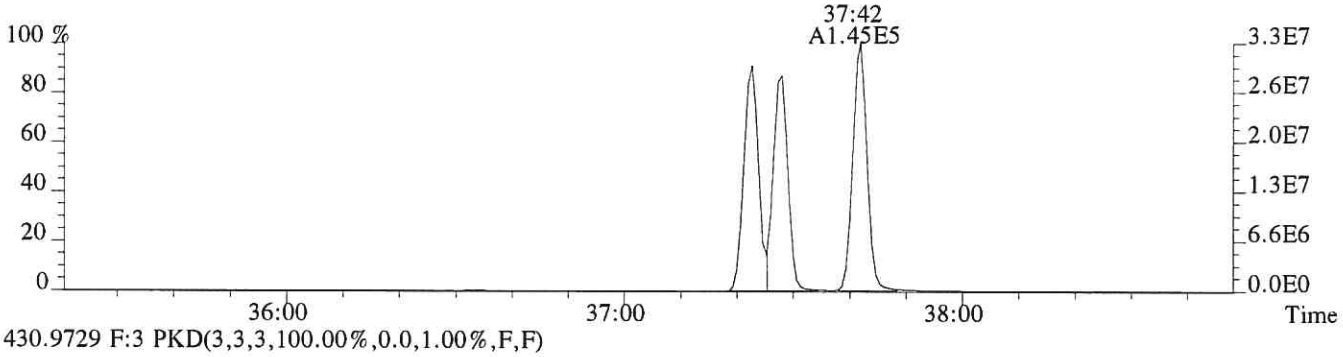
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



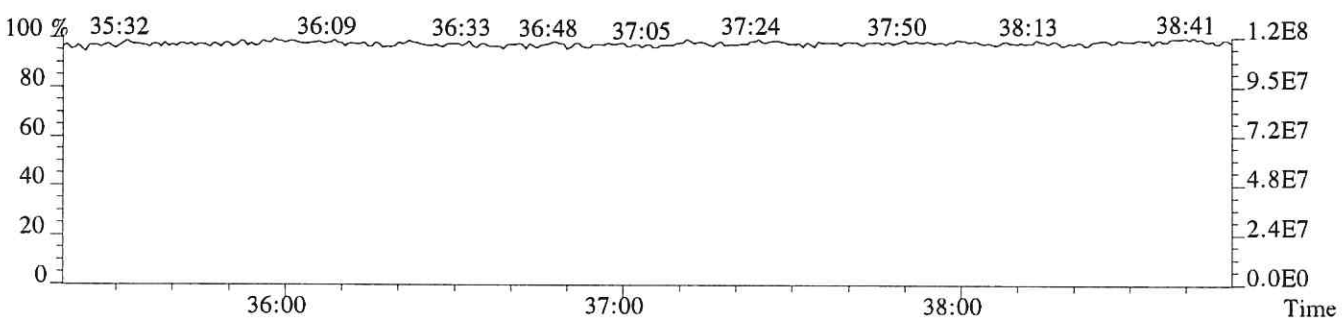
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)

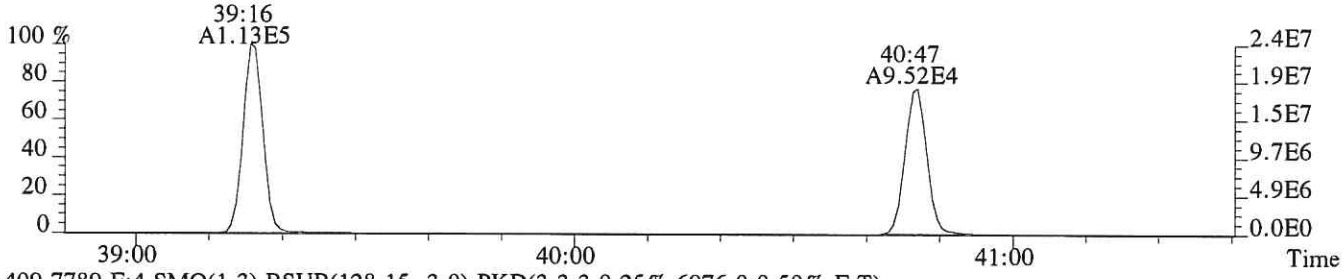


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

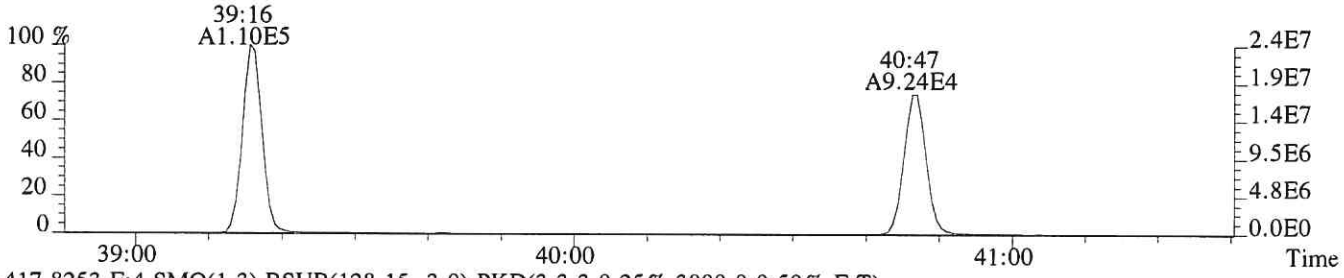


File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

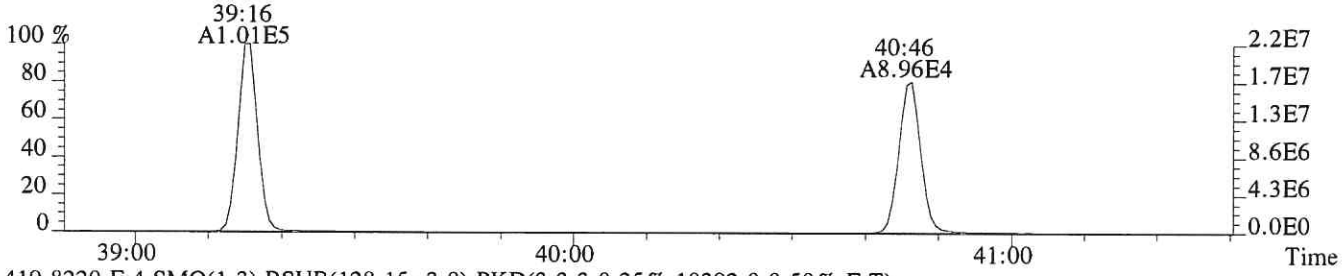
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9668.0,0.50%,F,T)



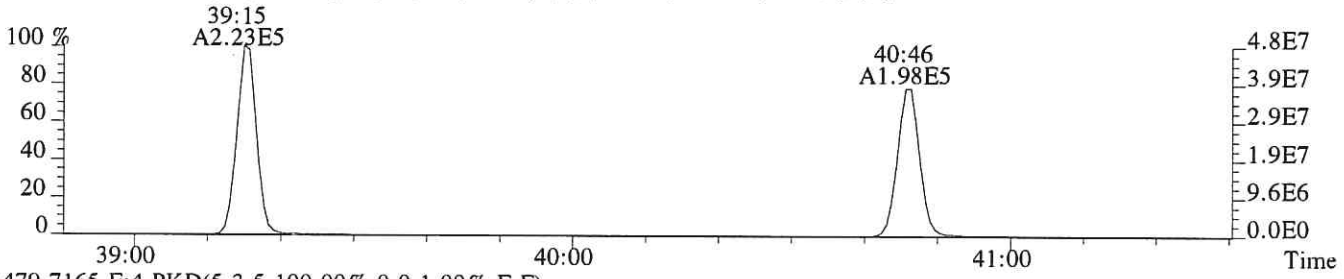
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6976.0,0.50%,F,T)



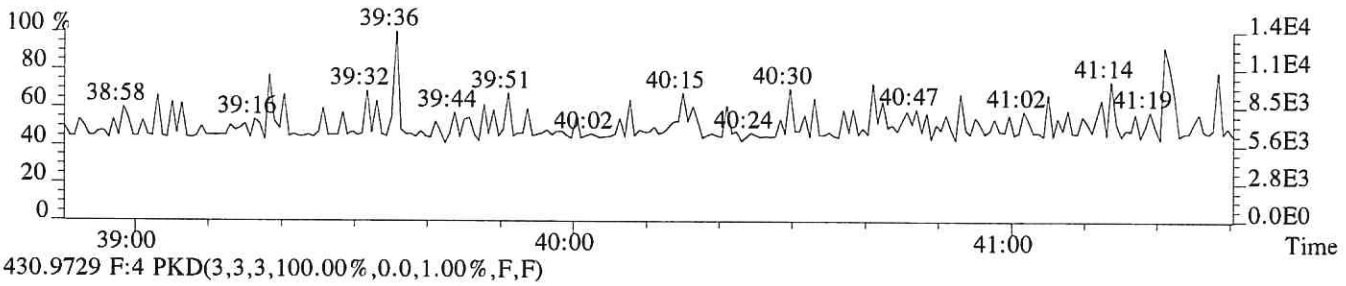
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3800.0,0.50%,F,T)



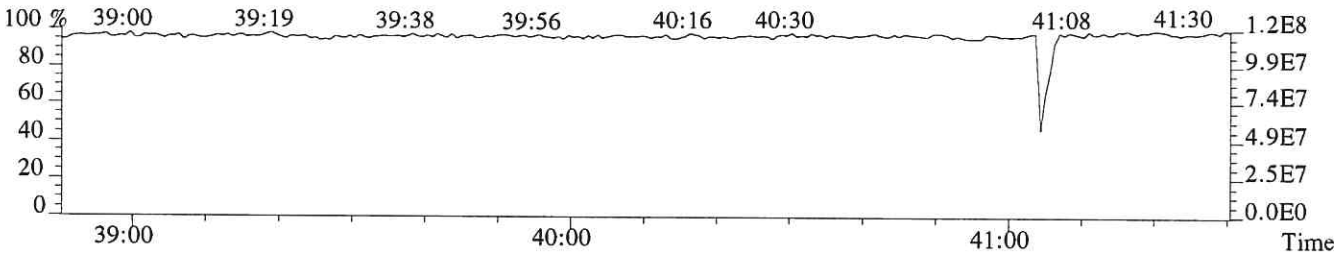
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10392.0,0.50%,F,T)



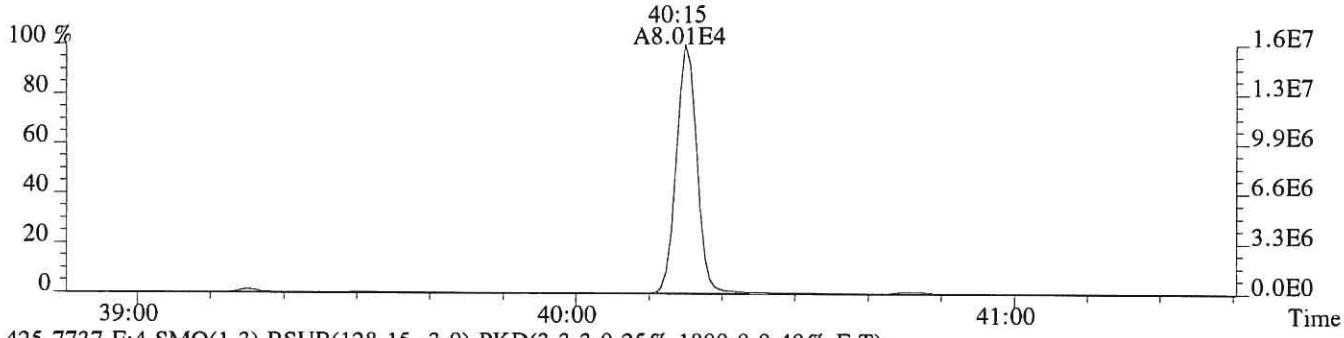
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



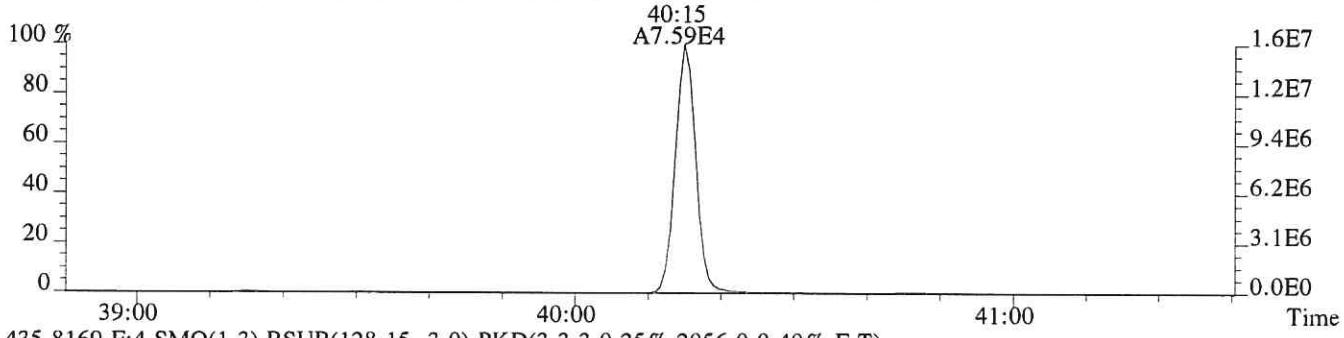
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



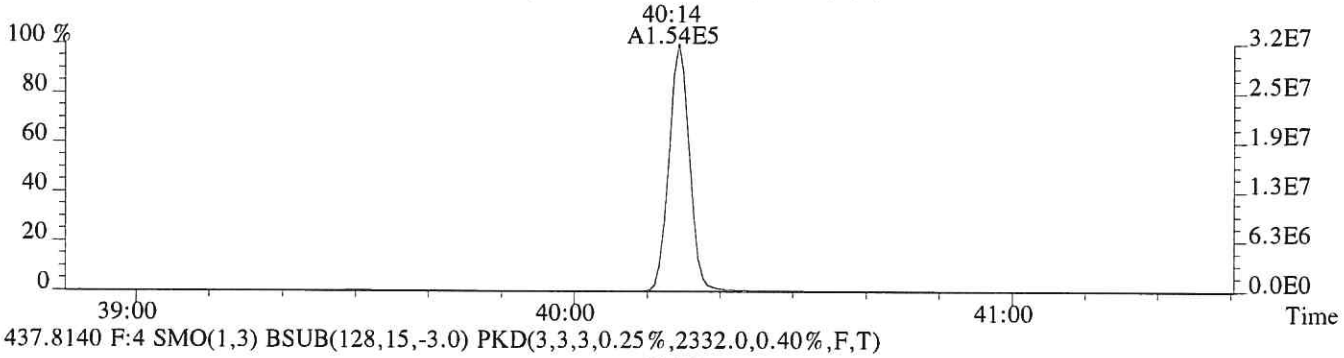
File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2620.0,0.40%,F,T)



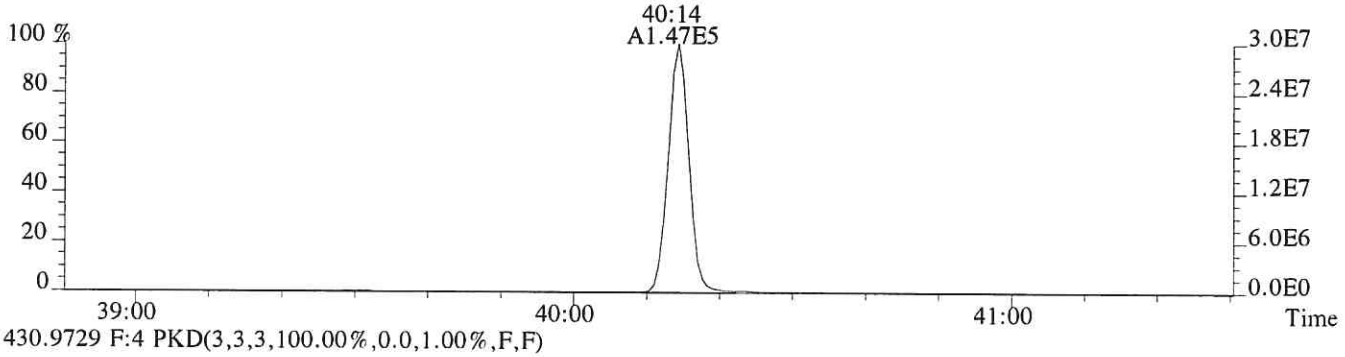
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



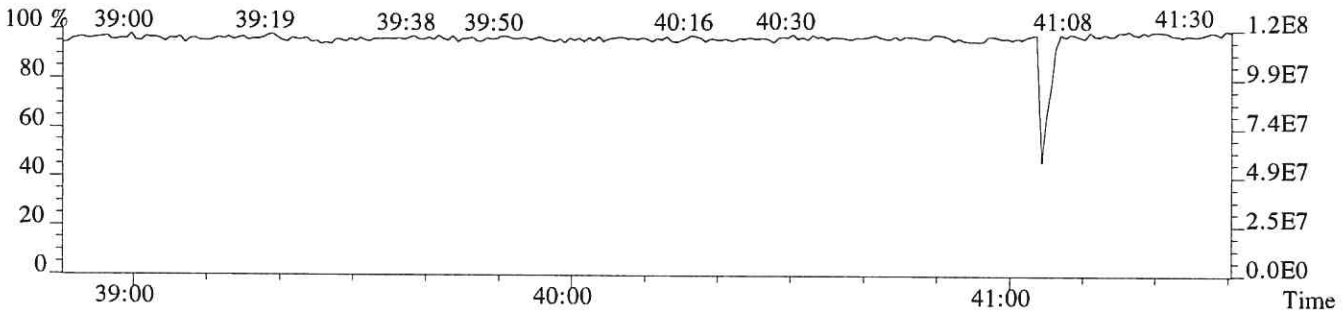
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2056.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)

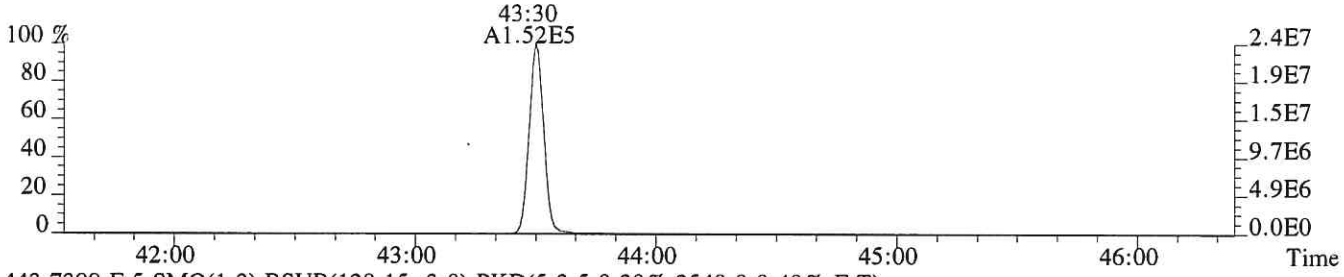


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

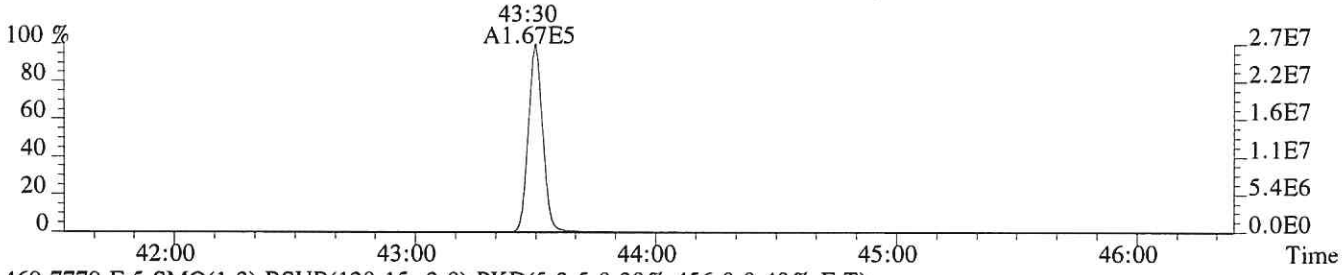


File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

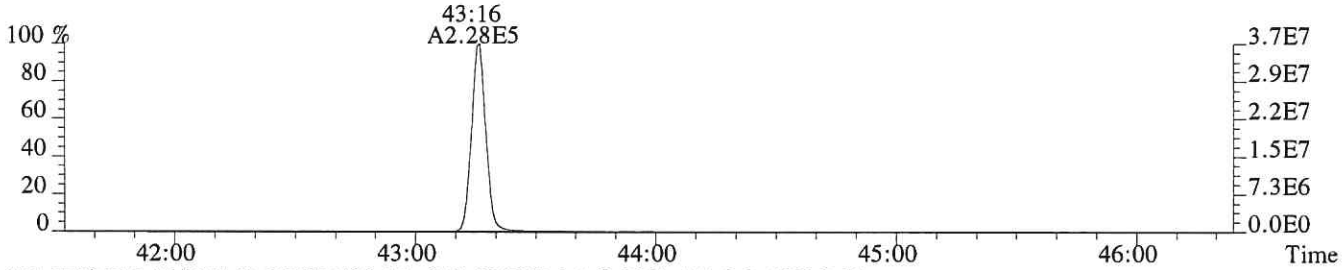
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1324.0,0.40%,F,T)



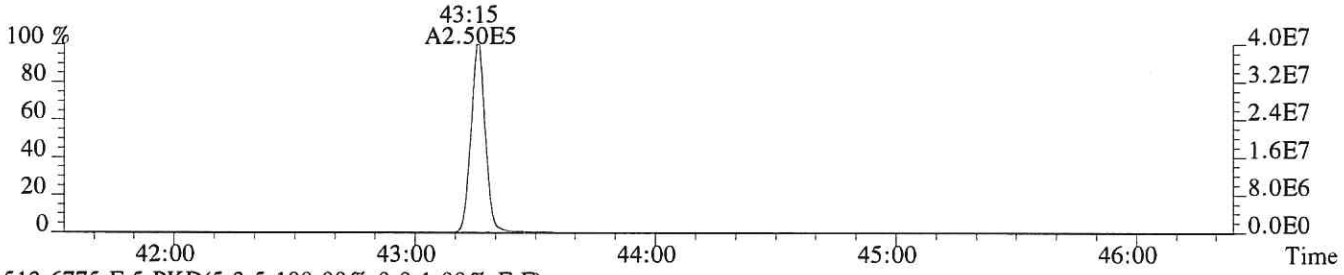
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2548.0,0.40%,F,T)



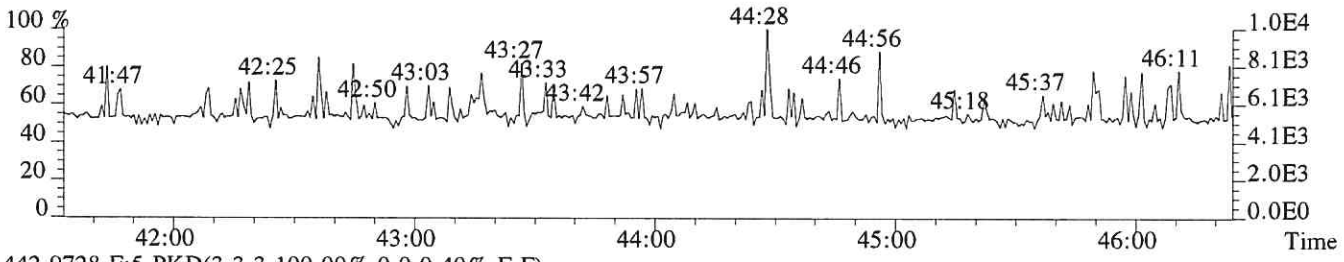
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



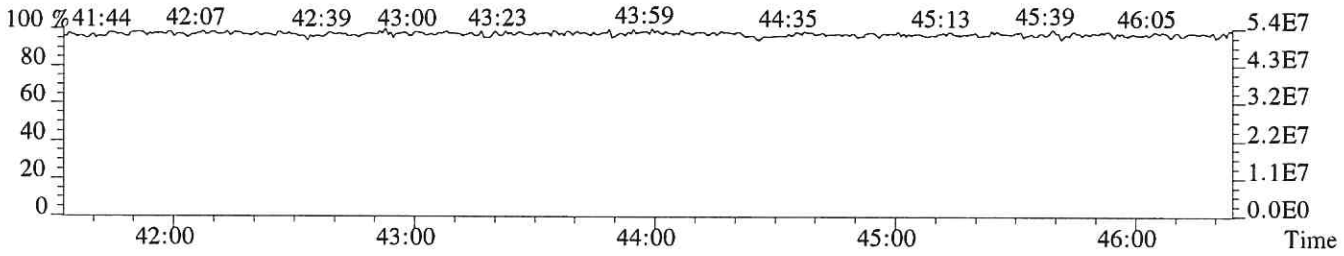
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



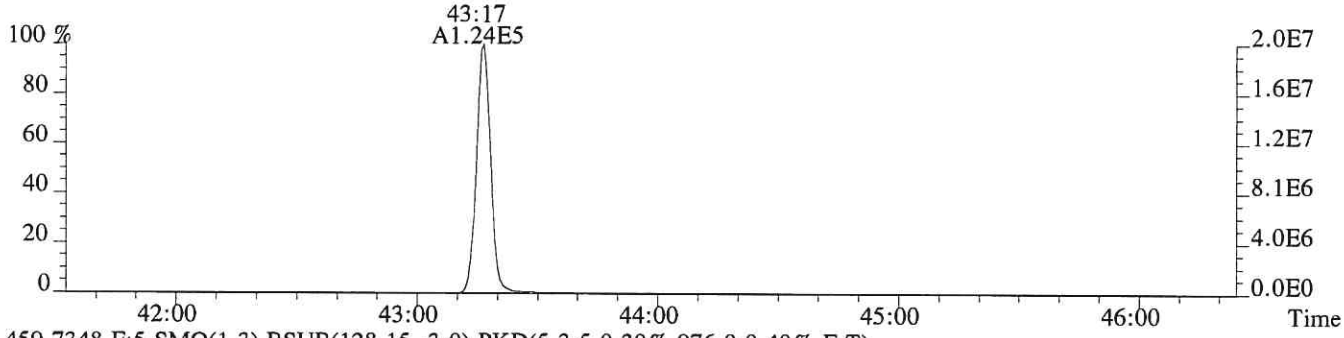
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



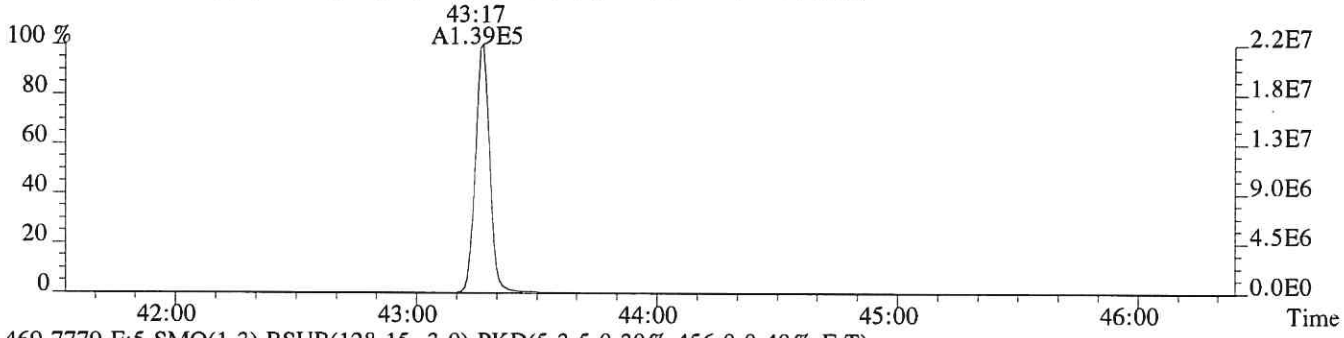
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



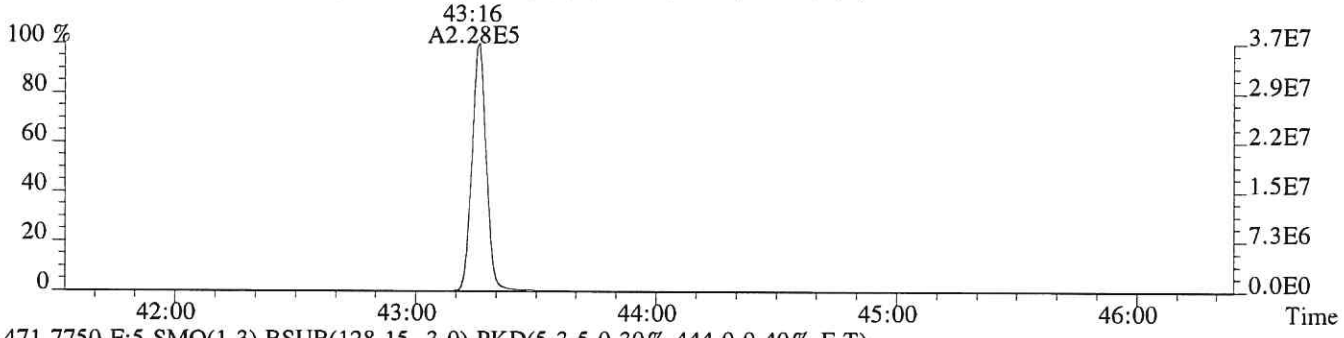
File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



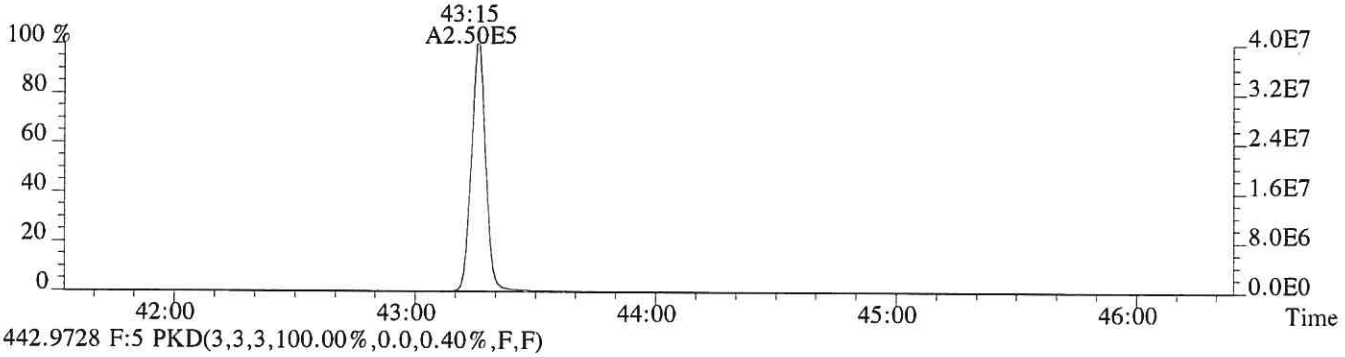
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



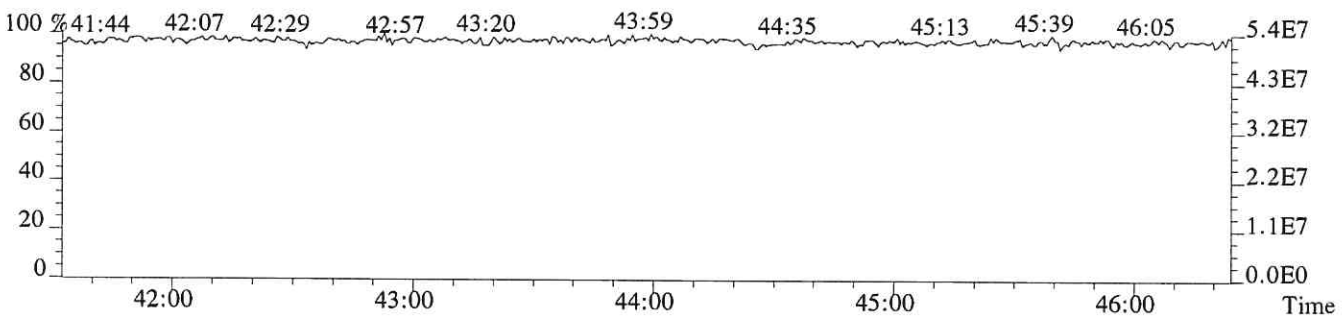
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:38	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	LS	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ LD 1/24/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

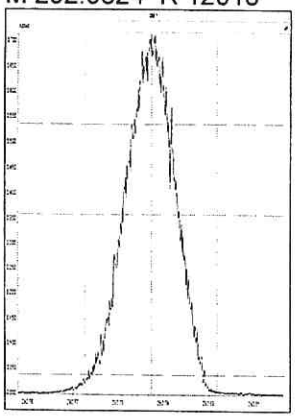
gc 01/25/18

* gc 01/25/18

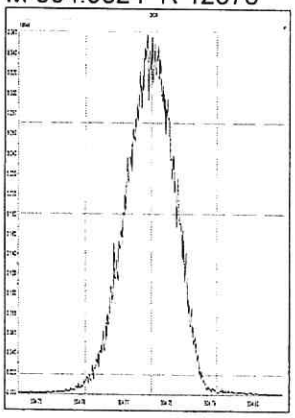
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

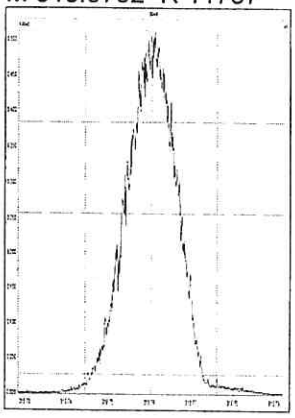
M 292.9824 R 12018



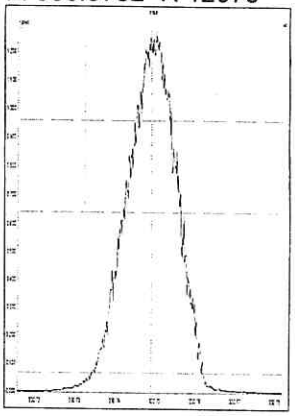
M 304.9824 R 12378



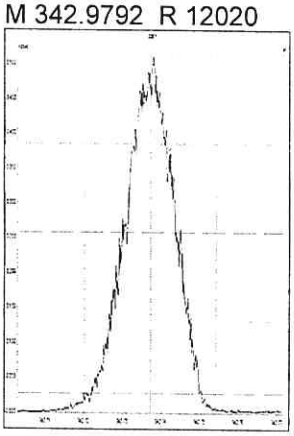
M 318.9792 R 11737



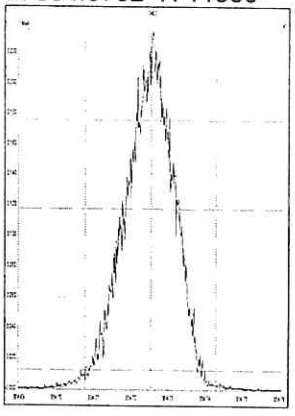
M 330.9792 R 12075



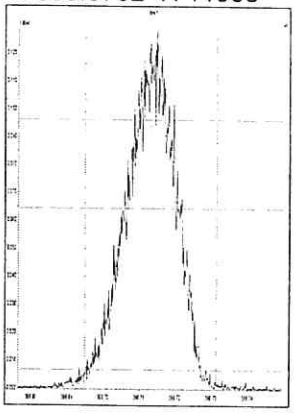
M 342.9792 R 12020



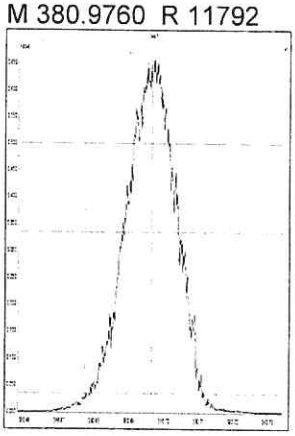
M 354.9792 R 11680



M 366.9792 R 11963



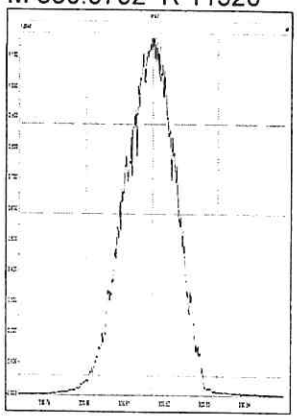
M 380.9760 R 11792



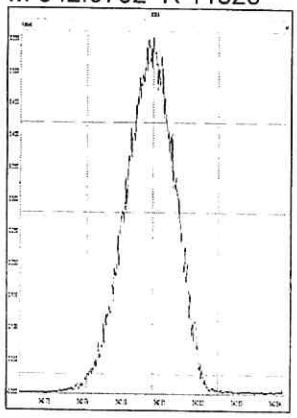
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

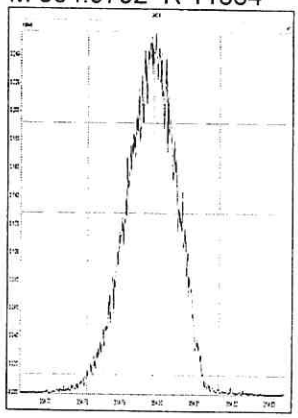
M 330.9792 R 11520



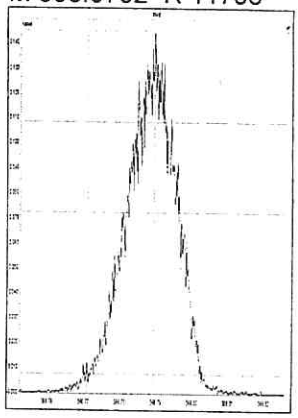
M 342.9792 R 11625



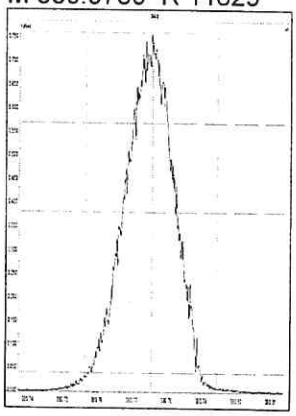
M 354.9792 R 11364



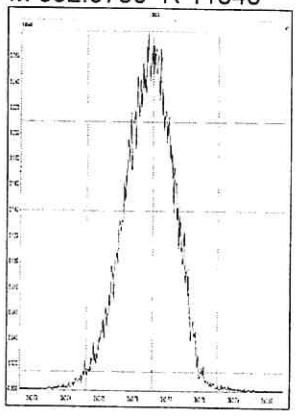
M 366.9792 R 11796



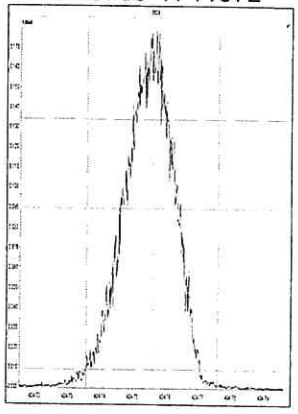
M 380.9760 R 11629



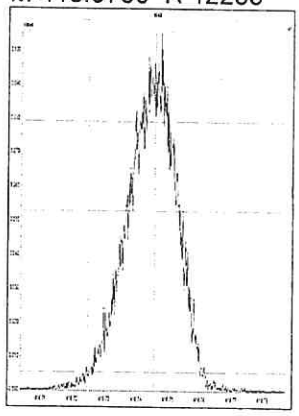
M 392.9760 R 11848



M 404.9760 R 11572



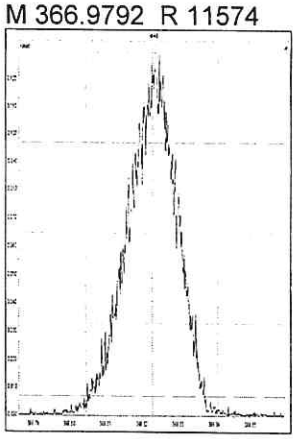
M 416.9760 R 12255



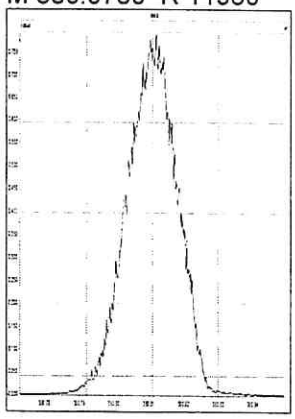
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

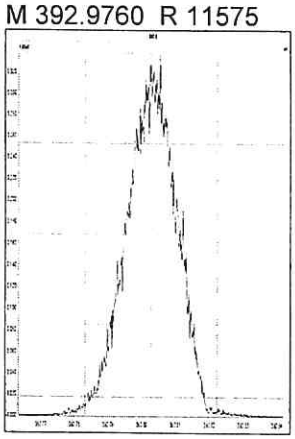
M 366.9792 R 11574



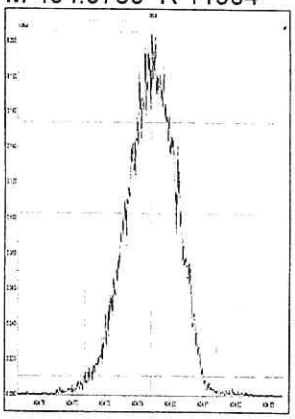
M 380.9760 R 11960



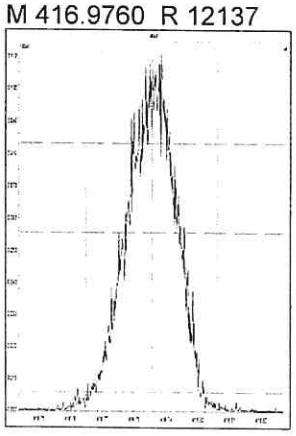
M 392.9760 R 11575



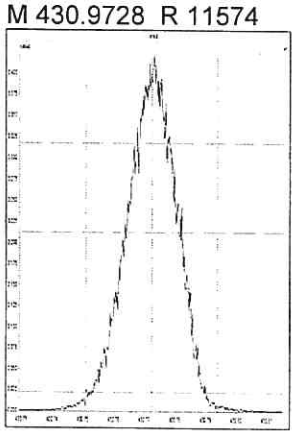
M 404.9760 R 11904



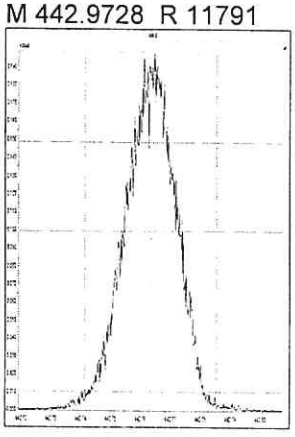
M 416.9760 R 12137



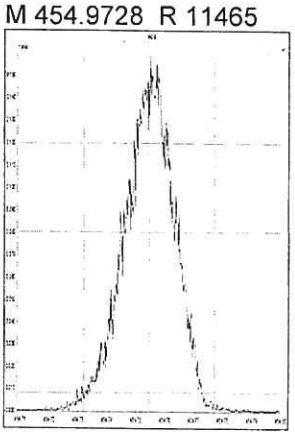
M 430.9728 R 11574



M 442.9728 R 11791



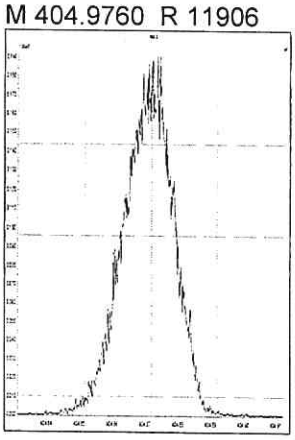
M 454.9728 R 11465



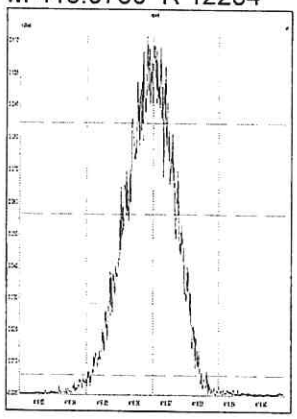
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

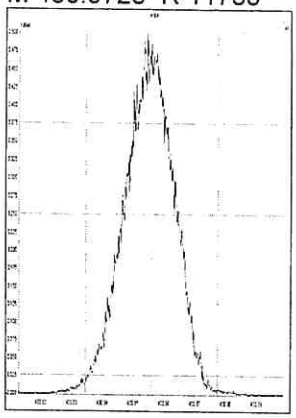
M 404.9760 R 11906



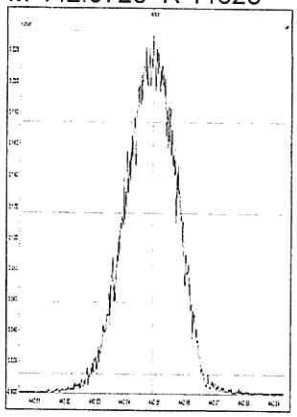
M 416.9760 R 12254



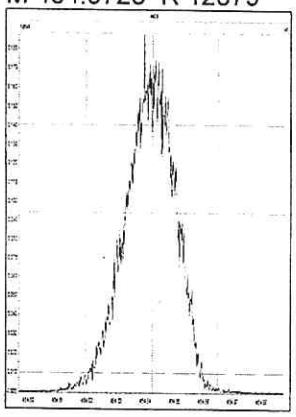
M 430.9728 R 11735



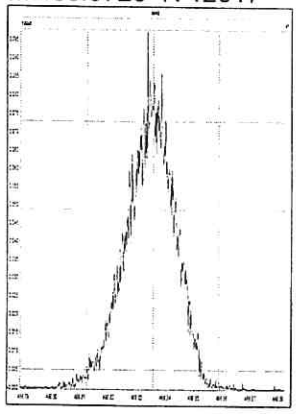
M 442.9728 R 11628



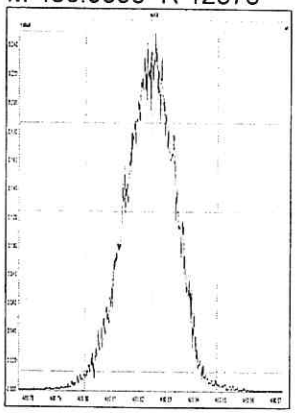
M 454.9728 R 12379



M 466.9728 R 12017



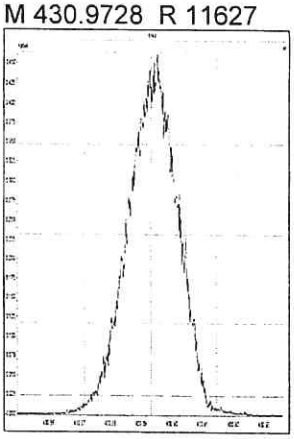
M 480.9696 R 12376



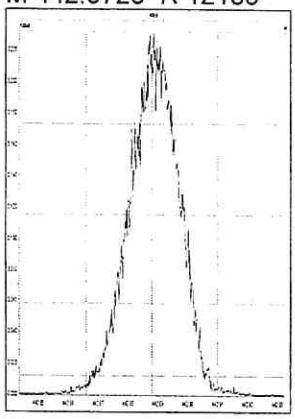
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

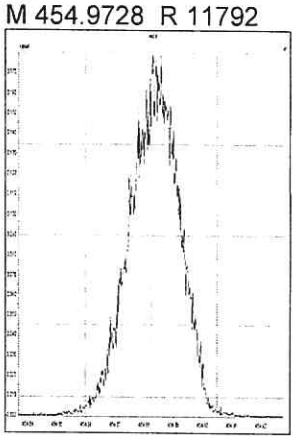
M 430.9728 R 11627



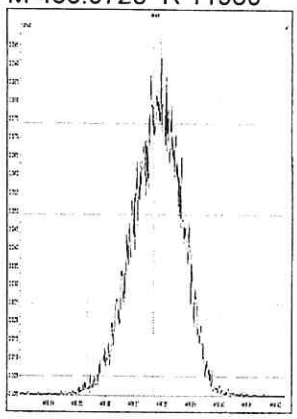
M 442.9728 R 12133



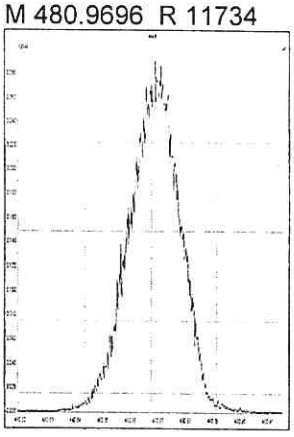
M 454.9728 R 11792



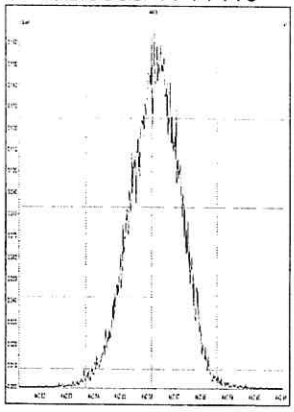
M 466.9728 R 11960



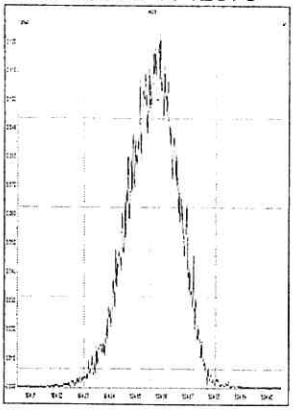
M 480.9696 R 11734



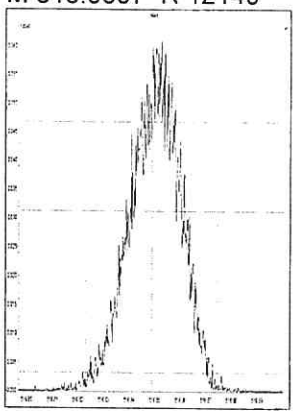
M 492.9696 R 11415



M 504.9696 R 12075



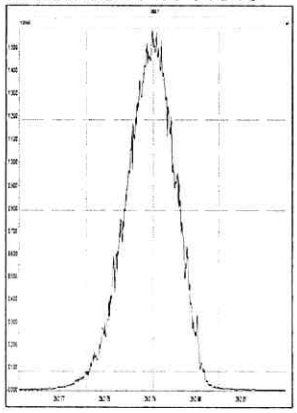
M 516.9697 R 12140



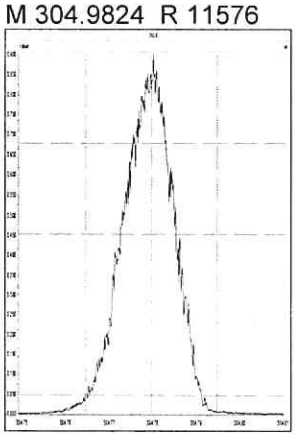
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

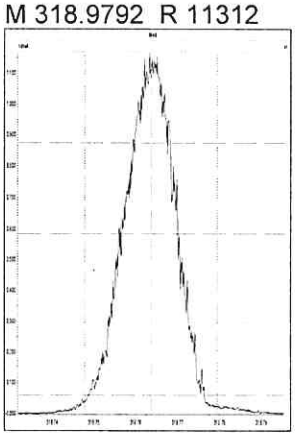
M 292.9824 R 11519



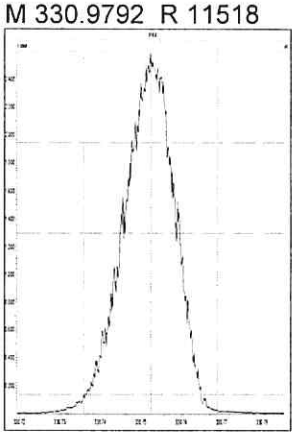
M 304.9824 R 11576



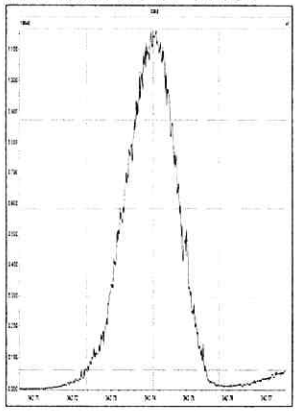
M 318.9792 R 11312



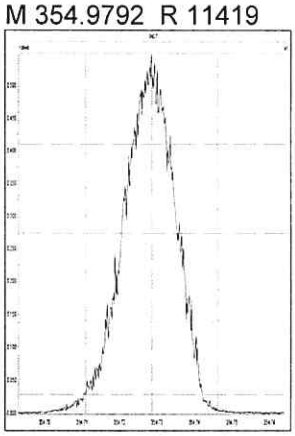
M 330.9792 R 11518



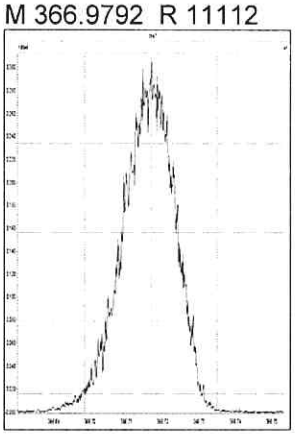
M 342.9792 R 11161



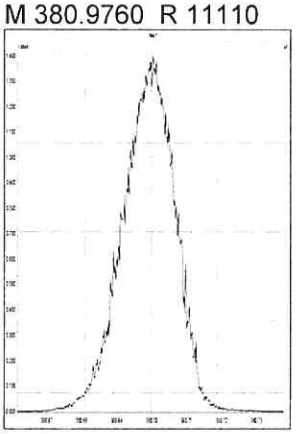
M 354.9792 R 11419



M 366.9792 R 11112



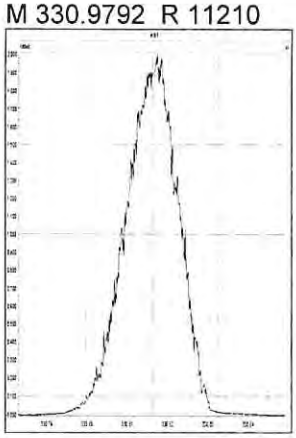
M 380.9760 R 11110



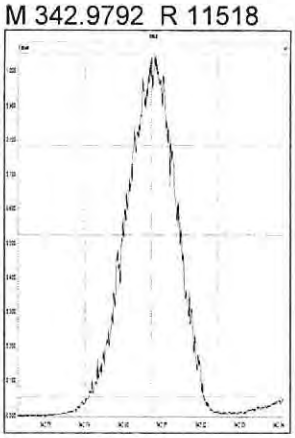
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

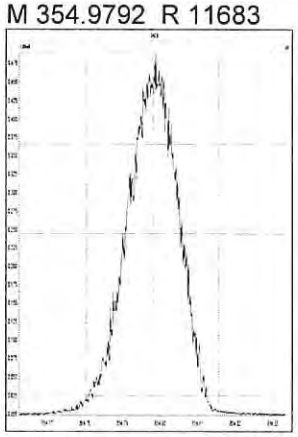
M 330.9792 R 11210



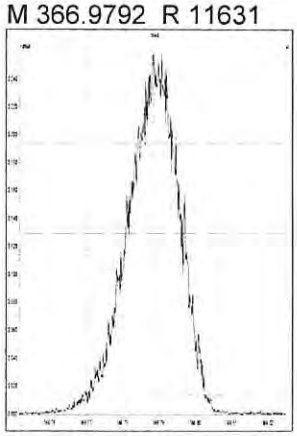
M 342.9792 R 11518



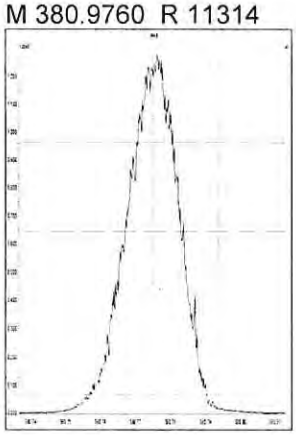
M 354.9792 R 11683



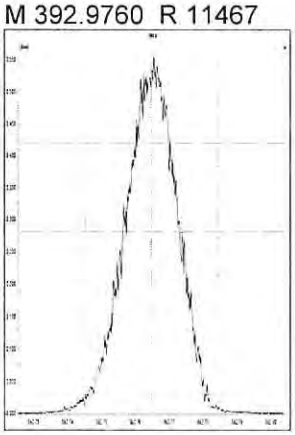
M 366.9792 R 11631



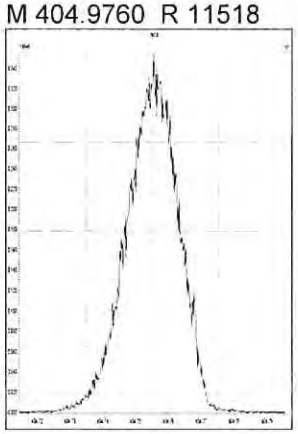
M 380.9760 R 11314



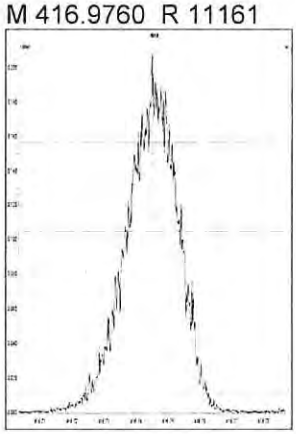
M 392.9760 R 11467



M 404.9760 R 11518



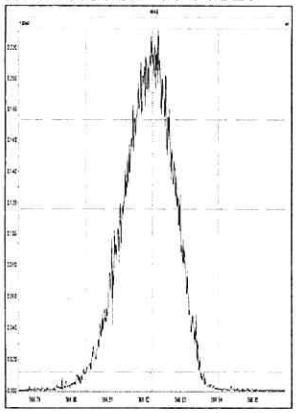
M 416.9760 R 11161



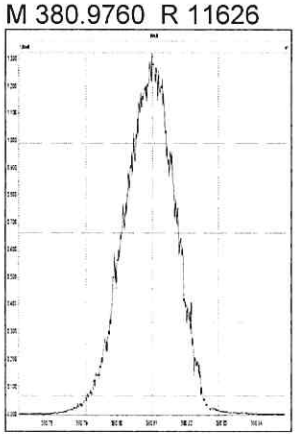
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

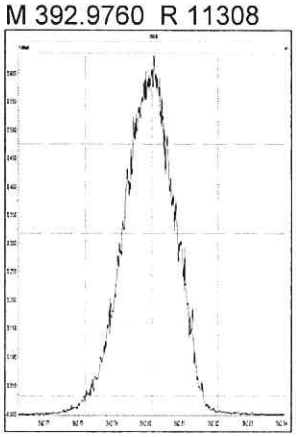
M 366.9792 R 11627



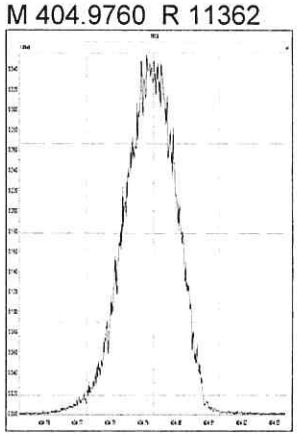
M 380.9760 R 11626



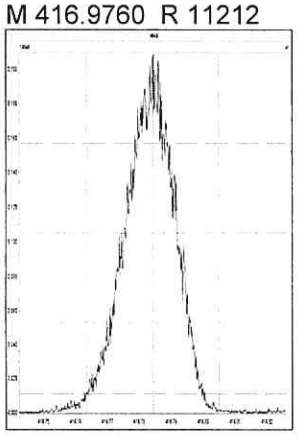
M 392.9760 R 11308



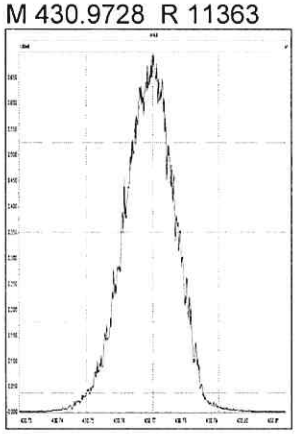
M 404.9760 R 11362



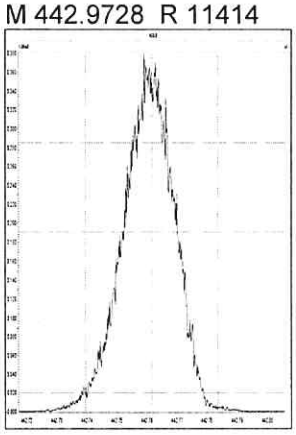
M 416.9760 R 11212



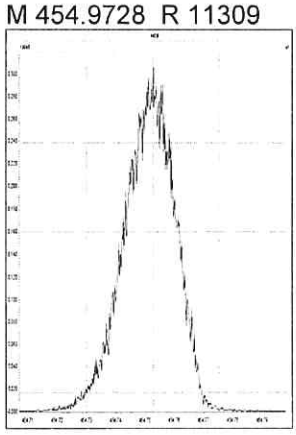
M 430.9728 R 11363



M 442.9728 R 11414



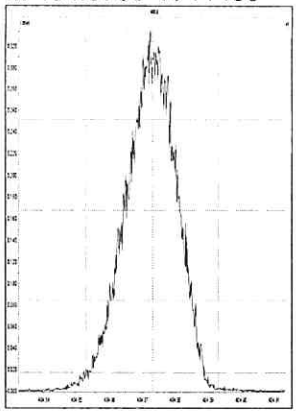
M 454.9728 R 11309



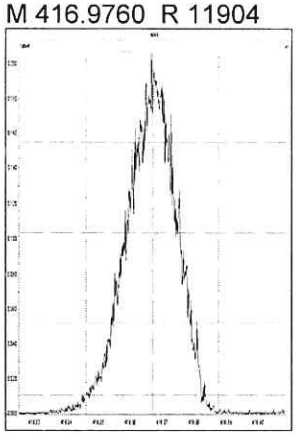
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

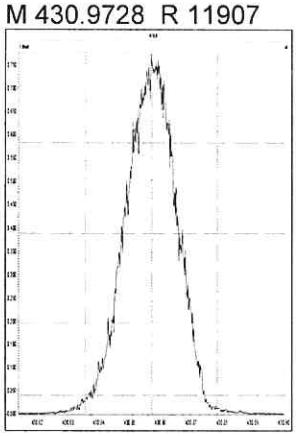
M 404.9760 R 11465



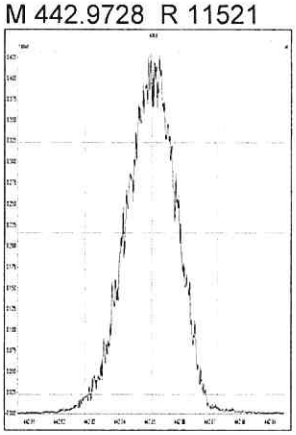
M 416.9760 R 11904



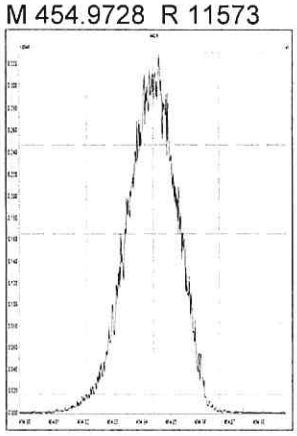
M 430.9728 R 11907



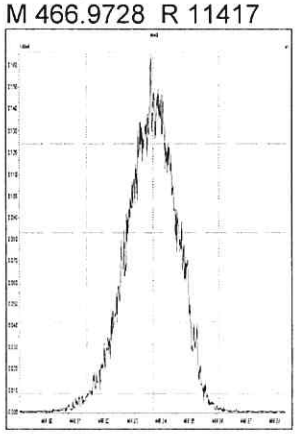
M 442.9728 R 11521



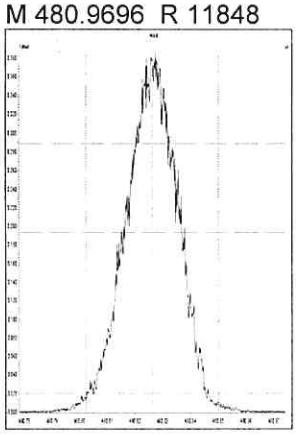
M 454.9728 R 11573



M 466.9728 R 11417



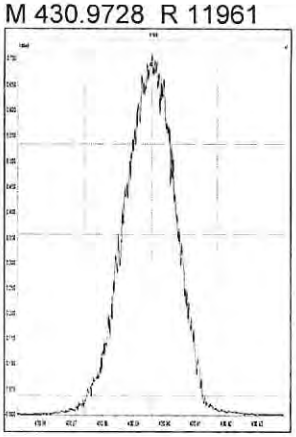
M 480.9696 R 11848



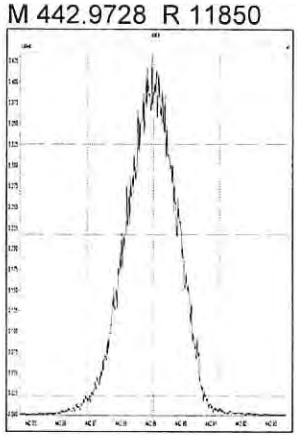
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

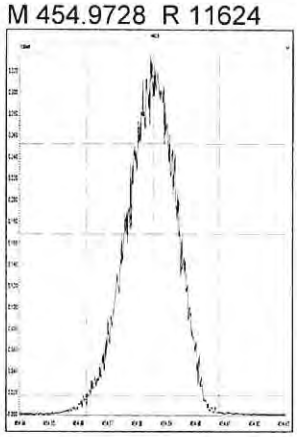
M 430.9728 R 11961



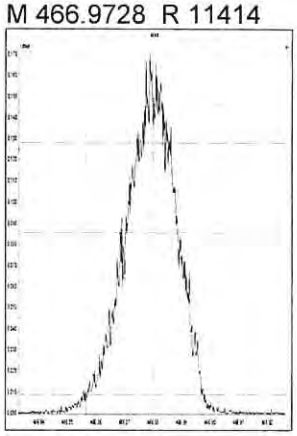
M 442.9728 R 11850



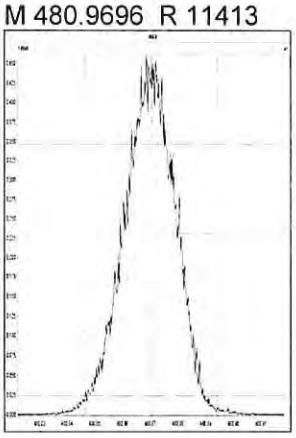
M 454.9728 R 11624



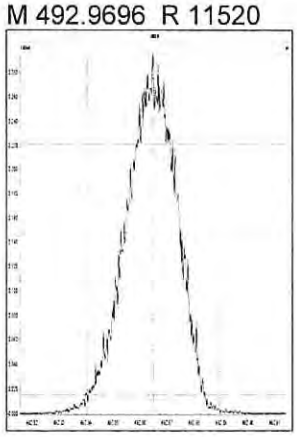
M 466.9728 R 11414



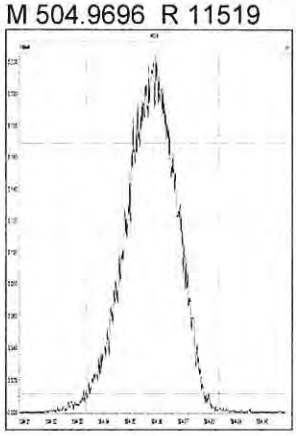
M 480.9696 R 11413



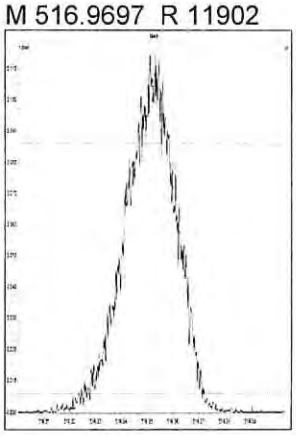
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

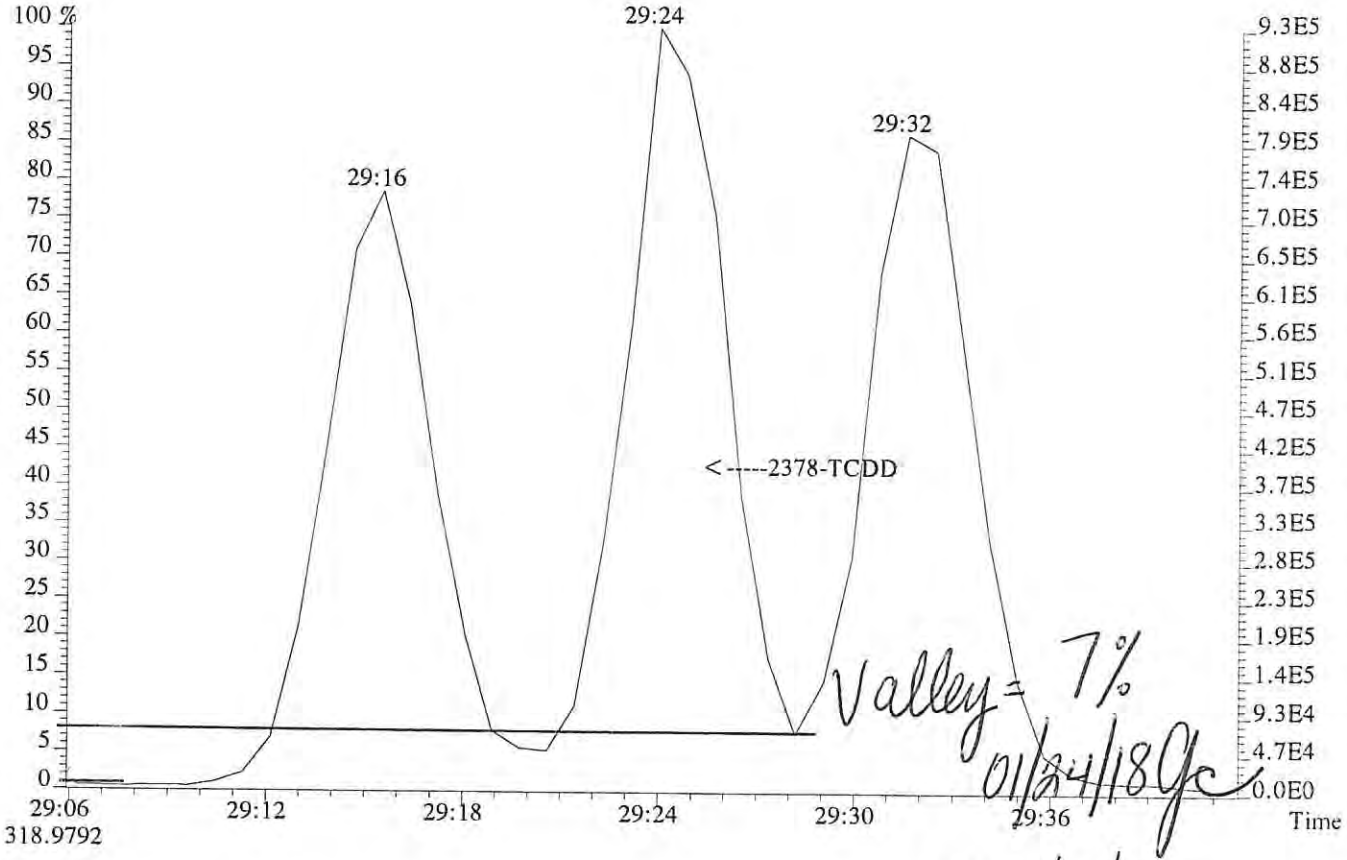
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

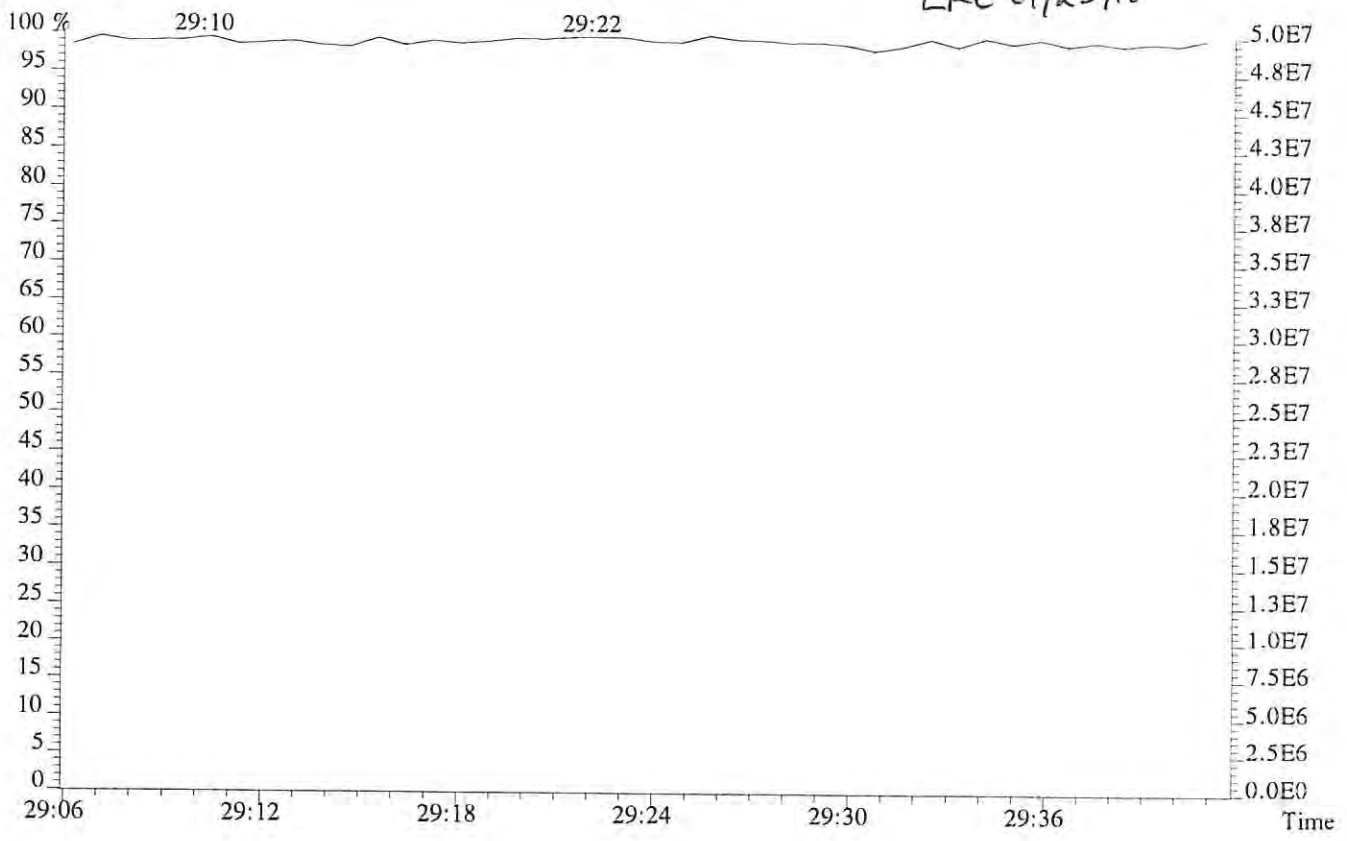
% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965



318.9792

LKL 01/25/18



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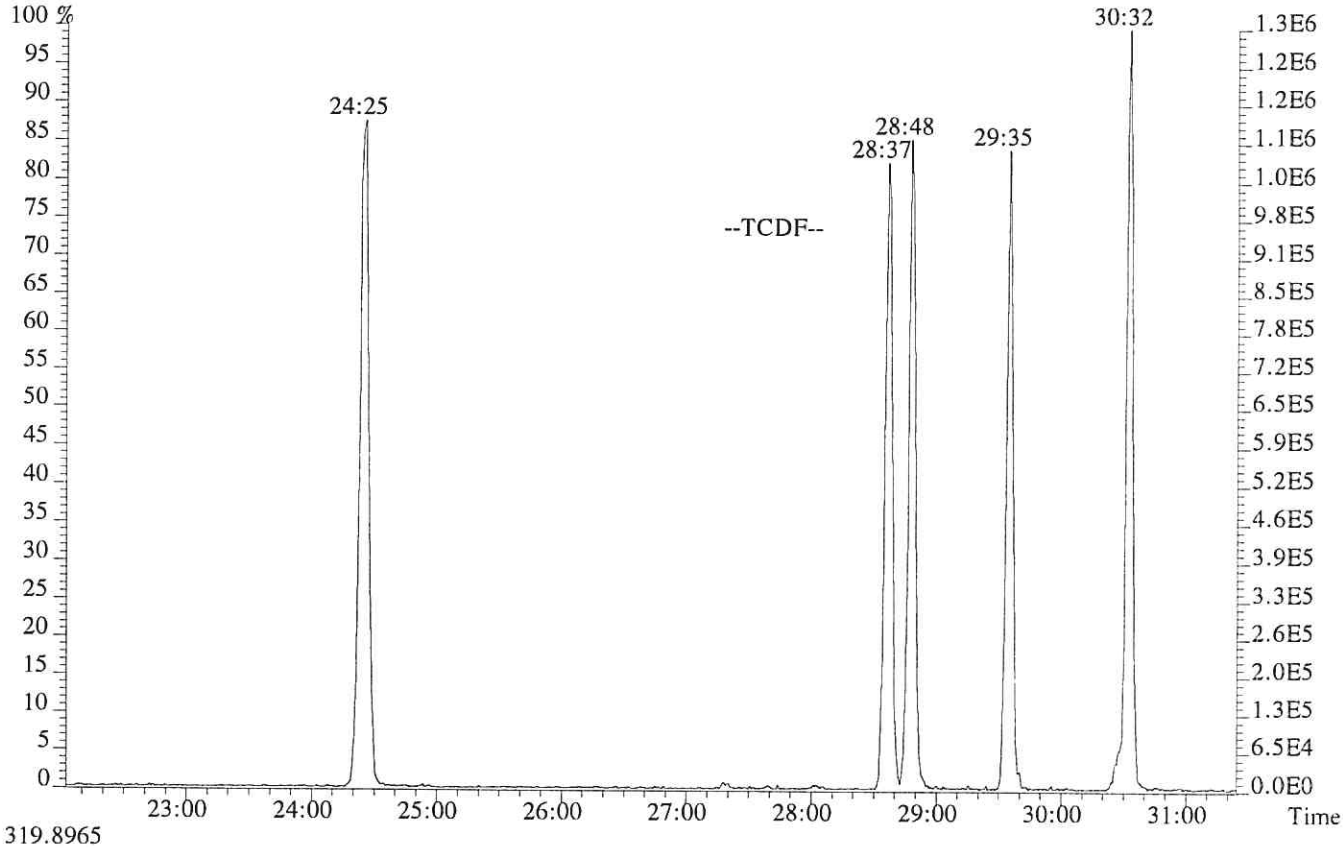
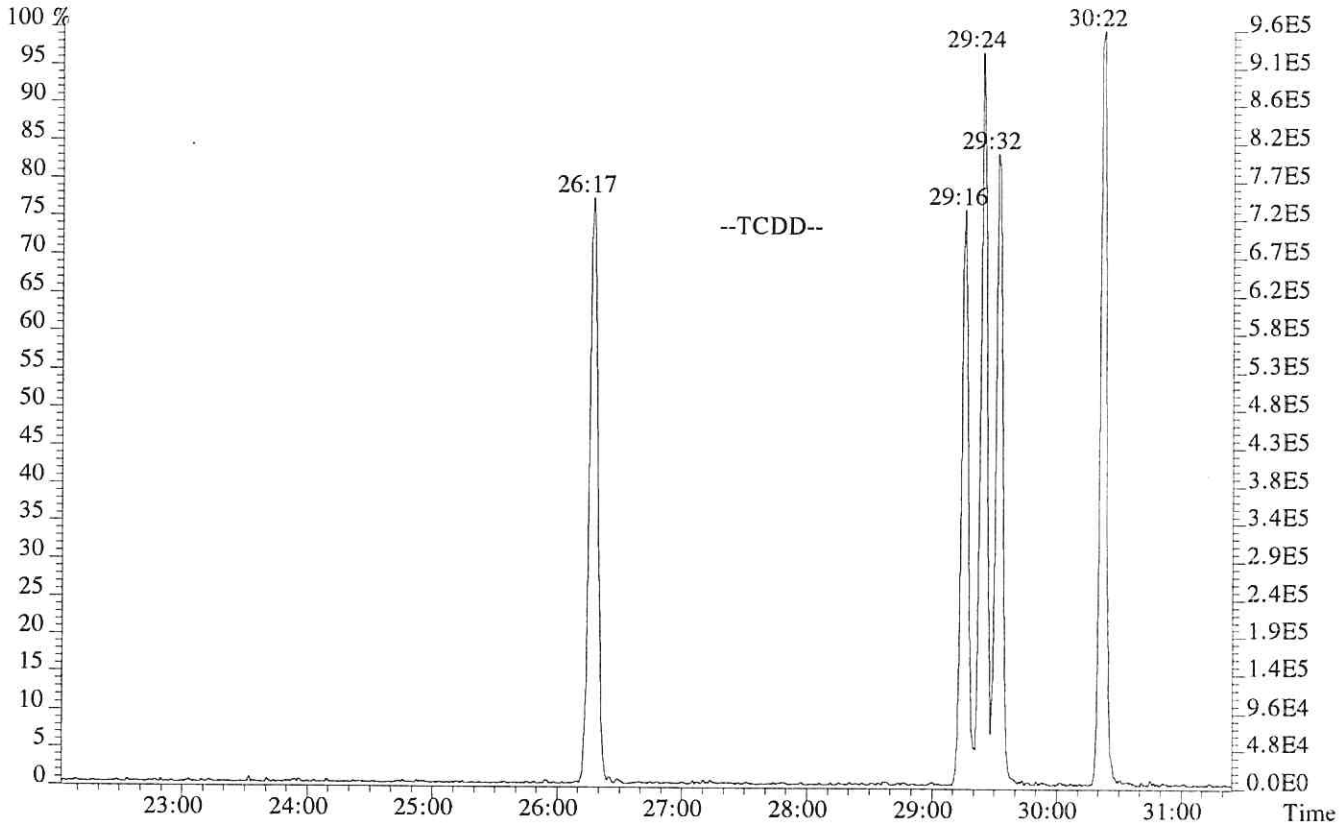
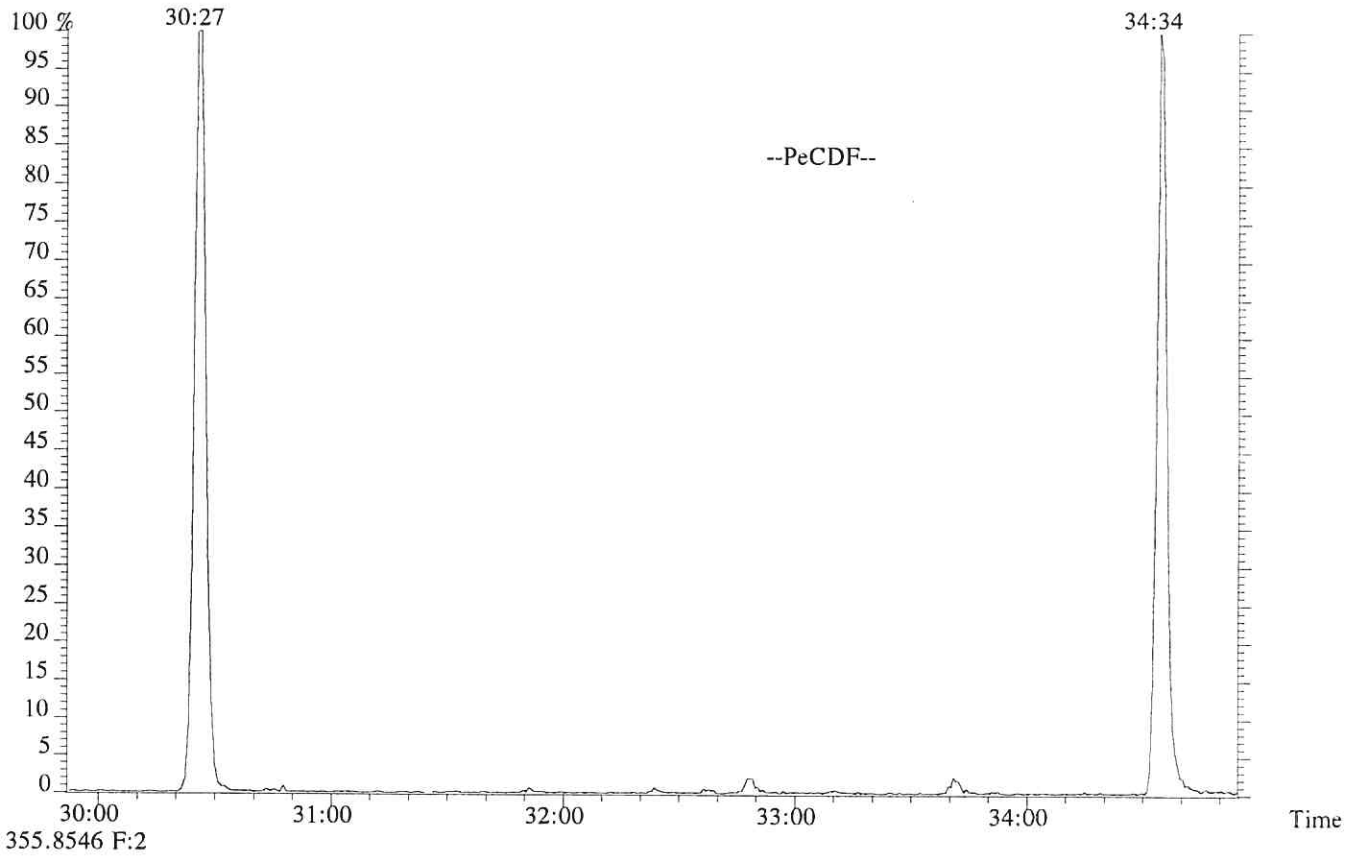
Sample#1 Exp:183360
303.9016



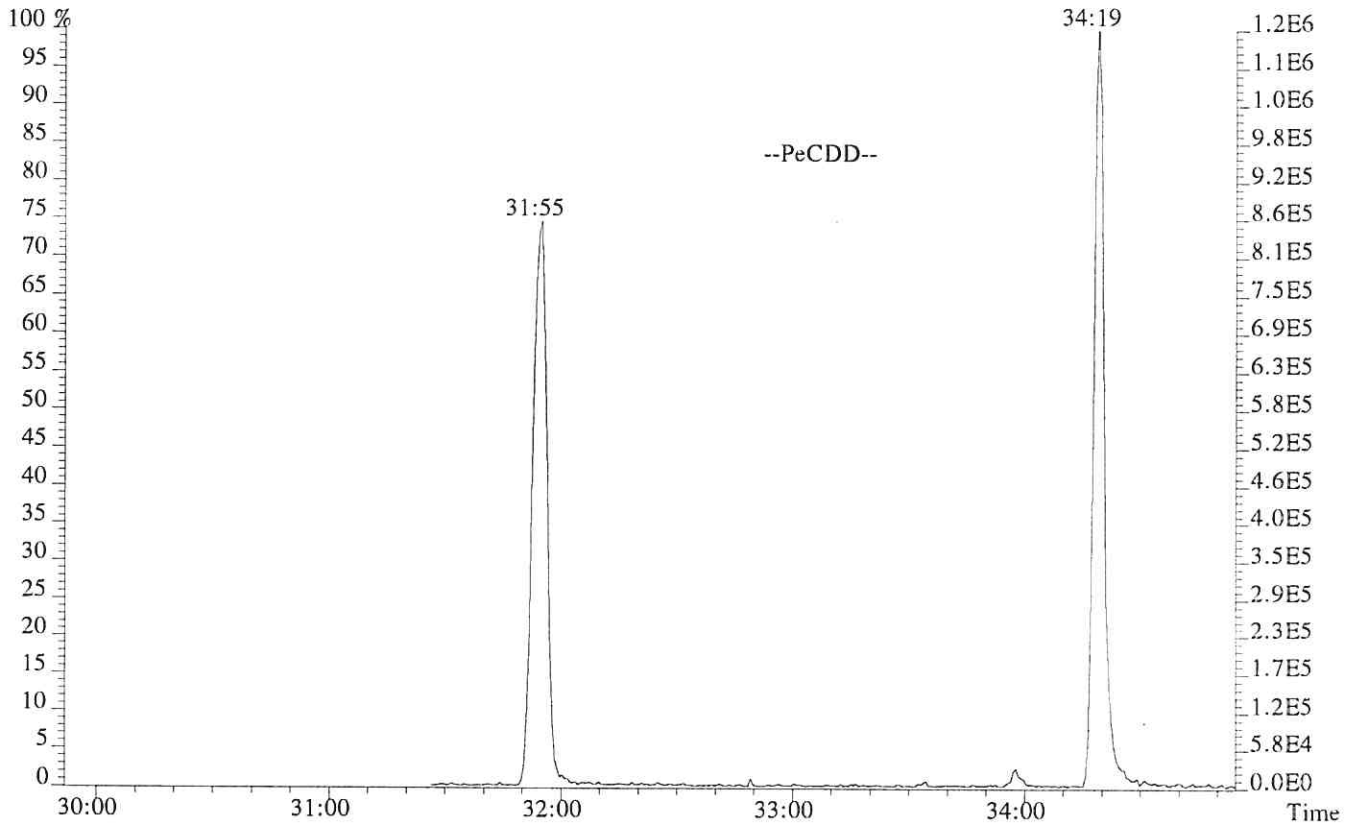
319.8965



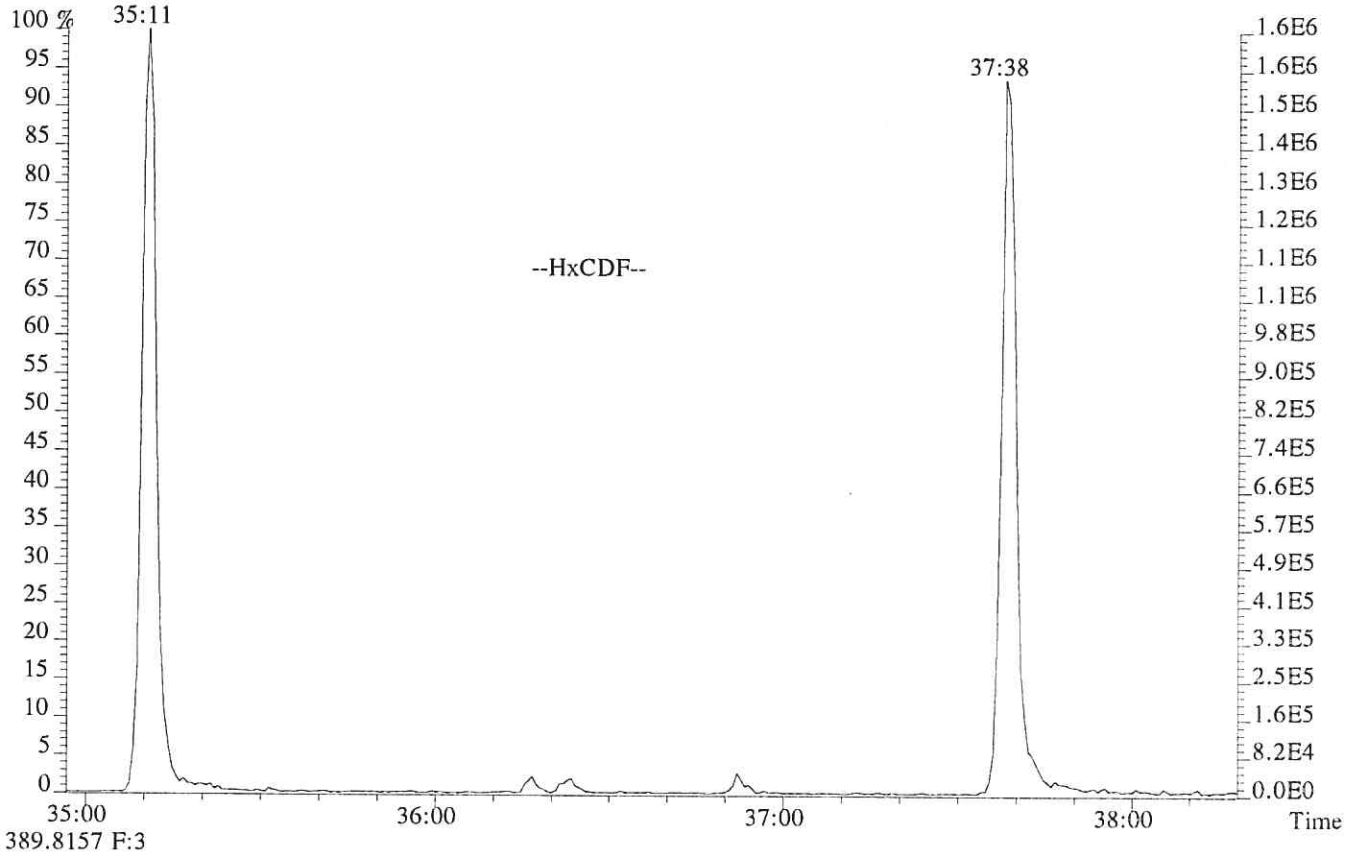
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



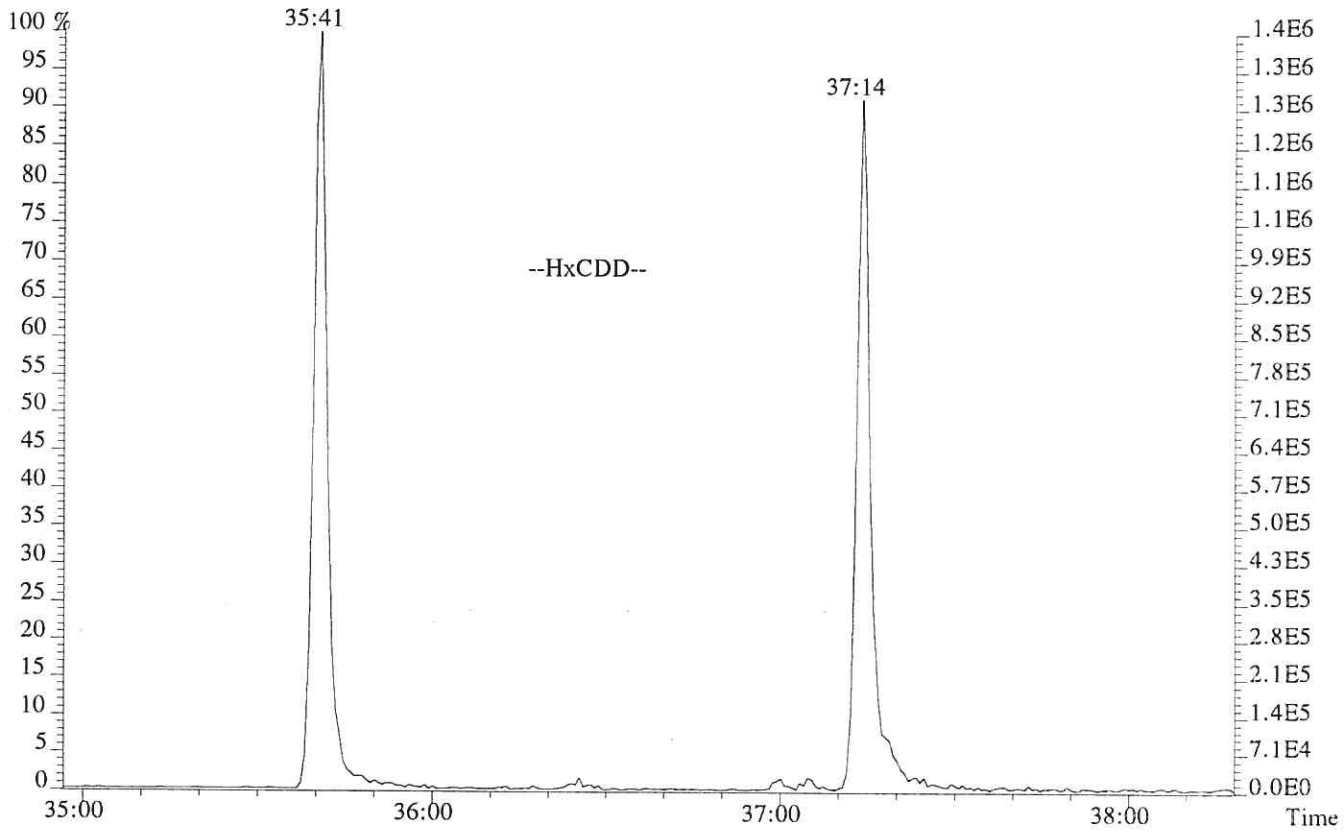
355.8546 F:2



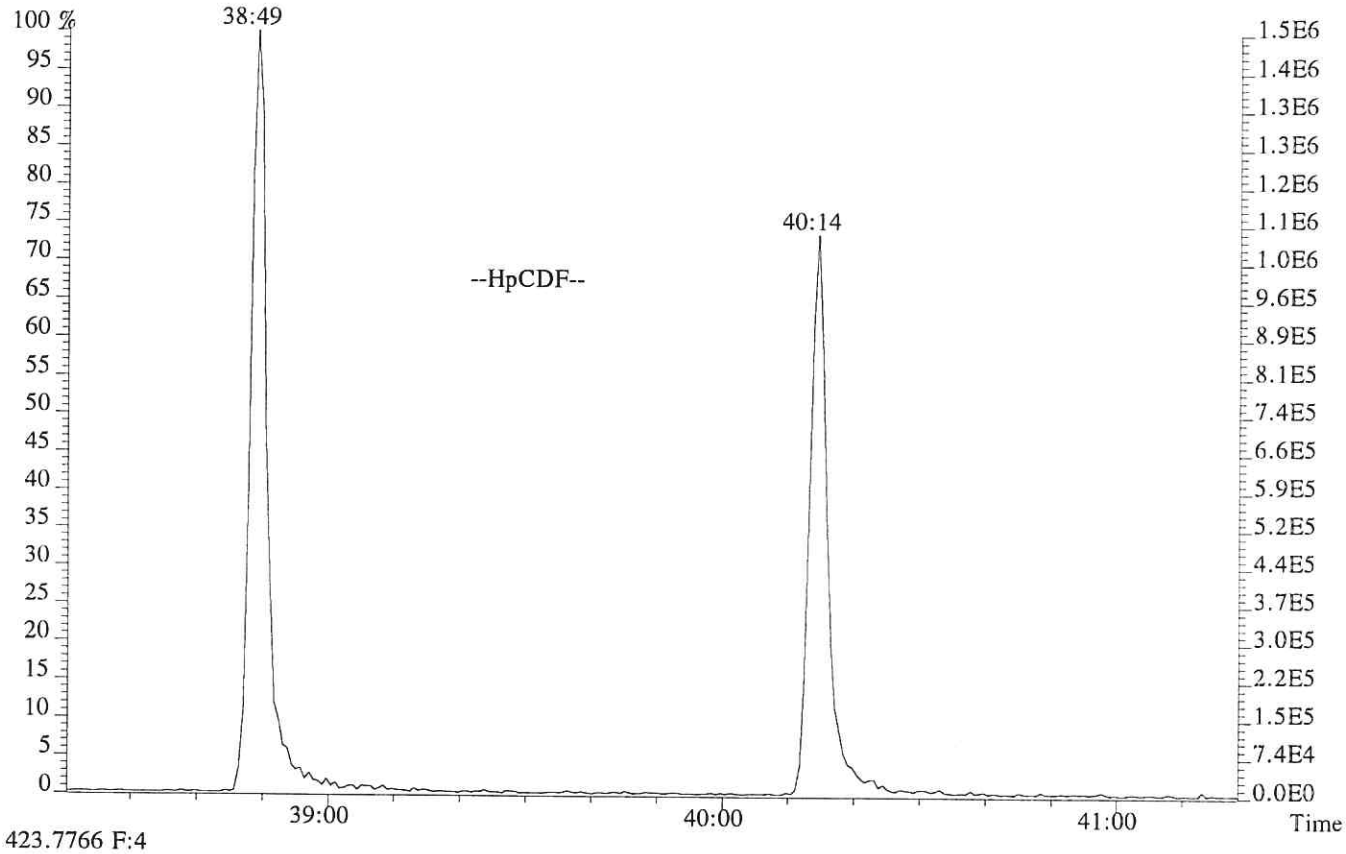
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



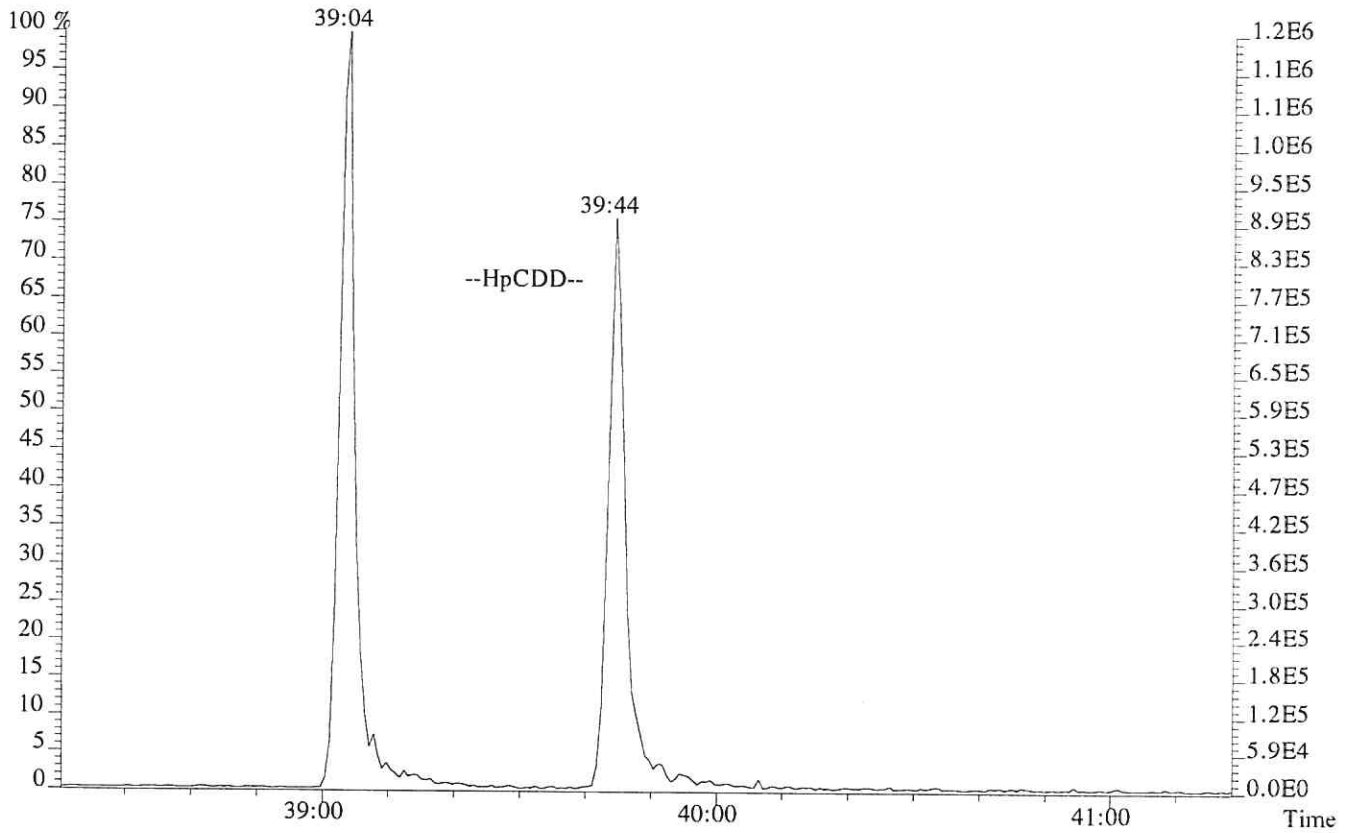
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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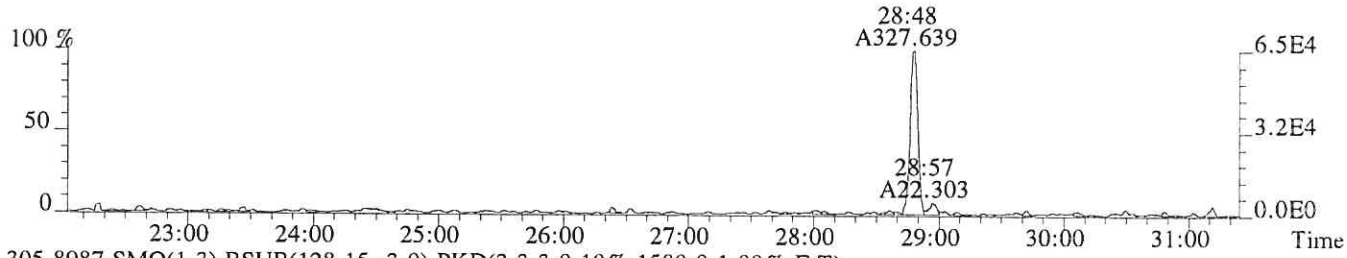
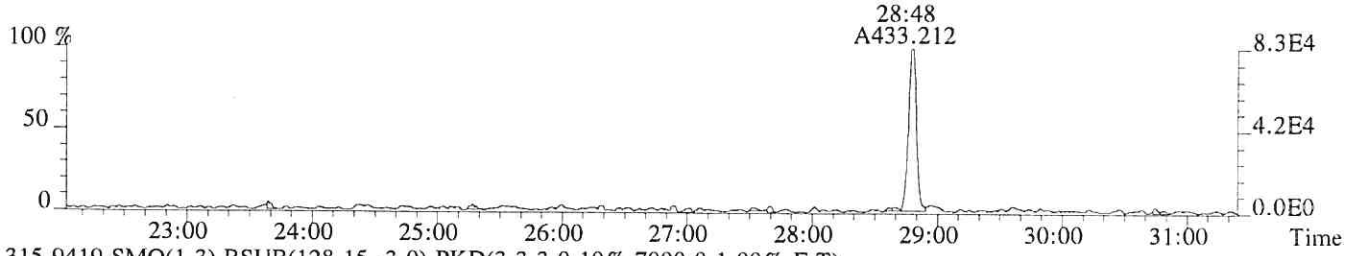
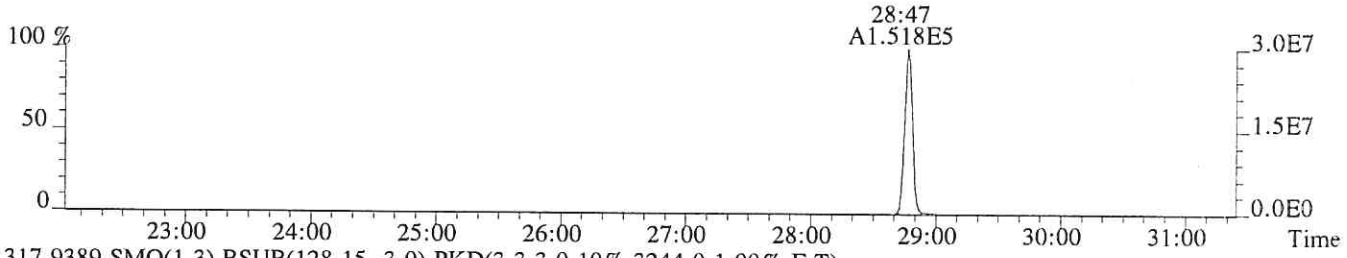
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



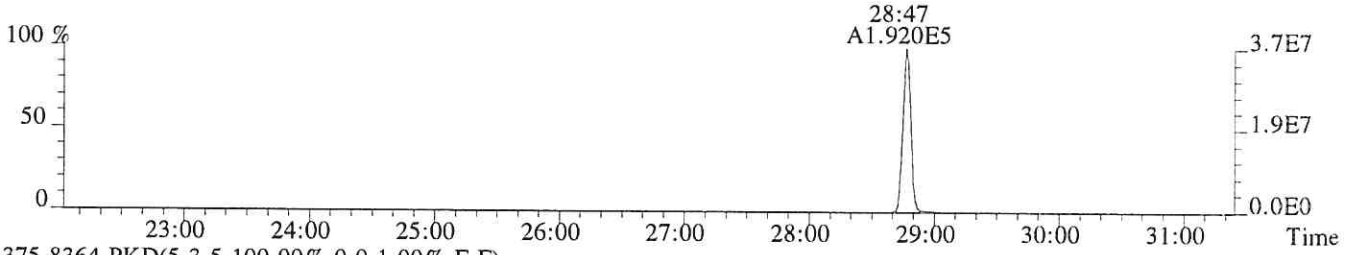
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



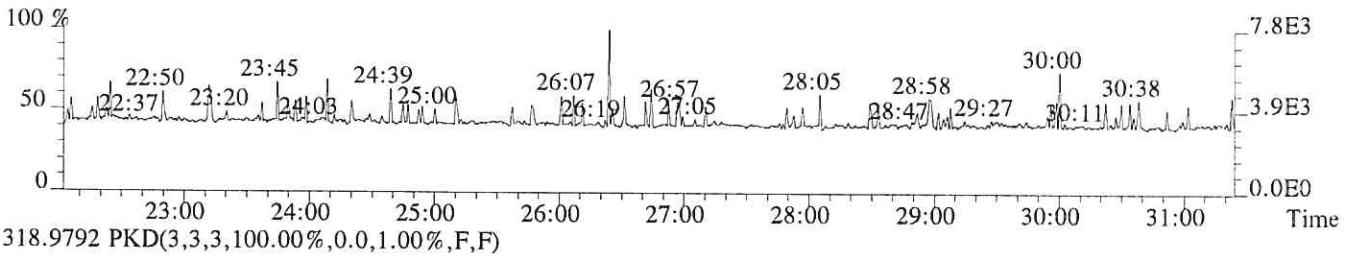
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



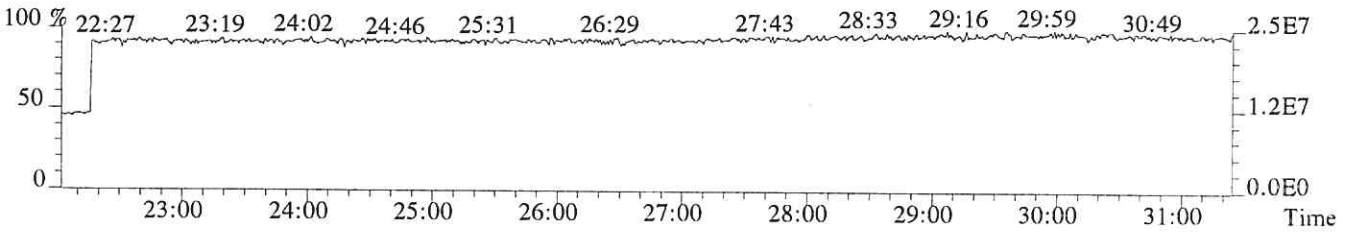
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

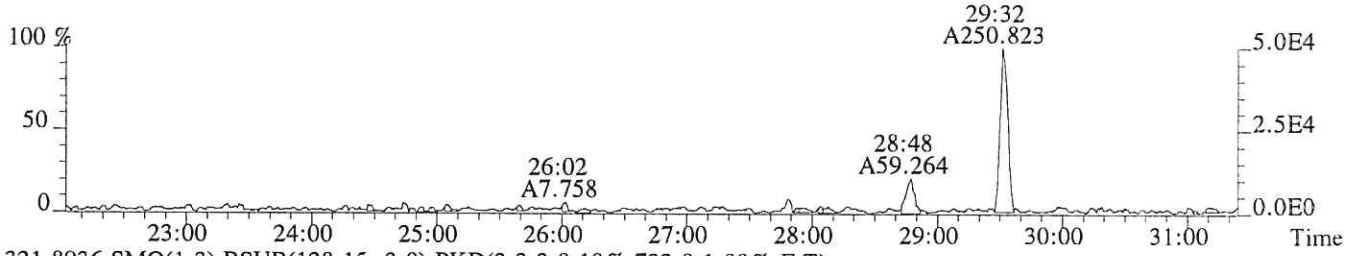


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

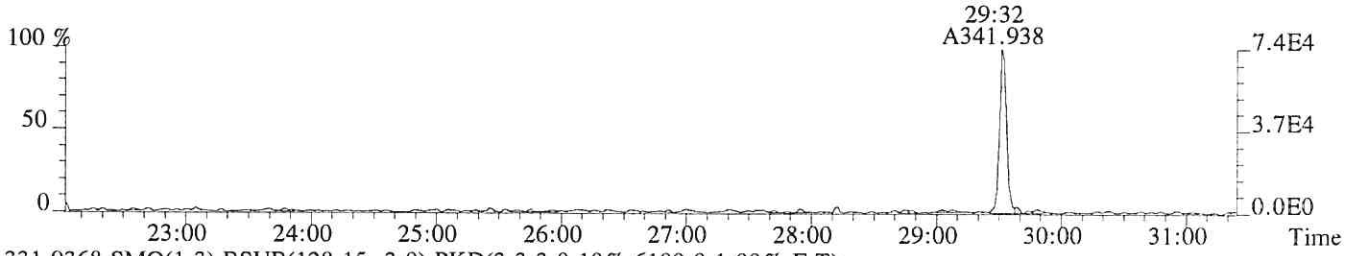


File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

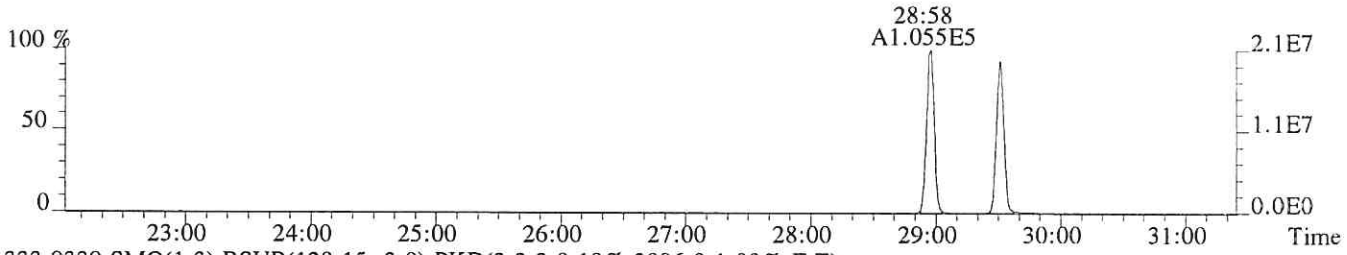
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



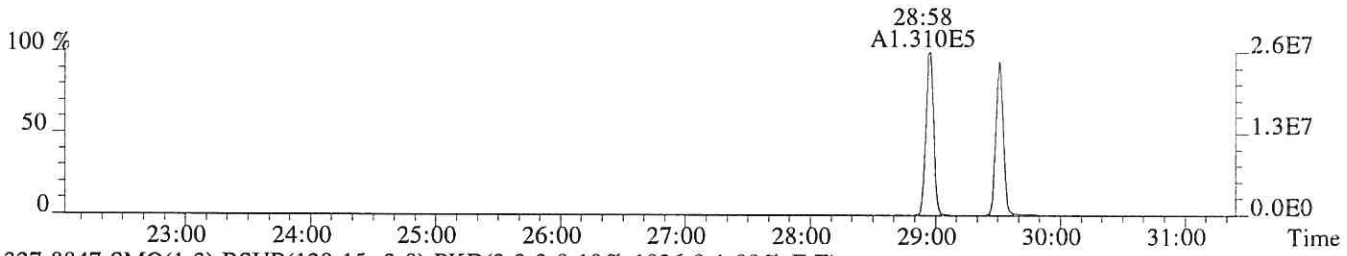
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



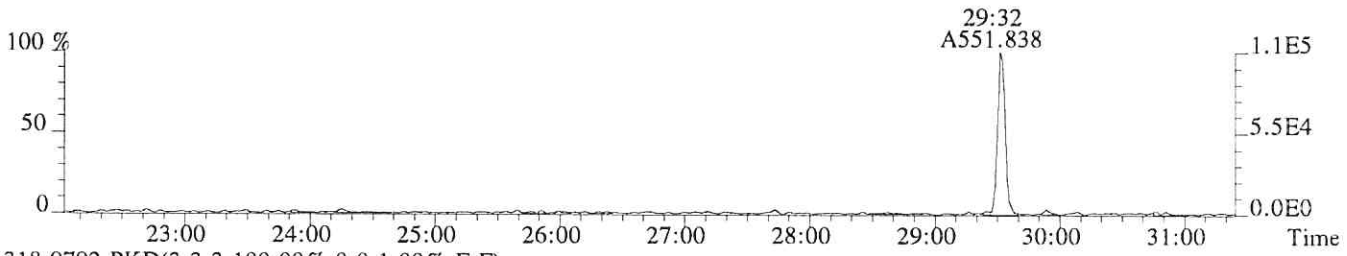
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



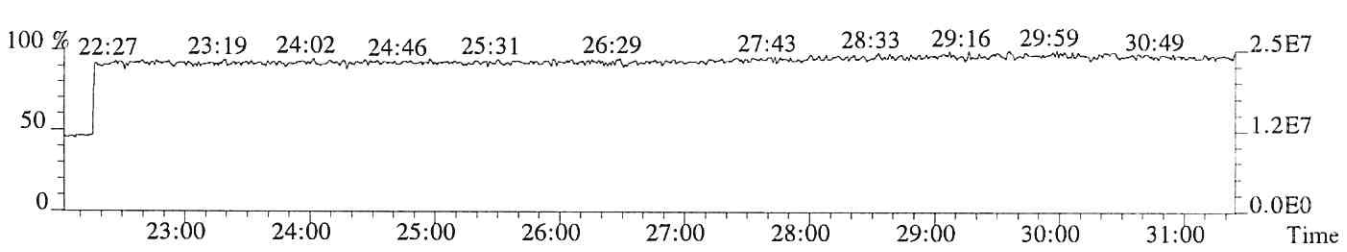
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



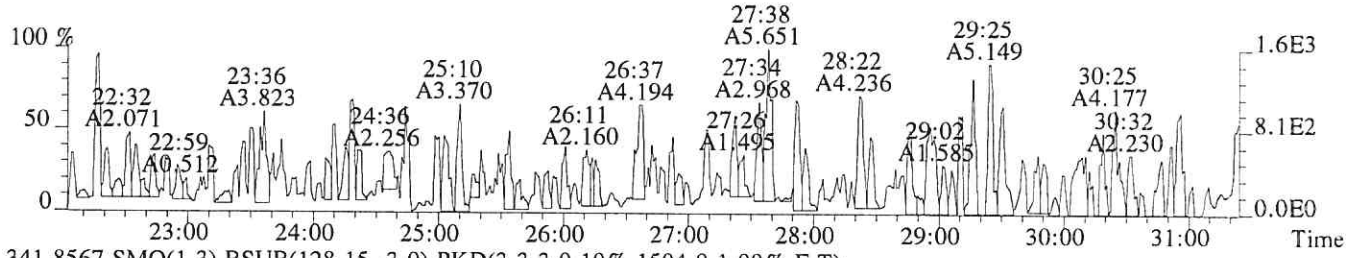
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



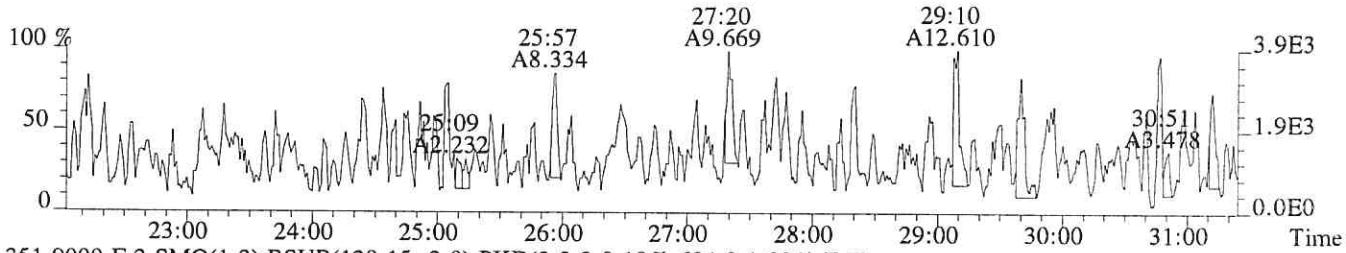
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



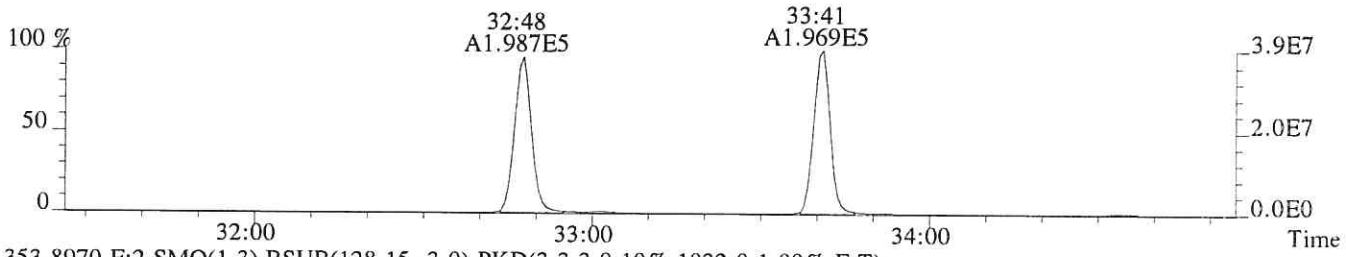
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



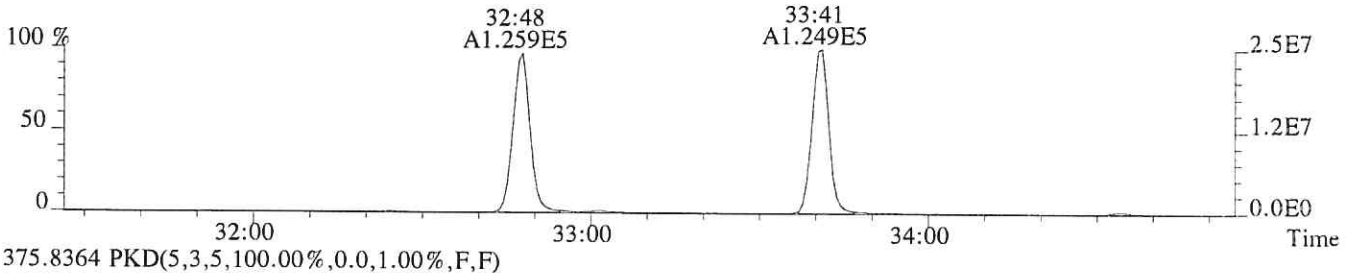
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



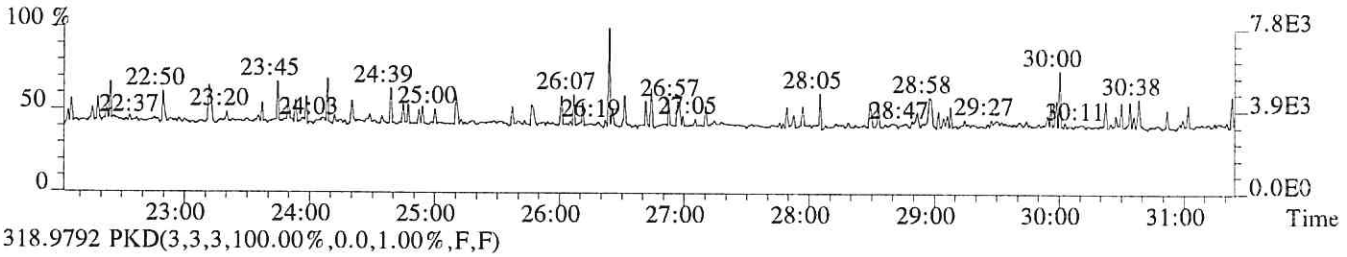
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



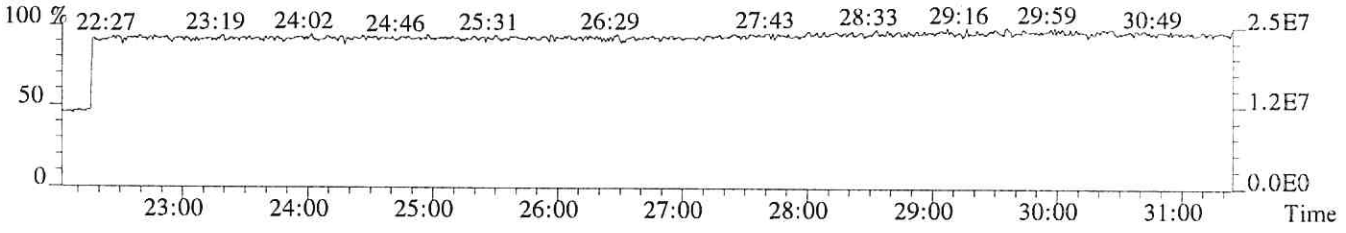
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



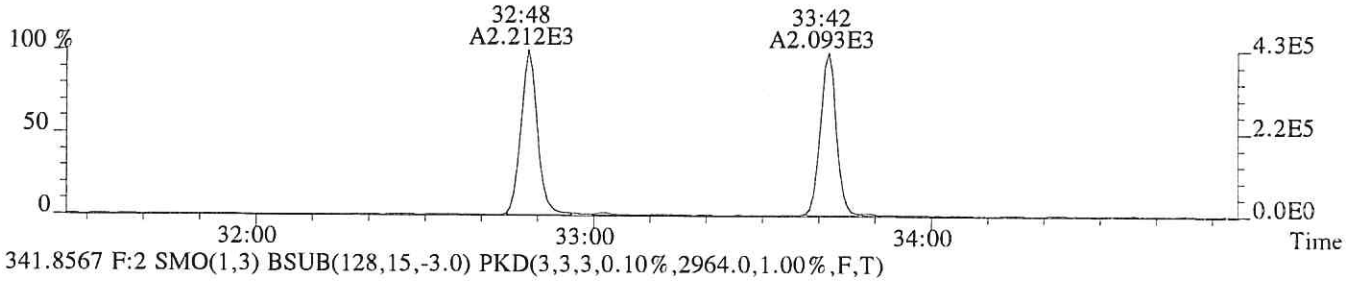
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



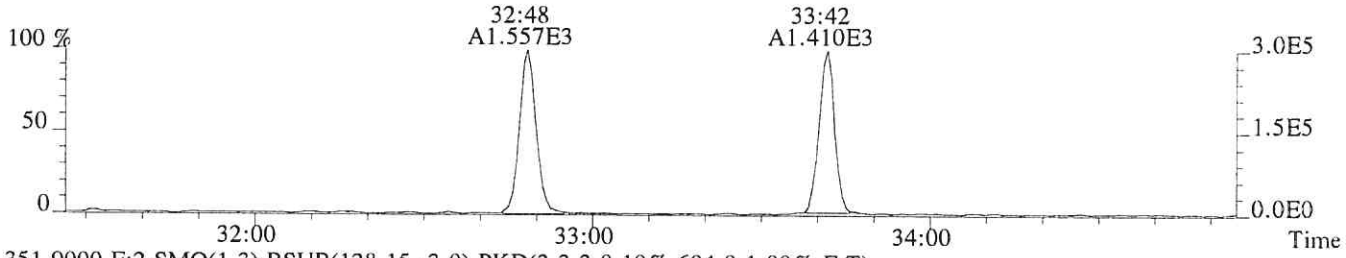
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



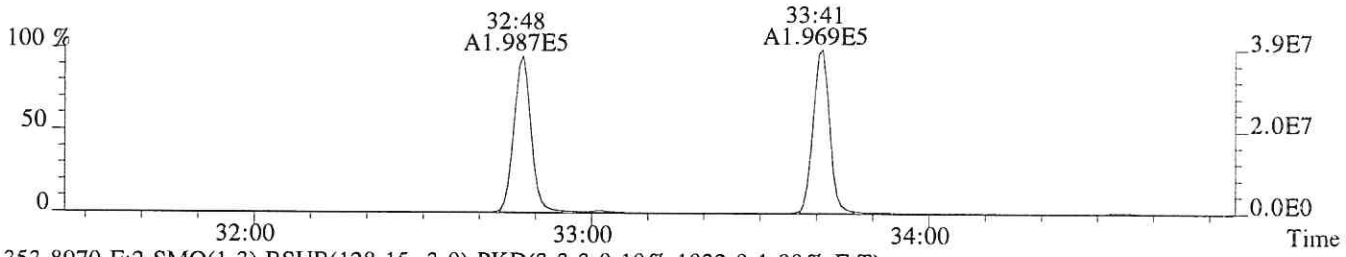
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



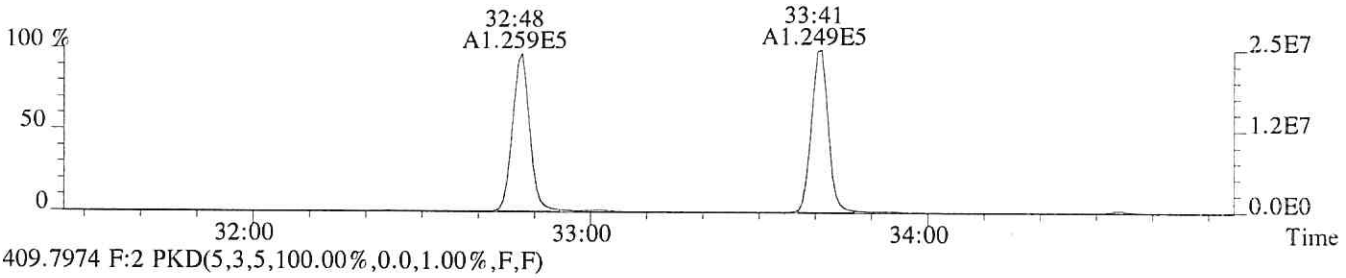
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



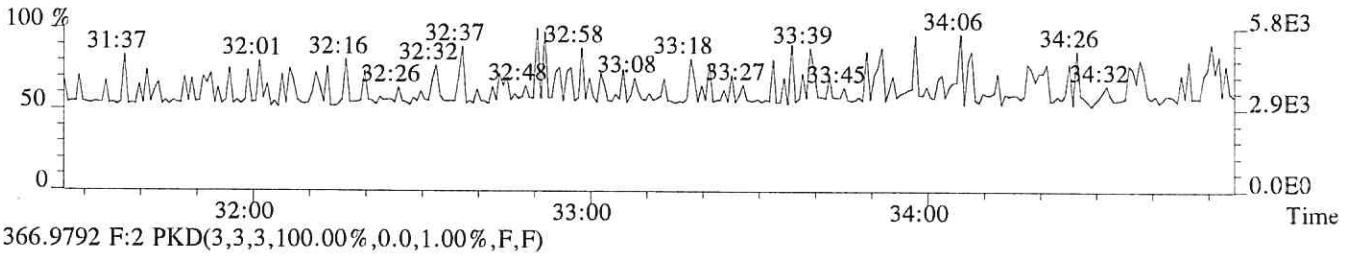
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



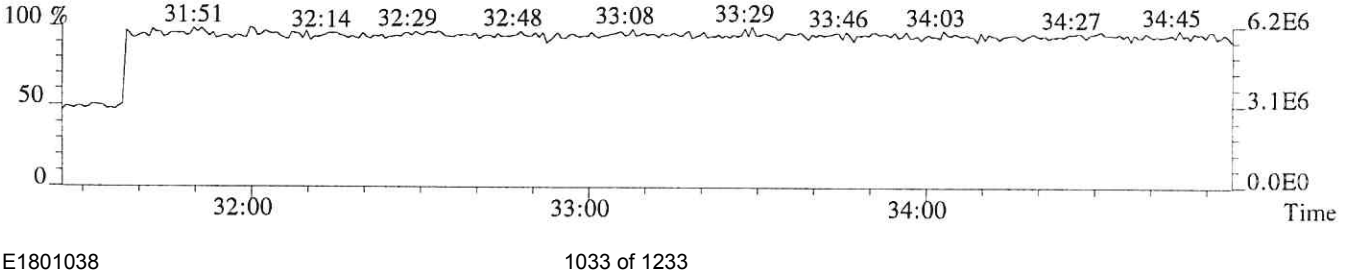
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



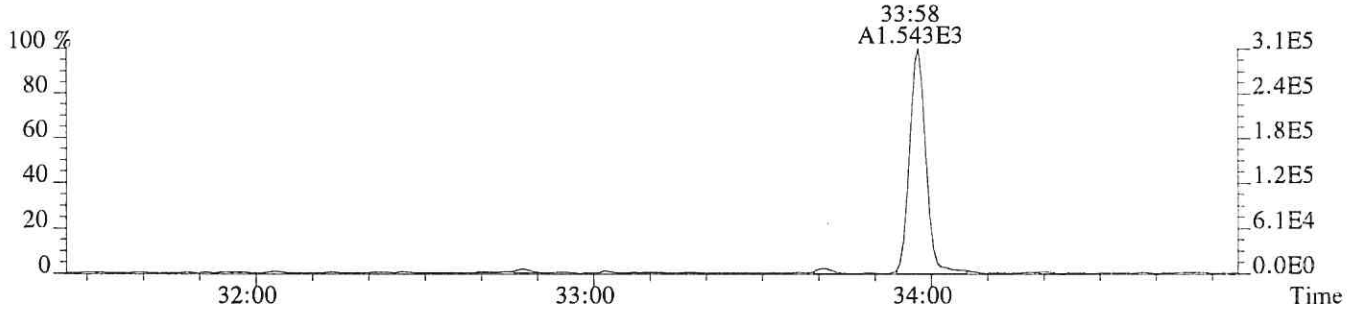
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



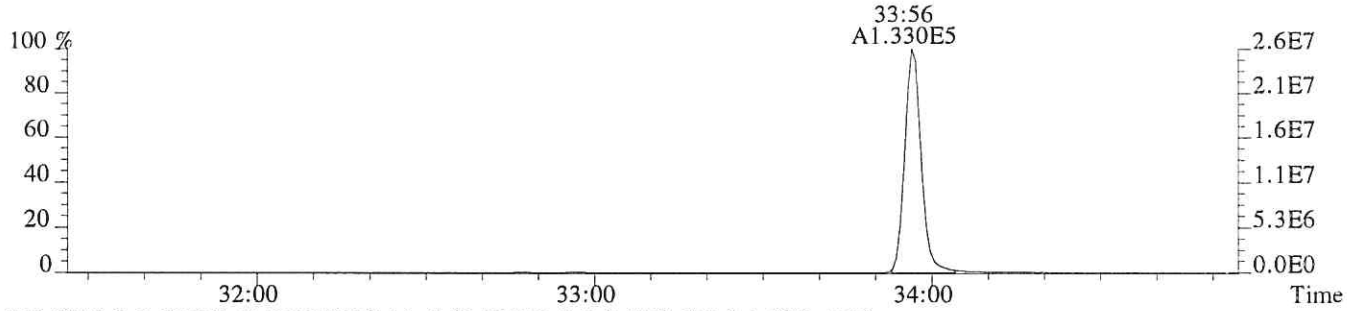
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



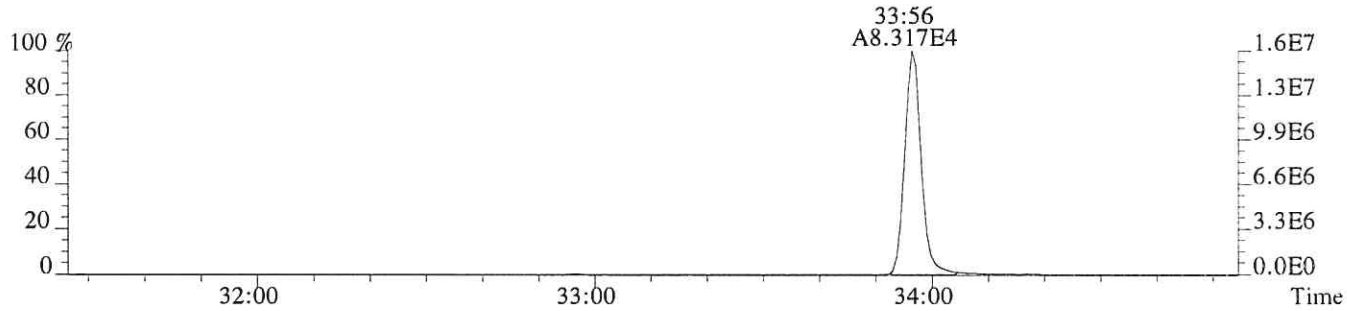
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



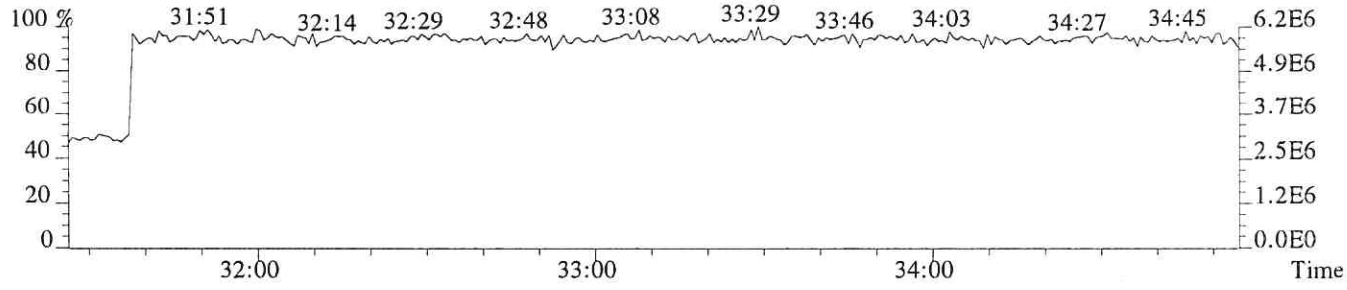
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



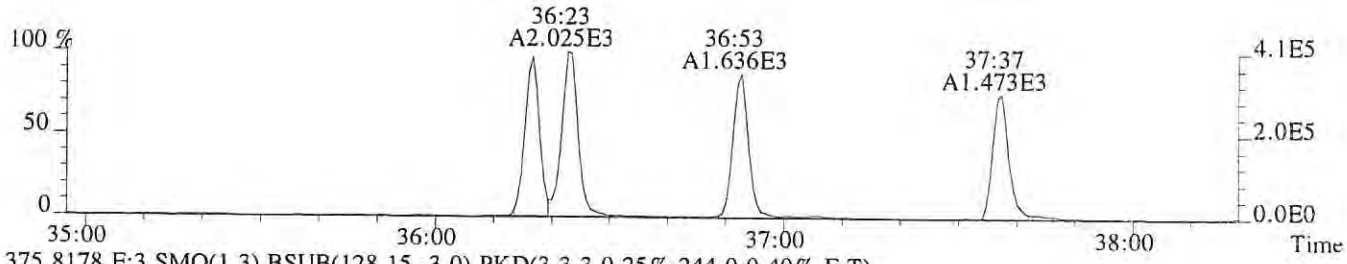
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



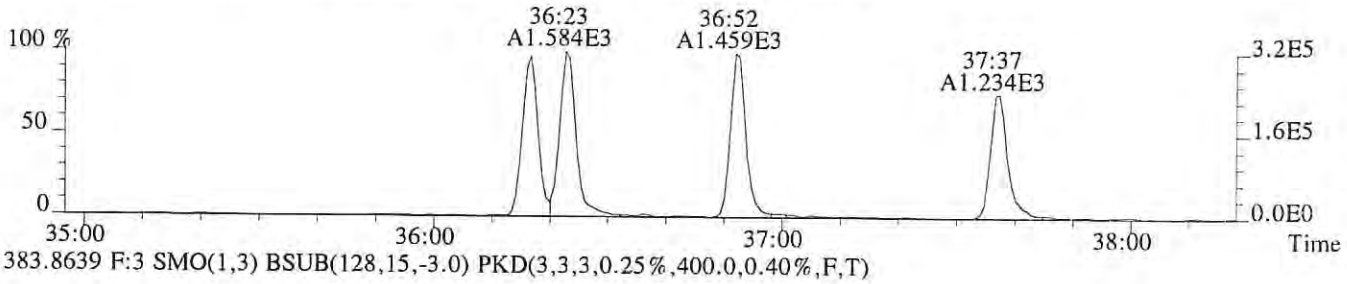
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



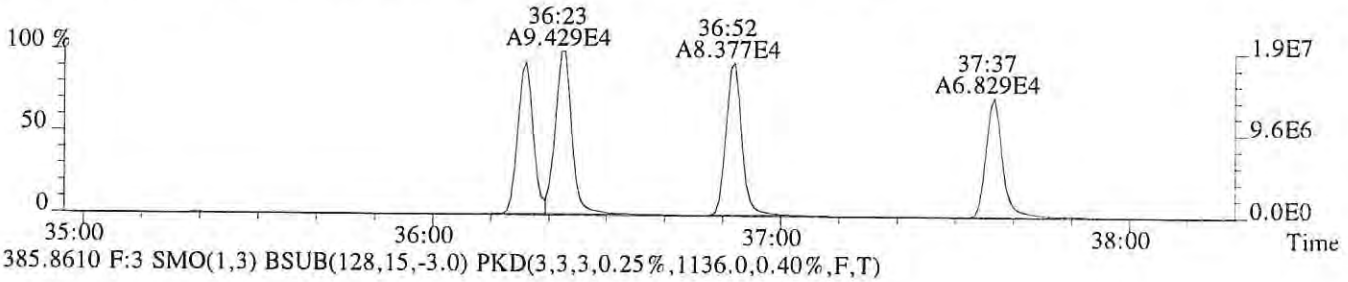
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



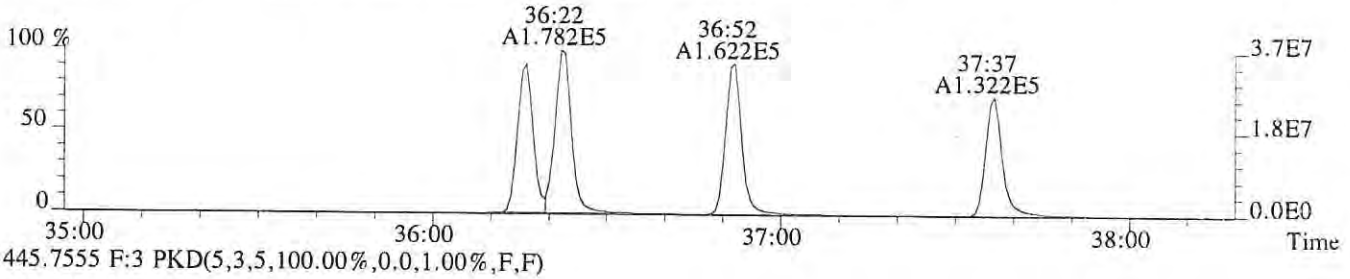
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



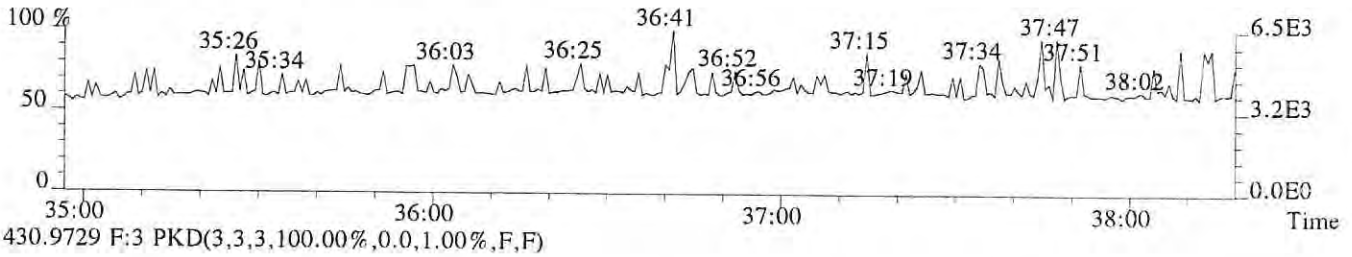
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



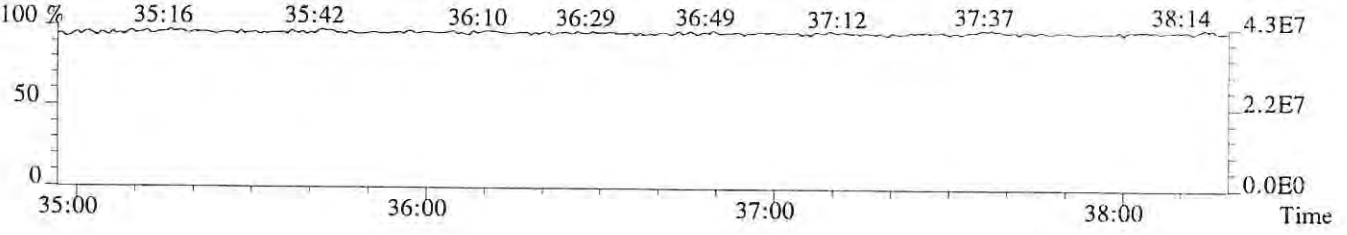
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



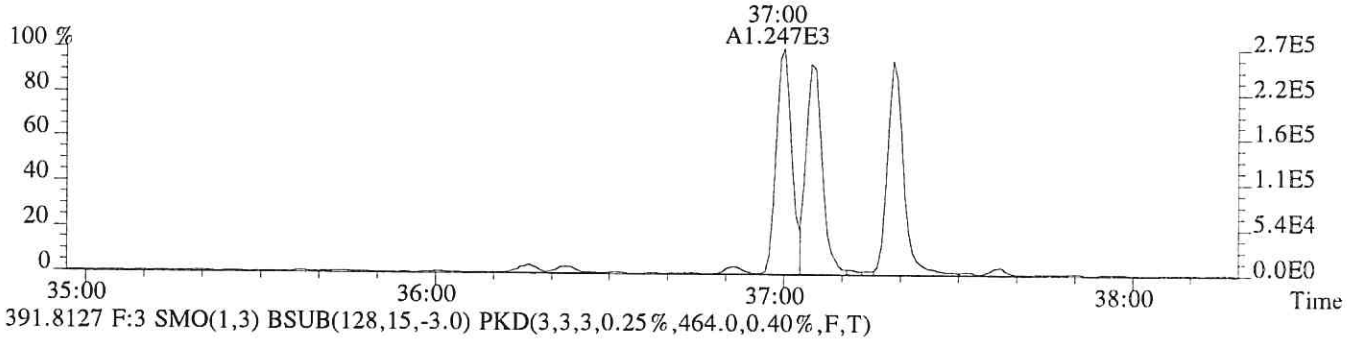
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



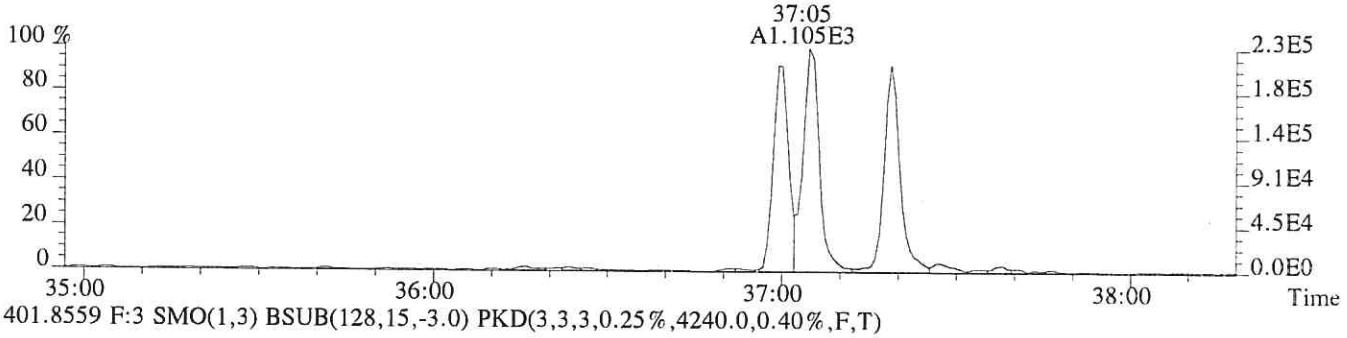
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



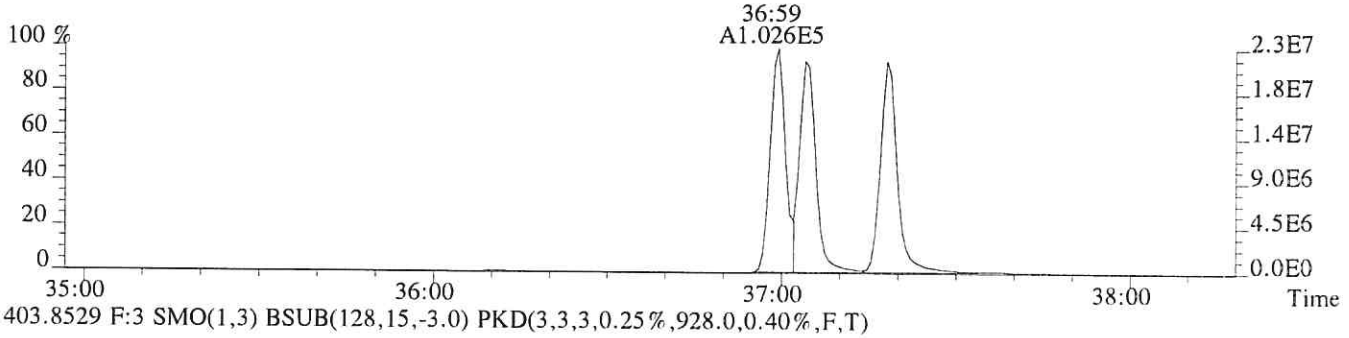
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



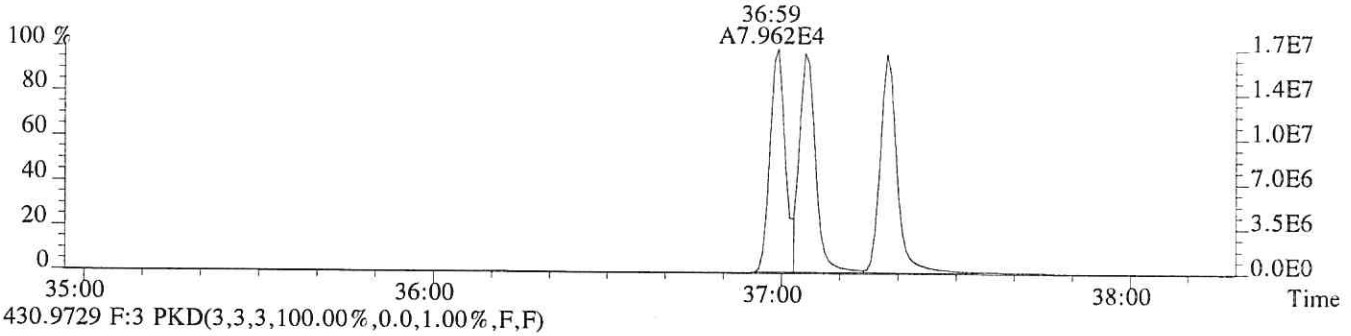
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



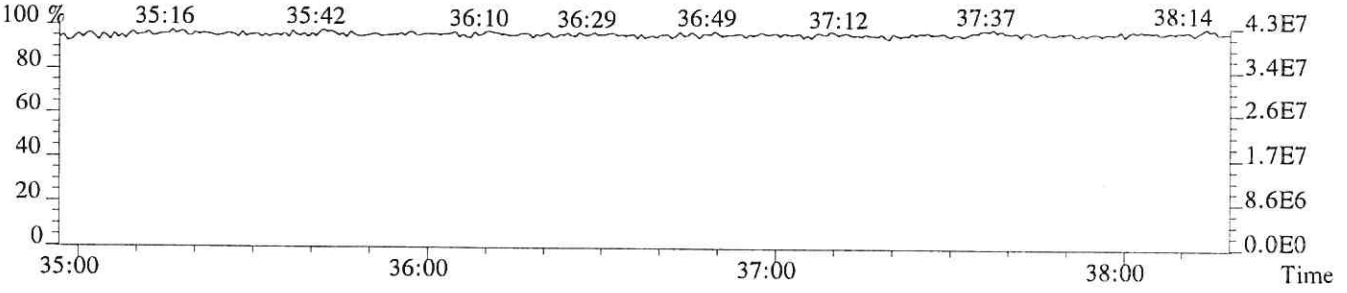
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



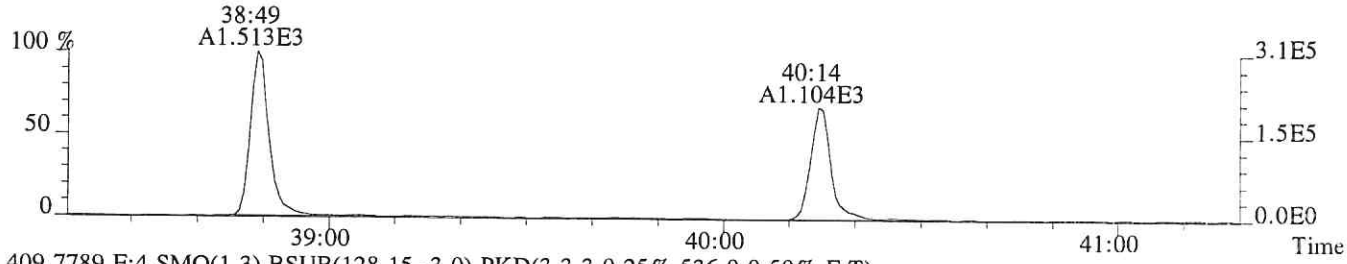
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



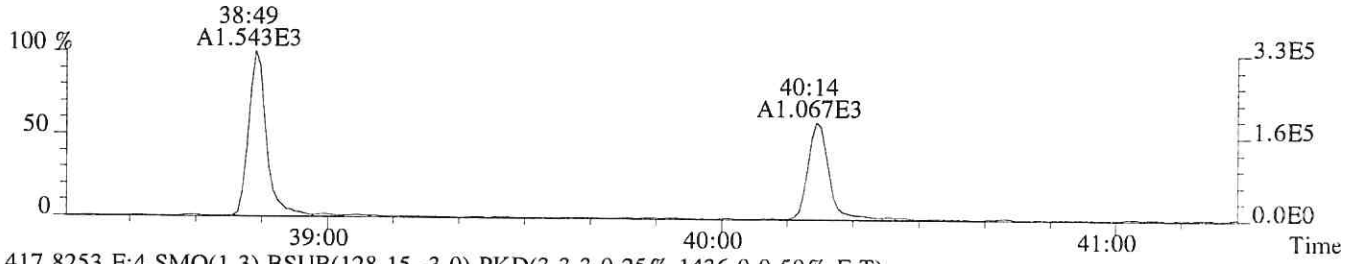
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



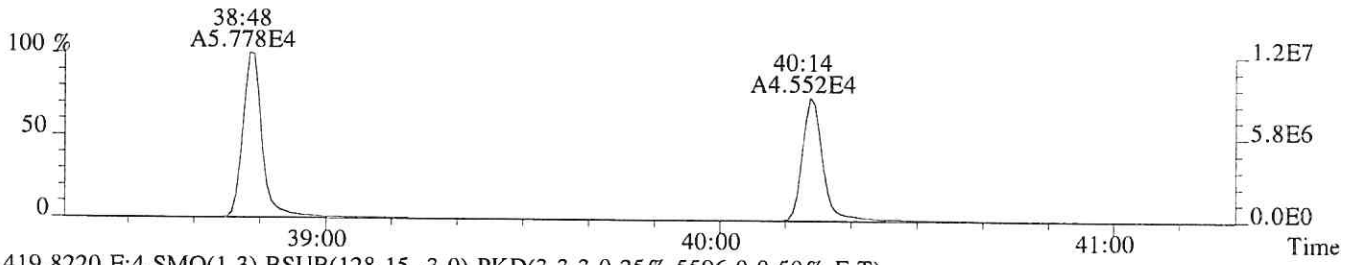
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



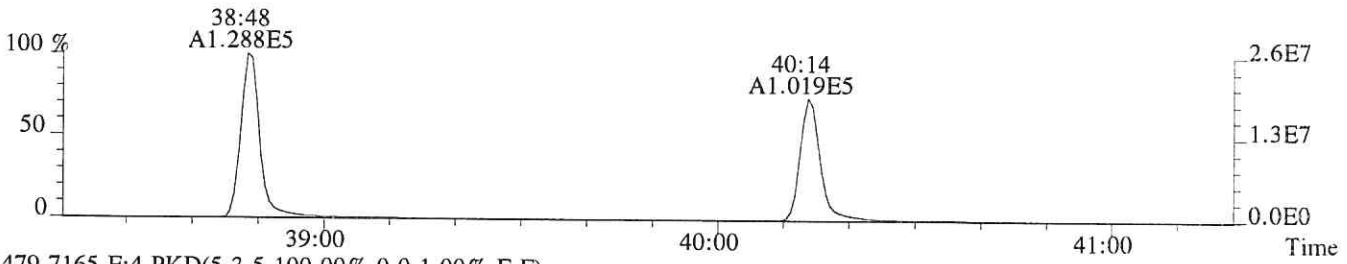
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



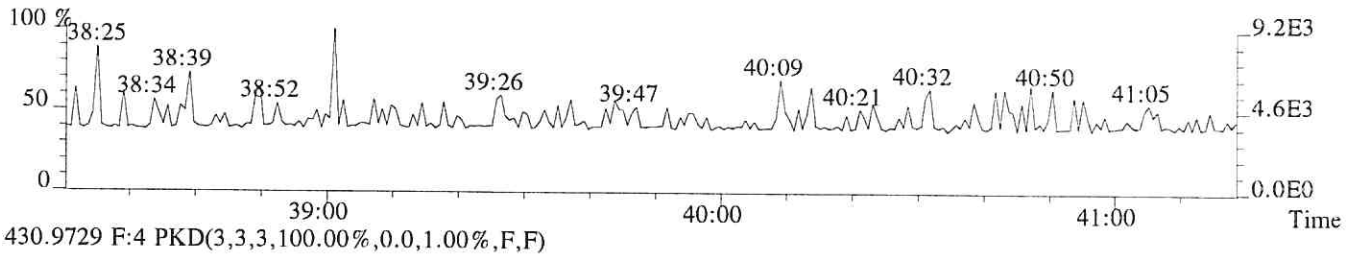
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



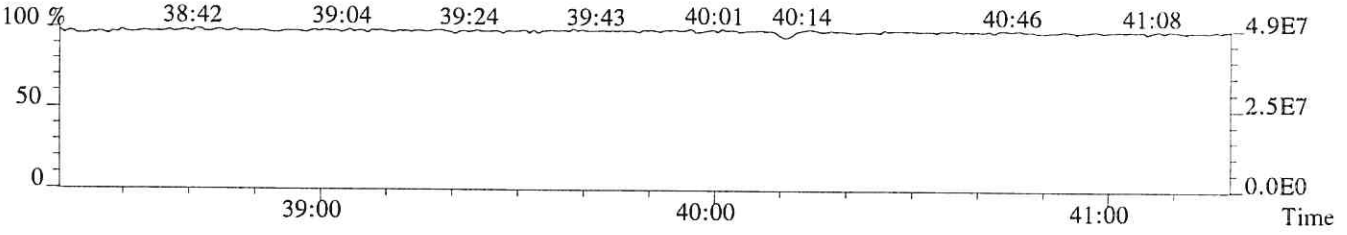
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



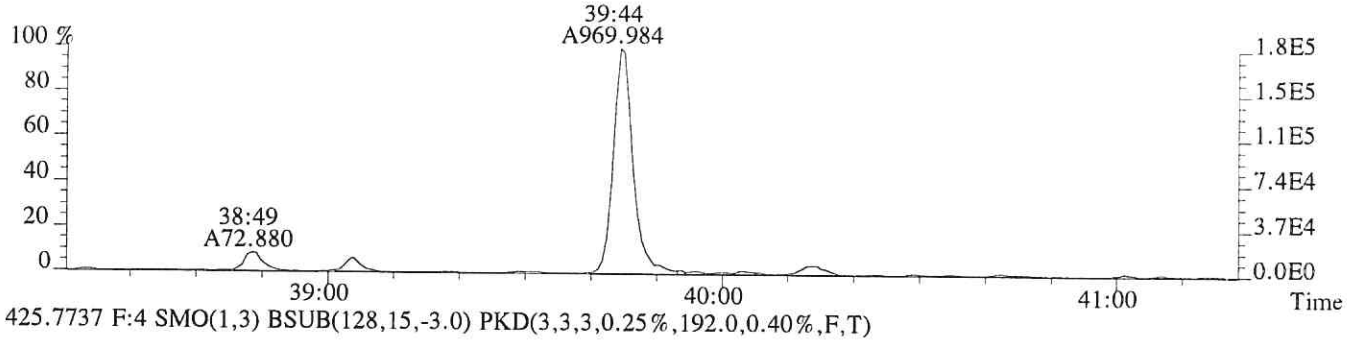
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



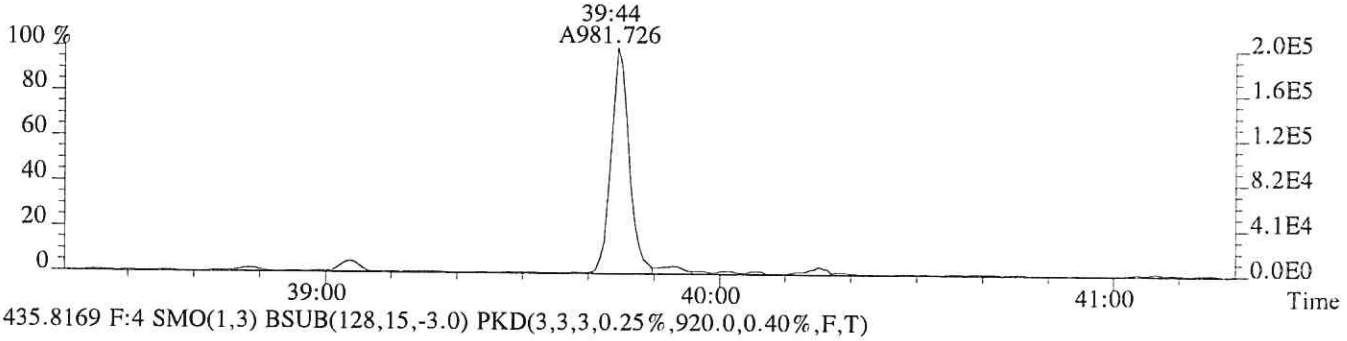
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



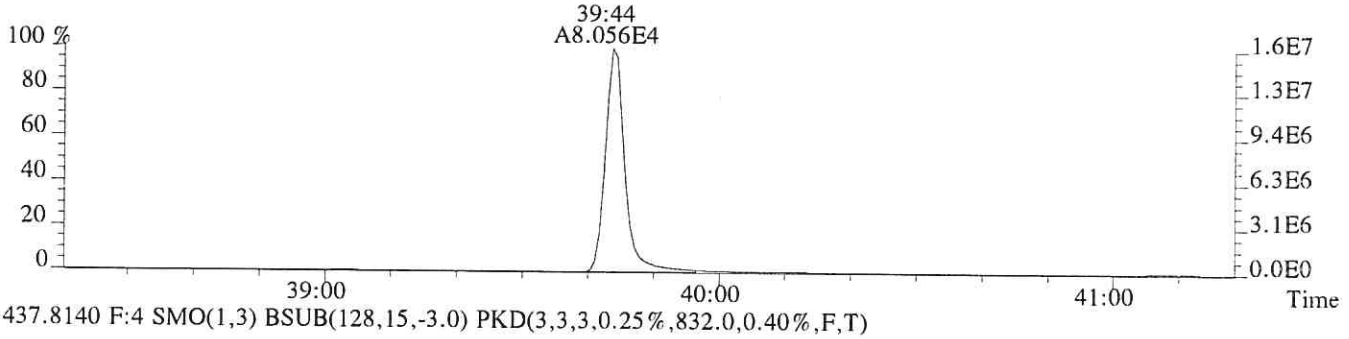
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



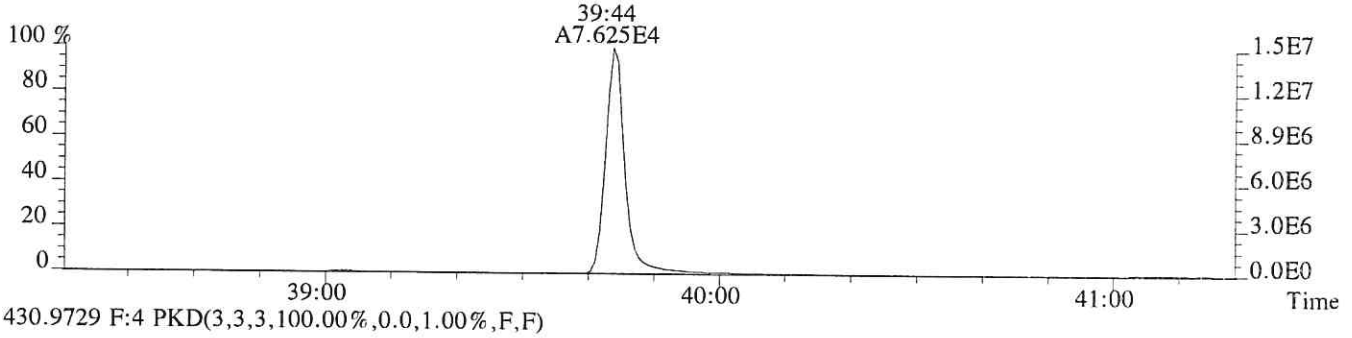
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



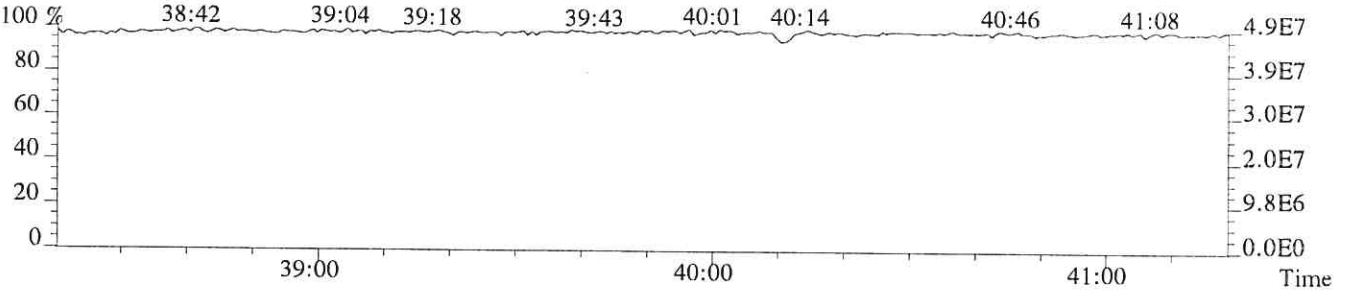
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



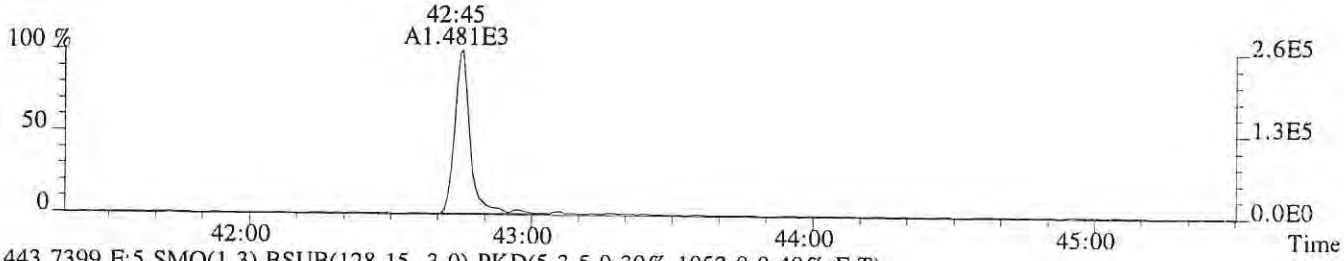
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



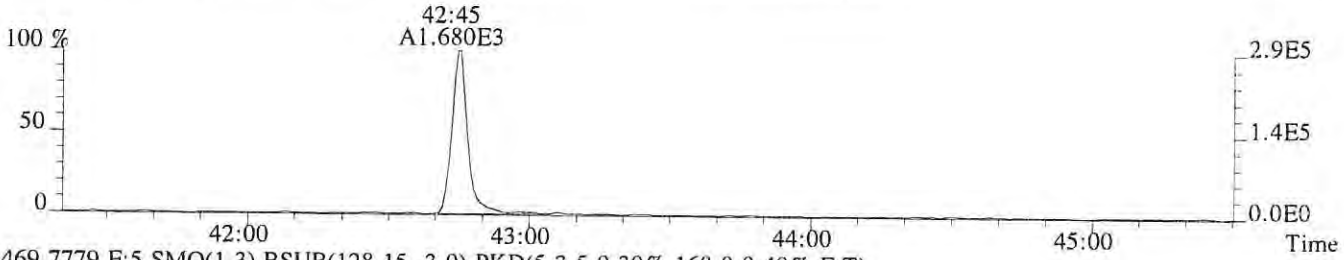
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



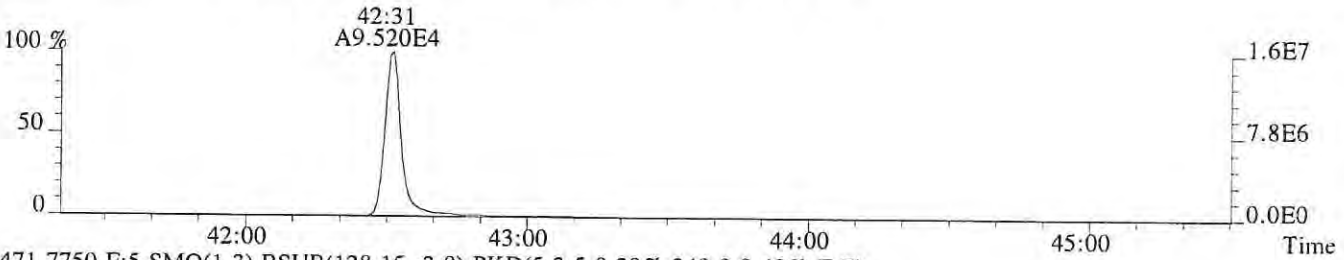
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



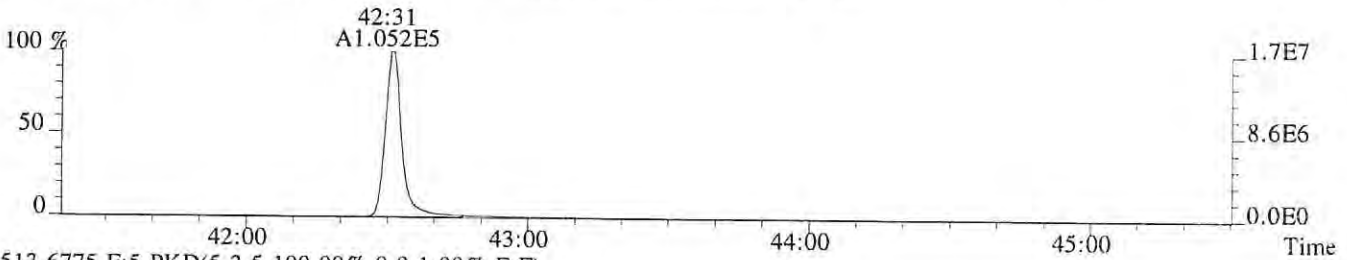
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



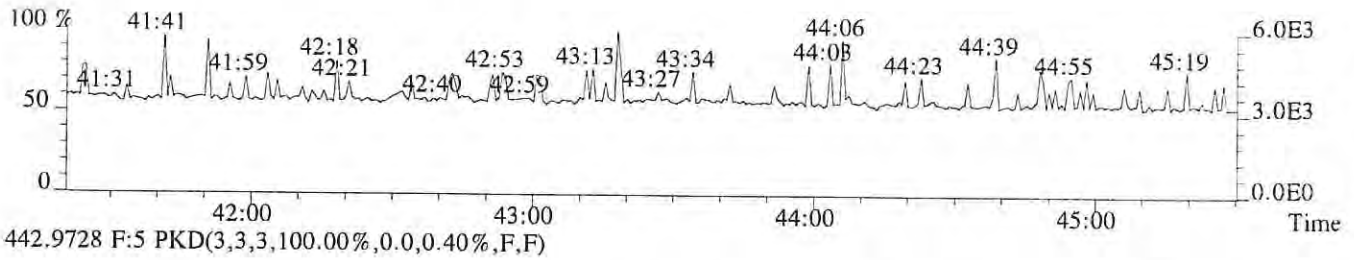
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



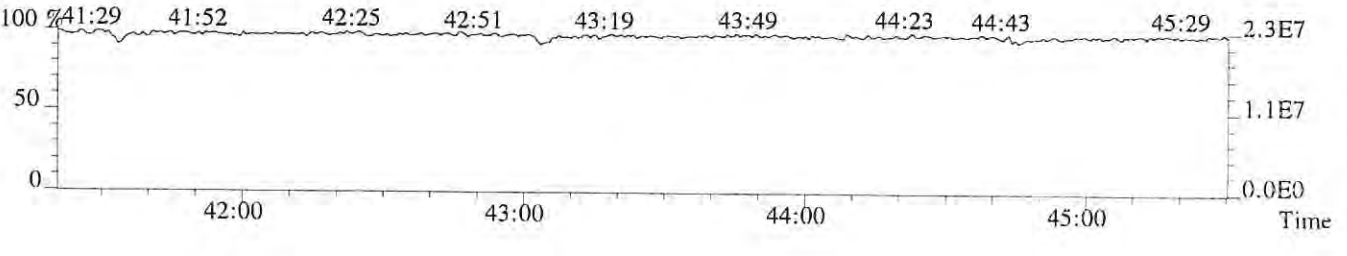
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



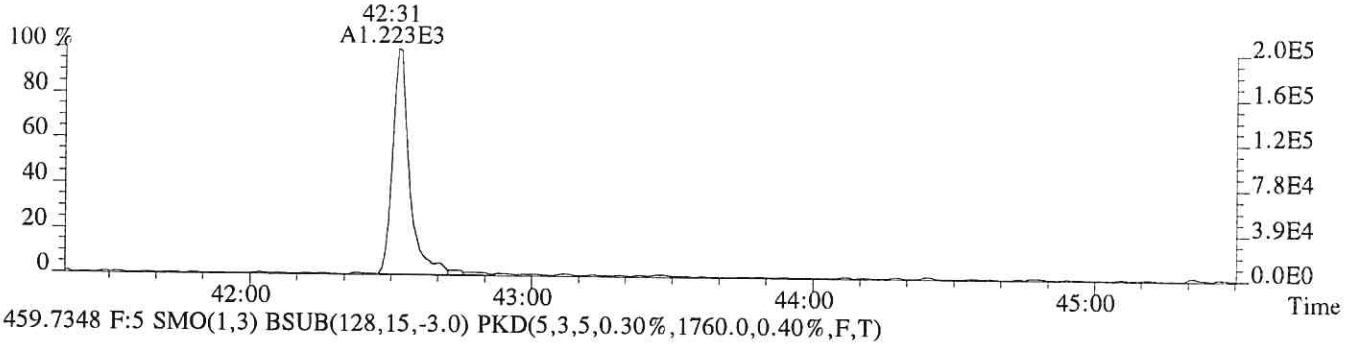
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



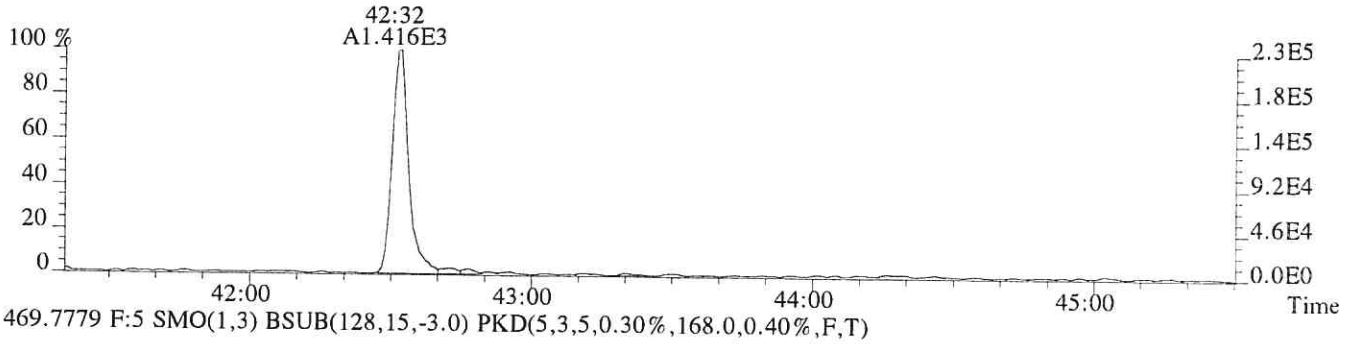
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



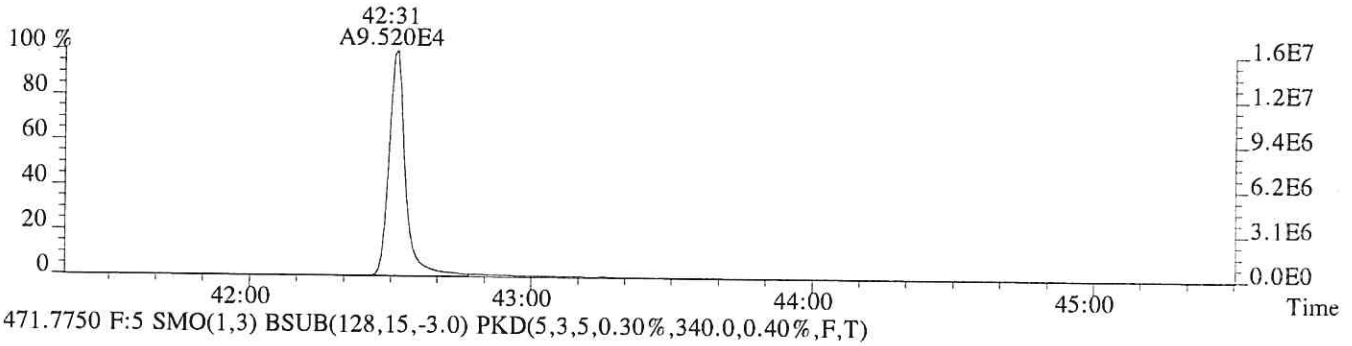
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



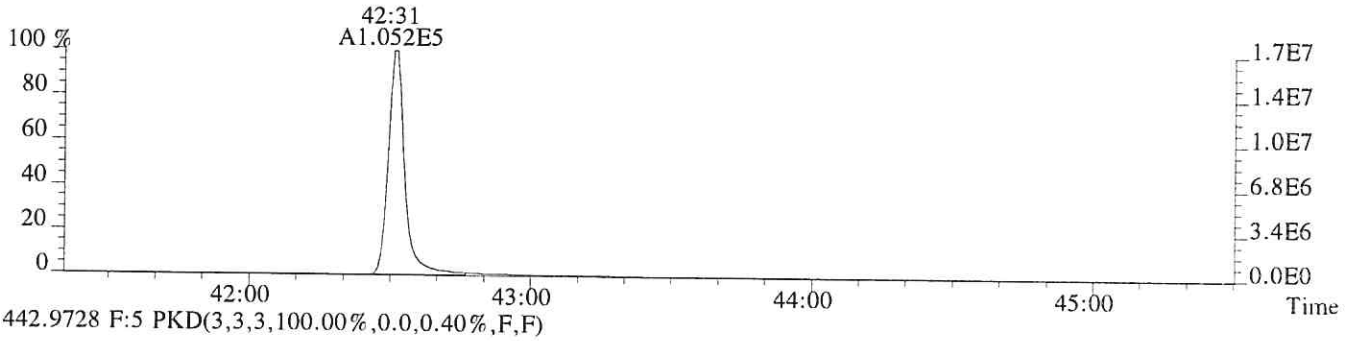
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



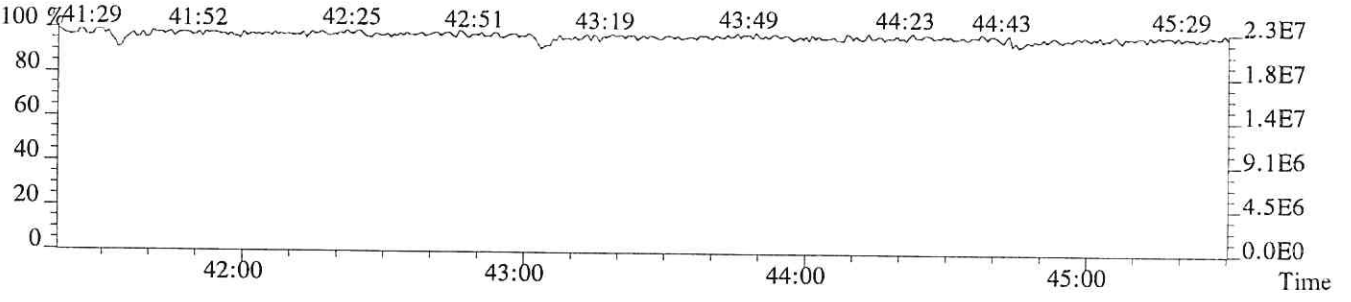
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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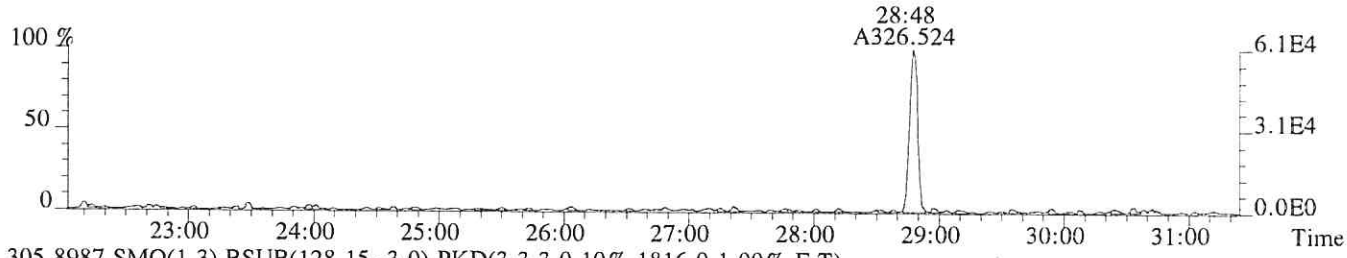
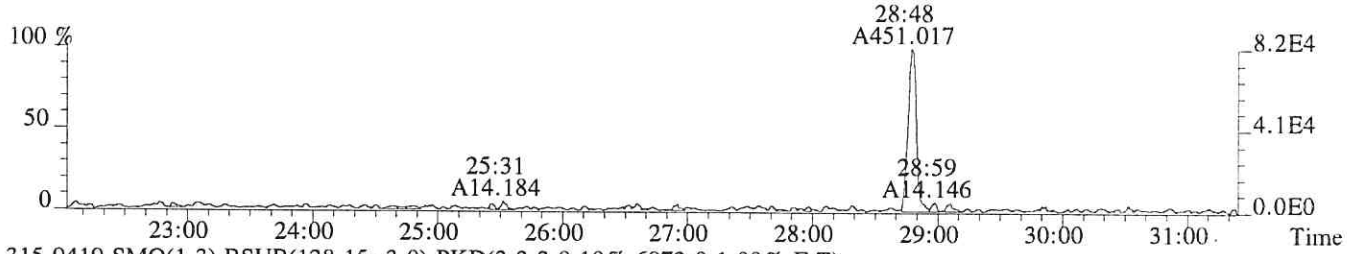
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

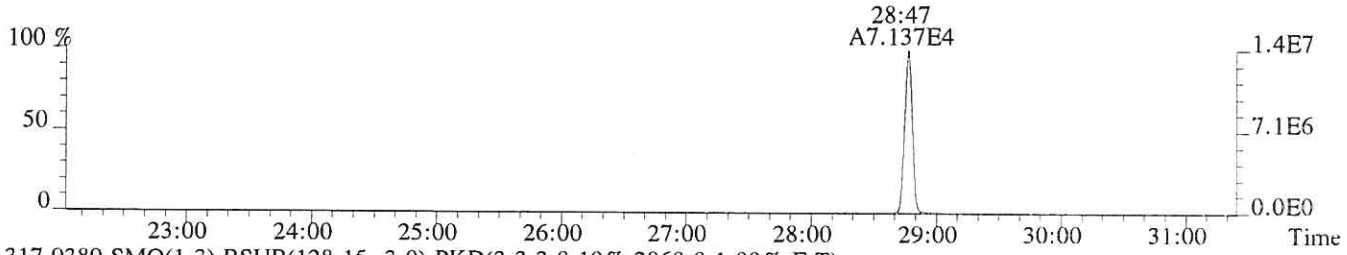
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



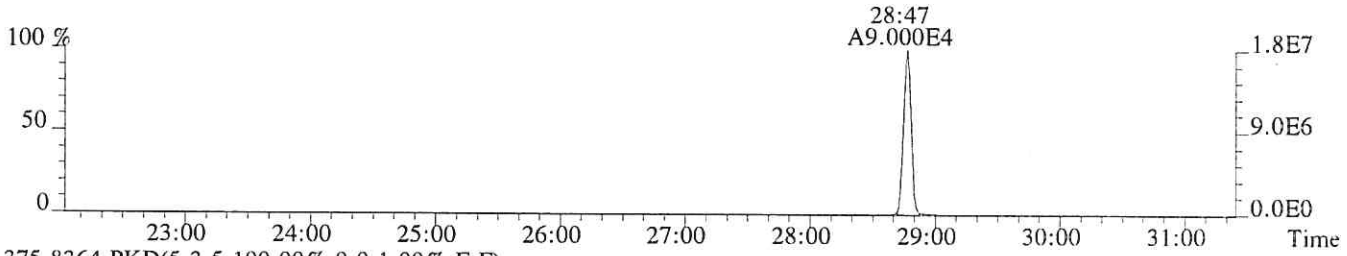
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



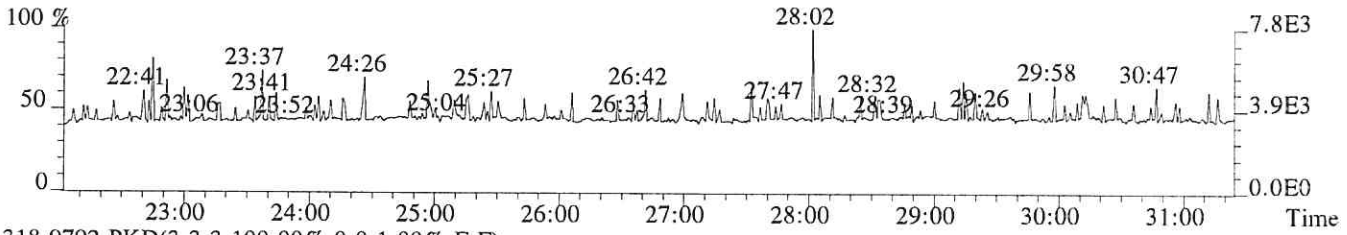
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



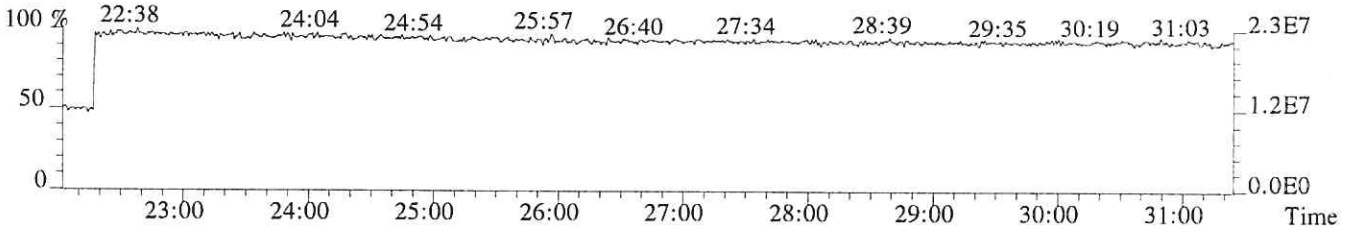
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



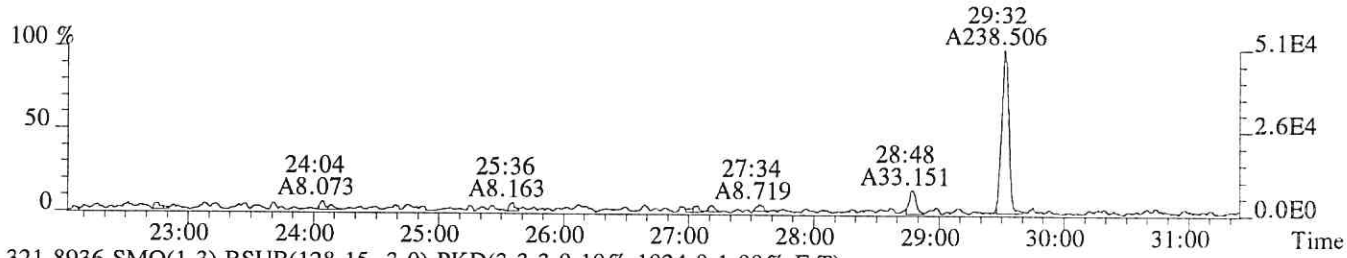
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



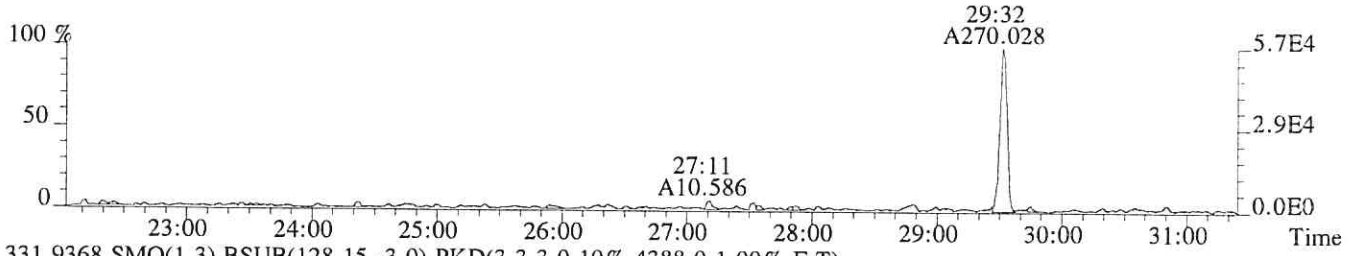
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



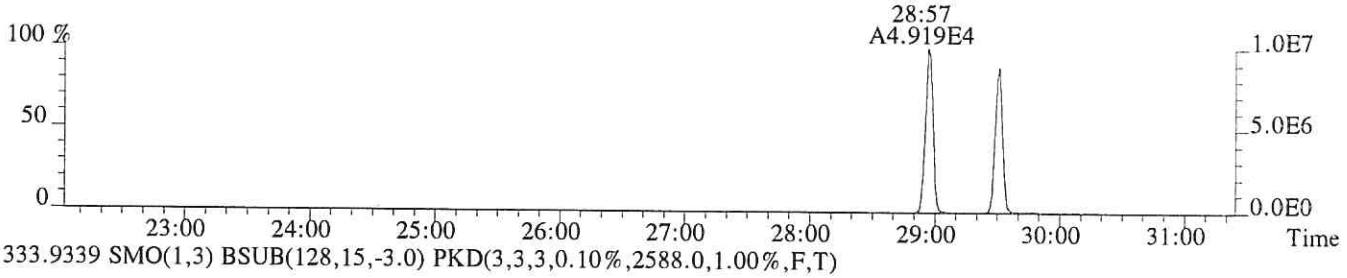
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectΣ
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



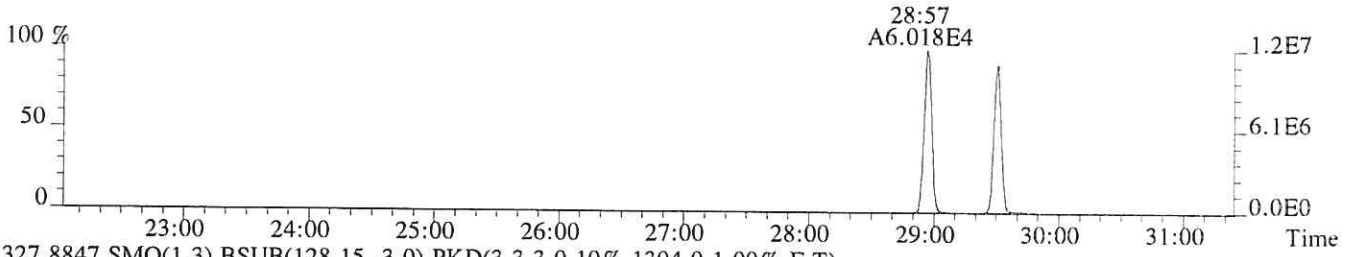
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



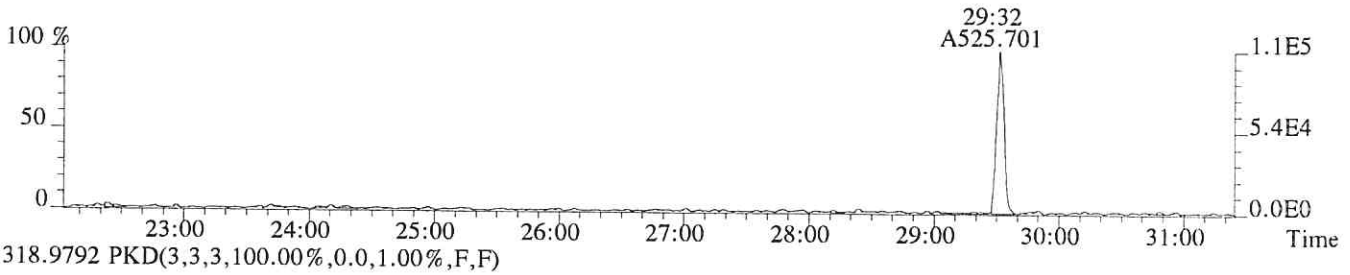
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



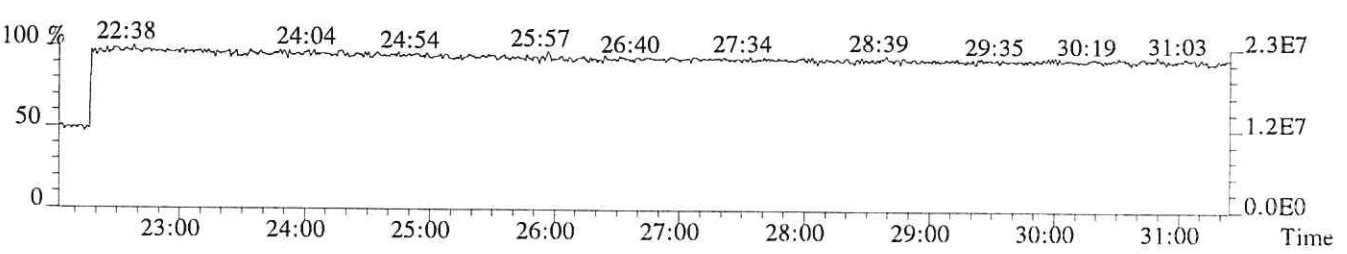
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



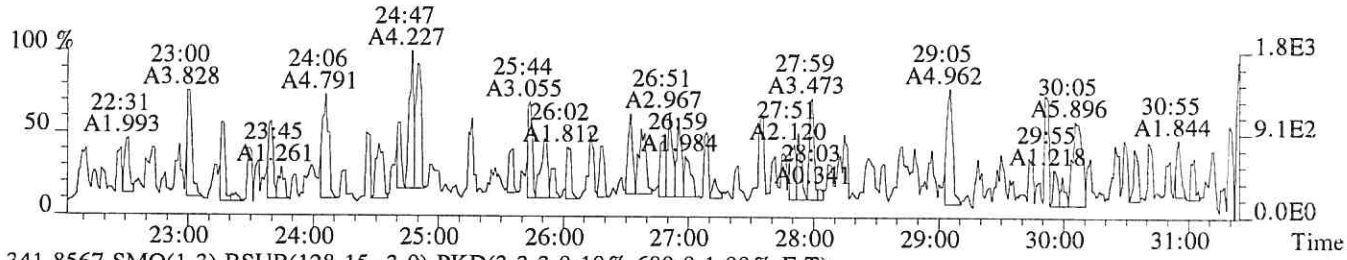
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



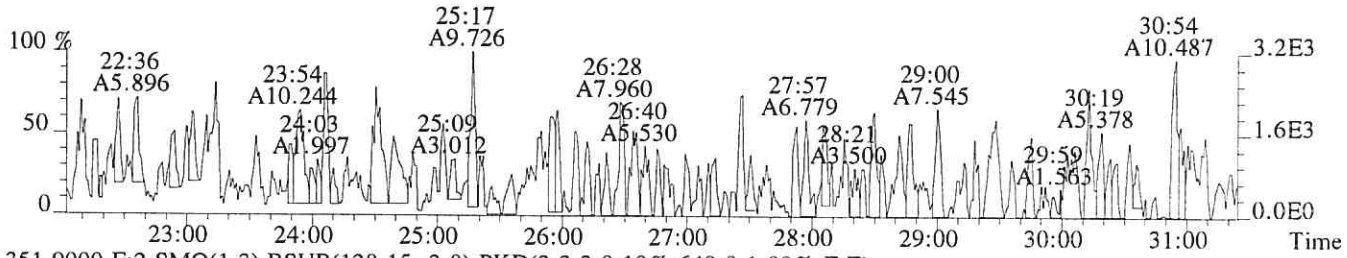
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



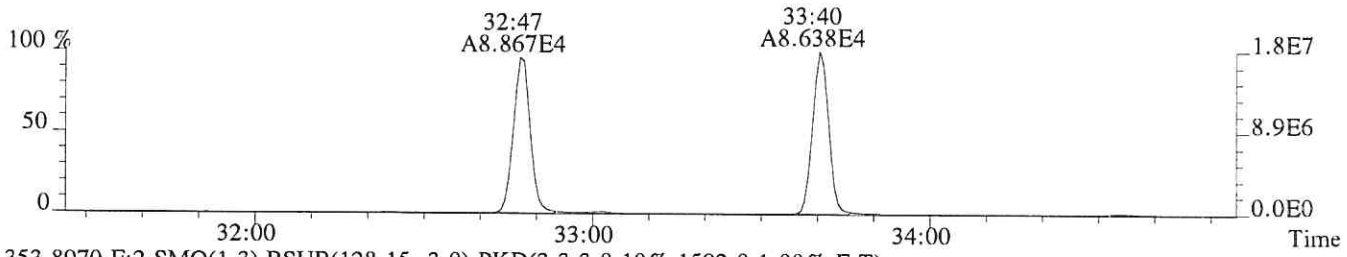
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



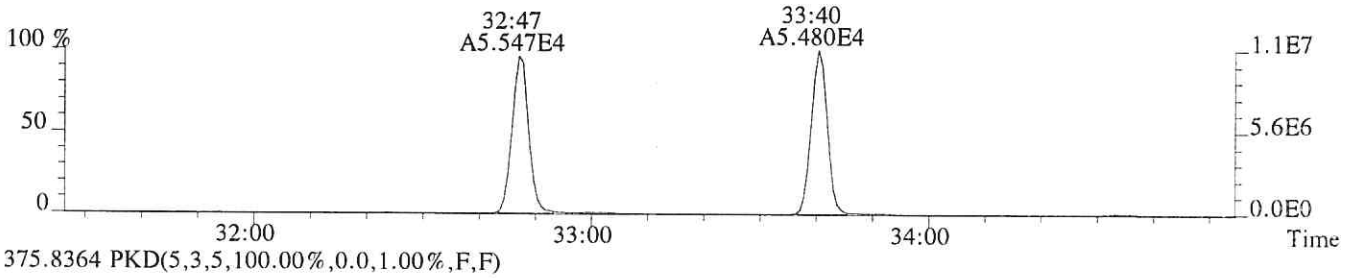
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



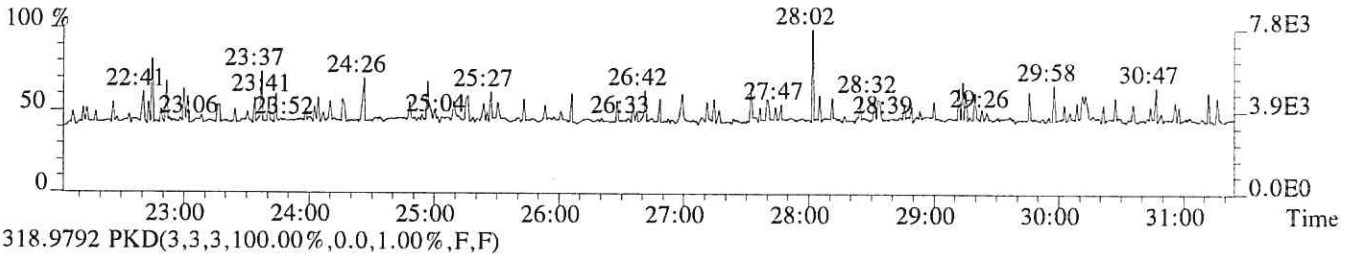
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



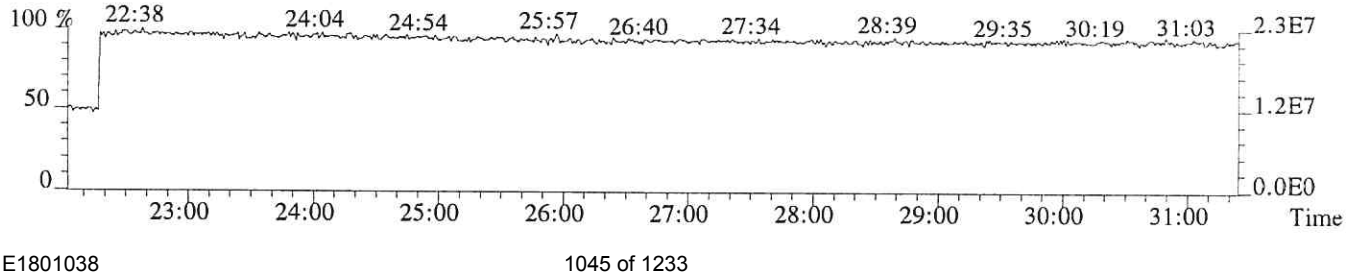
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

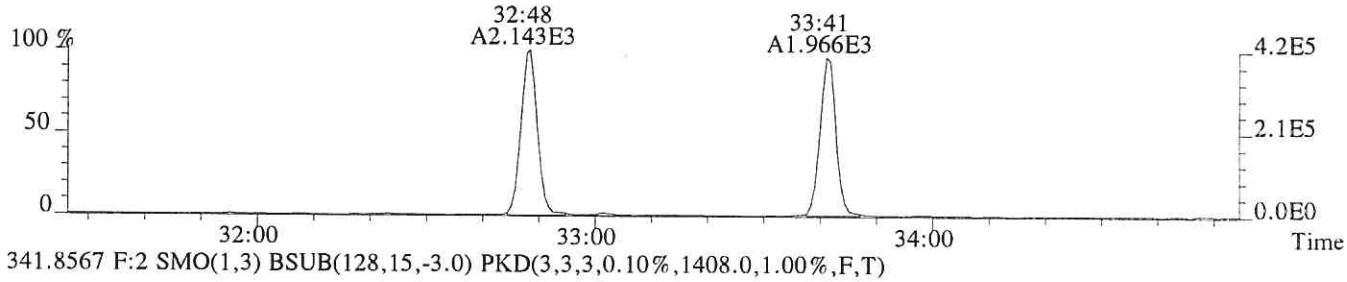


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

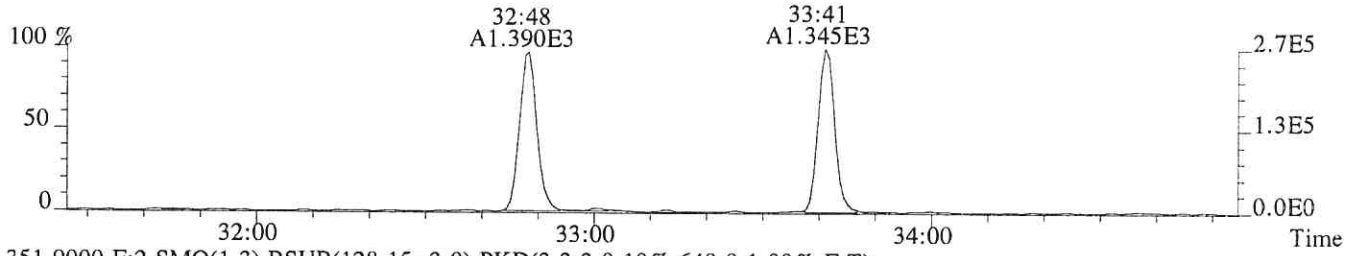


File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

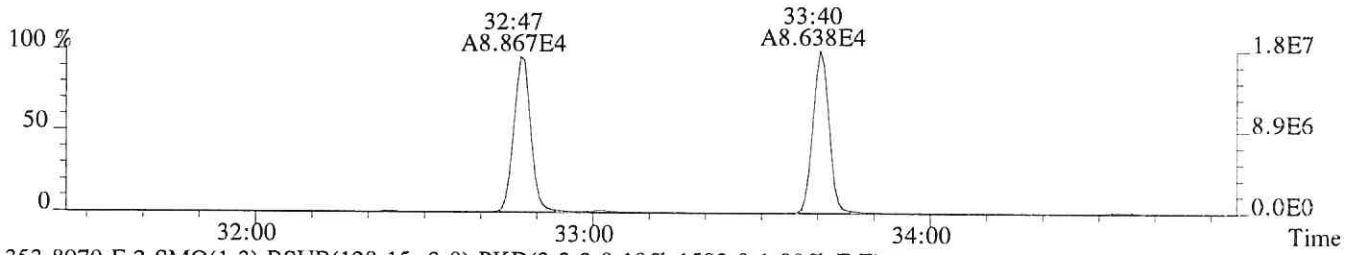
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



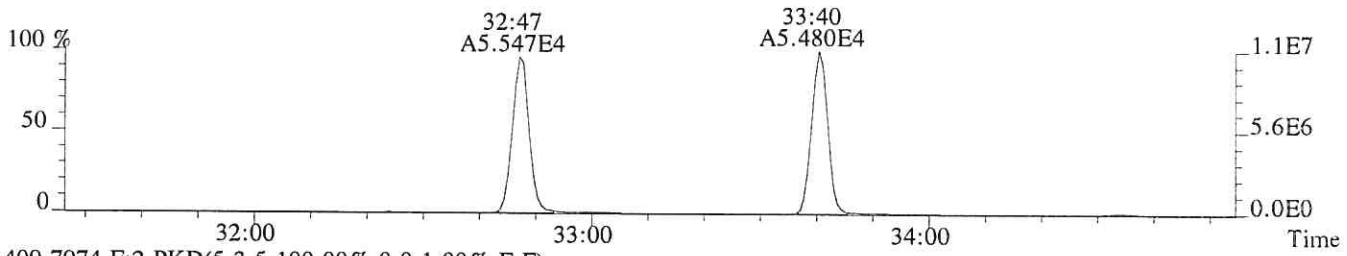
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



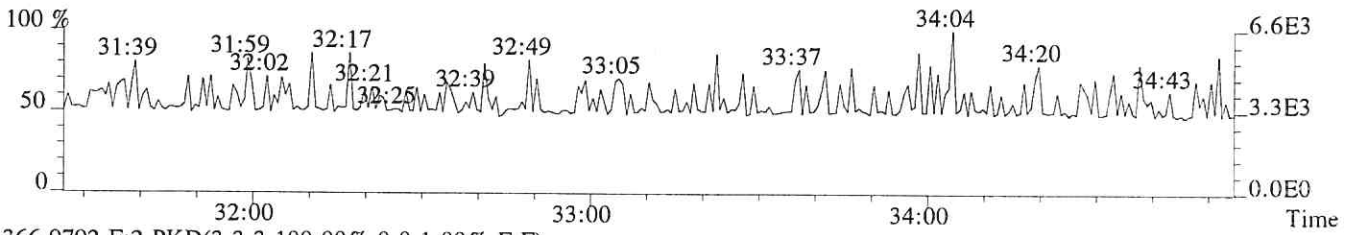
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



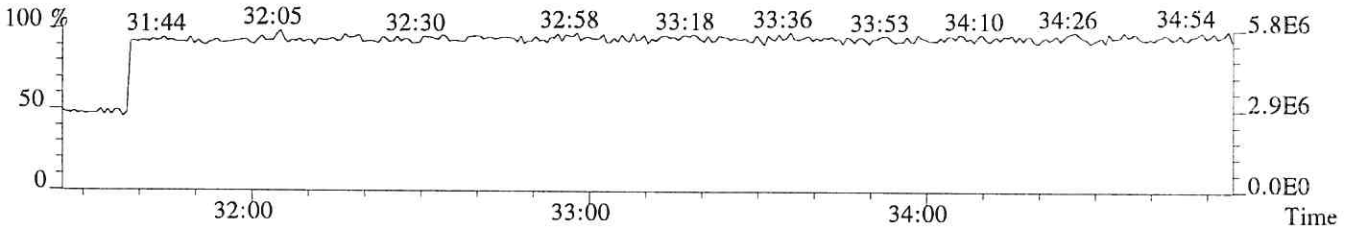
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



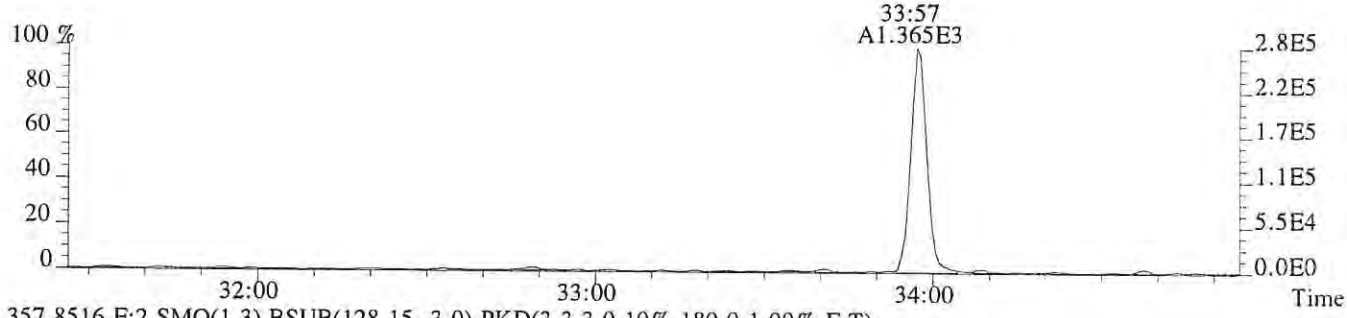
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



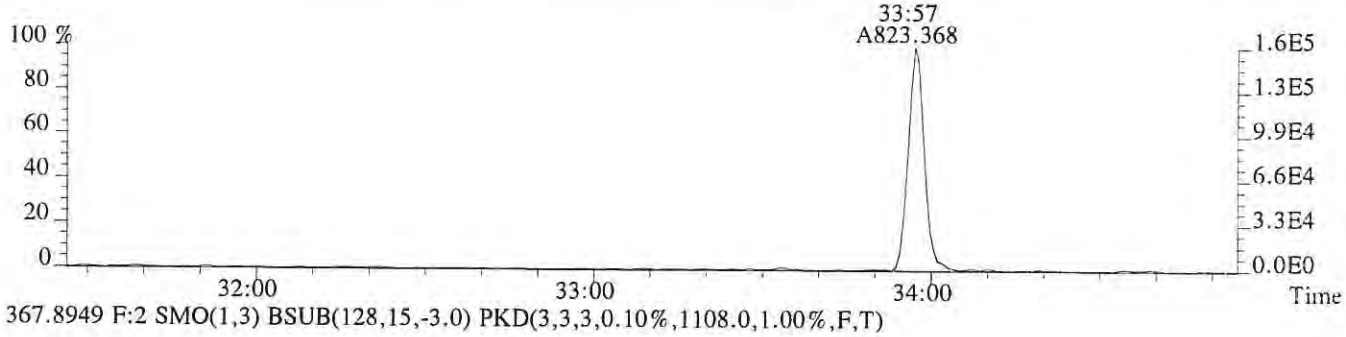
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



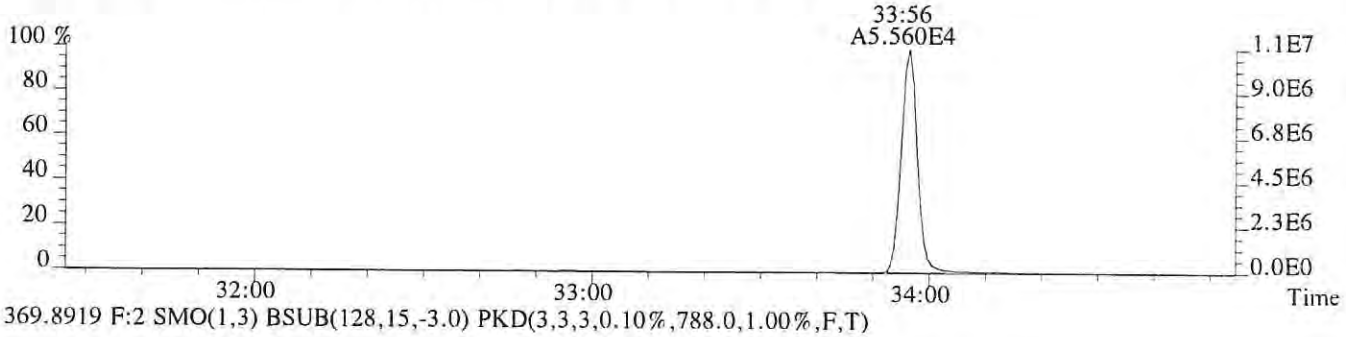
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



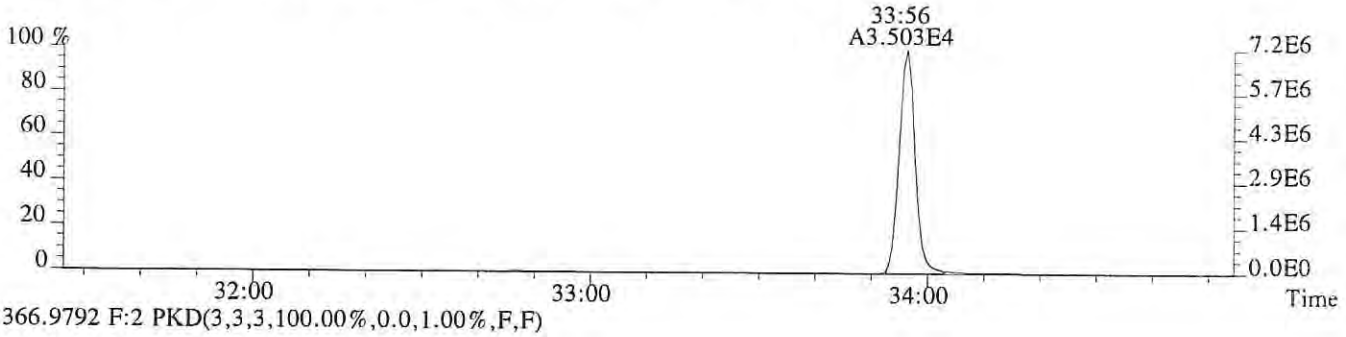
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



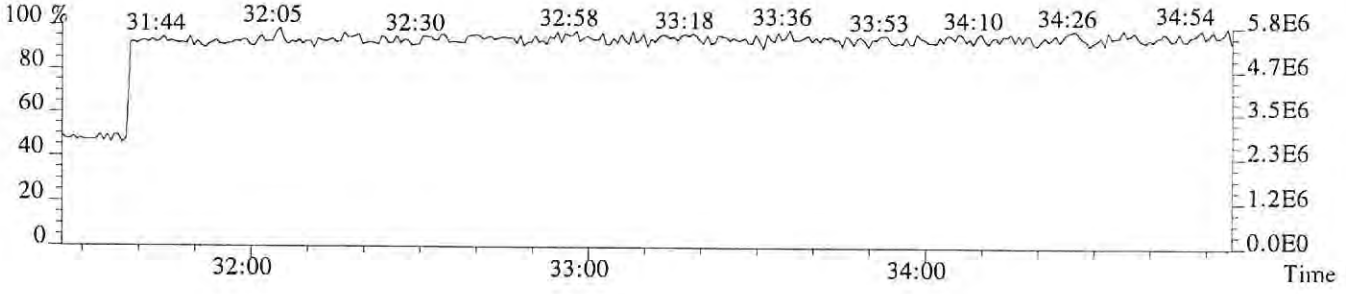
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



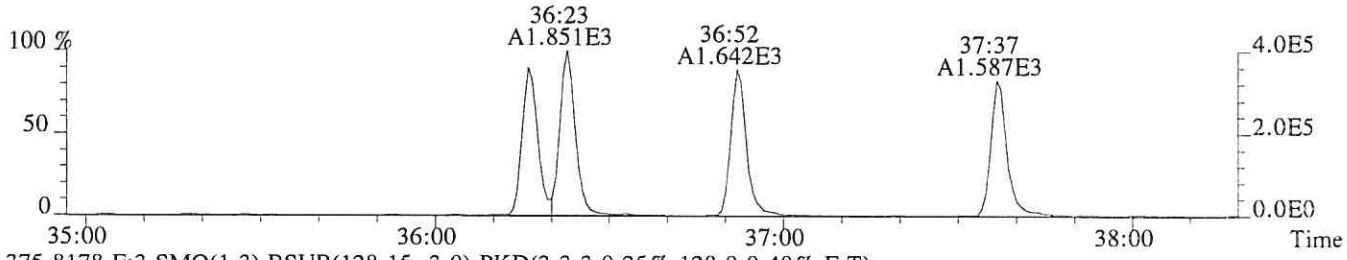
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



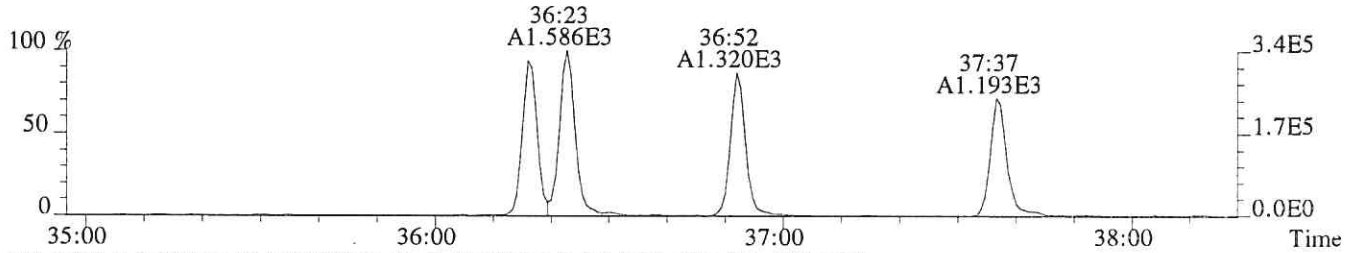
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



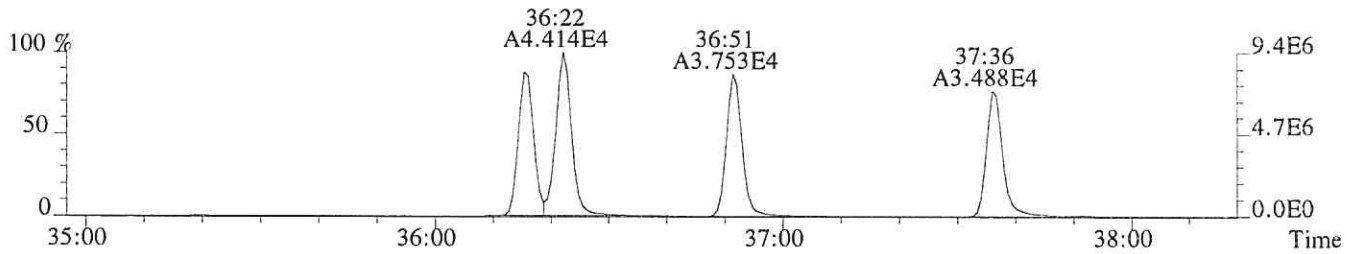
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



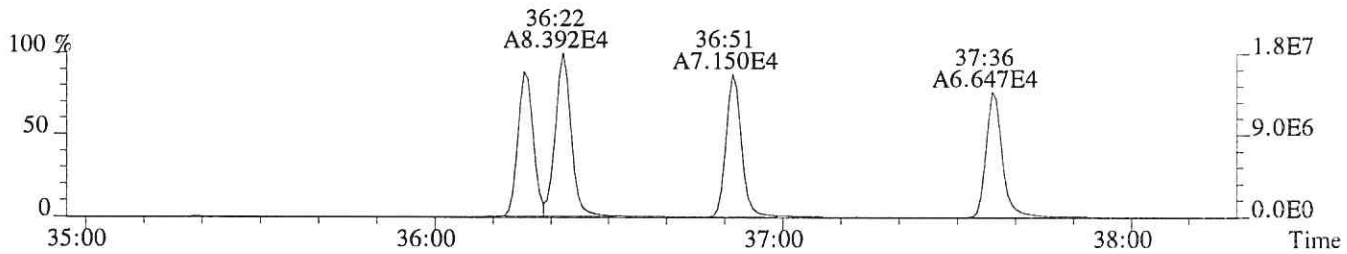
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



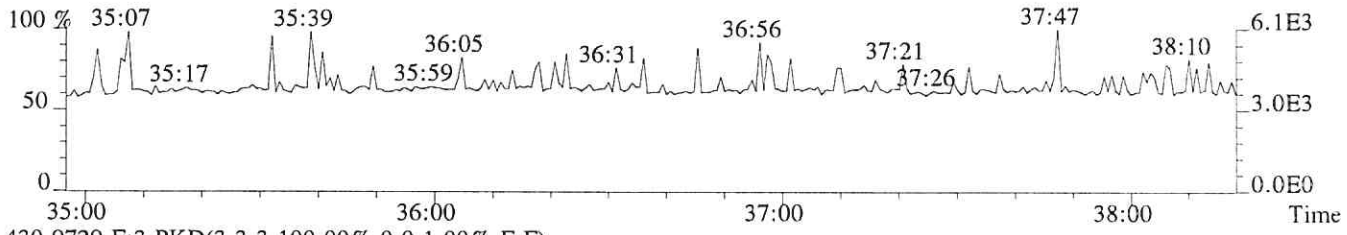
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



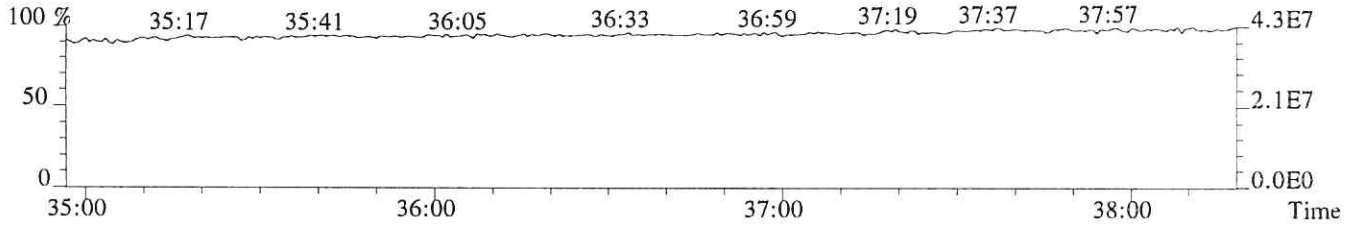
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



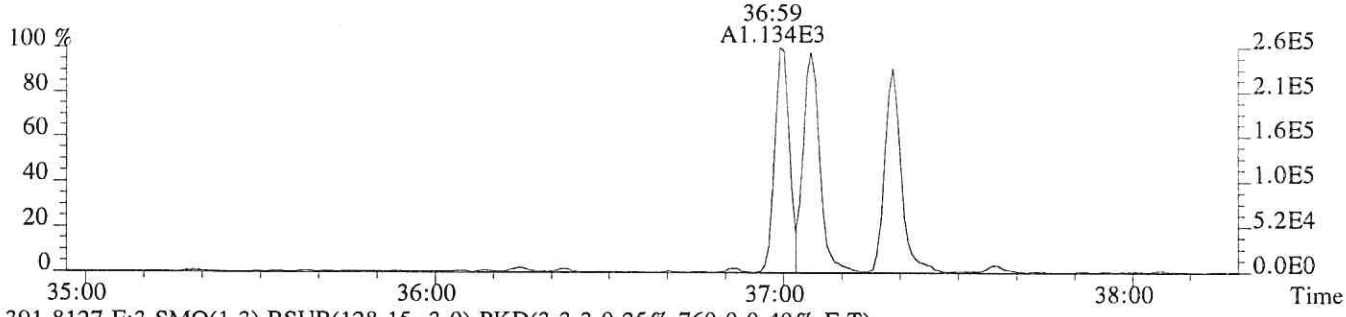
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



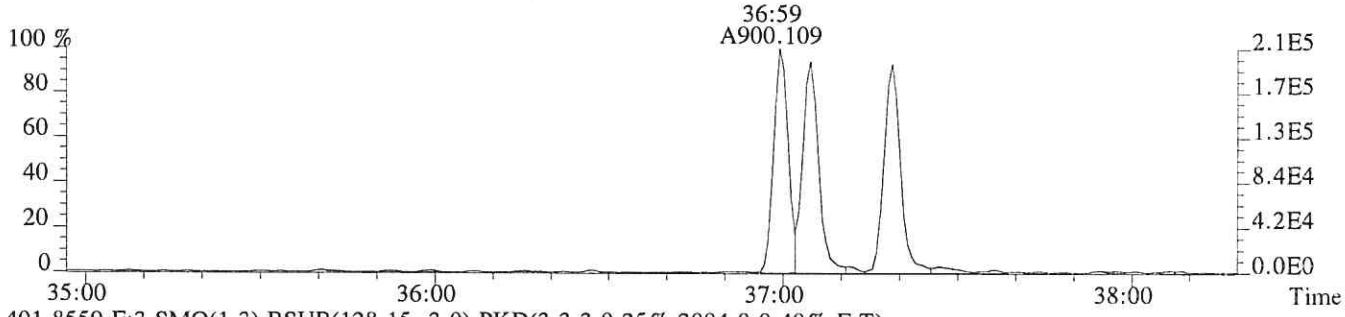
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



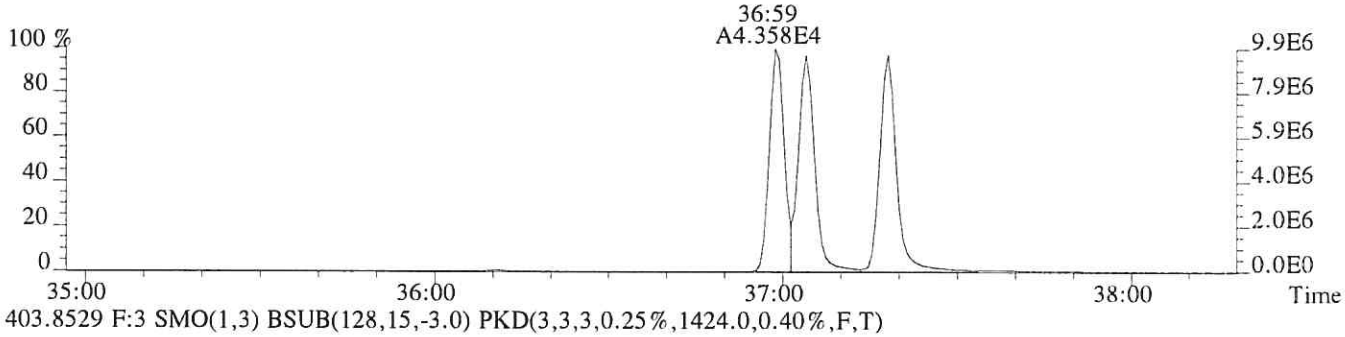
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



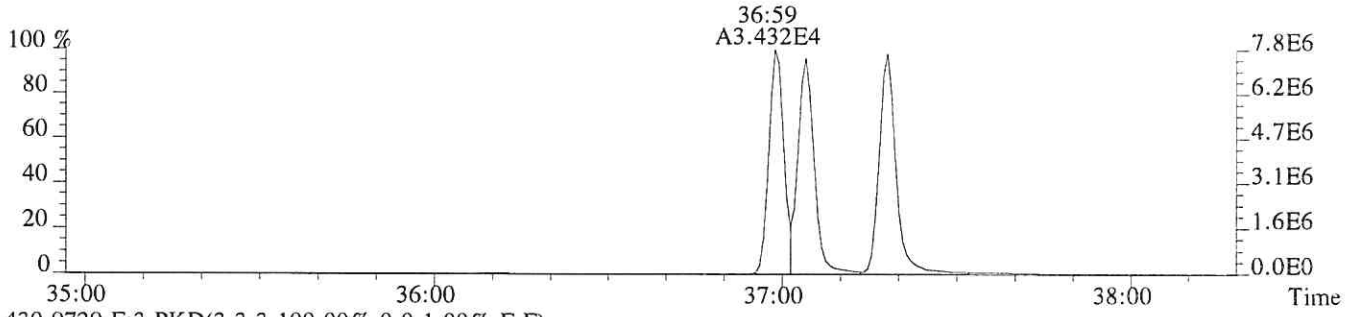
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



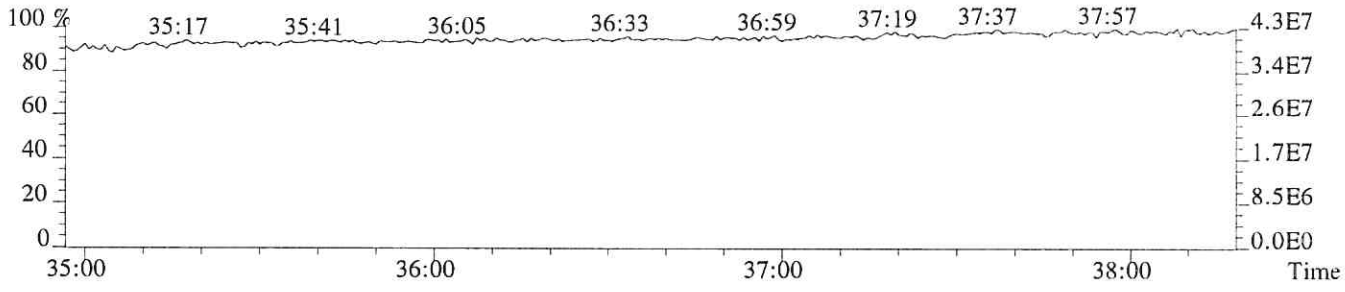
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



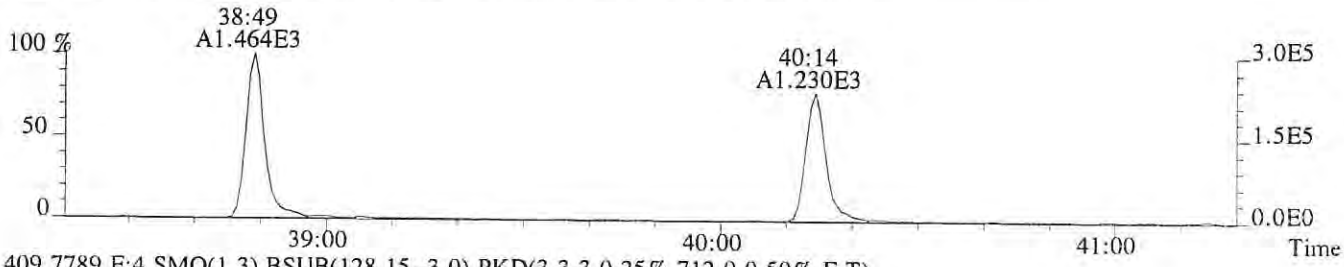
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



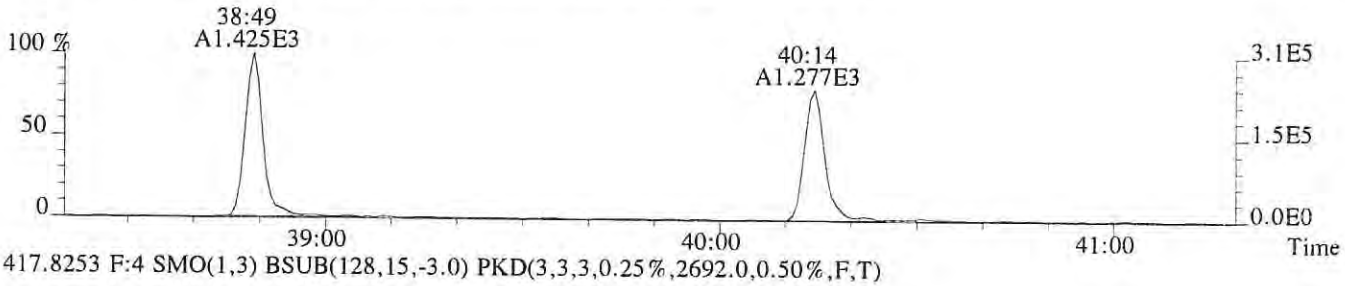
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



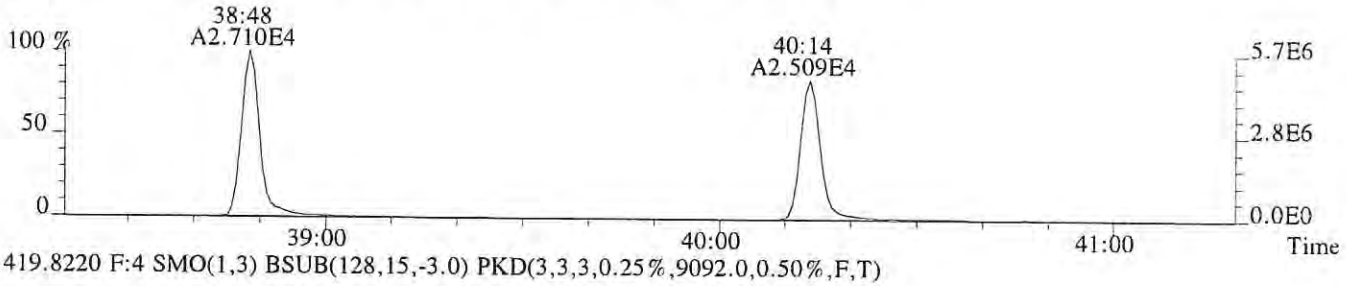
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



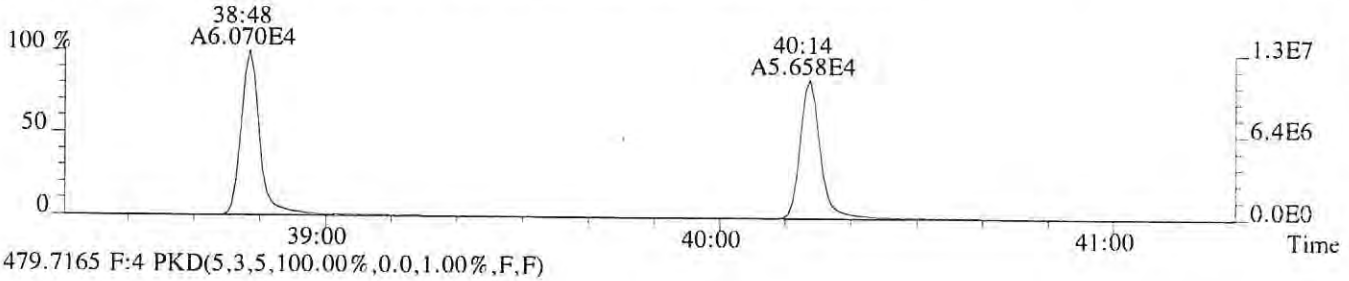
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



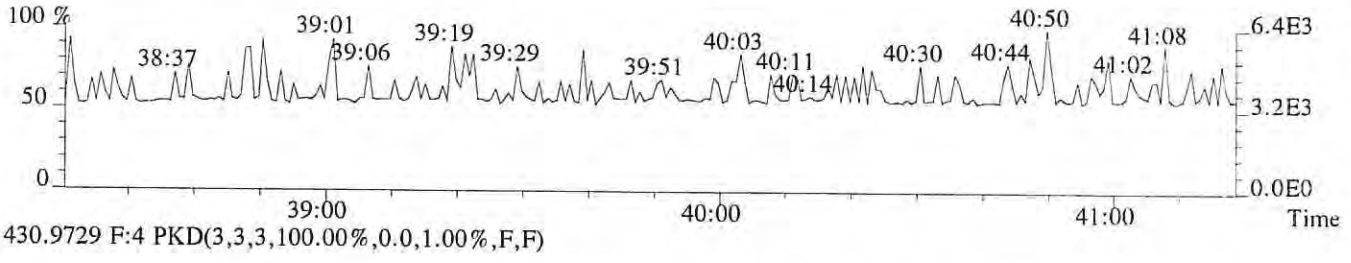
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



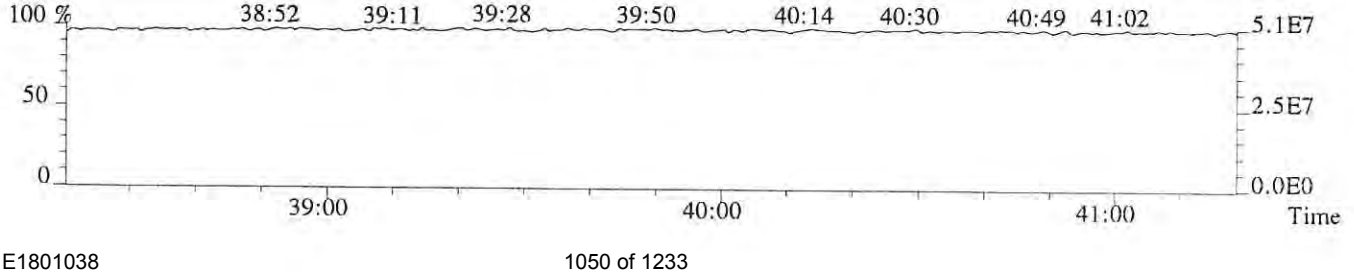
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



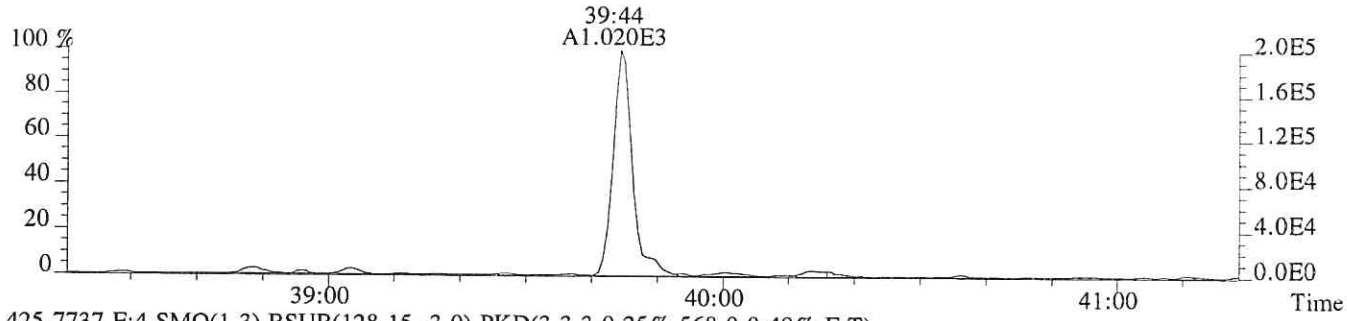
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



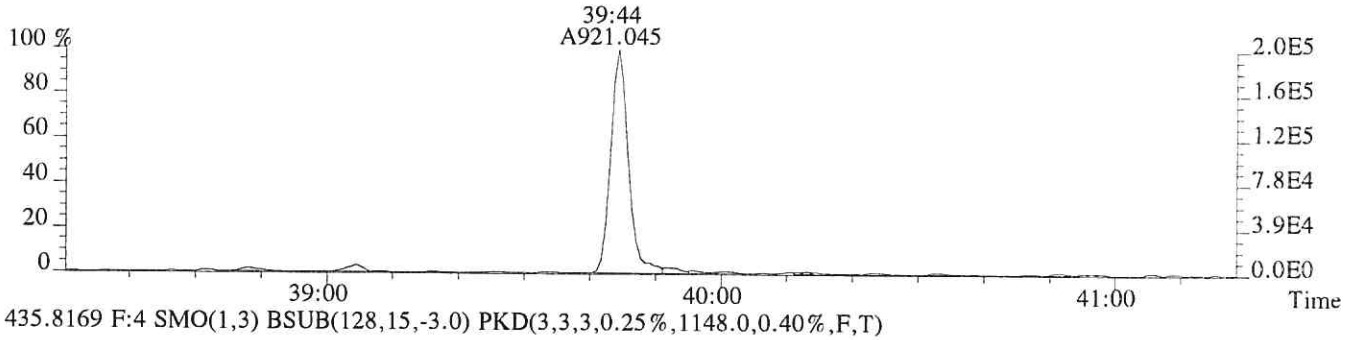
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



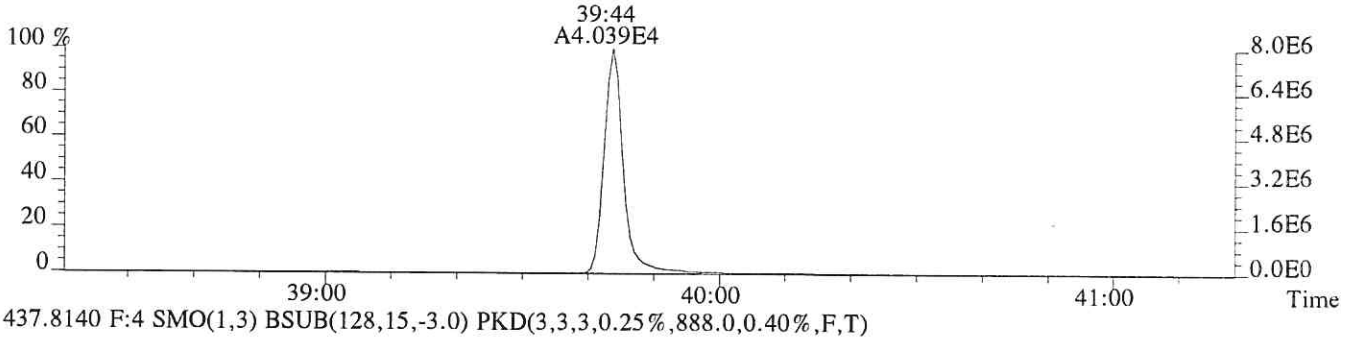
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



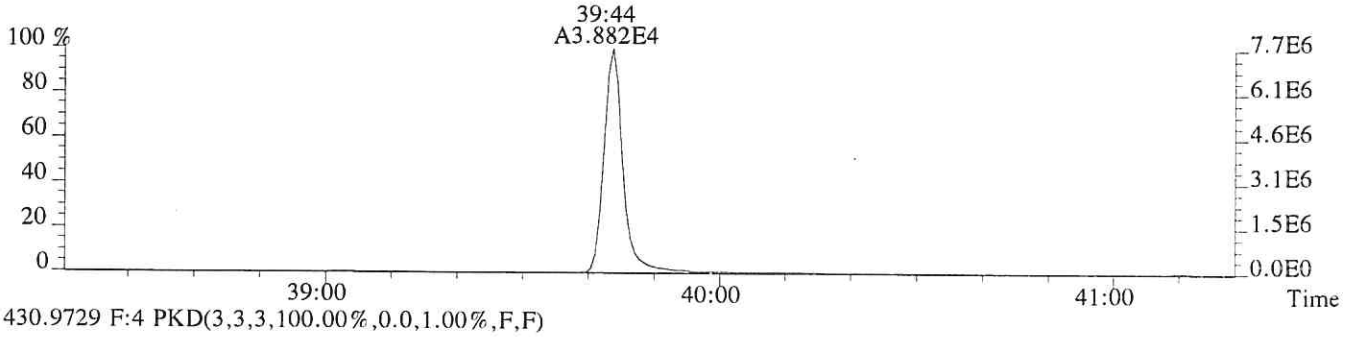
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



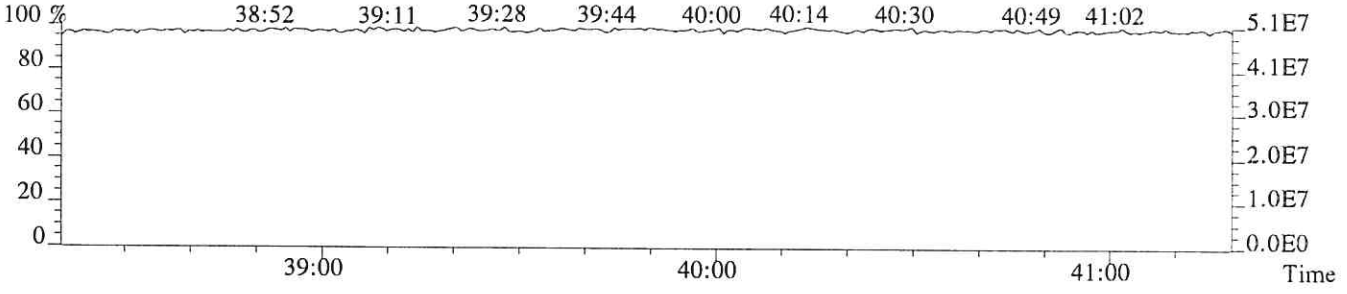
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



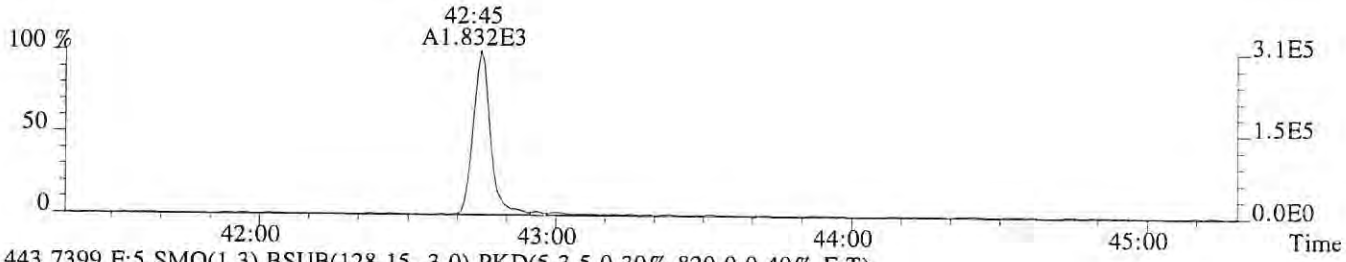
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



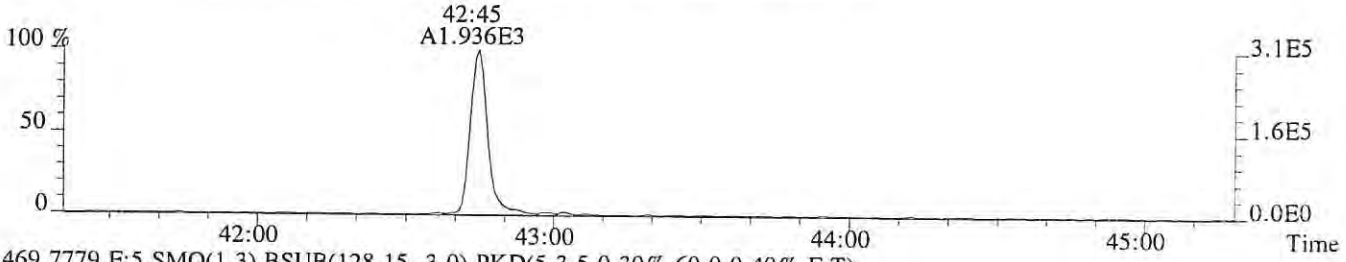
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



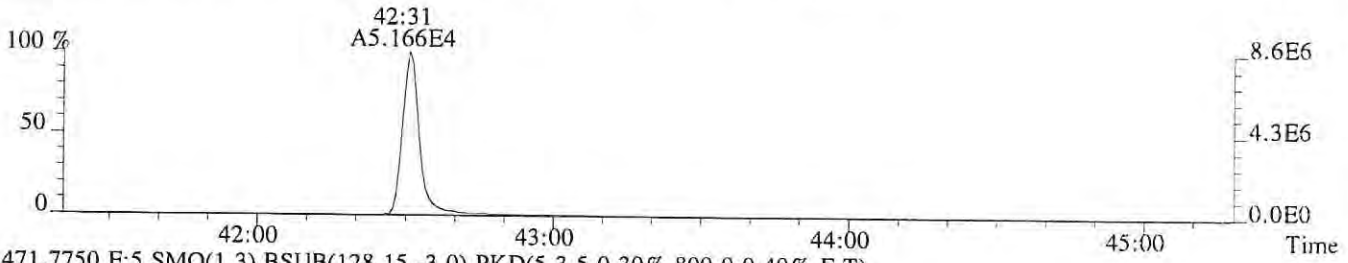
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



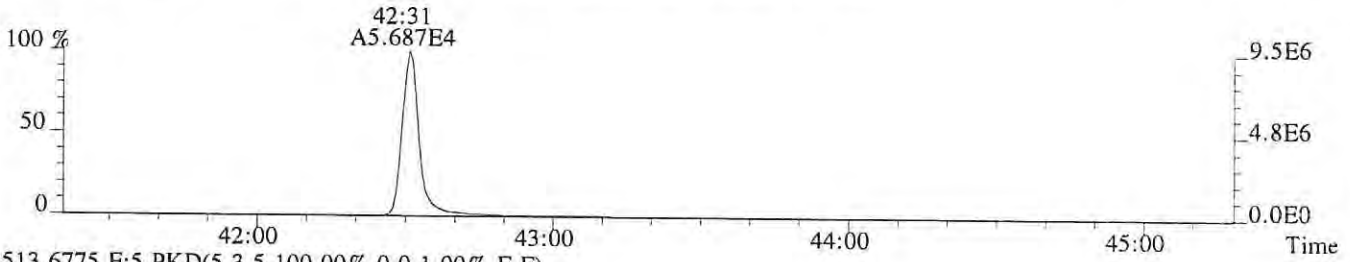
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



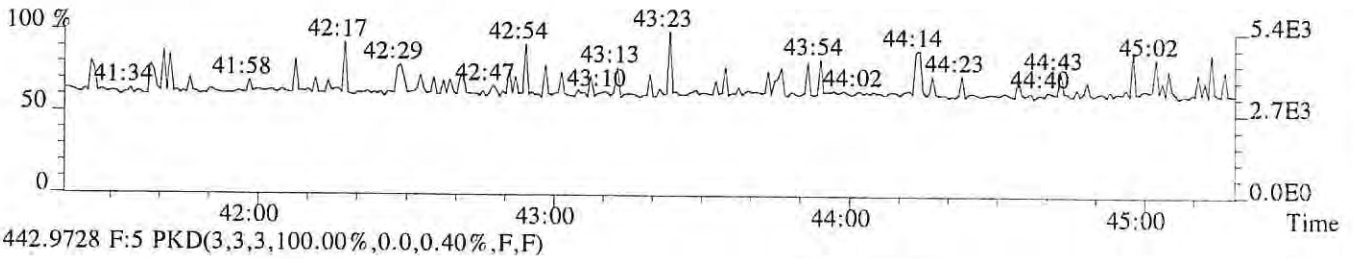
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



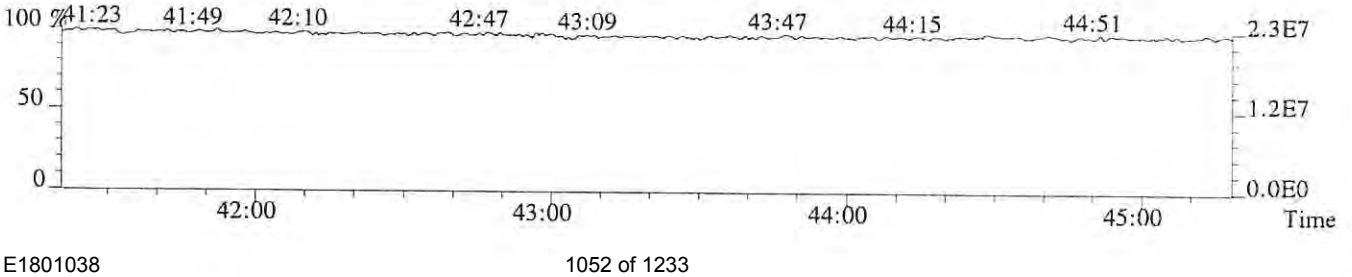
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



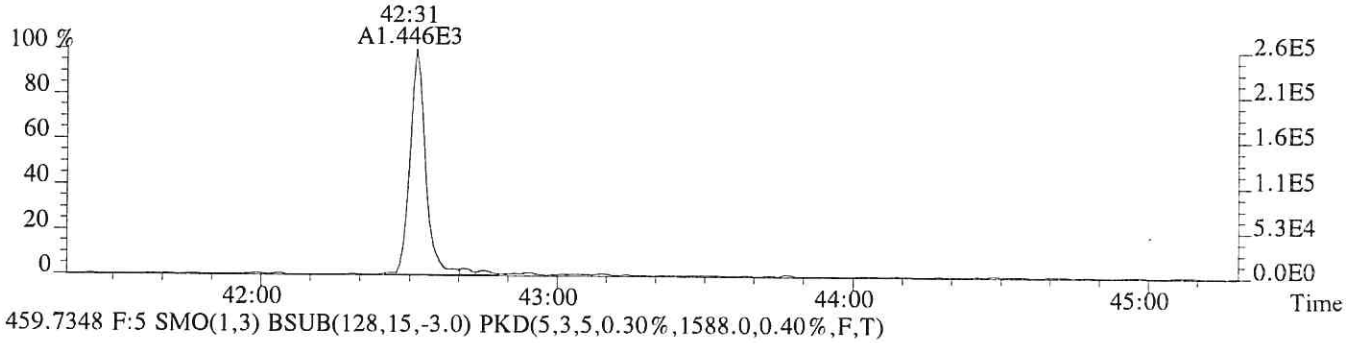
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



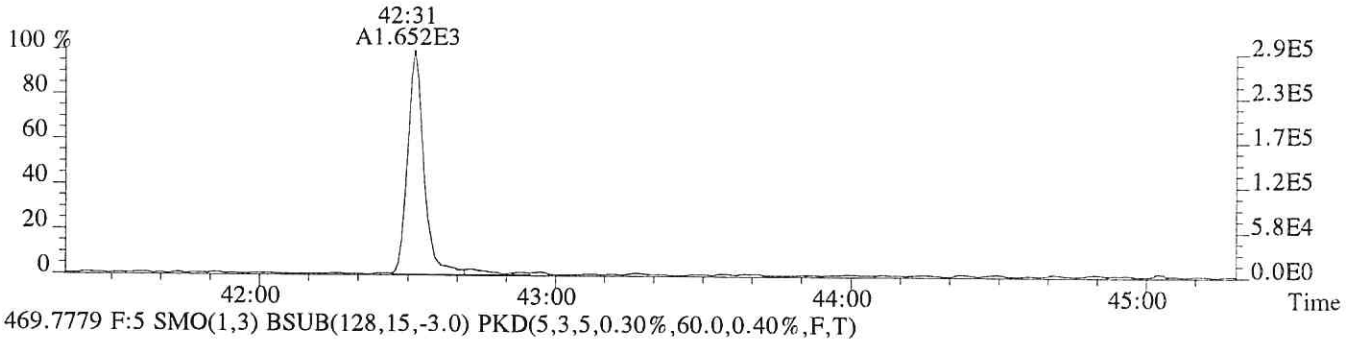
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



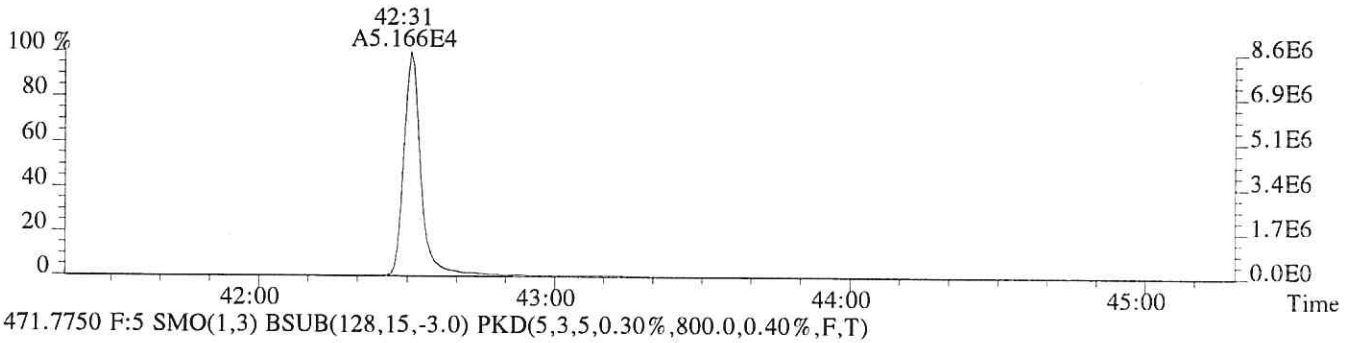
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



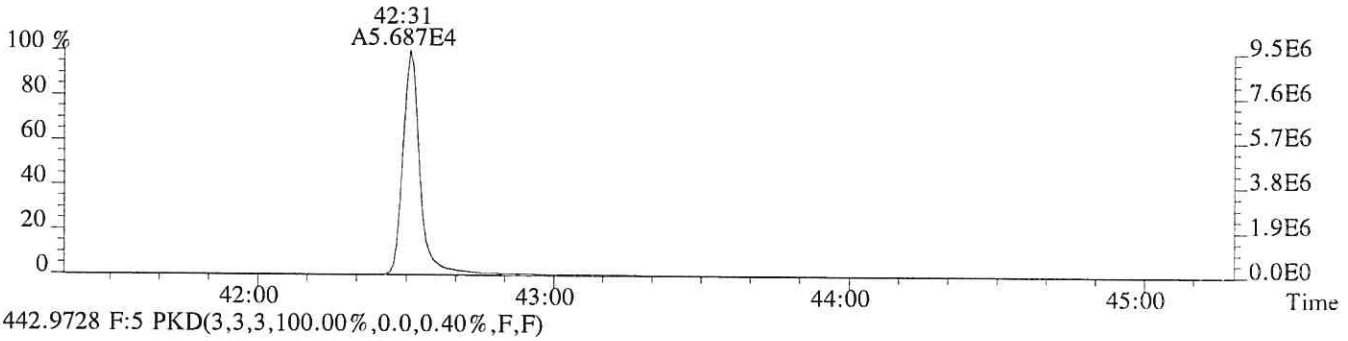
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



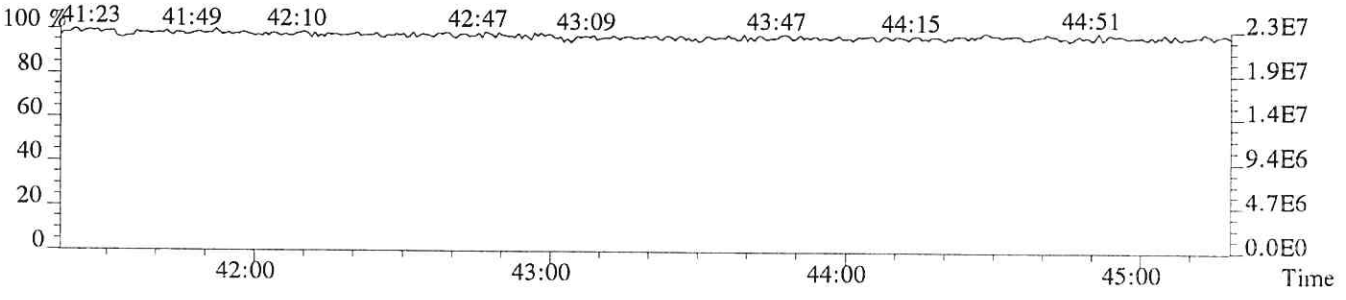
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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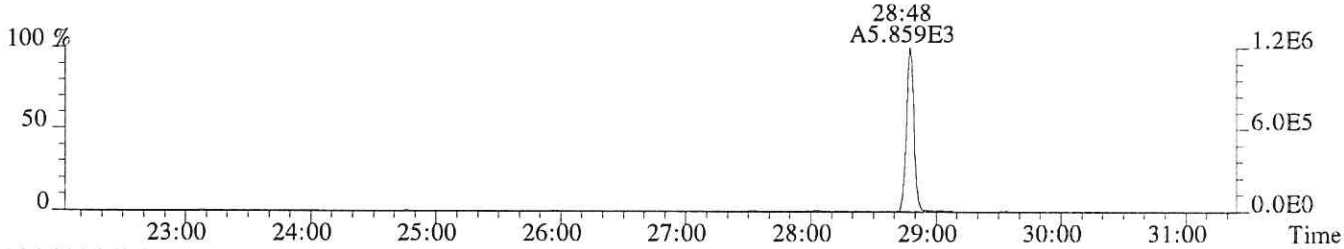
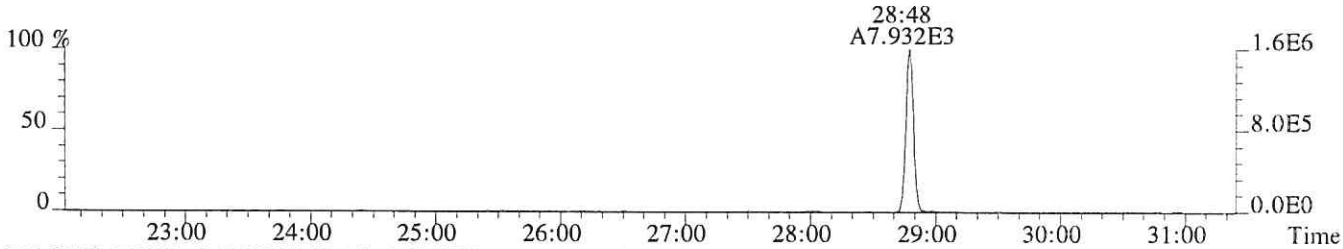
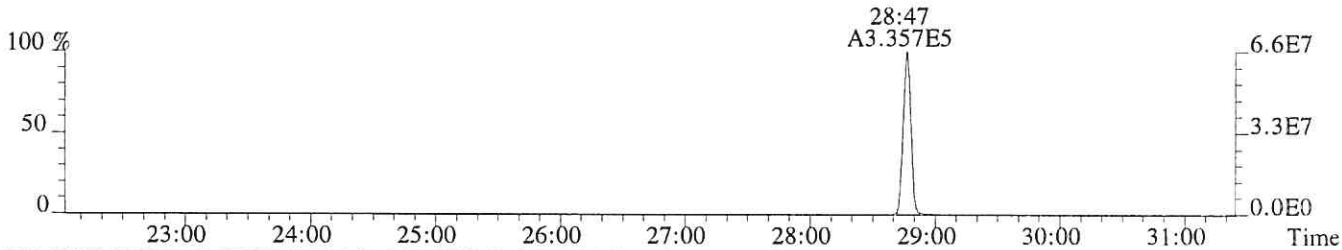
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



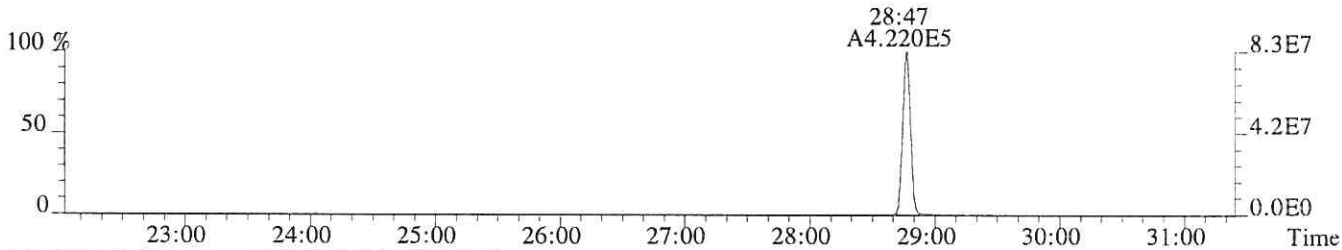
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



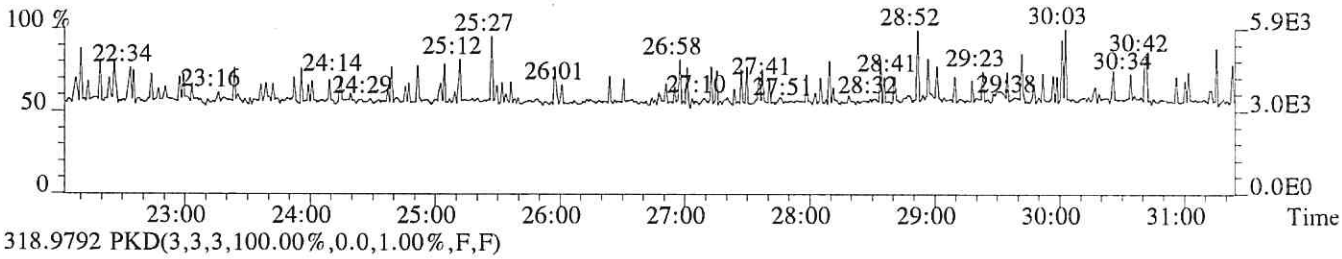
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



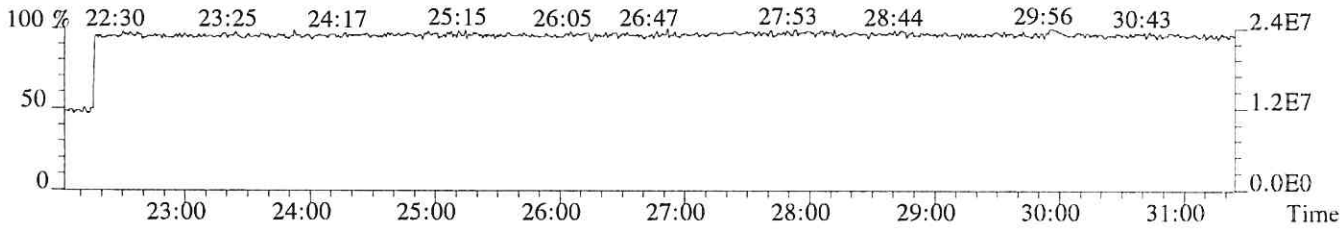
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



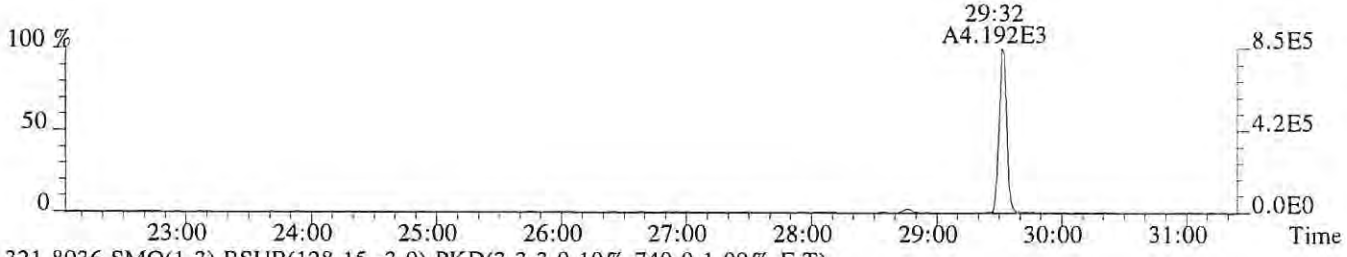
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



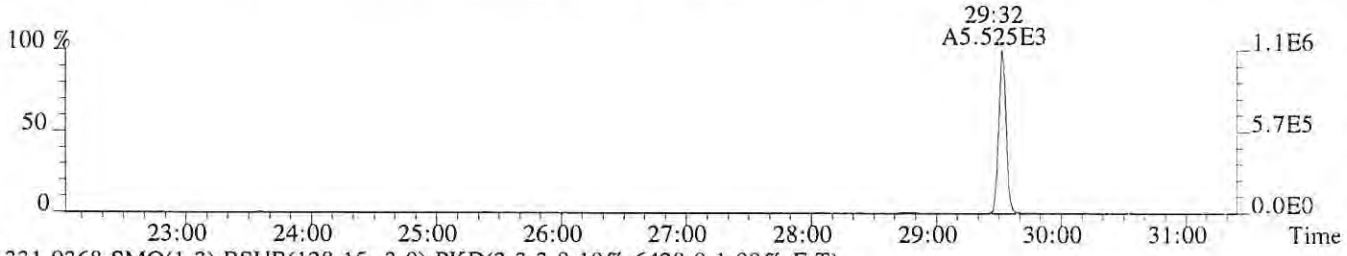
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



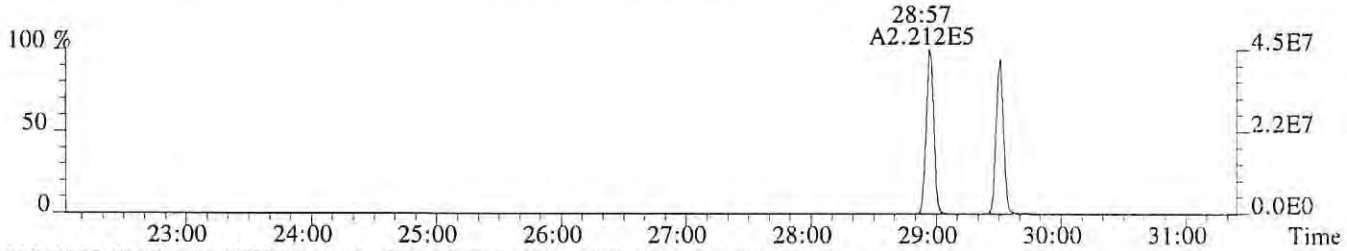
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



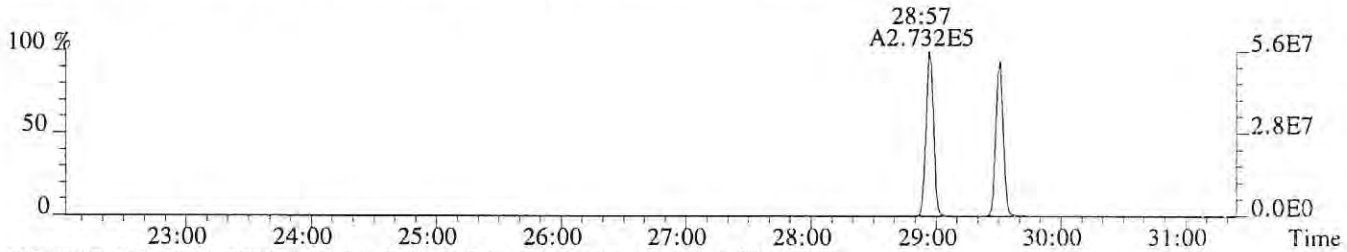
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



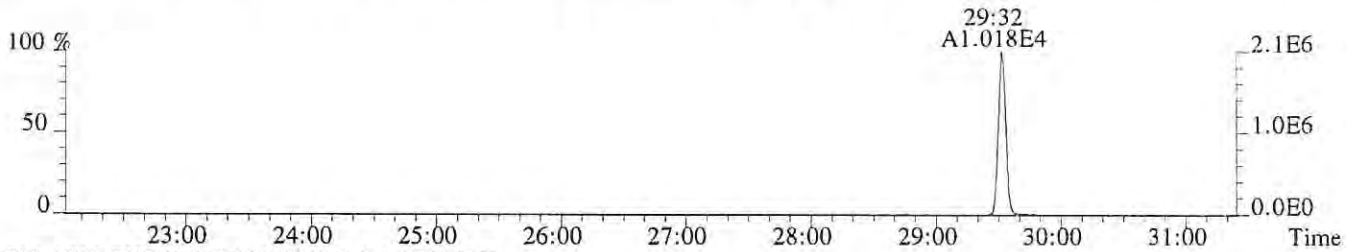
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



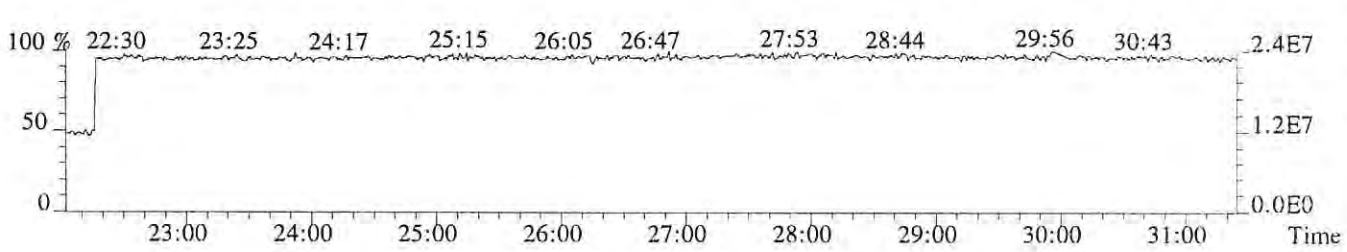
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

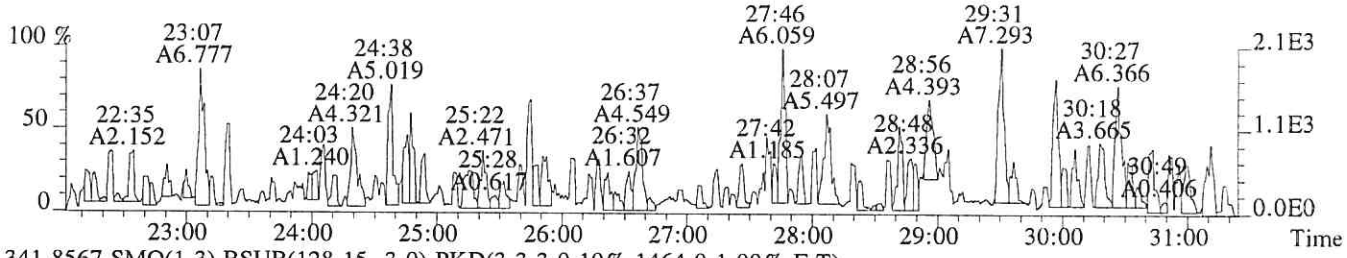


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

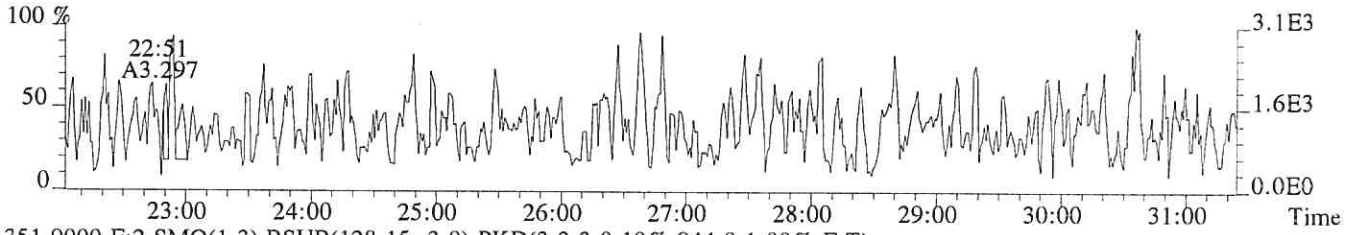


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

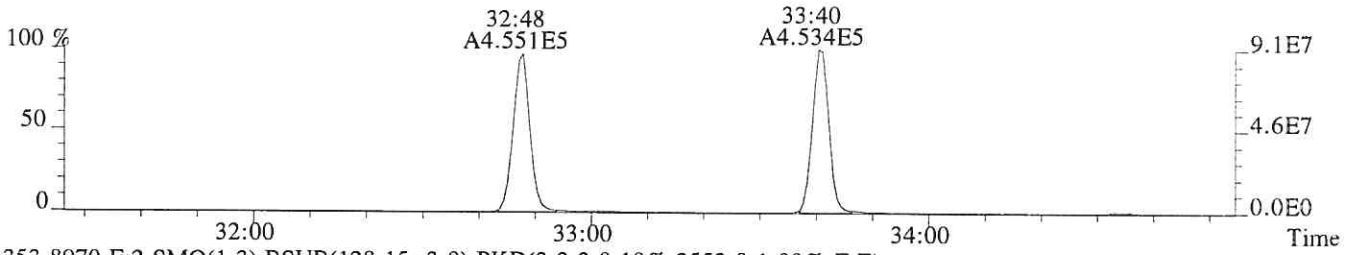
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



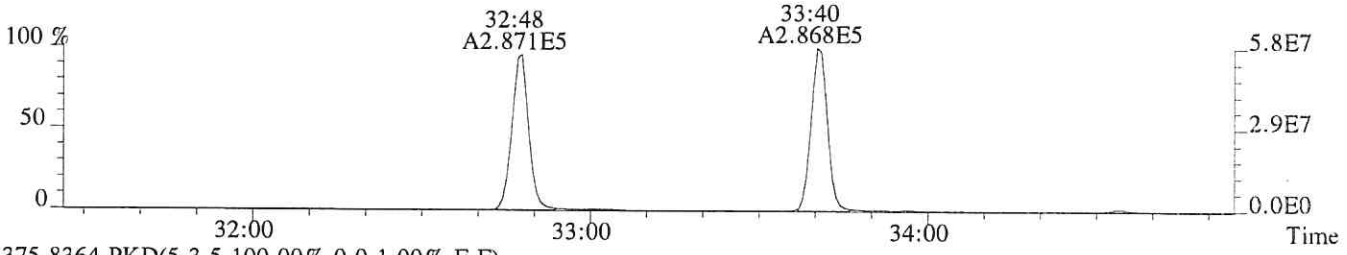
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



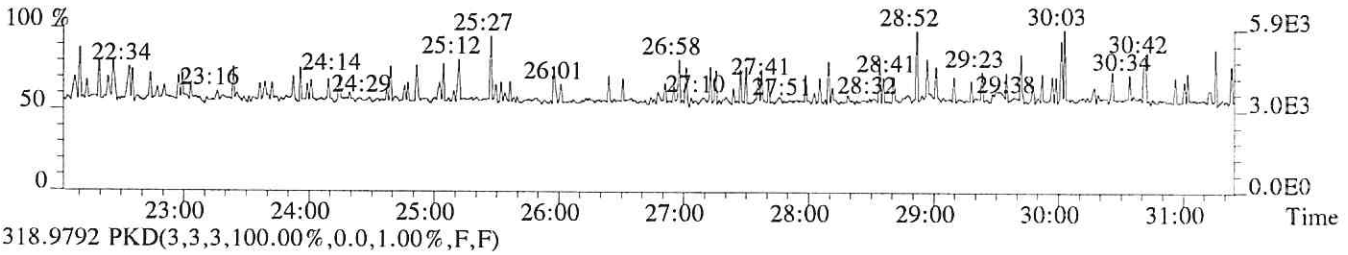
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



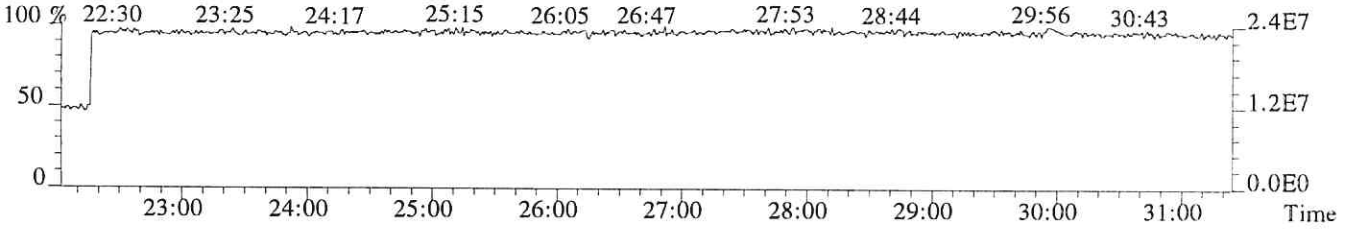
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



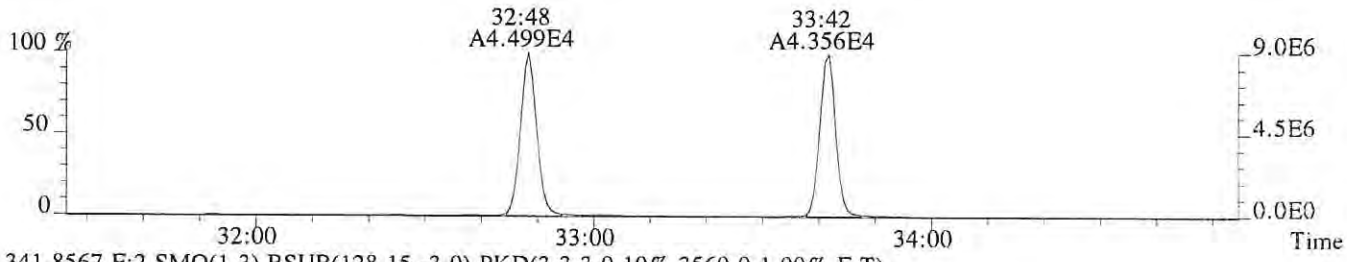
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



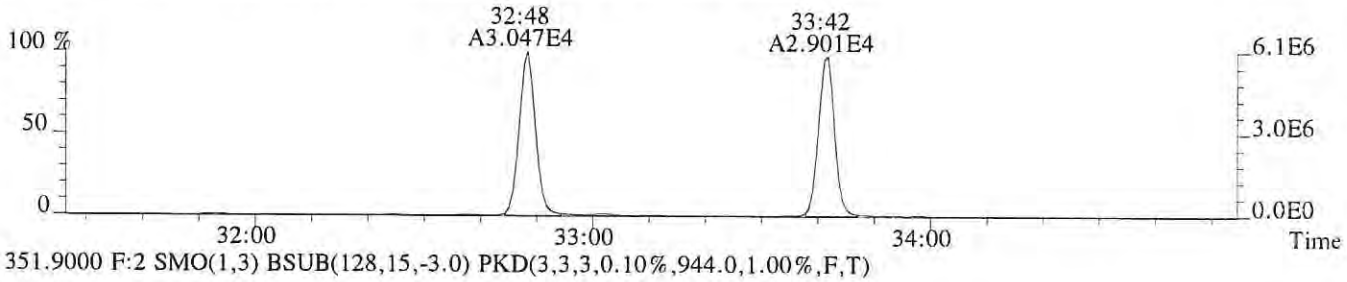
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



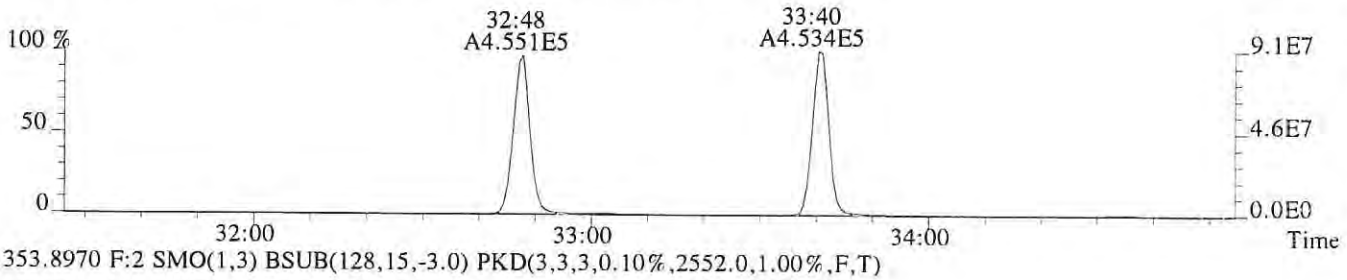
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



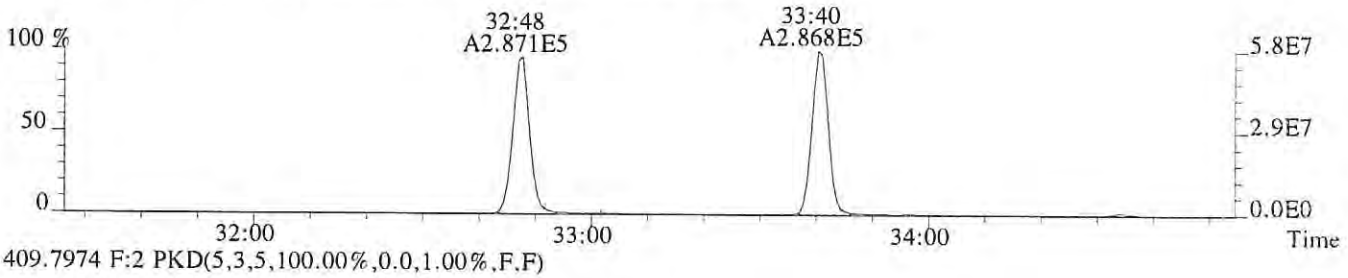
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



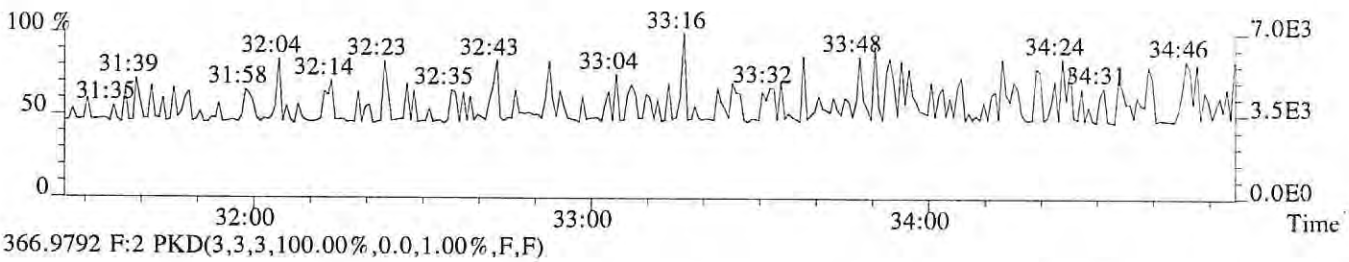
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



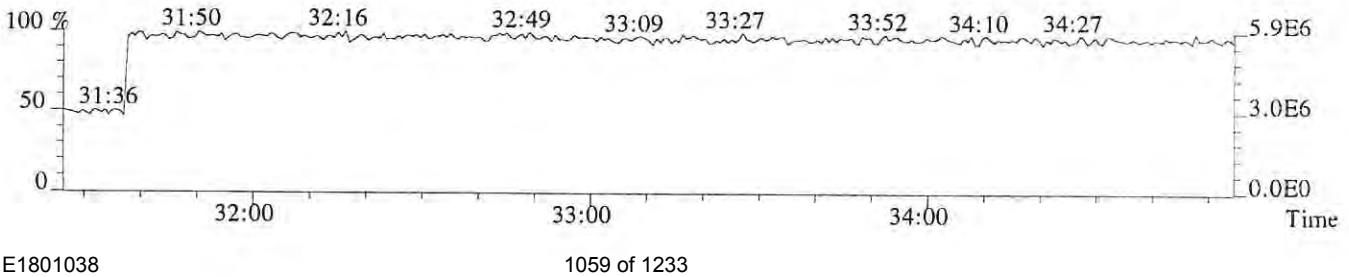
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



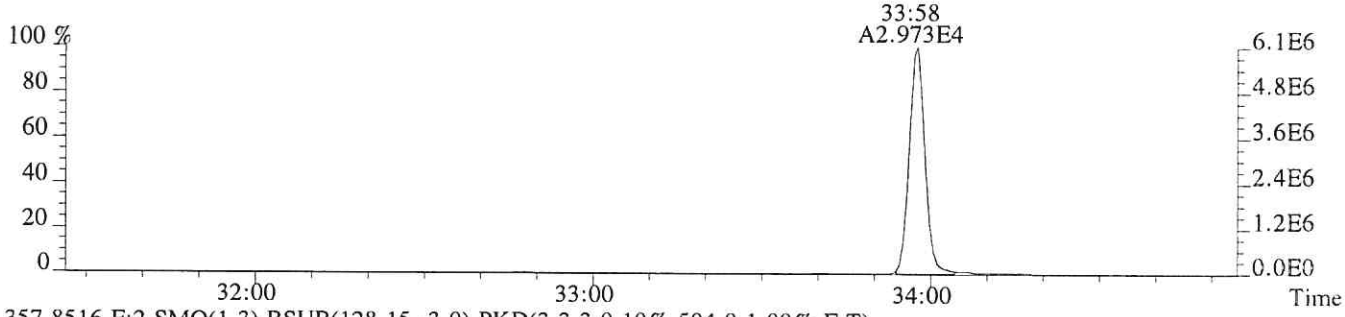
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



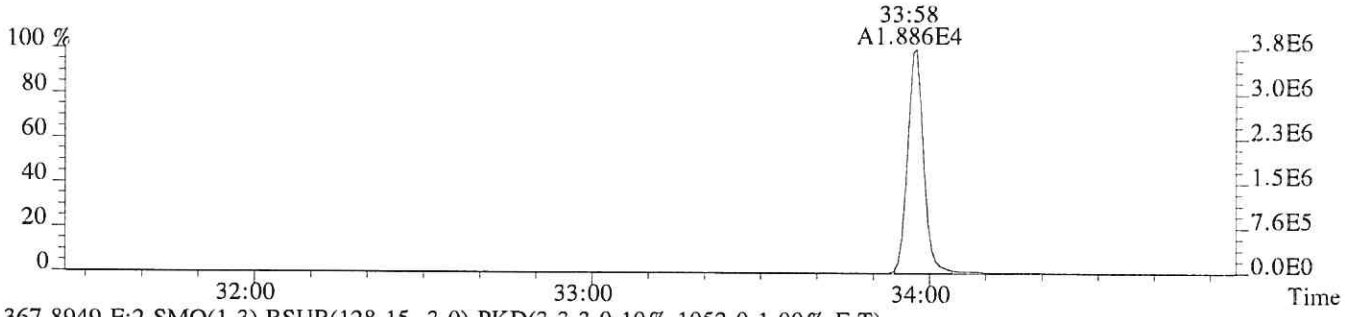
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



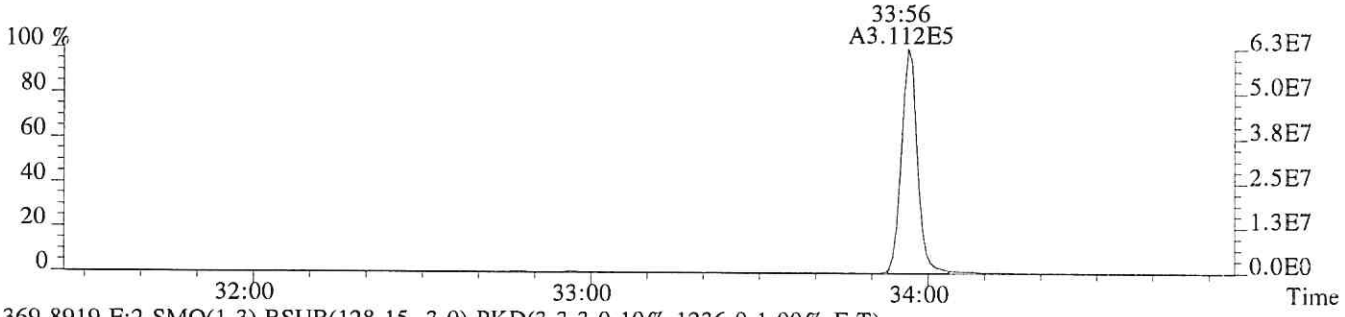
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



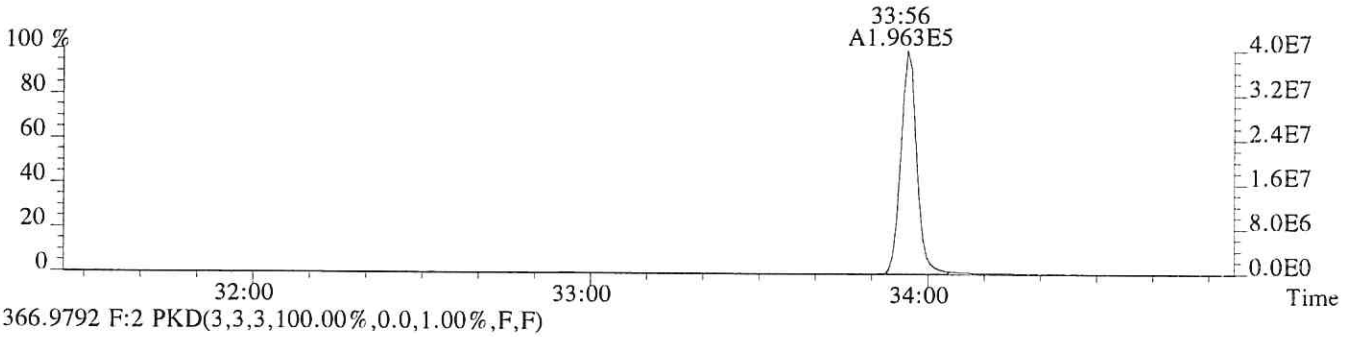
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



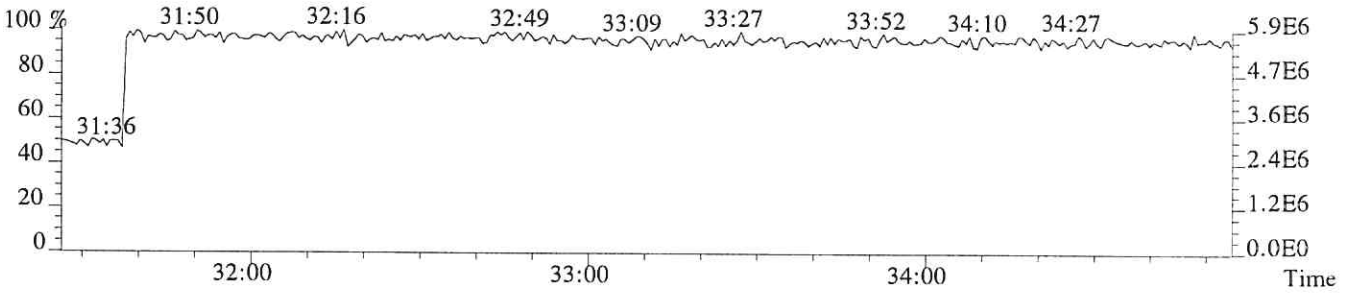
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



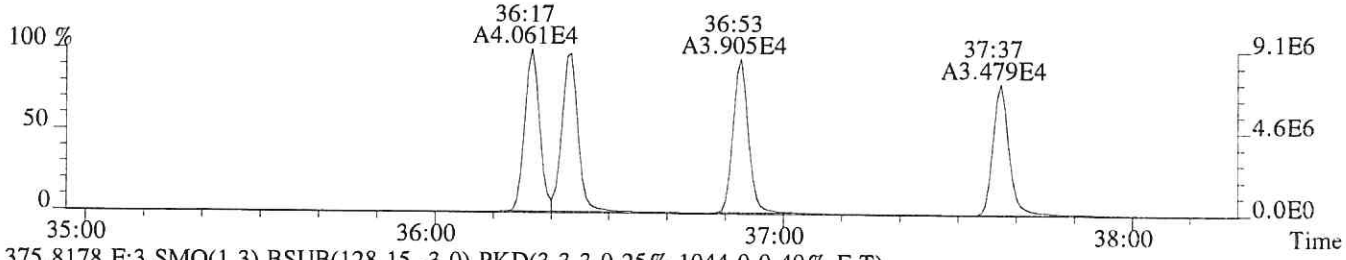
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



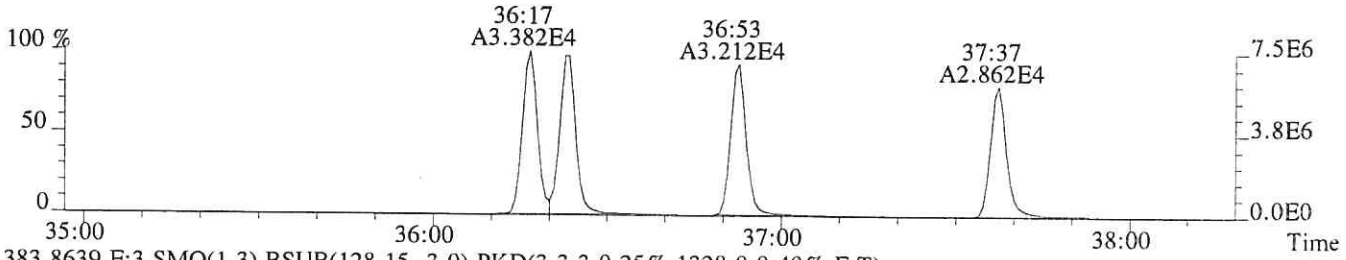
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



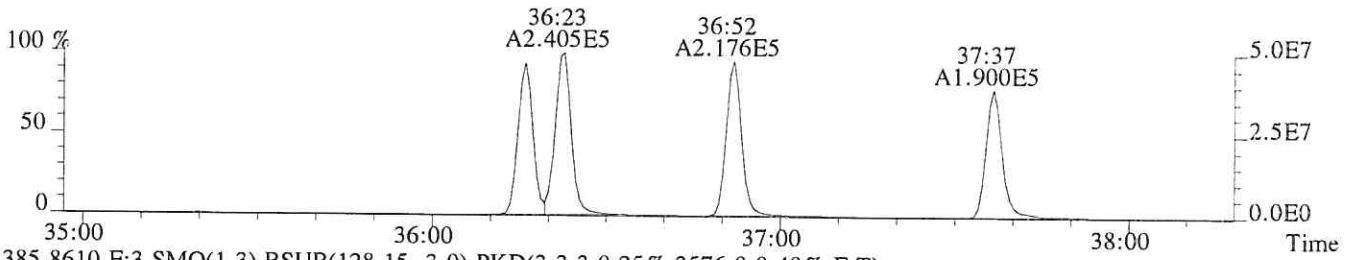
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



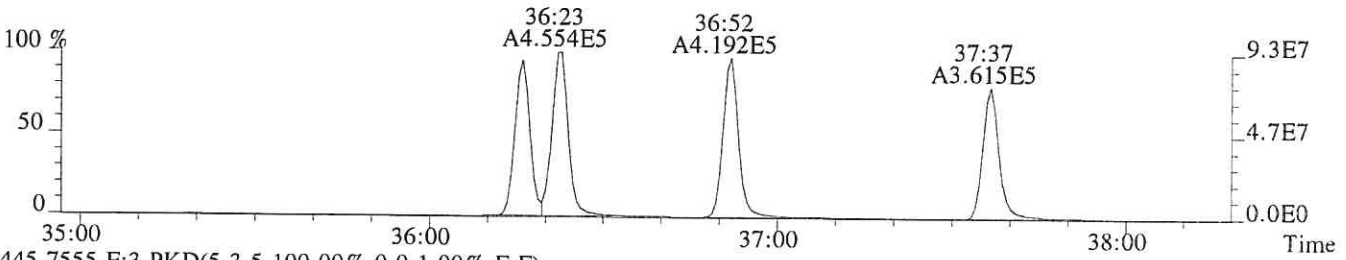
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



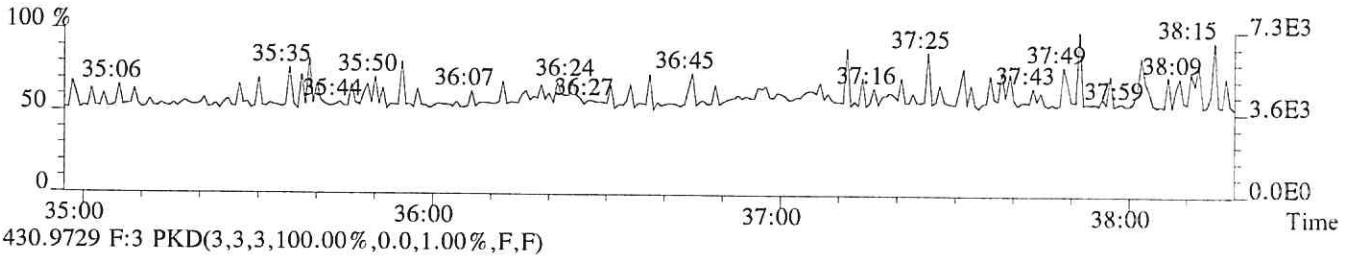
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



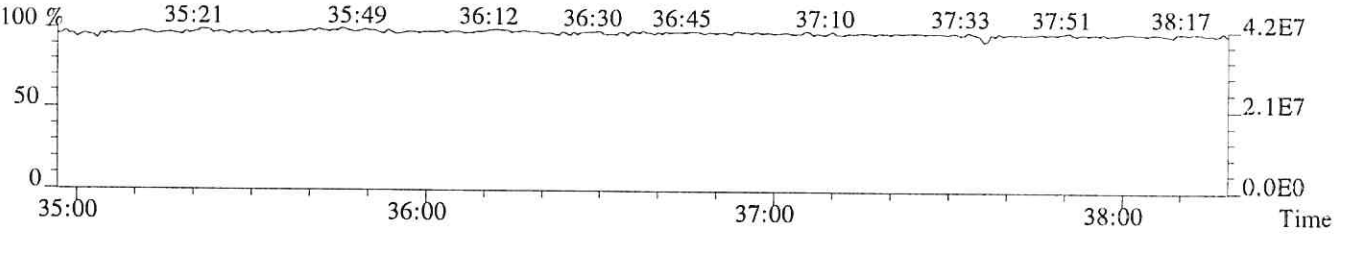
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



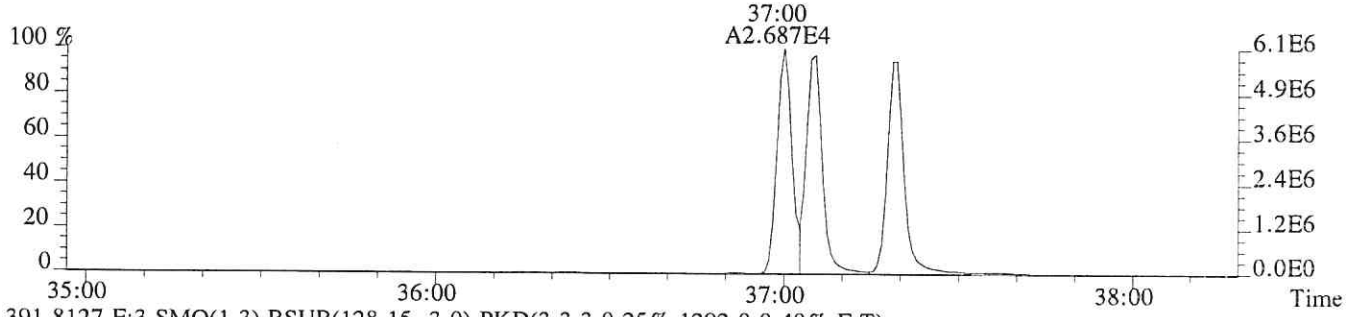
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



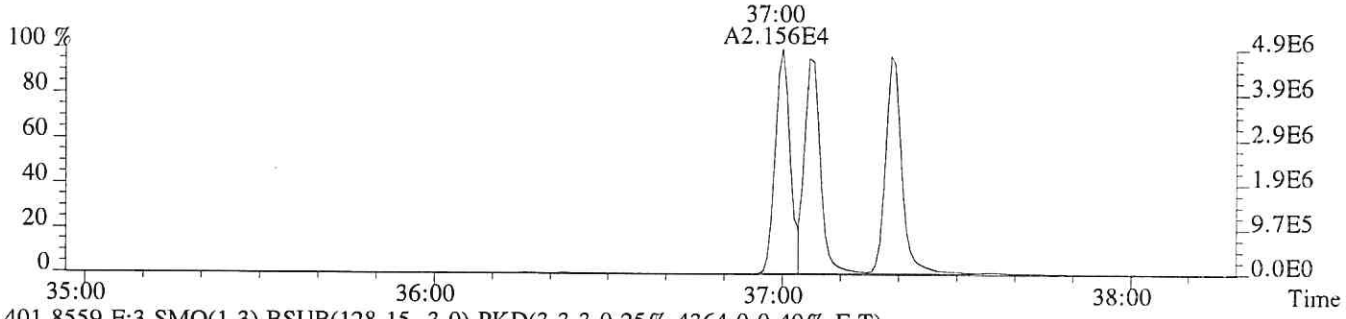
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



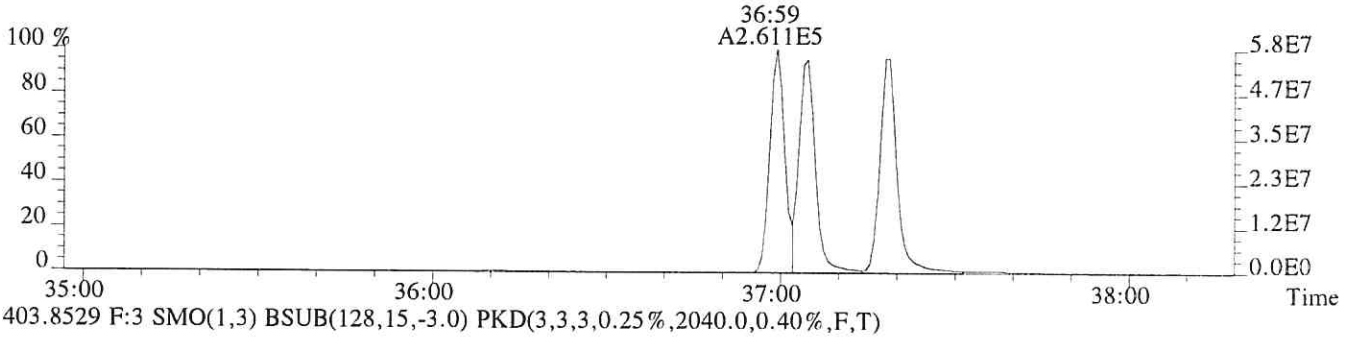
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



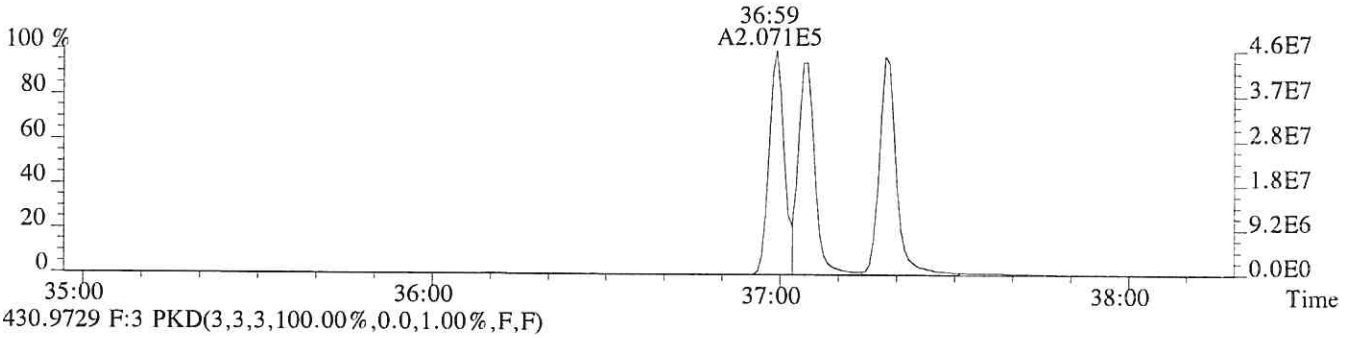
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



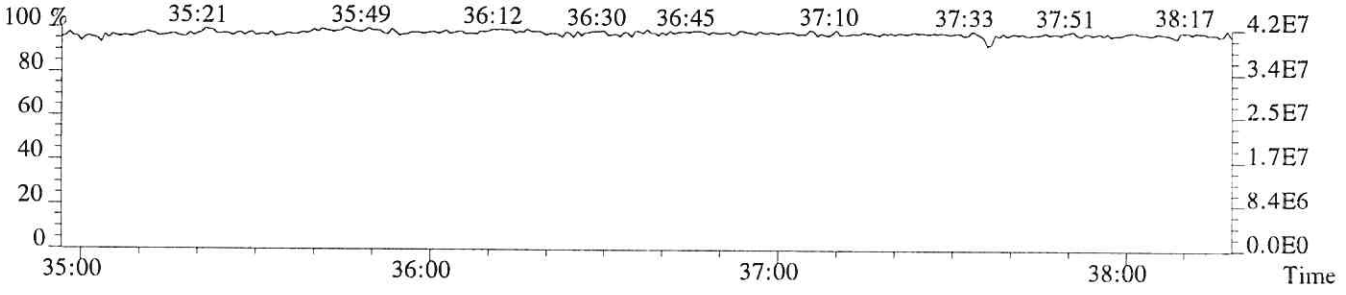
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



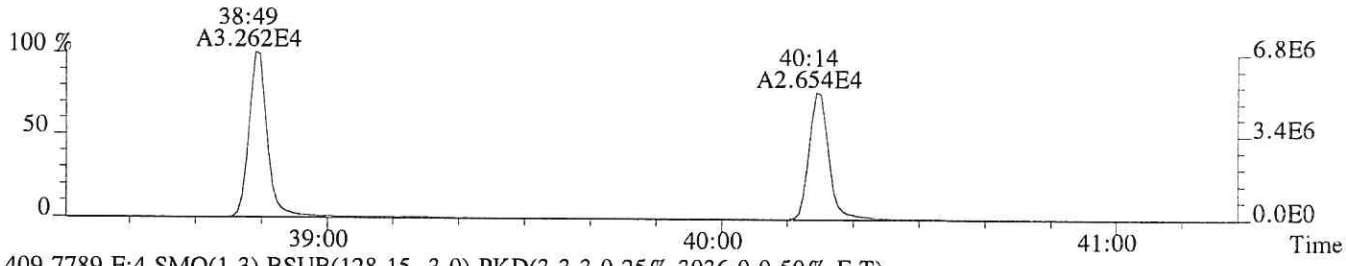
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



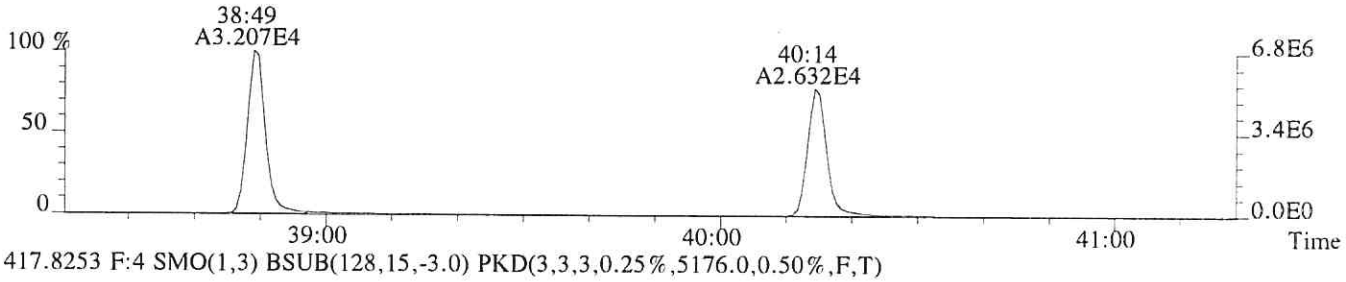
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



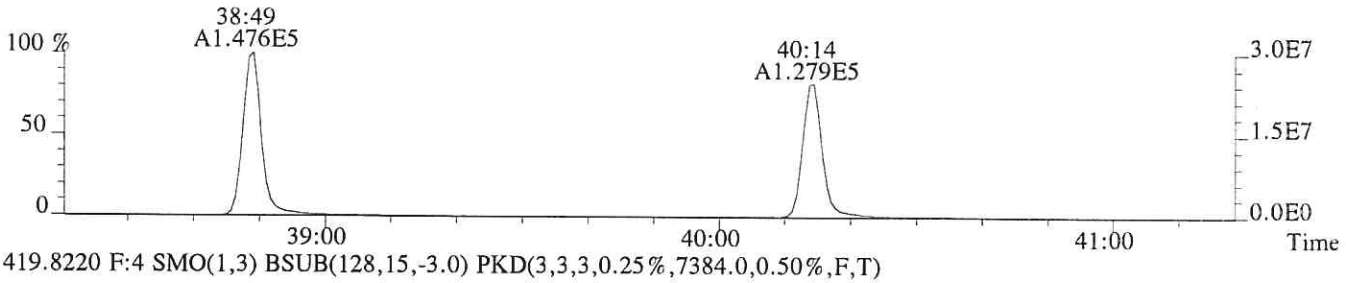
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



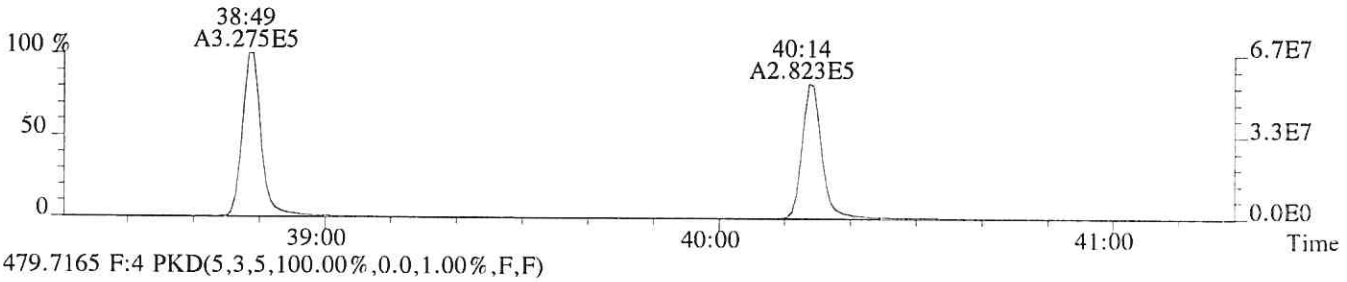
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



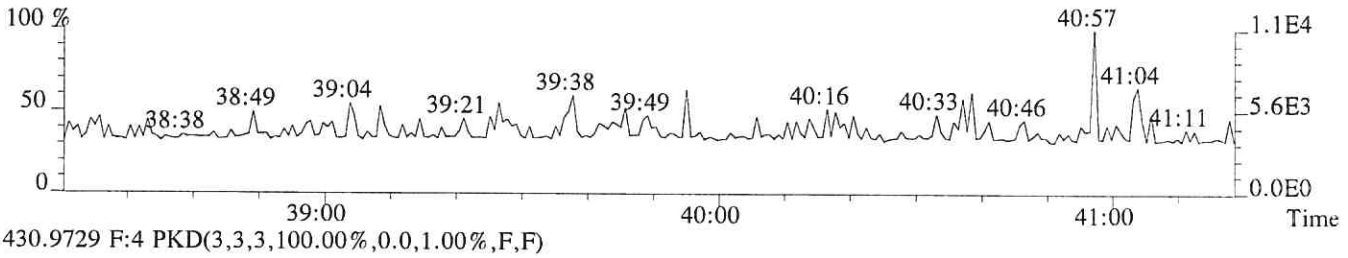
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



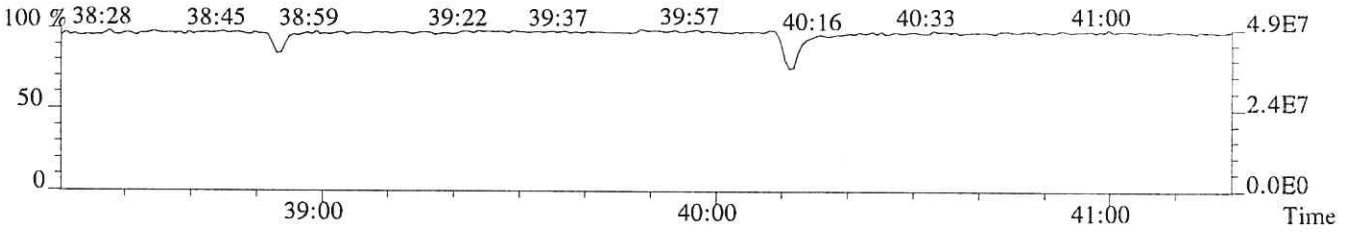
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



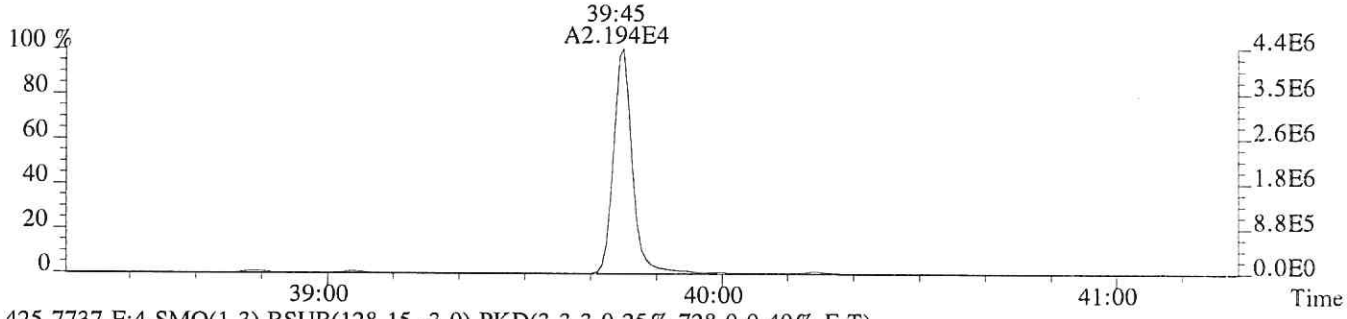
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



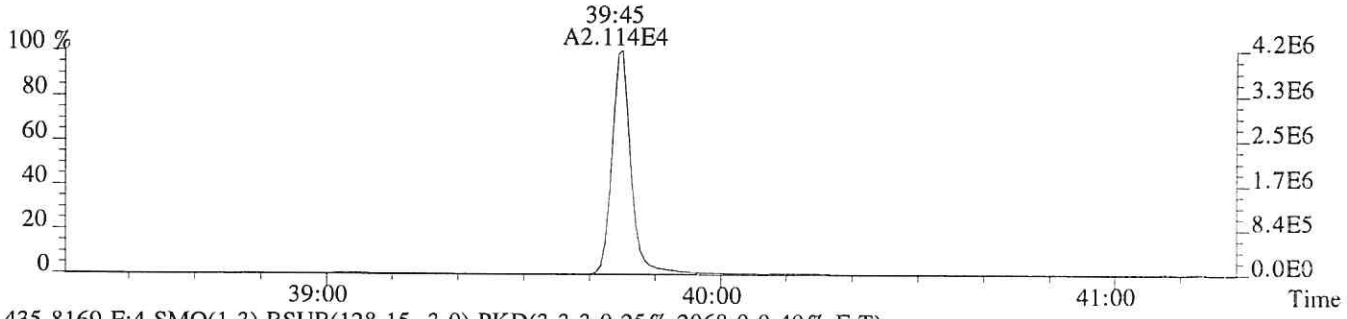
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



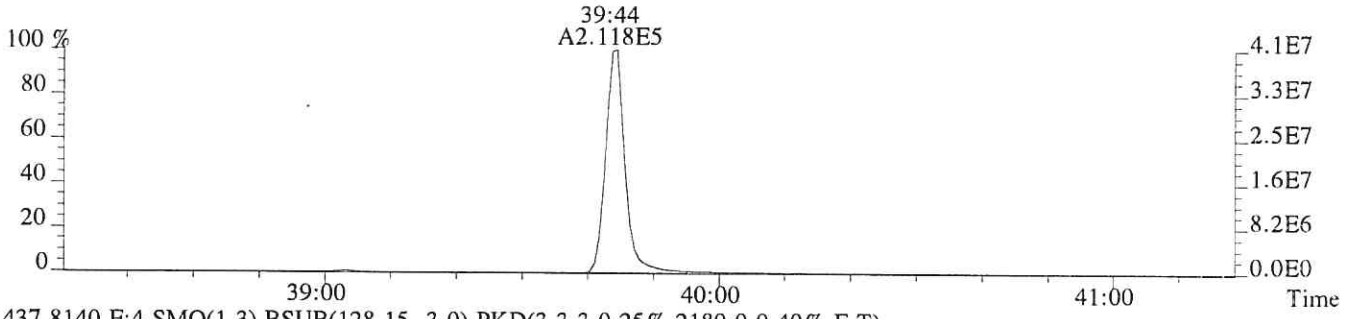
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



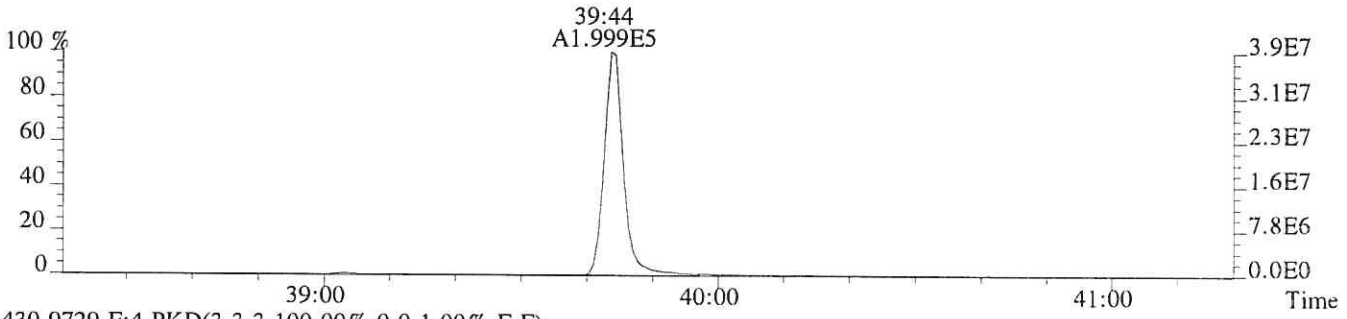
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



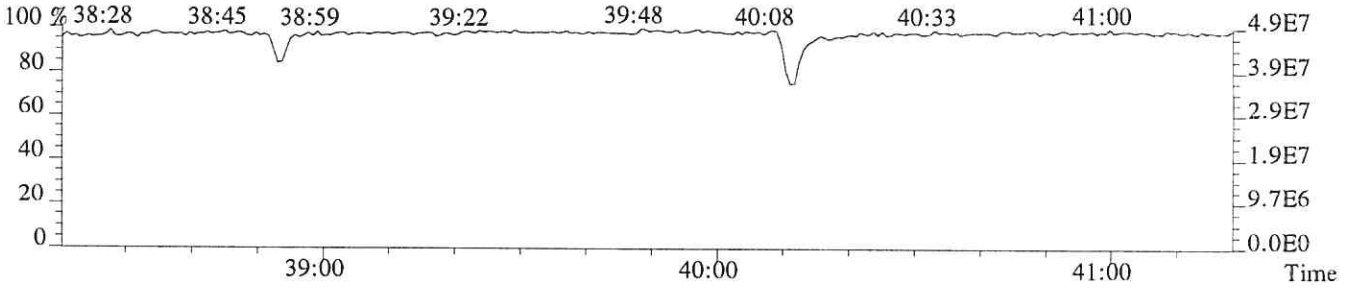
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



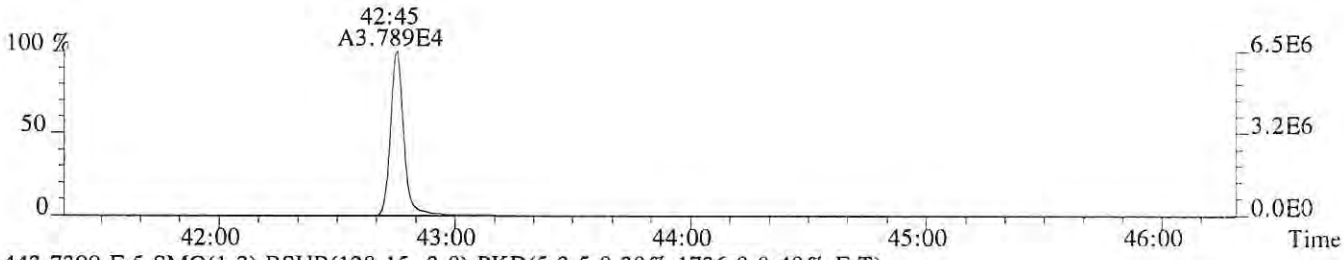
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



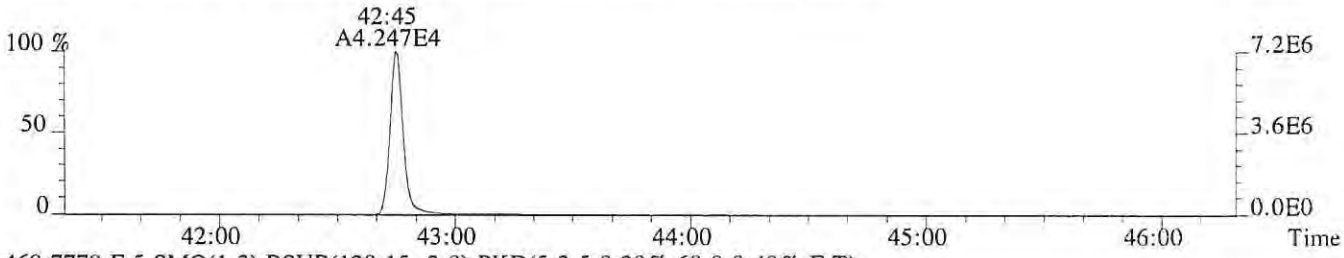
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



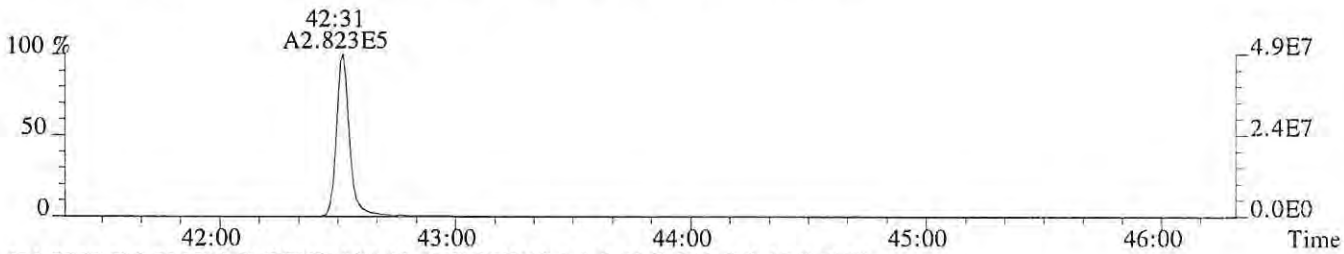
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



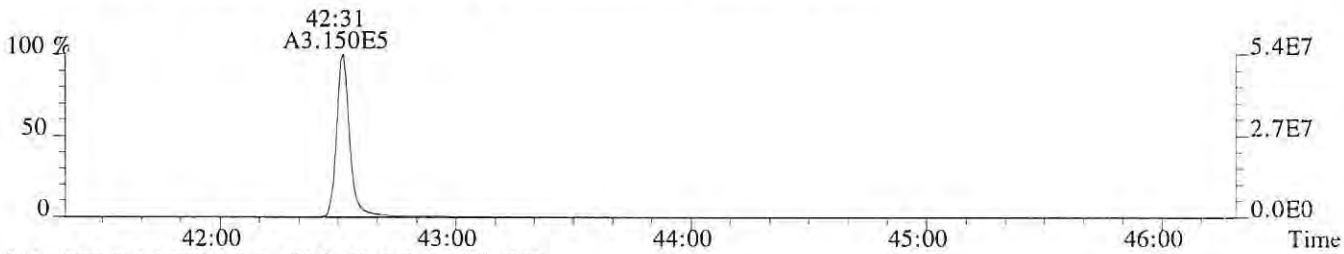
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



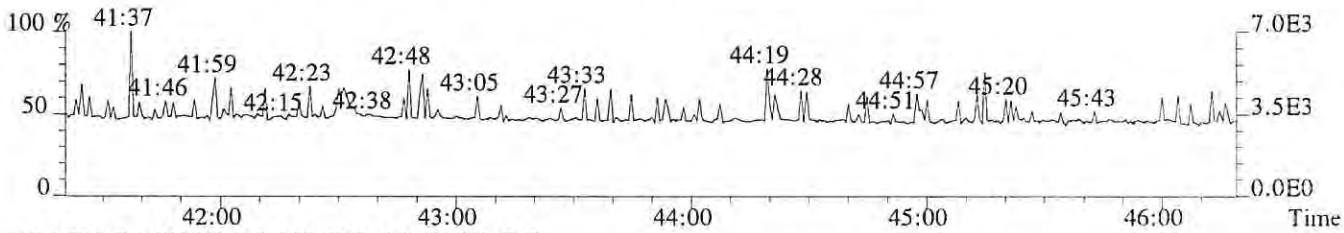
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



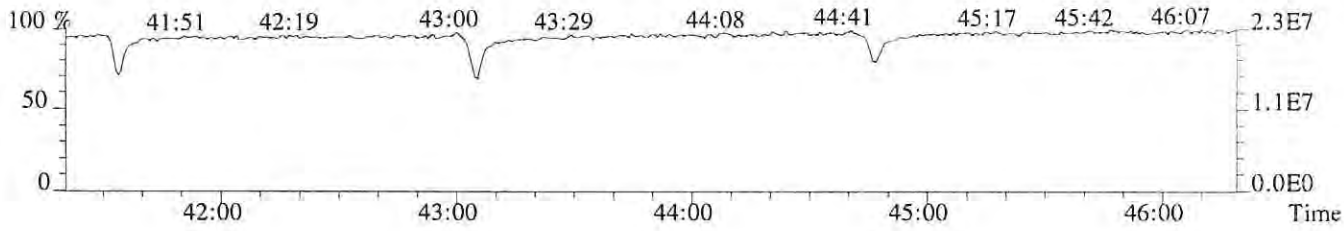
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



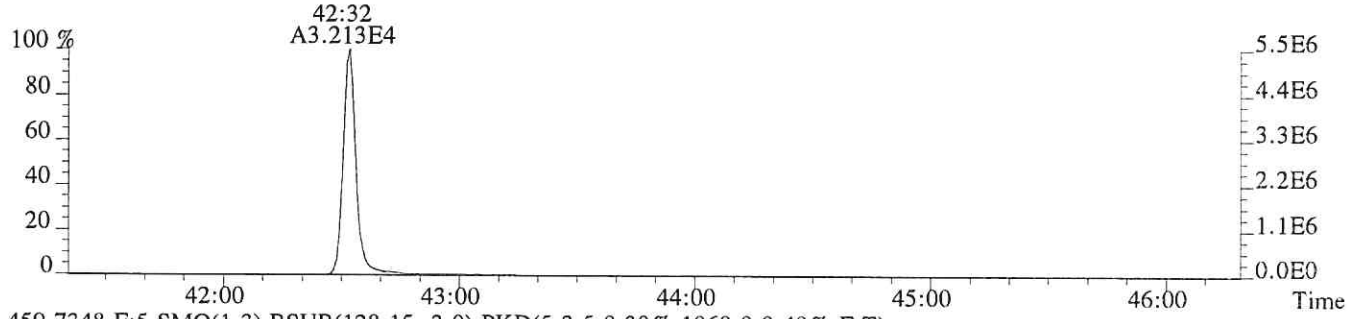
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



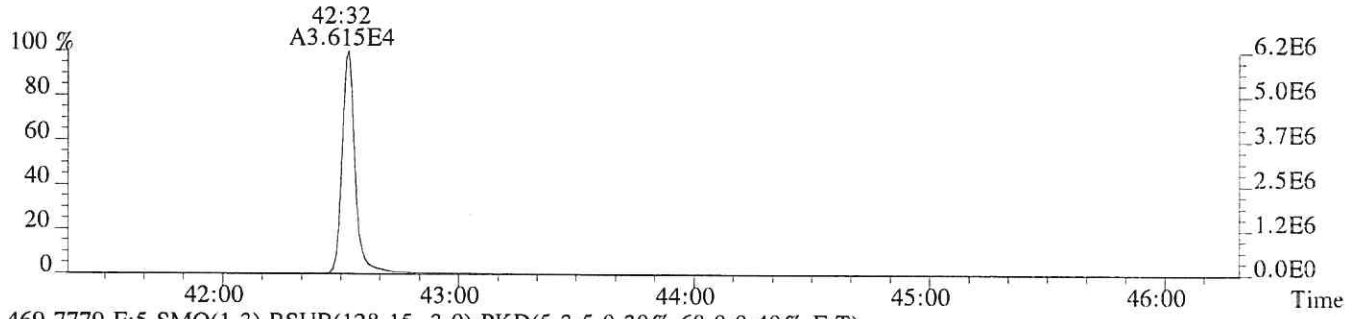
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



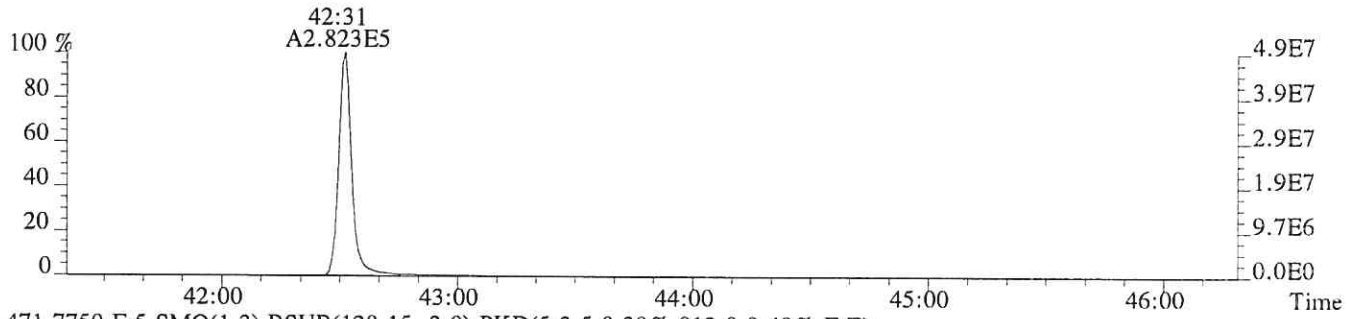
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



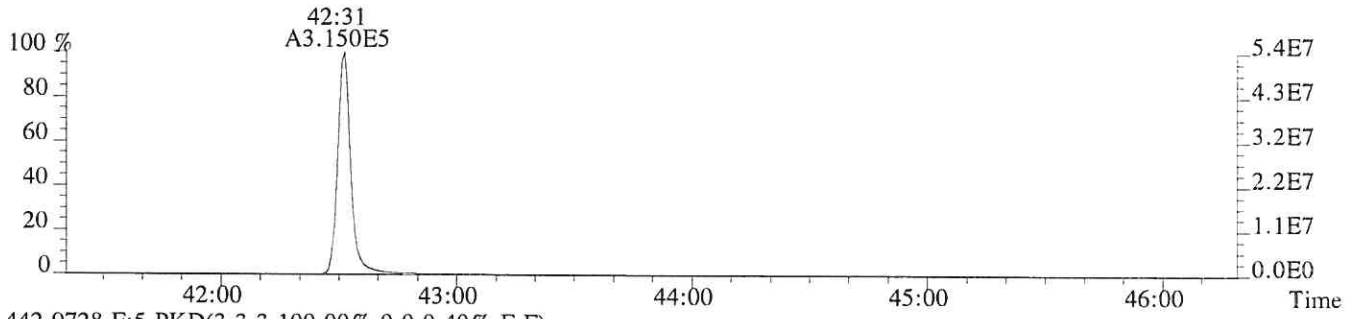
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



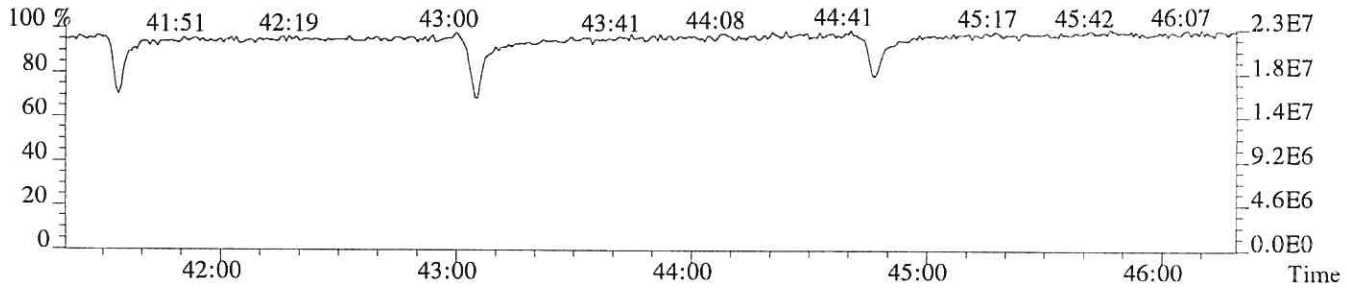
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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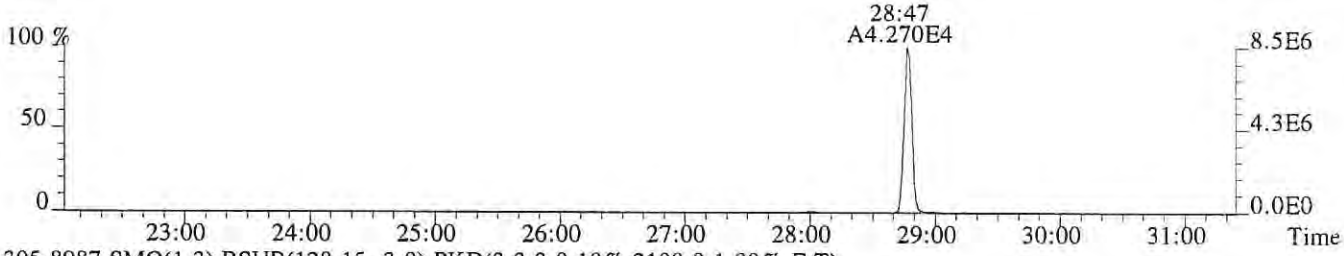
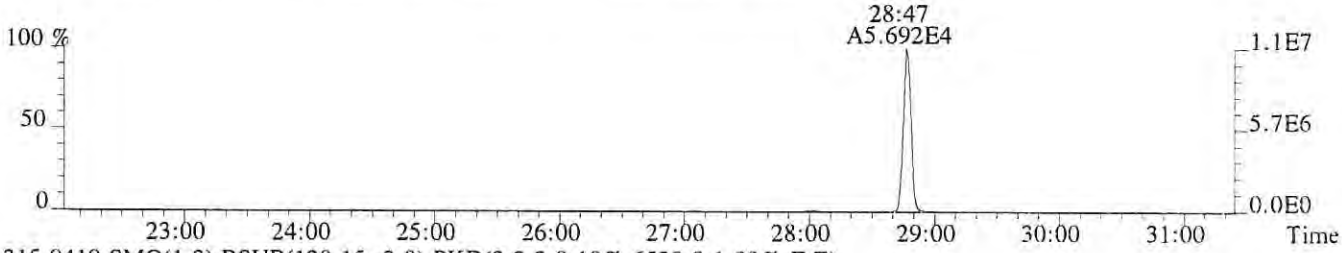
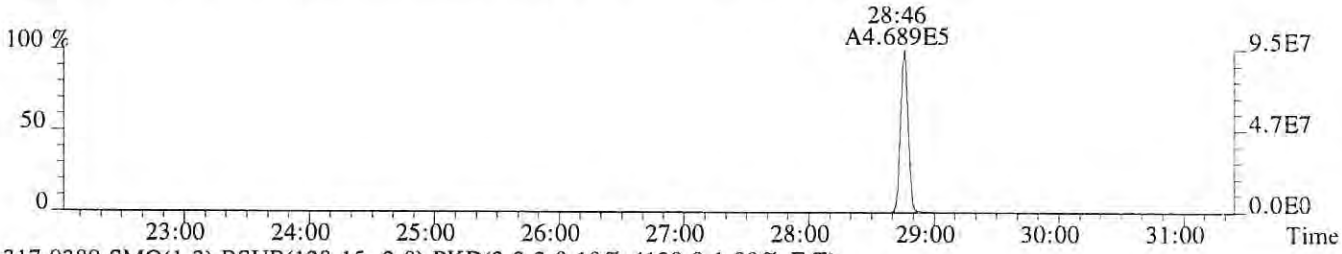
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



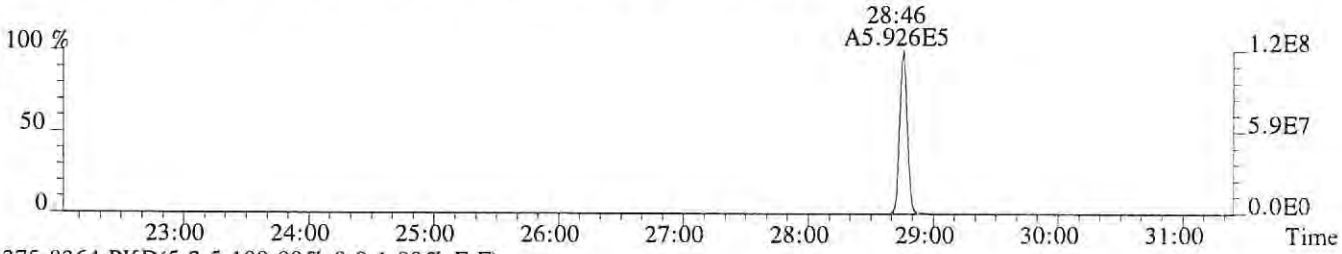
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



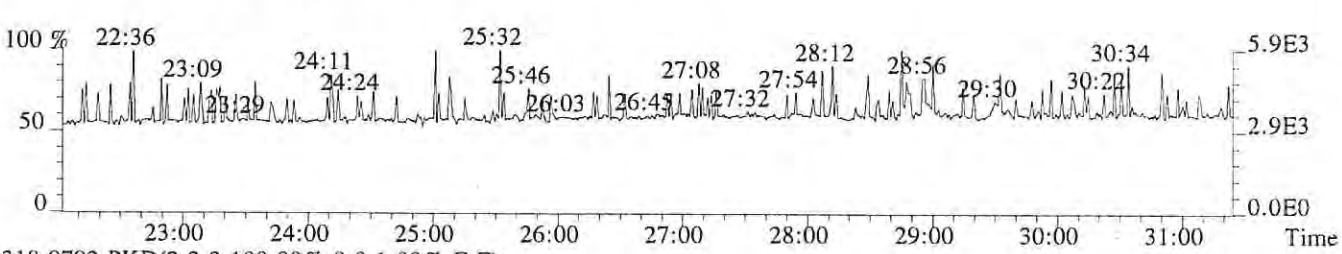
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



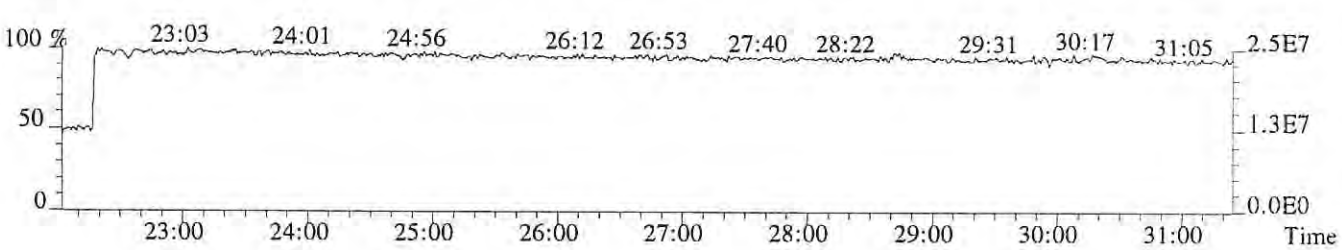
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



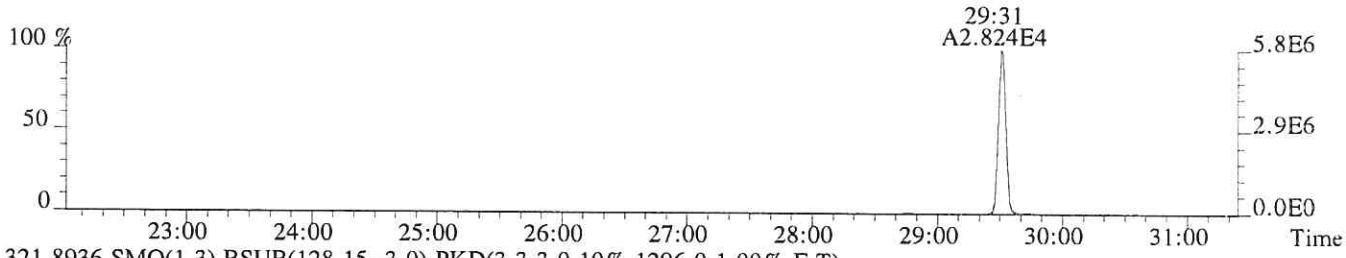
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



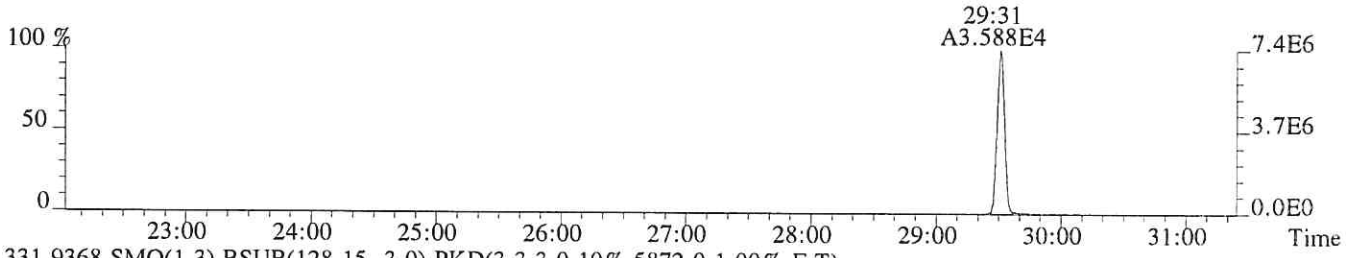
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



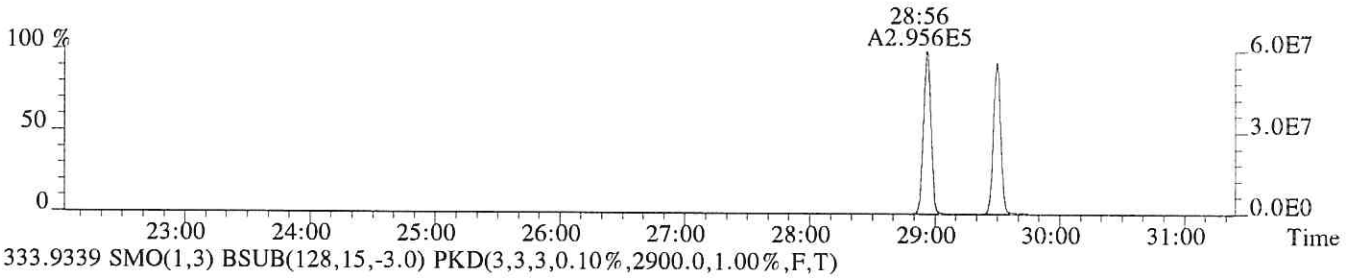
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



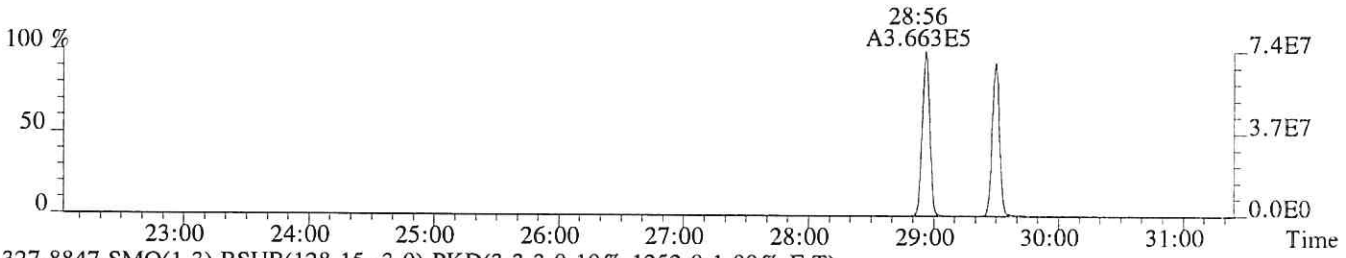
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



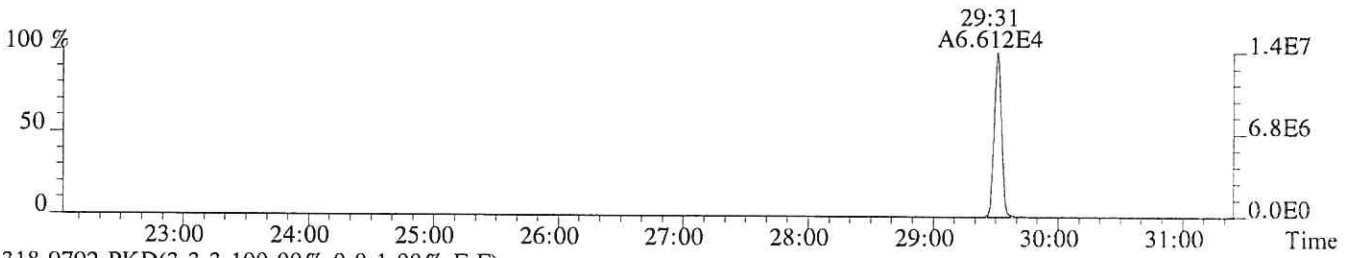
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



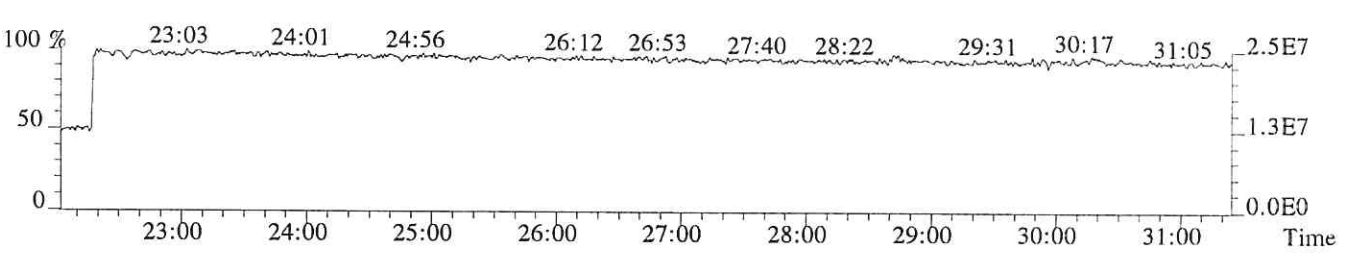
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



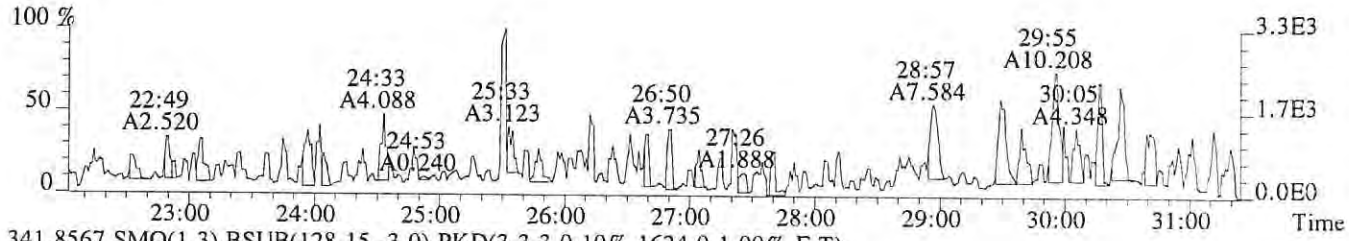
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



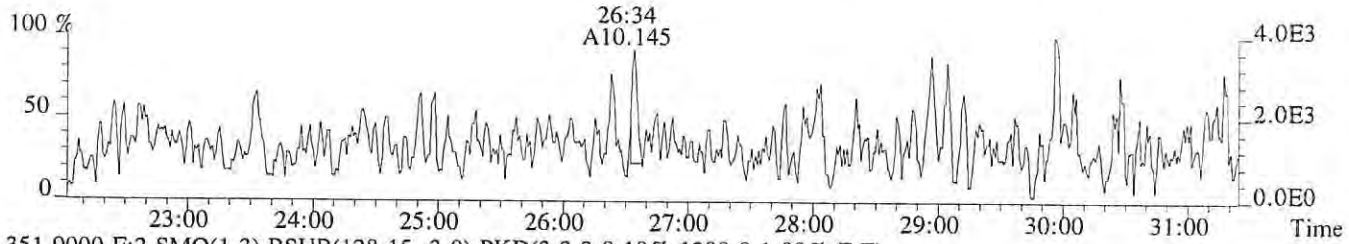
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



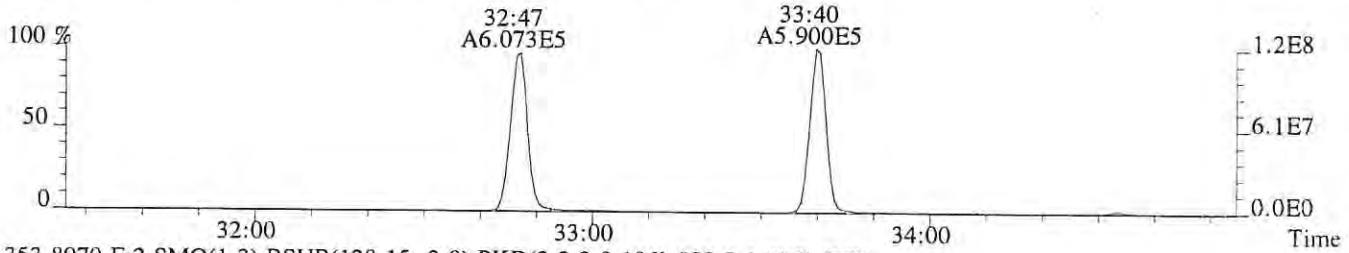
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



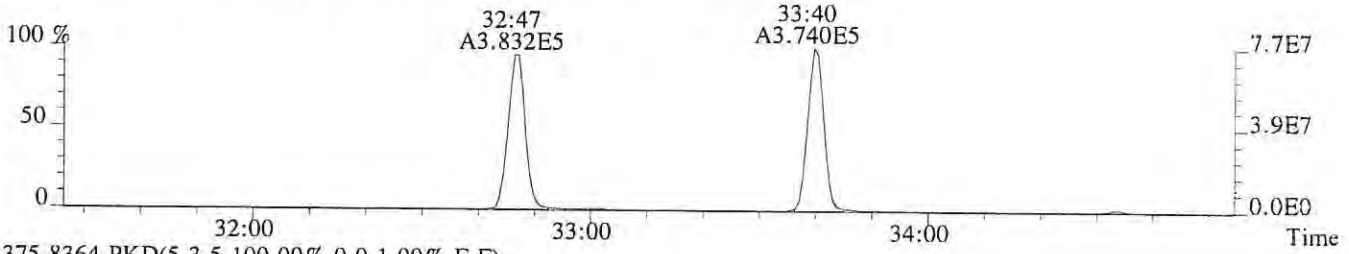
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



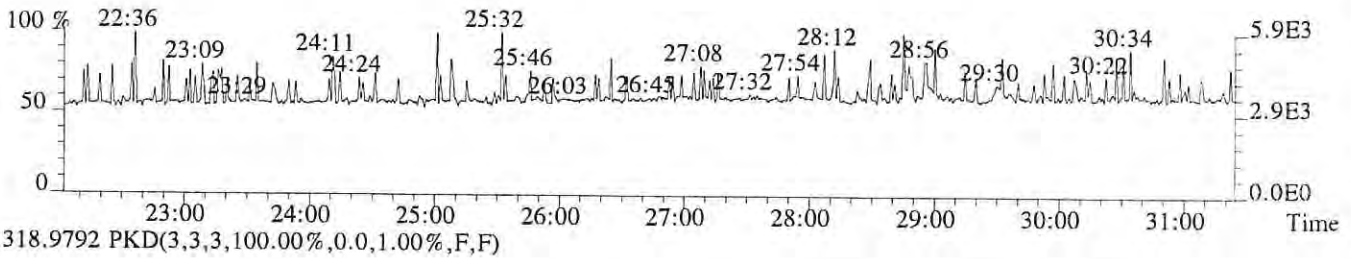
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



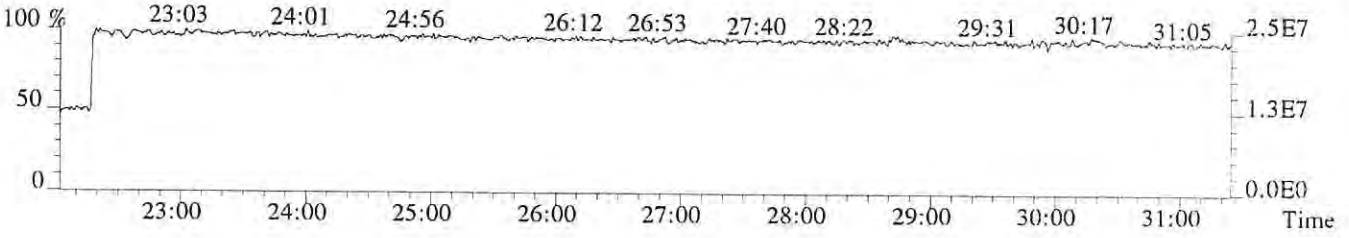
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



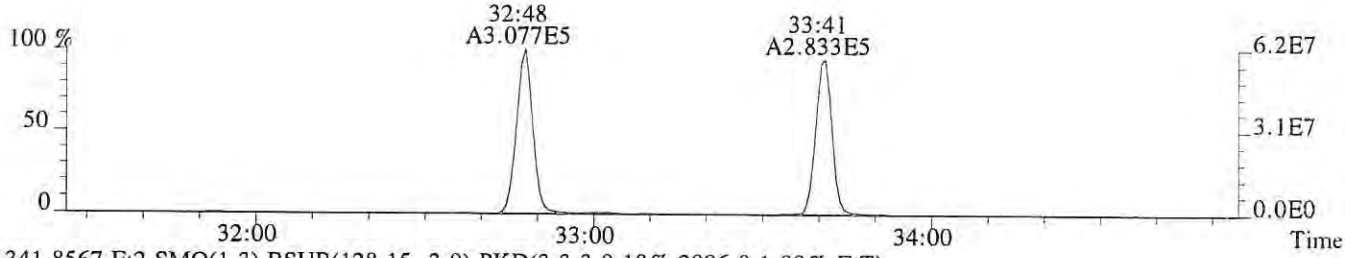
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



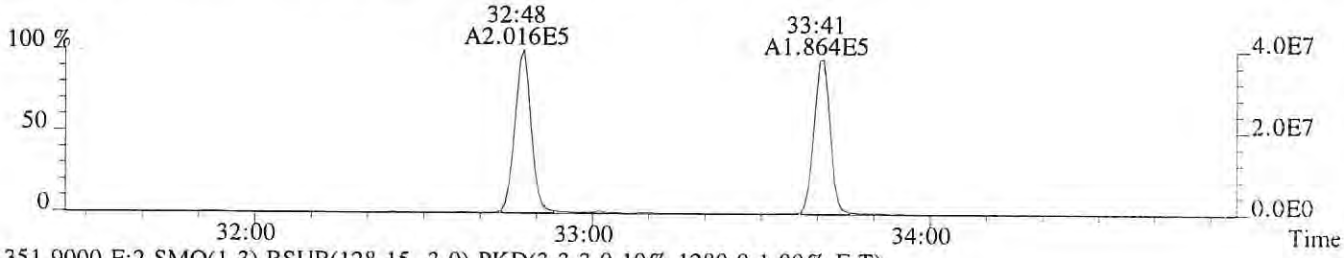
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



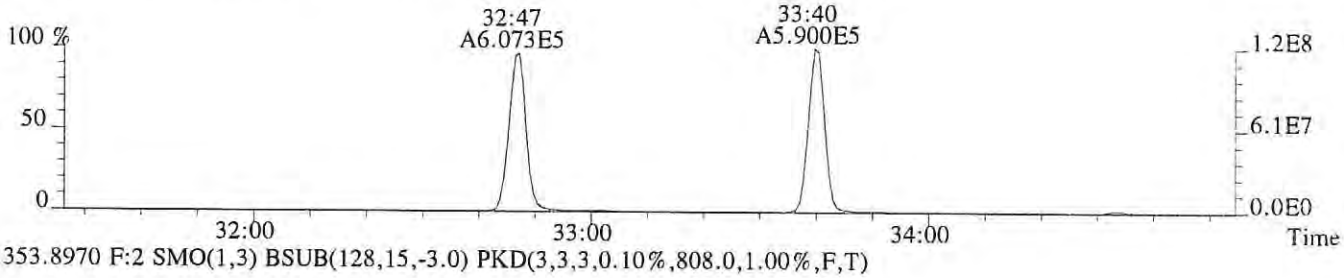
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



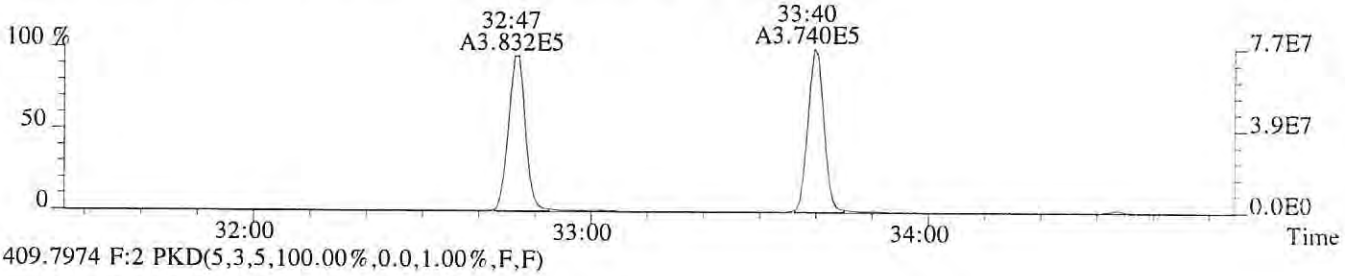
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



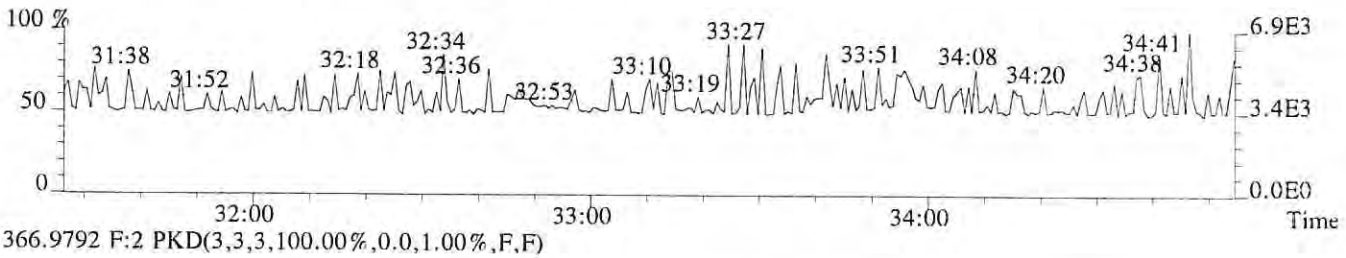
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



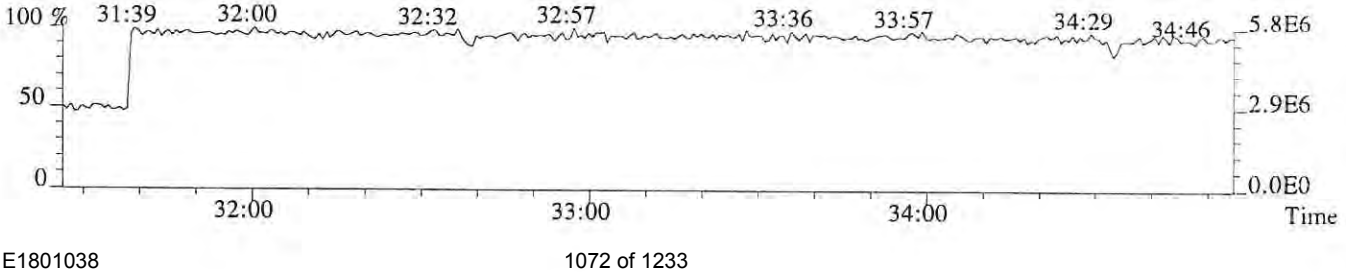
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



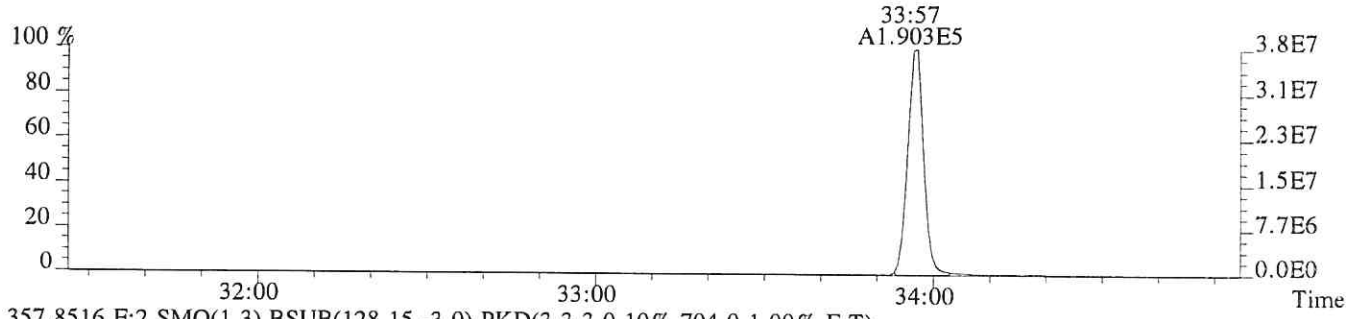
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



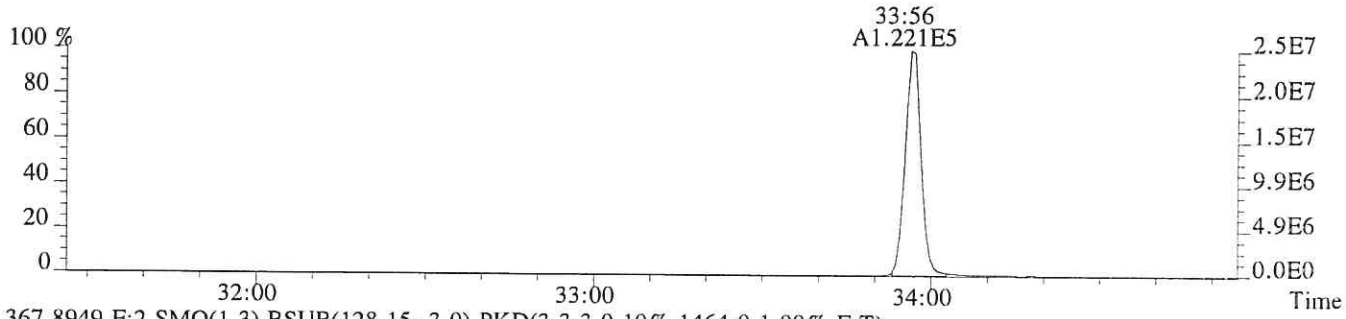
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



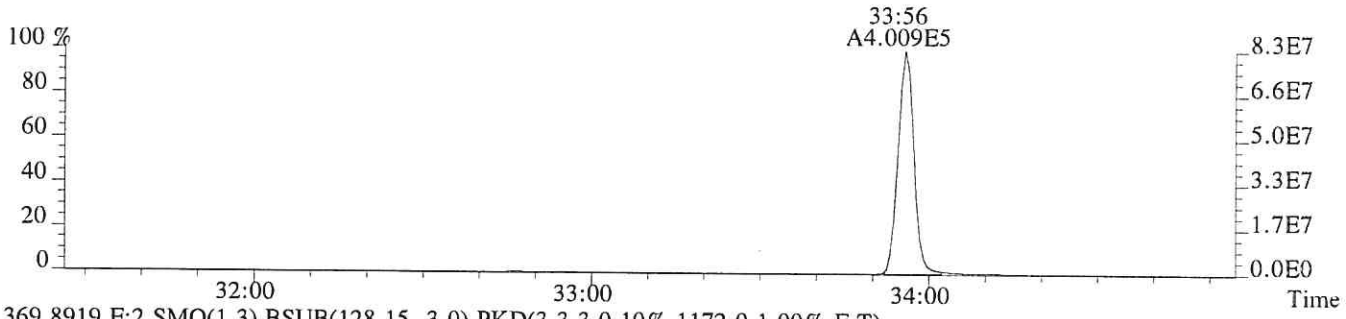
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



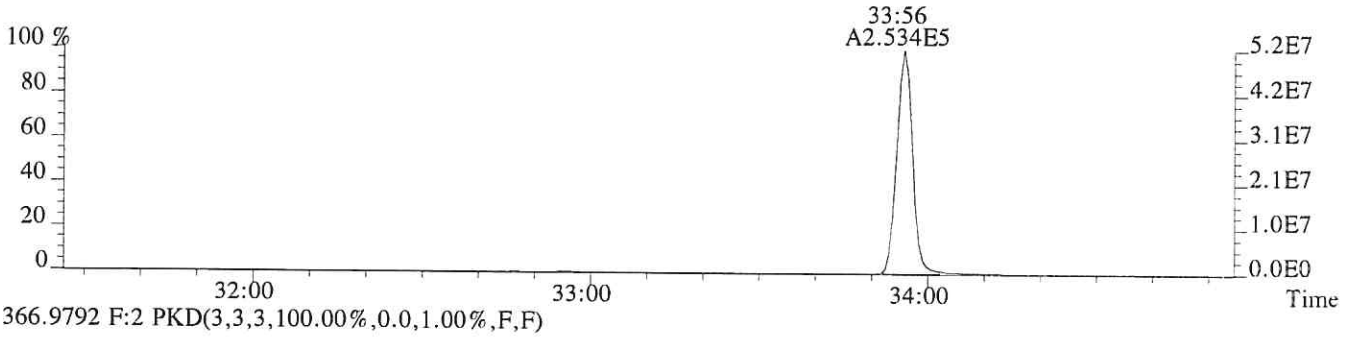
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



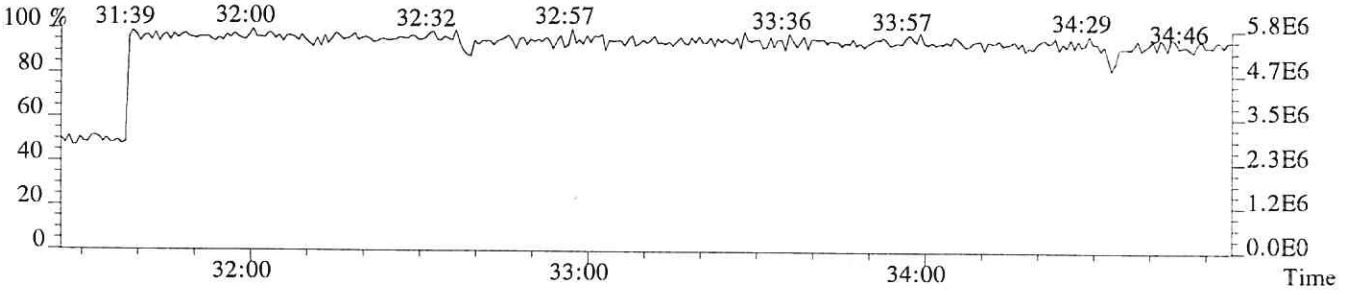
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



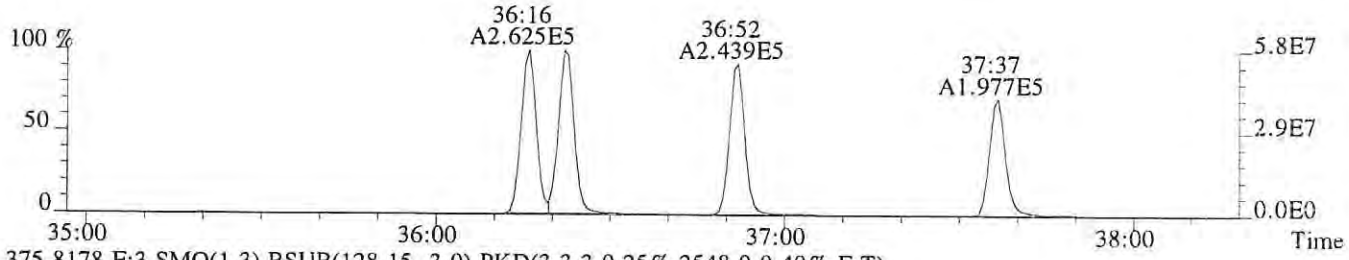
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



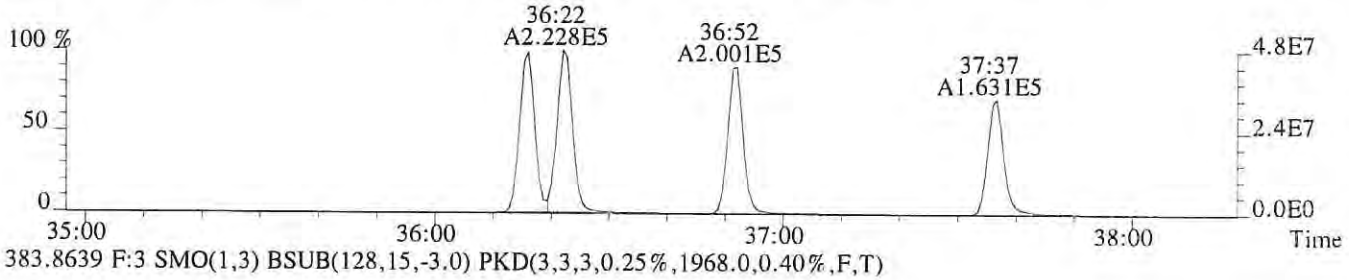
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



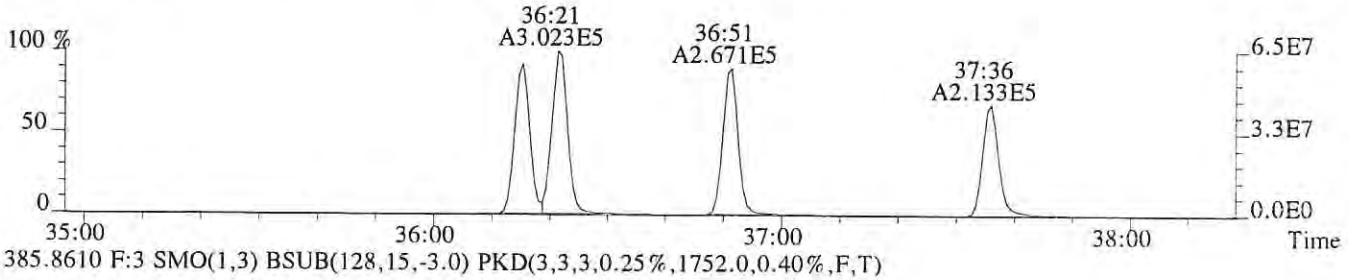
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



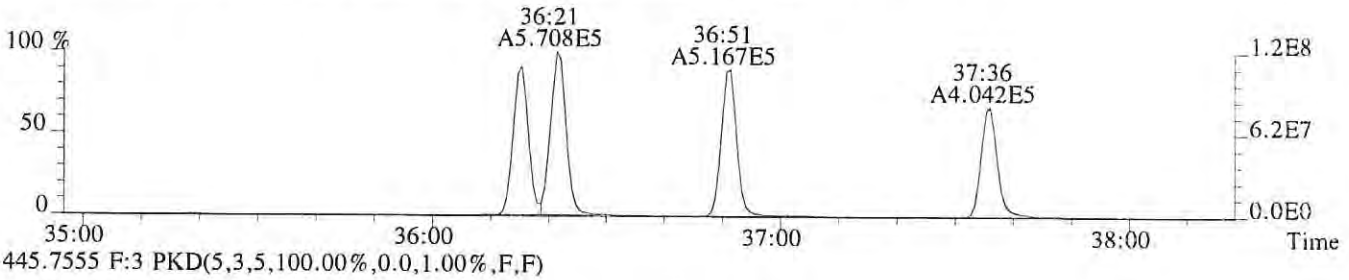
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



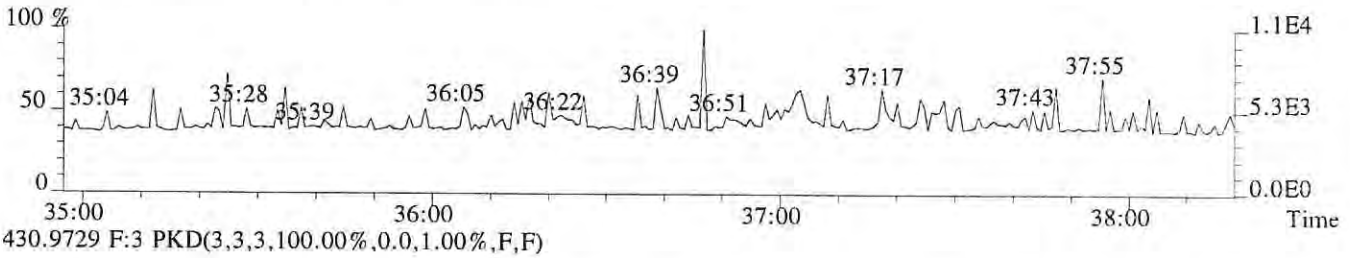
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



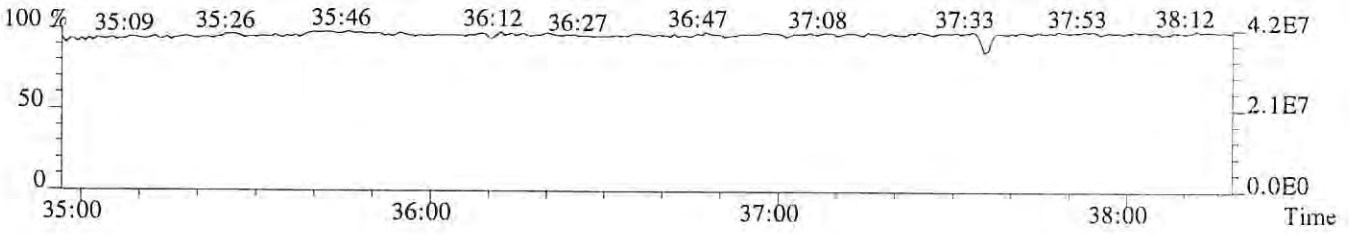
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



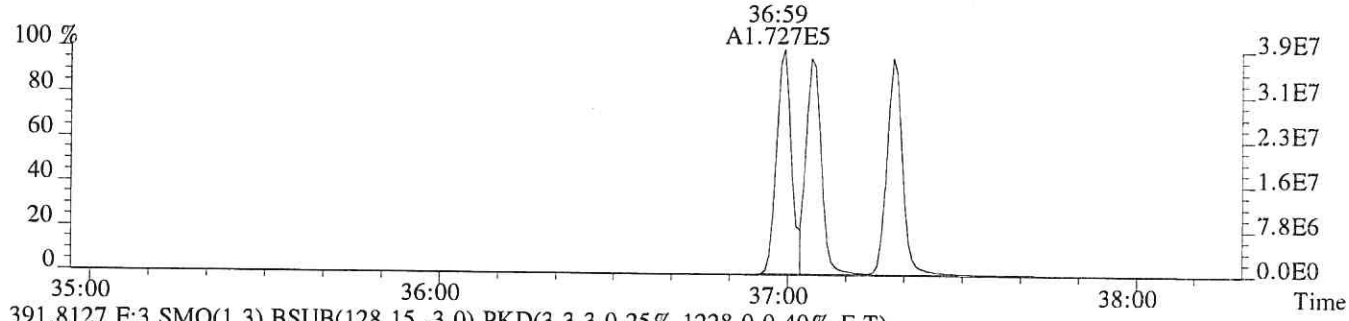
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



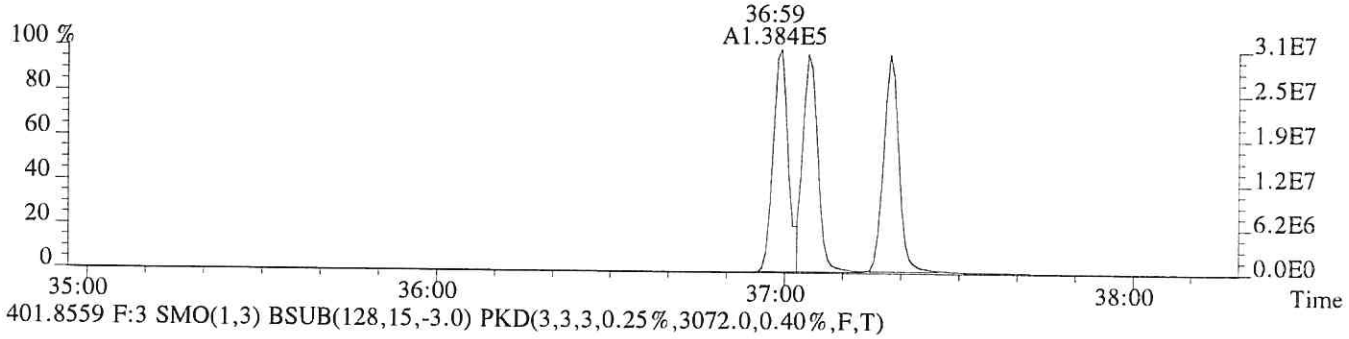
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



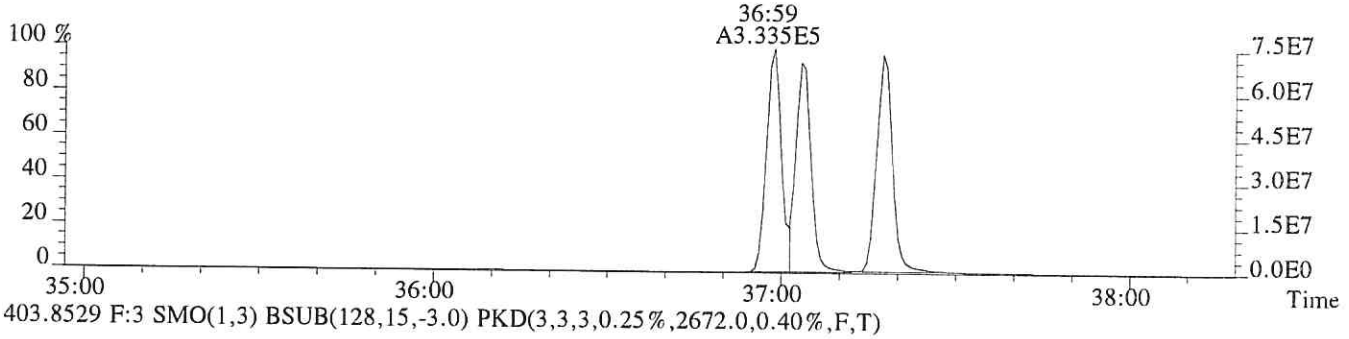
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



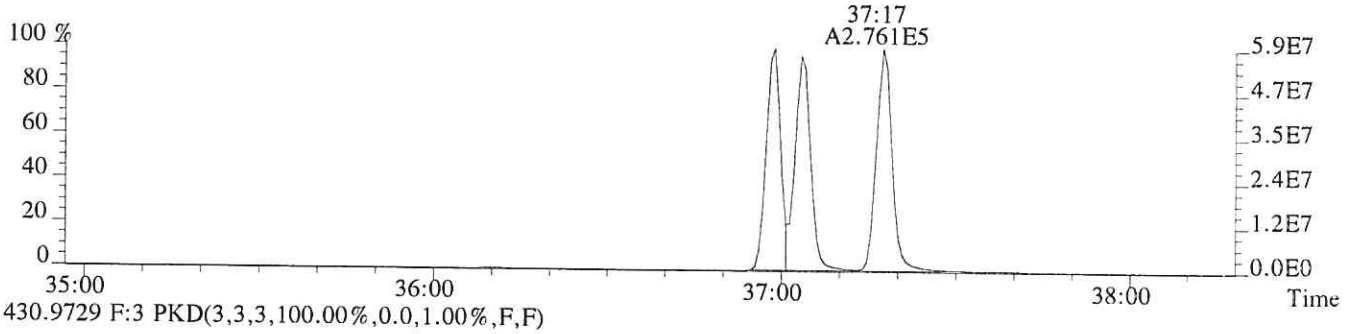
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



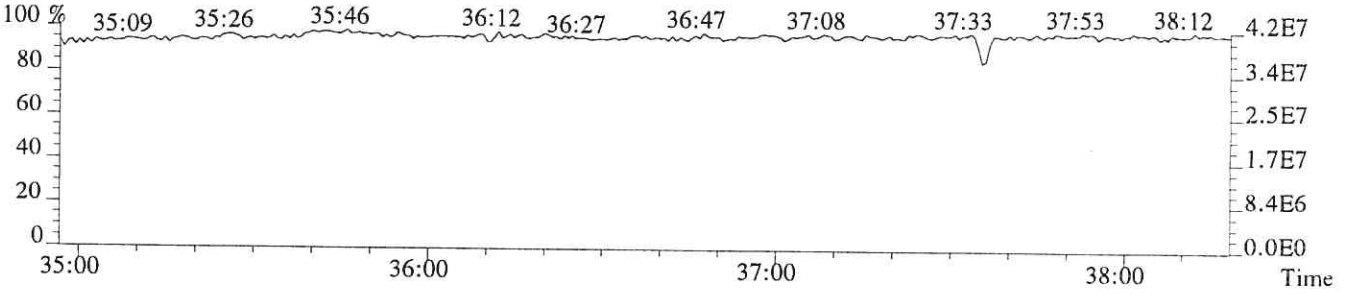
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



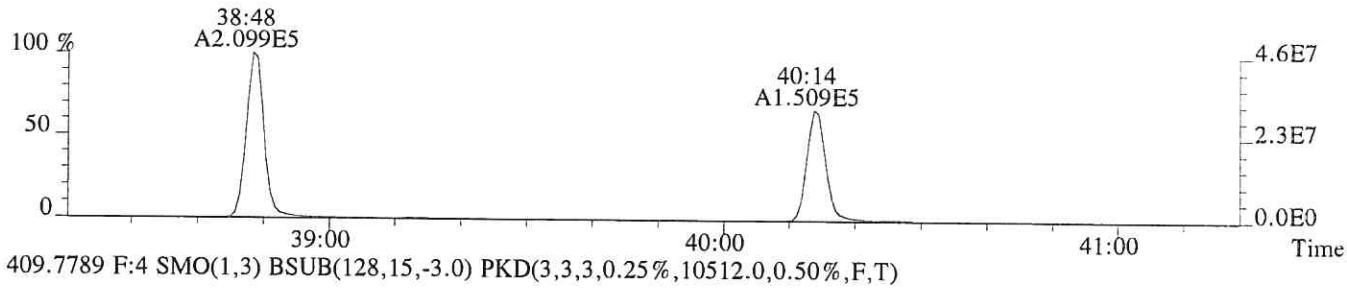
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)



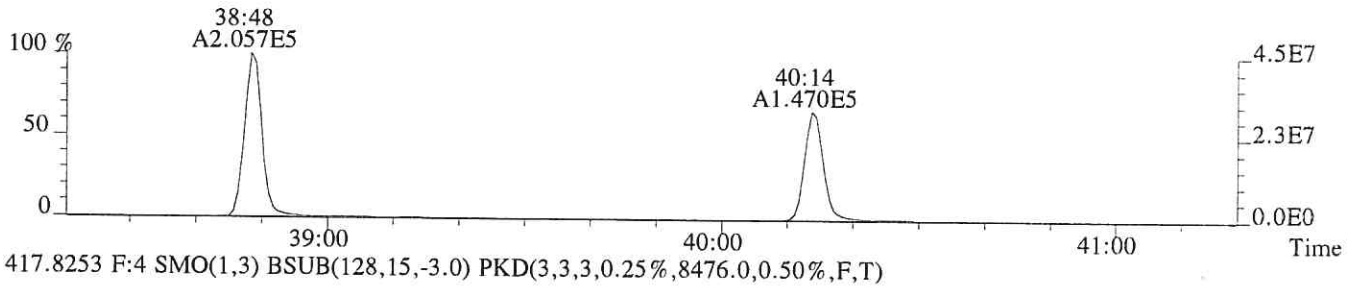
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



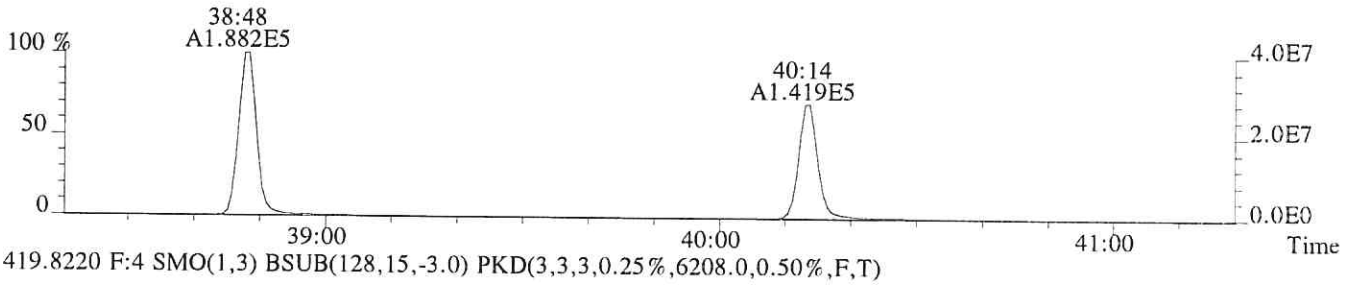
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



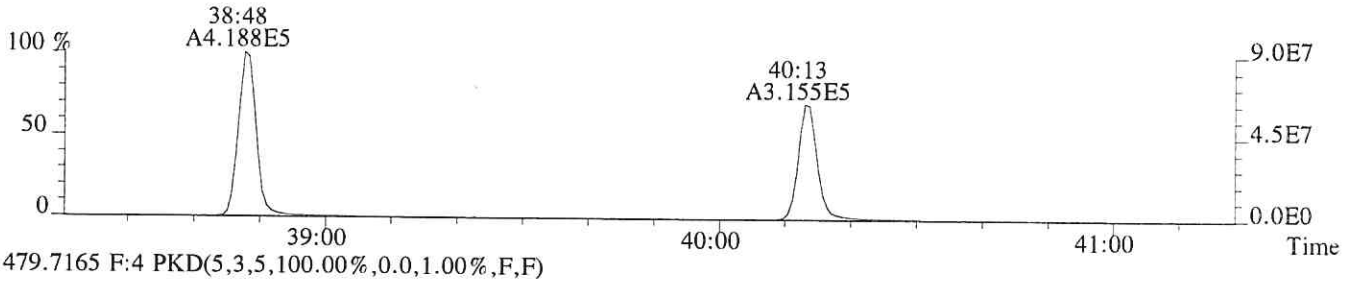
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



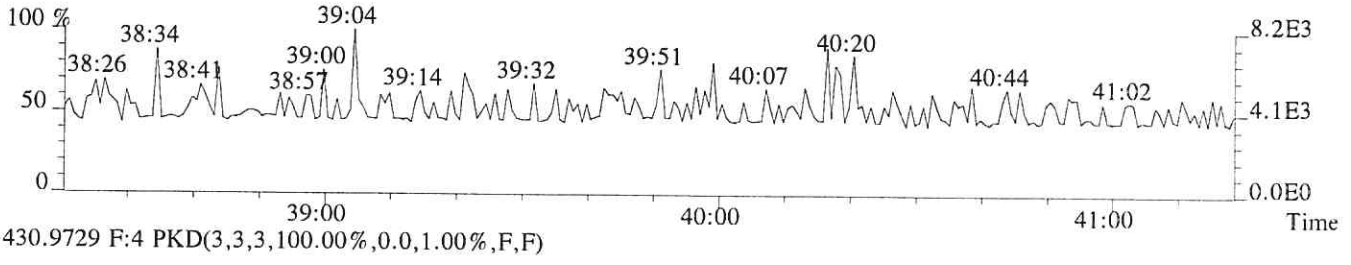
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



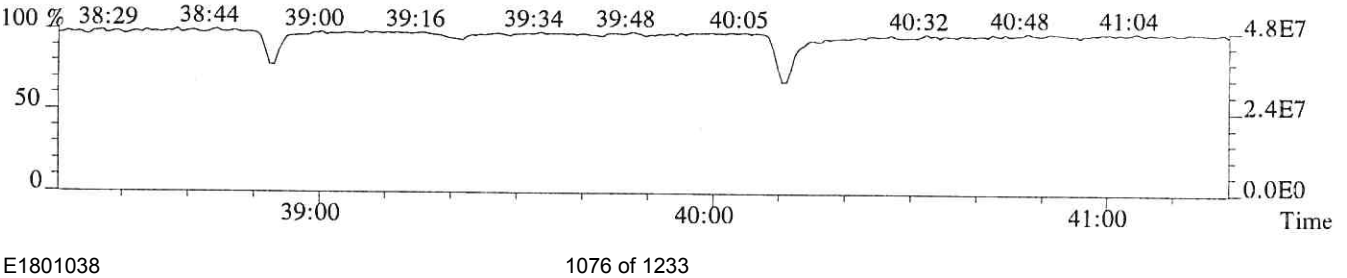
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



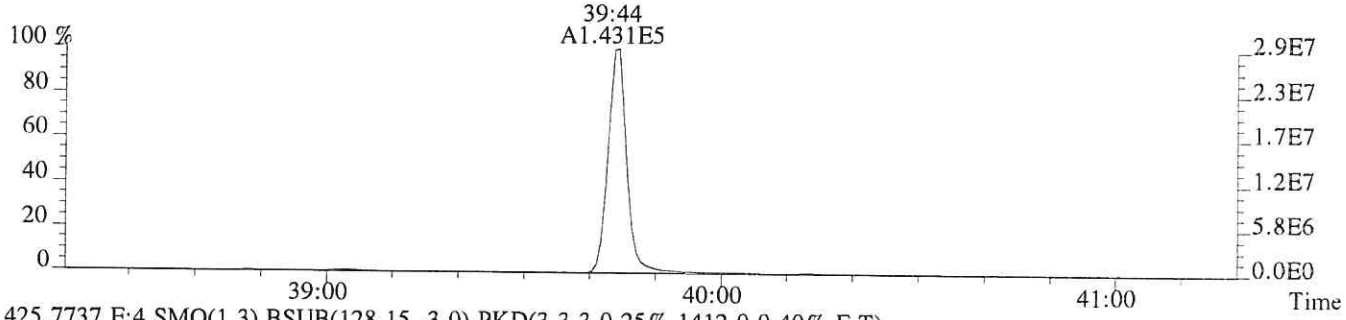
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



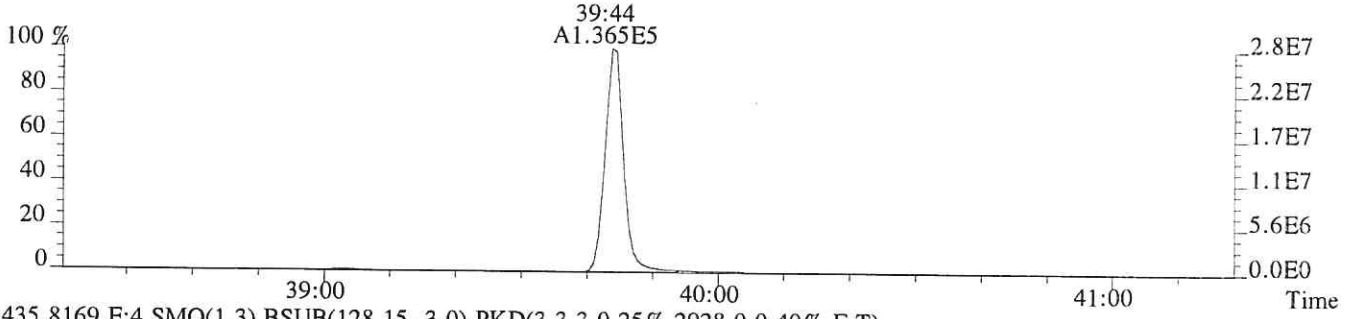
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



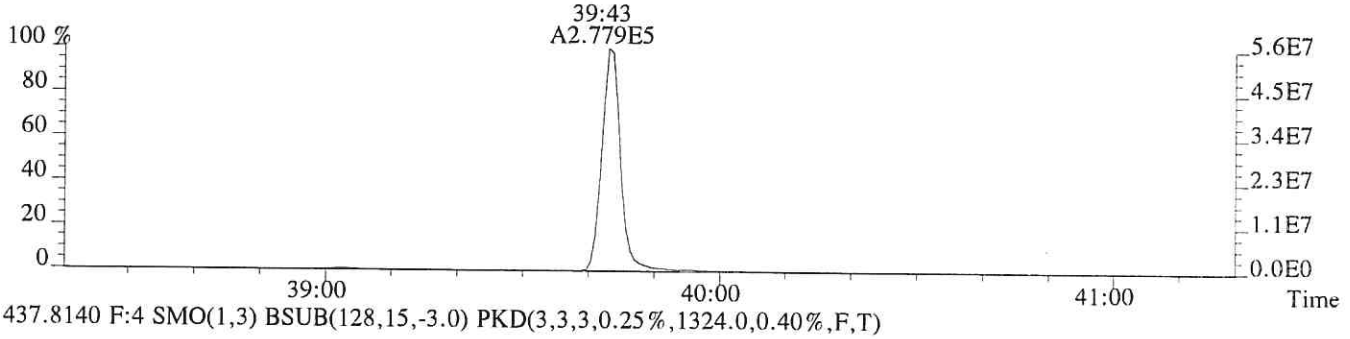
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



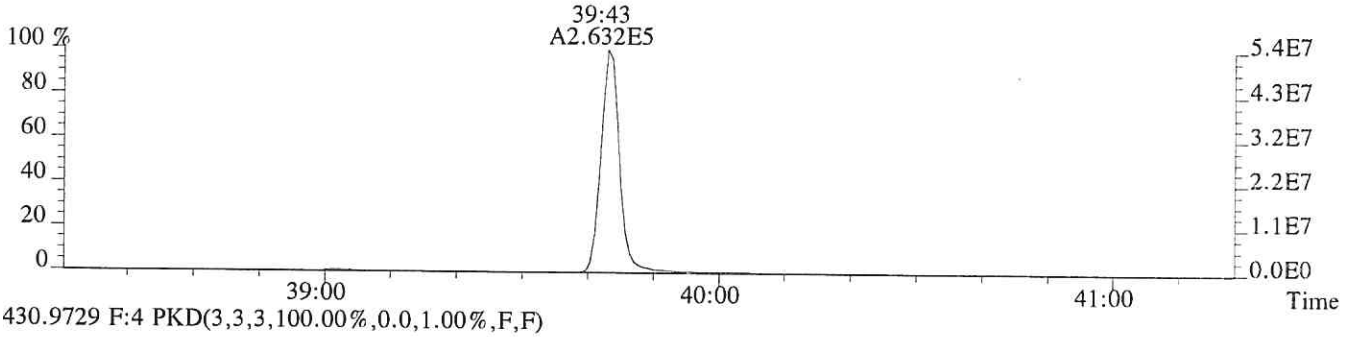
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



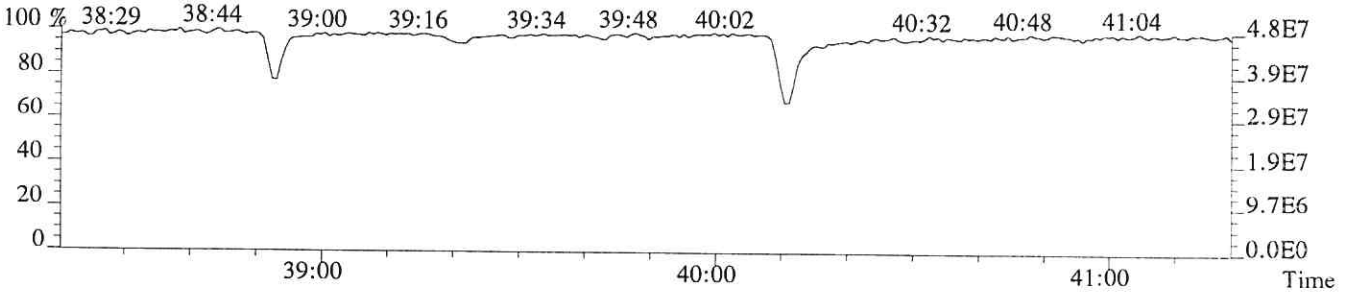
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



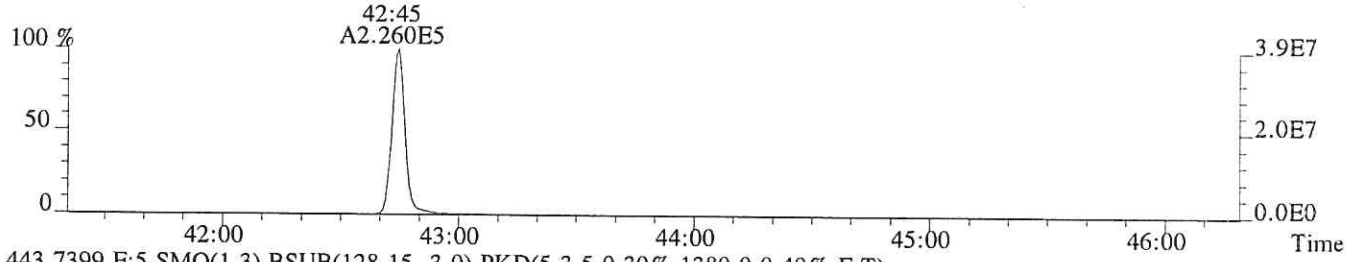
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



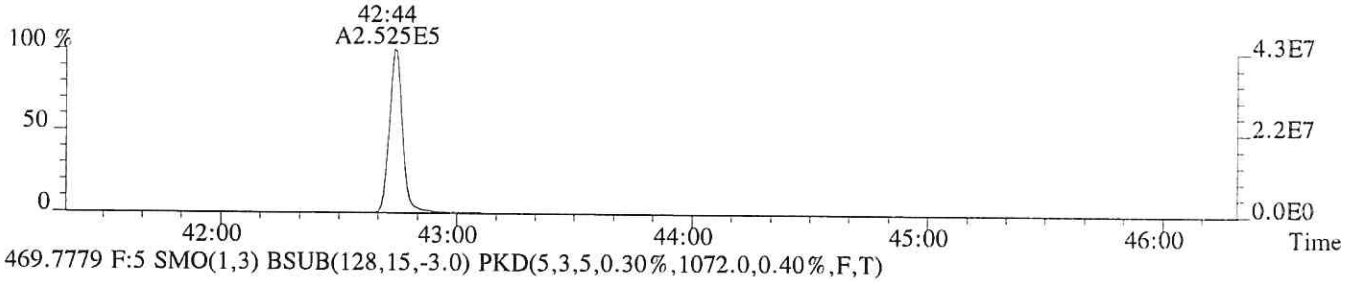
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



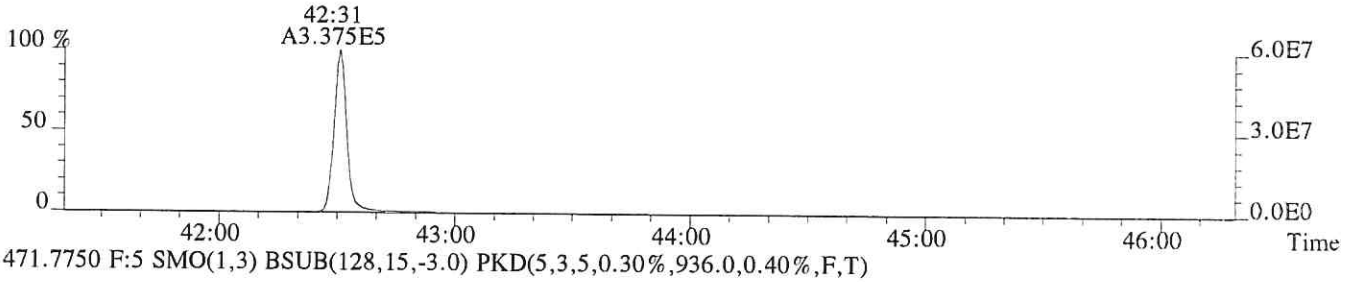
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



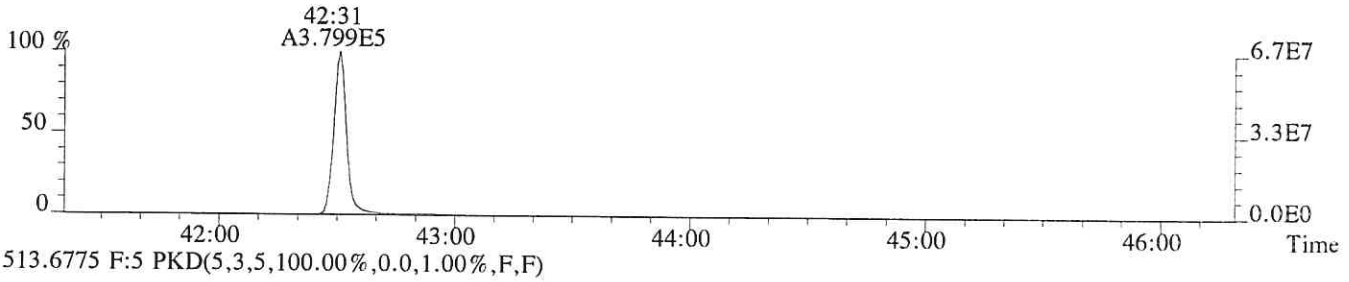
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



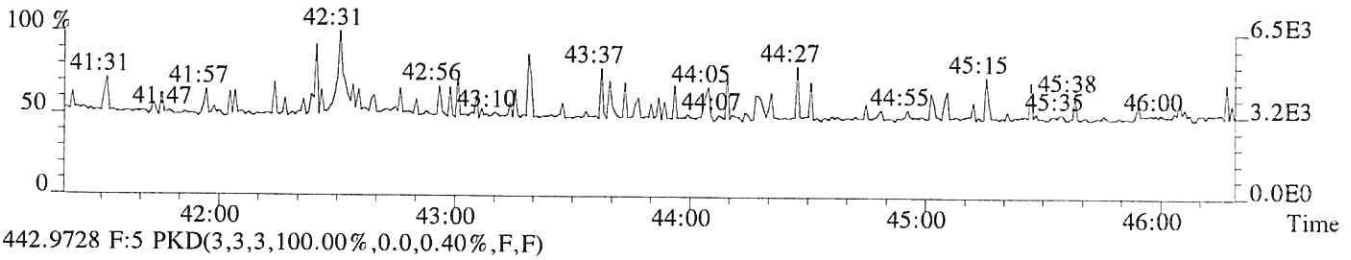
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



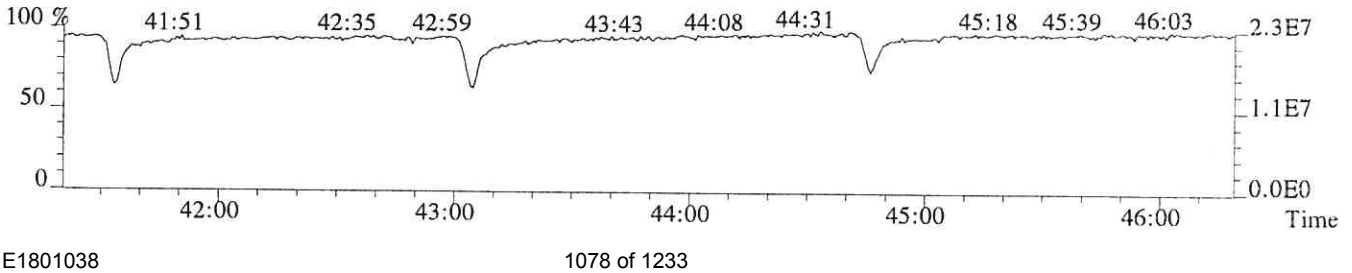
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



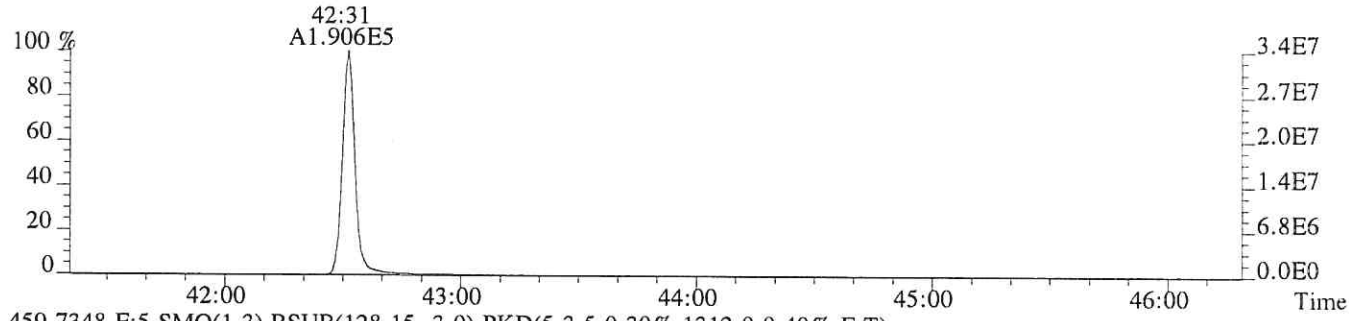
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



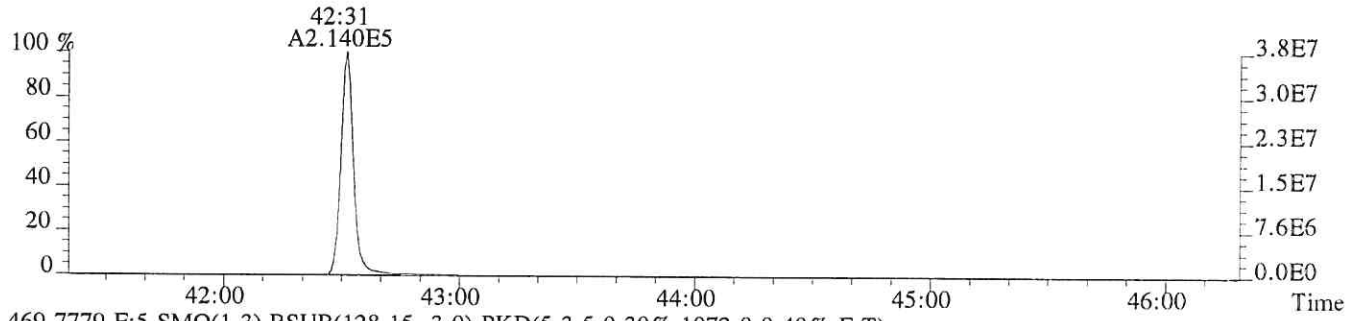
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



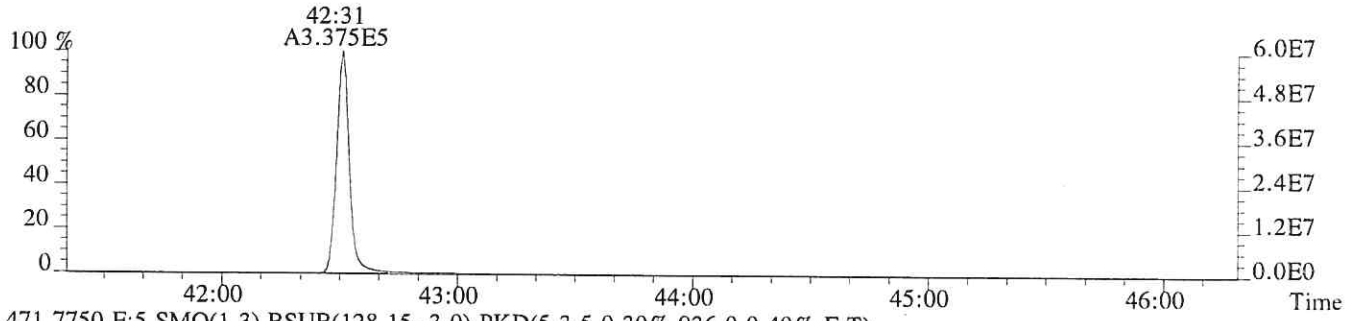
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



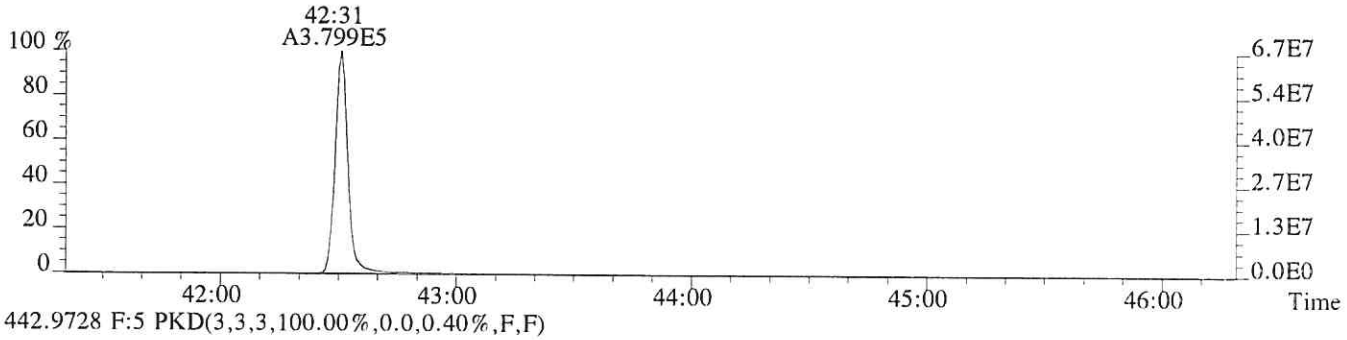
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



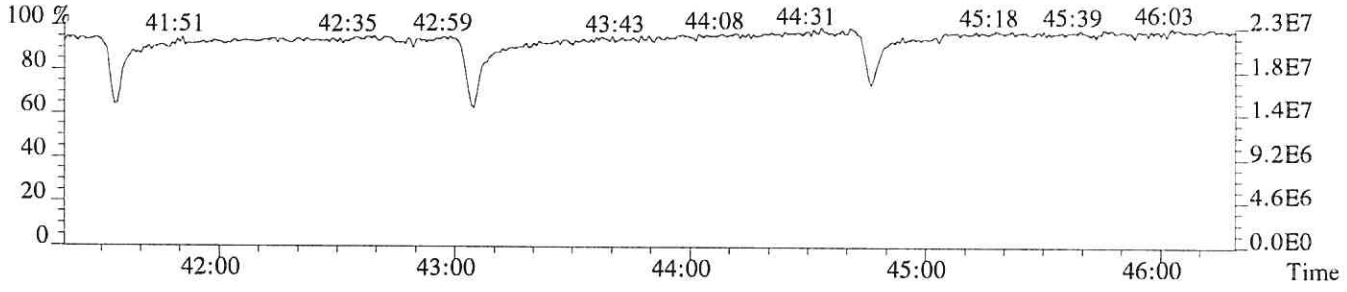
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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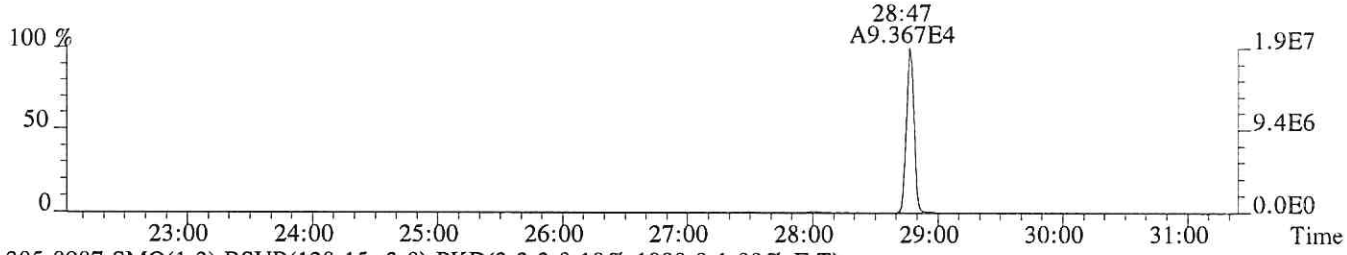
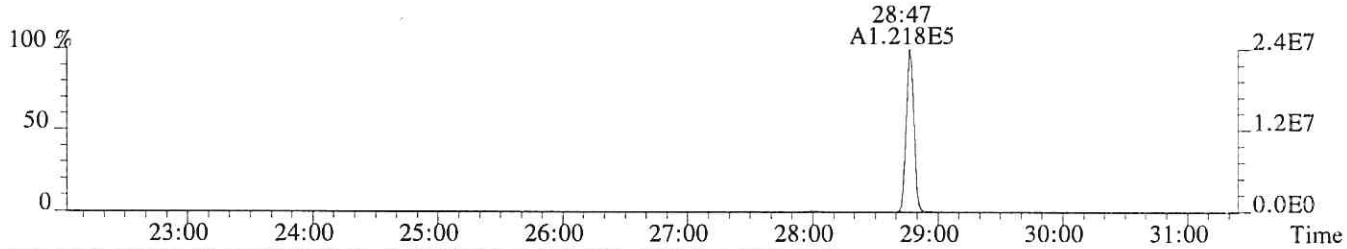
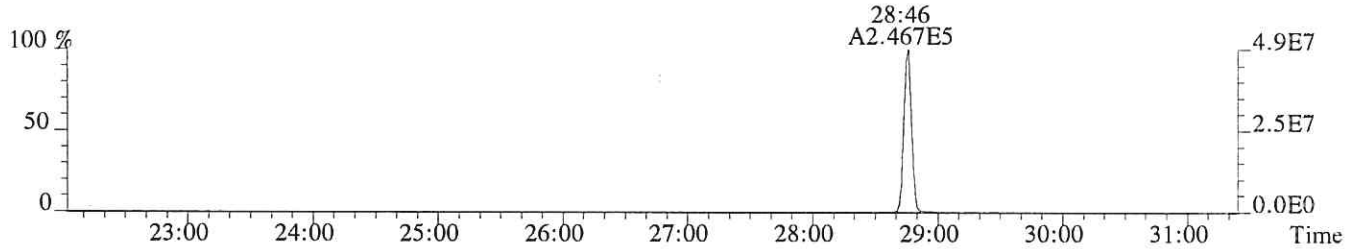
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



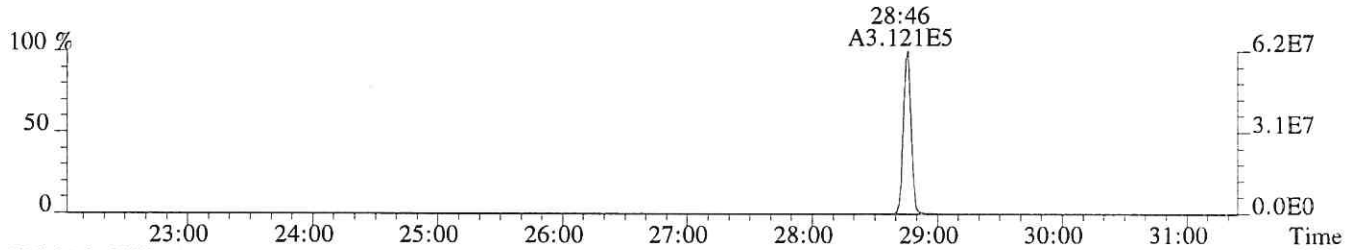
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



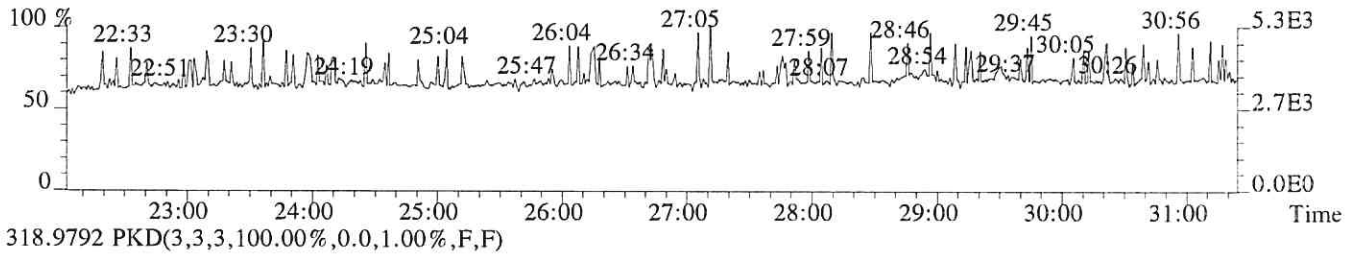
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



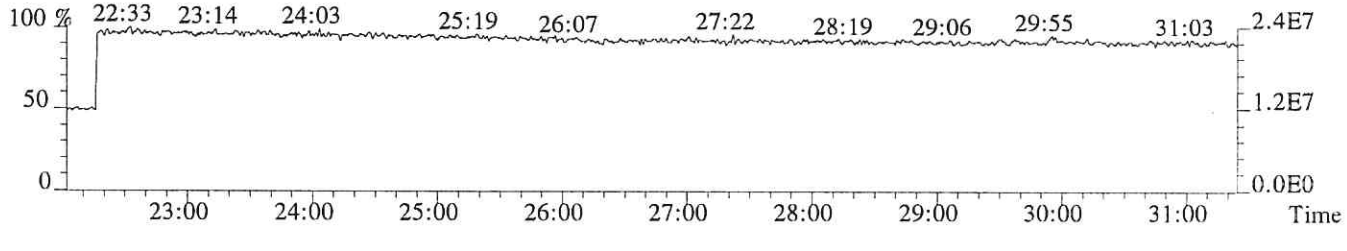
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



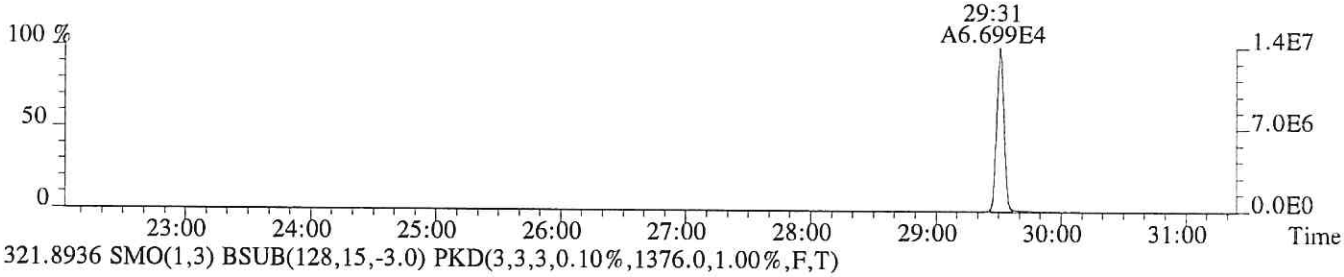
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



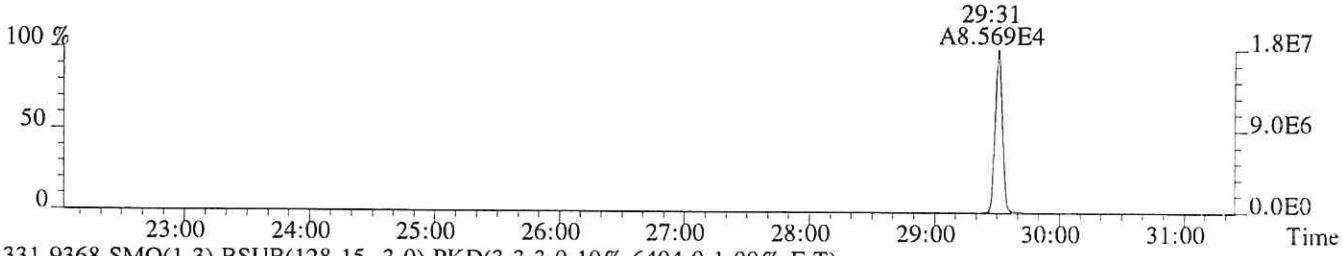
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



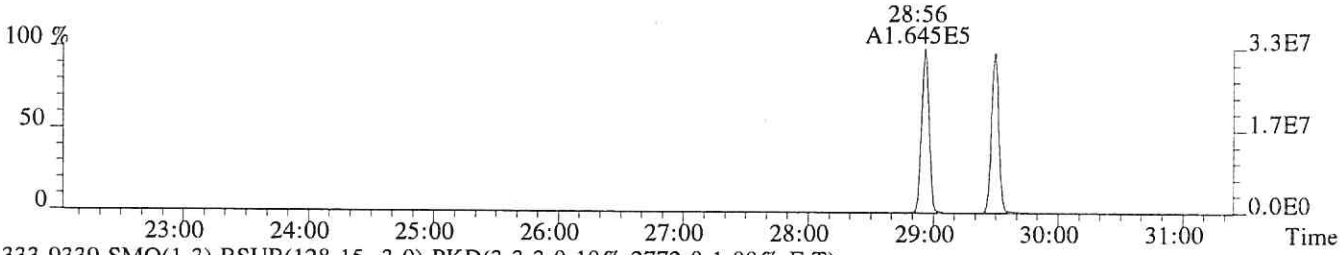
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



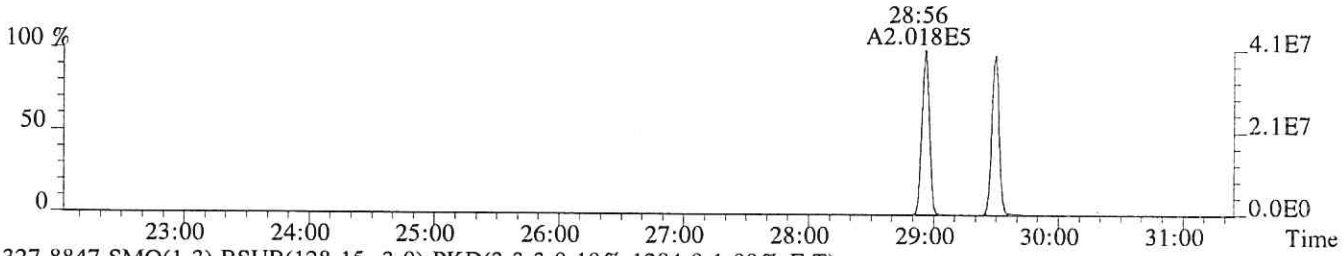
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



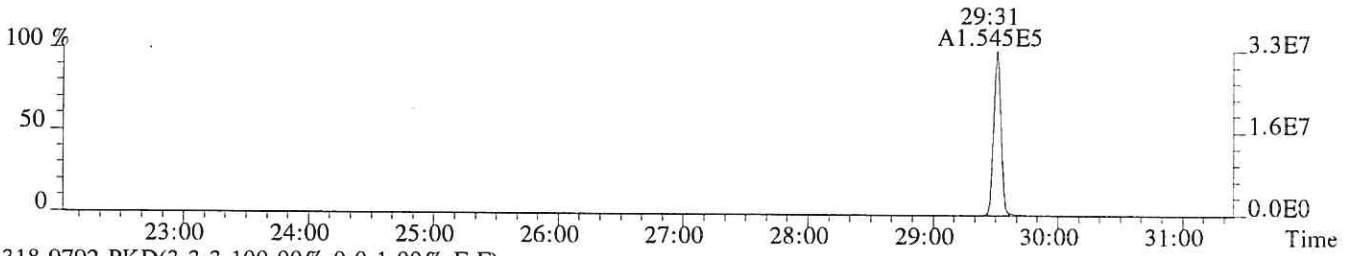
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



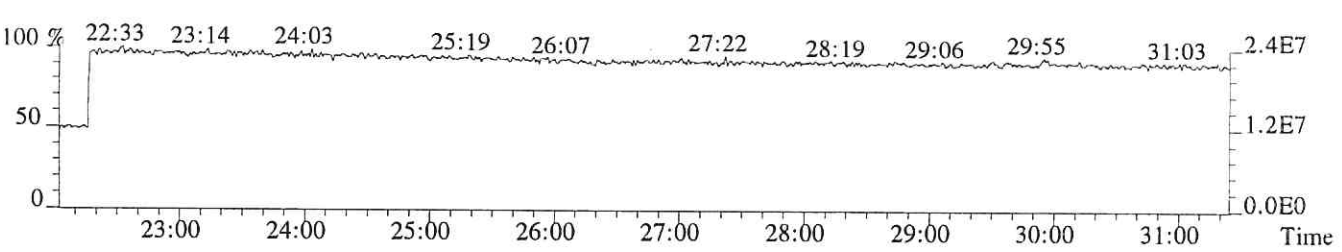
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



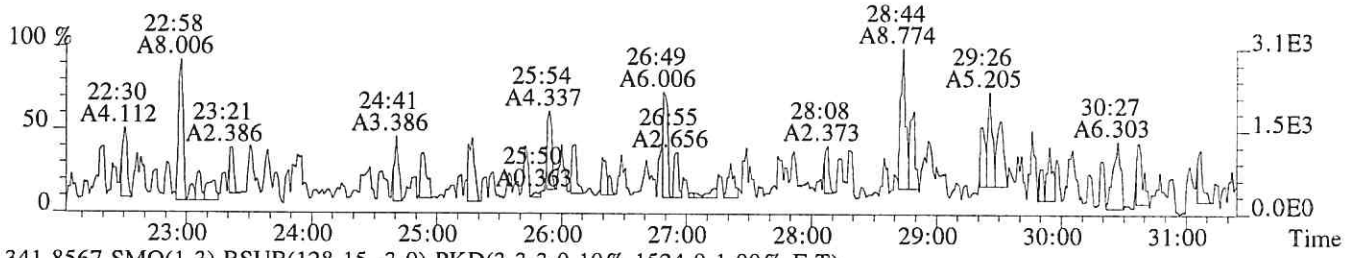
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



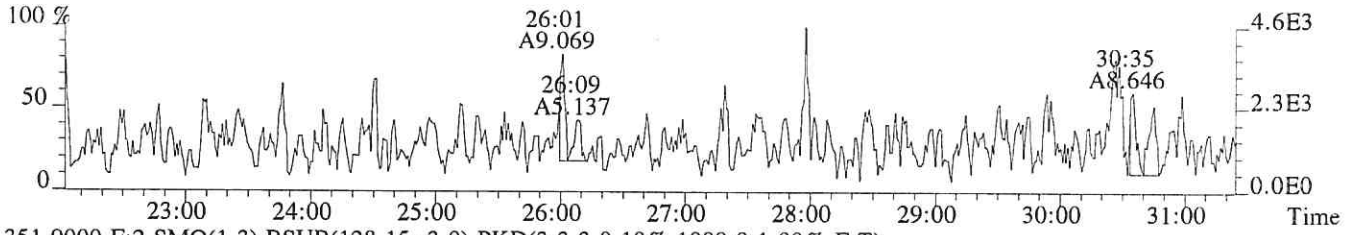
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



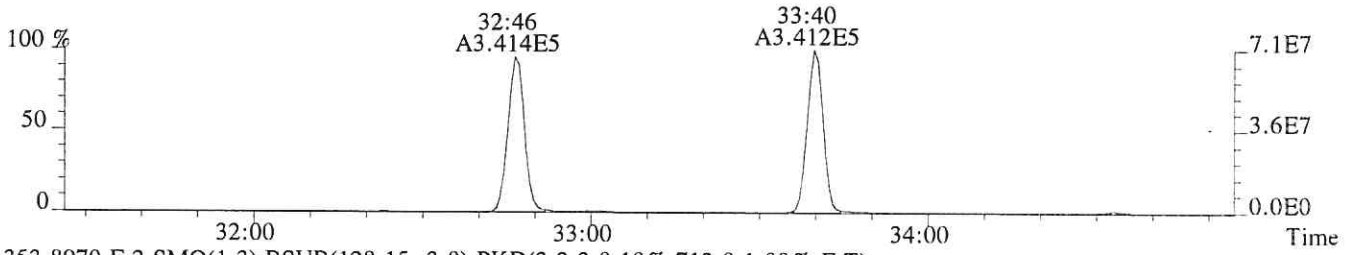
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



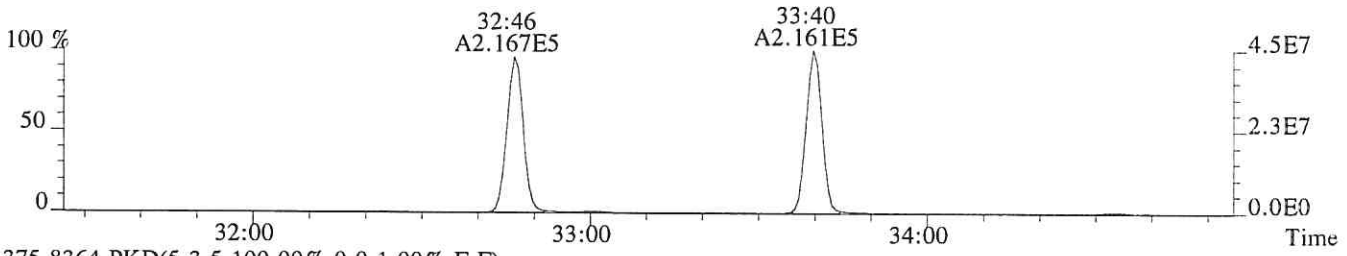
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



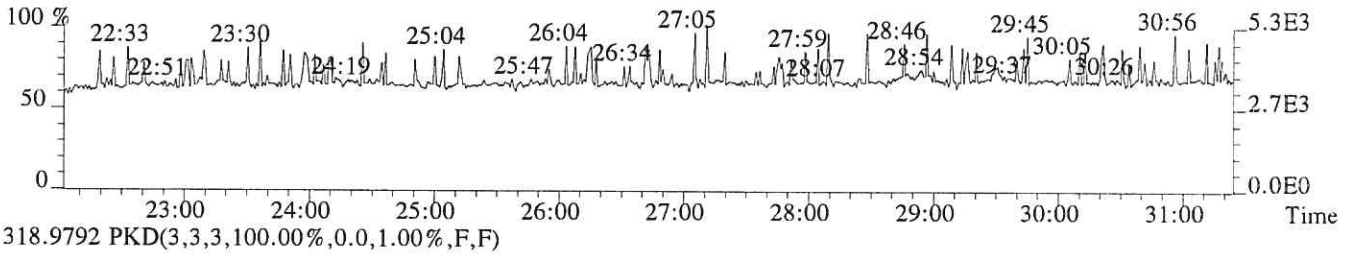
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



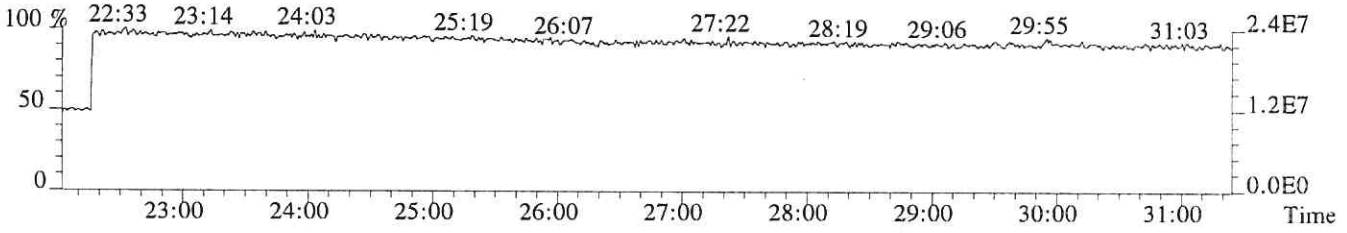
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



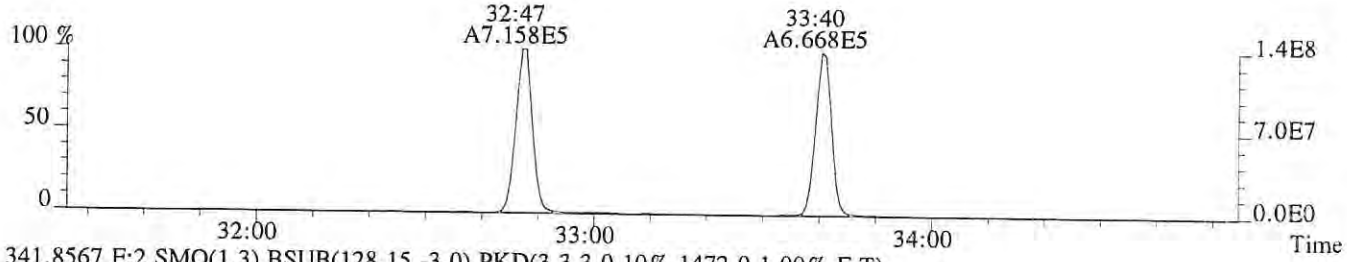
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



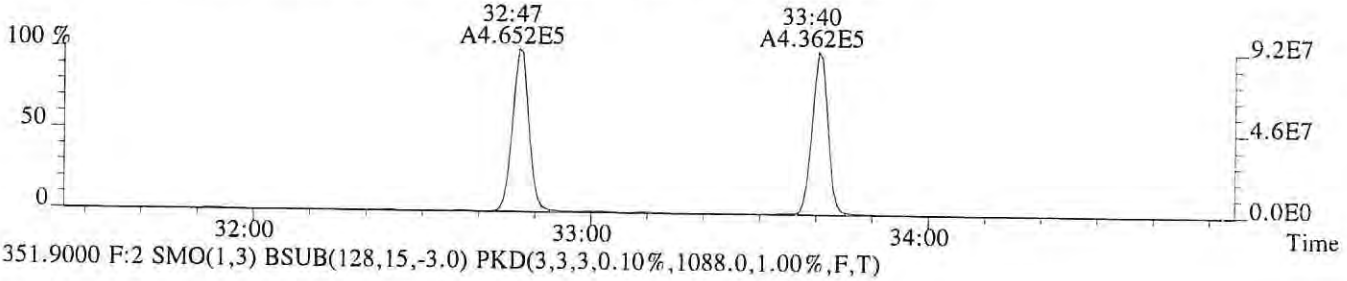
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



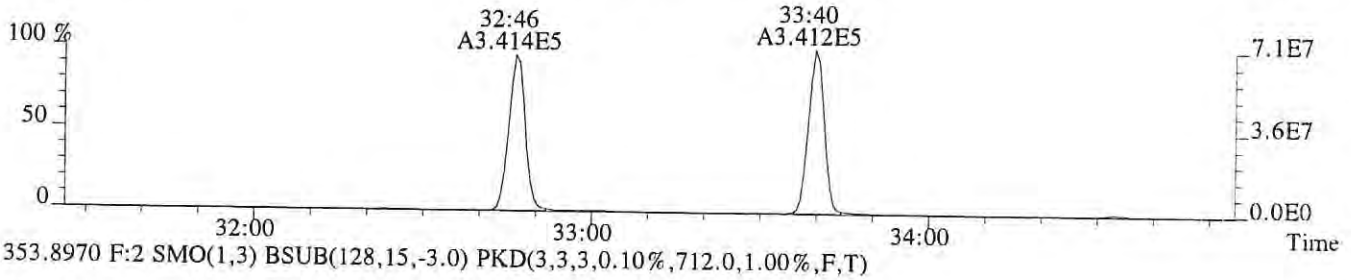
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



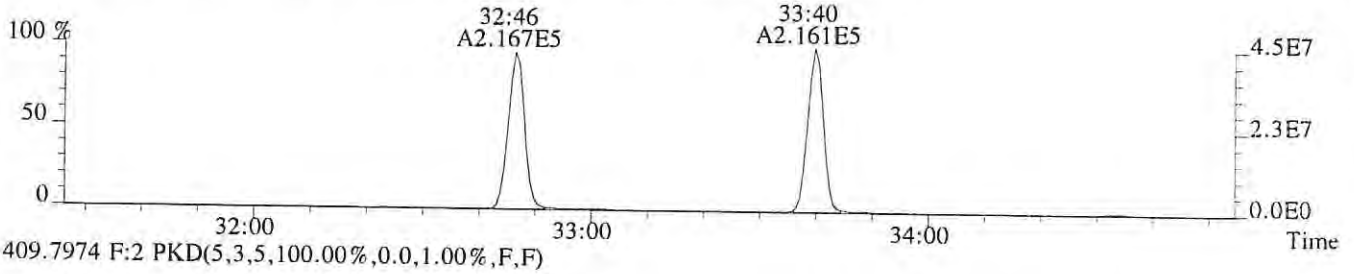
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



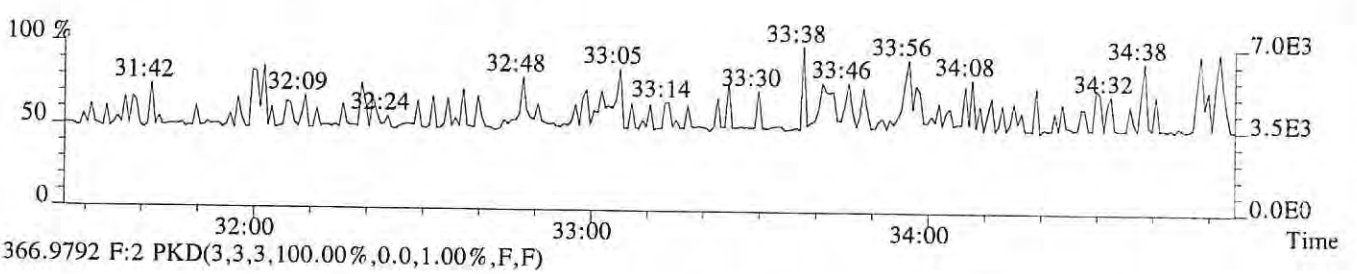
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



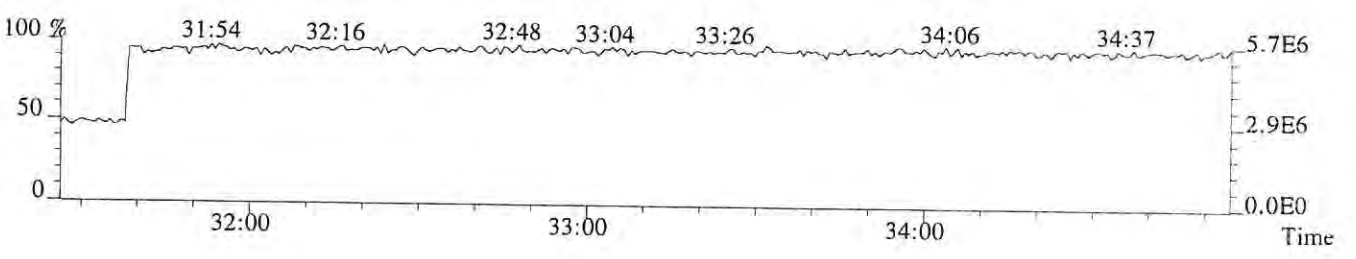
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



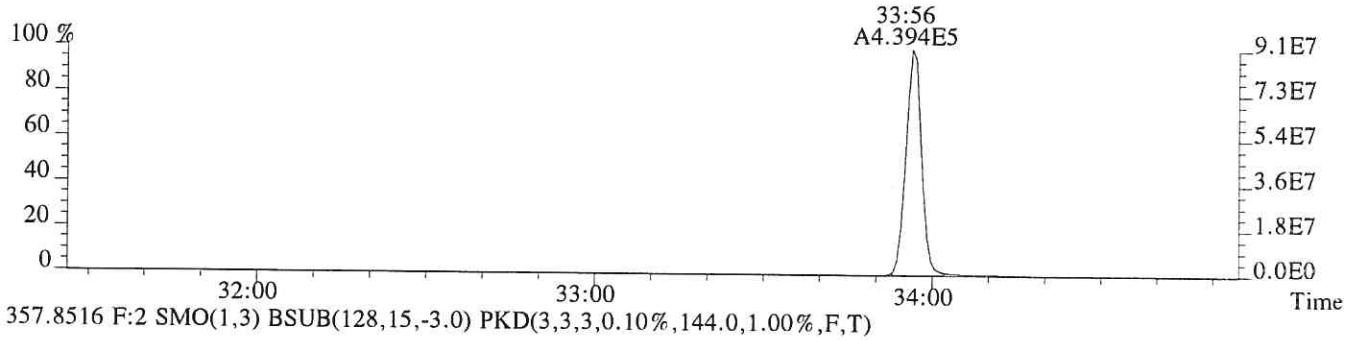
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



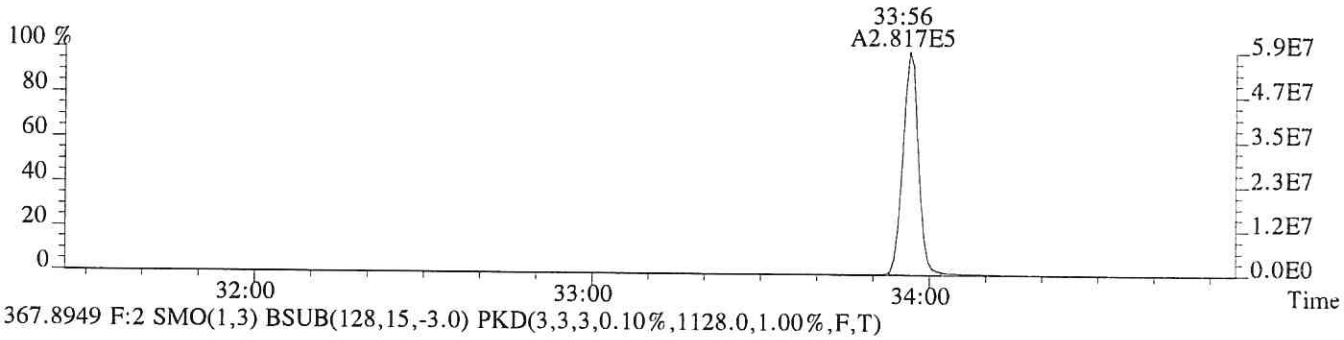
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



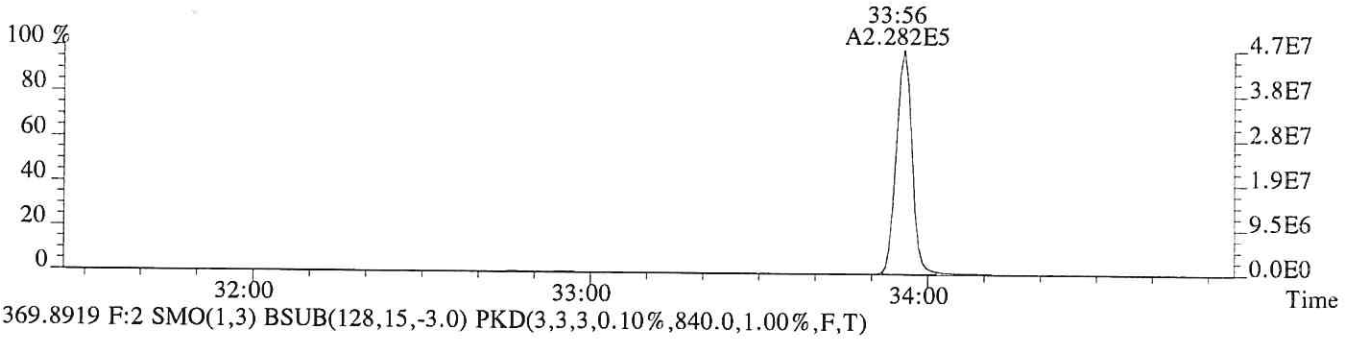
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



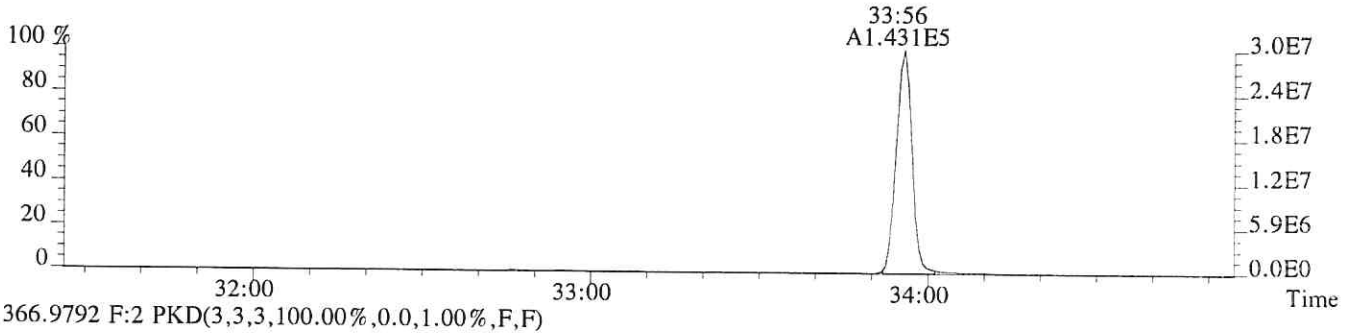
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



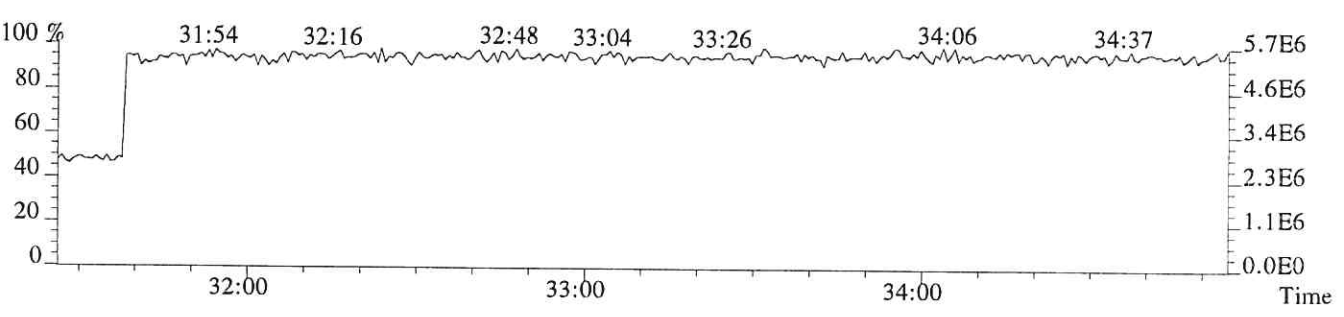
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



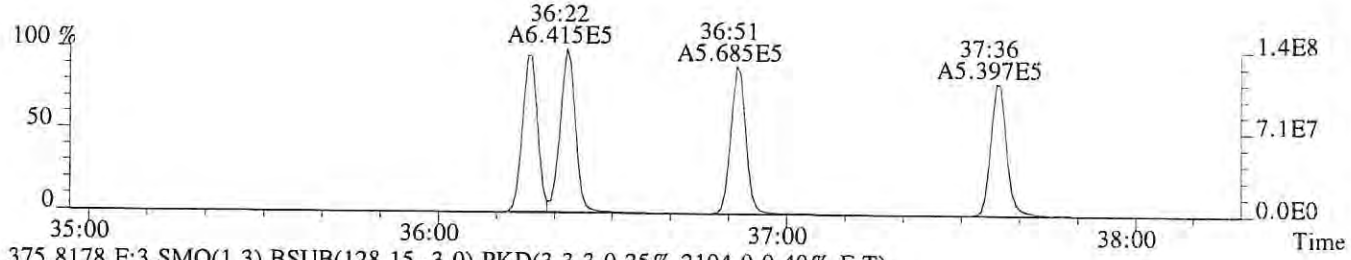
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



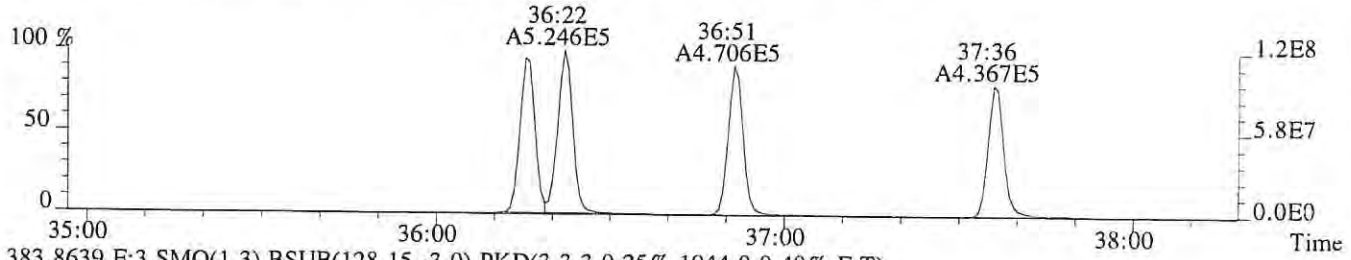
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



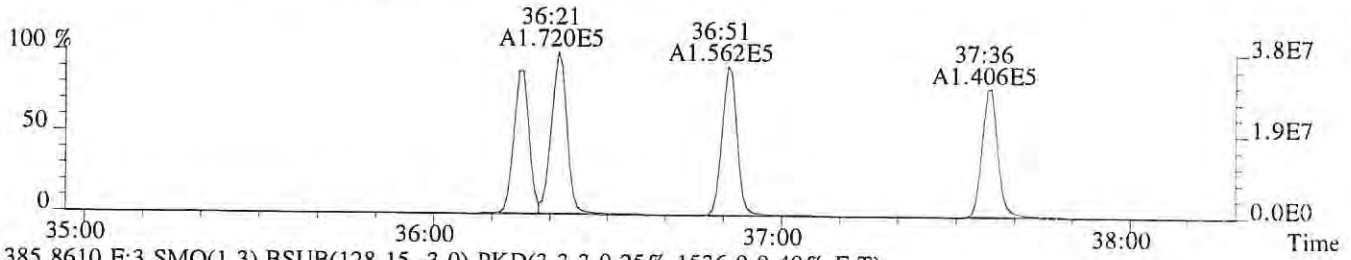
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



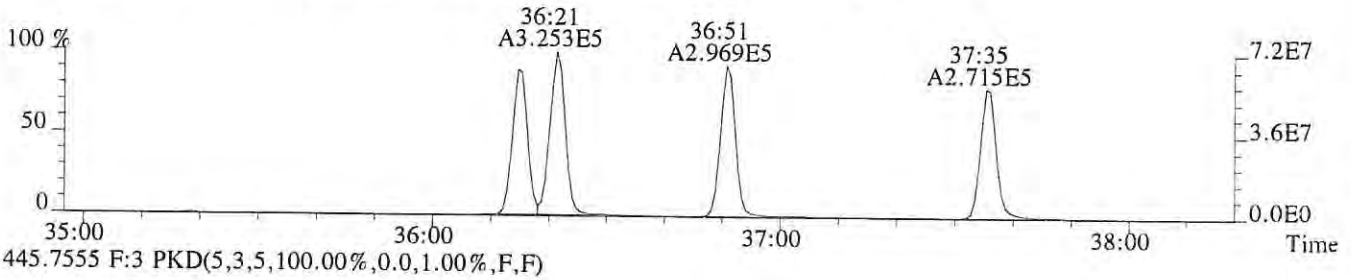
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



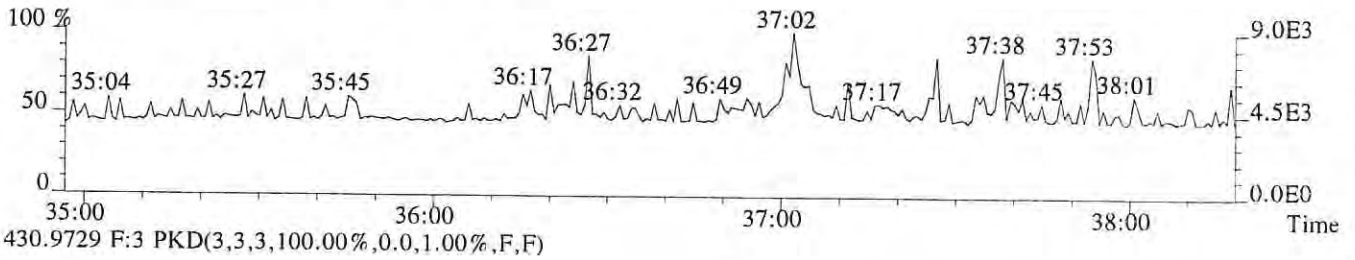
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



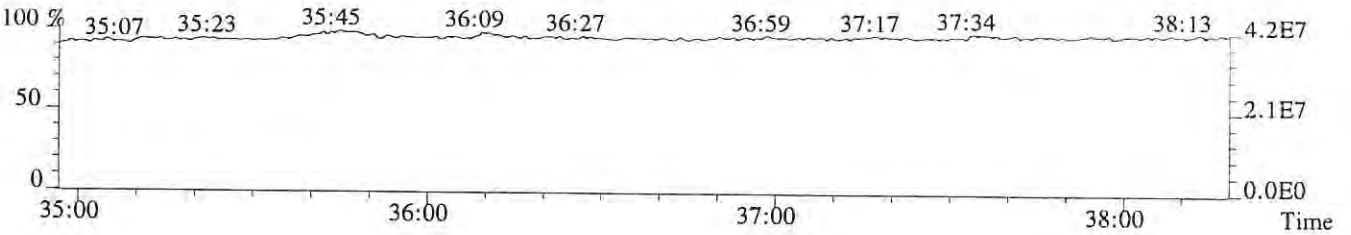
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



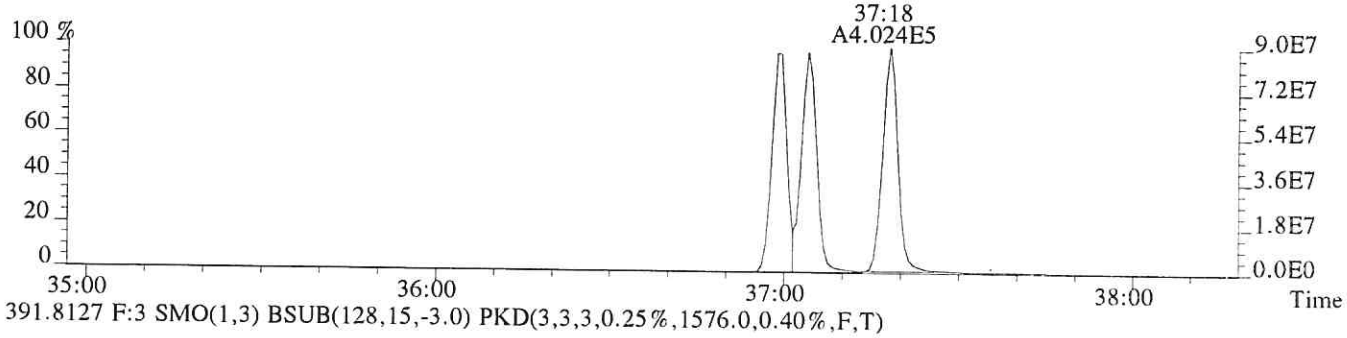
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



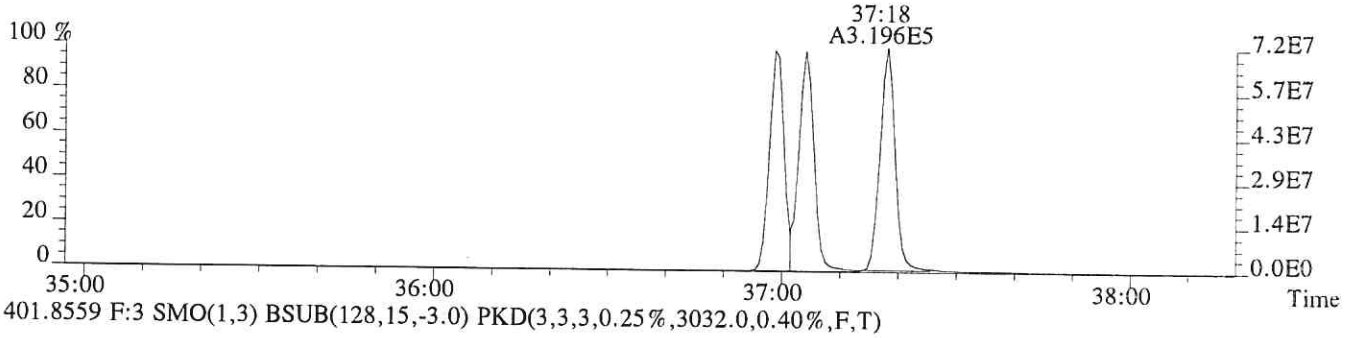
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



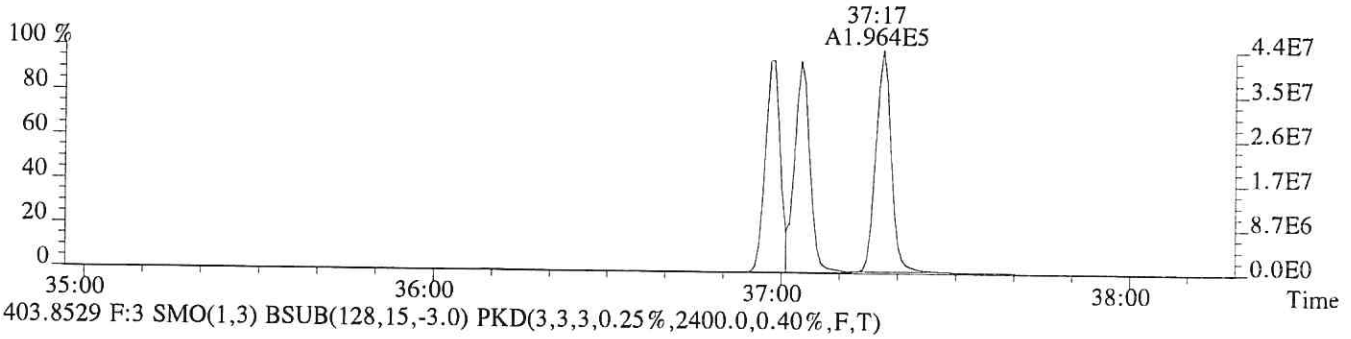
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



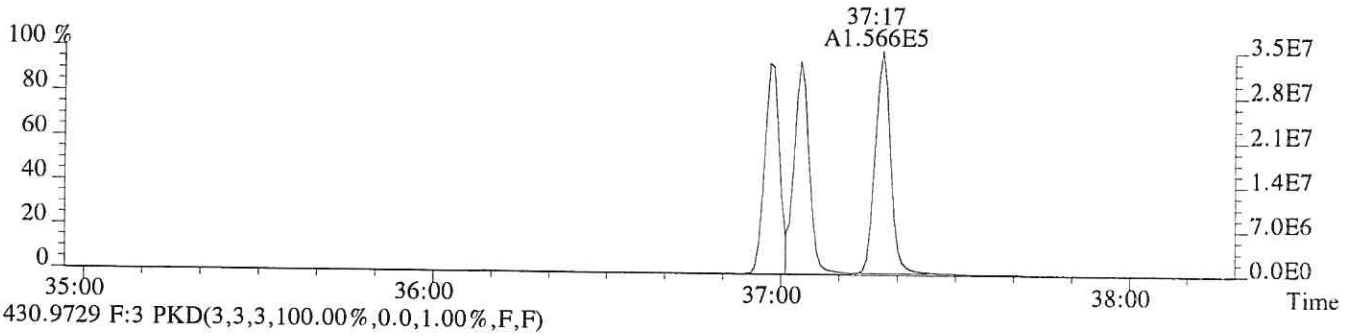
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



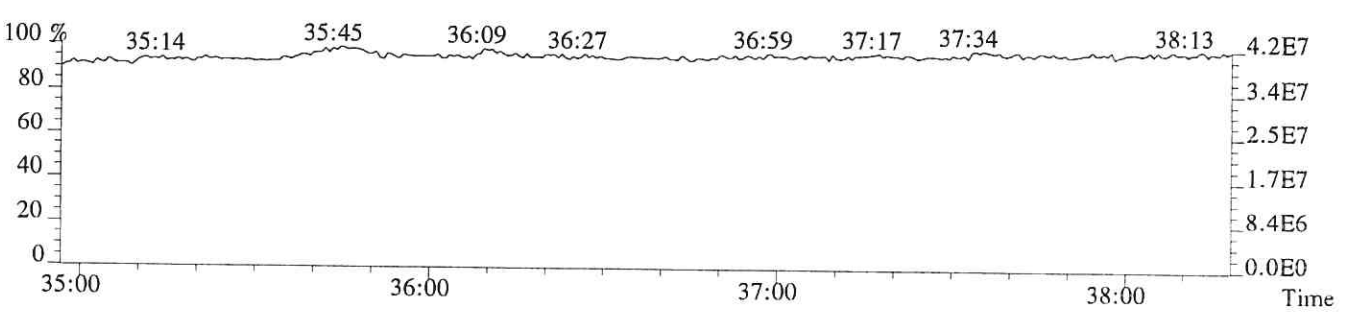
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



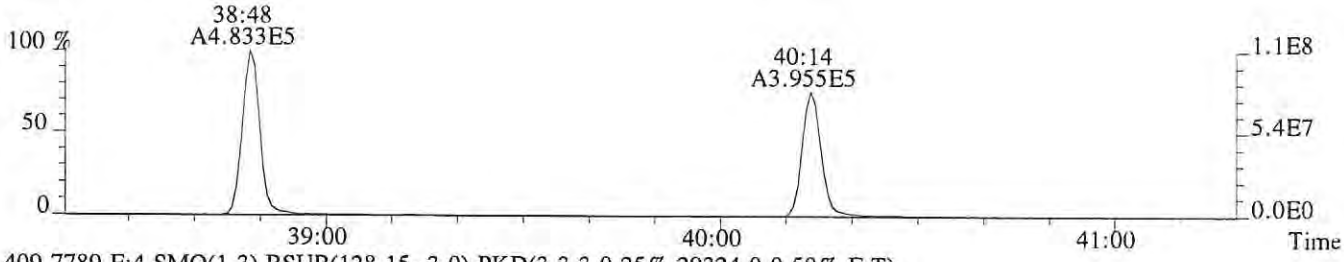
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



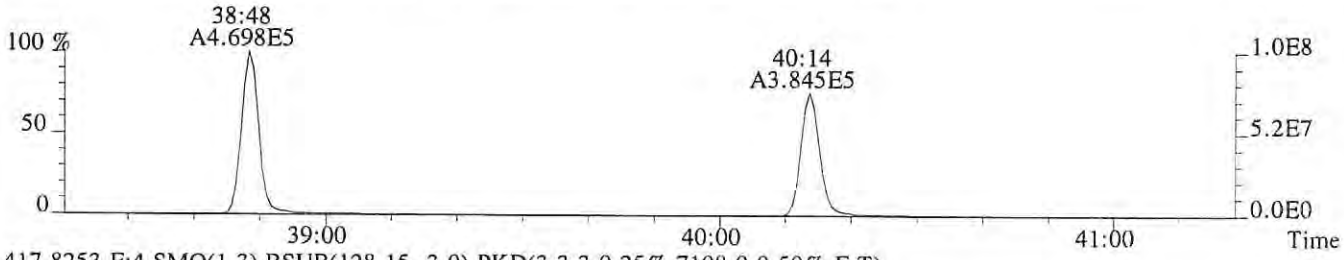
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



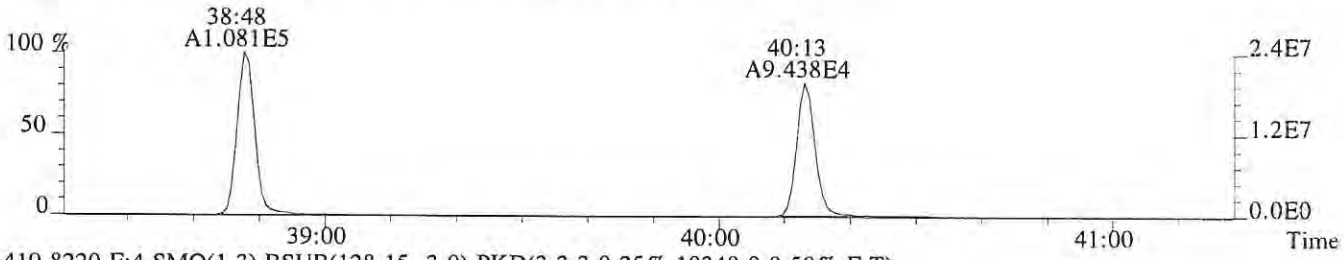
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



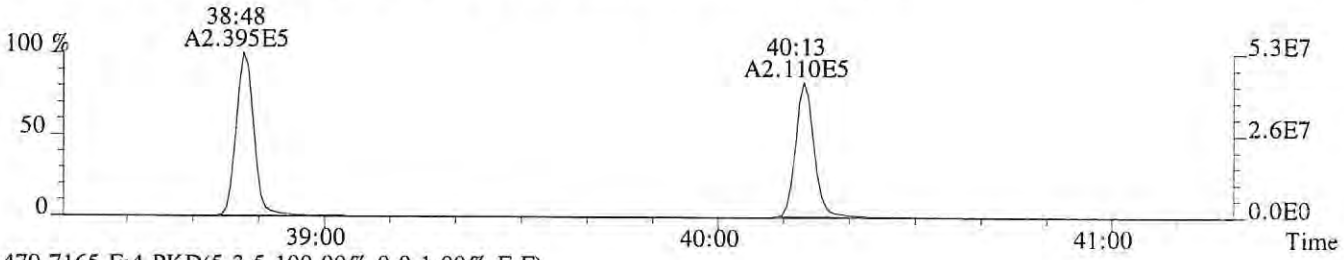
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



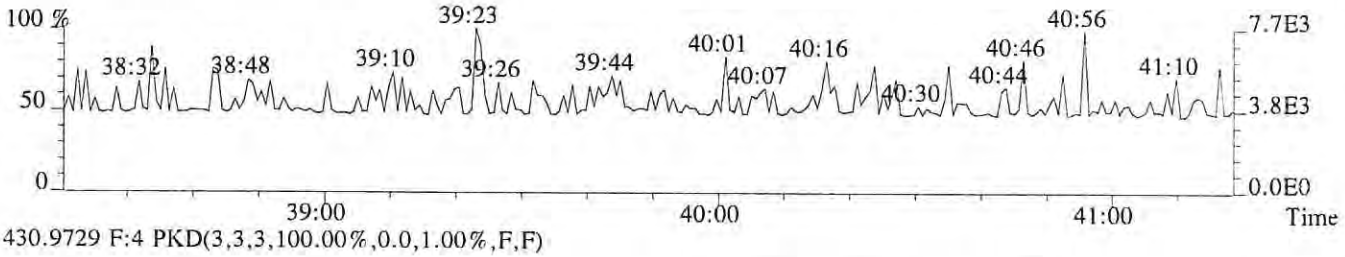
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



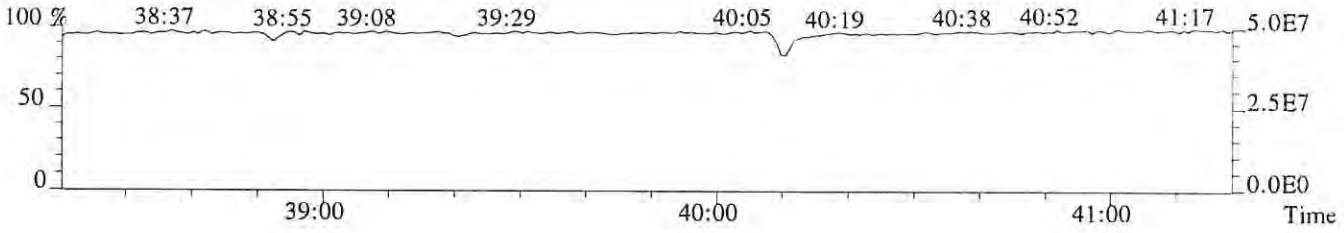
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



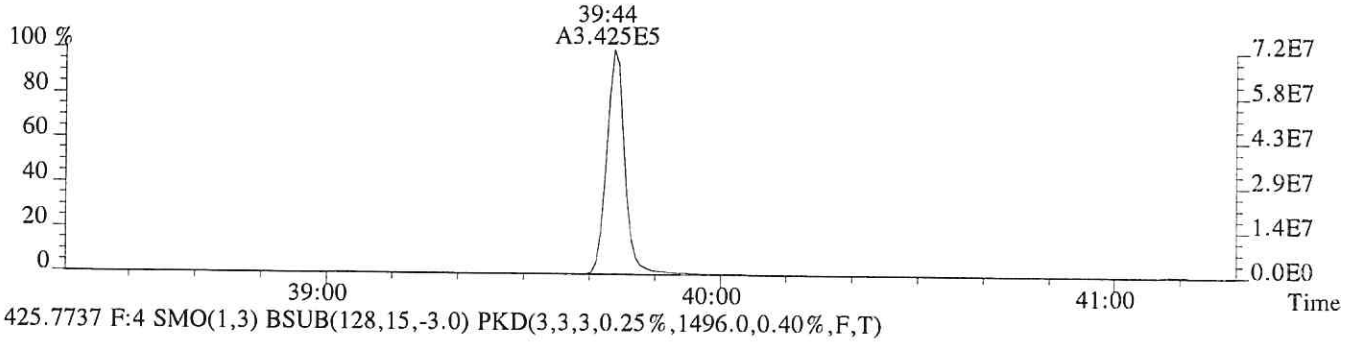
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



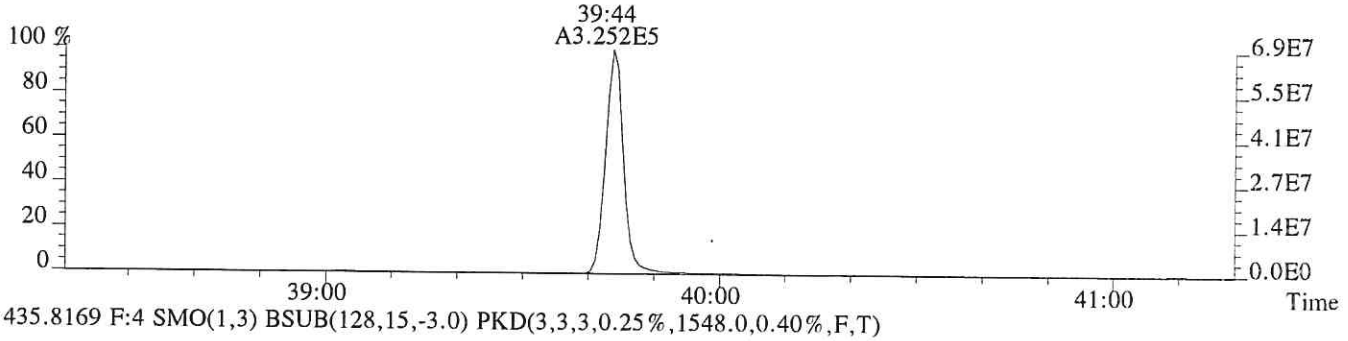
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



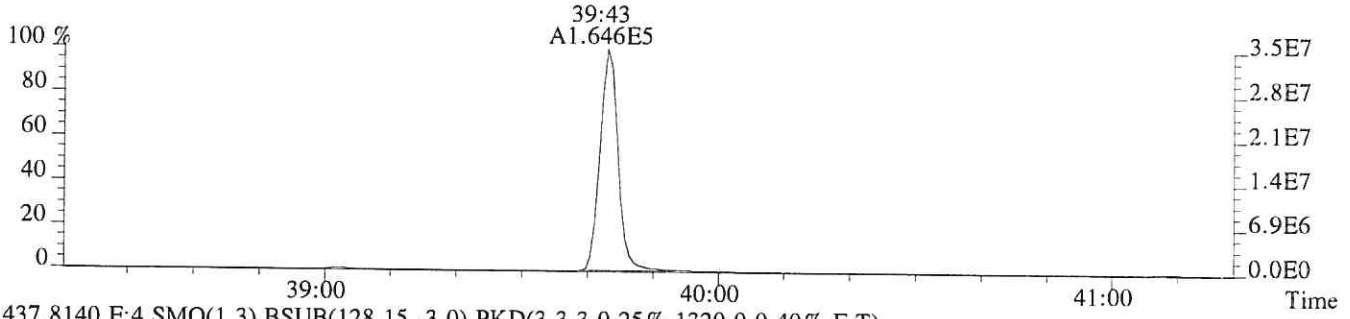
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



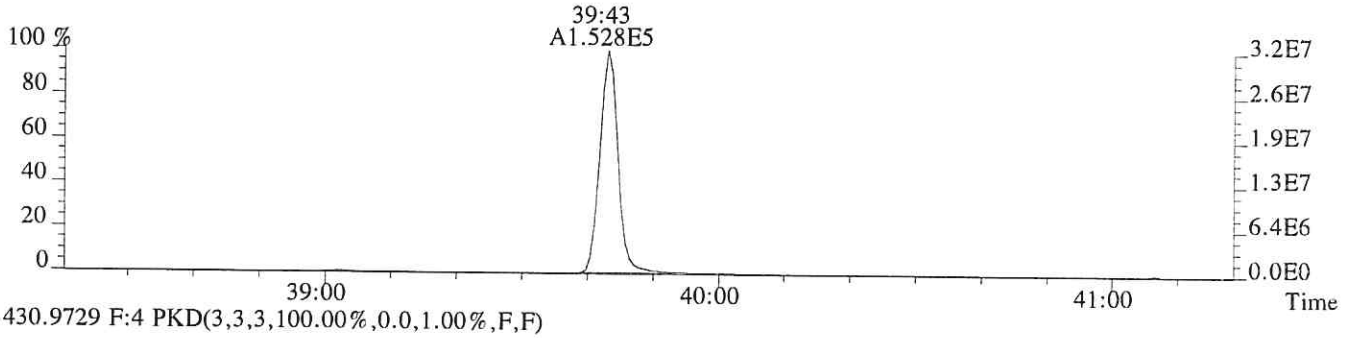
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



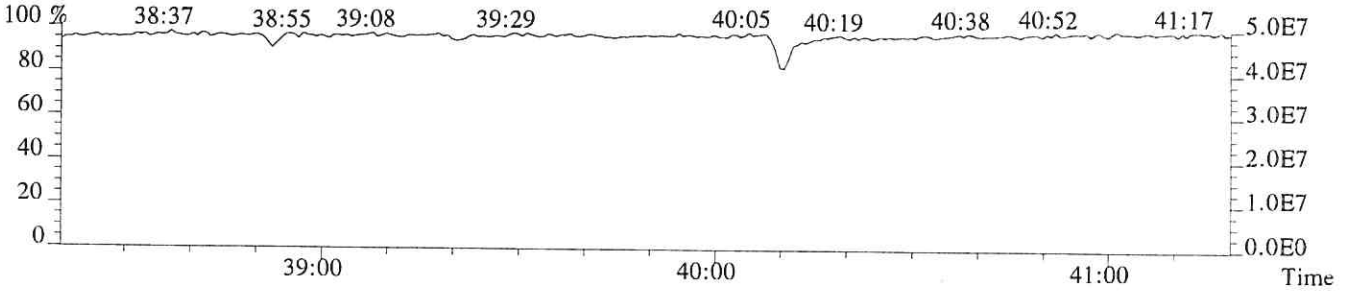
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



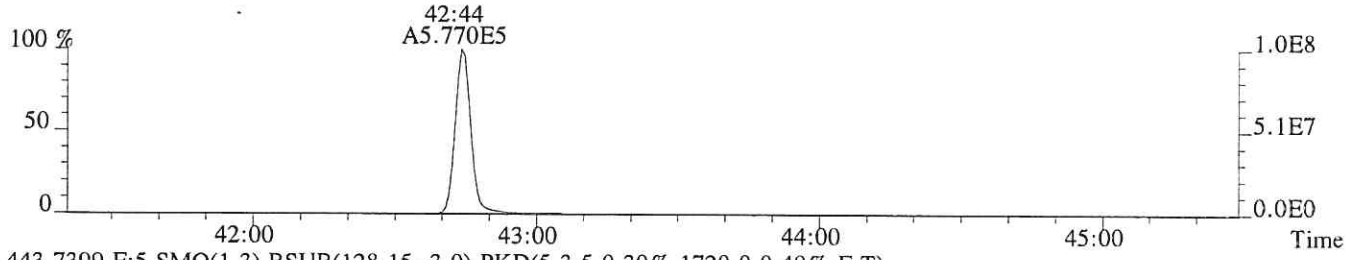
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



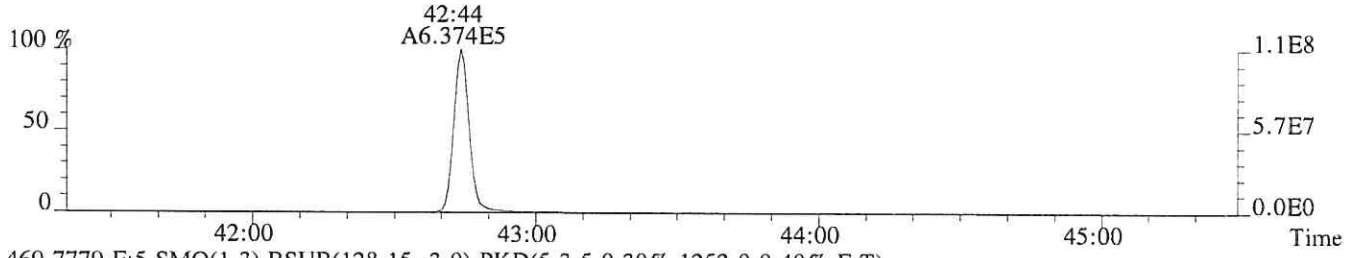
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



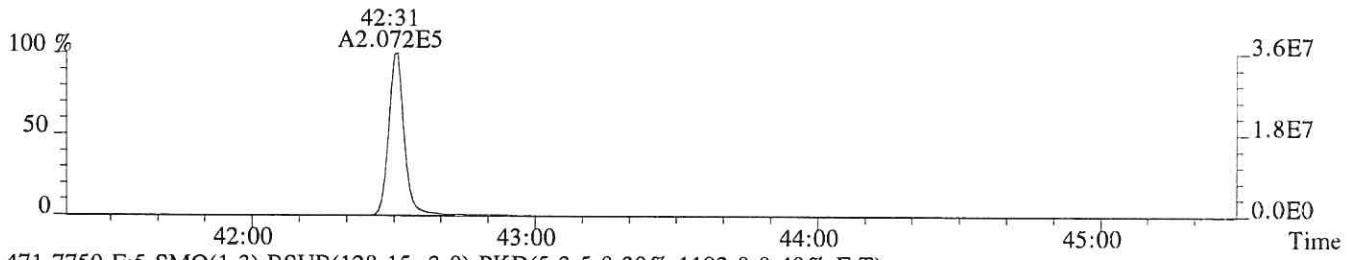
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



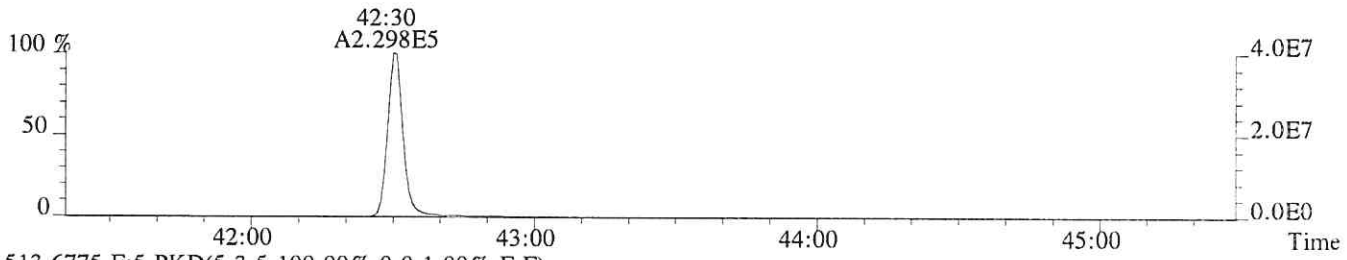
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



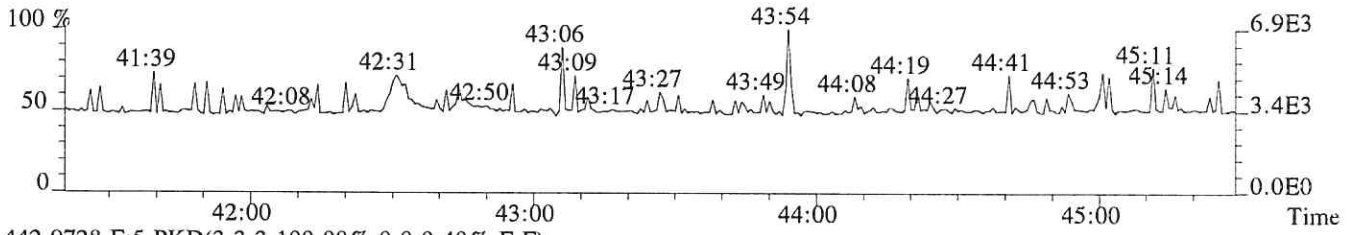
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



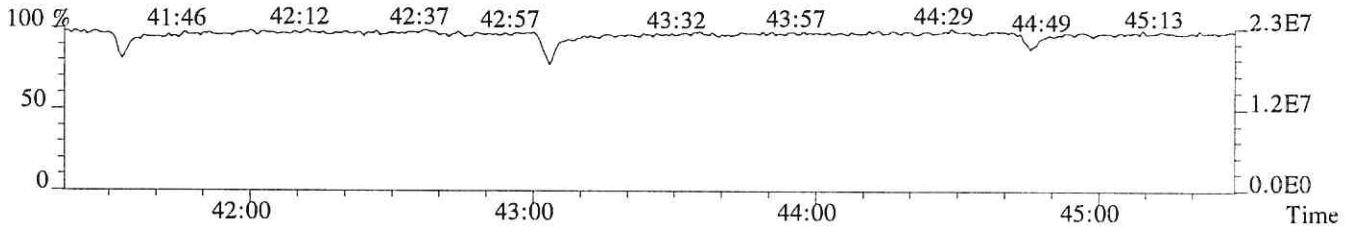
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



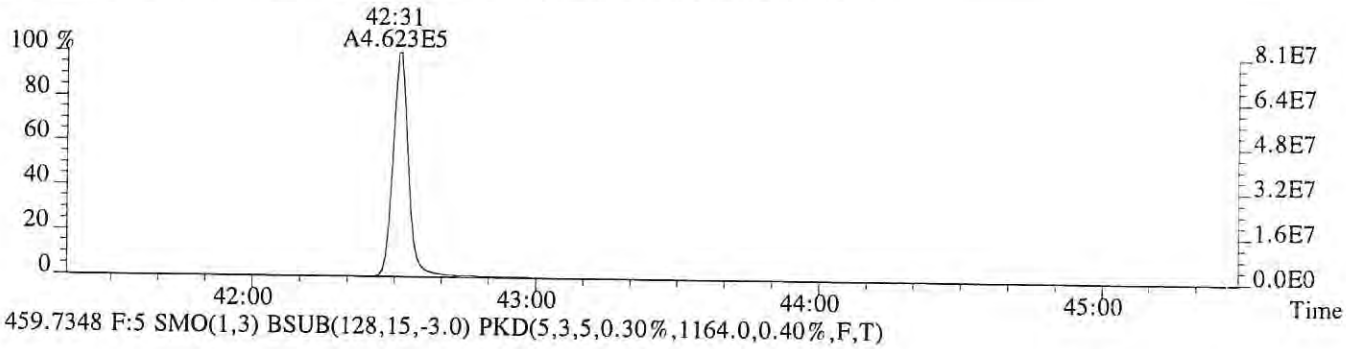
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



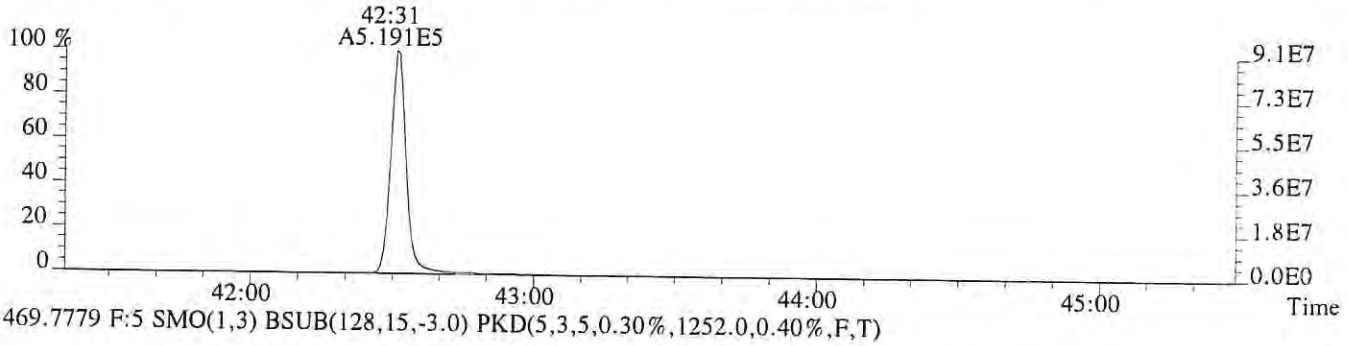
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



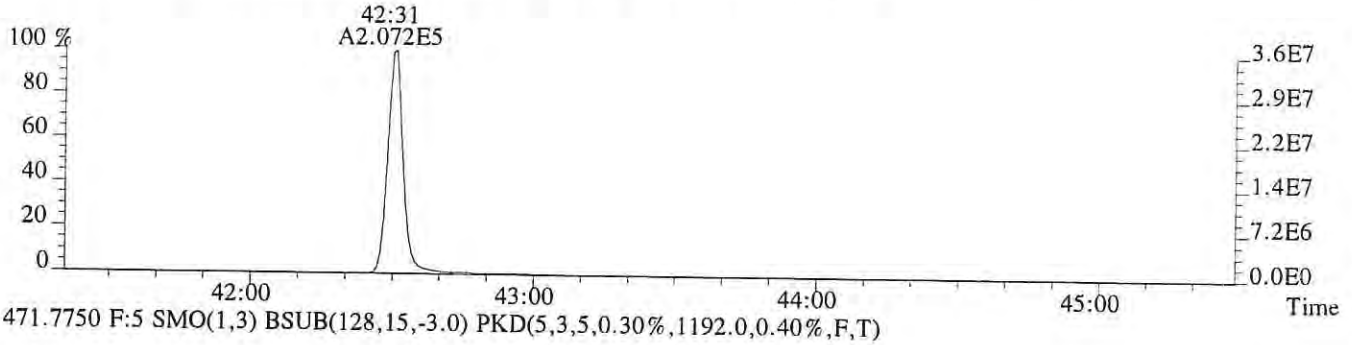
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



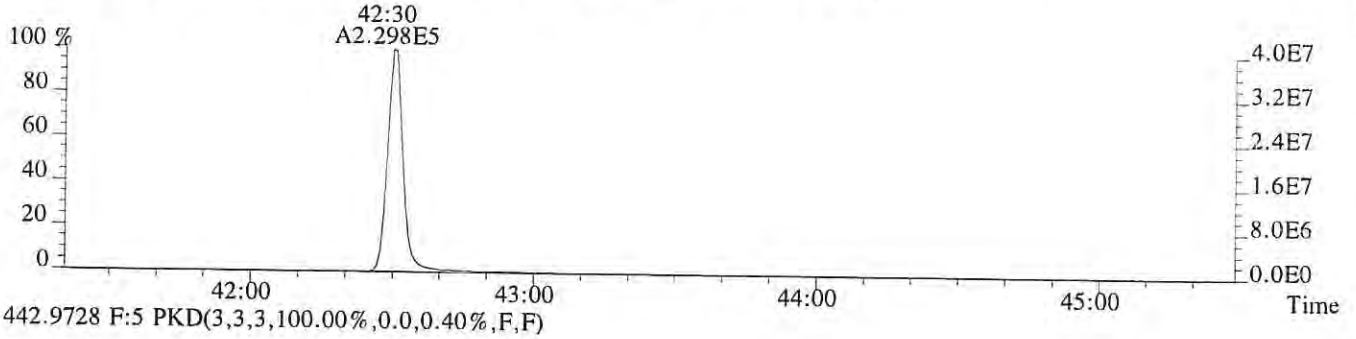
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



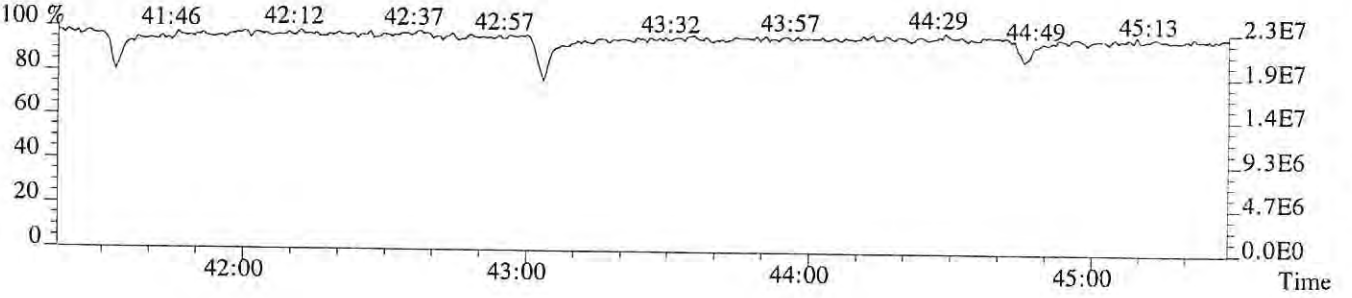
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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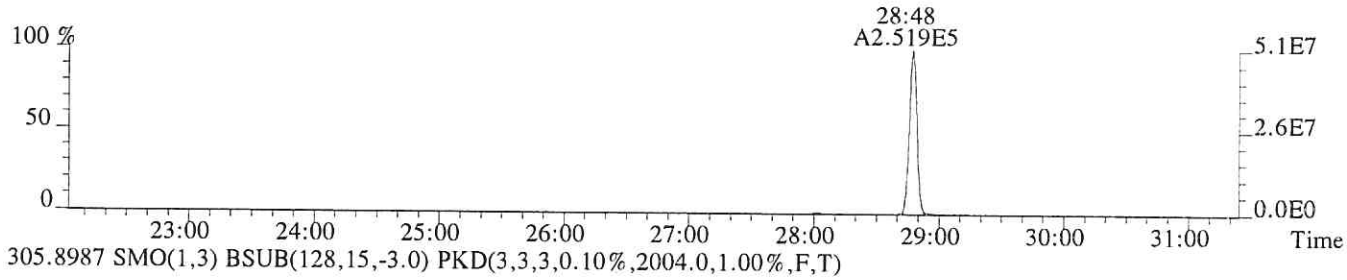
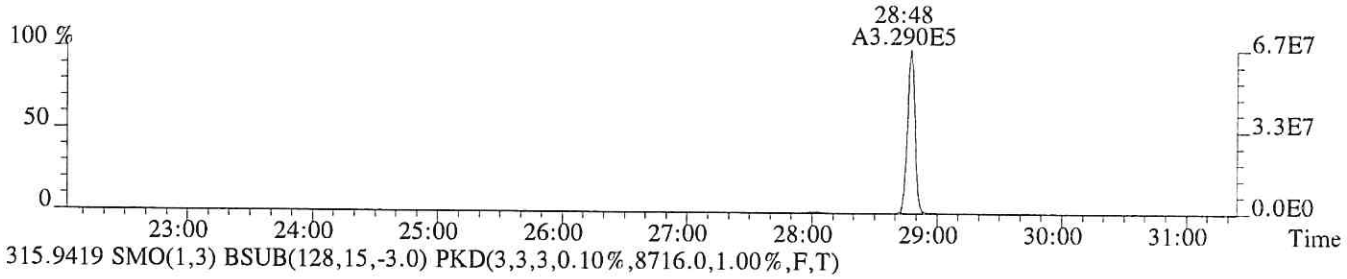
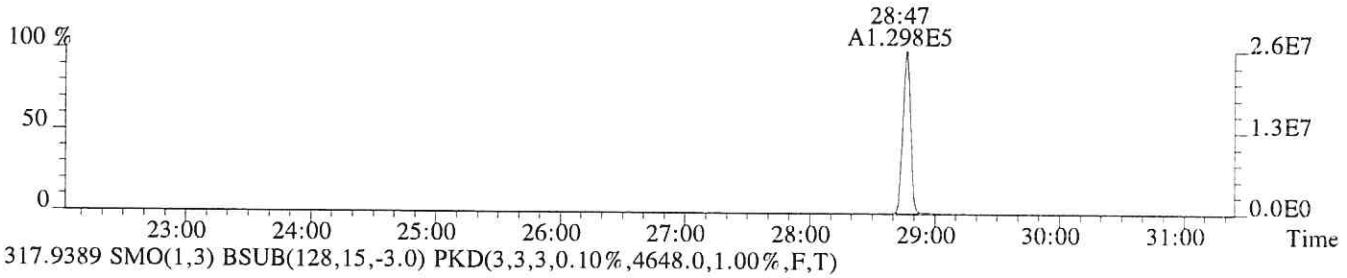
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



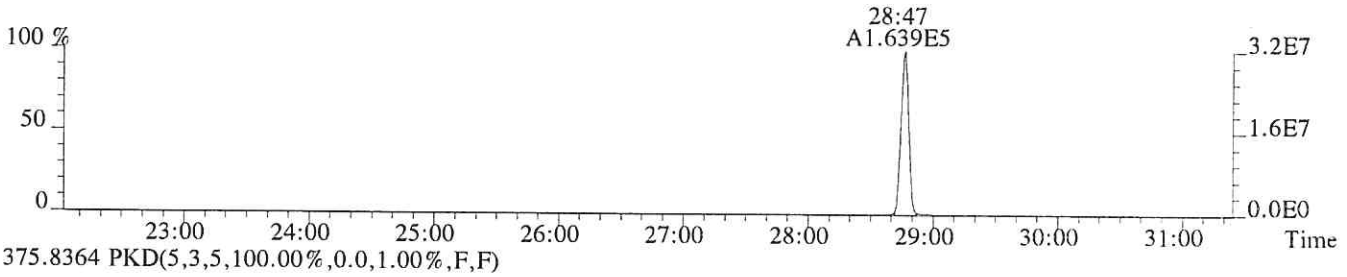
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



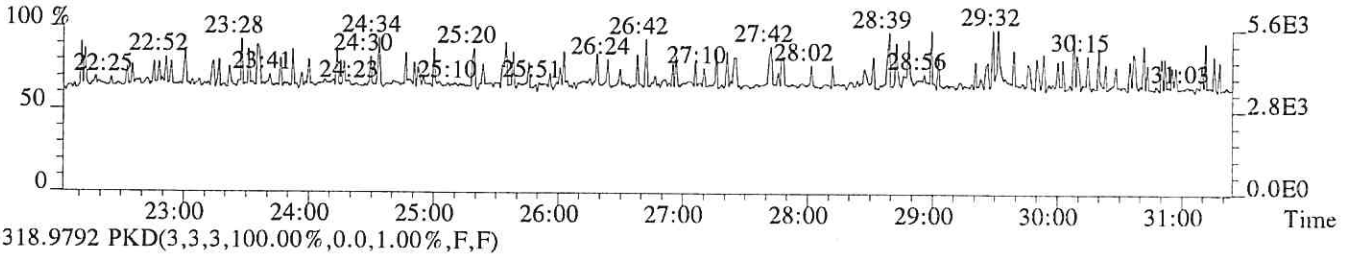
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



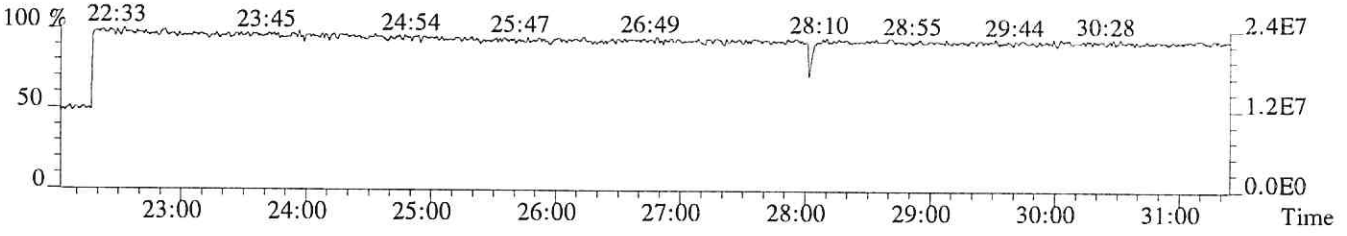
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



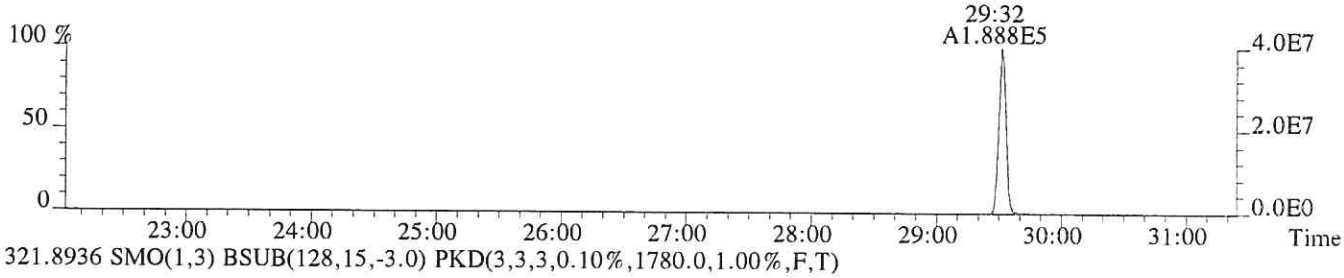
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



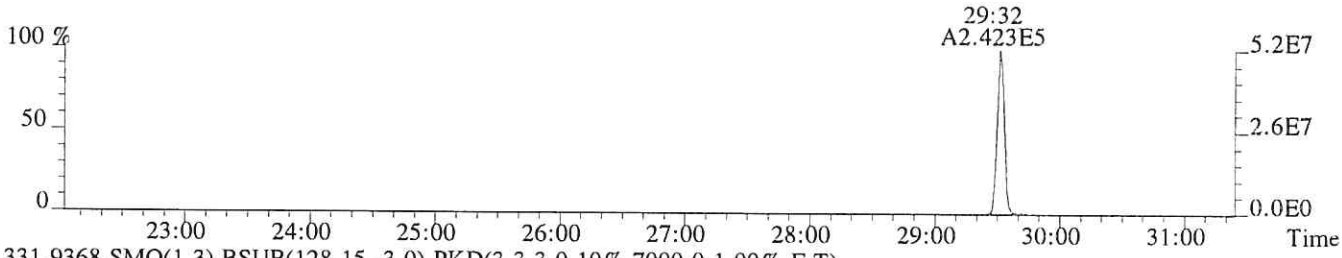
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



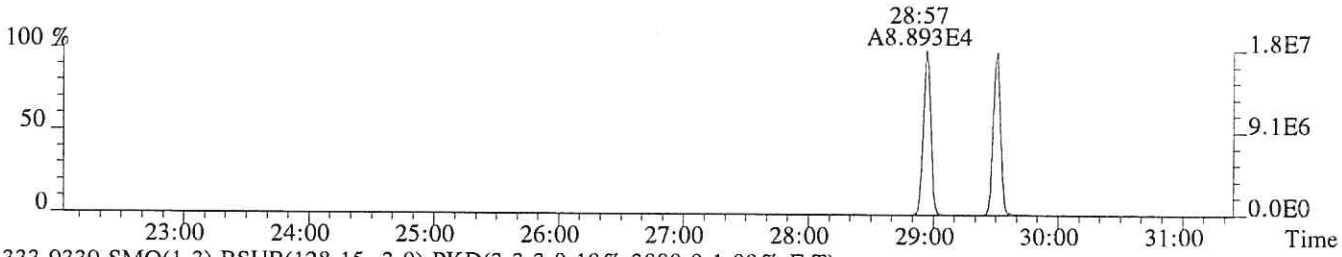
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



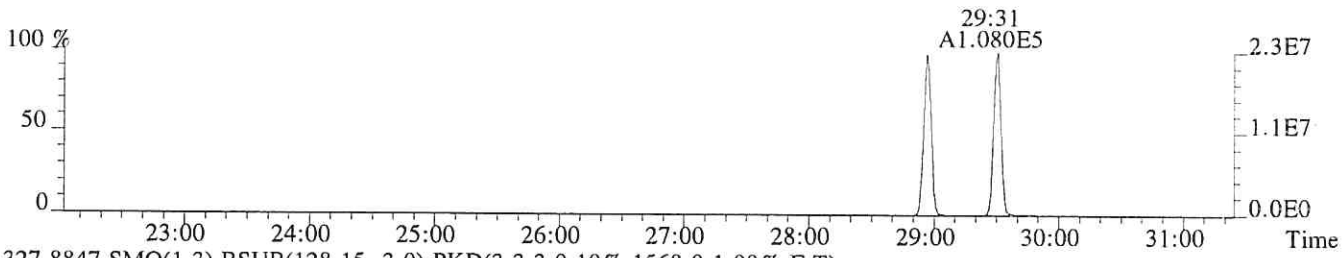
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



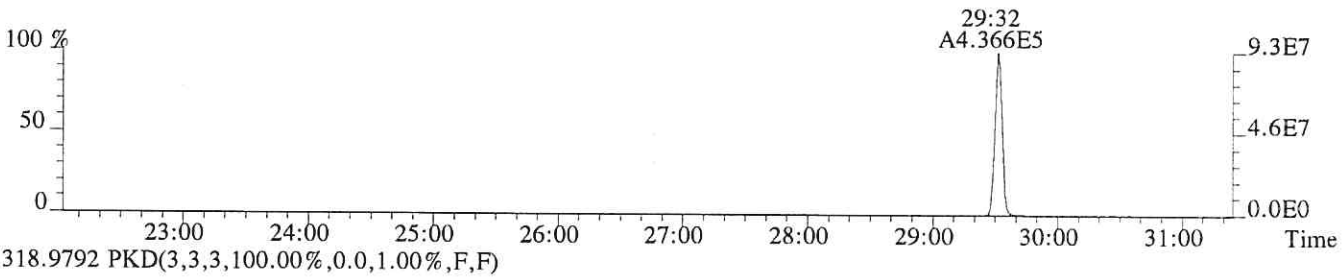
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



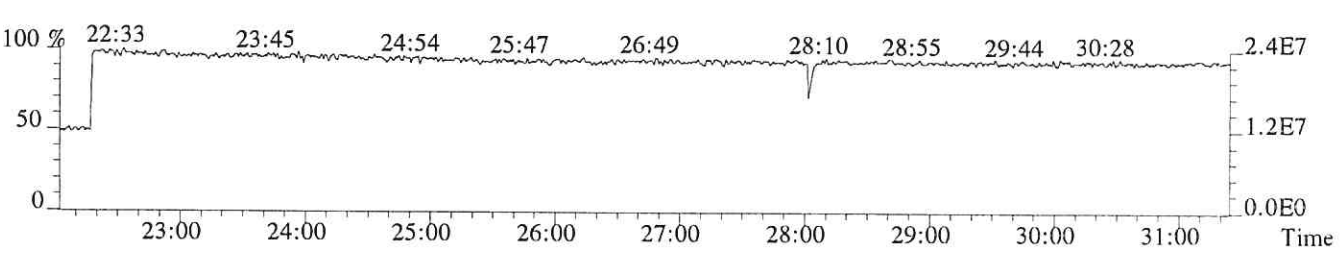
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



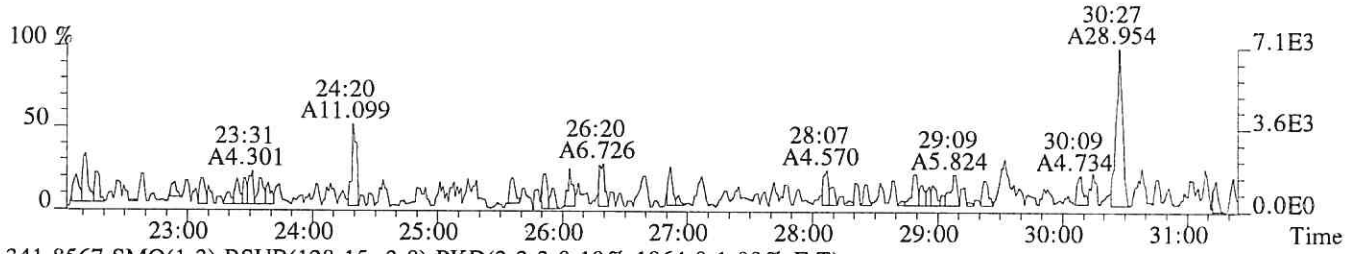
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



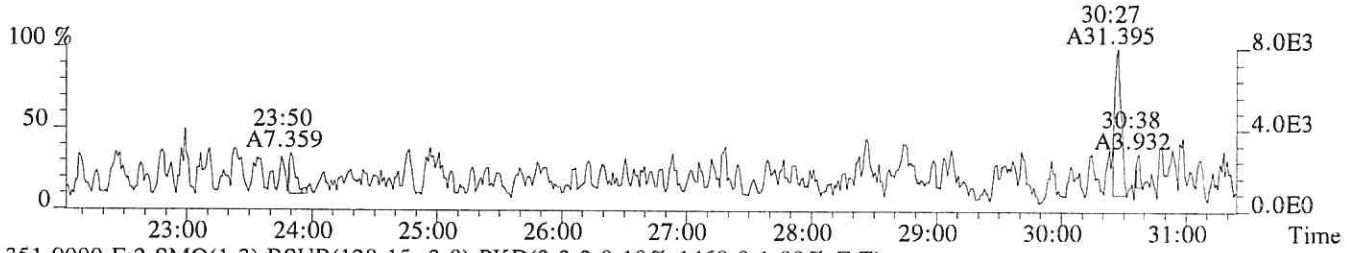
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



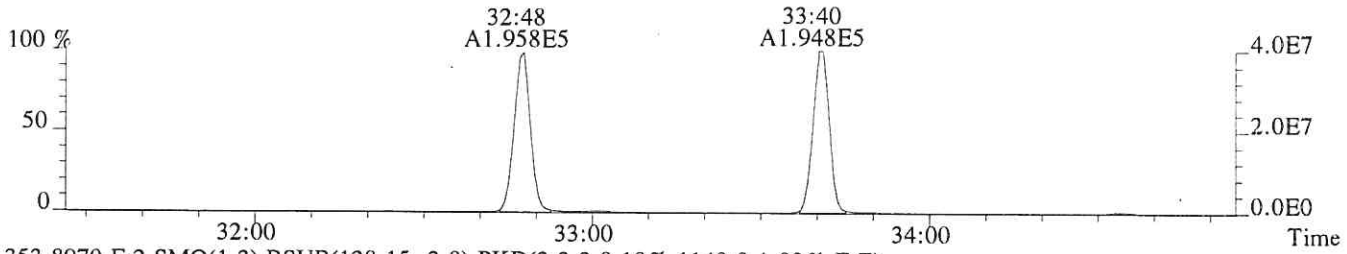
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



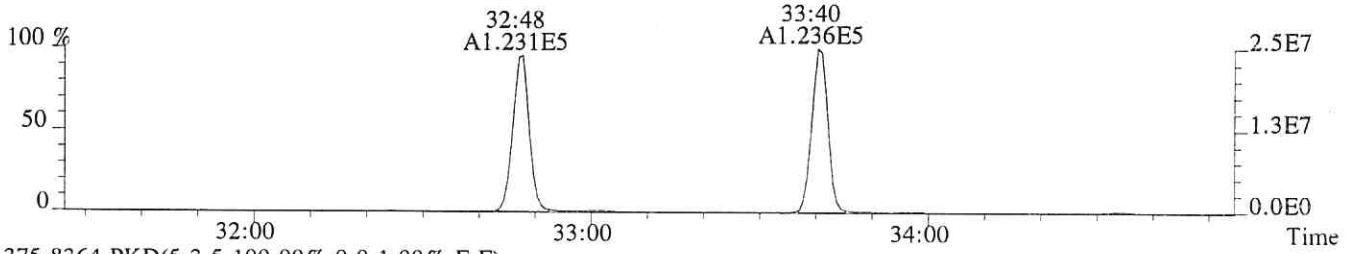
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



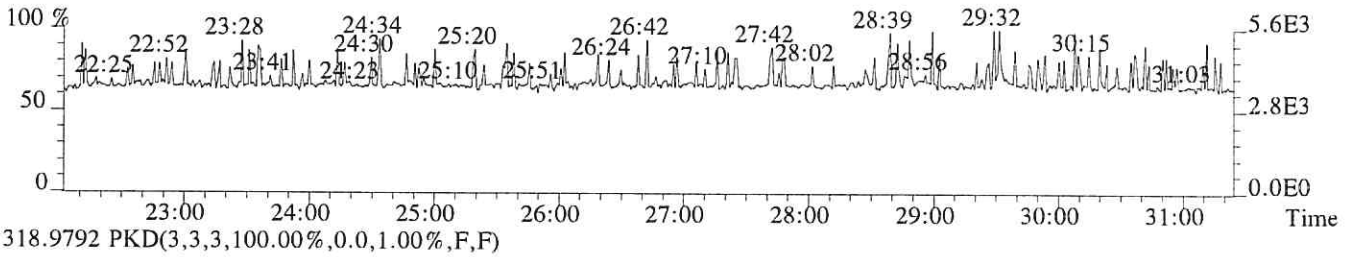
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



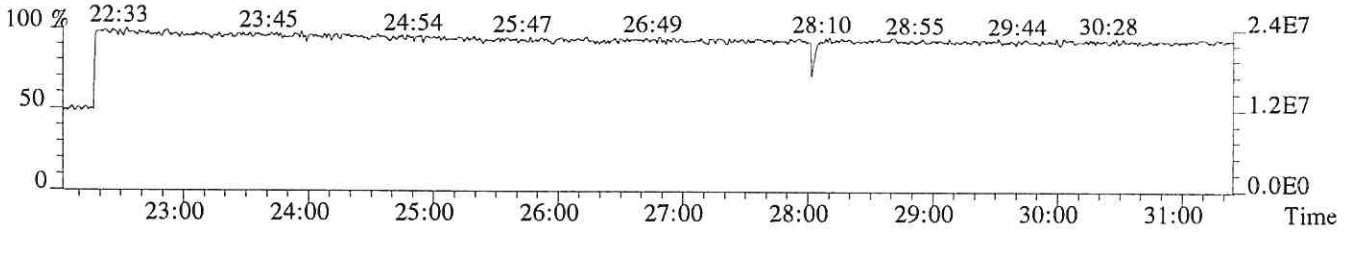
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



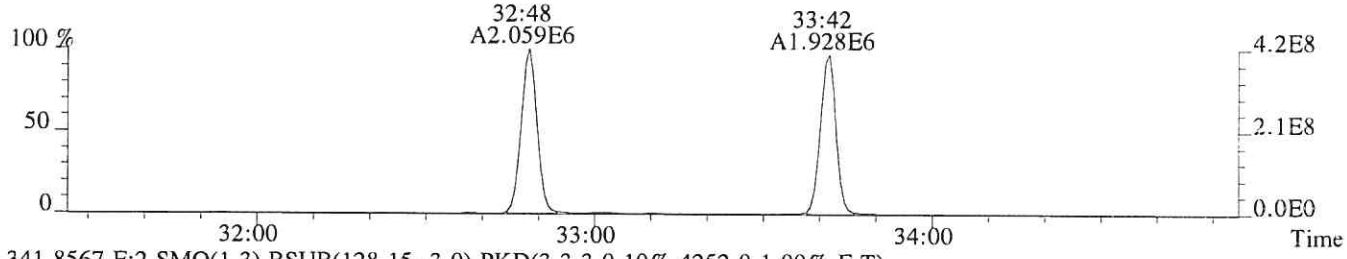
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



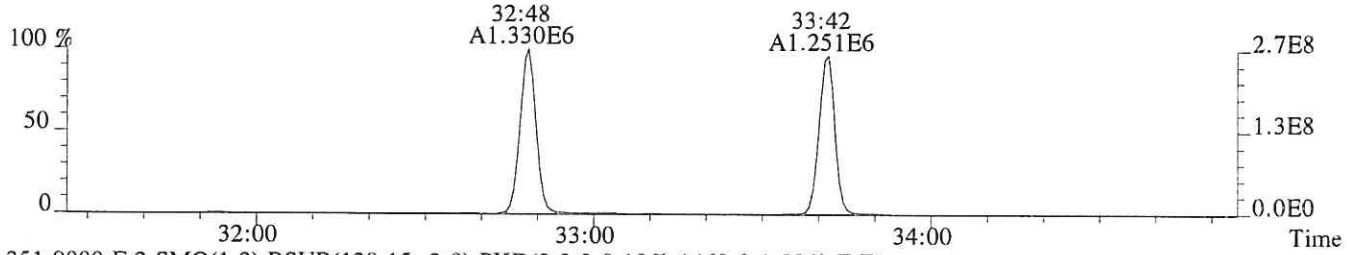
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



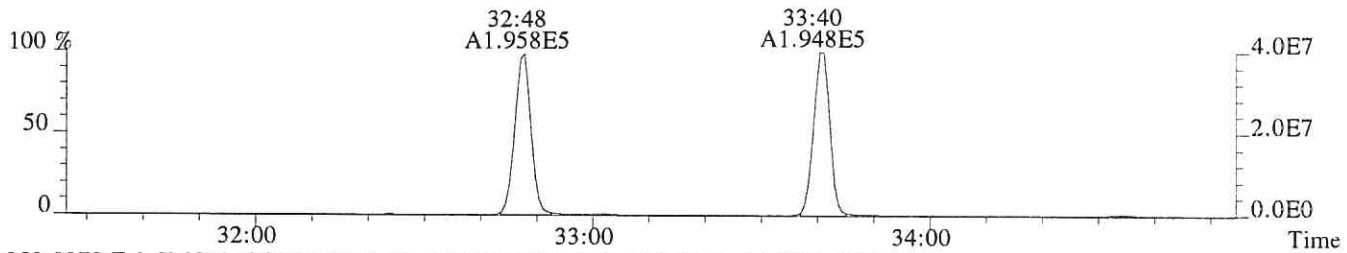
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



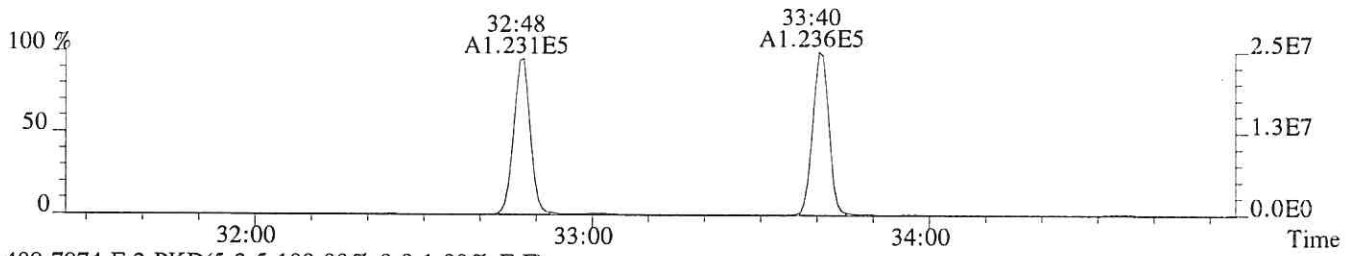
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



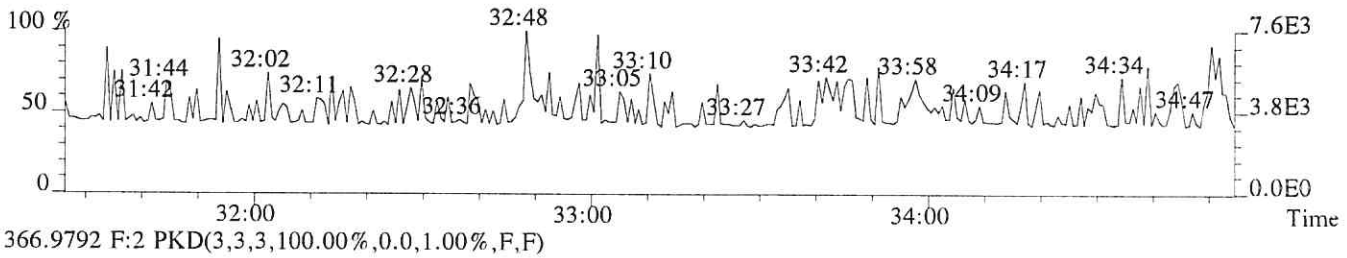
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



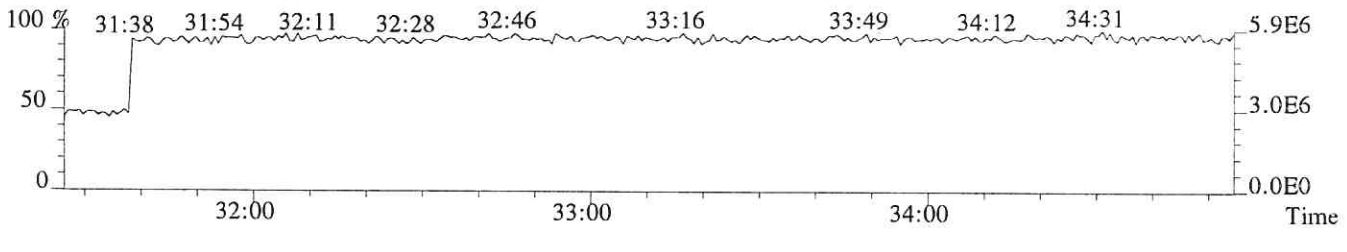
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



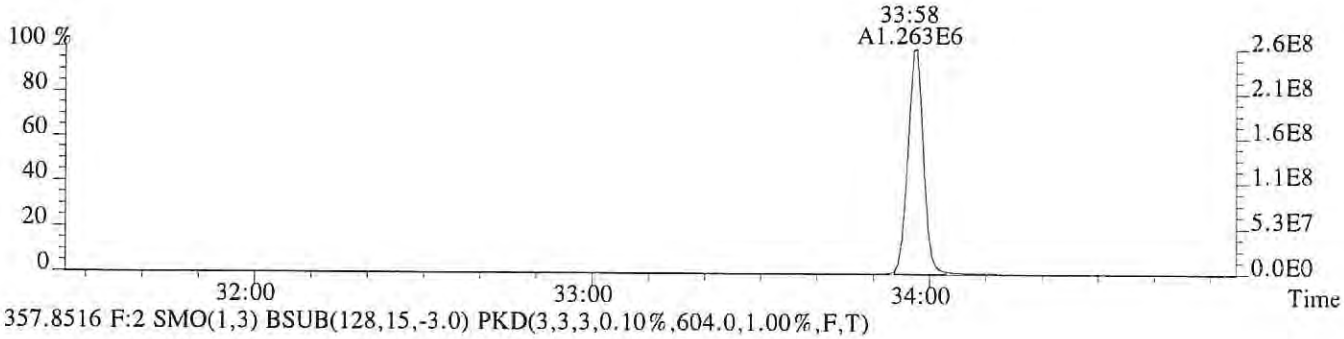
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



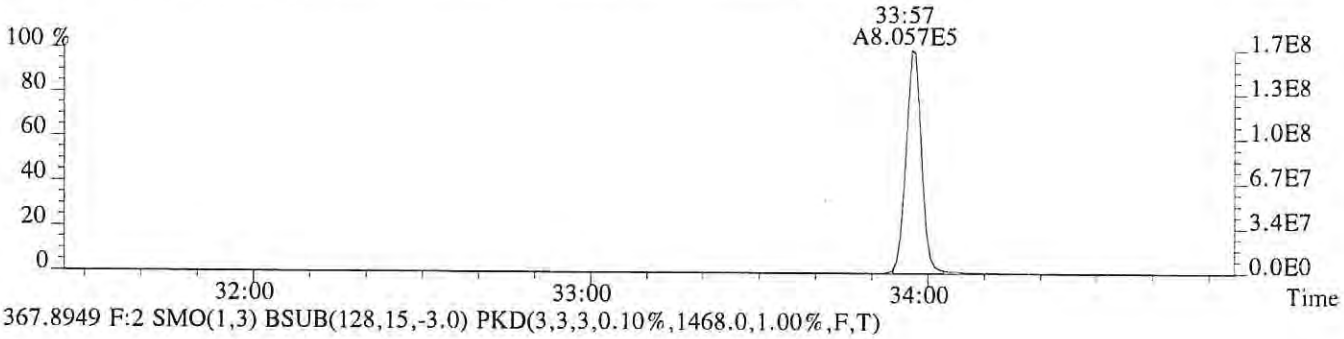
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



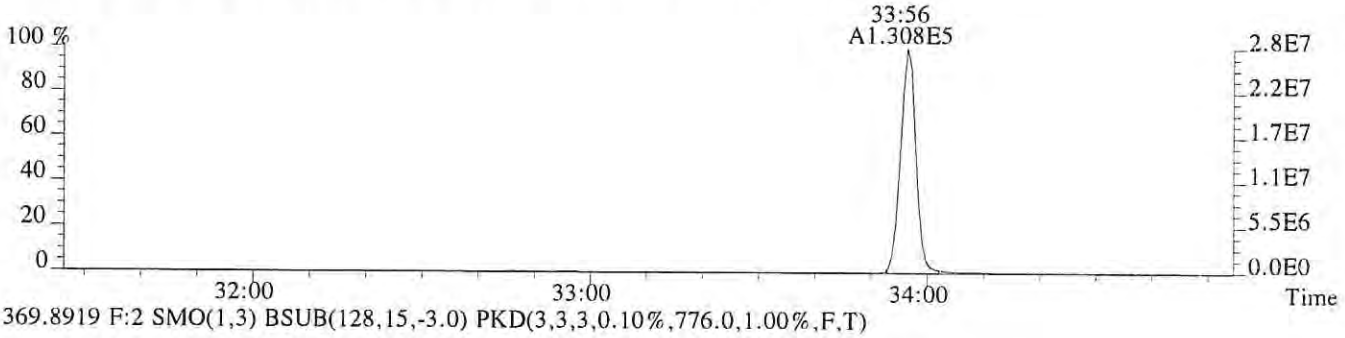
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



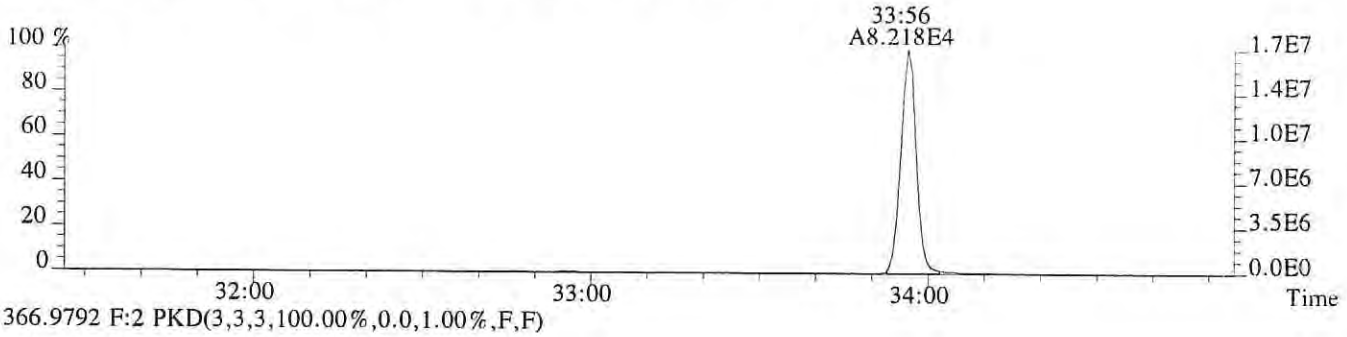
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



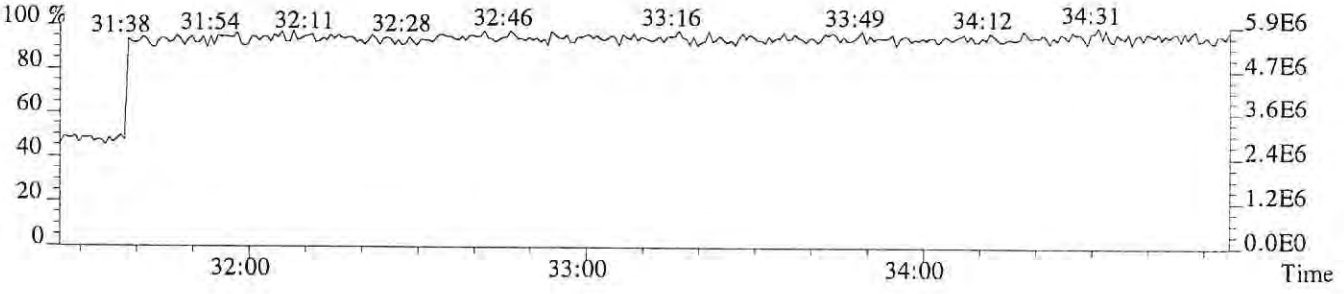
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



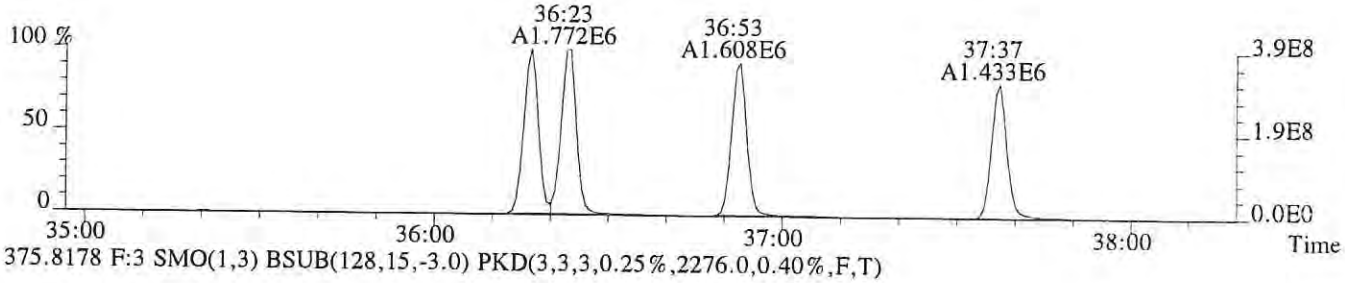
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



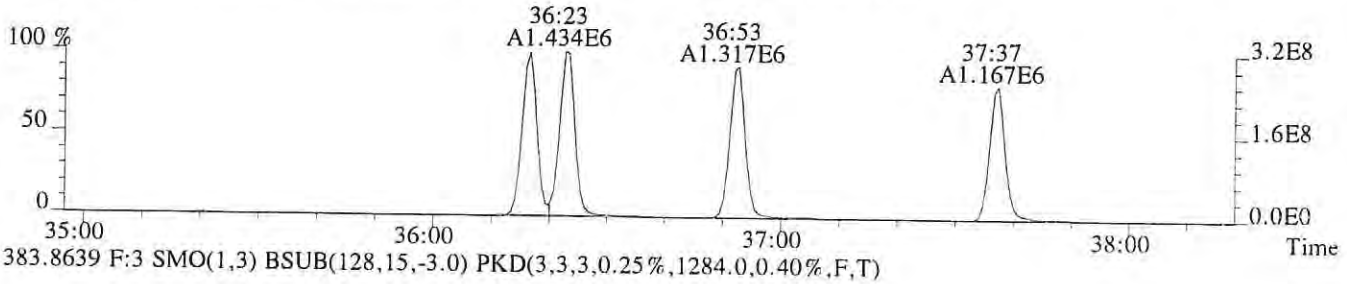
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



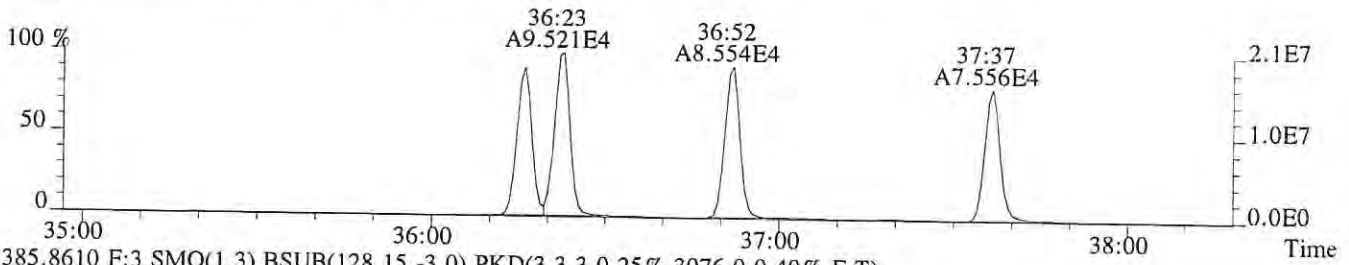
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



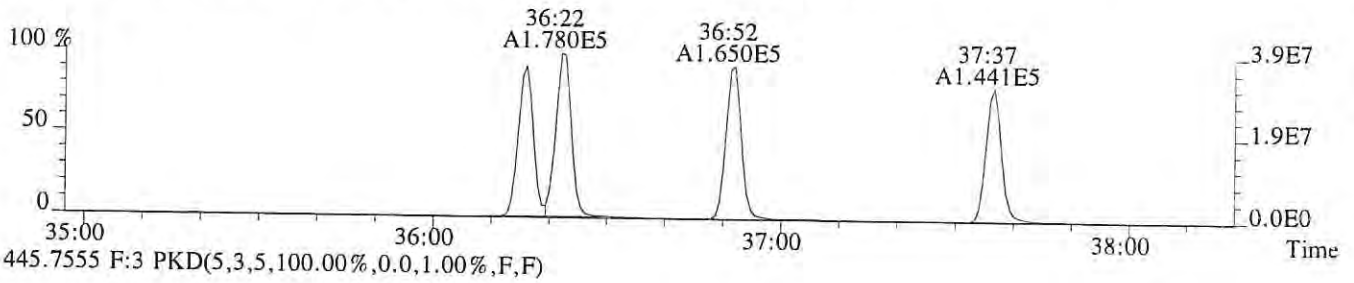
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



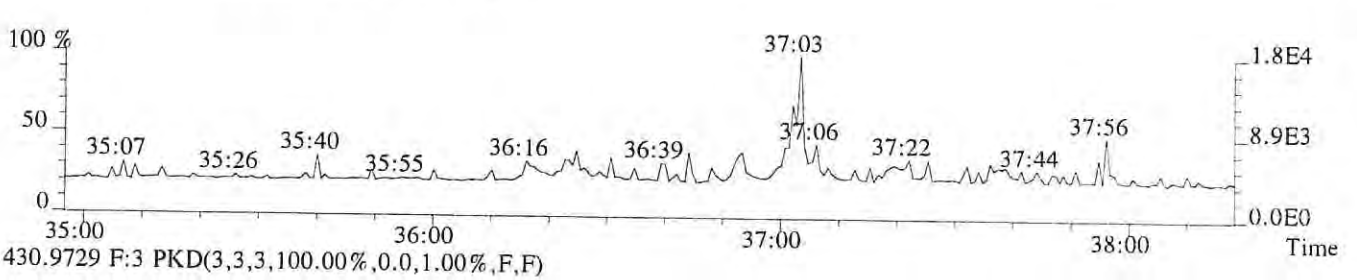
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



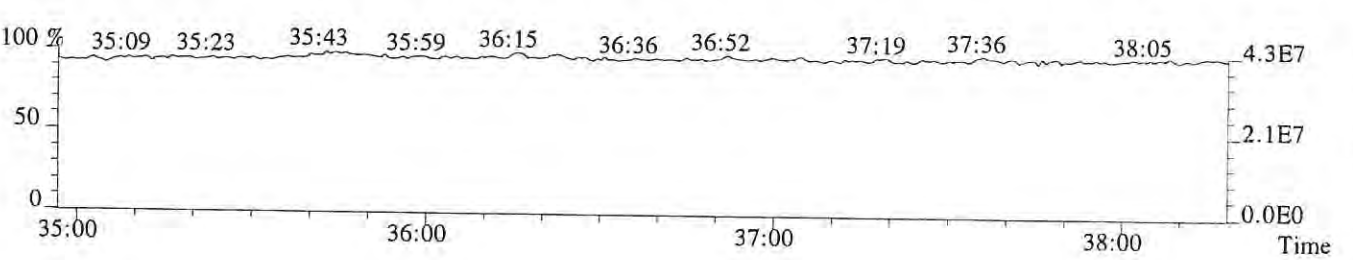
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



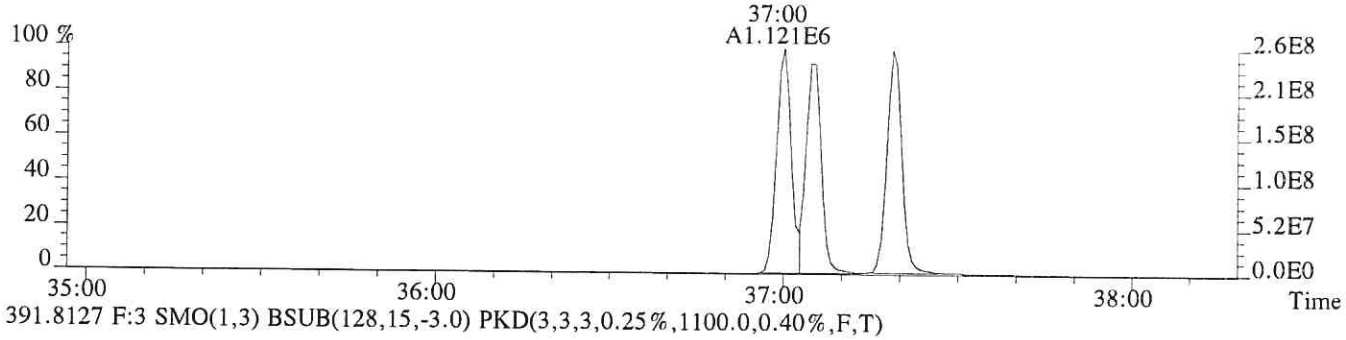
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



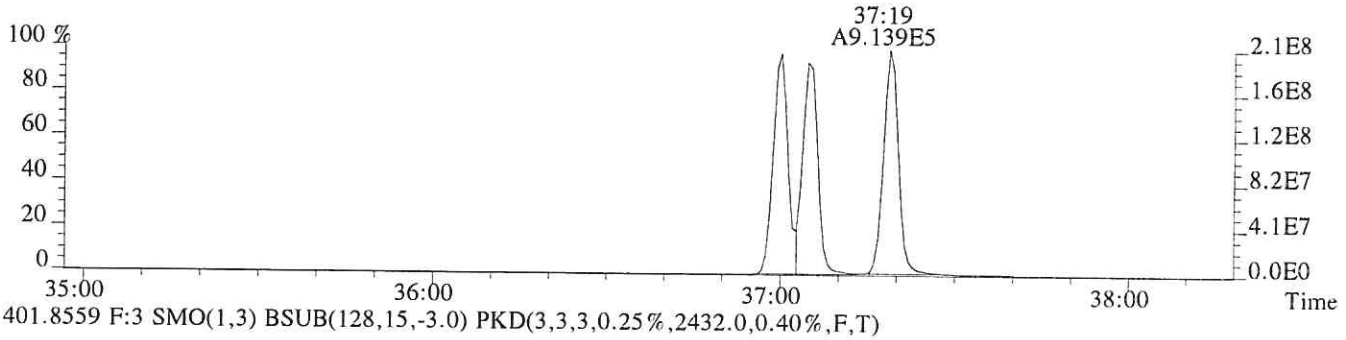
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



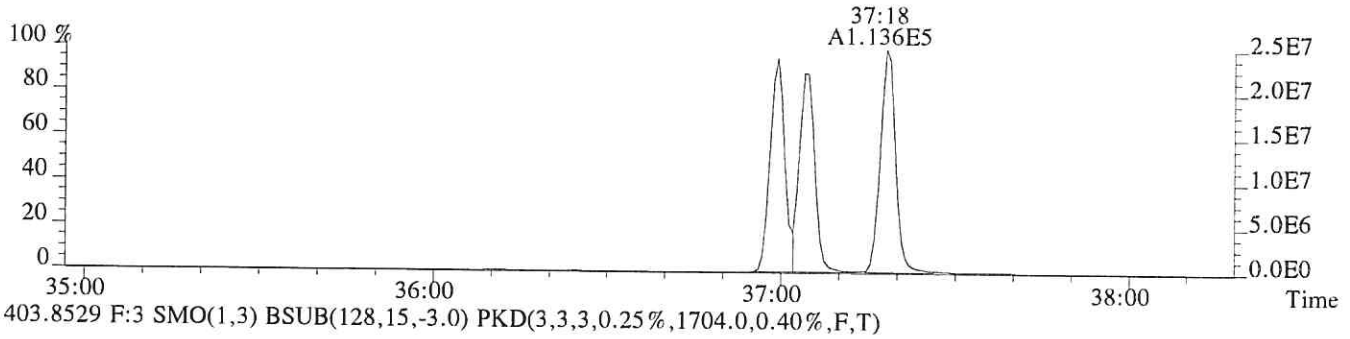
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



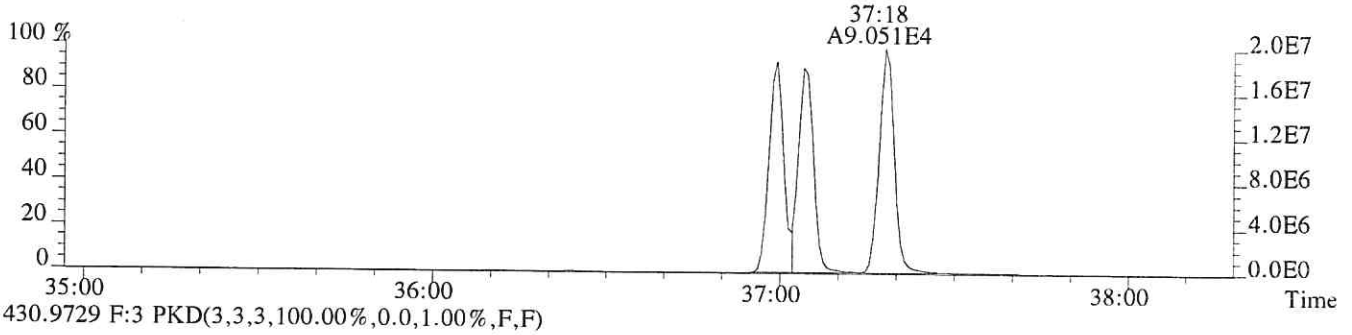
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



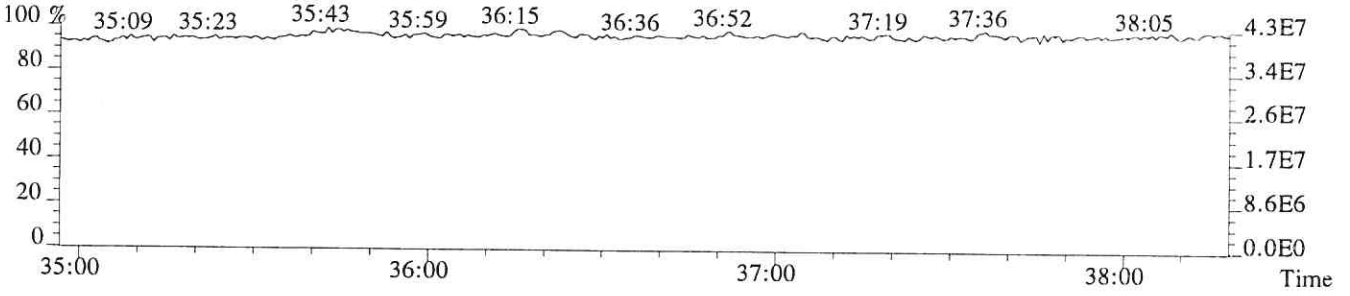
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



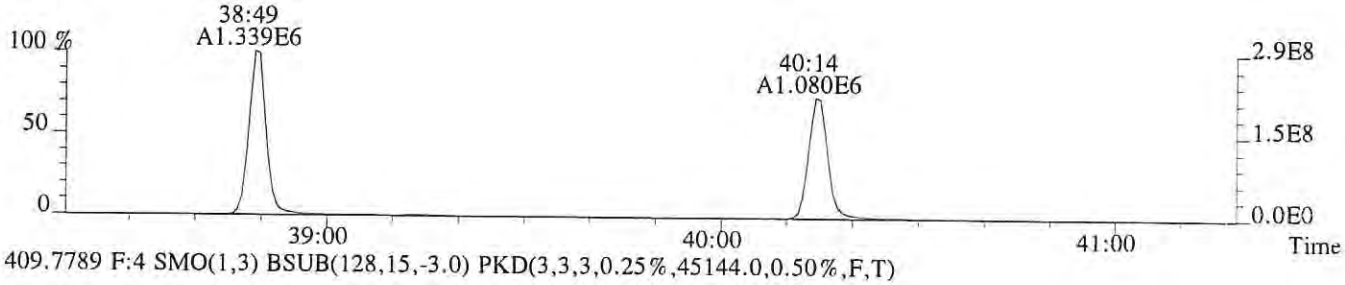
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



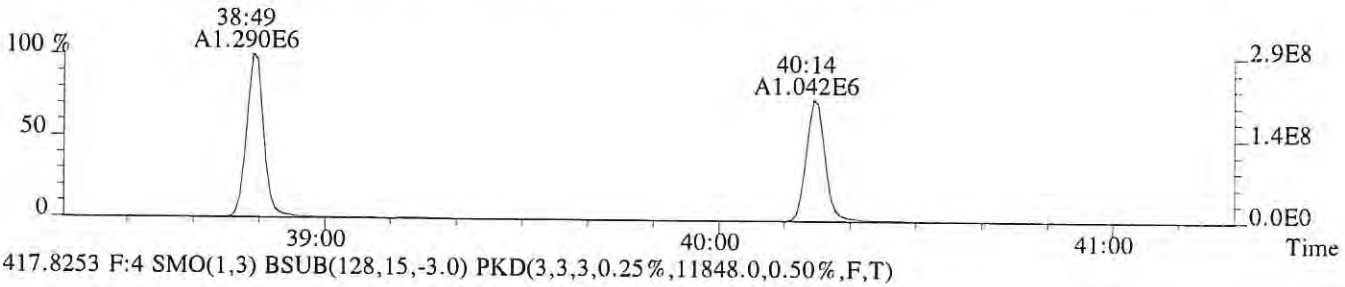
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



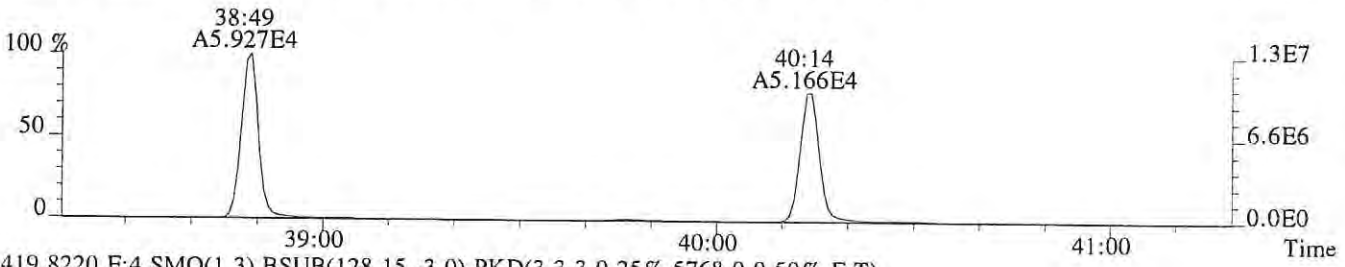
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



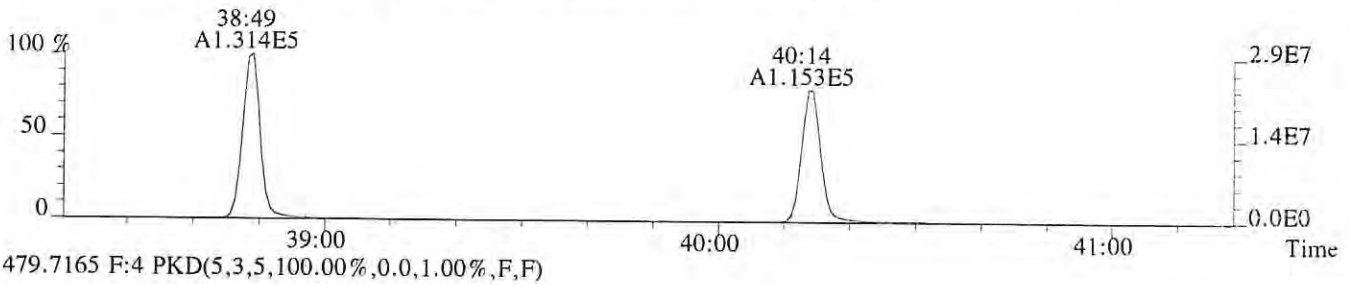
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



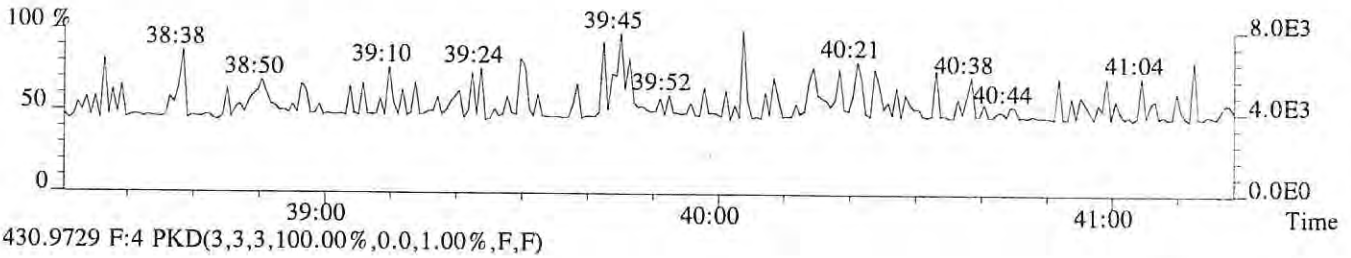
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



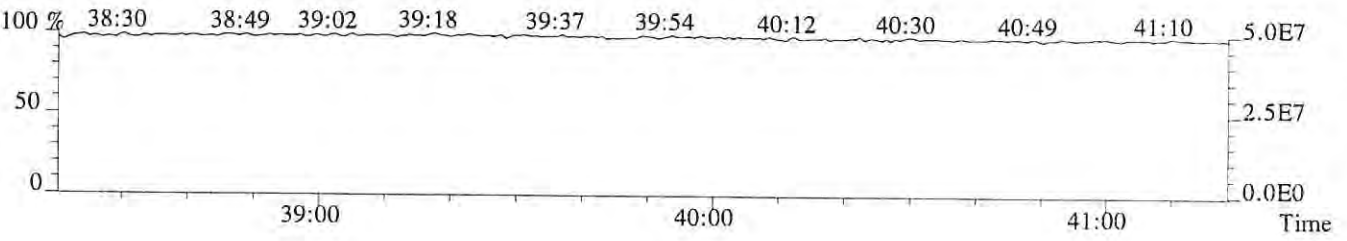
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



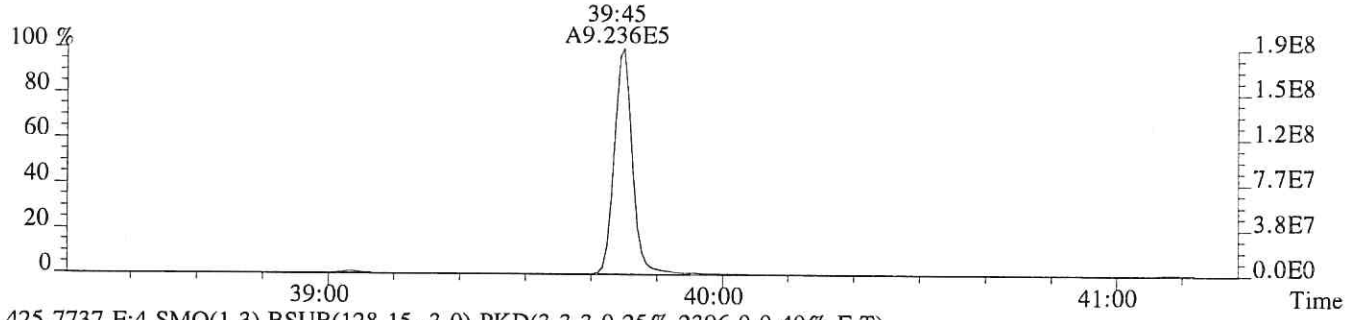
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



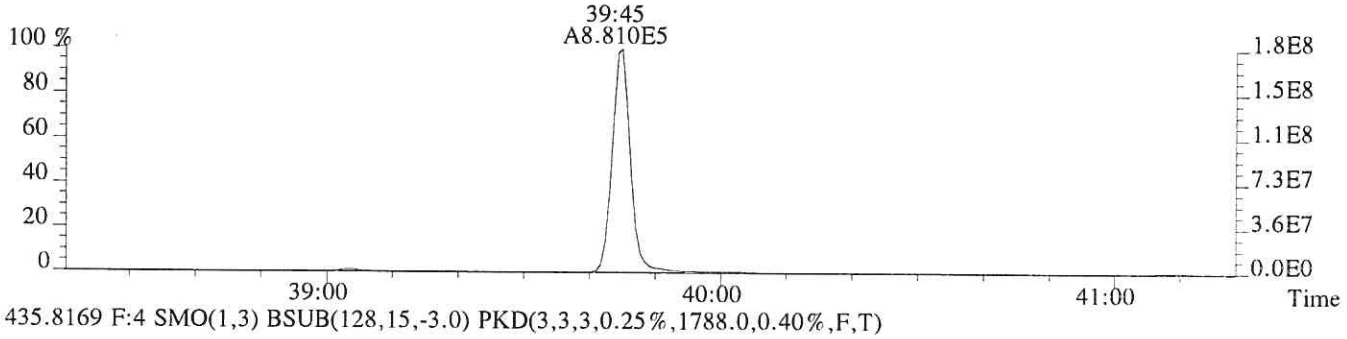
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



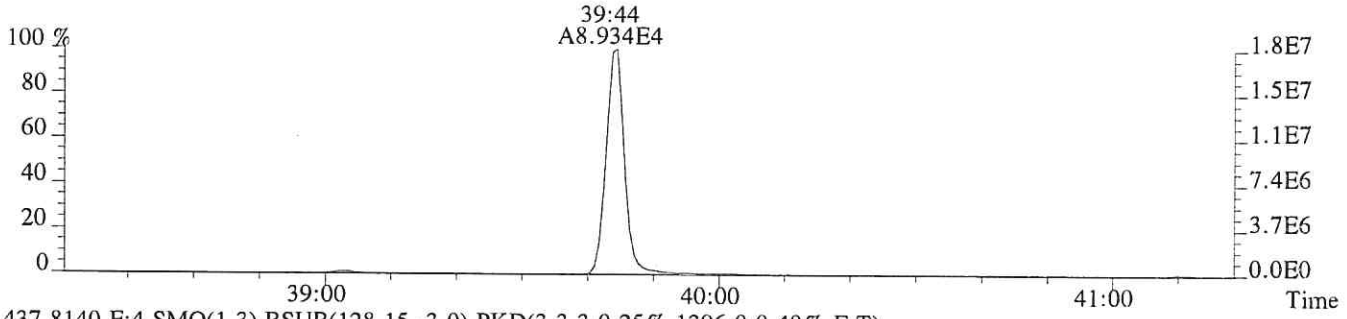
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



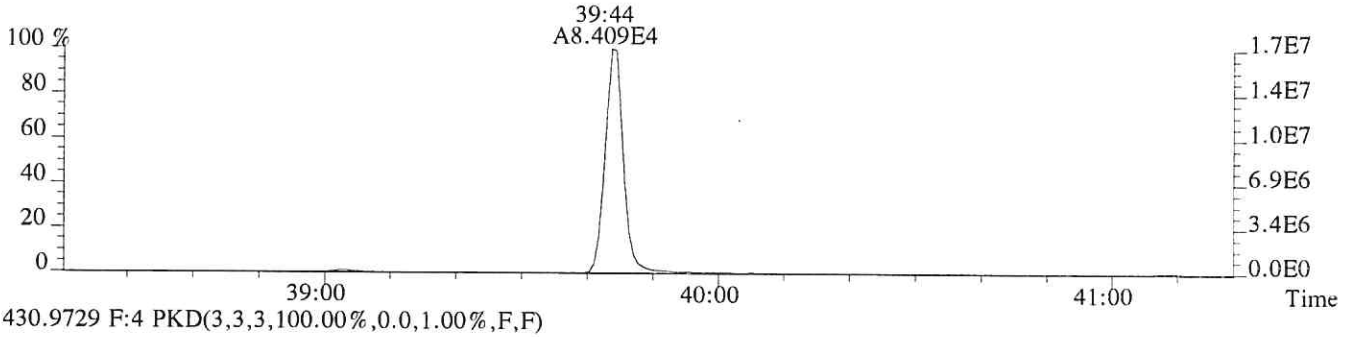
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



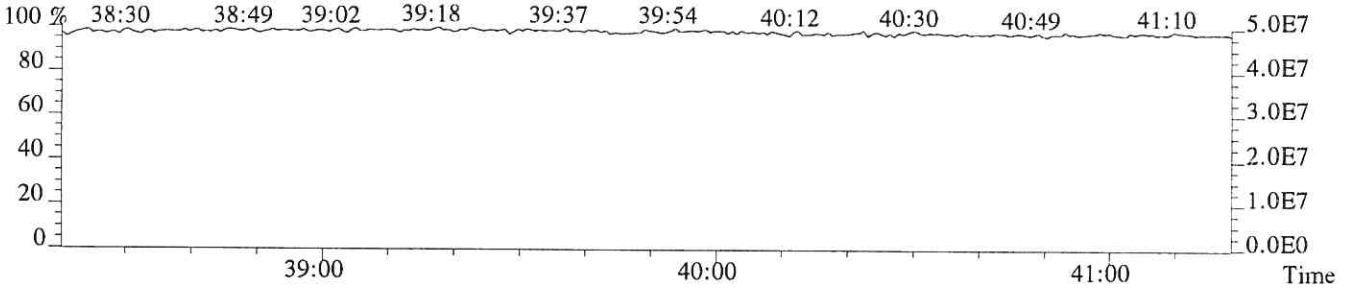
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



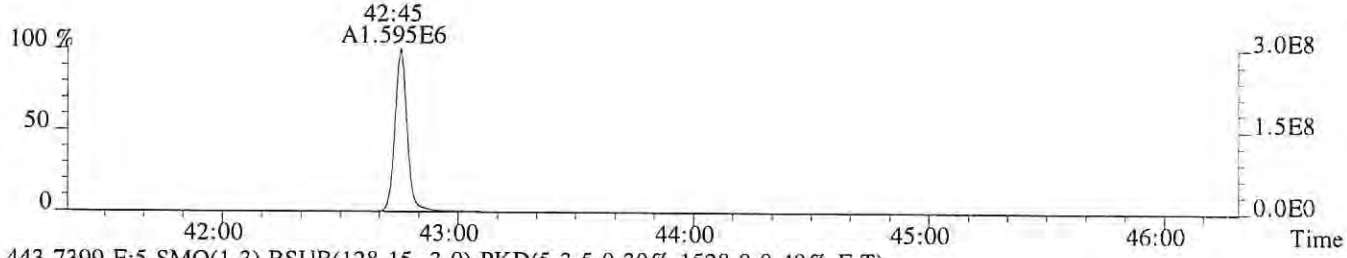
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



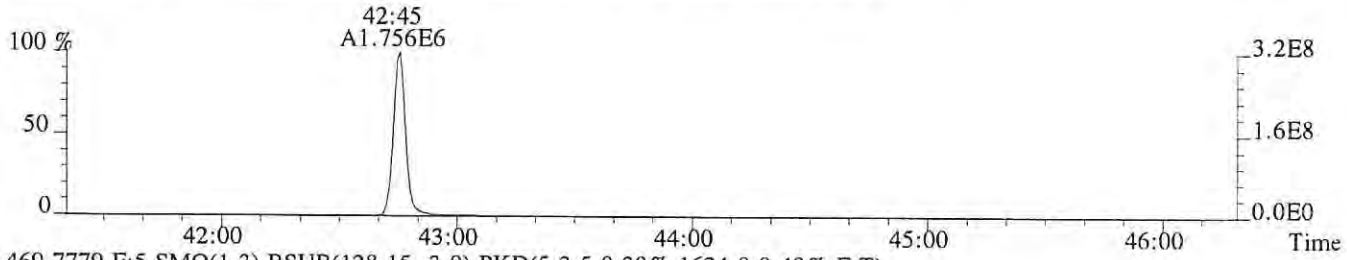
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



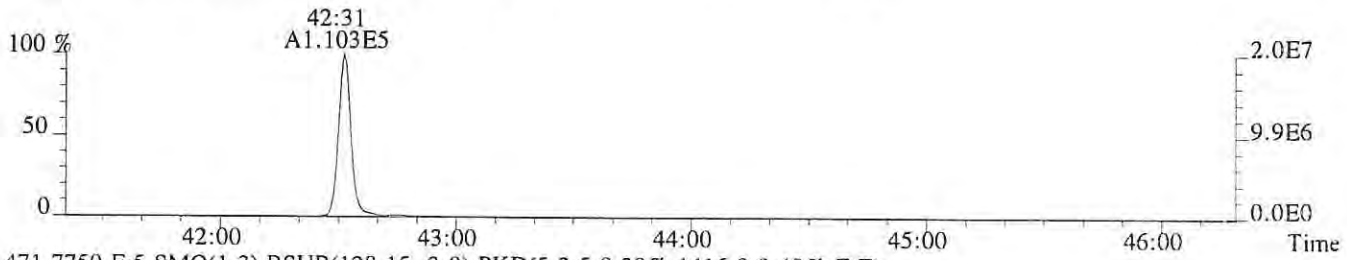
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



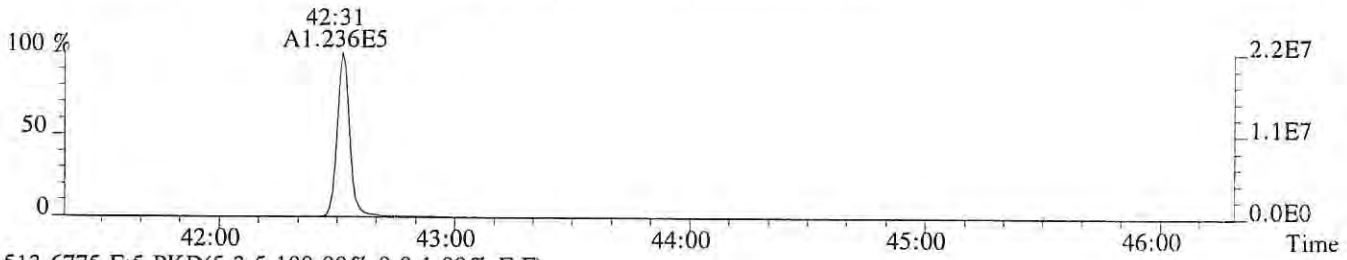
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



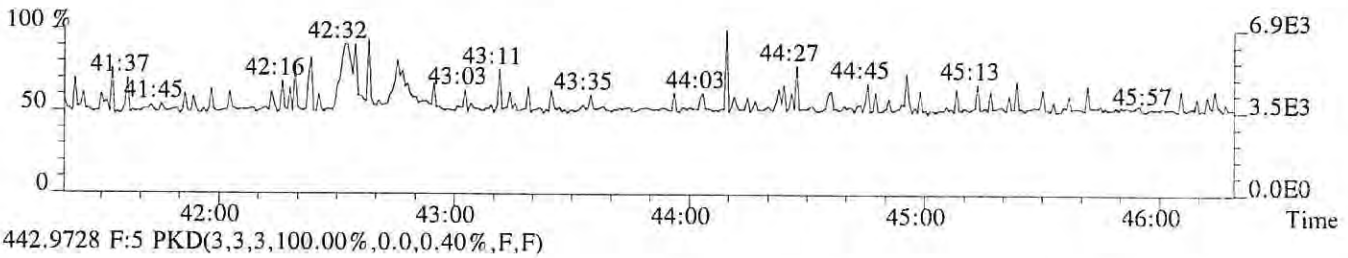
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



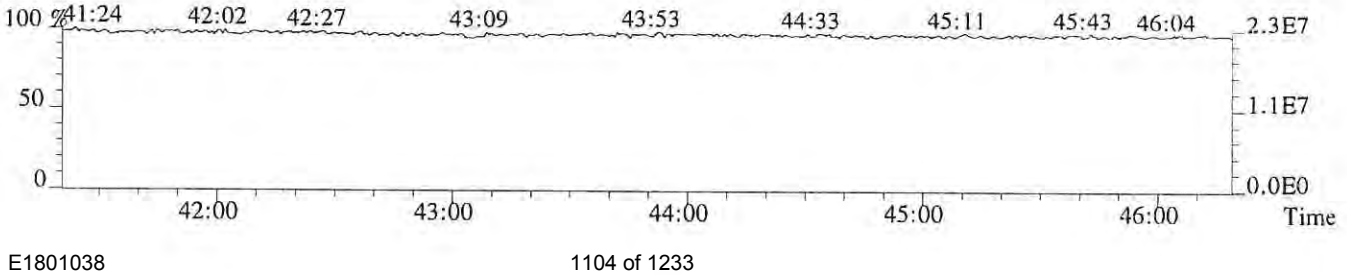
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



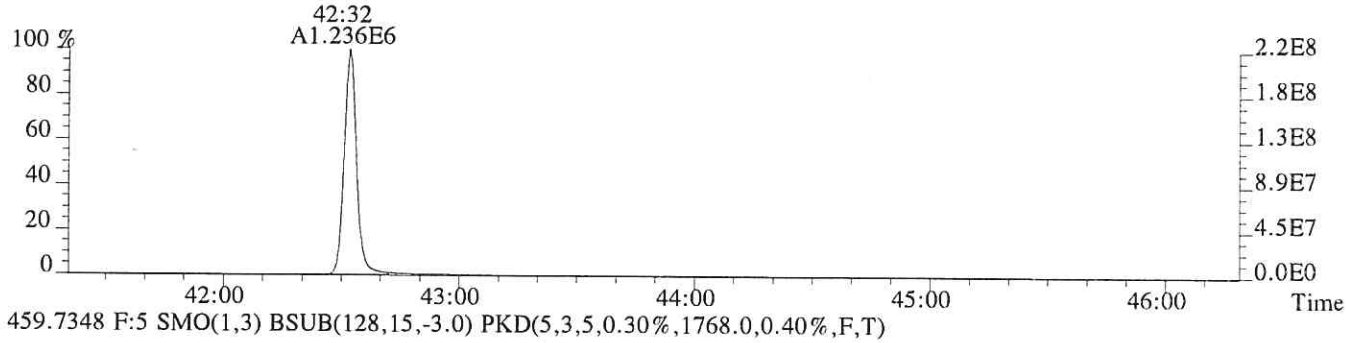
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



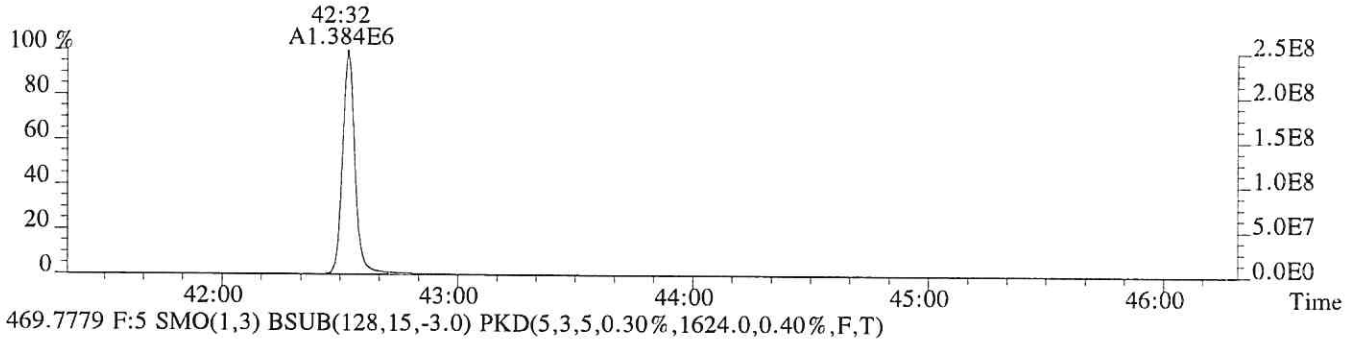
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



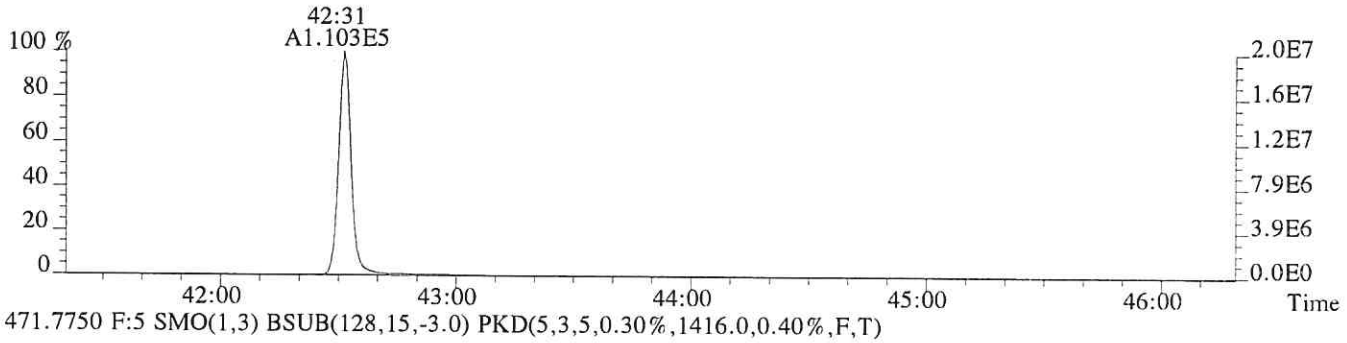
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



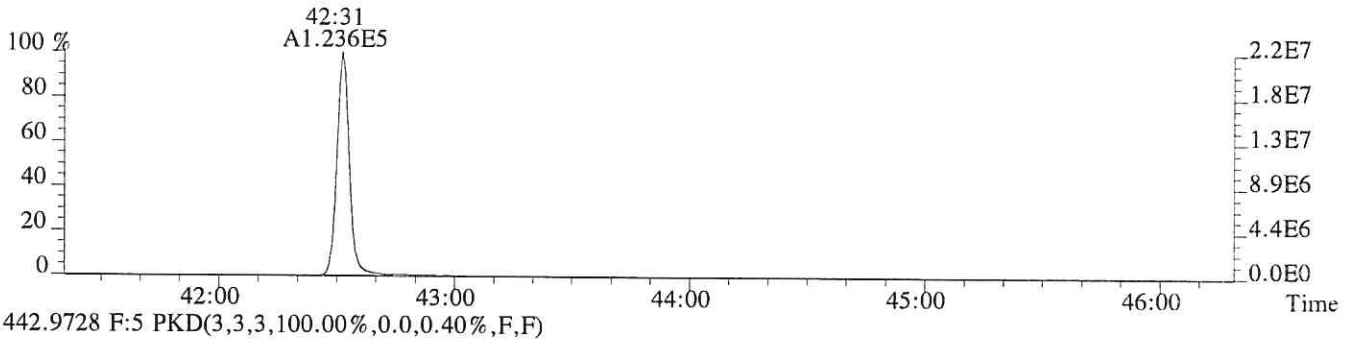
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



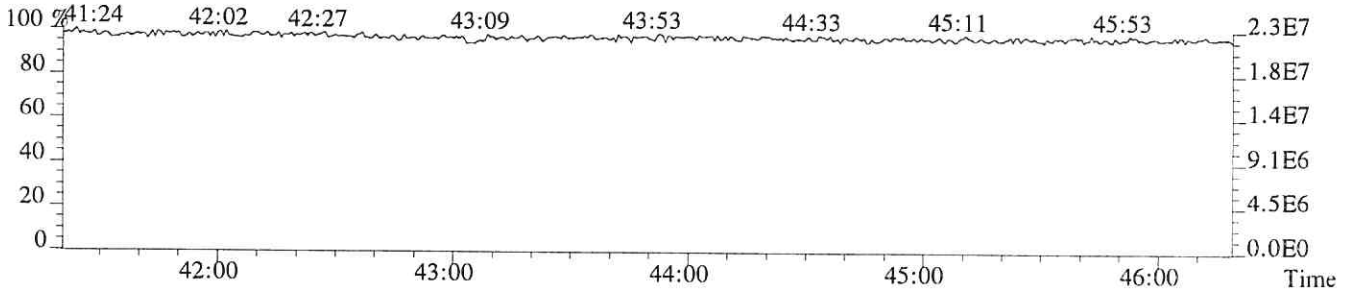
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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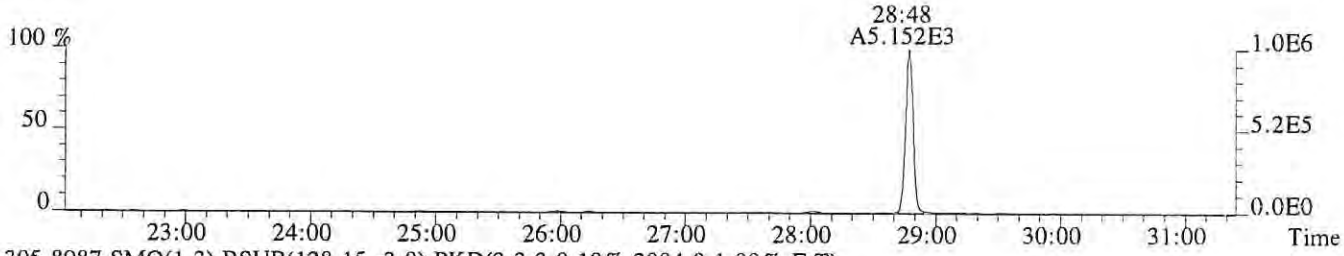
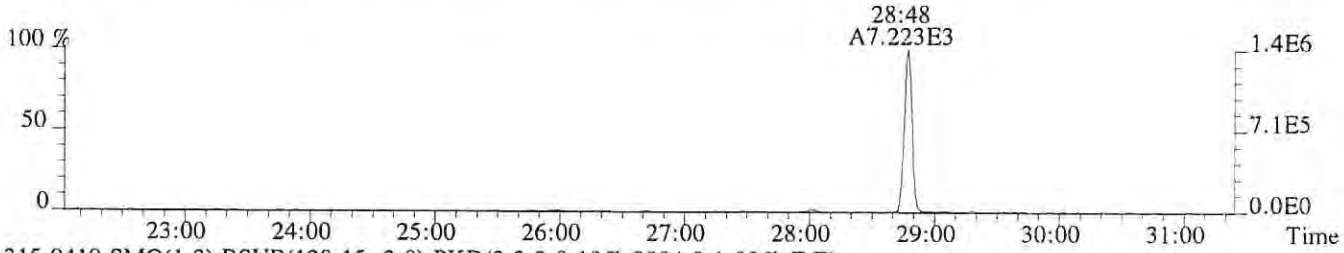
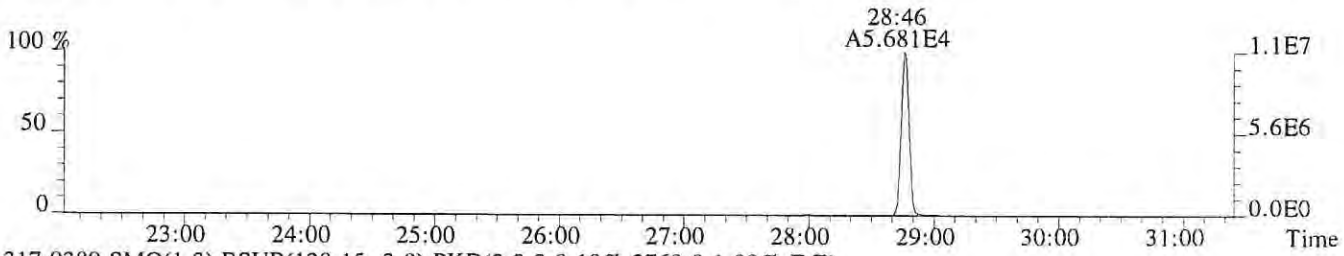
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



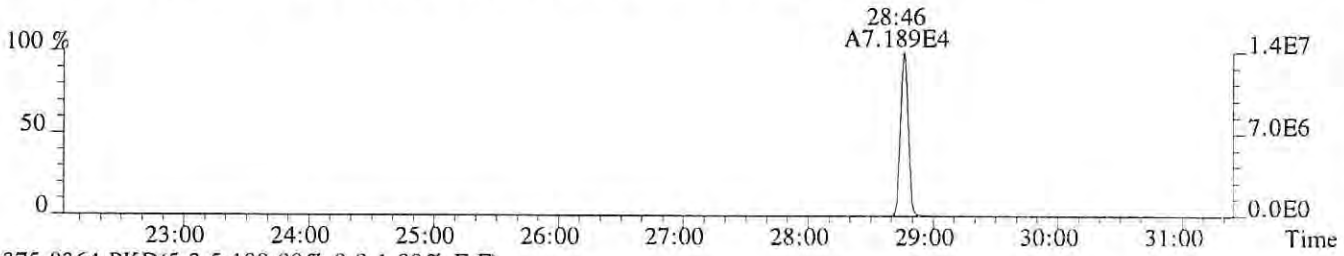
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



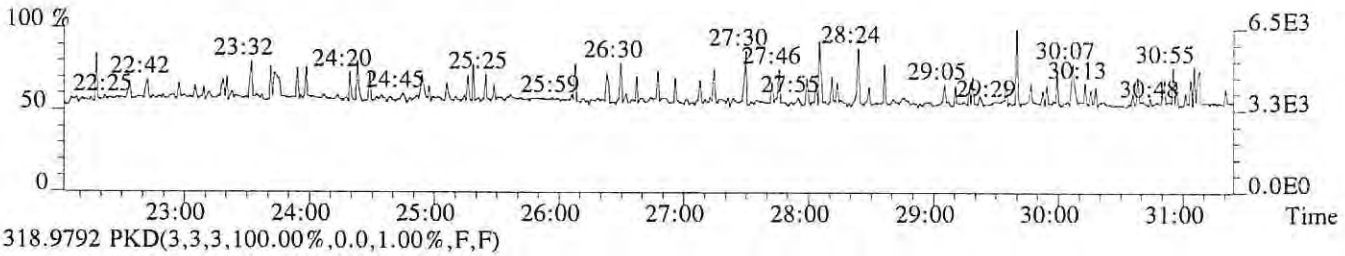
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



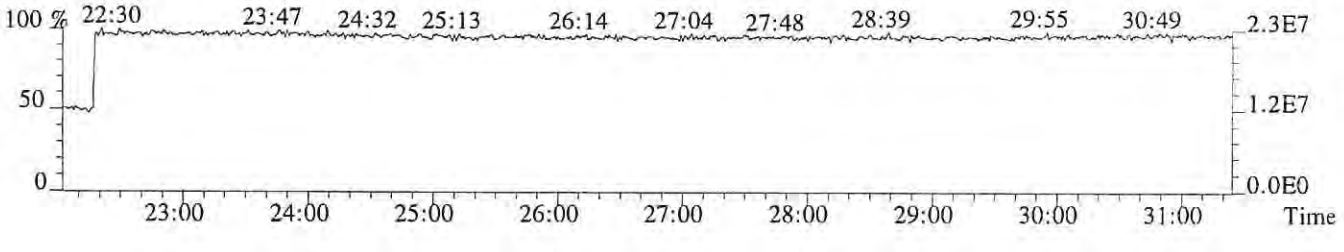
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



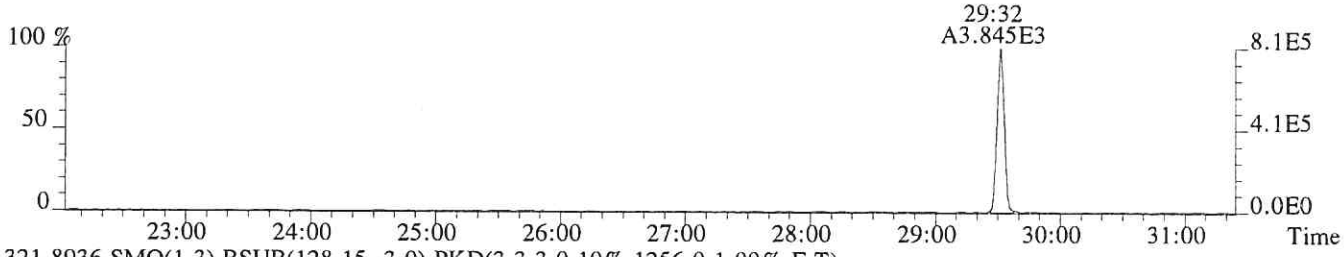
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



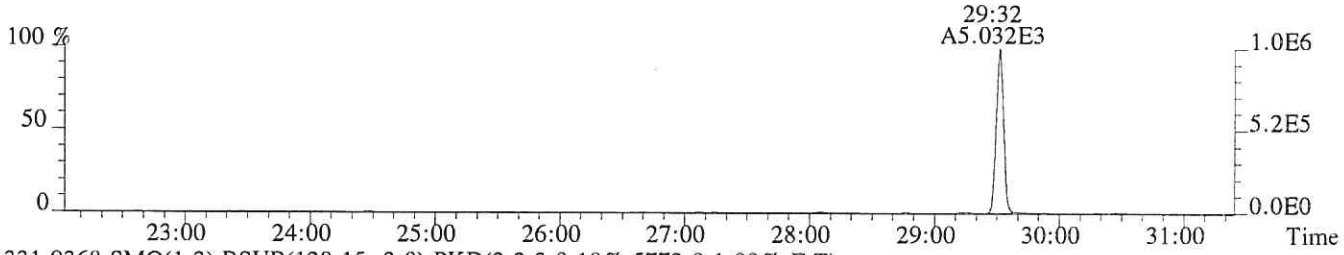
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



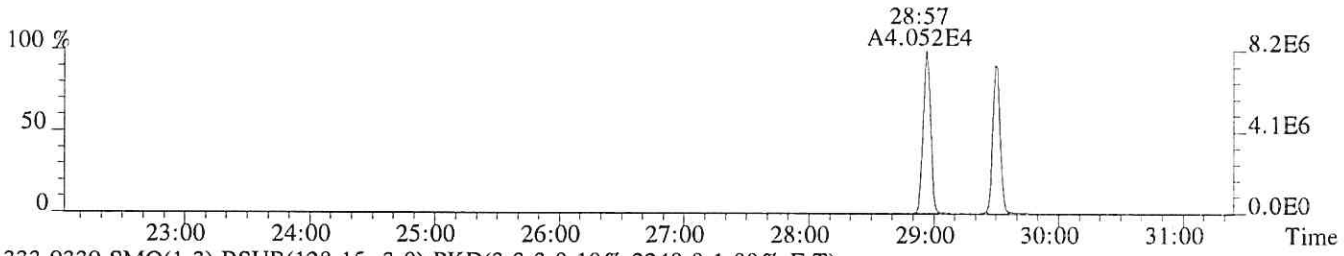
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



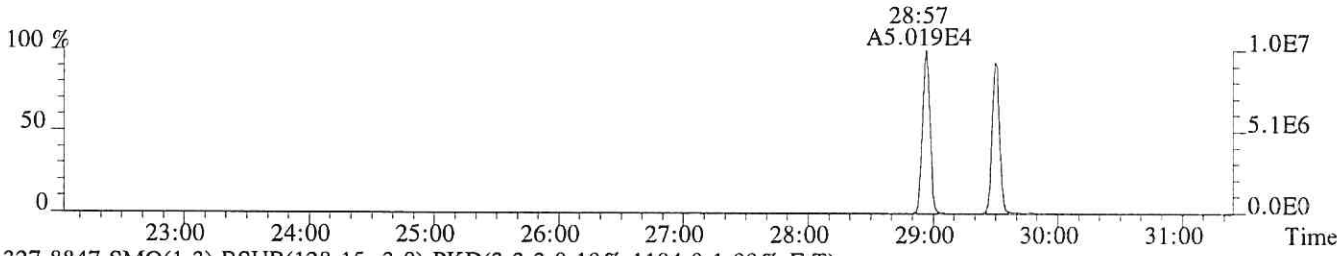
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



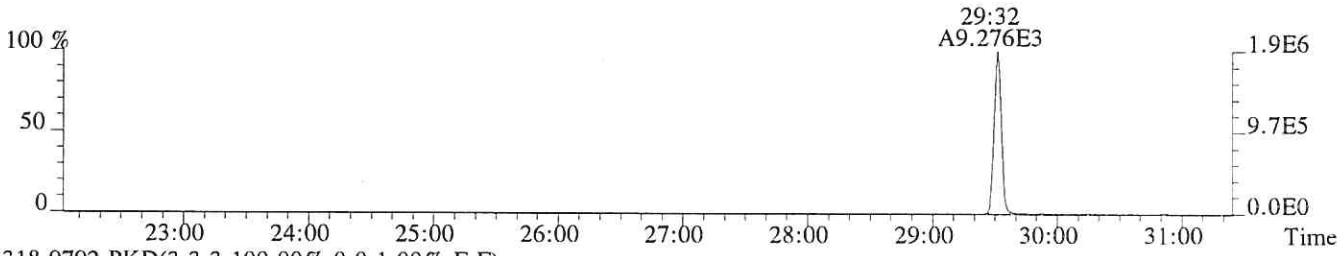
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



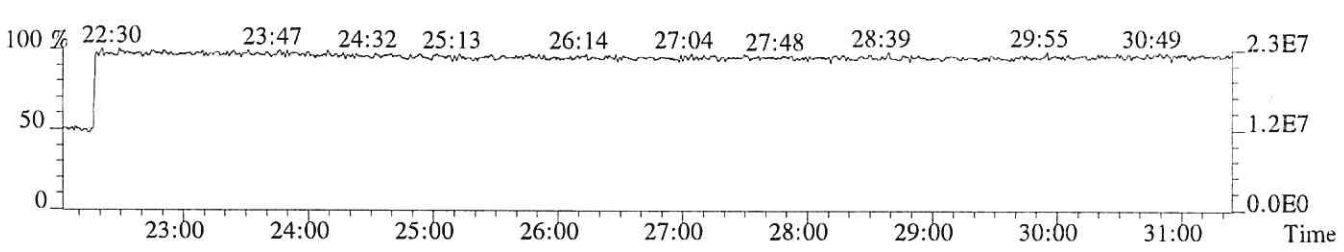
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



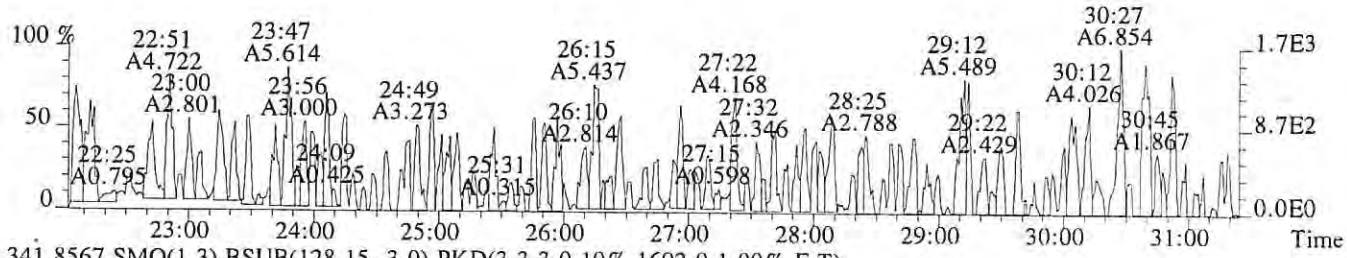
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



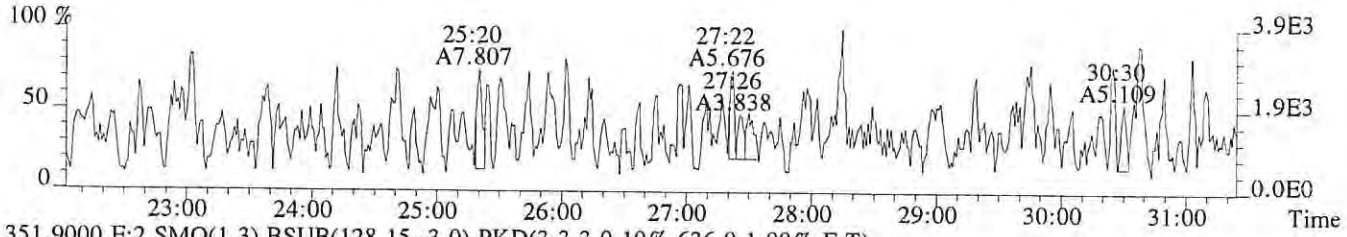
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



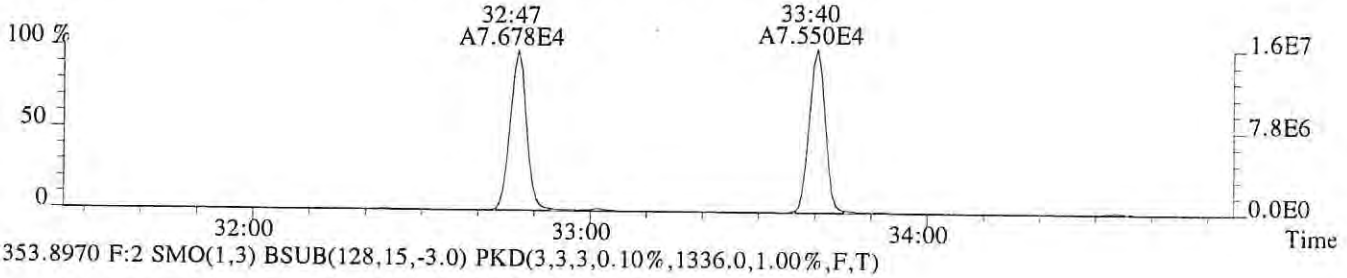
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



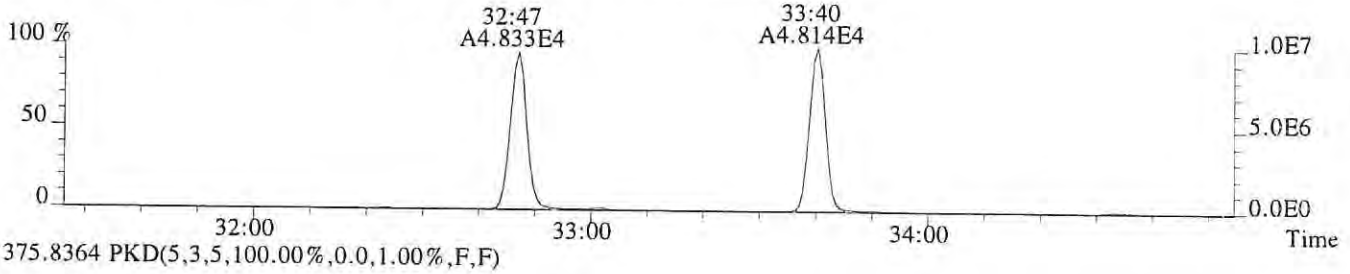
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



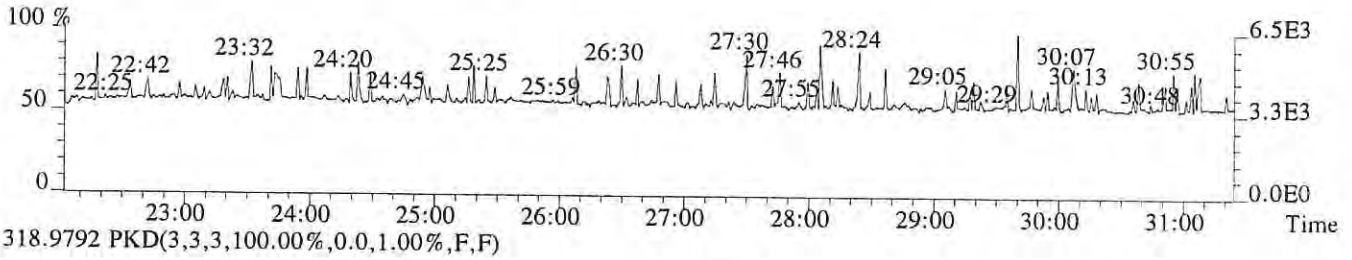
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



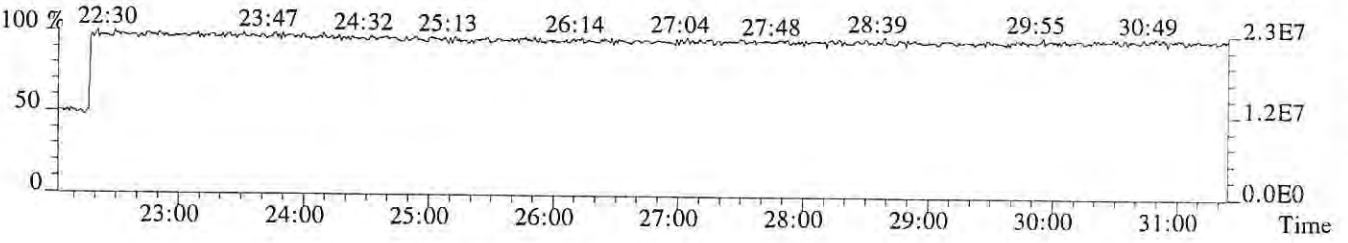
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



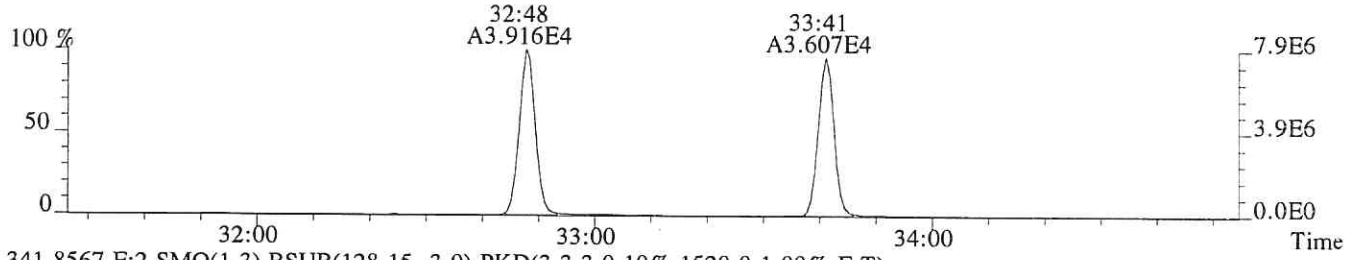
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



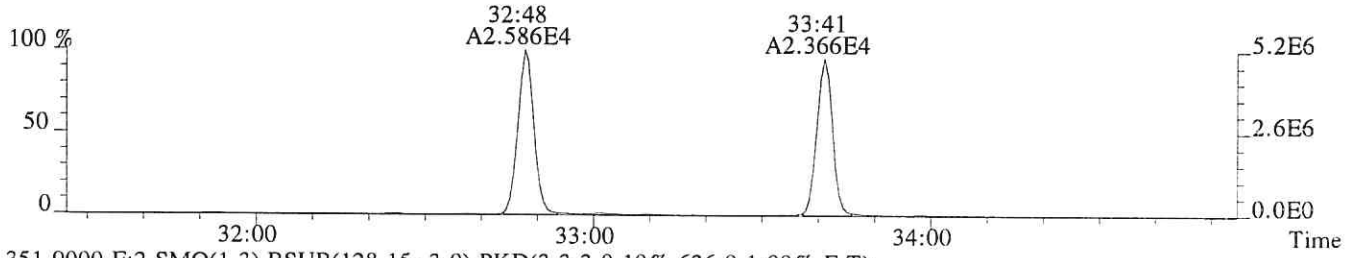
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



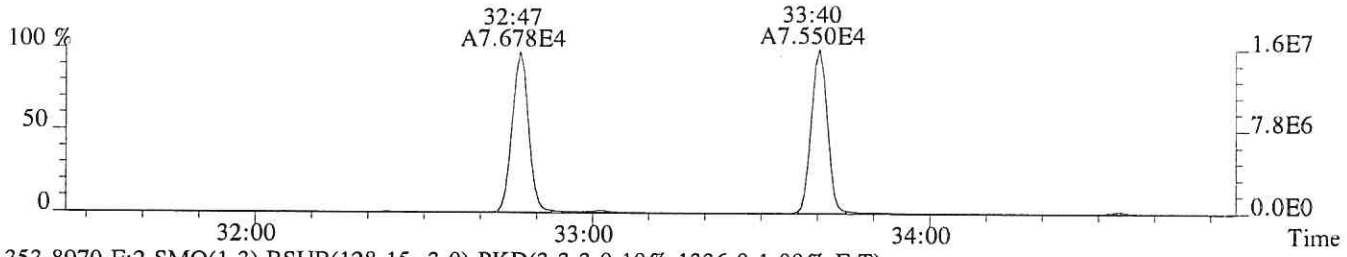
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



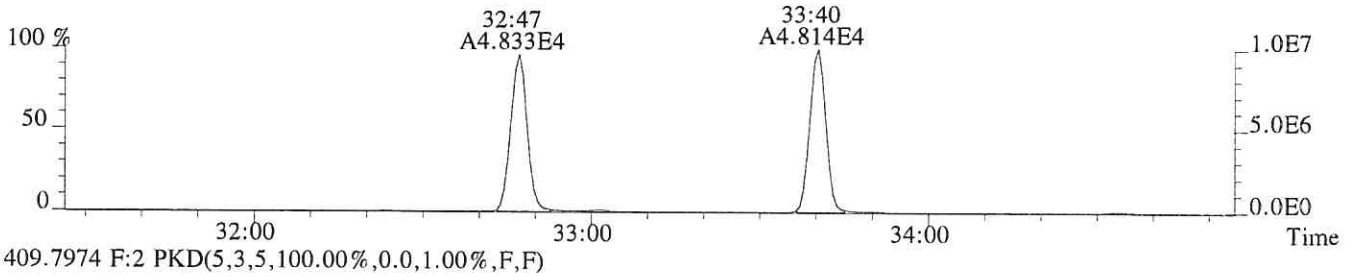
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



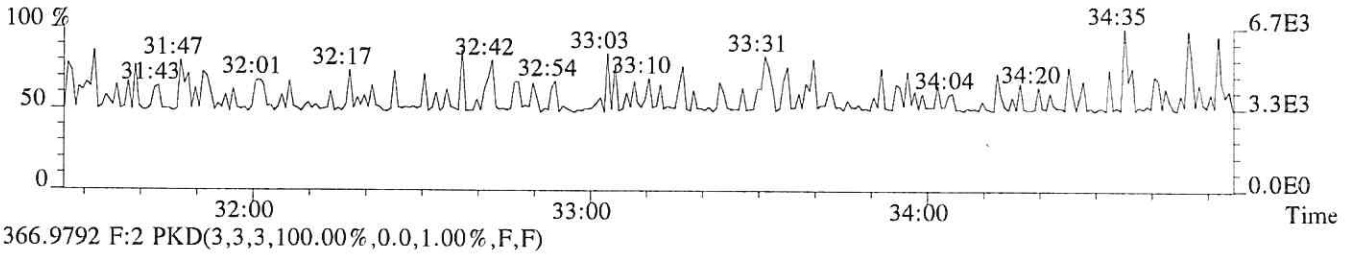
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



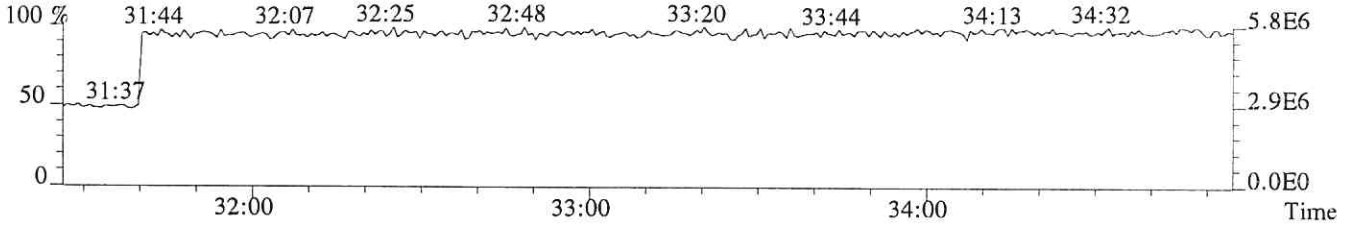
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



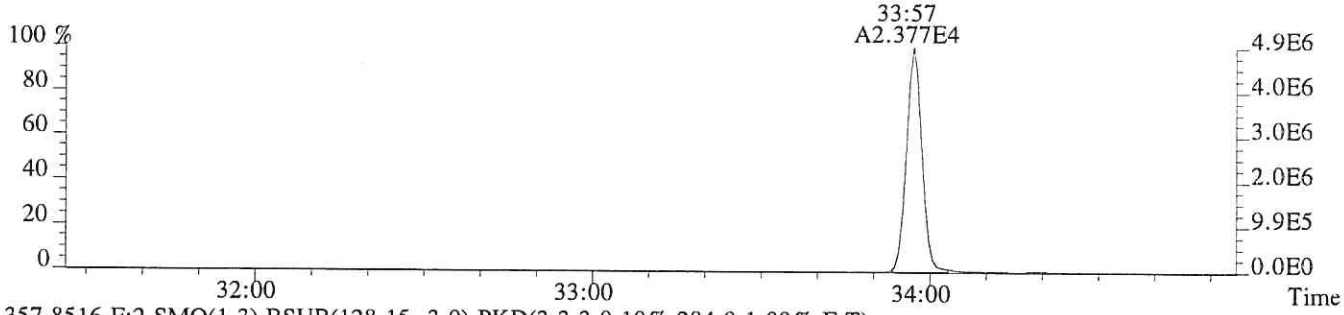
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



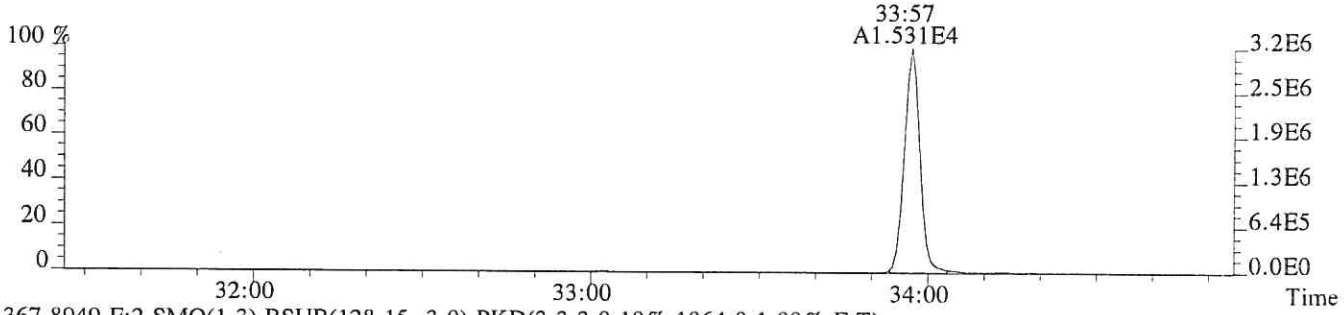
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



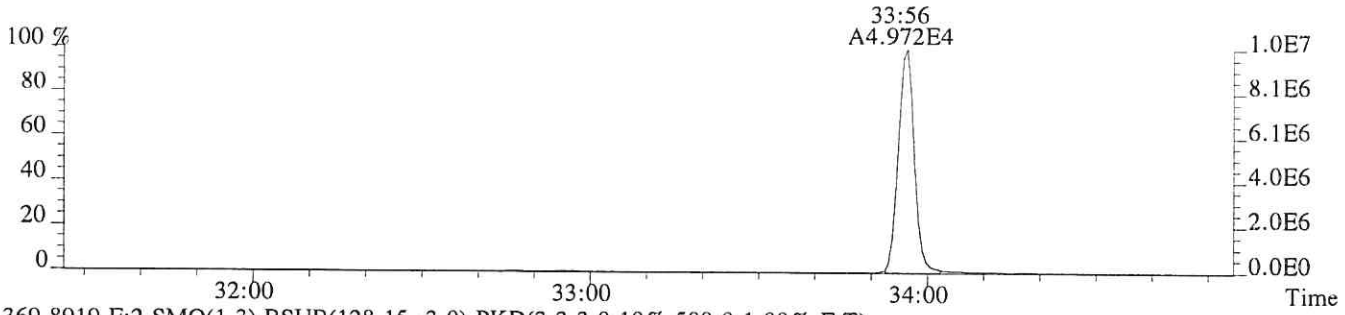
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



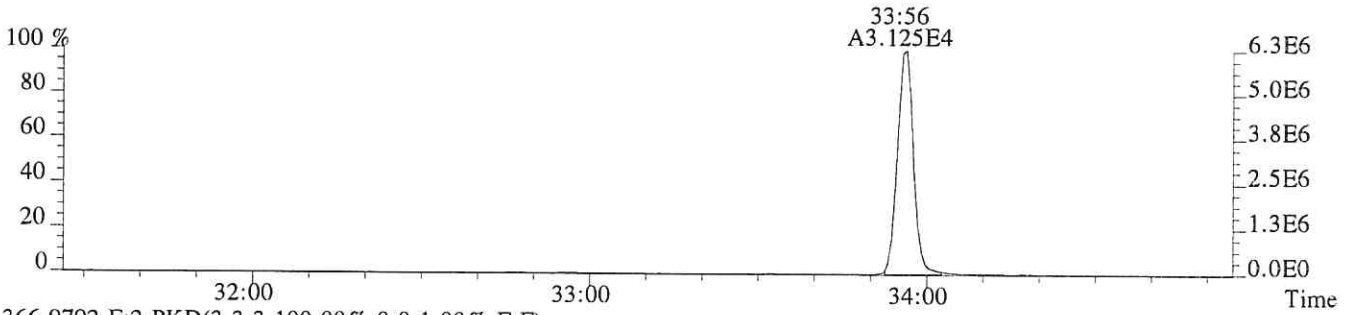
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



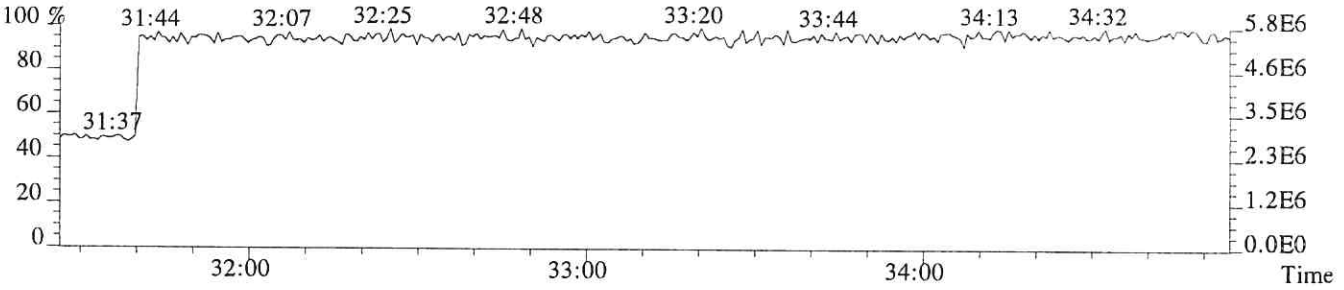
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



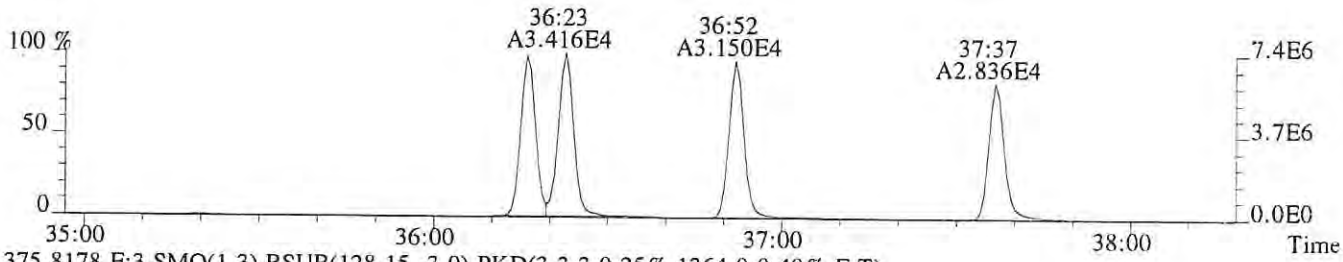
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



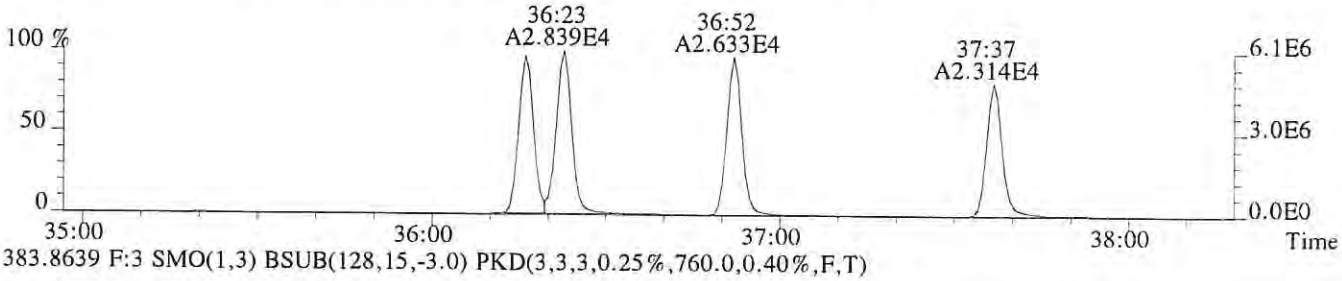
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



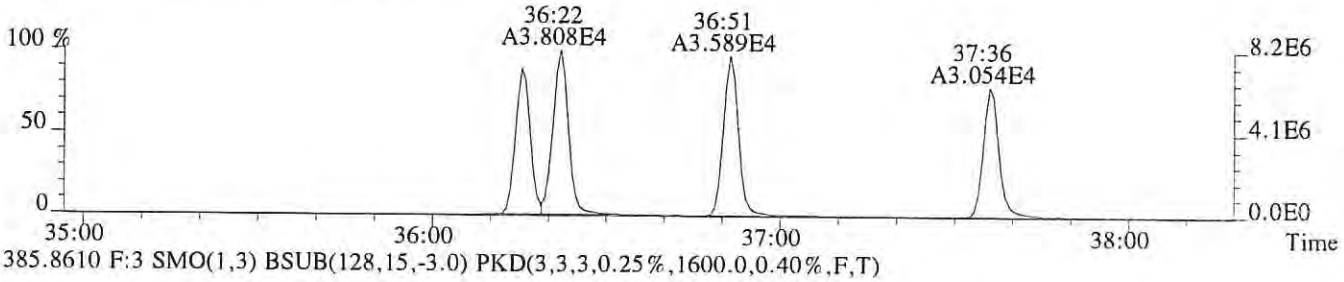
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



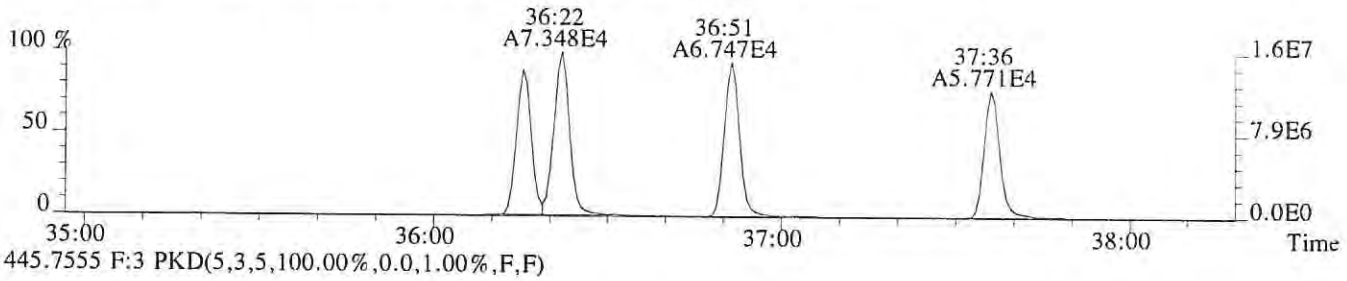
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



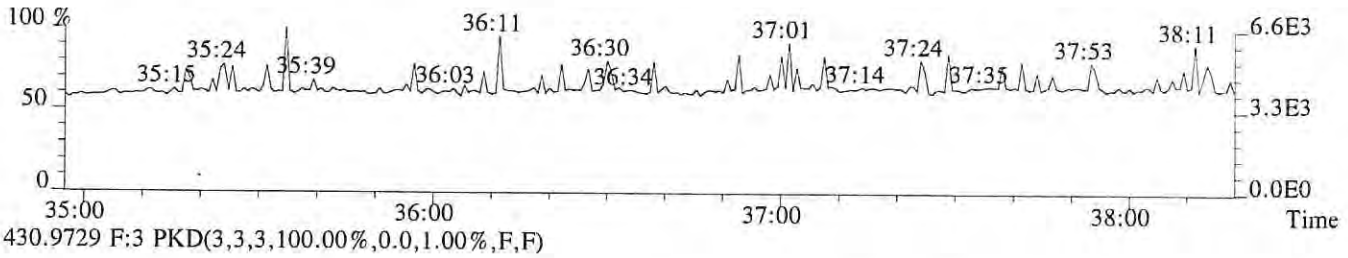
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



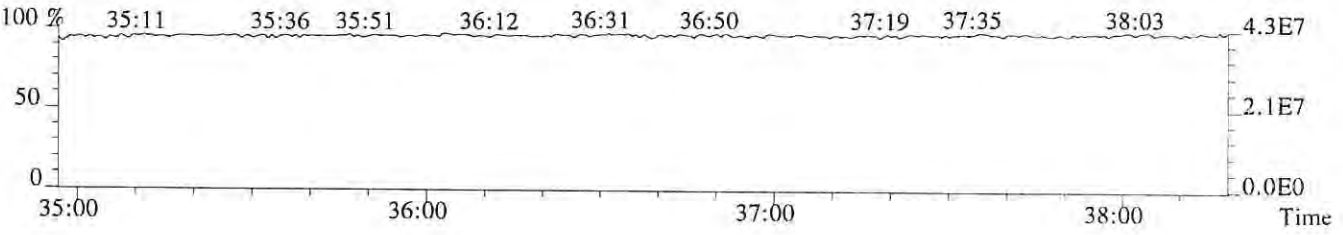
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



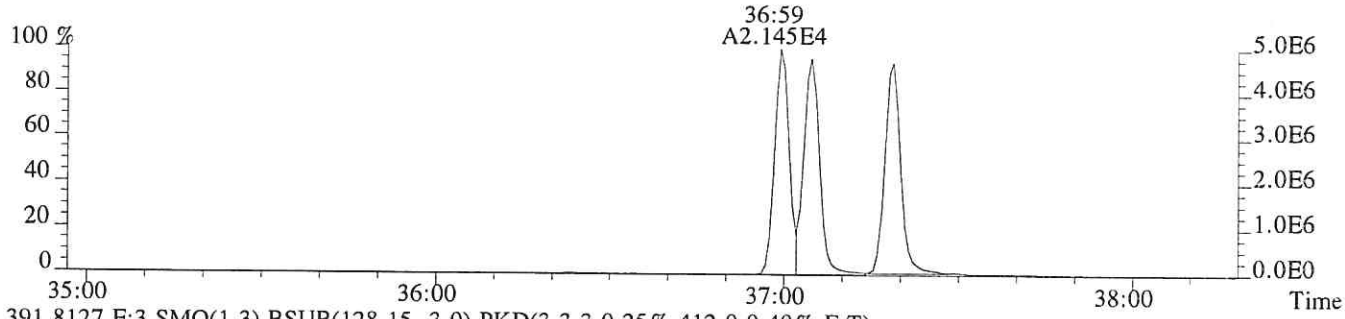
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



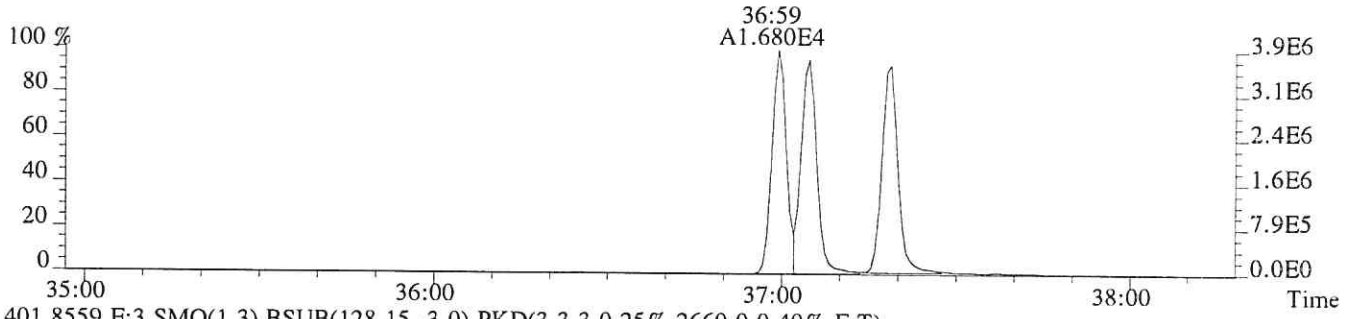
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



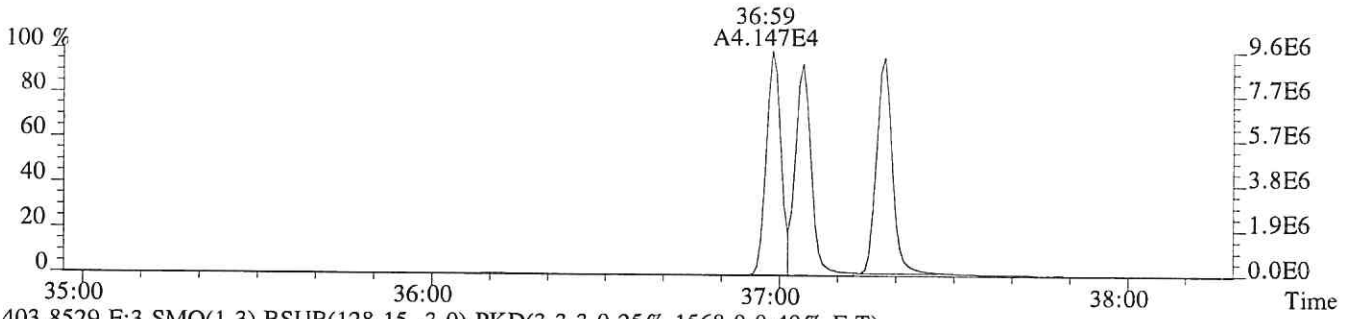
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



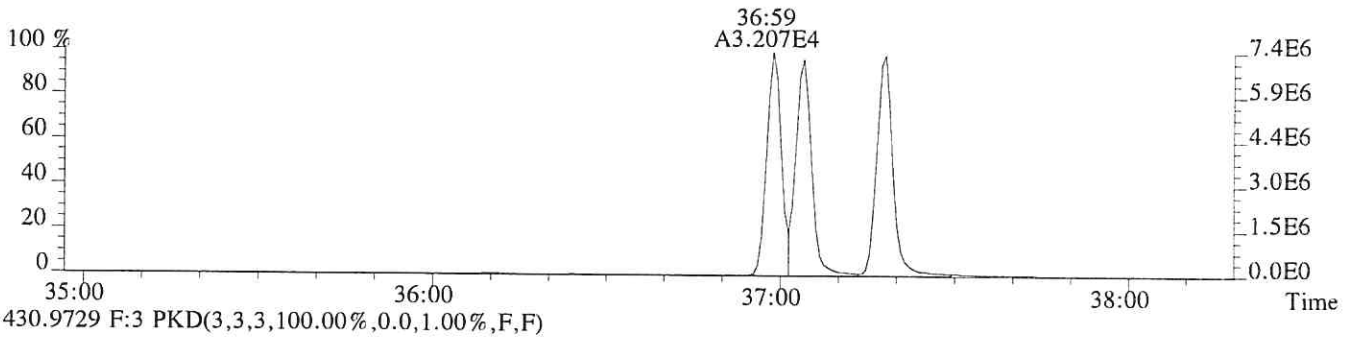
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



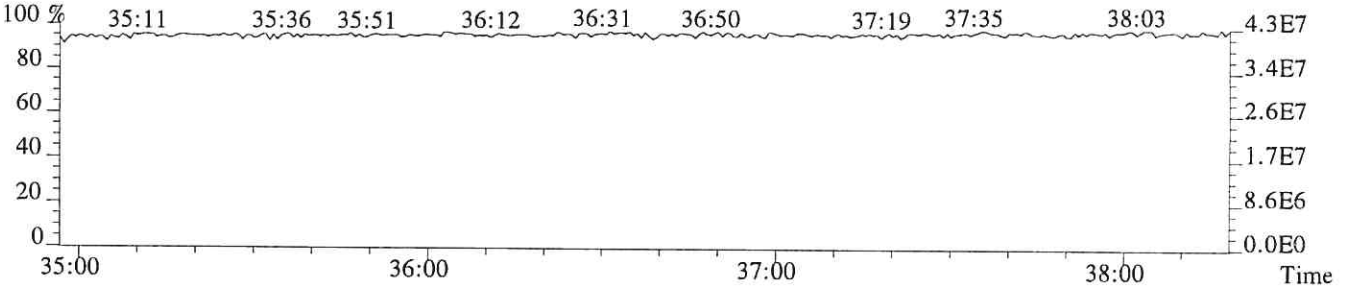
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



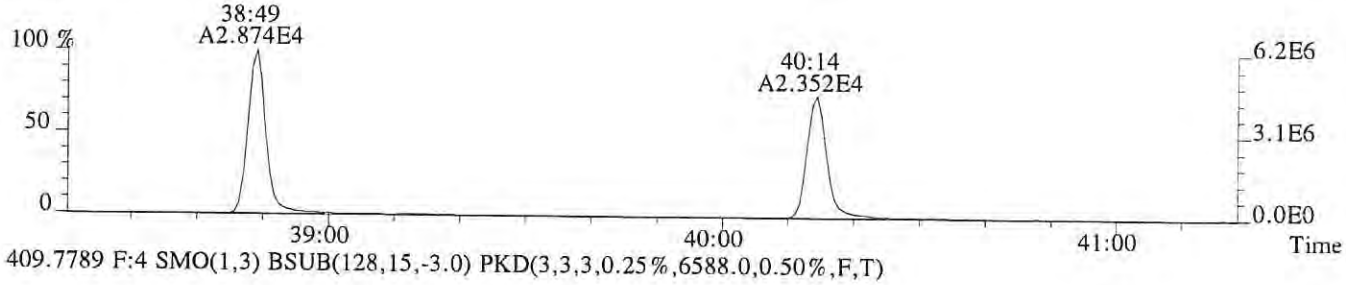
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



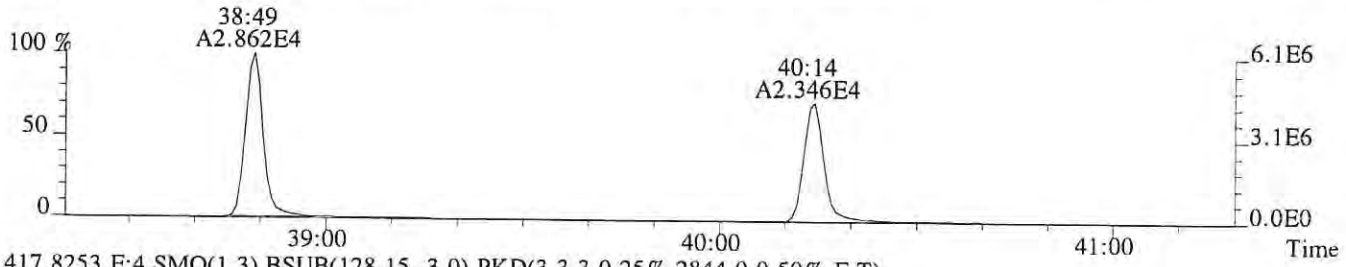
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



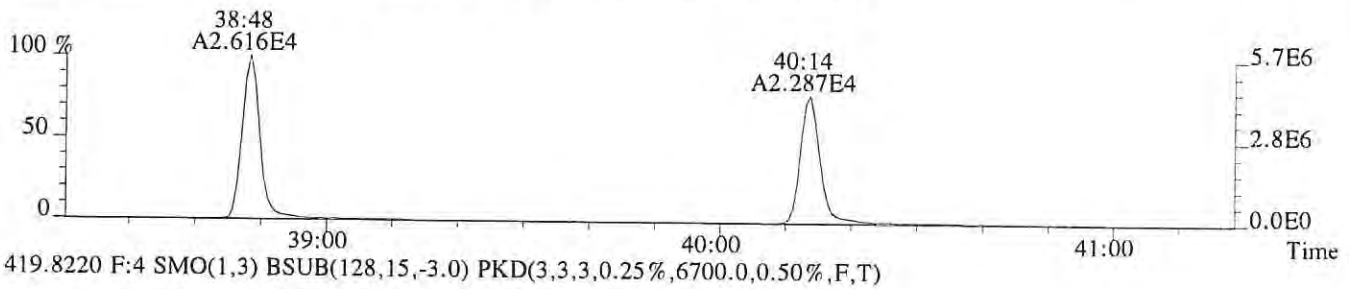
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



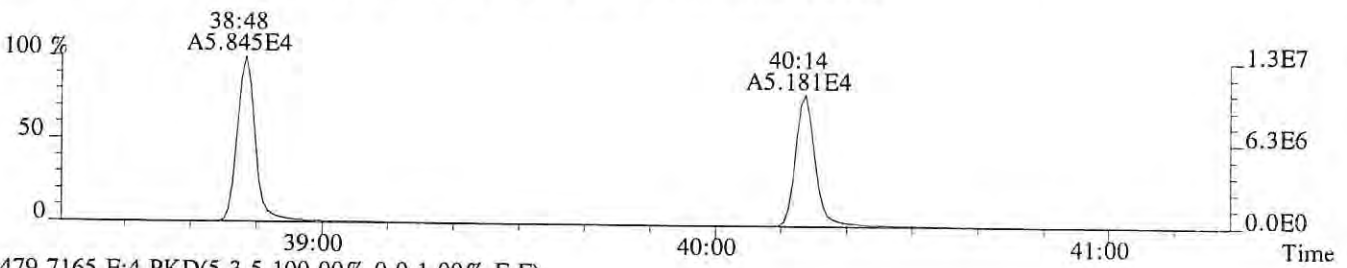
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



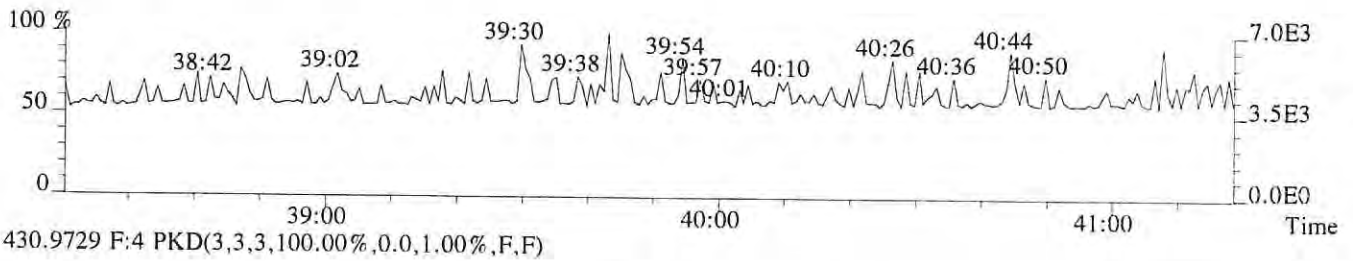
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



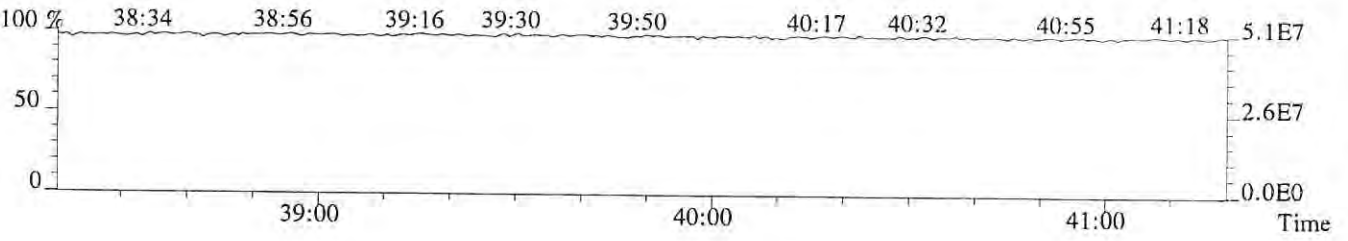
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



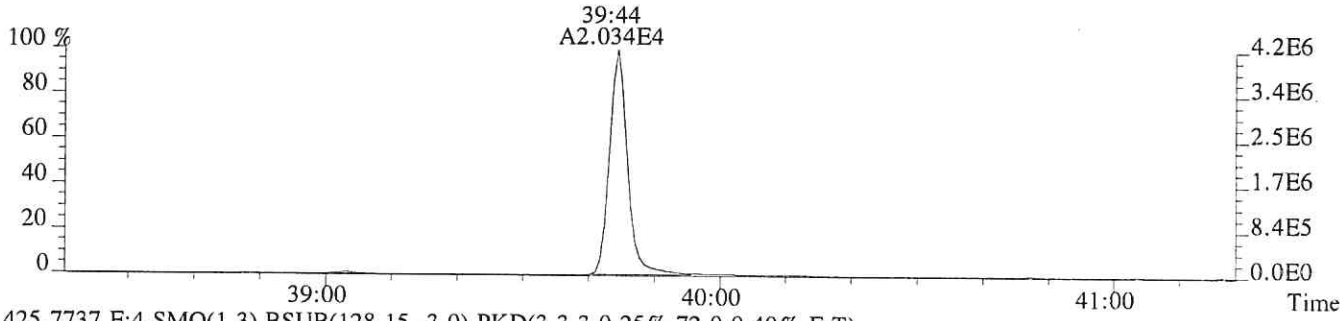
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



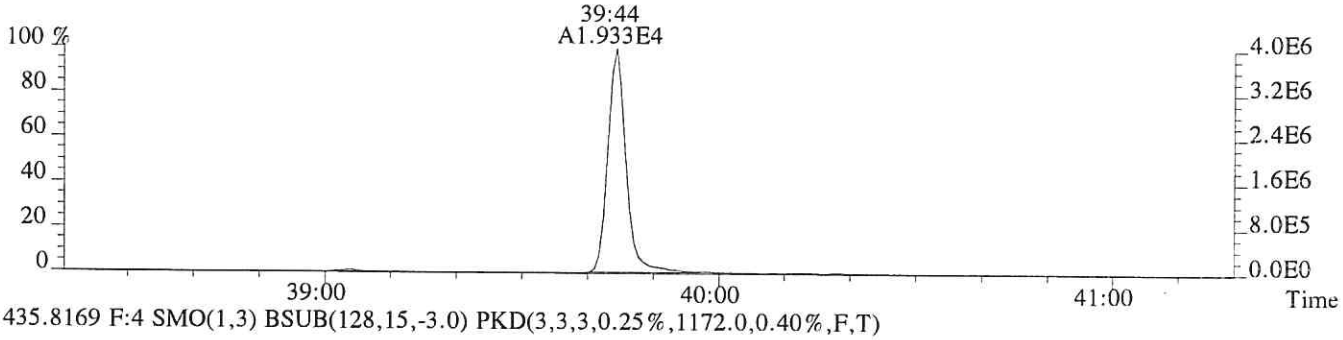
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



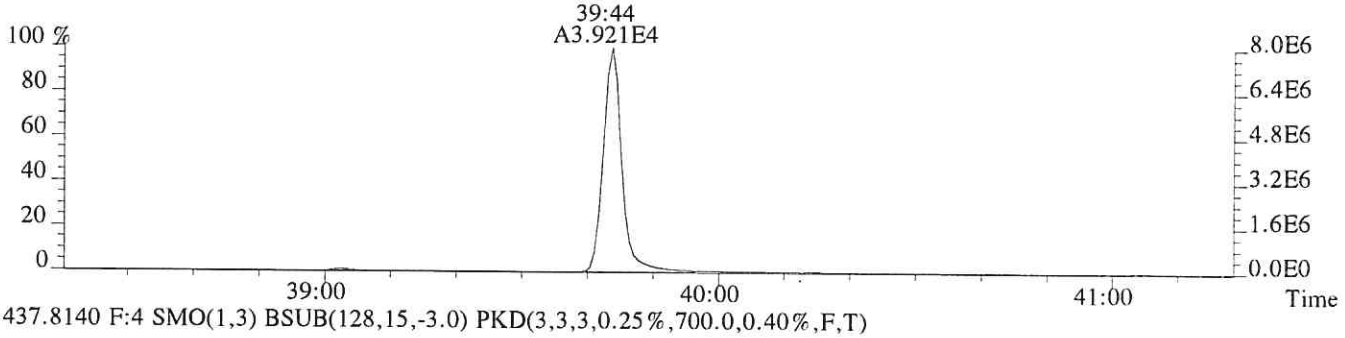
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



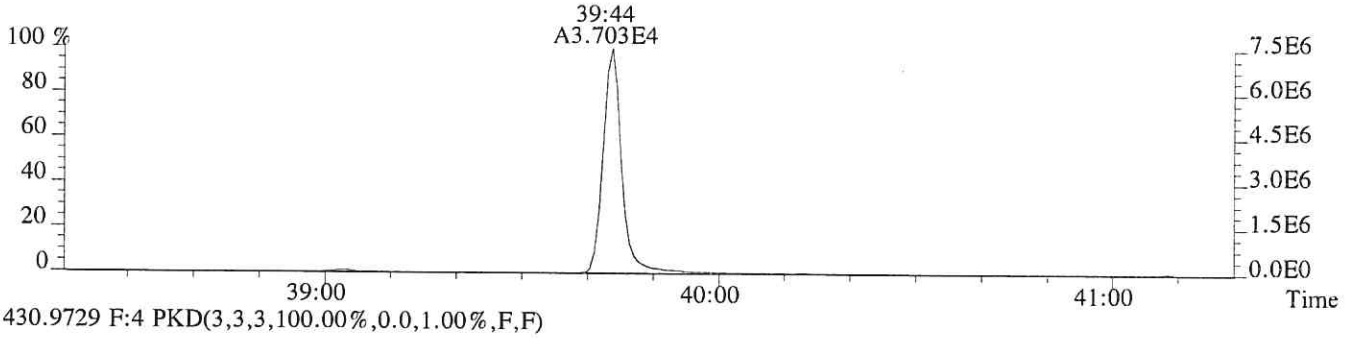
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



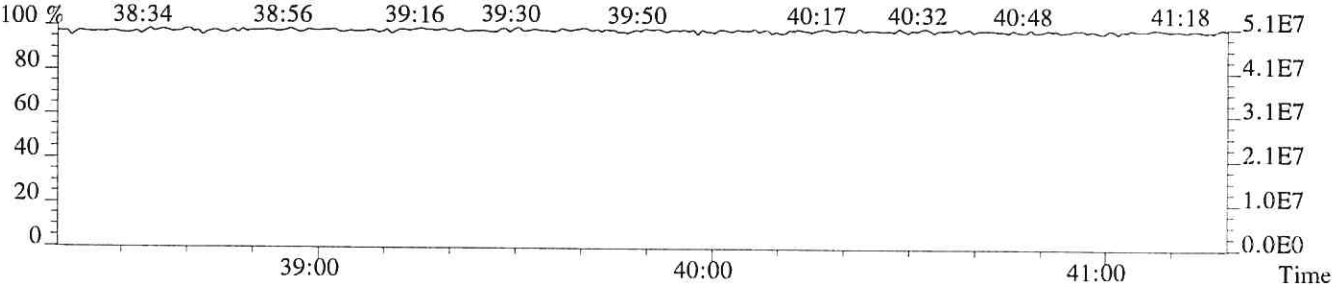
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



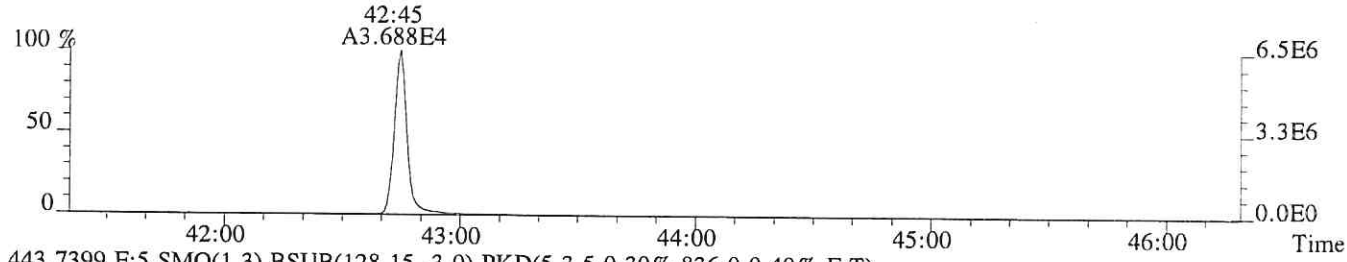
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



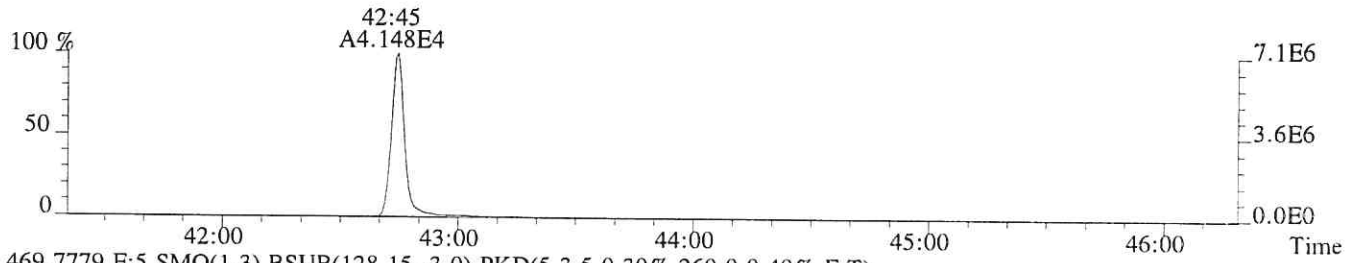
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



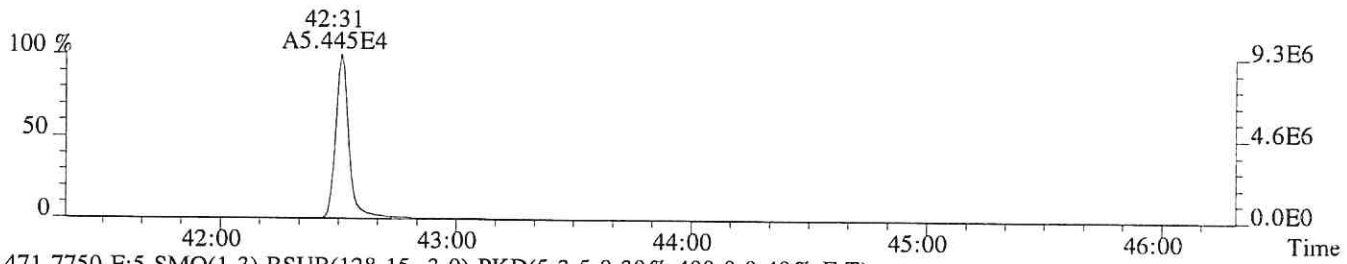
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



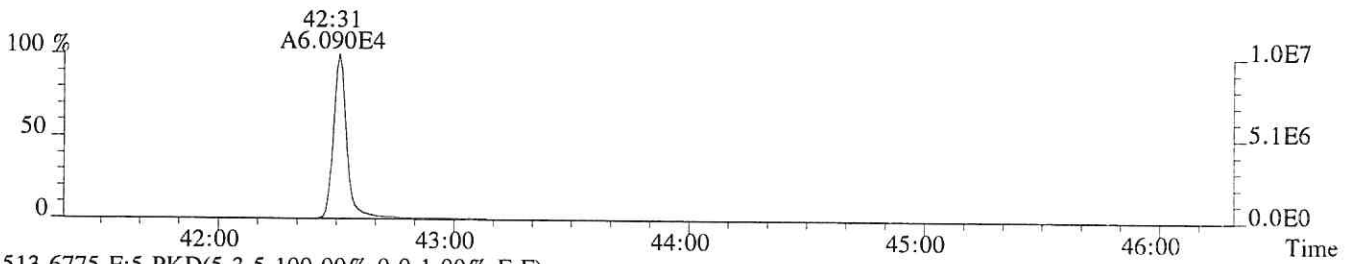
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



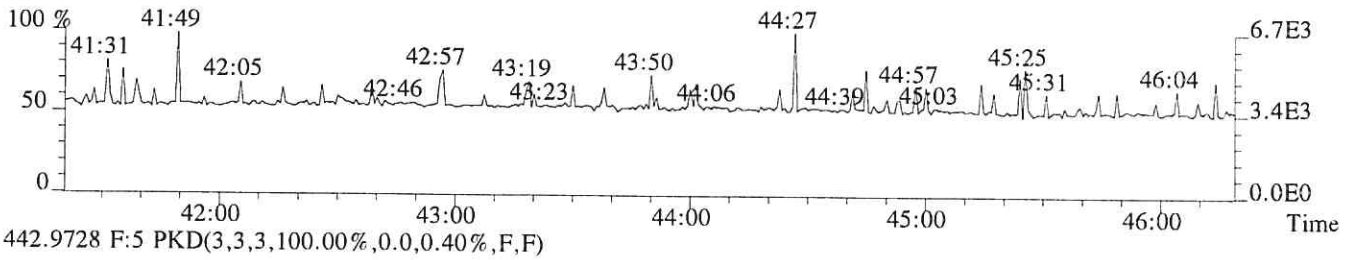
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



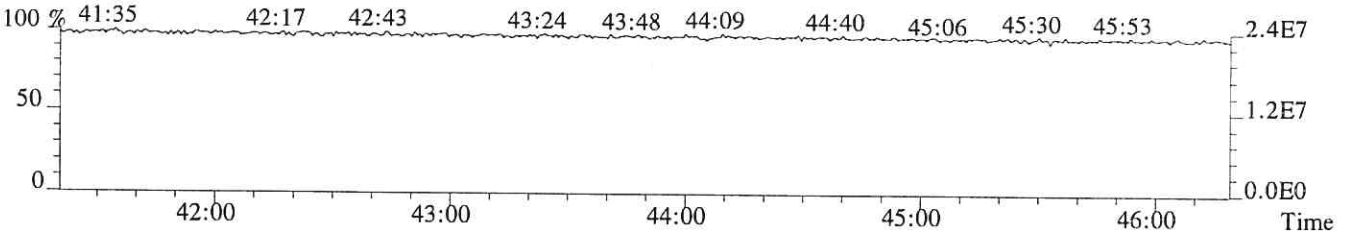
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



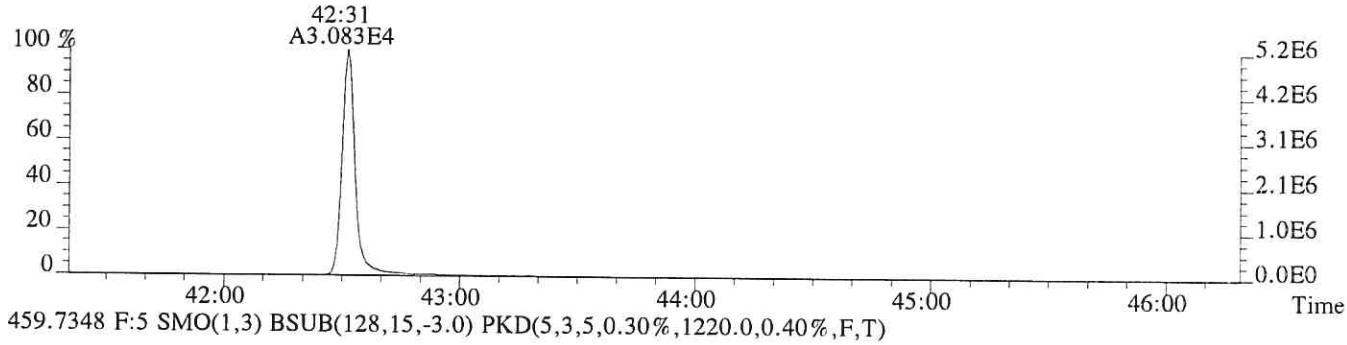
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



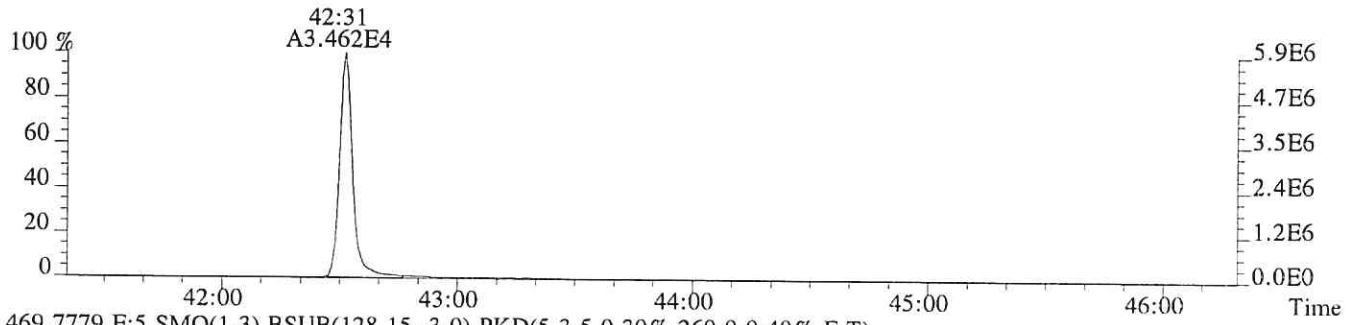
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



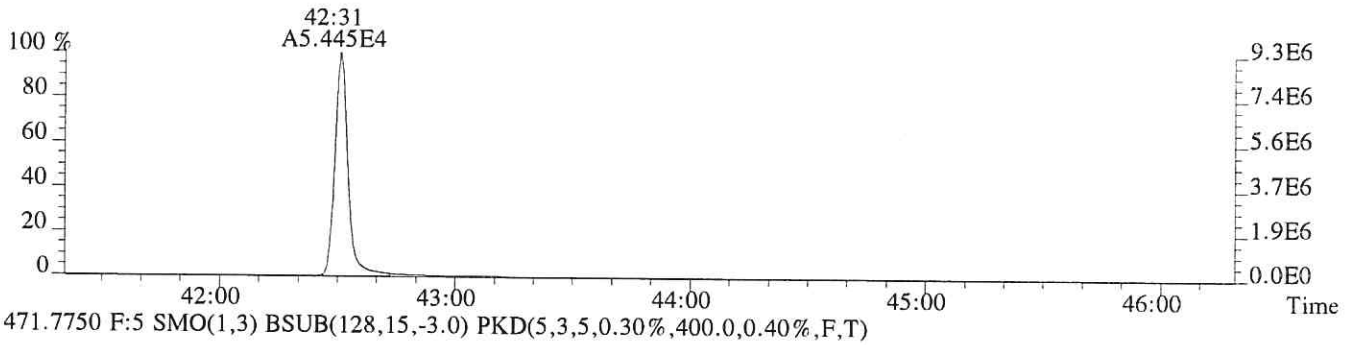
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



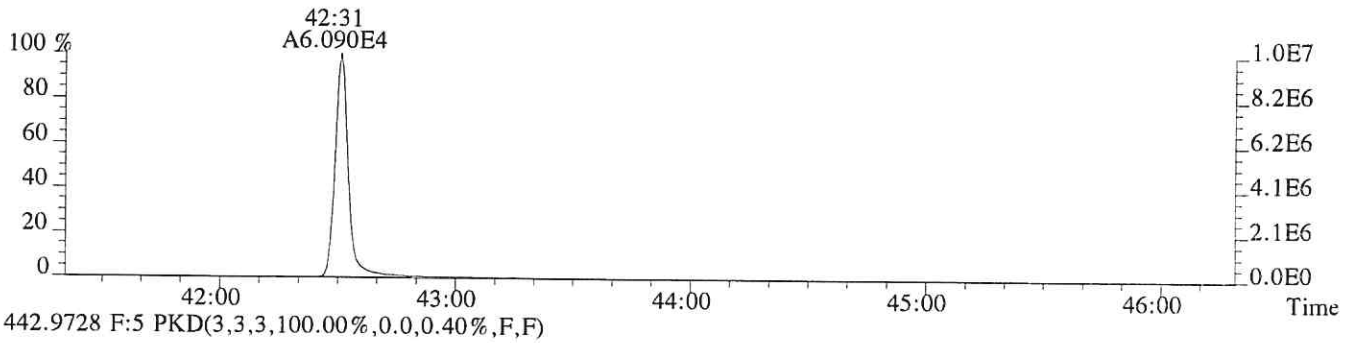
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



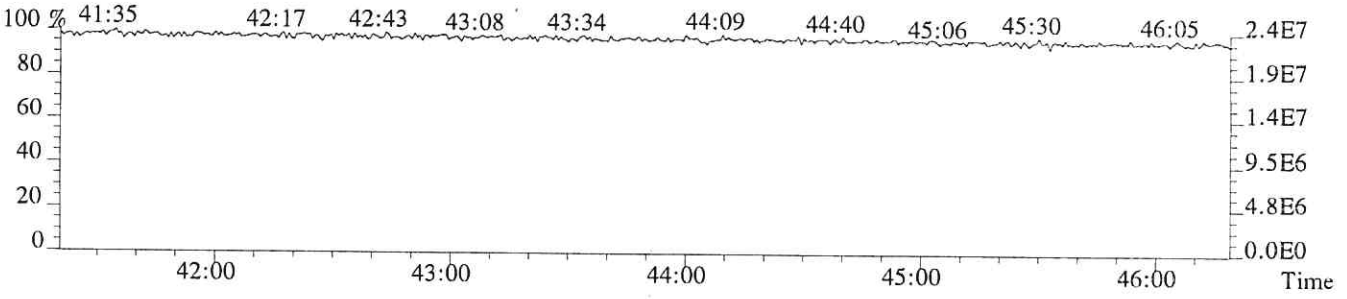
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018				
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir					
Description	**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor Signature: Kristin Weir	

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?			√		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use.
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:51	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

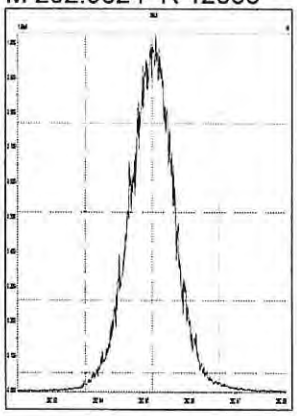
gc 09/26/18

EE 009

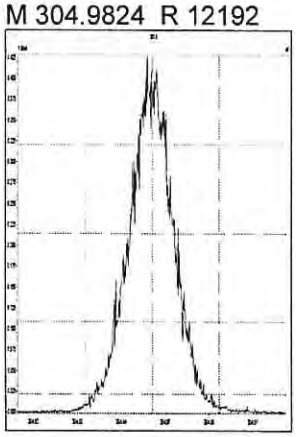
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

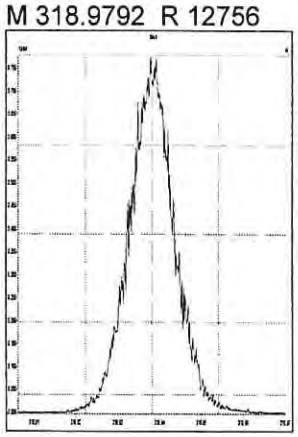
M 292.9824 R 12568



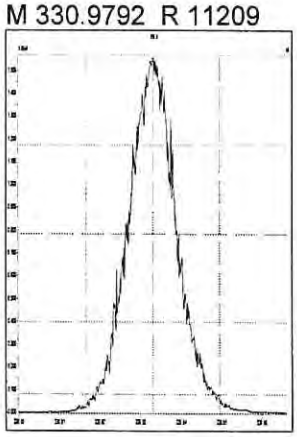
M 304.9824 R 12192



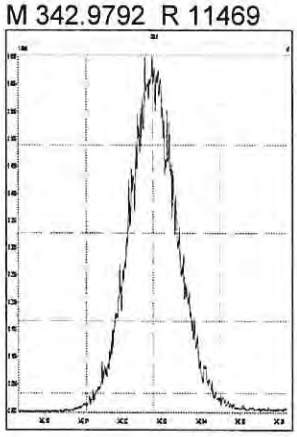
M 318.9792 R 12756



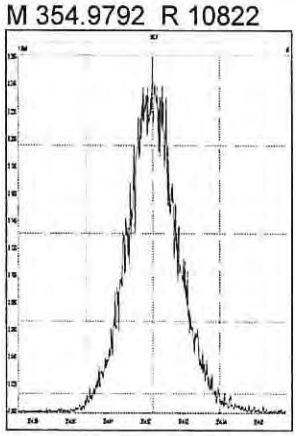
M 330.9792 R 11209



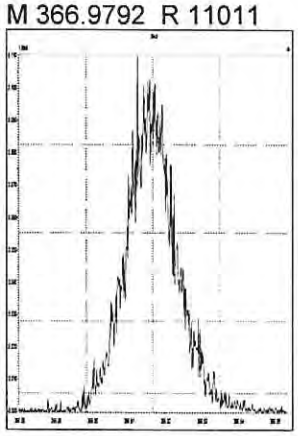
M 342.9792 R 11469



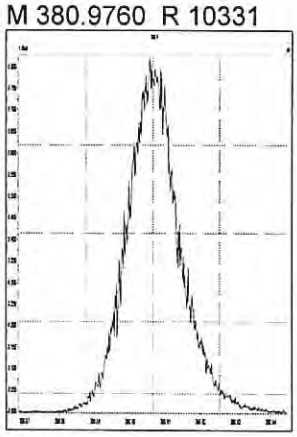
M 354.9792 R 10822



M 366.9792 R 11011



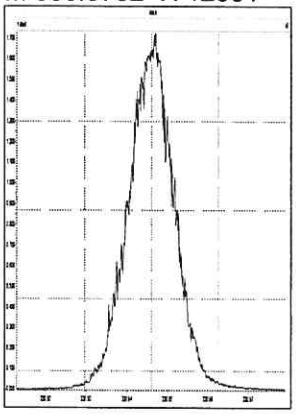
M 380.9760 R 10331



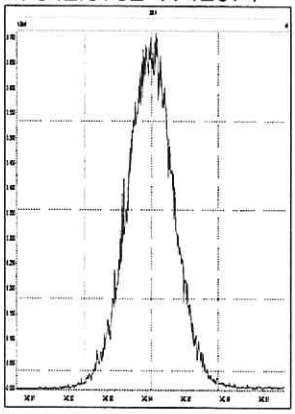
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

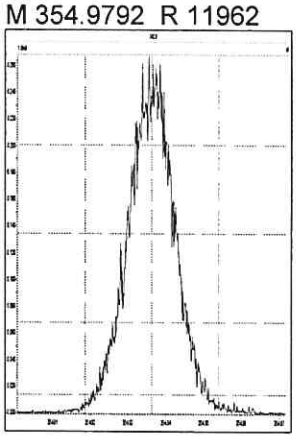
M 330.9792 R 12381



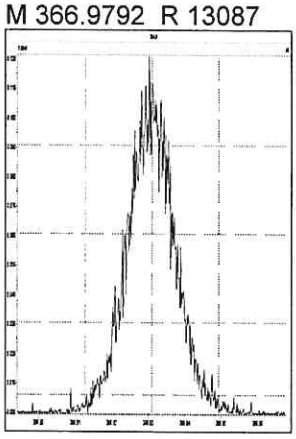
M 342.9792 R 12074



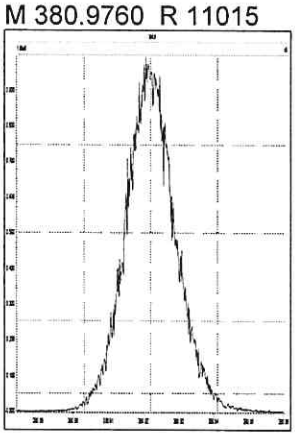
M 354.9792 R 11962



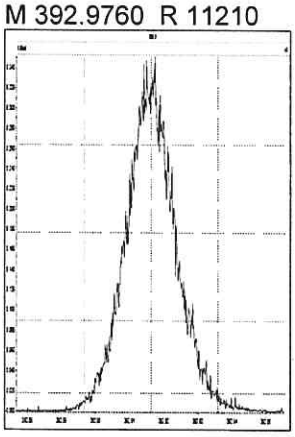
M 366.9792 R 13087



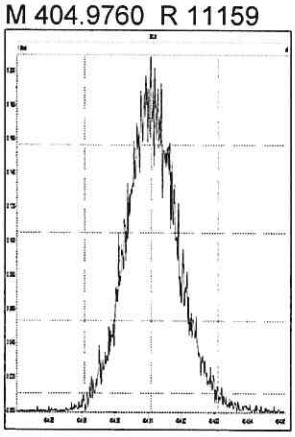
M 380.9760 R 11015



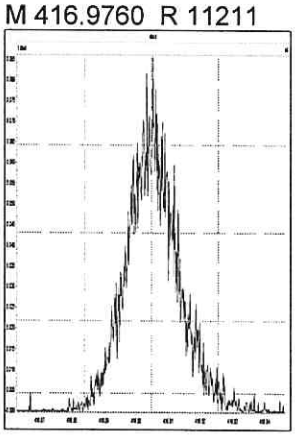
M 392.9760 R 11210



M 404.9760 R 11159



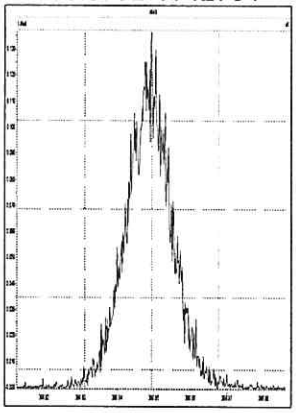
M 416.9760 R 11211



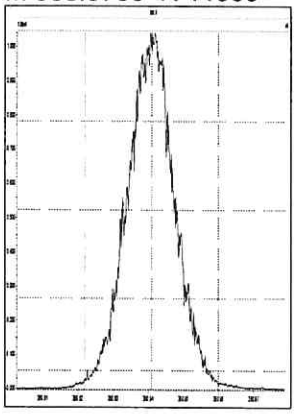
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

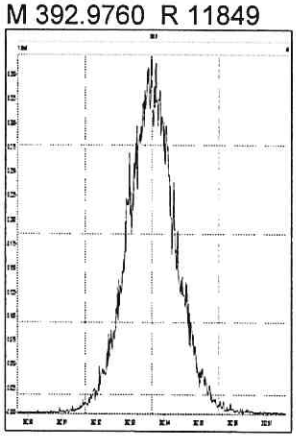
M 366.9792 R 12754



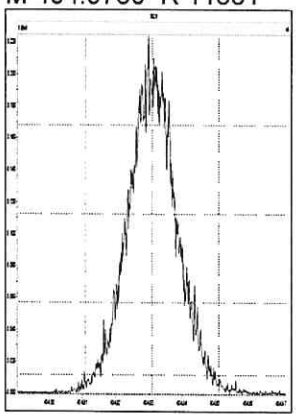
M 380.9760 R 11959



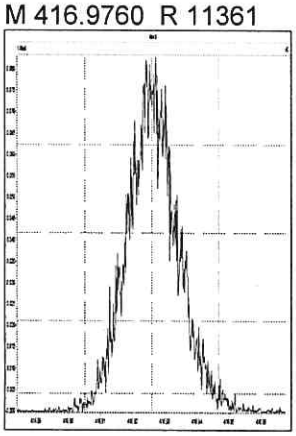
M 392.9760 R 11849



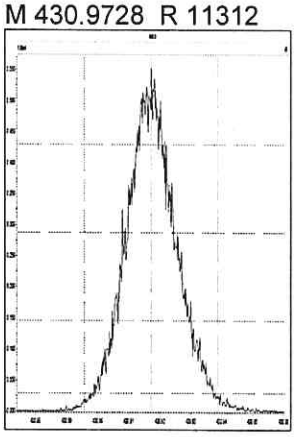
M 404.9760 R 11681



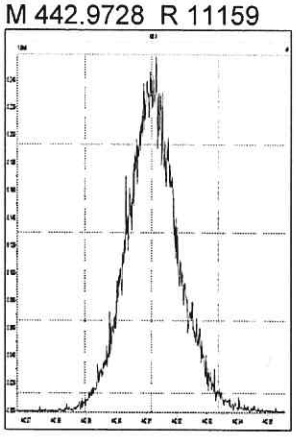
M 416.9760 R 11361



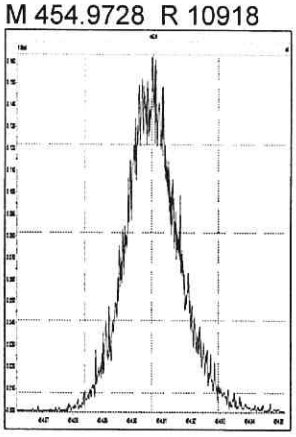
M 430.9728 R 11312



M 442.9728 R 11159



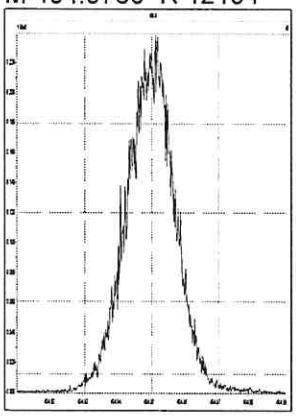
M 454.9728 R 10918



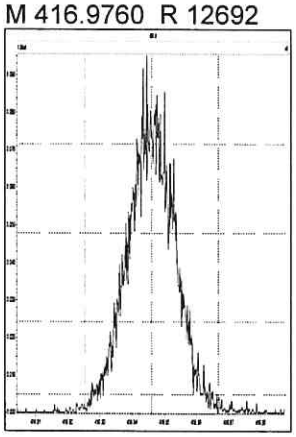
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

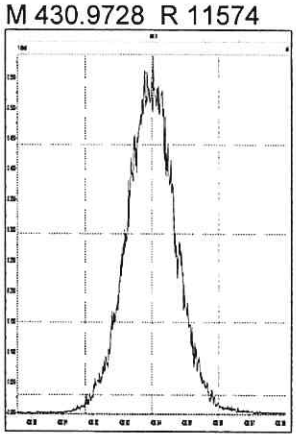
M 404.9760 R 12194



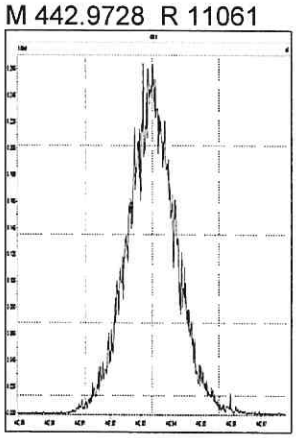
M 416.9760 R 12692



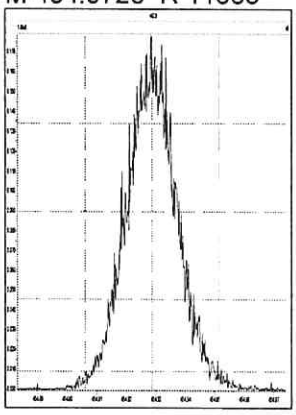
M 430.9728 R 11574



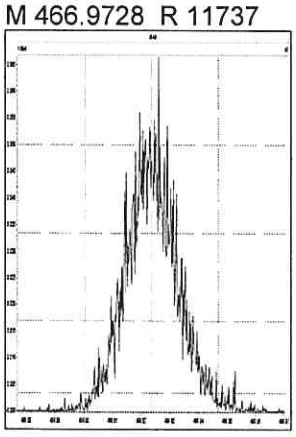
M 442.9728 R 11061



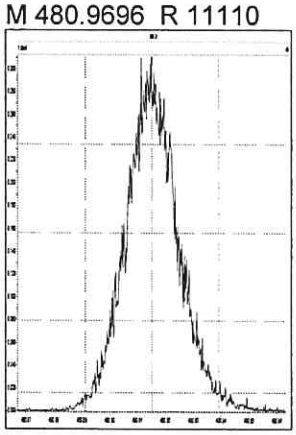
M 454.9728 R 11683



M 466.9728 R 11737



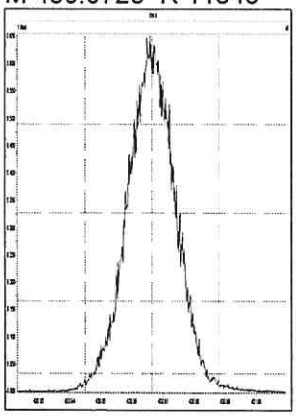
M 480.9696 R 11110



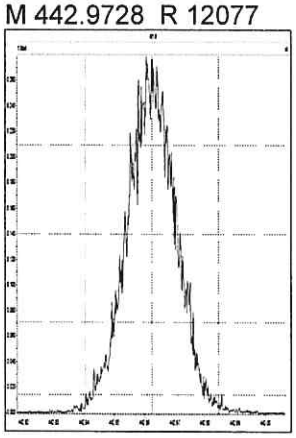
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

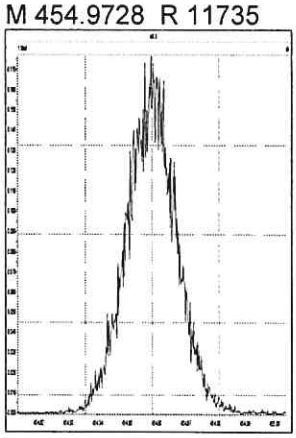
M 430.9728 R 11845



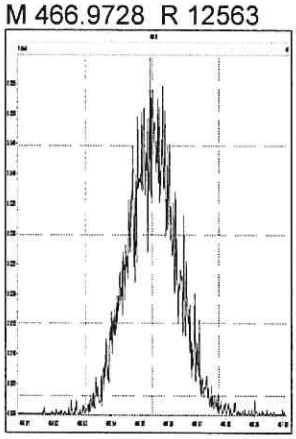
M 442.9728 R 12077



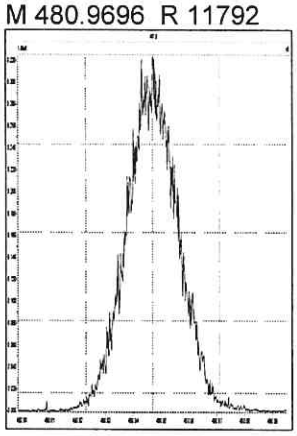
M 454.9728 R 11735



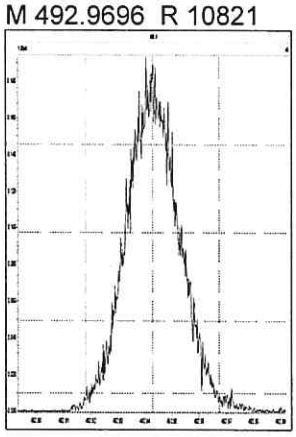
M 466.9728 R 12563



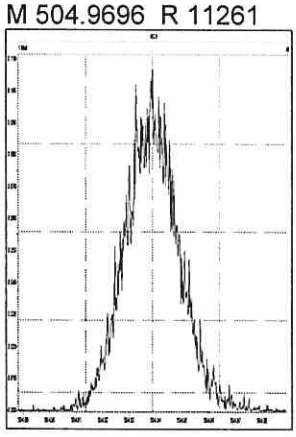
M 480.9696 R 11792



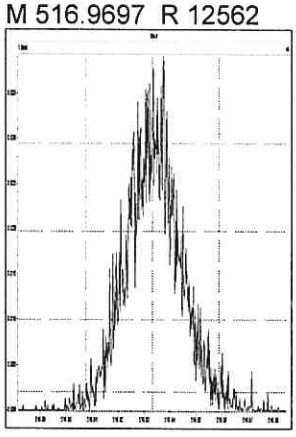
M 492.9696 R 10821



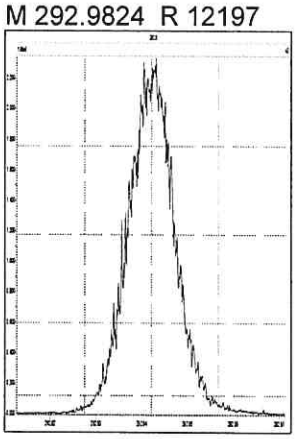
M 504.9696 R 11261



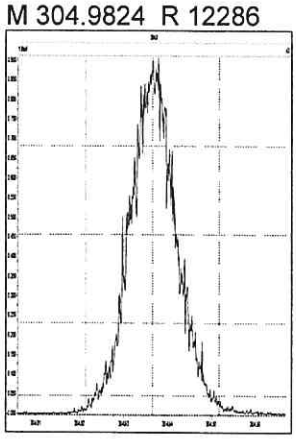
M 516.9697 R 12562



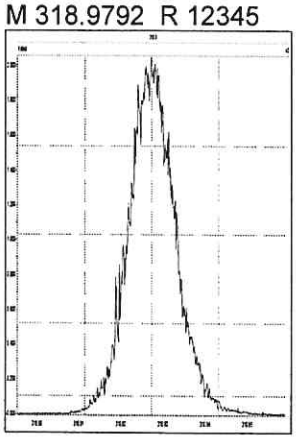
M 292.9824 R 12197



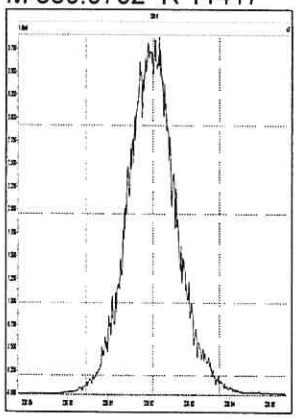
M 304.9824 R 12286



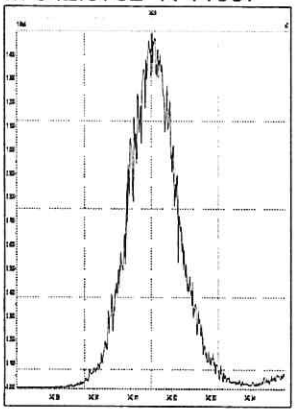
M 318.9792 R 12345



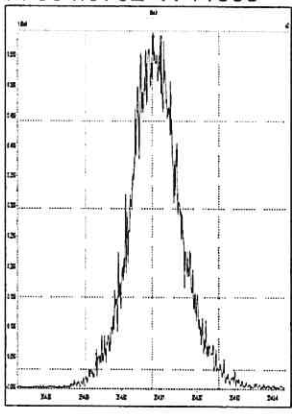
M 330.9792 R 11417



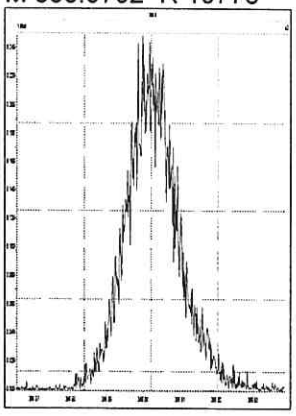
M 342.9792 R 11087



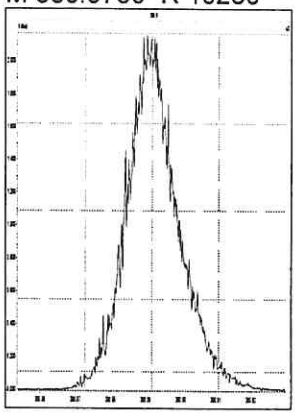
M 354.9792 R 11095



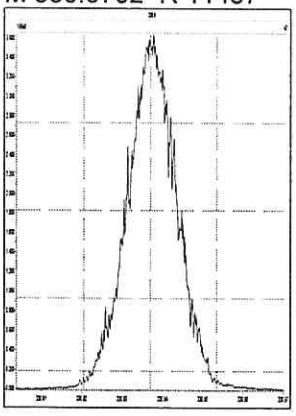
M 366.9792 R 10778



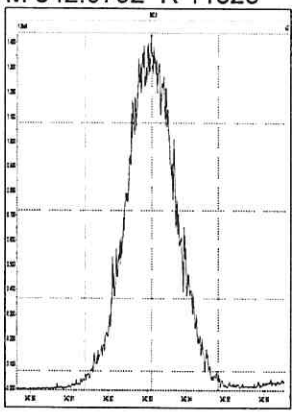
M 380.9760 R 10230



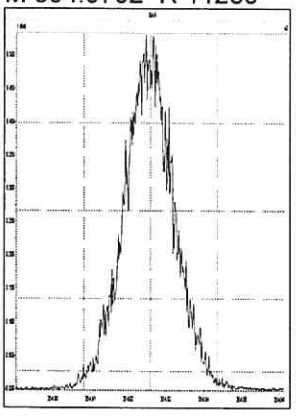
M 330.9792 R 11467



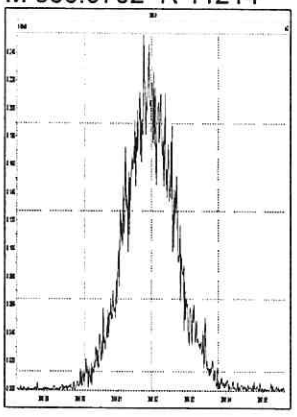
M 342.9792 R 11823



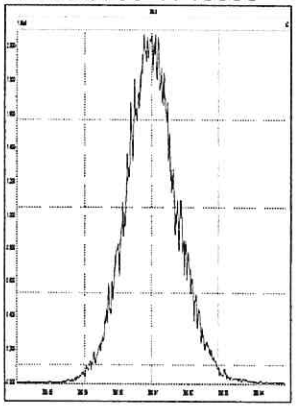
M 354.9792 R 11289



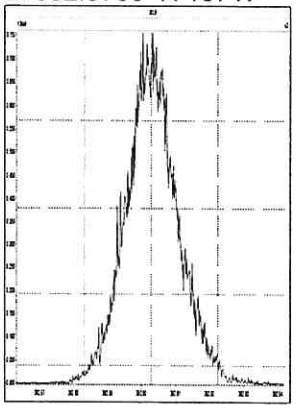
M 366.9792 R 11214



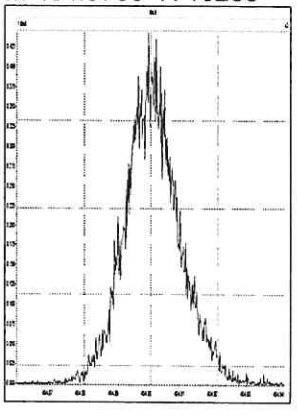
M 380.9760 R 10995



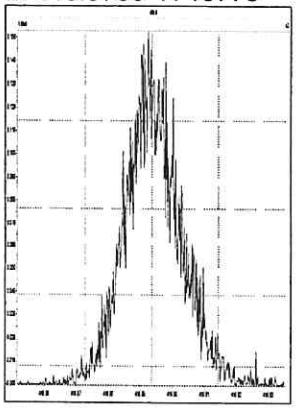
M 392.9760 R 10717



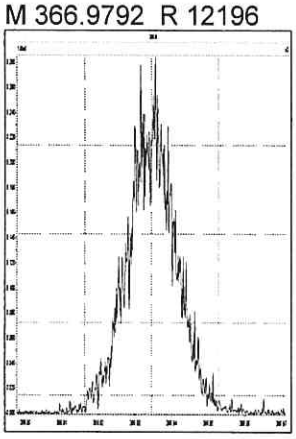
M 404.9760 R 10203



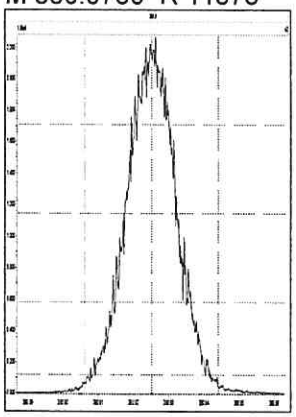
M 416.9760 R 10776



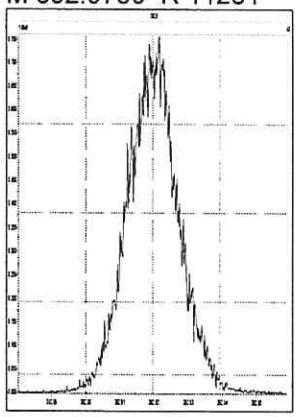
M 366.9792 R 12196



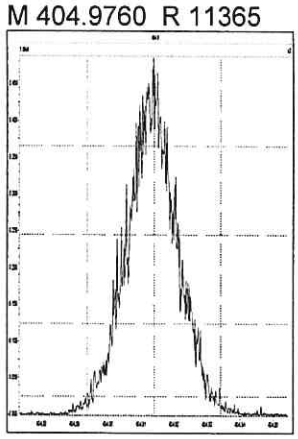
M 380.9760 R 11576



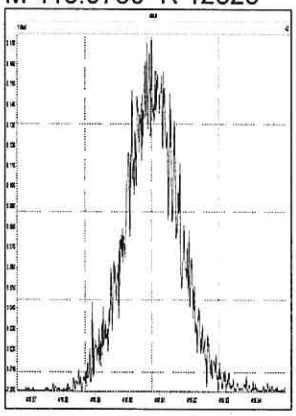
M 392.9760 R 11261



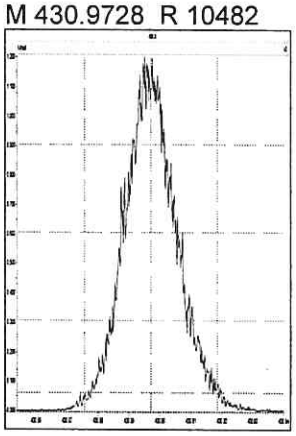
M 404.9760 R 11365



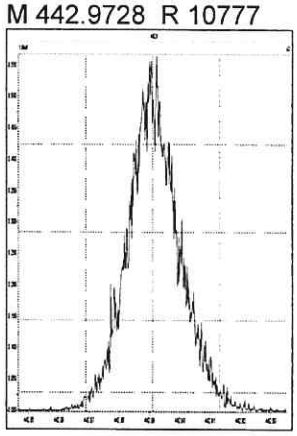
M 416.9760 R 12325



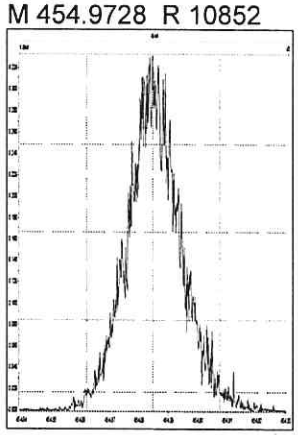
M 430.9728 R 10482



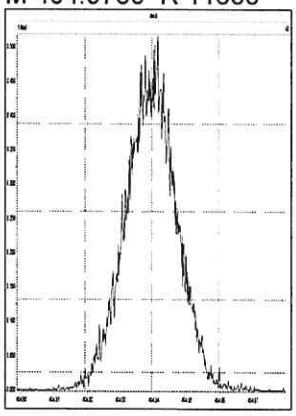
M 442.9728 R 10777



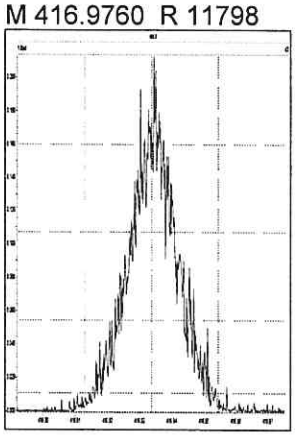
M 454.9728 R 10852



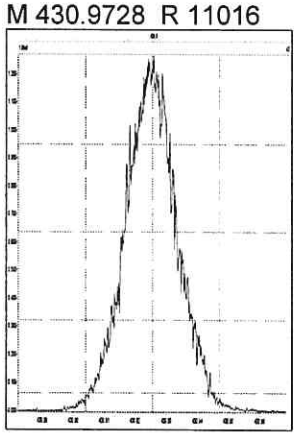
M 404.9760 R 11655



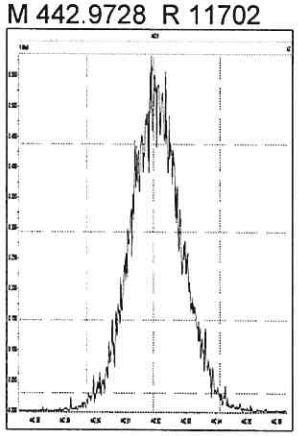
M 416.9760 R 11798



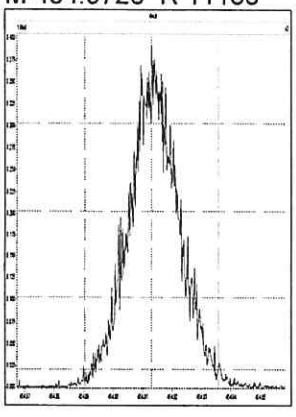
M 430.9728 R 11016



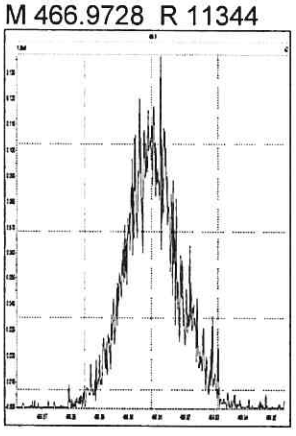
M 442.9728 R 11702



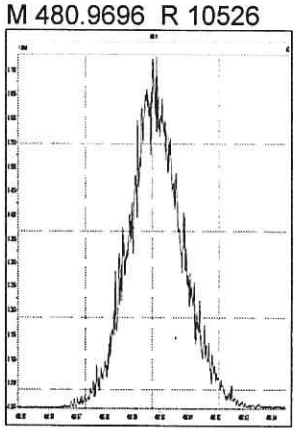
M 454.9728 R 11188



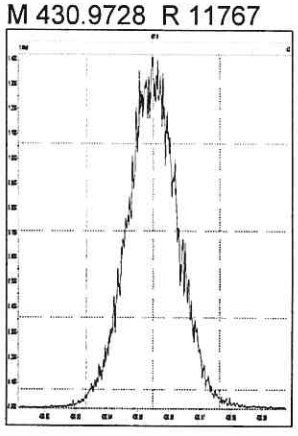
M 466.9728 R 11344



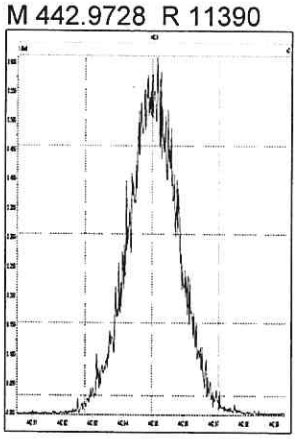
M 480.9696 R 10526



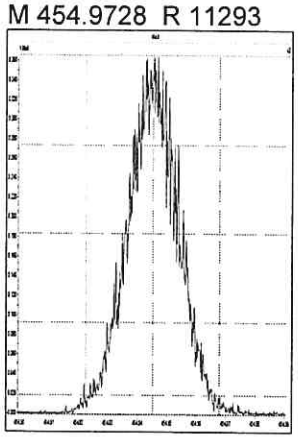
M 430.9728 R 11767



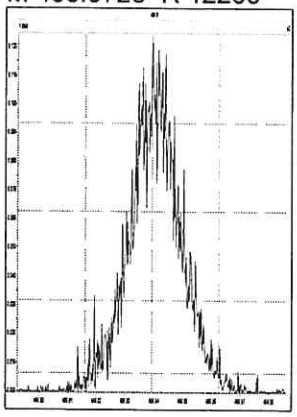
M 442.9728 R 11390



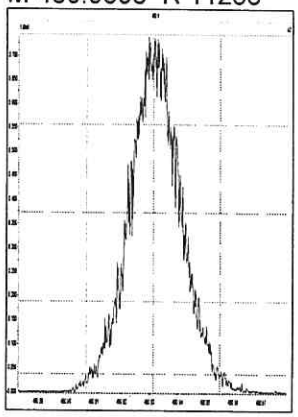
M 454.9728 R 11293



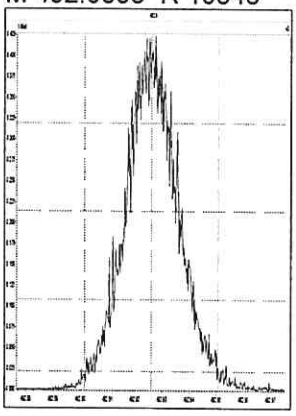
M 466.9728 R 12265



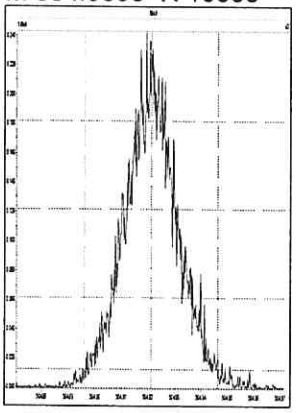
M 480.9696 R 11266



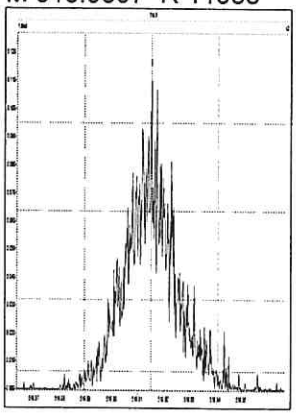
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

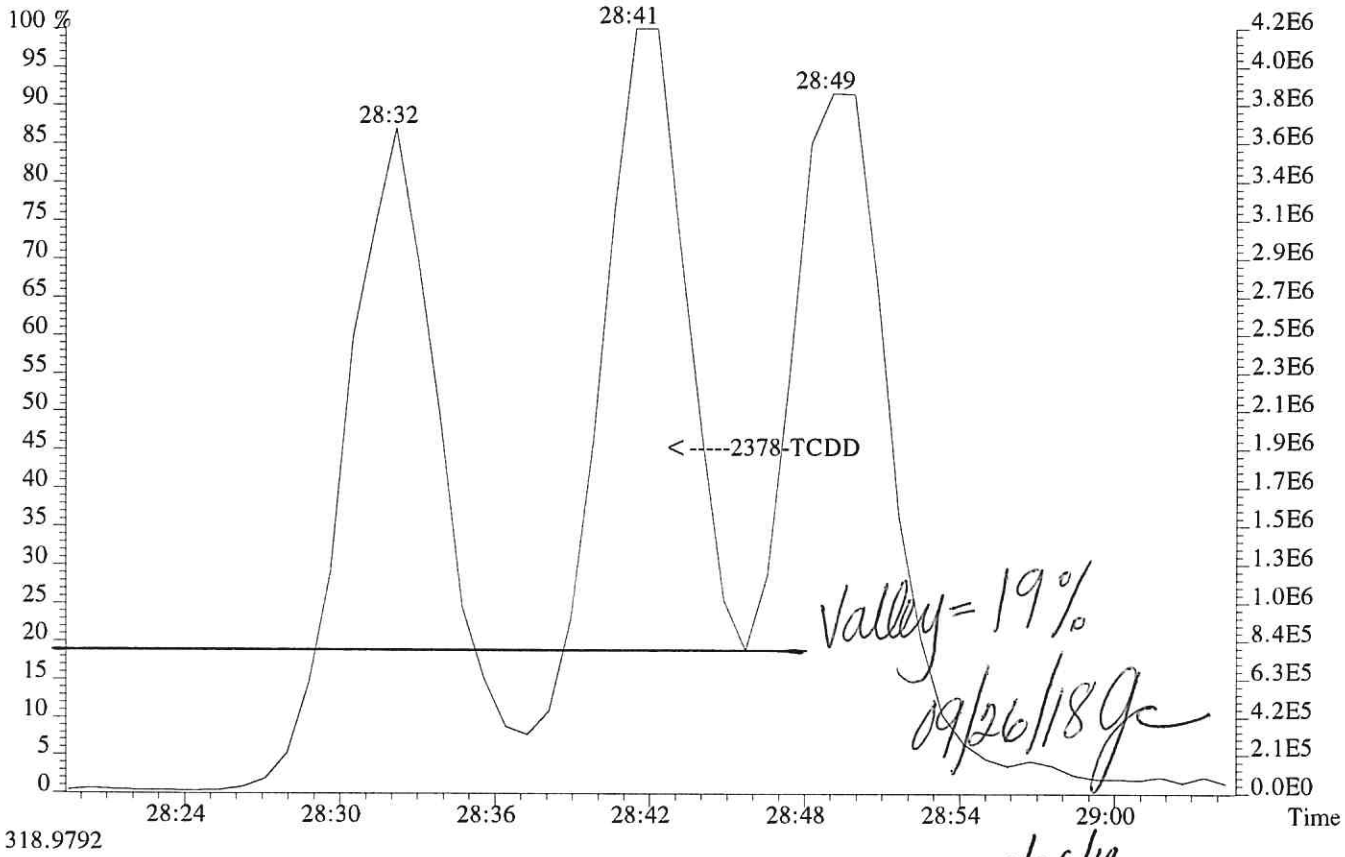
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

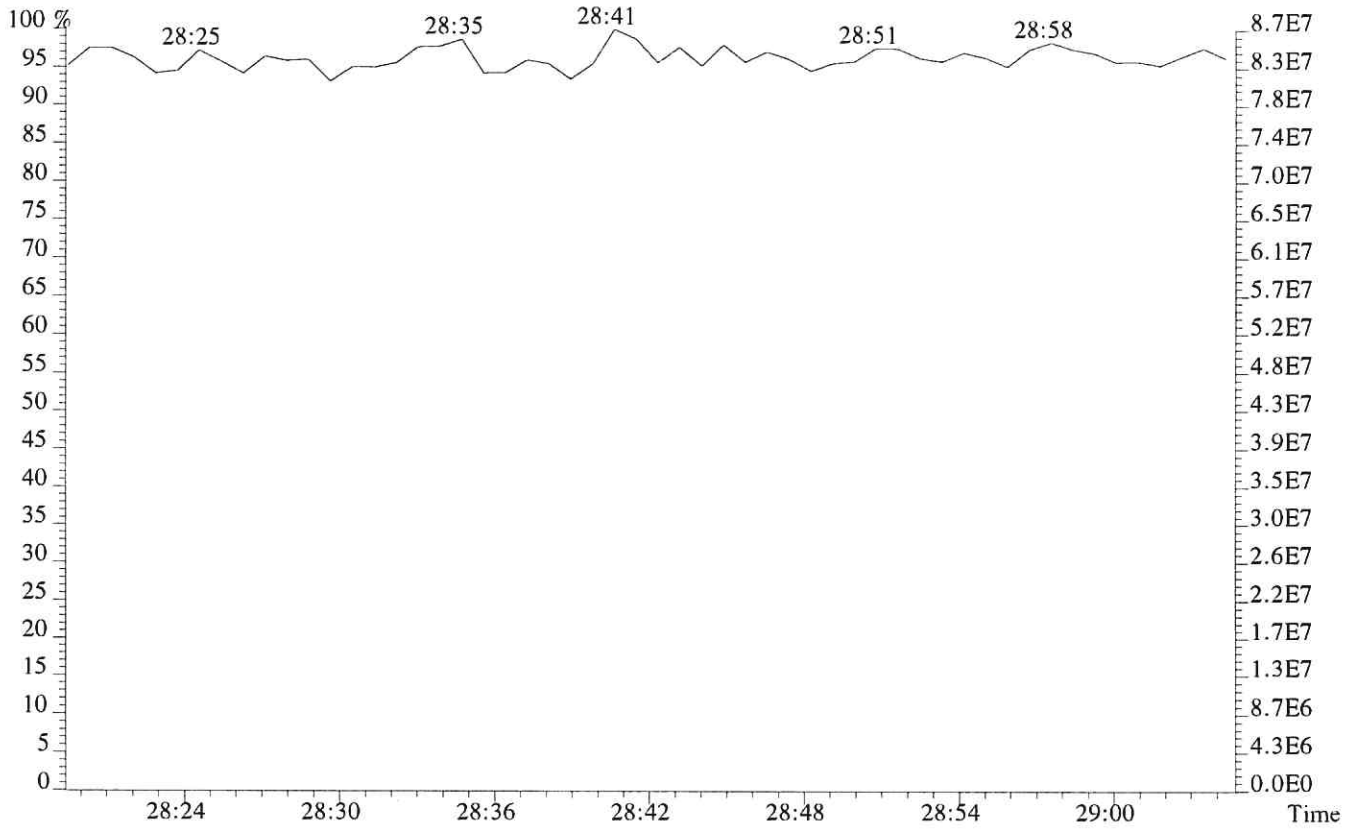
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

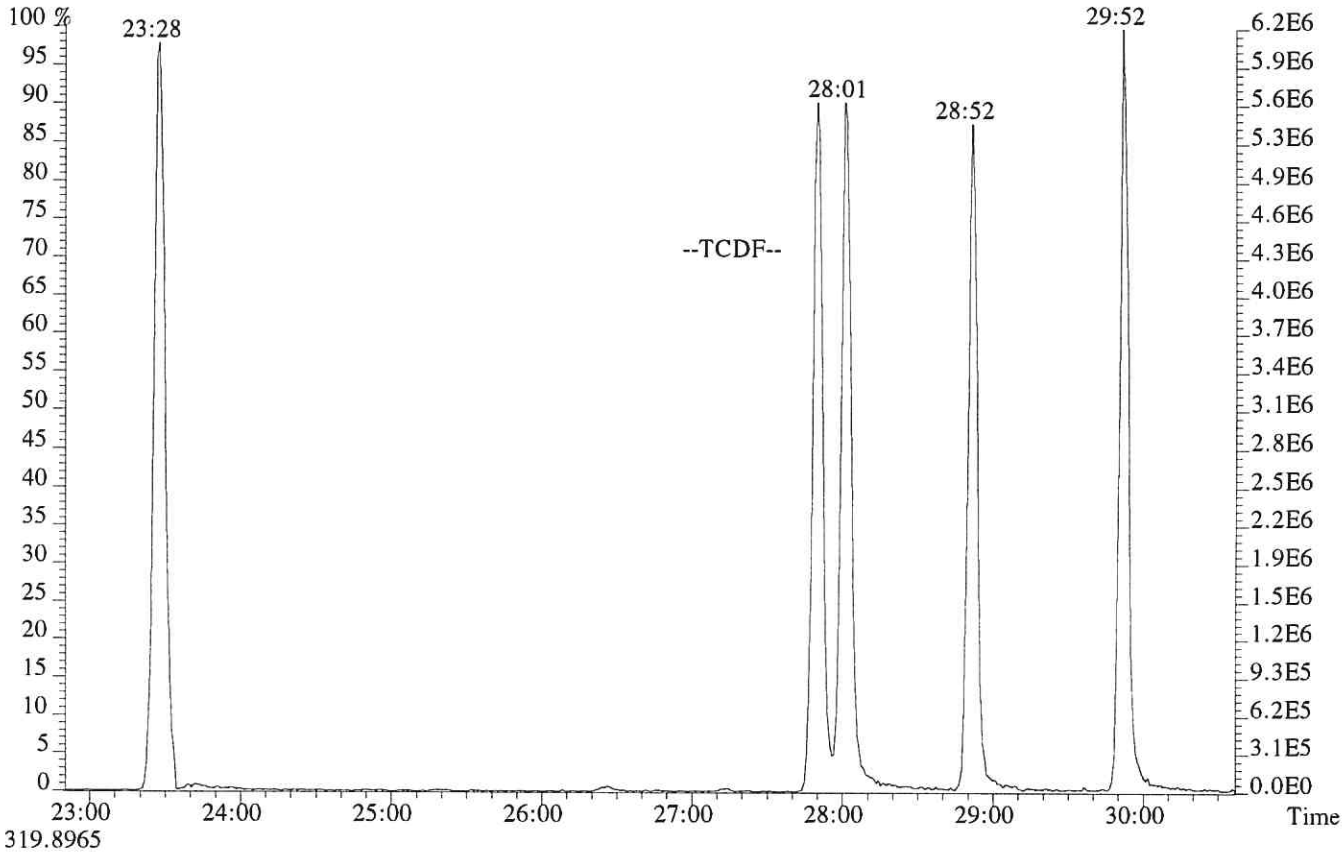


318.9792

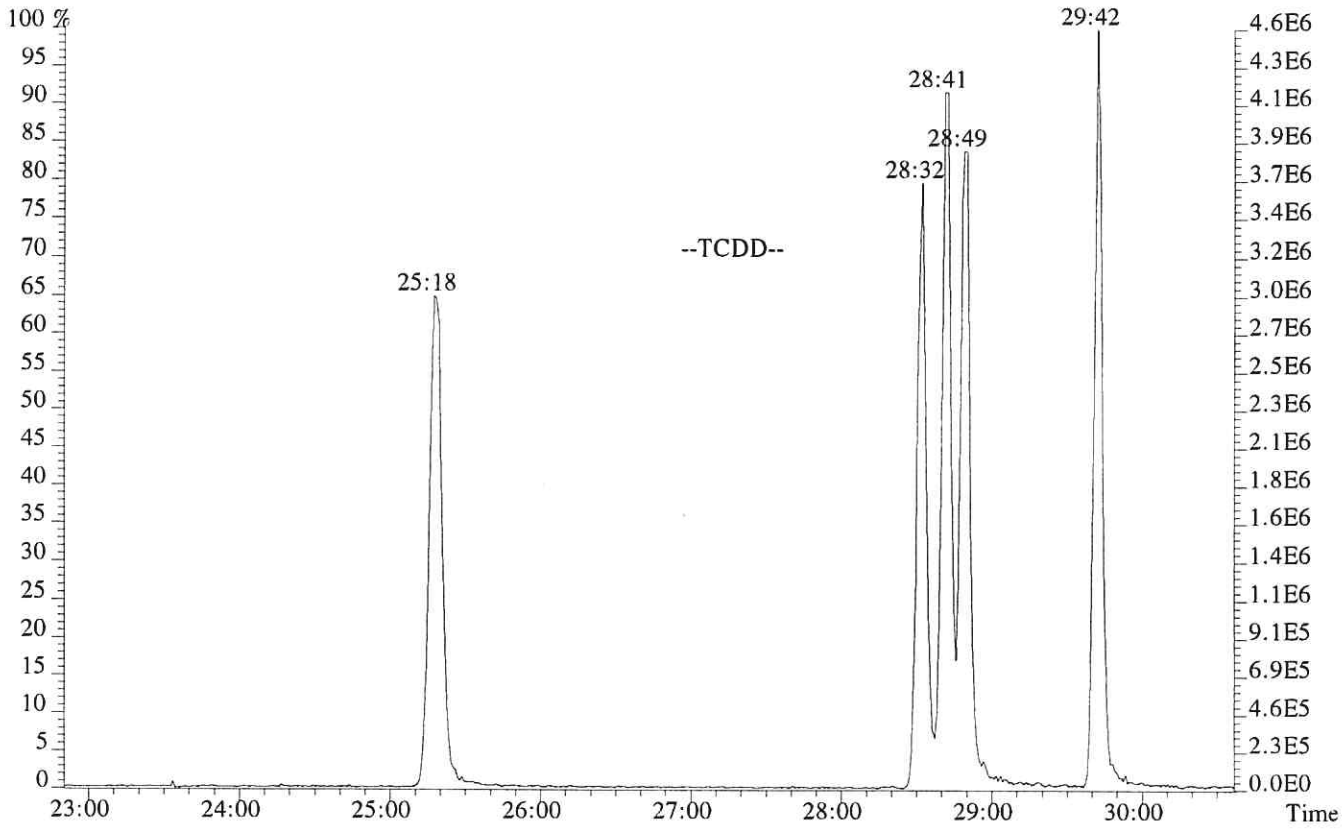
LKL 09/26/18



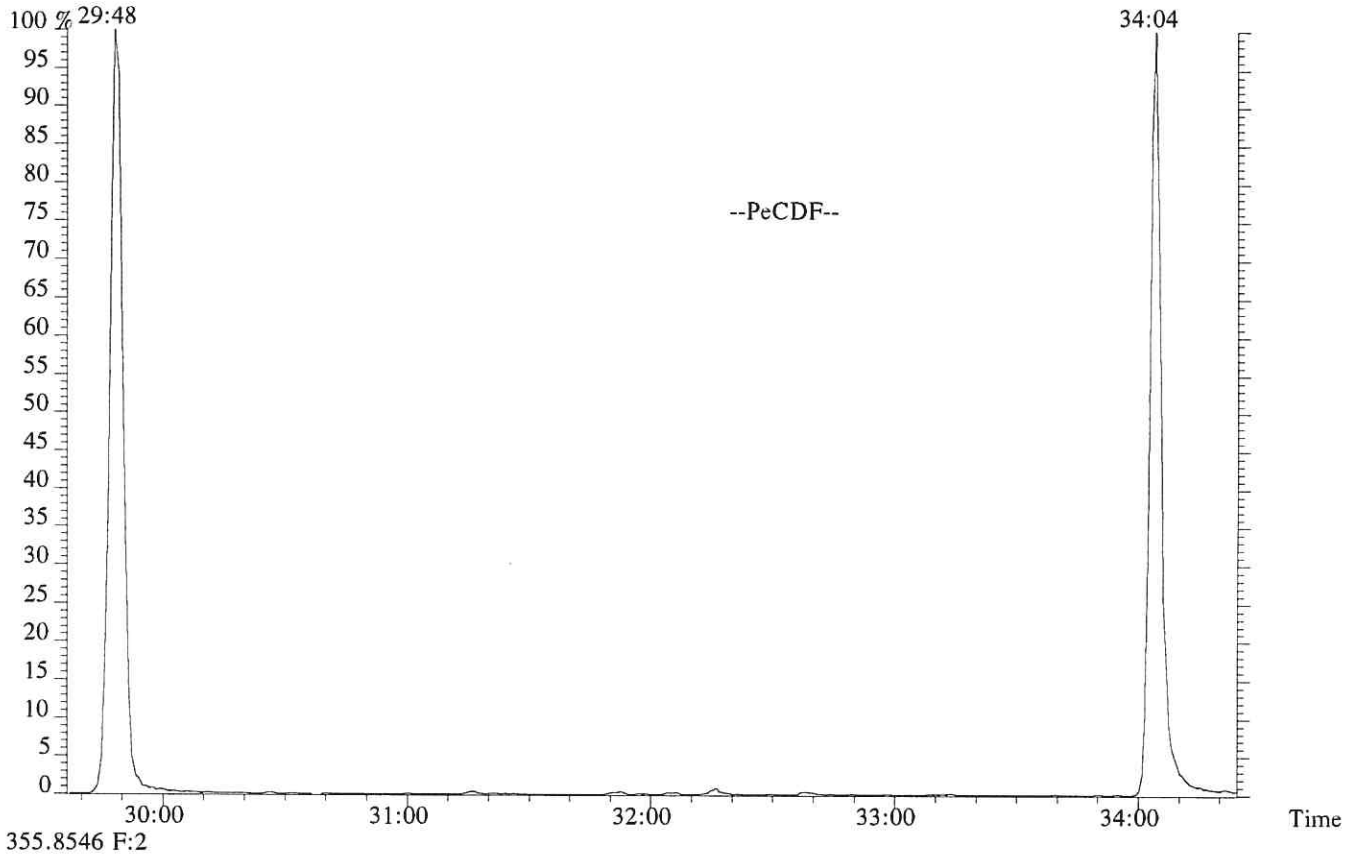
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



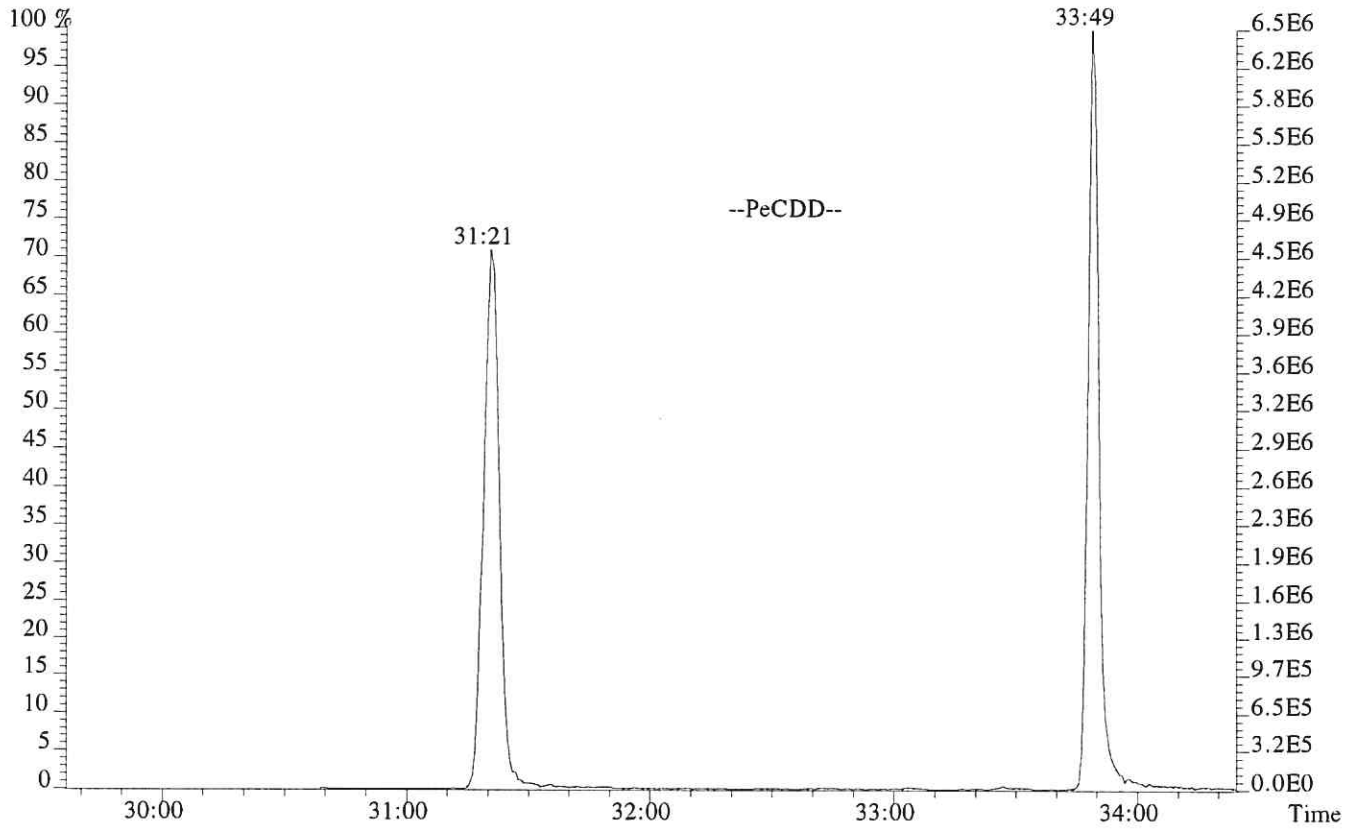
319.8965



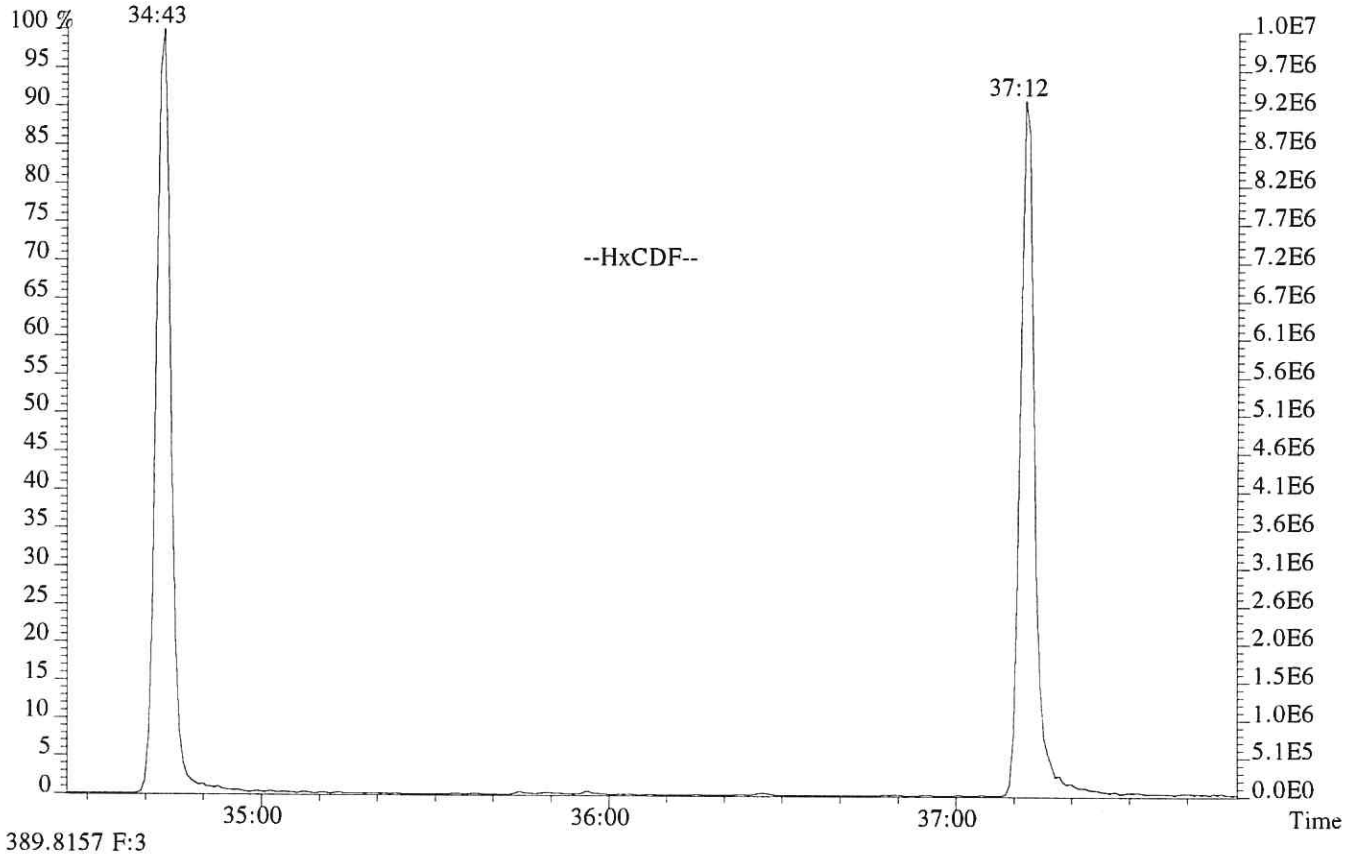
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



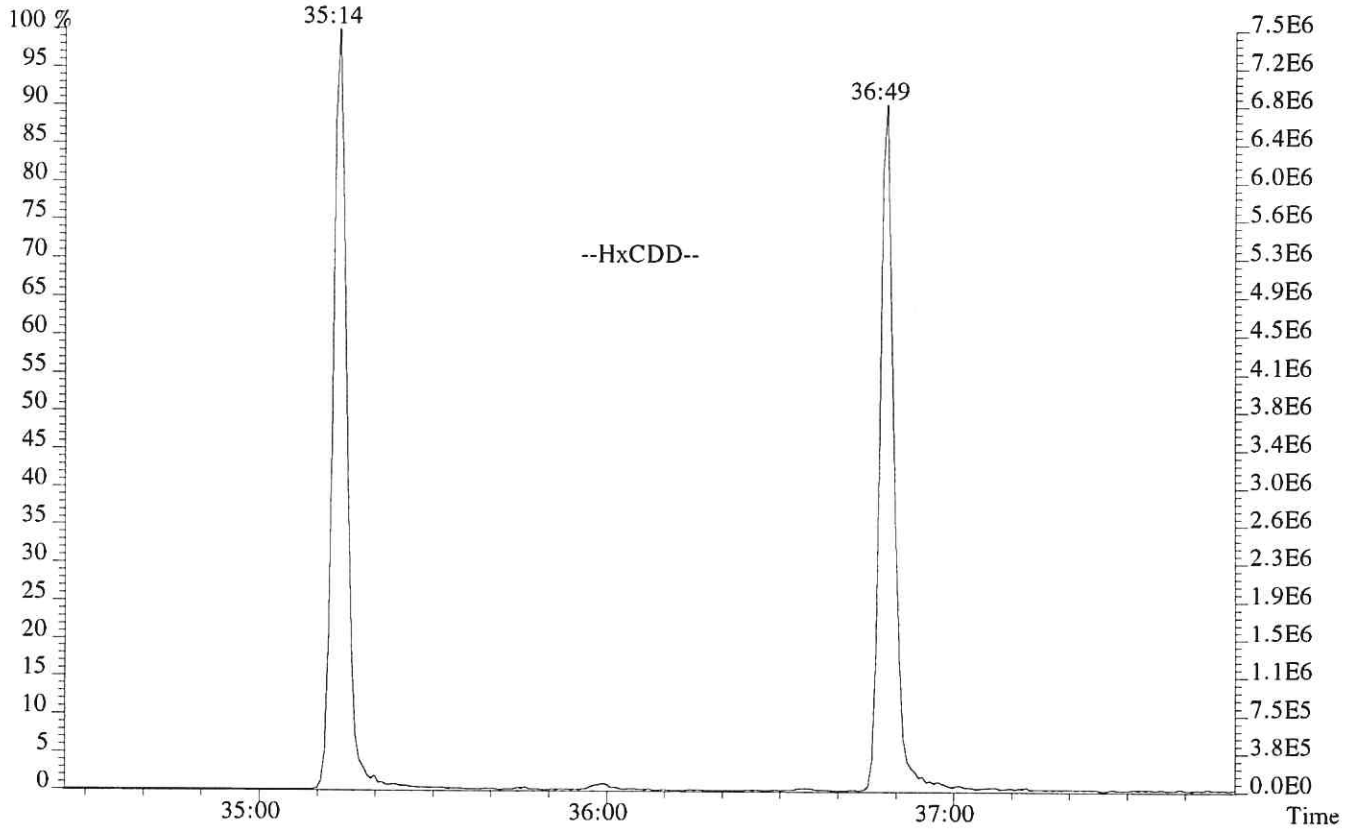
355.8546 F:2



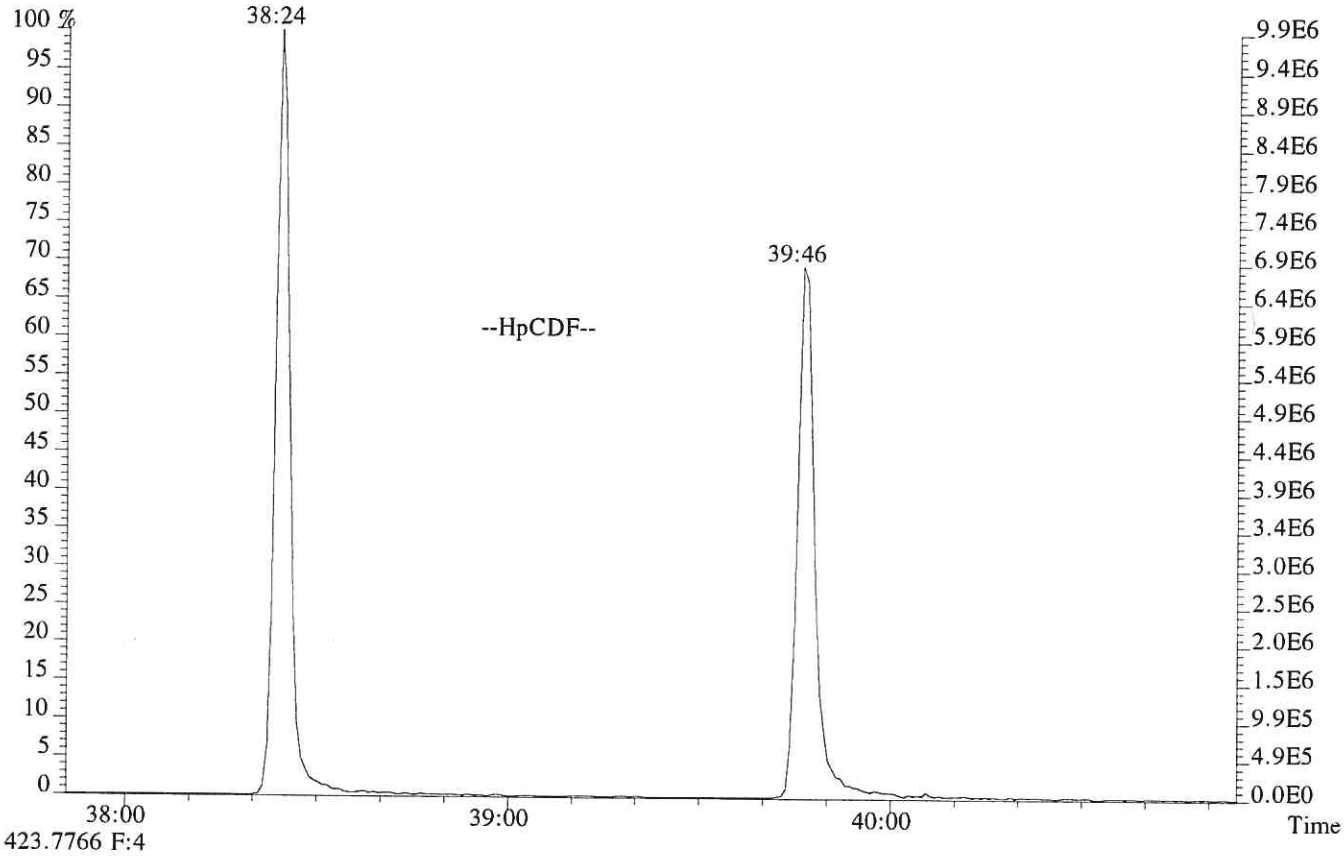
File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



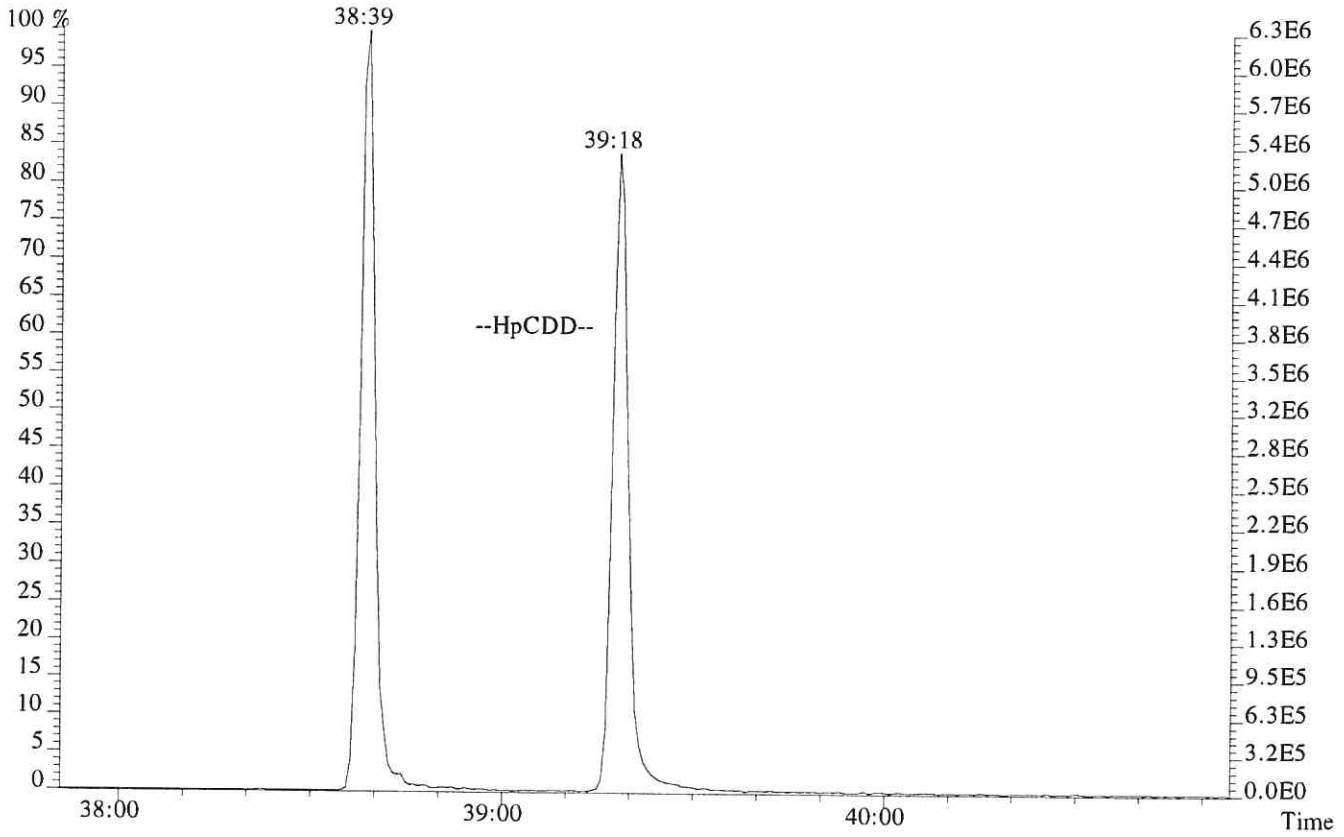
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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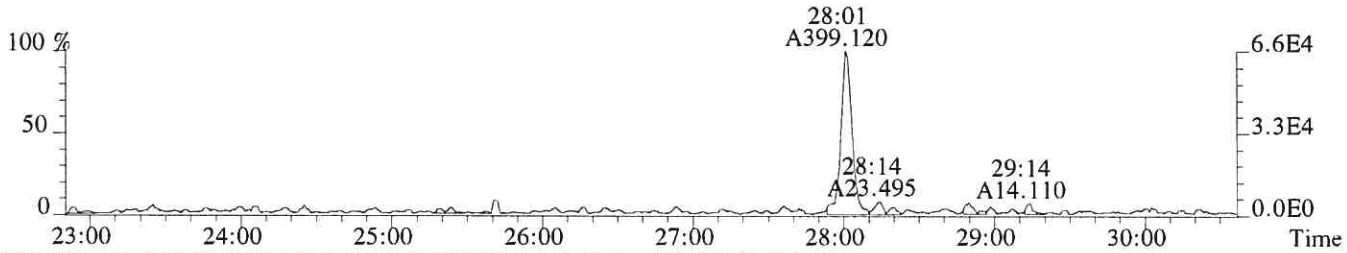
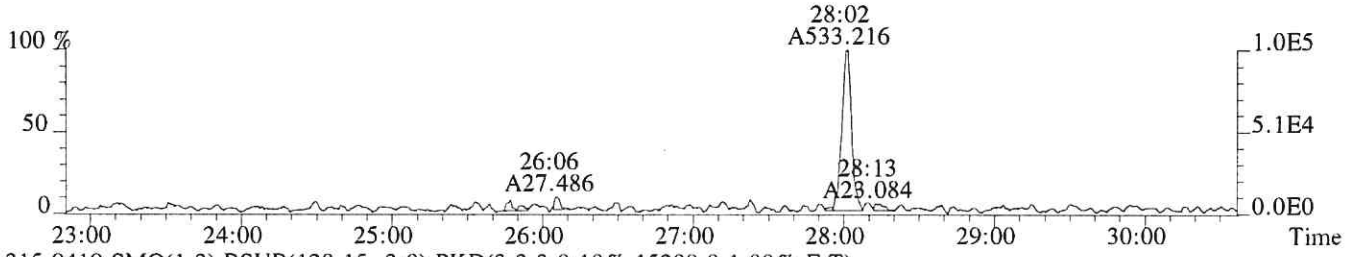
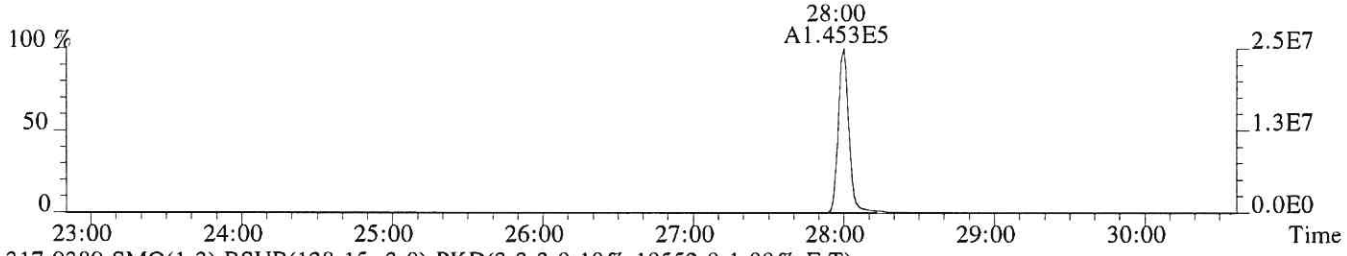
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



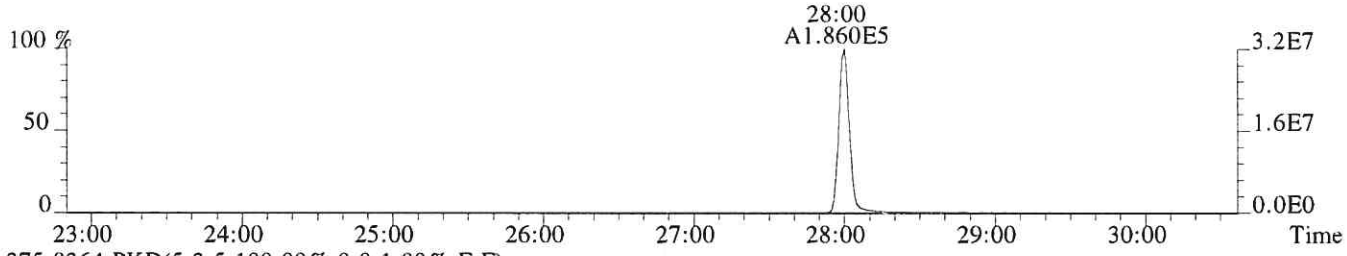
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



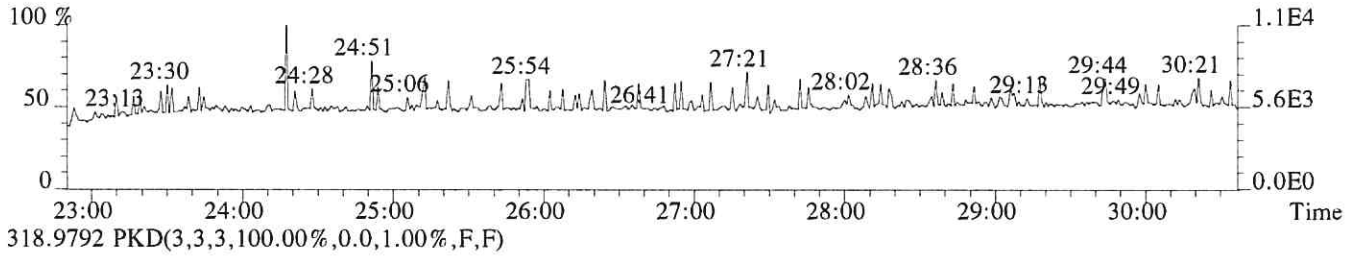
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



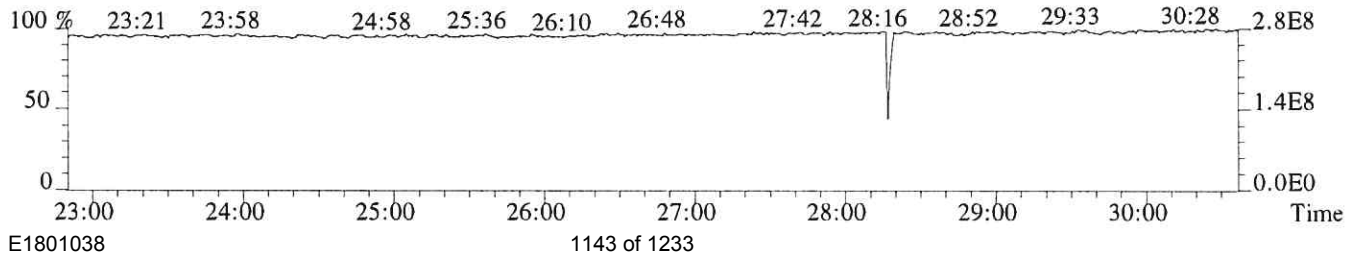
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



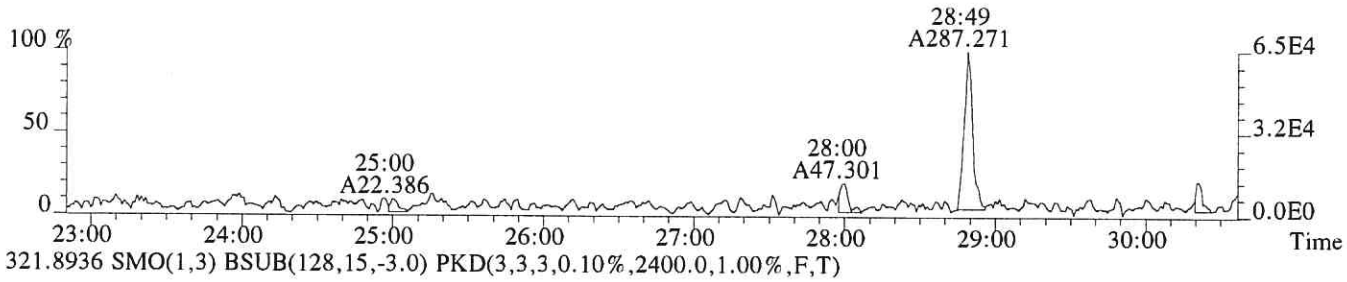
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



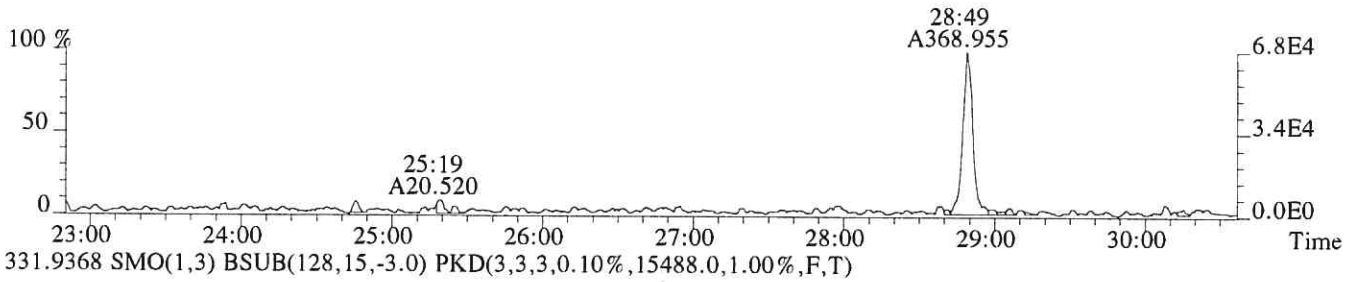
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



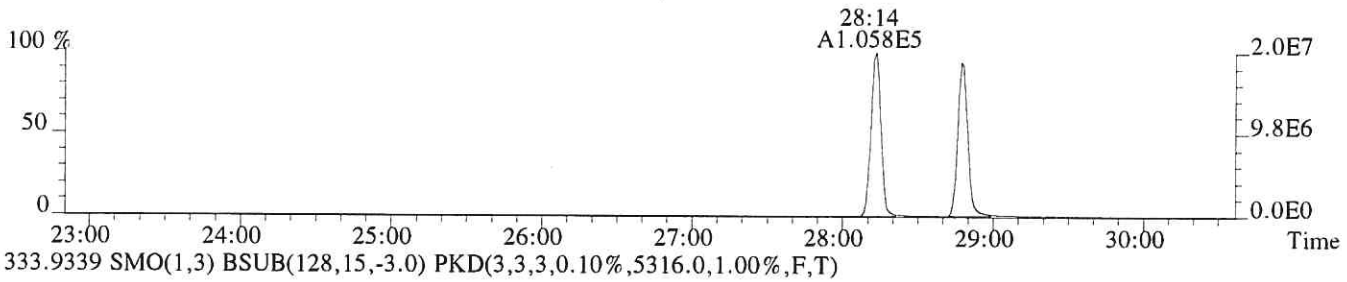
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



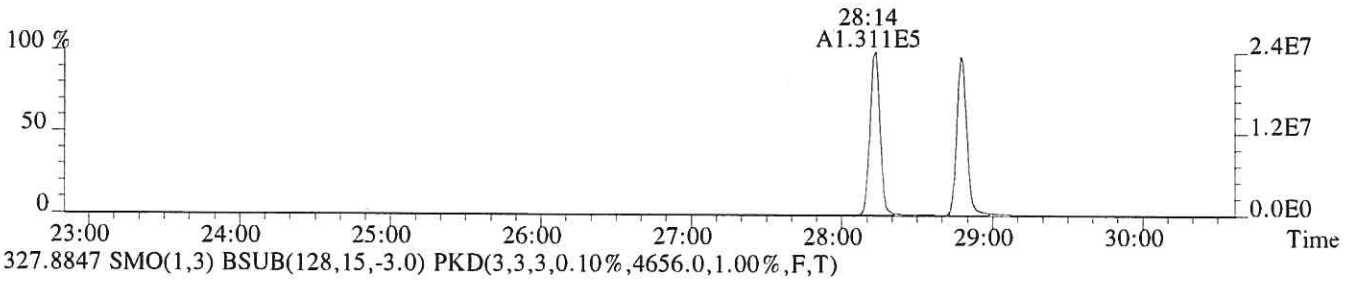
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



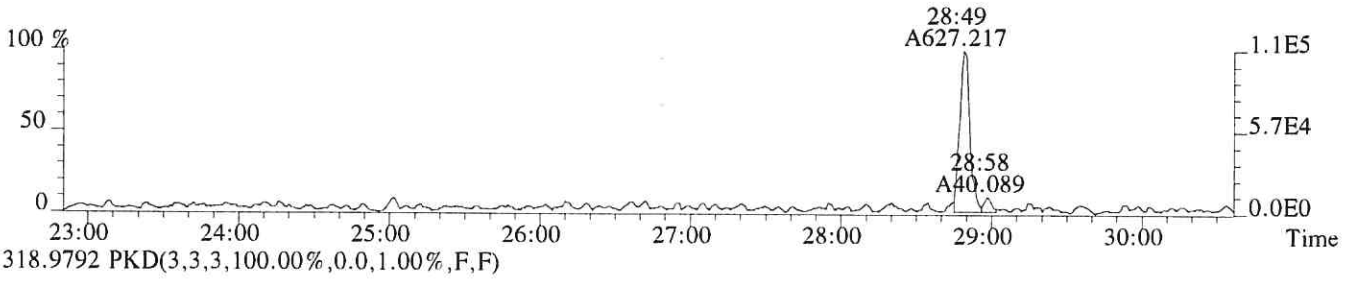
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



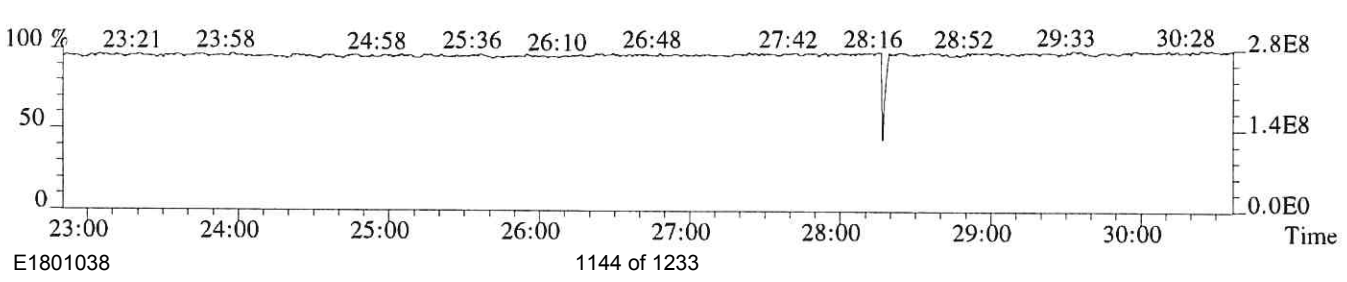
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



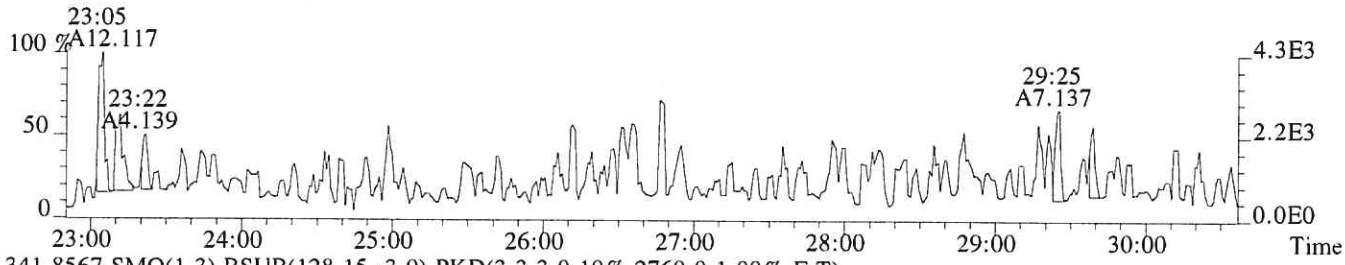
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



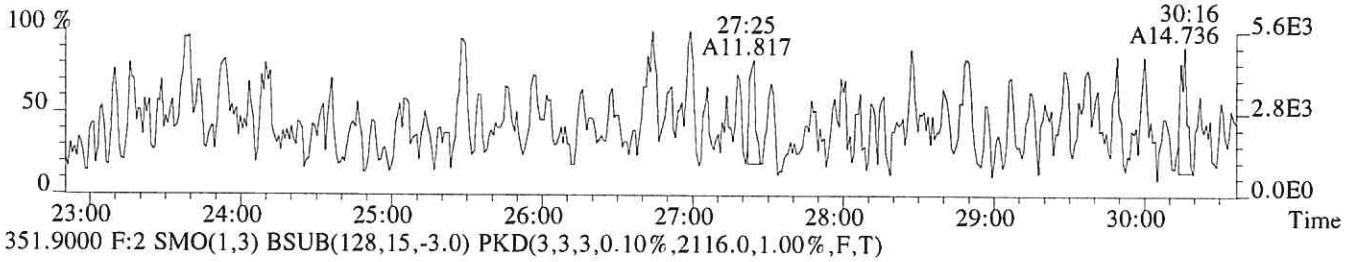
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



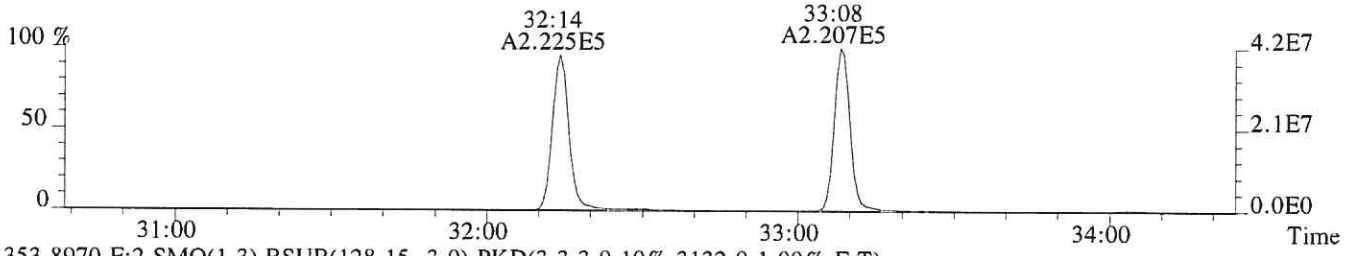
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



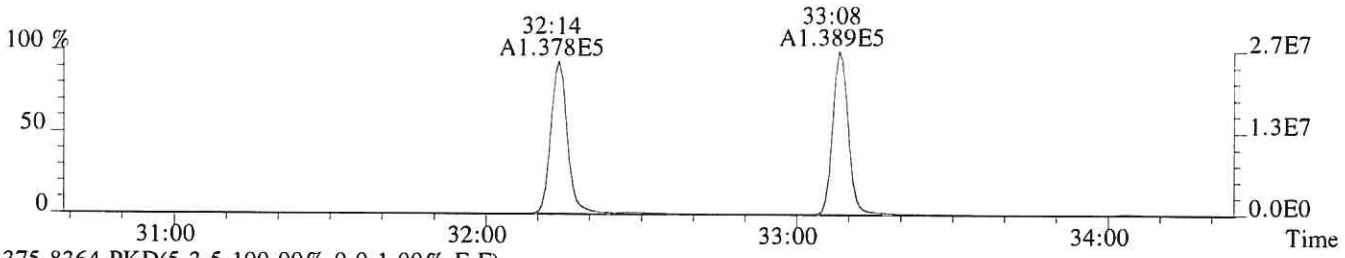
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



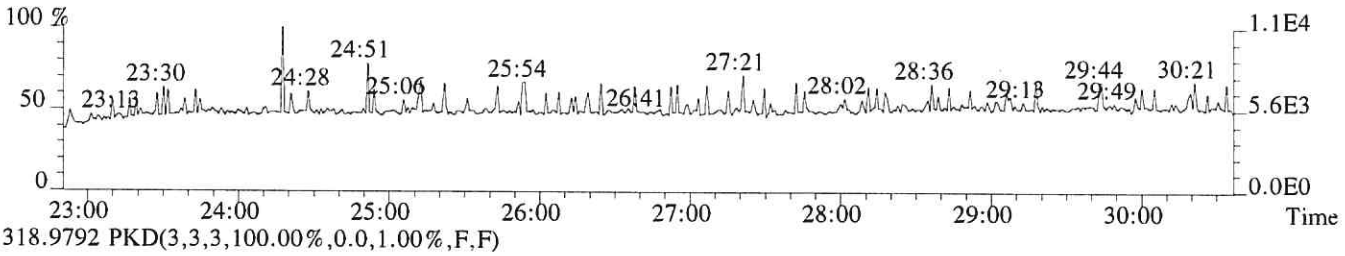
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



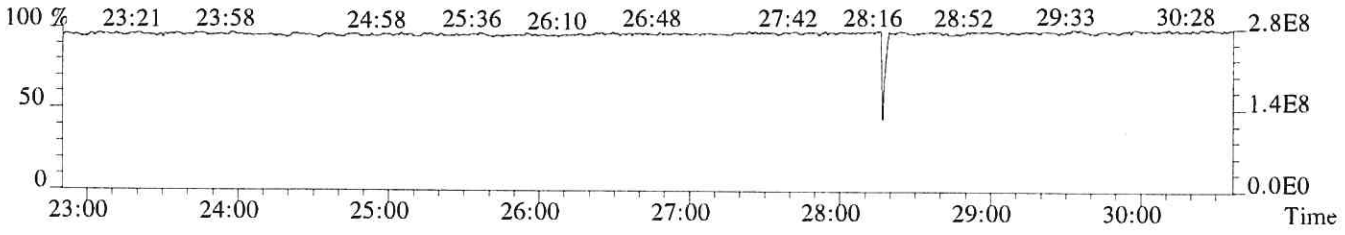
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



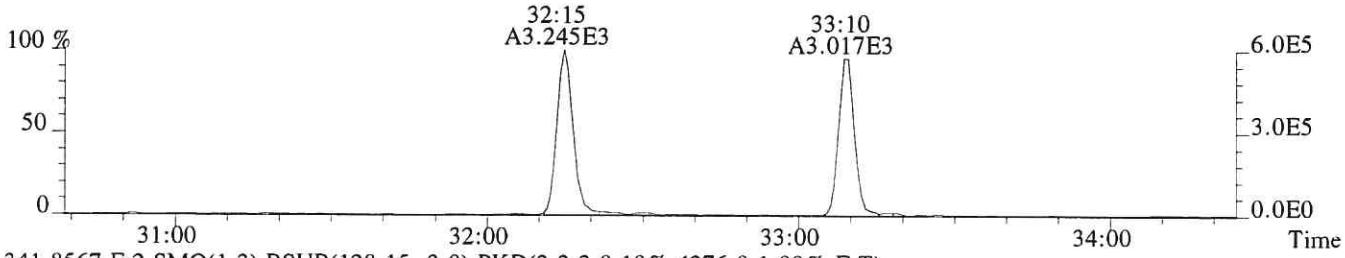
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



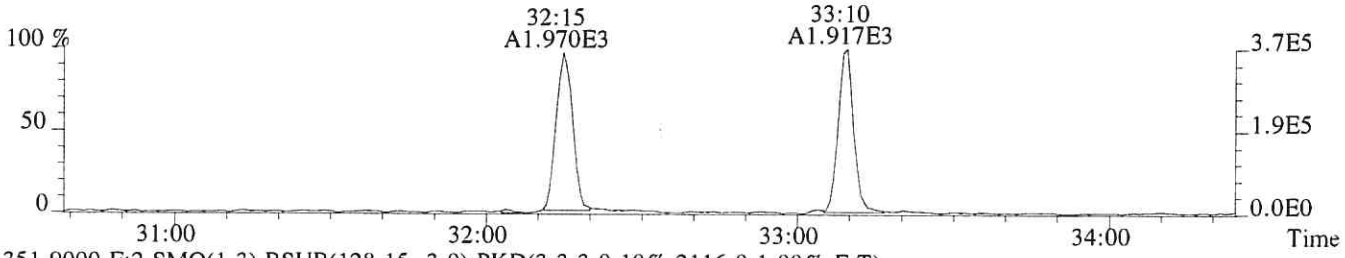
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



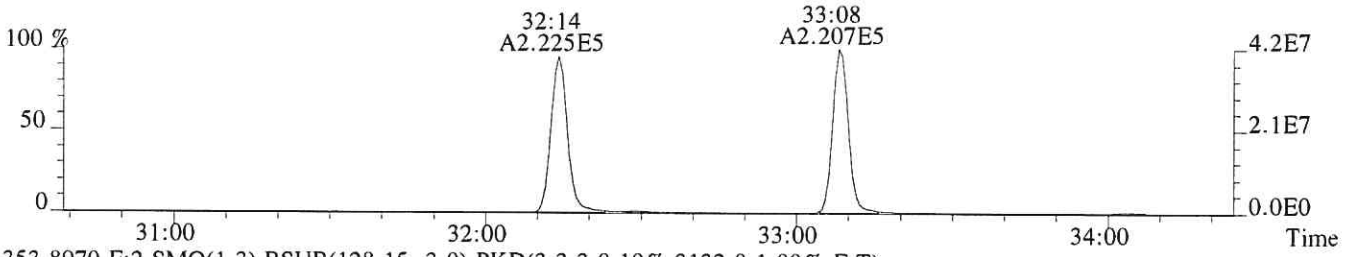
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



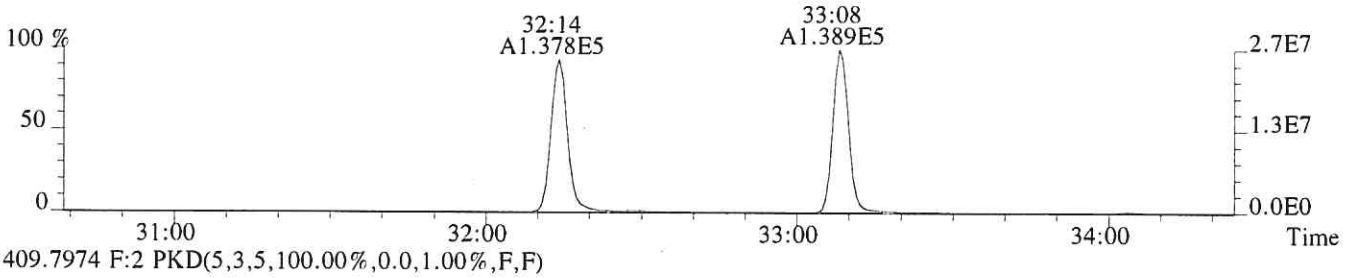
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



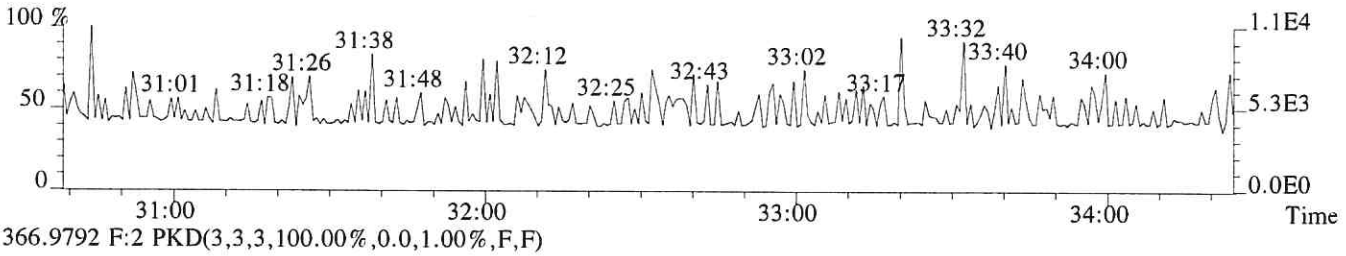
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



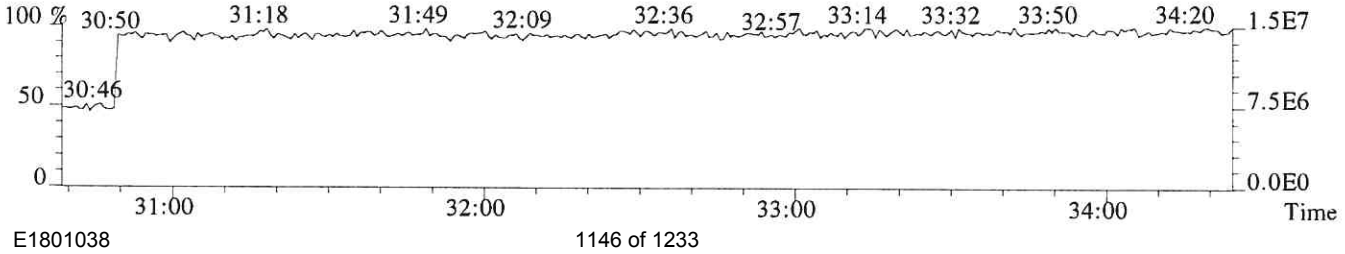
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



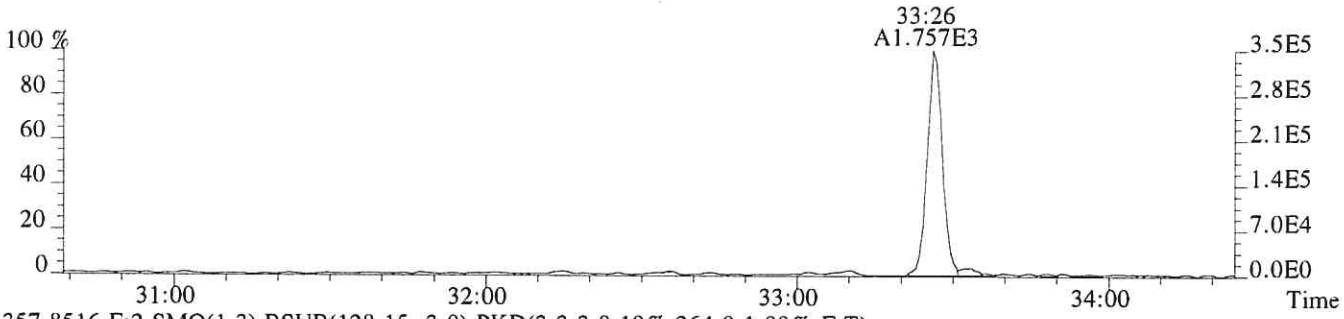
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



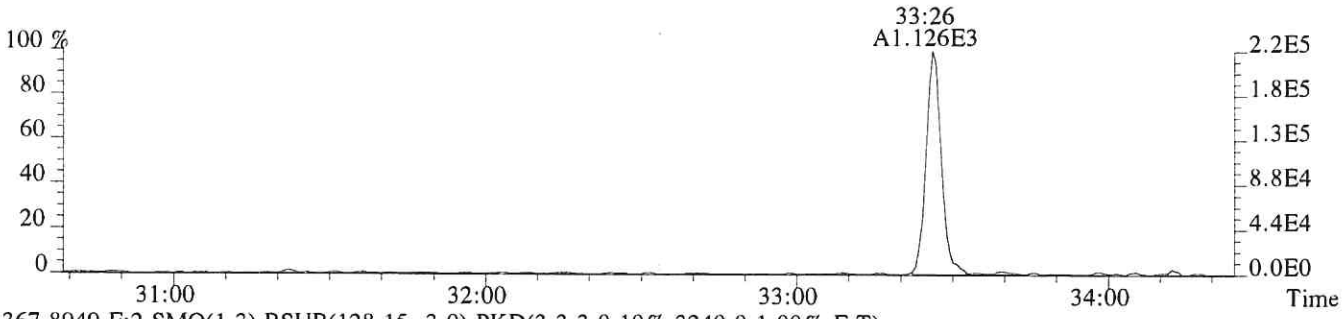
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



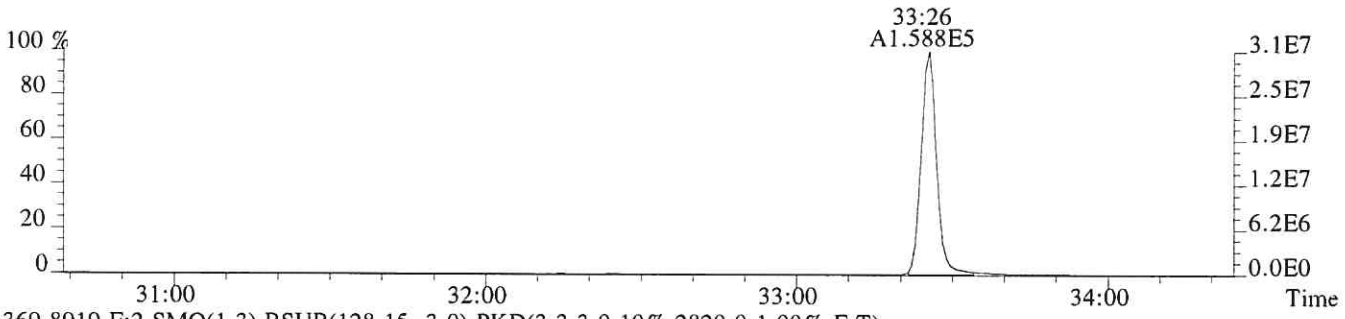
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



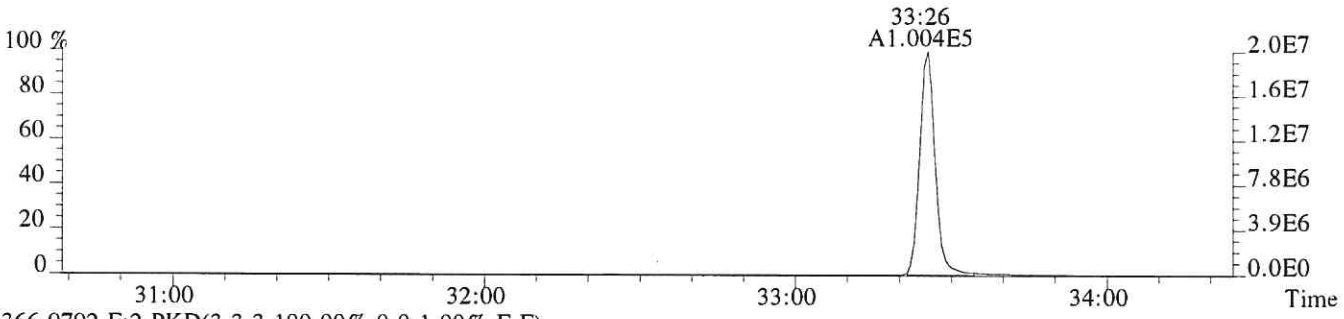
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



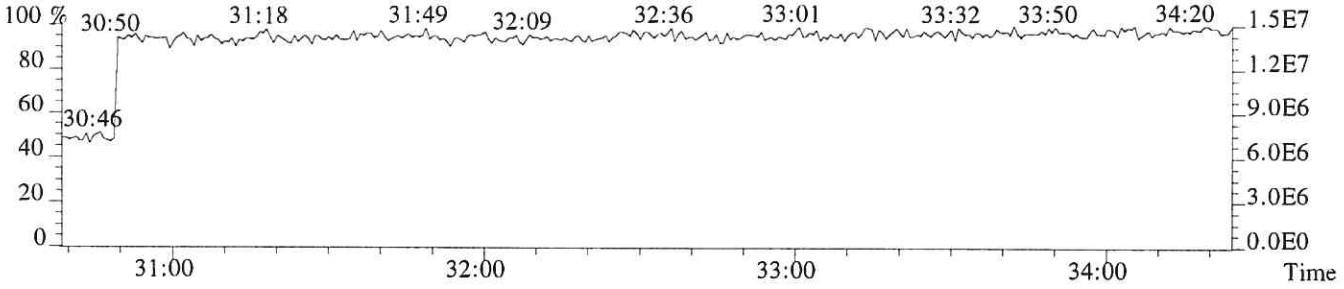
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



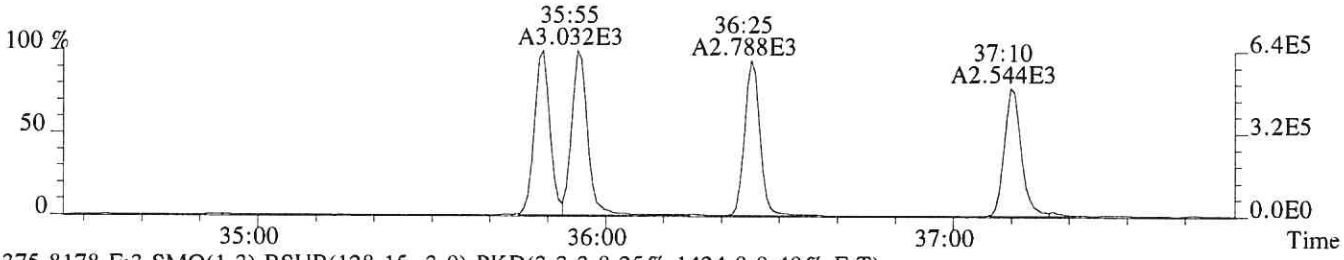
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



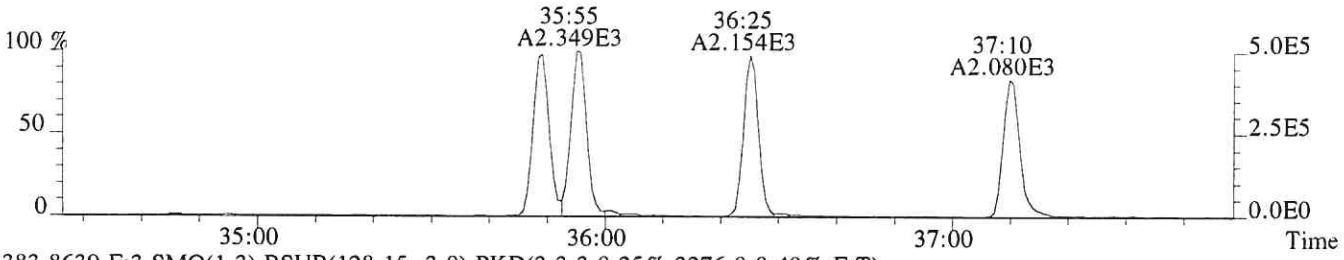
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



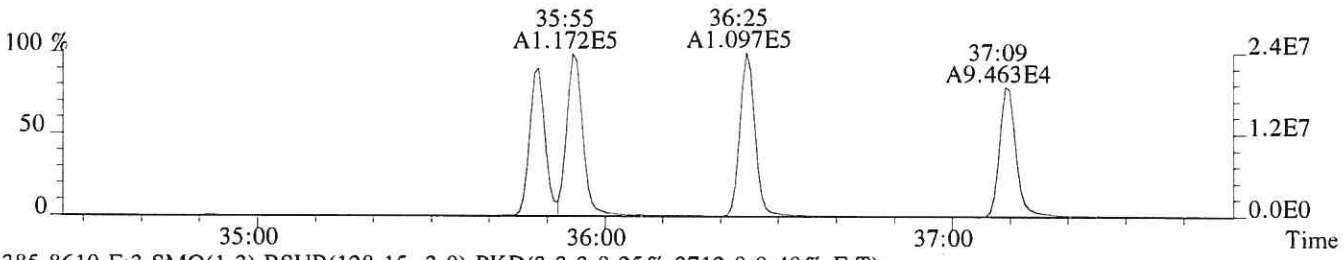
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



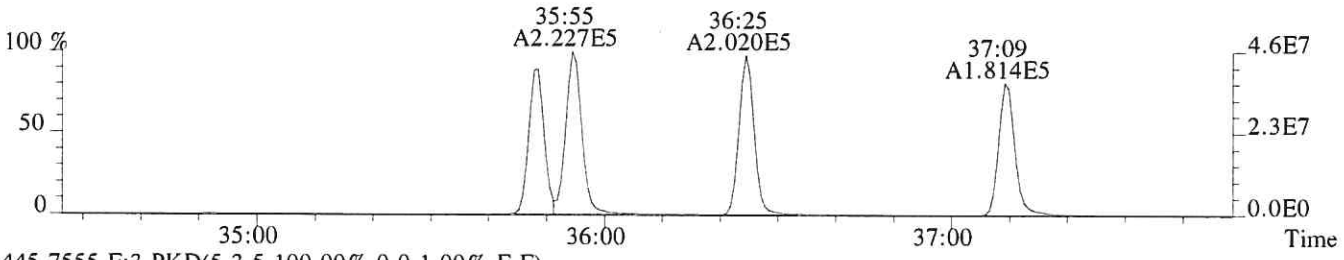
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



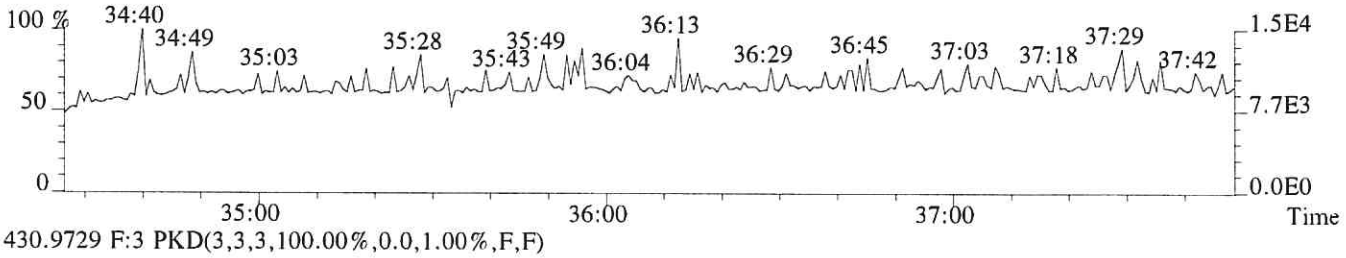
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



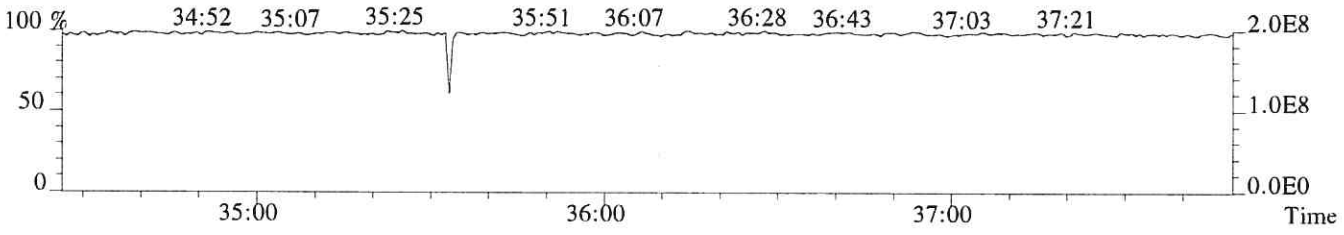
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



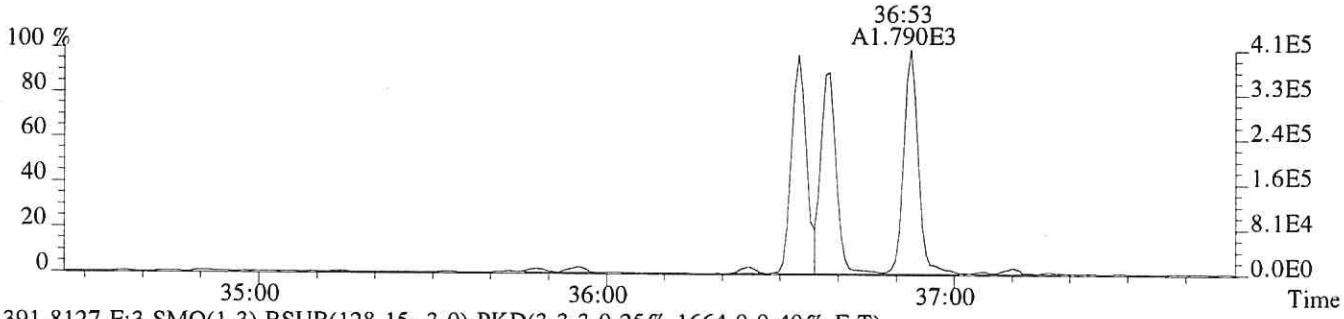
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



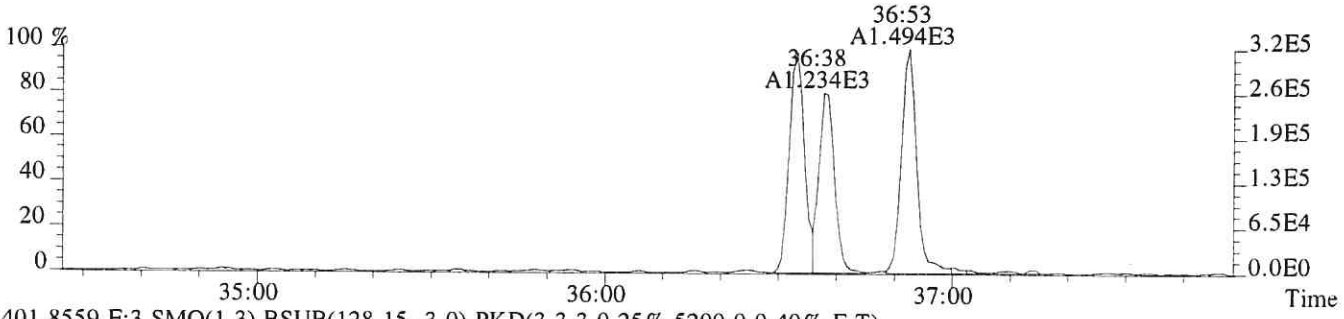
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



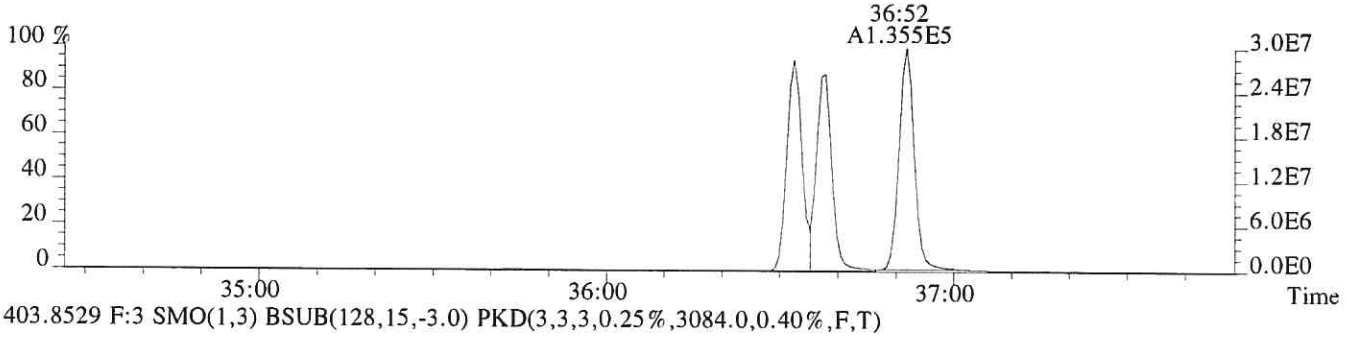
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



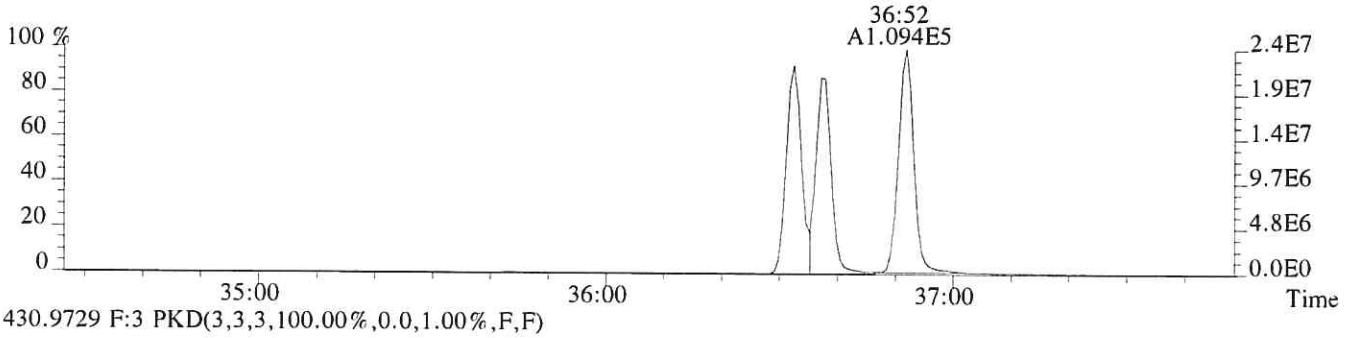
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



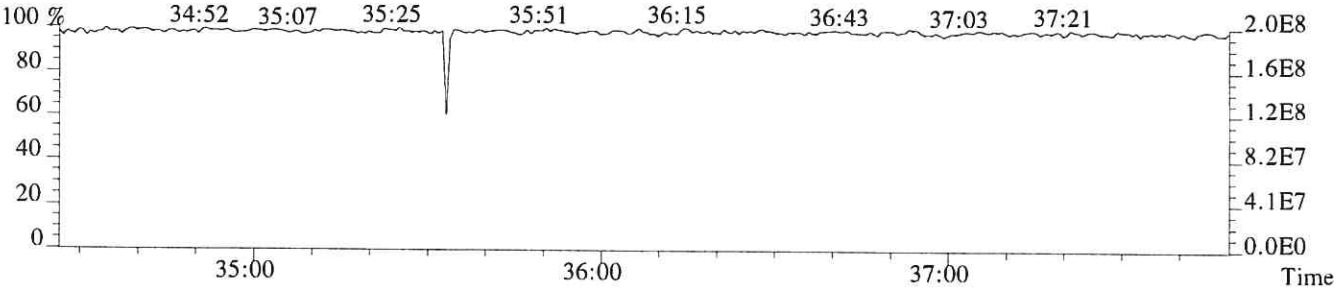
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



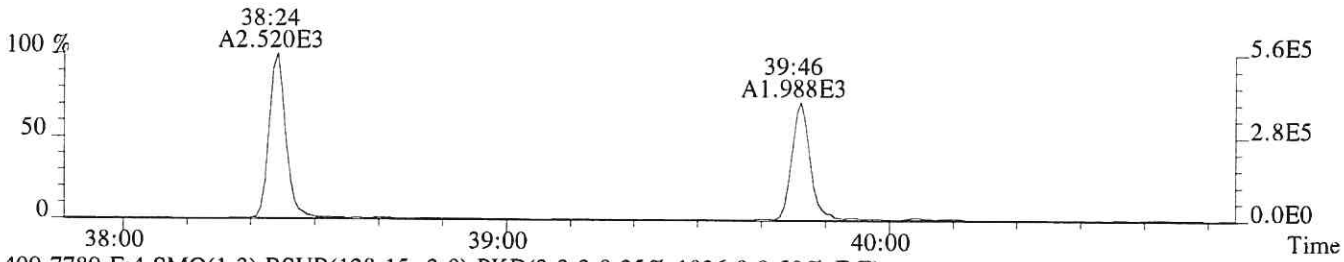
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



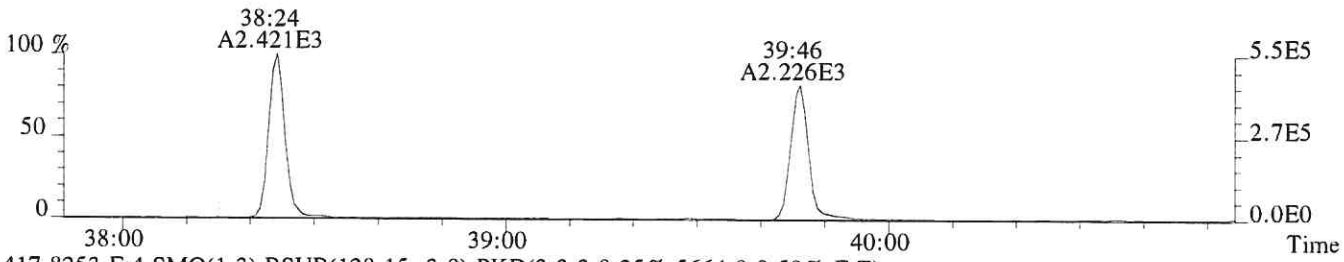
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



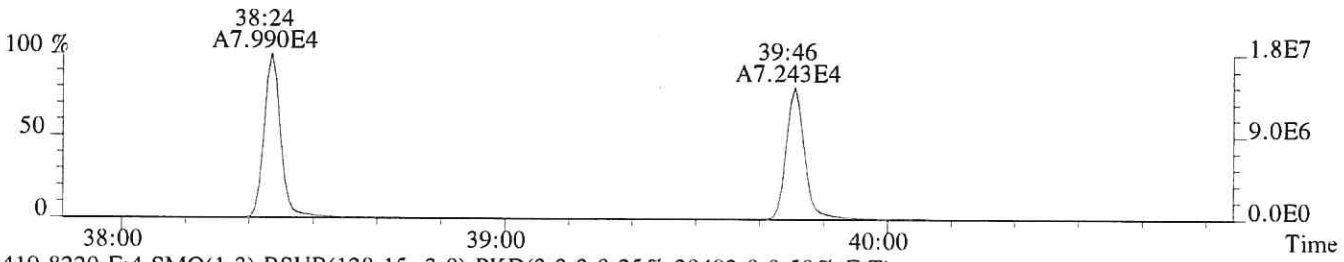
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



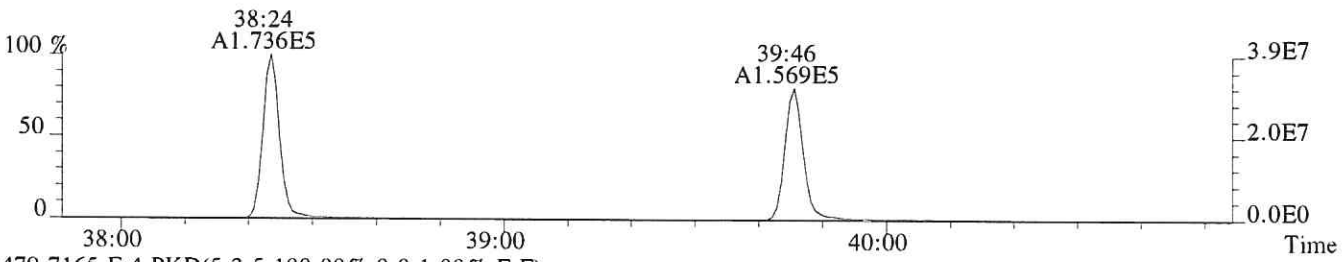
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



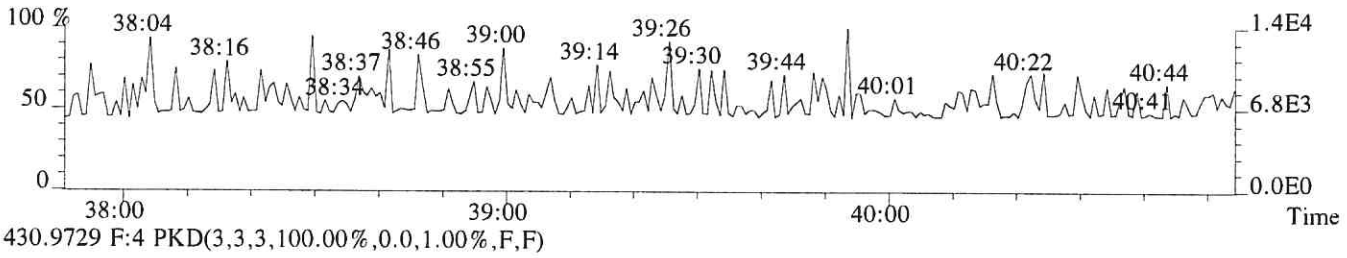
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



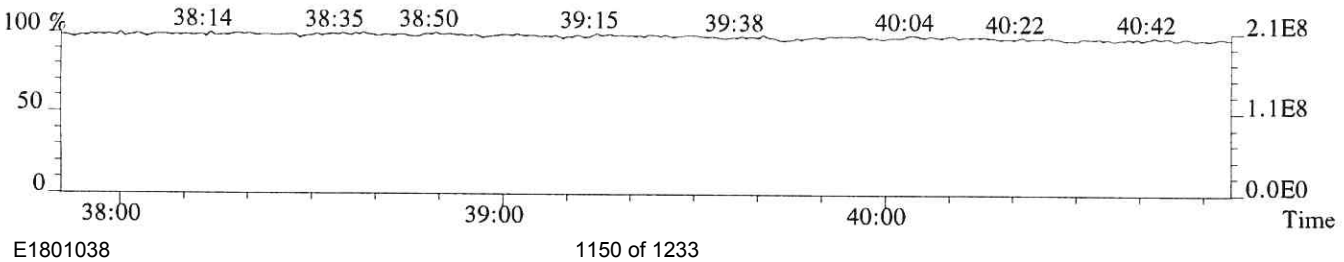
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



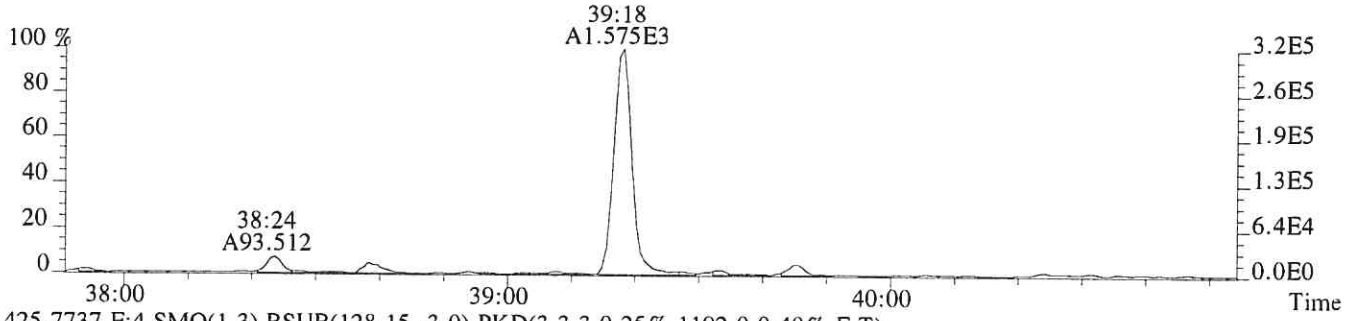
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



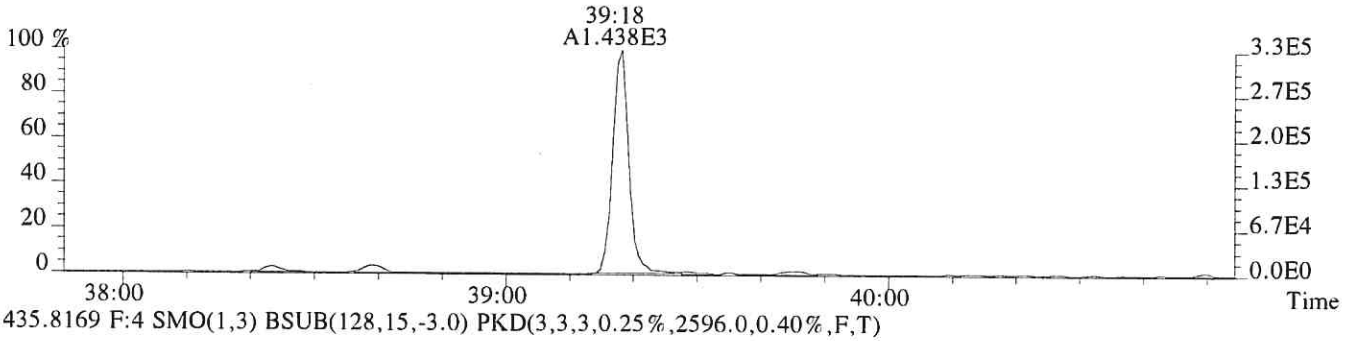
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



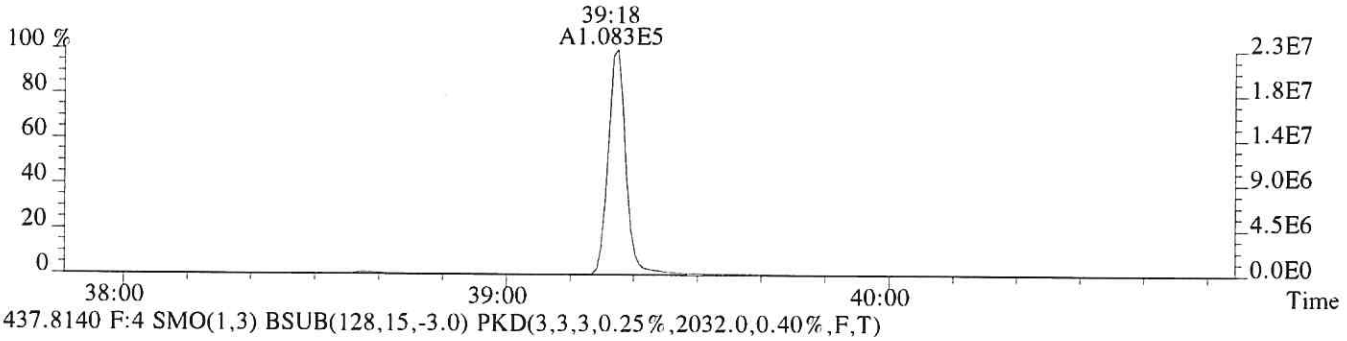
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



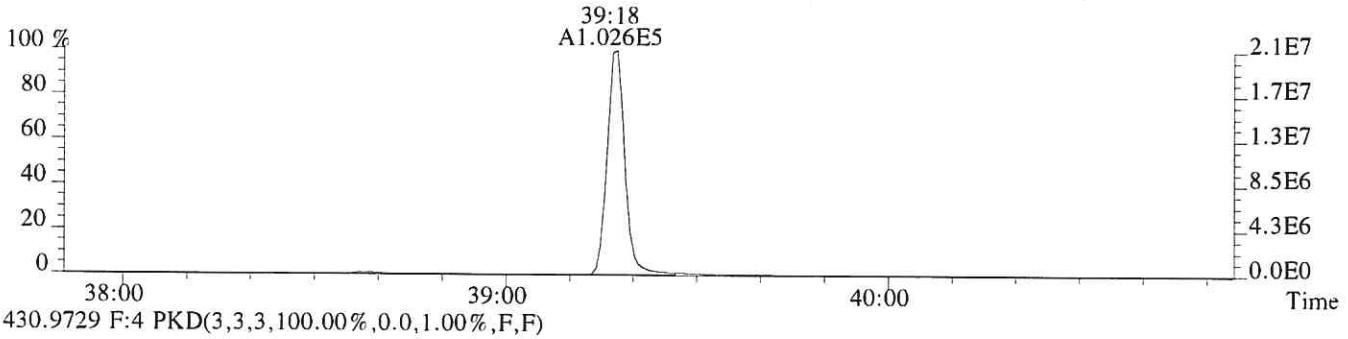
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



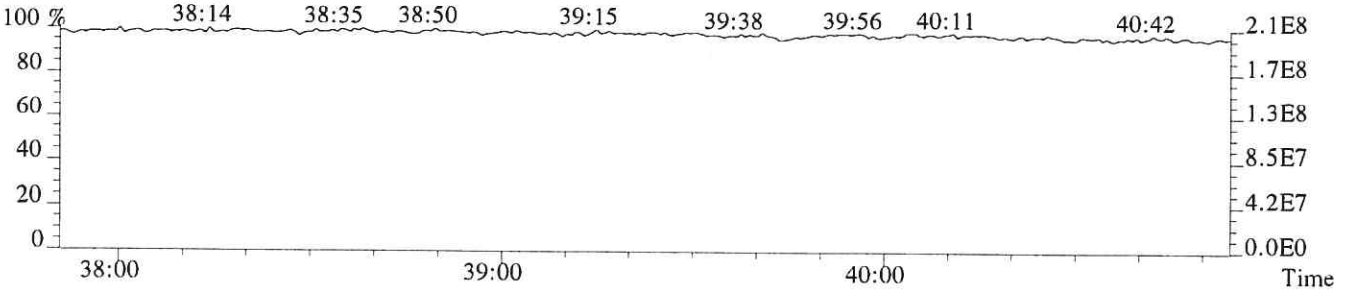
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



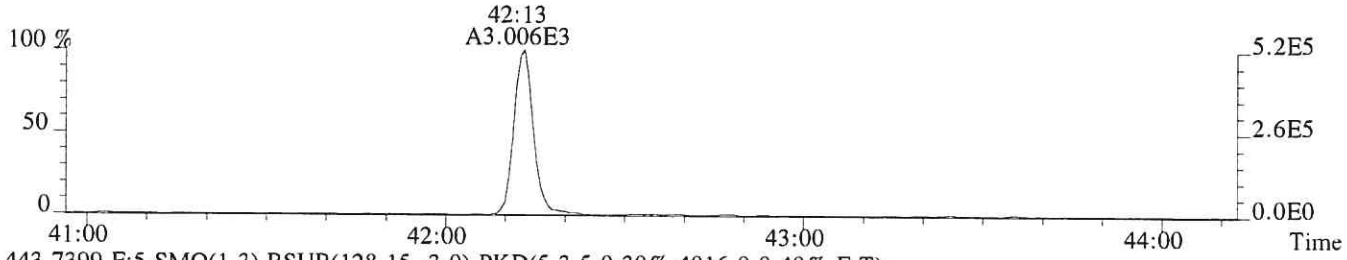
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



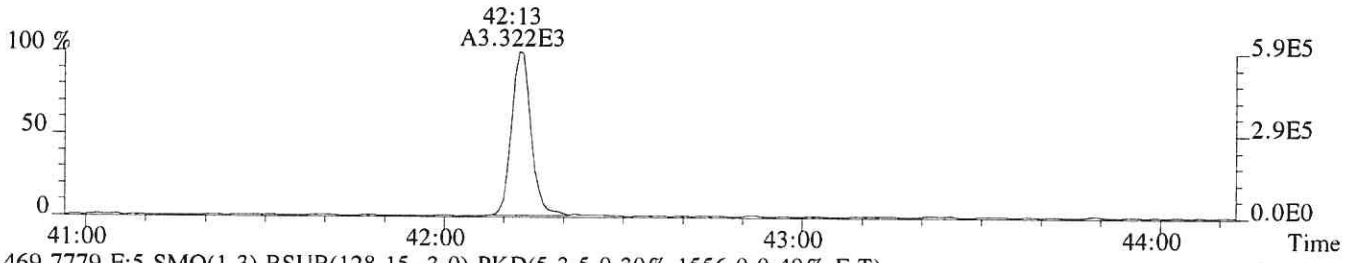
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



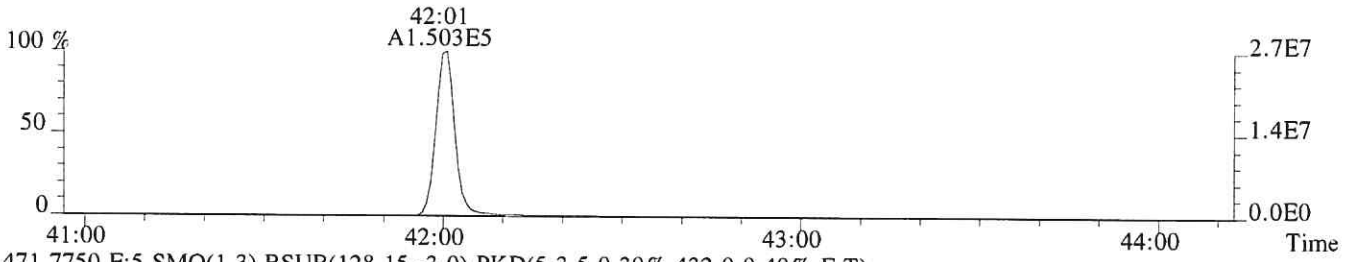
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



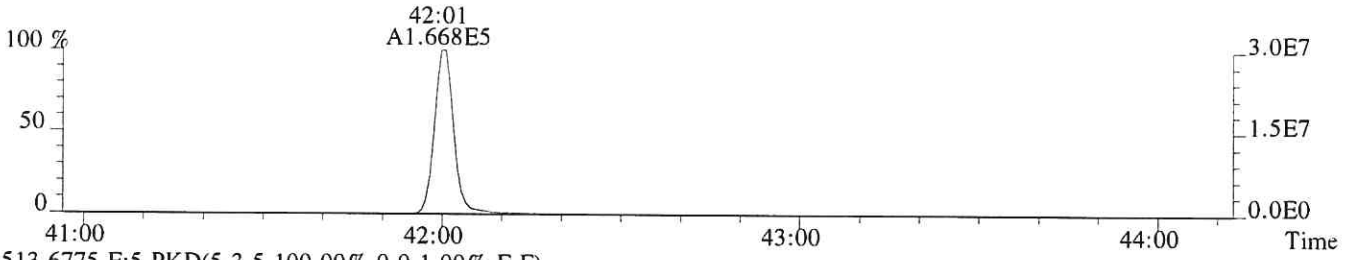
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



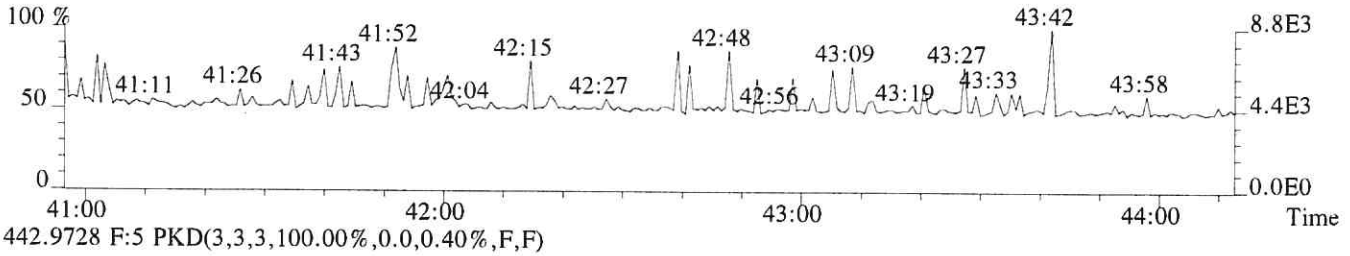
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



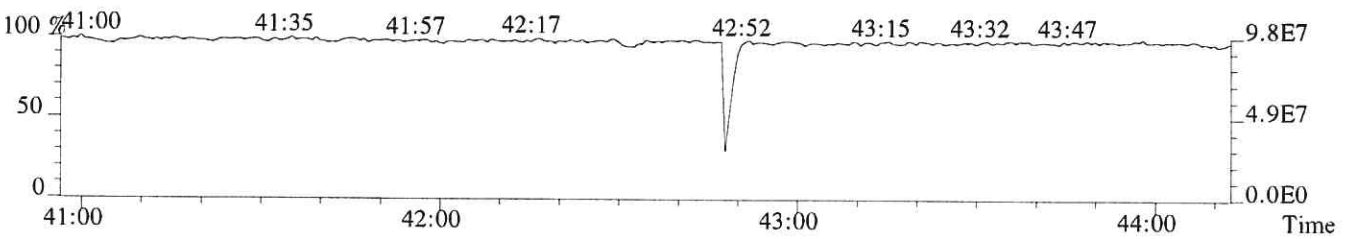
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



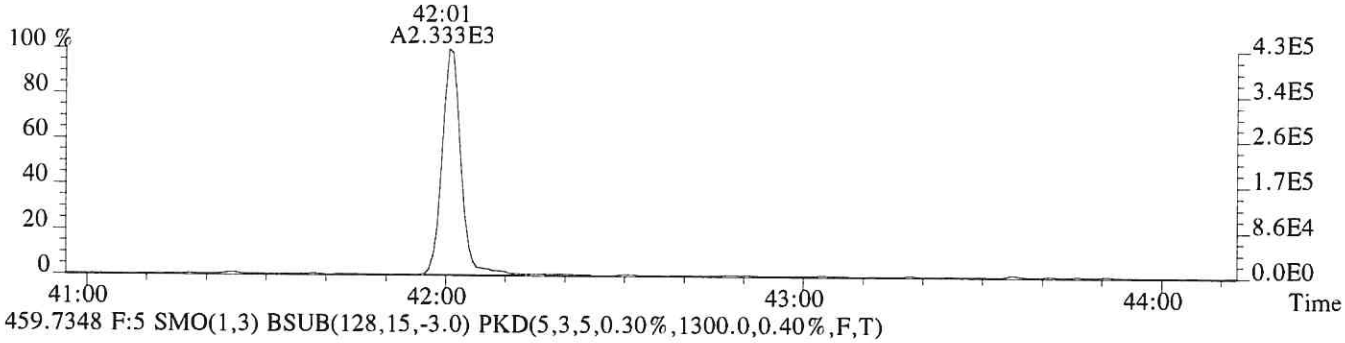
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



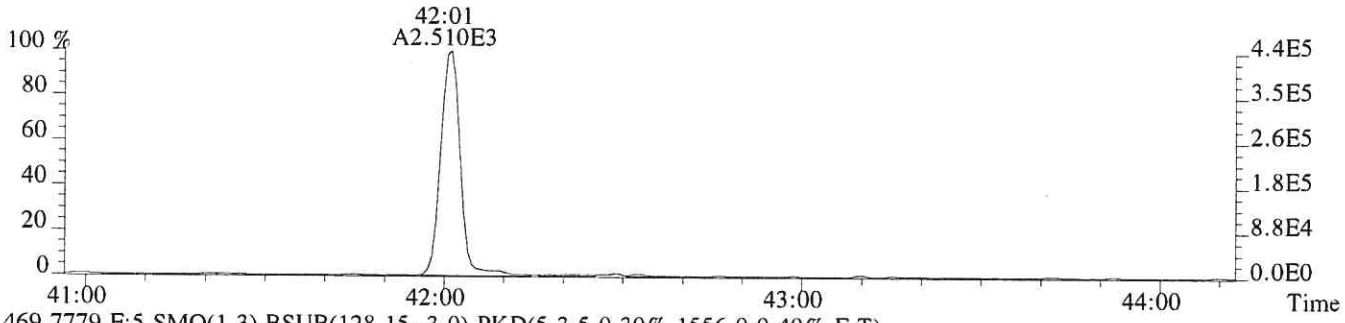
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



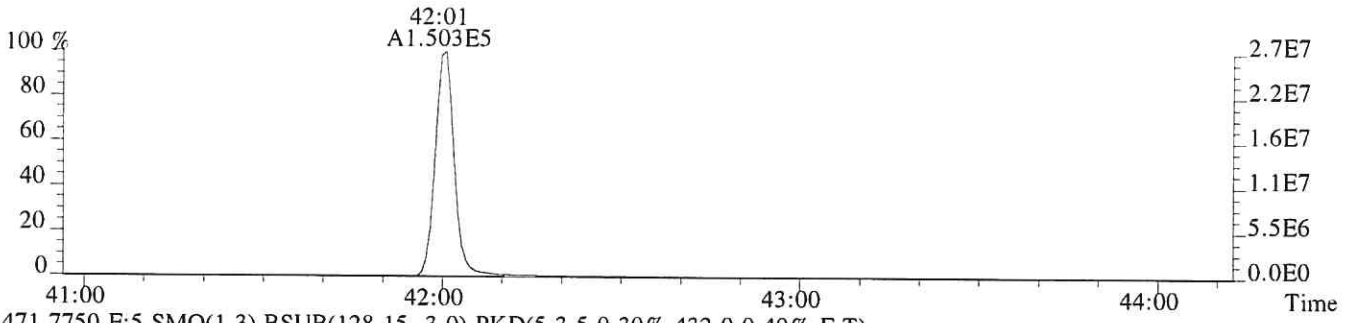
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



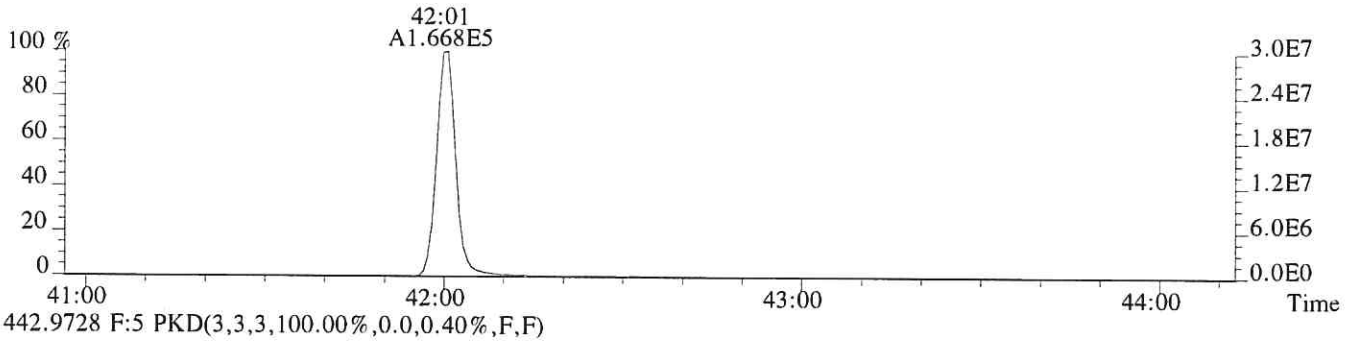
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



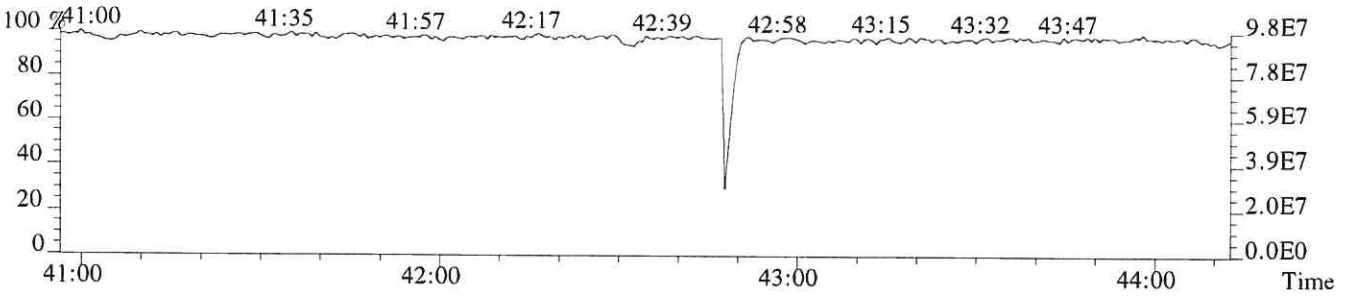
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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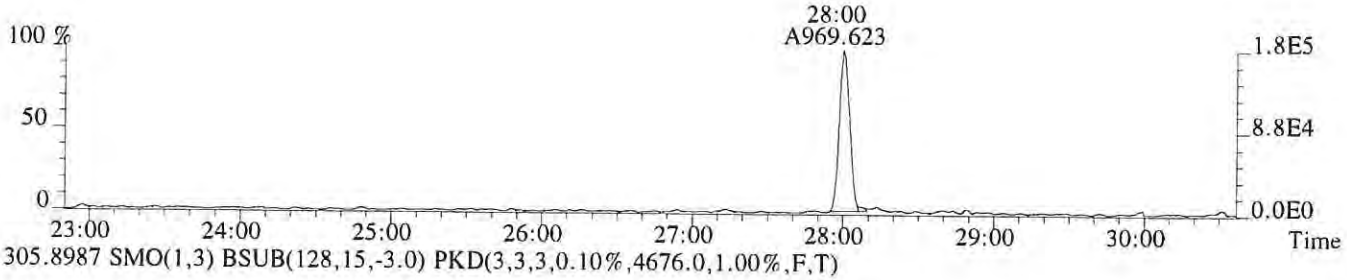
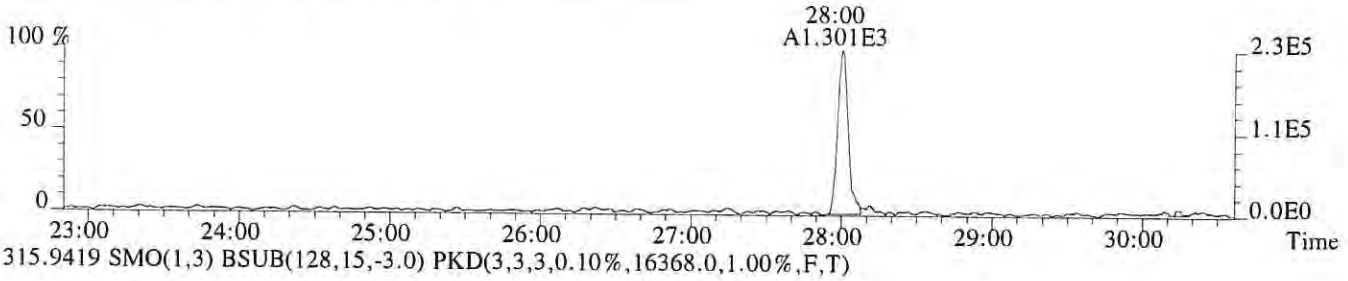
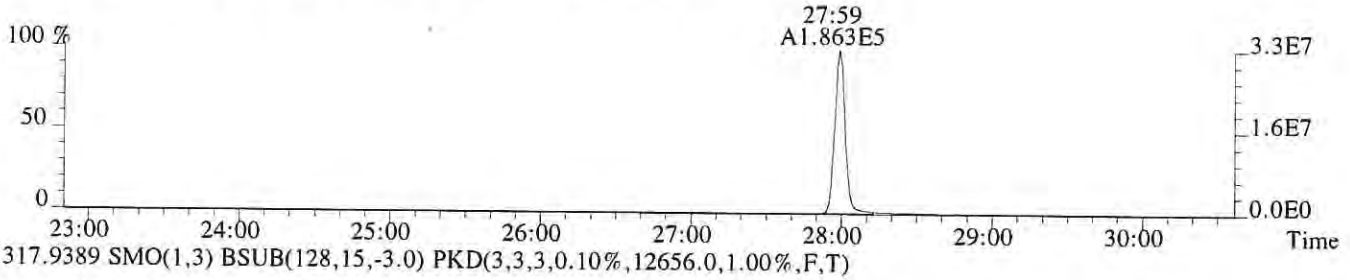
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



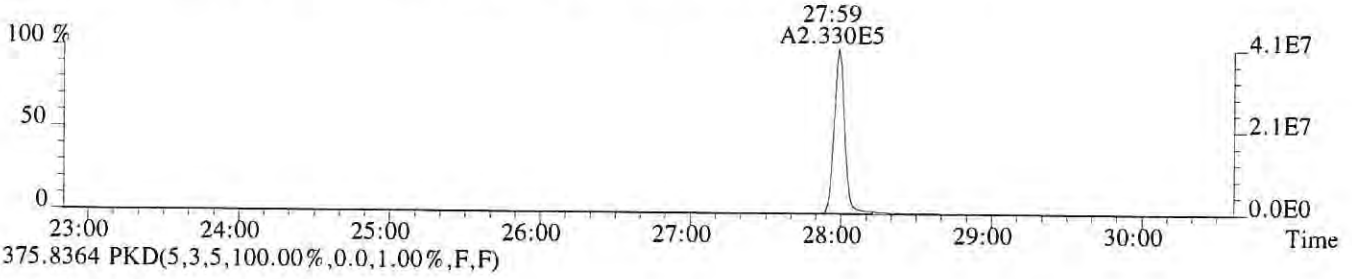
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



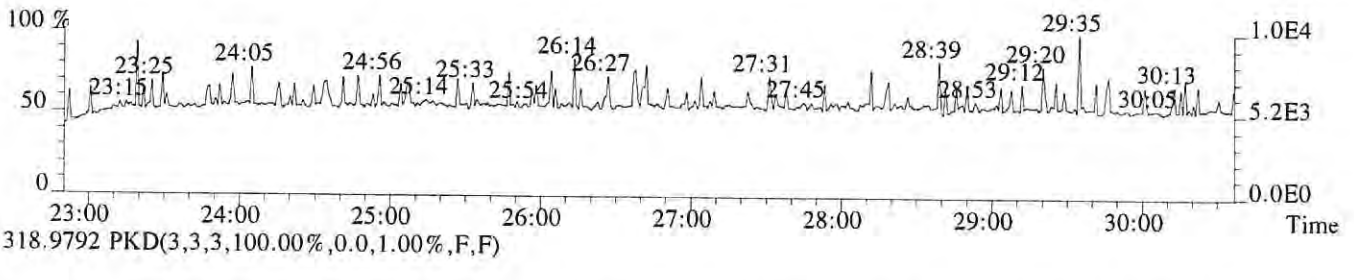
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



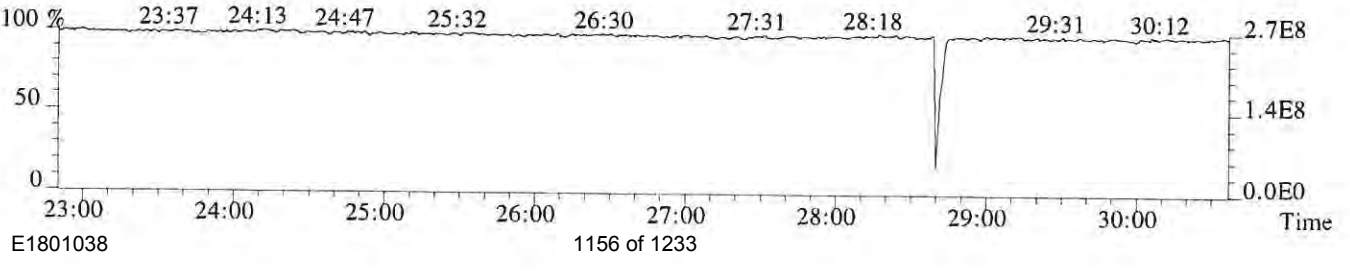
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



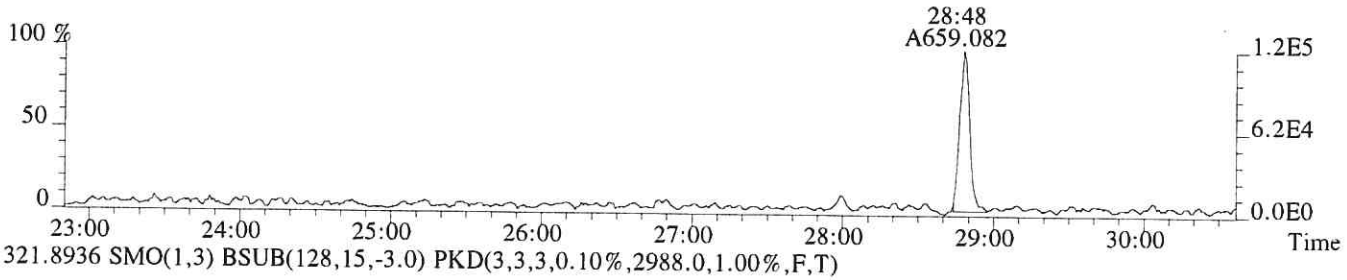
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



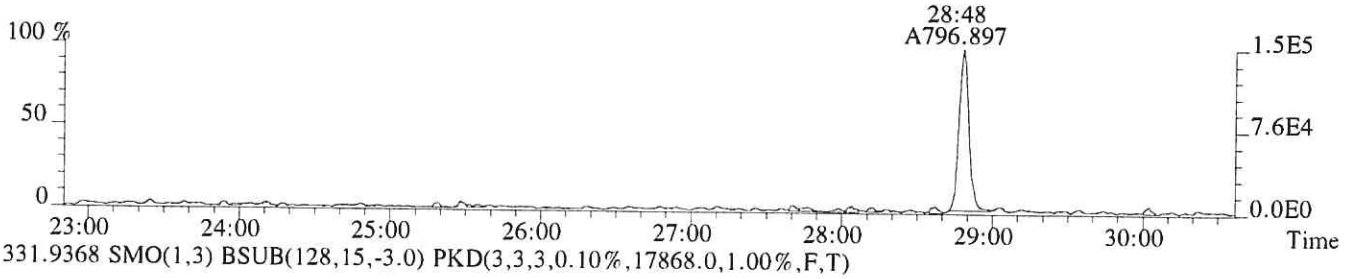
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



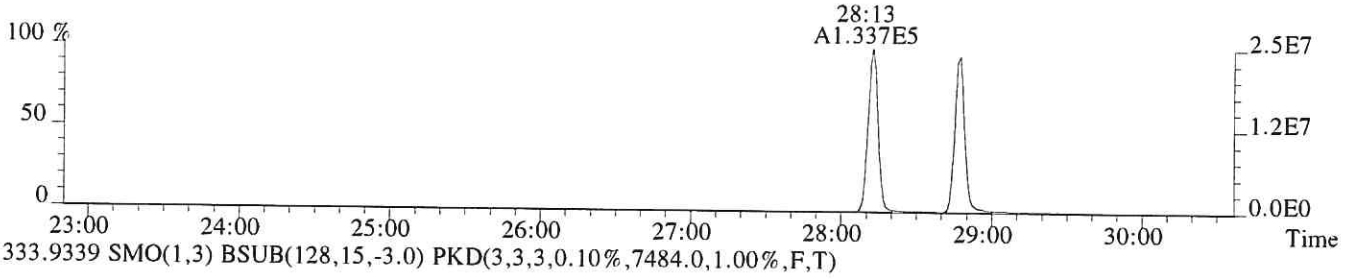
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



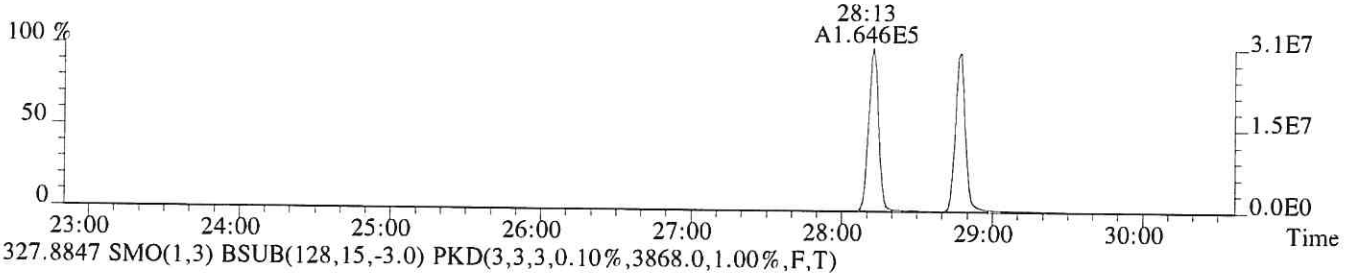
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



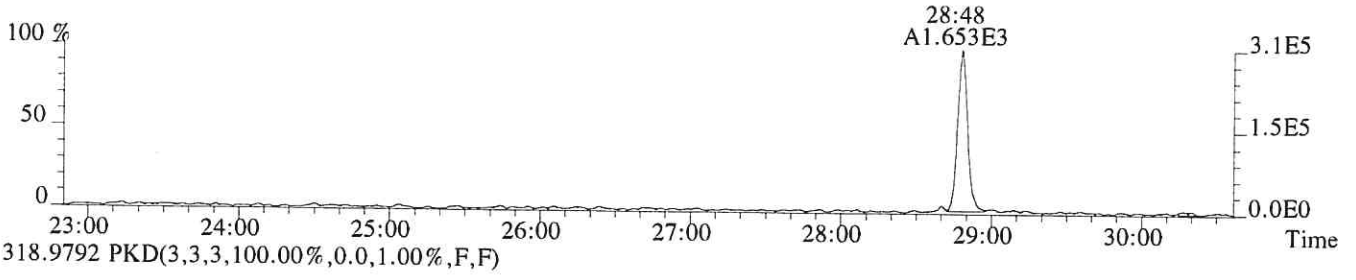
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



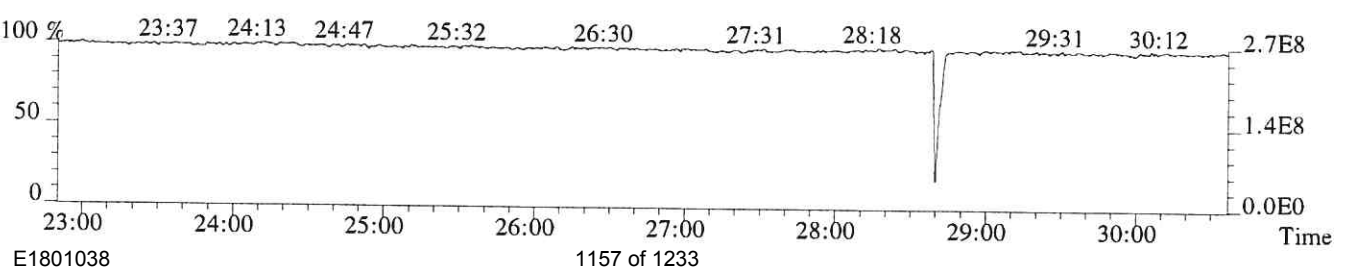
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



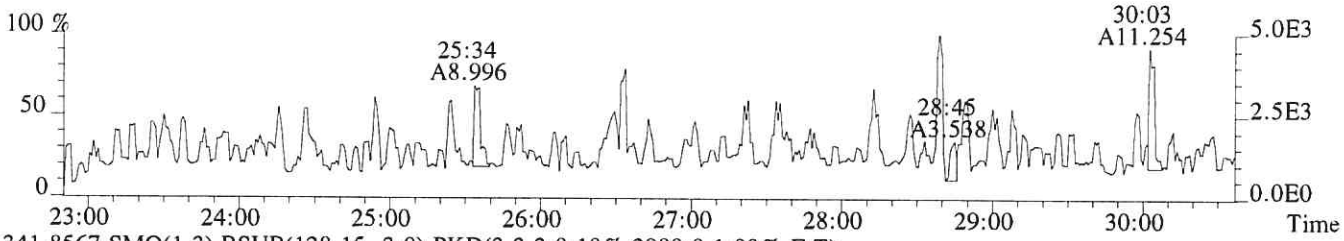
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



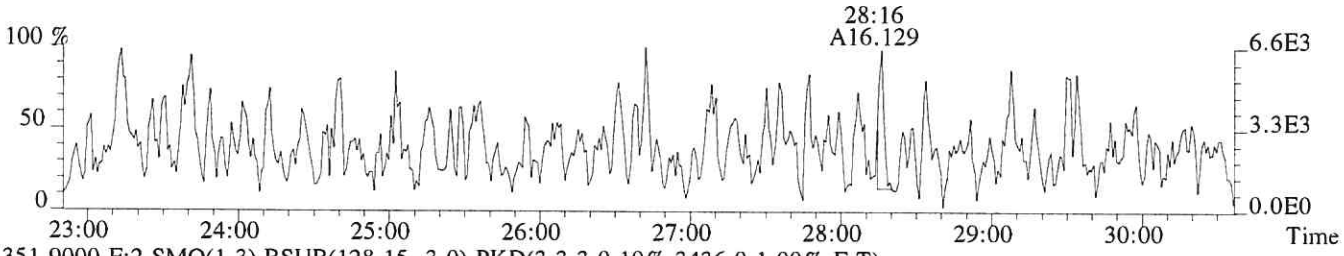
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



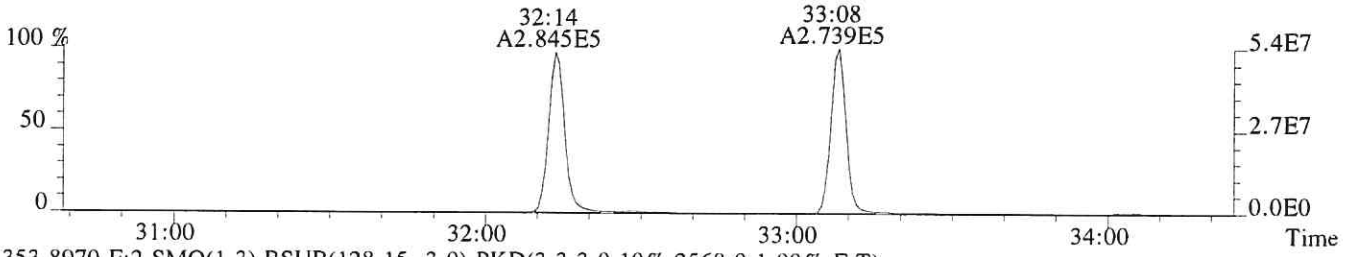
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



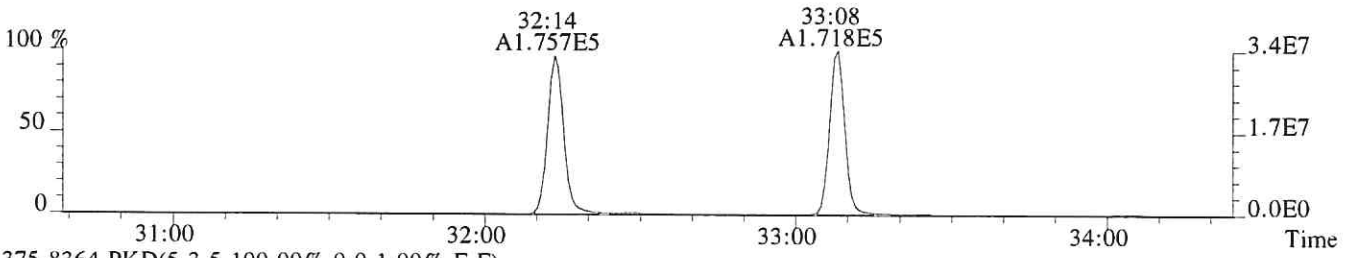
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



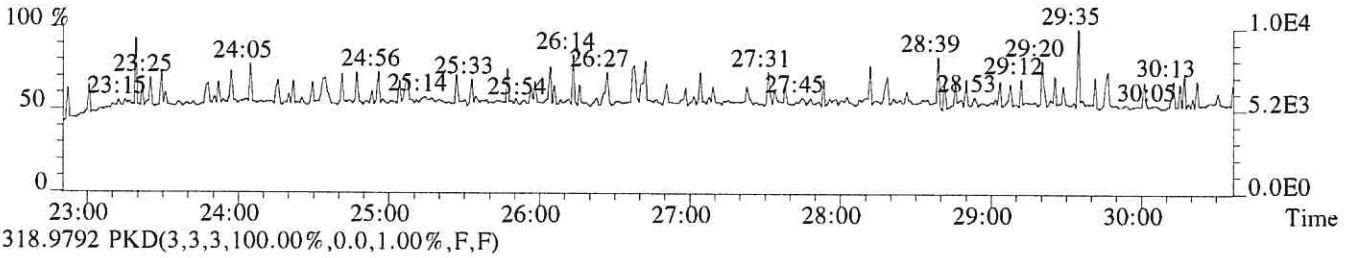
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



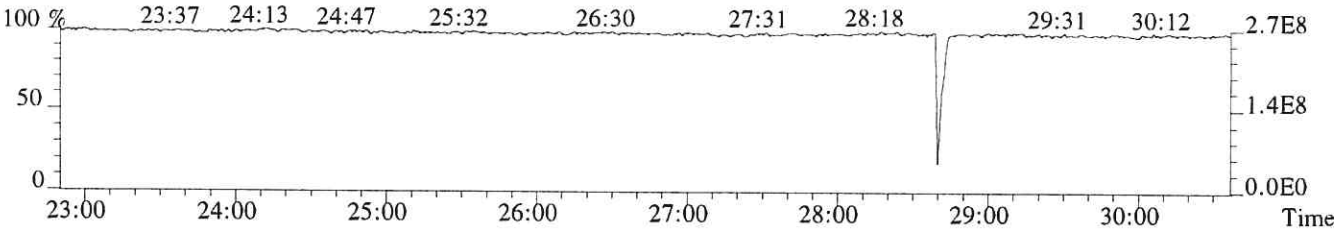
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



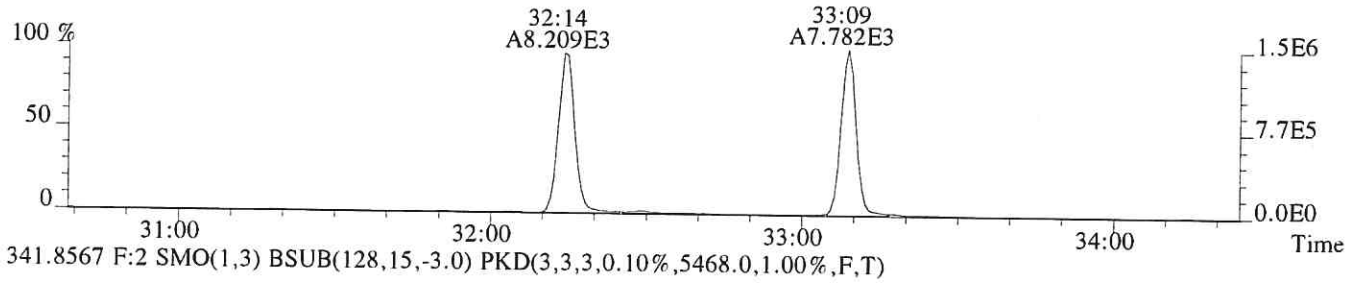
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



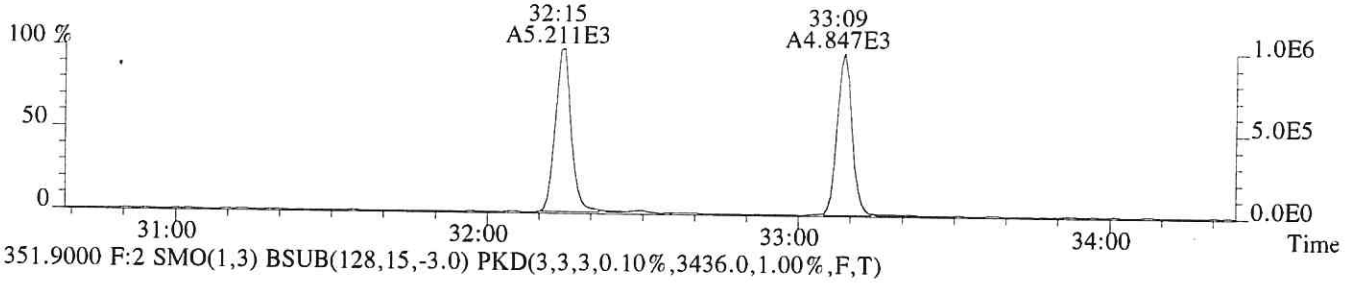
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



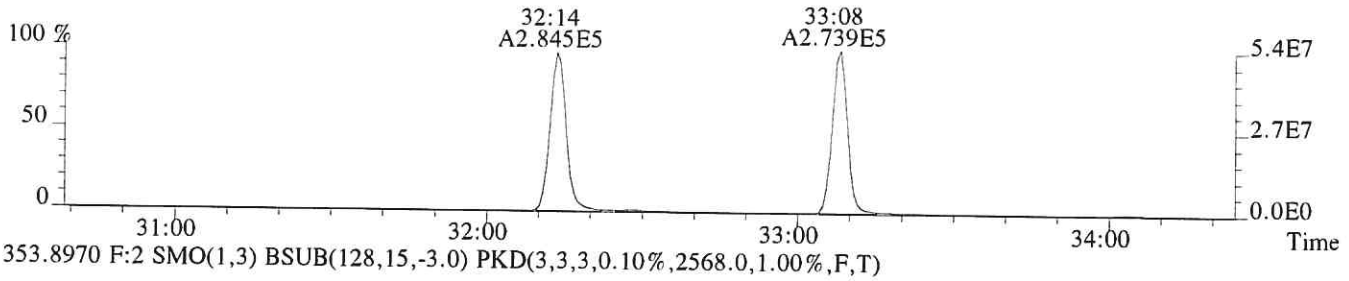
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



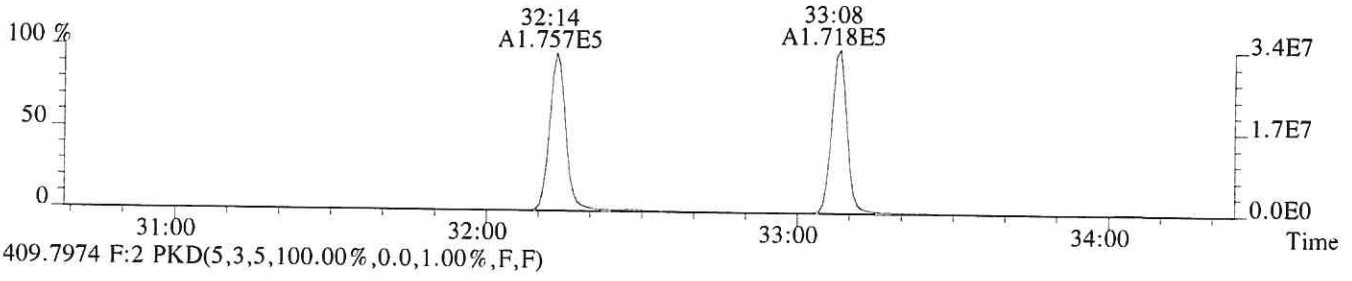
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



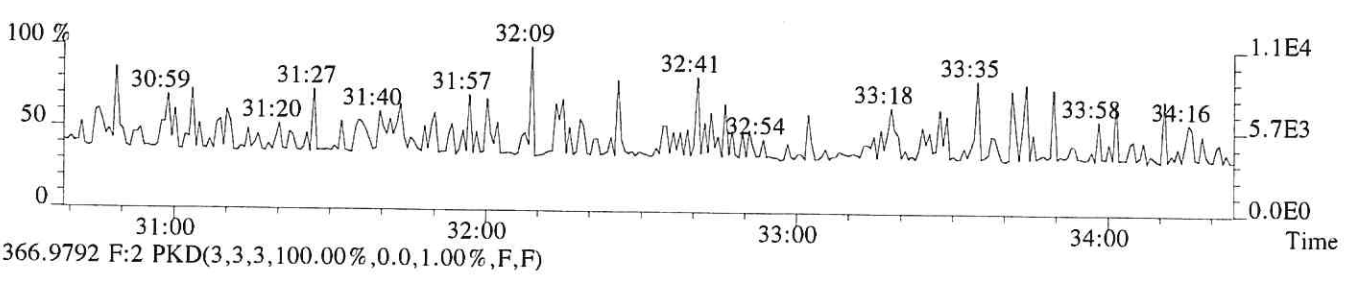
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



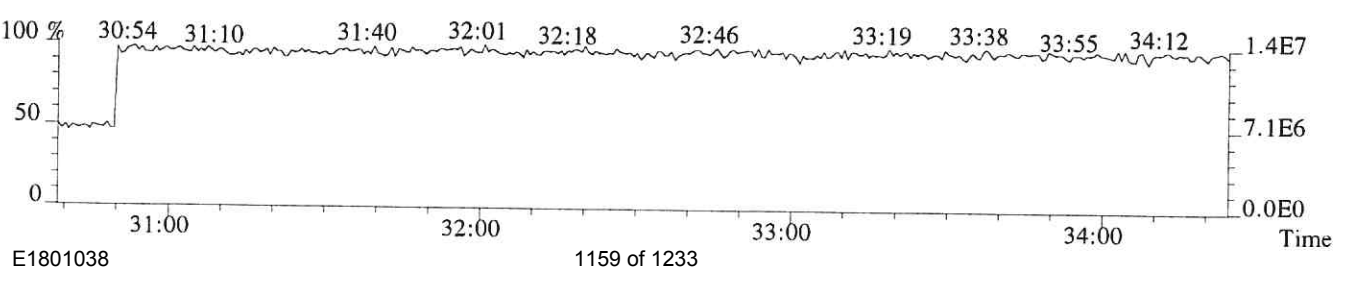
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



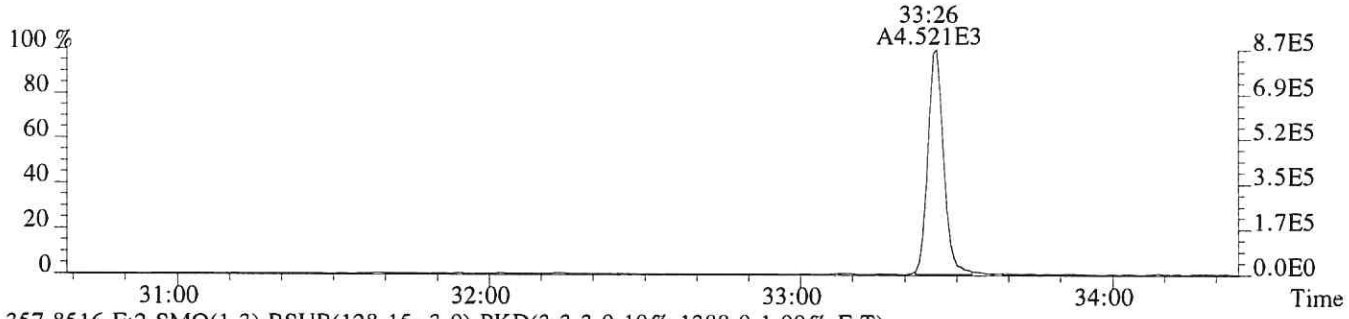
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



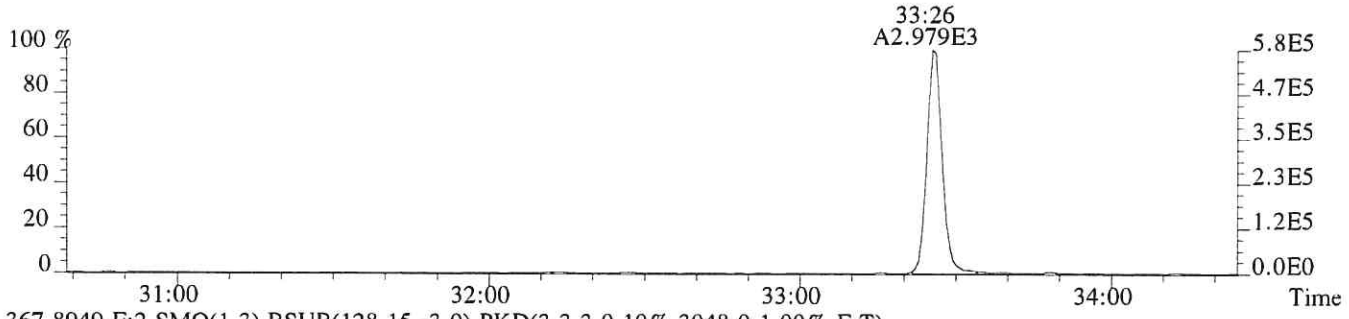
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



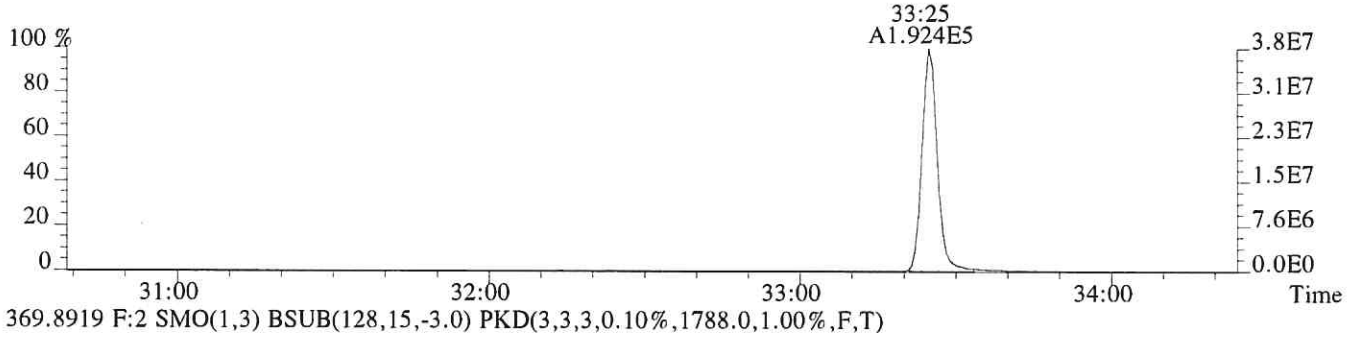
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



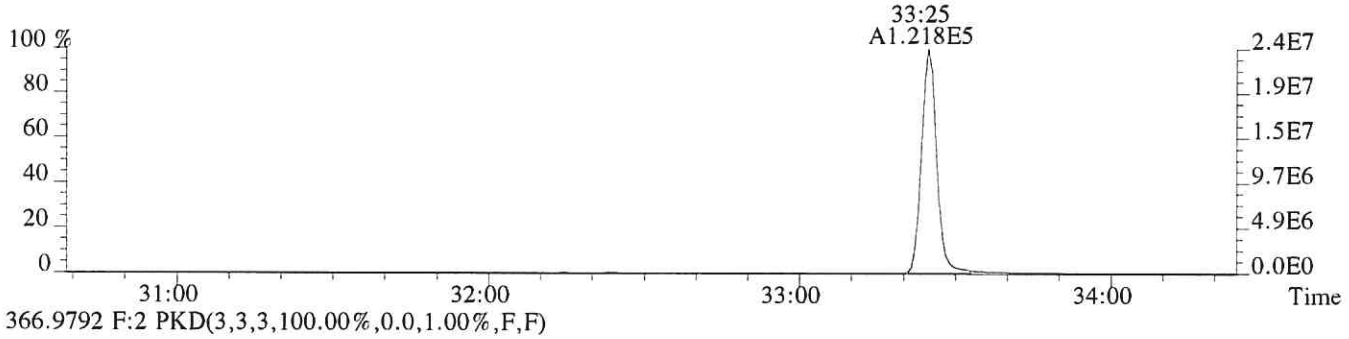
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



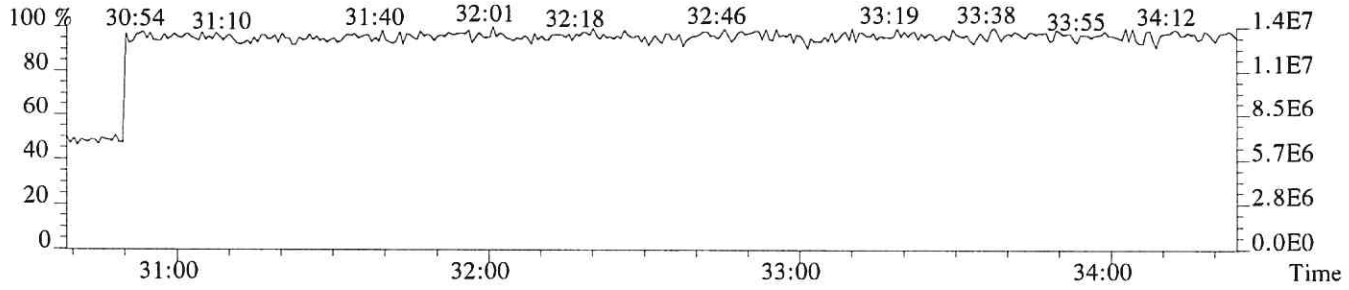
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



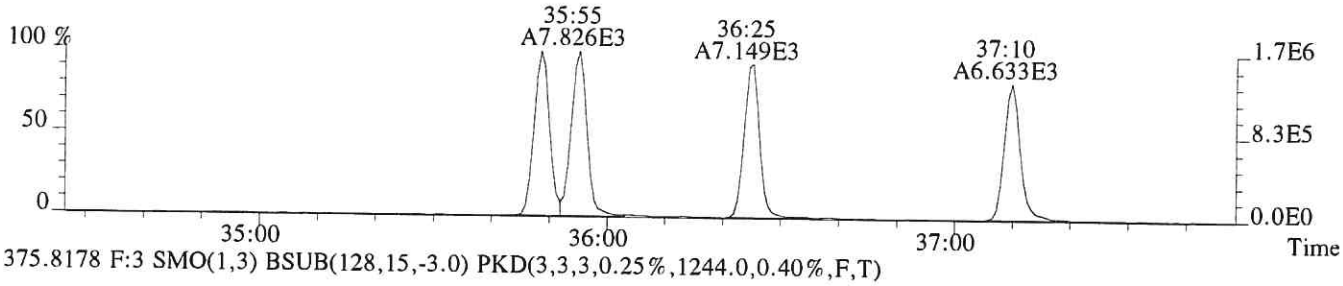
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



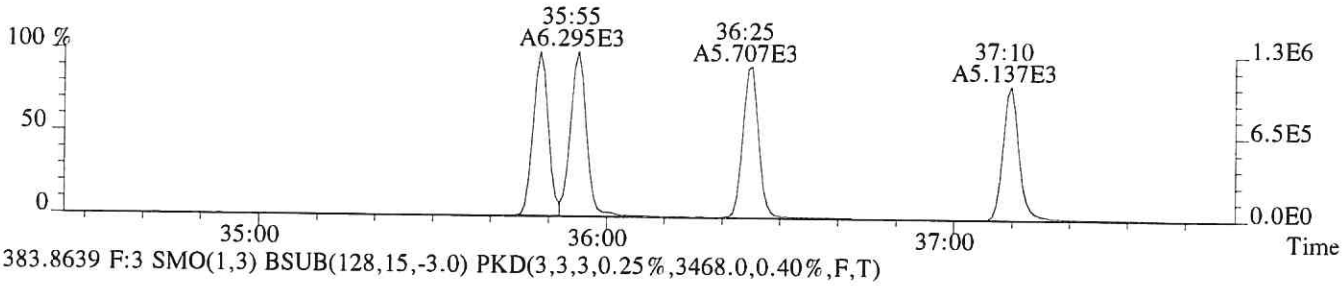
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



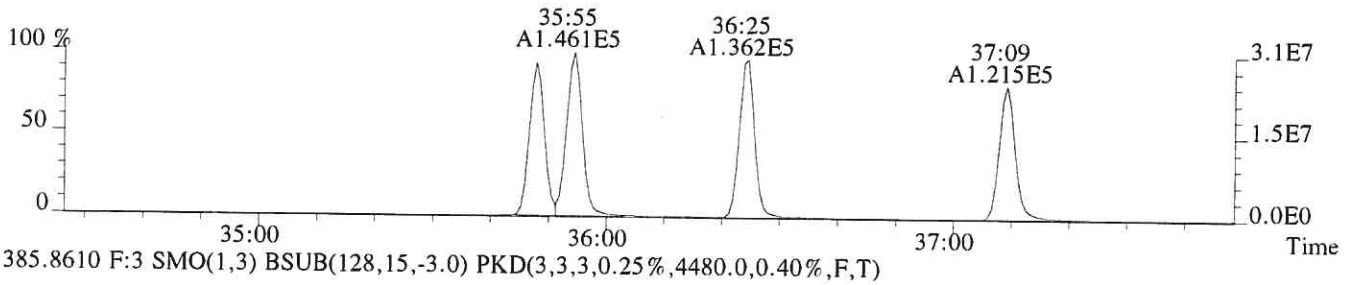
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



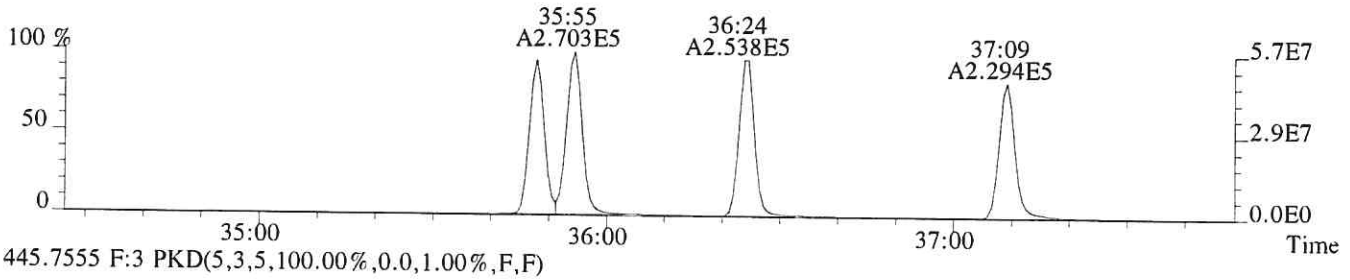
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



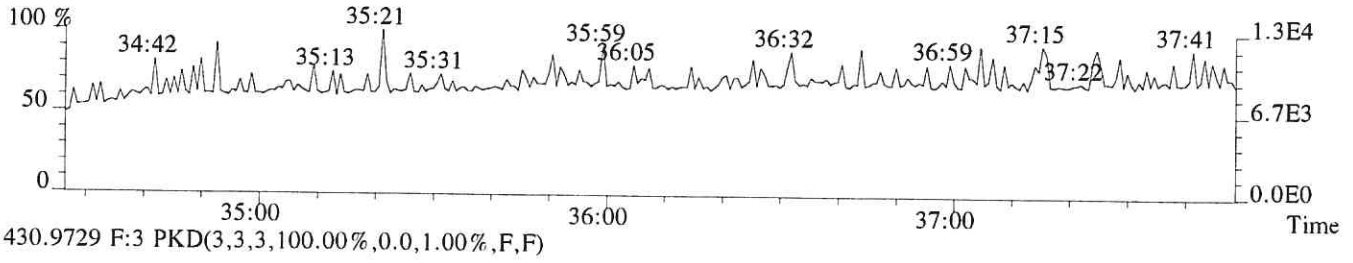
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



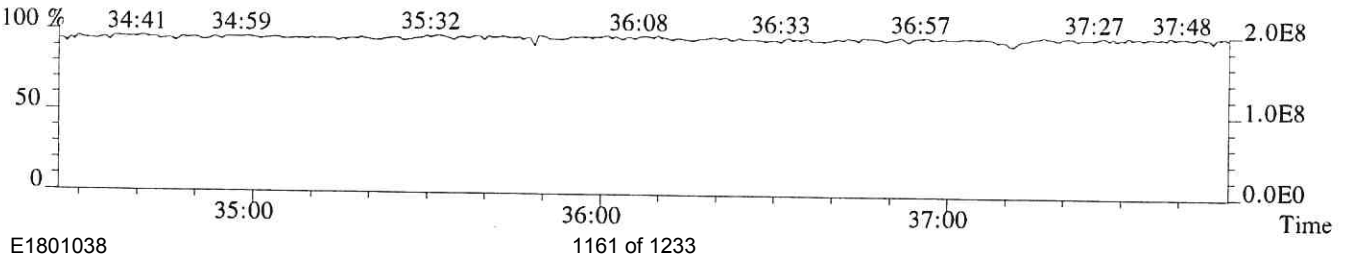
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



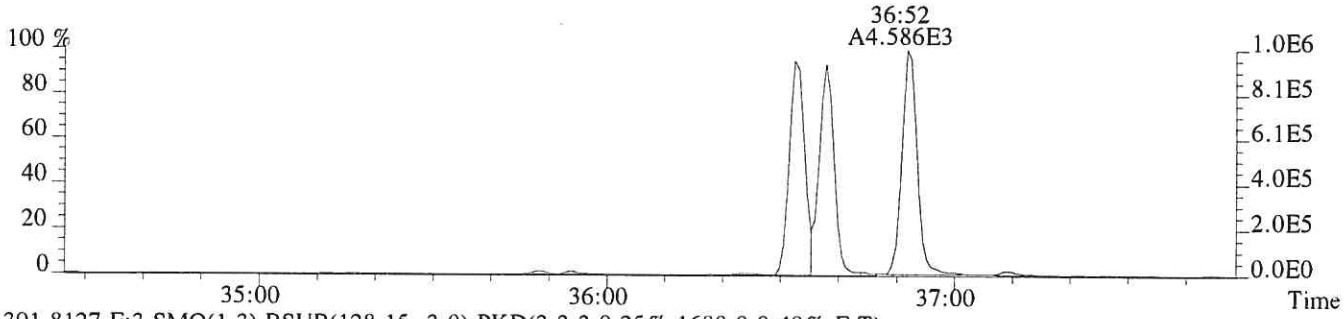
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



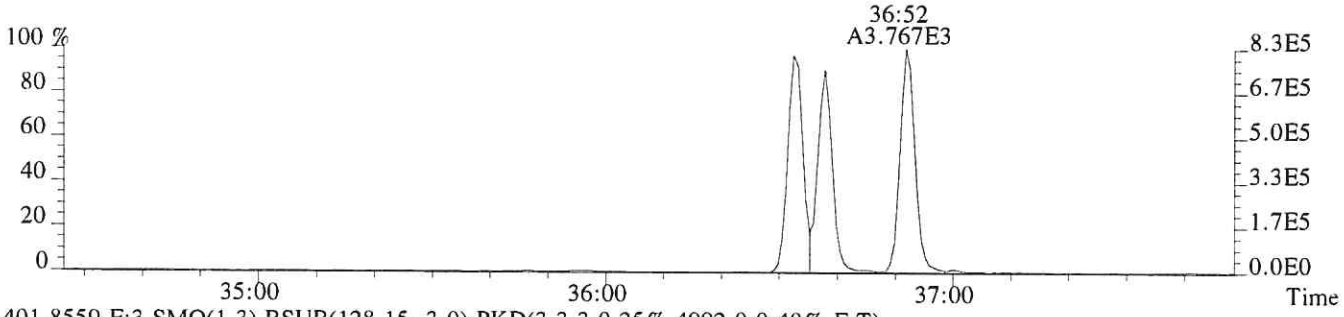
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



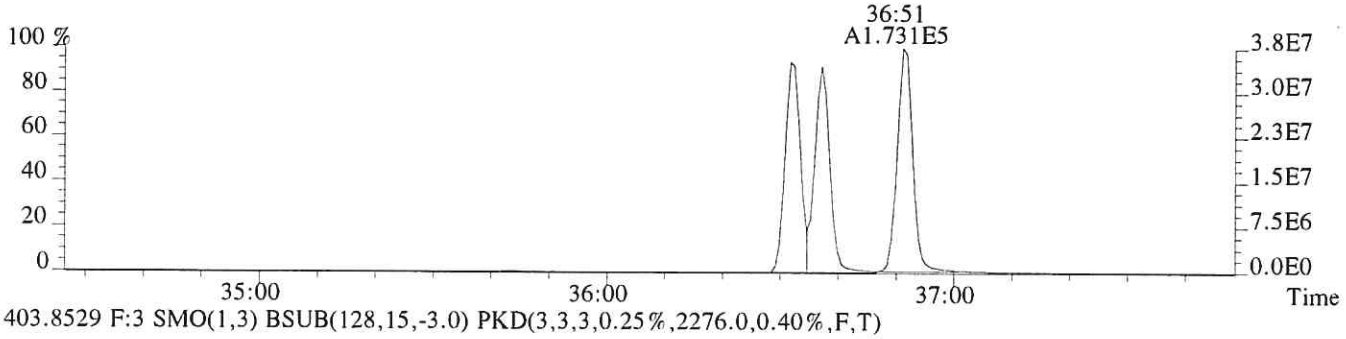
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



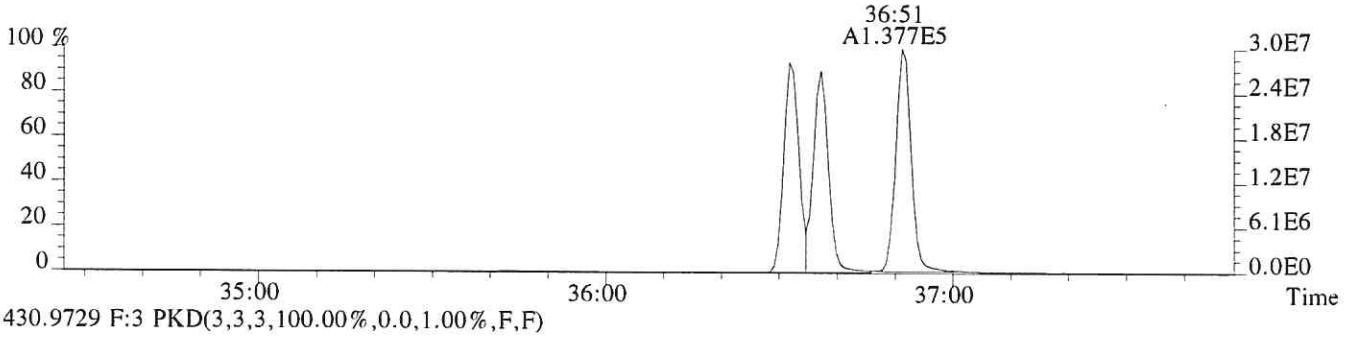
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



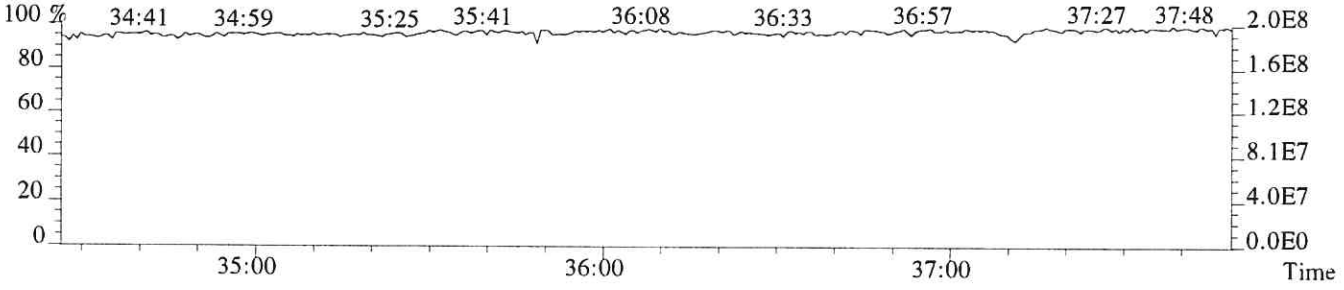
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



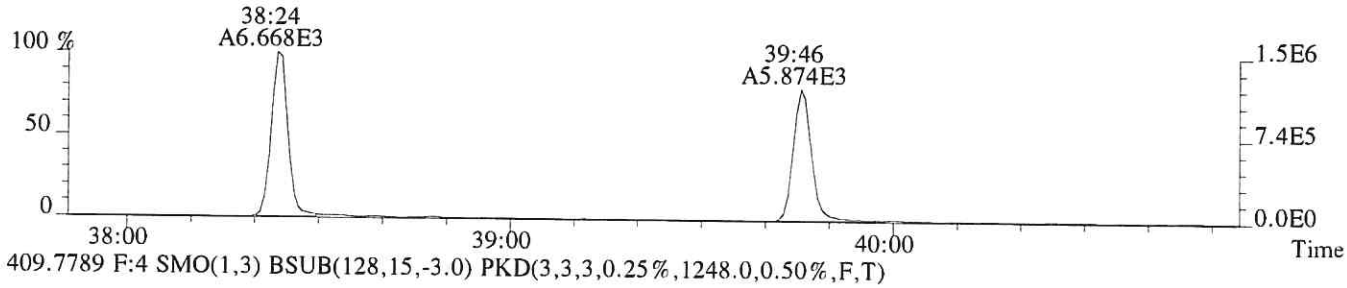
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



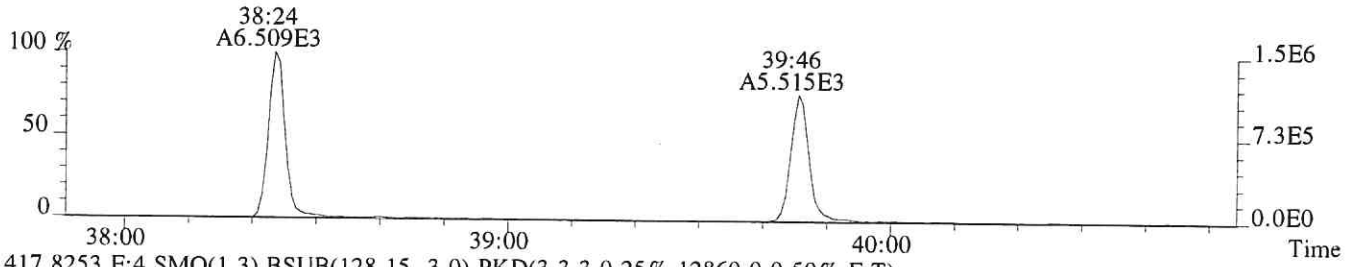
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



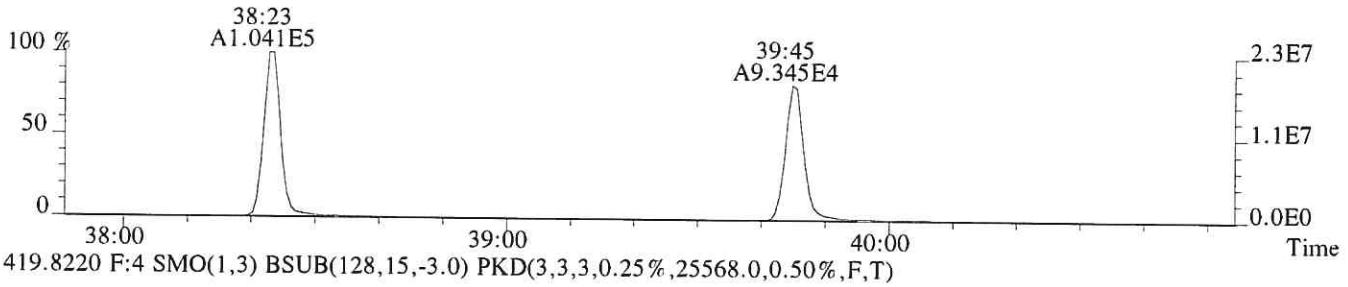
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



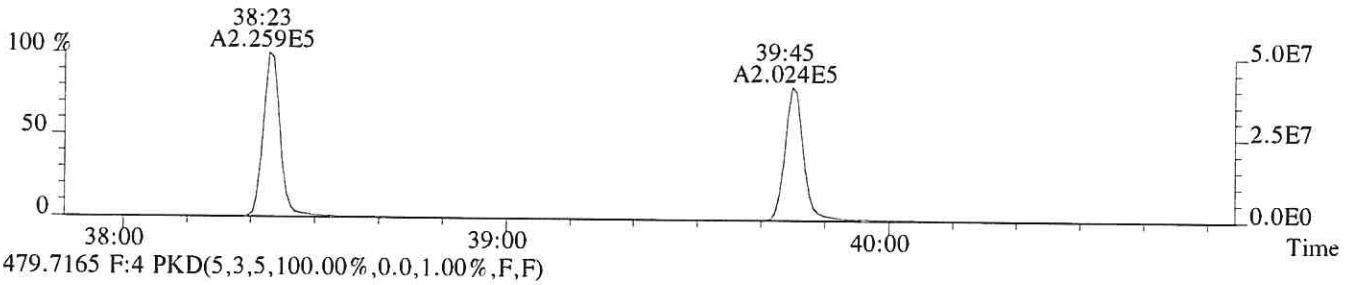
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



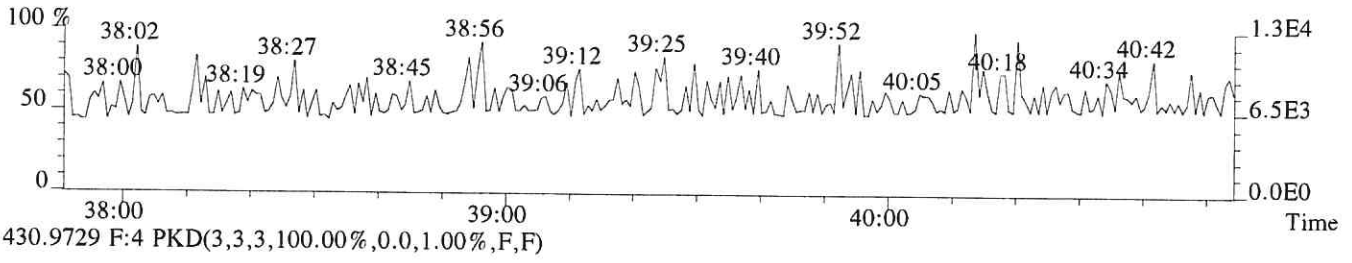
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



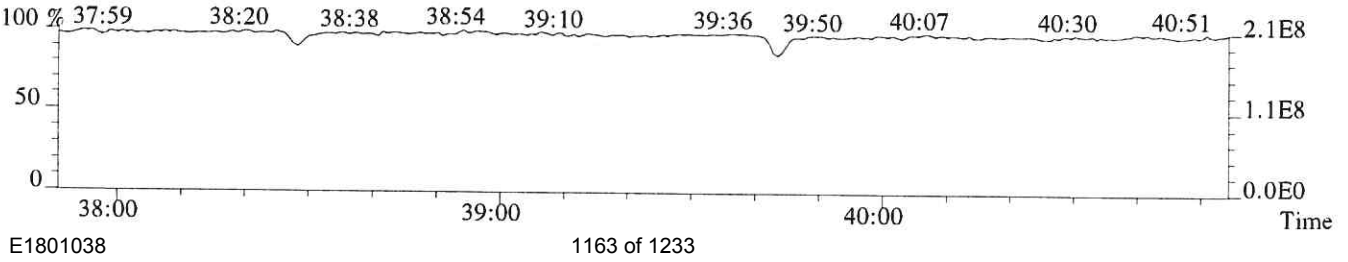
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



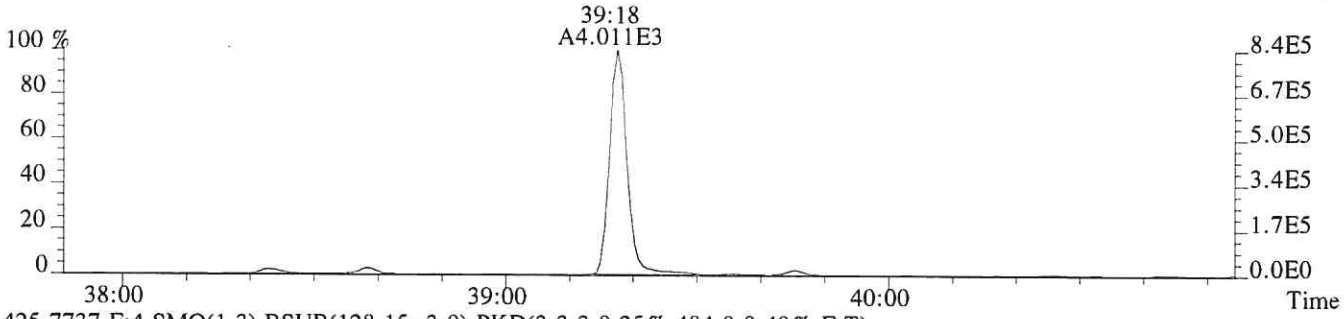
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



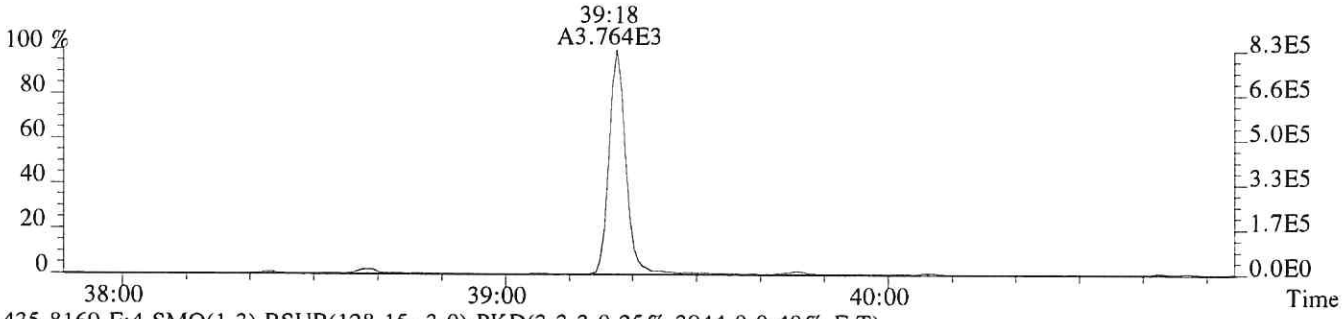
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



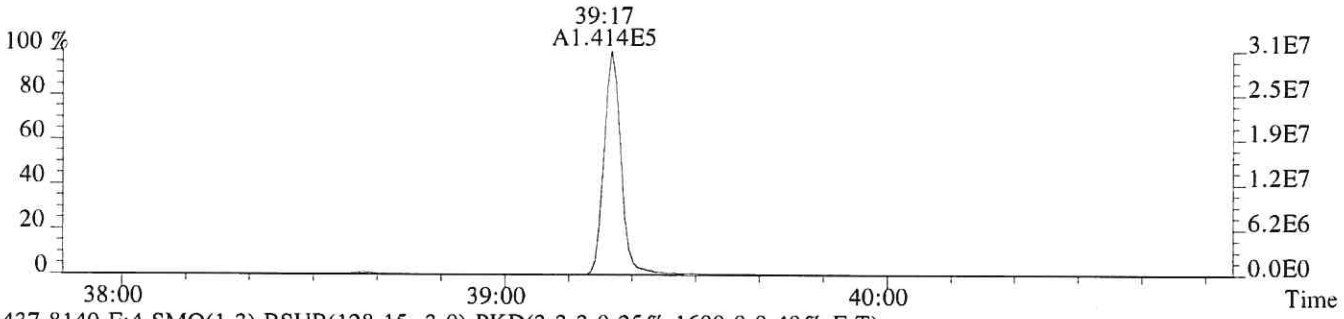
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



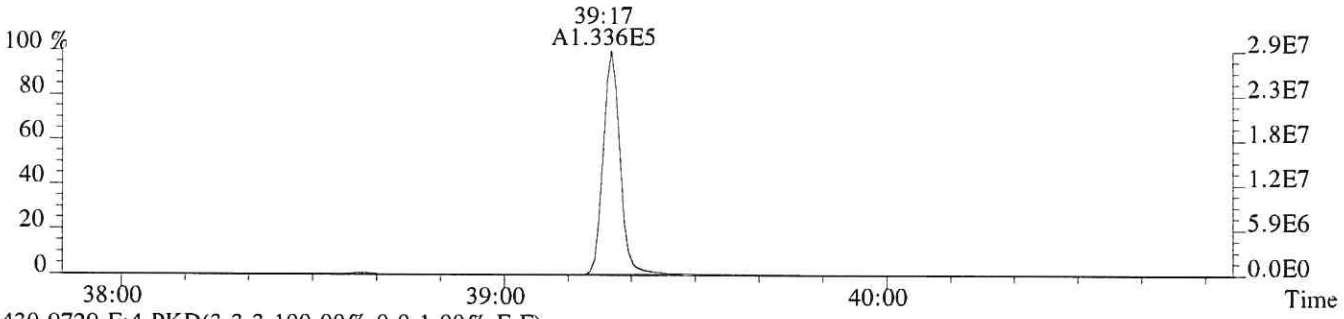
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



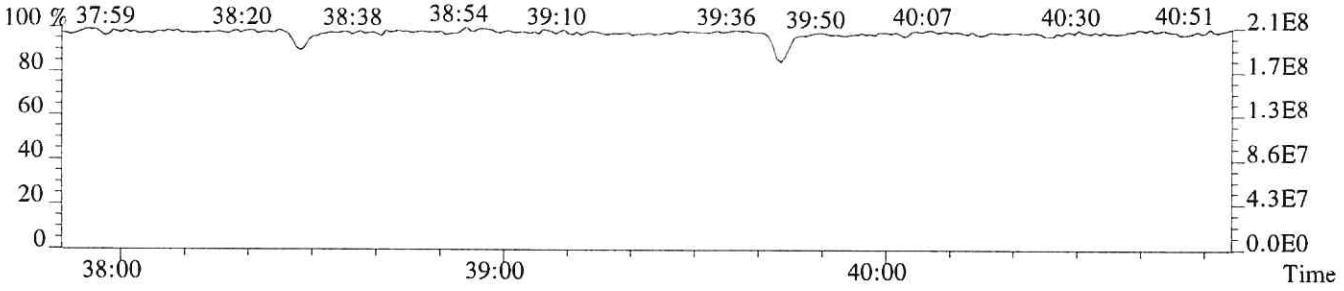
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



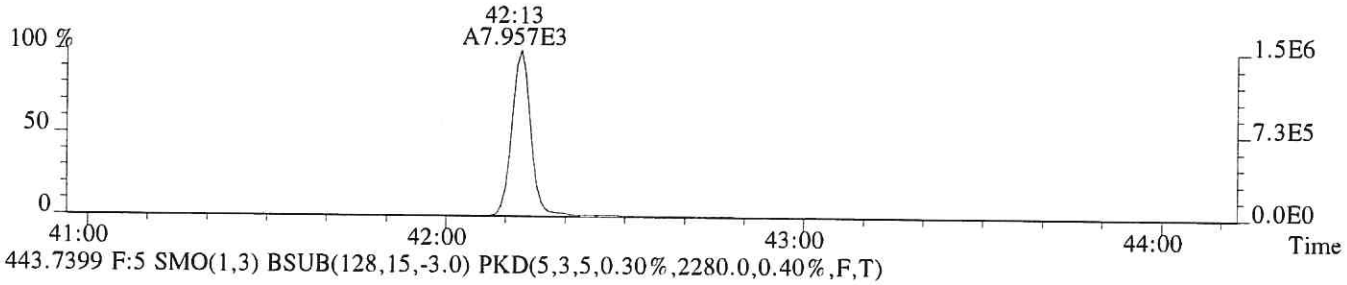
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



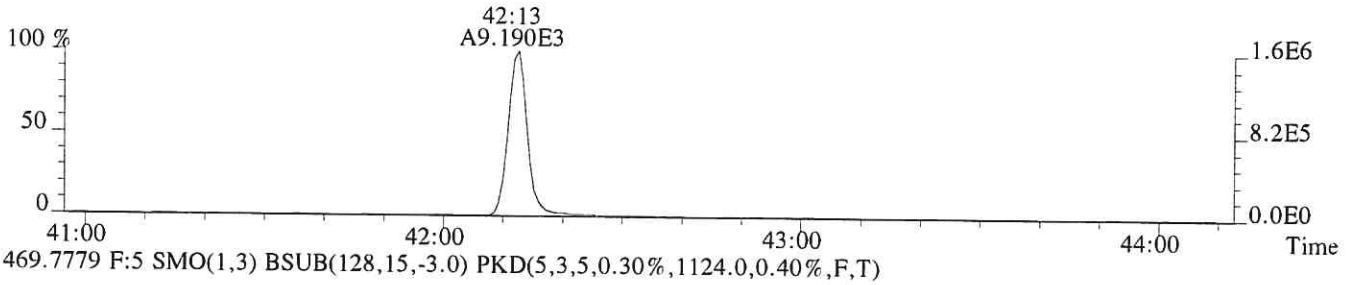
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



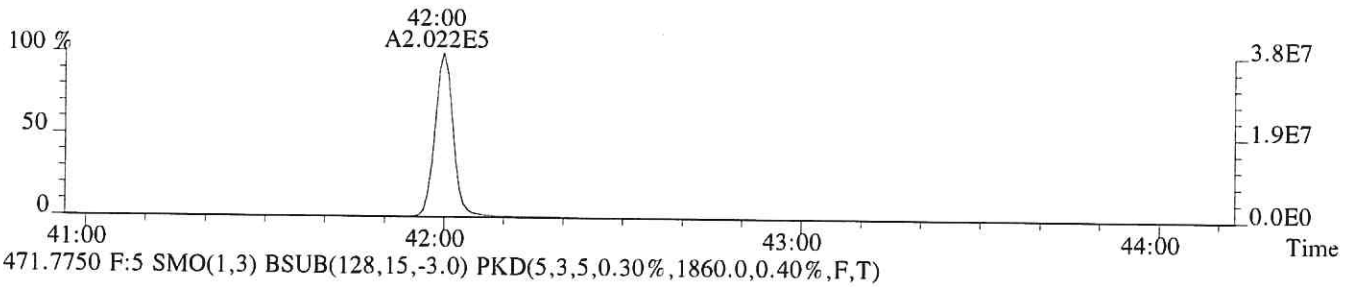
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



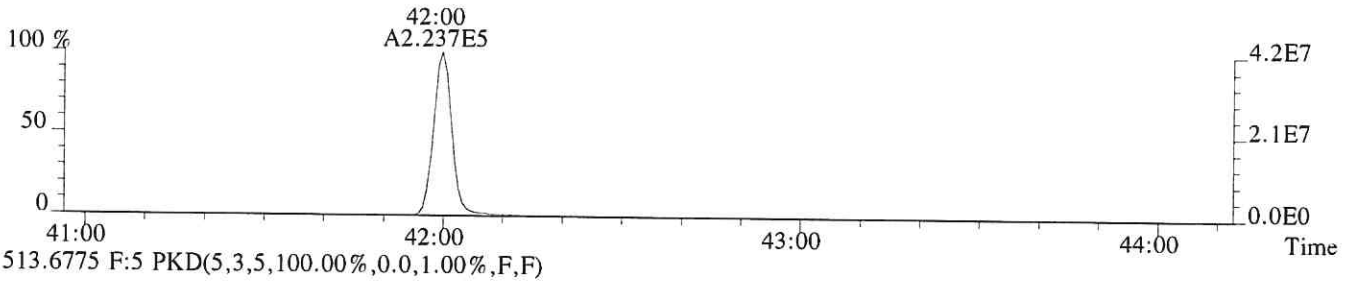
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



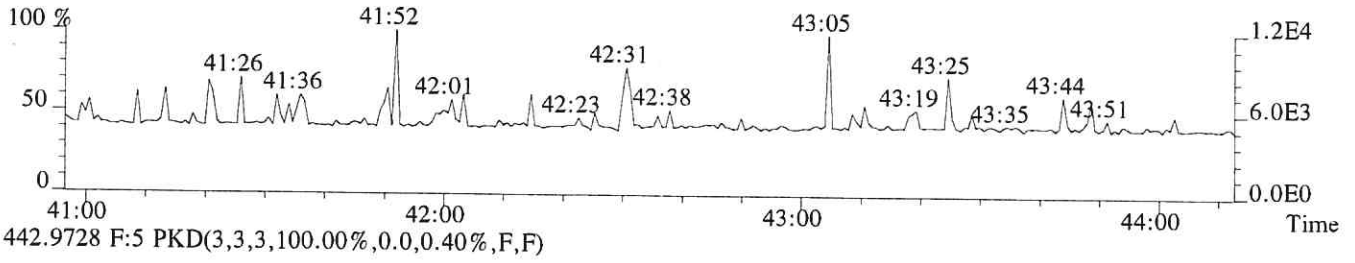
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



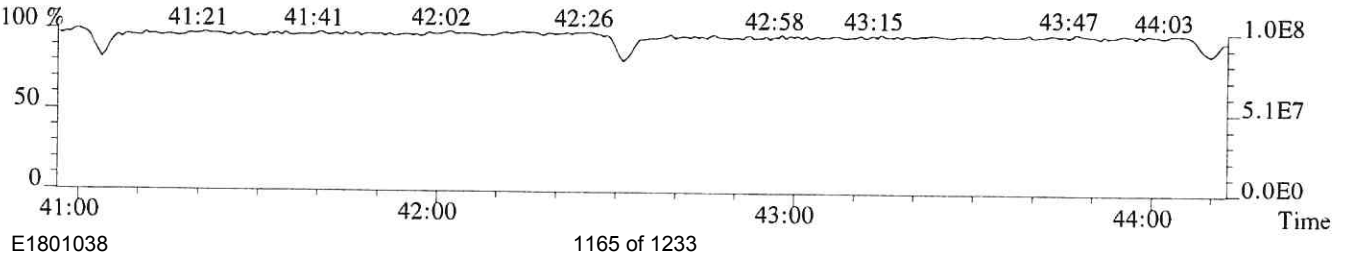
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



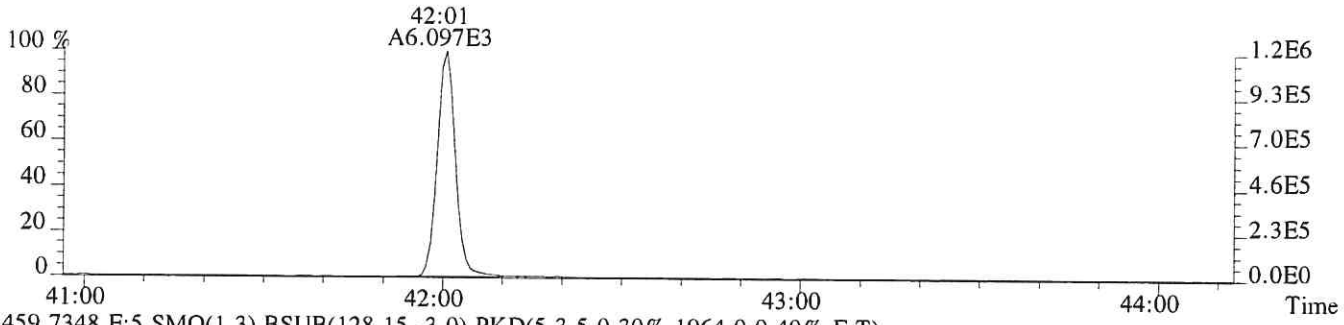
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



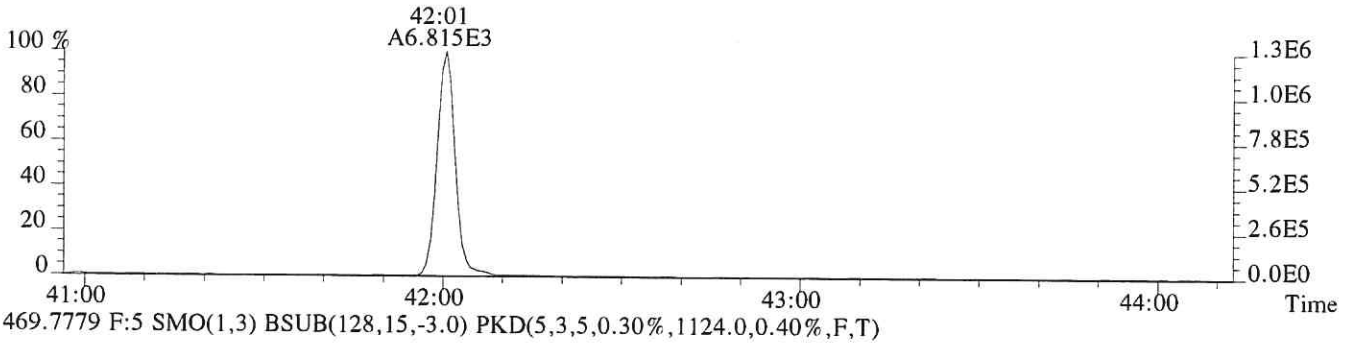
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



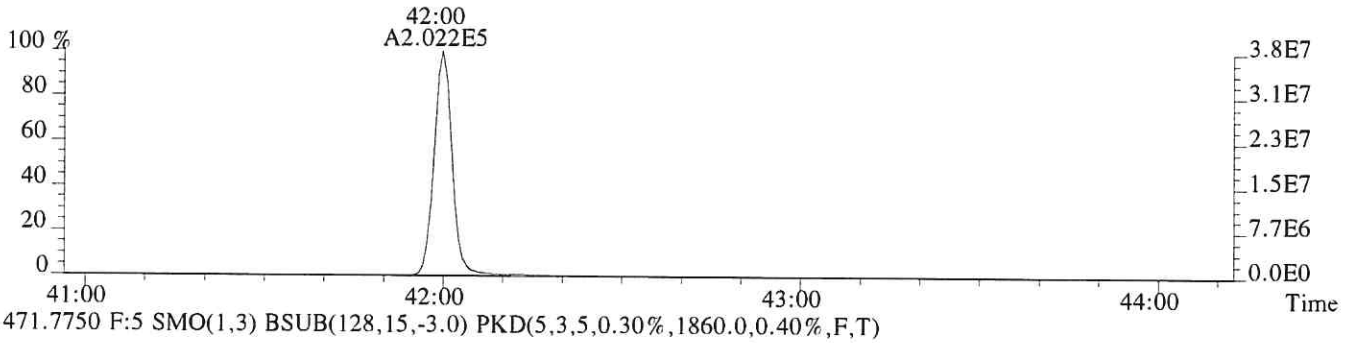
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



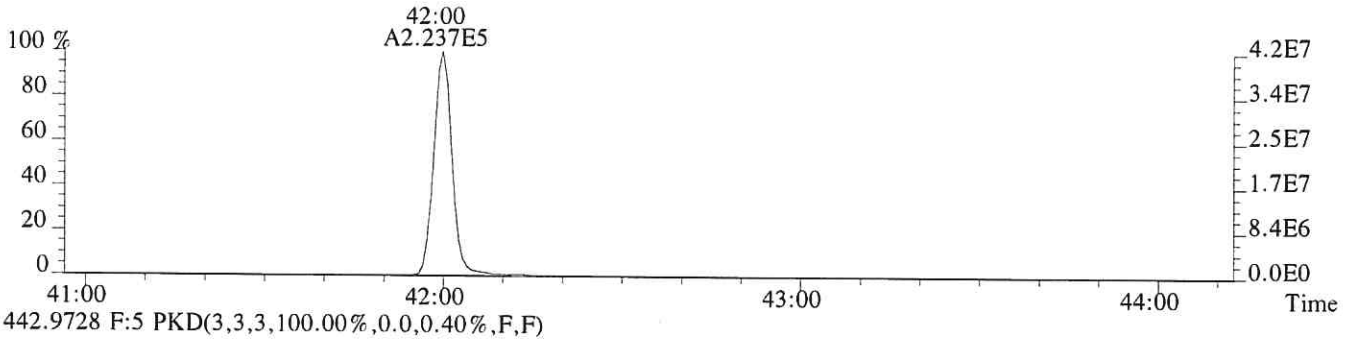
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



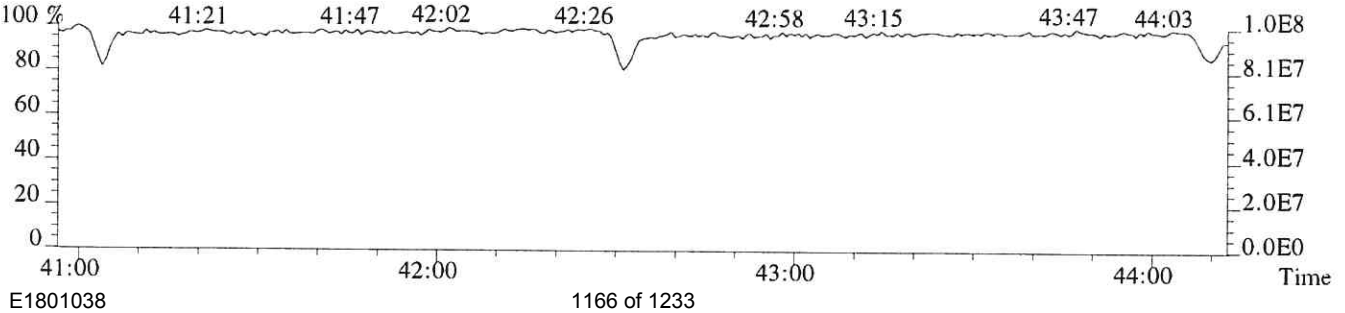
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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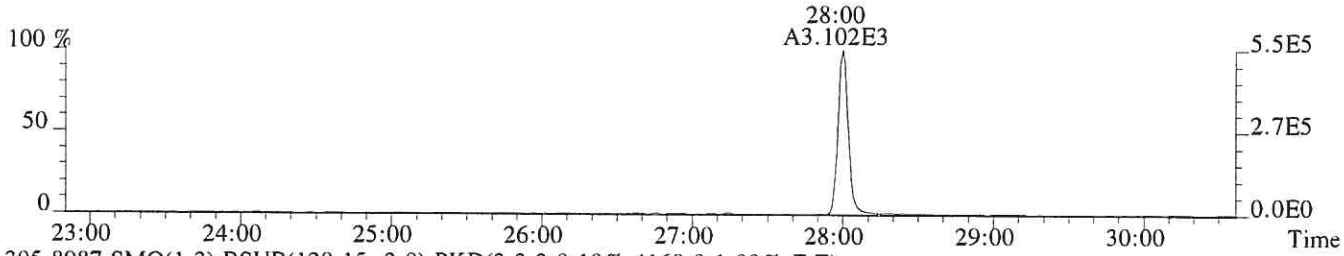
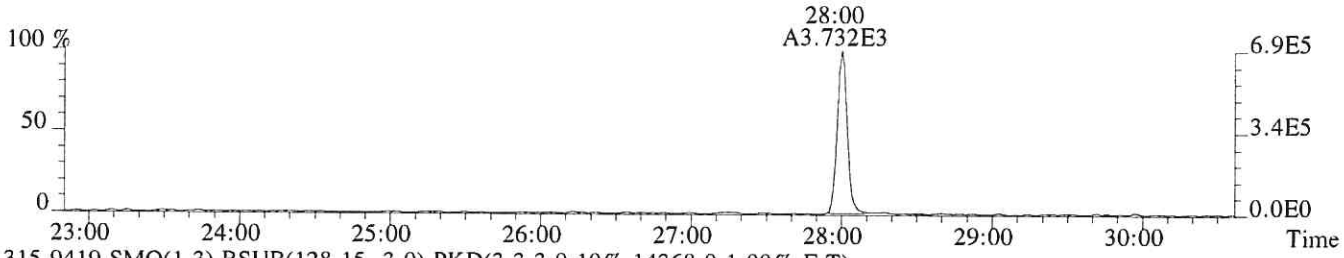
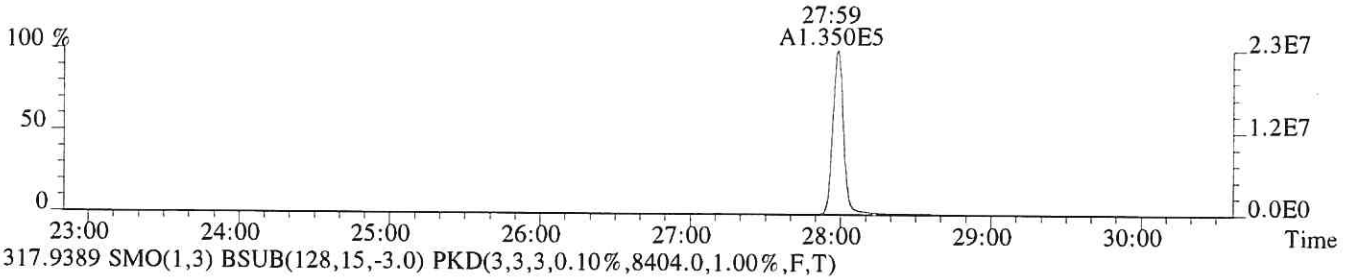
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



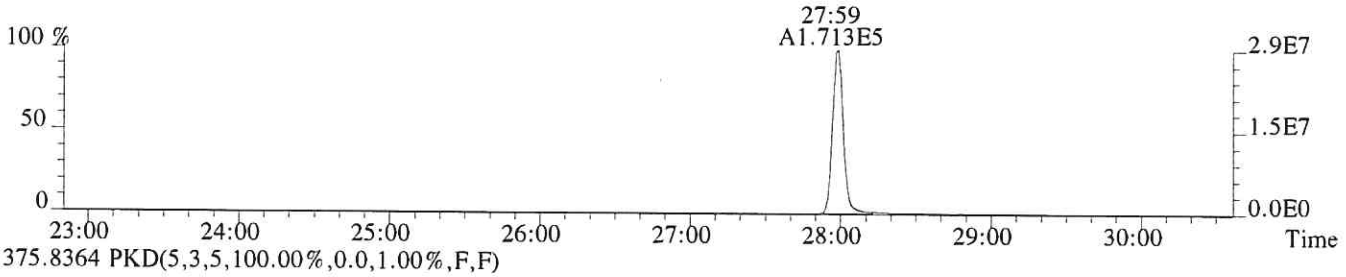
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



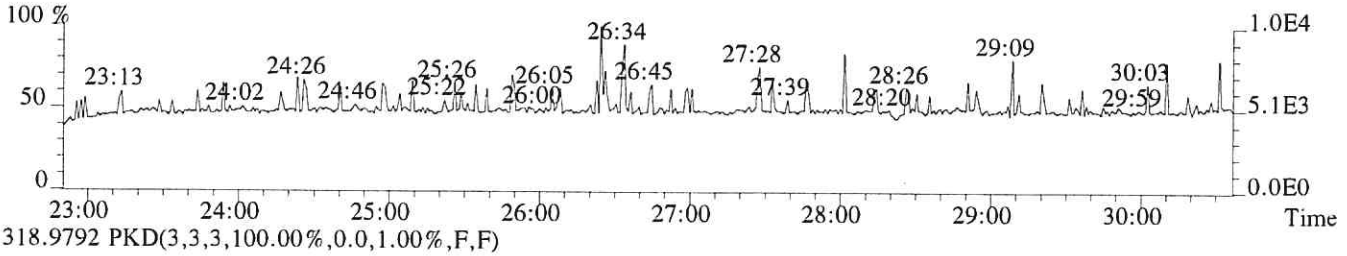
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



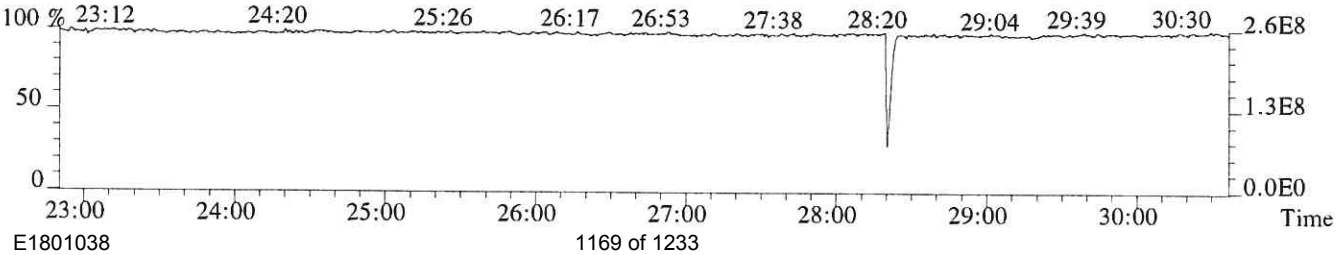
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



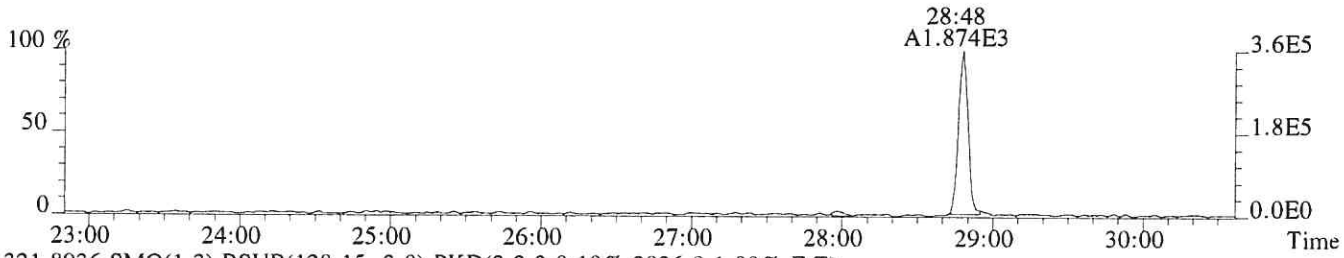
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



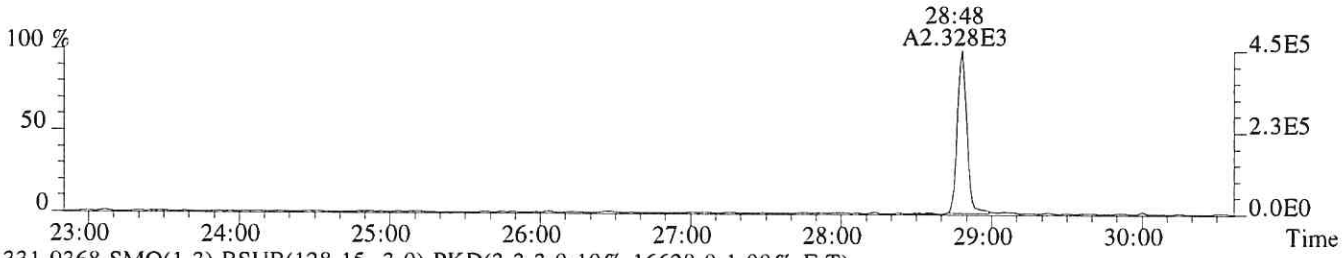
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



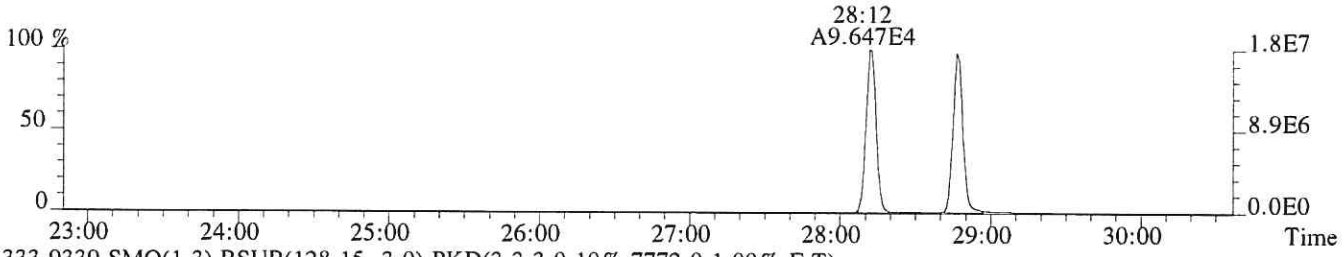
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



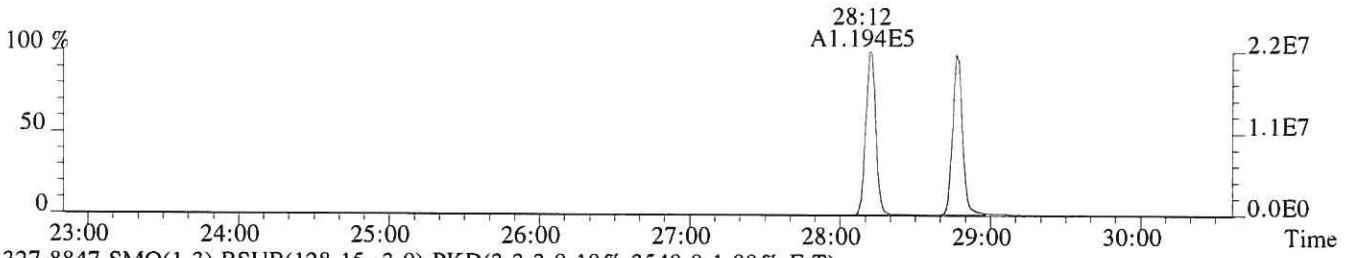
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



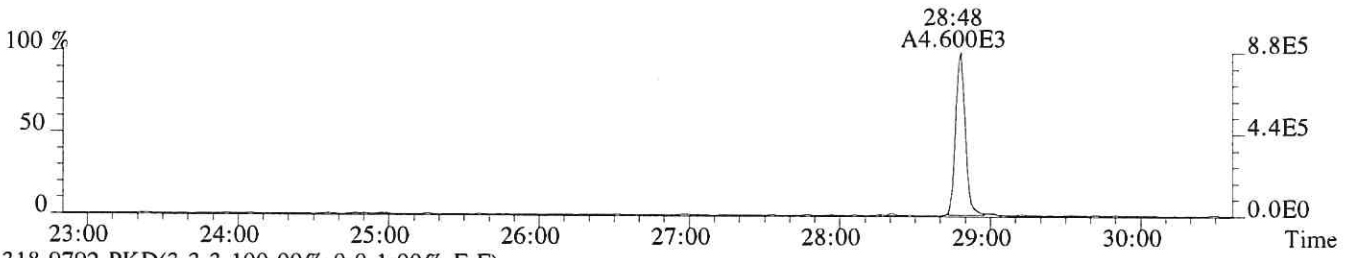
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



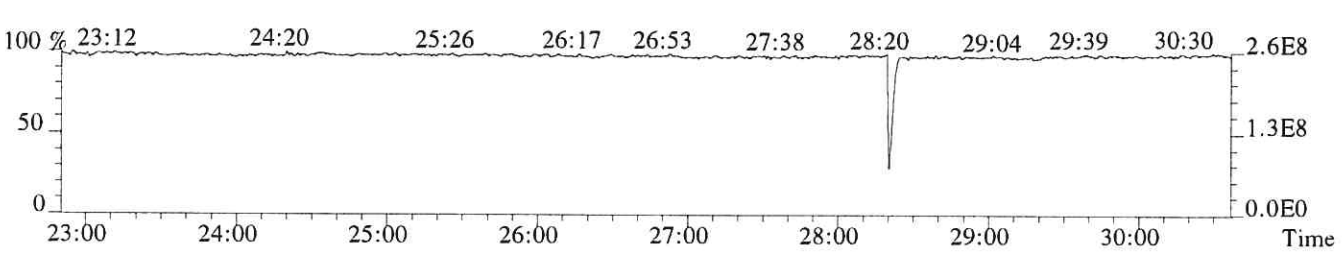
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



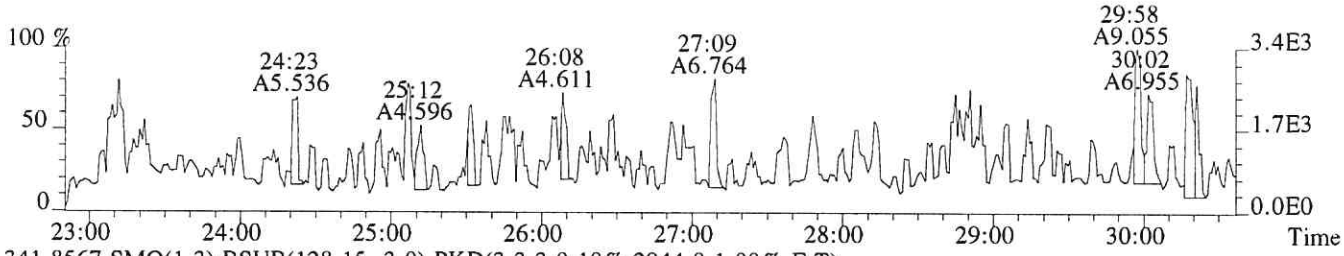
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



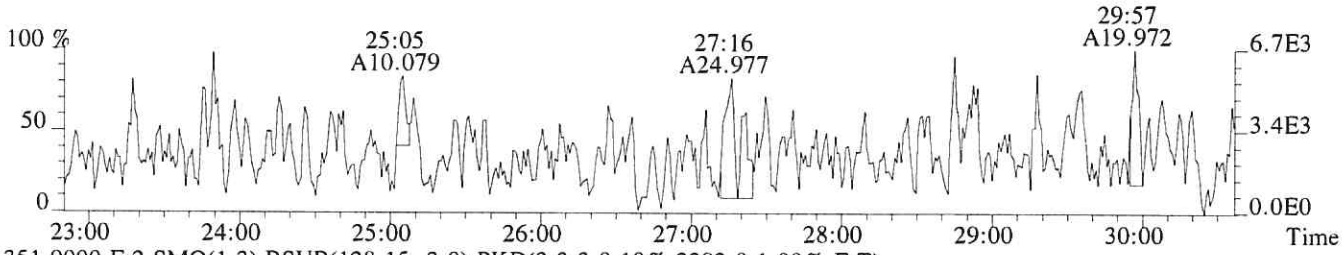
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



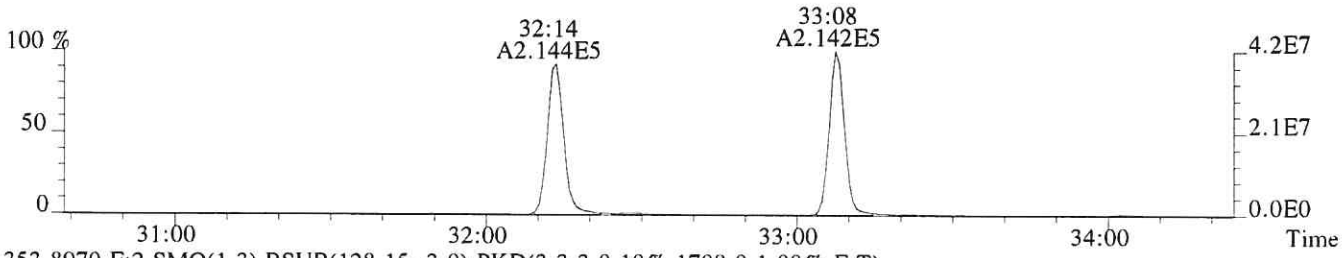
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



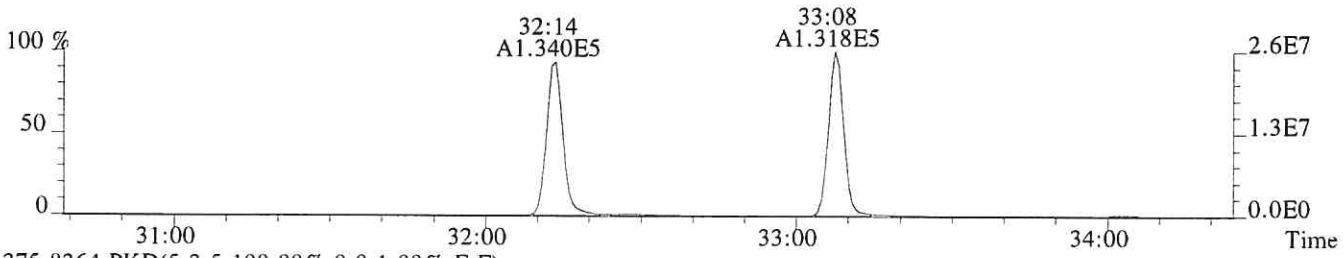
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



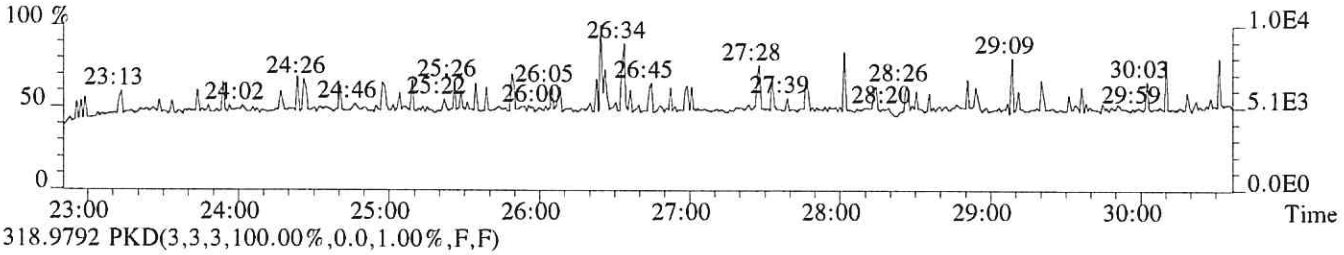
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



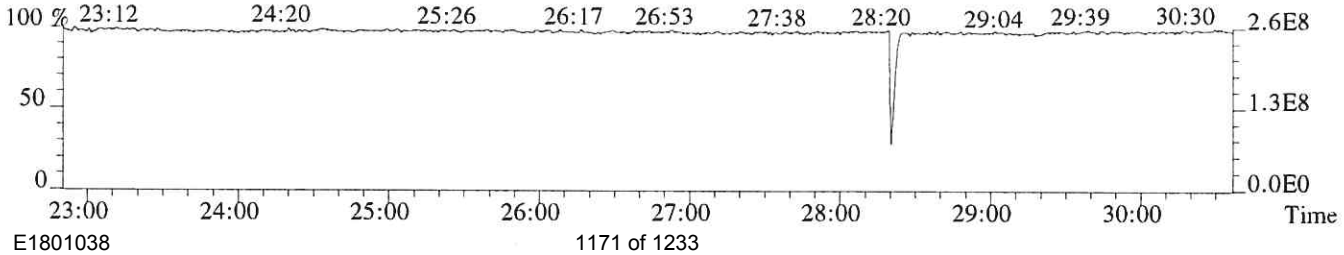
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



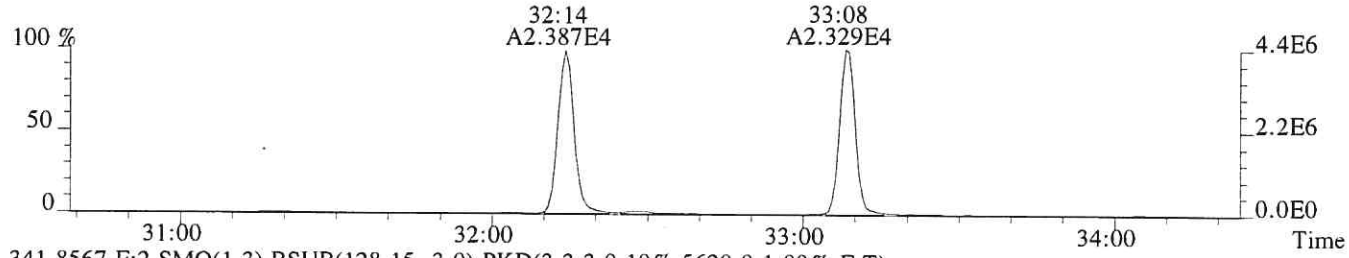
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



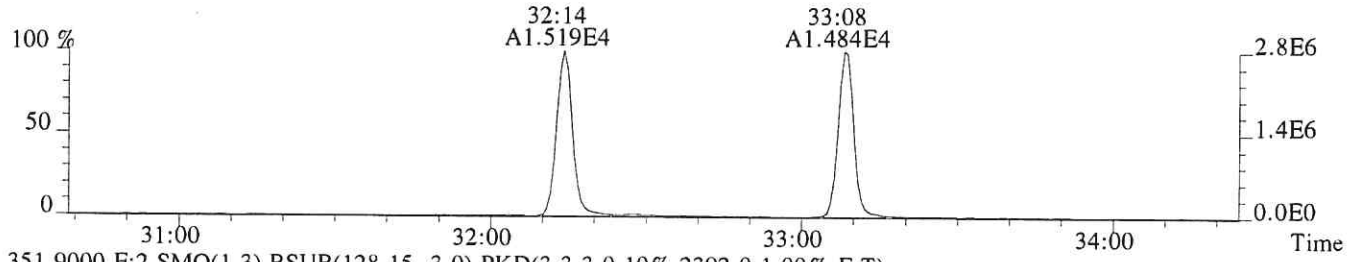
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



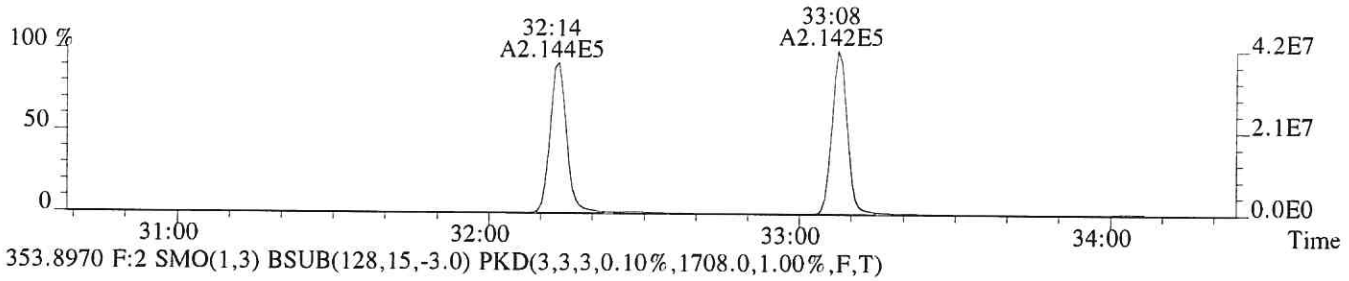
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



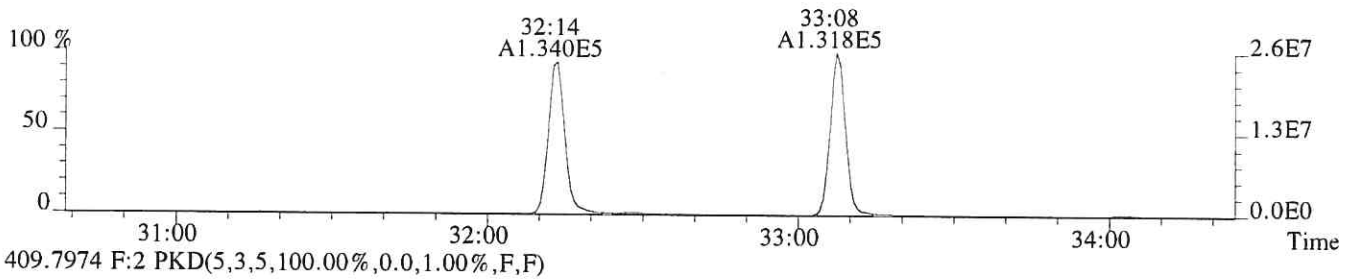
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



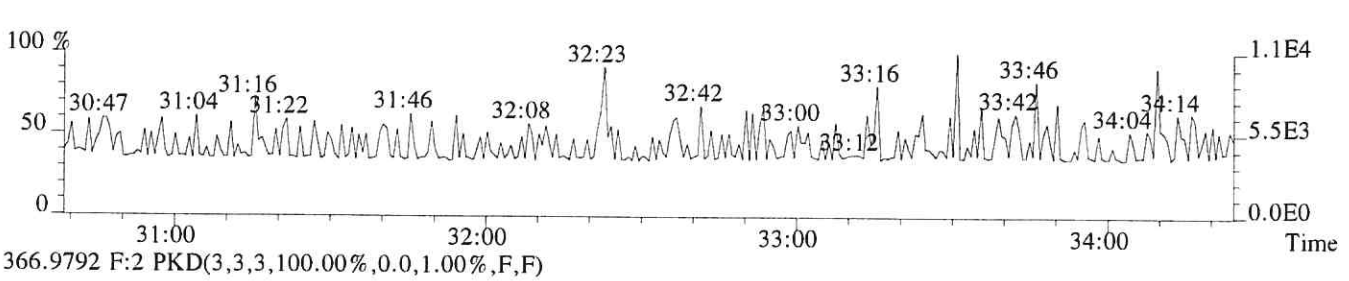
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



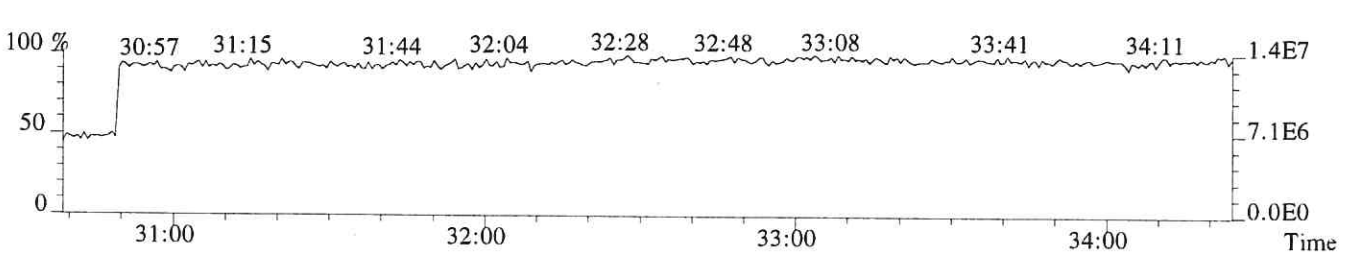
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



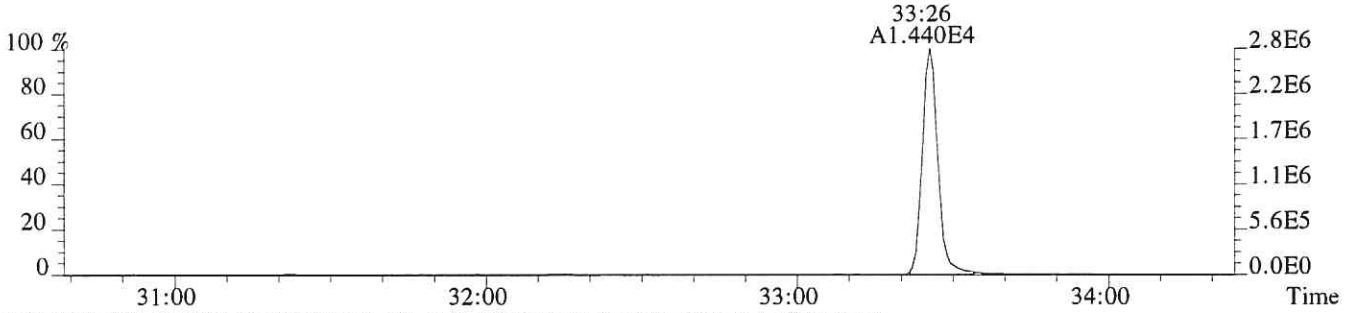
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



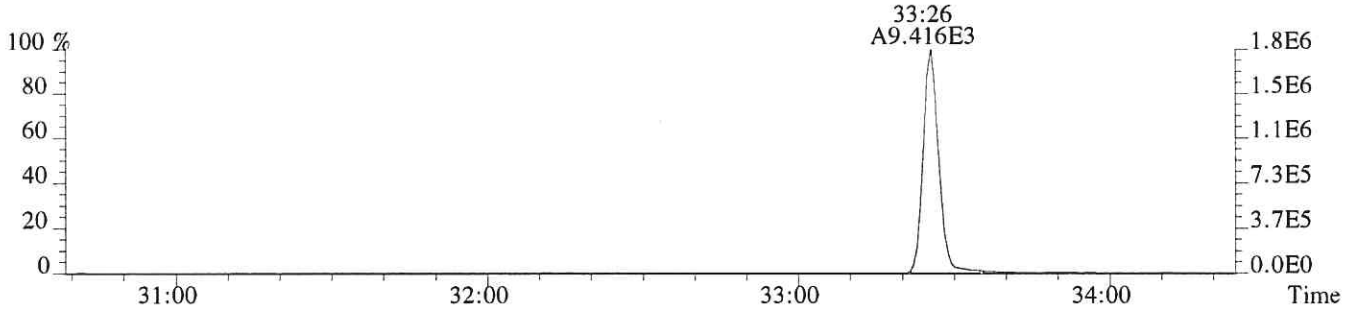
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



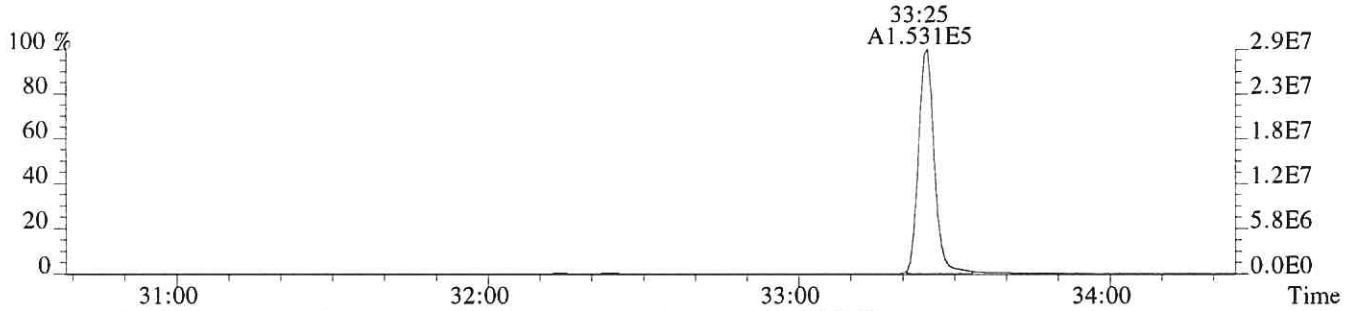
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



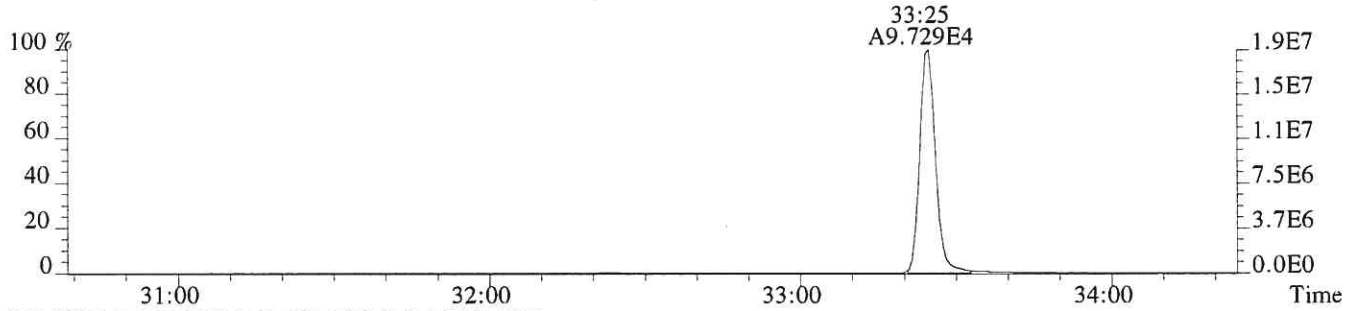
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



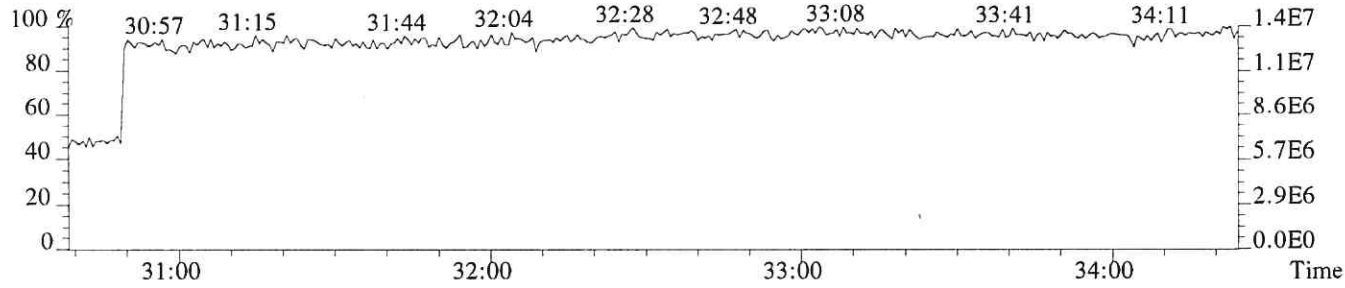
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



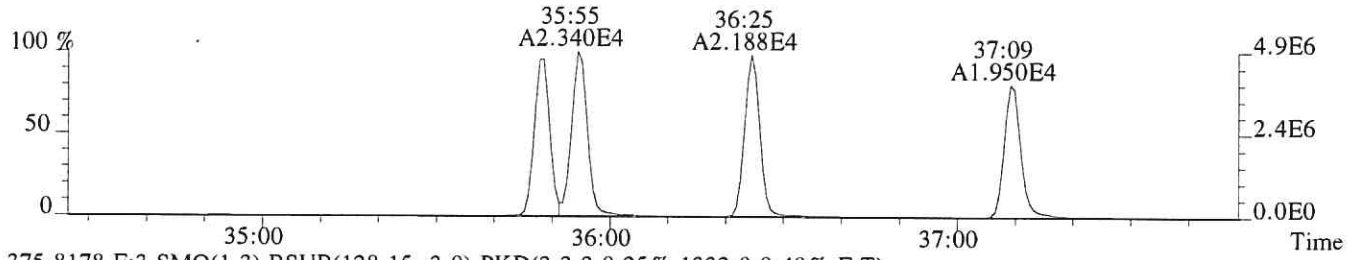
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



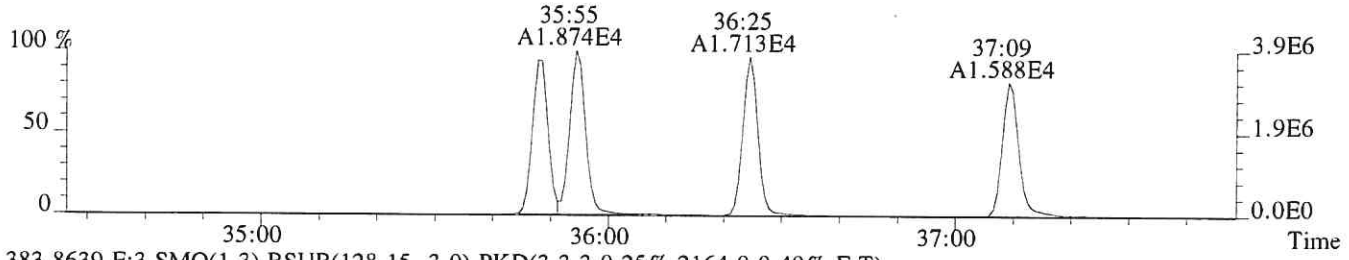
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



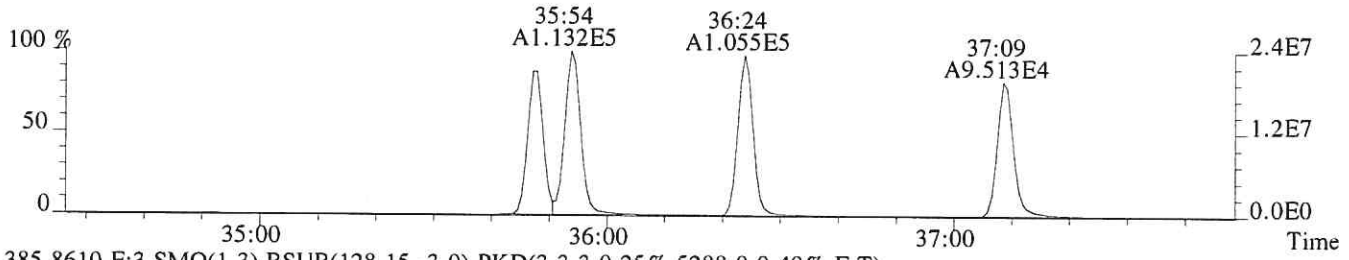
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



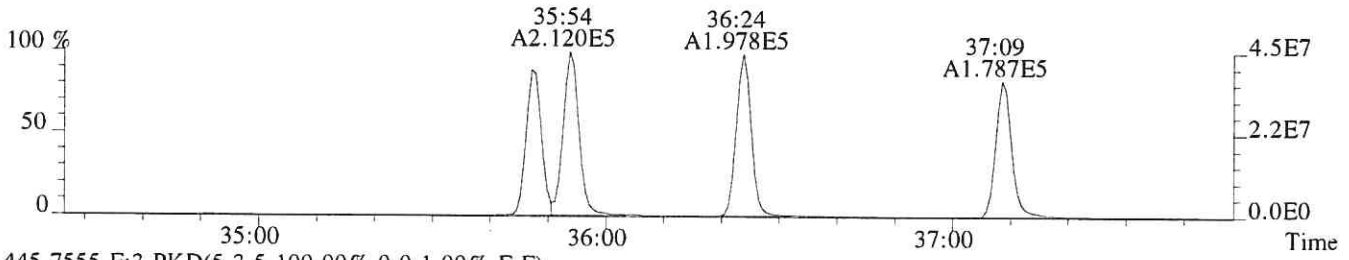
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



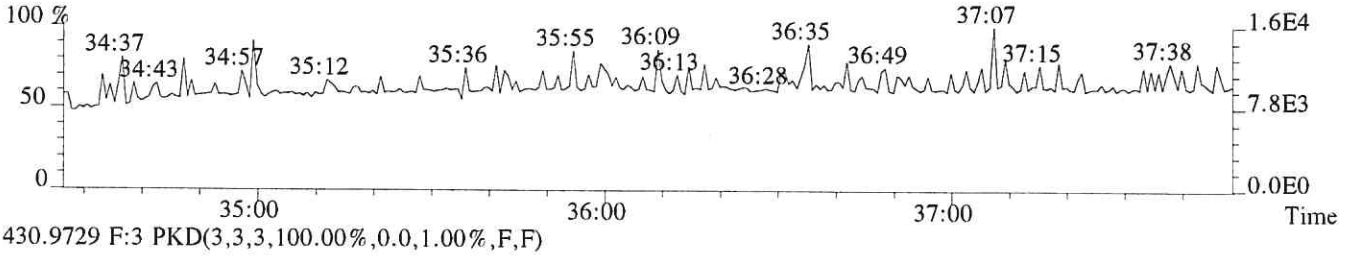
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



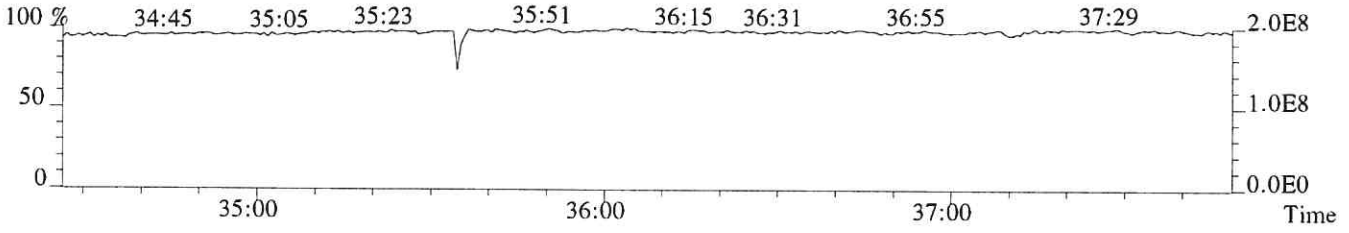
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



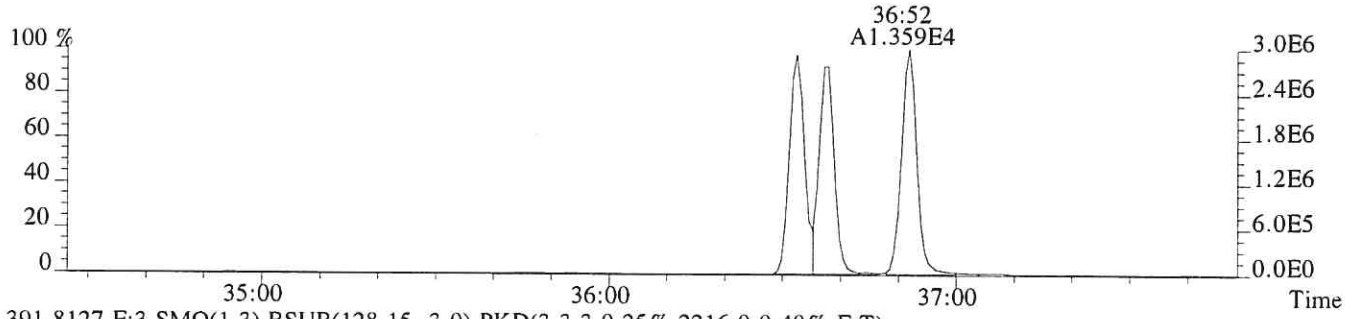
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



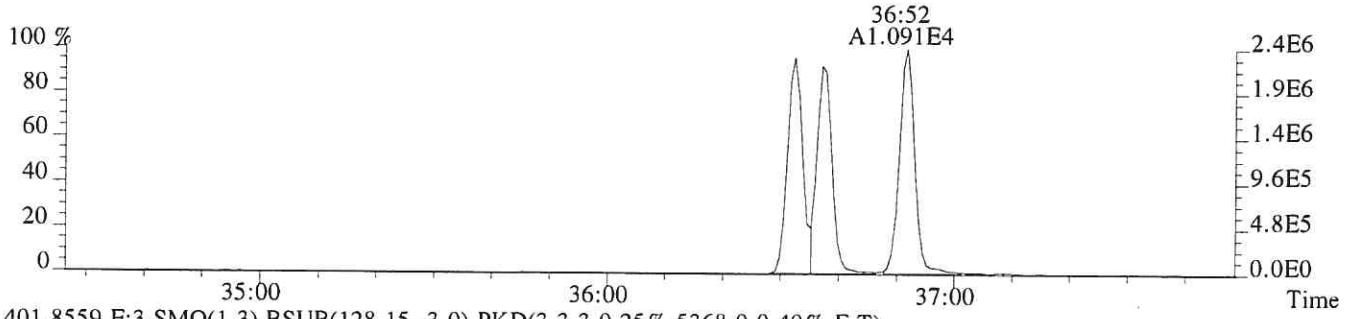
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



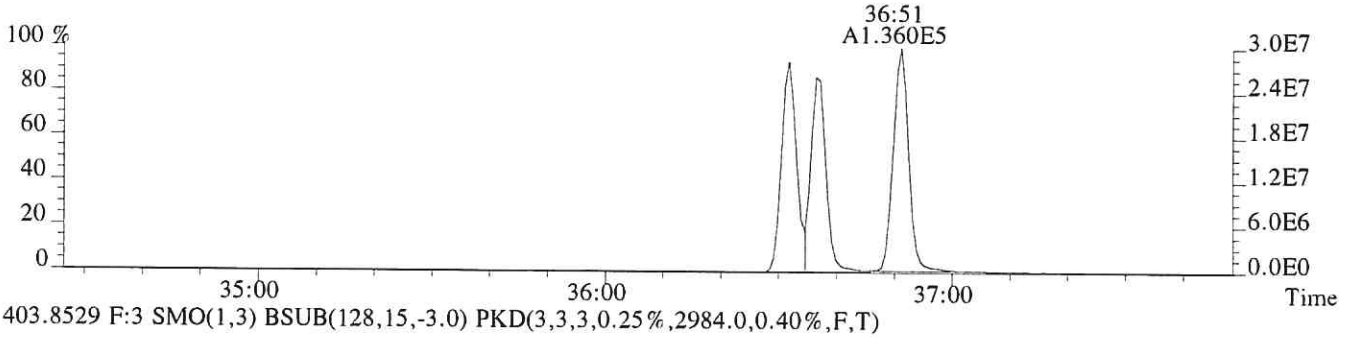
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



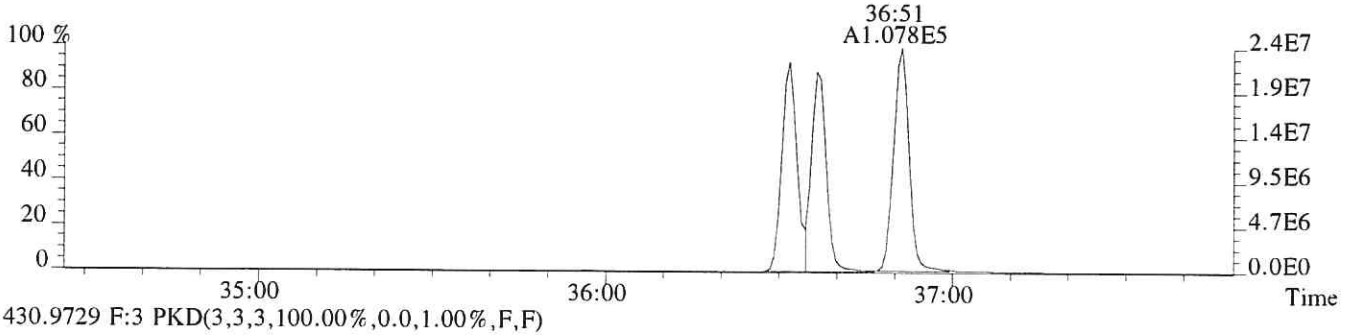
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



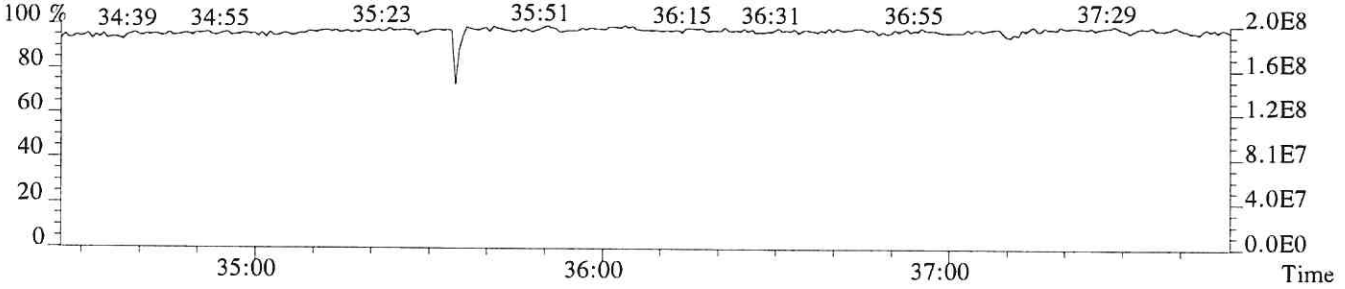
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



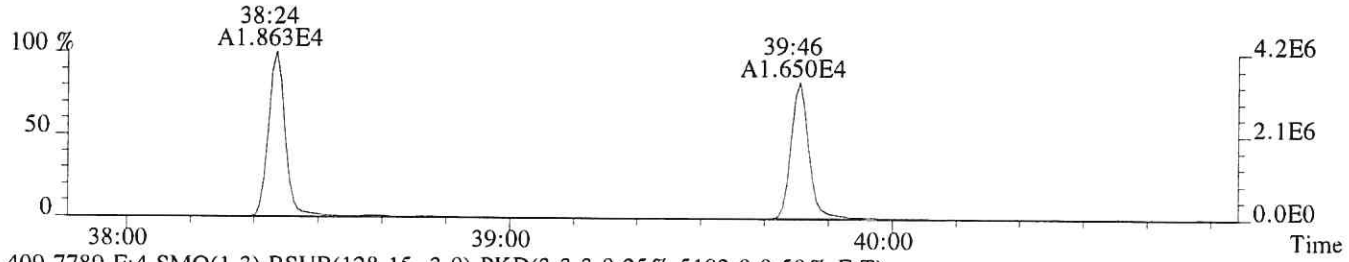
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



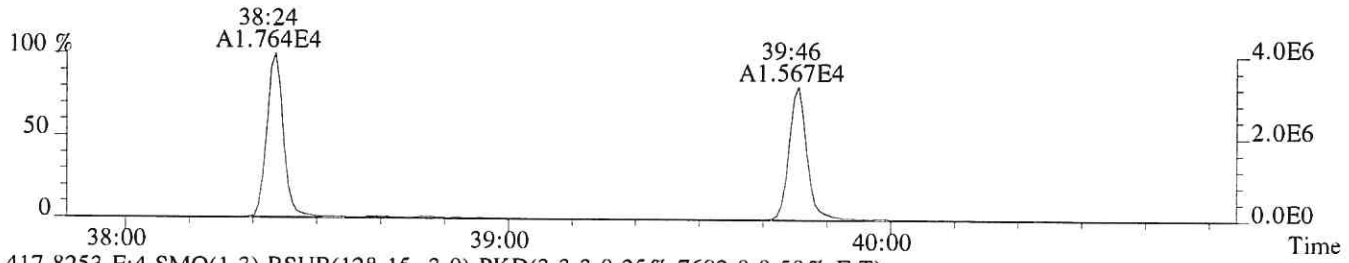
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



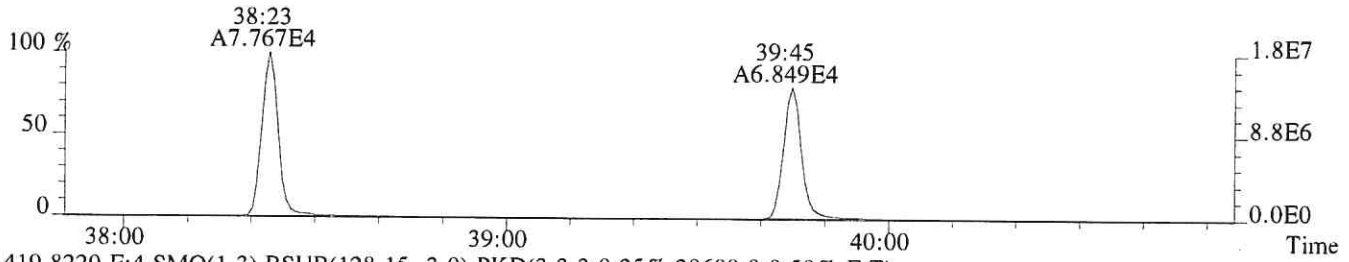
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



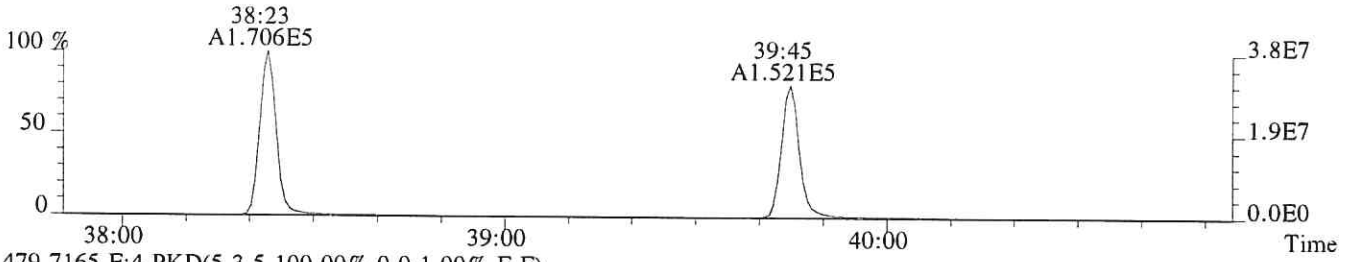
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



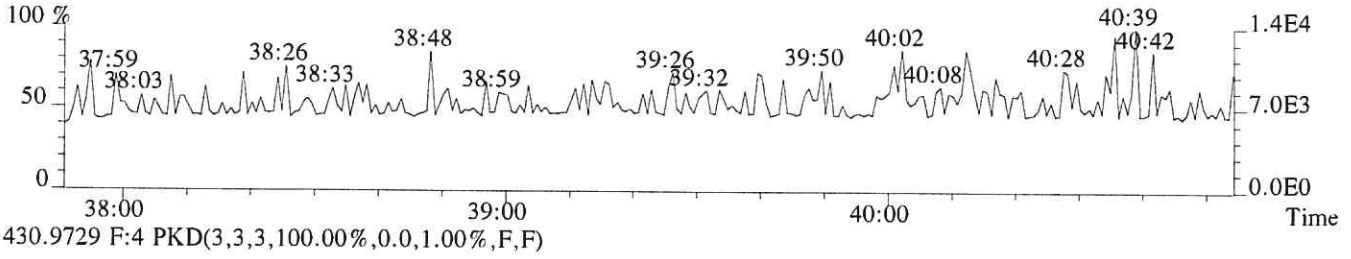
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



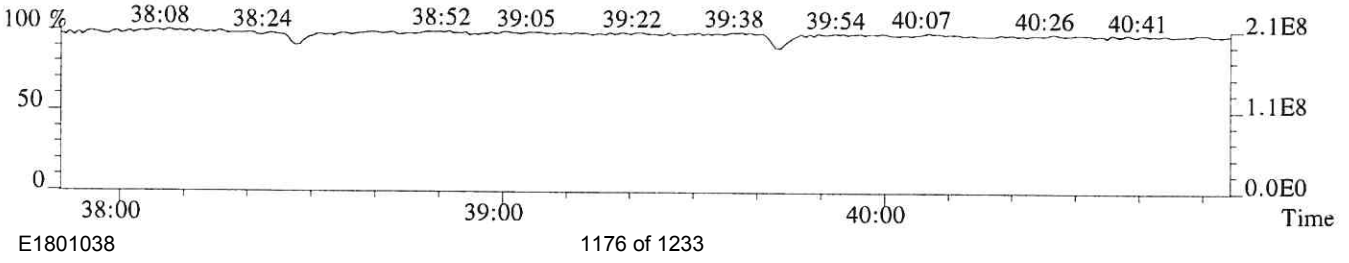
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



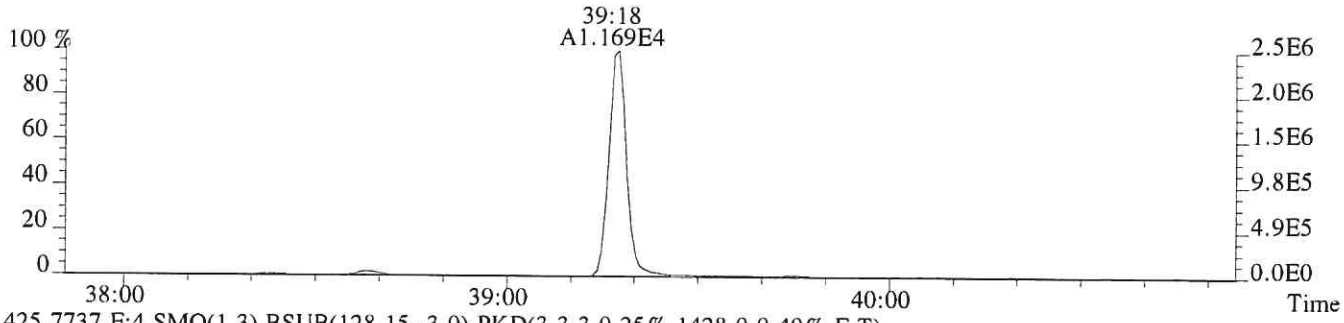
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



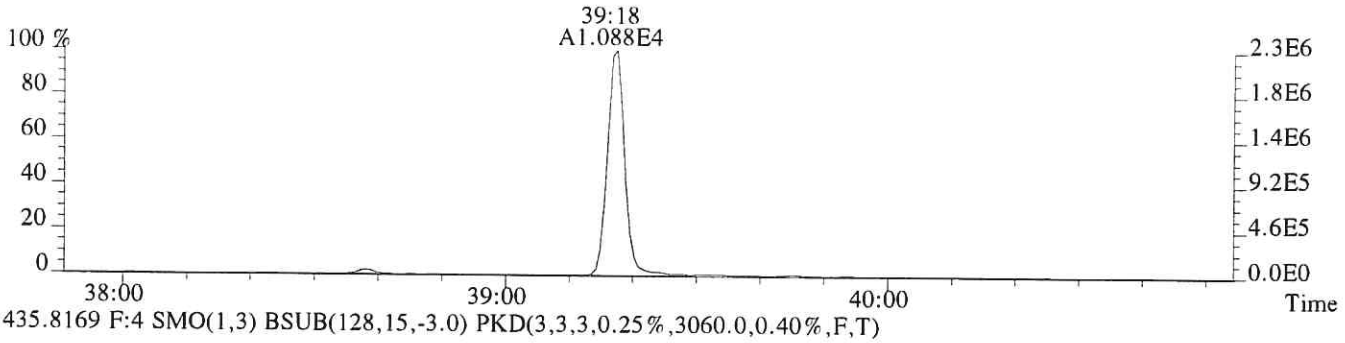
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



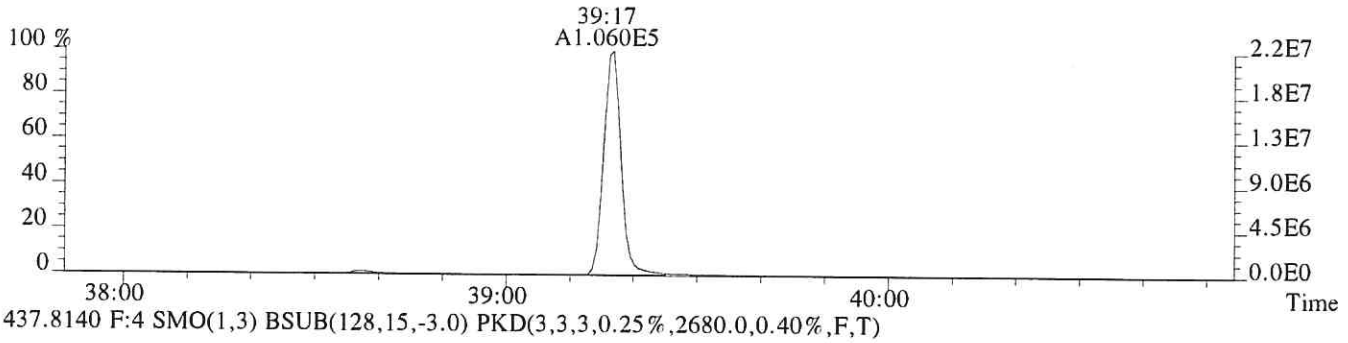
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



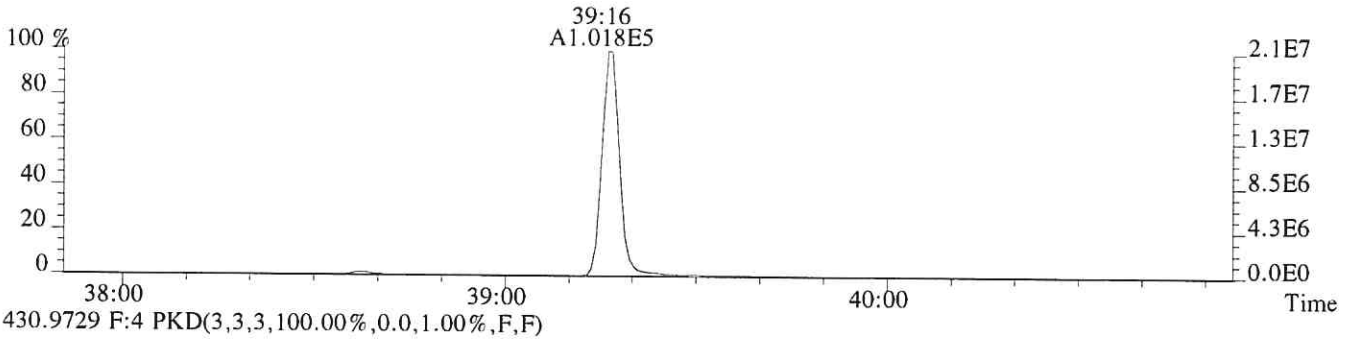
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



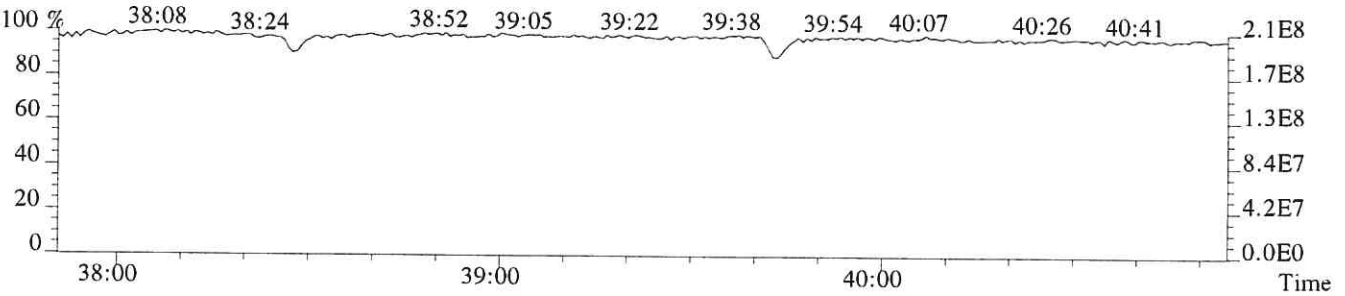
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



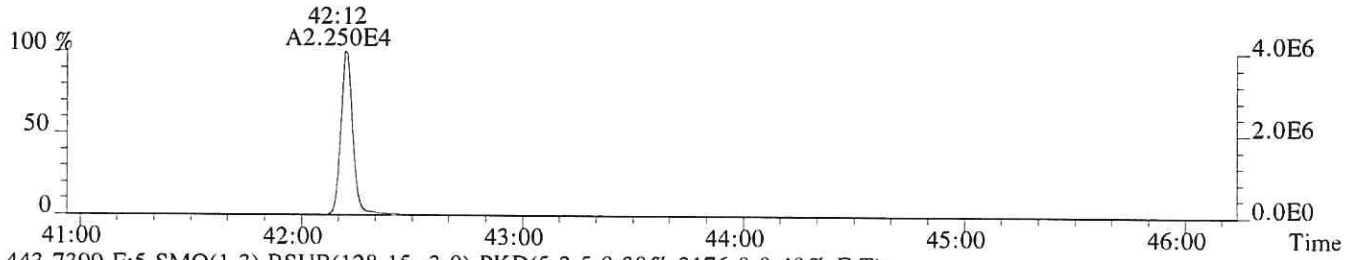
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



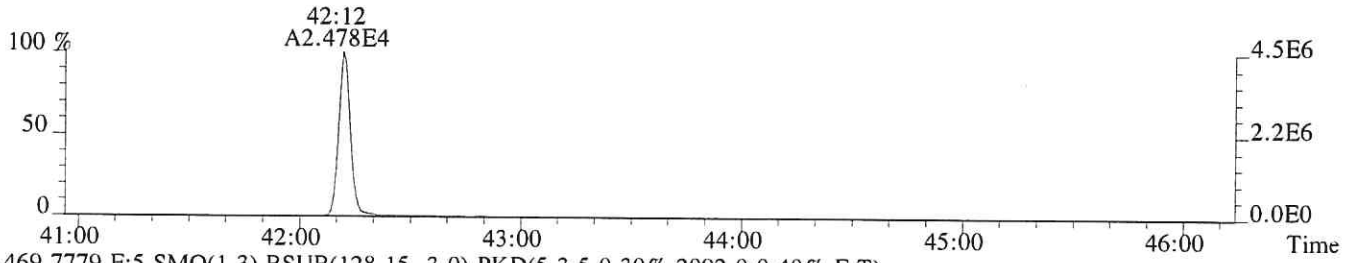
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



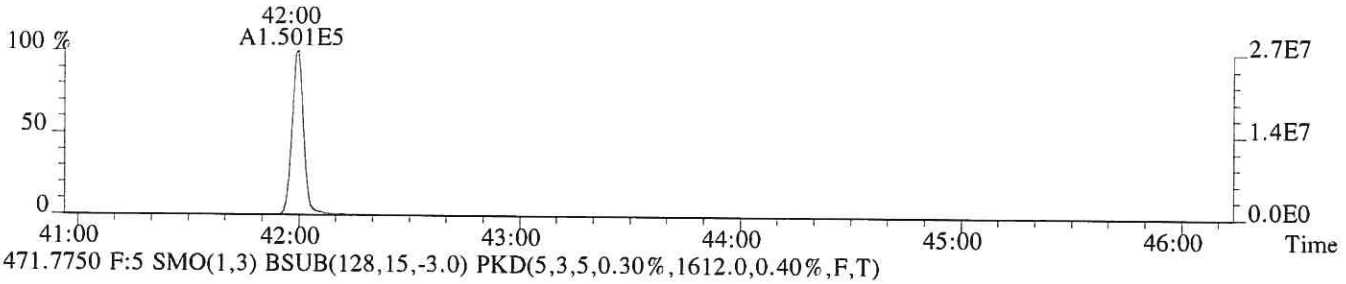
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



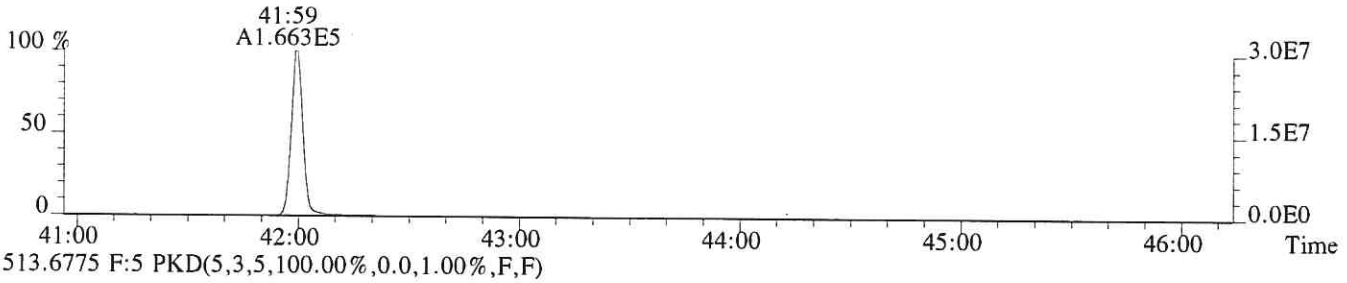
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



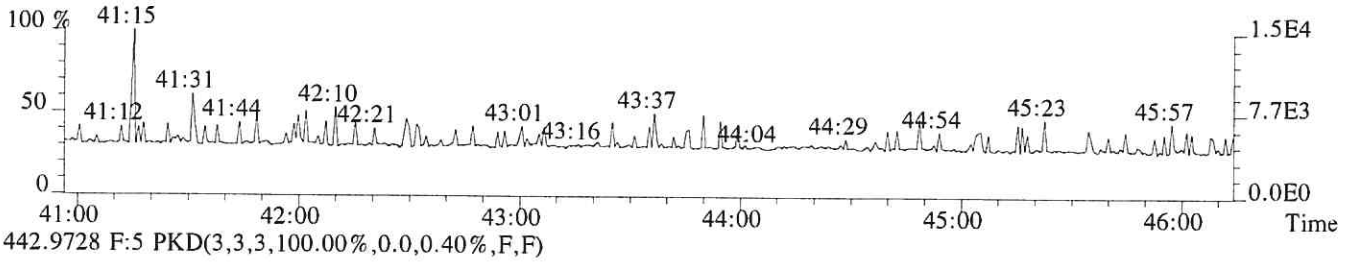
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



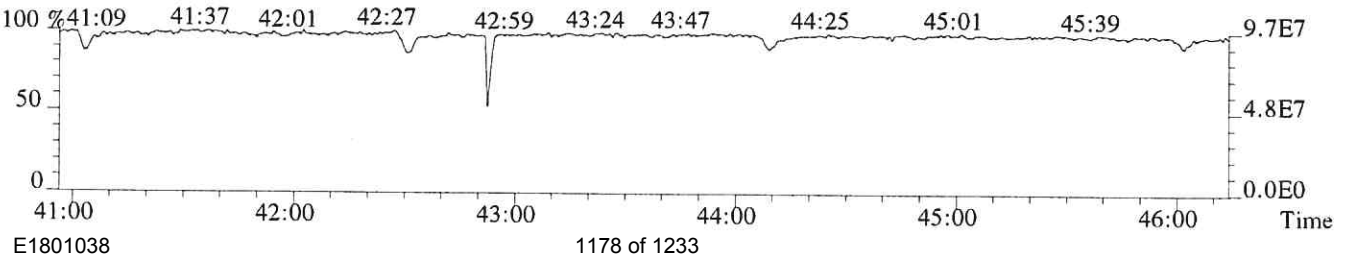
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



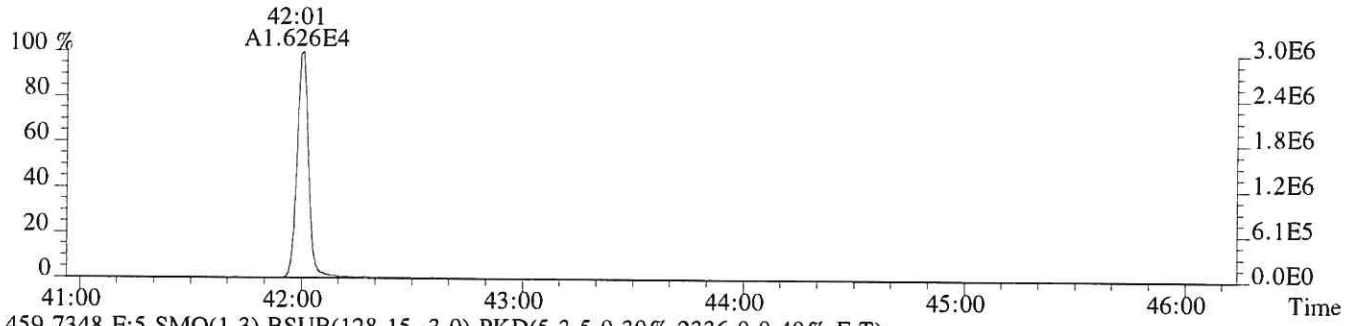
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



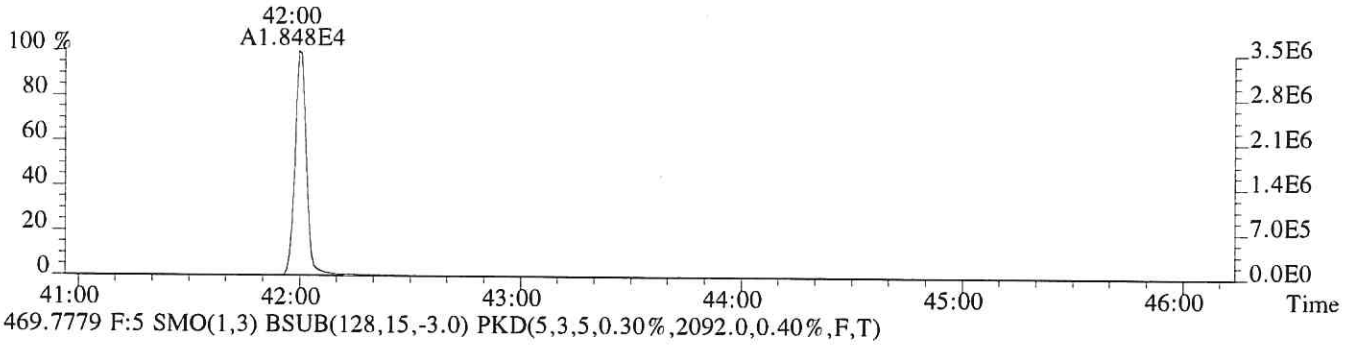
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



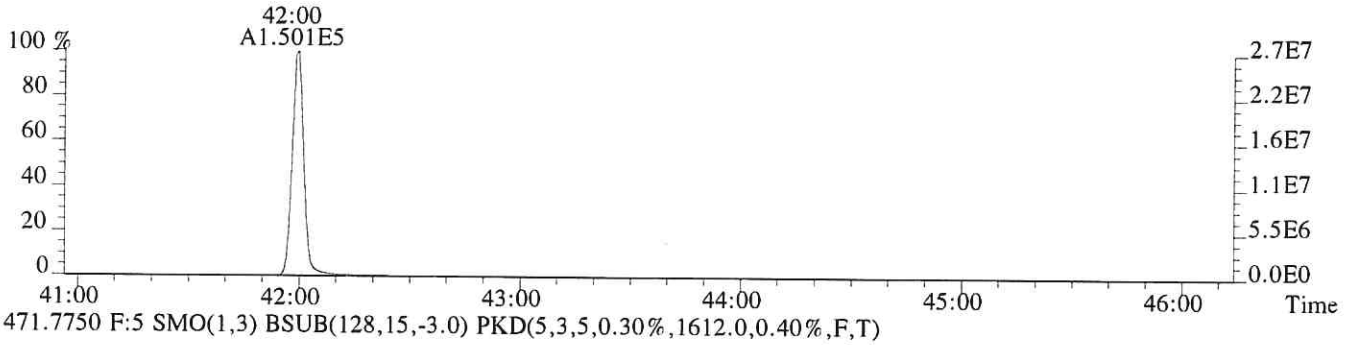
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



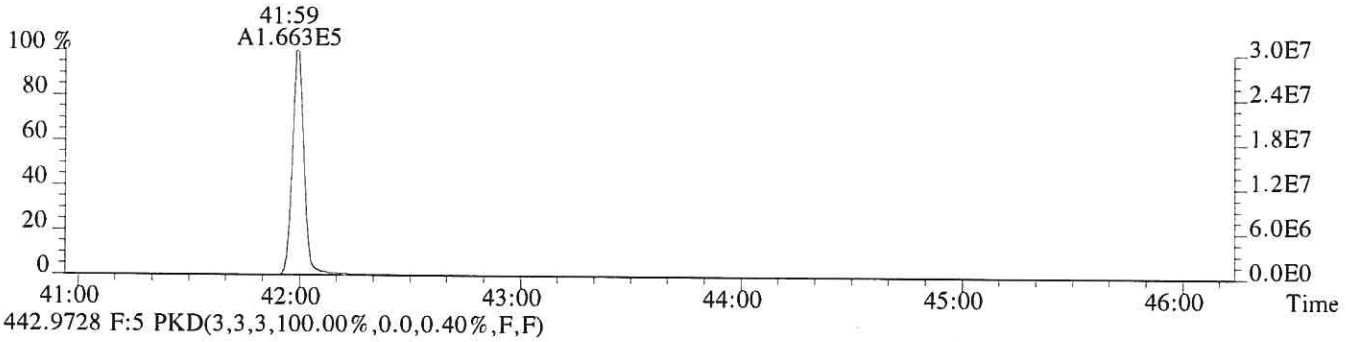
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



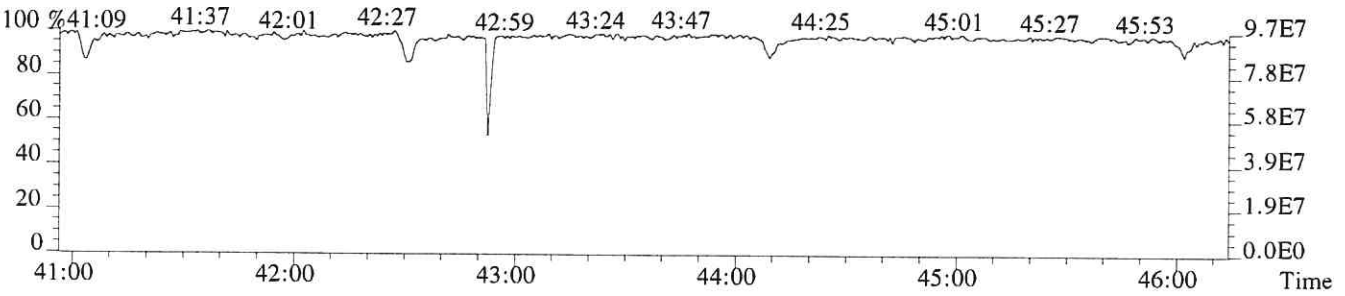
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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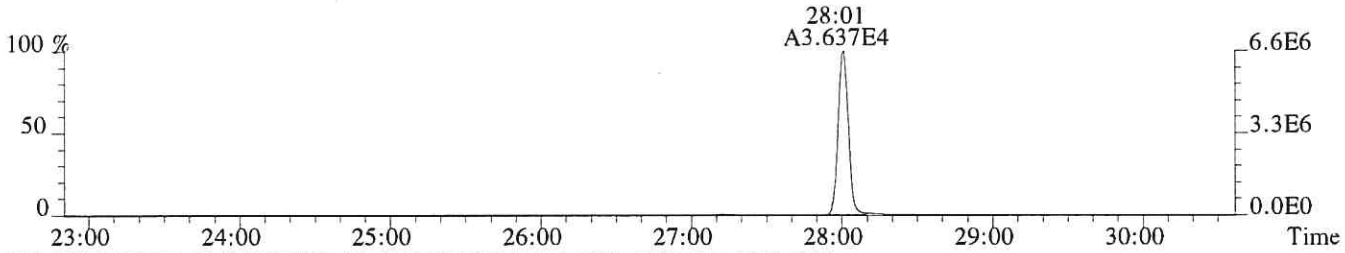
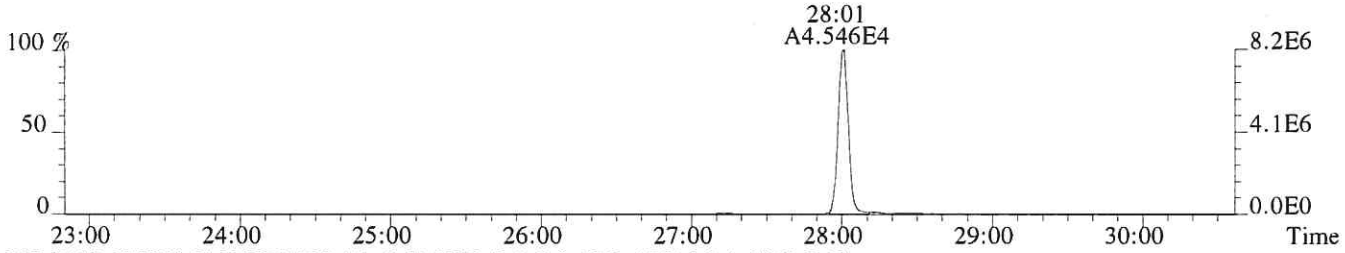
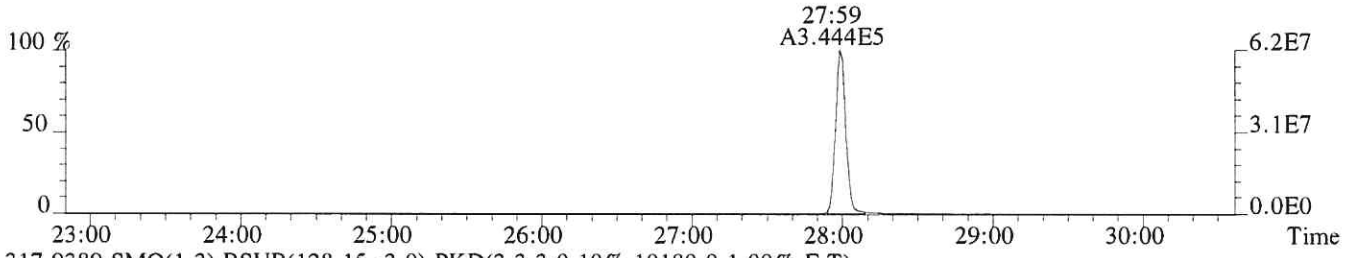
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



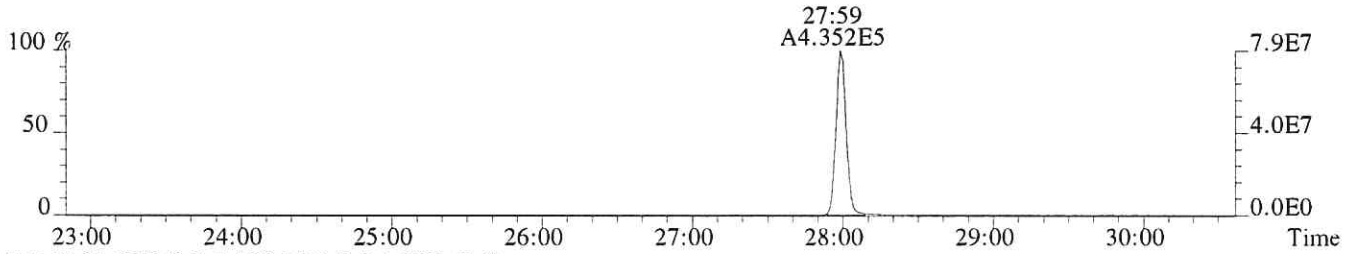
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



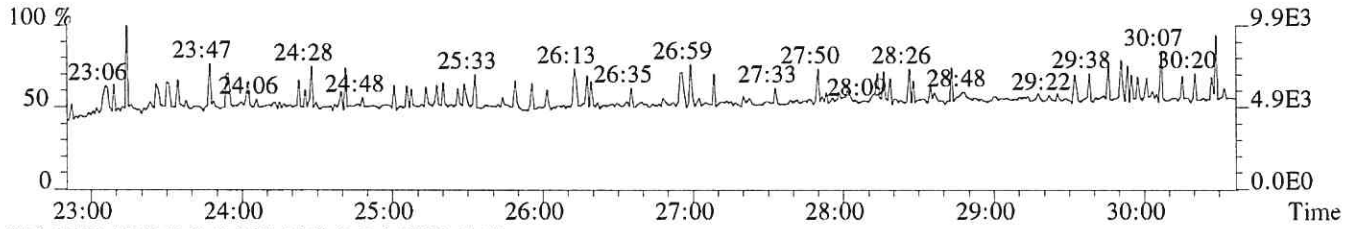
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



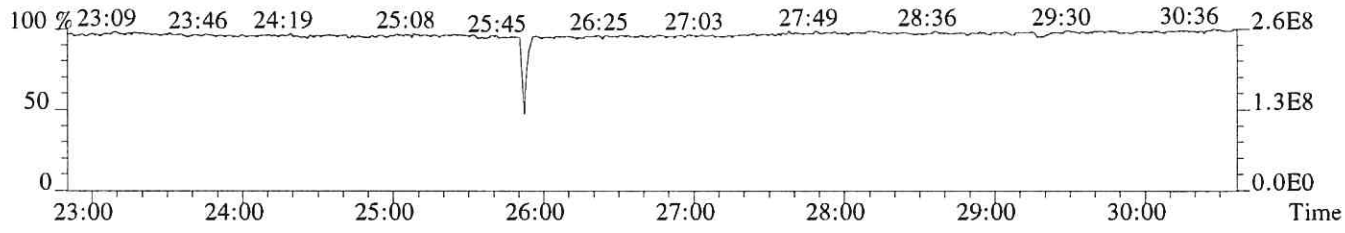
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



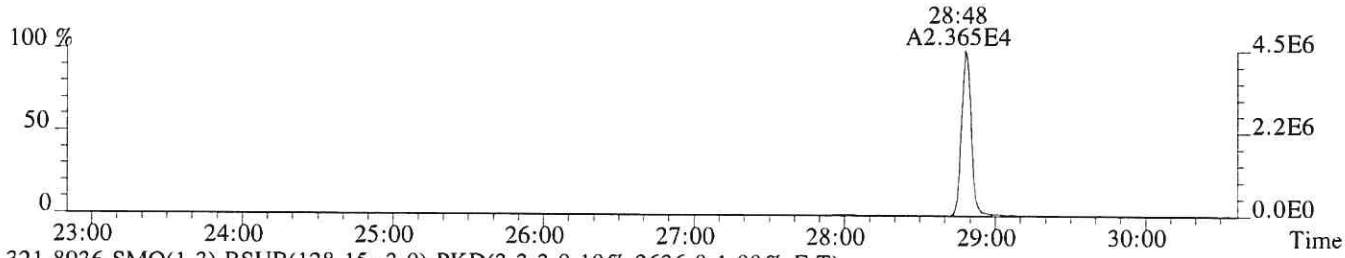
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



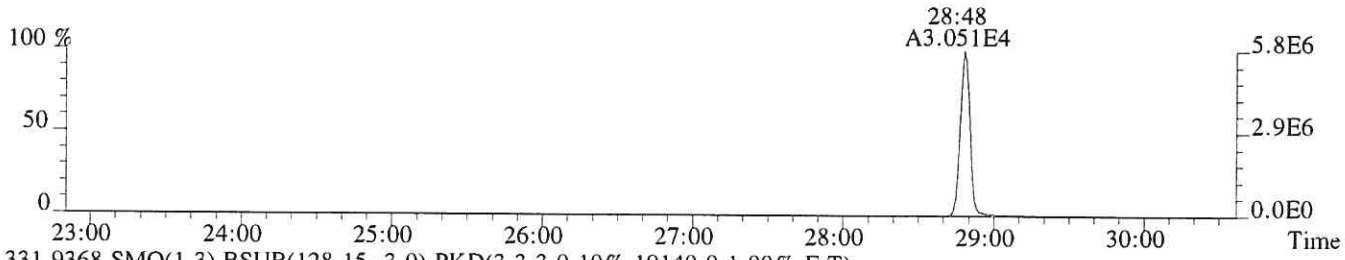
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



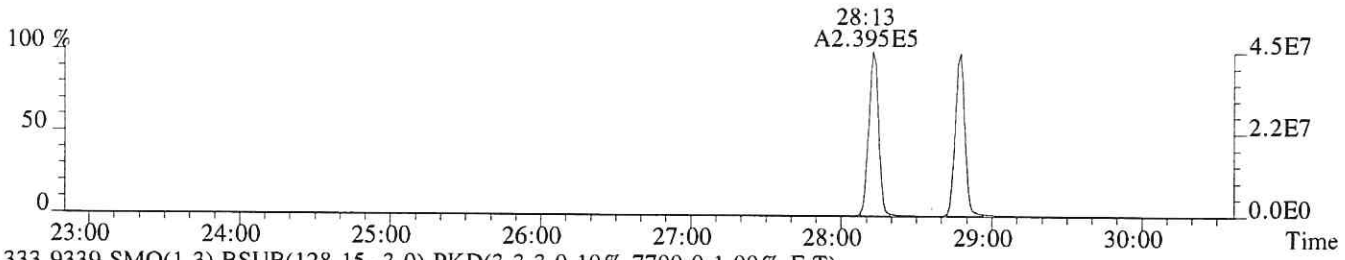
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



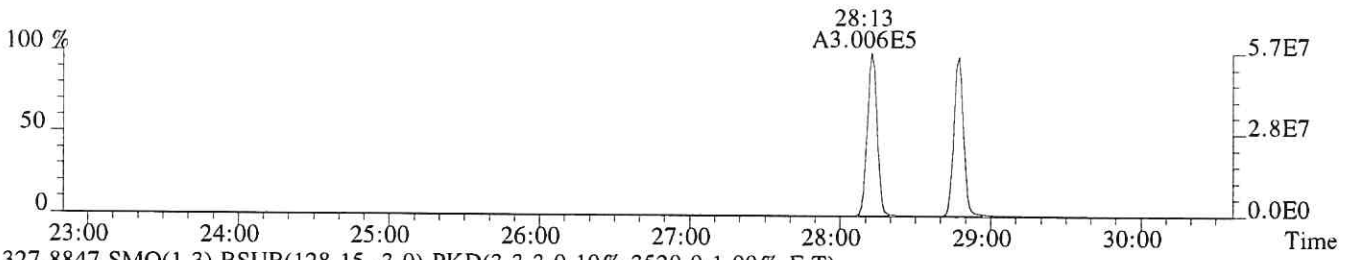
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



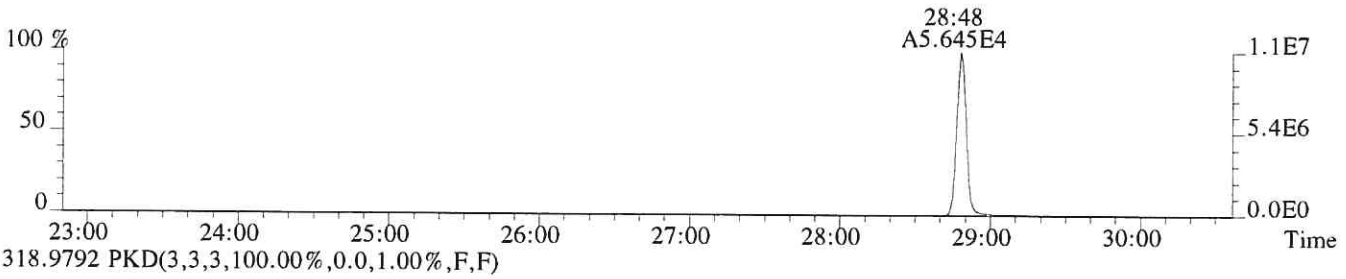
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



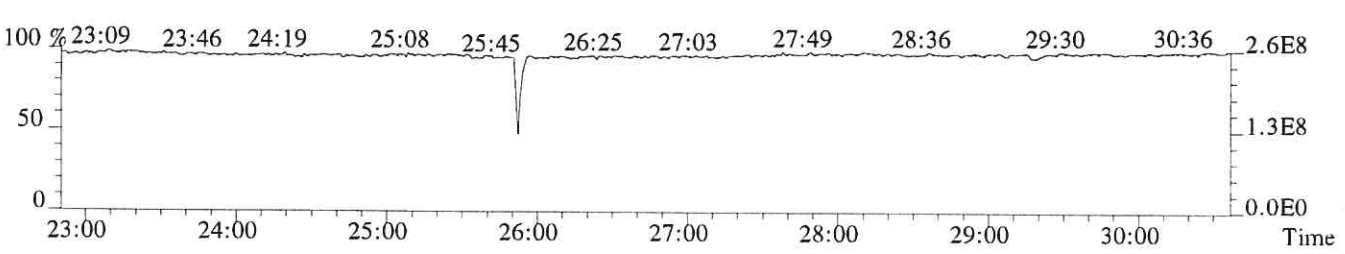
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



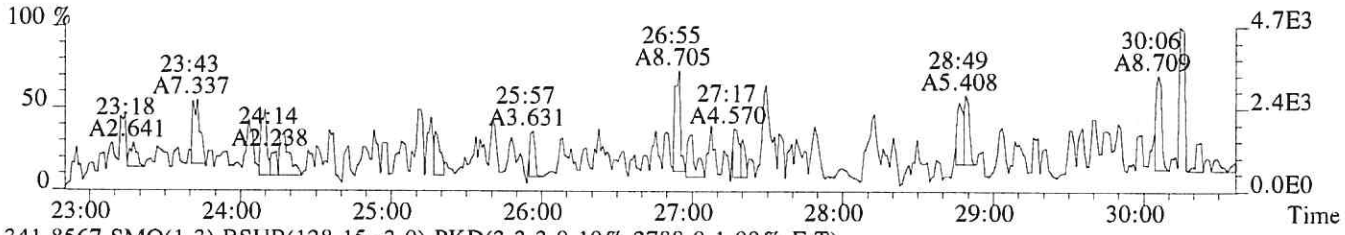
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



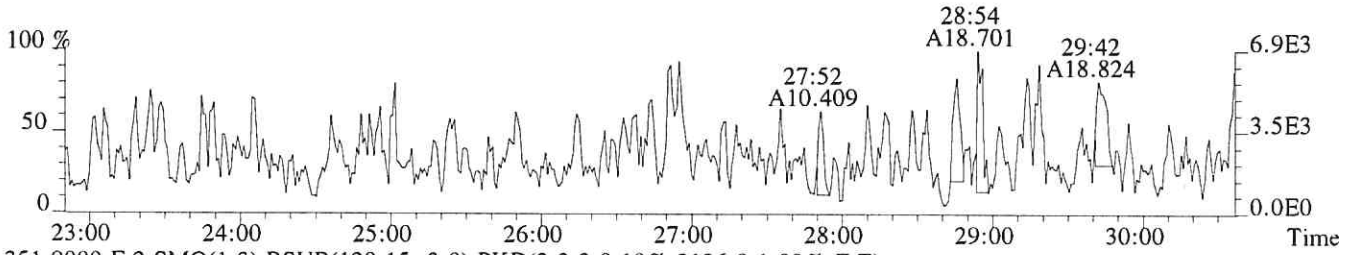
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



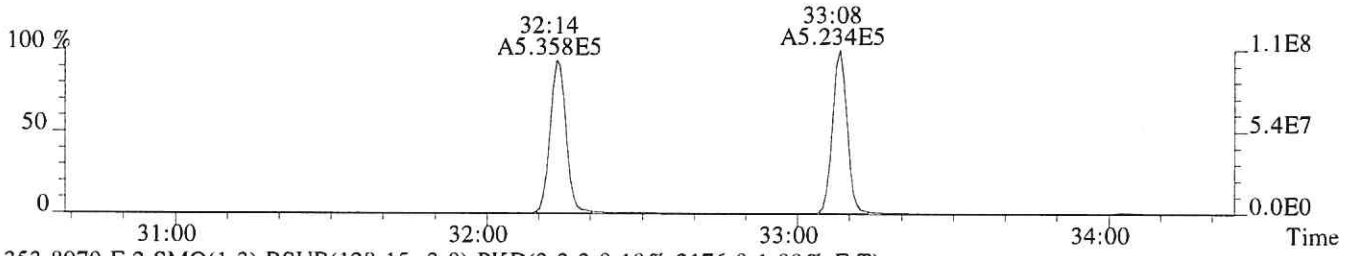
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



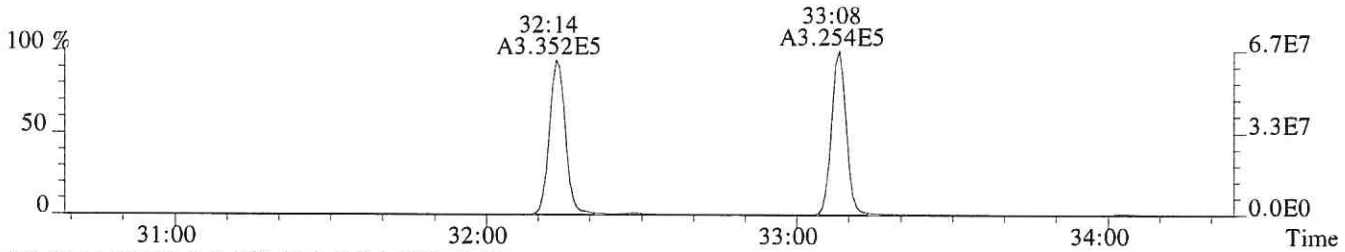
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



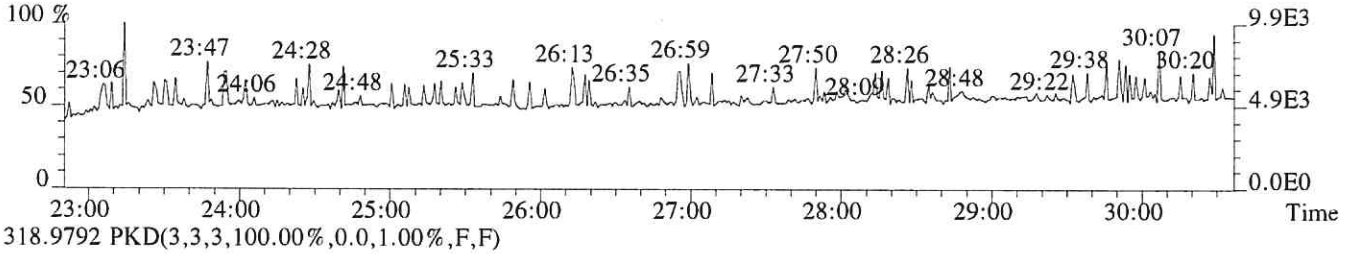
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



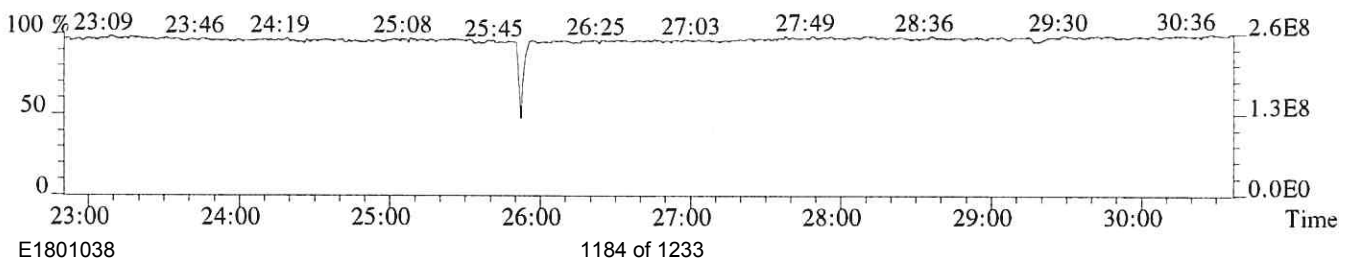
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



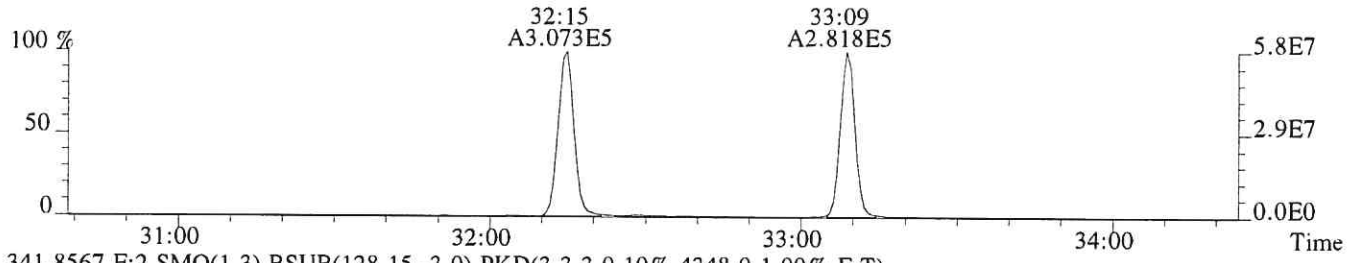
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



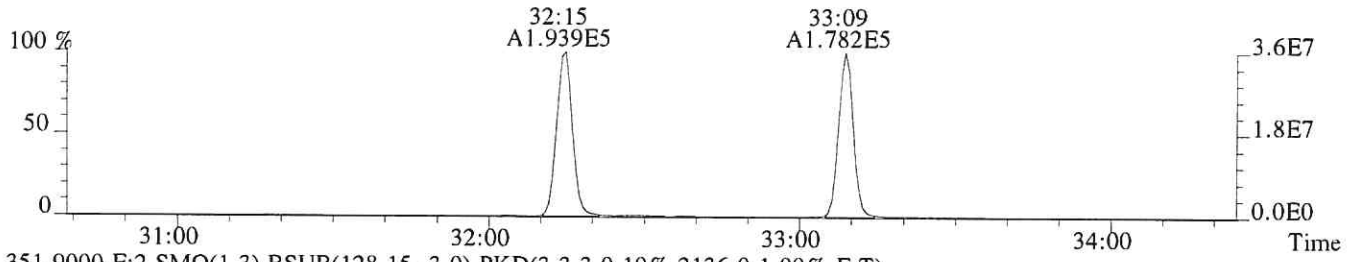
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



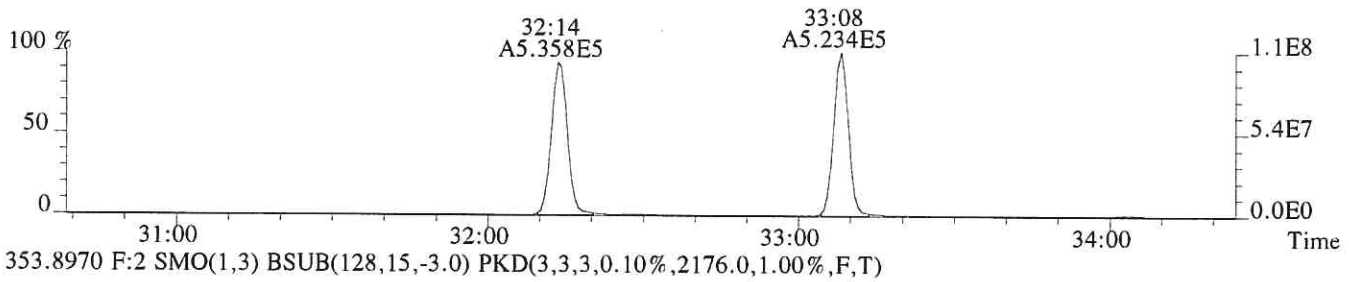
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



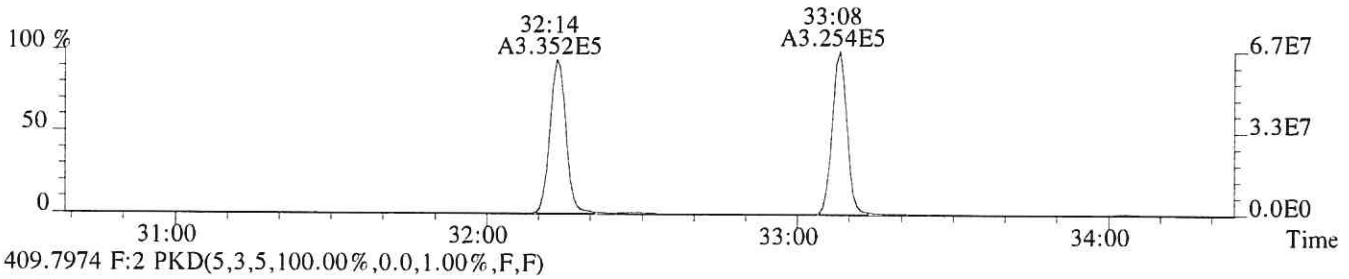
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



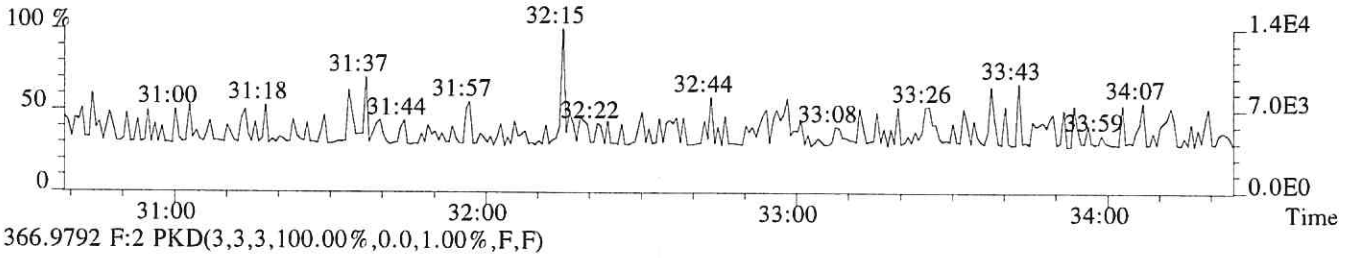
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



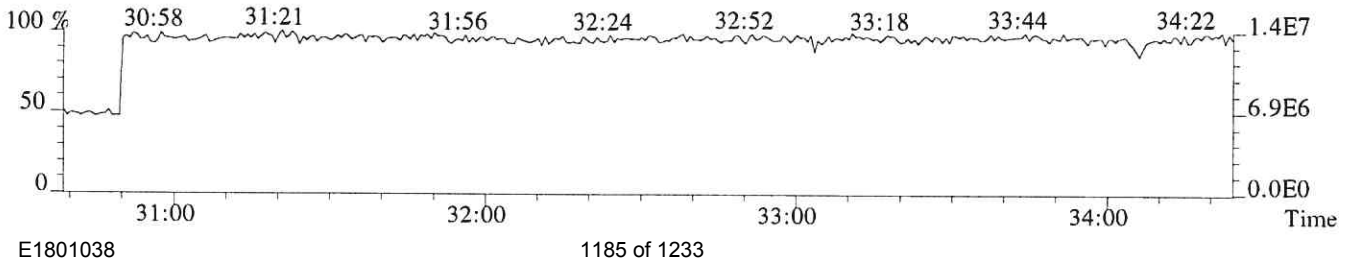
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



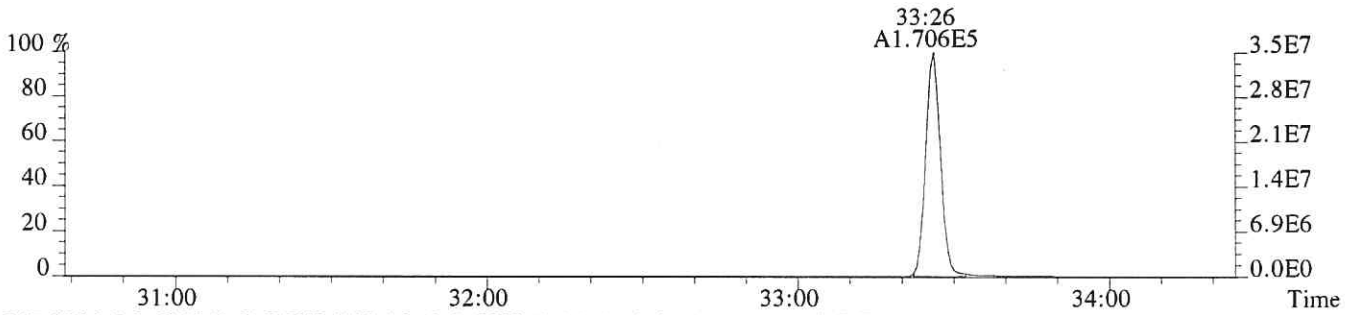
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



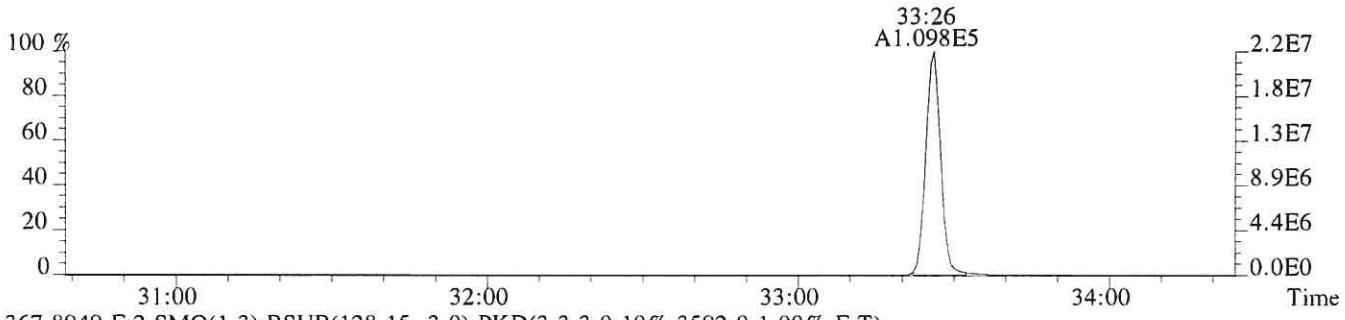
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



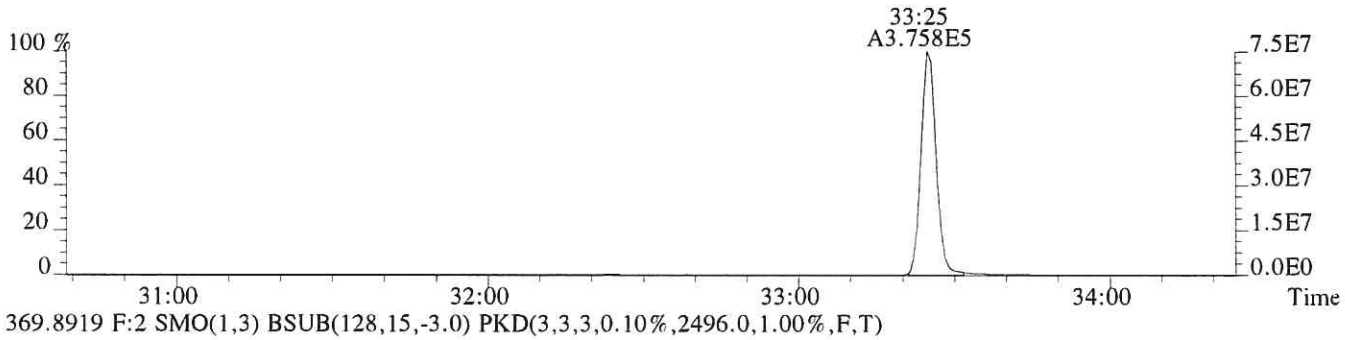
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



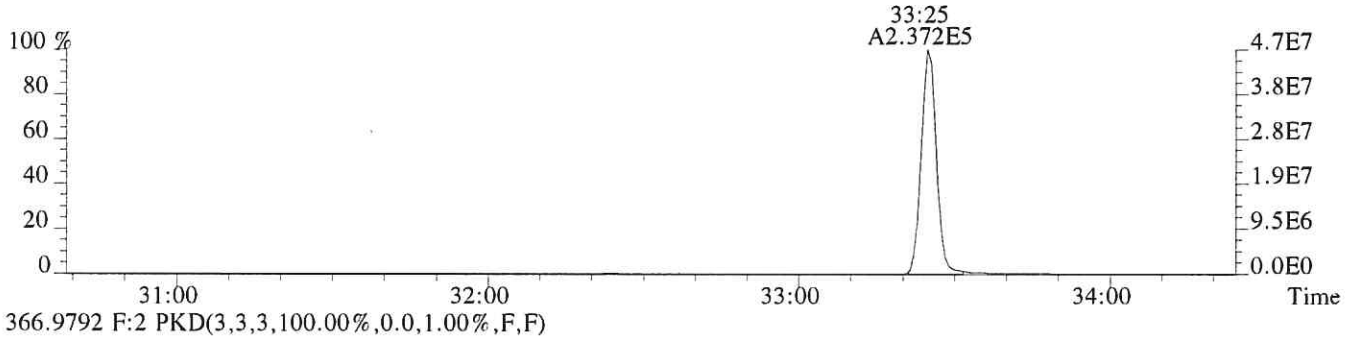
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



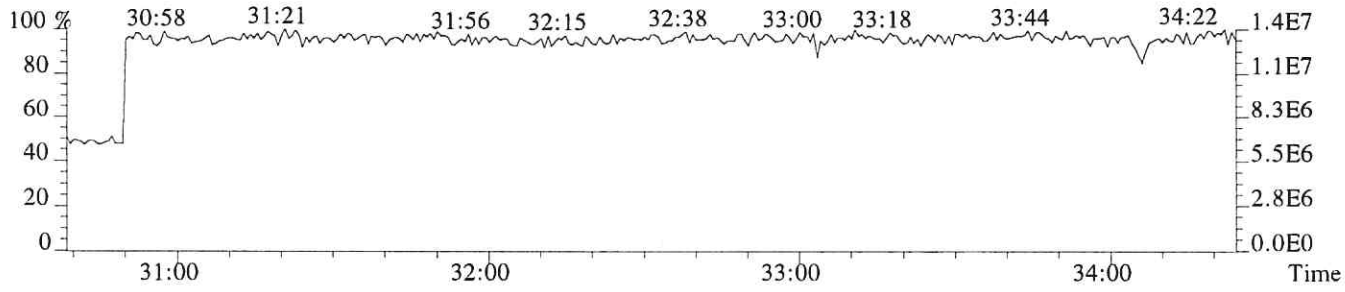
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



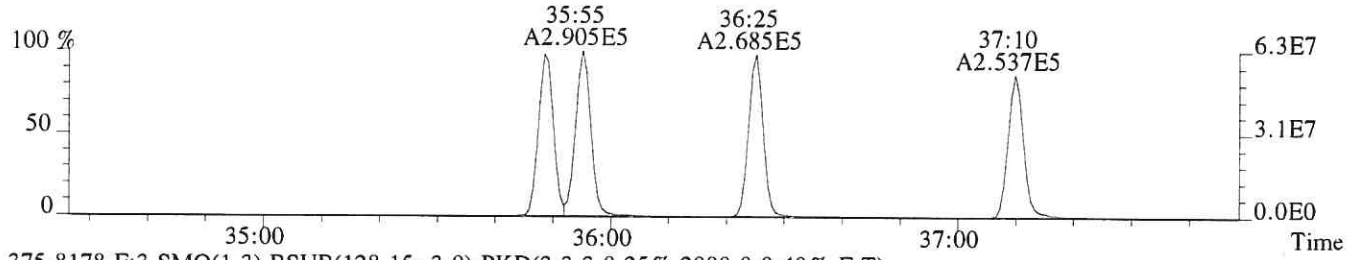
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



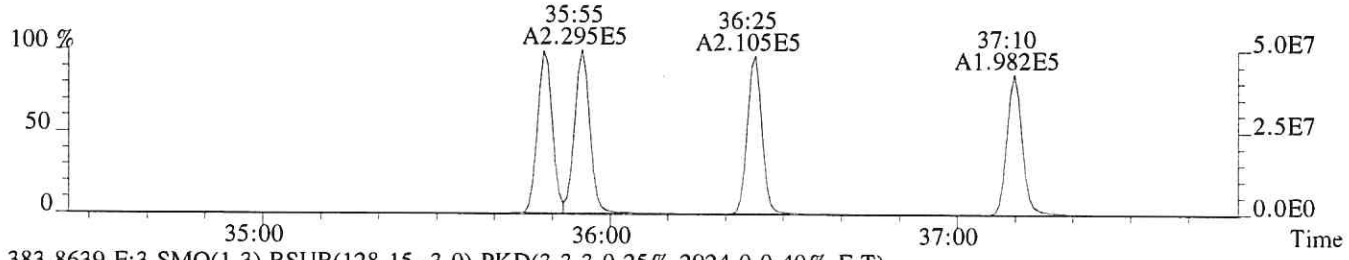
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



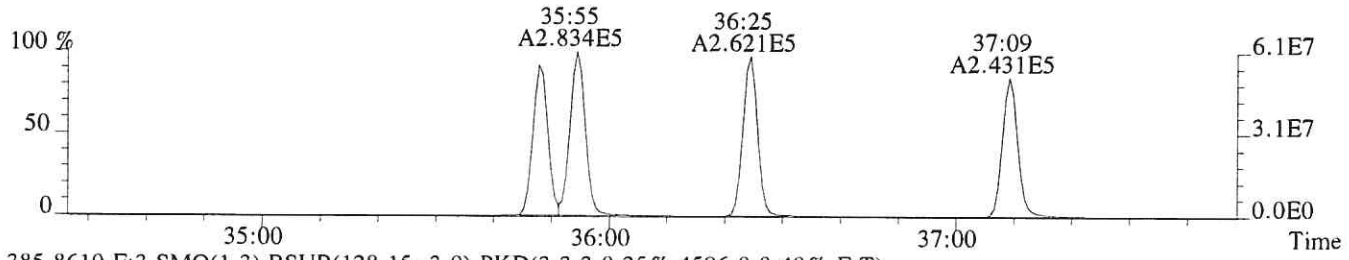
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



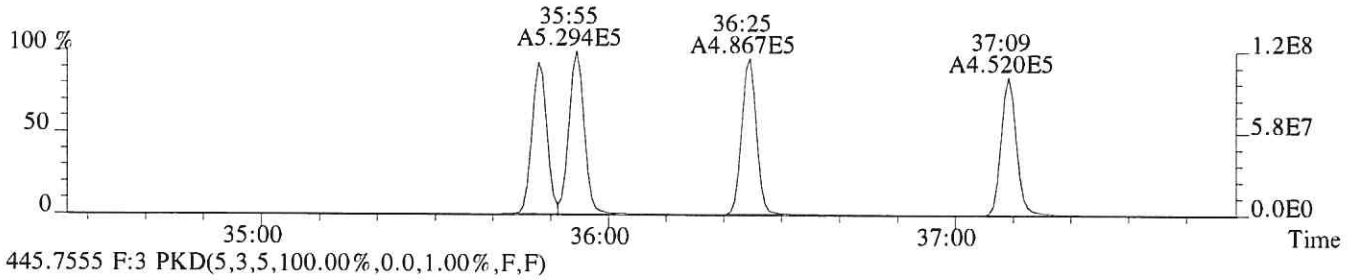
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



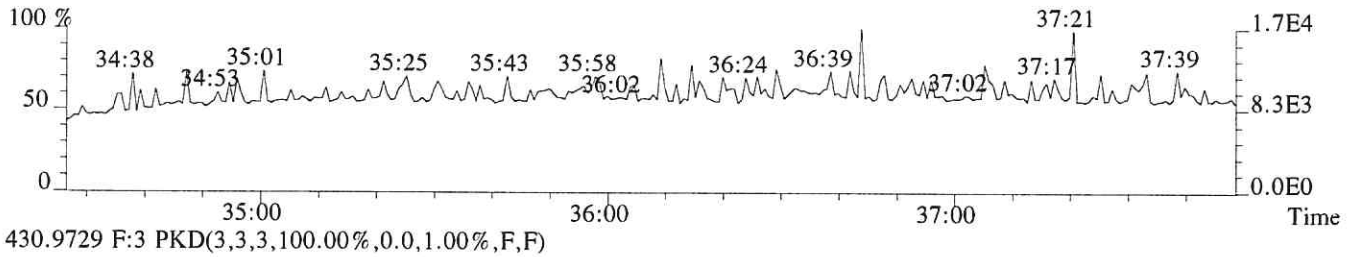
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



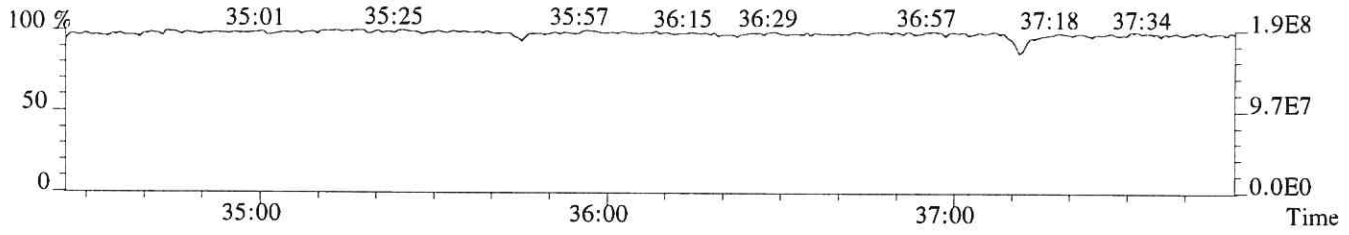
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



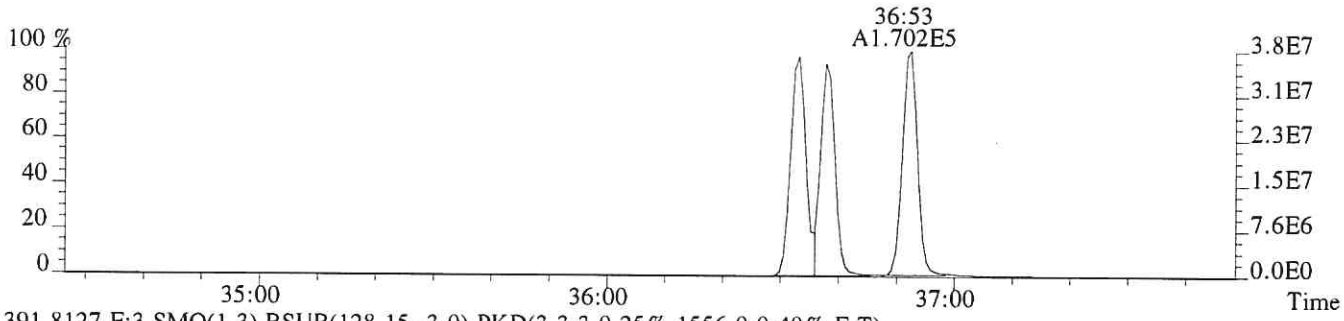
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



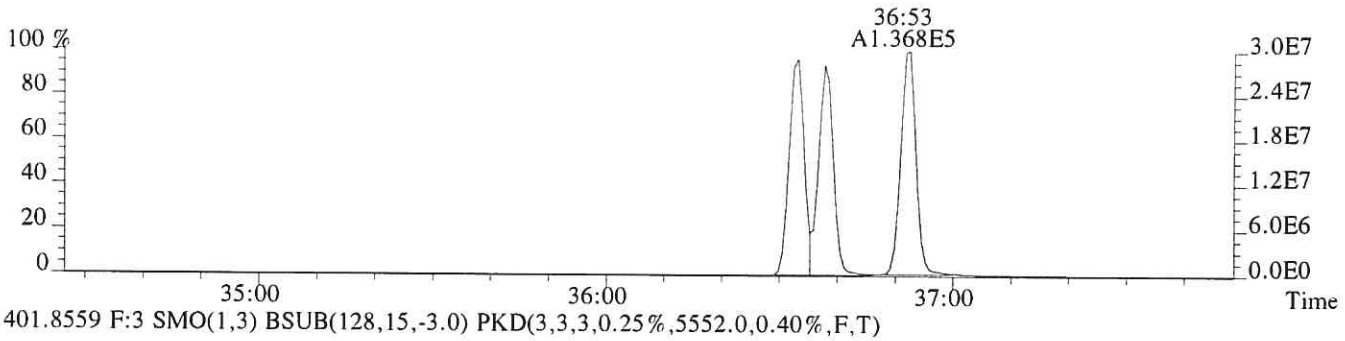
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



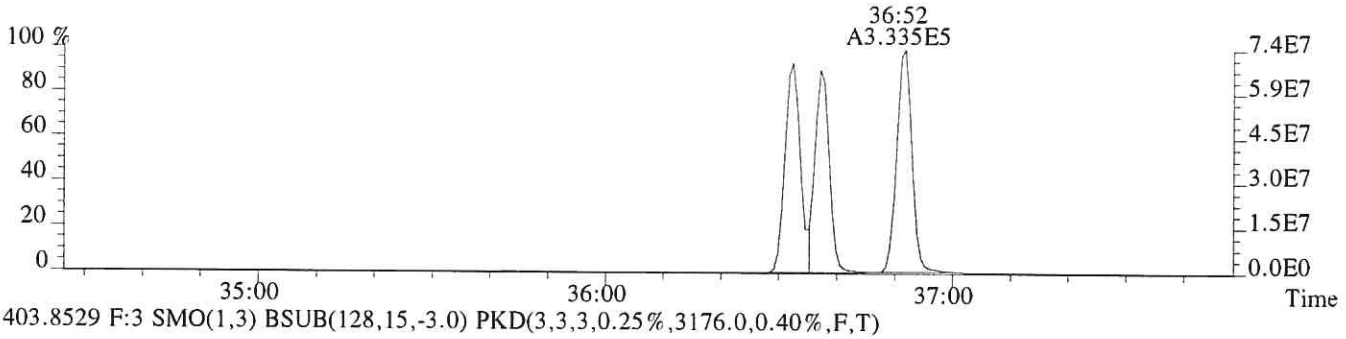
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



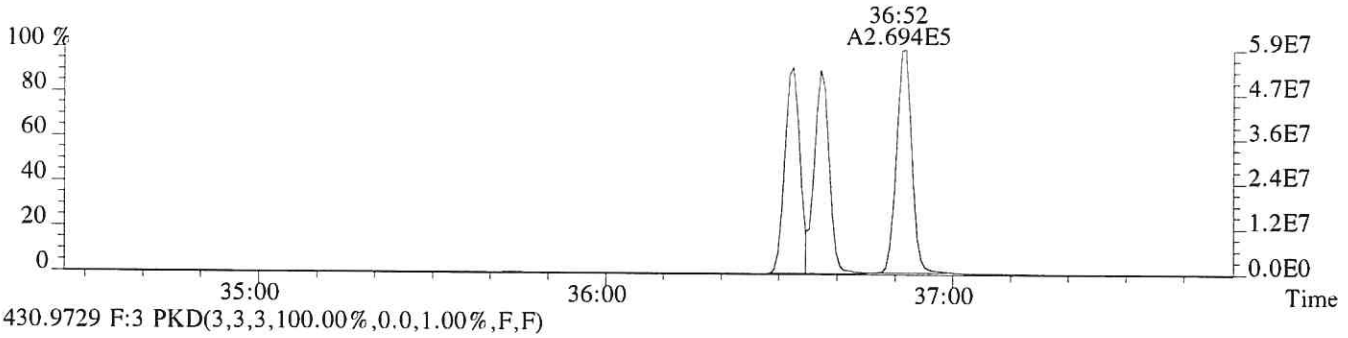
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



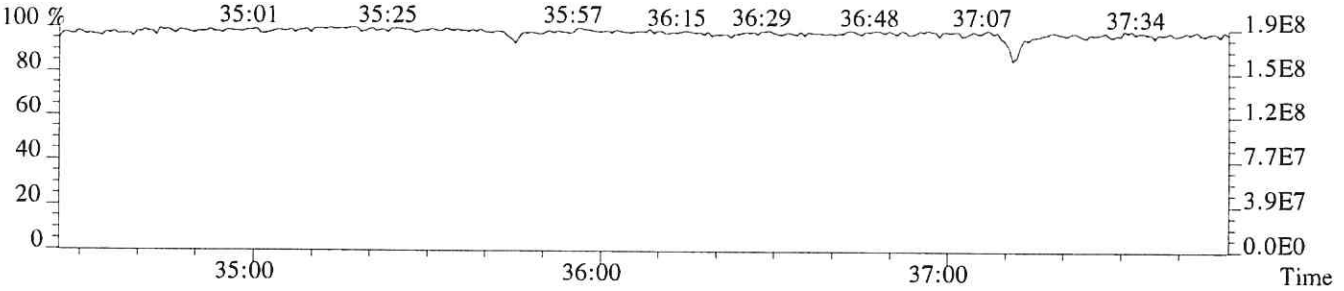
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



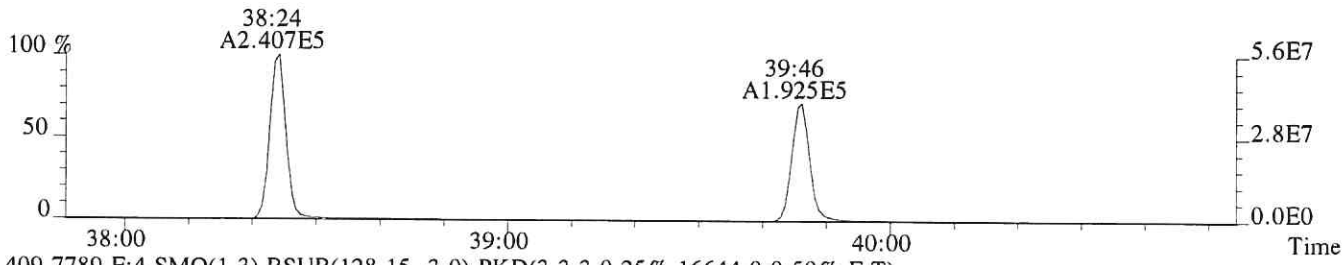
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



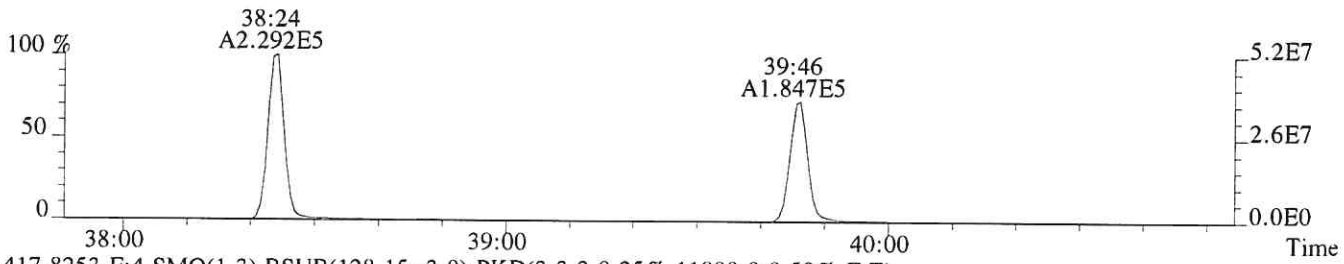
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



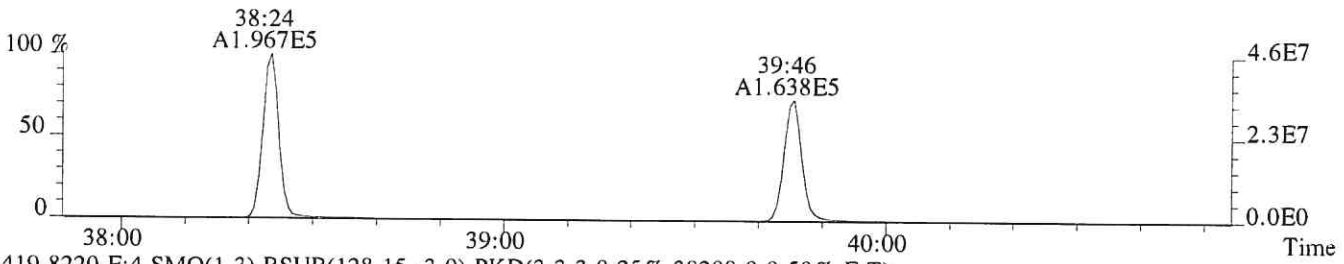
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



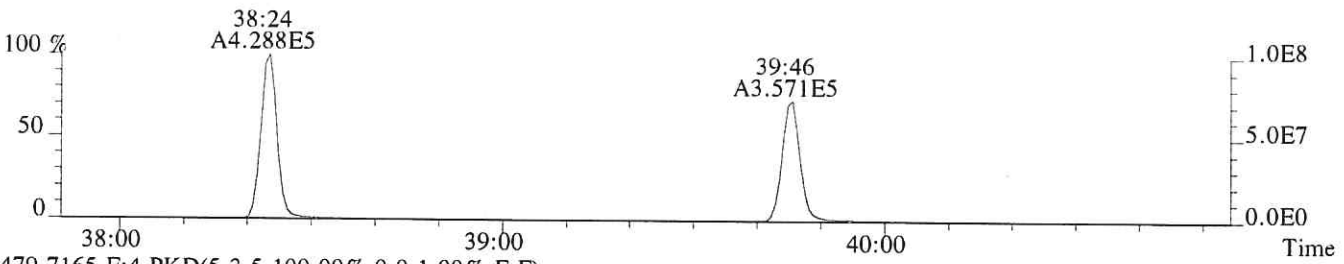
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



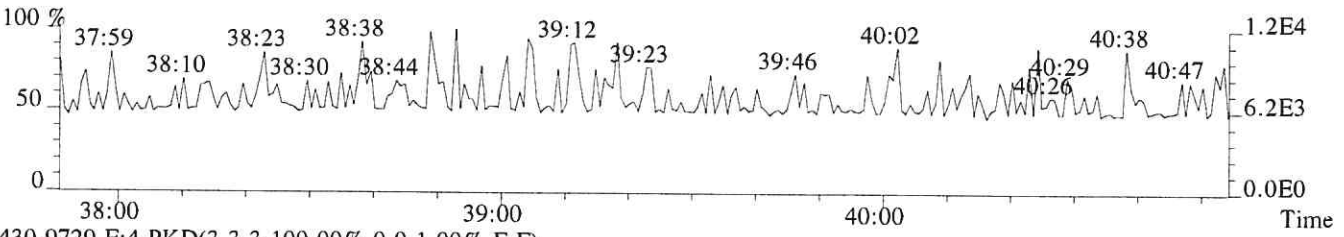
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



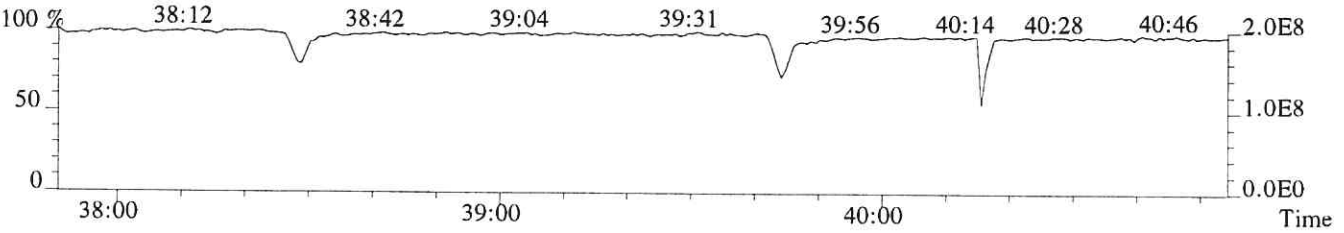
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



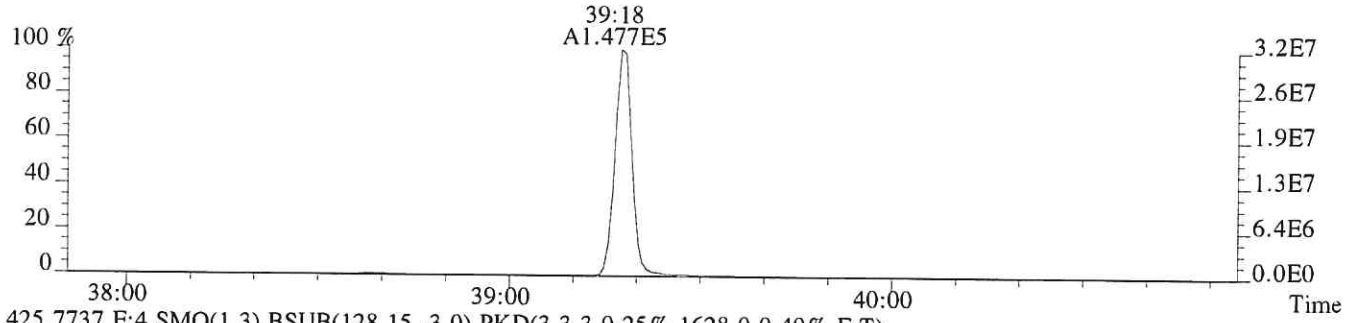
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



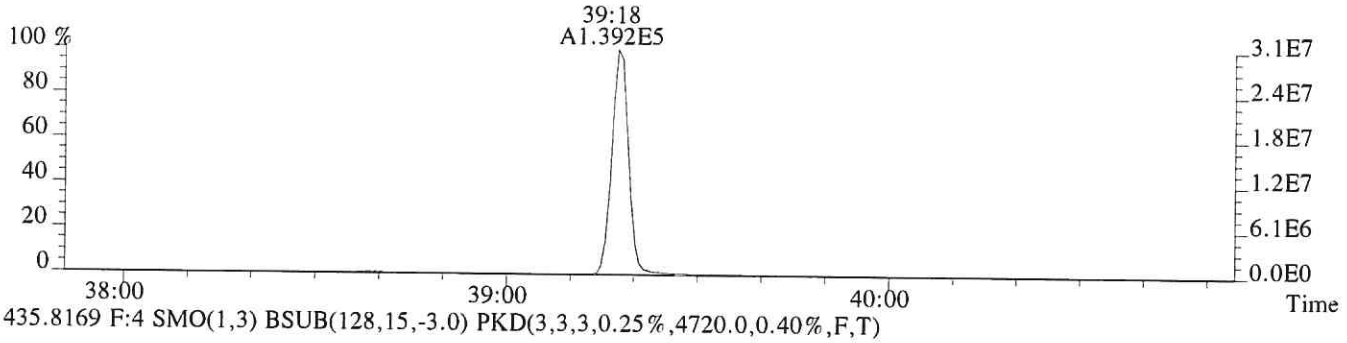
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



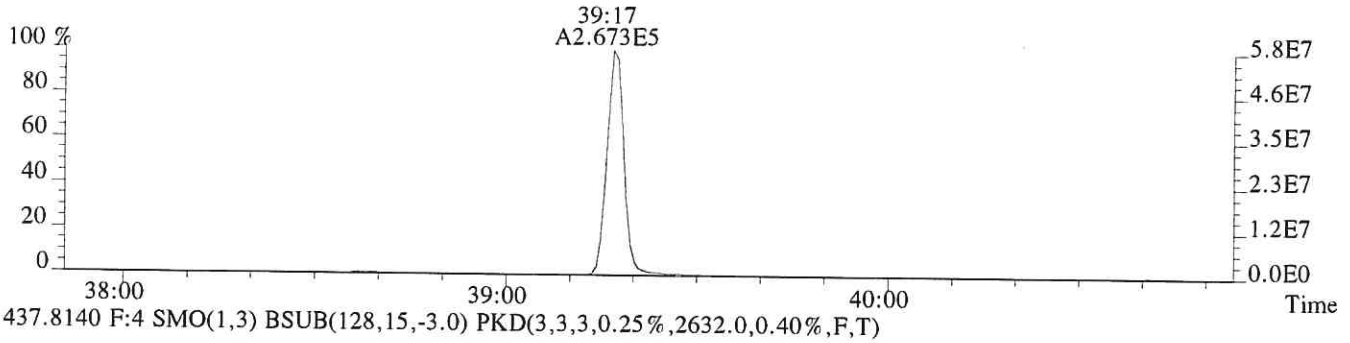
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



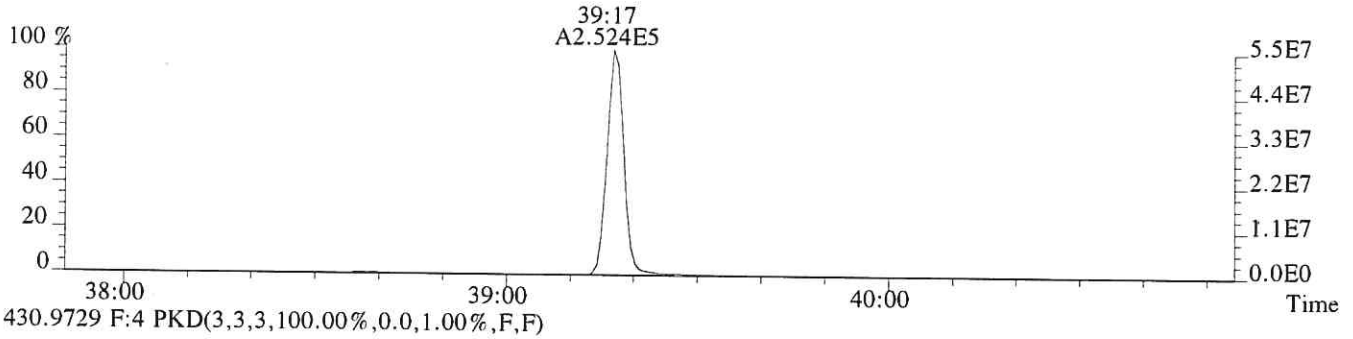
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



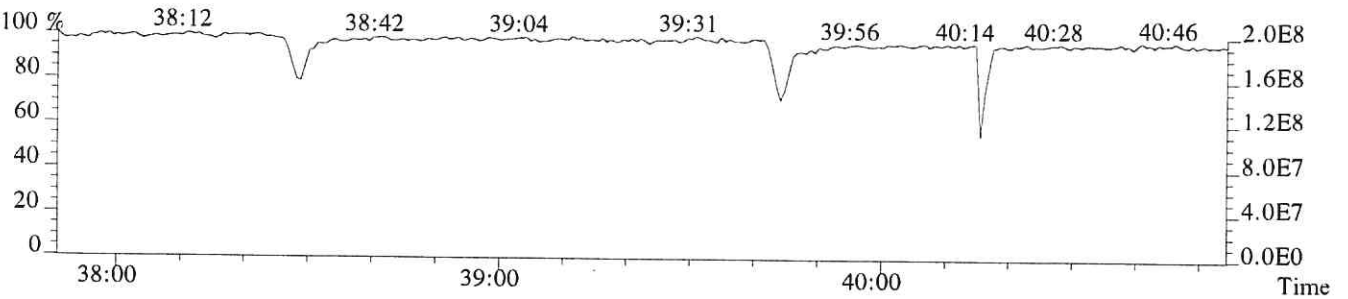
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



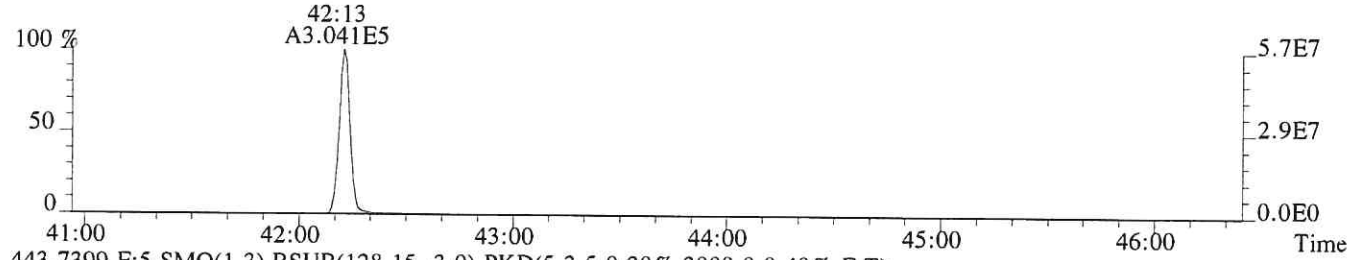
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



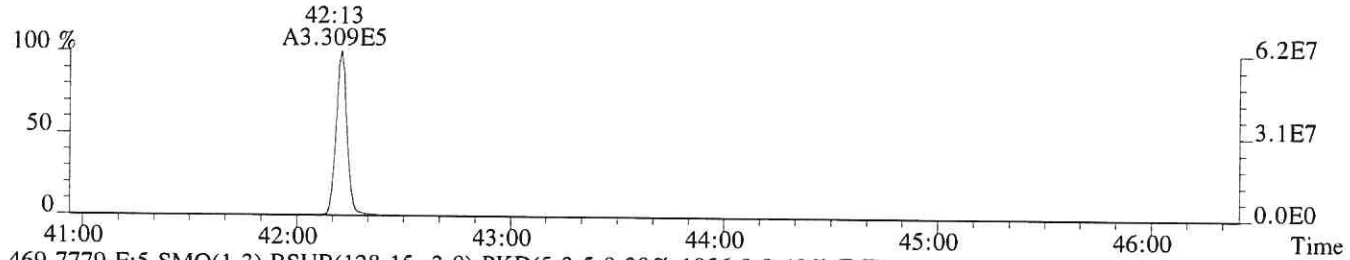
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



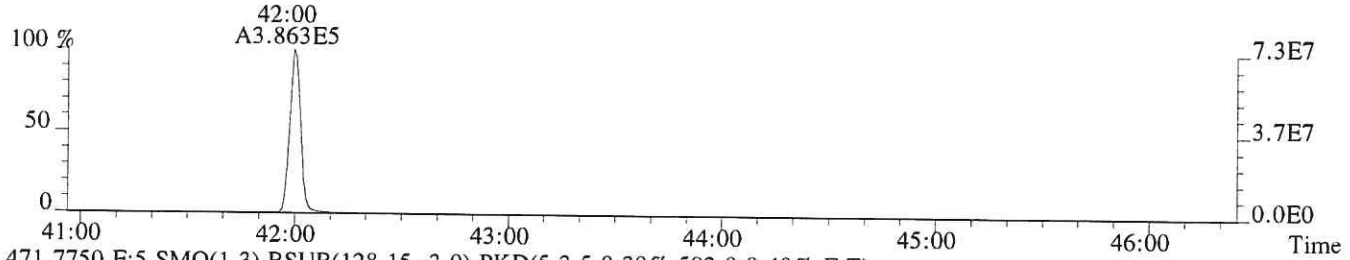
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



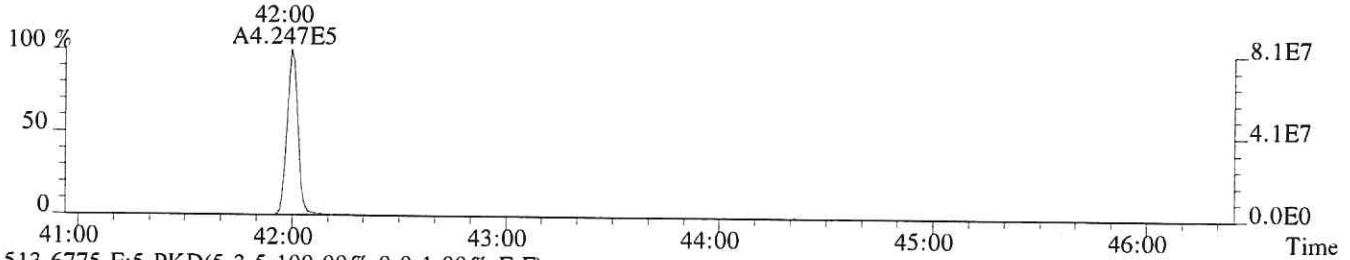
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



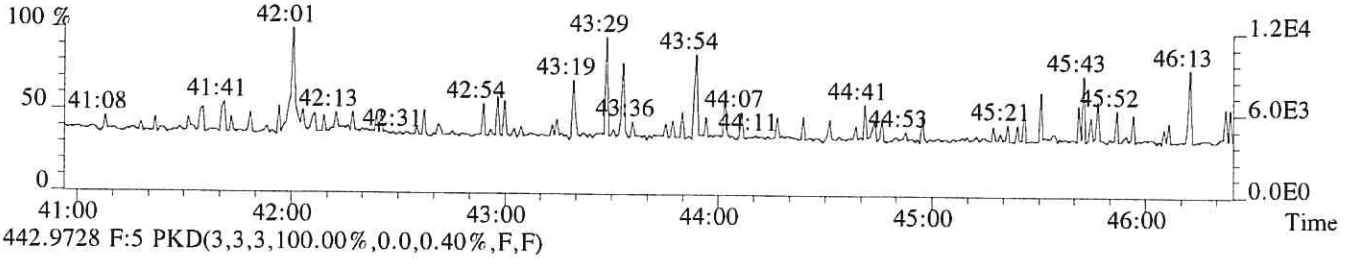
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



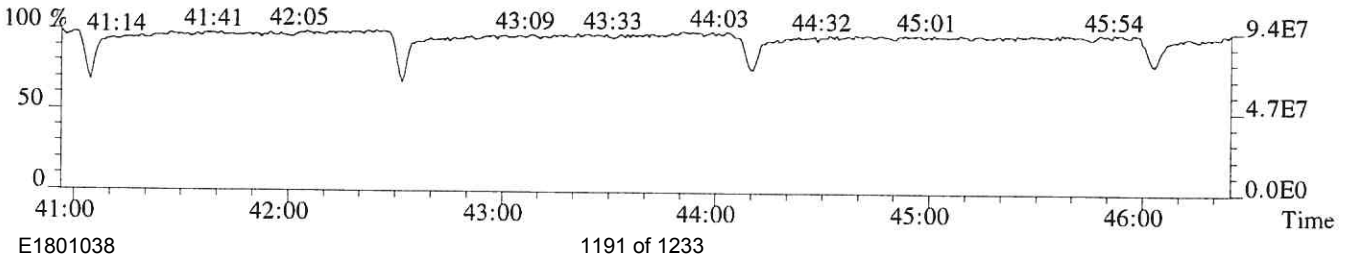
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



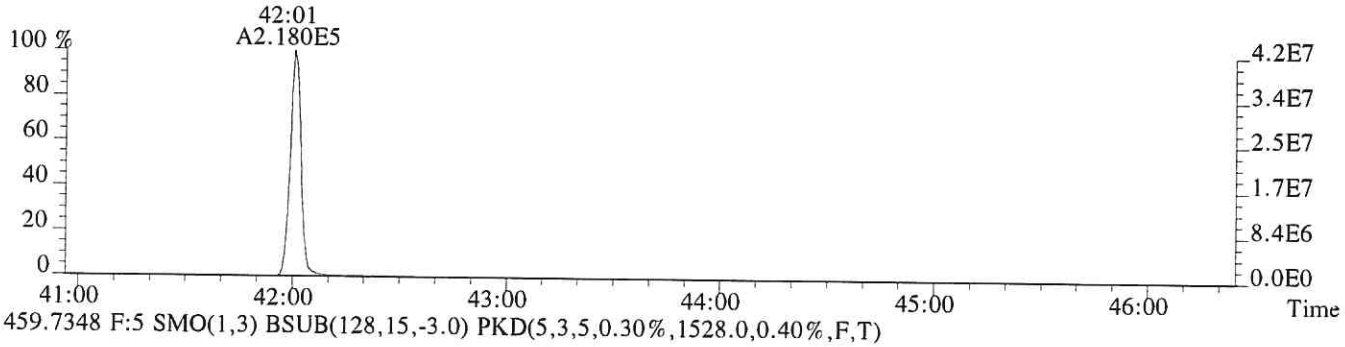
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



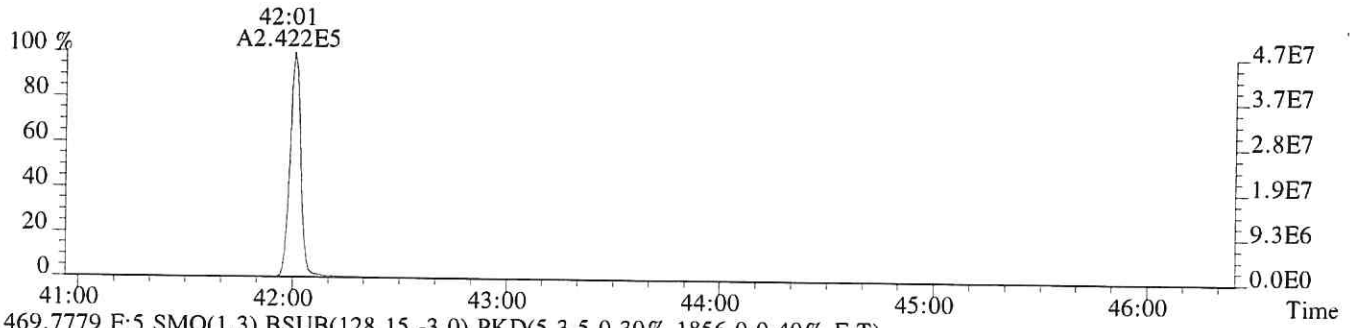
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



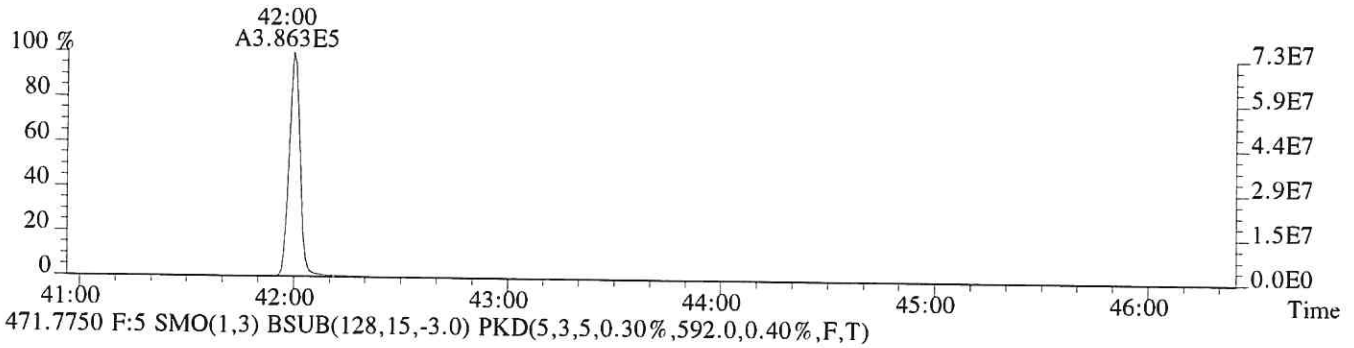
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



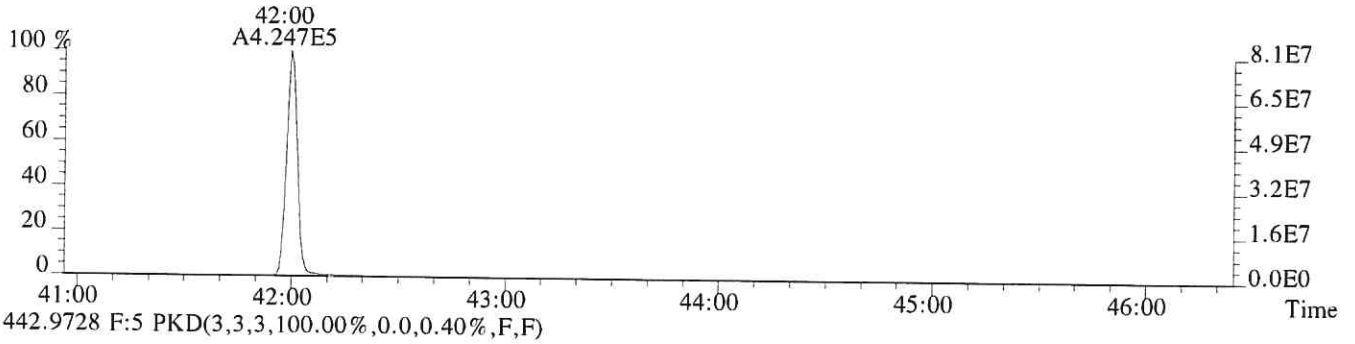
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



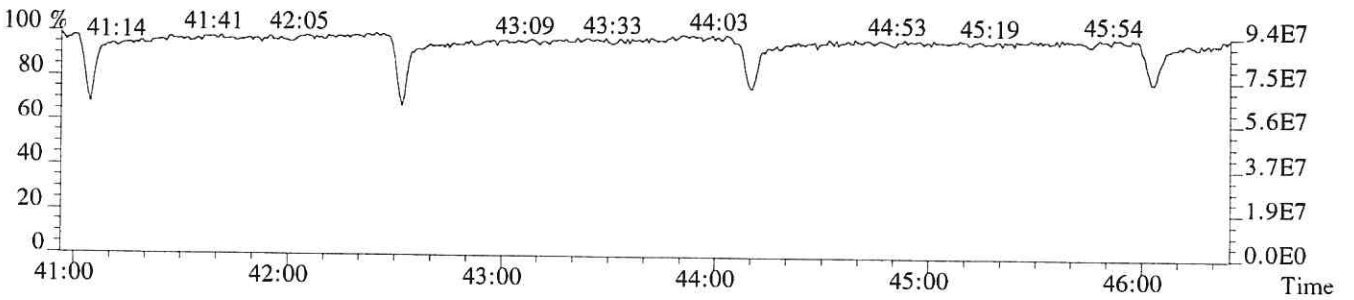
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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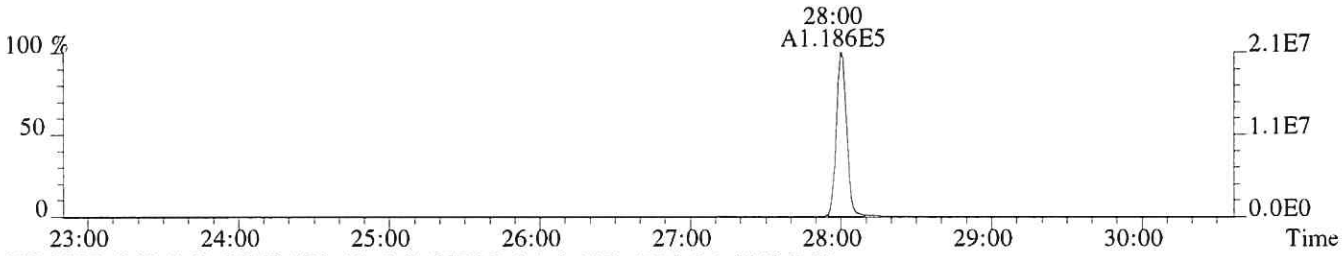
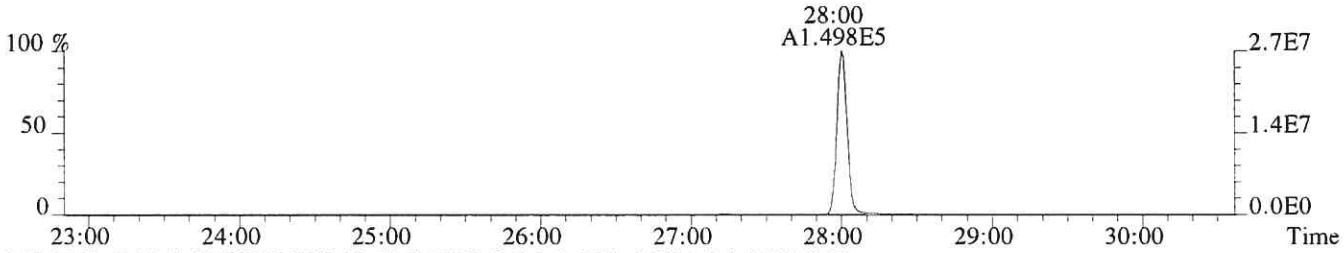
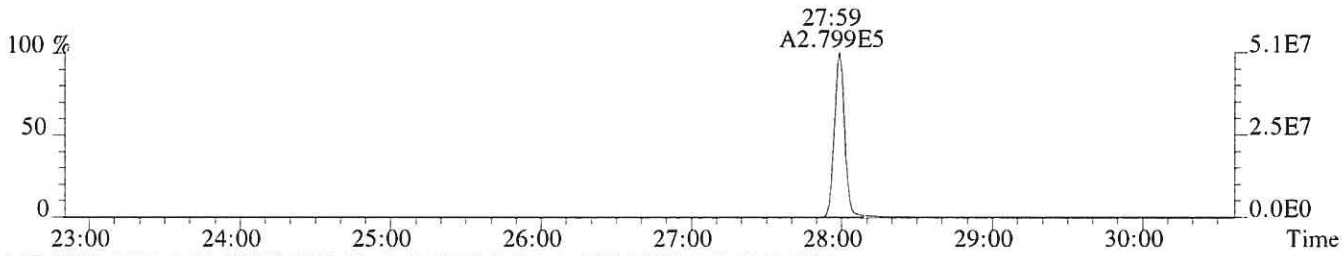
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



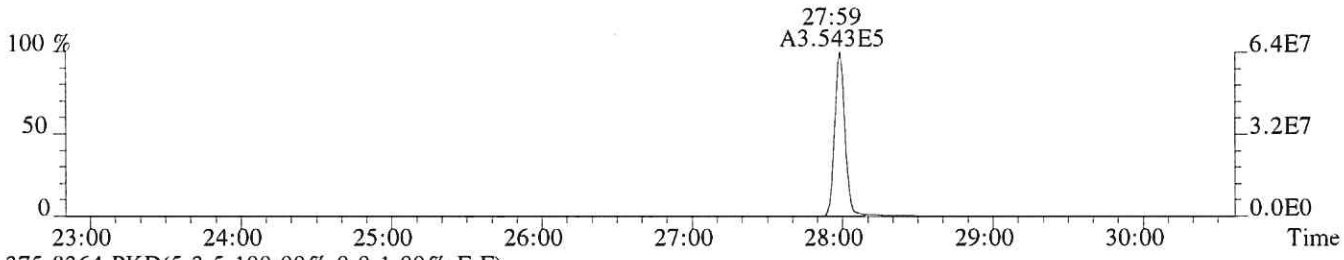
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



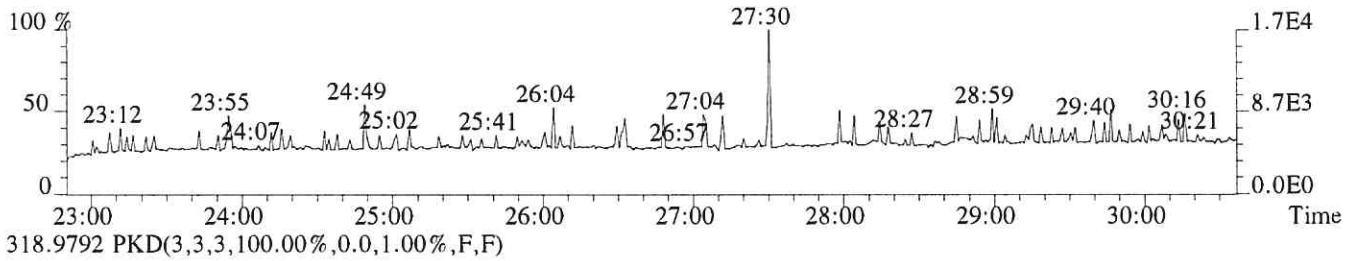
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



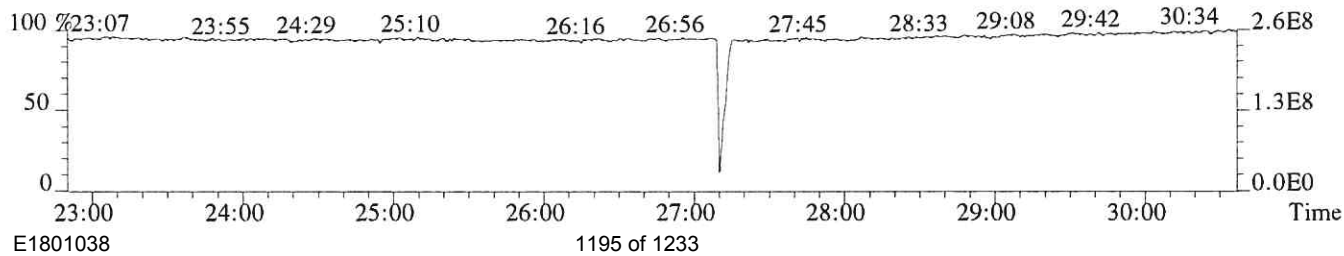
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



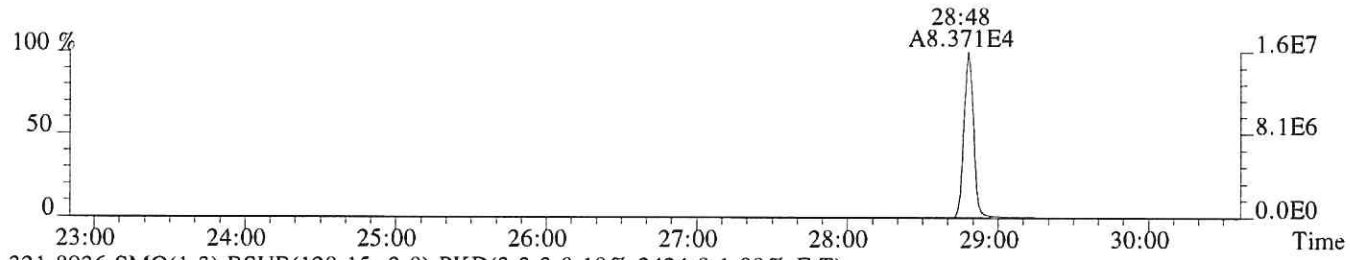
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



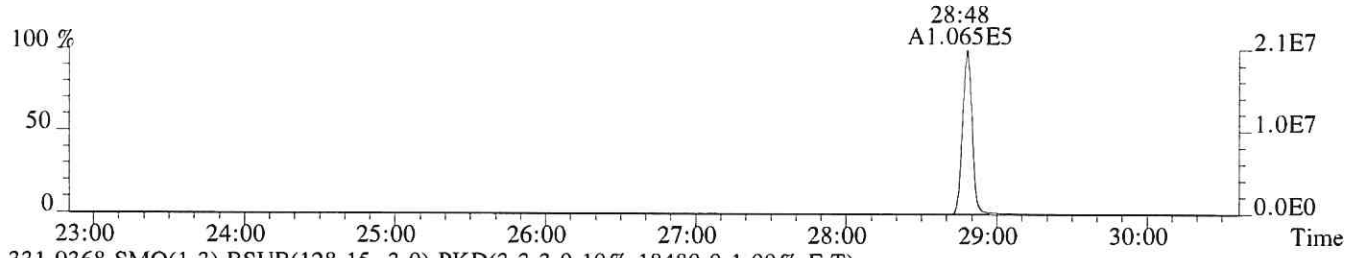
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



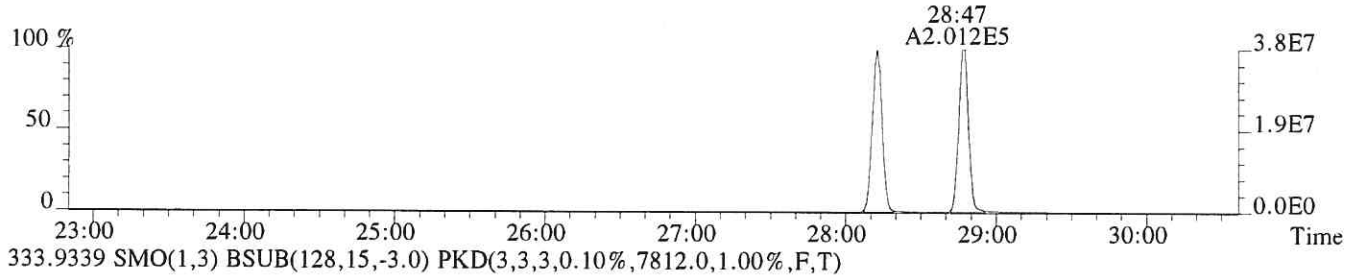
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



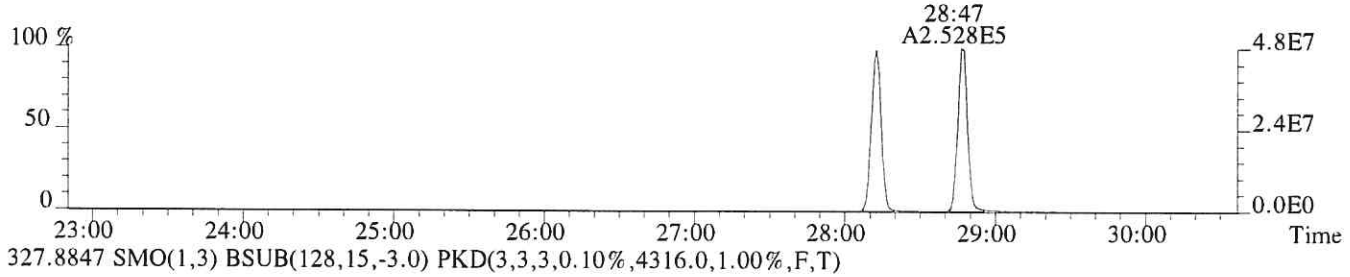
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



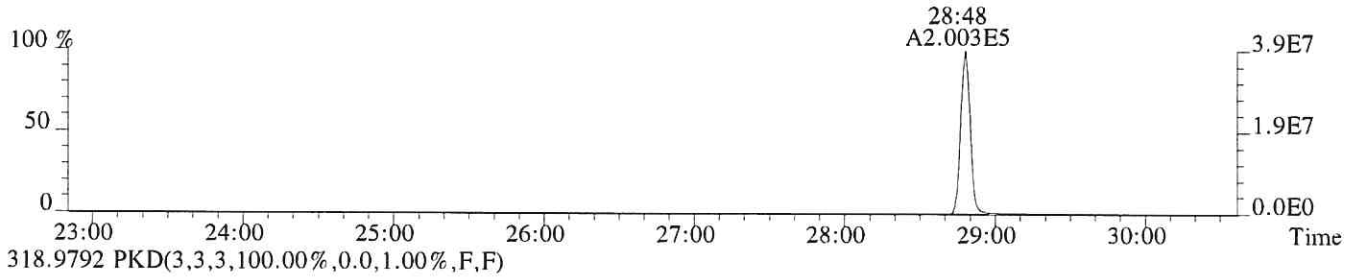
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



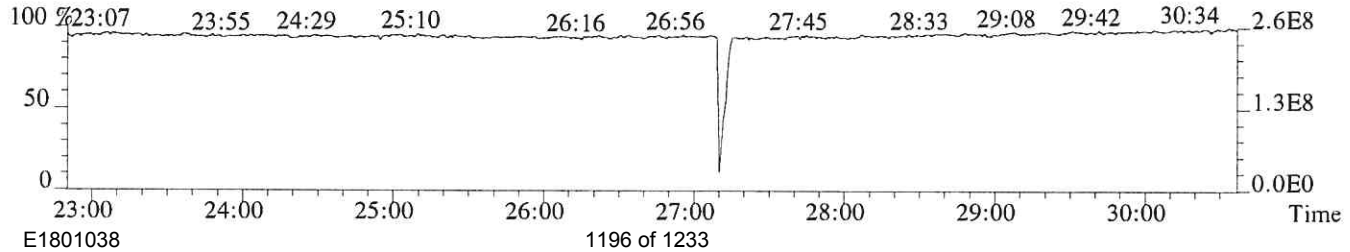
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



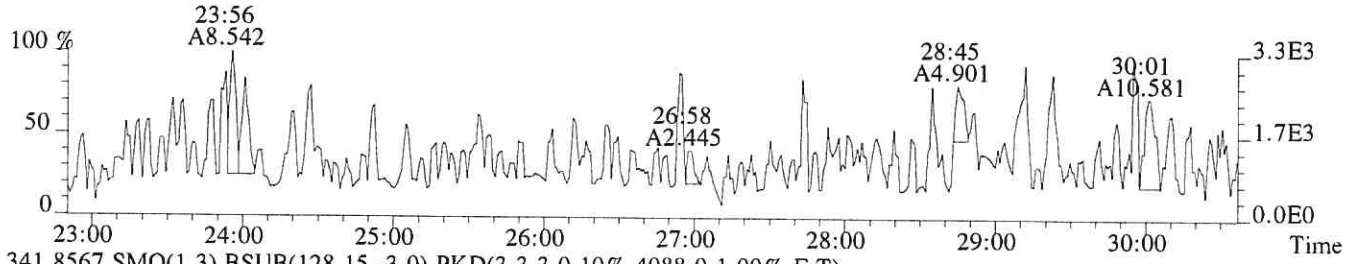
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



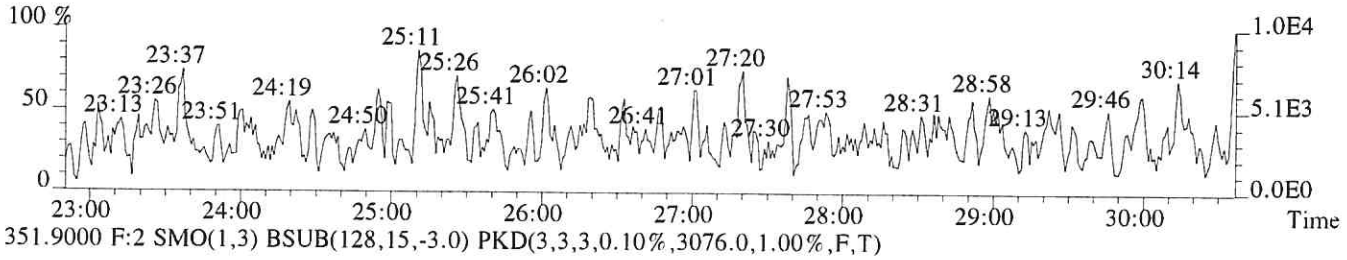
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



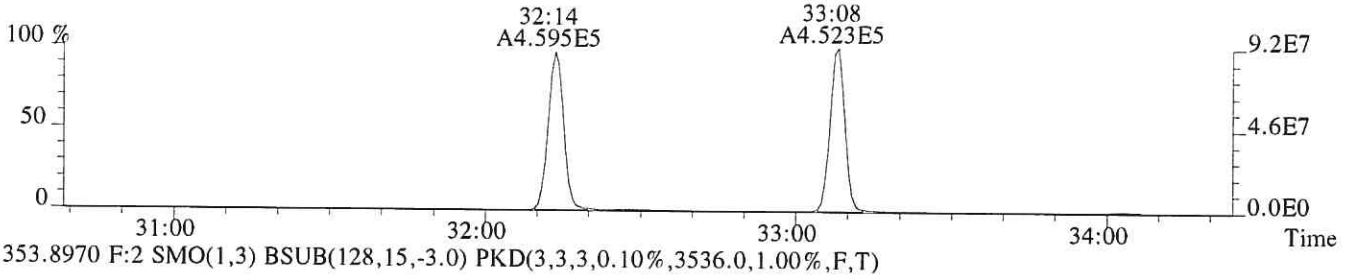
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



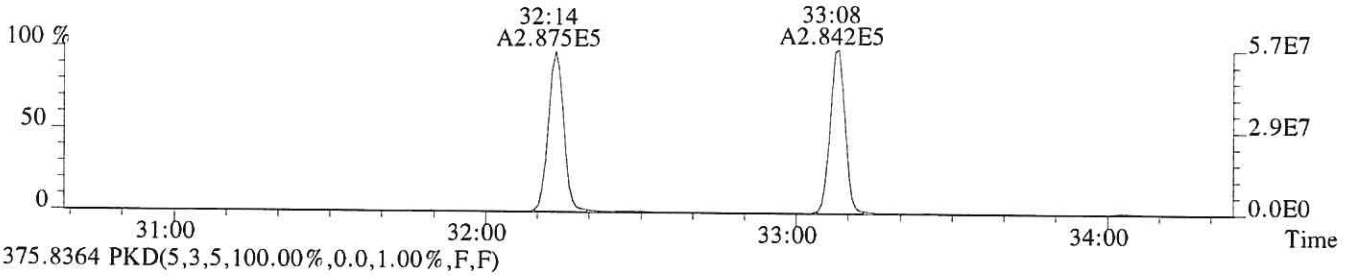
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



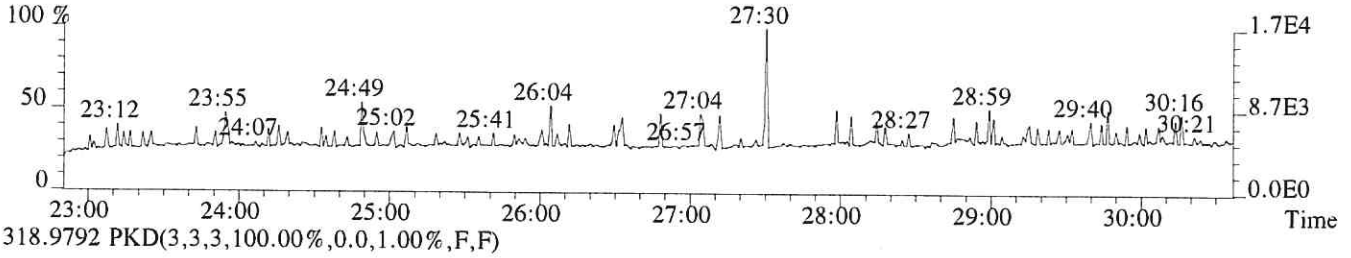
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



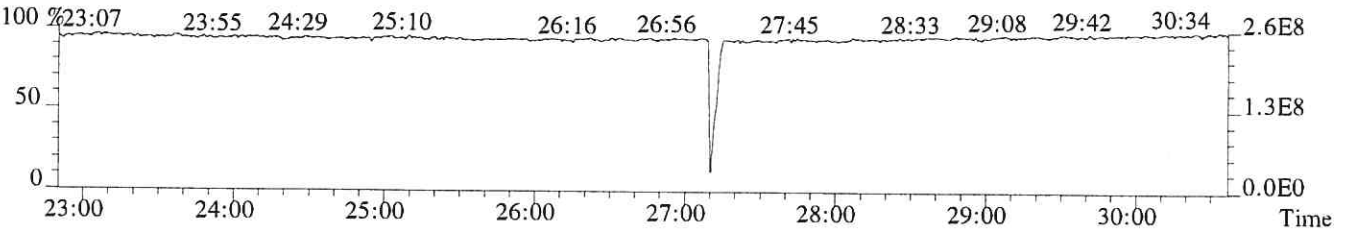
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

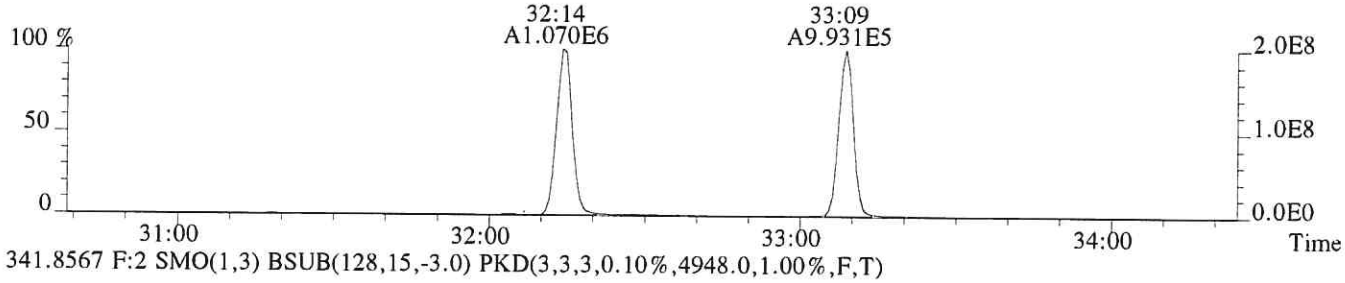


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

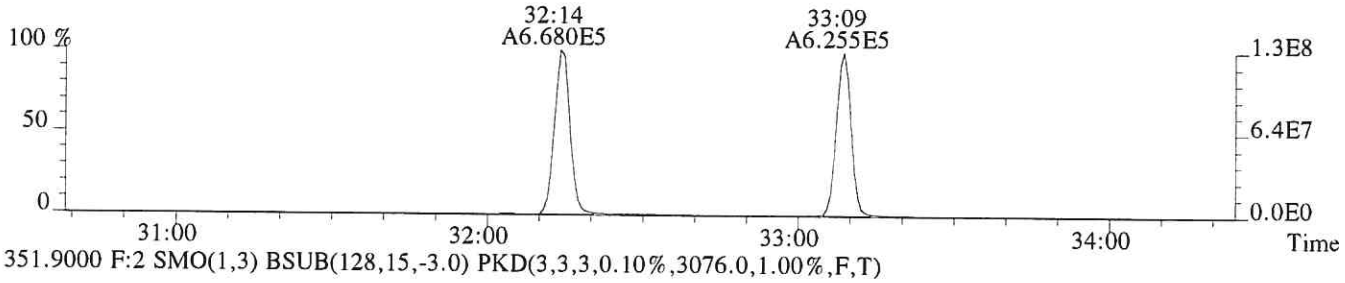


File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

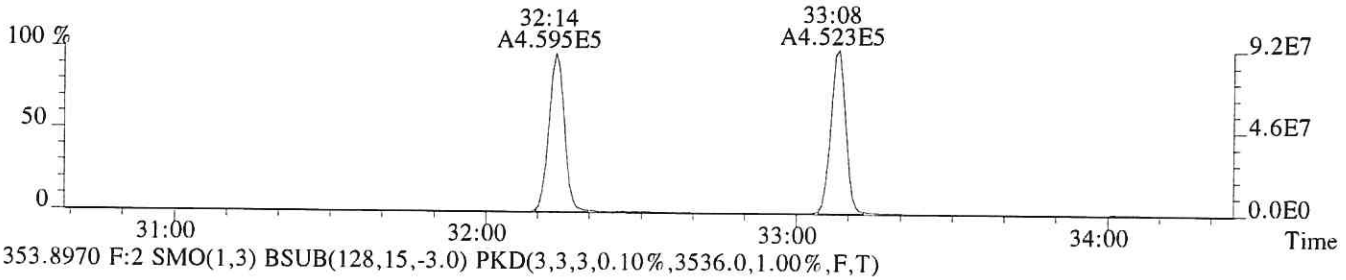
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



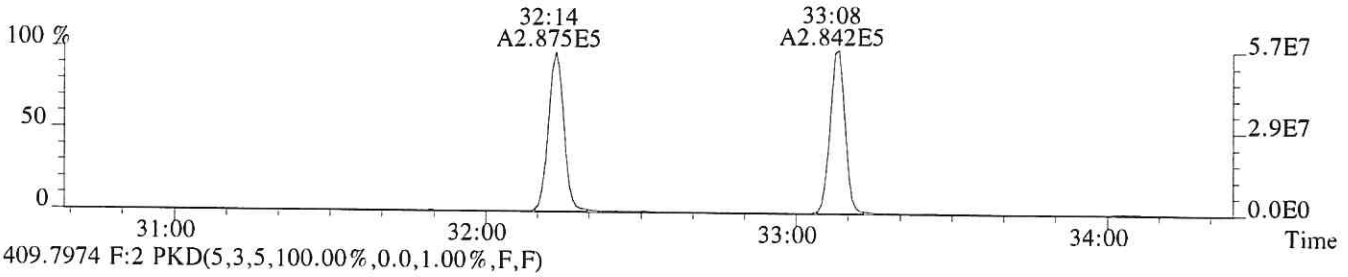
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



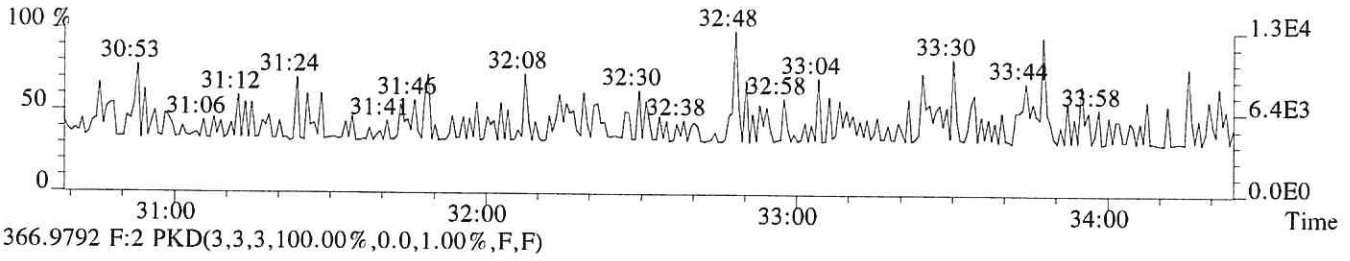
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



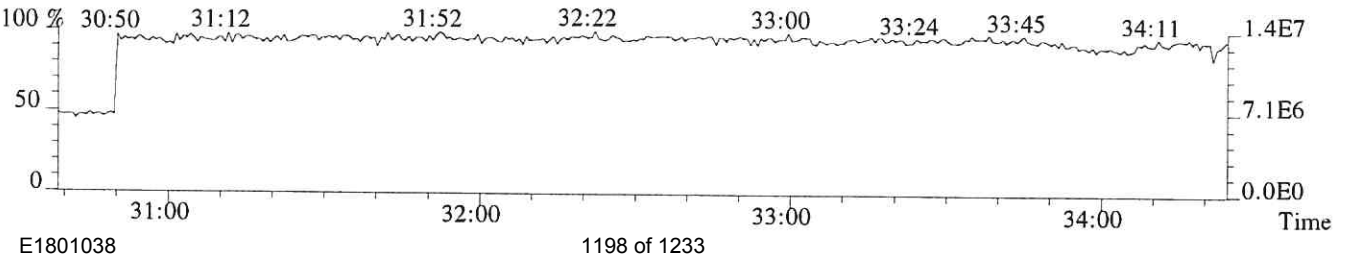
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



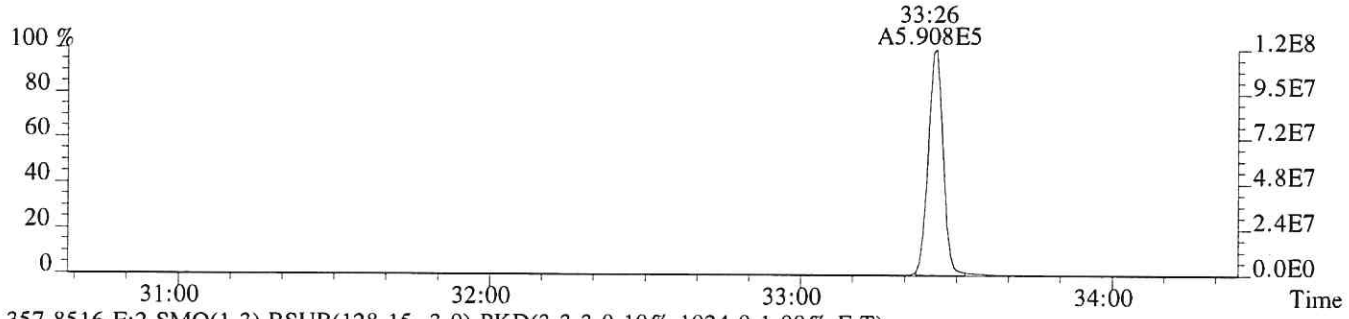
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



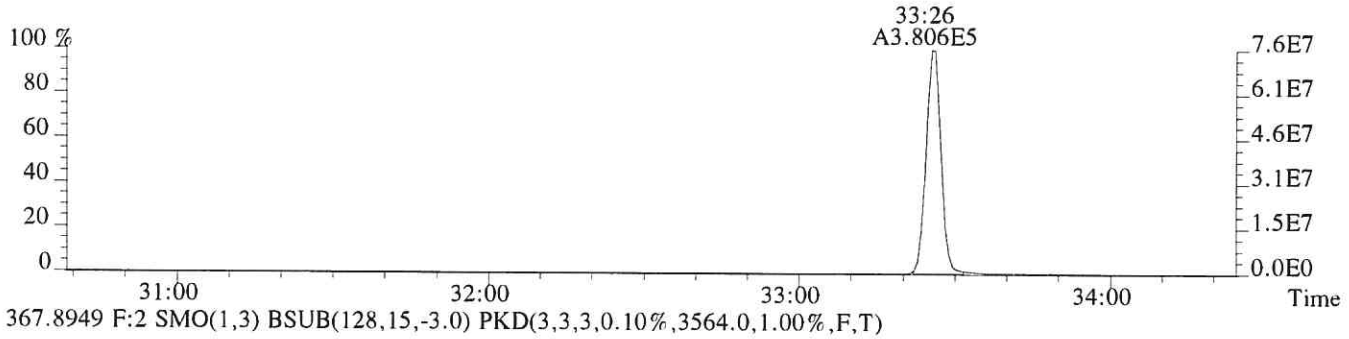
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



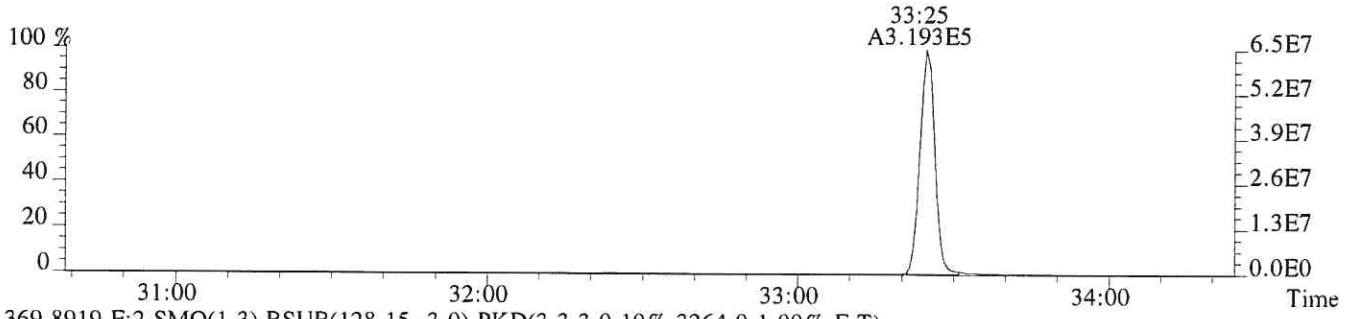
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



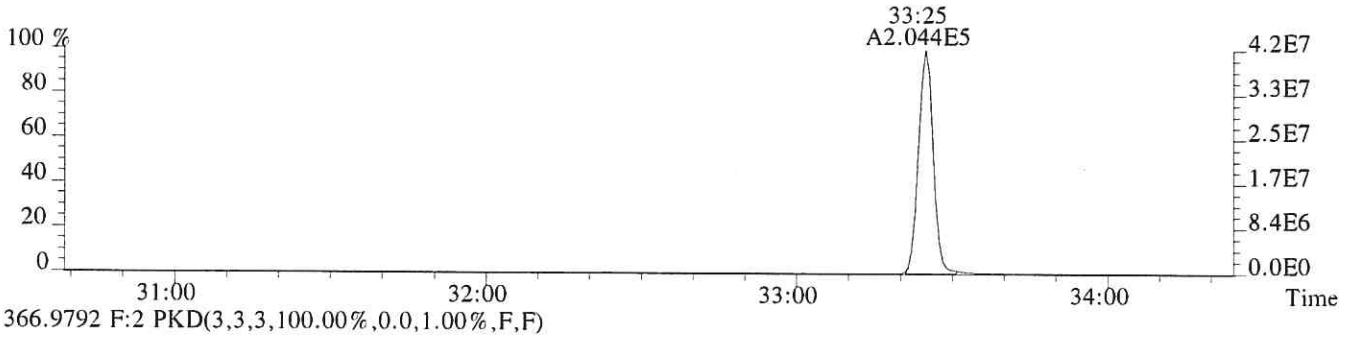
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



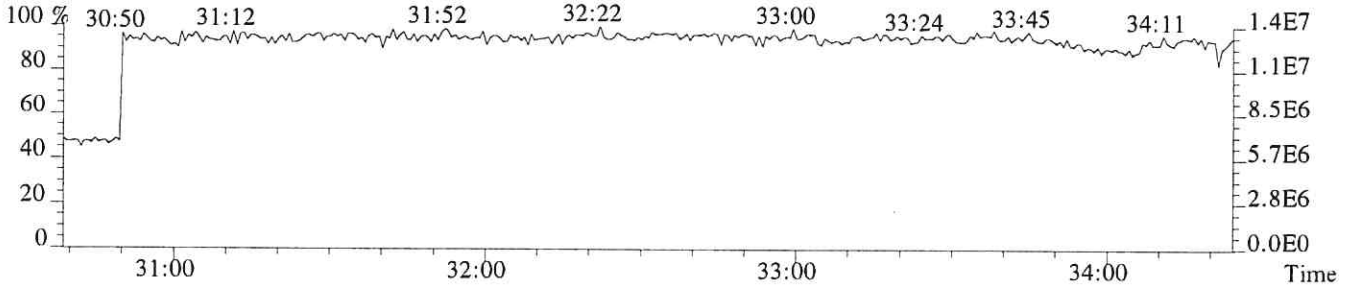
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



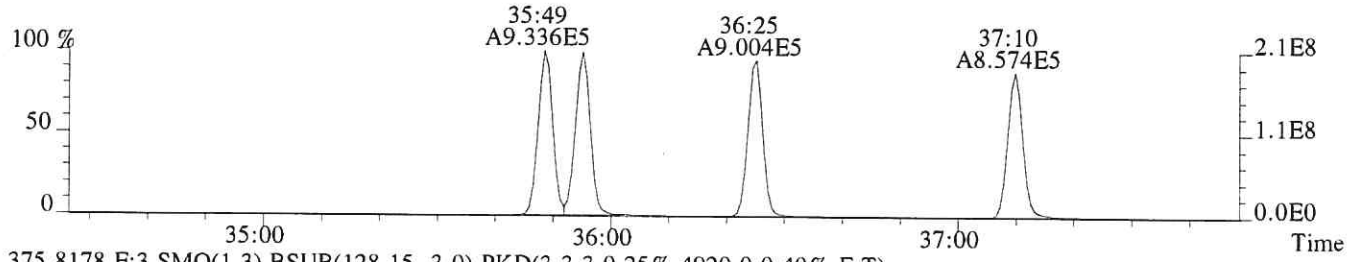
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



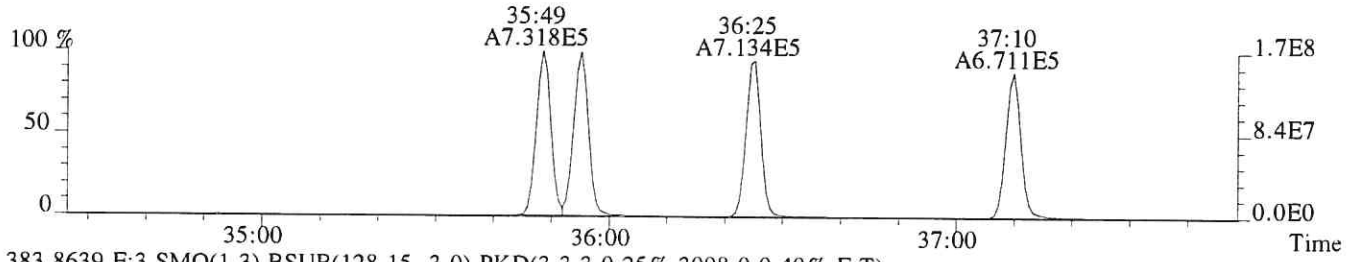
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



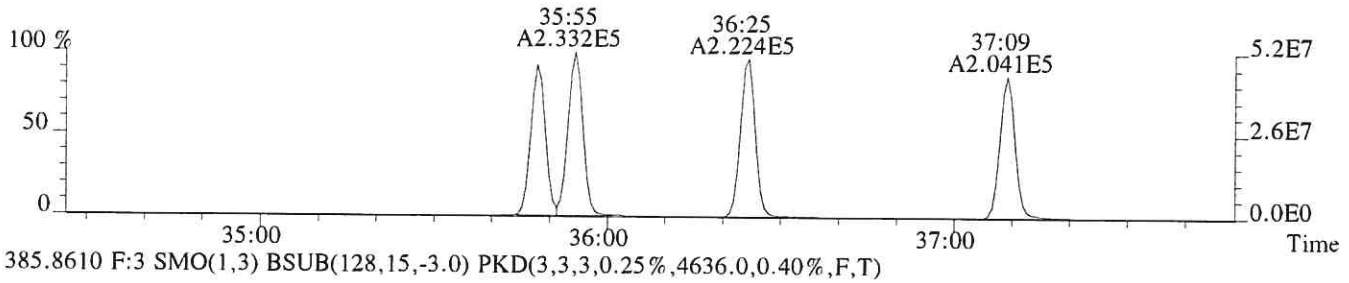
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



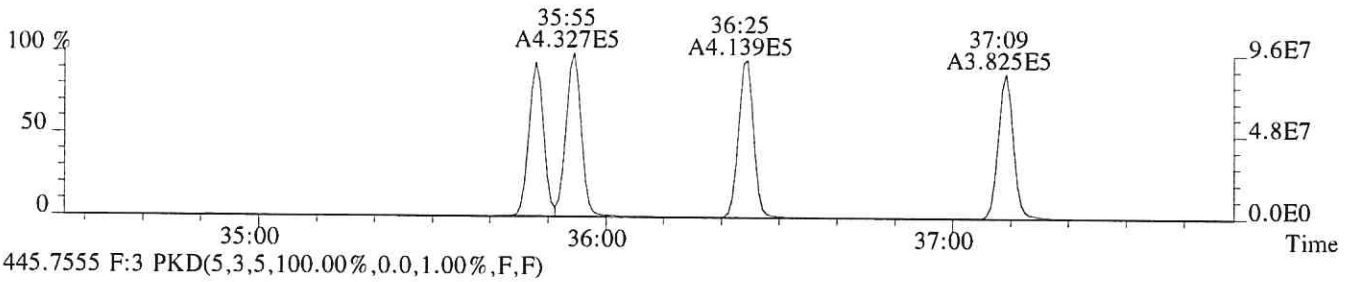
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



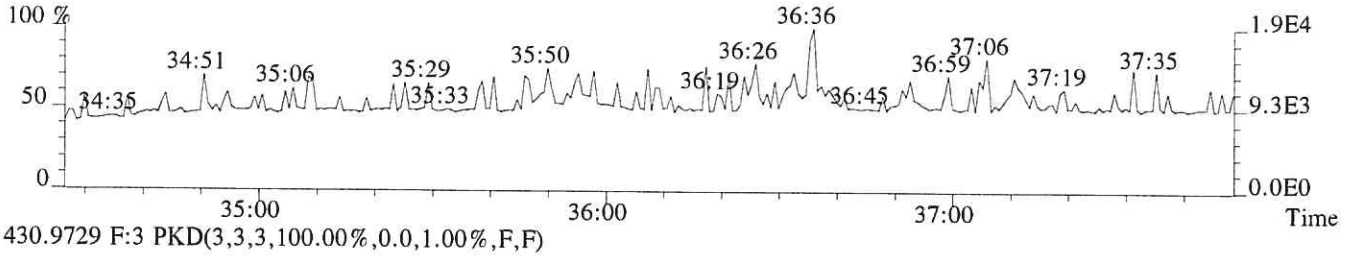
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



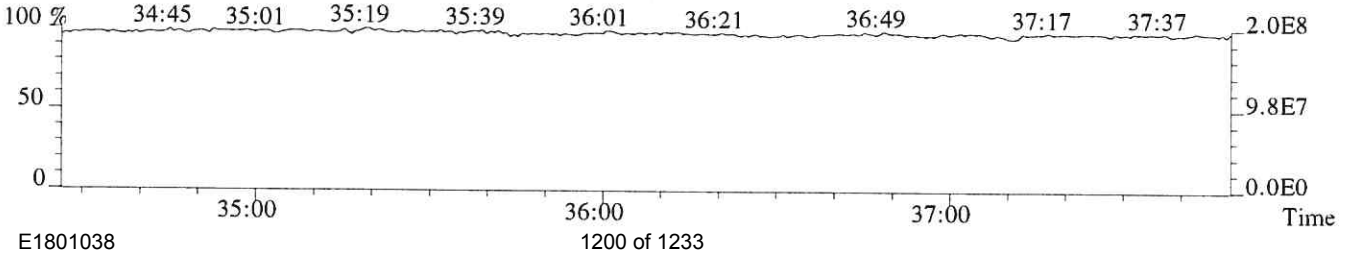
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



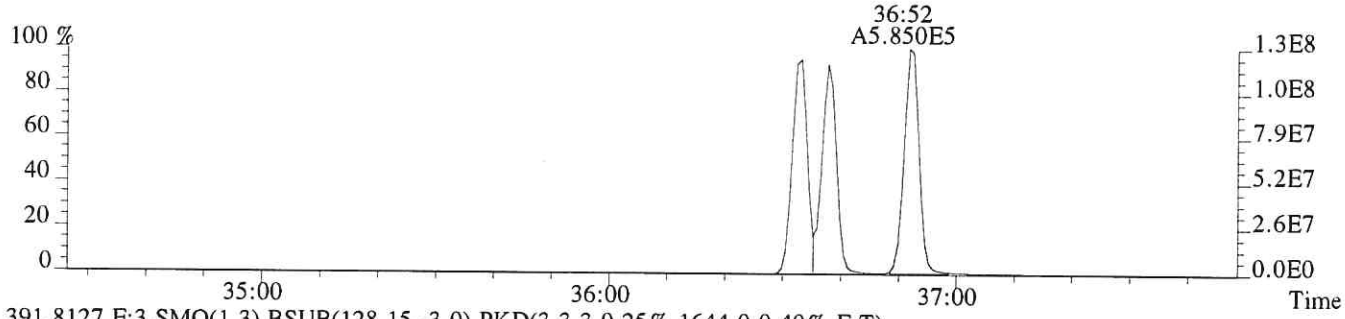
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



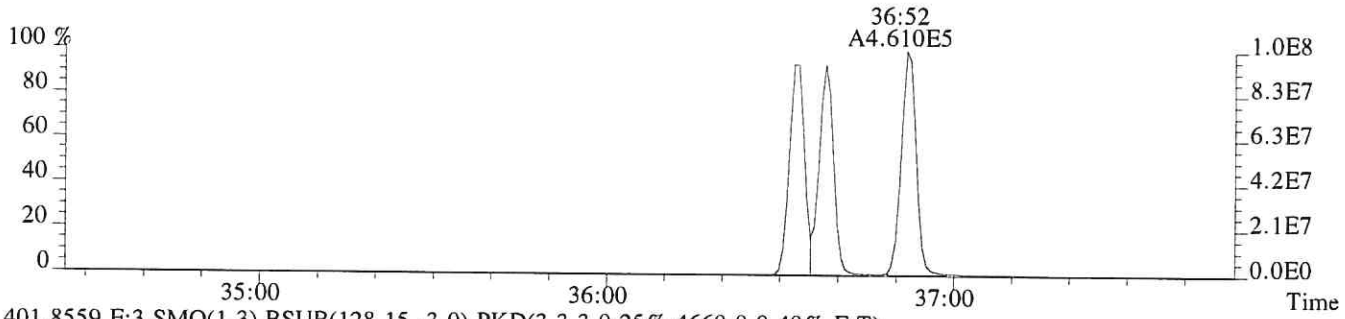
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



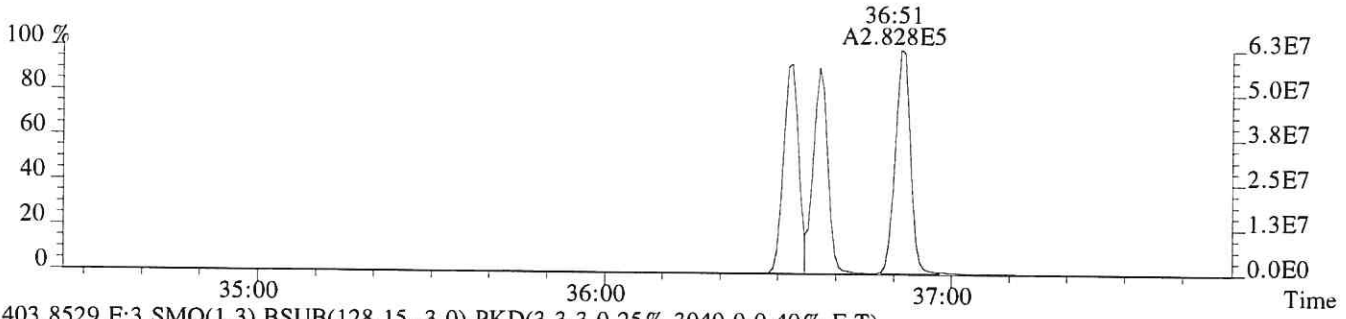
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



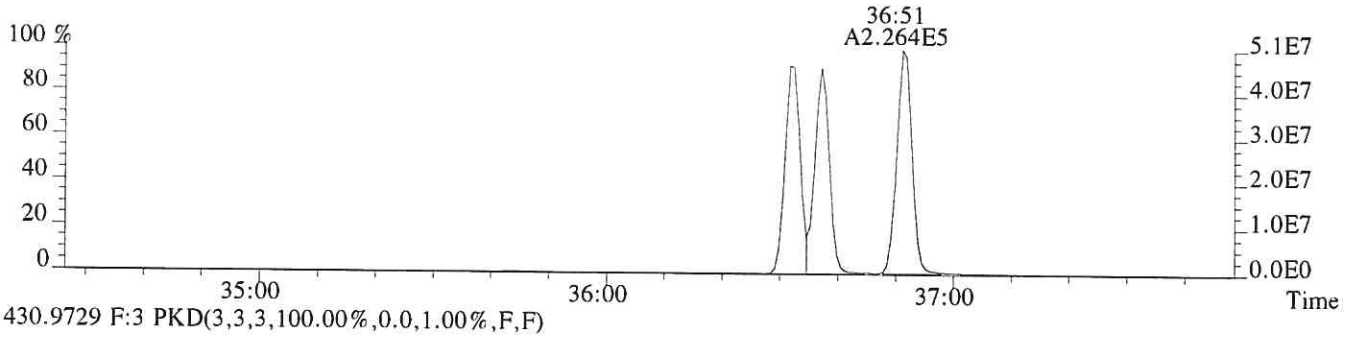
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



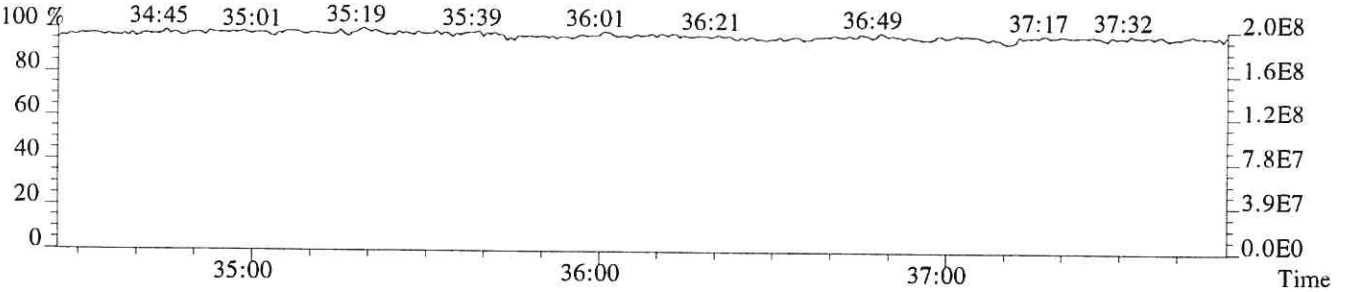
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



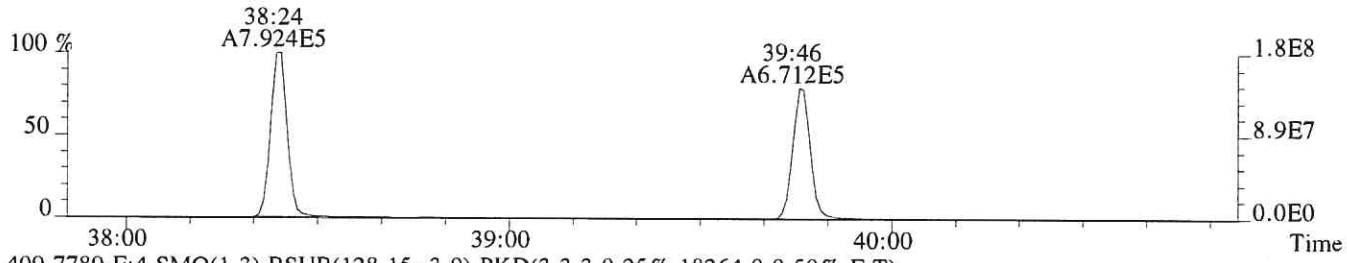
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



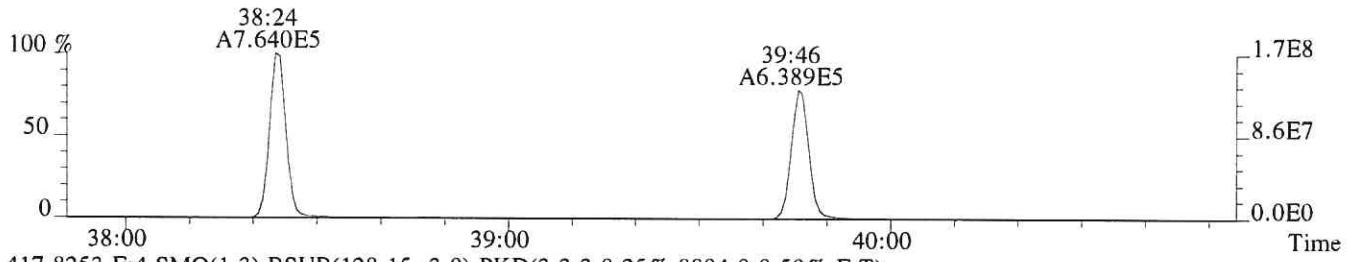
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



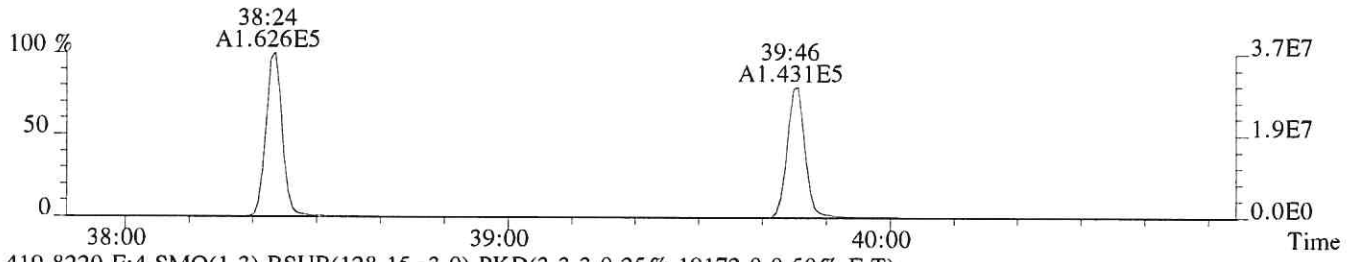
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



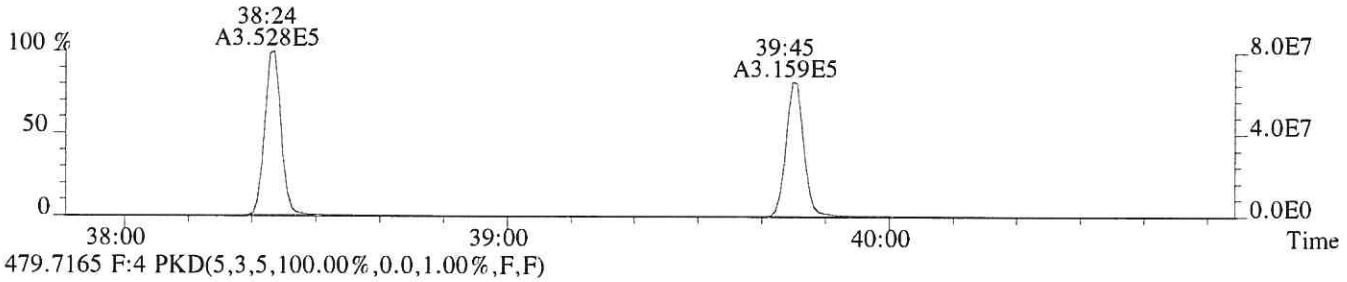
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



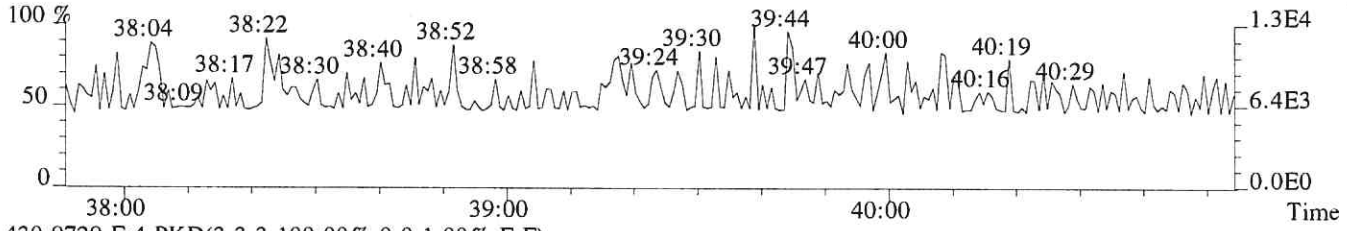
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



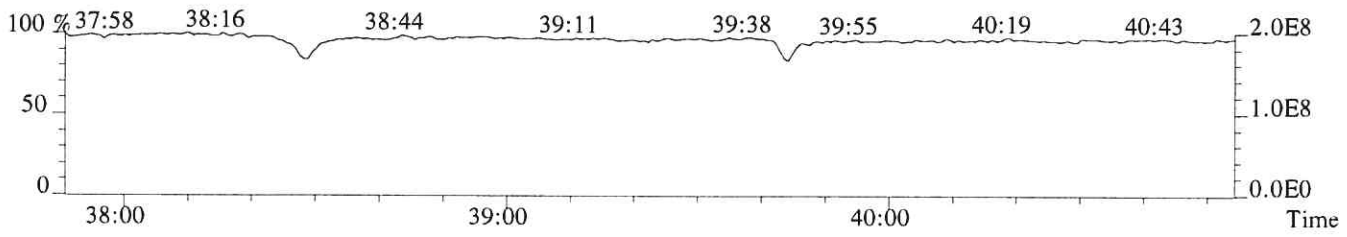
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



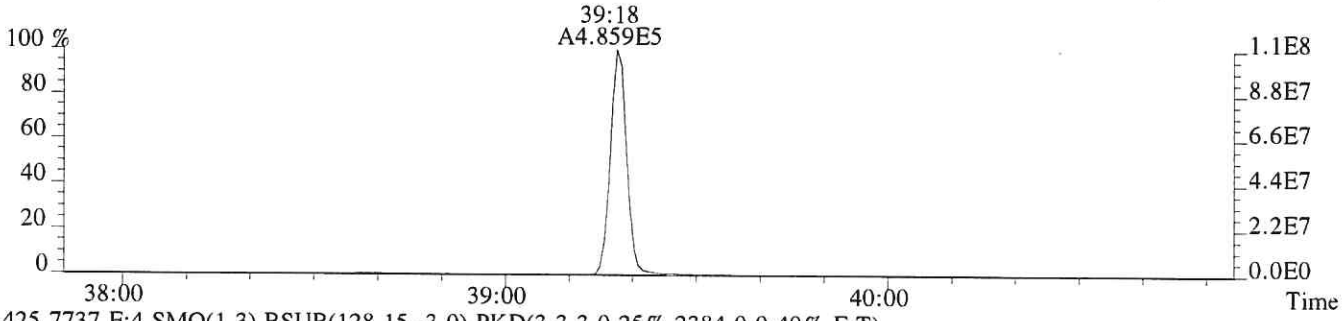
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



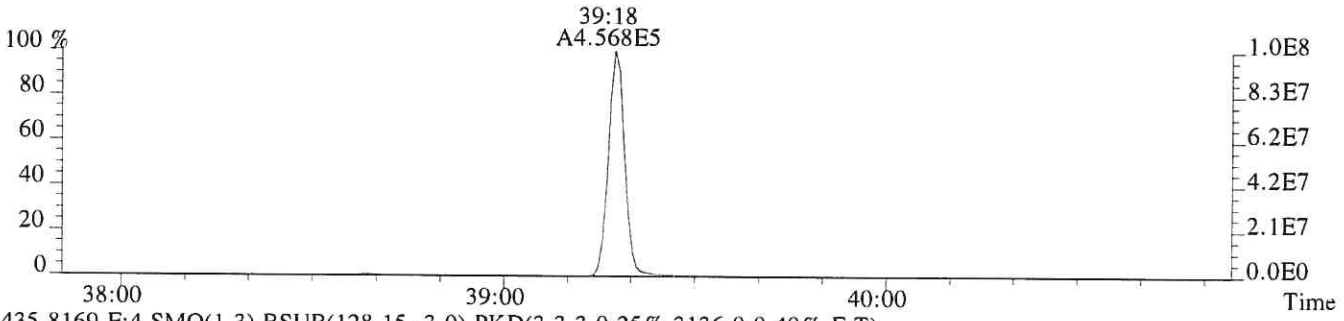
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



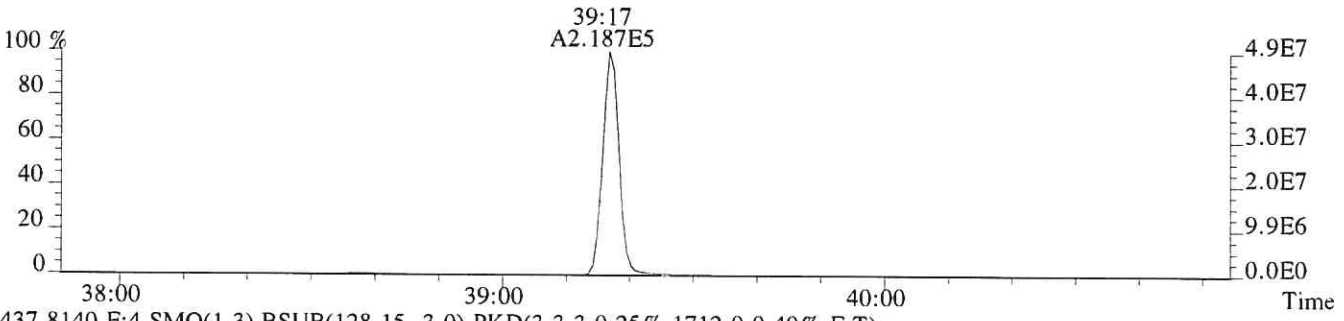
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



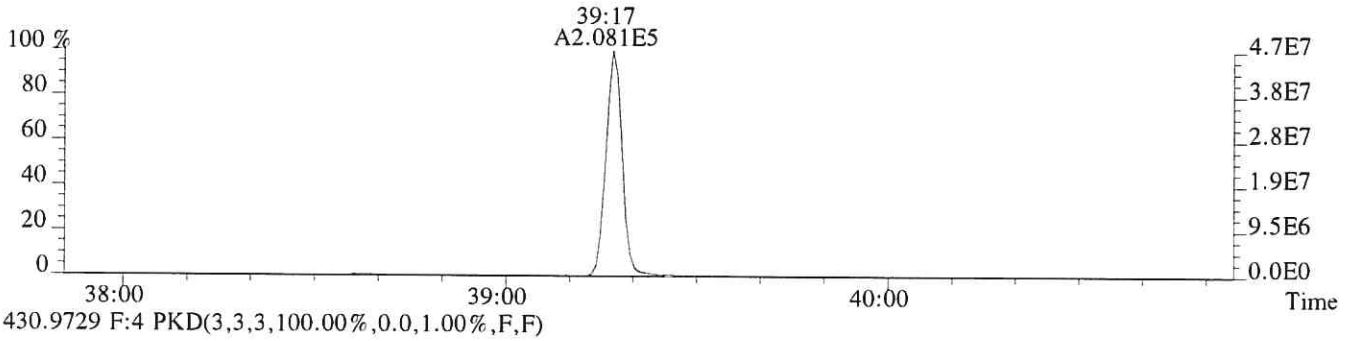
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



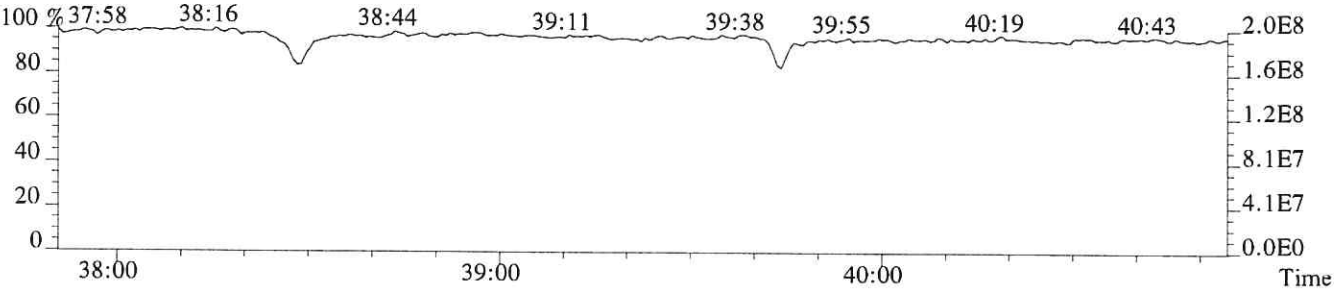
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



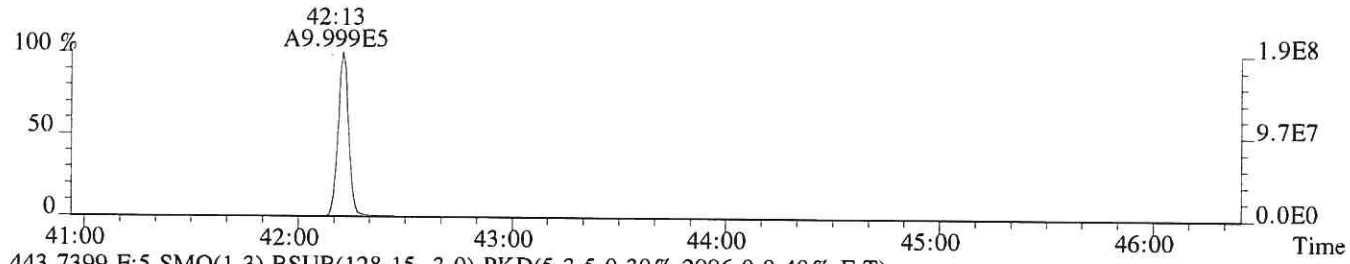
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



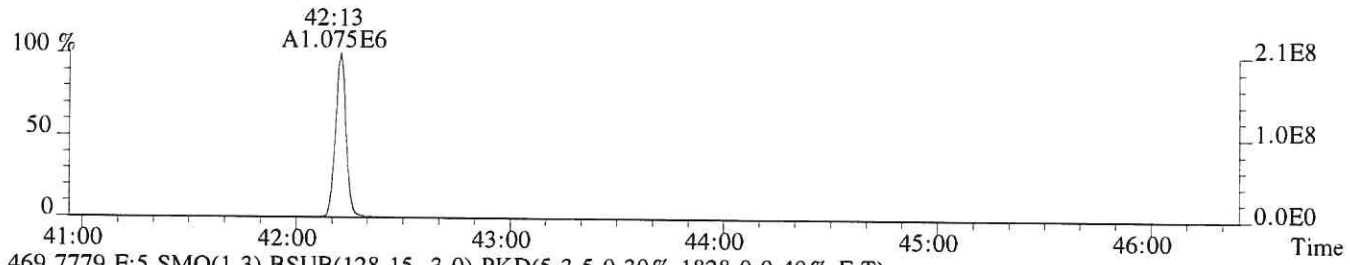
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



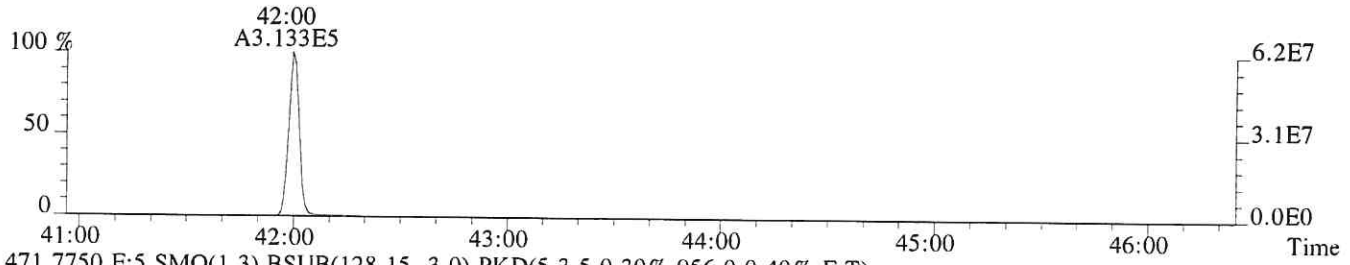
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



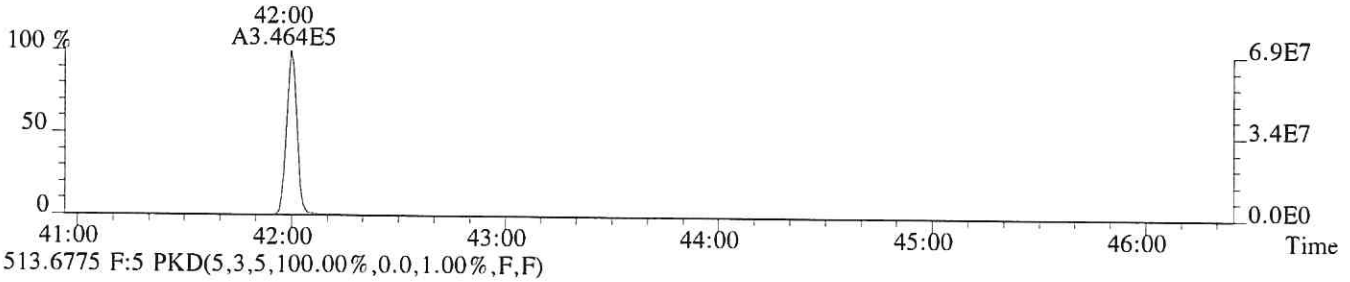
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



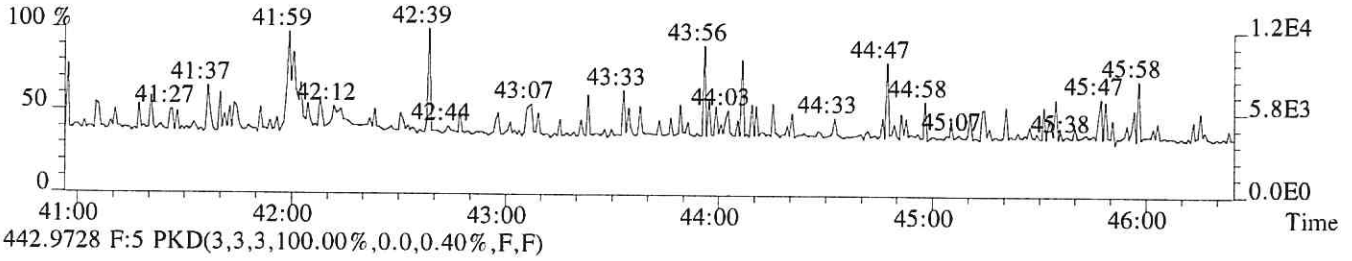
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



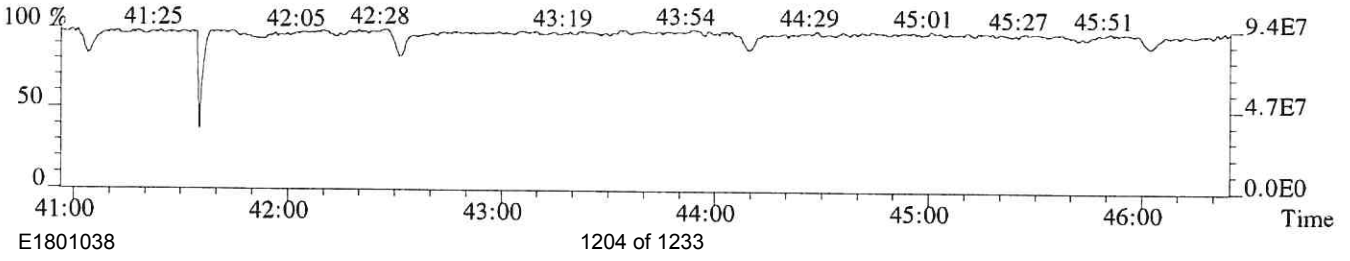
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



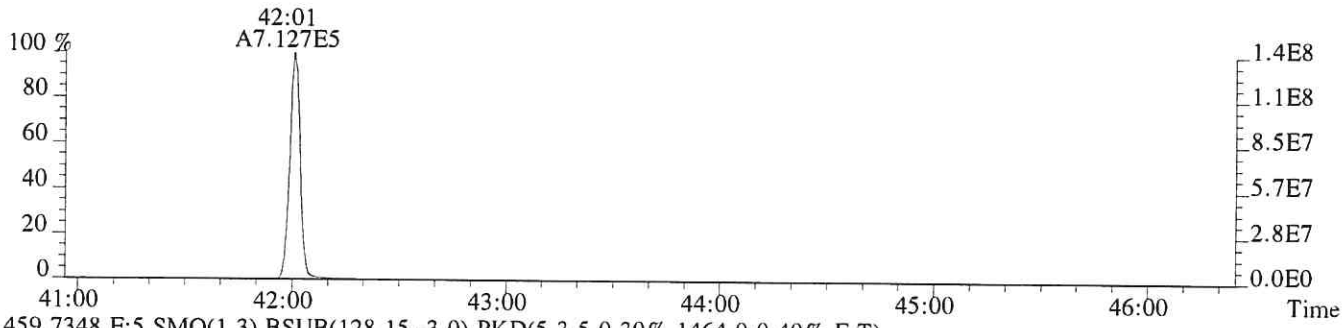
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



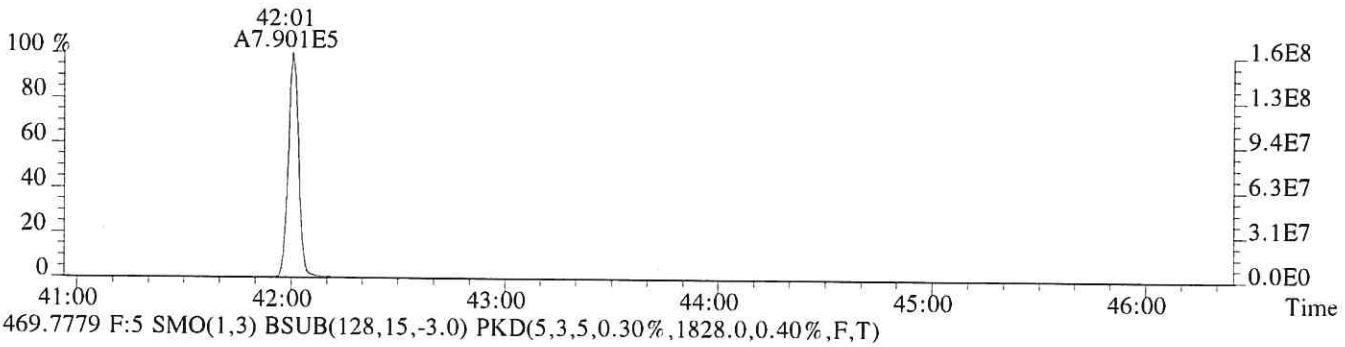
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



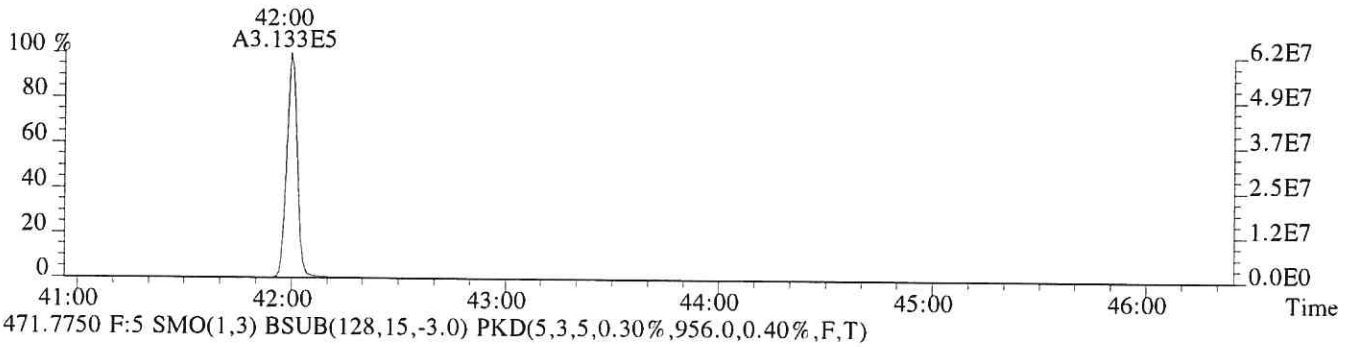
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



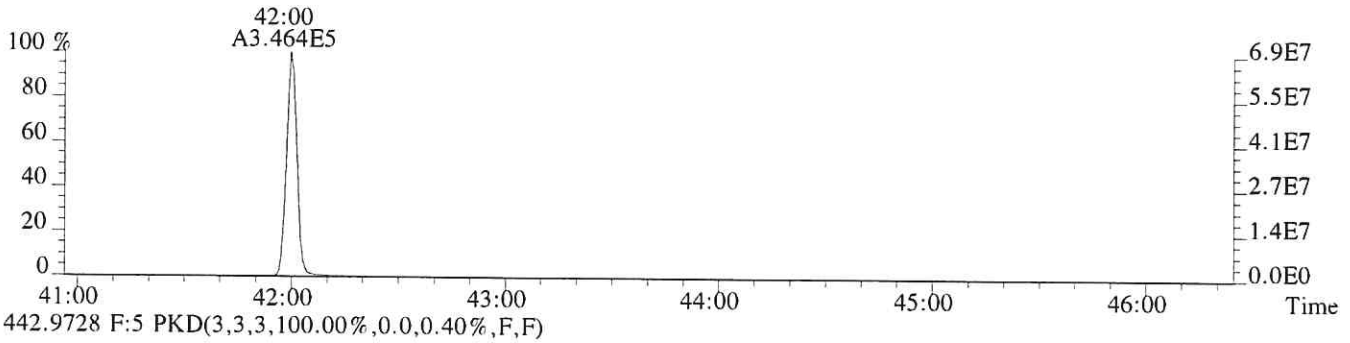
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



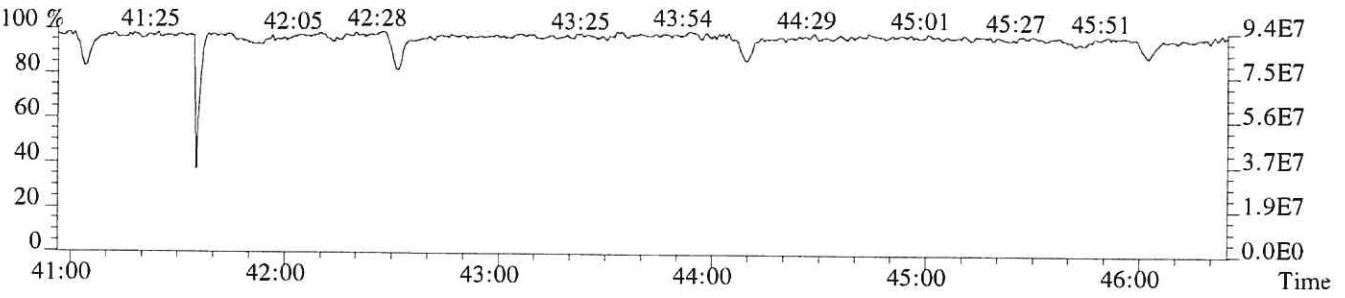
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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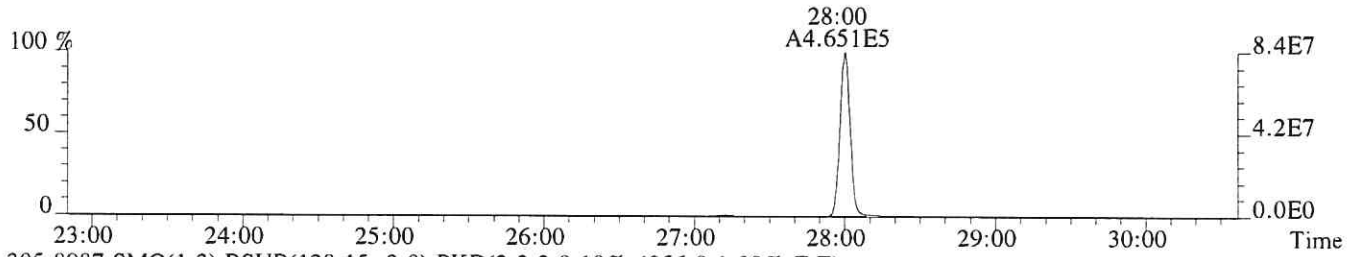
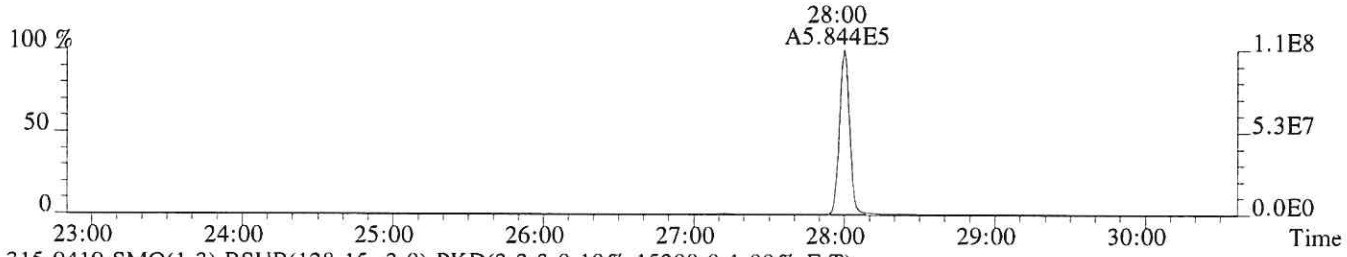
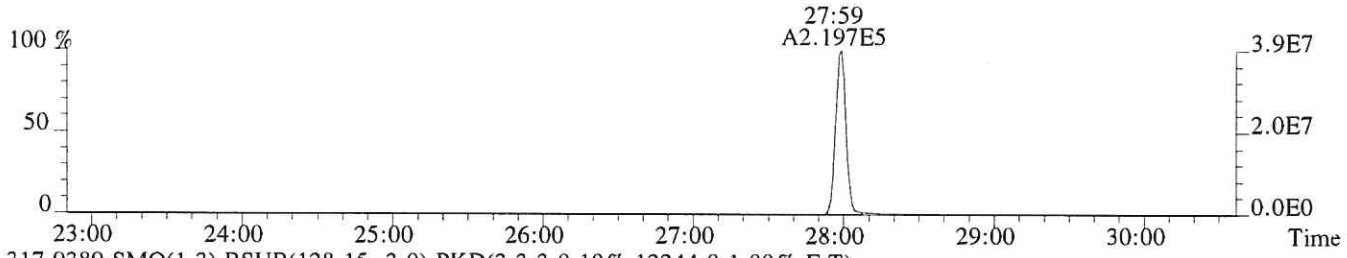
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



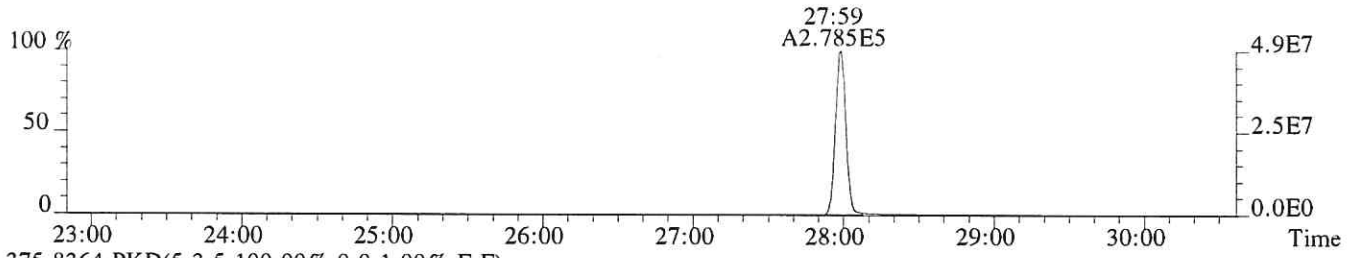
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



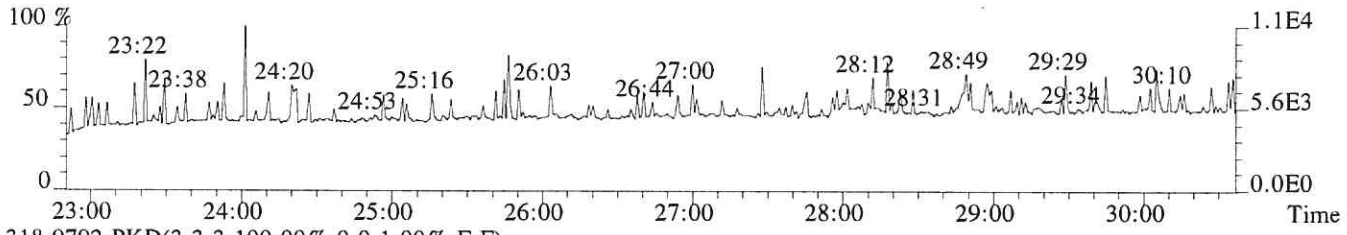
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



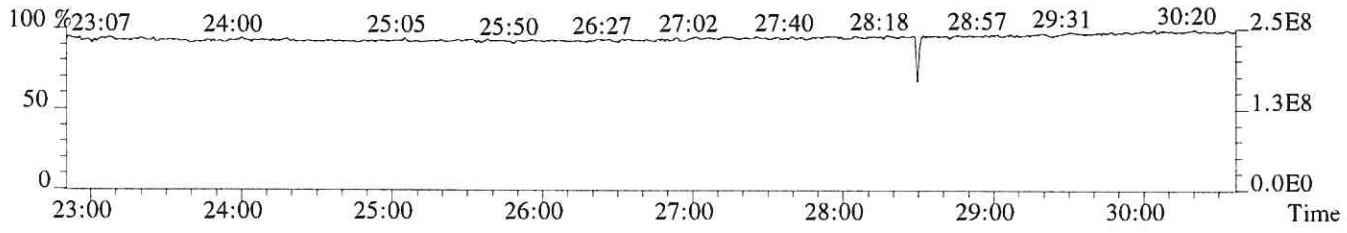
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



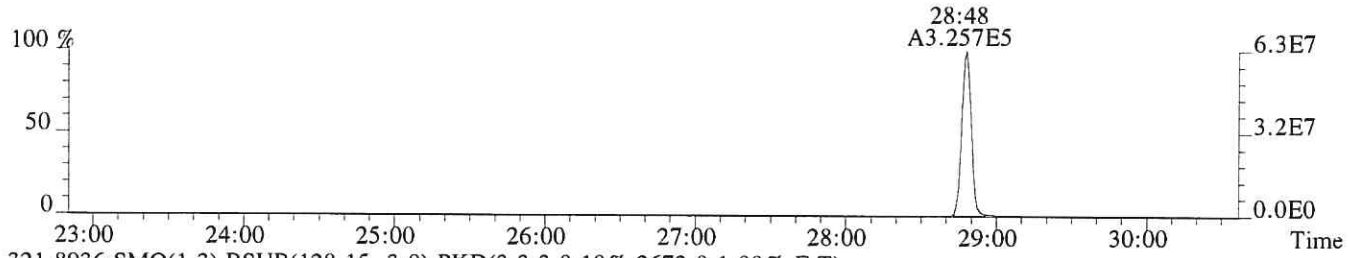
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



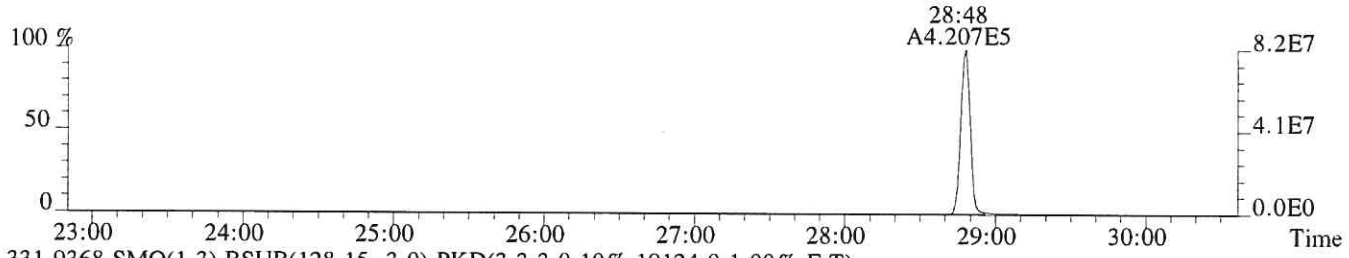
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



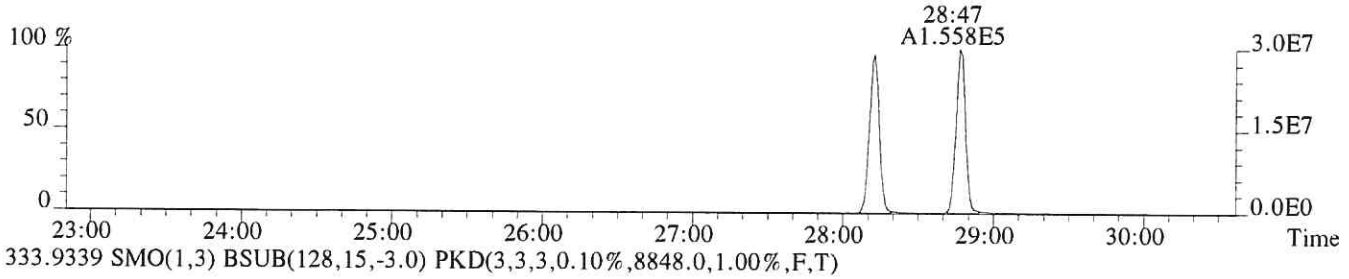
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



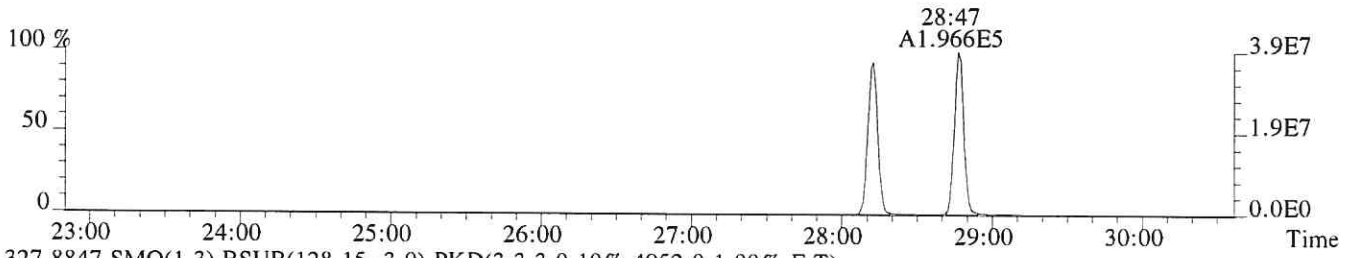
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



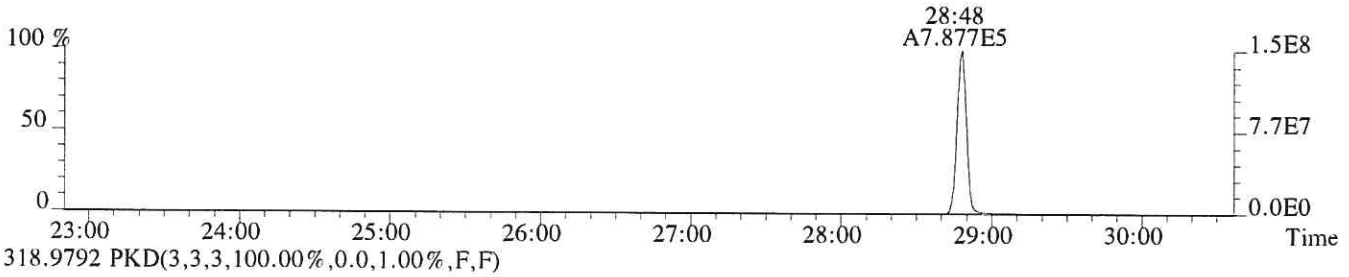
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



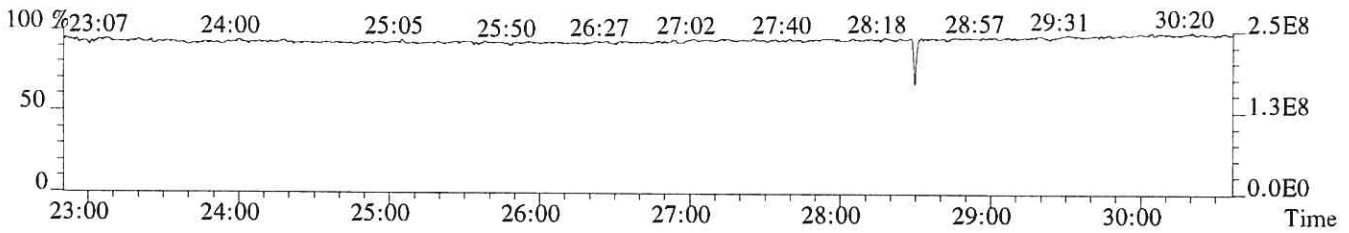
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



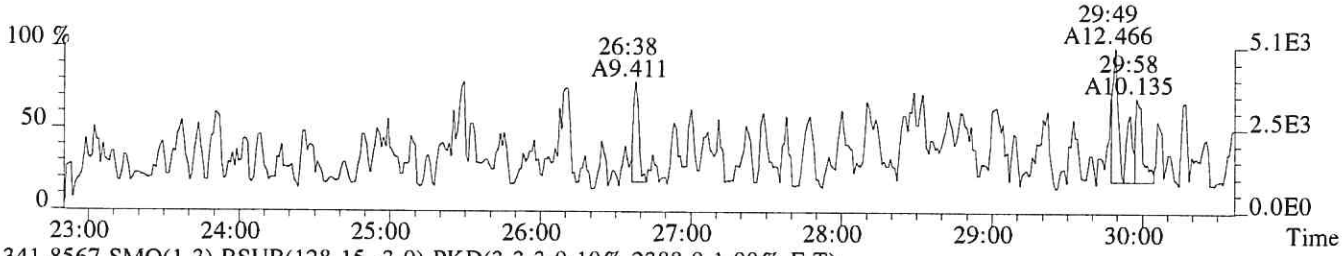
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)



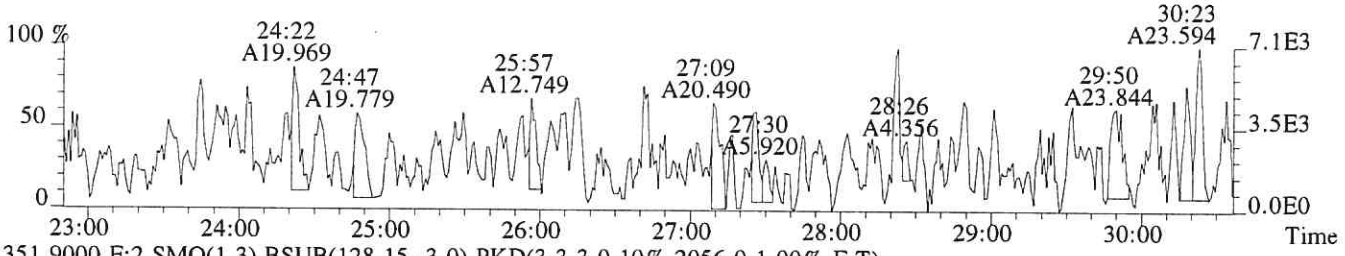
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



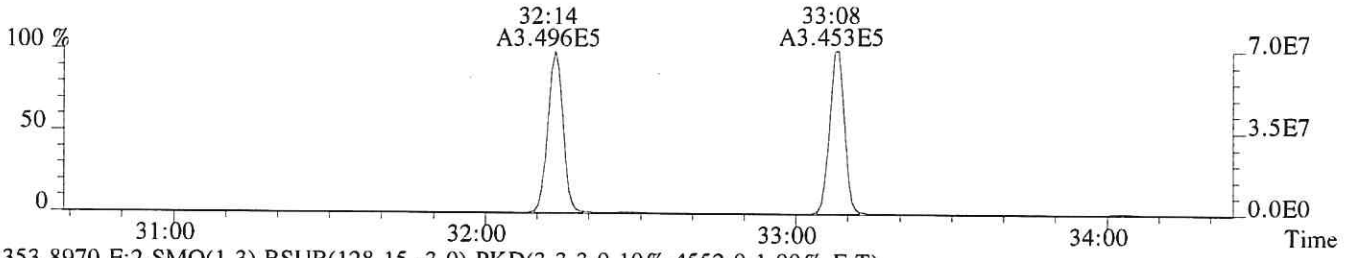
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



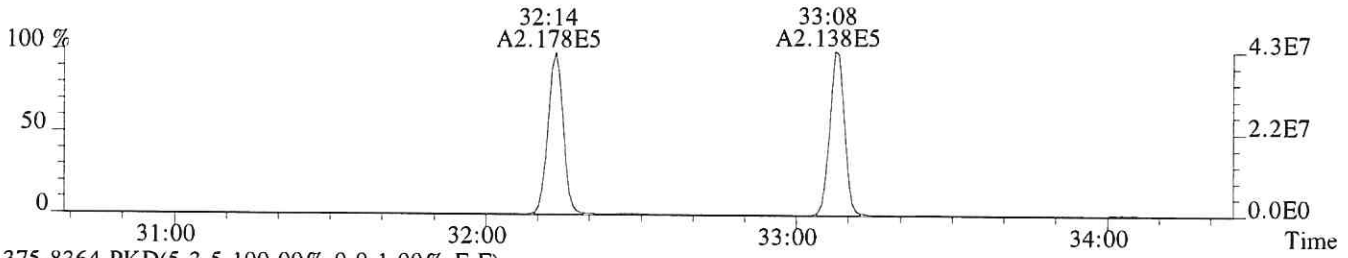
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



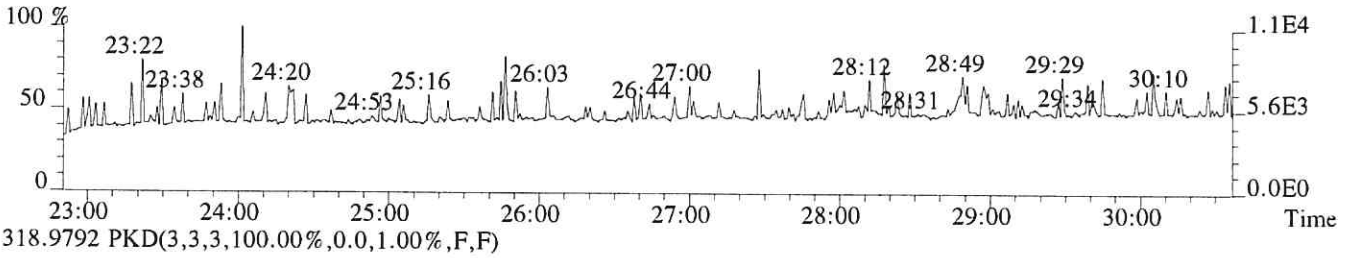
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



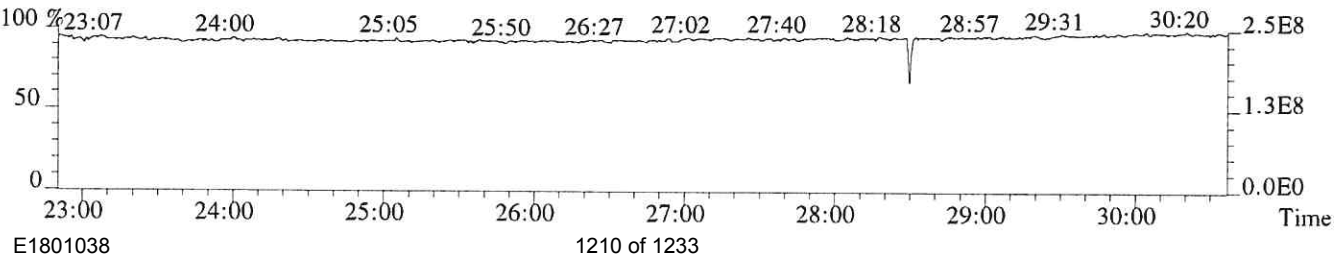
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



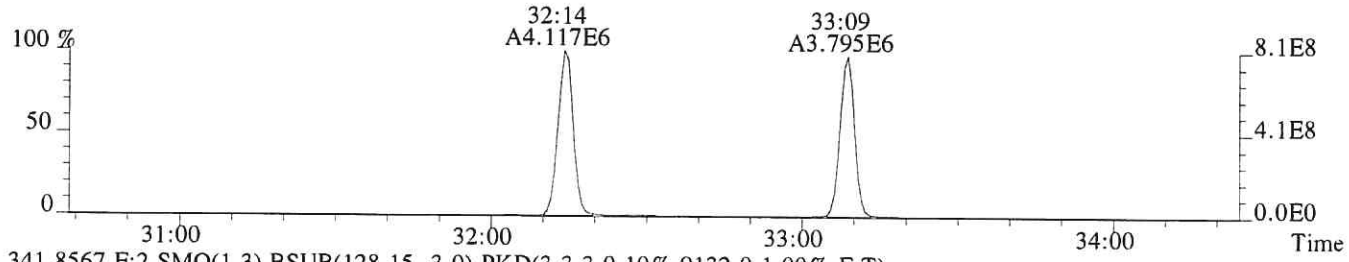
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



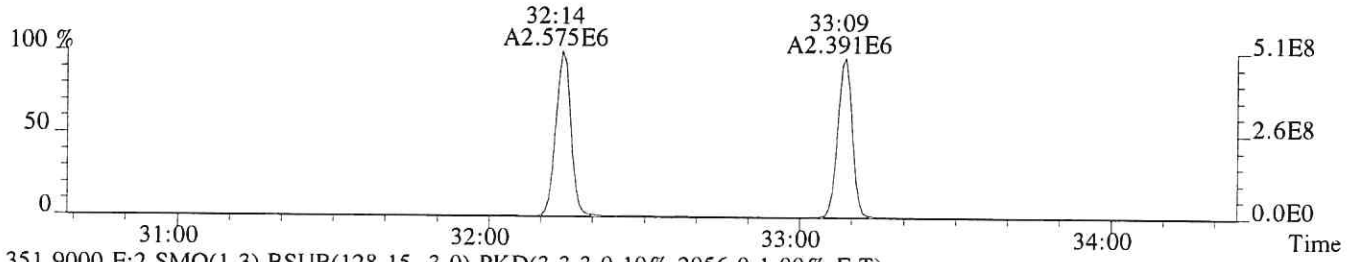
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



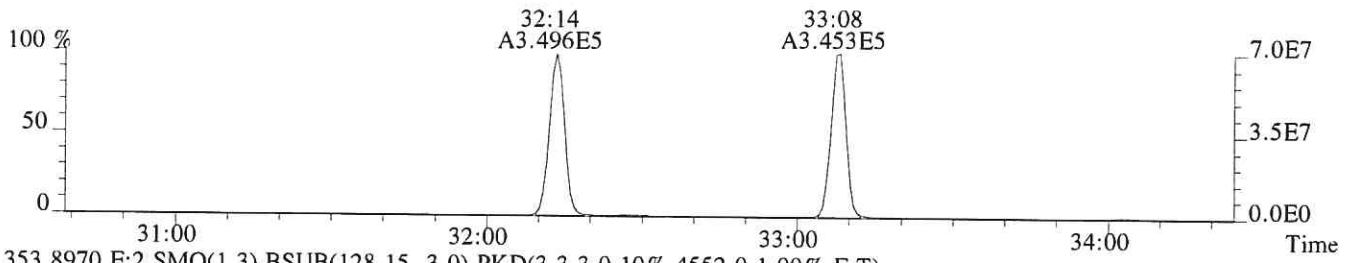
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



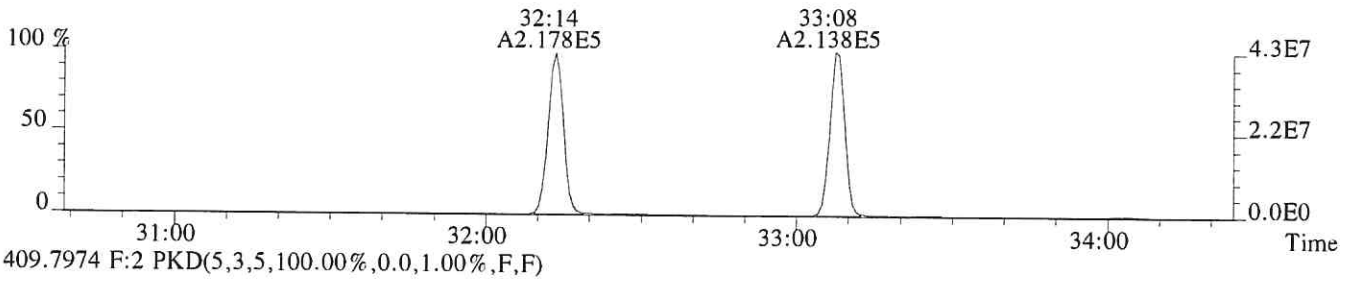
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



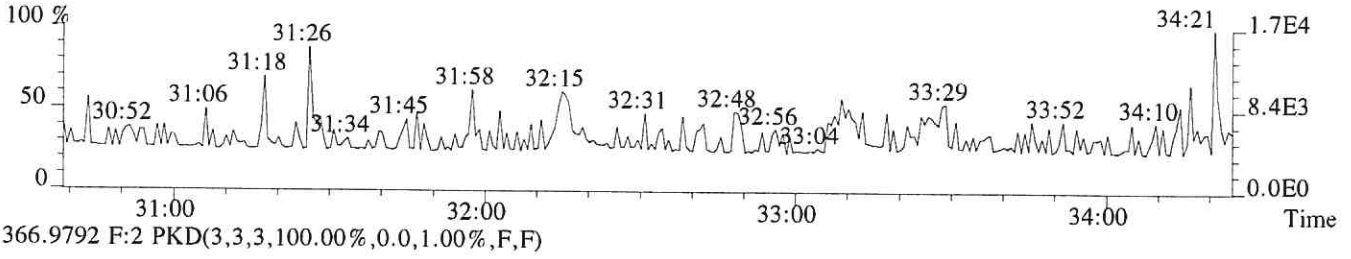
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



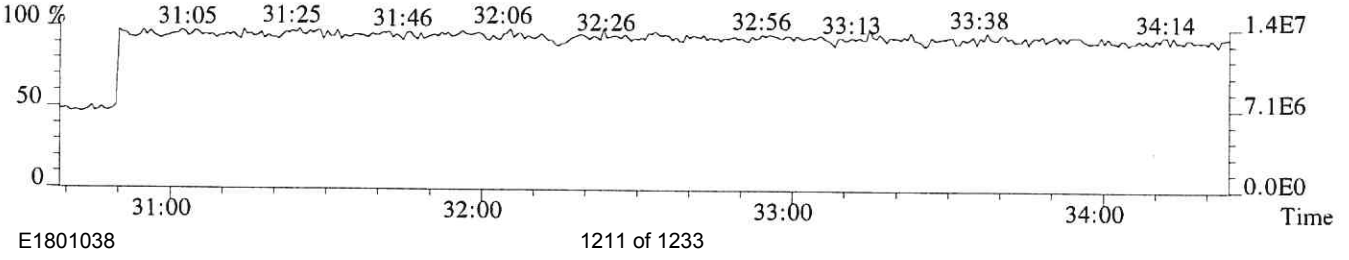
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



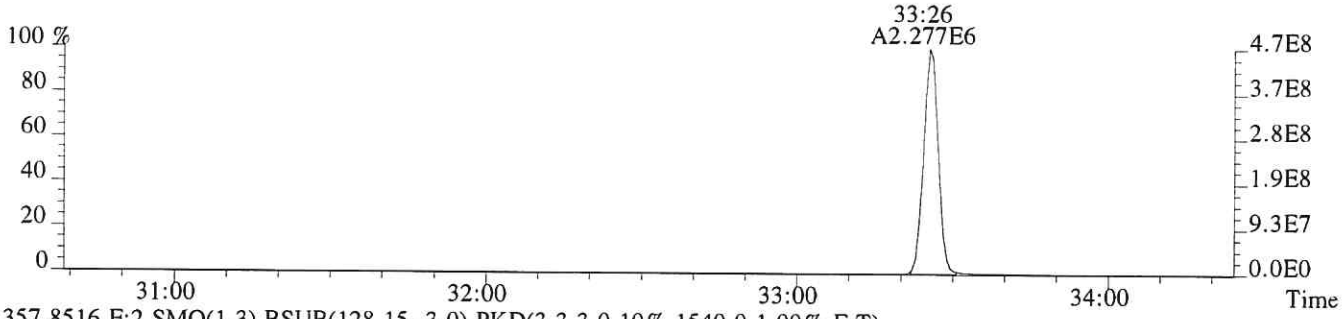
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



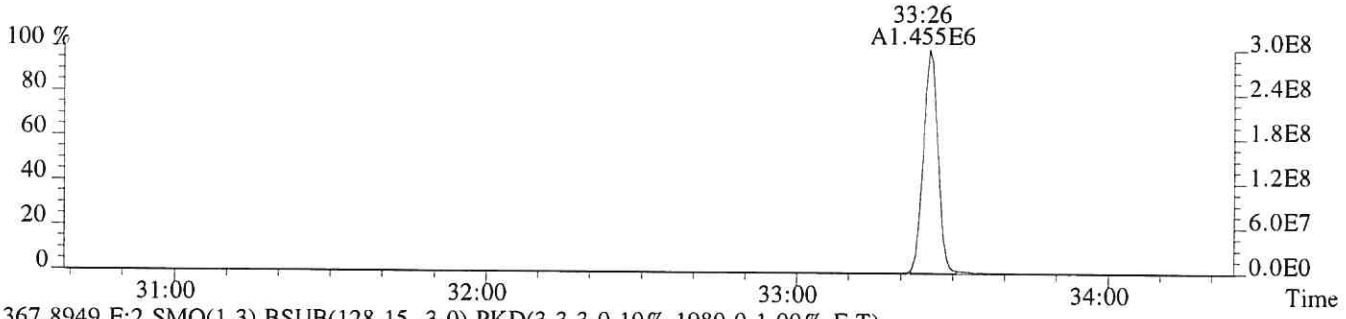
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



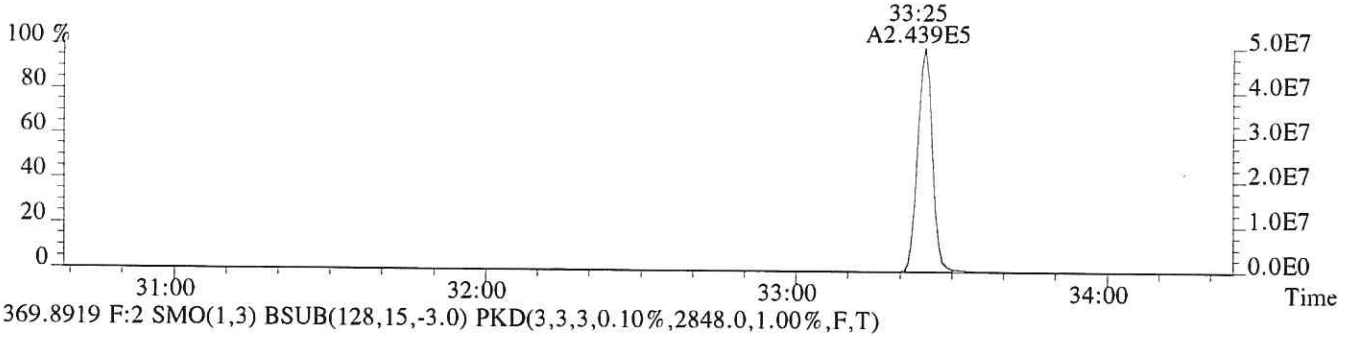
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



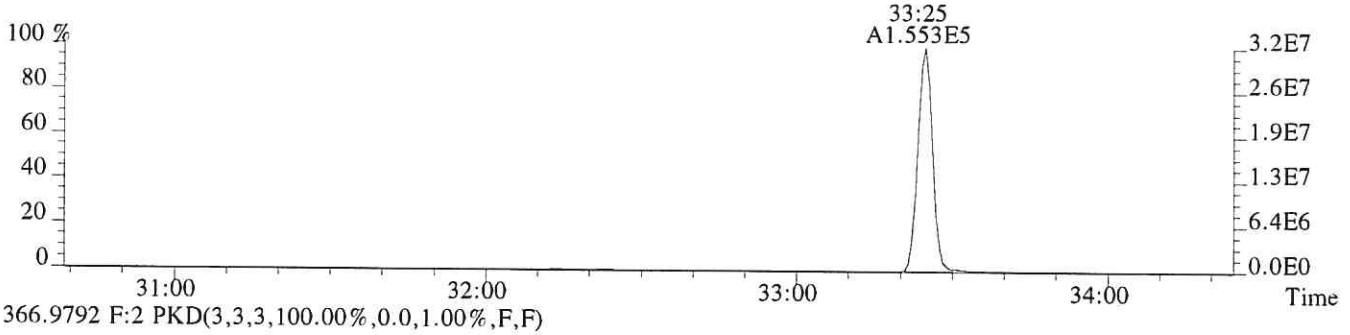
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



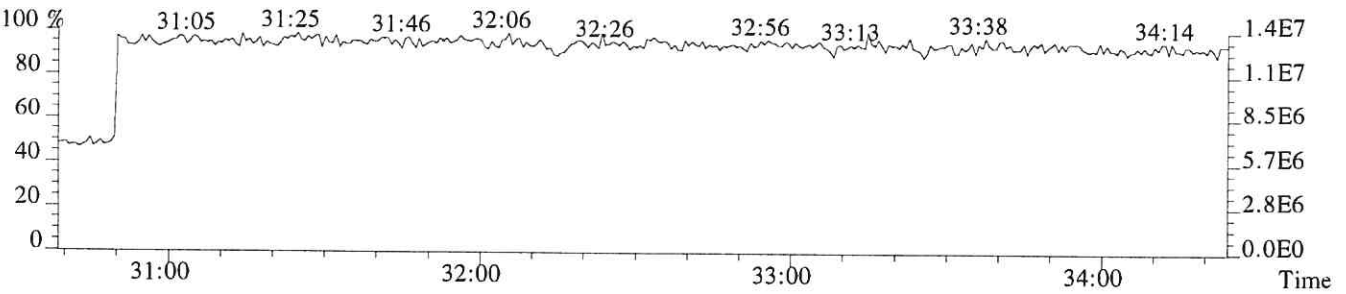
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



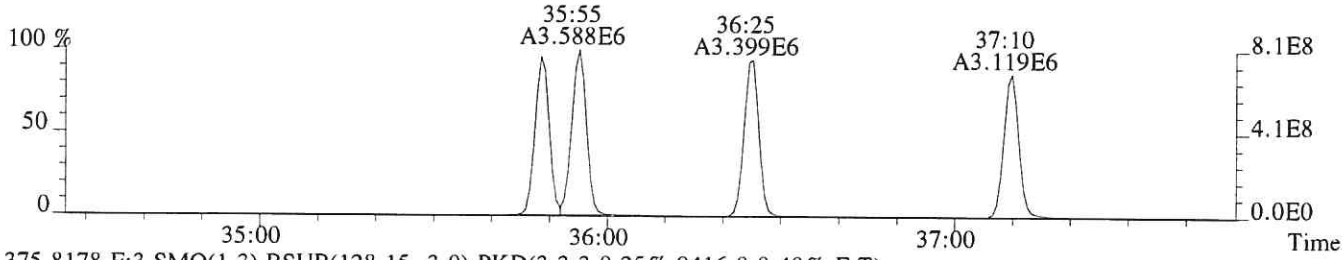
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



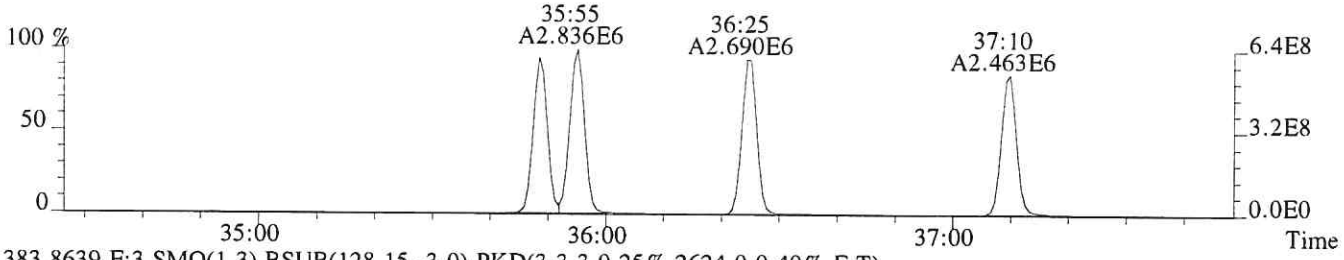
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



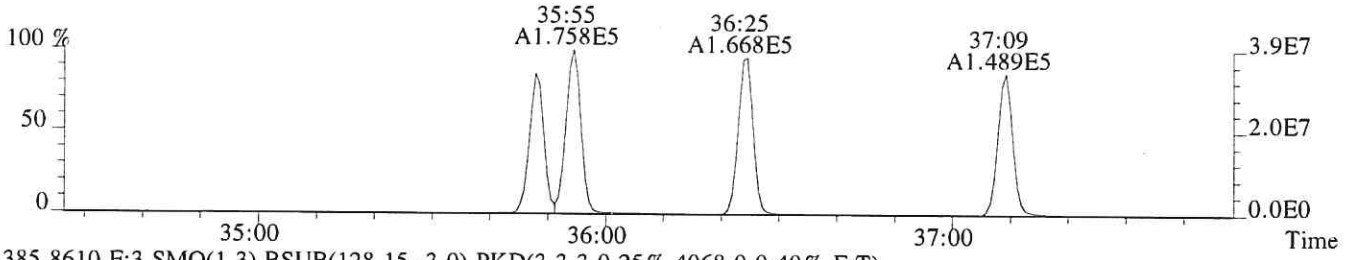
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



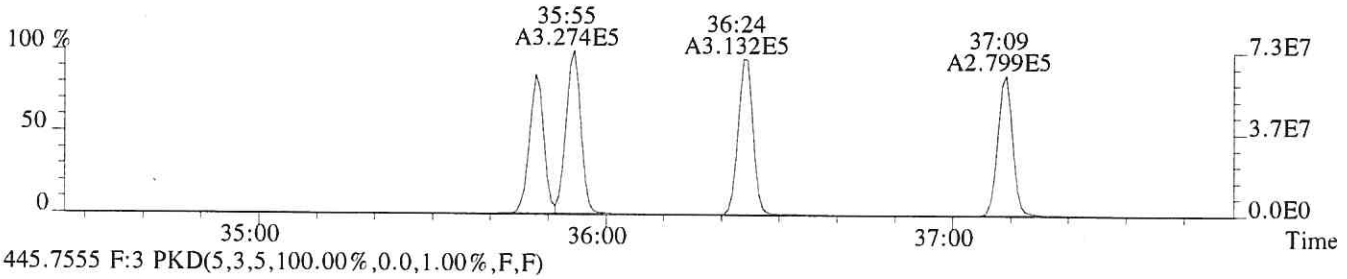
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



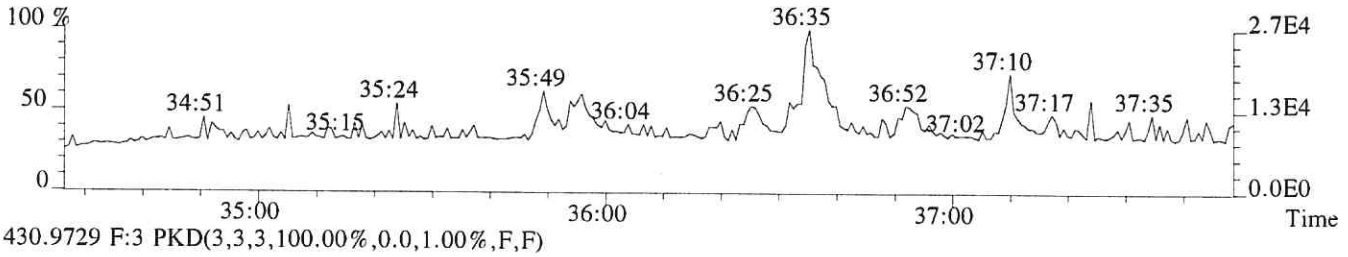
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



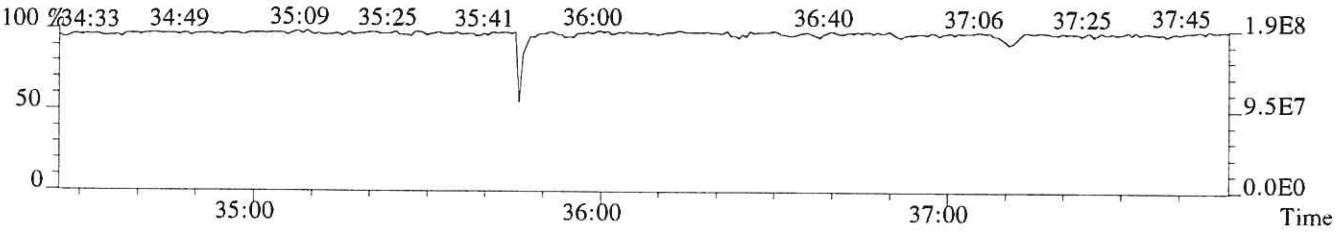
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



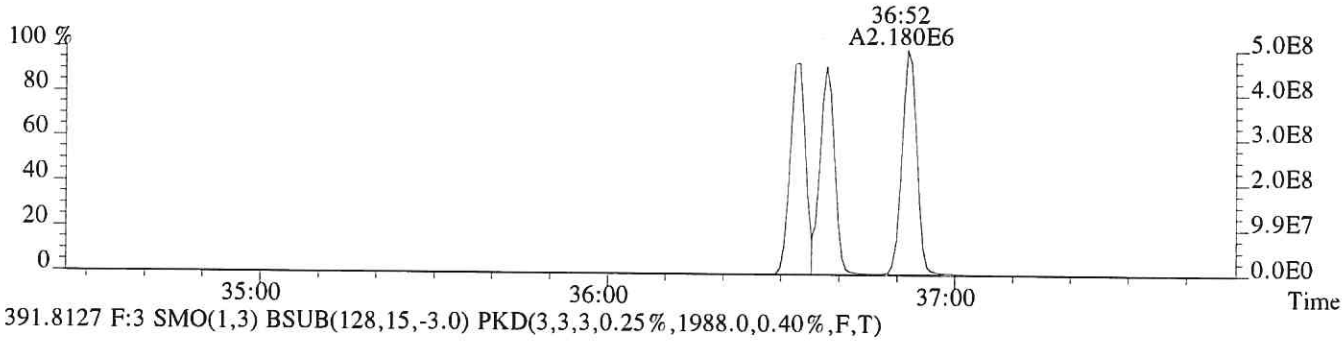
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



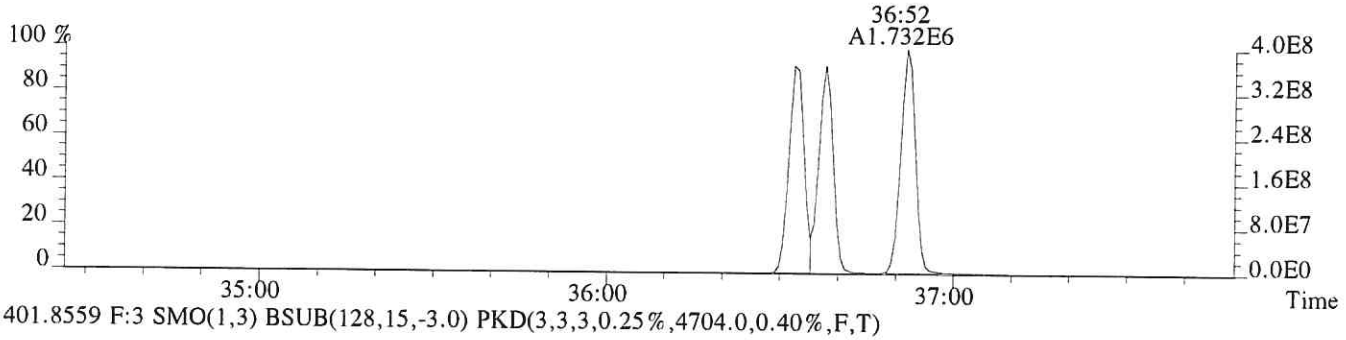
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



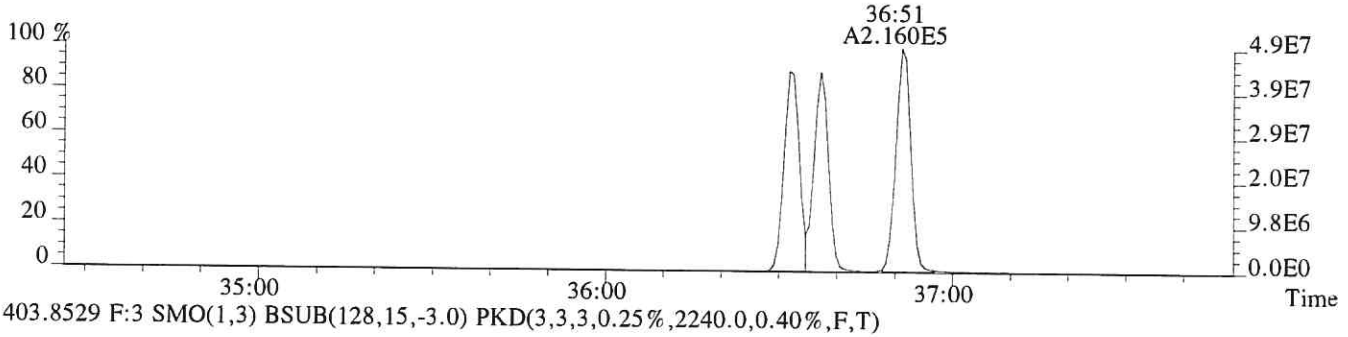
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



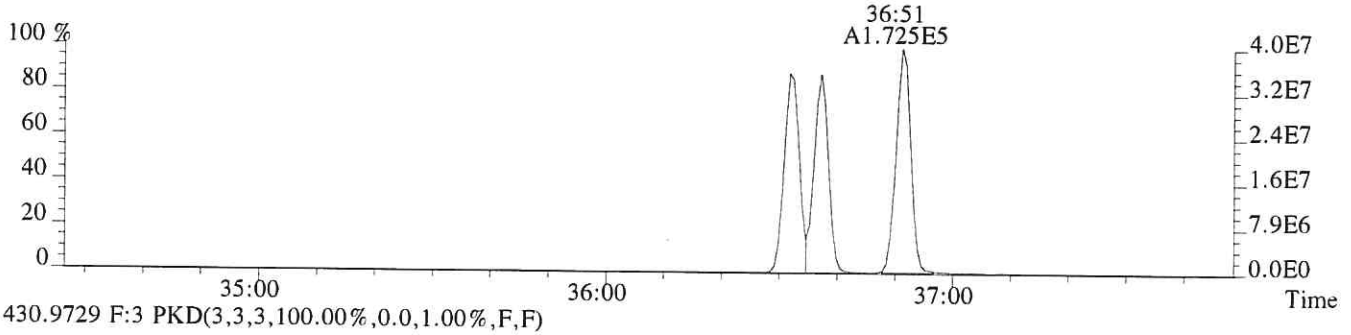
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



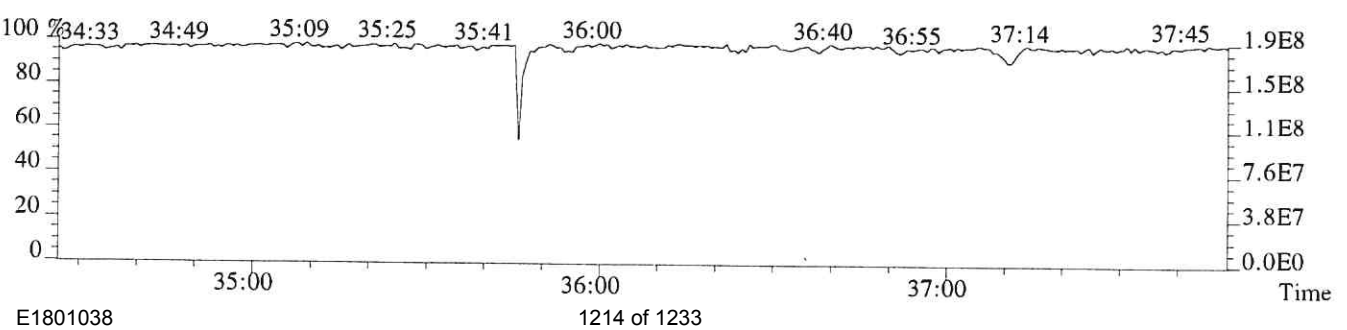
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



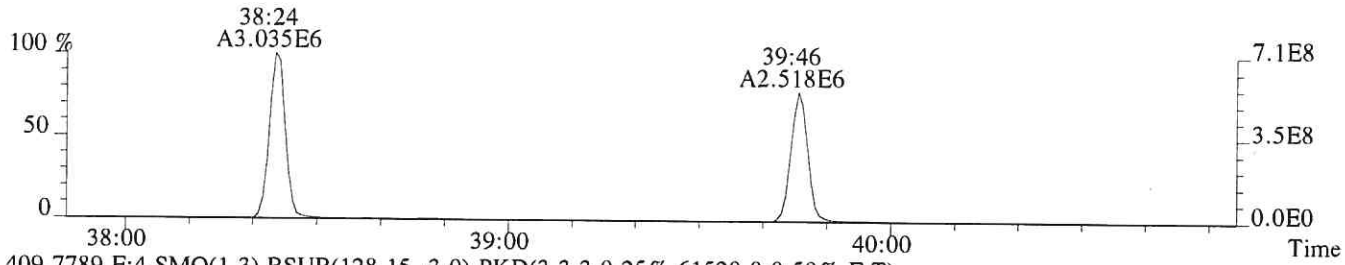
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



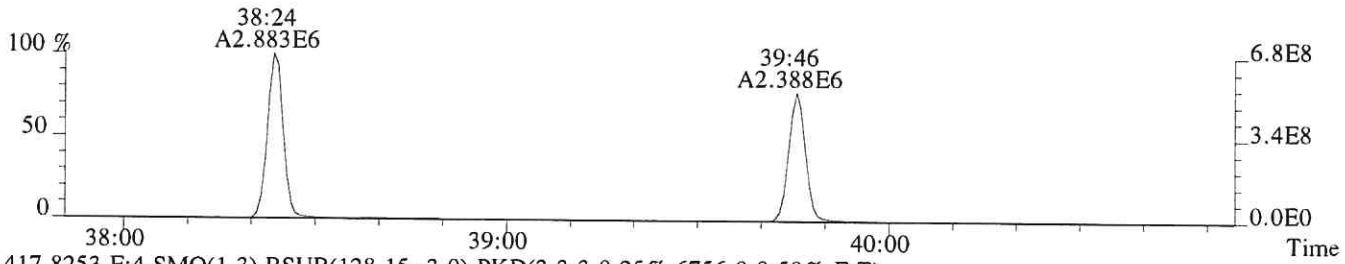
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



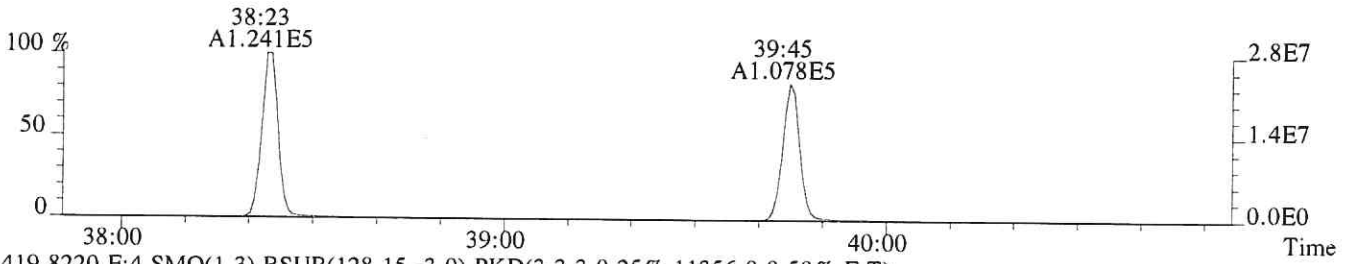
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



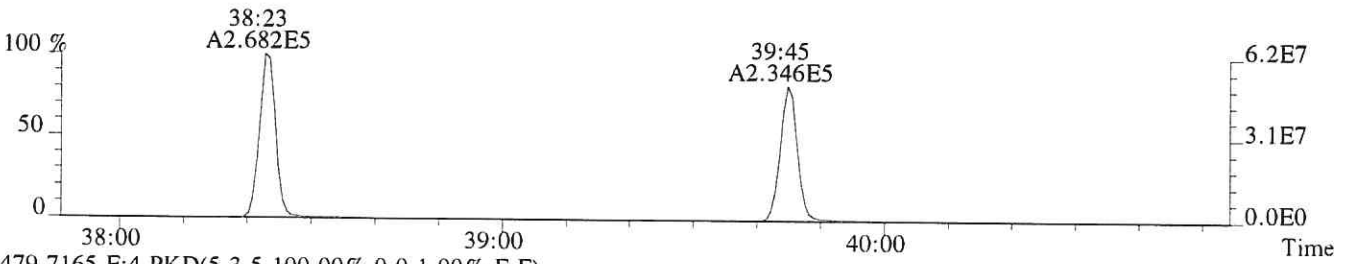
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



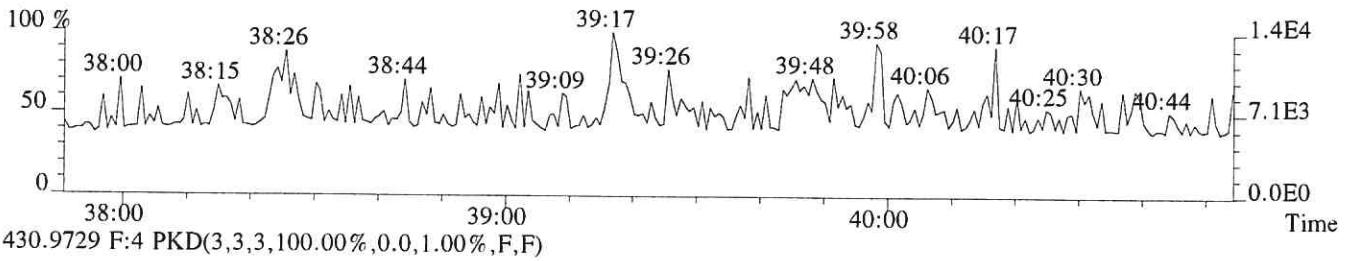
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



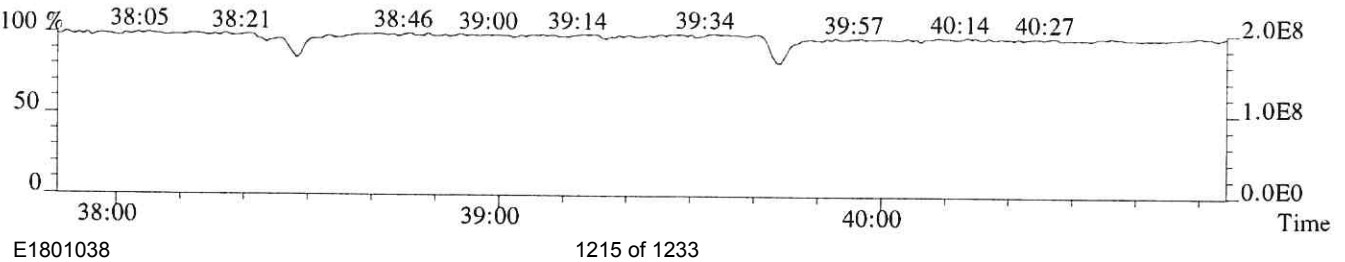
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



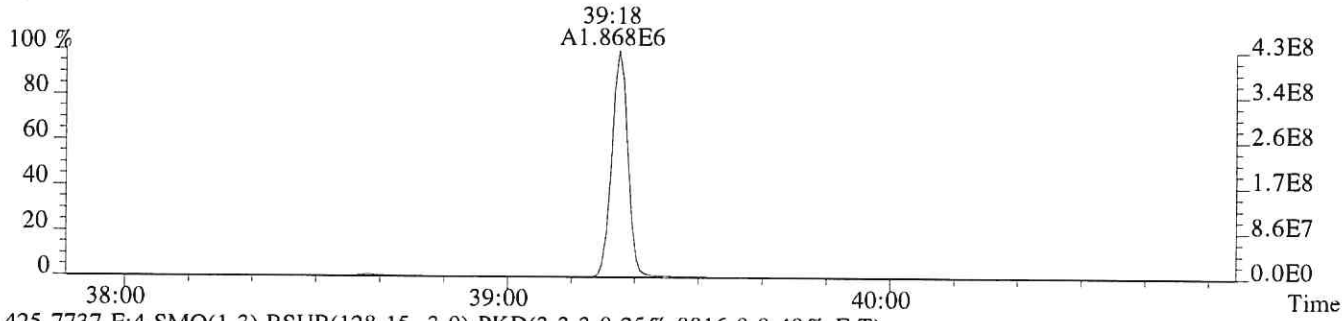
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



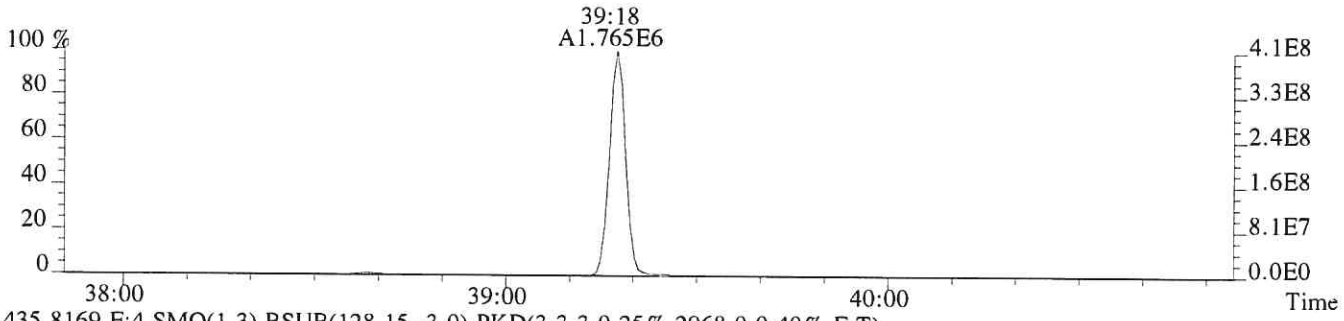
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



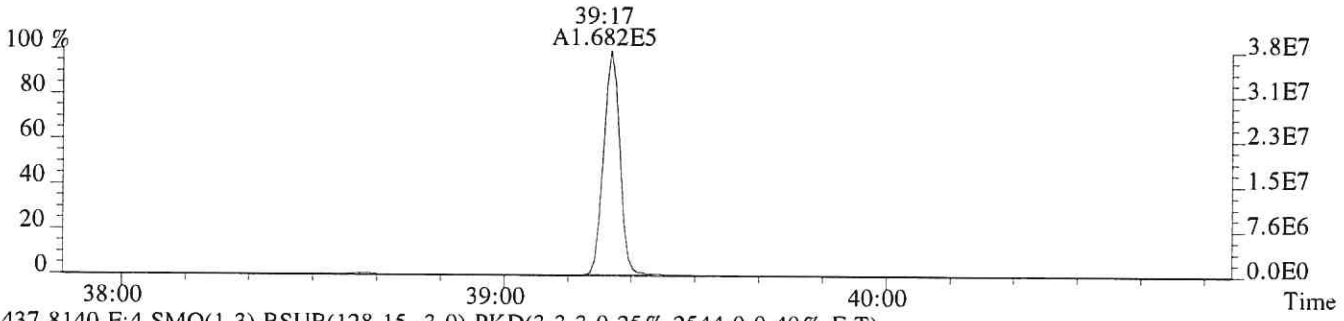
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



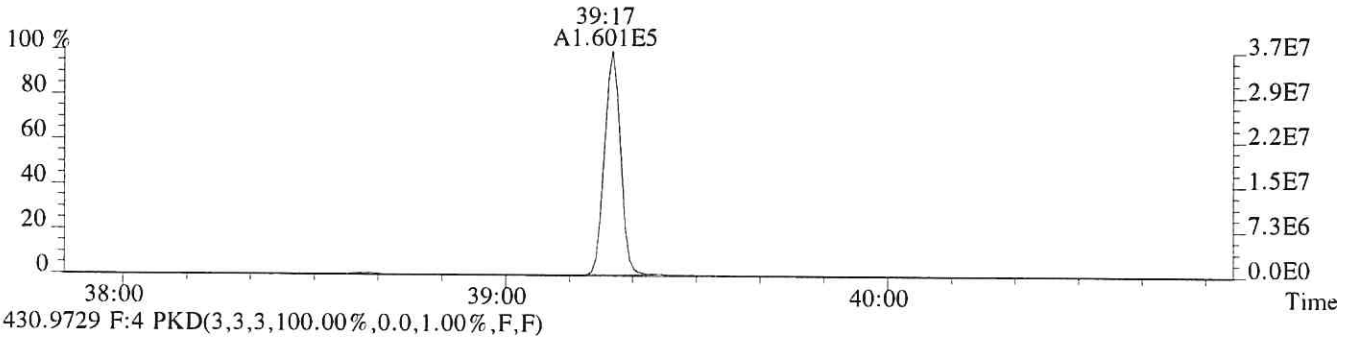
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



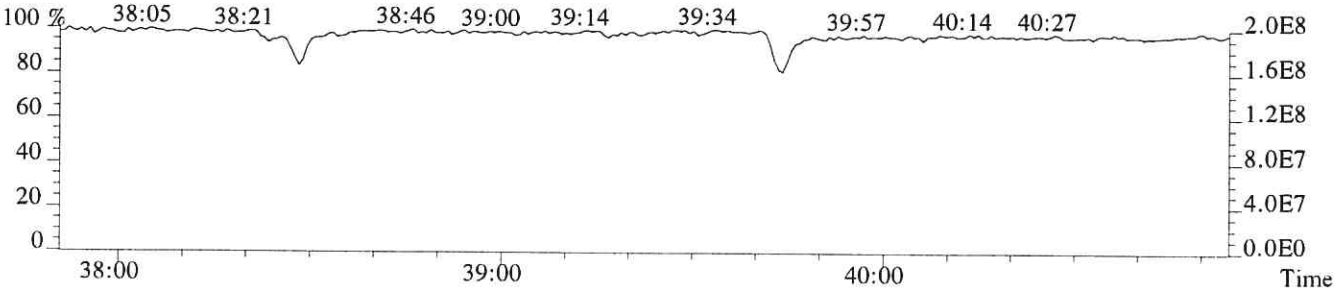
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



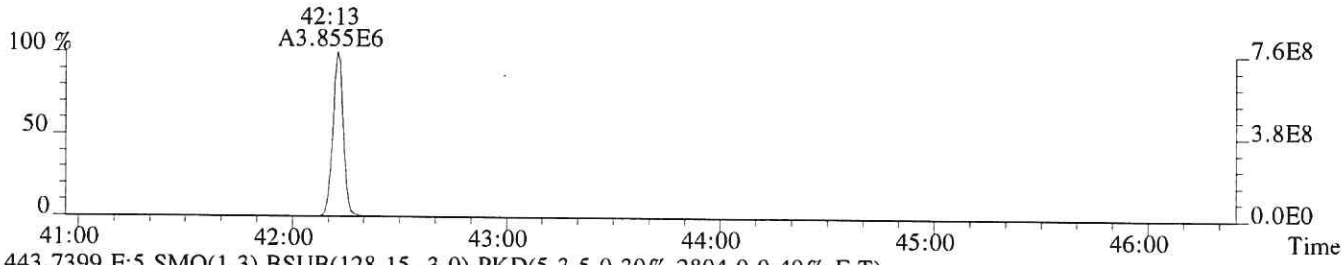
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



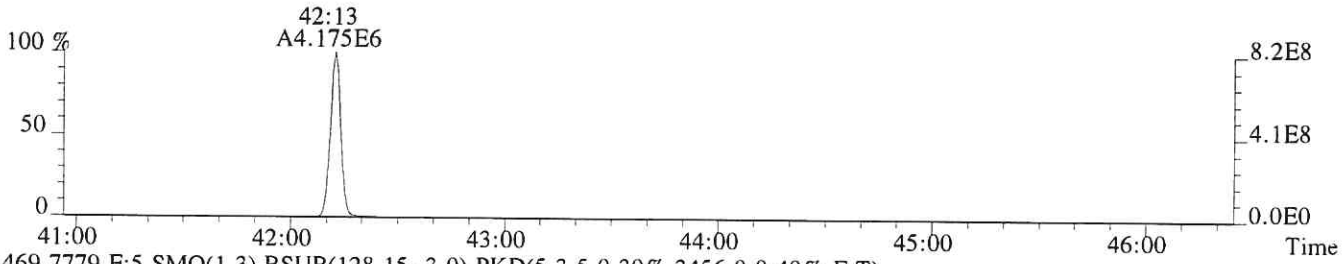
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



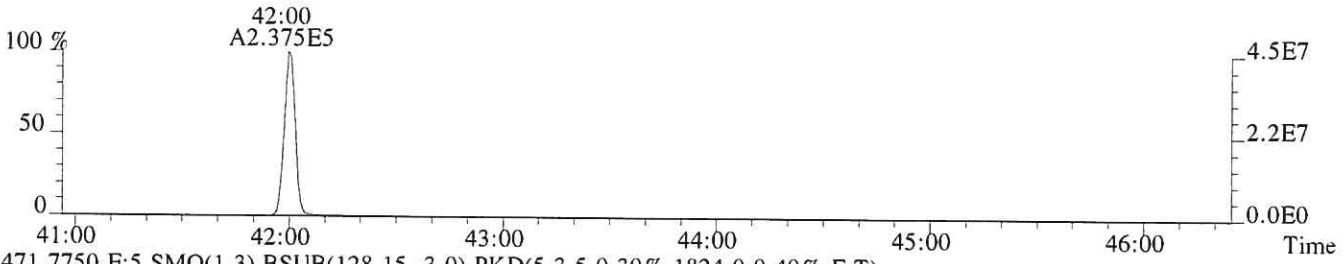
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



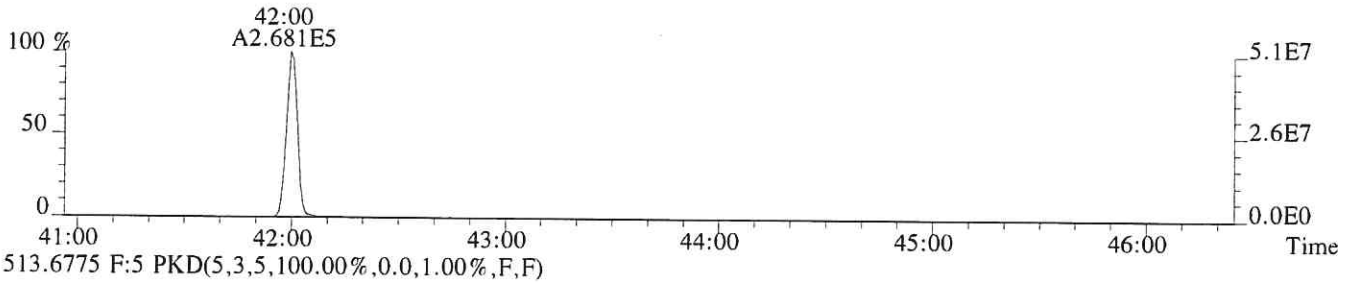
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



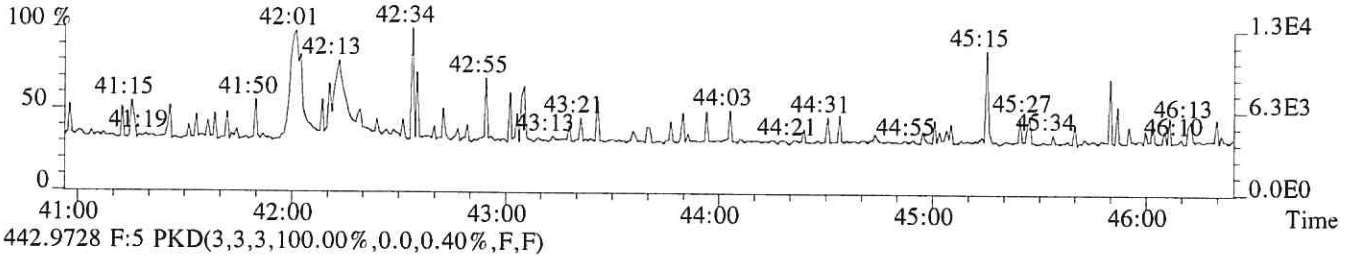
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



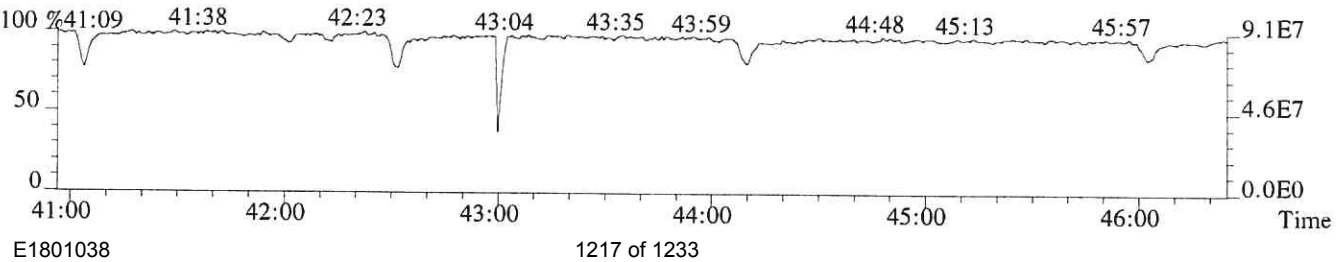
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



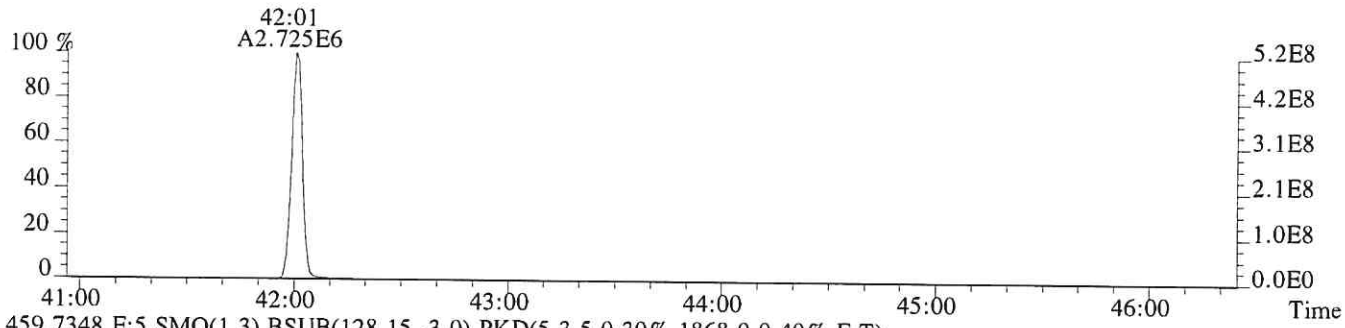
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



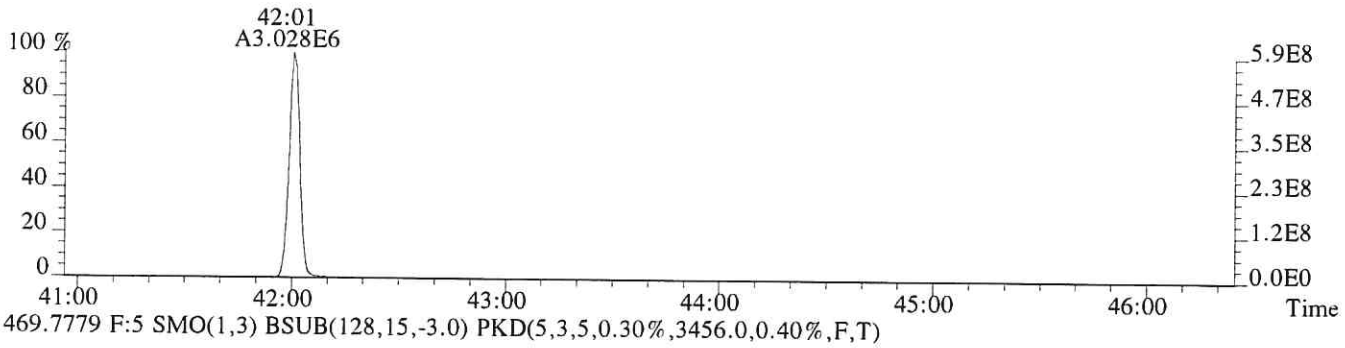
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



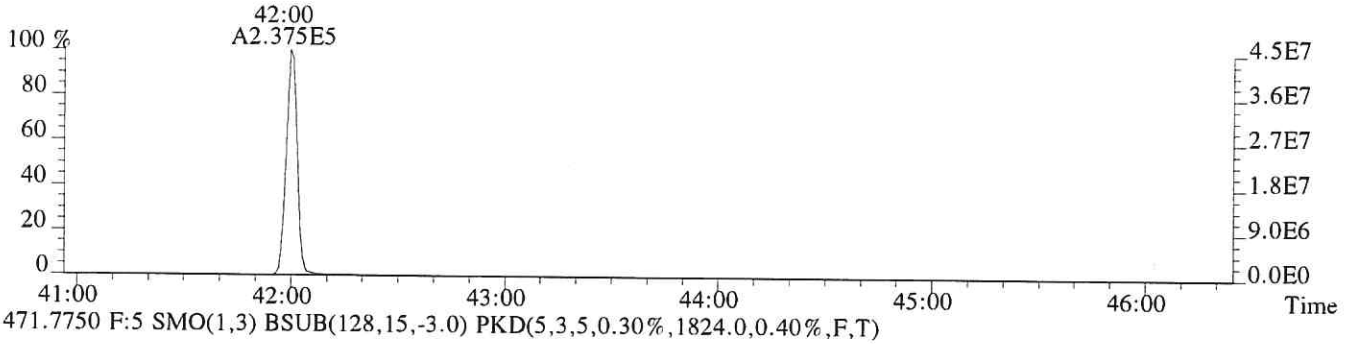
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



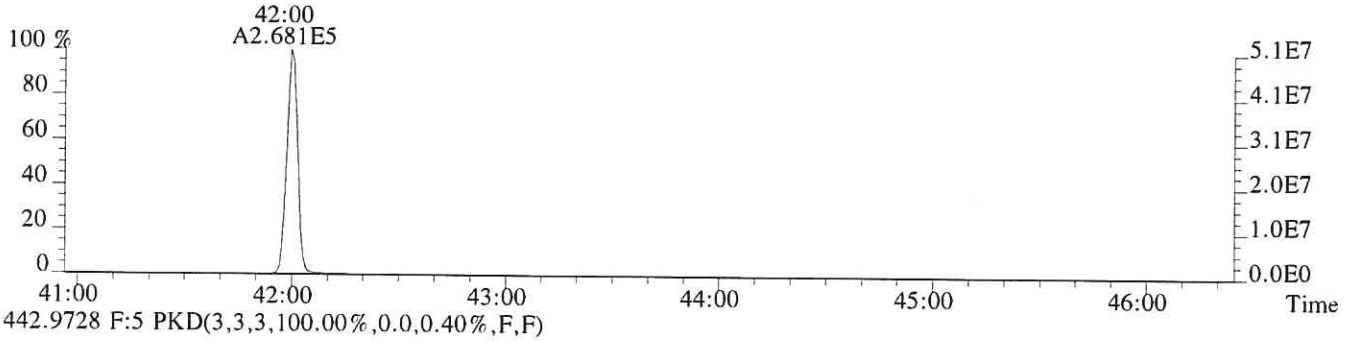
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



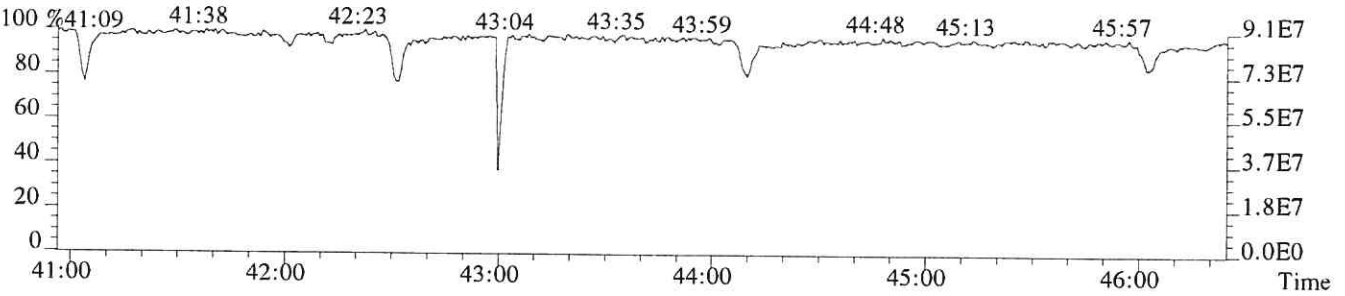
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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Houston, TX 77099
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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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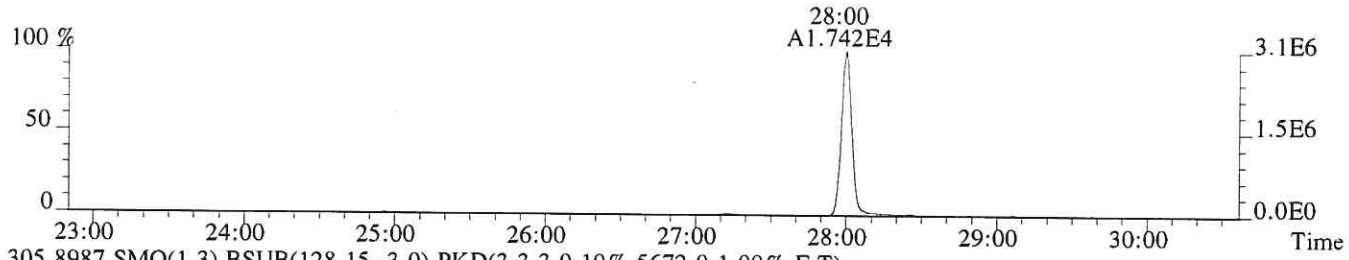
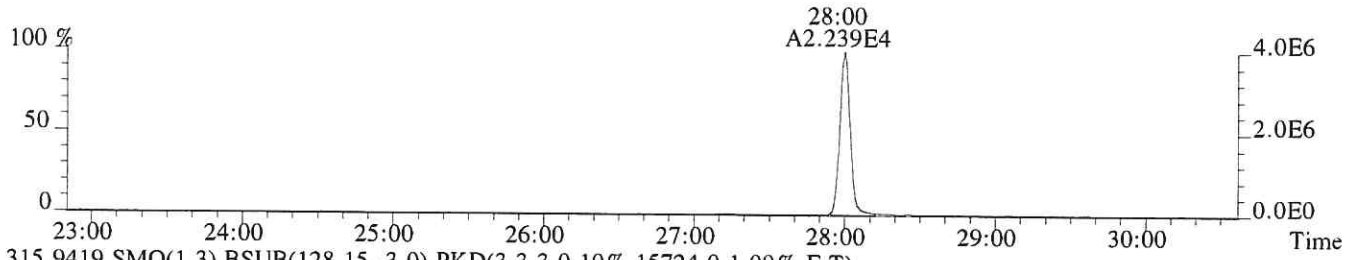
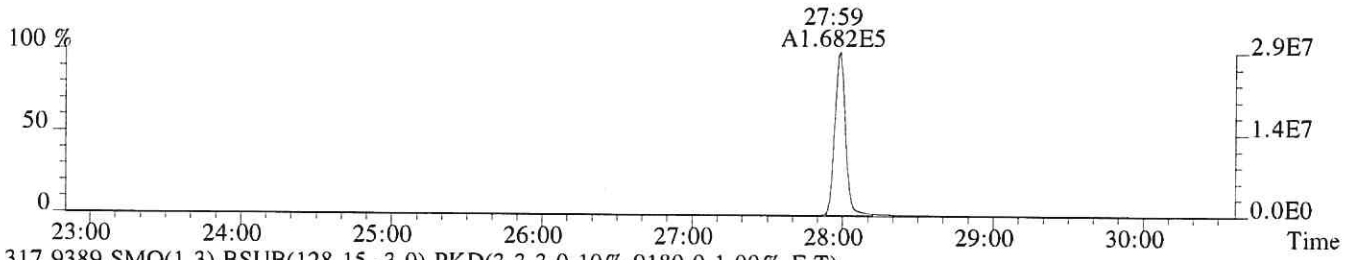
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



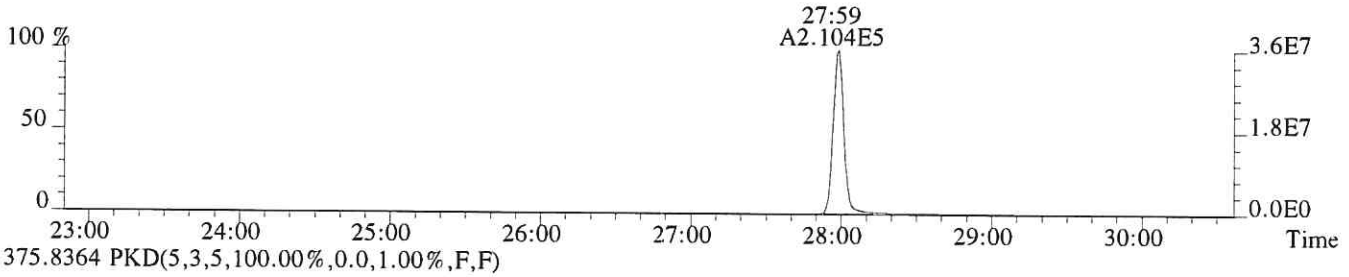
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



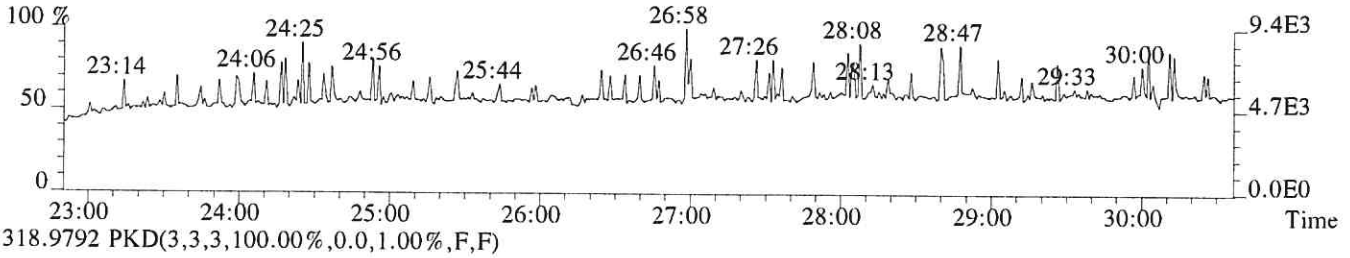
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



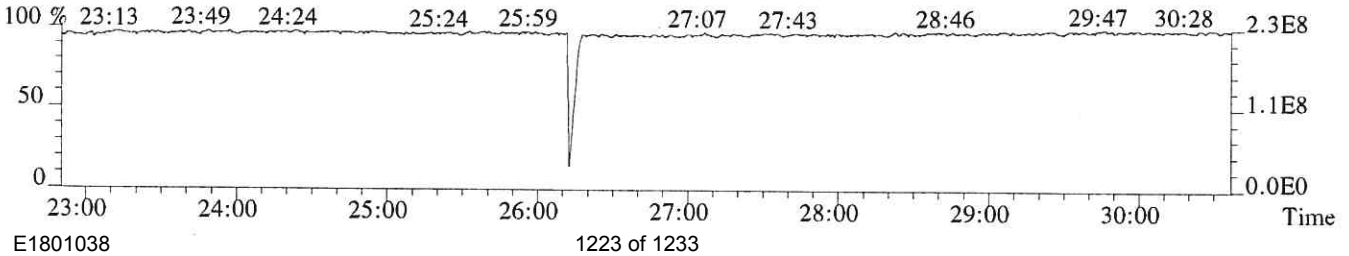
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



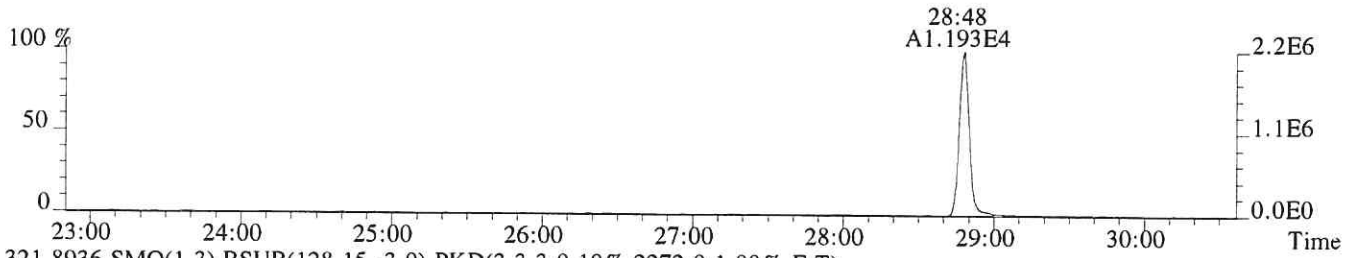
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



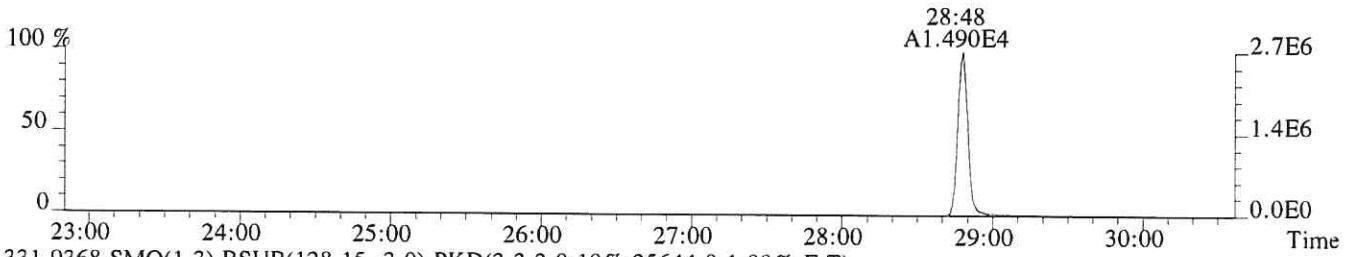
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



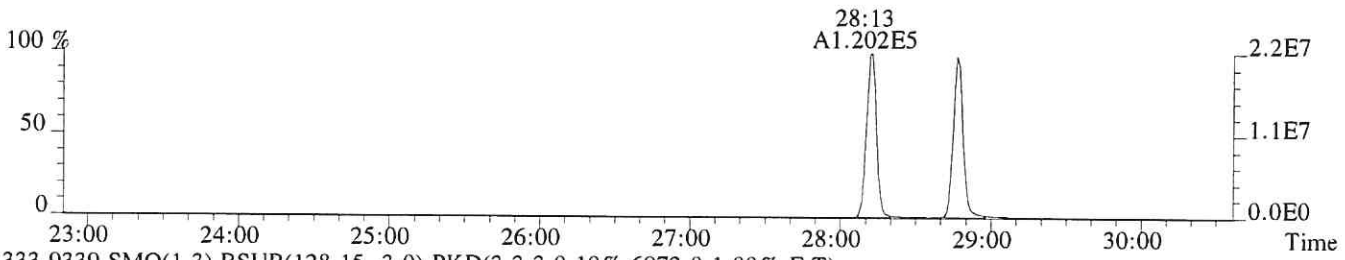
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



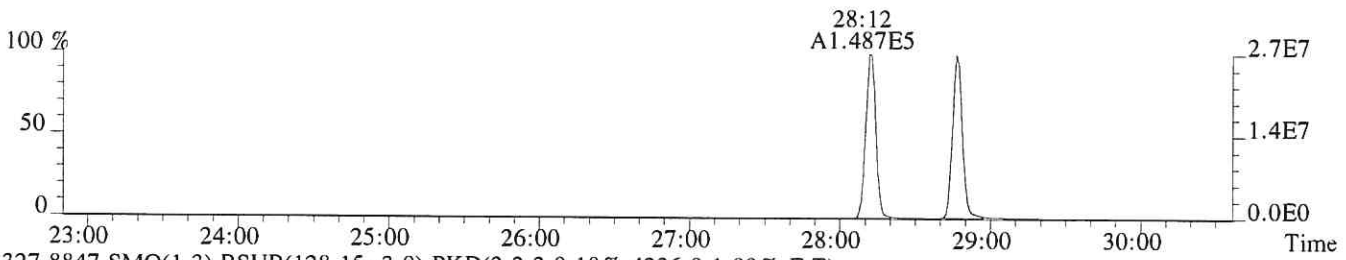
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



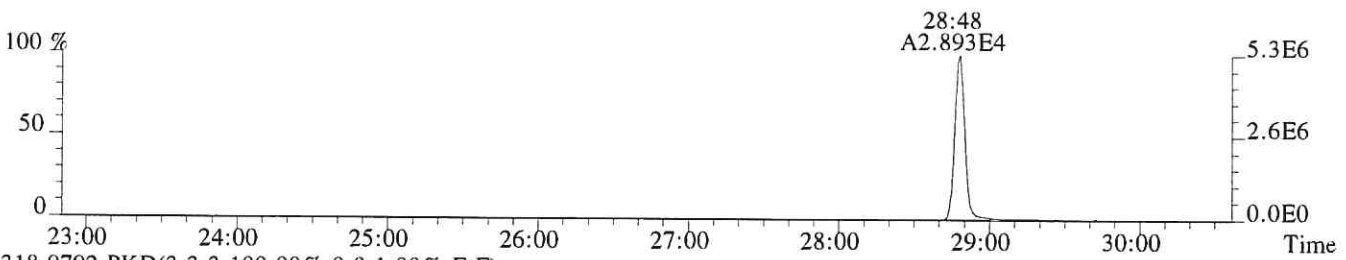
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



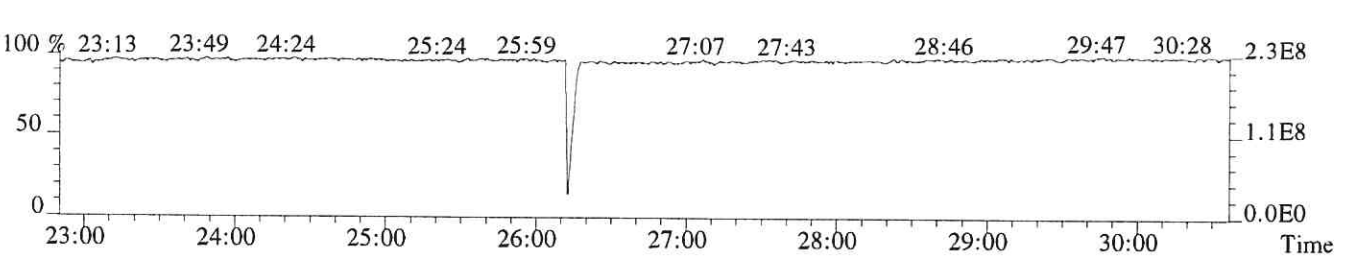
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



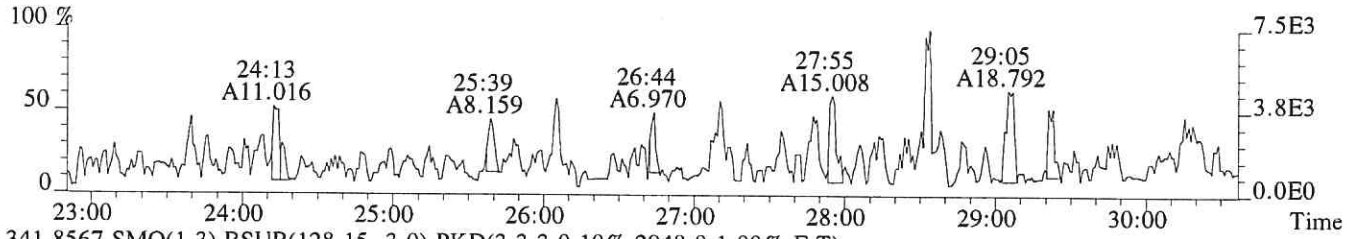
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



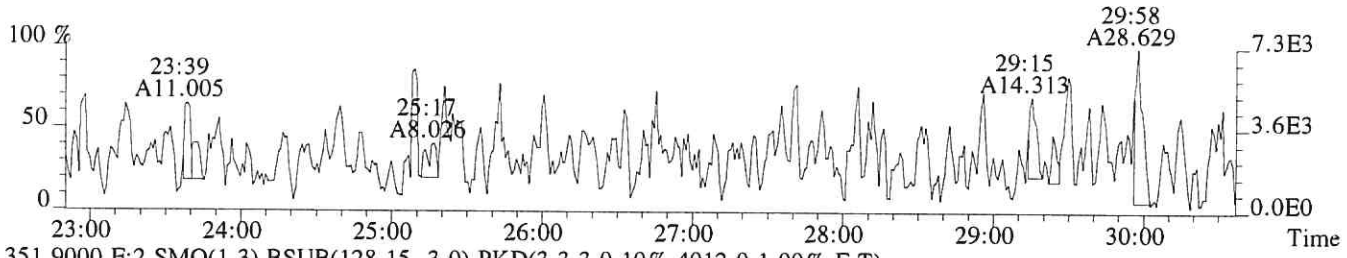
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



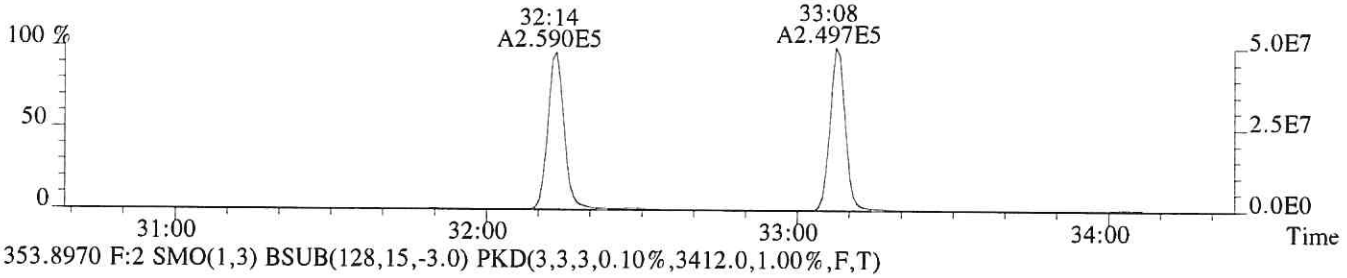
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



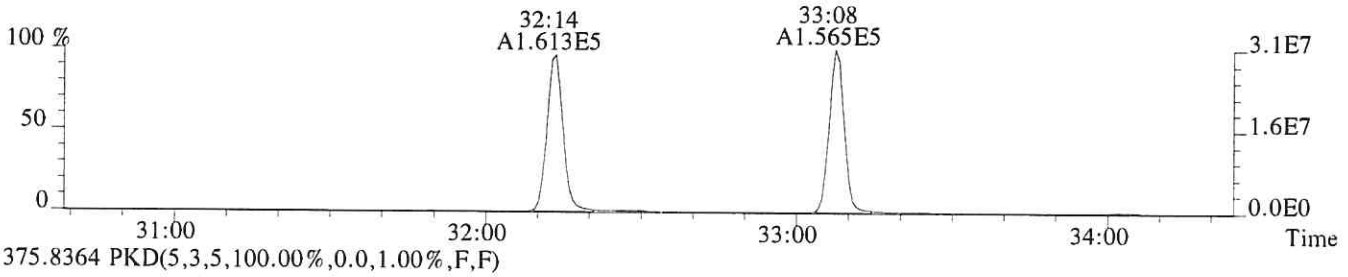
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



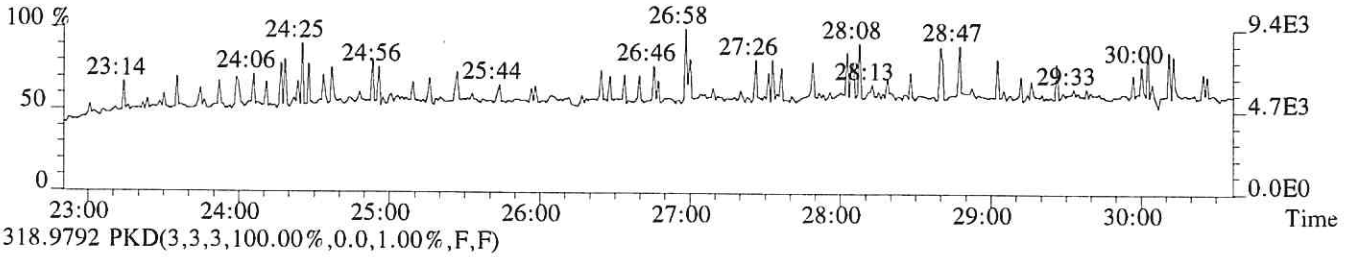
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



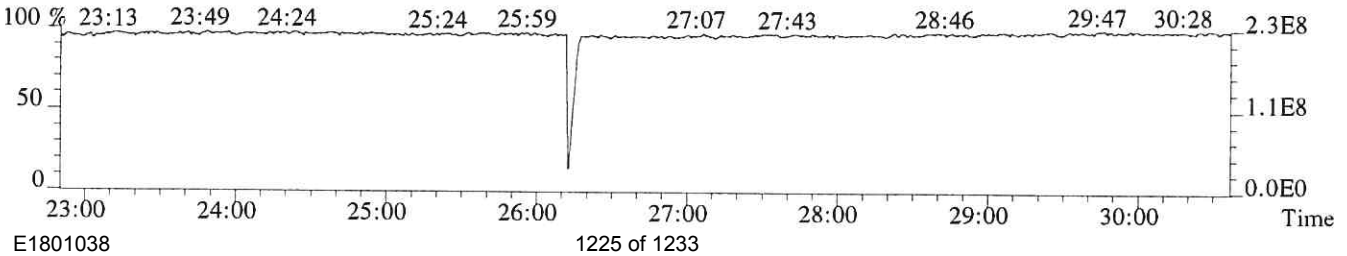
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



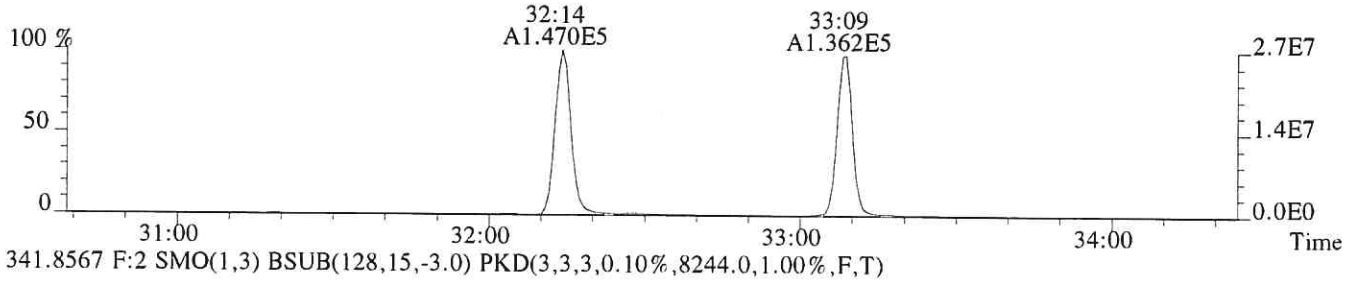
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



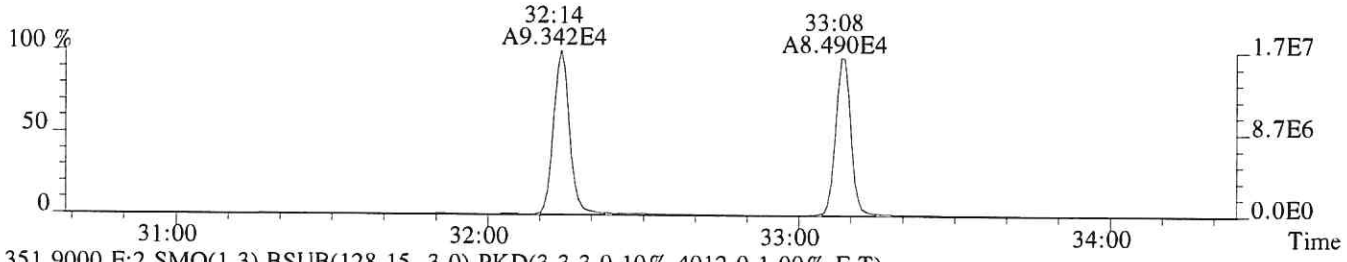
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



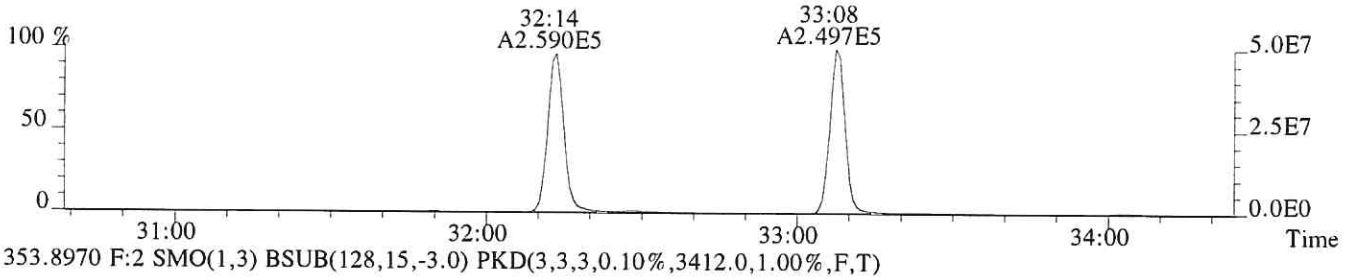
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



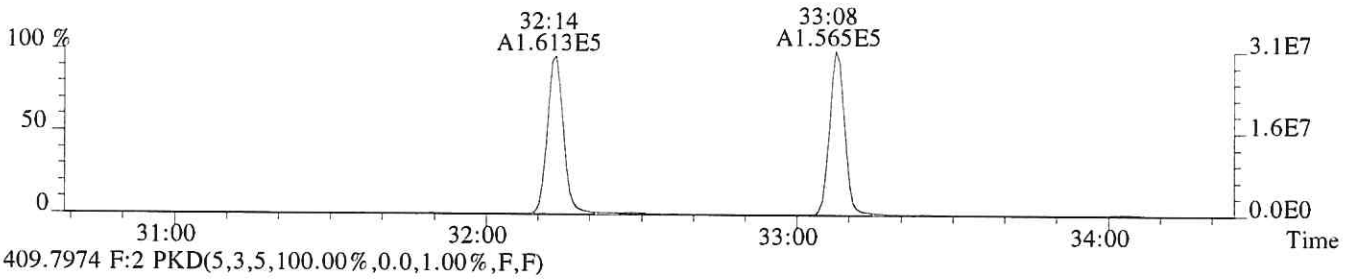
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



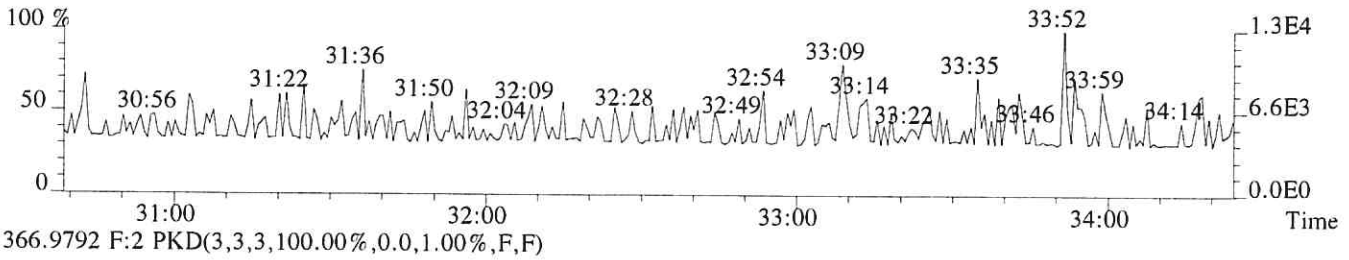
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



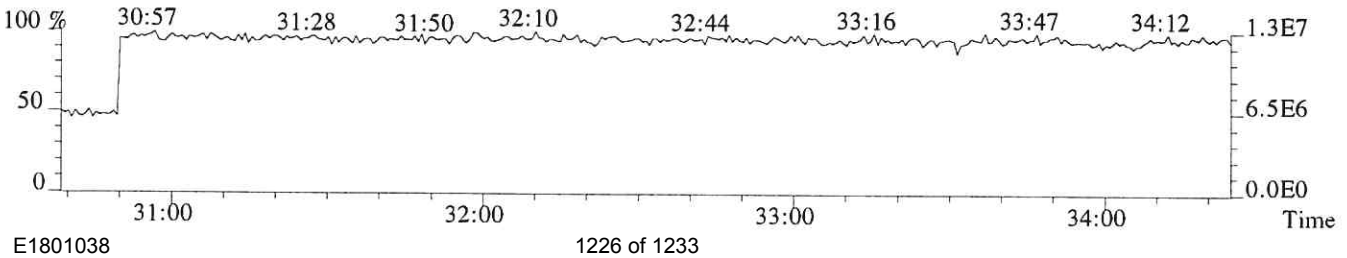
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



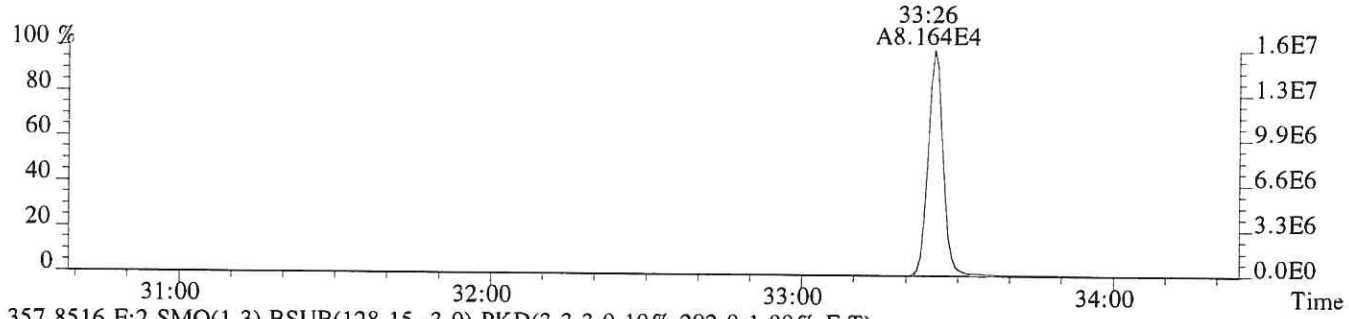
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



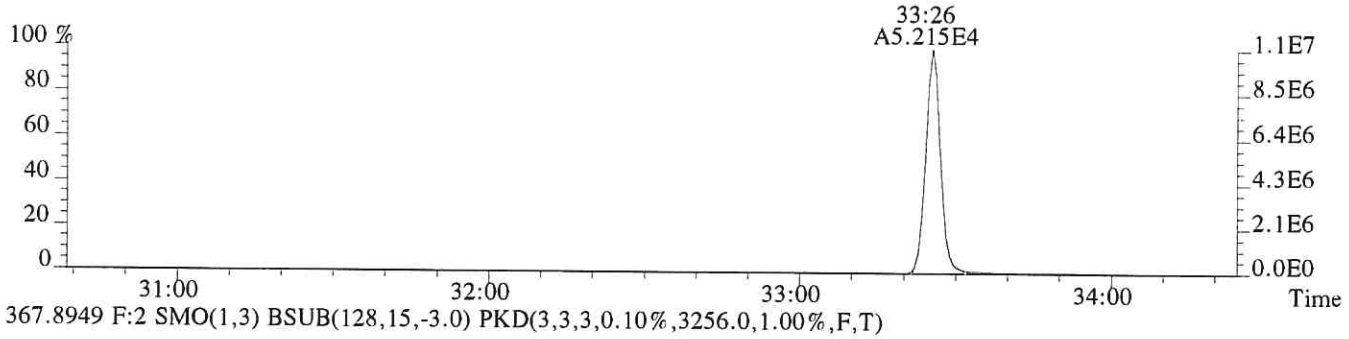
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



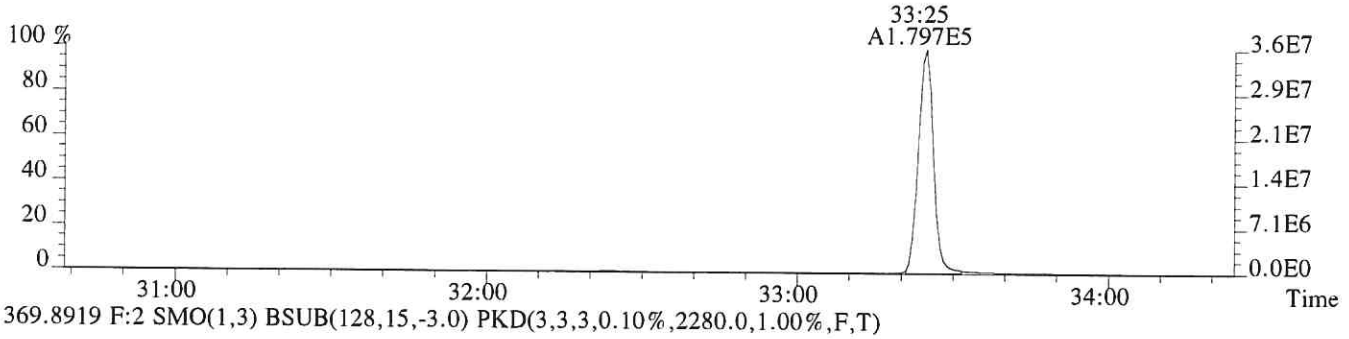
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



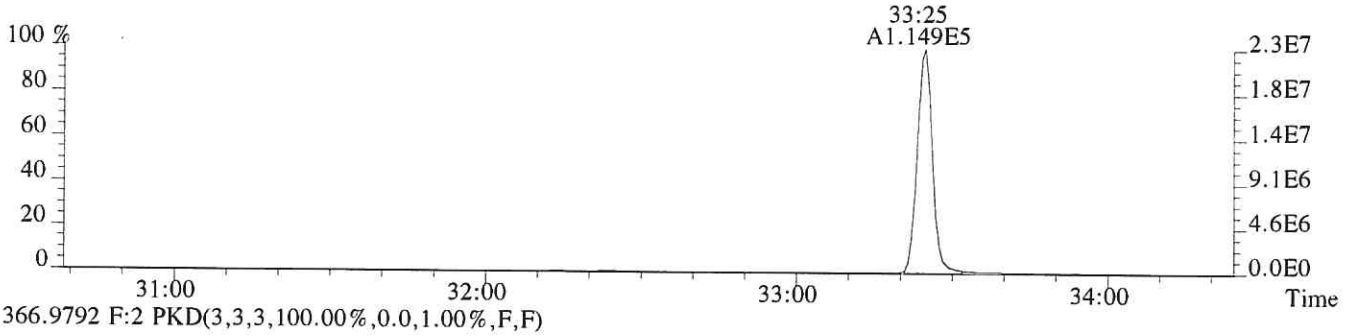
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



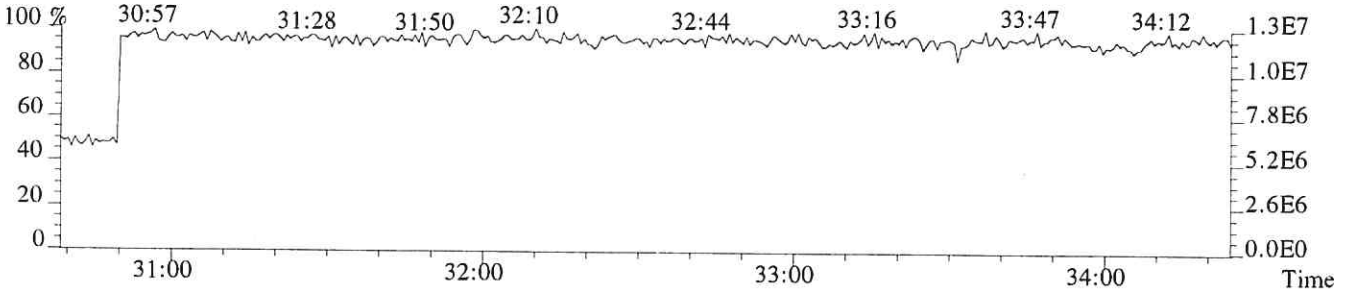
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



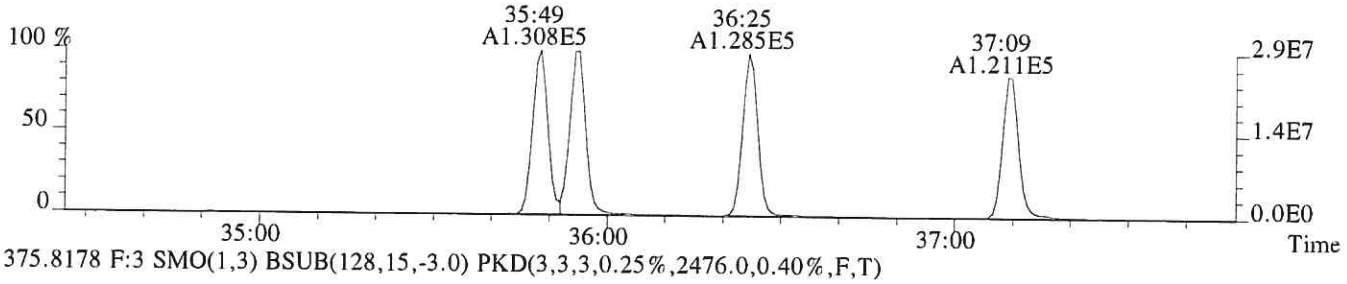
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



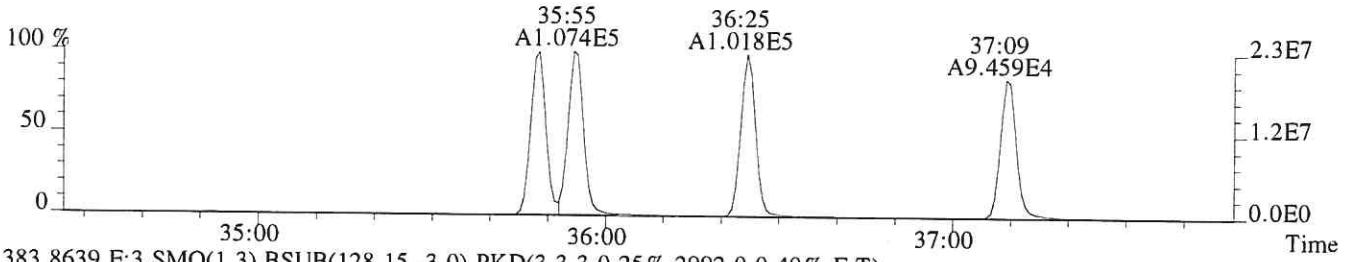
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



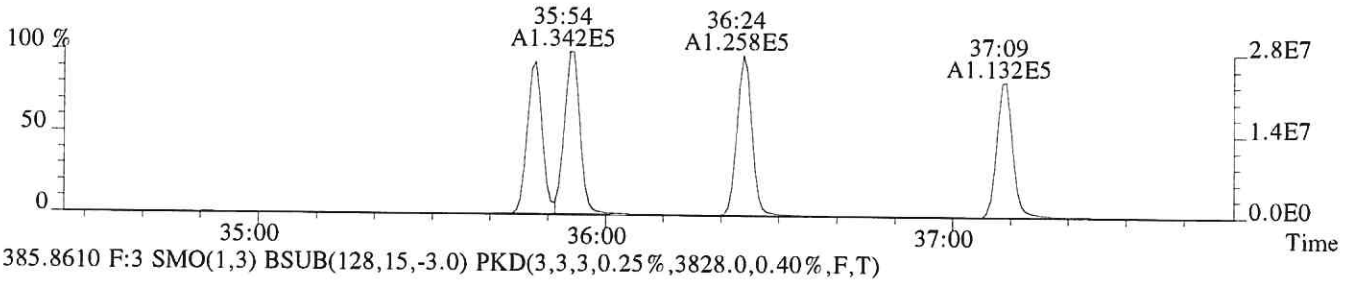
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



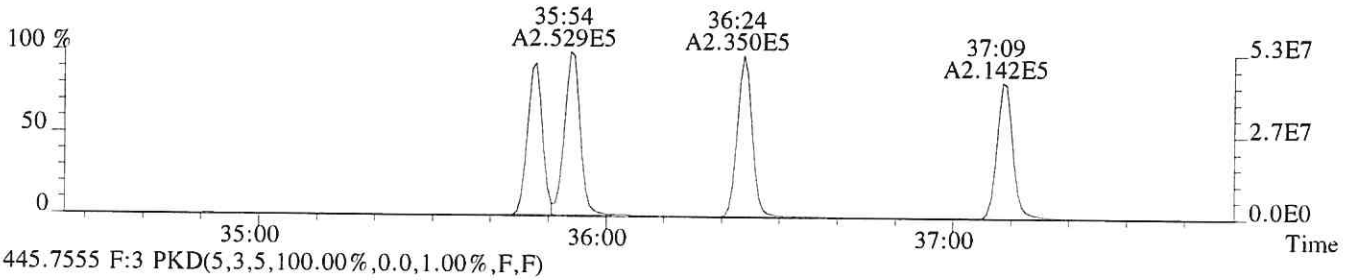
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



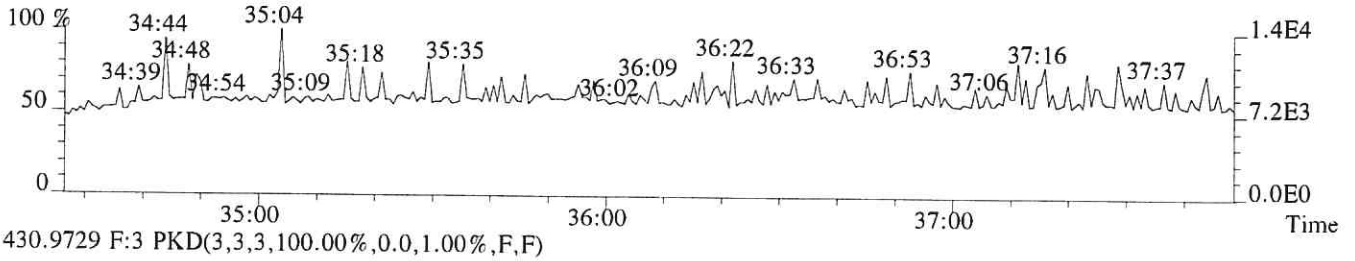
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



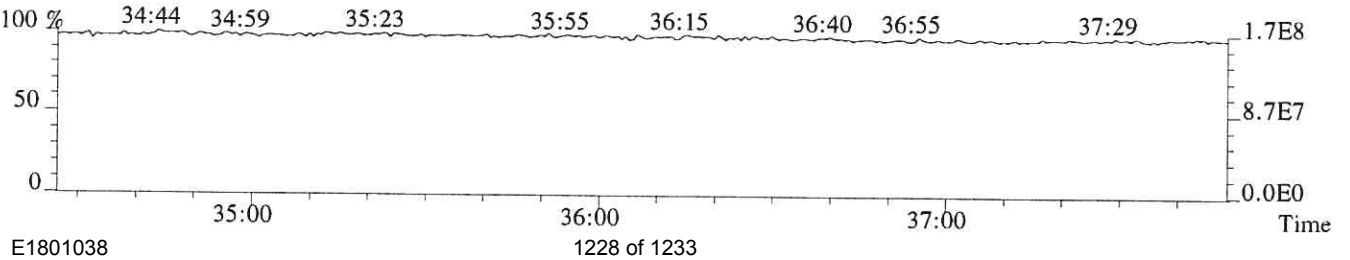
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



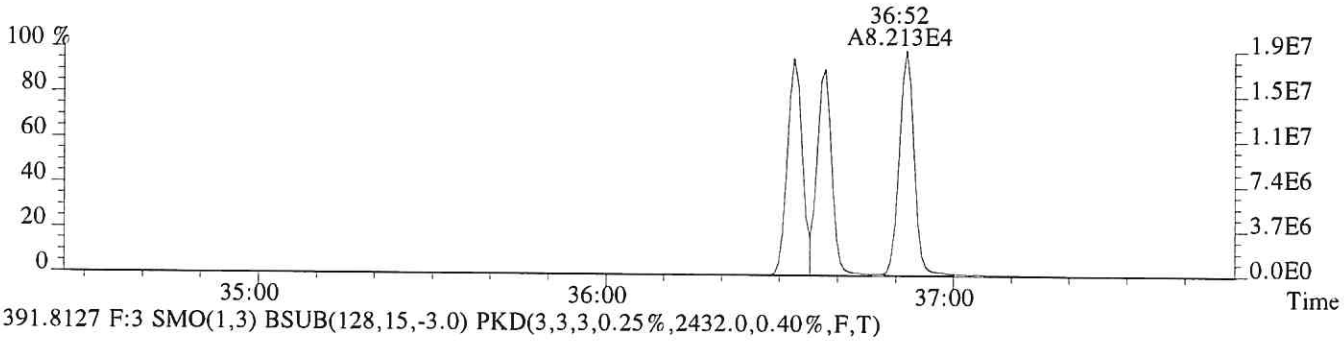
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



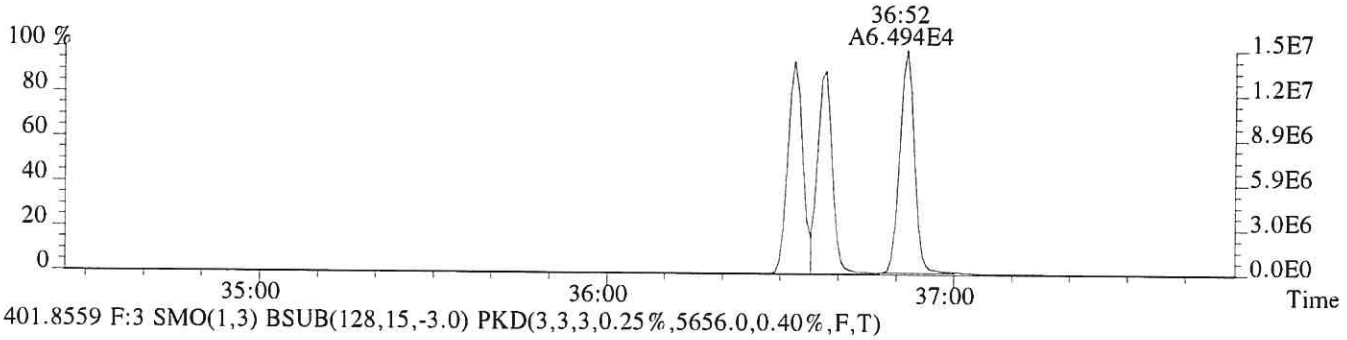
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



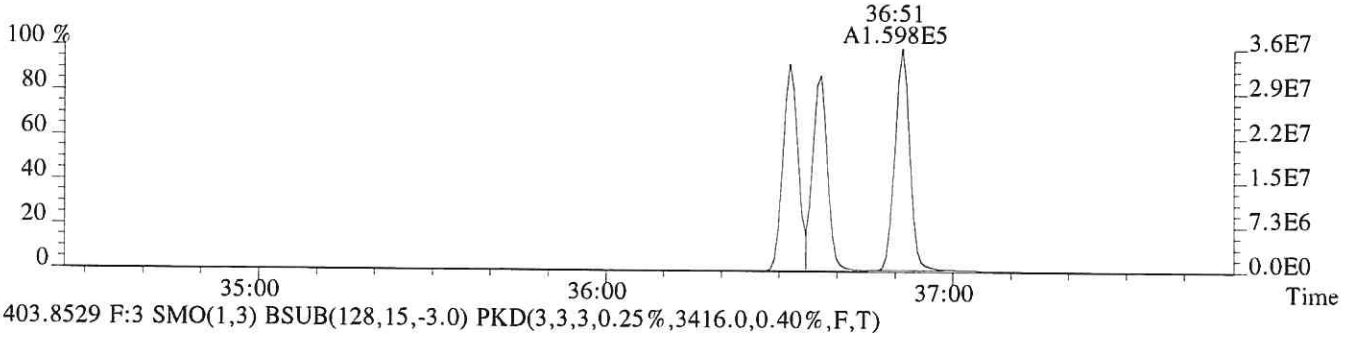
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



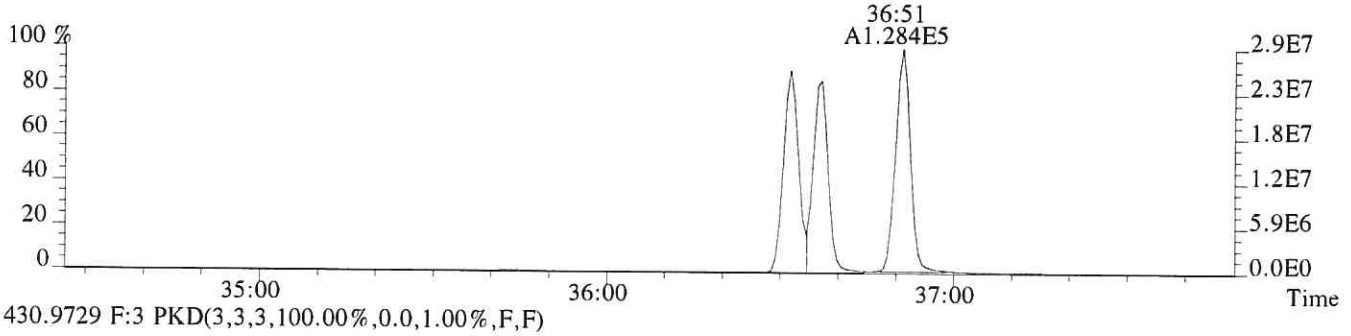
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



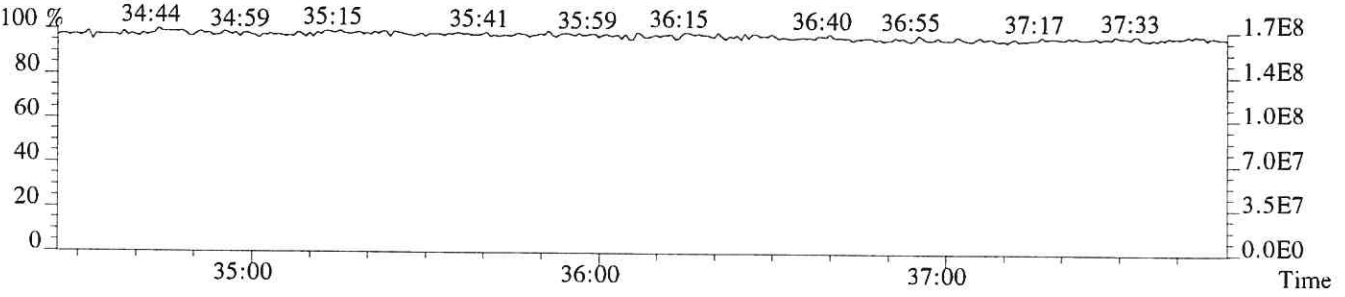
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



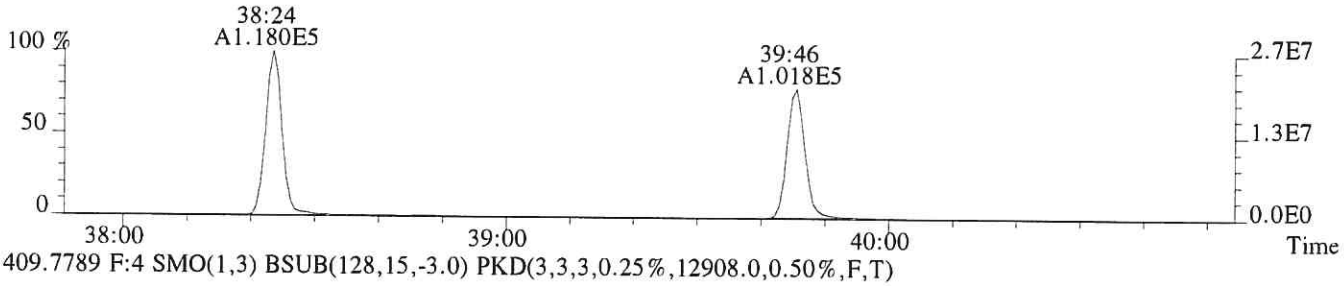
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



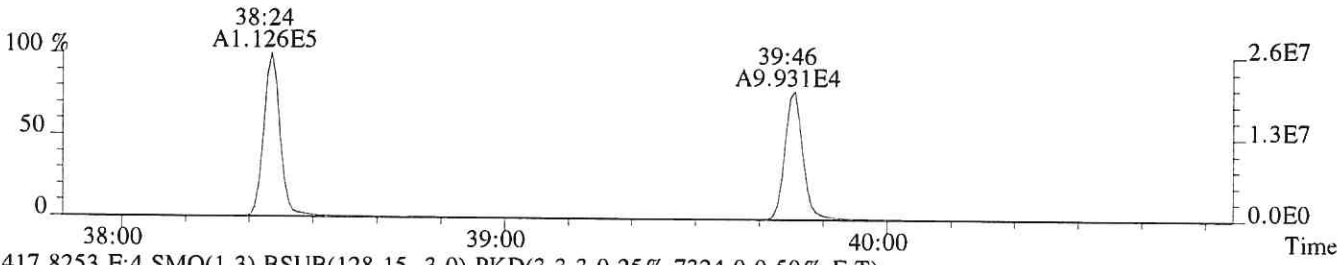
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



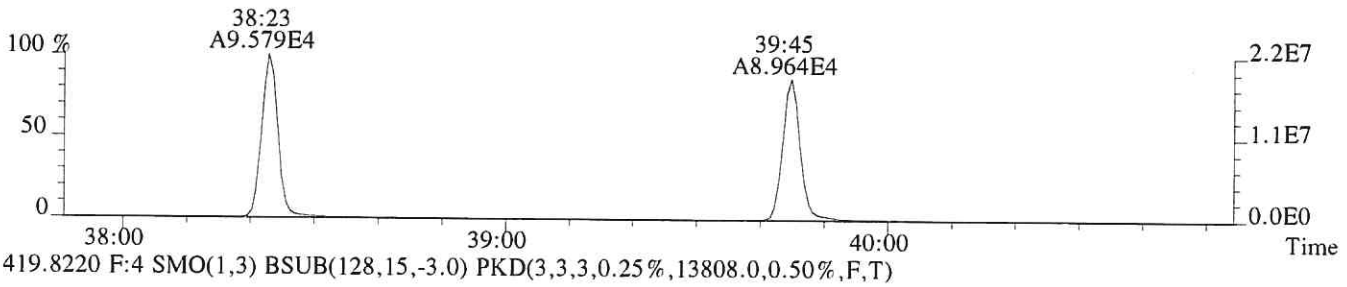
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



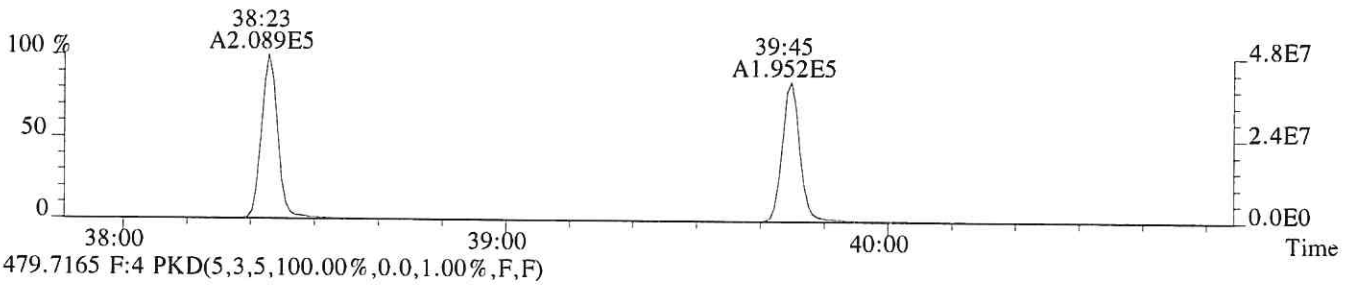
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



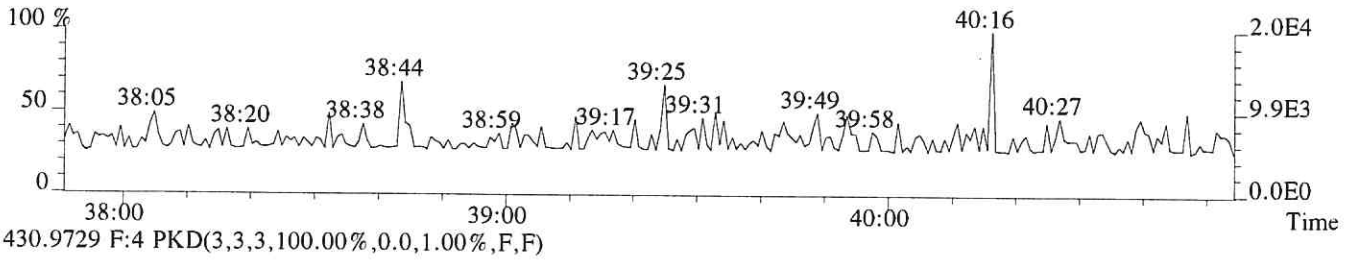
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



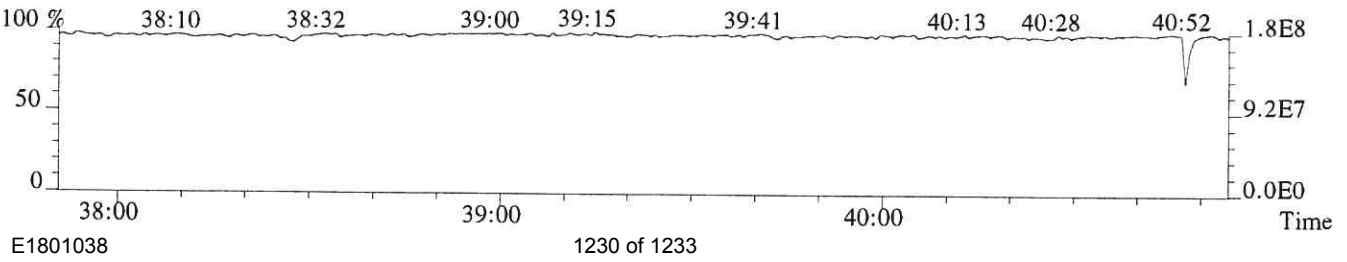
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



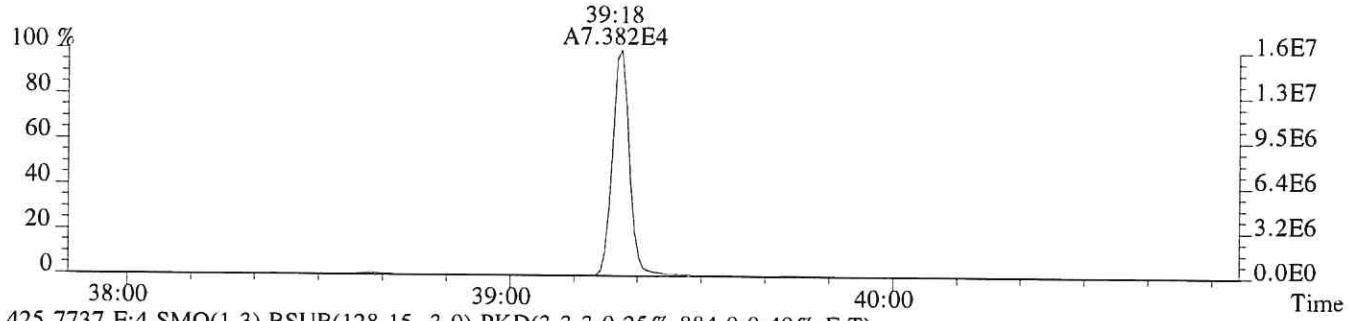
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



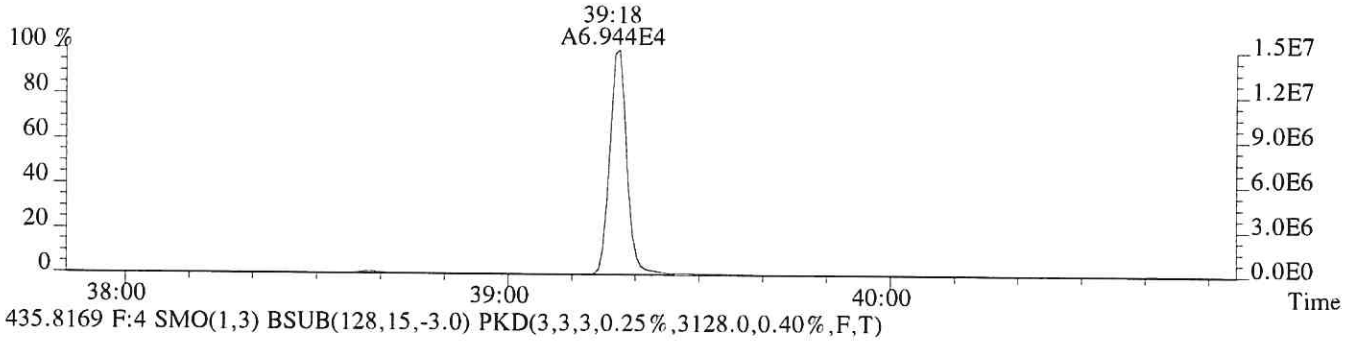
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



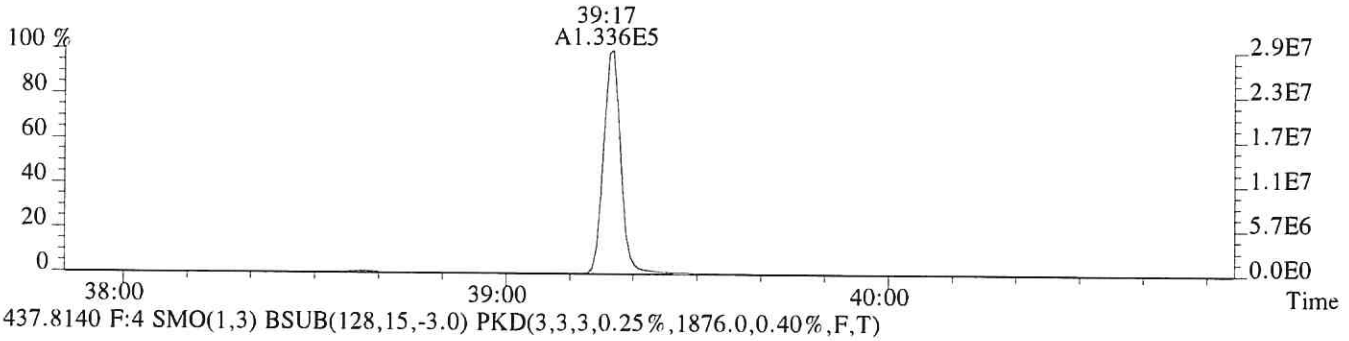
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



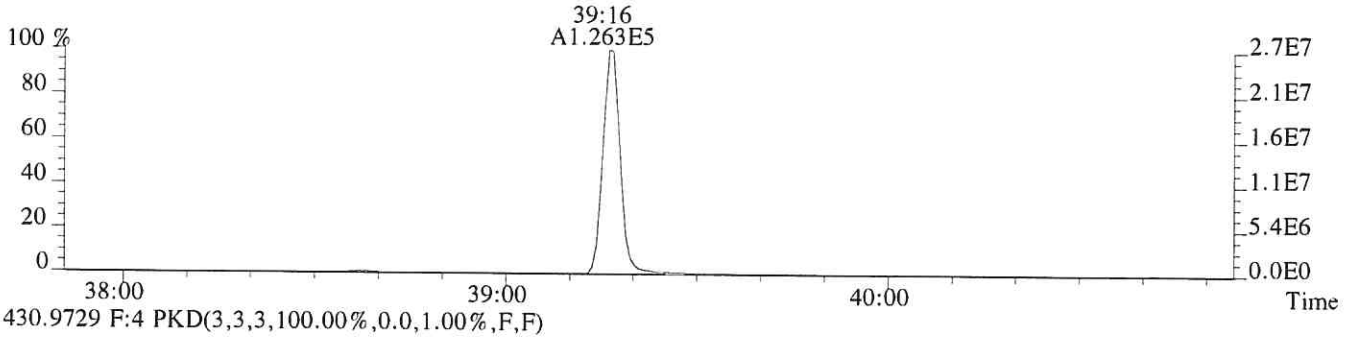
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



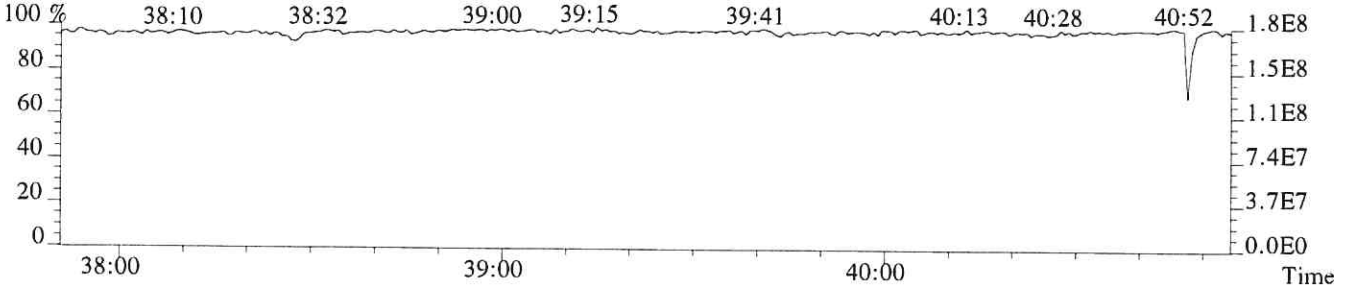
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



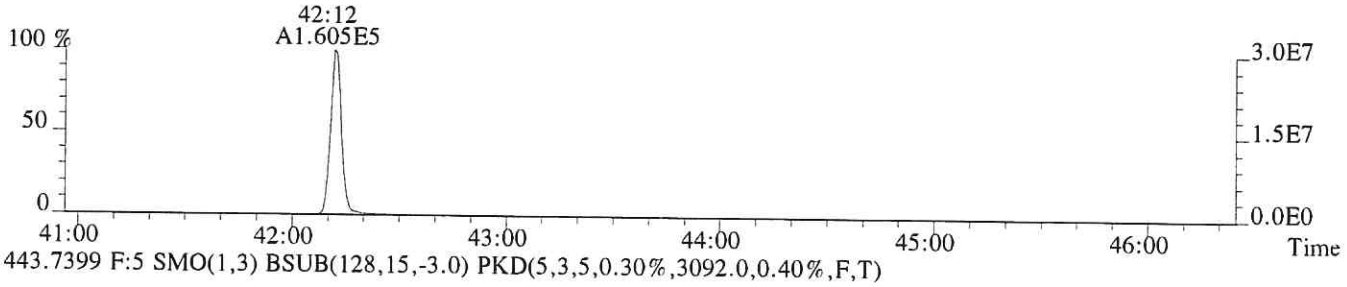
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



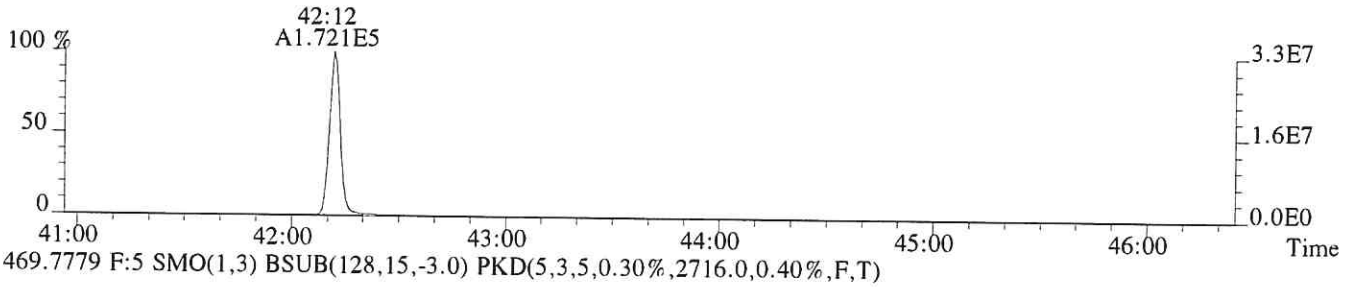
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



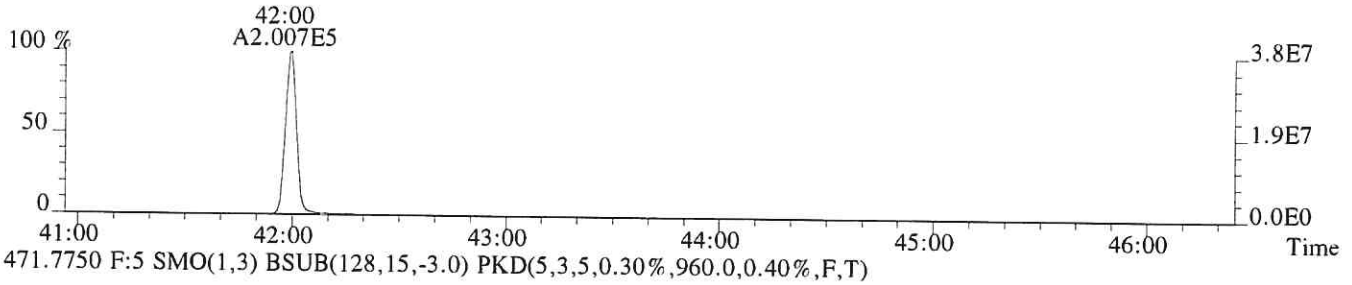
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



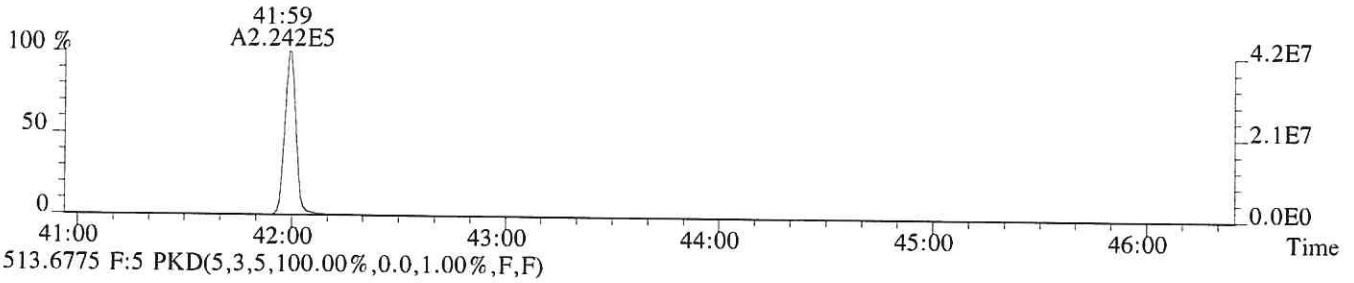
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



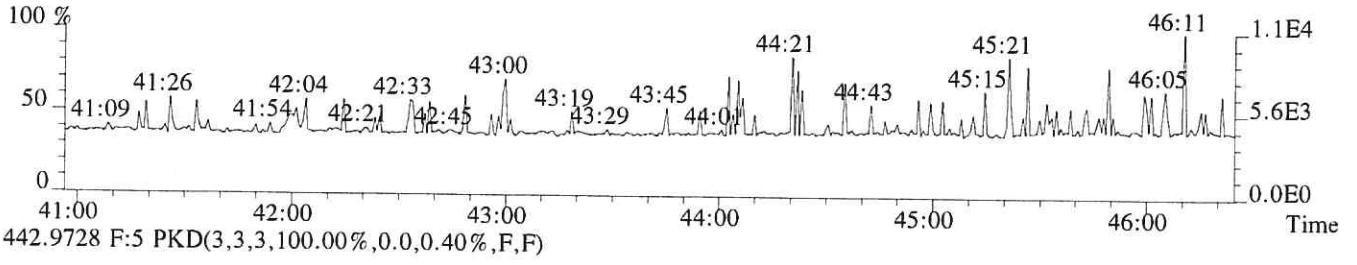
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



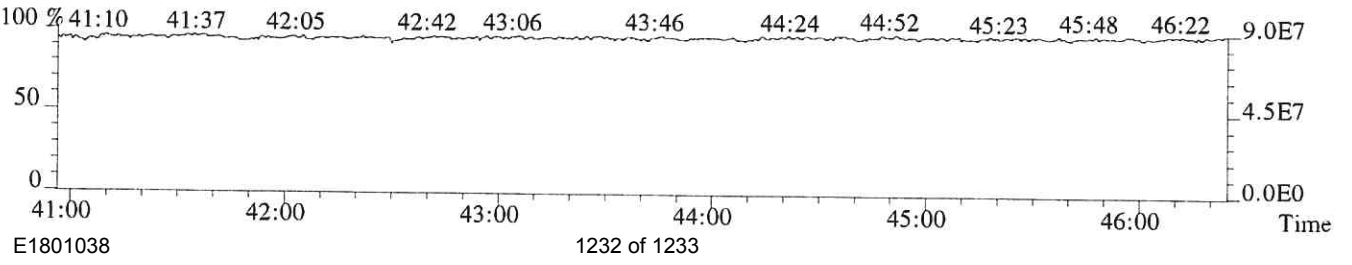
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



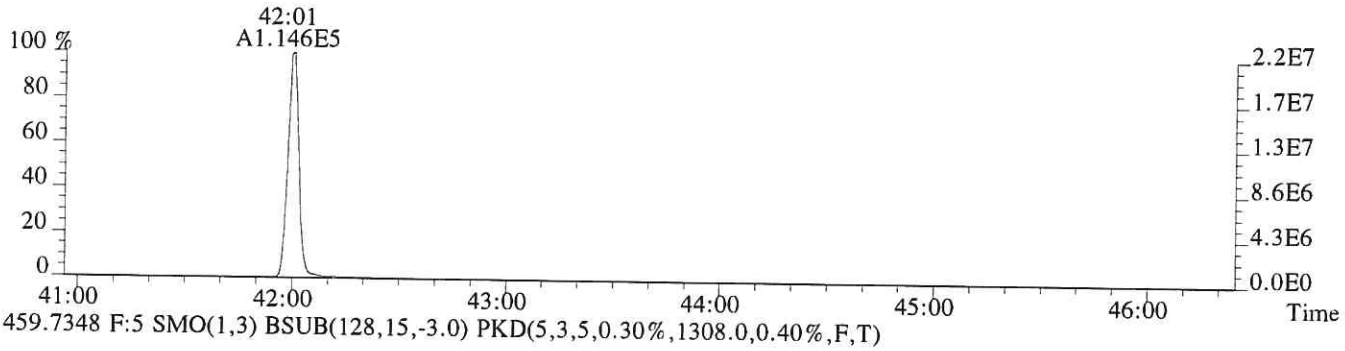
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



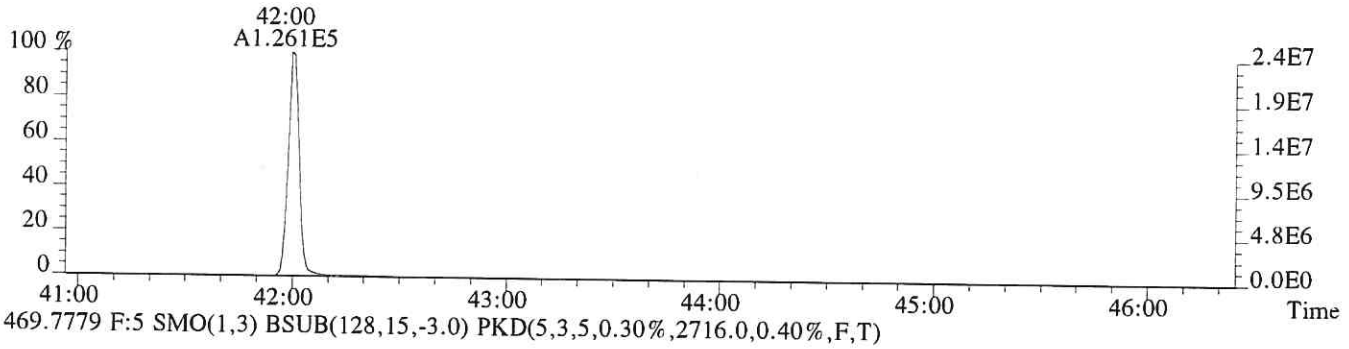
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



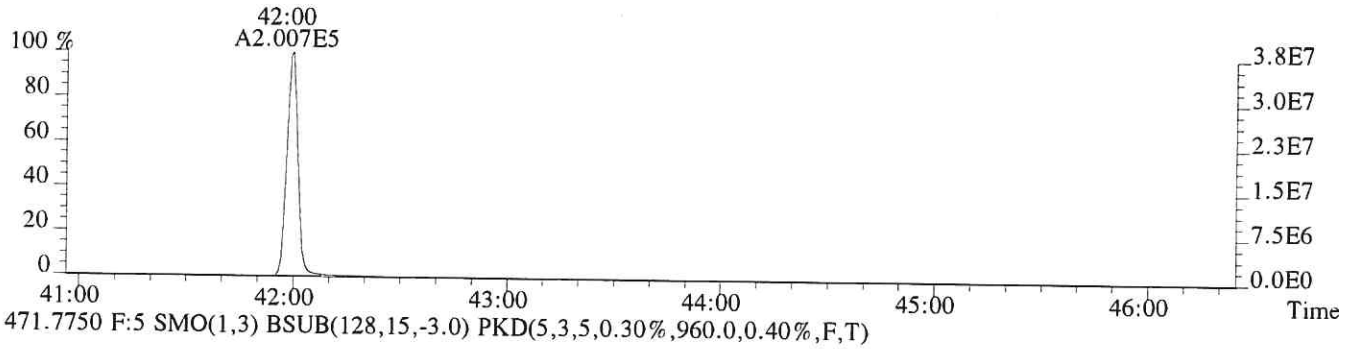
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



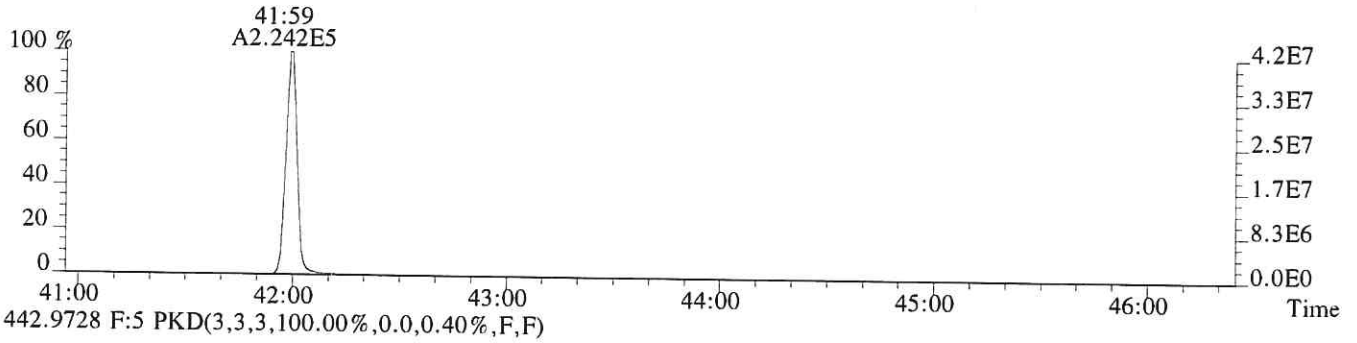
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



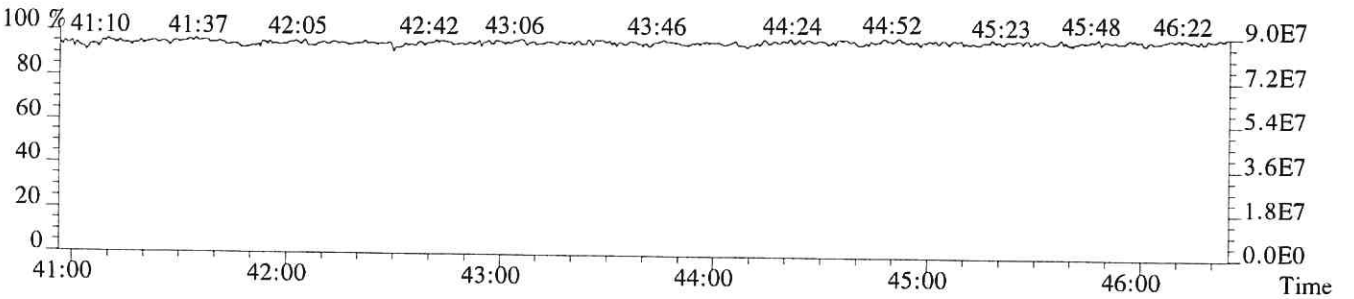
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



December 06, 2018 Service Request No:E1801040

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1844-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 09, 2018
For your reference, these analyses have been assigned our service request number **E1801040.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting, Incorporation	**Service Request No.:**	E1801040
Project:	C1844-0501	**Date Received:**	11/09/18
Sample Matrix:	Sediment		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seven samples were received for analysis at ALS Environmental in Houston on 11/09/18.

The samples were received at 1.3 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1800469-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800469: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the

noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Integral Consulting, Incorporated **Service Request:**E1801040
Project: C1844-0501

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801040-001	SL0509	11/8/2018	1031
E1801040-002	SL0510	11/8/2018	1038
E1801040-003	SL0511	11/8/2018	1044
E1801040-004	SL0512	11/8/2018	1050
E1801040-005	SL0513	11/8/2018	1100
E1801040-006	SL0514	11/8/2018	1107
E1801040-007	SL0518	11/8/2018	1034

Service Request Summary

Folder #: **E1801040**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/09/18
Internal Due Date: 12/3/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number: C1844-0501
EDD: Integral-UCR

7 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2D
Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801040-001	SL0509	Sediment	11/08/18 1031	**IV**	**IV**
E1801040-002	SL0510	Sediment	11/08/18 1038	**IV**	**IV**
E1801040-003	SL0511	Sediment	11/08/18 1044	**IV**	**IV**
E1801040-004	SL0512	Sediment	11/08/18 1050	**IV**	**IV**
E1801040-005	SL0513	Sediment	11/08/18 1100	**IV**	**IV**
E1801040-006	SL0514	Sediment	11/08/18 1107	**IV**	**IV**
E1801040-007	SL0518	Sediment	11/08/18 1034	**IV**	**IV**

Service Request Summary

Folder #:	**E1801040**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1844-0501
Project Number:	

Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA
Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	11/09/18
Internal Due Date:	12/3/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N, Y
Report to MDL?:	N, Y
P.O. Number:	C1844-0501
EDD:	Integral-UCR

7 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2D

Pressure Gas:

Superset Summary

Service Request: E1801040 **SuperSet Reference:** 18-0000488951 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519142	P519131	P519219	E1801040-001
P519165	P519161	P519219	E1801040-002
P519166	P519161	P519219	E1801040-003
P519167	P519161	P519219	E1801040-004
P519168	P519161	P519219	E1801040-005
P519169	P519161	P519219	E1801040-006
P519170	P519161	P519219	E1801040-007
P519219	P519210	P519219	EQ1800469-01
P519143	P519131	P519219	EQ1800469-02
P519144	P519131	P519219	EQ1800469-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801040 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/03/18	JL	-001

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/05/18	LKL	001

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801040 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/05/18	LKL	002 - 007

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/5/18	LG	002-007

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CHAIN OF CUSTODY FORM

E1801040 **5**
Integral Consulting, Inc.
C1844-0501

Page 1 of 1

Project: C1844 - 0501

Samplers: Olivia Hargrave and Stefan Wodzicki

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides				Extra Container	Archive	Comments
SL0509	0010	11/8/18	1051	SL	X									
SL0510	0011		1038		X									
SL0511	0012		1044		X									
SL0512	0013		1050		X									
SL0513	0014		1100		X									
SL0514	0015		1107	↓	X									
SL0518	0016	11/8/18	1034	SL	X									

Analysis Turn Time: (Normal) Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:	
SL - Soil	GW - Groundwater
SD -Sediment	SW - Surface water
	Other:

Relinquished by: _____ (signature) **Date/Time:** 11/9/18 1000 **Received by:** _____ (signature) **Date/Time:** 11-9-18 1000

Relinquished by: _____ (signature) **Date/Time:** 11/9/18 1235 **Received by:** _____ (signature) **Date/Time:** _____

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler Receipt Form

ALS Environmental

Project Chemist HB

Client/Project INTEGRAL

Thermometer ID SM04

Date/Time Received: 11/9/18 Initials: CH

Date/Time Logged in: 11/9/18 Initials CH

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ✓ ALS Courier ○ Client

2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ✓ Yes ○ No
   Were they intact? ✓ Yes ○ No ○ N/A
   Were they signed and dated? ✓ Yes ○ No ○ N/A
   If yes, how many and where? 1 SEAL

4. Packing Material: ○ Inserts ✓ Baggies ✓ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/9/18	1240	PS	1.3/1.7	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E1801040 5
Integral Consulting, Inc.
C1944-0501

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801035-017	SL0078	.01	1613B/Dioxins Furans			Sediment	10.536g	Brown Mud
2	E1801038-018	SL0536	.01	1613B/Dioxins Furans			Sediment	10.630g	Brown Mud
3	E1801038-019	SL0537	.01	1613B/Dioxins Furans			Sediment	10.294g	Brown Mud
4	E1801038-020	SL0515	.01	1613B/Dioxins Furans			Sediment	10.753g	Brown Mud
5	E1801038-021	SL0516	.01	1613B/Dioxins Furans			Sediment	10.207g	Brown Mud
6	E1801038-022	SL0517	.01	1613B/Dioxins Furans			Sediment	10.135g	Brown Mud
7	E1801039-006	SL0100	.02	1613B/Dioxins Furans			Sediment	10.897g	Brown Mud
8	E1801039-017	SL0107	.02	1613B/Dioxins Furans			Sediment	10.500g	Brown Mud
9	E1801039-031	SL0108	.02	1613B/Dioxins Furans			Sediment	10.385g	Brown Mud
10	E1801039-036	SL0129	.02	1613B/Dioxins Furans			Sediment	10.819g	Brown Mud
11	E1801039-037	SL0130	.02	1613B/Dioxins Furans			Sediment	10.195g	Brown Mud
12	E1801039-038	SL0101	.02	1613B/Dioxins Furans			Sediment	10.176g	Brown Mud
13	E1801040-001	SL0509	.01	1613B/Dioxins Furans			Sediment	10.852g	Moist Brown Sand
14	E1801040-002	SL0510	.01	1613B/Dioxins Furans			Sediment	10.733g	Brown Clumps of Mud
15	E1801040-003	SL0511	.01	1613B/Dioxins Furans			Sediment	10.429g	Brown Mud
16	E1801040-004	SL0512	.01	1613B/Dioxins Furans			Sediment	10.292g	Brown Mud
17	E1801040-005	SL0513	.01	1613B/Dioxins Furans			Sediment	10.260g	Brown Mud
18	E1801040-006	SL0514	.01	1613B/Dioxins Furans			Sediment	10.104g	Brown Mud
19	E1801040-007	SL0518	.01	1613B/Dioxins Furans			Sediment	10.460g	Moist Brown Sand
20	EQ1800469-01	MB		1613B/Dioxins Furans			Solid	10.246g	
21	EQ1800469-02	LCS		1613B/Dioxins Furans			Solid	10.291g	
22	EQ1800469-03	DLCS		1613B/Dioxins Furans			Solid	10.188g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 194569 Logbook Ref: 194569 AL 10/31/18 2-20 ng/mL Expires On: 04/29/2019

EQ1800469-02	100.00µL	EQ1800469-03	100.00µL

Name: 1613B Labeled Working Standard Inventory ID 194904 Logbook Ref: 194903 JG 11/14/18 2-4ngml Expires On: 01/31/2019

E1801035-017	1,000.00µL	E1801038-018	1,000.00µL	E1801038-019	1,000.00µL	E1801038-020	1,000.00µL	E1801038-021	1,000.00µL	E1801038-022	1,000.00µL
E1801039-006	1,000.00µL	E1801039-017	1,000.00µL	E1801039-031	1,000.00µL	E1801039-036	1,000.00µL	E1801039-037	1,000.00µL	E1801039-038	1,000.00µL
E1801040-001	1,000.00µL	E1801040-002	1,000.00µL	E1801040-003	1,000.00µL	E1801040-004	1,000.00µL	E1801040-005	1,000.00µL	E1801040-006	1,000.00µL
E1801040-007	1,000.00µL	EQ1800469-01	1,000.00µL	EQ1800469-02	1,000.00µL	EQ1800469-03	1,000.00µL				

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

Name: 8290/1613B Cleanup Working Standard Inventory ID 195006 Logbook Ref: tw 11/1/18 8ng/ml 195006 Expires On: 04/27/2019

E1801035-017	100.00µL	E1801038-018	100.00µL	E1801038-019	100.00µL	E1801038-020	100.00µL	E1801038-021	100.00µL	E1801038-022	100.00µL
E1801039-006	100.00µL	E1801039-017	100.00µL	E1801039-031	100.00µL	E1801039-036	100.00µL	E1801039-037	100.00µL	E1801039-038	100.00µL
E1801040-001	100.00µL	E1801040-002	100.00µL	E1801040-003	100.00µL	E1801040-004	100.00µL	E1801040-005	100.00µL	E1801040-006	100.00µL
E1801040-007	100.00µL	EQ1800469-01	100.00µL	EQ1800469-02	100.00µL	EQ1800469-03	100.00µL				

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	10/31/18 tw toluene (194571)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/14/18 11:00	Started:	11/28/18 13:00	Started:	11/28/18 14:00	Started:	11/29/18 12:00
Finished:	11/15/18 07:30	Finished:	11/28/18 14:00	Finished:	11/28/18 17:00	Finished:	11/29/18 15:00
By:	ALOPEZ	By:	TWOODS	By:	TWOODS	By:	TWOODS
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801040 19 of 491

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:31
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0509	**Units:**	ng/Kg
Lab Code:	E1801040-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 13:28
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.852g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519142	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.59		0.135	0.521	0.78	1.001	1
1,2,3,7,8-PeCDD	0.125**JK**		0.0511	2.60	2.09	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.0817	2.60			1
1,2,3,6,7,8-HxCDD	0.239**JK**		0.0912	2.60	0.86	1.000	1
1,2,3,7,8,9-HxCDD	0.235**J**		0.0843	2.60	1.41	1.007	1
1,2,3,4,6,7,8-HpCDD	5.77		0.199	2.60	1.15	1.000	1
OCDD	155		0.412	5.21	0.89	1.000	1
2,3,7,8-TCDF	5.34		0.138	0.521	0.68	1.001	1
1,2,3,7,8-PeCDF	0.292**JK**		0.0801	2.60	1.11	1.001	1
2,3,4,7,8-PeCDF	0.285**JK**		0.0879	2.60	1.98	1.001	1
1,2,3,4,7,8-HxCDF	0.666**J**		0.0478	2.60	1.09	1.000	1
1,2,3,6,7,8-HxCDF	0.0948**JK**		0.0483	2.60	0.69	1.000	1
1,2,3,7,8,9-HxCDF	0.0710**JK**		0.0652	2.60	2.05	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0520	2.60			1
1,2,3,4,6,7,8-HpCDF	0.659**J**		0.0408	2.60	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	0.102**JK**		0.0648	2.60	0.61	1.000	1
OCDF	2.98**JK**		0.650	5.21	1.45	1.006	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:31
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0509	**Units:**	ng/Kg
Lab Code:	E1801040-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 13:28
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.852g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519142	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.95		0.135	0.521	0.69		1
Total Penta-Dioxins	ND	U	0.0511	2.60			1
Total Hexa-Dioxins	3.58		0.0856	2.60	1.08		1
Total Hepta-Dioxins	19.1		0.199	2.60	1.16		1
Total Tetra-Furans	7.97		0.138	0.521	0.73		1
Total Penta-Furans	0.390**J**		0.0839	2.60	1.76		1
Total Hexa-Furans	0.666**J**		0.0526	2.60	1.09		1
Total Hepta-Furans	0.659**J**		0.0509	2.60	1.07		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:31
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0509	**Units:**	Percent
Lab Code:	E1801040-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 13:28
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.852g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519142	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	958.885	48		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	1002.554	50		25-181	1.59	1.181
13C-1,2,3,4,7,8-HxCDD	2000	985.027	49		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	937.489	47		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	682.516	34		23-140	1.05	1.067
13C-OCDD	4000	627.621	16	**Y**	17-157	0.88	1.144
13C-2,3,7,8-TCDF	2000	790.132	40		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	950.250	48		24-185	1.58	1.139
13C-2,3,4,7,8-PeCDF	2000	878.438	44		21-178	1.60	1.171
13C-1,2,3,4,7,8-HxCDF	2000	897.097	45		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	893.419	45		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	835.107	42		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	895.686	45		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	579.025	29		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	526.623	26		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	401.528	50		35-197	NA	1.020

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:31
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0509	**Units:**	ng/Kg
Lab Code:	E1801040-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.59**	0.135	0.521	1	1	1.59
1,2,3,7,8-PeCDD	**0.125**	0.0511	2.60	1	1	0.125
1,2,3,4,7,8-HxCDD	ND	0.0817	2.60	1	0.1	
1,2,3,6,7,8-HxCDD	**0.239**	0.0912	2.60	1	0.1	0.0239
1,2,3,7,8,9-HxCDD	**0.235**	0.0843	2.60	1	0.1	0.0235
1,2,3,4,6,7,8-HpCDD	**5.77**	0.199	2.60	1	0.01	0.0577
OCDD	**155**	0.412	5.21	1	0.0003	0.0465
2,3,7,8-TCDF	**5.34**	0.138	0.521	1	0.1	0.534
1,2,3,7,8-PeCDF	**0.292**	0.0801	2.60	1	0.03	0.00876
2,3,4,7,8-PeCDF	**0.285**	0.0879	2.60	1	0.3	0.0855
1,2,3,4,7,8-HxCDF	**0.666**	0.0478	2.60	1	0.1	0.0666
1,2,3,6,7,8-HxCDF	**0.0948**	0.0483	2.60	1	0.1	0.00948
1,2,3,7,8,9-HxCDF	**0.0710**	0.0652	2.60	1	0.1	0.00710
2,3,4,6,7,8-HxCDF	ND	0.0520	2.60	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.659**	0.0408	2.60	1	0.01	0.00659
1,2,3,4,7,8,9-HpCDF	**0.102**	0.0648	2.60	1	0.01	0.00102
OCDF	**2.98**	0.650	5.21	1	0.0003	0.000894
		Total TEQ				2.59

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:31
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0509	**Units:**	Percent
Lab Code:	E1801040-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	7.093g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	88.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:38
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0510	**Units:**	ng/Kg
Lab Code:	E1801040-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 08:43
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.733g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519165	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.400	0.553			1
1,2,3,7,8-PeCDD	ND	U	0.112	2.76			1
1,2,3,4,7,8-HxCDD	ND	U	0.231	2.76			1
1,2,3,6,7,8-HxCDD	0.430**J**		0.245	2.76	1.42	1.000	1
1,2,3,7,8,9-HxCDD	0.431**JK**		0.233	2.76	1.74	1.006	1
1,2,3,4,6,7,8-HpCDD	9.75		0.130	2.76	0.98	1.000	1
OCDD	650		0.156	5.53	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.259	0.553			1
1,2,3,7,8-PeCDF	ND	U	0.107	2.76			1
2,3,4,7,8-PeCDF	ND	U	0.107	2.76			1
1,2,3,4,7,8-HxCDF	0.100**J**		0.0924	2.76	1.08	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0895	2.76			1
1,2,3,7,8,9-HxCDF	0.125**JK**		0.116	2.76	1.54	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0923	2.76			1
1,2,3,4,6,7,8-HpCDF	0.161**JK**		0.101	2.76	1.23	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.158	2.76			1
OCDF	1.17**JK**		0.260	5.53	1.15	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:38
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0510	**Units:**	ng/Kg
Lab Code:	E1801040-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 08:43
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.733g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519165	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.400	0.553			1
Total Penta-Dioxins	0.718**J**		0.112	2.76	1.38		1
Total Hexa-Dioxins	11.6		0.236	2.76	1.35		1
Total Hepta-Dioxins	40.9		0.130	2.76	1.01		1
Total Tetra-Furans	ND	U	0.259	0.553			1
Total Penta-Furans	ND	U	0.107	2.76			1
Total Hexa-Furans	0.100**J**		0.0966	2.76	1.08		1
Total Hepta-Furans	ND	U	0.125	2.76			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:38
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0510	**Units:**	Percent
Lab Code:	E1801040-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 08:43
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.733g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519165	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	599.895	30		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	979.200	49		25-181	1.63	1.182
13C-1,2,3,4,7,8-HxCDD	2000	967.362	48		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	966.474	48		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	960.526	48		23-140	1.05	1.067
13C-OCDD	4000	1139.383	28		17-157	0.89	1.144
13C-2,3,7,8-TCDF	2000	514.538	26		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	842.610	42		24-185	1.58	1.140
13C-2,3,4,7,8-PeCDF	2000	836.000	42		21-178	1.59	1.172
13C-1,2,3,4,7,8-HxCDF	2000	828.583	41		26-152	0.54	0.971
13C-1,2,3,6,7,8-HxCDF	2000	831.377	42		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	827.617	41		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	853.434	43		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	775.596	39		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	715.027	36		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	255.411	32	**Y**	35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:38
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0510	**Units:**	ng/Kg
Lab Code:	E1801040-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.400	0.553	1	1	
1,2,3,7,8-PeCDD	ND	0.112	2.76	1	1	
1,2,3,4,7,8-HxCDD	ND	0.231	2.76	1	0.1	
1,2,3,6,7,8-HxCDD	**0.430**	0.245	2.76	1	0.1	0.0430
1,2,3,7,8,9-HxCDD	**0.431**	0.233	2.76	1	0.1	0.0431
1,2,3,4,6,7,8-HpCDD	**9.75**	0.130	2.76	1	0.01	0.0975
OCDD	**650**	0.156	5.53	1	0.0003	0.195
2,3,7,8-TCDF	ND	0.259	0.553	1	0.1	
1,2,3,7,8-PeCDF	ND	0.107	2.76	1	0.03	
2,3,4,7,8-PeCDF	ND	0.107	2.76	1	0.3	
1,2,3,4,7,8-HxCDF	**0.100**	0.0924	2.76	1	0.1	0.0100
1,2,3,6,7,8-HxCDF	ND	0.0895	2.76	1	0.1	
1,2,3,7,8,9-HxCDF	**0.125**	0.116	2.76	1	0.1	0.0125
2,3,4,6,7,8-HxCDF	ND	0.0923	2.76	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.161**	0.101	2.76	1	0.01	0.00161
1,2,3,4,7,8,9-HpCDF	ND	0.158	2.76	1	0.01	
OCDF	**1.17**	0.260	5.53	1	0.0003	0.000351
		Total TEQ				0.403

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:38
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0510	**Units:**	Percent
Lab Code:	E1801040-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	9.209g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:44
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0511	**Units:**	ng/Kg
Lab Code:	E1801040-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 09:31
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.429g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519166	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.275	0.602			1
1,2,3,7,8-PeCDD	ND	U	0.0850	3.01			1
1,2,3,4,7,8-HxCDD	ND	U	0.120	3.01			1
1,2,3,6,7,8-HxCDD	0.237**J**		0.130	3.01	1.30	1.000	1
1,2,3,7,8,9-HxCDD	0.342**JK**		0.122	3.01	0.88	1.006	1
1,2,3,4,6,7,8-HpCDD	7.96		0.143	3.01	1.03	1.000	1
OCDD	449		0.162	6.02	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.196	0.602			1
1,2,3,7,8-PeCDF	ND	U	0.0846	3.01			1
2,3,4,7,8-PeCDF	ND	U	0.0939	3.01			1
1,2,3,4,7,8-HxCDF	0.0778**JK**		0.0621	3.01	0.75	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0608	3.01			1
1,2,3,7,8,9-HxCDF	ND	U	0.0826	3.01			1
2,3,4,6,7,8-HxCDF	ND	U	0.0655	3.01			1
1,2,3,4,6,7,8-HpCDF	0.272**J**		0.0691	3.01	1.08	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.118	3.01			1
OCDF	1.88**JK**		0.263	6.02	1.11	1.006	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:44
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0511	**Units:**	ng/Kg
Lab Code:	E1801040-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 09:31
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.429g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519166	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.275	0.602			1
Total Penta-Dioxins	0.626**J**		0.0850	3.01	1.51		1
Total Hexa-Dioxins	7.81		0.124	3.01	1.36		1
Total Hepta-Dioxins	31.0		0.143	3.01	1.01		1
Total Tetra-Furans	ND	U	0.196	0.602			1
Total Penta-Furans	ND	U	0.0891	3.01			1
Total Hexa-Furans	ND	U	0.0669	3.01			1
Total Hepta-Furans	0.463**J**		0.0888	3.01	1.08		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:44
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0511	**Units:**	Percent
Lab Code:	E1801040-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 09:31
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.429g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519166	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1016.641	51		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1228.437	61		25-181	1.59	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1158.721	58		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1170.544	59		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1077.810	54		23-140	1.05	1.067
13C-OCDD	4000	1199.675	30		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	831.179	42		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1126.005	56		24-185	1.59	1.140
13C-2,3,4,7,8-PeCDF	2000	1033.621	52		21-178	1.59	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1027.311	51		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1049.384	52		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	998.900	50		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1031.747	52		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	889.142	44		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	774.276	39		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	435.239	54		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:44
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0511	**Units:**	ng/Kg
Lab Code:	E1801040-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.275	0.602	1	1	
1,2,3,7,8-PeCDD	ND	0.0850	3.01	1	1	
1,2,3,4,7,8-HxCDD	ND	0.120	3.01	1	0.1	
1,2,3,6,7,8-HxCDD	**0.237**	0.130	3.01	1	0.1	0.0237
1,2,3,7,8,9-HxCDD	**0.342**	0.122	3.01	1	0.1	0.0342
1,2,3,4,6,7,8-HpCDD	**7.96**	0.143	3.01	1	0.01	0.0796
OCDD	**449**	0.162	6.02	1	0.0003	0.135
2,3,7,8-TCDF	ND	0.196	0.602	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0846	3.01	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0939	3.01	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0778**	0.0621	3.01	1	0.1	0.00778
1,2,3,6,7,8-HxCDF	ND	0.0608	3.01	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0826	3.01	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0655	3.01	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.272**	0.0691	3.01	1	0.01	0.00272
1,2,3,4,7,8,9-HpCDF	ND	0.118	3.01	1	0.01	
OCDF	**1.88**	0.263	6.02	1	0.0003	0.000564
		Total TEQ				0.284

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:44
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0511	**Units:**	Percent
Lab Code:	E1801040-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	7.132g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0512	**Units:**	ng/Kg
Lab Code:	E1801040-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.292g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519167	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.214	0.576			1
1,2,3,7,8-PeCDD	0.138**J**		0.0781	2.88	1.42	1.000	1
1,2,3,4,7,8-HxCDD	0.215**J**		0.0598	2.88	1.07	1.000	1
1,2,3,6,7,8-HxCDD	0.243**JK**		0.0671	2.88	0.82	1.000	1
1,2,3,7,8,9-HxCDD	0.423**J**		0.0620	2.88	1.13	1.007	1
1,2,3,4,6,7,8-HpCDD	6.85		0.123	2.88	1.06	1.000	1
OCDD	331		0.142	5.76	0.86	1.000	1
2,3,7,8-TCDF	ND	U	0.124	0.576			1
1,2,3,7,8-PeCDF	ND	U	0.0939	2.88			1
2,3,4,7,8-PeCDF	ND	U	0.0993	2.88			1
1,2,3,4,7,8-HxCDF	0.0583**JK**		0.0570	2.88	0.72	1.001	1
1,2,3,6,7,8-HxCDF	ND	U	0.0572	2.88			1
1,2,3,7,8,9-HxCDF	0.105**JK**		0.0743	2.88	0.78	1.001	1
2,3,4,6,7,8-HxCDF	0.0634**JK**		0.0614	2.88	0.85	1.000	1
1,2,3,4,6,7,8-HpCDF	0.252**J**		0.0485	2.88	0.91	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0799	2.88			1
OCDF	1.84**JK**		0.252	5.76	0.70	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0512	**Units:**	ng/Kg
Lab Code:	E1801040-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.292g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519167	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.214	0.576			1
Total Penta-Dioxins	0.446**J**		0.0781	2.88	1.78		1
Total Hexa-Dioxins	7.43		0.0629	2.88	1.16		1
Total Hepta-Dioxins	28.1		0.123	2.88	1.01		1
Total Tetra-Furans	ND	U	0.124	0.576			1
Total Penta-Furans	ND	U	0.0965	2.88			1
Total Hexa-Furans	ND	U	0.0619	2.88			1
Total Hepta-Furans	0.461**J**		0.0614	2.88	0.91		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0512	**Units:**	Percent
Lab Code:	E1801040-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.292g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519167	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	855.534	43		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1144.706	57		25-181	1.58	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1106.856	55		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1076.152	54		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1006.102	50		23-140	1.09	1.067
13C-OCDD	4000	1126.054	28		17-157	0.89	1.144
13C-2,3,7,8-TCDF	2000	722.885	36		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1023.507	51		24-185	1.57	1.140
13C-2,3,4,7,8-PeCDF	2000	979.278	49		21-178	1.57	1.172
13C-1,2,3,4,7,8-HxCDF	2000	941.233	47		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	961.831	48		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	933.785	47		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	957.061	48		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	836.690	42		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	728.537	36		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	361.293	45		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0512	**Units:**	ng/Kg
Lab Code:	E1801040-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.214	0.576	1	1	
1,2,3,7,8-PeCDD	**0.138**	0.0781	2.88	1	1	0.138
1,2,3,4,7,8-HxCDD	**0.215**	0.0598	2.88	1	0.1	0.0215
1,2,3,6,7,8-HxCDD	**0.243**	0.0671	2.88	1	0.1	0.0243
1,2,3,7,8,9-HxCDD	**0.423**	0.0620	2.88	1	0.1	0.0423
1,2,3,4,6,7,8-HpCDD	**6.85**	0.123	2.88	1	0.01	0.0685
OCDD	**331**	0.142	5.76	1	0.0003	0.0993
2,3,7,8-TCDF	ND	0.124	0.576	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0939	2.88	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0993	2.88	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0583**	0.0570	2.88	1	0.1	0.00583
1,2,3,6,7,8-HxCDF	ND	0.0572	2.88	1	0.1	
1,2,3,7,8,9-HxCDF	**0.105**	0.0743	2.88	1	0.1	0.0105
2,3,4,6,7,8-HxCDF	**0.0634**	0.0614	2.88	1	0.1	0.00634
1,2,3,4,6,7,8-HpCDF	**0.252**	0.0485	2.88	1	0.01	0.00252
1,2,3,4,7,8,9-HpCDF	ND	0.0799	2.88	1	0.01	
OCDF	**1.84**	0.252	5.76	1	0.0003	0.000552
		Total TEQ				0.420

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0512	**Units:**	Percent
Lab Code:	E1801040-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	7.374g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:00
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0513	**Units:**	ng/Kg
Lab Code:	E1801040-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 11:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.260g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519168	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.501**JK**		0.295	0.577	0.57	1.000	1
1,2,3,7,8-PeCDD	0.177**JK**		0.0951	2.89	1.27	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.137	2.89			1
1,2,3,6,7,8-HxCDD	0.262**JK**		0.153	2.89	2.16	1.001	1
1,2,3,7,8,9-HxCDD	0.620**J**		0.141	2.89	1.33	1.006	1
1,2,3,4,6,7,8-HpCDD	7.86		0.158	2.89	0.90	1.001	1
OCDD	375		0.307	5.77	0.89	1.000	1
2,3,7,8-TCDF	1.35**K**		0.224	0.577	0.64	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.127	2.89			1
2,3,4,7,8-PeCDF	ND	U	0.143	2.89			1
1,2,3,4,7,8-HxCDF	ND	U	0.109	2.89			1
1,2,3,6,7,8-HxCDF	ND	U	0.109	2.89			1
1,2,3,7,8,9-HxCDF	ND	U	0.156	2.89			1
2,3,4,6,7,8-HxCDF	ND	U	0.117	2.89			1
1,2,3,4,6,7,8-HpCDF	0.449**JK**		0.0526	2.89	1.36	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.102	2.89			1
OCDF	2.90**JK**		0.415	5.77	0.60	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:00
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0513	**Units:**	ng/Kg
Lab Code:	E1801040-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 11:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.260g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519168	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.295	0.577			1
Total Penta-Dioxins	1.01**J**		0.0951	2.89	1.40		1
Total Hexa-Dioxins	8.94		0.144	2.89	1.27		1
Total Hepta-Dioxins	33.8		0.158	2.89	1.06		1
Total Tetra-Furans	ND	U	0.224	0.577			1
Total Penta-Furans	ND	U	0.135	2.89			1
Total Hexa-Furans	ND	U	0.121	2.89			1
Total Hepta-Furans	0.409**J**		0.0715	2.89	1.09		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:00
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0513	**Units:**	Percent
Lab Code:	E1801040-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 11:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.260g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519168	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	727.111	36		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	897.662	45		25-181	1.60	1.182
13C-1,2,3,4,7,8-HxCDD	2000	898.626	45		32-141	1.34	0.991
13C-1,2,3,6,7,8-HxCDD	2000	856.875	43		28-130	1.18	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	735.778	37		23-140	1.06	1.067
13C-OCDD	4000	689.402	17		17-157	0.90	1.144
13C-2,3,7,8-TCDF	2000	603.129	30		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	838.399	42		24-185	1.59	1.140
13C-2,3,4,7,8-PeCDF	2000	771.120	39		21-178	1.57	1.172
13C-1,2,3,4,7,8-HxCDF	2000	786.900	39		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	790.613	40		26-123	0.50	0.974
13C-1,2,3,7,8,9-HxCDF	2000	722.149	36		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	784.316	39		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	654.222	33		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	504.281	25	**Y**	26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	301.983	38		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:00
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0513	**Units:**	ng/Kg
Lab Code:	E1801040-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.501**	0.295	0.577	1	1	0.501
1,2,3,7,8-PeCDD	**0.177**	0.0951	2.89	1	1	0.177
1,2,3,4,7,8-HxCDD	ND	0.137	2.89	1	0.1	
1,2,3,6,7,8-HxCDD	**0.262**	0.153	2.89	1	0.1	0.0262
1,2,3,7,8,9-HxCDD	**0.620**	0.141	2.89	1	0.1	0.0620
1,2,3,4,6,7,8-HpCDD	**7.86**	0.158	2.89	1	0.01	0.0786
OCDD	**375**	0.307	5.77	1	0.0003	0.113
2,3,7,8-TCDF	**1.35**	0.224	0.577	1	0.1	0.135
1,2,3,7,8-PeCDF	ND	0.127	2.89	1	0.03	
2,3,4,7,8-PeCDF	ND	0.143	2.89	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.109	2.89	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.109	2.89	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.156	2.89	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.117	2.89	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.449**	0.0526	2.89	1	0.01	0.00449
1,2,3,4,7,8,9-HpCDF	ND	0.102	2.89	1	0.01	
OCDF	**2.90**	0.415	5.77	1	0.0003	0.000870
		Total TEQ				1.10

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:00
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0513	**Units:**	Percent
Lab Code:	E1801040-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.546g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:07
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0514	**Units:**	ng/Kg
Lab Code:	E1801040-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 11:57
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.104g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519169	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.413**J**		0.230	0.599	0.75	1.001	1
1,2,3,7,8-PeCDD	0.152**JK**		0.0633	3.00	1.24	1.001	1
1,2,3,4,7,8-HxCDD	0.188**JK**		0.158	3.00	0.70	1.000	1
1,2,3,6,7,8-HxCDD	0.536**J**		0.168	3.00	1.40	1.000	1
1,2,3,7,8,9-HxCDD	0.449**JK**		0.159	3.00	1.52	1.007	1
1,2,3,4,6,7,8-HpCDD	11.4		0.0921	3.00	0.91	1.000	1
OCDD	416		0.313	5.99	0.90	1.000	1
2,3,7,8-TCDF	0.997		0.162	0.599	0.67	1.000	1
1,2,3,7,8-PeCDF	0.172**J**		0.109	3.00	1.46	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.121	3.00			1
1,2,3,4,7,8-HxCDF	0.213**JK**		0.0639	3.00	0.98	1.000	1
1,2,3,6,7,8-HxCDF	0.143**JK**		0.0646	3.00	0.62	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0880	3.00			1
2,3,4,6,7,8-HxCDF	0.115**J**		0.0698	3.00	1.23	1.001	1
1,2,3,4,6,7,8-HpCDF	1.07**JK**		0.0717	3.00	0.86	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.132	3.00			1
OCDF	4.65**J**		0.435	5.99	0.78	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:07
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0514	**Units:**	ng/Kg
Lab Code:	E1801040-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 11:57
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.104g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519169	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.413**J**		0.230	0.599	0.75		1
Total Penta-Dioxins	0.566**J**		0.0633	3.00	1.32		1
Total Hexa-Dioxins	7.50		0.162	3.00	1.27		1
Total Hepta-Dioxins	41.1		0.0921	3.00	1.05		1
Total Tetra-Furans	0.997		0.162	0.599	0.67		1
Total Penta-Furans	0.172**J**		0.115	3.00	1.46		1
Total Hexa-Furans	1.07**J**		0.0706	3.00	1.22		1
Total Hepta-Furans	1.96**J**		0.0948	3.00	1.05		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:07
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0514	**Units:**	Percent
Lab Code:	E1801040-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 11:57
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.104g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519169	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1067.825	53		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1165.320	58		25-181	1.56	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1098.994	55		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1090.511	55		28-130	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	829.219	41		23-140	1.07	1.067
13C-OCDD	4000	666.157	17		17-157	0.92	1.144
13C-2,3,7,8-TCDF	2000	887.594	44		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	1088.216	54		24-185	1.57	1.140
13C-2,3,4,7,8-PeCDF	2000	993.528	50		21-178	1.59	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1030.365	52		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1009.503	50		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	938.807	47		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	986.767	49		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	740.676	37		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	574.035	29		26-138	0.41	1.080
37Cl-2,3,7,8-TCDD	800	448.578	56		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:07
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0514	**Units:**	ng/Kg
Lab Code:	E1801040-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.413**	0.230	0.599	1	1	0.413
1,2,3,7,8-PeCDD	**0.152**	0.0633	3.00	1	1	0.152
1,2,3,4,7,8-HxCDD	**0.188**	0.158	3.00	1	0.1	0.0188
1,2,3,6,7,8-HxCDD	**0.536**	0.168	3.00	1	0.1	0.0536
1,2,3,7,8,9-HxCDD	**0.449**	0.159	3.00	1	0.1	0.0449
1,2,3,4,6,7,8-HpCDD	**11.4**	0.0921	3.00	1	0.01	0.114
OCDD	**416**	0.313	5.99	1	0.0003	0.125
2,3,7,8-TCDF	**0.997**	0.162	0.599	1	0.1	0.0997
1,2,3,7,8-PeCDF	**0.172**	0.109	3.00	1	0.03	0.00516
2,3,4,7,8-PeCDF	ND	0.121	3.00	1	0.3	
1,2,3,4,7,8-HxCDF	**0.213**	0.0639	3.00	1	0.1	0.0213
1,2,3,6,7,8-HxCDF	**0.143**	0.0646	3.00	1	0.1	0.0143
1,2,3,7,8,9-HxCDF	ND	0.0880	3.00	1	0.1	
2,3,4,6,7,8-HxCDF	**0.115**	0.0698	3.00	1	0.1	0.0115
1,2,3,4,6,7,8-HpCDF	**1.07**	0.0717	3.00	1	0.01	0.0107
1,2,3,4,7,8,9-HpCDF	ND	0.132	3.00	1	0.01	
OCDF	**4.65**	0.435	5.99	1	0.0003	0.00140
		Total TEQ				1.09

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 11:07
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0514	**Units:**	Percent
Lab Code:	E1801040-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	7.615g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:34
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0518	**Units:**	ng/Kg
Lab Code:	E1801040-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 12:46
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.460g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519170	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.06		0.196	0.541	0.68	1.001	1
1,2,3,7,8-PeCDD	0.104**JK**		0.0615	2.70	1.29	1.000	1
1,2,3,4,7,8-HxCDD	0.0764**J**		0.0668	2.70	1.14	1.001	1
1,2,3,6,7,8-HxCDD	0.225**J**		0.0739	2.70	1.17	1.000	1
1,2,3,7,8,9-HxCDD	0.359**J**		0.0686	2.70	1.24	1.006	1
1,2,3,4,6,7,8-HpCDD	6.03		0.116	2.70	0.95	1.000	1
OCDD	168		0.158	5.41	0.92	1.000	1
2,3,7,8-TCDF	3.40		0.0974	0.541	0.69	1.001	1
1,2,3,7,8-PeCDF	0.193**JK**		0.0768	2.70	1.31	1.001	1
2,3,4,7,8-PeCDF	0.144**JK**		0.0866	2.70	1.22	1.000	1
1,2,3,4,7,8-HxCDF	0.456**J**		0.0487	2.70	1.16	1.000	1
1,2,3,6,7,8-HxCDF	0.159**JK**		0.0500	2.70	1.47	1.000	1
1,2,3,7,8,9-HxCDF	0.0935**JK**		0.0655	2.70	1.99	1.000	1
2,3,4,6,7,8-HxCDF	0.0789**JK**		0.0543	2.70	1.80	1.000	1
1,2,3,4,6,7,8-HpCDF	0.917**JK**		0.0646	2.70	0.86	1.001	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.119	2.70			1
OCDF	8.35		0.254	5.41	0.90	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:34
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0518	**Units:**	ng/Kg
Lab Code:	E1801040-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 12:46
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.460g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519170	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.06		0.196	0.541	0.68		1
Total Penta-Dioxins	ND	U	0.0615	2.70			1
Total Hexa-Dioxins	3.89		0.0698	2.70	1.38		1
Total Hepta-Dioxins	19.7		0.116	2.70	1.08		1
Total Tetra-Furans	5.57		0.0974	0.541	0.74		1
Total Penta-Furans	ND	U	0.0814	2.70			1
Total Hexa-Furans	0.865**J**		0.0541	2.70	1.20		1
Total Hepta-Furans	1.39**J**		0.0854	2.70	1.06		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:34
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0518	**Units:**	Percent
Lab Code:	E1801040-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/03/18 12:46
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.460g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519170	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519161

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1144.685	57		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1254.121	63		25-181	1.59	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1158.947	58		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1120.542	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	932.819	47		23-140	1.07	1.067
13C-OCDD	4000	810.272	20		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	937.213	47		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	1182.306	59		24-185	1.59	1.140
13C-2,3,4,7,8-PeCDF	2000	1076.572	54		21-178	1.57	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1058.304	53		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1040.349	52		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1013.213	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1018.252	51		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	820.880	41		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	634.631	32		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	493.948	62		35-197	NA	1.020

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:34
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0518	**Units:**	ng/Kg
Lab Code:	E1801040-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.06**	0.196	0.541	1	1	1.06
1,2,3,7,8-PeCDD	**0.104**	0.0615	2.70	1	1	0.104
1,2,3,4,7,8-HxCDD	**0.0764**	0.0668	2.70	1	0.1	0.00764
1,2,3,6,7,8-HxCDD	**0.225**	0.0739	2.70	1	0.1	0.0225
1,2,3,7,8,9-HxCDD	**0.359**	0.0686	2.70	1	0.1	0.0359
1,2,3,4,6,7,8-HpCDD	**6.03**	0.116	2.70	1	0.01	0.0603
OCDD	**168**	0.158	5.41	1	0.0003	0.0504
2,3,7,8-TCDF	**3.40**	0.0974	0.541	1	0.1	0.340
1,2,3,7,8-PeCDF	**0.193**	0.0768	2.70	1	0.03	0.00579
2,3,4,7,8-PeCDF	**0.144**	0.0866	2.70	1	0.3	0.0432
1,2,3,4,7,8-HxCDF	**0.456**	0.0487	2.70	1	0.1	0.0456
1,2,3,6,7,8-HxCDF	**0.159**	0.0500	2.70	1	0.1	0.0159
1,2,3,7,8,9-HxCDF	**0.0935**	0.0655	2.70	1	0.1	0.00935
2,3,4,6,7,8-HxCDF	**0.0789**	0.0543	2.70	1	0.1	0.00789
1,2,3,4,6,7,8-HpCDF	**0.917**	0.0646	2.70	1	0.01	0.00917
1,2,3,4,7,8,9-HpCDF	ND	0.119	2.70	1	0.01	
OCDF	**8.35**	0.254	5.41	1	0.0003	0.00251
		Total TEQ				1.82

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	11/08/18 10:34
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0518	**Units:**	Percent
Lab Code:	E1801040-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.68g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	88.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.381	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0614	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0337	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0371	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0346	2.44			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.0442	2.44			1
OCDD	0.338**J**		0.0397	4.88	0.97	1.000	1
2,3,7,8-TCDF	ND	U	0.254	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.0836	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0846	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0238	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0235	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0252	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0236	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0349	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0414	2.44			1
OCDF	ND	U	0.0699	4.88			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.381	0.488			1
Total Penta-Dioxins	ND	U	0.0614	2.44			1
Total Hexa-Dioxins	ND	U	0.0352	2.44			1
Total Hepta-Dioxins	0.103**J**		0.0442	2.44	0.94		1
Total Tetra-Furans	ND	U	0.254	0.488			1
Total Penta-Furans	ND	U	0.0841	2.44			1
Total Hexa-Furans	ND	U	0.0240	2.44			1
Total Hepta-Furans	ND	U	0.0379	2.44			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1576.459	79		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	2731.808	137		25-181	1.61	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1888.275	94		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1796.326	90		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2868.687	143	**Y**	23-140	1.04	1.067
13C-OCDD	4000	5666.155	142		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	1367.535	68		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	2328.489	116		24-185	1.60	1.143
13C-2,3,4,7,8-PeCDF	2000	2328.334	116		21-178	1.59	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1549.864	77		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1543.115	77		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1803.889	90		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1647.245	82		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	2049.390	102		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	2391.939	120		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	663.016	83		35-197	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Analyzed:**	12/02/18
Sample Matrix:	Sediment	**Date Extracted:**	11/14/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	617699

	Lab Control Sample EQ1800469-02			Duplicate Lab Control Sample EQ1800469-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.1	97.2	78	79.2	98.2	81	70-140	4	50
1,2,3,4,7,8-HxCDD	90.9	97.2	94	90.7	98.2	92	70-164	<1	50
1,2,3,6,7,8-HxCDD	96.4	97.2	99	98.6	98.2	100	76-134	2	50
1,2,3,7,8,9-HxCDD	98.7	97.2	102	96.6	98.2	98	64-162	2	50
1,2,3,7,8-PeCDD	98.4	97.2	101	98.3	98.2	100	70-142	<1	50
2,3,7,8-TCDD	18.2	19.4	94	19.0	19.6	97	67-158	5	50
OCDD	189	194	97	189	196	96	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	92.7	97.2	95	96.7	98.2	99	82-122	4	50
1,2,3,4,7,8,9-HpCDF	95.8	97.2	99	99.8	98.2	102	78-138	4	50
1,2,3,4,7,8-HxCDF	96.9	97.2	100	99.3	98.2	101	72-134	2	50
1,2,3,6,7,8-HxCDF	97.2	97.2	100	98.3	98.2	100	84-130	1	50
1,2,3,7,8,9-HxCDF	92.0	97.2	95	93.5	98.2	95	78-130	2	50
1,2,3,7,8-PeCDF	88.8	97.2	91	91.9	98.2	94	80-134	3	50
2,3,4,6,7,8-HxCDF	95.6	97.2	98	95.4	98.2	97	70-156	<1	50
2,3,4,7,8-PeCDF	99.6	97.2	102	103	98.2	105	68-160	3	50
2,3,7,8-TCDF	18.5	19.4	95	19.1	19.6	97	75-158	3	50
OCDF	176	194	91	183	196	93	63-170	4	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.2		0.210	0.486	0.76	1.001	1
1,2,3,7,8-PeCDD	98.4		0.0474	2.43	1.57	1.000	1
1,2,3,4,7,8-HxCDD	90.9		0.0232	2.43	1.27	1.000	1
1,2,3,6,7,8-HxCDD	96.4		0.0252	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	98.7		0.0237	2.43	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	76.1		0.0626	2.43	1.06	1.000	1
OCDD	189		0.219	4.86	0.88	1.000	1
2,3,7,8-TCDF	18.5		0.126	0.486	0.75	1.001	1
1,2,3,7,8-PeCDF	88.8		0.0495	2.43	1.54	1.001	1
2,3,4,7,8-PeCDF	99.6		0.0471	2.43	1.51	1.001	1
1,2,3,4,7,8-HxCDF	96.9		0.0301	2.43	1.17	1.000	1
1,2,3,6,7,8-HxCDF	97.2		0.0294	2.43	1.20	1.000	1
1,2,3,7,8,9-HxCDF	92.0		0.0396	2.43	1.20	1.000	1
2,3,4,6,7,8-HxCDF	95.6		0.0295	2.43	1.18	1.000	1
1,2,3,4,6,7,8-HpCDF	92.7		0.192	2.43	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.326	2.43	0.94	1.000	1
OCDF	176		0.262	4.86	0.90	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.3		0.210	0.486	0.76		1
Total Penta-Dioxins	98.5		0.0474	2.43	1.57		1
Total Hexa-Dioxins	286		0.0240	2.43	1.27		1
Total Hepta-Dioxins	76.1		0.0626	2.43	1.06		1
Total Tetra-Furans	18.6		0.126	0.486	0.75		1
Total Penta-Furans	189		0.0482	2.43	1.54		1
Total Hexa-Furans	382		0.0317	2.43	1.17		1
Total Hepta-Furans	188		0.247	2.43	0.96		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	636.561	32		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1087.680	54		25-181	1.58	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1160.893	58		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1142.394	57		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	926.595	46		23-140	1.08	1.067
13C-OCDD	4000	925.030	23		17-157	0.90	1.144
13C-2,3,7,8-TCDF	2000	548.573	27		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	918.007	46		24-185	1.57	1.139
13C-2,3,4,7,8-PeCDF	2000	956.316	48		21-178	1.58	1.171
13C-1,2,3,4,7,8-HxCDF	2000	982.761	49		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1012.451	51		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	971.970	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1085.164	54		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	770.074	39		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	662.545	33		26-138	0.42	1.080
37Cl-2,3,7,8-TCDD	800	270.557	34	**Y**	35-197	NA	1.020

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.0		0.137	0.491	0.75	1.001	1
1,2,3,7,8-PeCDD	98.3		0.0420	2.45	1.59	1.000	1
1,2,3,4,7,8-HxCDD	90.7		0.0392	2.45	1.25	1.000	1
1,2,3,6,7,8-HxCDD	98.6		0.0424	2.45	1.24	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0398	2.45	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	79.2		0.0520	2.45	1.05	1.000	1
OCDD	189		0.150	4.91	0.89	1.000	1
2,3,7,8-TCDF	19.1		0.0843	0.491	0.73	1.001	1
1,2,3,7,8-PeCDF	91.9		0.0643	2.45	1.51	1.001	1
2,3,4,7,8-PeCDF	103		0.0688	2.45	1.52	1.000	1
1,2,3,4,7,8-HxCDF	99.3		0.0213	2.45	1.19	1.000	1
1,2,3,6,7,8-HxCDF	98.3		0.0207	2.45	1.21	1.000	1
1,2,3,7,8,9-HxCDF	93.5		0.0259	2.45	1.21	1.000	1
2,3,4,6,7,8-HxCDF	95.4		0.0204	2.45	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	96.7		0.189	2.45	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	99.8		0.311	2.45	0.99	1.000	1
OCDF	183		0.154	4.91	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.0		0.137	0.491	0.75		1
Total Penta-Dioxins	98.3		0.0420	2.45	1.59		1
Total Hexa-Dioxins	286		0.0405	2.45	1.25		1
Total Hepta-Dioxins	79.2		0.0520	2.45	1.05		1
Total Tetra-Furans	19.3		0.0843	0.491	0.81		1
Total Penta-Furans	196		0.0665	2.45	1.40		1
Total Hexa-Furans	387		0.0218	2.45	1.19		1
Total Hepta-Furans	196		0.239	2.45	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801040
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	968.894	48		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1290.570	65		25-181	1.60	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1326.341	66		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1299.547	65		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1173.699	59		23-140	1.07	1.067
13C-OCDD	4000	1282.795	32		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	811.184	41		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1140.415	57		24-185	1.60	1.140
13C-2,3,4,7,8-PeCDF	2000	1101.113	55		21-178	1.56	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1120.401	56		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1131.321	57		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1138.142	57		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1213.244	61		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	980.545	49		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	850.443	43		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	412.171	52		35-197	NA	1.020

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0509

Run #17 Filename P519142 Samp: 1 Inj: 1 Acquired: 2-DEC-18 13:28:25
Processed: 3-DEC-18 18:15:24 Sample ID: E1801040-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	6.343e+02	9.341e+02	0.68	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	6.549e+01	5.878e+01	1.11	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	7.064e+01	3.574e+01	1.98	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	9.169e+01	8.446e+01	1.09	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:07	1.477e+01	2.149e+01	0.69	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.353e+01	6.605e+00	2.05	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	5.179e+01	4.827e+01	1.07	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	5.688e+00	9.370e+00	0.61	no	no	1.258
10	Unk	OCDF	42:39	1.144e+02	7.869e+01	1.45	no	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	1.744e+02	2.238e+02	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:40	2.492e+01	1.195e+01	2.09	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	2.452e+01	2.846e+01	0.86	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	2.645e+01	1.873e+01	1.41	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.724e+02	3.228e+02	1.15	yes	no	1.025
17	Unk	OCDD	42:25	2.994e+03	3.356e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.896e+04	3.600e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	4.647e+04	2.948e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.276e+04	2.675e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.575e+04	3.053e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	1.803e+04	3.420e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	1.611e+04	3.093e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.327e+04	2.463e+04	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	7.090e+03	1.630e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	5.440e+03	1.261e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	2.121e+04	2.692e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.259e+04	2.053e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.138e+04	1.669e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.078e+04	1.640e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.255e+04	1.192e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:25	7.168e+03	8.110e+03	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.835e+04	6.031e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	4.655e+04	3.704e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	2.212e+04				no	1.014

$$\text{OCDD} = \frac{(2.994e+03 + 3.356e+03) \times 4000\ \text{pg} \times 1}{(7.168e+03 + 8.110e+03) \times 10.852\ \text{g} \times 88.5/100 \times 1.118} = 154.8\ \text{mg/kg}$$

LLM 12/05/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0509

Run #17 Filename P519142 Samp: 1 Inj: 1 Acquired: 2-DEC-18 13:28:25
Processed: 3-DEC-18 18:15:24 LAB. ID: E1801040-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.10e+05	9.72e+02	1.1e+02	1.62e+05	1.95e+03	8.3e+01
2	1,2,3,7,8-PeCDF	1.17e+04	3.64e+02	3.2e+01	1.22e+04	1.86e+03	6.6e+00
3	2,3,4,7,8-PeCDF	1.14e+04	3.64e+02	3.1e+01	5.26e+03	1.86e+03	2.8e+00
4	1,2,3,4,7,8-HxCDF	1.92e+04	5.36e+02	3.6e+01	1.92e+04	5.72e+02	3.4e+01
5	1,2,3,6,7,8-HxCDF	3.67e+03	5.36e+02	6.8e+00	5.51e+03	5.72e+02	9.6e+00
6	2,3,4,6,7,8-HxCDF	*	5.36e+02	*	*	5.72e+02	*
7	1,2,3,7,8,9-HxCDF	2.95e+03	5.36e+02	5.5e+00	1.65e+03	5.72e+02	2.9e+00
8	1,2,3,4,6,7,8-HpCDF	1.12e+04	1.96e+02	5.7e+01	1.04e+04	3.20e+02	3.2e+01
9	1,2,3,4,7,8,9-HpCDF	1.71e+03	1.96e+02	8.7e+00	3.07e+03	3.20e+02	9.6e+00
10	OCDF	1.76e+04	5.16e+02	3.4e+01	1.31e+04	1.45e+03	9.0e+00
11	2,3,7,8-TCDD	3.02e+04	1.26e+03	2.4e+01	4.37e+04	1.35e+03	3.2e+01
12	1,2,3,7,8-PeCDD	4.57e+03	5.72e+02	8.0e+00	2.73e+03	4.08e+02	6.7e+00
13	1,2,3,4,7,8-HxCDD	*	6.92e+02	*	*	7.08e+02	*
14	1,2,3,6,7,8-HxCDD	4.92e+03	6.92e+02	7.1e+00	5.84e+03	7.08e+02	8.3e+00
15	1,2,3,7,8,9-HxCDD	5.85e+03	6.92e+02	8.5e+00	4.14e+03	7.08e+02	5.8e+00
16	1,2,3,4,6,7,8-HpCDD	7.42e+04	8.40e+02	8.8e+01	6.65e+04	9.72e+02	6.8e+01
17	OCDD	4.68e+05	6.32e+02	7.4e+02	5.02e+05	3.92e+02	1.3e+03
18	13C-2,3,7,8-TCDF	5.23e+06	4.80e+03	1.1e+03	6.51e+06	3.70e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	8.67e+06	4.44e+02	2.0e+04	5.54e+06	3.20e+02	1.7e+04
20	13C-2,3,4,7,8-PeCDF	8.41e+06	4.44e+02	1.9e+04	5.28e+06	3.20e+02	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	3.42e+06	5.84e+02	5.8e+03	6.71e+06	6.92e+02	9.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.64e+06	5.84e+02	6.2e+03	6.98e+06	6.92e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.43e+06	5.84e+02	5.9e+03	6.51e+06	6.92e+02	9.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.68e+06	5.84e+02	4.6e+03	5.05e+06	6.92e+02	7.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.48e+06	1.47e+03	1.0e+03	3.39e+06	3.51e+03	9.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	9.92e+05	1.47e+03	6.7e+02	2.29e+06	3.51e+03	6.5e+02
27	13C-2,3,7,8-TCDD	4.09e+06	5.12e+03	8.0e+02	5.20e+06	2.79e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	6.39e+06	1.13e+03	5.6e+03	4.01e+06	7.24e+02	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	4.83e+06	1.85e+03	2.6e+03	3.75e+06	5.56e+02	6.7e+03
30	13C-1,2,3,6,7,8-HxCDD	4.30e+06	1.85e+03	2.3e+03	3.38e+06	5.56e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.37e+06	2.44e+02	9.7e+03	2.24e+06	2.36e+02	9.5e+03
32	13C-OCDD	1.08e+06	5.40e+02	2.0e+03	1.23e+06	5.96e+02	2.1e+03
33	13C-1,2,3,4-TCDD	9.43e+06	5.12e+03	1.8e+03	1.15e+07	2.79e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	9.57e+06	1.85e+03	5.2e+03	7.65e+06	5.56e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	4.23e+06	1.73e+03	2.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.260e{+}03 + 1.348e{+}03\ ) \times 2000}{(4.085e{+}06 + 5.205e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0509

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519142 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 303.9020 305.8990 Tot Response: 2.34e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:29	2.74e+02	3.73e+02 0.73	yes	6.47e+02		n	n
2	28:16	6.34e+02	9.34e+02 0.68	yes	1.57e+03	2,3,7,8-TCDF	n	n
3	30:05	5.84e+01	6.76e+01 0.86	yes	1.26e+02		n	n

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Peak List Summary

CLIENT ID.
SL0509

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519142 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 319.8970 321.8940 Tot Response: 4.89e+02 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:09	3.71e+01	5.38e+01	0.69	yes	9.09e+01		n	n
2	29:03	1.74e+02	2.24e+02	0.78	yes	3.98e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0509

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P519142 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 339.8600 341.8570 Tot Response: 6.80e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	3.92e+01	2.88e+01 1.36	yes	6.80e+01		n	n

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Peak List Summary

CLIENT ID.
SL0509

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519142 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 339.8600 341.8570 Tot Response: 6.62e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:32	4.22e+01	2.40e+01 1.76	yes	6.62e+01		n	n

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Peak List Summary

CLIENT ID.
SL0509

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519142 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 373.8210 375.8180 Tot Response: 1.76e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:02	9.17e+01	8.45e+01 1.09	yes	1.76e+02	1,2,3,4,7,8-HxCDF	y	n

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Peak List Summary

CLIENT ID.
SL0509

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519142 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 389.8160 391.8130 Tot Response: 6.78e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:27	2.44e+02	2.25e+02 1.08	yes	4.69e+02		n	n
2	36:11	8.62e+01	7.73e+01 1.11	yes	1.64e+02		n	n
3	37:06	2.65e+01	1.87e+01 1.41	yes	4.52e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0509

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519142 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 407.7820 409.7790 Tot Response: 1.00e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:40	5.18e+01	4.83e+01 1.07	yes	1.00e+02	1,2,3,4,6,7,8-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0509

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519142 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 13:28:25 Processed: 3-DEC-18 18:15:24

Mass: 423.7770 425.7740 Tot Response: 2.30e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	8.59e+02	7.41e+02 1.16	yes	1.60e+03		n	n
2	39:35	3.72e+02	3.23e+02 1.15	yes	6.95e+02	1,2,3,4,6,7,8-HpCDD	n	n

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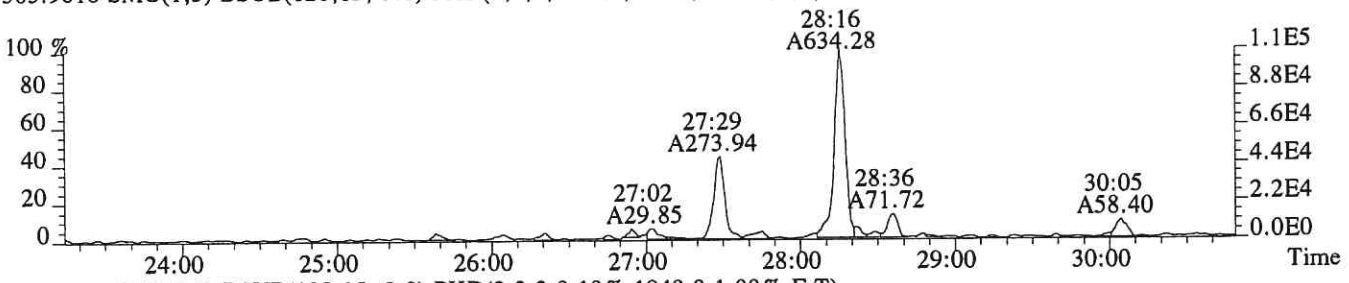
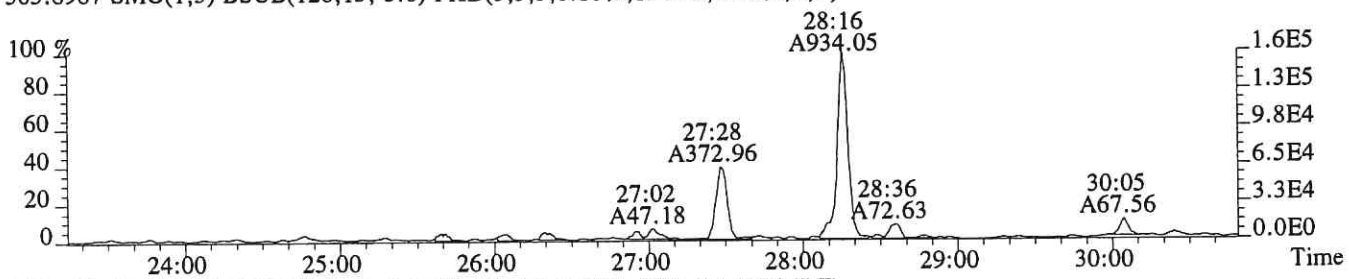
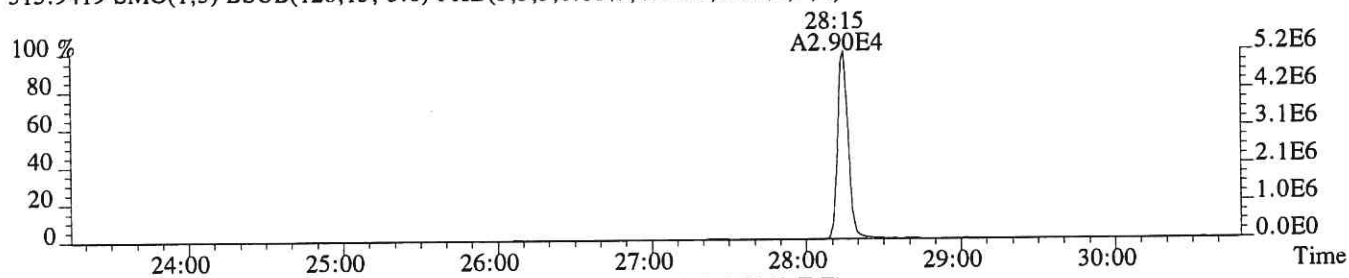
File:P519142 #1-538 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



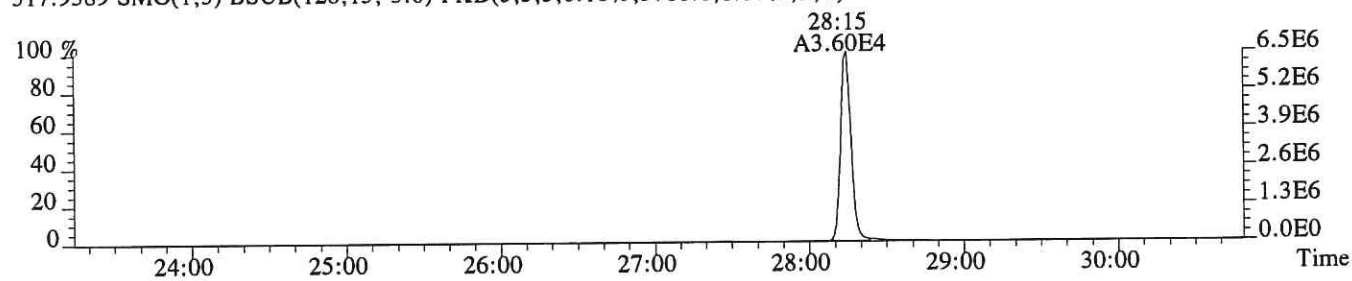
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



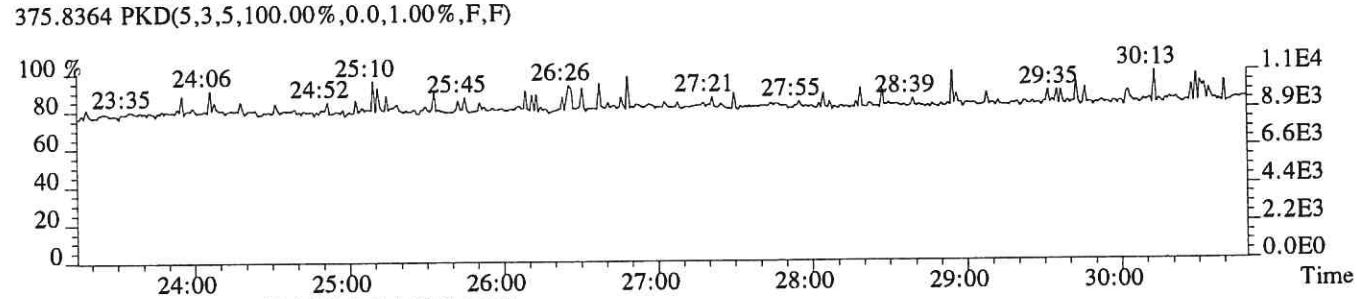
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4796.0,1.00%,F,T)



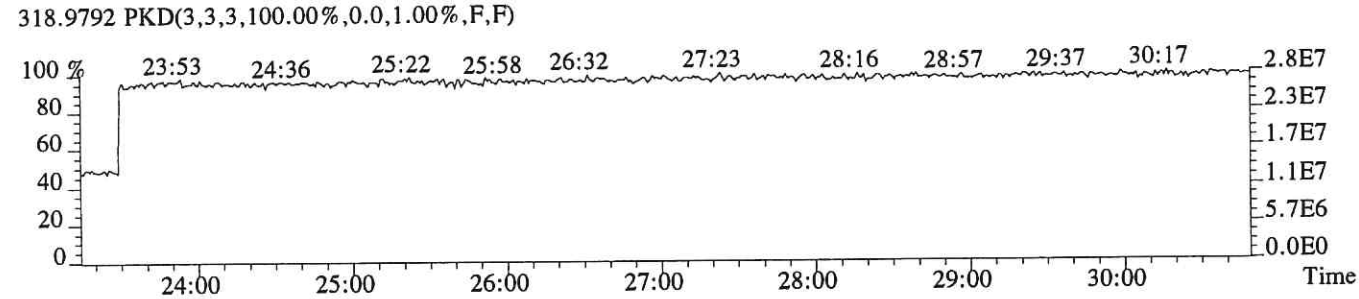
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3700.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

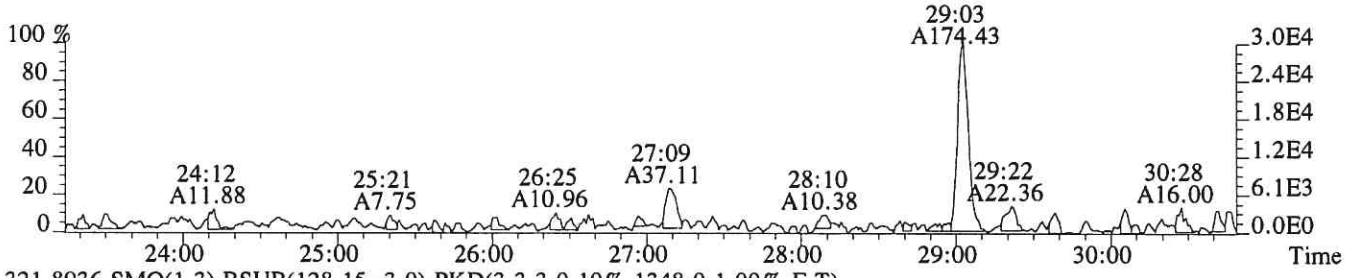


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

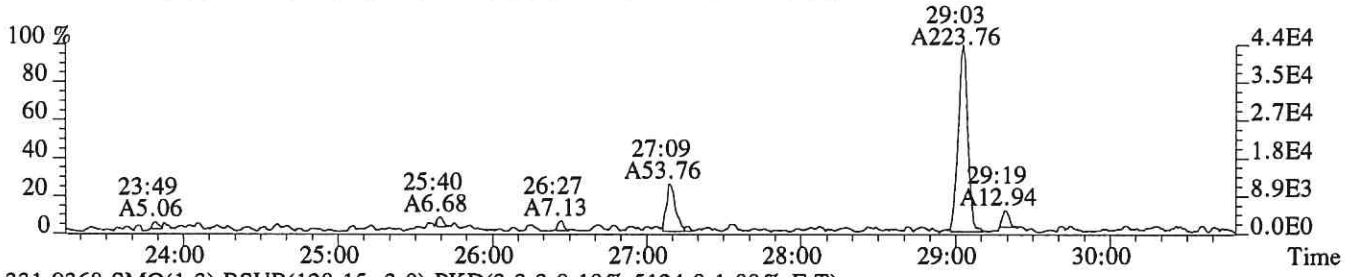


File:P519142 #1-538 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001

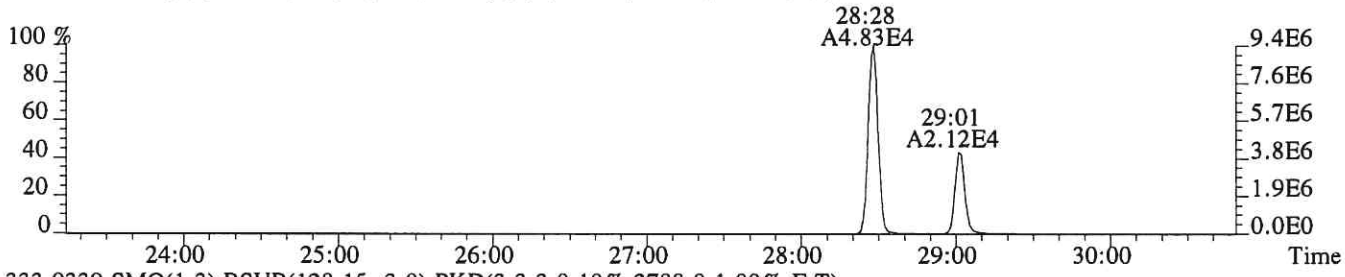
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



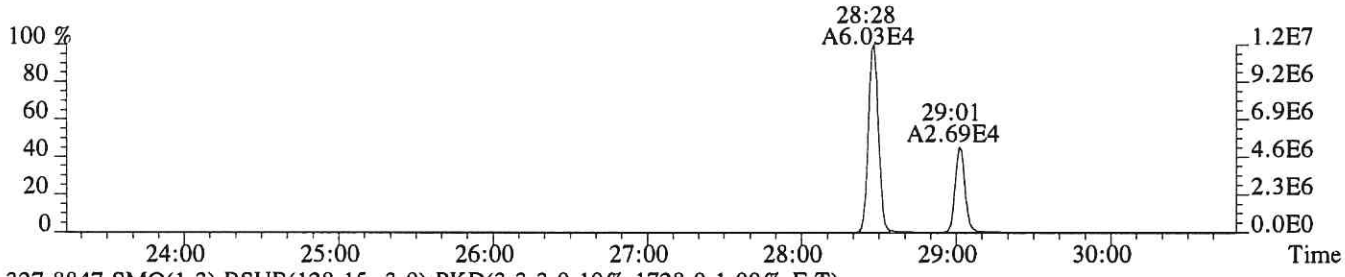
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



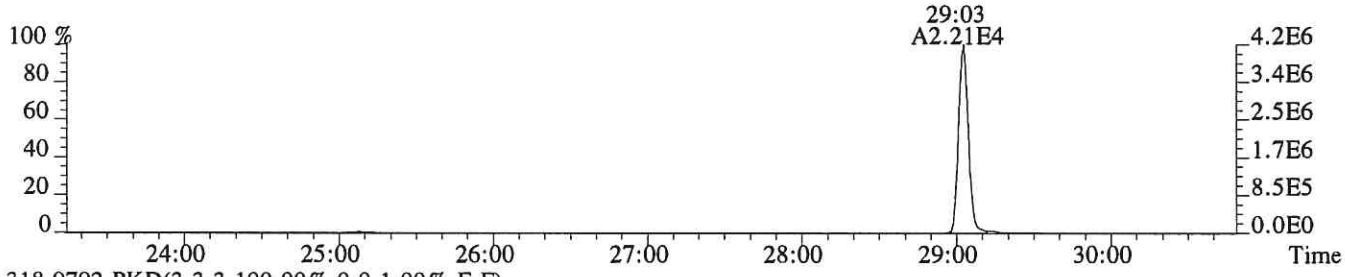
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5124.0,1.00%,F,T)



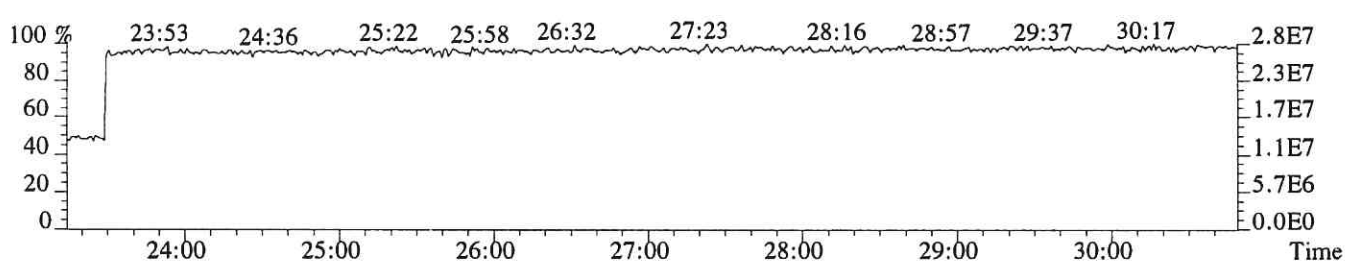
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



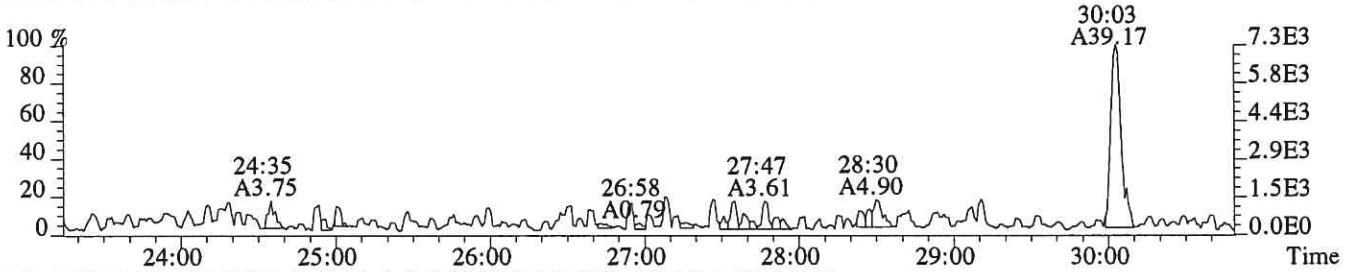
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



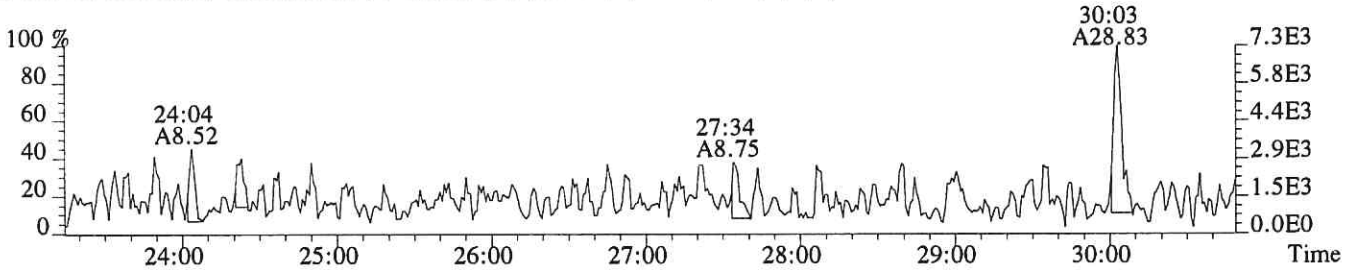
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



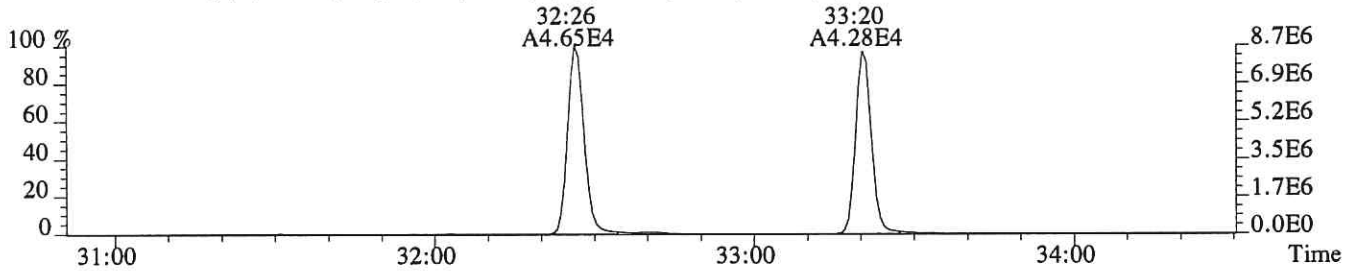
File:P519142 #1-538 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



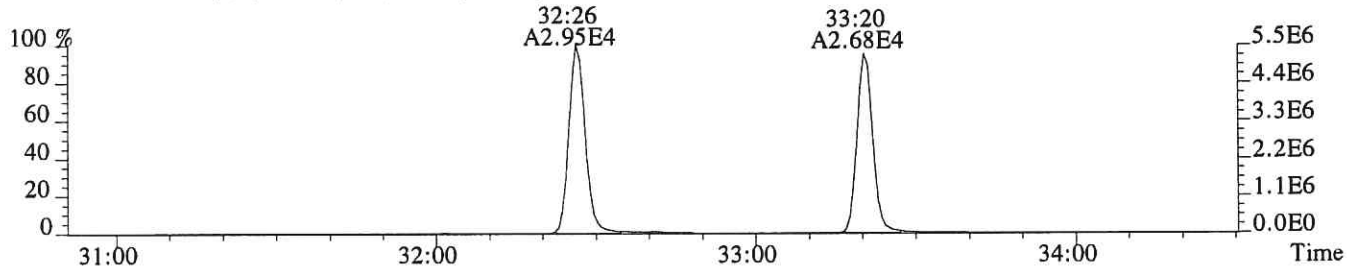
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



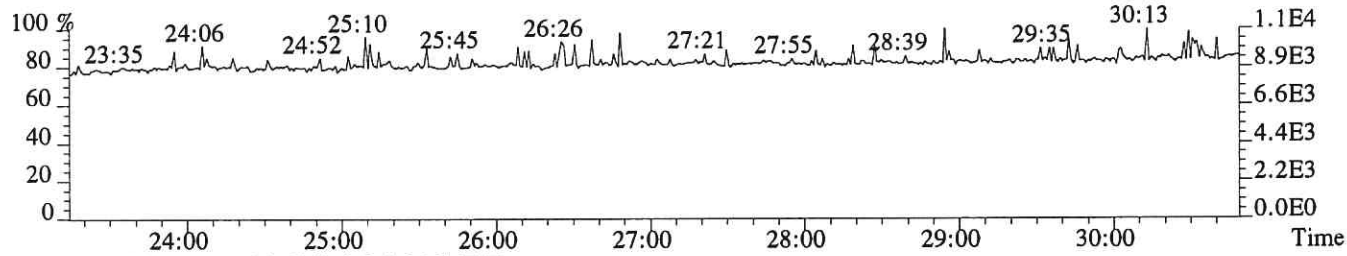
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



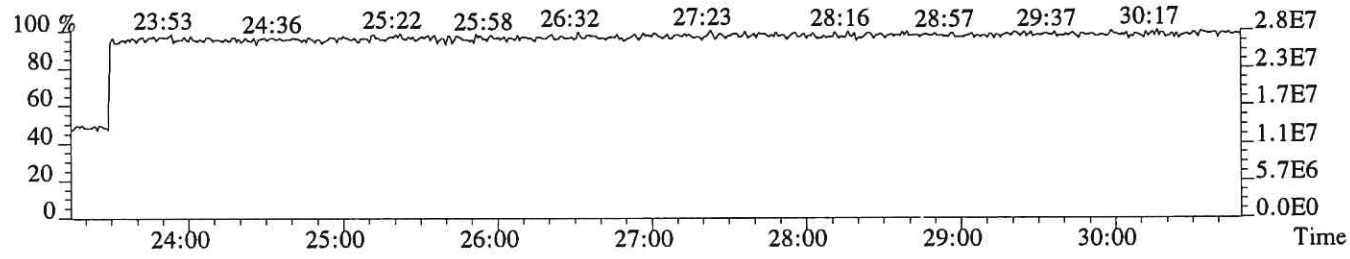
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



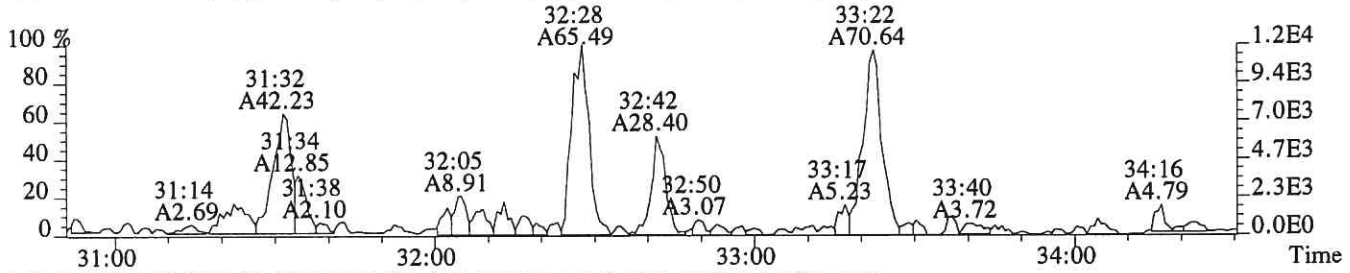
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



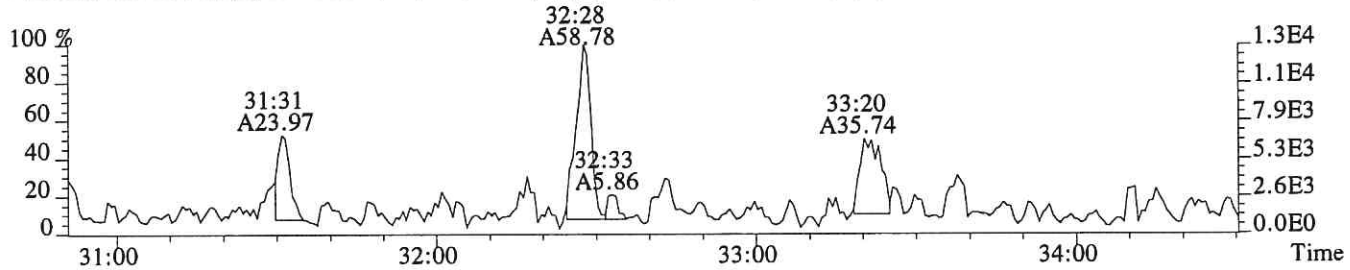
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



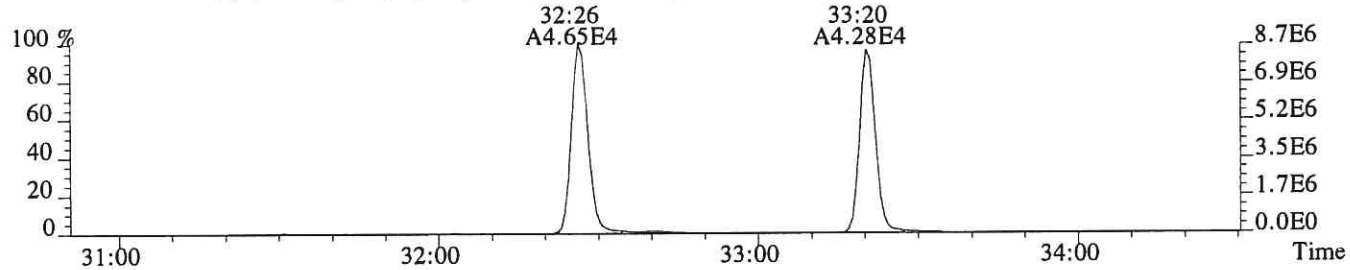
File:P519142 #1-330 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



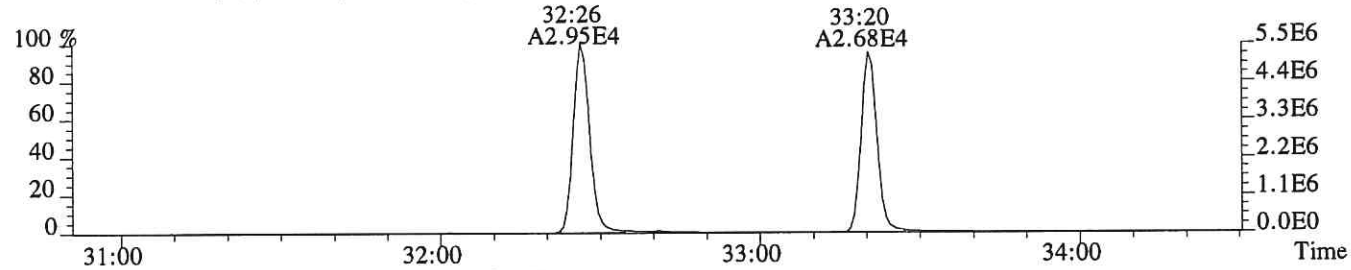
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



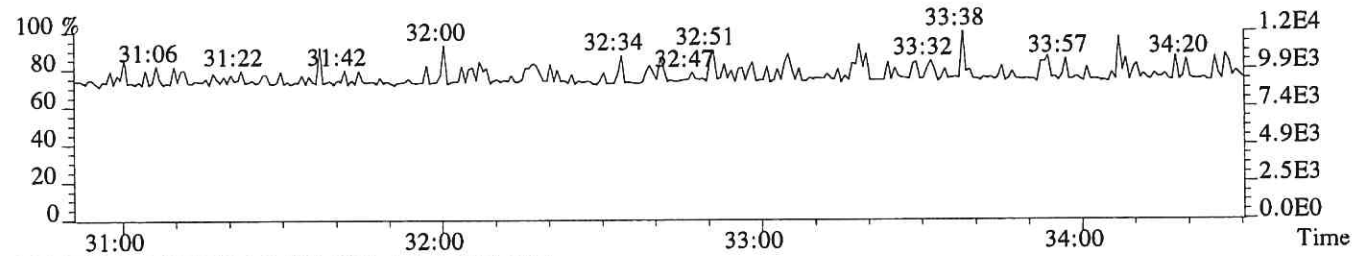
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



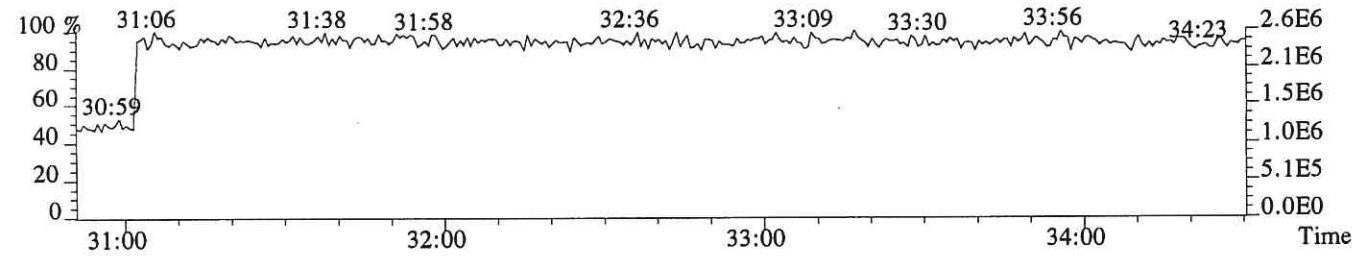
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



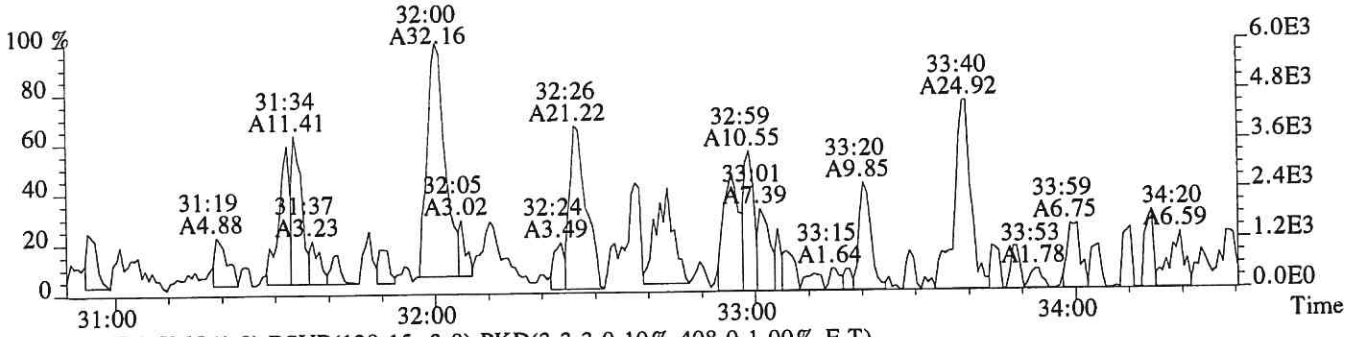
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



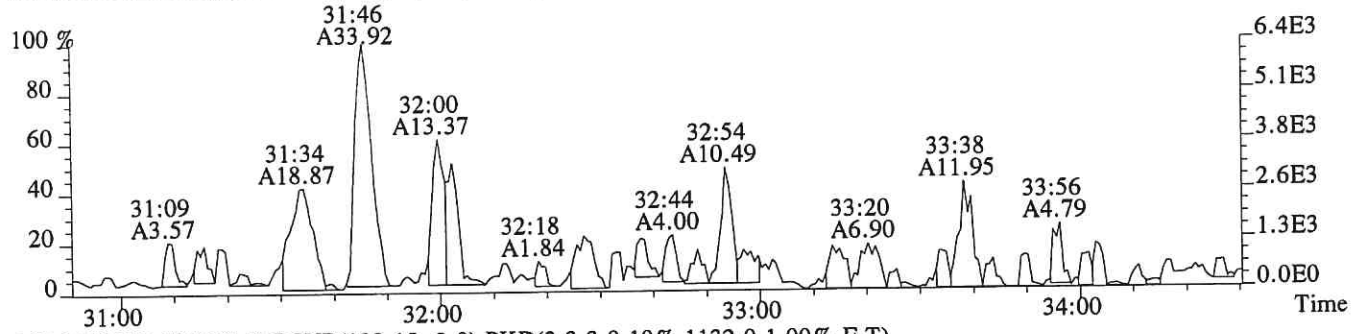
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



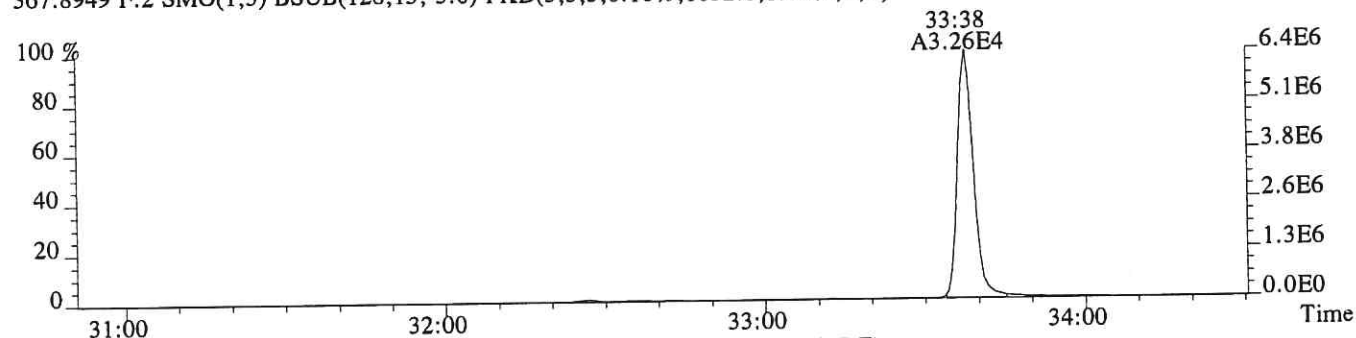
File:P519142 #1-330 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



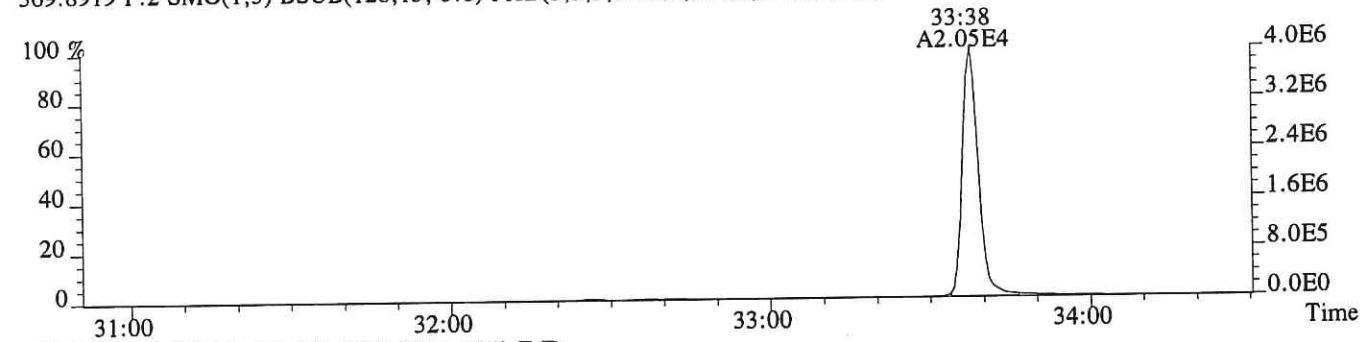
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



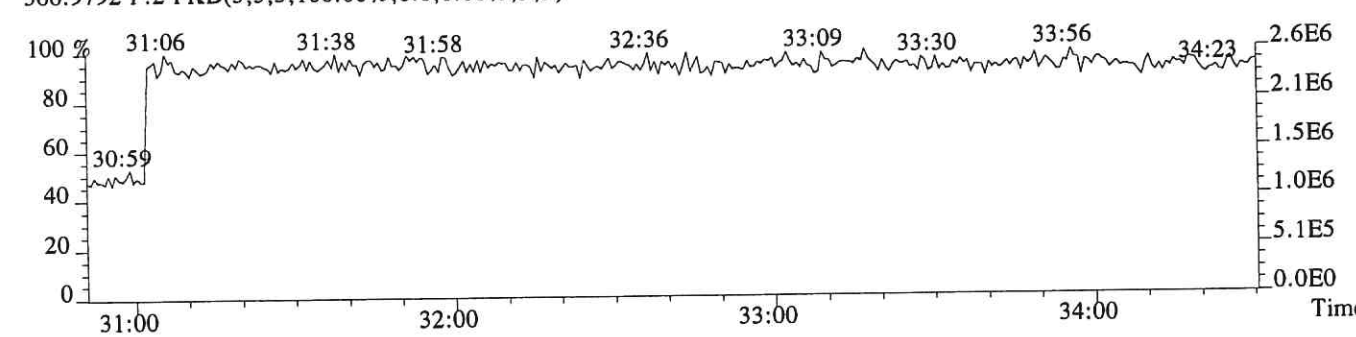
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)

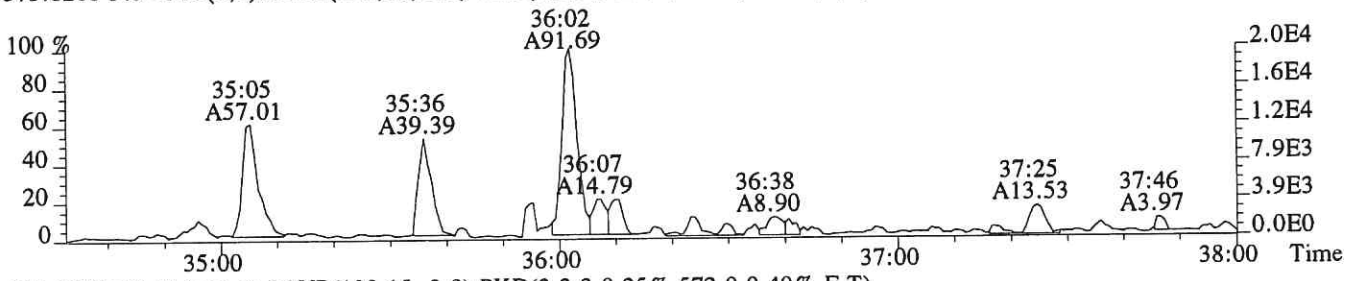


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

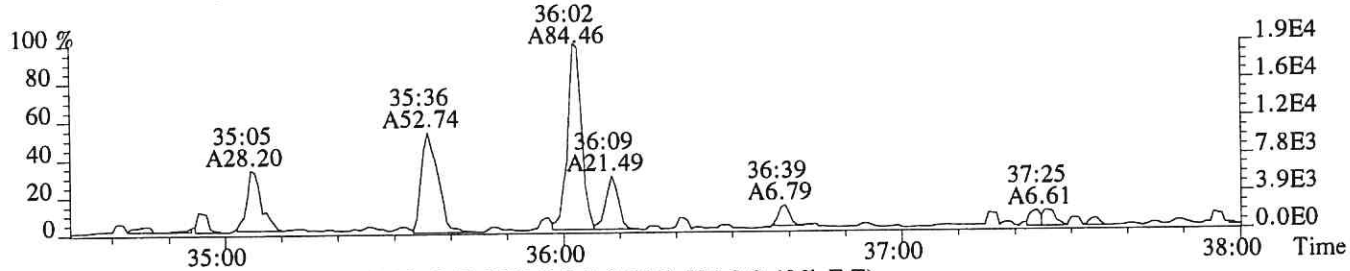


File:P519142 #1-312 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001

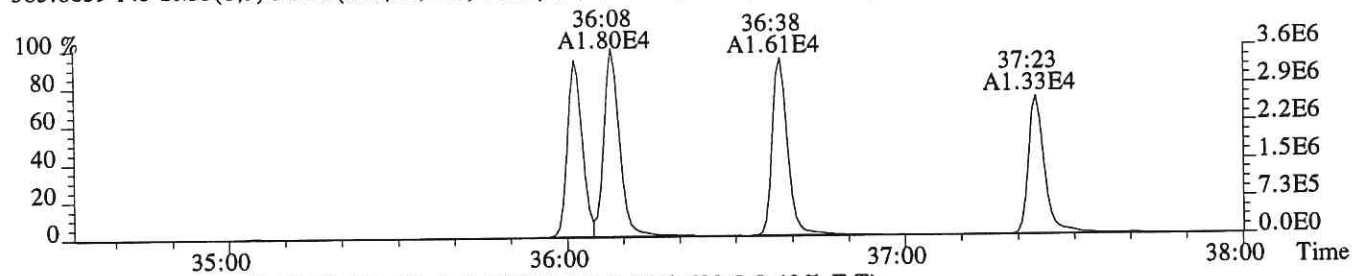
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



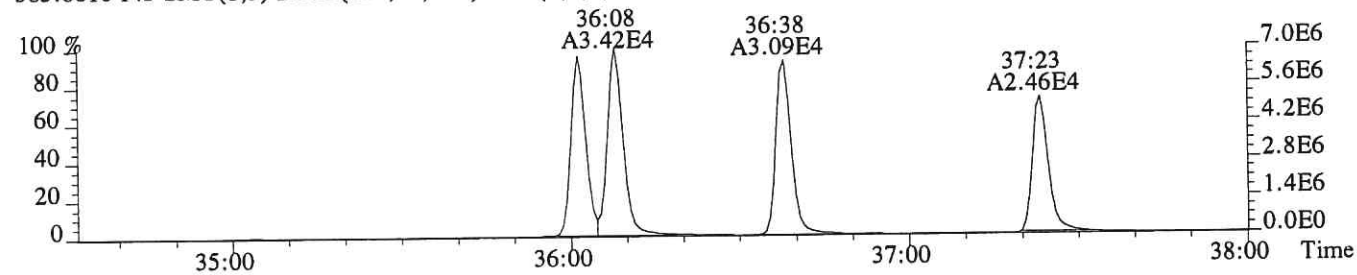
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



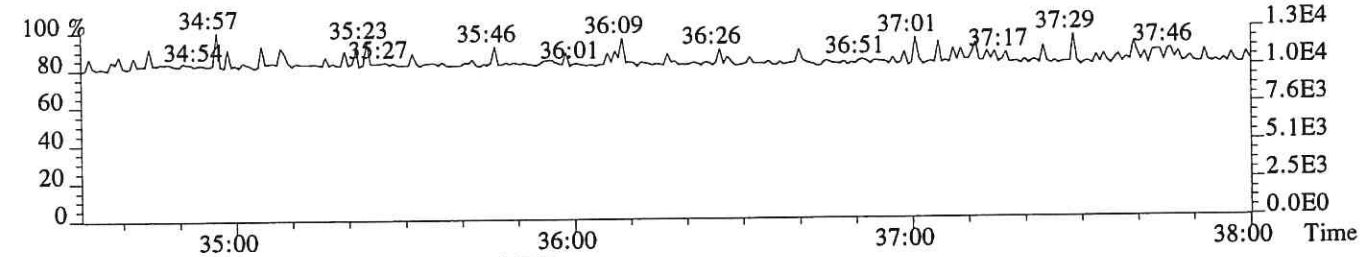
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



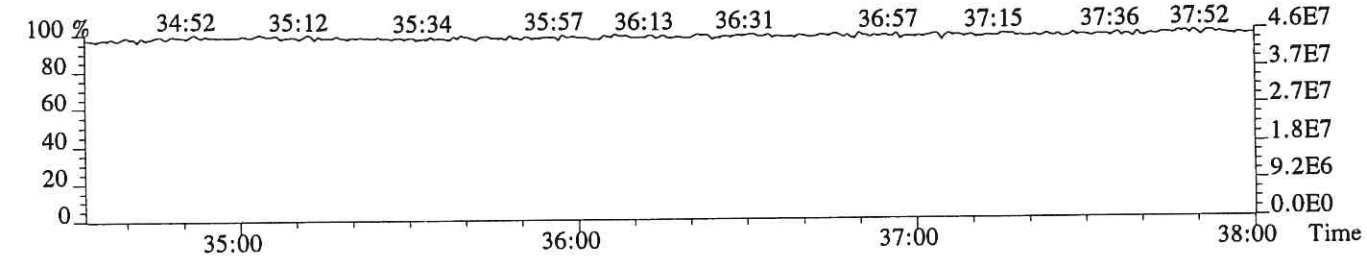
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



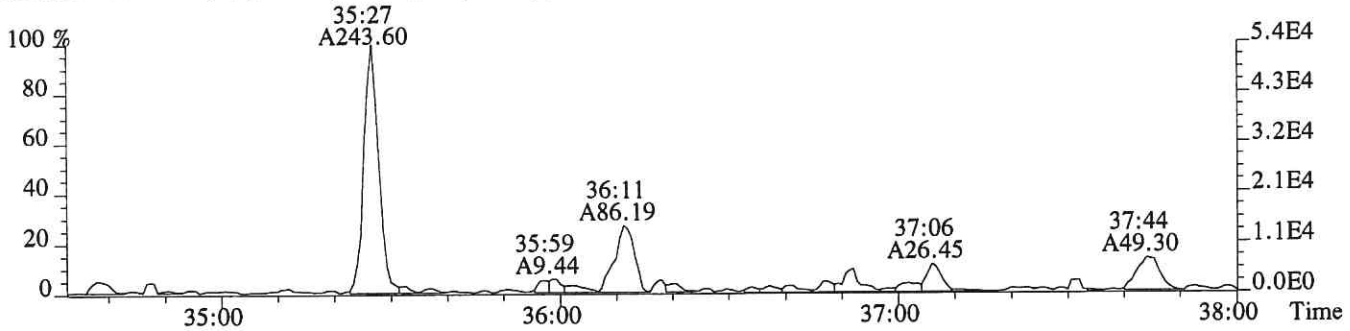
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



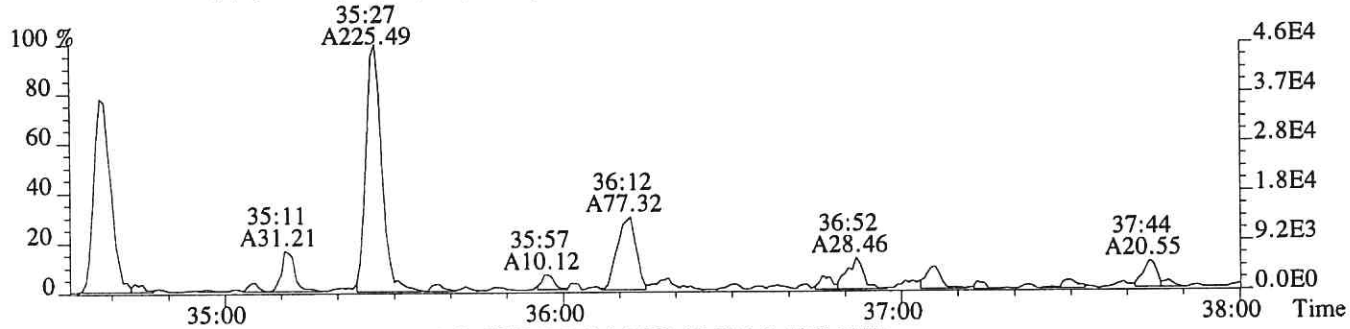
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



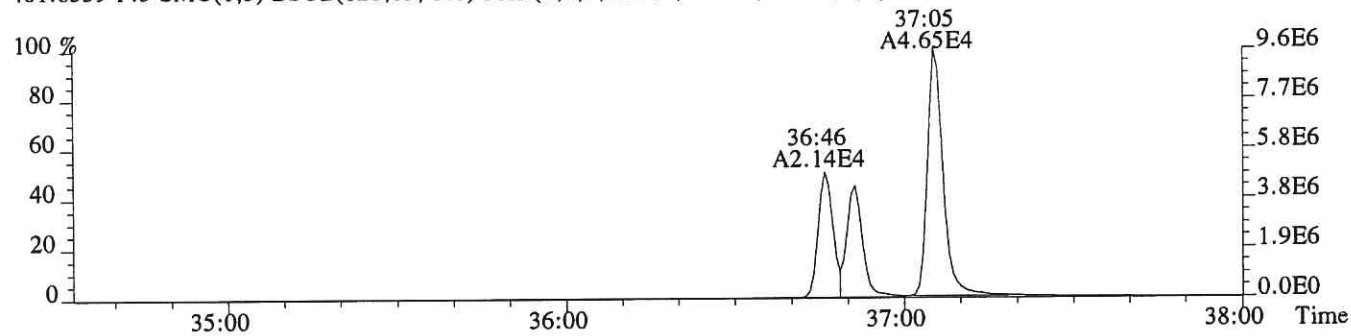
File:P519142 #1-312 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



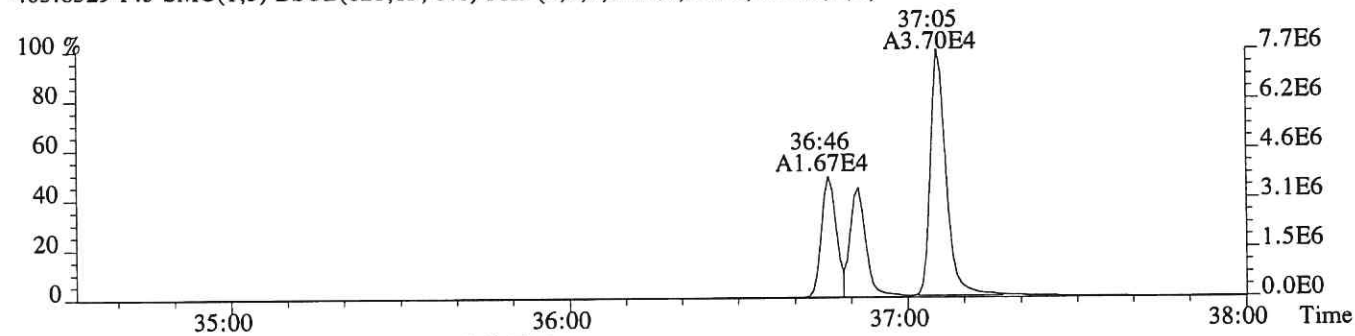
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



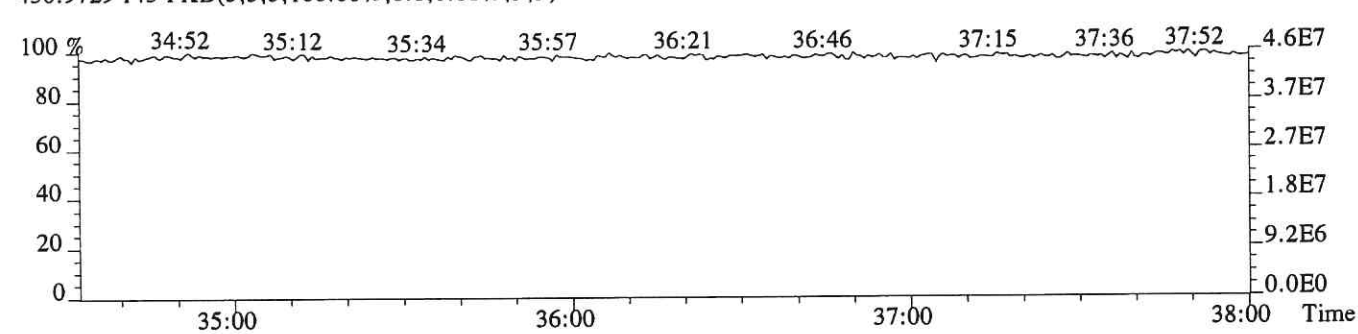
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)

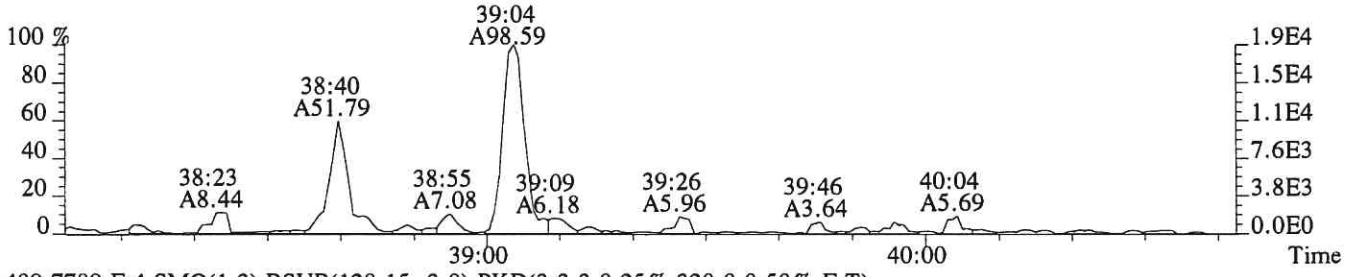


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

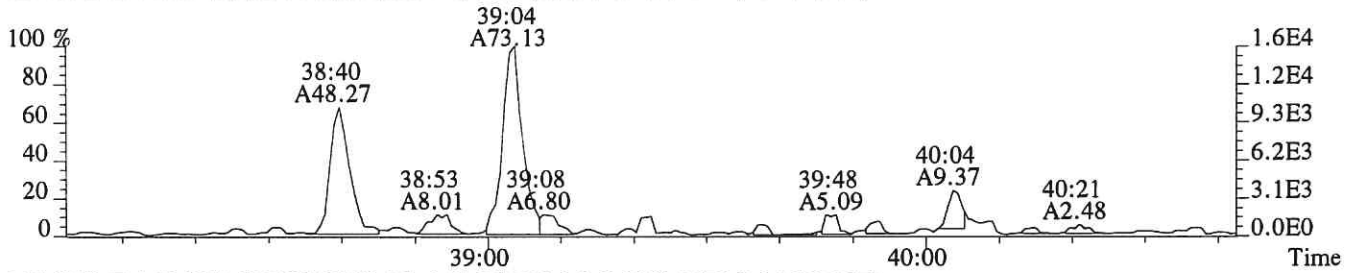


File:P519142 #1-241 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001

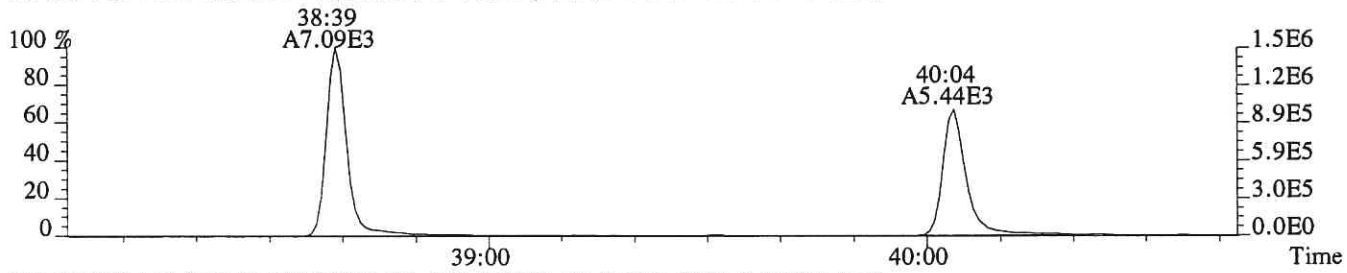
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.50%,F,T)



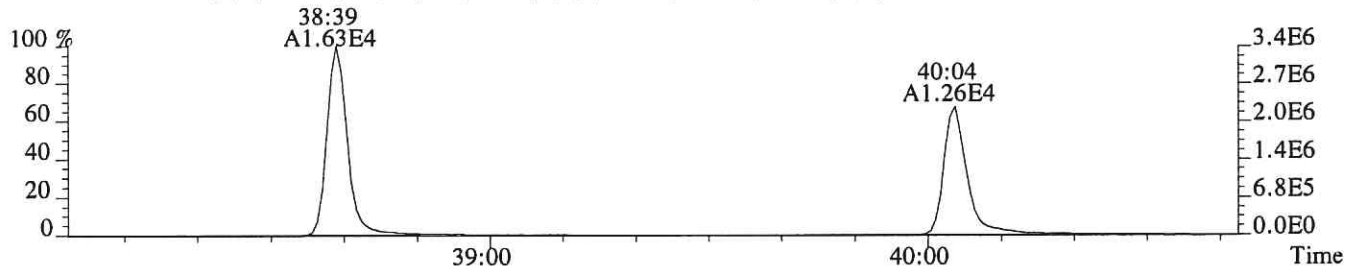
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.50%,F,T)



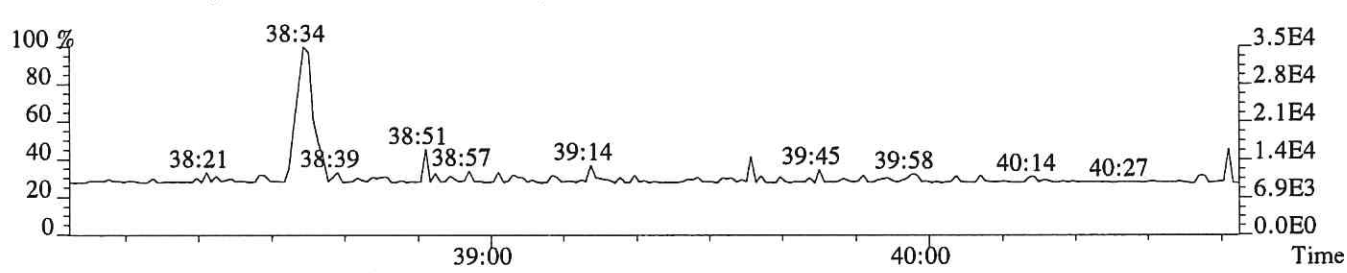
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.50%,F,T)



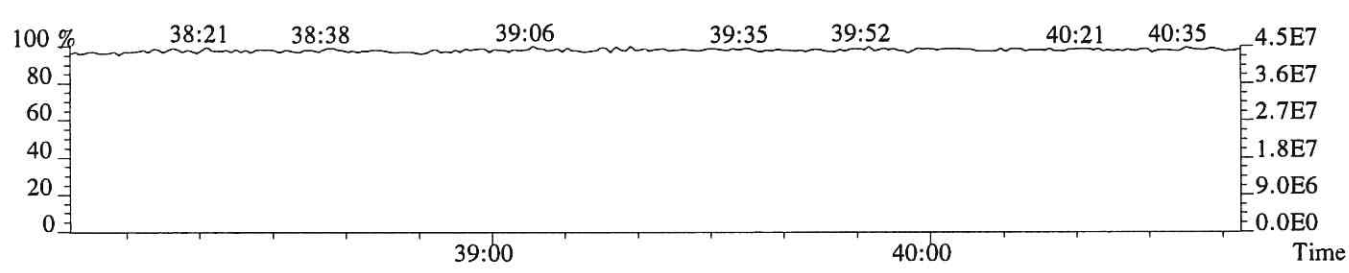
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3508.0,0.50%,F,T)



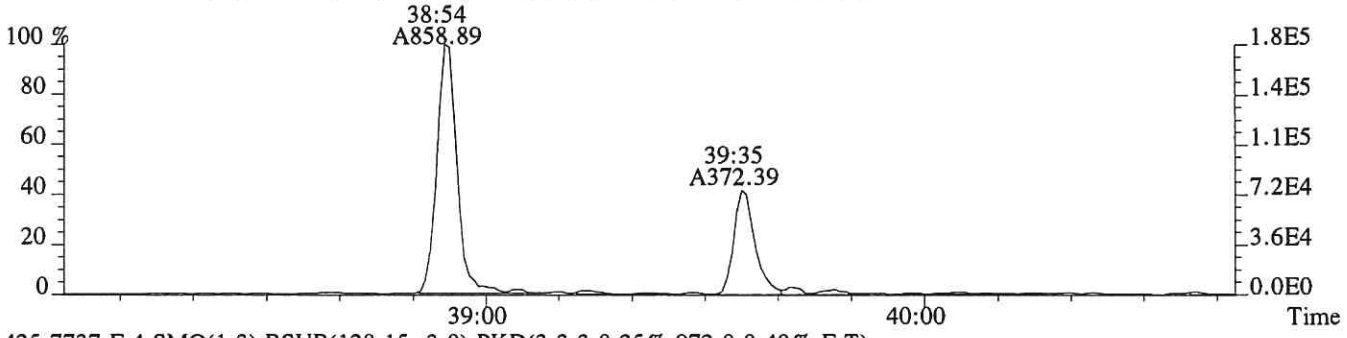
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



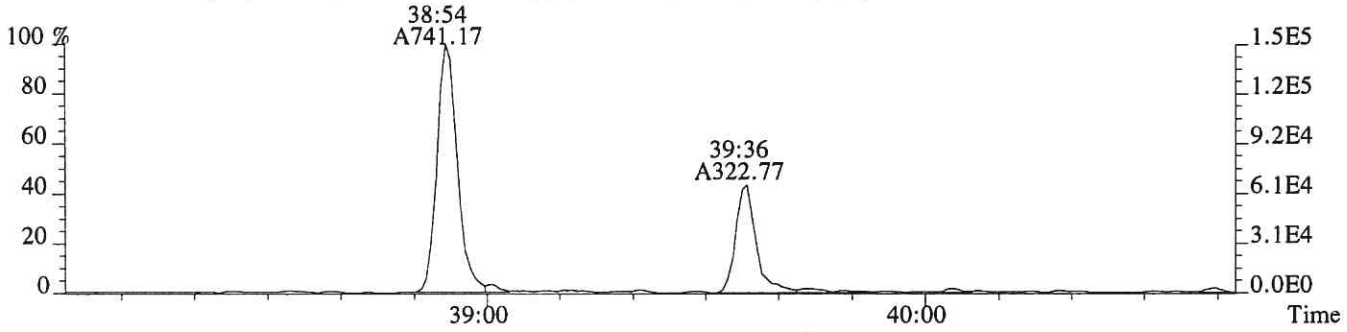
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



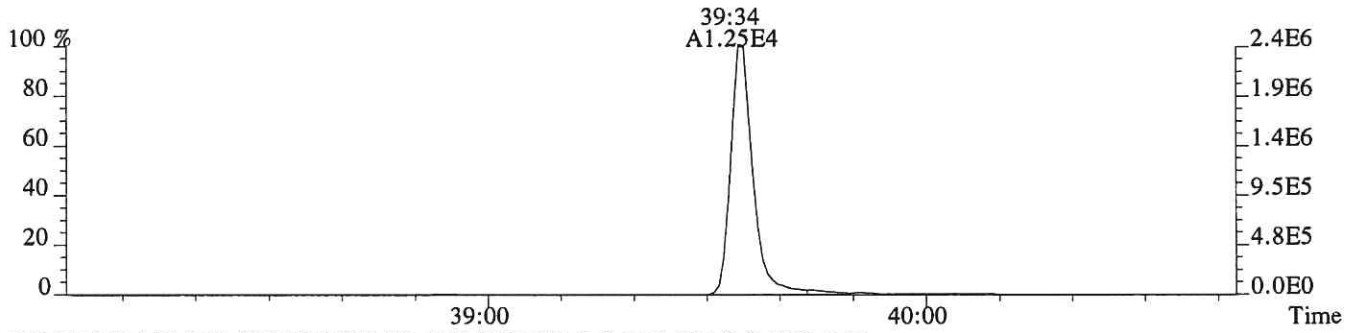
File:P519142 #1-241 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



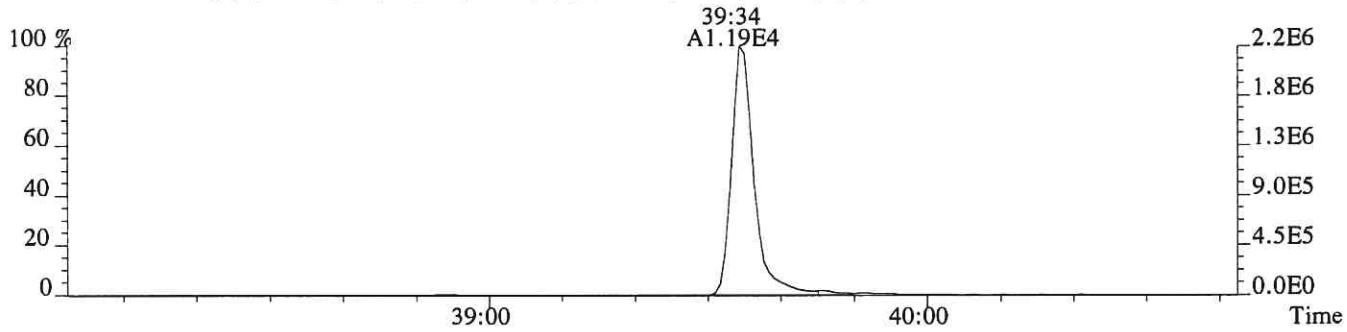
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



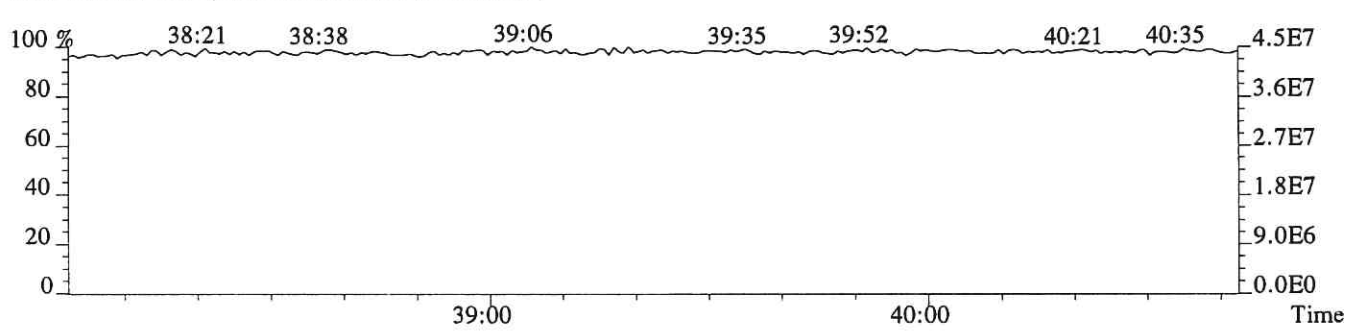
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)

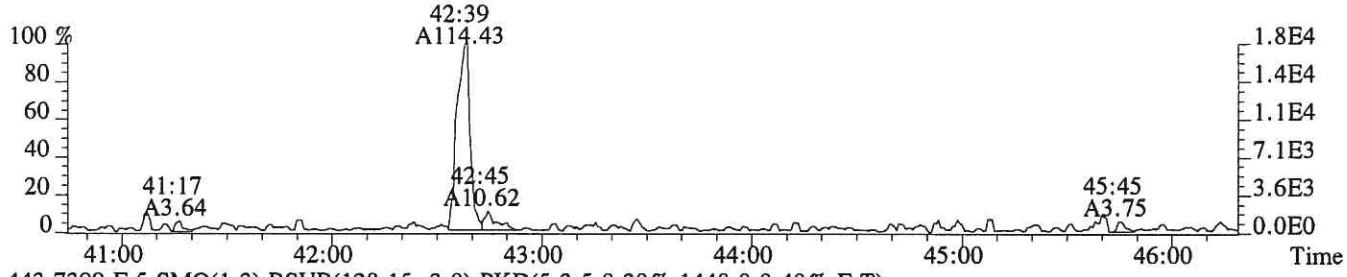


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

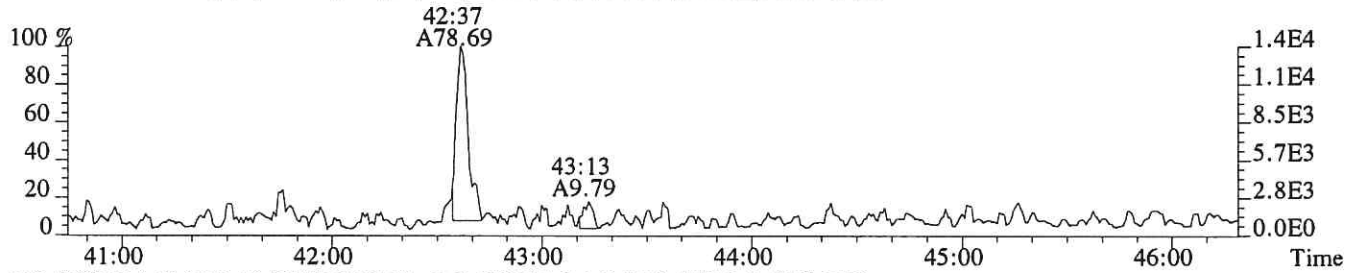


File:P519142 #1-502 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001

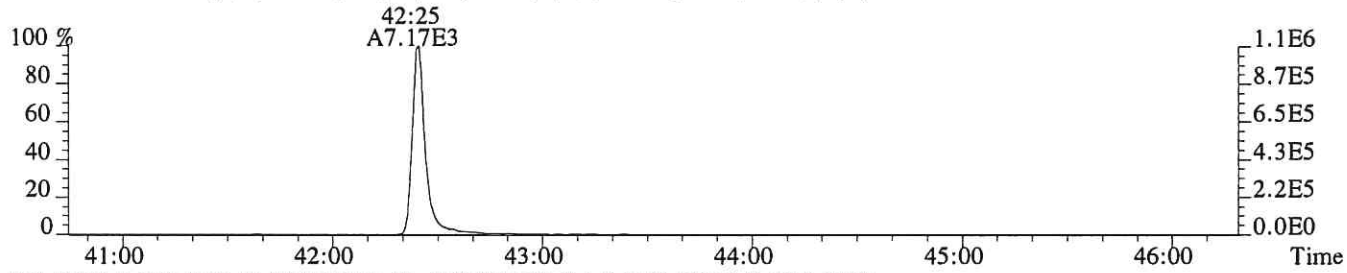
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



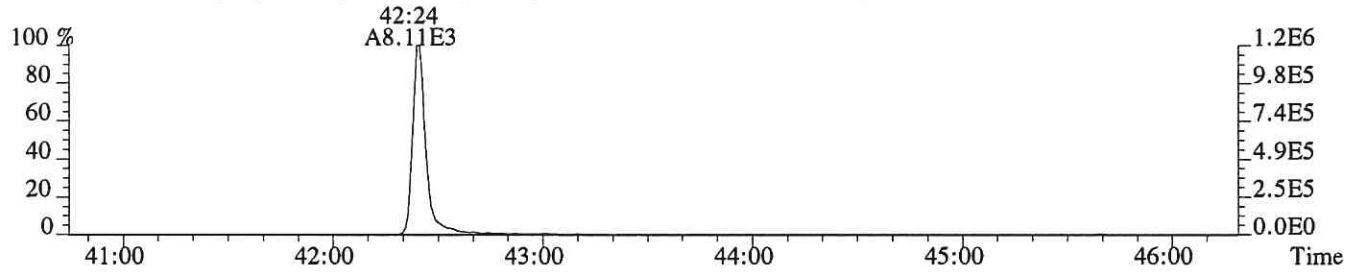
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1448.0,0.40%,F,T)



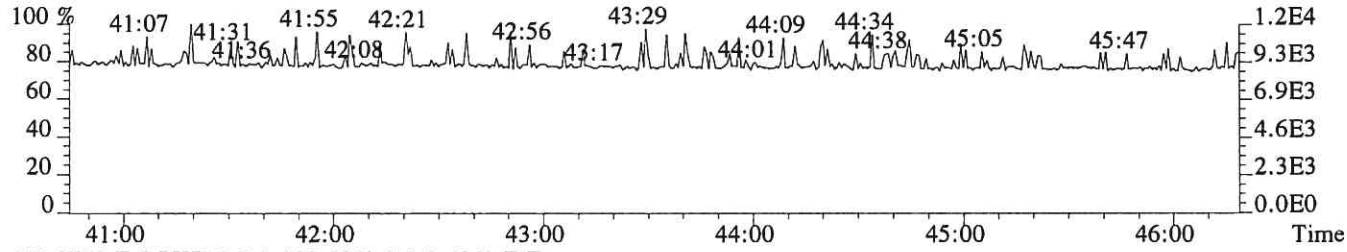
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



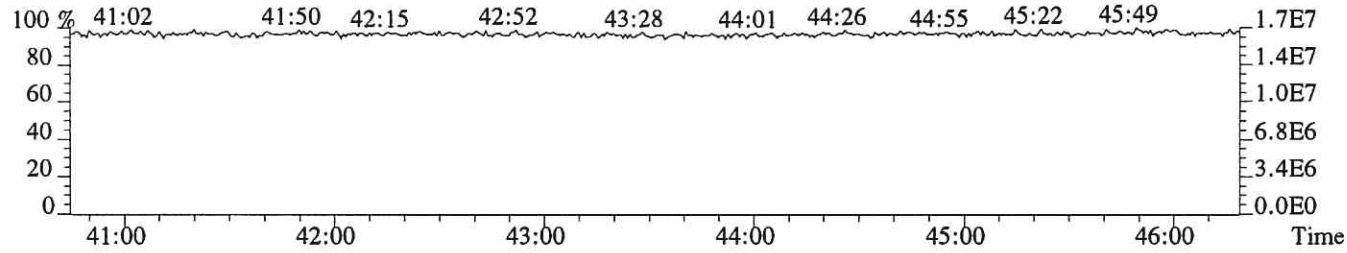
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



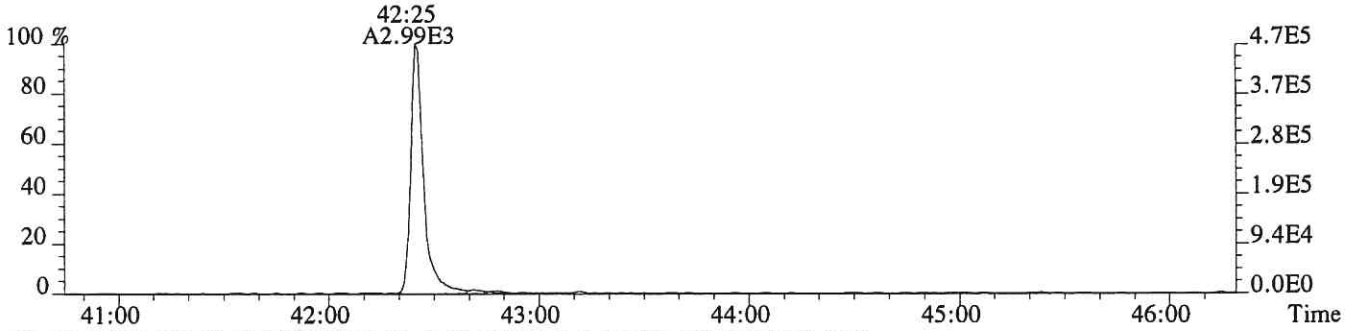
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



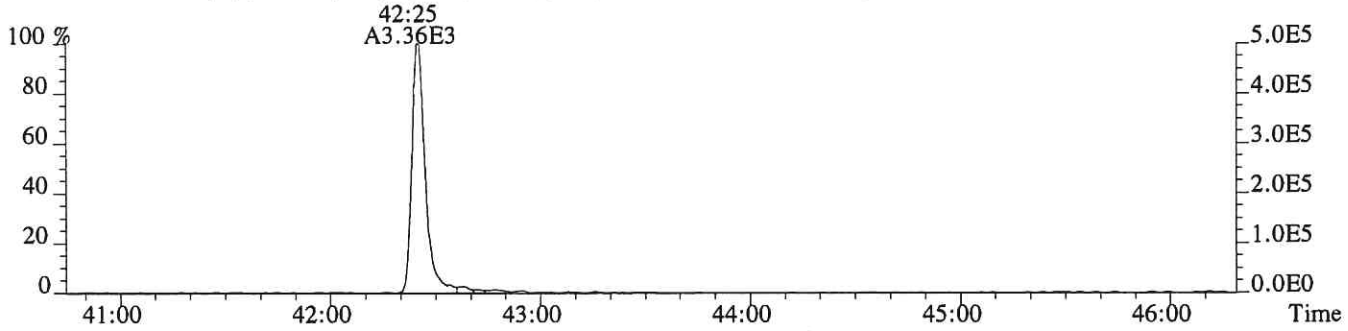
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



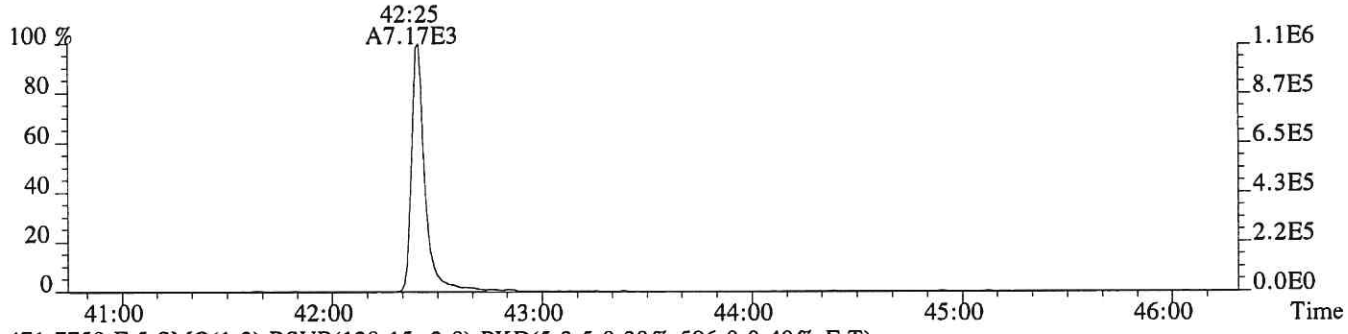
File:P519142 #1-502 Acq: 2-DEC-2018 13:28:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



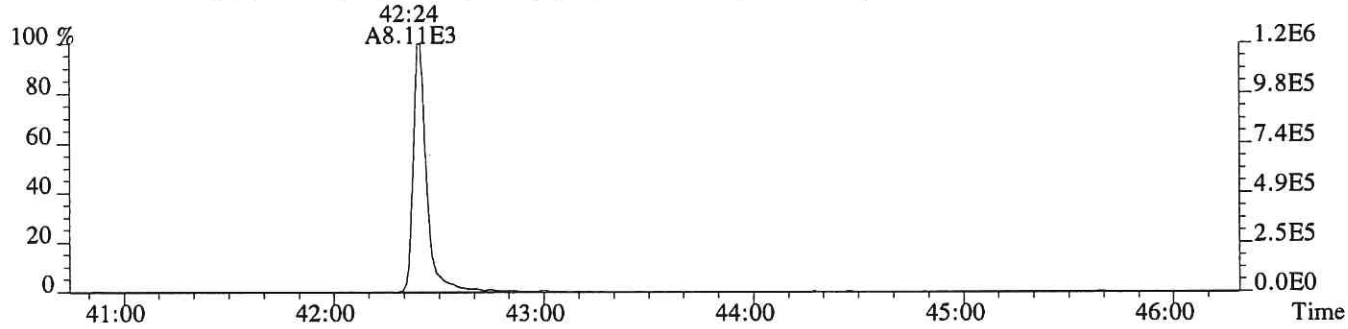
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



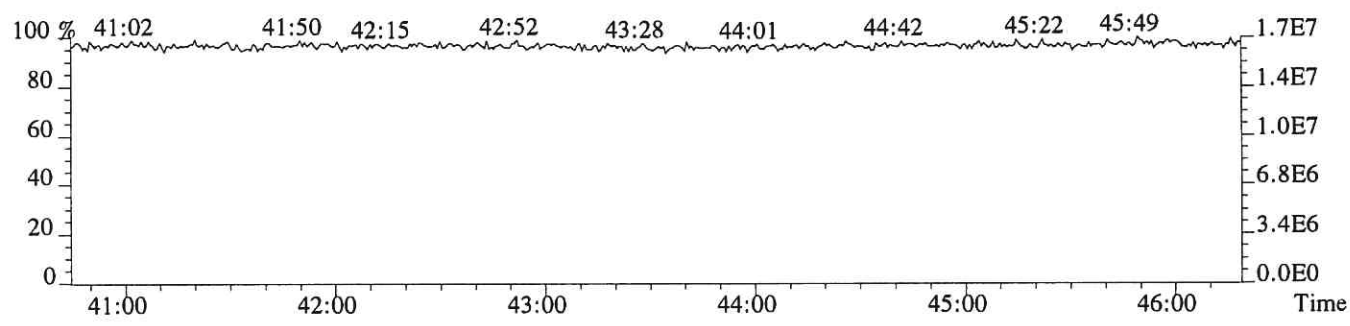
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0510

Run #10 Filename P519165 Samp: 1 Inj: 1 Acquired: 3-DEC-18 08:43:16
Processed: 4-DEC-18 15:22:58 Sample ID: E1801040-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	1.520e+01	1.409e+01	1.08	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	2.125e+01	1.380e+01	1.54	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	2.362e+01	1.916e+01	1.23	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:37	7.734e+01	6.711e+01	1.15	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	5.783e+01	4.063e+01	1.42	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	7.750e+01	4.461e+01	1.74	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	9.817e+02	9.971e+02	0.98	yes	no	1.025
17	Unk	OCDD	42:25	2.731e+04	3.066e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	1.765e+04	2.298e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	3.962e+04	2.507e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	3.900e+04	2.454e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.897e+04	3.538e+04	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.078e+04	4.103e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	1.945e+04	3.756e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.646e+04	3.130e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.212e+04	2.772e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	9.431e+03	2.174e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	1.282e+04	1.610e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	3.088e+04	1.894e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.668e+04	2.086e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.724e+04	2.150e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.241e+04	2.138e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:25	1.664e+04	1.863e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.623e+04	5.814e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.862e+04	4.768e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.351e+04				no	1.014

$$OCDD = \frac{(2.731e+04 + 3.066e+04) \times 4000\ pg \times 1}{(1.664e+04 + 1.863e+04) \times 10.733\ g \times \frac{84.3}{100} \times 1.118} = 649.9311\ ng/kg$$

LG
12/6/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0510

Run #10 Filename P519165 Samp: 1 Inj: 1 Acquired: 3-DEC-18 08:43:16
Processed: 4-DEC-18 15:22:58 LAB. ID: E1801040-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.80e+02	*	*	2.22e+03	*
2	1,2,3,7,8-PeCDF	*	6.04e+02	*	*	1.71e+03	*
3	2,3,4,7,8-PeCDF	*	6.04e+02	*	*	1.71e+03	*
4	1,2,3,4,7,8-HxCDF	3.77e+03	1.44e+03	2.6e+00	2.71e+03	8.28e+02	3.3e+00
5	1,2,3,6,7,8-HxCDF	*	1.44e+03	*	*	8.28e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.44e+03	*	*	8.28e+02	*
7	1,2,3,7,8,9-HxCDF	4.09e+03	1.44e+03	2.8e+00	3.57e+03	8.28e+02	4.3e+00
8	1,2,3,4,6,7,8-HpCDF	3.99e+03	1.39e+03	2.9e+00	3.58e+03	5.84e+02	6.1e+00
9	1,2,3,4,7,8,9-HpCDF	*	1.39e+03	*	*	5.84e+02	*
10	OCDF	1.15e+04	3.84e+02	3.0e+01	1.23e+04	1.32e+03	9.3e+00
11	2,3,7,8-TCDD	*	2.92e+03	*	*	1.39e+03	*
12	1,2,3,7,8-PeCDD	*	1.48e+03	*	*	4.24e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.34e+03	*	*	3.22e+03	*
14	1,2,3,6,7,8-HxCDD	1.40e+04	1.34e+03	1.0e+01	1.11e+04	3.22e+03	3.4e+00
15	1,2,3,7,8,9-HxCDD	1.75e+04	1.34e+03	1.3e+01	1.10e+04	3.22e+03	3.4e+00
16	1,2,3,4,6,7,8-HpCDD	1.91e+05	1.48e+03	1.3e+02	1.98e+05	5.24e+02	3.8e+02
17	OCDD	4.15e+06	2.56e+02	1.6e+04	4.65e+06	5.84e+02	8.0e+03
18	13C-2,3,7,8-TCDF	3.17e+06	1.03e+04	3.1e+02	4.07e+06	8.35e+03	4.9e+02
19	13C-1,2,3,7,8-PeCDF	7.21e+06	7.44e+02	9.7e+03	4.62e+06	5.04e+02	9.2e+03
20	13C-2,3,4,7,8-PeCDF	7.63e+06	7.44e+02	1.0e+04	4.86e+06	5.04e+02	9.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.93e+06	1.11e+03	3.5e+03	7.45e+06	1.59e+03	4.7e+03
22	13C-1,2,3,6,7,8-HxCDF	4.17e+06	1.11e+03	3.8e+03	8.27e+06	1.59e+03	5.2e+03
23	13C-2,3,4,6,7,8-HxCDF	4.15e+06	1.11e+03	3.7e+03	8.05e+06	1.59e+03	5.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.21e+06	1.11e+03	2.9e+03	6.28e+06	1.59e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.43e+06	3.13e+03	7.8e+02	5.63e+06	3.78e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.64e+06	3.13e+03	5.2e+02	3.86e+06	3.78e+03	1.0e+03
27	13C-2,3,7,8-TCDD	2.43e+06	7.41e+03	3.3e+02	3.04e+06	2.80e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	5.98e+06	1.30e+03	4.6e+03	3.79e+06	1.52e+03	2.5e+03
29	13C-1,2,3,4,7,8-HxCDD	5.85e+06	1.38e+03	4.3e+03	4.60e+06	1.16e+03	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.55e+06	1.38e+03	4.0e+03	4.34e+06	1.16e+03	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.26e+06	9.36e+02	4.6e+03	4.05e+06	5.16e+02	7.8e+03
32	13C-OCDD	2.51e+06	8.00e+02	3.1e+03	2.81e+06	4.16e+02	6.7e+03
33	13C-1,2,3,4-TCDD	8.88e+06	7.41e+03	1.2e+03	1.10e+07	2.80e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	1.38e+03	8.7e+03	9.47e+06	1.16e+03	8.2e+03
35	37Cl-2,3,7,8-TCDD	2.58e+06	1.96e+03	1.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.920e{+}03 + 1.388e{+}03\ ) \times 2000}{(2.429e{+}06 + 3.037e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0510

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P519165 Sample:1 Injection:1 Function:2

Acquired: 3-DEC-18 08:43:16 Processed: 4-DEC-18 15:22:58

Mass: 355.8550 357.8520 Tot Response: 1.55e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:33	3.67e+01	2.65e+01 1.38	yes	6.32e+01		n	n
2	32:56	5.32e+01	3.84e+01 1.39	yes	9.17e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0510

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519165 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 08:43:16 Processed: 4-DEC-18 15:22:58

Mass: 373.8210 375.8180 Tot Response: 2.93e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:01	1.52e+01	1.41e+01 1.08	yes	2.93e+01	1,2,3,4,7,8-HxCDF	y	y

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Peak List Summary

CLIENT ID.
SL0510

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519165 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 08:43:16 Processed: 4-DEC-18 15:22:58

Mass: 389.8160 391.8130 Tot Response: 2.63e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	1.21e+03	8.95e+02	1.35	yes	2.10e+03		n	n
2	36:11	2.55e+02	1.81e+02	1.41	yes	4.36e+02		n	n
3	36:51	5.78e+01	4.06e+01	1.42	yes	9.85e+01	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0510

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519165 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 08:43:16 Processed: 4-DEC-18 15:22:58

Mass: 423.7770 425.7740 Tot Response: 8.31e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	3.18e+03	3.15e+03 1.01	yes	6.33e+03		n	n
2	39:35	9.82e+02	9.97e+02 0.98	yes	1.98e+03	1,2,3,4,6,7,8-HpCDD	n	n

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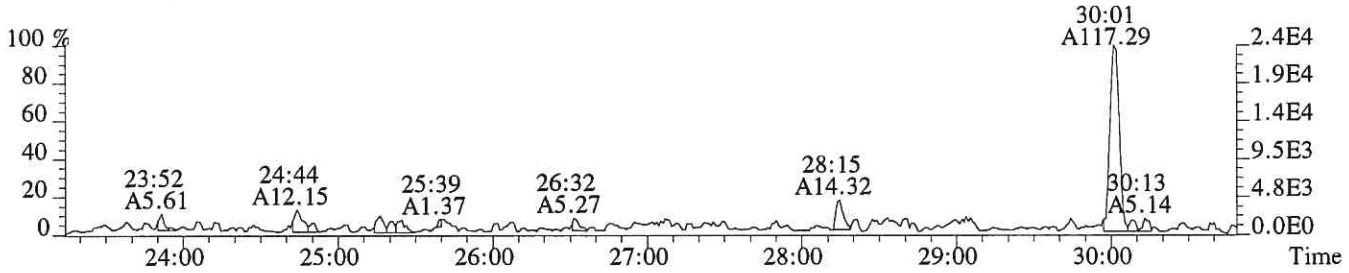
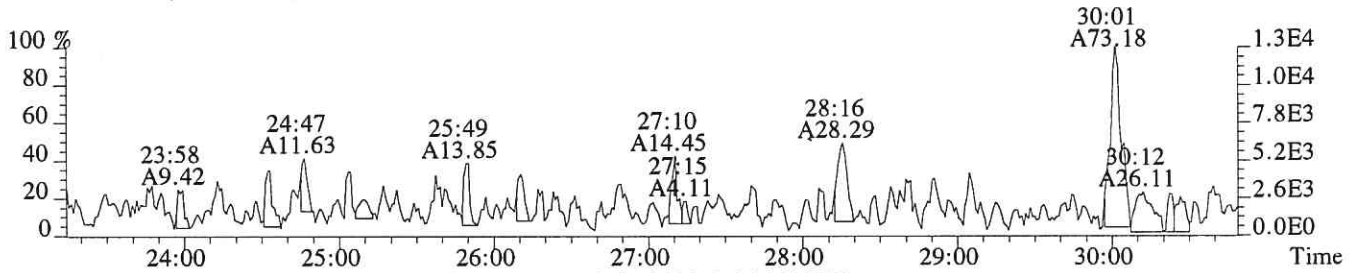
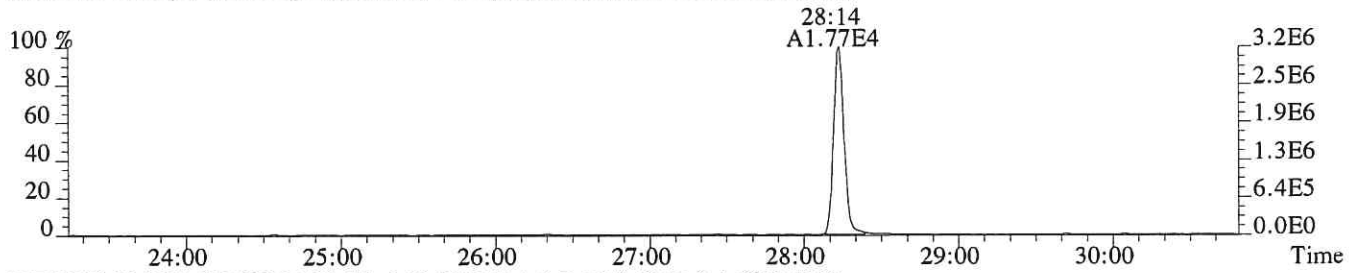
File:P519165 #1-538 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



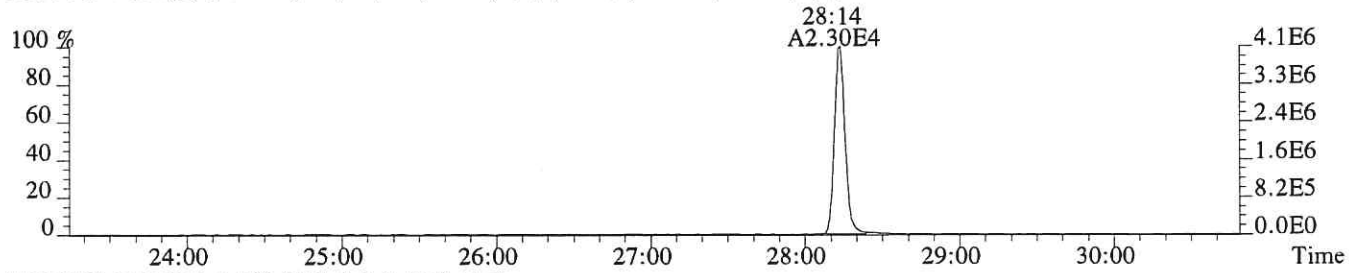
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2220.0,1.00%,F,T)



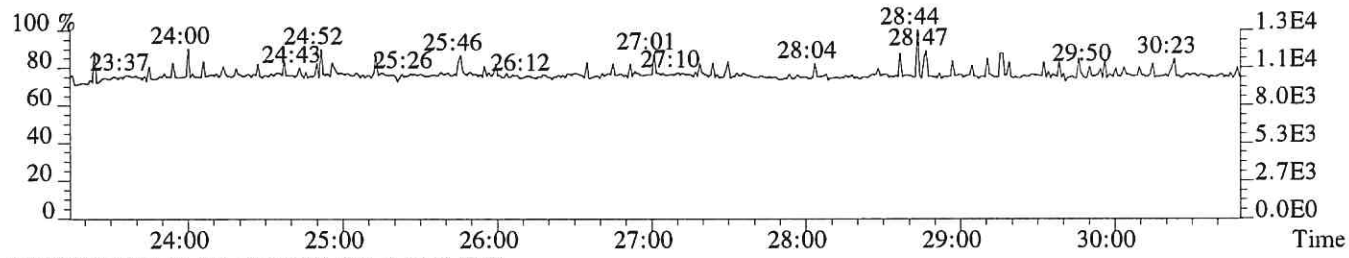
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10300.0,1.00%,F,T)



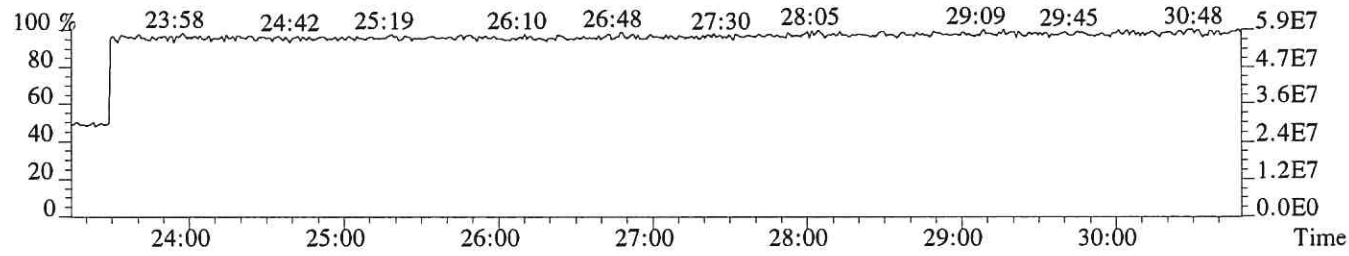
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8352.0,1.00%,F,T)



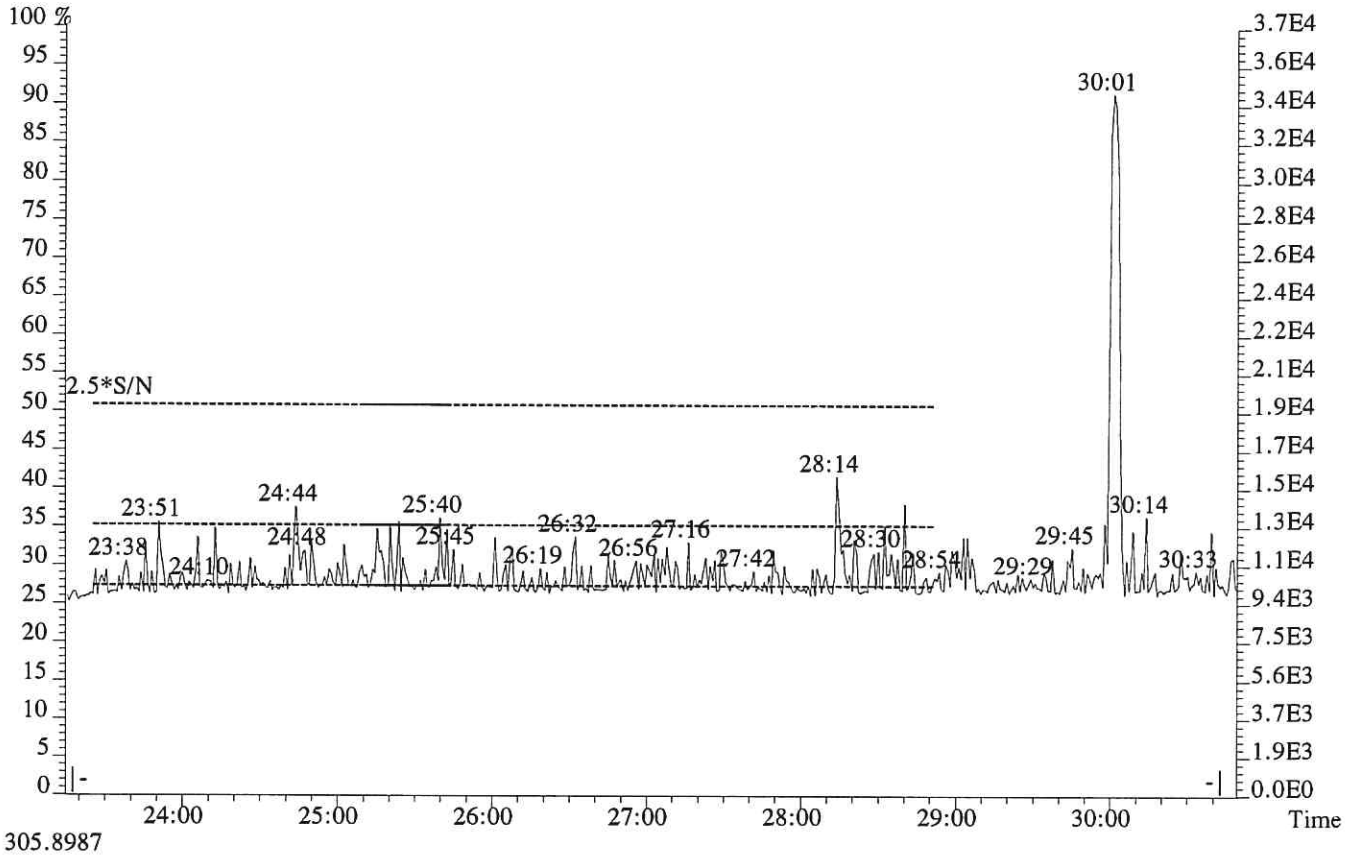
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



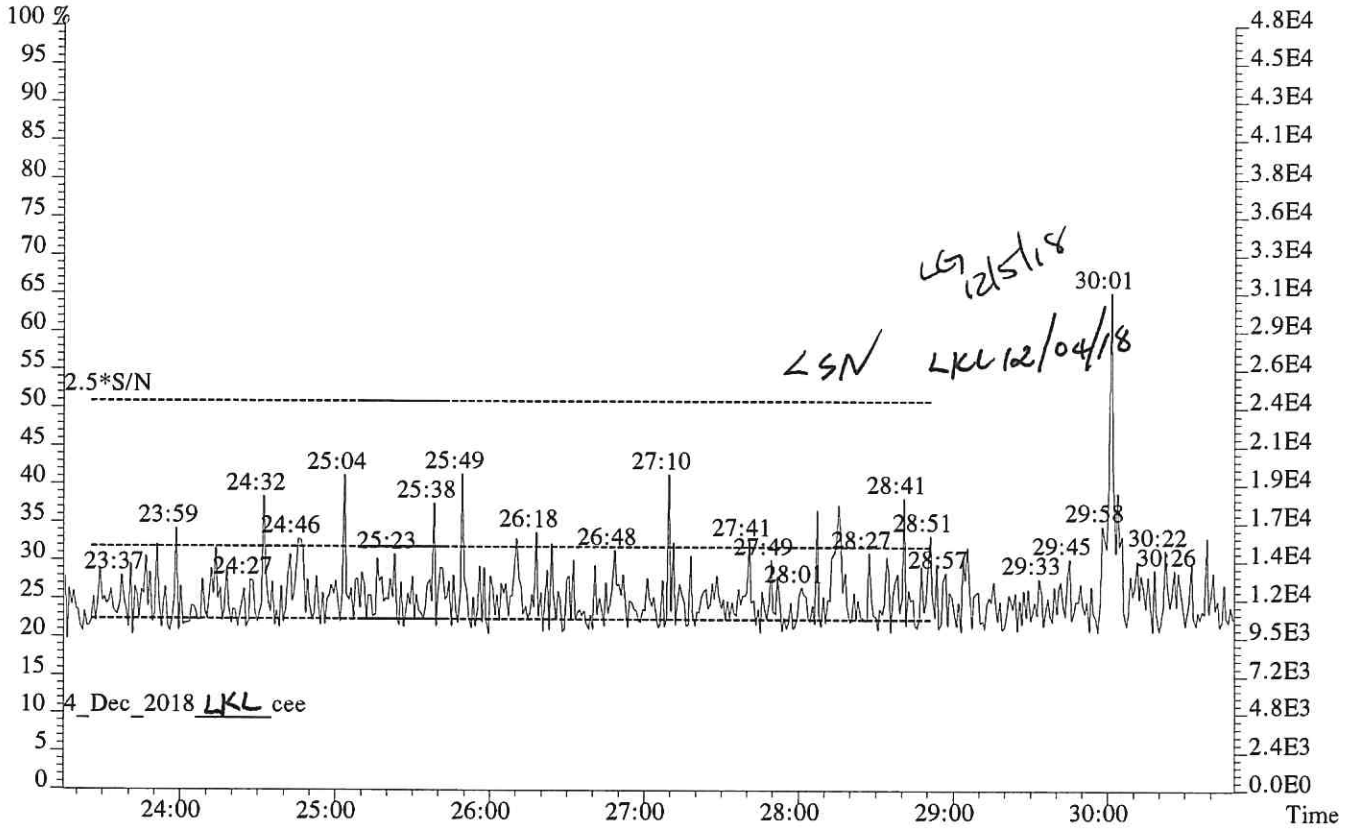
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



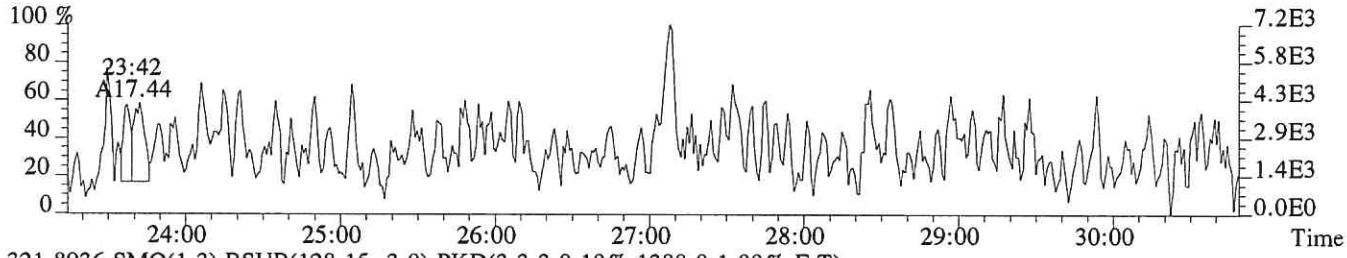
File:P519165 #1-538 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
303.9016



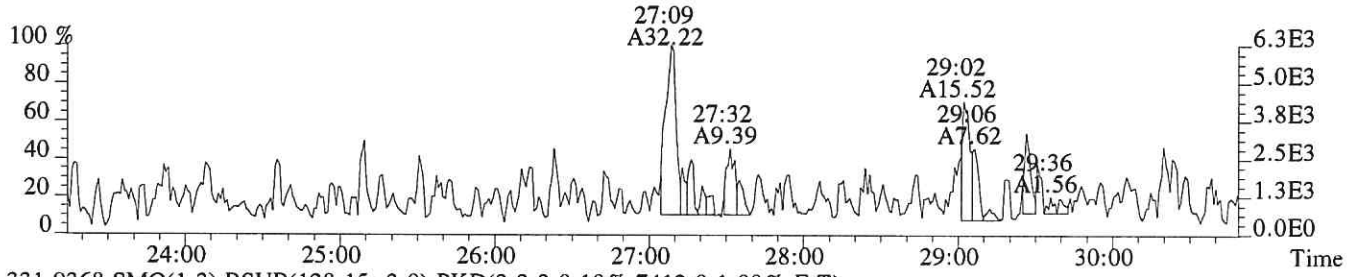
305.8987



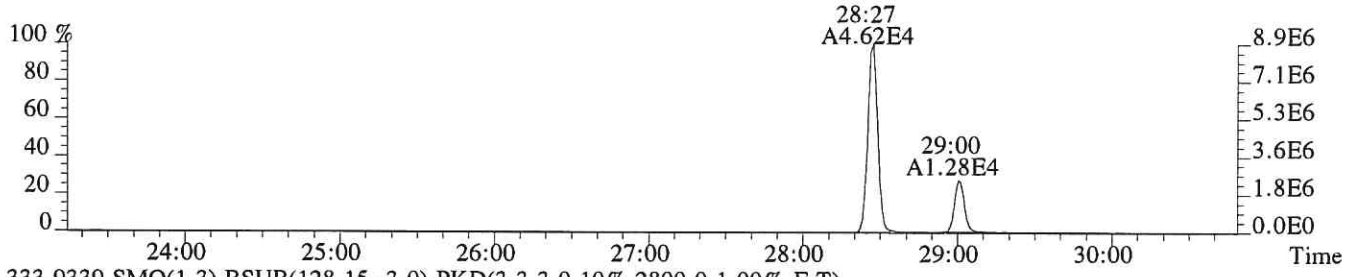
File:P519165 #1-538 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2920.0,1.00%,F,T)



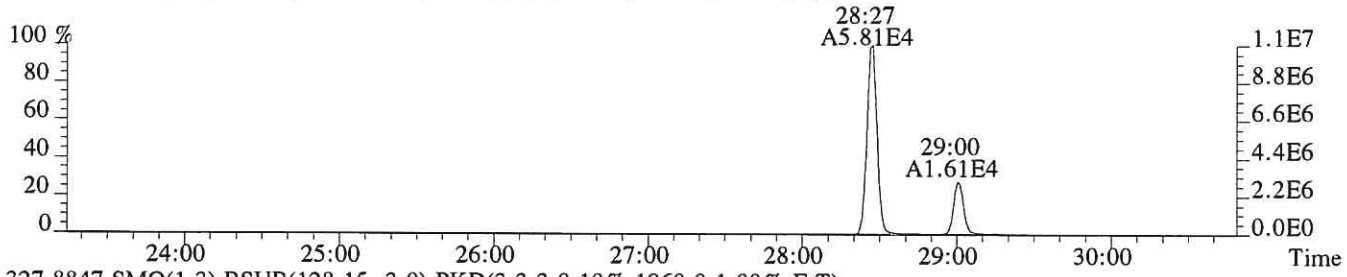
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



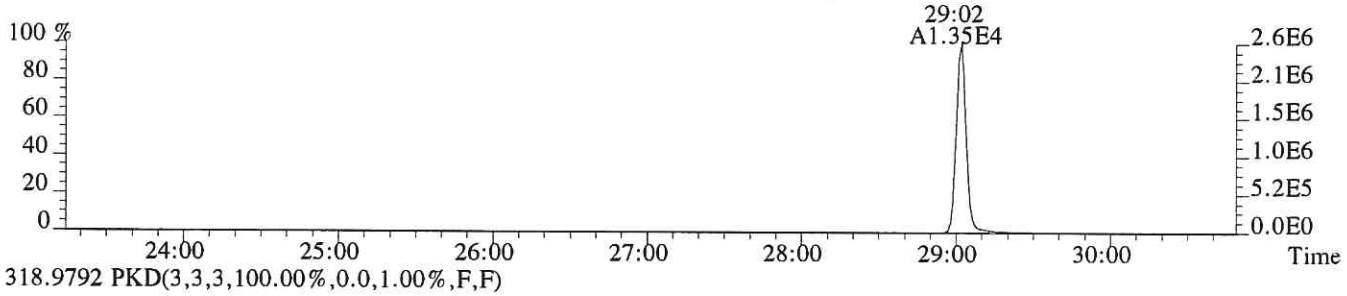
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7412.0,1.00%,F,T)



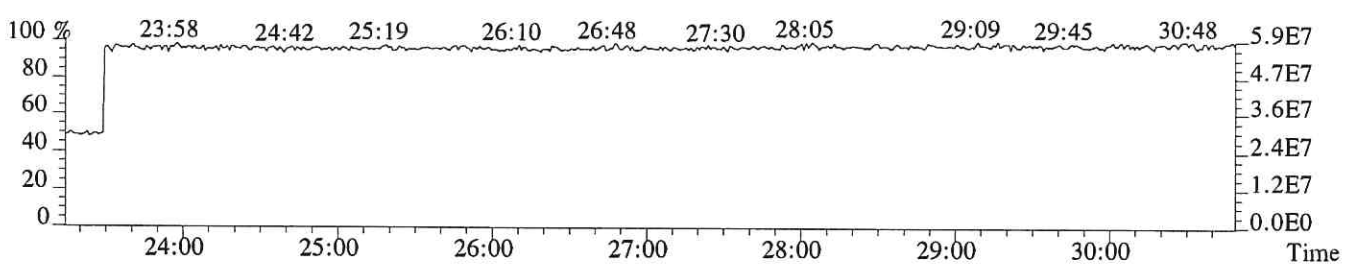
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2800.0,1.00%,F,T)



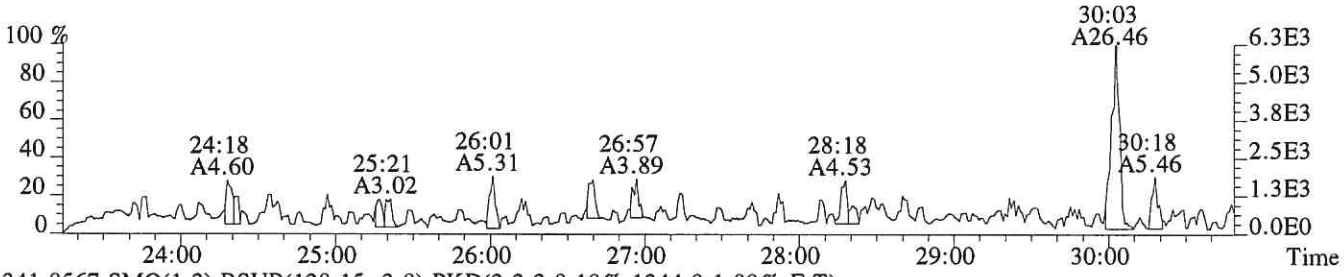
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



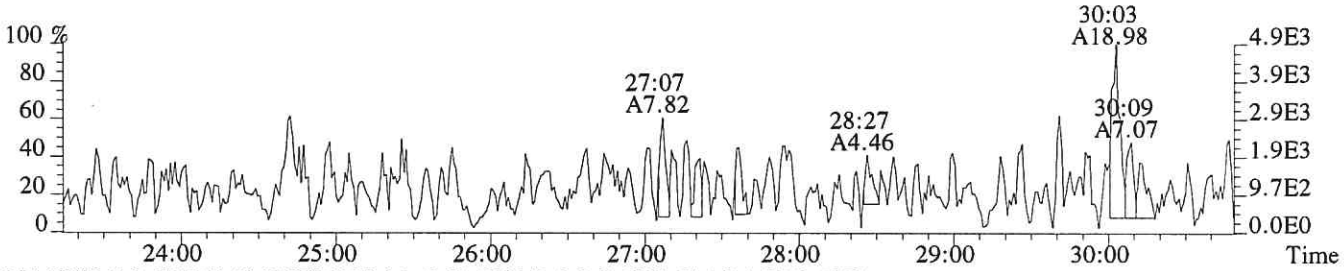
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



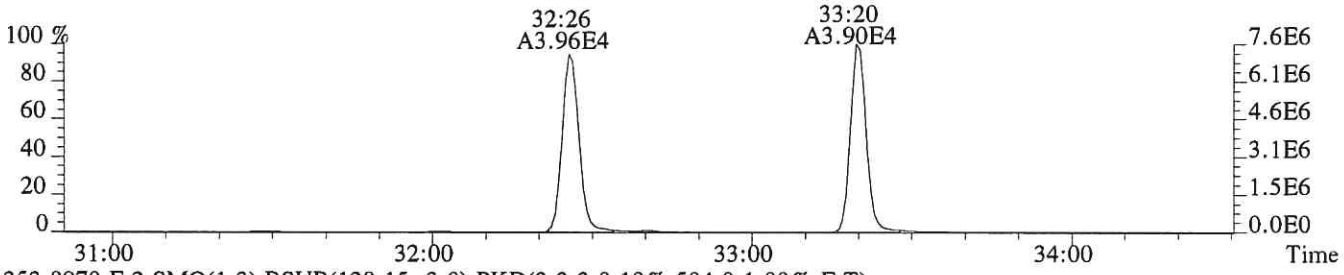
File:P519165 #1-538 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



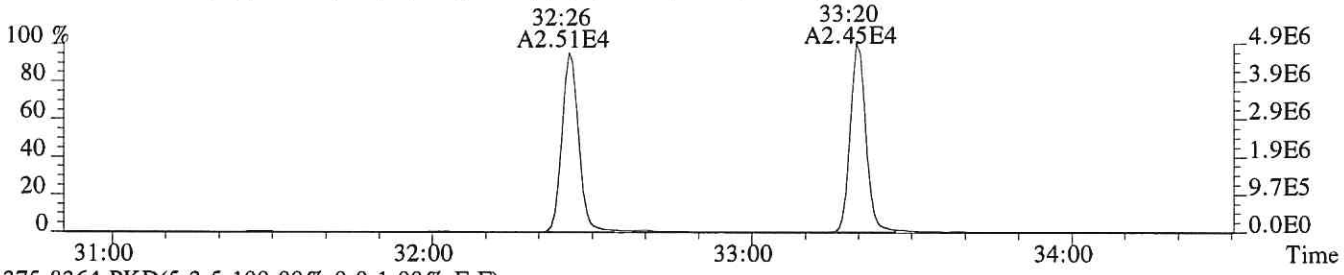
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1344.0,1.00%,F,T)



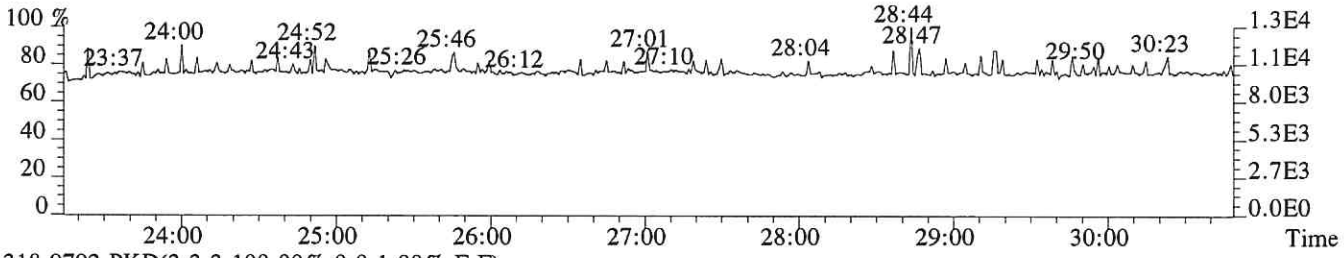
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



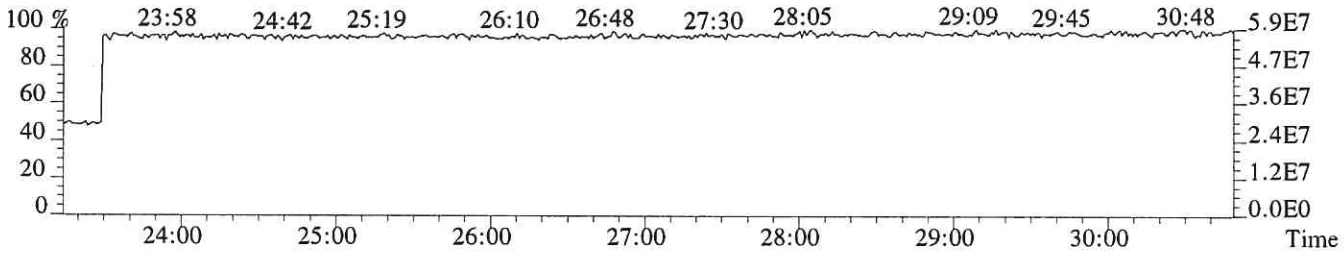
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



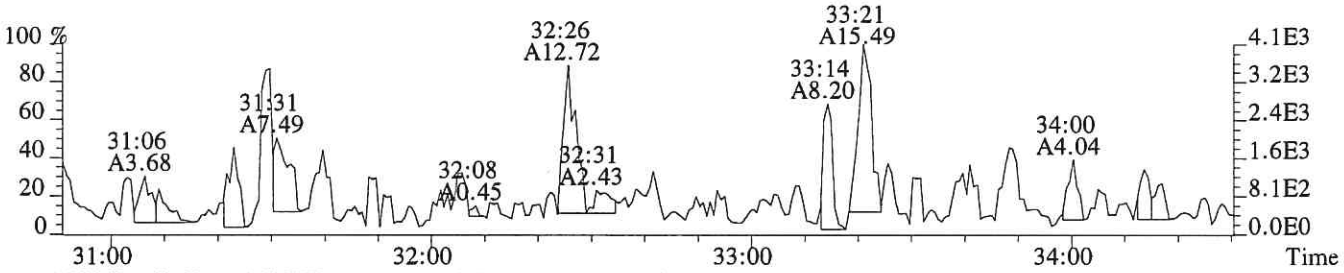
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



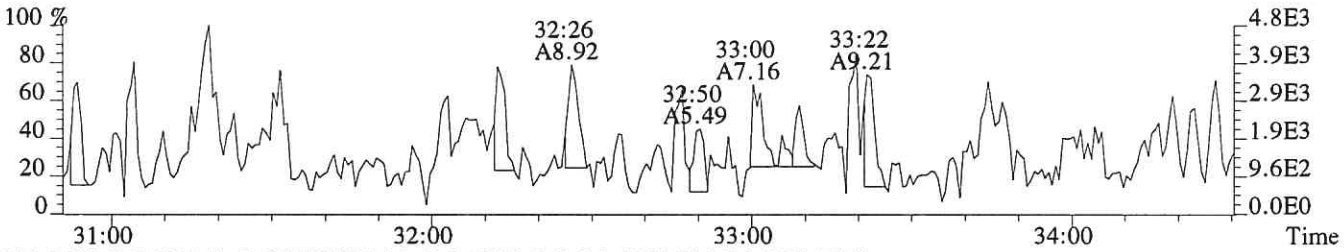
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



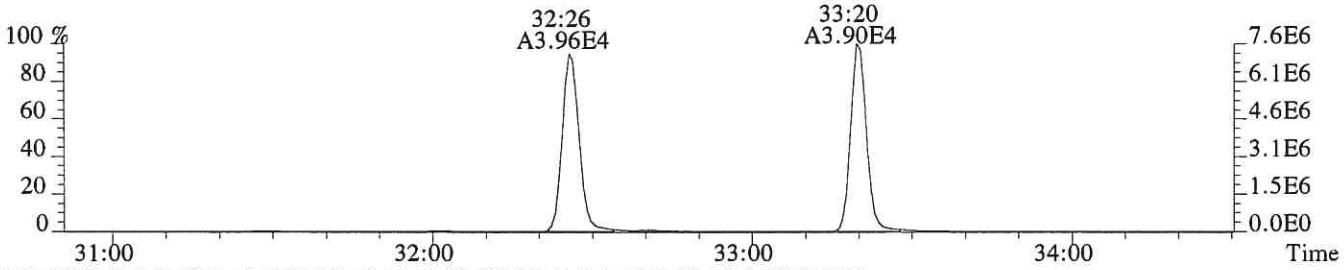
File:P519165 #1-330 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



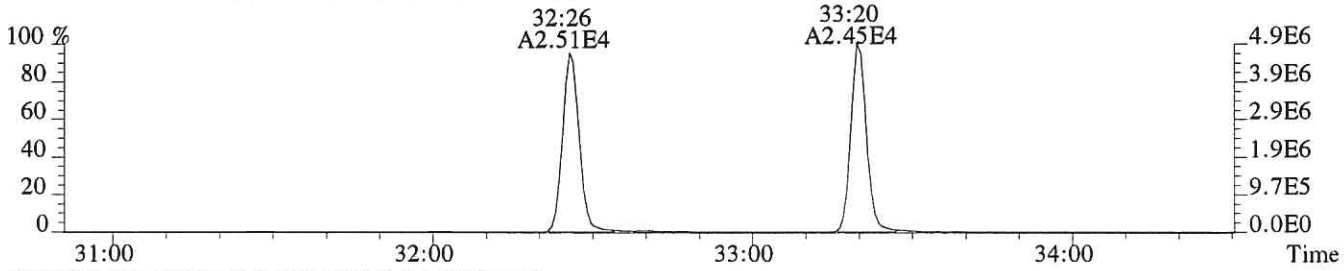
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



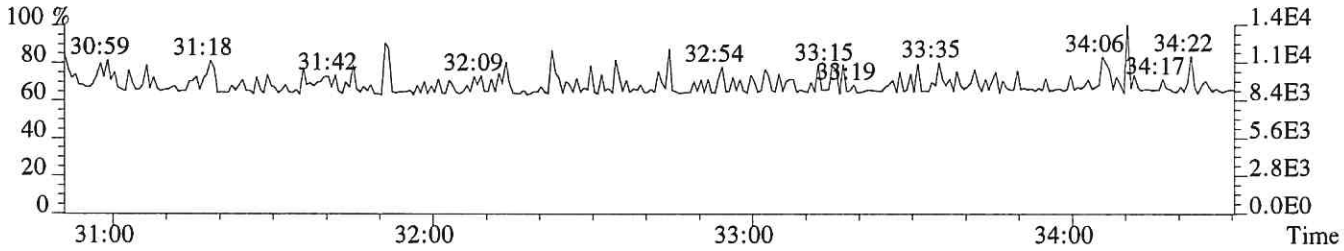
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



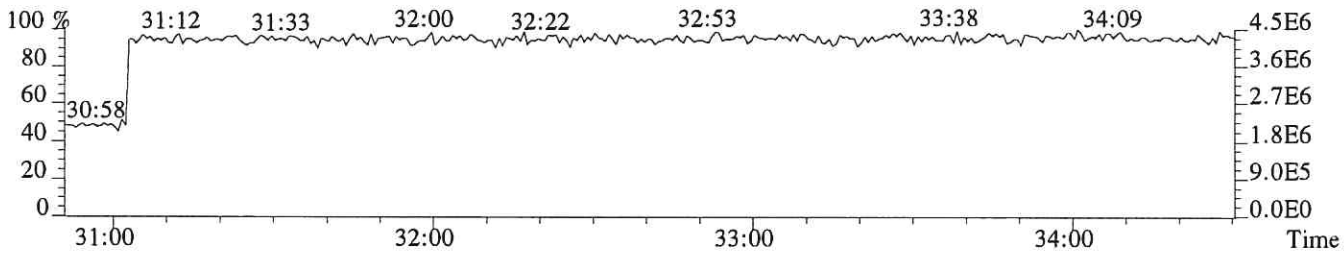
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



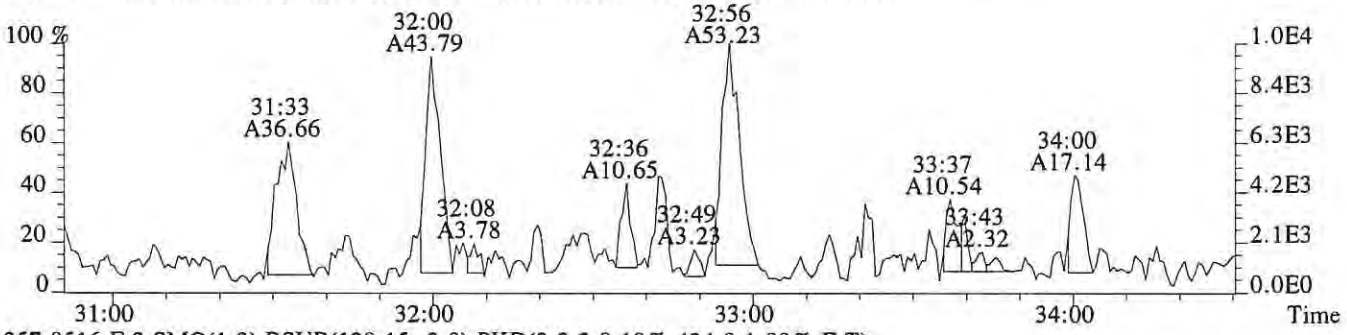
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



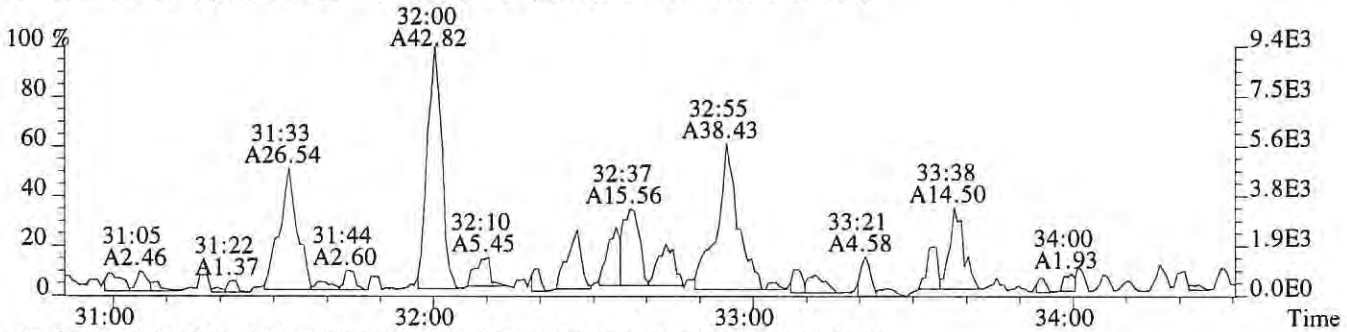
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



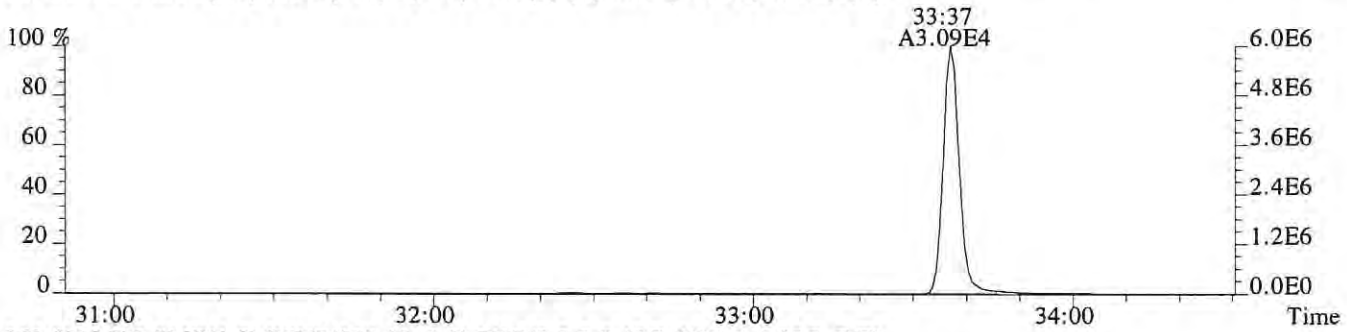
File:P519165 #1-330 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



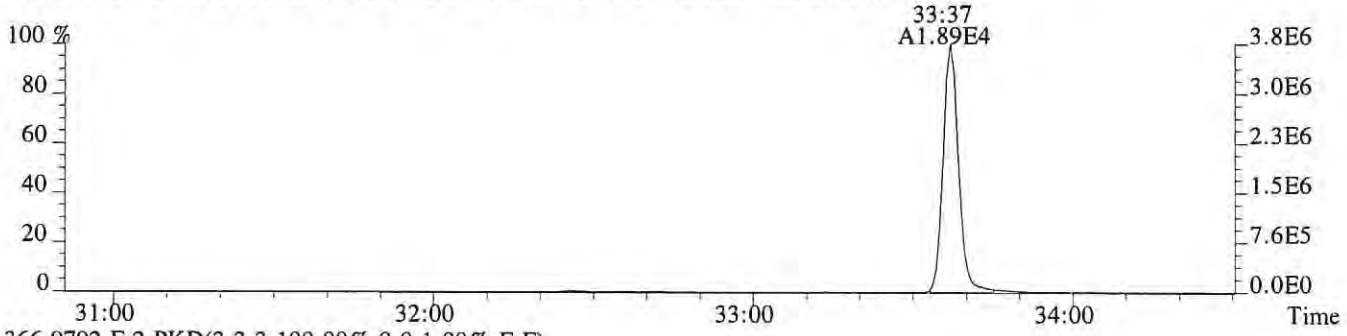
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



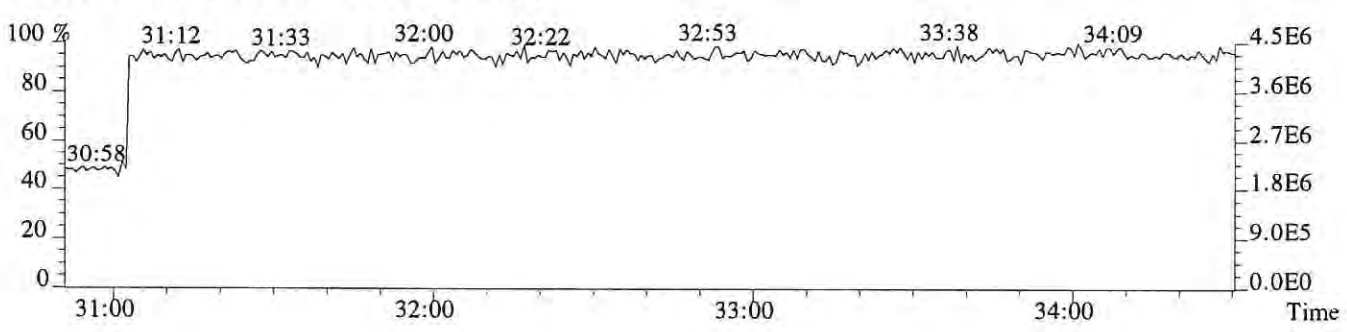
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



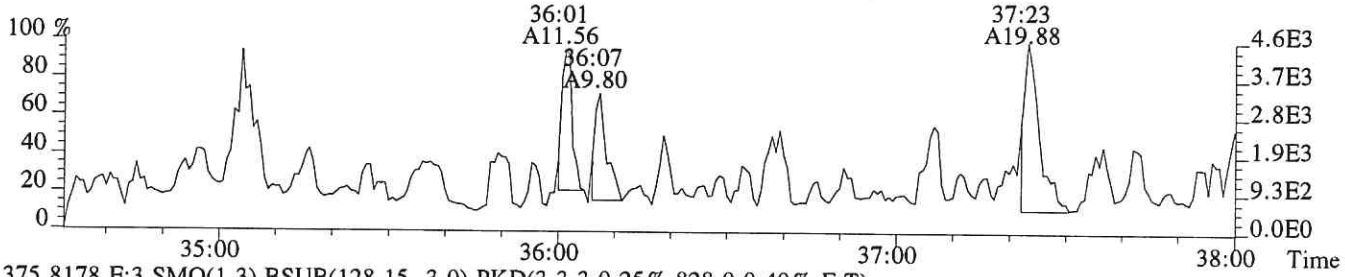
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



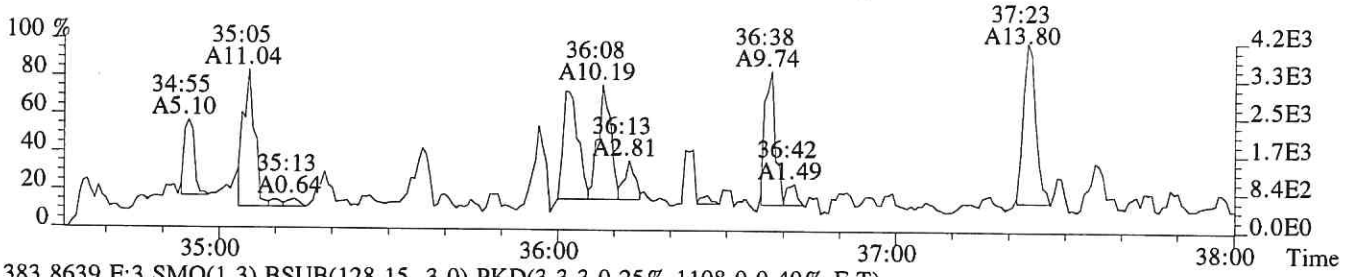
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



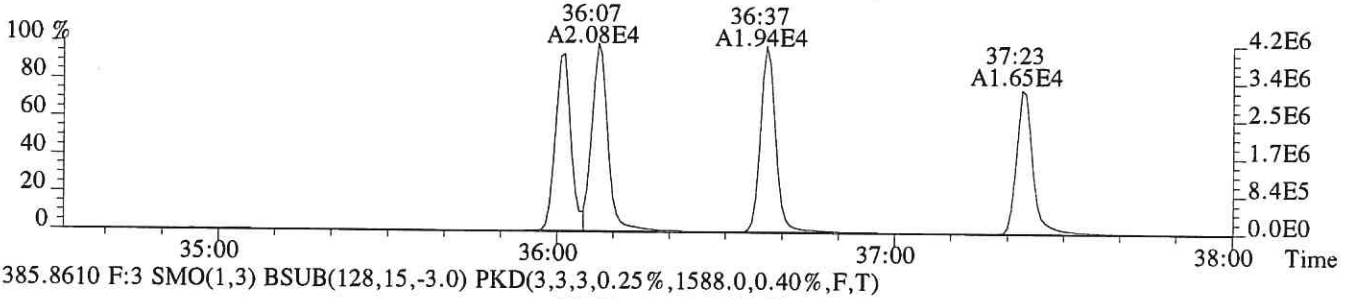
File:P519165 #1-312 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



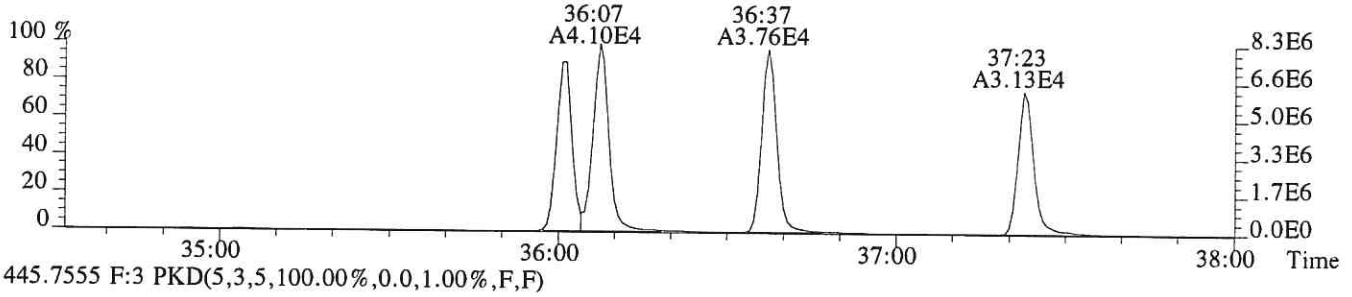
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



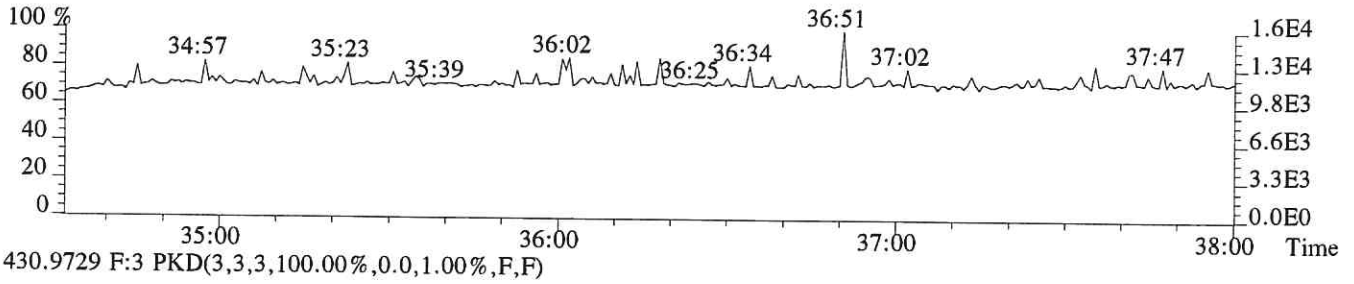
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



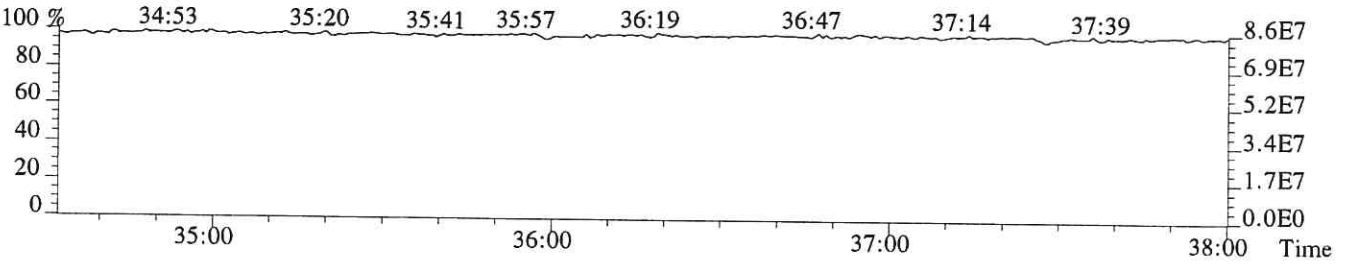
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



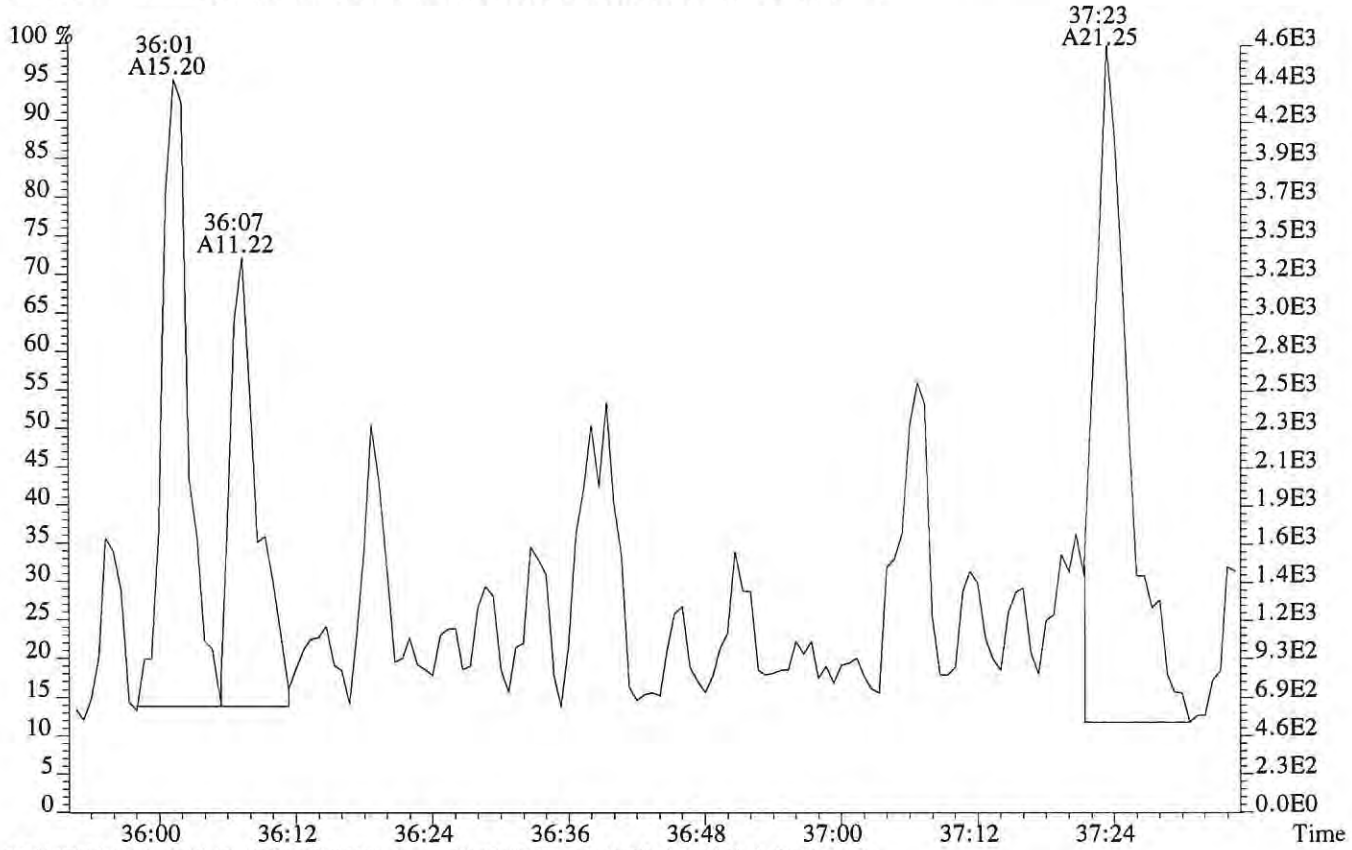
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



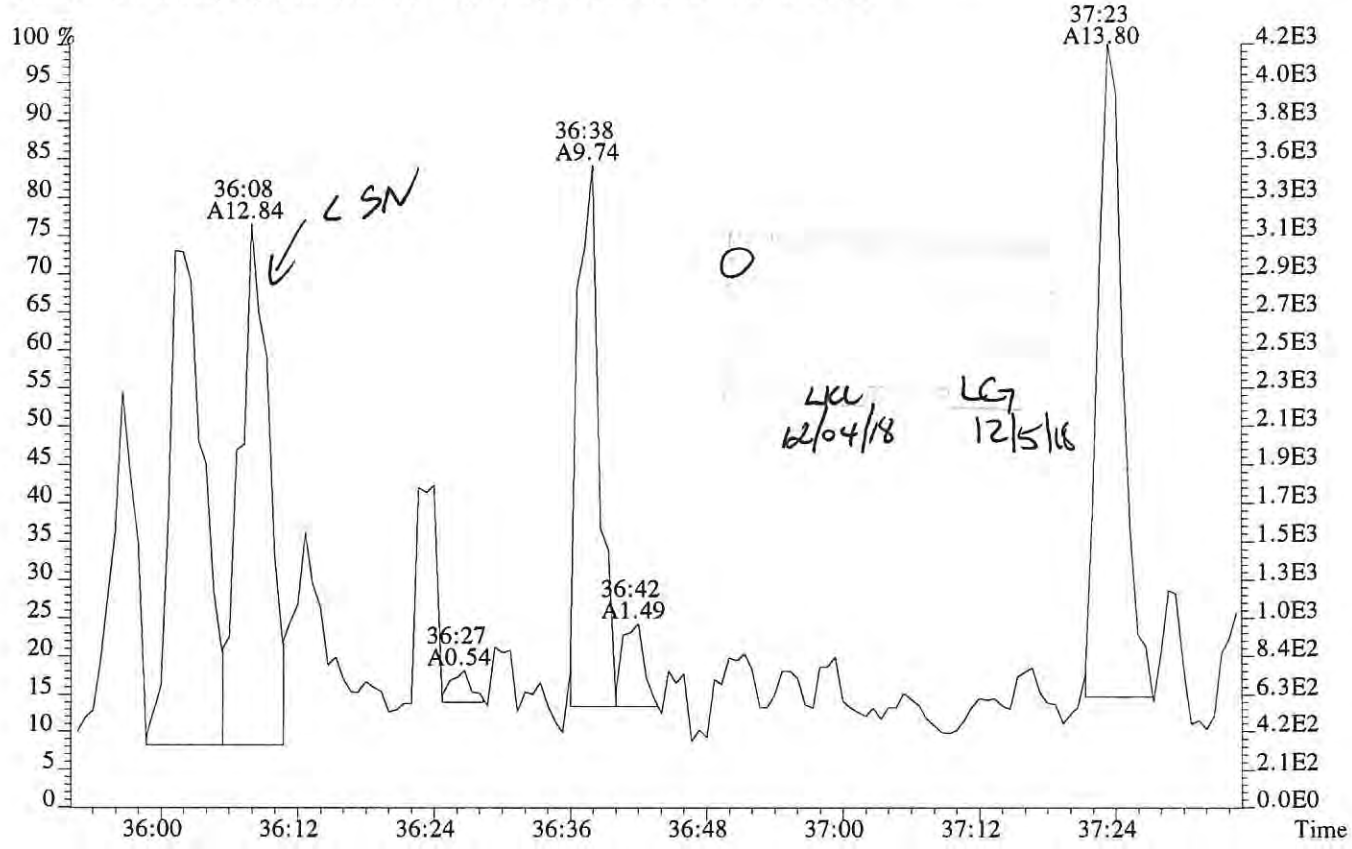
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



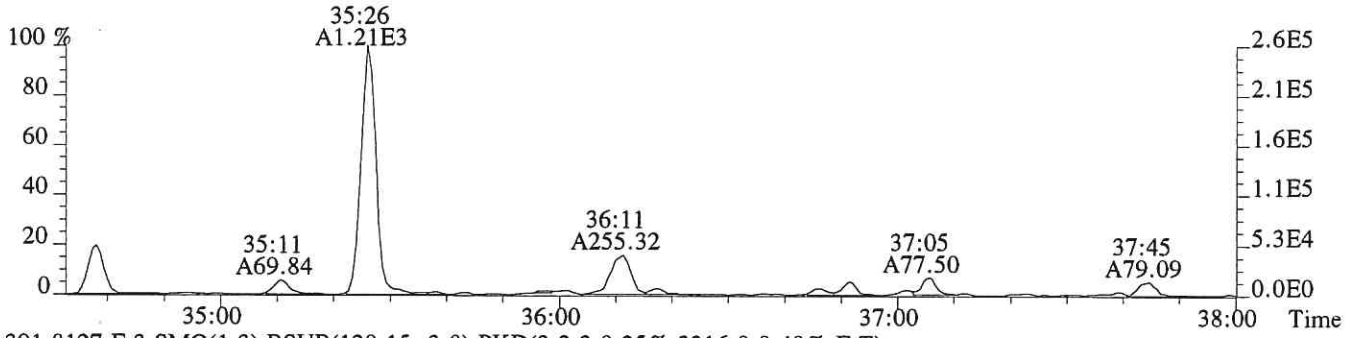
File:P519165 #1-312 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



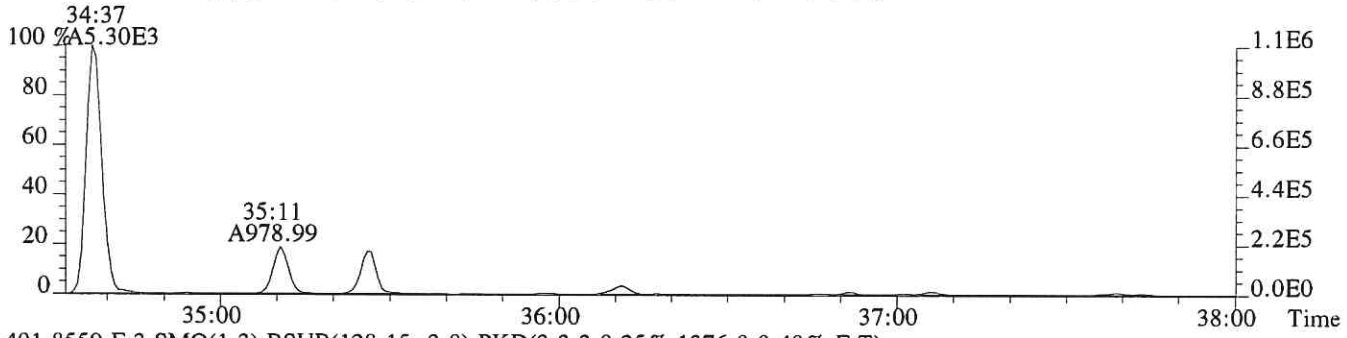
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



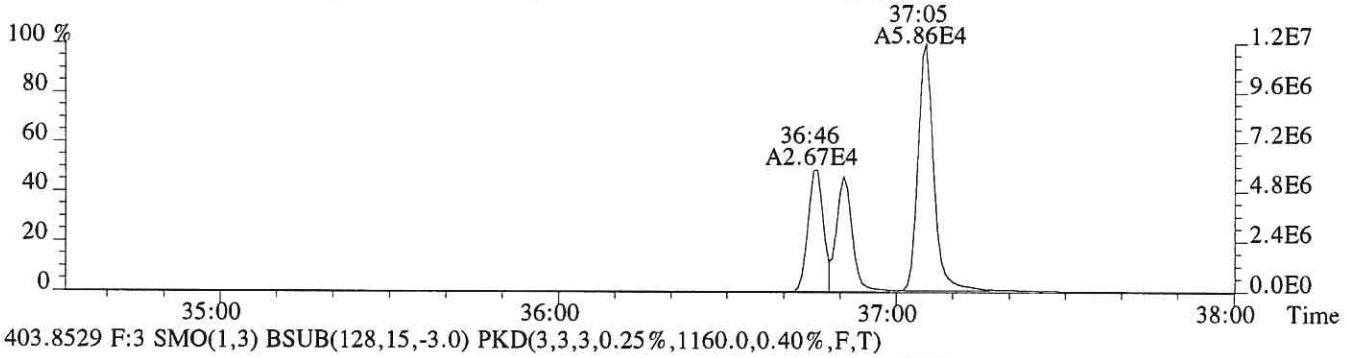
File:P519165 #1-312 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)



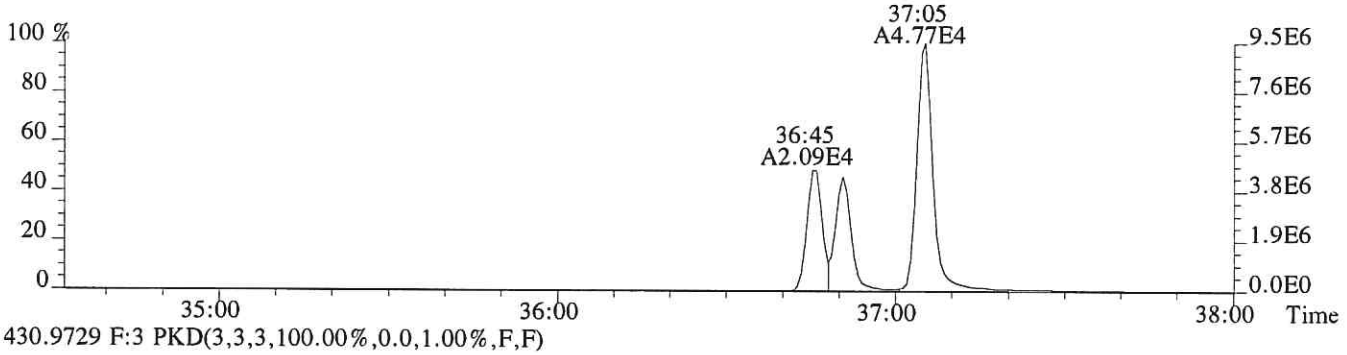
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3216.0,0.40%,F,T)



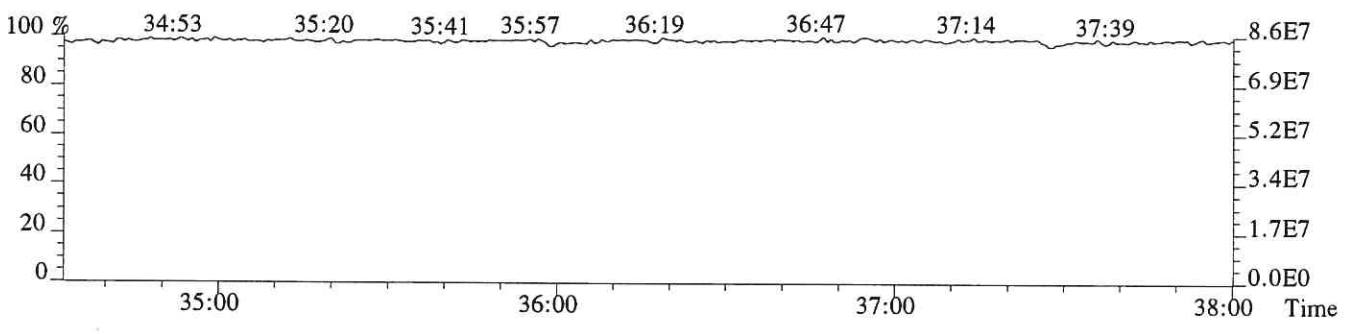
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)

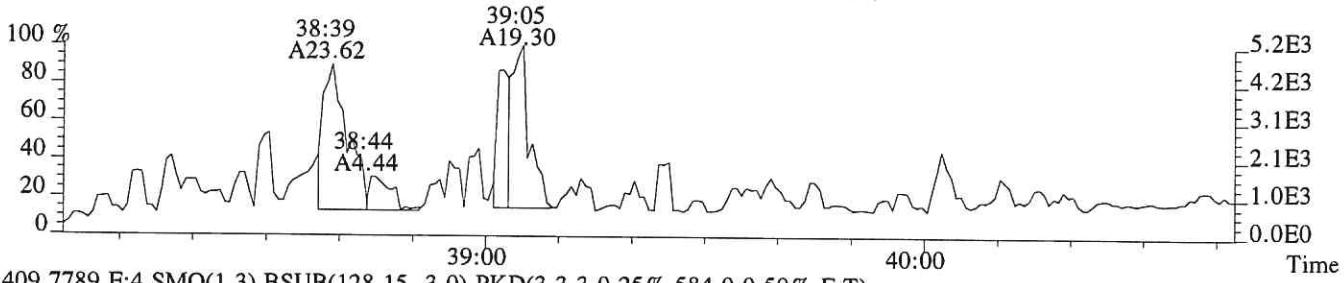


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

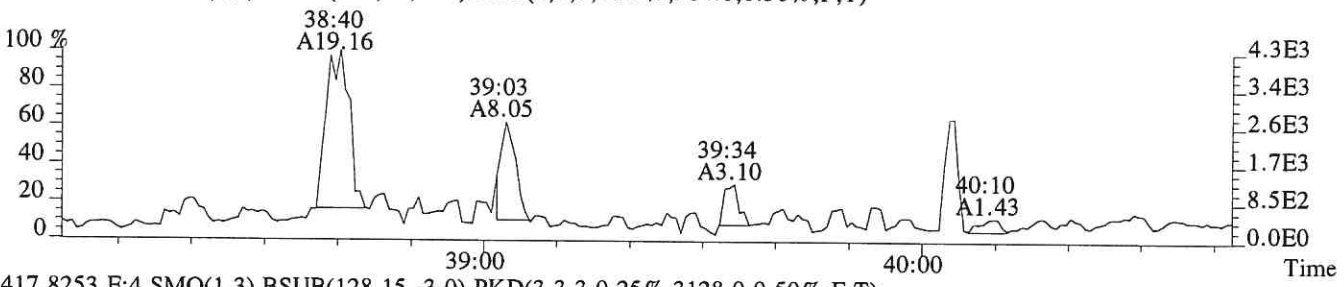


File:P519165 #1-241 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002

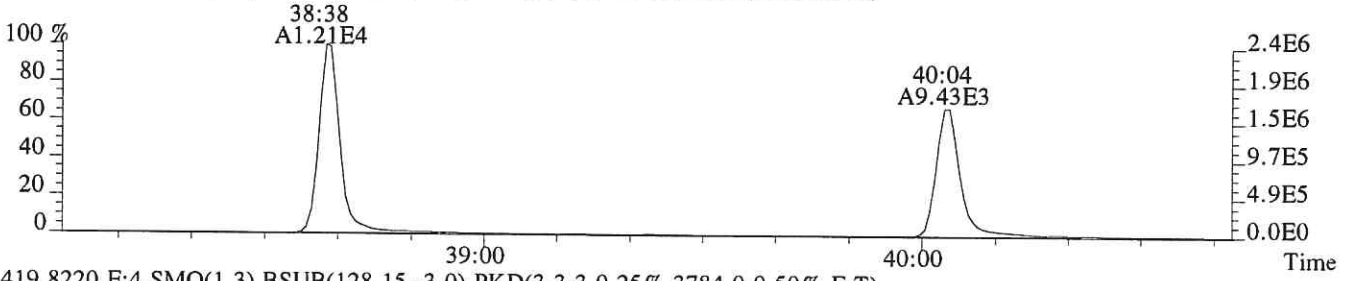
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.50%,F,T)



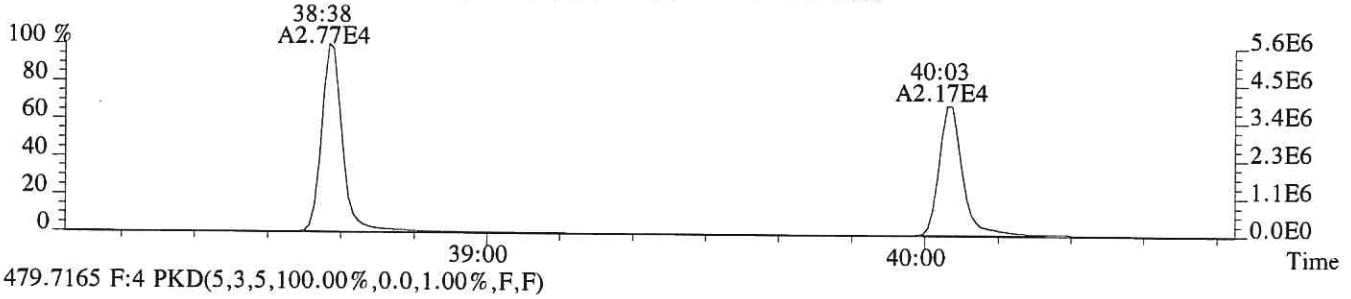
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.50%,F,T)



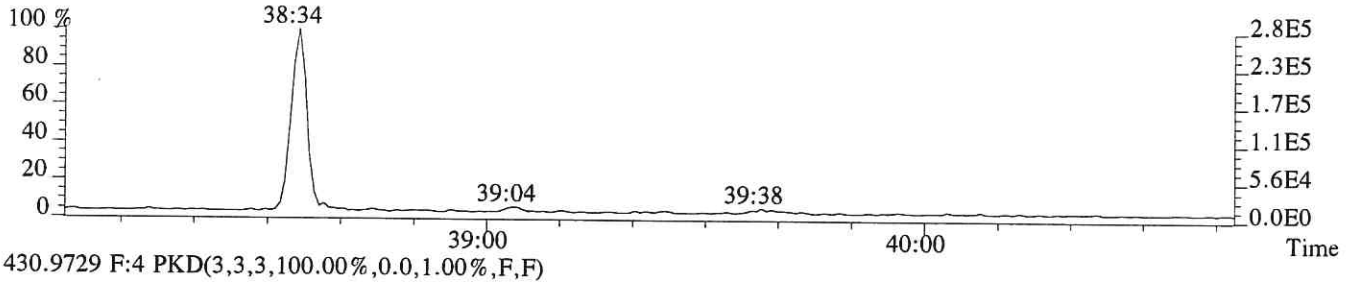
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.50%,F,T)



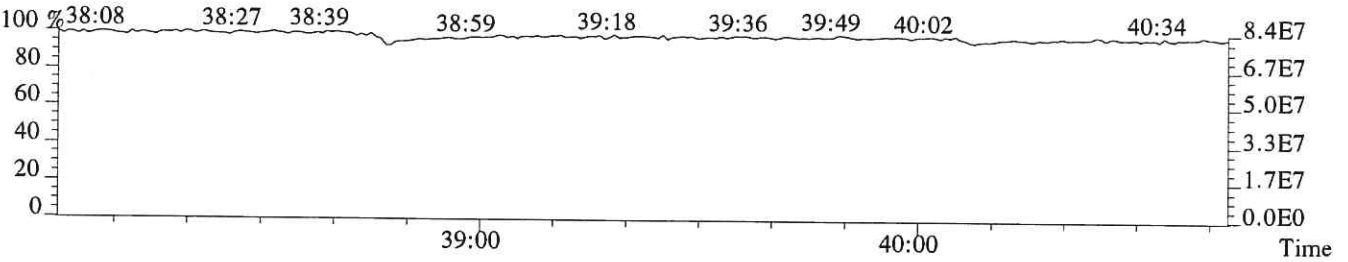
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3784.0,0.50%,F,T)



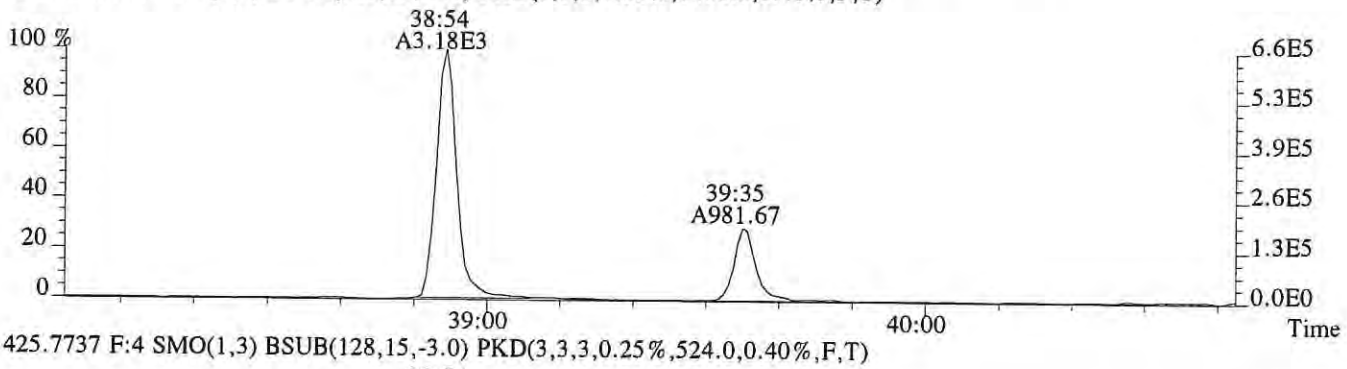
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



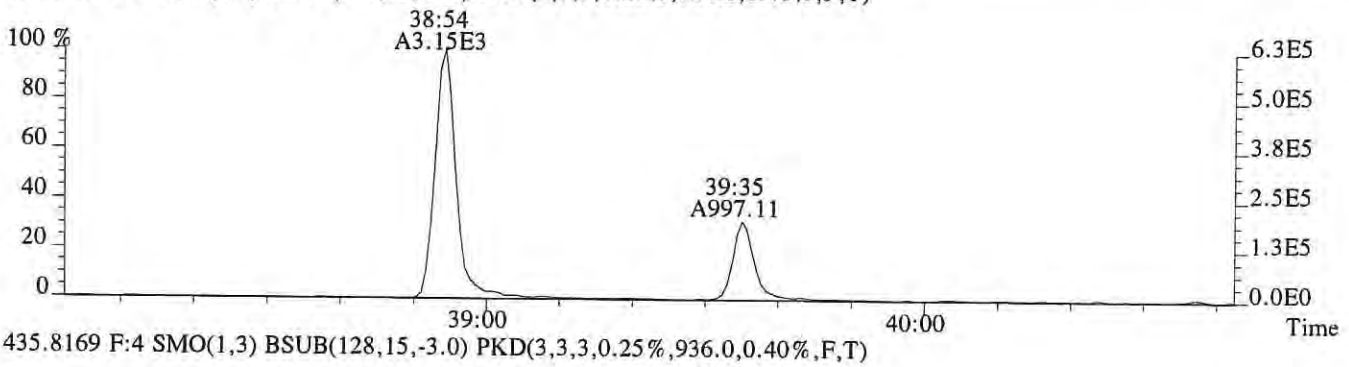
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



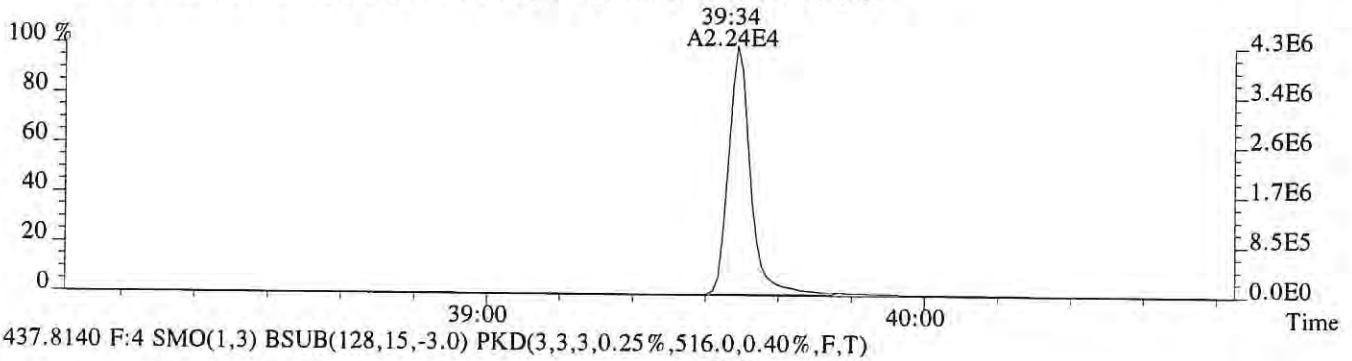
File:P519165 #1-241 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



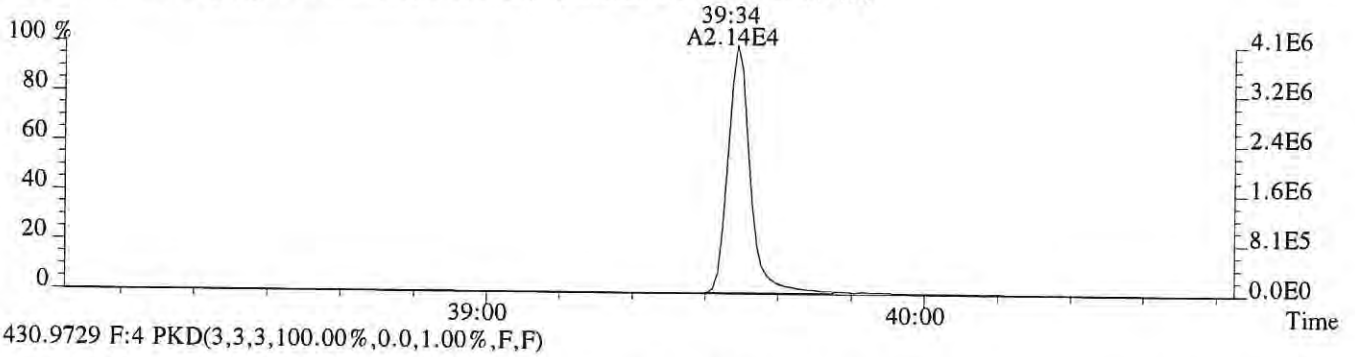
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



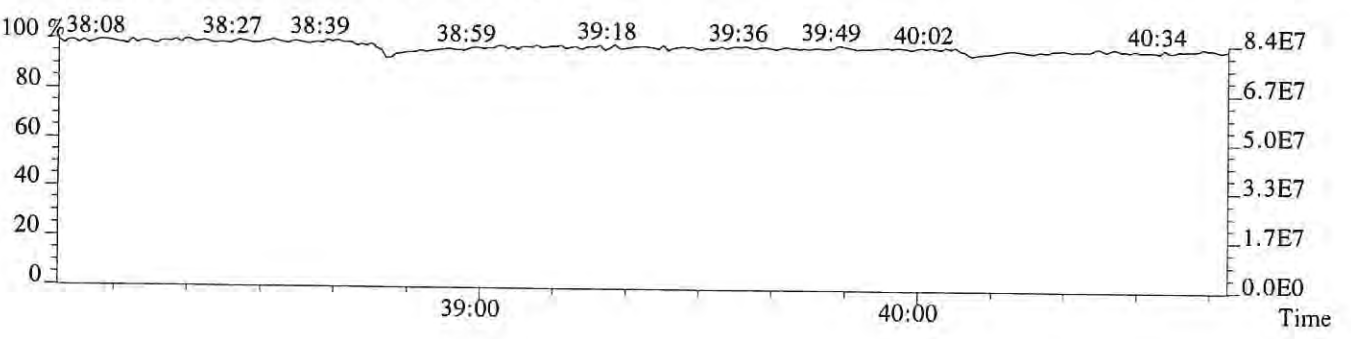
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)

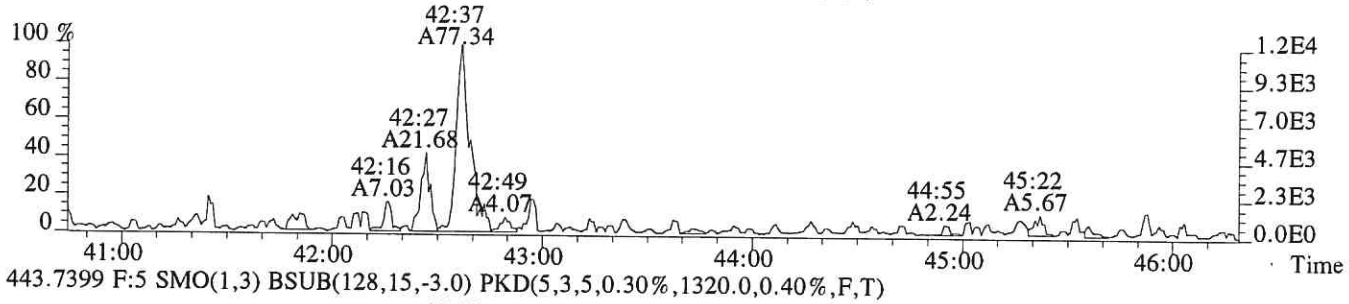


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

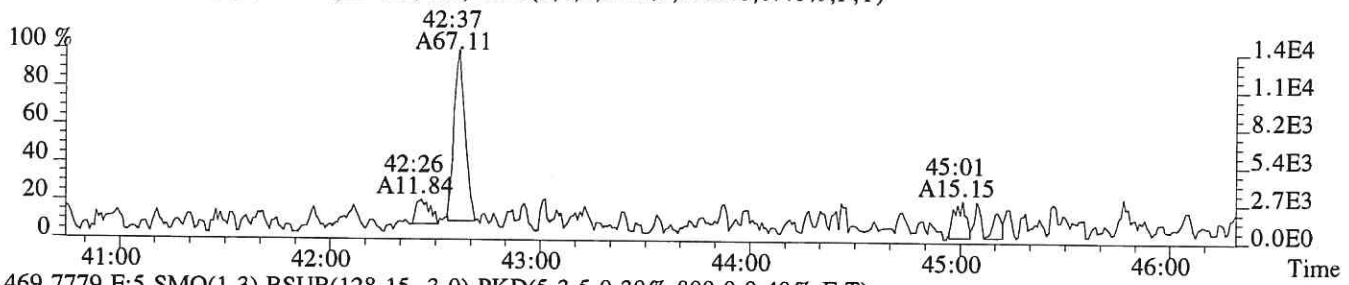


File:P519165 #1-502 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002

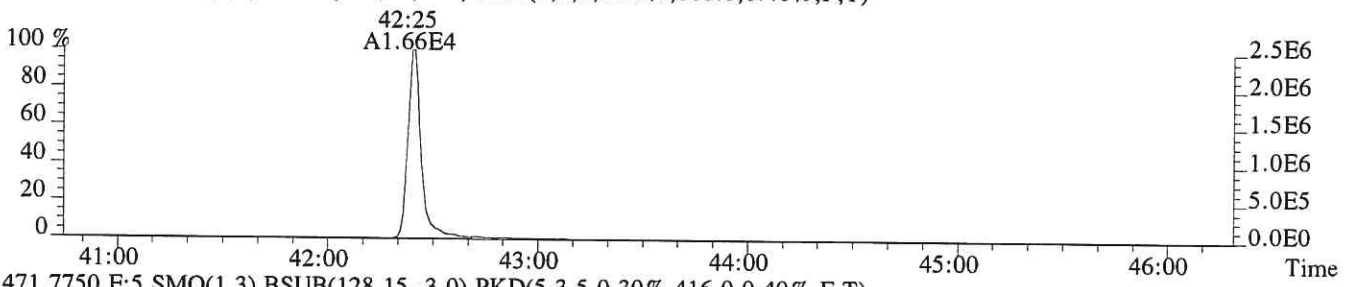
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



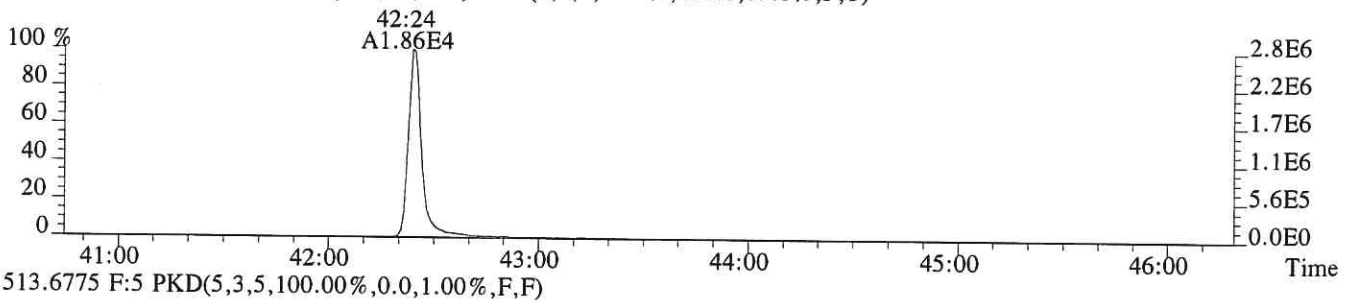
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1320.0,0.40%,F,T)



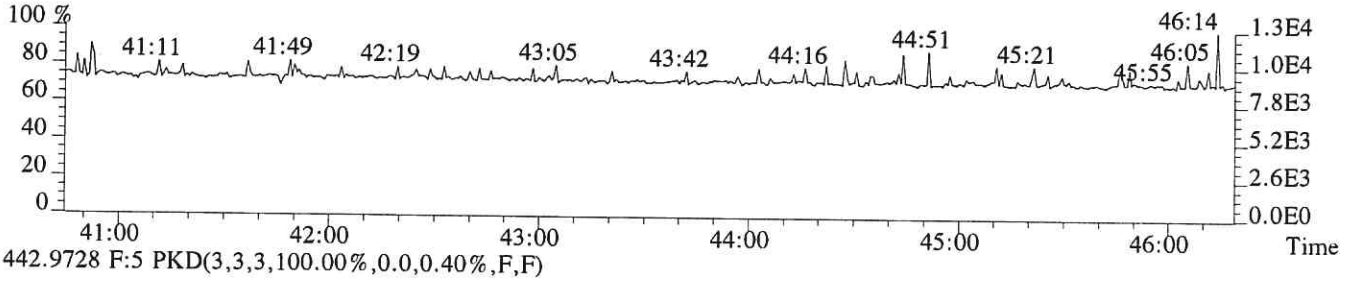
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



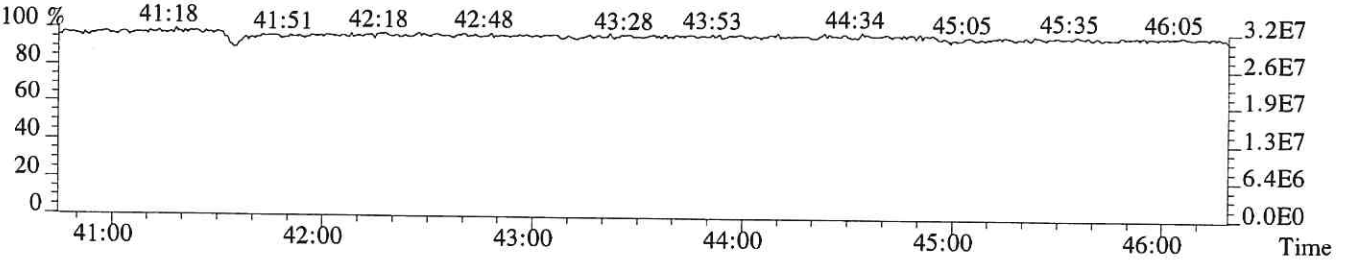
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



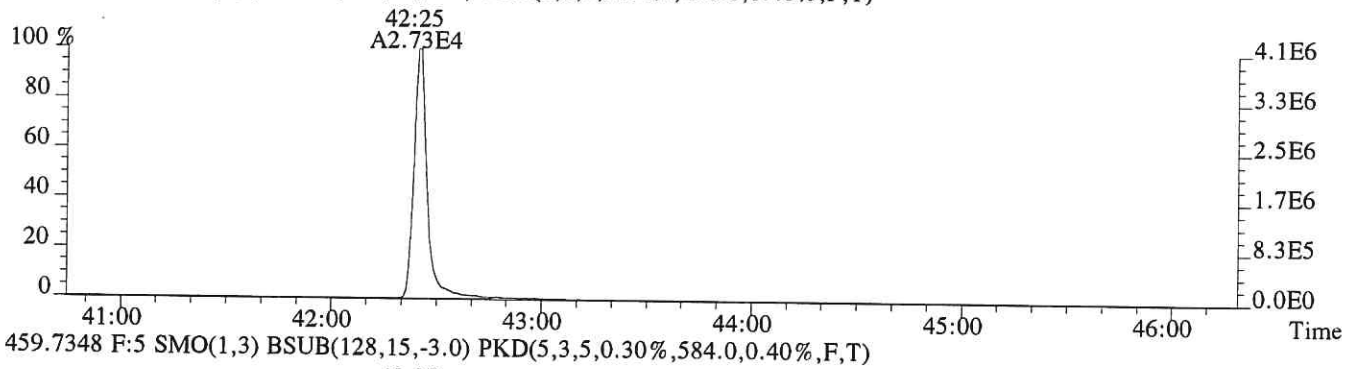
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



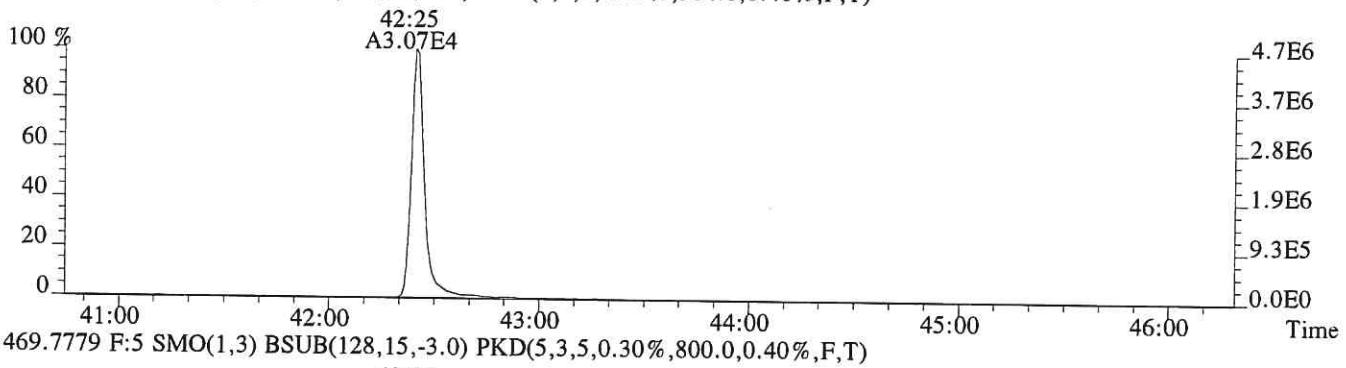
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



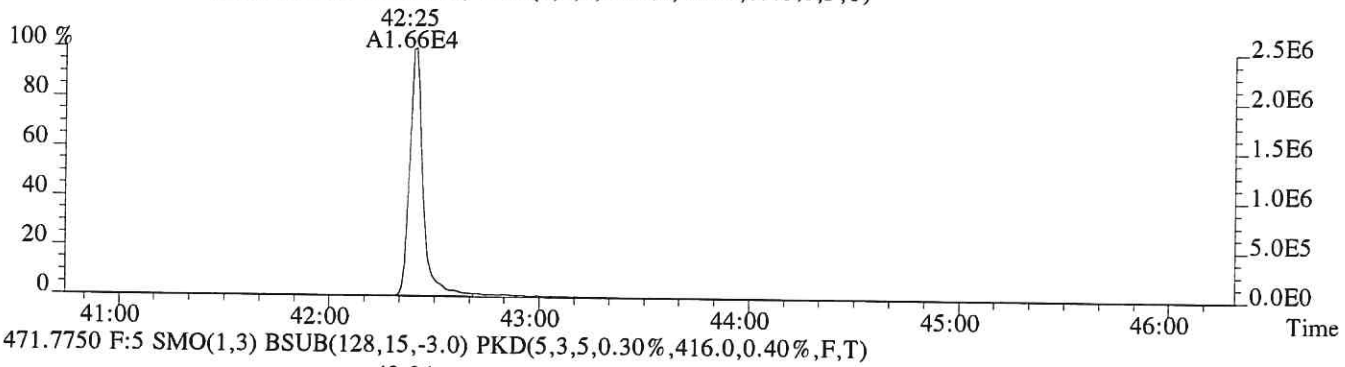
File:P519165 #1-502 Acq: 3-DEC-2018 08:43:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



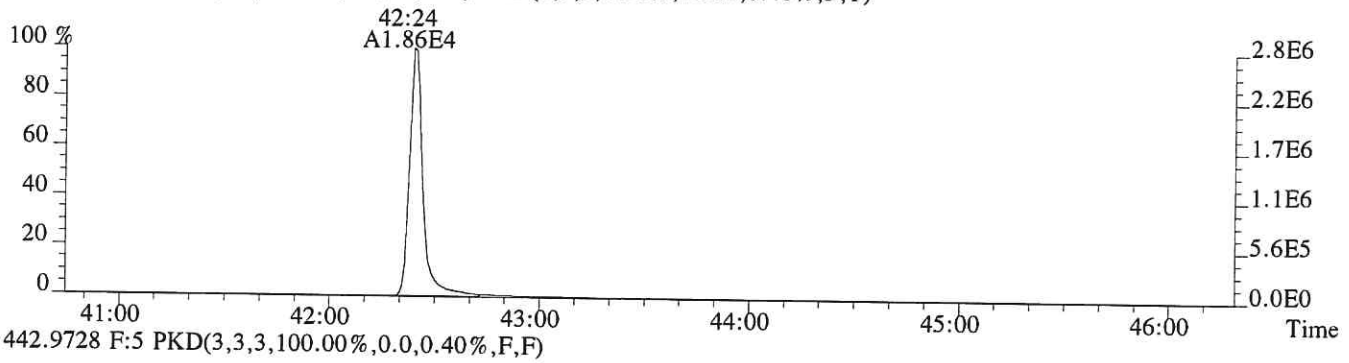
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



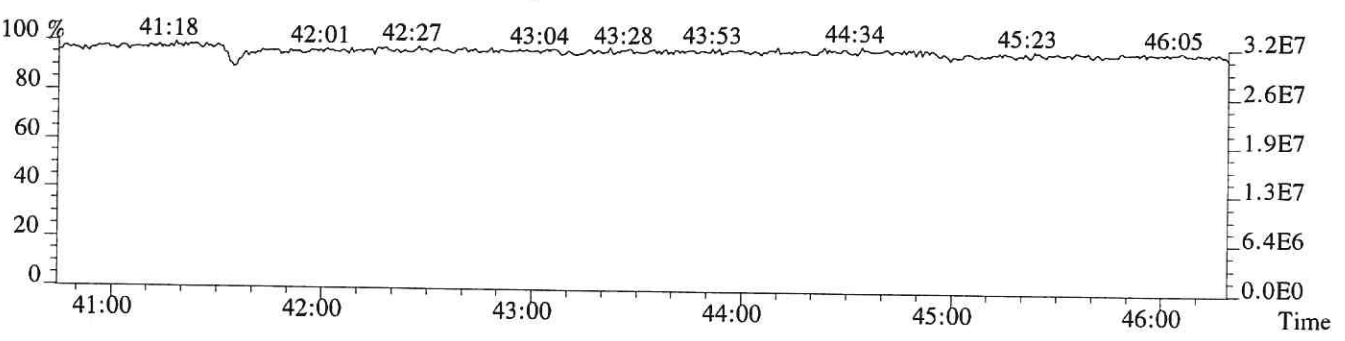
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0511

Run #11 Filename P519166 Samp: 1 Inj: 1 Acquired: 3-DEC-18 09:31:37
Processed: 4-DEC-18 15:24:12 Sample ID: E1801040-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	1.385e+01	1.850e+01	0.75	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	3.487e+01	3.232e+01	1.08	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:38	1.116e+02	1.006e+02	1.11	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	3.292e+01	2.531e+01	1.30	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	4.679e+01	5.305e+01	0.88	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	8.150e+02	7.926e+02	1.03	yes	no	1.025
17	Unk	OCDD	42:25	1.761e+04	1.973e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:13	2.943e+04	3.691e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.362e+04	3.376e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.881e+04	3.060e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.216e+04	4.292e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.589e+04	4.946e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.269e+04	4.387e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.880e+04	3.688e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.345e+04	3.066e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	9.922e+03	2.268e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	2.178e+04	2.776e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	3.877e+04	2.442e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	3.092e+04	2.408e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.172e+04	2.531e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.432e+04	2.313e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:24	1.700e+04	1.887e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.687e+04	5.862e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.769e+04	4.498e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.327e+04				no	1.014

$$OCDD = \frac{(1.761e+04 + 1.973e+04) \times 4000\ pg \times 1}{(1.700e+04 + 1.887e+04) \times 10.429g \times 79.6/100 \times 1.118} = 448.6476ng/kg$$

LG 12/6/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0511

Run #11 Filename P519166 Samp: 1 Inj: 1 Acquired: 3-DEC-18 09:31:37
Processed: 4-DEC-18 15:24:12 LAB. ID: E1801040-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.96e+02	*	*	2.63e+03	*
2	1,2,3,7,8-PeCDF	*	6.88e+02	*	*	1.64e+03	*
3	2,3,4,7,8-PeCDF	*	6.88e+02	*	*	1.64e+03	*
4	1,2,3,4,7,8-HxCDF	3.17e+03	9.12e+02	3.5e+00	4.96e+03	8.00e+02	6.2e+00
5	1,2,3,6,7,8-HxCDF	*	9.12e+02	*	*	8.00e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.12e+02	*	*	8.00e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.12e+02	*	*	8.00e+02	*
8	1,2,3,4,6,7,8-HpCDF	7.85e+03	9.32e+02	8.4e+00	6.66e+03	4.68e+02	1.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	9.32e+02	*	*	4.68e+02	*
10	OCDF	1.49e+04	2.52e+02	5.9e+01	1.64e+04	1.38e+03	1.2e+01
11	2,3,7,8-TCDD	*	3.05e+03	*	*	1.68e+03	*
12	1,2,3,7,8-PeCDD	*	1.38e+03	*	*	2.88e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.08e+03	*	*	1.46e+03	*
14	1,2,3,6,7,8-HxCDD	7.02e+03	1.08e+03	6.5e+00	7.59e+03	1.46e+03	5.2e+00
15	1,2,3,7,8,9-HxCDD	1.03e+04	1.08e+03	9.6e+00	1.00e+04	1.46e+03	6.9e+00
16	1,2,3,4,6,7,8-HpCDD	1.53e+05	8.84e+02	1.7e+02	1.55e+05	1.32e+03	1.2e+02
17	OCDD	2.72e+06	2.80e+02	9.7e+03	2.99e+06	5.48e+02	5.5e+03
18	13C-2,3,7,8-TCDF	5.26e+06	9.75e+03	5.4e+02	6.56e+06	6.76e+03	9.7e+02
19	13C-1,2,3,7,8-PeCDF	1.00e+07	1.00e+03	1.0e+04	6.30e+06	6.84e+02	9.2e+03
20	13C-2,3,4,7,8-PeCDF	9.54e+06	1.00e+03	9.5e+03	5.98e+06	6.84e+02	8.7e+03
21	13C-1,2,3,4,7,8-HxCDF	4.74e+06	8.00e+02	5.9e+03	9.16e+06	1.29e+03	7.1e+03
22	13C-1,2,3,6,7,8-HxCDF	5.15e+06	8.00e+02	6.4e+03	9.94e+06	1.29e+03	7.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.82e+06	8.00e+02	6.0e+03	9.33e+06	1.29e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	3.68e+06	8.00e+02	4.6e+03	7.20e+06	1.29e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.74e+06	2.23e+03	1.2e+03	6.28e+06	3.44e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.74e+06	2.23e+03	7.8e+02	3.96e+06	3.44e+03	1.2e+03
27	13C-2,3,7,8-TCDD	4.18e+06	9.09e+03	4.6e+02	5.35e+06	3.48e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	7.58e+06	1.33e+03	5.7e+03	4.72e+06	1.68e+03	2.8e+03
29	13C-1,2,3,4,7,8-HxCDD	6.87e+06	1.33e+03	5.2e+03	5.38e+06	1.46e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.26e+06	1.33e+03	4.7e+03	5.07e+06	1.46e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.63e+06	8.28e+02	5.6e+03	4.38e+06	5.48e+02	8.0e+03
32	13C-OCDD	2.62e+06	6.92e+02	3.8e+03	2.88e+06	6.80e+02	4.2e+03
33	13C-1,2,3,4-TCDD	8.72e+06	9.09e+03	9.6e+02	1.10e+07	3.48e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.12e+07	1.33e+03	8.4e+03	8.81e+06	1.46e+03	6.1e+03
35	37Cl-2,3,7,8-TCDD	4.45e+06	1.96e+03	2.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.052e{+}03 + 1.684e{+}03\ ) \times 2000}{(4.182e{+}06 + 5.351e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0511

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519166 Sample:1 Injection:1 Function:2

Acquired: 3-DEC-18 09:31:37 Processed: 4-DEC-18 15:24:12

Mass: 355.8550 357.8520 Tot Response: 1.57e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	5.02e+01	3.33e+01 1.51	yes	8.35e+01		y	n
2	32:54	4.28e+01	3.06e+01 1.40	yes	7.34e+01		y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0511

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519166 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 09:31:37 Processed: 4-DEC-18 15:24:12

Mass: 389.8160 391.8130 Tot Response: 1.90e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	7.95e+02	5.83e+02 1.36	yes	1.38e+03		n	n
2	36:11	2.42e+02	2.22e+02 1.09	yes	4.64e+02		n	n
3	36:51	3.29e+01	2.53e+01 1.30	yes	5.82e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0511

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519166 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 09:31:37 Processed: 4-DEC-18 15:24:12

Mass: 407.7820 409.7790 Tot Response: 1.07e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	3.49e+01	3.23e+01 1.08	yes	6.72e+01	1,2,3,4,6,7,8-HpCDF	n	n
2	39:04	2.11e+01	1.87e+01 1.13	yes	3.98e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0511

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519166 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 09:31:37 Processed: 4-DEC-18 15:24:12

Mass: 423.7770 425.7740 Tot Response: 6.26e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	2.34e+03	1.01	yes	4.66e+03		n	n
2	39:35	8.15e+02	1.03	yes	1.61e+03	1,2,3,4,6,7,8-HpCDD	n	n

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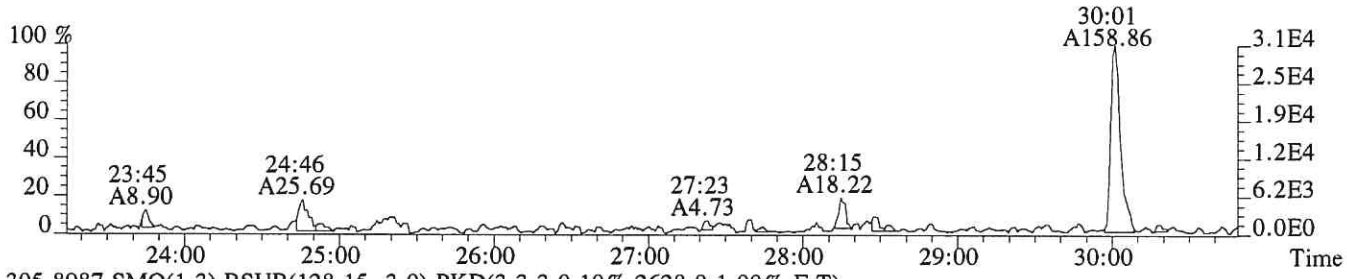
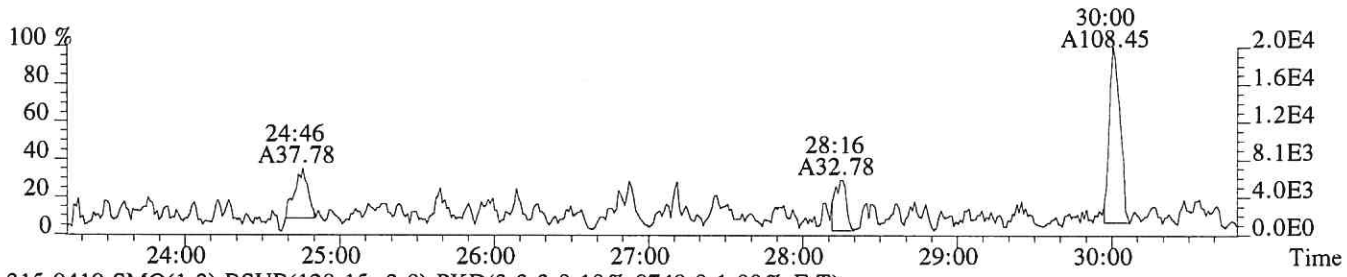
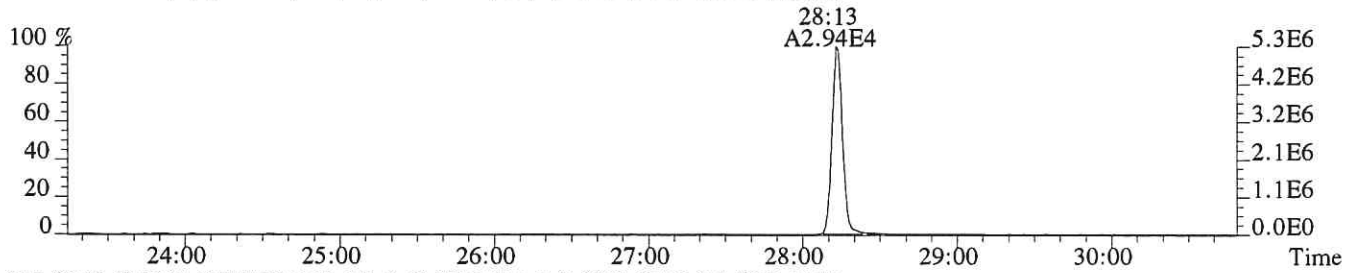
File:P519166 #1-538 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



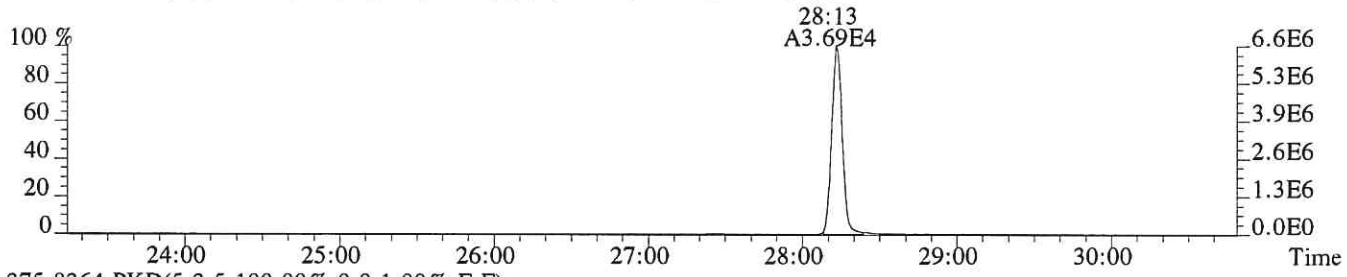
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



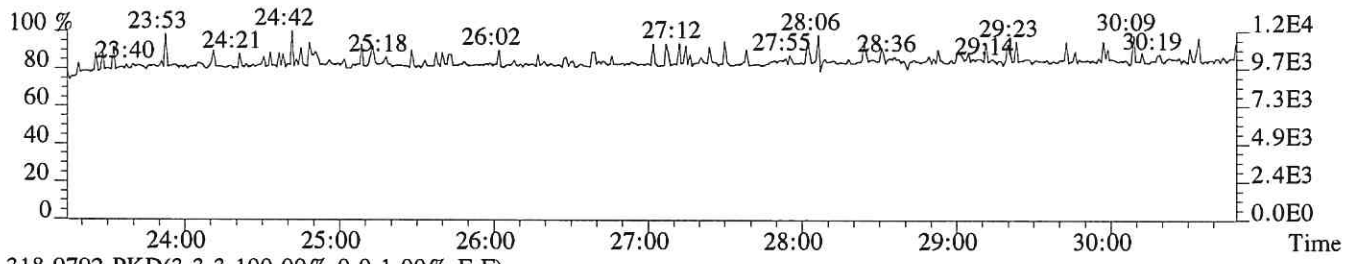
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9748.0,1.00%,F,T)



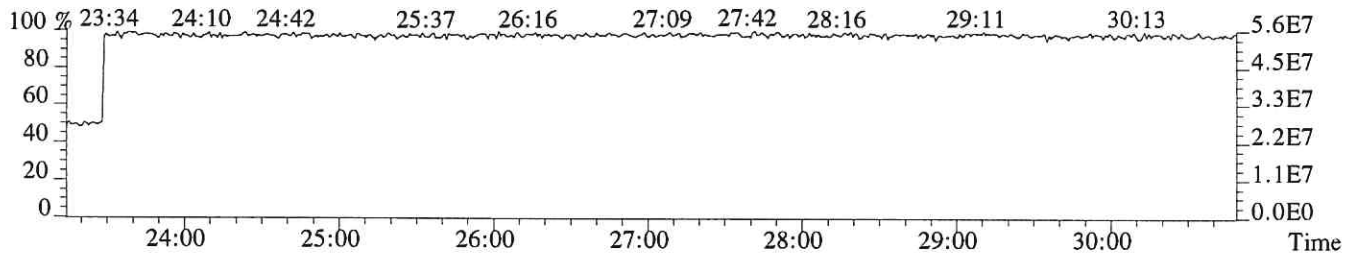
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6756.0,1.00%,F,T)



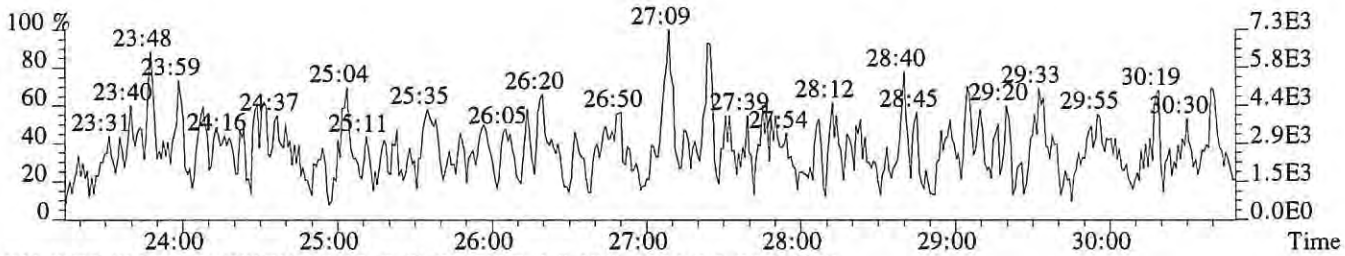
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



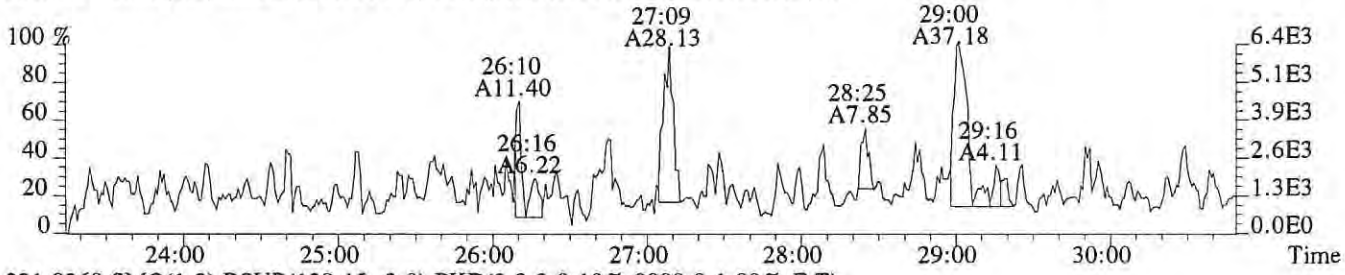
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



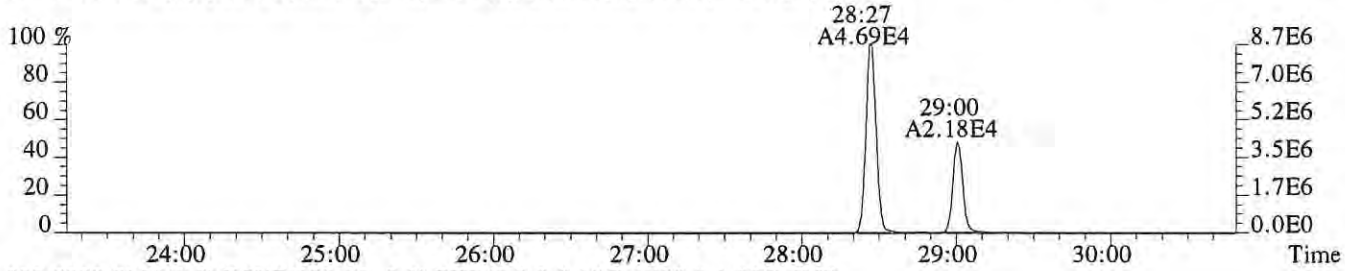
File:P519166 #1-538 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3052.0,1.00%,F,T)



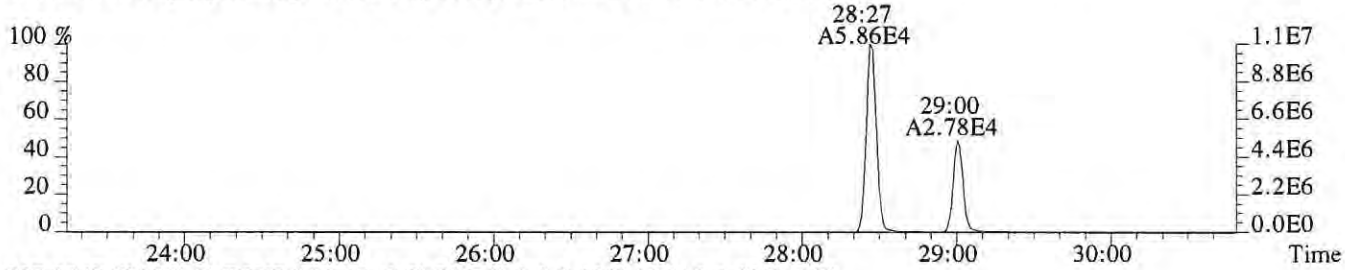
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



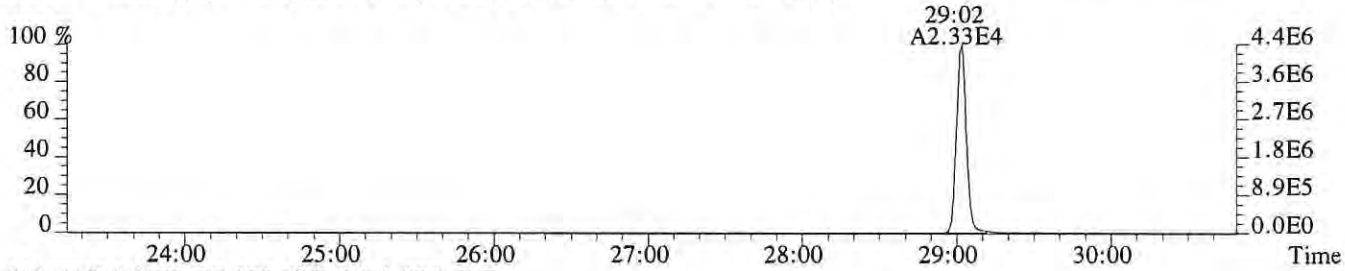
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9088.0,1.00%,F,T)



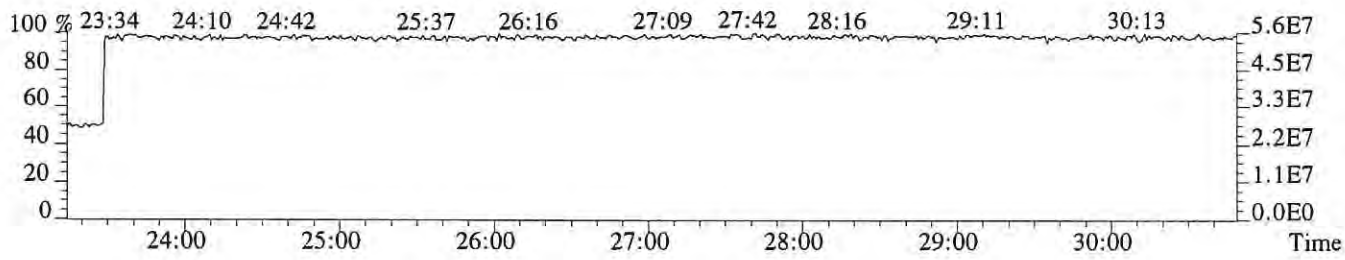
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3480.0,1.00%,F,T)



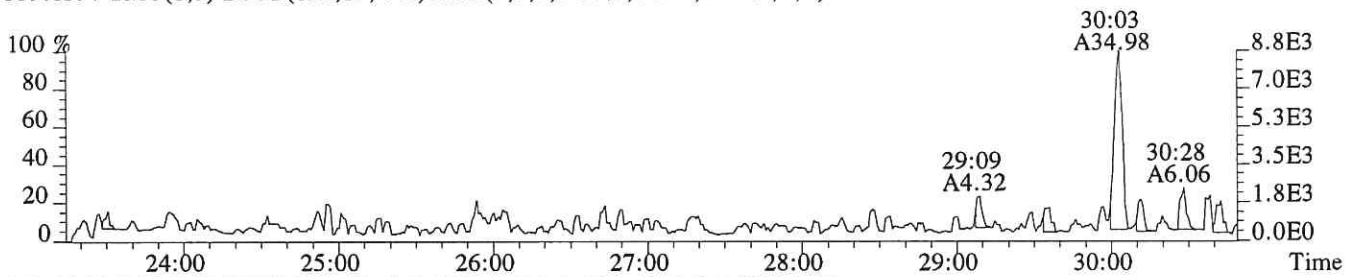
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



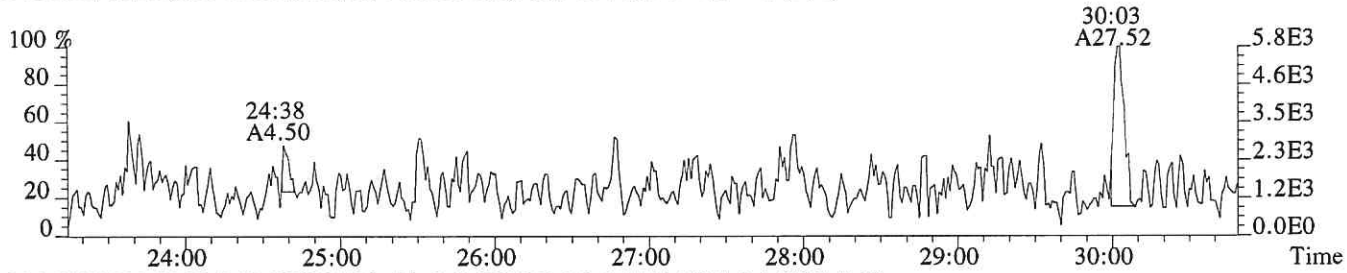
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



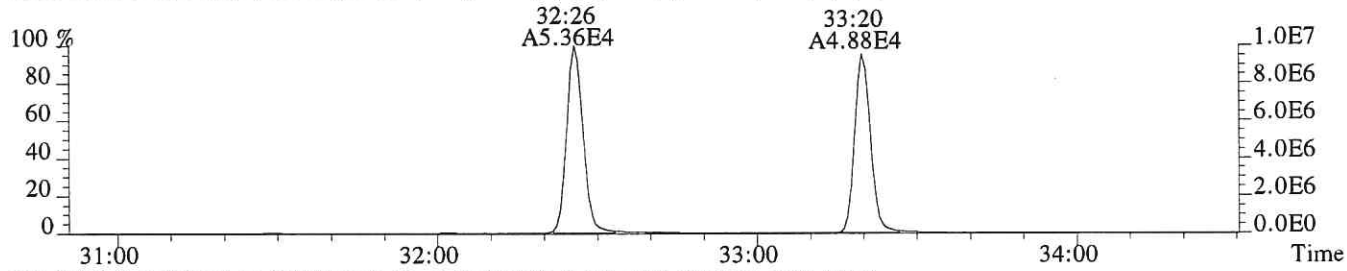
File:P519166 #1-538 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



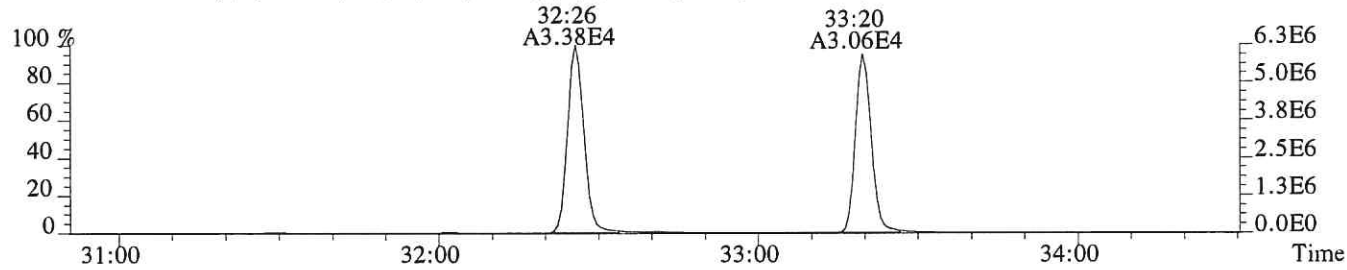
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



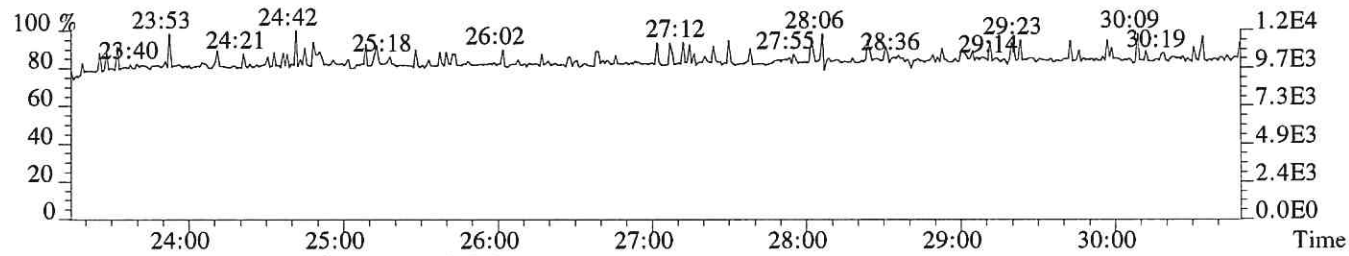
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



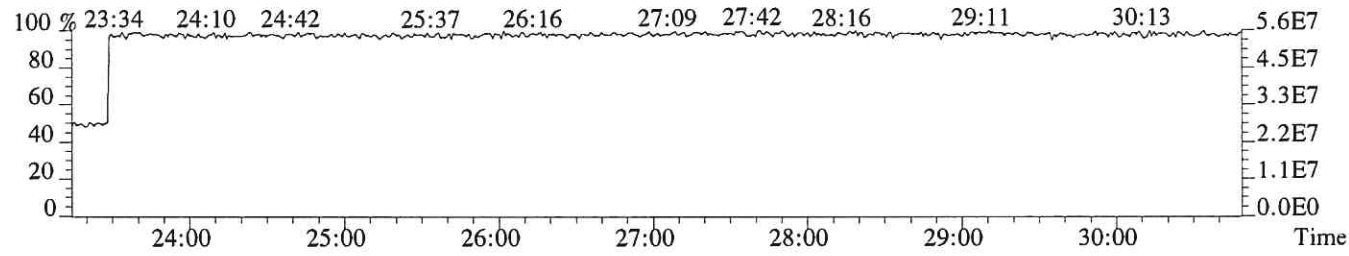
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

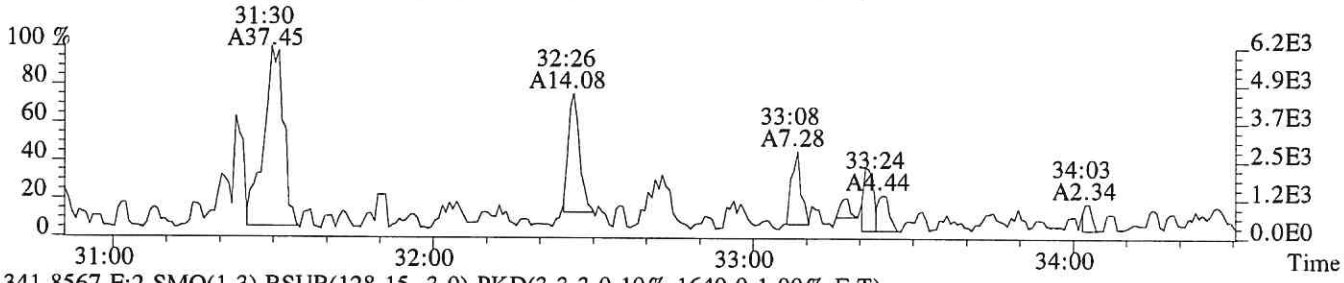


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

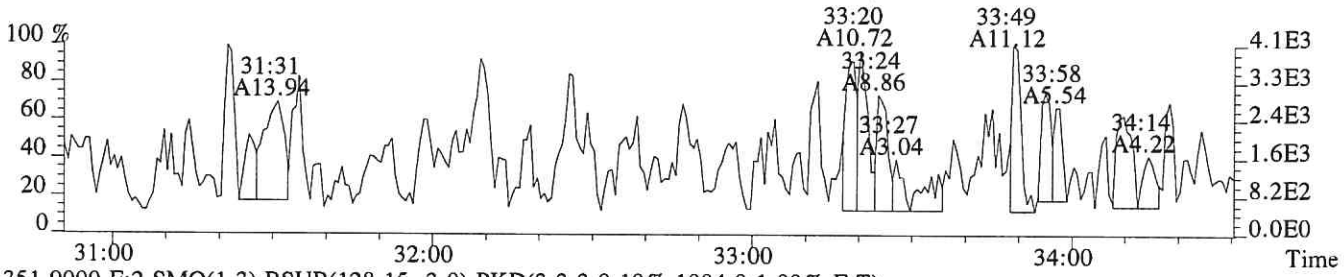


File:P519166 #1-330 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003

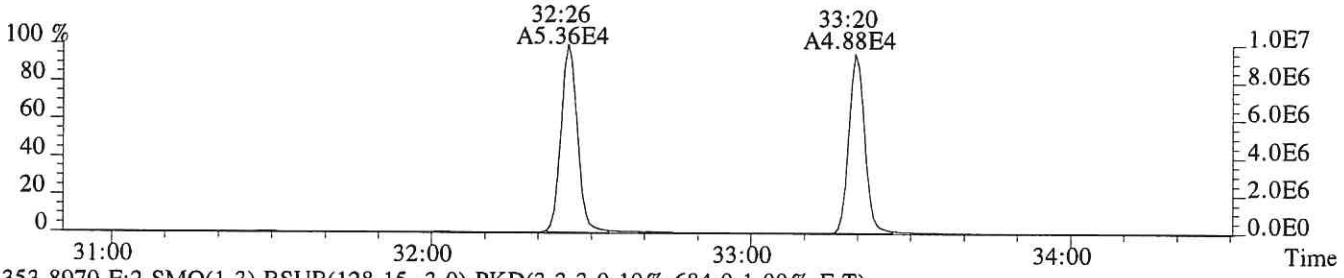
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



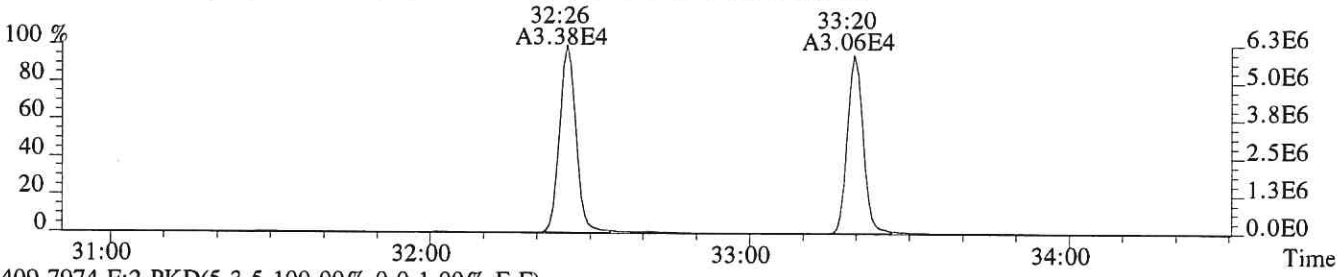
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1640.0,1.00%,F,T)



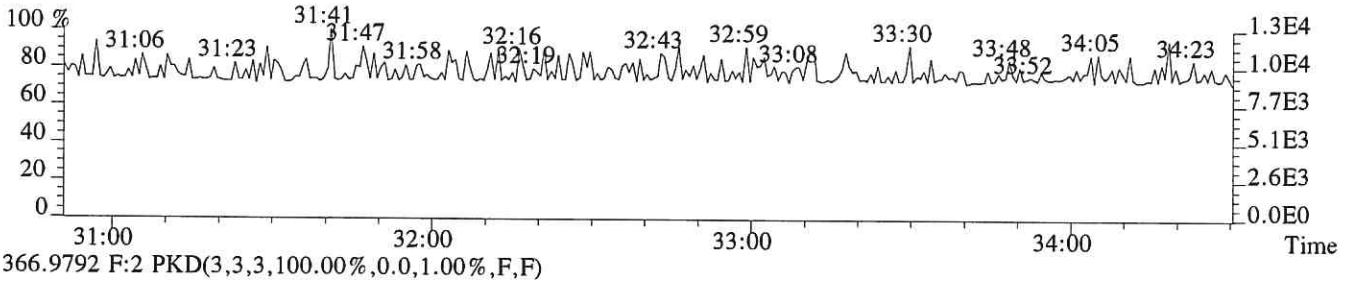
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



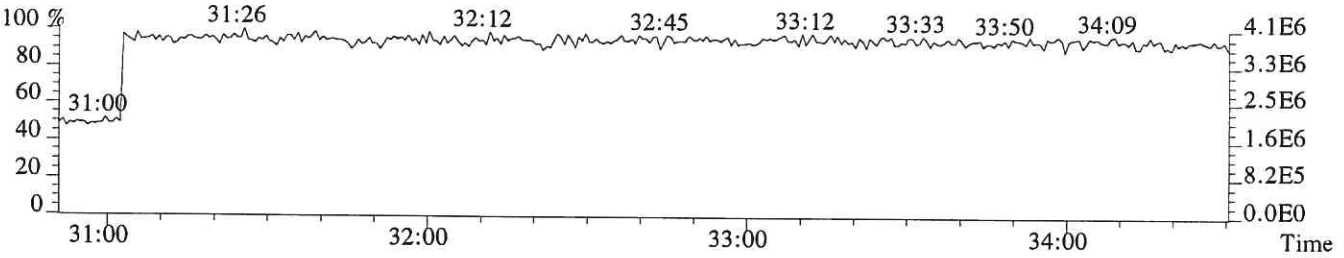
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



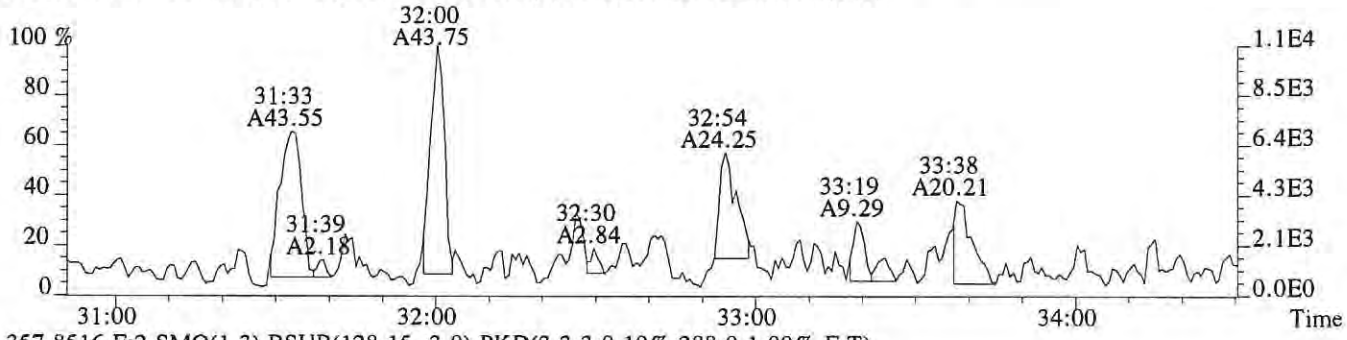
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



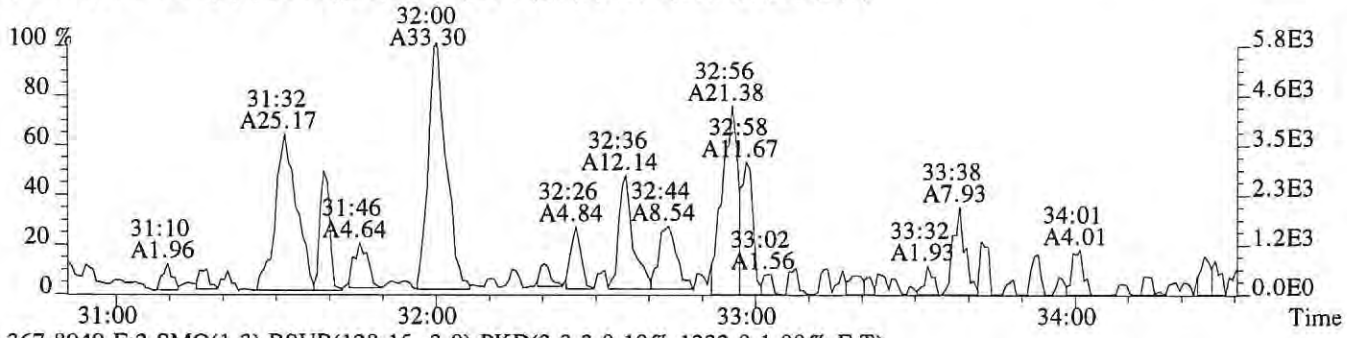
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



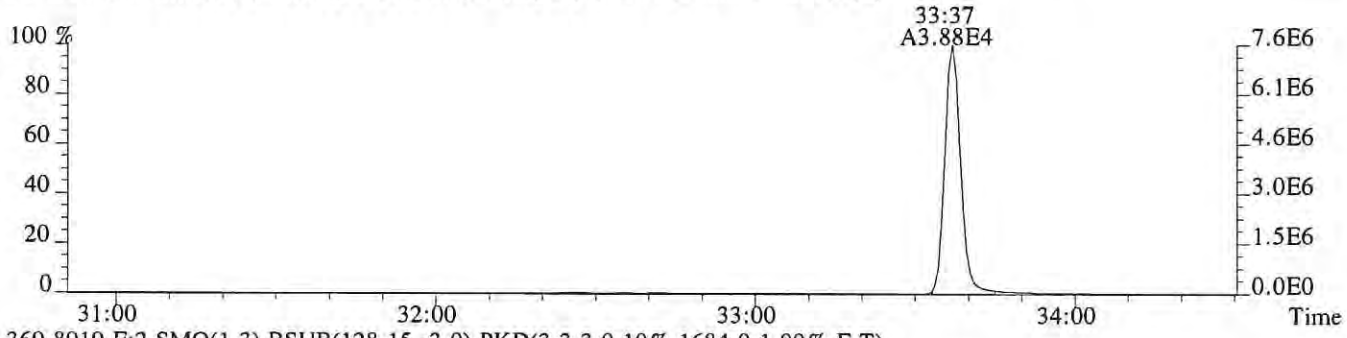
File:P519166 #1-330 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



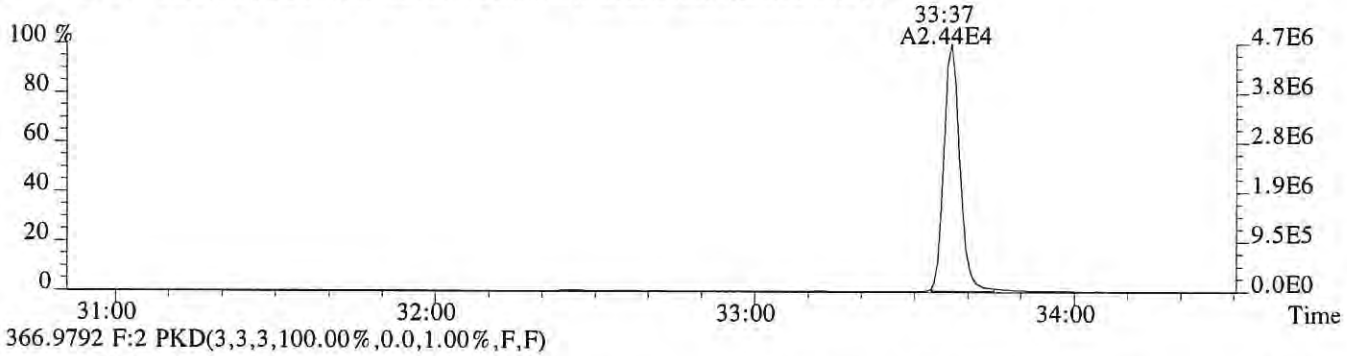
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



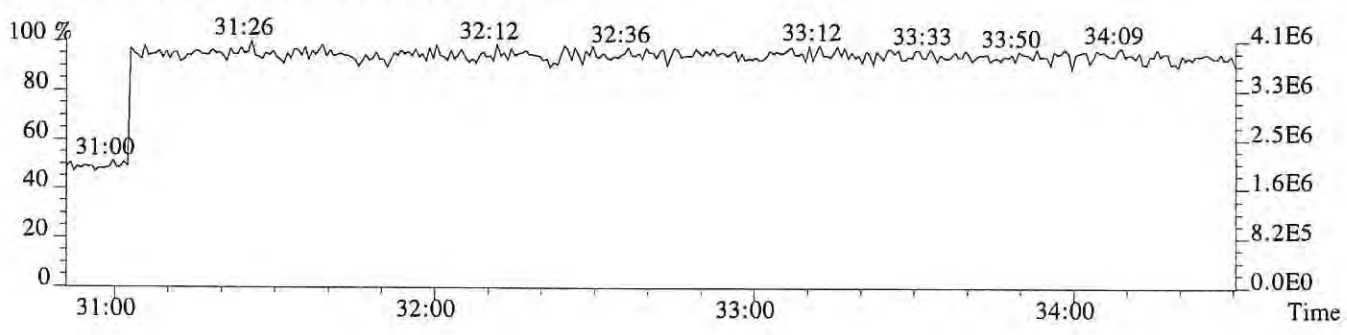
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



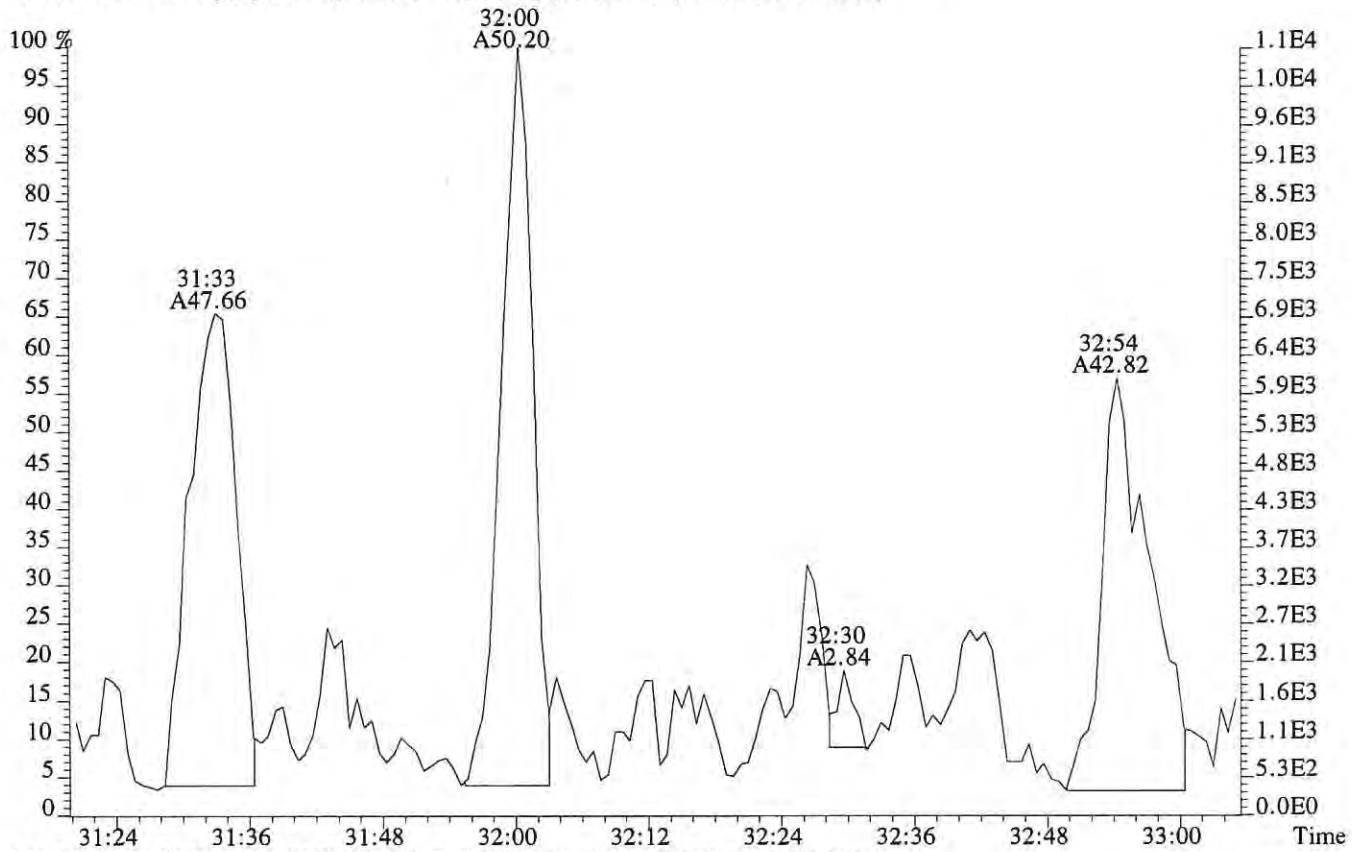
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



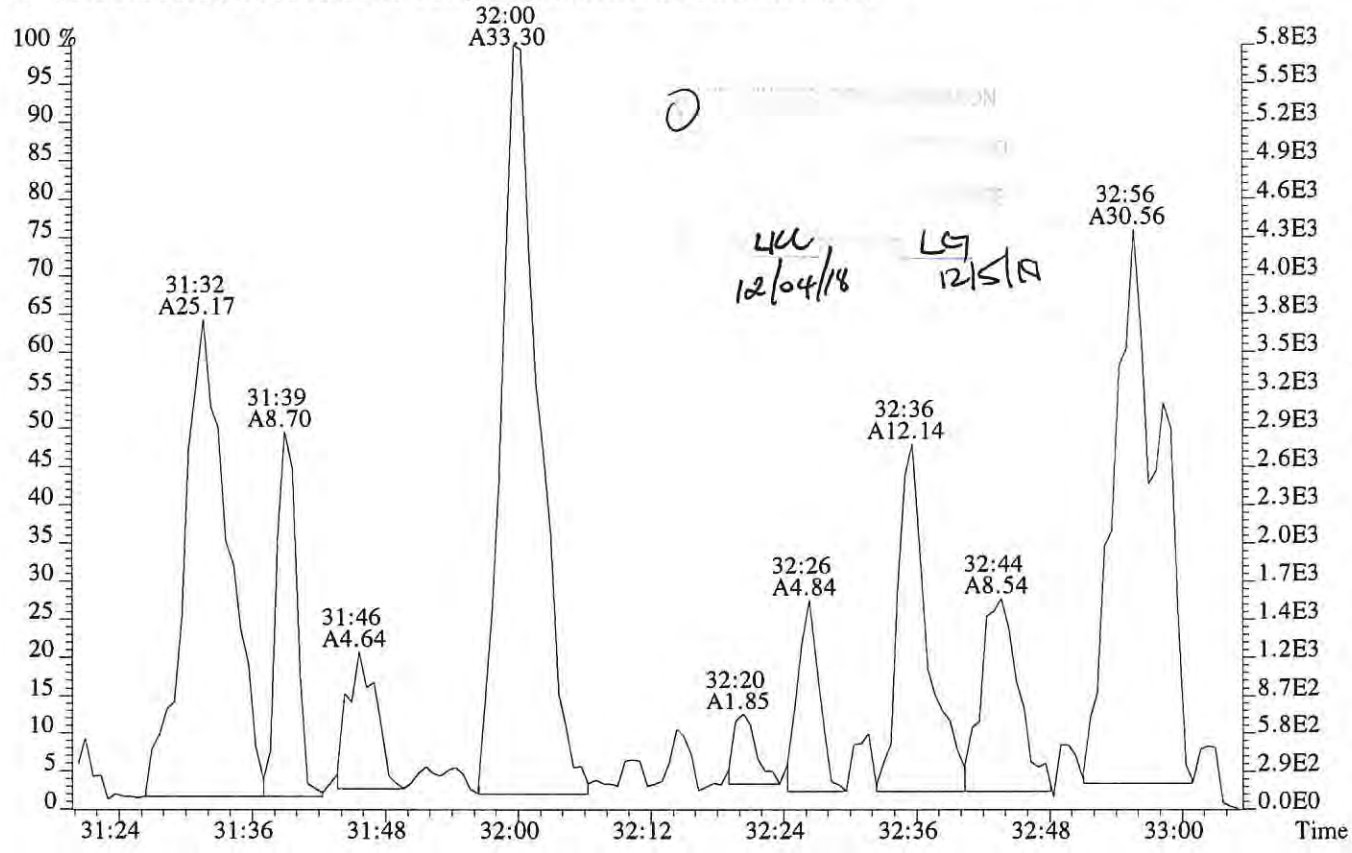
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519166 #1-330 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)

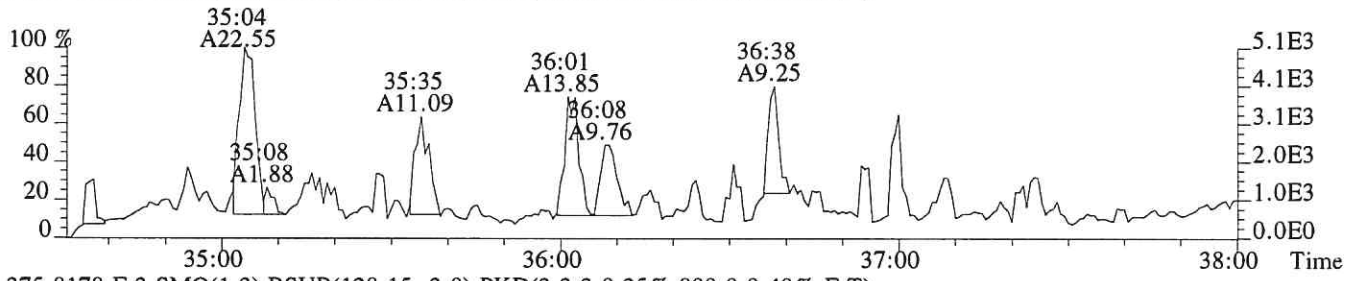


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)

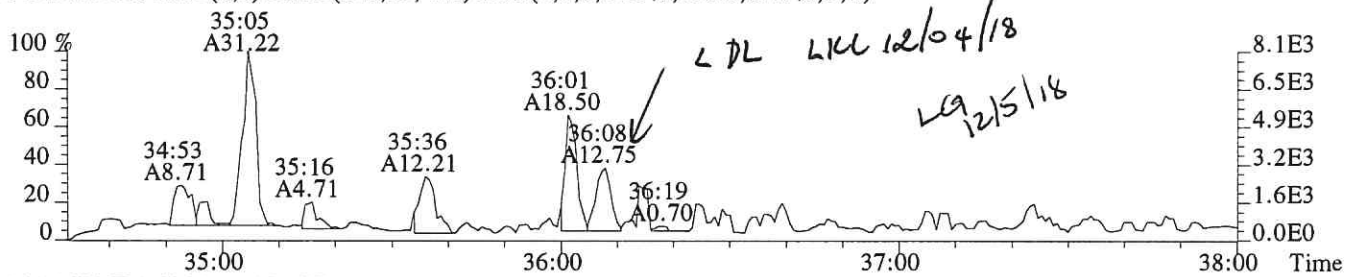


File:P519166 #1-312 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003

373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)

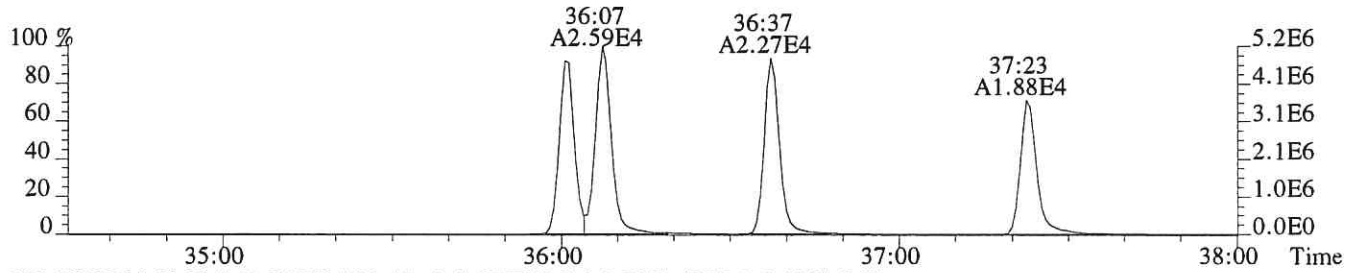


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)

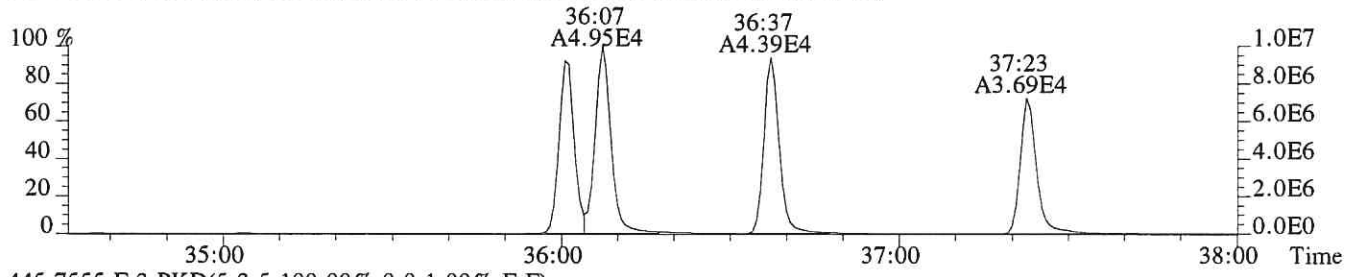


LDL LKL 12/04/18
LG 12/5/18

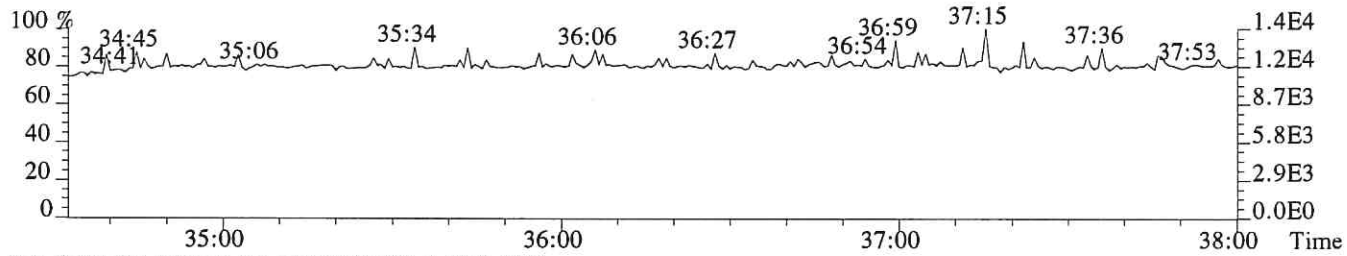
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



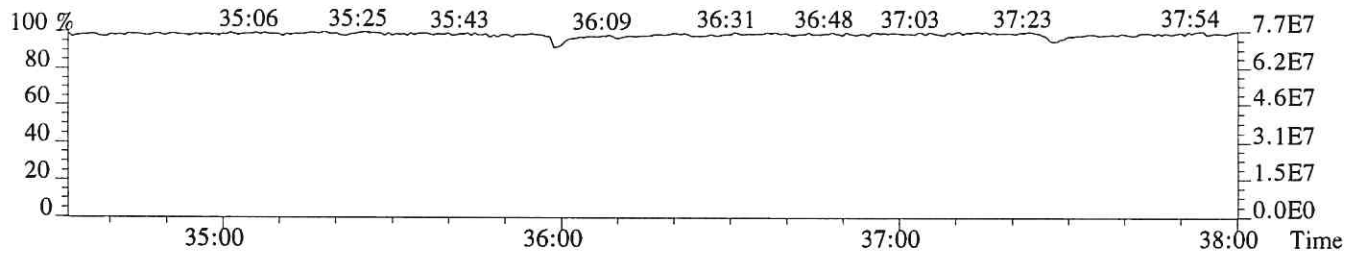
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



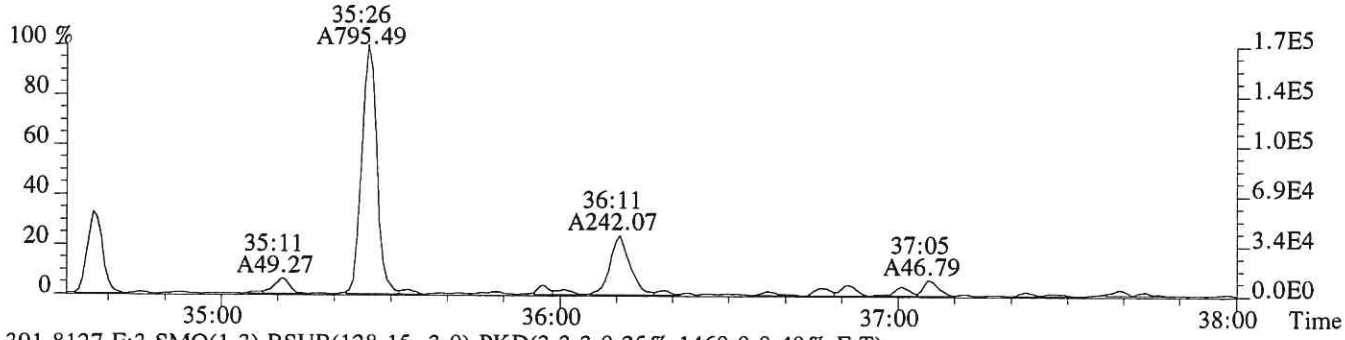
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



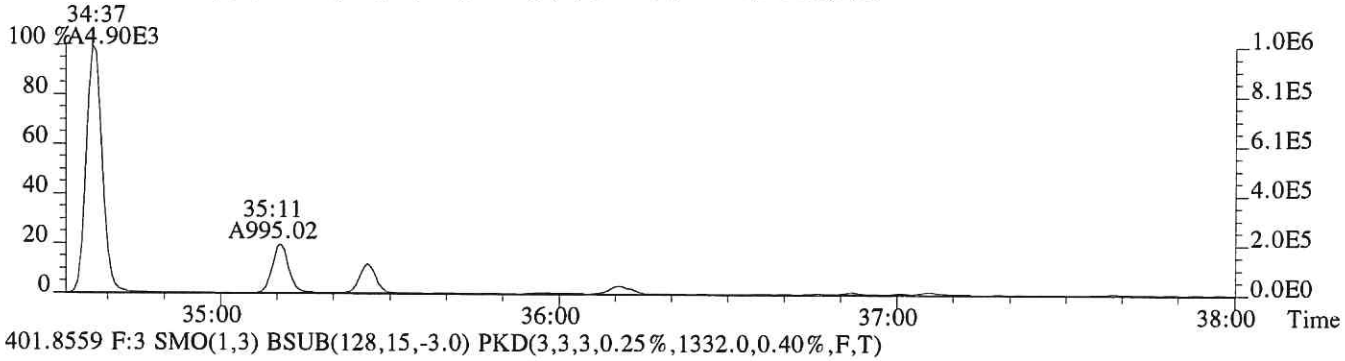
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



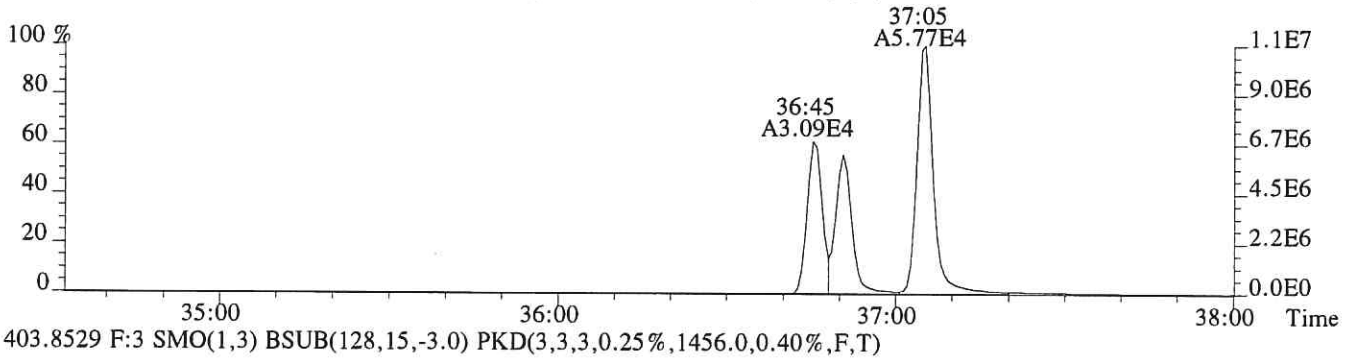
File:P519166 #1-312 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



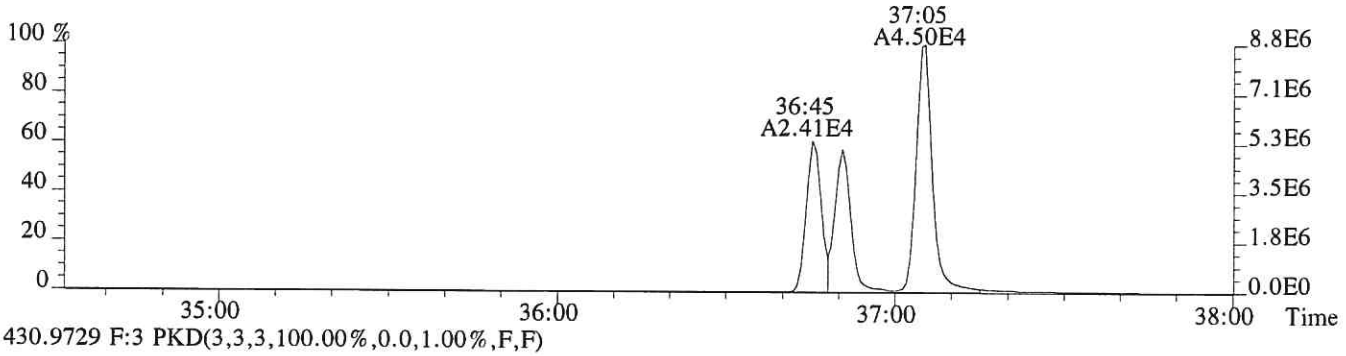
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)



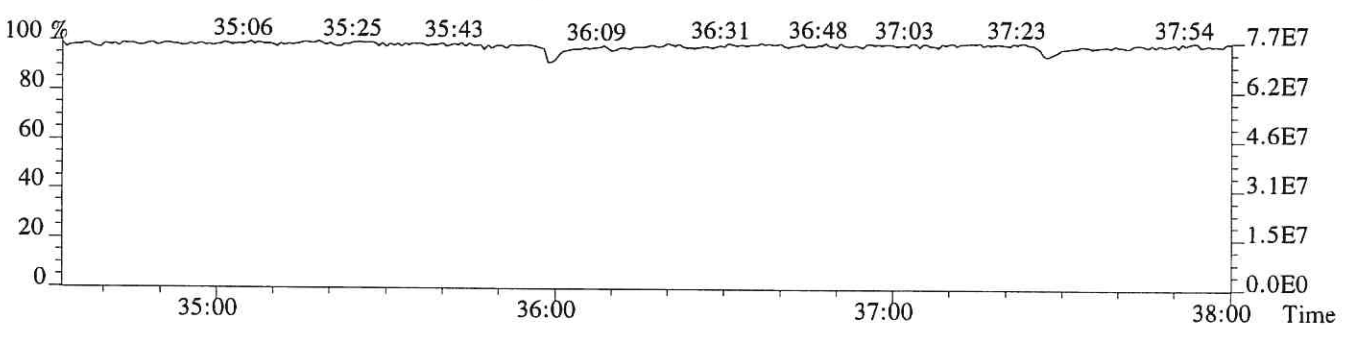
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)

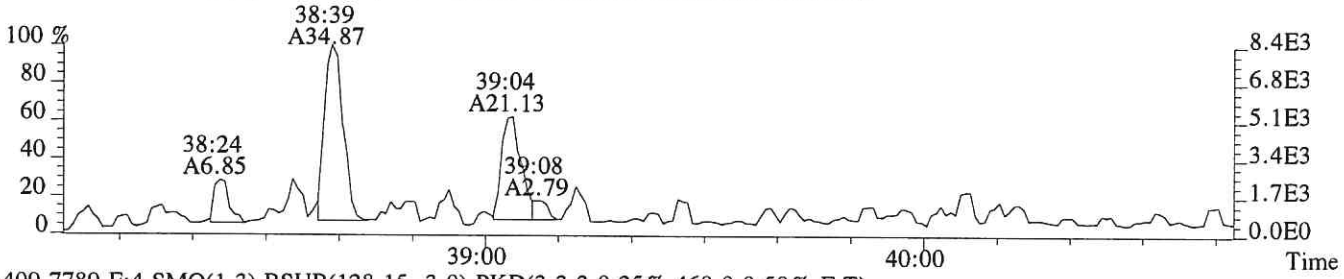


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

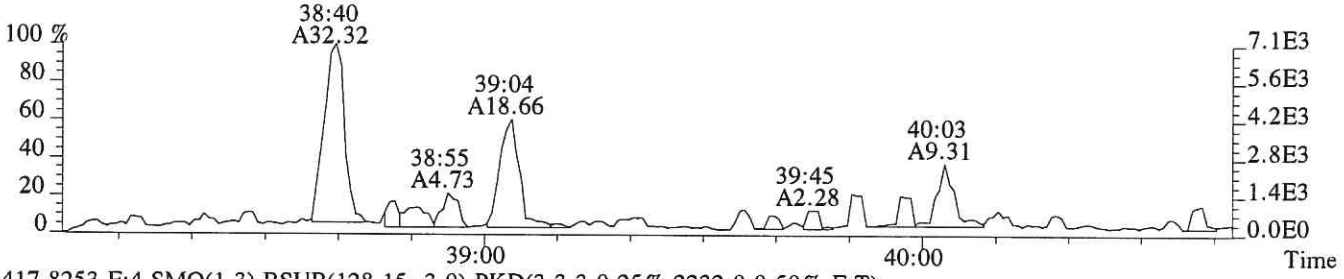


File:P519166 #1-241 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003

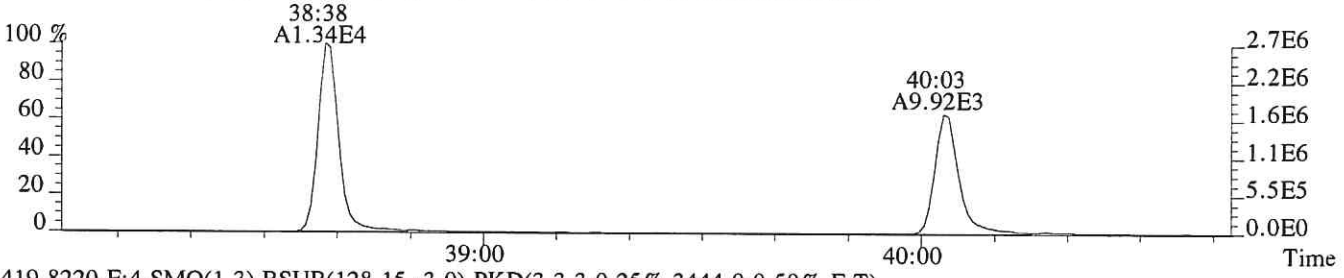
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.50%,F,T)



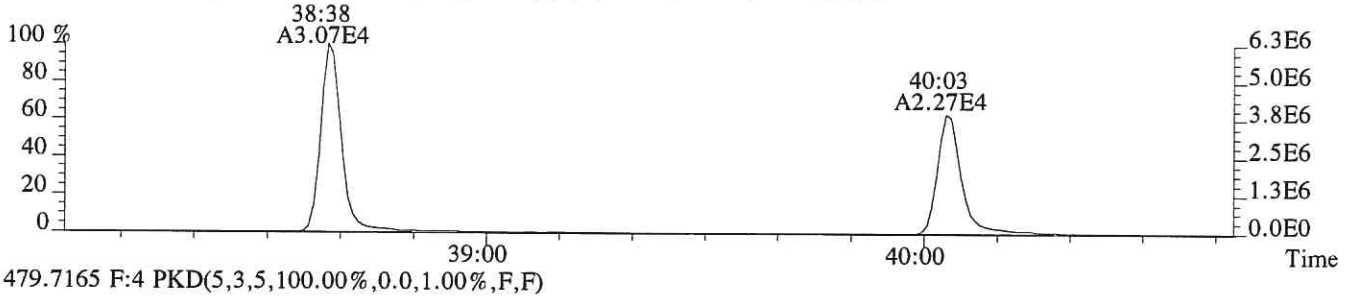
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.50%,F,T)



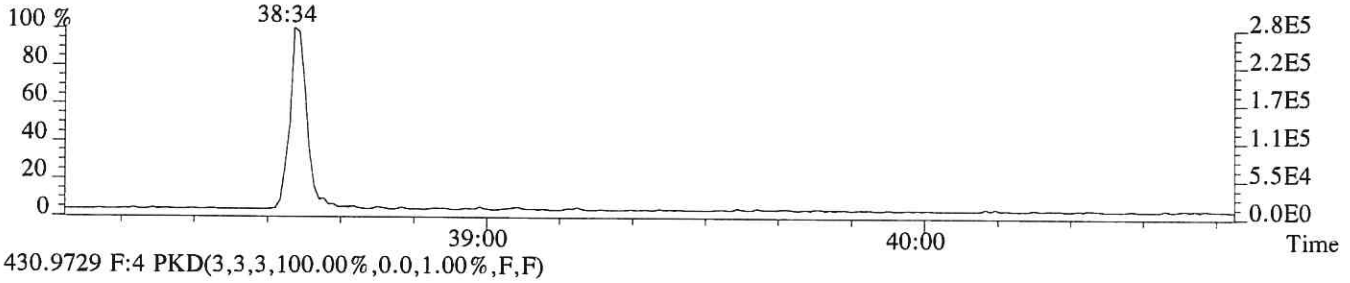
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.50%,F,T)



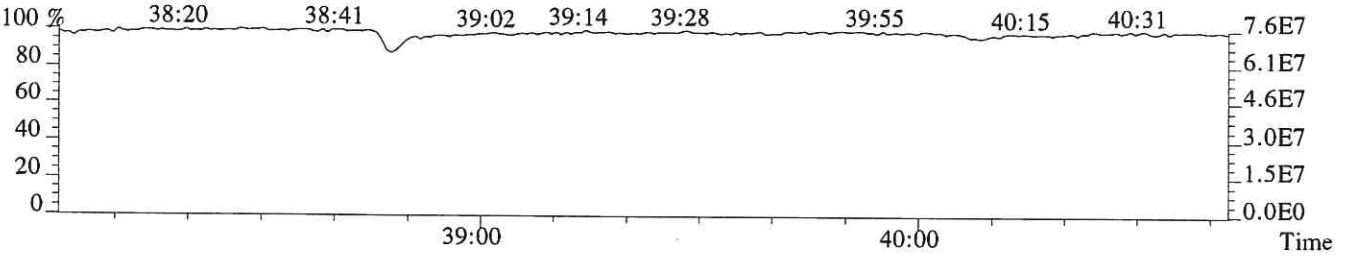
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.50%,F,T)



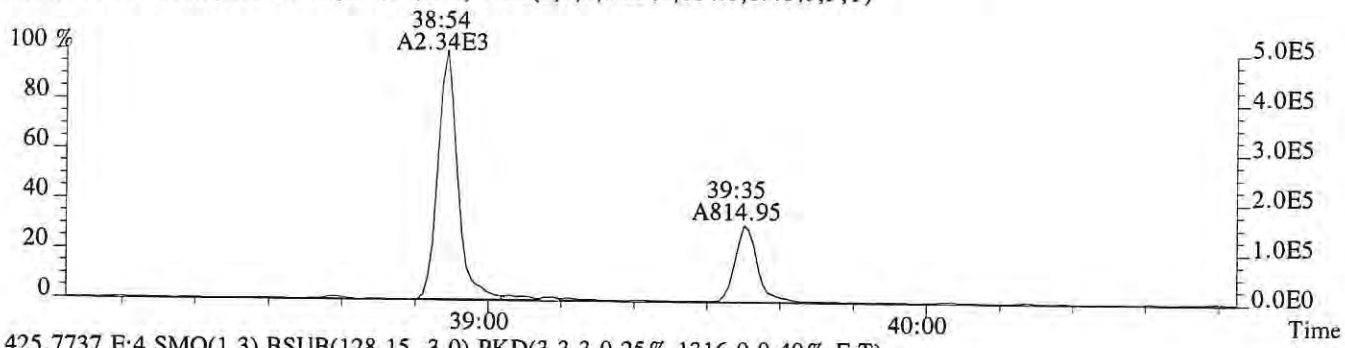
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



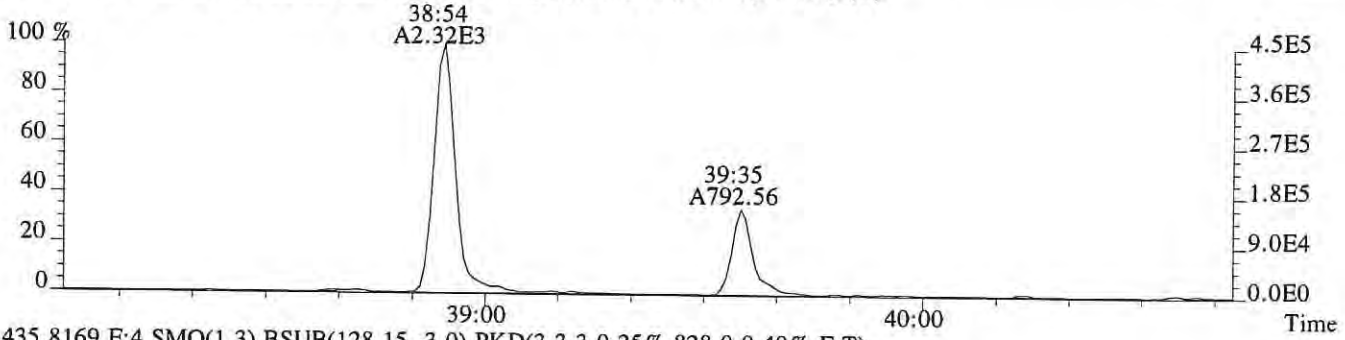
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



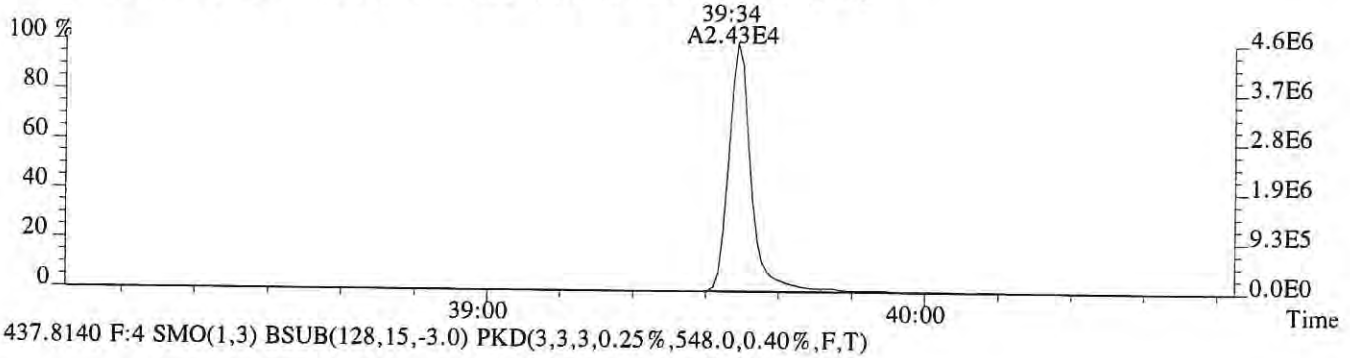
File:P519166 #1-241 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



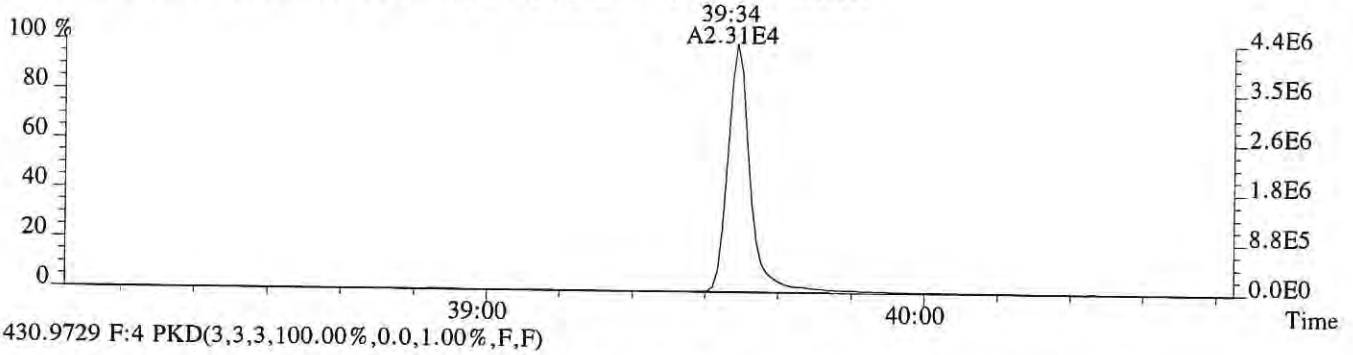
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



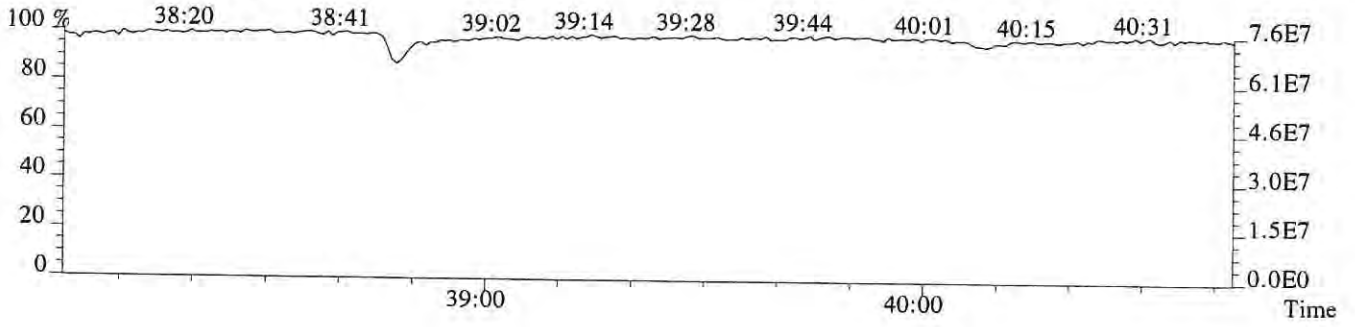
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



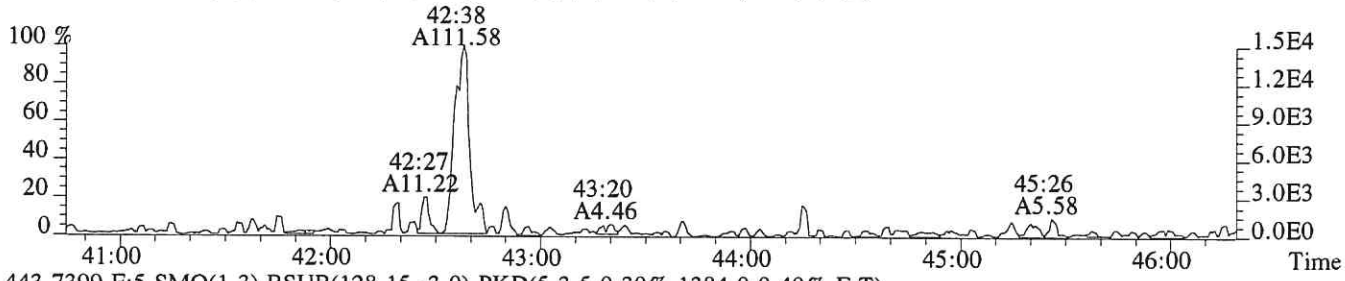
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



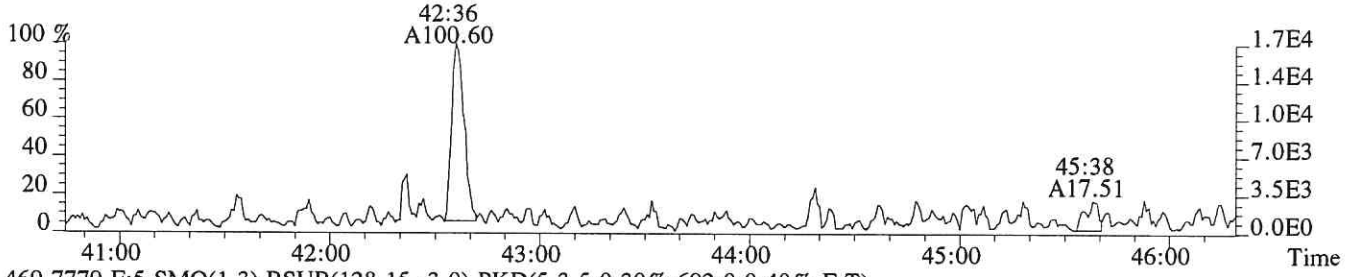
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



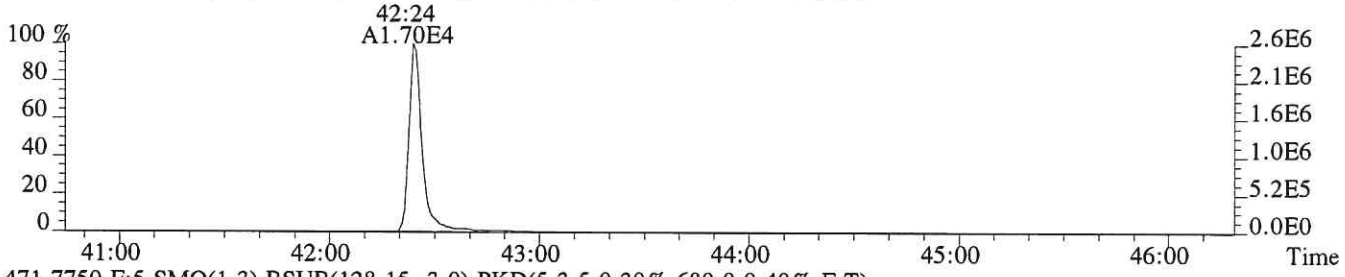
File:P519166 #1-502 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



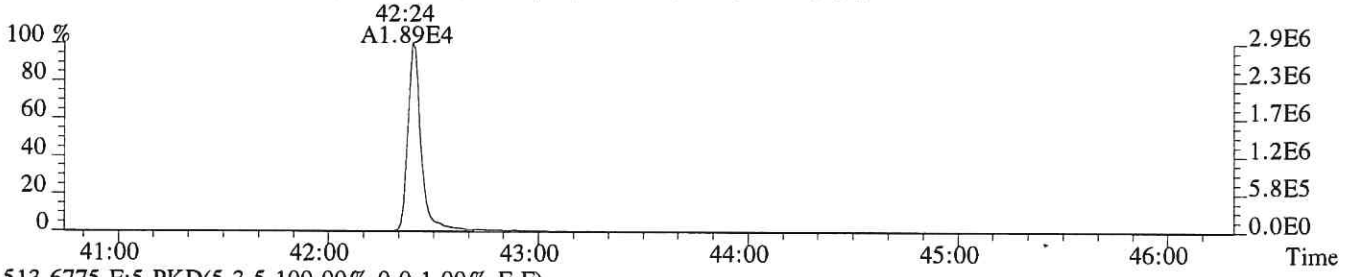
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1384.0,0.40%,F,T)



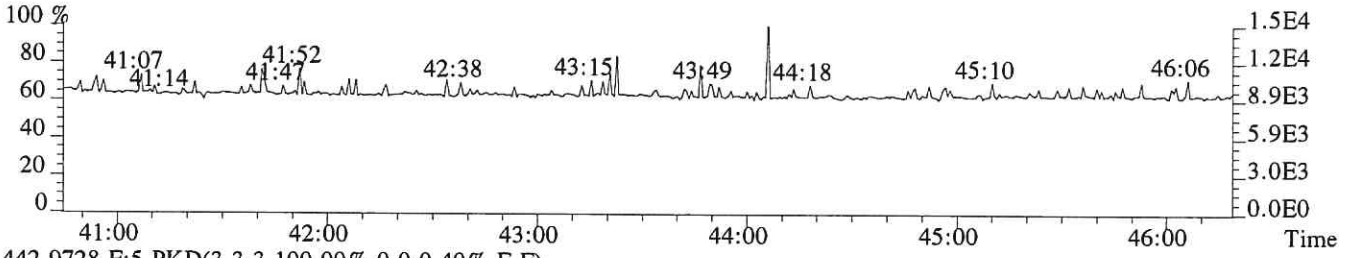
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



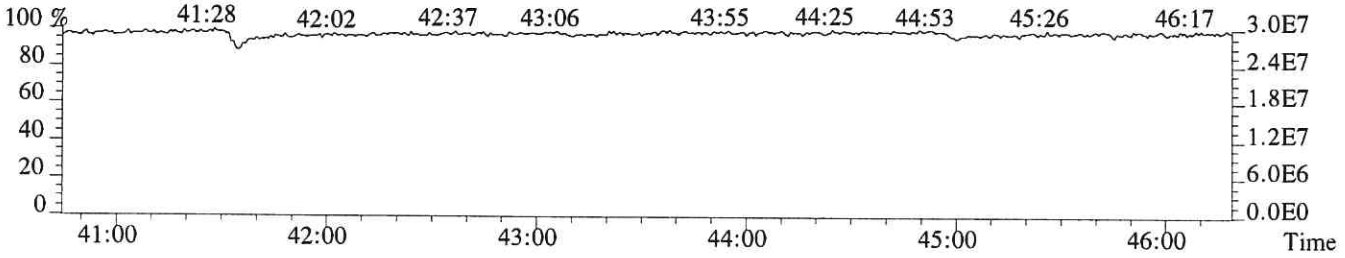
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



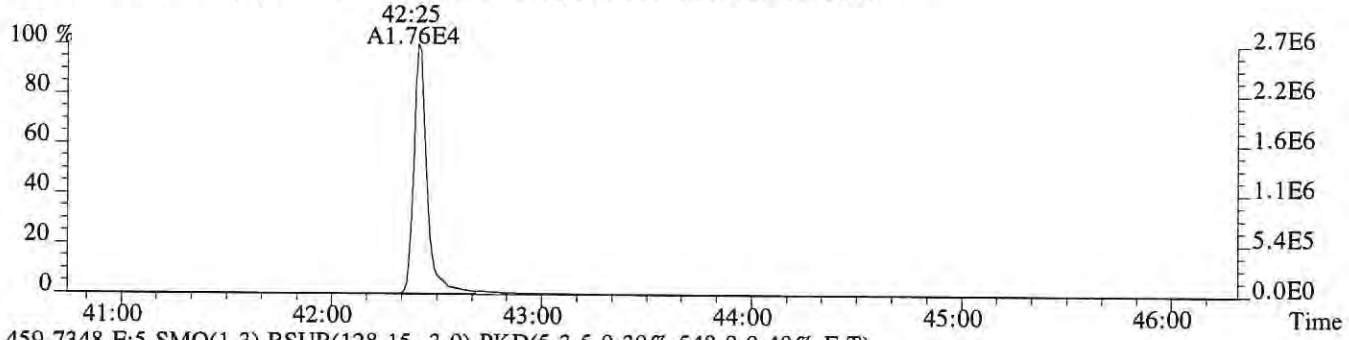
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



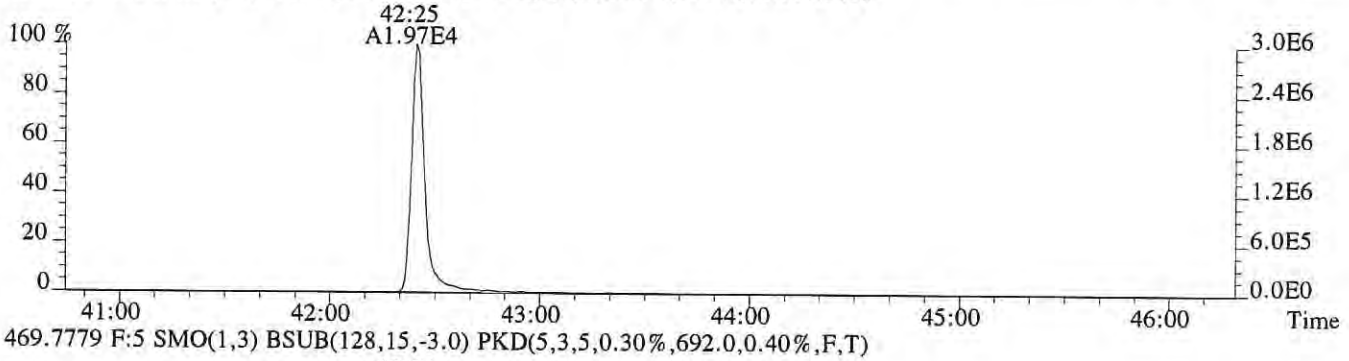
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



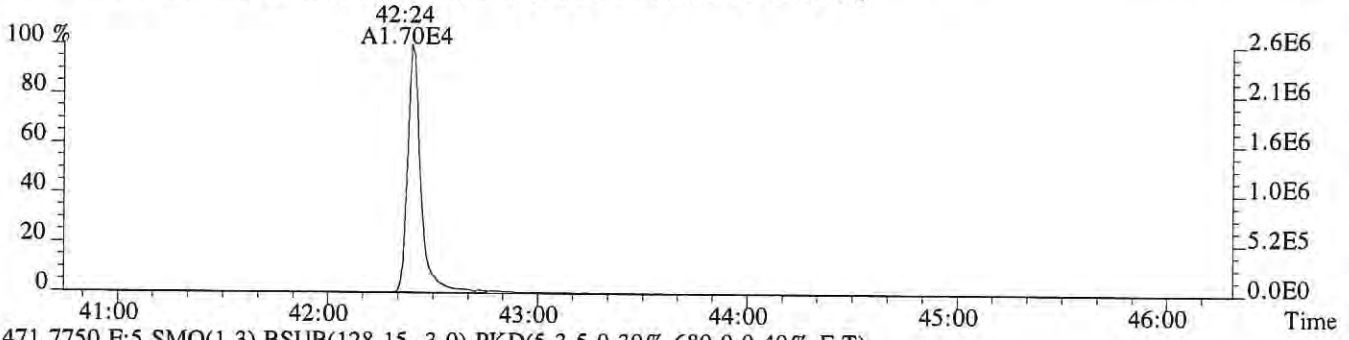
File:P519166 #1-502 Acq: 3-DEC-2018 09:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



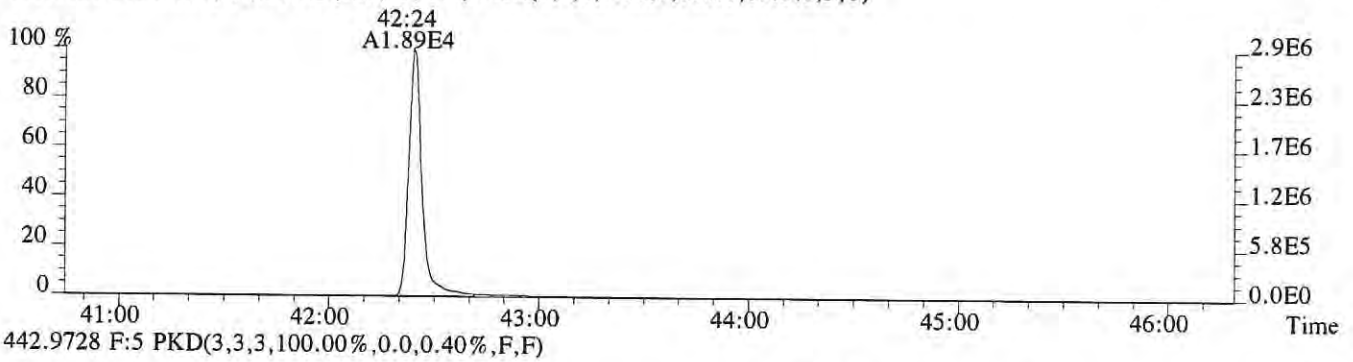
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



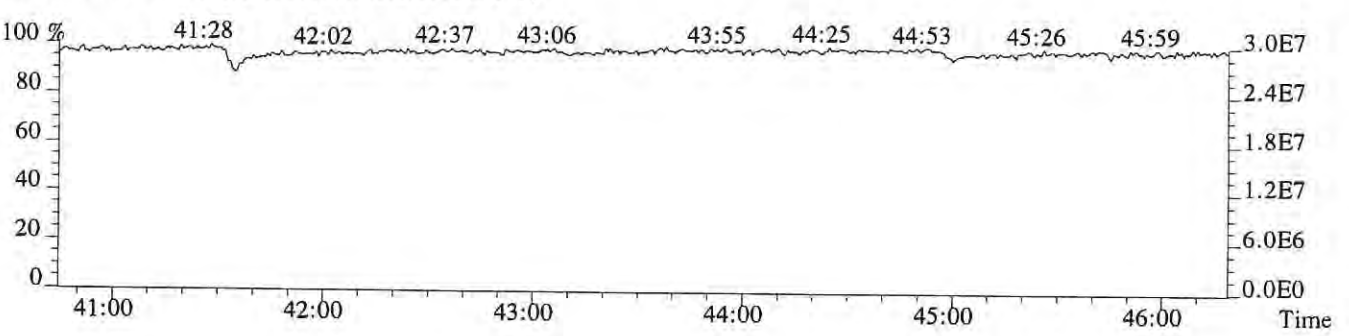
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0512

Run #12 Filename P519167 Samp: 1 Inj: 1 Acquired: 3-DEC-18 10:20:15
Processed: 4-DEC-18 15:25:08 Sample ID: E1801040-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:03	1.041e+01	1.441e+01	0.72	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.095e+01	1.284e+01	0.85	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.574e+01	2.028e+01	0.78	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	3.050e+01	3.365e+01	0.91	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:38	9.019e+01	1.289e+02	0.70	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	2.046e+01	1.442e+01	1.42	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	2.753e+01	2.584e+01	1.07	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	3.336e+01	4.051e+01	0.82	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:07	5.691e+01	5.042e+01	1.13	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.268e+02	6.875e+02	1.06	yes	no	1.025
17	Unk	OCDD	42:25	1.311e+04	1.520e+04	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	2.627e+04	3.320e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.005e+04	3.182e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.738e+04	3.017e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.100e+04	4.144e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.457e+04	4.773e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.202e+04	4.262e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.826e+04	3.624e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.342e+04	3.004e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	9.834e+03	2.228e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	1.898e+04	2.399e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.713e+04	2.356e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	3.096e+04	2.405e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.071e+04	2.418e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	2.414e+04	2.223e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:25	1.664e+04	1.861e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.805e+04	6.070e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.143e+04	4.607e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.992e+04				no	1.014

$$\text{OCDD} = \frac{(1.311e+04 + 1.520e+04) \times 4000\ \text{pg} \times 1}{(1.664e+04 + 1.861e+04) \times 10.292\text{g} \times 84.4 / 100 \times 1.118} = 330.7933\ \text{ng/Kg}$$

LG 12/4/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0512

Run #12 Filename P519167 Samp: 1 Inj: 1 Acquired: 3-DEC-18 10:20:15
Processed: 4-DEC-18 15:25:08 LAB. ID: E1801040-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.00e+02	*	*	1.33e+03	*
2	1,2,3,7,8-PeCDF	*	6.96e+02	*	*	1.84e+03	*
3	2,3,4,7,8-PeCDF	*	6.96e+02	*	*	1.84e+03	*
4	1,2,3,4,7,8-HxCDF	2.27e+03	7.84e+02	2.9e+00	2.85e+03	8.32e+02	3.4e+00
5	1,2,3,6,7,8-HxCDF	*	7.84e+02	*	*	8.32e+02	*
6	2,3,4,6,7,8-HxCDF	2.05e+03	7.84e+02	2.6e+00	2.49e+03	8.32e+02	3.0e+00
7	1,2,3,7,8,9-HxCDF	2.37e+03	7.84e+02	3.0e+00	5.82e+03	8.32e+02	7.0e+00
8	1,2,3,4,6,7,8-HpCDF	8.32e+03	6.20e+02	1.3e+01	6.86e+03	3.92e+02	1.7e+01
9	1,2,3,4,7,8,9-HpCDF	*	6.20e+02	*	*	3.92e+02	*
10	OCDF	1.60e+04	2.20e+02	7.3e+01	1.75e+04	1.35e+03	1.3e+01
11	2,3,7,8-TCDD	*	2.52e+03	*	*	8.28e+02	*
12	1,2,3,7,8-PeCDD	3.97e+03	1.11e+03	3.6e+00	2.64e+03	4.24e+02	6.2e+00
13	1,2,3,4,7,8-HxCDD	6.20e+03	5.12e+02	1.2e+01	7.44e+03	8.32e+02	8.9e+00
14	1,2,3,6,7,8-HxCDD	8.47e+03	5.12e+02	1.7e+01	8.16e+03	8.32e+02	9.8e+00
15	1,2,3,7,8,9-HxCDD	1.03e+04	5.12e+02	2.0e+01	8.43e+03	8.32e+02	1.0e+01
16	1,2,3,4,6,7,8-HpCDD	1.39e+05	9.16e+02	1.5e+02	1.39e+05	1.01e+03	1.4e+02
17	OCDD	1.98e+06	2.48e+02	8.0e+03	2.31e+06	4.80e+02	4.8e+03
18	13C-2,3,7,8-TCDF	4.88e+06	1.08e+04	4.5e+02	6.06e+06	5.94e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	9.35e+06	8.52e+02	1.1e+04	5.97e+06	7.00e+02	8.5e+03
20	13C-2,3,4,7,8-PeCDF	9.40e+06	8.52e+02	1.1e+04	5.93e+06	7.00e+02	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.59e+06	9.76e+02	4.7e+03	9.08e+06	1.14e+03	8.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.92e+06	9.76e+02	5.0e+03	9.51e+06	1.14e+03	8.3e+03
23	13C-2,3,4,6,7,8-HxCDF	4.66e+06	9.76e+02	4.8e+03	8.93e+06	1.14e+03	7.8e+03
24	13C-1,2,3,7,8,9-HxCDF	3.69e+06	9.76e+02	3.8e+03	7.19e+06	1.14e+03	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.75e+06	2.35e+03	1.2e+03	6.09e+06	5.68e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.76e+06	2.35e+03	7.5e+02	4.03e+06	5.68e+03	7.1e+02
27	13C-2,3,7,8-TCDD	3.67e+06	6.90e+03	5.3e+02	4.61e+06	2.51e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	7.25e+06	1.12e+03	6.5e+03	4.54e+06	1.43e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	7.02e+06	1.46e+03	4.8e+03	5.40e+06	1.34e+03	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	6.20e+06	1.46e+03	4.2e+03	4.87e+06	1.34e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.54e+06	6.36e+02	7.1e+03	4.22e+06	3.68e+02	1.1e+04
32	13C-OCDD	2.49e+06	1.01e+03	2.5e+03	2.79e+06	3.76e+02	7.4e+03
33	13C-1,2,3,4-TCDD	9.32e+06	6.90e+03	1.4e+03	1.17e+07	2.51e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	1.46e+03	8.2e+03	9.40e+06	1.34e+03	7.0e+03
35	37Cl-2,3,7,8-TCDD	3.88e+06	2.23e+03	1.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.516e{+}03 + 8.280e{+}02\ ) \times 2000}{(3.672e{+}06 + 4.613e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0512

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P519167 Sample:1 Injection:1 Function:1

Acquired: 3-DEC-18 10:20:15 Processed: 4-DEC-18 15:25:08

Mass: 339.8600 341.8570 Tot Response: 5.34e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	3.36e+01	1.98e+01	1.70	yes	5.34e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0512

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519167 Sample:1 Injection:1 Function:2

Acquired: 3-DEC-18 10:20:15 Processed: 4-DEC-18 15:25:08

Mass: 355.8550 357.8520 Tot Response: 1.12e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:32	4.97e+01	2.79e+01	1.78	yes	7.75e+01		n	n
2	33:39	2.05e+01	1.44e+01	1.42	yes	3.49e+01	1,2,3,7,8-PeCDD	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0512

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519167 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 10:20:15 Processed: 4-DEC-18 15:25:08

Mass: 389.8160 391.8130 Tot Response: 1.86e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:27	6.66e+02	5.73e+02	1.16	yes	1.24e+03		n	n
2	36:11	2.33e+02	1.86e+02	1.25	yes	4.19e+02		n	n
3	36:47	2.75e+01	2.58e+01	1.07	yes	5.34e+01	1,2,3,4,7,8-HxCDD	n	n
4	37:01	1.94e+01	1.83e+01	1.06	yes	3.77e+01		n	n
5	37:07	5.69e+01	5.04e+01	1.13	yes	1.07e+02	1,2,3,7,8,9-HxCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0512

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519167 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 10:20:15 Processed: 4-DEC-18 15:25:08

Mass: 407.7820 409.7790 Tot Response: 1.09e+02 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:40	3.05e+01	3.36e+01	0.91	yes	6.41e+01	1,2,3,4,6,7,8-HpCDF	n	n
2	39:04	2.37e+01	2.12e+01	1.12	yes	4.49e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0512

ntry: 44 Totals Name: Total Hepta-Dioxins

un: 12 File: P519167 Sample:1 Injection:1 Function:4

cquired: 3-DEC-18 10:20:15 Processed: 4-DEC-18 15:25:08

lass: 423.7770 425.7740 Tot Response: 5.80e+03 RRF: 1.025

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:55	2.21e+03	2.18e+03 1.01	yes	4.39e+03		n	n
	39:36	7.27e+02	6.88e+02 1.06	yes	1.41e+03	1,2,3,4,6,7,8-HpCDD	n	n

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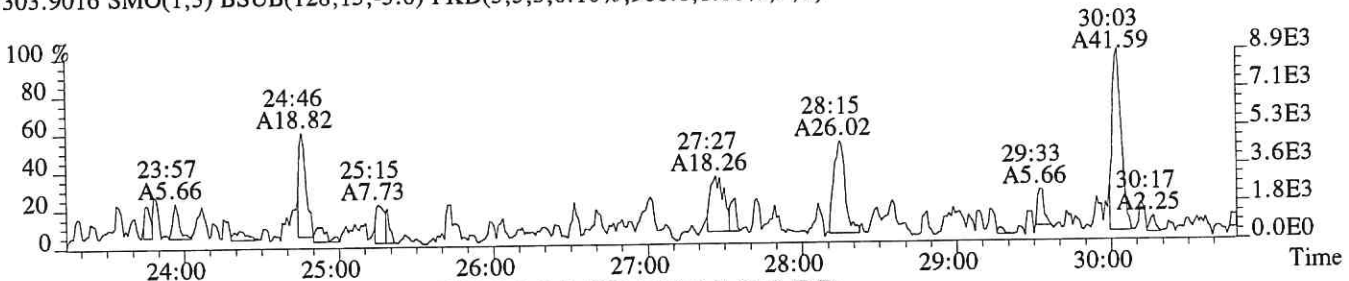
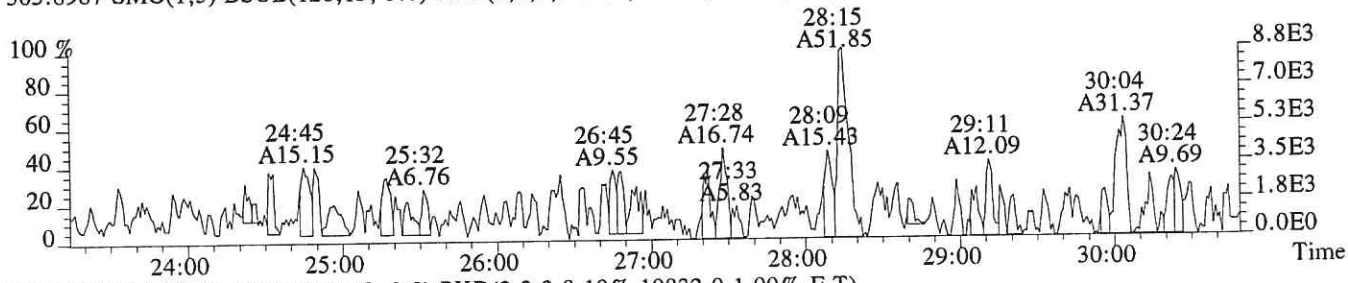
File:P519167 #1-538 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004

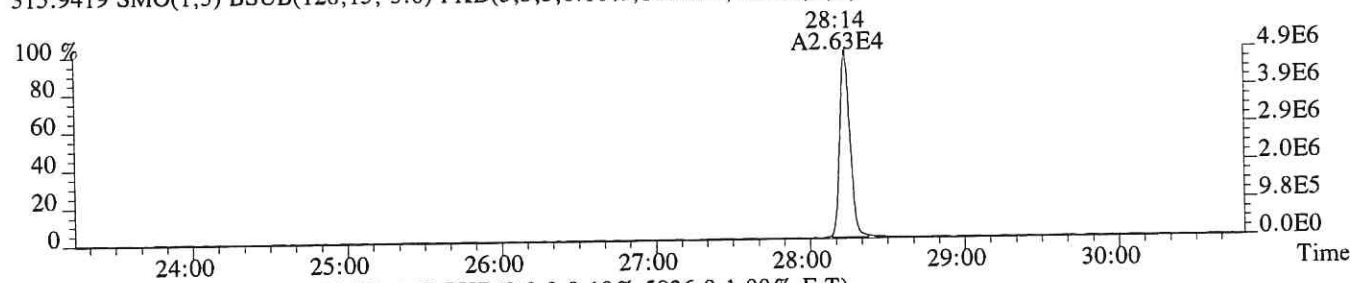
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



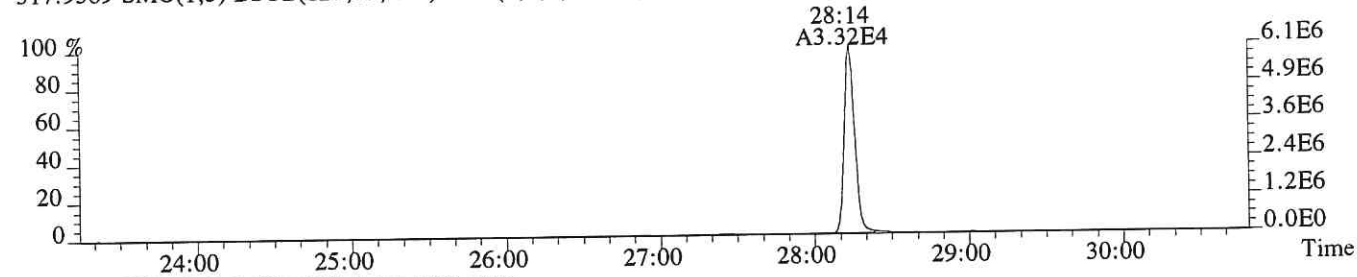
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



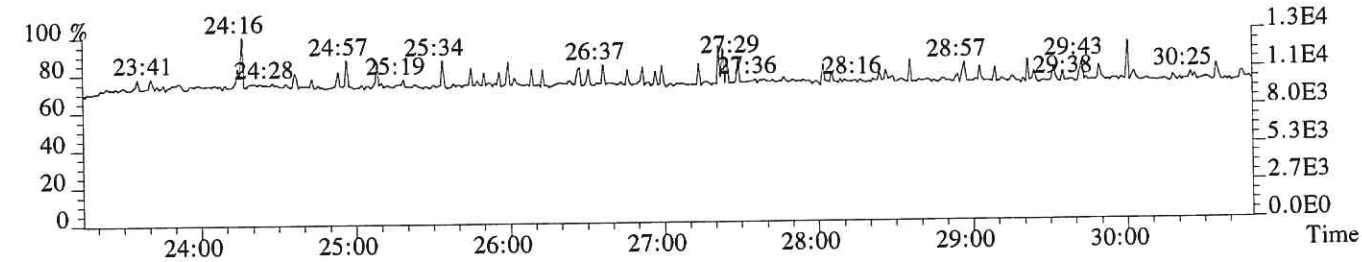
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10832.0,1.00%,F,T)



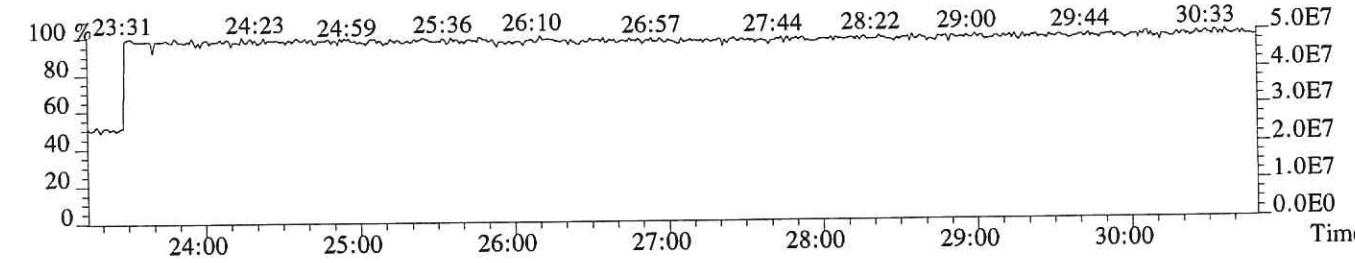
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5936.0,1.00%,F,T)



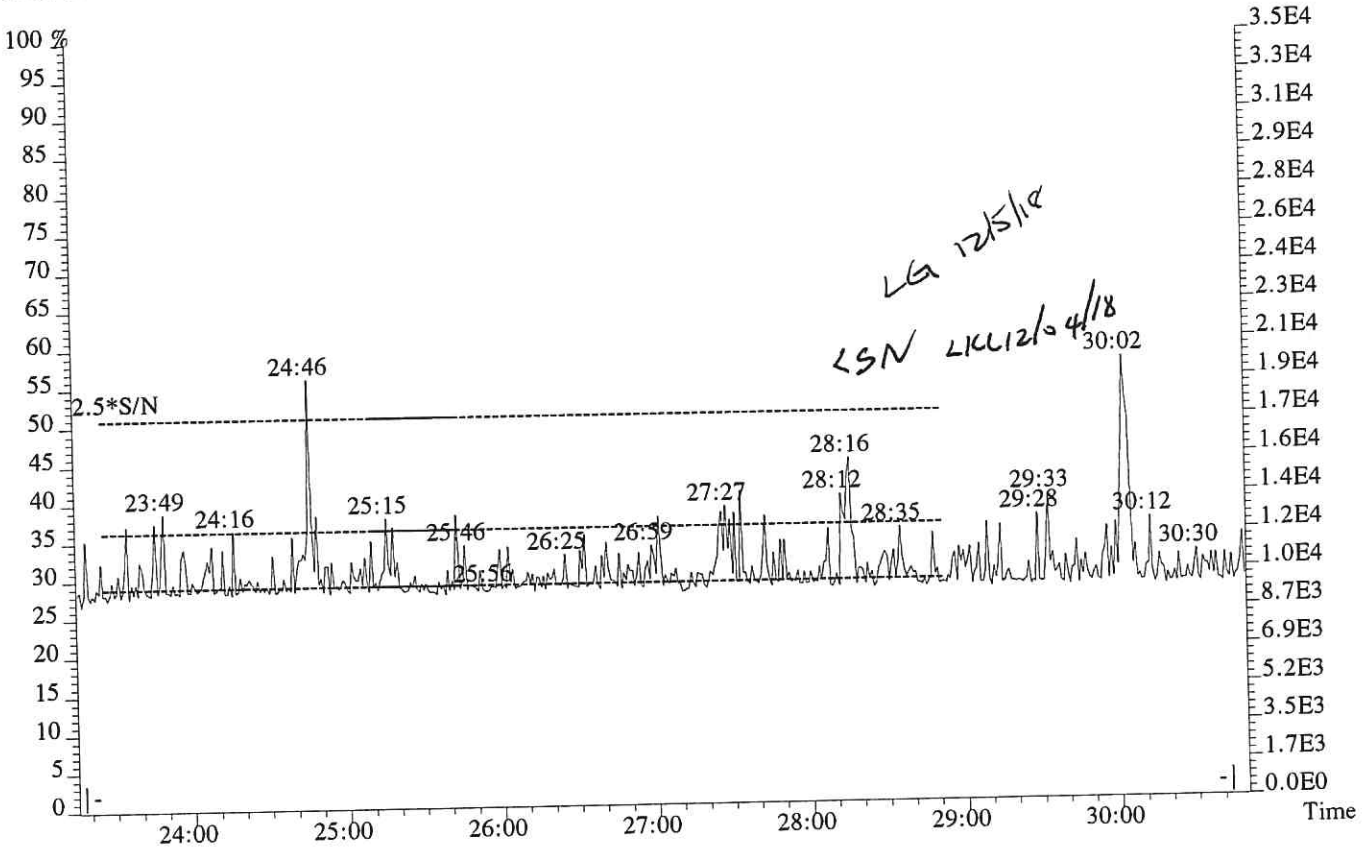
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

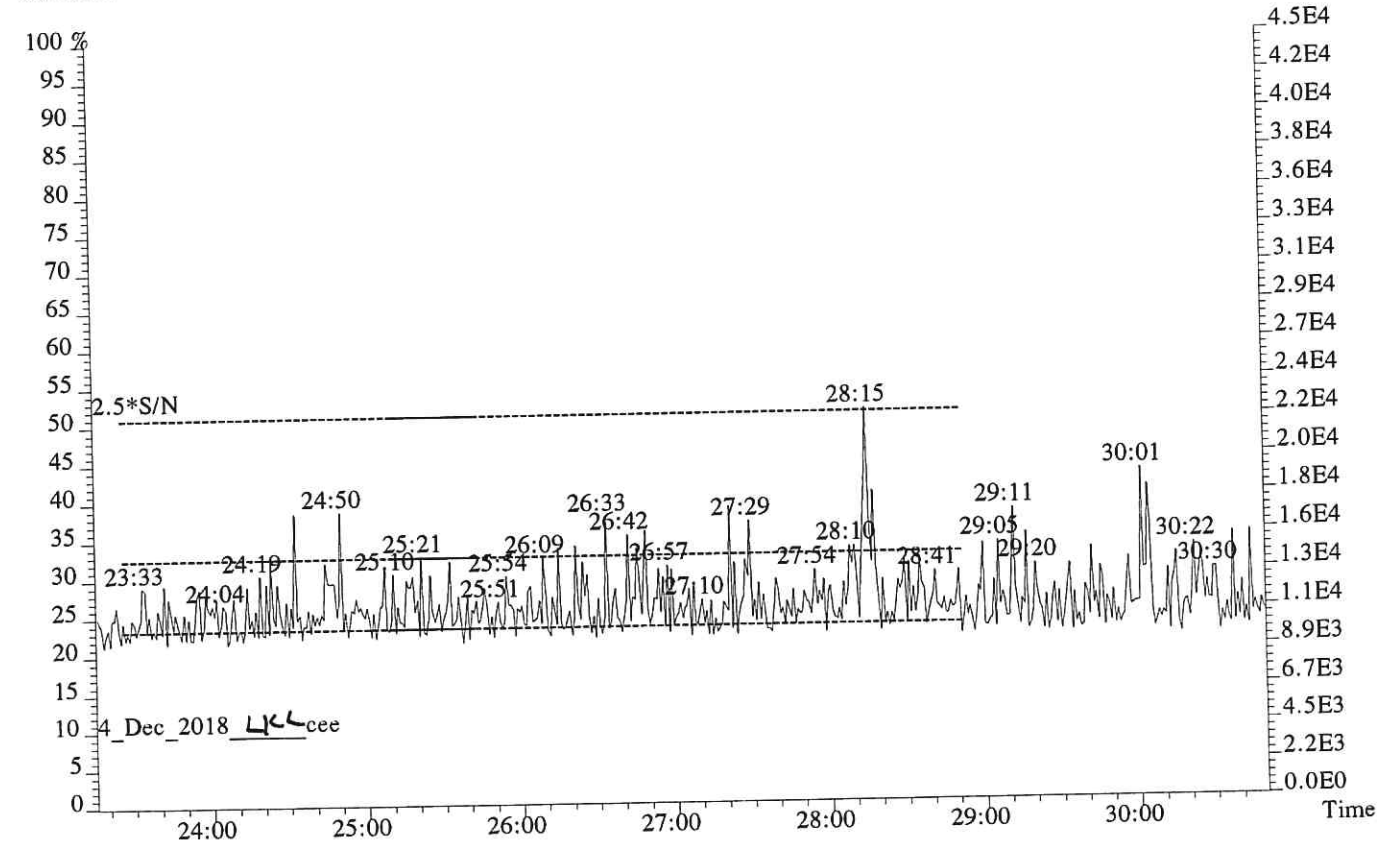


File:P519167 #1-538 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
303.9016



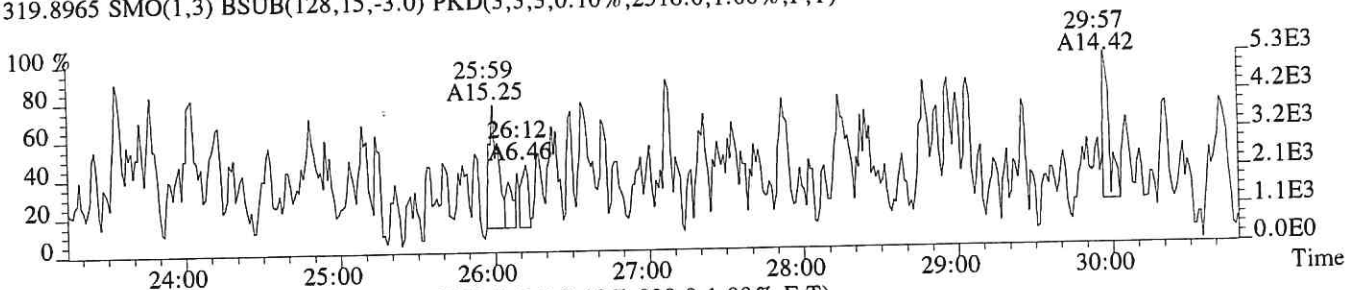
LG 12/5/18
LSN LKL 12/04/18

305.8987

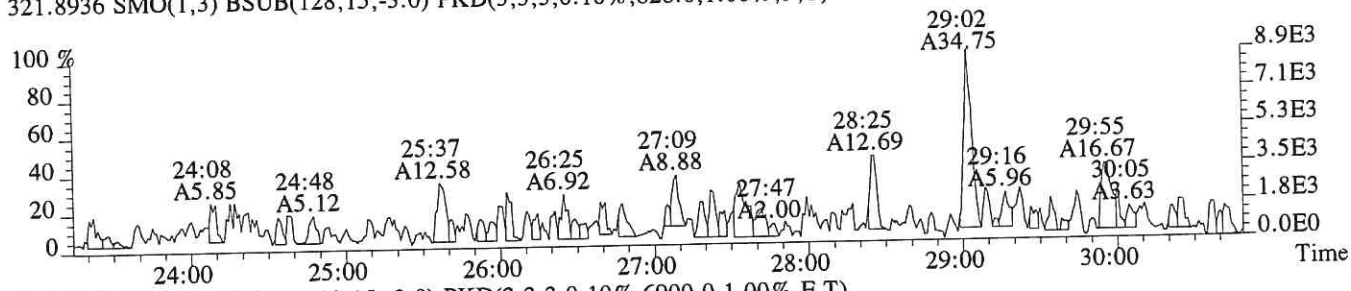


File:P519167 #1-538 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004

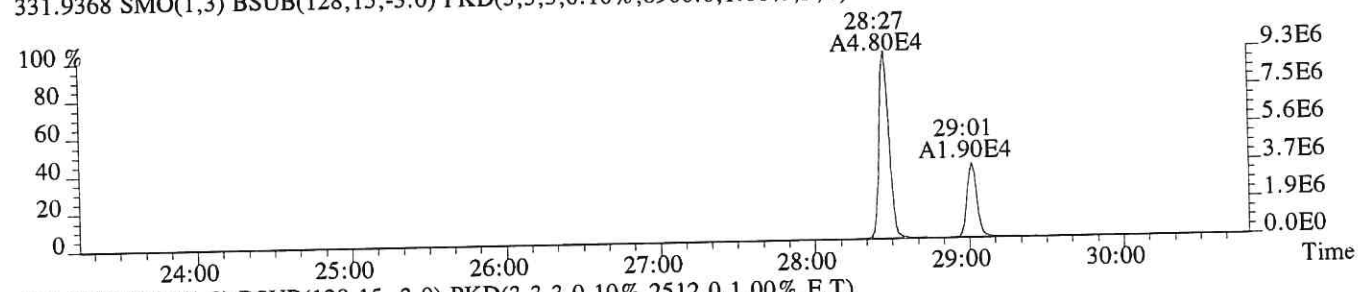
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



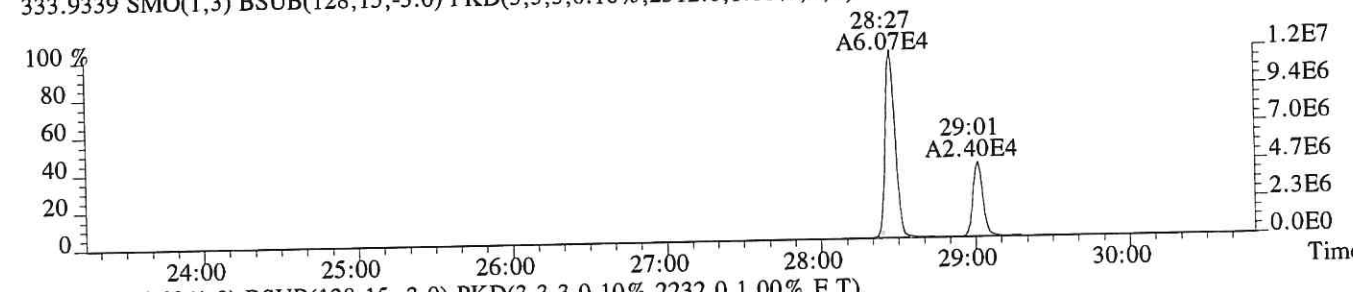
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



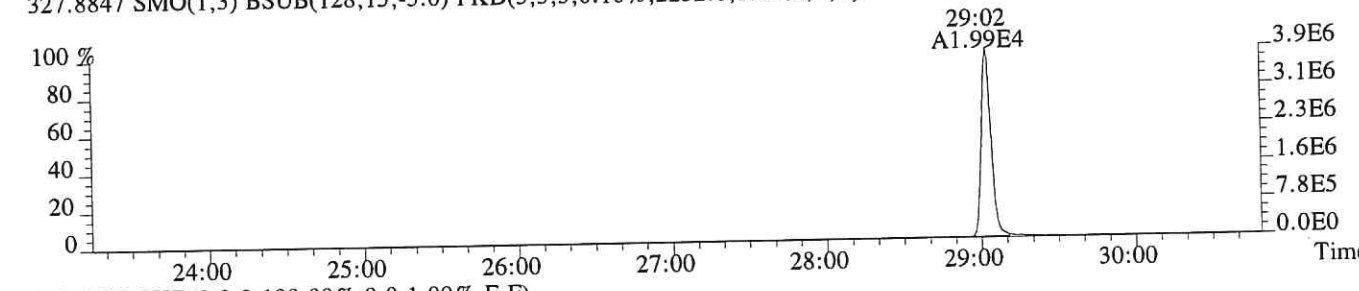
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6900.0,1.00%,F,T)



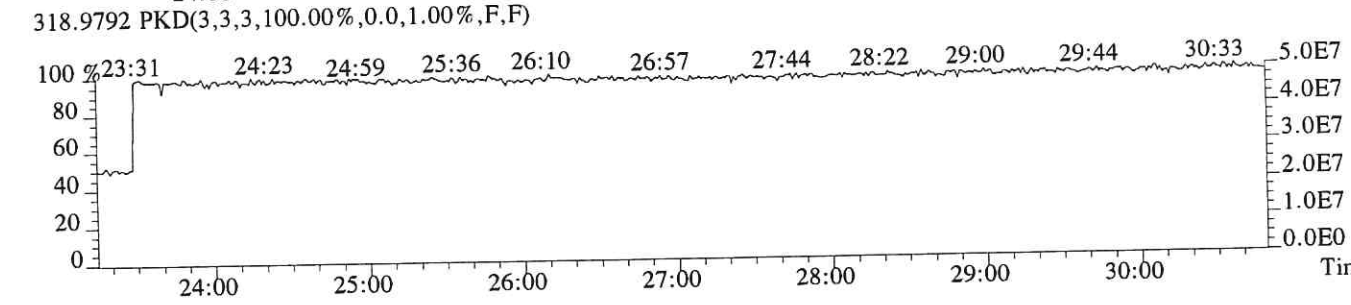
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)



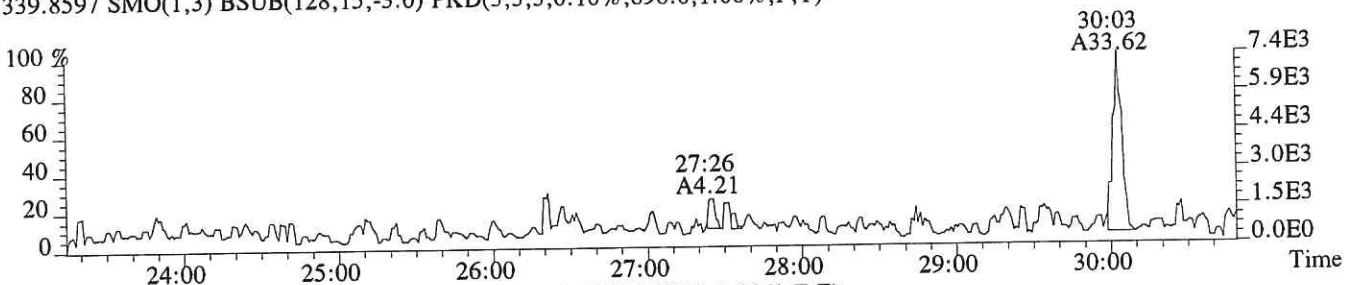
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)



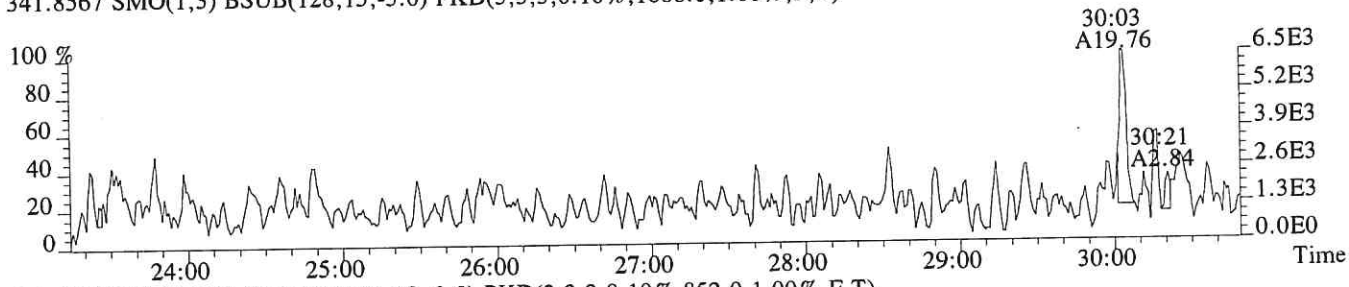
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



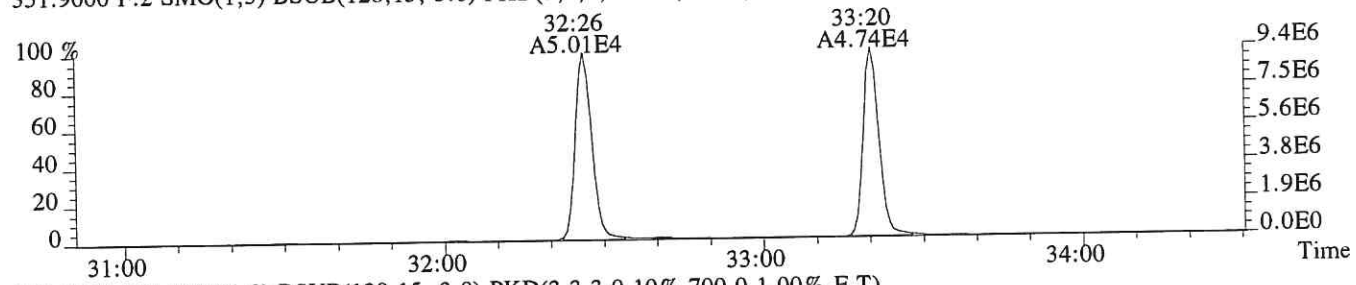
File:P519167 #1-538 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



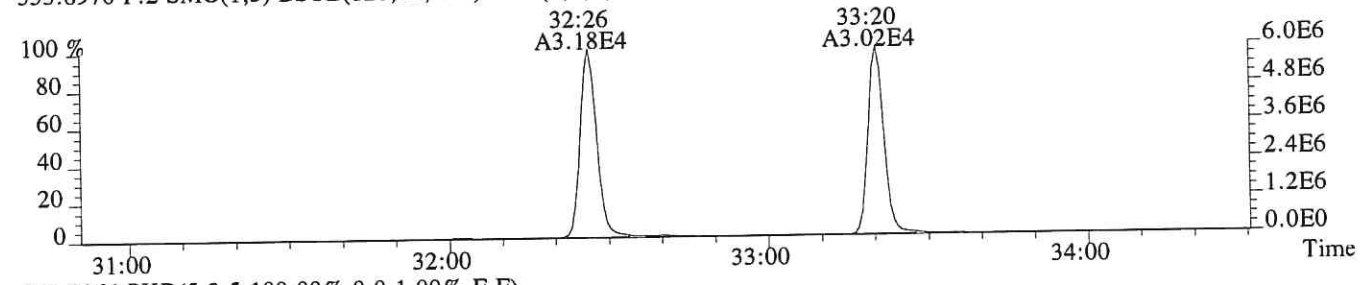
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



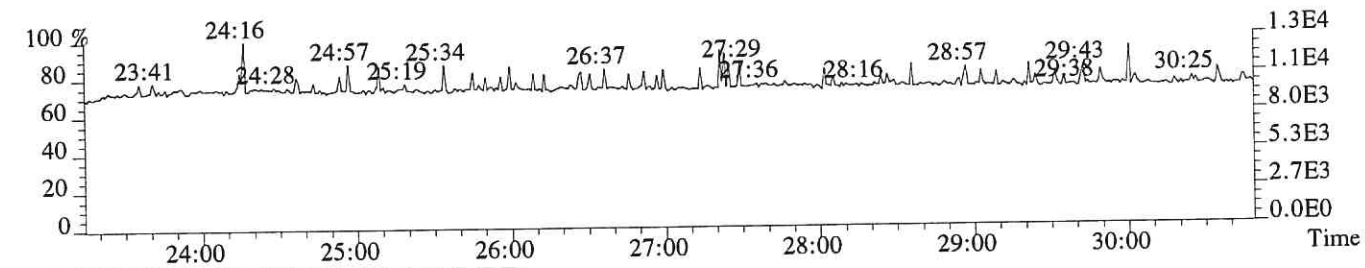
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



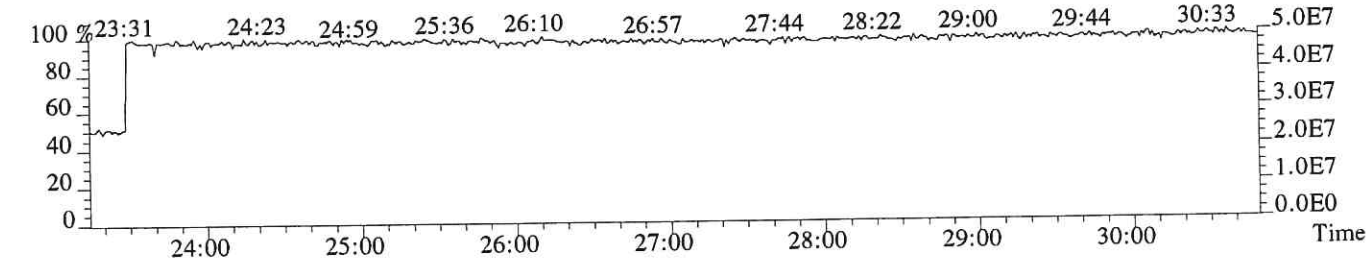
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



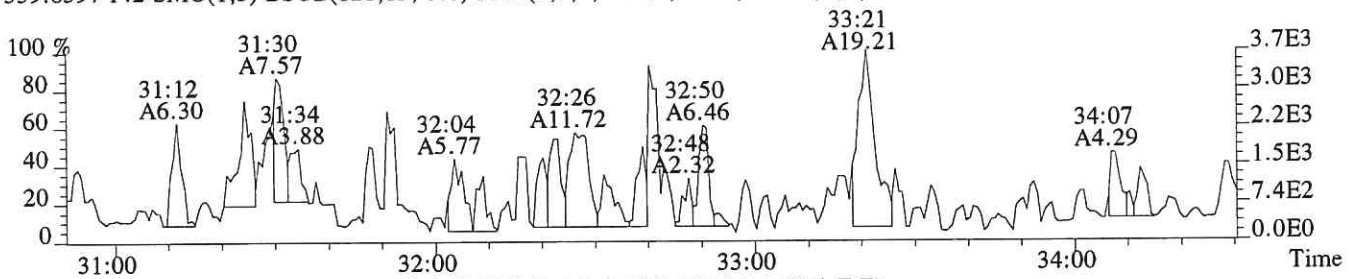
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



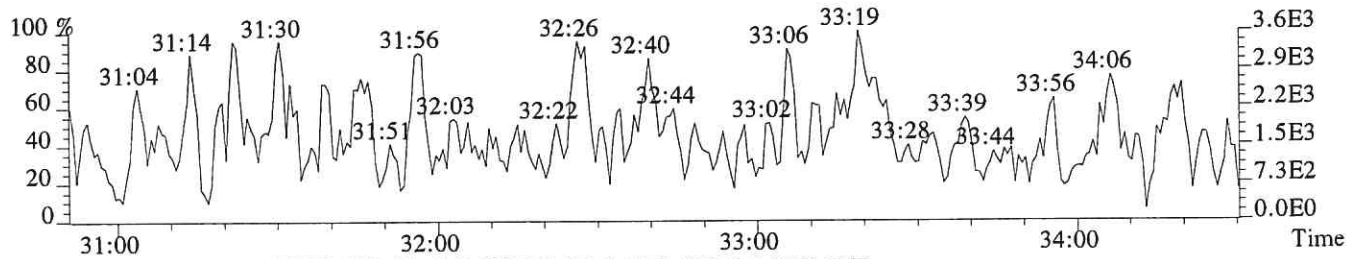
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



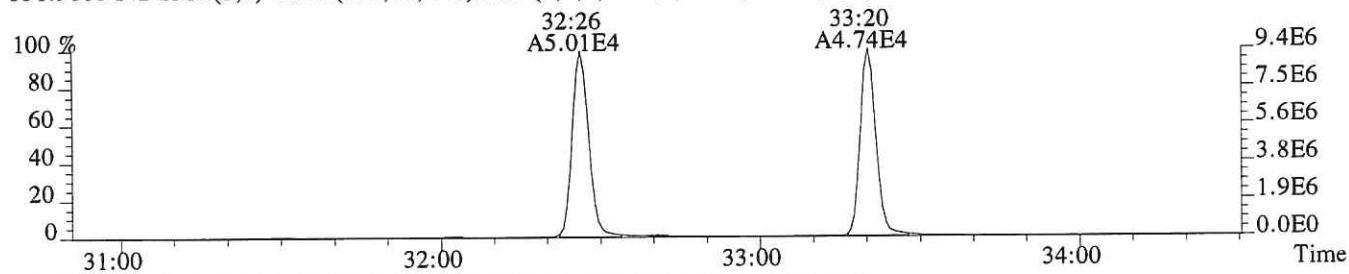
File:P519167 #1-330 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



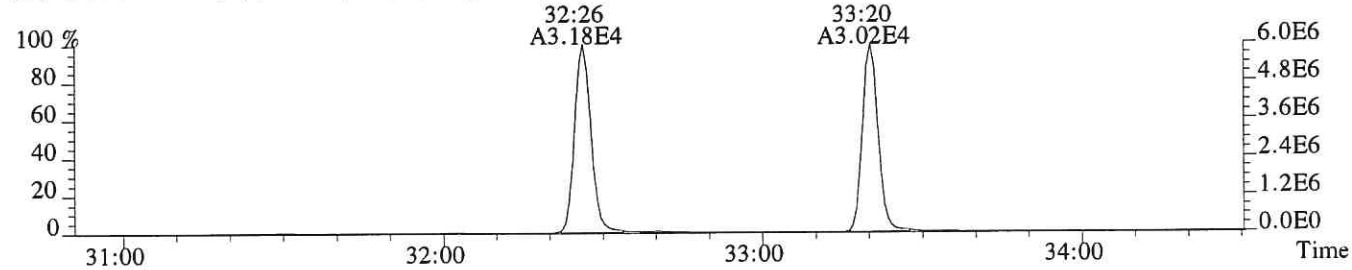
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



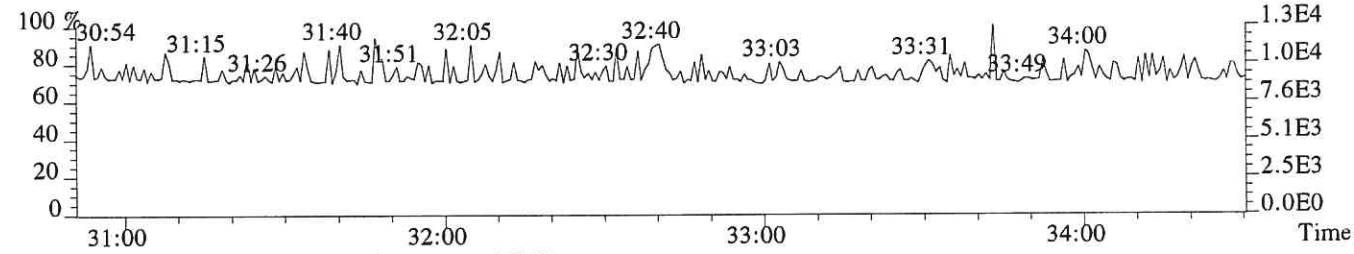
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



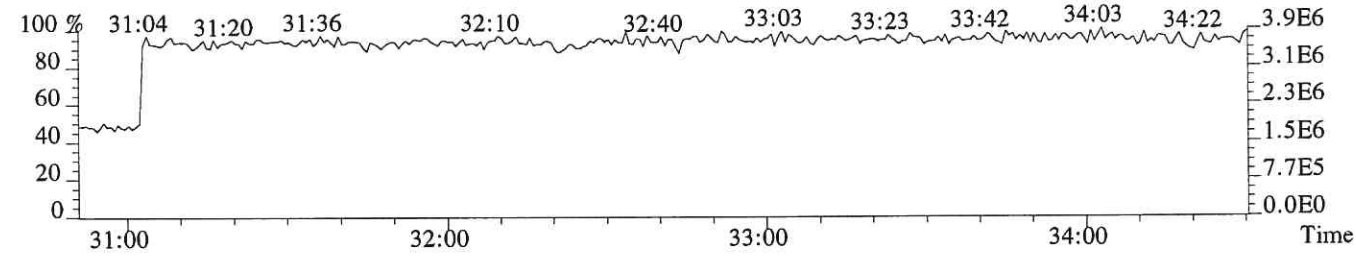
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



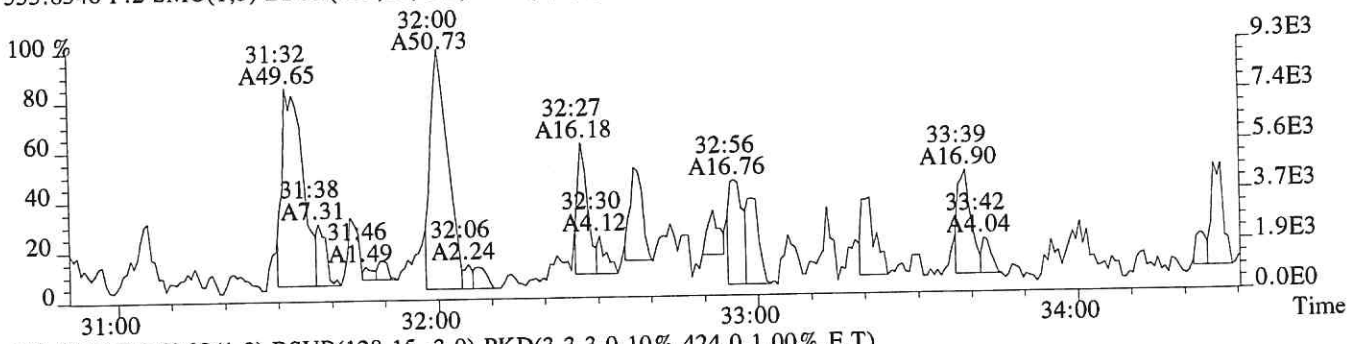
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



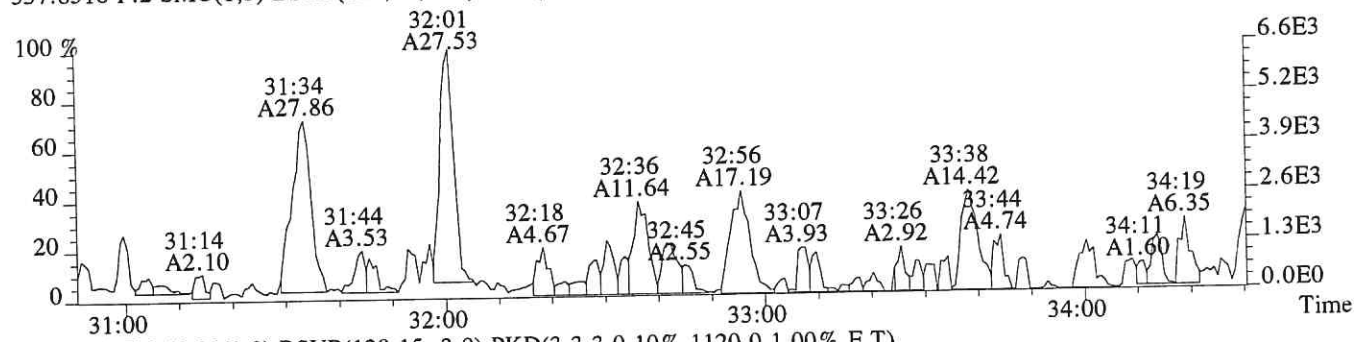
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



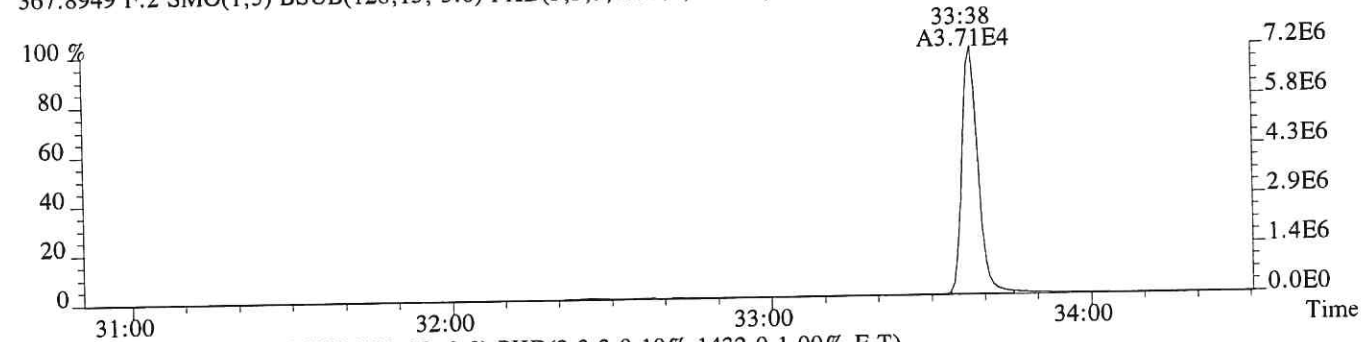
File:P519167 #1-330 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801040-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



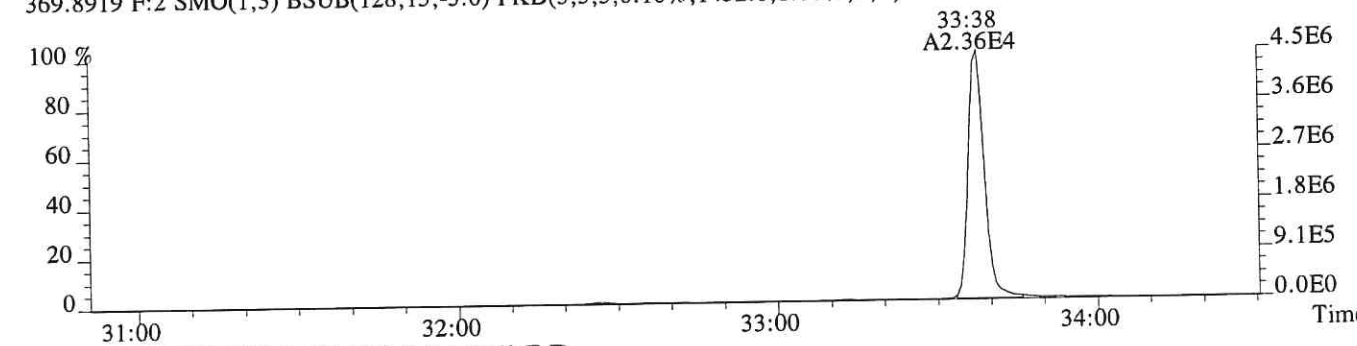
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



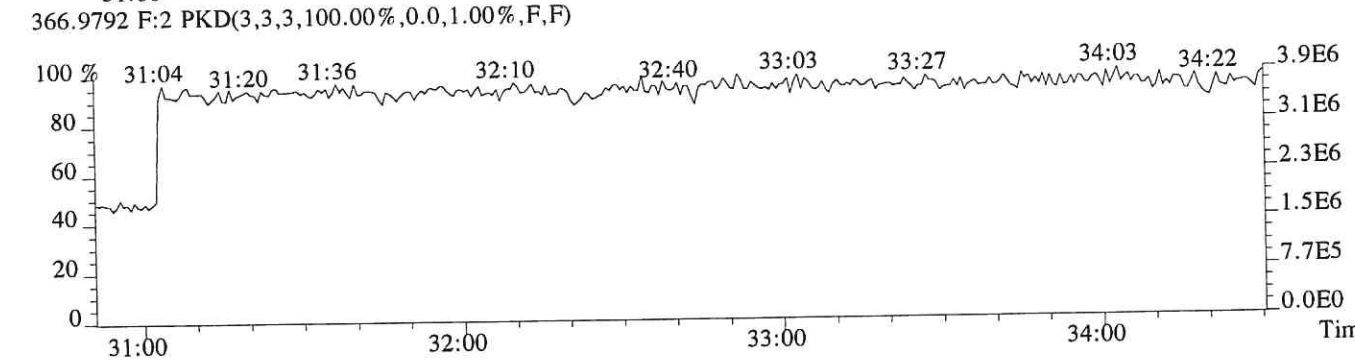
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



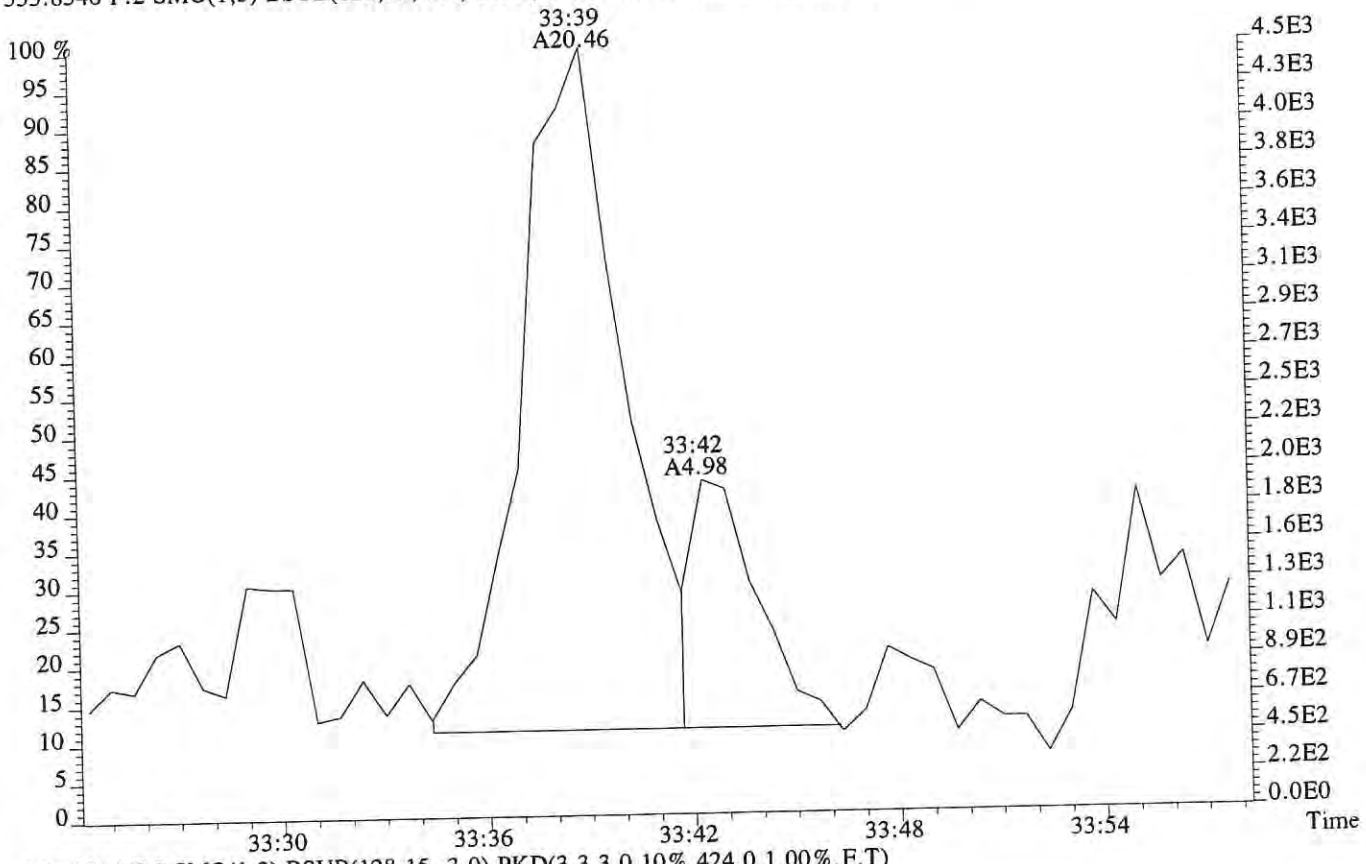
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



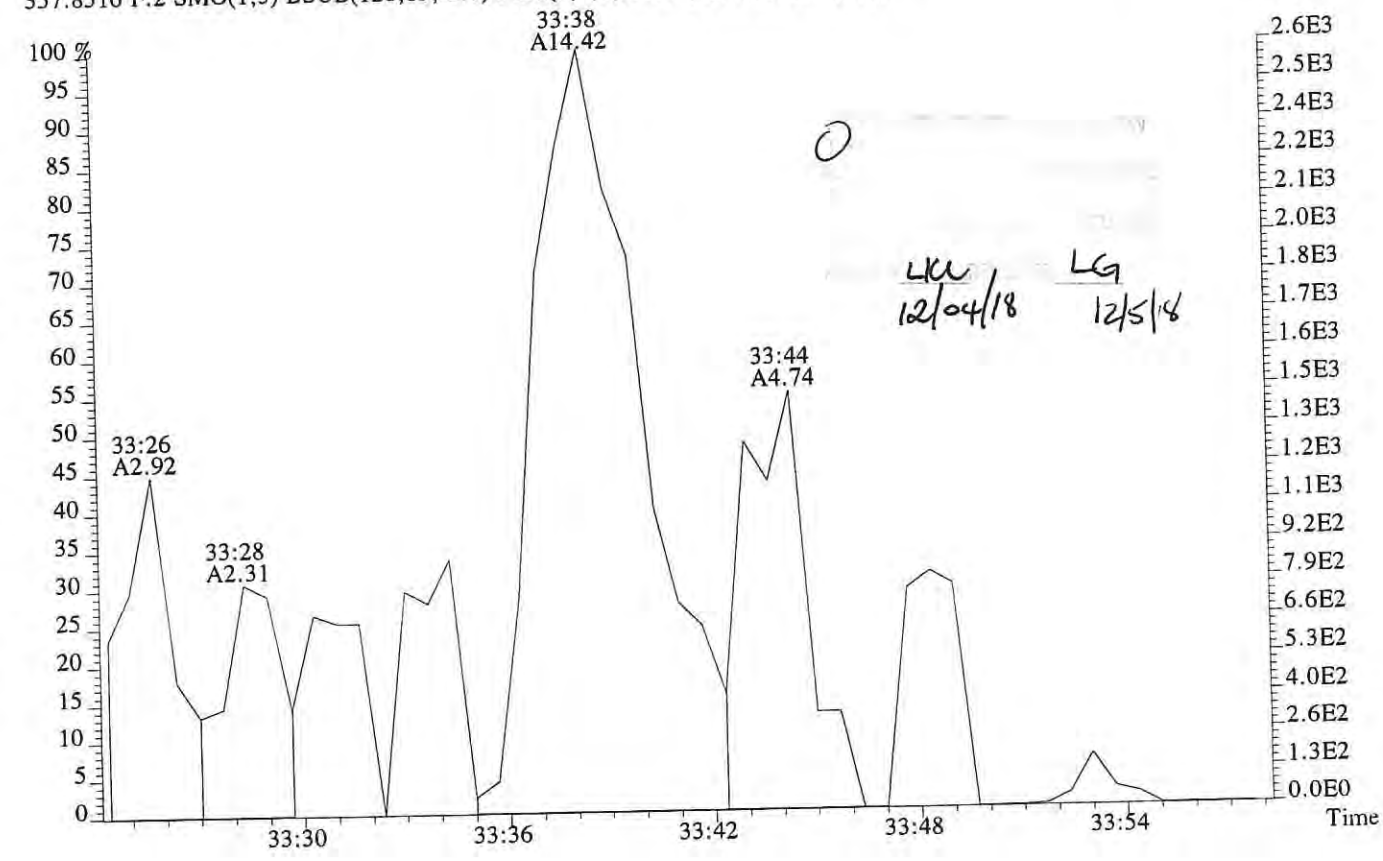
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519167 #1-330 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)

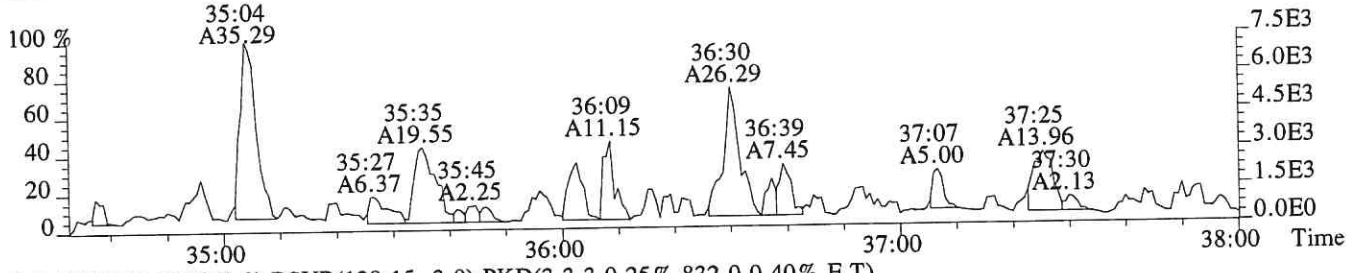


LKL 12/04/18 LG 12/5/18

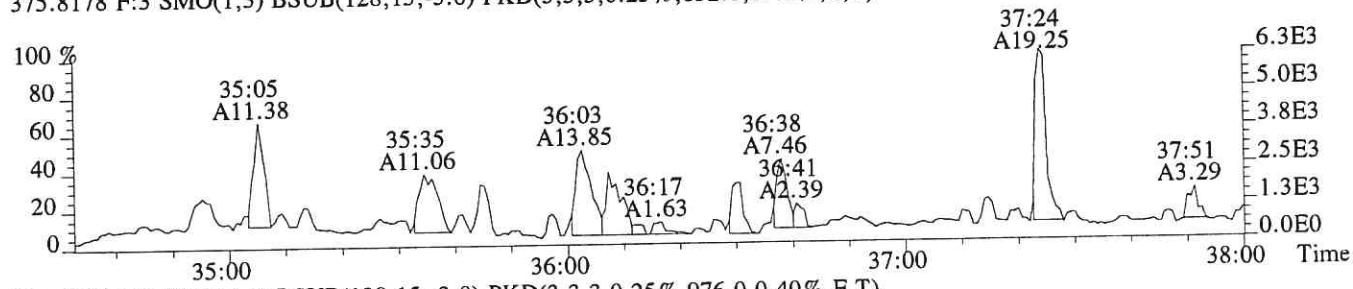
File:P519167 #1-312 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spectr

Sample#1 Exp:E1801040-004

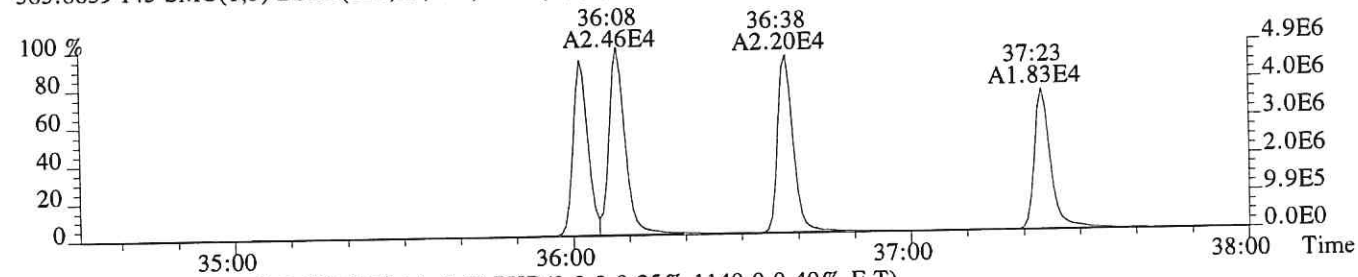
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



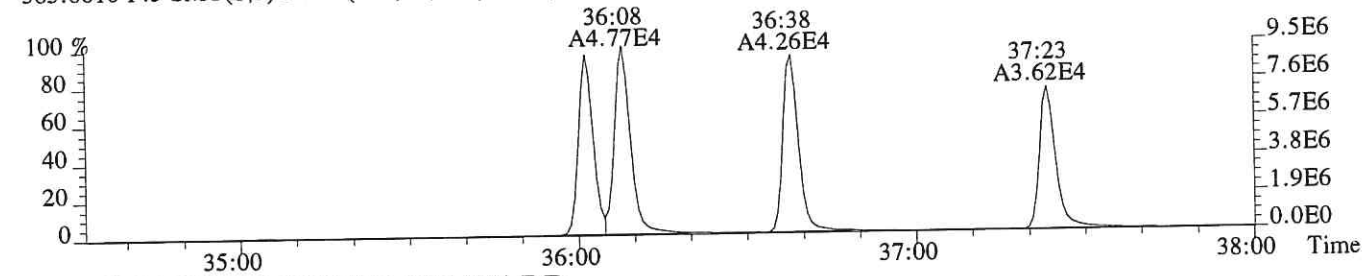
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



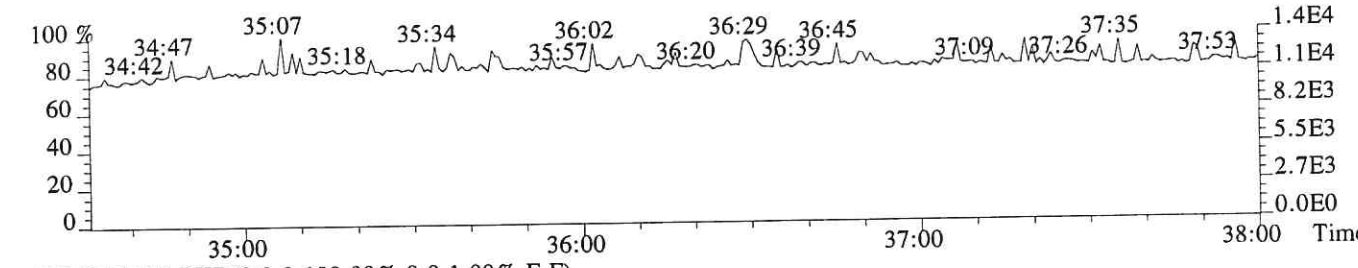
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



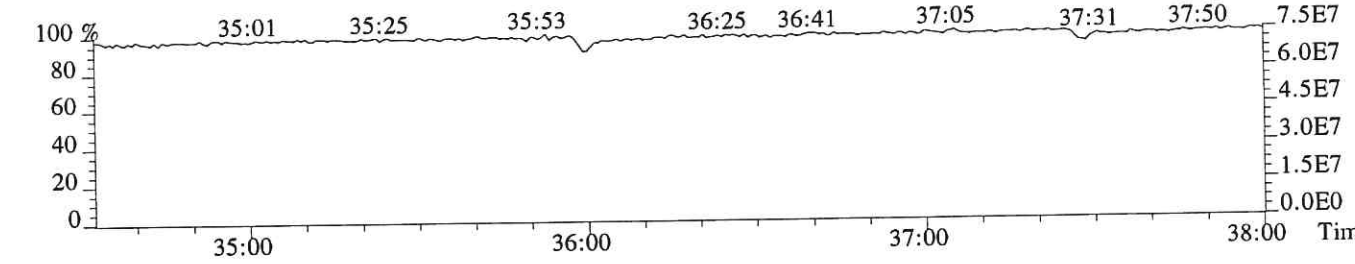
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



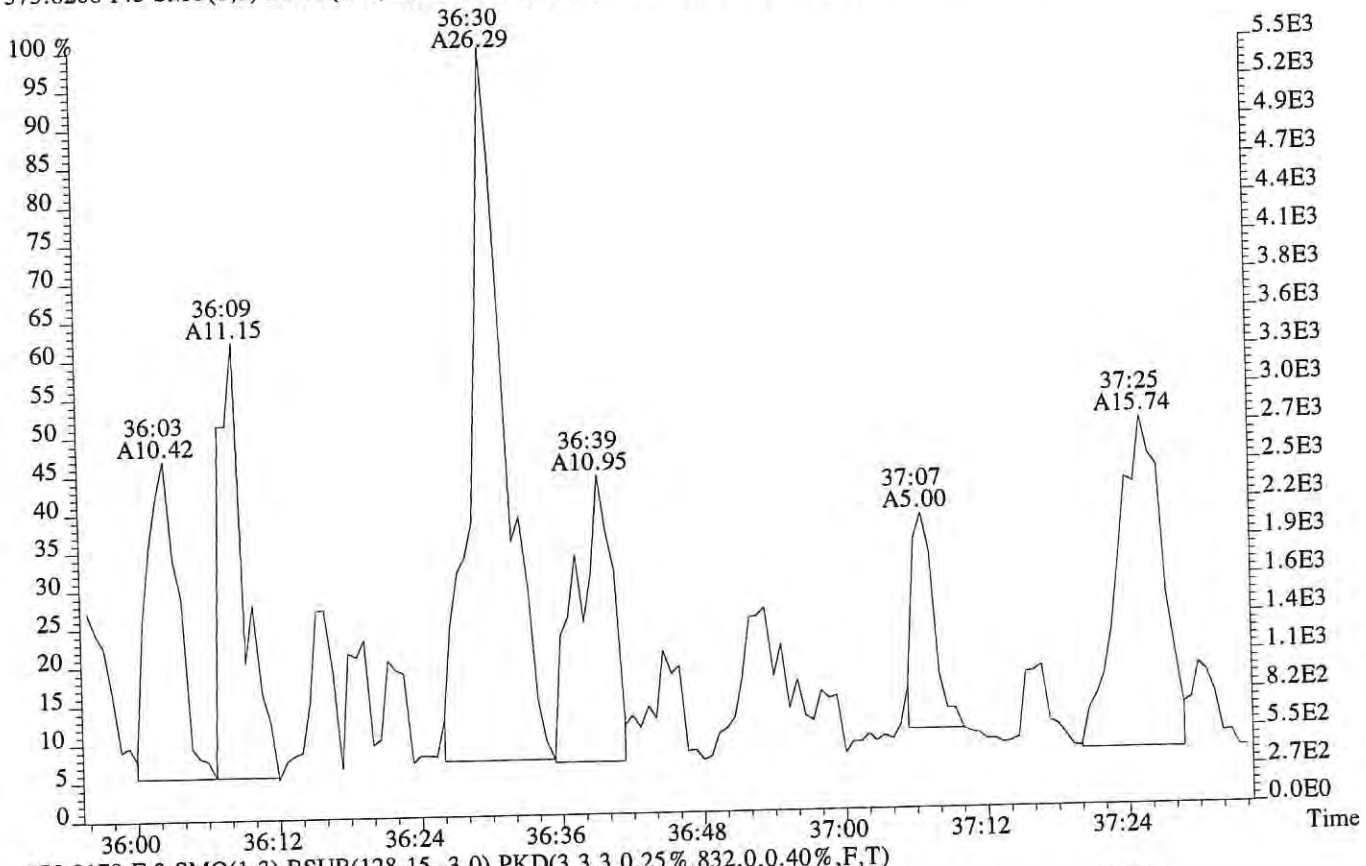
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



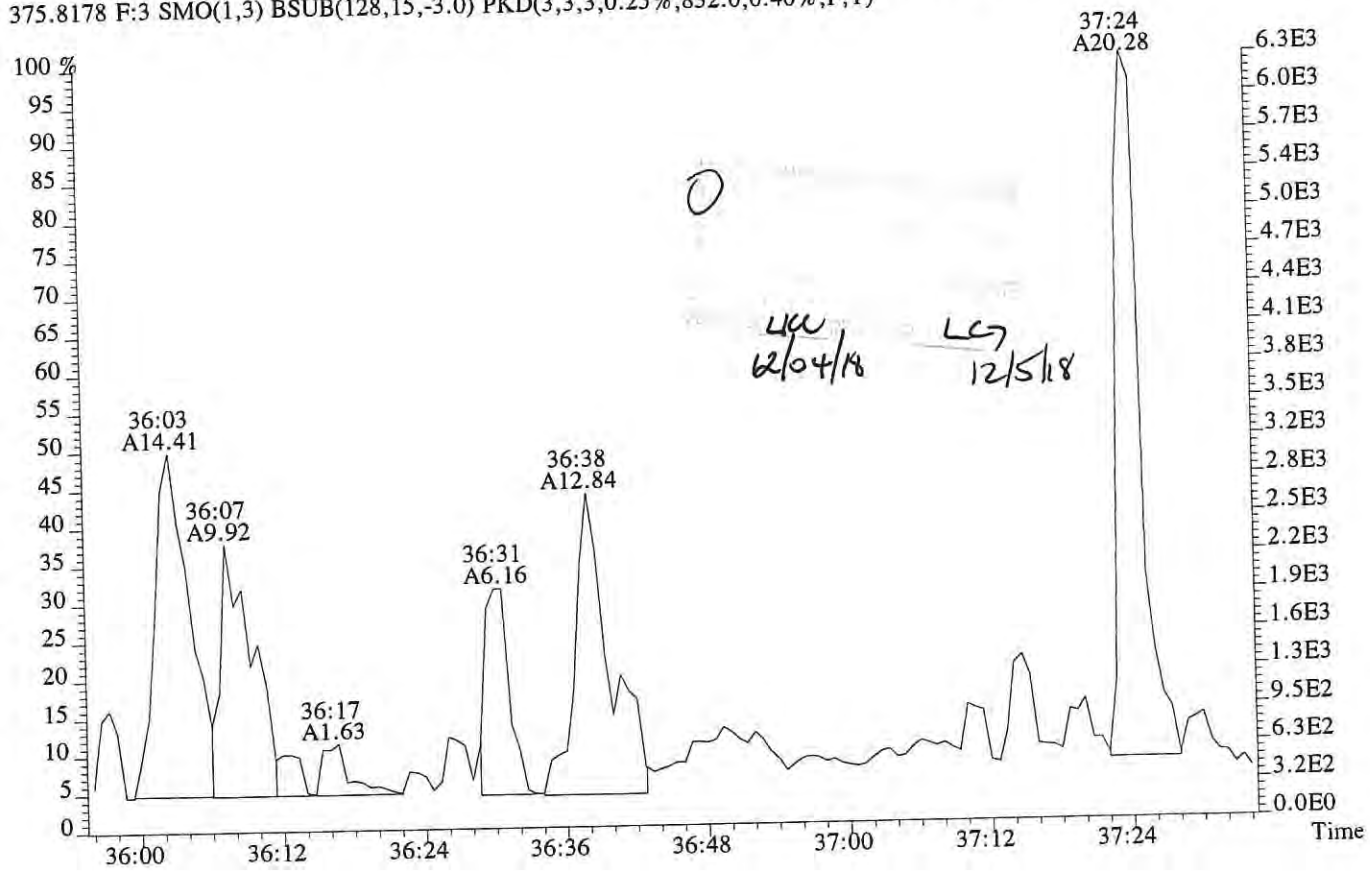
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519167 #1-312 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



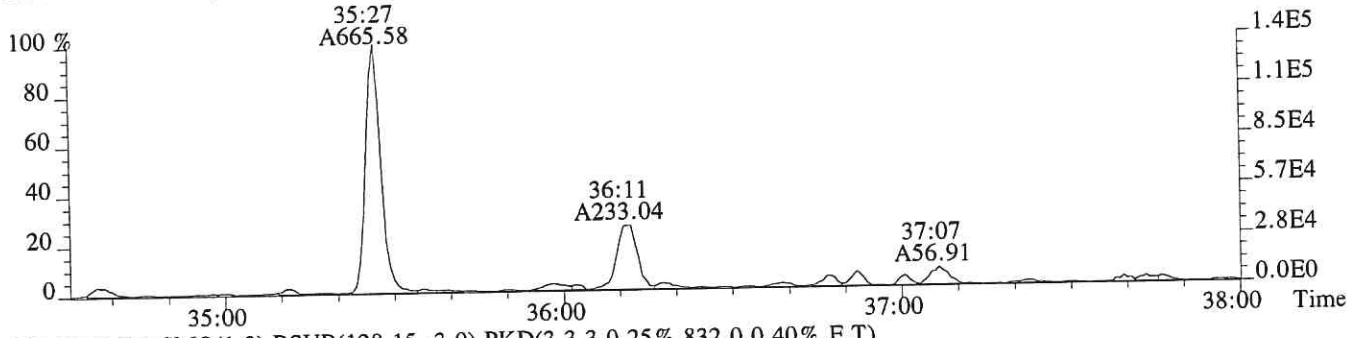
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



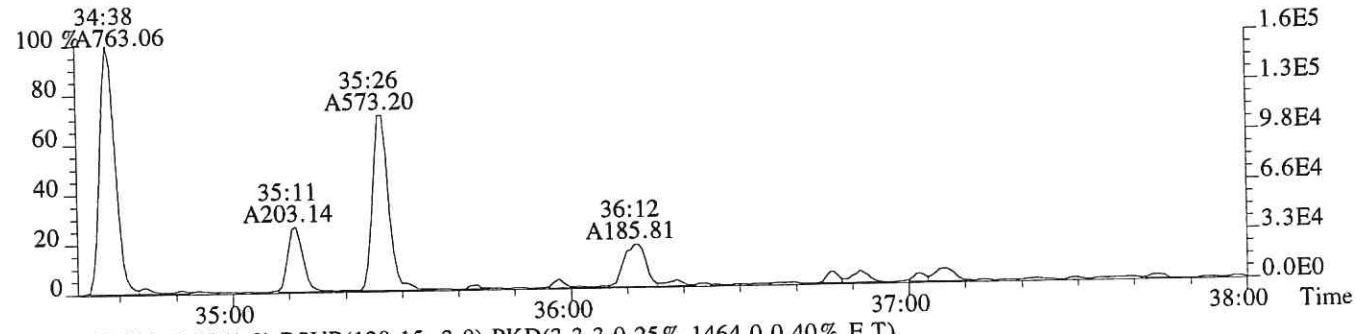
0

LCC 12/04/18 LCJ 12/5/18

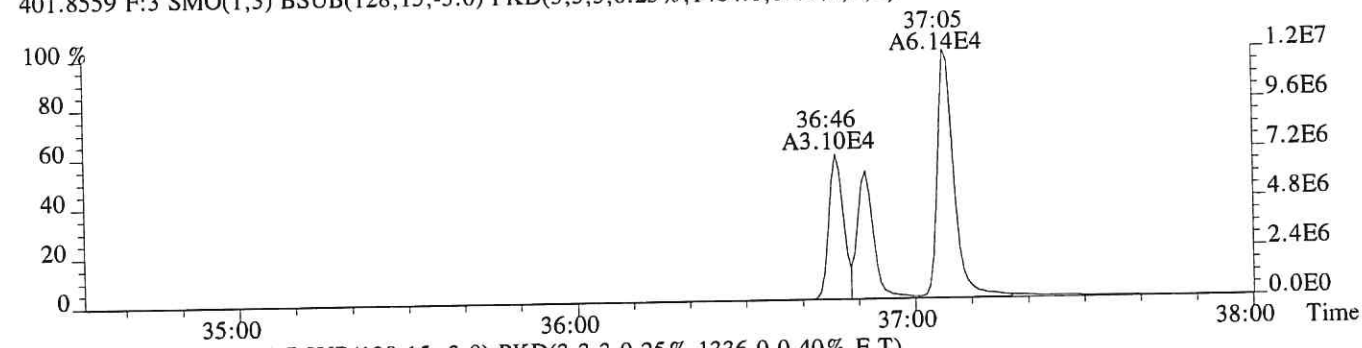
File:P519167 #1-312 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801040-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



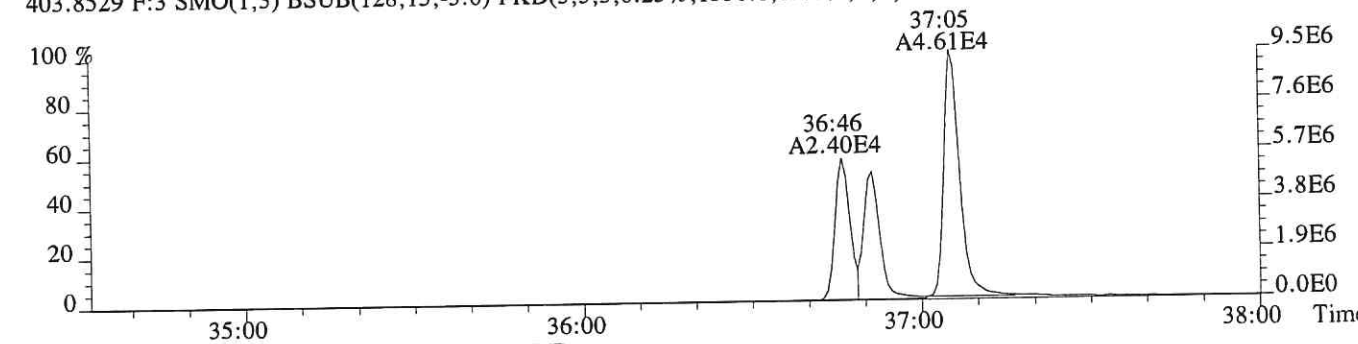
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



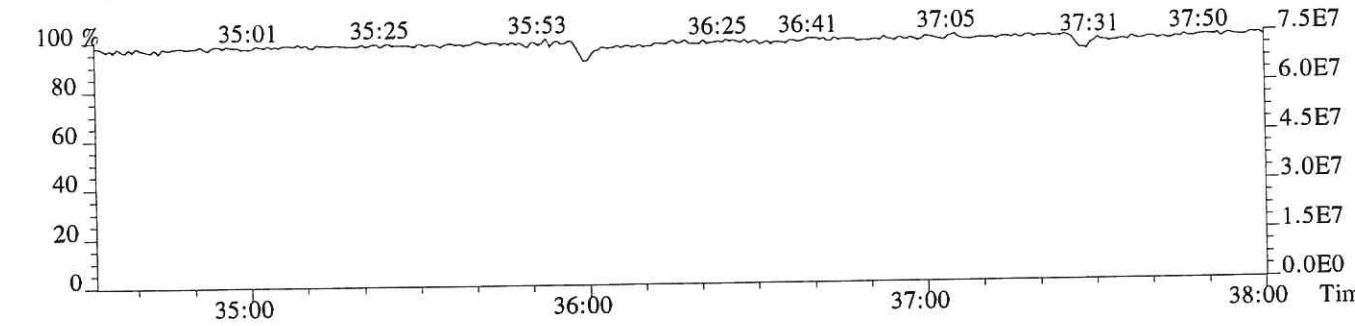
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



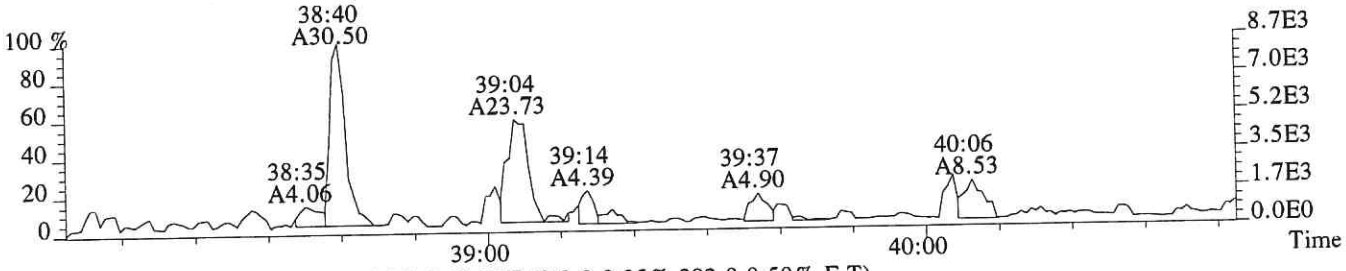
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.40%,F,T)



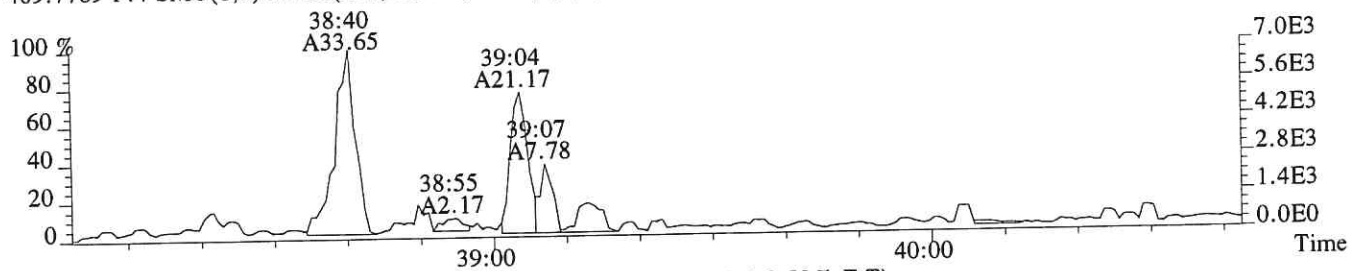
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



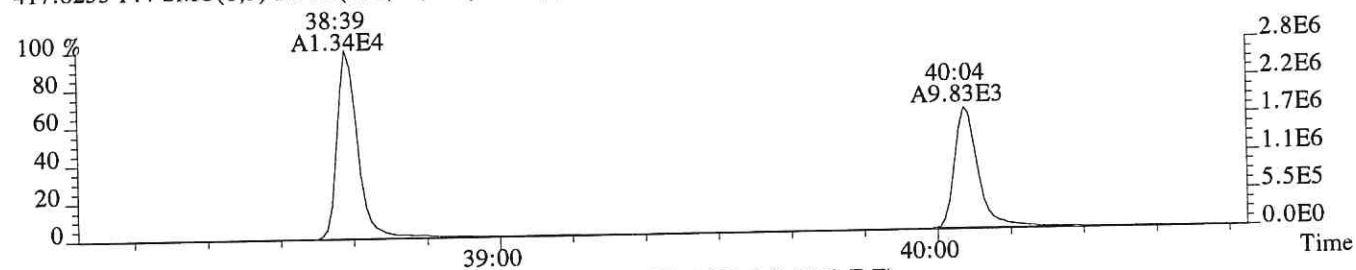
File:P519167 #1-241 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.50%,F,T)



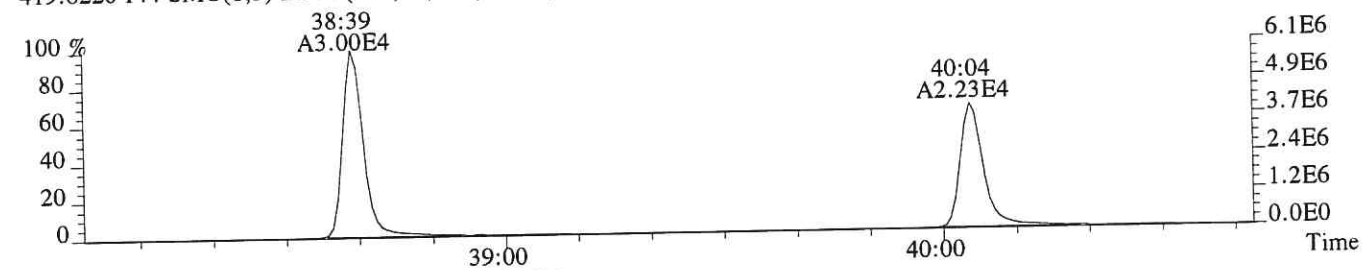
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.50%,F,T)



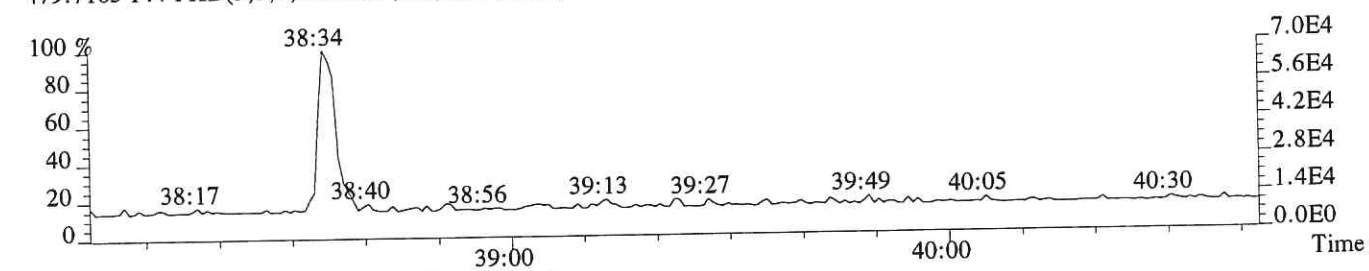
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2348.0,0.50%,F,T)



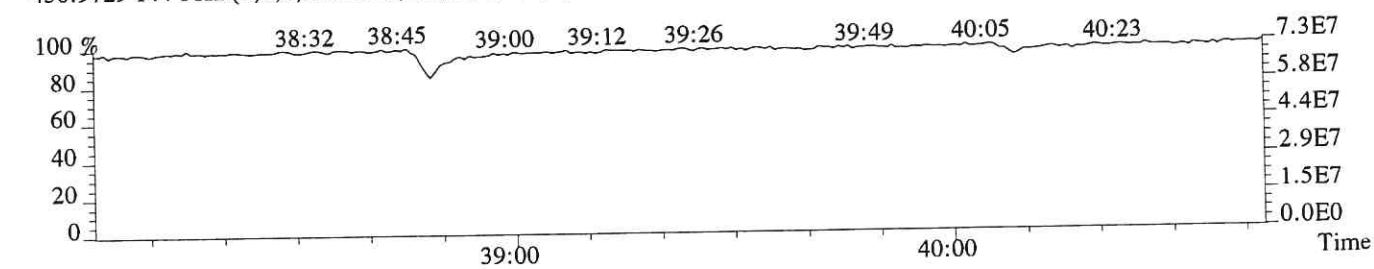
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5684.0,0.50%,F,T)



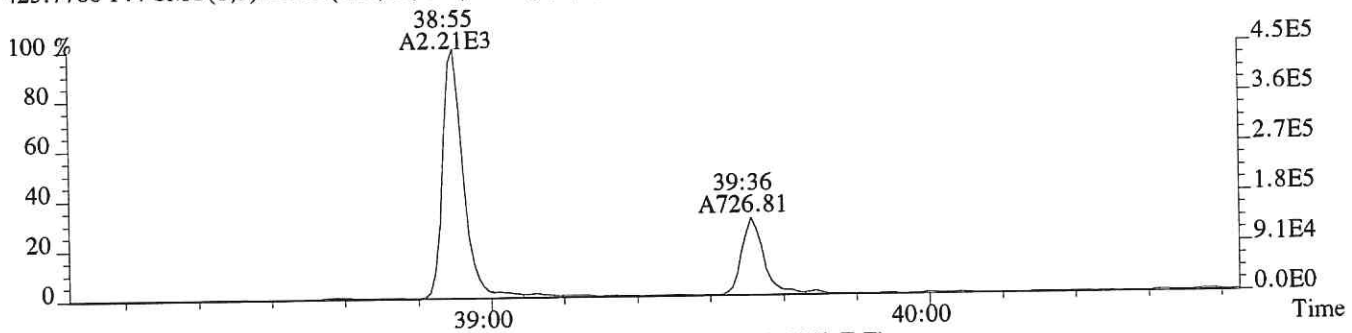
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



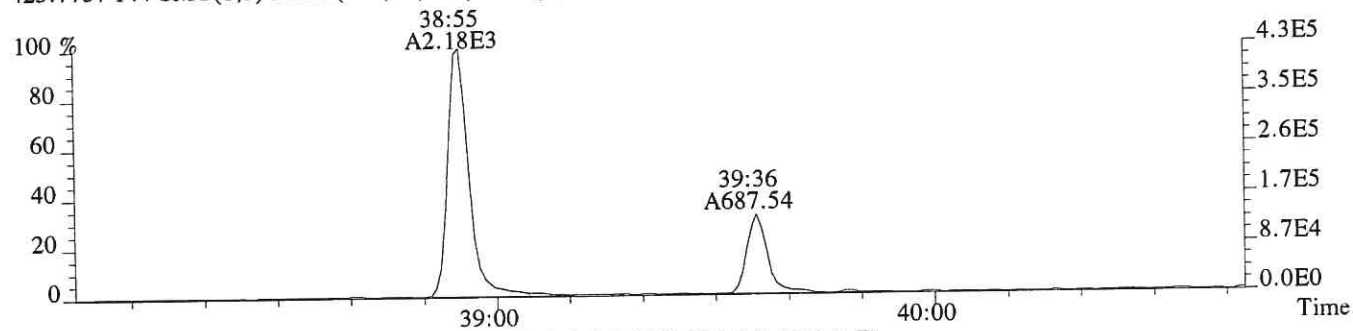
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



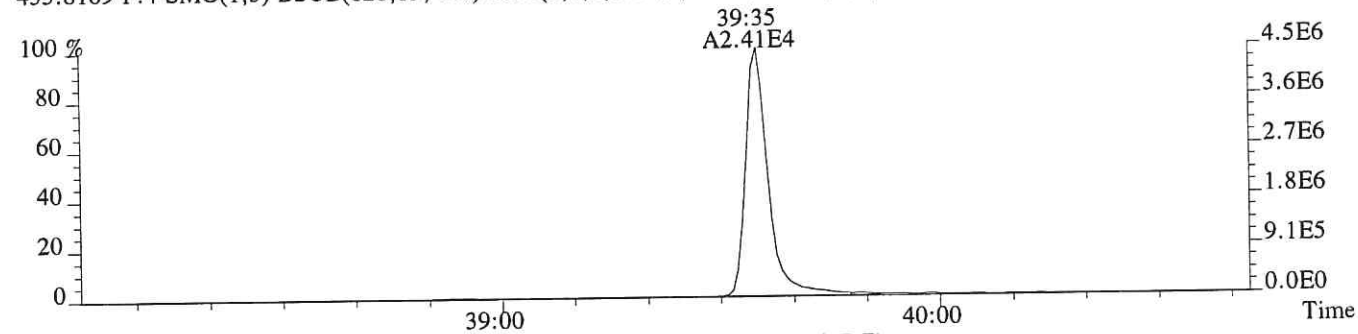
File:P519167 #1-241 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



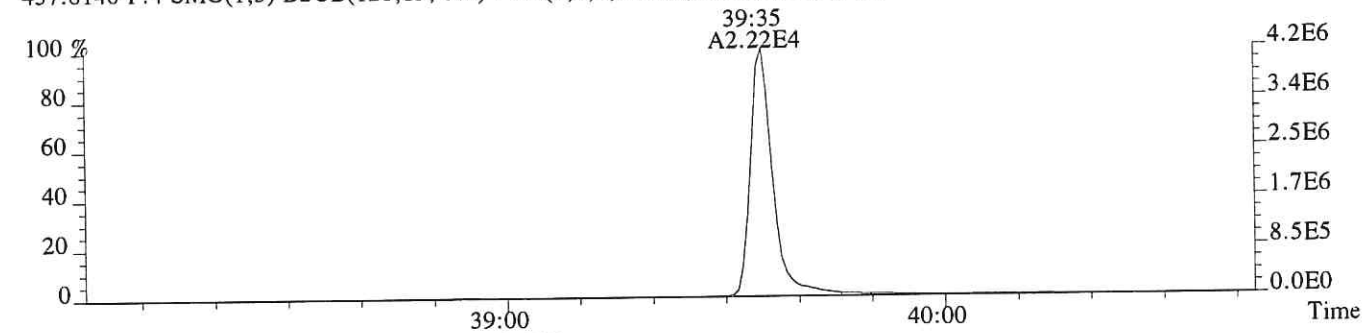
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



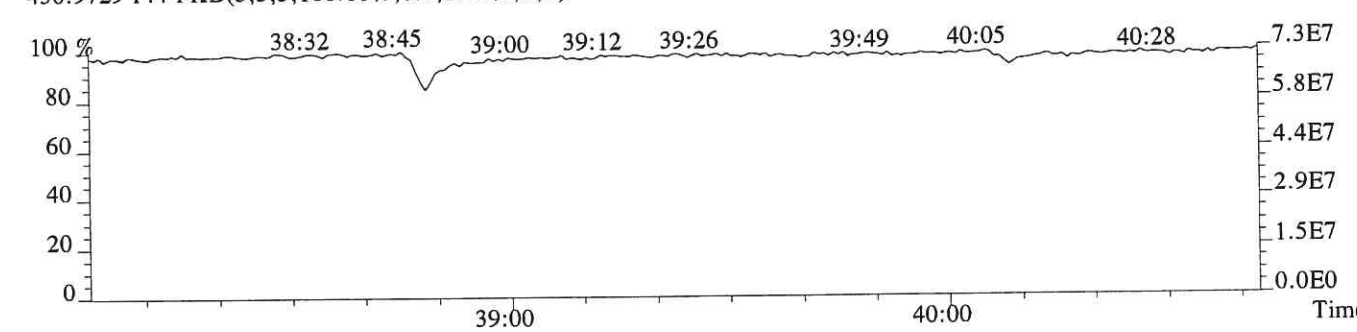
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



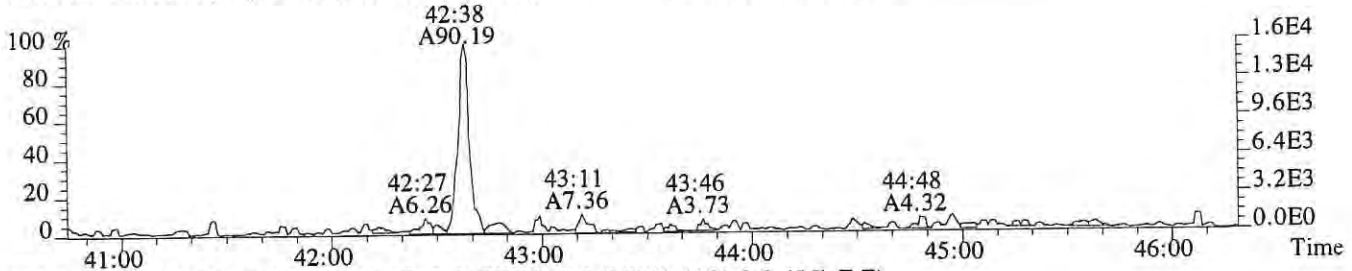
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



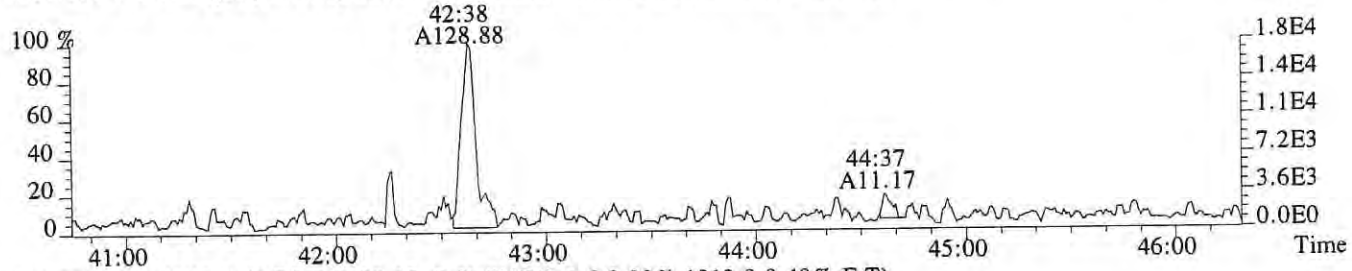
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



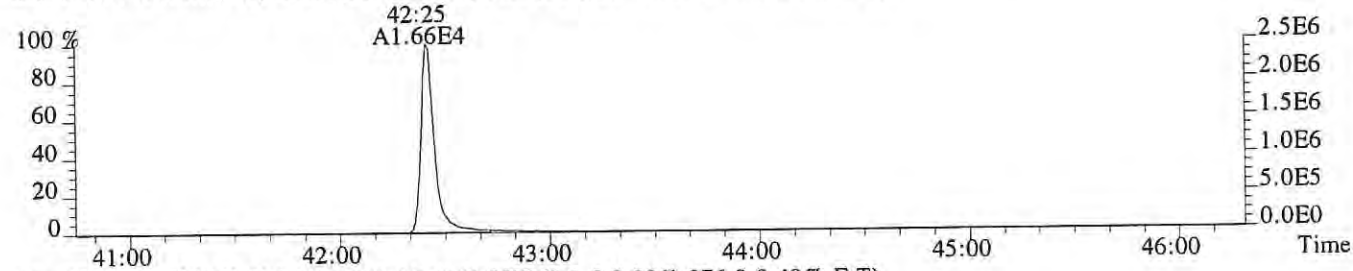
File:P519167 #1-502 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



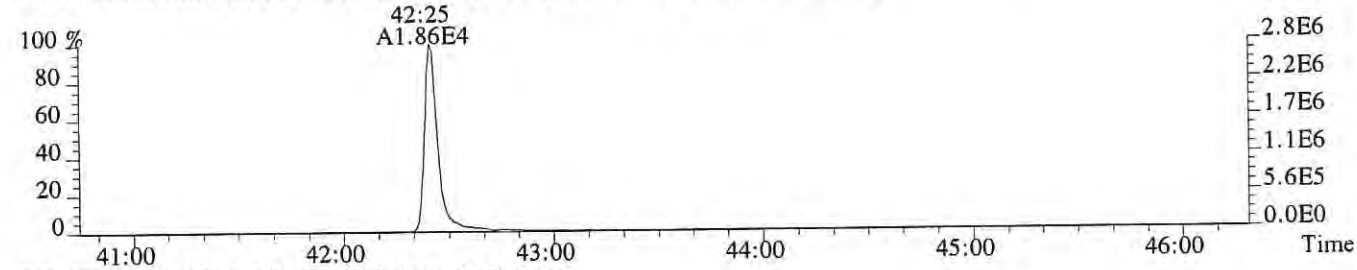
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1352.0,0.40%,F,T)



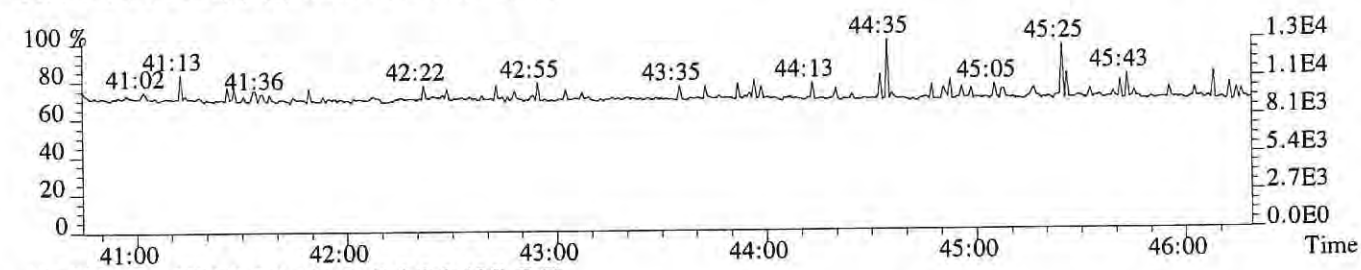
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



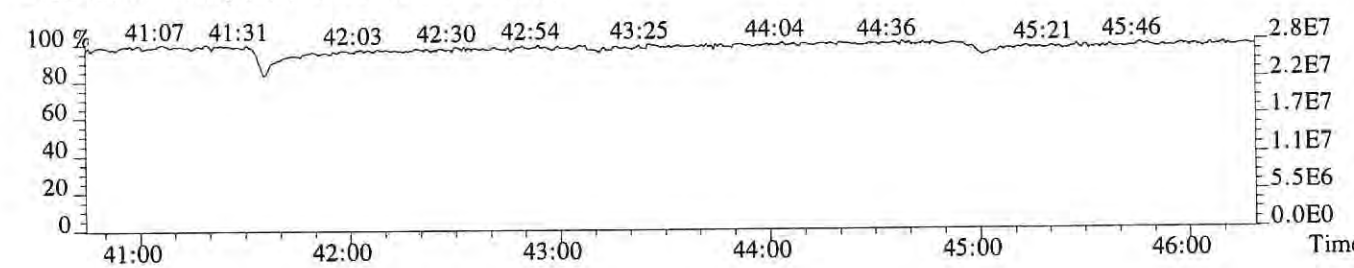
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



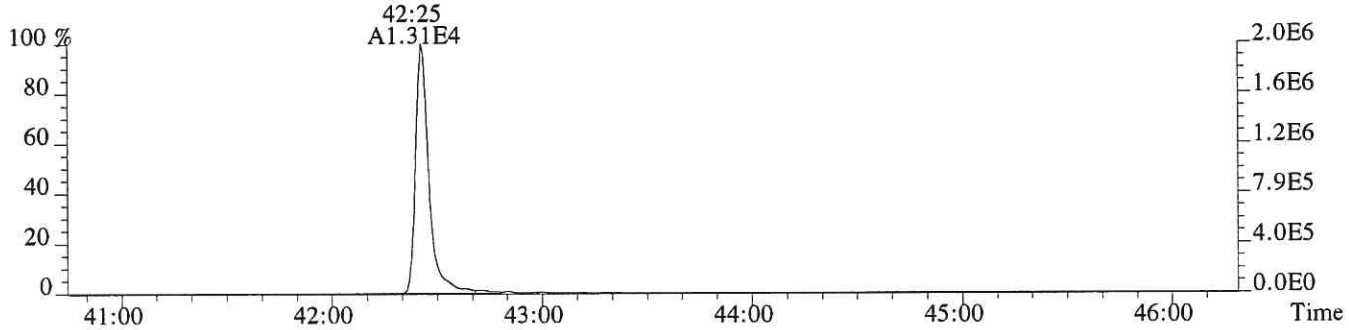
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



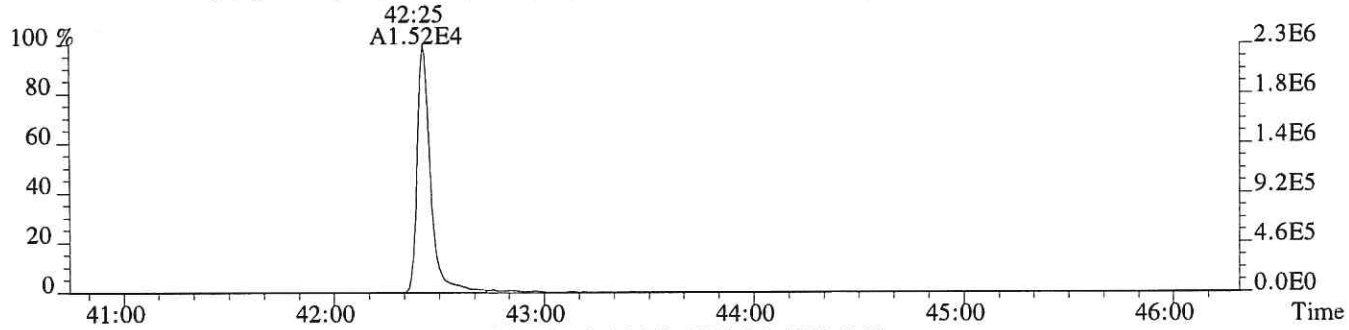
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



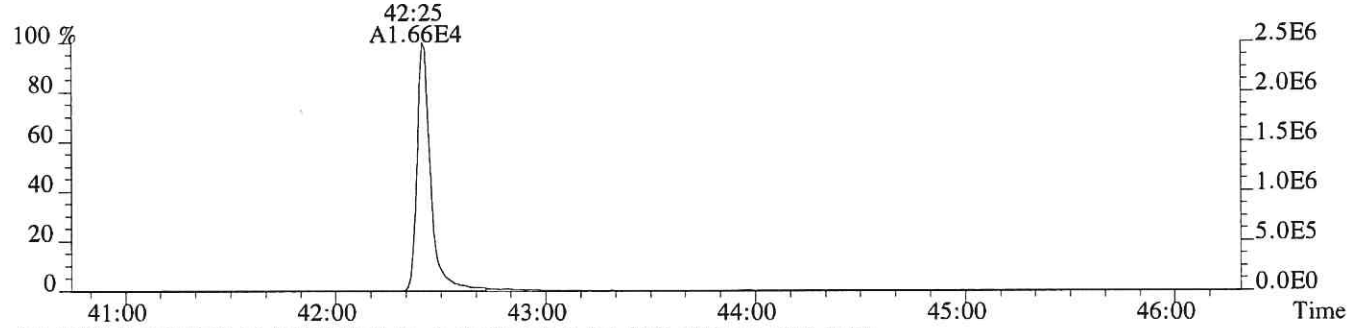
File:P519167 #1-502 Acq: 3-DEC-2018 10:20:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



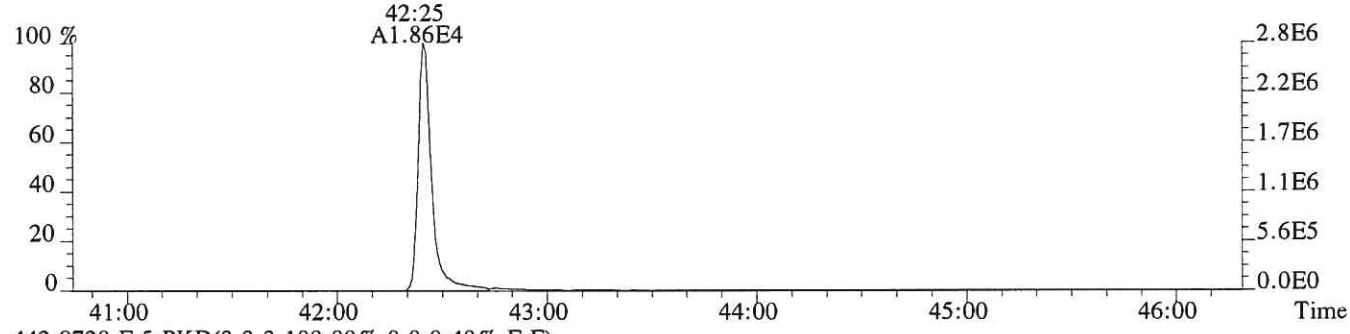
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



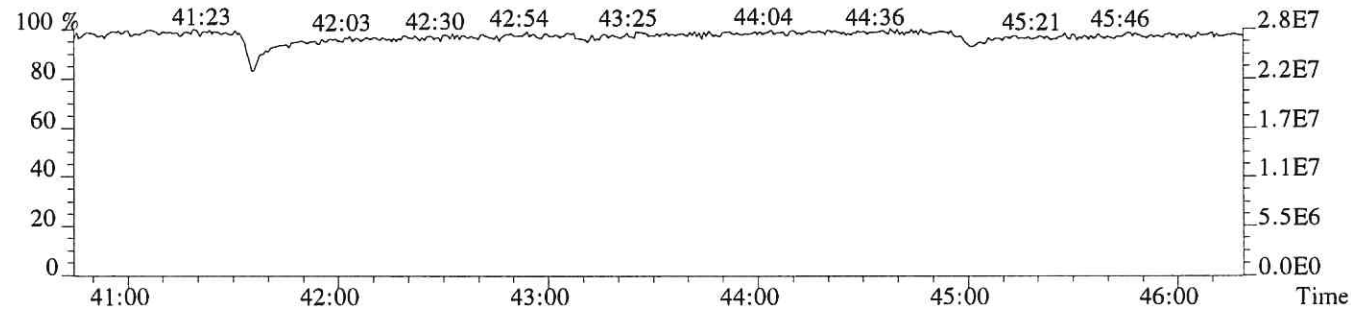
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0513

Run #13 Filename P519168 Samp: 1 Inj: 1 Acquired: 3-DEC-18 11:09:22
Processed: 4-DEC-18 15:25:55 Sample ID: E1801040-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	1.098e+02	1.726e+02	0.64	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.218e+01	3.849e+01	1.36	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:37	7.633e+01	1.272e+02	0.60	no	no	1.359
11	Unk	2,3,7,8-TCDD	29:01	3.443e+01	6.041e+01	0.57	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	1.949e+01	1.536e+01	1.27	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:53	4.378e+01	2.026e+01	2.16	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	6.353e+01	4.760e+01	1.33	yes	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	4.932e+02	5.484e+02	0.90	yes	no	1.025
17	Unk	OCDD	42:25	8.123e+03	9.131e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	2.010e+04	2.561e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	3.795e+04	2.382e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	3.435e+04	2.189e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.559e+04	3.039e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	1.747e+04	3.487e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	1.585e+04	3.081e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.266e+04	2.445e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	9.017e+03	2.091e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	5.875e+03	1.370e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	1.484e+04	1.880e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	2.696e+04	1.687e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.250e+04	1.683e+04	1.34	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.085e+04	1.764e+04	1.18	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.537e+04	1.450e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:25	8.994e+03	1.001e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.430e+04	5.585e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.298e+04	4.170e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.533e+04				no	1.014

$$OCDD = \frac{(8.123e+03 + 9.131e+03) \times 4000\ pg \times 1}{(8.994e+03 + 1.001e+04) \times 10.26g \times 84.4/100 \times 1.118} = 375.1225\ ng/kg$$

LG 12/6/18

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0513

Run #13 Filename P519168 Samp: 1 Inj: 1 Acquired: 3-DEC-18 11:09:22
Processed: 4-DEC-18 15:25:55 LAB. ID: E1801040-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.07e+04	1.35e+03	1.5e+01	3.15e+04	1.65e+03	1.9e+01
2	1,2,3,7,8-PeCDF	*	5.60e+02	*	*	1.97e+03	*
3	2,3,4,7,8-PeCDF	*	5.60e+02	*	*	1.97e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.15e+03	*	*	1.04e+03	*
5	1,2,3,6,7,8-HxCDF	*	1.15e+03	*	*	1.04e+03	*
6	2,3,4,6,7,8-HxCDF	*	1.15e+03	*	*	1.04e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.15e+03	*	*	1.04e+03	*
8	1,2,3,4,6,7,8-HpCDF	1.22e+04	5.44e+02	2.2e+01	8.79e+03	2.24e+02	3.9e+01
9	1,2,3,4,7,8,9-HpCDF	*	5.44e+02	*	*	2.24e+02	*
10	OCDF	1.17e+04	4.12e+02	2.8e+01	2.15e+04	9.84e+02	2.2e+01
11	2,3,7,8-TCDD	7.44e+03	2.34e+03	3.2e+00	1.20e+04	1.14e+03	1.1e+01
12	1,2,3,7,8-PeCDD	4.16e+03	1.11e+03	3.8e+00	2.83e+03	2.40e+02	1.2e+01
13	1,2,3,4,7,8-HxCDD	*	6.88e+02	*	*	1.46e+03	*
14	1,2,3,6,7,8-HxCDD	7.01e+03	6.88e+02	1.0e+01	4.95e+03	1.46e+03	3.4e+00
15	1,2,3,7,8,9-HxCDD	1.35e+04	6.88e+02	2.0e+01	1.08e+04	1.46e+03	7.4e+00
16	1,2,3,4,6,7,8-HpCDD	9.35e+04	9.24e+02	1.0e+02	1.03e+05	6.28e+02	1.6e+02
17	OCDD	1.25e+06	3.32e+02	3.8e+03	1.39e+06	5.16e+02	2.7e+03
18	13C-2,3,7,8-TCDF	3.59e+06	9.59e+03	3.7e+02	4.60e+06	6.43e+03	7.1e+02
19	13C-1,2,3,7,8-PeCDF	6.93e+06	6.16e+02	1.1e+04	4.37e+06	8.32e+02	5.3e+03
20	13C-2,3,4,7,8-PeCDF	6.50e+06	6.16e+02	1.1e+04	4.13e+06	8.32e+02	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	3.31e+06	8.84e+02	3.7e+03	6.49e+06	1.21e+03	5.4e+03
22	13C-1,2,3,6,7,8-HxCDF	3.46e+06	8.84e+02	3.9e+03	6.84e+06	1.21e+03	5.6e+03
23	13C-2,3,4,6,7,8-HxCDF	3.30e+06	8.84e+02	3.7e+03	6.48e+06	1.21e+03	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.42e+06	8.84e+02	2.7e+03	4.66e+06	1.21e+03	3.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.89e+06	1.47e+03	1.3e+03	4.32e+06	1.96e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	1.47e+03	7.0e+02	2.43e+06	1.96e+03	1.2e+03
27	13C-2,3,7,8-TCDD	2.74e+06	5.41e+03	5.1e+02	3.51e+06	2.98e+03	1.2e+03
28	13C-1,2,3,7,8-PeCDD	5.23e+06	1.25e+03	4.2e+03	3.29e+06	1.29e+03	2.5e+03
29	13C-1,2,3,4,7,8-HxCDD	4.90e+06	1.02e+03	4.8e+03	3.80e+06	1.10e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	4.33e+06	1.02e+03	4.2e+03	3.48e+06	1.10e+03	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.88e+06	8.92e+02	3.2e+03	2.65e+06	3.44e+02	7.7e+03
32	13C-OCDD	1.36e+06	6.68e+02	2.0e+03	1.49e+06	2.72e+02	5.5e+03
33	13C-1,2,3,4-TCDD	8.36e+06	5.41e+03	1.5e+03	1.05e+07	2.98e+03	3.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.11e+07	1.02e+03	1.1e+04	8.60e+06	1.10e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	2.90e+06	2.37e+03	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.336e+03 + 1.136e+03) \times 2000}{(2.740e+06 + 3.511e+06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0513

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519168 Sample:1 Injection:1 Function:2

Acquired: 3-DEC-18 11:09:22 Processed: 4-DEC-18 15:25:55

Mass: 355.8550 357.8520 Tot Response: 1.84e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:31	3.06e+01	2.18e+01	1.40	yes	5.23e+01		n	n
2	32:00	5.64e+01	3.60e+01	1.57	yes	9.24e+01		n	n
3	32:57	2.44e+01	1.44e+01	1.70	yes	3.88e+01		n	n

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Peak List Summary

CLIENT ID.
SL0513

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519168 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 11:09:22 Processed: 4-DEC-18 15:25:55

Mass: 389.8160 391.8130 Tot Response: 1.58e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	6.31e+02	4.98e+02	1.27	yes	1.13e+03		n	n
2	36:11	1.84e+02	1.55e+02	1.19	yes	3.39e+02		n	n
3	37:05	6.35e+01	4.76e+01	1.33	yes	1.11e+02	1,2,3,7,8,9-HxCDD	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0513

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519168 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 11:09:22 Processed: 4-DEC-18 15:25:55

Mass: 407.7820 409.7790 Tot Response: 5.74e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:04	3.00e+01	2.74e+01 1.09	yes	5.74e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0513

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519168 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 11:09:22 Processed: 4-DEC-18 15:25:55

Mass: 423.7770 425.7740 Tot Response: 4.48e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.77e+03	1.67e+03	1.06	yes	3.44e+03		n	n
2	39:36	4.93e+02	5.48e+02	0.90	yes	1.04e+03	1,2,3,4,6,7,8-HpCDD	n	n

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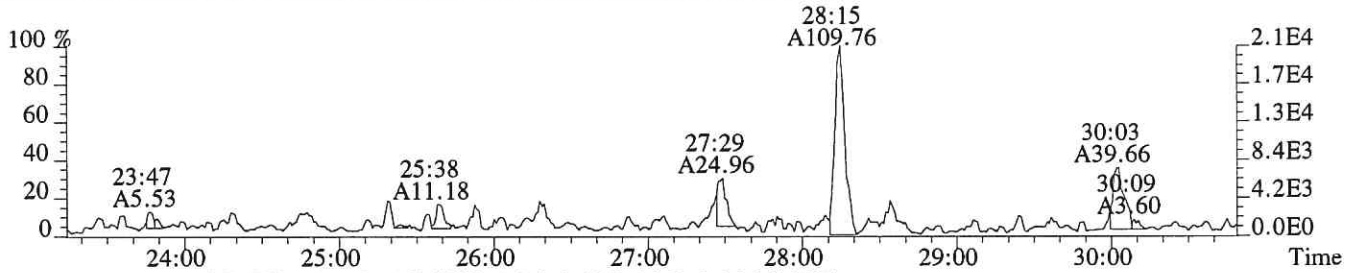
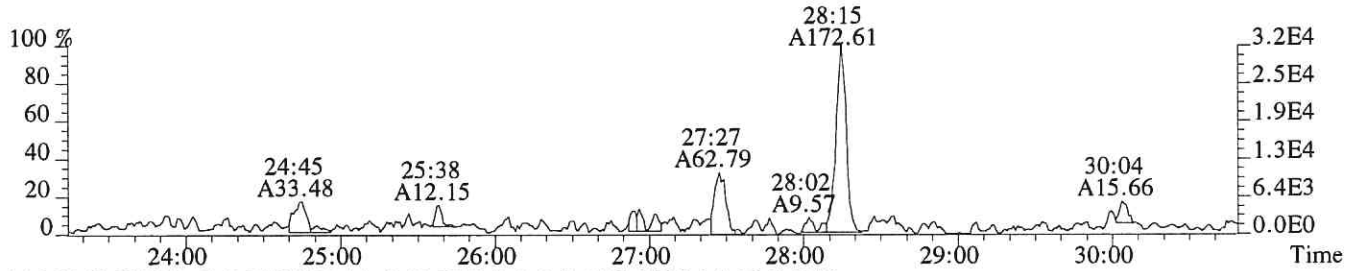
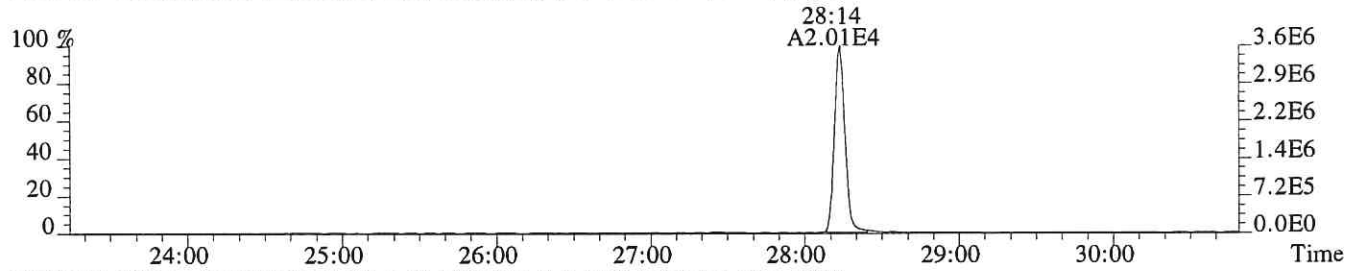
File:P519168 #1-538 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



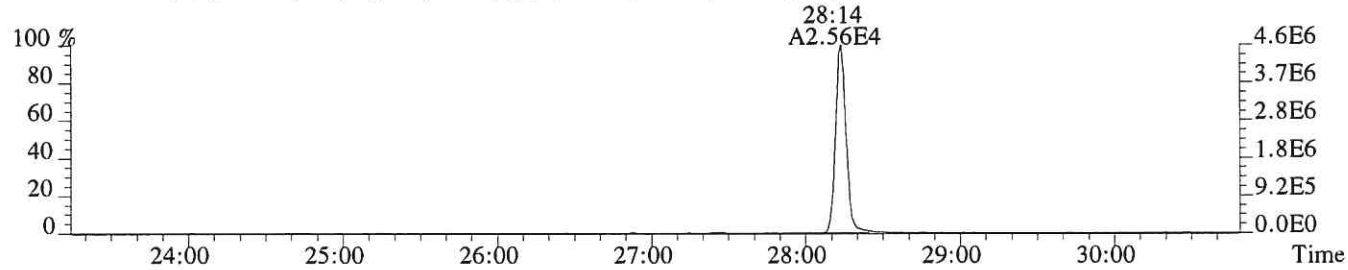
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



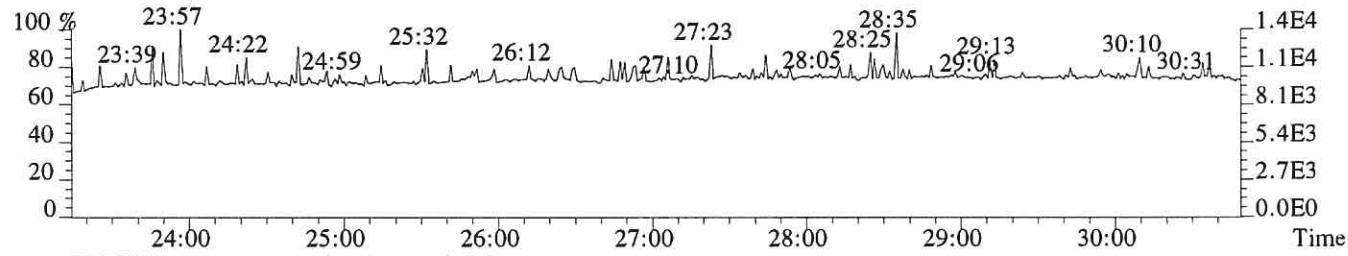
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9588.0,1.00%,F,T)



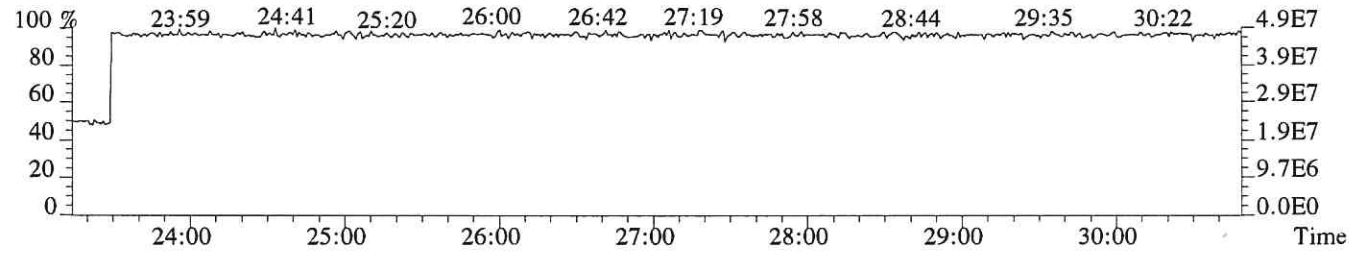
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6432.0,1.00%,F,T)



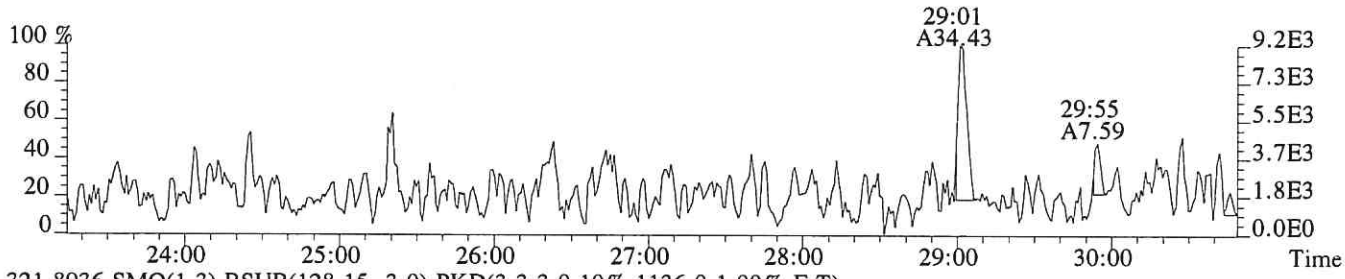
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



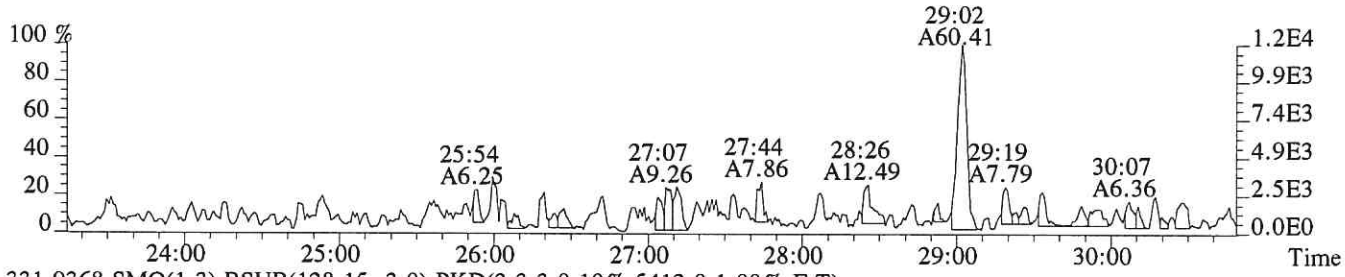
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



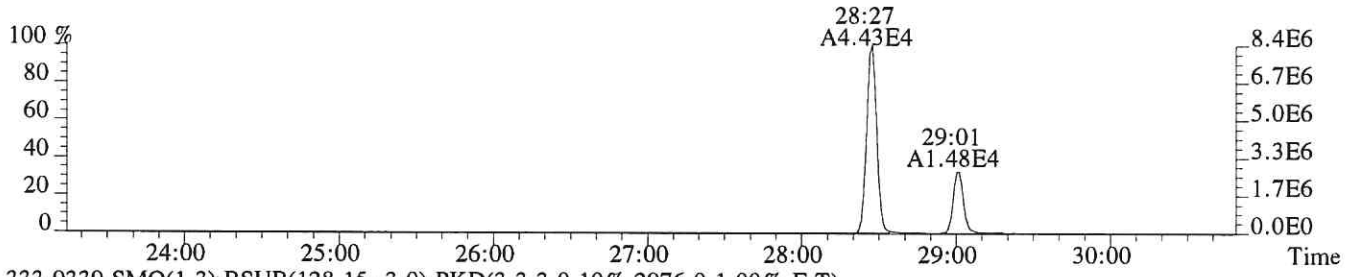
File:P519168 #1-538 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



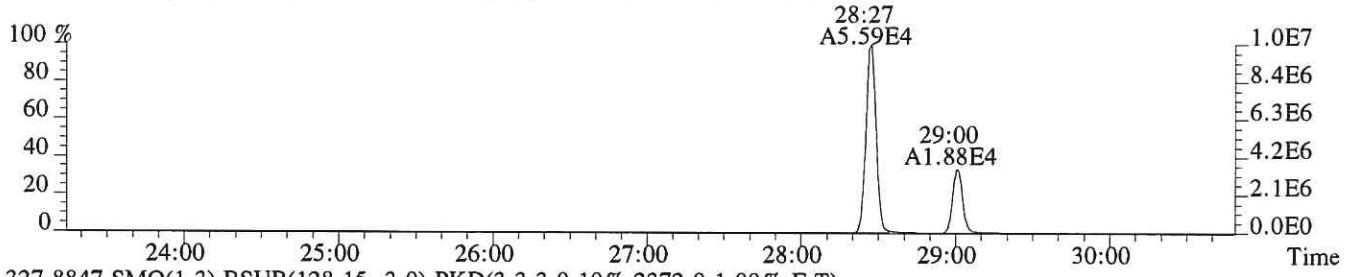
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



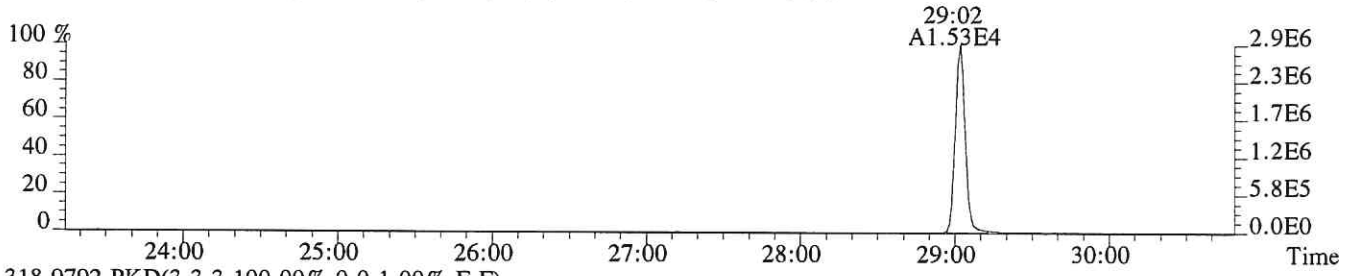
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5412.0,1.00%,F,T)



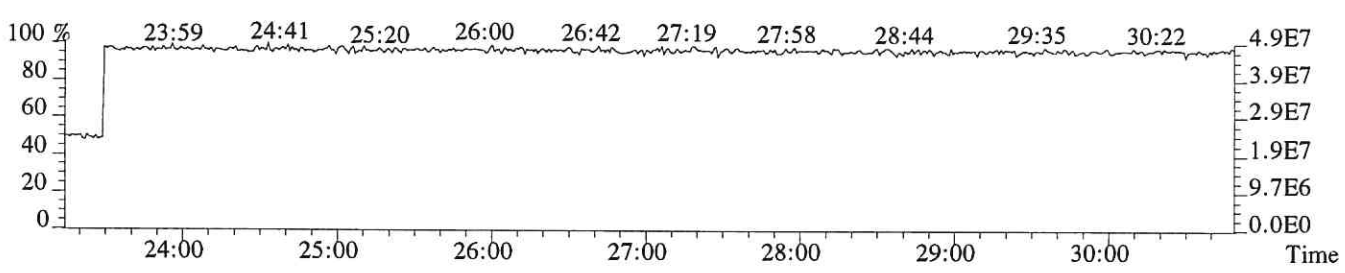
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2976.0,1.00%,F,T)



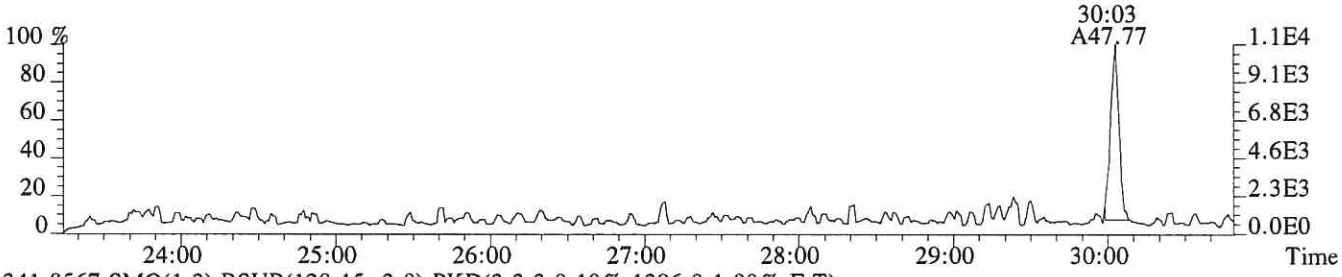
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



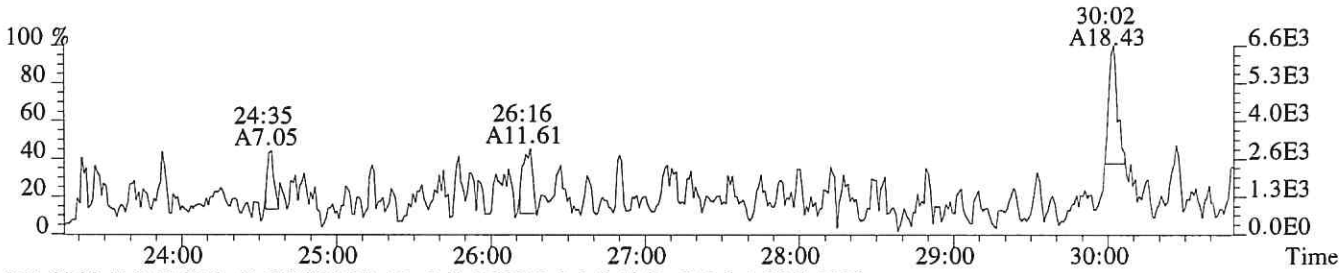
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



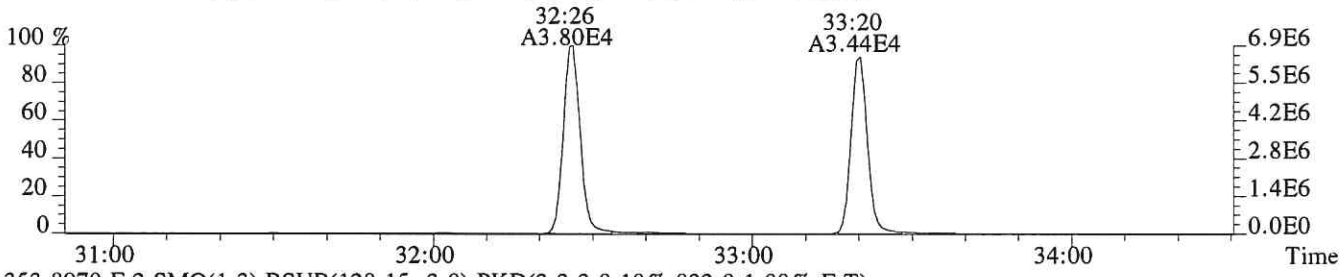
File:P519168 #1-538 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



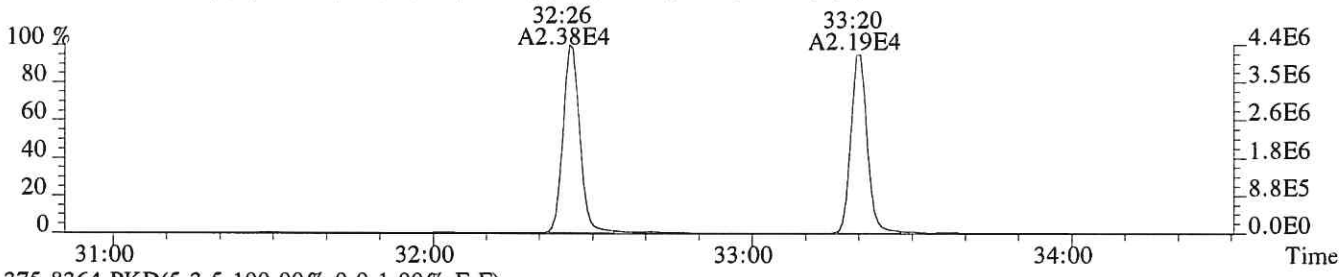
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



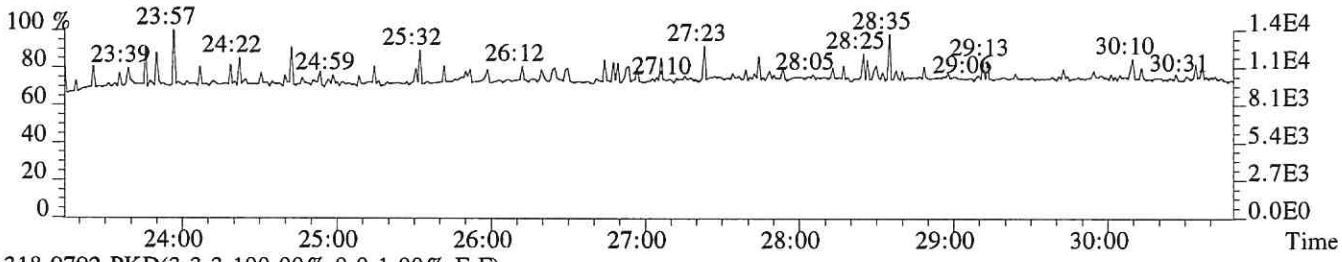
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



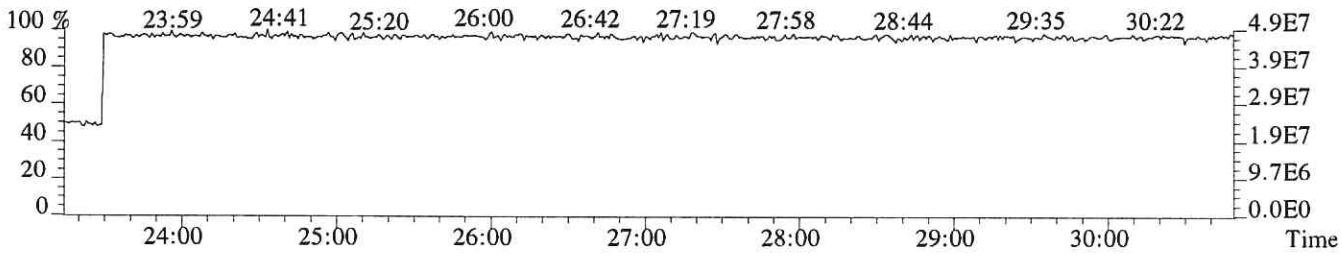
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



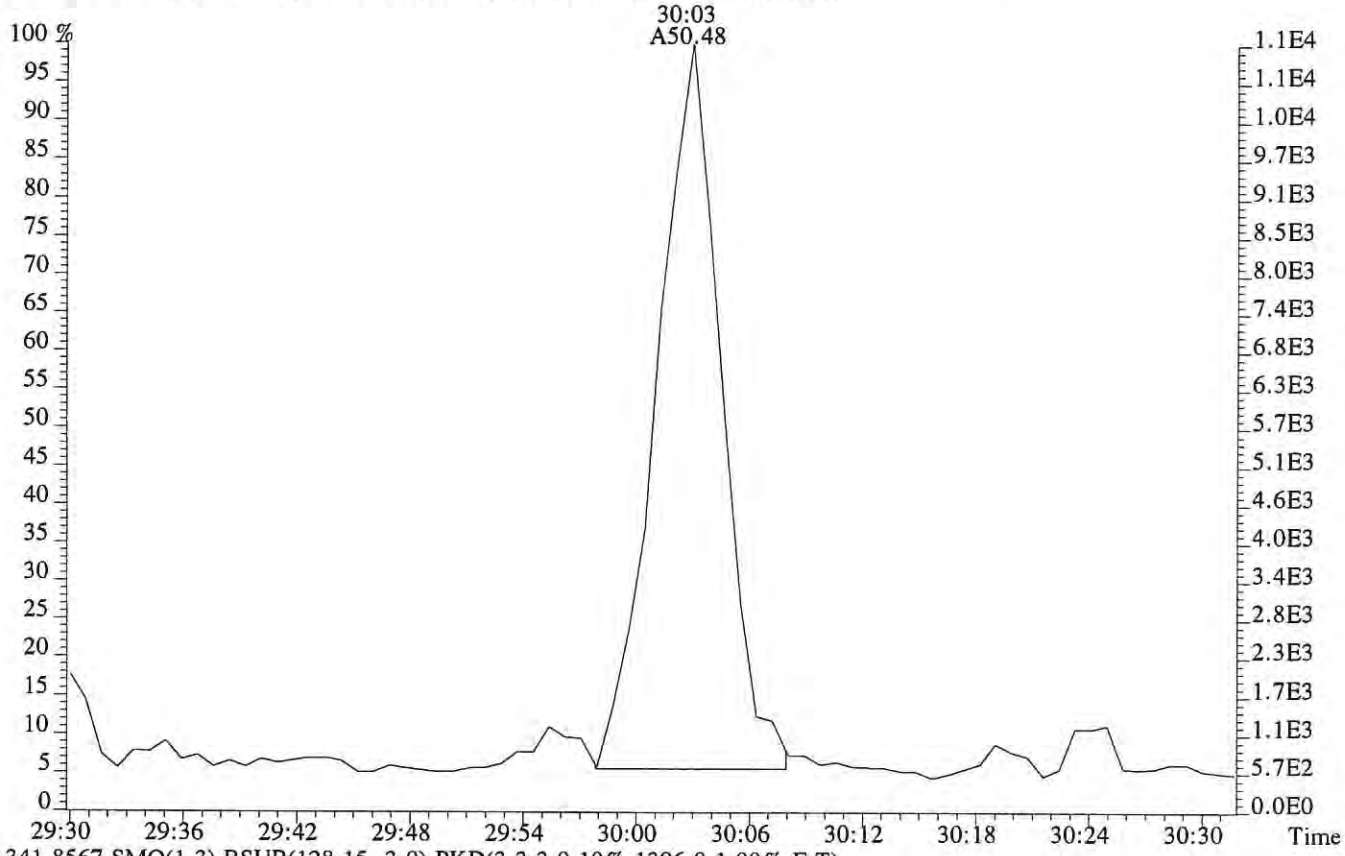
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



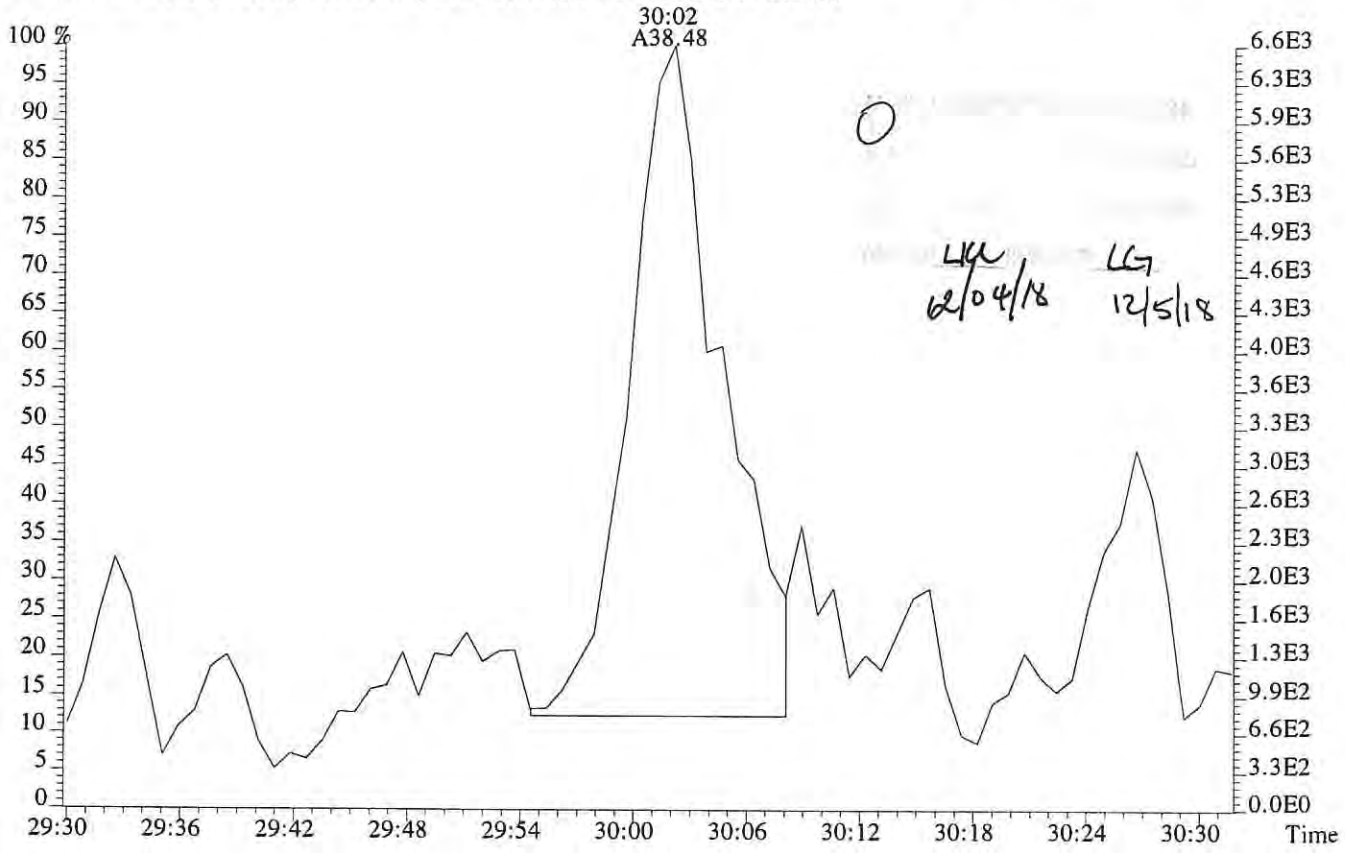
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519168 #1-538 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

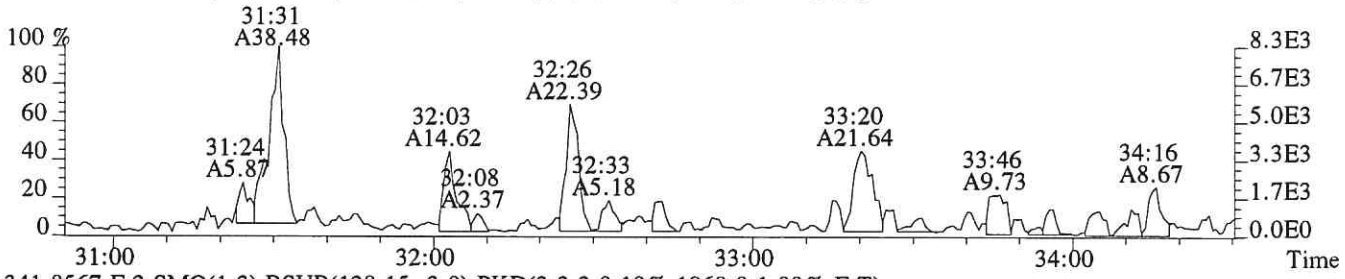


341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)

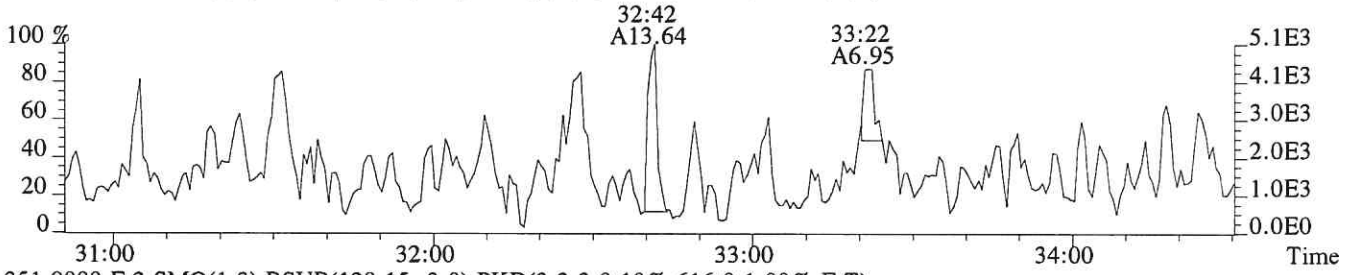


LG 12/5/18

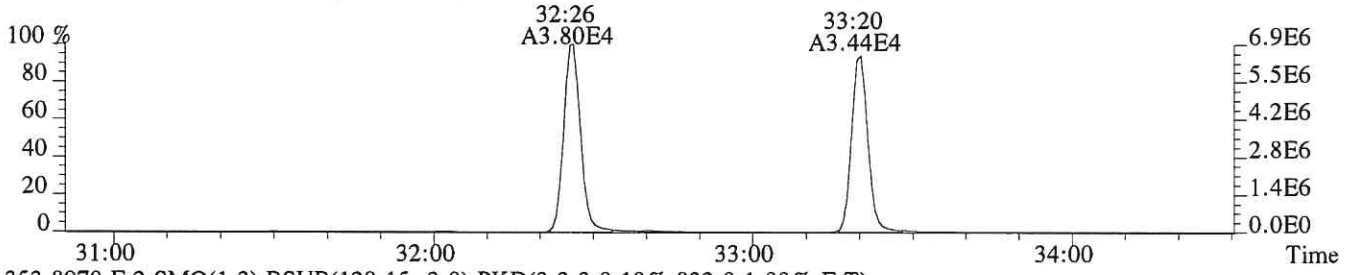
File:P519168 #1-330 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



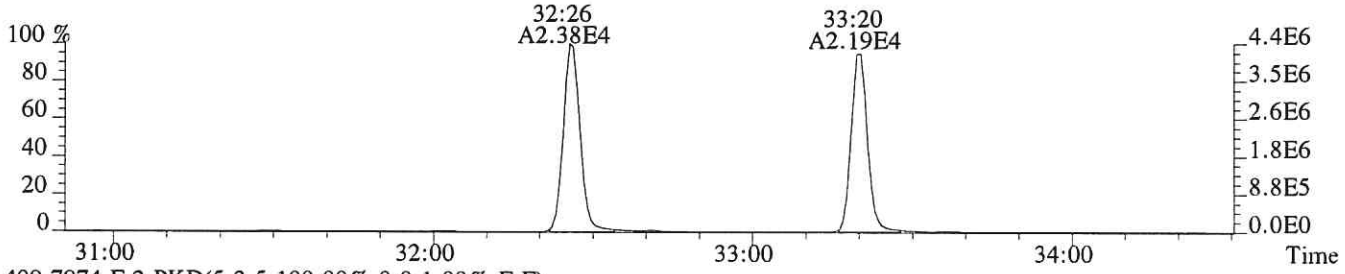
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1968.0,1.00%,F,T)



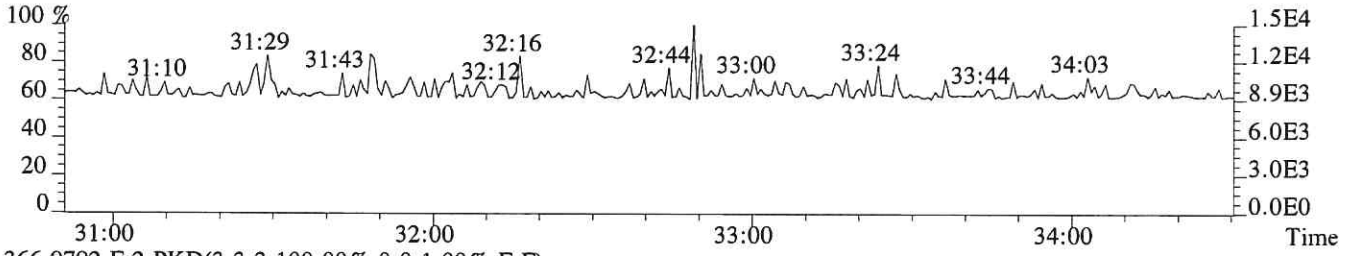
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



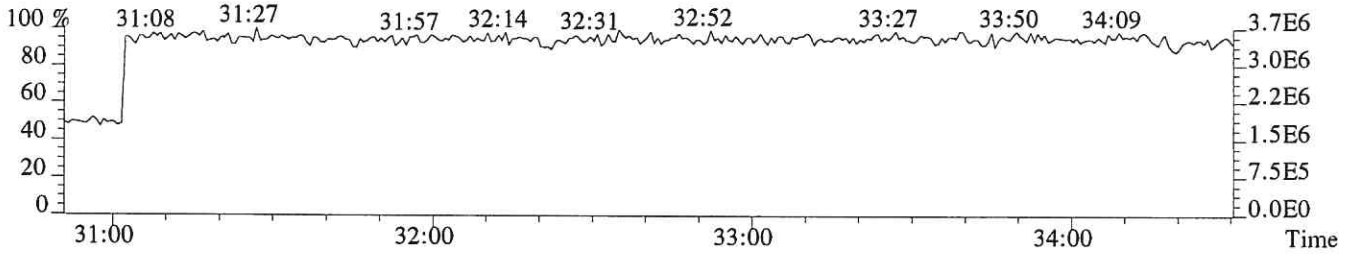
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



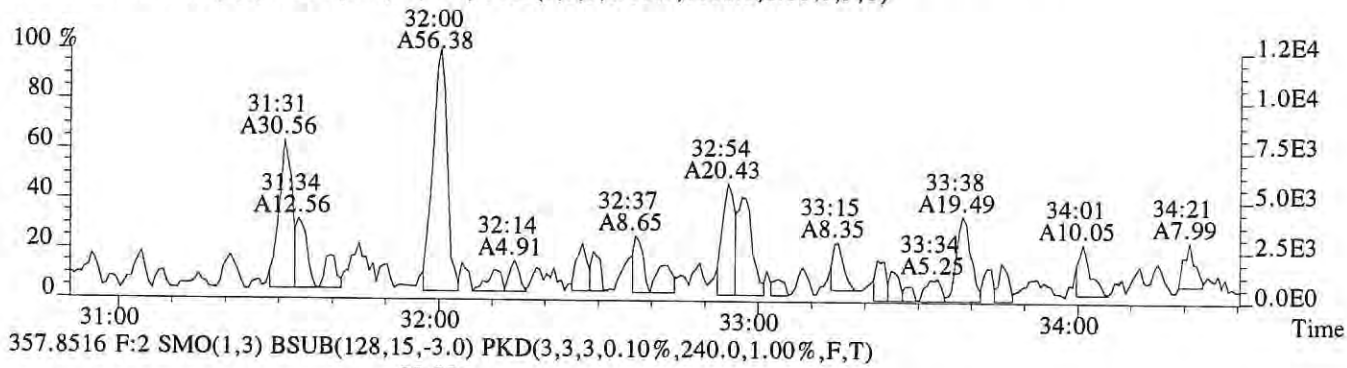
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



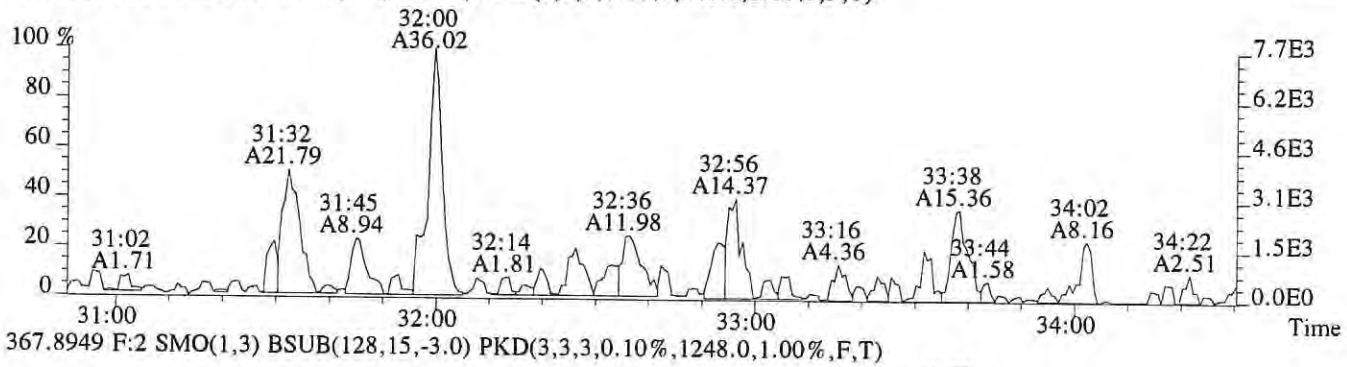
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



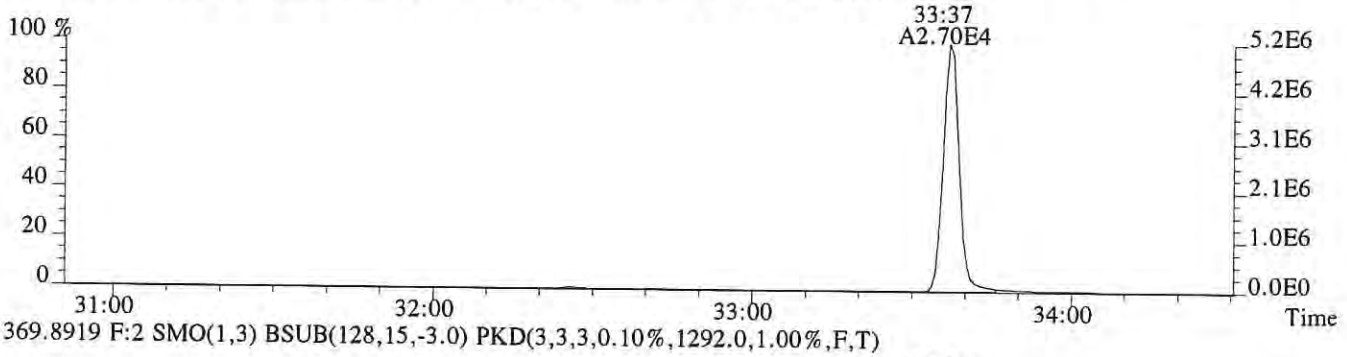
File:P519168 #1-330 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



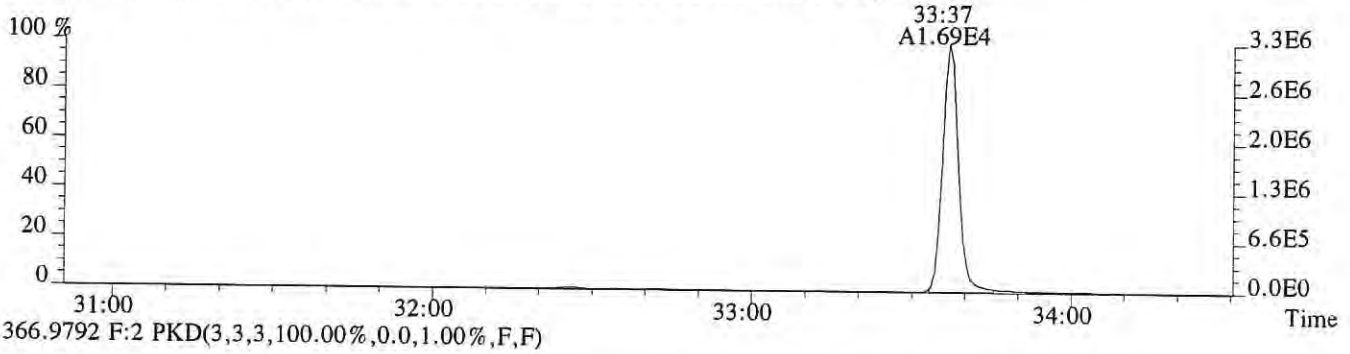
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



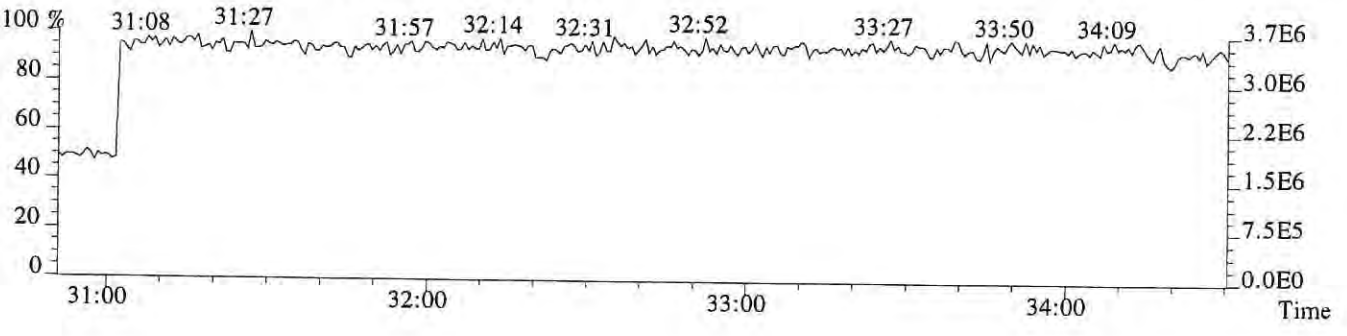
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)

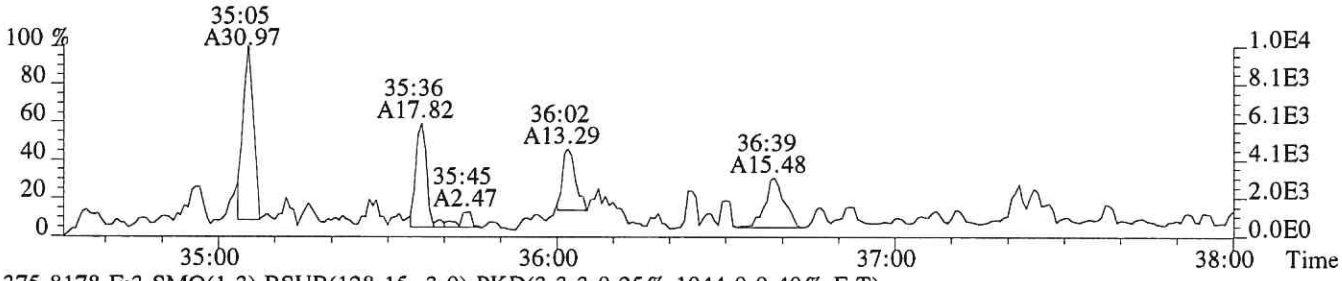


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

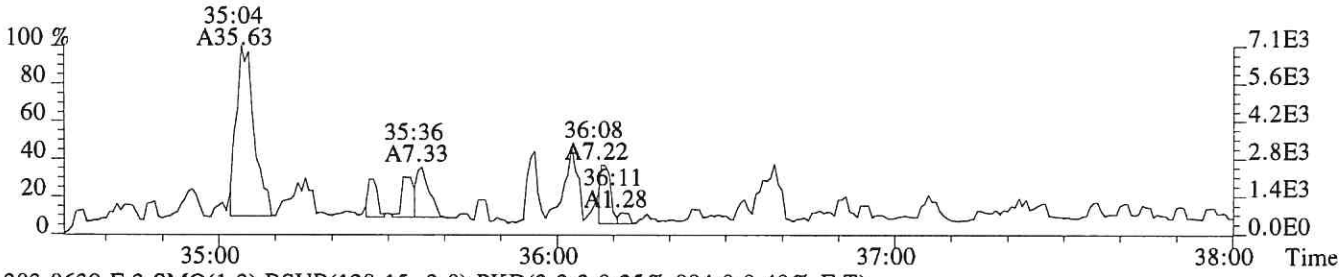


File:P519168 #1-312 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801040-005

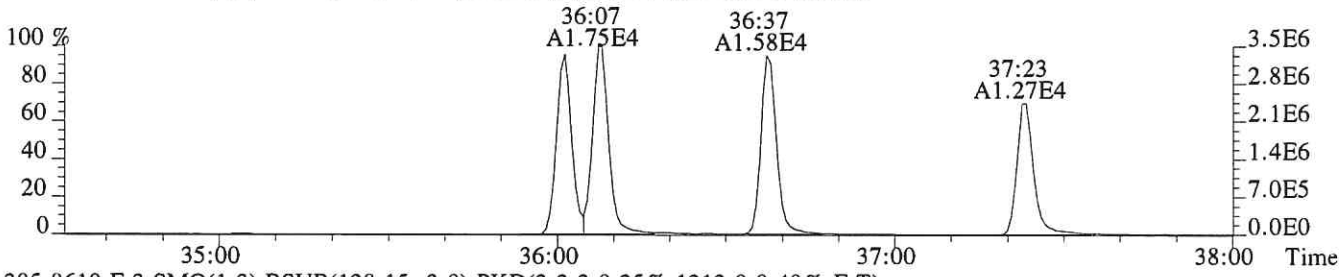
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



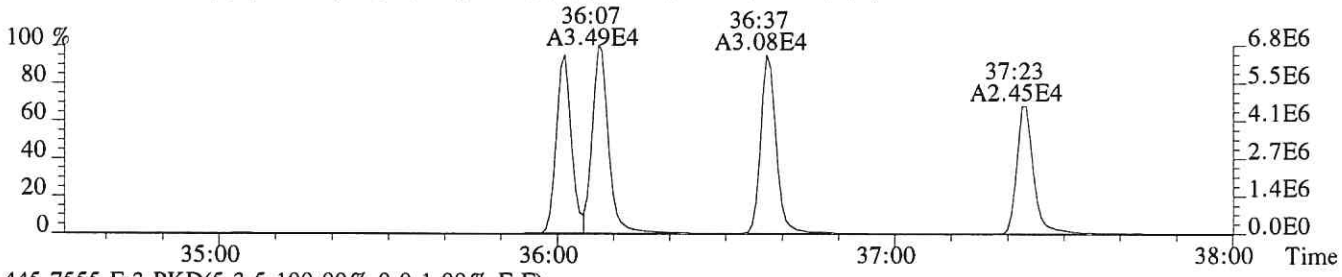
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



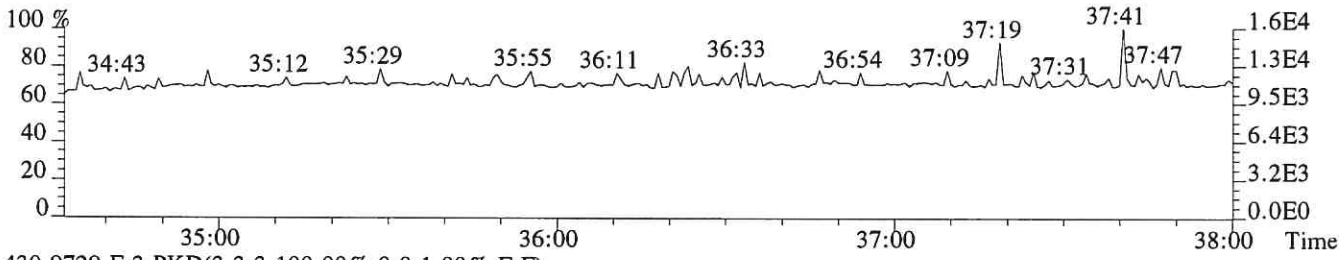
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



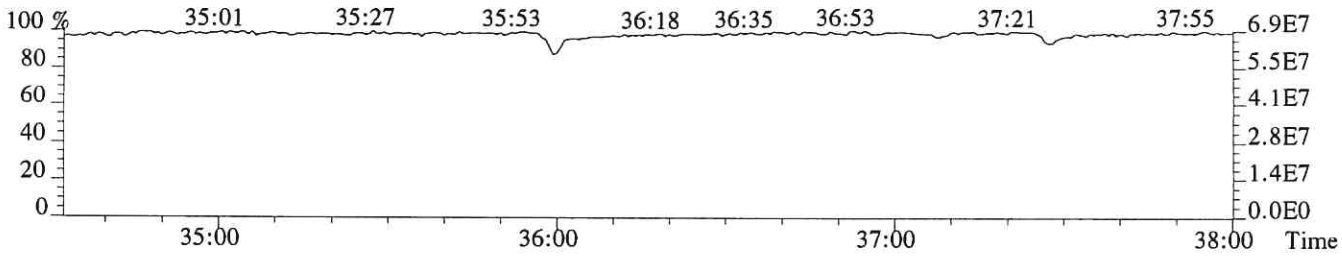
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



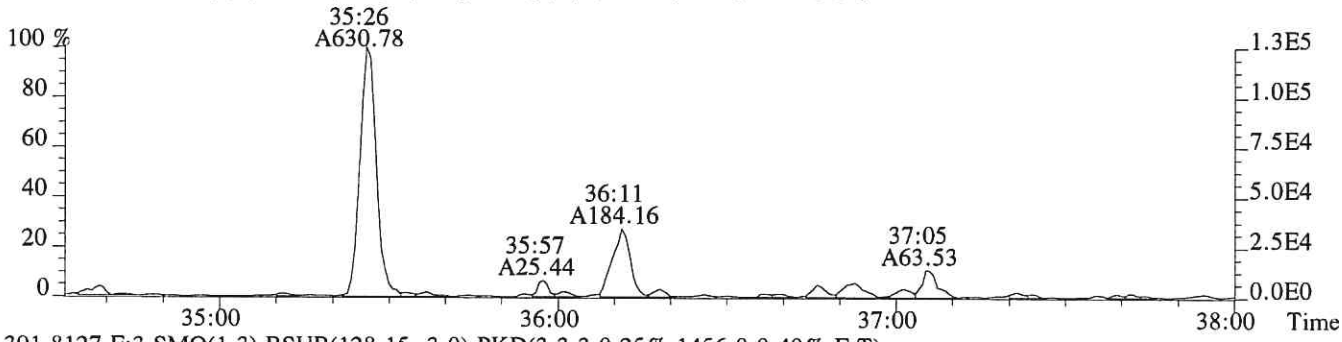
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



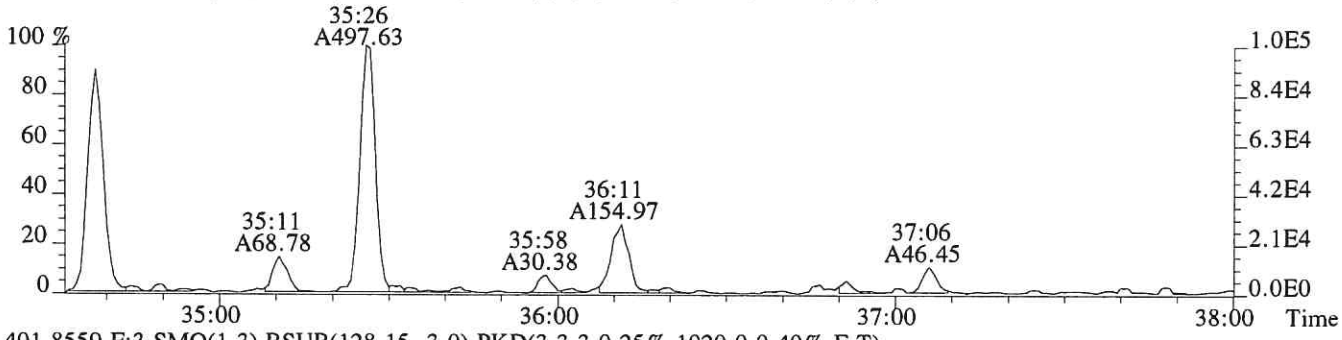
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



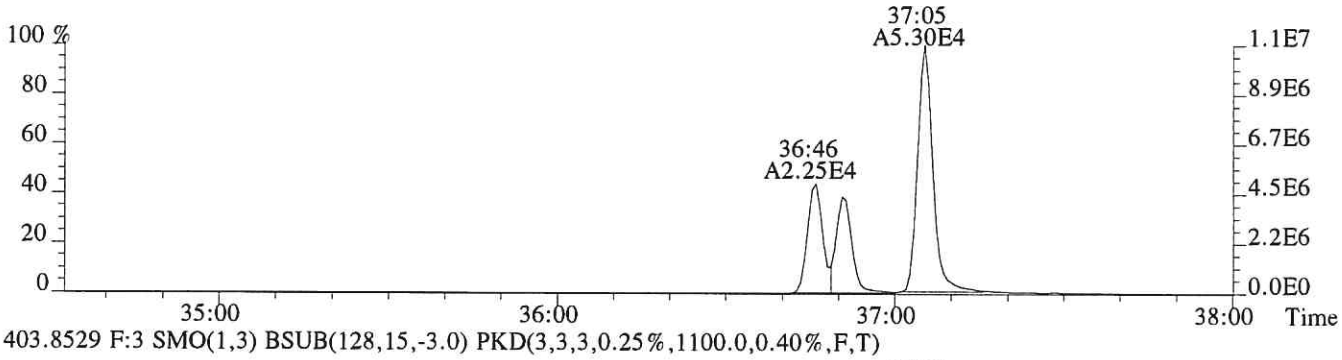
File:P519168 #1-312 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



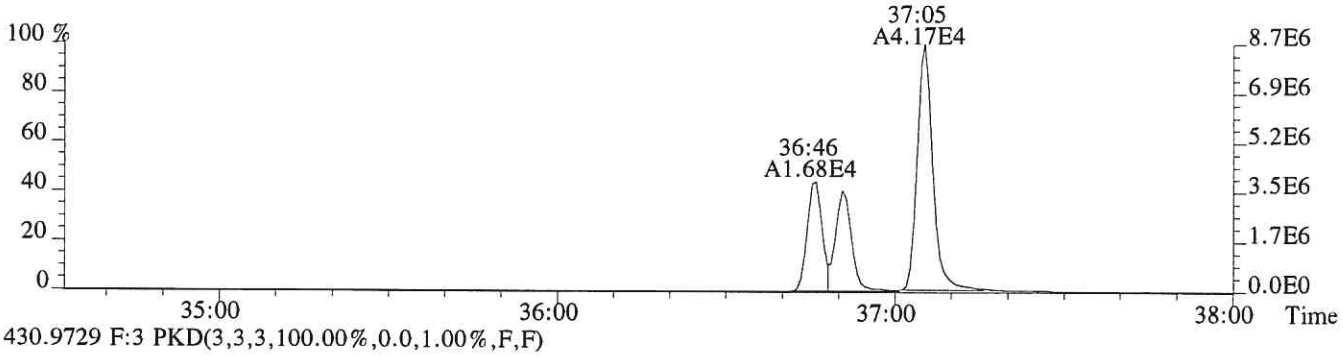
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



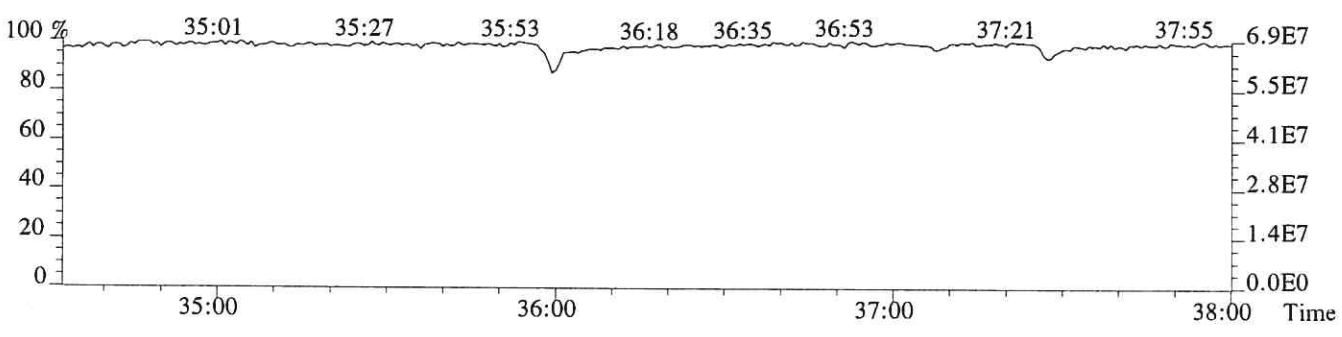
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



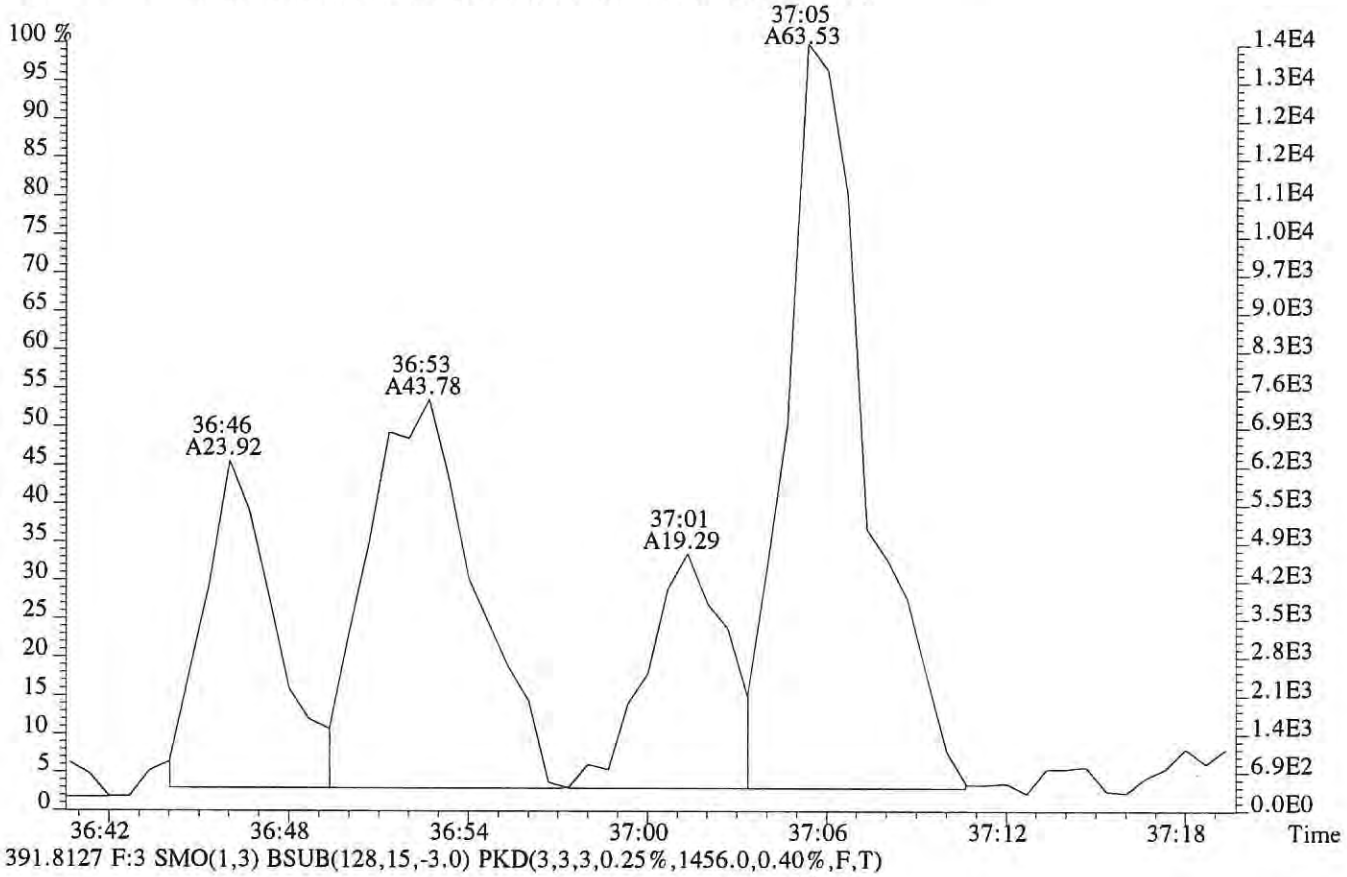
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



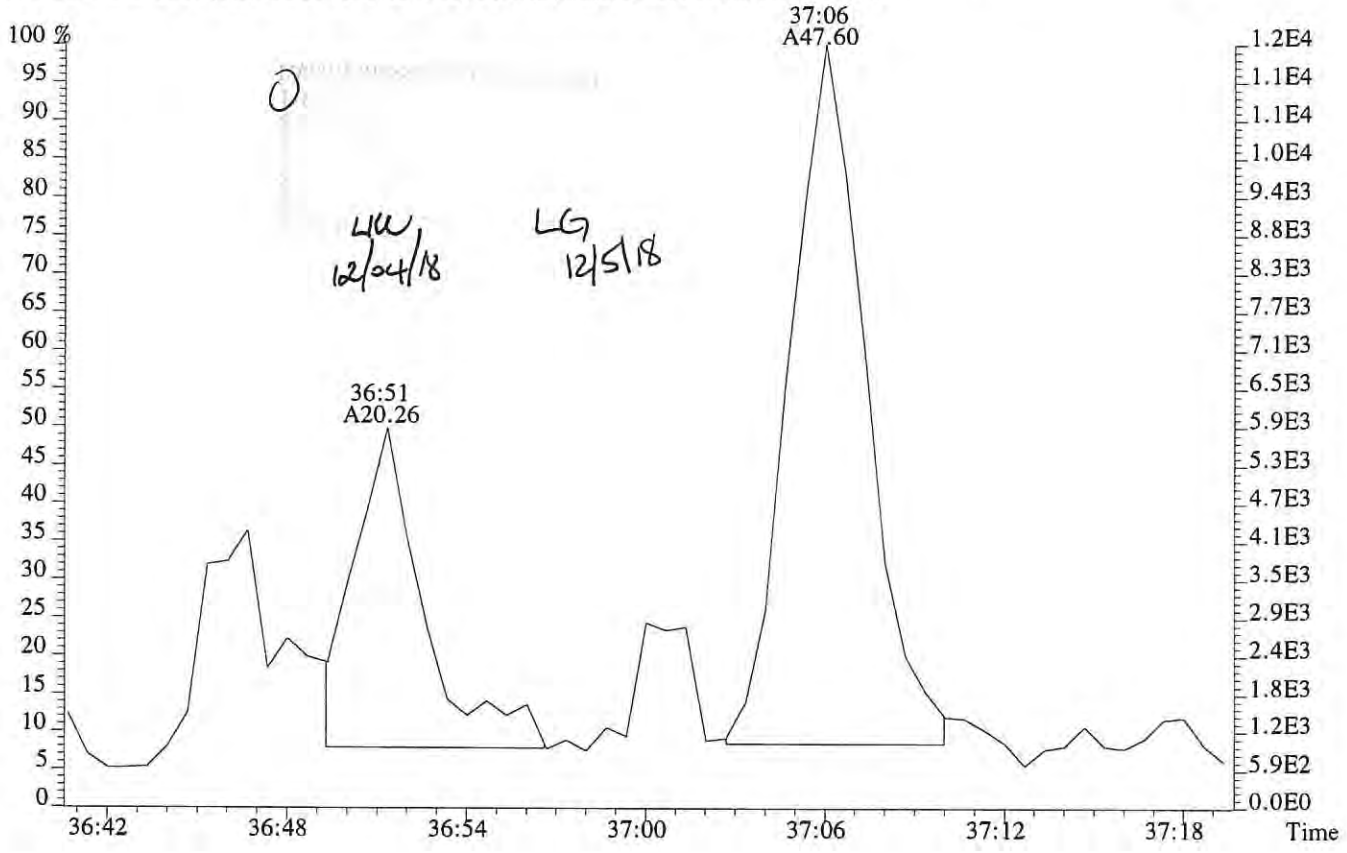
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519168 #1-312 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)

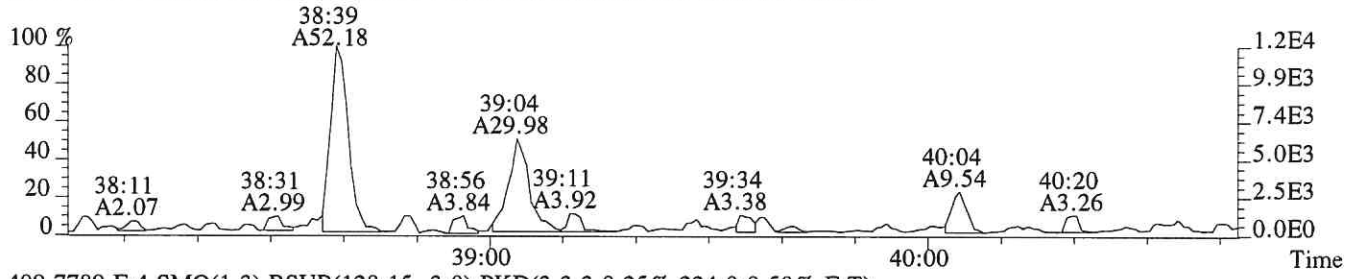


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)

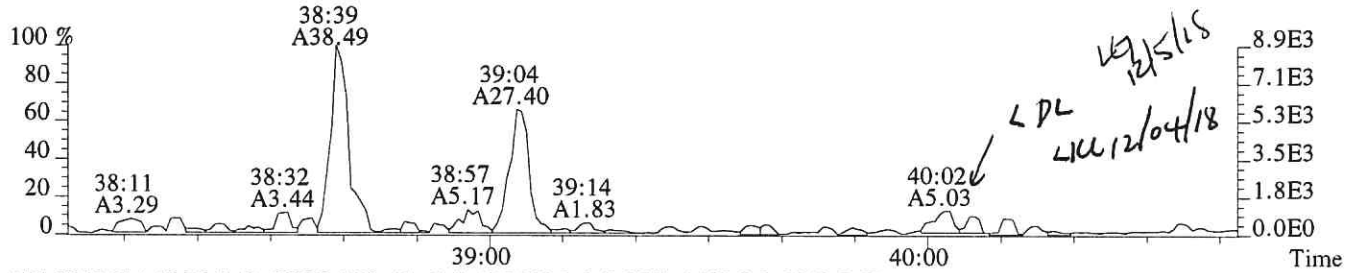


File:P519168 #1-241 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005

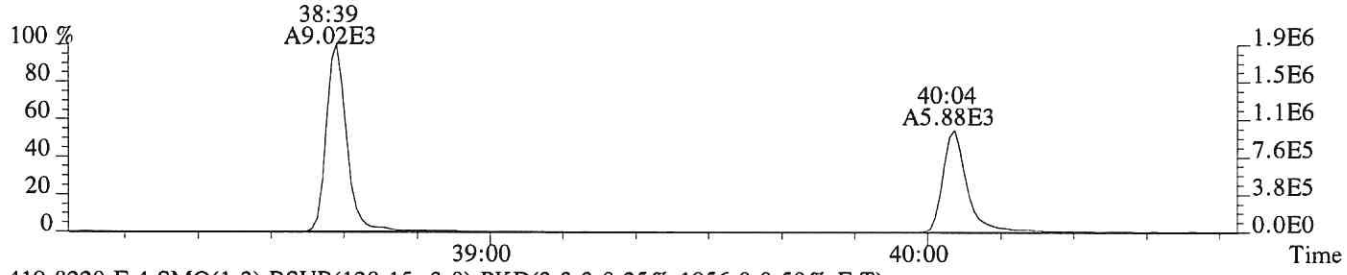
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.50%,F,T)



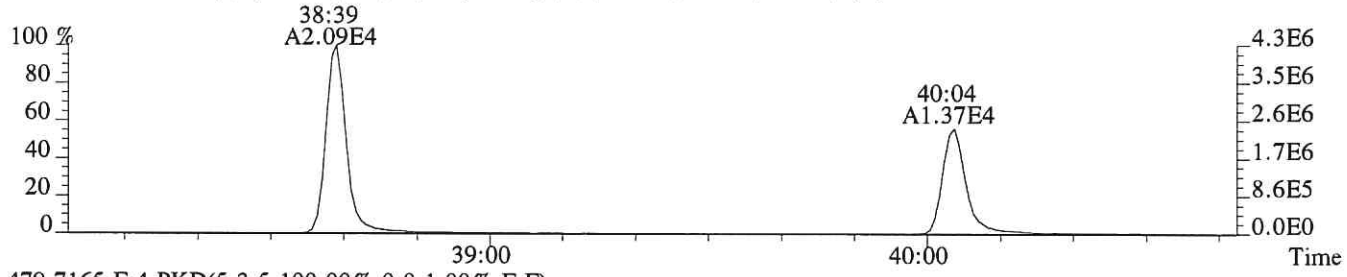
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.50%,F,T)



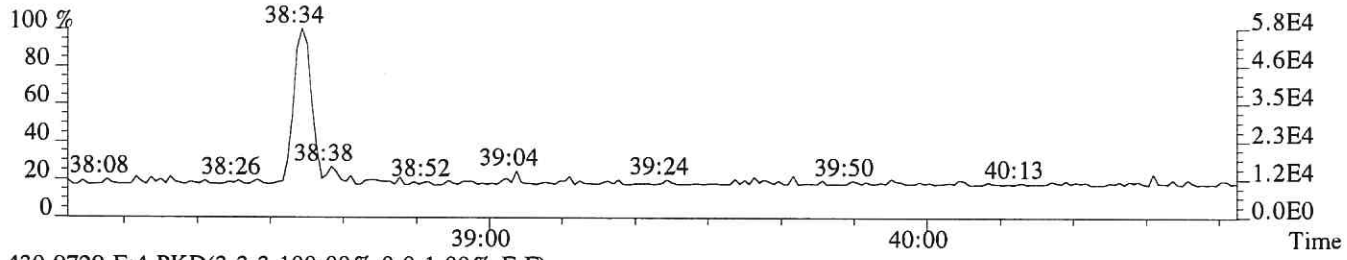
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.50%,F,T)



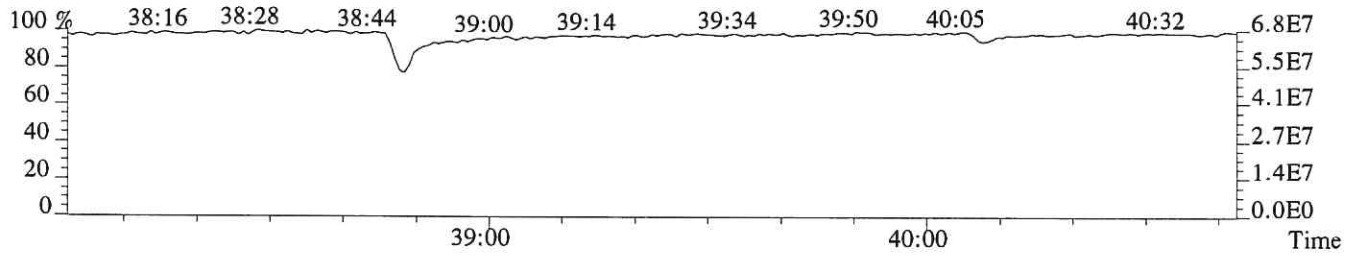
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1956.0,0.50%,F,T)



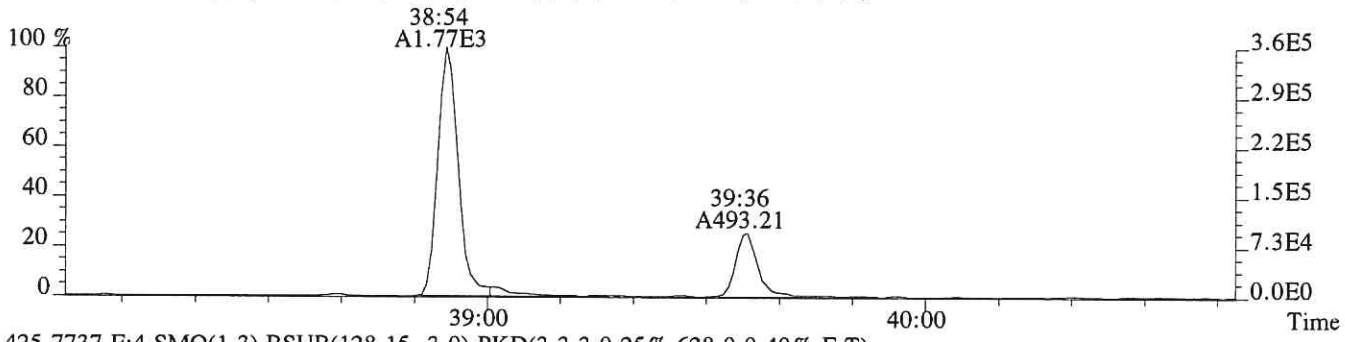
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



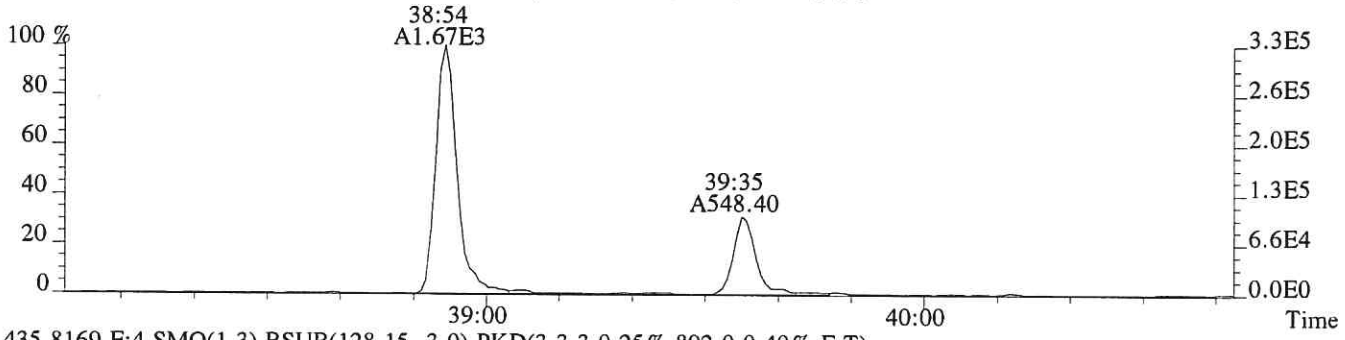
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



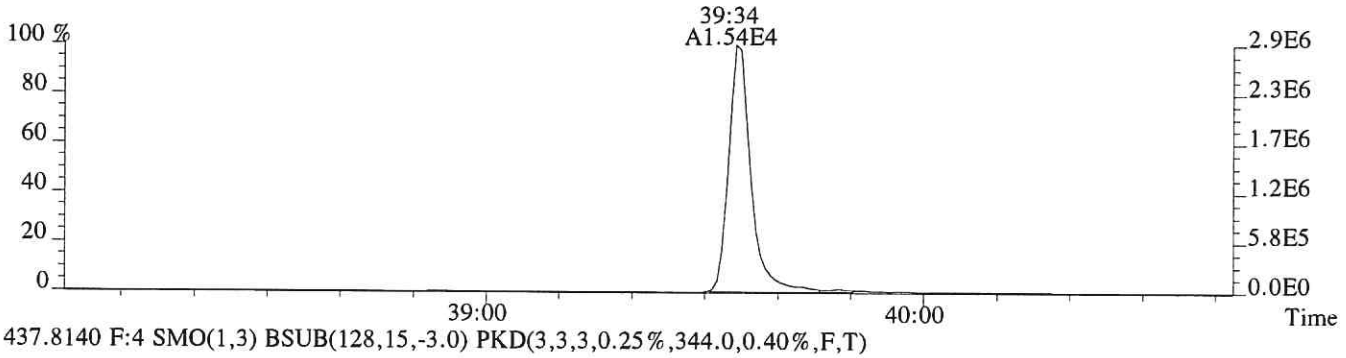
File:P519168 #1-241 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



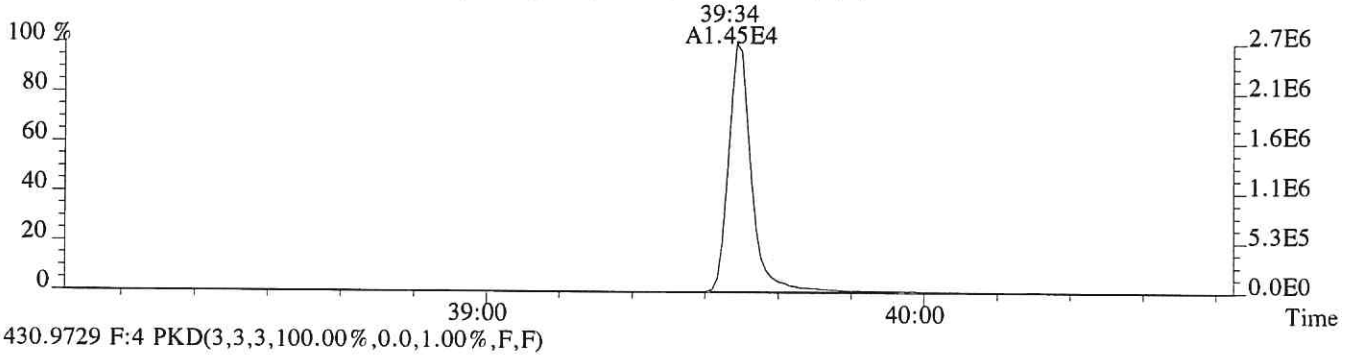
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



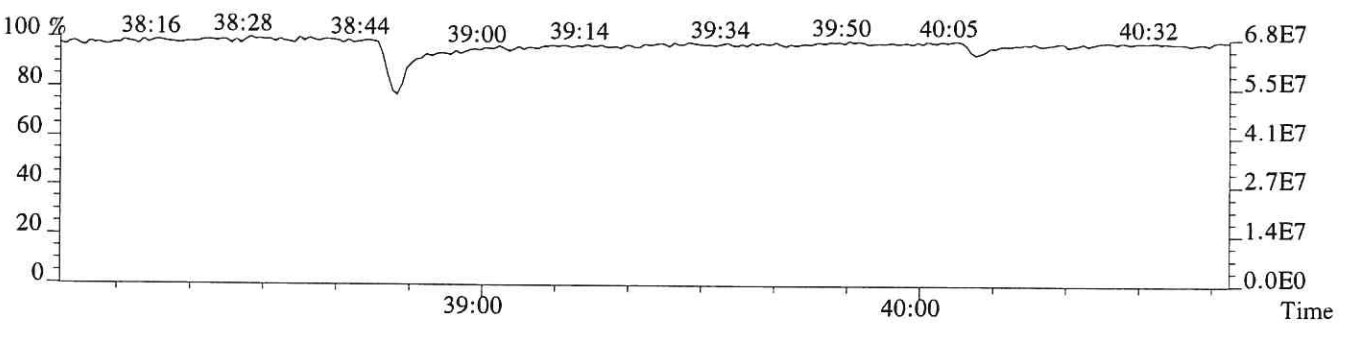
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



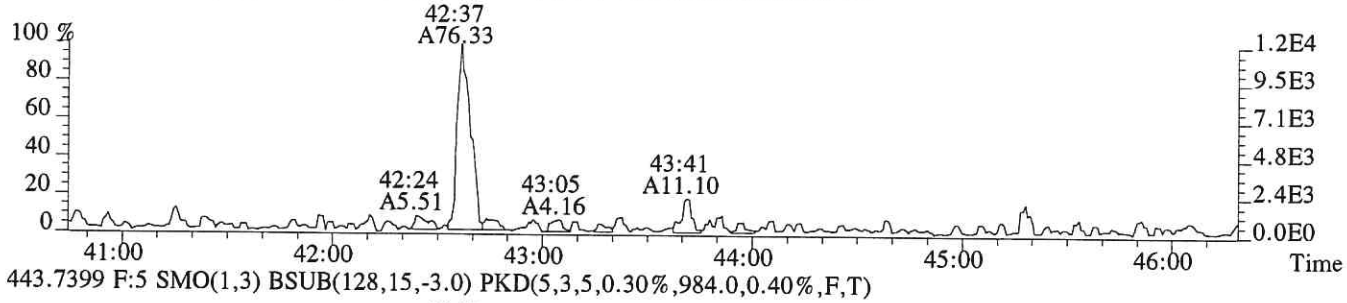
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



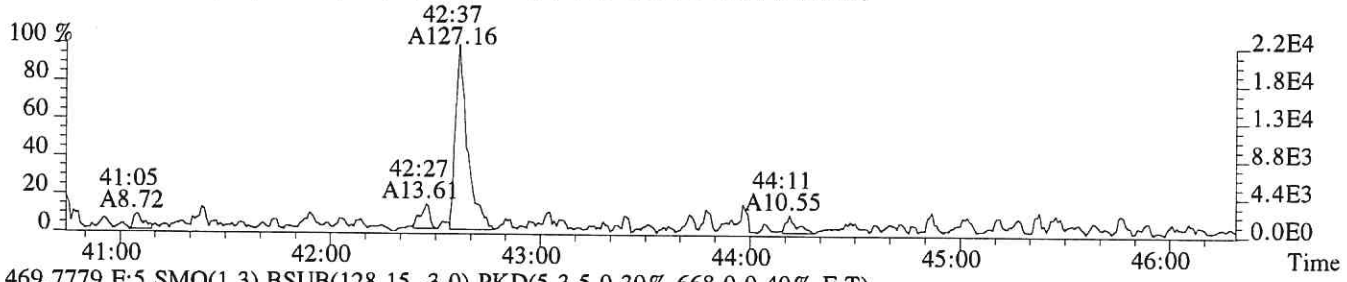
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



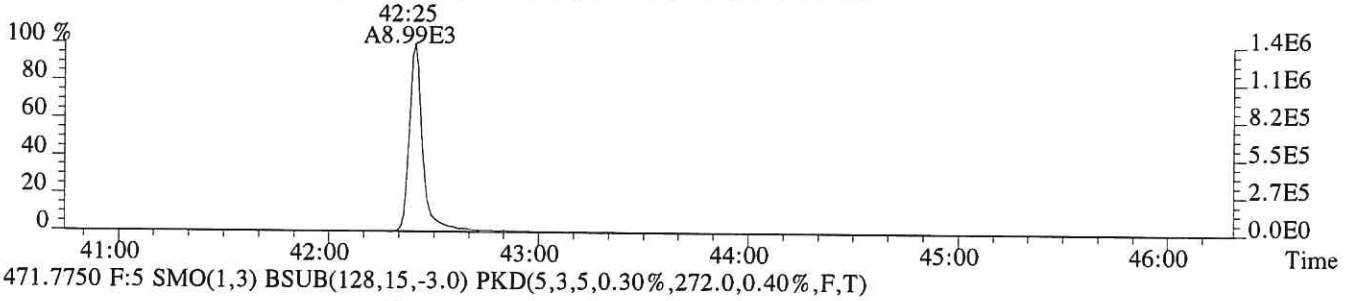
File:P519168 #1-502 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



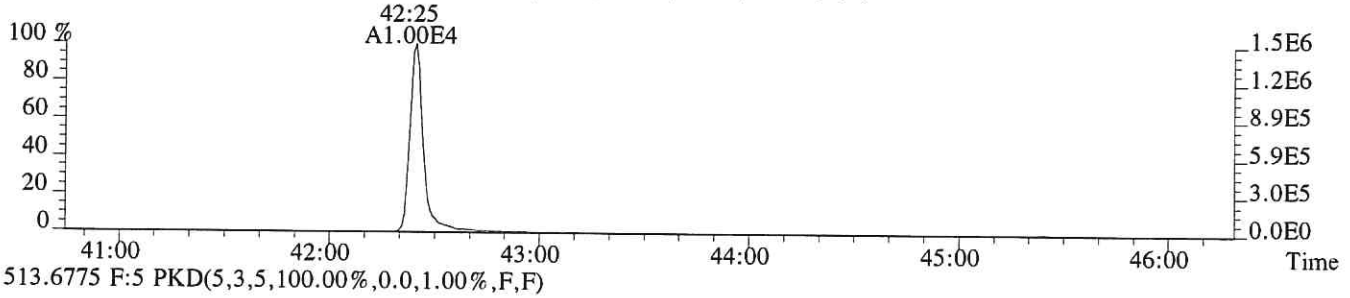
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,984.0,0.40%,F,T)



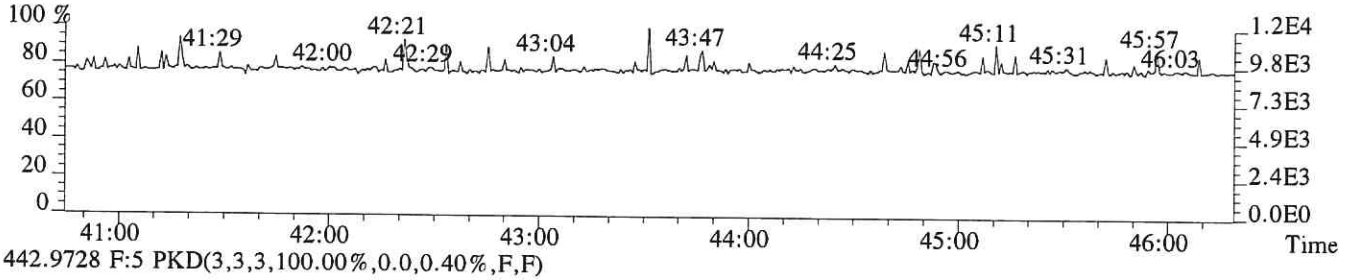
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



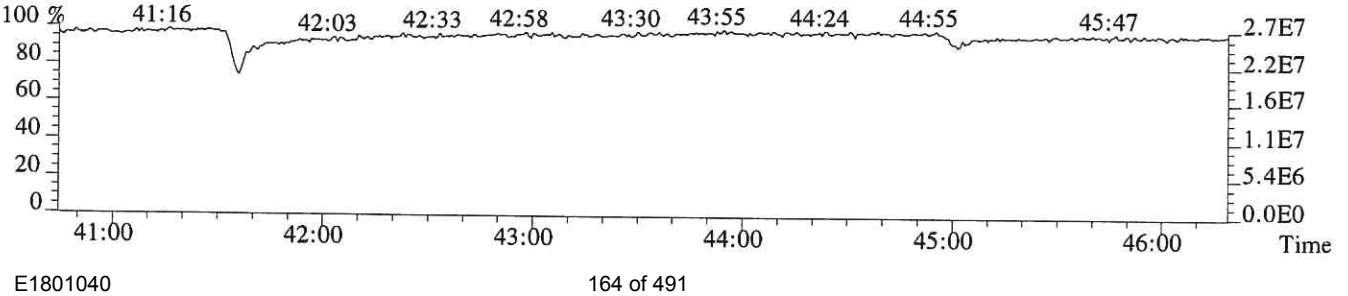
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



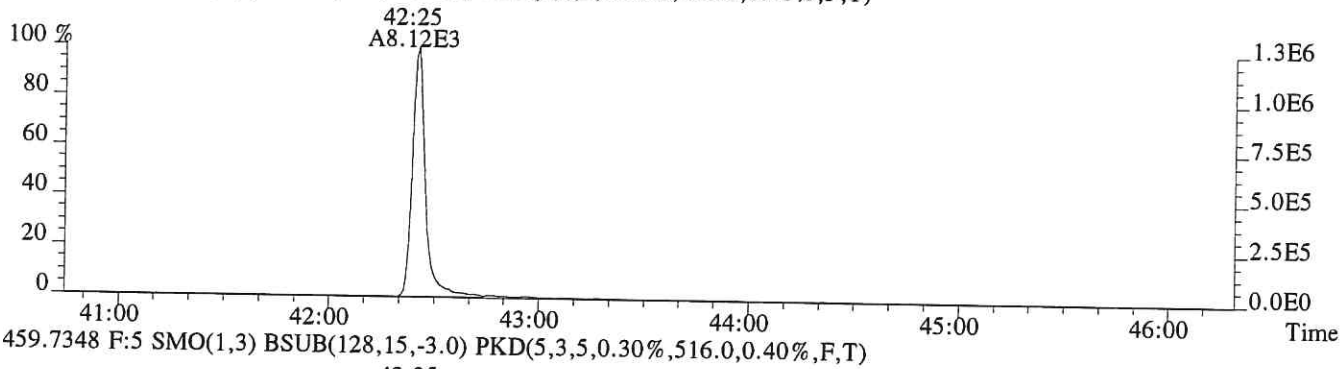
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



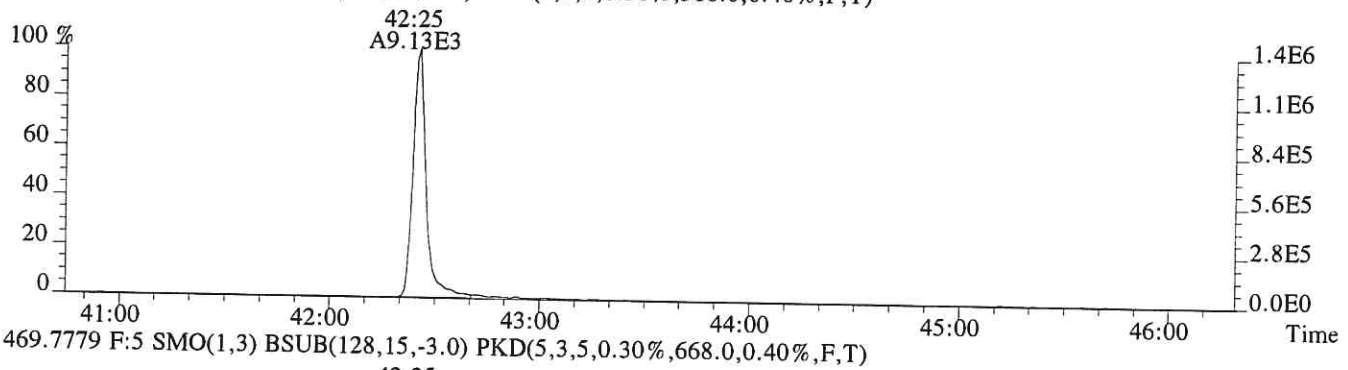
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



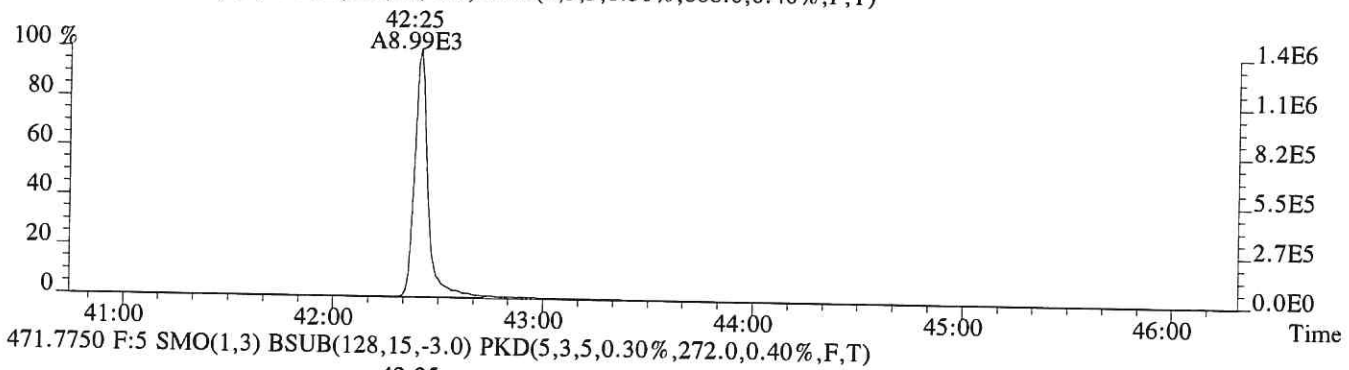
File:P519168 #1-502 Acq: 3-DEC-2018 11:09:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



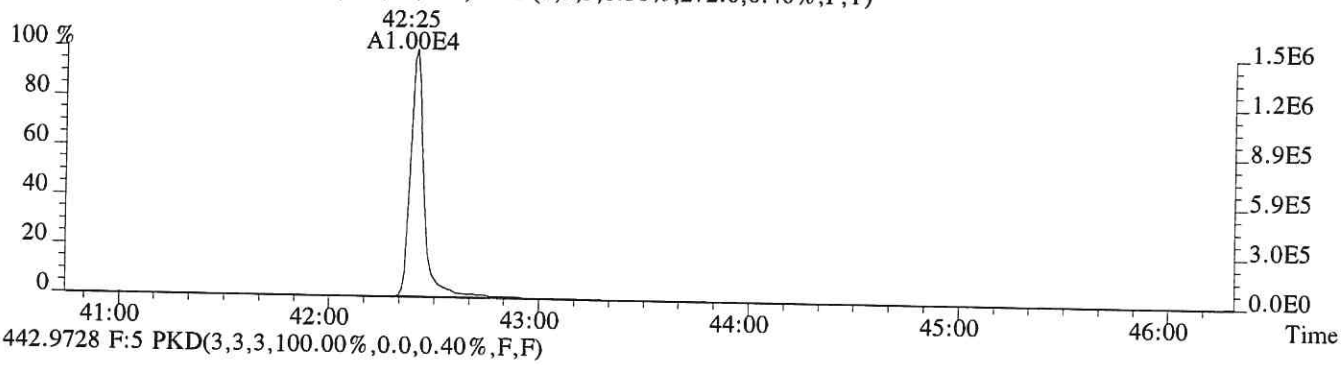
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



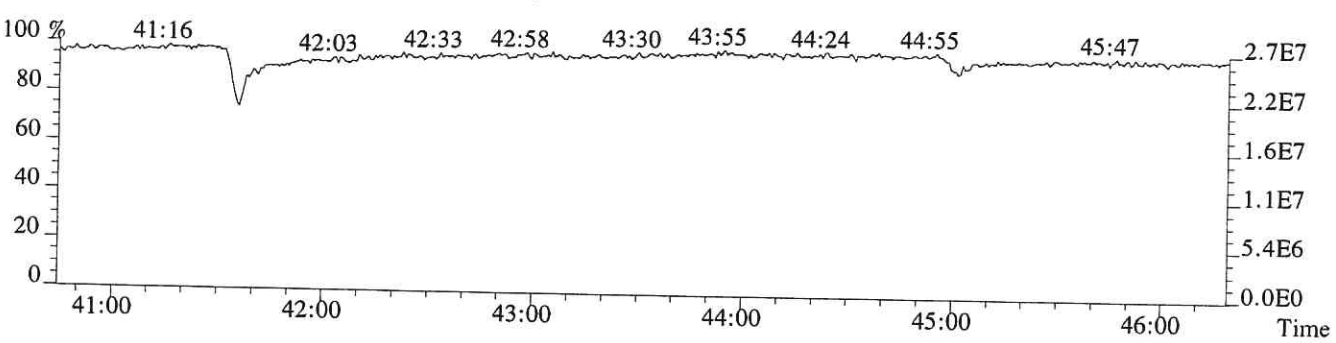
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0514

Run #14 Filename P519169 Samp: 1 Inj: 1 Acquired: 3-DEC-18 11:57:34
Processed: 4-DEC-18 15:26:46 Sample ID: E1801040-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	1.177e+02	1.769e+02	0.67	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	3.880e+01	2.654e+01	1.46	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	3.758e+01	3.846e+01	0.98	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	2.642e+01	4.278e+01	0.62	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.829e+01	1.493e+01	1.23	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.112e+02	1.292e+02	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:37	1.127e+02	1.450e+02	0.78	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:01	4.428e+01	5.916e+01	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	2.344e+01	1.883e+01	1.24	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	2.306e+01	3.299e+01	0.70	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	7.052e+01	5.046e+01	1.40	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	6.998e+01	4.597e+01	1.52	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	8.321e+02	9.103e+02	0.91	yes	no	1.025
17	Unk	OCDD	42:25	8.978e+03	9.996e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	3.293e+04	4.229e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.484e+04	3.483e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.980e+04	3.125e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.204e+04	4.203e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.397e+04	4.716e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.127e+04	4.119e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.712e+04	3.423e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.098e+04	2.507e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	6.869e+03	1.685e+04	0.41	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	2.420e+04	3.105e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	3.881e+04	2.483e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.841e+04	2.278e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.887e+04	2.326e+04	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.855e+04	1.728e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:25	9.345e+03	1.020e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.963e+04	6.238e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.506e+04	4.570e+04	1.20	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.547e+04				no	1.014

$$\text{OCDD} = \frac{(8.978e+03 + 9.996e+03) \times 4000\ \text{pg} \times 1}{(9.345e+03 + 1.020e+04) \times 10.164\ \text{g} \times 82.6/100 \times 1.118} = 416.1674\ \text{ng/kg}$$

LG 12/6/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0514

Run #14 Filename P519169 Samp: 1 Inj: 1 Acquired: 3-DEC-18 11:57:34
Processed: 4-DEC-18 15:26:46 LAB. ID: E1801040-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.40e+04	1.10e+03	2.2e+01	3.17e+04	2.34e+03	1.4e+01
2	1,2,3,7,8-PeCDF	5.81e+03	9.56e+02	6.1e+00	5.39e+03	2.09e+03	2.6e+00
3	2,3,4,7,8-PeCDF	*	9.56e+02	*	*	2.09e+03	*
4	1,2,3,4,7,8-HxCDF	6.99e+03	7.44e+02	9.4e+00	8.32e+03	9.72e+02	8.6e+00
5	1,2,3,6,7,8-HxCDF	4.92e+03	7.44e+02	6.6e+00	1.12e+04	9.72e+02	1.2e+01
6	2,3,4,6,7,8-HxCDF	4.88e+03	7.44e+02	6.6e+00	3.26e+03	9.72e+02	3.4e+00
7	1,2,3,7,8,9-HxCDF	*	7.44e+02	*	*	9.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	2.11e+04	6.24e+02	3.4e+01	2.64e+04	5.68e+02	4.6e+01
9	1,2,3,4,7,8,9-HpCDF	*	6.24e+02	*	*	5.68e+02	*
10	OCDF	2.05e+04	2.72e+02	7.5e+01	2.30e+04	1.19e+03	1.9e+01
11	2,3,7,8-TCDD	1.08e+04	2.91e+03	3.7e+00	1.04e+04	1.58e+03	6.6e+00
12	1,2,3,7,8-PeCDD	4.59e+03	6.64e+02	6.9e+00	3.93e+03	6.00e+02	6.5e+00
13	1,2,3,4,7,8-HxCDD	5.18e+03	1.06e+03	4.9e+00	6.72e+03	2.04e+03	3.3e+00
14	1,2,3,6,7,8-HxCDD	1.30e+04	1.06e+03	1.2e+01	1.07e+04	2.04e+03	5.3e+00
15	1,2,3,7,8,9-HxCDD	1.54e+04	1.06e+03	1.4e+01	9.45e+03	2.04e+03	4.6e+00
16	1,2,3,4,6,7,8-HpCDD	1.59e+05	2.44e+02	6.5e+02	1.69e+05	8.24e+02	2.0e+02
17	OCDD	1.34e+06	2.32e+02	5.8e+03	1.49e+06	6.36e+02	2.3e+03
18	13C-2,3,7,8-TCDF	5.93e+06	1.49e+04	4.0e+02	7.59e+06	6.66e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.01e+07	5.72e+02	1.8e+04	6.44e+06	5.24e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	9.65e+06	5.72e+02	1.7e+04	6.07e+06	5.24e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	4.59e+06	1.11e+03	4.1e+03	8.91e+06	1.24e+03	7.2e+03
22	13C-1,2,3,6,7,8-HxCDF	4.80e+06	1.11e+03	4.3e+03	9.28e+06	1.24e+03	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	4.49e+06	1.11e+03	4.0e+03	8.77e+06	1.24e+03	7.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.40e+06	1.11e+03	3.1e+03	6.77e+06	1.24e+03	5.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.25e+06	2.50e+03	9.0e+02	5.09e+06	4.79e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.26e+06	2.50e+03	5.0e+02	3.02e+06	4.79e+03	6.3e+02
27	13C-2,3,7,8-TCDD	4.71e+06	9.90e+03	4.8e+02	6.03e+06	3.21e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	7.63e+06	8.92e+02	8.5e+03	4.85e+06	1.16e+03	4.2e+03
29	13C-1,2,3,4,7,8-HxCDD	6.31e+06	1.76e+03	3.6e+03	5.03e+06	9.04e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	5.90e+06	1.76e+03	3.4e+03	4.76e+06	9.04e+02	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.51e+06	3.92e+02	9.0e+03	3.25e+06	3.24e+02	1.0e+04
32	13C-OCDD	1.41e+06	3.32e+02	4.2e+03	1.55e+06	3.76e+02	4.1e+03
33	13C-1,2,3,4-TCDD	9.41e+06	9.90e+03	9.5e+02	1.18e+07	3.21e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.15e+07	1.76e+03	6.6e+03	9.11e+06	9.04e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	4.84e+06	1.54e+03	3.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.912e{+}03 + 1.580e{+}03\ ) \times 2000}{(4.712e{+}06 + 6.027e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0514

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519169 Sample:1 Injection:1 Function:1

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 303.9020 305.8990 Tot Response: 2.95e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:14	1.18e+02	1.77e+02 0.67	yes	2.95e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0514

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519169 Sample:1 Injection:1 Function:1

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 319.8970 321.8940 Tot Response: 1.03e+02 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:01	4.43e+01	5.92e+01	0.75	yes	1.03e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0514

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519169 Sample:1 Injection:1 Function:2

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 339.8600 341.8570 Tot Response: 6.53e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:28	3.88e+01	2.65e+01	1.46	yes	6.53e+01 1,2,3,7,8-PeCDF	y	y

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Peak List Summary

CLIENT ID.
SL0514

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519169 Sample:1 Injection:1 Function:2

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 355.8550 357.8520 Tot Response: 1.44e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	6.01e+01	4.56e+01	1.32	yes	1.06e+02		n	n
2	32:57	2.40e+01	1.42e+01	1.69	yes	3.81e+01		n	y

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Peak List Summary

CLIENT ID.
SL0514

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519169 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 373.8210 375.8180 Tot Response: 3.15e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:04	8.23e+01	6.72e+01 1.22	yes	1.50e+02		n	n
2	35:35	7.43e+01	5.84e+01 1.27	yes	1.33e+02		n	n
3	36:39	1.83e+01	1.49e+01 1.23	yes	3.32e+01	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0514

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519169 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 389.8160 391.8130 Tot Response: 1.69e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	6.28e+02	4.94e+02	1.27	yes	1.12e+03		n	n
2	36:11	2.45e+02	2.04e+02	1.20	yes	4.49e+02		n	n
3	36:51	7.05e+01	5.05e+01	1.40	yes	1.21e+02	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0514

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519169 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 407.7820 409.7790 Tot Response: 3.19e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:04	1.64e+02	1.56e+02 1.05	yes	3.19e+02		n	n

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Peak List Summary

CLIENT ID.
SL0514

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519169 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 11:57:34 Processed: 4-DEC-18 15:26:46

Mass: 423.7770 425.7740 Tot Response: 6.29e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	2.33e+03	2.22e+03 1.05	yes	4.55e+03		n	n
2	39:35	8.32e+02	9.10e+02 0.91	yes	1.74e+03	1,2,3,4,6,7,8-HpCDD	n	n

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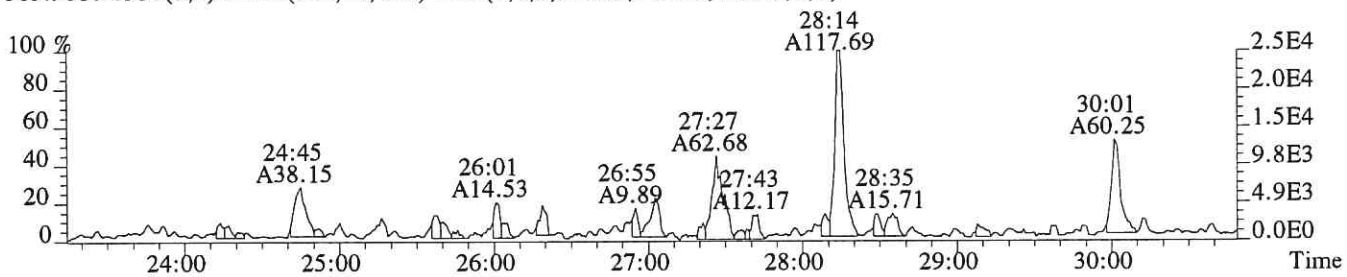
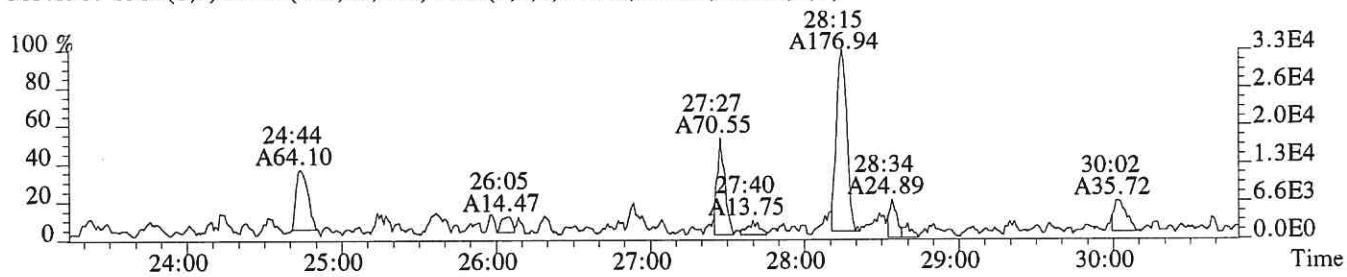
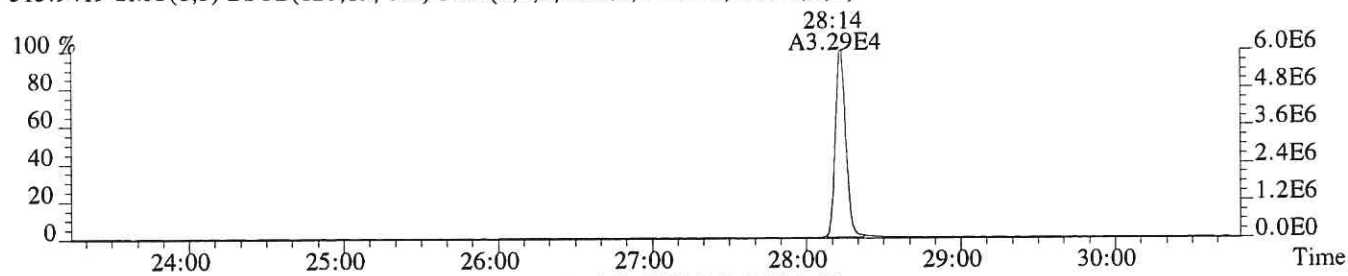
File:P519169 #1-538 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



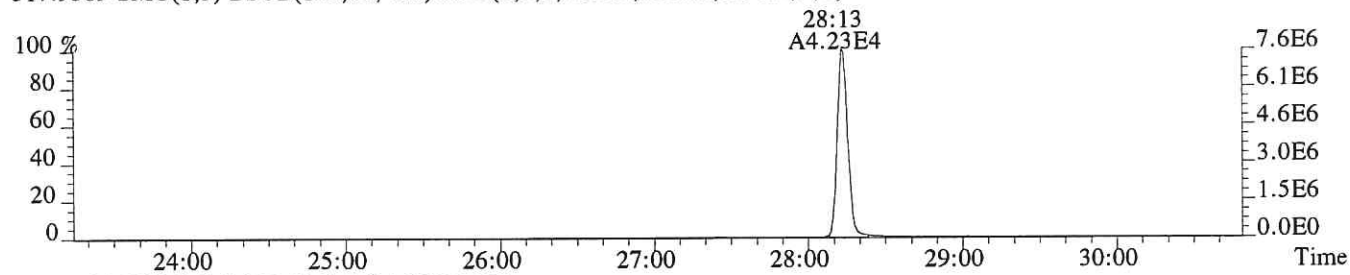
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2340.0,1.00%,F,T)



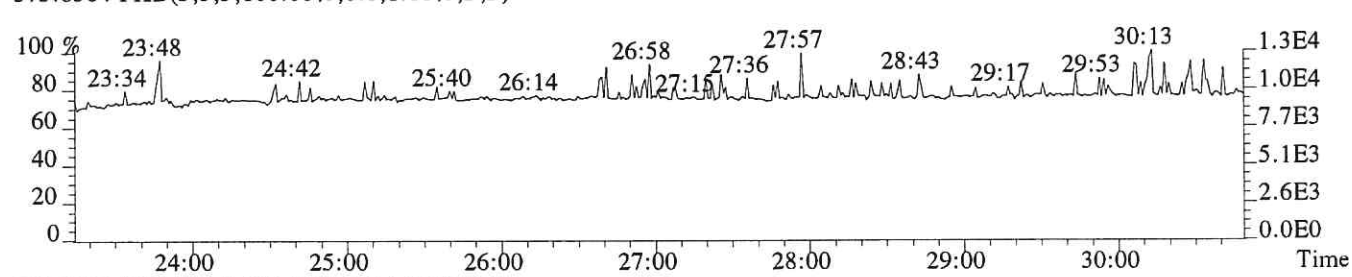
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14892.0,1.00%,F,T)



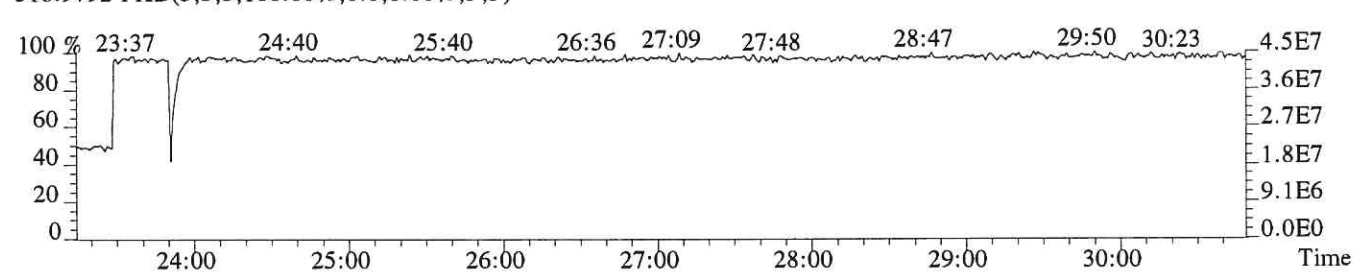
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6664.0,1.00%,F,T)



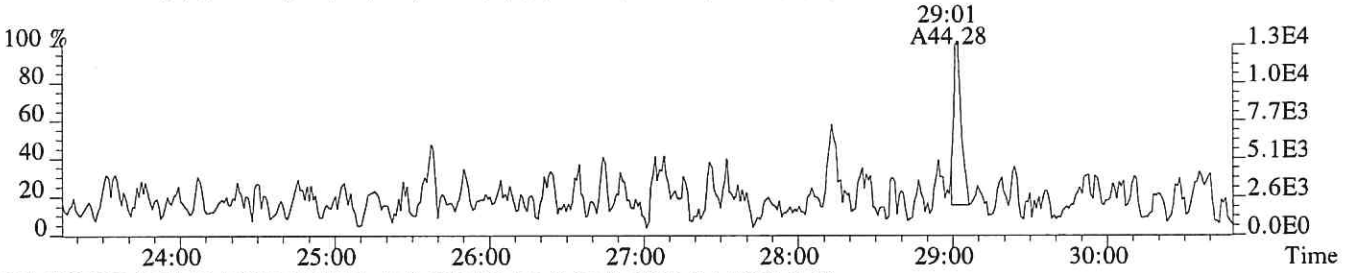
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



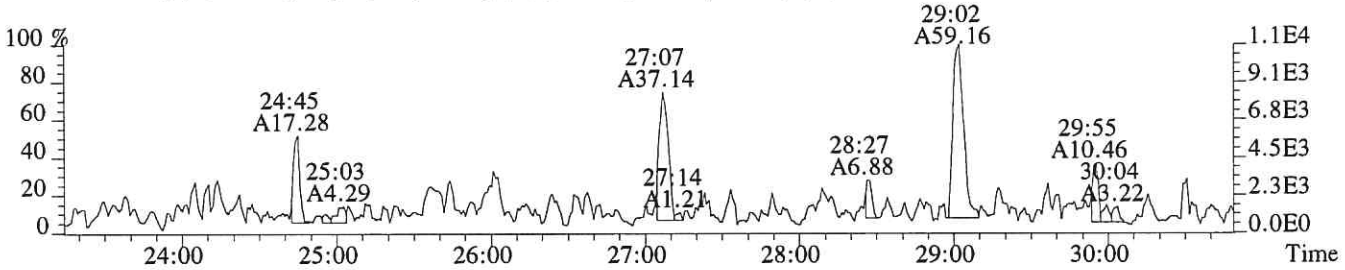
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



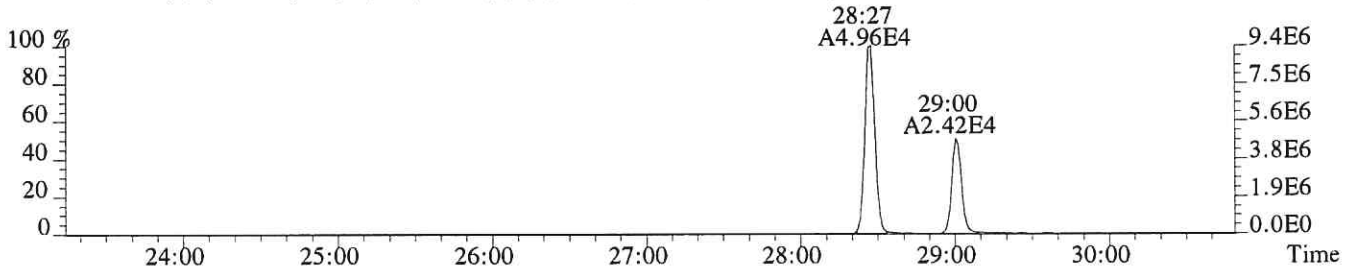
File:P519169 #1-538 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2912.0,1.00%,F,T)



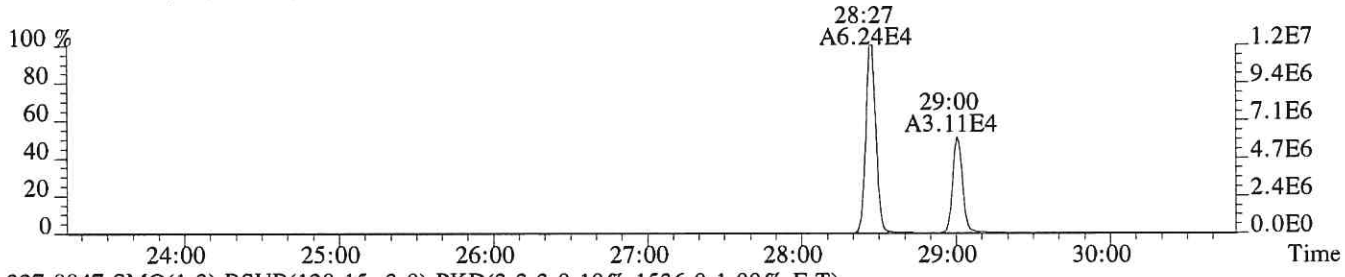
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



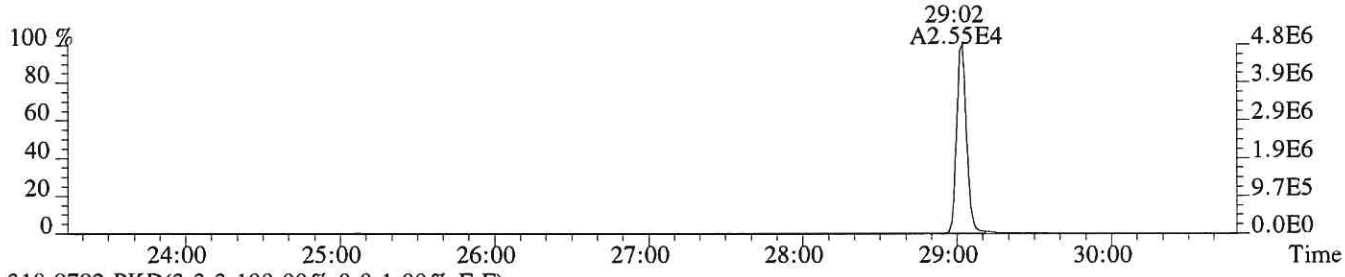
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9900.0,1.00%,F,T)



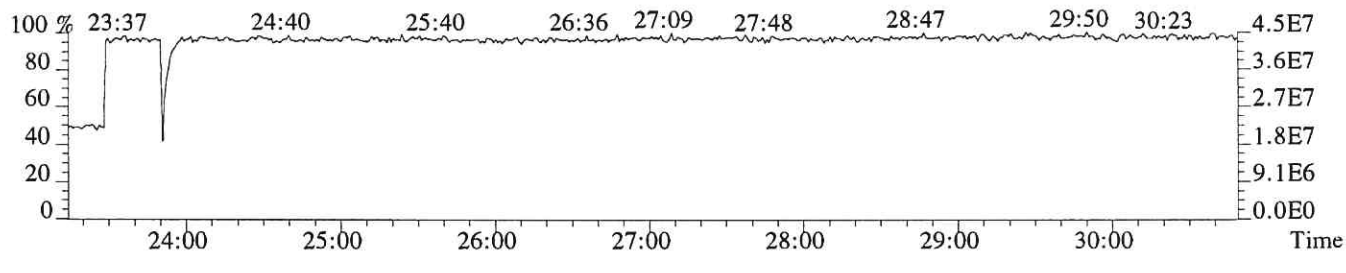
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3208.0,1.00%,F,T)



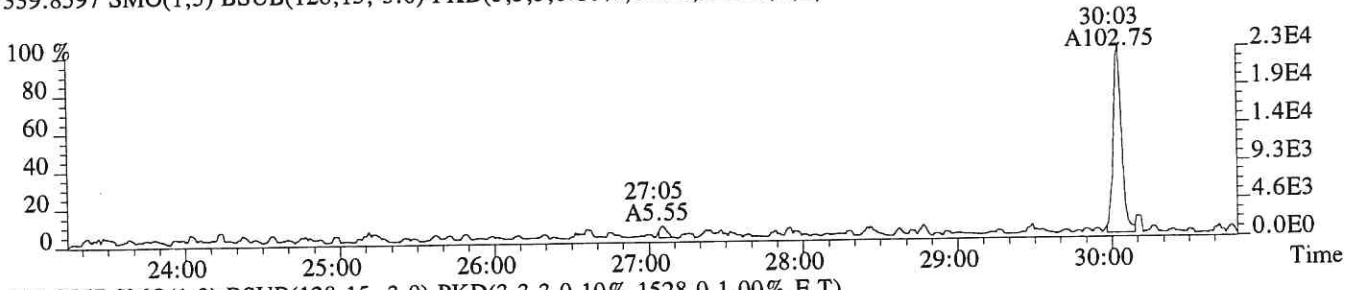
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1536.0,1.00%,F,T)



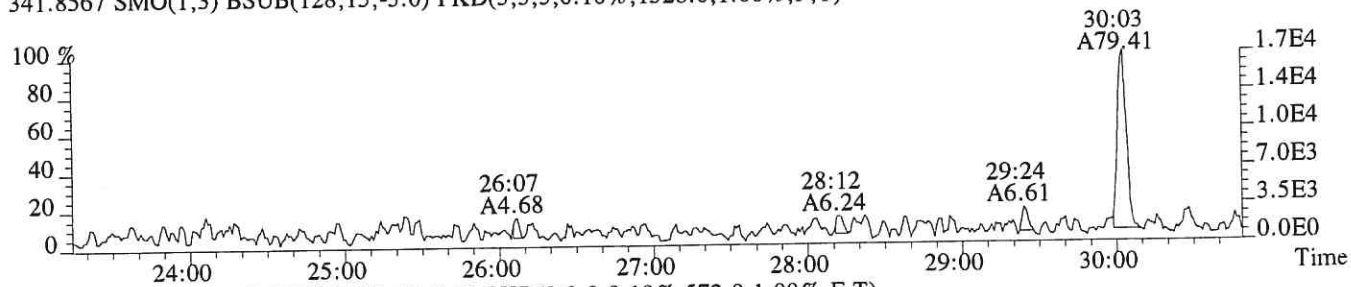
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



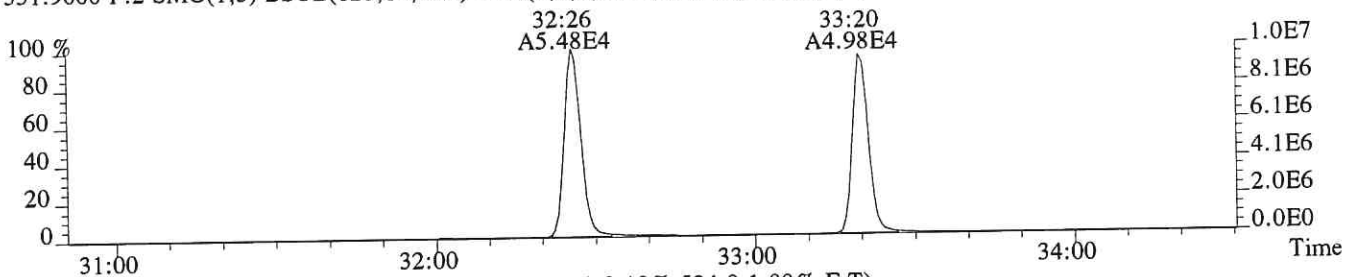
File:P519169 #1-538 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



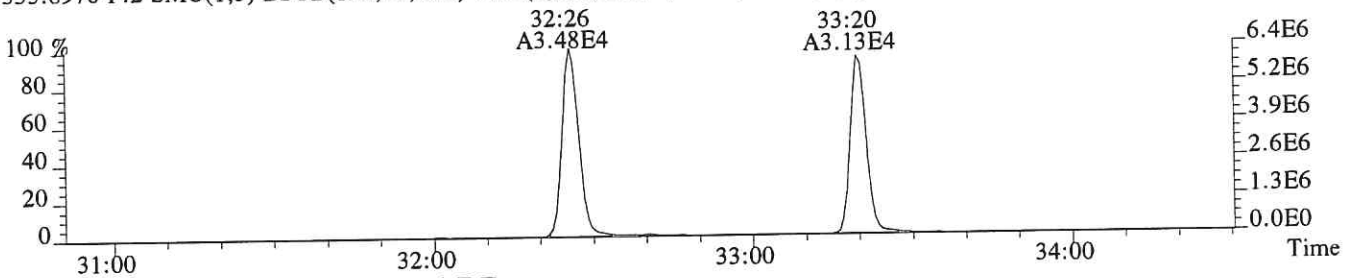
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



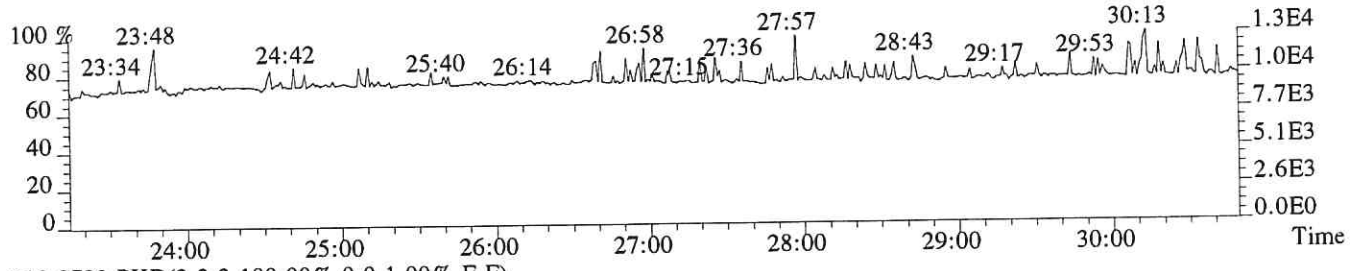
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



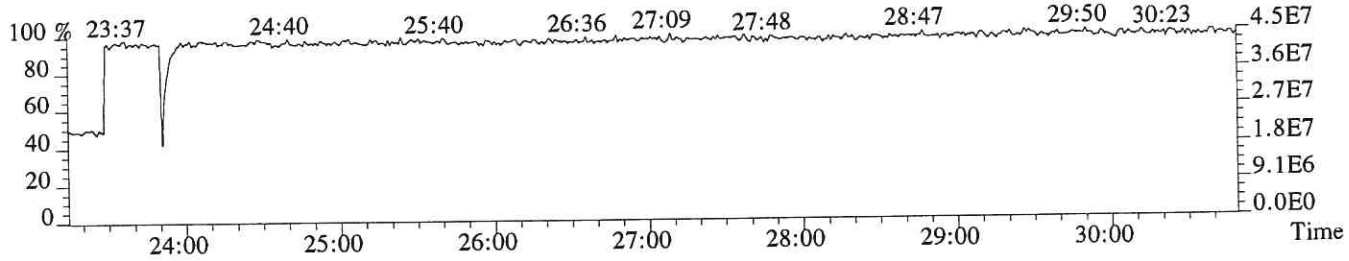
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



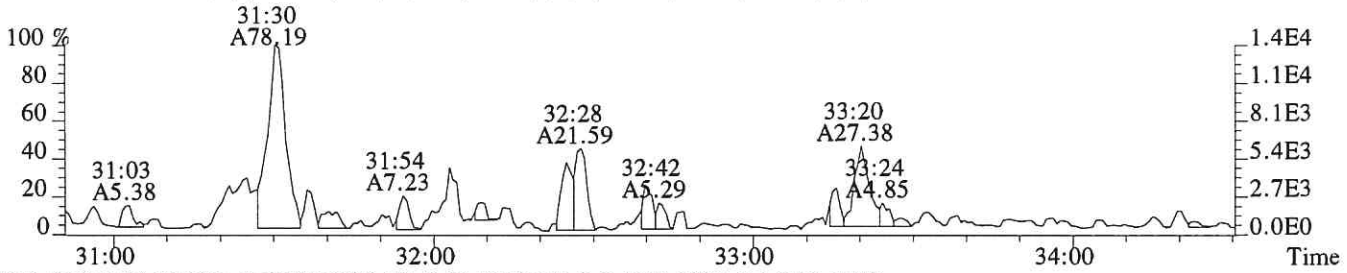
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



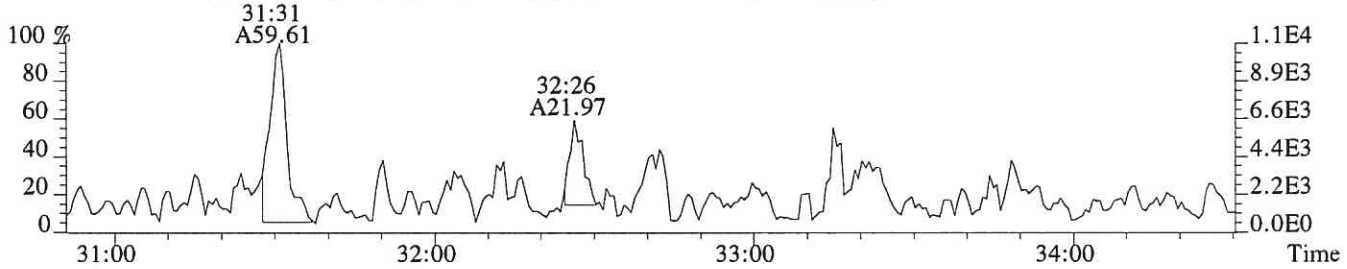
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



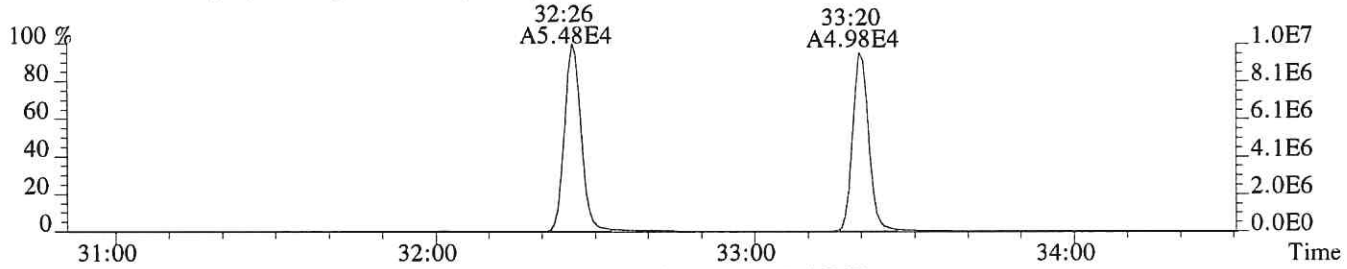
File:P519169 #1-330 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



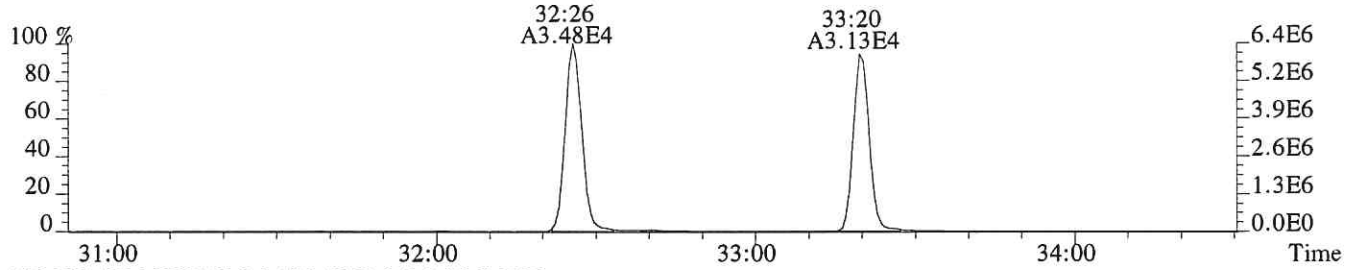
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2092.0,1.00%,F,T)



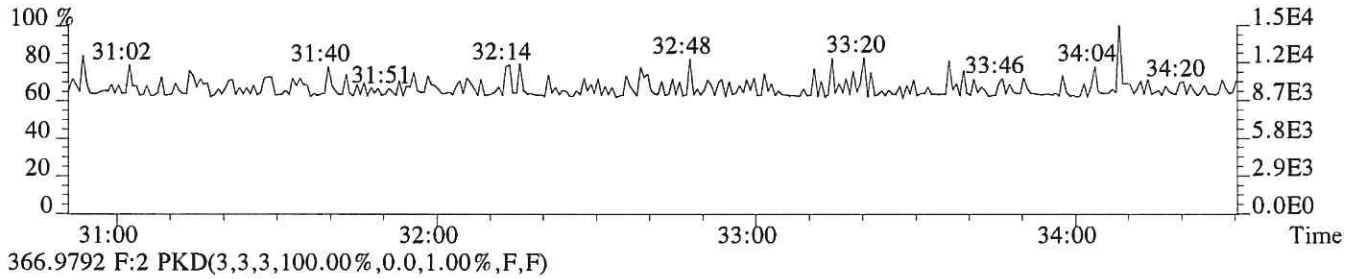
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



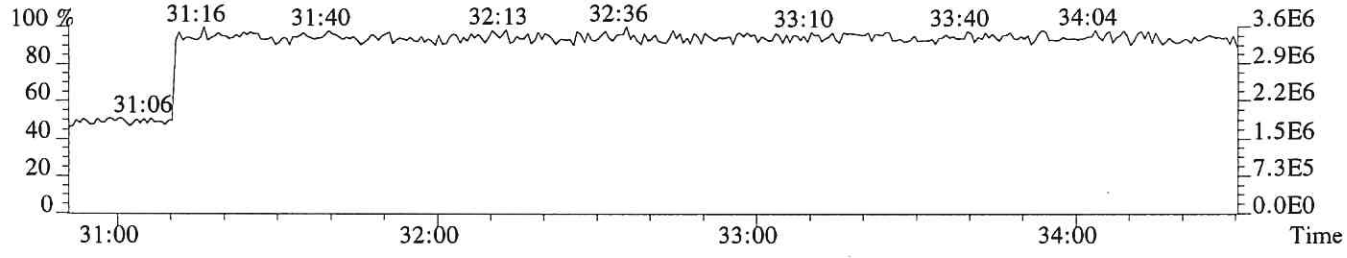
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



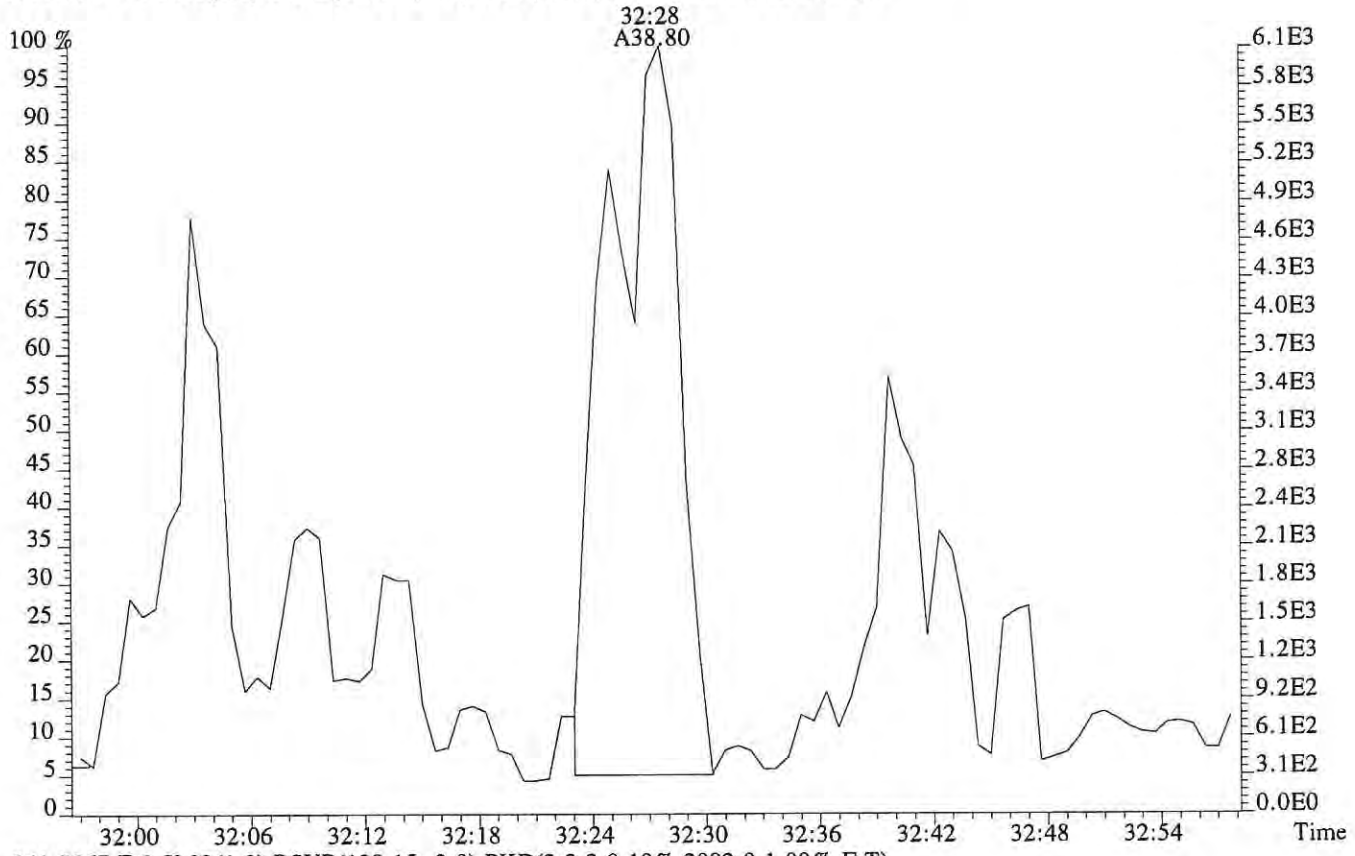
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



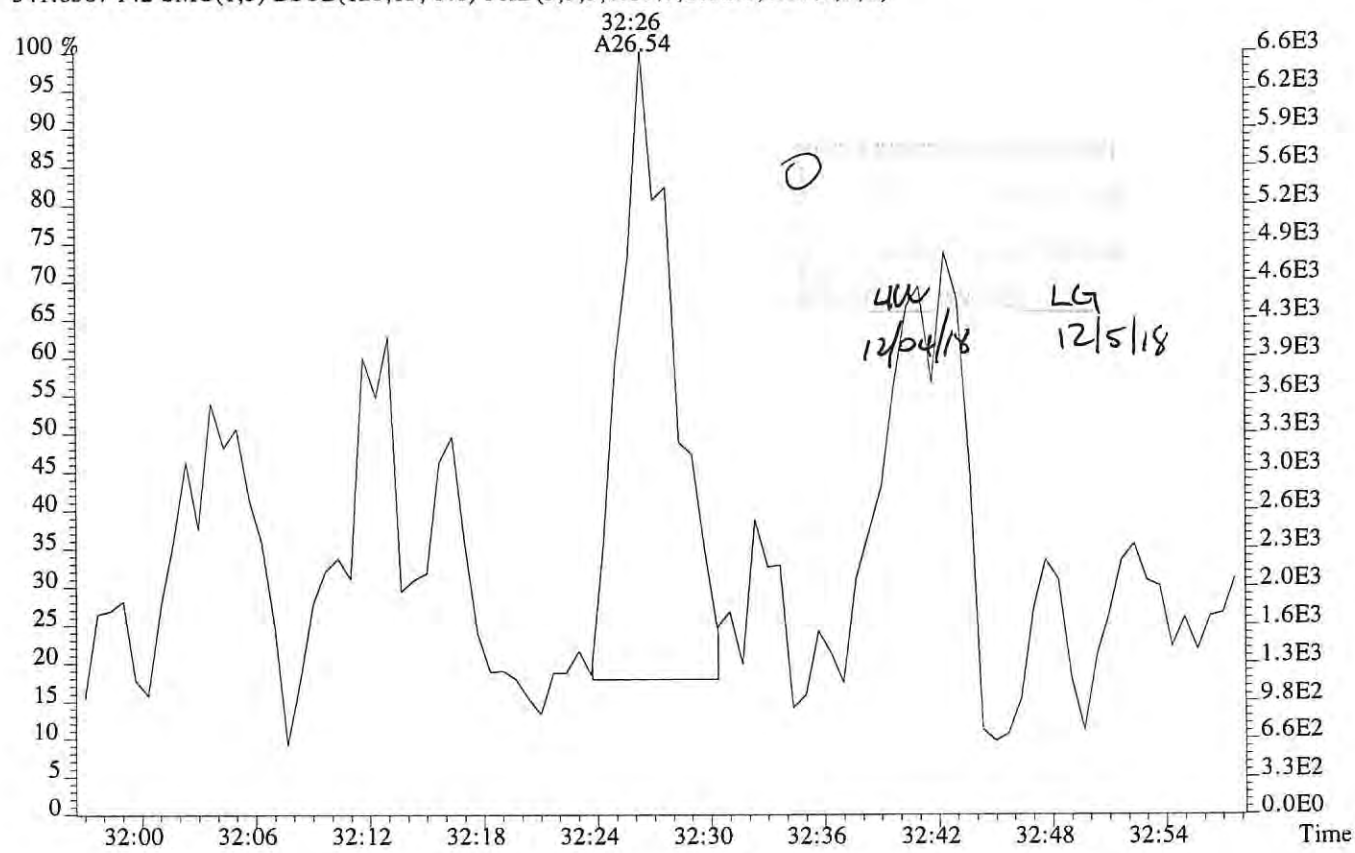
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



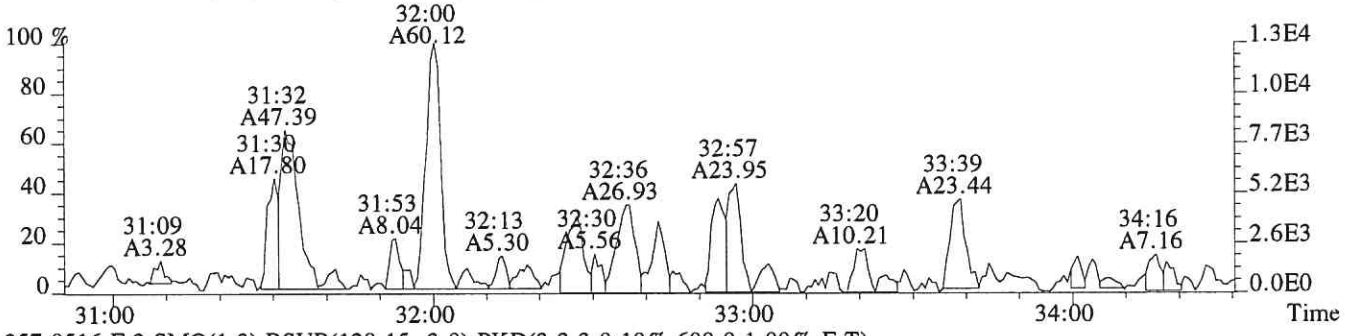
File:P519169 #1-330 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



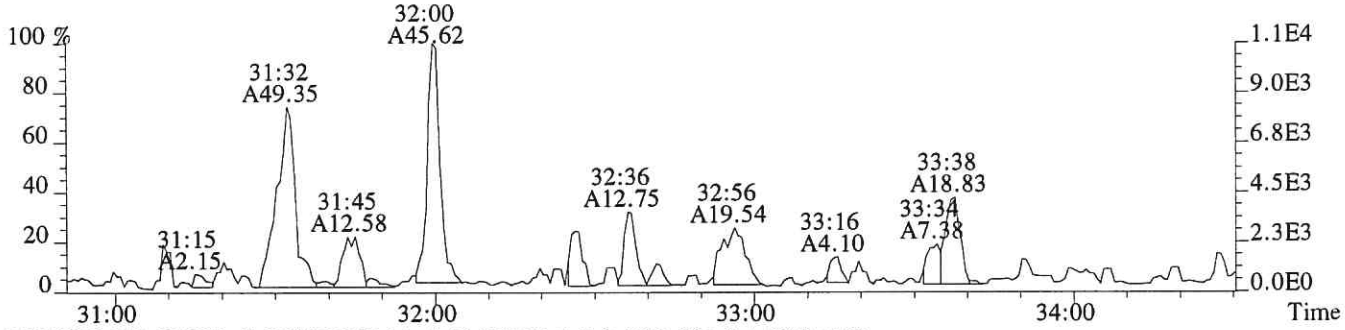
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2092.0,1.00%,F,T)



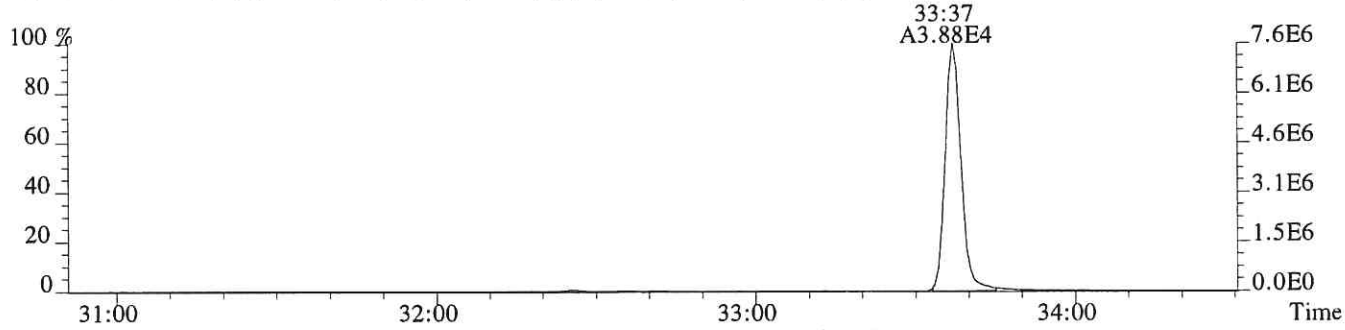
File:P519169 #1-330 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801040-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



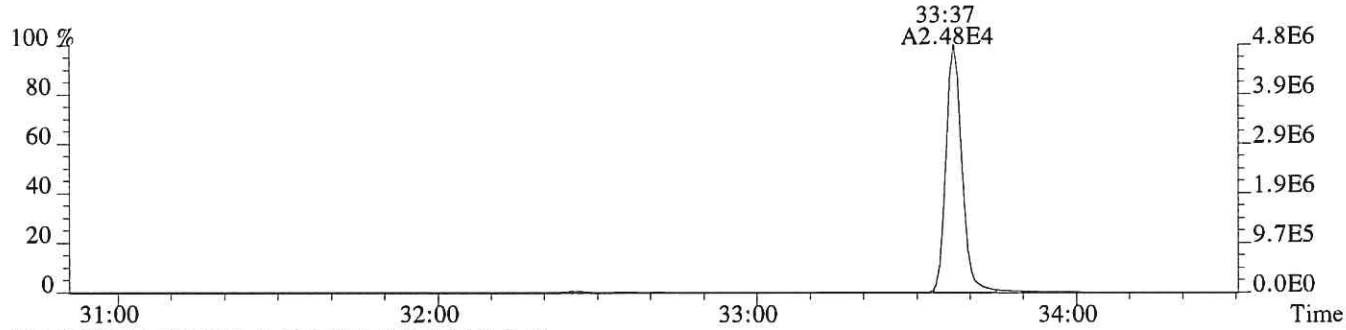
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



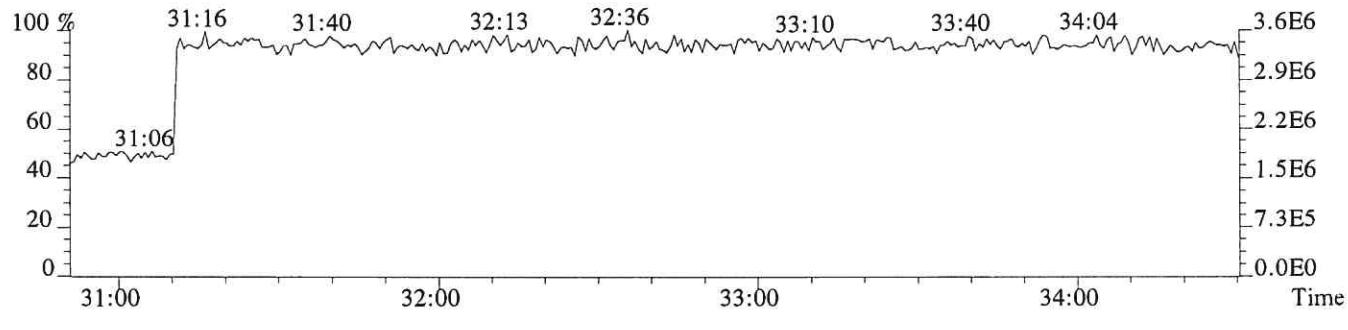
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



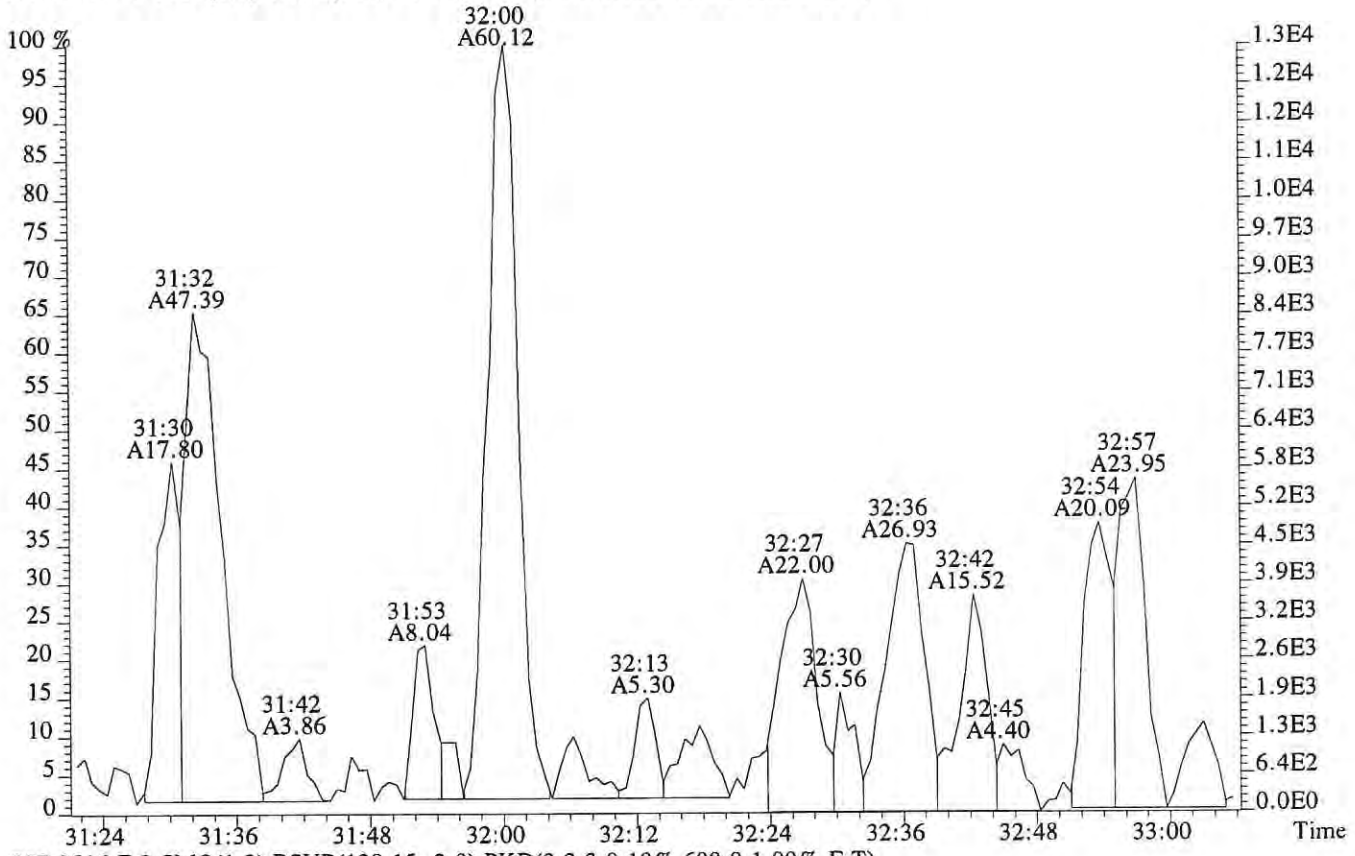
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



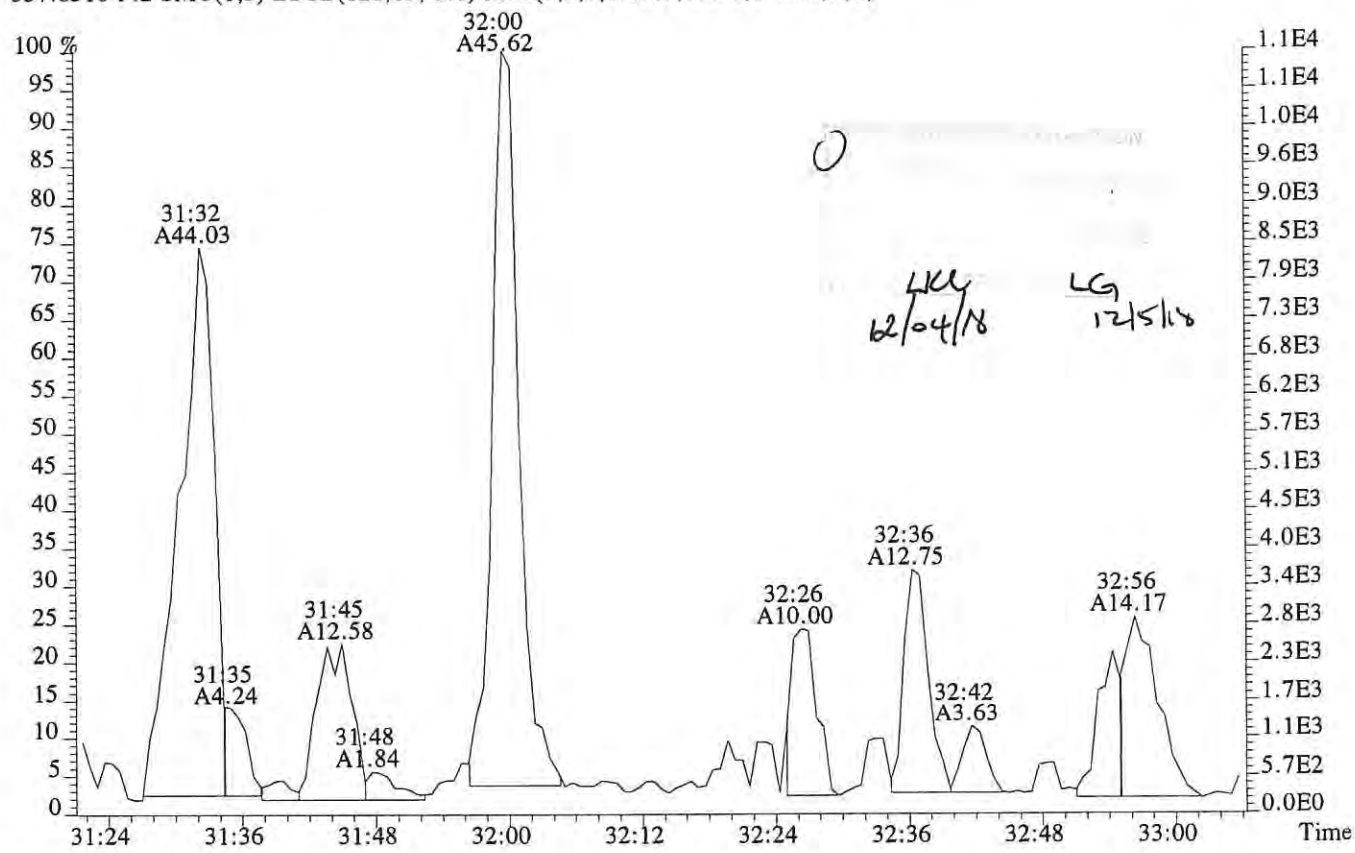
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519169 #1-330 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)

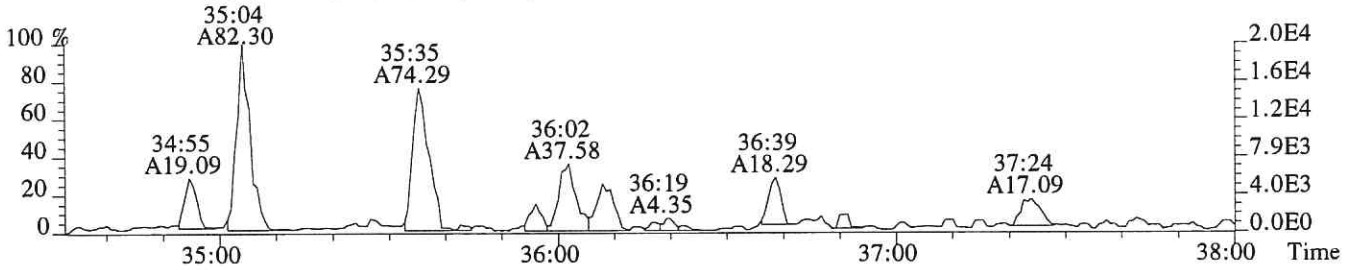


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)

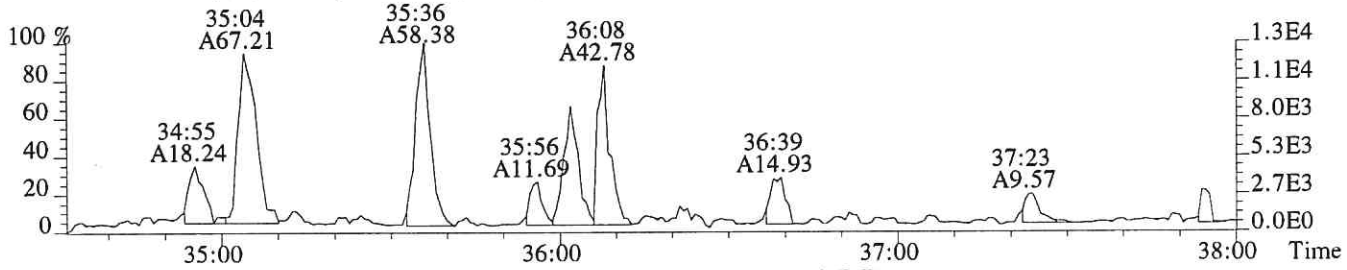


12/04/18 12/5/18

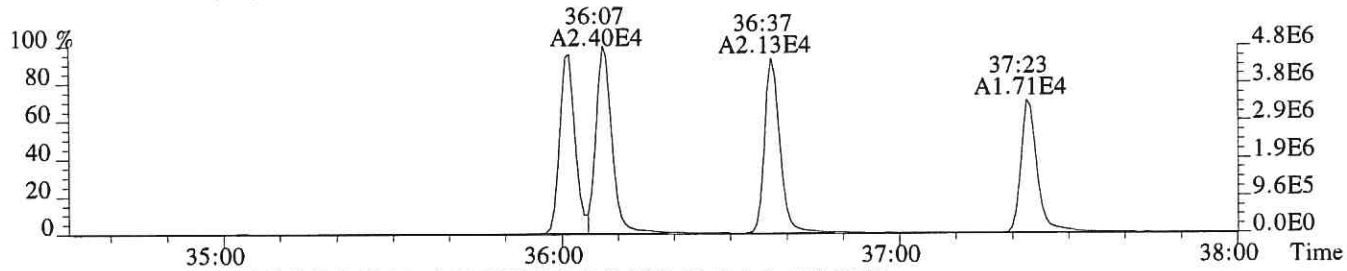
File:P519169 #1-312 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



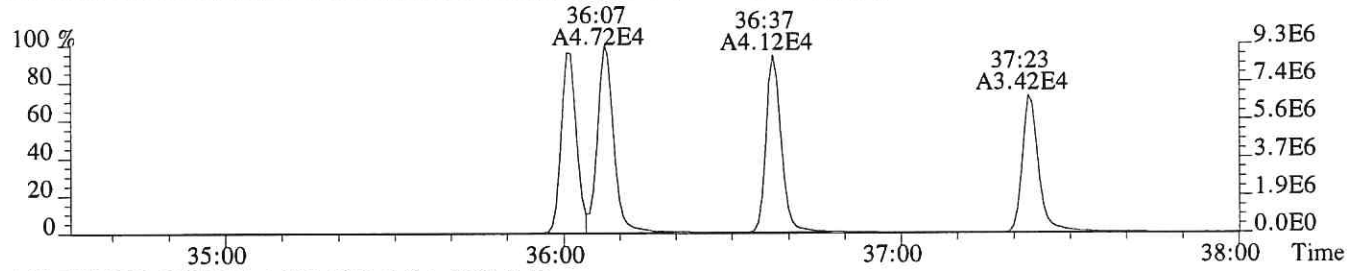
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



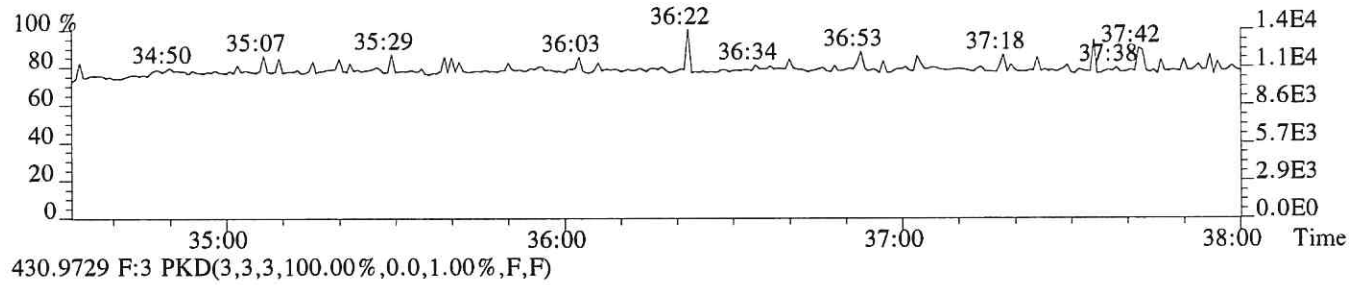
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



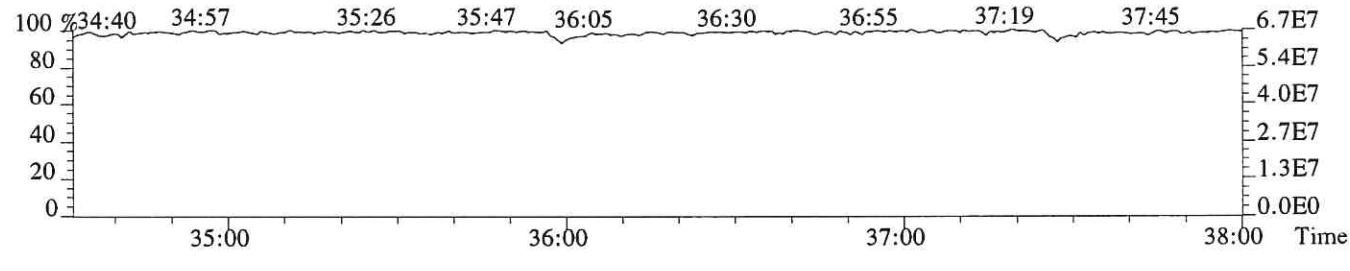
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



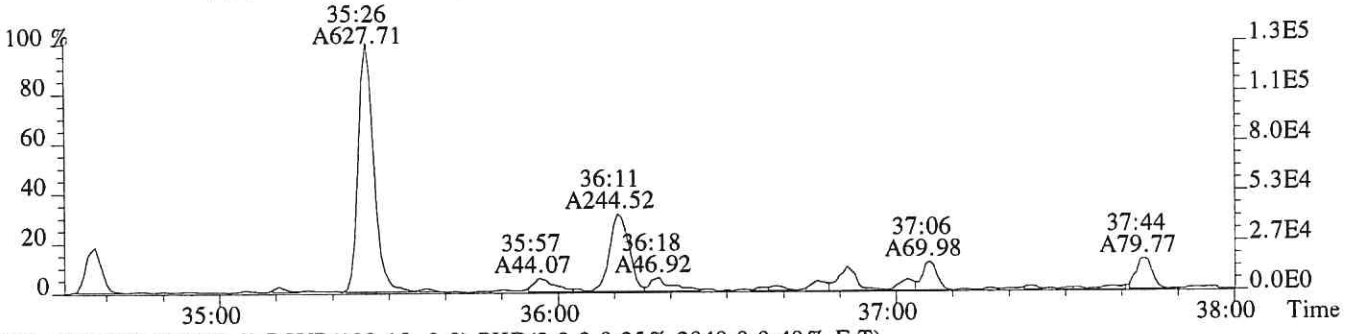
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



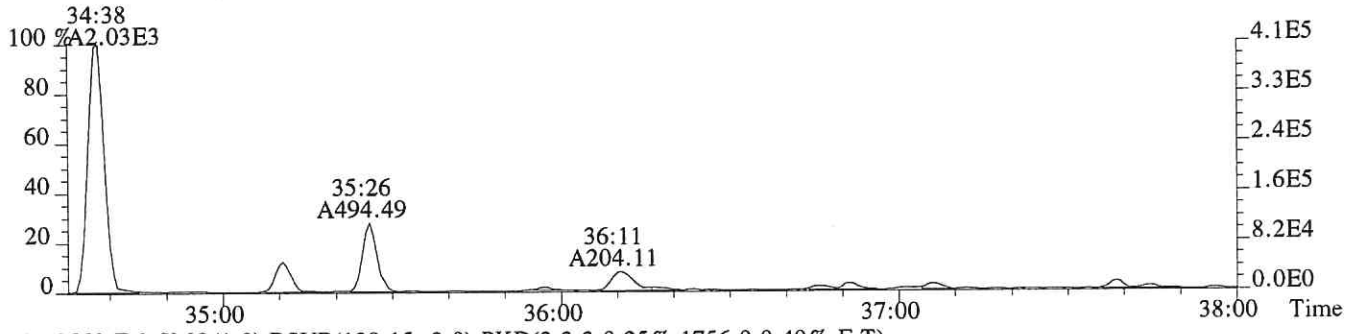
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



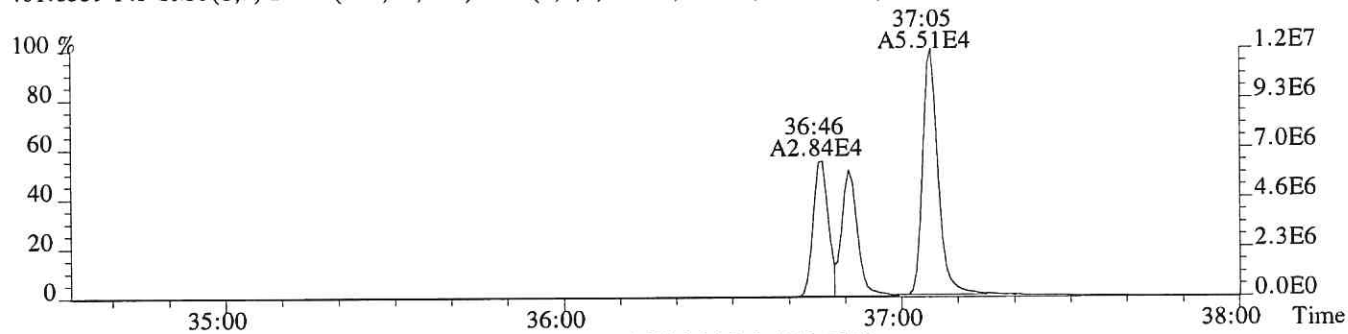
File:P519169 #1-312 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



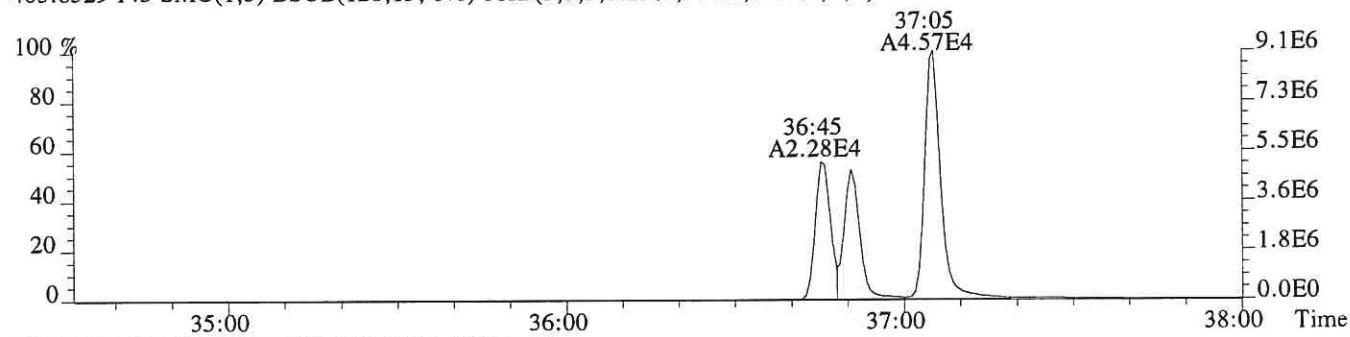
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



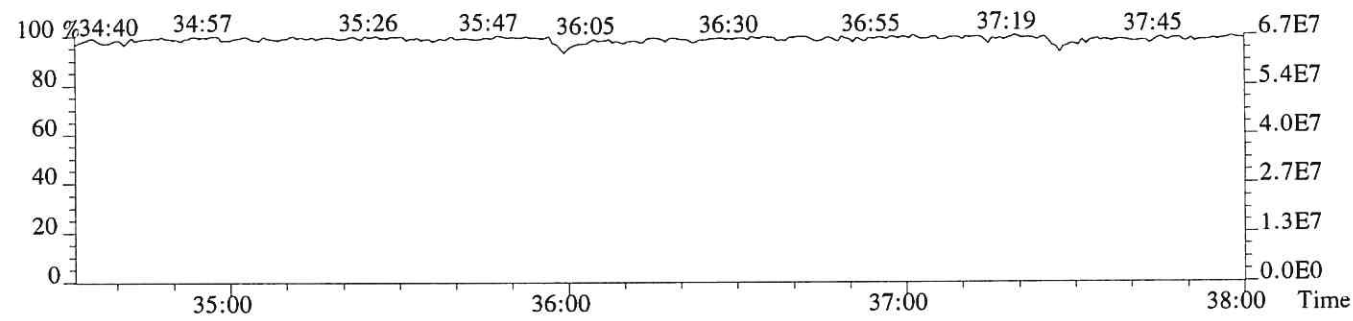
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)

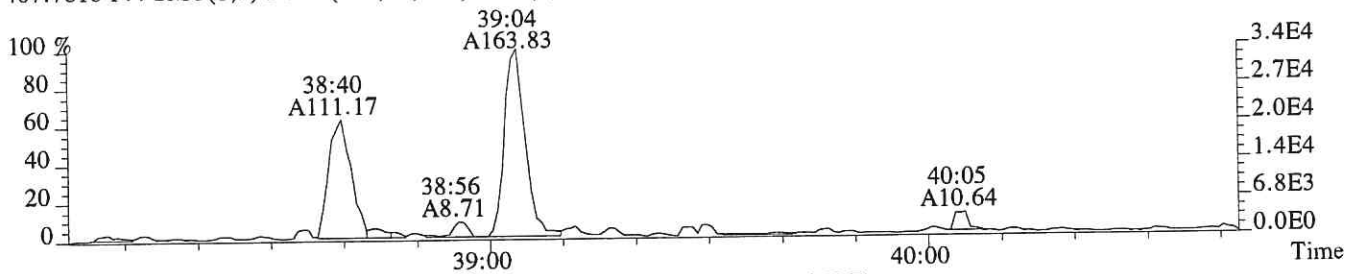


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

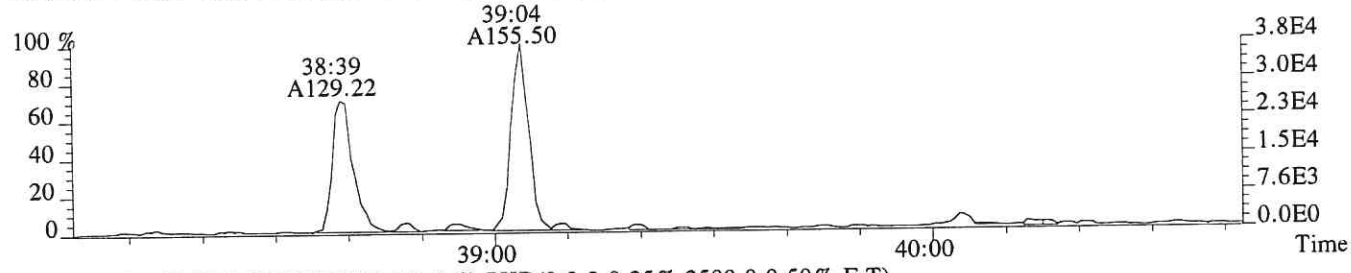


File:P519169 #1-241 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006

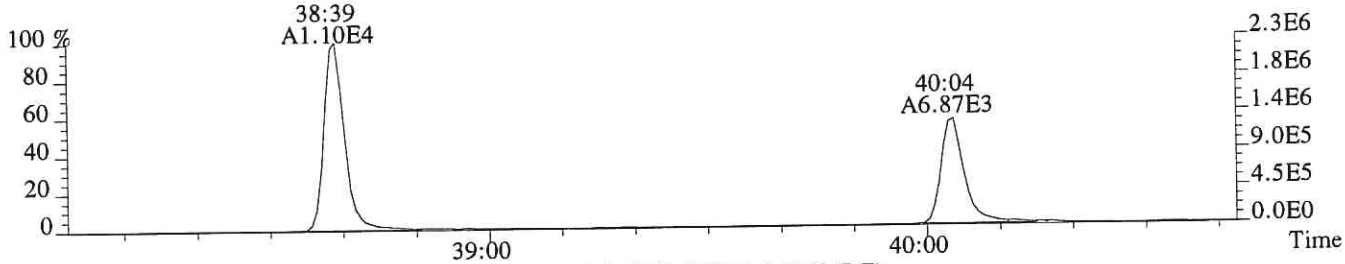
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.50%,F,T)



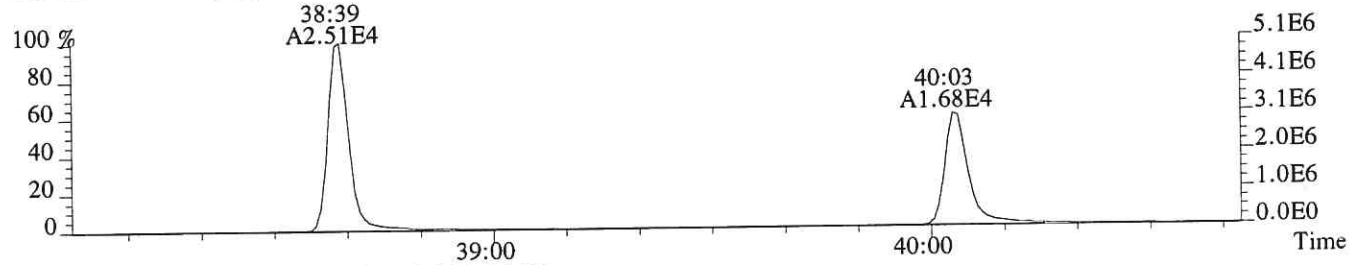
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.50%,F,T)



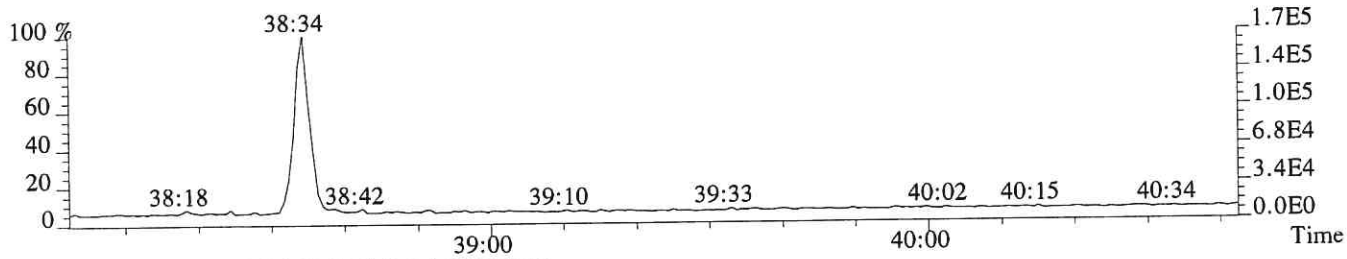
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.50%,F,T)



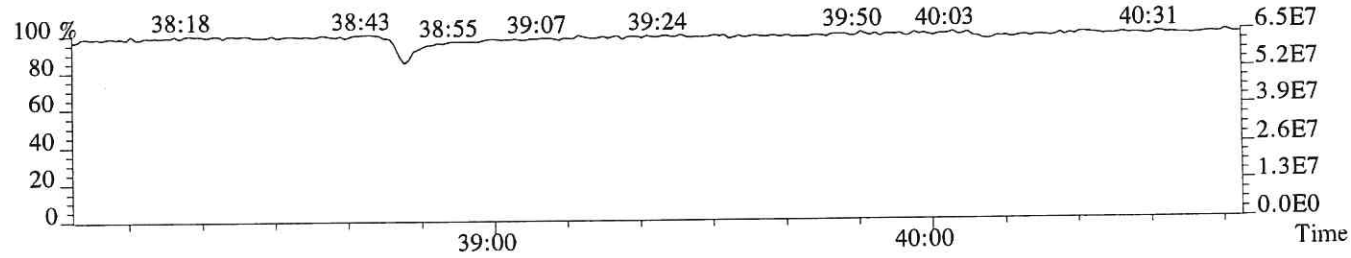
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4792.0,0.50%,F,T)



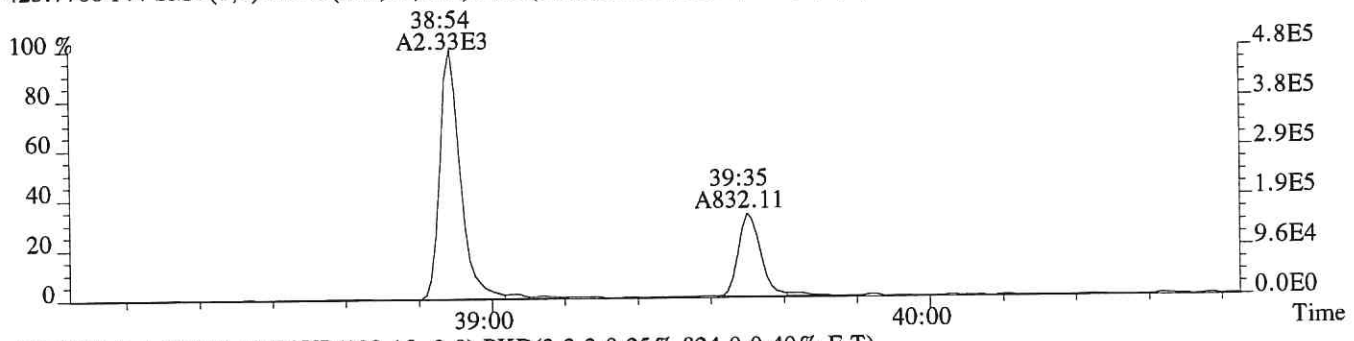
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



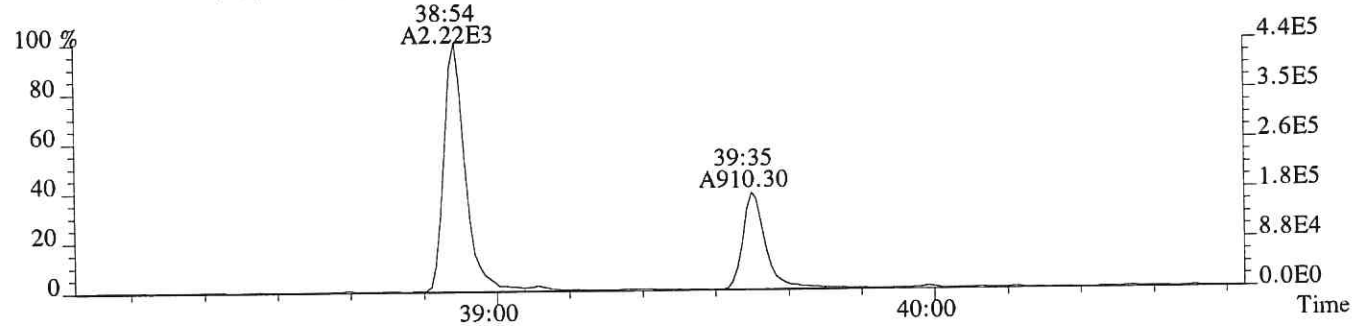
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



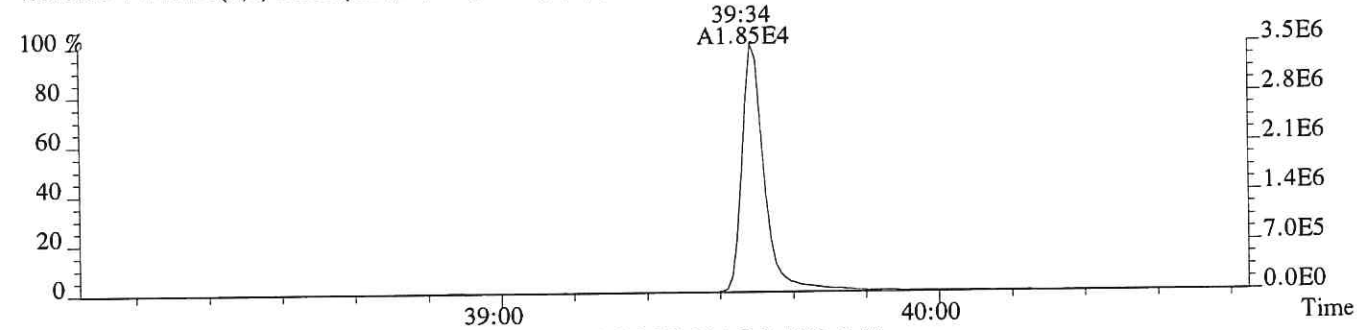
File:P519169 #1-241 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



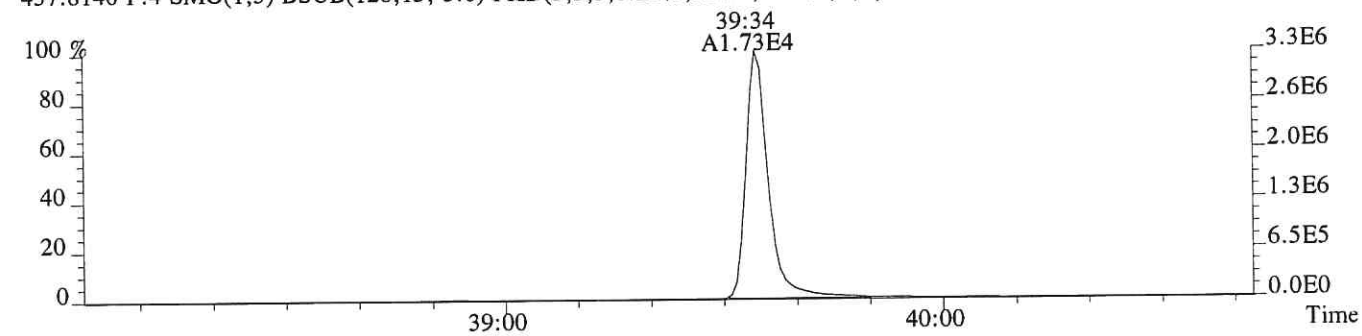
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



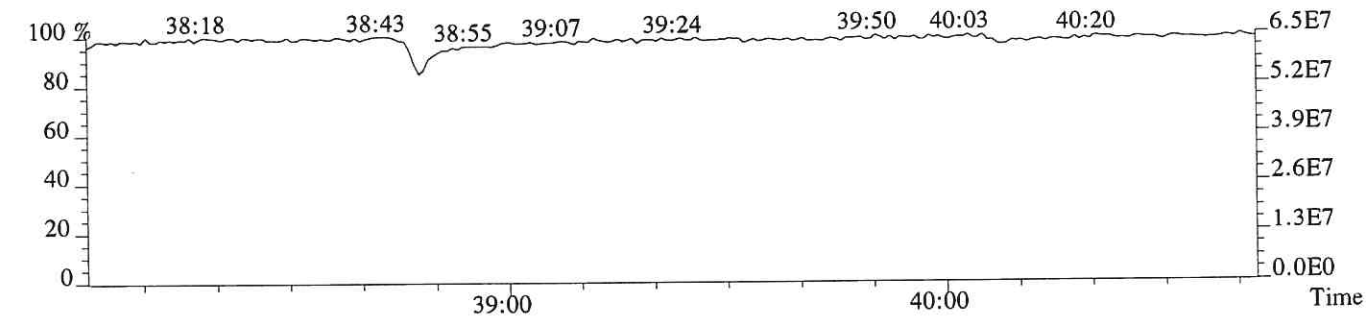
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



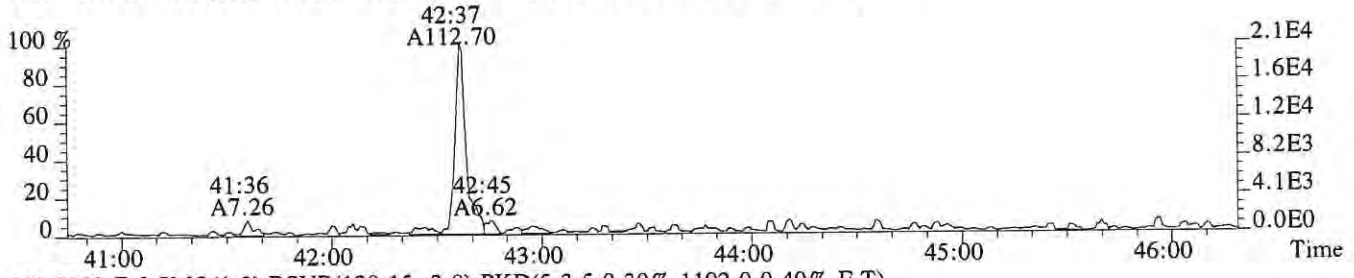
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



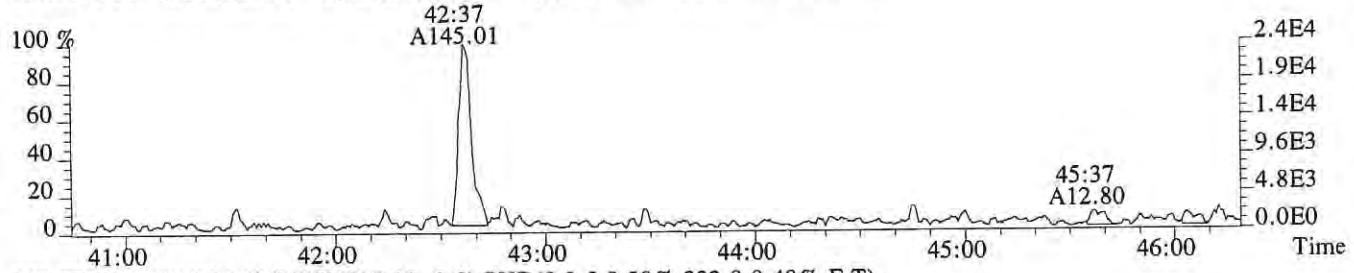
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



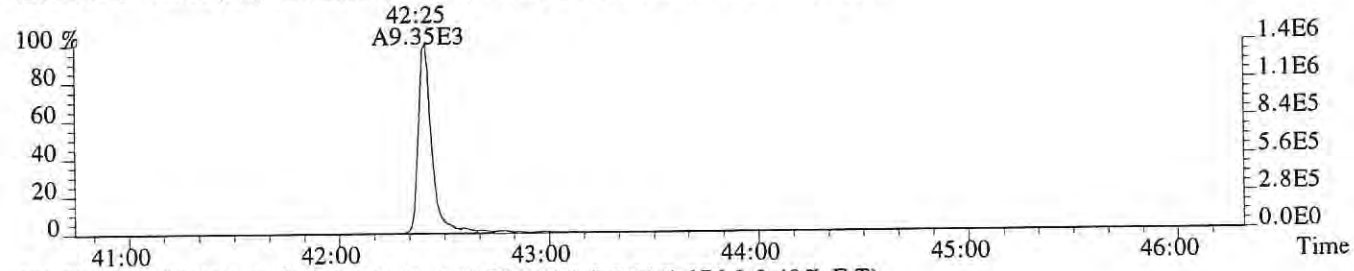
File:P519169 #1-502 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



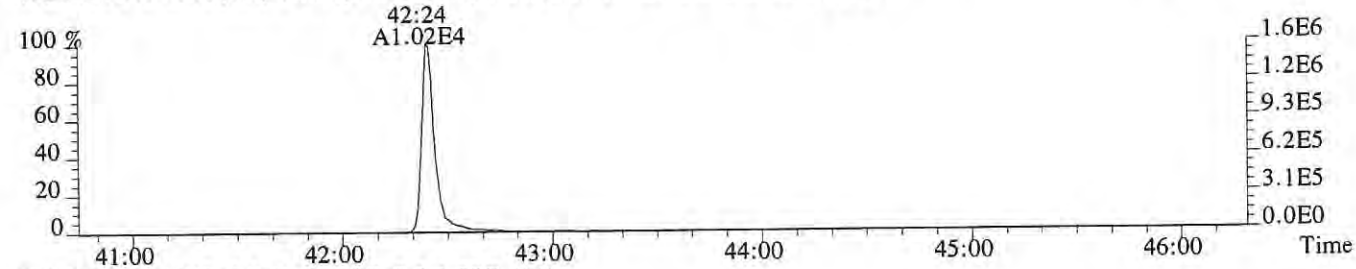
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



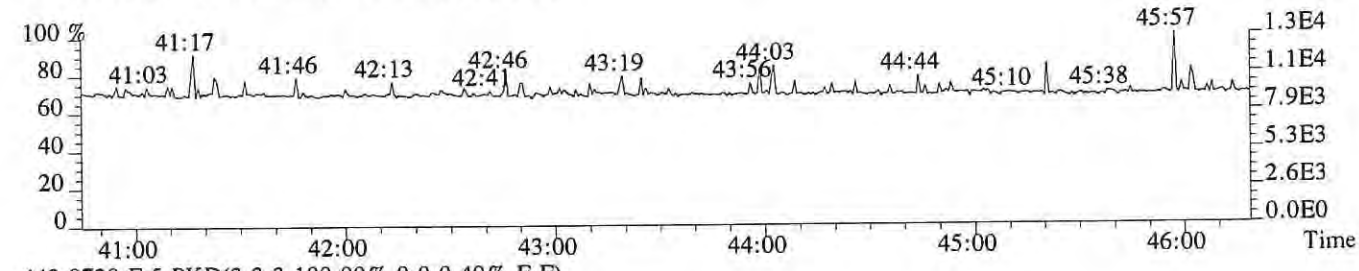
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



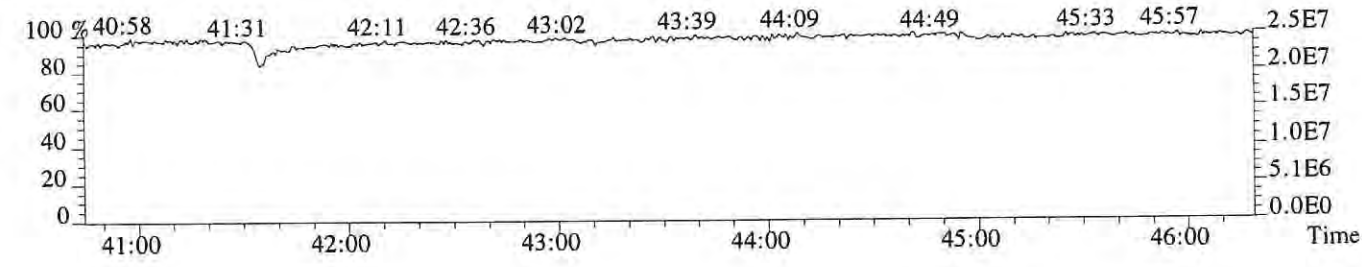
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



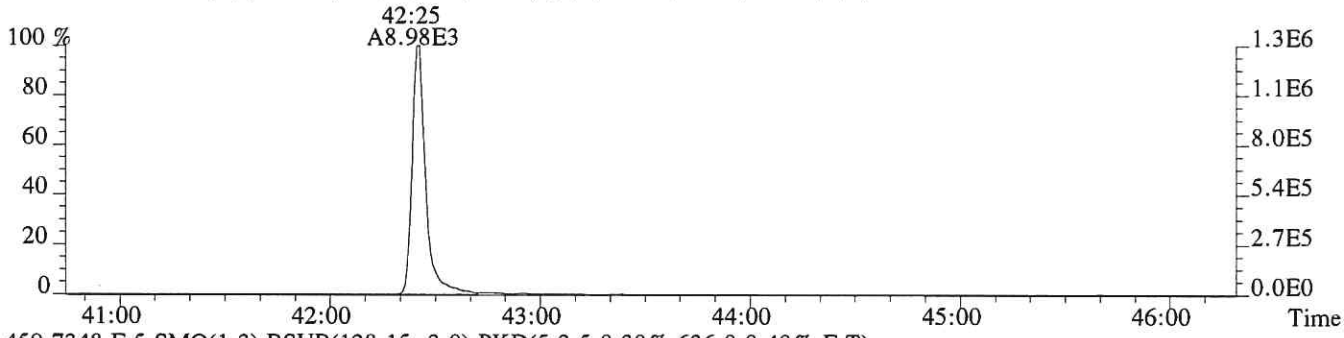
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



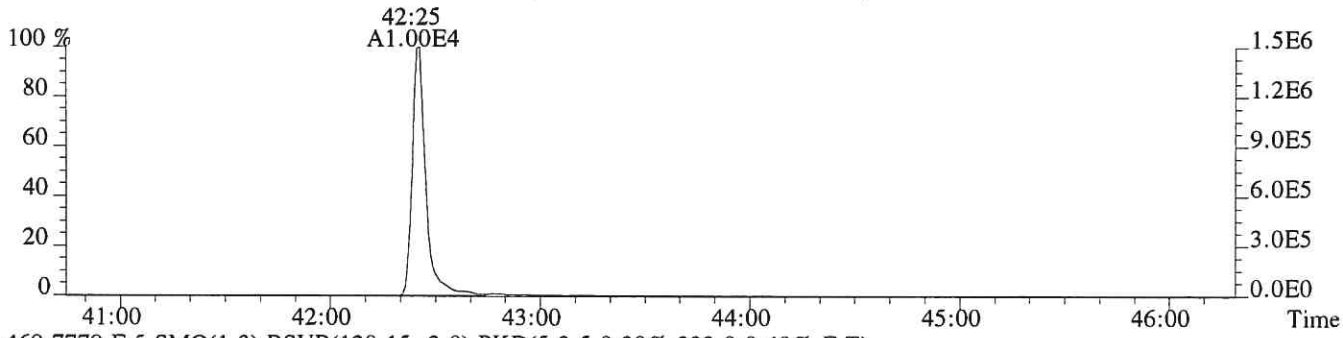
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



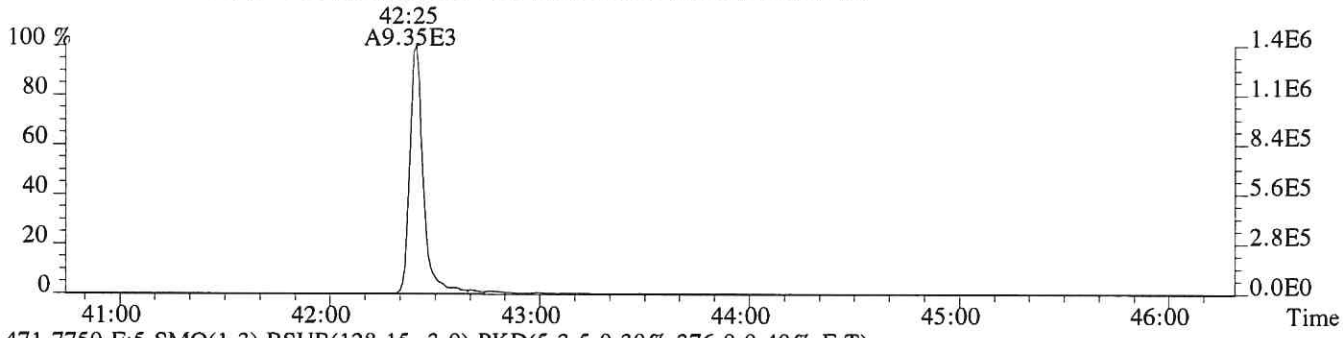
File:P519169 #1-502 Acq: 3-DEC-2018 11:57:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



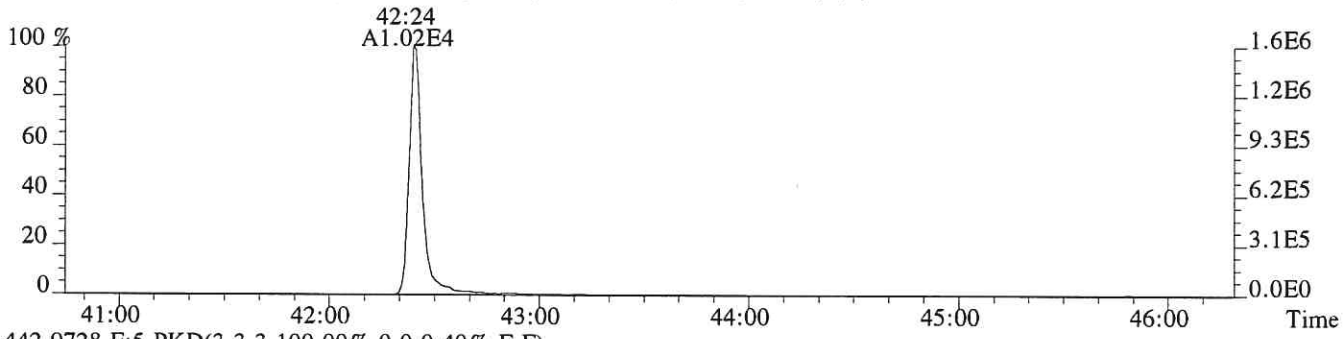
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



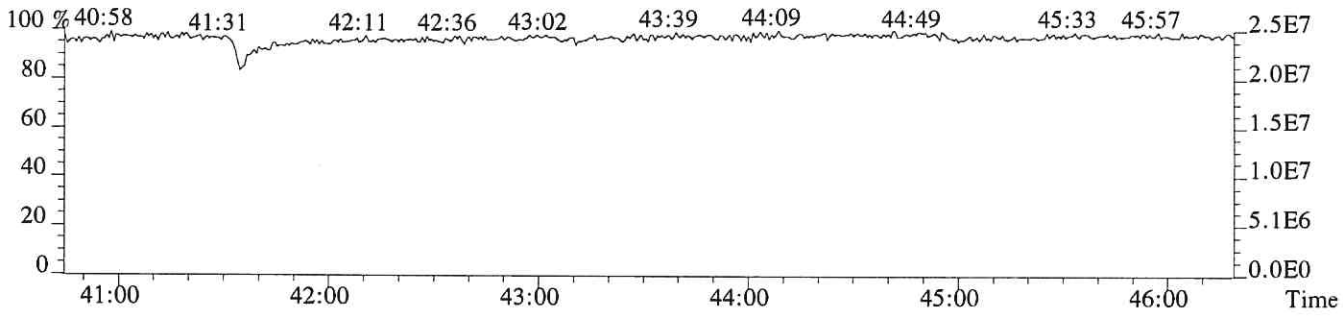
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0518

Run #15 Filename P519170 Samp: 1 Inj: 1 Acquired: 3-DEC-18 12:46:13
Processed: 4-DEC-18 15:27:34 Sample ID: E1801040-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	4.815e+02	7.027e+02	0.69	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	5.394e+01	4.118e+01	1.31	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	33:20	3.441e+01	2.822e+01	1.22	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	9.558e+01	8.253e+01	1.16	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	4.281e+01	2.916e+01	1.47	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	2.270e+01	1.258e+01	1.80	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	2.624e+01	1.321e+01	1.99	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.260e+02	1.460e+02	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:37	3.180e+02	3.552e+02	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	1.277e+02	1.890e+02	0.68	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:37	1.933e+01	1.496e+01	1.29	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.140e+01	9.963e+00	1.14	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	3.378e+01	2.878e+01	1.17	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	5.667e+01	4.563e+01	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	6.050e+02	6.370e+02	0.95	yes	no	1.025
17	Unk	OCDD	42:25	5.327e+03	5.814e+03	0.92	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:13	3.493e+04	4.500e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	6.012e+04	3.791e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	5.404e+04	3.433e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.402e+04	4.702e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.692e+04	5.222e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.370e+04	4.589e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	2.032e+04	3.951e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.306e+04	3.007e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	8.625e+03	1.968e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	2.619e+04	3.341e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	4.229e+04	2.662e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	3.225e+04	2.603e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.232e+04	2.551e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.246e+04	2.105e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:24	1.214e+04	1.352e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	5.010e+04	6.261e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.063e+04	4.814e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:01	2.822e+04				no	1.014

$$\text{OCDD} = \frac{(5.327e+03 + 5.814e+03) \times 4000 \text{ pg} \times 1}{(1.214e+04 + 1.352e+04) \times 10.46 \text{ g} \times 88.4/100 \times 1.118} = 167.4971 \text{ ng/Kg}$$

LG 12/6/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0518

Run #15 Filename P519170 Samp: 1 Inj: 1 Acquired: 3-DEC-18 12:46:13
Processed: 4-DEC-18 15:27:34 LAB. ID: E1801040-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.10e+04	5.72e+02	1.4e+02	1.17e+05	1.90e+03	6.2e+01
2	1,2,3,7,8-PeCDF	1.14e+04	6.28e+02	1.8e+01	7.78e+03	2.04e+03	3.8e+00
3	2,3,4,7,8-PeCDF	7.57e+03	6.28e+02	1.2e+01	5.99e+03	2.04e+03	2.9e+00
4	1,2,3,4,7,8-HxCDF	1.96e+04	1.23e+03	1.6e+01	1.85e+04	4.48e+02	4.1e+01
5	1,2,3,6,7,8-HxCDF	7.65e+03	1.23e+03	6.2e+00	6.11e+03	4.48e+02	1.4e+01
6	2,3,4,6,7,8-HxCDF	4.75e+03	1.23e+03	3.9e+00	2.87e+03	4.48e+02	6.4e+00
7	1,2,3,7,8,9-HxCDF	5.88e+03	1.23e+03	4.8e+00	2.91e+03	4.48e+02	6.5e+00
8	1,2,3,4,6,7,8-HpCDF	2.64e+04	7.92e+02	3.3e+01	3.16e+04	6.52e+02	4.8e+01
9	1,2,3,4,7,8,9-HpCDF	*	7.92e+02	*	*	6.52e+02	*
10	OCDF	4.96e+04	2.24e+02	2.2e+02	4.94e+04	1.02e+03	4.8e+01
11	2,3,7,8-TCDD	2.15e+04	3.05e+03	7.1e+00	3.19e+04	1.51e+03	2.1e+01
12	1,2,3,7,8-PeCDD	3.45e+03	1.28e+03	2.7e+00	2.96e+03	1.88e+02	1.6e+01
13	1,2,3,4,7,8-HxCDD	3.69e+03	9.76e+02	3.8e+00	2.53e+03	7.08e+02	3.6e+00
14	1,2,3,6,7,8-HxCDD	7.95e+03	9.76e+02	8.1e+00	6.88e+03	7.08e+02	9.7e+00
15	1,2,3,7,8,9-HxCDD	7.32e+03	9.76e+02	7.5e+00	9.59e+03	7.08e+02	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	1.14e+05	1.05e+03	1.1e+02	1.23e+05	7.80e+02	1.6e+02
17	OCDD	8.15e+05	2.72e+02	3.0e+03	9.12e+05	3.68e+02	2.5e+03
18	13C-2,3,7,8-TCDF	6.36e+06	8.74e+03	7.3e+02	8.18e+06	4.40e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.14e+07	1.88e+02	6.0e+04	7.11e+06	7.08e+02	1.0e+04
20	13C-2,3,4,7,8-PeCDF	1.06e+07	1.88e+02	5.6e+04	6.71e+06	7.08e+02	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	5.29e+06	5.96e+02	8.9e+03	1.03e+07	1.13e+03	9.1e+03
22	13C-1,2,3,6,7,8-HxCDF	5.53e+06	5.96e+02	9.3e+03	1.05e+07	1.13e+03	9.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.11e+06	5.96e+02	8.6e+03	9.85e+06	1.13e+03	8.7e+03
24	13C-1,2,3,7,8,9-HxCDF	4.12e+06	5.96e+02	6.9e+03	7.91e+06	1.13e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.70e+06	2.19e+03	1.2e+03	6.22e+06	2.57e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.59e+06	2.19e+03	7.3e+02	3.63e+06	2.57e+03	1.4e+03
27	13C-2,3,7,8-TCDD	5.08e+06	5.87e+03	8.7e+02	6.51e+06	2.58e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	8.20e+06	1.26e+03	6.5e+03	5.20e+06	1.00e+03	5.2e+03
29	13C-1,2,3,4,7,8-HxCDD	7.21e+06	1.48e+03	4.9e+03	5.88e+06	9.12e+02	6.4e+03
30	13C-1,2,3,6,7,8-HxCDD	6.61e+06	1.48e+03	4.5e+03	5.22e+06	9.12e+02	5.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.27e+06	5.68e+02	7.5e+03	4.04e+06	3.96e+02	1.0e+04
32	13C-OCDD	1.82e+06	5.12e+02	3.6e+03	2.08e+06	6.72e+02	3.1e+03
33	13C-1,2,3,4-TCDD	9.56e+06	5.87e+03	1.6e+03	1.19e+07	2.58e+03	4.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.18e+07	1.48e+03	8.0e+03	9.54e+06	9.12e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	5.27e+06	1.69e+03	3.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.048e{+}03 + 1.512e{+}03) \times 2000}{(5.083e{+}06 + 6.510e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0518

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519170 Sample:1 Injection:1 Function:1

Acquired: 3-DEC-18 12:46:13 Processed: 4-DEC-18 15:27:34

Mass: 303.9020 305.8990 Tot Response: 1.94e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:17	2.07e+01	0.74	yes	4.86e+01		n	n
2	26:53	1.42e+01	0.72	yes	3.41e+01		n	n
3	27:27	2.05e+02	0.84	yes	4.49e+02		n	n
4	28:15	4.82e+02	0.69	yes	1.18e+03	2,3,7,8-TCDF	n	n
5	28:33	4.53e+01	0.66	yes	1.15e+02		n	n
6	30:02	4.63e+01	0.74	yes	1.09e+02		n	n

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Peak List Summary

CLIENT ID.
SL0518

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519170 Sample:1 Injection:1 Function:1

Acquired: 3-DEC-18 12:46:13 Processed: 4-DEC-18 15:27:34

Mass: 319.8970 321.8940 Tot Response: 3.17e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:02	1.28e+02	1.89e+02	0.68	yes	3.17e+02 2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0518

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P519170 Sample:1 Injection:1 Function:1

Acquired: 3-DEC-18 12:46:13 Processed: 4-DEC-18 15:27:34

Mass: 339.8600 341.8570 Tot Response: 9.41e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	5.94e+01	3.47e+01 1.71	yes	9.41e+01		n	n

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Peak List Summary

CLIENT ID.
SL0518

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519170 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 12:46:13 Processed: 4-DEC-18 15:27:34

Mass: 373.8210 375.8180 Tot Response: 3.29e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:05	7.19e+01	5.99e+01	1.20	yes	1.32e+02		n	n
2	36:02	9.56e+01	8.25e+01	1.16	yes	1.78e+02	1,2,3,4,7,8-HxCDF	n	n
3	36:17	1.01e+01	9.17e+00	1.10	yes	1.92e+01		n	n

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Peak List Summary

CLIENT ID.
SL0518

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519170 Sample:1 Injection:1 Function:3

Acquired: 3-DEC-18 12:46:13 Processed: 4-DEC-18 15:27:34

Mass: 389.8160 391.8130 Tot Response: 1.09e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	3.67e+02	2.67e+02 1.38	yes	6.34e+02		n	n
2	36:11	1.57e+02	1.17e+02 1.34	yes	2.74e+02		n	n
3	36:47	1.14e+01	9.96e+00 1.14	yes	2.14e+01	1,2,3,4,7,8-HxCDD	n	n
4	36:51	3.38e+01	2.88e+01 1.17	yes	6.26e+01	1,2,3,6,7,8-HxCDD	n	n
5	37:05	5.67e+01	4.56e+01 1.24	yes	1.02e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0518

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519170 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 12:46:13 Processed: 4-DEC-18 15:27:34

Mass: 407.7820 409.7790 Tot Response: 3.01e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.55e+02	1.46e+02 1.06	yes	3.01e+02		n	y

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Peak List Summary

CLIENT ID.
SL0518

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519170 Sample:1 Injection:1 Function:4

Acquired: 3-DEC-18 12:46:13 Processed: 4-DEC-18 15:27:34

Mass: 423.7770 425.7740 Tot Response: 4.06e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.47e+03	1.36e+03	1.08	yes	2.82e+03		n	n
2	39:35	6.05e+02	6.37e+02	0.95	yes	1.24e+03	1,2,3,4,6,7,8-HpCDD	n	n

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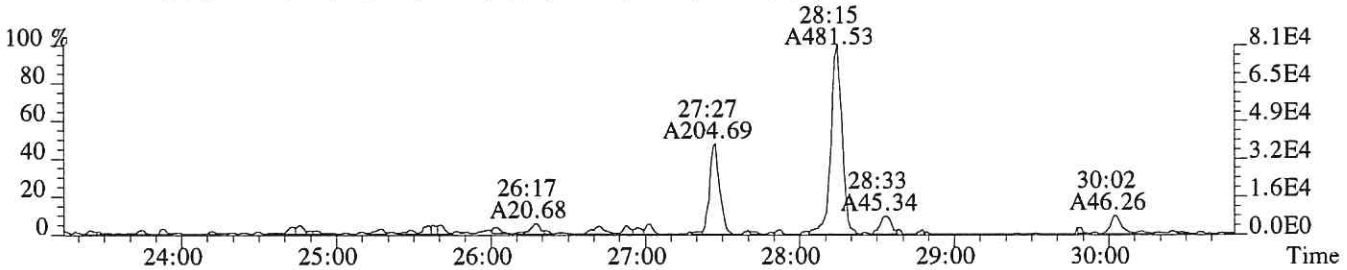
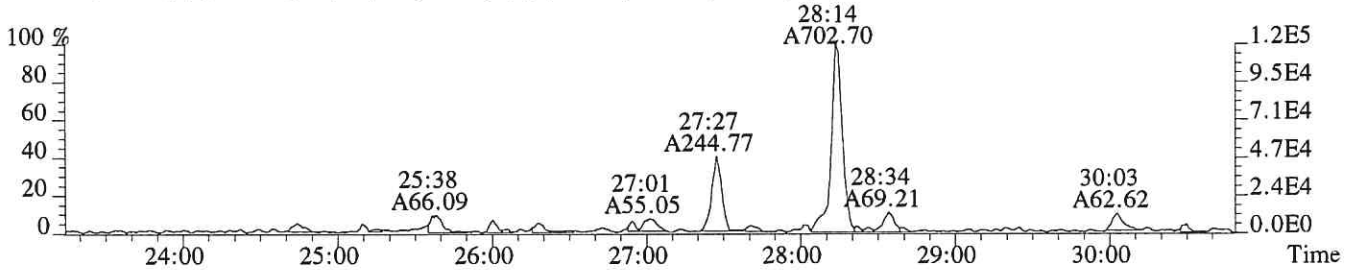
File:P519170 #1-538 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007

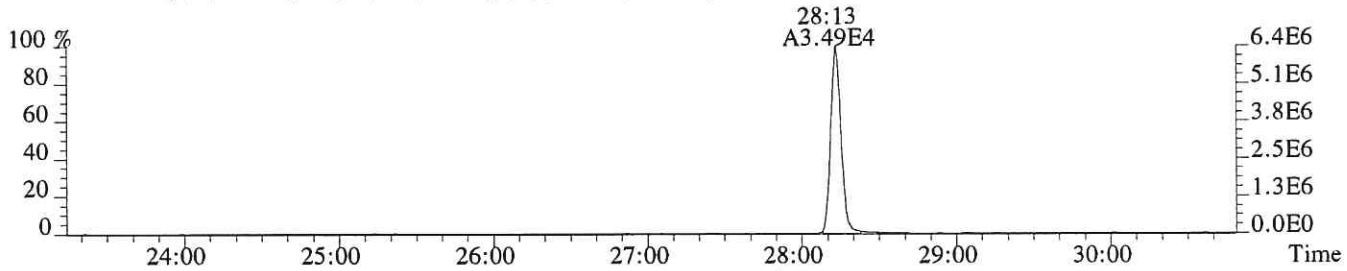
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



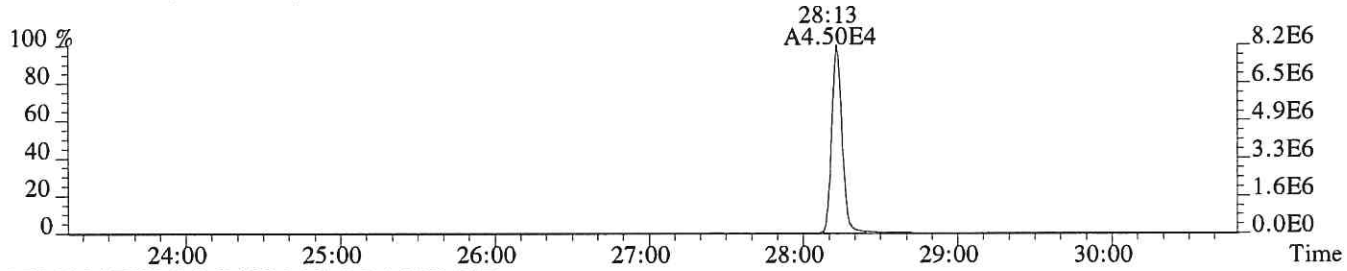
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



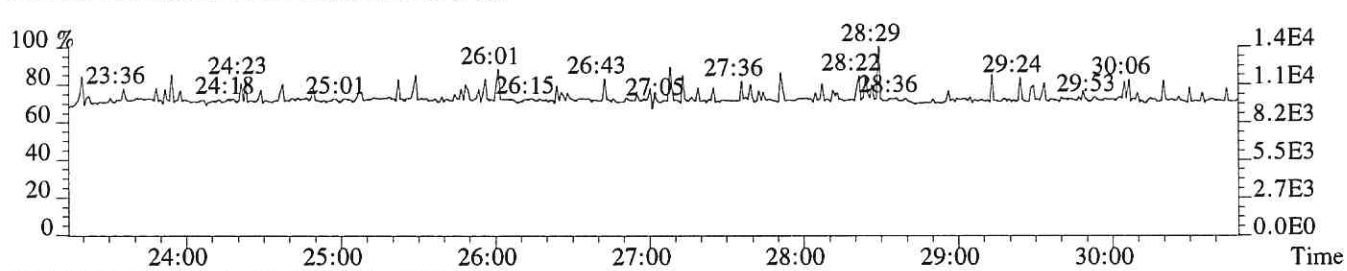
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8740.0,1.00%,F,T)



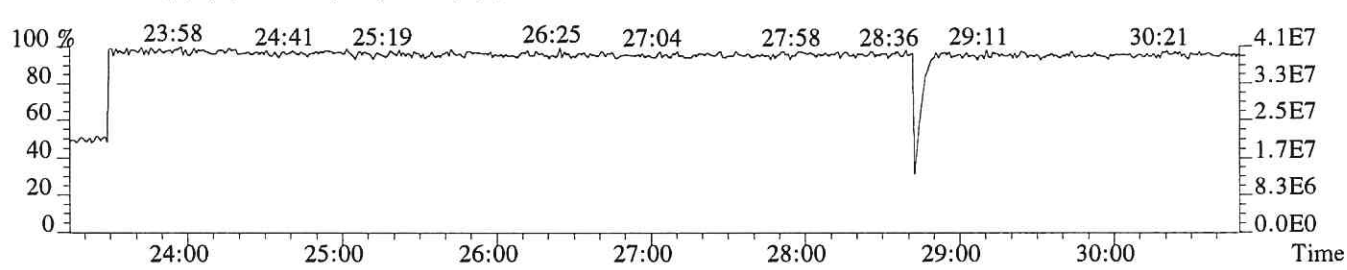
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4404.0,1.00%,F,T)



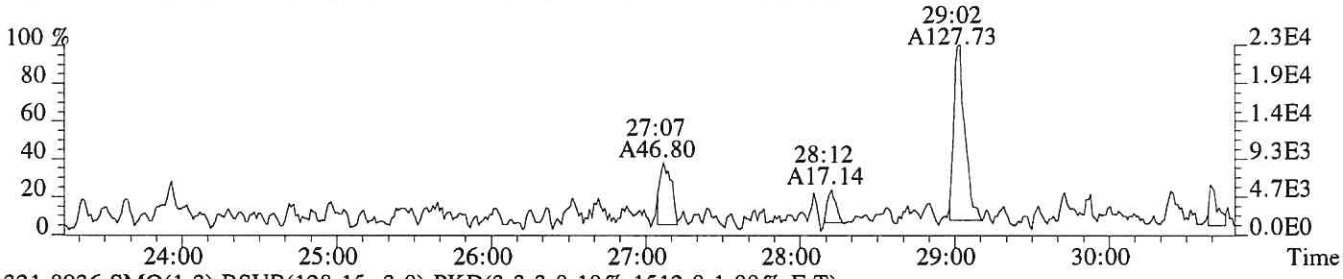
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



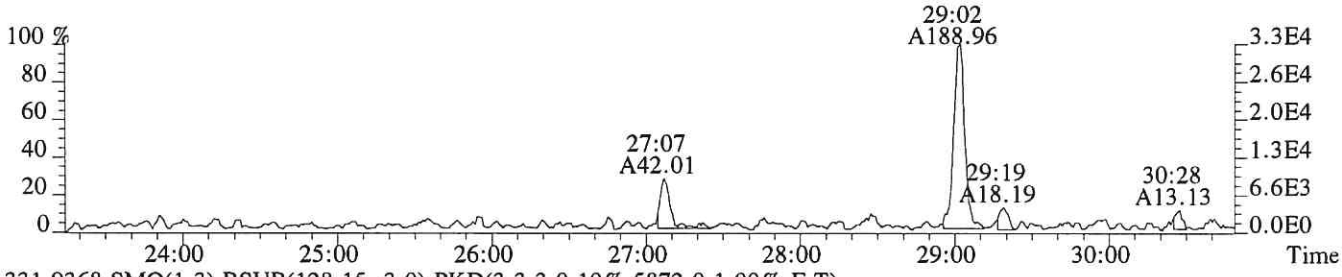
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



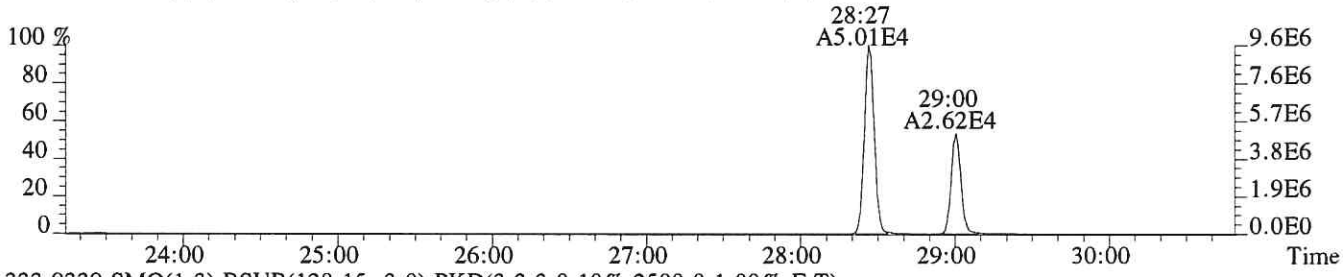
File:P519170 #1-538 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



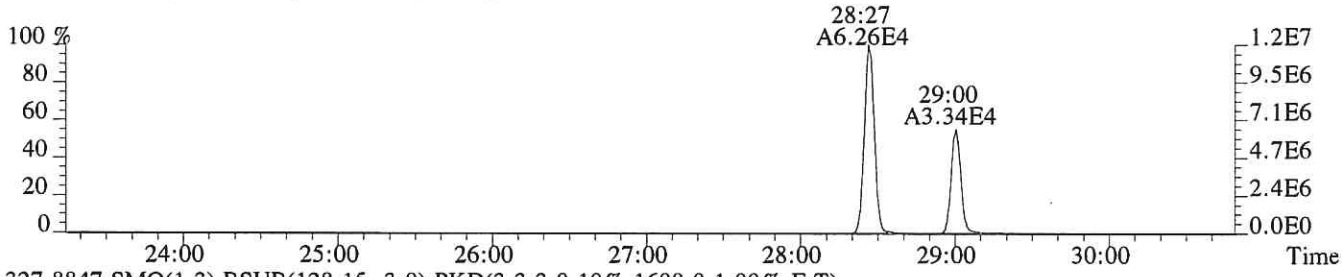
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



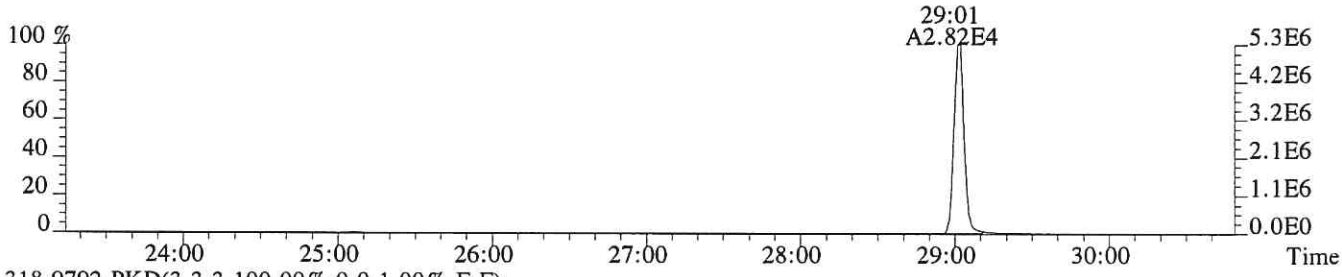
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



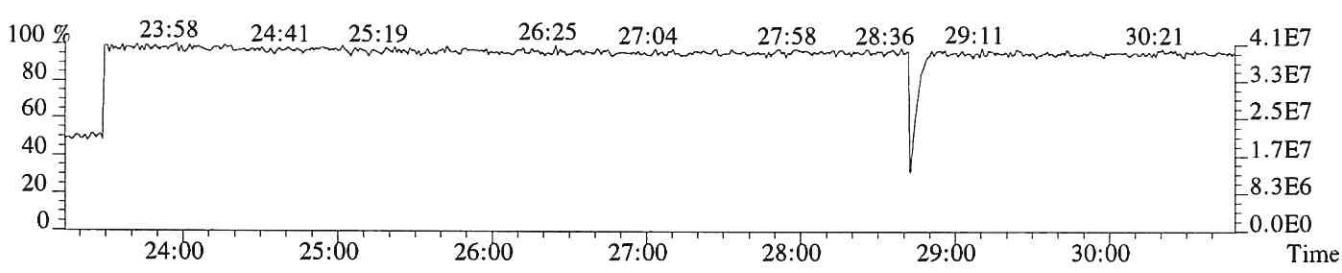
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



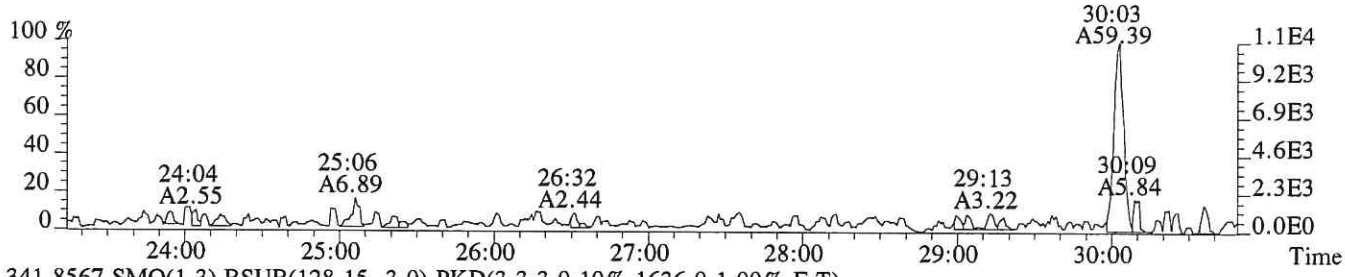
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



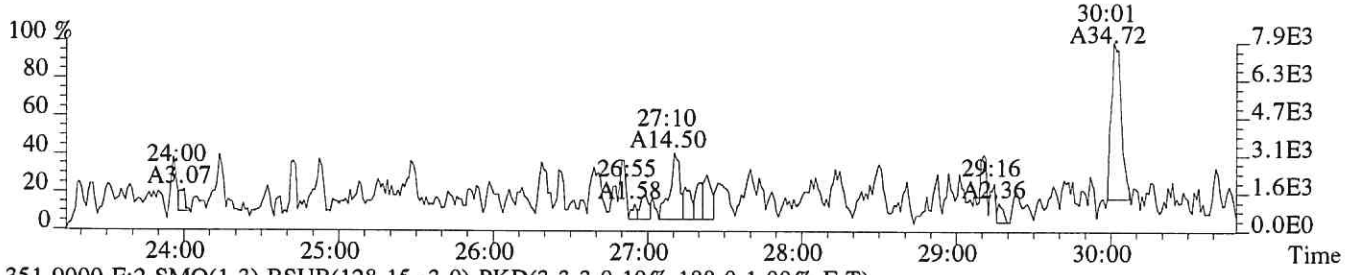
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



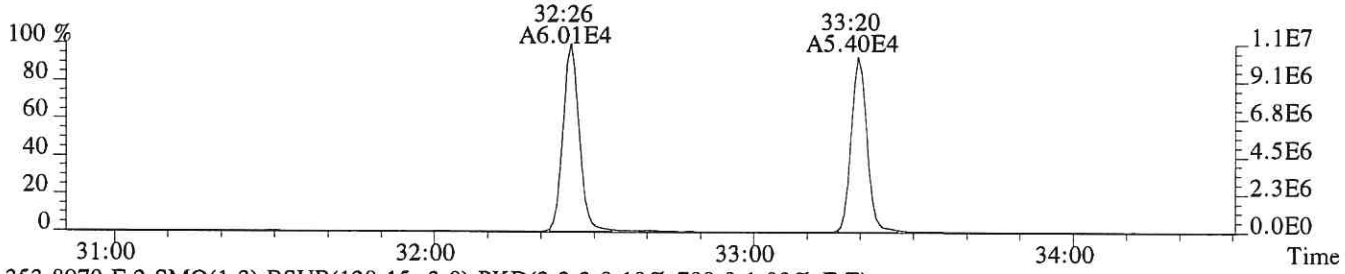
File:P519170 #1-538 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



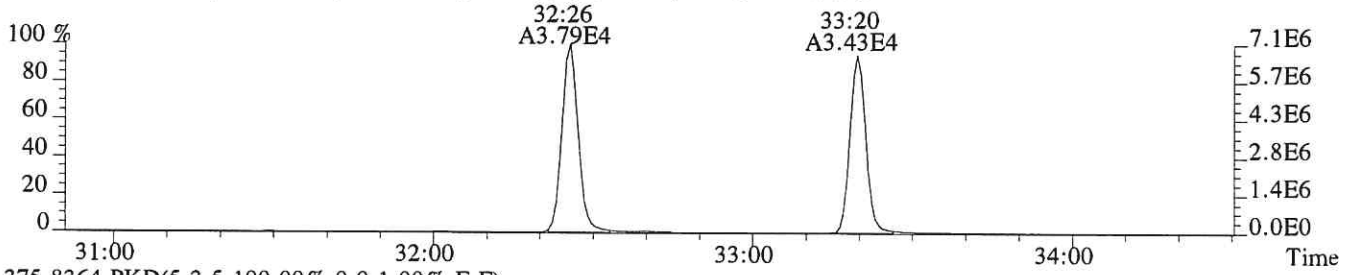
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



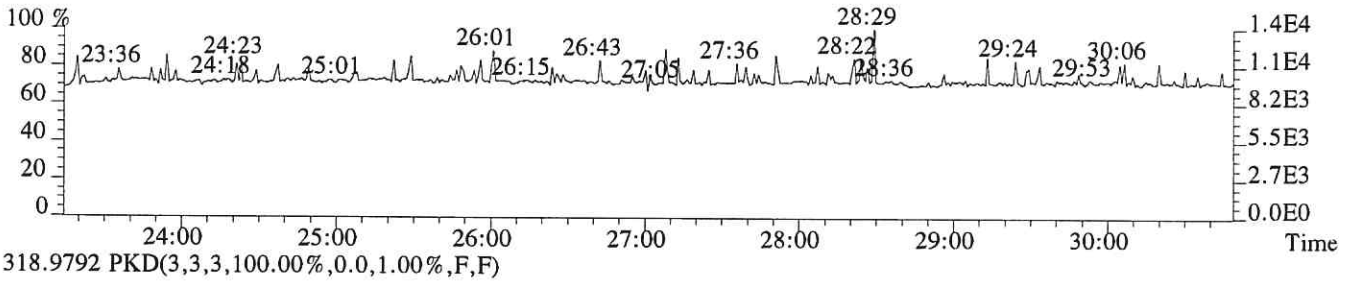
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



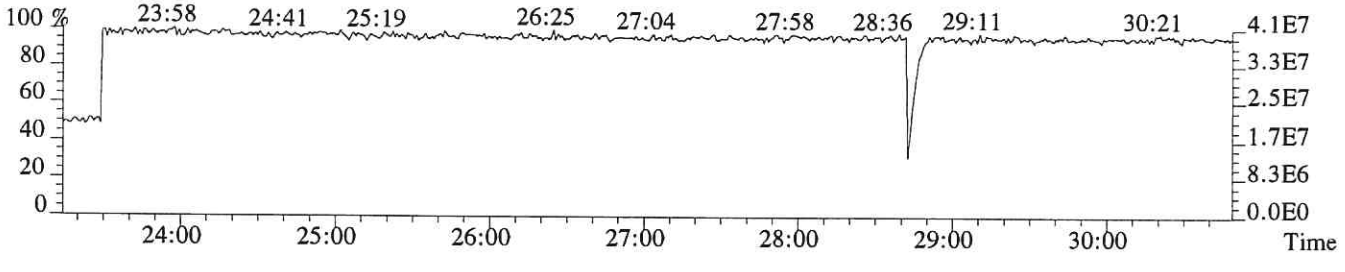
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



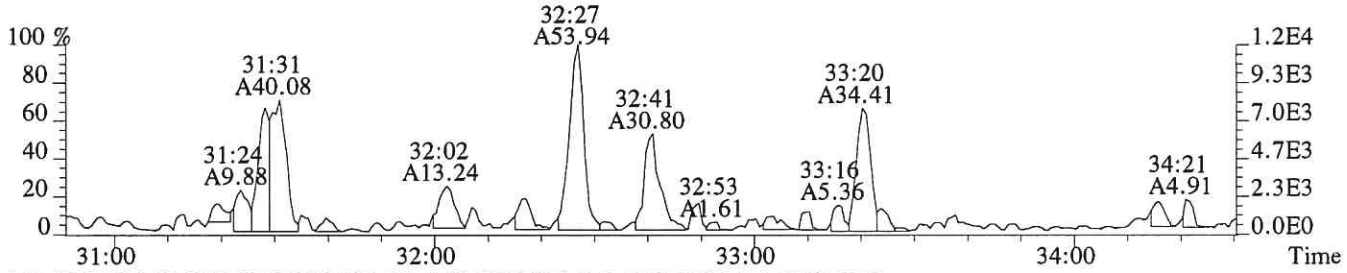
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



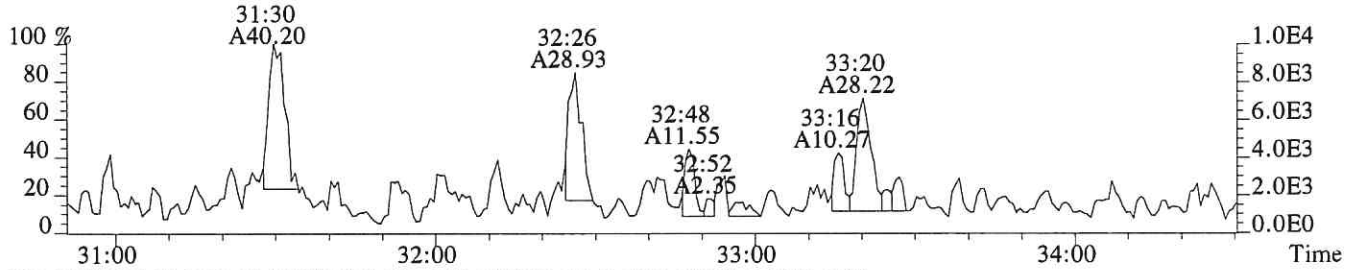
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



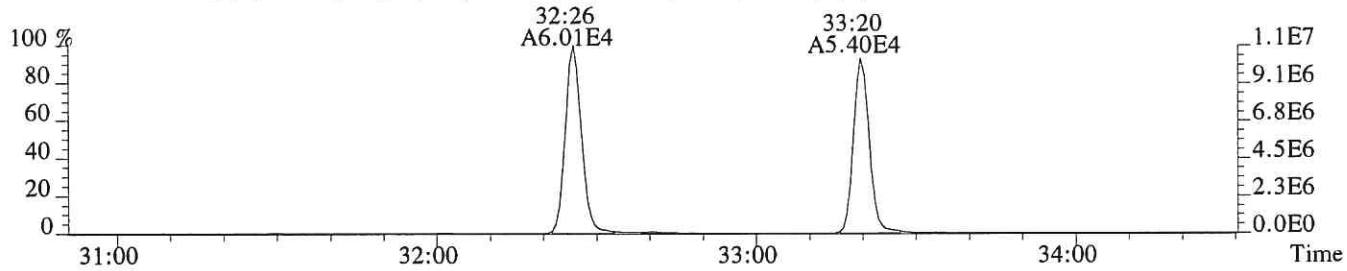
File:P519170 #1-330 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



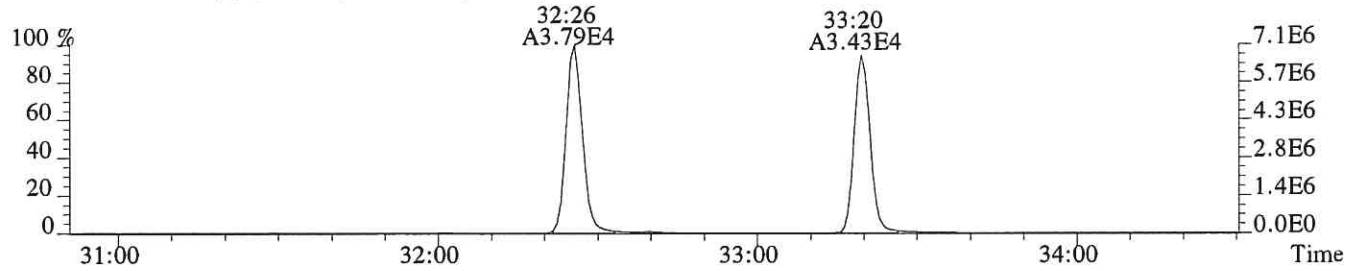
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



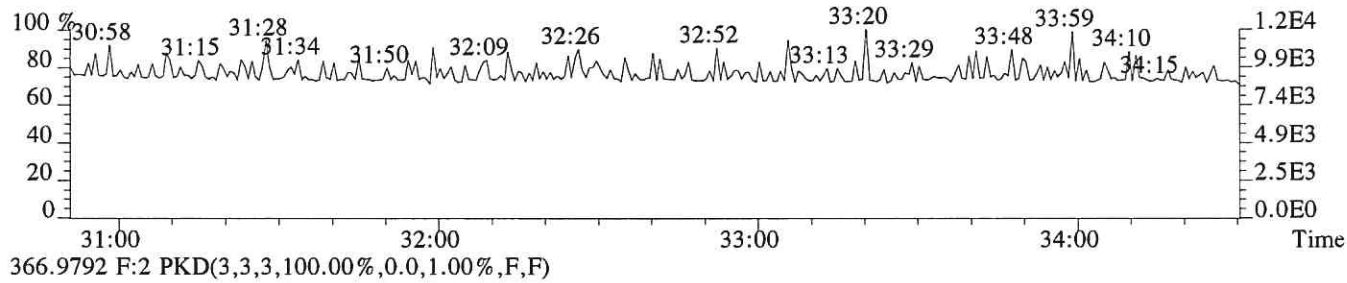
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



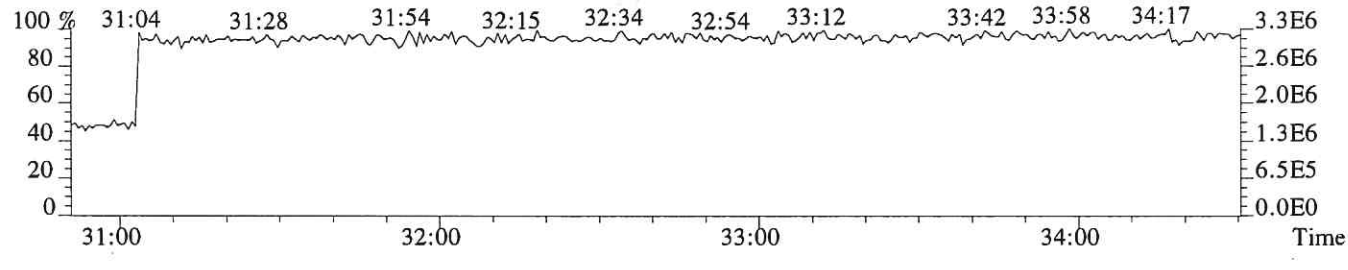
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



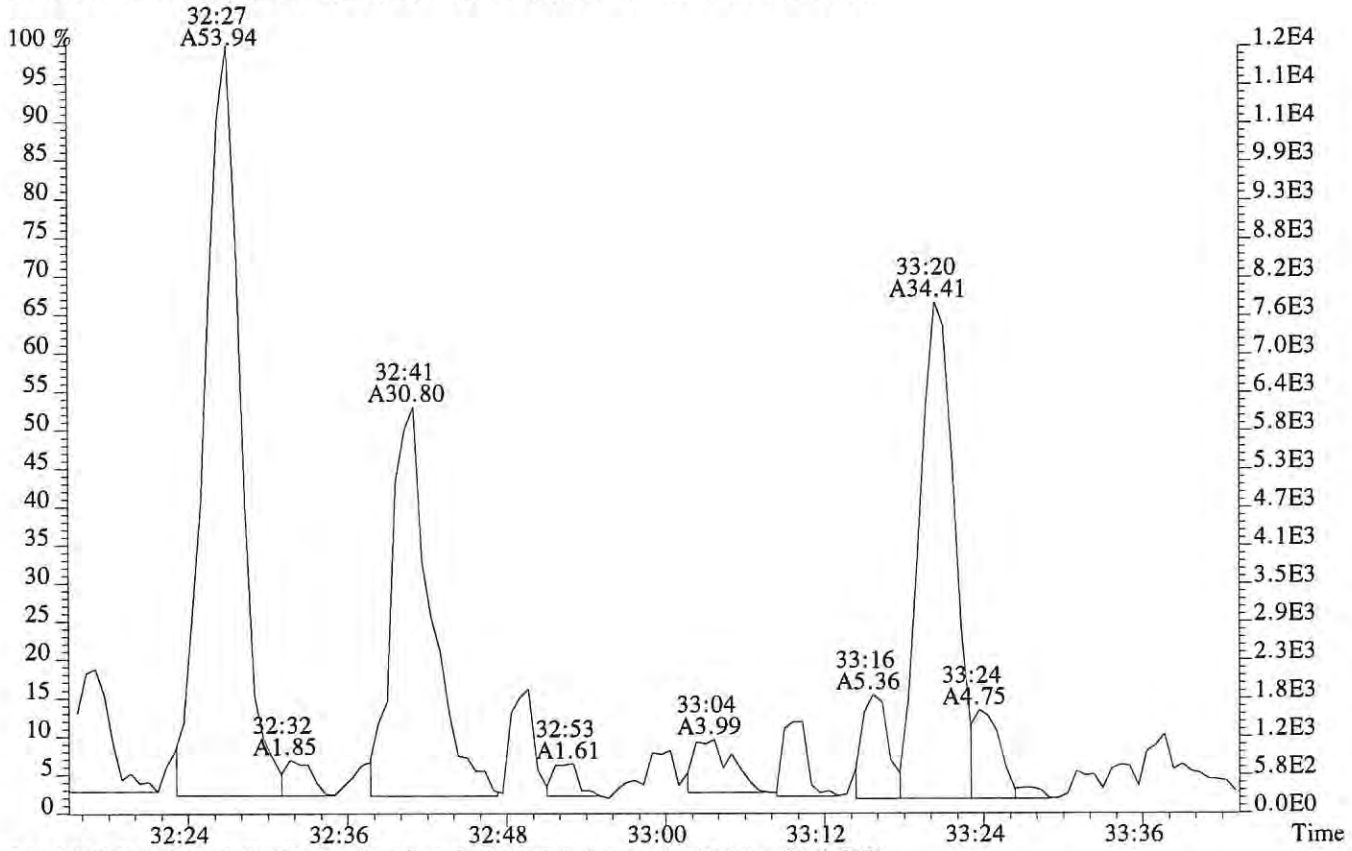
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



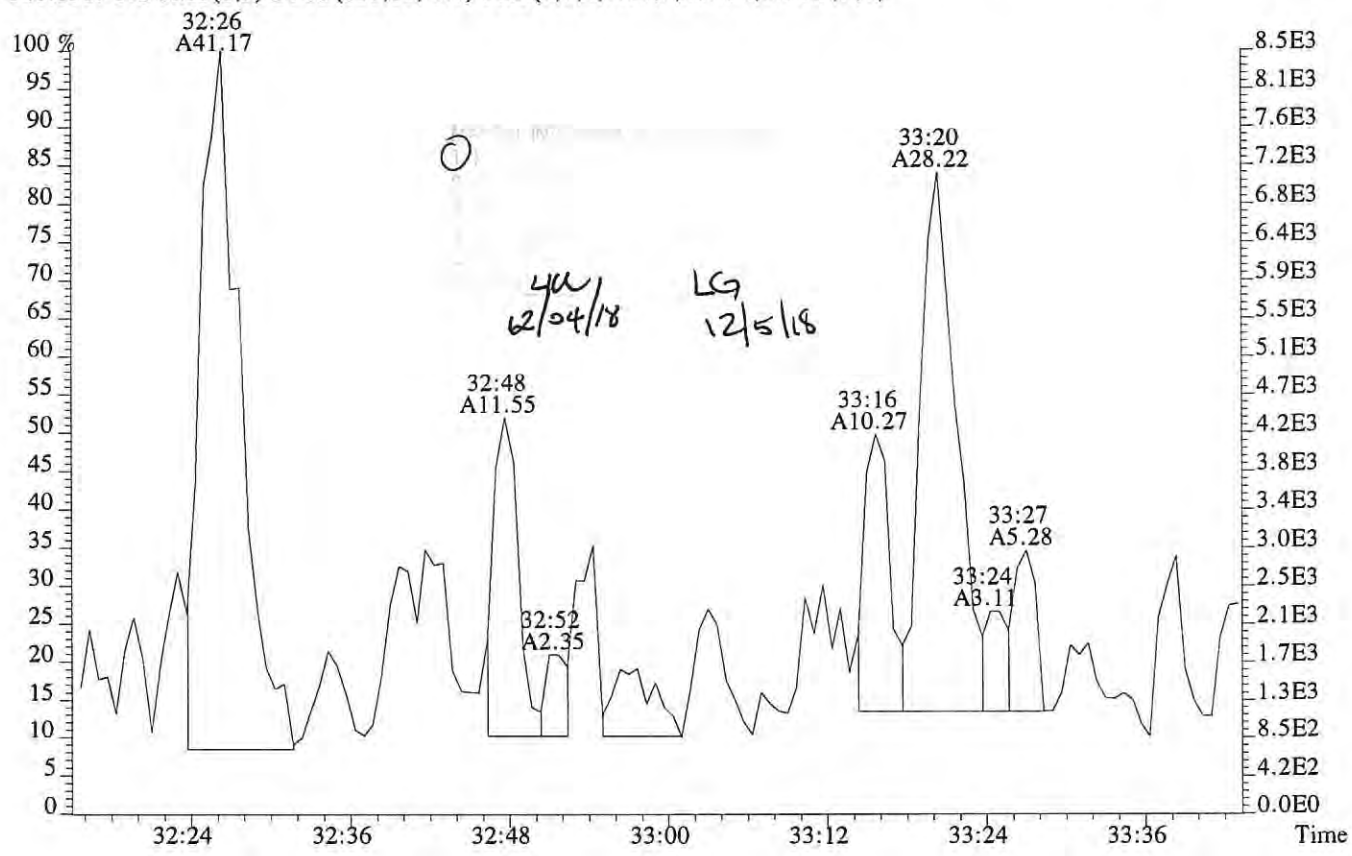
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



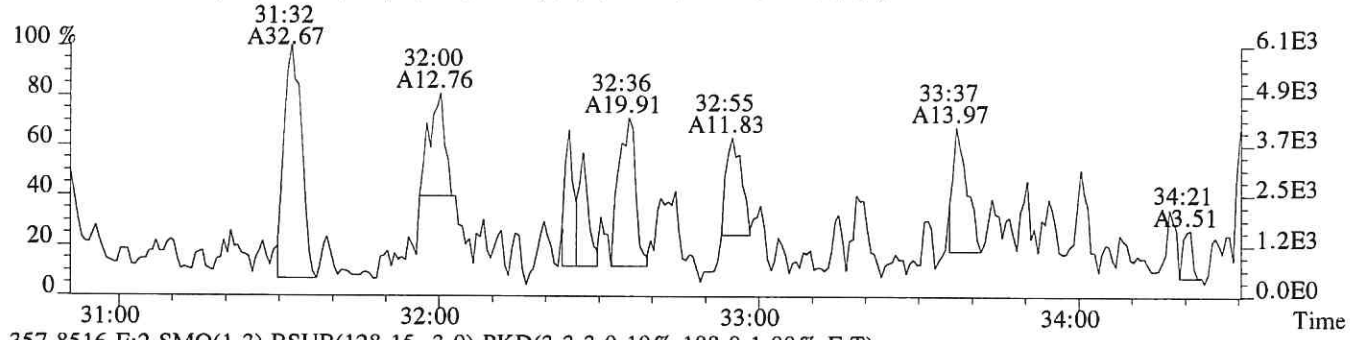
File:P519170 #1-330 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



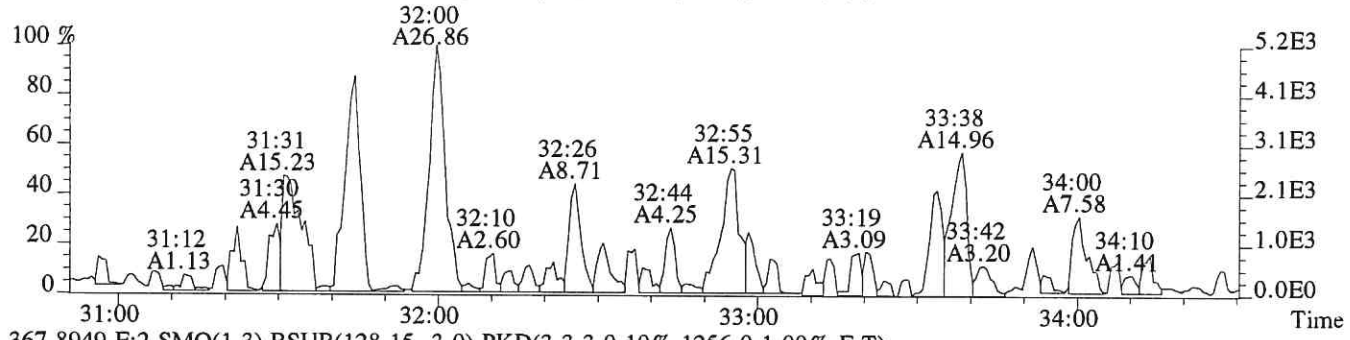
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



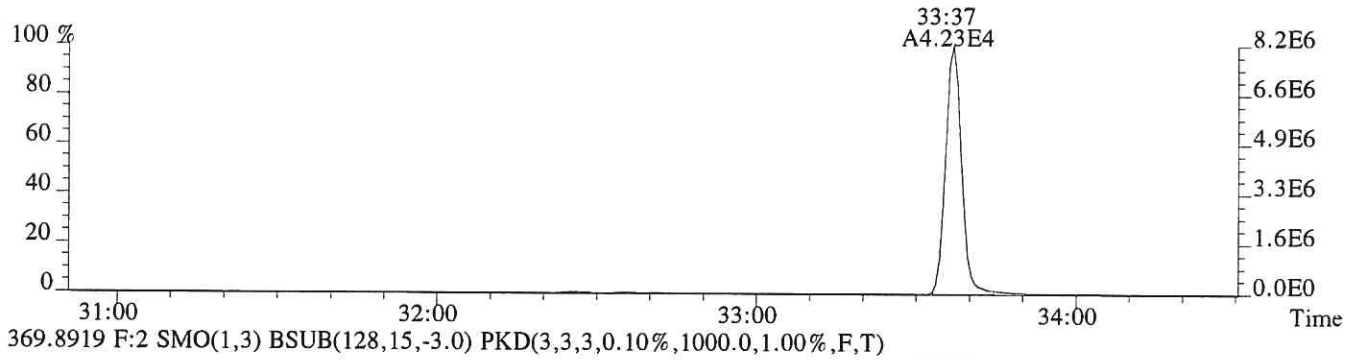
File:P519170 #1-330 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



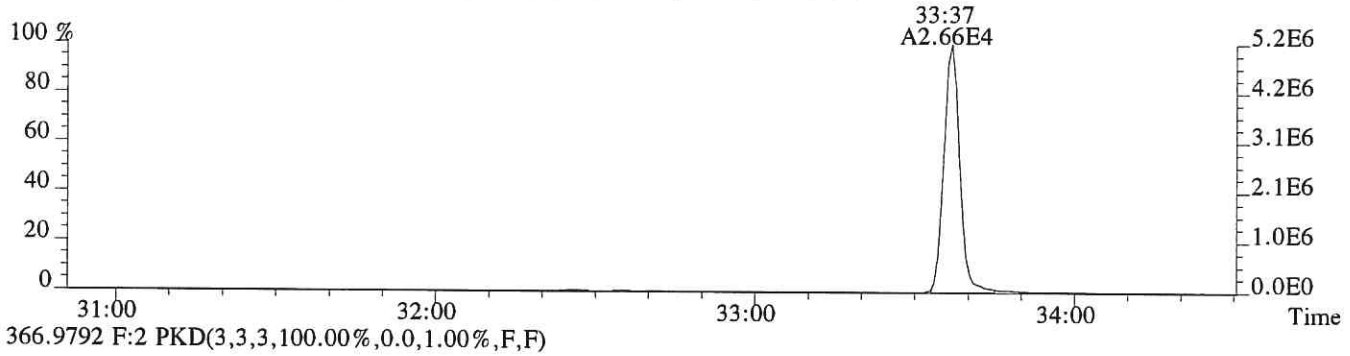
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



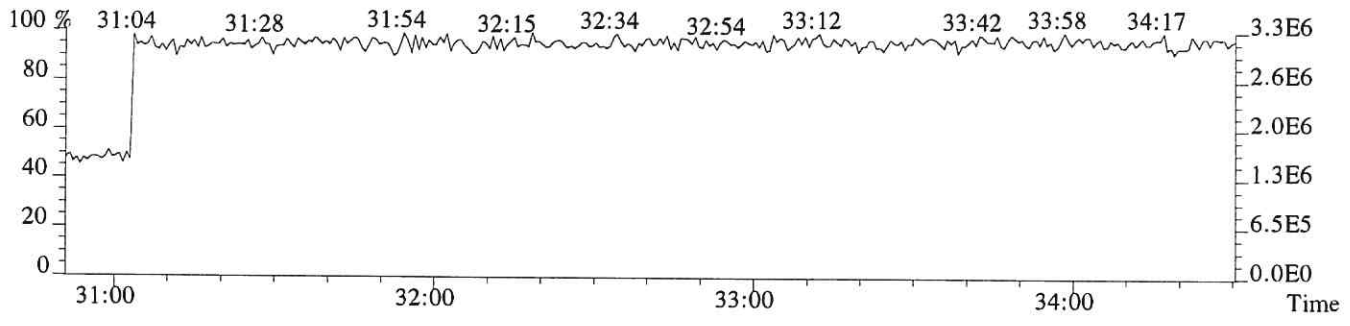
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



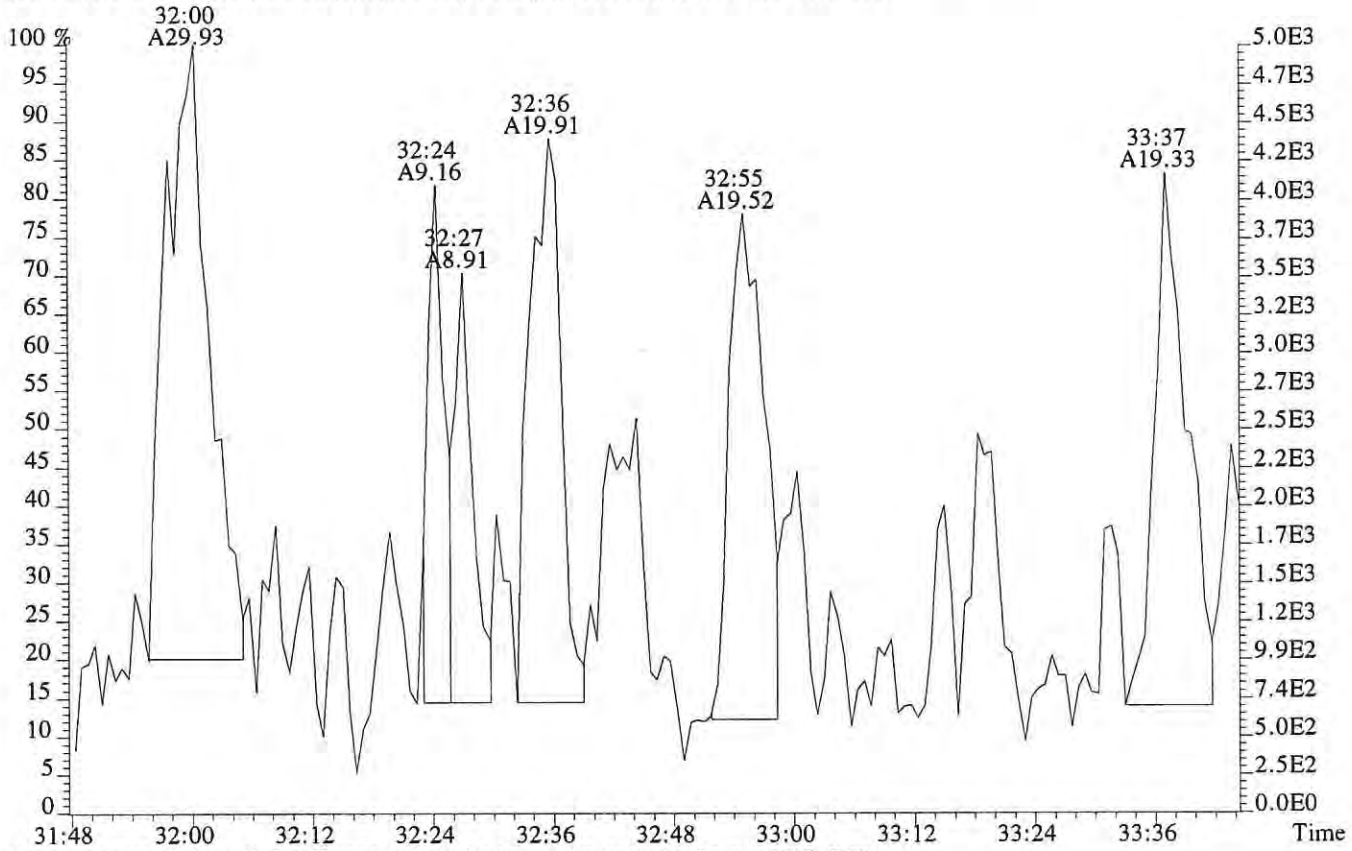
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



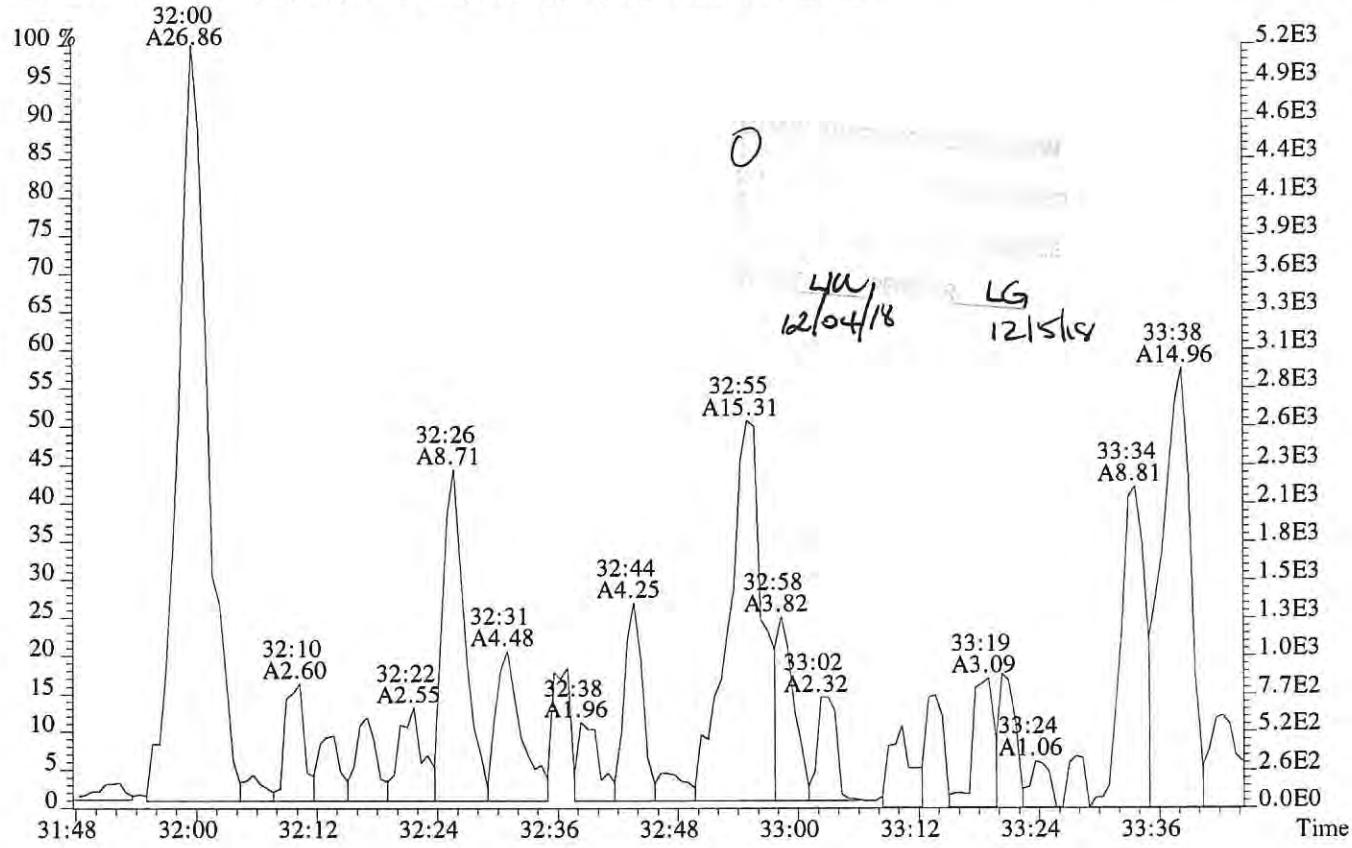
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519170 #1-330 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)

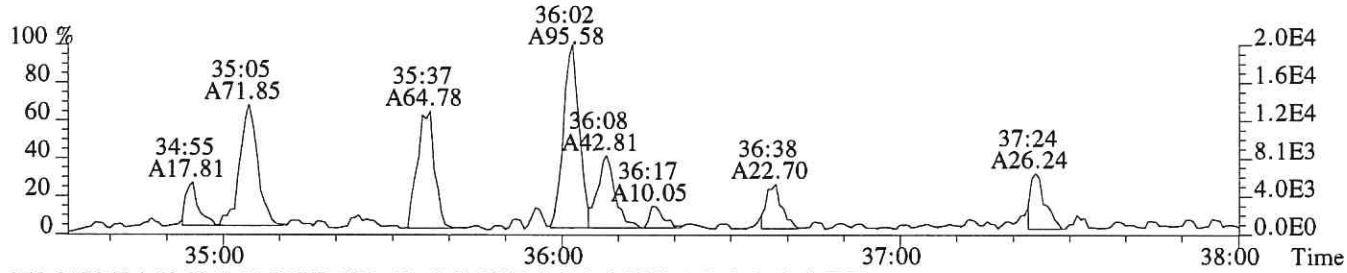


O

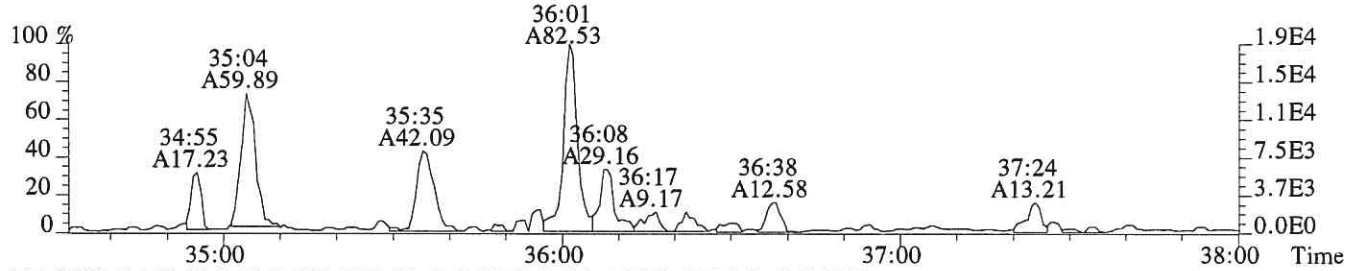
12/04/18

12/5/18

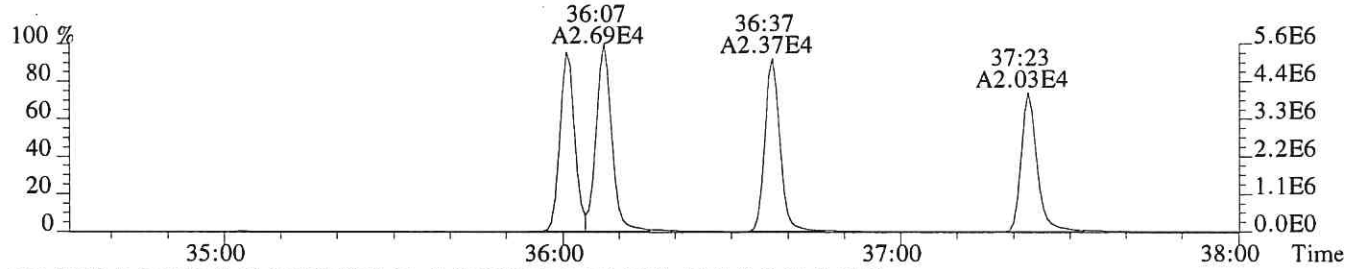
File:P519170 #1-312 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



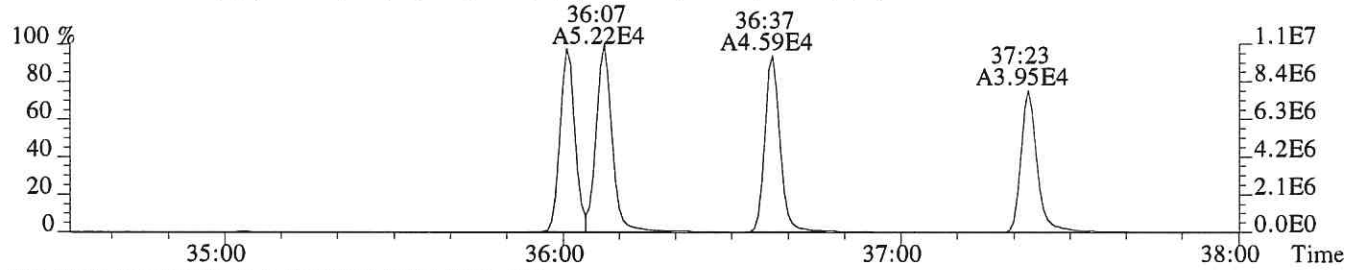
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



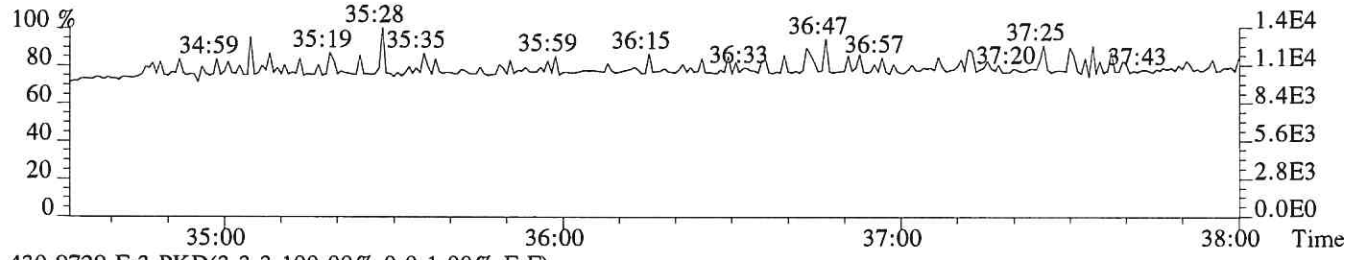
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



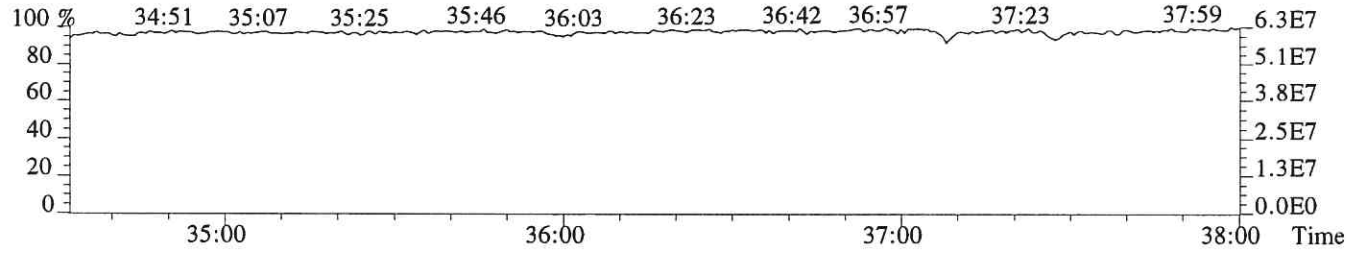
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



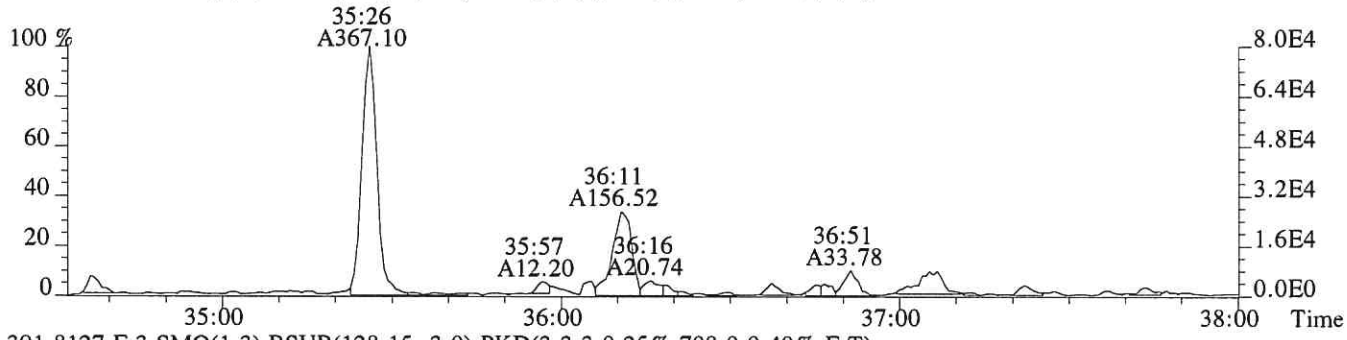
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



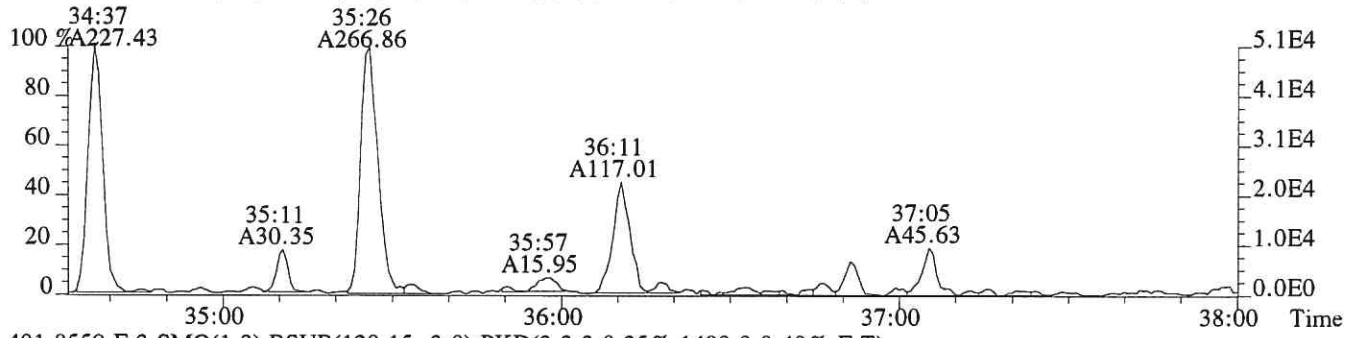
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



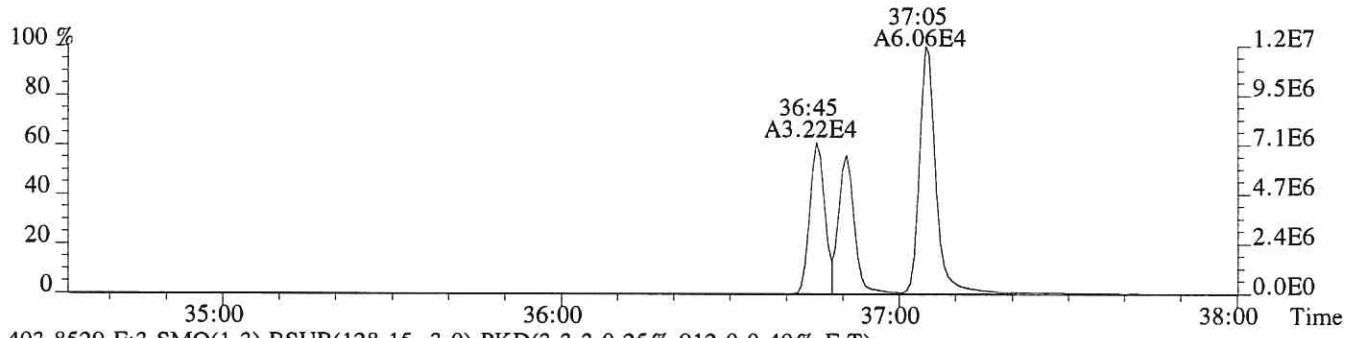
File:P519170 #1-312 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



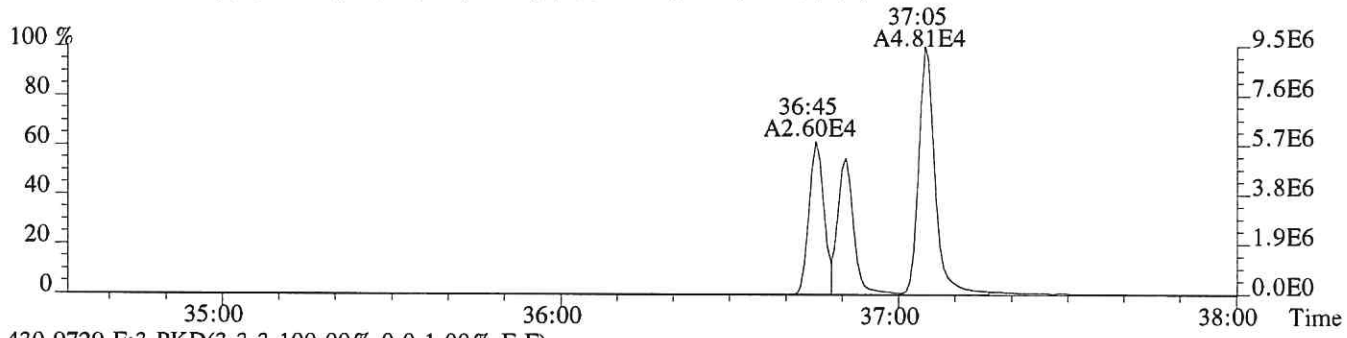
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



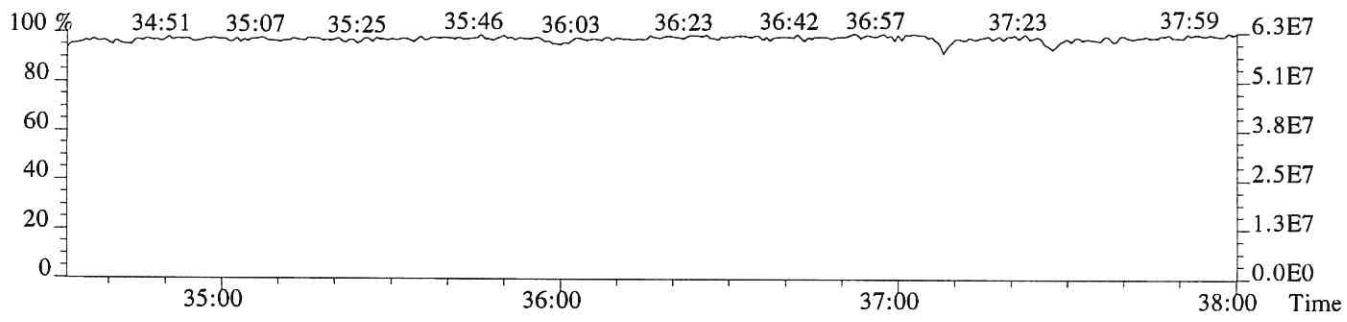
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)

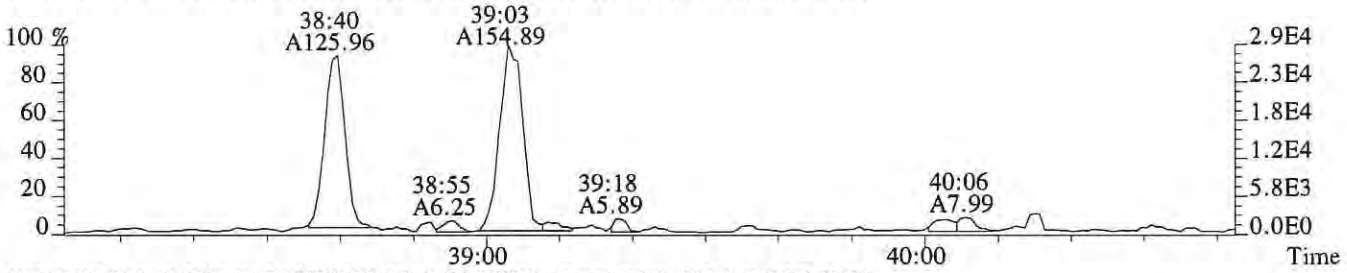


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

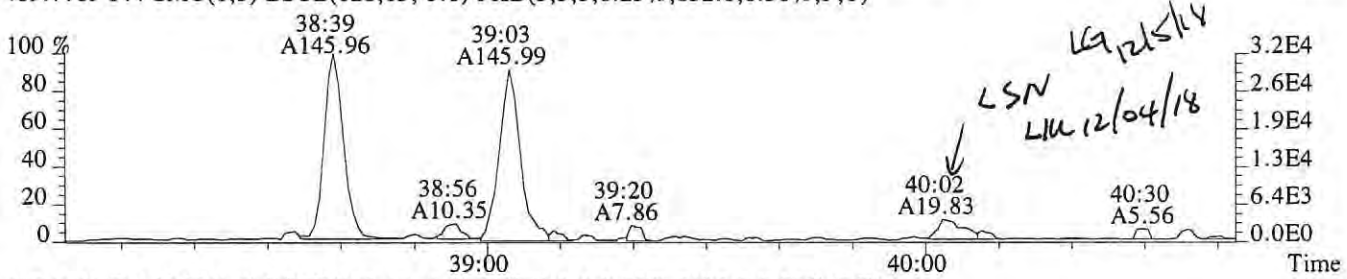


File:P519170 #1-241 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007

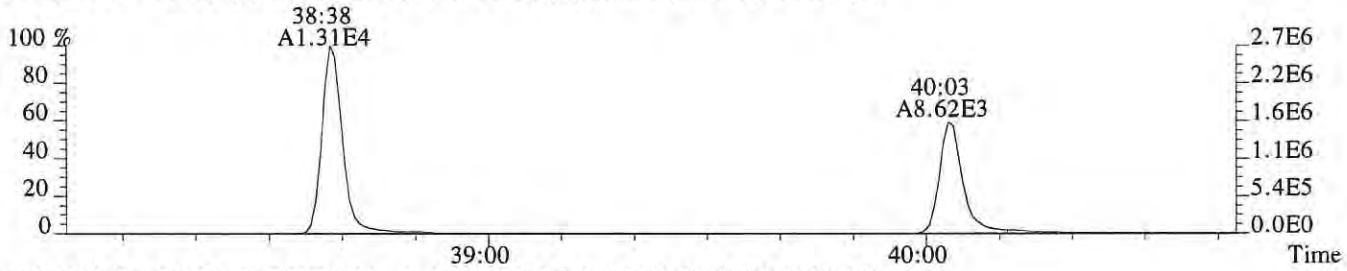
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.50%,F,T)



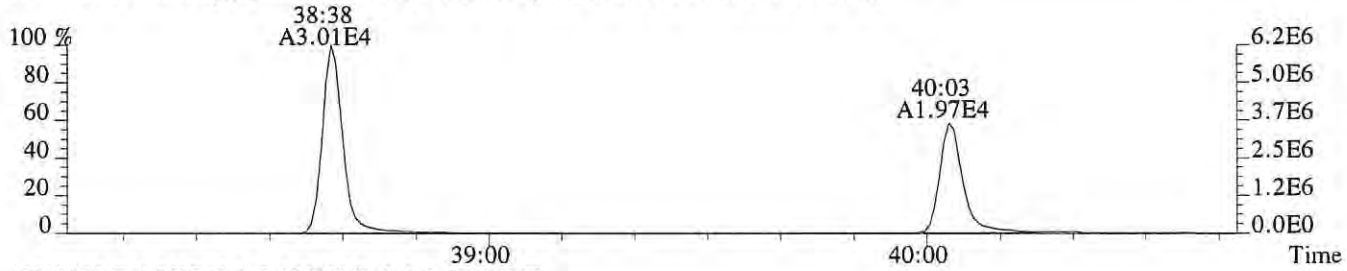
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.50%,F,T)



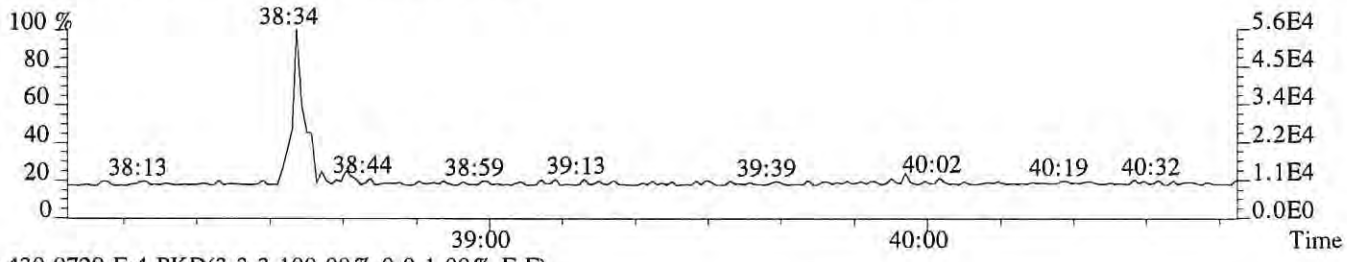
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.50%,F,T)



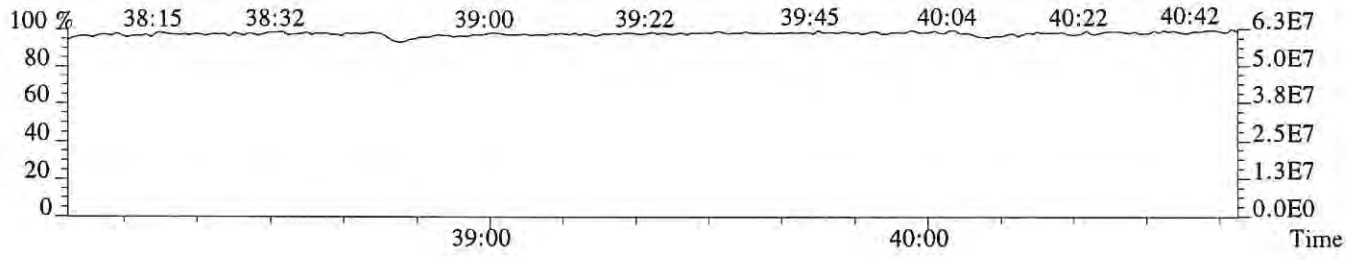
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2568.0,0.50%,F,T)



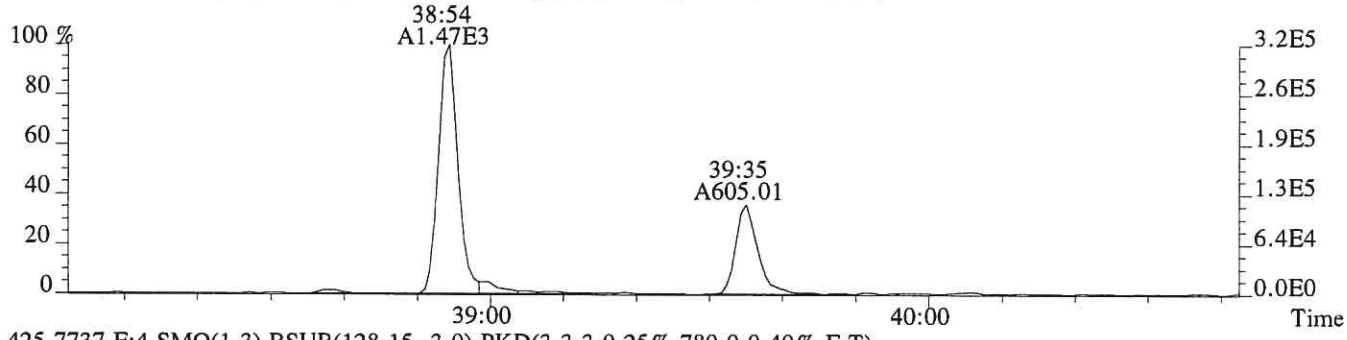
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



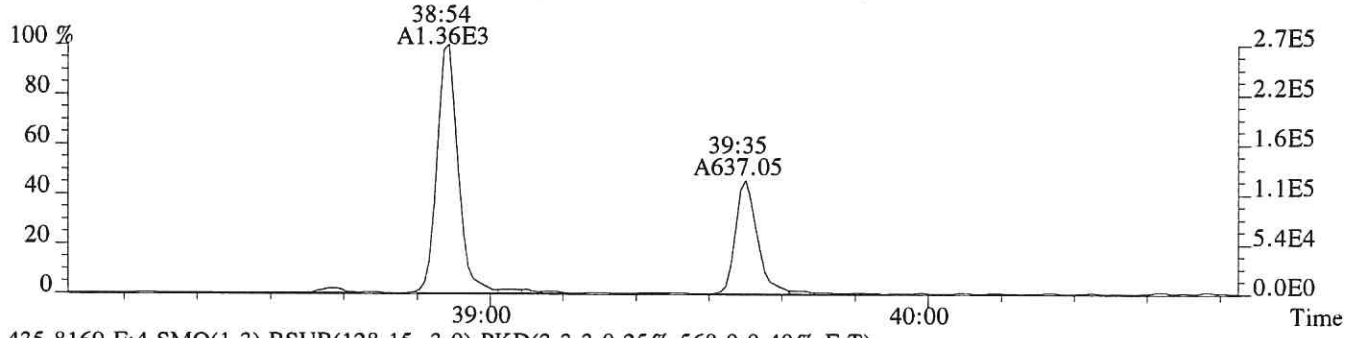
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



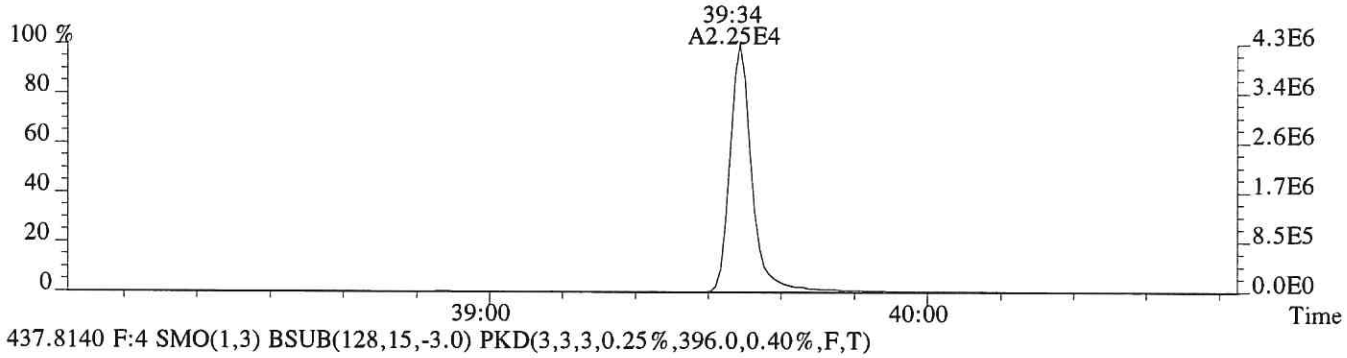
File:P519170 #1-241 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



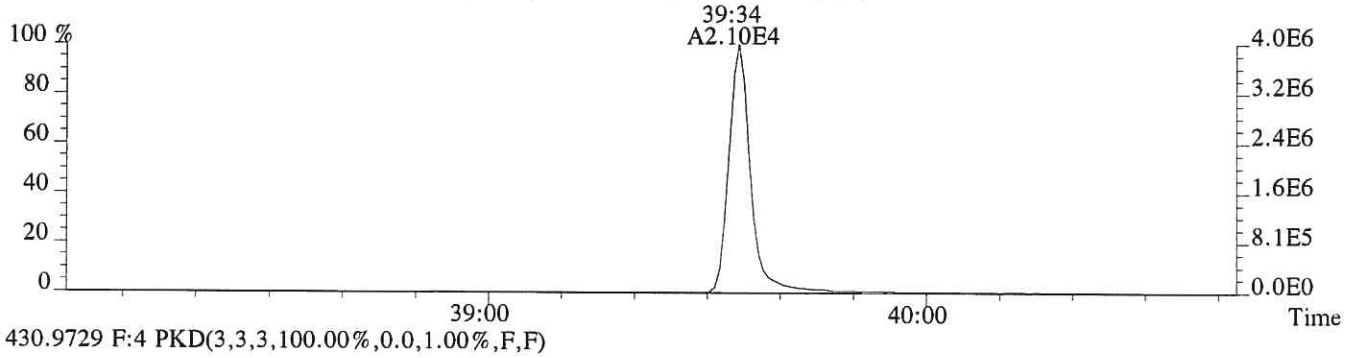
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



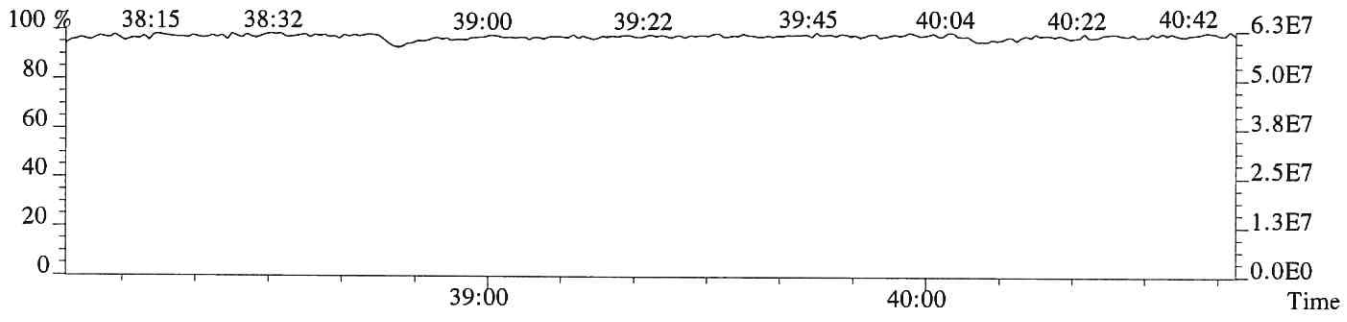
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)

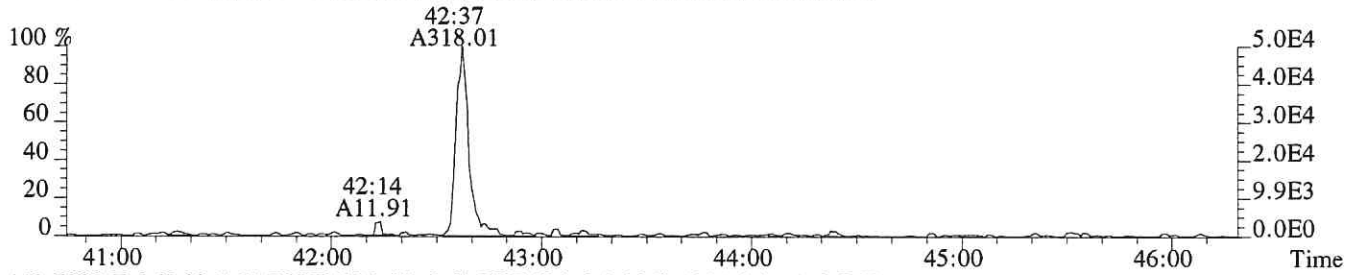


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

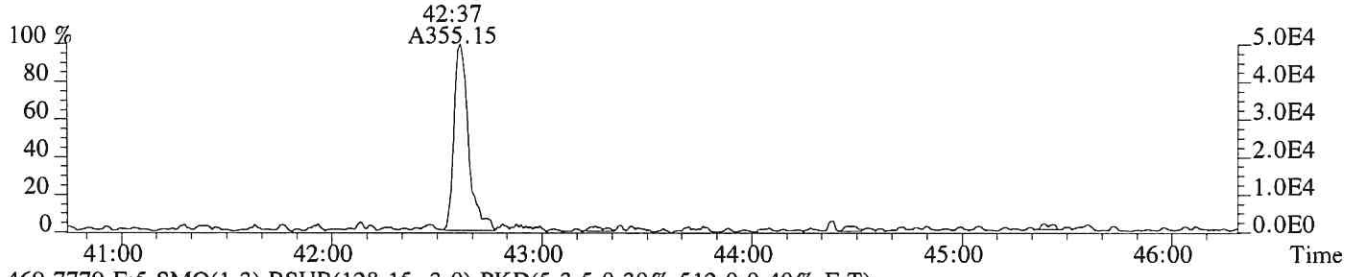


File:P519170 #1-502 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007

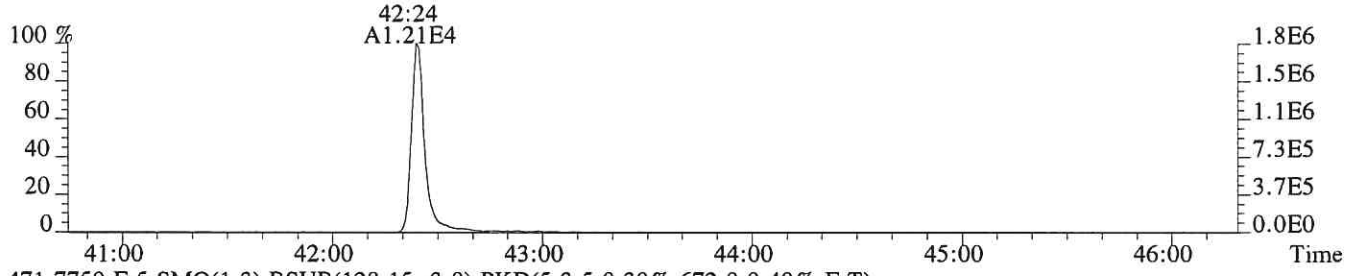
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



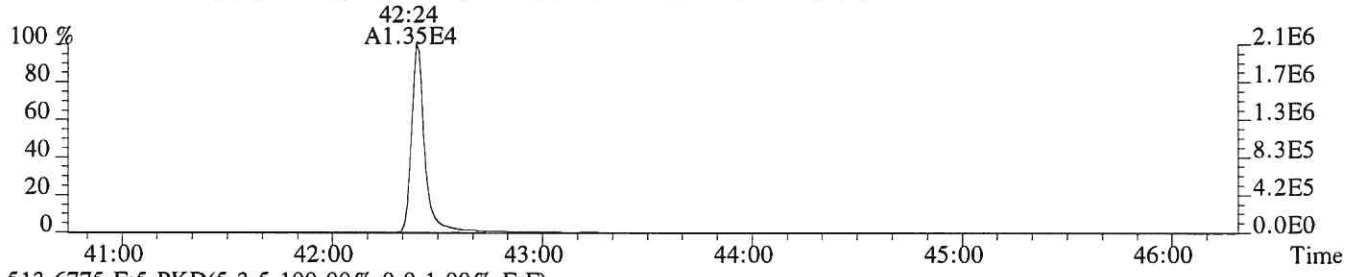
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



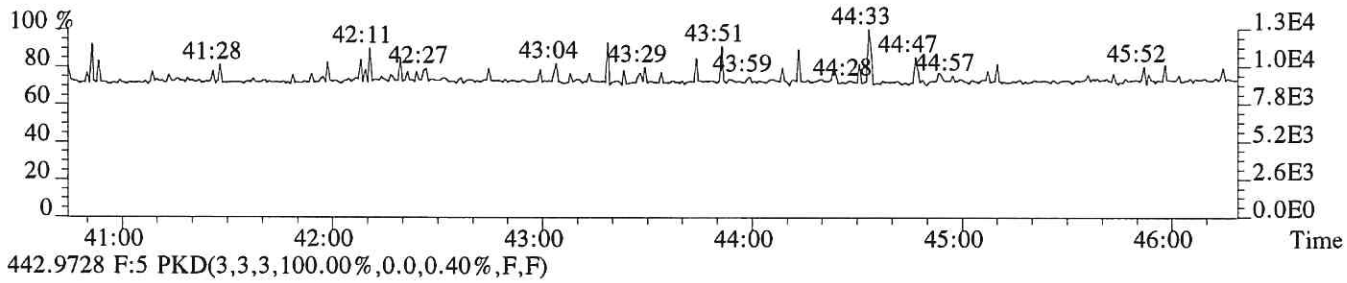
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)



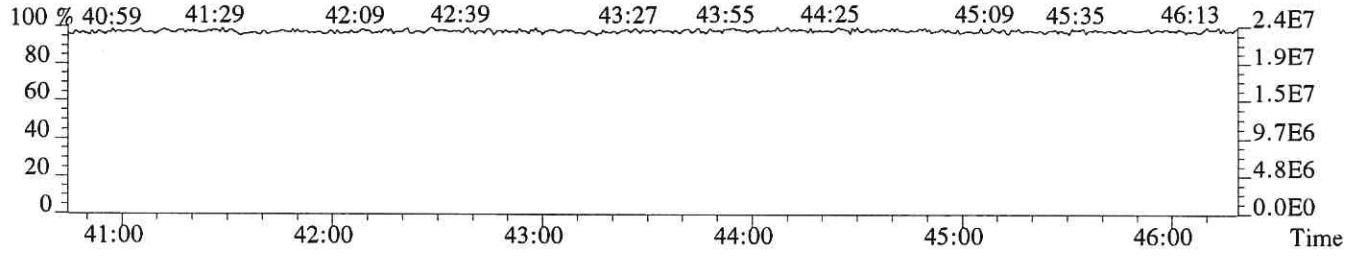
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



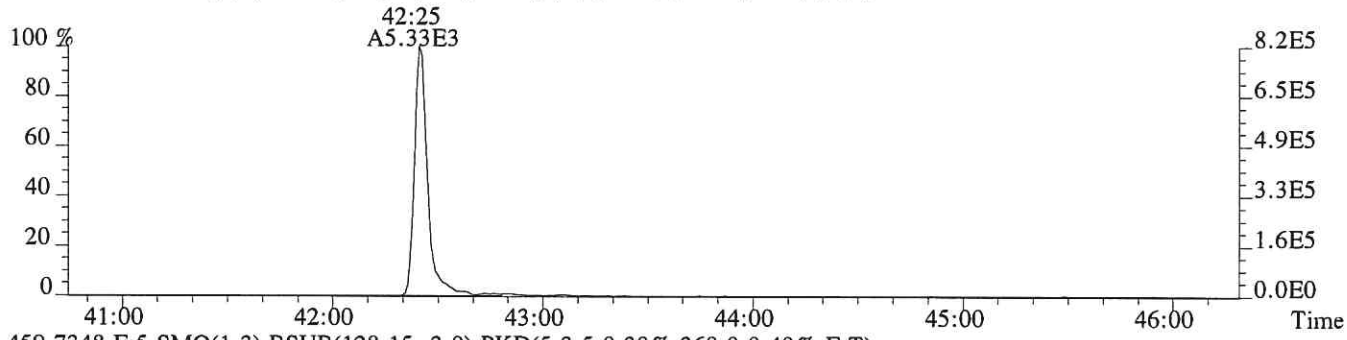
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



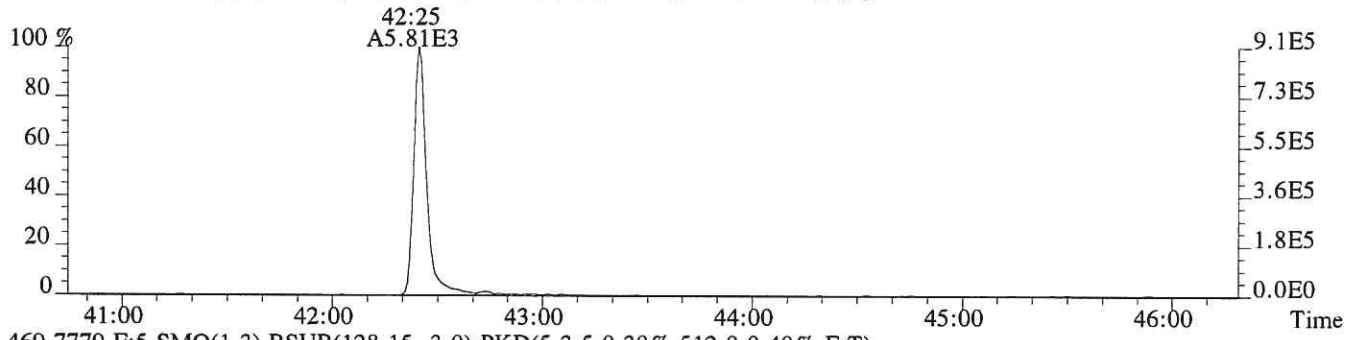
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



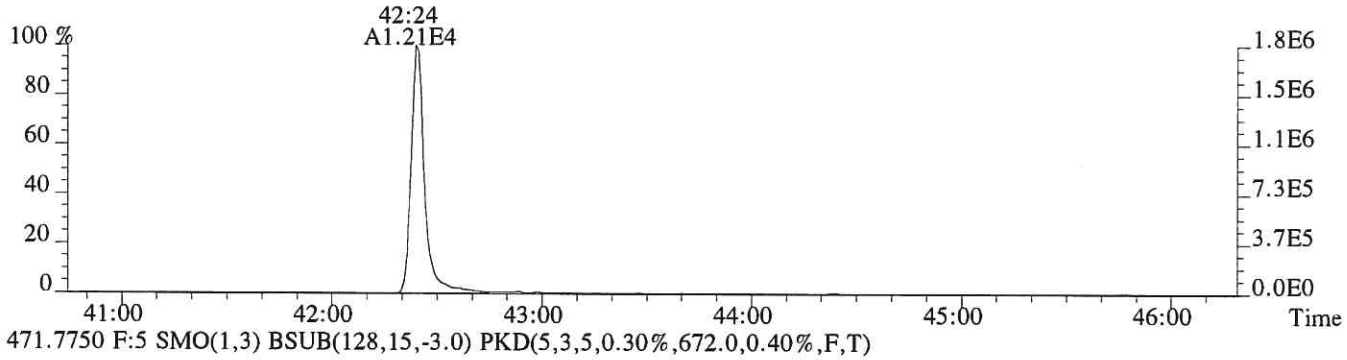
File:P519170 #1-502 Acq: 3-DEC-2018 12:46:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801040-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



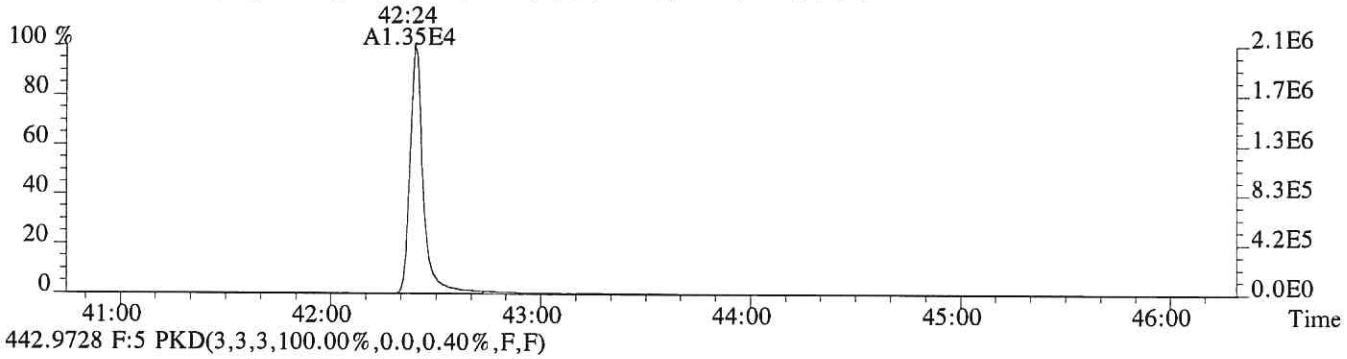
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



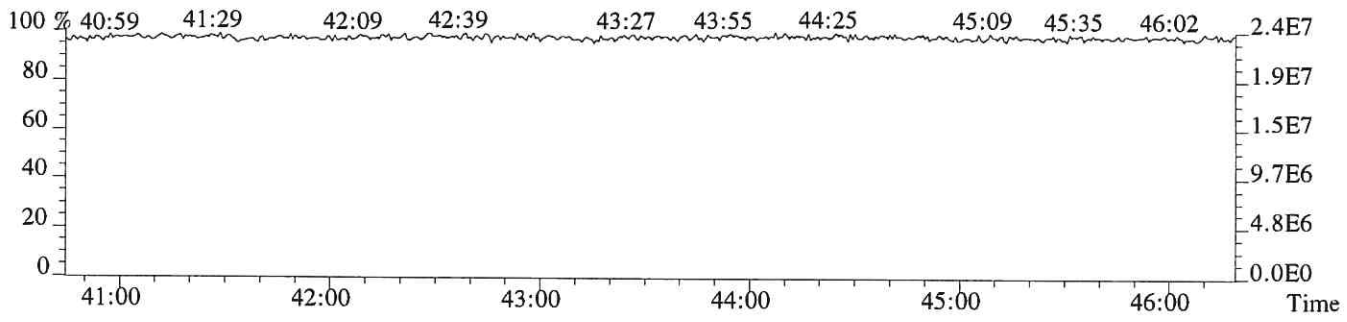
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 Sample ID: EQ1800469-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.025
17	Unk	OCDD	42:14	2.891e+01	2.976e+01	0.97	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:00	8.577e+03	1.118e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	2.013e+04	1.258e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	1.987e+04	1.251e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.199e+04	2.309e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.375e+04	2.583e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.298e+04	2.498e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.211e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.125e+04	2.507e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.099e+04	2.499e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	6.062e+03	7.842e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.567e+04	9.758e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.780e+04	1.422e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.769e+04	1.358e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.305e+04	2.207e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:14	2.849e+04	3.204e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	8.552e+03	1.054e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.051e+04	1.617e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.418e+03				no	1.014

$$\text{OCDD} = \frac{(2.891e+01 + 2.976e+01) \times 4000\ \text{pg} \times 1}{(2.849e+04 + 3.204e+04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 LAB. ID: EQ1800469-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.48e+02	*	*	1.29e+03	*
2	1,2,3,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
3	2,3,4,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.40e+02	*	*	2.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	3.88e+02	*	*	3.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.88e+02	*	*	3.64e+02	*
10	OCDF	*	2.00e+02	*	*	8.04e+02	*
11	2,3,7,8-TCDD	*	1.43e+03	*	*	8.48e+02	*
12	1,2,3,7,8-PeCDD	*	3.68e+02	*	*	2.36e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.44e+02	*	*	2.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	4.52e+02	*	*	3.80e+02	*
17	OCDD	5.81e+03	2.36e+02	2.5e+01	6.08e+03	2.32e+02	2.6e+01
18	13C-2,3,7,8-TCDF	1.53e+06	4.88e+03	3.1e+02	2.00e+06	5.08e+03	3.9e+02
19	13C-1,2,3,7,8-PeCDF	3.78e+06	4.00e+02	9.4e+03	2.38e+06	8.24e+02	2.9e+03
20	13C-2,3,4,7,8-PeCDF	3.91e+06	4.00e+02	9.8e+03	2.51e+06	8.24e+02	3.0e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+06	4.00e+02	6.6e+03	5.12e+06	6.28e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.50e+06	6.28e+02	8.8e+03
23	13C-2,3,4,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.53e+06	6.28e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.60e+06	4.00e+02	6.5e+03	5.02e+06	6.28e+02	8.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.38e+06	1.70e+03	1.4e+03	5.42e+06	3.68e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.13e+06	1.70e+03	1.3e+03	4.91e+06	3.68e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.19e+06	3.89e+03	3.0e+02	1.50e+06	2.08e+03	7.2e+02
28	13C-1,2,3,7,8-PeCDD	3.11e+06	7.00e+02	4.4e+03	1.90e+06	6.48e+02	2.9e+03
29	13C-1,2,3,4,7,8-HxCDD	4.08e+06	9.60e+02	4.3e+03	3.25e+06	4.76e+02	6.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.76e+06	9.60e+02	3.9e+03	2.90e+06	4.76e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.58e+06	1.37e+03	3.3e+03	4.36e+06	1.25e+03	3.5e+03
32	13C-OCDD	4.85e+06	2.64e+02	1.8e+04	5.43e+06	1.64e+02	3.3e+04
33	13C-1,2,3,4-TCDD	1.62e+06	3.89e+03	4.2e+02	1.98e+06	2.08e+03	9.5e+02
34	13C-1,2,3,7,8,9-HxCDD	4.26e+06	9.60e+02	4.4e+03	3.30e+06	4.76e+02	6.9e+03
35	37Cl-2,3,7,8-TCDD	1.24e+06	8.96e+02	1.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519219 Sample:1 Injection:1 Function:4

Acquired: 5-DEC-18 08:32:35 Processed: 6-DEC-18 10:05:53

Mass: 423.7770 425.7740 Tot Response: 2.43e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	1.17e+01	1.26e+01 0.94	yes	2.43e+01		n	n

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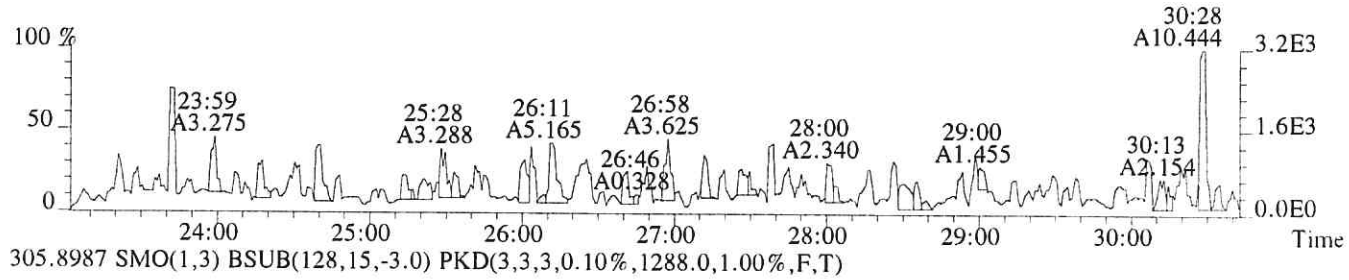
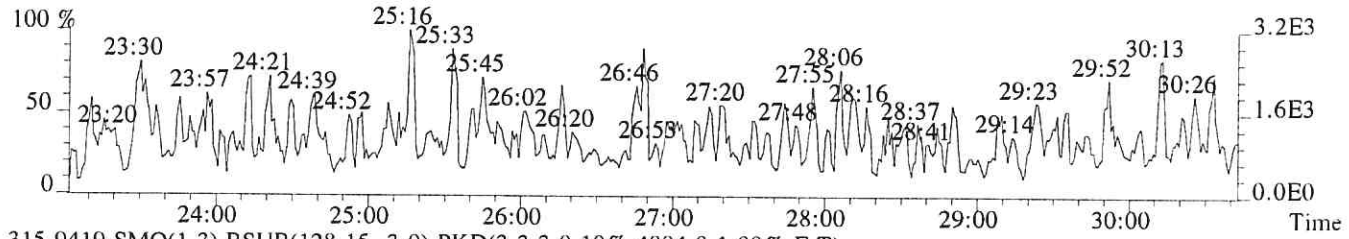
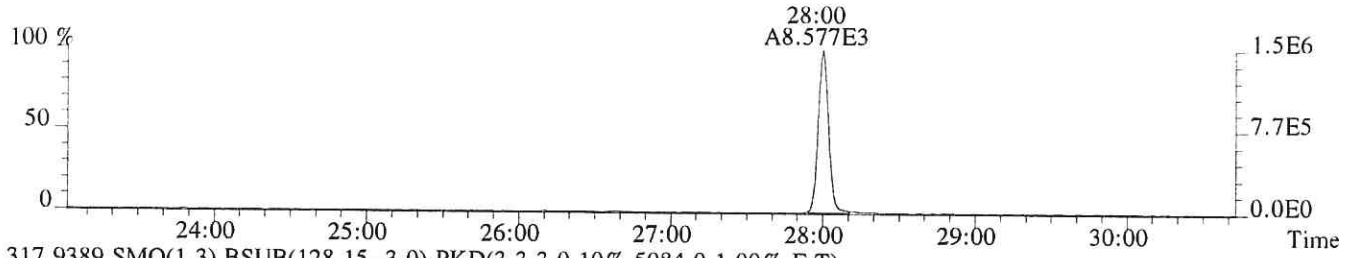
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



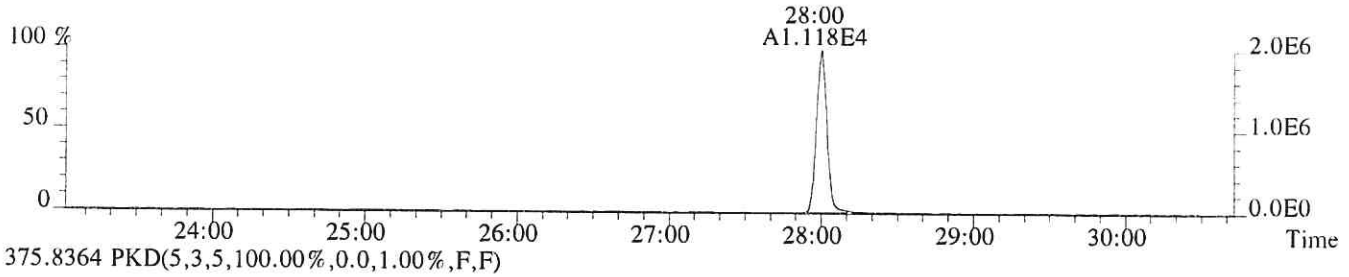
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



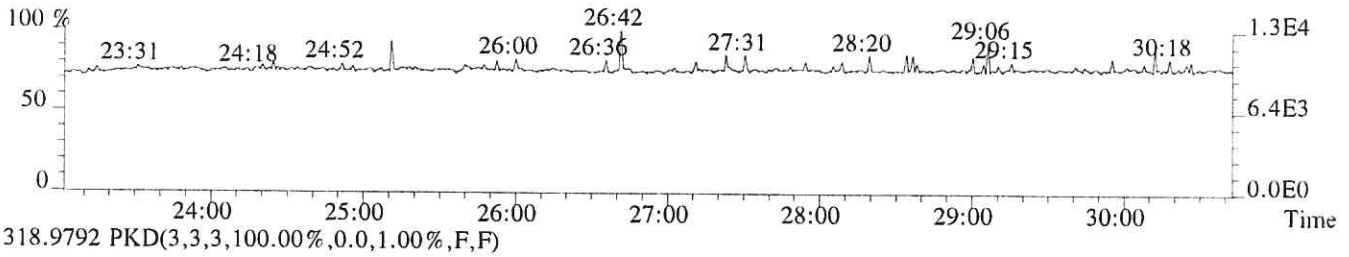
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4884.0,1.00%,F,T)



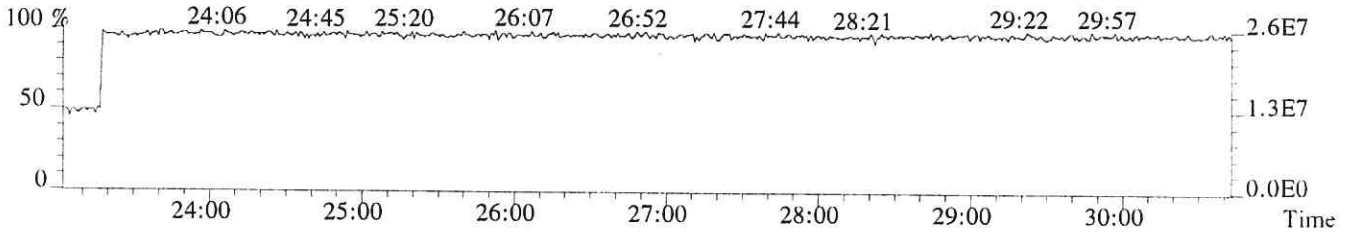
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5084.0,1.00%,F,T)



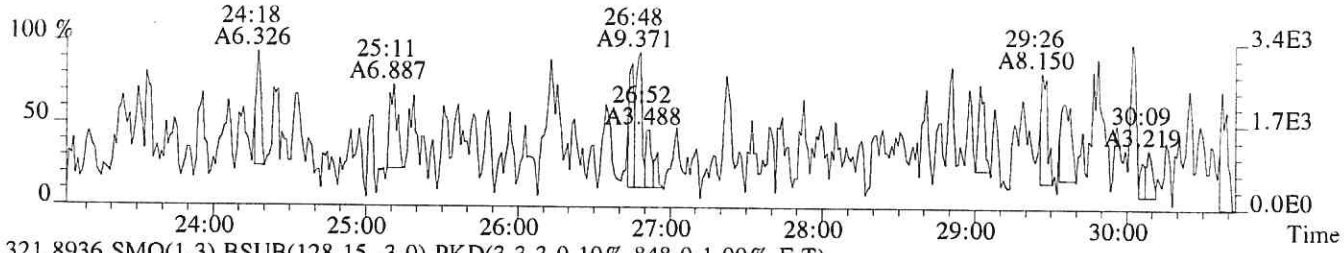
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



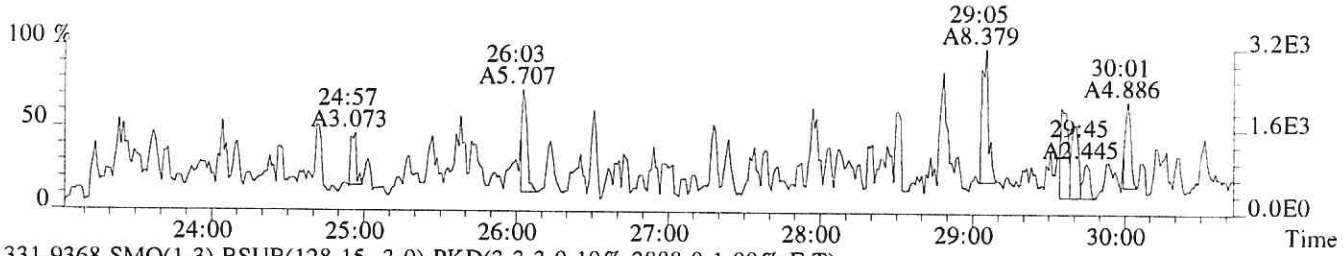
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



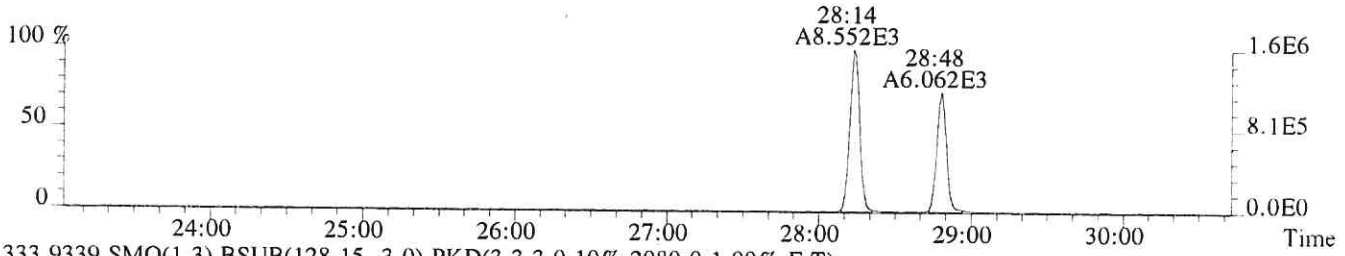
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



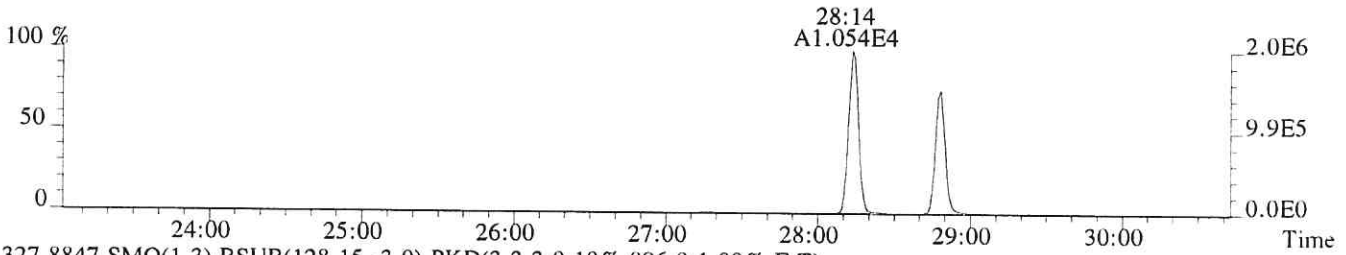
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



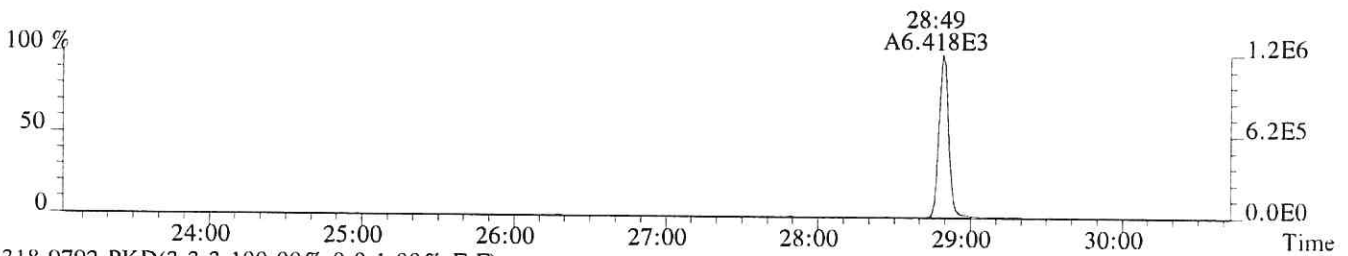
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3888.0,1.00%,F,T)



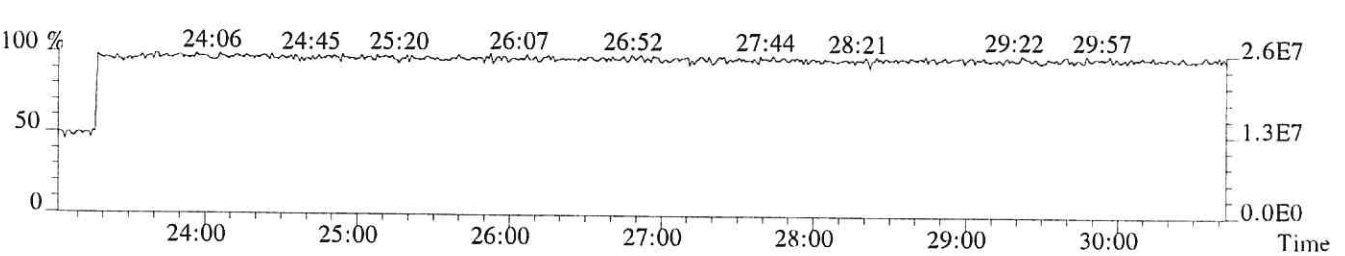
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



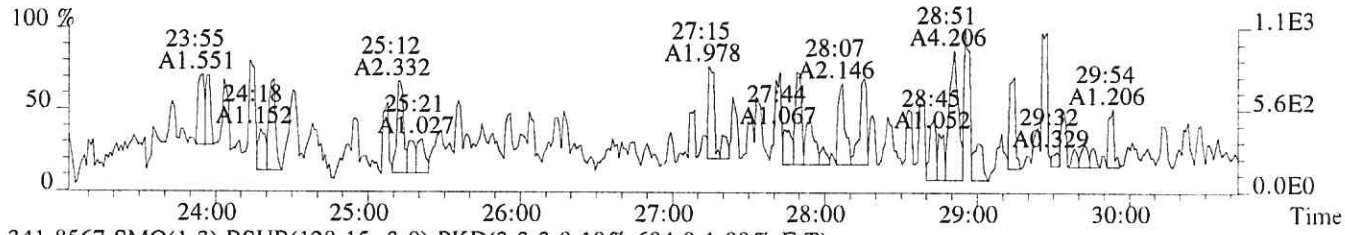
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



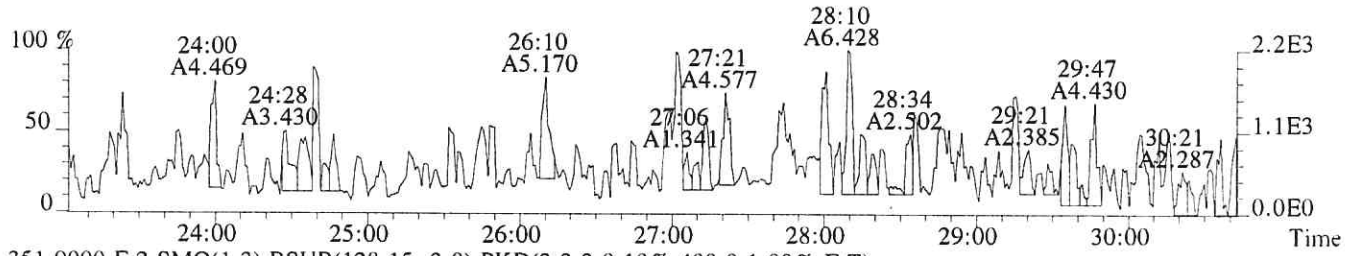
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



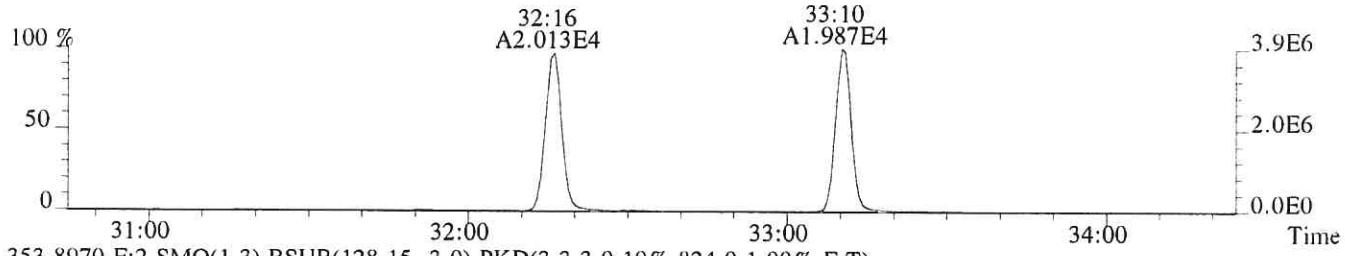
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



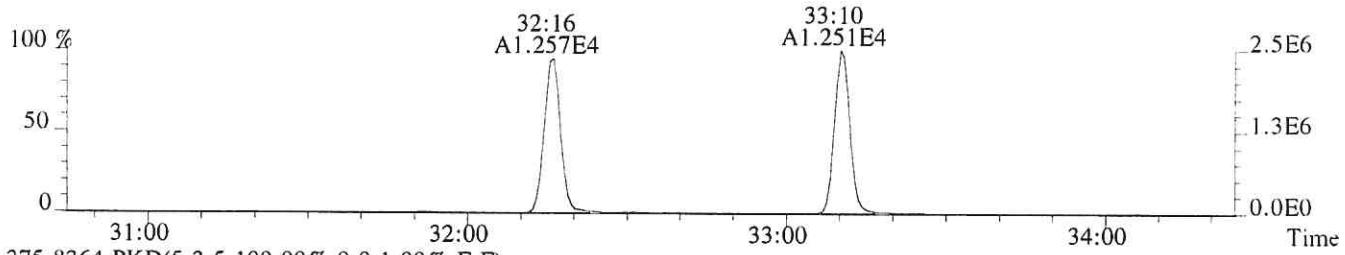
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



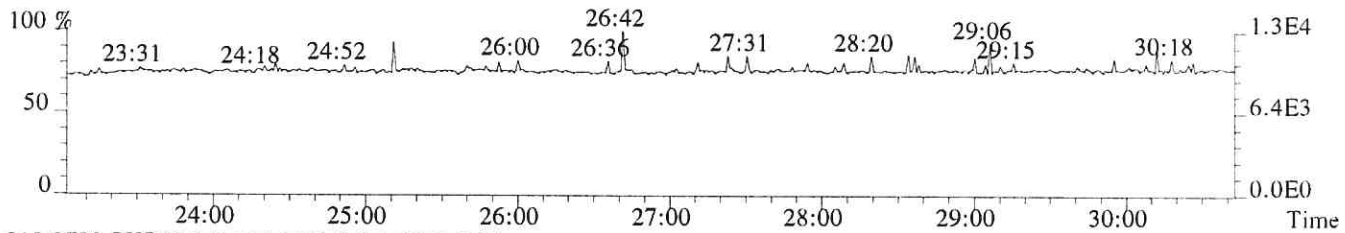
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



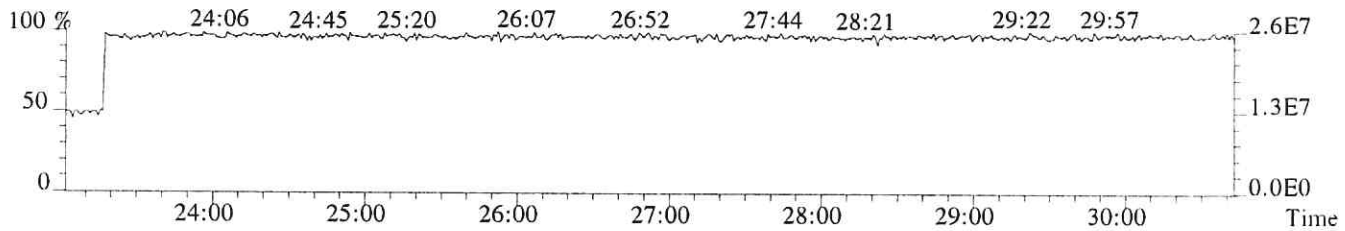
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



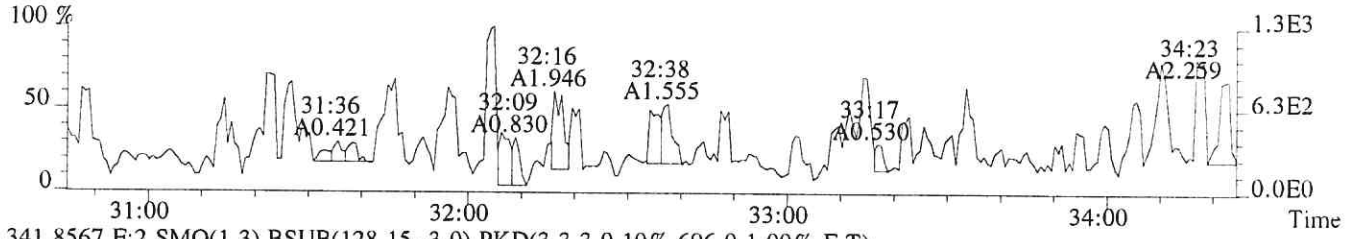
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



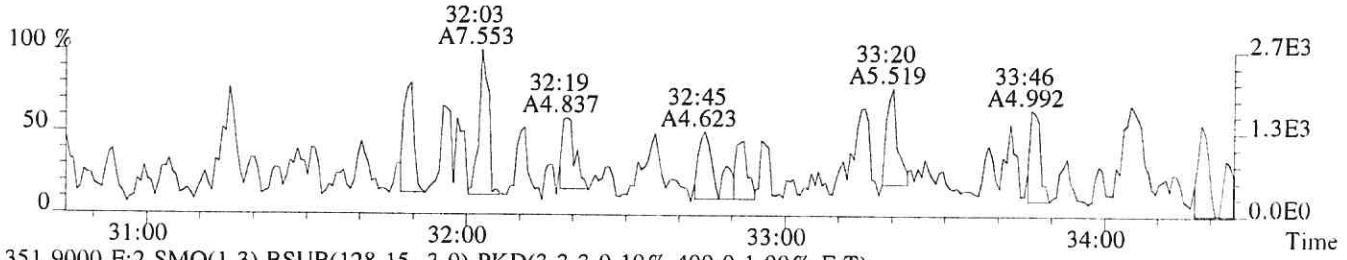
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



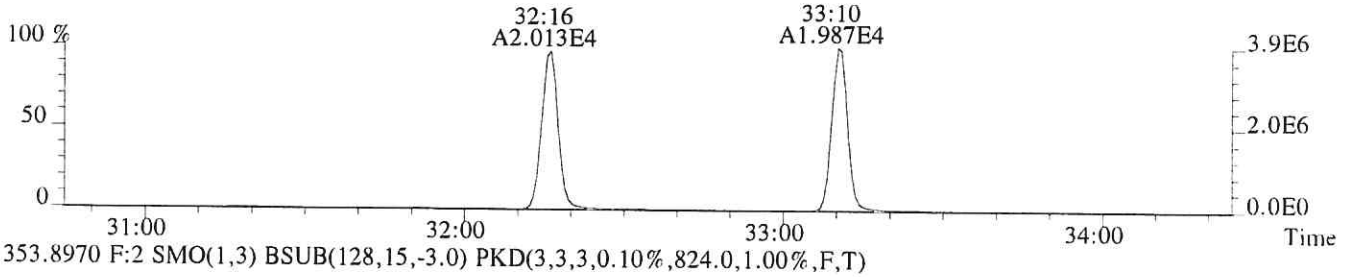
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



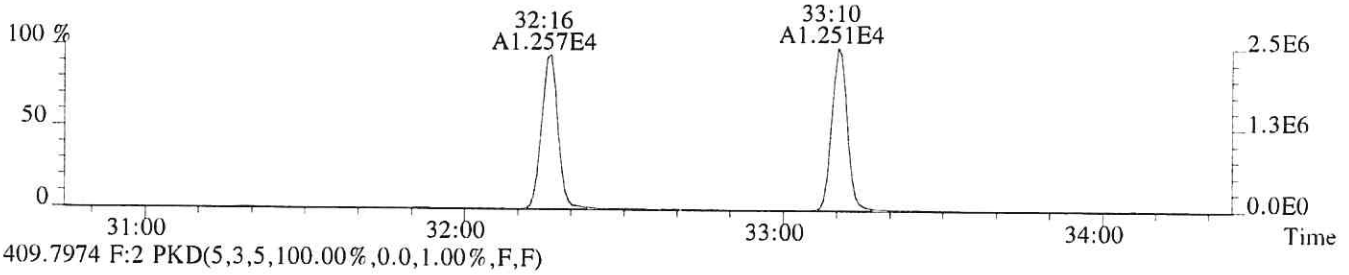
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



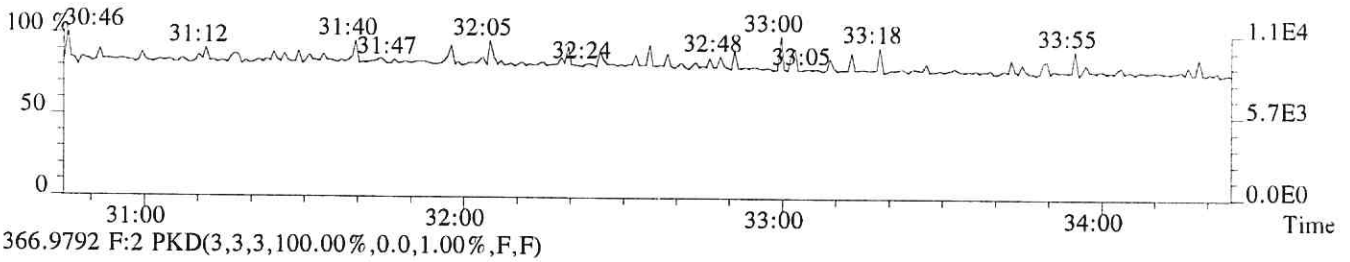
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



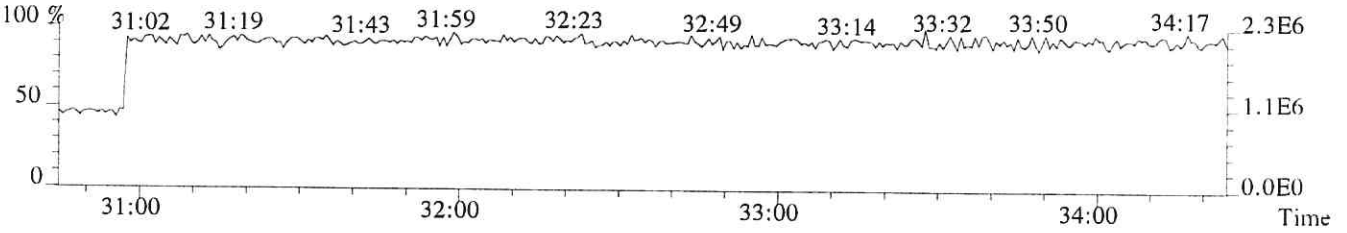
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



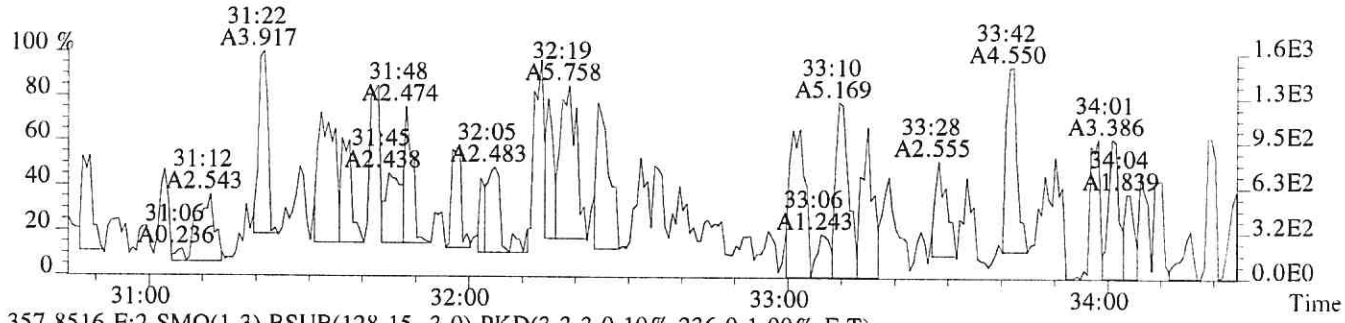
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



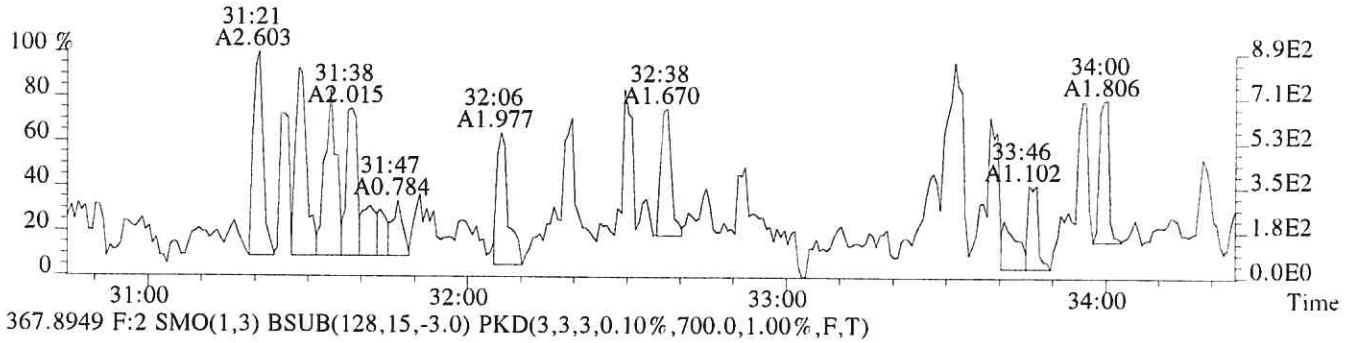
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



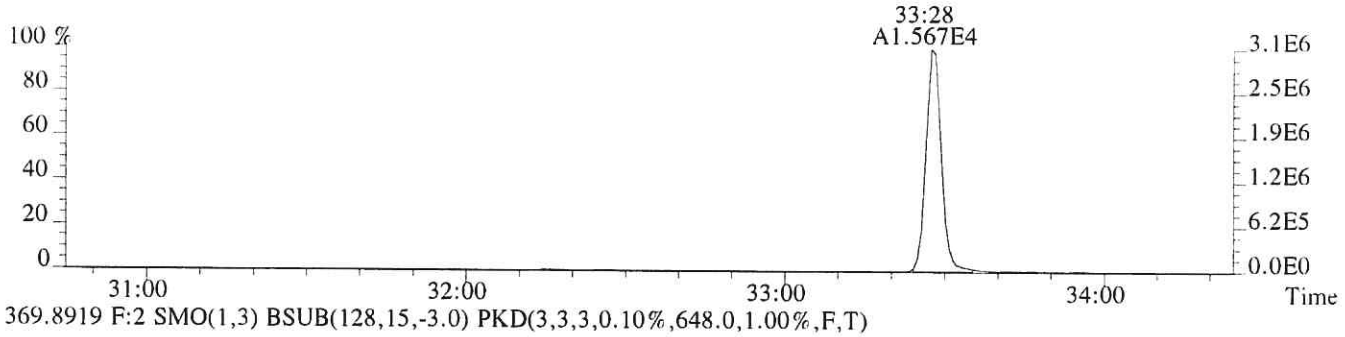
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



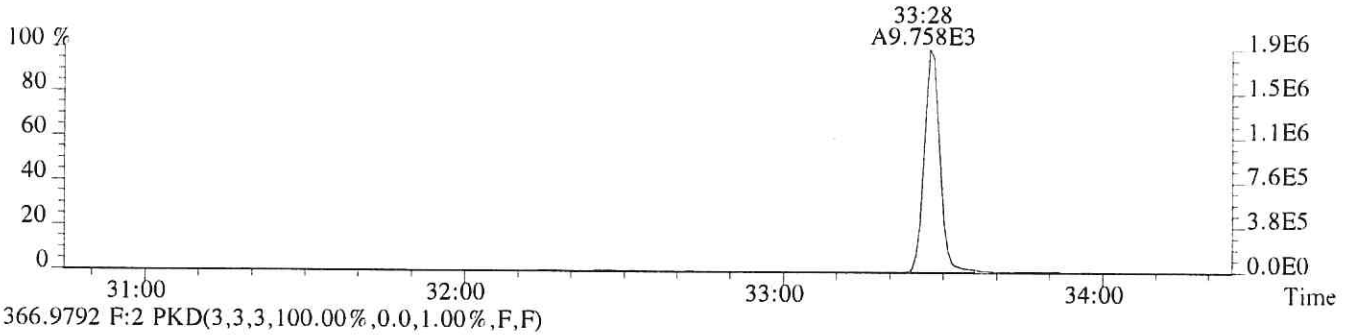
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



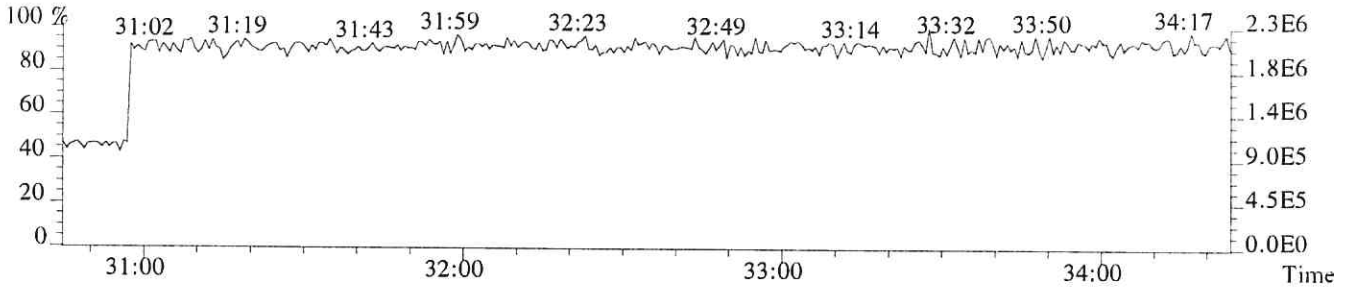
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



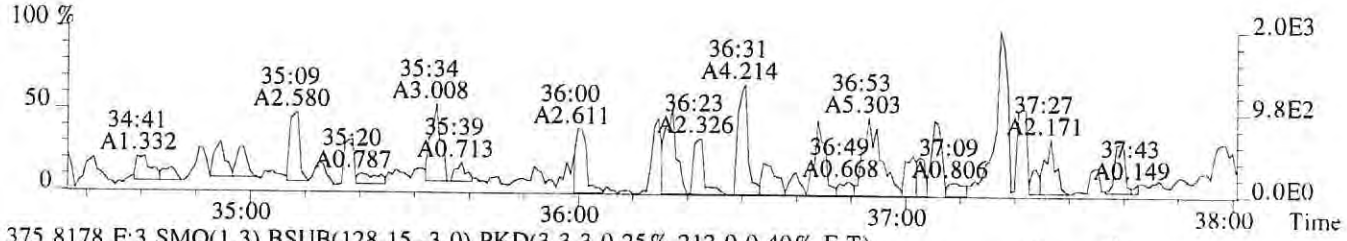
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



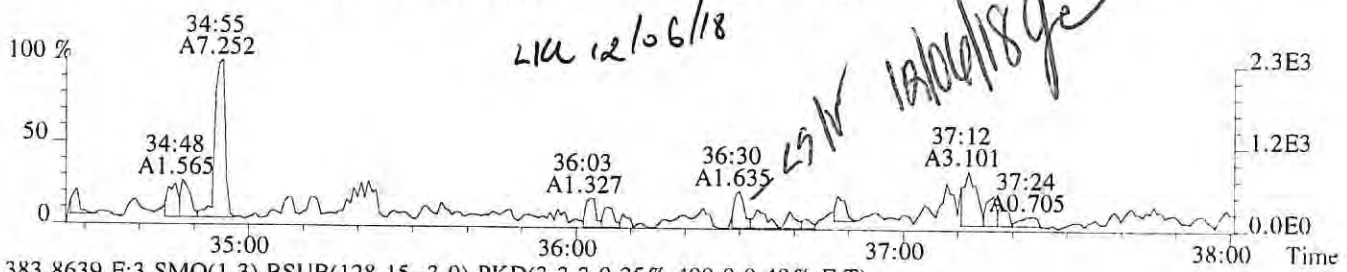
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



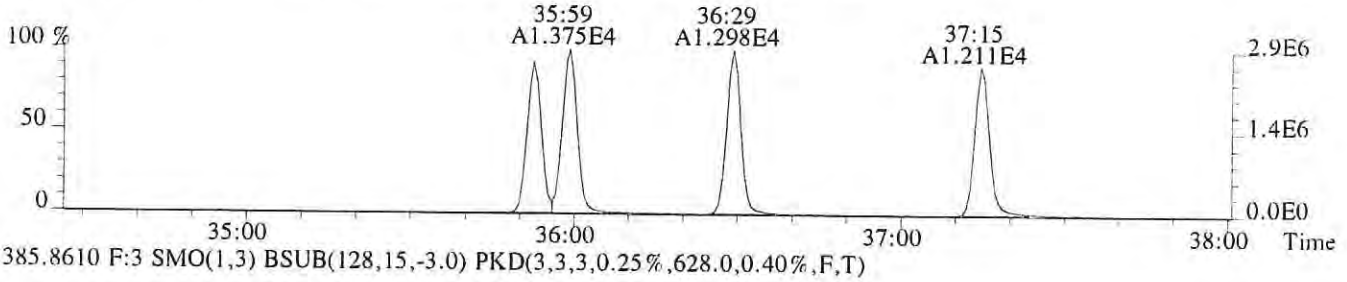
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



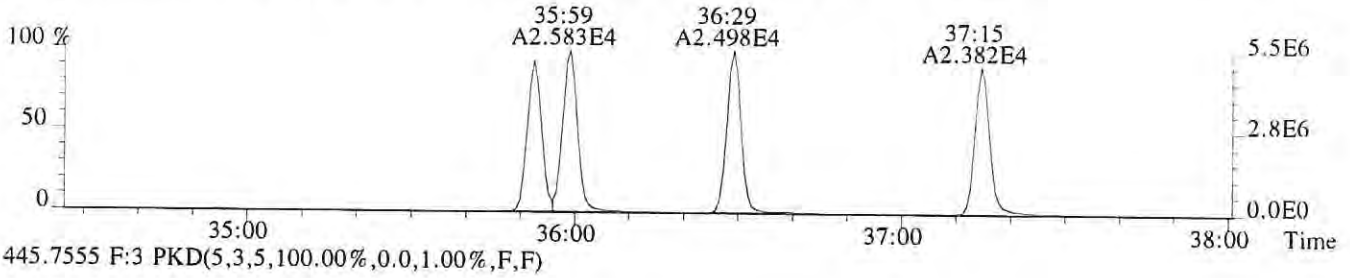
LKU 12/06/18

LSN 12/06/18 ge

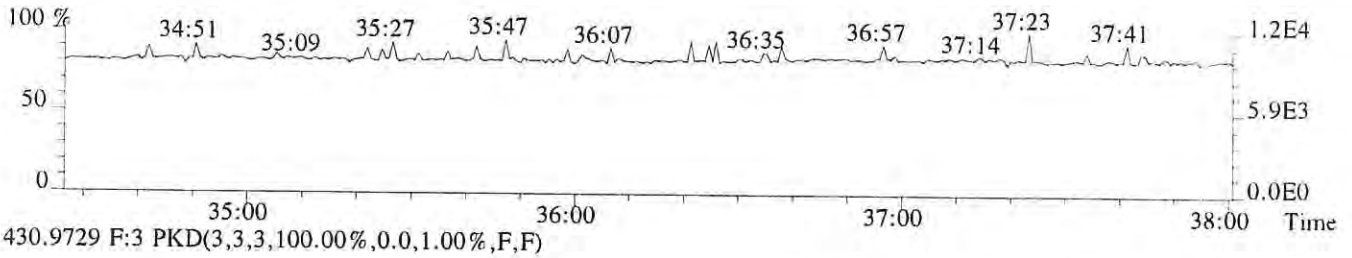
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



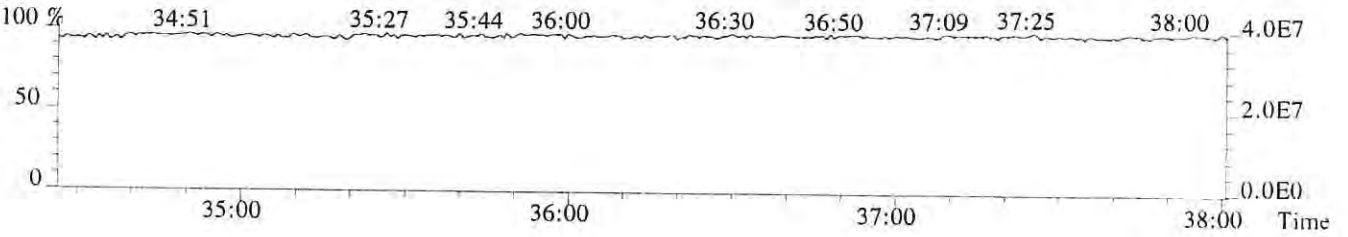
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



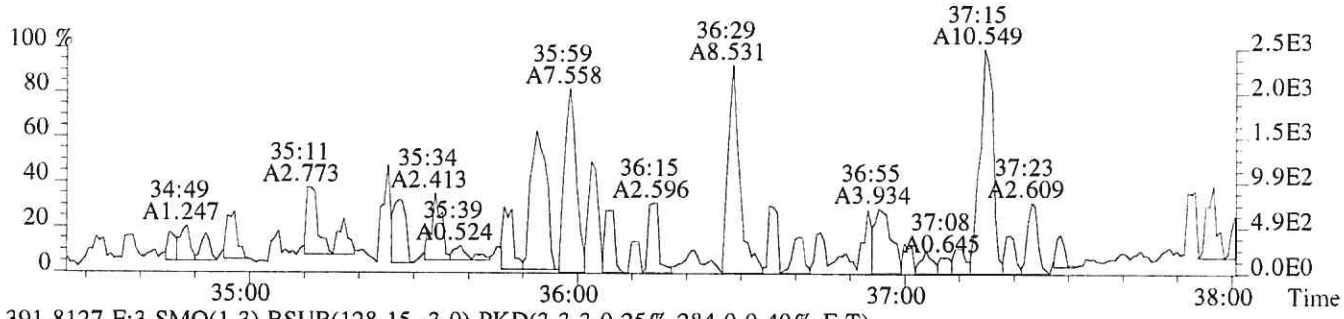
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



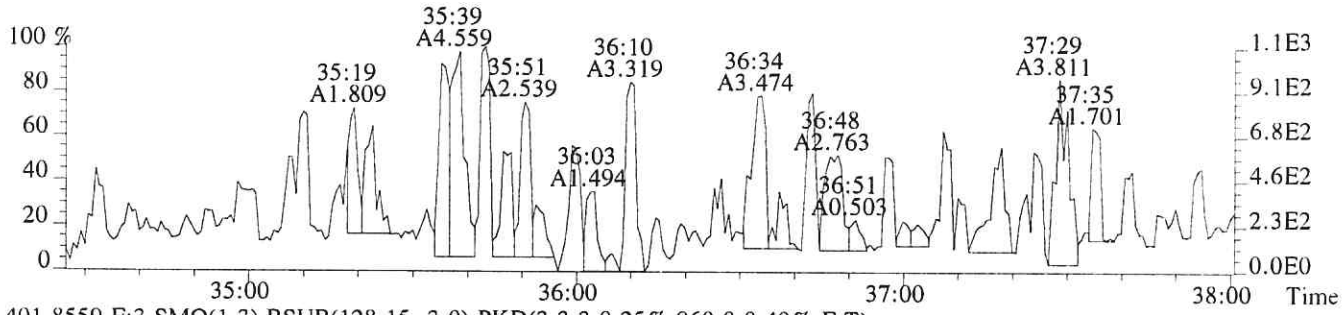
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



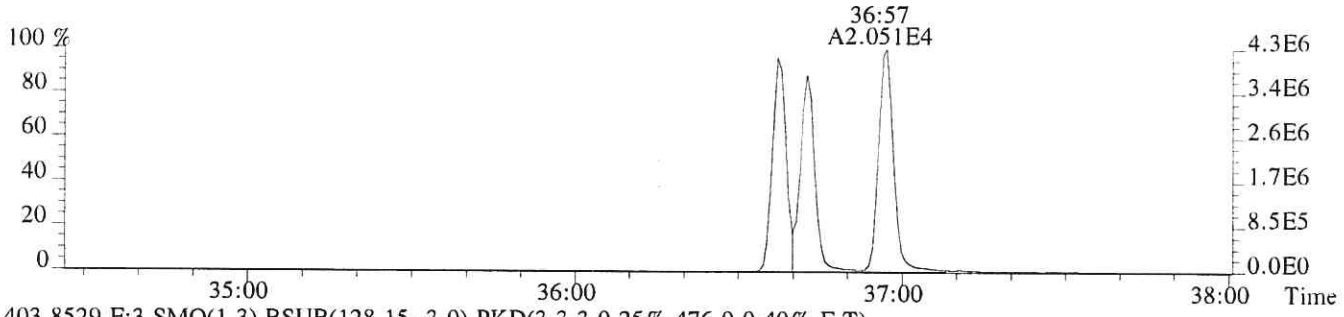
File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



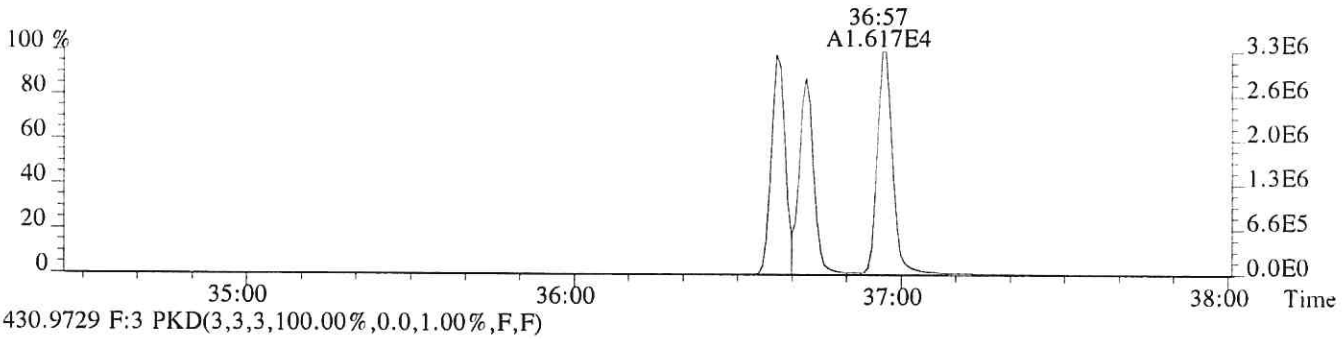
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



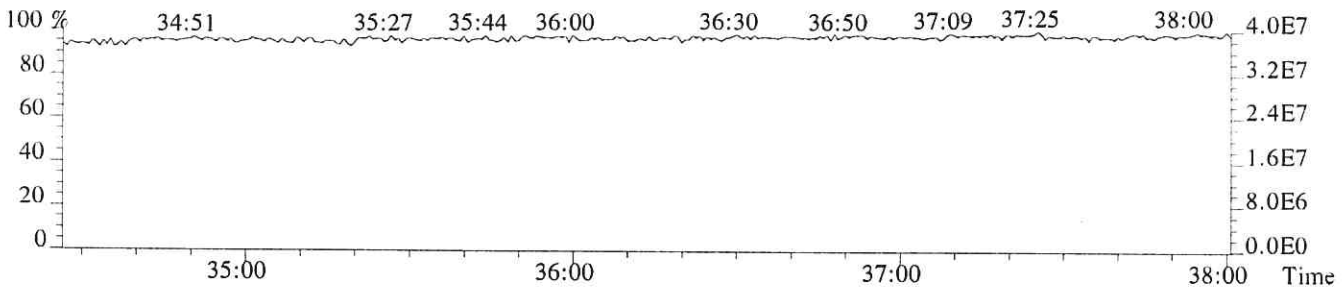
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



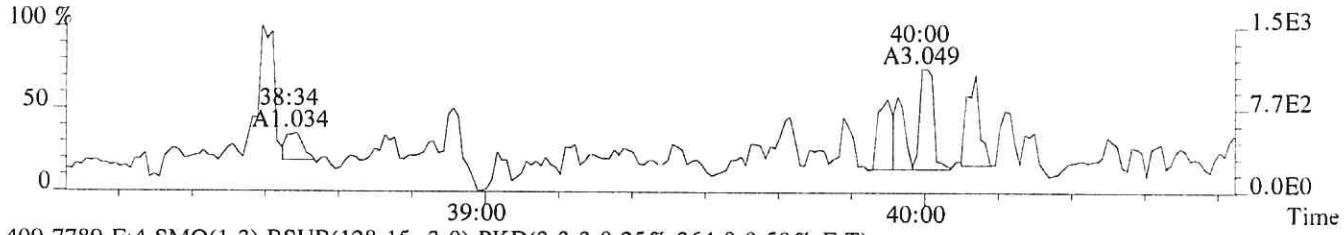
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



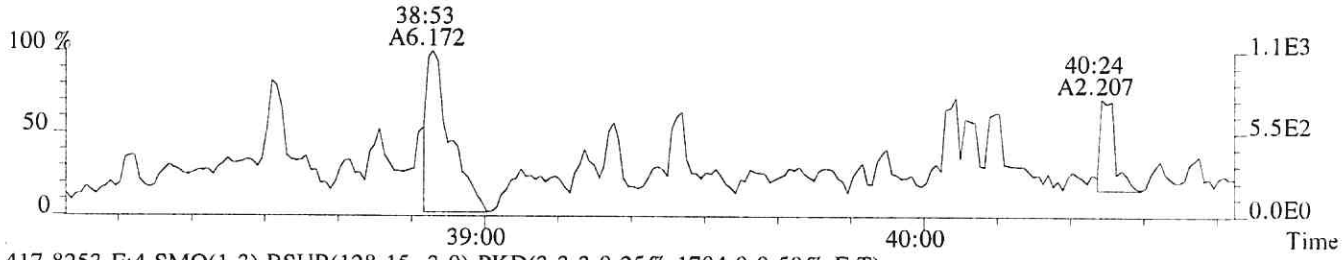
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



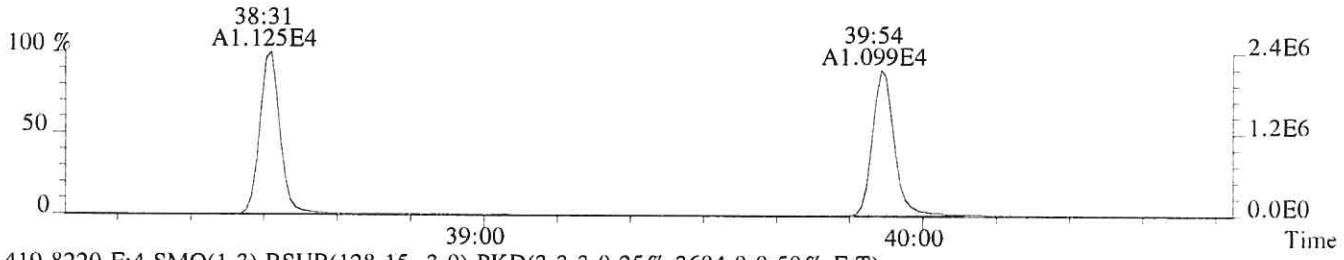
File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.50%,F,T)



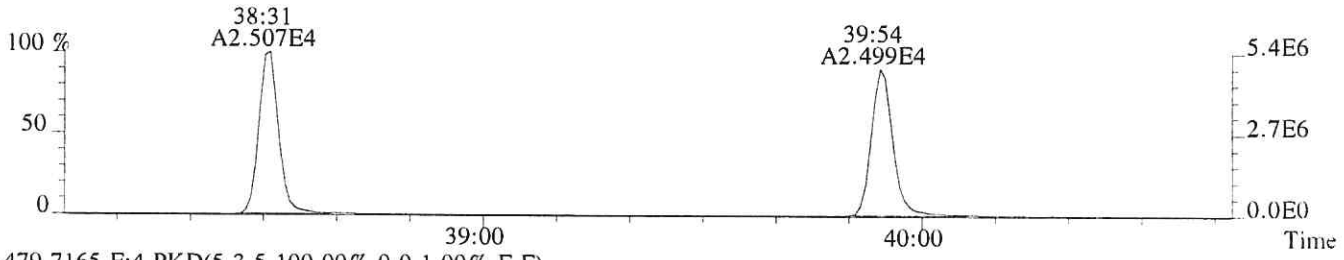
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



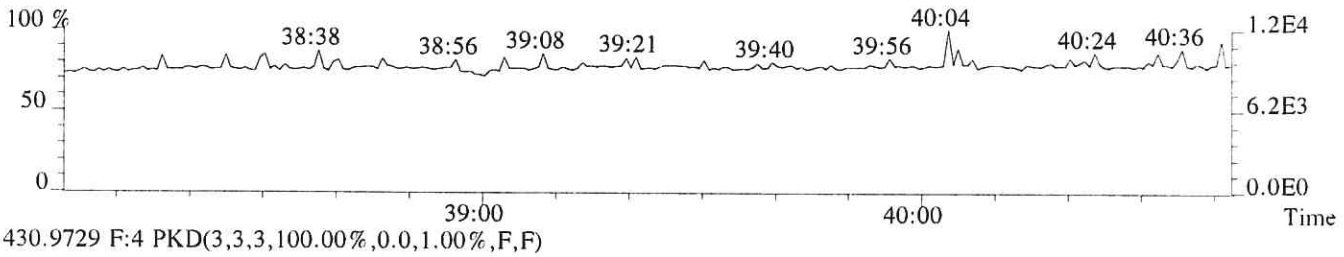
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.50%,F,T)



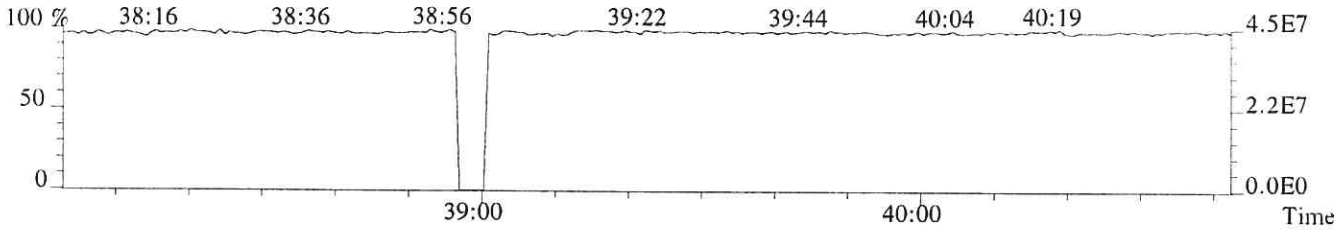
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



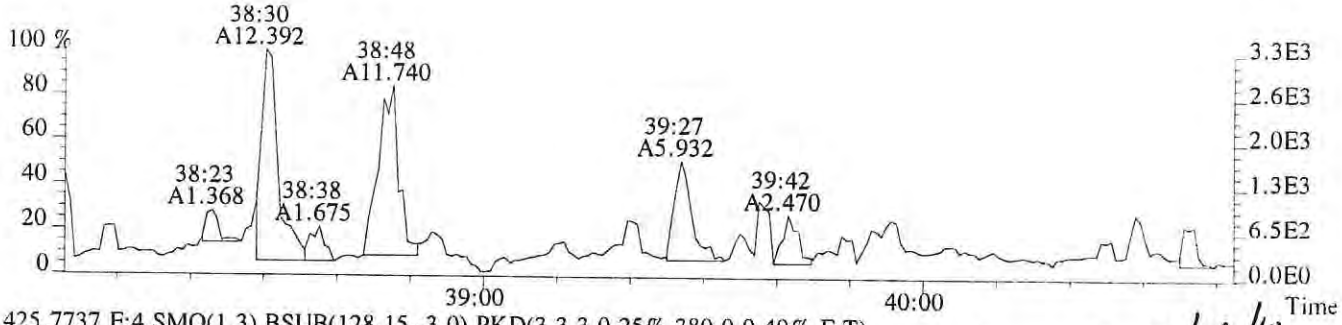
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

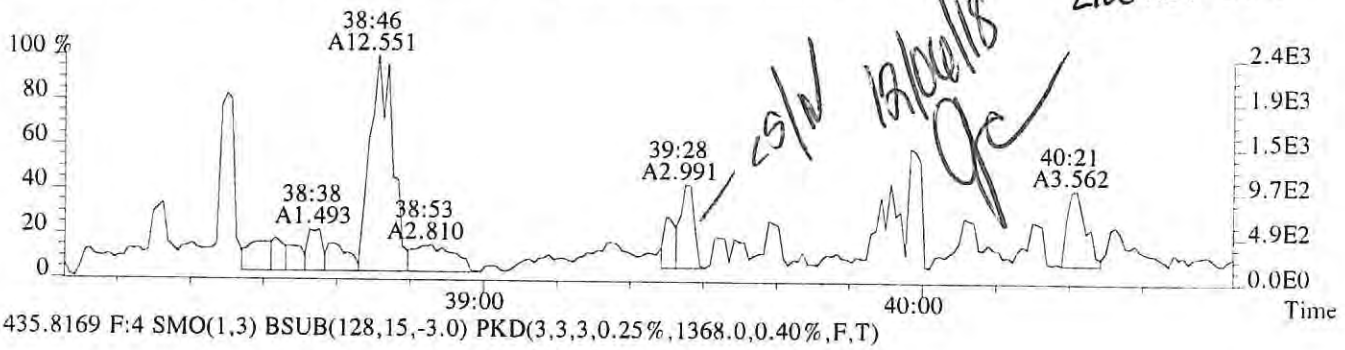


File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)

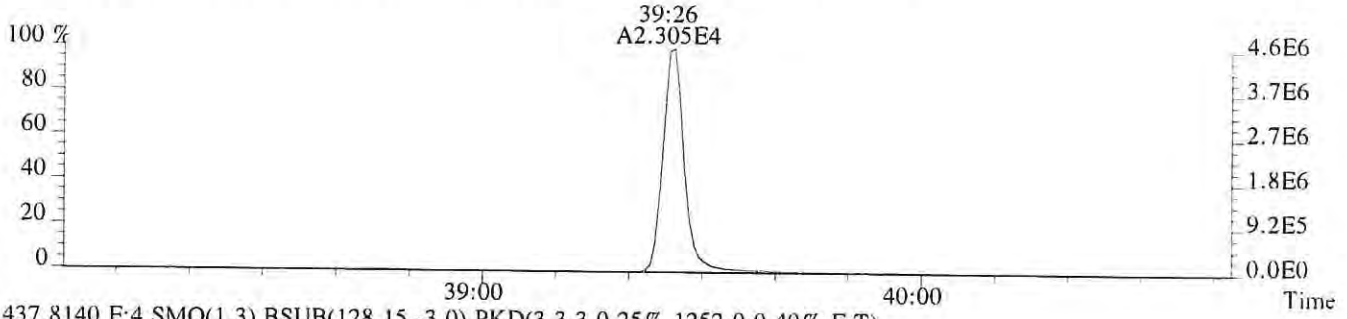


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)

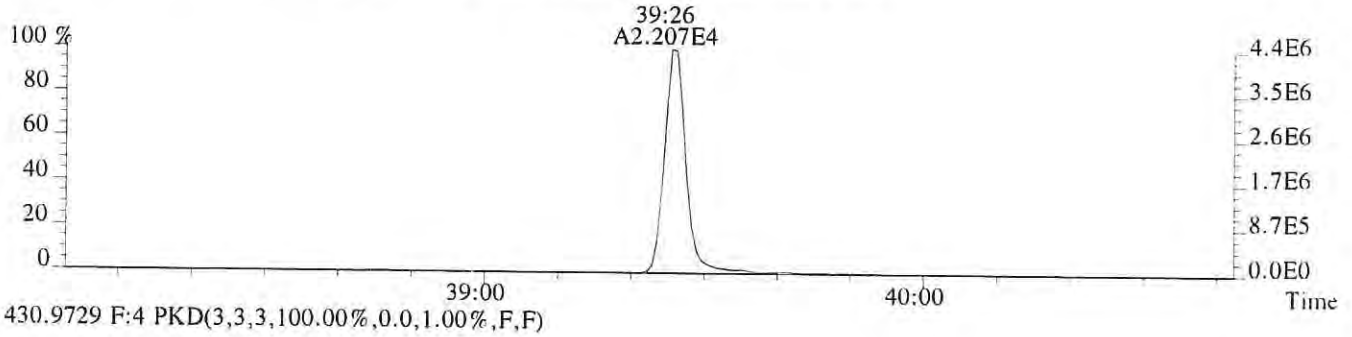
LLM 12/06/18



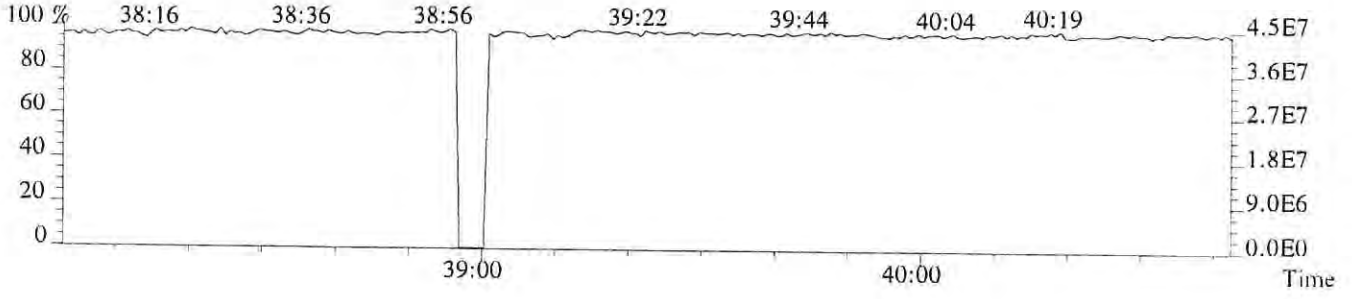
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



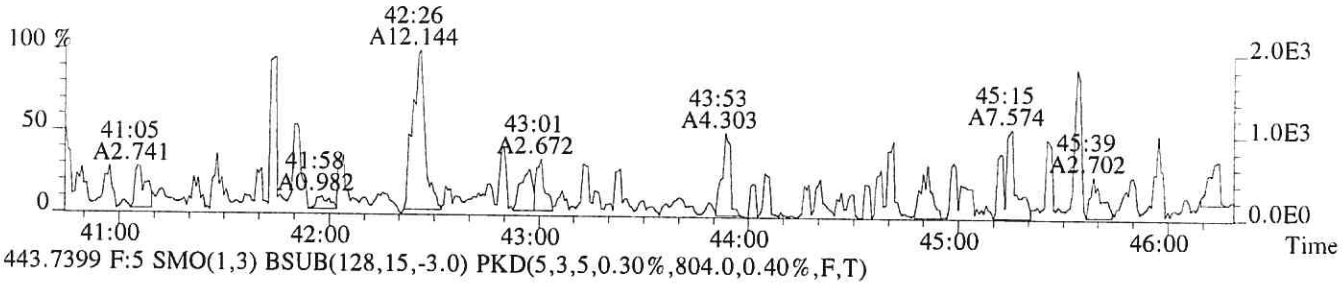
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



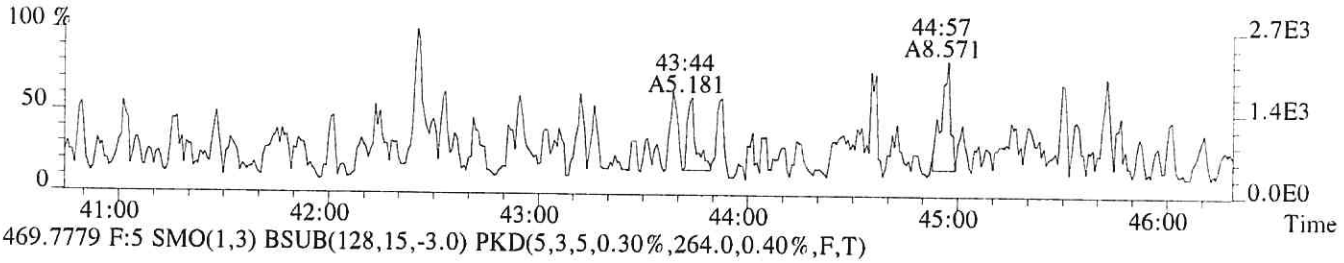
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



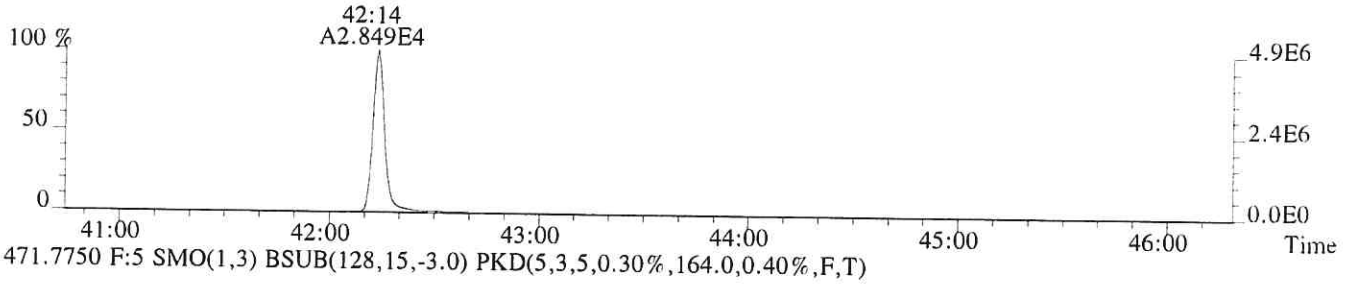
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



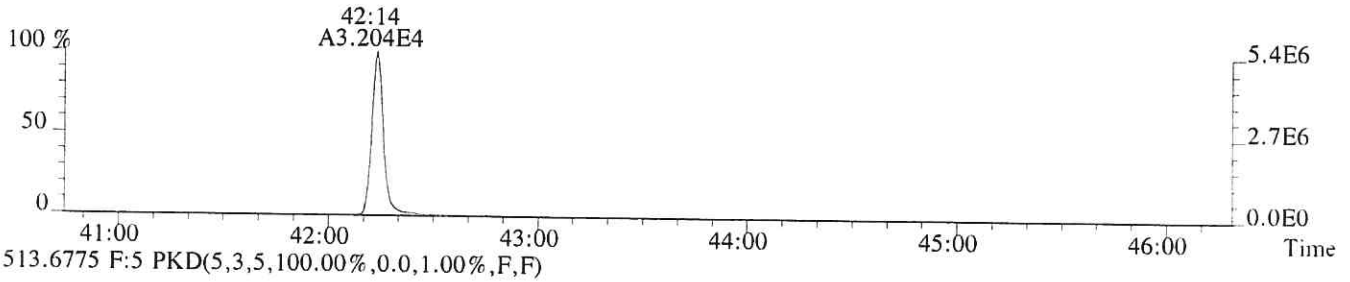
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,804.0,0.40%,F,T)



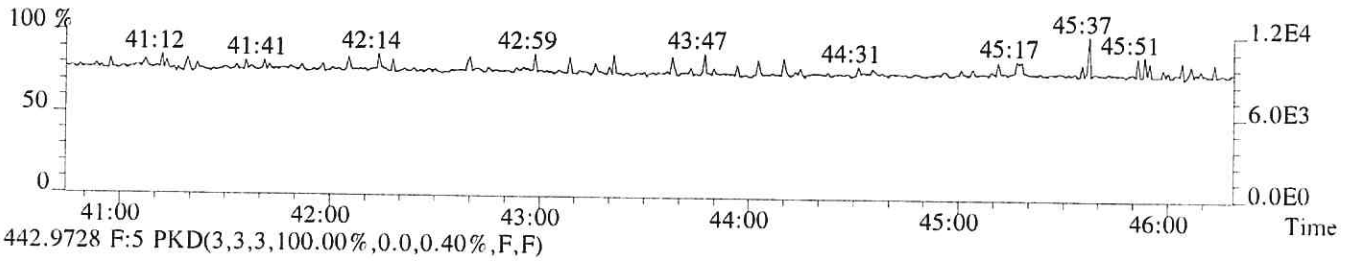
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



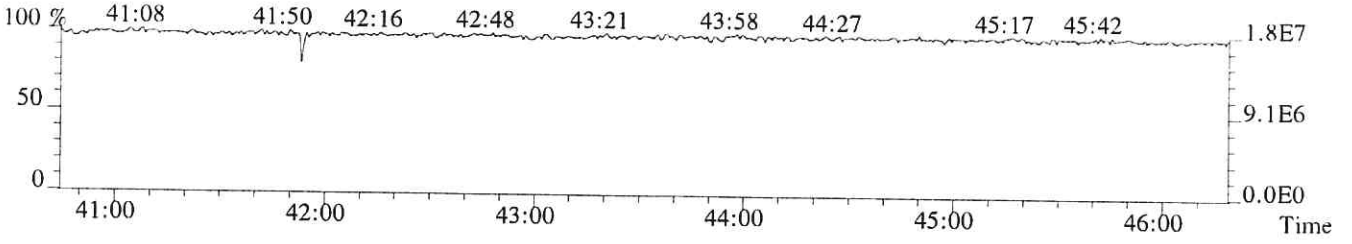
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



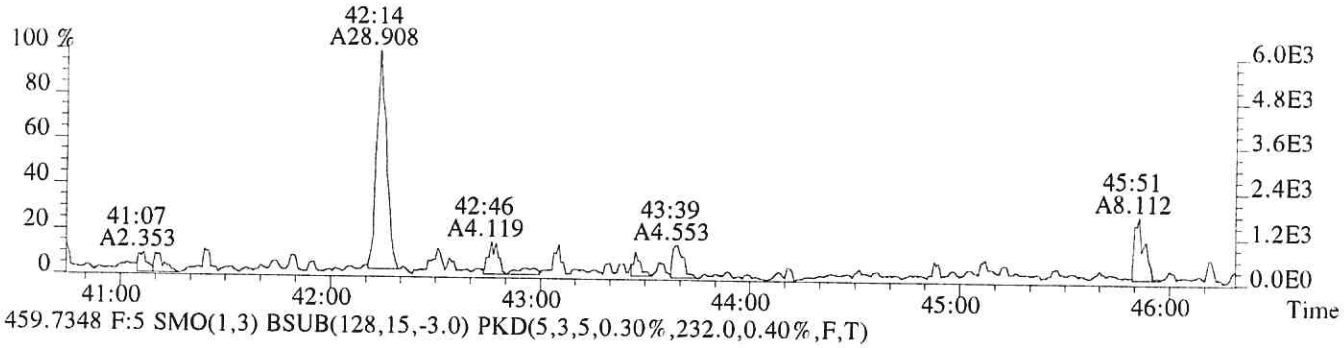
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



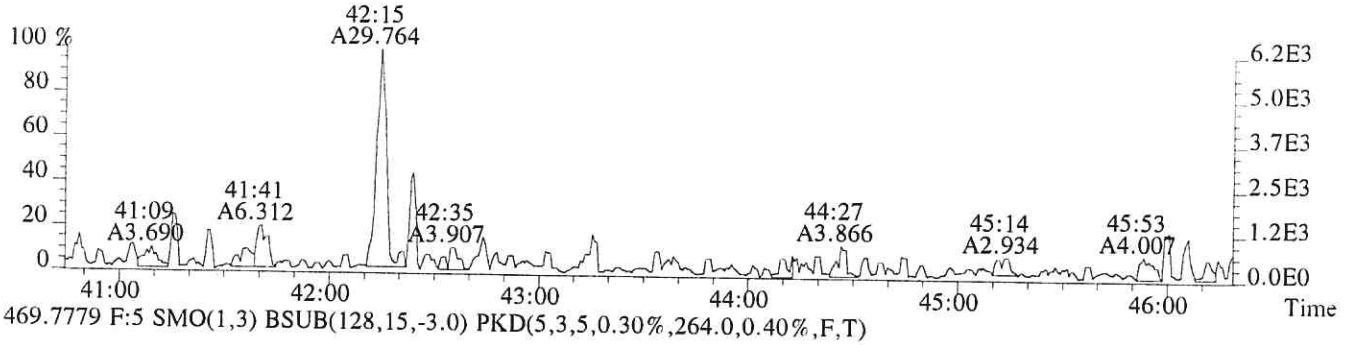
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



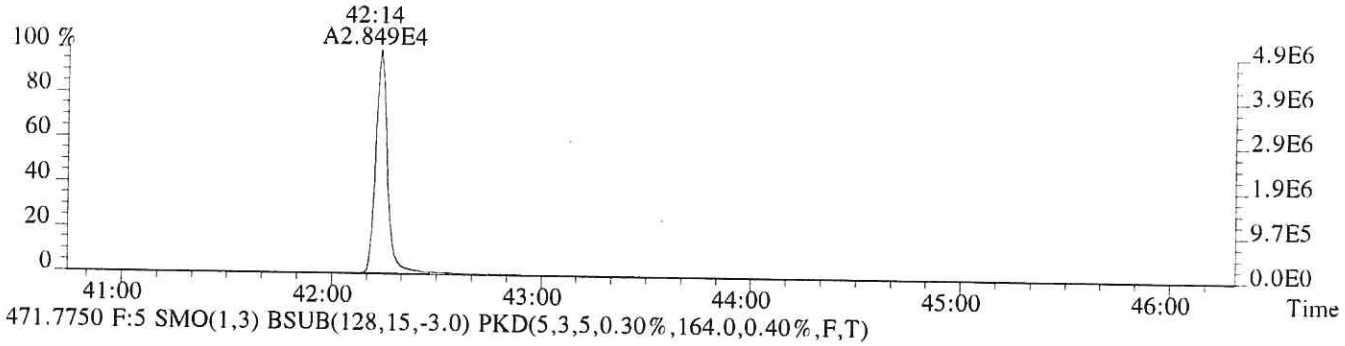
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



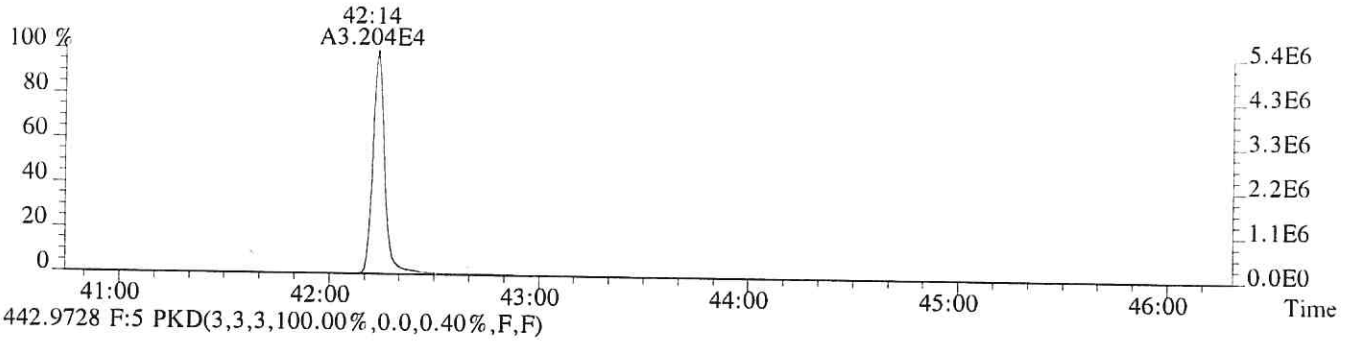
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



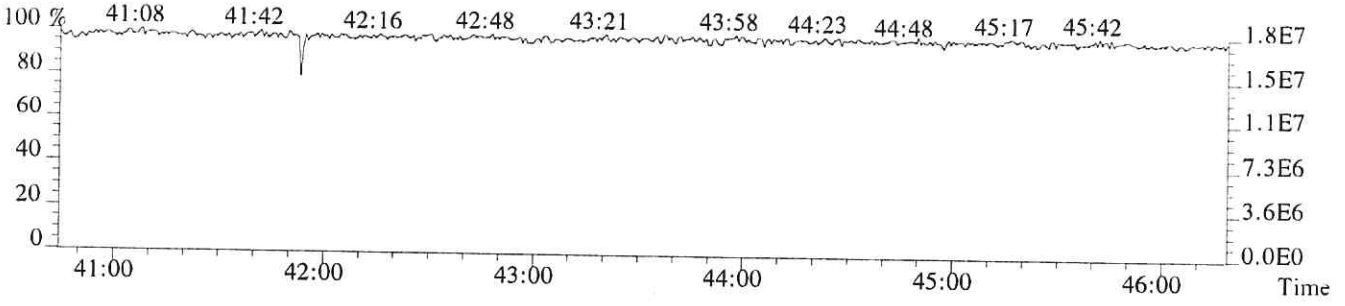
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 Sample ID: EQ1800469-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	1.763e+03	2.346e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.094e+04	1.361e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.275e+04	1.507e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.772e+04	1.516e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.978e+04	1.654e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.842e+04	1.555e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.426e+04	1.184e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.075e+04	1.115e+04	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	7.465e+03	7.911e+03	0.94	yes	no	1.258
10	Unk	OCDF	42:37	7.167e+03	7.956e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	1.426e+03	1.876e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.735e+04	1.105e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.334e+04	1.047e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.416e+04	1.132e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.477e+04	1.184e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.504e+03	7.052e+03	1.06	yes	no	1.025
17	Unk	OCDD	42:25	6.267e+03	7.106e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.019e+04	2.570e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	4.560e+04	2.907e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.716e+04	2.986e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.894e+04	3.643e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.211e+04	4.254e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.122e+04	4.103e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.648e+04	3.171e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.051e+04	2.346e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	7.394e+03	1.741e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	1.424e+04	1.827e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.588e+04	2.276e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.746e+04	2.154e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.756e+04	2.193e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.881e+04	1.747e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:25	1.163e+04	1.296e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.873e+04	6.186e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.119e+04	4.012e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	1.517e+04				no	1.014

$$\text{OCDD} = \frac{(6.267e+03 + 7.106e+03) \times 4000 \text{ pg} \times 1}{(1.163e+04 + 1.296e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 LAB. ID: EQ1800469-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.17e+05	7.52e+02	4.2e+02	4.15e+05	1.26e+03	3.3e+02
2	1,2,3,7,8-PeCDF	3.85e+06	4.92e+02	7.8e+03	2.47e+06	9.40e+02	2.6e+03
3	2,3,4,7,8-PeCDF	4.38e+06	4.92e+02	8.9e+03	2.88e+06	9.40e+02	3.1e+03
4	1,2,3,4,7,8-HxCDF	3.88e+06	4.88e+02	7.9e+03	3.33e+06	4.12e+02	8.1e+03
5	1,2,3,6,7,8-HxCDF	4.05e+06	4.88e+02	8.3e+03	3.39e+06	4.12e+02	8.2e+03
6	2,3,4,6,7,8-HxCDF	3.95e+06	4.88e+02	8.1e+03	3.29e+06	4.12e+02	8.0e+03
7	1,2,3,7,8,9-HxCDF	2.87e+06	4.88e+02	5.9e+03	2.35e+06	4.12e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.30e+06	2.13e+03	1.1e+03	2.36e+06	1.62e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	1.40e+06	2.13e+03	6.5e+02	1.43e+06	1.62e+03	8.8e+02
10	OCDF	1.09e+06	3.36e+02	3.3e+03	1.26e+06	1.03e+03	1.2e+03
11	2,3,7,8-TCDD	2.67e+05	1.90e+03	1.4e+02	3.48e+05	9.72e+02	3.6e+02
12	1,2,3,7,8-PeCDD	3.33e+06	8.52e+02	3.9e+03	2.16e+06	2.28e+02	9.5e+03
13	1,2,3,4,7,8-HxCDD	3.00e+06	2.88e+02	1.0e+04	2.36e+06	2.56e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	2.94e+06	2.88e+02	1.0e+04	2.32e+06	2.56e+02	9.1e+03
15	1,2,3,7,8,9-HxCDD	2.89e+06	2.88e+02	1.0e+04	2.39e+06	2.56e+02	9.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.40e+06	5.28e+02	2.6e+03	1.33e+06	3.60e+02	3.7e+03
17	OCDD	9.61e+05	2.60e+02	3.7e+03	1.06e+06	6.80e+02	1.6e+03
18	13C-2,3,7,8-TCDF	3.65e+06	5.41e+03	6.7e+02	4.59e+06	2.97e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	8.33e+06	1.00e+03	8.3e+03	5.47e+06	5.88e+02	9.3e+03
20	13C-2,3,4,7,8-PeCDF	9.37e+06	1.00e+03	9.3e+03	5.99e+06	5.88e+02	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	4.16e+06	5.12e+02	8.1e+03	8.04e+06	7.20e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.68e+06	7.20e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.81e+06	7.20e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	3.31e+06	5.12e+02	6.5e+03	6.31e+06	7.20e+02	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.16e+06	1.60e+03	1.3e+03	4.89e+06	5.50e+03	8.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.32e+06	1.60e+03	8.2e+02	3.13e+06	5.50e+03	5.7e+02
27	13C-2,3,7,8-TCDD	2.67e+06	5.44e+03	4.9e+02	3.44e+06	2.73e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	7.02e+06	5.68e+02	1.2e+04	4.50e+06	6.56e+02	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.16e+06	1.70e+03	3.6e+03	4.80e+06	1.08e+03	4.4e+03
30	13C-1,2,3,6,7,8-HxCDD	5.64e+06	1.70e+03	3.3e+03	4.45e+06	1.08e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.46e+06	5.68e+02	6.1e+03	3.24e+06	3.64e+02	8.9e+03
32	13C-OCDD	1.77e+06	2.16e+02	8.2e+03	1.96e+06	2.96e+02	6.6e+03
33	13C-1,2,3,4-TCDD	9.20e+06	5.44e+03	1.7e+03	1.17e+07	2.73e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.70e+03	6.0e+03	7.99e+06	1.08e+03	7.4e+03
35	37Cl-2,3,7,8-TCDD	2.89e+06	1.83e+03	1.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.904e{+}03 + 9.720e{+}02\ ) \times 2000}{(2.673e{+}06 + 3.443e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 1.085} =$$

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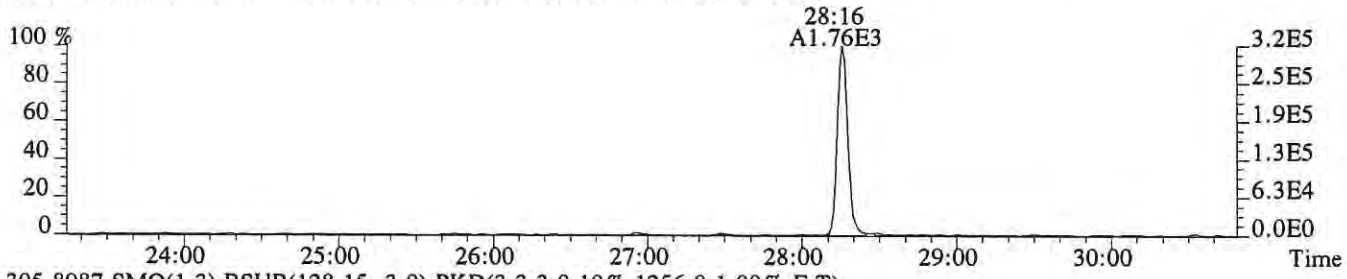
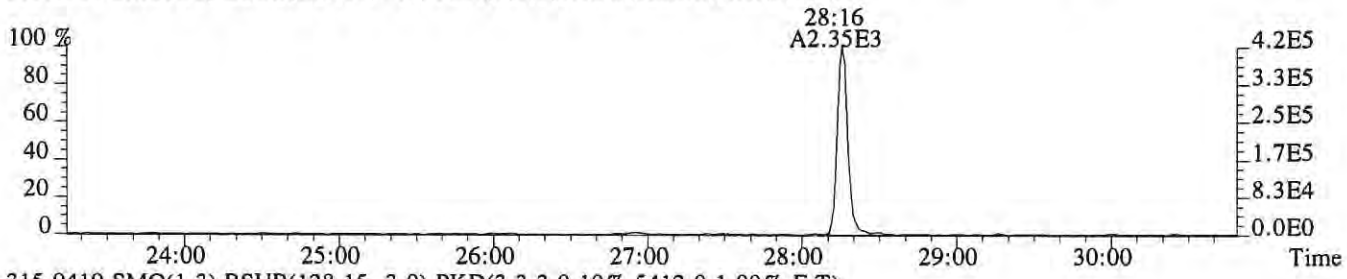
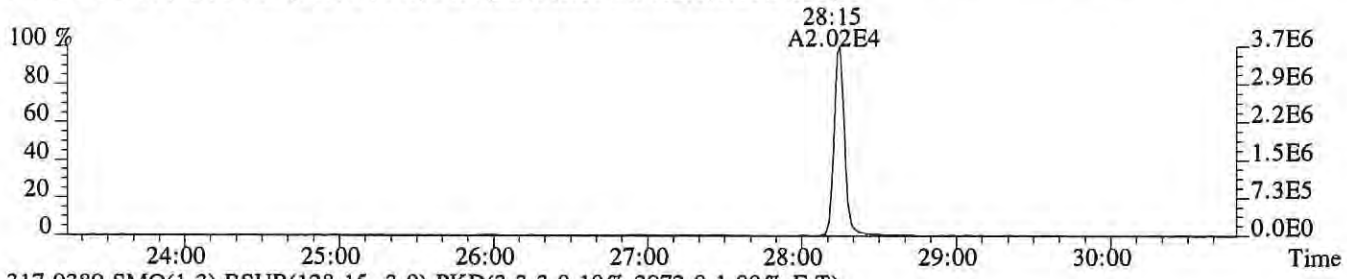
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



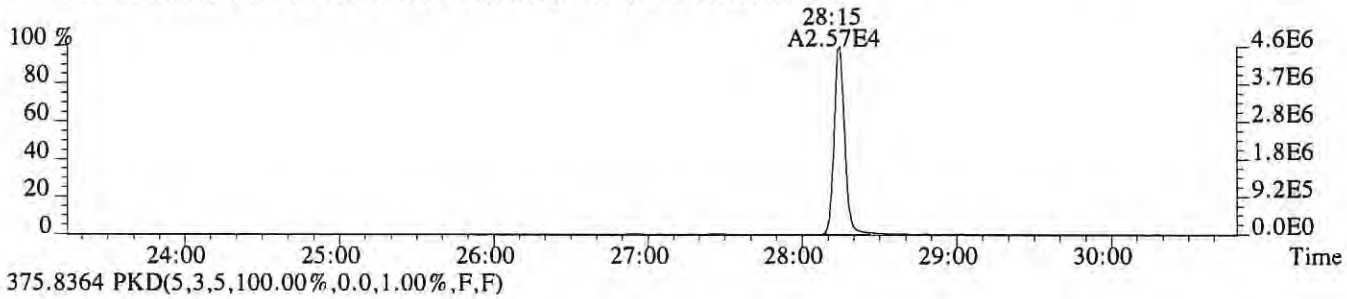
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



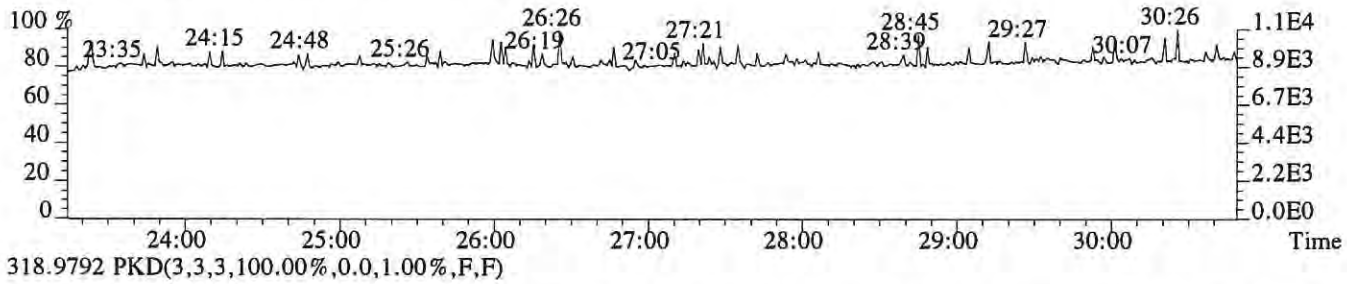
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5412.0,1.00%,F,T)



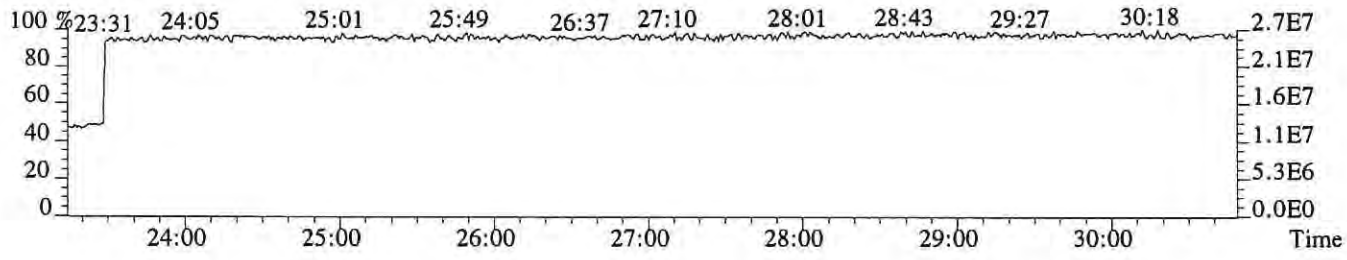
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



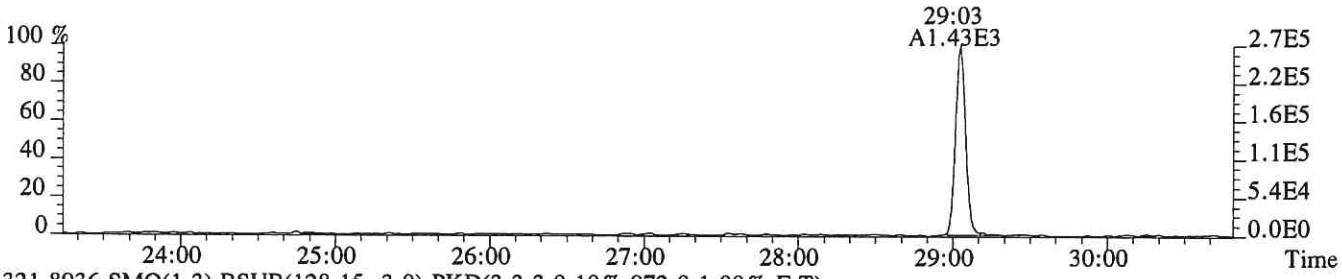
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



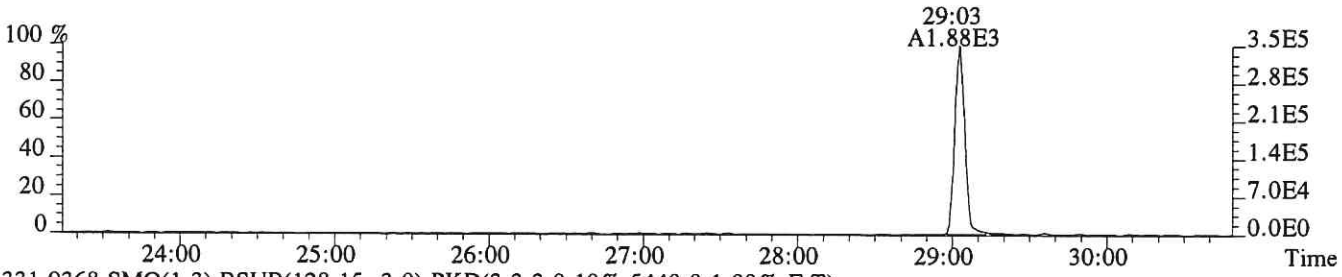
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



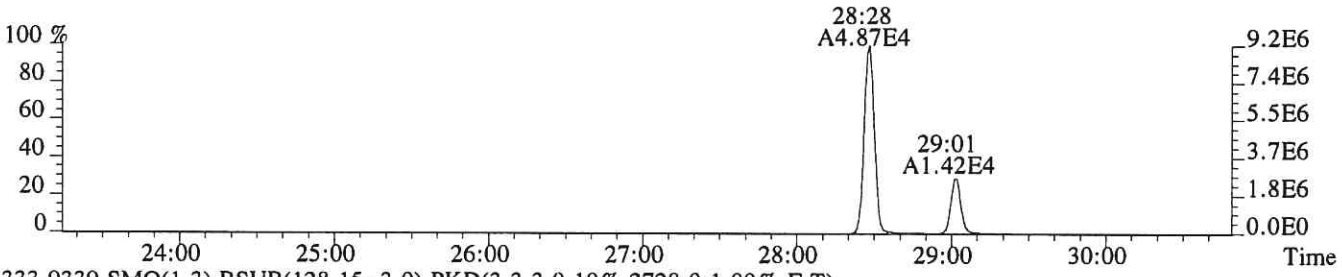
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



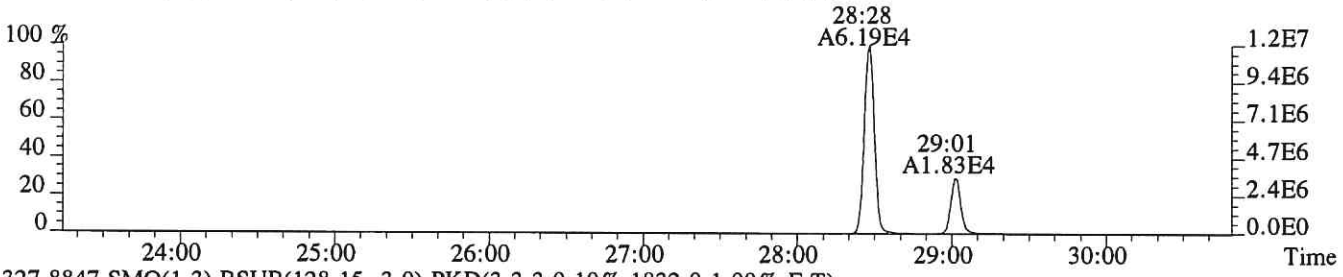
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



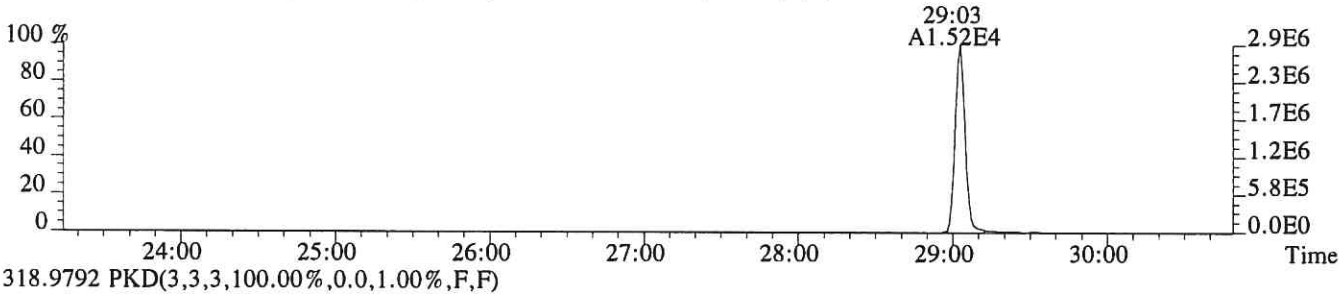
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5440.0,1.00%,F,T)



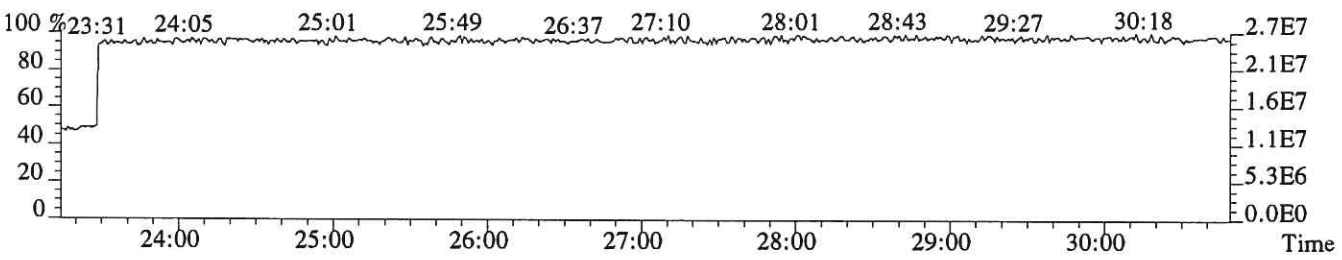
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2728.0,1.00%,F,T)



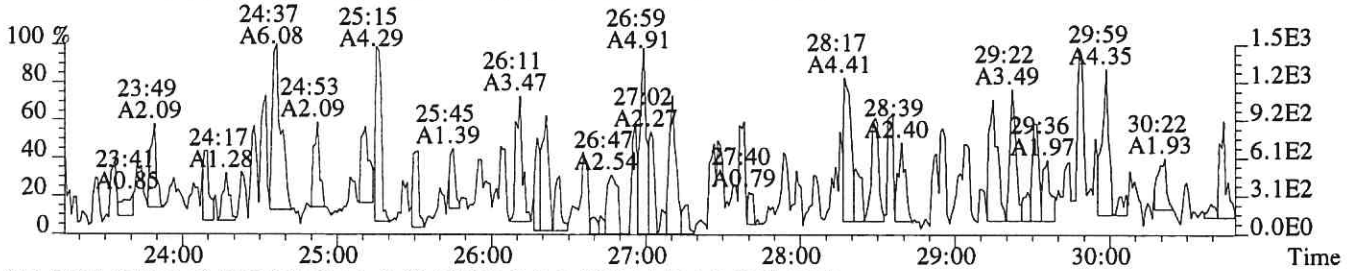
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



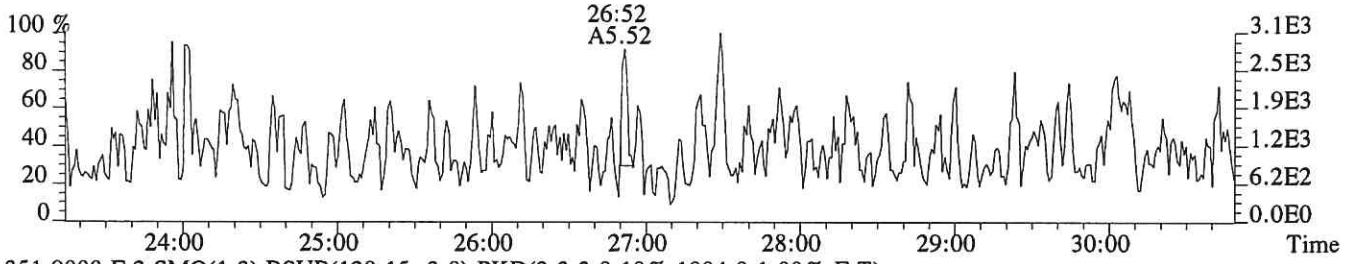
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



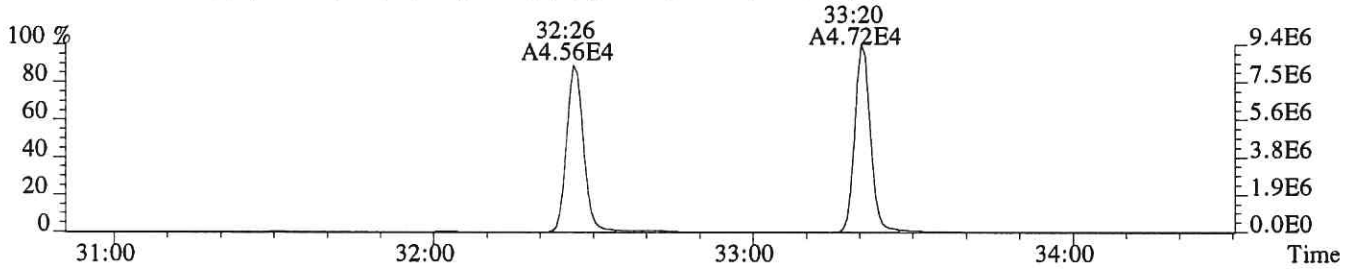
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



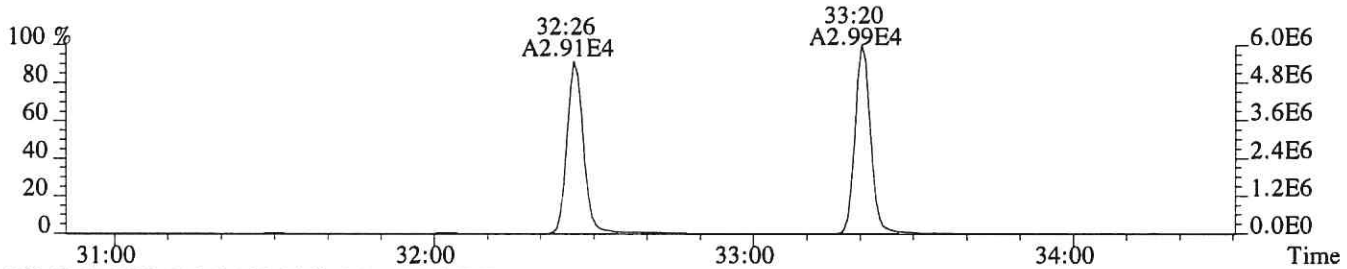
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



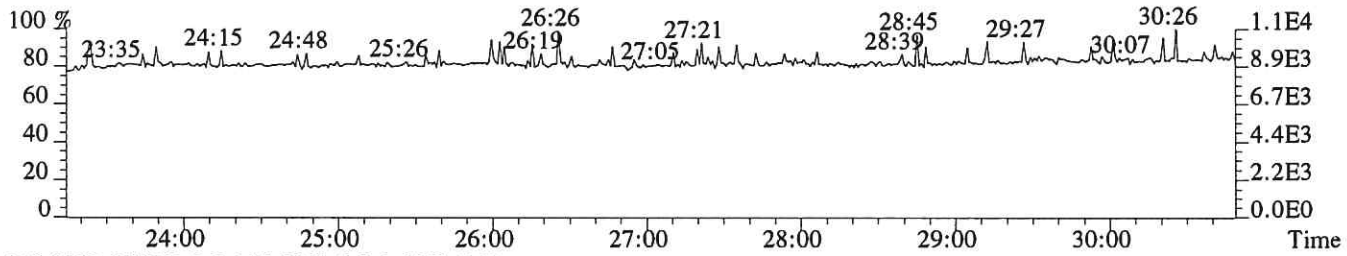
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



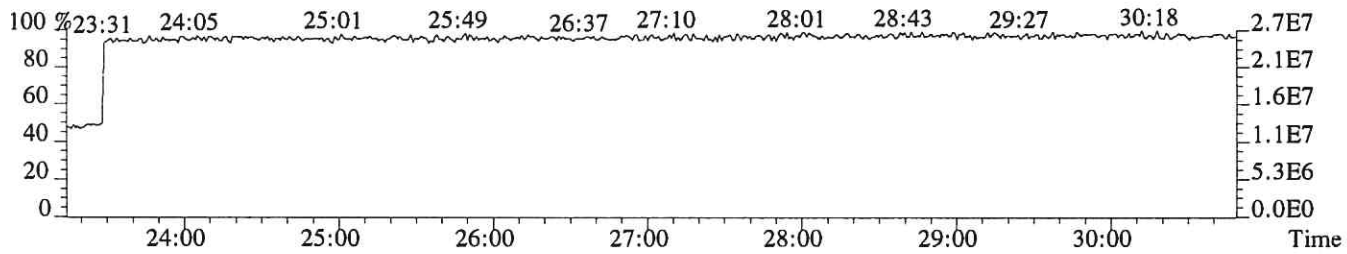
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



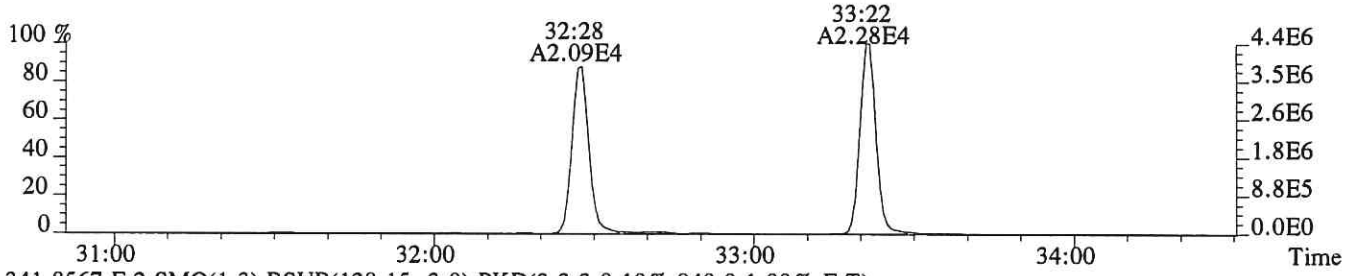
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



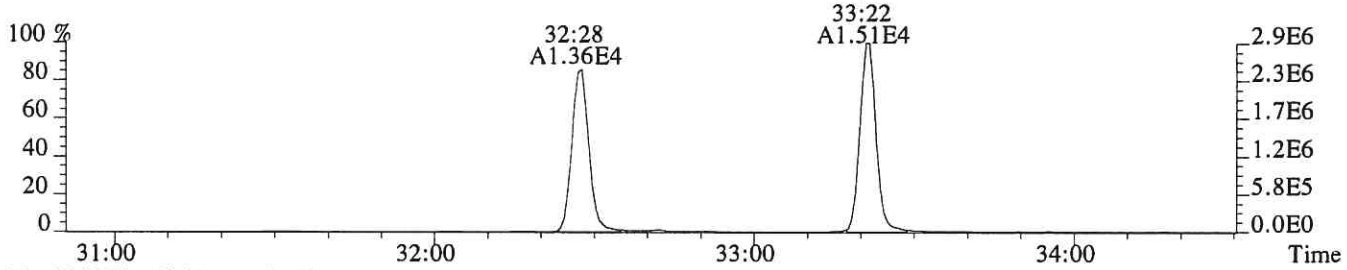
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



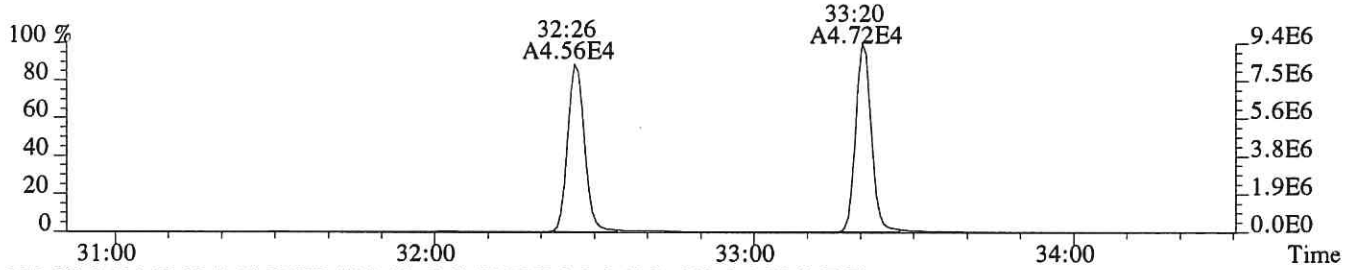
File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



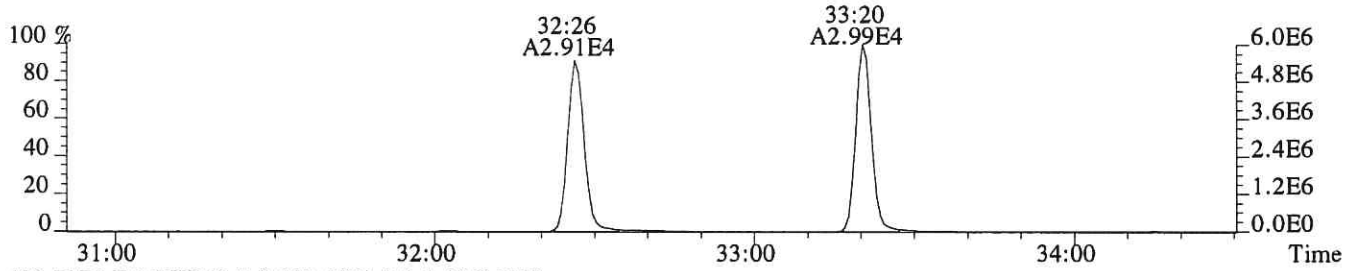
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



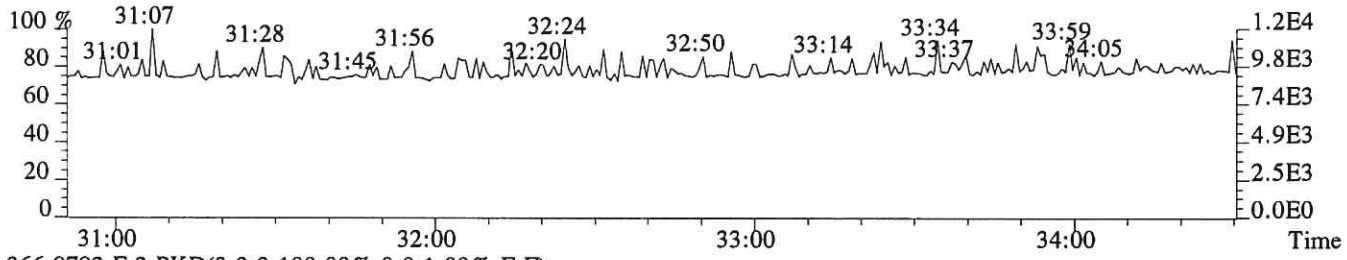
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



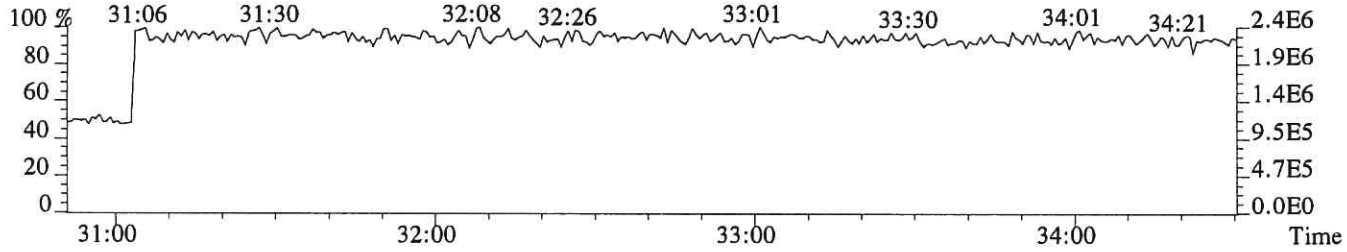
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



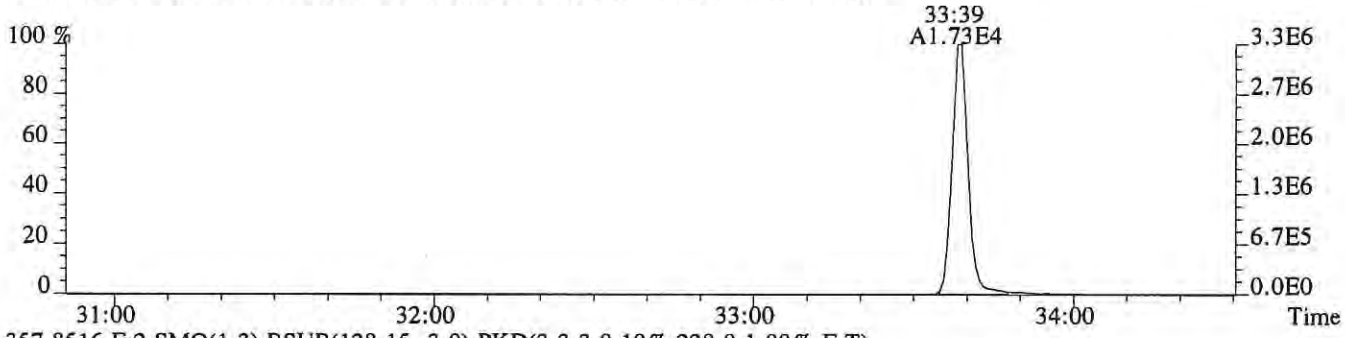
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



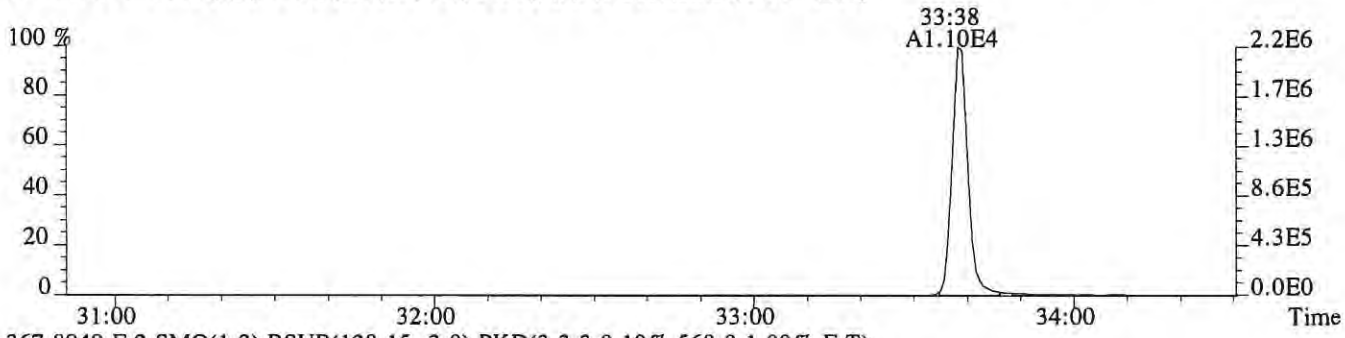
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



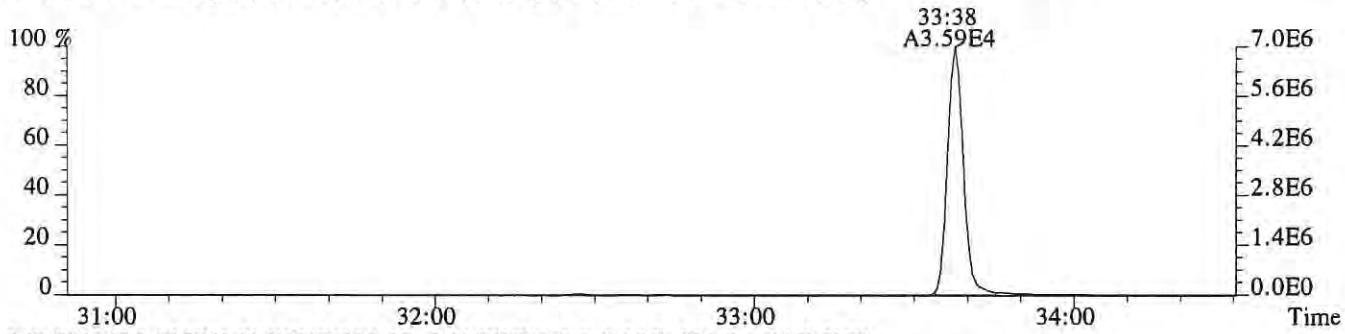
File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



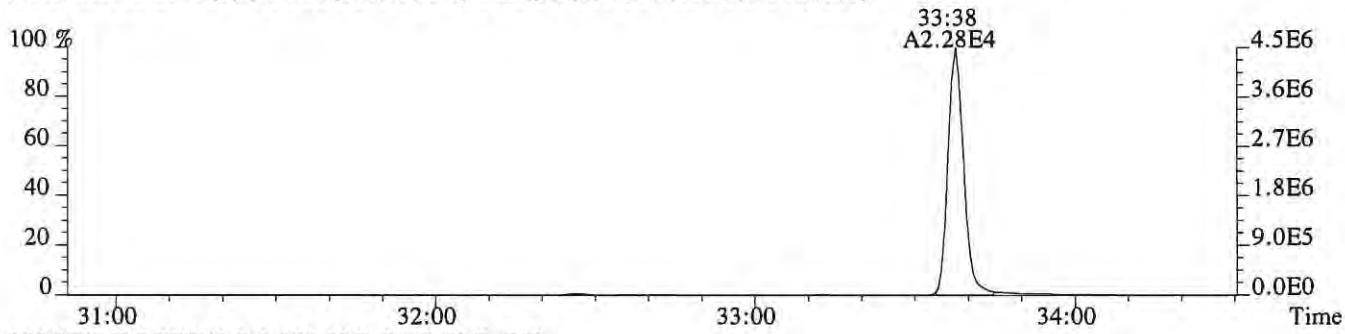
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



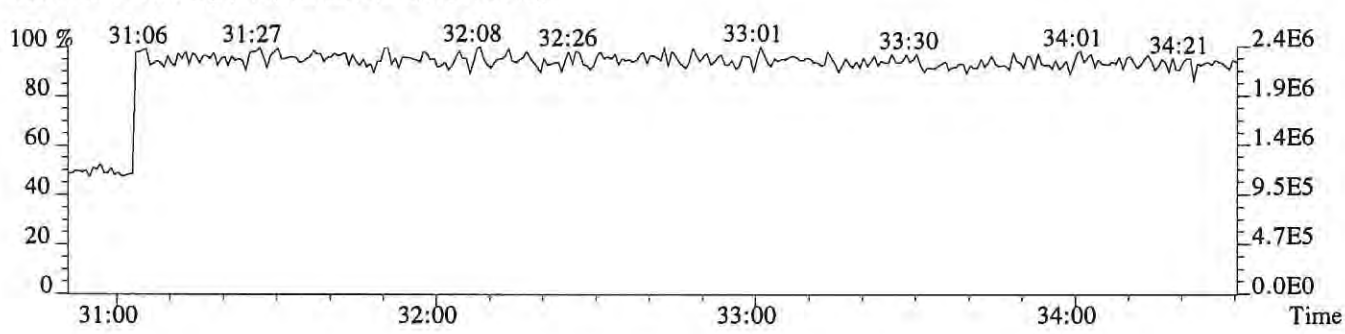
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)

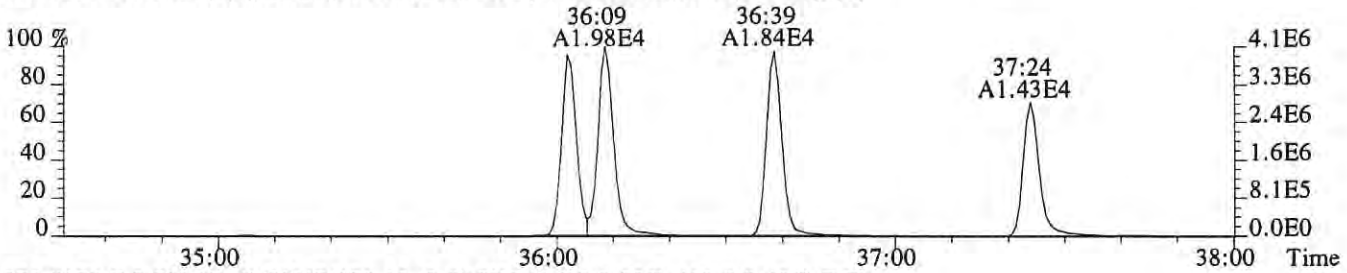


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

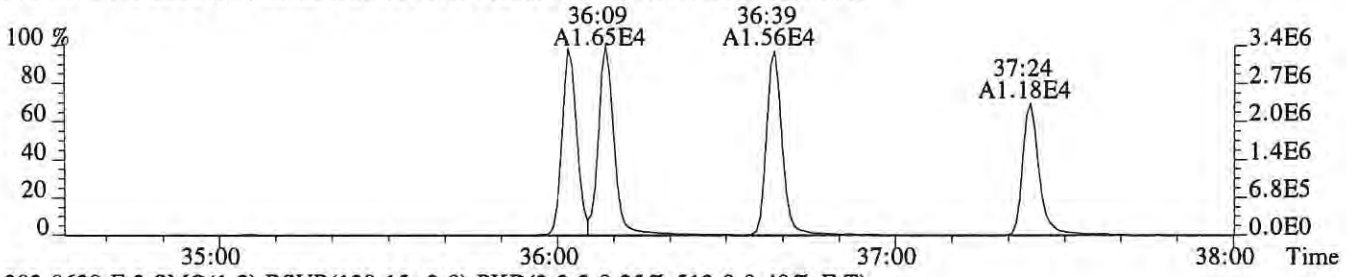


File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

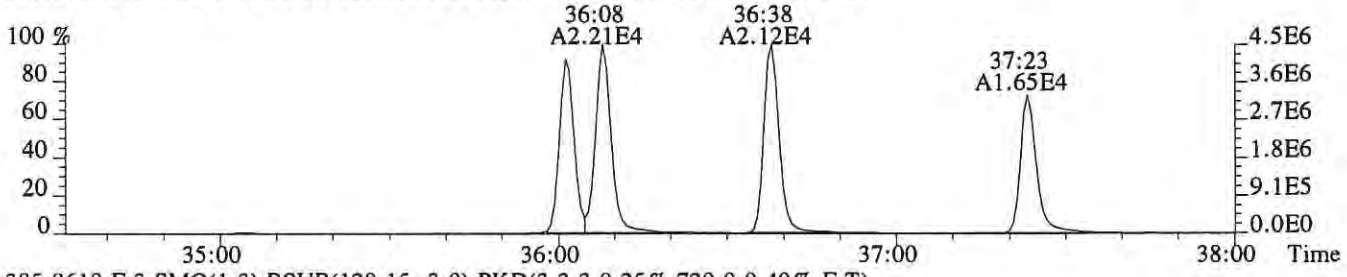
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



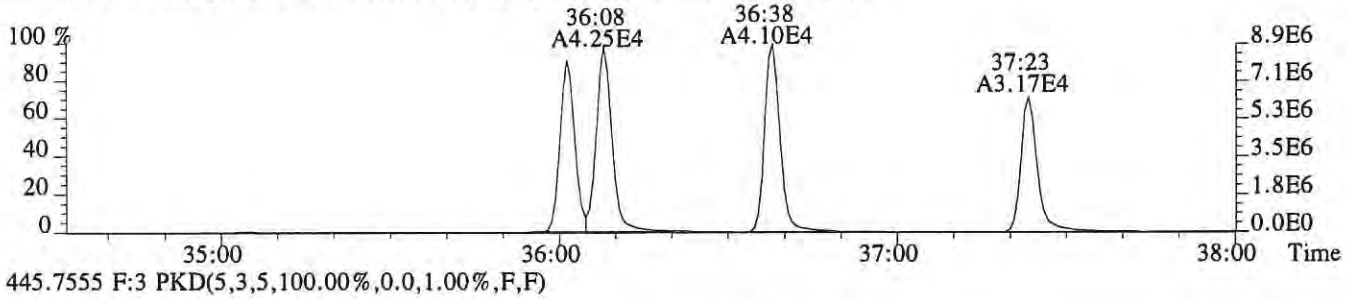
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



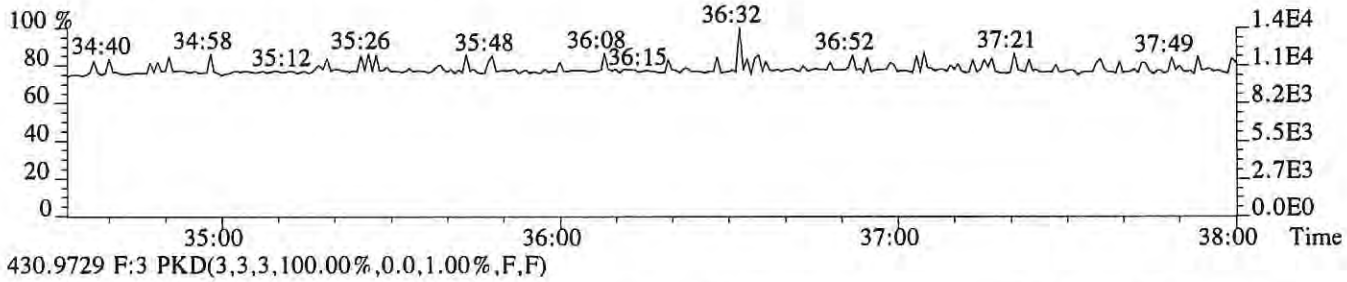
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



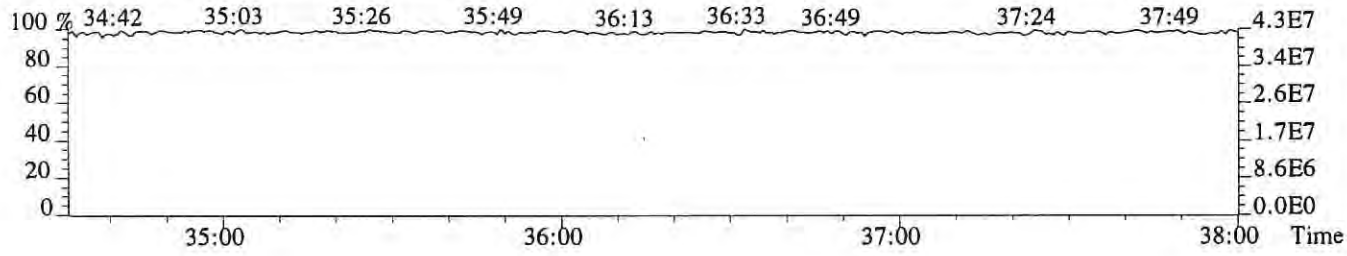
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



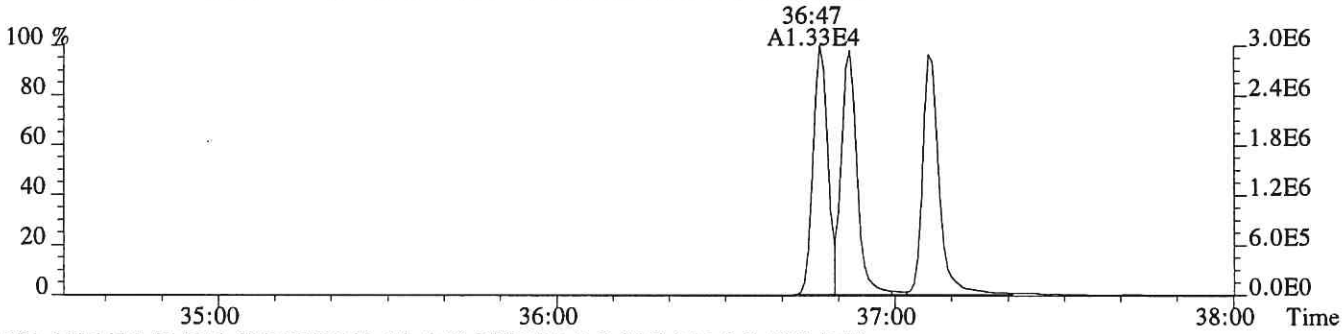
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



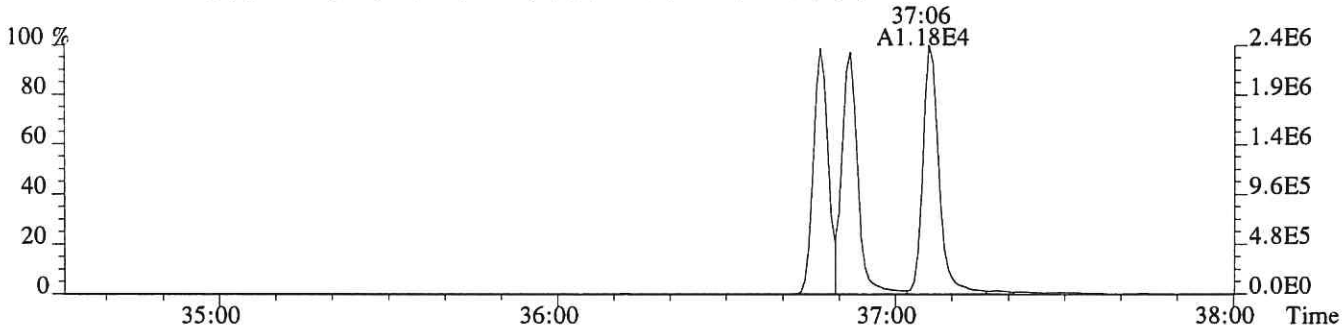
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



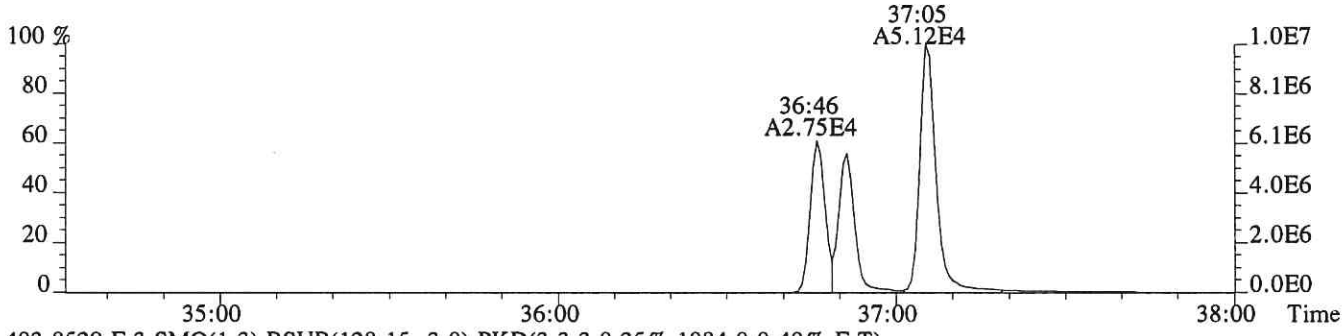
File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



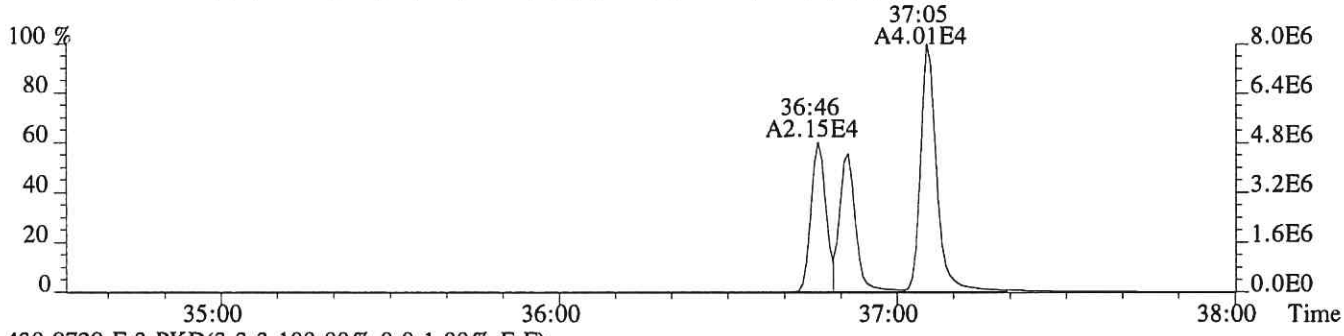
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



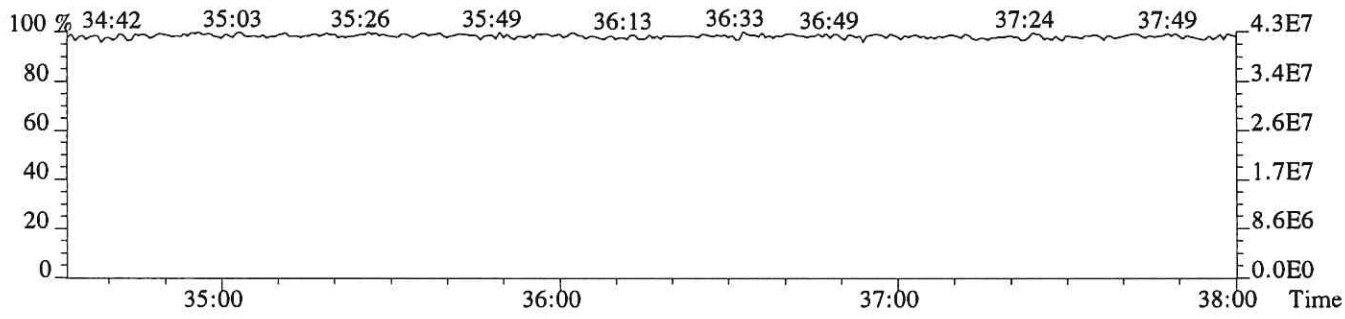
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1696.0,0.40%,F,T)



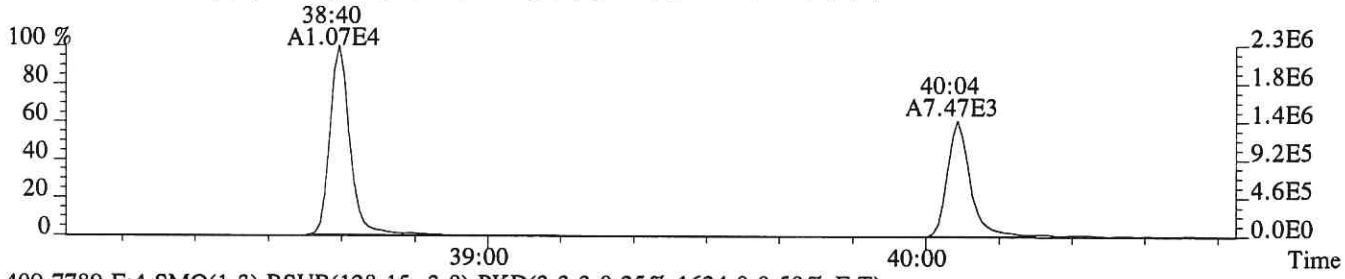
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



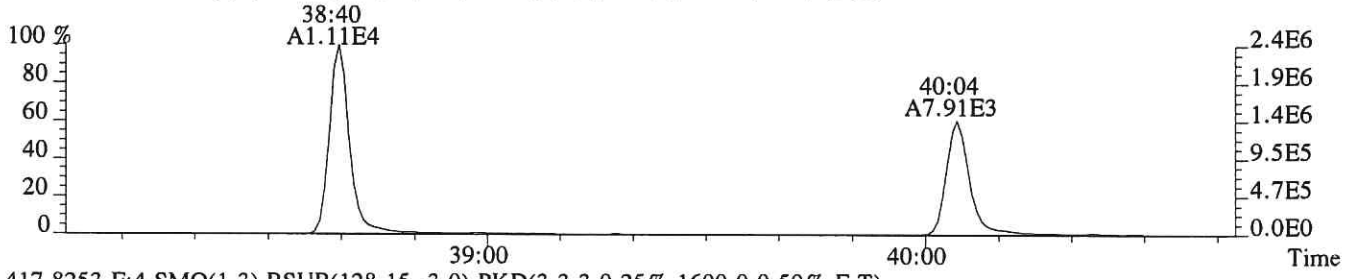
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



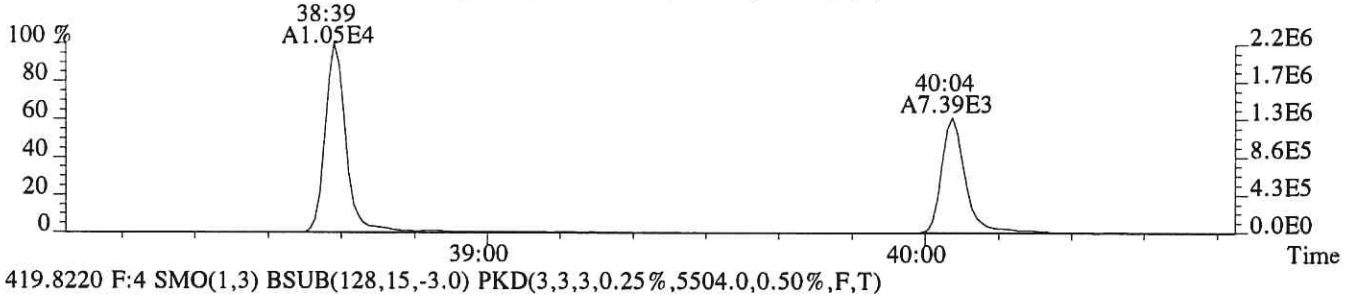
File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.50%,F,T)



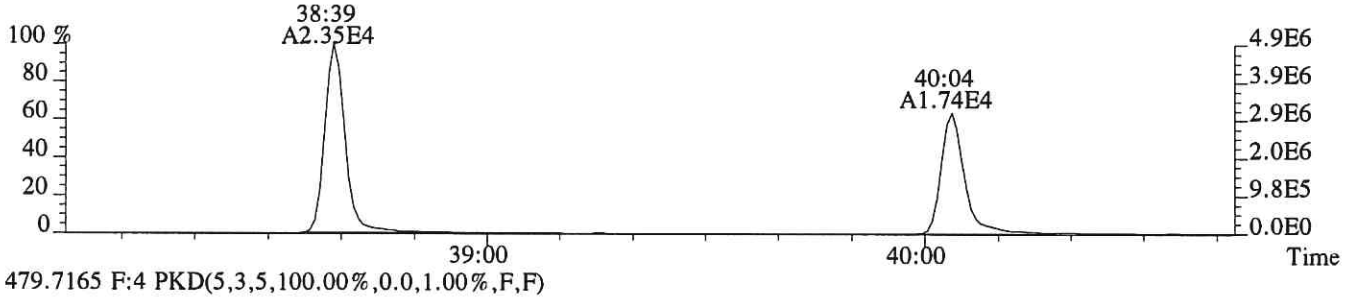
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.50%,F,T)



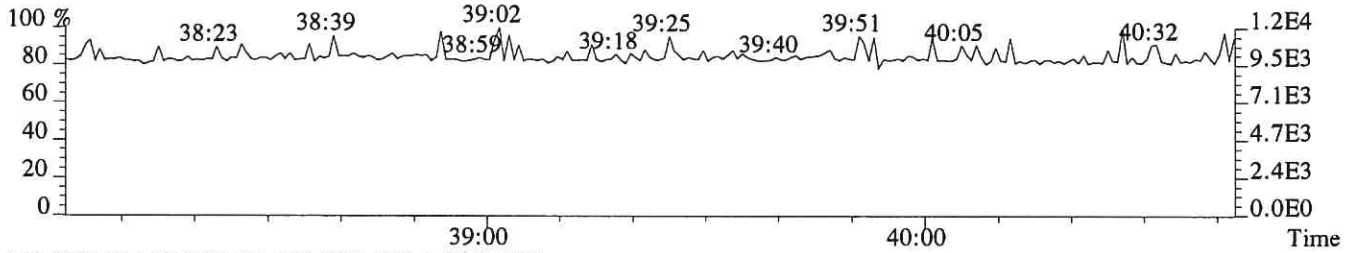
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)



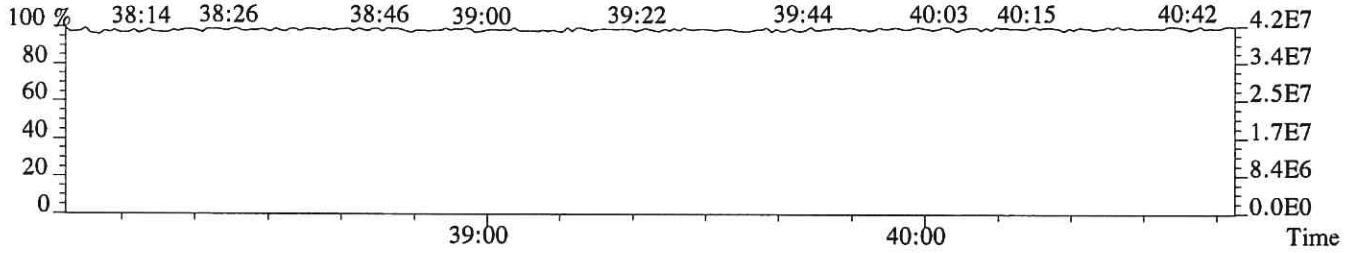
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5504.0,0.50%,F,T)



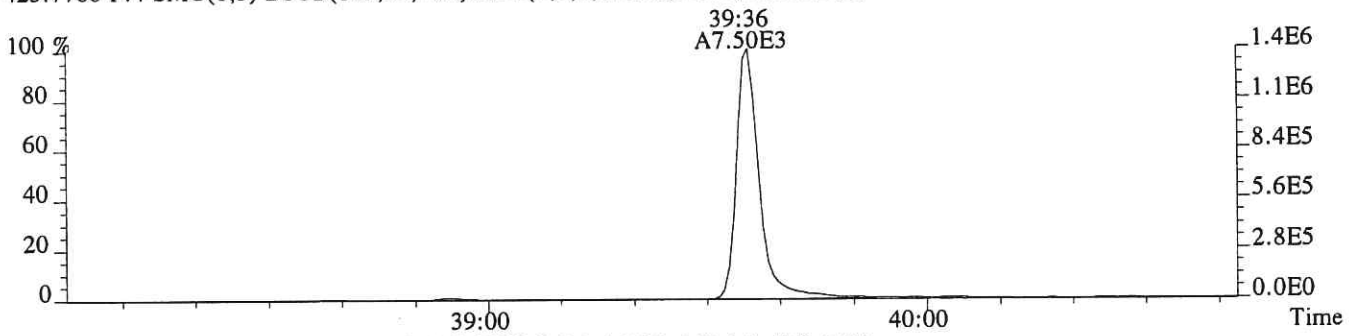
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



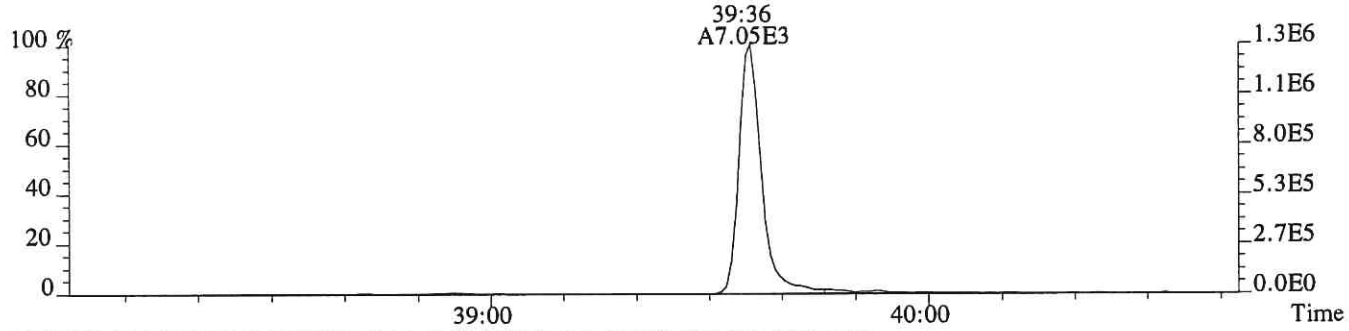
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



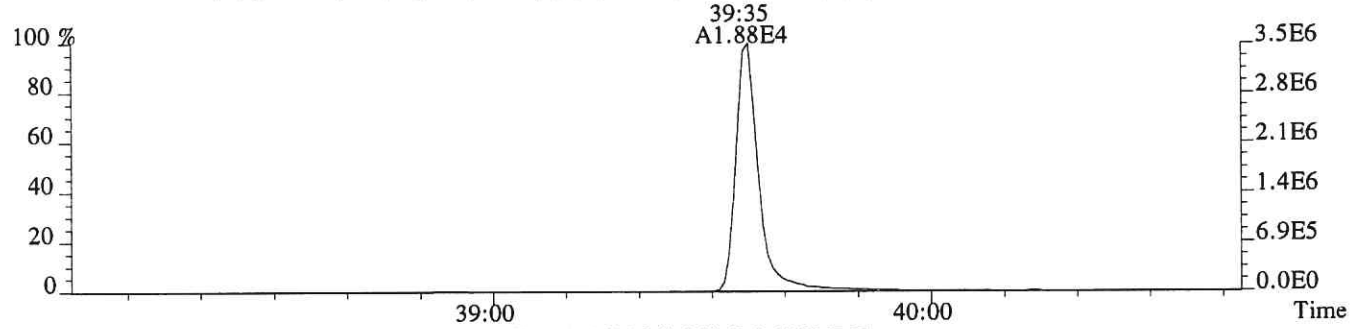
File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



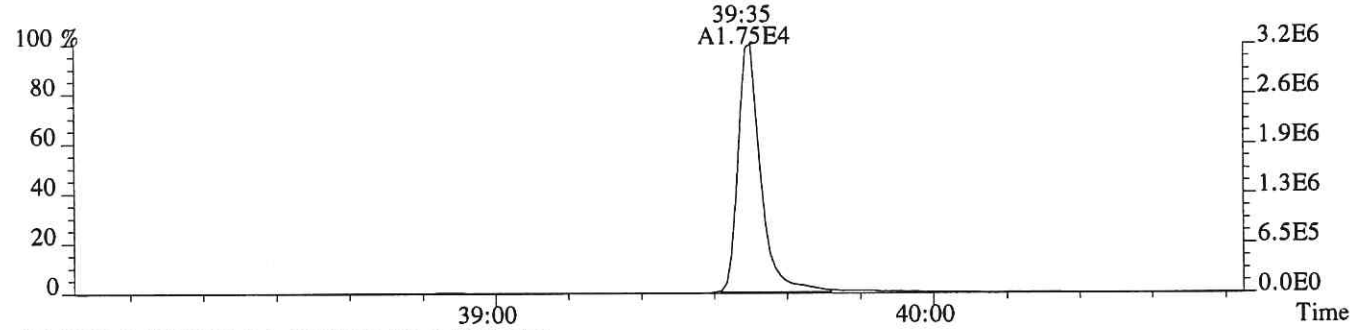
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



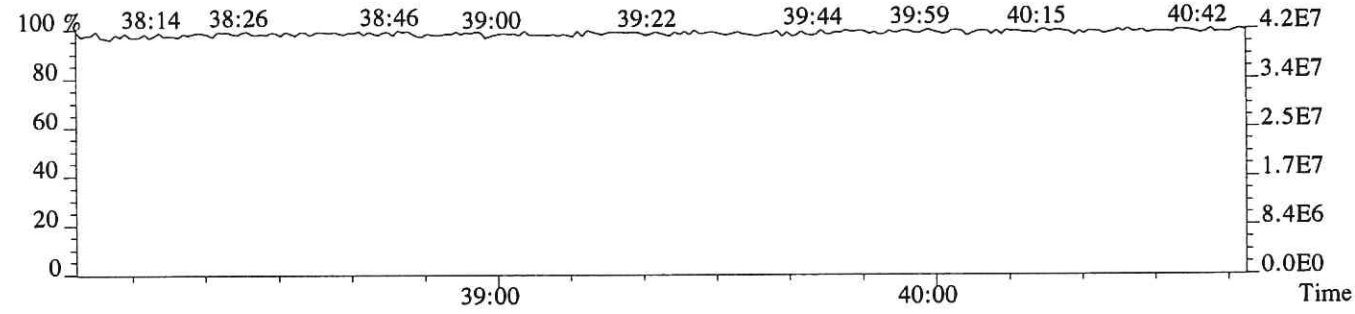
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)

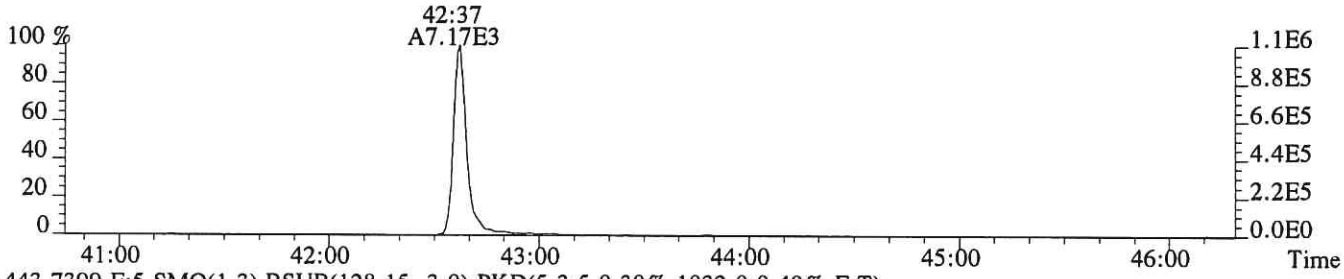


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

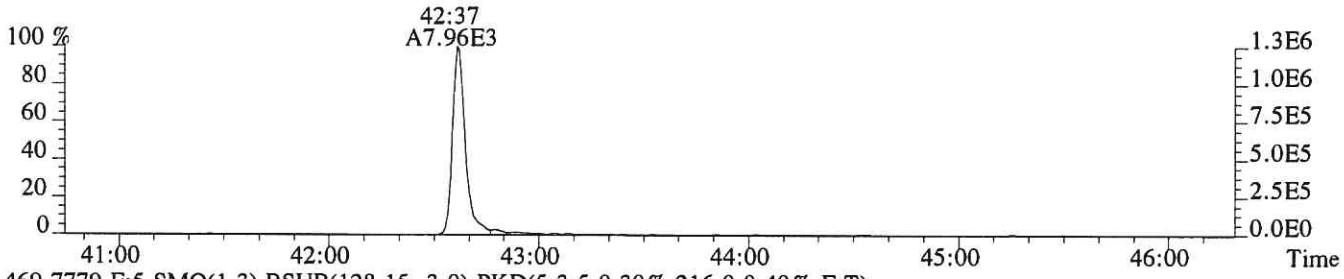


File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

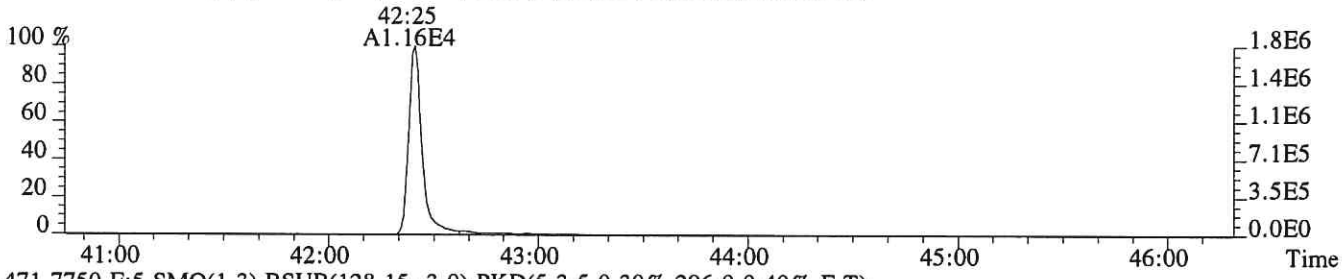
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



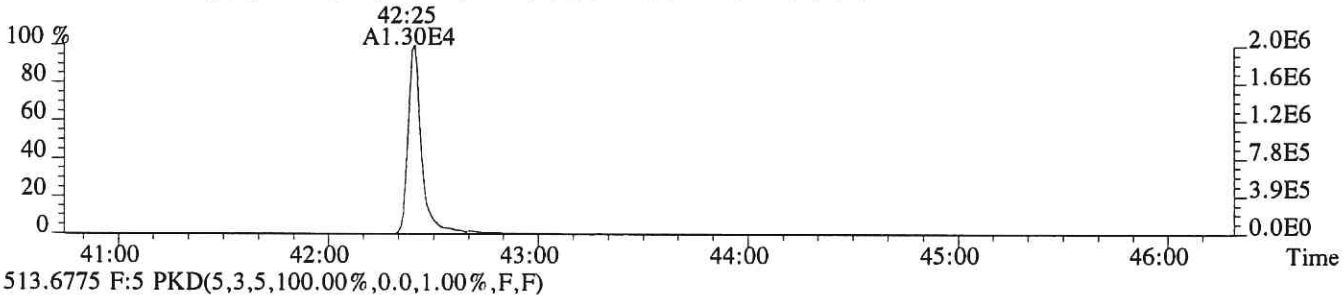
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



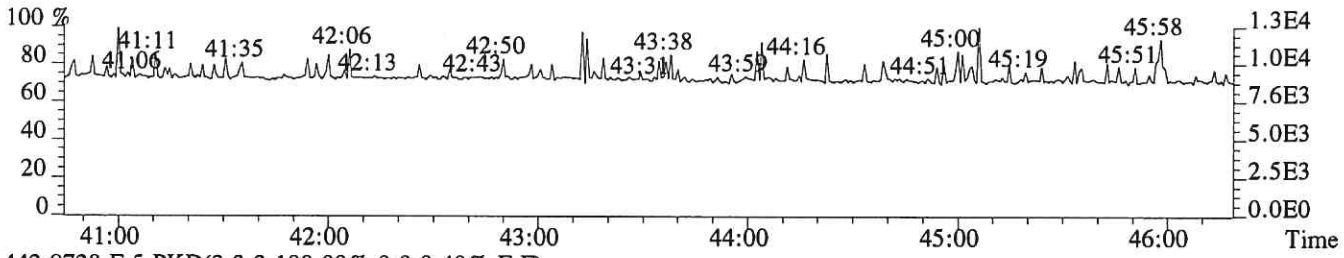
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



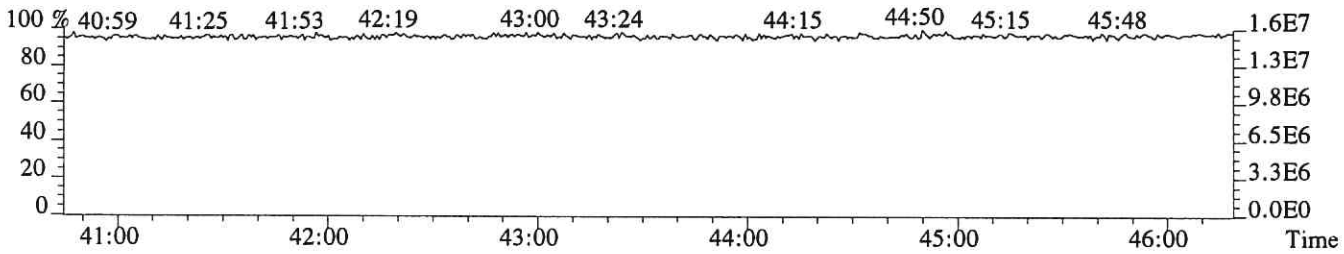
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



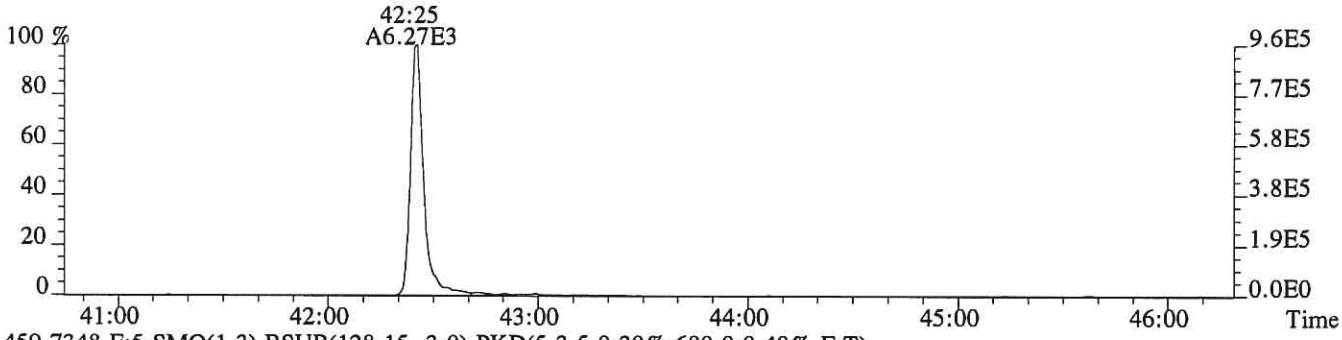
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



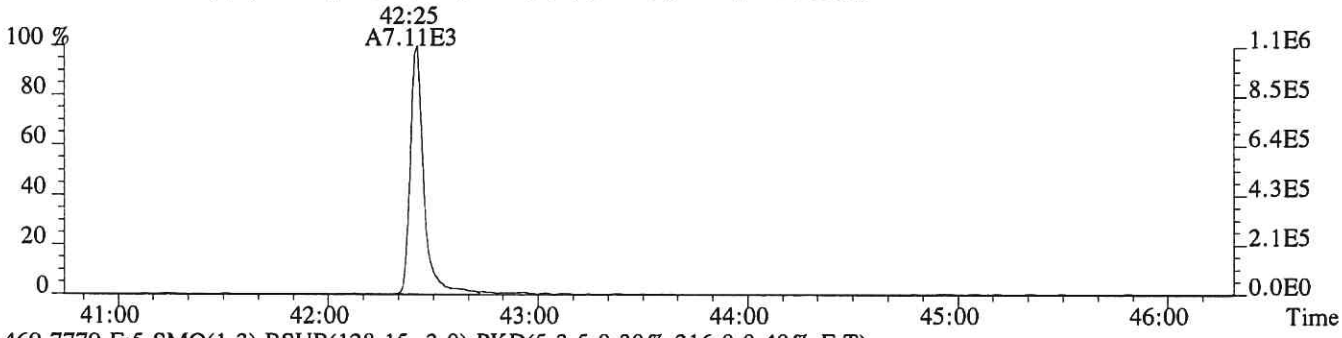
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



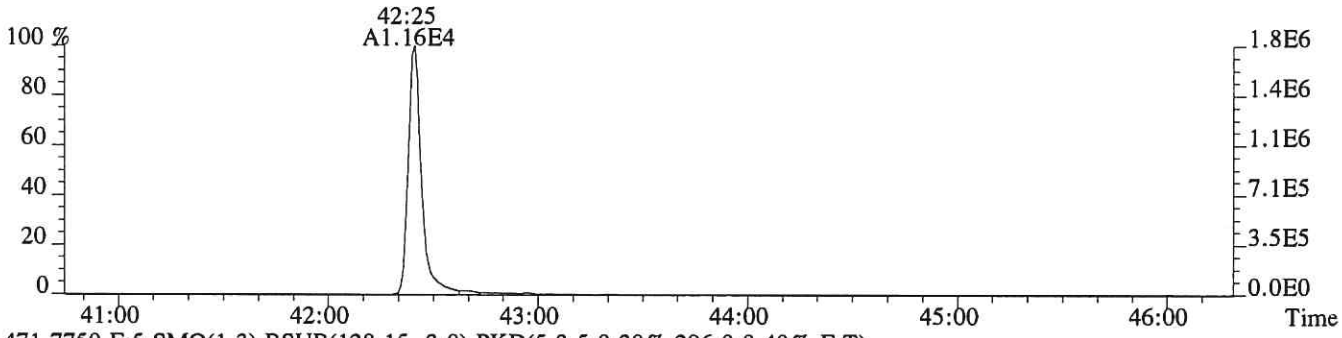
File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



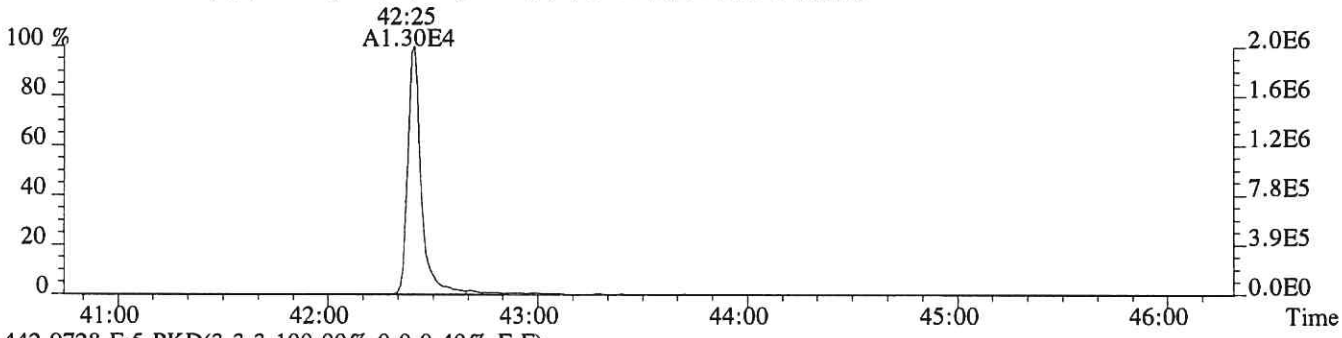
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



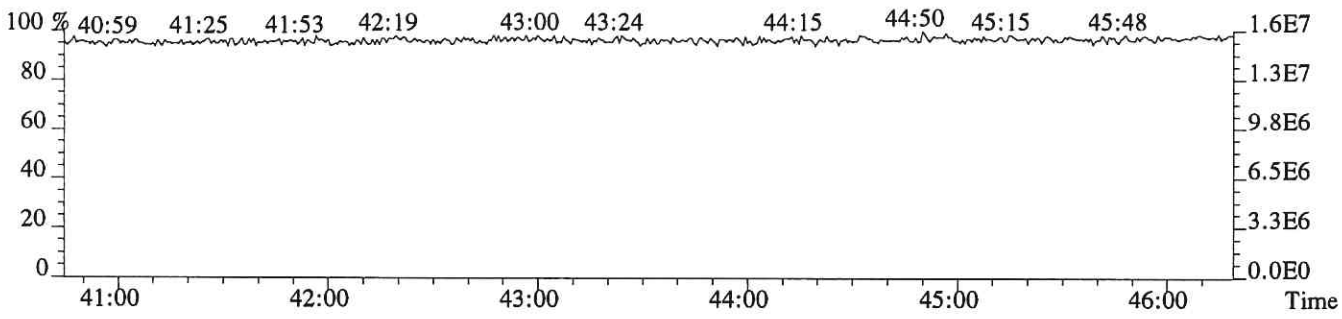
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 Sample ID: EQ1800469-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	2.385e+03	3.249e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.404e+04	1.587e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.431e+04	1.603e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:03	2.046e+04	1.714e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	2.201e+04	1.820e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	2.040e+04	1.677e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.668e+04	1.376e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.427e+04	1.423e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	1.003e+04	1.012e+04	0.99	yes	no	1.258
10	Unk	OCDF	42:38	9.891e+03	1.144e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	2.031e+03	2.694e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.855e+04	1.168e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.477e+04	1.181e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.611e+04	1.296e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:07	1.632e+04	1.274e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	9.608e+03	9.185e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:25	8.572e+03	9.614e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.722e+04	3.435e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:27	5.183e+04	3.232e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.907e+04	3.137e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	2.149e+04	4.099e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.425e+04	4.726e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.332e+04	4.558e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.870e+04	3.714e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.316e+04	2.965e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	9.679e+03	2.184e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:02	1.981e+04	2.508e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.885e+04	2.426e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	3.120e+04	2.422e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.118e+04	2.454e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	2.351e+04	2.197e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:25	1.608e+04	1.768e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.411e+04	5.620e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	5.036e+04	4.002e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	2.096e+04				no	1.014

$$\text{OCDD} = \frac{(8.572e+03 + 9.614e+03) \times 4000\ \text{pg} \times 1}{(1.608e+04 + 1.768e+04)\ \text{x}\ \text{g}\ \text{x}\ /\ 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 LAB. ID: EQ1800469-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.39e+05	6.44e+02	6.8e+02	5.82e+05	1.16e+03	5.0e+02
2	1,2,3,7,8-PeCDF	4.63e+06	6.48e+02	7.1e+03	3.07e+06	1.44e+03	2.1e+03
3	2,3,4,7,8-PeCDF	4.82e+06	6.48e+02	7.4e+03	3.17e+06	1.44e+03	2.2e+03
4	1,2,3,4,7,8-HxCDF	4.32e+06	3.84e+02	1.1e+04	3.65e+06	3.00e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	4.50e+06	3.84e+02	1.2e+04	3.75e+06	3.00e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	4.39e+06	3.84e+02	1.1e+04	3.66e+06	3.00e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	3.34e+06	3.84e+02	8.7e+03	2.75e+06	3.00e+02	9.2e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+06	1.60e+03	1.9e+03	2.95e+06	3.08e+03	9.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.87e+06	1.60e+03	1.2e+03	1.91e+06	3.08e+03	6.2e+02
10	OCDF	1.51e+06	4.28e+02	3.5e+03	1.80e+06	6.92e+02	2.6e+03
11	2,3,7,8-TCDD	4.02e+05	1.75e+03	2.3e+02	5.19e+05	8.68e+02	6.0e+02
12	1,2,3,7,8-PeCDD	3.63e+06	7.68e+02	4.7e+03	2.29e+06	2.44e+02	9.4e+03
13	1,2,3,4,7,8-HxCDD	3.30e+06	4.84e+02	6.8e+03	2.62e+06	5.40e+02	4.9e+03
14	1,2,3,6,7,8-HxCDD	3.29e+06	4.84e+02	6.8e+03	2.64e+06	5.40e+02	4.9e+03
15	1,2,3,7,8,9-HxCDD	3.22e+06	4.84e+02	6.6e+03	2.62e+06	5.40e+02	4.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.87e+06	5.08e+02	3.7e+03	1.81e+06	4.64e+02	3.9e+03
17	OCDD	1.37e+06	3.40e+02	4.0e+03	1.50e+06	5.60e+02	2.7e+03
18	13C-2,3,7,8-TCDF	4.93e+06	5.69e+03	8.7e+02	6.19e+06	3.28e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	9.68e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
20	13C-2,3,4,7,8-PeCDF	9.51e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.57e+06	6.04e+02	7.6e+03	8.70e+06	9.80e+02	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.93e+06	6.04e+02	8.2e+03	9.49e+06	9.80e+02	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.96e+06	6.04e+02	8.2e+03	9.91e+06	9.80e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	3.80e+06	6.04e+02	6.3e+03	7.54e+06	9.80e+02	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.75e+06	1.65e+03	1.7e+03	6.25e+06	2.98e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.81e+06	1.65e+03	1.1e+03	4.06e+06	2.98e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.82e+06	4.67e+03	8.2e+02	4.84e+06	2.28e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	7.56e+06	5.96e+02	1.3e+04	4.76e+06	6.24e+02	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	6.91e+06	1.18e+03	5.9e+03	5.40e+06	6.56e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.33e+06	1.18e+03	5.4e+03	5.05e+06	6.56e+02	7.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.67e+06	4.60e+02	1.0e+04	4.27e+06	3.32e+02	1.3e+04
32	13C-OCDD	2.48e+06	6.04e+02	4.1e+03	2.78e+06	2.88e+02	9.7e+03
33	13C-1,2,3,4-TCDD	8.63e+06	4.67e+03	1.8e+03	1.09e+07	2.28e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.05e+07	1.18e+03	8.9e+03	8.26e+06	6.56e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	4.08e+06	1.62e+03	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.748e+03 + 8.680e+02) \times 2000}{(3.822e+06 + 4.841e+06) \times (\quad) \times 1.085} =$$

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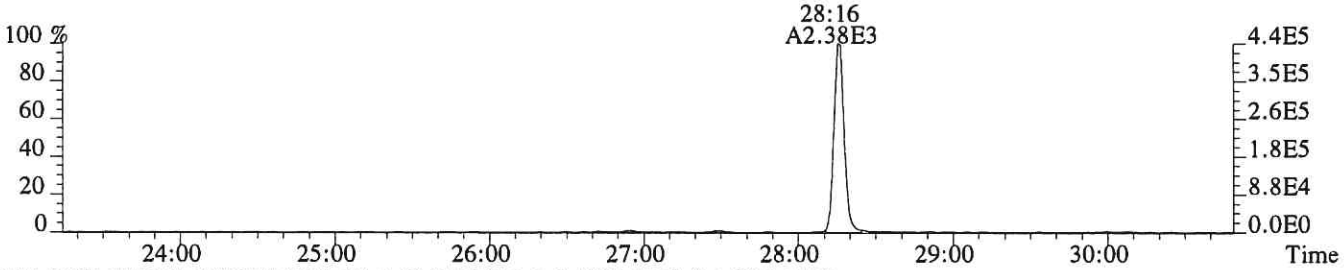
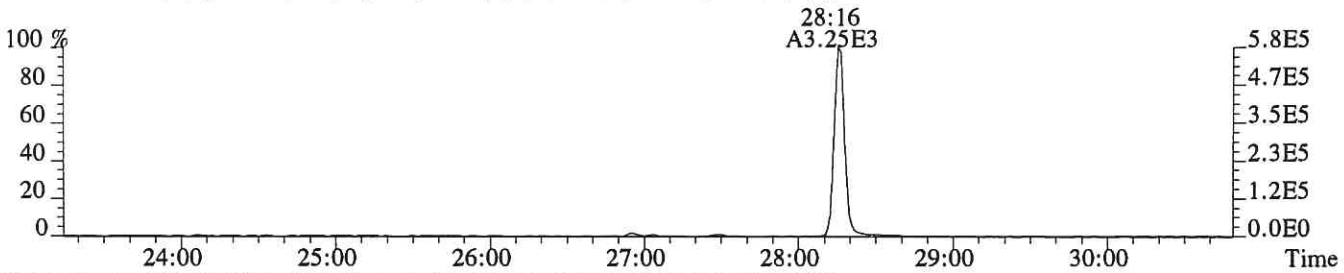
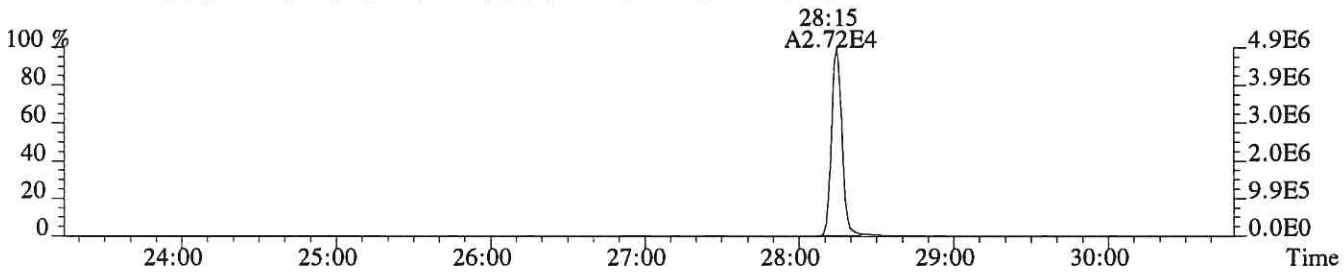
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



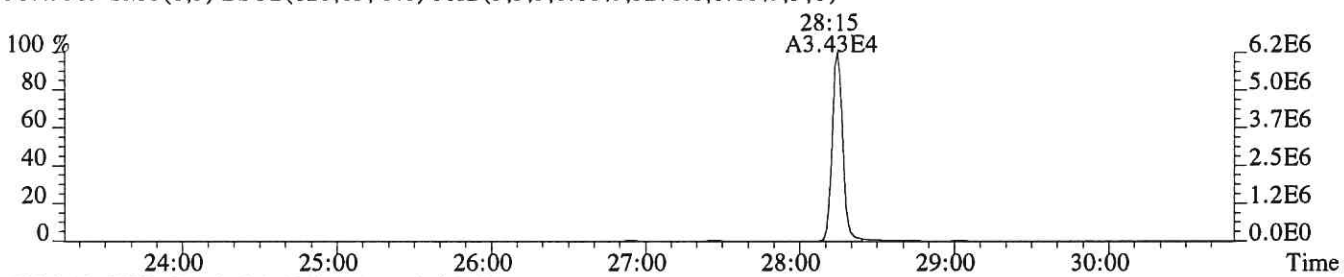
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



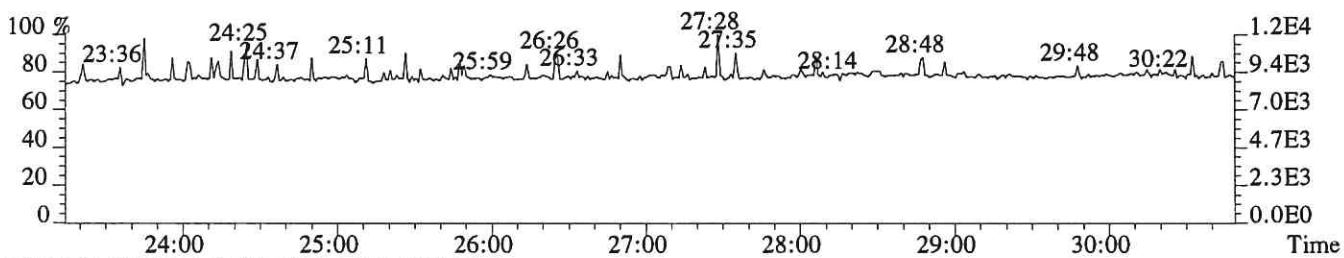
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5692.0,1.00%,F,T)



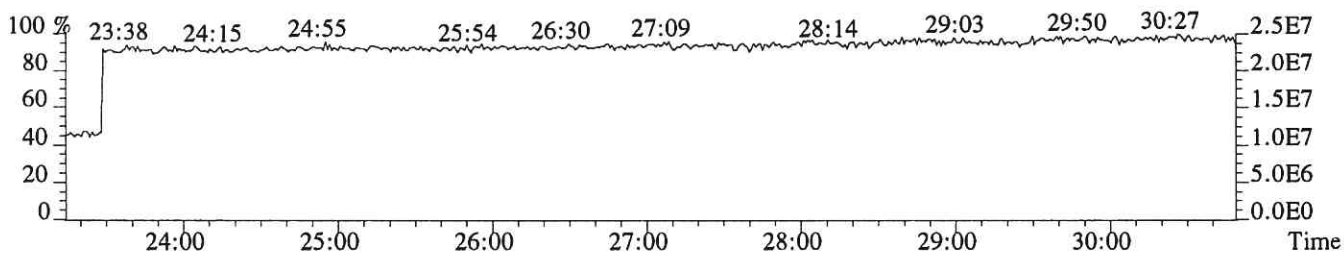
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3276.0,1.00%,F,T)



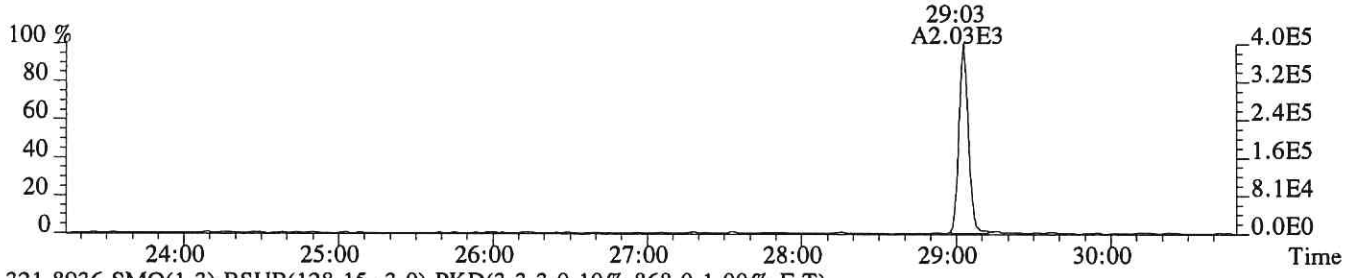
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



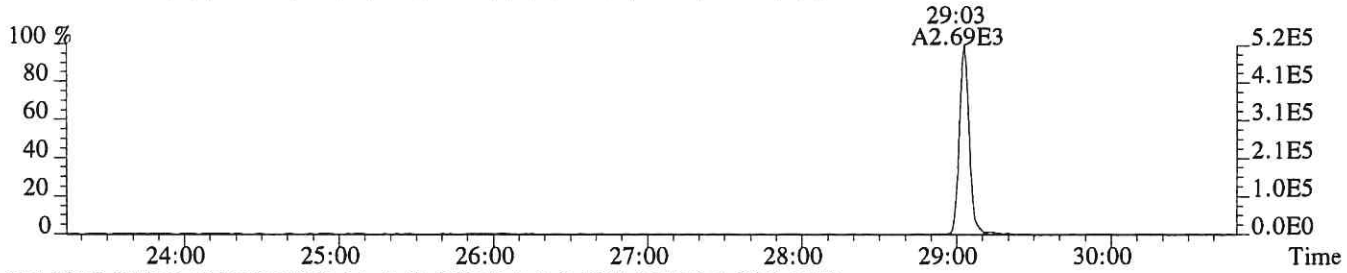
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



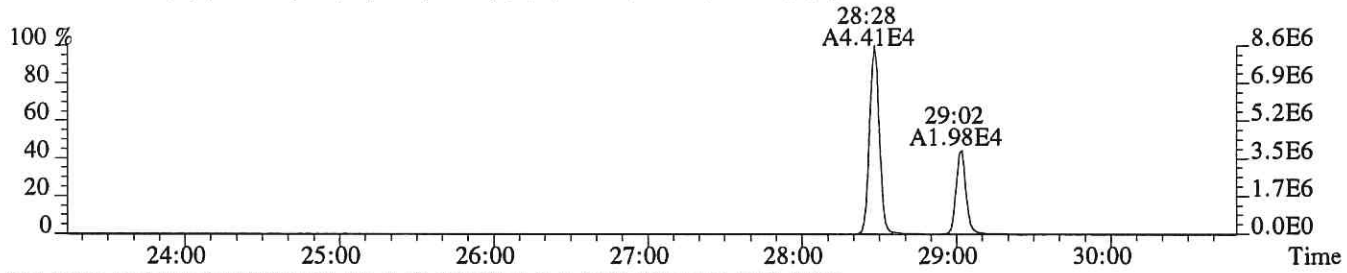
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe El+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1748.0,1.00%,F,T)



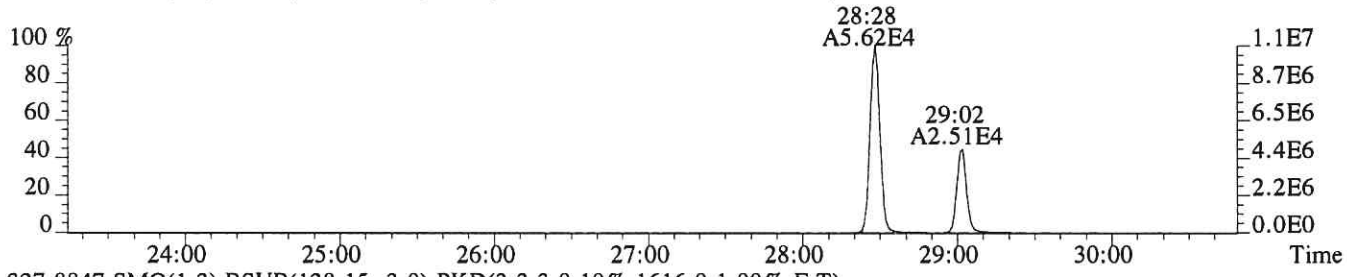
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



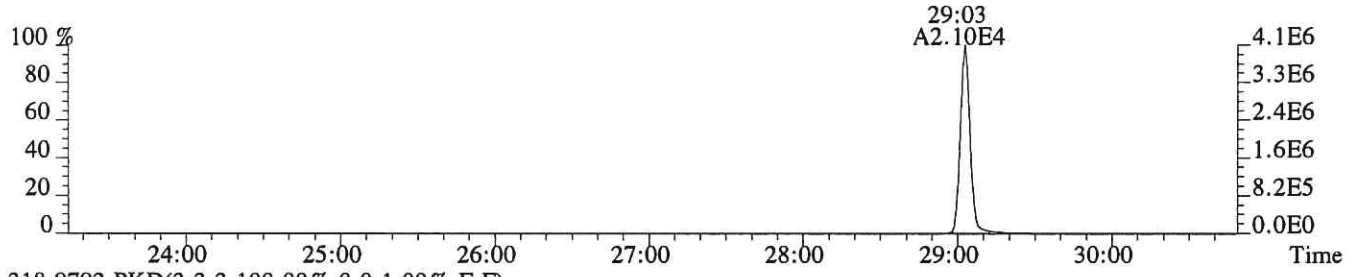
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



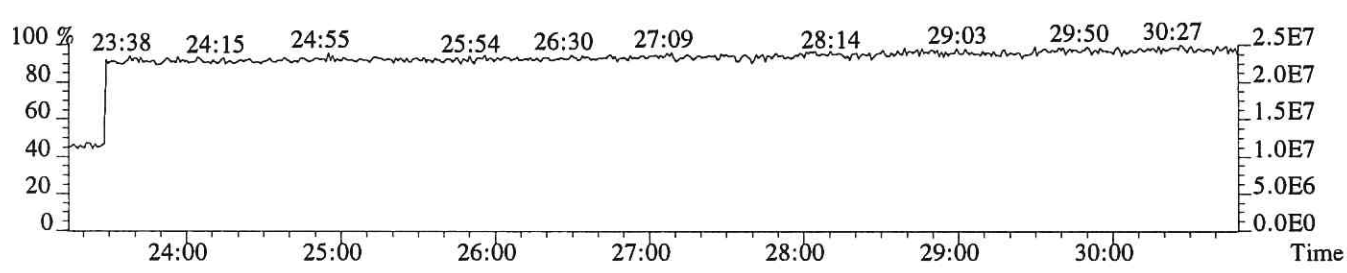
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



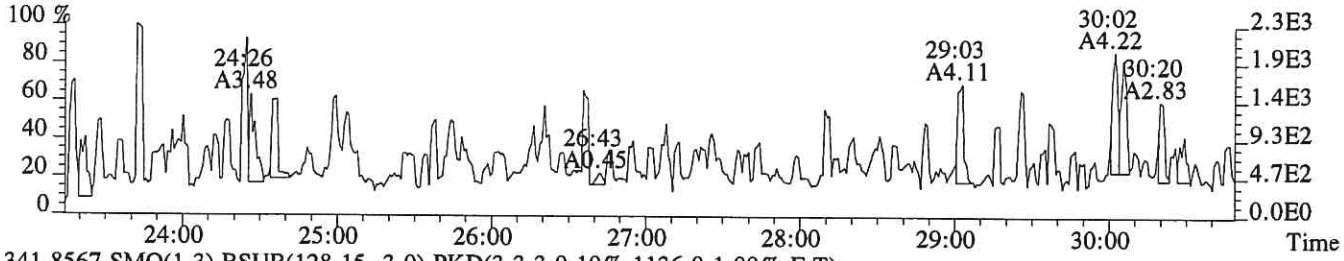
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



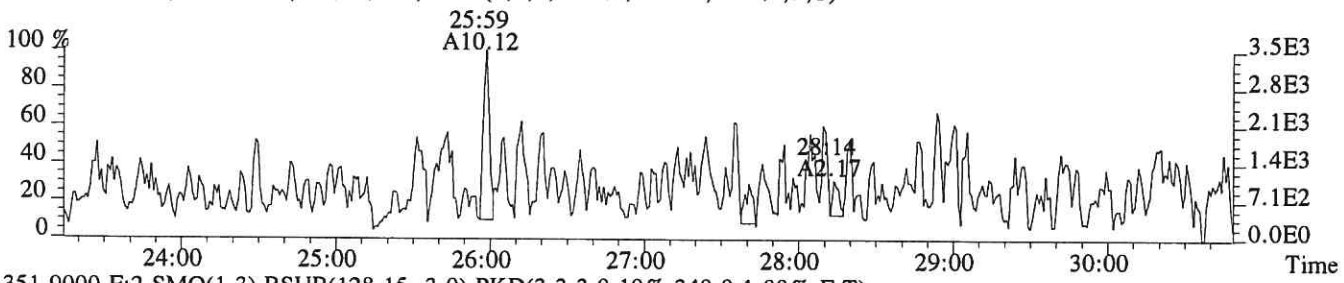
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



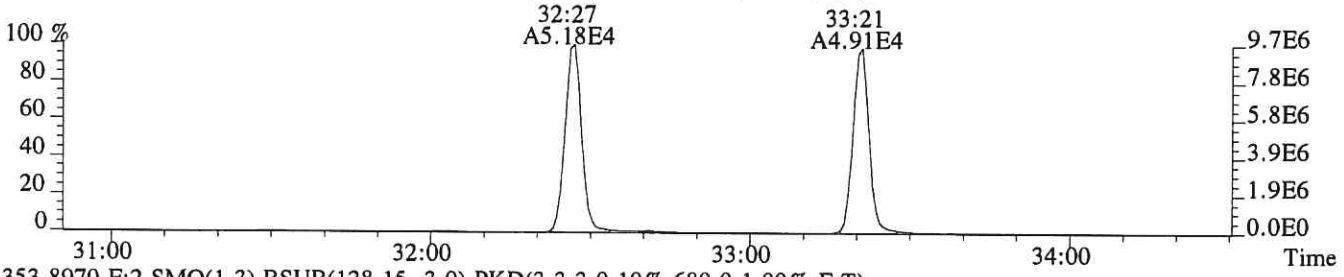
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



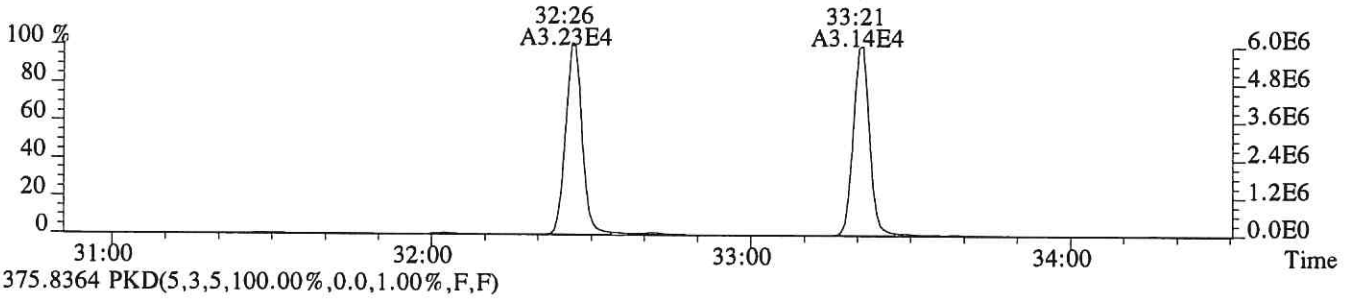
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



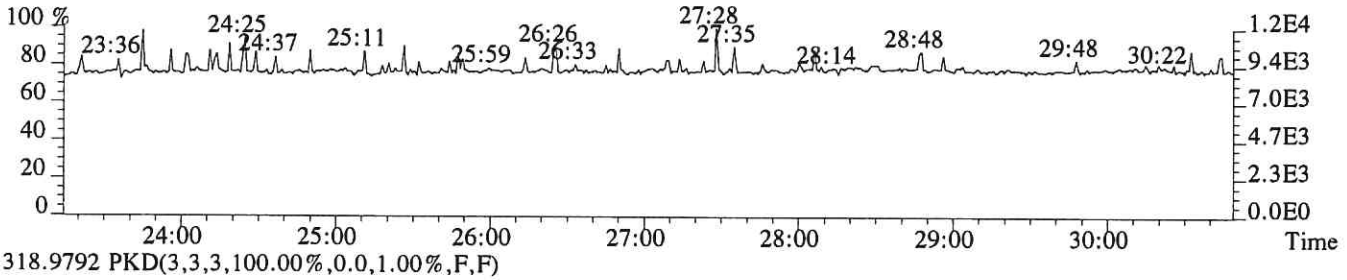
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



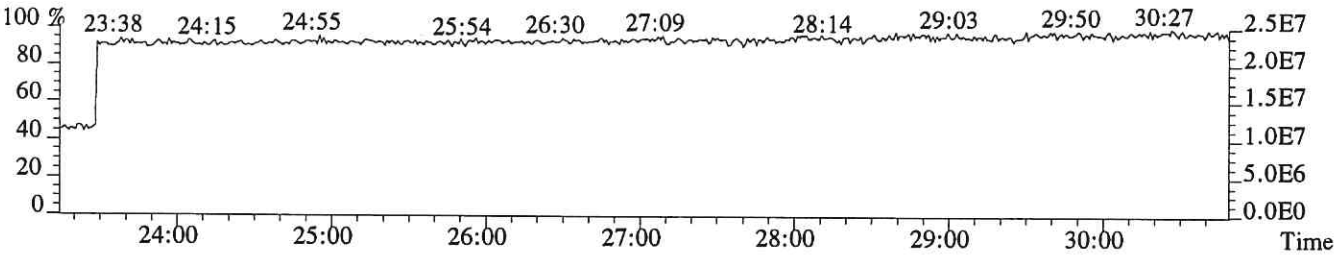
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



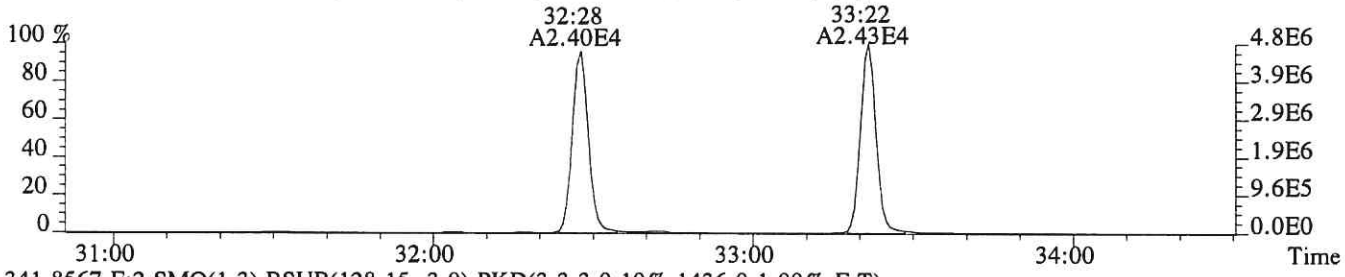
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



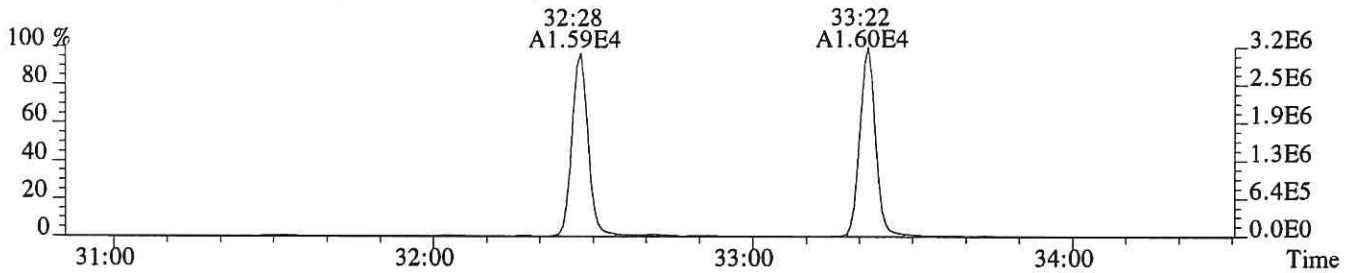
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



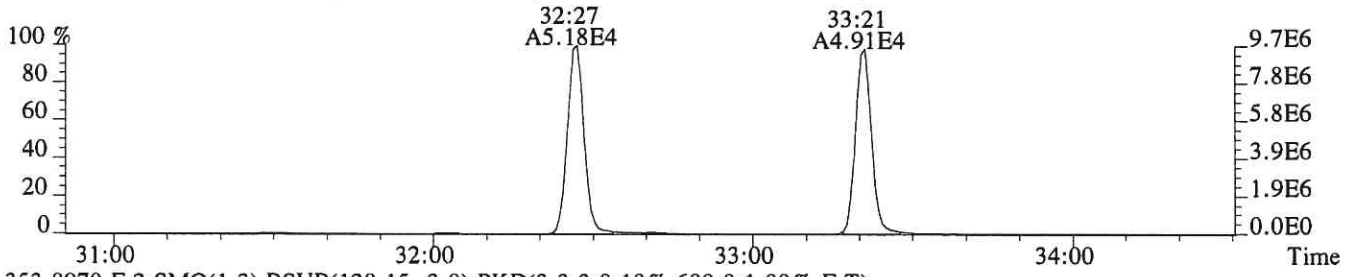
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



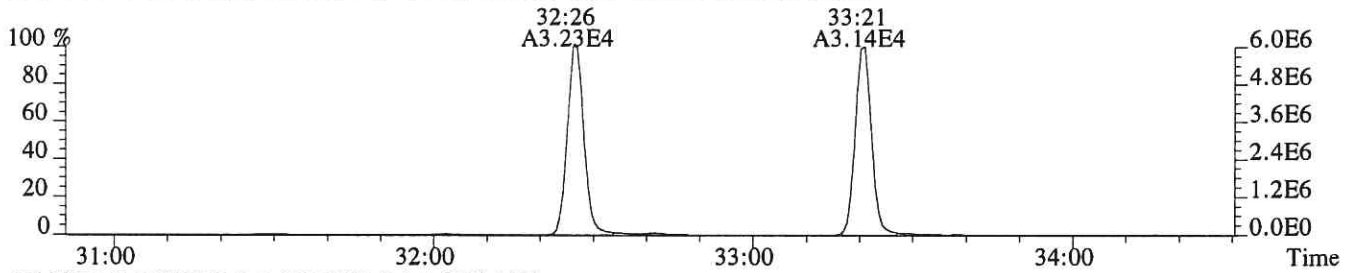
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



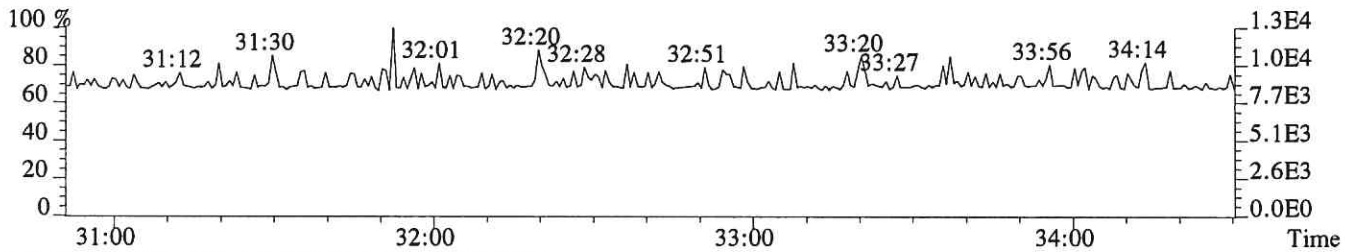
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



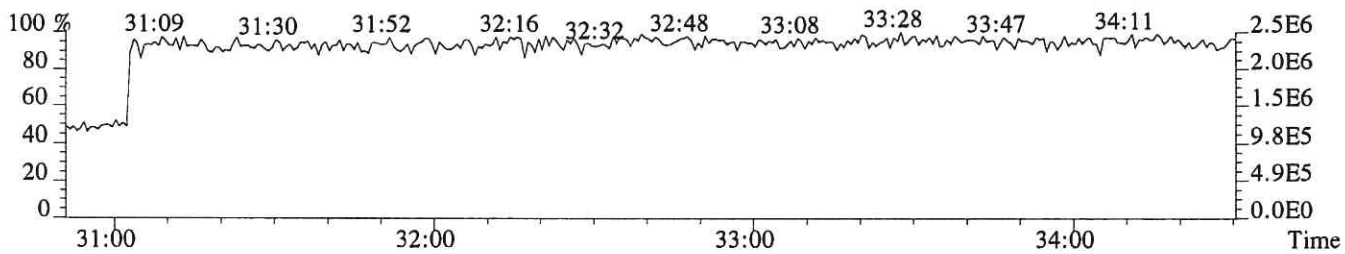
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



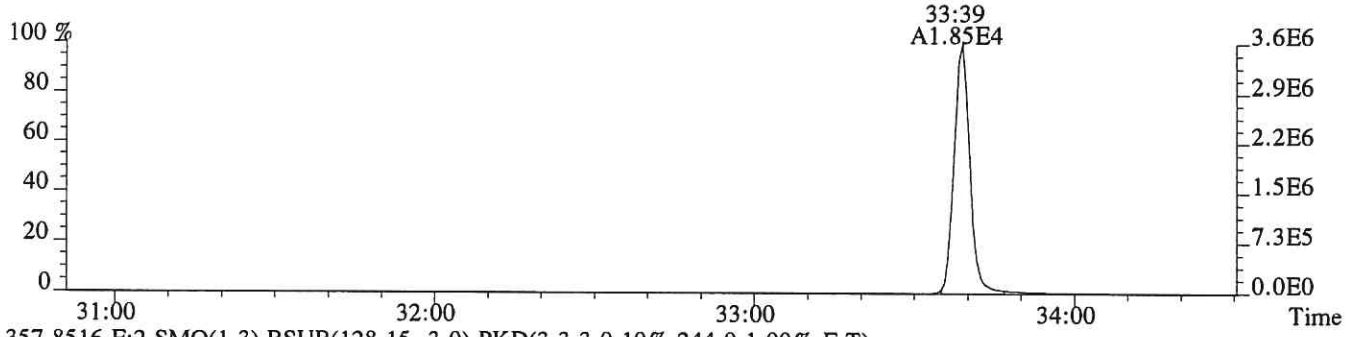
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



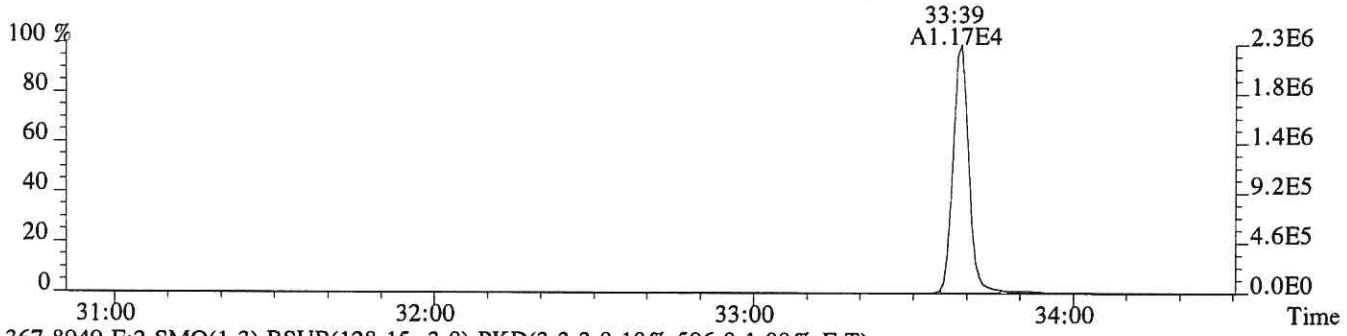
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



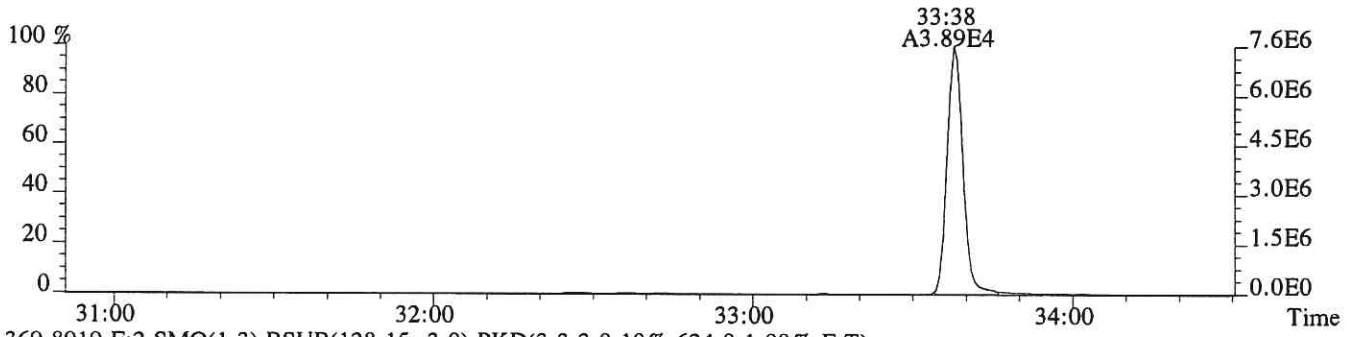
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



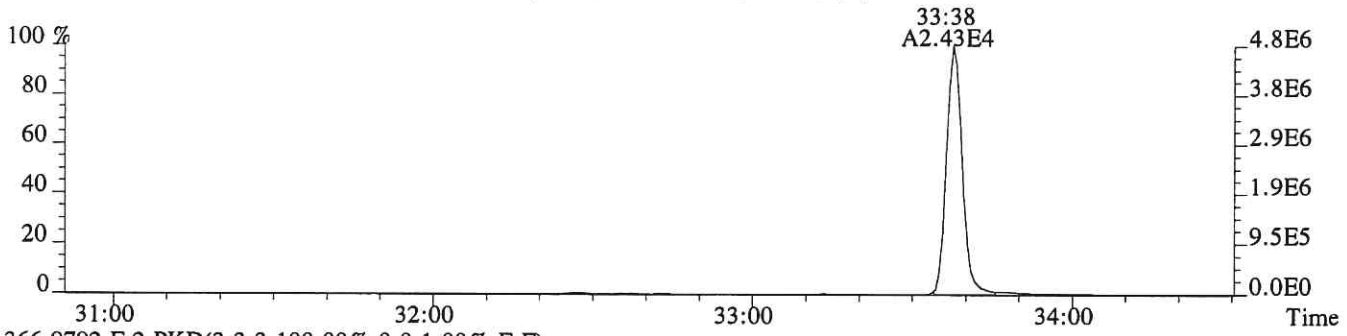
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



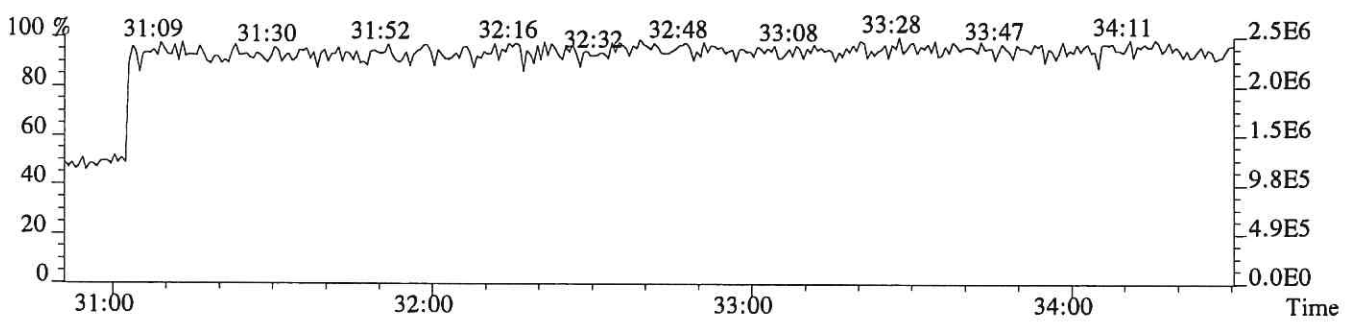
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)

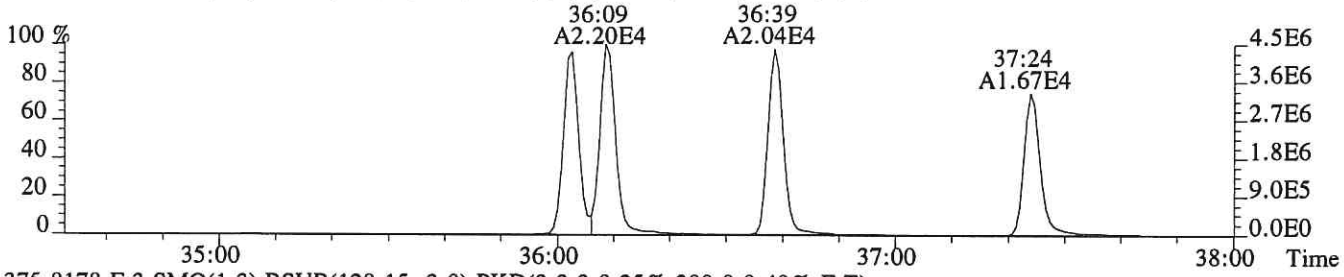


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

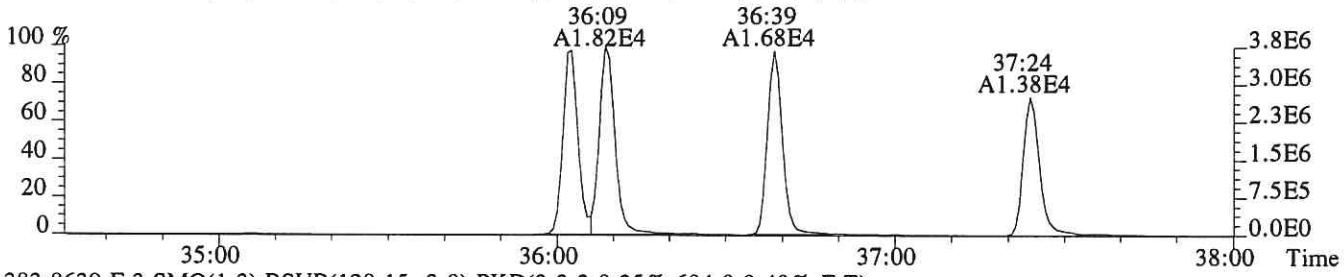


File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

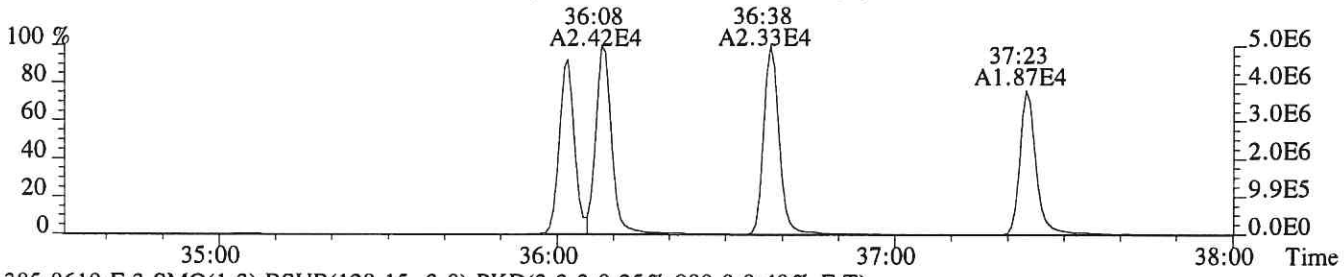
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



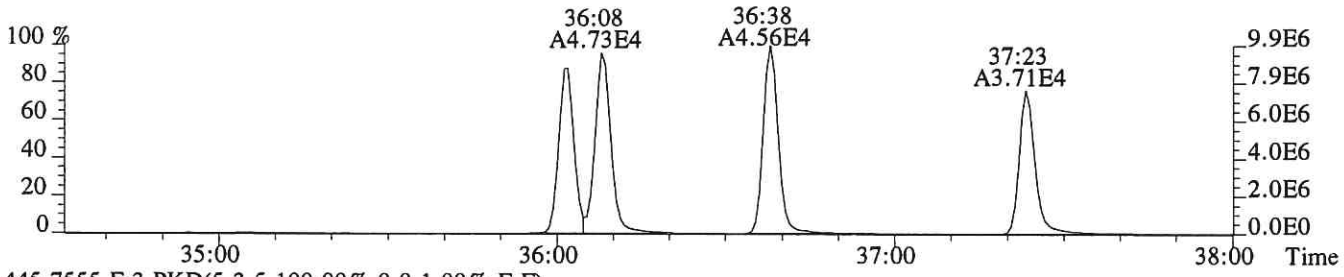
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



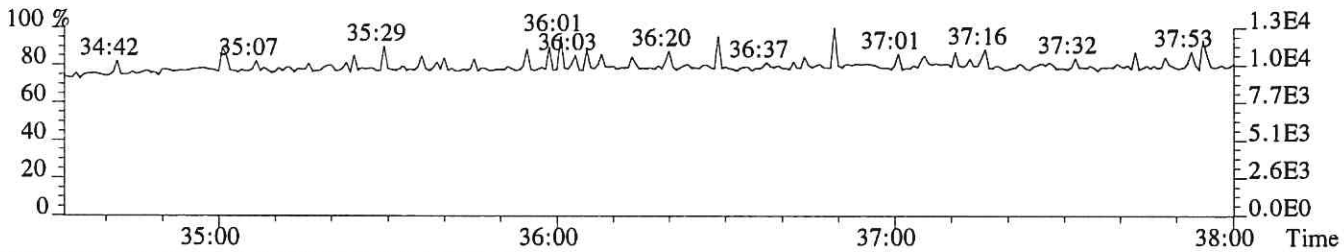
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



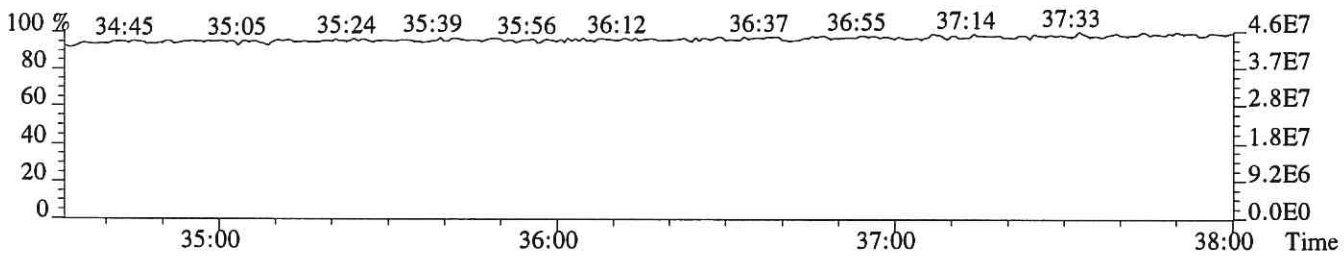
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



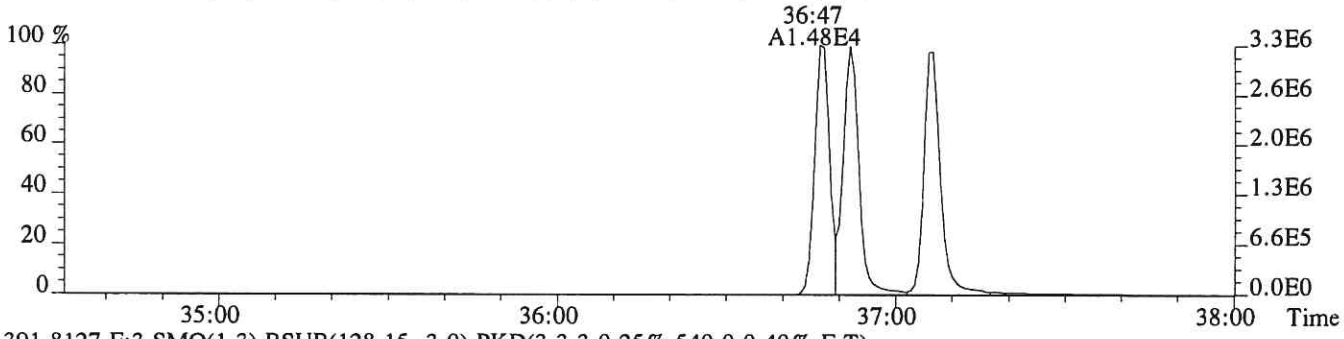
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



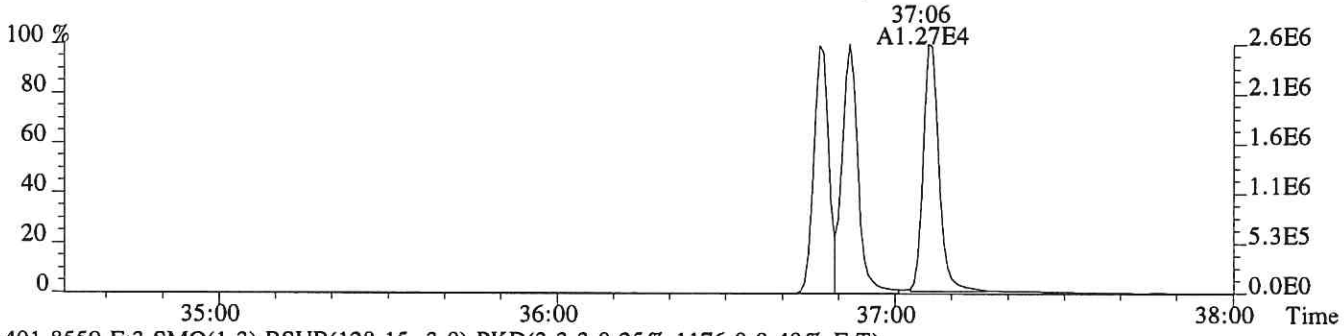
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



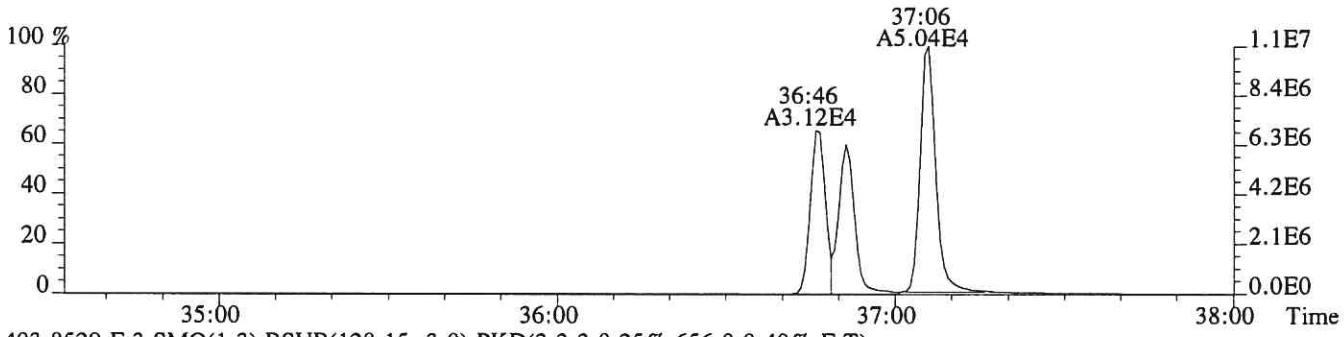
File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



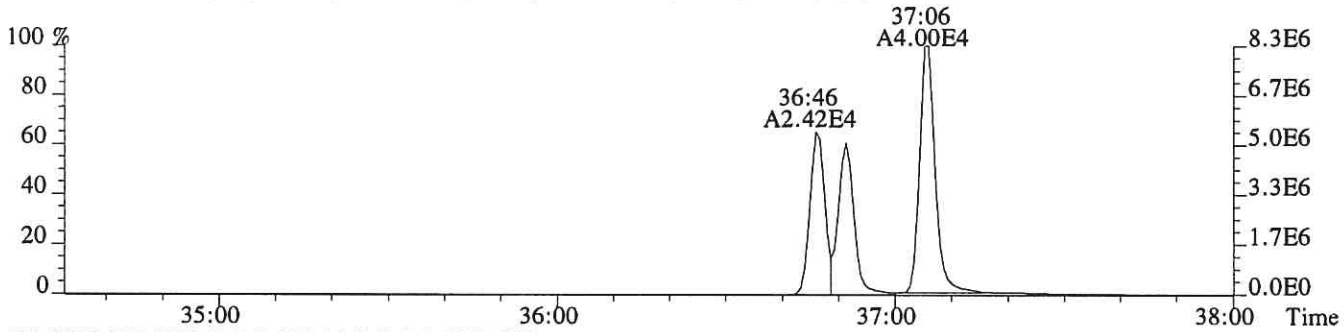
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



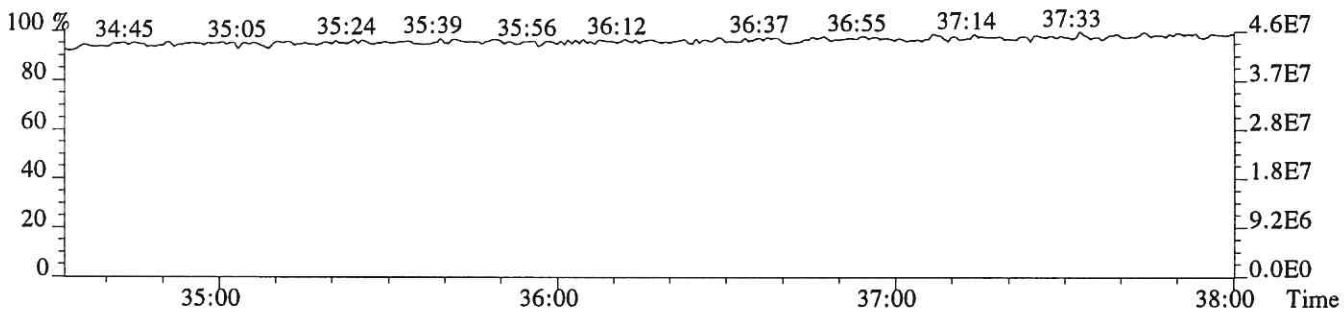
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



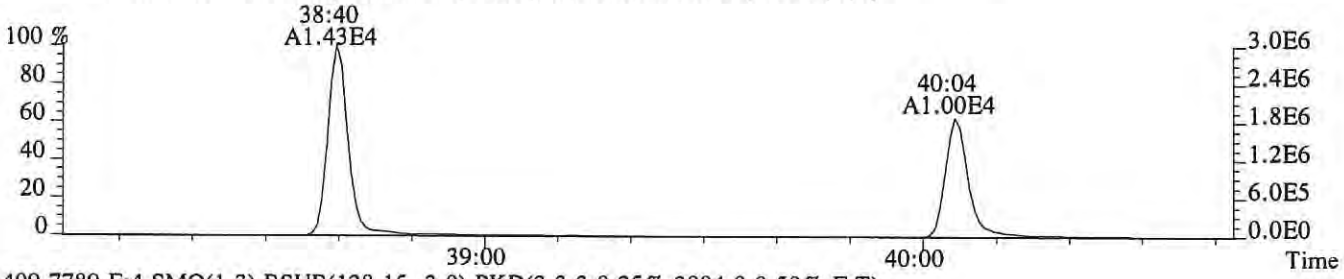
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



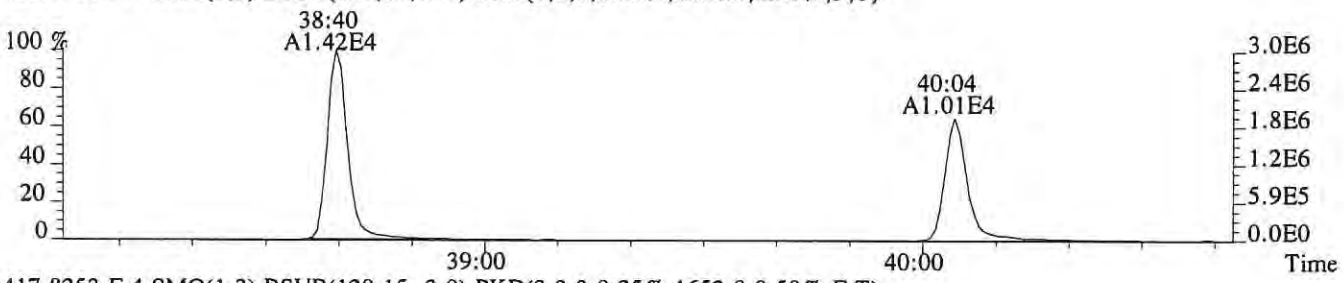
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



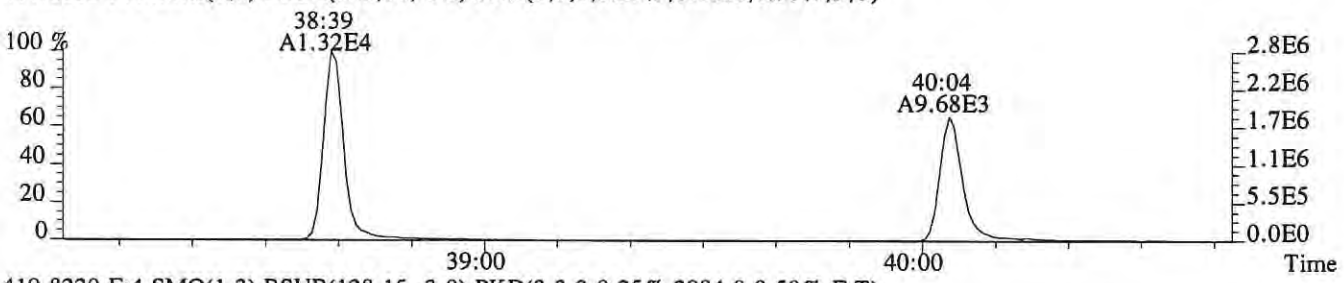
File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



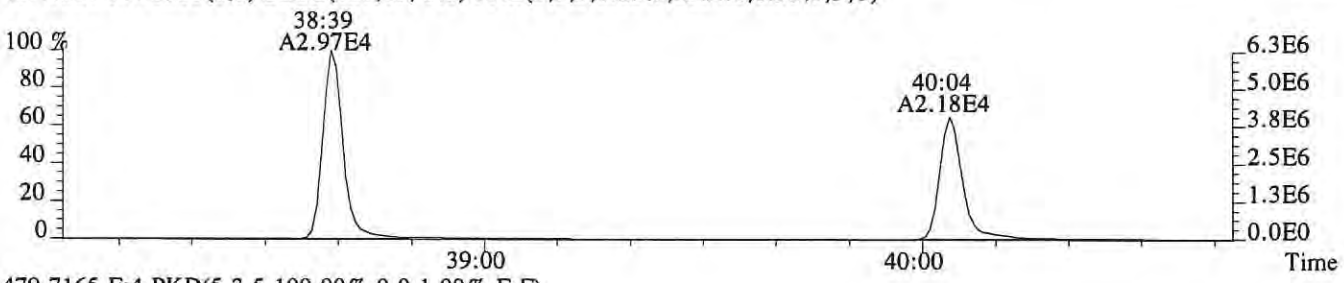
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.50%,F,T)



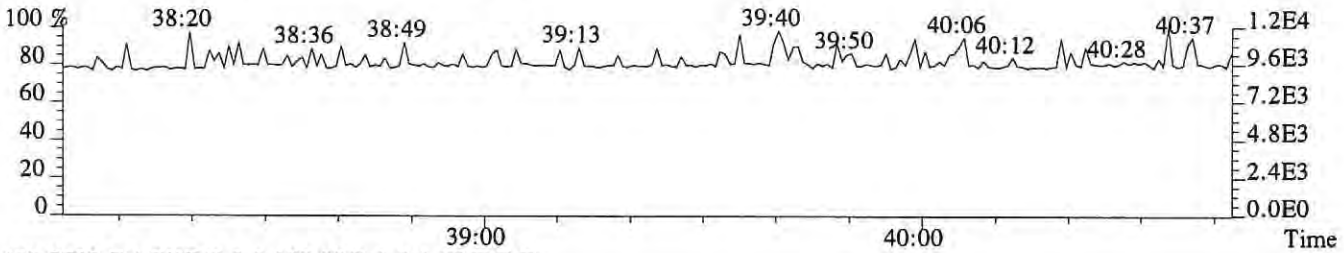
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



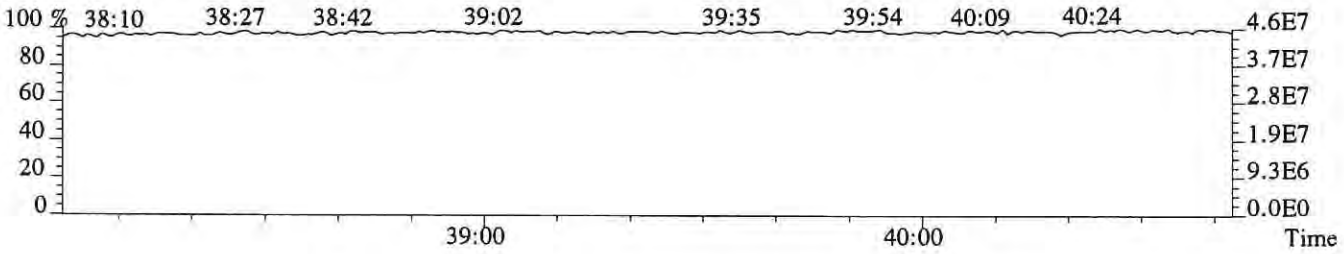
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.50%,F,T)



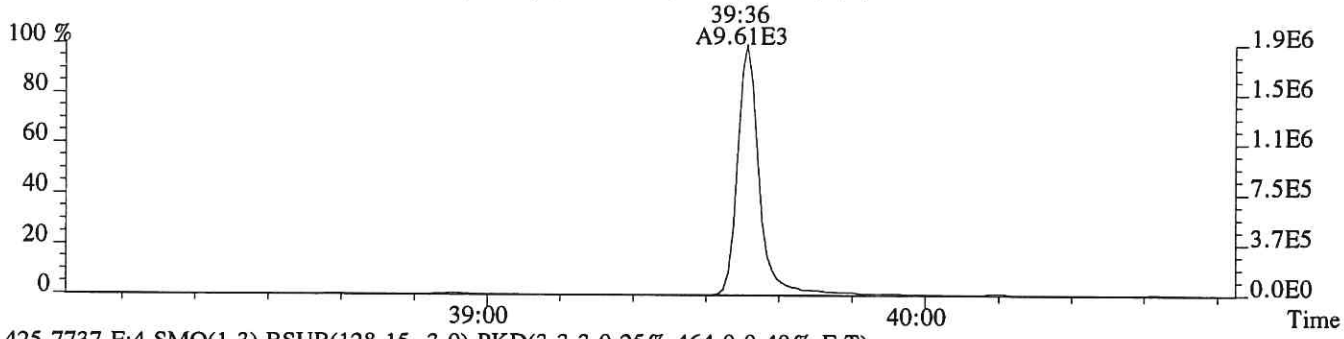
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



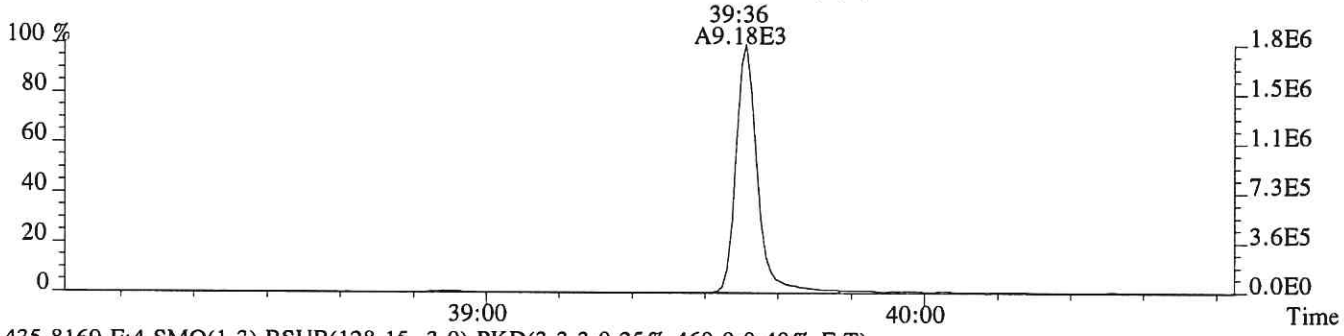
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



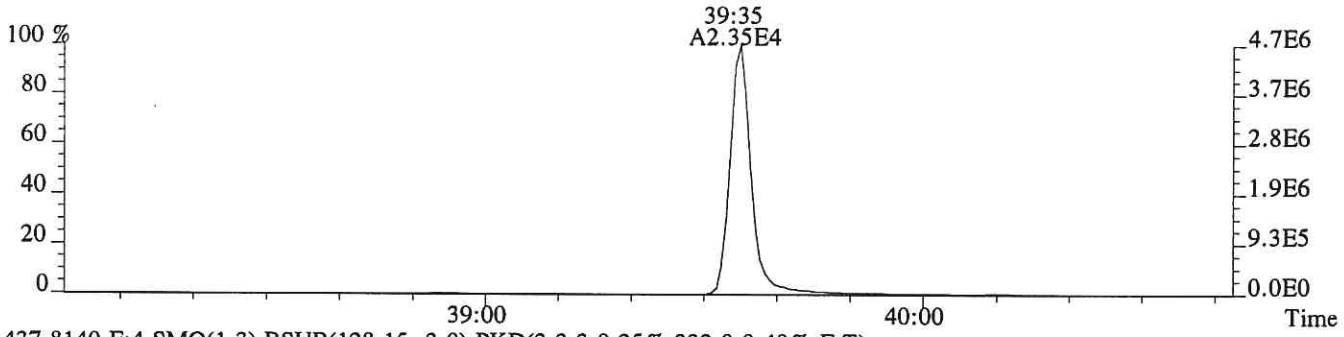
File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



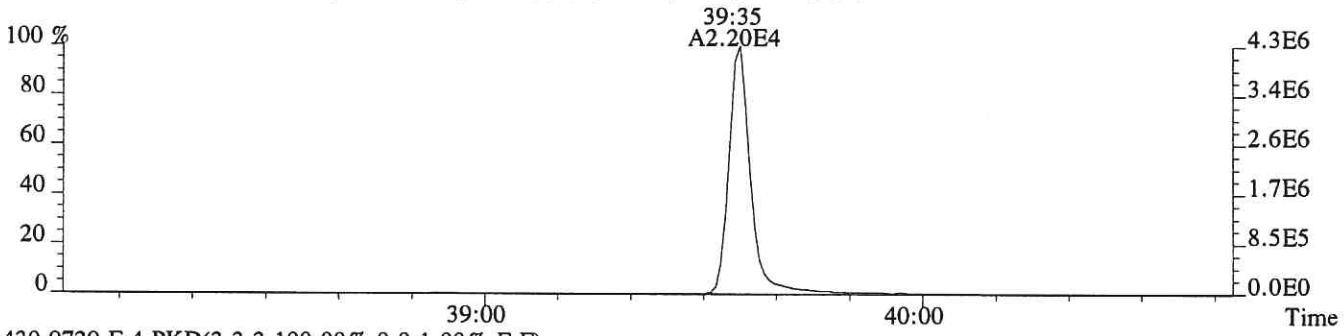
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



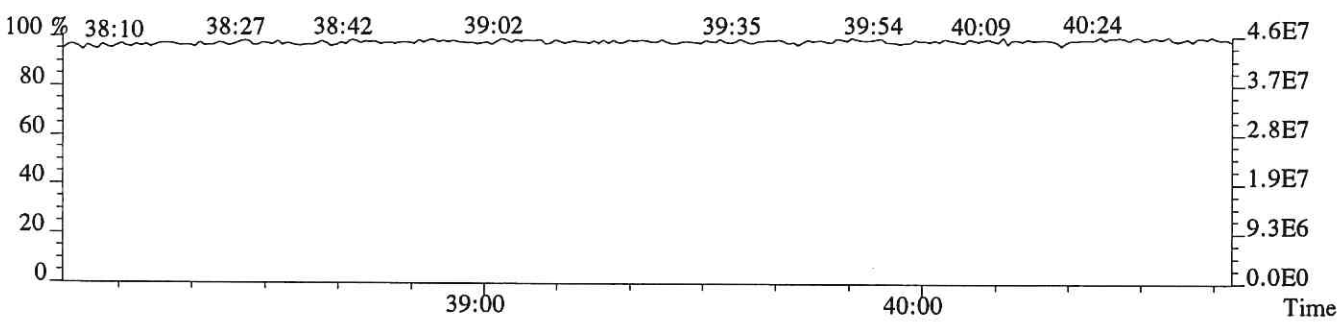
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

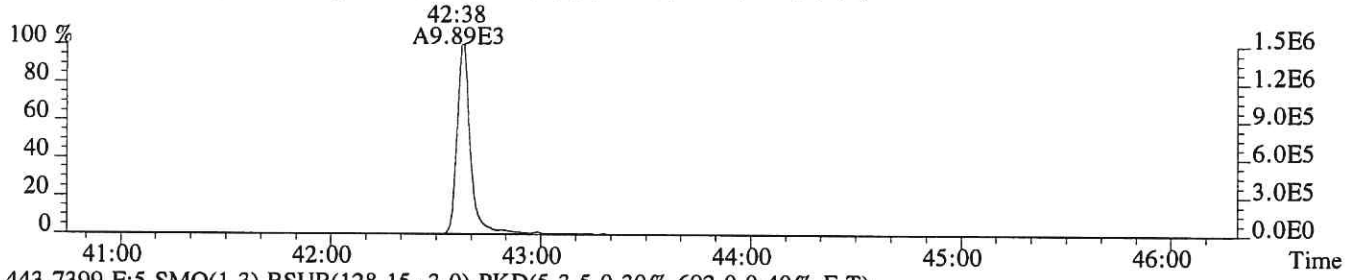


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

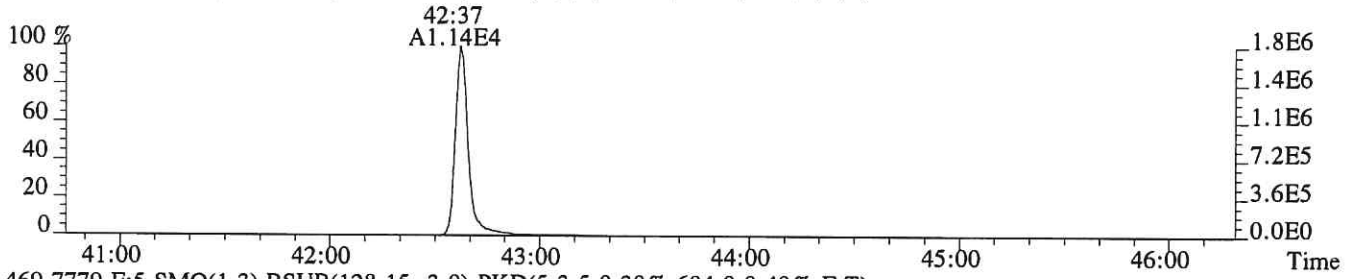


File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

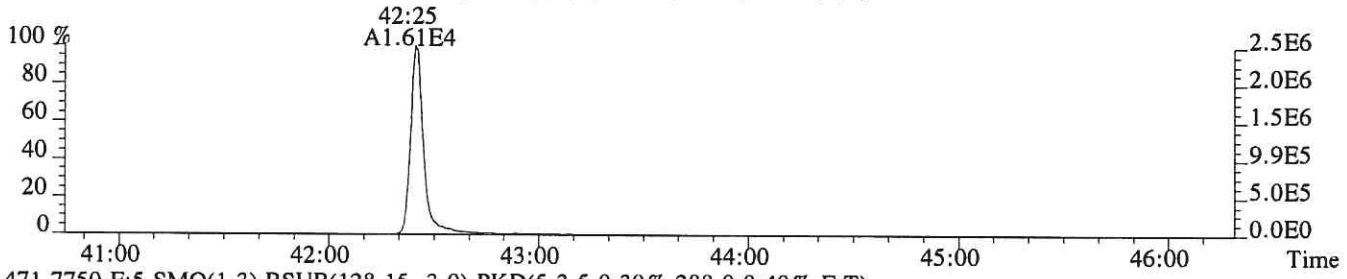
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



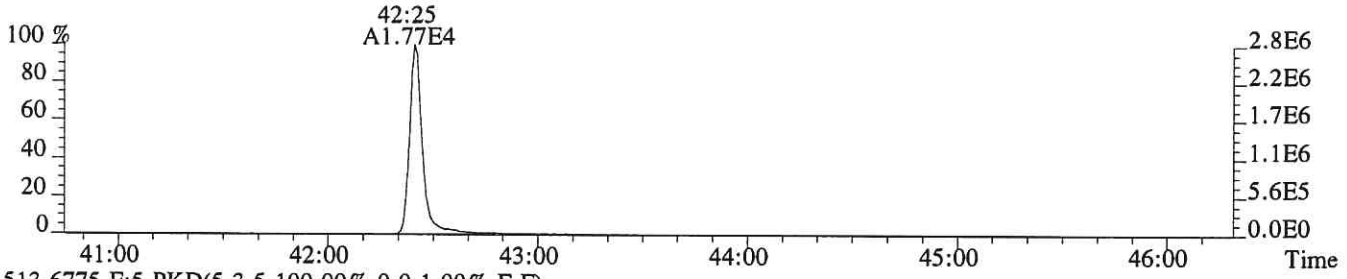
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



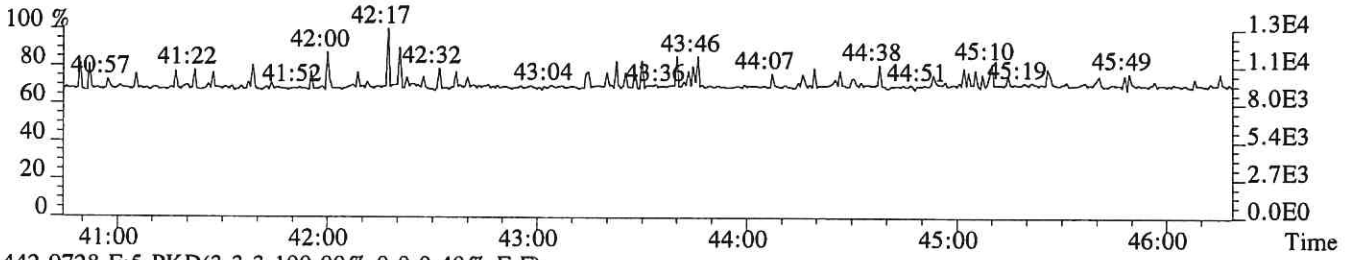
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



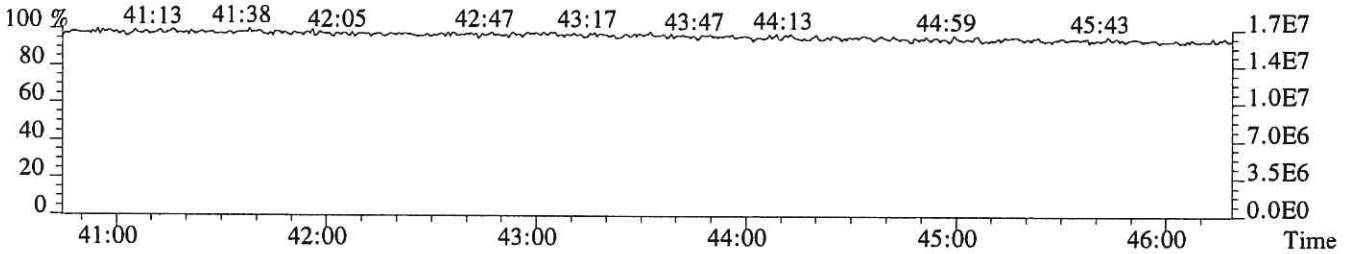
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



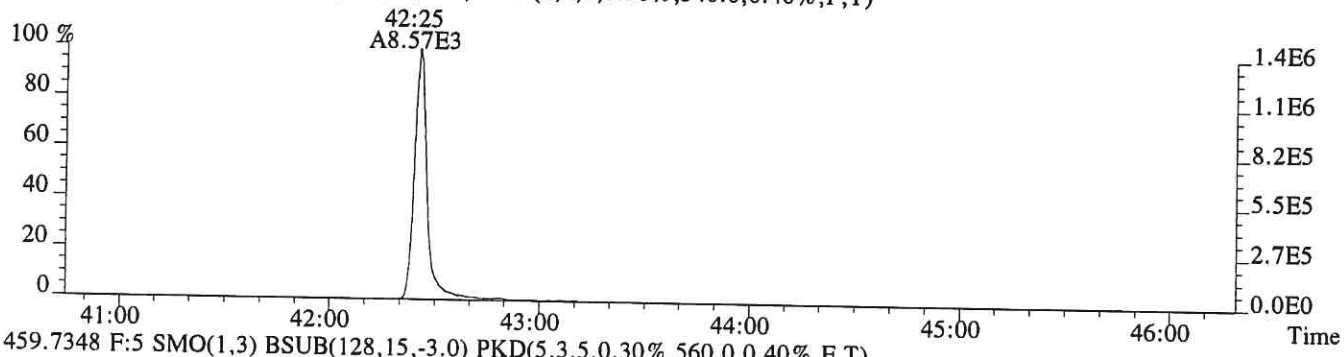
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



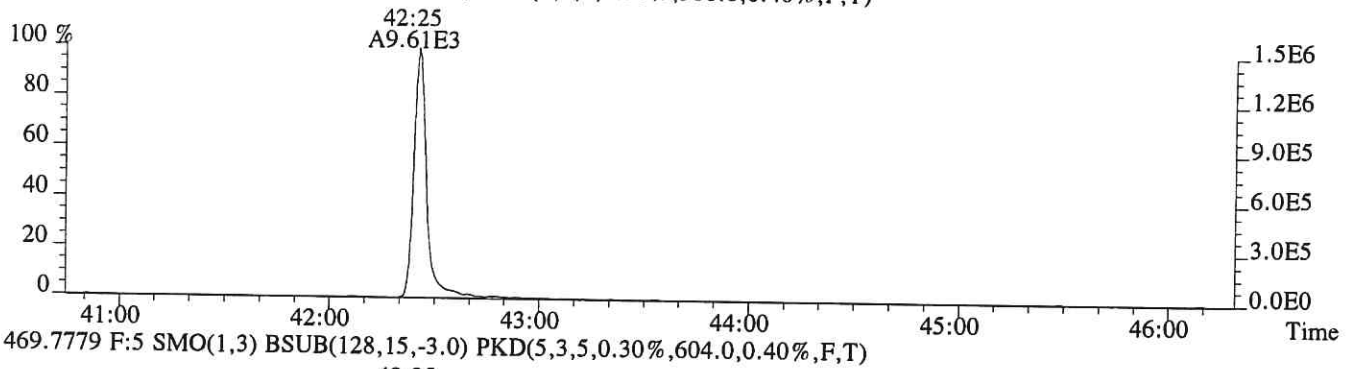
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



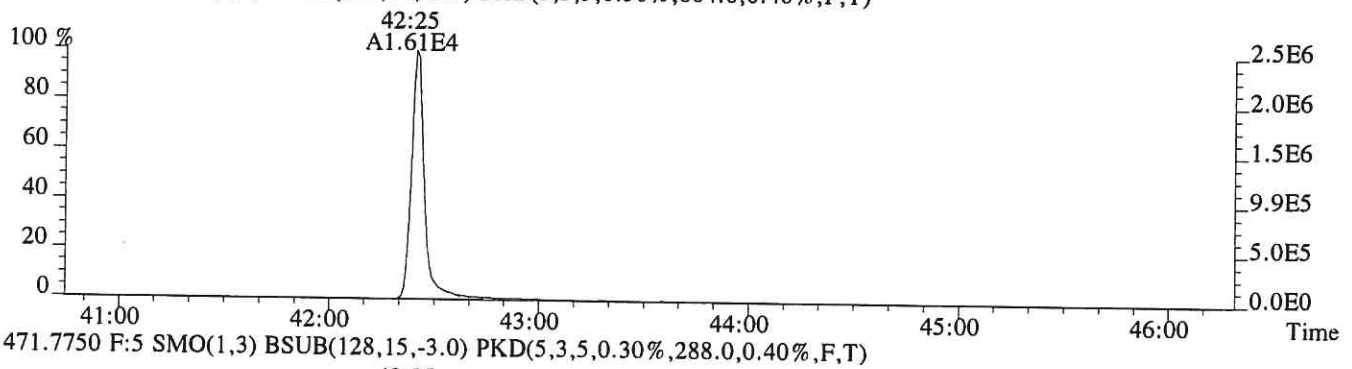
File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



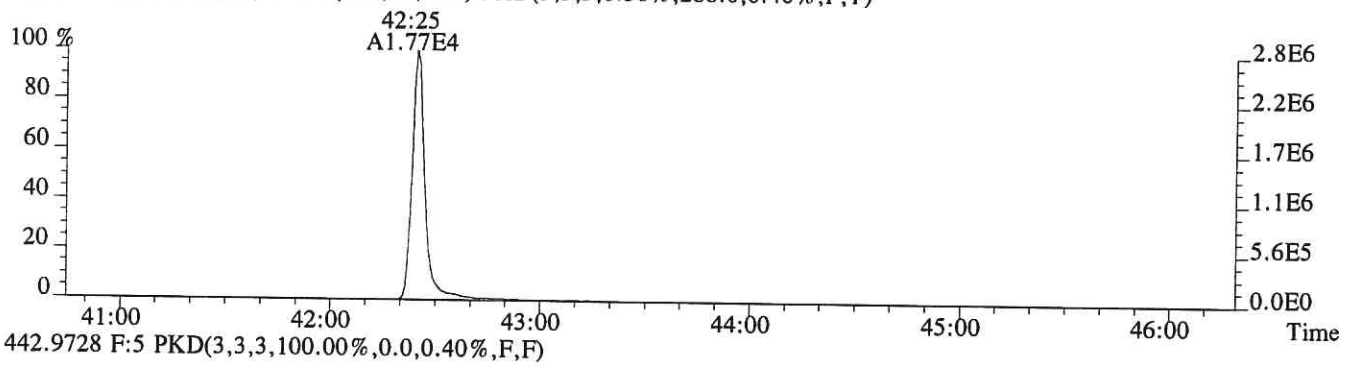
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



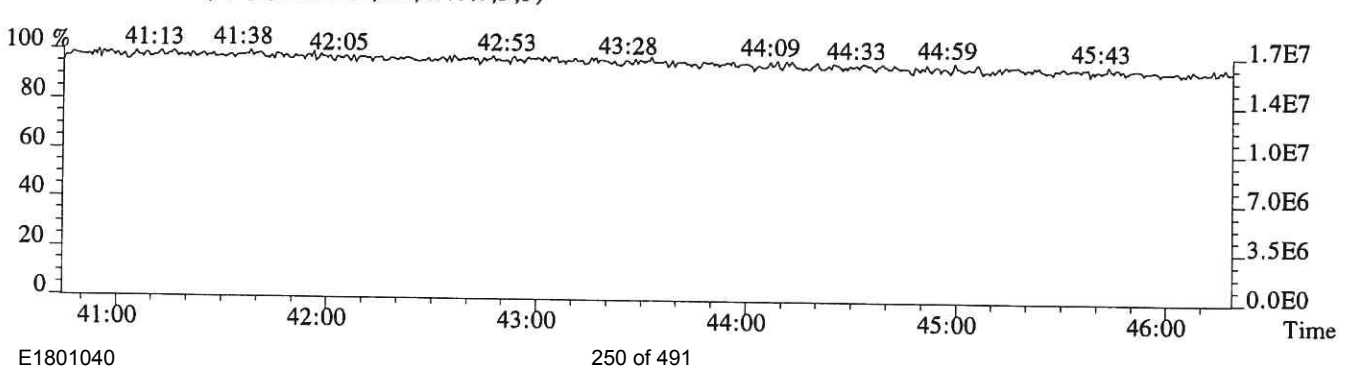
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519009

Date: 11/27/18 - 11/28/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519009	27-NOV-18	13:02:58
192977	WINDOW DEFINE	P519010	27-NOV-18	13:56:14
METHOD BLANK	EQ1800460-01	P519011	27-NOV-18	14:44:32
2348627001	E1801024-001	P519012	27-NOV-18	15:34:53
2348627002	E1801021-001	P519013	27-NOV-18	16:23:20
2348627003	E1801021-002	P519014	27-NOV-18	17:11:15
183376 BULK FILTER	E1801036-004	P519015	27-NOV-18	17:59:56
183387 FILTER MEDIA	E1801036-005	P519016	27-NOV-18	18:48:40
FW0005	E1801039-039	P519018	27-NOV-18	20:26:02
FW0006	E1801039-040	P519019	27-NOV-18	21:14:40
FW0004	E1801039-041	P519020	27-NOV-18	22:03:17
DU-18401	J1807948-004	P519021	27-NOV-18	22:51:58
LCS	EQ1800471-02	P519022	27-NOV-18	23:40:37
DLCS	EQ1800471-03	P519023	28-NOV-18	00:29:21
183388 HEPA FILTER	E1801036-006	P519017	27-NOV-18	19:37:21

E1801040

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181127A.SPL
Last Modified: Wednesday, November 28, 2018 06:14:14 Central Standard Time
Printed: Wednesday, November 28, 2018 06:14:16 Central Standard Time

Page Position (1, 1)

Opus 4: P519009res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/27/18	13:02	P519009	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMScheck 12:59
2		13:56	P519010	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		14:44	P519011	MB	EQ1800460-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:34	P519012	E1801024-001	E1801024-001	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		16:23	P519013	E1801021-001	E1801021-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		17:11	P519014	E1801021-002	E1801021-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:59	P519015	E1801036-004	E1801036-004	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:43	P519016	E1801036-005	E1801036-005	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9	19:37	20:26	P519017	E1801036-006	E1801036-006	EPA1613_ALS	Dioxin_ALS	Tray1:9		need to reinject
10	20:26	21:14	P519018	E1901039-039	E1901039-039	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11	21:14	22:03	P519019	E1901039-040	E1901039-040	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12	22:03	22:51	P519020	E1901039-041	E1901039-041	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13	22:51	23:40	P519021	J1807948-004	J1807948-004	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14	23:40	00:29	P519022	LCS	EQ1800471-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	11/28/18	00:29	P519023	DLCS	EQ1800471-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	✓	HRMScheck 03:10
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

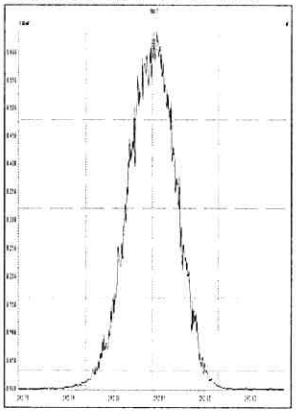
11/28/18

gc 11/28/18

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 12:59:33 Central Standard Time

M 292.9824 R 12375



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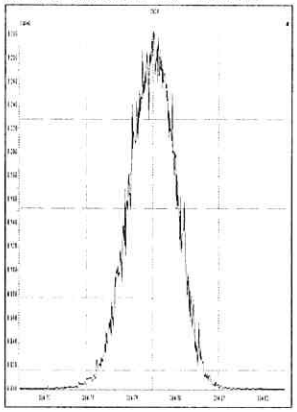
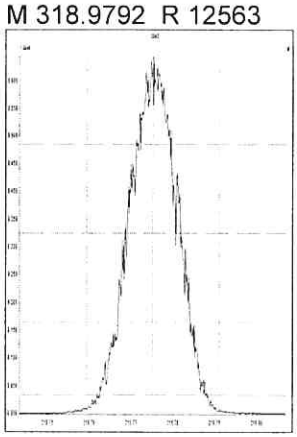


M 318.9792 R 12563



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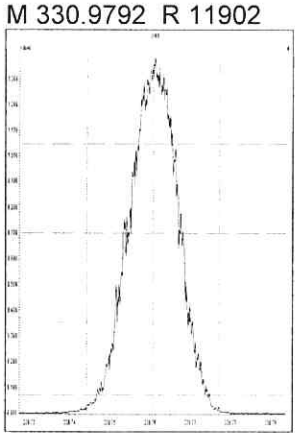

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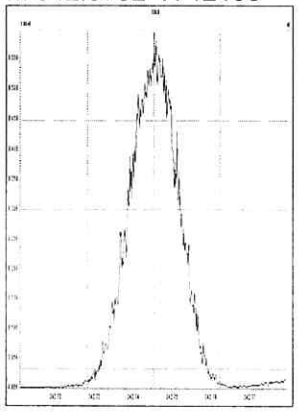

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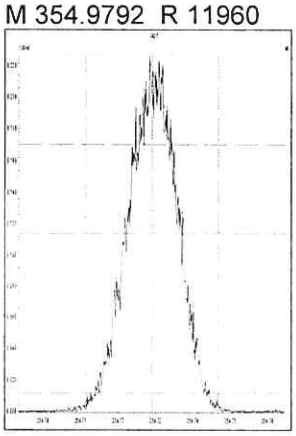

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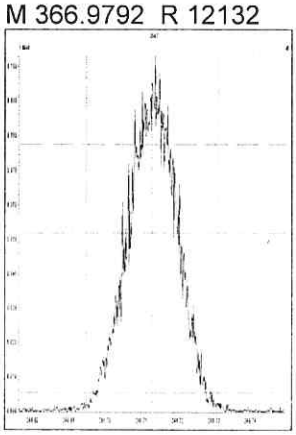
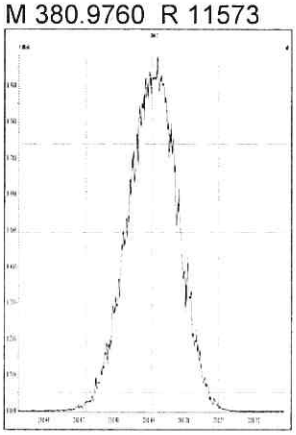


M 380.9760 R 11573



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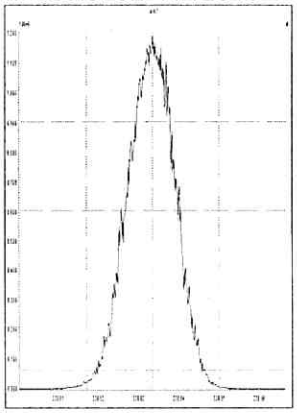
Printed: Tuesday, November 27, 2018 13:00:16 Central Standard Time

M 330.9792 R 12815



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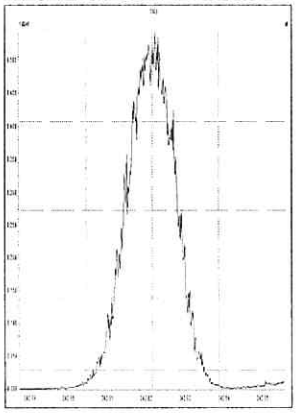

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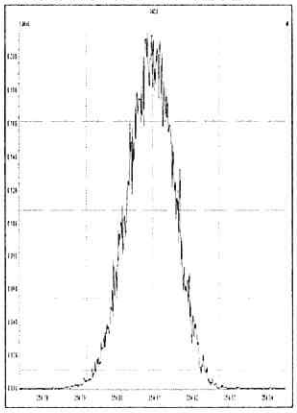

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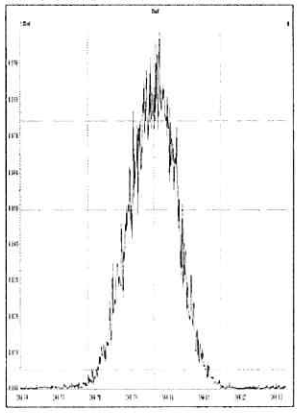

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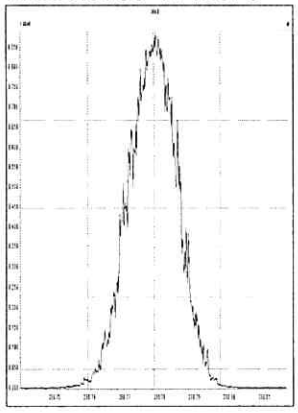

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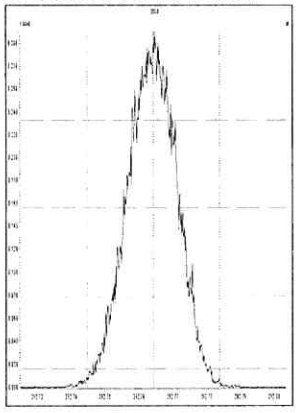
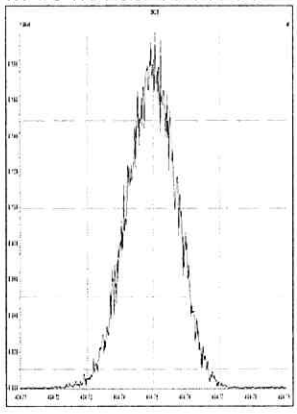
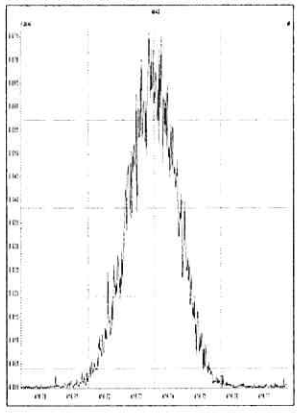


M 404.9760 R 11739



M 416.9760 R 11574



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Printed: Tuesday, November 27, 2018 13:00:56 Central Standard Time

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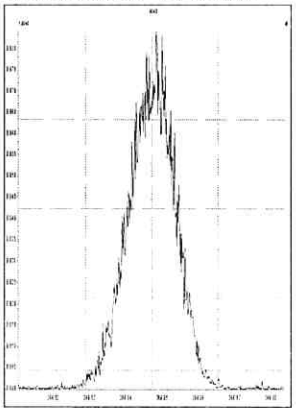

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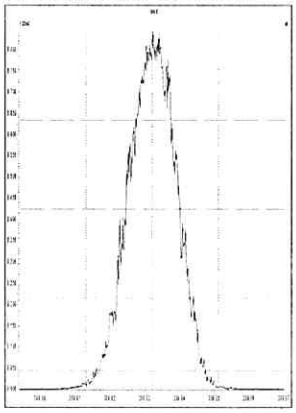

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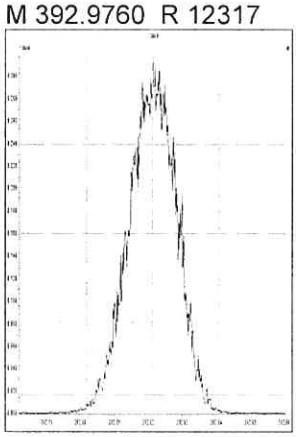

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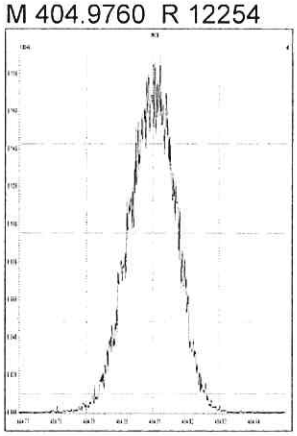
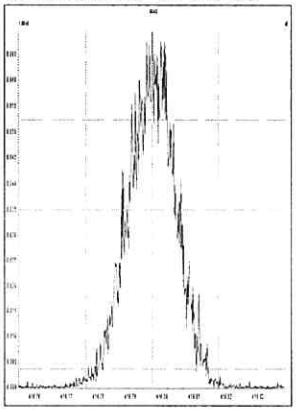
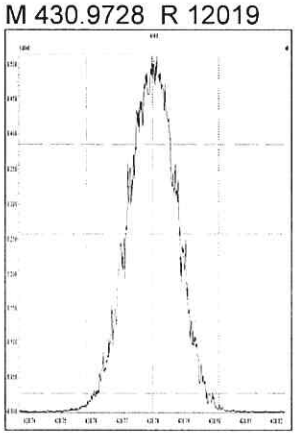


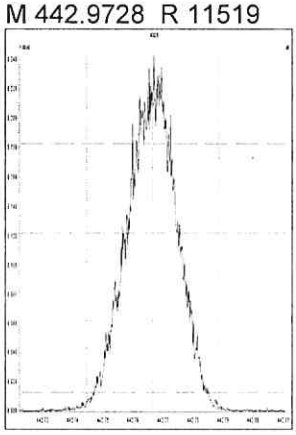
M 416.9760 R 14283



M 430.9728 R 12019



M 442.9728 R 11519



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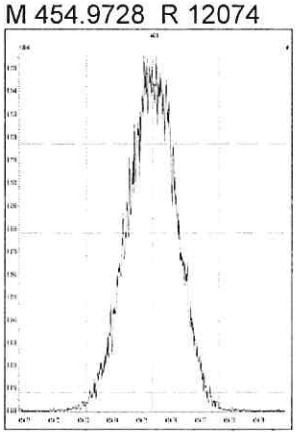

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Printed: Tuesday, November 27, 2018 13:01:42 Central Standard Time

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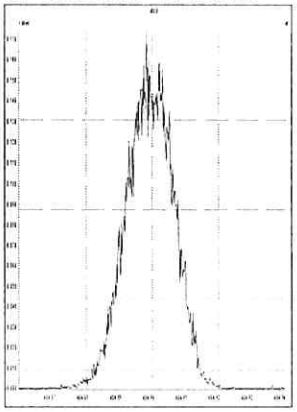

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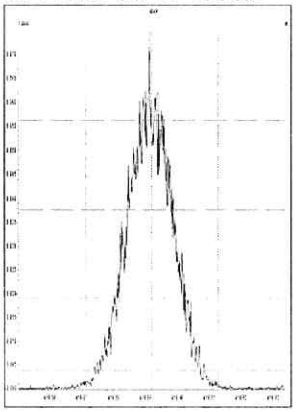

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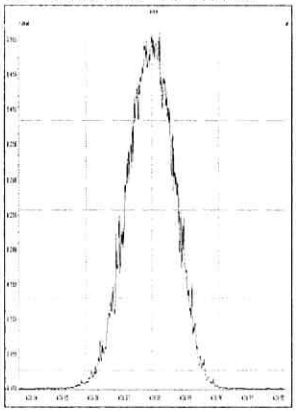

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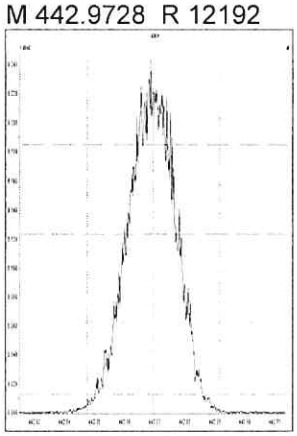

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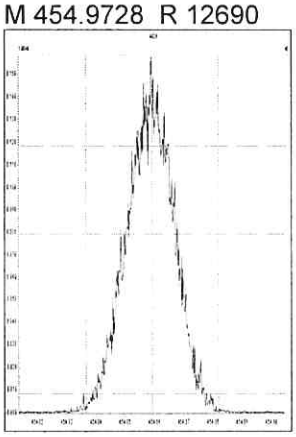

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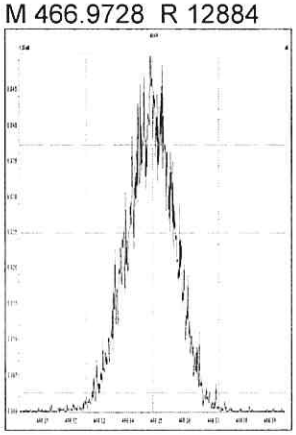

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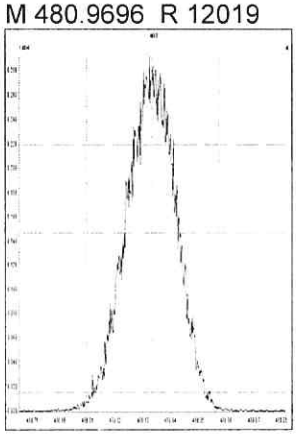

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 13:02:25 Central Standard Time

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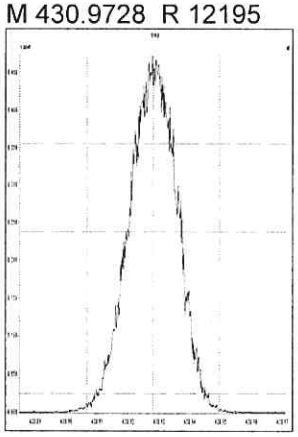

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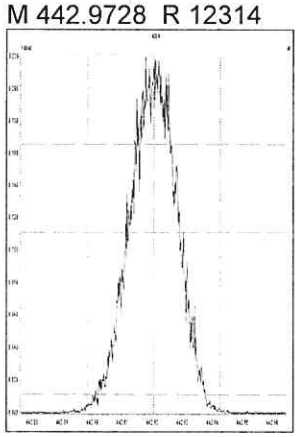

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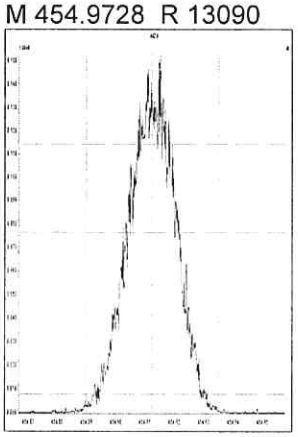

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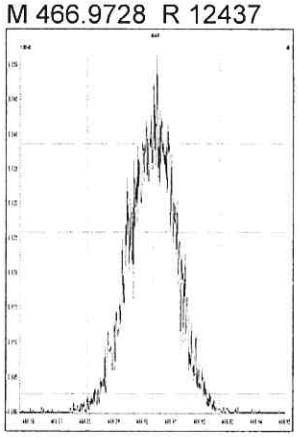

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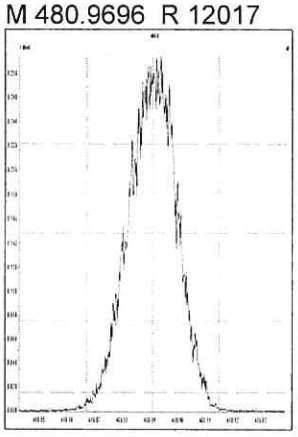

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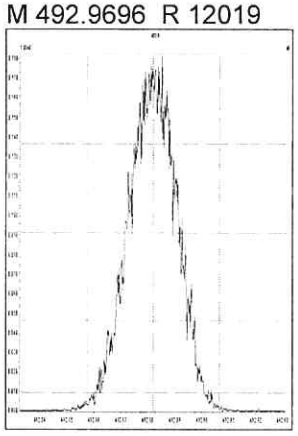

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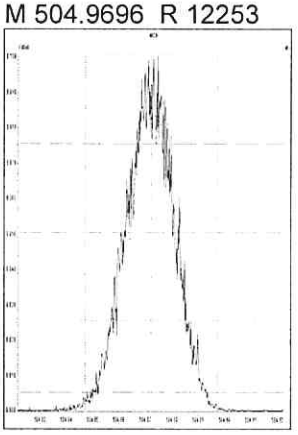

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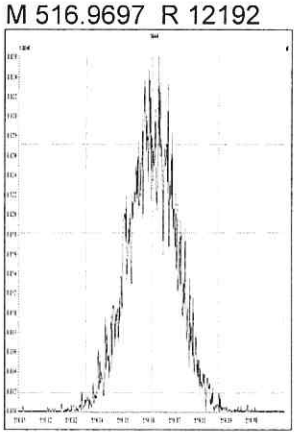

Printed: Wednesday, November 28, 2018 03:10:49 Central Standard Time

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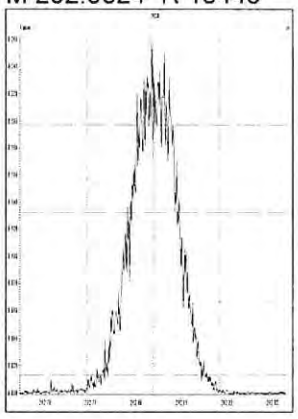

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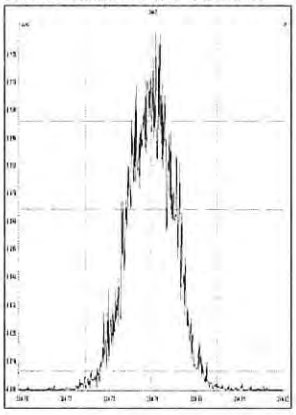
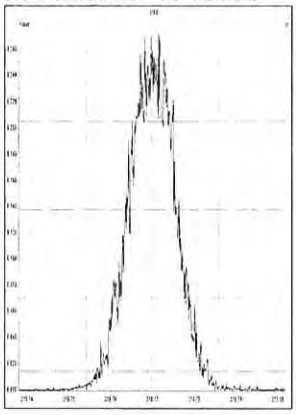


M 318.9792 R 13208



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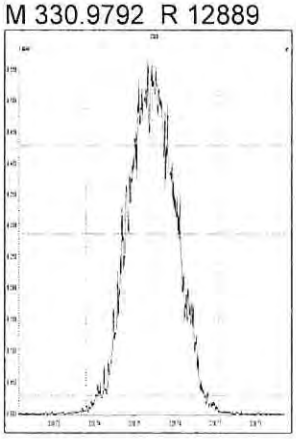

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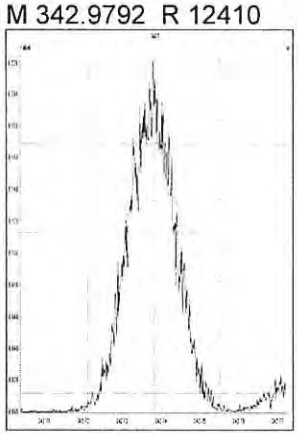

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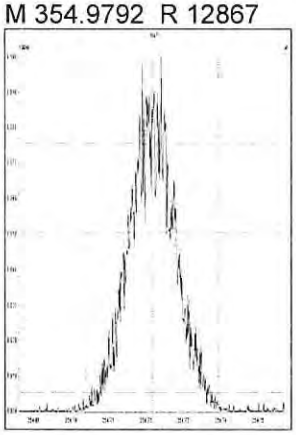

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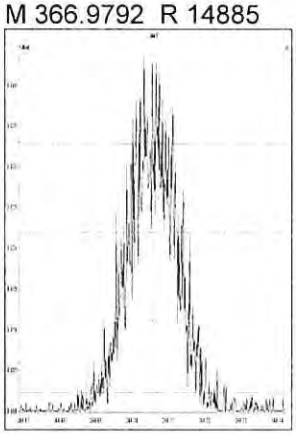

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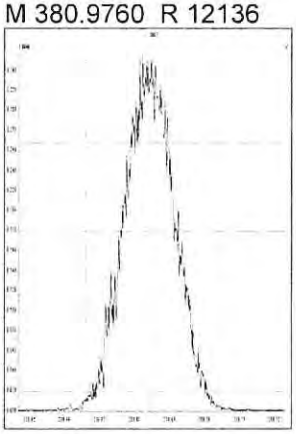

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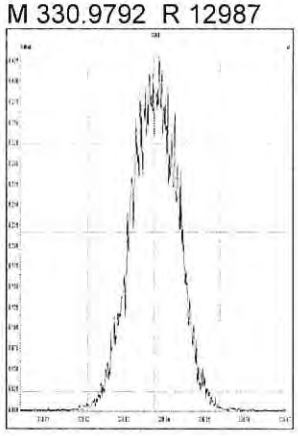

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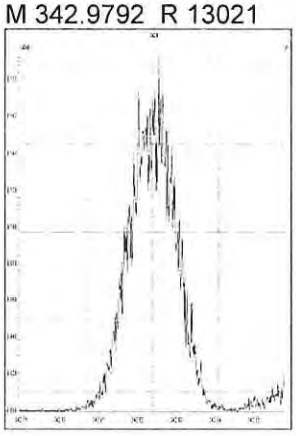

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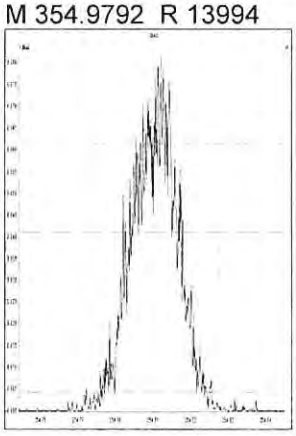

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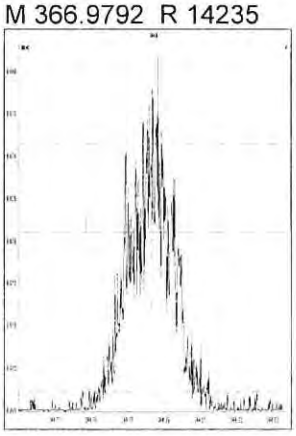

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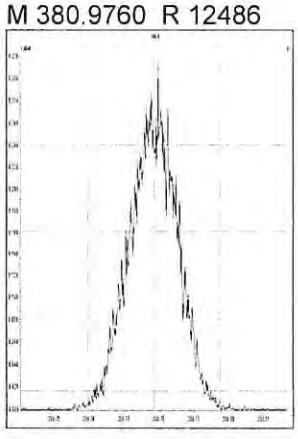

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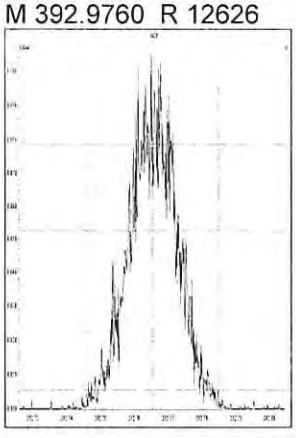

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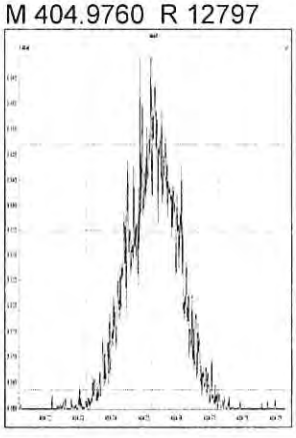

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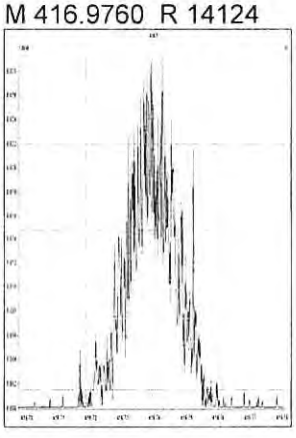
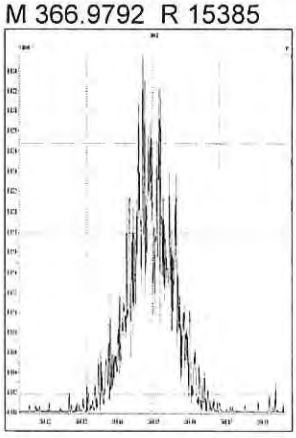
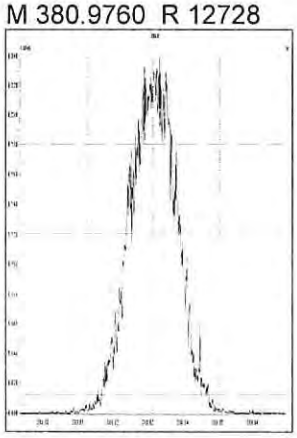


M 366.9792 R 15385



M 380.9760 R 12728



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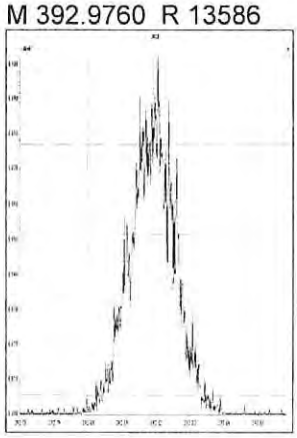

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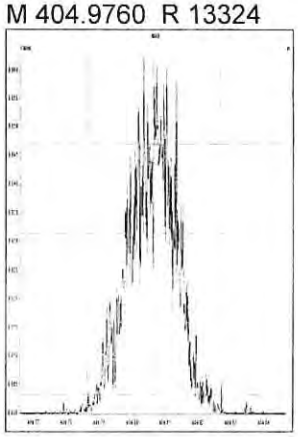

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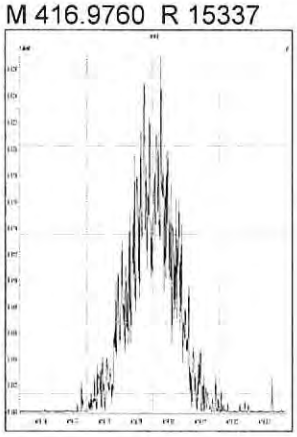

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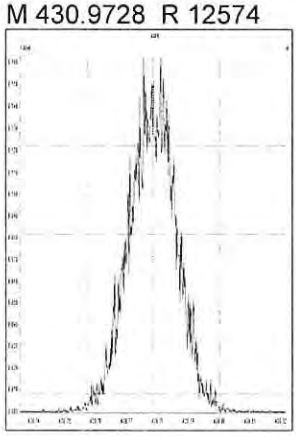

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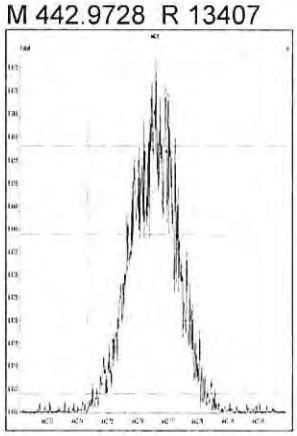

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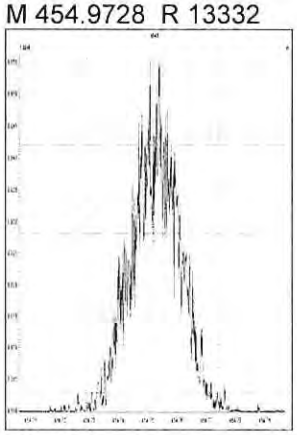
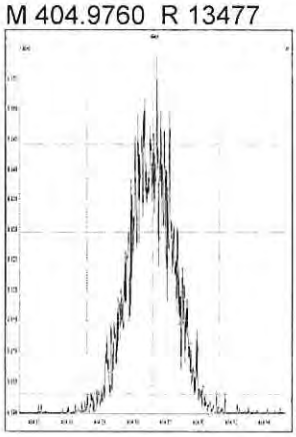


M 404.9760 R 13477



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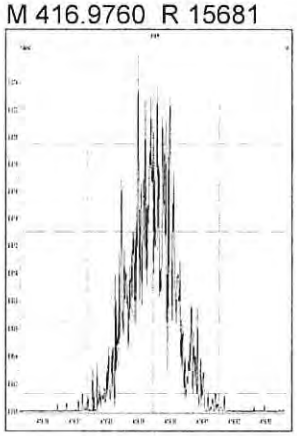

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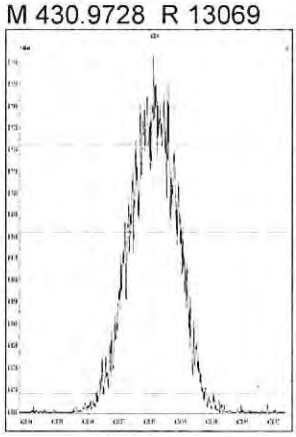

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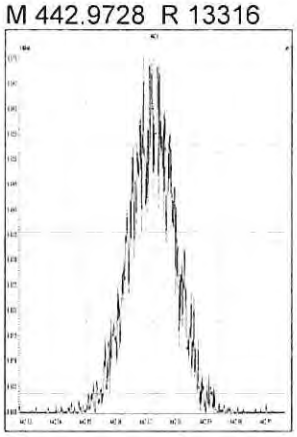
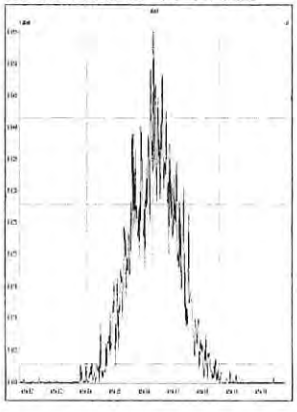


M 454.9728 R 14135



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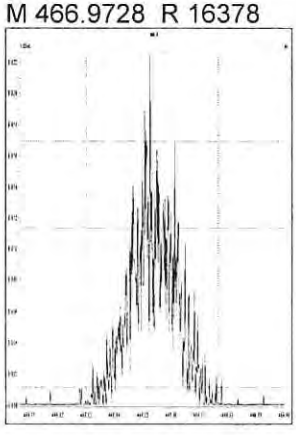
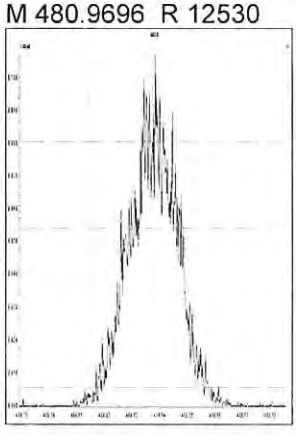
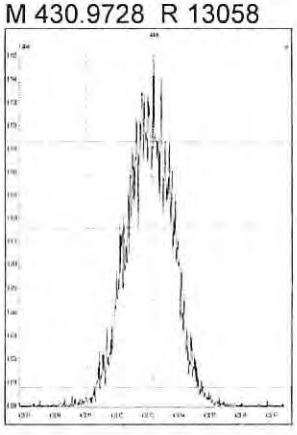


M 480.9696 R 12530



M 430.9728 R 13058



Printed: Wednesday, November 28, 2018 03:10:49 Central Standard Time

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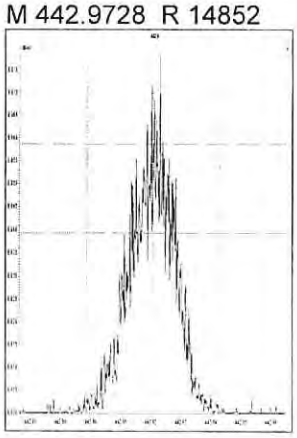
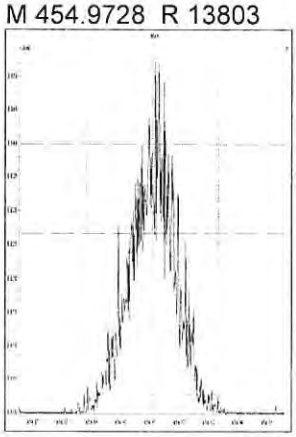
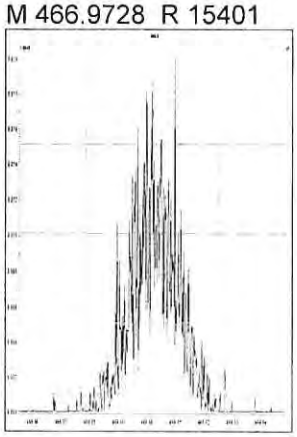


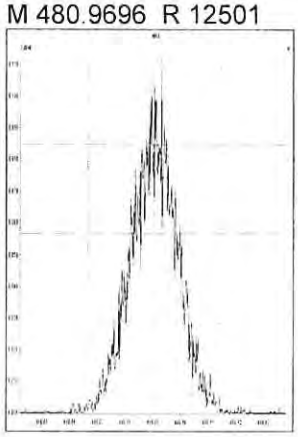
M 454.9728 R 13803



M 466.9728 R 15401



M 480.9696 R 12501



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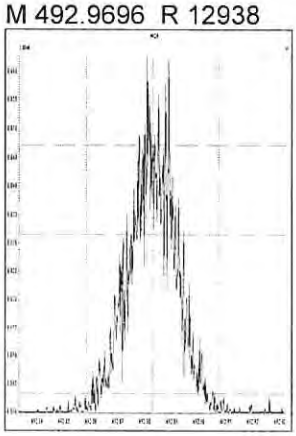

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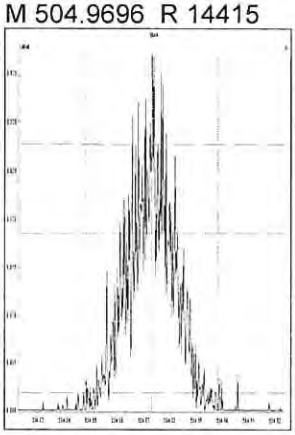
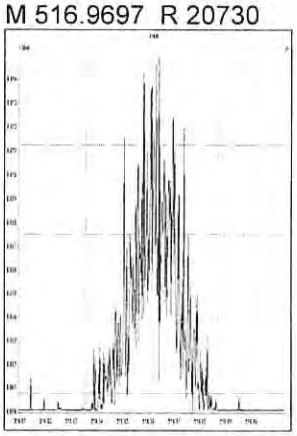


M 516.9697 R 20730



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

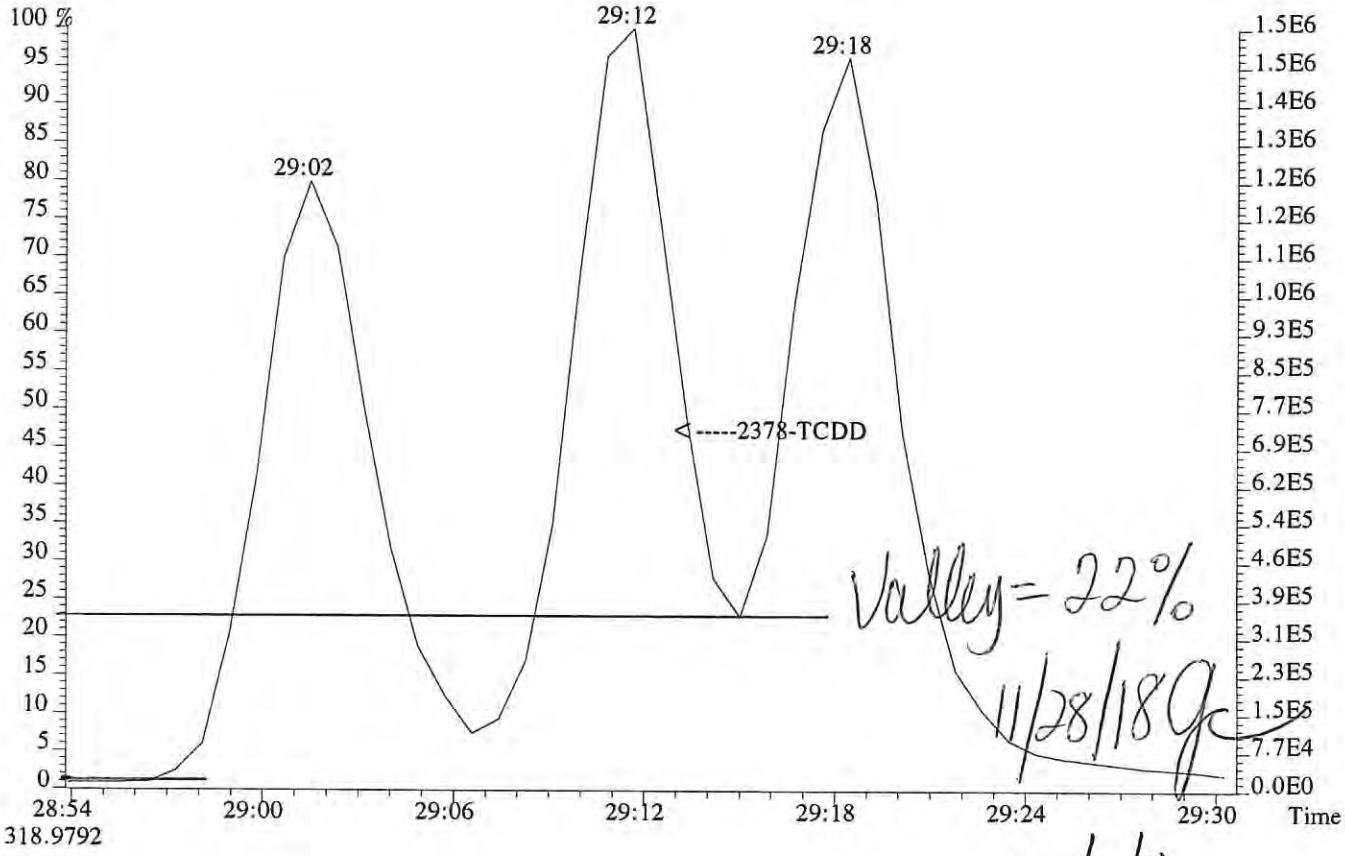
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519010
Date Analyzed: 27-NOV-2018
Time Analyzed: 13:56:14

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:06	30:19
TCDD	25:58	30:10
PeCDF	30:16	34:28
PeCDD	31:46	34:12
HxCDF	35:07	37:36
HxCDD	35:37	37:12
HpCDF	38:49	40:14
HpCDD	39:04	39:46

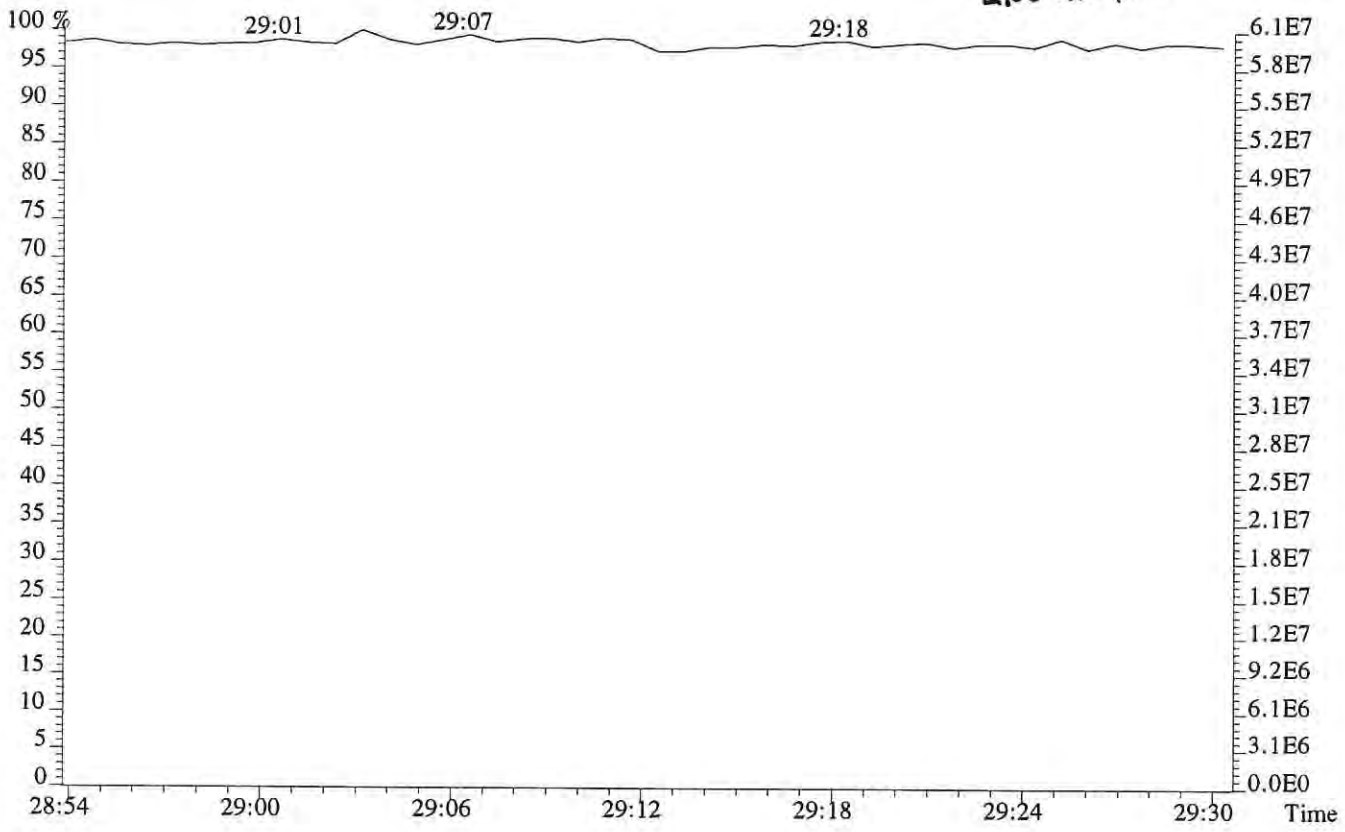
% Valley 2378-TCDD: 22 %

File:P519010 #1-531 Acq:27-NOV-2018 13:56:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LKU 11/29/18



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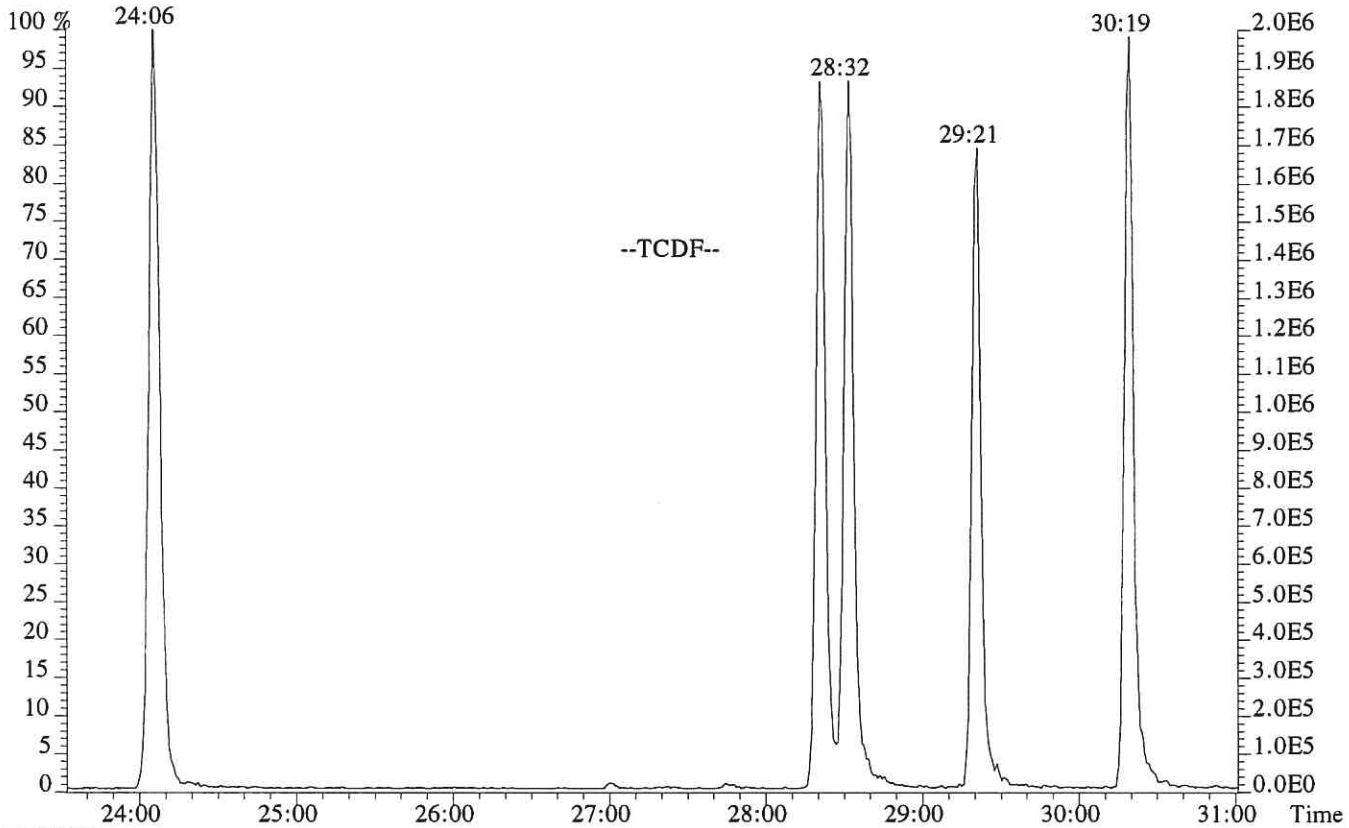
303.9016



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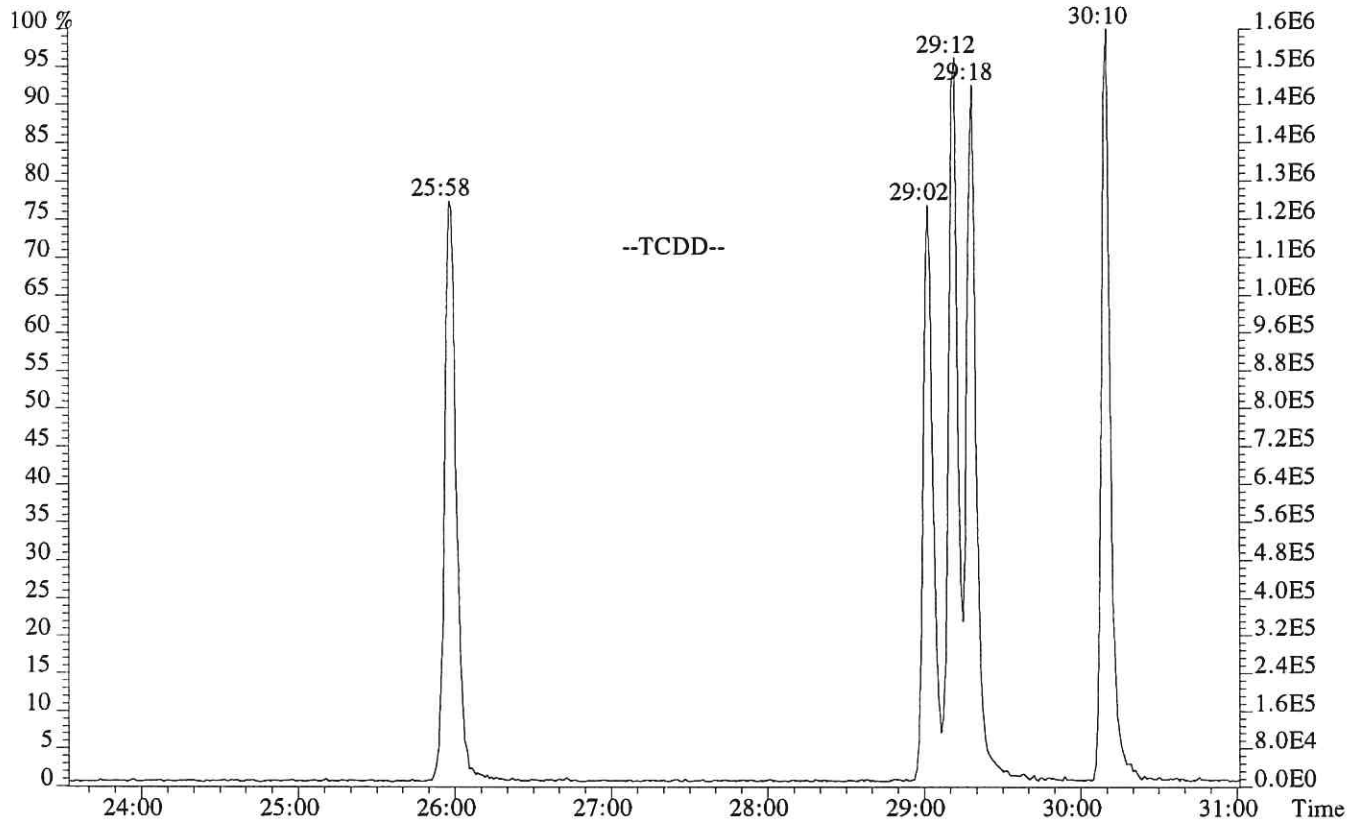
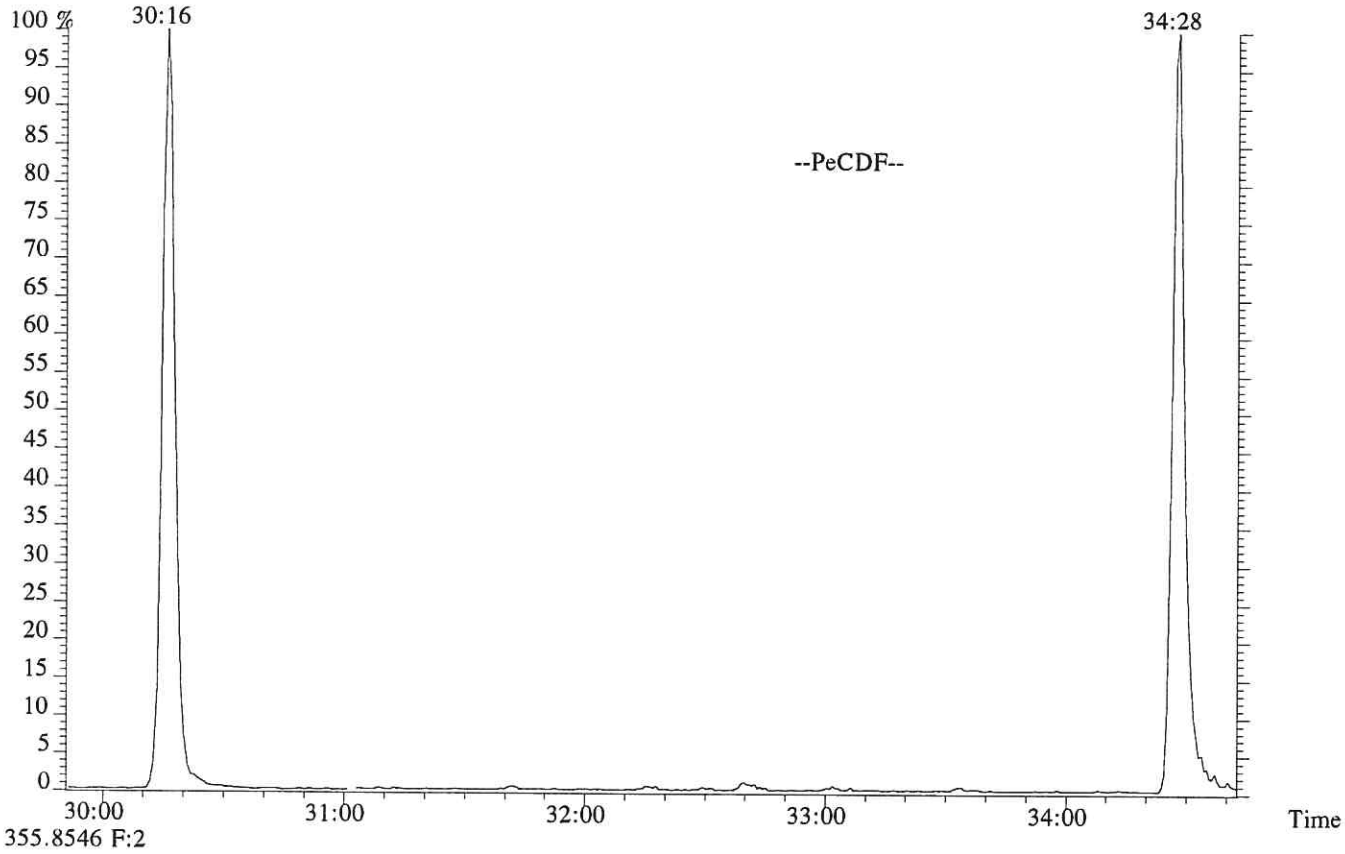
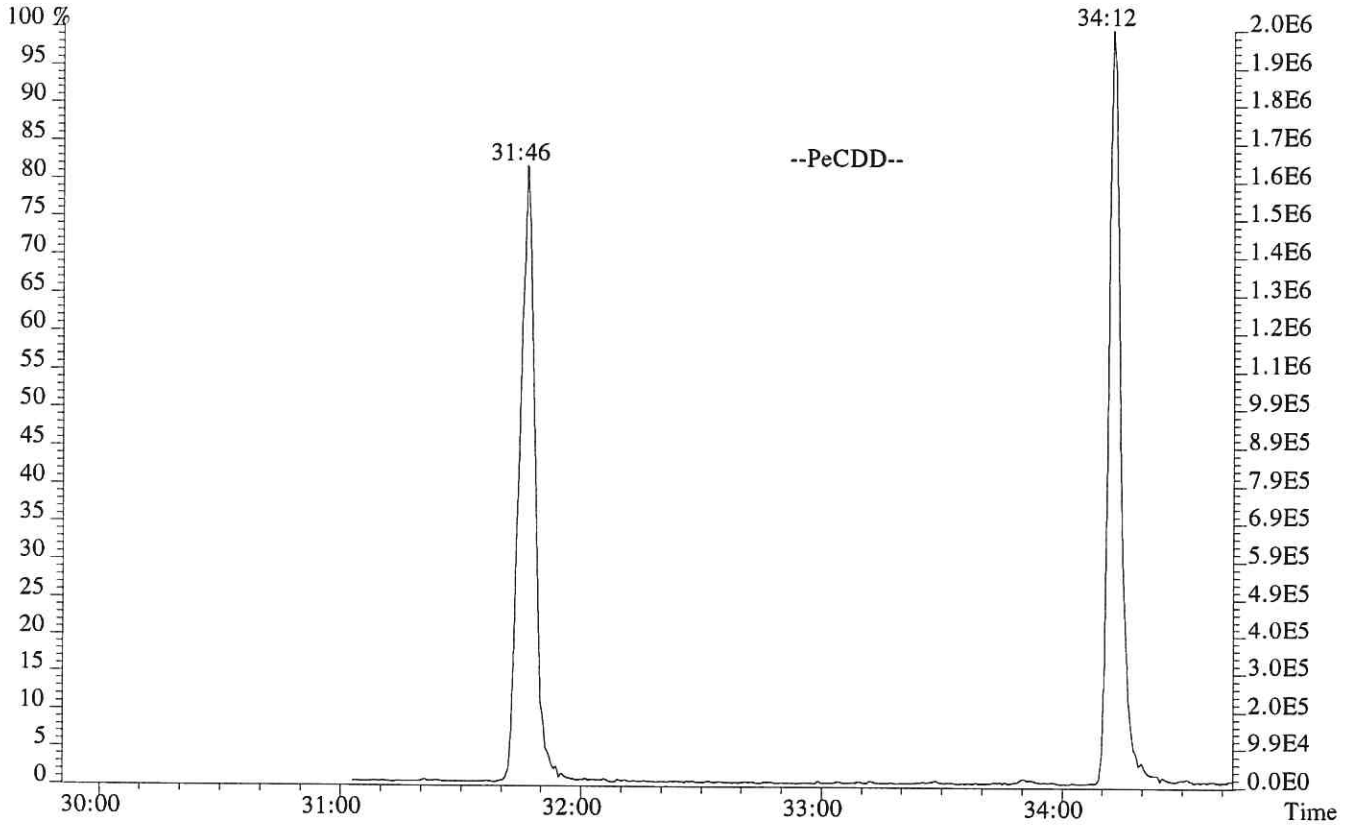


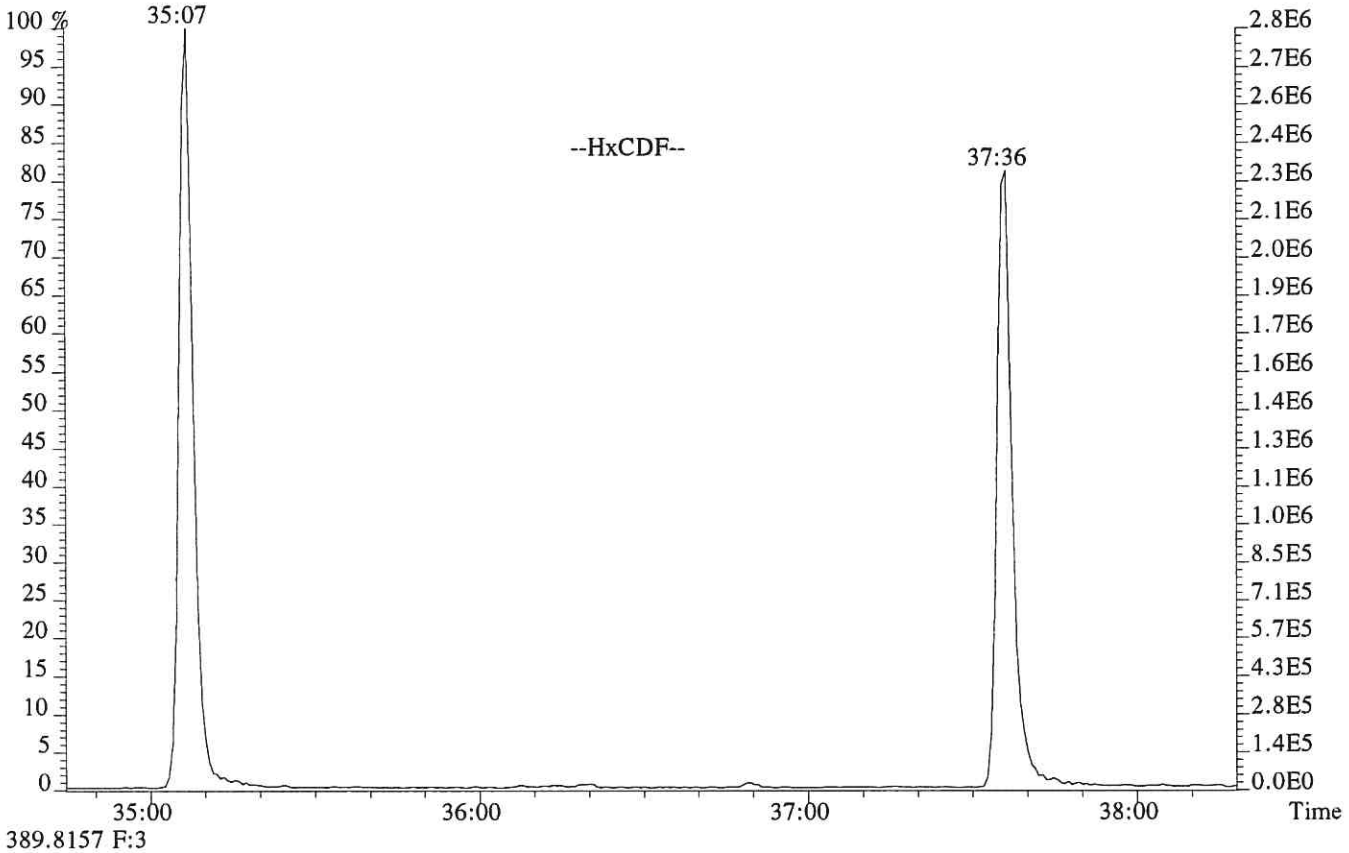
File:P519010 #1-531 Acq:27-NOV-2018 13:56:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



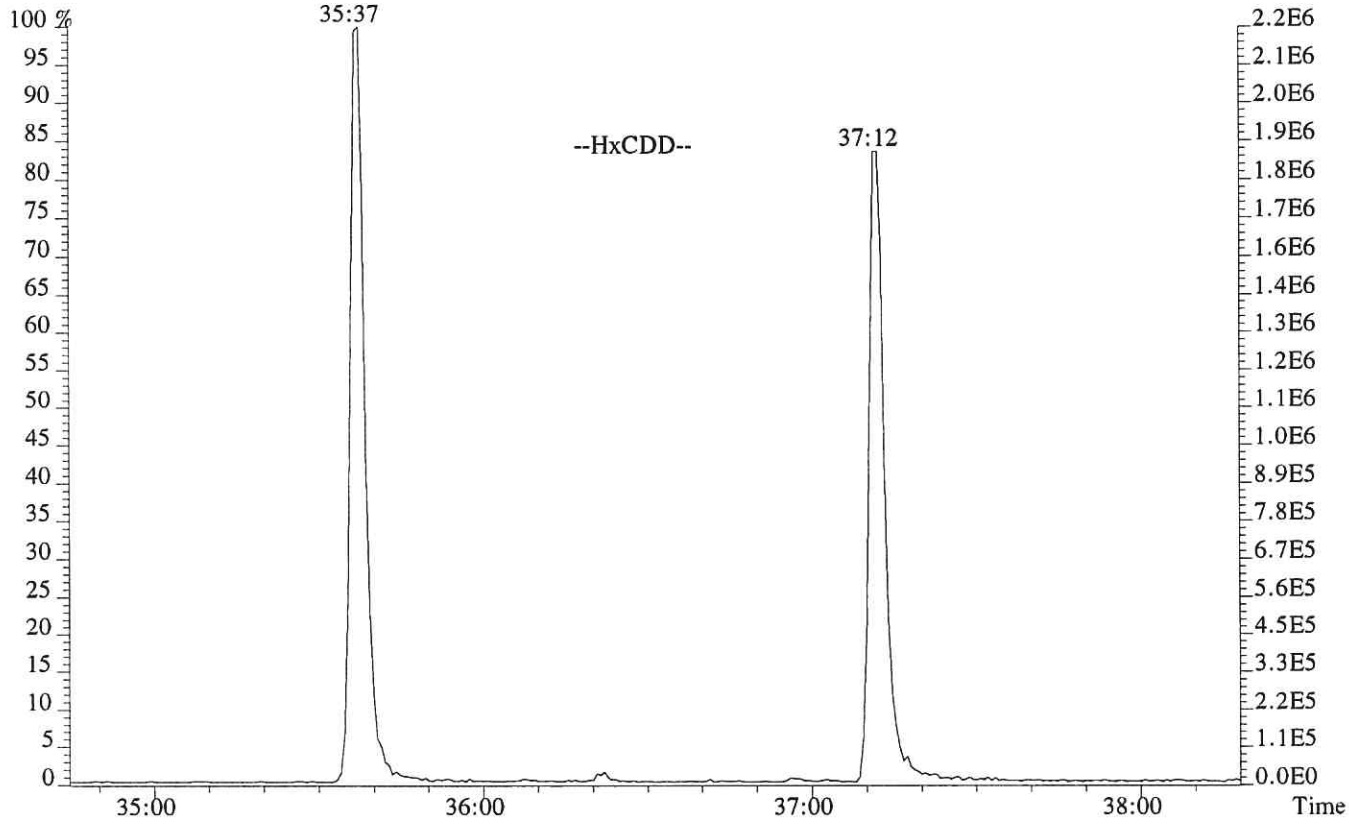
355.8546 F:2



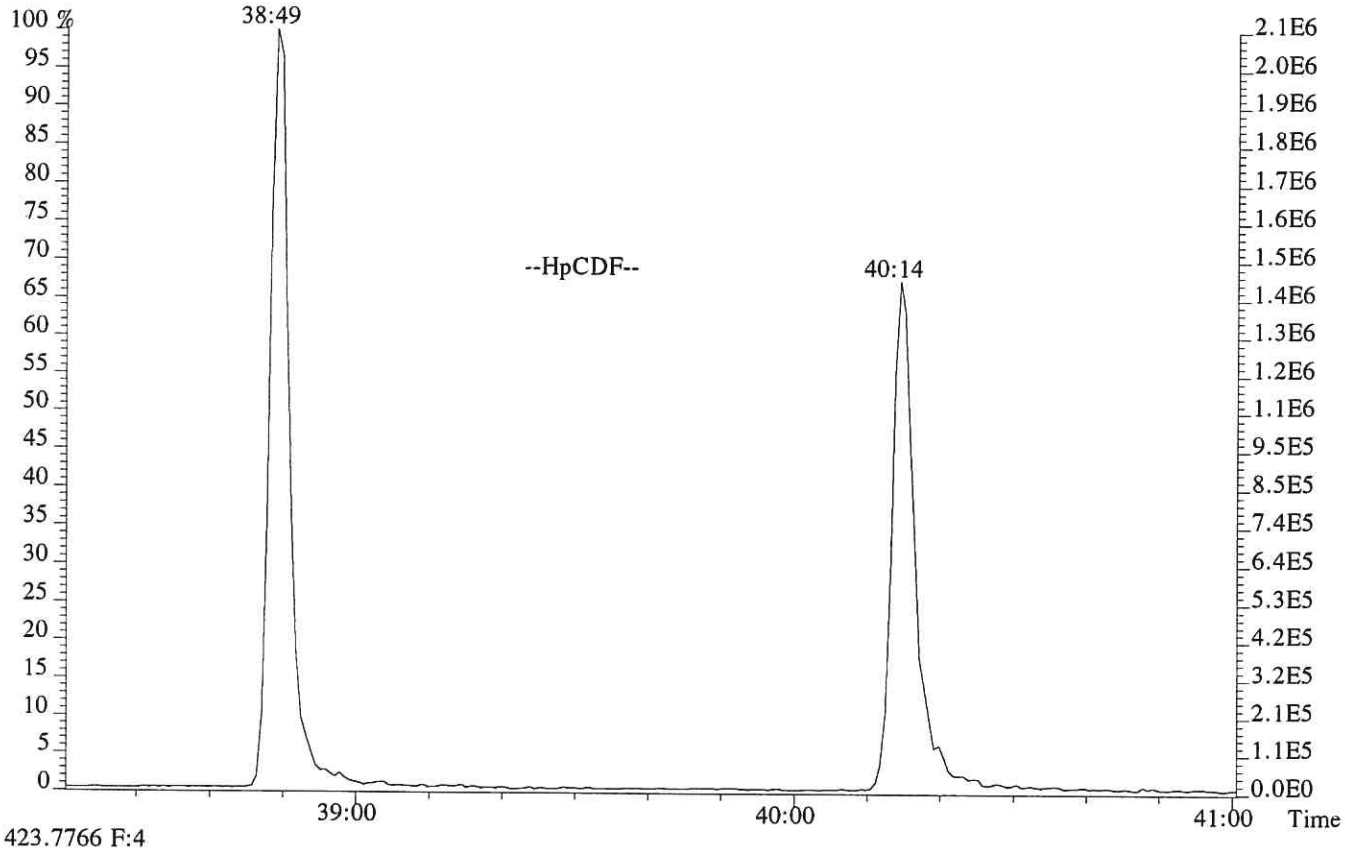
File:P519010 #1-321 Acq:27-NOV-2018 13:56:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



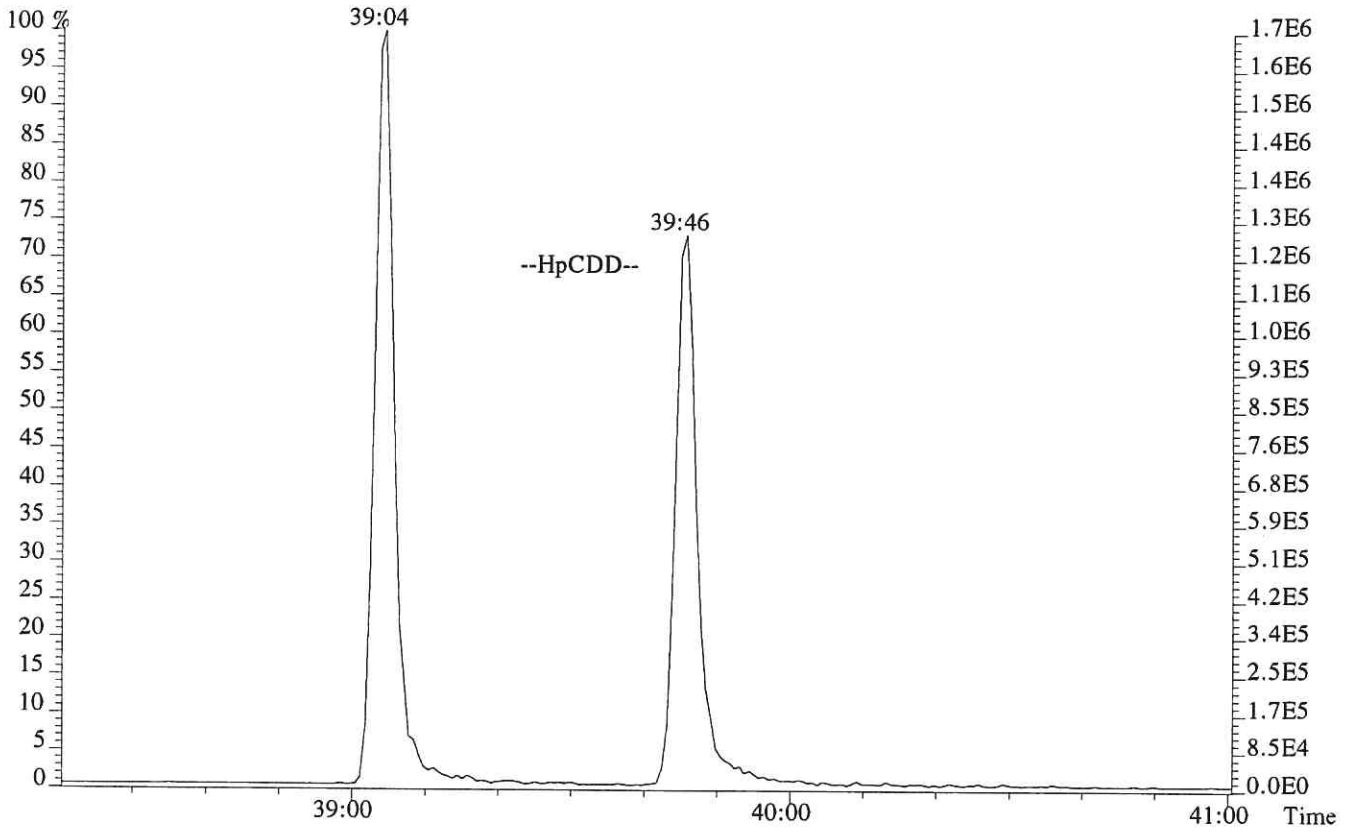
389.8157 F:3



File:P519010 #1-241 Acq:27-NOV-2018 13:56:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519009 Analysis Date: 27-NOV-18 Time: 13:02:58

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	8.9	7.8 - 12.9	-10.8
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-1.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	3.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.1
OCDD	M+2/M+4	0.88	0.76-1.02	99	79 - 126	-1.4
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.6	8.4 - 12.0	-3.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-2.1
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 61	-1.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	49	45 - 56	-1.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-1.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	-0.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.5
OCDF	M+2/M+4	0.87	0.76-1.02	96	63 - 159	-4.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519009 Analysis Date: 27-NOV-18 Time: 13:02:58

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	102	82 - 121	2.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	99	62 - 160	-0.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	90	85 - 117	-9.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	87	72 - 138	-12.6
13C-OCDD	M+2/M+4	0.91	0.76-1.02	182	96 - 415	-8.8
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-6.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	96	76 - 130	-4.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	98	77 - 130	-1.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	76 - 131	-11.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	70 - 143	-4.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	90	74 - 135	-9.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	100	73 - 137	-0.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	86	77 - 129	-14.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519009 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:02:58
Processed: 28-NOV-18 14:44:58 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:33	5.312e+03	6.843e+03	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:40	4.001e+04	2.625e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:34	3.893e+04	2.546e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:13	3.032e+04	2.460e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:19	3.417e+04	2.802e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:49	3.136e+04	2.560e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:34	2.550e+04	2.074e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.452e+04	2.410e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.840e+04	1.870e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:49	2.680e+04	3.074e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:18	3.755e+03	4.932e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:50	2.601e+04	1.664e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:57	1.977e+04	1.567e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:02	2.249e+04	1.806e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:17	2.267e+04	1.807e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:46	1.654e+04	1.586e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:36	2.281e+04	2.605e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:31	5.904e+04	7.478e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:39	8.189e+04	5.179e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:32	8.276e+04	5.315e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	3.134e+04	6.019e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:19	3.788e+04	7.376e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	3.546e+04	6.900e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.834e+04	5.345e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.257e+04	4.976e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.830e+04	4.040e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:18	3.946e+04	5.025e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:50	5.630e+04	3.536e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:57	3.912e+04	3.039e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	4.443e+04	3.489e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:45	3.207e+04	3.050e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:35	4.211e+04	4.650e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:45	4.177e+04	5.303e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	4.623e+04	3.721e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:18	9.279e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519009 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:02:58
Processed: 28-NOV-18 14:44:58 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.08e+05	6.60e+02	1.4e+03	1.18e+06	2.49e+03	4.7e+02
2	1,2,3,7,8-PeCDF	6.98e+06	1.17e+03	6.0e+03	4.58e+06	2.51e+03	1.8e+03
3	2,3,4,7,8-PeCDF	7.22e+06	1.17e+03	6.2e+03	4.65e+06	2.51e+03	1.9e+03
4	1,2,3,4,7,8-HxCDF	6.30e+06	1.02e+03	6.2e+03	5.13e+06	5.64e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	6.65e+06	1.02e+03	6.5e+03	5.31e+06	5.64e+02	9.4e+03
6	2,3,4,6,7,8-HxCDF	6.12e+06	1.02e+03	6.0e+03	5.06e+06	5.64e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	4.62e+06	1.02e+03	4.5e+03	3.76e+06	5.64e+02	6.7e+03
8	1,2,3,4,6,7,8-HpCDF	4.73e+06	5.11e+03	9.2e+02	4.71e+06	4.11e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.15e+06	5.11e+03	6.2e+02	3.27e+06	4.11e+03	8.0e+02
10	OCDF	4.05e+06	2.68e+02	1.5e+04	4.48e+06	1.10e+03	4.1e+03
11	2,3,7,8-TCDD	6.88e+05	2.72e+03	2.5e+02	9.30e+05	1.32e+03	7.1e+02
12	1,2,3,7,8-PeCDD	4.83e+06	1.49e+03	3.2e+03	3.01e+06	2.64e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.23e+06	2.68e+02	1.6e+04	3.36e+06	5.32e+02	6.3e+03
14	1,2,3,6,7,8-HxCDD	4.29e+06	2.68e+02	1.6e+04	3.49e+06	5.32e+02	6.6e+03
15	1,2,3,7,8,9-HxCDD	4.15e+06	2.68e+02	1.5e+04	3.27e+06	5.32e+02	6.2e+03
16	1,2,3,4,6,7,8-HpCDD	2.96e+06	2.84e+02	1.0e+04	2.77e+06	3.92e+02	7.1e+03
17	OCDD	3.30e+06	1.92e+02	1.7e+04	3.84e+06	5.96e+02	6.4e+03
18	13C-2,3,7,8-TCDF	1.04e+07	7.11e+03	1.5e+03	1.32e+07	4.26e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.41e+07	6.08e+02	2.3e+04	9.00e+06	1.05e+03	8.6e+03
20	13C-2,3,4,7,8-PeCDF	1.49e+07	6.08e+02	2.5e+04	9.67e+06	1.05e+03	9.2e+03
21	13C-1,2,3,4,7,8-HxCDF	6.59e+06	1.32e+03	5.0e+03	1.25e+07	1.18e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	7.34e+06	1.32e+03	5.5e+03	1.42e+07	1.18e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	6.86e+06	1.32e+03	5.2e+03	1.32e+07	1.18e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	5.13e+06	1.32e+03	3.9e+03	9.74e+06	1.18e+03	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.30e+06	2.61e+03	1.6e+03	9.54e+06	1.60e+03	5.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.08e+06	2.61e+03	1.2e+03	6.95e+06	1.60e+03	4.3e+03
27	13C-2,3,7,8-TCDD	7.24e+06	6.28e+03	1.2e+03	9.19e+06	3.67e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.02e+07	1.04e+03	9.8e+03	6.49e+06	7.88e+02	8.2e+03
29	13C-1,2,3,4,7,8-HxCDD	8.37e+06	2.80e+03	3.0e+03	6.49e+06	1.18e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	8.38e+06	2.80e+03	3.0e+03	6.65e+06	1.18e+03	5.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.59e+06	5.04e+02	1.1e+04	5.37e+06	5.32e+02	1.0e+04
32	13C-OCDD	6.14e+06	4.48e+02	1.4e+04	6.68e+06	4.88e+02	1.4e+04
33	13C-1,2,3,4-TCDD	7.86e+06	6.28e+03	1.3e+03	9.87e+06	3.67e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	8.31e+06	2.80e+03	3.0e+03	6.65e+06	1.18e+03	5.7e+03
35	37Cl-2,3,7,8-TCDD	1.72e+06	9.32e+02	1.8e+03			

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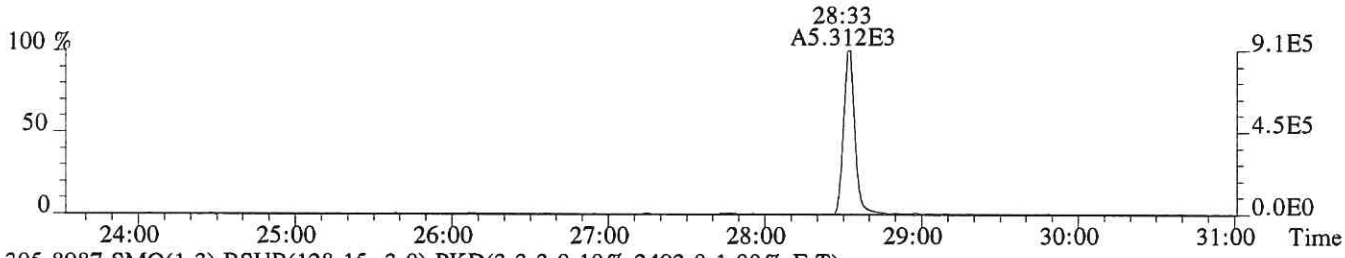
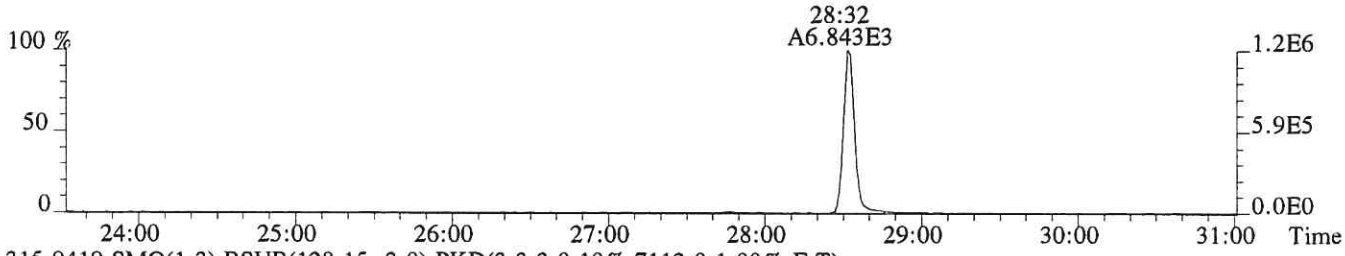
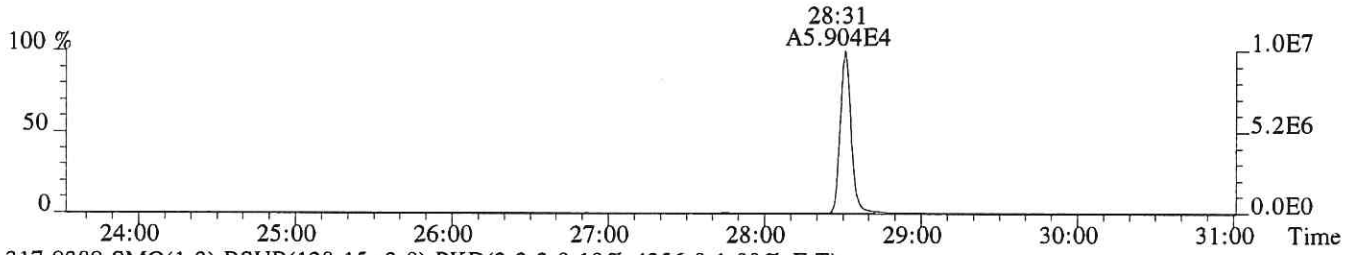
File:P519009 #1-531 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



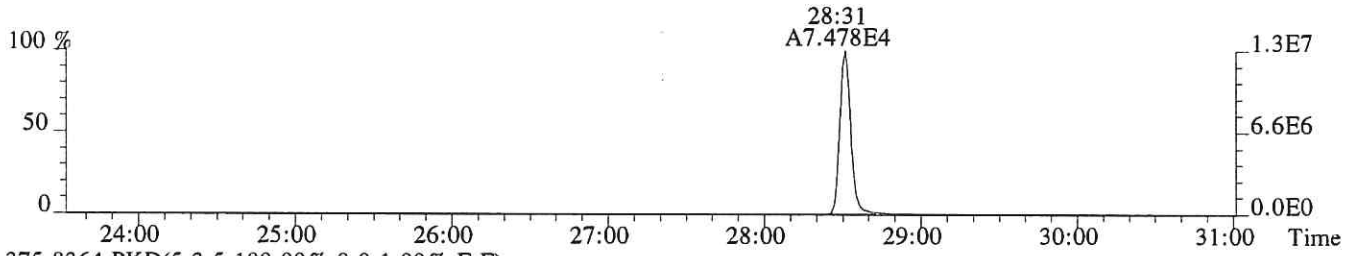
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



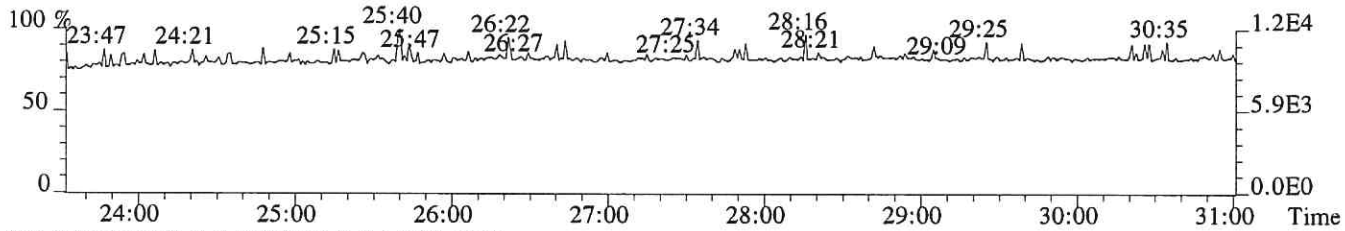
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7112.0,1.00%,F,T)



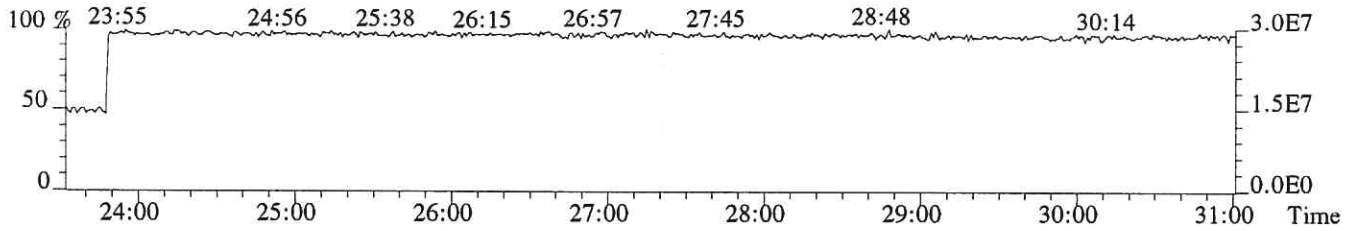
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



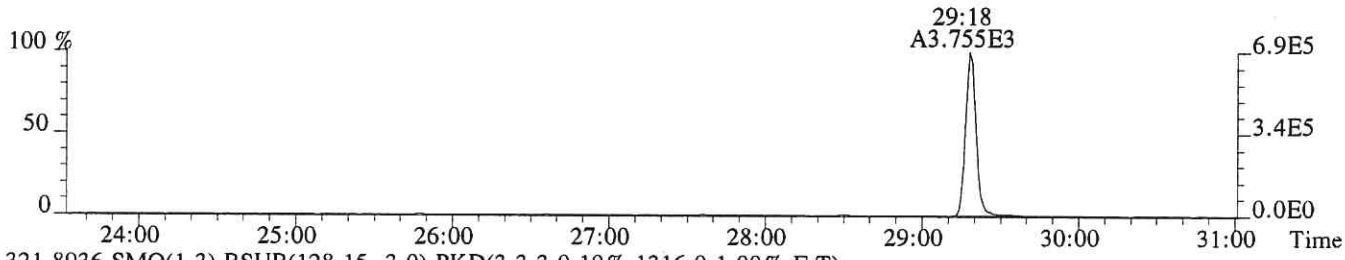
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



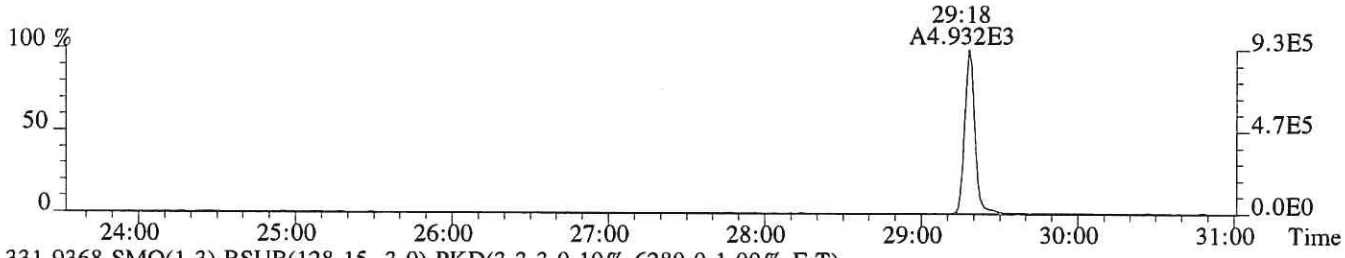
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



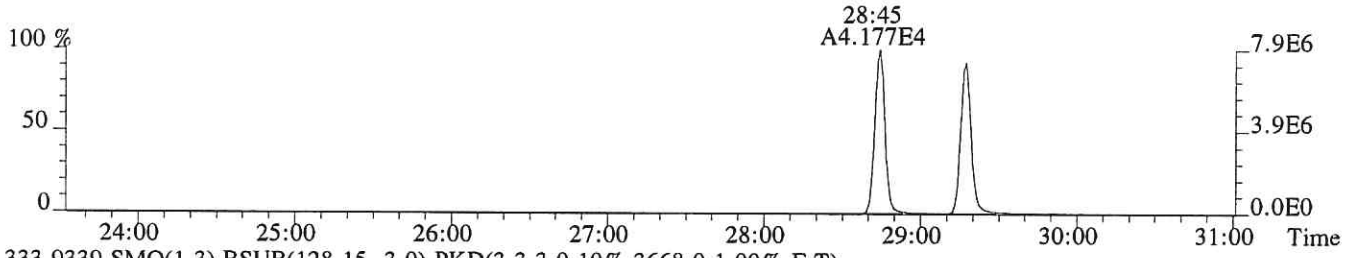
File:P519009 #1-531 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



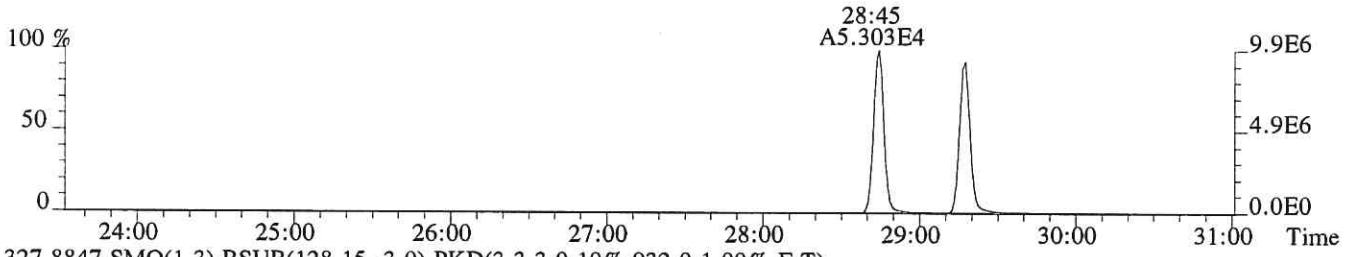
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



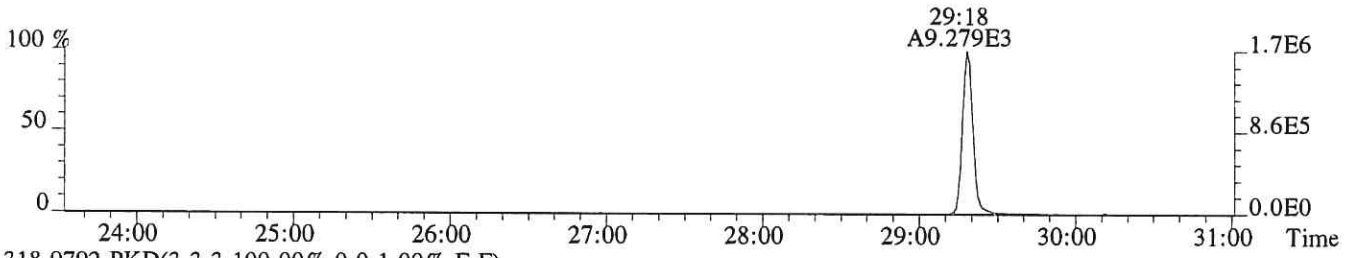
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6280.0,1.00%,F,T)



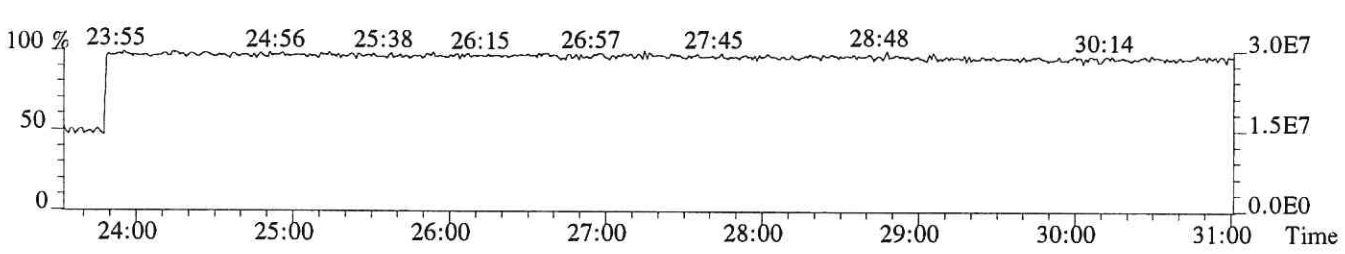
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3668.0,1.00%,F,T)



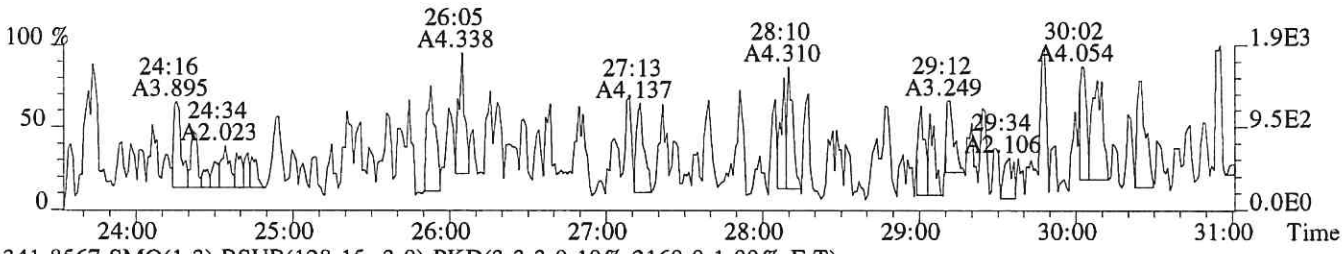
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



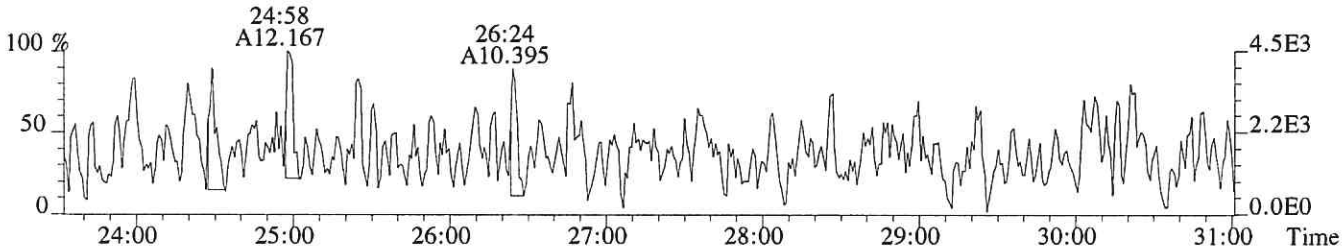
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



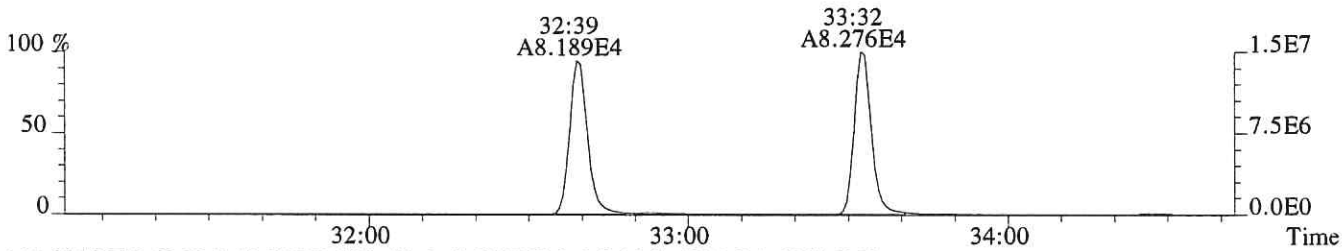
File:P519009 #1-531 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



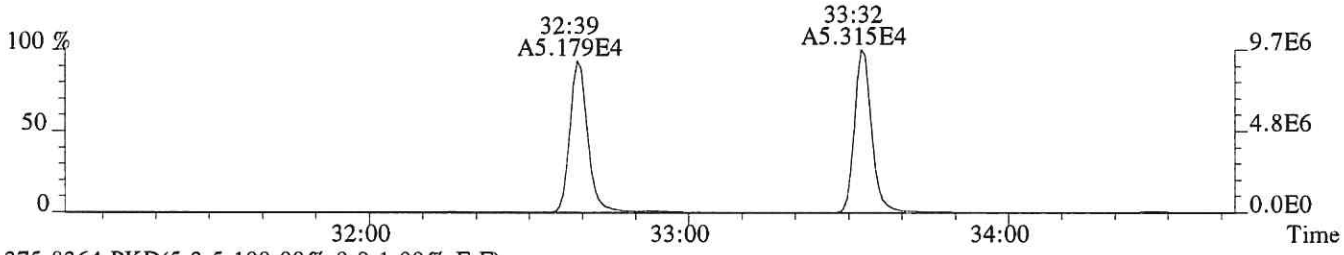
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



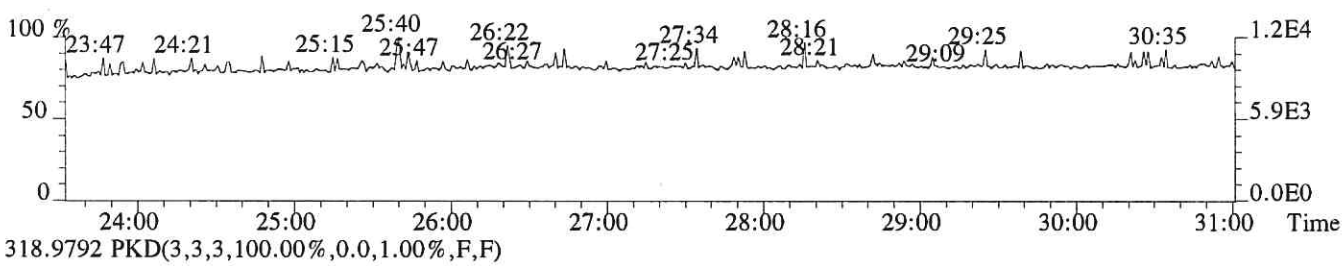
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



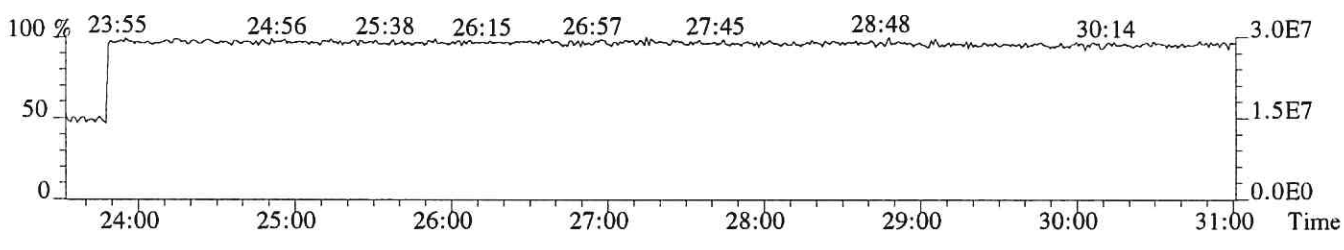
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



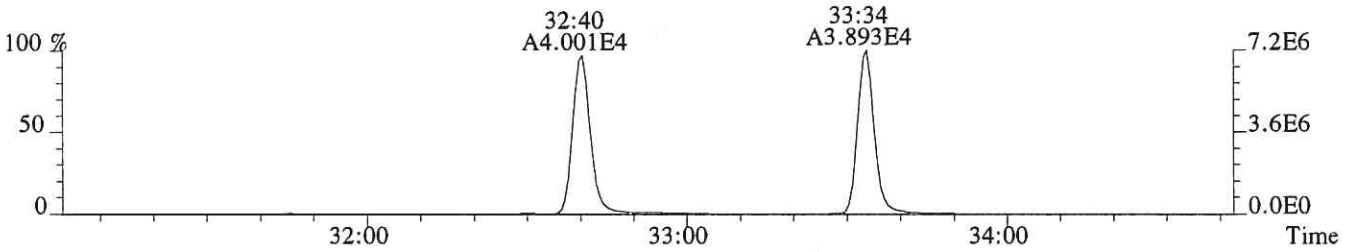
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



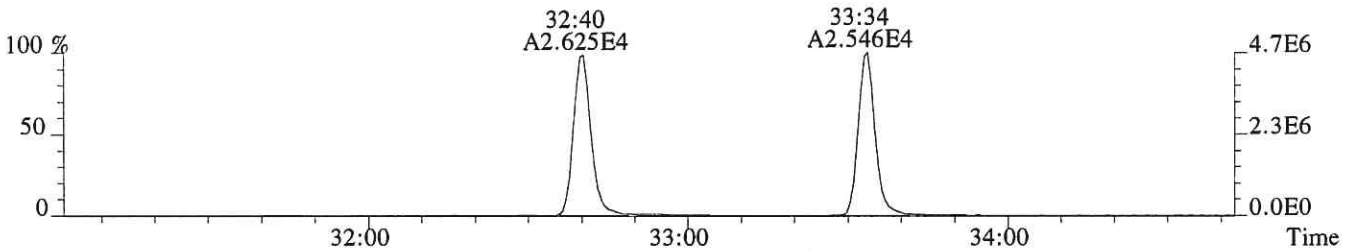
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



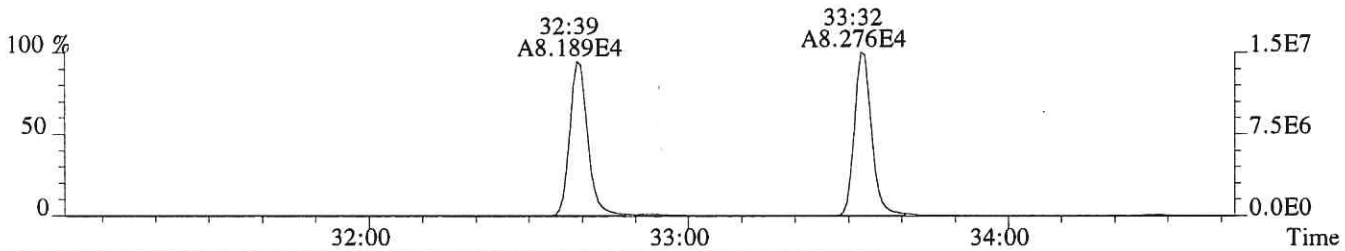
File:P519009 #1-330 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



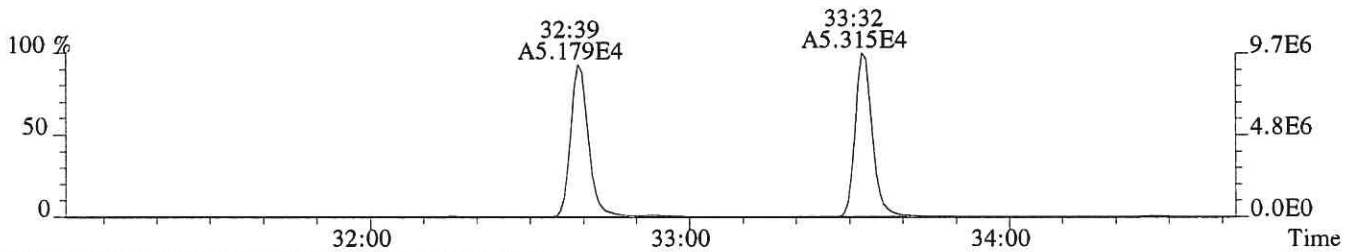
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)



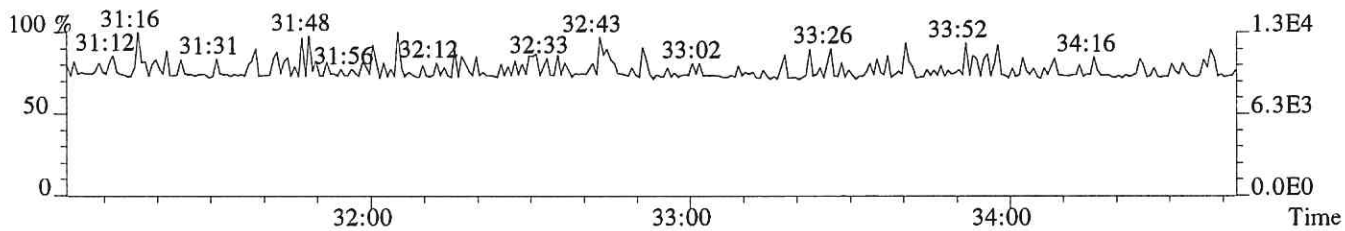
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



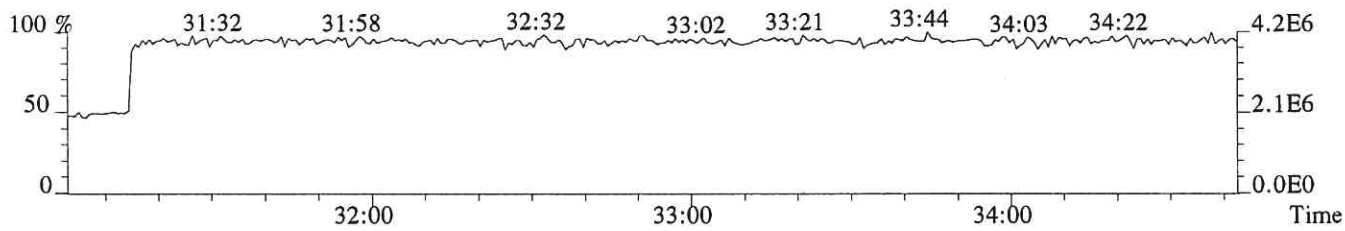
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



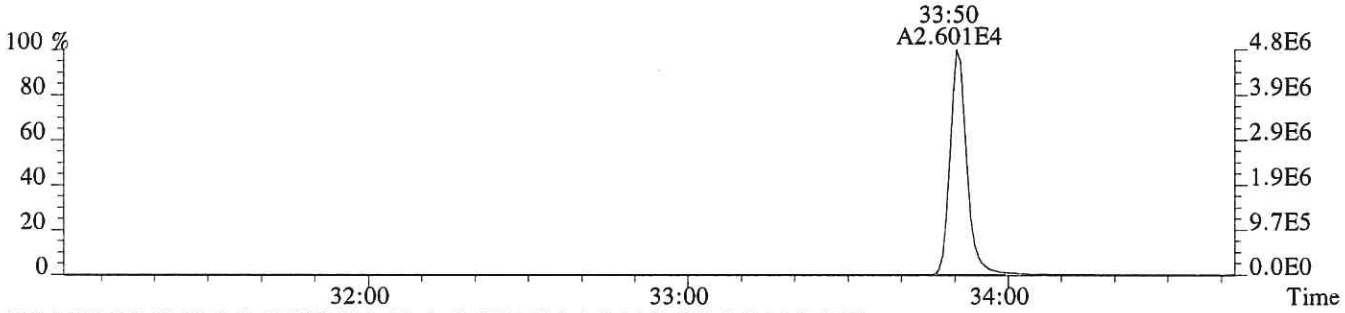
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



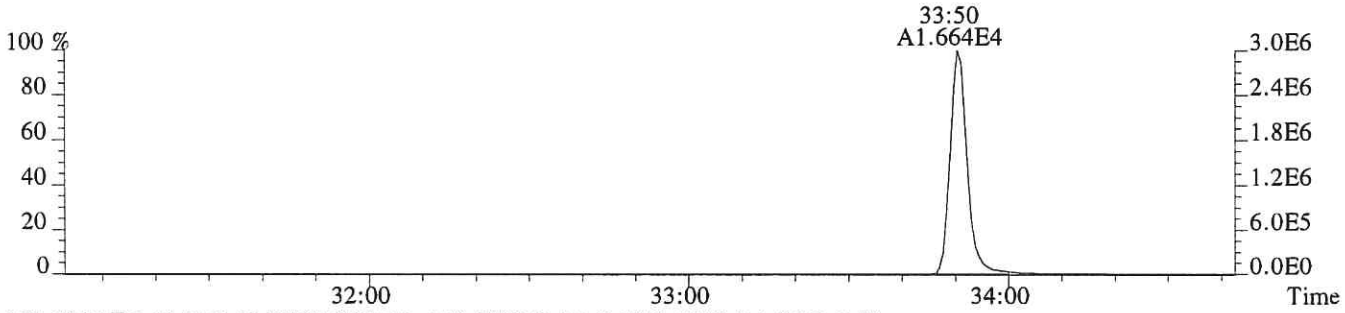
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



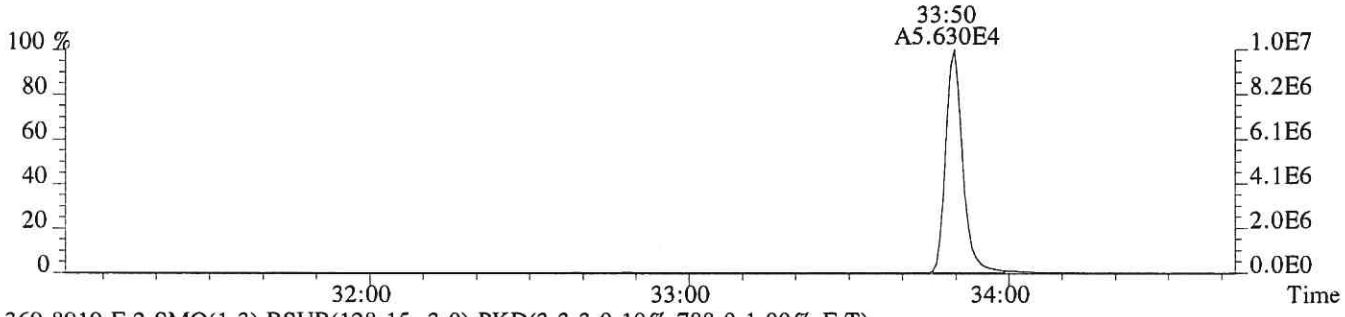
File:P519009 #1-330 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1492.0,1.00%,F,T)



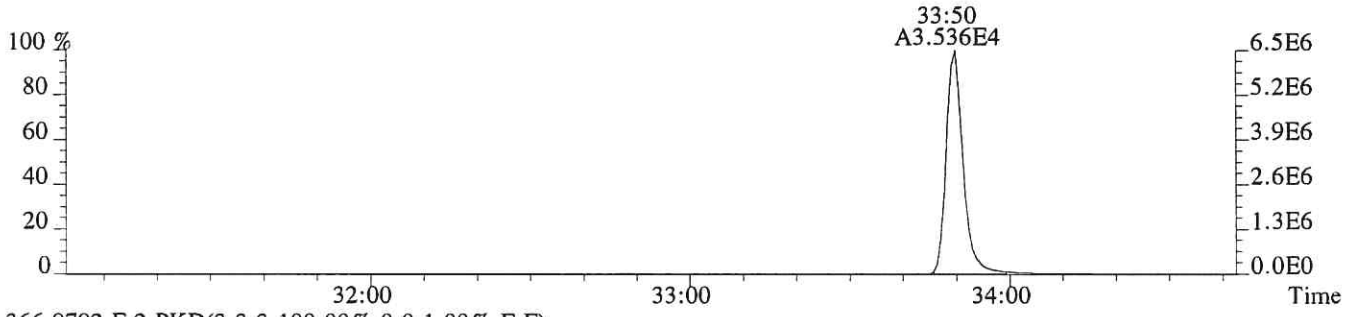
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



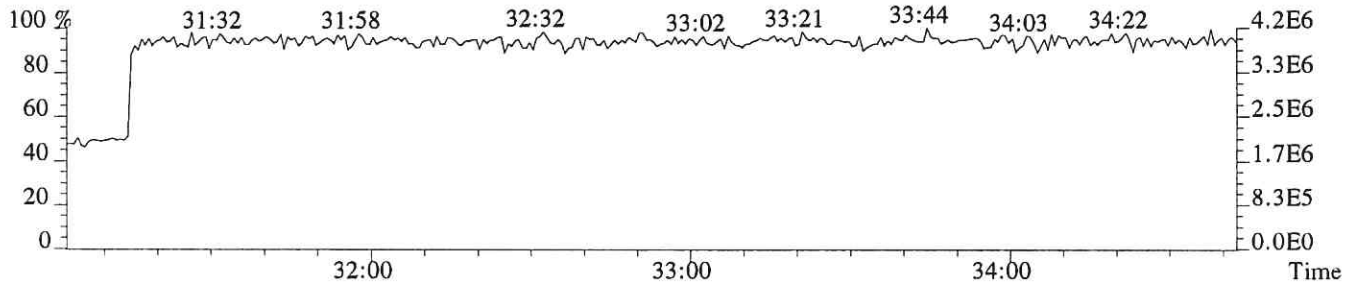
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



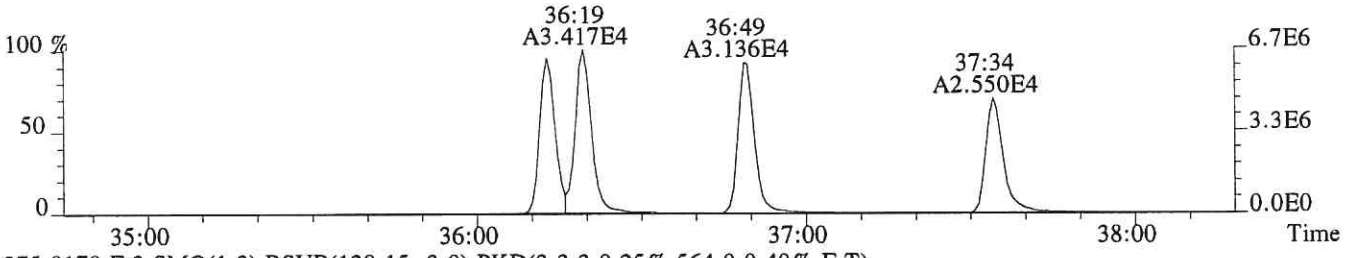
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



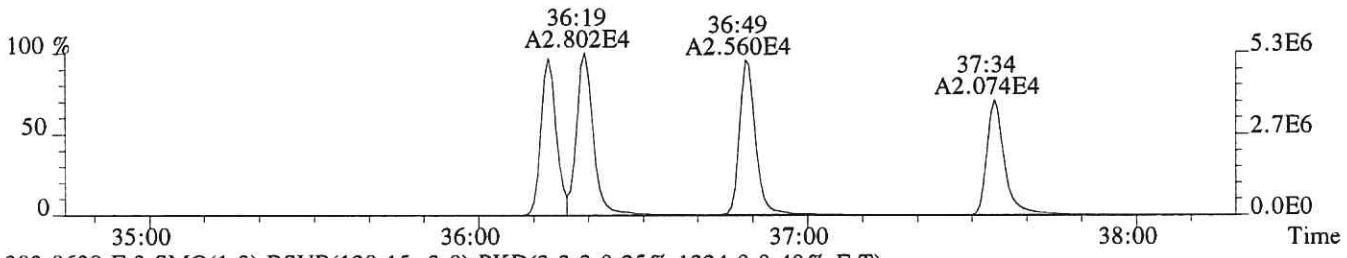
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



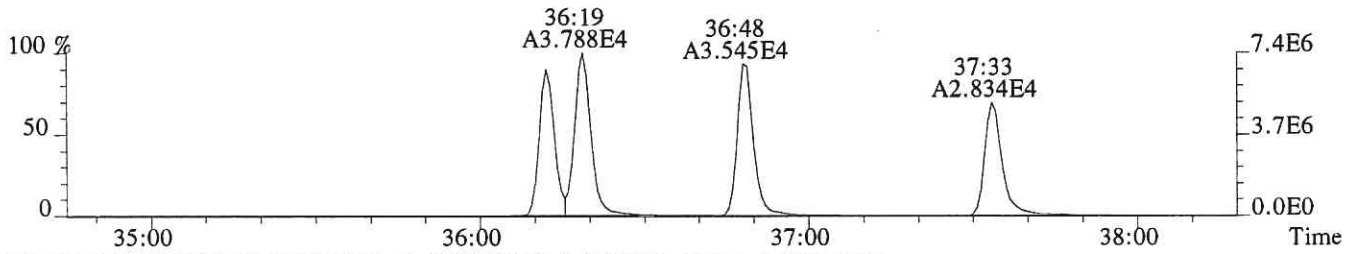
File:P519009 #1-321 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



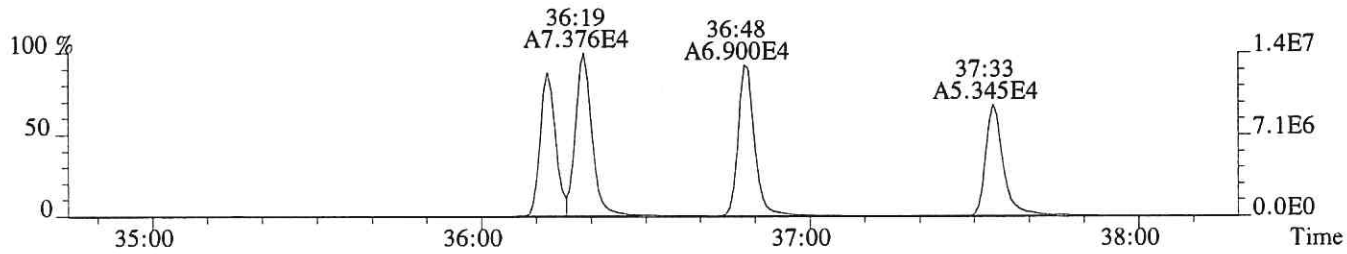
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



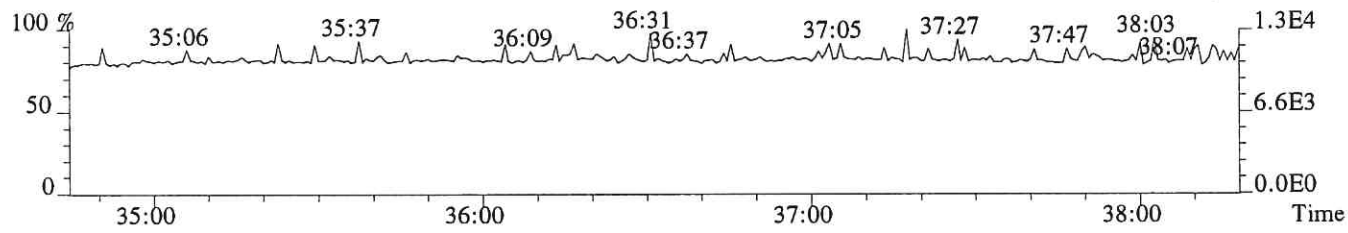
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



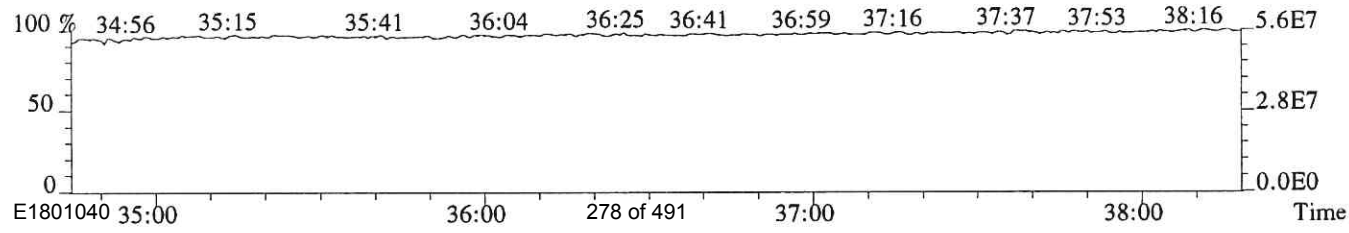
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



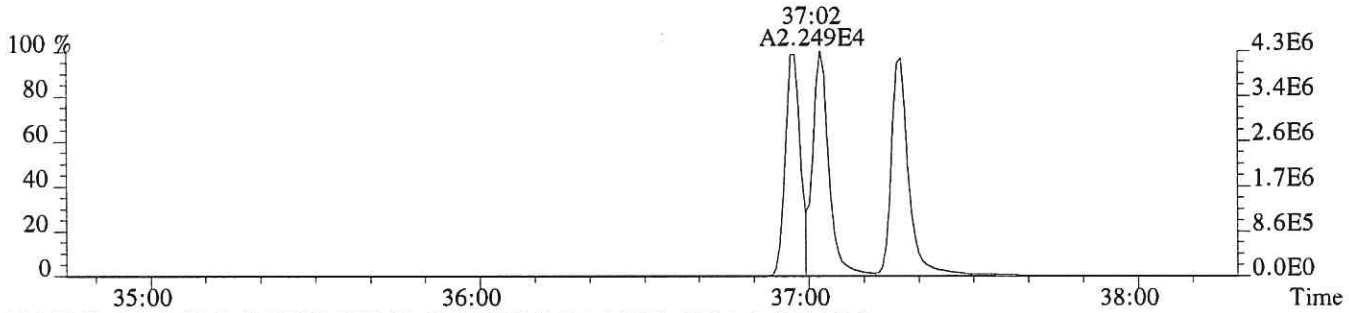
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



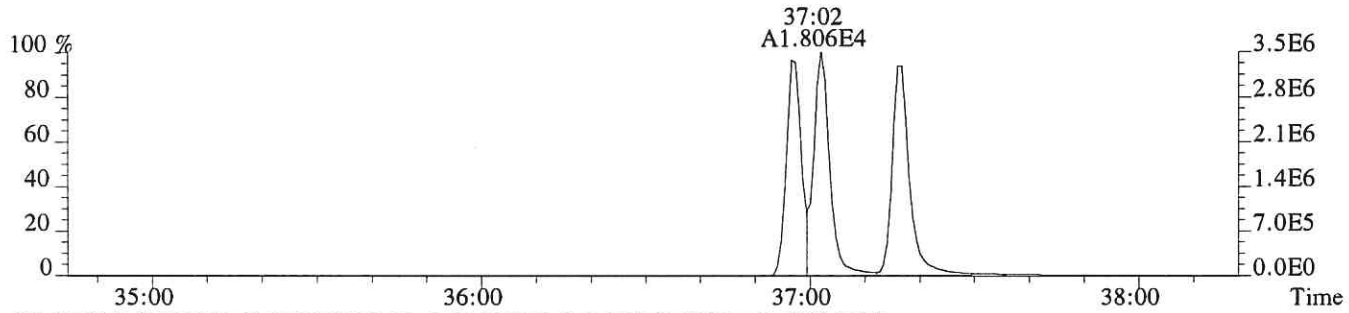
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



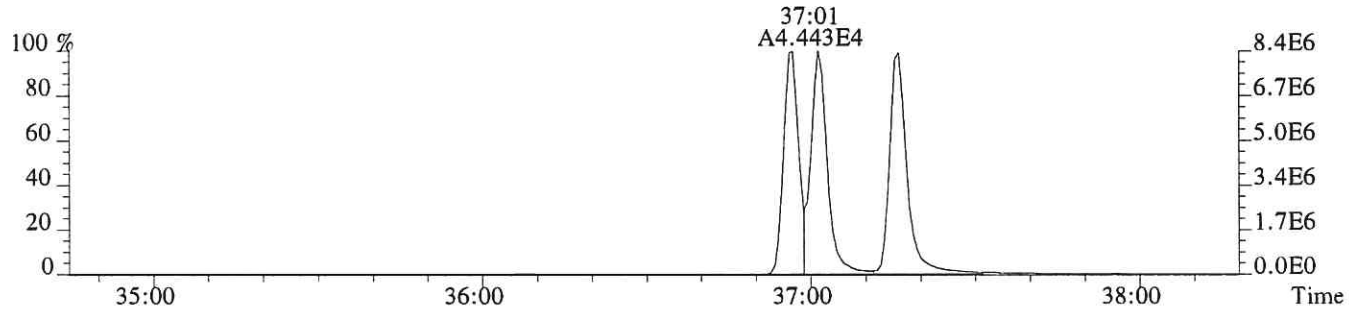
File:P519009 #1-321 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



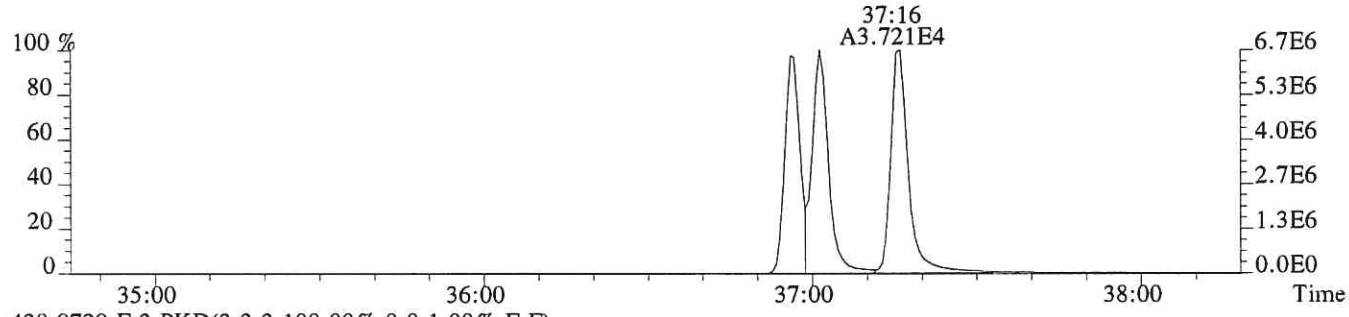
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



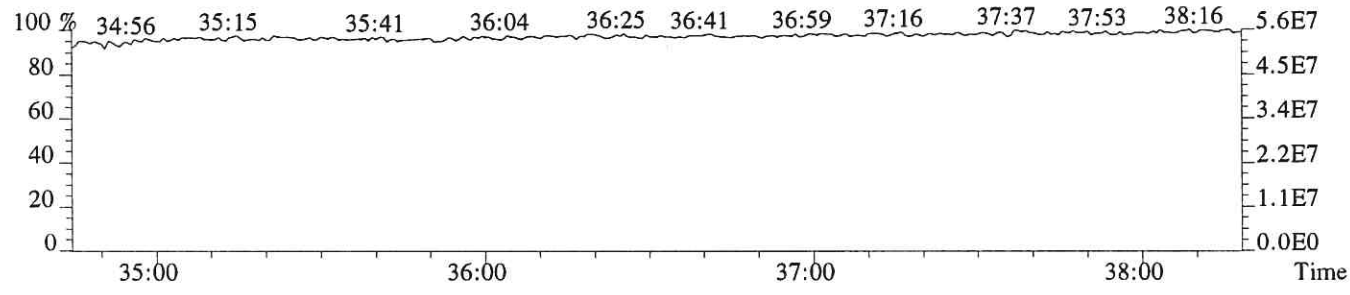
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2804.0,0.40%,F,T)



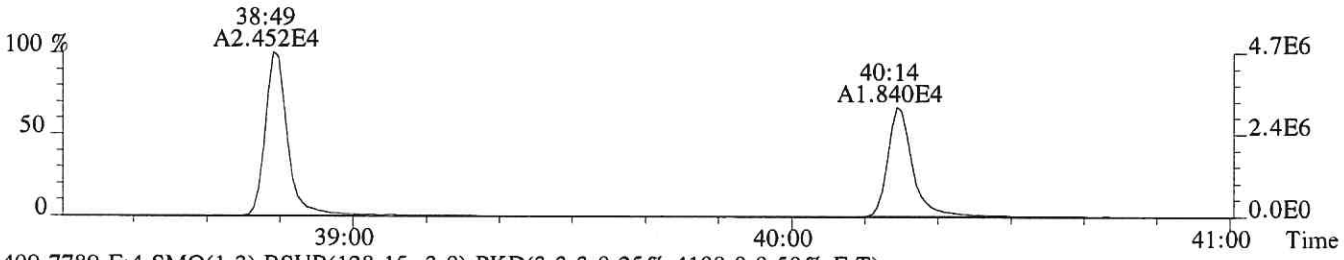
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



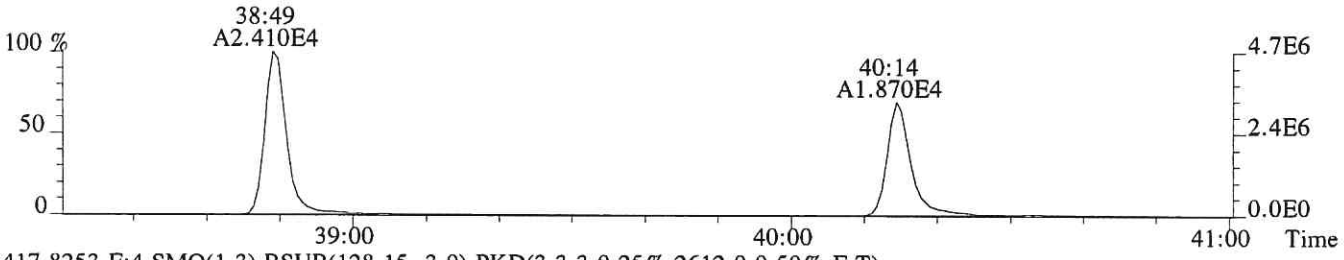
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



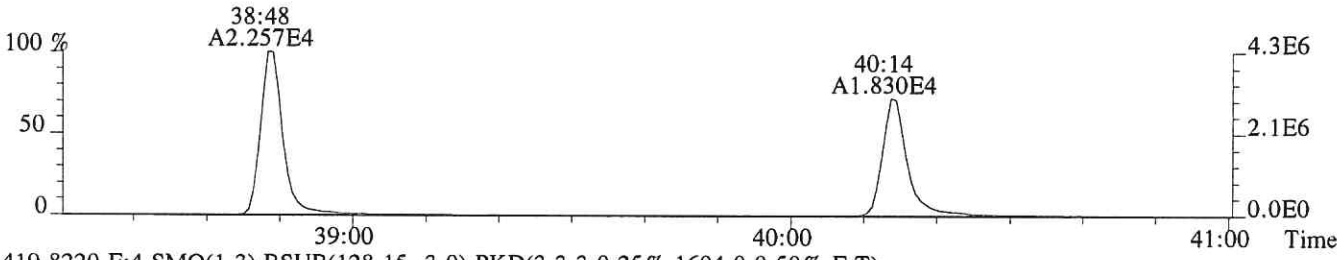
File:P519009 #1-241 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5112.0,0.50%,F,T)



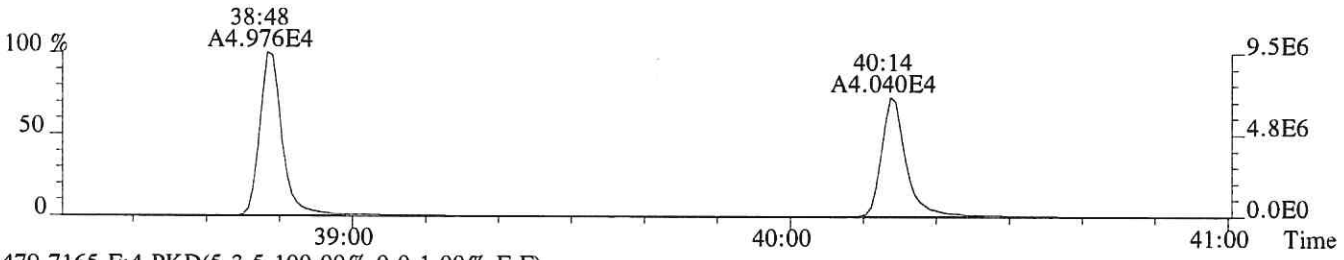
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4108.0,0.50%,F,T)



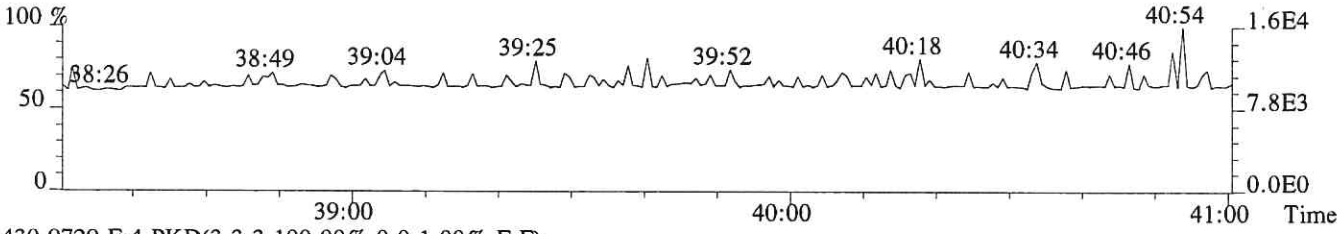
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2612.0,0.50%,F,T)



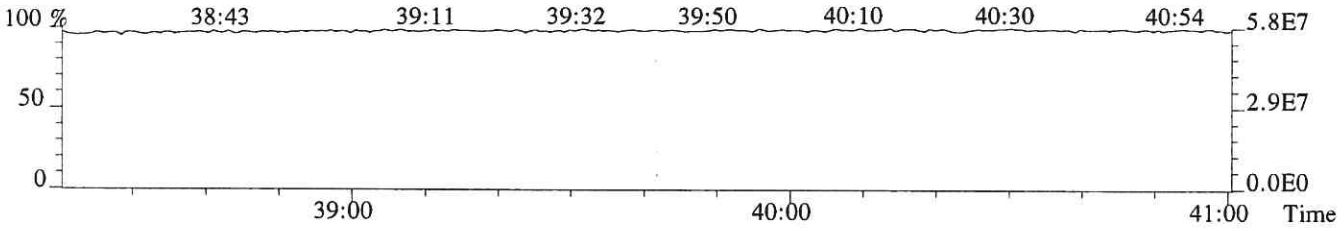
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



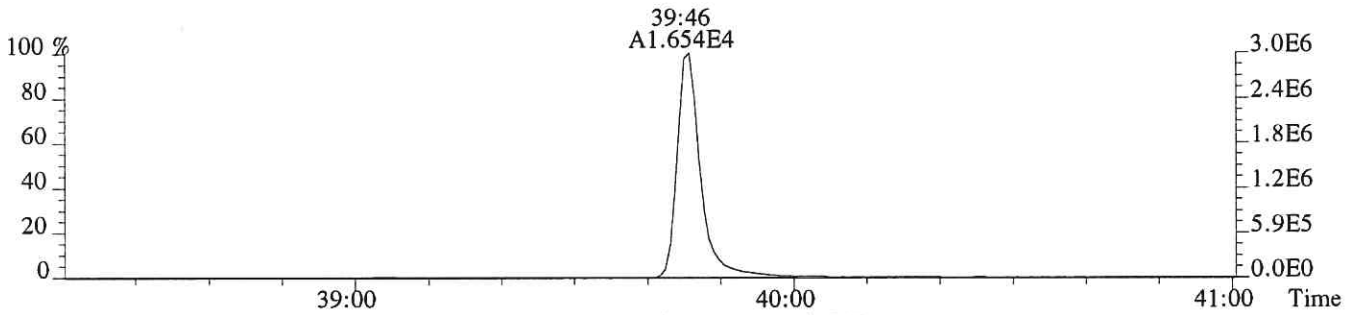
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



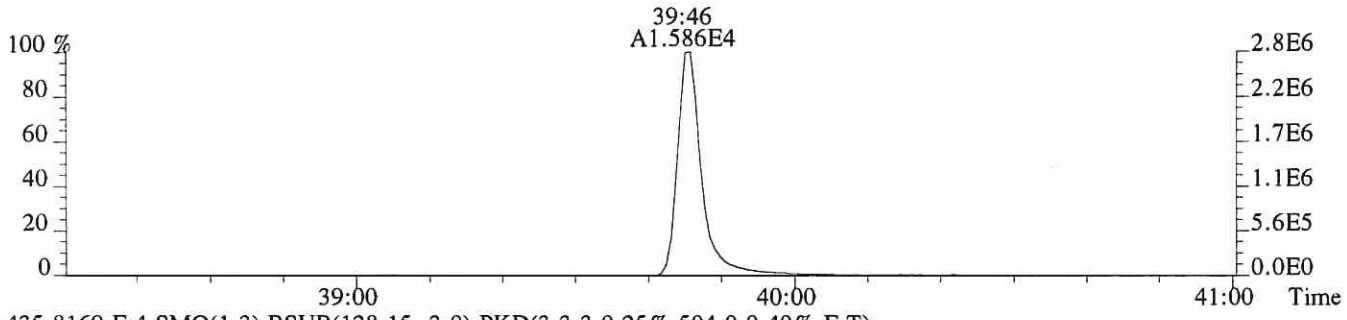
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



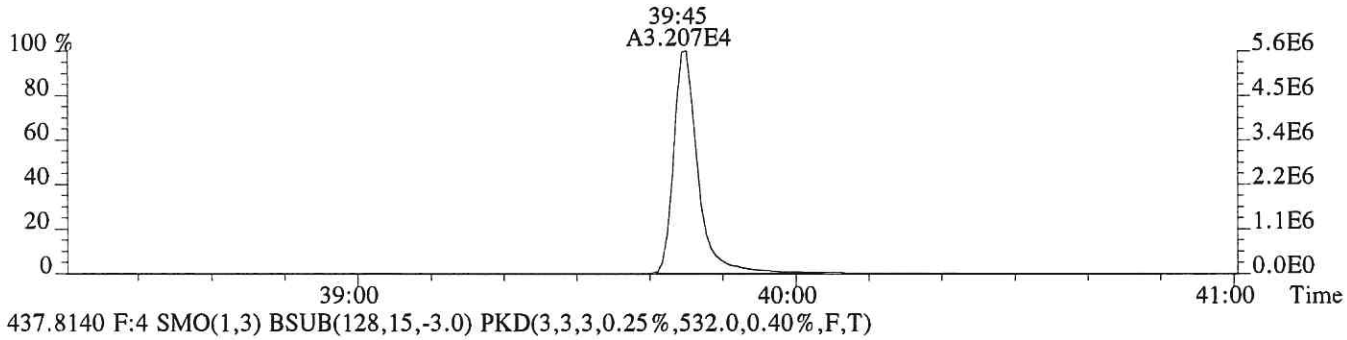
File:P519009 #1-241 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



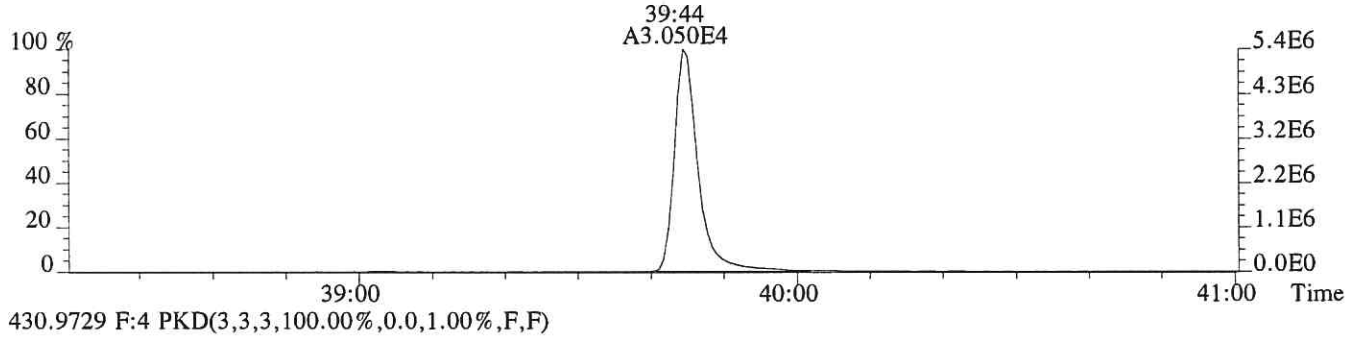
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



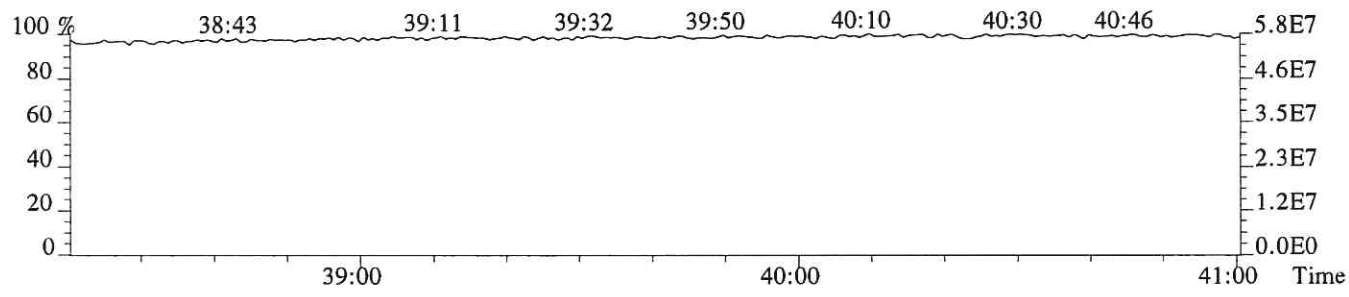
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



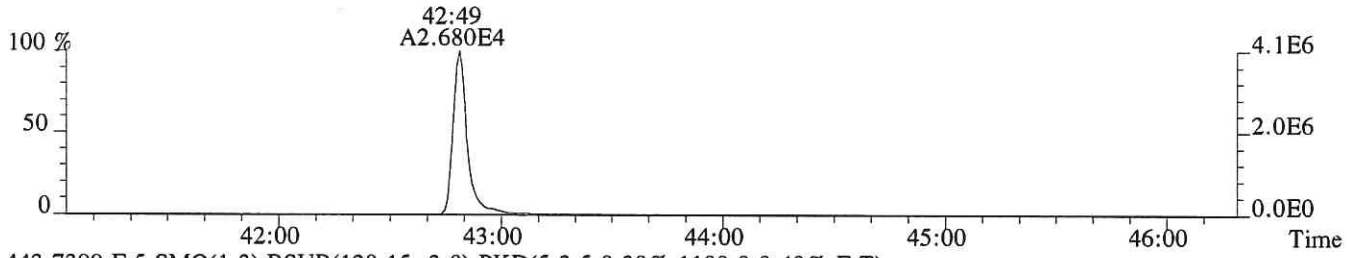
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



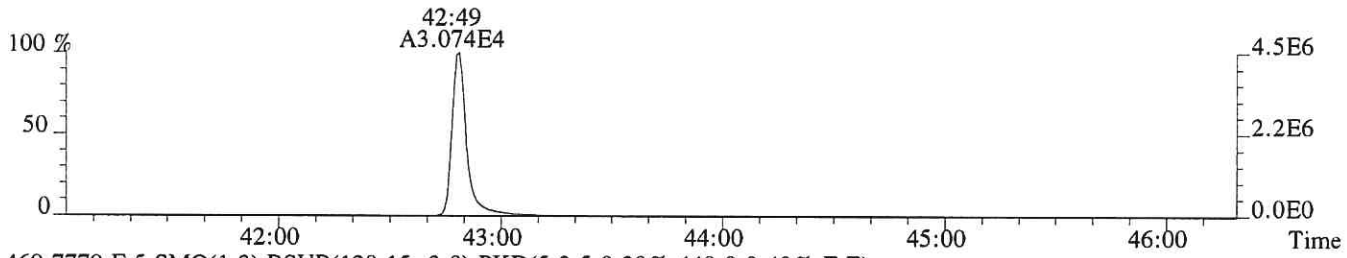
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



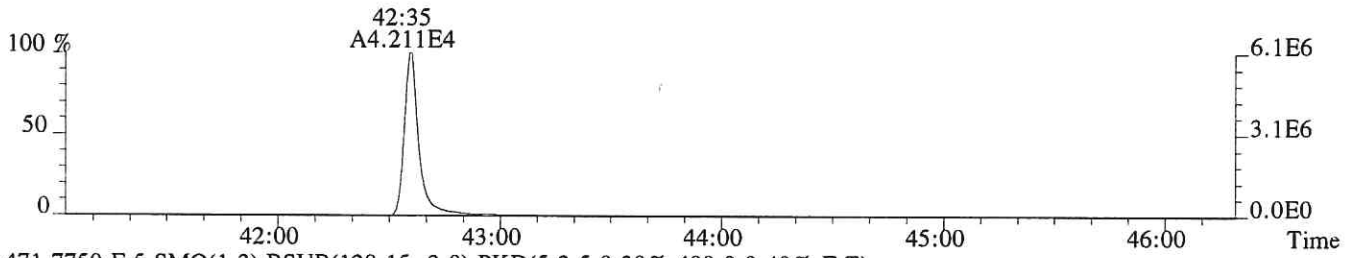
File:P519009 #1-475 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



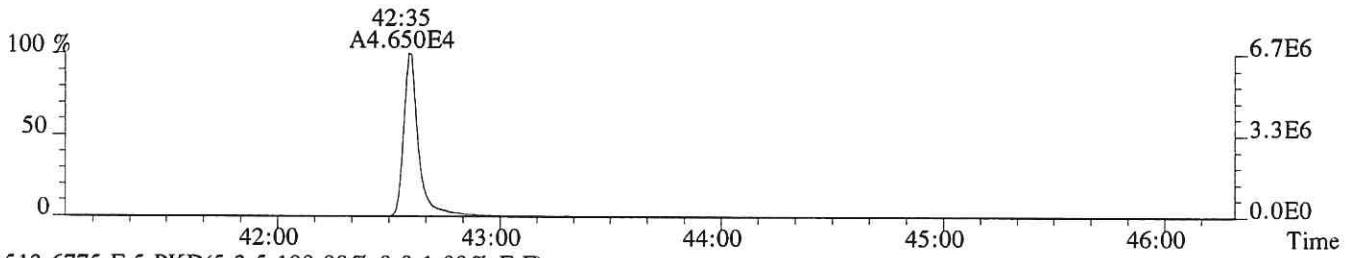
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



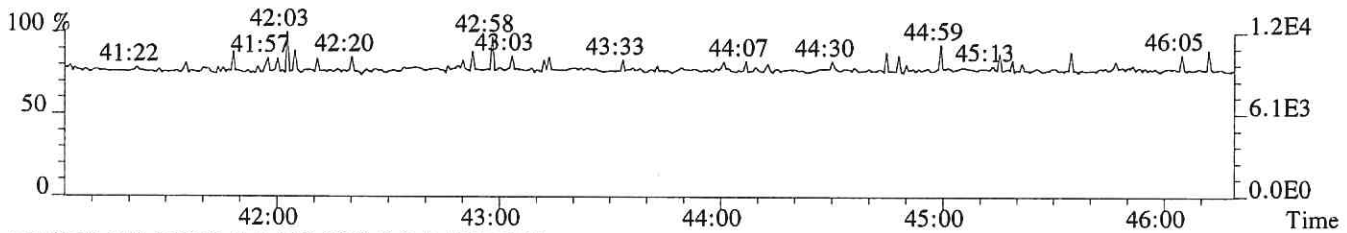
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



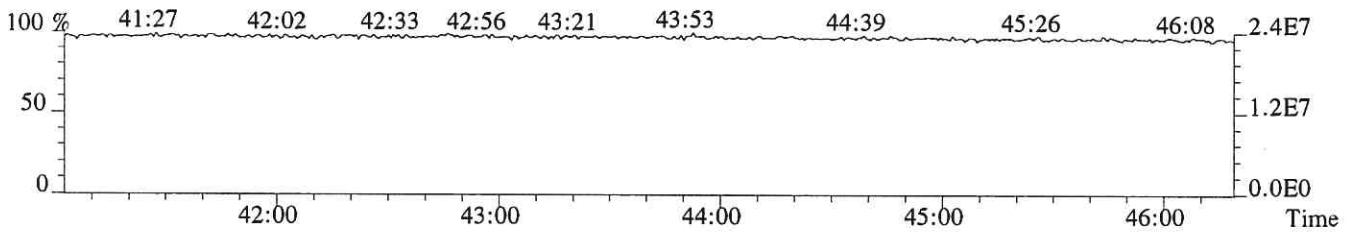
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



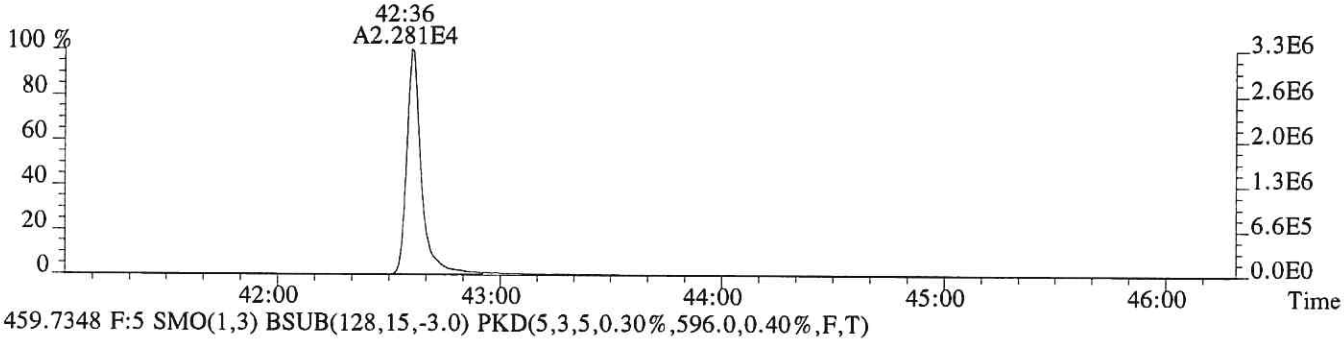
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



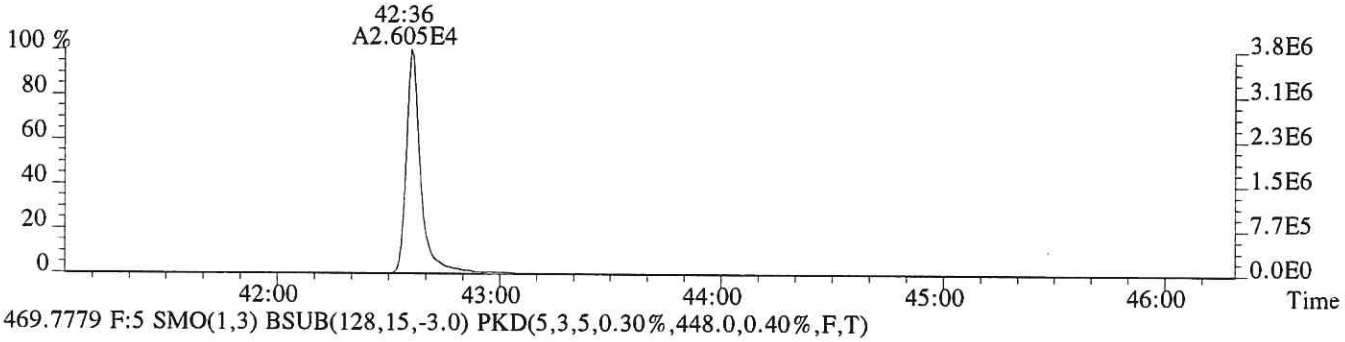
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



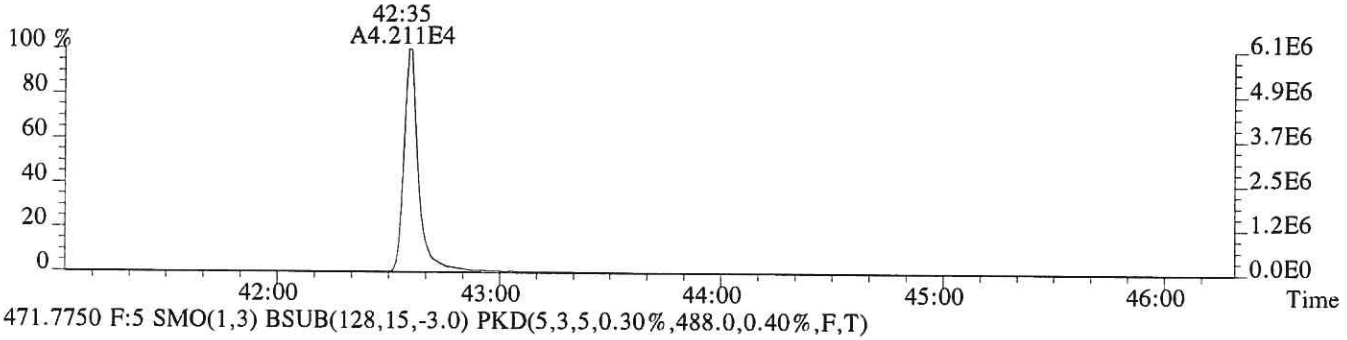
File:P519009 #1-475 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



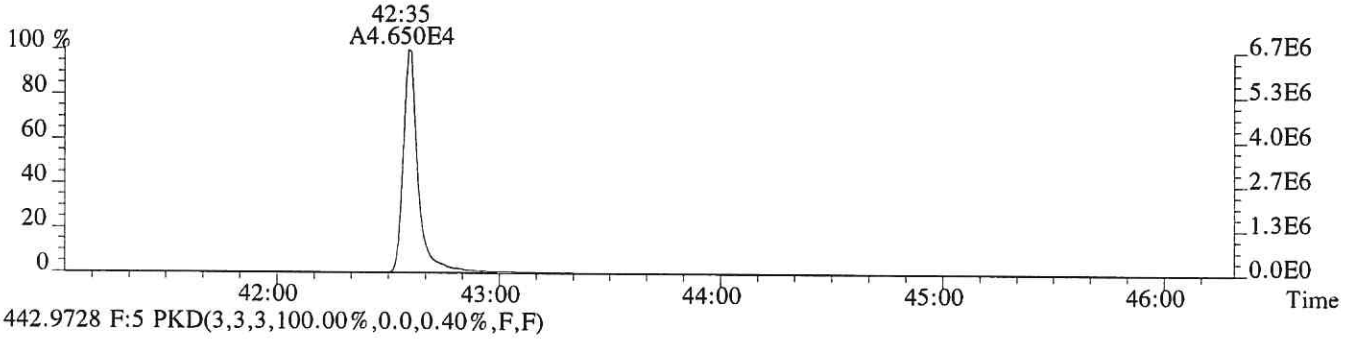
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



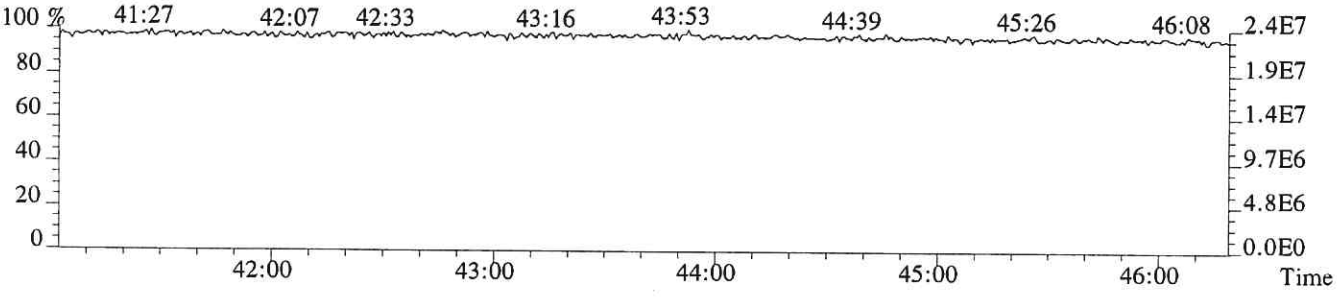
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: R519131

Date: 12/02/18

Circle one: (Beginning) / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519132	2-DEC-18	04:33:24
194503	CS3	P519131	2-DEC-18	03:44:46
METHOD BLANK	EQ1800458-01	P519133	2-DEC-18	05:22:03
SL0108	E1801039-031	P519134	2-DEC-18	07:00:00
SL0516	E1801038-021	P519135	2-DEC-18	07:48:35
SL0517	E1801038-022	P519136	2-DEC-18	08:36:31
SL0100	E1801039-006	P519137	2-DEC-18	09:25:10
SL0107	E1801039-017	P519138	2-DEC-18	10:13:48
SL0129	E1801039-036	P519139	2-DEC-18	11:02:27
SL0130	E1801039-037	P519140	2-DEC-18	11:51:07
SL0101	E1801039-038	P519141	2-DEC-18	12:39:46
SL0509	E1801040-001	P519142	2-DEC-18	13:28:25
LCS	EQ1800469-02	P519143	2-DEC-18	14:17:05
DLCS	EQ1800469-03	P519144	2-DEC-18	15:05:44

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181202A.SPL
Last Modified: Monday, December 03, 2018 07:46:34 Central Standard Time
Printed: Monday, December 03, 2018 07:46:35 Central Standard Time

Page Position (1, 1)

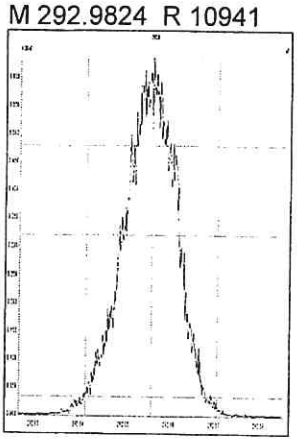
OPUS5: P519131RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/2/18	03:44	P519131	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	dRMScheck 05:03 12/4/18
2		04:35	P519132	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		05:22	P519133	MB	EQ1800458-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		07:00	P519134	E1801039-031	E1801039-031	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		07:48	P519135	E1801038-021	E1801038-021	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		08:36	P519136	E1801038-022	E1801038-022	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		09:25	P519137	E1801039-006	E1801039-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		10:13	P519138	E1801039-017	E1801039-017	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		11:02	P519139	E1801039-036	E1801039-036	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		11:51	P519140	E1801039-037	E1801039-037	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		12:39	P519141	E1801039-038	E1801039-038	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		13:28	P519142	E1801040-001	E1801040-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		14:17	P519143	LCS	EQ1800469-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		15:05	P519144	DLCS	EQ1800469-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		16:02	P519145	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		dRMScheck 16:02
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

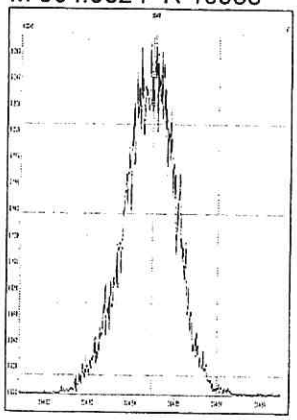
JC 12/03/18

033

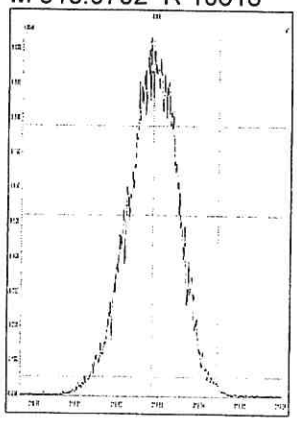
M 292.9824 R 10941



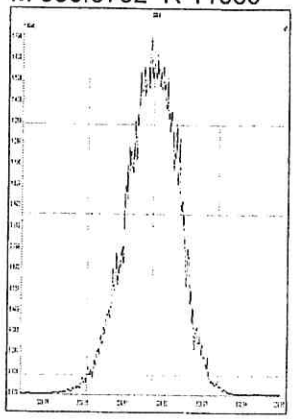
M 304.9824 R 10933



M 318.9792 R 10616



M 330.9792 R 11065



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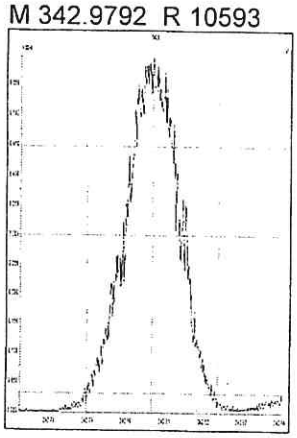
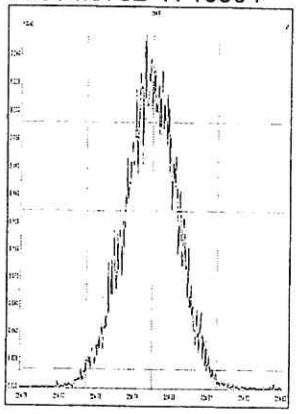
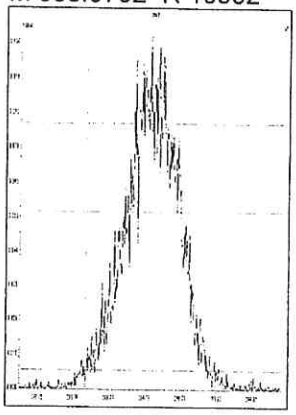


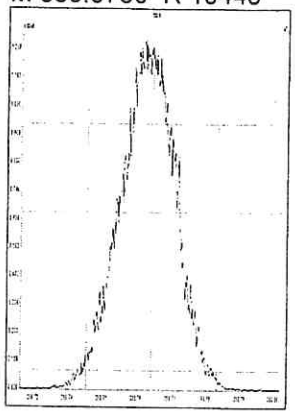
M 354.9792 R 10504



M 366.9792 R 10992



M 380.9760 R 10448



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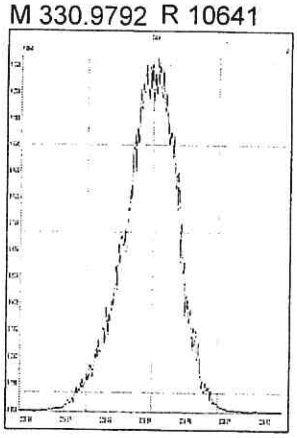
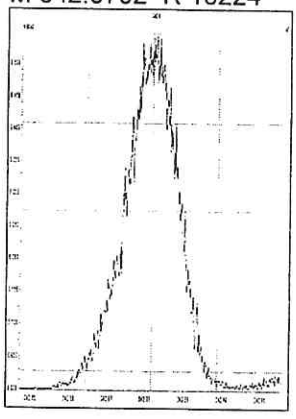
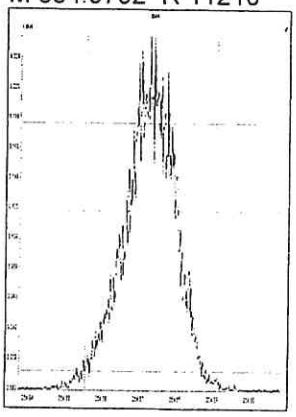


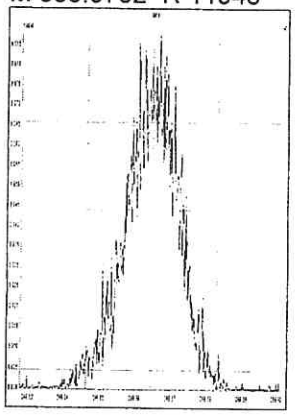
M 342.9792 R 10224



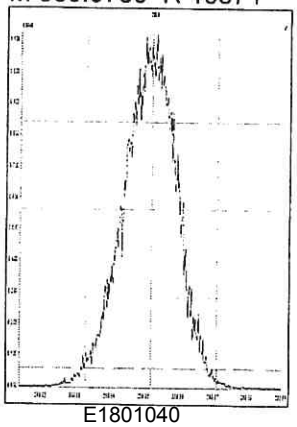
M 354.9792 R 11210



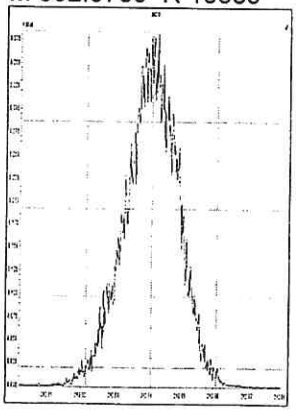
M 366.9792 R 11948



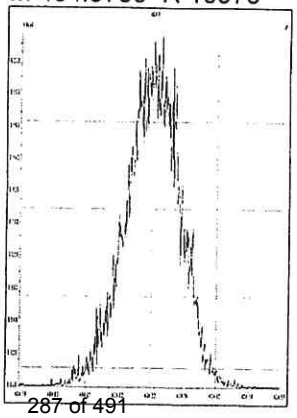
M 380.9760 R 10374



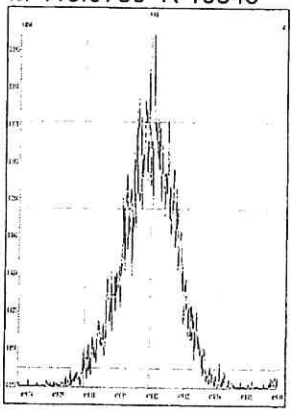
M 392.9760 R 10889



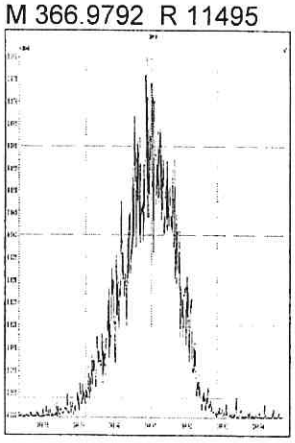
M 404.9760 R 10975



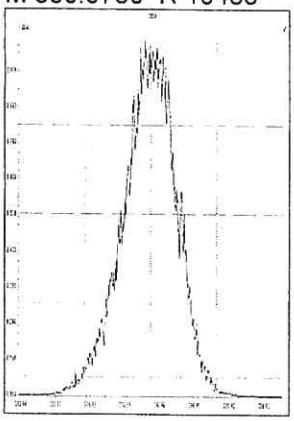
M 416.9760 R 10846



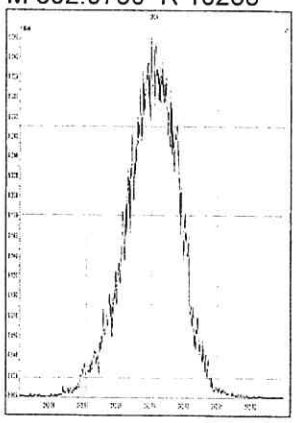
M 366.9792 R 11495



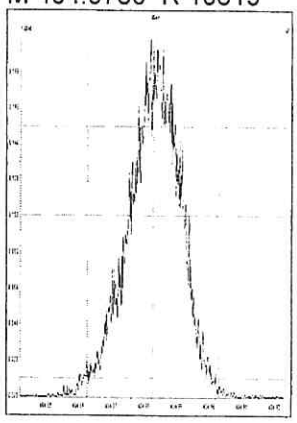
M 380.9760 R 10485



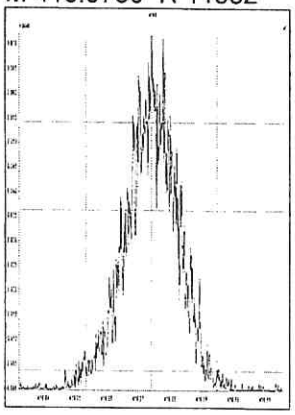
M 392.9760 R 10288



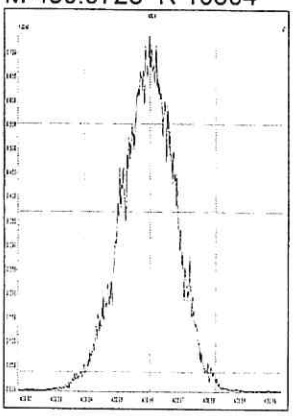
M 404.9760 R 10619



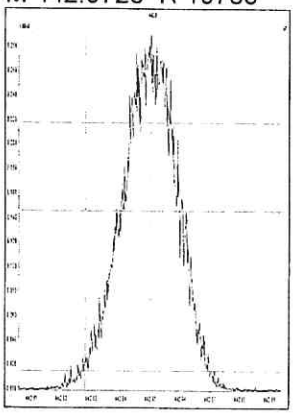
M 416.9760 R 11532



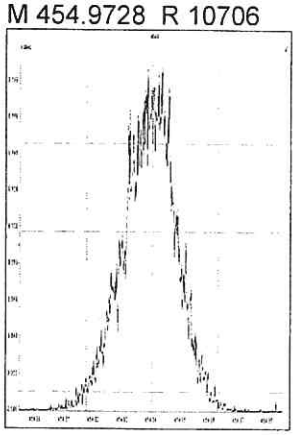
M 430.9728 R 10504



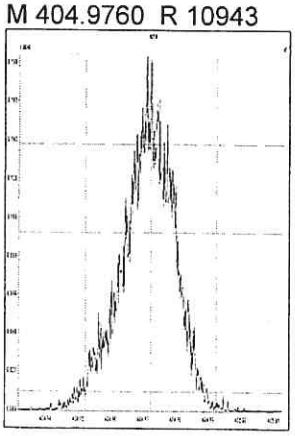
M 442.9728 R 10785



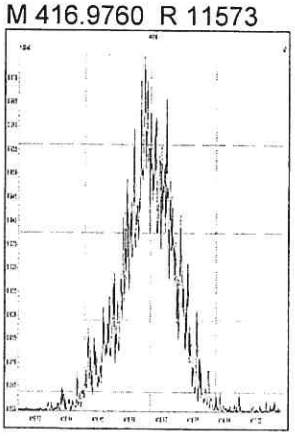
M 454.9728 R 10706



M 404.9760 R 10943



M 416.9760 R 11573



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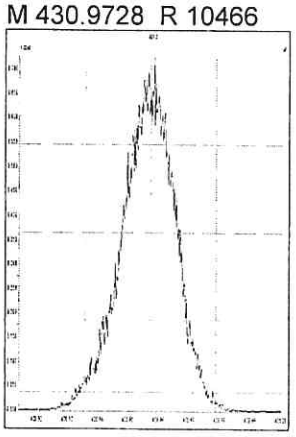
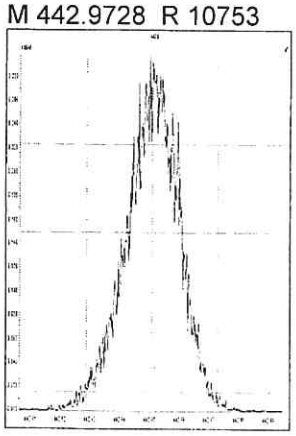


M 442.9728 R 10753



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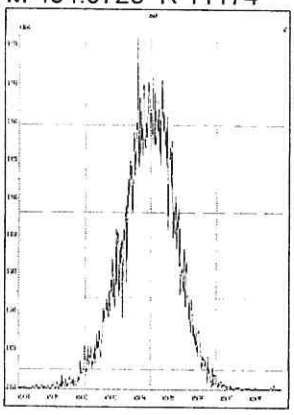

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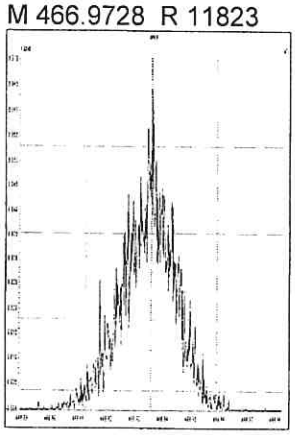

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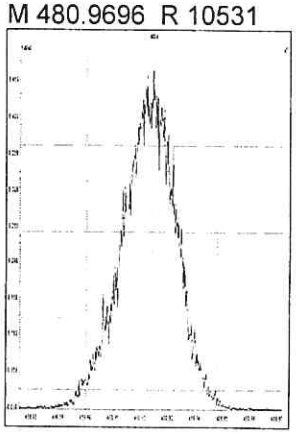

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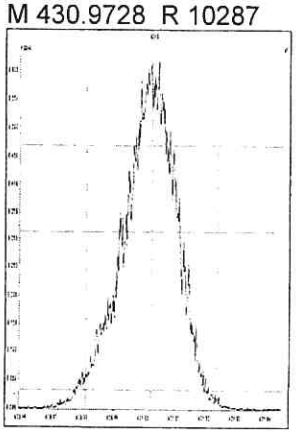

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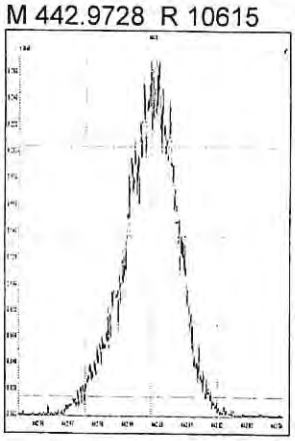

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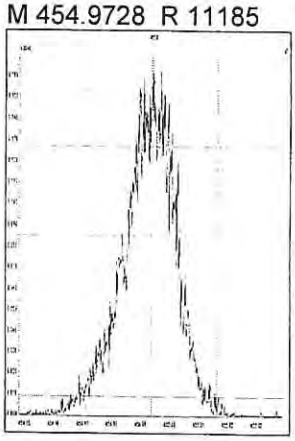

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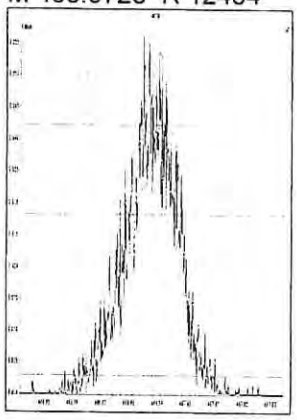

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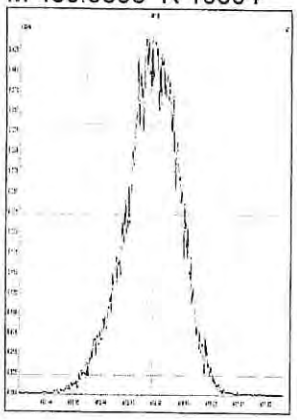

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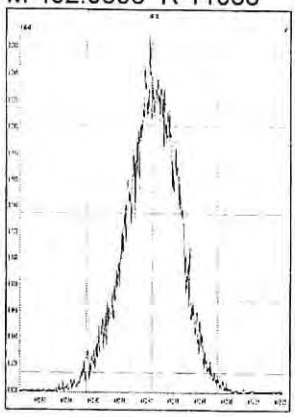

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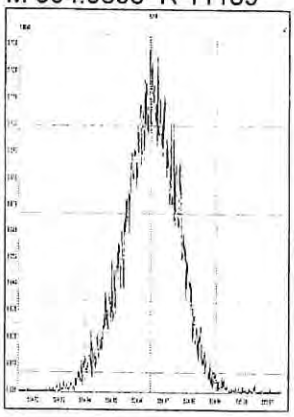

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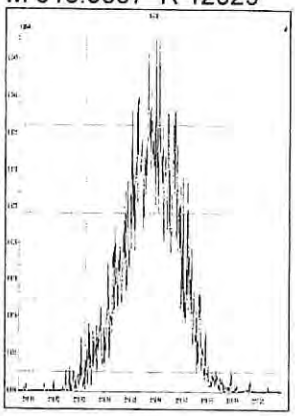

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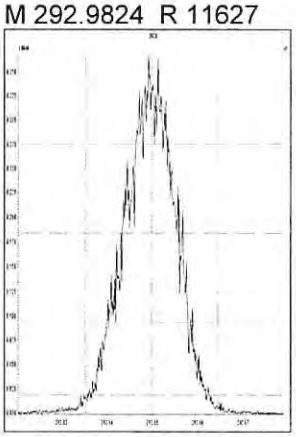

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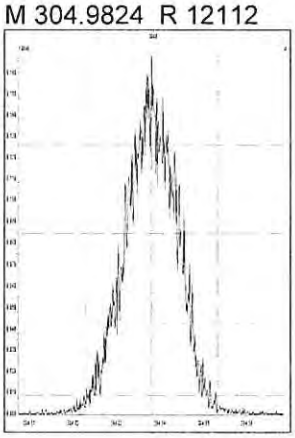

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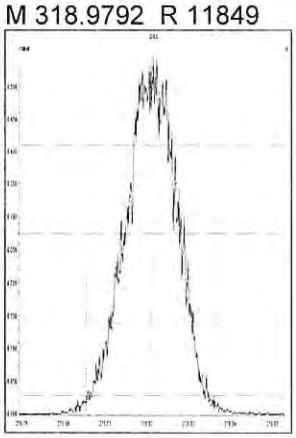

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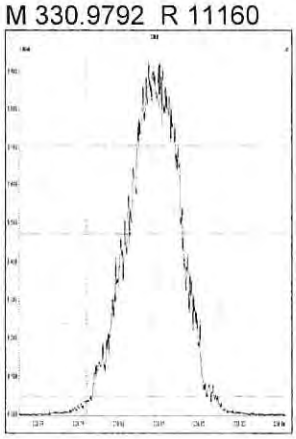

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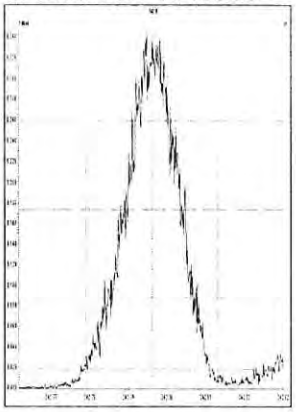

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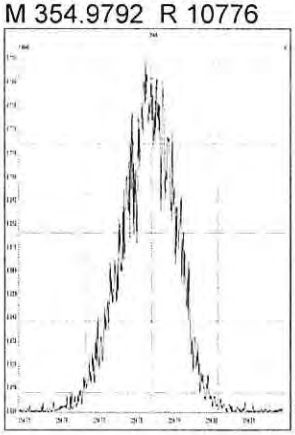

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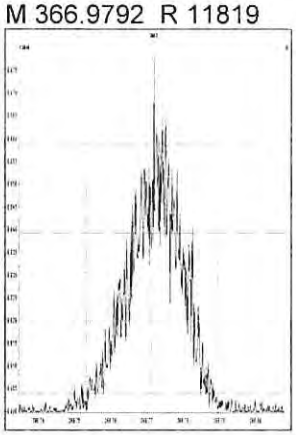

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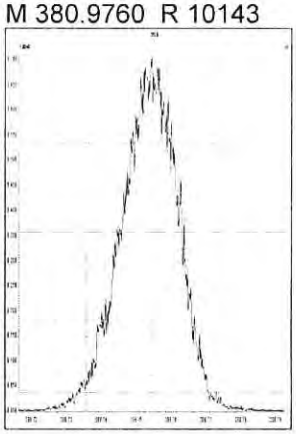

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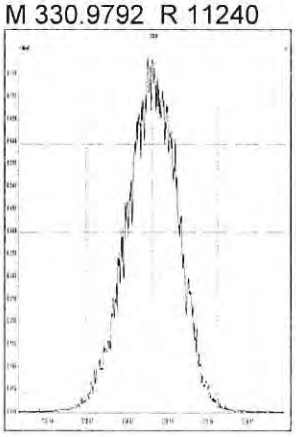

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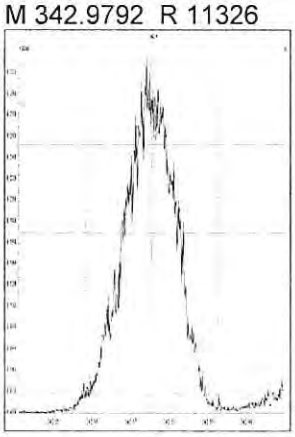

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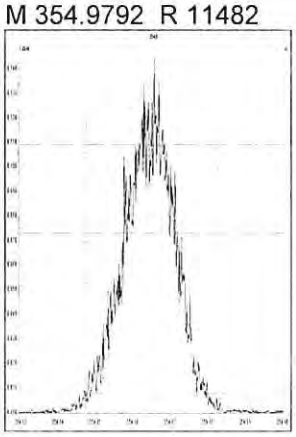

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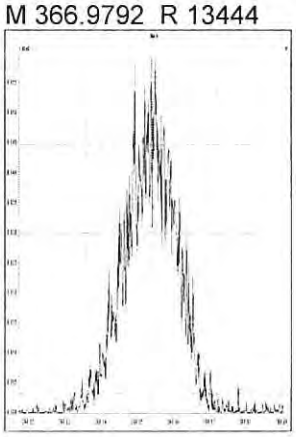

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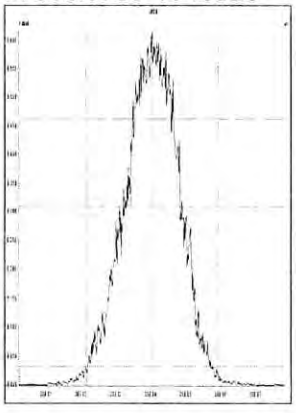

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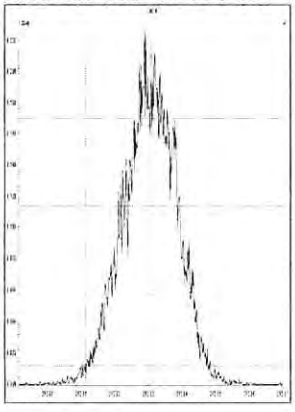

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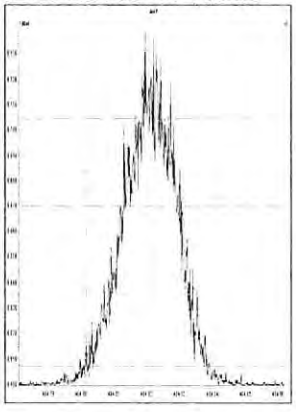

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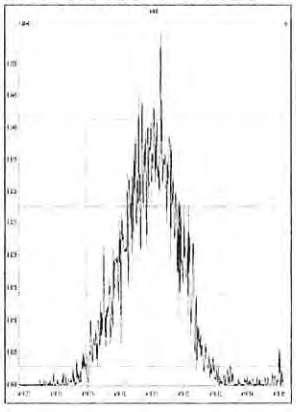

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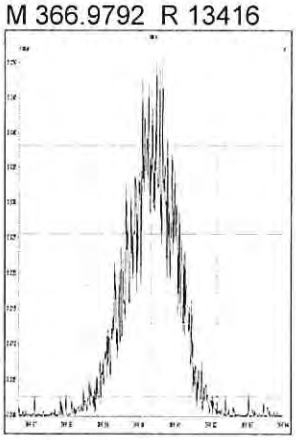

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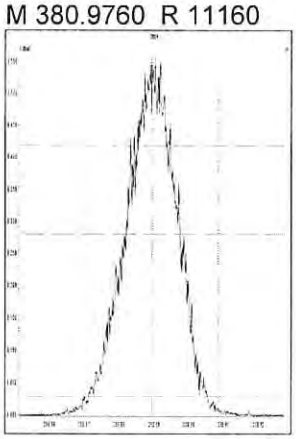

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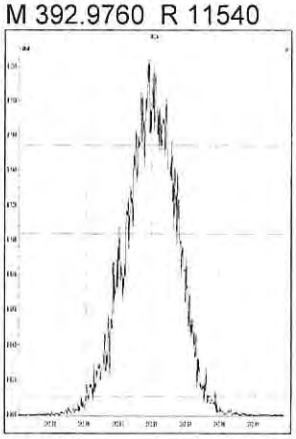

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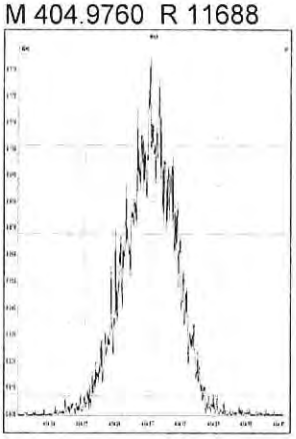

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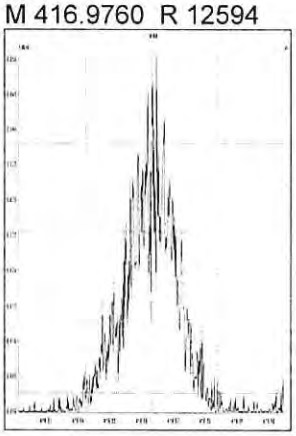
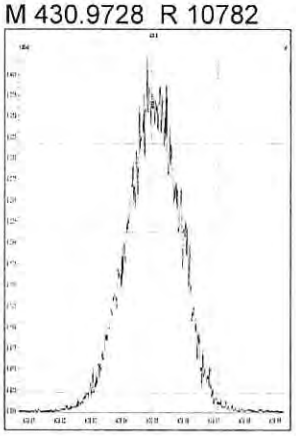


M 430.9728 R 10782



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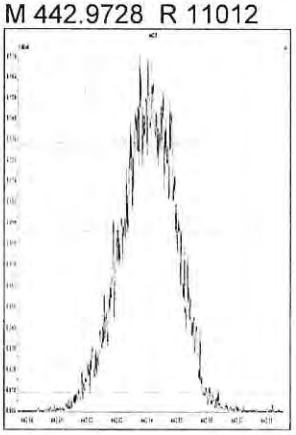

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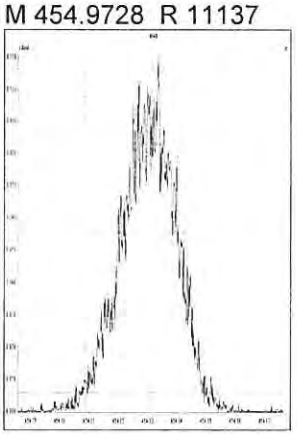

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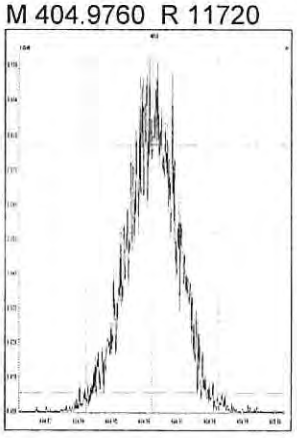

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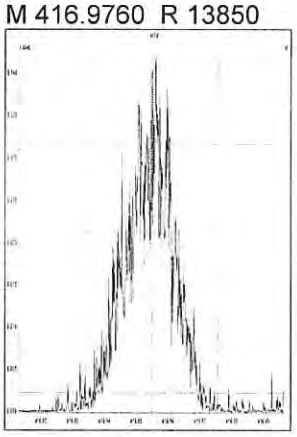

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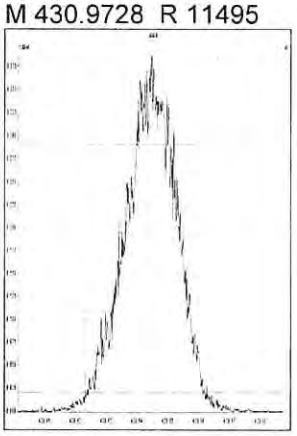

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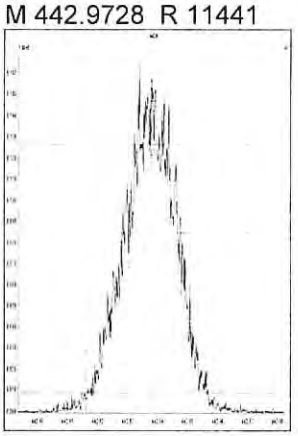

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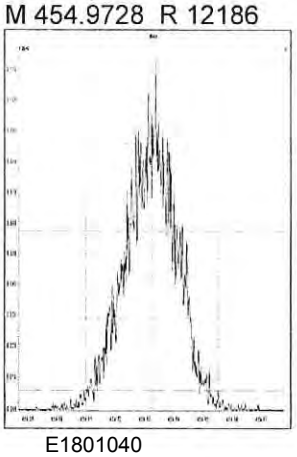

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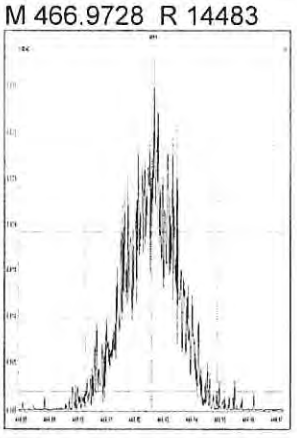

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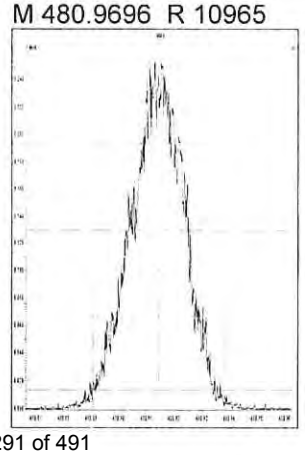

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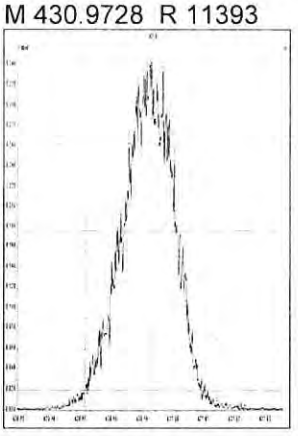

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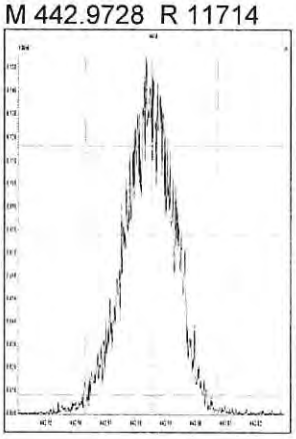

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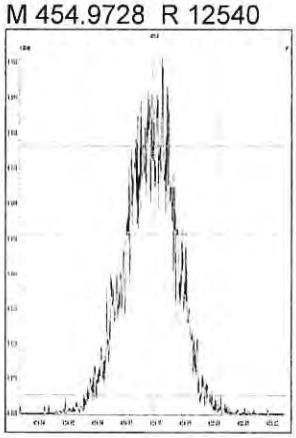

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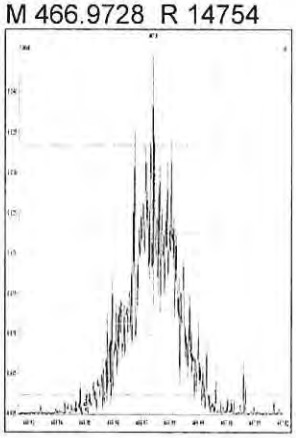

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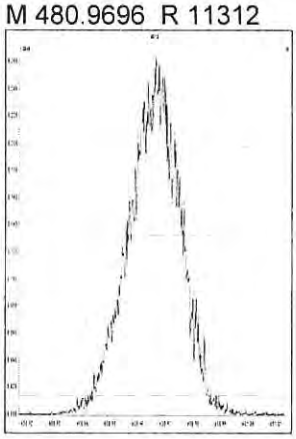

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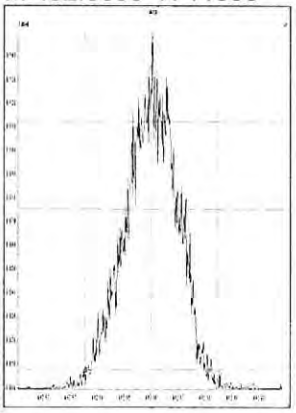

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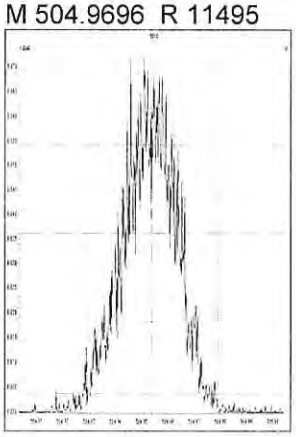

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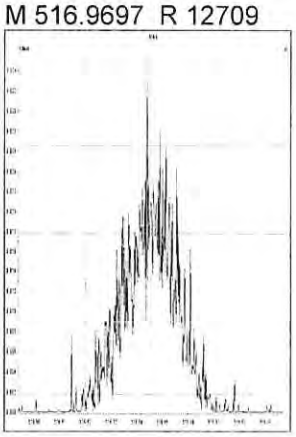

WINDOW DEFINING MIX SUMMARY

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WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519132
Date Analyzed: 2-DEC-2018
Time Analyzed: 04:33:24

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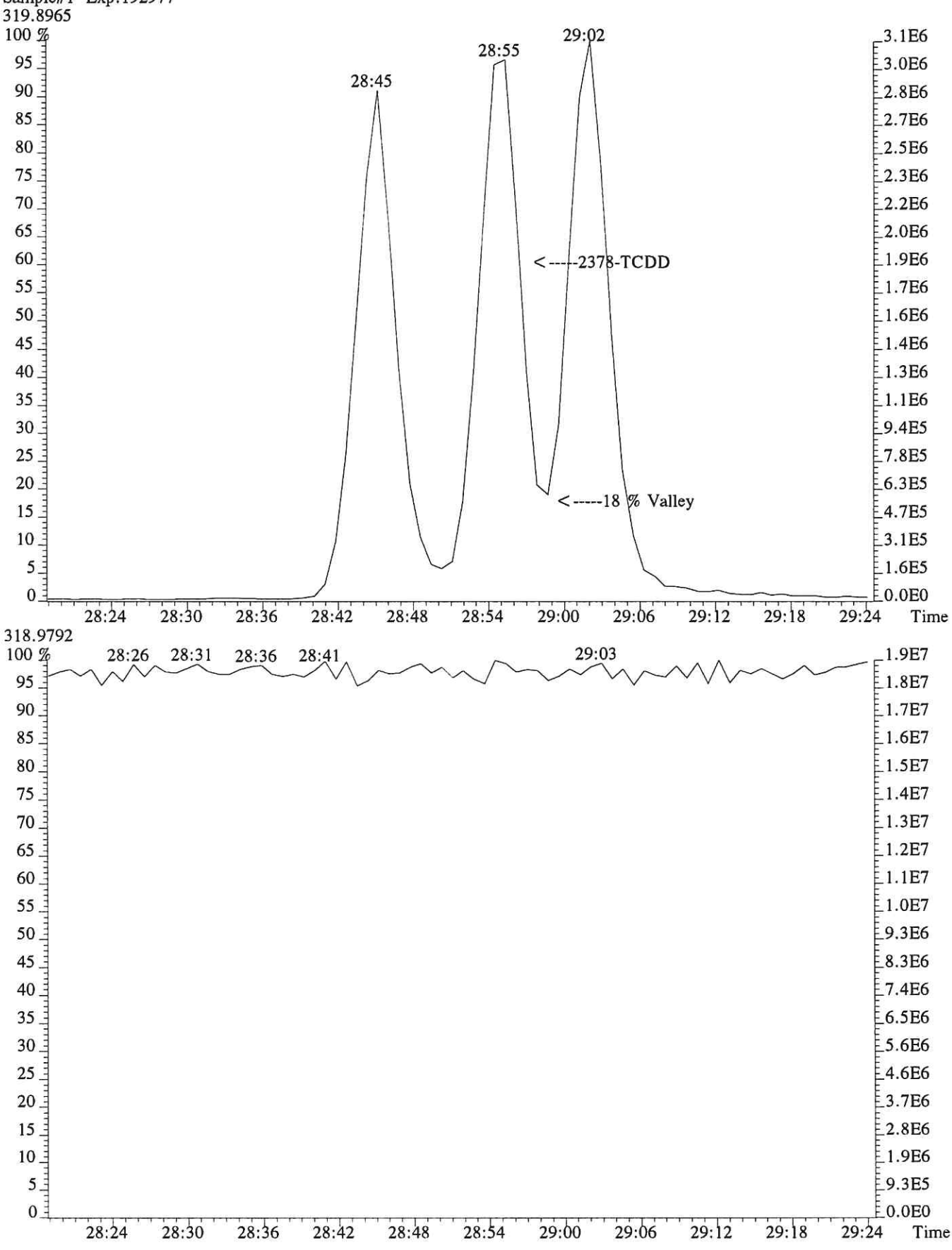
TCDF	23:45	30:04
TCDD	25:37	29:54
PeCDF	30:01	34:15
PeCDD	31:33	34:00
HxCDF	34:55	37:25
HxCDD	35:26	37:01
HpCDF	38:39	40:04
HpCDD	38:54	39:35

% Valley 2378-TCDD: 18 %

File:P519132 #1-538 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977



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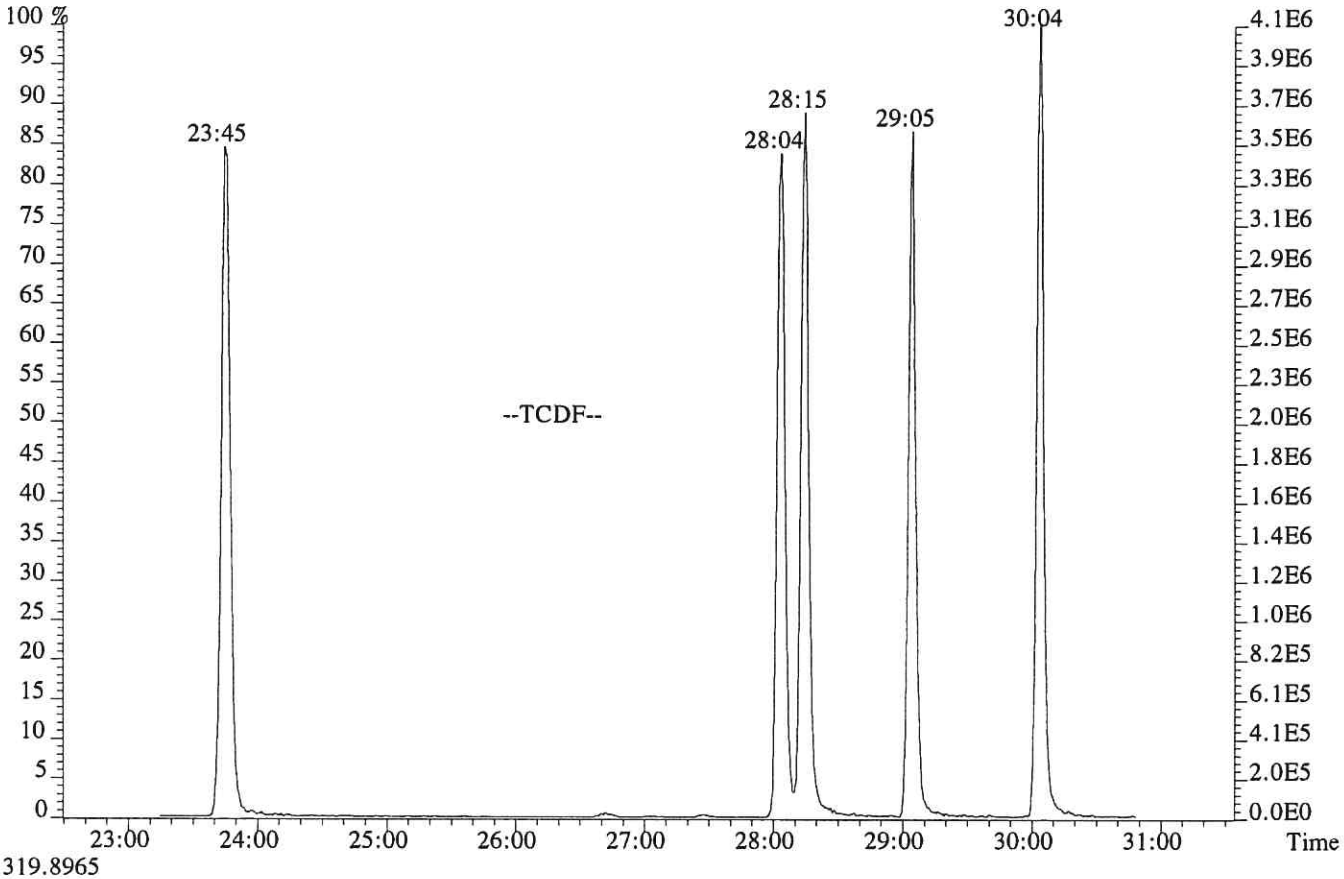
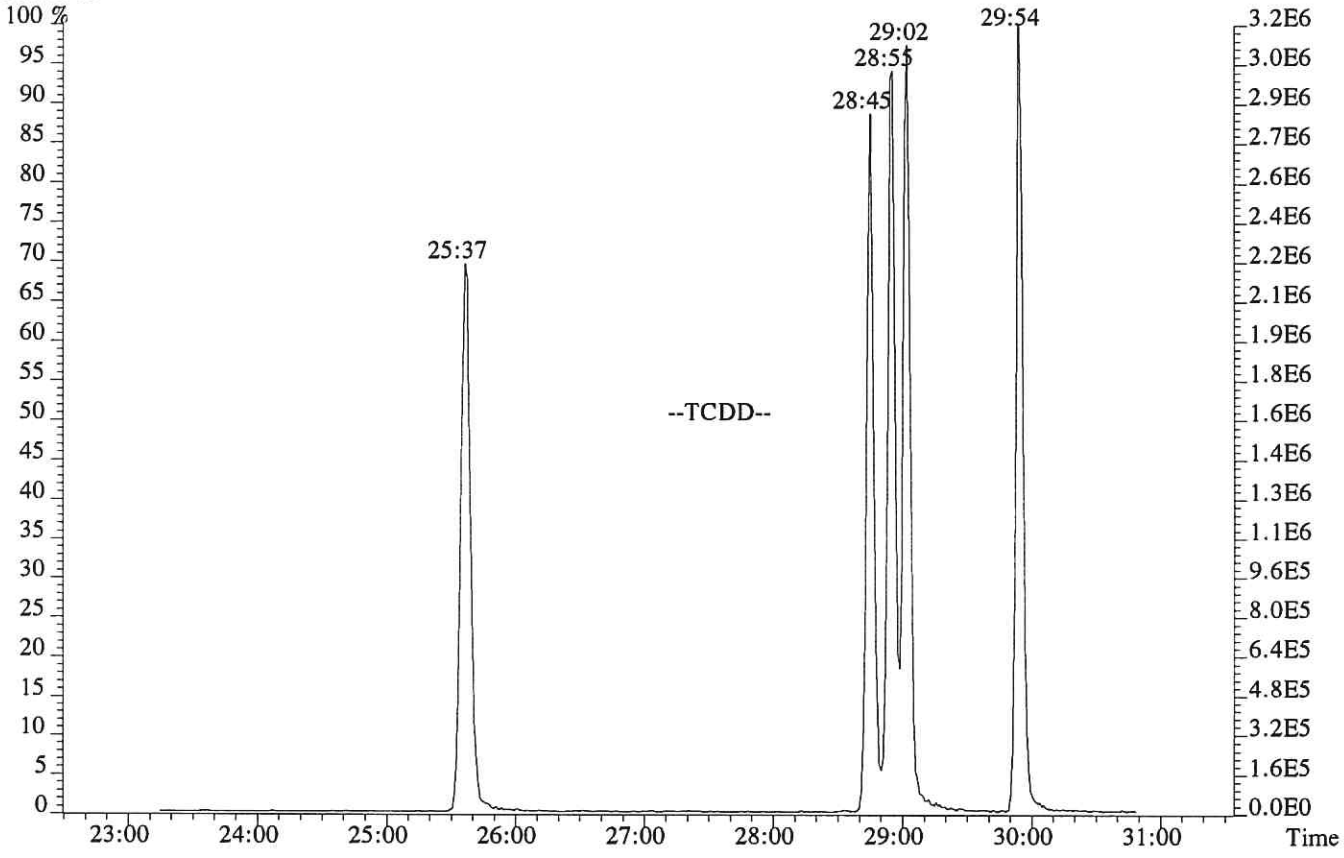
Sample#1 Exp:192977

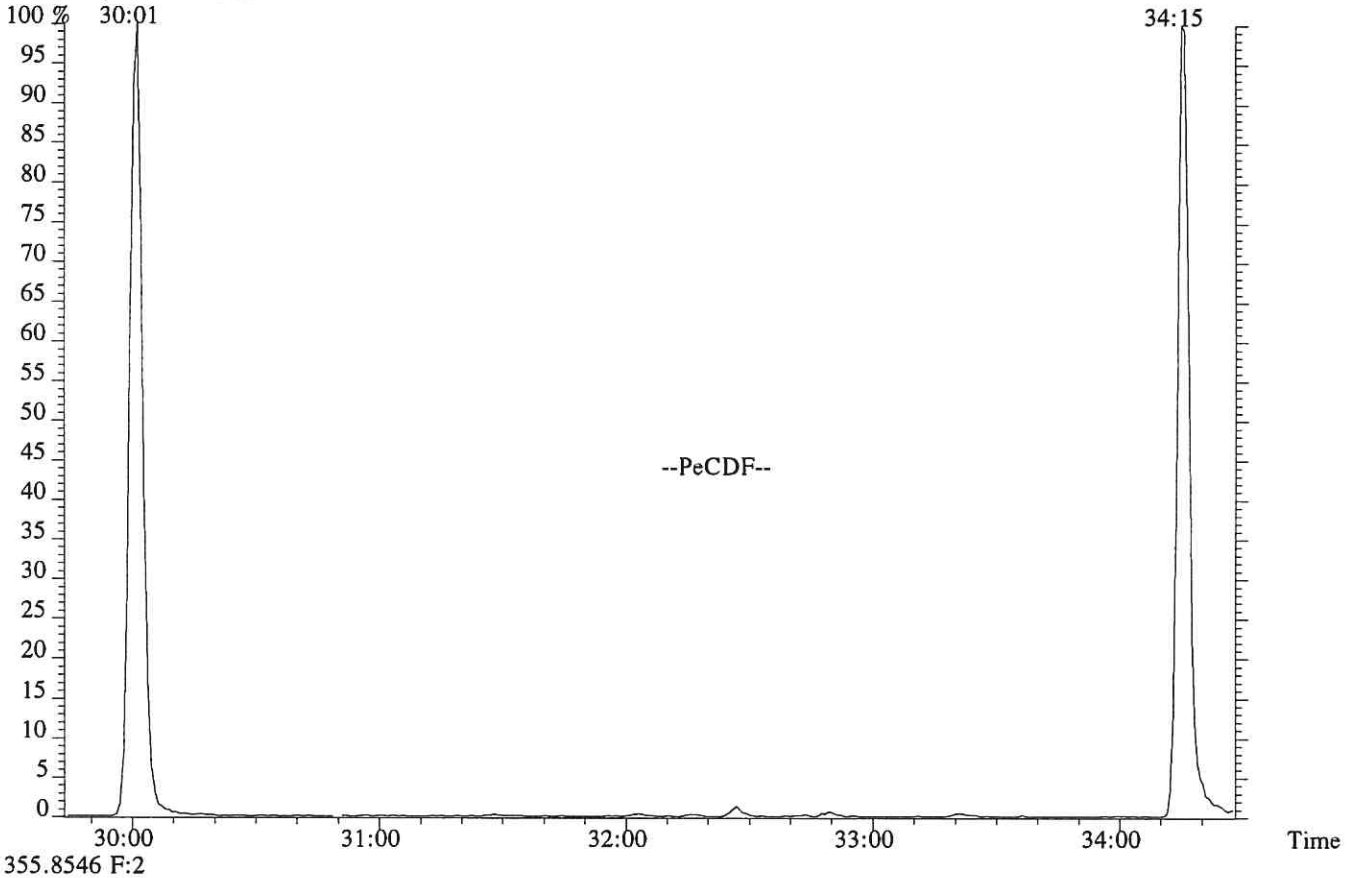
303.9016



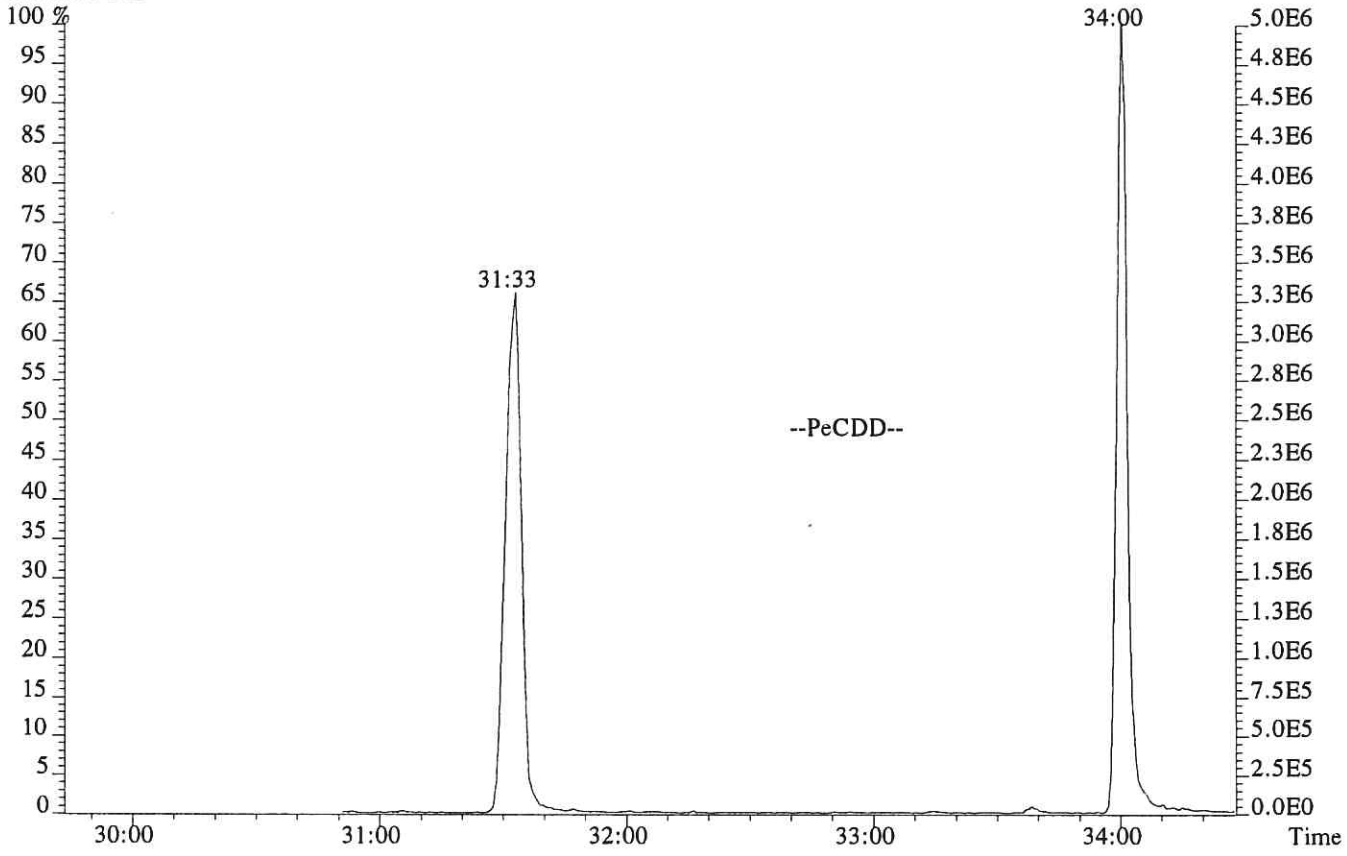
319.8965



File:P519132 #1-538 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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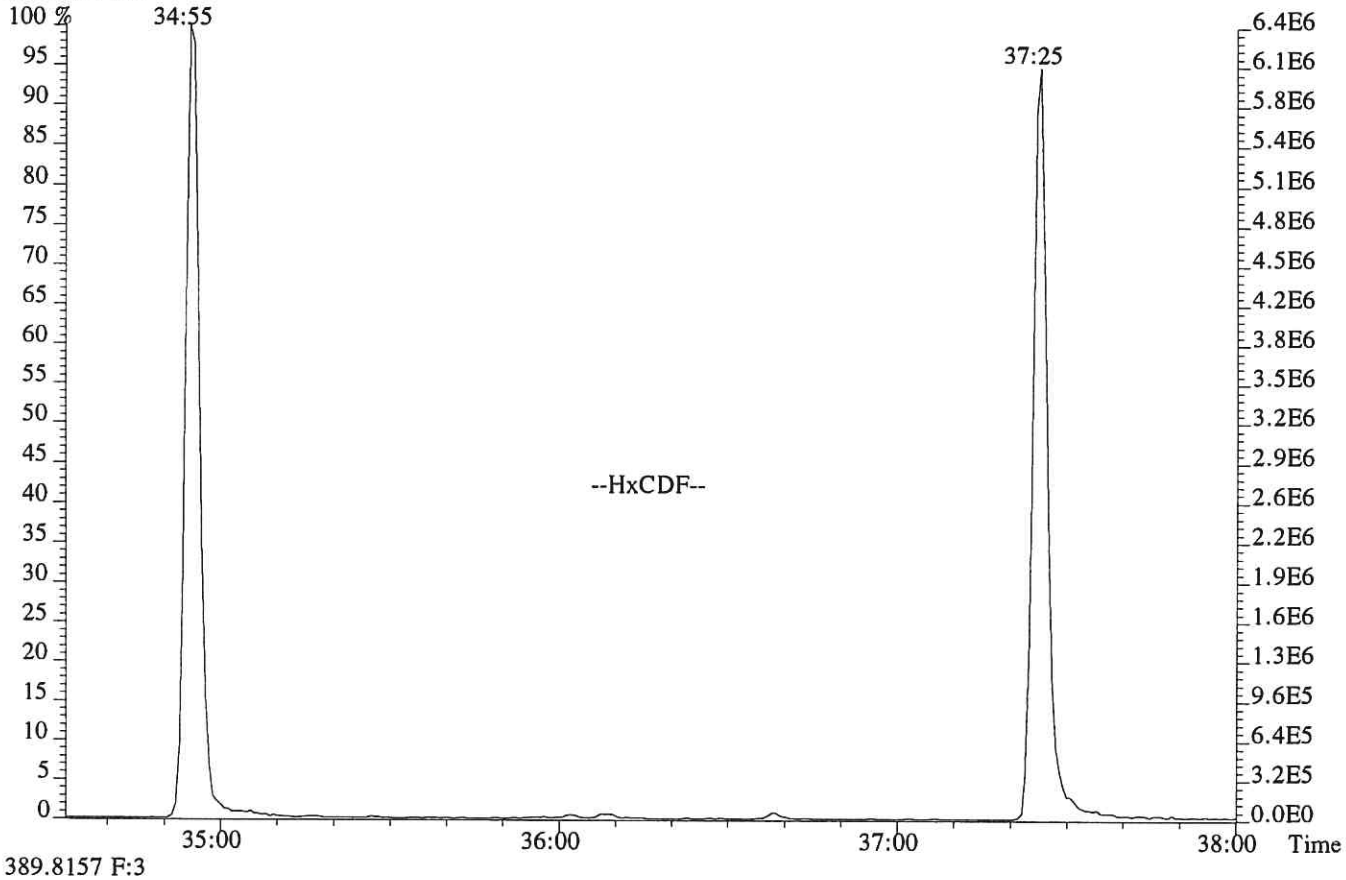
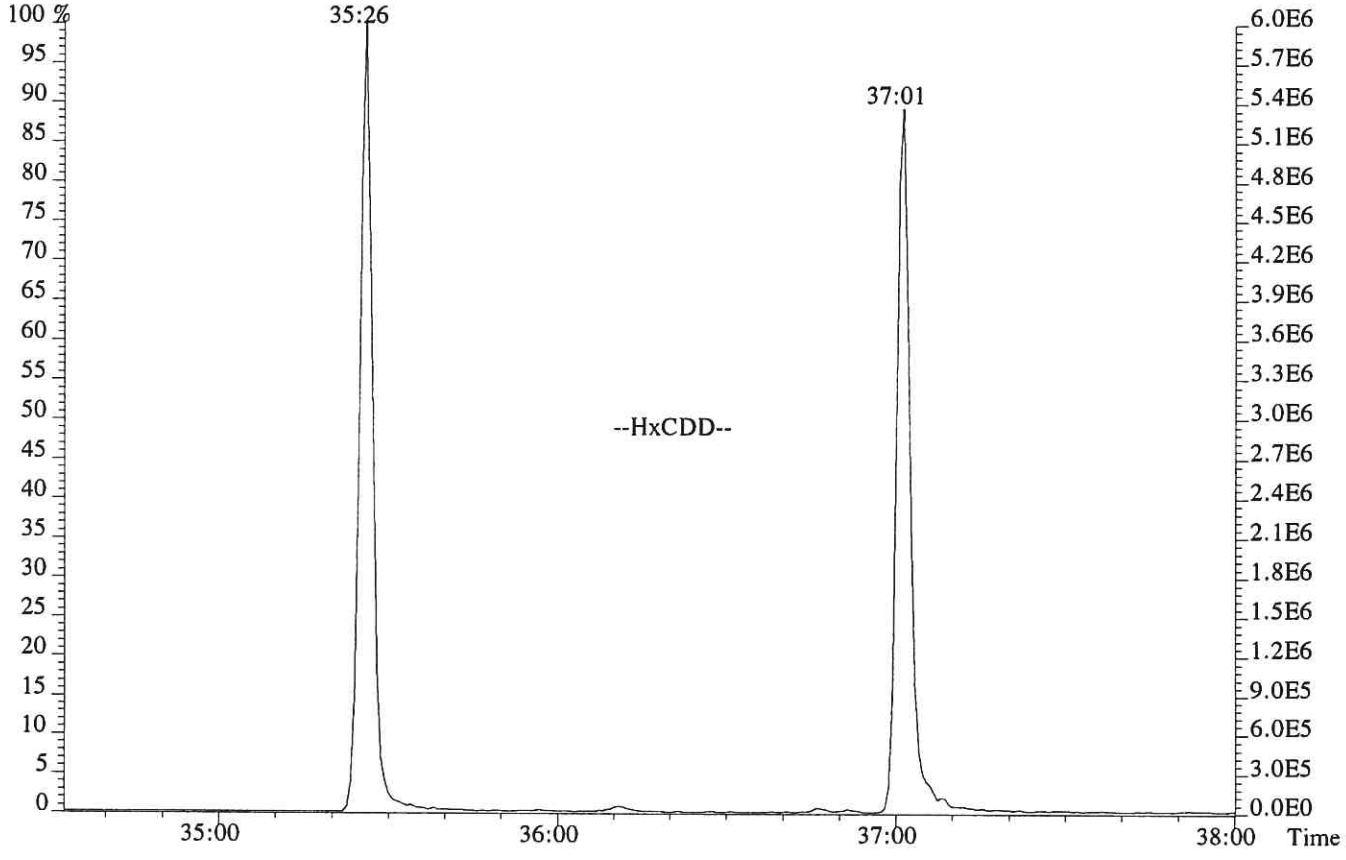
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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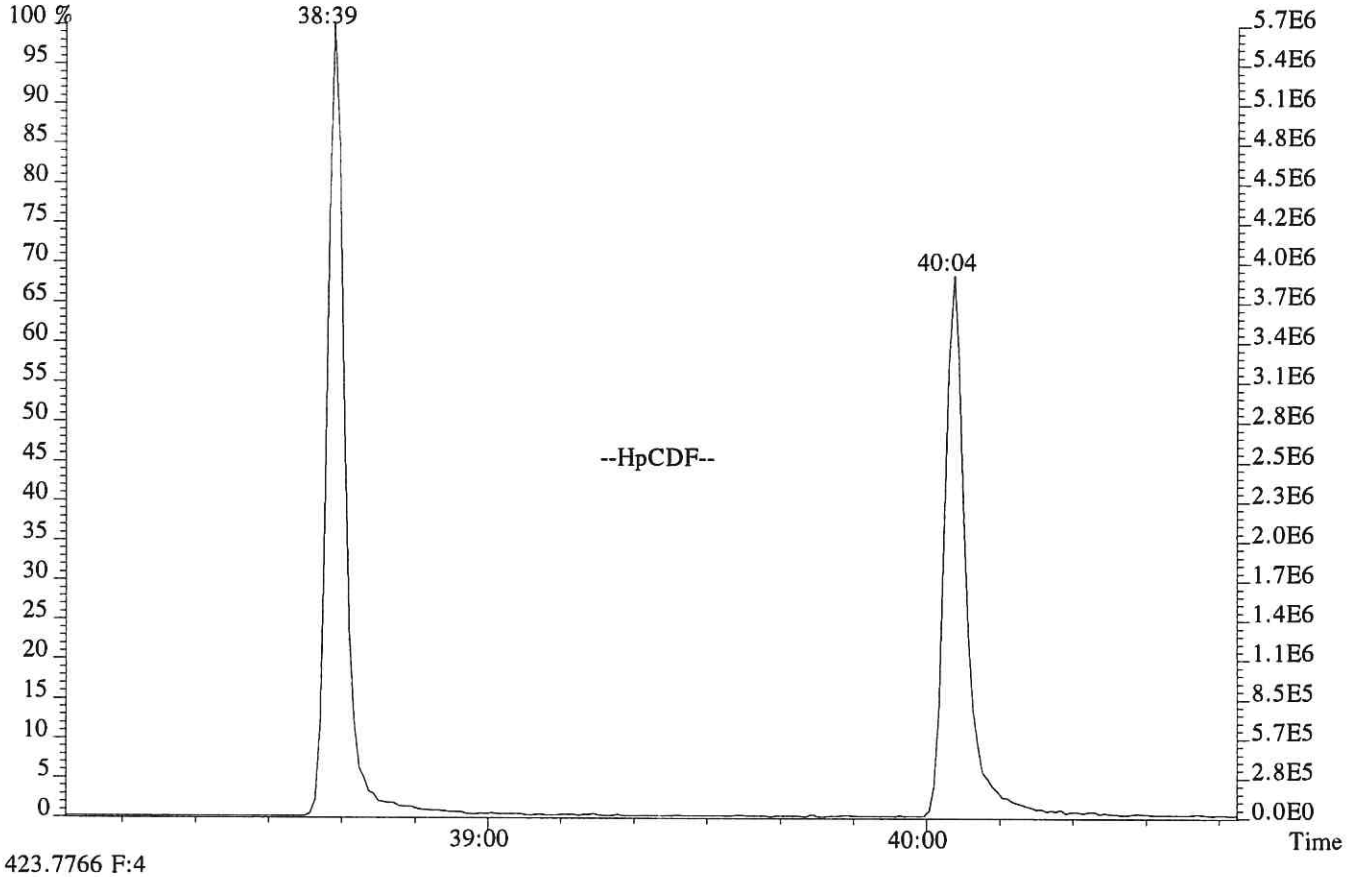
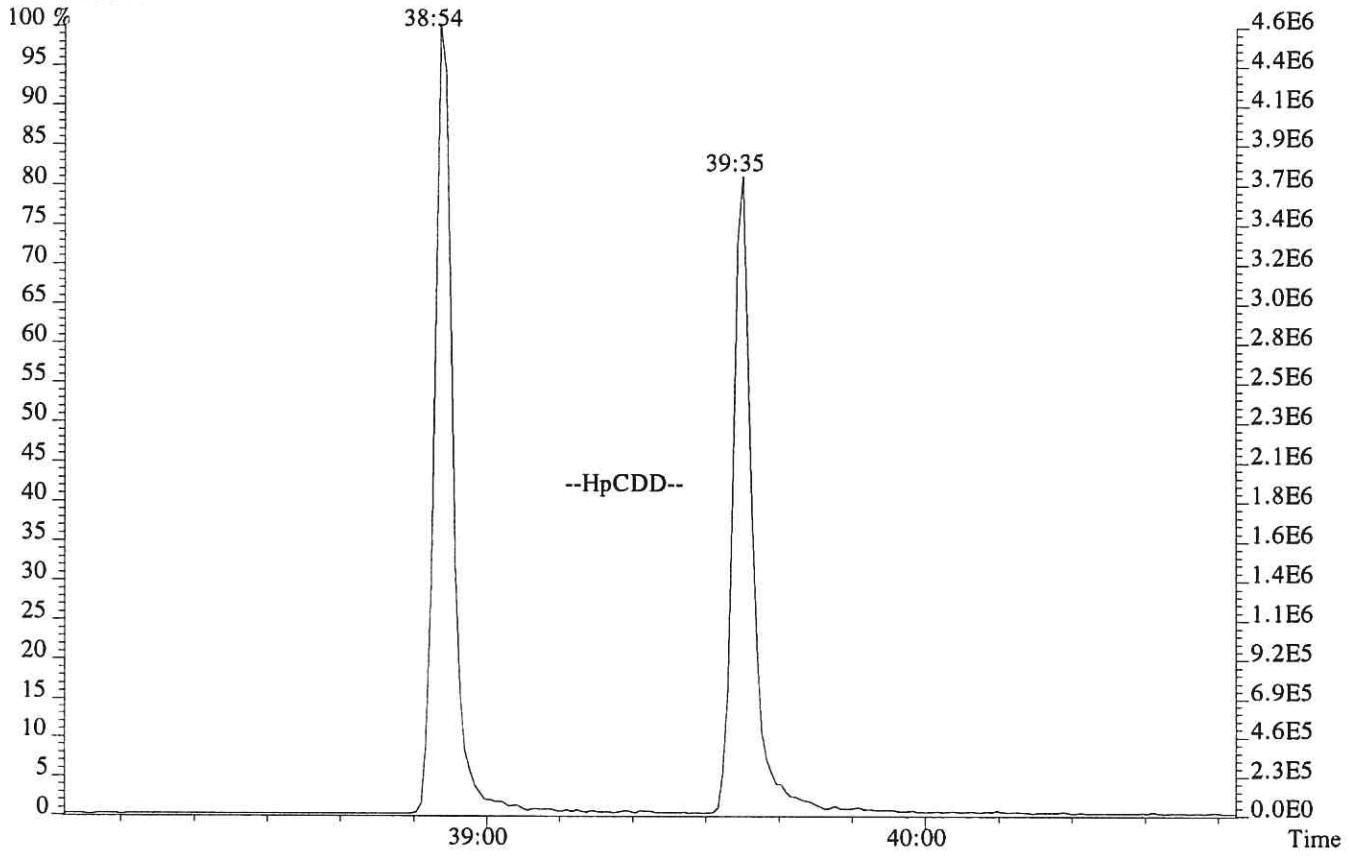
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.2	7.8 - 12.9	-8.2
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	1.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-1.8
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.4	8.4 - 12.0	-5.9
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 60	-2.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 61	-2.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	49	45 - 56	-2.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	49	44 - 57	-2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-2.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	92	63 - 159	-8.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	6.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	110	62 - 160	9.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	93	85 - 117	-6.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 118	-1.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	95	72 - 138	-4.5
13C-OCDD	M+2/M+4	0.90	0.76-1.02	176	96 - 415	-11.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	100	76 - 130	0.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	1.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	76 - 131	-14.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	70 - 143	-10.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	94	74 - 135	-5.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	93	73 - 137	-7.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	89	78 - 129	-11.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-11.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.1	7.8 - 12.7	1.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	9.114e+03	1.228e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	7.652e+04	5.000e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	7.288e+04	4.760e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	6.524e+04	5.256e+04	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.863e+04	5.820e+04	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	6.353e+04	5.329e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	5.837e+04	4.776e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.256e+04	5.202e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	4.159e+04	4.168e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:37	5.570e+04	6.280e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	7.411e+03	9.578e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	5.254e+04	3.365e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	4.502e+04	3.621e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	4.884e+04	3.942e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	4.995e+04	4.009e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.902e+04	3.720e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:24	4.923e+04	5.554e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	1.063e+05	1.350e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	1.568e+05	9.968e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	1.573e+05	9.980e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	6.753e+04	1.289e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	7.935e+04	1.518e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	7.340e+04	1.427e+05	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.478e+04	1.250e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.915e+04	1.100e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.162e+04	9.290e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	7.546e+04	9.506e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	1.135e+05	7.219e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	8.864e+04	7.082e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	9.671e+04	7.669e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	7.710e+04	7.436e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:23	9.016e+04	9.972e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	7.713e+04	9.656e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	1.012e+05	8.379e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.783e+04				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.68e+06	4.92e+02	3.4e+03	2.29e+06	9.16e+02	2.5e+03
2	1,2,3,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.25e+06	1.07e+03	8.7e+03
3	2,3,4,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.24e+06	1.07e+03	8.7e+03
4	1,2,3,4,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.13e+07	4.80e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+07	3.36e+02	4.2e+04	1.18e+07	4.80e+02	2.5e+04
6	2,3,4,6,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.15e+07	4.80e+02	2.4e+04
7	1,2,3,7,8,9-HxCDF	1.17e+07	3.36e+02	3.5e+04	9.65e+06	4.80e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.09e+07	6.86e+03	1.6e+03	1.08e+07	4.81e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	7.62e+06	6.86e+03	1.1e+03	7.58e+06	4.81e+03	1.6e+03
10	OCDF	8.50e+06	3.32e+02	2.6e+04	9.67e+06	4.20e+02	2.3e+04
11	2,3,7,8-TCDD	1.45e+06	1.42e+03	1.0e+03	1.93e+06	6.96e+02	2.8e+03
12	1,2,3,7,8-PeCDD	1.03e+07	6.96e+02	1.5e+04	6.45e+06	1.72e+02	3.8e+04
13	1,2,3,4,7,8-HxCDD	9.89e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
14	1,2,3,6,7,8-HxCDD	9.96e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
15	1,2,3,7,8,9-HxCDD	1.03e+07	3.80e+02	2.7e+04	8.22e+06	5.48e+02	1.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.50e+06	5.20e+02	1.4e+04	7.12e+06	5.08e+02	1.4e+04
17	OCDD	7.51e+06	2.60e+02	2.9e+04	8.49e+06	4.72e+02	1.8e+04
18	13C-2,3,7,8-TCDF	1.95e+07	3.97e+03	4.9e+03	2.45e+07	2.38e+03	1.0e+04
19	13C-1,2,3,7,8-PeCDF	2.87e+07	6.32e+02	4.5e+04	1.85e+07	4.28e+02	4.3e+04
20	13C-2,3,4,7,8-PeCDF	3.00e+07	6.32e+02	4.7e+04	1.92e+07	4.28e+02	4.5e+04
21	13C-1,2,3,4,7,8-HxCDF	1.45e+07	9.64e+02	1.5e+04	2.77e+07	9.16e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.61e+07	9.64e+02	1.7e+04	3.08e+07	9.16e+02	3.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.56e+07	9.64e+02	1.6e+04	3.04e+07	9.16e+02	3.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.29e+07	9.64e+02	1.3e+04	2.49e+07	9.16e+02	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	3.27e+03	3.1e+03	2.27e+07	6.58e+03	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.60e+06	3.27e+03	2.3e+03	1.67e+07	6.58e+03	2.5e+03
27	13C-2,3,7,8-TCDD	1.42e+07	3.70e+03	3.8e+03	1.80e+07	2.32e+03	7.8e+03
28	13C-1,2,3,7,8-PeCDD	2.21e+07	7.04e+02	3.1e+04	1.40e+07	8.04e+02	1.7e+04
29	13C-1,2,3,4,7,8-HxCDD	1.95e+07	1.10e+03	1.8e+04	1.56e+07	8.36e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	1.96e+07	1.10e+03	1.8e+04	1.57e+07	8.36e+02	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.47e+07	8.56e+02	1.7e+04	1.39e+07	3.32e+02	4.2e+04
32	13C-OCDD	1.36e+07	3.68e+02	3.7e+04	1.51e+07	2.84e+02	5.3e+04
33	13C-1,2,3,4-TCDD	1.49e+07	3.70e+03	4.0e+03	1.86e+07	2.32e+03	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	2.06e+07	1.10e+03	1.9e+04	1.64e+07	8.36e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	3.51e+06	1.64e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.420e+03 + 6.960e+02) \times 100}{(1.417e+07 + 1.799e+07) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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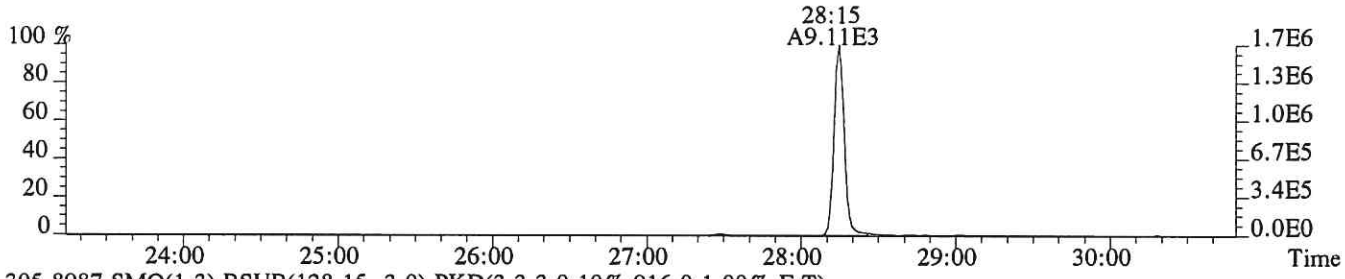
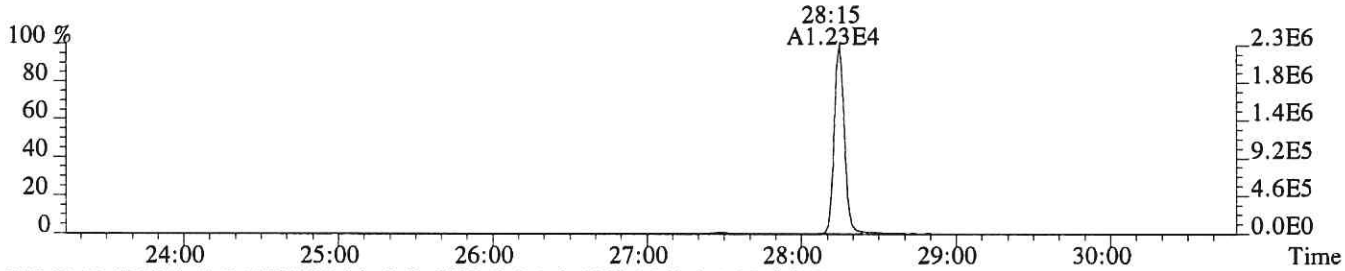
Office:(281)530-5656. Fax:(281)530-5887

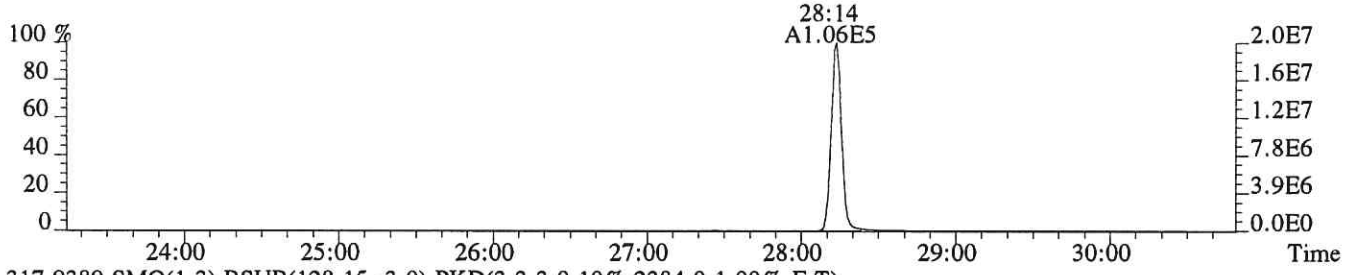
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



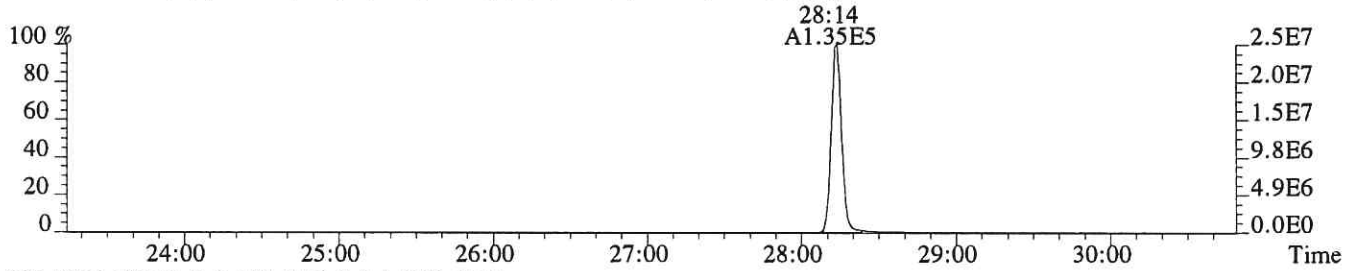
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



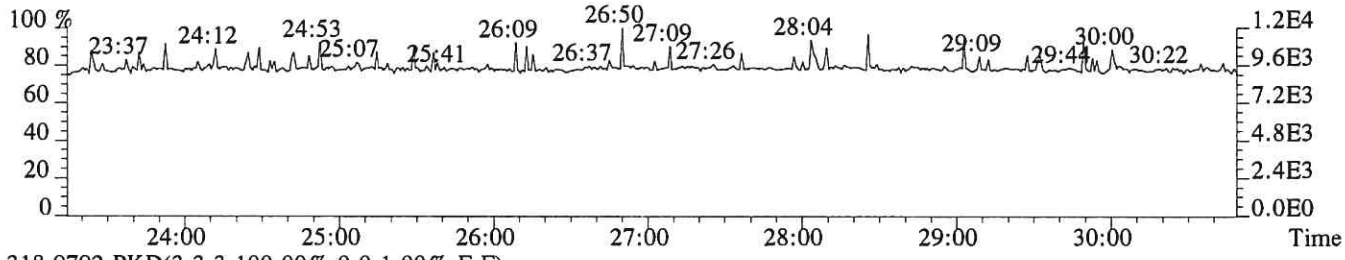
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3968.0,1.00%,F,T)



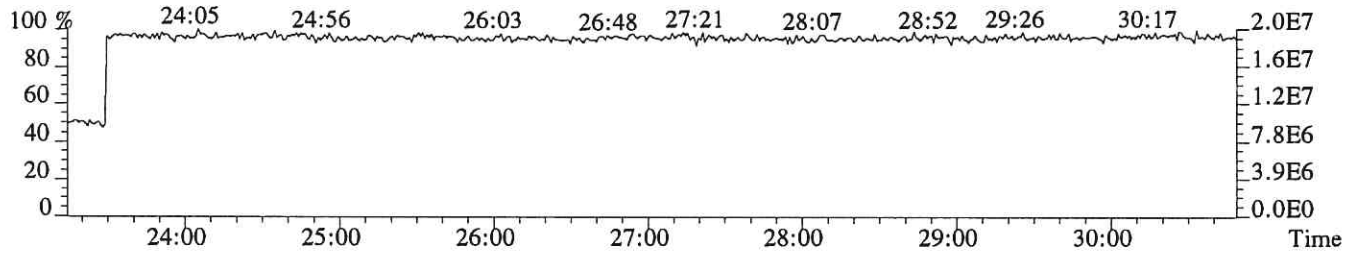
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2384.0,1.00%,F,T)



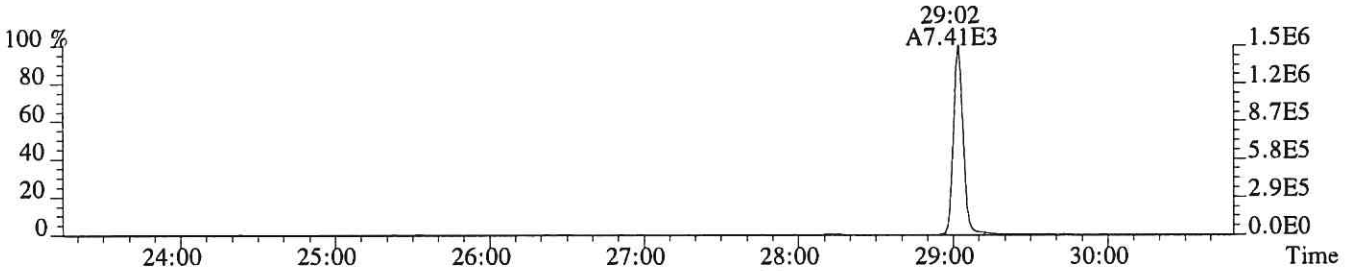
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



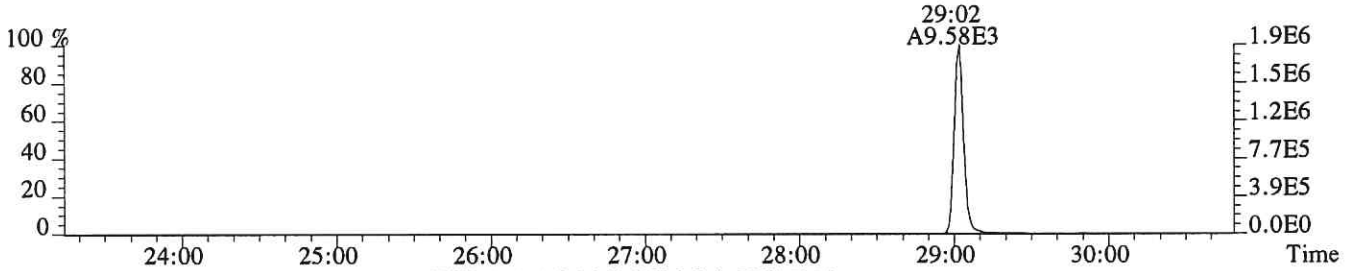
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



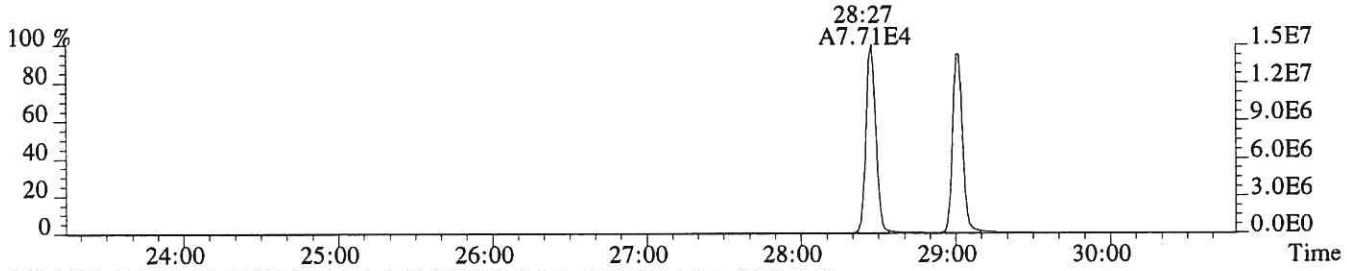
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



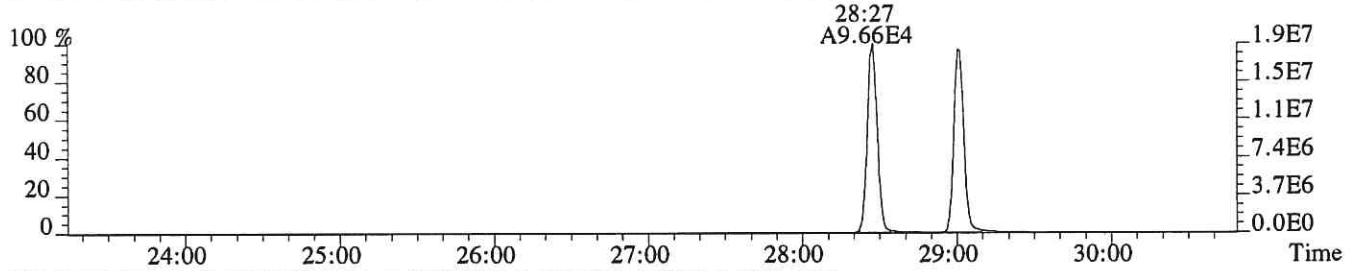
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



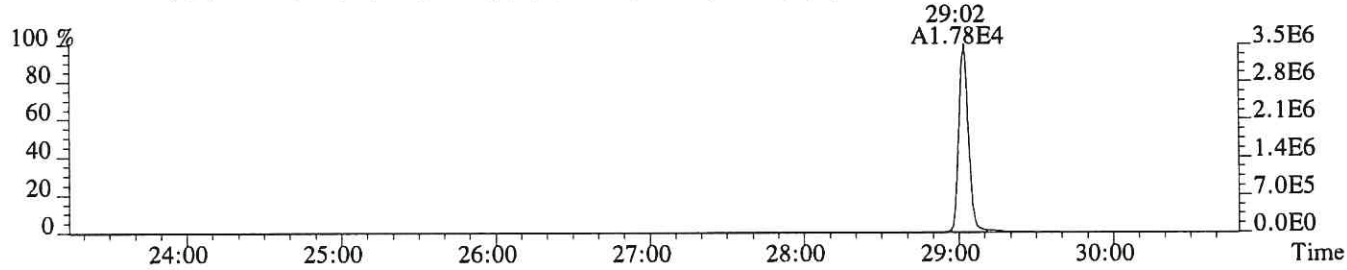
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3696.0,1.00%,F,T)



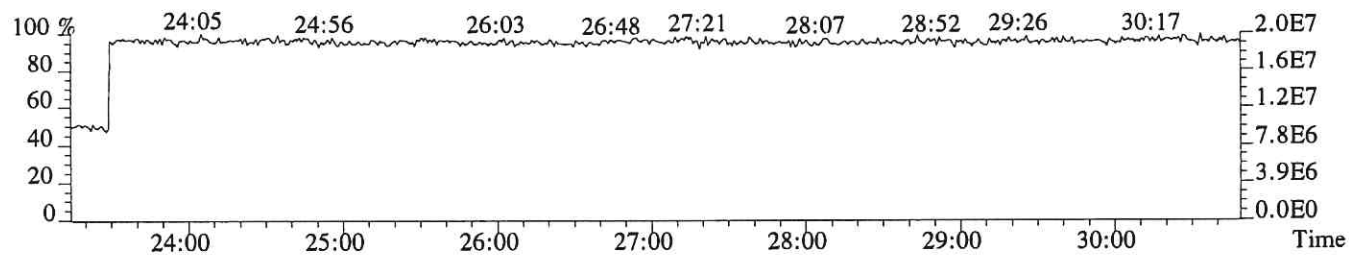
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



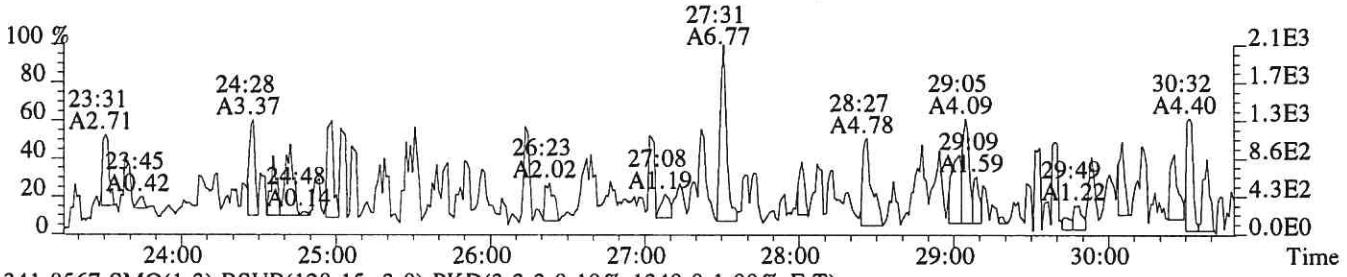
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



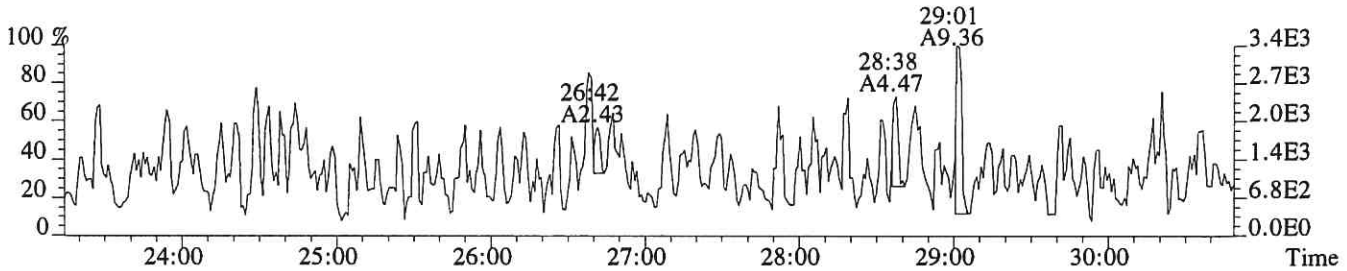
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



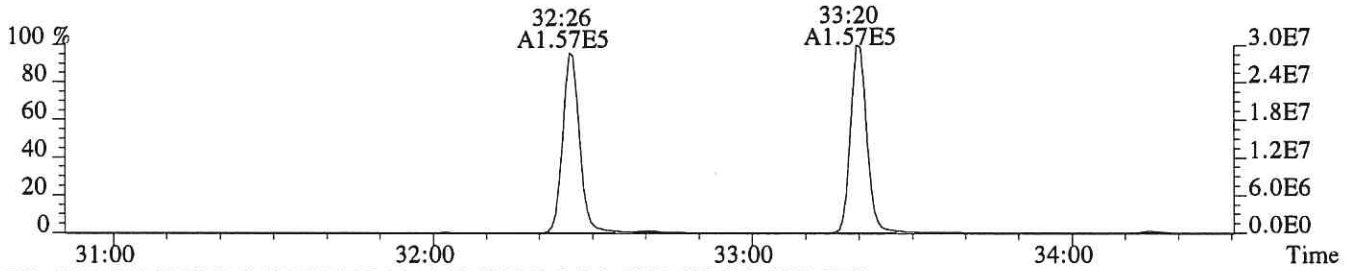
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



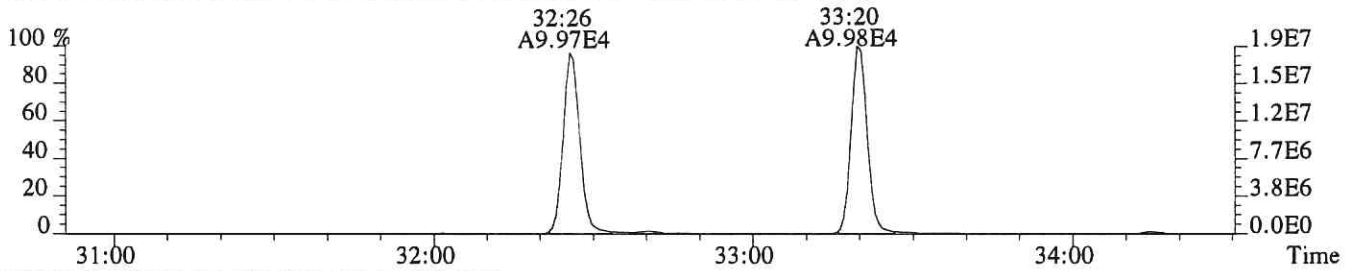
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



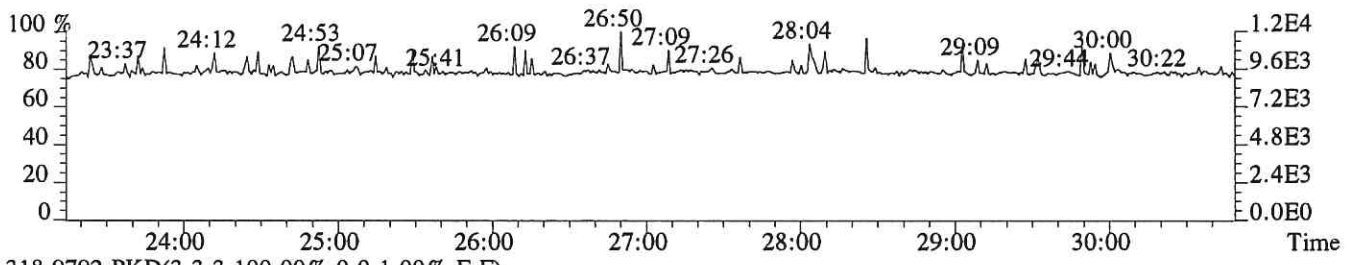
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



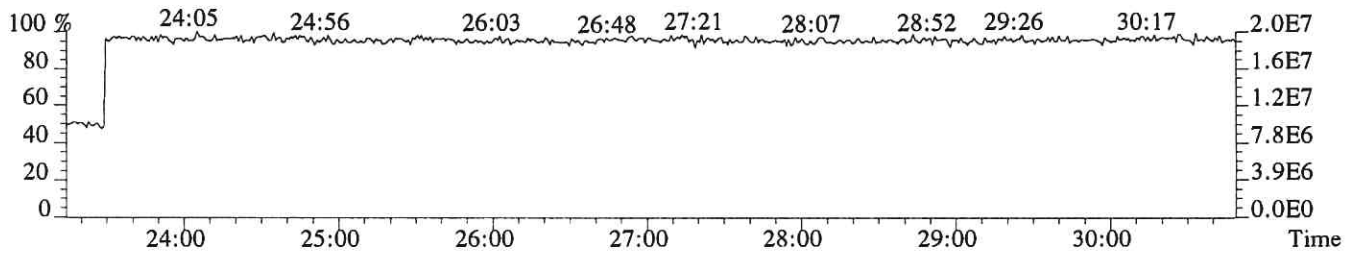
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



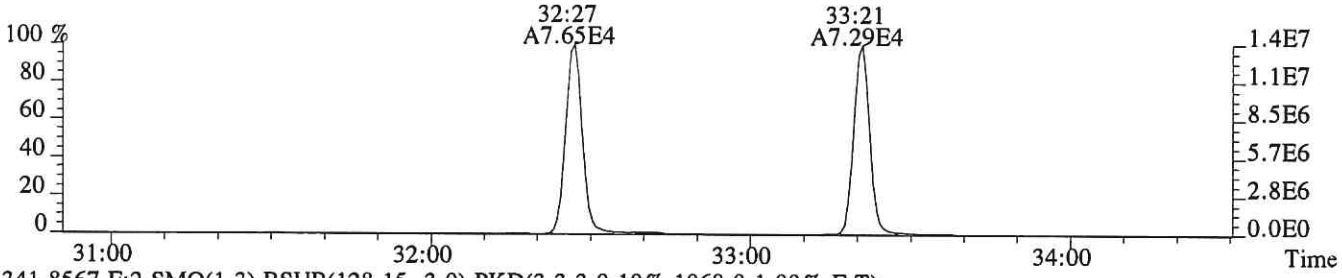
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



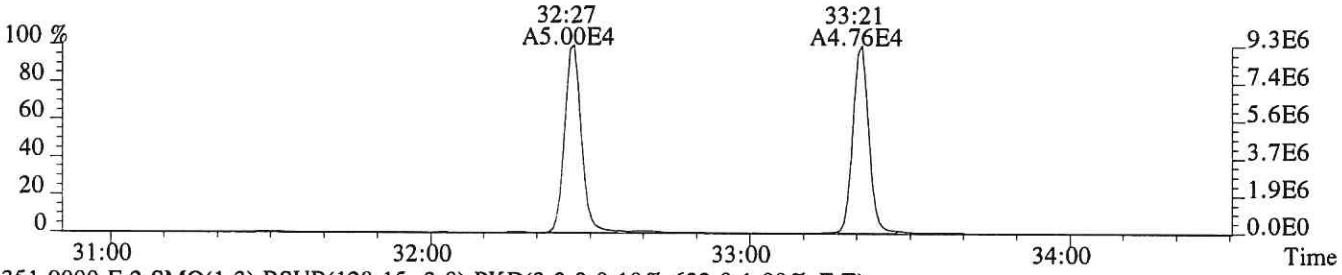
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



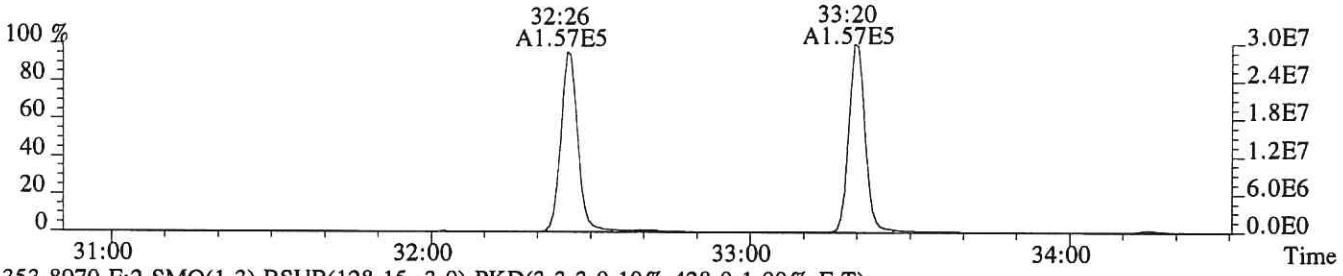
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



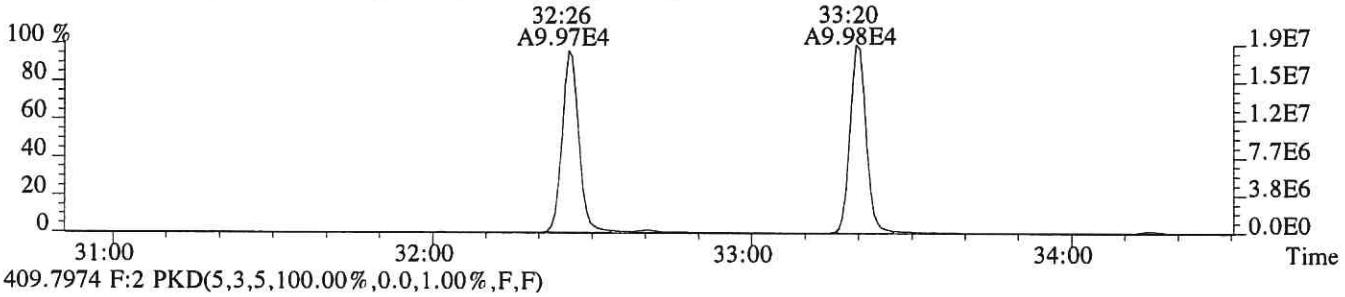
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



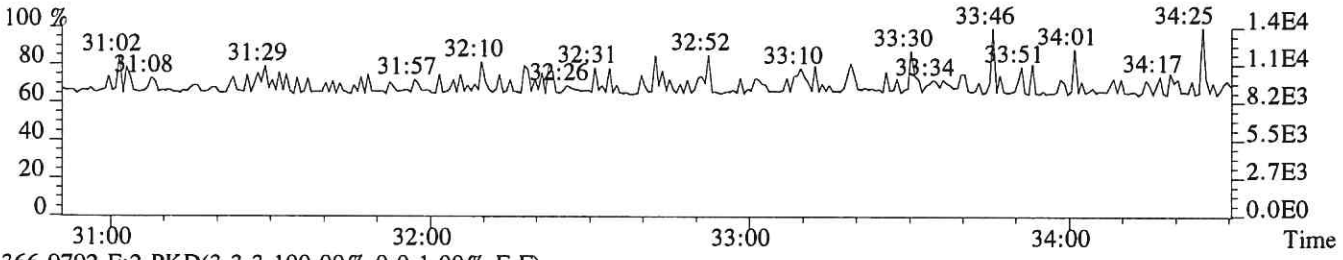
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



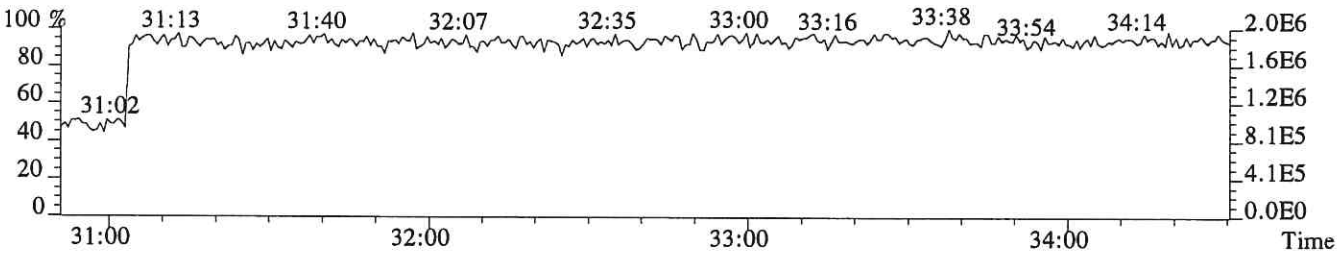
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



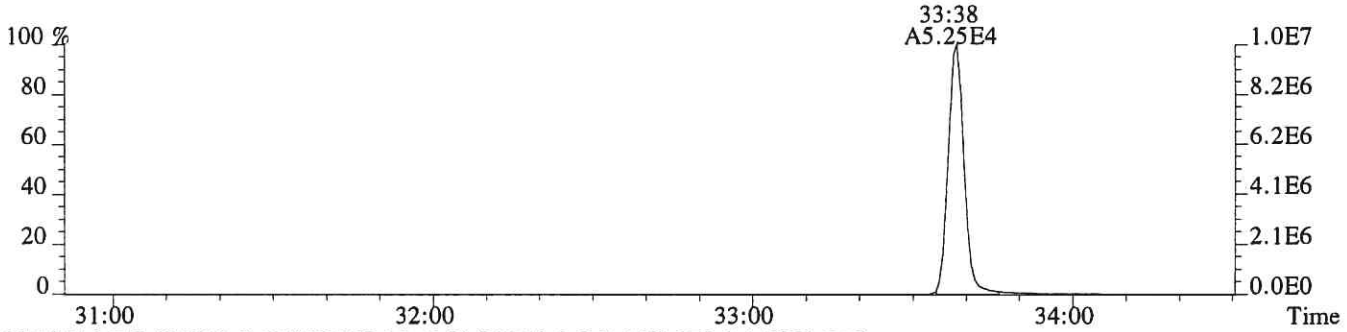
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



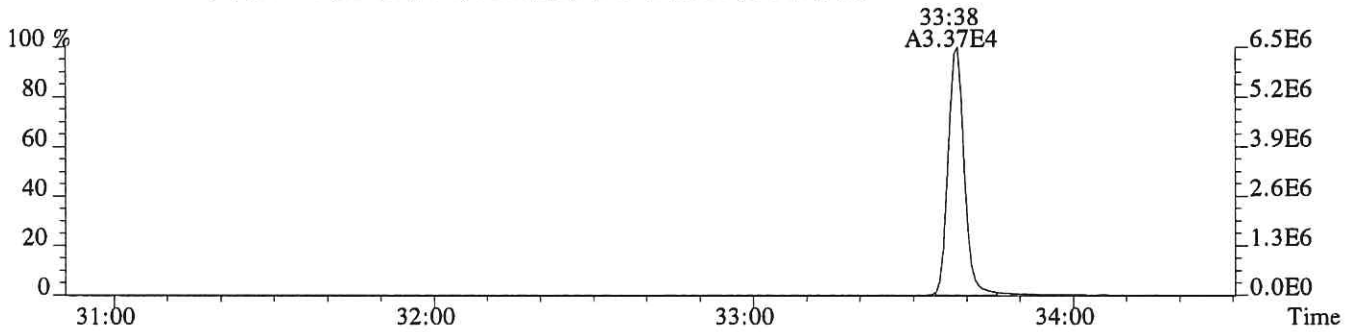
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



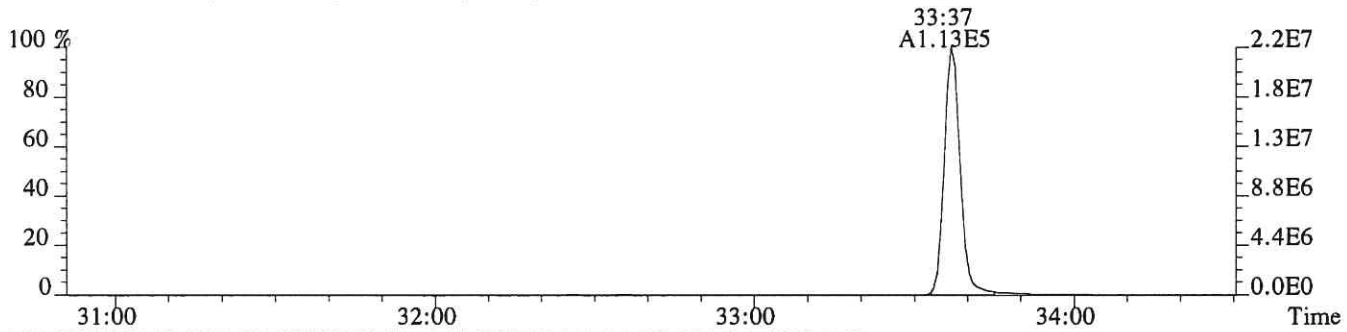
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



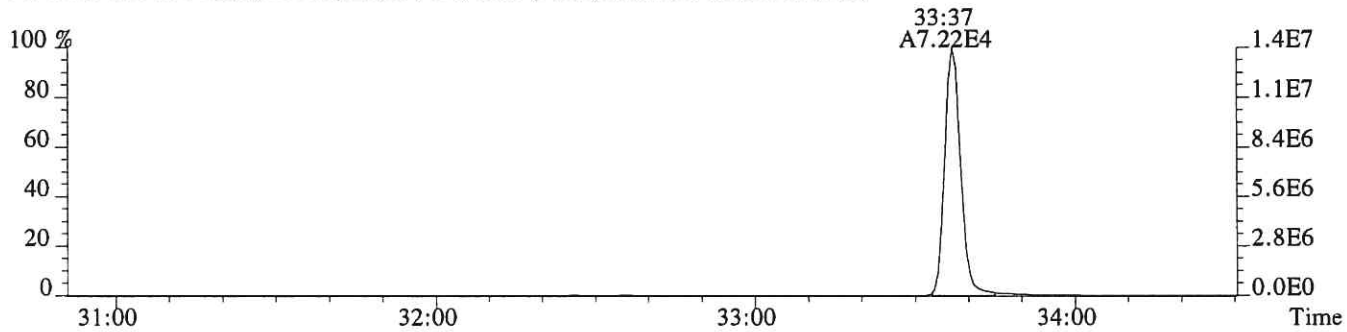
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



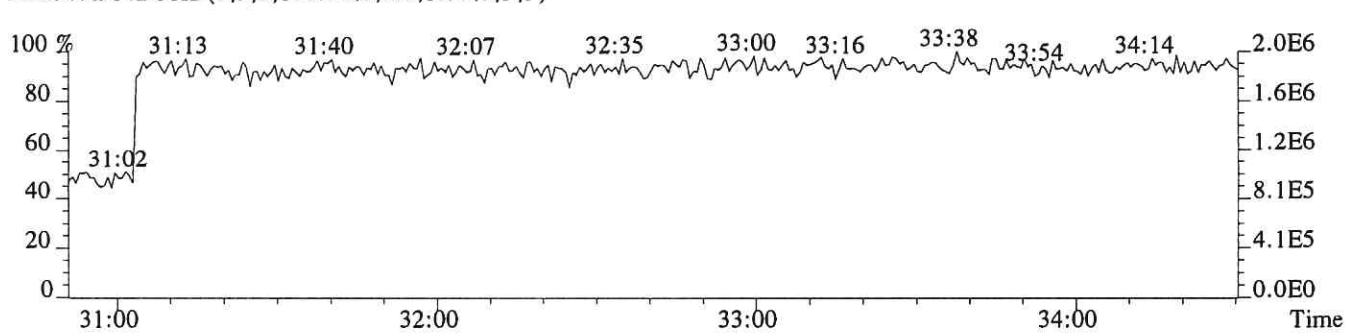
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

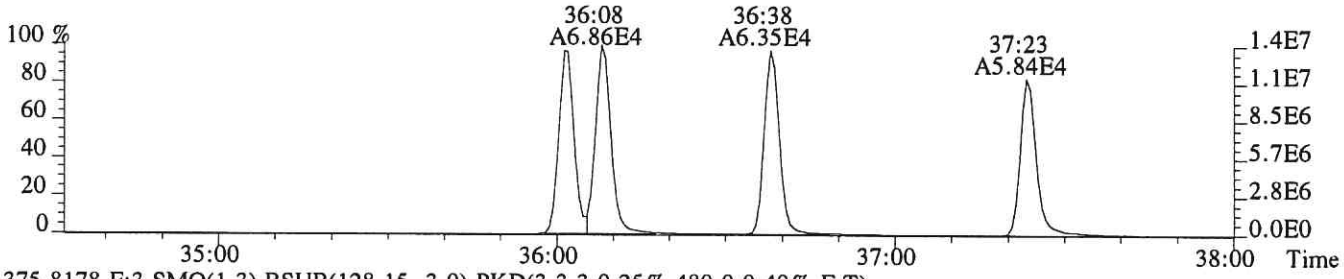


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

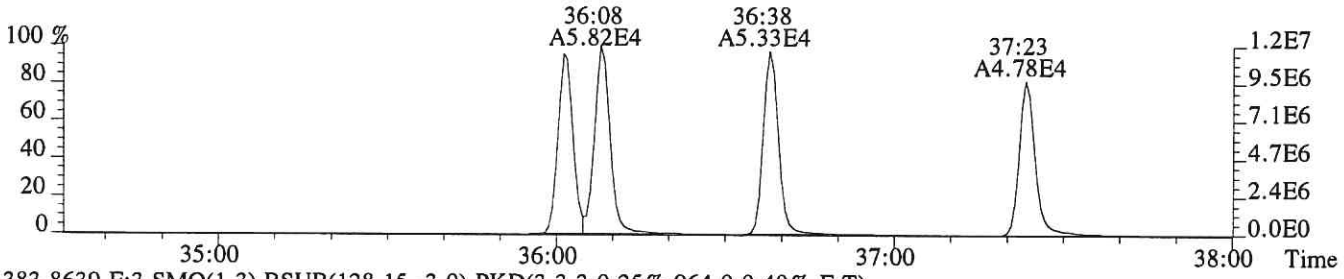


File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

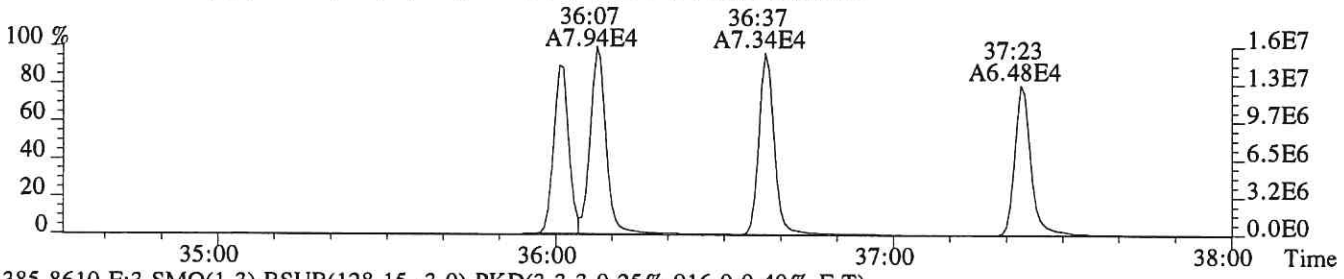
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



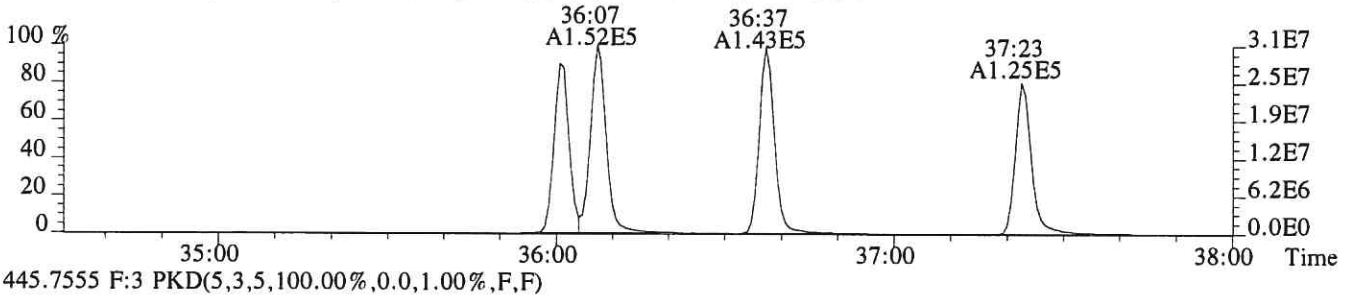
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



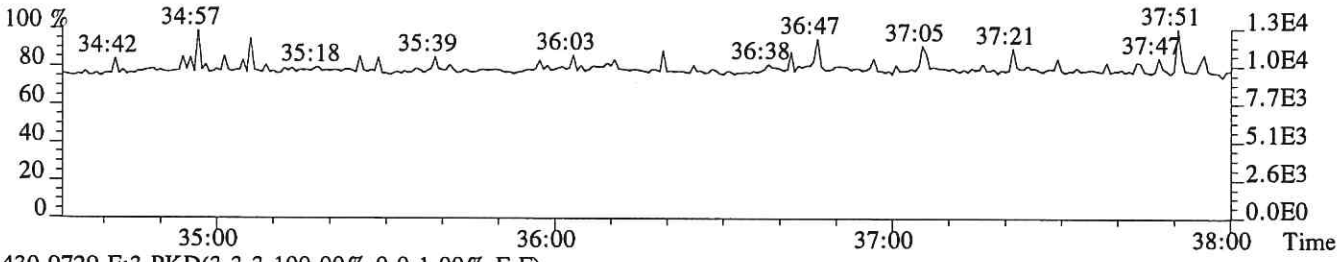
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



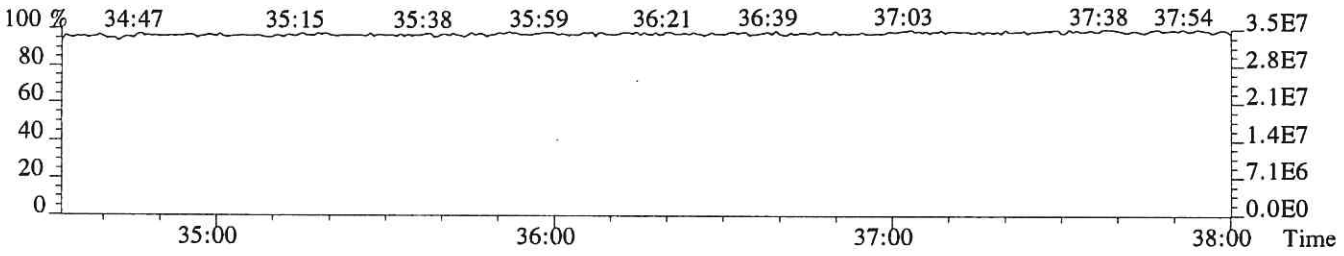
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



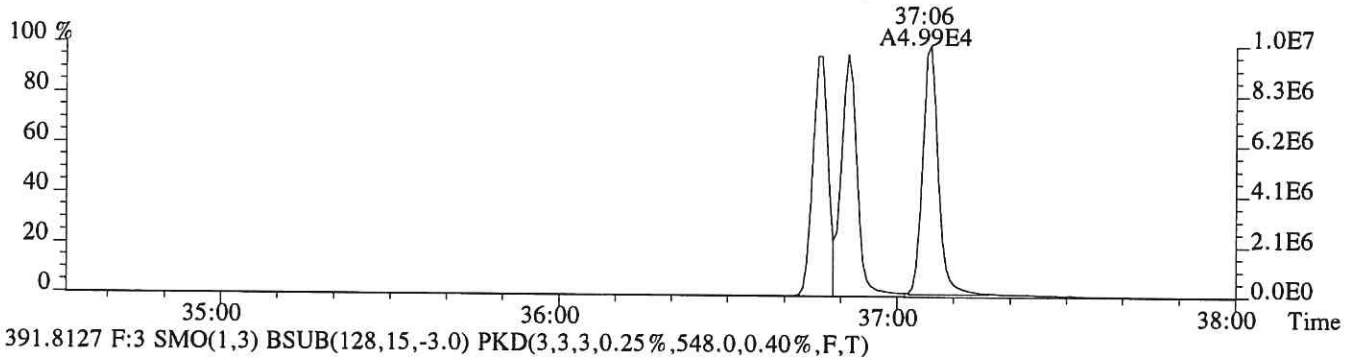
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



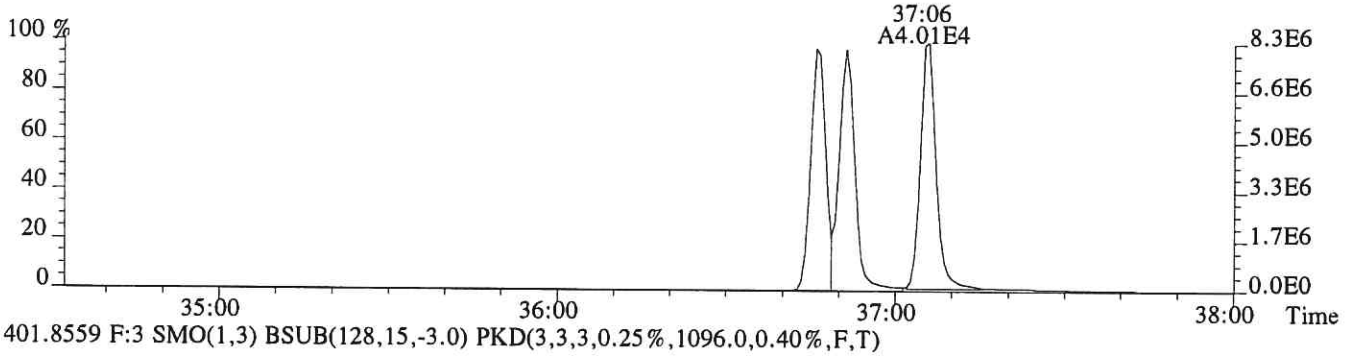
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



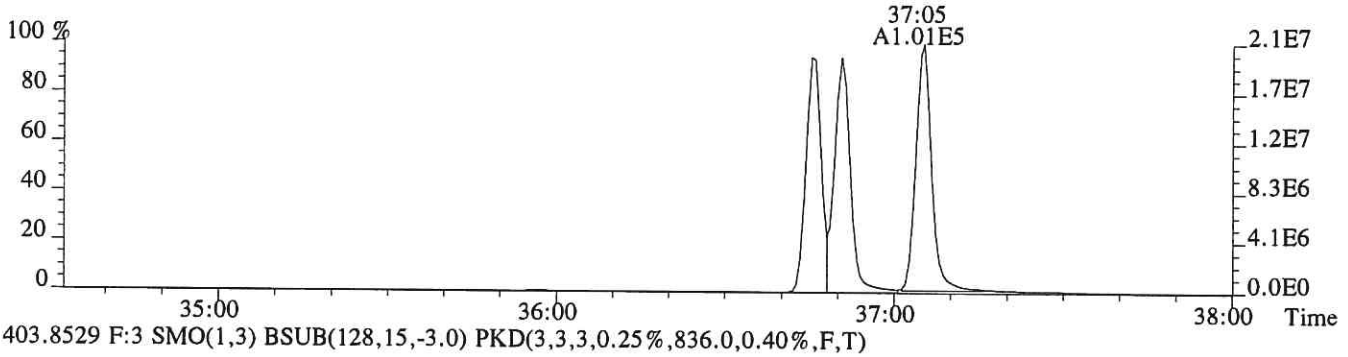
File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



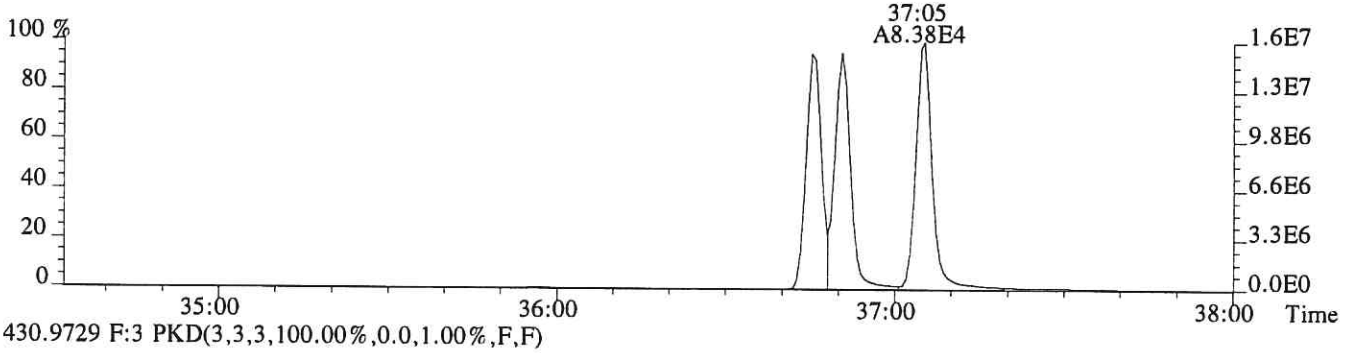
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



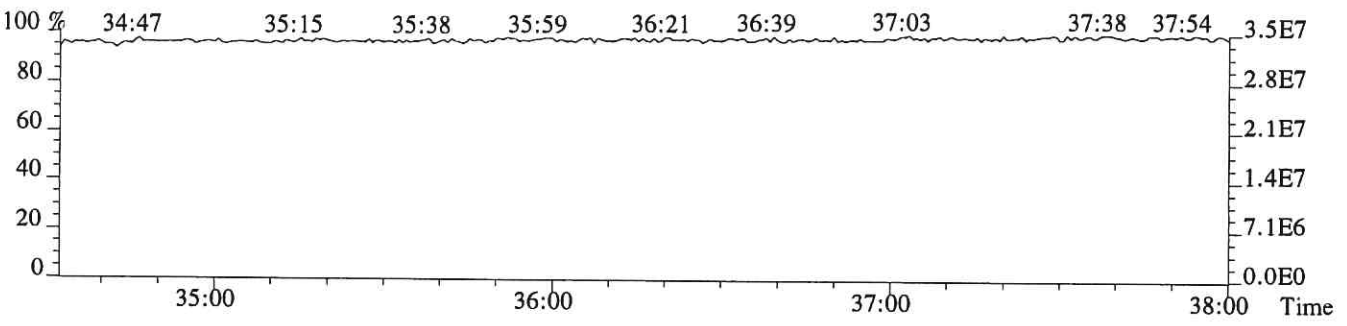
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)

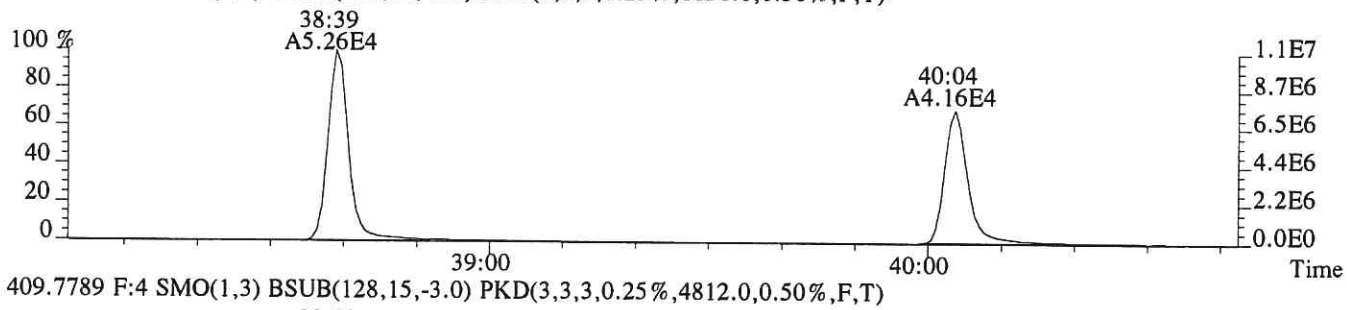


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

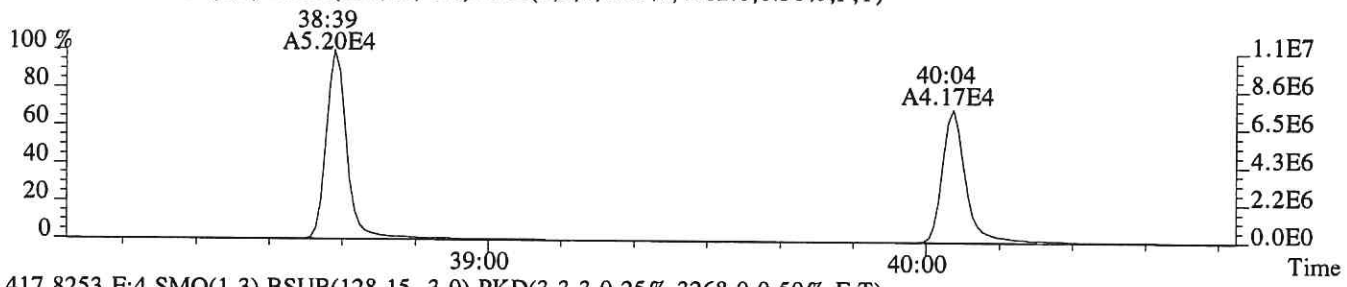


File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

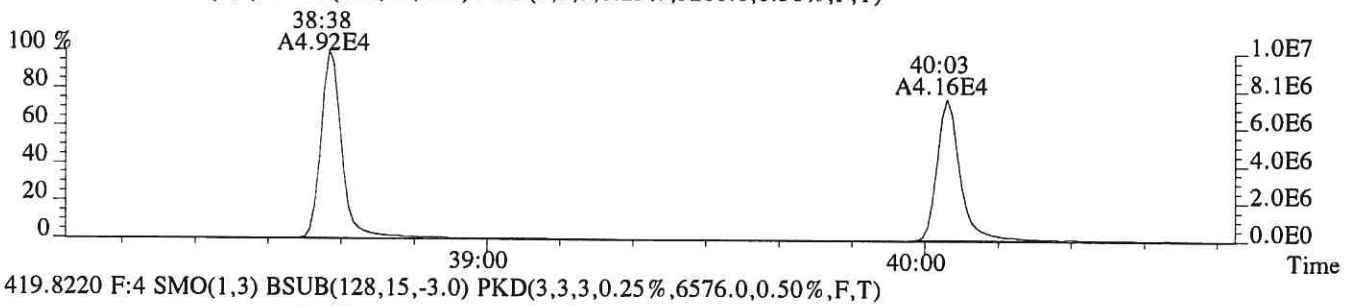
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6856.0,0.50%,F,T)



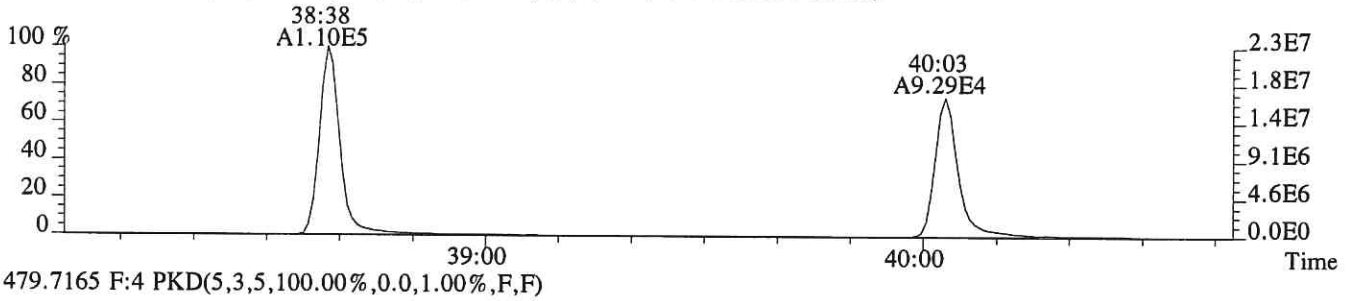
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4812.0,0.50%,F,T)



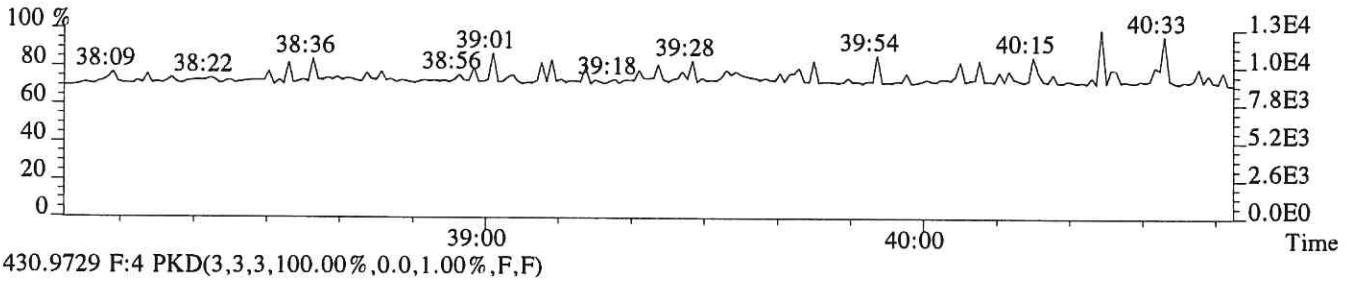
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3268.0,0.50%,F,T)



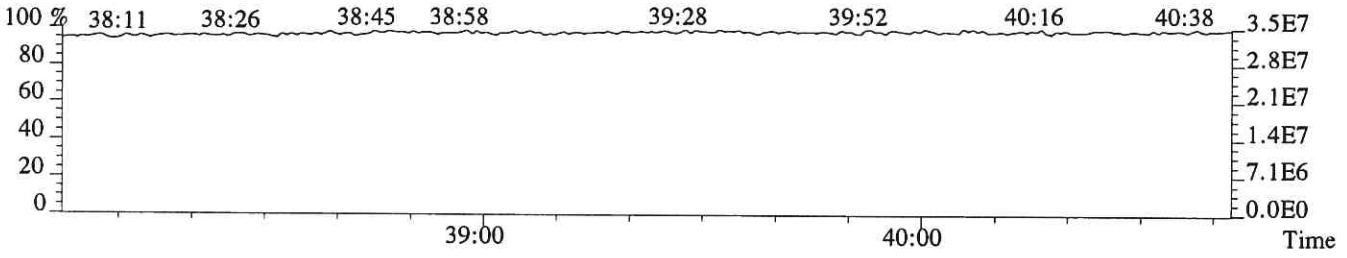
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6576.0,0.50%,F,T)



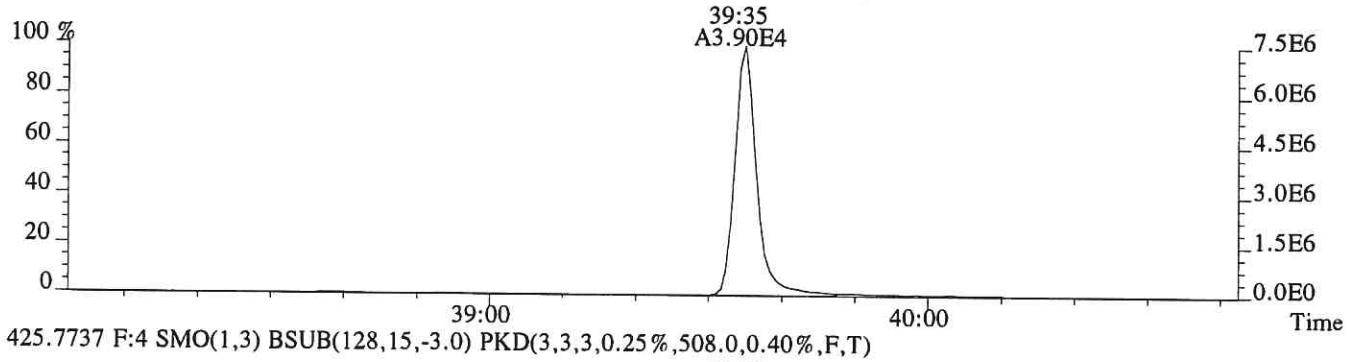
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



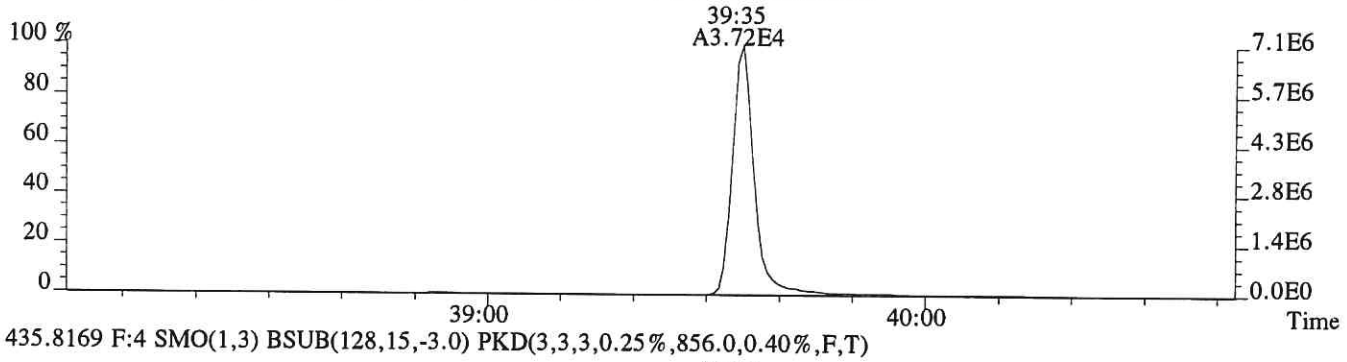
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



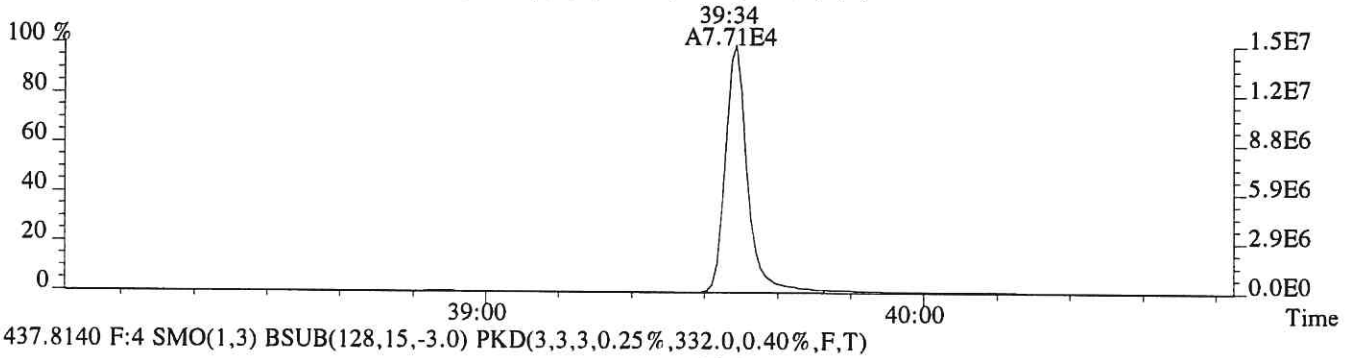
File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



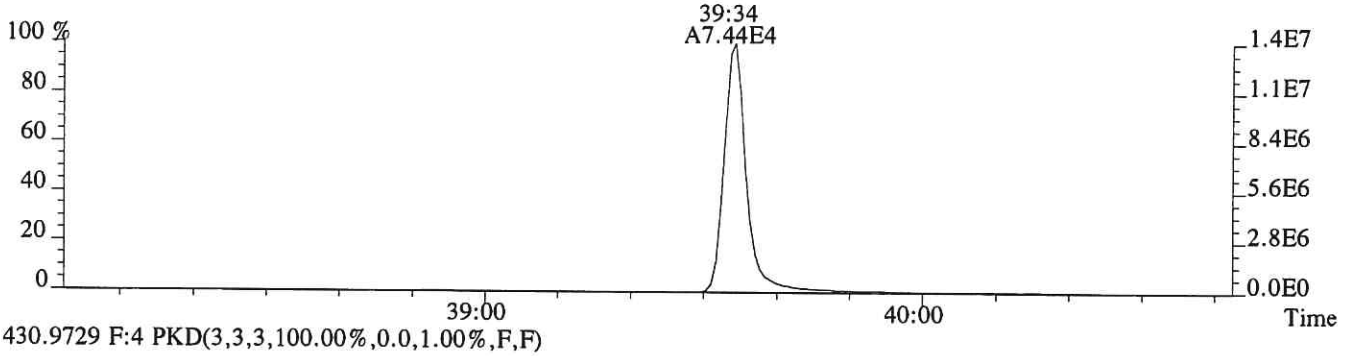
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



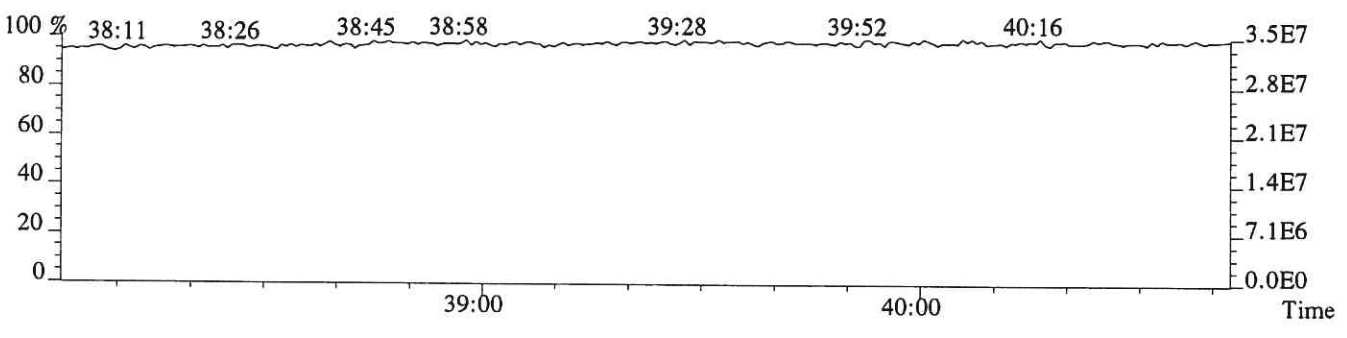
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

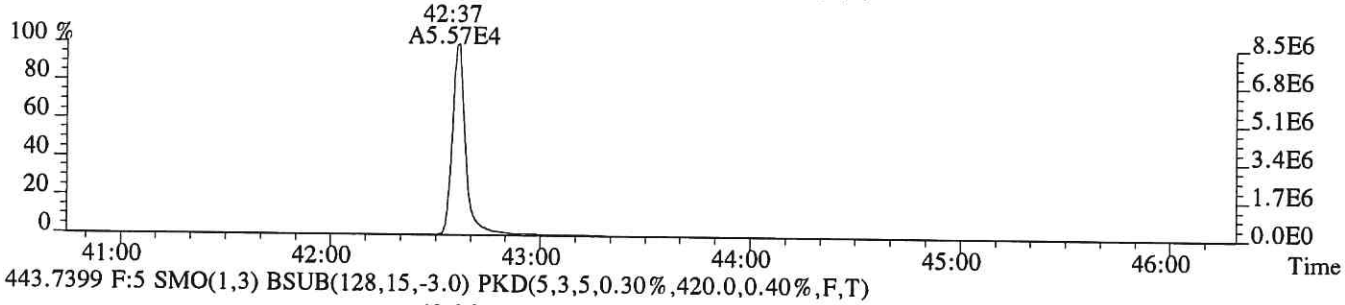


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

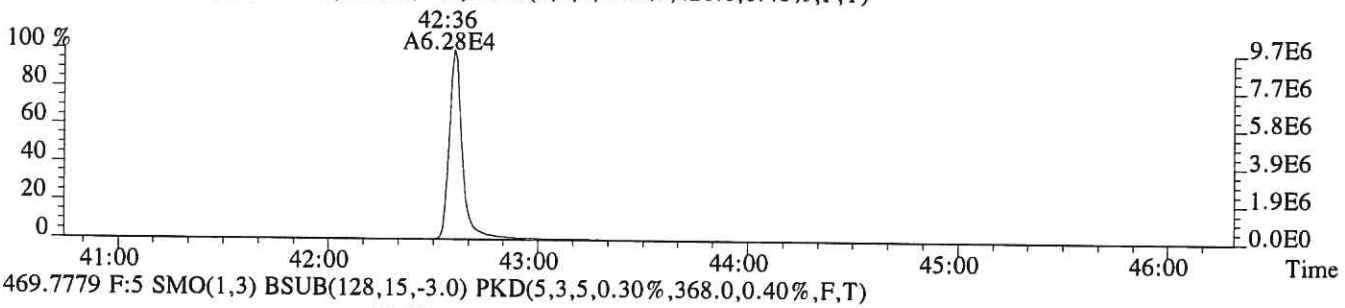


File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

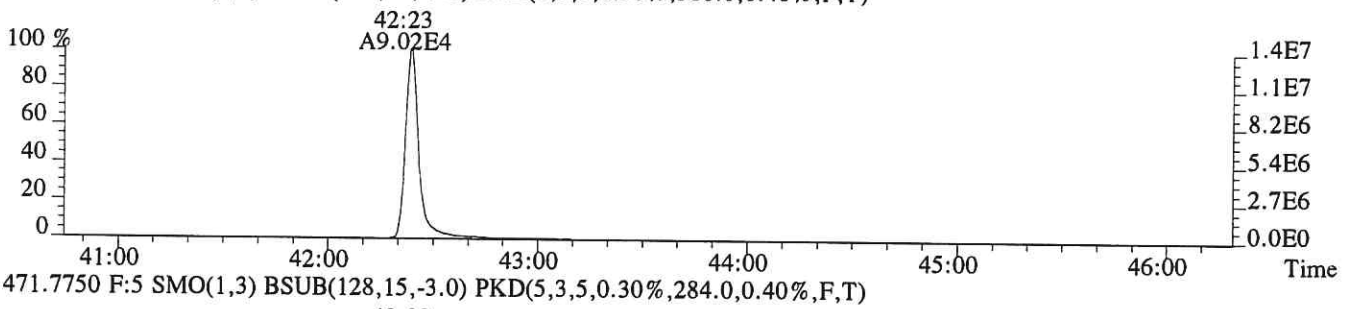
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



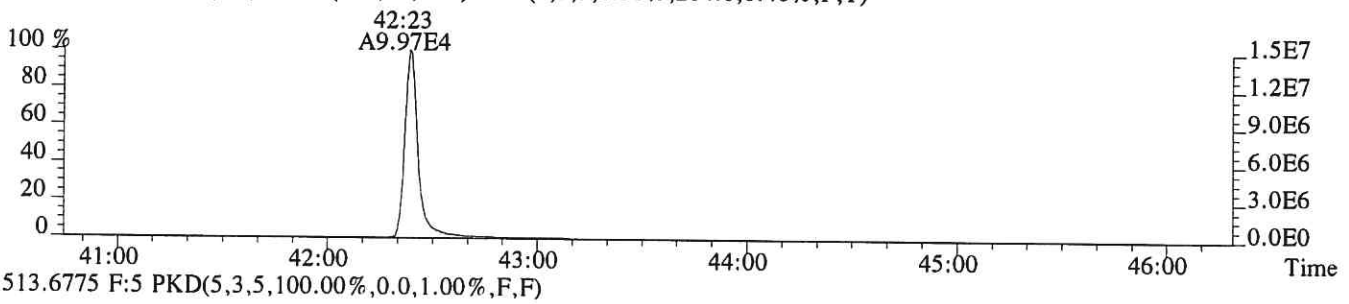
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



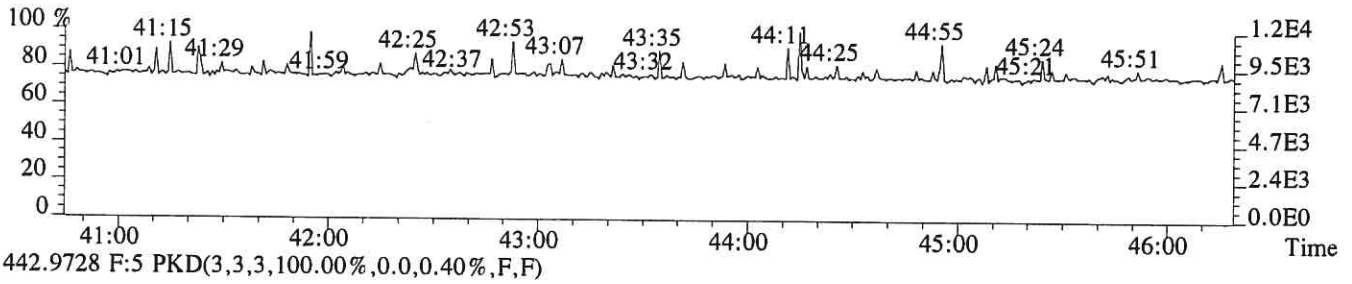
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



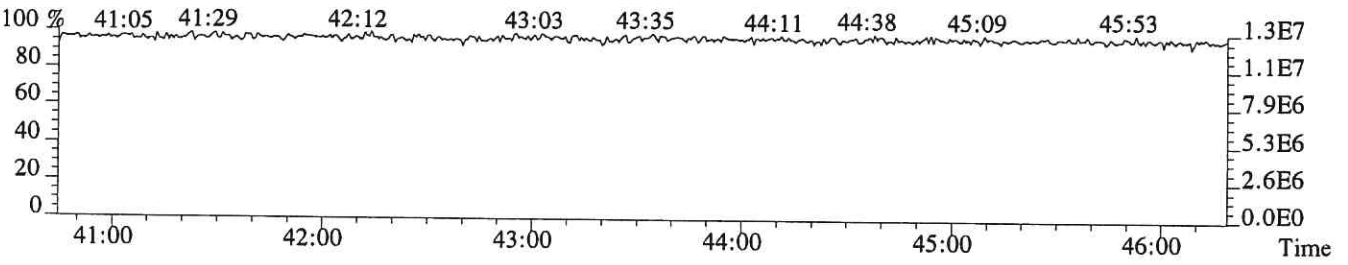
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



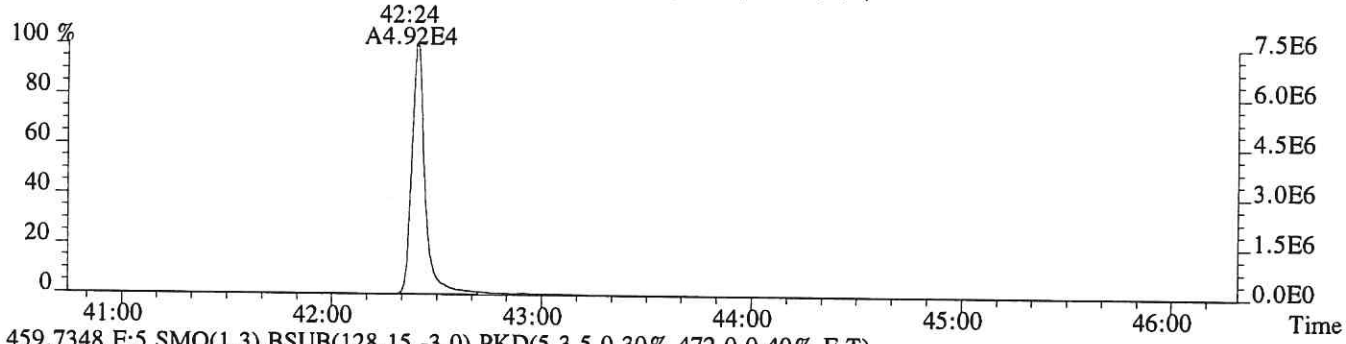
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



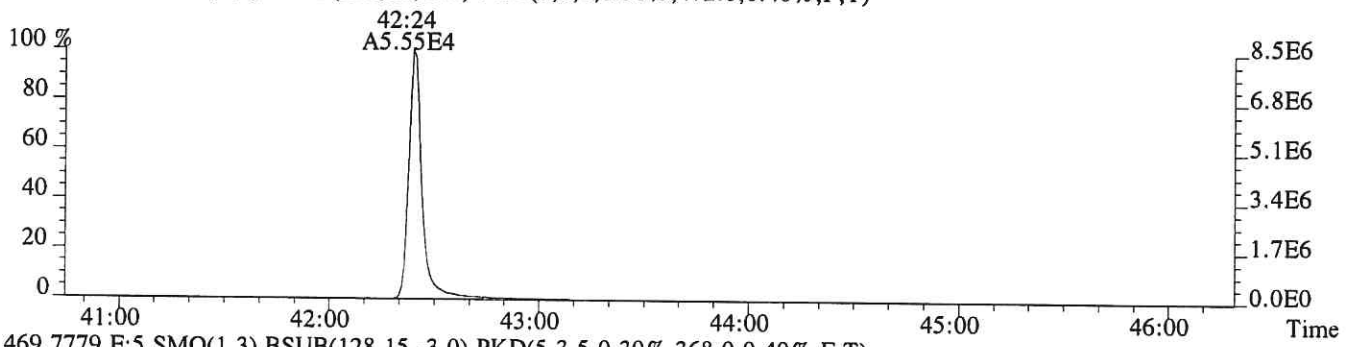
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



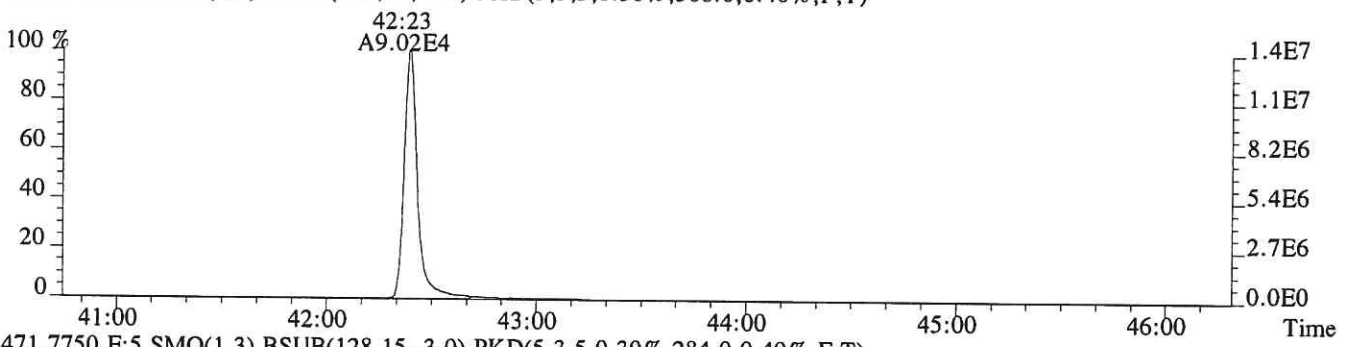
File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



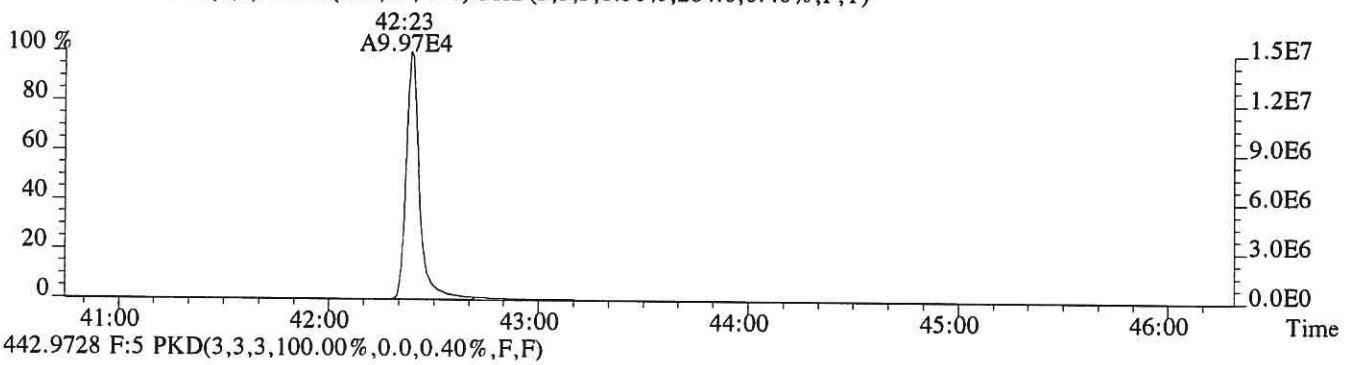
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



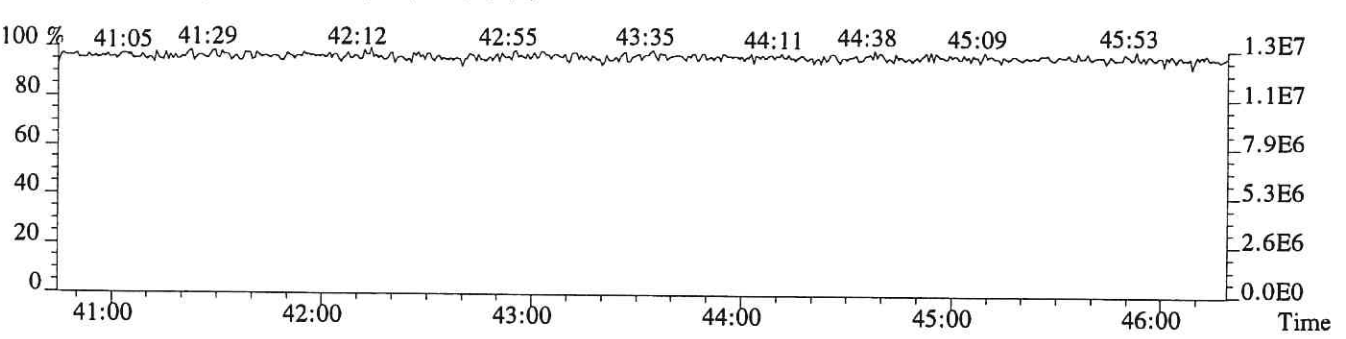
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519161

Date: 12/03/18

Circle one: (Beginning) / Ending

Method: (1613)/ 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519162	3-DEC-18	06:10:47
194503	CS3	P519161	3-DEC-18	05:23:00
METHOD BLANK	EQ1800481-01	P519163	3-DEC-18	07:06:25
METHOD BLANK	EQ1800485-01	P519164	3-DEC-18	07:54:19
SL0510	E1801040-002	P519165	3-DEC-18	08:43:16
SL0511	E1801040-003	P519166	3-DEC-18	09:31:37
SL0512	E1801040-004	P519167	3-DEC-18	10:20:15
SL0513	E1801040-005	P519168	3-DEC-18	11:09:22
SL0514	E1801040-006	P519169	3-DEC-18	11:57:34
SL0518	E1801040-007	P519170	3-DEC-18	12:46:13
CT-02B-2018	J1807948-005	P519171	3-DEC-18	13:34:53
CT-02D-2018	J1807948-006	P519172	3-DEC-18	14:23:32
CT-04D-2018	J1807948-007	P519173	3-DEC-18	15:12:12
CT-09C-2018	J1807948-008	P519174	3-DEC-18	16:02:38
CT-23B-2018	J1807948-013	P519175	3-DEC-18	16:50:42

E1801040

316 of 491

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181203A.SPL
Last Modified: Tuesday, December 04, 2018 06:47:44 Central Standard Time
Printed: Tuesday, December 04, 2018 06:53:16 Central Standard Time

Page Position (1, 1)

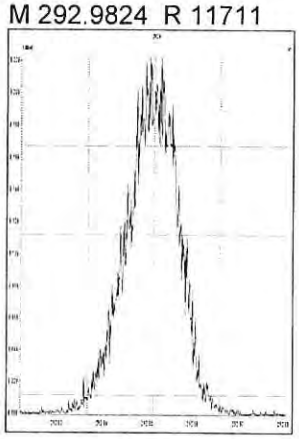
DIOXIN NET: P519161 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/3/18	05:23	P519161	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 05:22
2		06:10	P519162	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		07:06	P519163	MB	EQ1800481-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		07:54	P519164	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		08:43	P519165	E1801040-002	E1801040-002	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		09:31	P519166	E1801040-003	E1801040-003	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		10:20	P519167	E1801040-004	E1801040-004	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		11:09	P519168	E1801040-005	E1801040-005	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		11:57	P519169	E1801040-006	E1801040-006	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		12:46	P519170	E1801040-007	E1801040-007	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		13:34	P519171	J1807948-005	J1807948-005	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		14:23	P519172	J1807948-006	J1807948-006	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		15:12	P519173	J1807948-007	J1807948-007	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		16:02	P519174	J1807948-008	J1807948-008	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		16:50	P519175	J1807948-013	J1807948-013	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		17:47	P519176	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:16		HRMS check 17:47
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

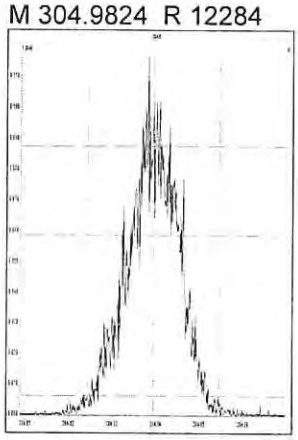
LKL 12/04/18

E1801040

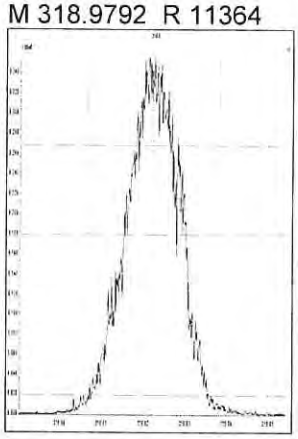
M 292.9824 R 11711



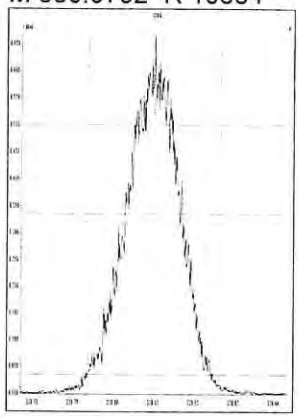
M 304.9824 R 12284



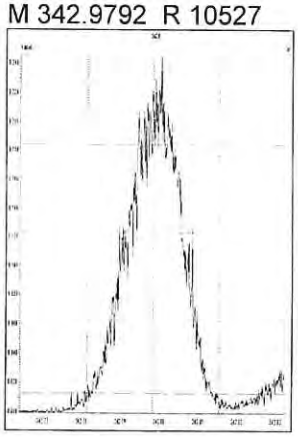
M 318.9792 R 11364



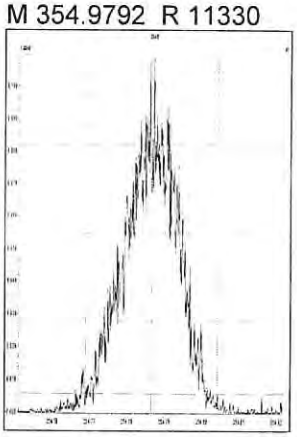
M 330.9792 R 10684



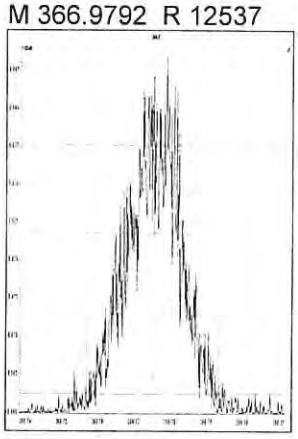
M 342.9792 R 10527



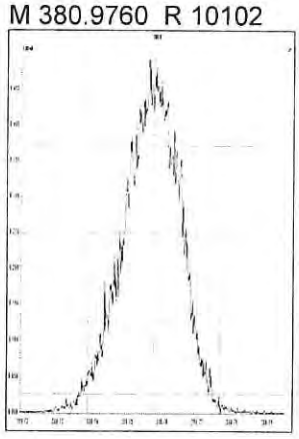
M 354.9792 R 11330



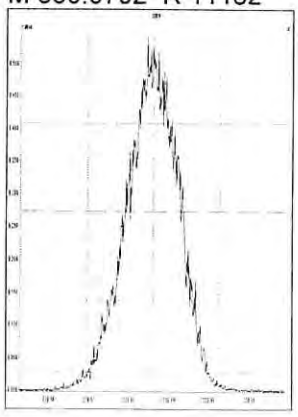
M 366.9792 R 12537



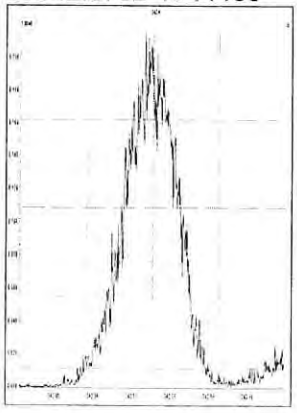
M 380.9760 R 10102



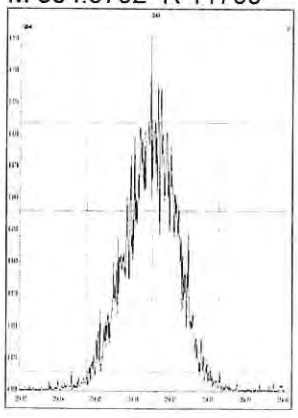
M 330.9792 R 11162



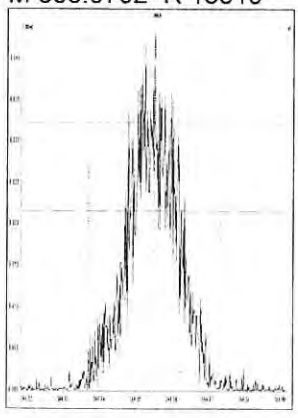
M 342.9792 R 11165



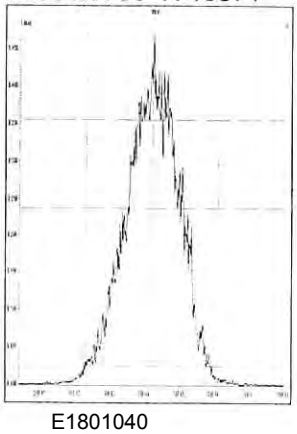
M 354.9792 R 11709



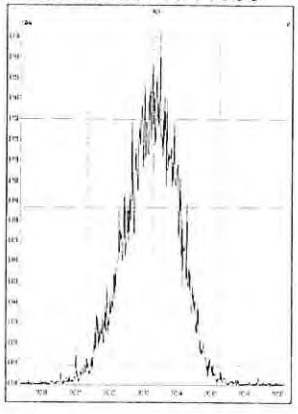
M 366.9792 R 13519



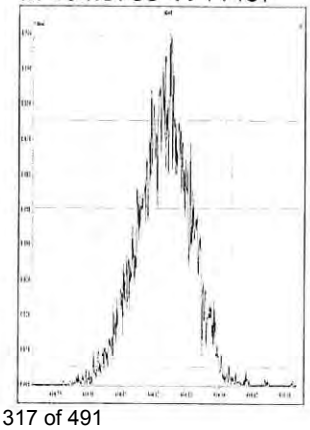
M 380.9760 R 10871



M 392.9760 R 11659



M 404.9760 R 11467



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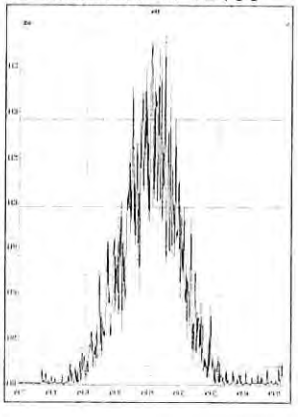

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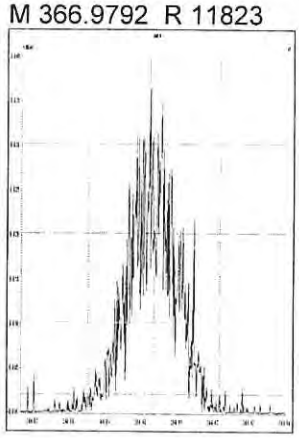

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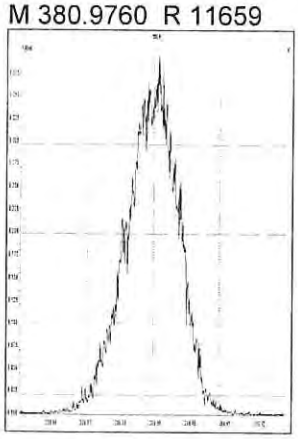

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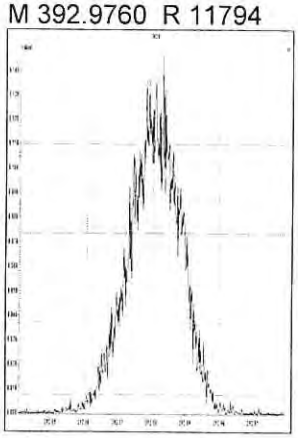

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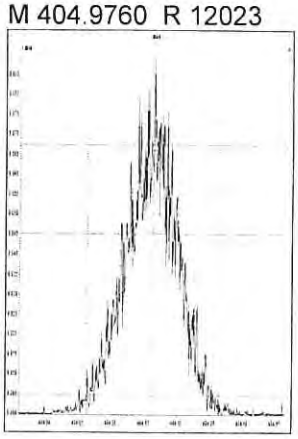

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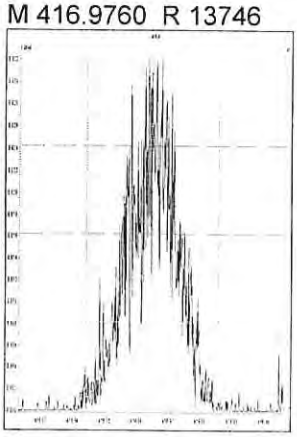
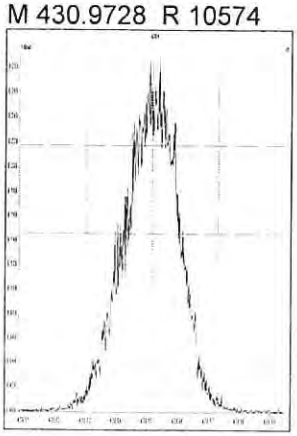


M 430.9728 R 10574



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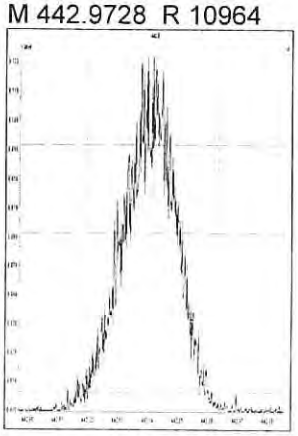
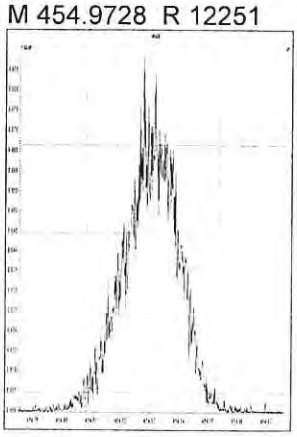


M 454.9728 R 12251



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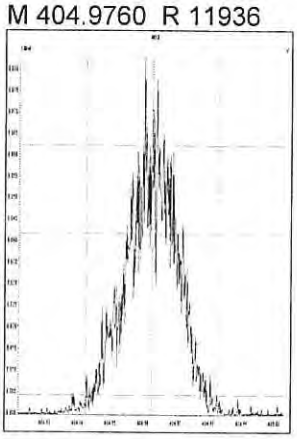

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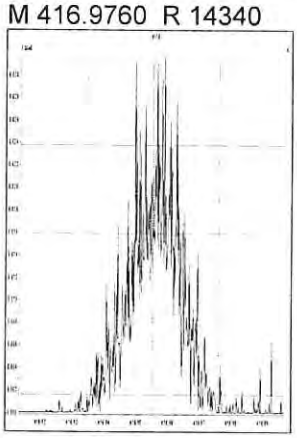
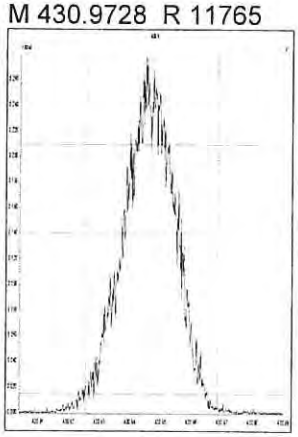


M 430.9728 R 11765



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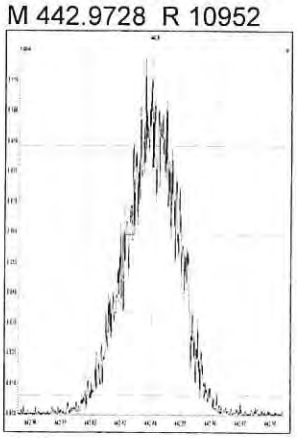

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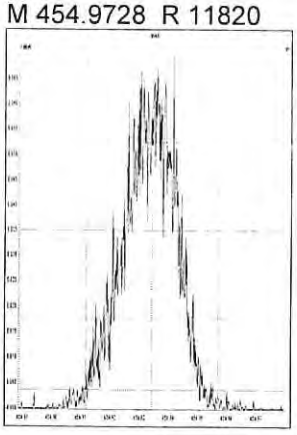

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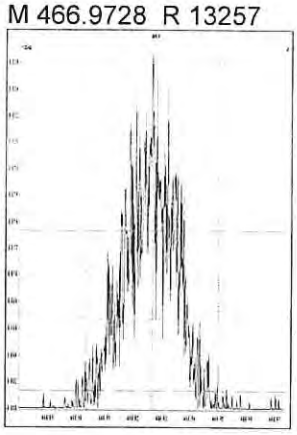

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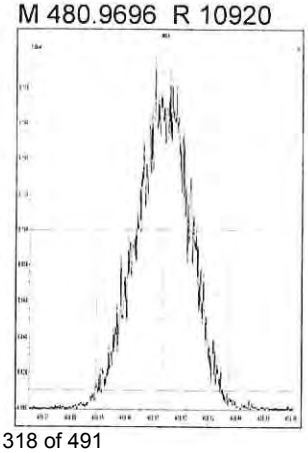

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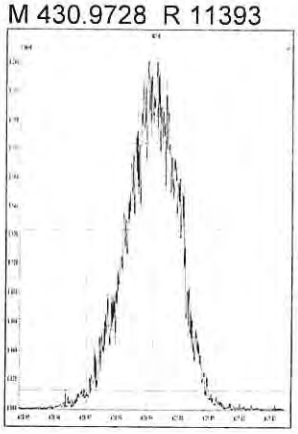

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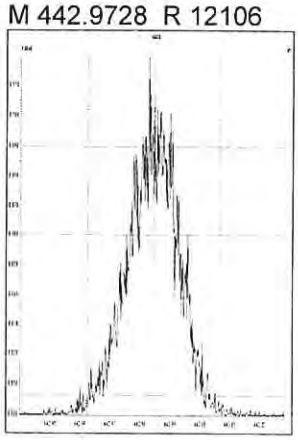

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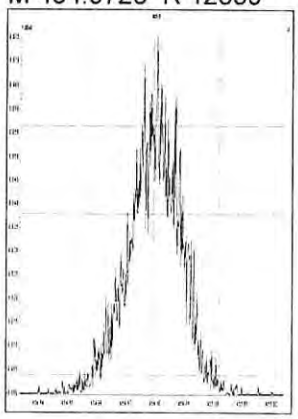

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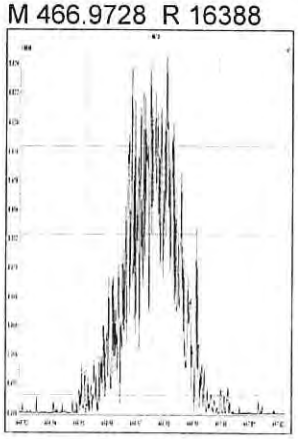

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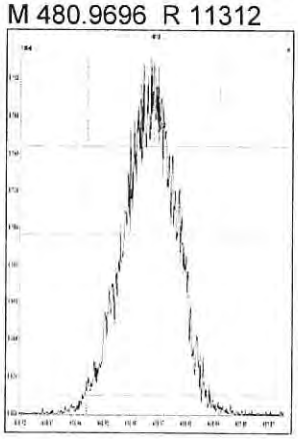

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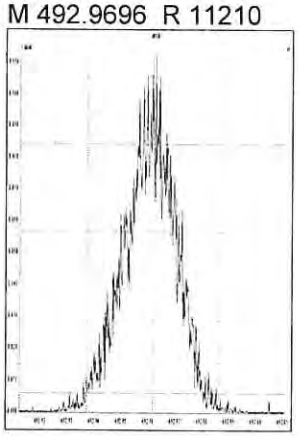

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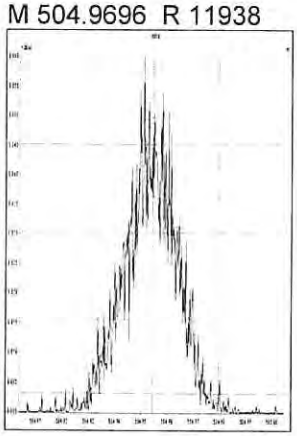

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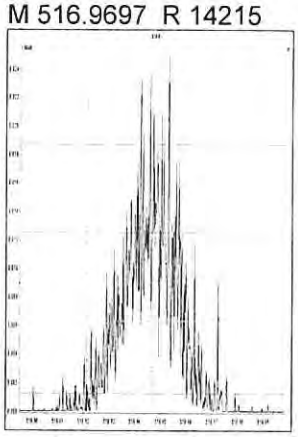

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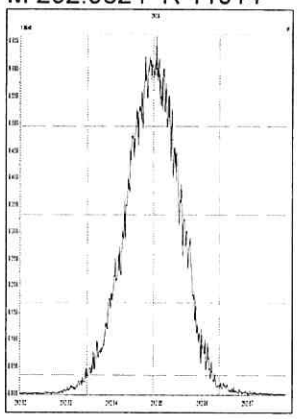

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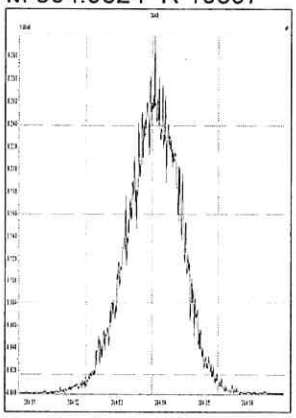

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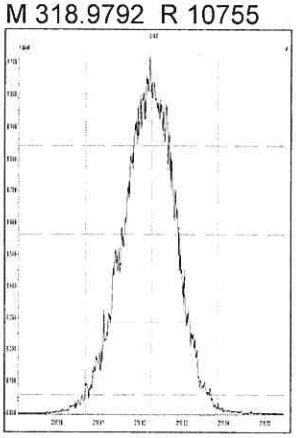

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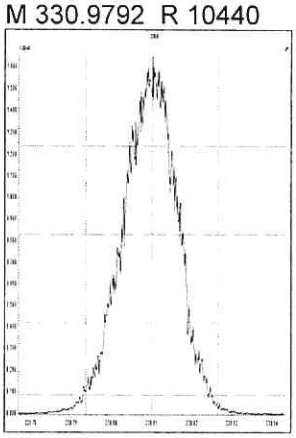

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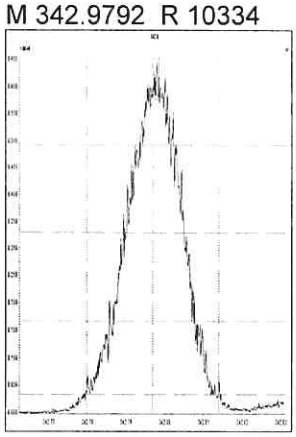

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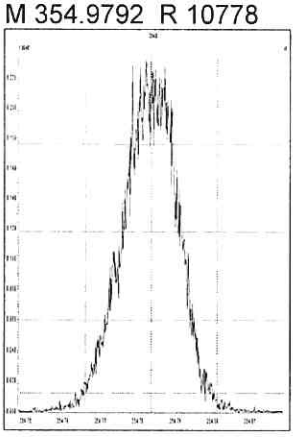

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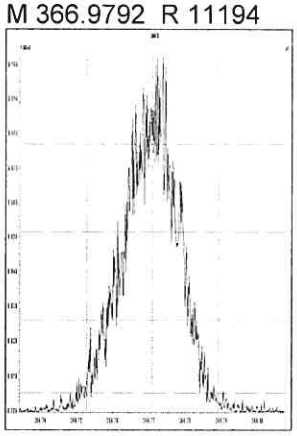

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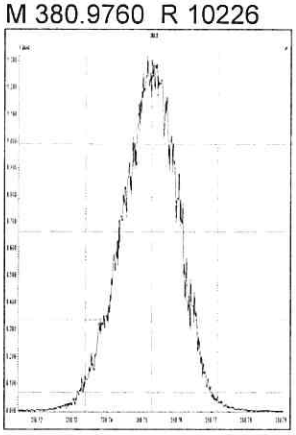

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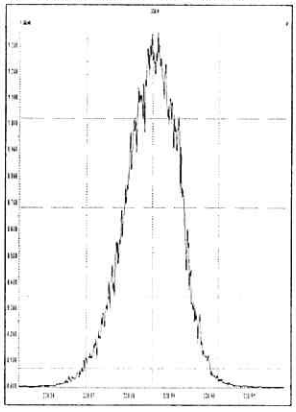

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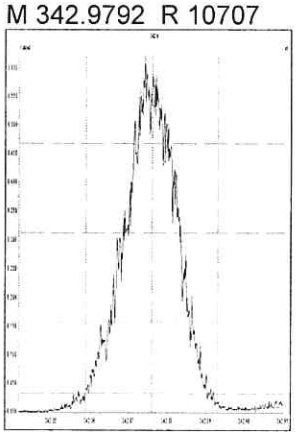

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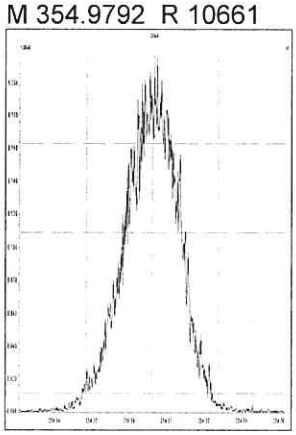

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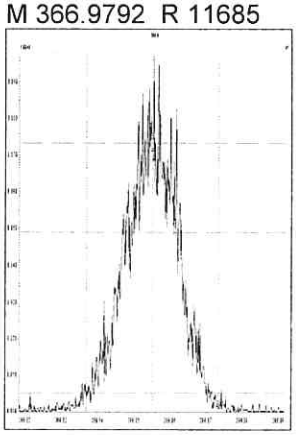

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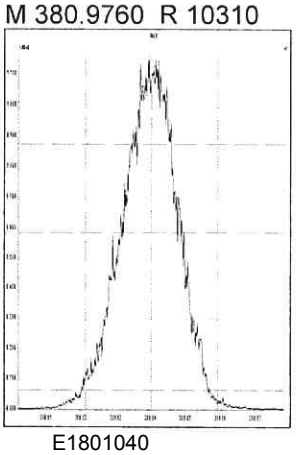

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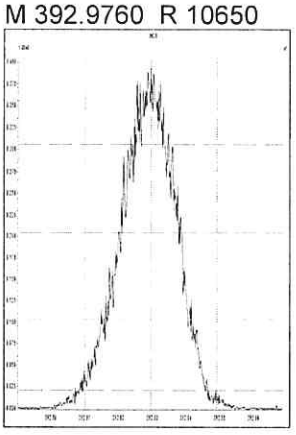

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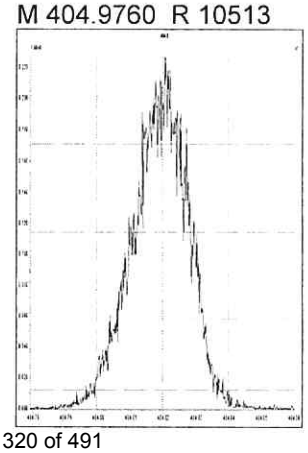

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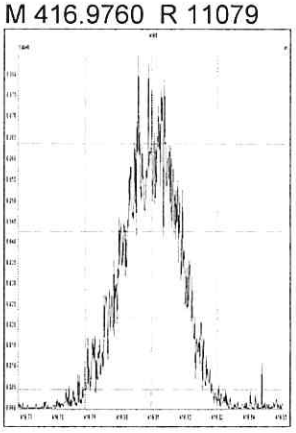

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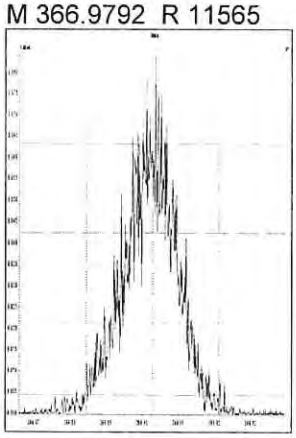

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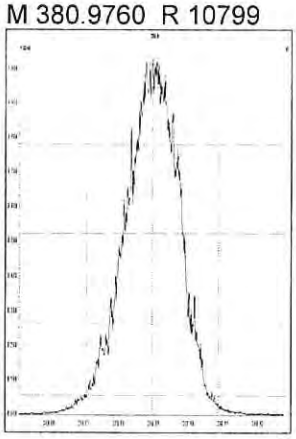

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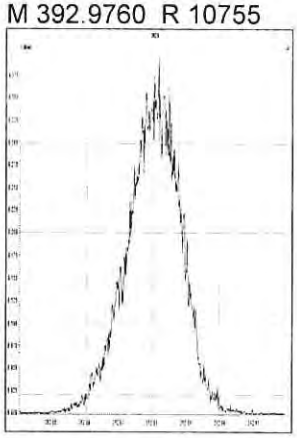

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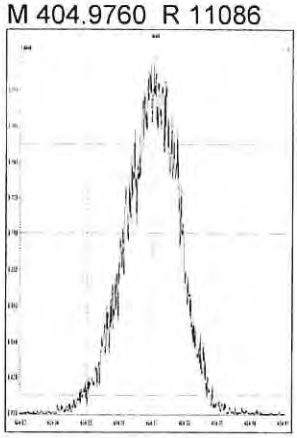

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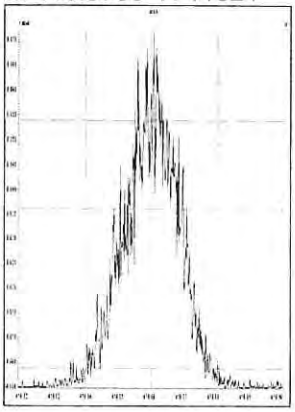

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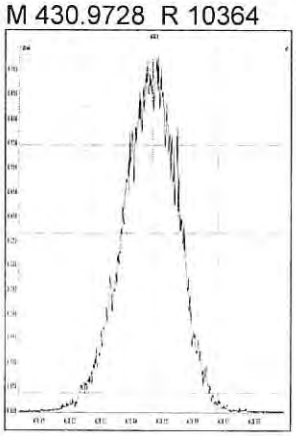

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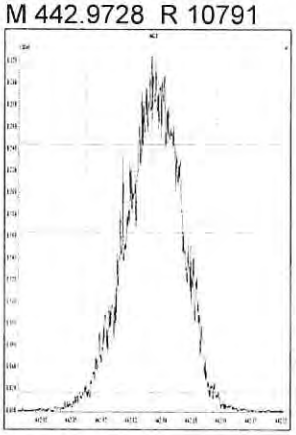

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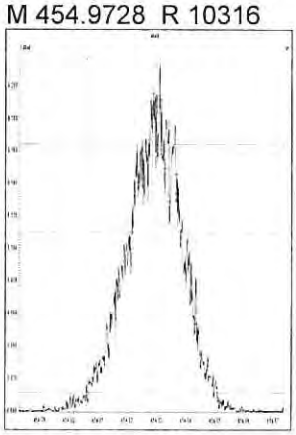

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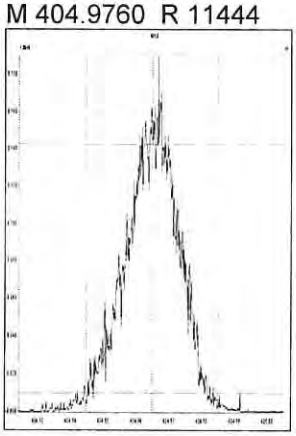

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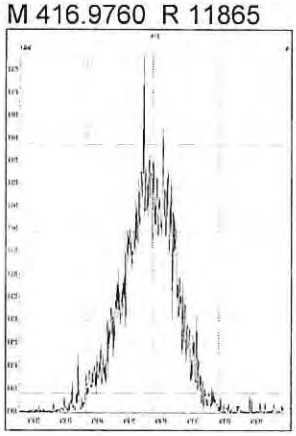

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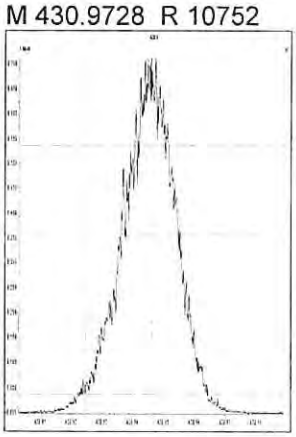

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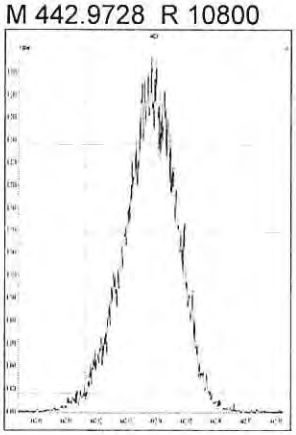

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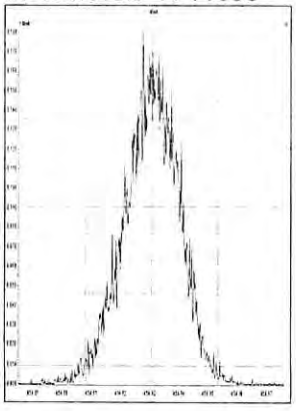
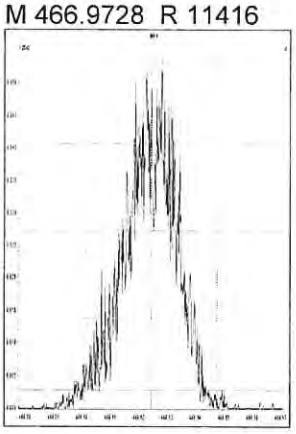
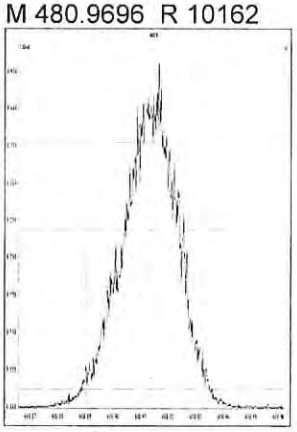


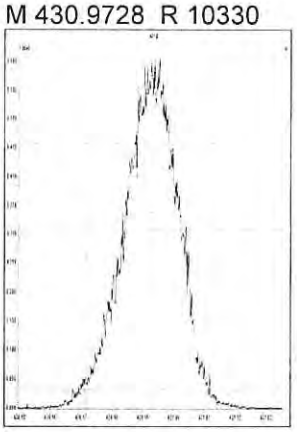
M 466.9728 R 11416



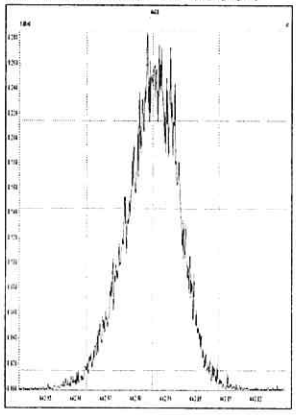
M 480.9696 R 10162



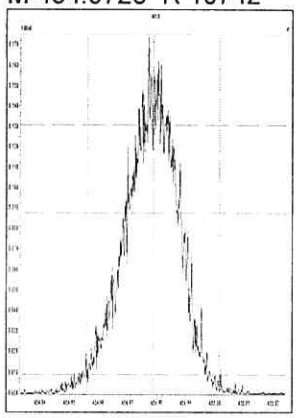
M 430.9728 R 10330



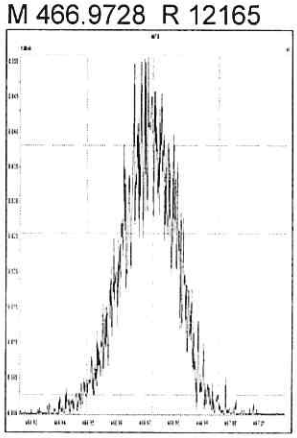
M 442.9728 R 10964



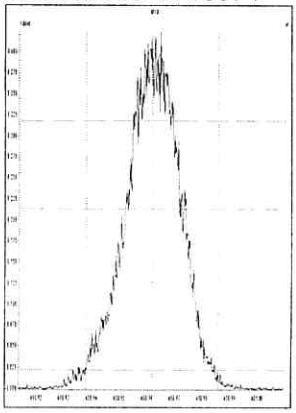
M 454.9728 R 10742



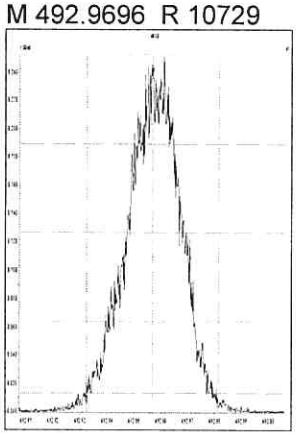
M 466.9728 R 12165



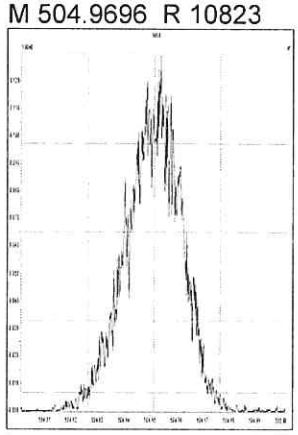
M 480.9696 R 10374



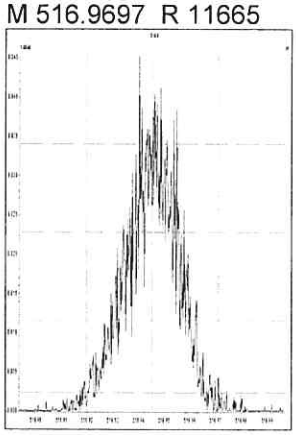
M 492.9696 R 10729



M 504.9696 R 10823



M 516.9697 R 11665



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

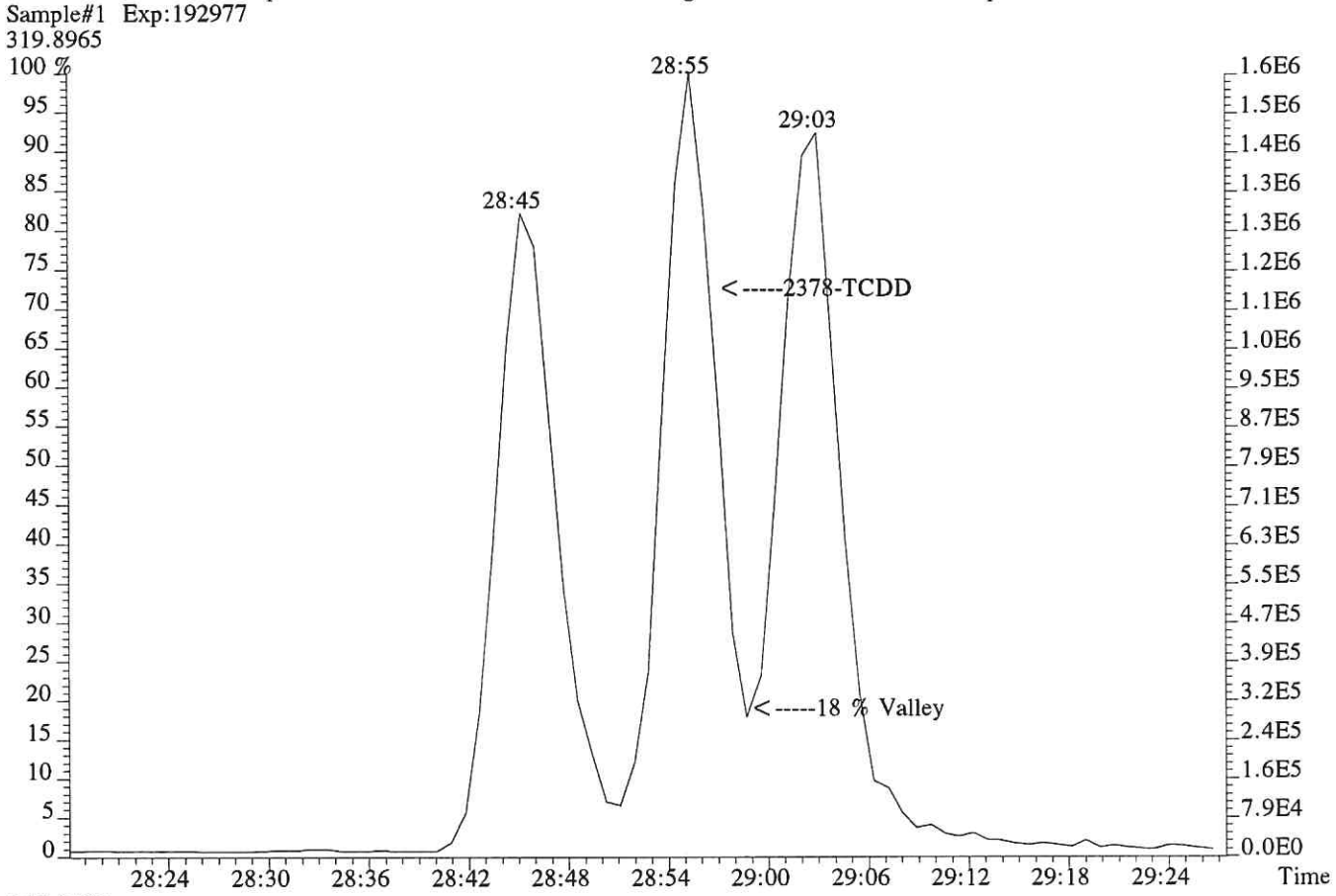
Case No.: _____ SDG No.:
ID: 0.25 (mm)

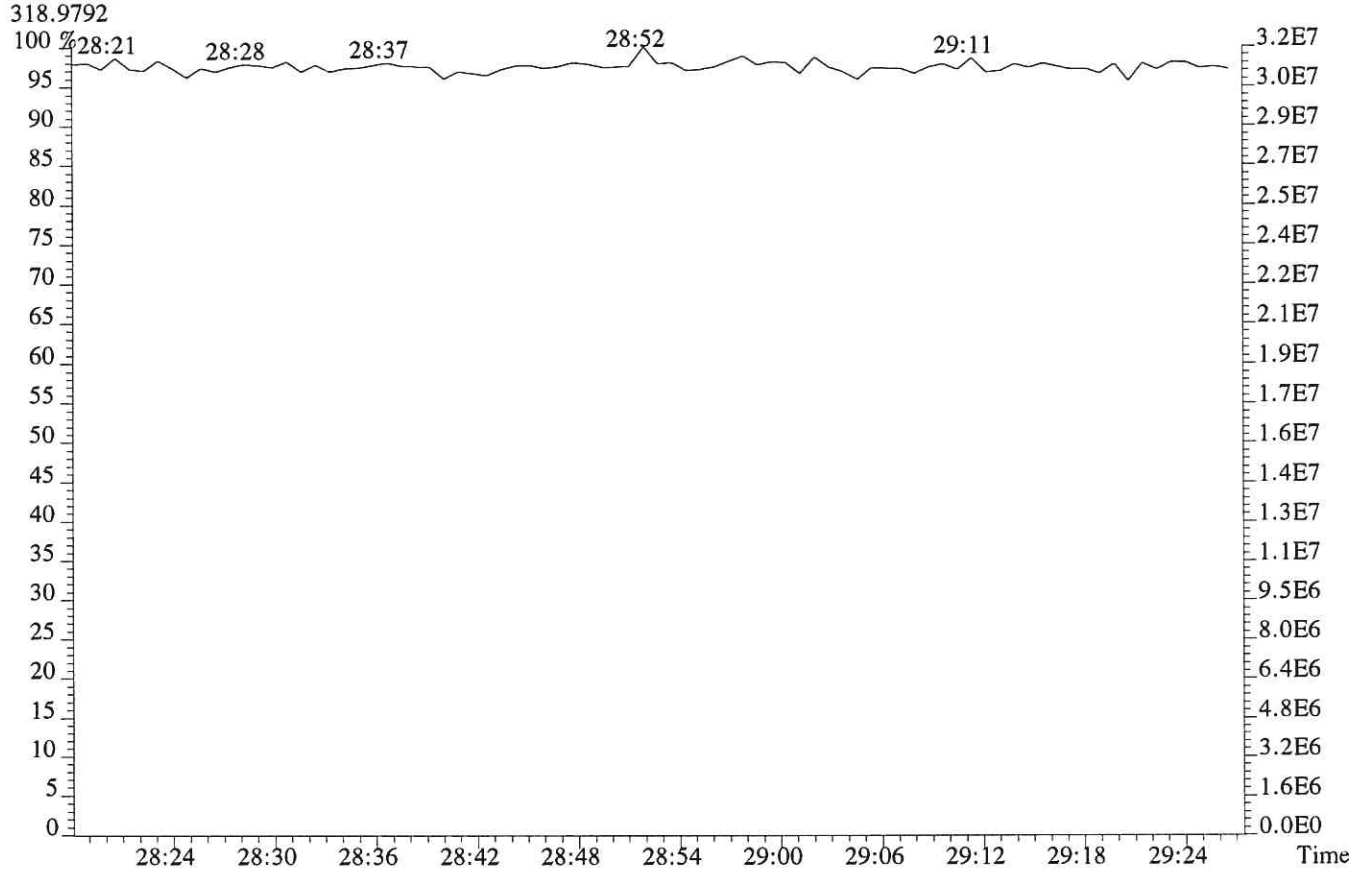
Lab File ID: P519162
Date Analyzed: 3-DEC-18
Time Analyzed: 06:10:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:46	30:04
TCDD	25:37	29:55
PeCDF	30:01	34:16
PeCDD	31:33	34:01
HxCDF	34:55	37:25
HxCDD	35:27	37:01
HpCDF	38:40	40:04
HpCDD	38:54	39:36

% Valley 2378-TCDD: 18 %

File:P519162 #1-538 Acq: 3-DEC-2018 06:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





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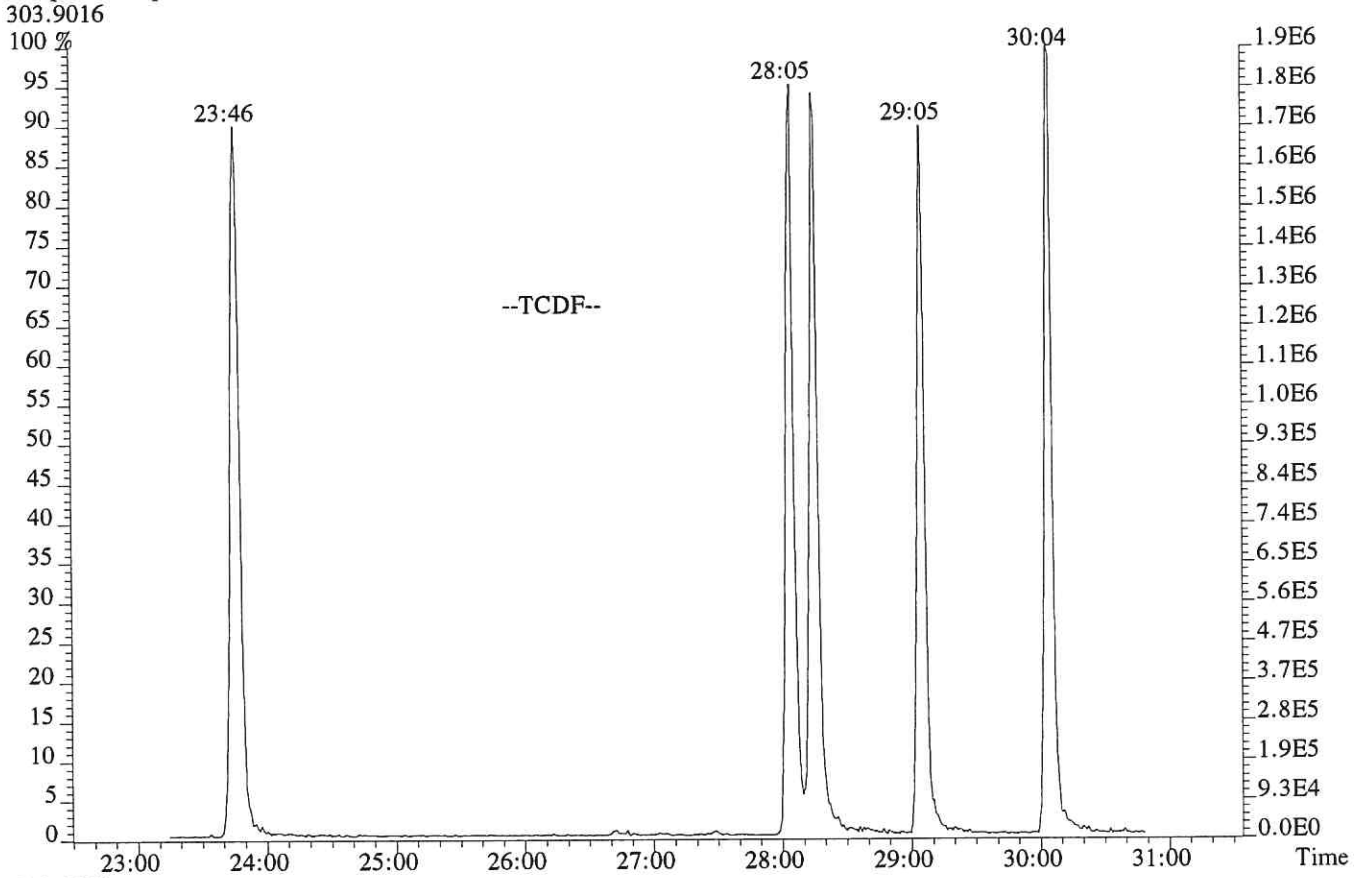
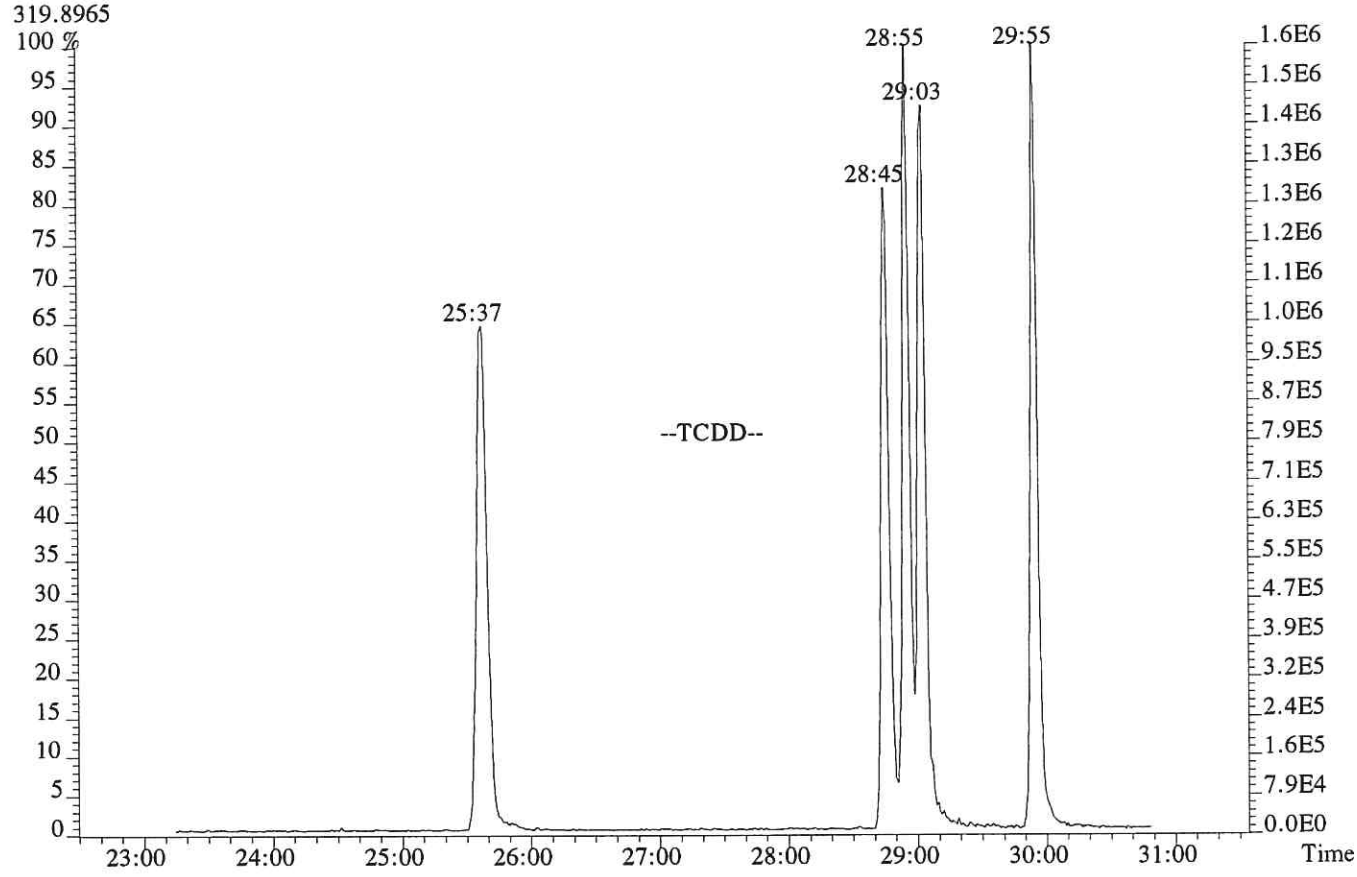
Sample#1 Exp:192977

303.9016



319.8965



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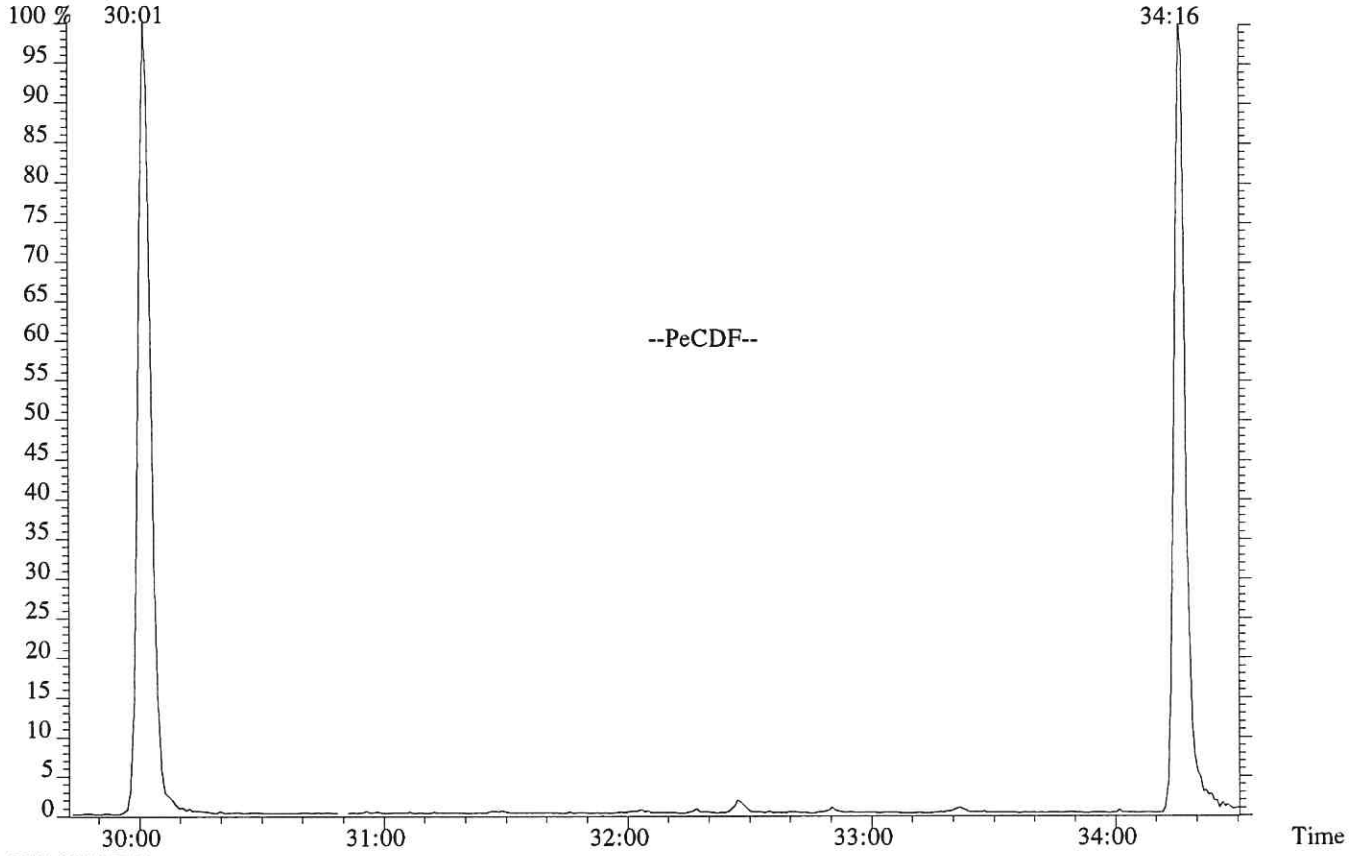
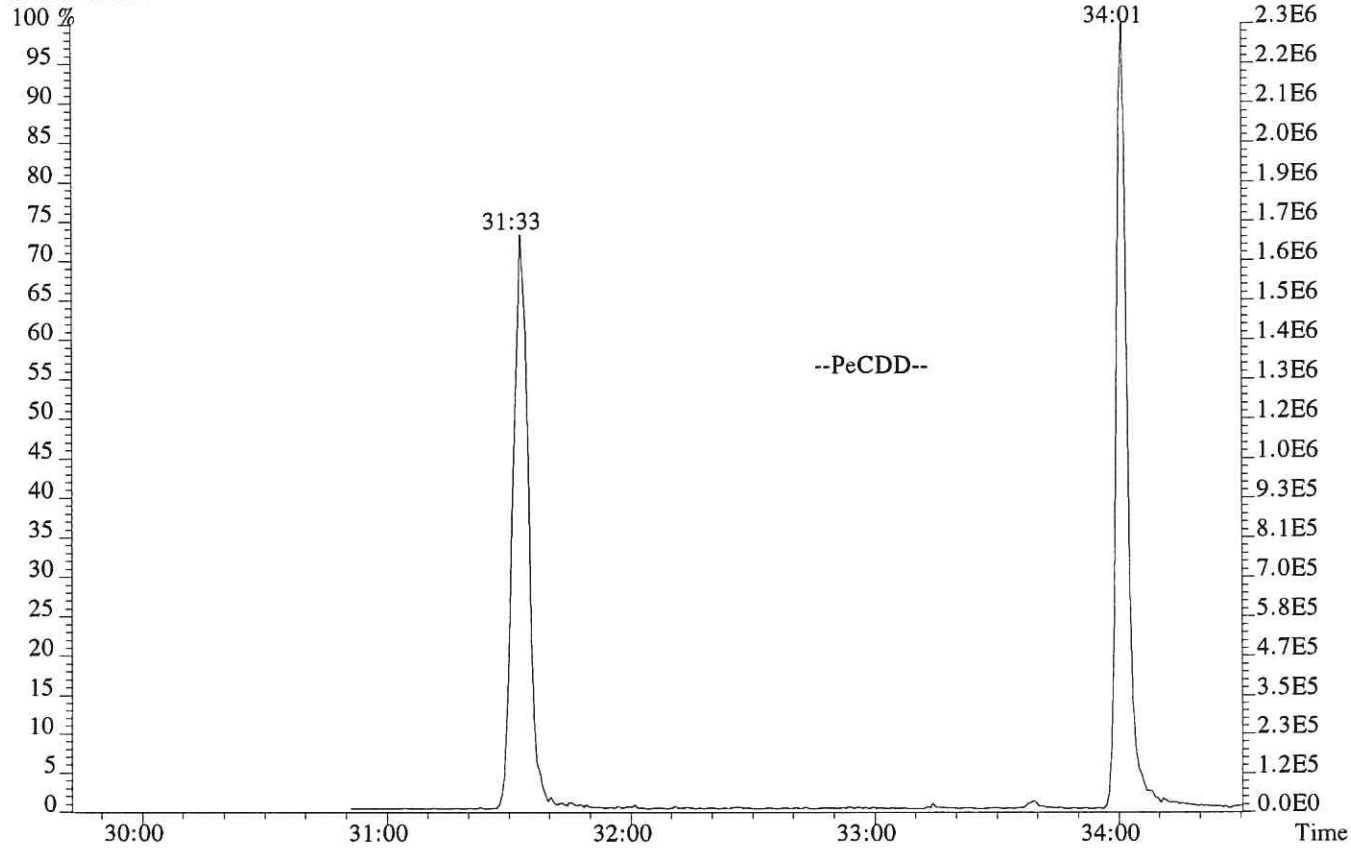
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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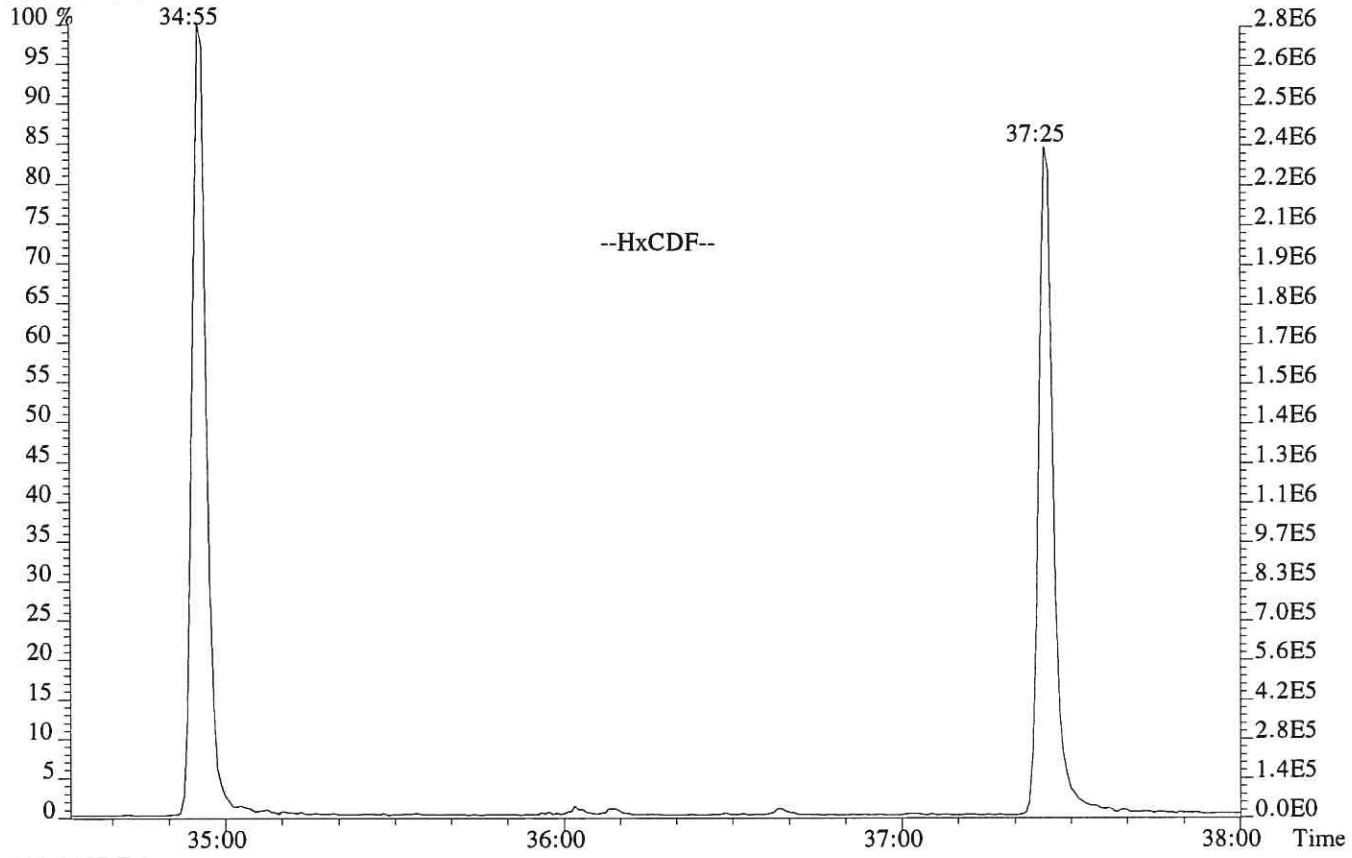
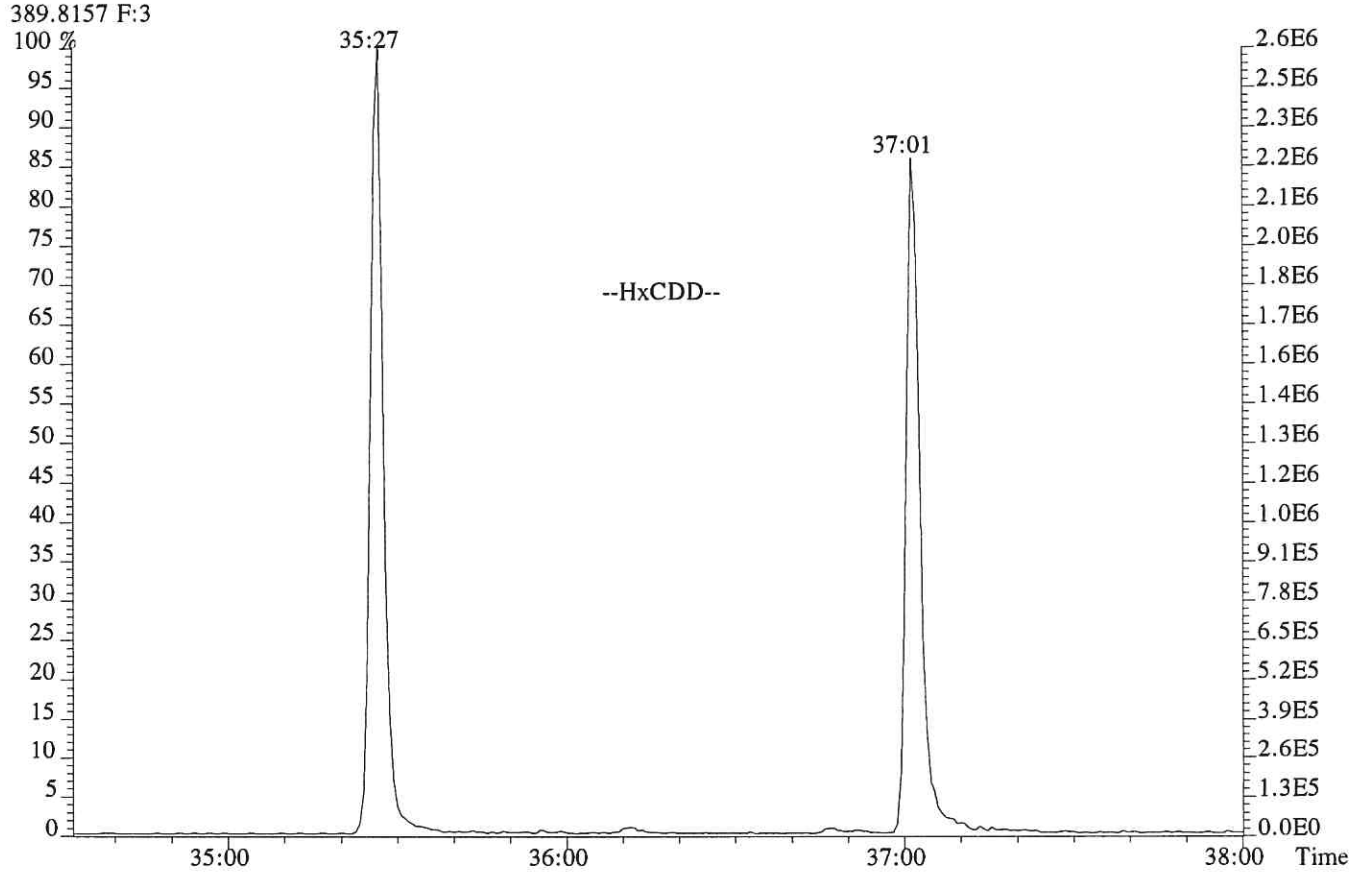
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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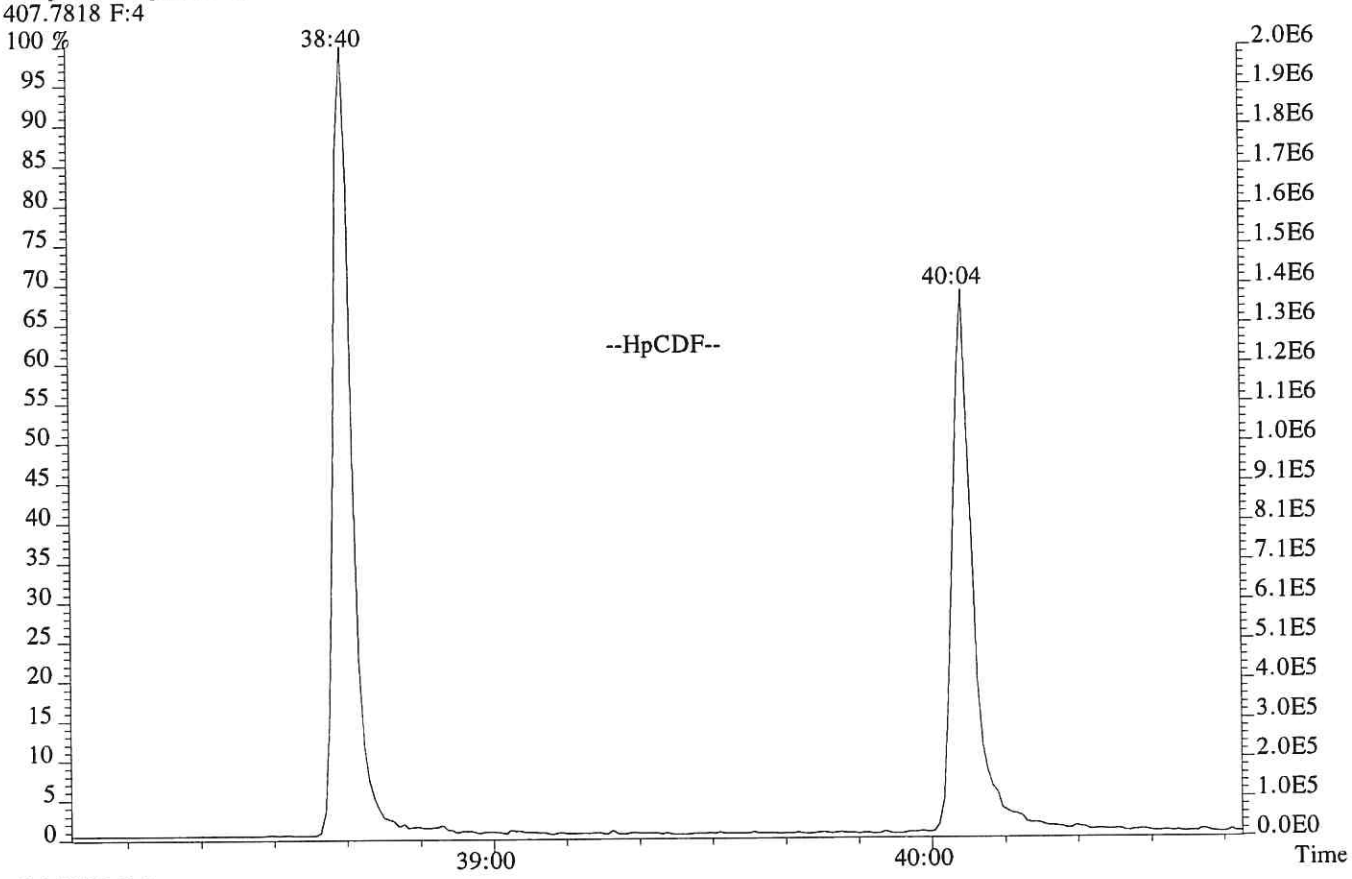
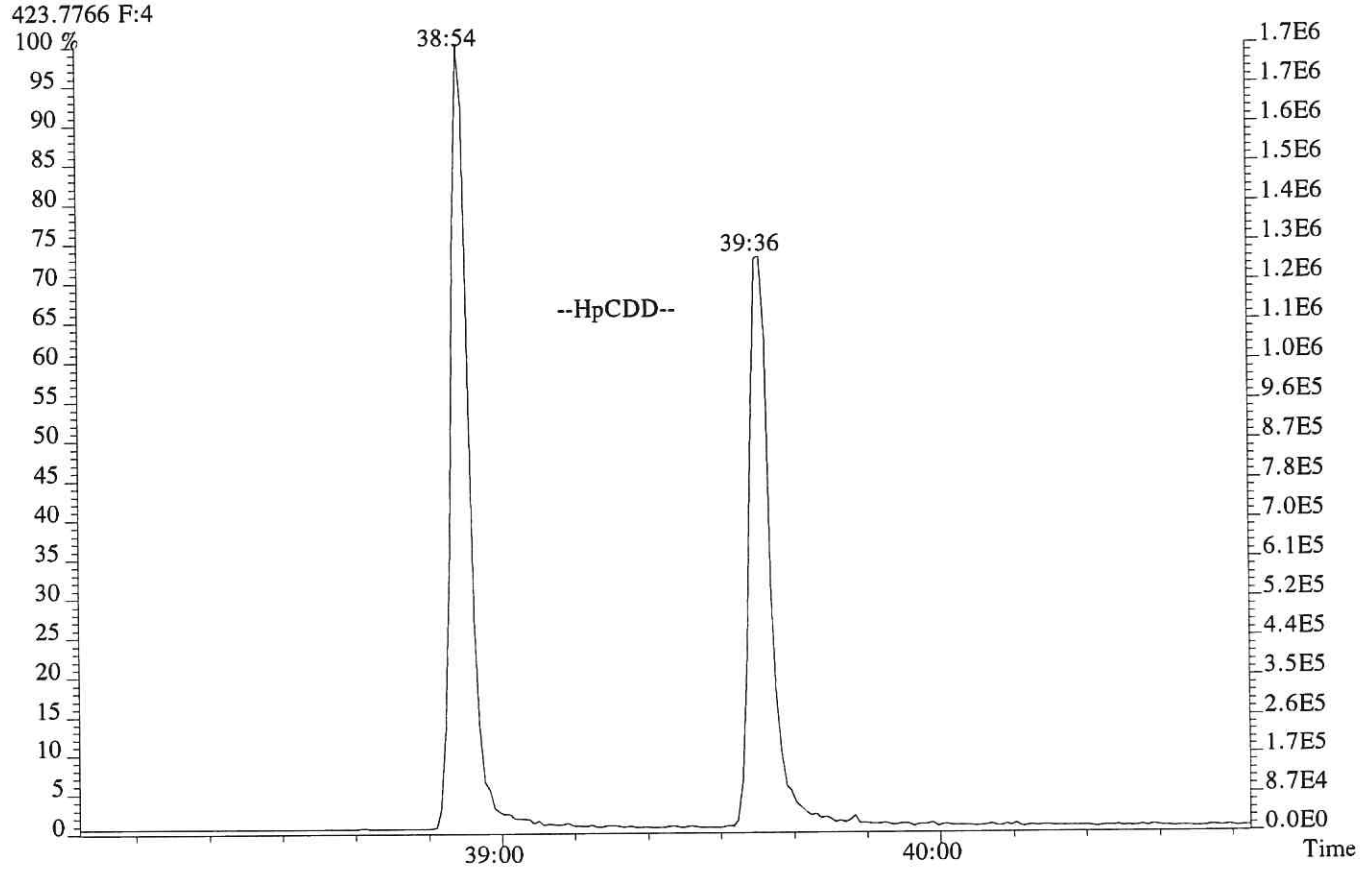
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519161 Analysis Date: 3-DEC-18 Time: 05:23:00

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.5	7.8 - 12.9	-4.6
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	48	39 - 65	-3.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	48	39 - 64	-3.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-2.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	52	41 - 61	3.3
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	49	43 - 58	-1.5
OCDD	M+2/M+4	0.89	0.76-1.02	98	79 - 126	-2.0
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	9.2	8.4 - 12.0	-7.6
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 60	-2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	49	41 - 61	-2.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	49	44 - 57	-3.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	48	45 - 56	-4.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	48	44 - 57	-3.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-2.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	48	43 - 58	-3.2
OCDF	M+2/M+4	0.88	0.76-1.02	90	63 - 159	-10.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519161 Analysis Date: 3-DEC-18 Time: 05:23:00

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	106	82 - 121	5.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	118	62 - 160	18.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 117	-4.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	98	85 - 118	-1.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	92	72 - 138	-7.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	163	96 - 415	-18.4
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	90	71 - 140	-9.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	106	76 - 130	6.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	108	77 - 130	7.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	84	76 - 131	-15.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	89	70 - 143	-10.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	91	74 - 135	-9.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	92	73 - 137	-8.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	88	78 - 129	-11.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	84	77 - 129	-15.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.2	7.8 - 12.7	1.8

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519161 Samp: 1 Inj: 1 Acquired: 3-DEC-18 05:23:00
Processed: 4-DEC-18 15:18:16 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	4.934e+03	6.836e+03	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	4.608e+04	3.006e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	4.396e+04	2.843e+04	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	3.817e+04	3.105e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	4.141e+04	3.441e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	3.754e+04	3.135e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	3.304e+04	2.745e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	3.166e+04	3.137e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	2.358e+04	2.350e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:37	3.027e+04	3.448e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	4.433e+03	5.570e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	3.222e+04	2.052e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	2.750e+04	2.179e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	2.902e+04	2.369e+04	1.23	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	3.096e+04	2.477e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	2.298e+04	2.158e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:25	2.742e+04	3.075e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	5.998e+04	7.523e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	9.447e+04	6.009e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	9.518e+04	5.995e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	3.985e+04	7.630e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	4.799e+04	9.121e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	4.409e+04	8.444e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	3.747e+04	7.267e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	2.948e+04	6.597e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.345e+04	5.388e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	4.311e+04	5.352e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	6.977e+04	4.415e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	5.515e+04	4.353e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	5.824e+04	4.610e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	4.532e+04	4.296e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:24	5.008e+04	5.606e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.395e+04	5.507e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.141e+04	5.024e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.022e+04				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519161 Samp: 1 Inj: 1 Acquired: 3-DEC-18 05:23:00
Processed: 4-DEC-18 15:18:16 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.77e+05	3.68e+02	2.4e+03	1.19e+06	8.48e+02	1.4e+03
2	1,2,3,7,8-PeCDF	8.43e+06	5.72e+02	1.5e+04	5.48e+06	9.44e+02	5.8e+03
3	2,3,4,7,8-PeCDF	8.53e+06	5.72e+02	1.5e+04	5.49e+06	9.44e+02	5.8e+03
4	1,2,3,4,7,8-HxCDF	8.18e+06	3.44e+02	2.4e+04	6.72e+06	2.48e+02	2.7e+04
5	1,2,3,6,7,8-HxCDF	8.52e+06	3.44e+02	2.5e+04	7.07e+06	2.48e+02	2.9e+04
6	2,3,4,6,7,8-HxCDF	8.08e+06	3.44e+02	2.3e+04	6.80e+06	2.48e+02	2.7e+04
7	1,2,3,7,8,9-HxCDF	6.66e+06	3.44e+02	1.9e+04	5.59e+06	2.48e+02	2.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.78e+06	2.76e+03	2.5e+03	6.75e+06	4.84e+03	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	4.48e+06	2.76e+03	1.6e+03	4.32e+06	4.84e+03	8.9e+02
10	OCDF	4.86e+06	2.44e+02	2.0e+04	5.43e+06	3.36e+02	1.6e+04
11	2,3,7,8-TCDD	8.37e+05	1.00e+03	8.3e+02	1.07e+06	3.80e+02	2.8e+03
12	1,2,3,7,8-PeCDD	6.15e+06	5.24e+02	1.2e+04	3.99e+06	1.48e+02	2.7e+04
13	1,2,3,4,7,8-HxCDD	6.23e+06	2.40e+02	2.6e+04	4.91e+06	3.76e+02	1.3e+04
14	1,2,3,6,7,8-HxCDD	6.08e+06	2.40e+02	2.5e+04	4.98e+06	3.76e+02	1.3e+04
15	1,2,3,7,8,9-HxCDD	6.22e+06	2.40e+02	2.6e+04	4.99e+06	3.76e+02	1.3e+04
16	1,2,3,4,6,7,8-HpCDD	4.50e+06	3.32e+02	1.4e+04	4.09e+06	3.84e+02	1.1e+04
17	OCDD	4.35e+06	2.96e+02	1.5e+04	4.89e+06	6.12e+02	8.0e+03
18	13C-2,3,7,8-TCDF	1.07e+07	3.37e+03	3.2e+03	1.34e+07	1.71e+03	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	7.48e+02	2.3e+04	1.09e+07	8.88e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.81e+07	7.48e+02	2.4e+04	1.15e+07	8.88e+02	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	8.66e+06	3.56e+02	2.4e+04	1.66e+07	8.24e+02	2.0e+04
22	13C-1,2,3,6,7,8-HxCDF	9.90e+06	3.56e+02	2.8e+04	1.88e+07	8.24e+02	2.3e+04
23	13C-2,3,4,6,7,8-HxCDF	9.53e+06	3.56e+02	2.7e+04	1.81e+07	8.24e+02	2.2e+04
24	13C-1,2,3,7,8,9-HxCDF	7.53e+06	3.56e+02	2.1e+04	1.46e+07	8.24e+02	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.31e+06	3.47e+03	1.8e+03	1.41e+07	9.09e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.41e+06	3.47e+03	1.3e+03	9.91e+06	9.09e+03	1.1e+03
27	13C-2,3,7,8-TCDD	8.06e+06	4.63e+03	1.7e+03	1.00e+07	1.93e+03	5.2e+03
28	13C-1,2,3,7,8-PeCDD	1.35e+07	4.56e+02	3.0e+04	8.65e+06	6.48e+02	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	1.25e+07	8.24e+02	1.5e+04	9.80e+06	4.40e+02	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.22e+07	8.24e+02	1.5e+04	9.56e+06	4.40e+02	2.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	8.69e+06	4.28e+02	2.0e+04	8.12e+06	6.80e+02	1.2e+04
32	13C-OCDD	7.96e+06	3.92e+02	2.0e+04	8.87e+06	1.52e+02	5.8e+04
33	13C-1,2,3,4-TCDD	8.45e+06	4.63e+03	1.8e+03	1.06e+07	1.93e+03	5.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.25e+07	8.24e+02	1.5e+04	1.01e+07	4.40e+02	2.3e+04
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.38e+03	1.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.004e{+}03 + 3.800e{+}02) \times 100}{(8.062e{+}06 + 1.000e{+}07) \times (\quad) \times 1.085} =$$

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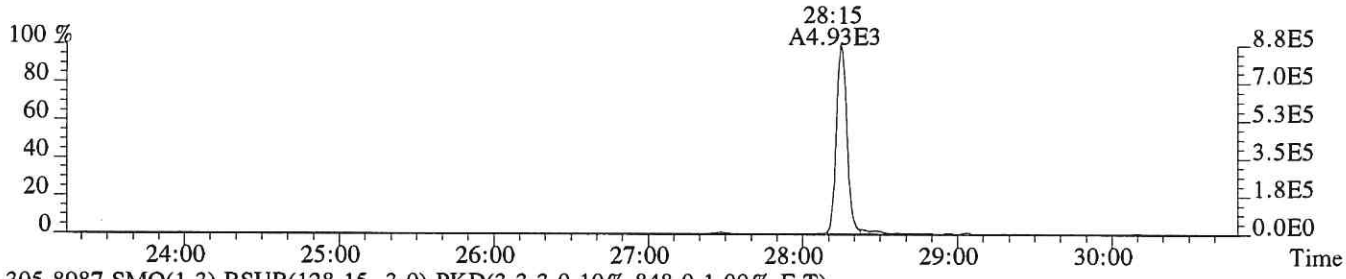
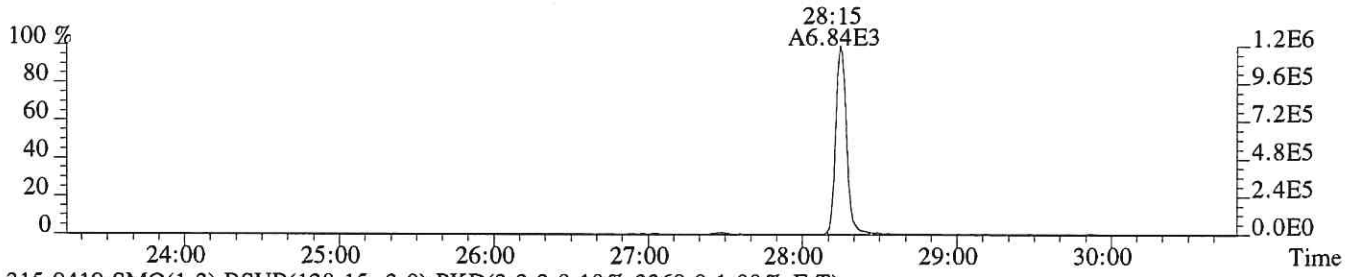
File:P519161 #1-538 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

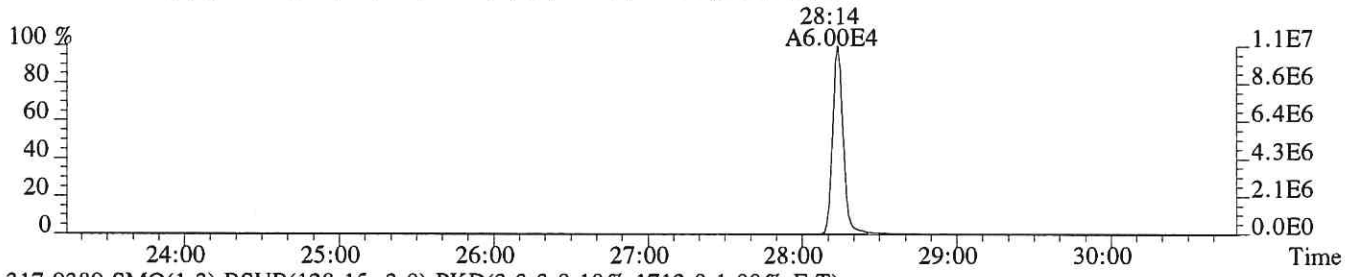
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



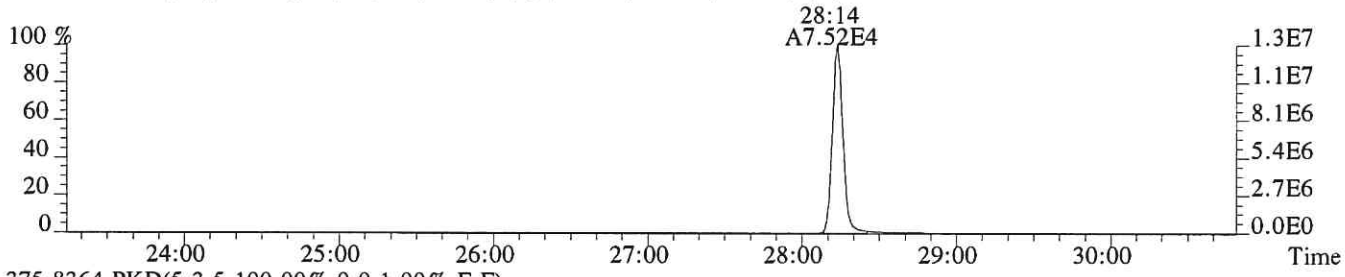
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



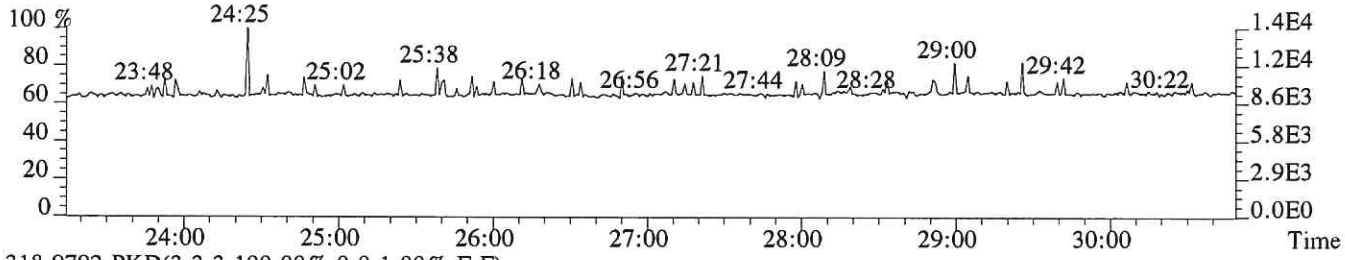
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3368.0,1.00%,F,T)



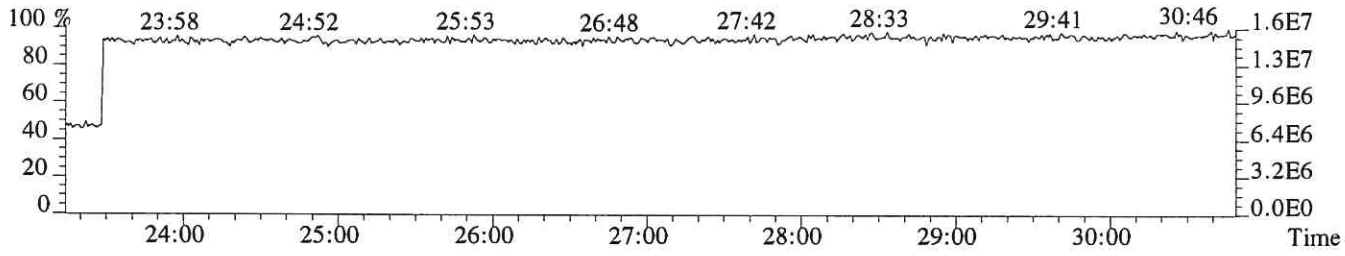
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

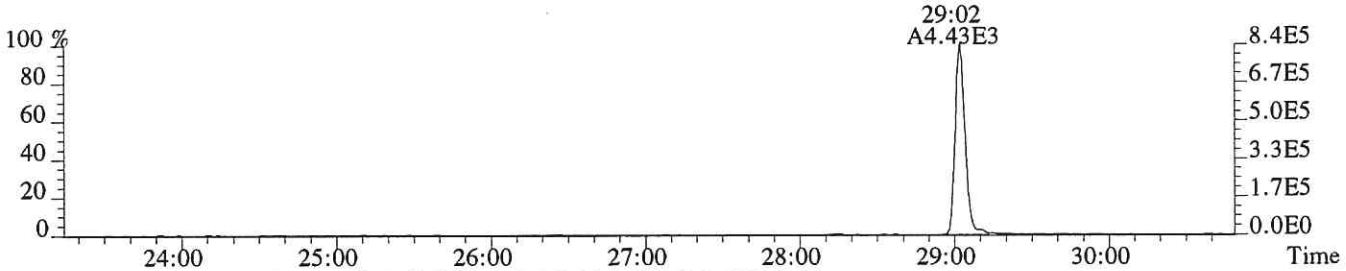


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

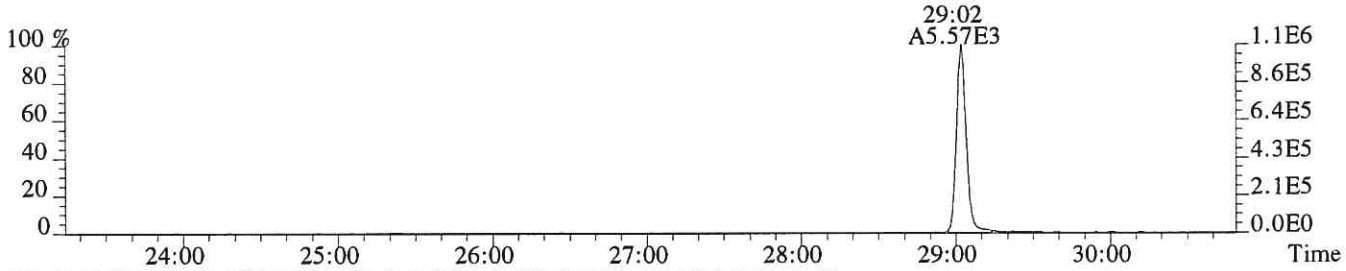


File:P519161 #1-538 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

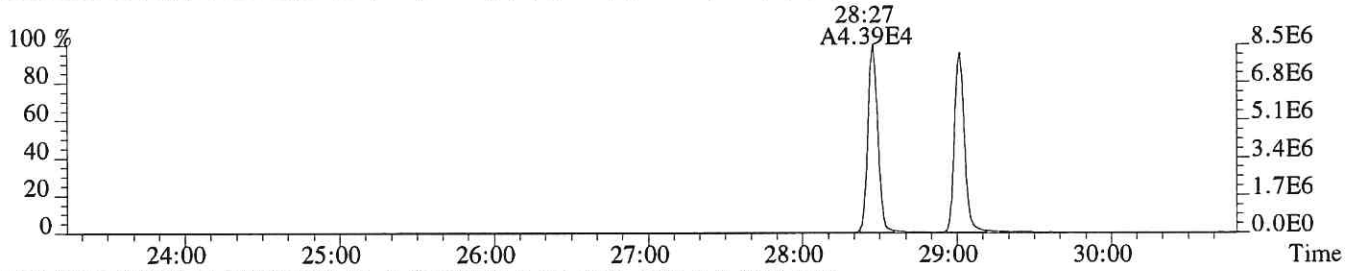
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



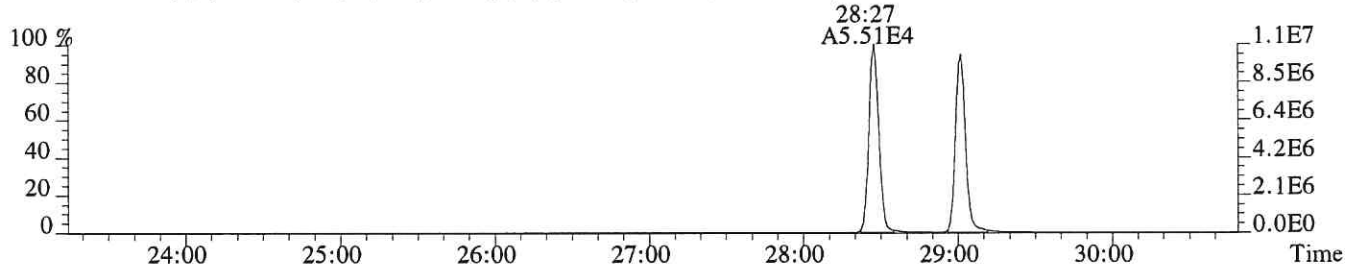
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



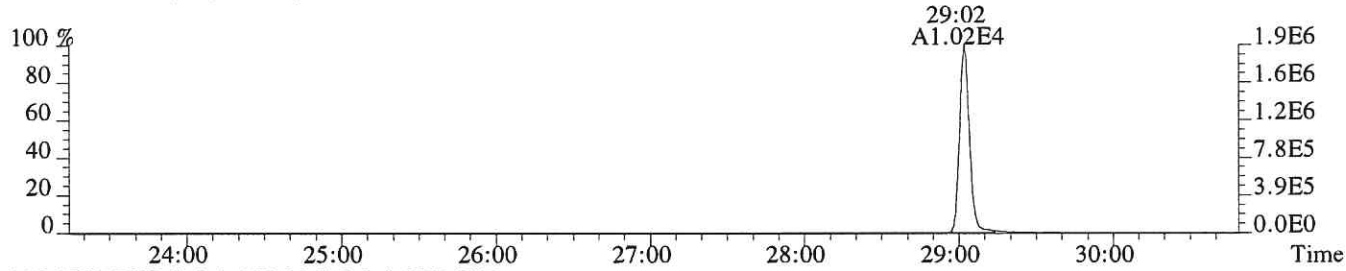
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



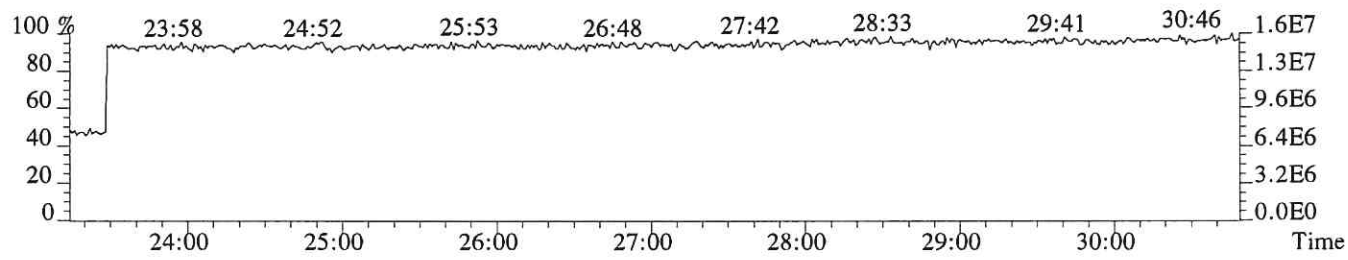
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



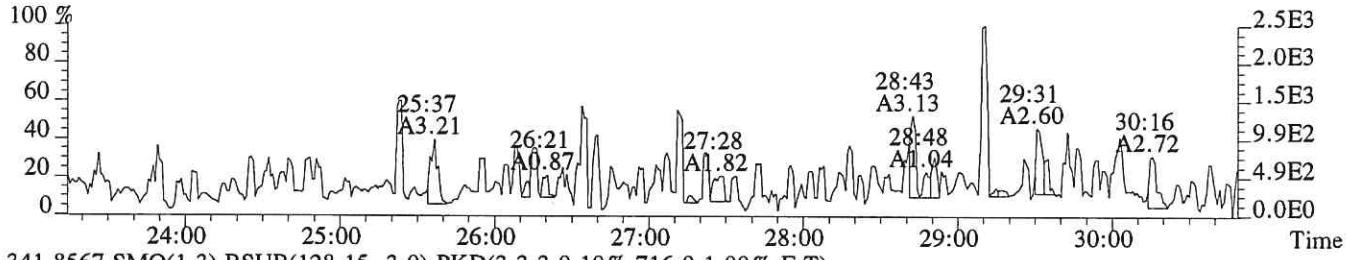
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



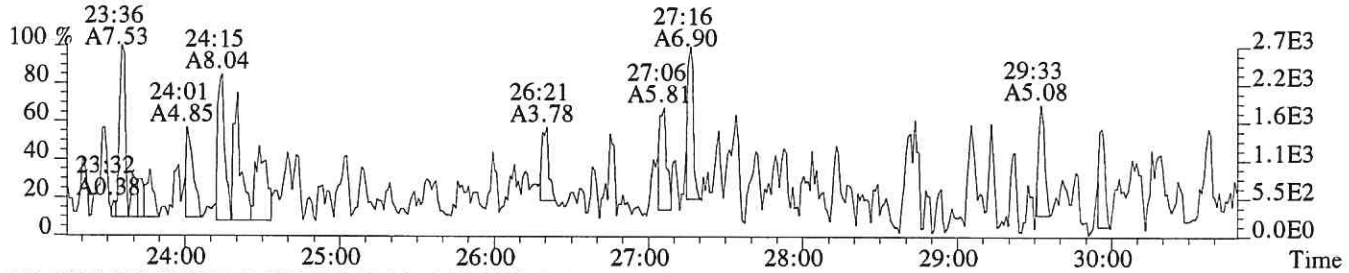
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



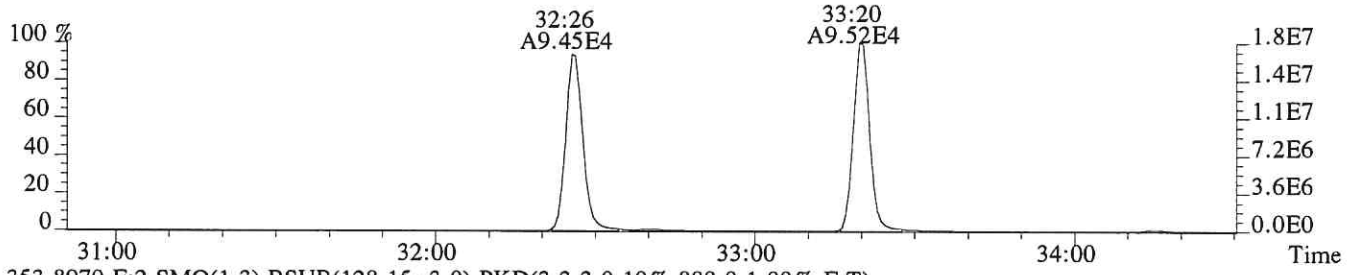
File:P519161 #1-538 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



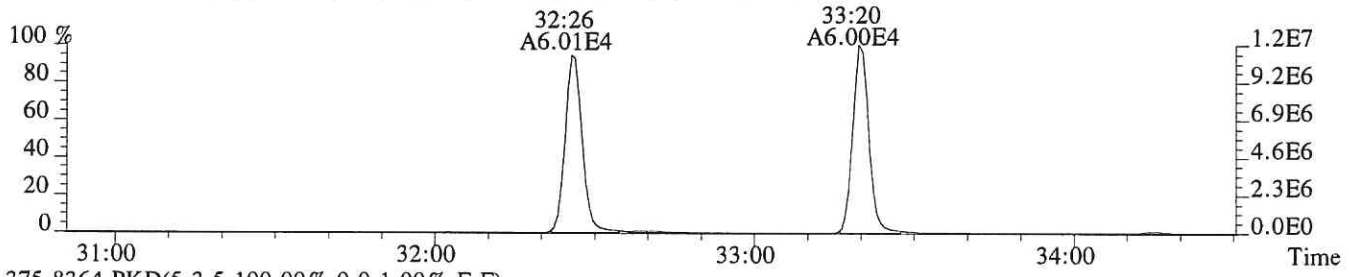
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



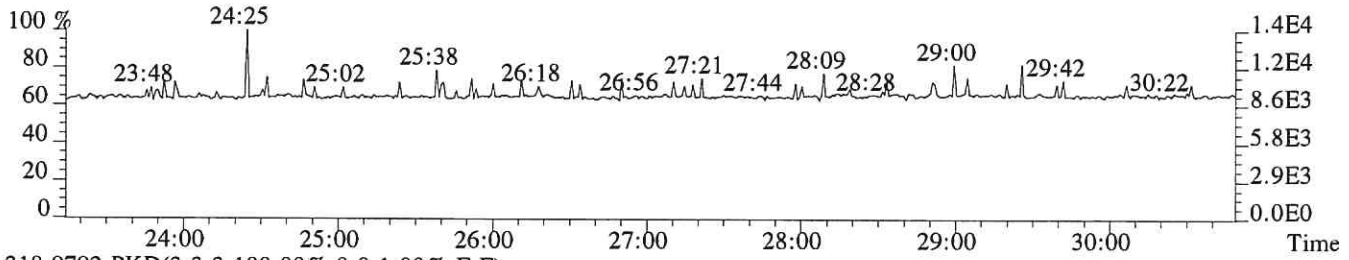
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



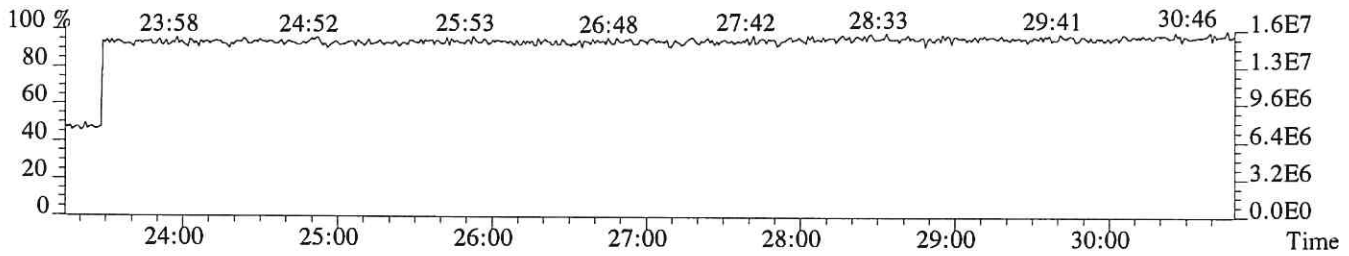
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

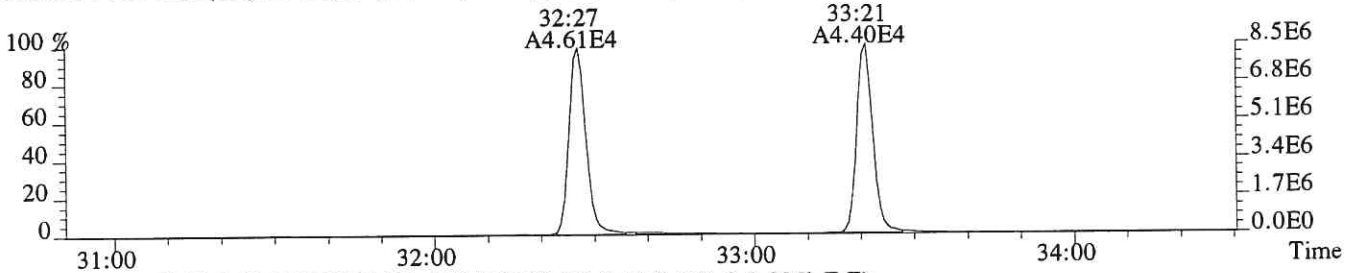


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

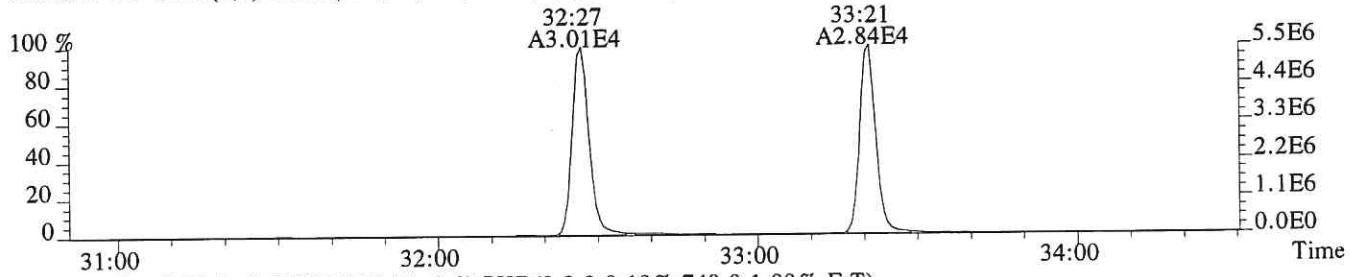


File:P519161 #1-330 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

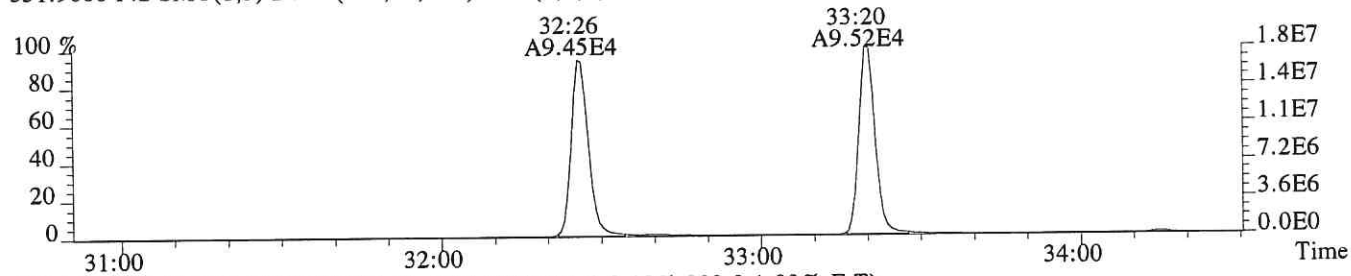
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



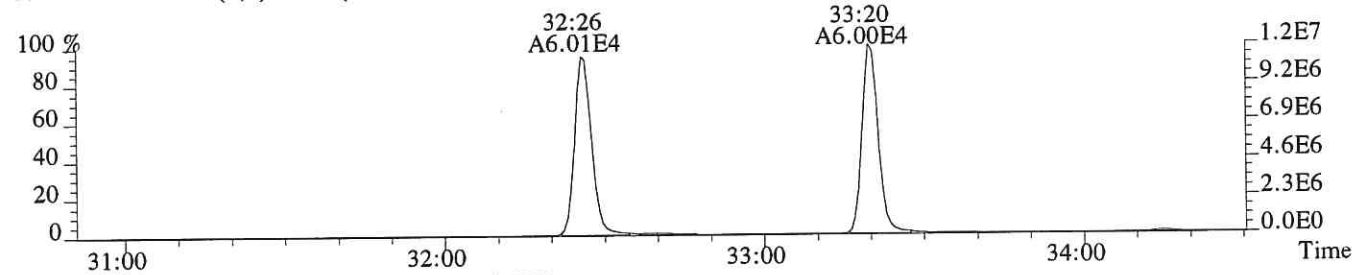
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



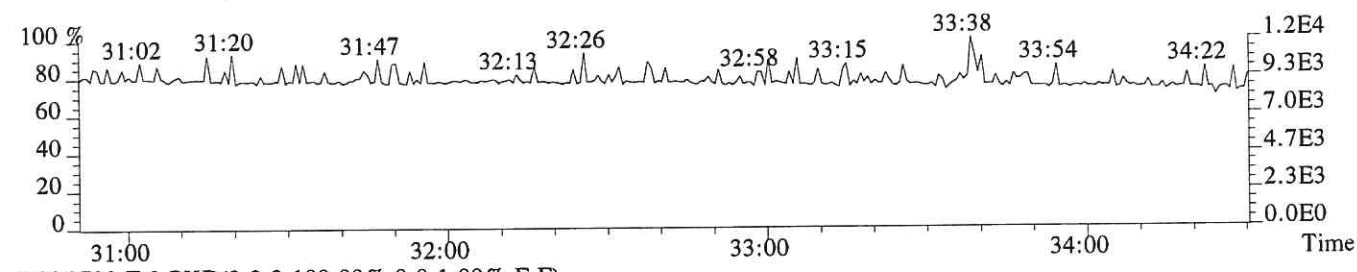
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



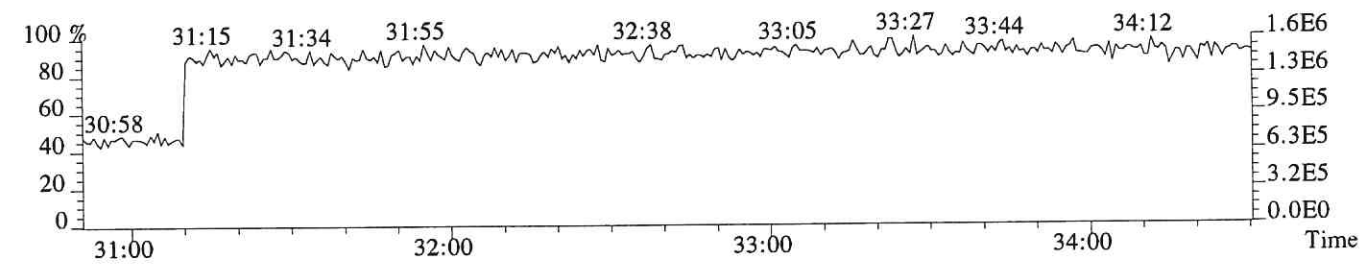
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



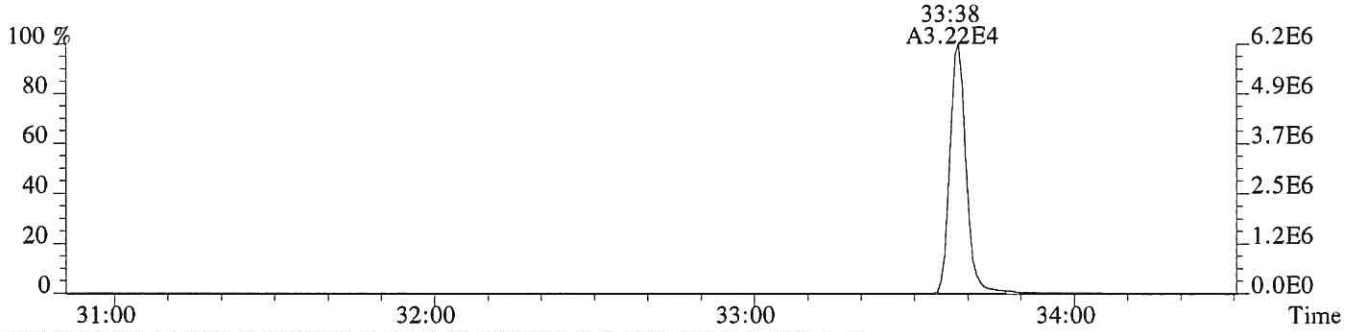
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



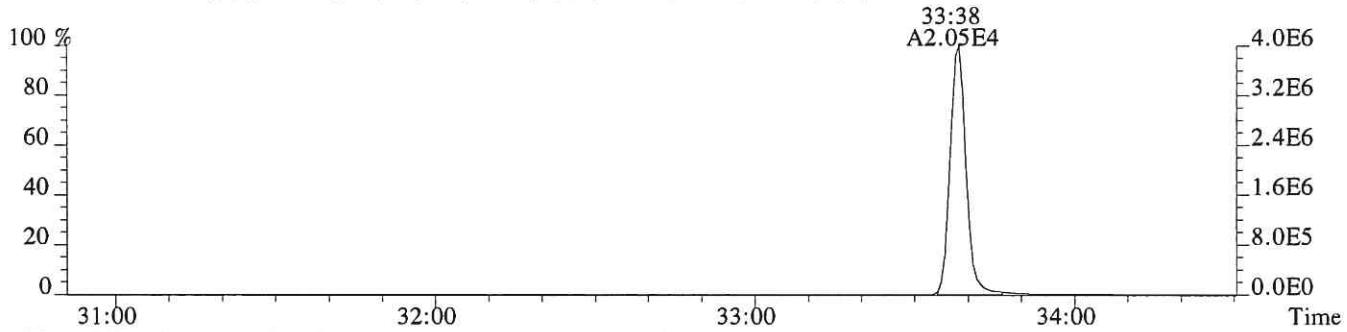
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



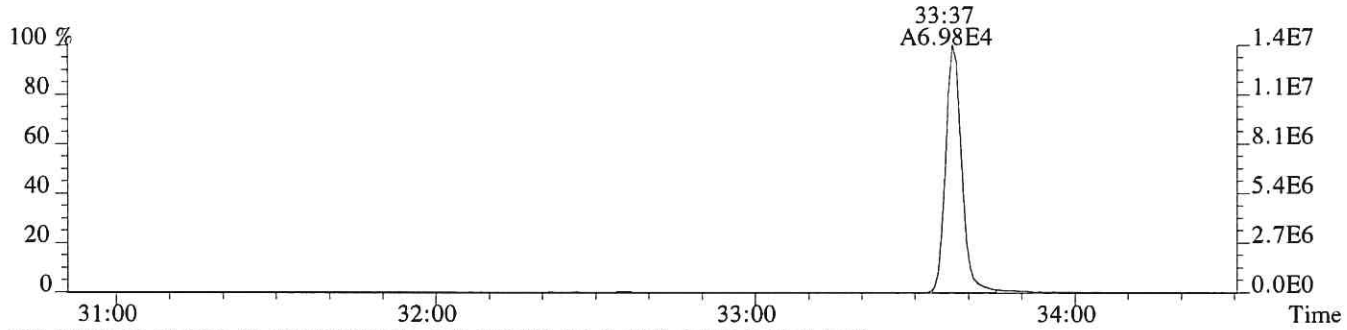
File:P519161 #1-330 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



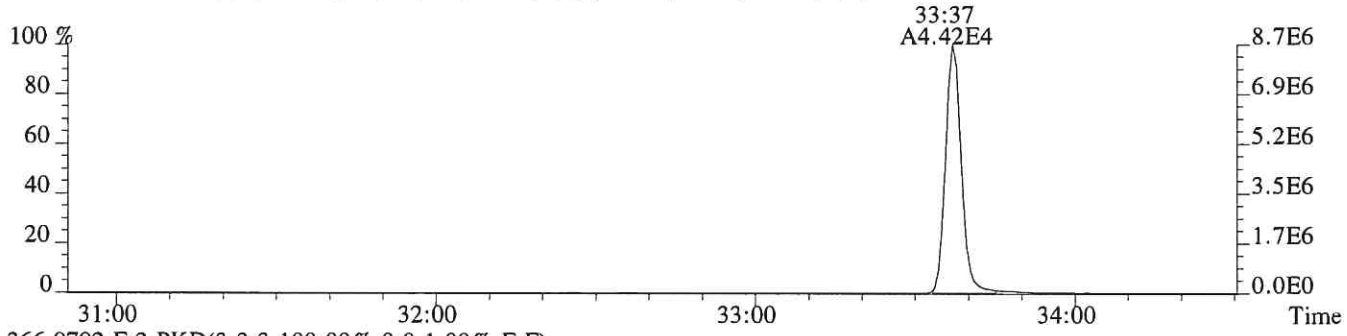
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



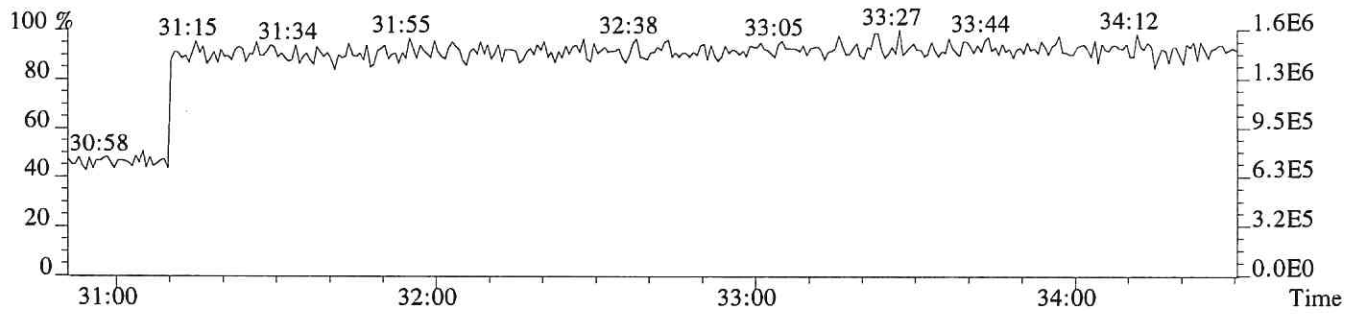
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)

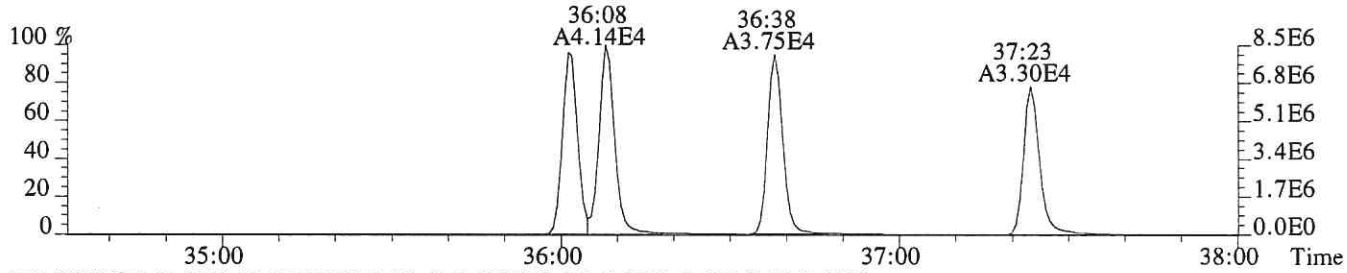


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

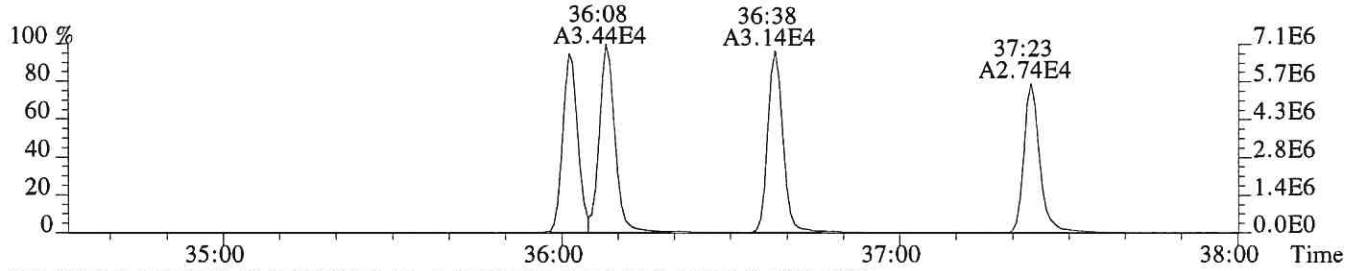


File:P519161 #1-312 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

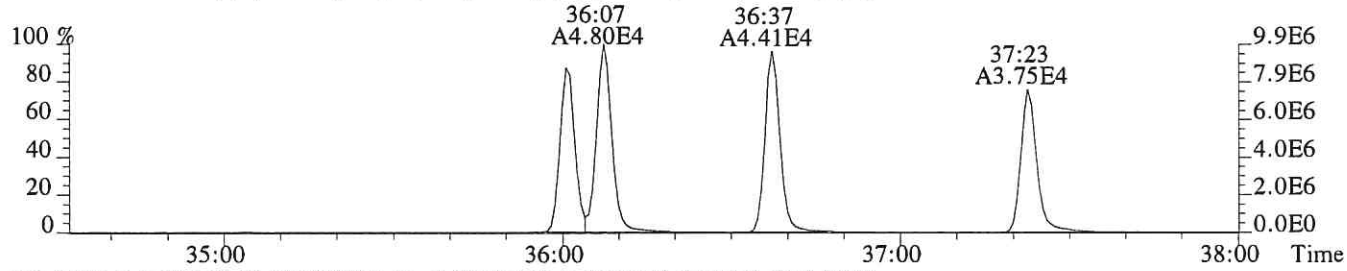
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



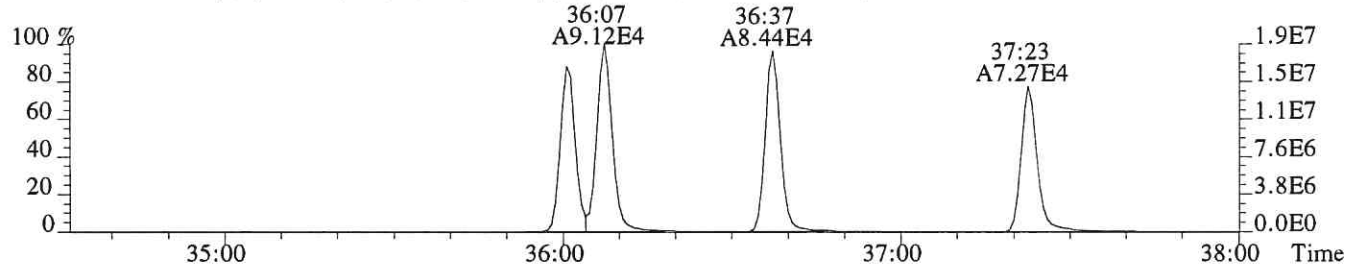
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



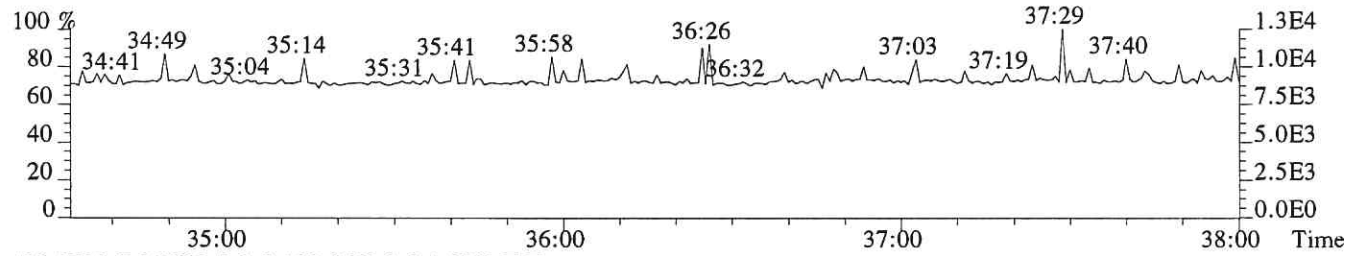
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



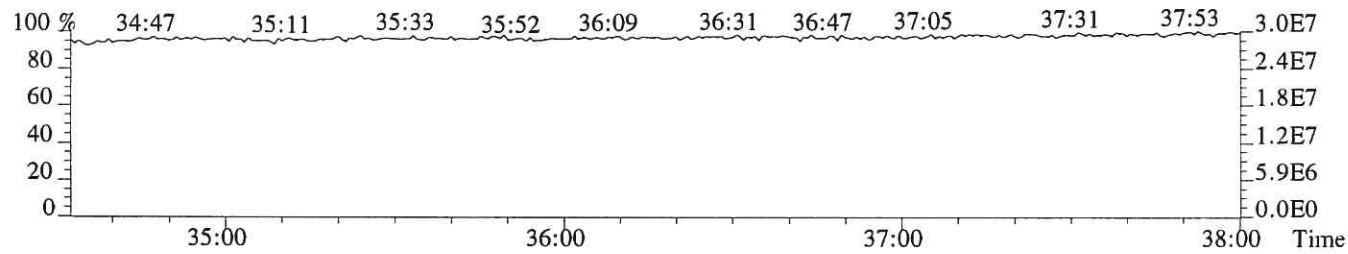
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



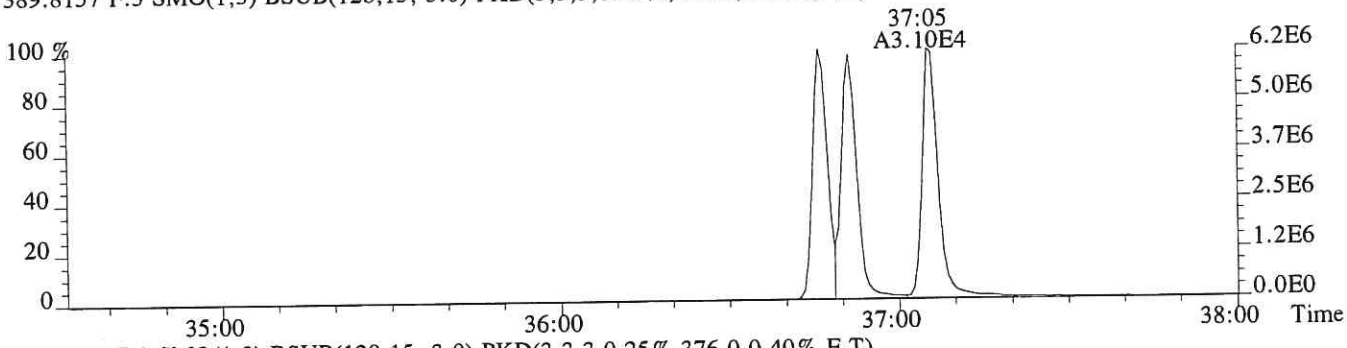
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



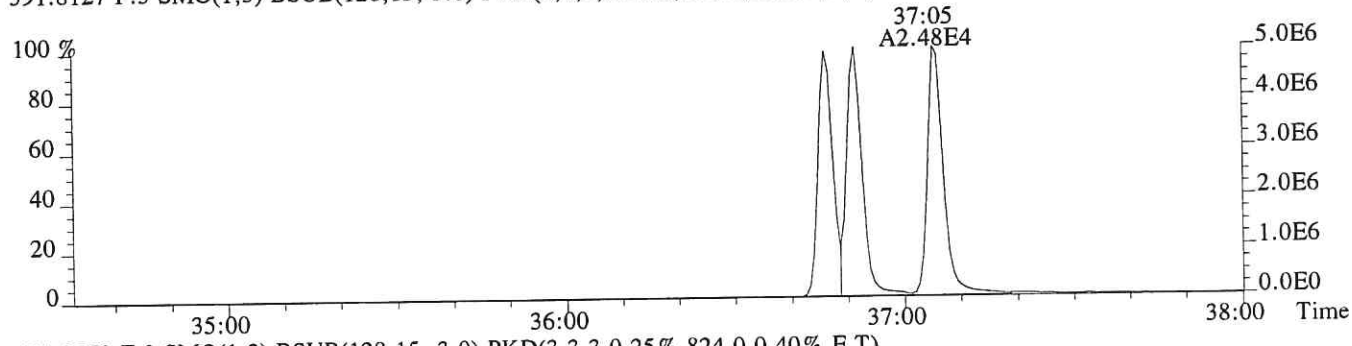
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



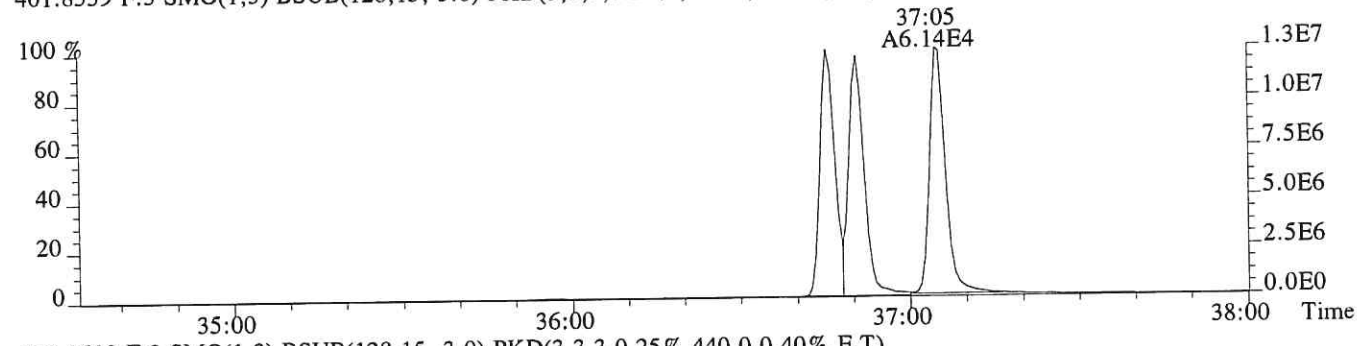
File:P519161 #1-312 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



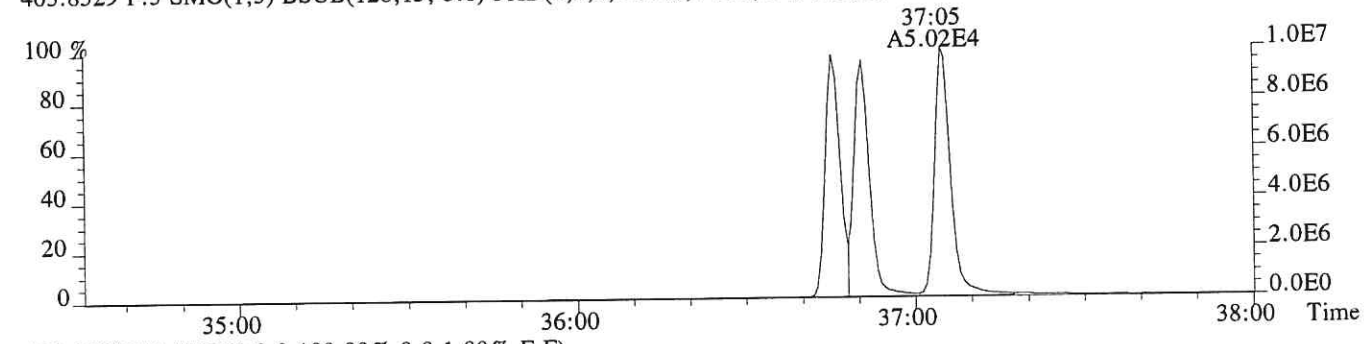
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



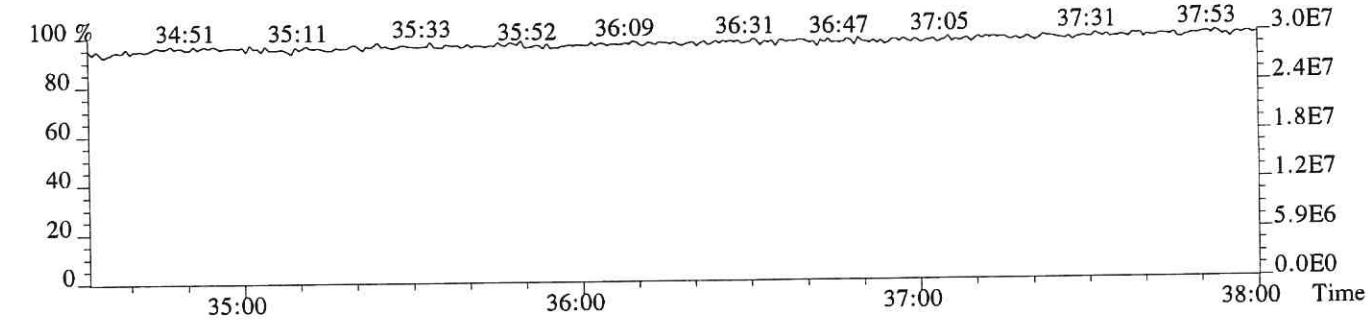
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)

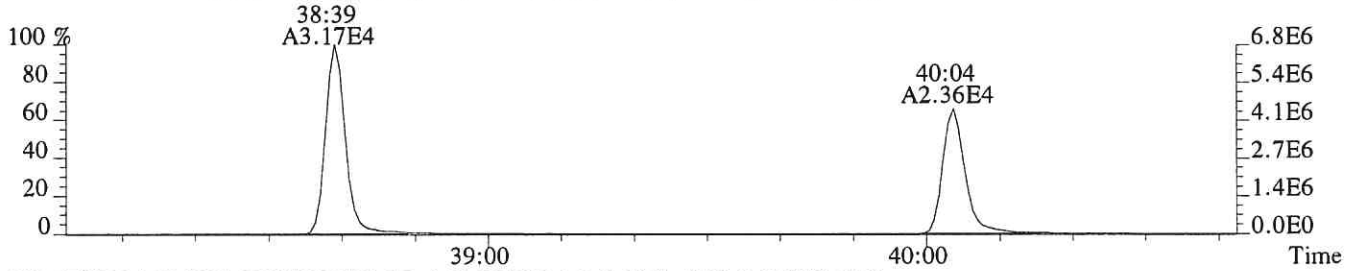


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

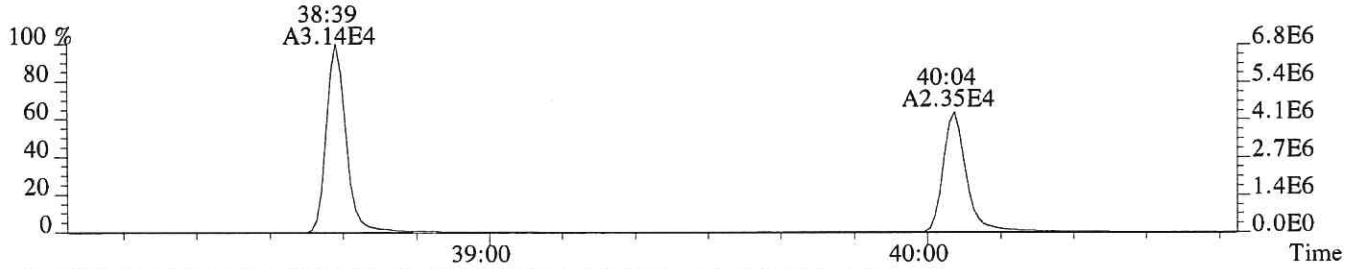


File:P519161 #1-241 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

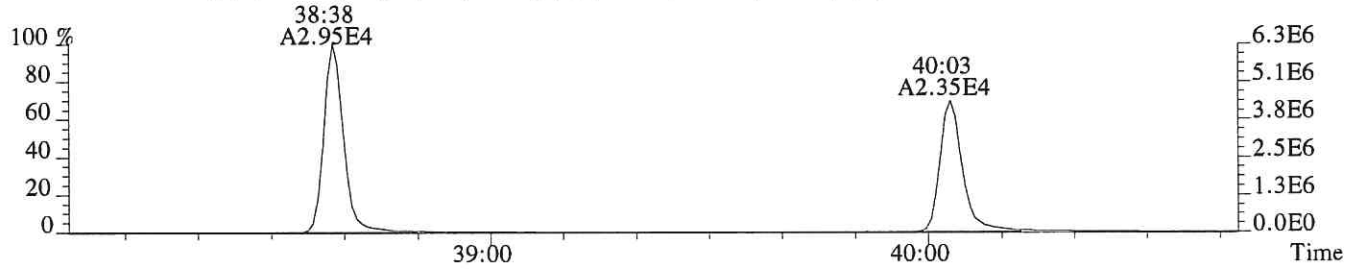
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2756.0,0.50%,F,T)



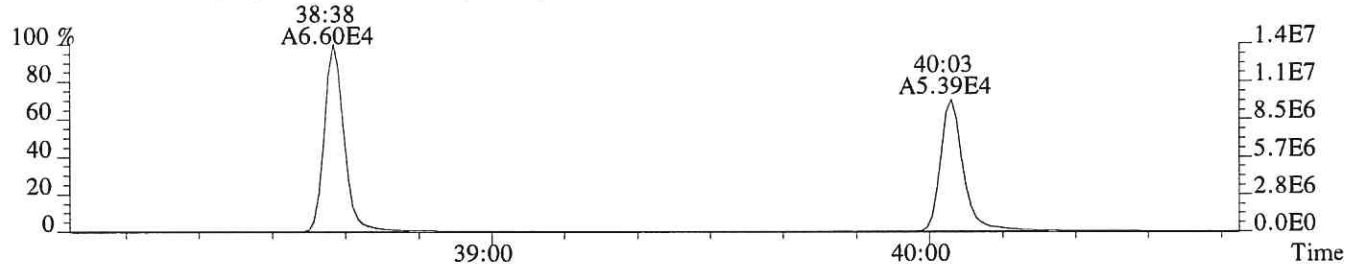
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4836.0,0.50%,F,T)



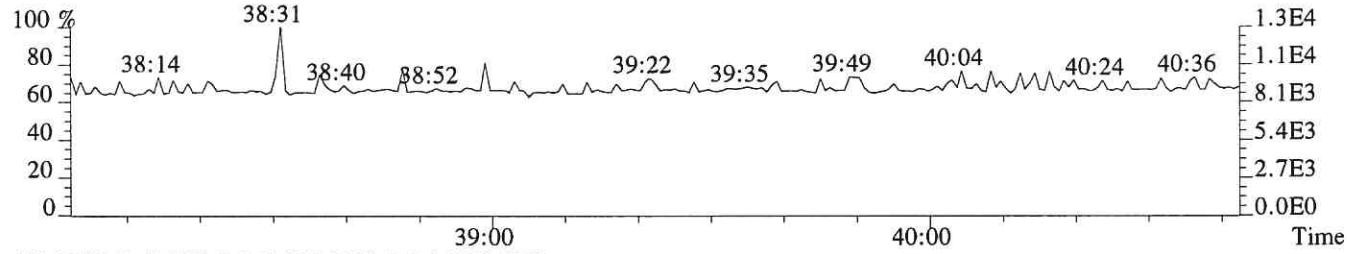
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3472.0,0.50%,F,T)



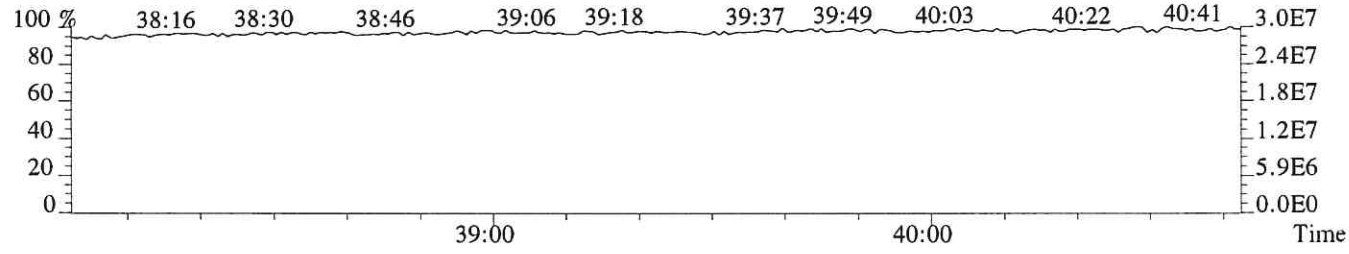
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9088.0,0.50%,F,T)



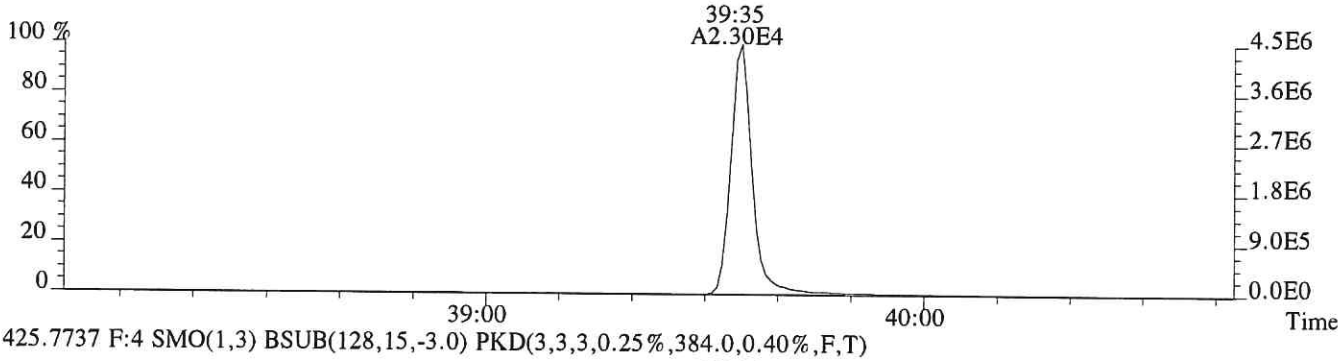
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



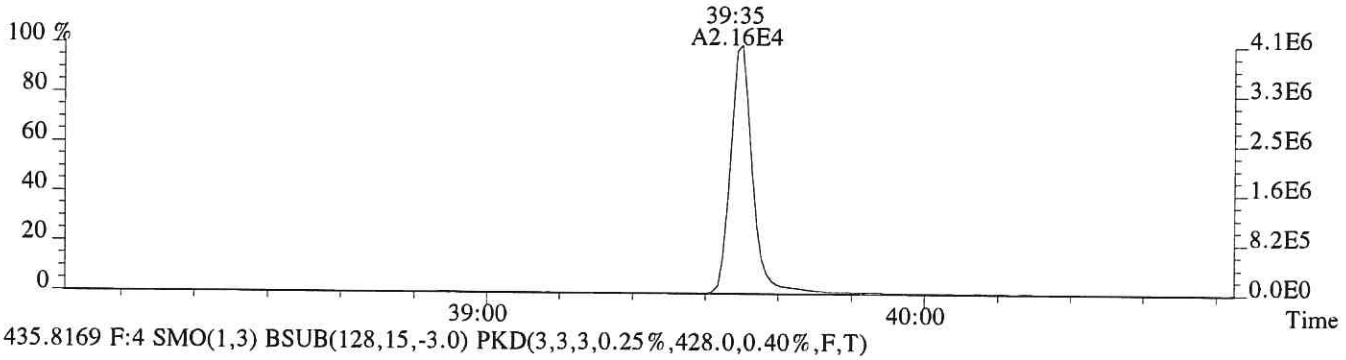
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



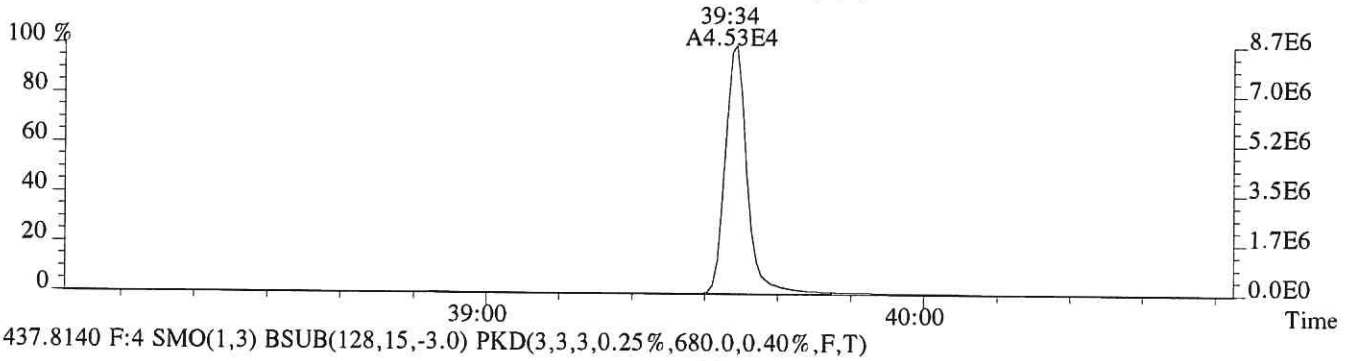
File:P519161 #1-241 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



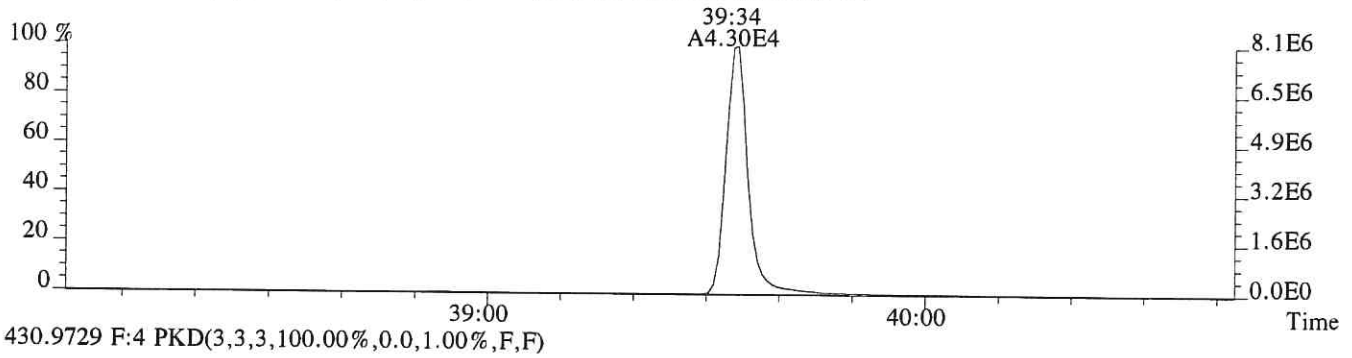
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



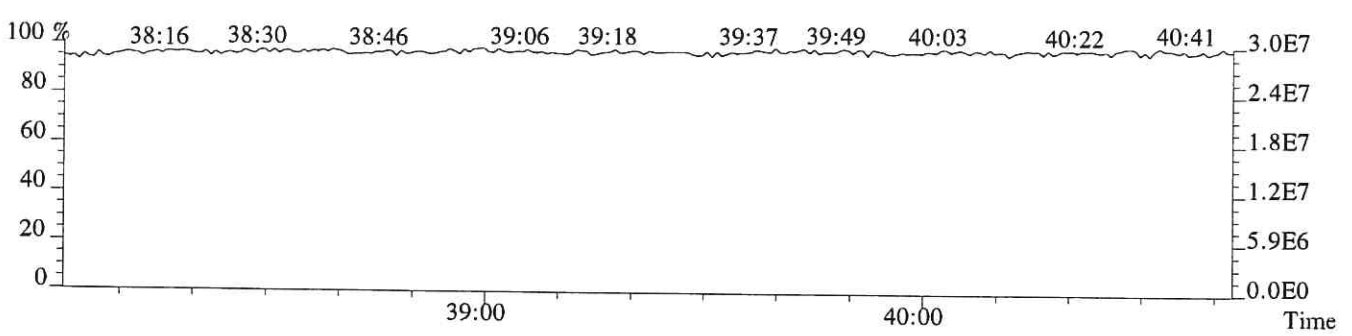
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)

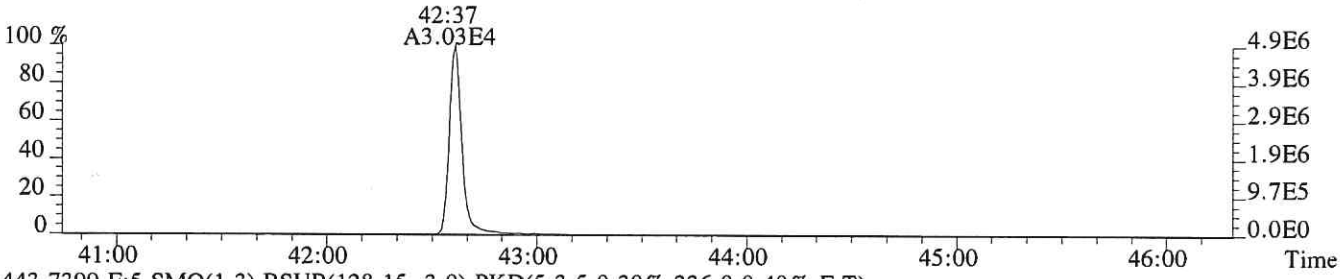


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

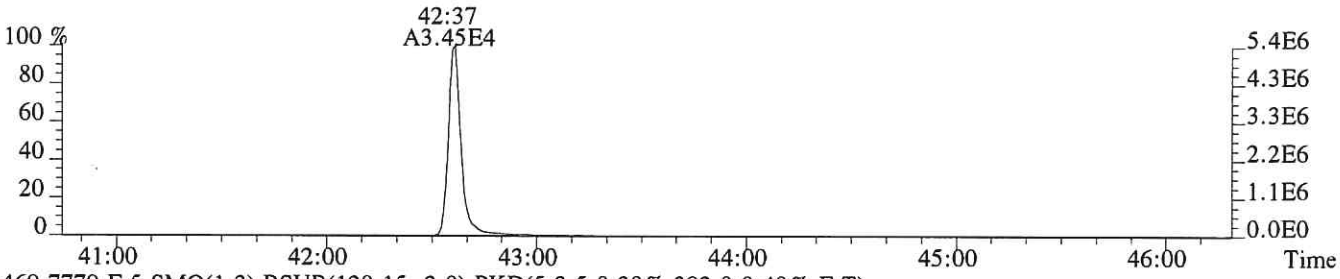


File:P519161 #1-502 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

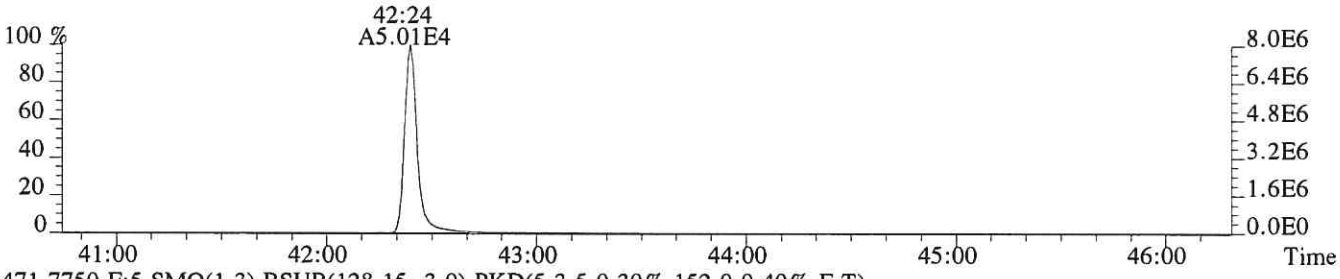
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



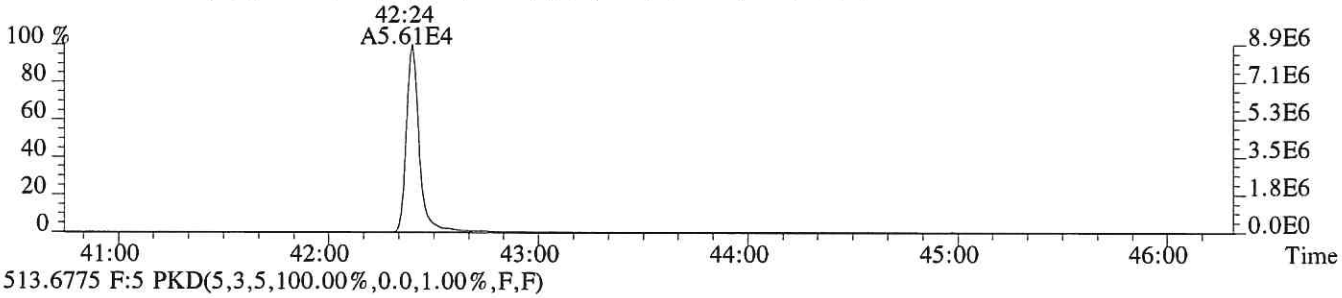
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



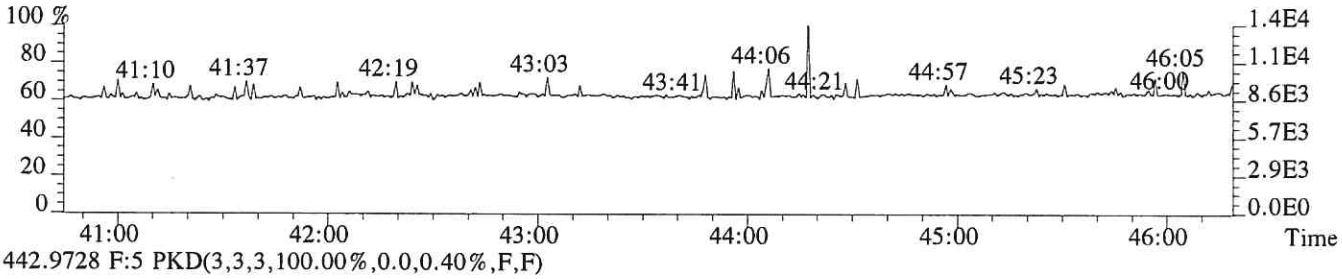
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



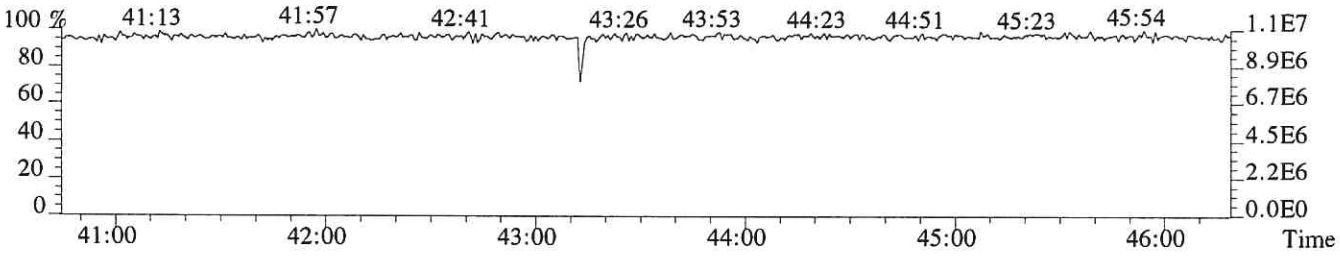
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



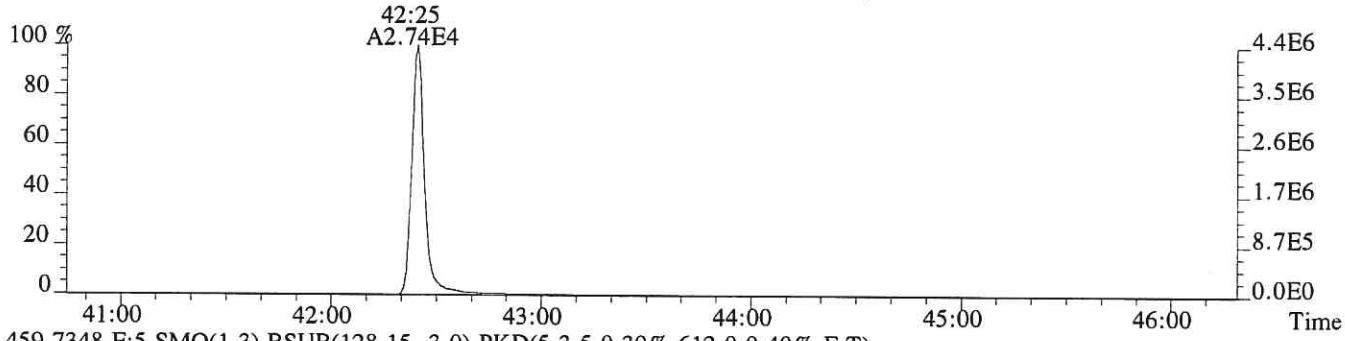
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



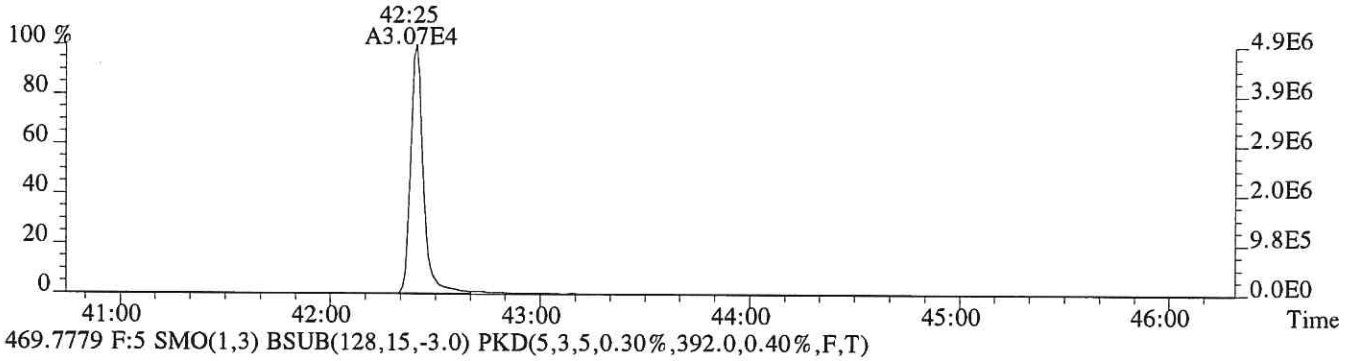
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



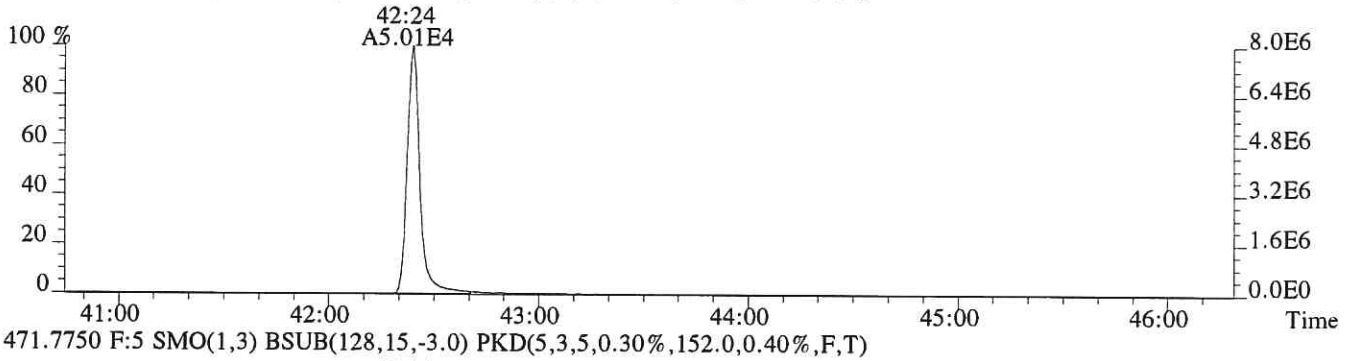
File:P519161 #1-502 Acq: 3-DEC-2018 05:23:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



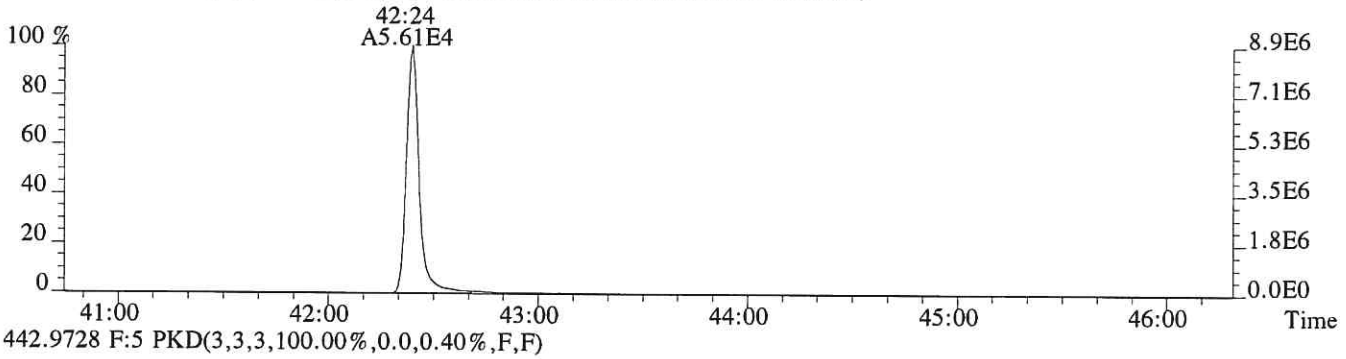
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



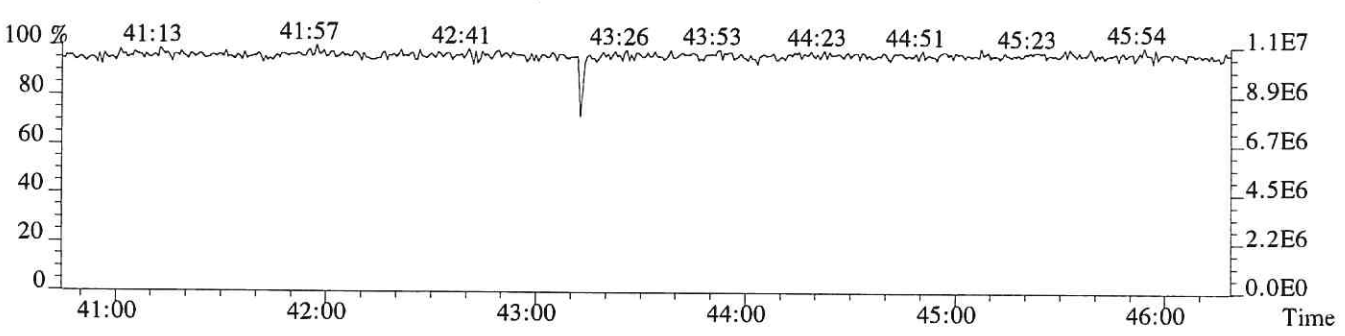
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519210

Date: 12/05/18

Circle one: (Beginning) / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519210	5-DEC-18	01:15:25
192977	WINDOW DEFINE	P519211	5-DEC-18	02:03:12
METHOD BLANK	EQ1800481-01	P519212	5-DEC-18	02:51:49
METHOD BLANK	EQ1800487-01	P519213	5-DEC-18	03:40:26
PRIMARY SLUDGE 4Q18	E1801025-001	P519214	5-DEC-18	04:29:03
SECONDARY SLUDGE 4Q	E1801025-002	P519215	5-DEC-18	05:17:40
18315B01BA	E1801053-001	P519216	5-DEC-18	06:06:19
CT-09C-2018	J1807948-015	P519217	5-DEC-18	06:56:09
NONANE	NONANE	P519218	5-DEC-18	07:43:57
METHOD BLANK	EQ1800469-01	P519219	5-DEC-18	08:32:35
SL0129	E1801039-036DL	P519220	5-DEC-18	09:21:17
SL0130	E1801039-037DL	P519221	5-DEC-18	10:09:57
LCS	EQ1800485-02	P519222	5-DEC-18	10:58:35
DLCS	EQ1800485-03	P519223	5-DEC-18	11:47:11

Sample List Report

MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181204B.SPL
Last Modified: Wednesday, December 05, 2018 12:27:49 Central Standard Time
Printed: Wednesday, December 05, 2018 12:27:50 Central Standard Time

Page Position (1, 1)

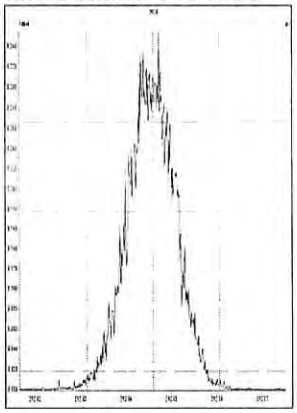
Opus4: P519210res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/5/18	01:15	P519210	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 01:15
2		02:05	P519211	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:51	P519212	MB	EQ1800481-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		03:40	P519213	MB	EQ1800487-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:29	P519214	E1801025-001	E1801025-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:17	P519215	E1801025-002	E1801025-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:06	P519216	E1801053-001	E1801053-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		need to reinjection
8		06:56	P519217	J1807948-015	J1807948-015	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:43	P519218	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:32	P519219	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:21	P519220	E1801039-036DL	E1801039-036DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:09	P519221	E1801039-037DL	E1801039-037DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:58	P519222	LCS	EQ1800485-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		11:47	P519223	DLCS	EQ1800485-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMScheck 12:41
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/06/18

Printed: Wednesday, December 05, 2018 01:15:23 Central Standard Time

M 292.9824 R 11966



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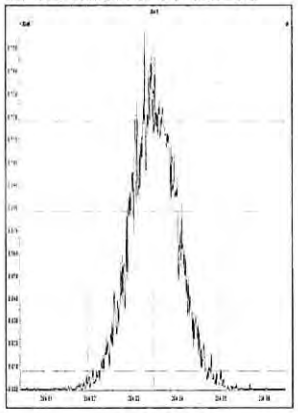
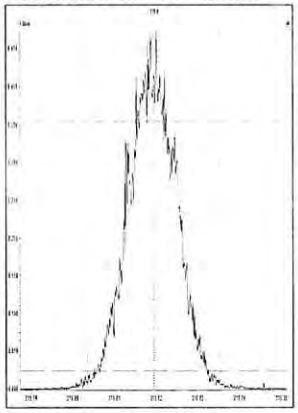


M 318.9792 R 12233



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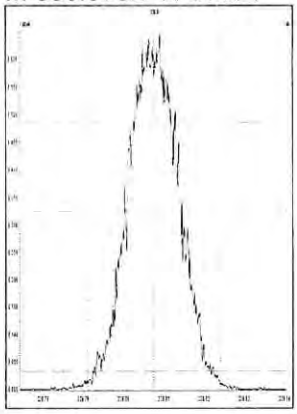
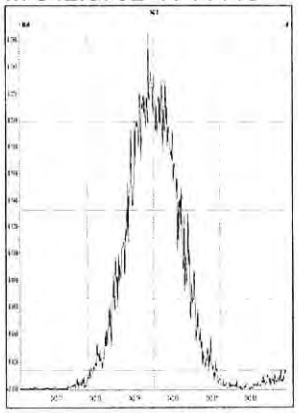
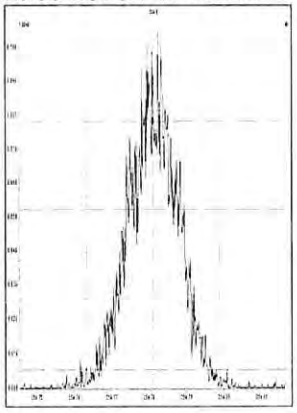


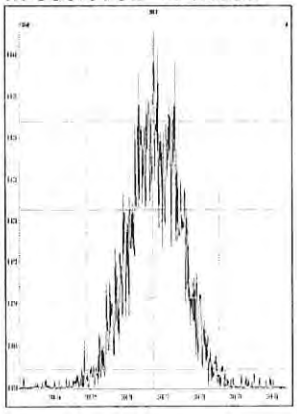
M 342.9792 R 11118



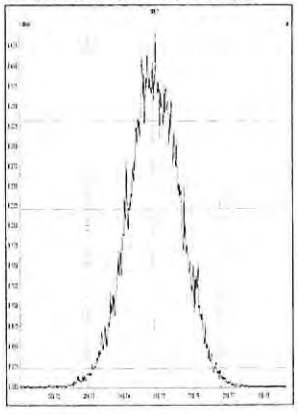
M 354.9792 R 12228



M 366.9792 R 12600



M 380.9760 R 11037



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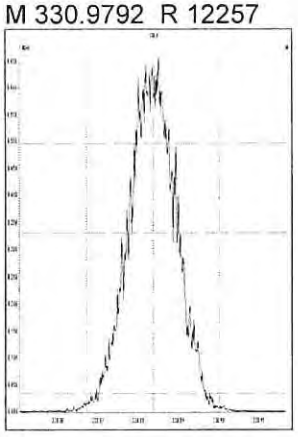
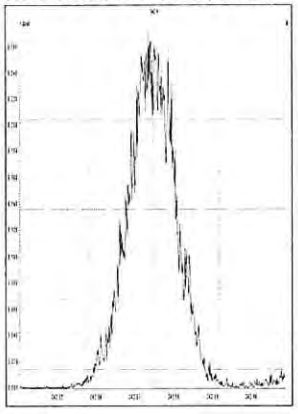
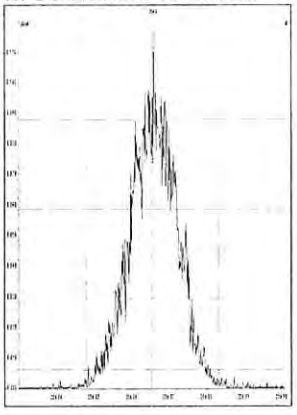


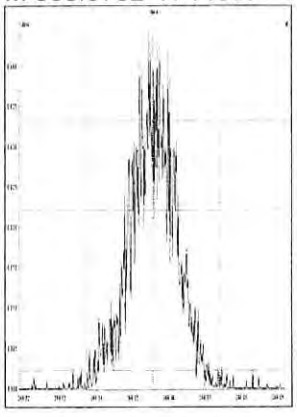
M 342.9792 R 11990



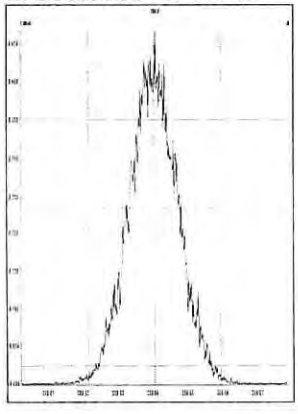
M 354.9792 R 12820



M 366.9792 R 14097



M 380.9760 R 11709



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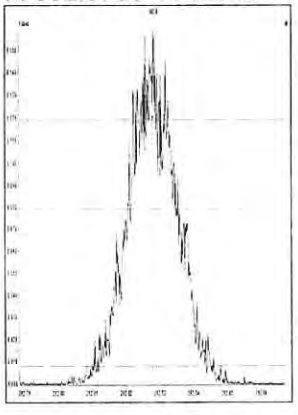

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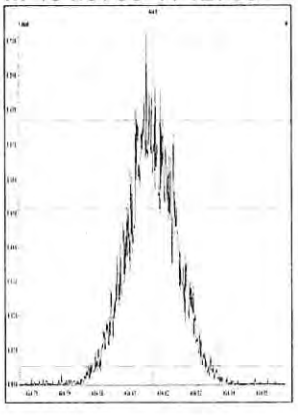
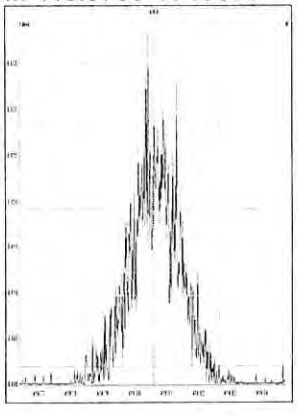
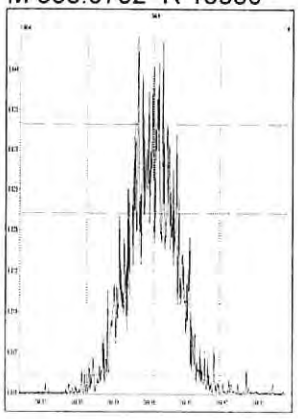


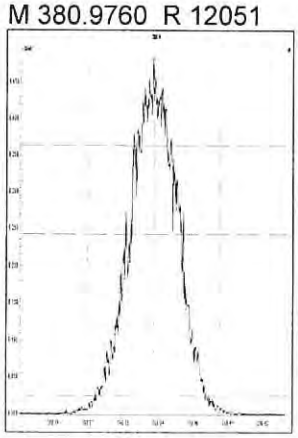
M 416.9760 R 13086



M 366.9792 R 13880



M 380.9760 R 12051



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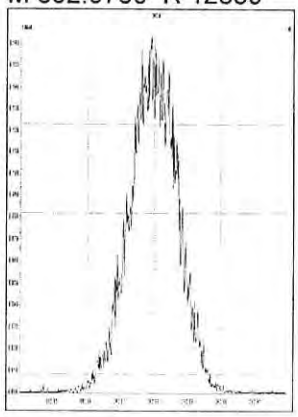
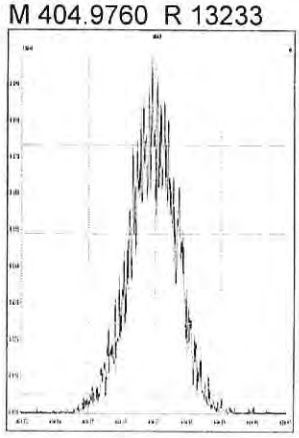


M 404.9760 R 13233



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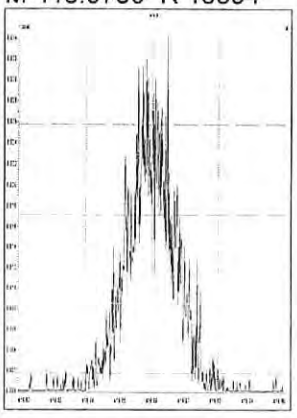
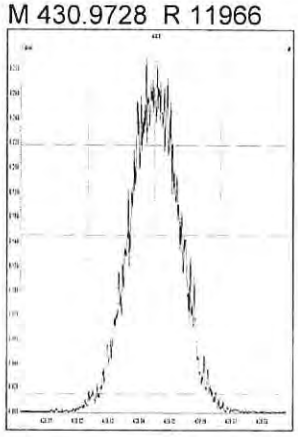
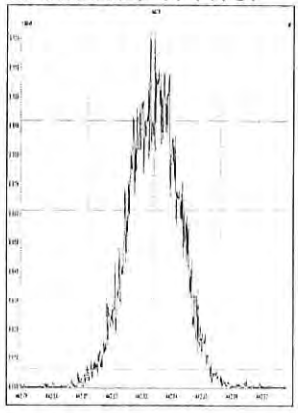


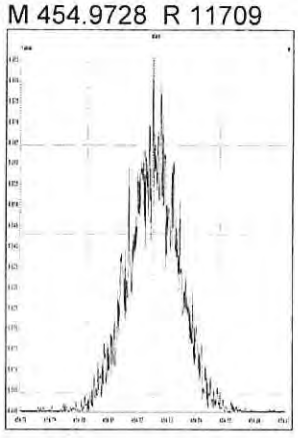
M 430.9728 R 11966



M 442.9728 R 11737



M 454.9728 R 11709



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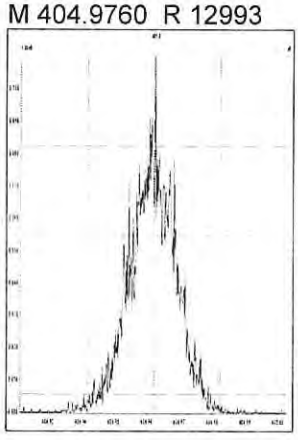
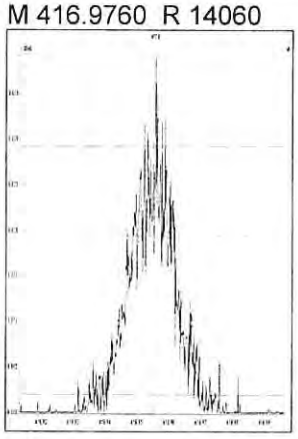


M 416.9760 R 14060



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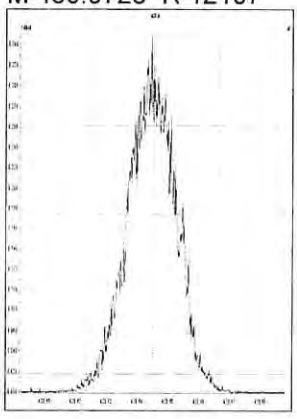
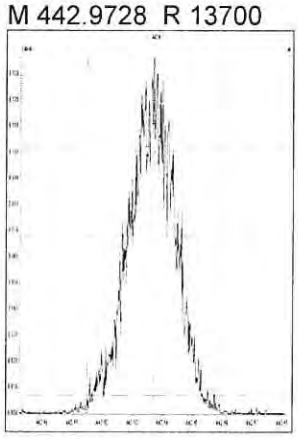


M 442.9728 R 13700



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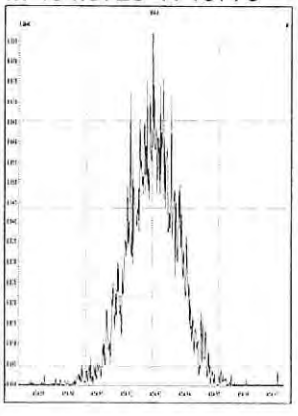

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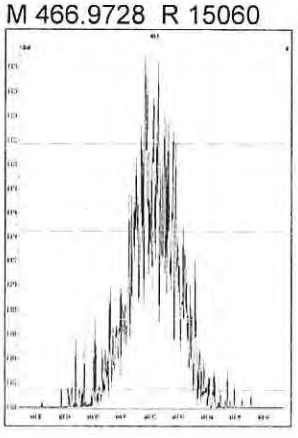
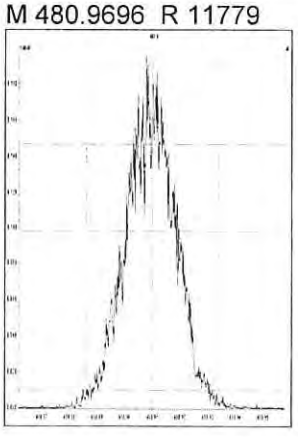
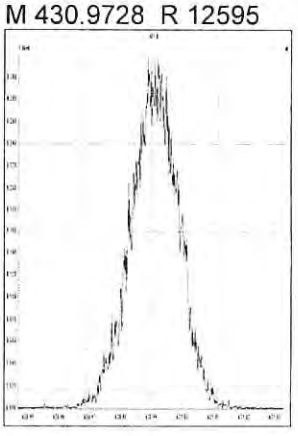


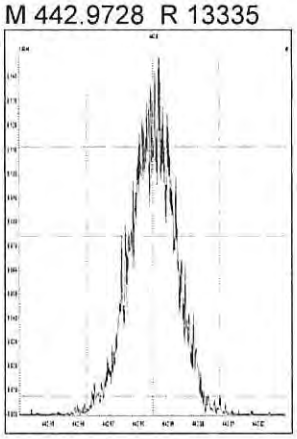
M 480.9696 R 11779



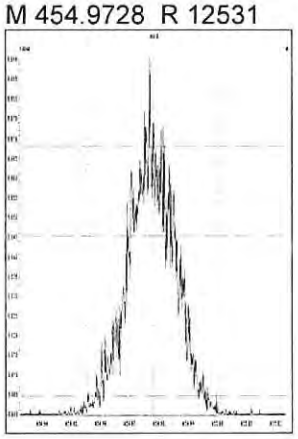
M 430.9728 R 12595



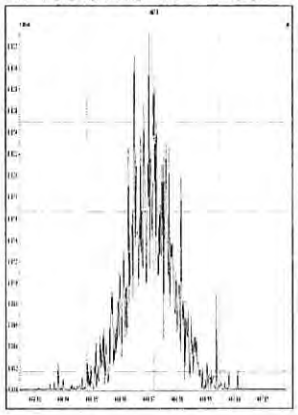
M 442.9728 R 13335



M 454.9728 R 12531



M 466.9728 R 14408



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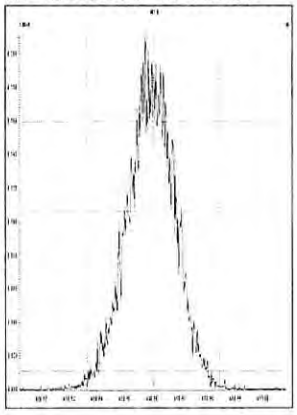
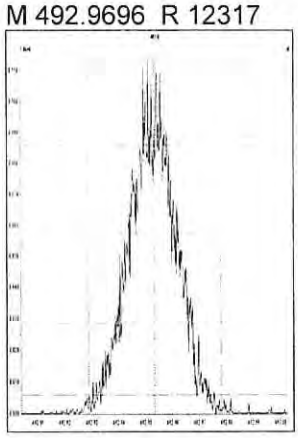
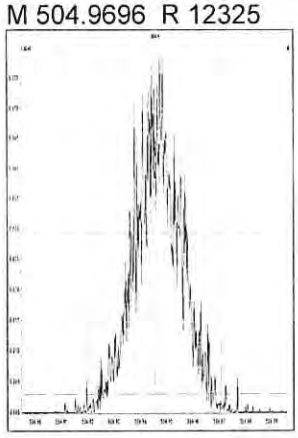


M 492.9696 R 12317



M 504.9696 R 12325



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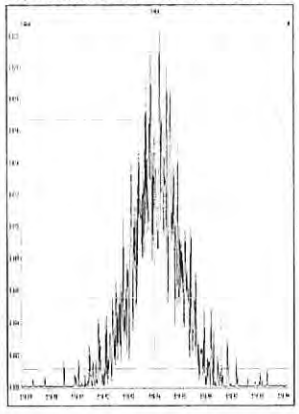

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

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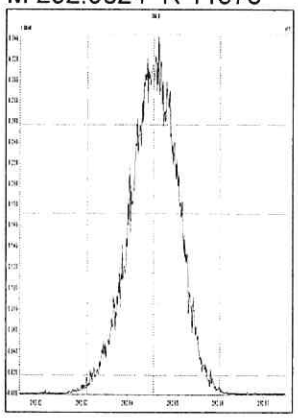
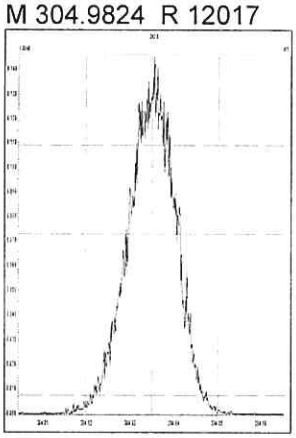
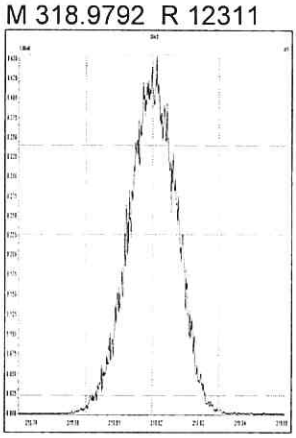
M 292.9824 R 11575



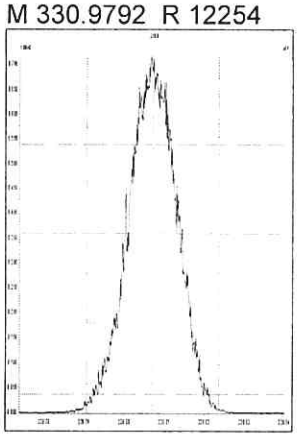
M 304.9824 R 12017



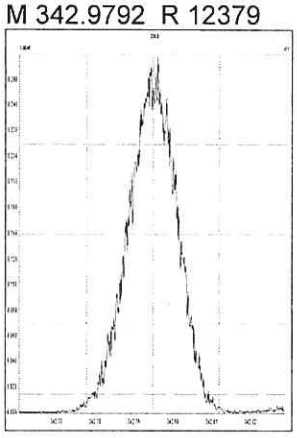
M 318.9792 R 12311



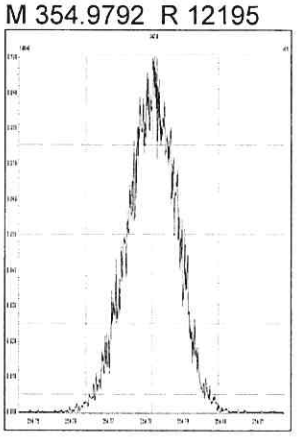
M 330.9792 R 12254



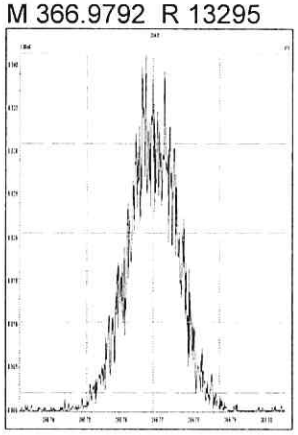
M 342.9792 R 12379



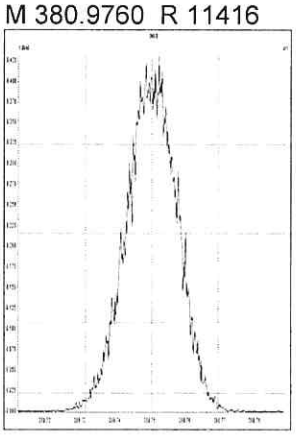
M 354.9792 R 12195



M 366.9792 R 13295



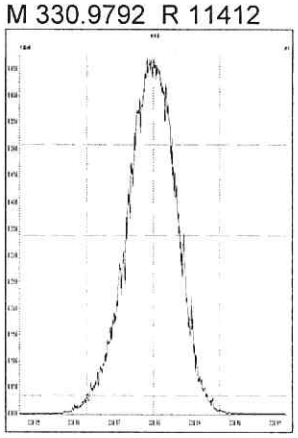
M 380.9760 R 11416



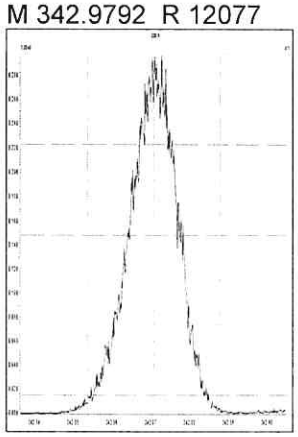
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:42:50 Central Standard Time

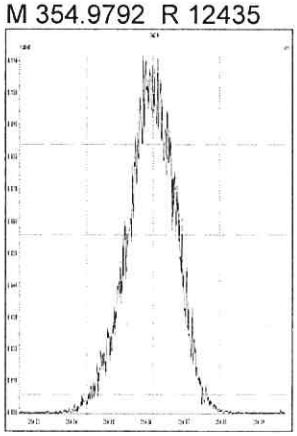
M 330.9792 R 11412



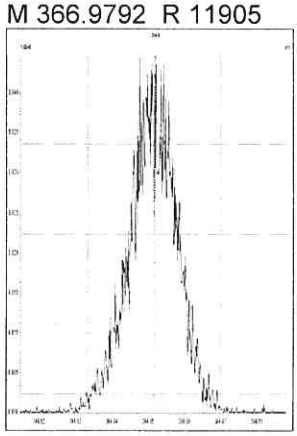
M 342.9792 R 12077



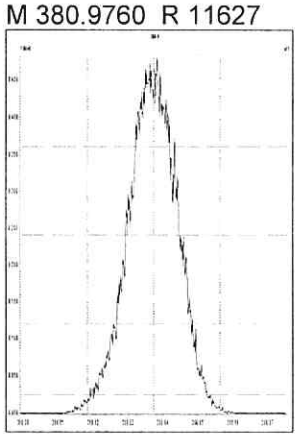
M 354.9792 R 12435



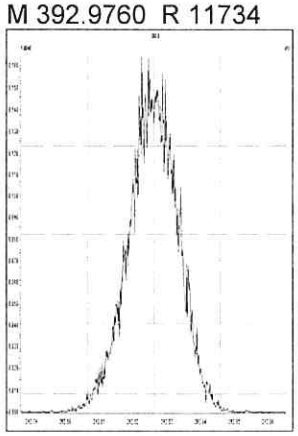
M 366.9792 R 11905



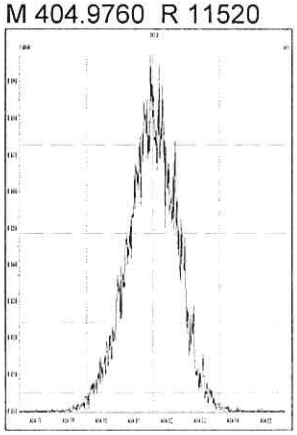
M 380.9760 R 11627



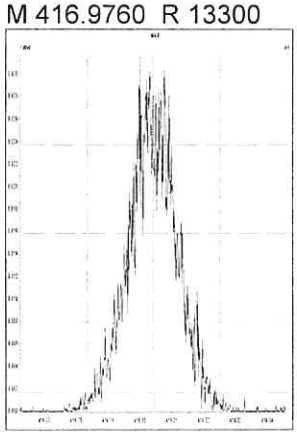
M 392.9760 R 11734



M 404.9760 R 11520



M 416.9760 R 13300



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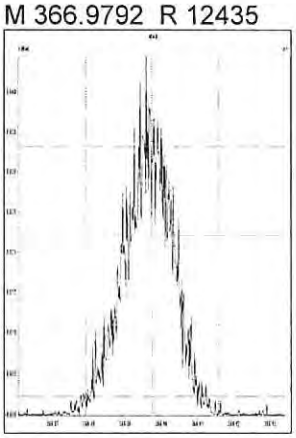
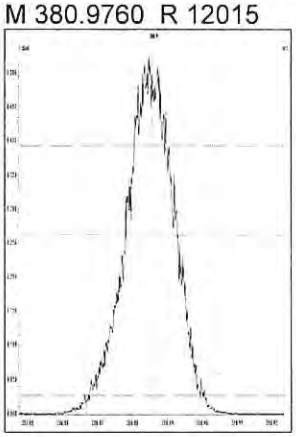
Printed: Wednesday, December 05, 2018 12:43:38 Central Standard Time

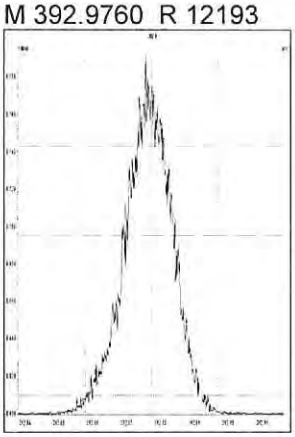
M 366.9792 R 12435



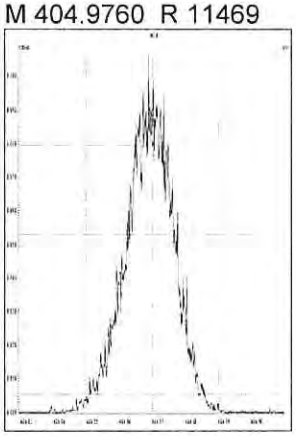
M 380.9760 R 12015



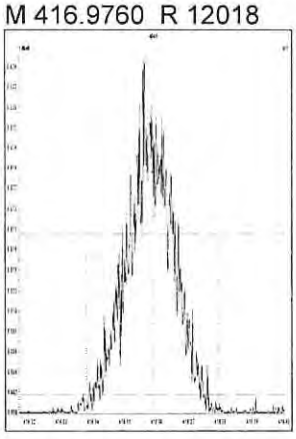
M 392.9760 R 12193



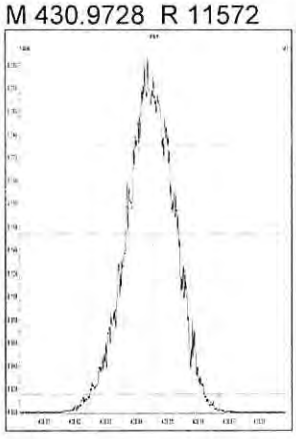
M 404.9760 R 11469



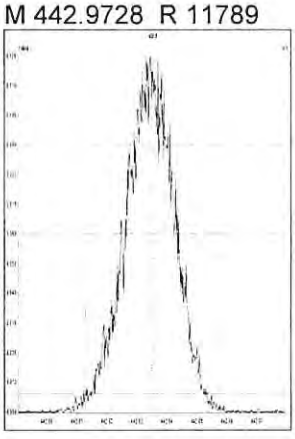
M 416.9760 R 12018



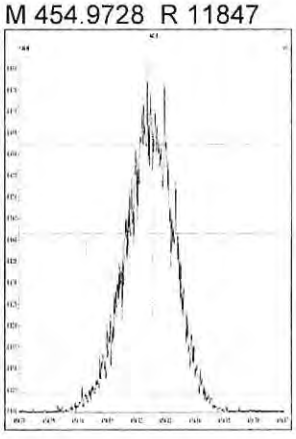
M 430.9728 R 11572



M 442.9728 R 11789



M 454.9728 R 11847



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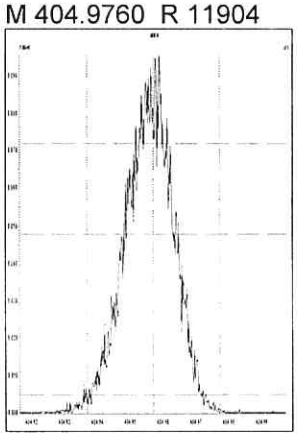
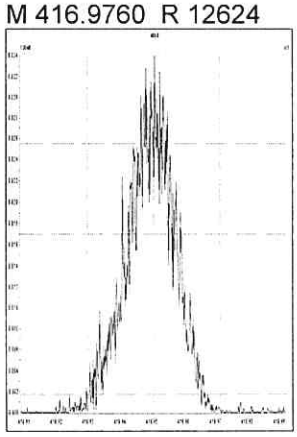
Printed: Wednesday, December 05, 2018 12:44:15 Central Standard Time

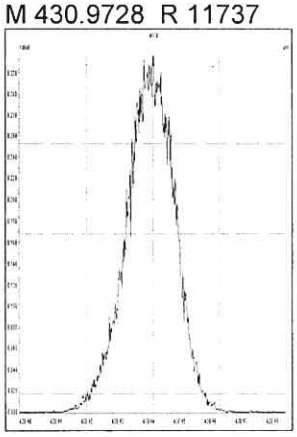
M 404.9760 R 11904



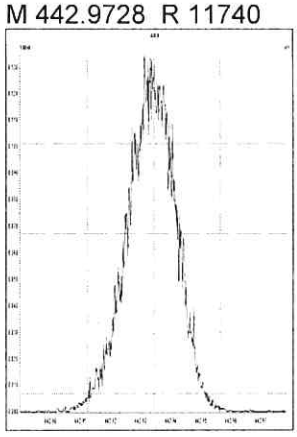
M 416.9760 R 12624



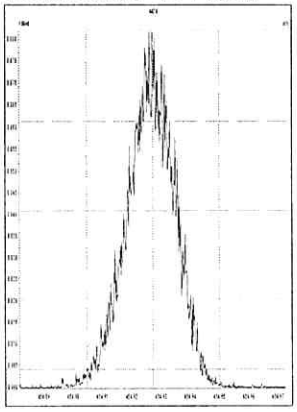
M 430.9728 R 11737



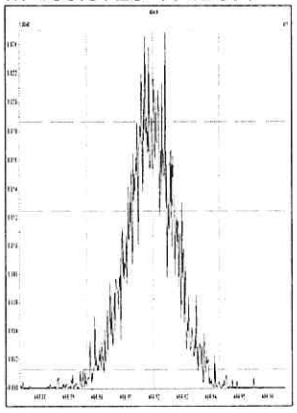
M 442.9728 R 11740



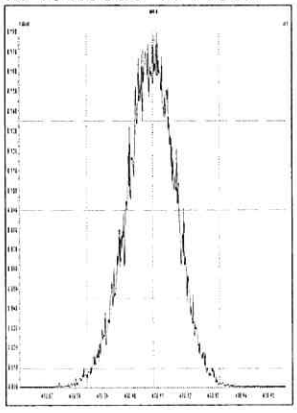
M 454.9728 R 11963



M 466.9728 R 12077



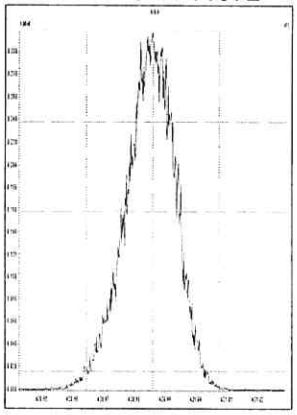
M 480.9696 R 11630



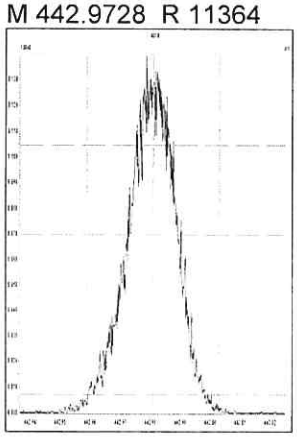
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:44:52 Central Standard Time

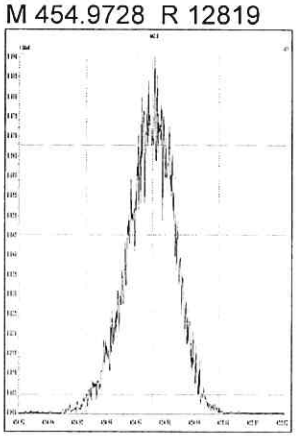
M 430.9728 R 11572



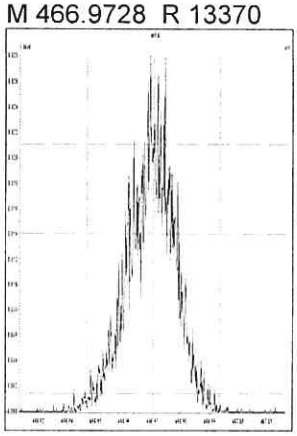
M 442.9728 R 11364



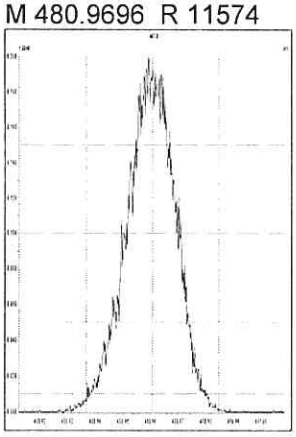
M 454.9728 R 12819



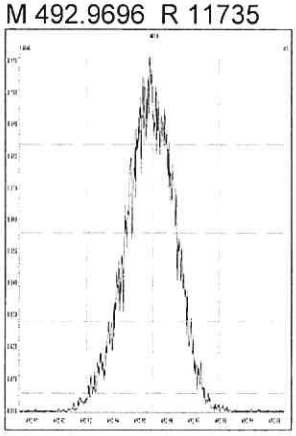
M 466.9728 R 13370



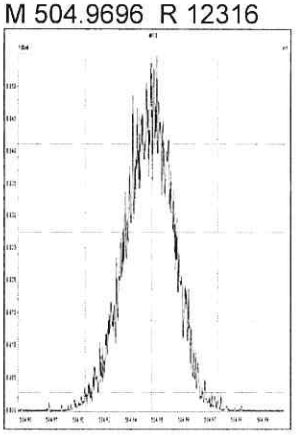
M 480.9696 R 11574



M 492.9696 R 11735



M 504.9696 R 12316



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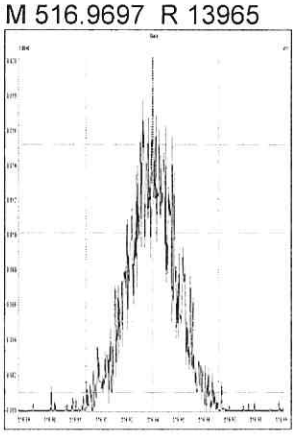


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

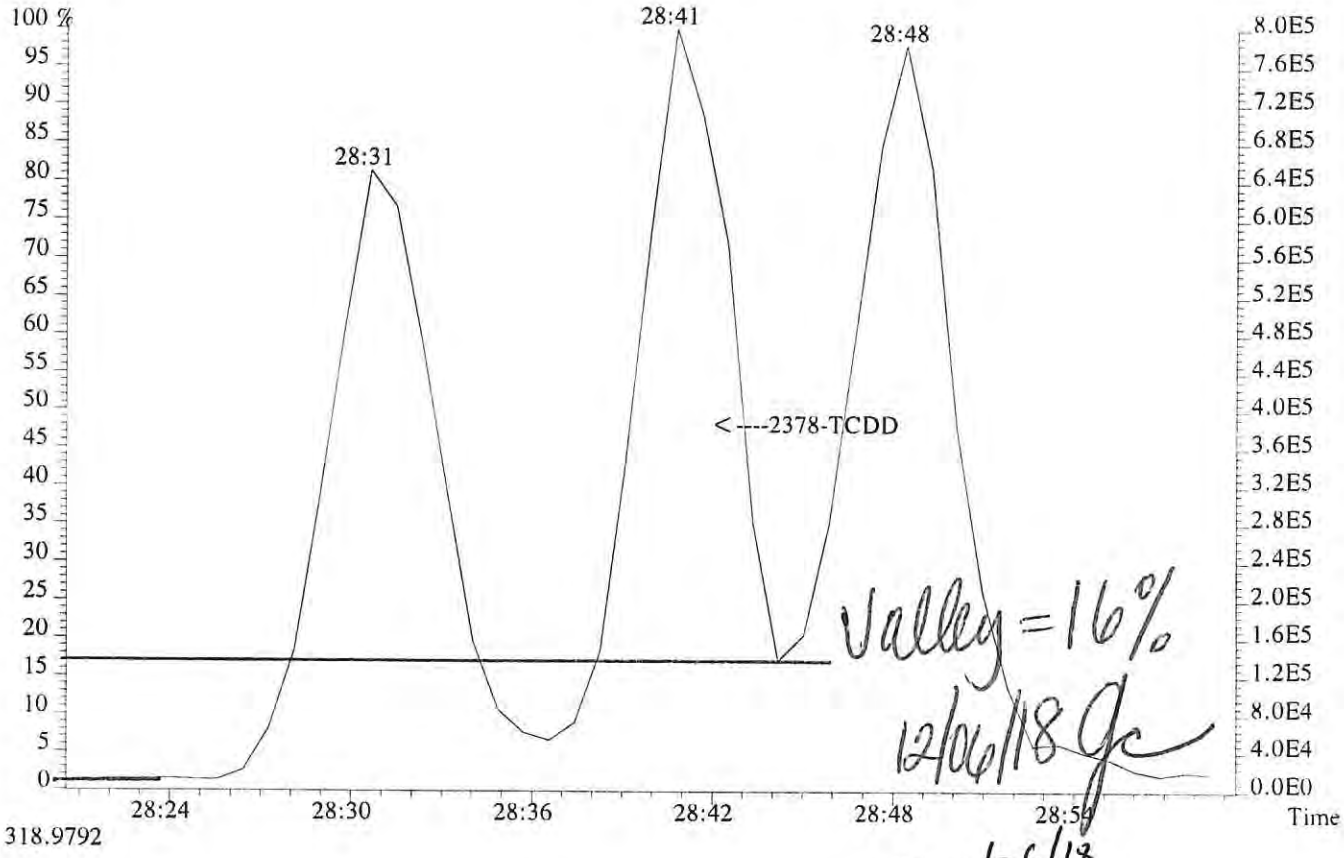
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519211
Date Analyzed: 5-DEC-2018
Time Analyzed: 02:03:12

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:51
TCDD	25:18	29:42
PeCDF	29:48	34:06
PeCDD	31:21	33:50
HxCDF	34:45	37:16
HxCDD	35:17	36:53
HpCDF	38:30	39:54
HpCDD	38:45	39:26

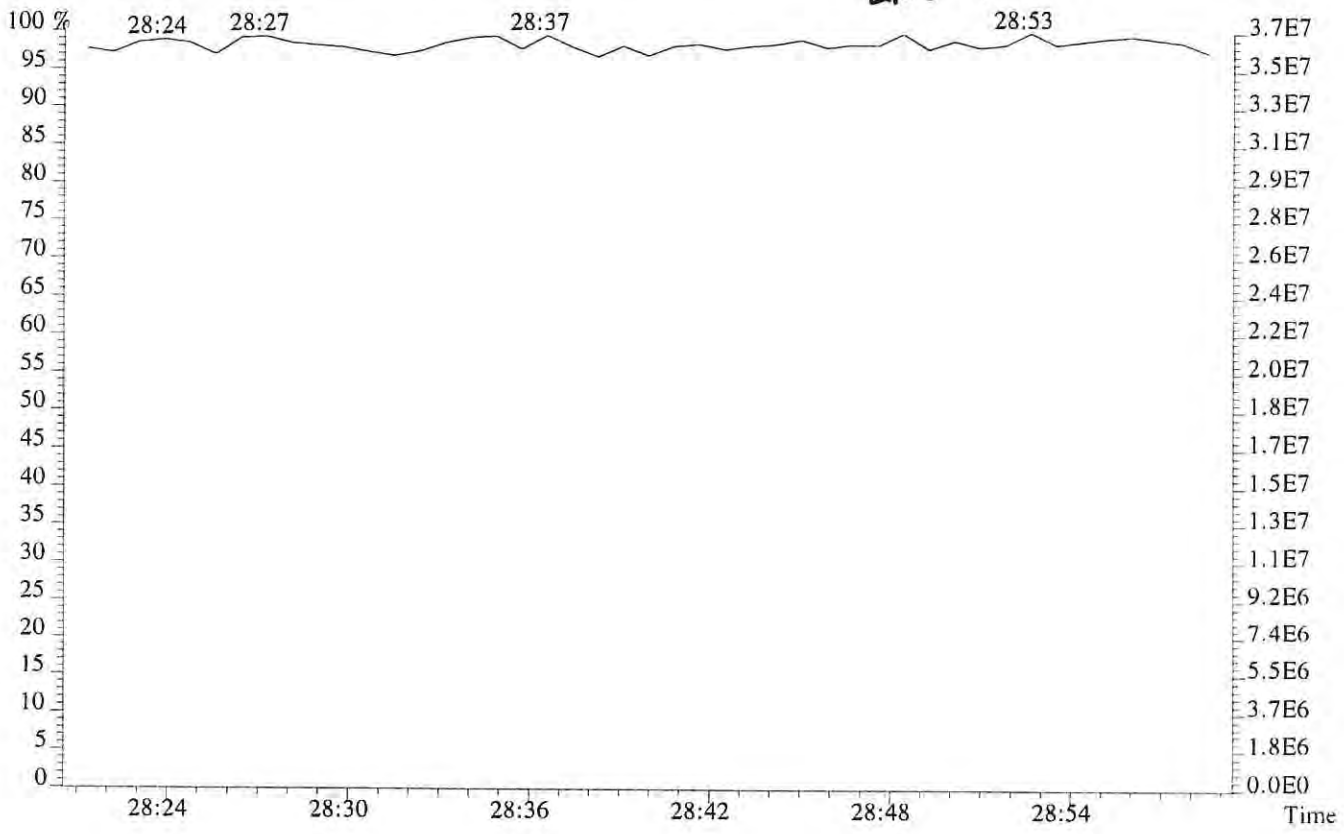
% Valley 2378-TCDD: 16 %

File:P519211 #1-545 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LLL 12/06/18



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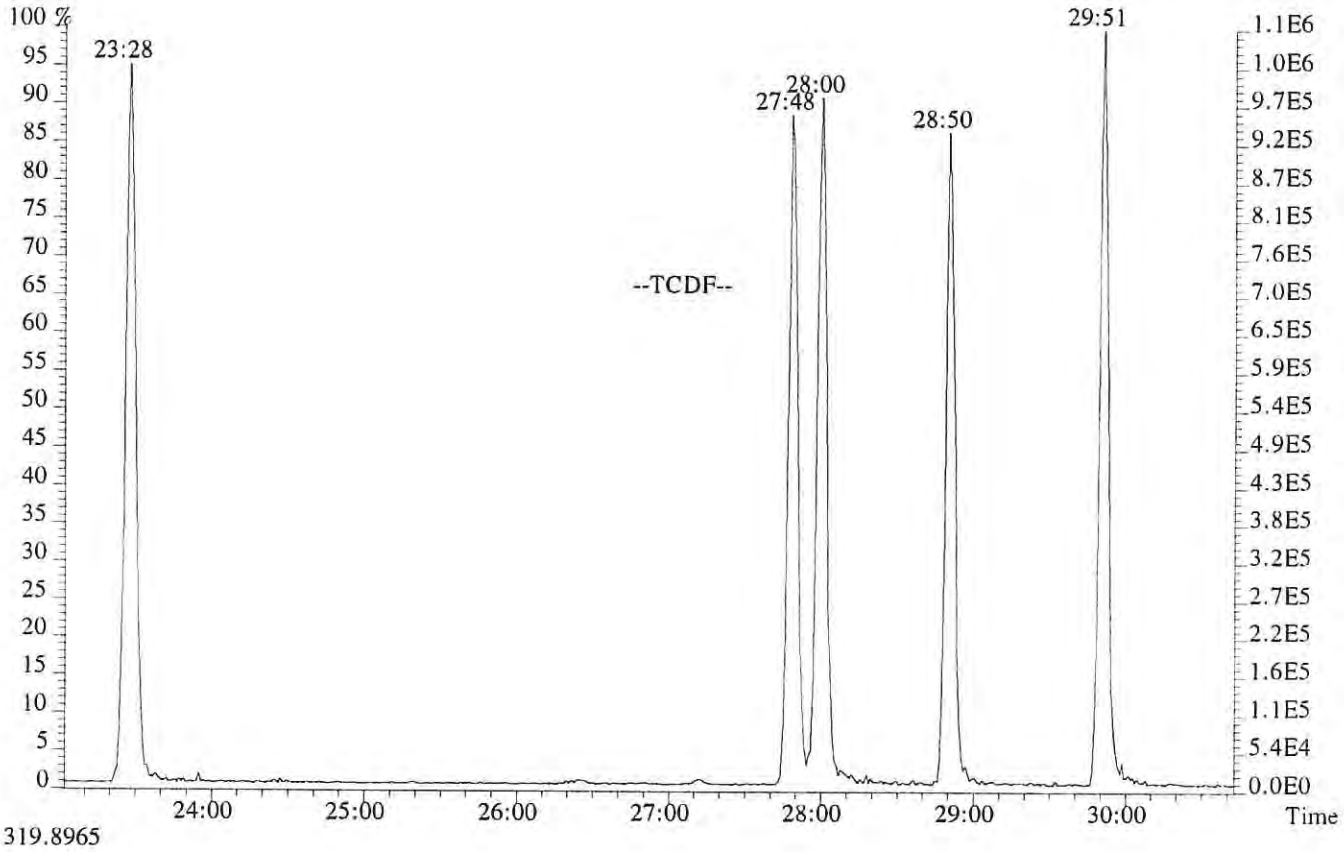
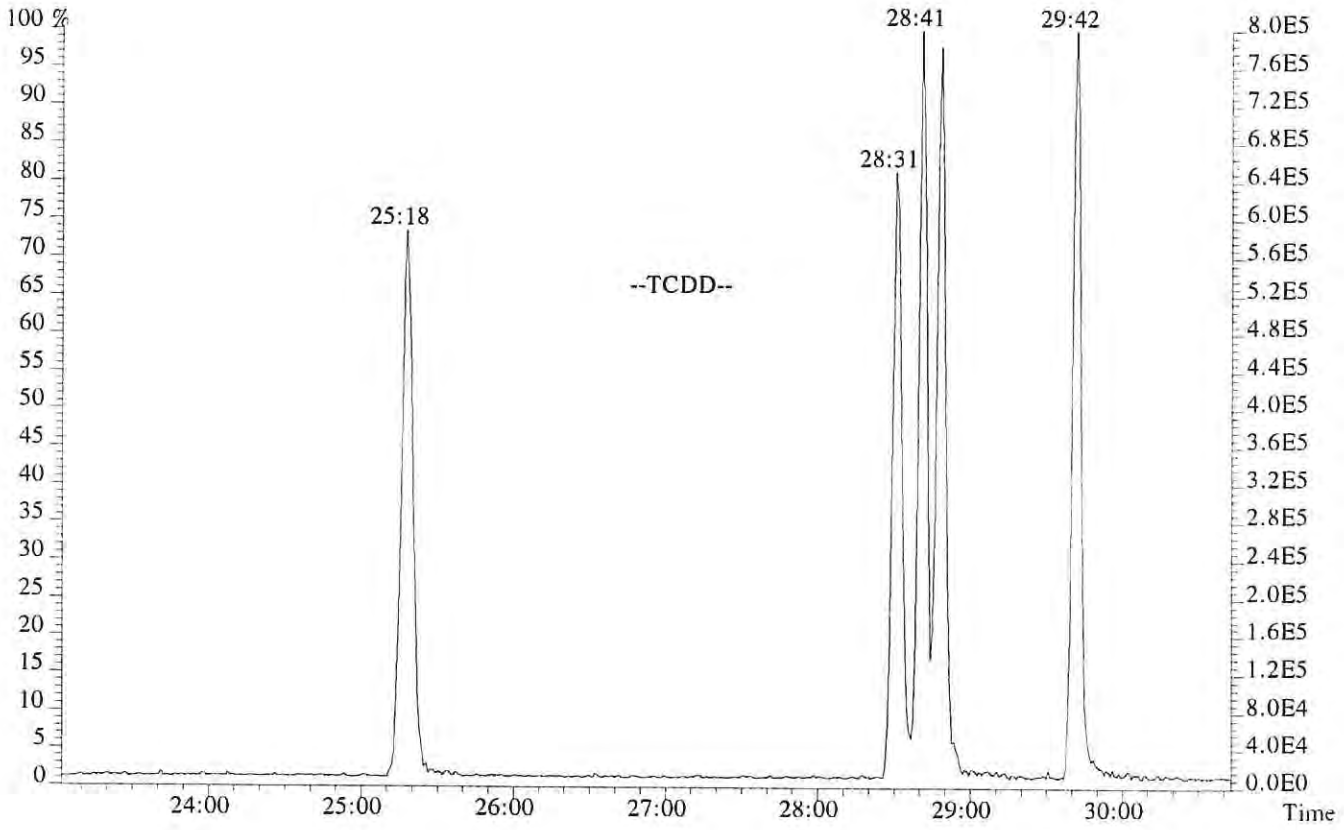
Sample#1 Exp:192977
303.9016



319.8965



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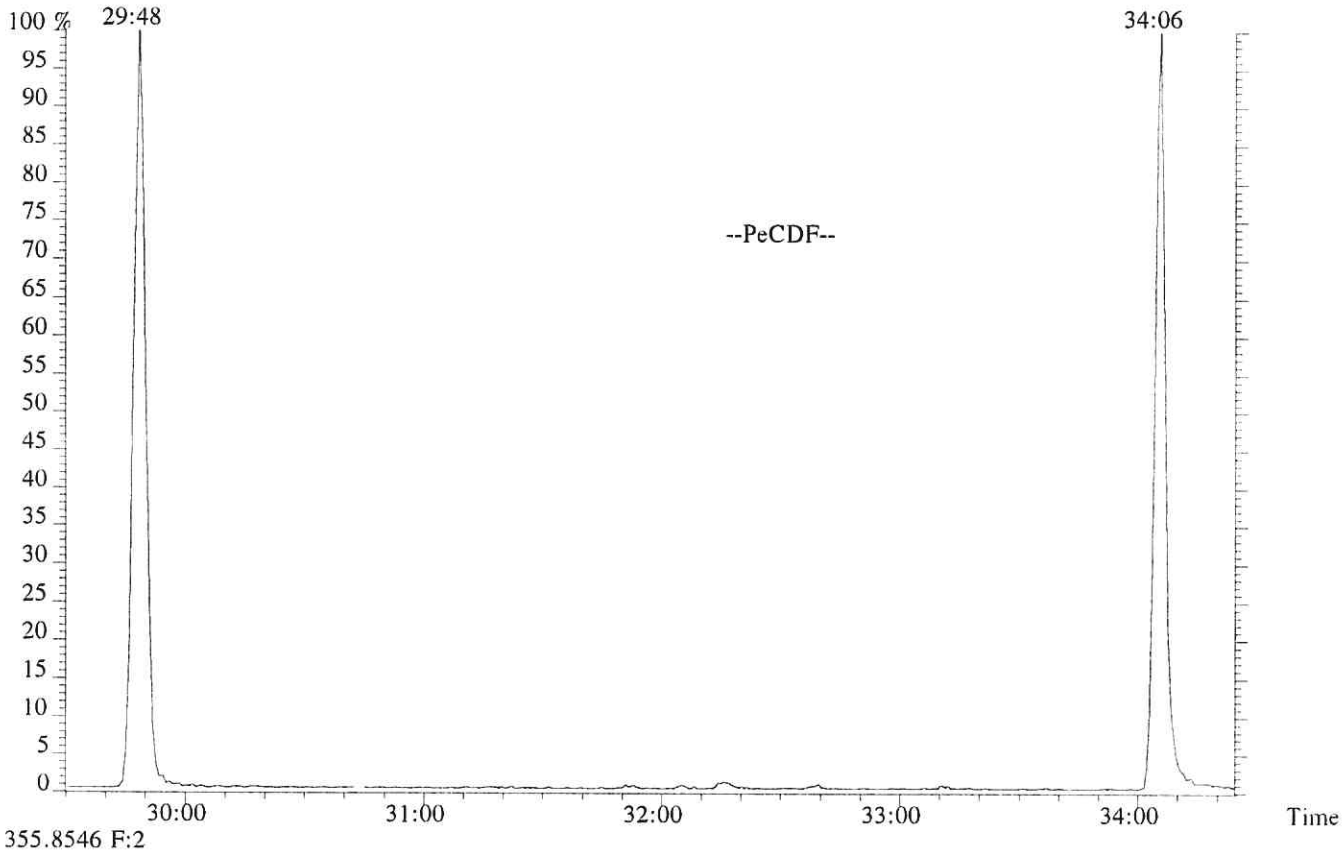
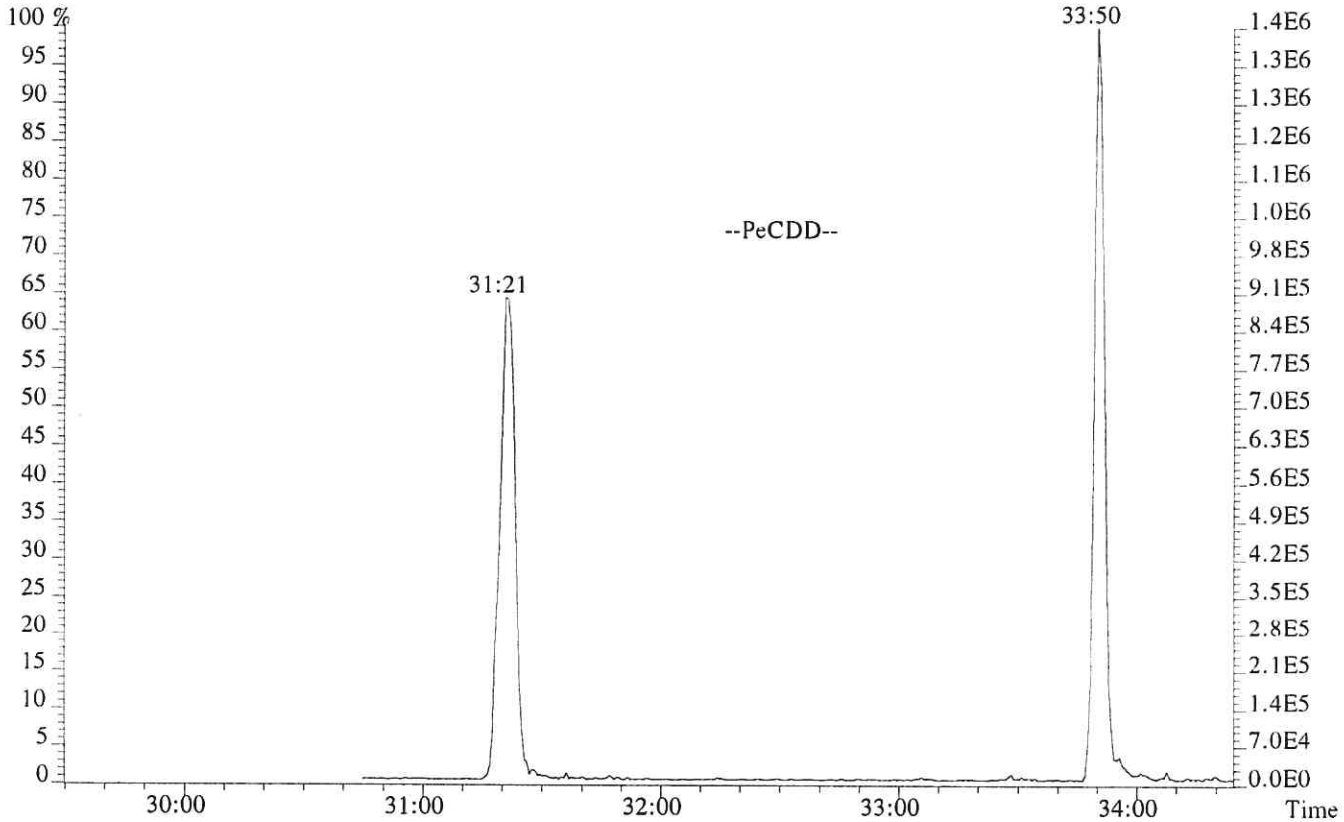
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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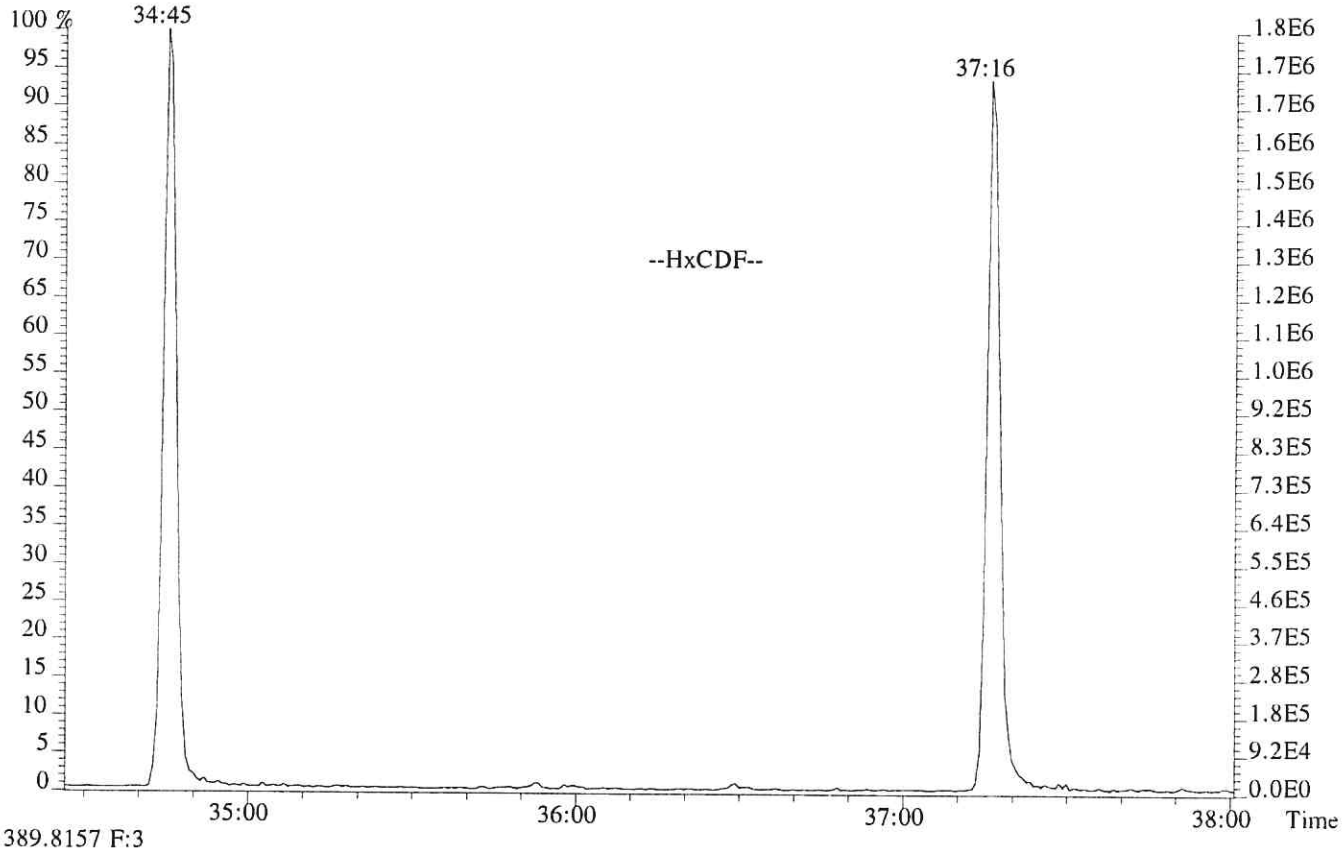
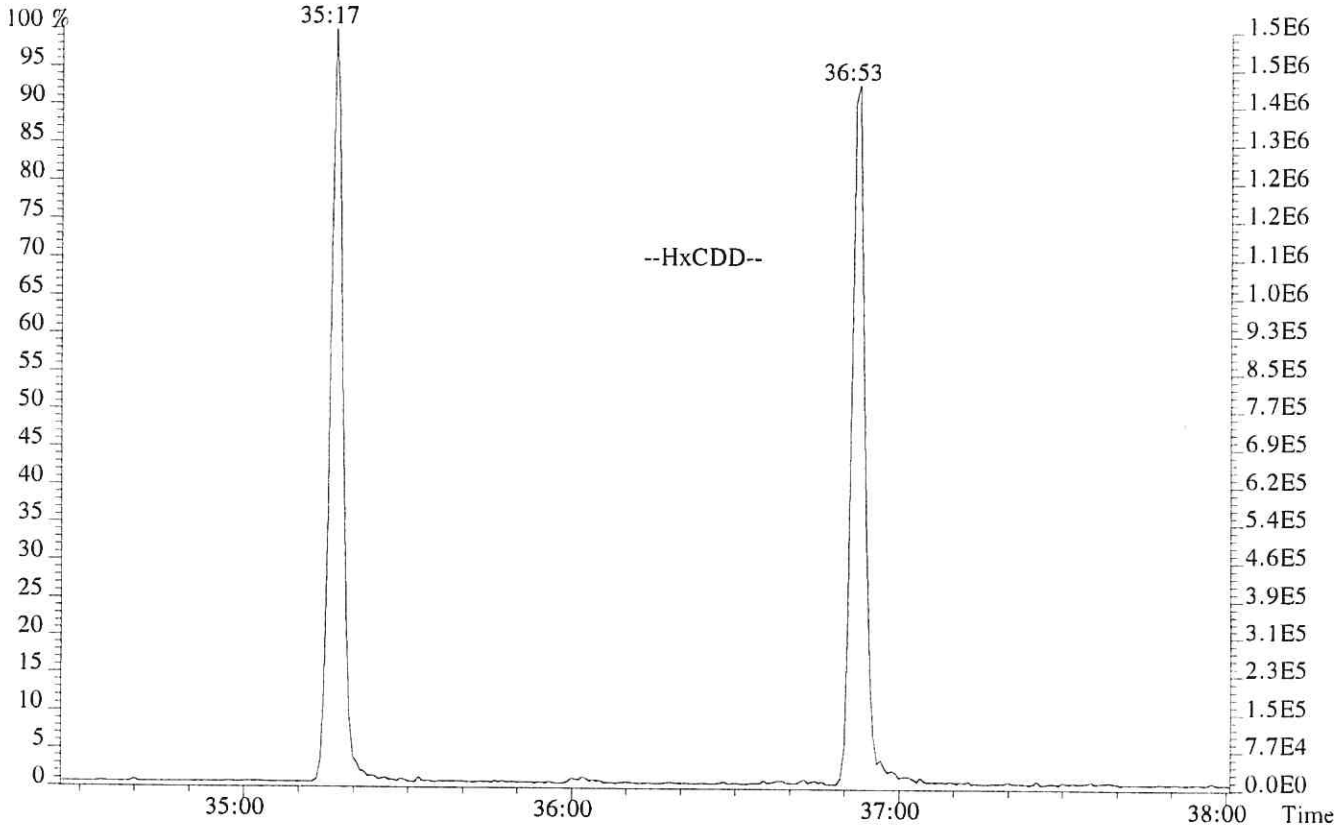
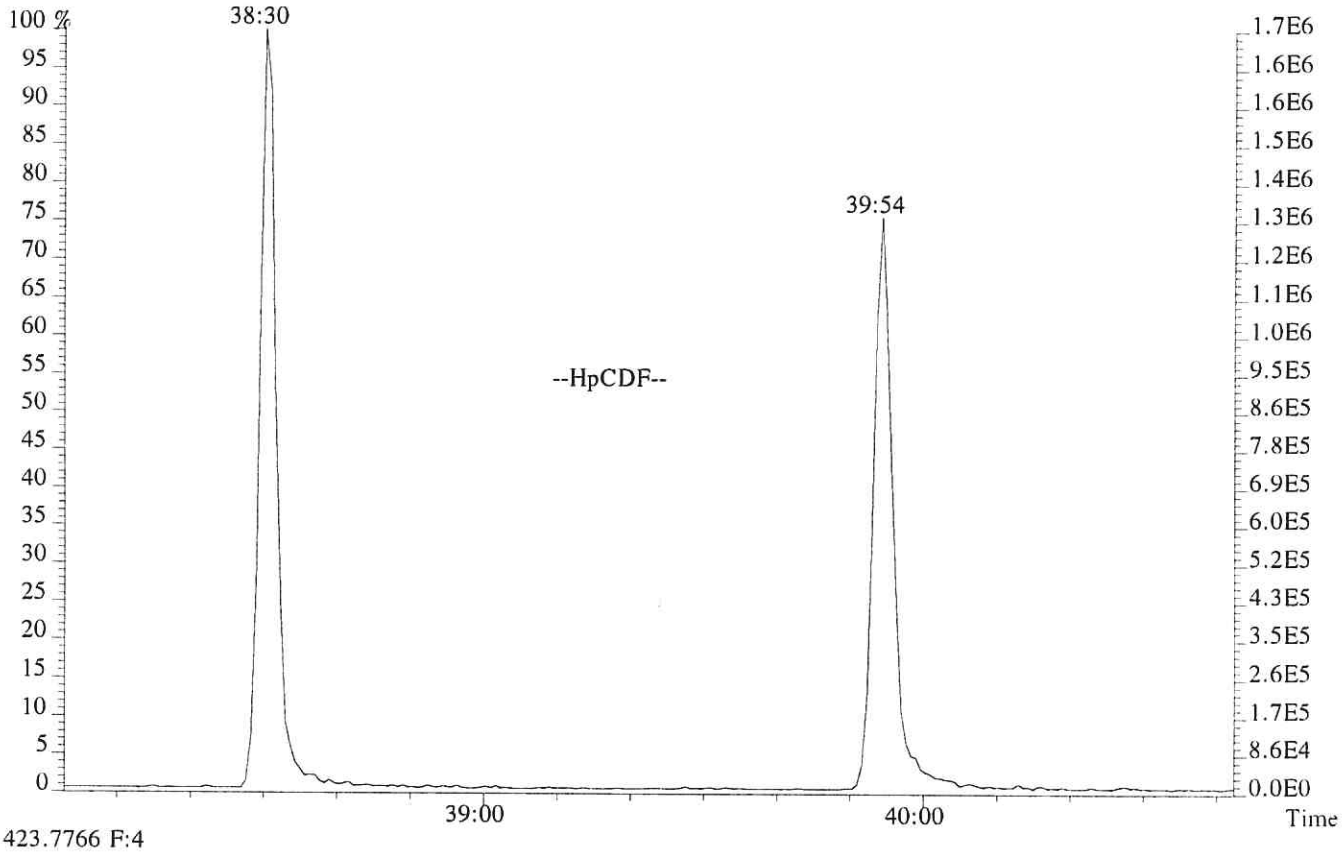
Sample#1 Exp:192977
373.8208 F:3



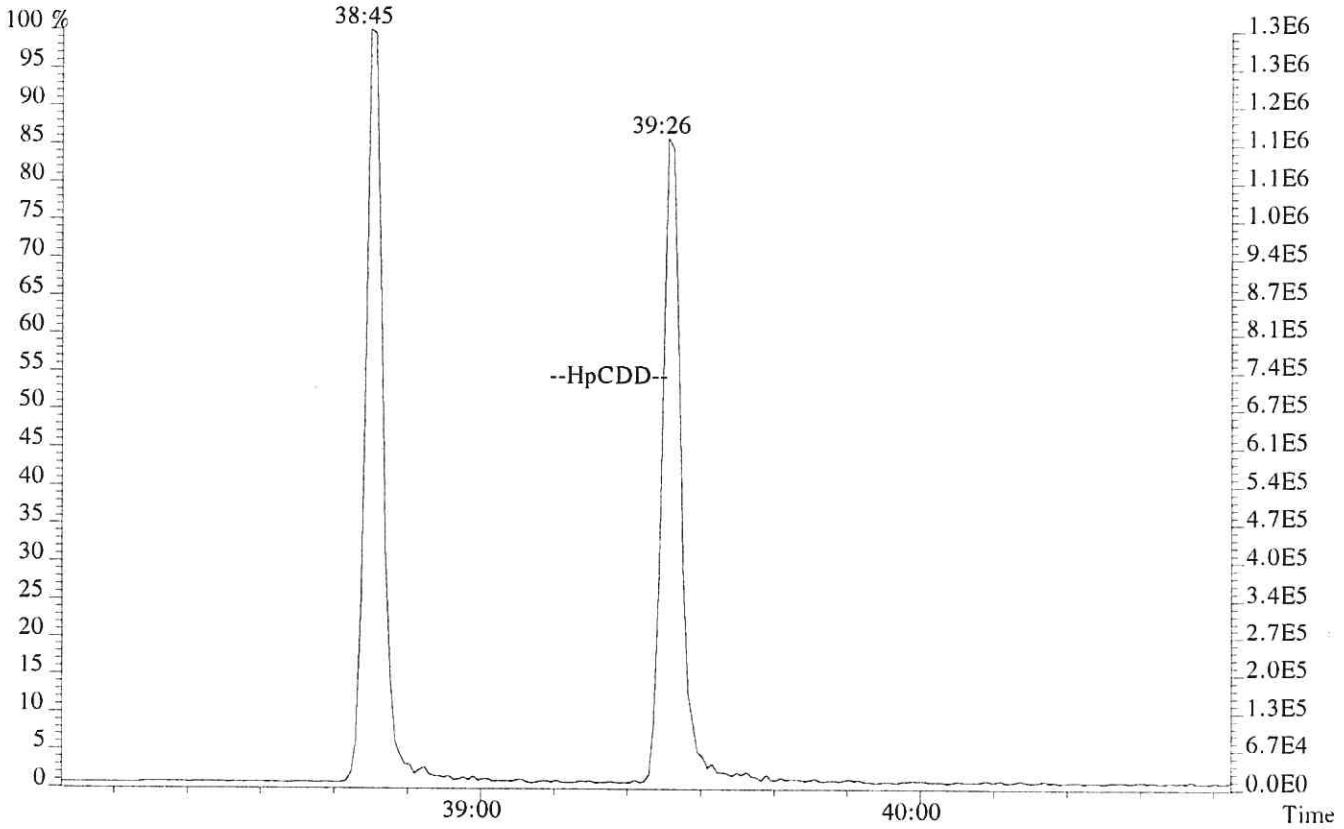
389.8157 F:3



File:P519211 #1-240 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.5	7.8 - 12.9	-5.1
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	2.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	52	39 - 64	3.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	54	41 - 61	8.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.6
OCDD	M+2/M+4	0.90	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.9	8.4 - 12.0	-0.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	51	41 - 61	2.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.17	1.05-1.43	52	45 - 56	3.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	49	43 - 58	-1.2
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	107	82 - 121	6.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	123	62 - 160	23.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	98	85 - 117	-2.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	96	85 - 118	-3.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	12.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	270	96 - 415	35.2
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-1.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	119	76 - 130	18.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	120	77 - 130	20.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	76 - 131	-9.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	90	70 - 143	-10.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	73 - 137	-2.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	117	77 - 129	17.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.5	7.8 - 12.7	4.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	2.756e+03	3.737e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	2.513e+04	1.656e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.440e+04	1.601e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.185e+04	1.866e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.313e+04	1.900e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.198e+04	1.867e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	2.056e+04	1.659e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.101e+04	2.060e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	1.756e+04	1.785e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:26	3.016e+04	3.369e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:49	2.095e+03	2.645e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	1.679e+04	1.086e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.592e+04	1.245e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.628e+04	1.278e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.751e+04	1.368e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	1.516e+04	1.442e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:14	2.503e+04	2.792e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	3.084e+04	3.862e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	5.032e+04	3.128e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	5.047e+04	3.162e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	2.267e+04	4.334e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	2.537e+04	4.931e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	2.491e+04	4.766e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	2.233e+04	4.212e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	1.904e+04	4.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.768e+04	3.932e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	2.058e+04	2.546e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	3.451e+04	2.172e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	3.032e+04	2.344e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.054e+04	2.374e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.958e+04	2.781e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:13	4.442e+04	4.904e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	2.079e+04	2.598e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.291e+04	2.646e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	4.962e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.22e+05	1.96e+02	2.7e+03	6.82e+05	9.16e+02	7.4e+02
2	1,2,3,7,8-PeCDF	4.71e+06	2.48e+02	1.9e+04	3.12e+06	8.20e+02	3.8e+03
3	2,3,4,7,8-PeCDF	4.97e+06	2.48e+02	2.0e+04	3.23e+06	8.20e+02	3.9e+03
4	1,2,3,4,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	4.03e+06	2.76e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	3.98e+06	2.76e+02	1.4e+04
6	2,3,4,6,7,8-HxCDF	4.76e+06	5.32e+02	9.0e+03	3.97e+06	2.76e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	4.41e+06	5.32e+02	8.3e+03	3.41e+06	2.76e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	4.68e+06	1.79e+03	2.6e+03	4.61e+06	2.40e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.79e+03	1.9e+03	3.46e+06	2.40e+03	1.4e+03
10	OCDF	5.03e+06	2.28e+02	2.2e+04	5.70e+06	4.16e+02	1.4e+04
11	2,3,7,8-TCDD	3.97e+05	1.16e+03	3.4e+02	5.22e+05	5.12e+02	1.0e+03
12	1,2,3,7,8-PeCDD	3.33e+06	3.92e+02	8.5e+03	2.15e+06	2.72e+02	7.9e+03
13	1,2,3,4,7,8-HxCDD	3.64e+06	2.64e+02	1.4e+04	2.83e+06	2.36e+02	1.2e+04
14	1,2,3,6,7,8-HxCDD	3.50e+06	2.64e+02	1.3e+04	2.75e+06	2.36e+02	1.2e+04
15	1,2,3,7,8,9-HxCDD	3.76e+06	2.64e+02	1.4e+04	2.94e+06	2.36e+02	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	3.16e+06	2.80e+02	1.1e+04	3.02e+06	2.56e+02	1.2e+04
17	OCDD	4.25e+06	2.28e+02	1.9e+04	4.76e+06	2.52e+02	1.9e+04
18	13C-2,3,7,8-TCDF	5.51e+06	3.96e+03	1.4e+03	6.80e+06	2.42e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	9.58e+06	5.48e+02	1.7e+04	5.97e+06	3.00e+02	2.0e+04
20	13C-2,3,4,7,8-PeCDF	1.02e+07	5.48e+02	1.9e+04	6.39e+06	3.00e+02	2.1e+04
21	13C-1,2,3,4,7,8-HxCDF	4.87e+06	4.64e+02	1.1e+04	9.25e+06	8.44e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	5.32e+06	4.64e+02	1.1e+04	1.04e+07	8.44e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	5.34e+06	4.64e+02	1.2e+04	1.00e+07	8.44e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	4.68e+06	4.64e+02	1.0e+04	8.77e+06	8.44e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.18e+06	3.02e+03	1.4e+03	9.31e+06	6.16e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	3.02e+03	1.1e+03	7.55e+06	6.16e+03	1.2e+03
27	13C-2,3,7,8-TCDD	3.95e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	7.00e+06	4.64e+02	1.5e+04	4.44e+06	8.04e+02	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	6.92e+06	8.88e+02	7.8e+03	5.33e+06	2.56e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	6.59e+06	8.88e+02	7.4e+03	5.11e+06	2.56e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.98e+06	8.80e+02	6.8e+03	5.67e+06	5.08e+02	1.1e+04
32	13C-OCDD	7.60e+06	4.68e+02	1.6e+04	8.41e+06	3.28e+02	2.6e+04
33	13C-1,2,3,4-TCDD	3.97e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.17e+06	8.88e+02	8.1e+03	5.65e+06	2.56e+02	2.2e+04
35	37Cl-2,3,7,8-TCDD	9.46e+05	9.20e+02	1.0e+03			

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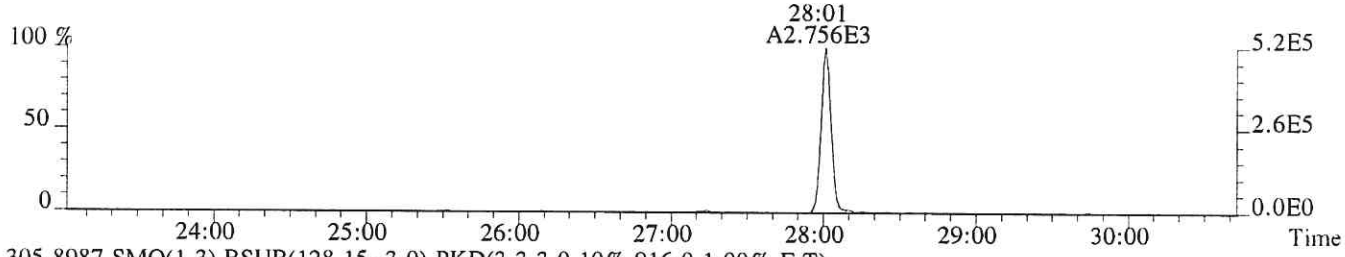
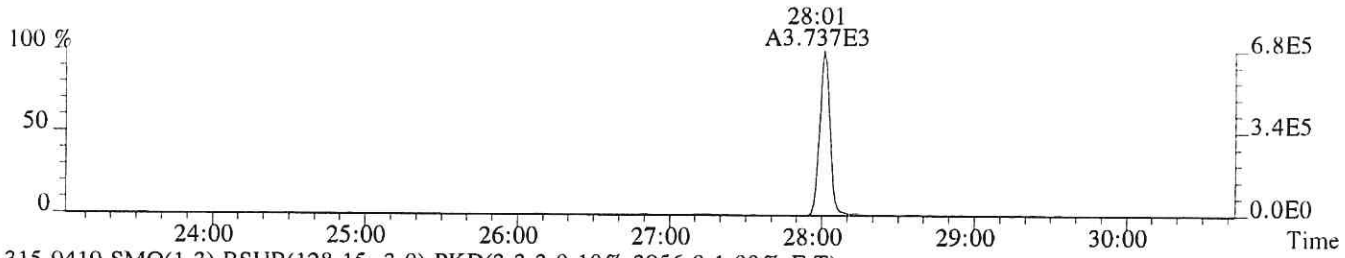
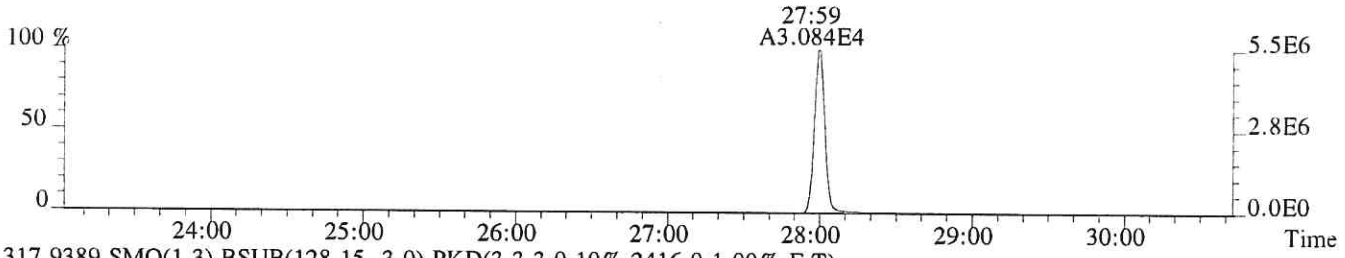
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



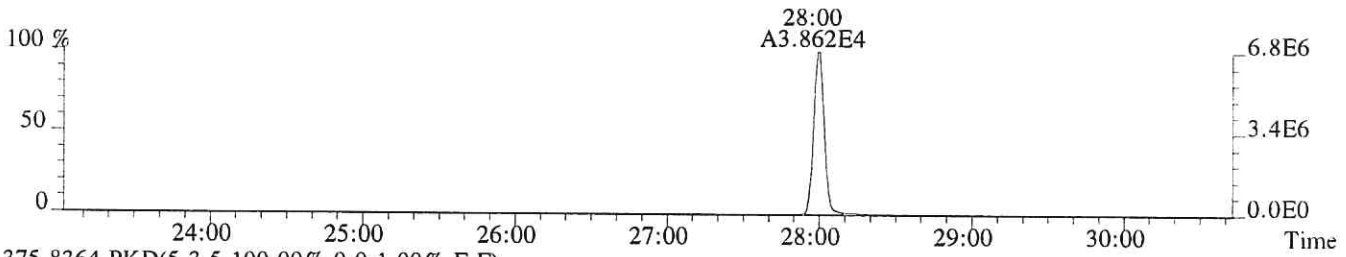
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



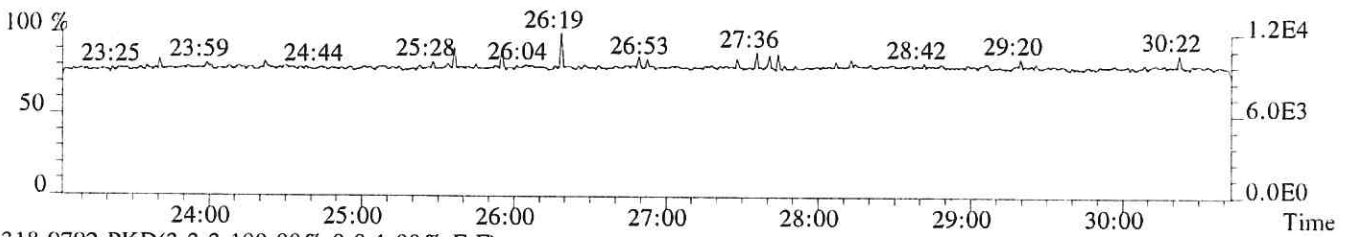
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3956.0,1.00%,F,T)



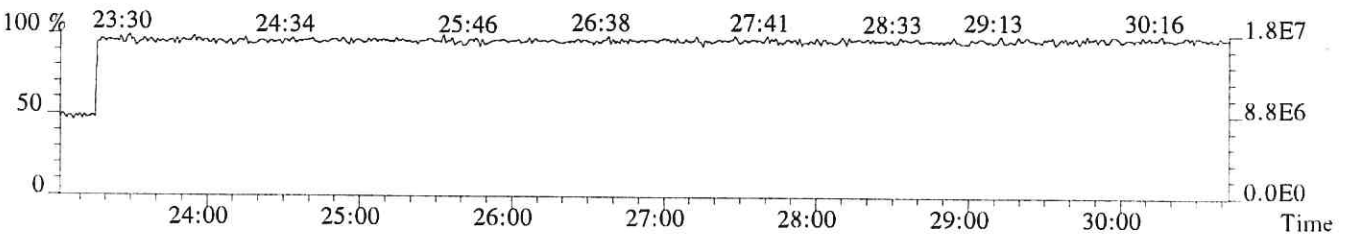
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



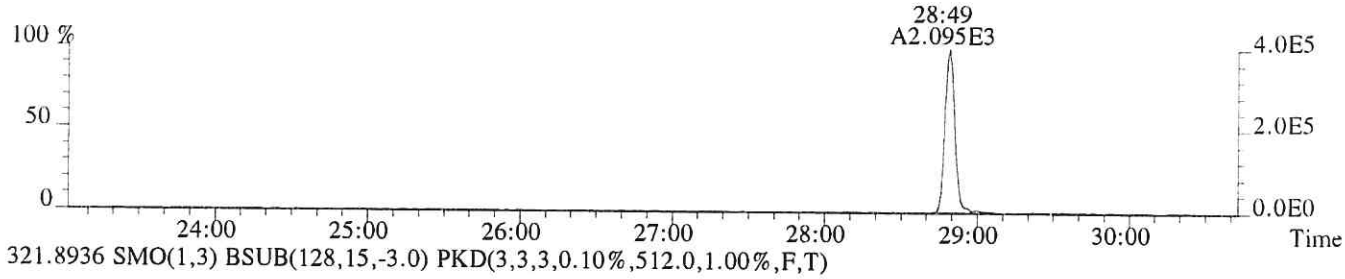
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



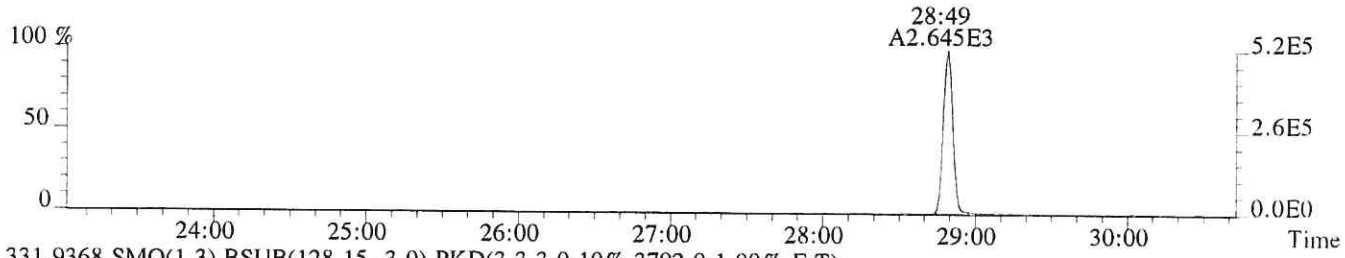
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



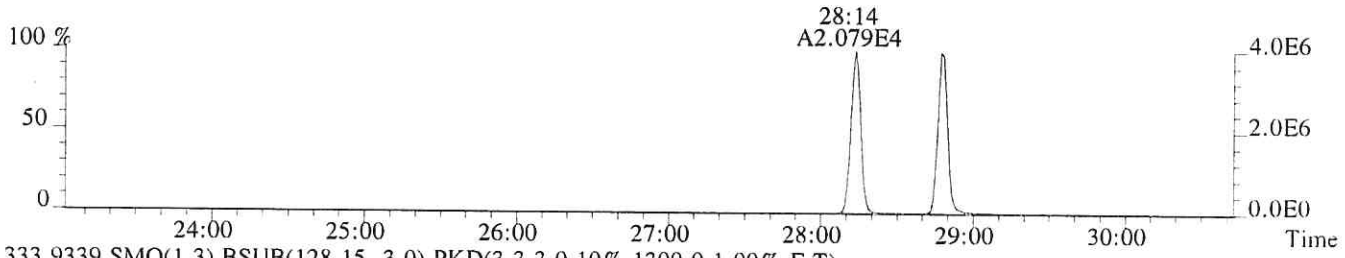
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



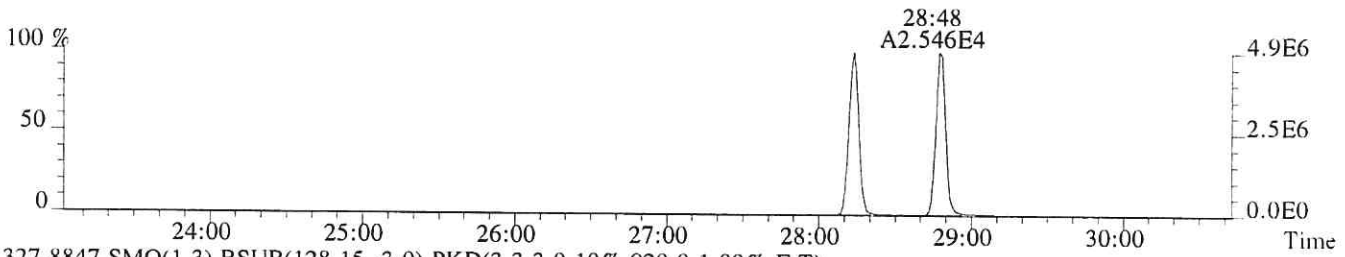
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



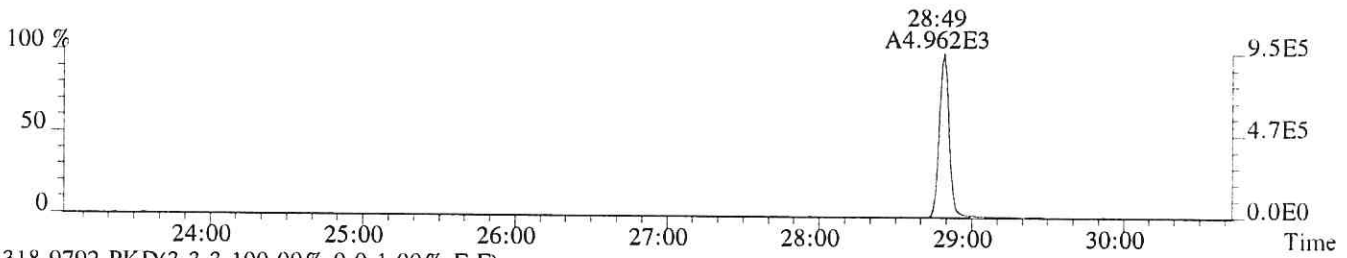
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



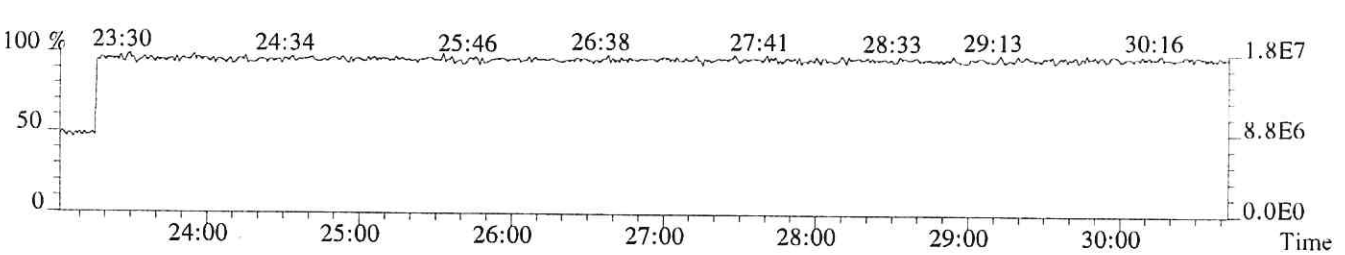
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



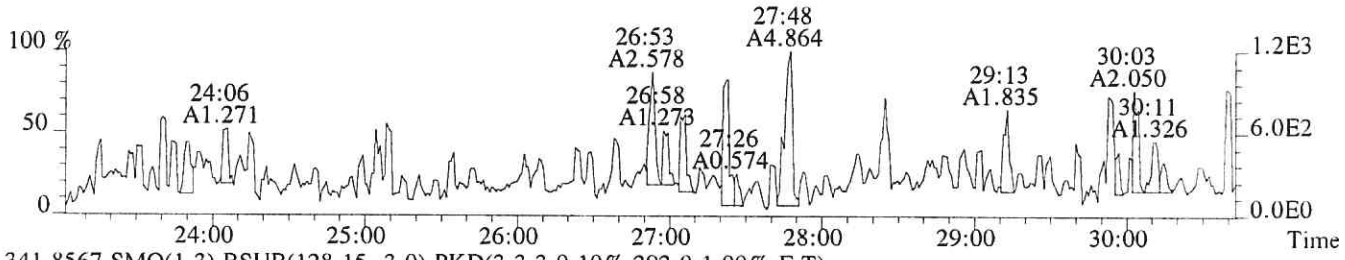
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



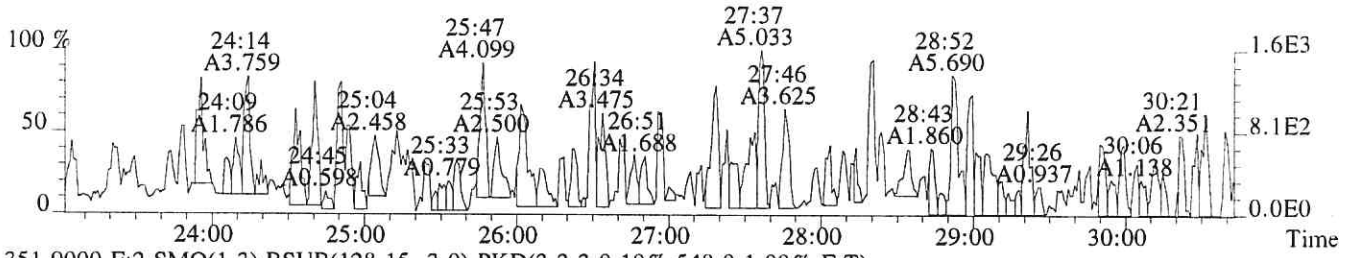
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



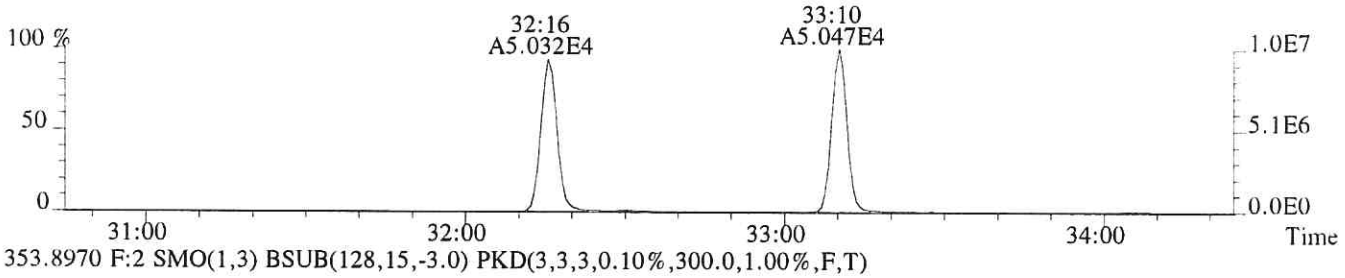
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



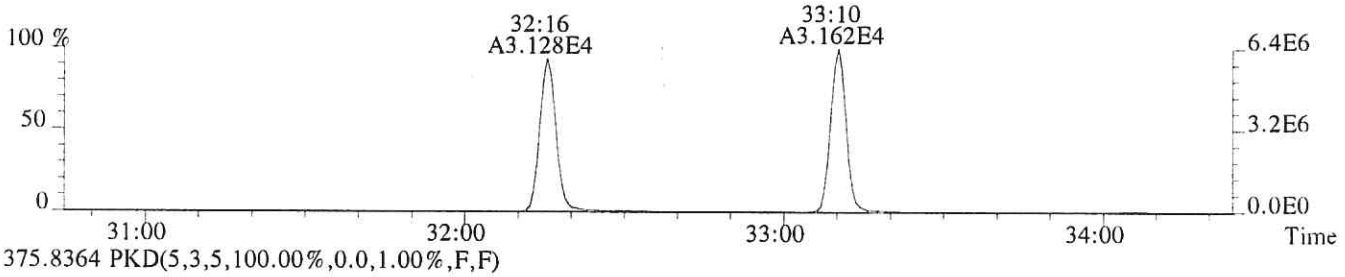
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



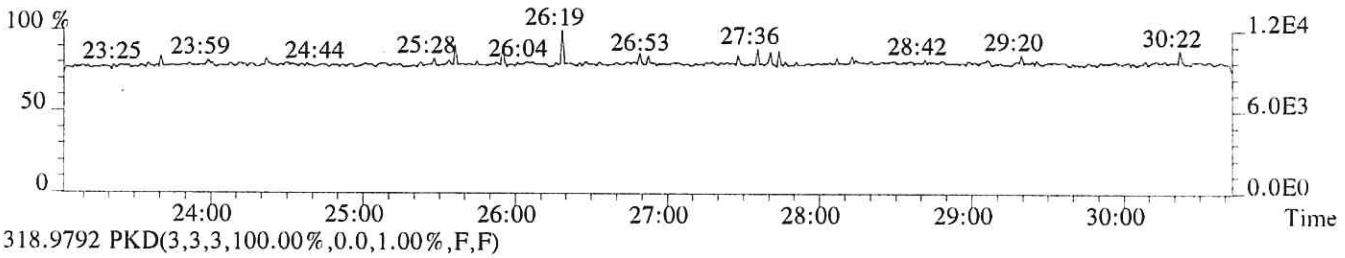
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



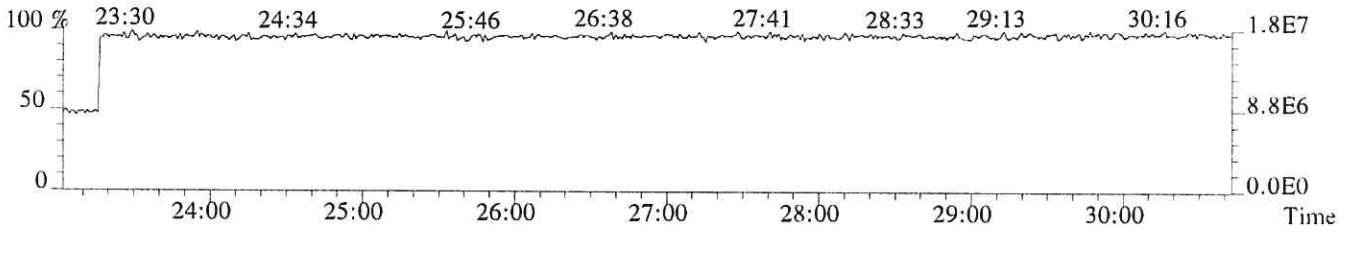
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



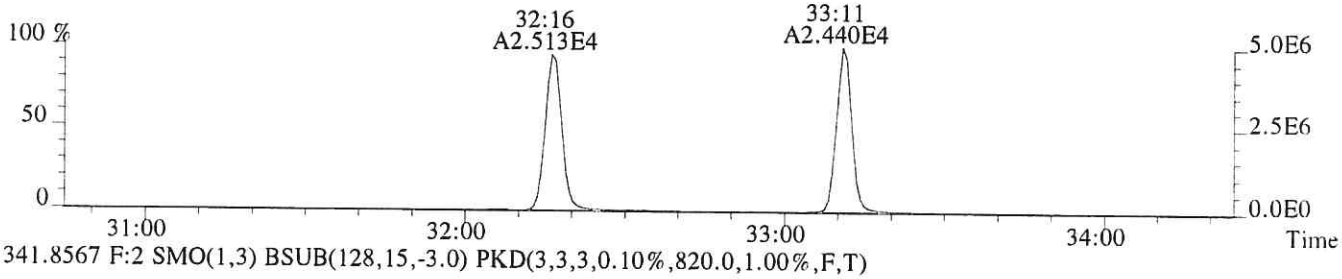
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



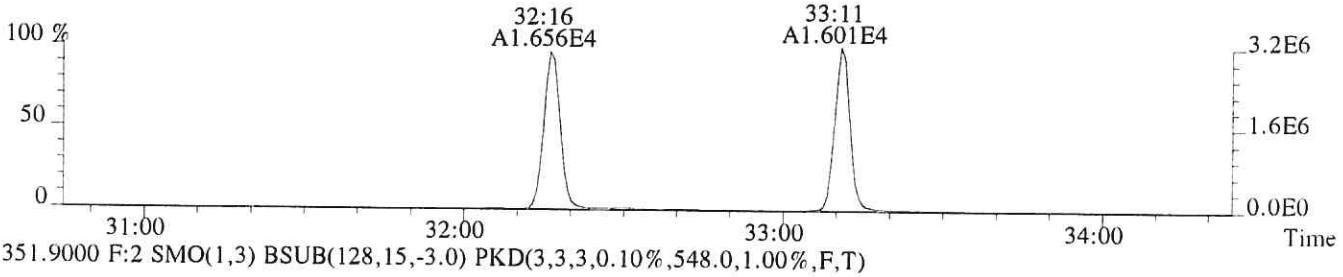
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



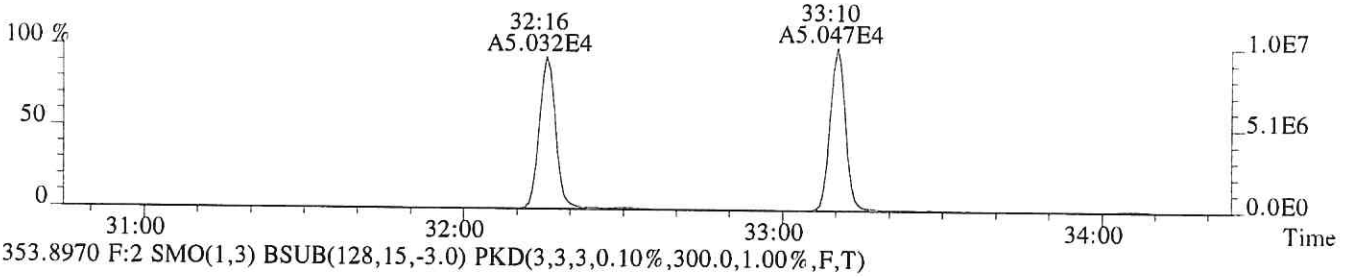
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



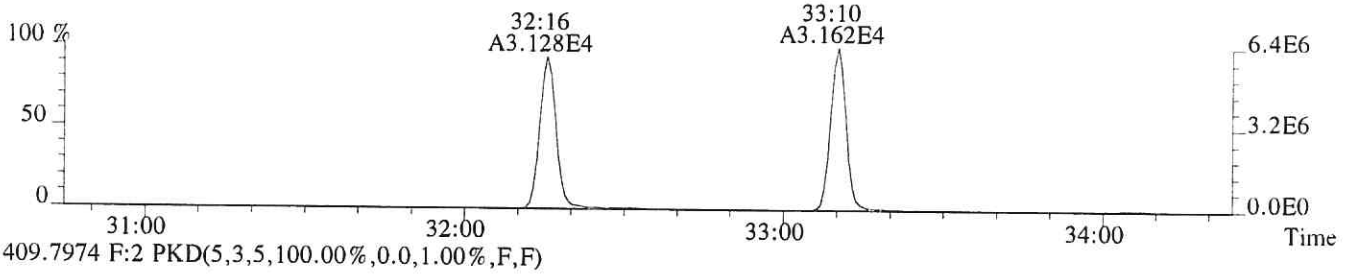
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



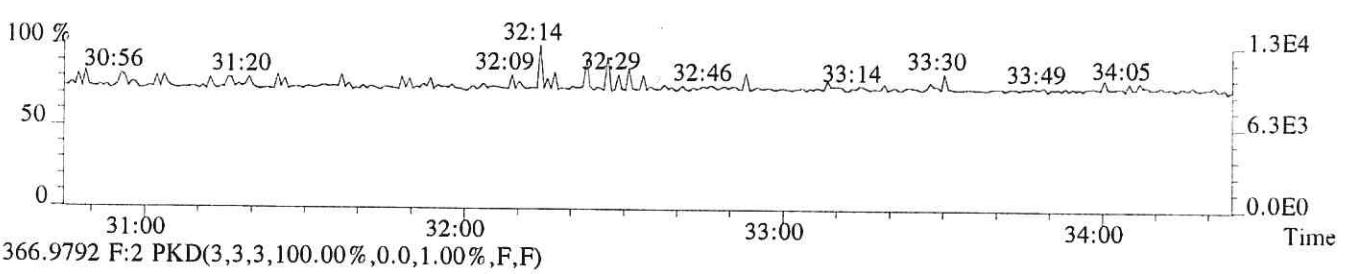
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



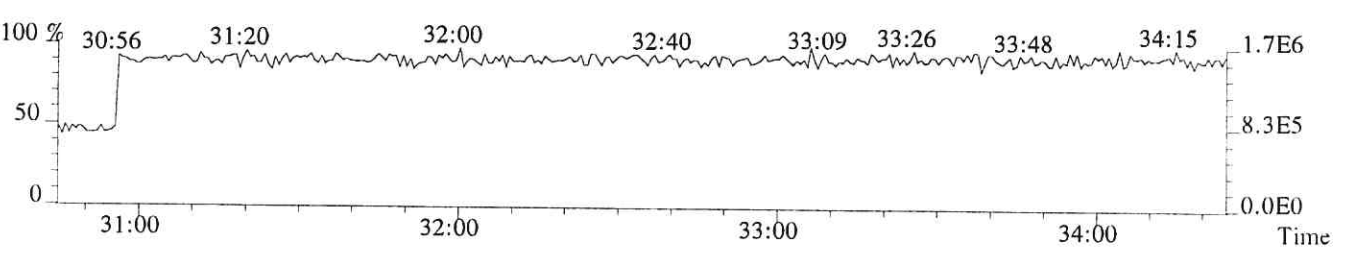
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



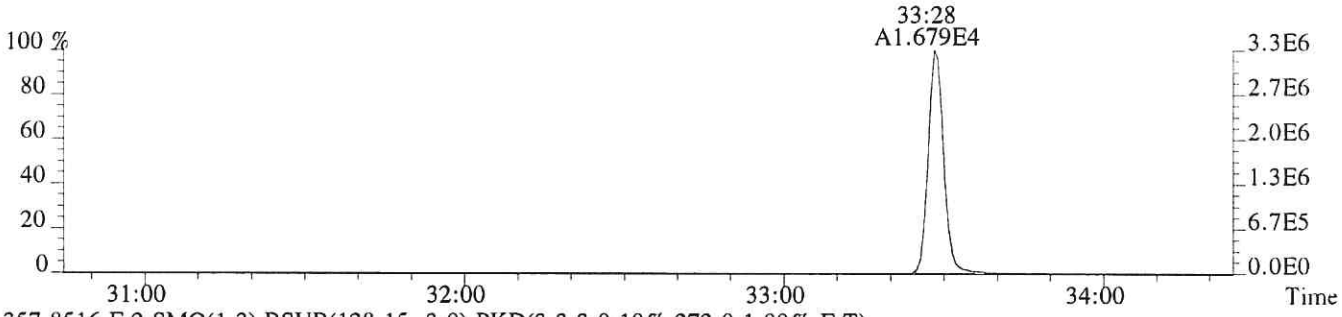
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



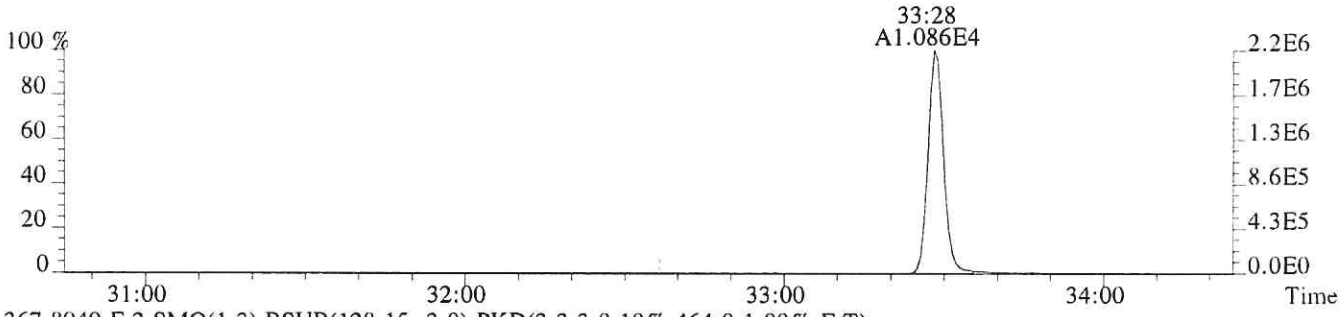
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



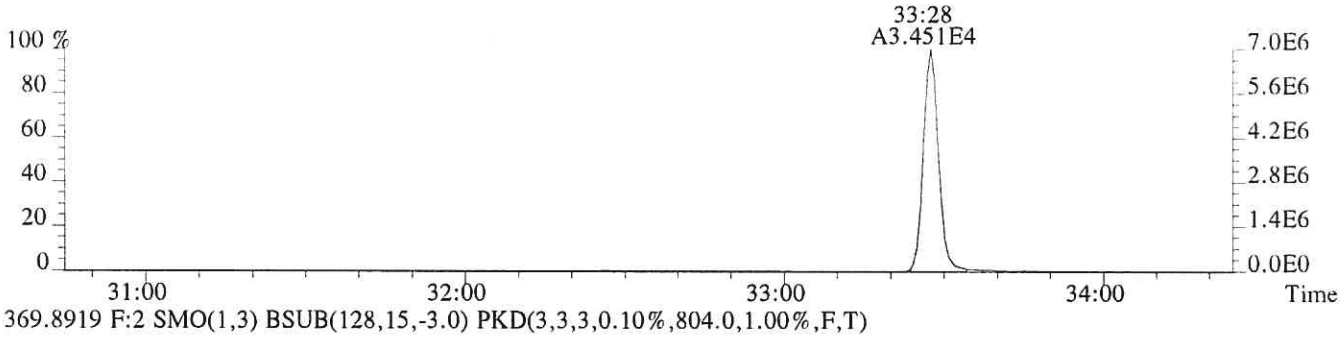
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



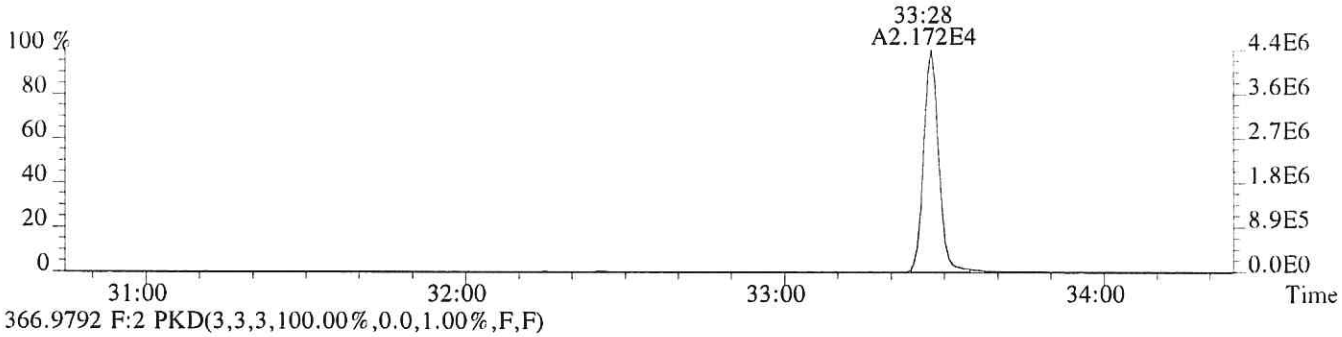
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



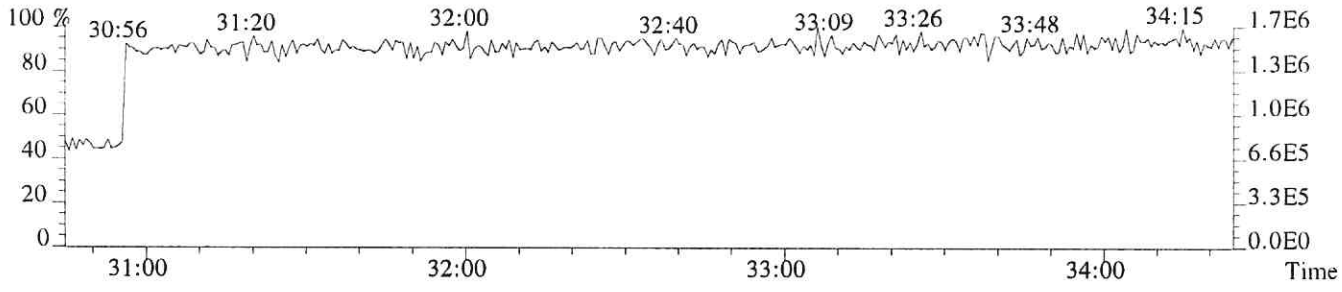
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



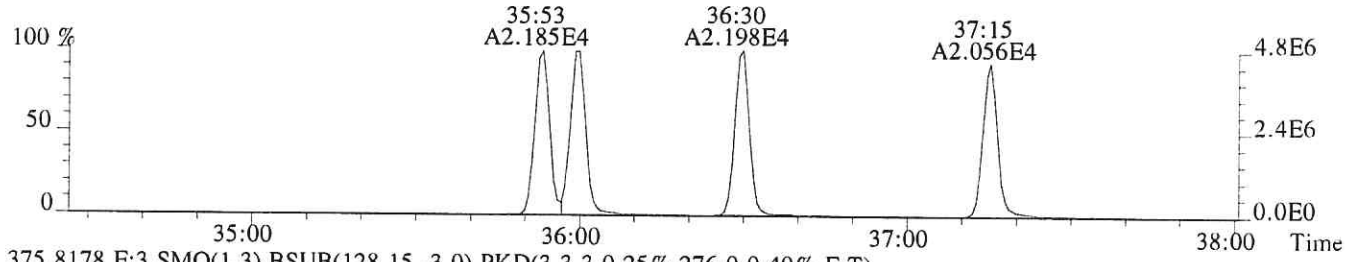
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



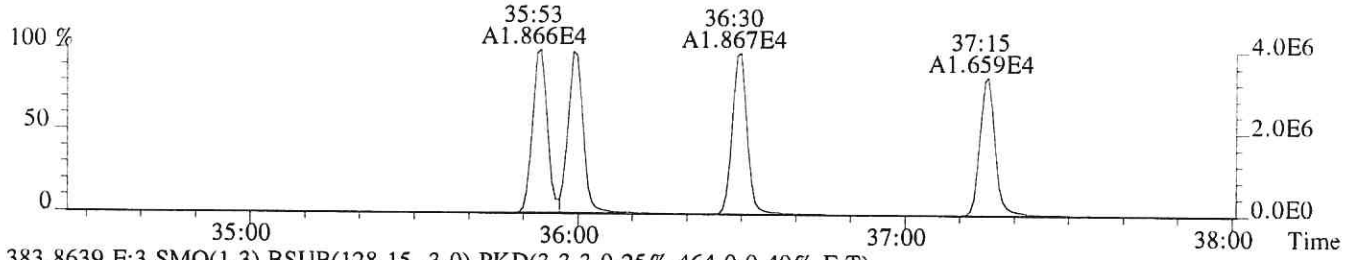
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



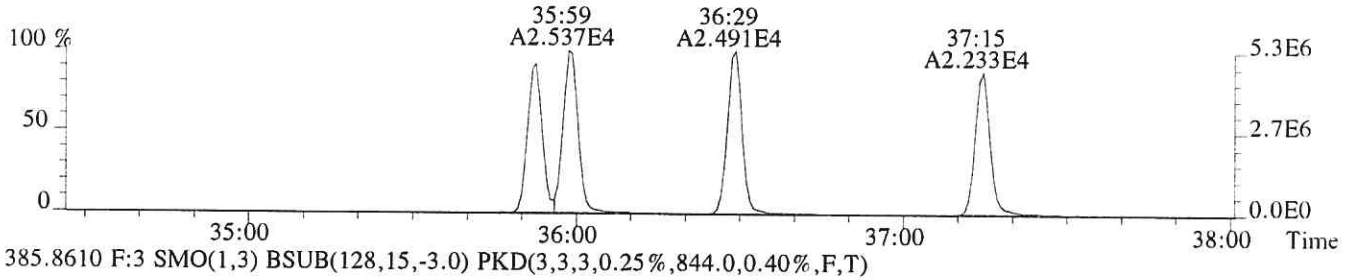
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



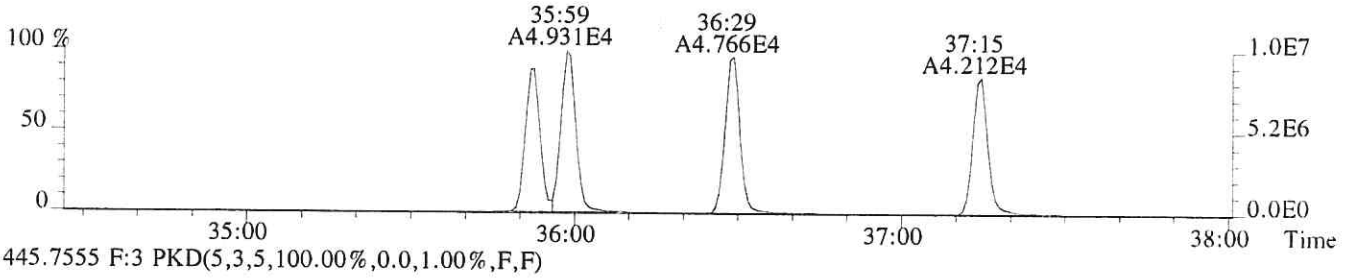
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



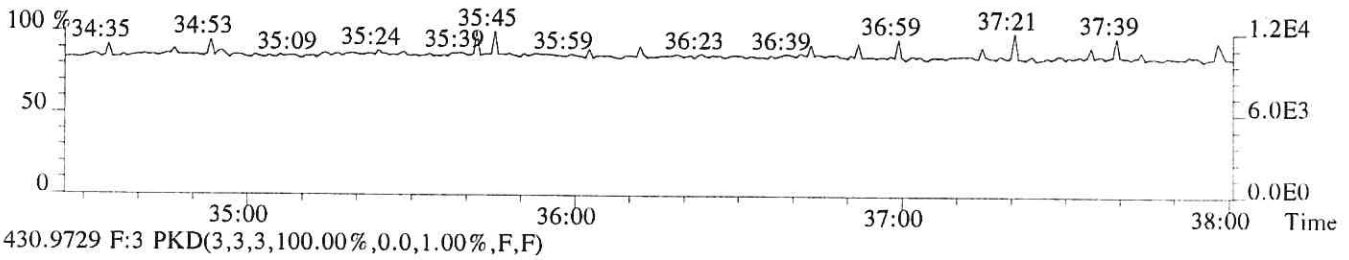
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



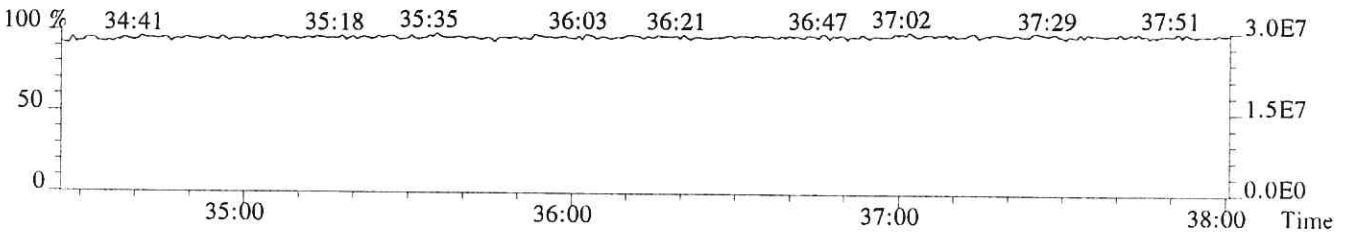
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



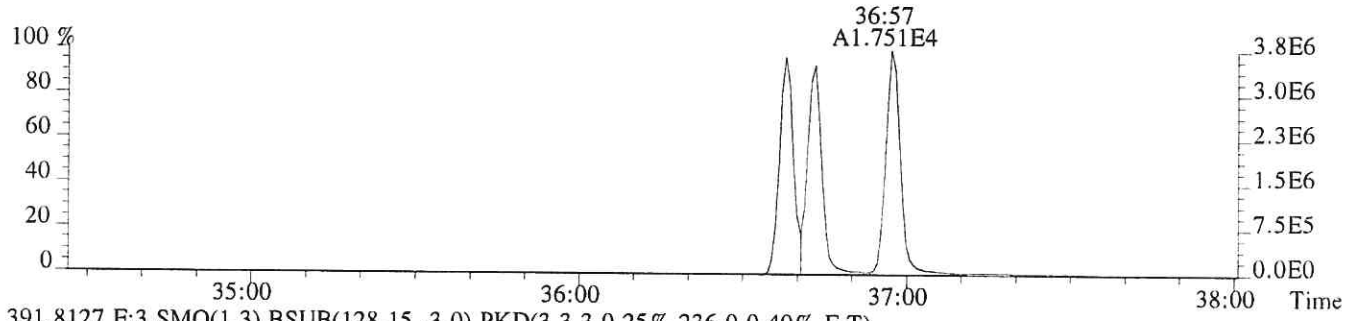
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



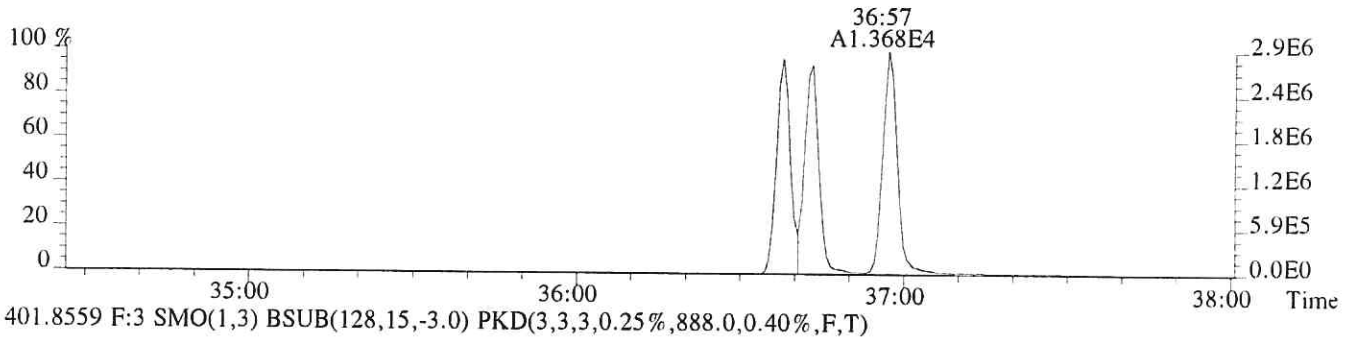
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



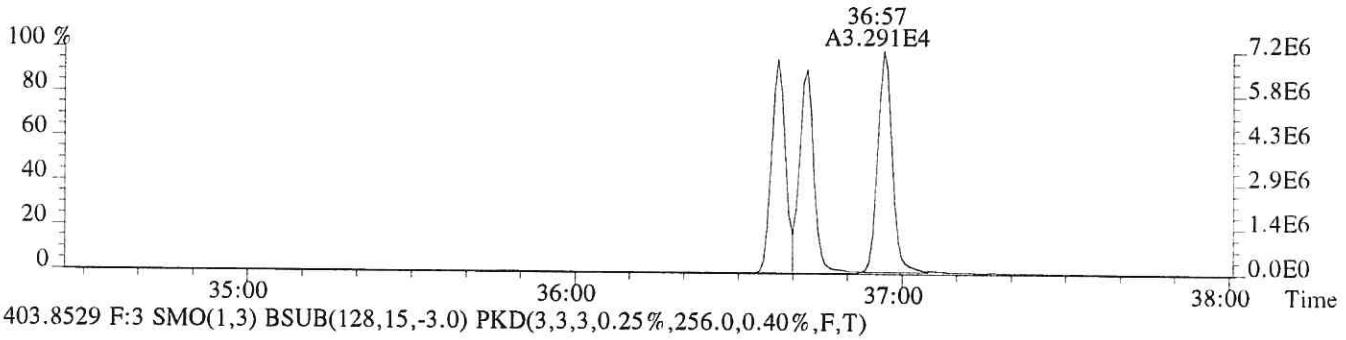
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



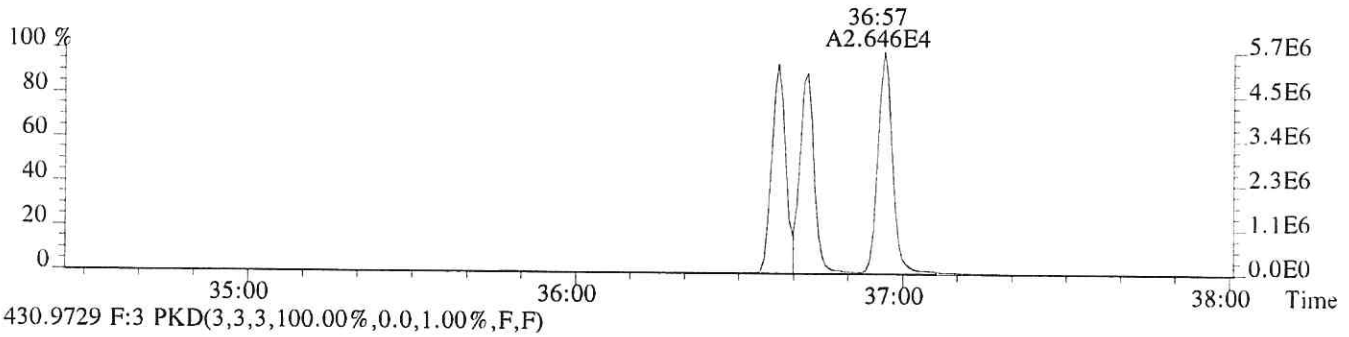
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



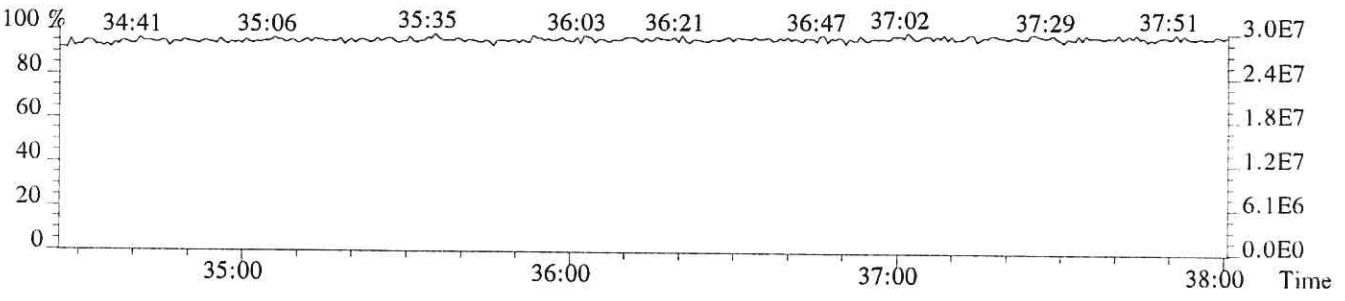
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



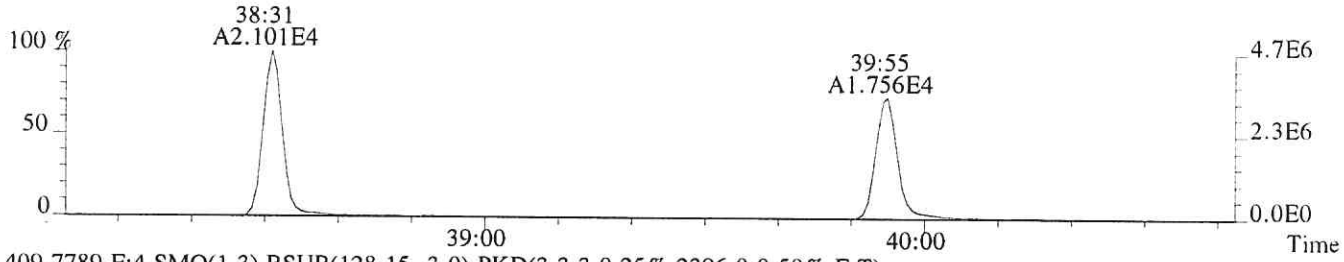
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



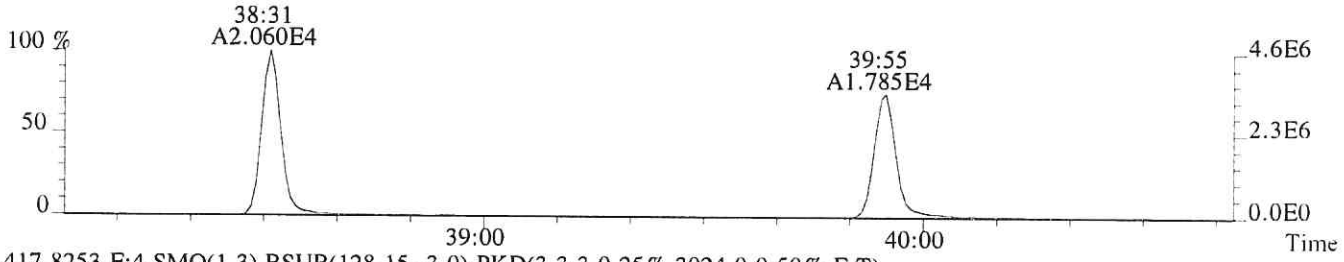
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



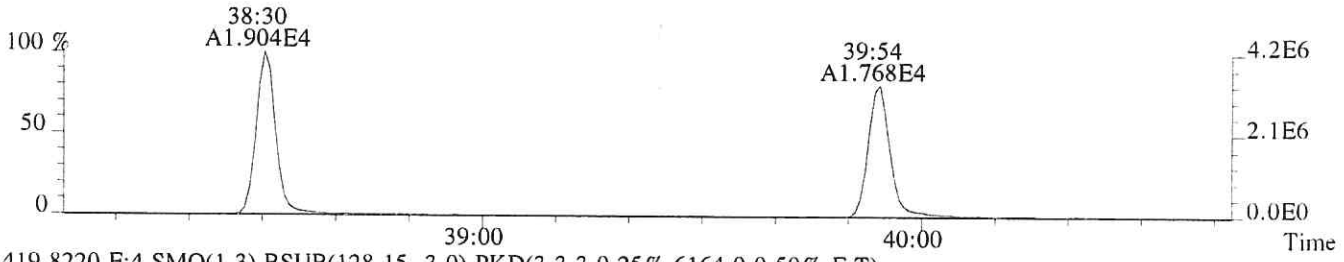
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.50%,F,T)



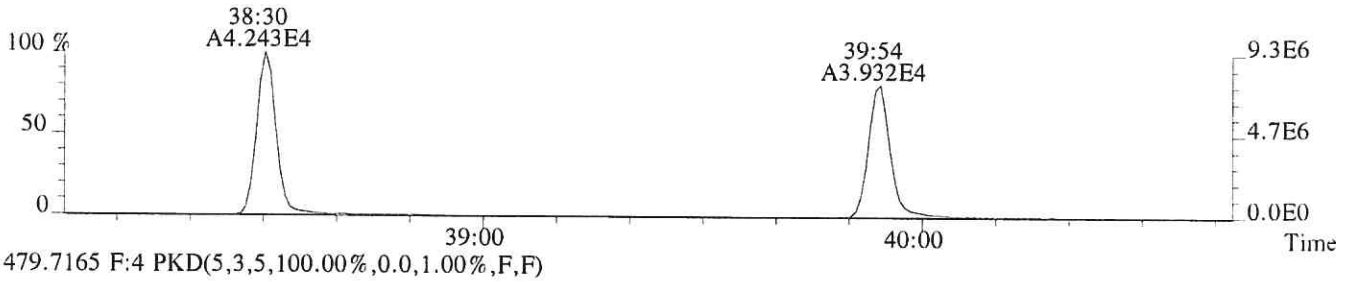
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.50%,F,T)



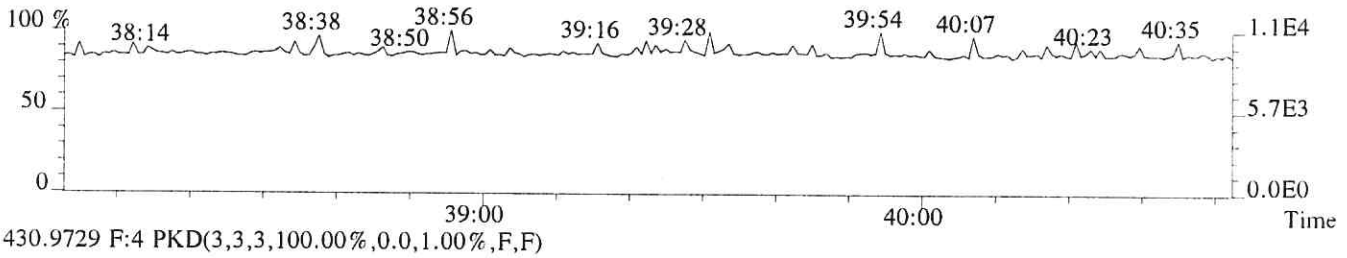
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3024.0,0.50%,F,T)



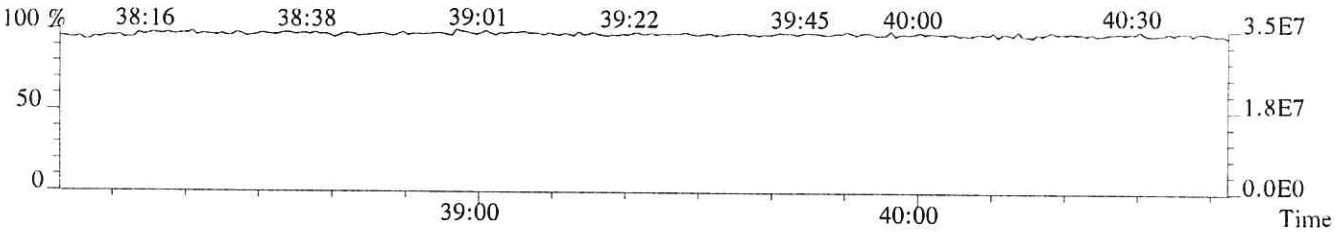
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6164.0,0.50%,F,T)



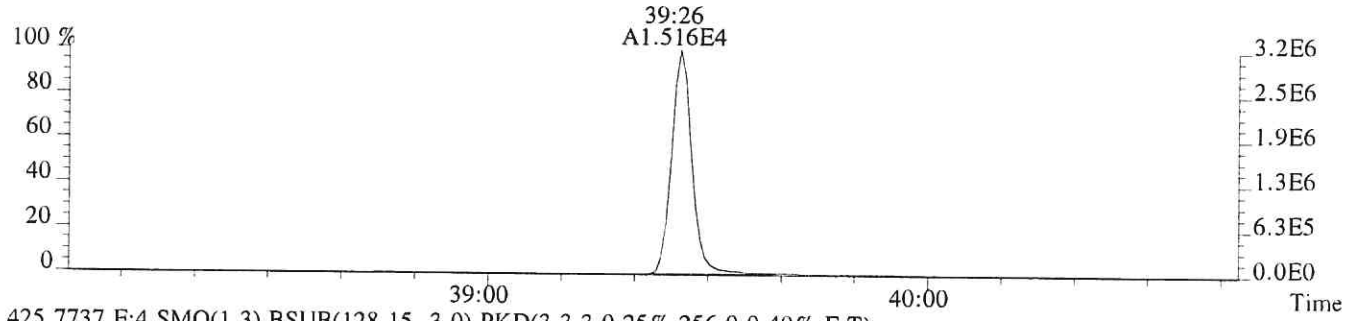
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



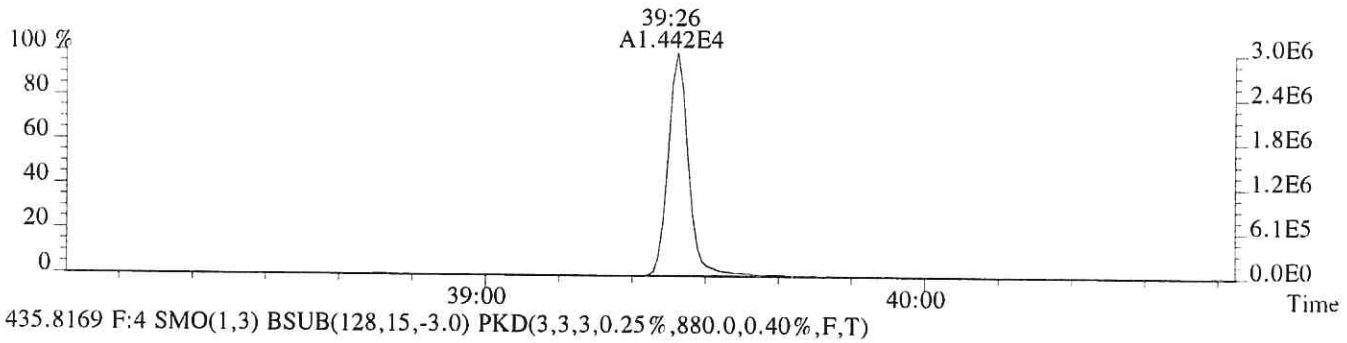
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



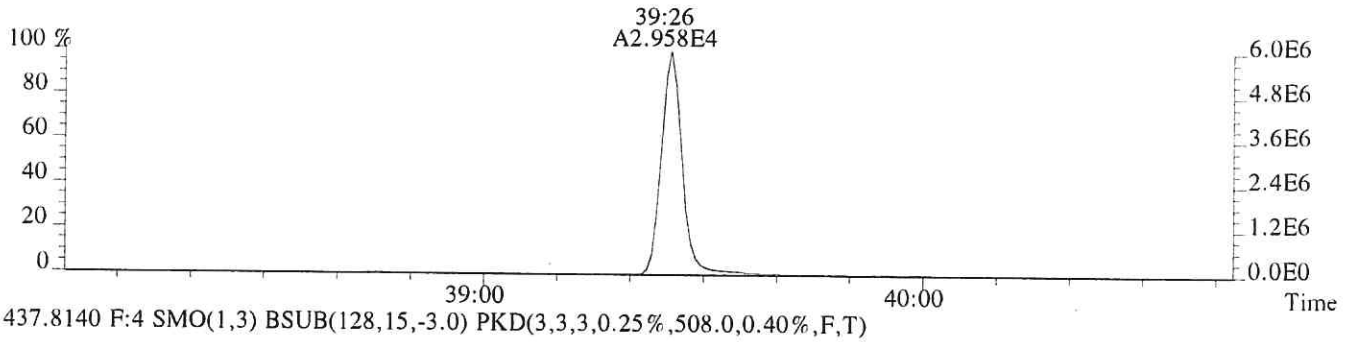
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



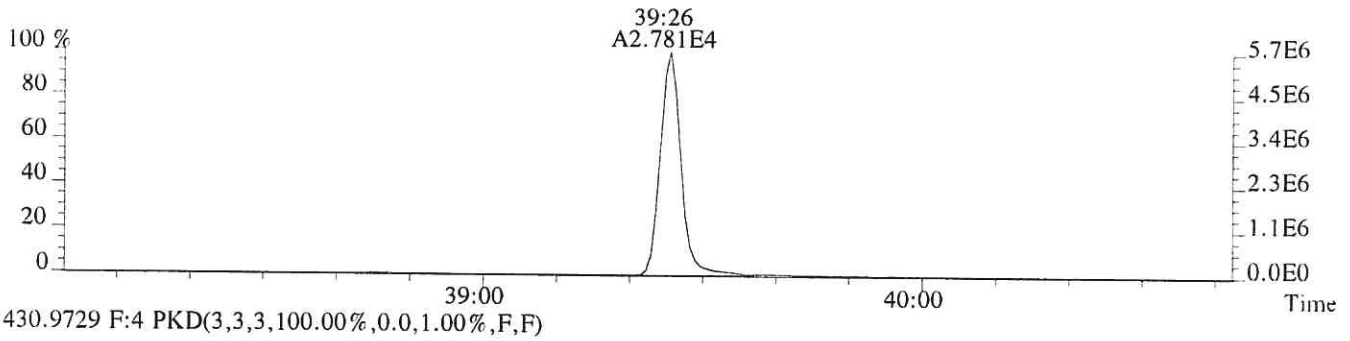
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



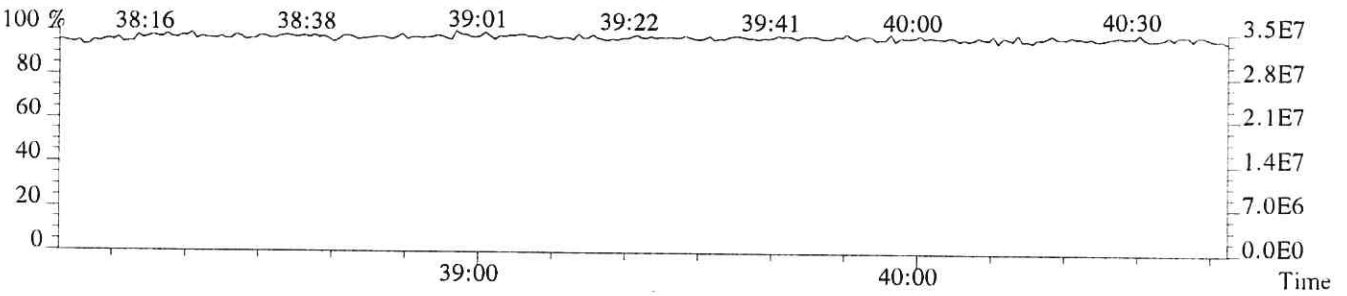
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



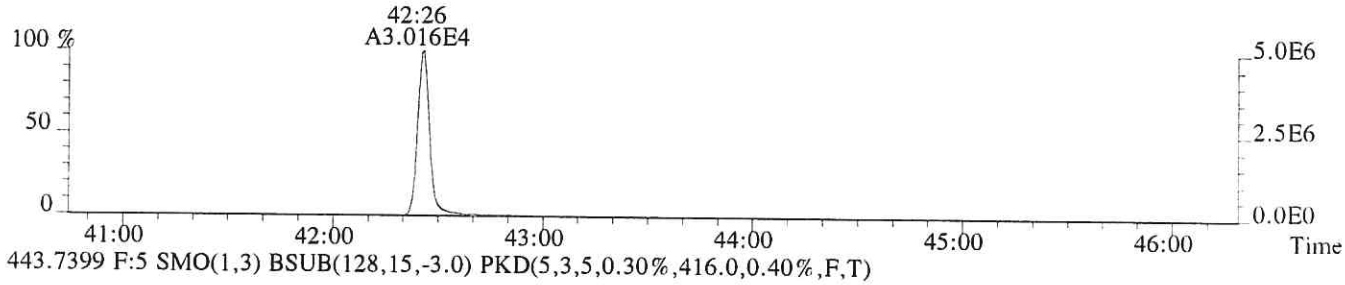
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



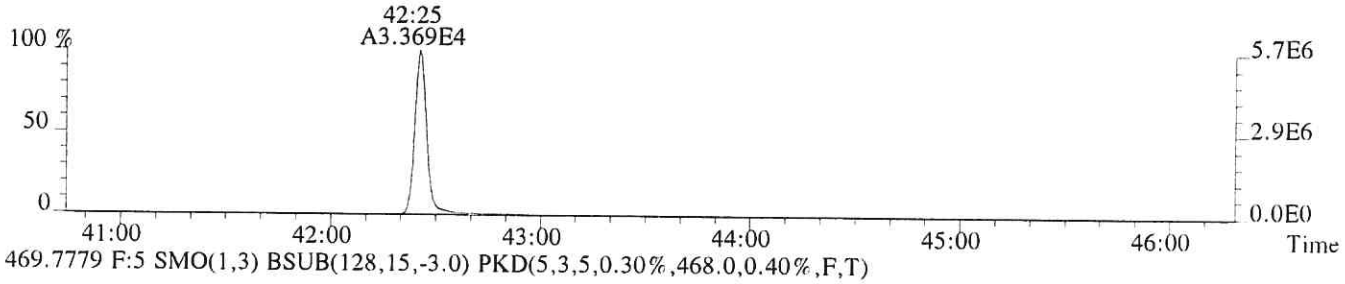
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



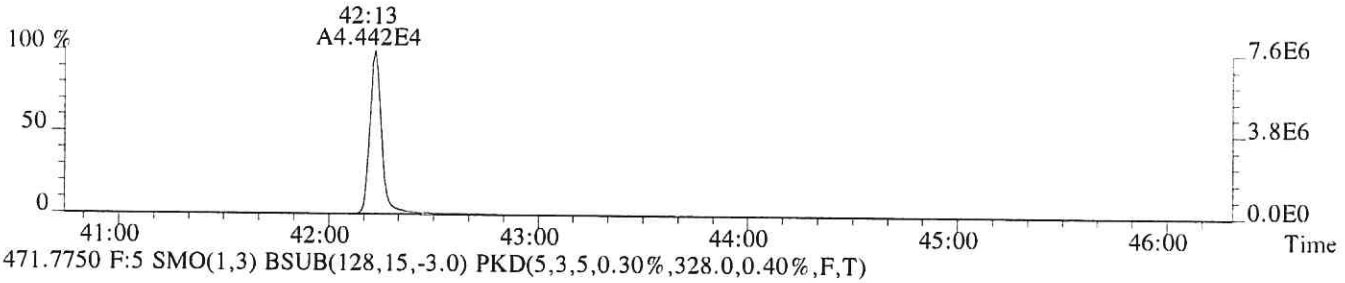
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



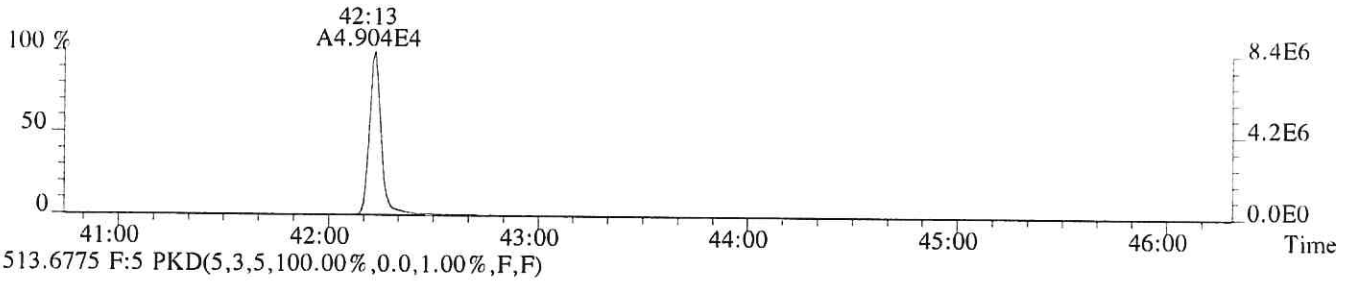
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



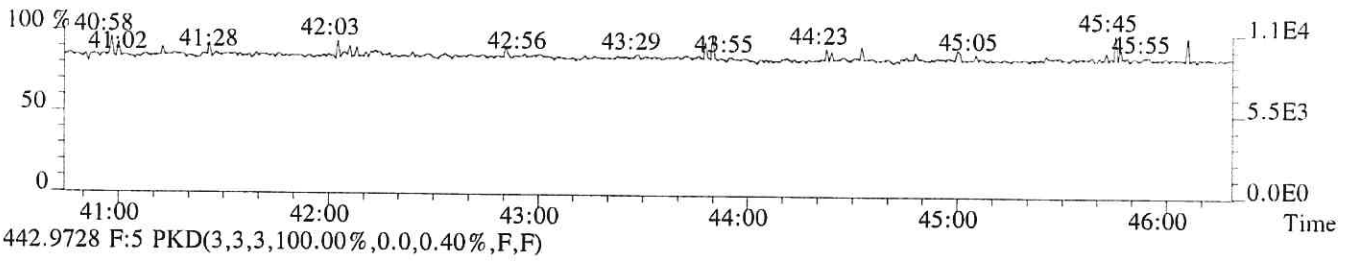
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



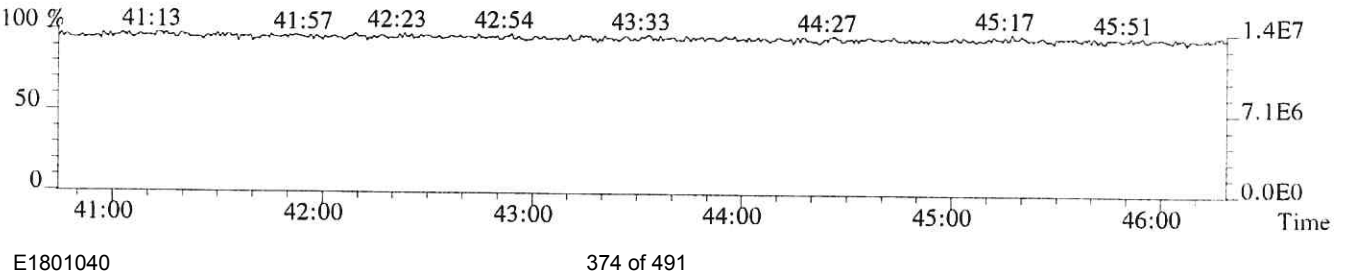
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



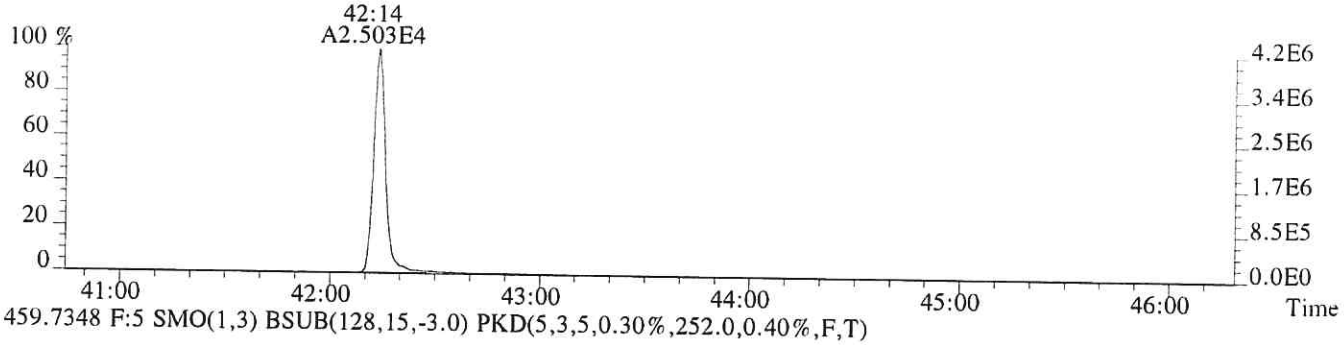
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



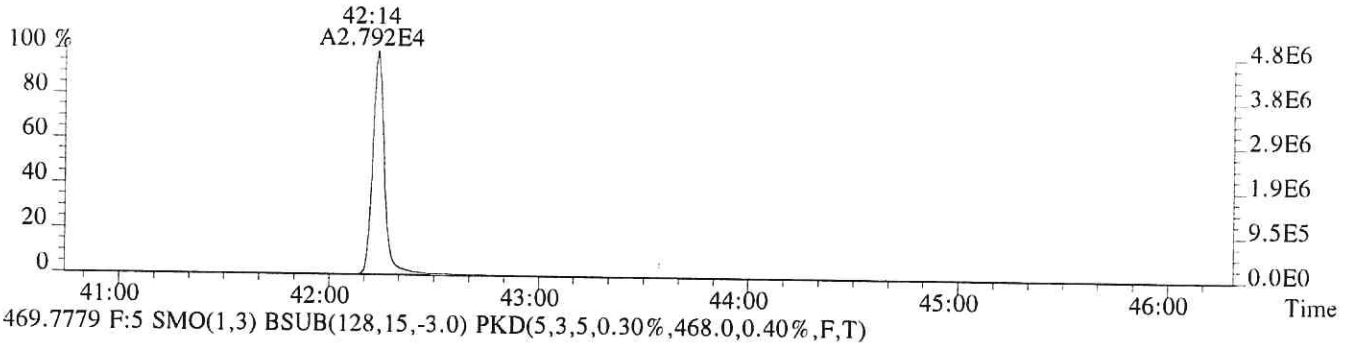
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



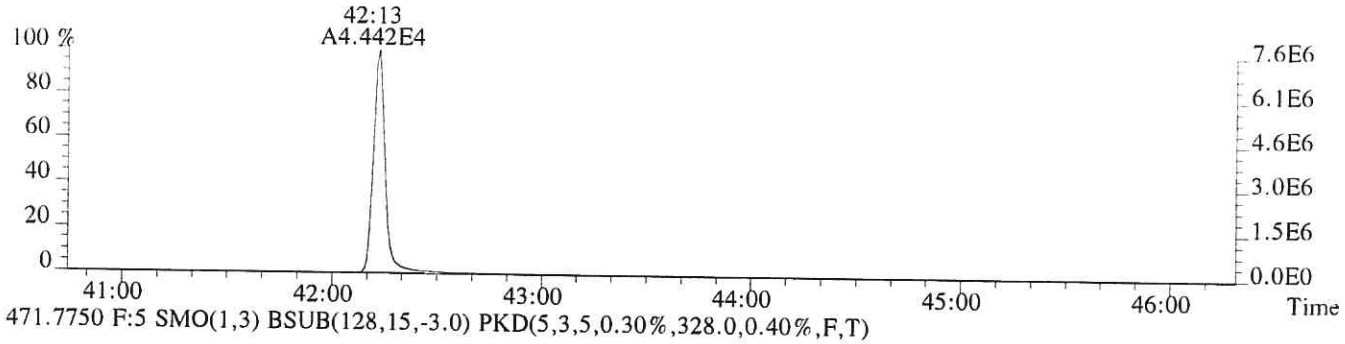
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



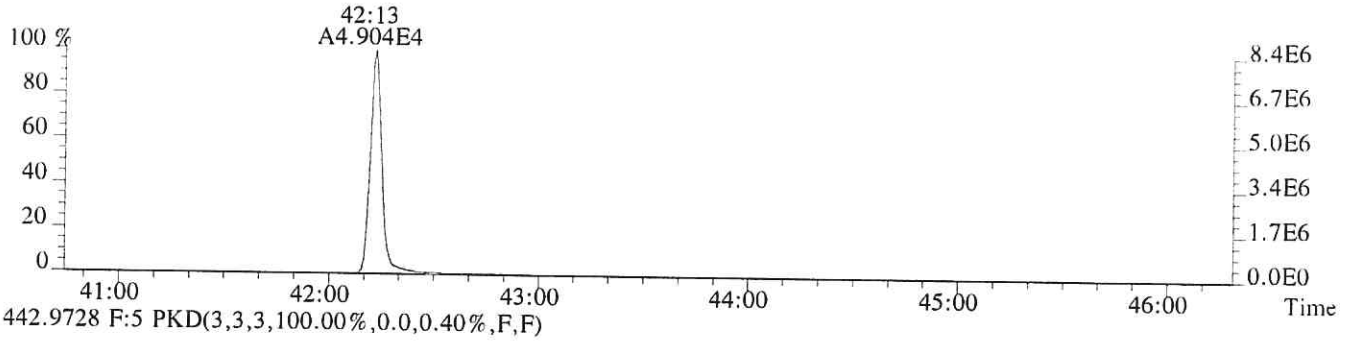
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



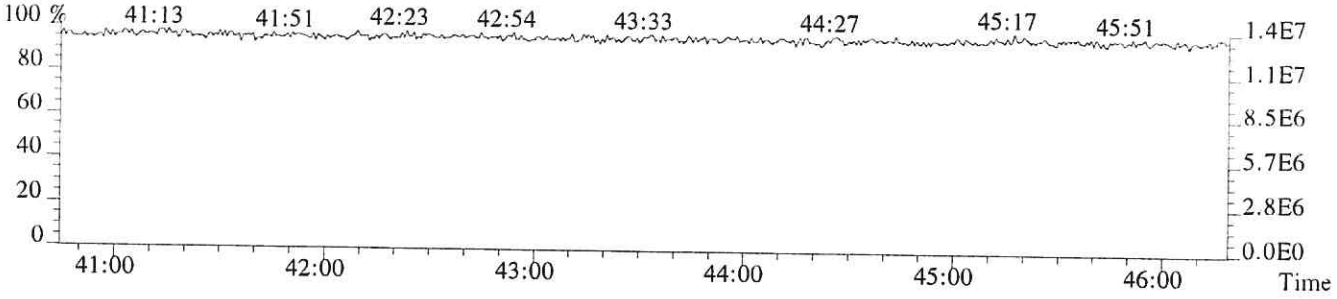
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:38	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	LB	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ LB 1/24/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

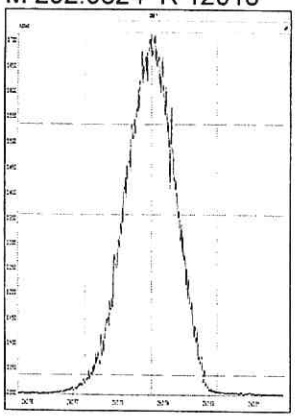
gc 01/25/18

* gc 01/25/18

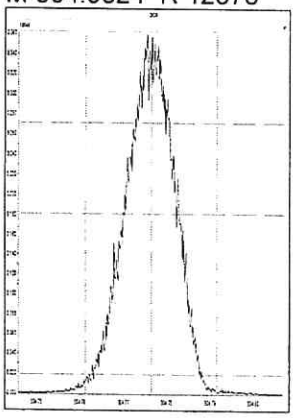
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

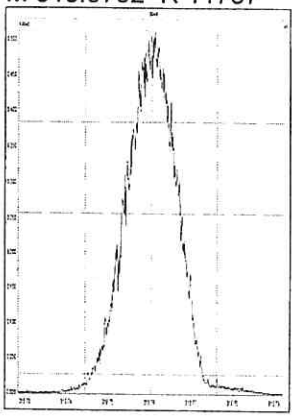
M 292.9824 R 12018



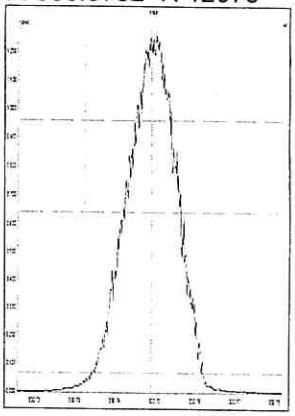
M 304.9824 R 12378



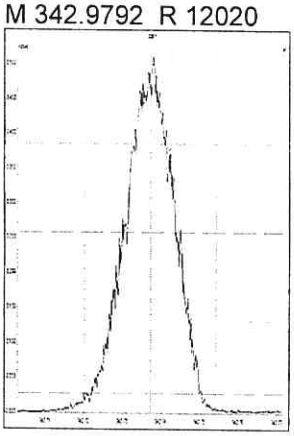
M 318.9792 R 11737



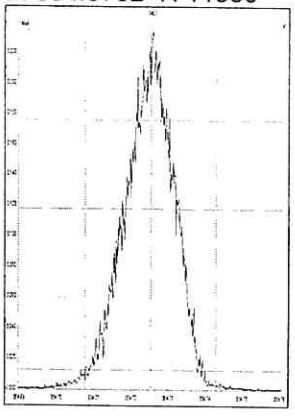
M 330.9792 R 12075



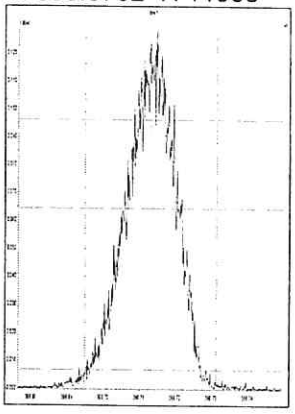
M 342.9792 R 12020



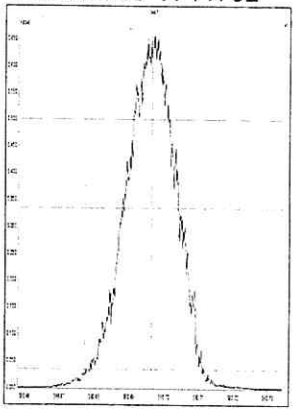
M 354.9792 R 11680



M 366.9792 R 11963



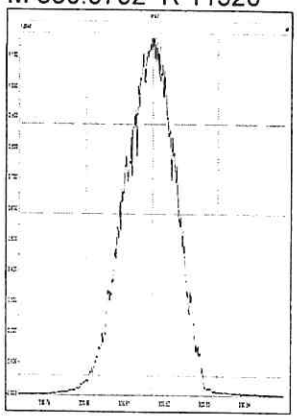
M 380.9760 R 11792



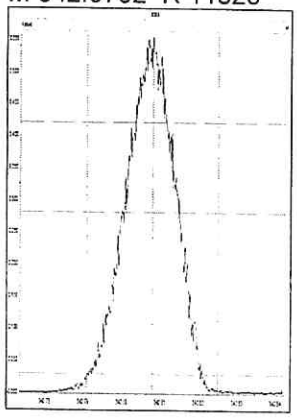
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

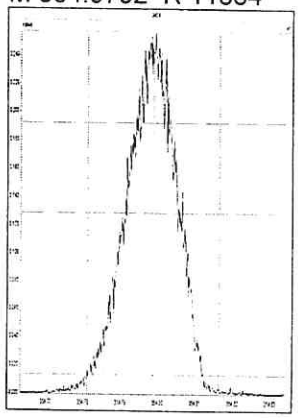
M 330.9792 R 11520



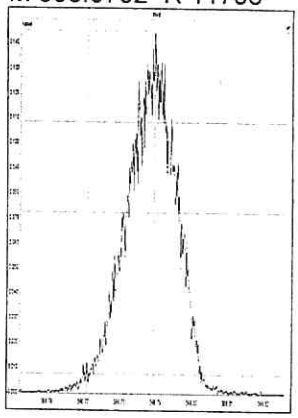
M 342.9792 R 11625



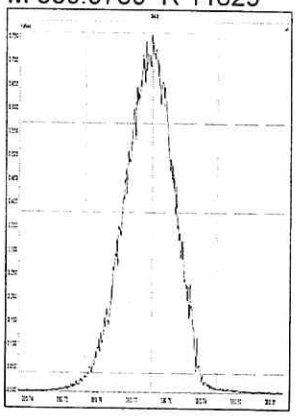
M 354.9792 R 11364



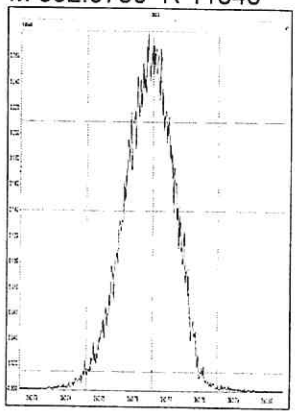
M 366.9792 R 11796



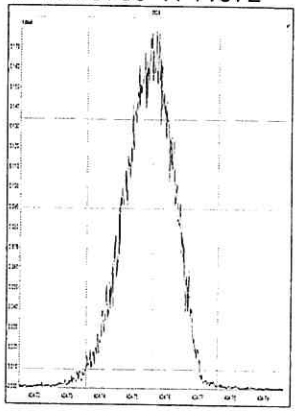
M 380.9760 R 11629



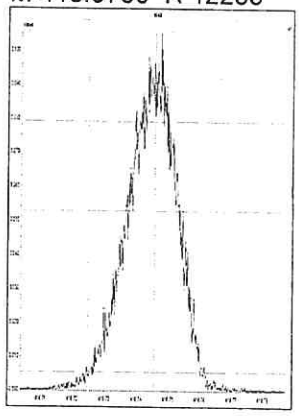
M 392.9760 R 11848



M 404.9760 R 11572



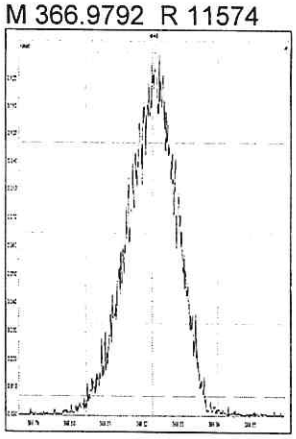
M 416.9760 R 12255



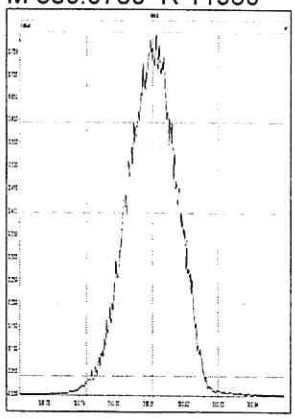
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

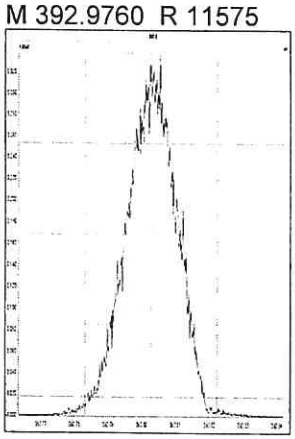
M 366.9792 R 11574



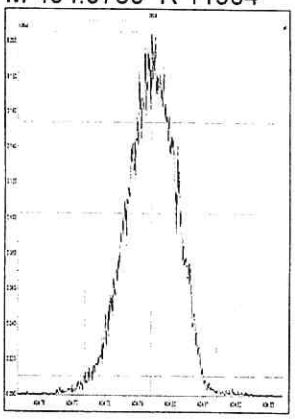
M 380.9760 R 11960



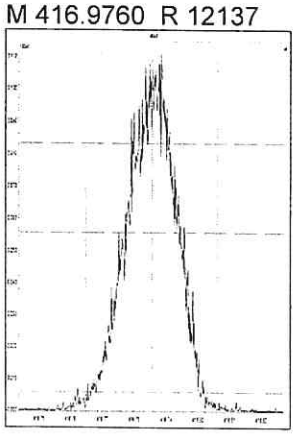
M 392.9760 R 11575



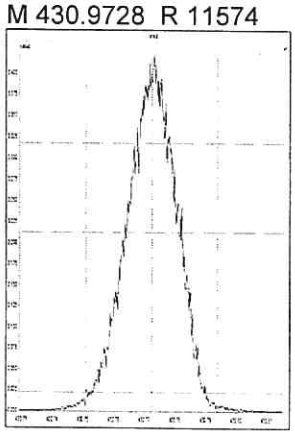
M 404.9760 R 11904



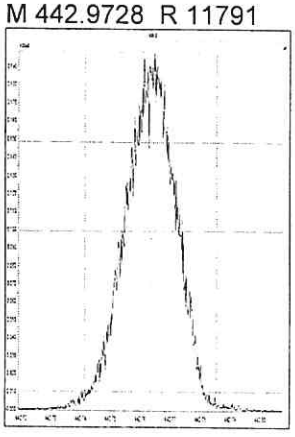
M 416.9760 R 12137



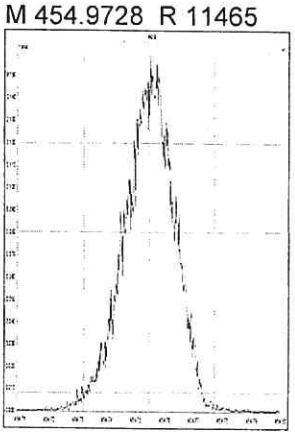
M 430.9728 R 11574



M 442.9728 R 11791



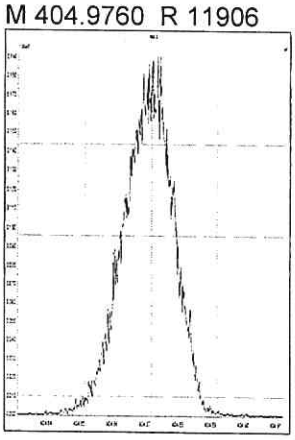
M 454.9728 R 11465



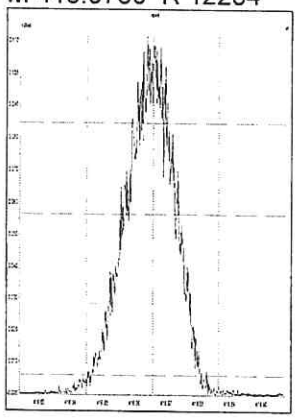
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

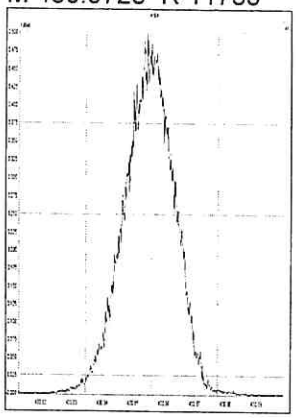
M 404.9760 R 11906



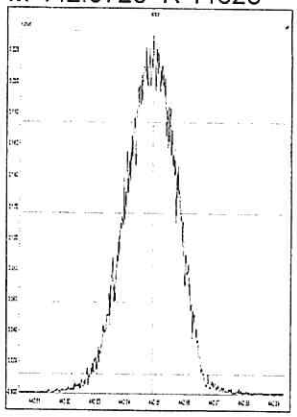
M 416.9760 R 12254



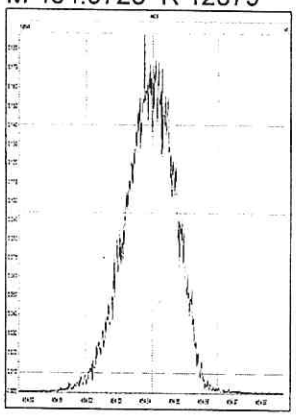
M 430.9728 R 11735



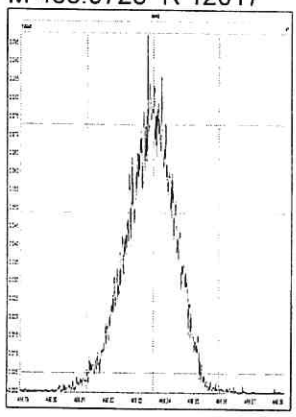
M 442.9728 R 11628



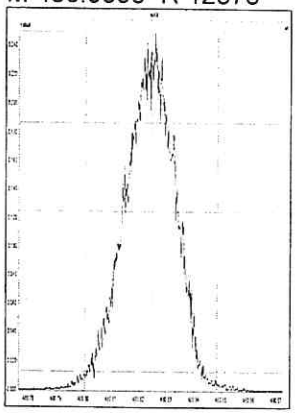
M 454.9728 R 12379



M 466.9728 R 12017



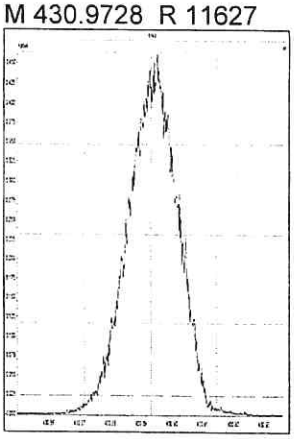
M 480.9696 R 12376



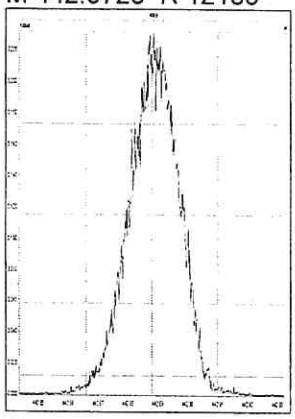
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

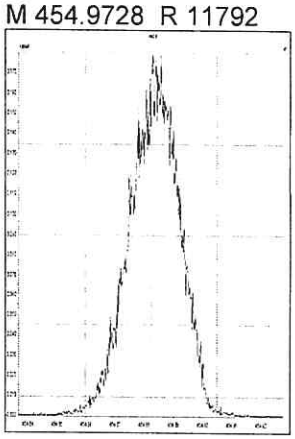
M 430.9728 R 11627



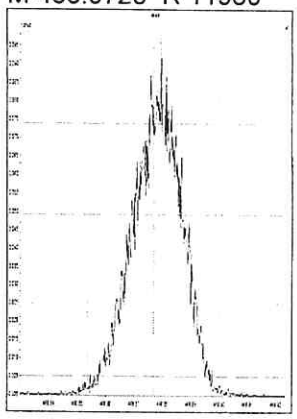
M 442.9728 R 12133



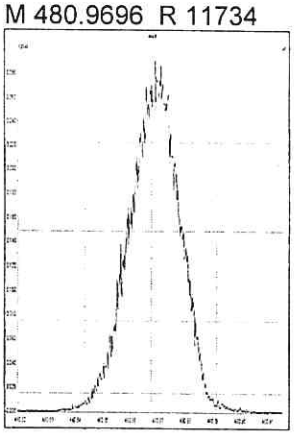
M 454.9728 R 11792



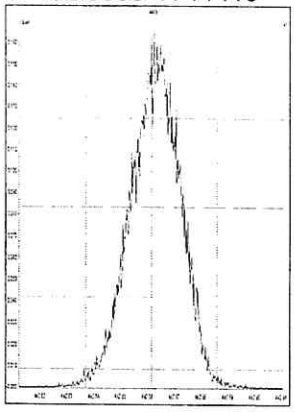
M 466.9728 R 11960



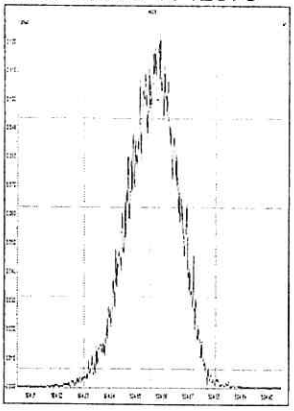
M 480.9696 R 11734



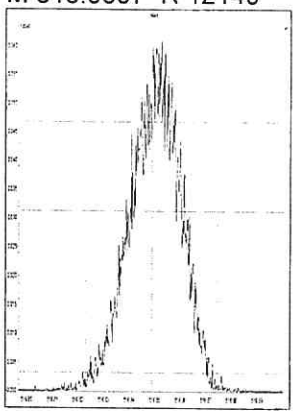
M 492.9696 R 11415



M 504.9696 R 12075



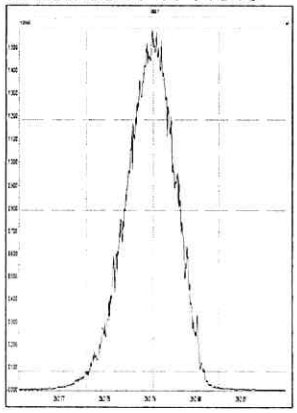
M 516.9697 R 12140



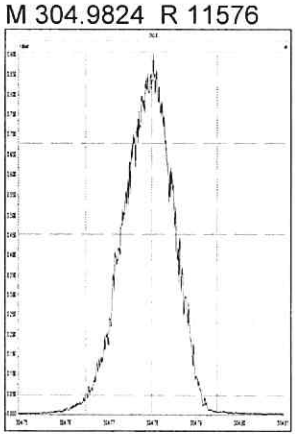
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

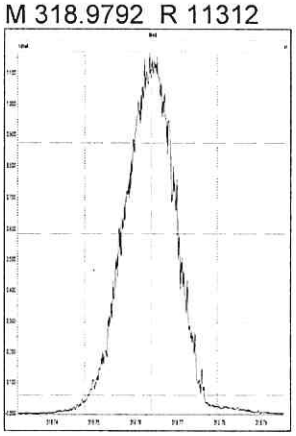
M 292.9824 R 11519



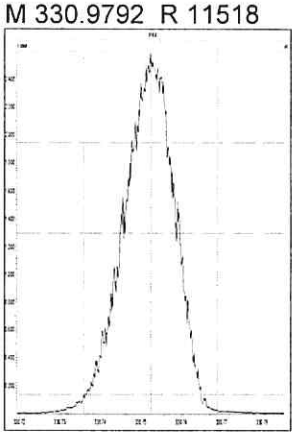
M 304.9824 R 11576



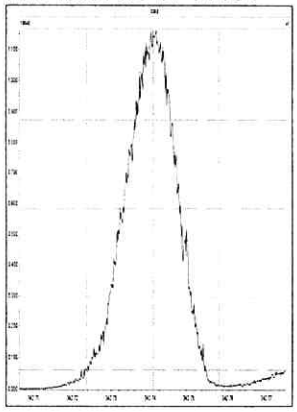
M 318.9792 R 11312



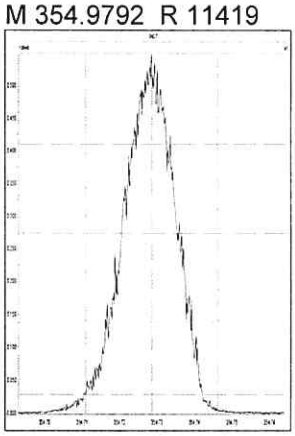
M 330.9792 R 11518



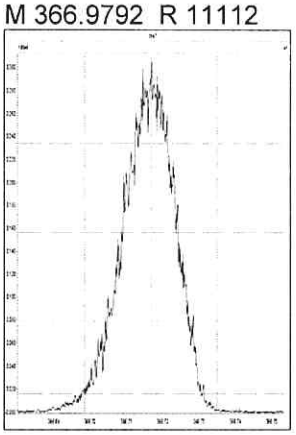
M 342.9792 R 11161



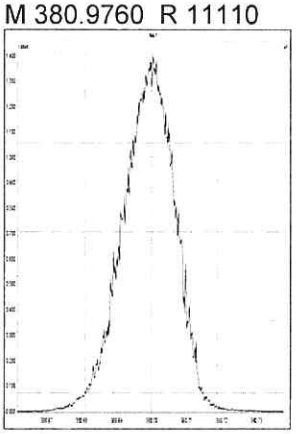
M 354.9792 R 11419



M 366.9792 R 11112



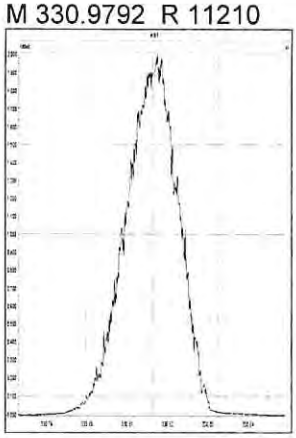
M 380.9760 R 11110



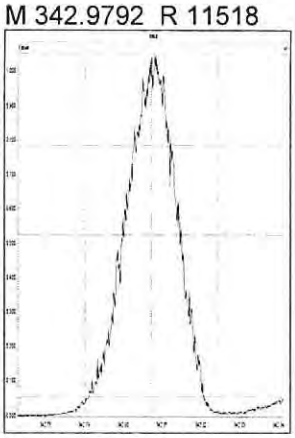
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

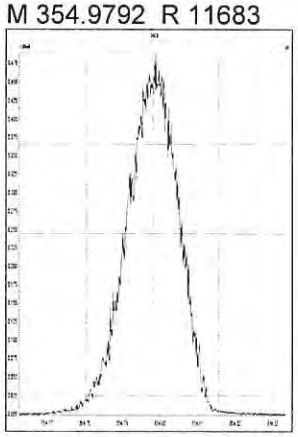
M 330.9792 R 11210



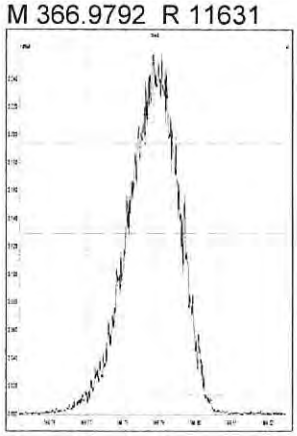
M 342.9792 R 11518



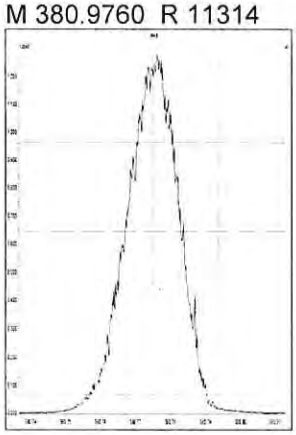
M 354.9792 R 11683



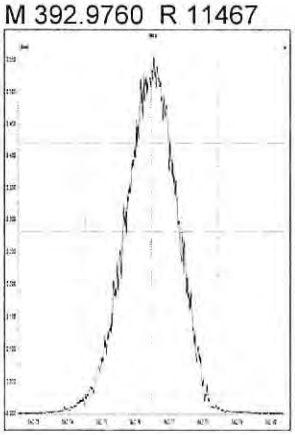
M 366.9792 R 11631



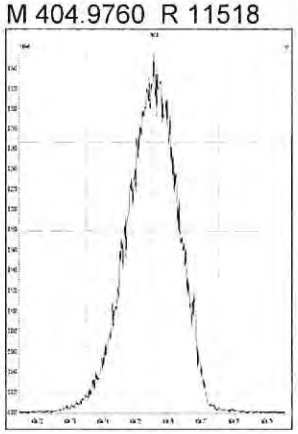
M 380.9760 R 11314



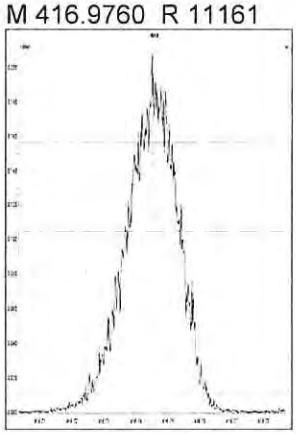
M 392.9760 R 11467



M 404.9760 R 11518



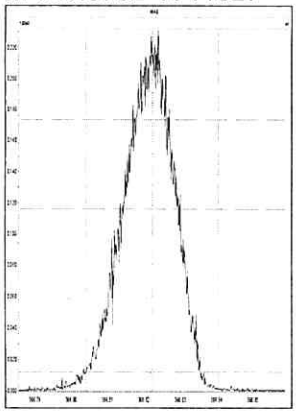
M 416.9760 R 11161



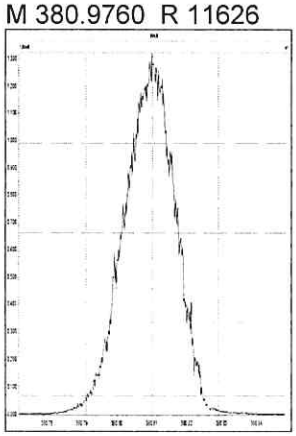
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

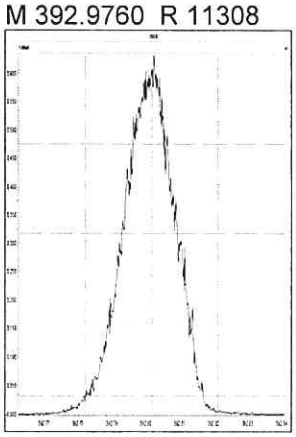
M 366.9792 R 11627



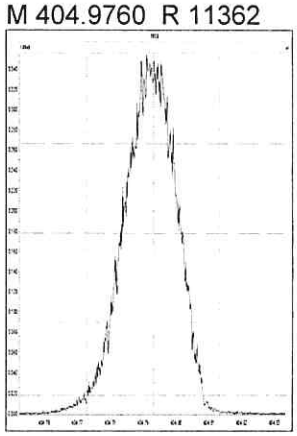
M 380.9760 R 11626



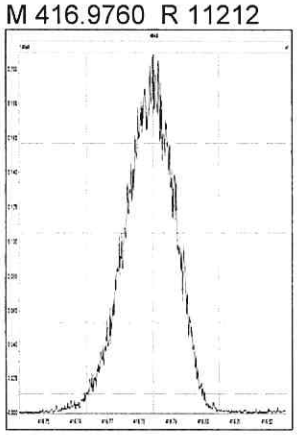
M 392.9760 R 11308



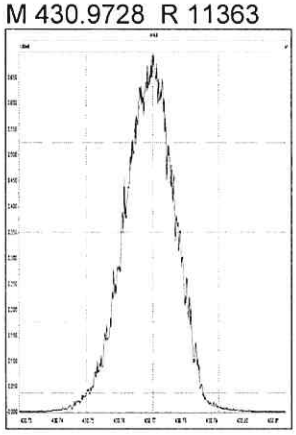
M 404.9760 R 11362



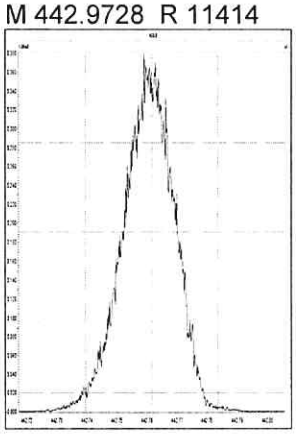
M 416.9760 R 11212



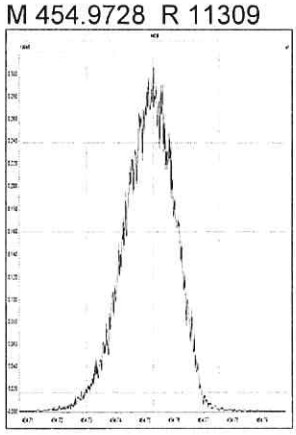
M 430.9728 R 11363



M 442.9728 R 11414



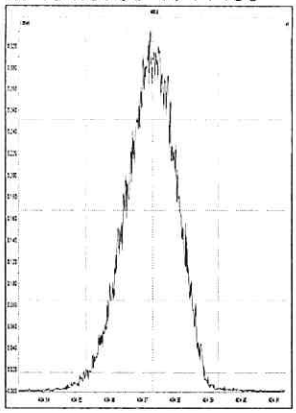
M 454.9728 R 11309



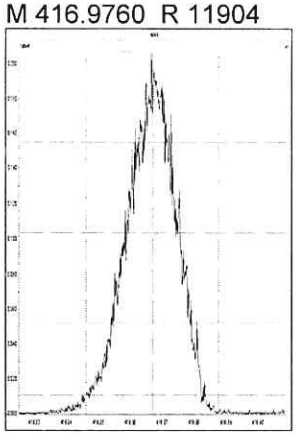
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

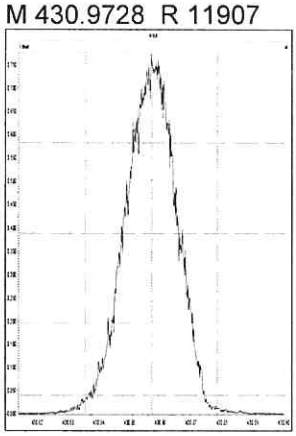
M 404.9760 R 11465



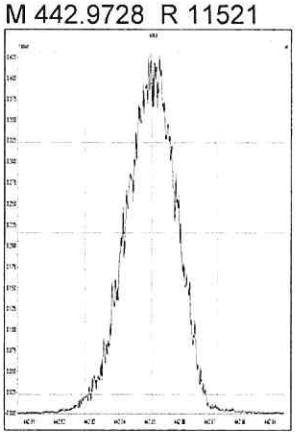
M 416.9760 R 11904



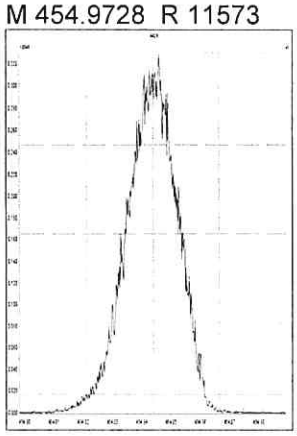
M 430.9728 R 11907



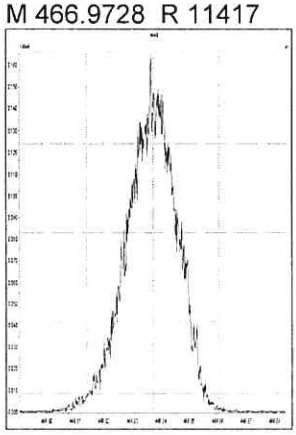
M 442.9728 R 11521



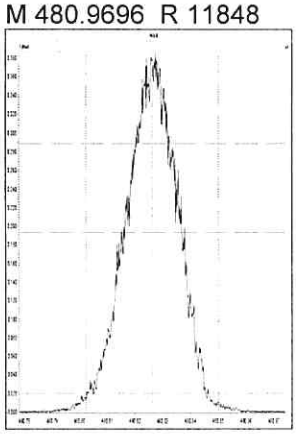
M 454.9728 R 11573



M 466.9728 R 11417



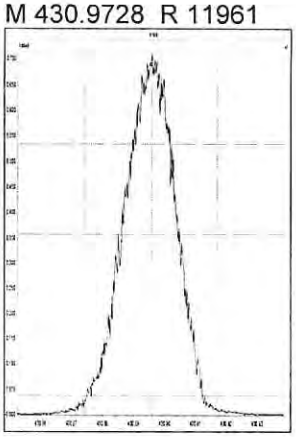
M 480.9696 R 11848



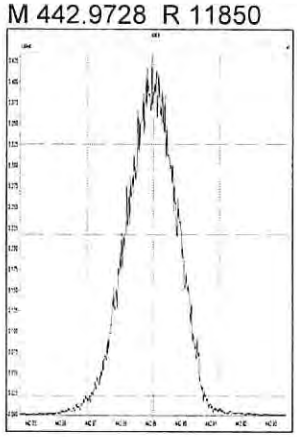
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

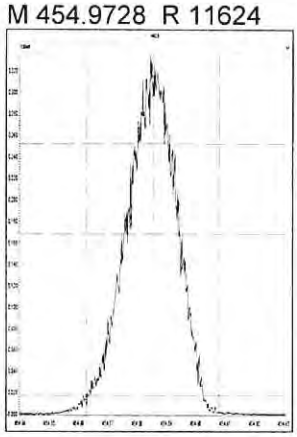
M 430.9728 R 11961



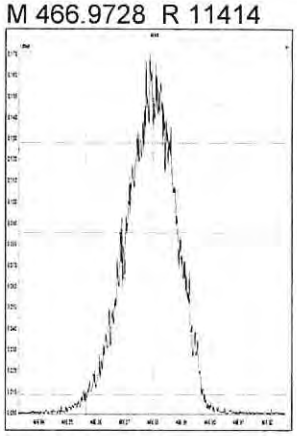
M 442.9728 R 11850



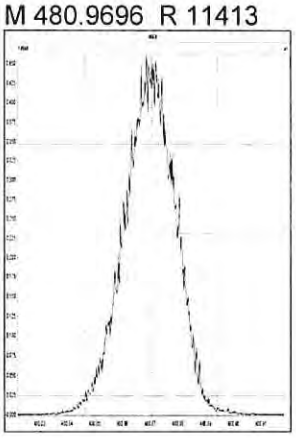
M 454.9728 R 11624



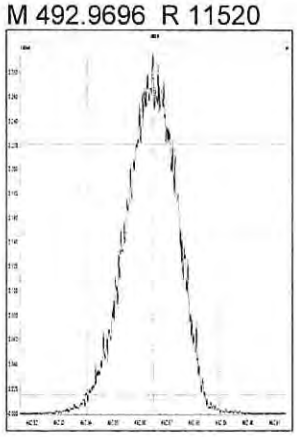
M 466.9728 R 11414



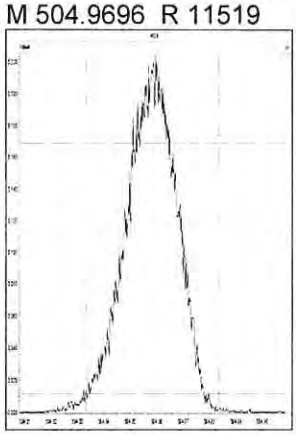
M 480.9696 R 11413



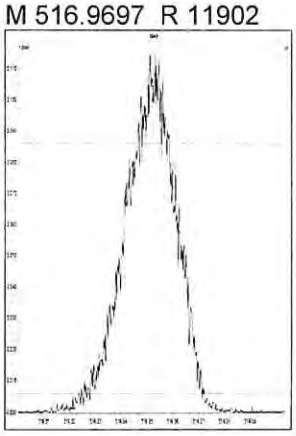
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

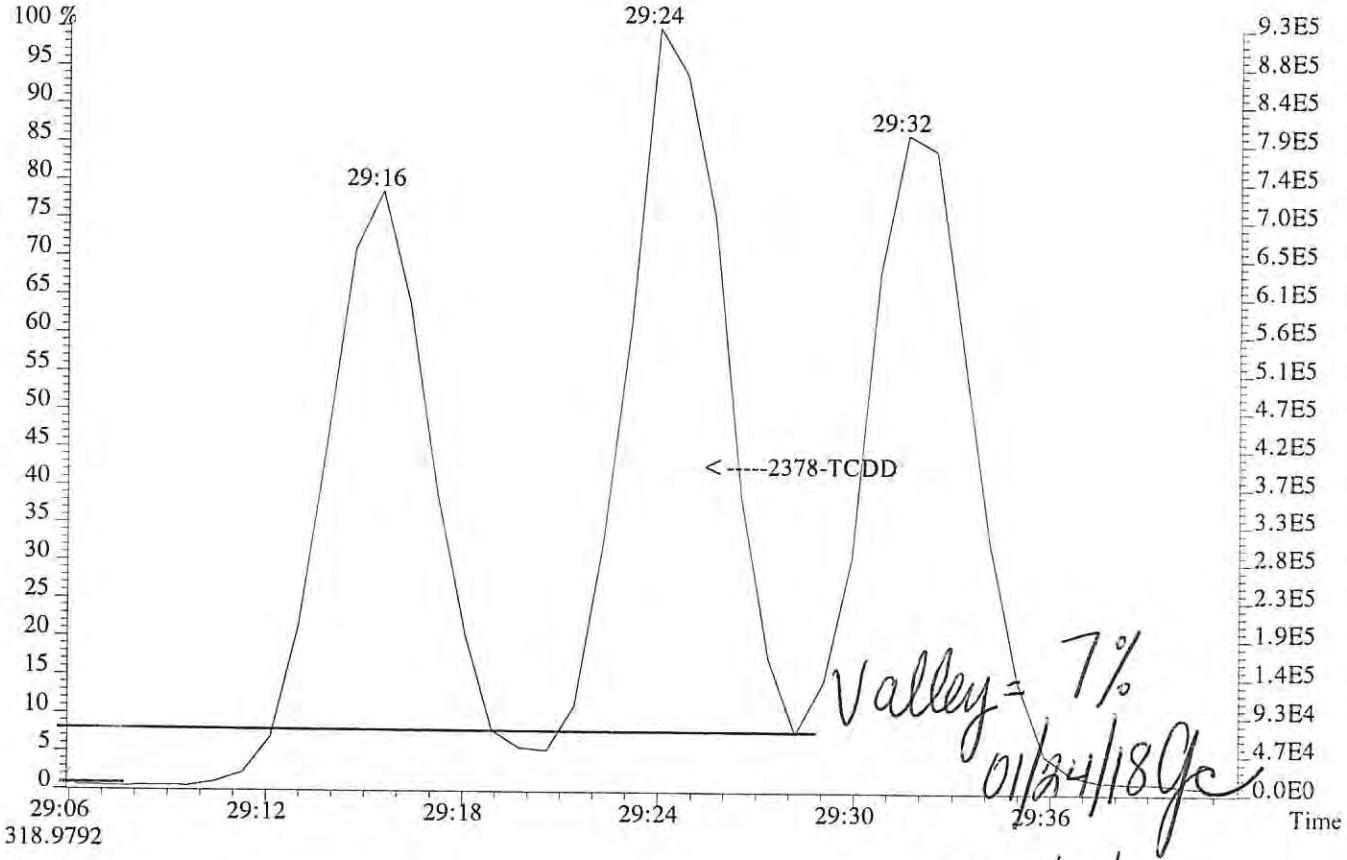
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

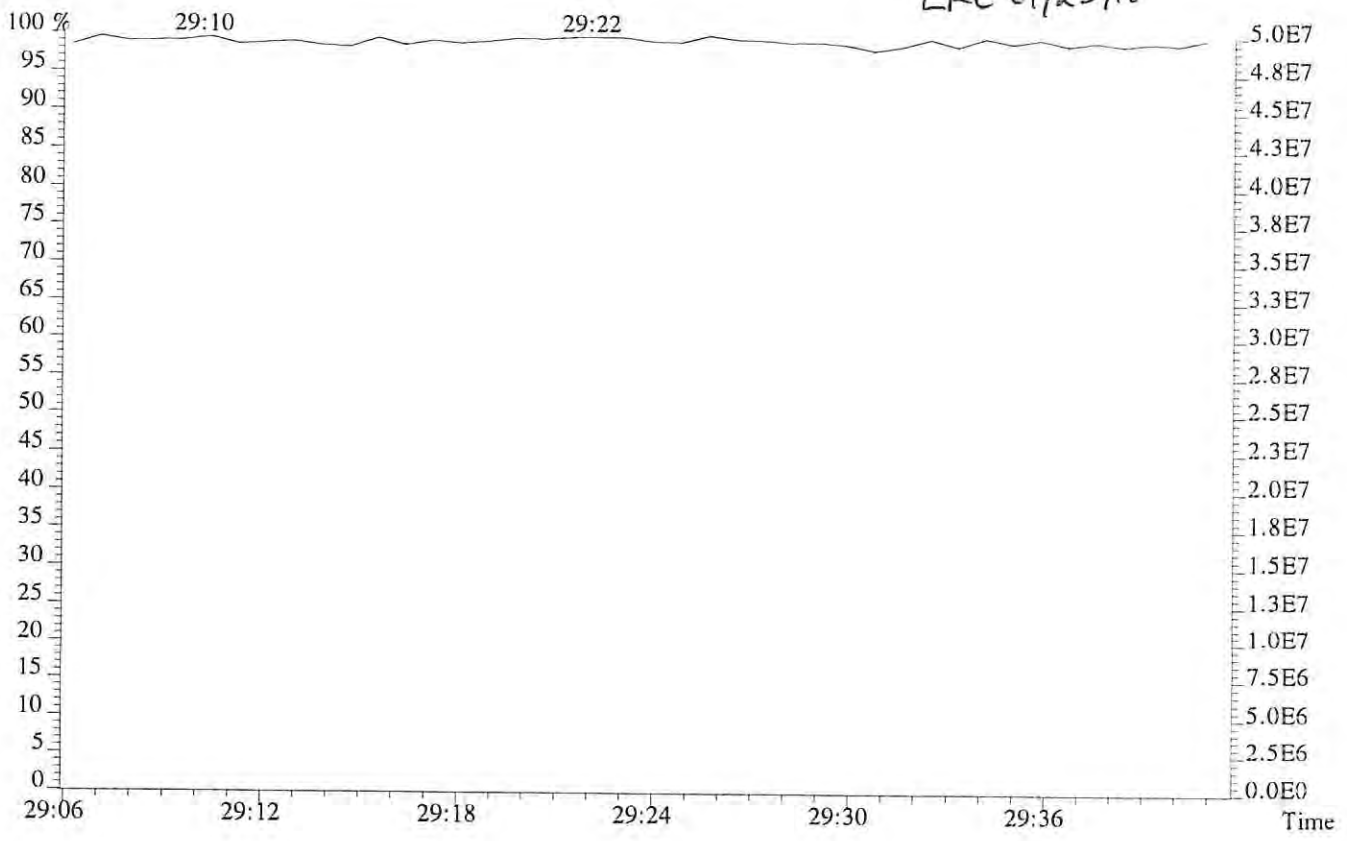
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965



LKL 01/25/18



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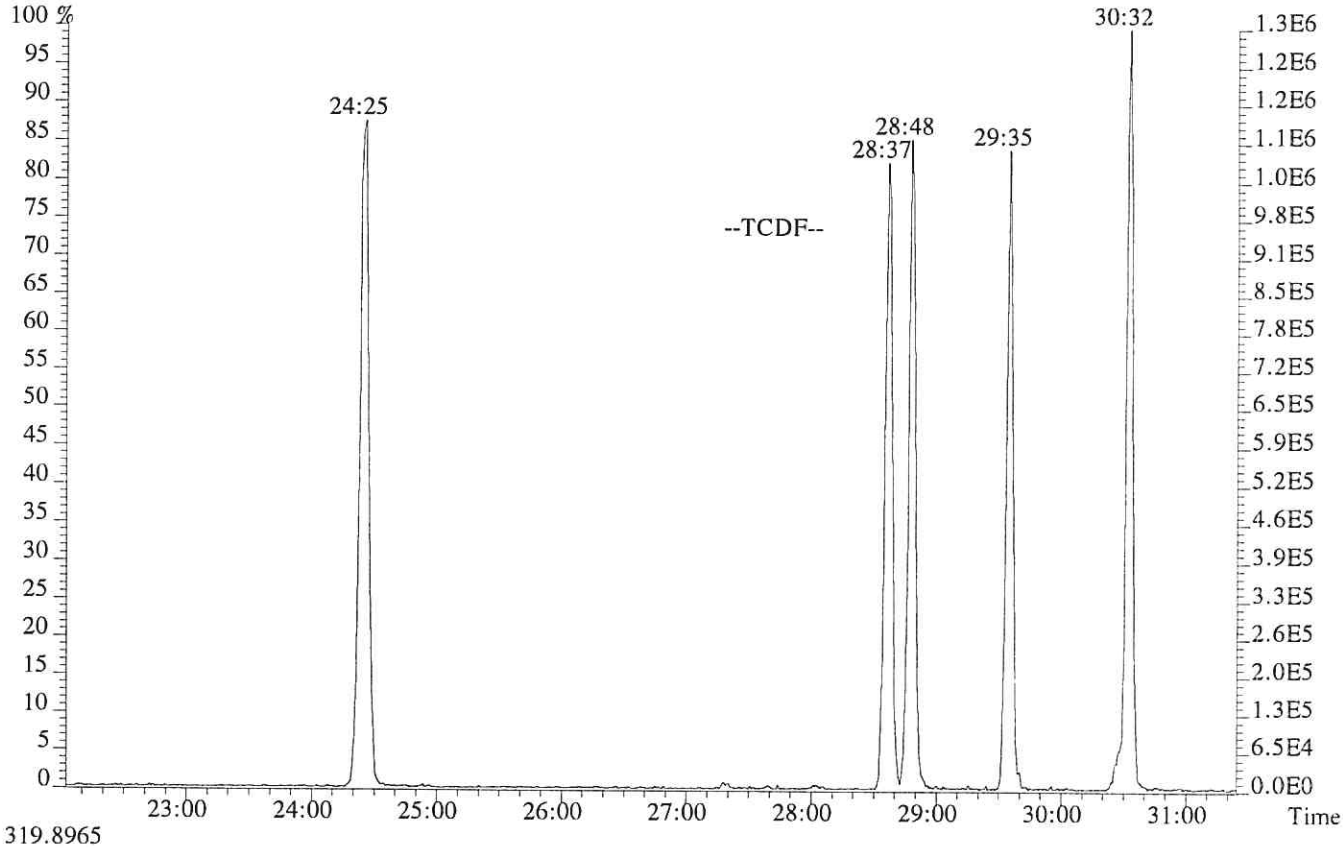
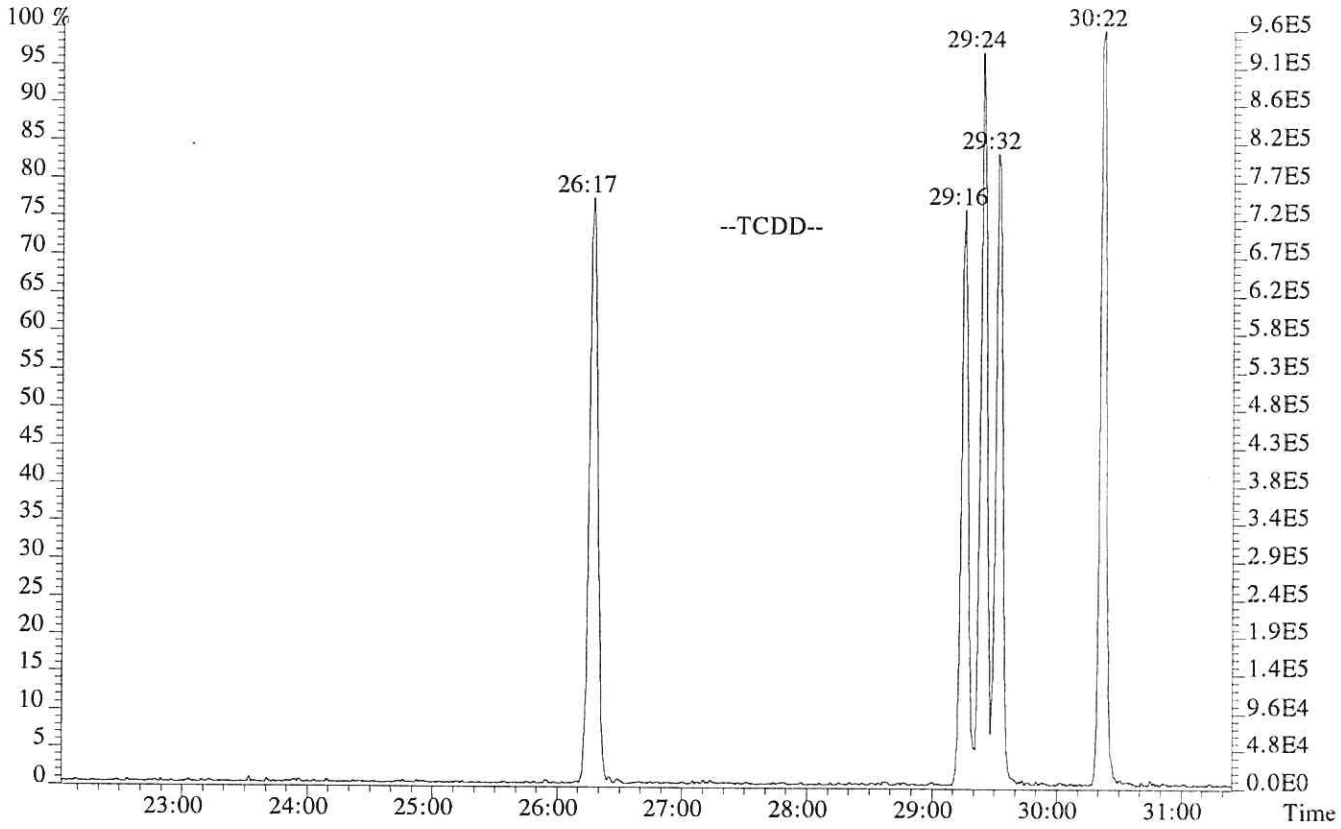
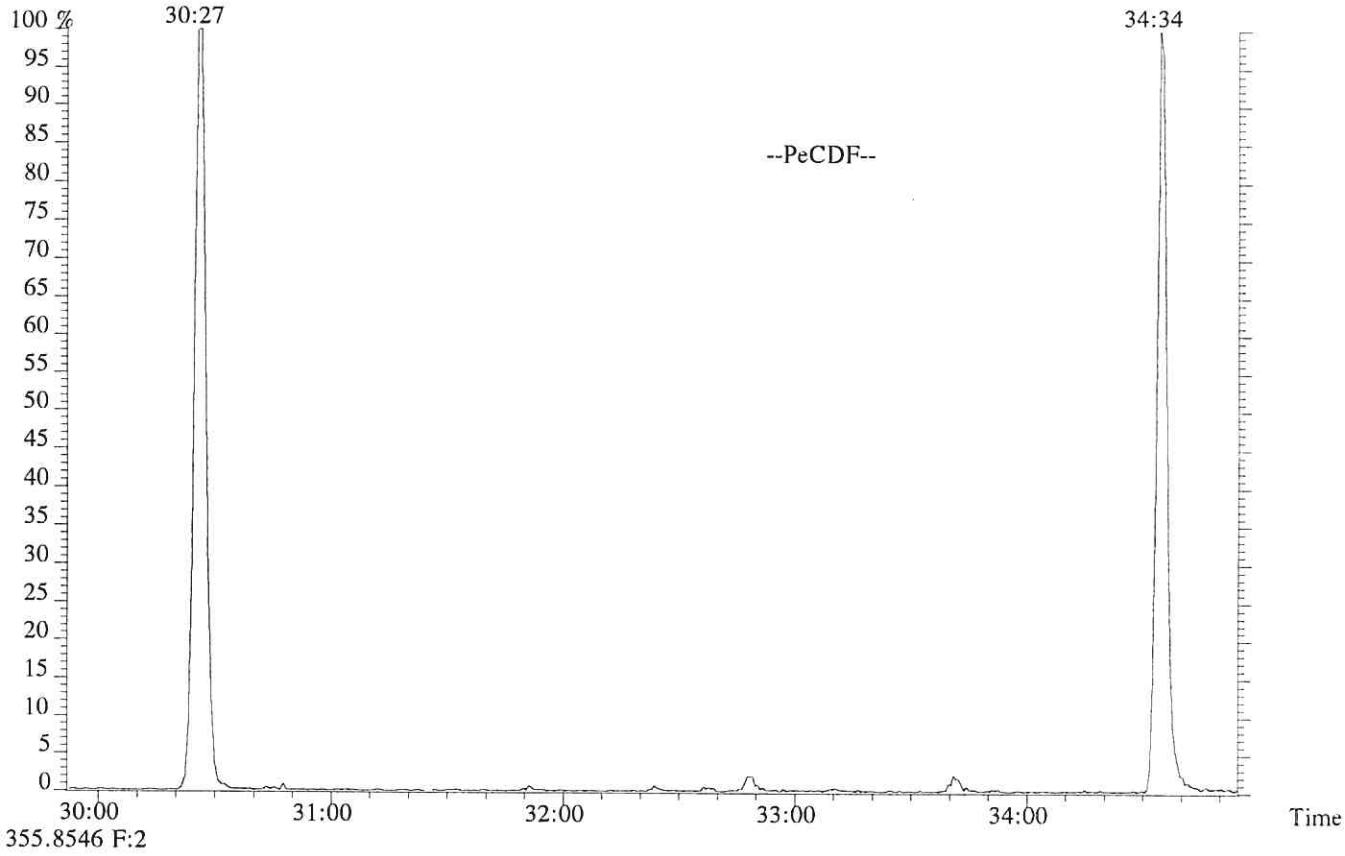
Sample#1 Exp:183360
303.9016



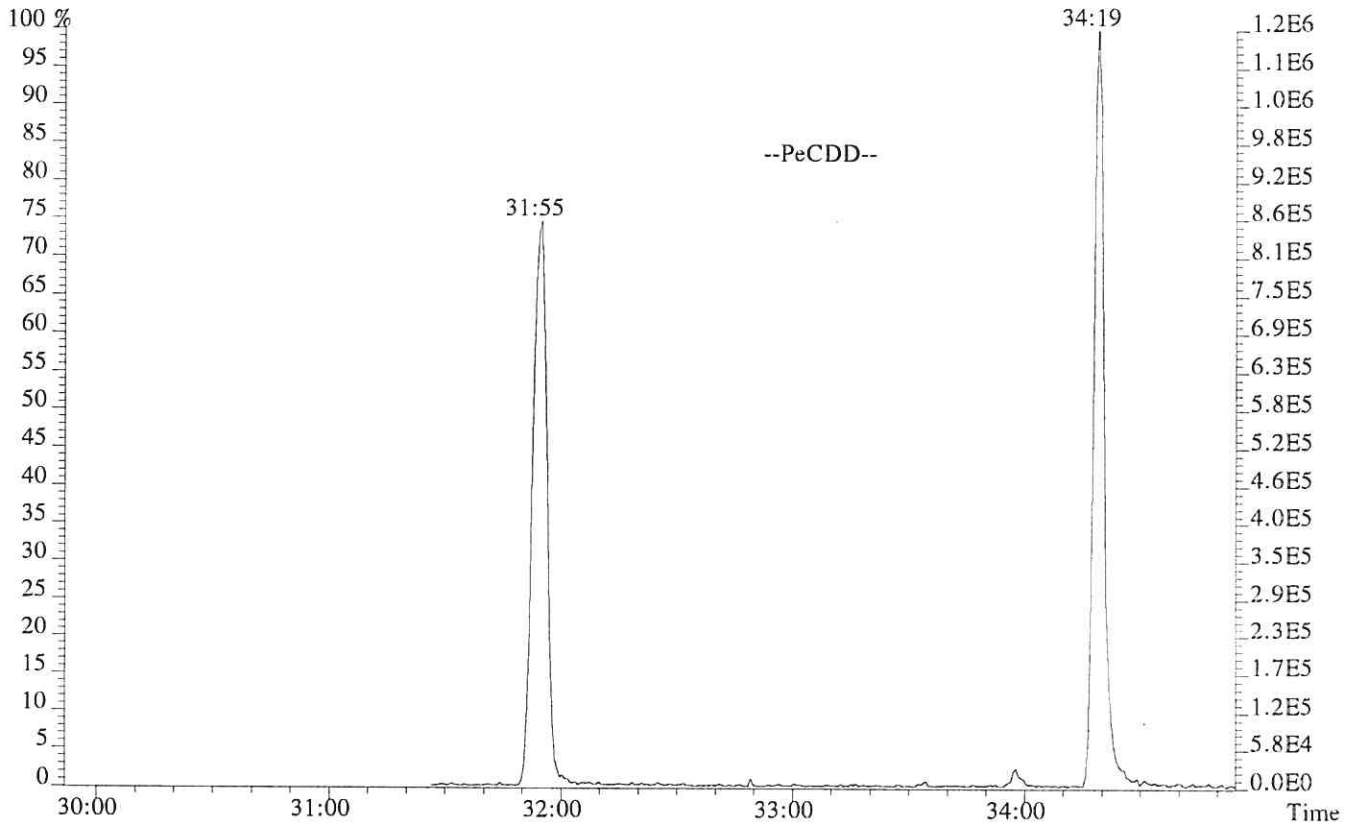
319.8965



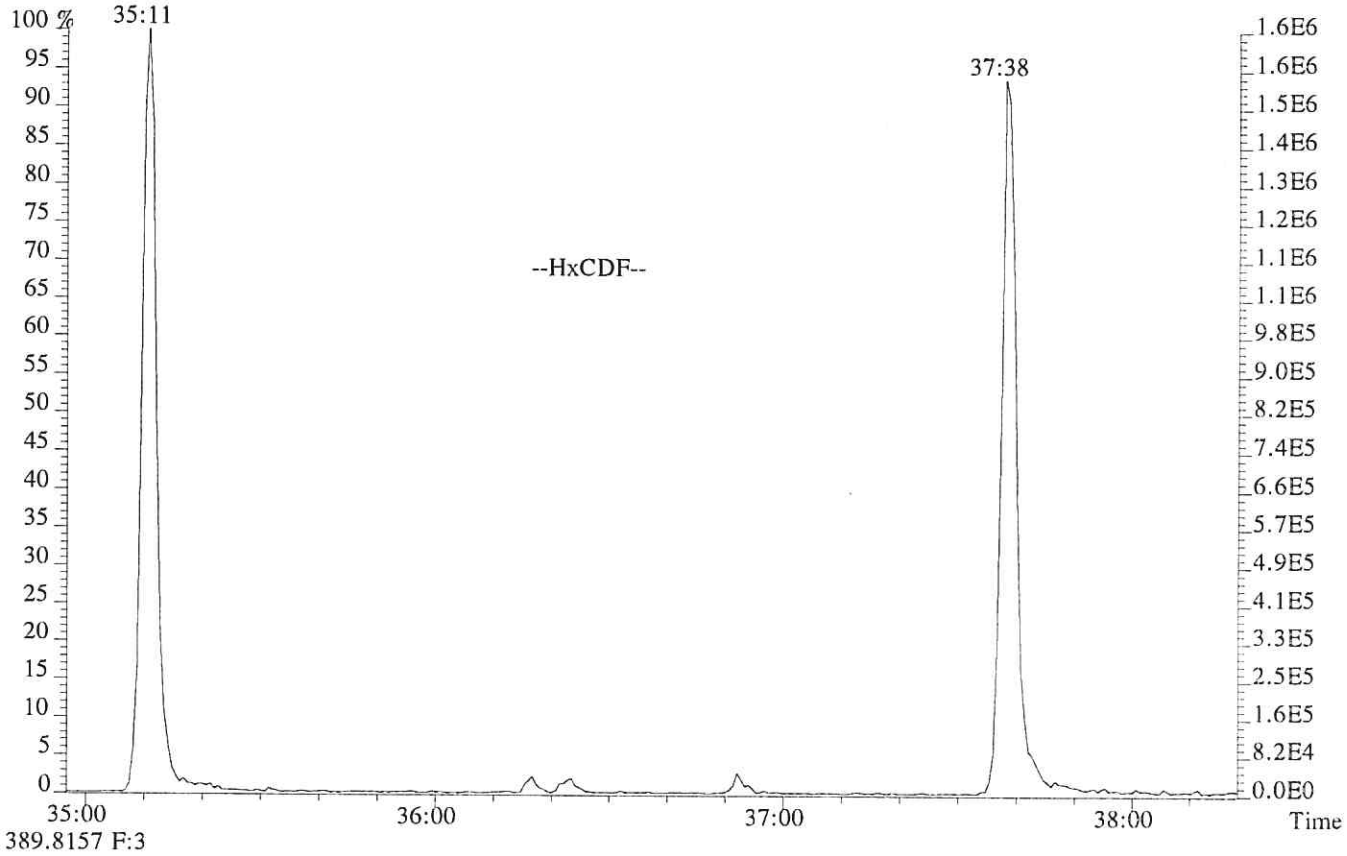
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



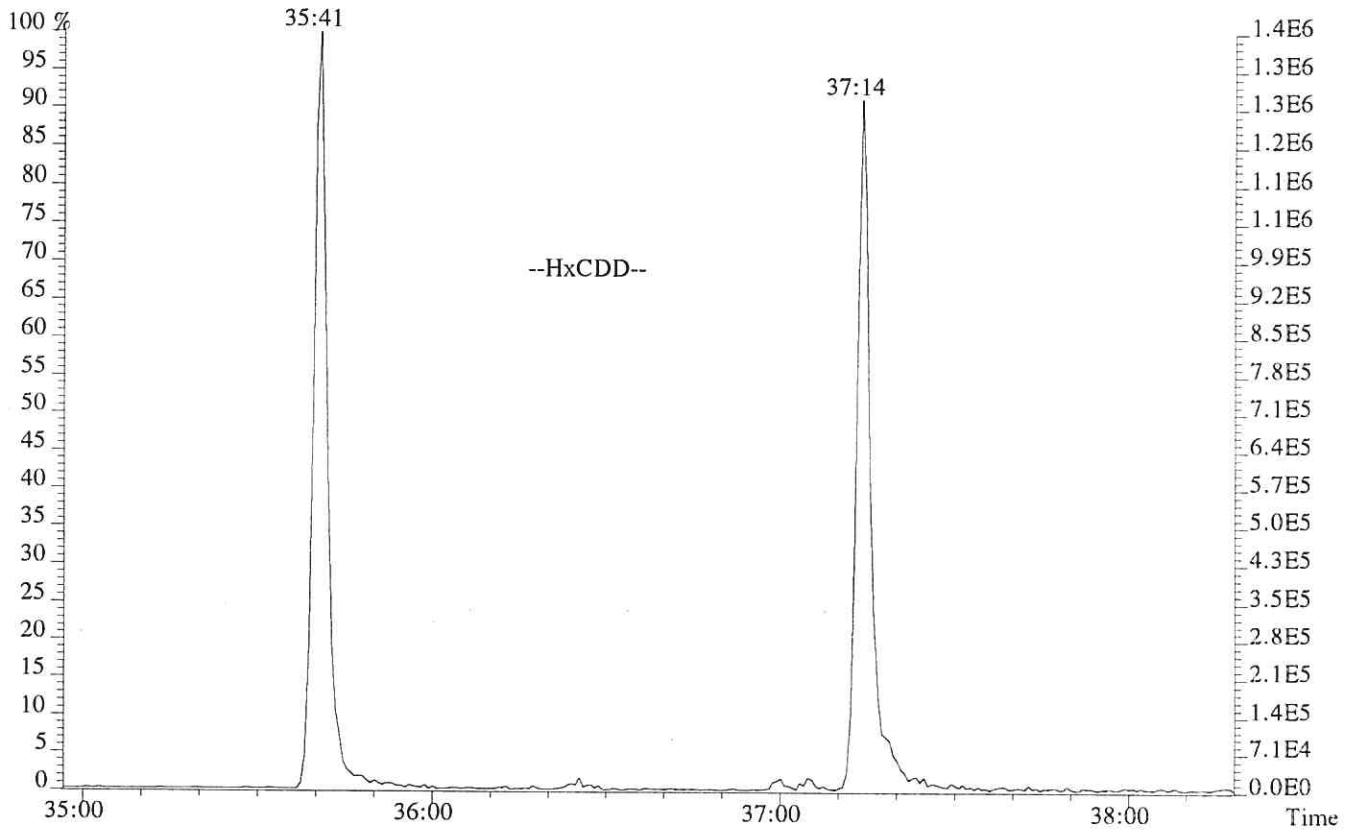
355.8546 F:2



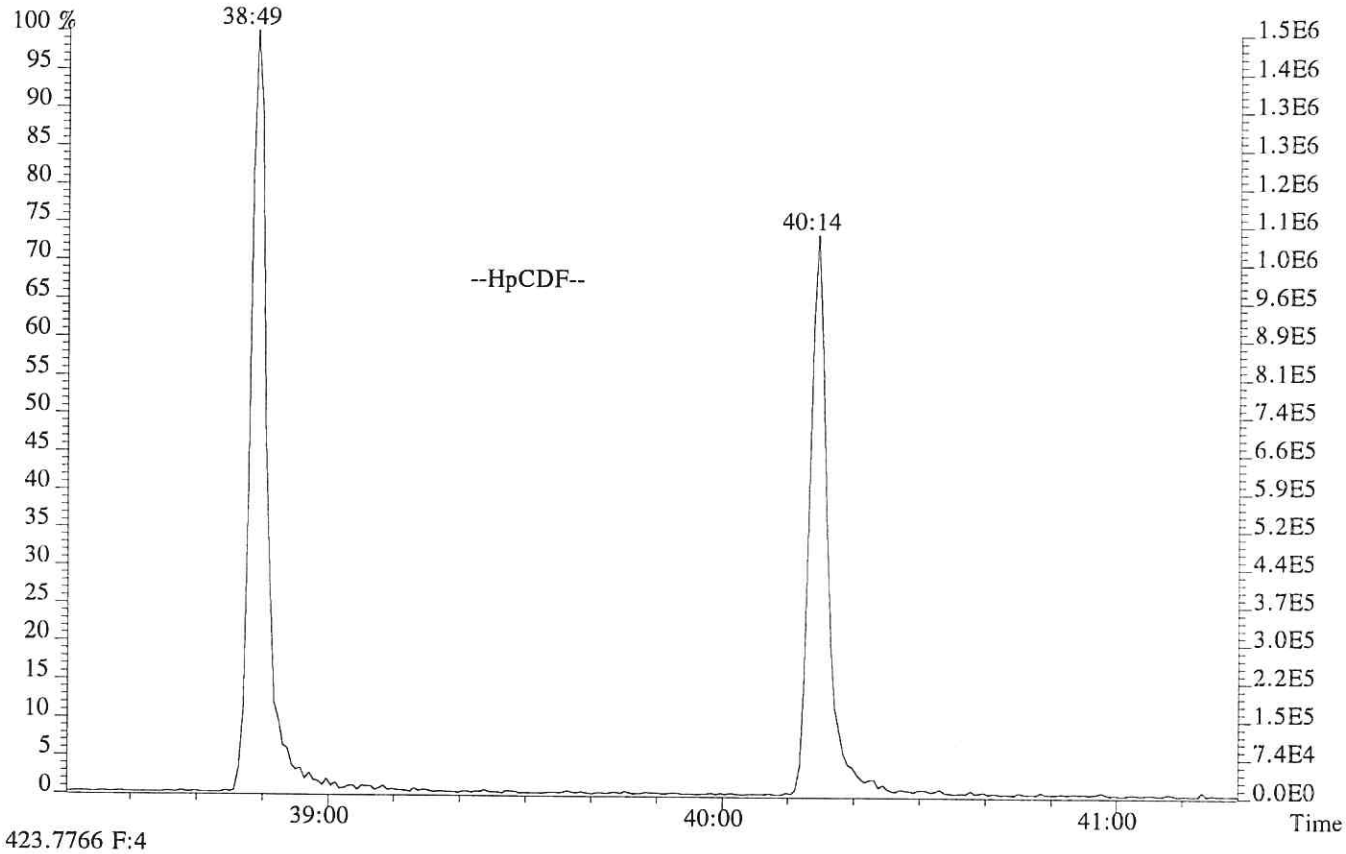
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



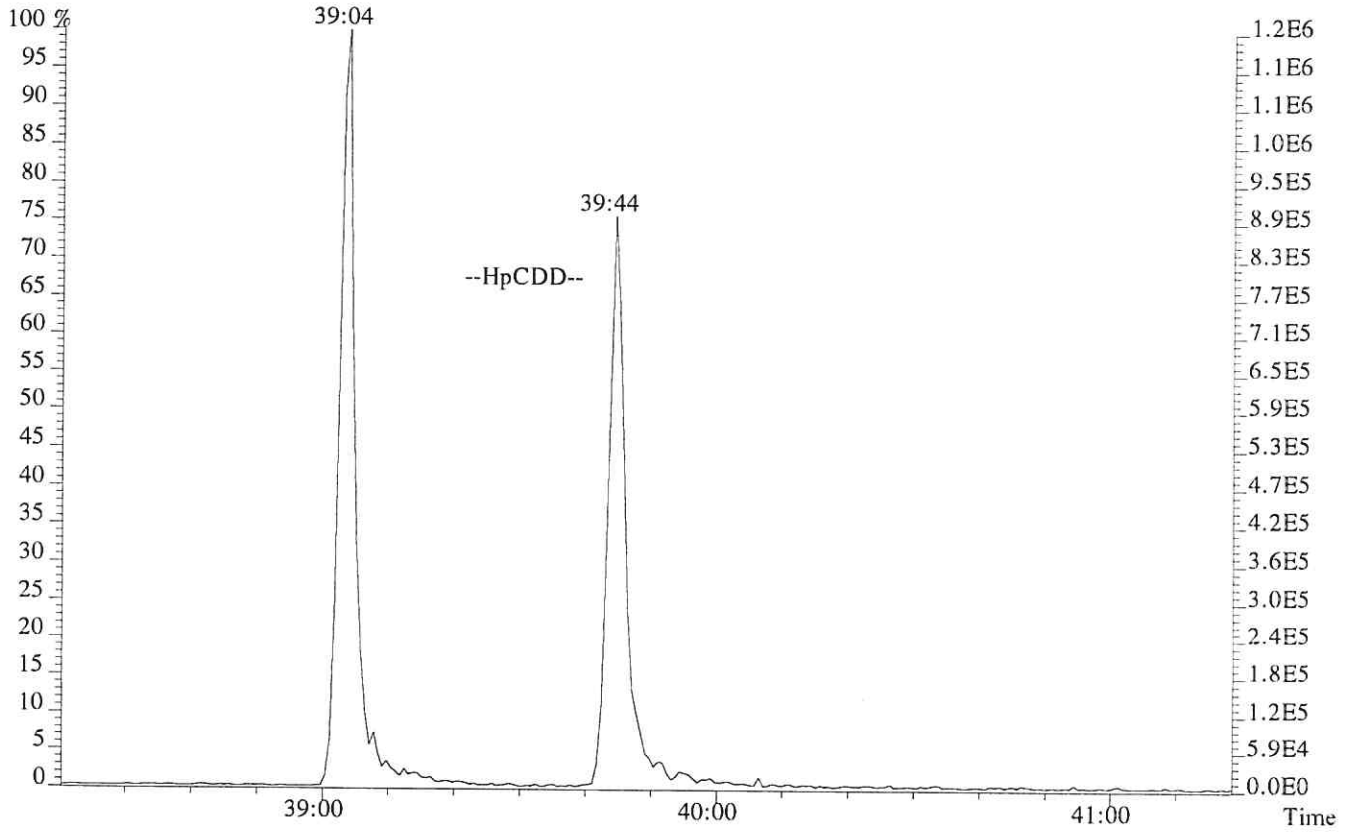
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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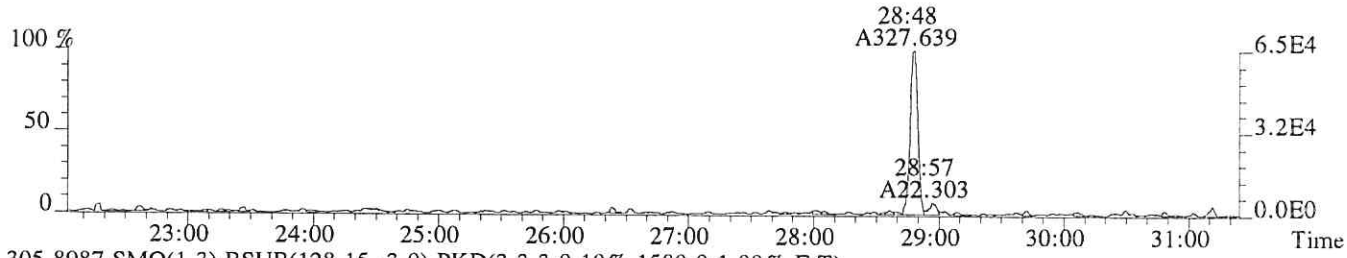
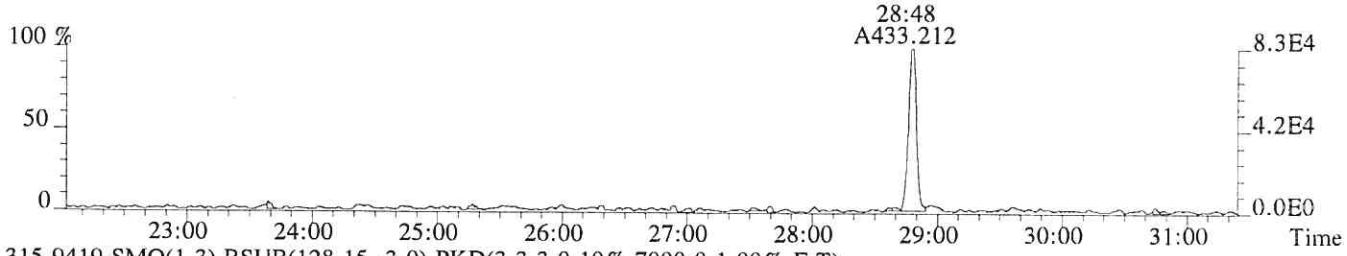
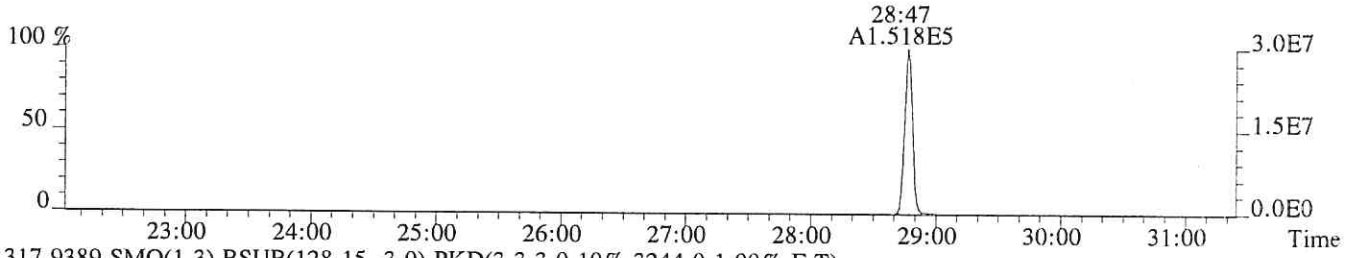
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



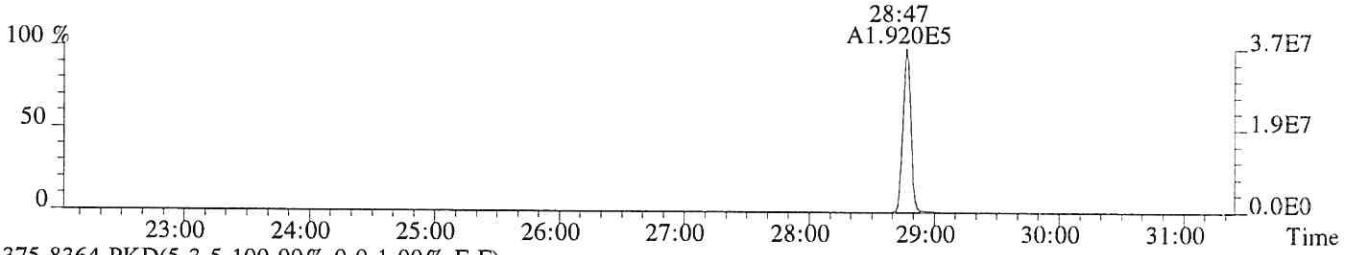
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



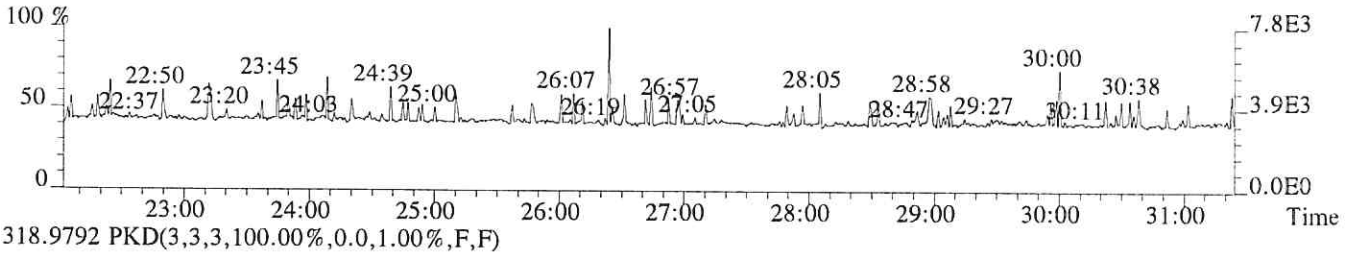
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



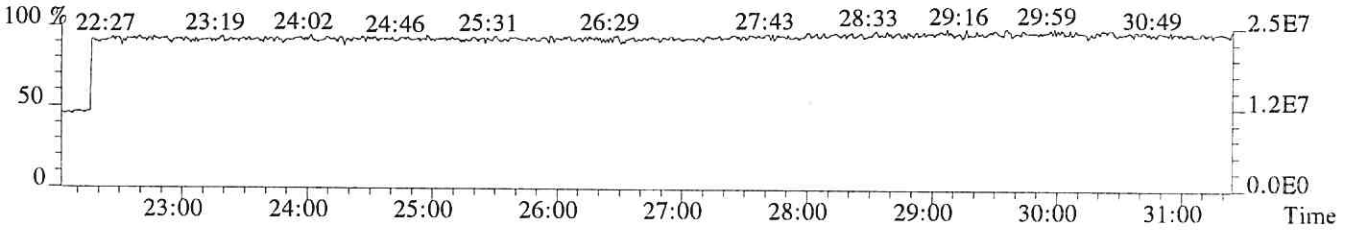
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

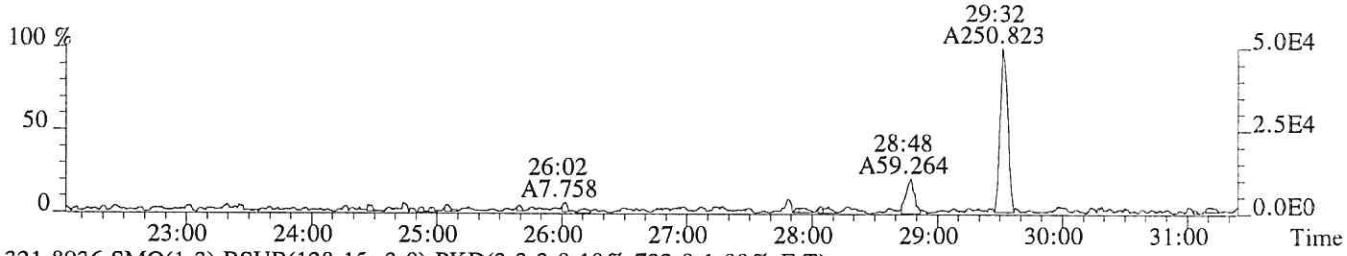


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

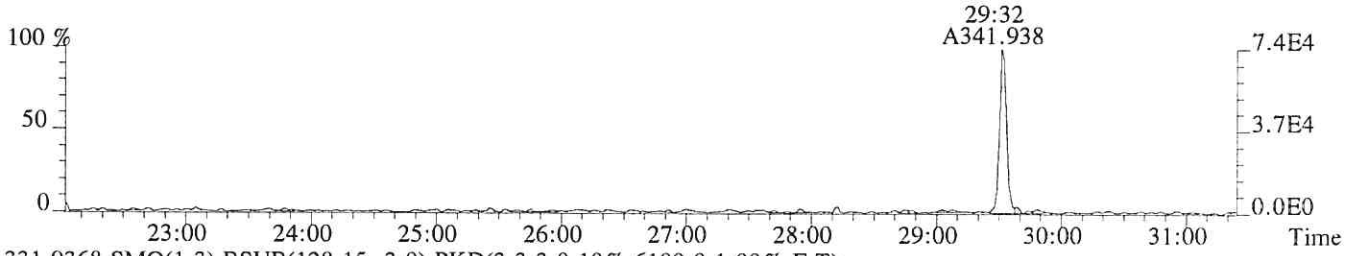


File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

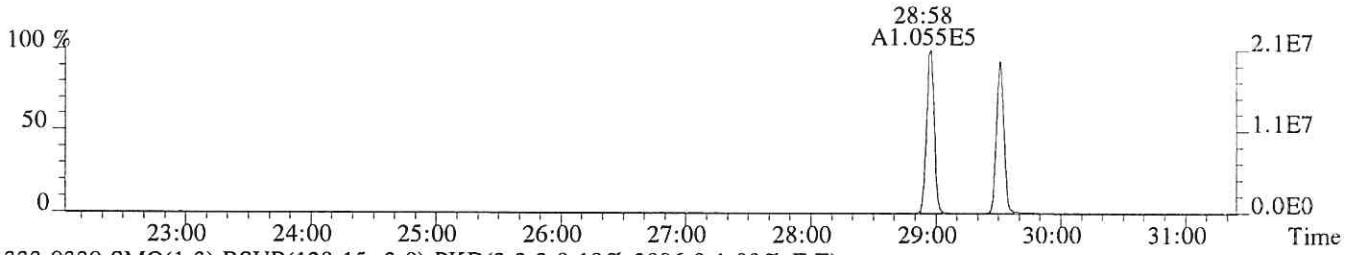
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



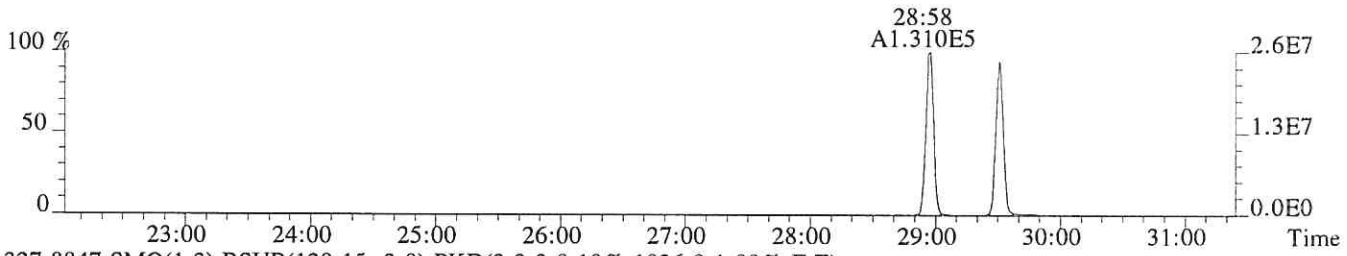
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



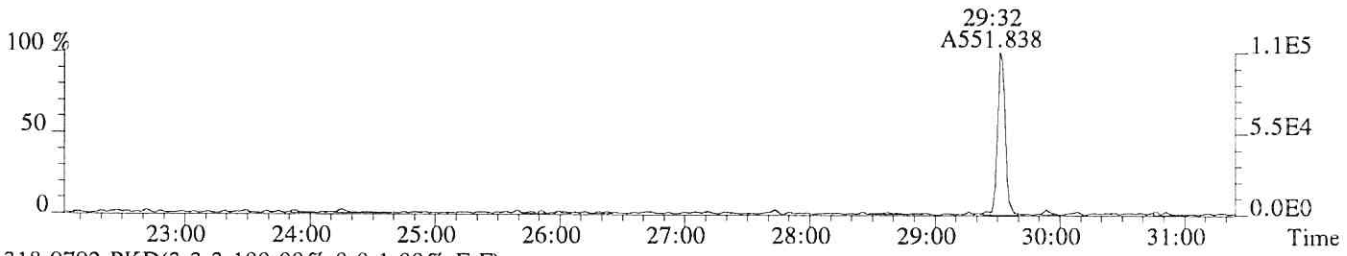
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



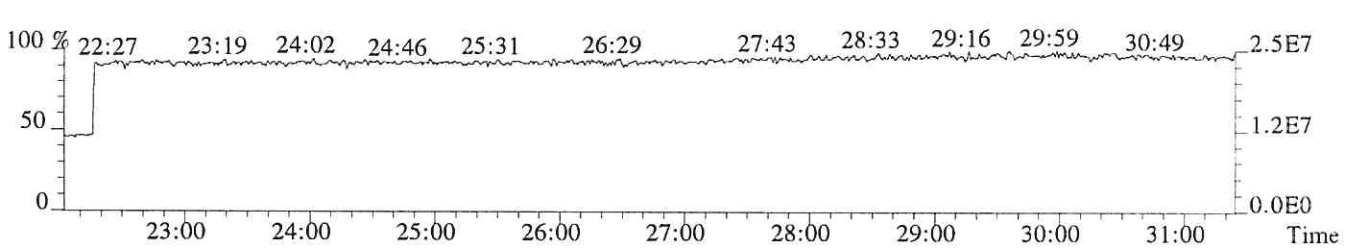
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



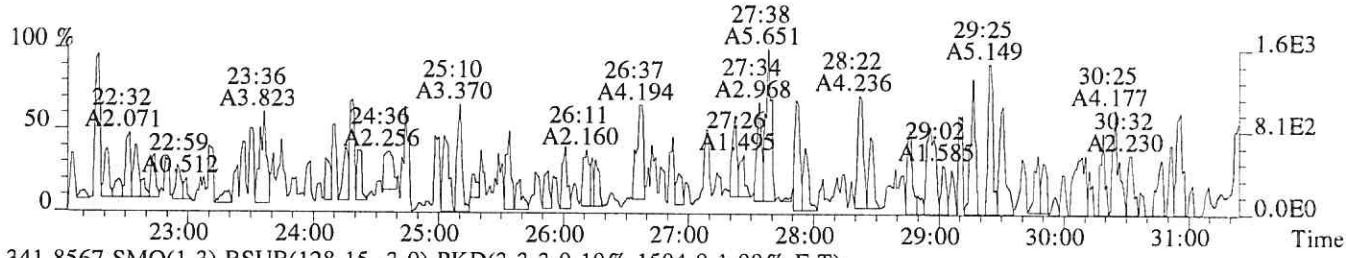
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



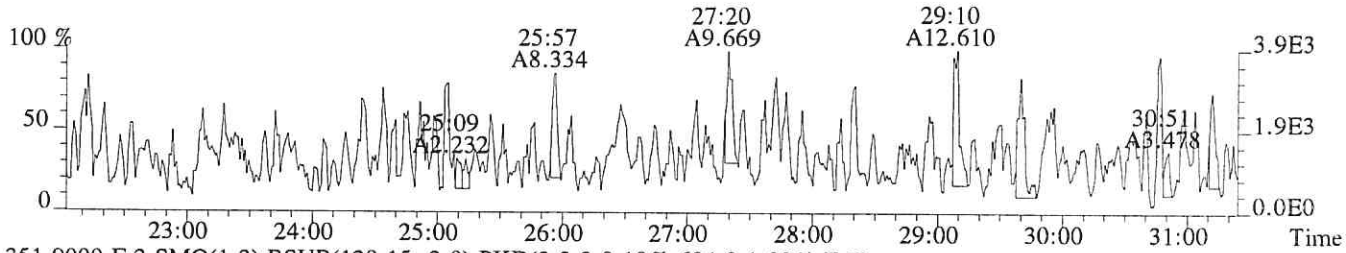
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



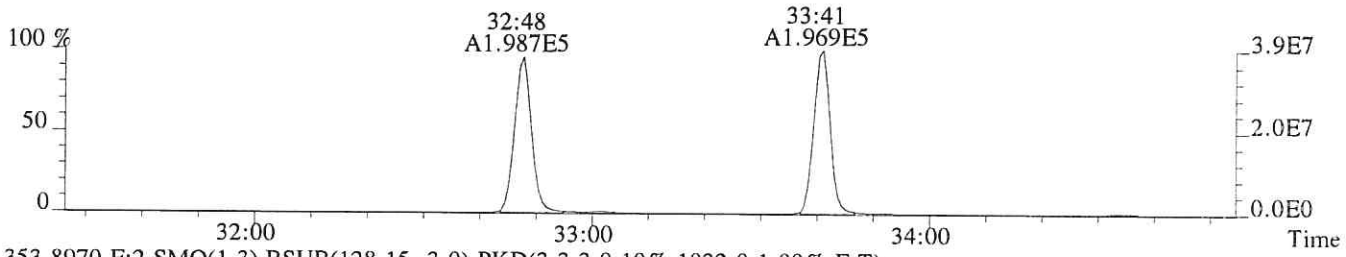
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



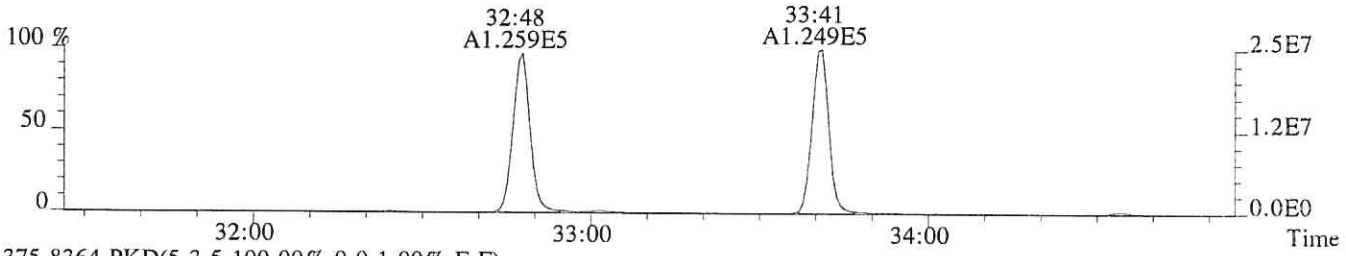
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



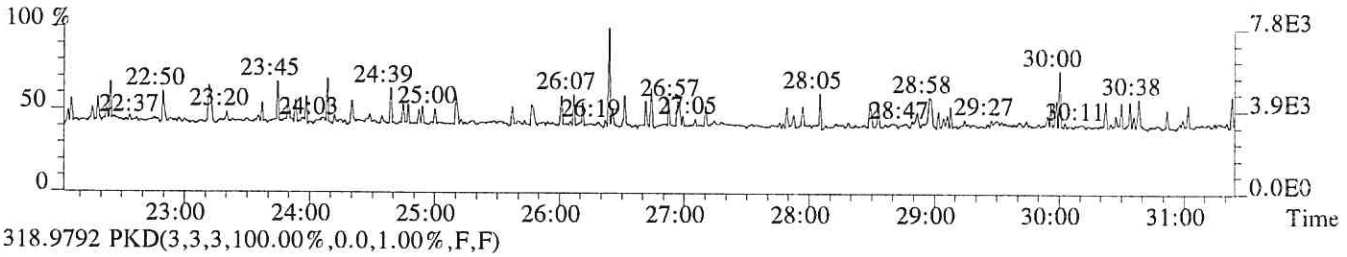
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



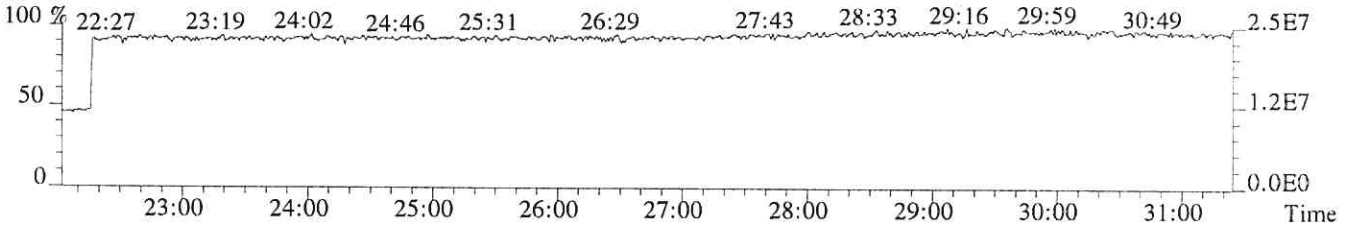
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



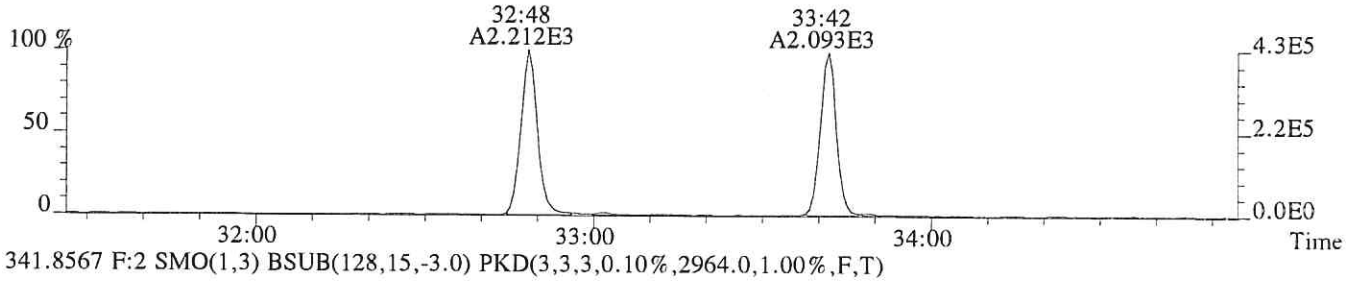
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



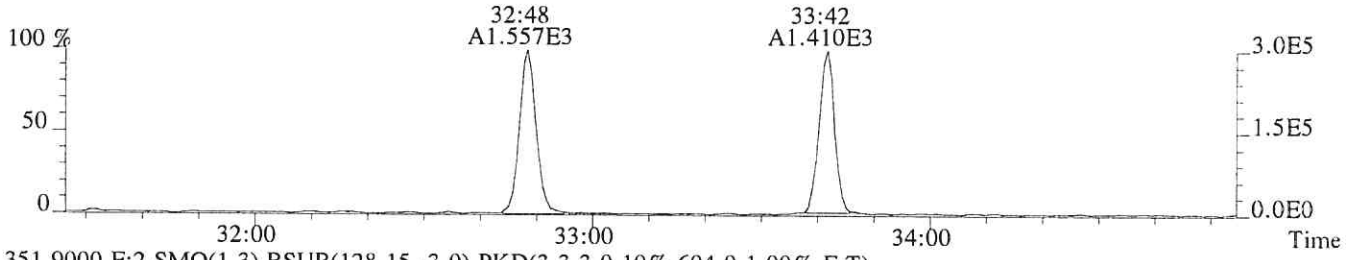
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



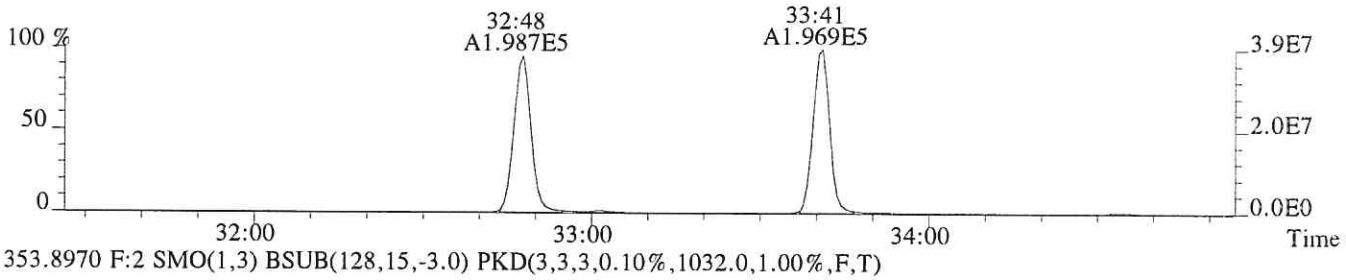
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



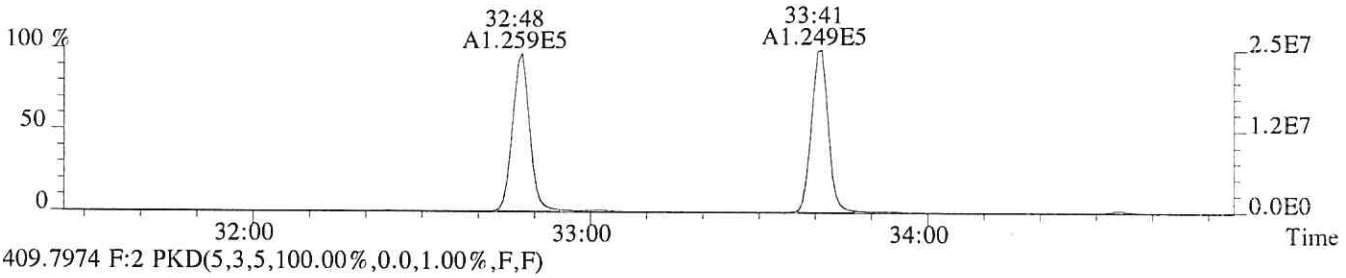
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



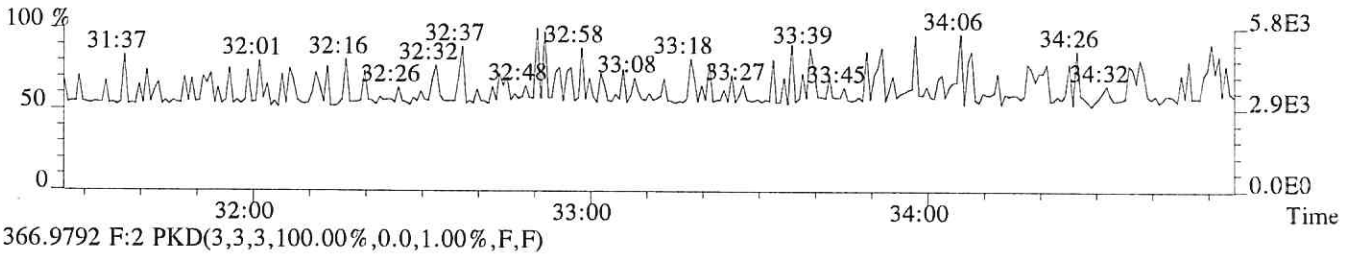
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



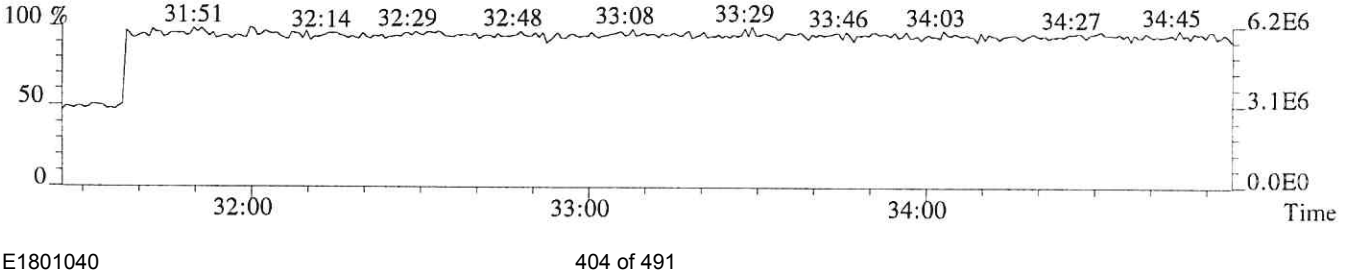
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



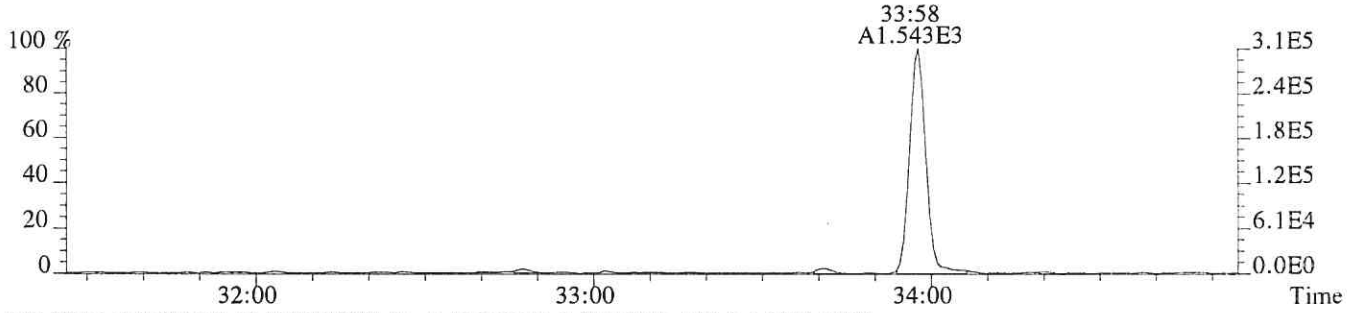
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



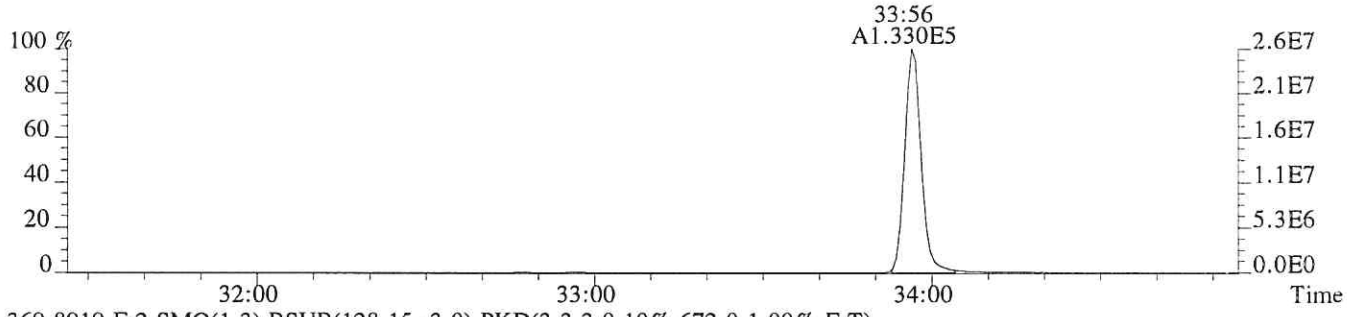
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



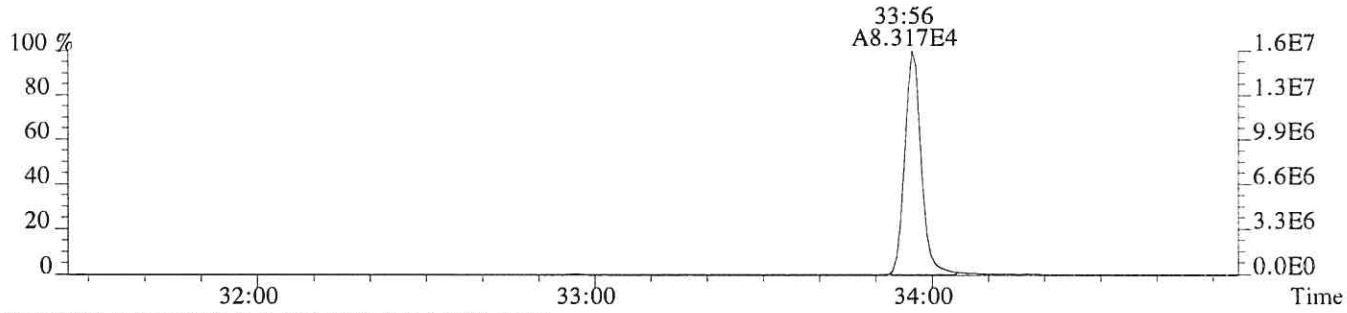
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



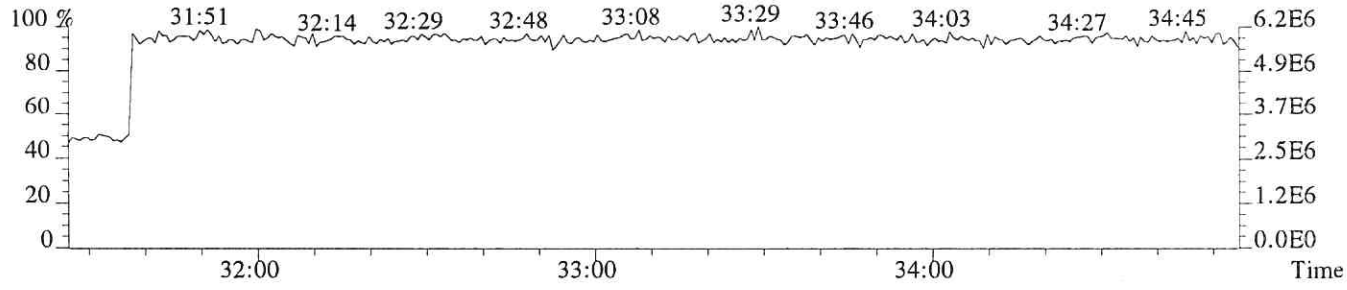
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



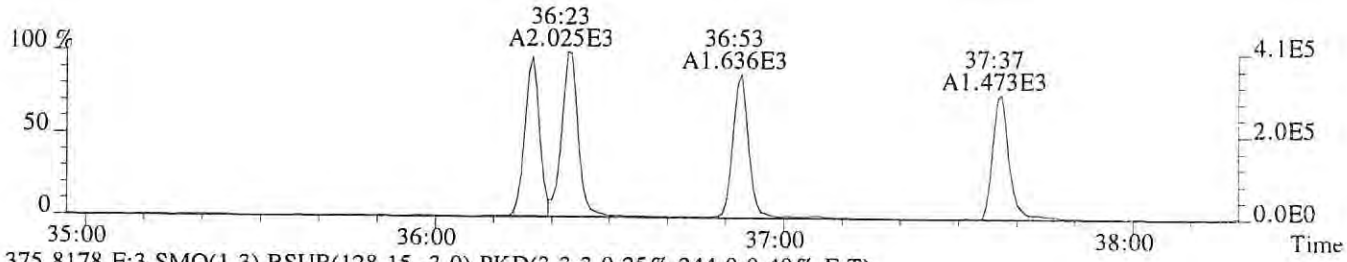
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



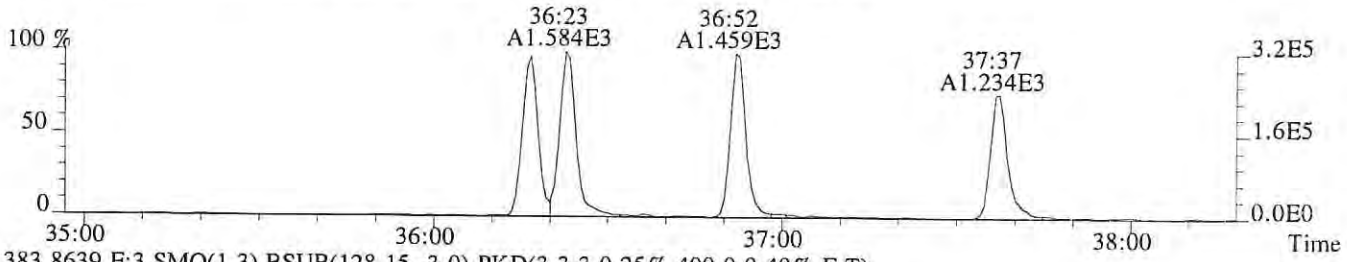
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



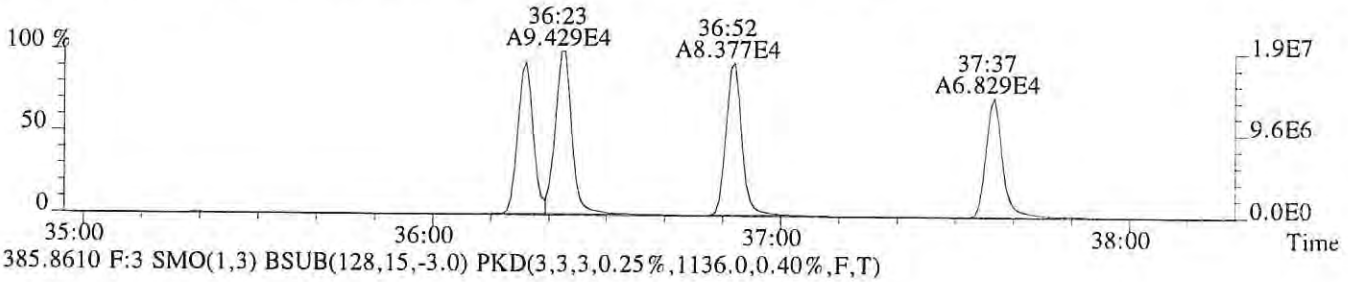
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



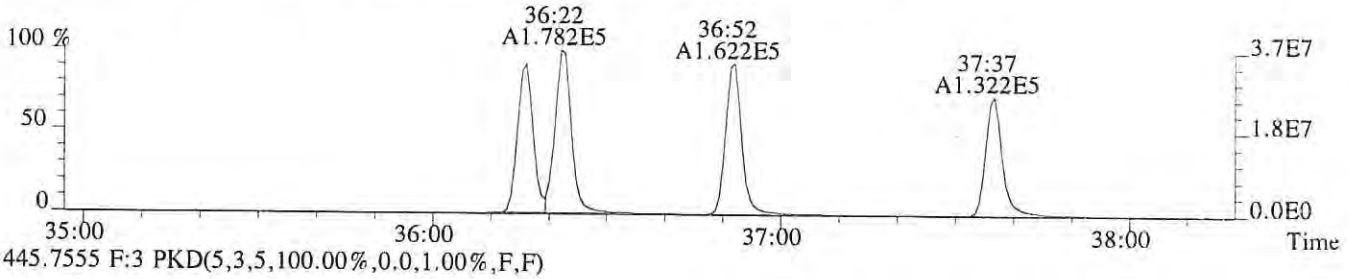
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



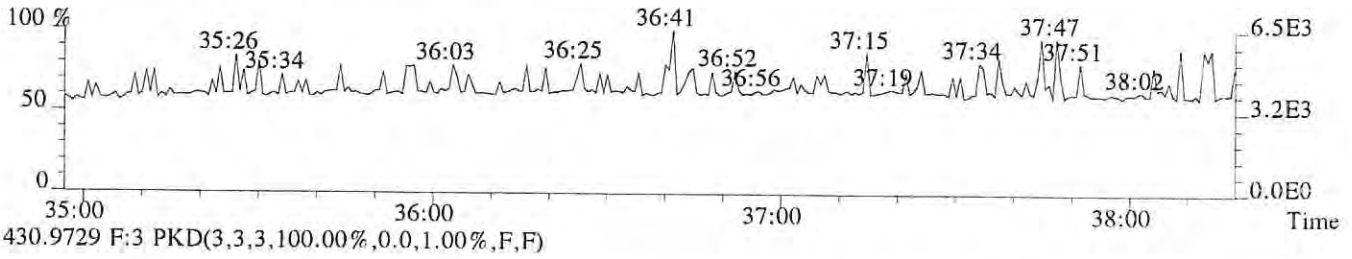
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



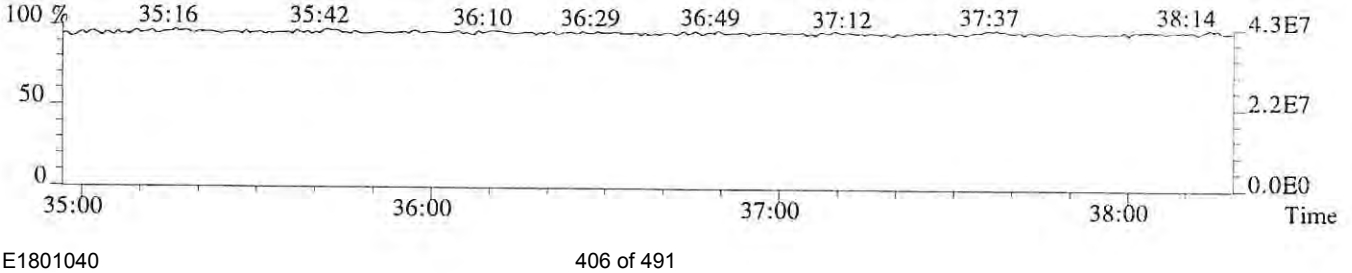
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



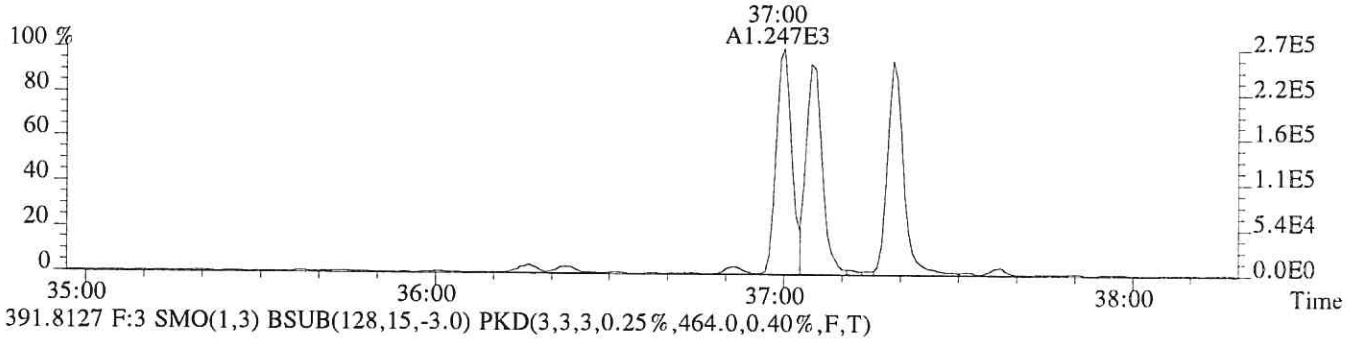
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



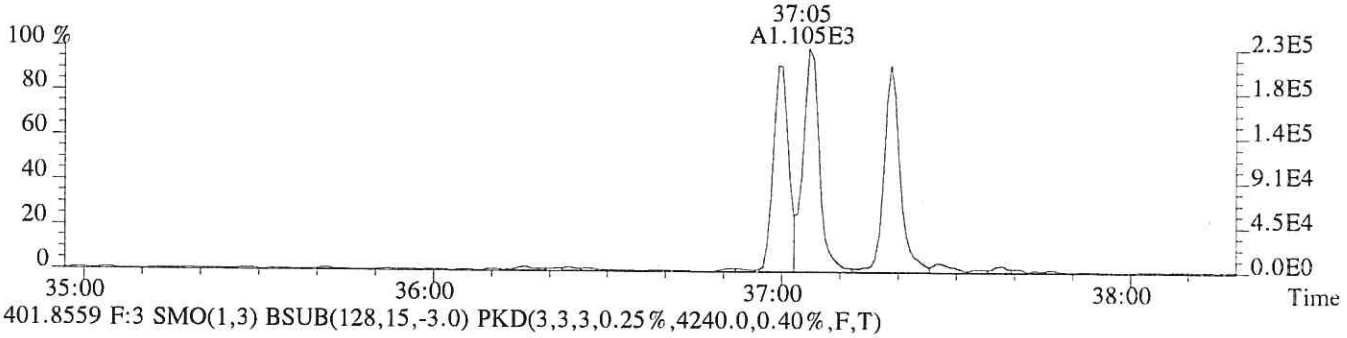
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



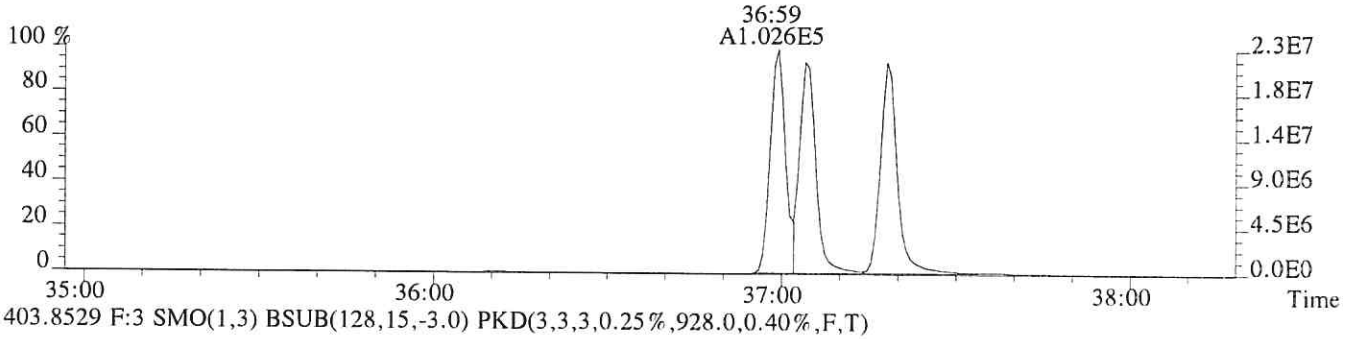
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



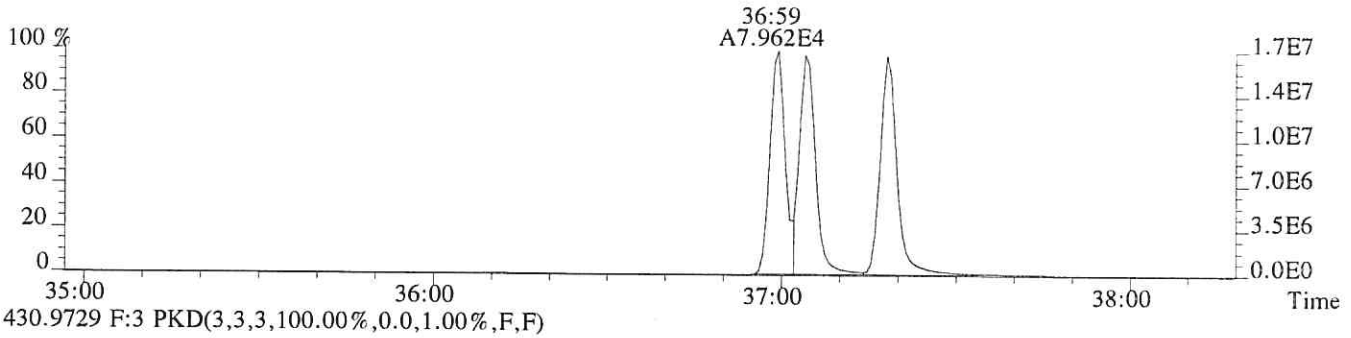
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



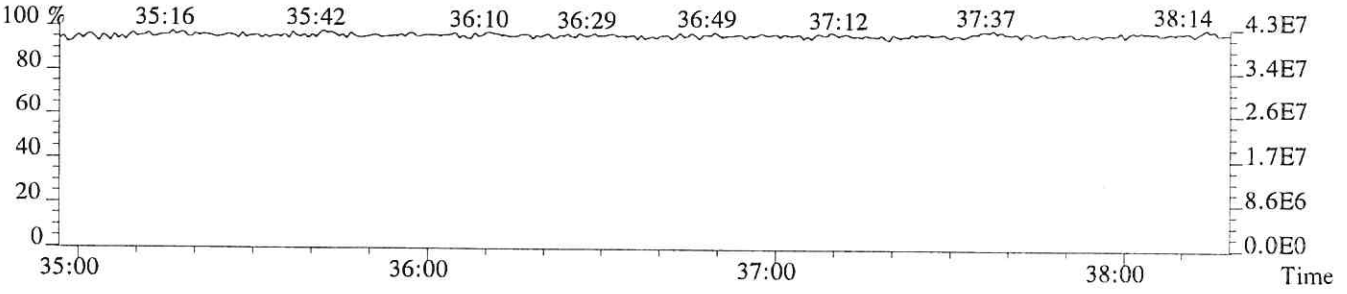
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



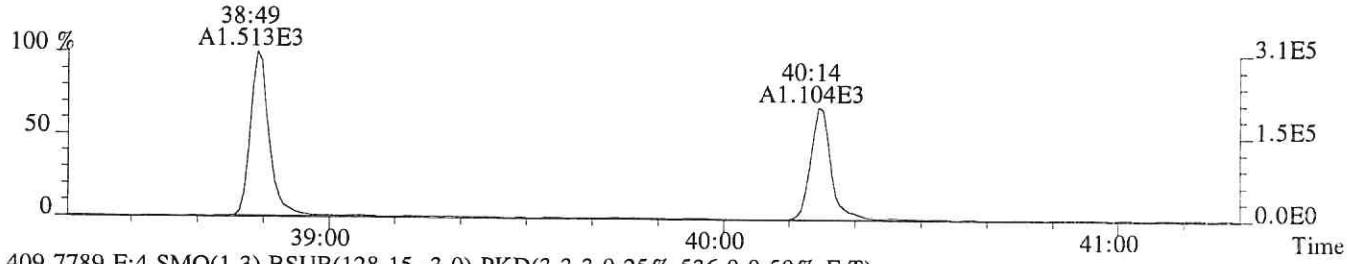
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



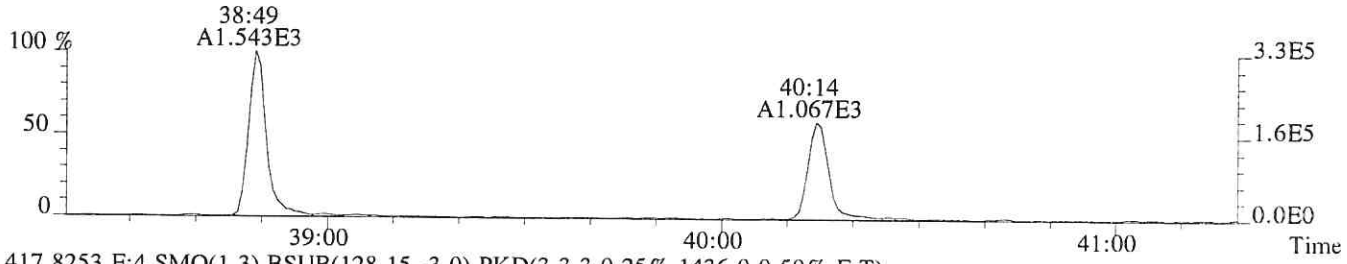
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



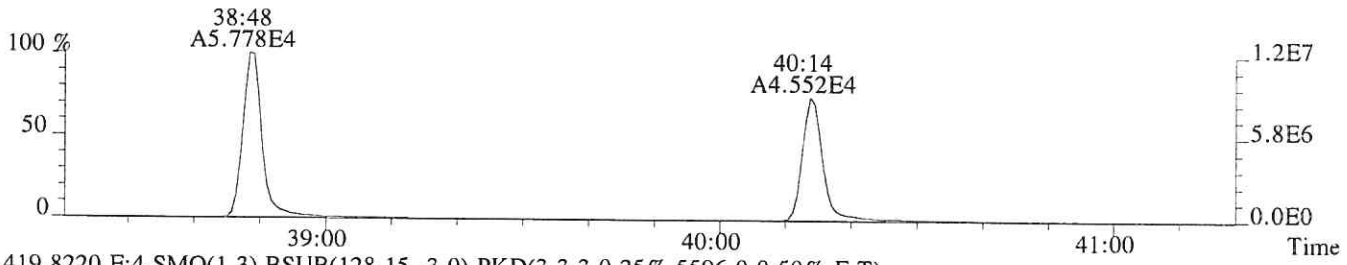
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



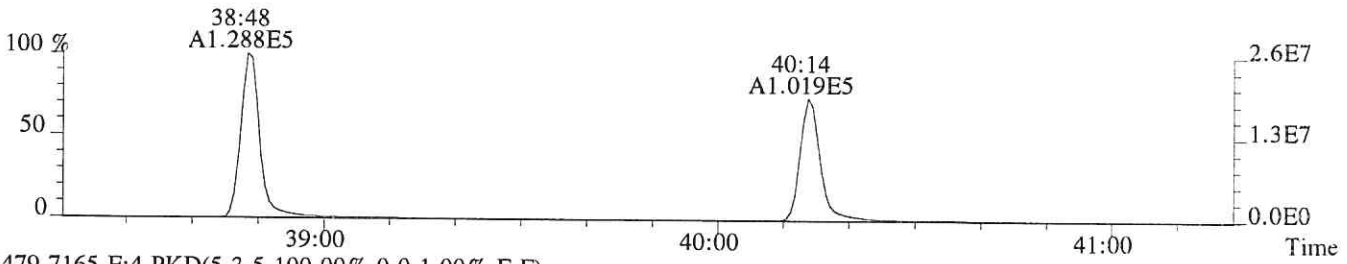
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



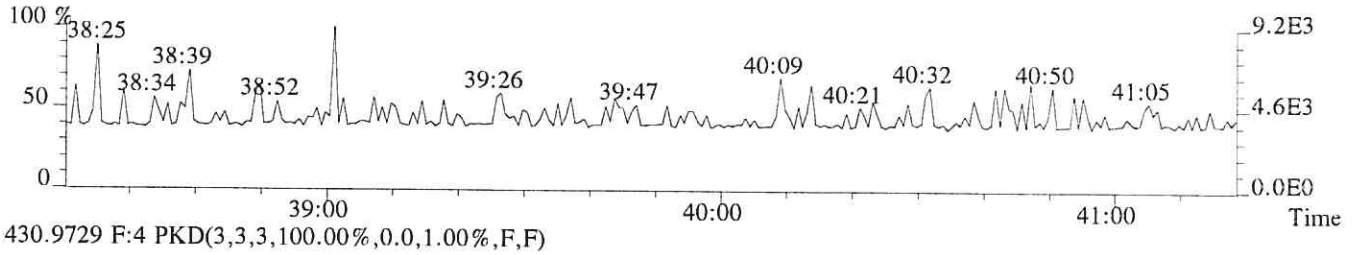
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



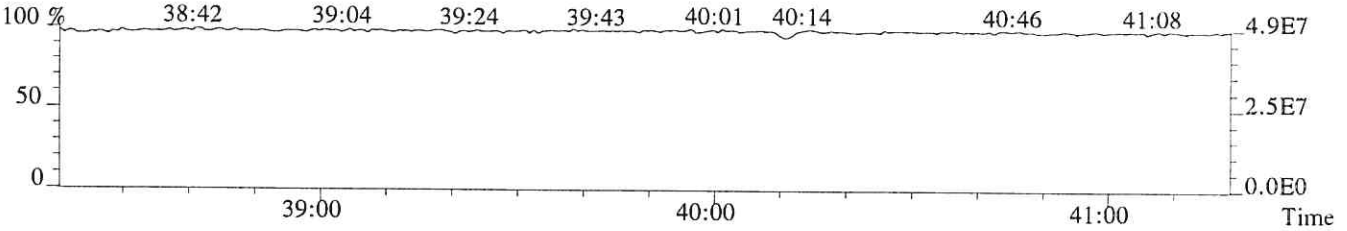
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



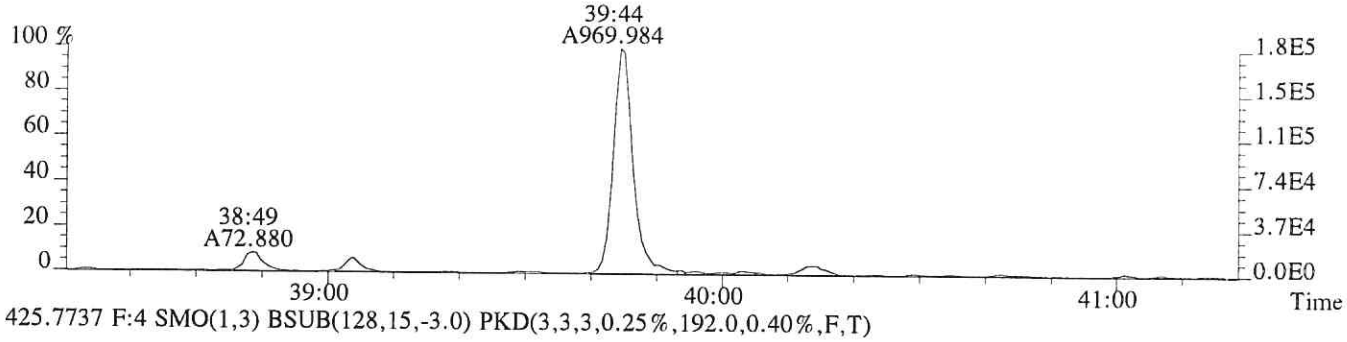
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



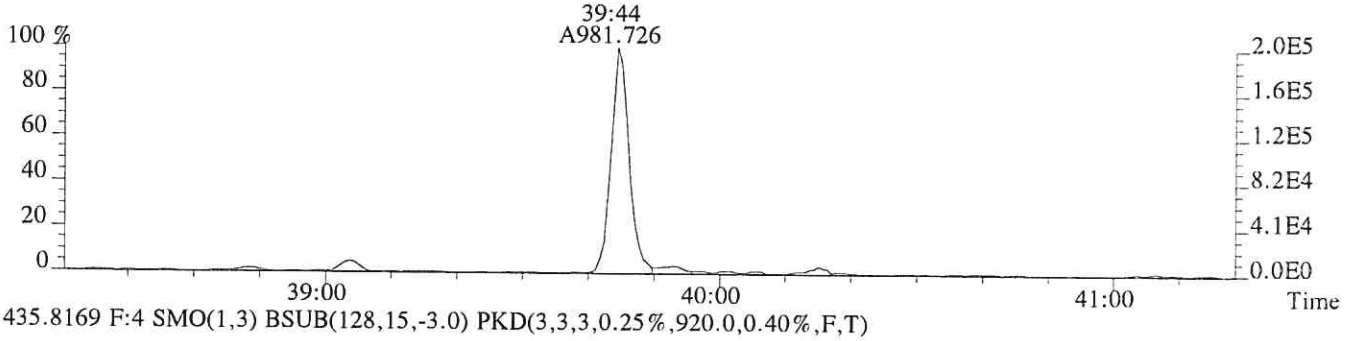
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



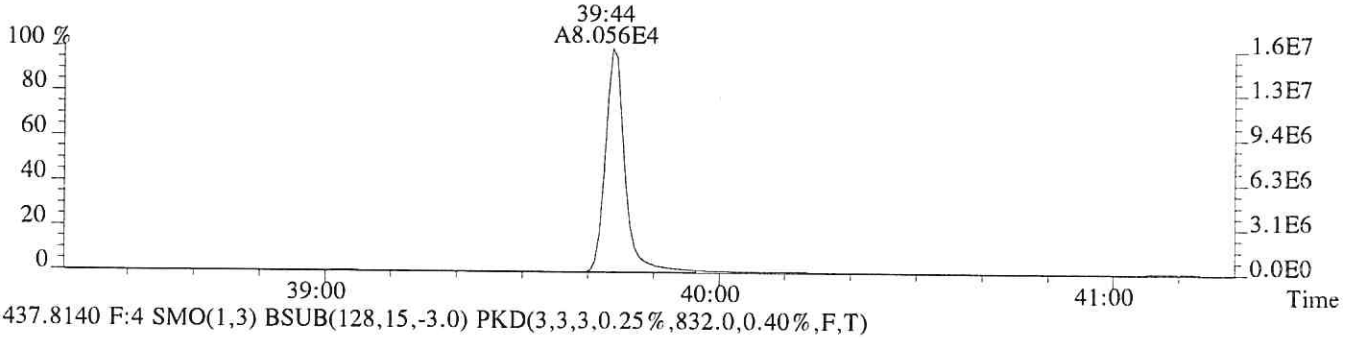
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



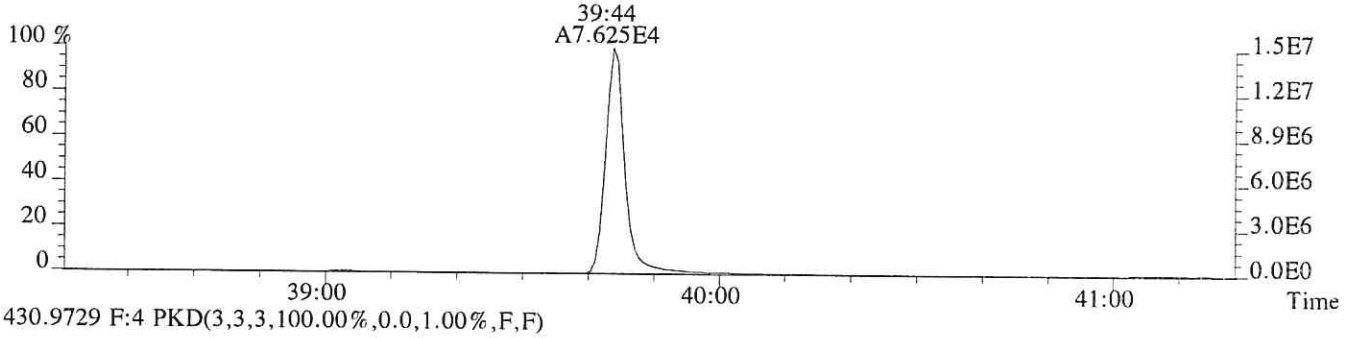
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



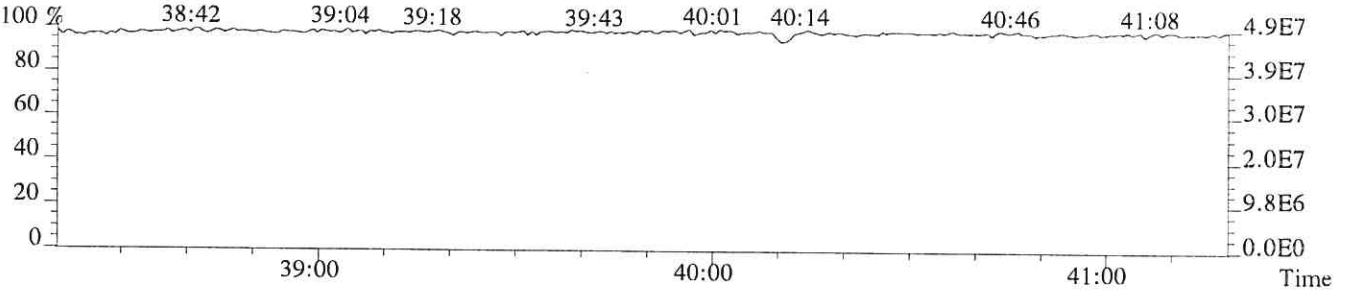
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



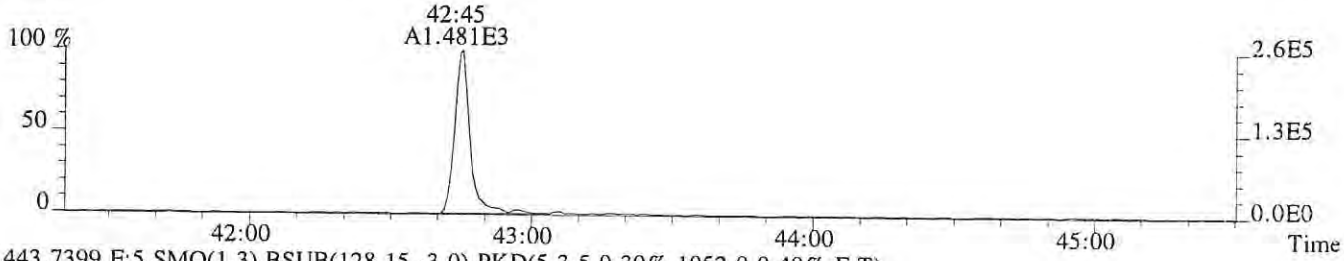
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



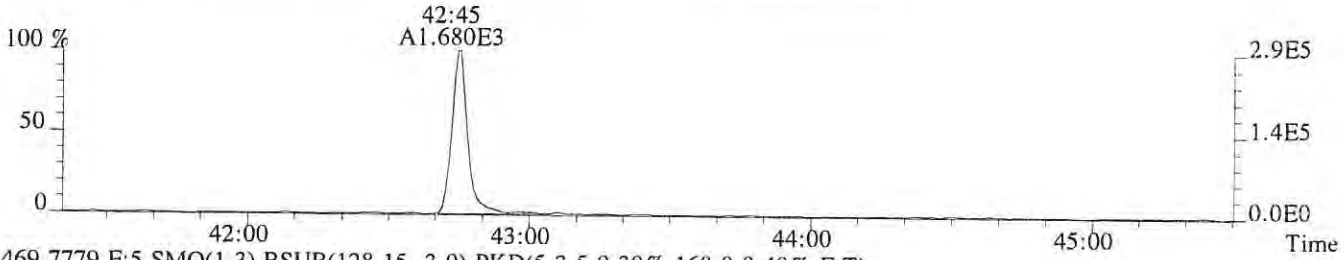
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



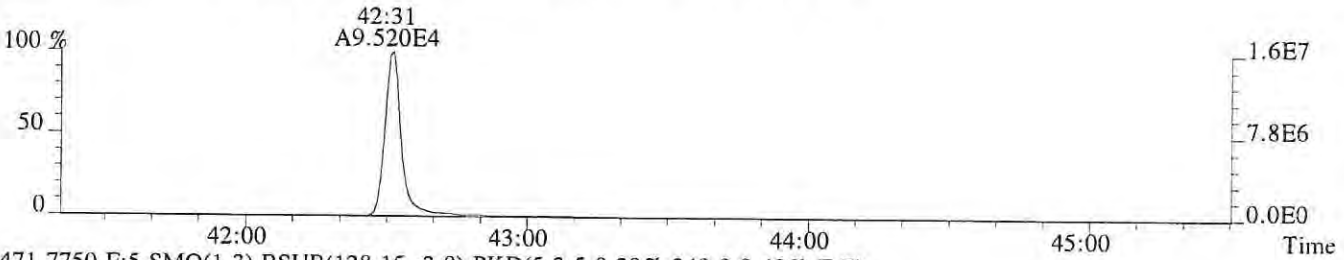
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



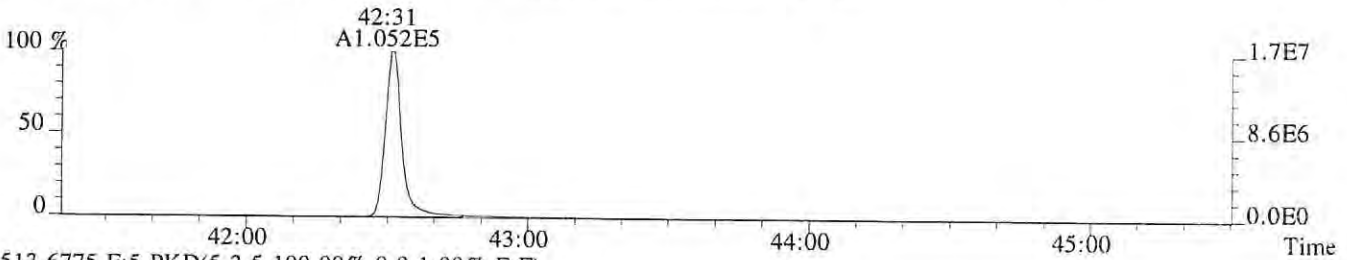
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



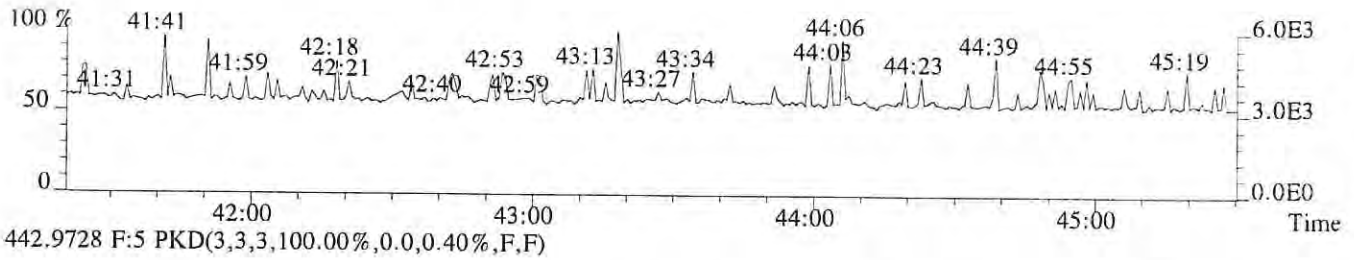
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



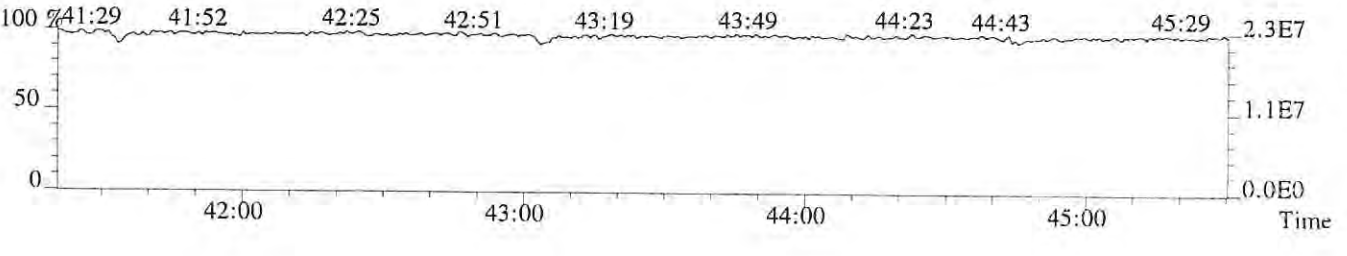
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



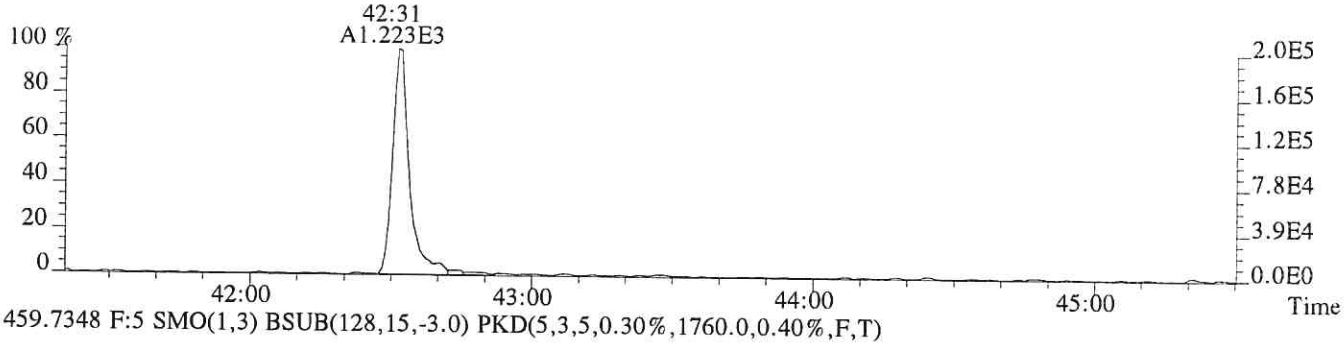
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



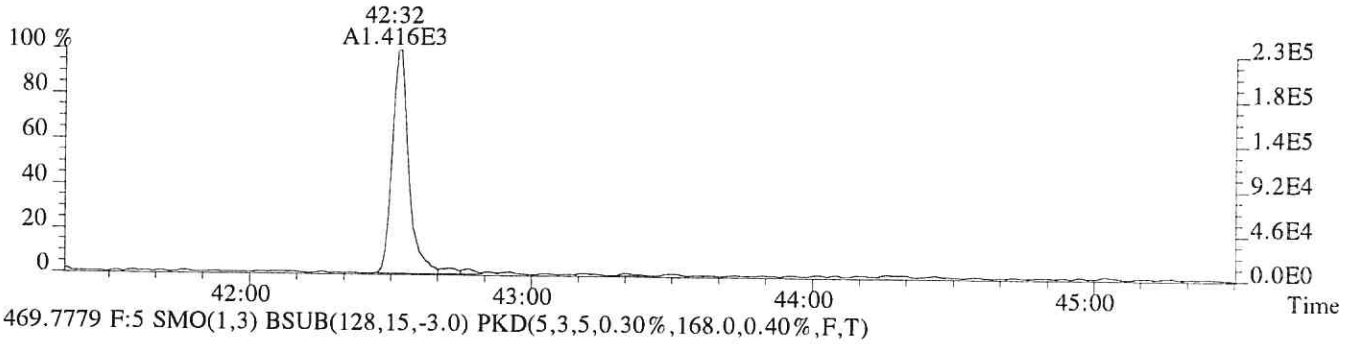
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



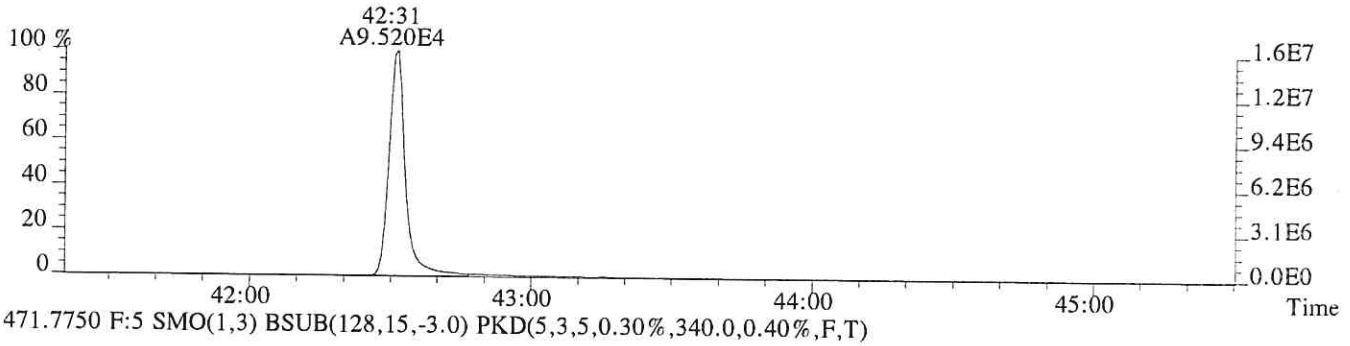
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



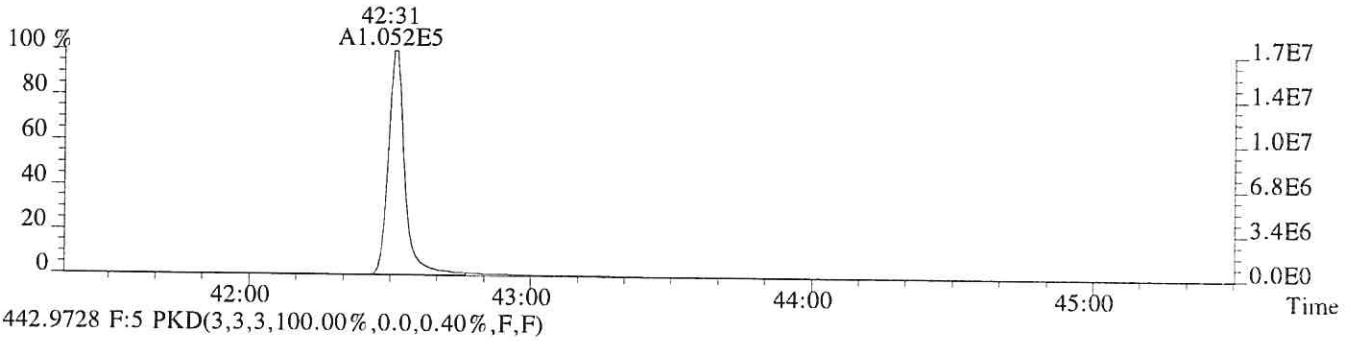
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



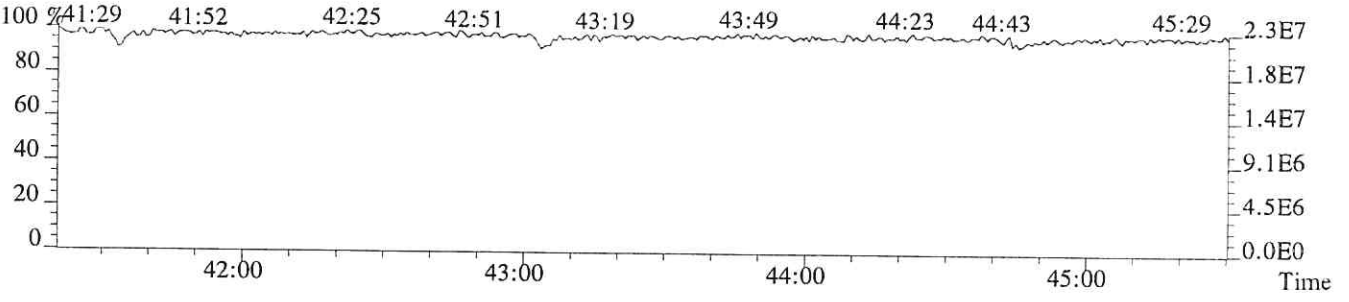
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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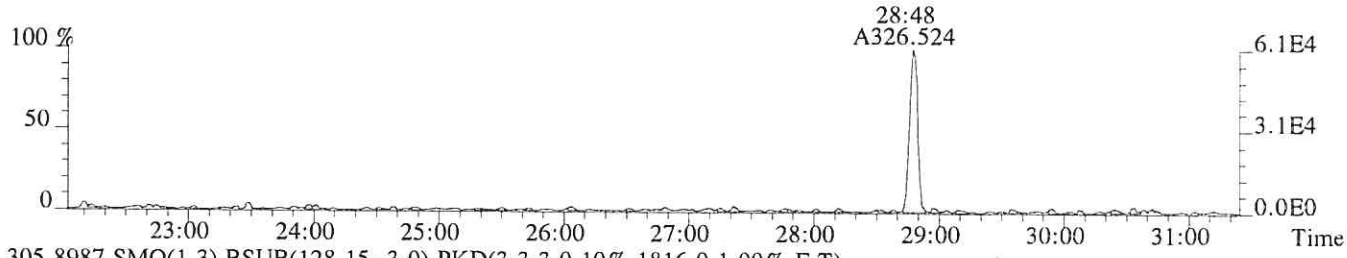
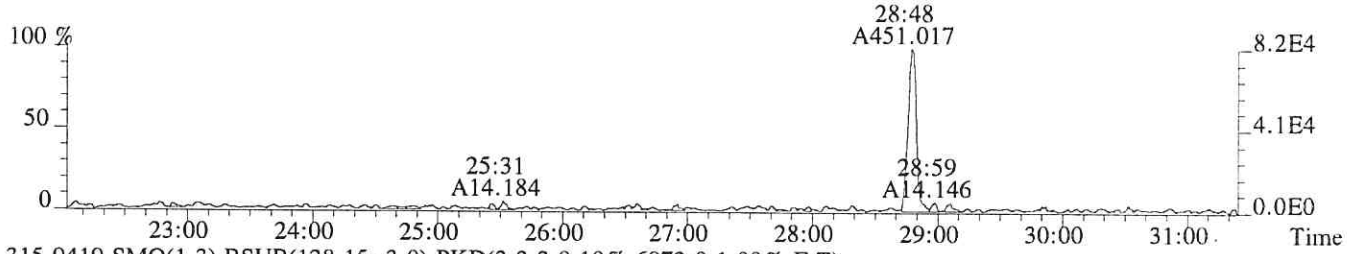
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

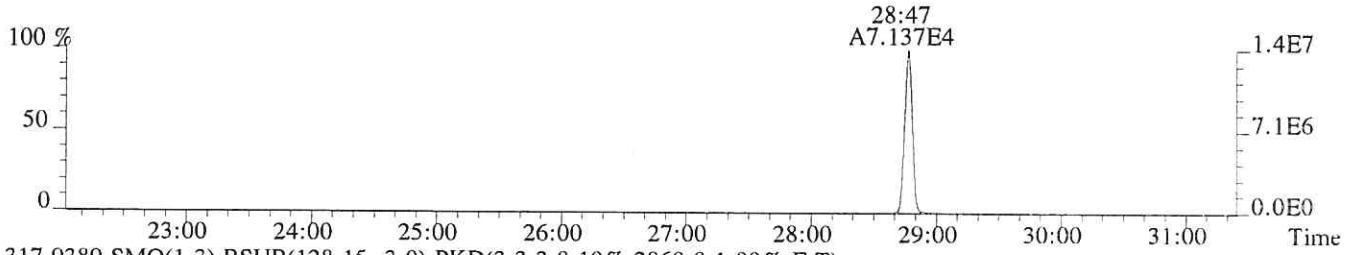
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



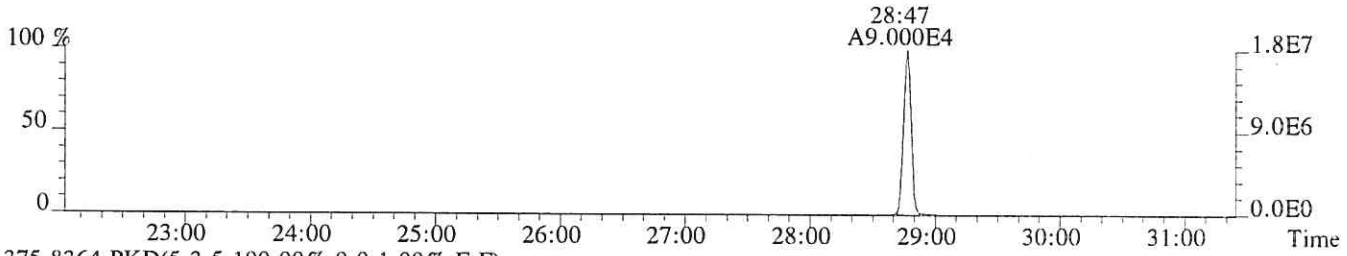
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



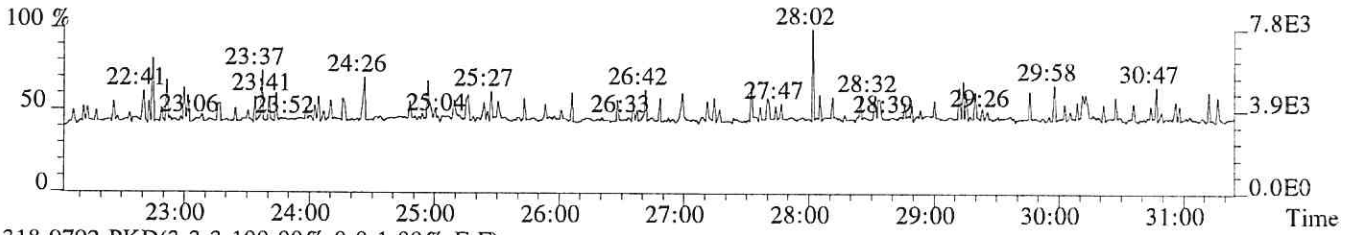
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



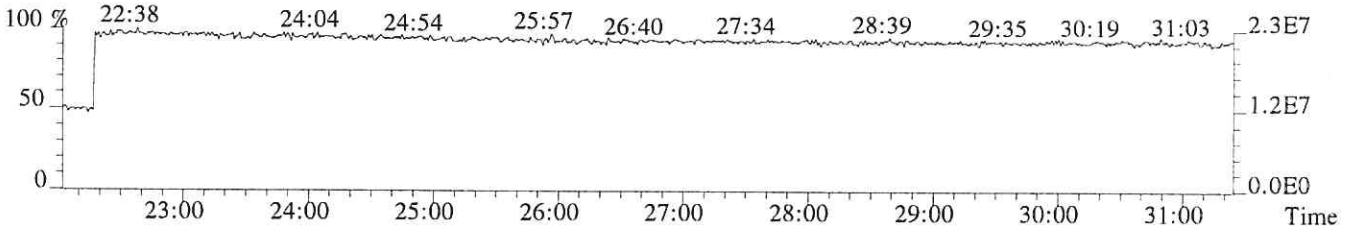
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



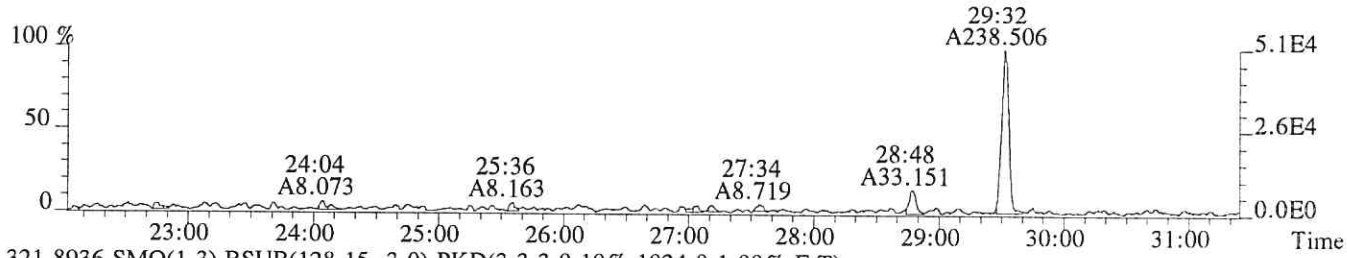
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



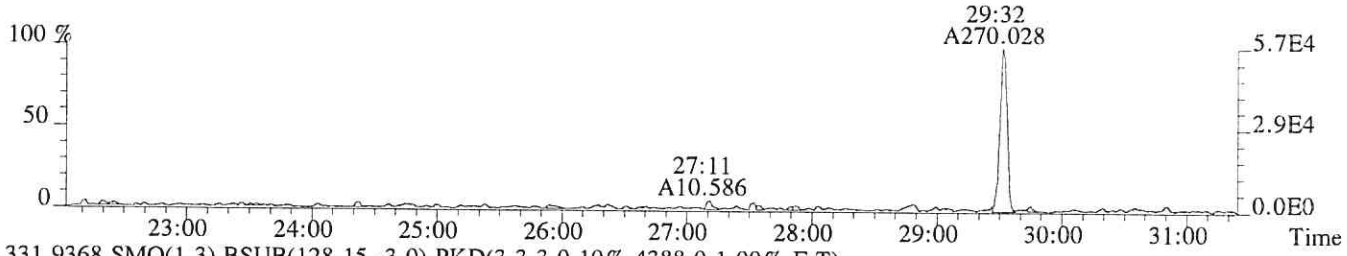
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



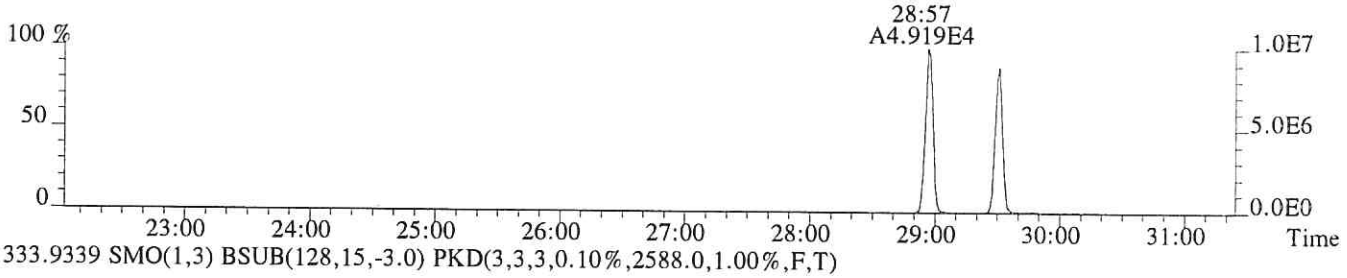
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



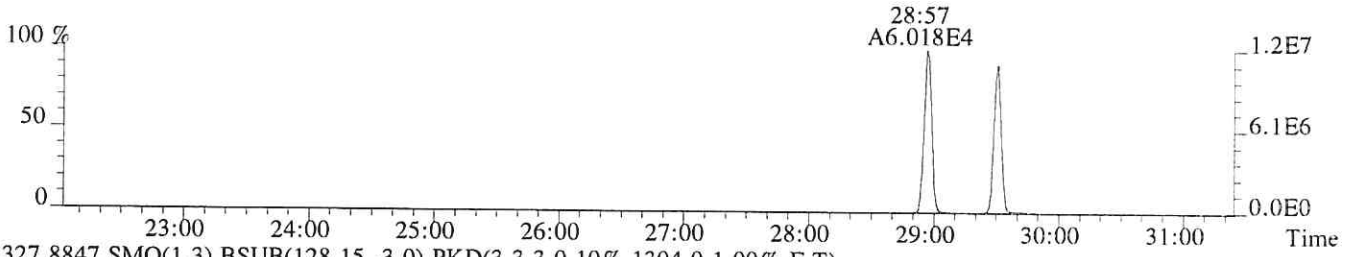
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



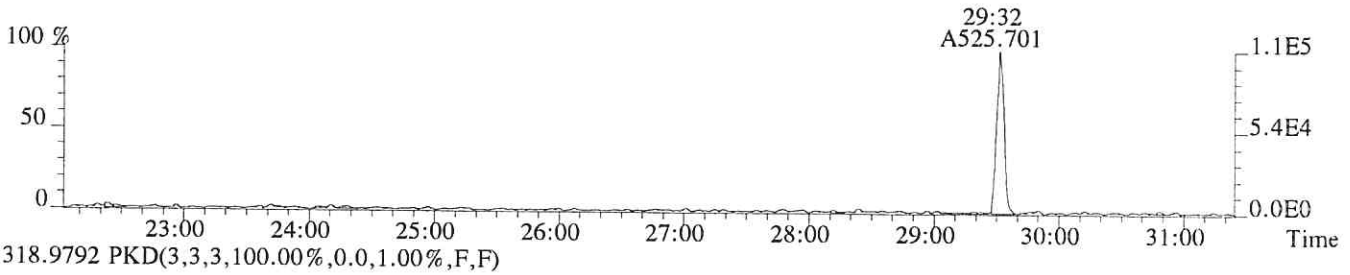
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



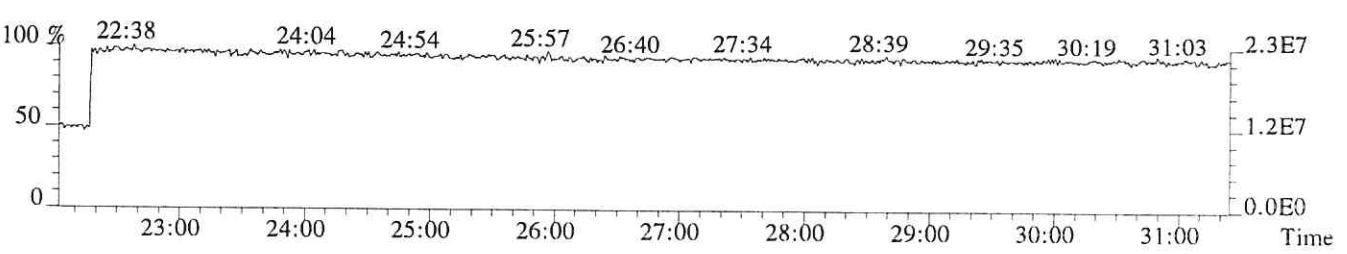
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



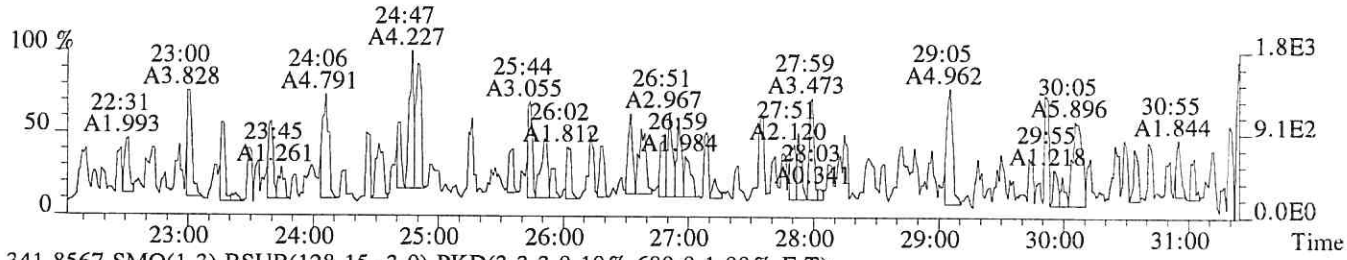
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



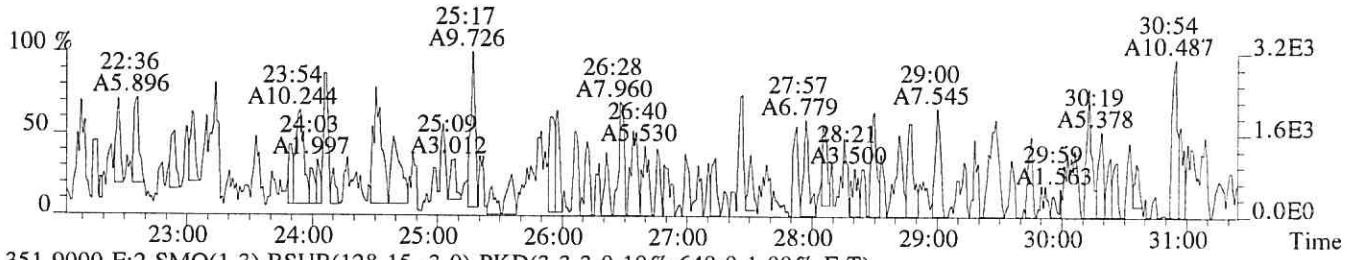
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



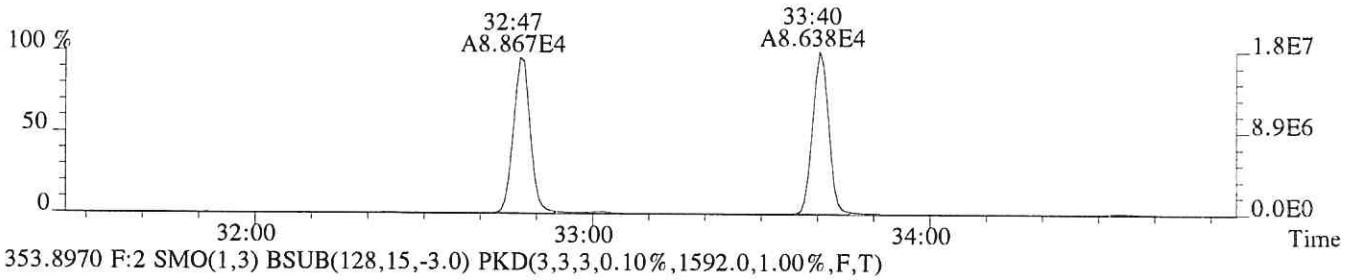
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



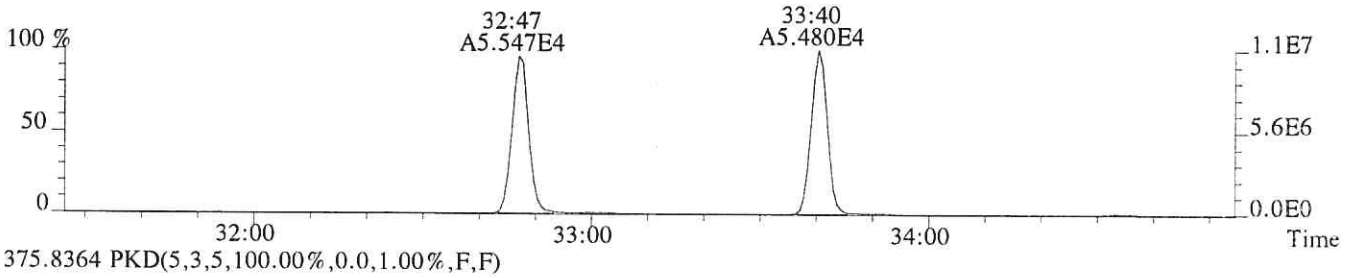
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



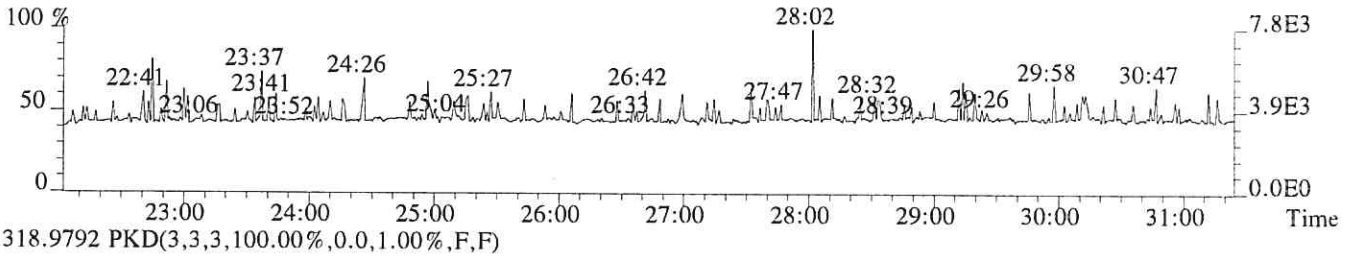
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



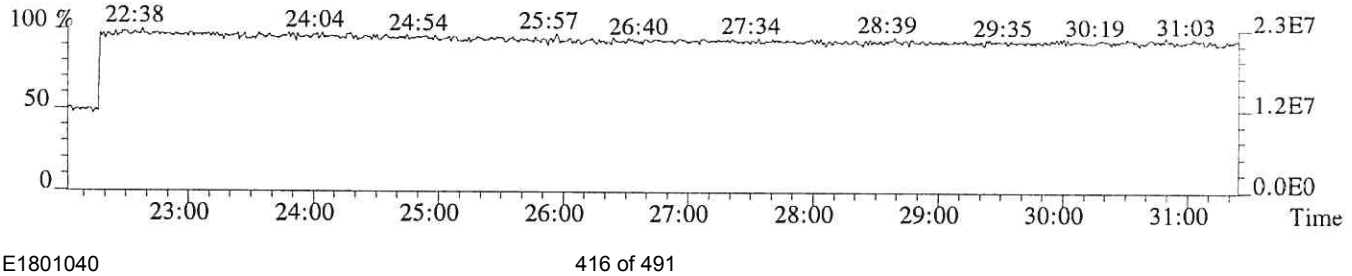
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



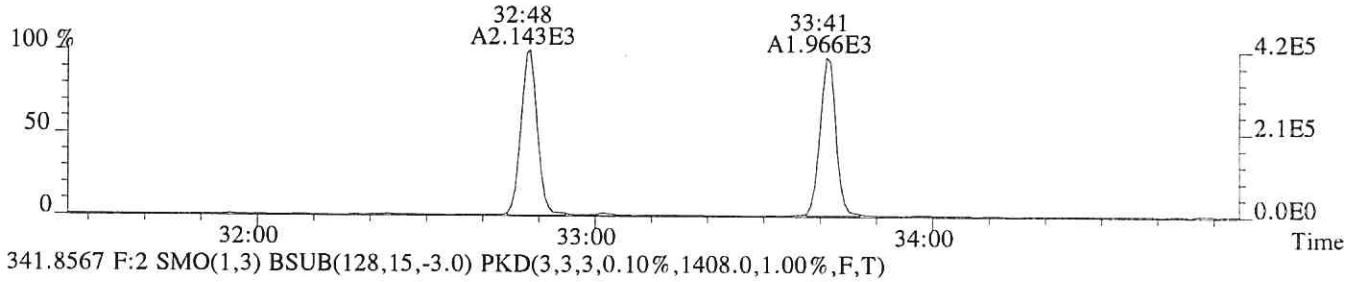
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



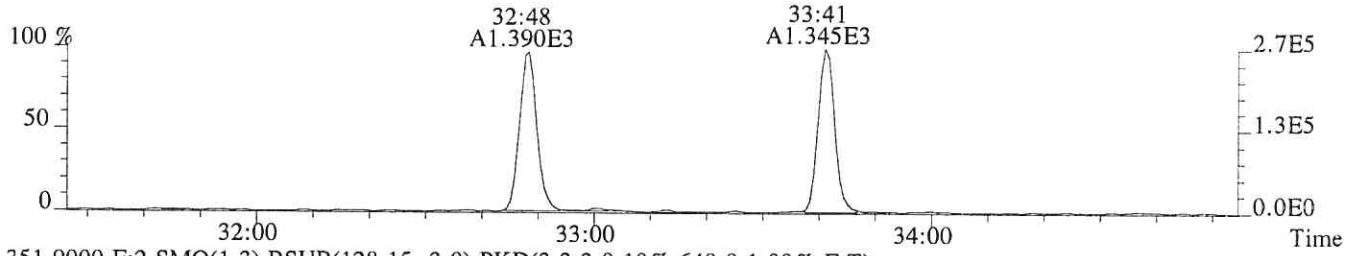
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



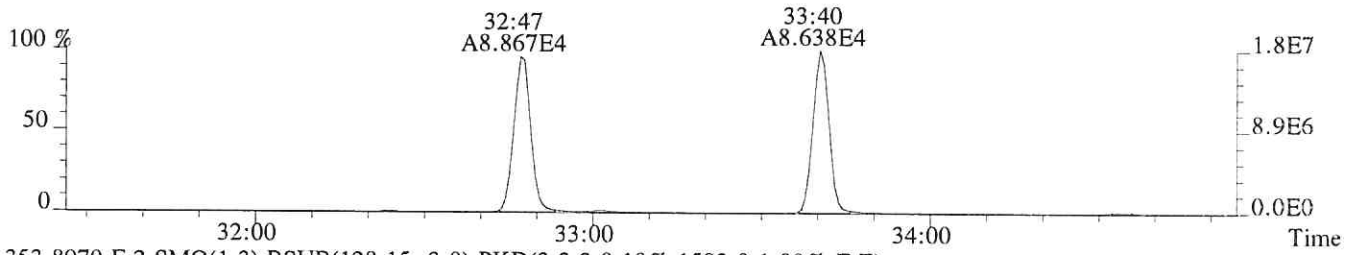
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



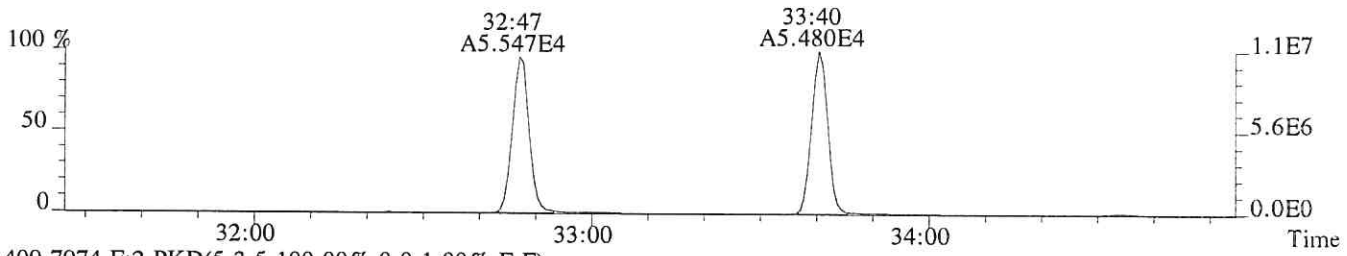
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



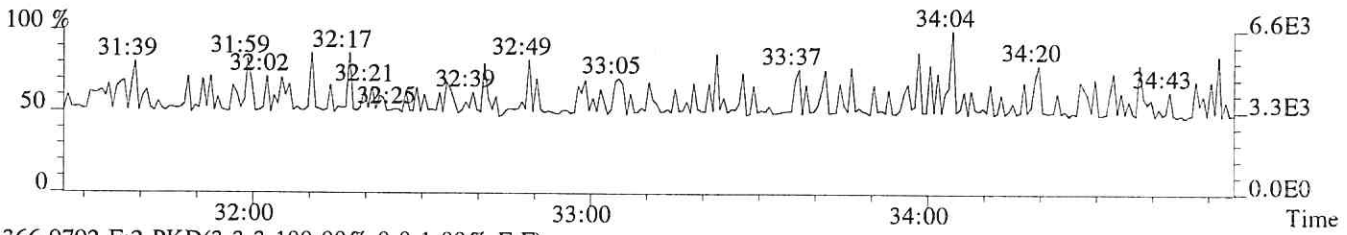
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



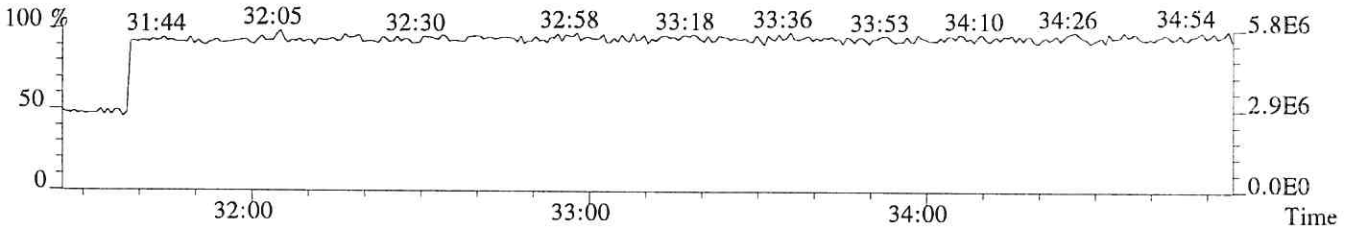
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



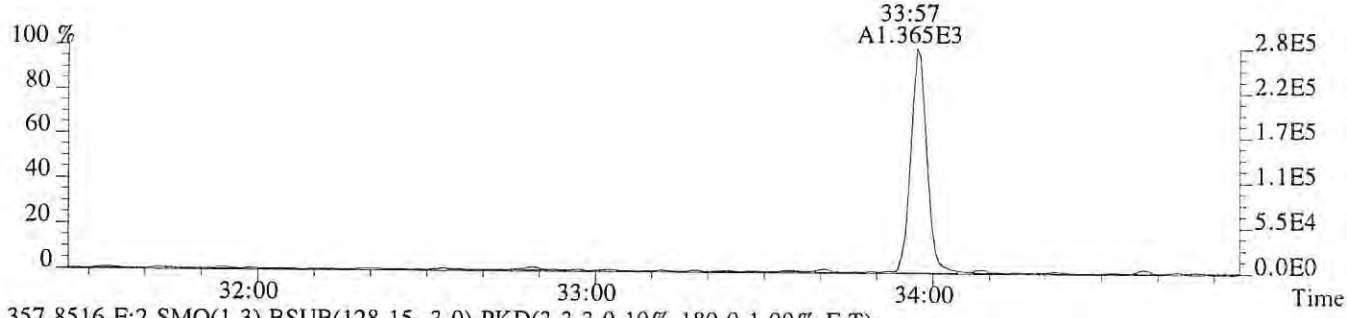
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



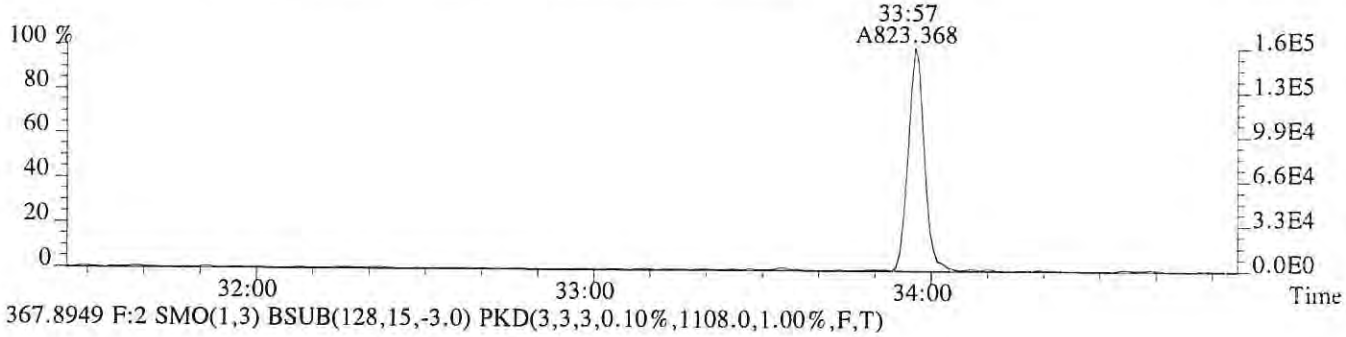
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



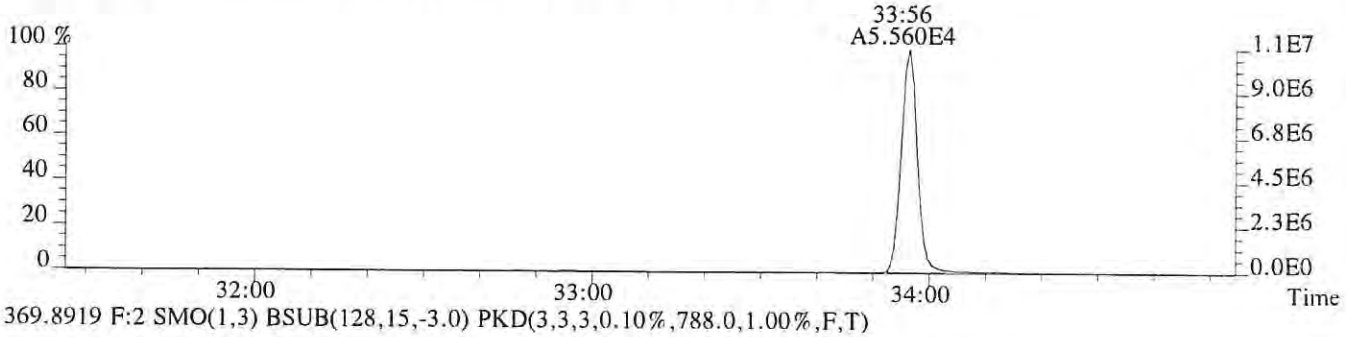
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



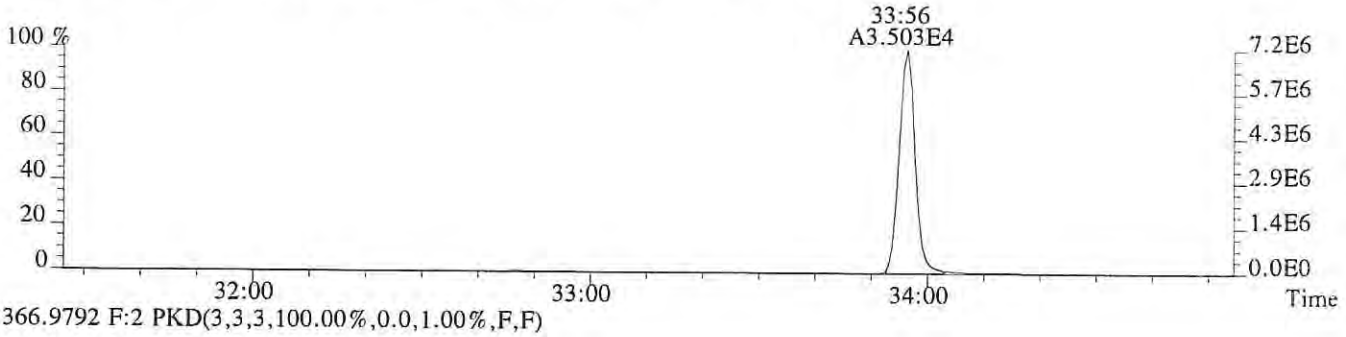
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



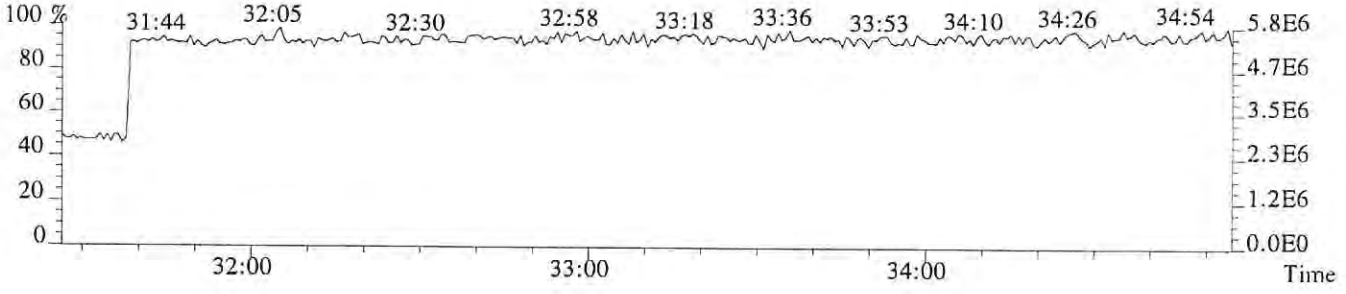
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



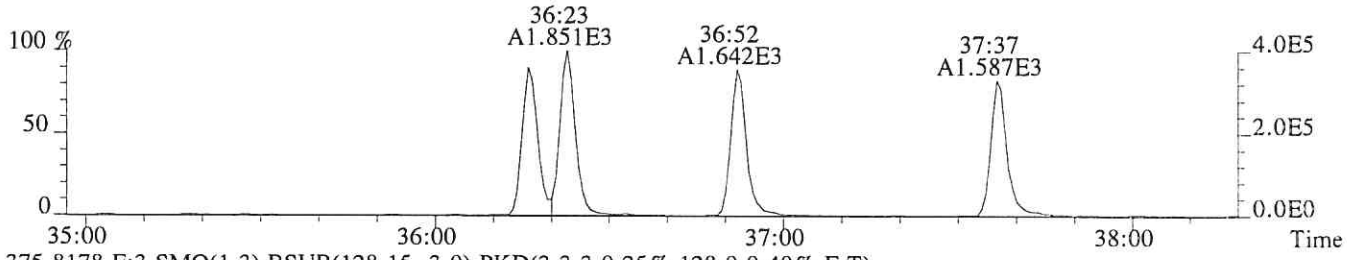
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



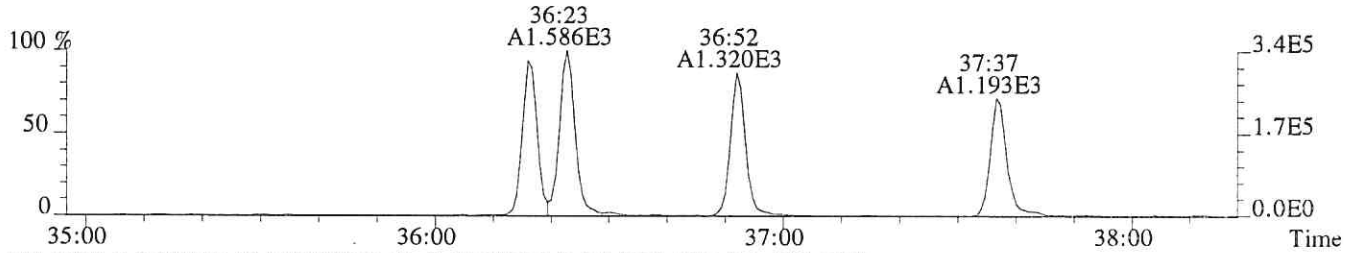
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



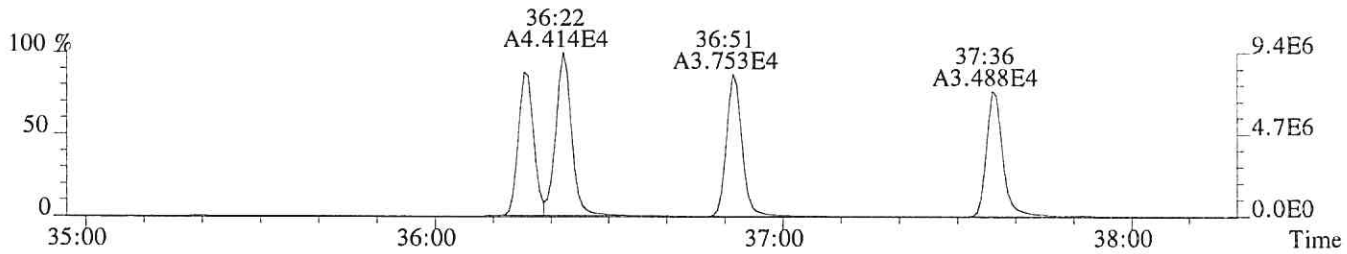
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



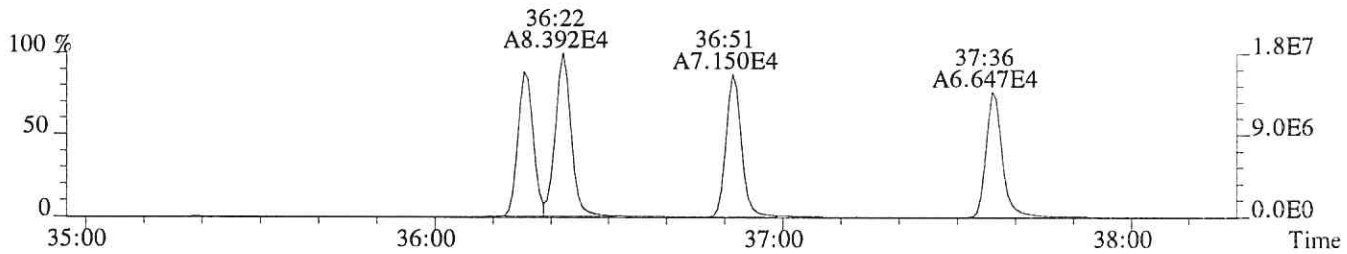
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



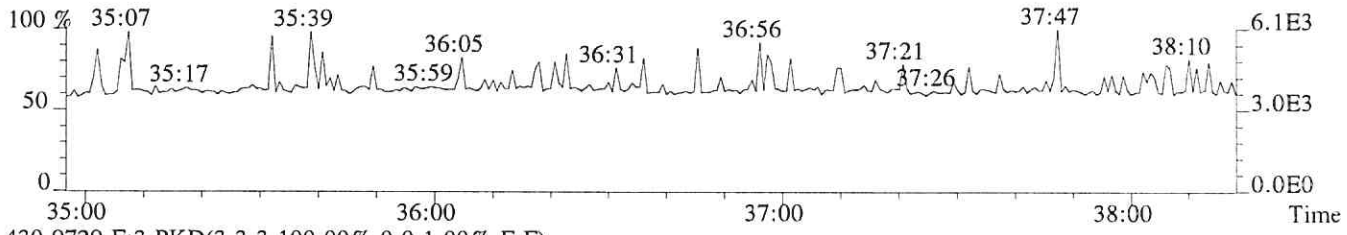
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



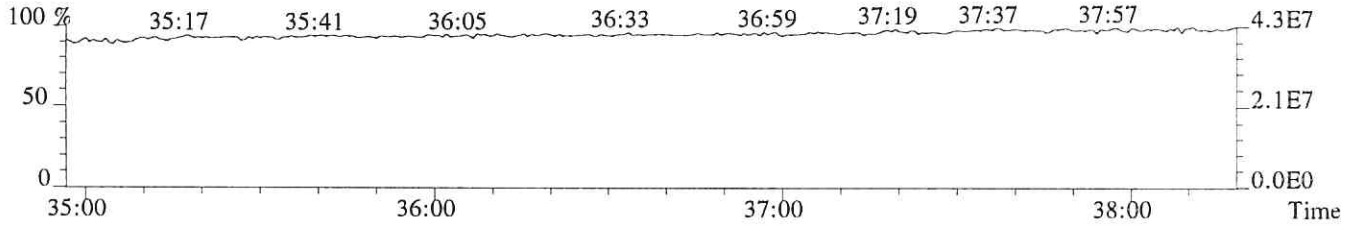
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



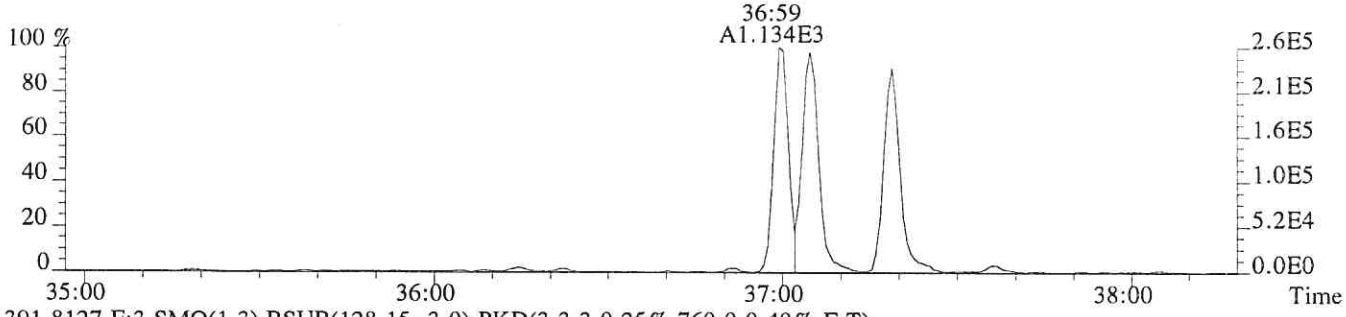
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



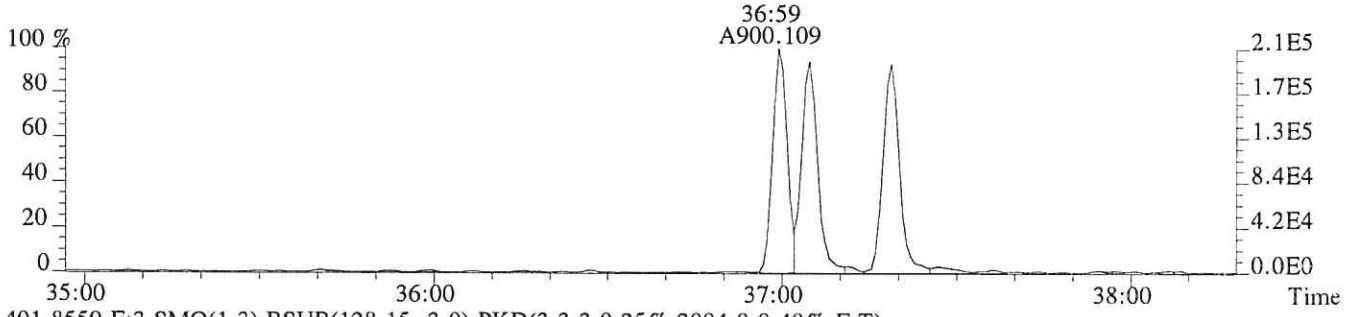
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



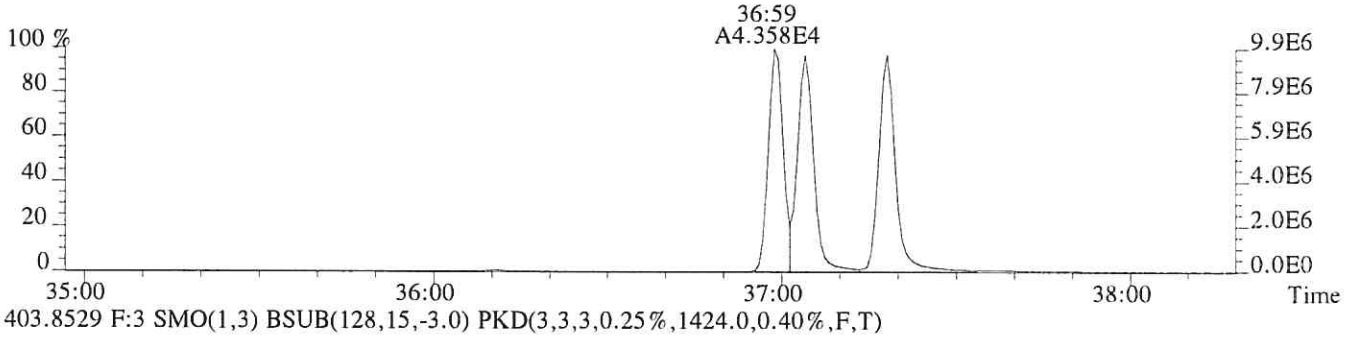
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



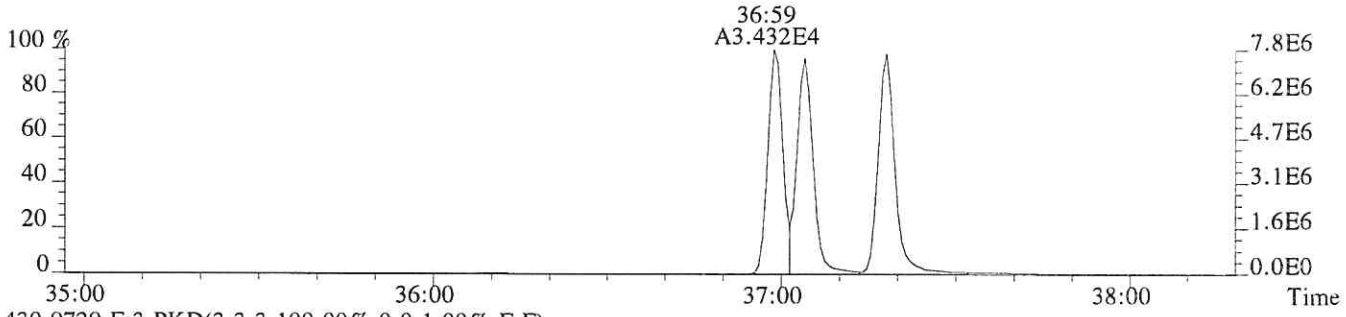
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



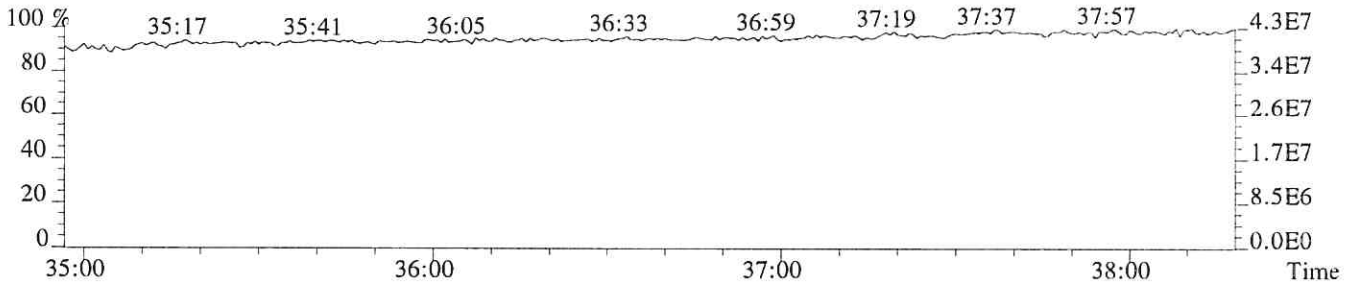
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



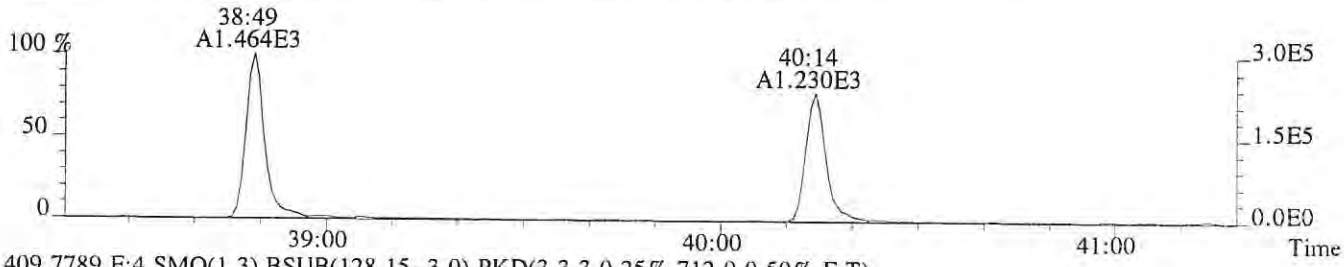
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



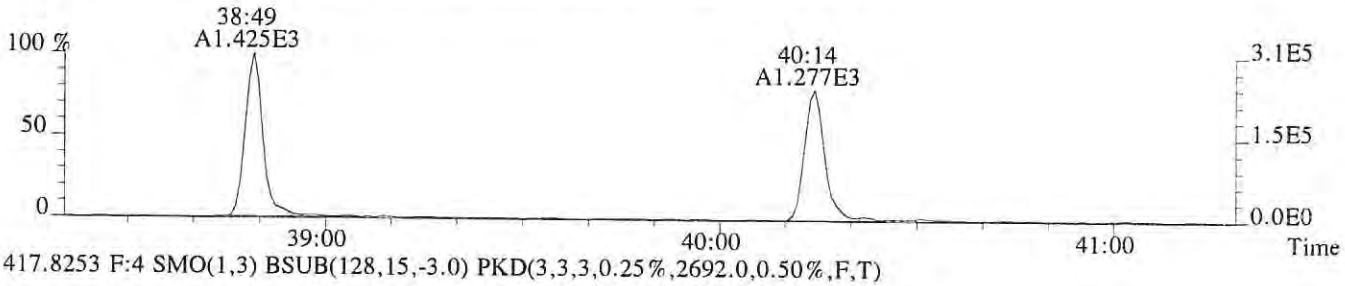
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



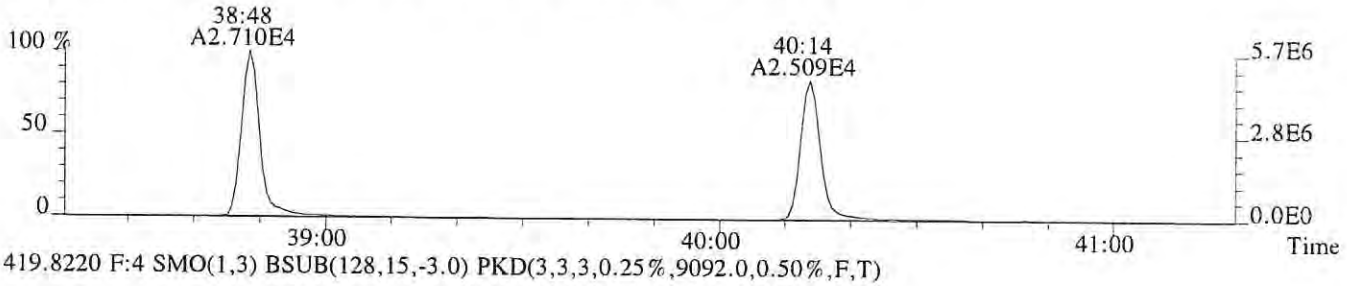
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



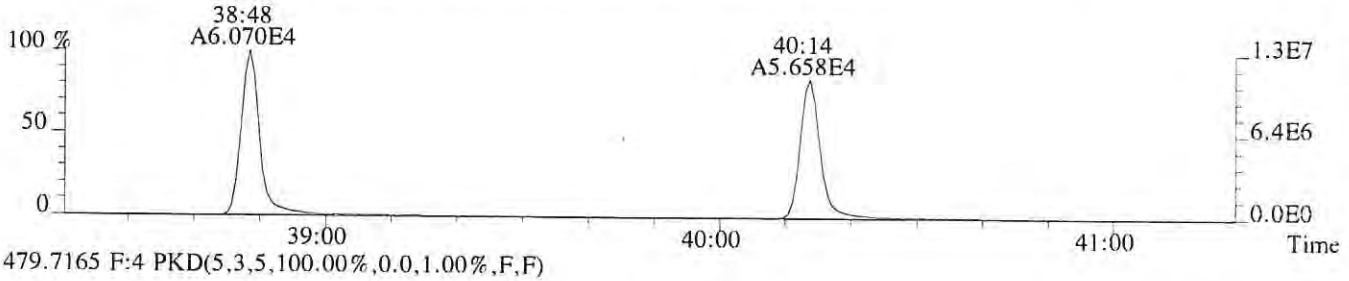
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



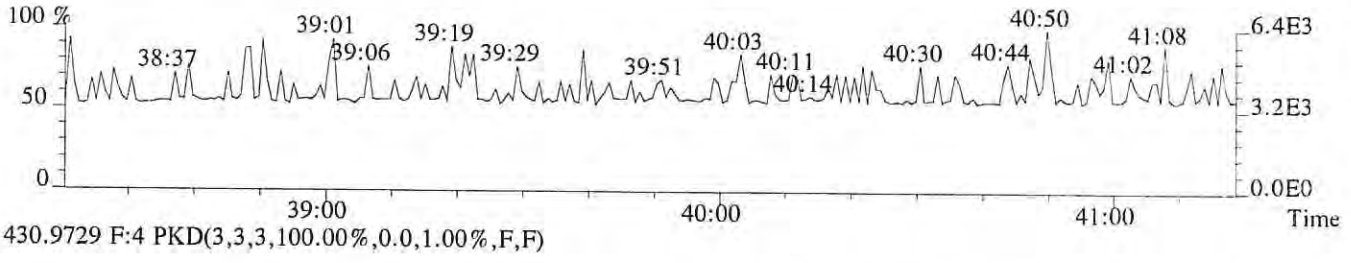
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



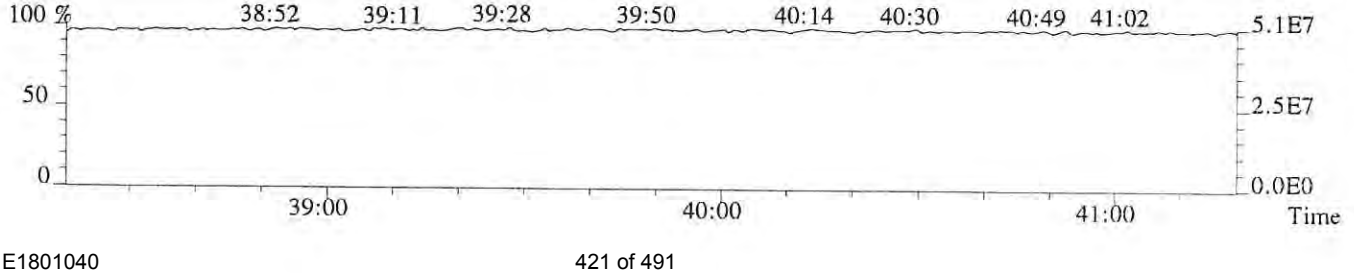
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



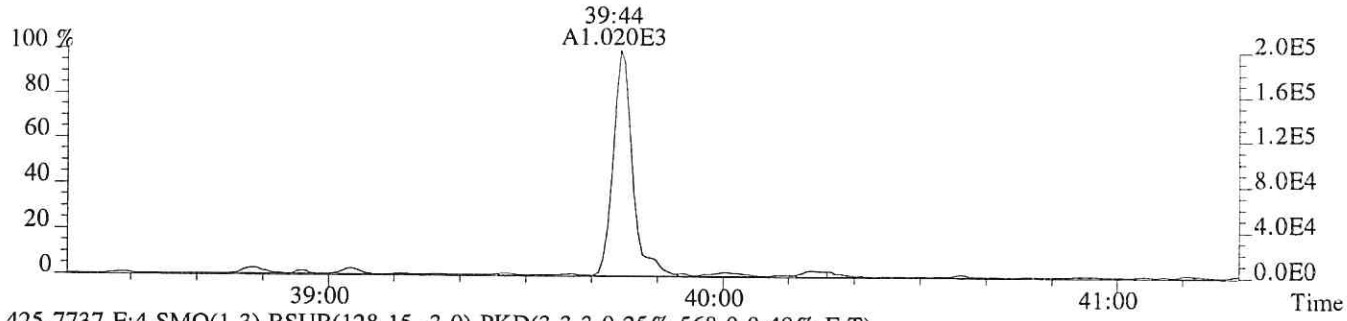
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



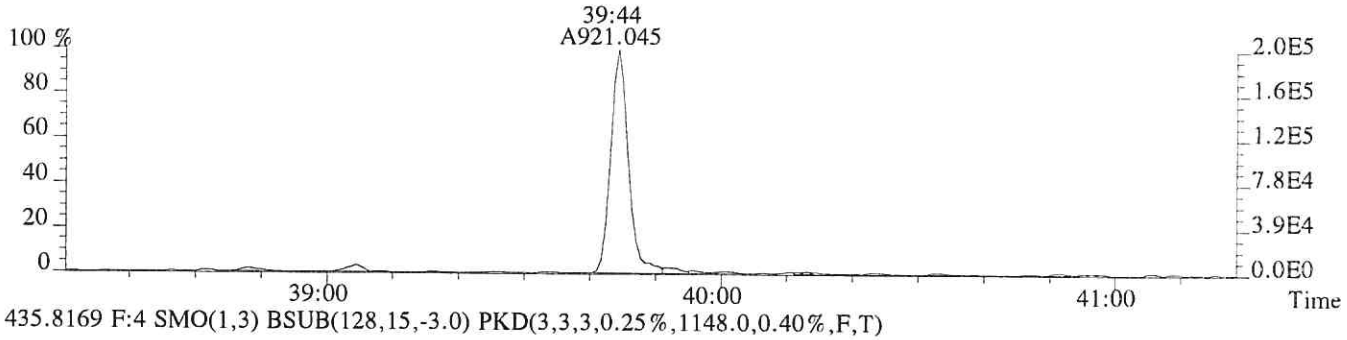
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



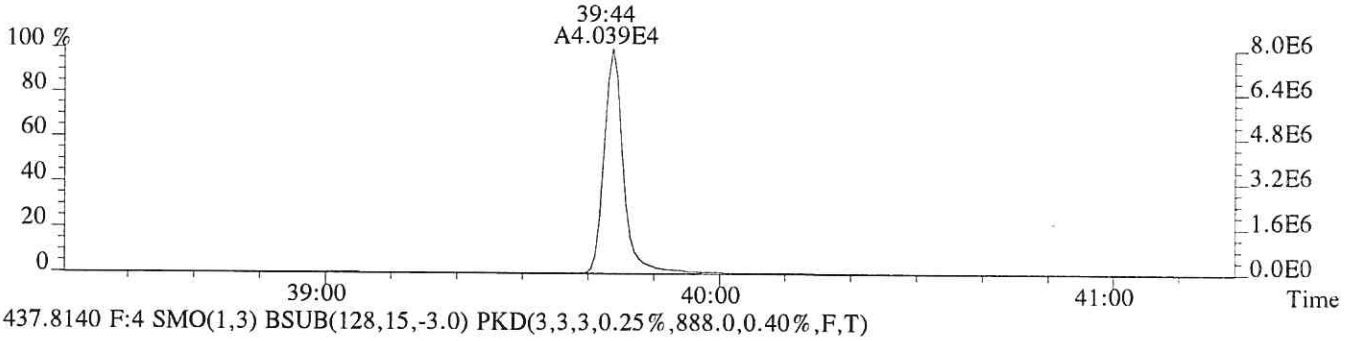
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



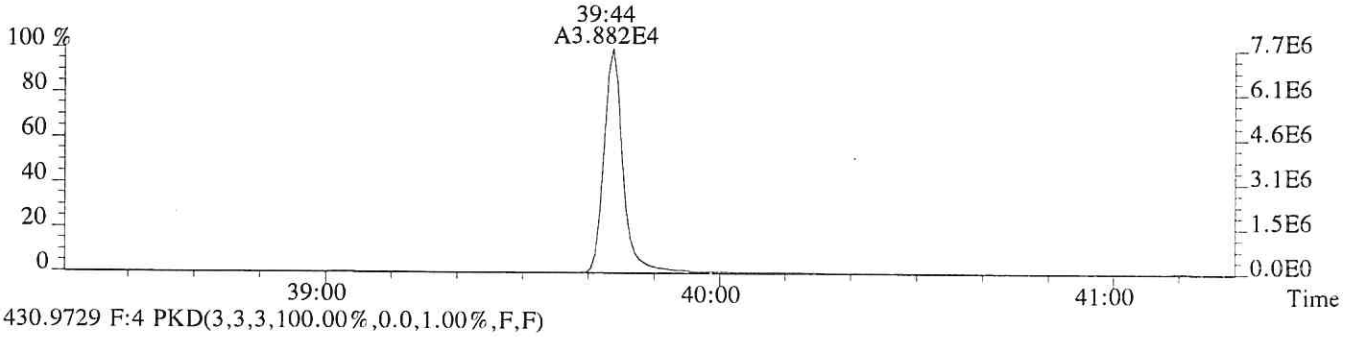
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



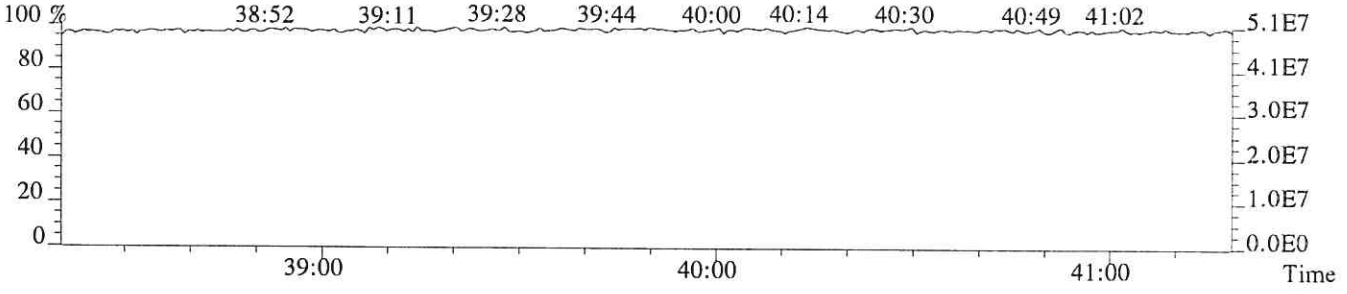
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



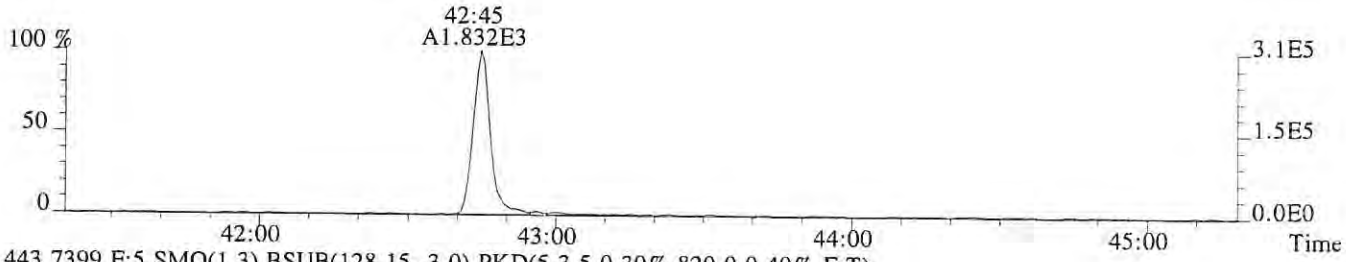
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



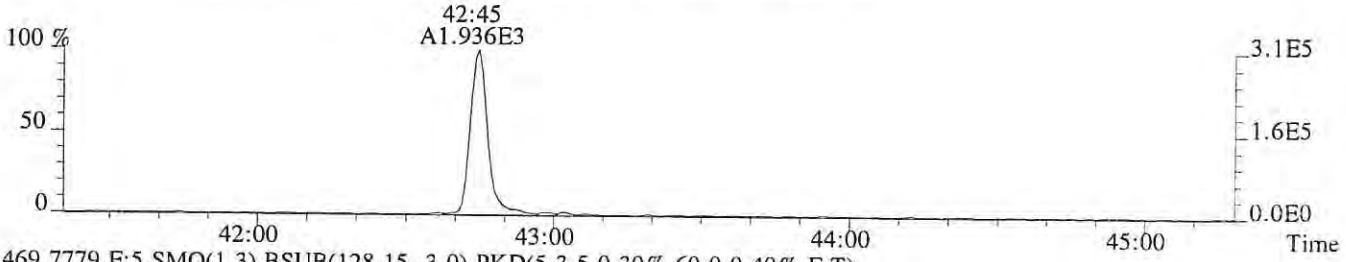
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



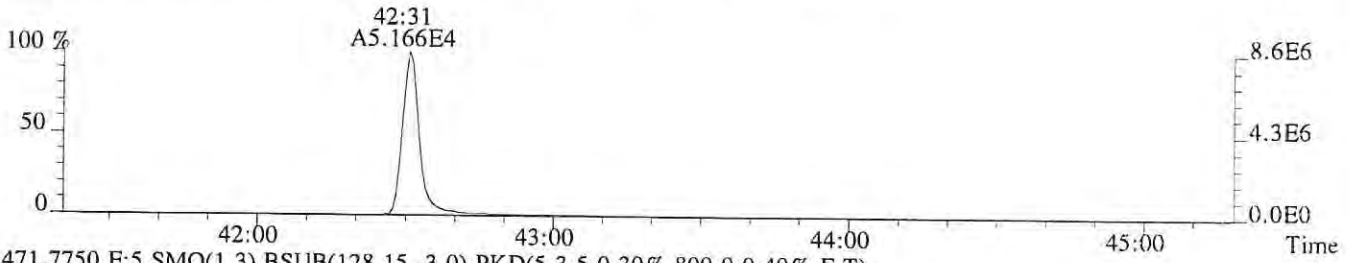
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



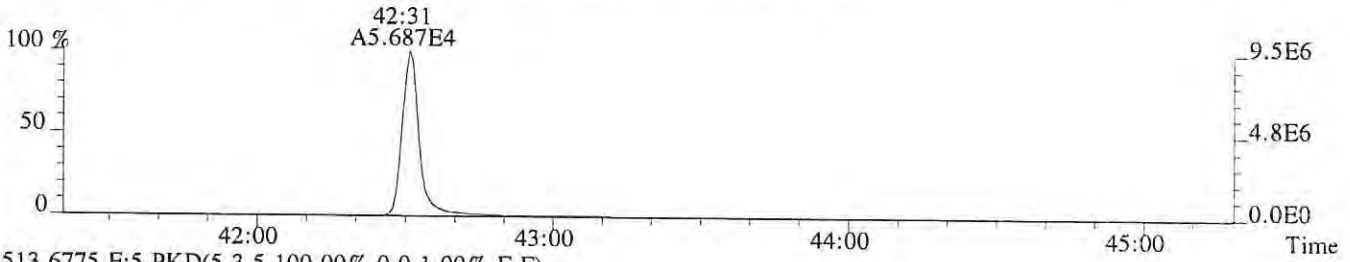
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



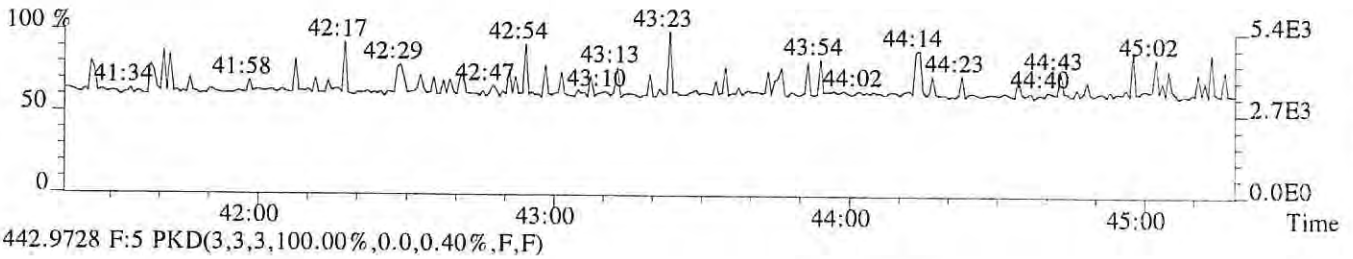
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



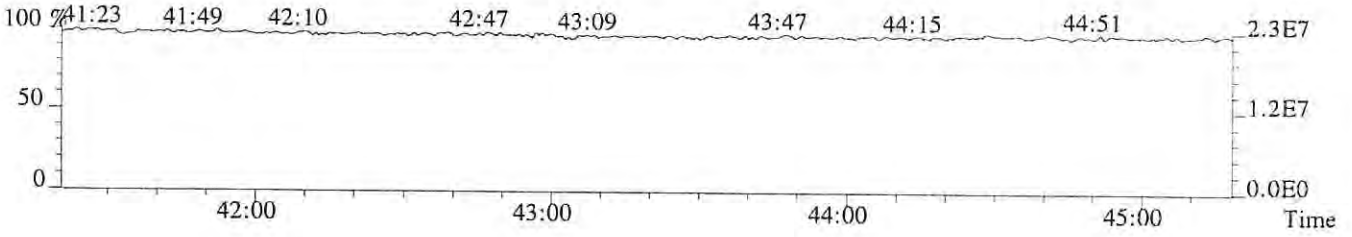
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



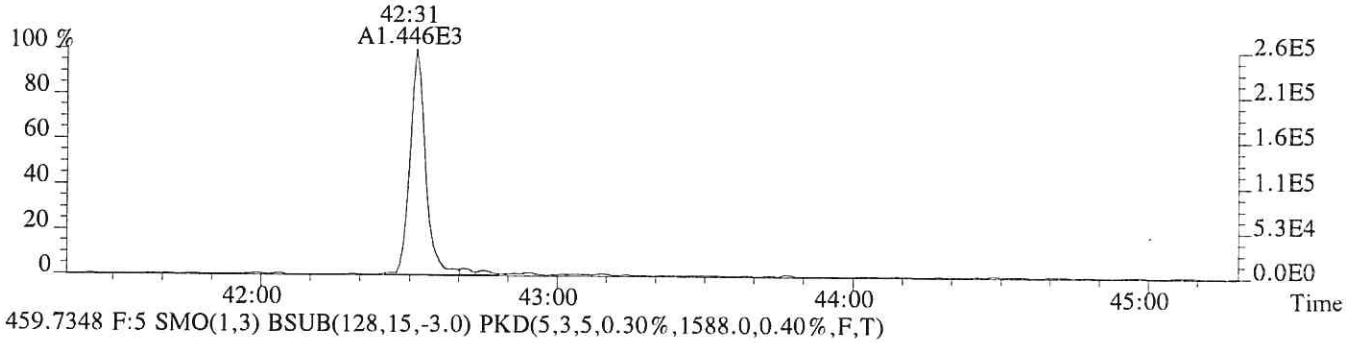
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



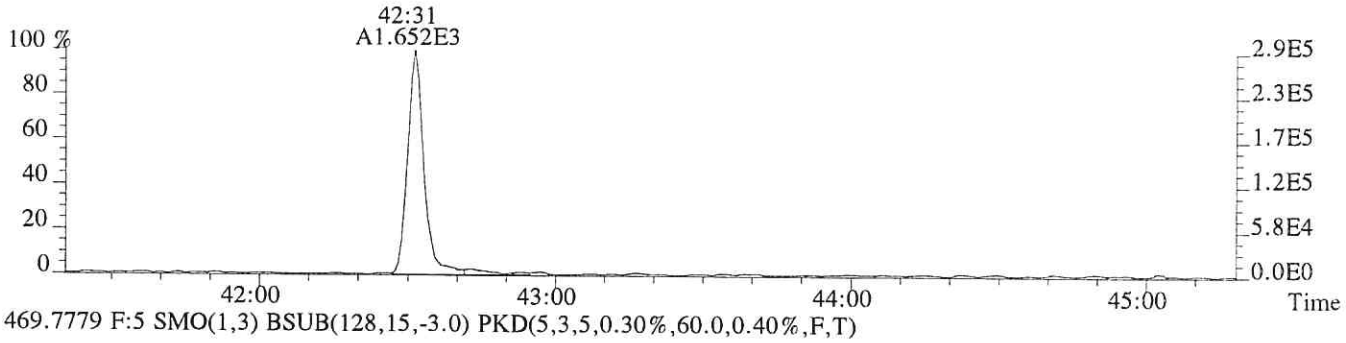
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



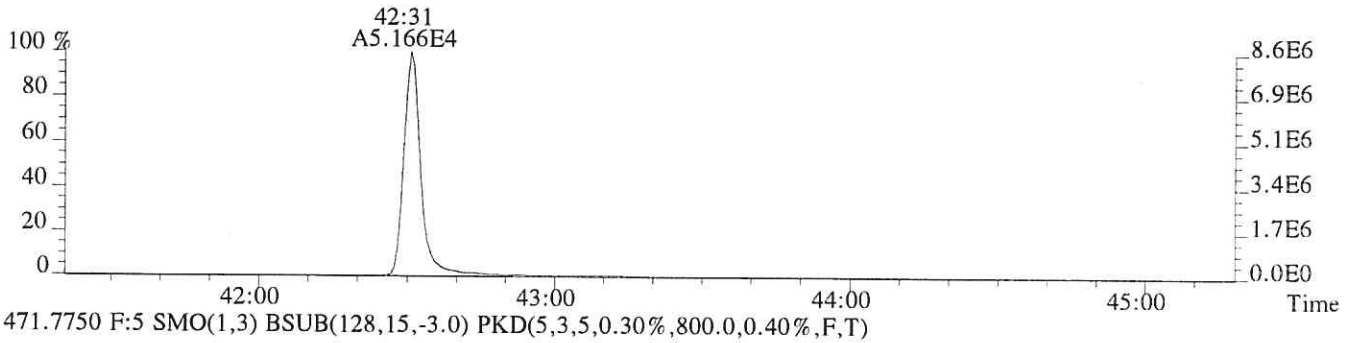
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



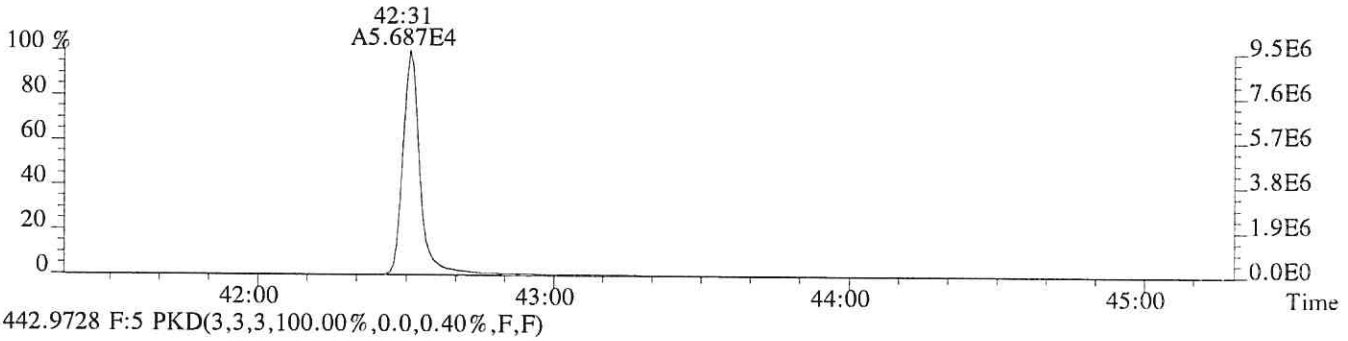
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



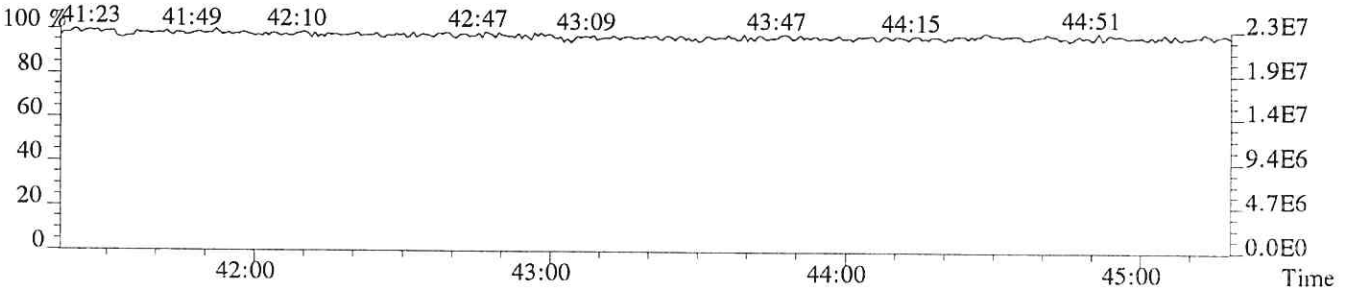
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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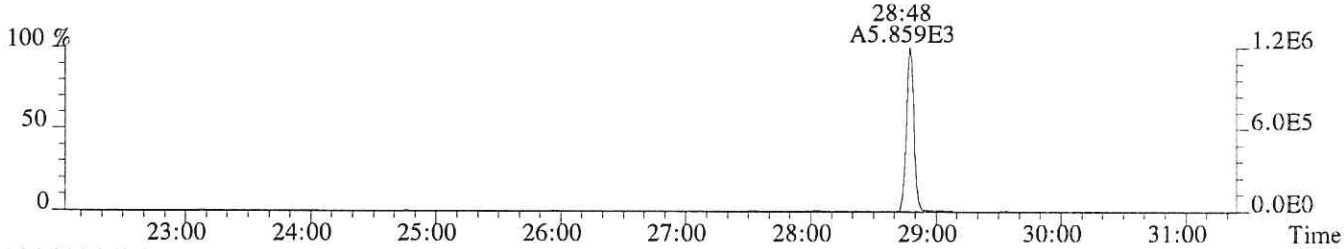
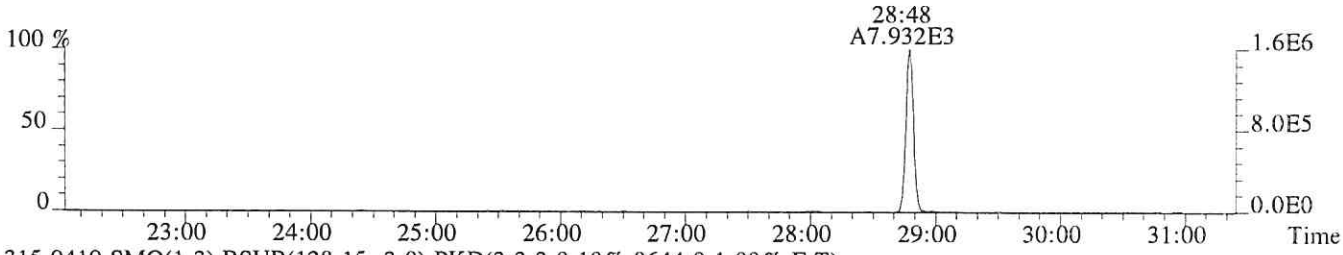
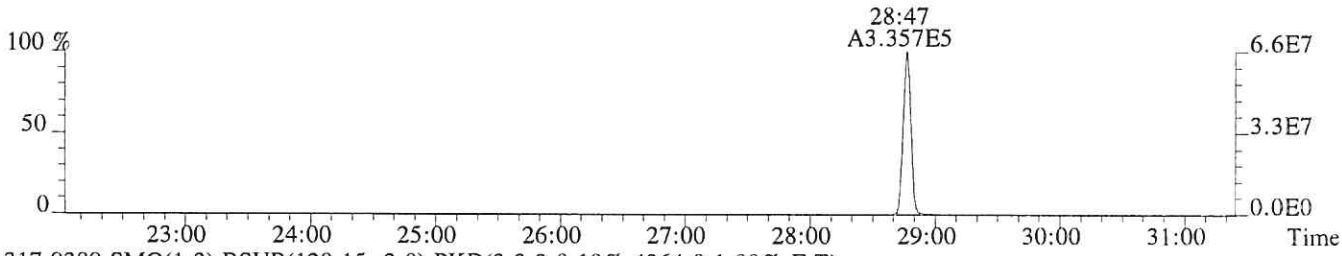
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



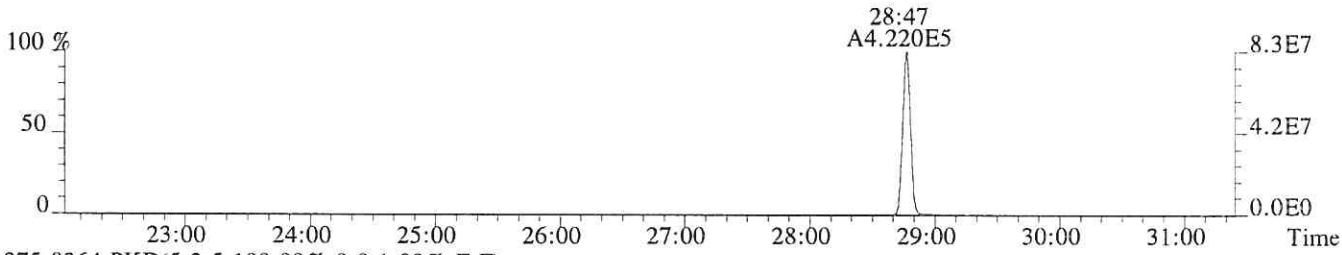
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



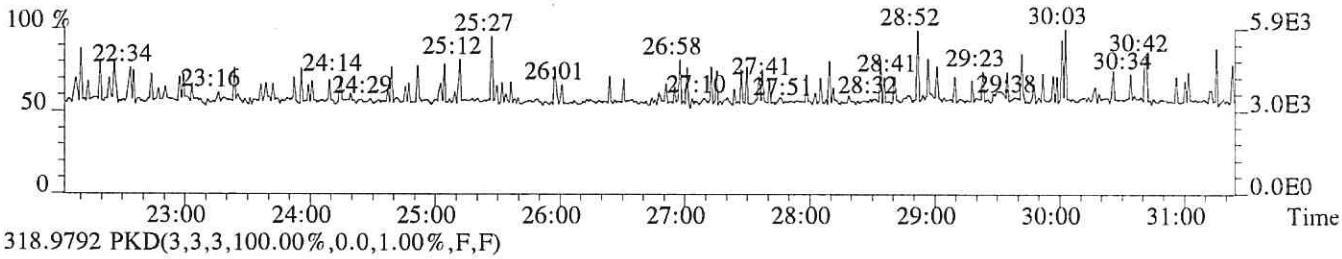
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



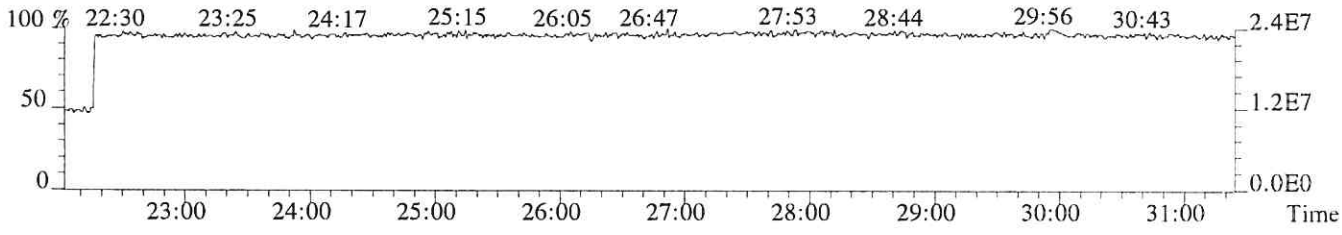
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



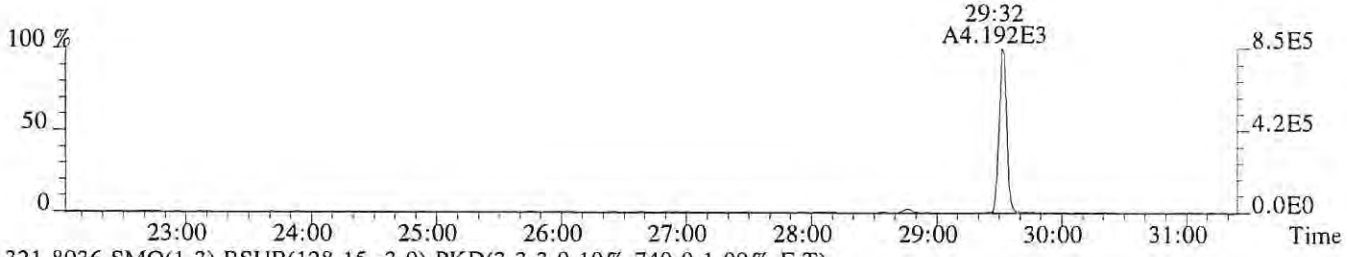
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



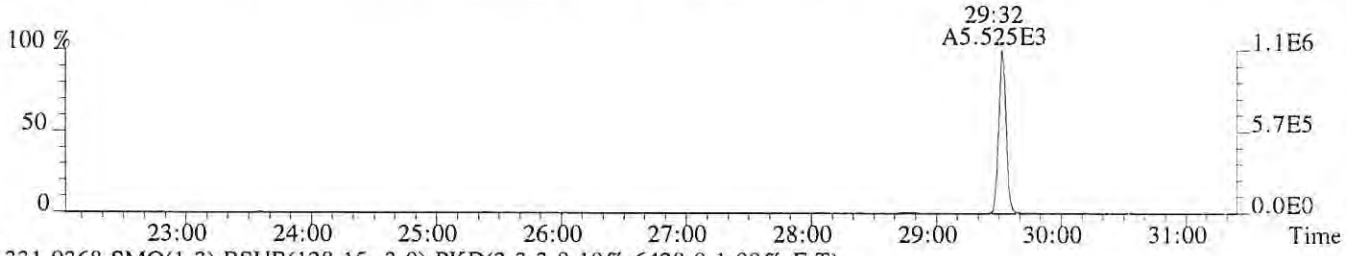
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



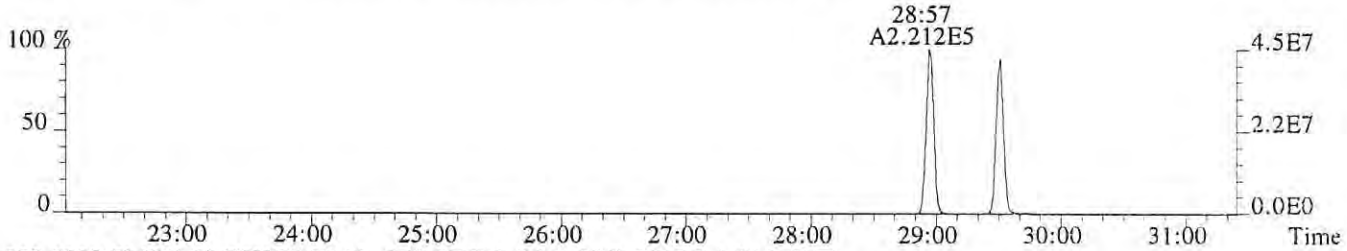
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



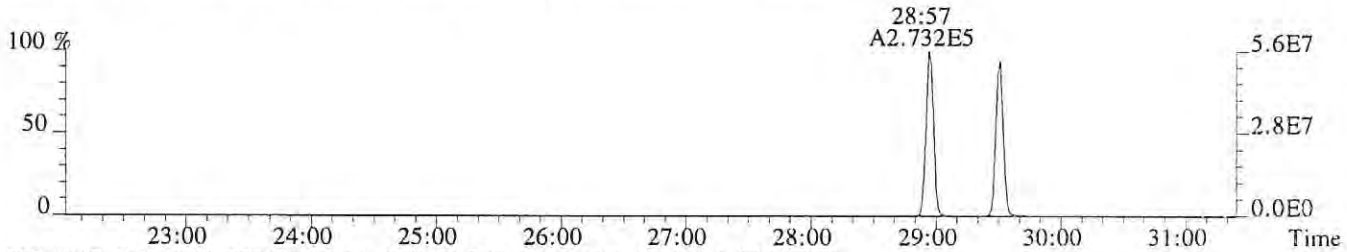
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



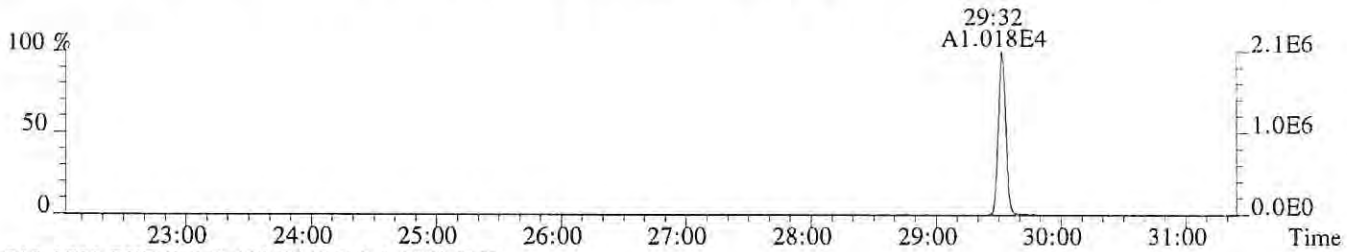
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



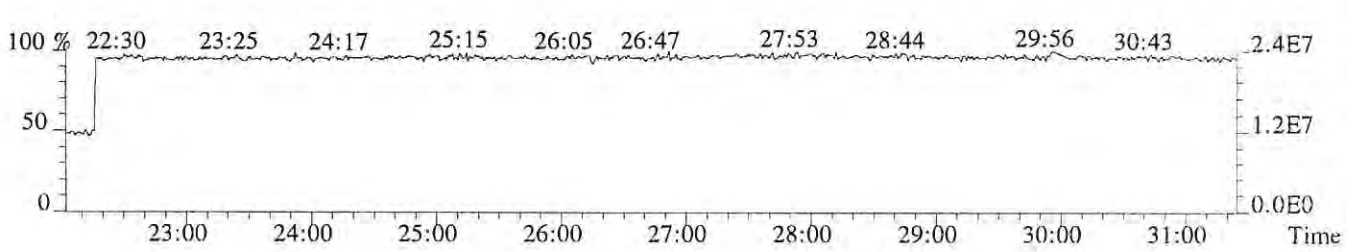
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

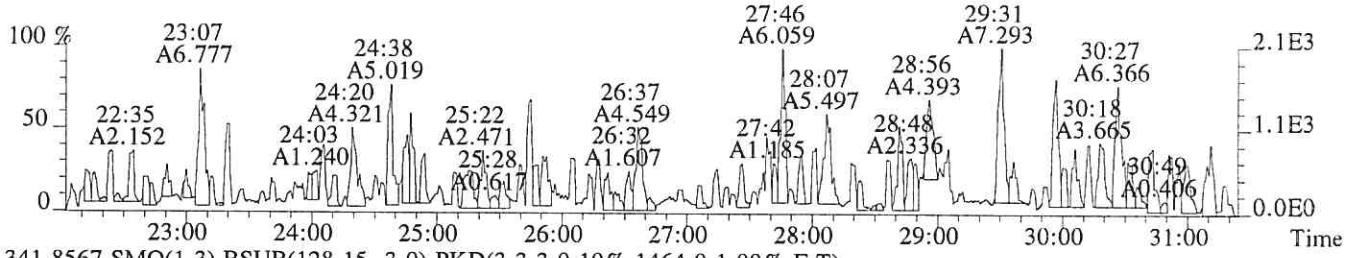


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

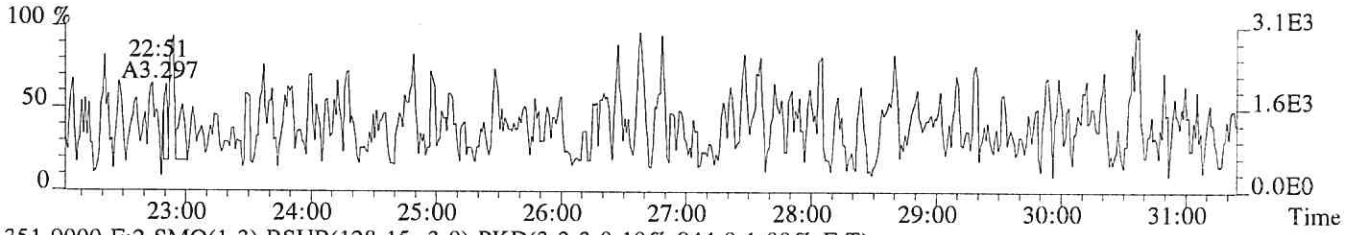


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

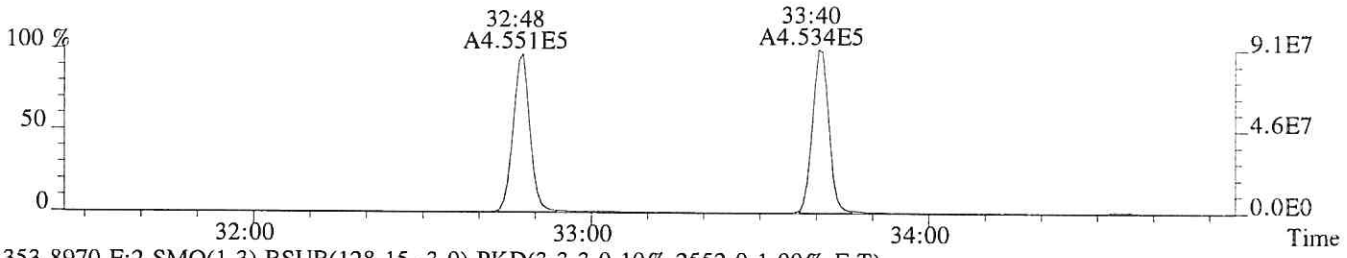
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



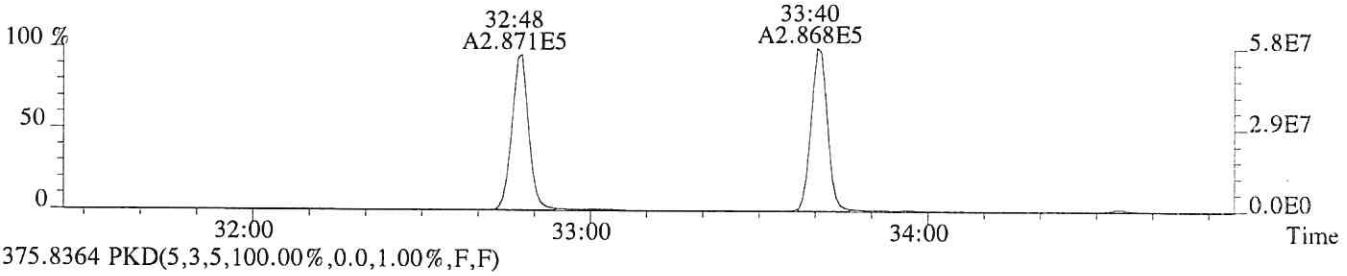
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



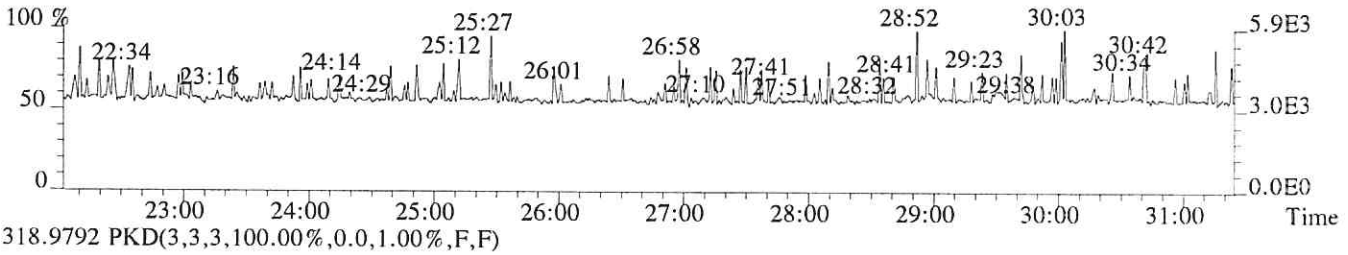
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



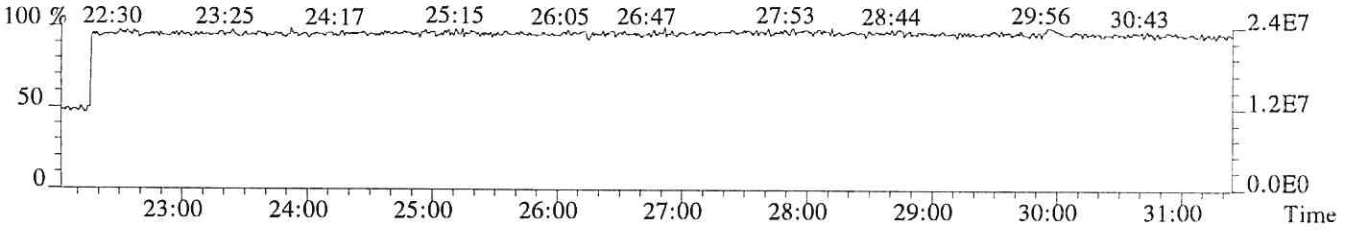
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



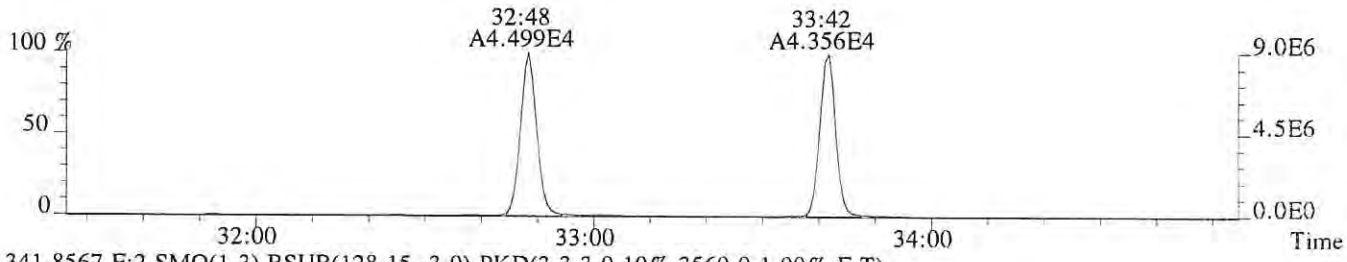
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



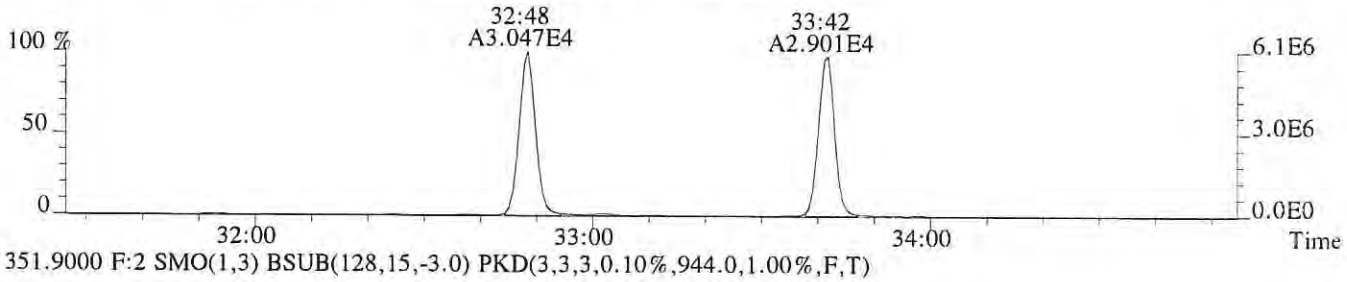
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



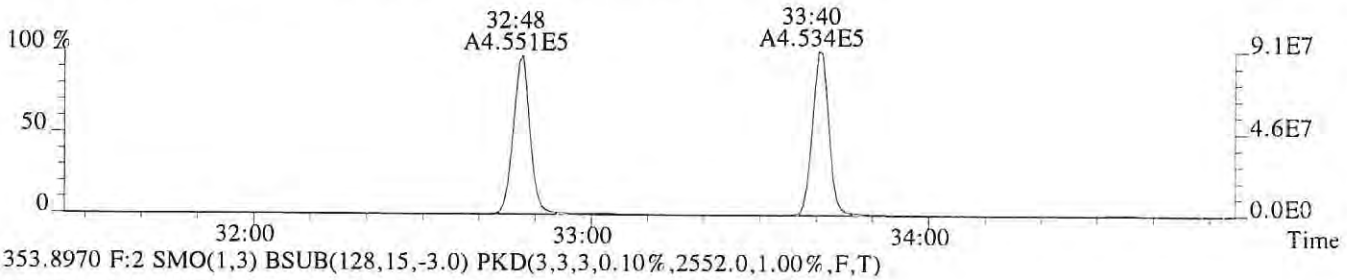
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



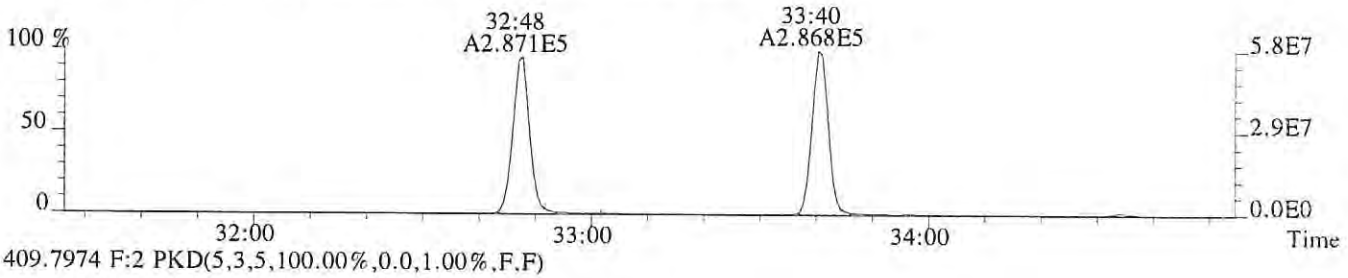
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



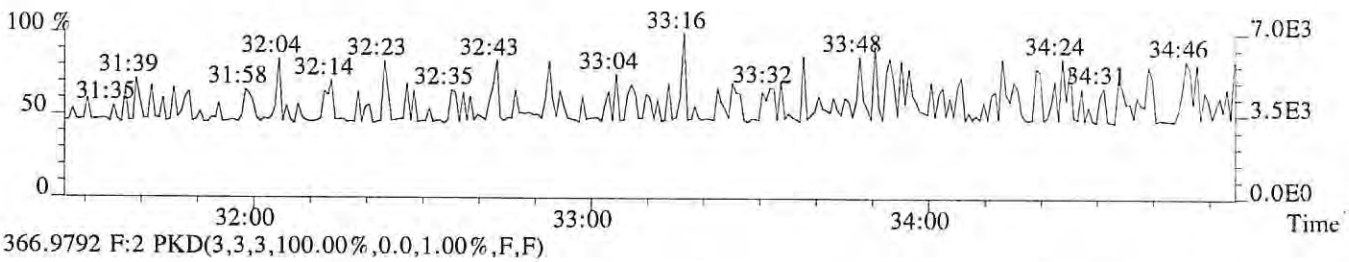
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



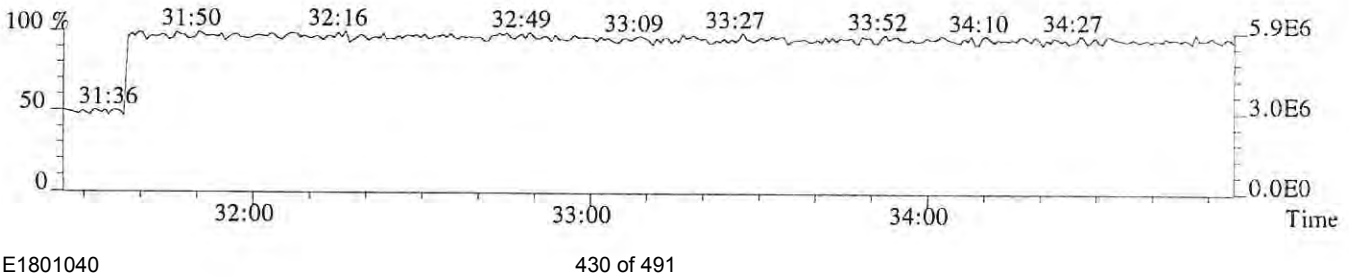
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



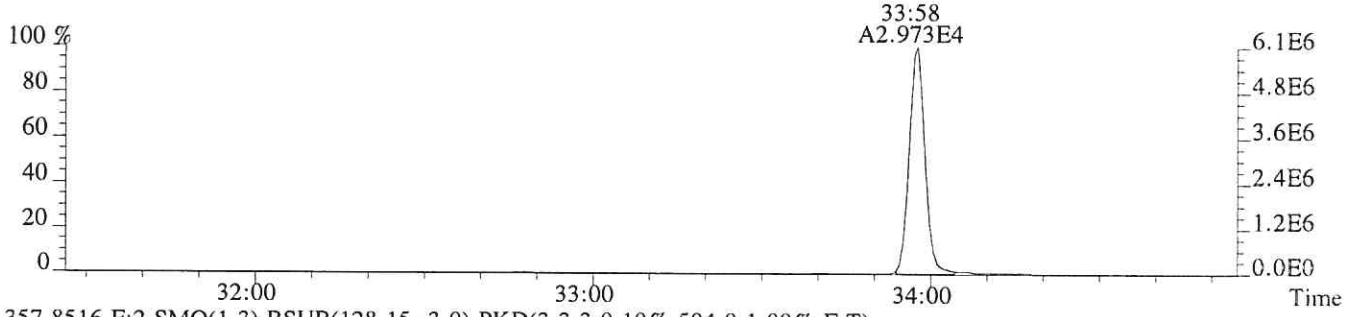
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



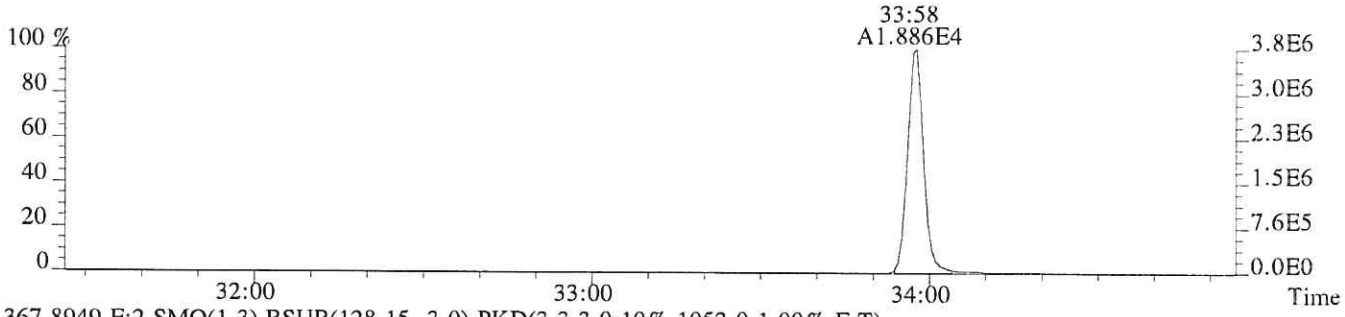
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



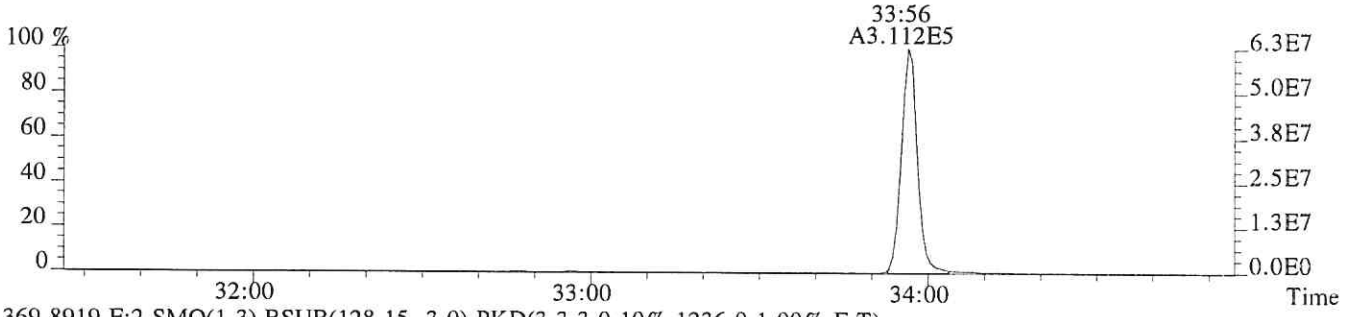
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



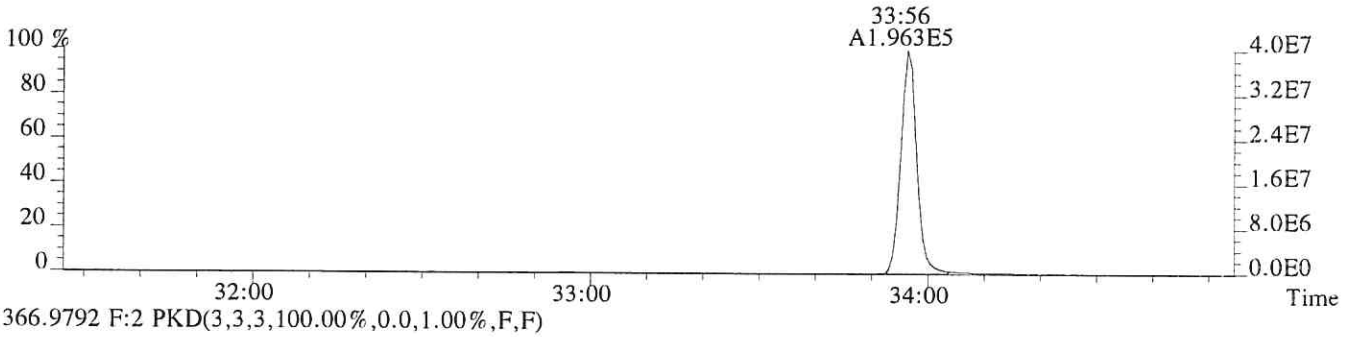
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



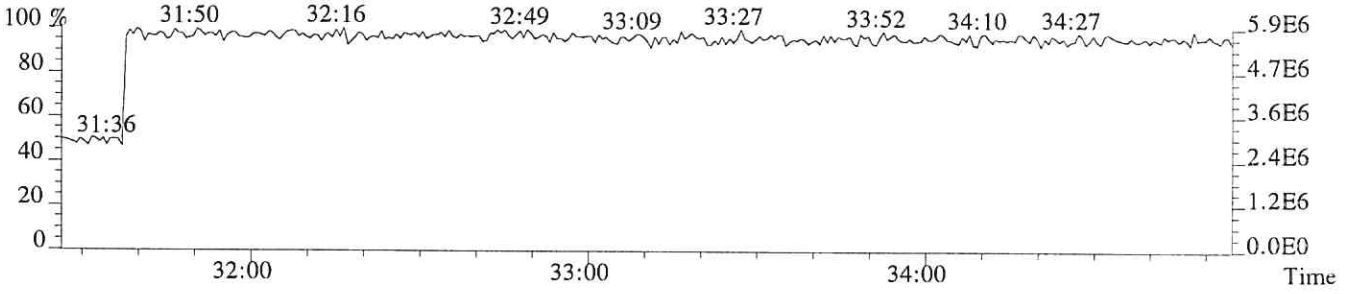
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



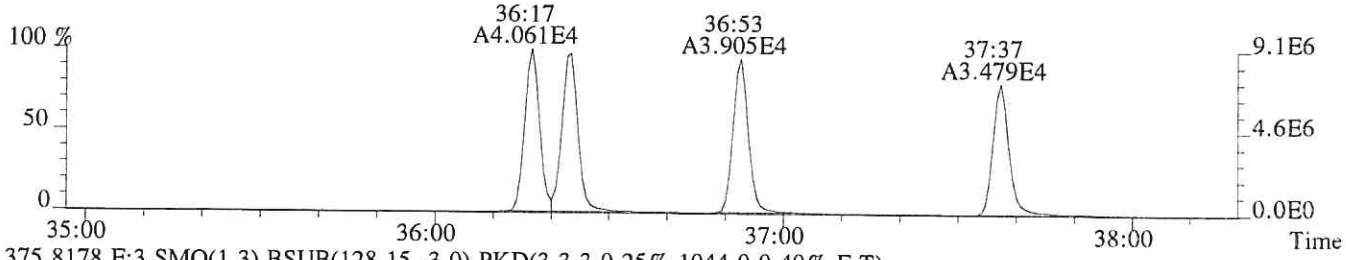
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



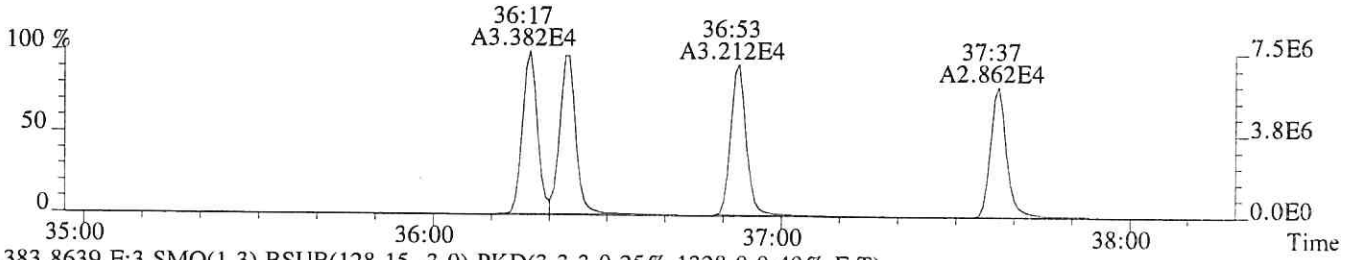
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



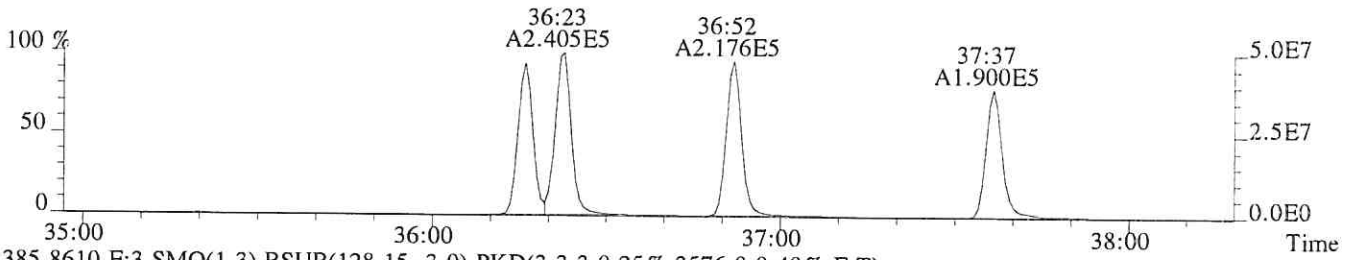
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



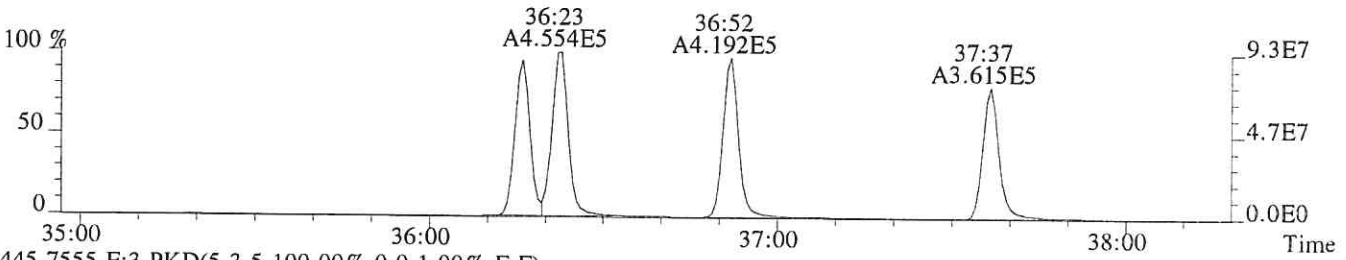
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



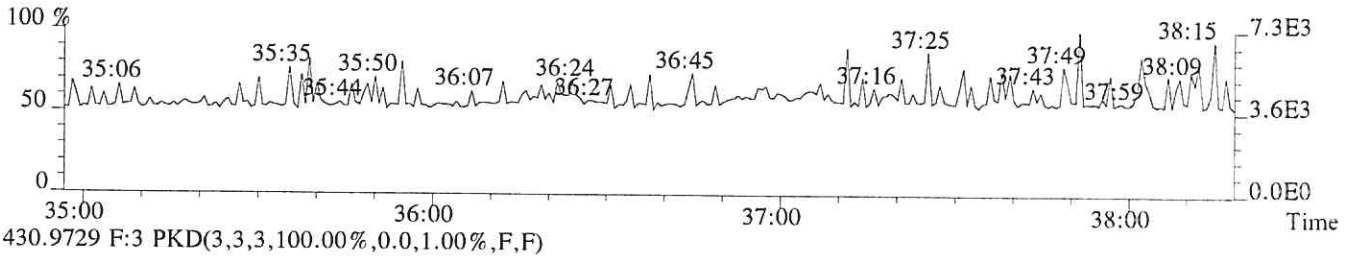
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



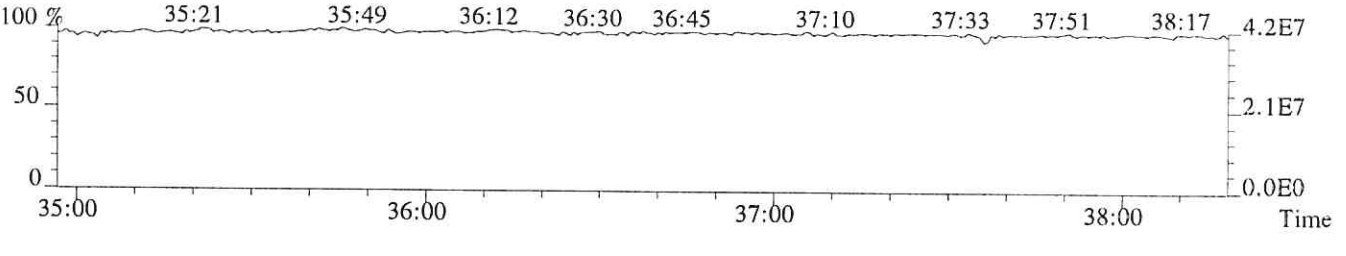
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



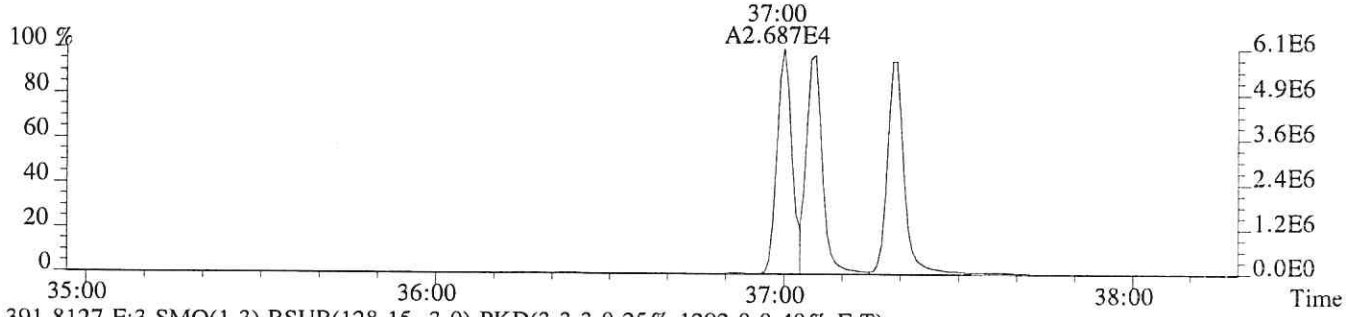
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



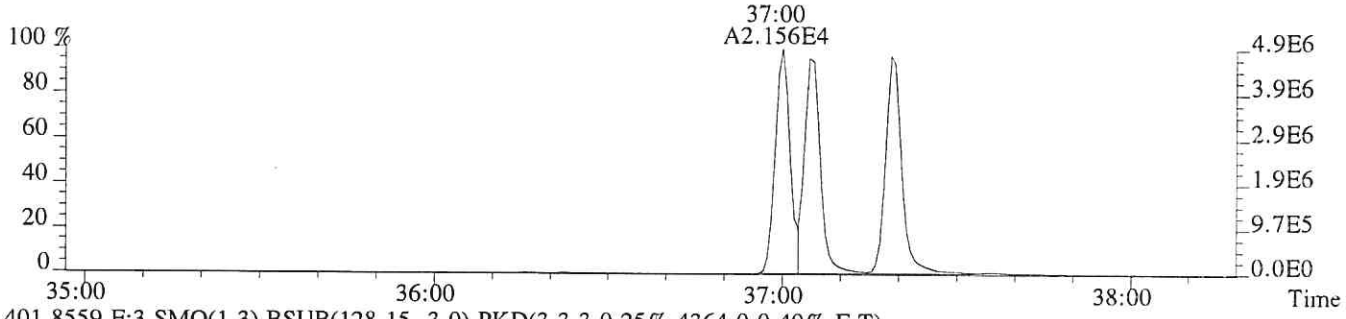
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



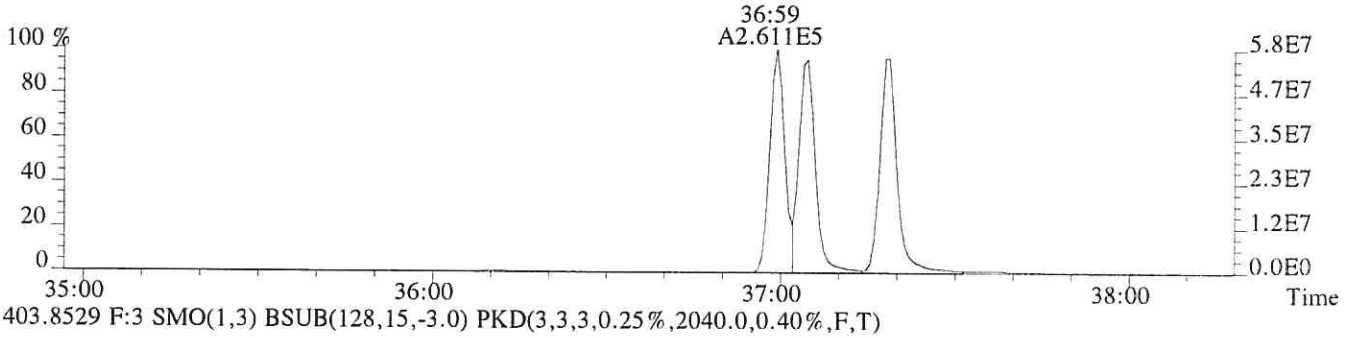
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



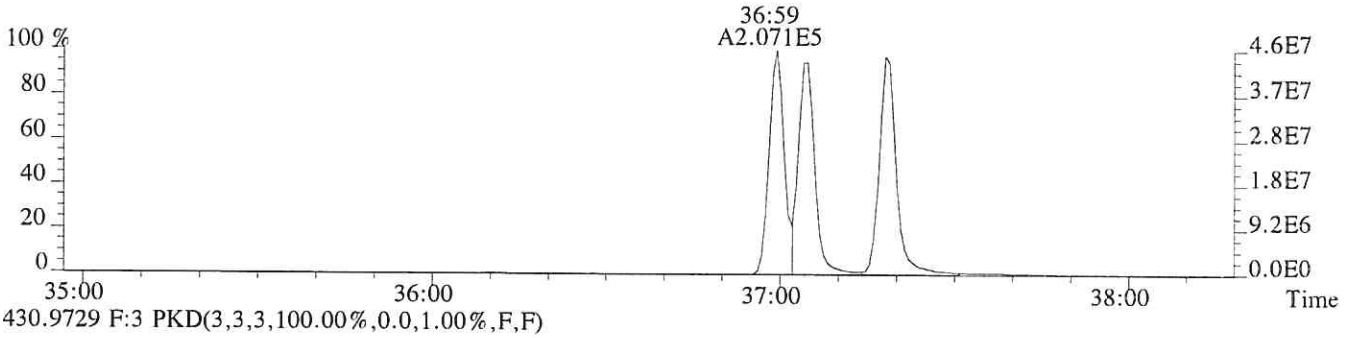
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



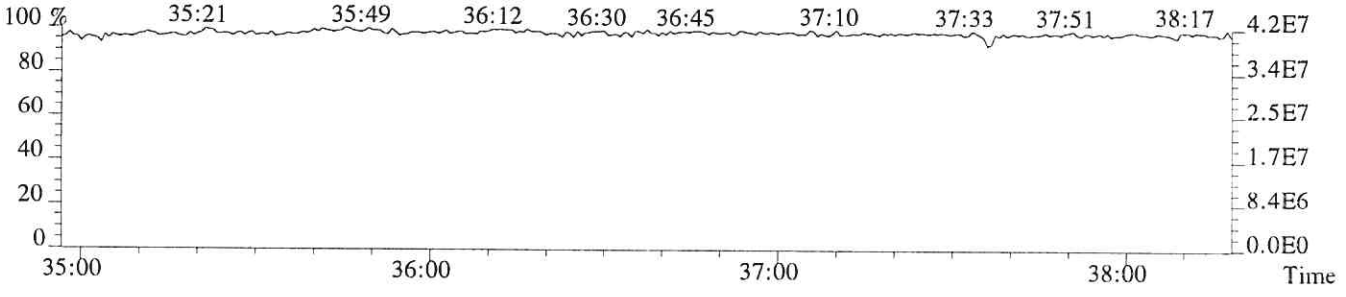
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



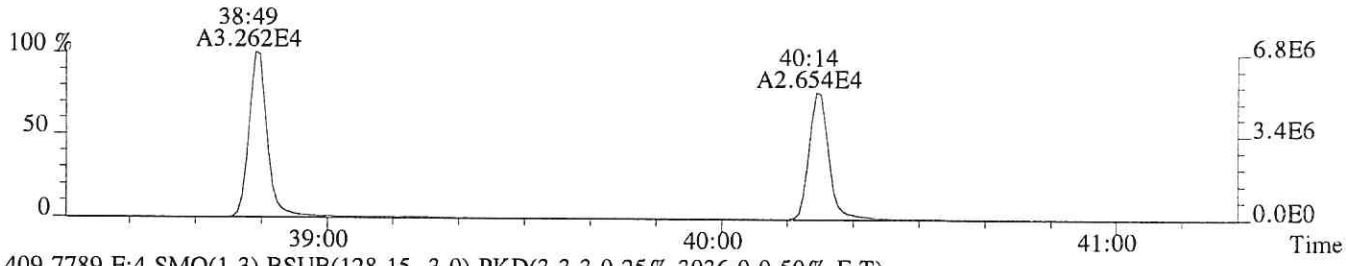
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



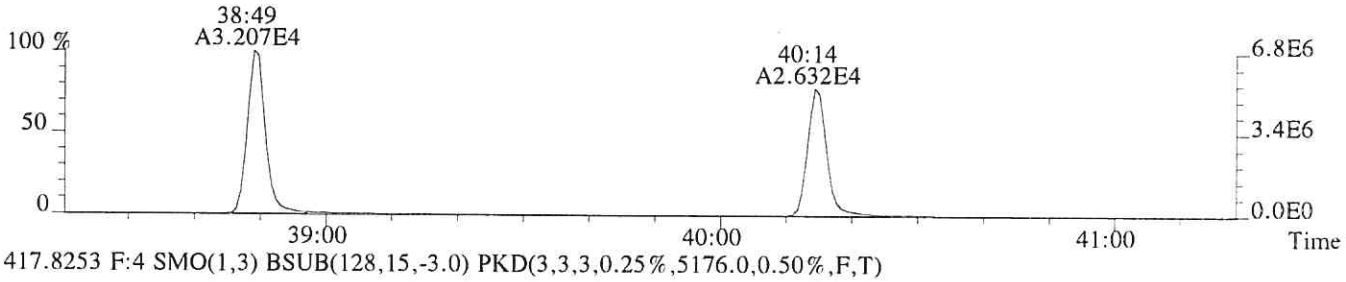
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



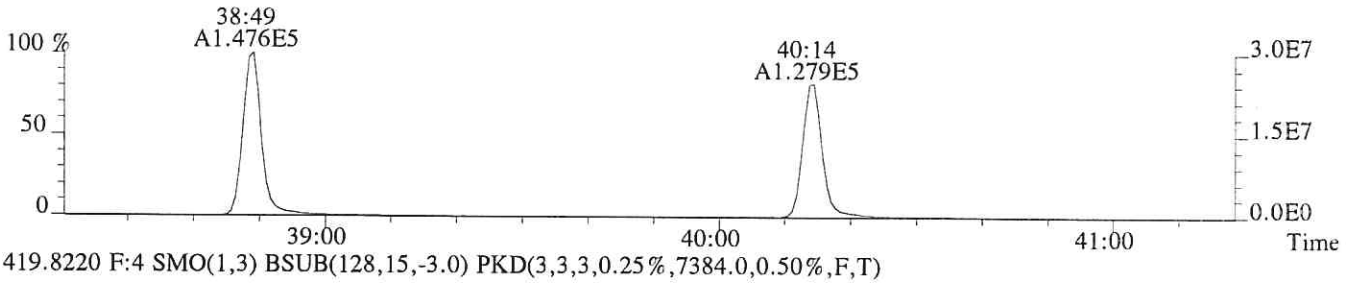
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



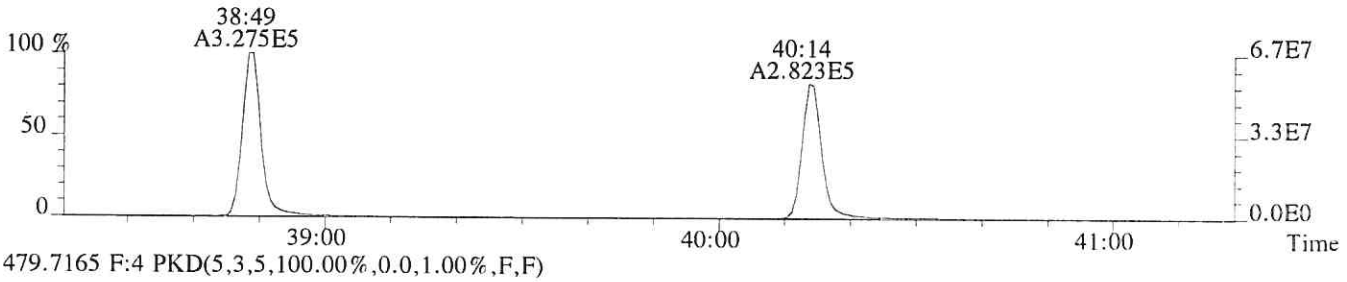
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



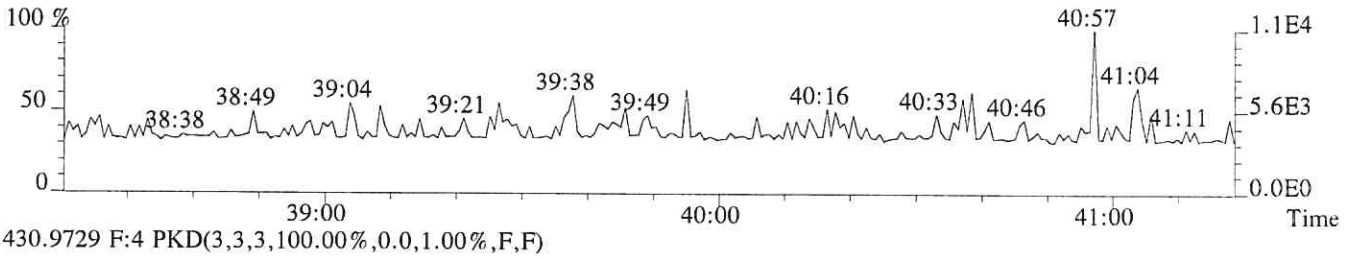
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



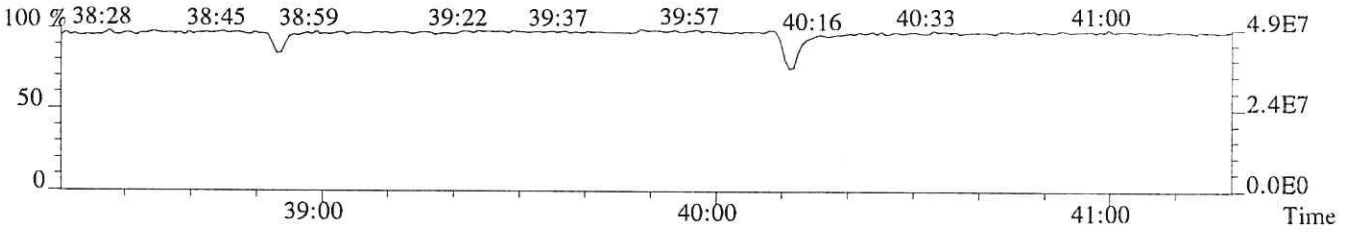
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



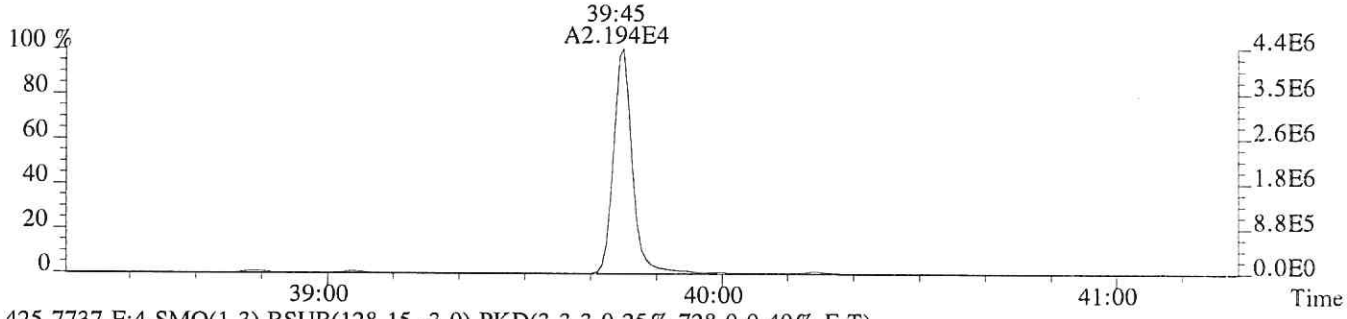
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



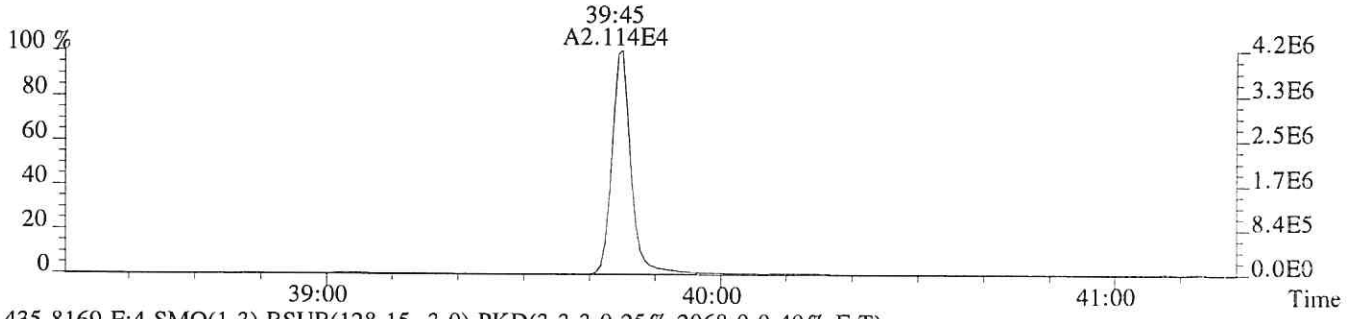
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



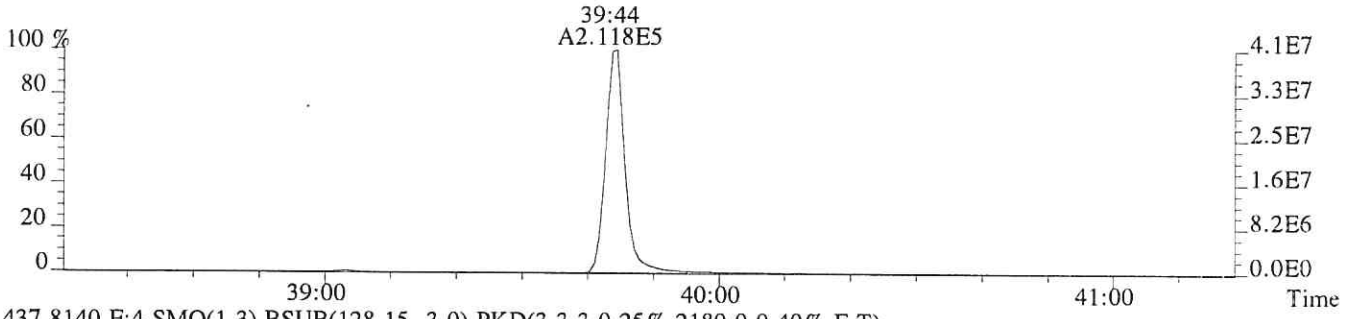
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



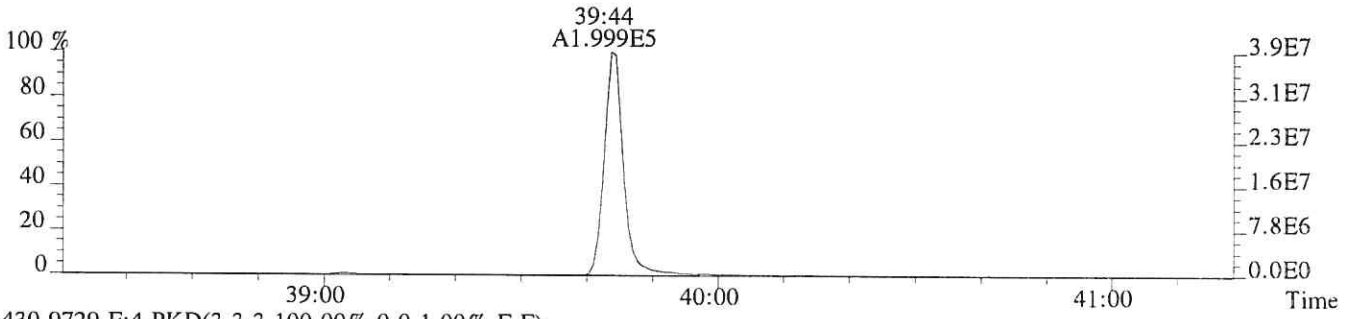
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



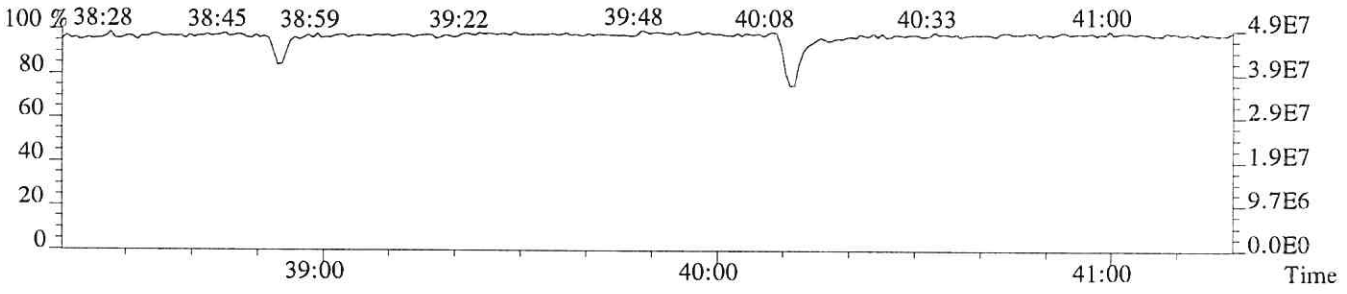
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



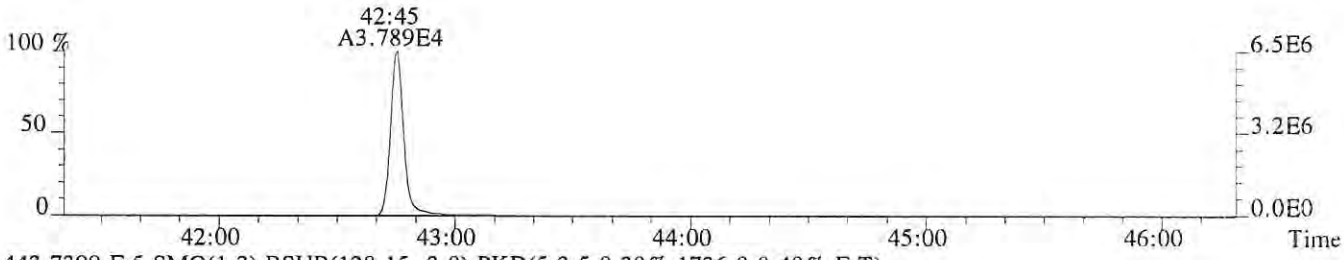
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



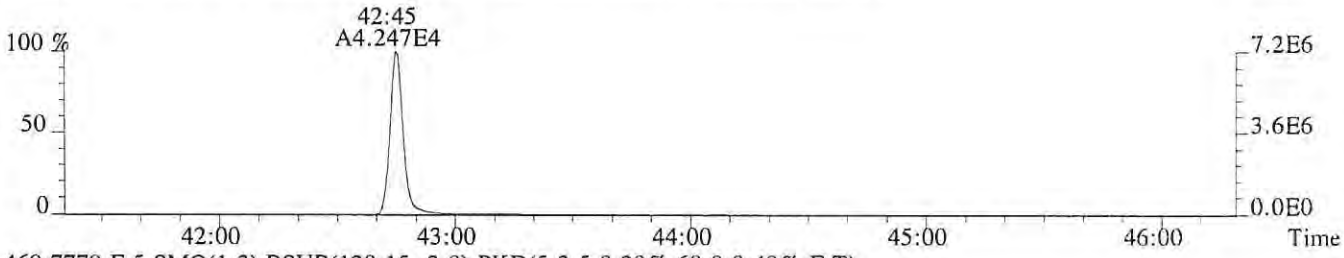
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



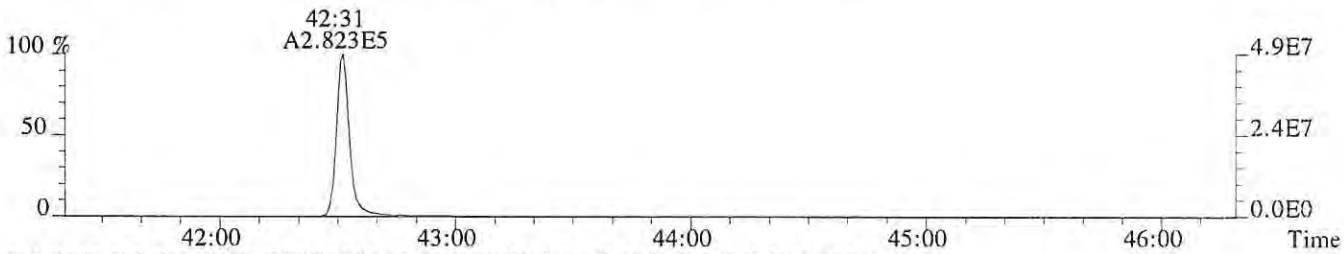
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



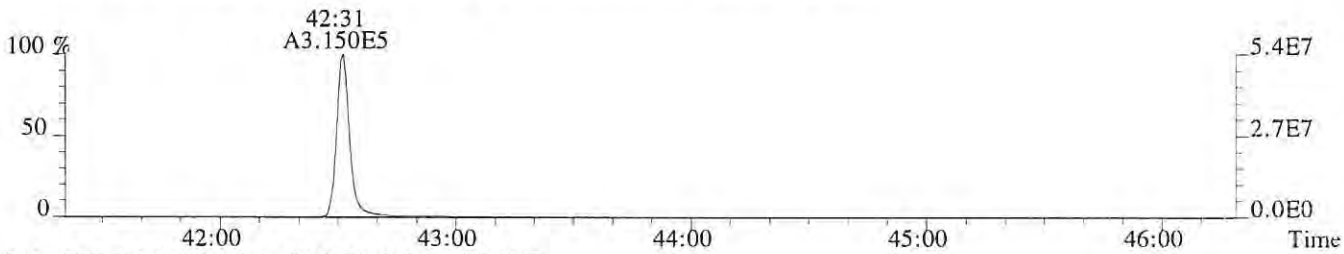
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



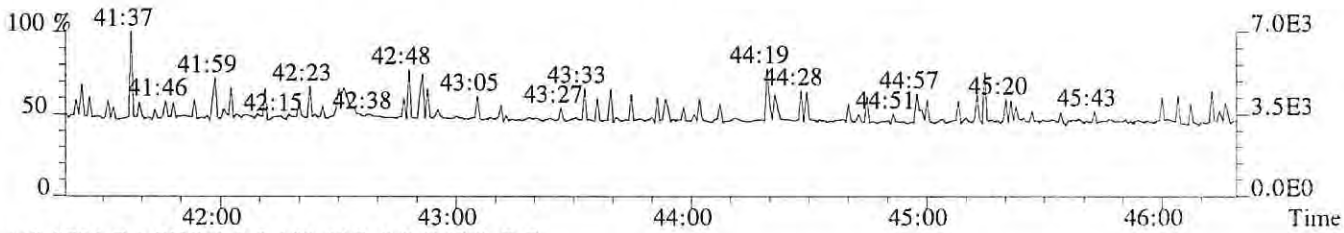
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



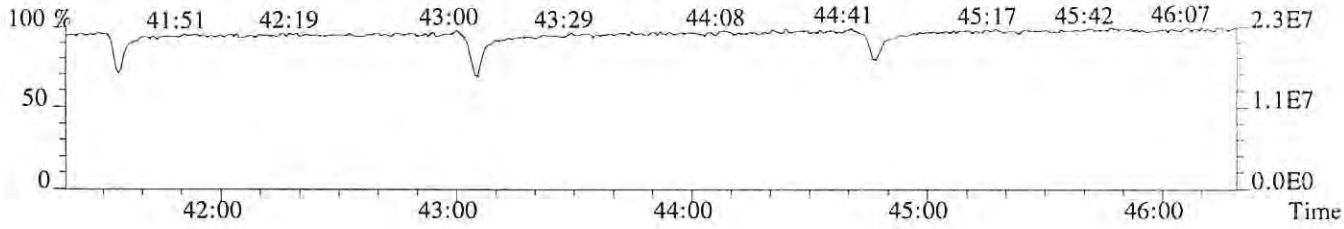
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



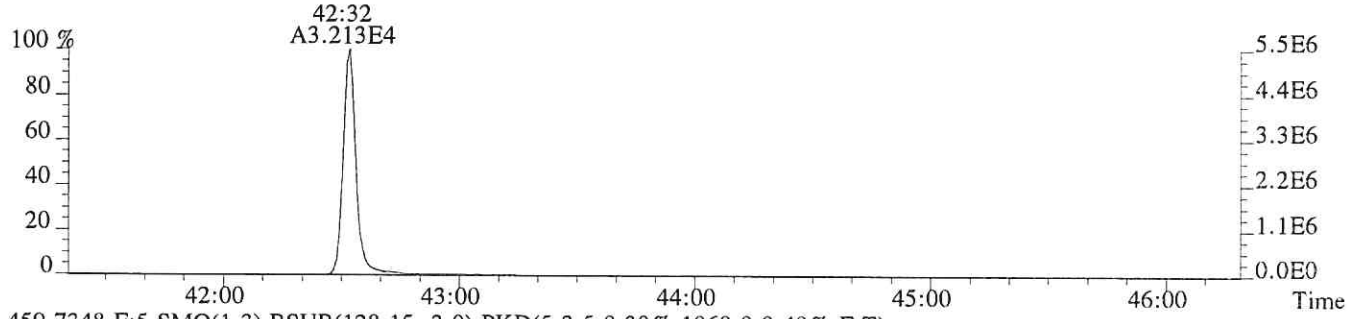
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



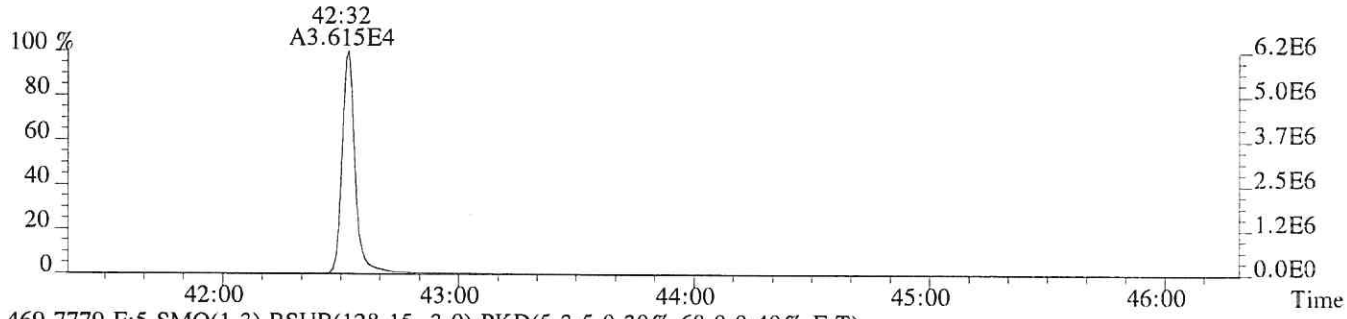
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



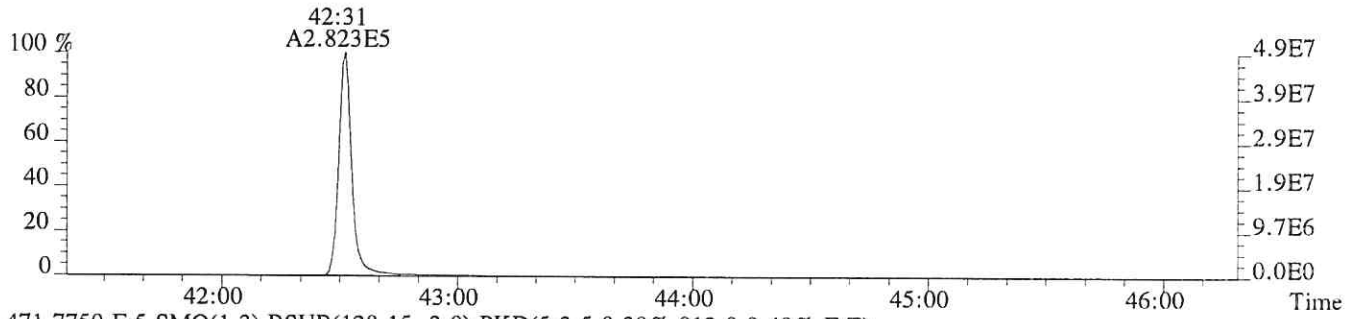
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



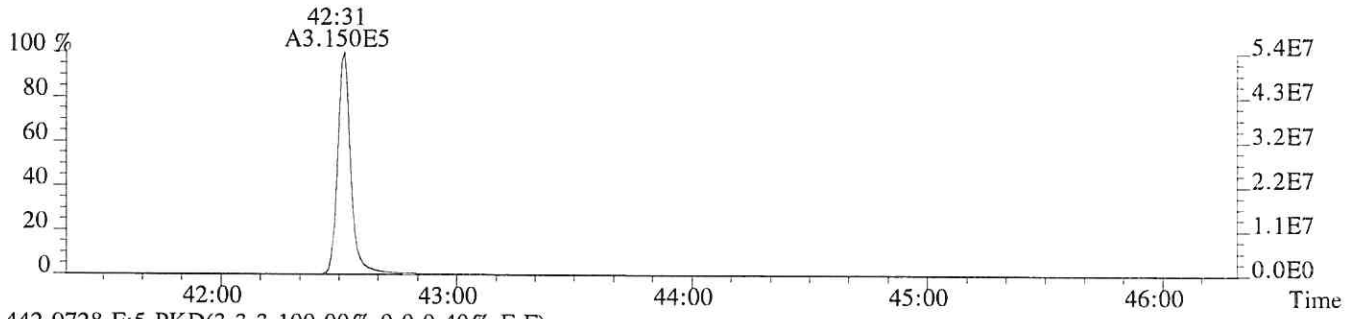
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



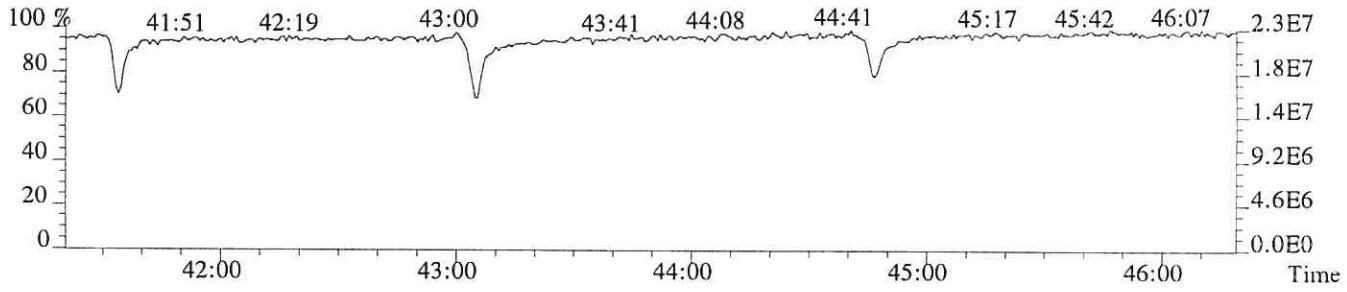
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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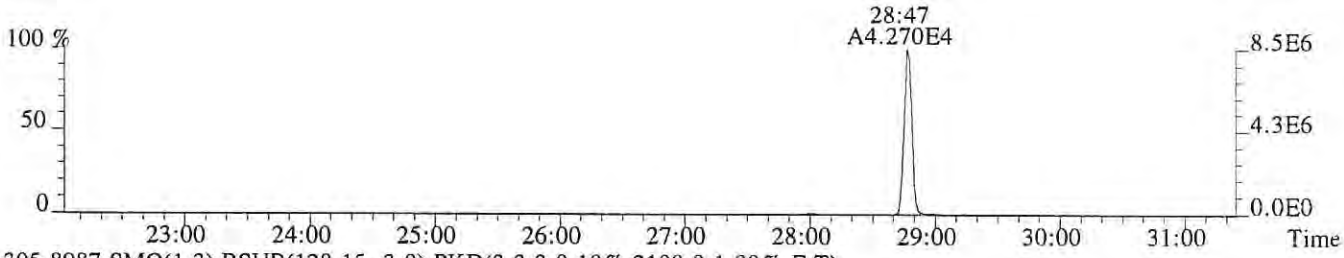
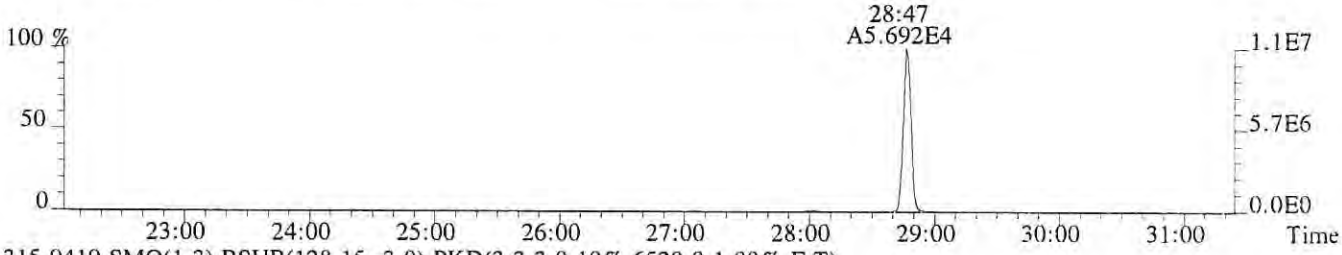
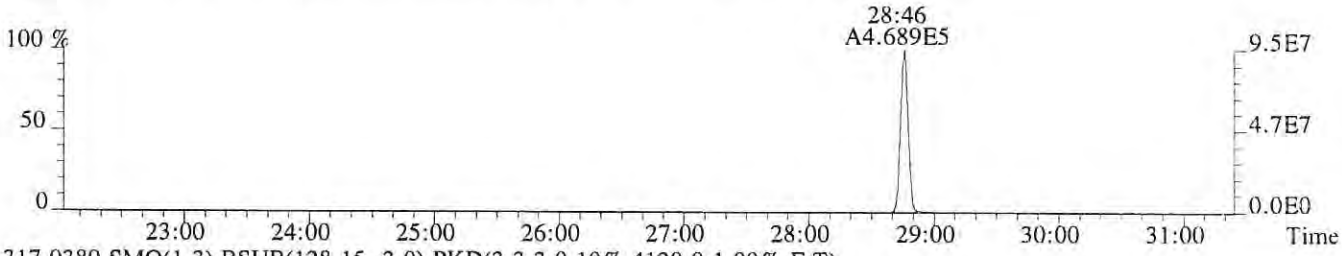
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



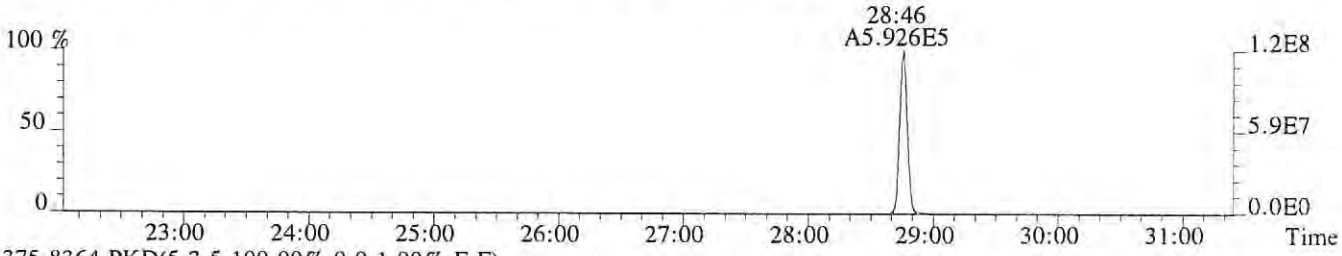
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



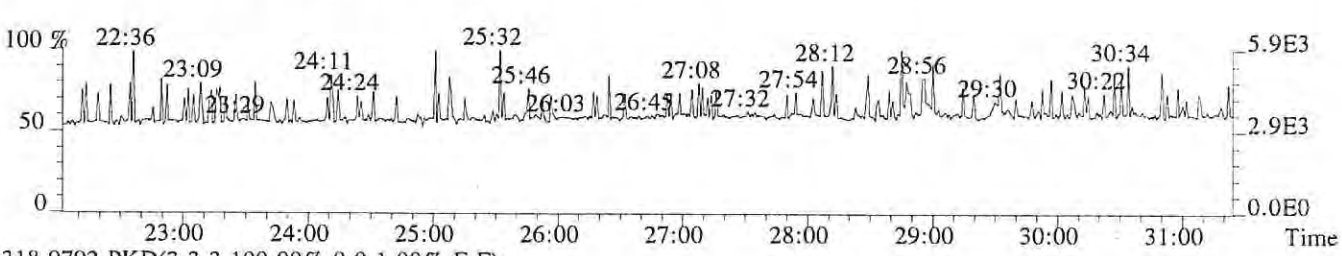
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



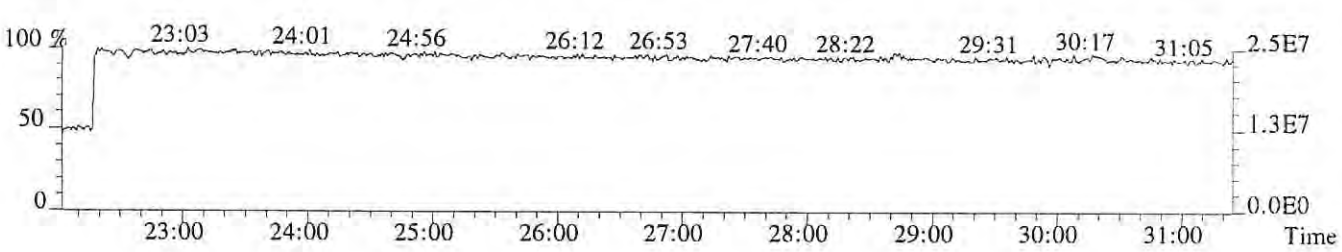
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



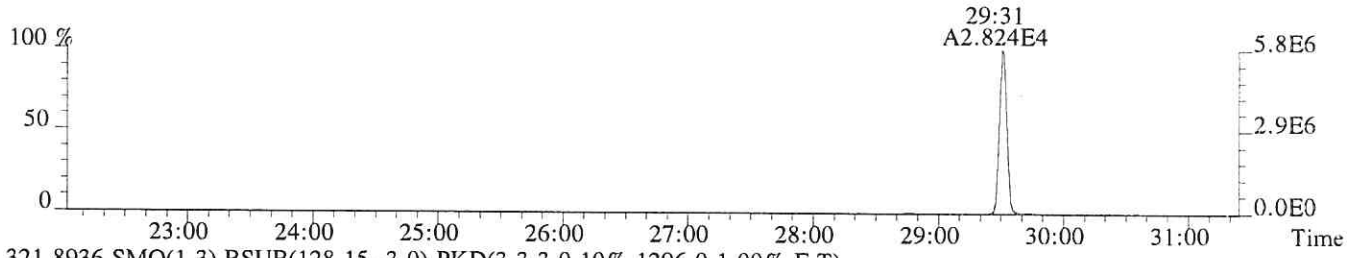
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



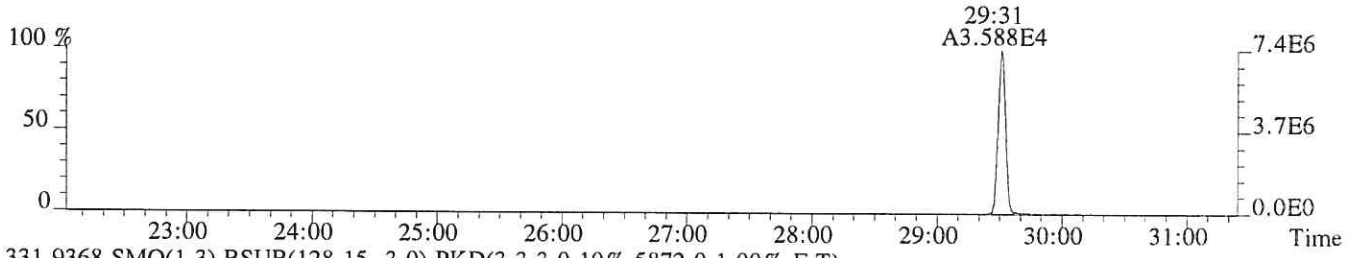
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



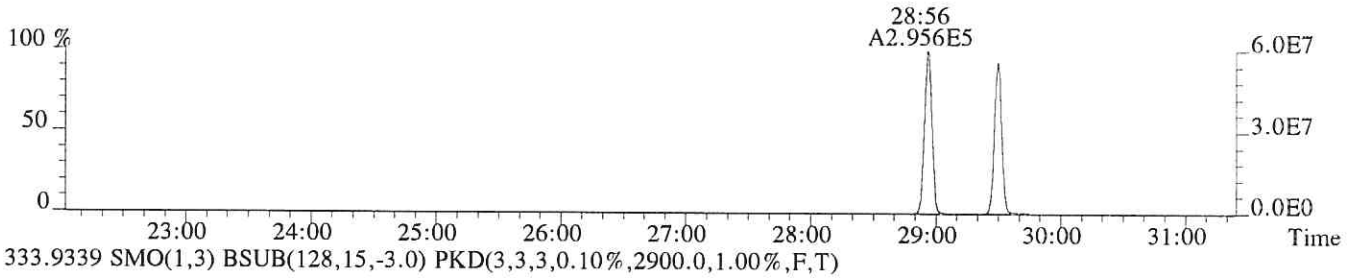
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



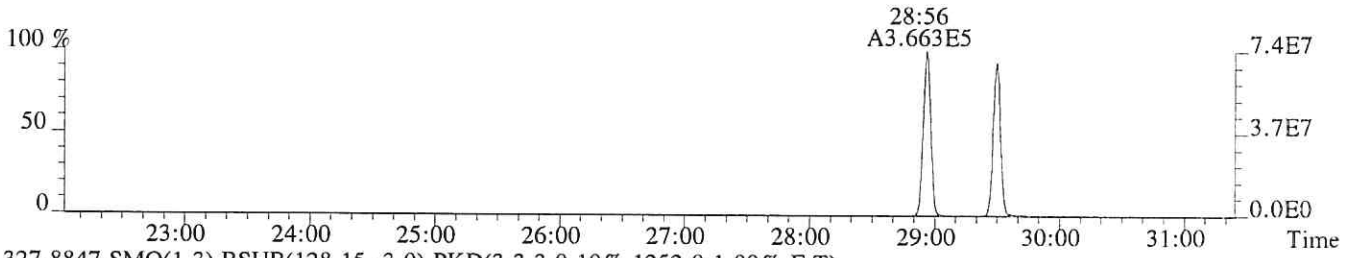
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



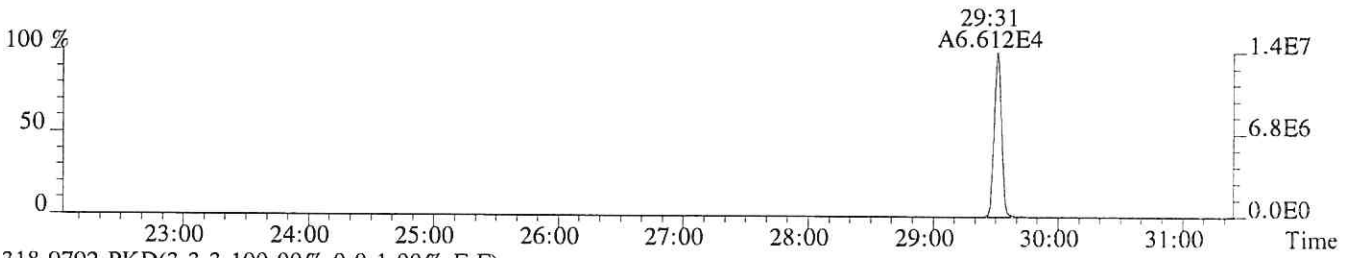
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



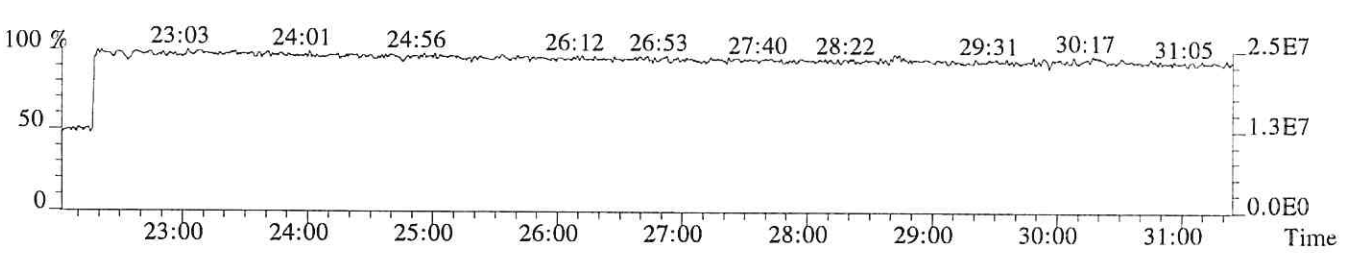
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



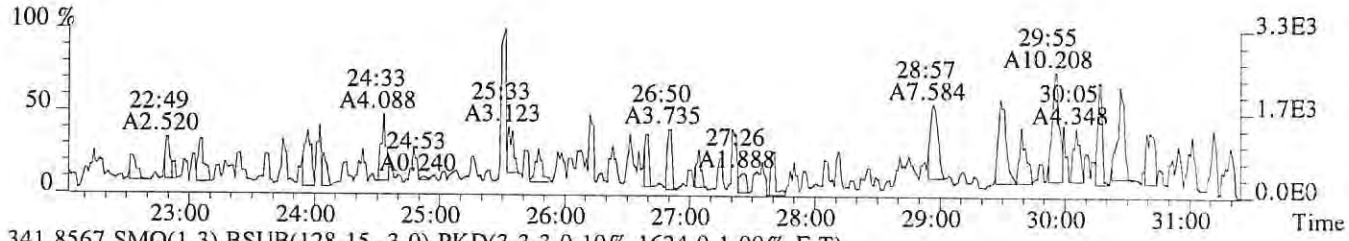
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



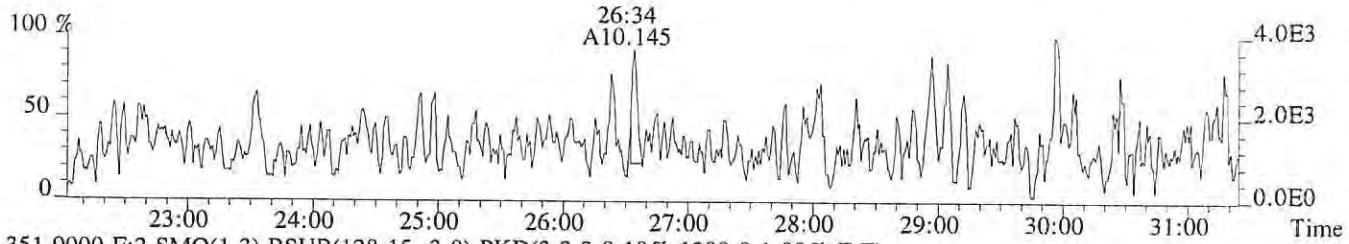
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



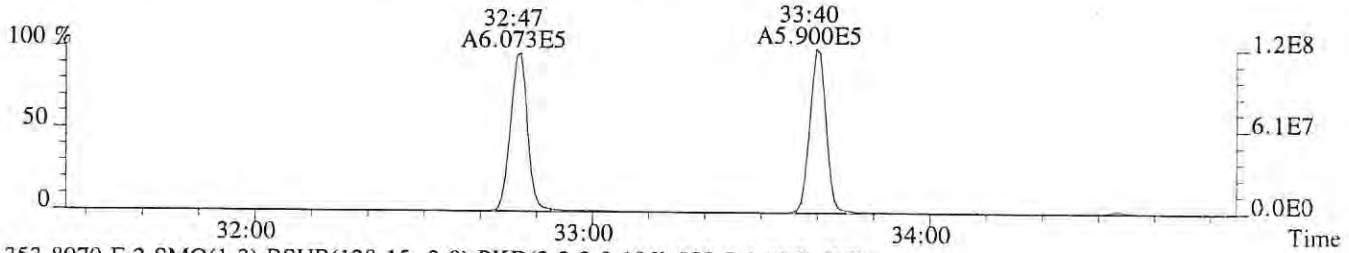
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



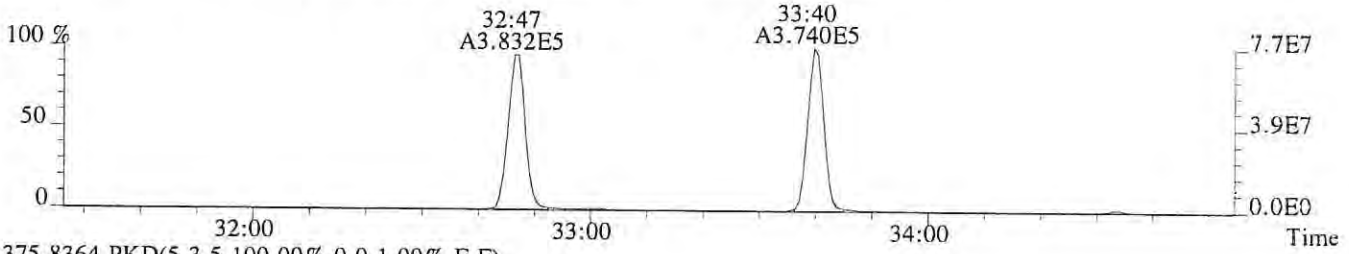
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



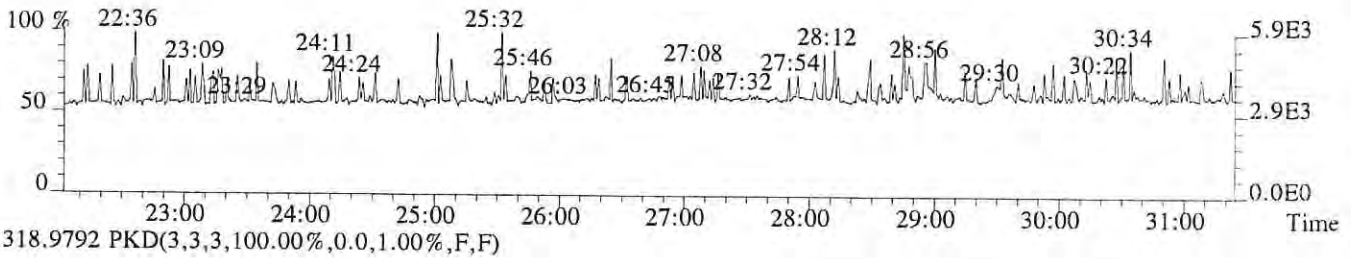
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



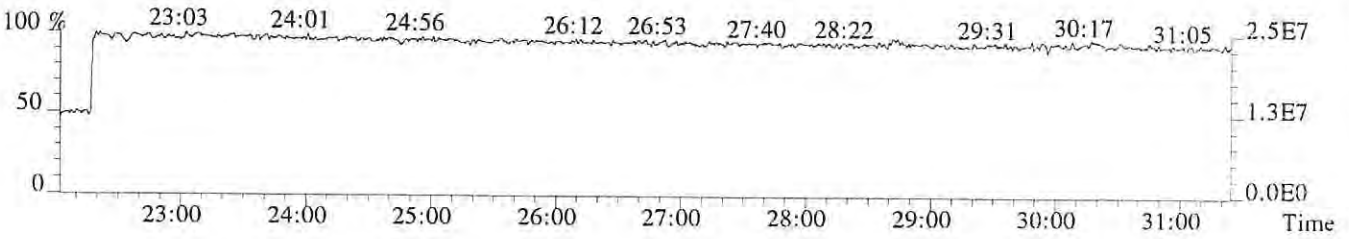
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



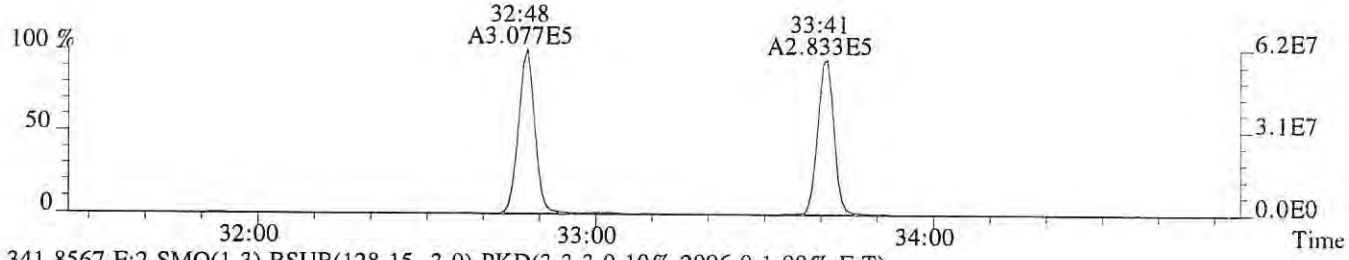
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



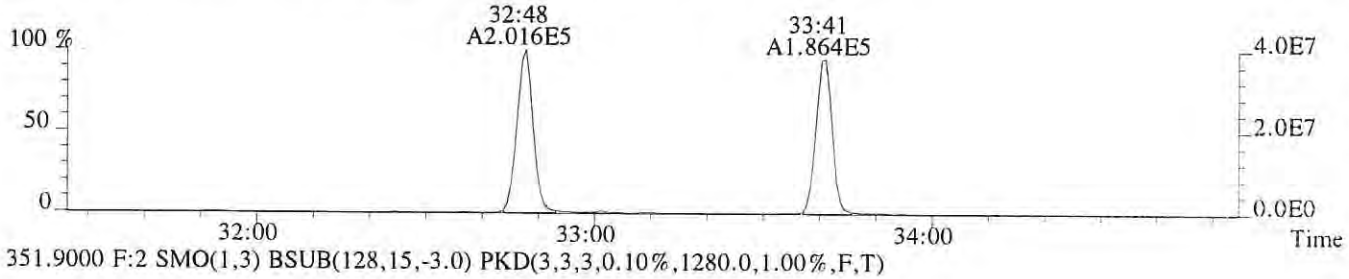
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



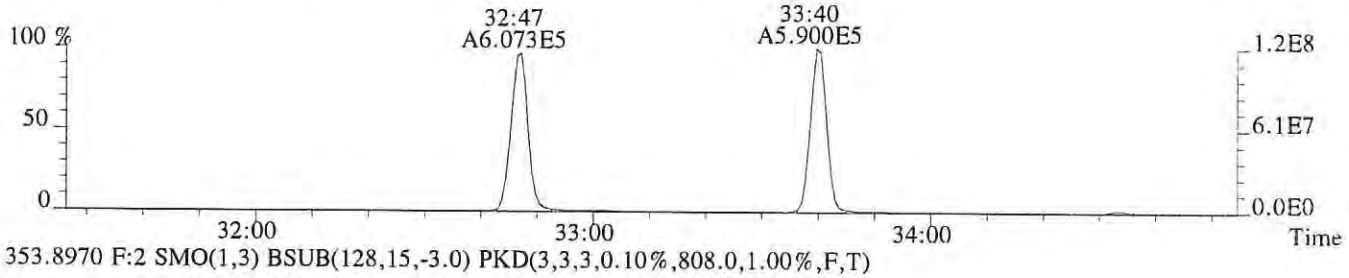
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



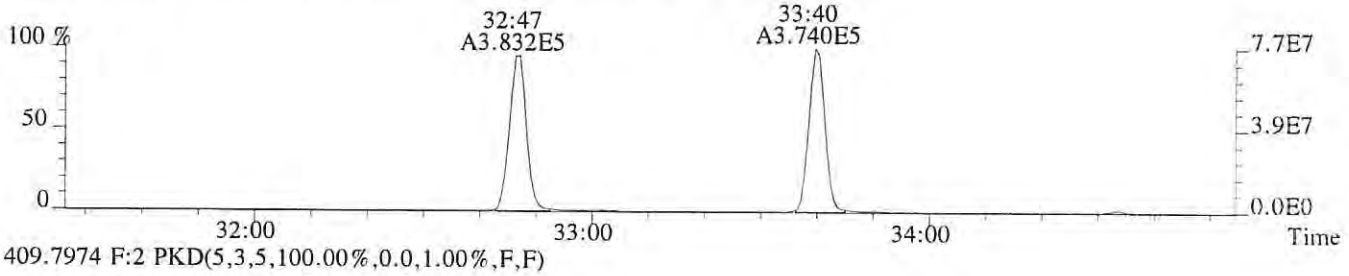
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



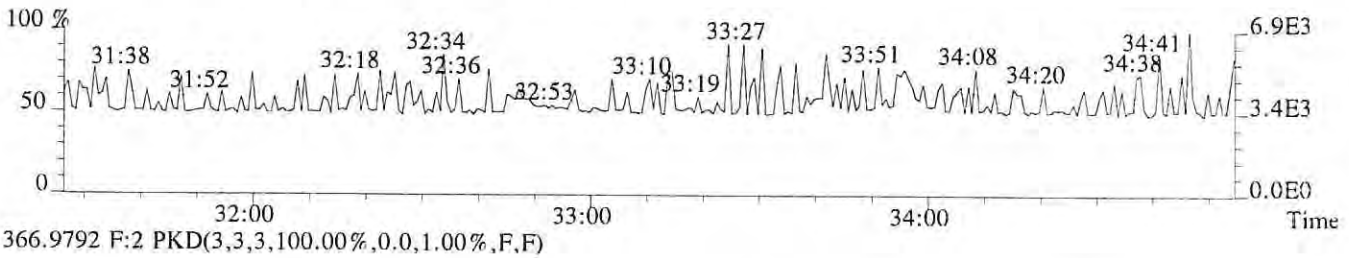
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



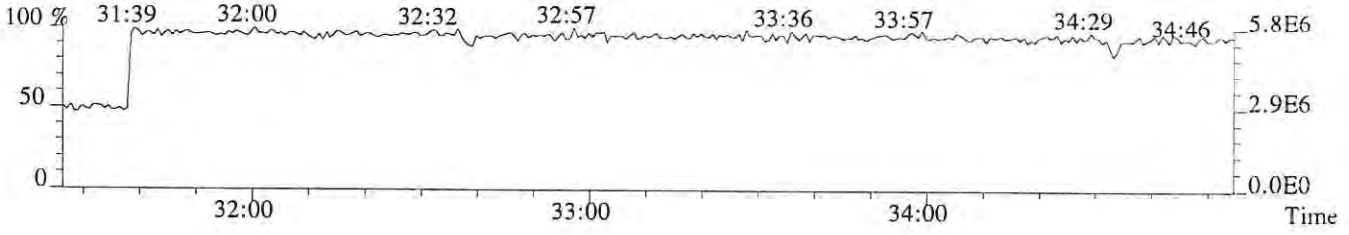
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



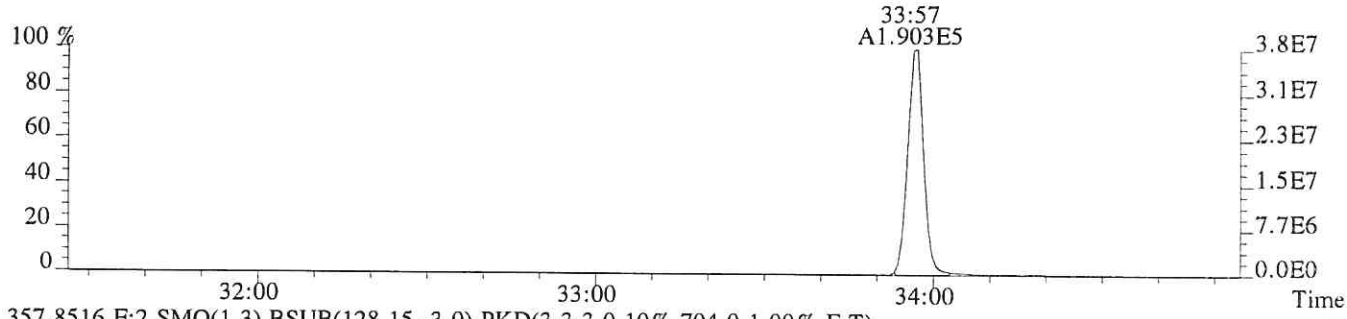
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



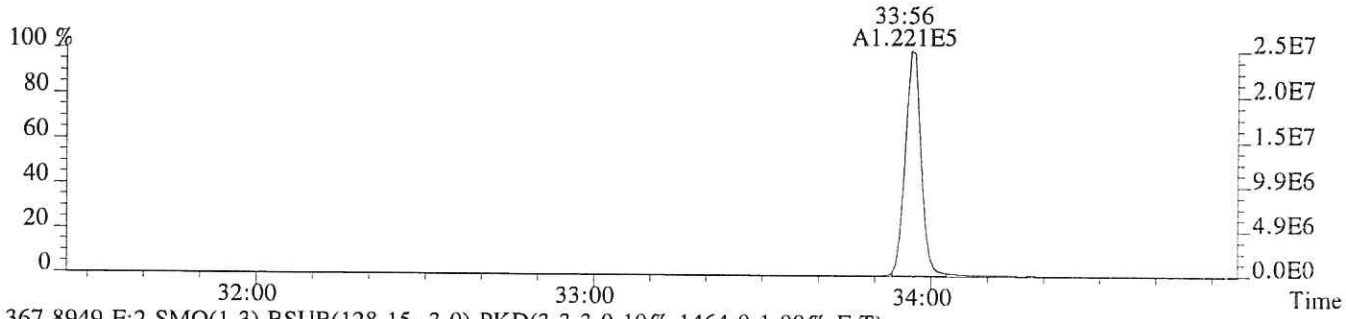
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



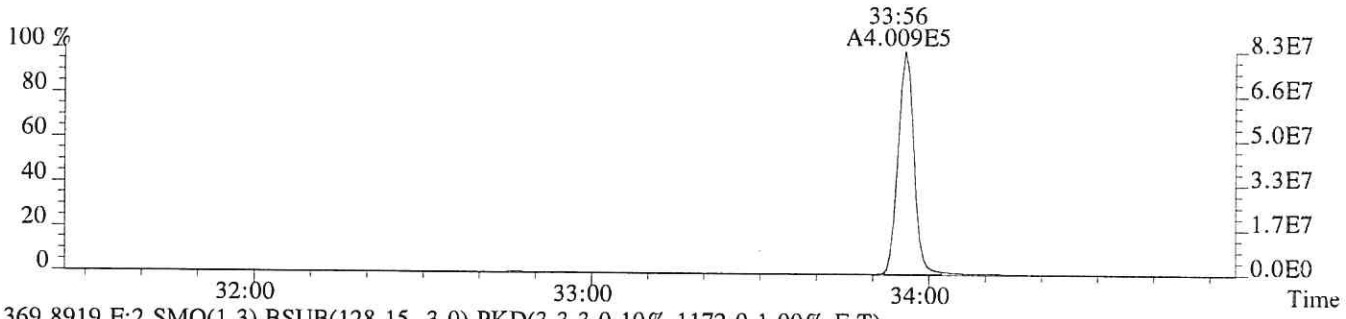
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



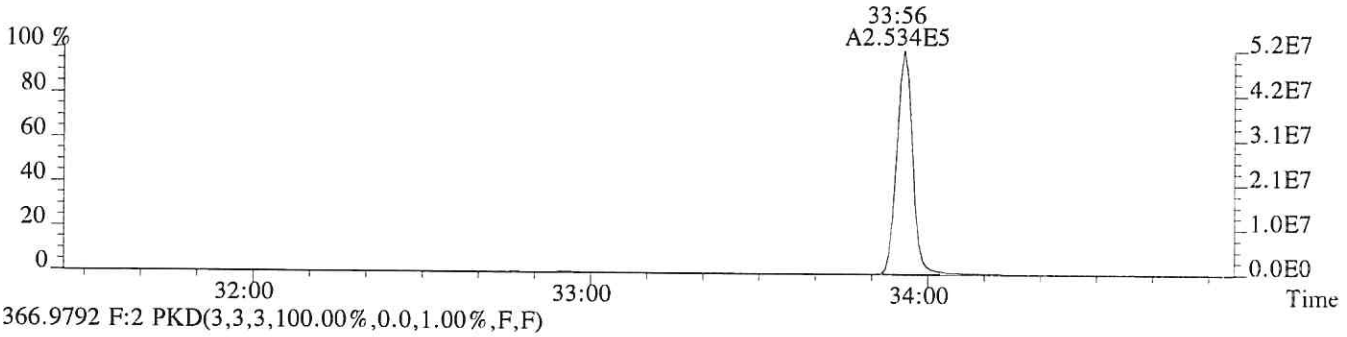
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



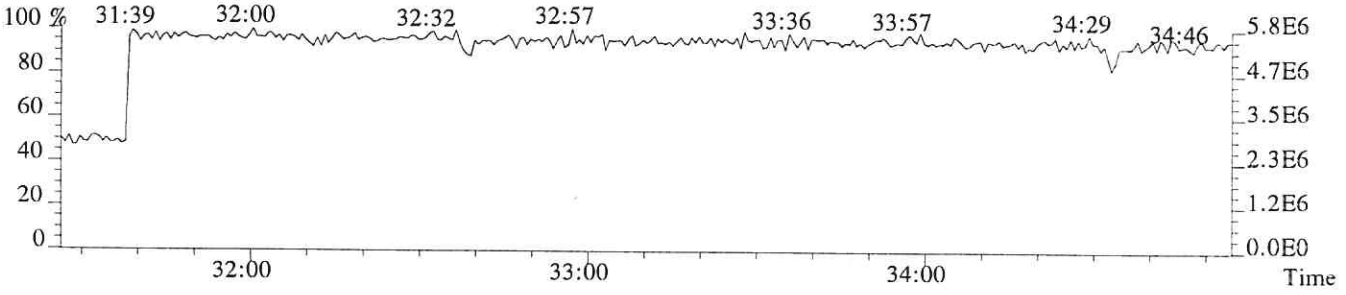
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



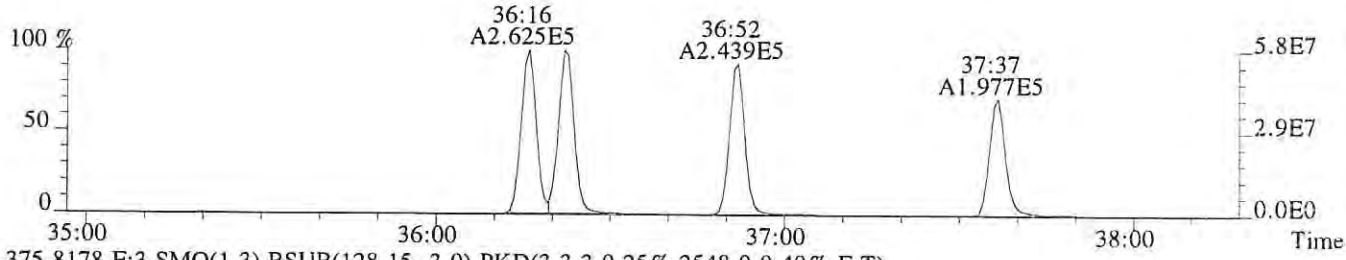
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



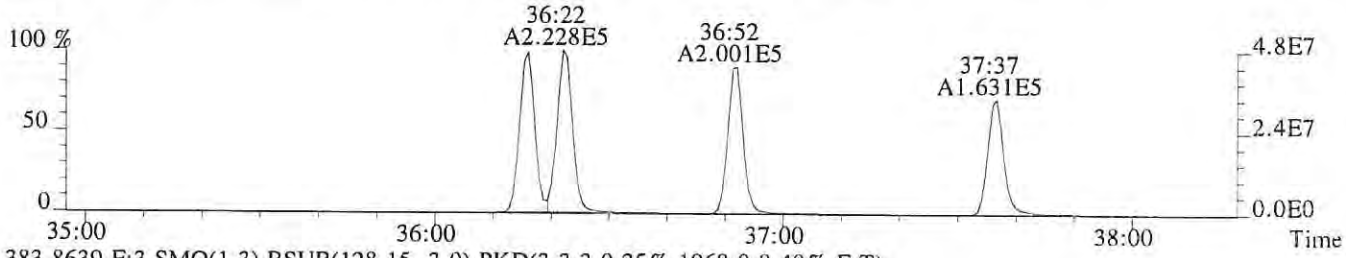
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



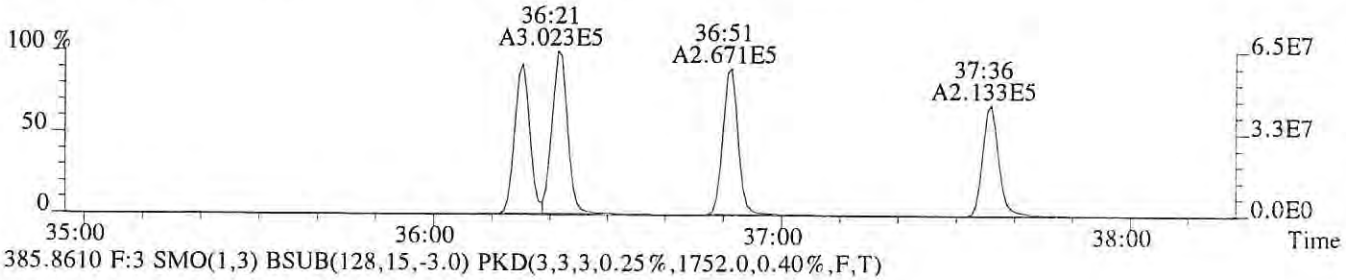
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



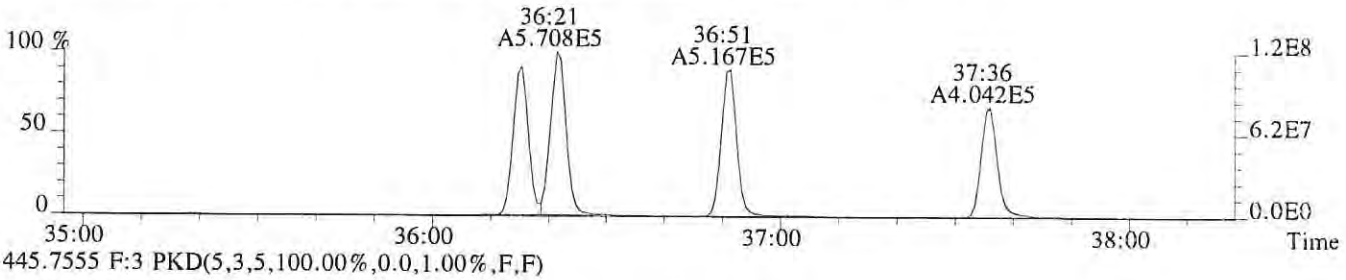
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



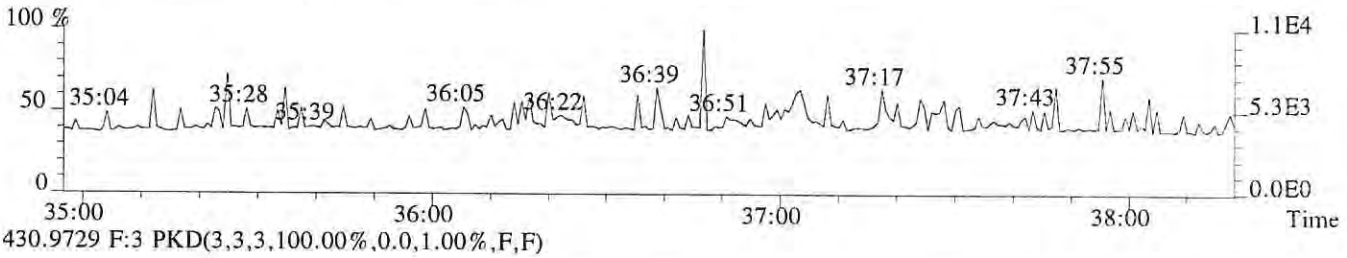
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



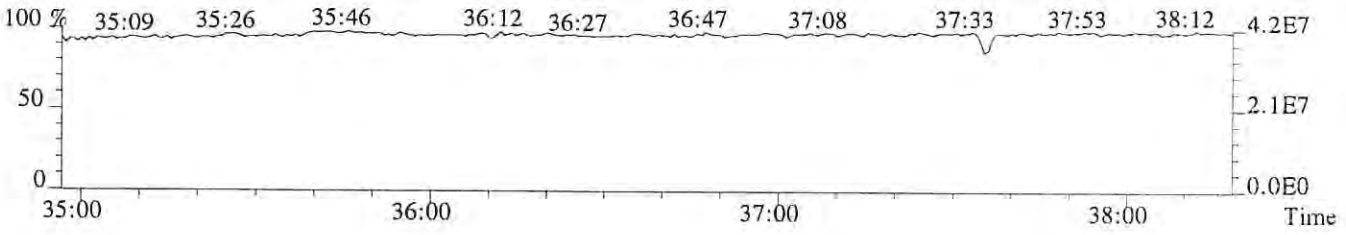
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



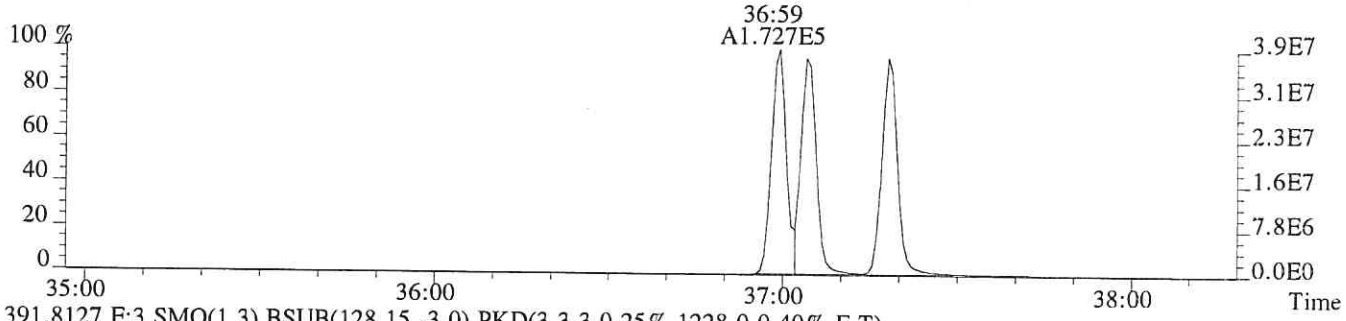
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



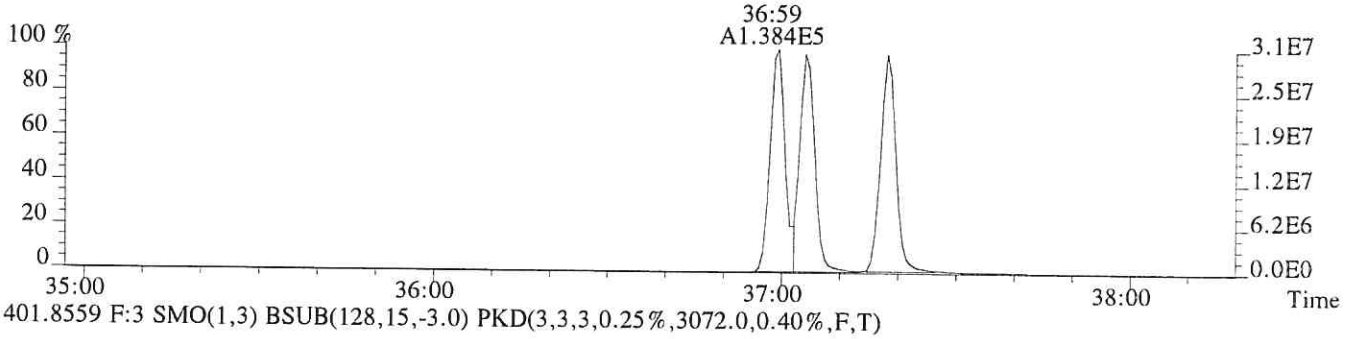
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



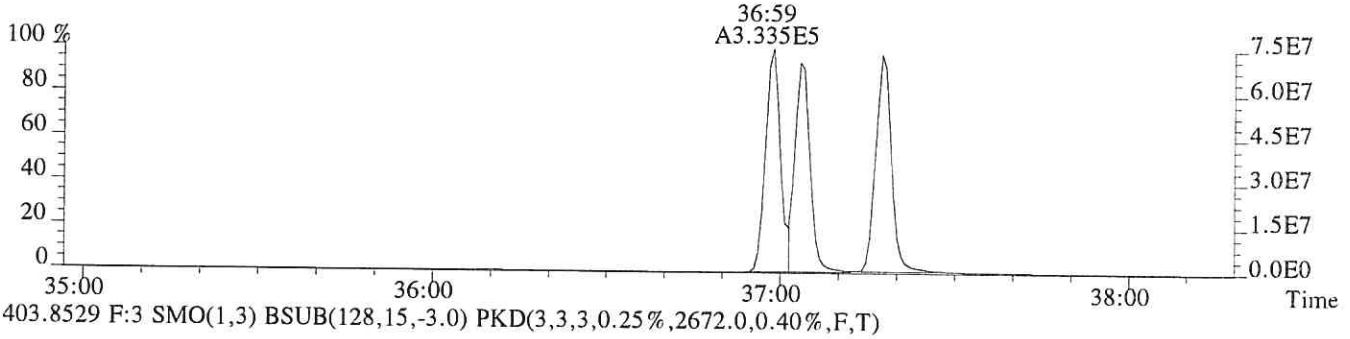
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



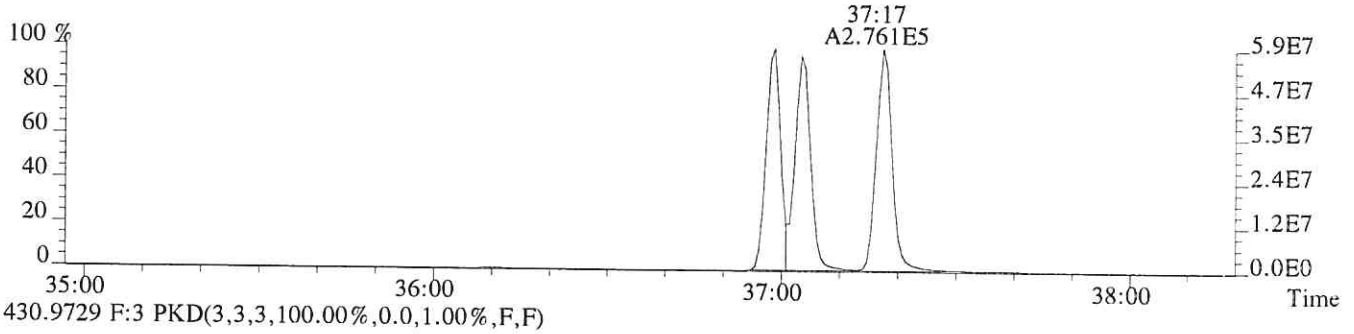
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



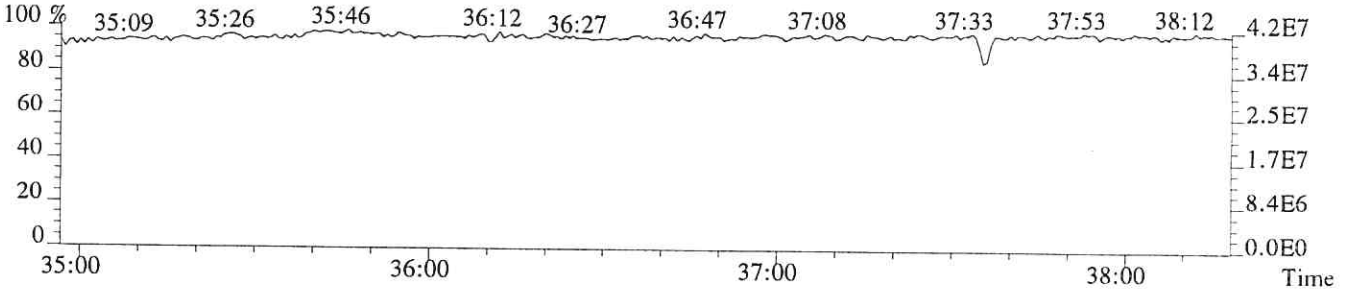
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



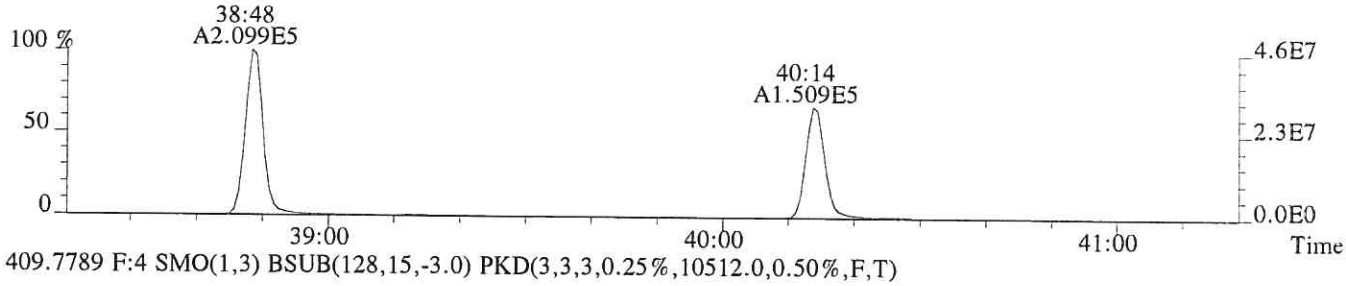
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)



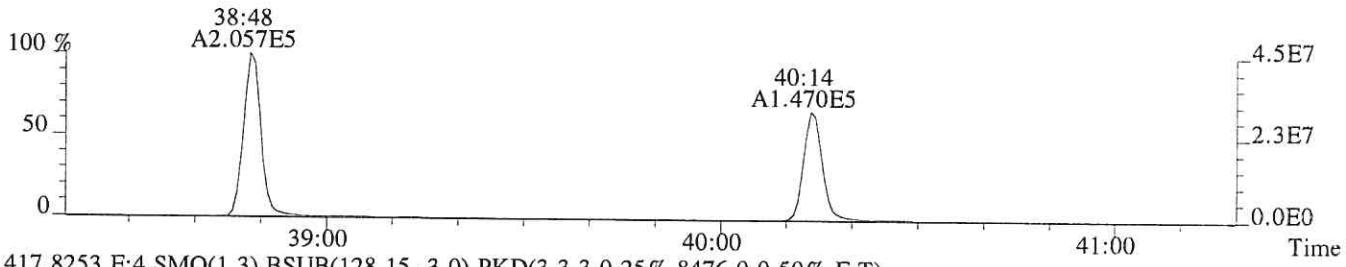
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



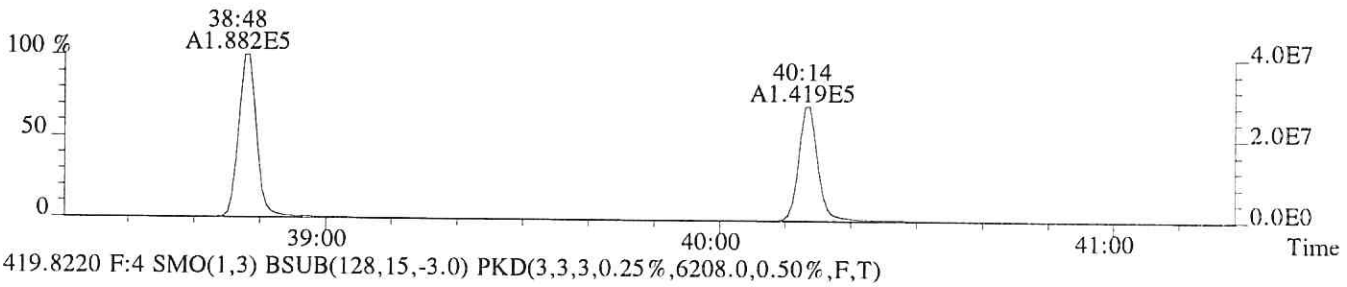
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



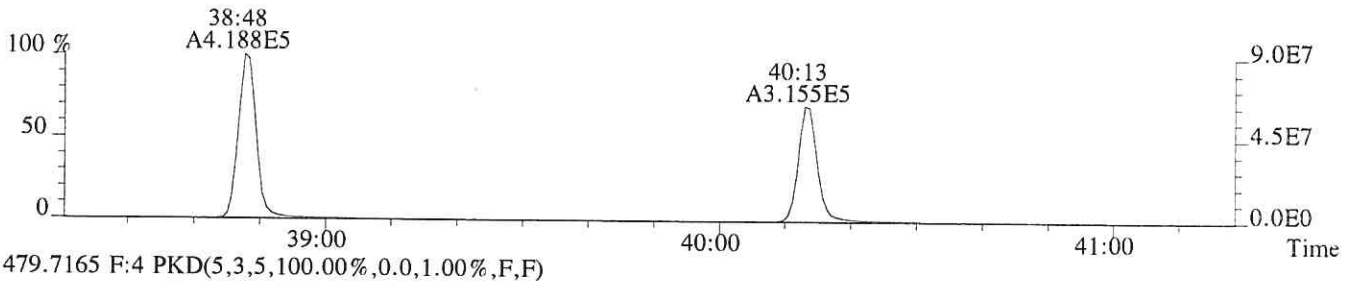
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



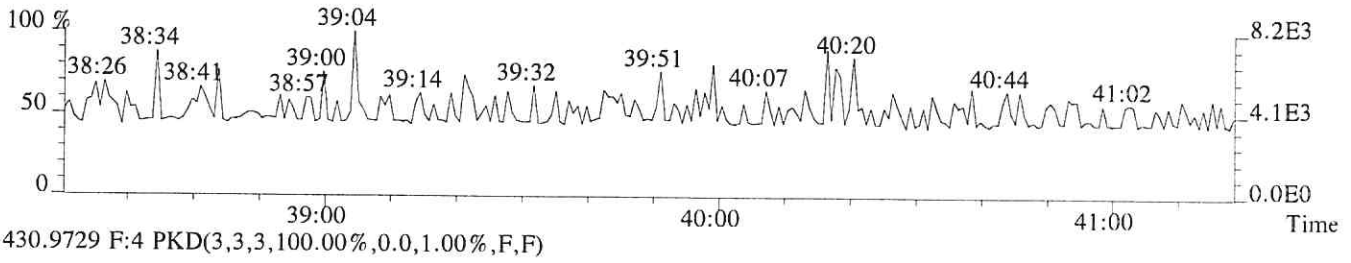
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



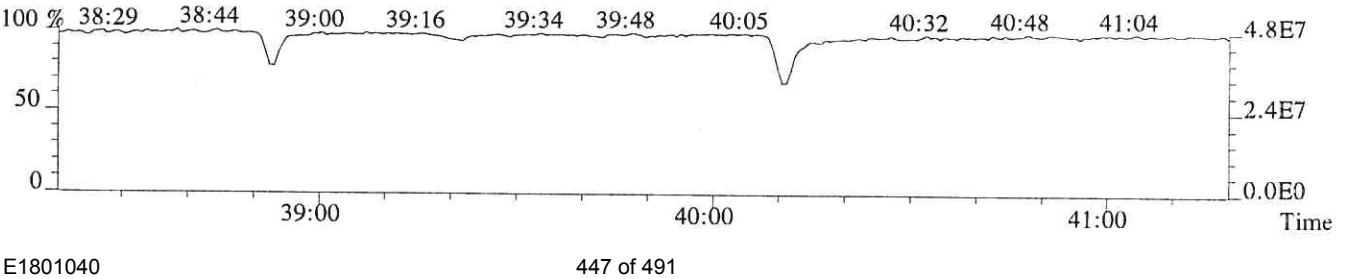
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



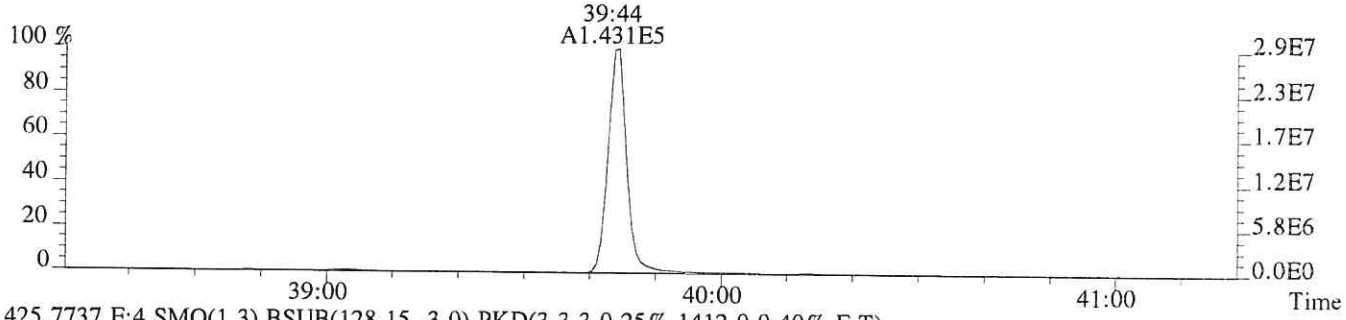
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



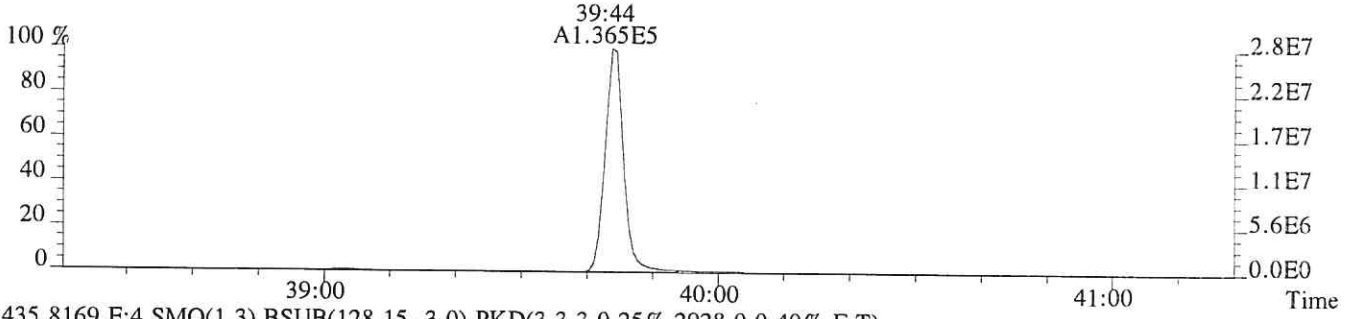
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



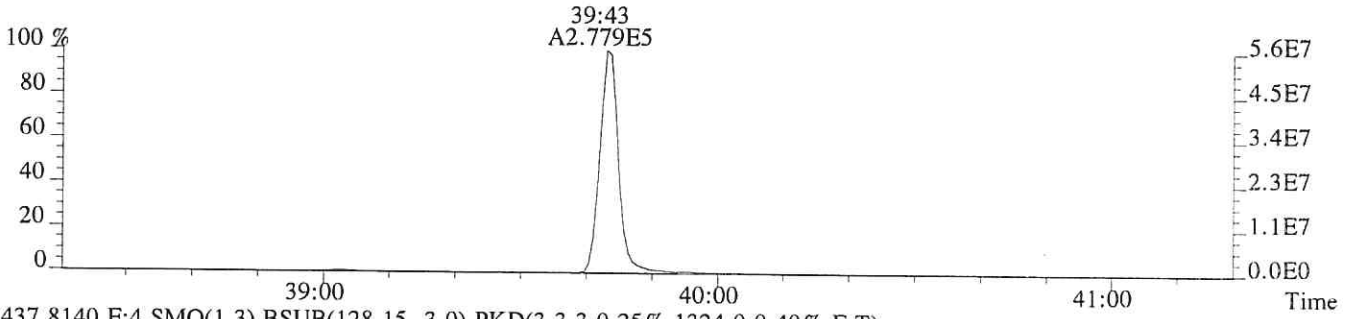
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



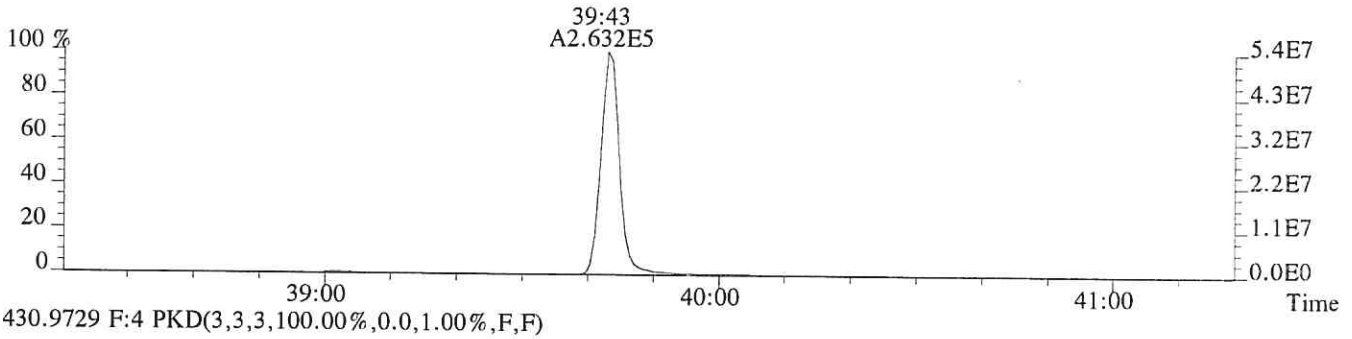
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



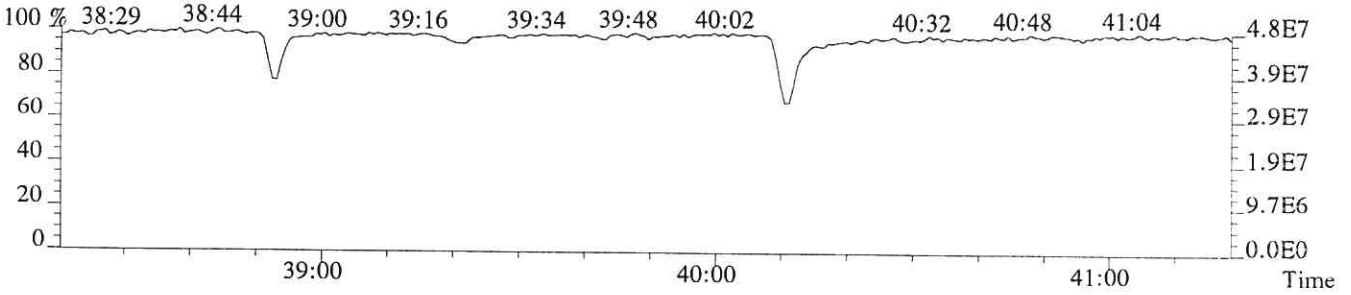
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



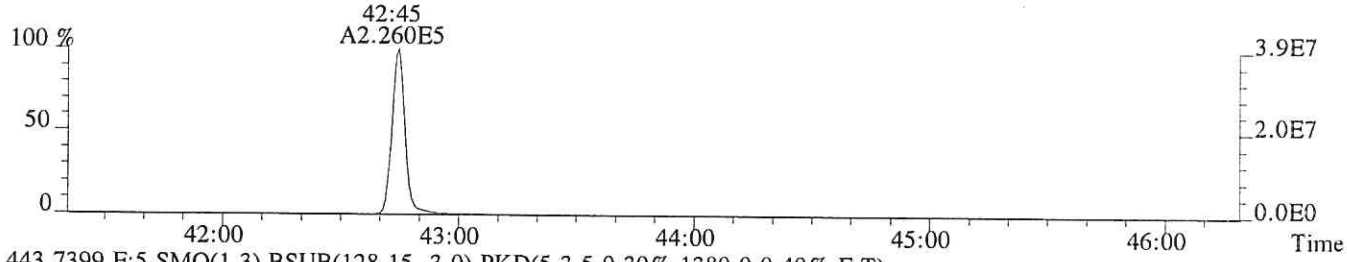
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



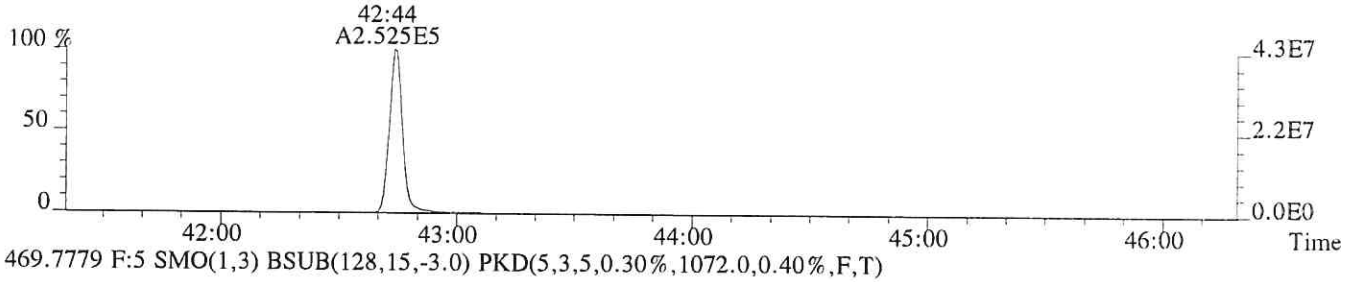
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



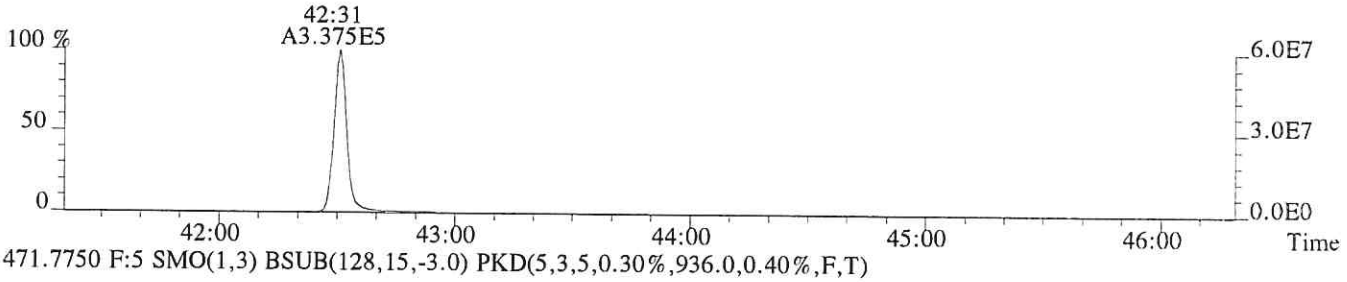
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



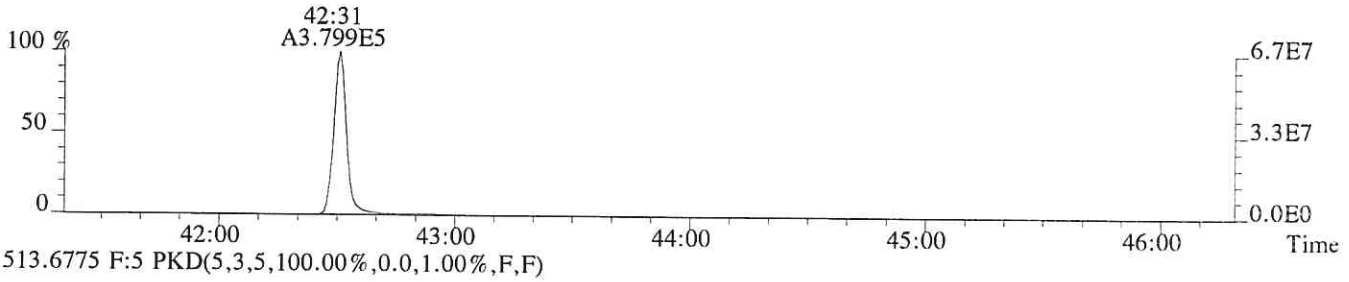
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



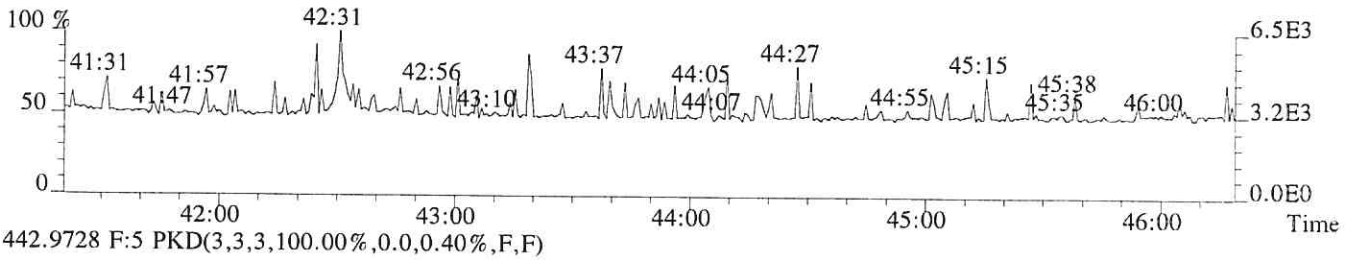
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



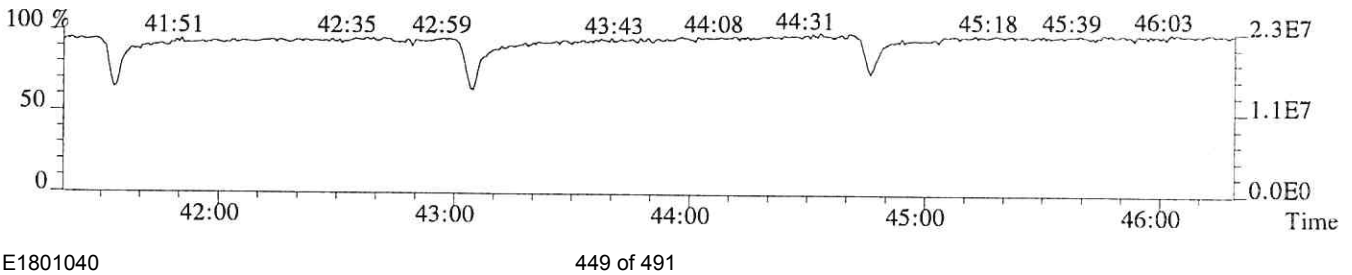
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



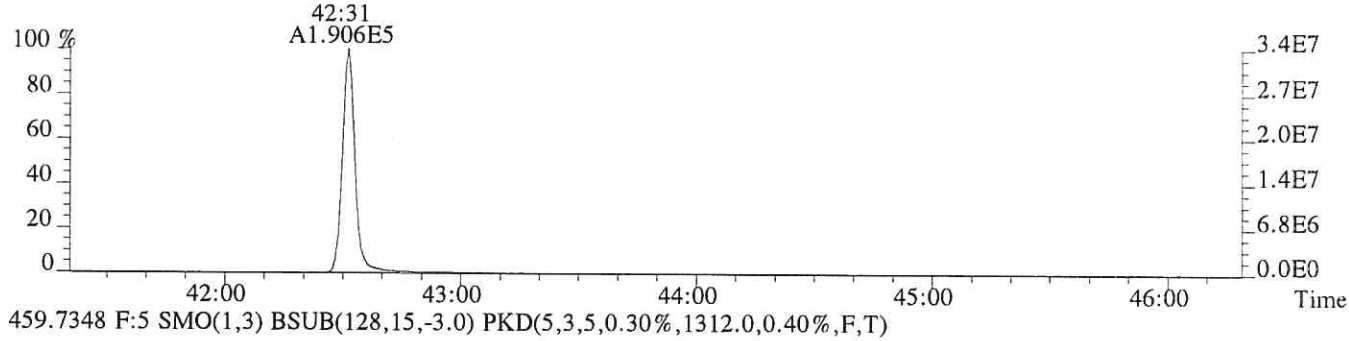
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



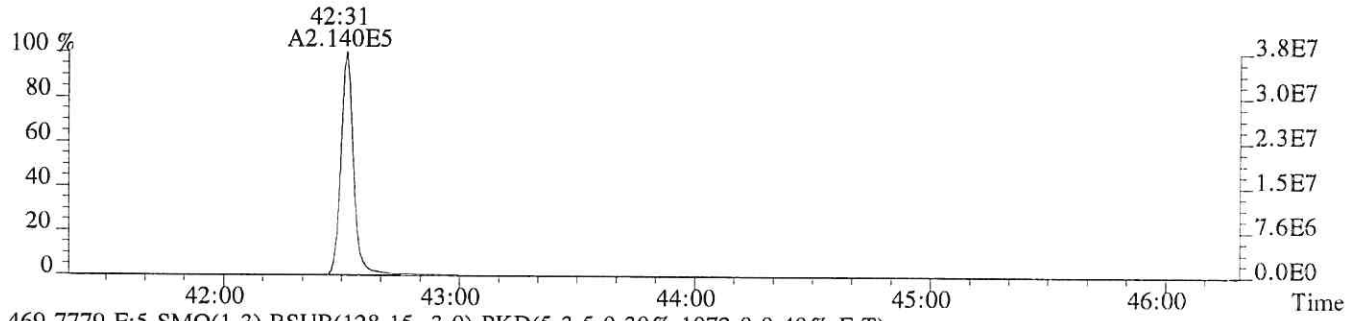
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



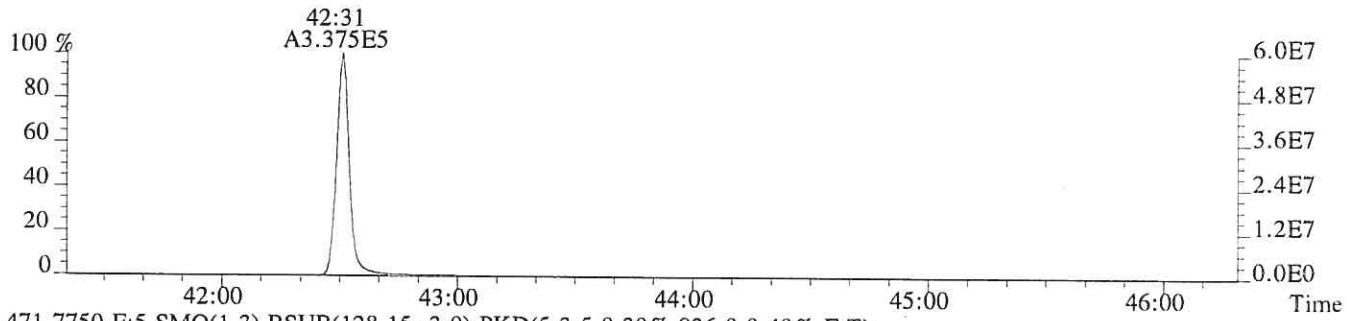
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



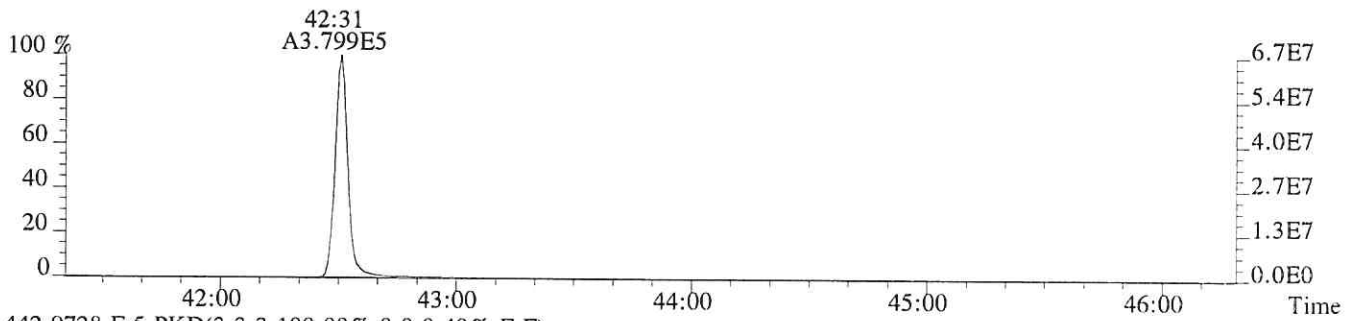
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



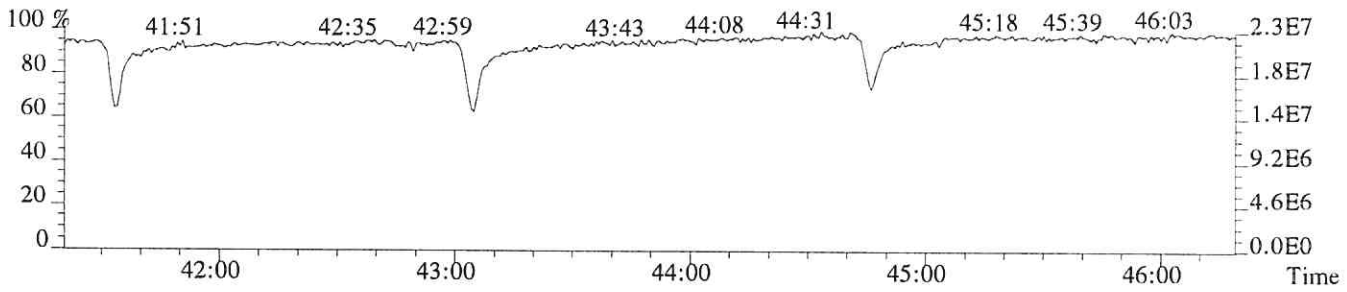
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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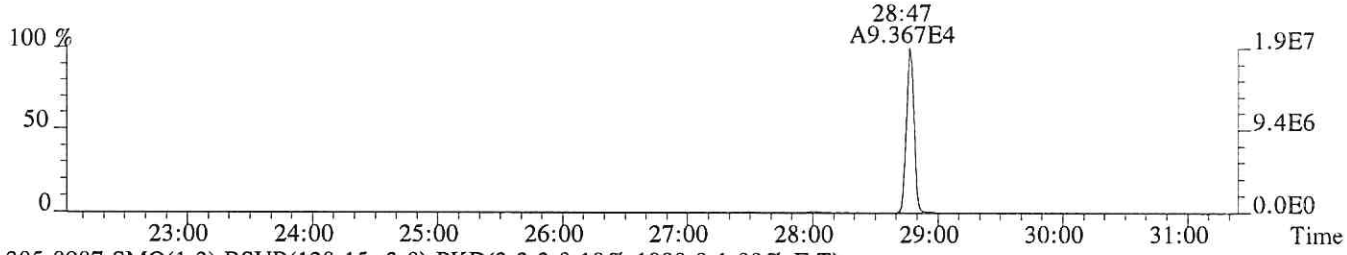
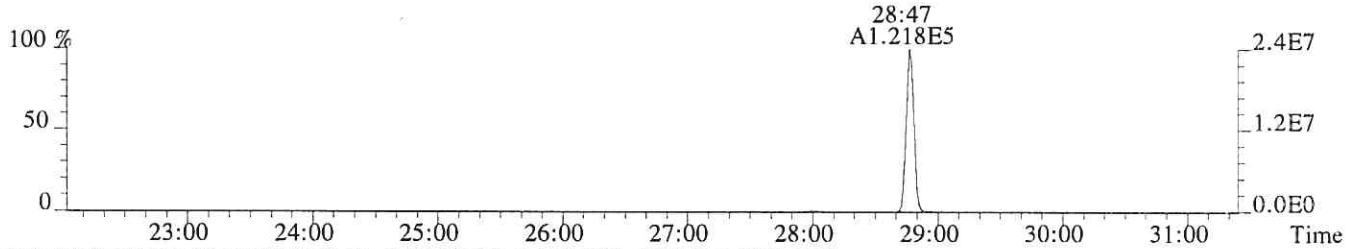
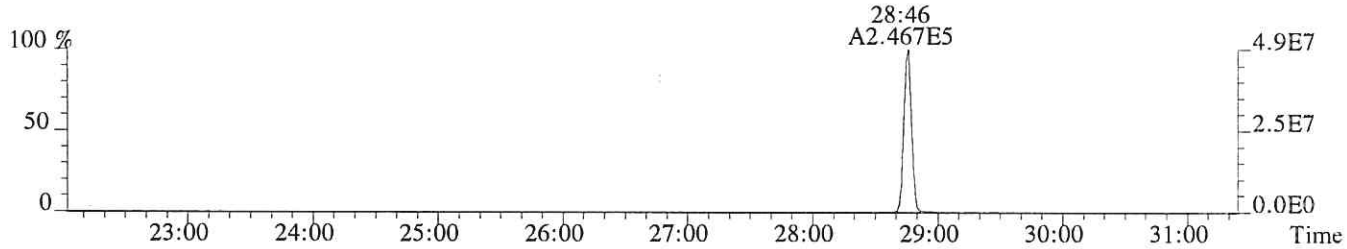
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



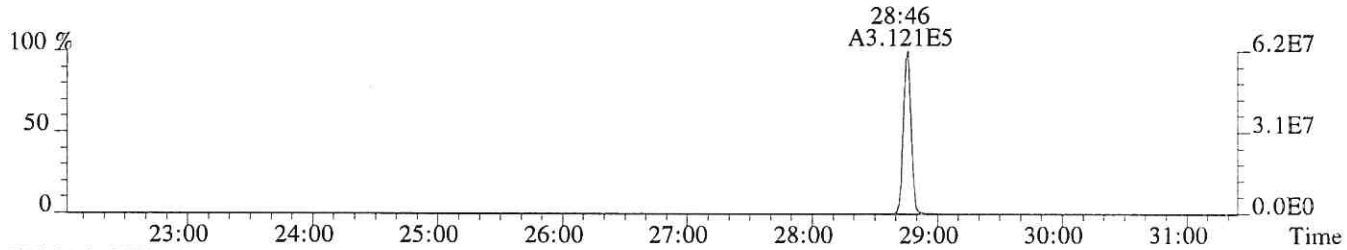
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



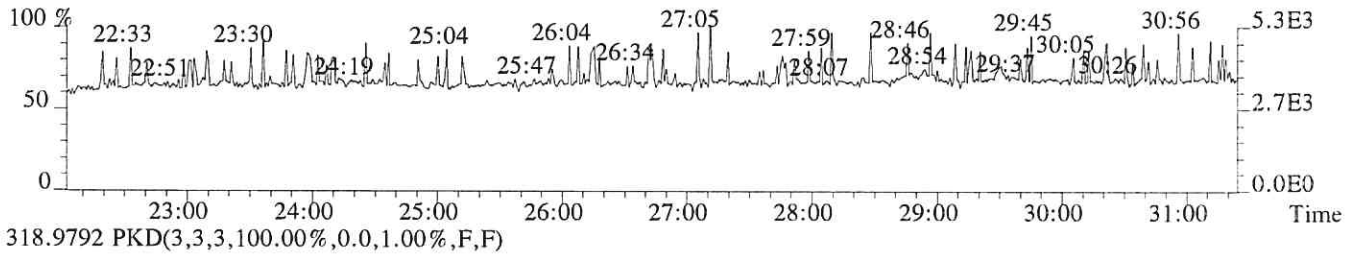
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



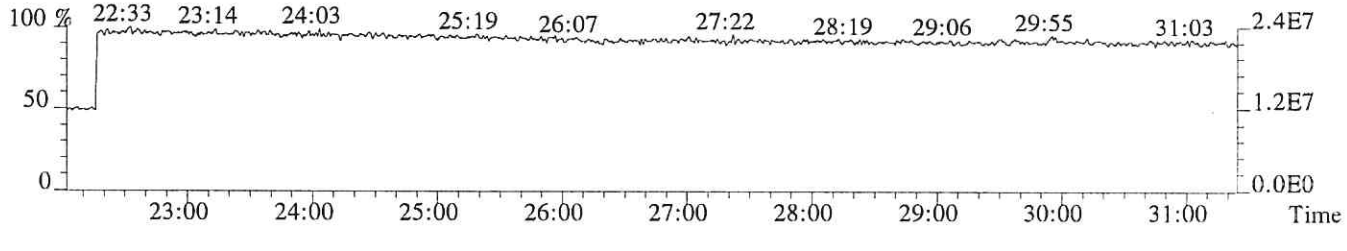
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



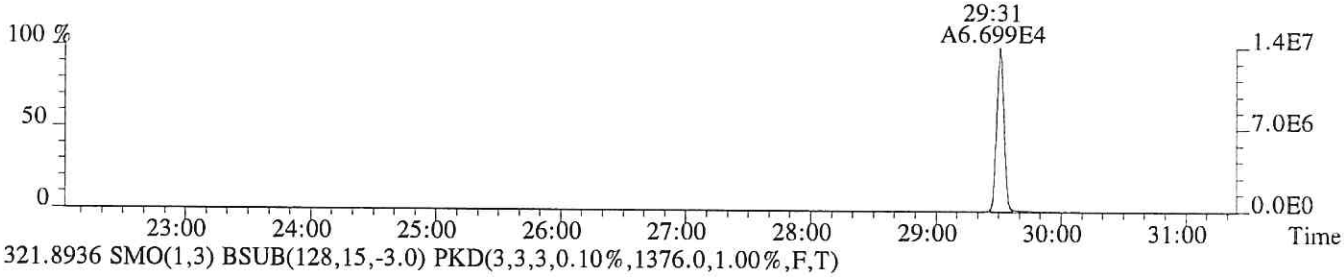
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



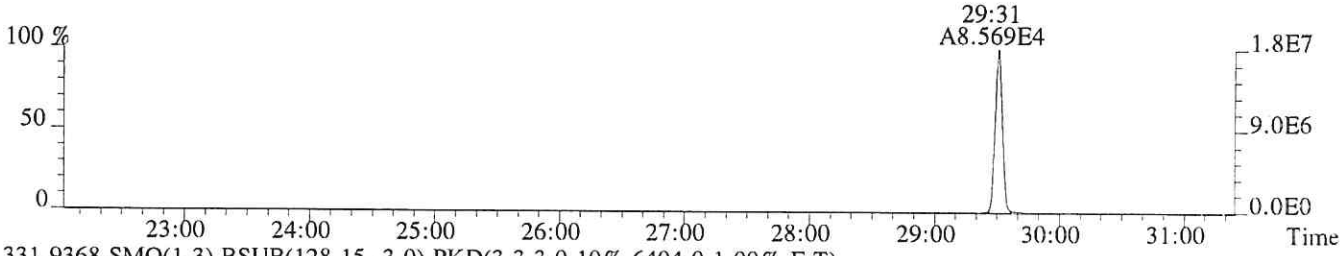
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



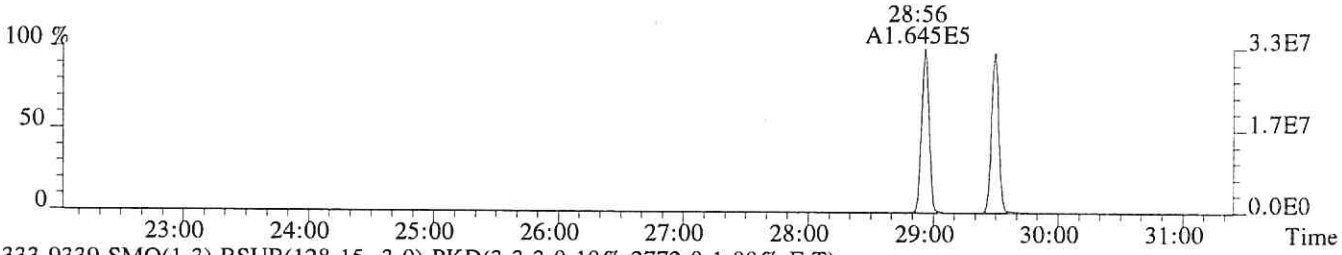
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



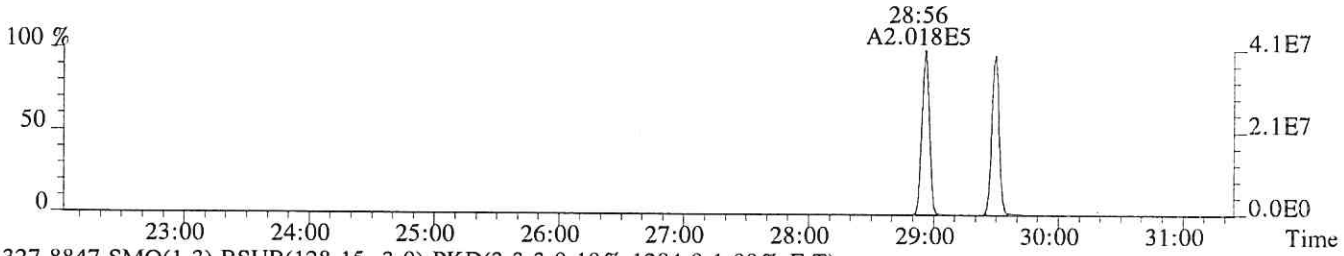
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



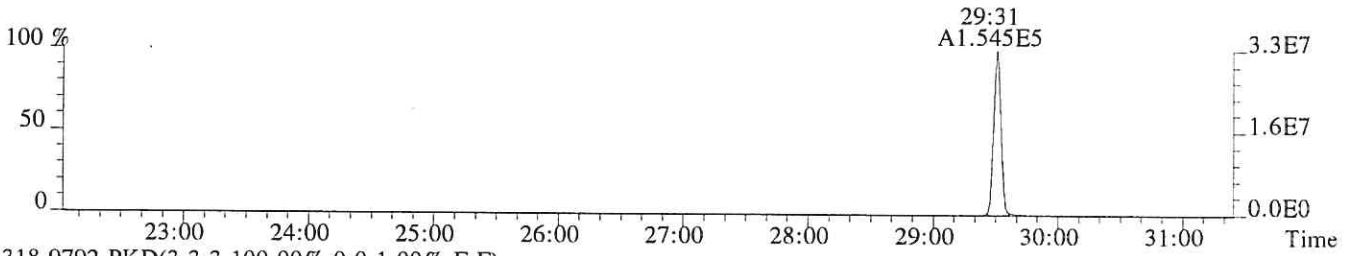
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



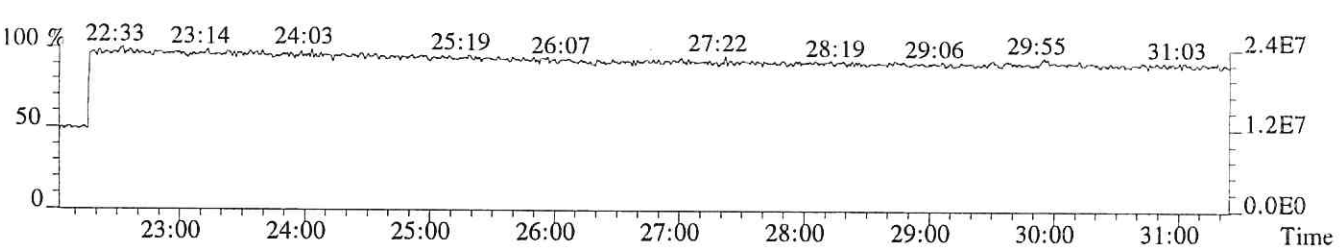
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



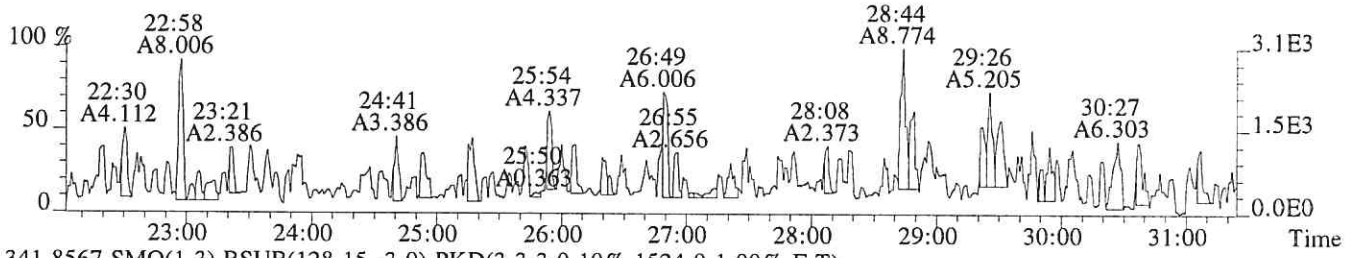
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



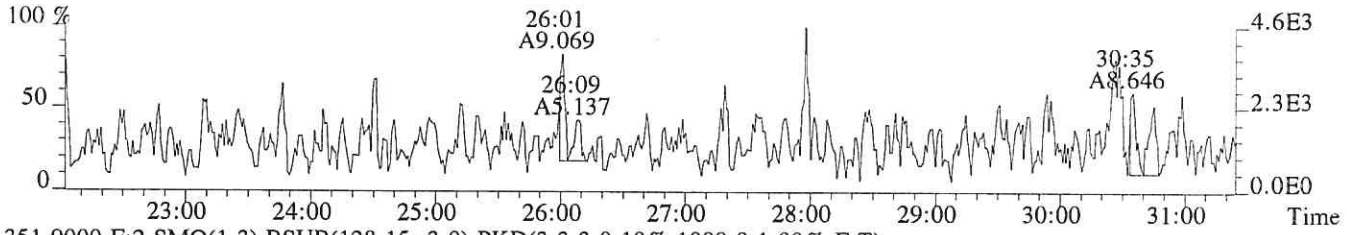
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



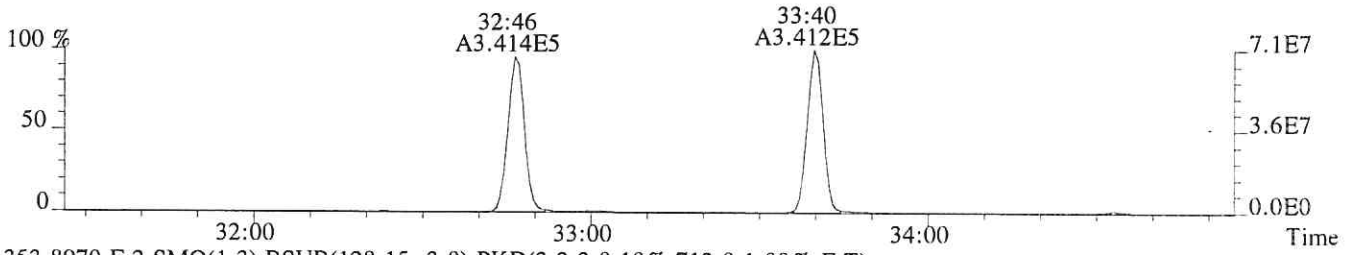
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



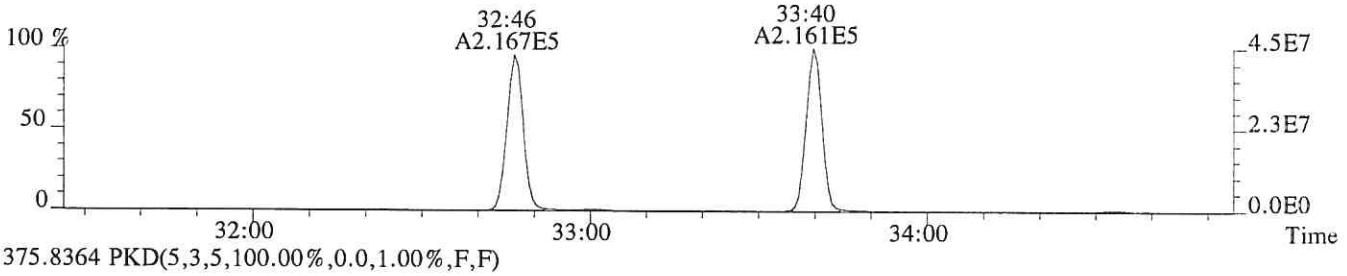
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



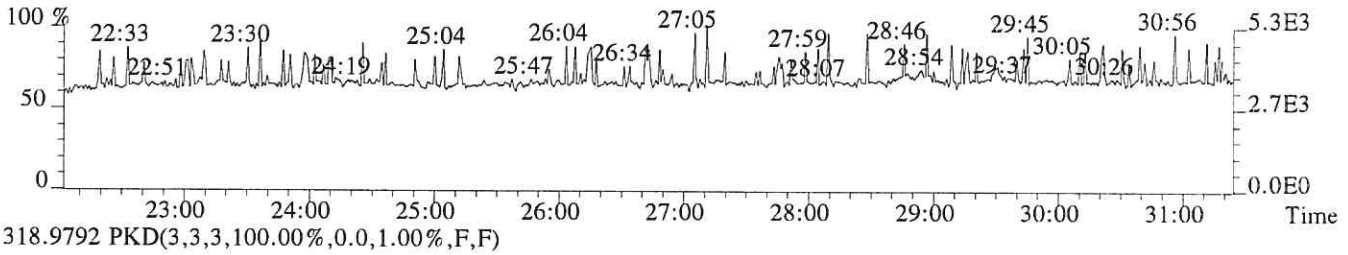
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



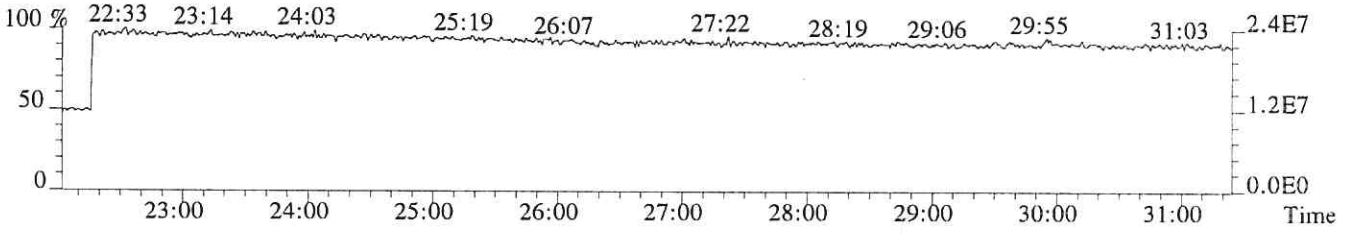
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



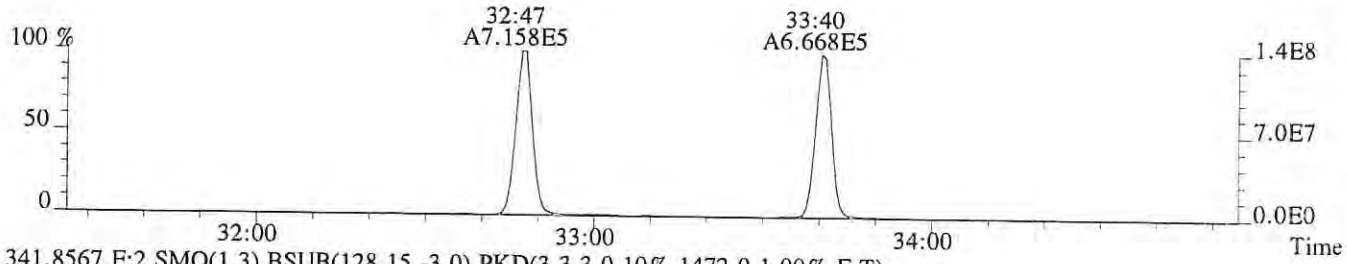
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



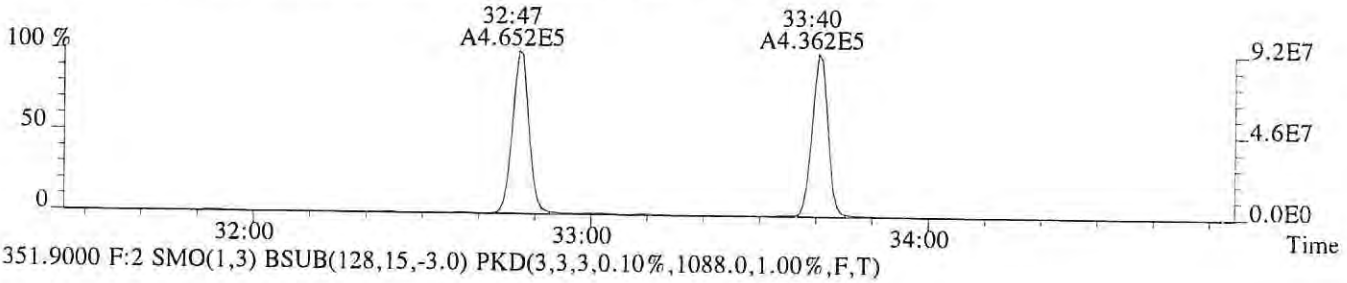
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



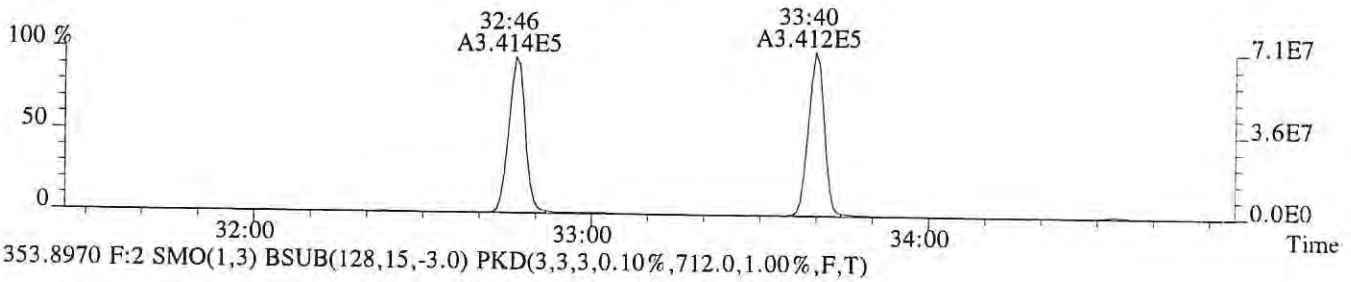
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



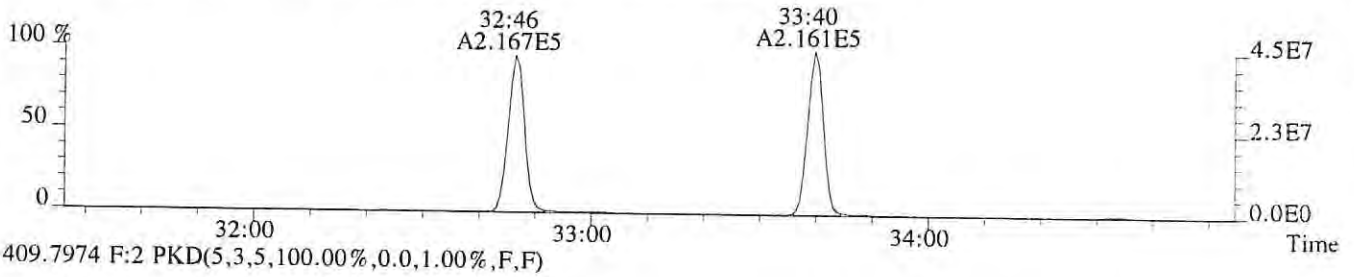
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



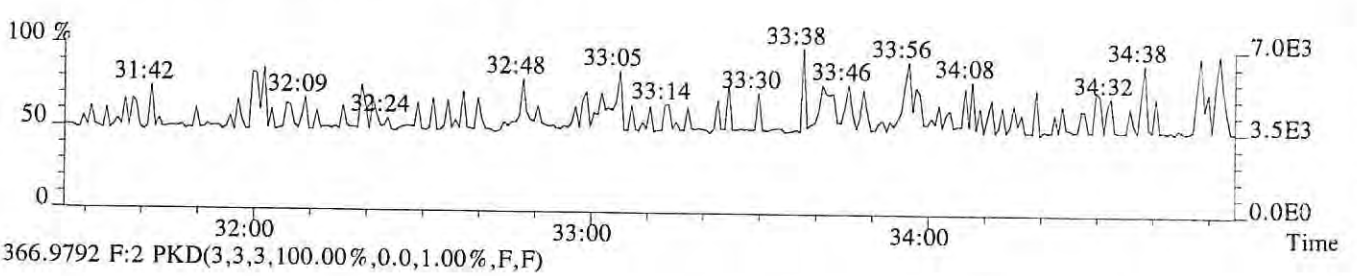
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



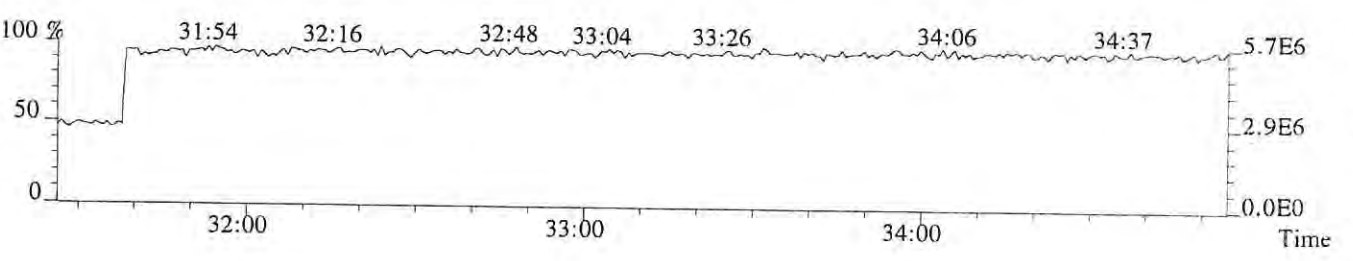
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



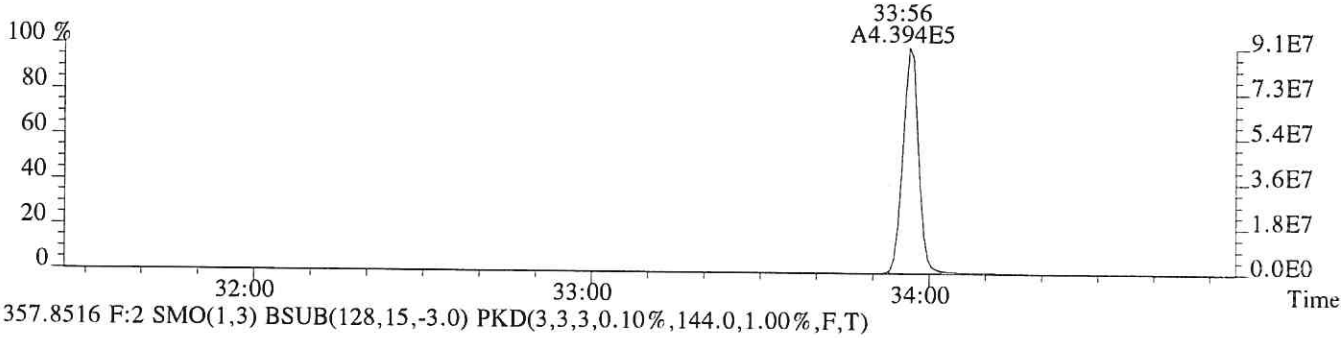
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



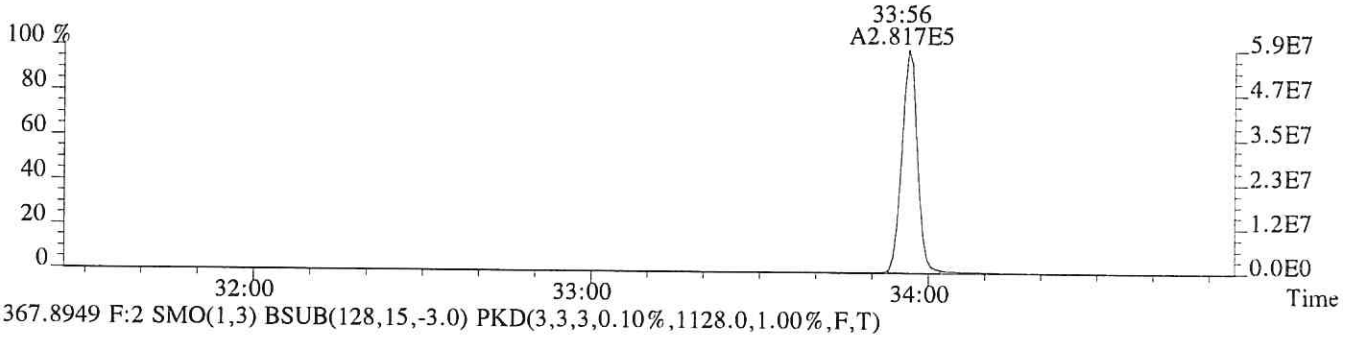
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



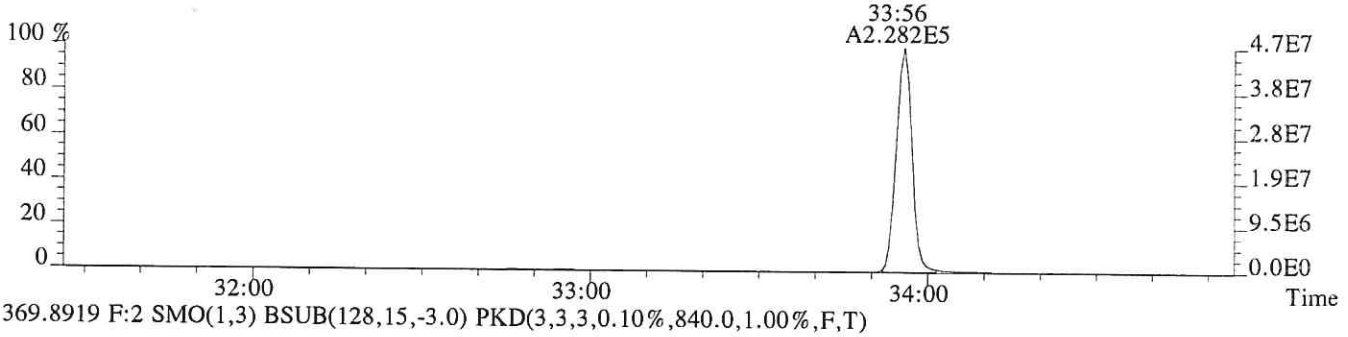
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



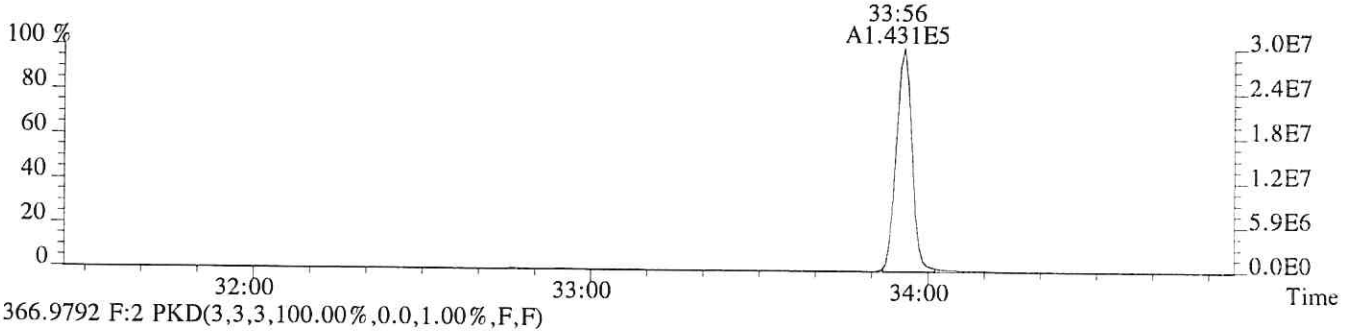
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



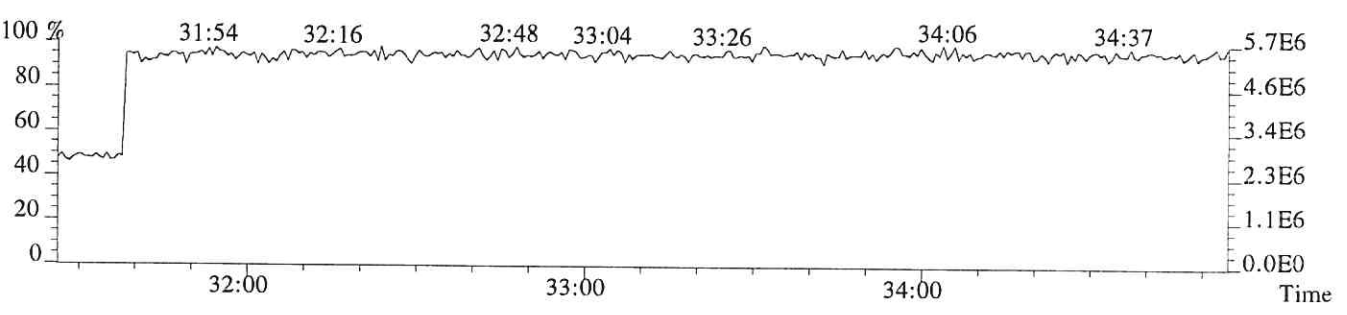
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



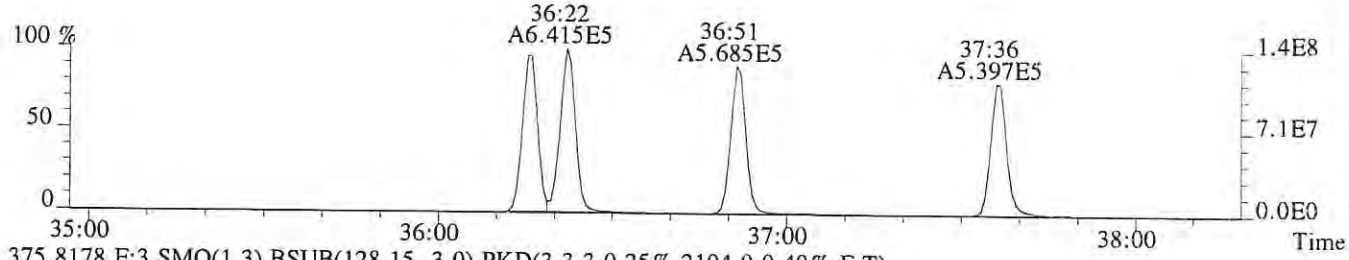
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



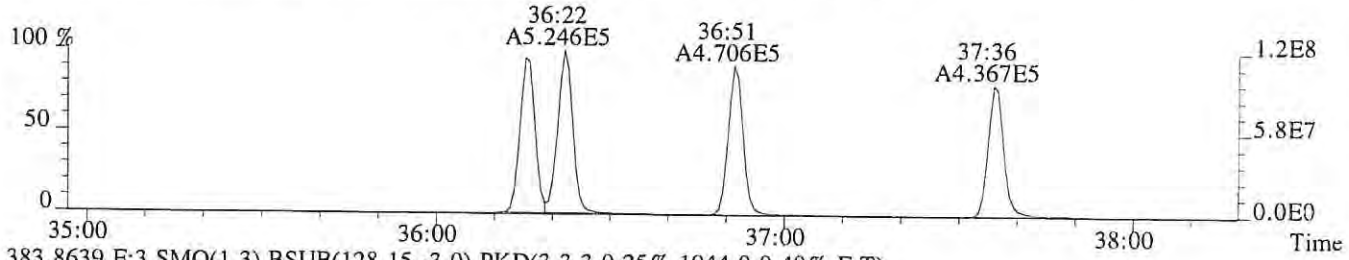
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



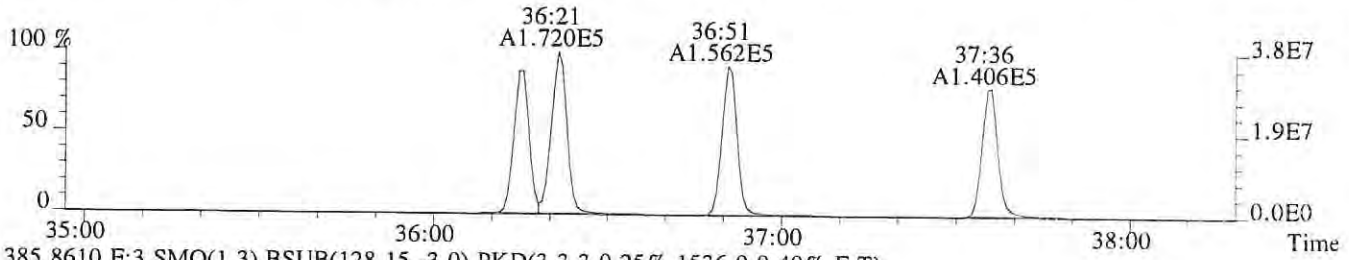
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



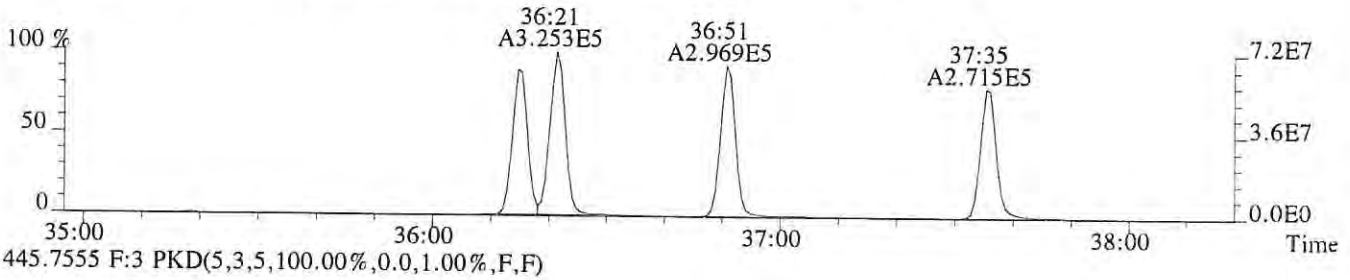
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



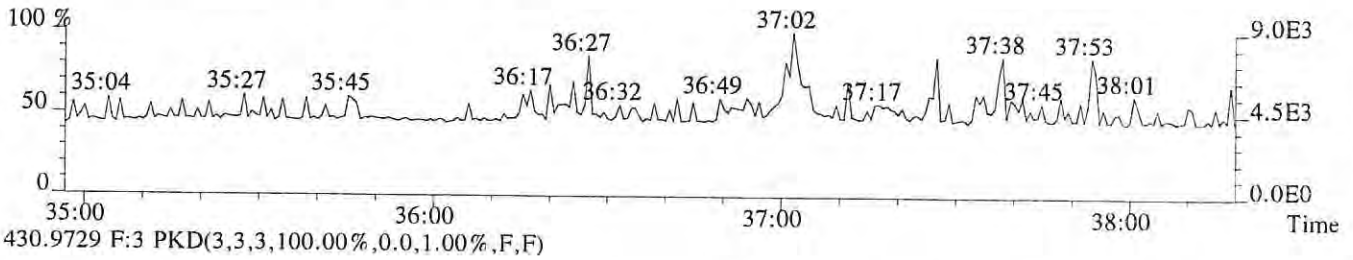
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



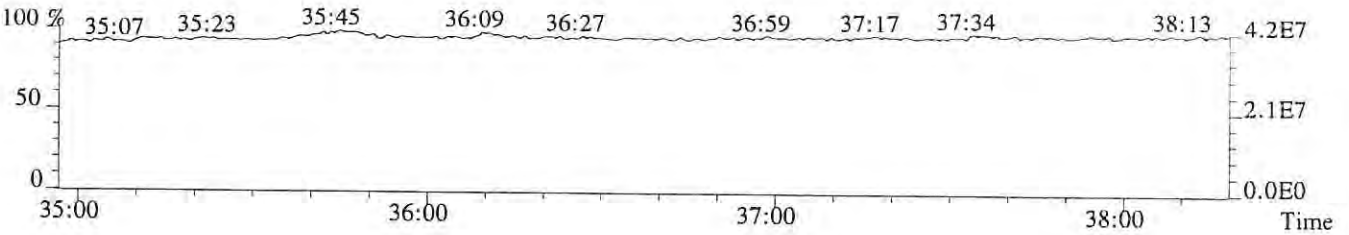
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



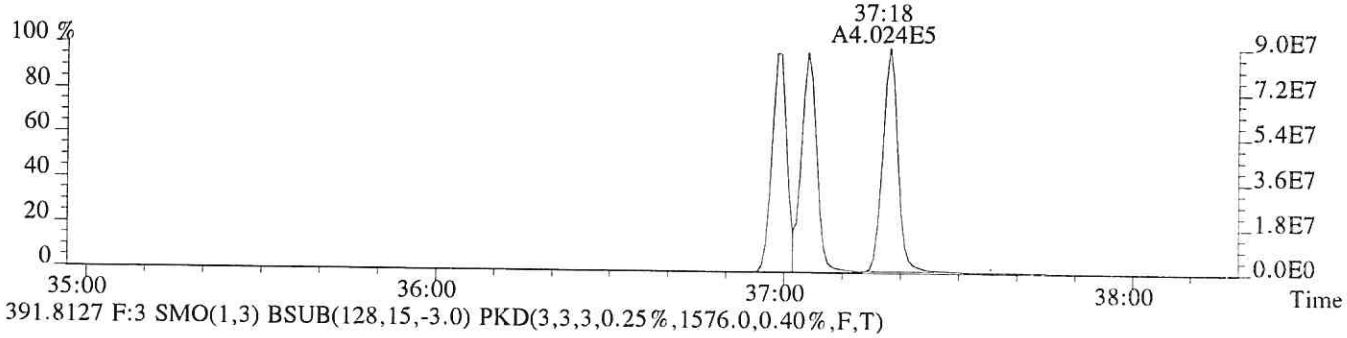
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



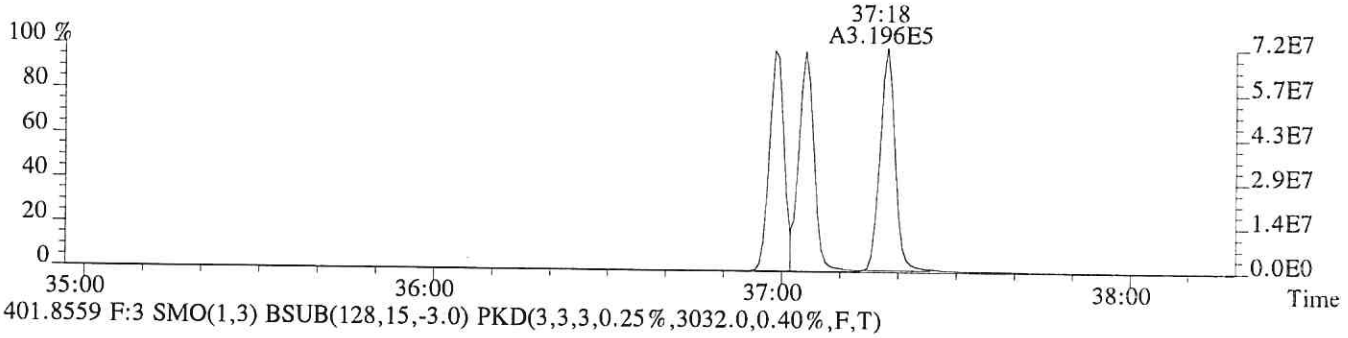
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



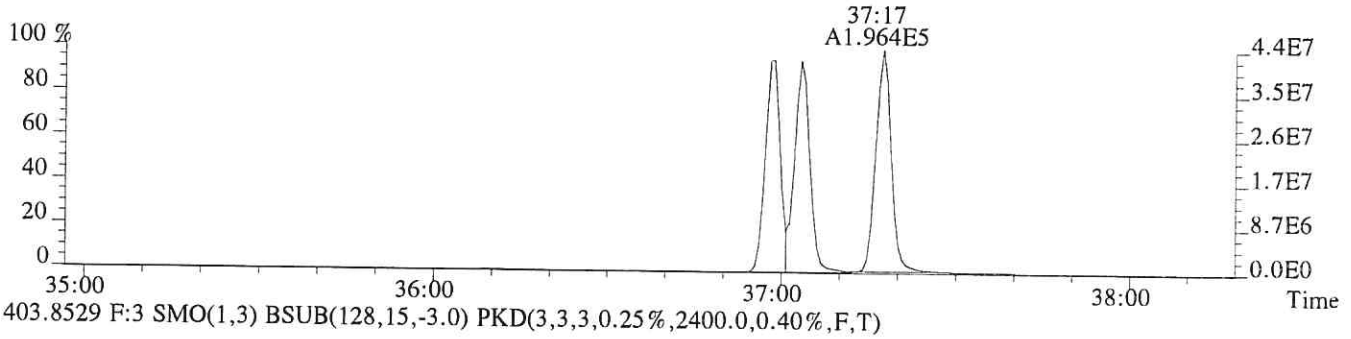
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



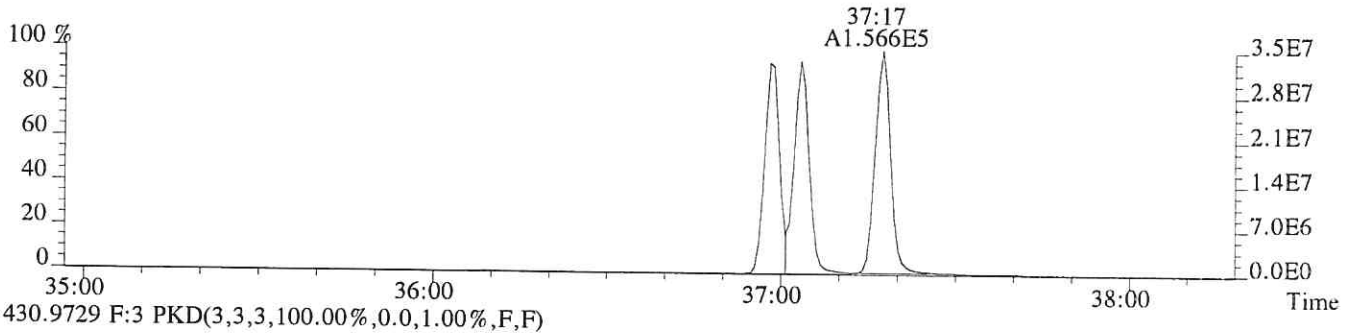
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



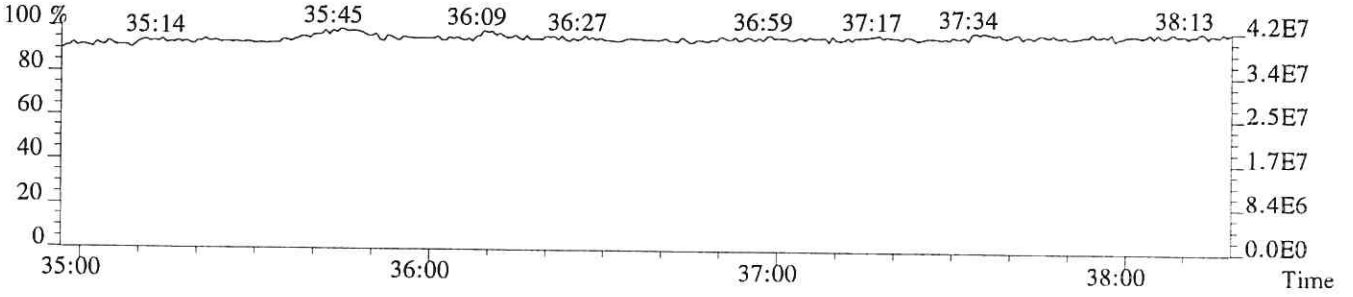
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



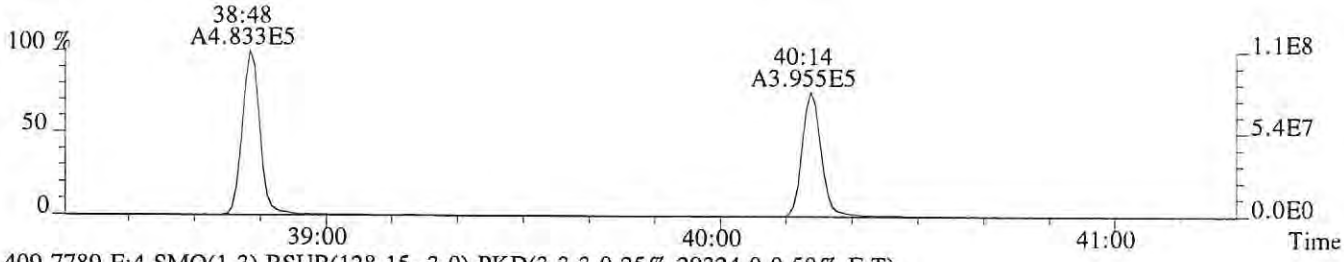
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



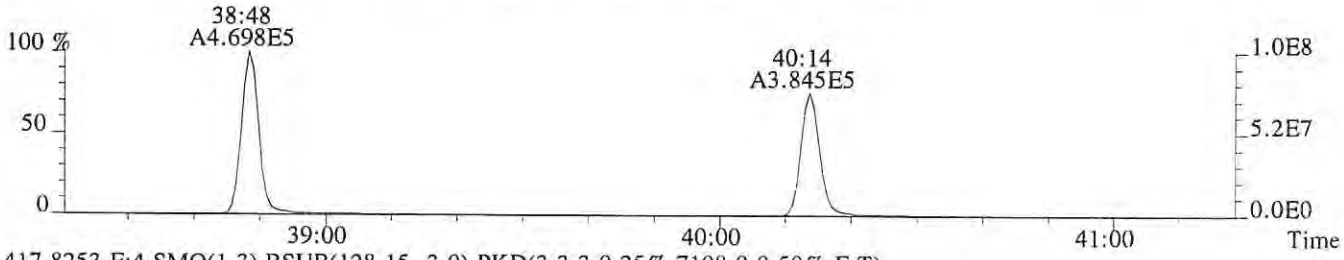
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



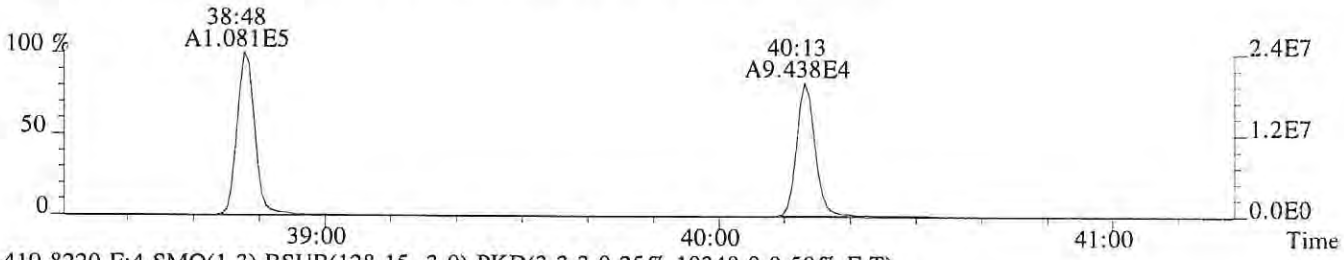
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



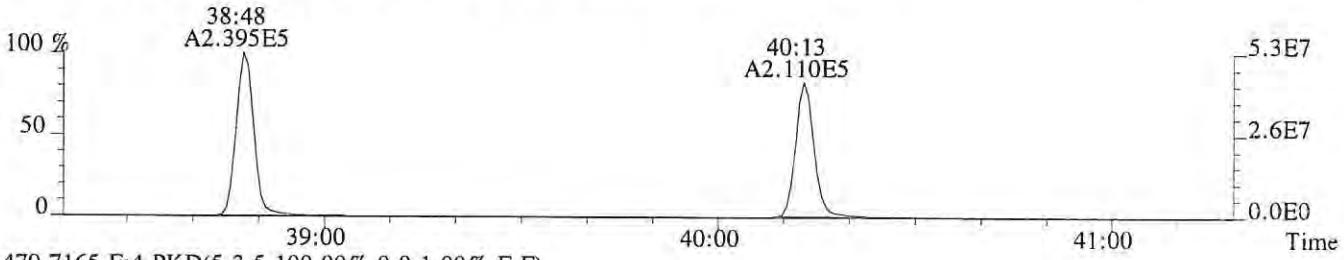
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



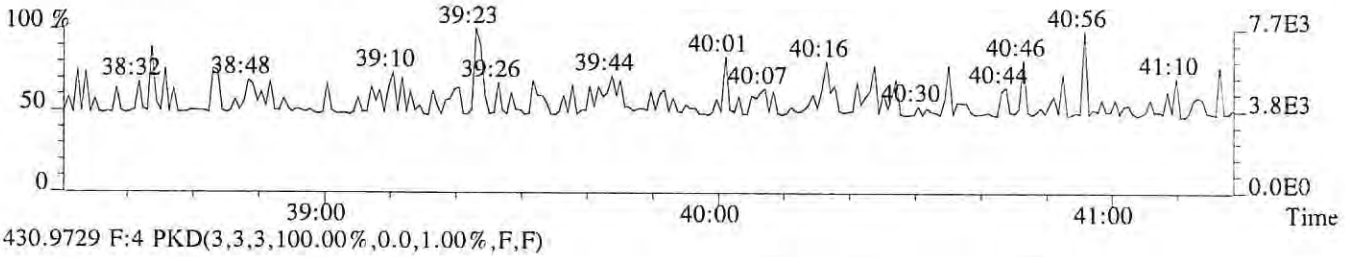
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



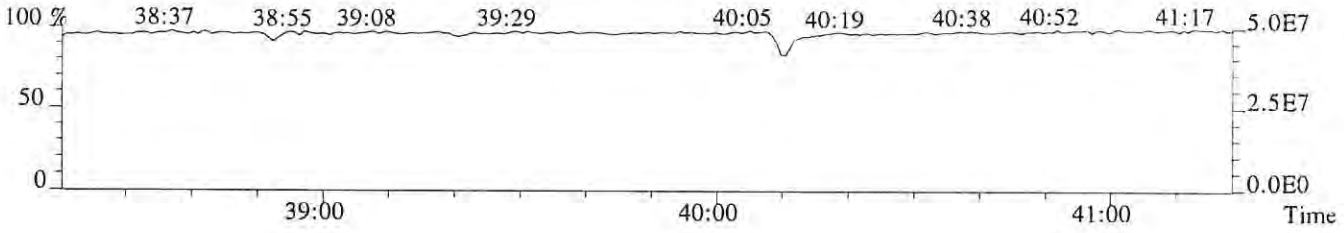
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



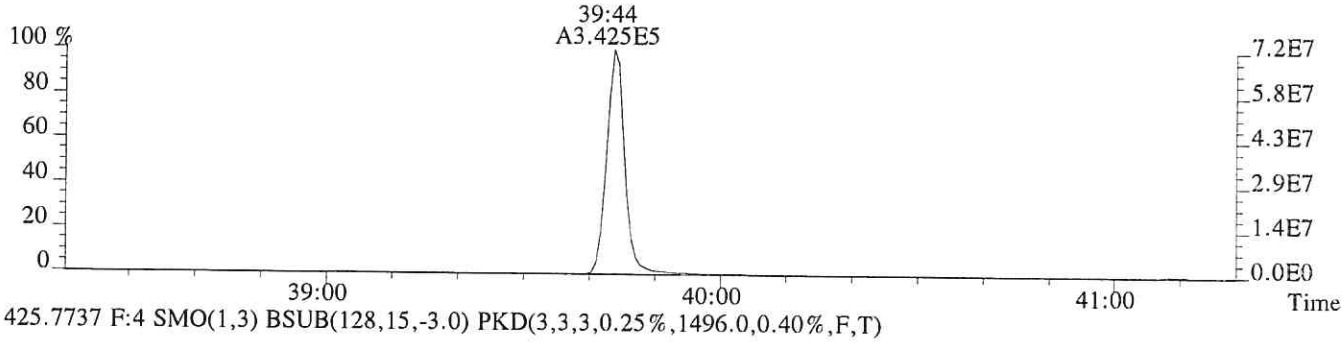
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



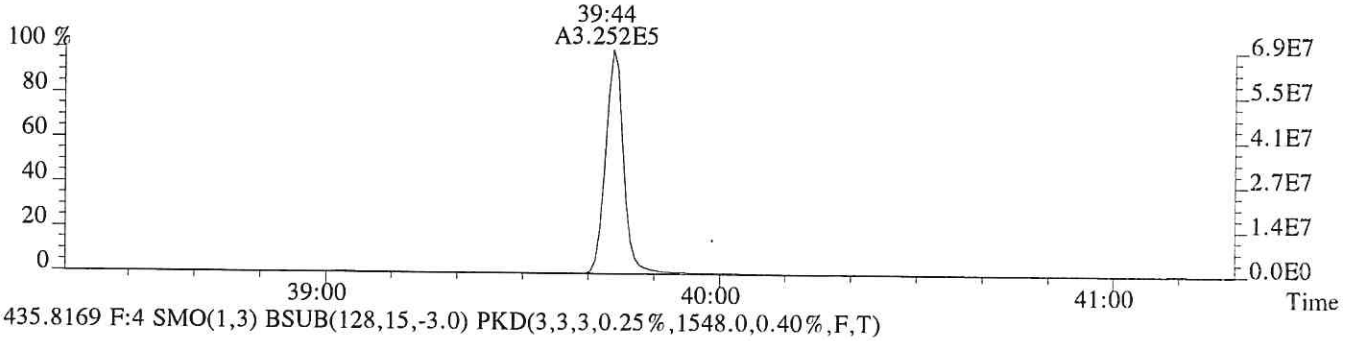
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



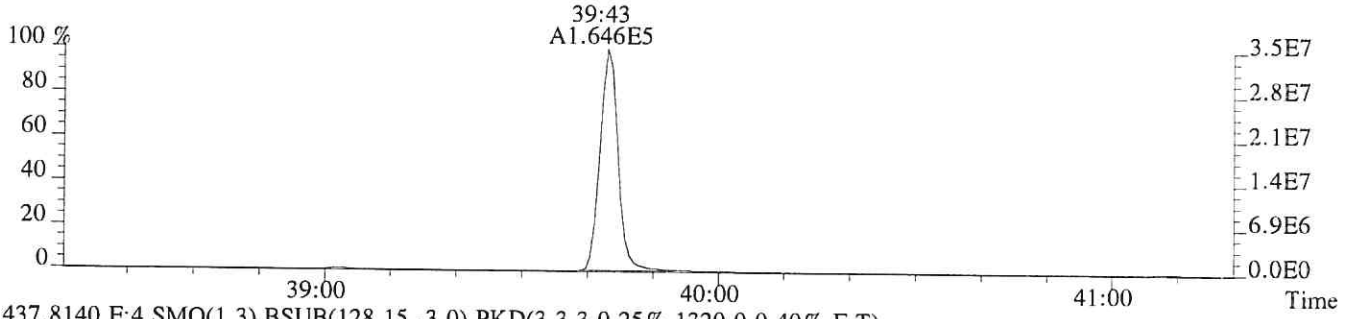
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



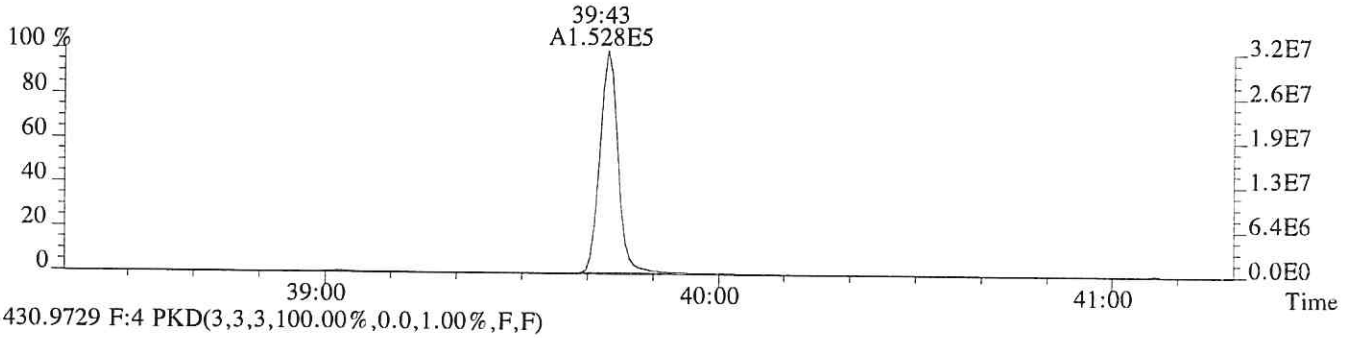
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



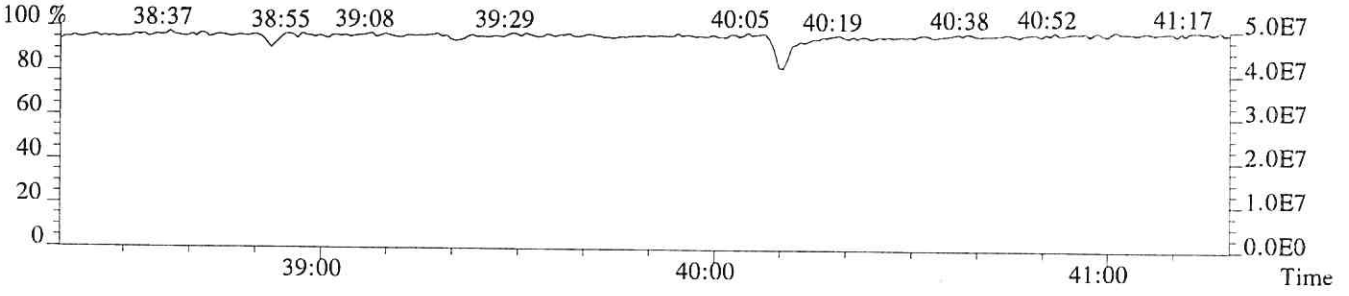
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



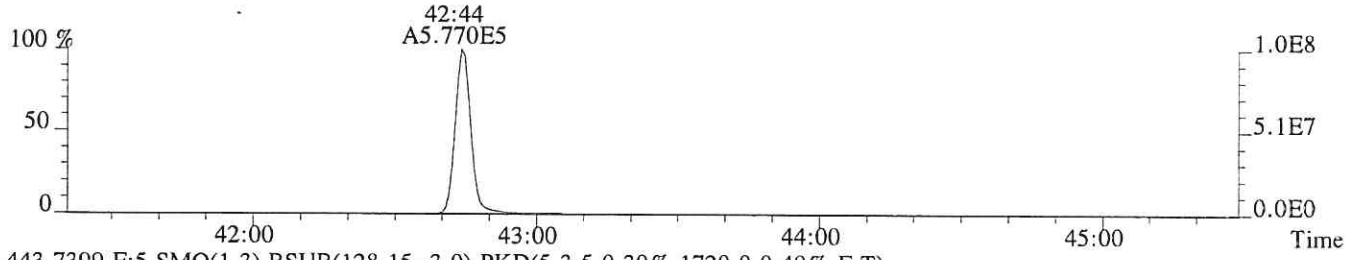
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



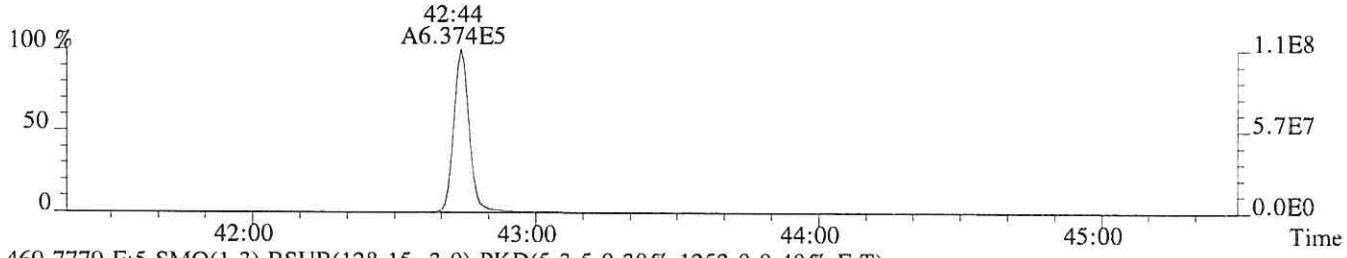
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



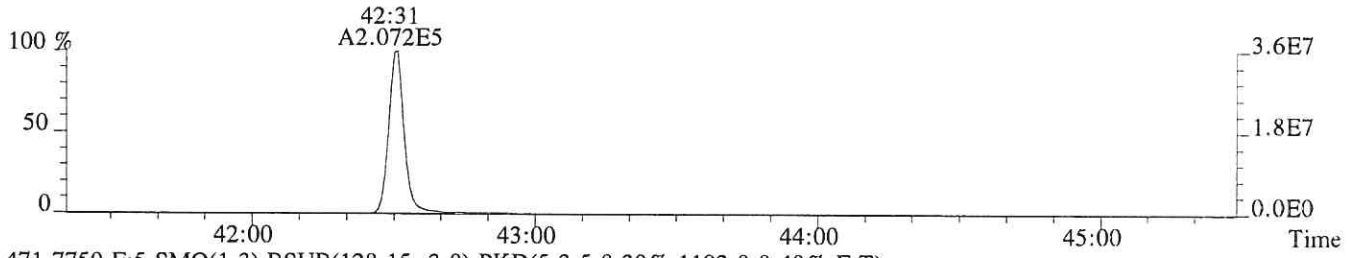
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



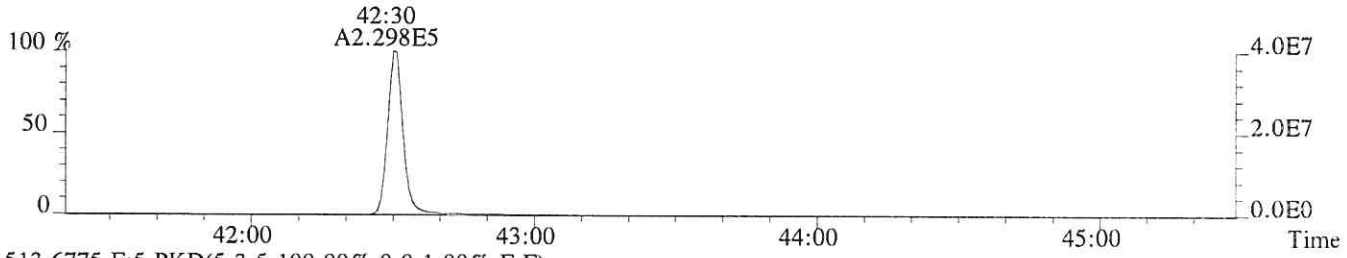
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



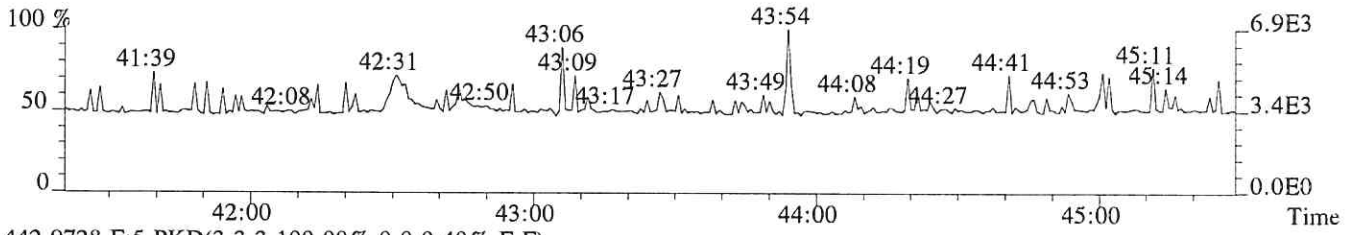
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



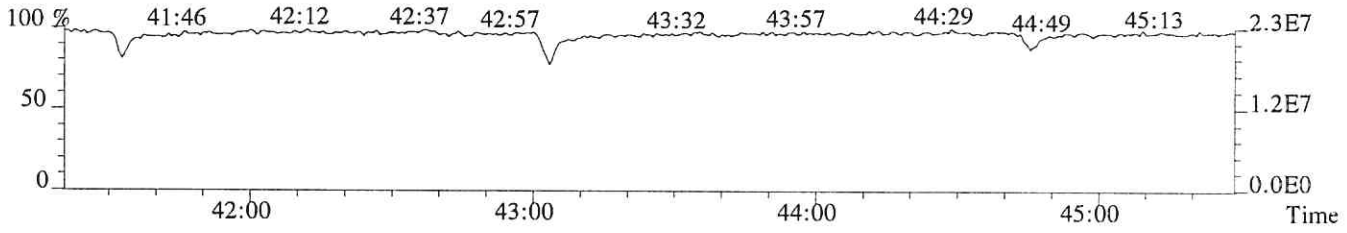
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



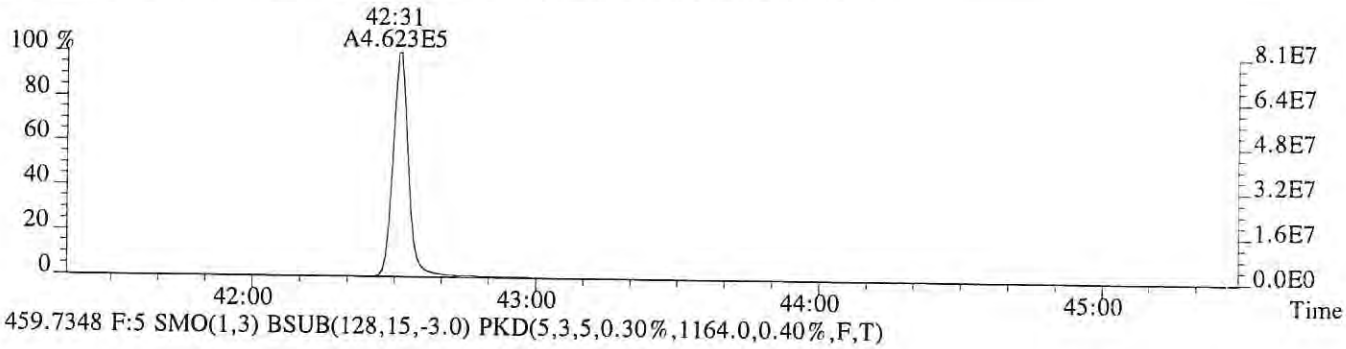
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



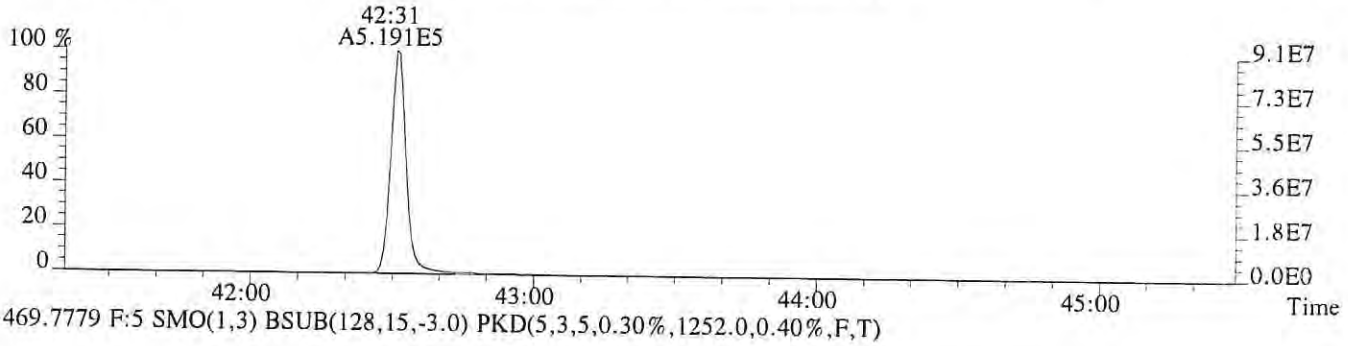
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



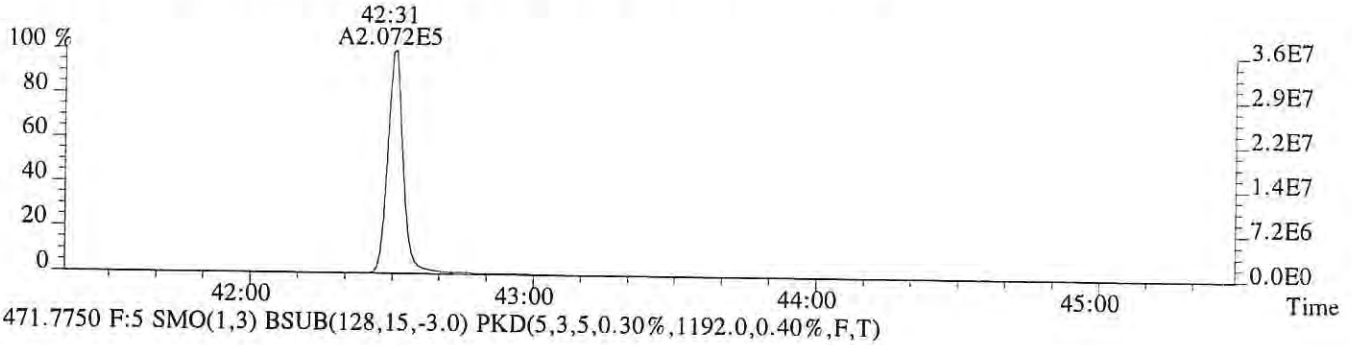
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



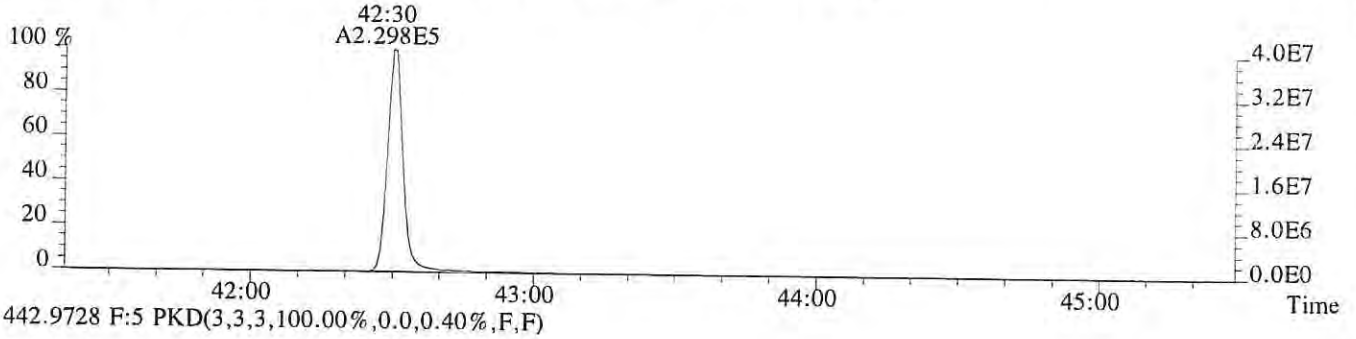
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



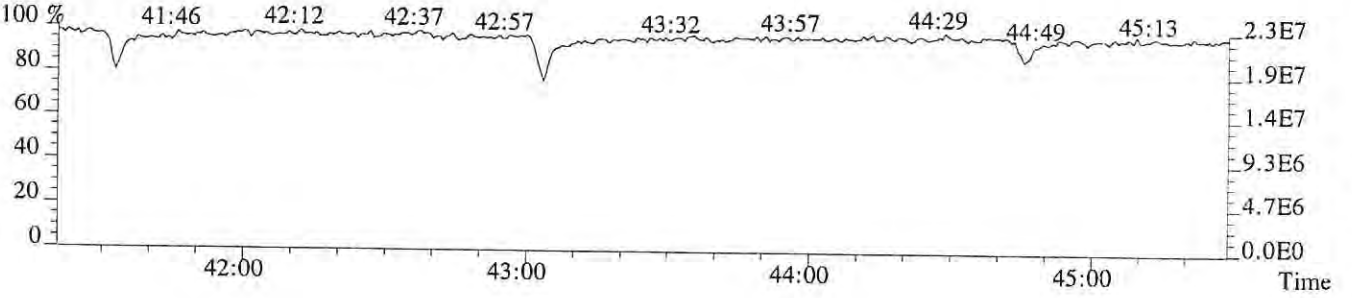
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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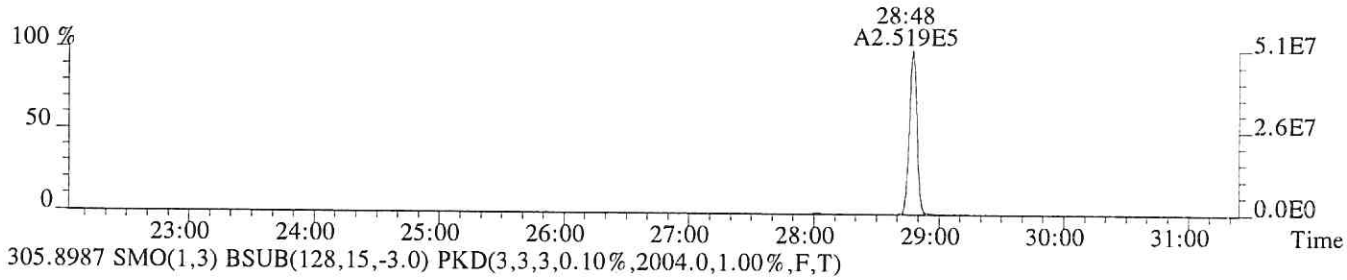
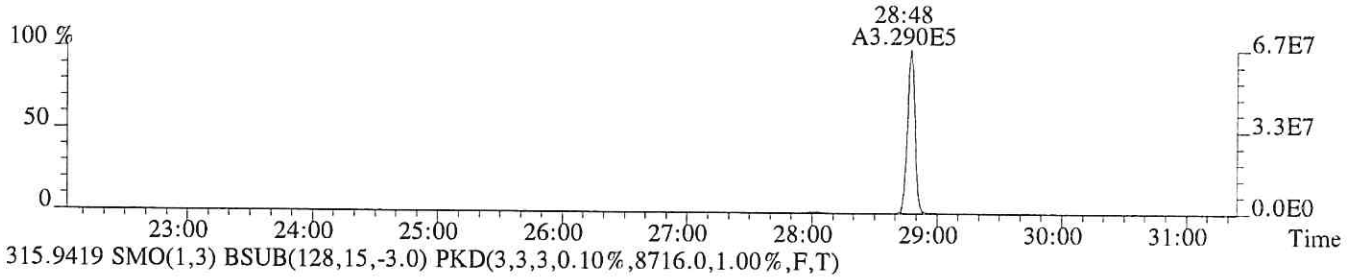
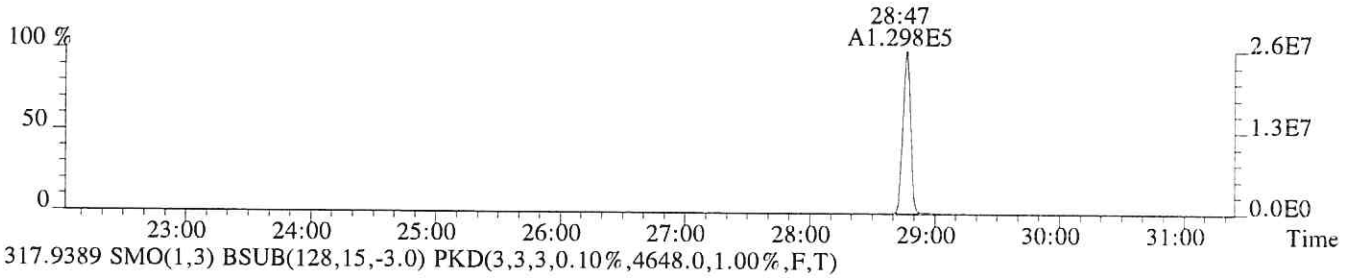
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



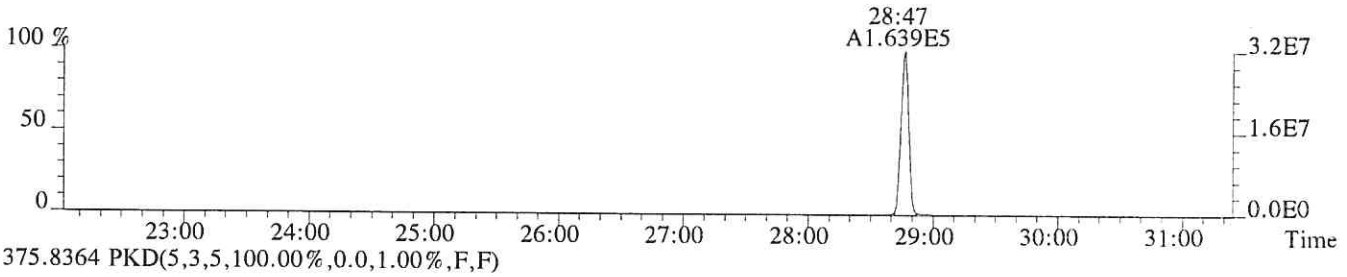
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



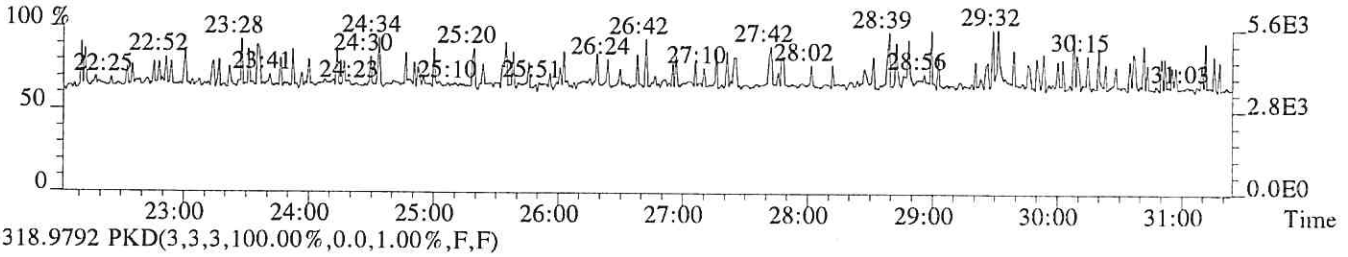
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



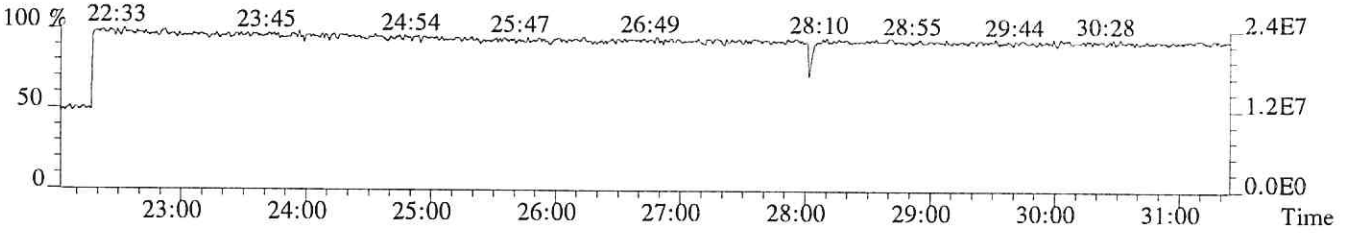
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



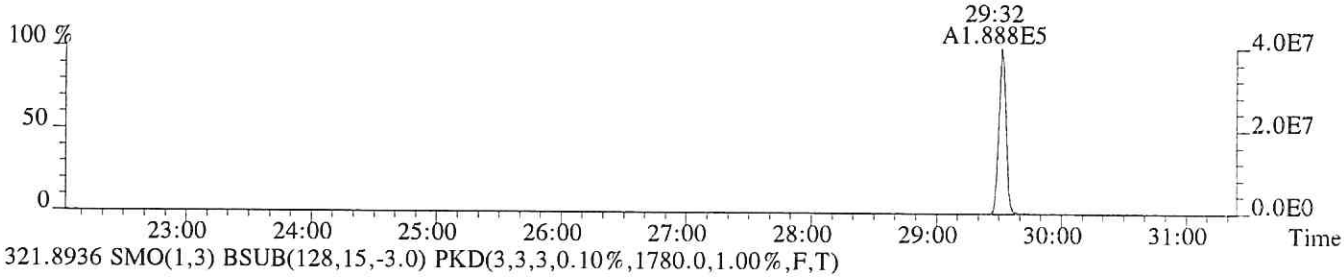
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



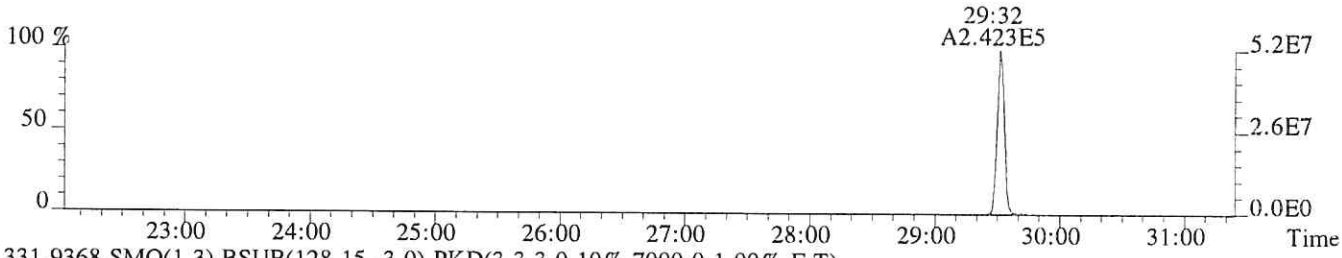
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



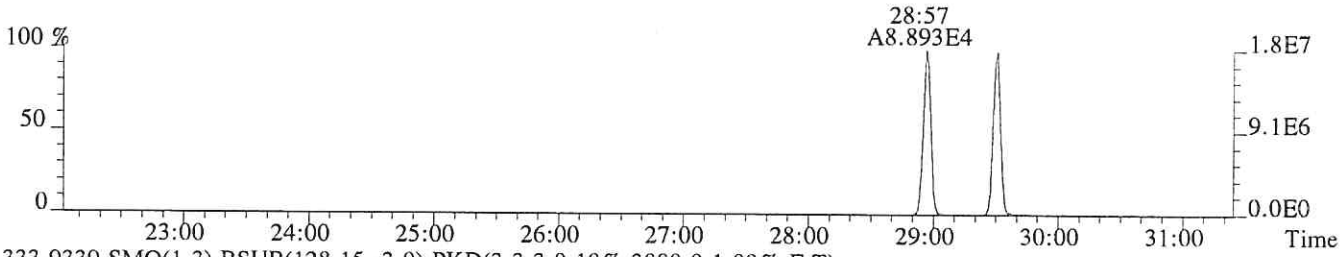
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



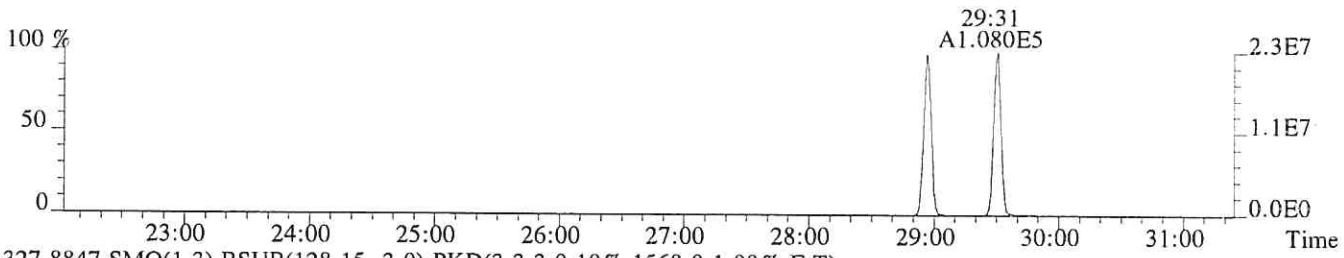
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



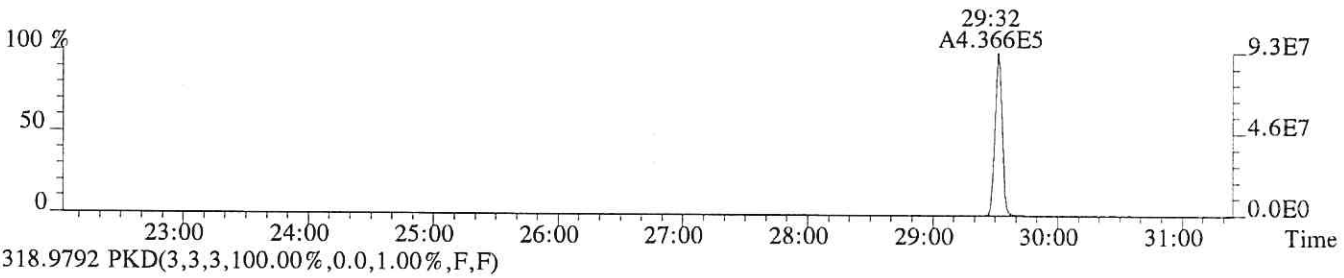
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



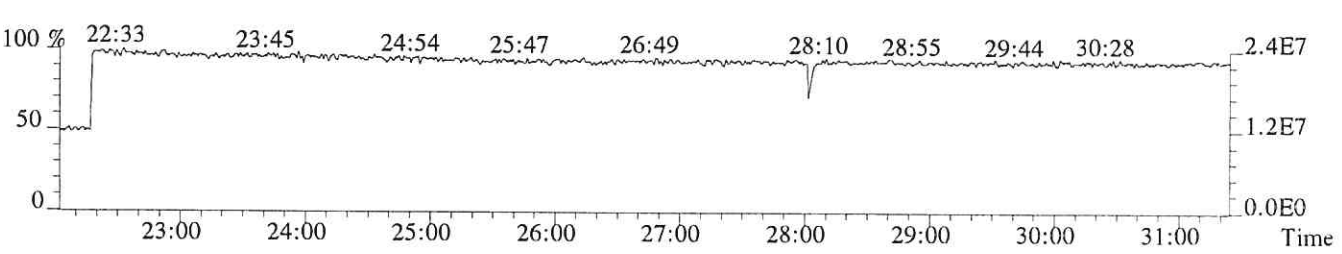
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



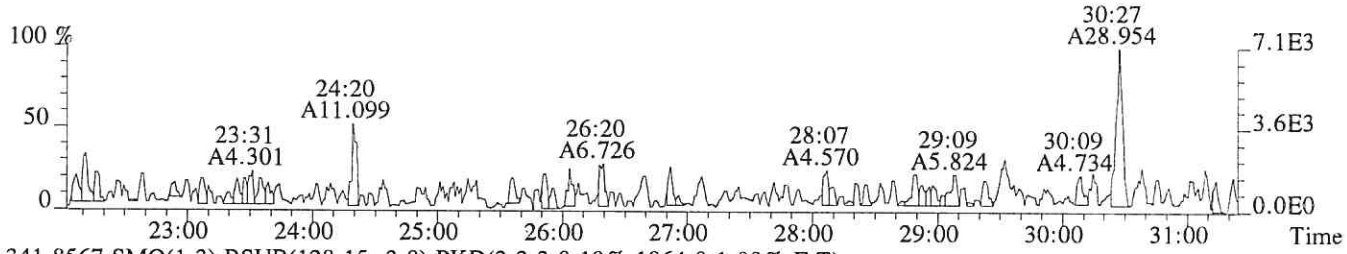
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



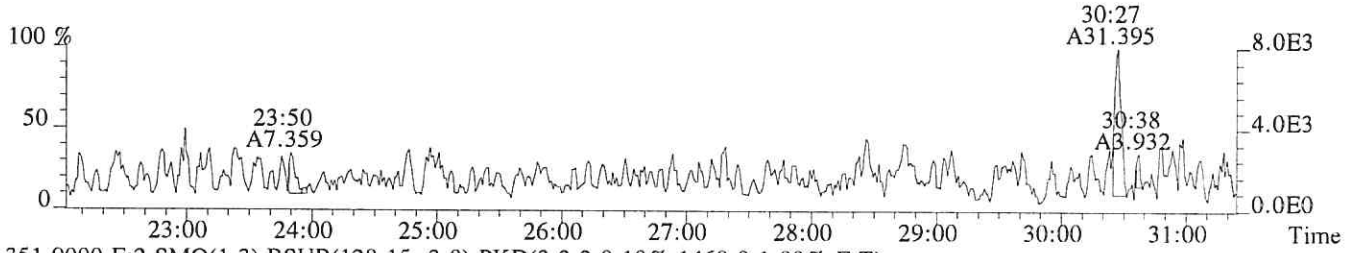
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



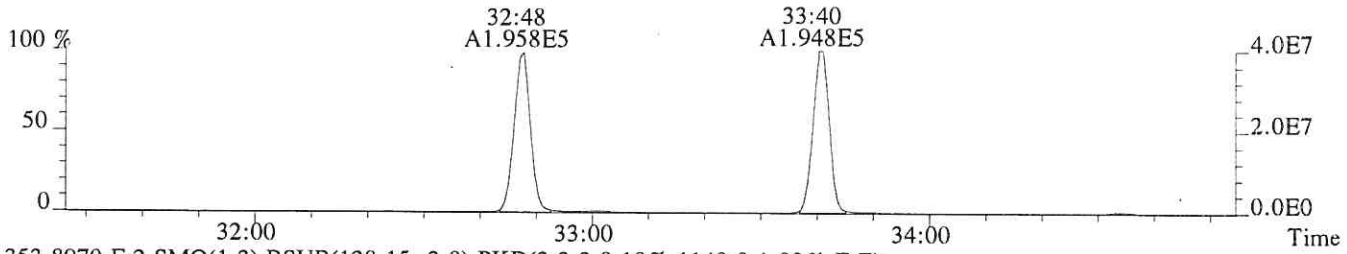
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



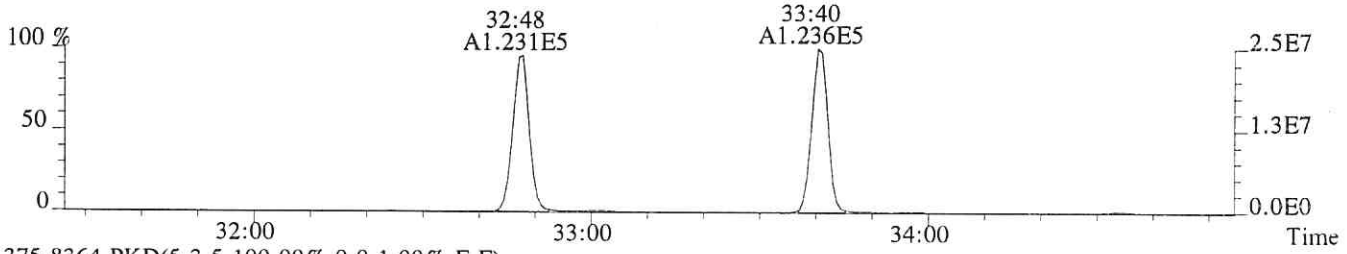
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



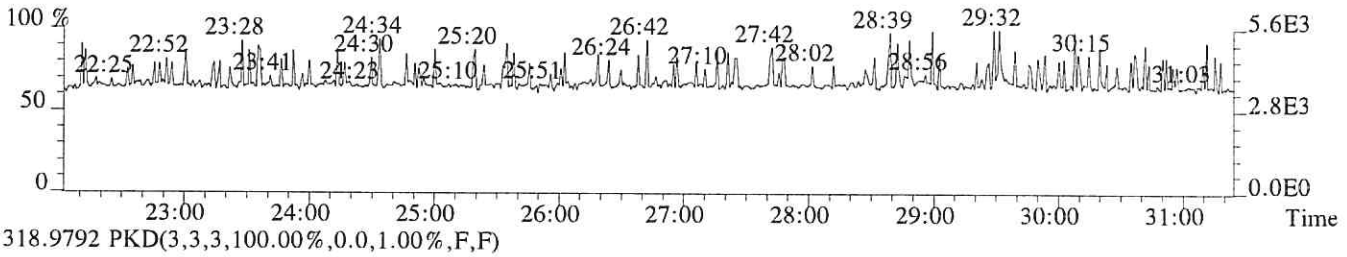
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



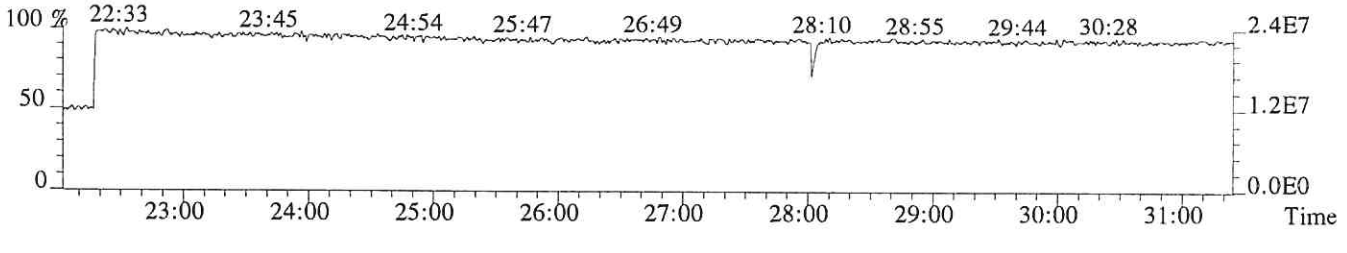
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



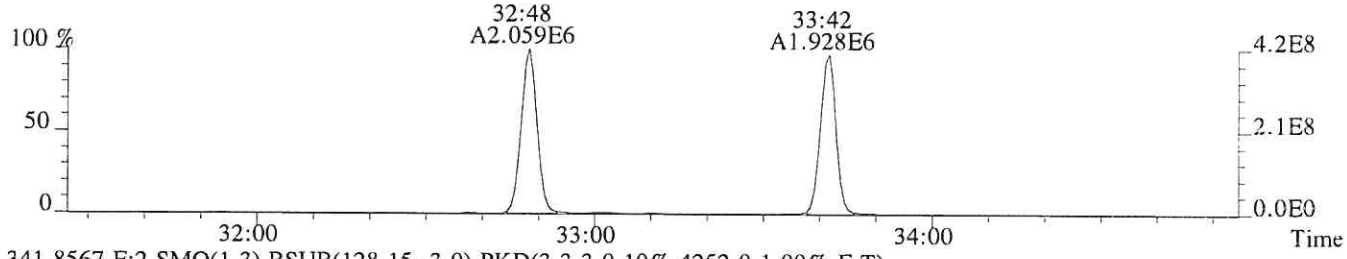
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



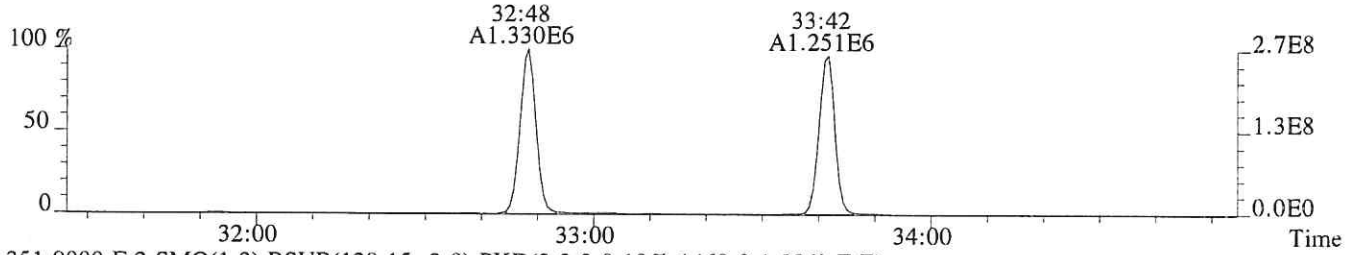
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



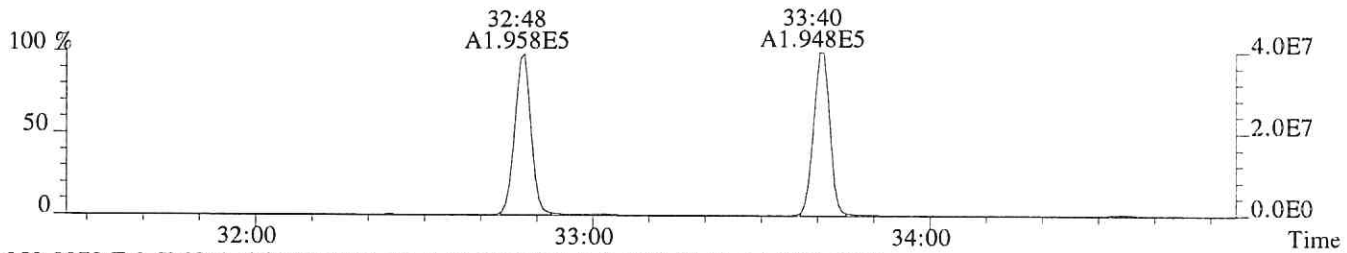
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



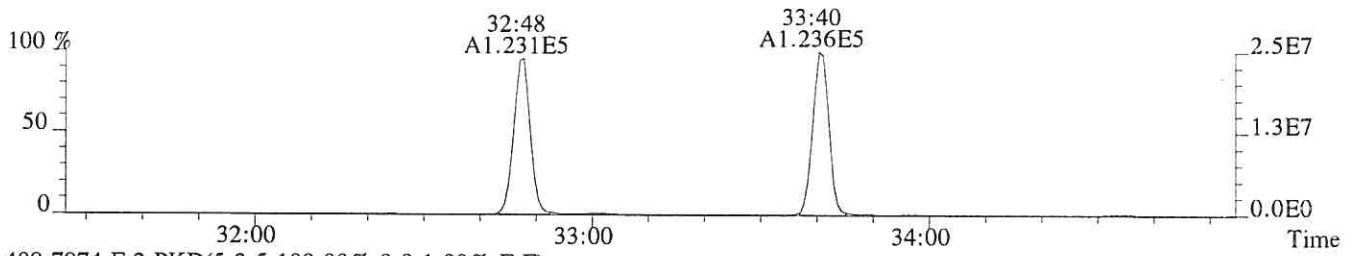
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



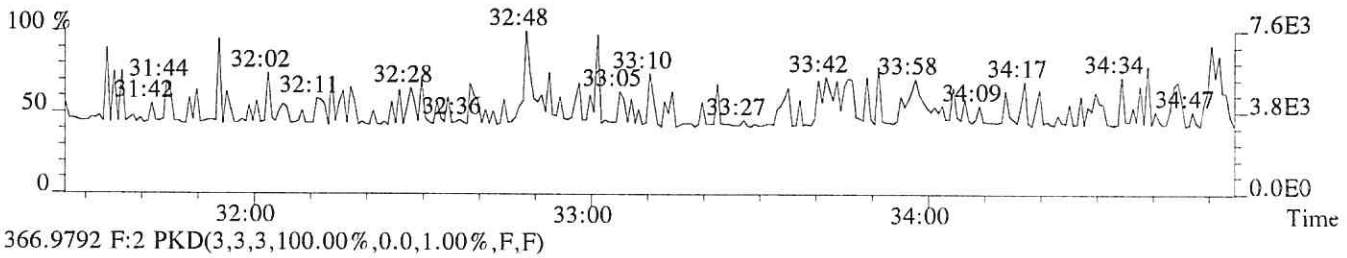
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



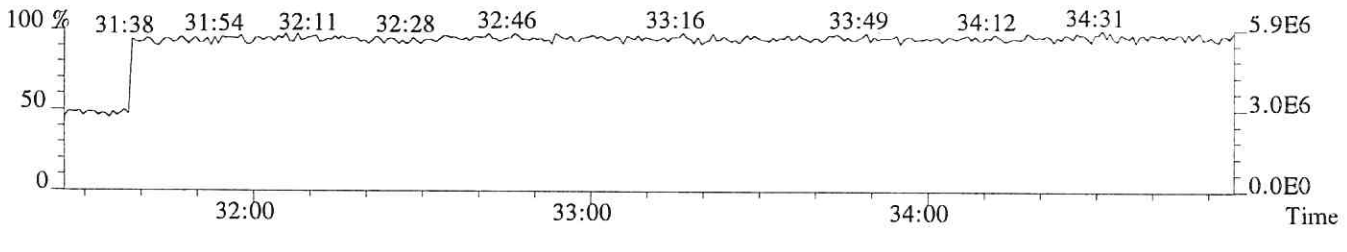
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



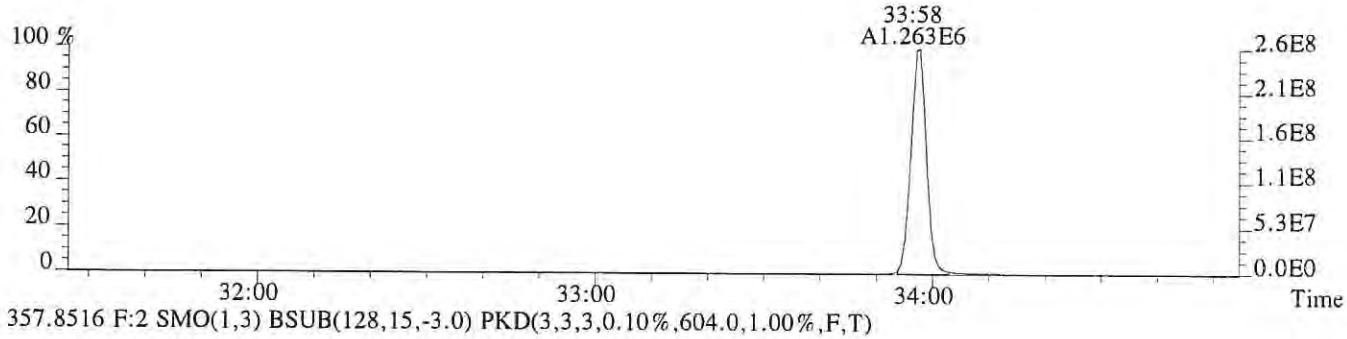
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



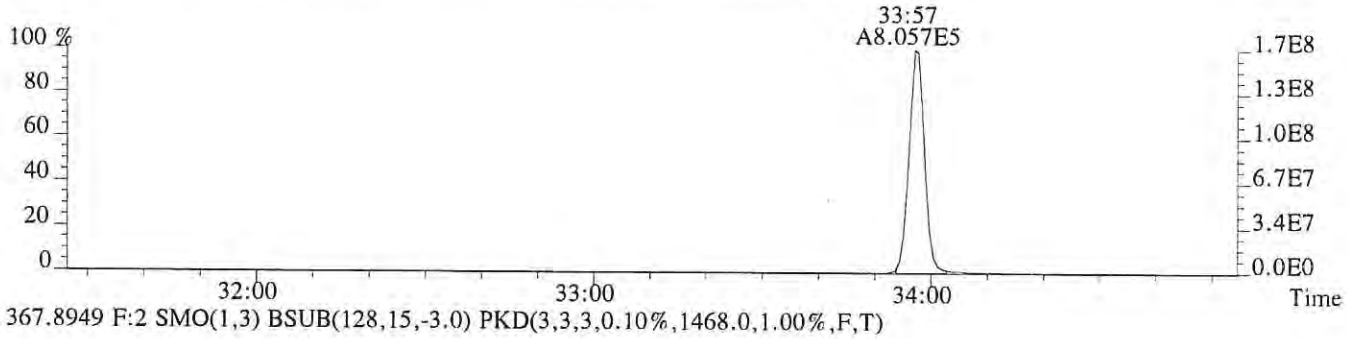
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



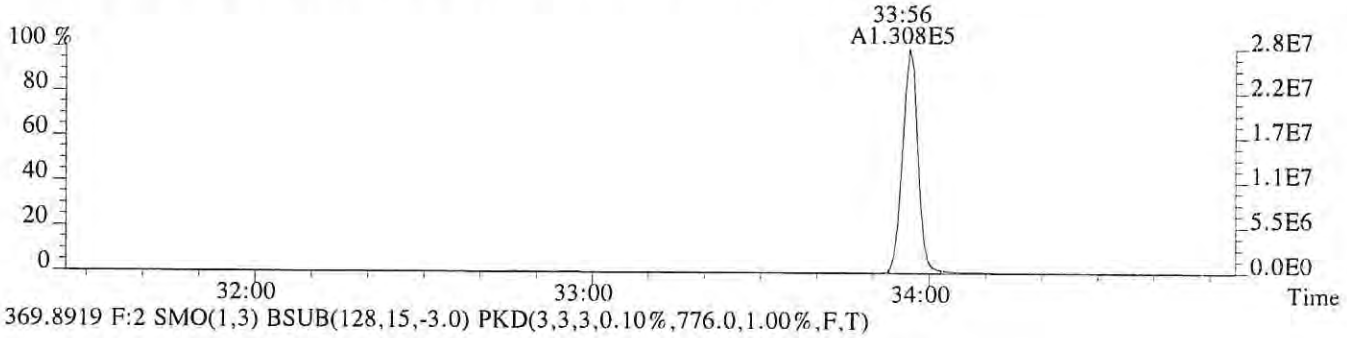
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



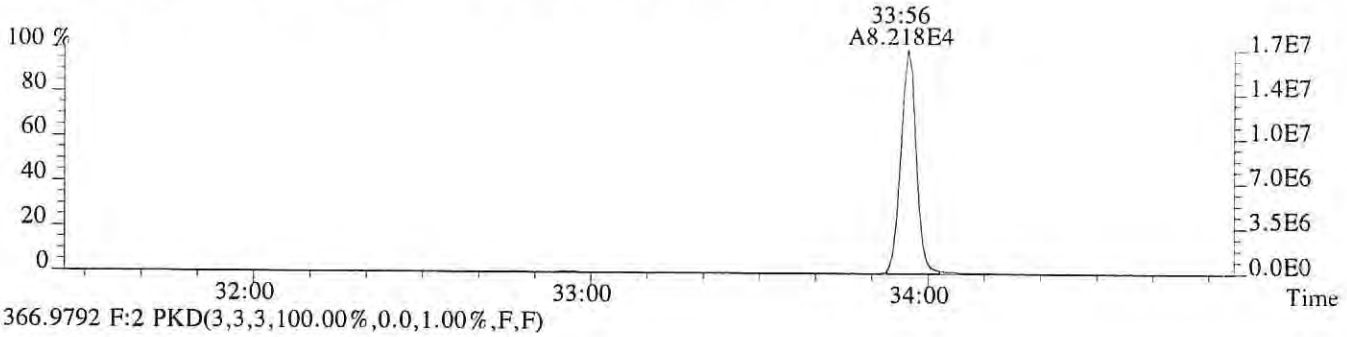
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



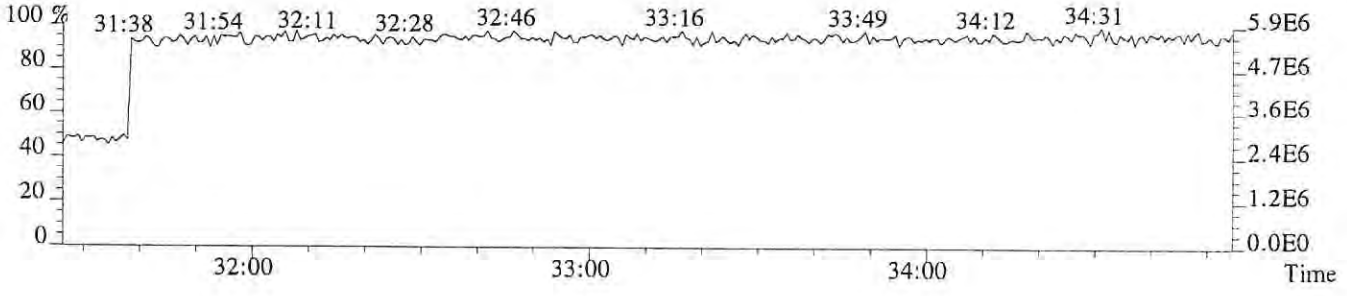
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



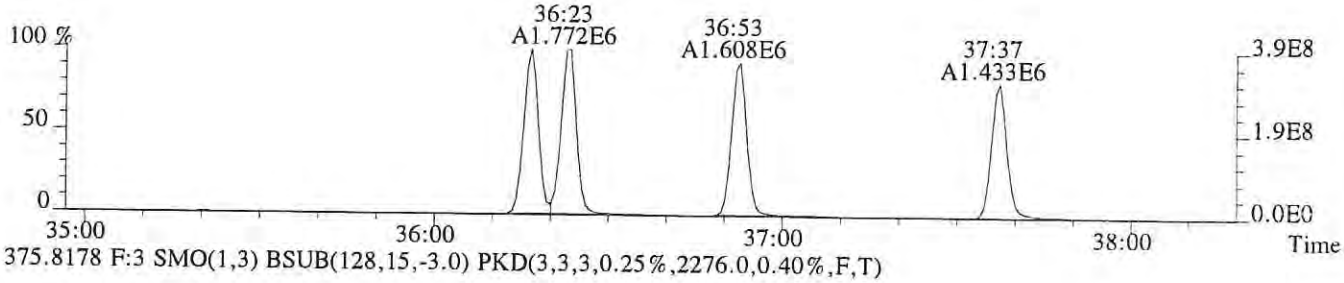
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



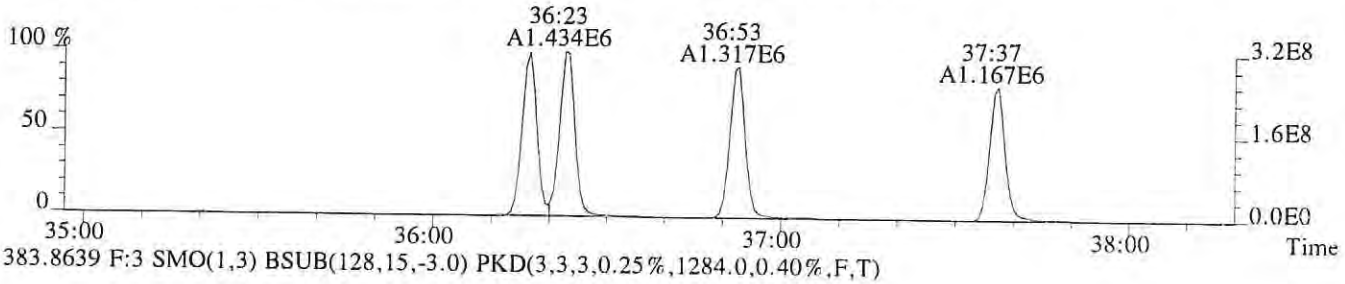
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



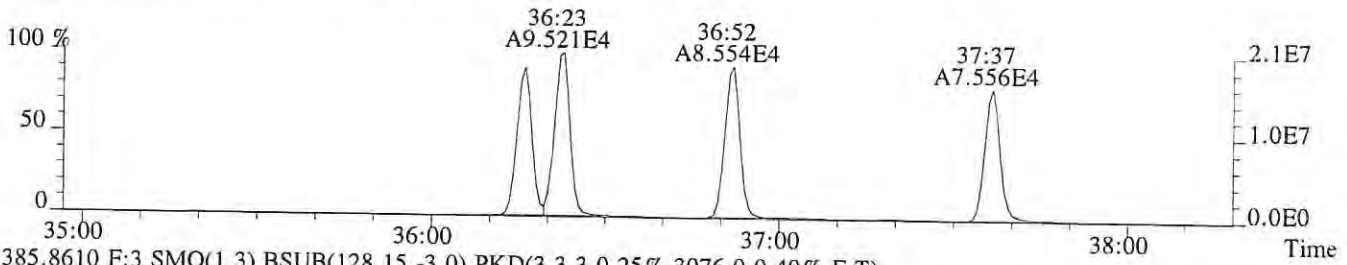
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



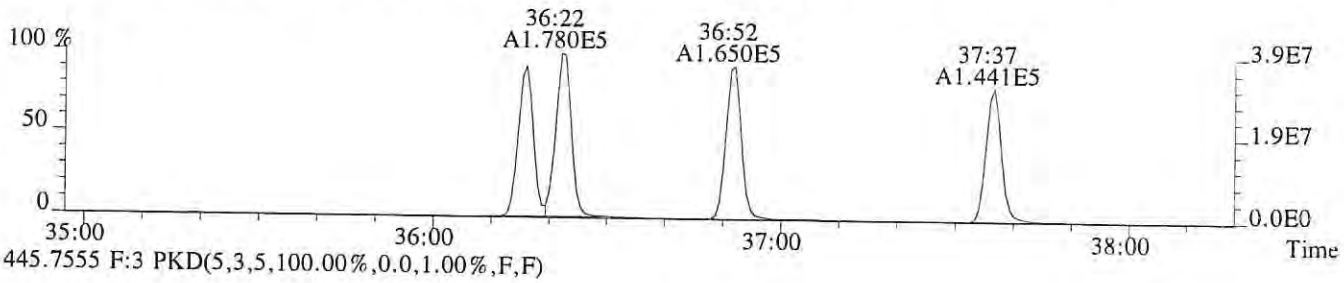
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



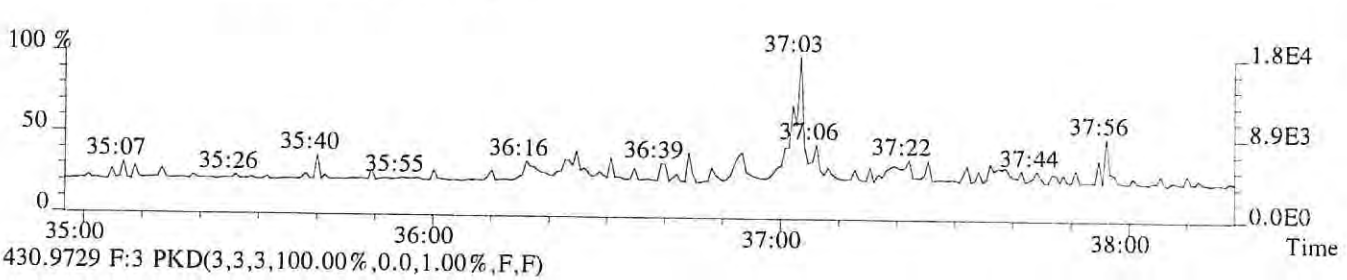
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



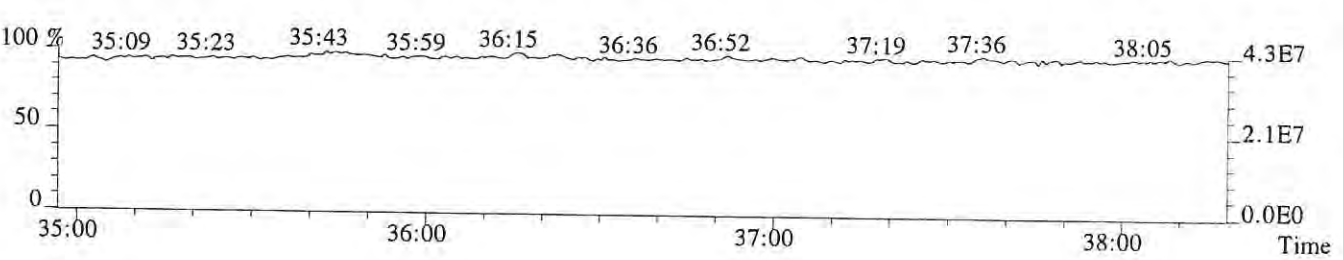
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



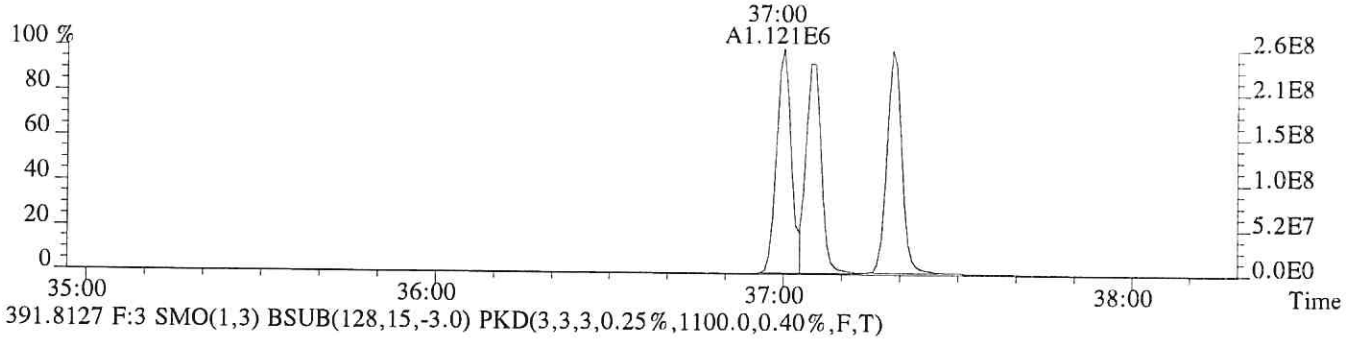
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



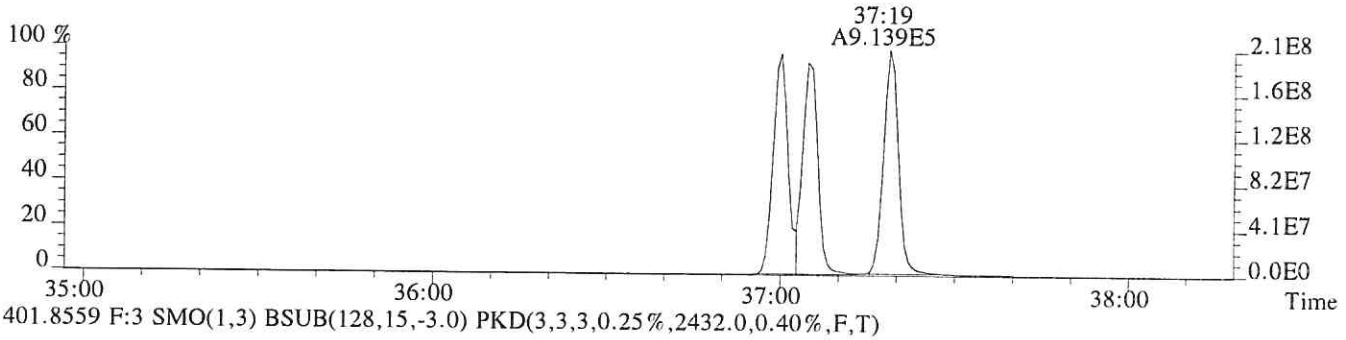
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



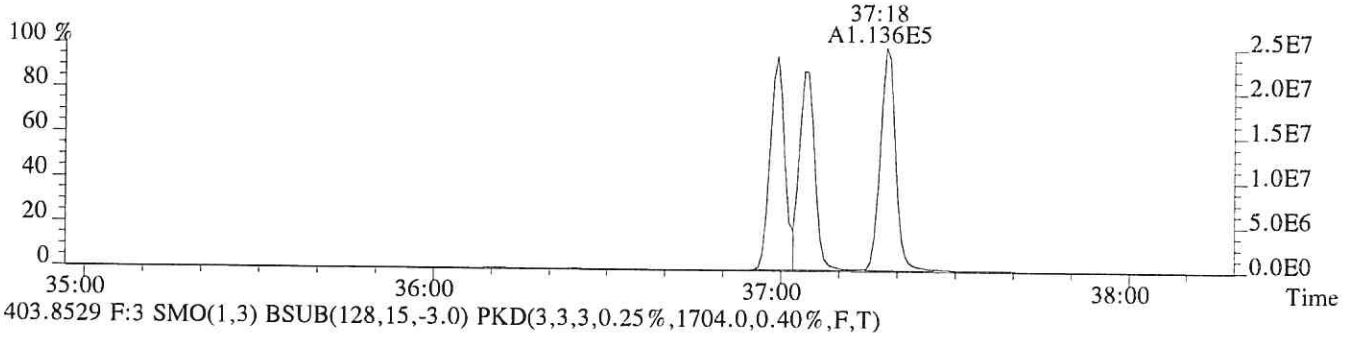
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



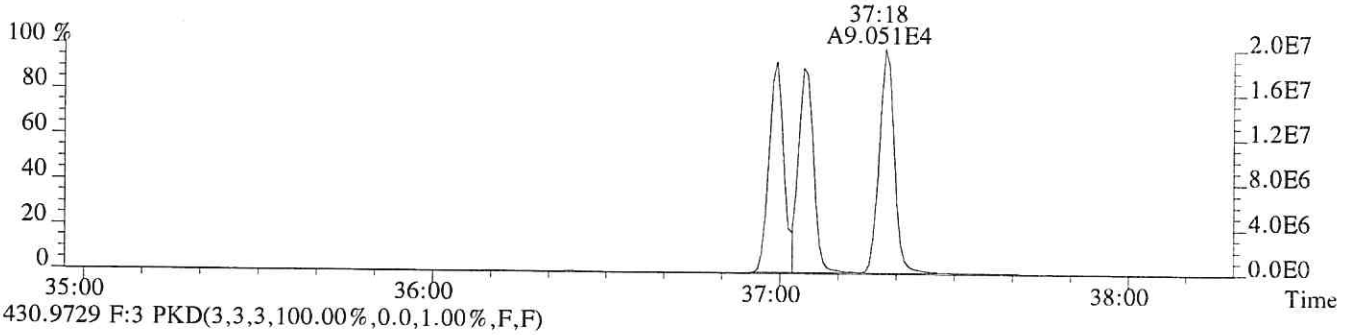
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



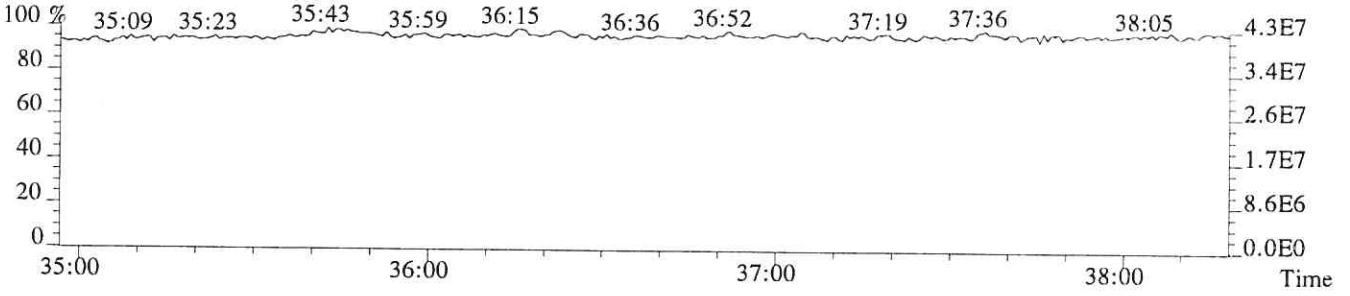
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



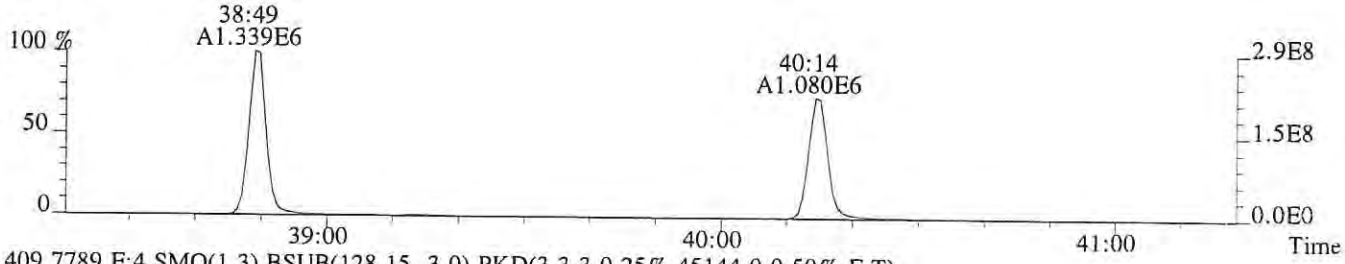
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



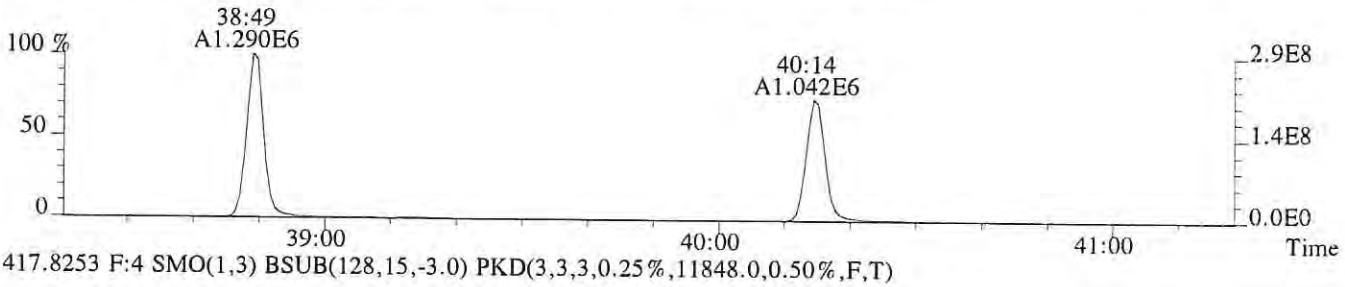
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



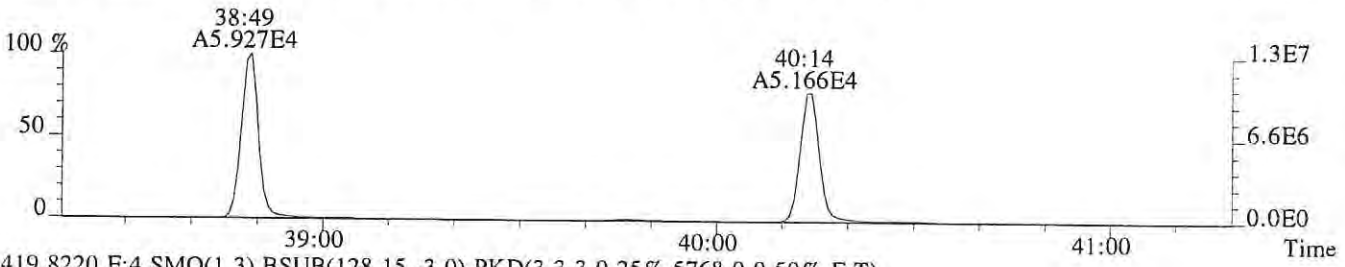
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



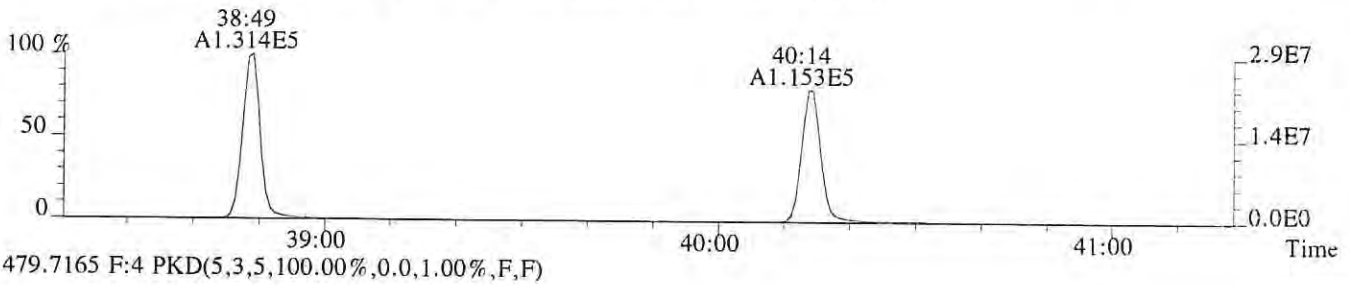
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



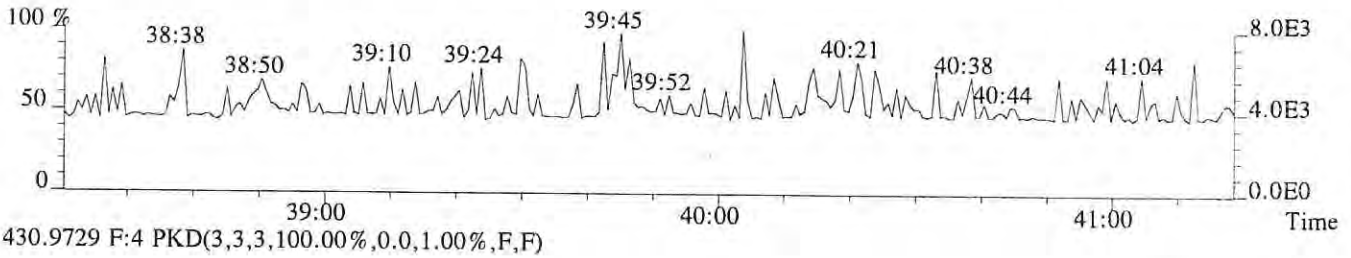
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



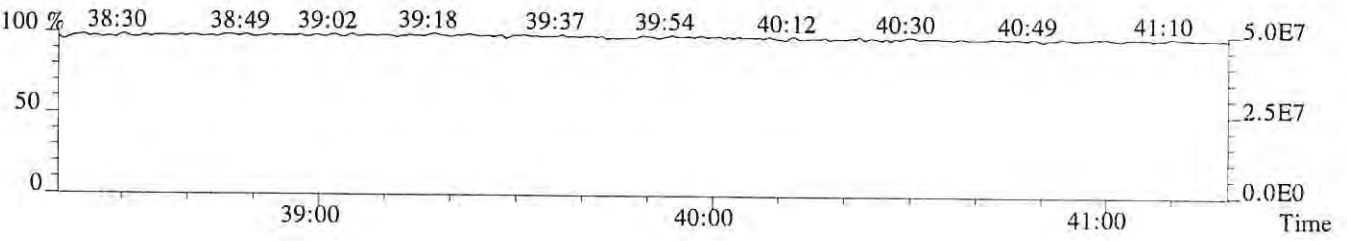
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



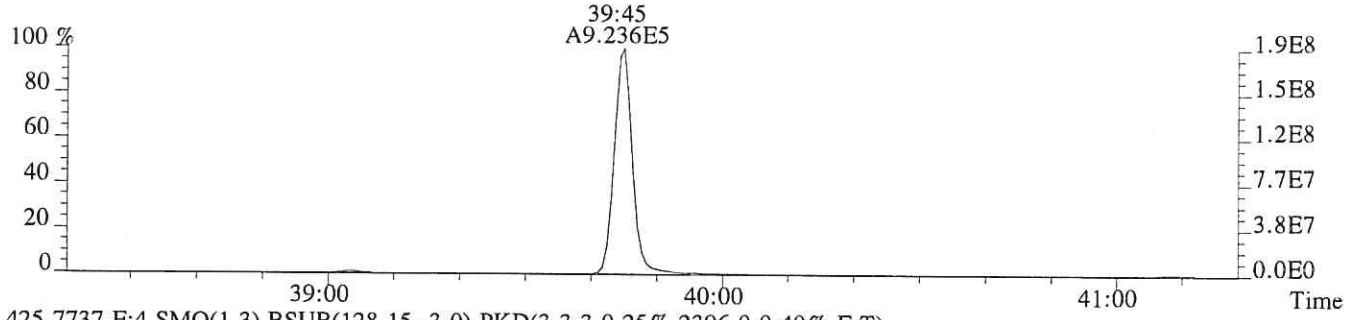
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



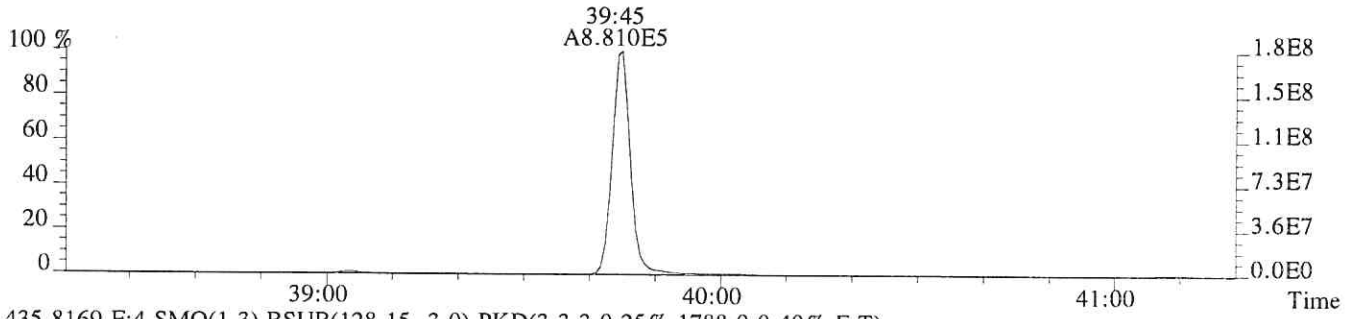
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



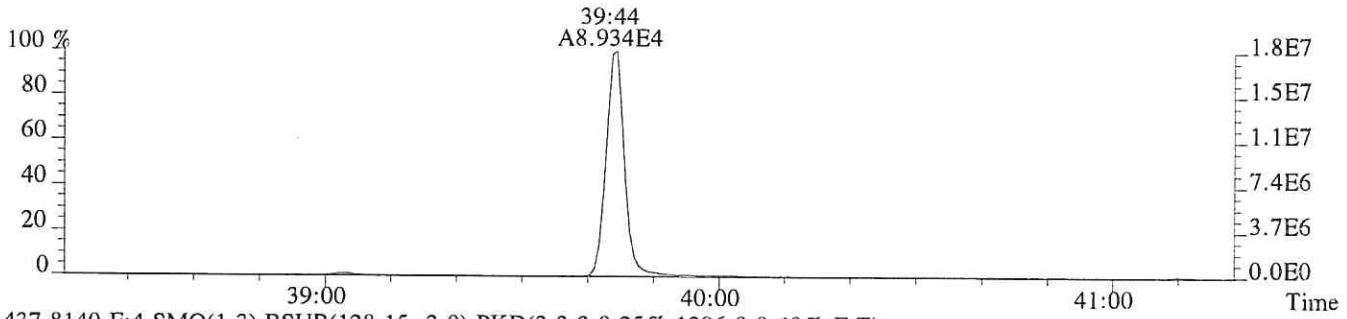
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



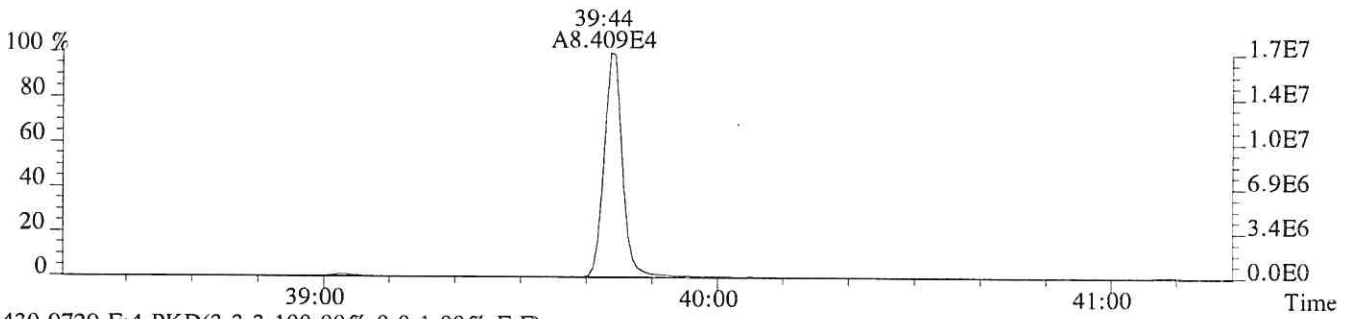
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



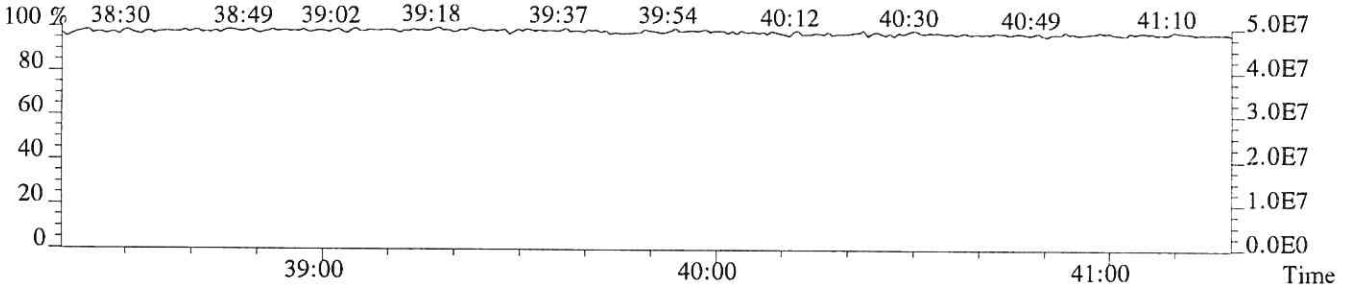
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



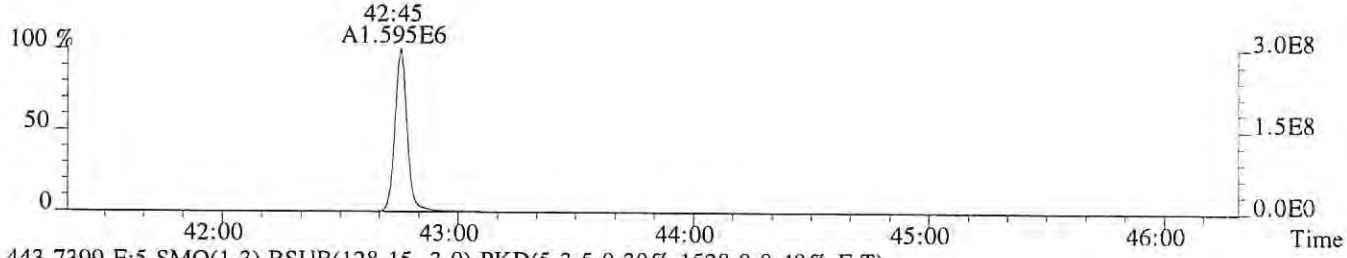
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



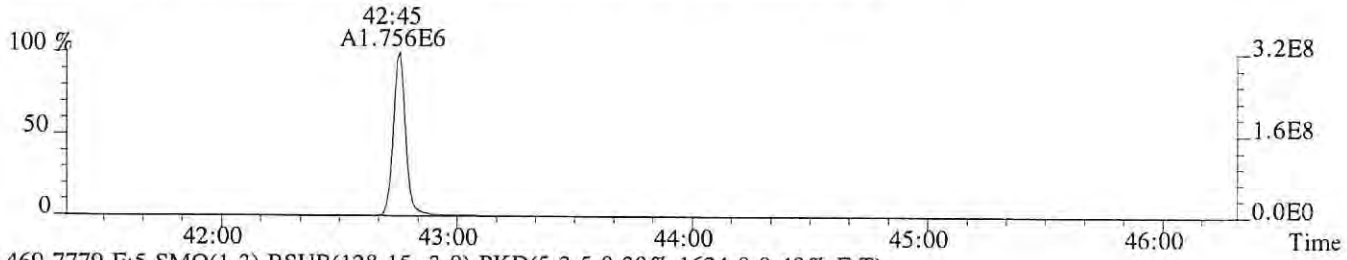
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



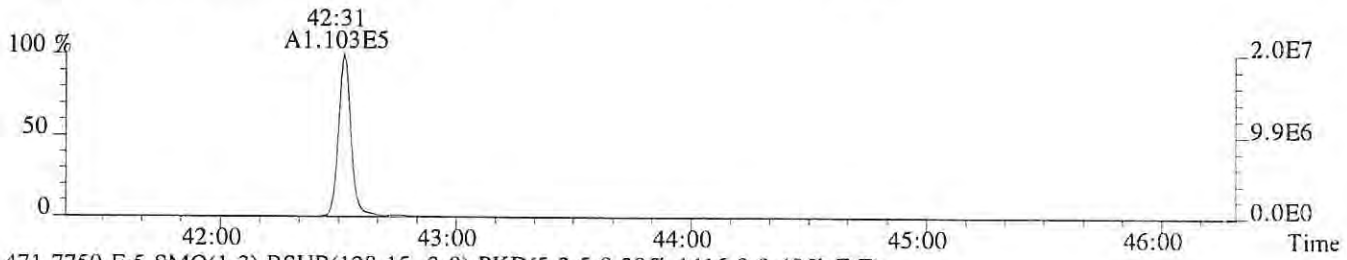
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



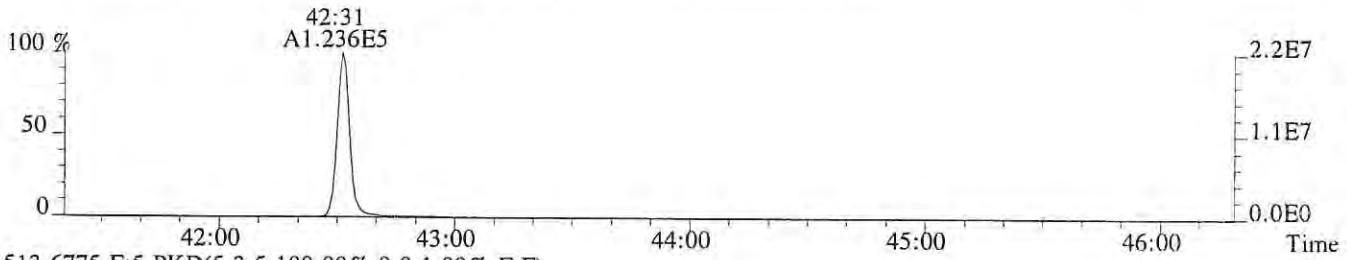
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



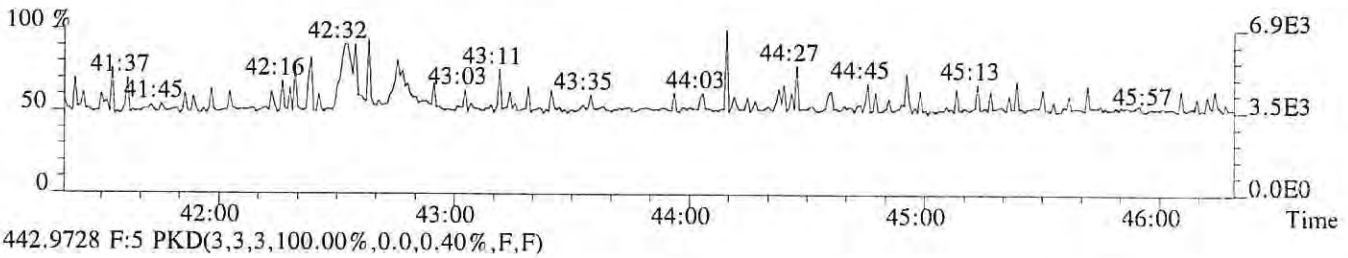
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



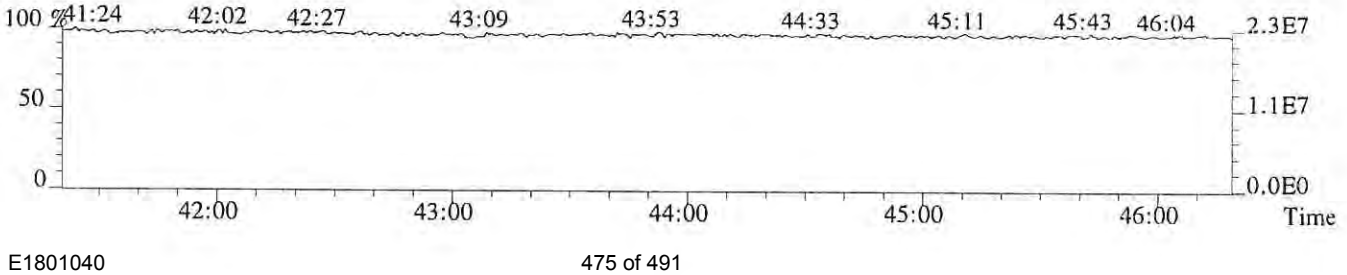
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



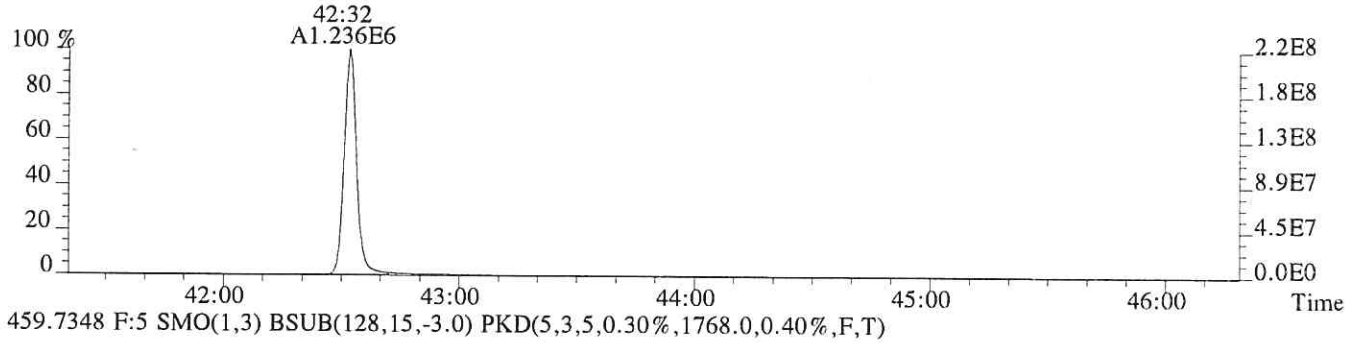
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



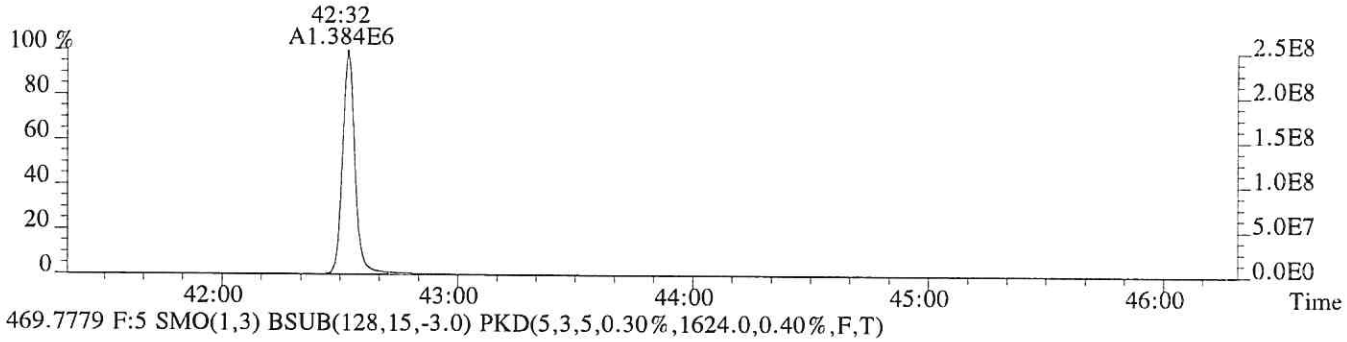
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



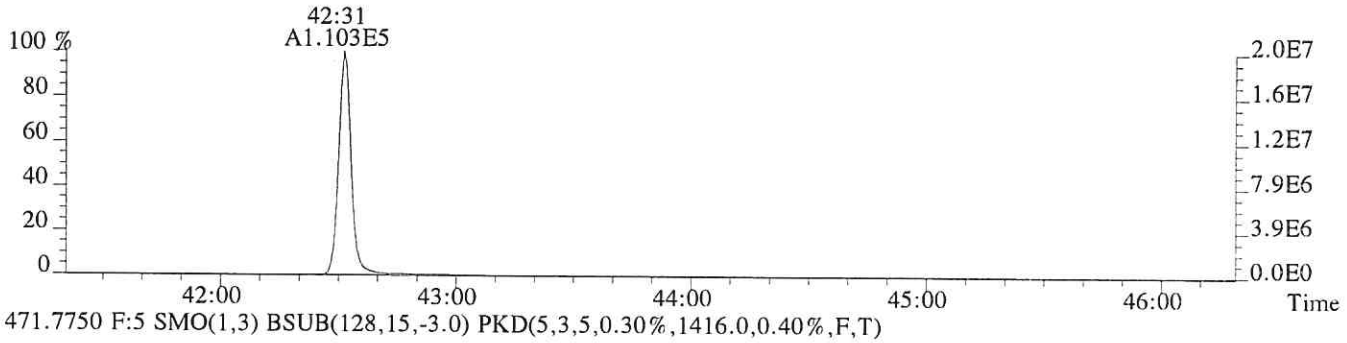
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



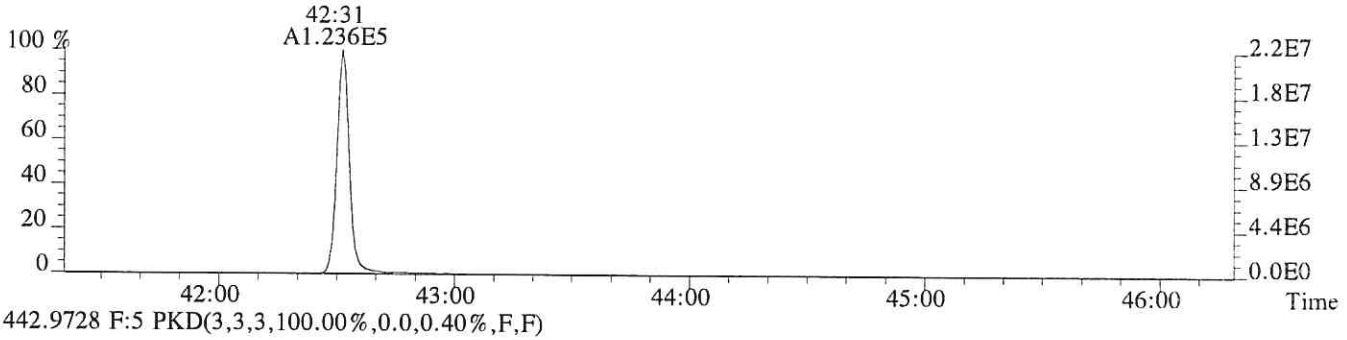
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



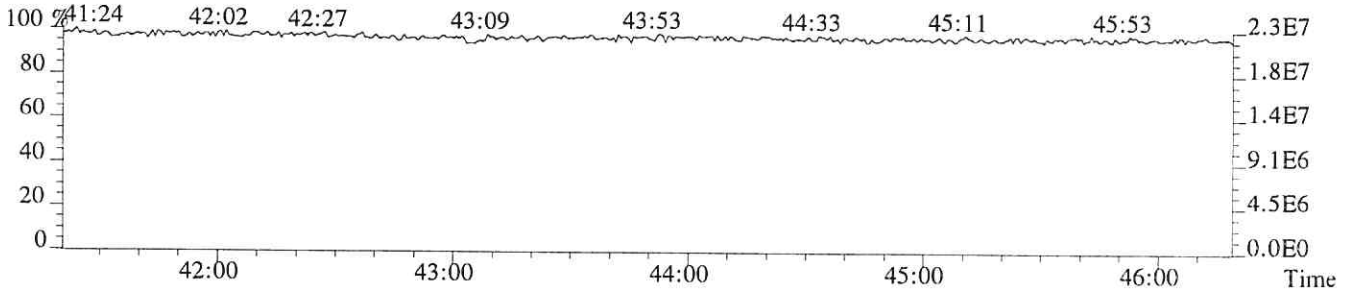
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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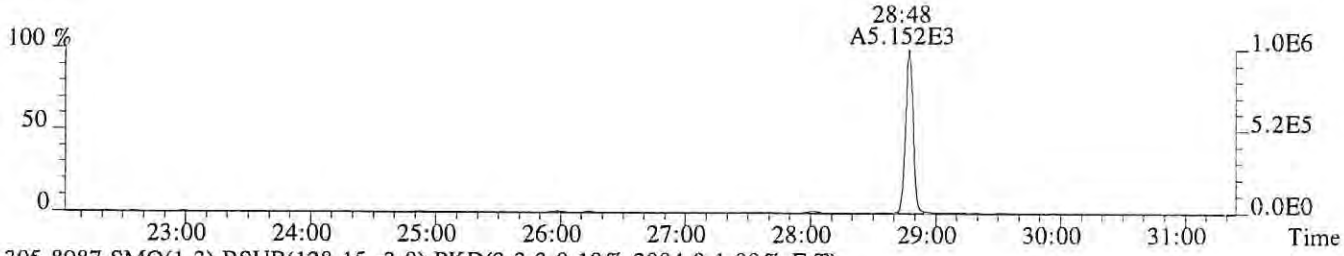
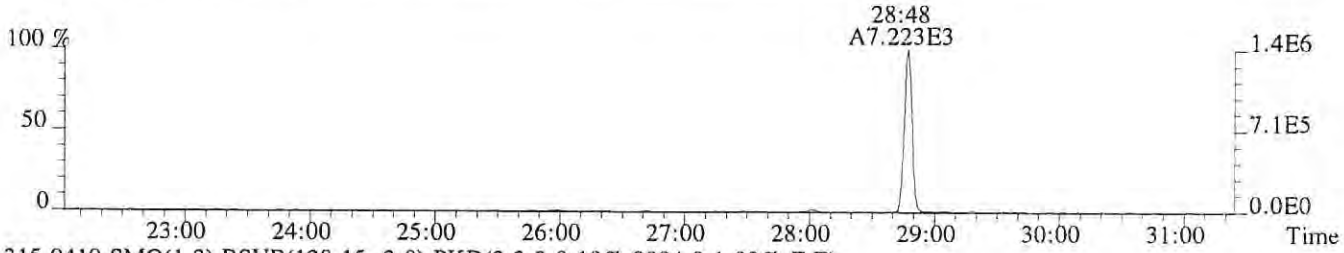
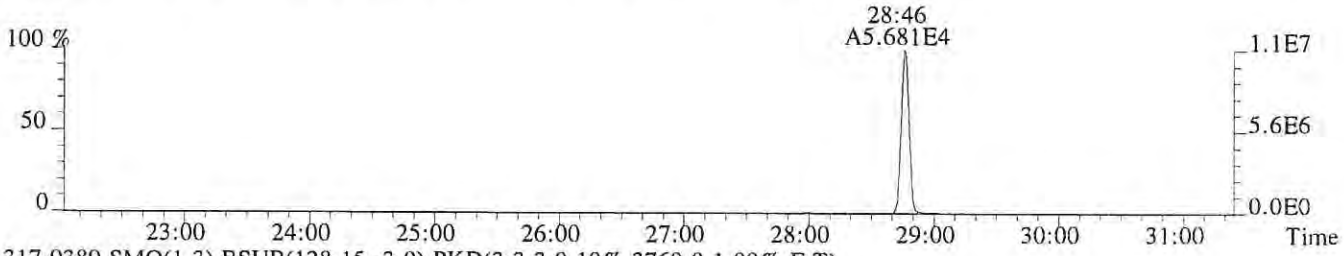
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



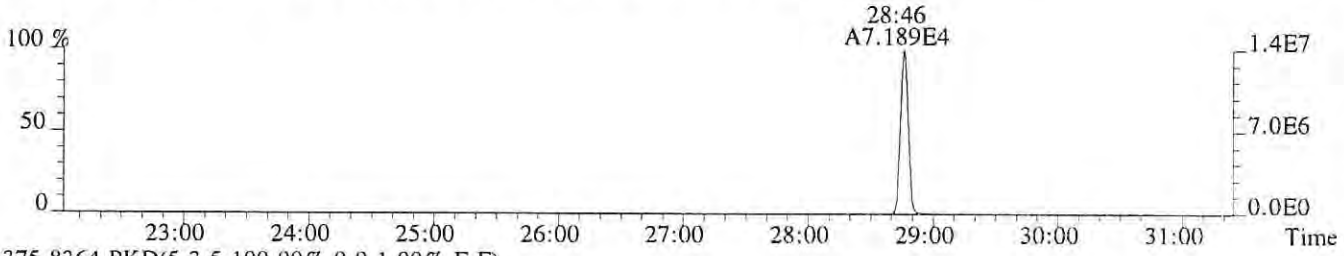
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



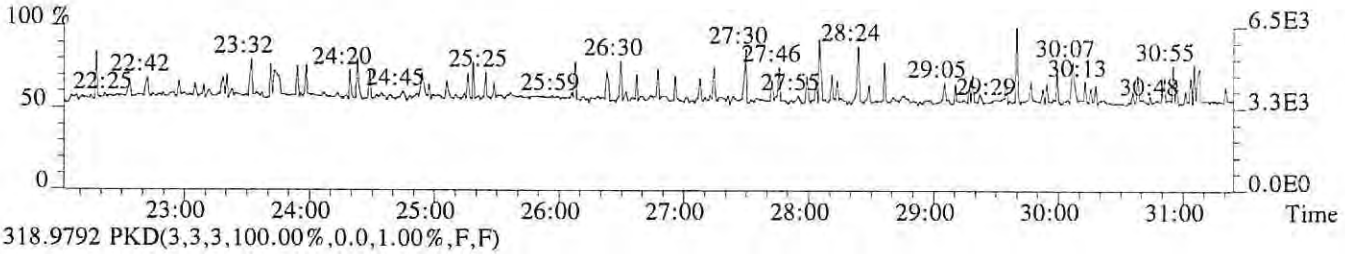
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



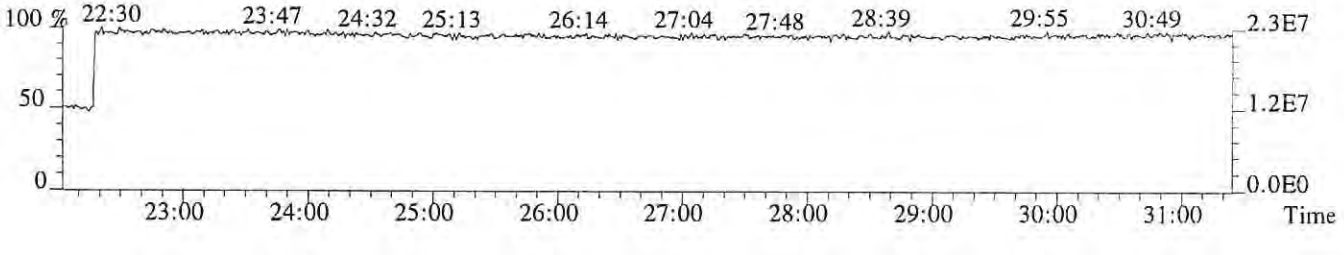
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



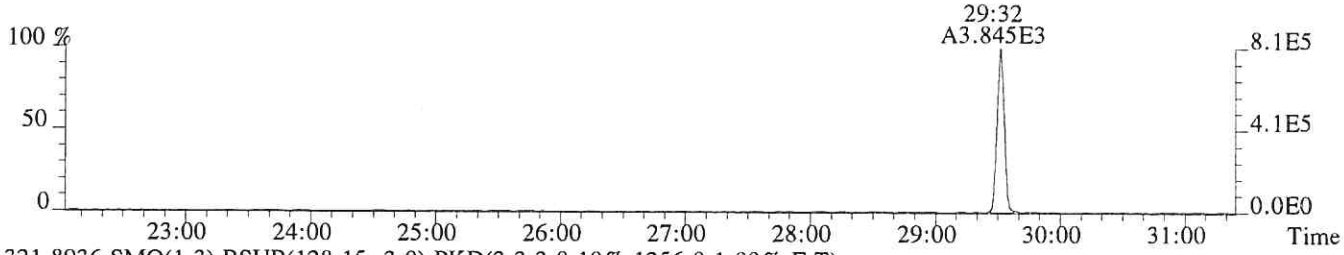
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



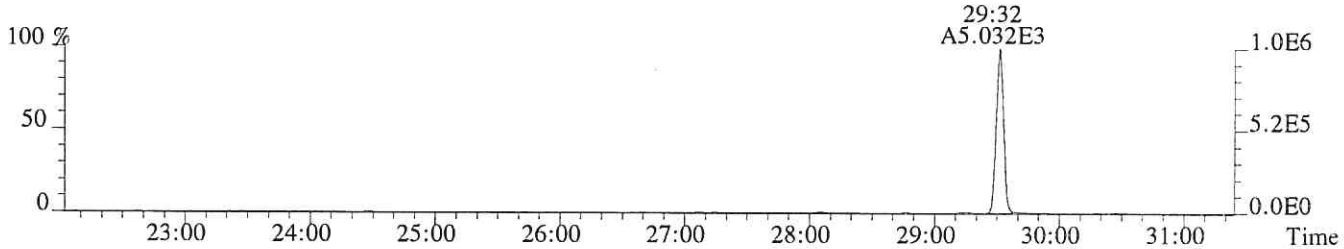
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



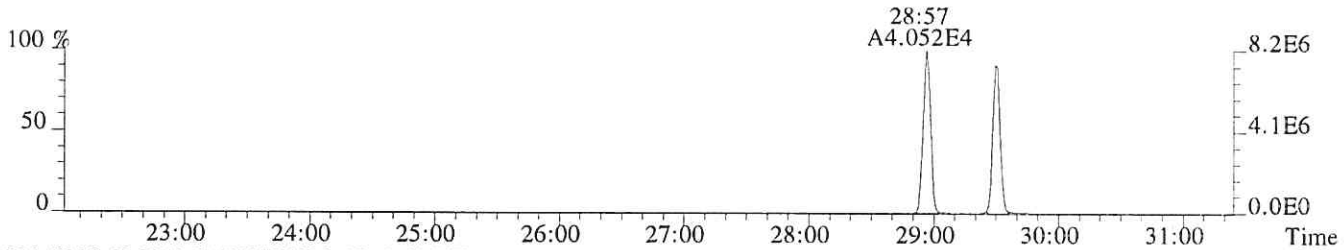
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



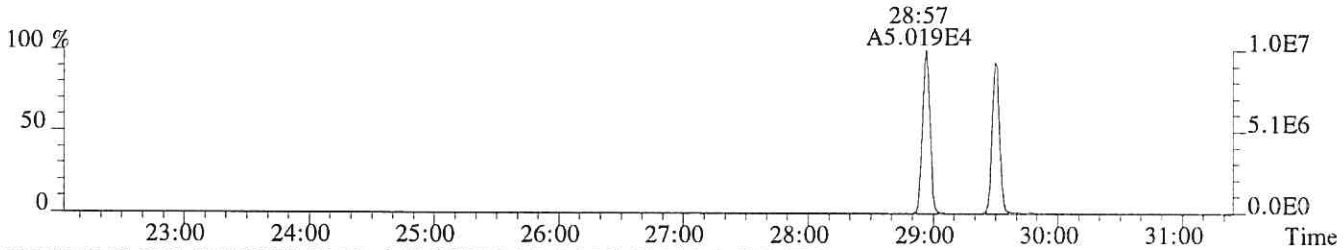
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



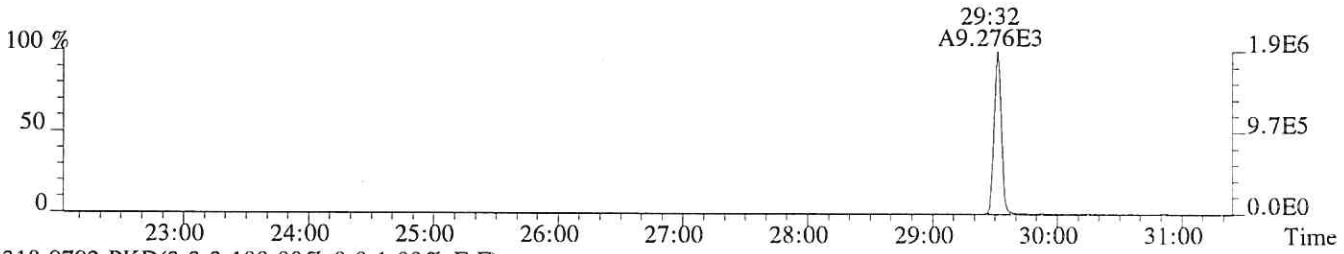
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



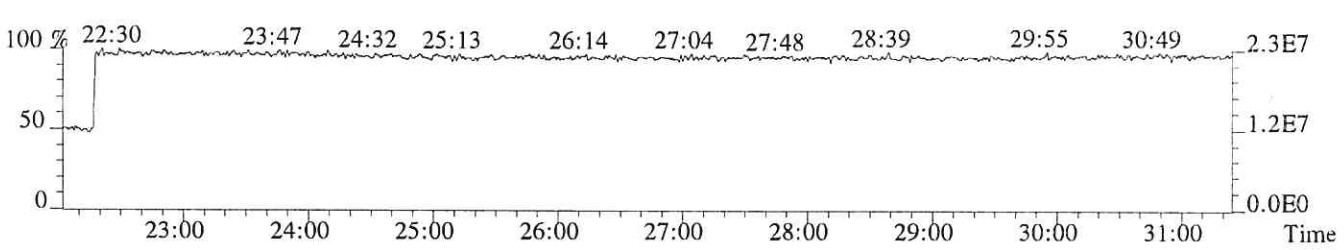
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



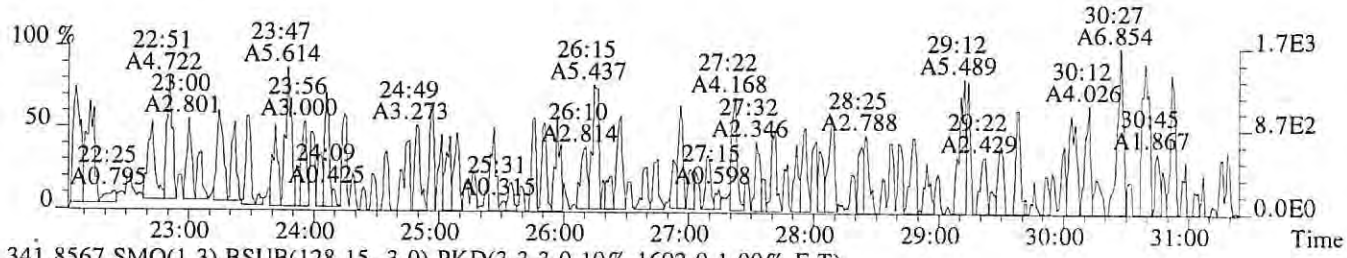
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



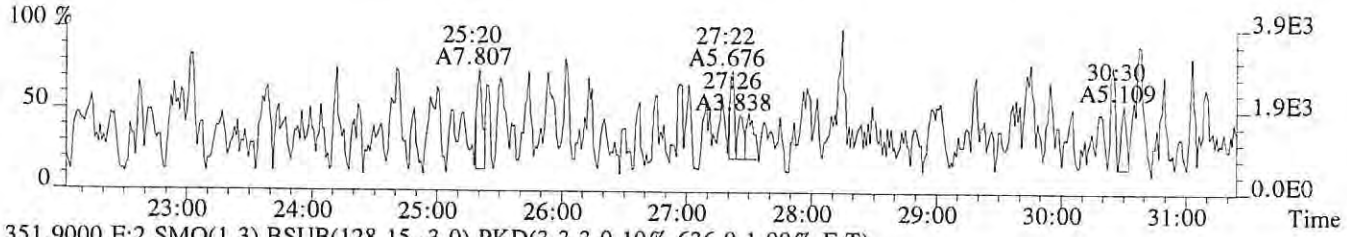
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



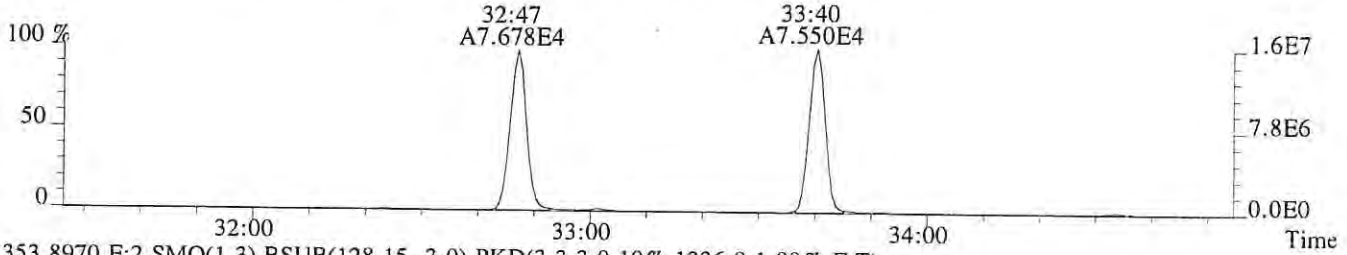
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



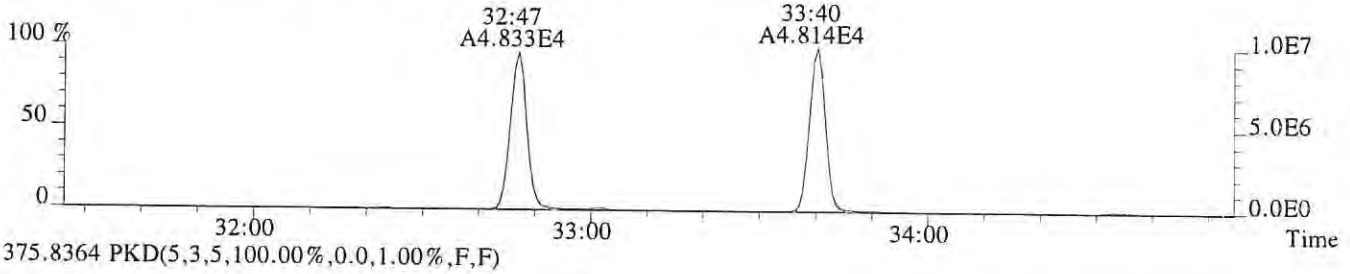
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



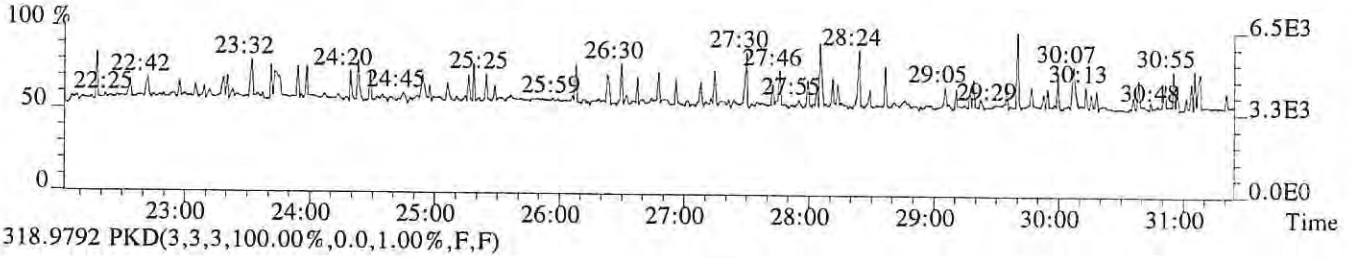
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



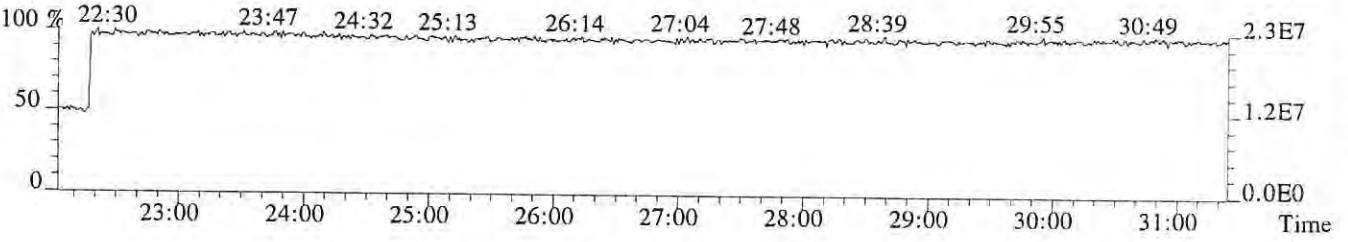
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



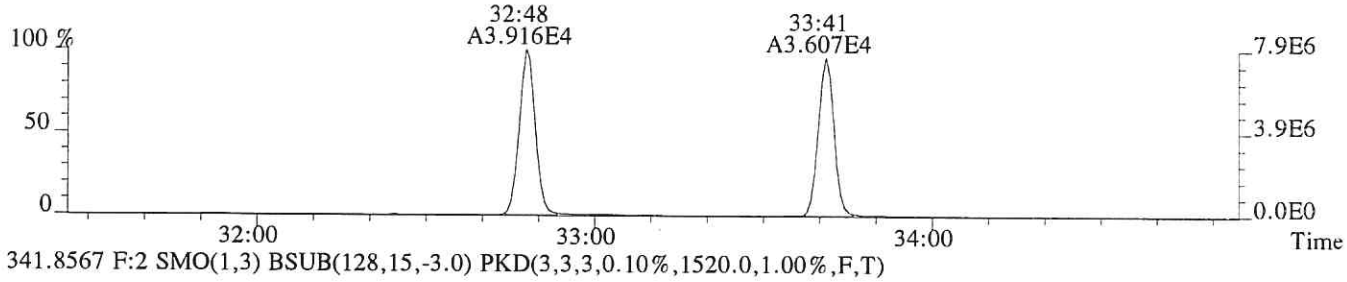
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



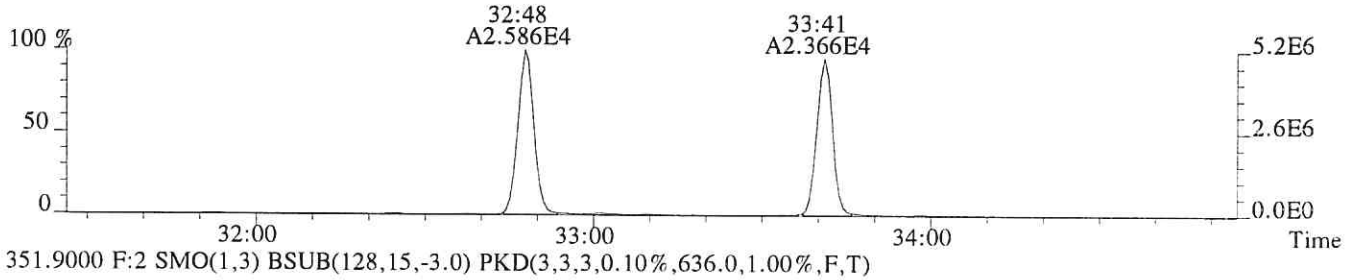
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



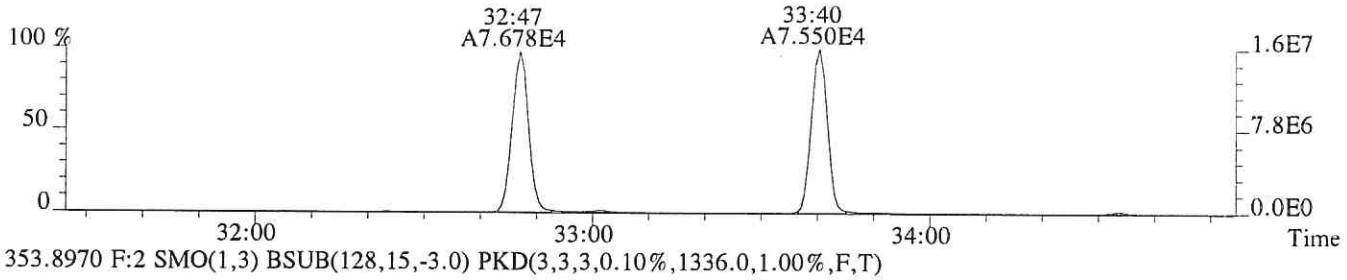
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



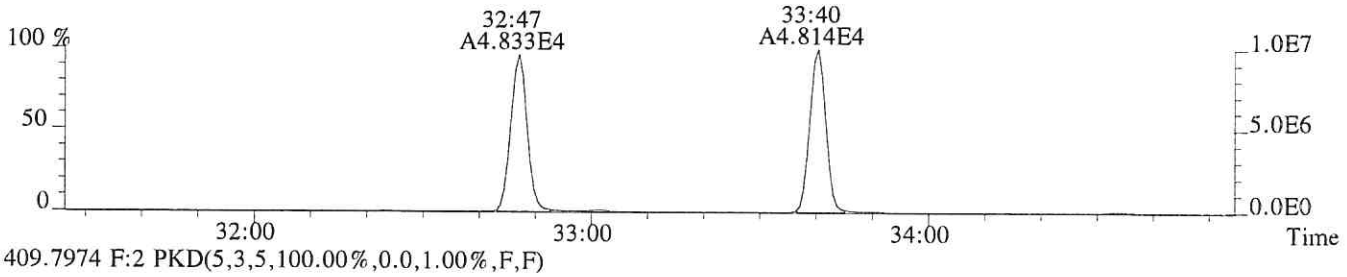
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



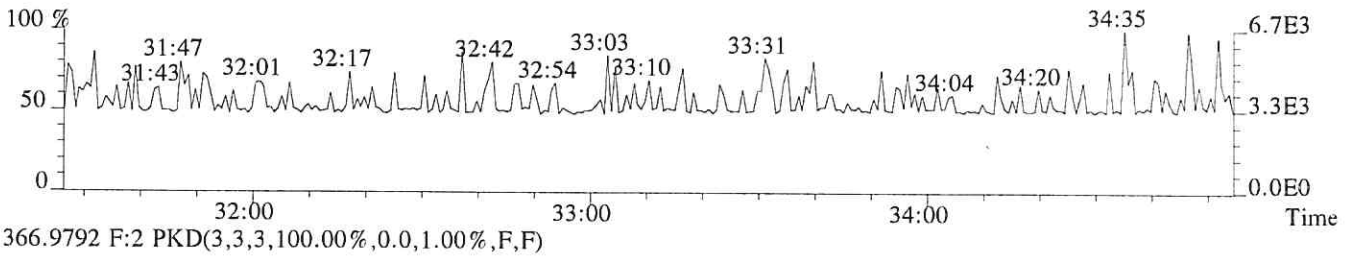
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



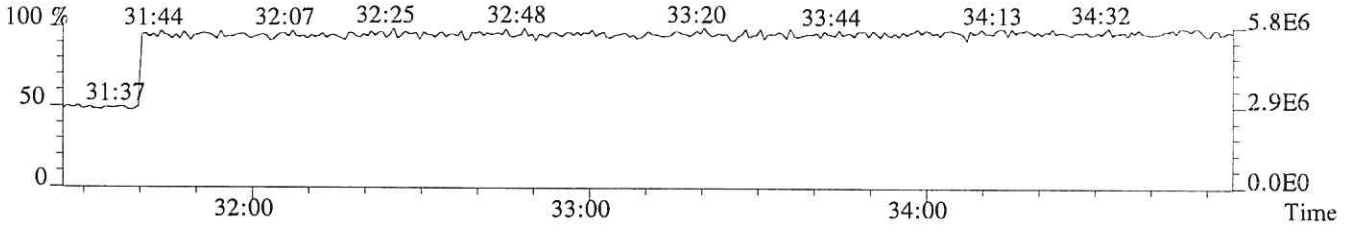
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



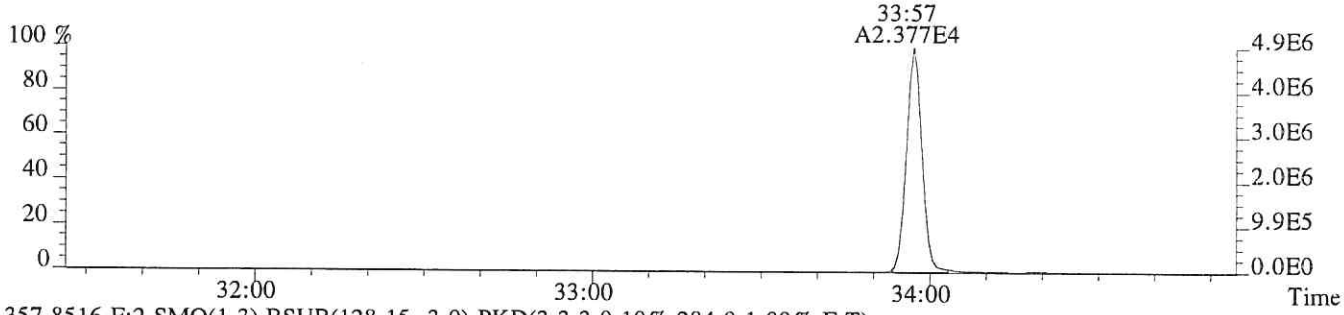
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



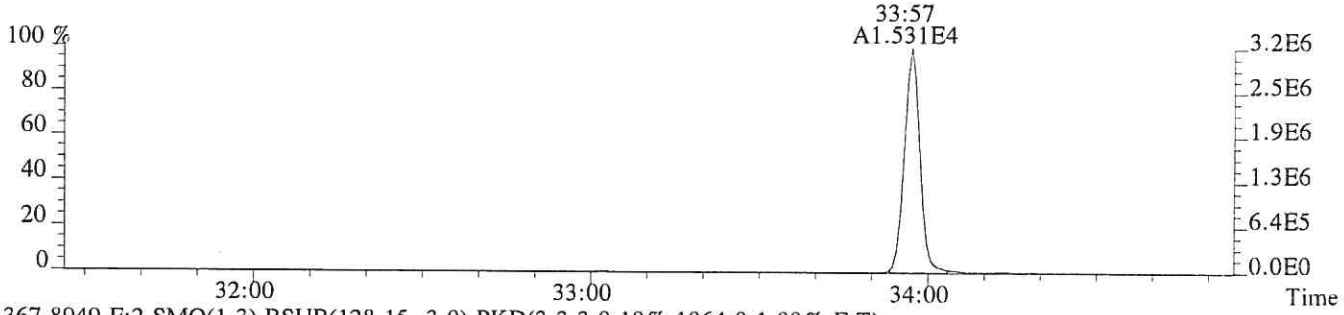
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



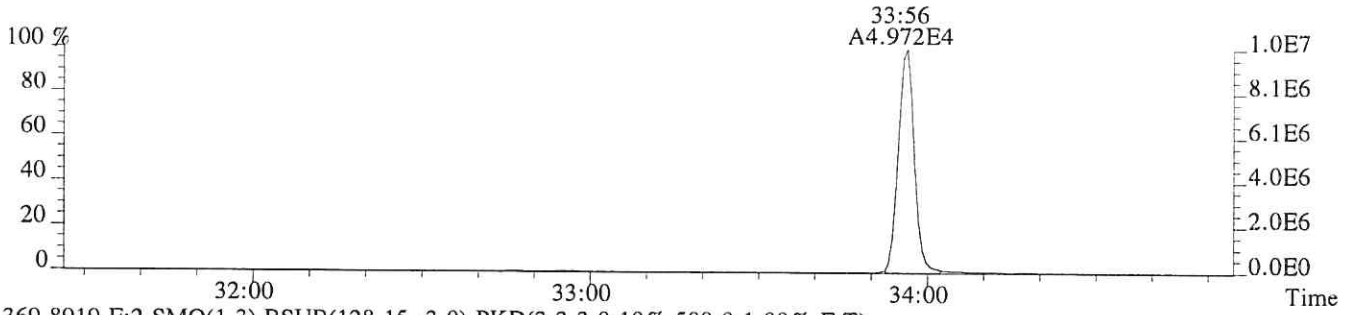
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



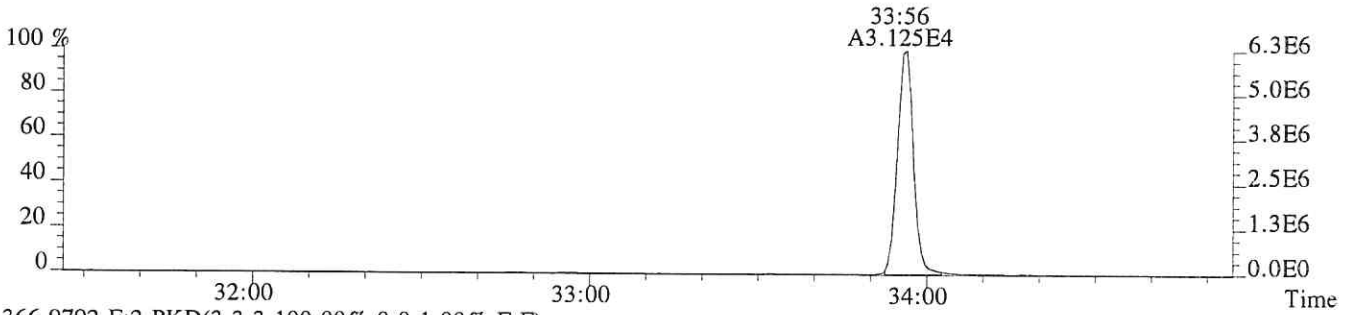
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



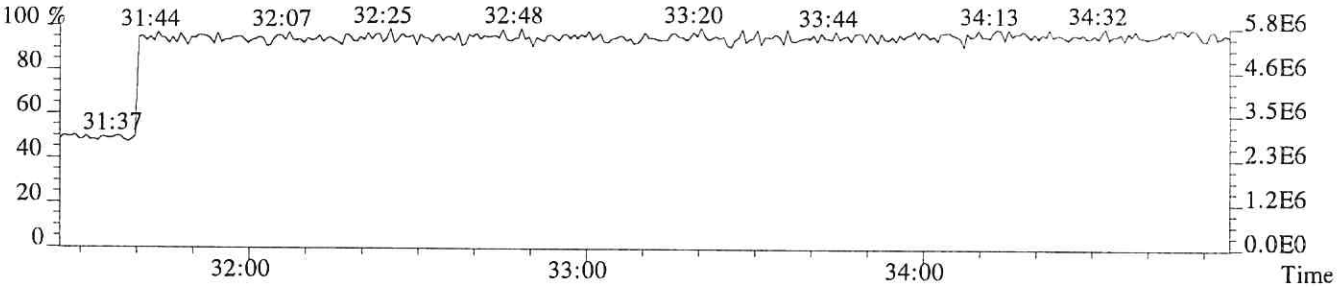
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



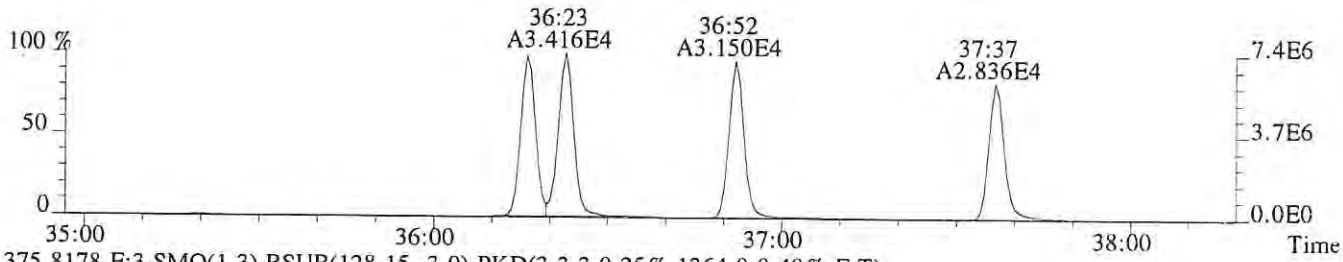
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



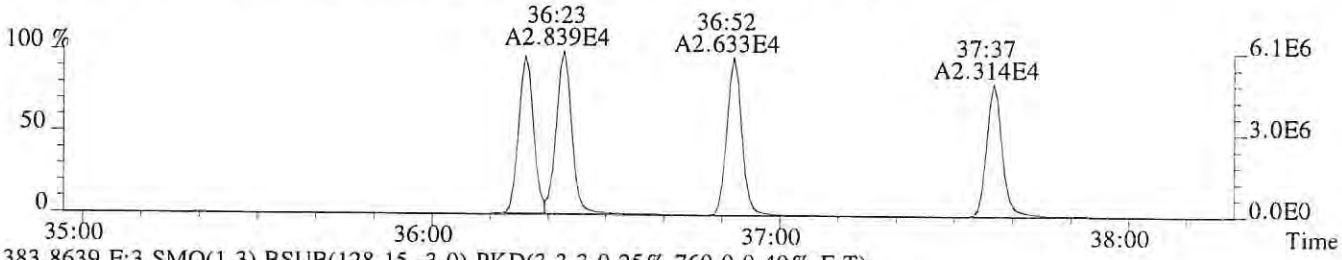
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



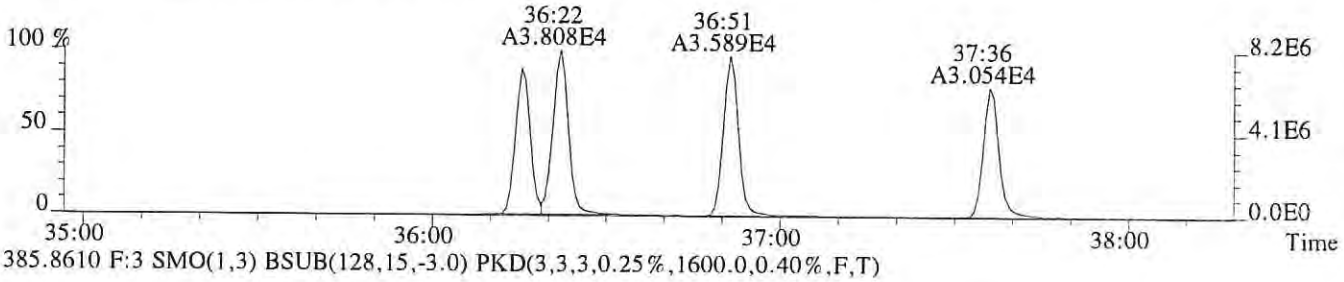
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



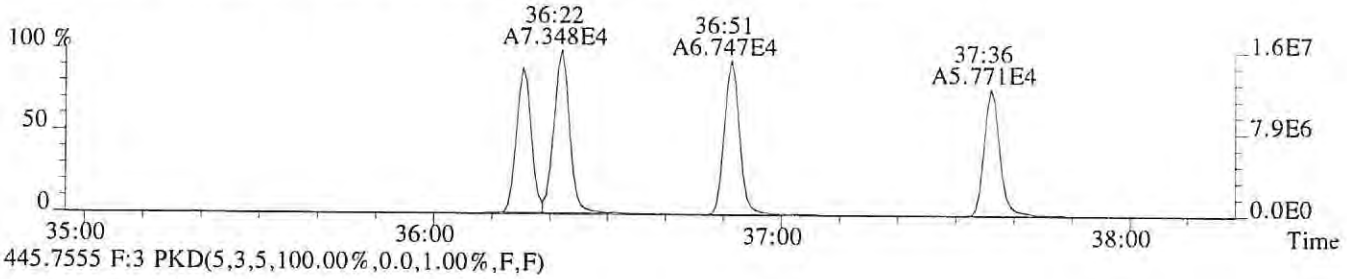
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



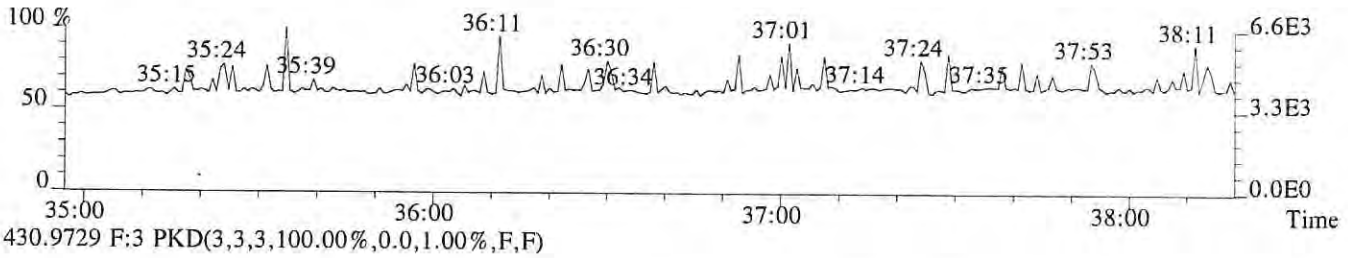
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



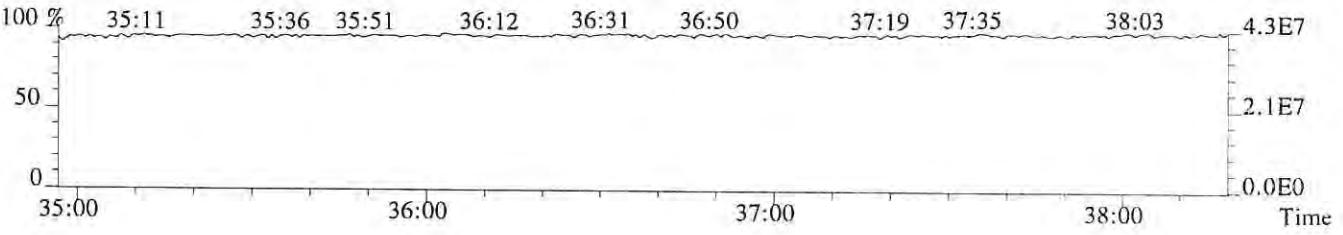
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



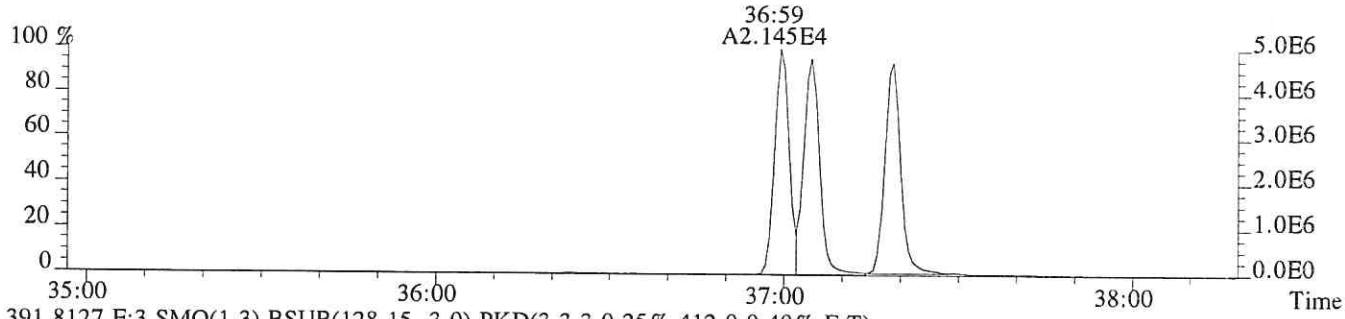
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



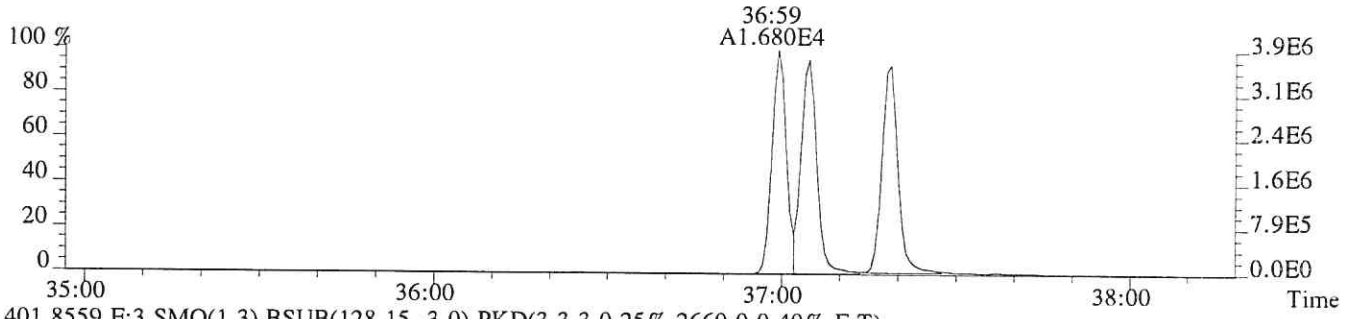
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



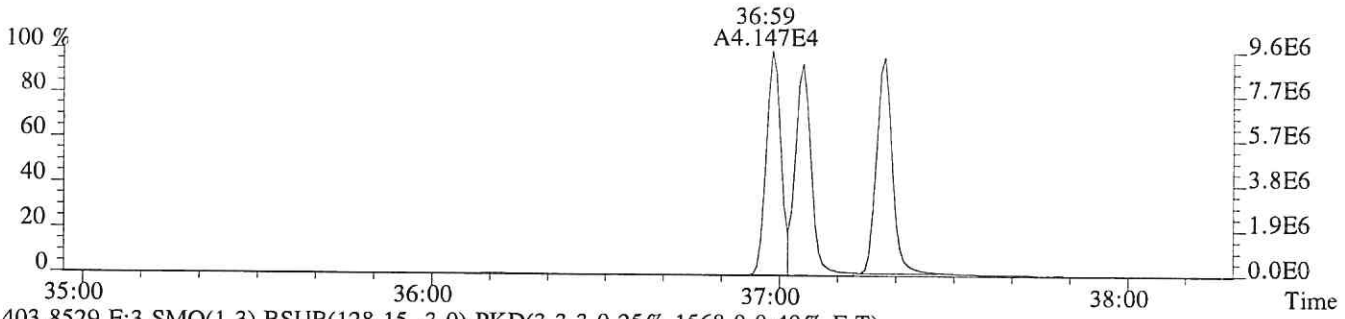
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



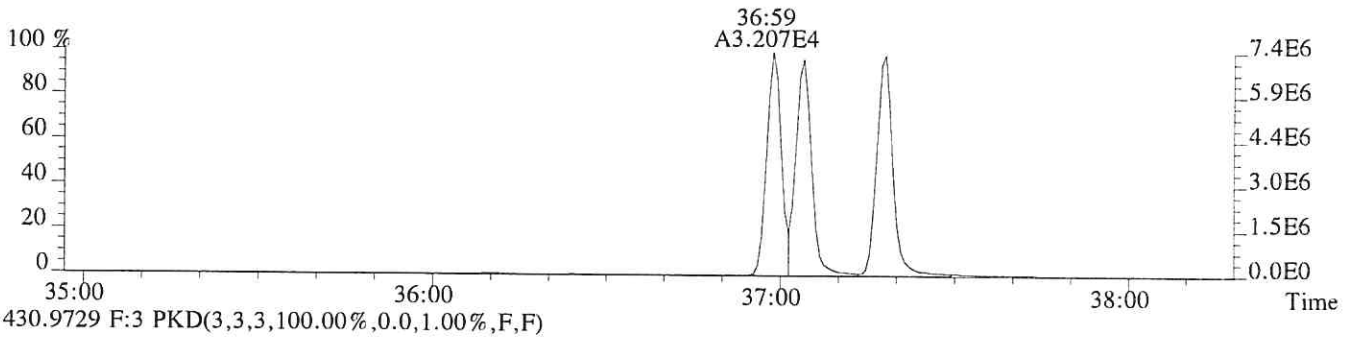
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



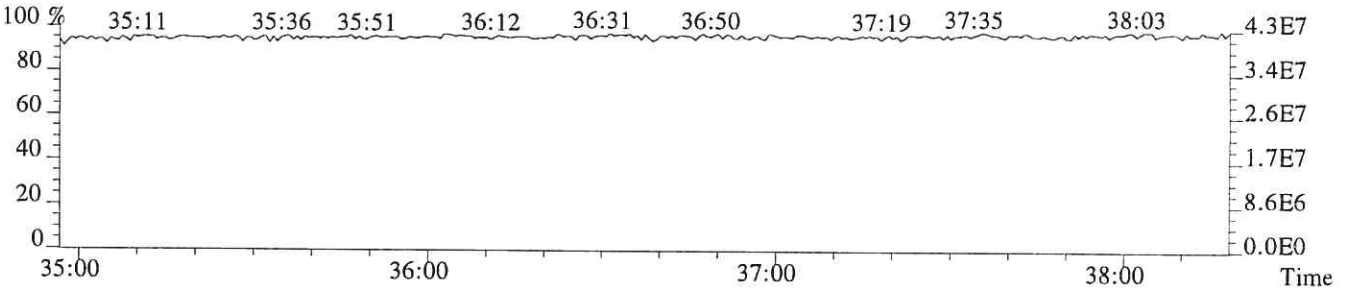
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



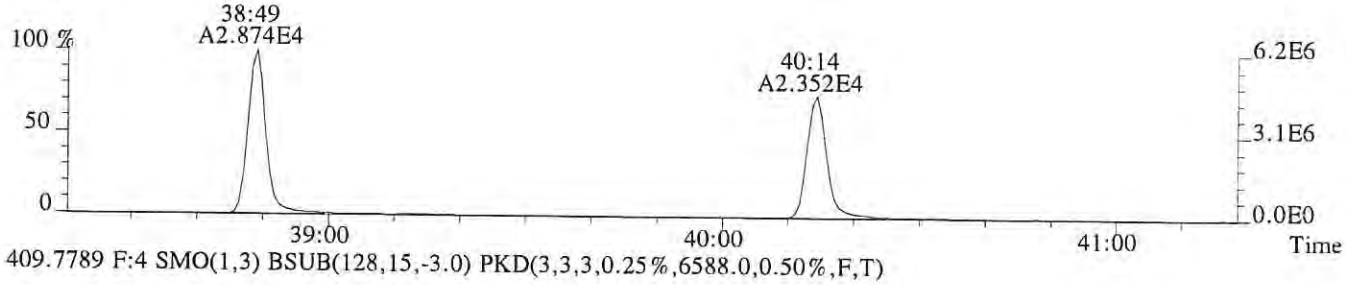
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



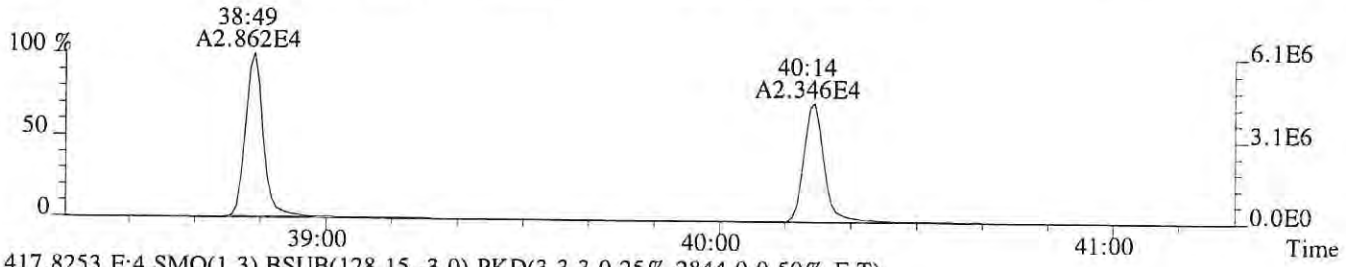
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



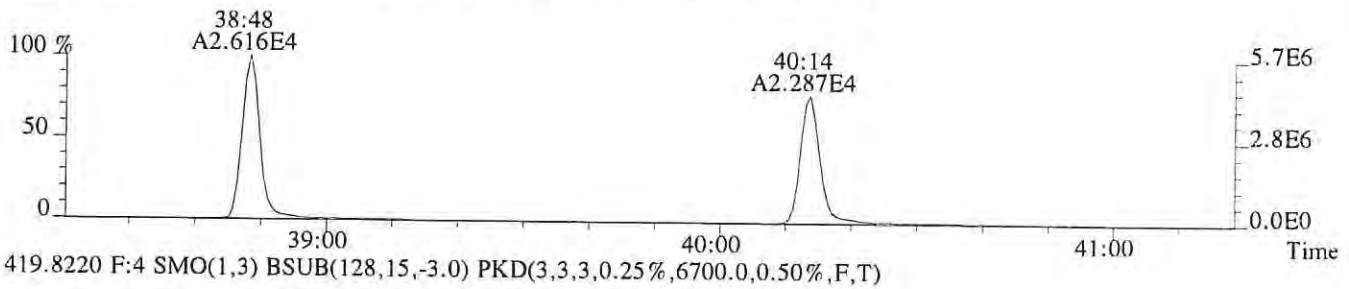
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



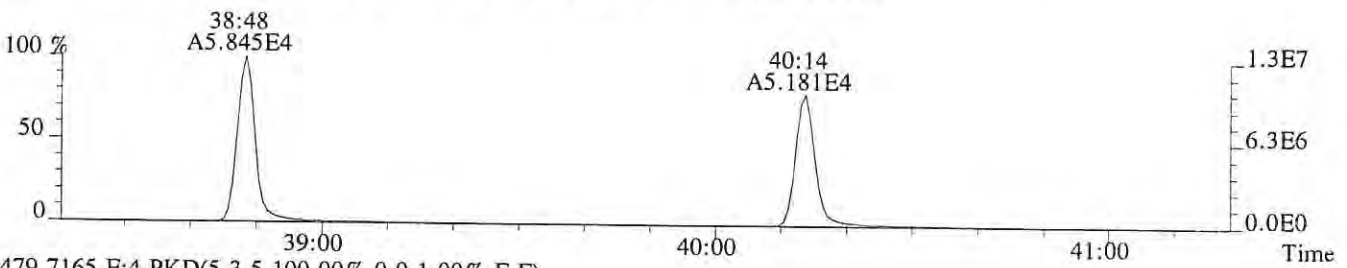
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



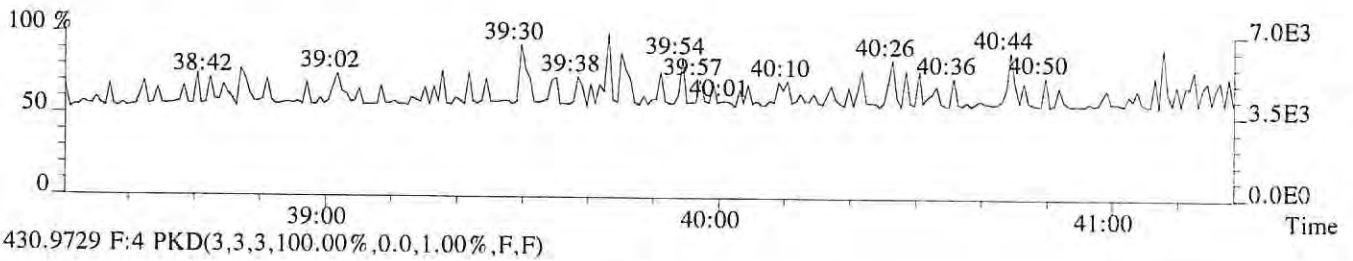
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



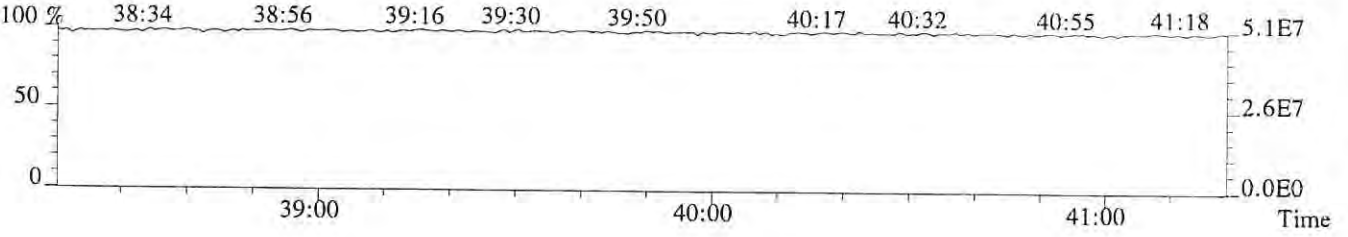
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



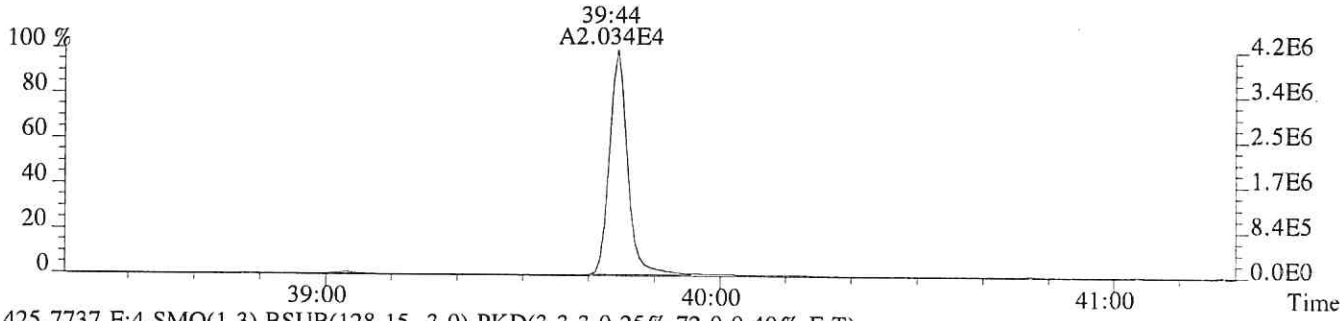
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



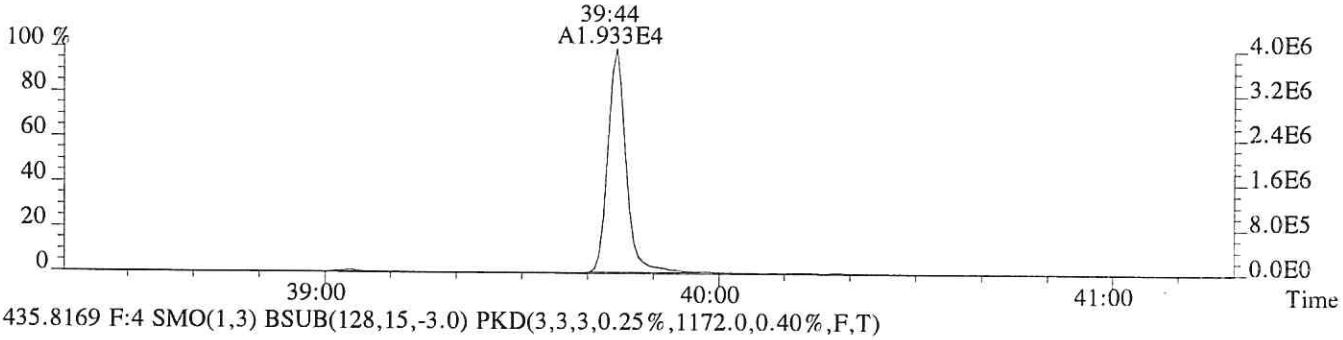
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



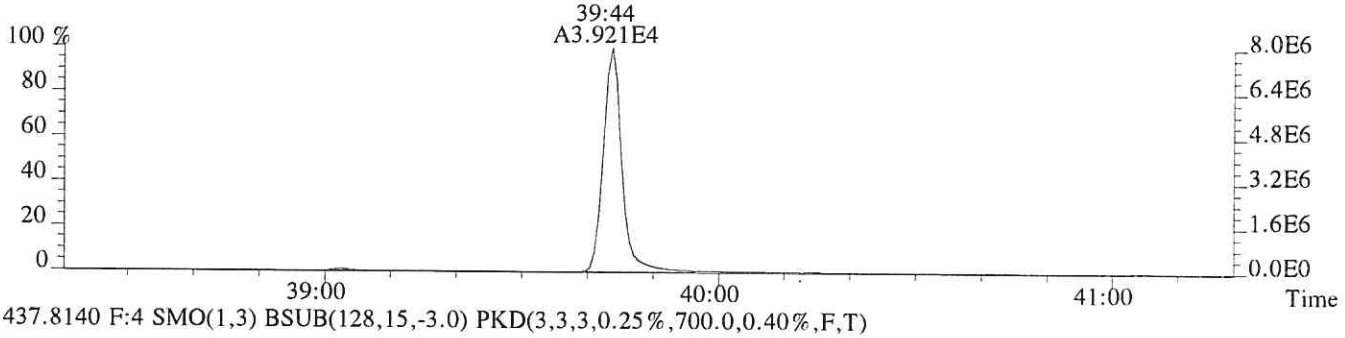
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



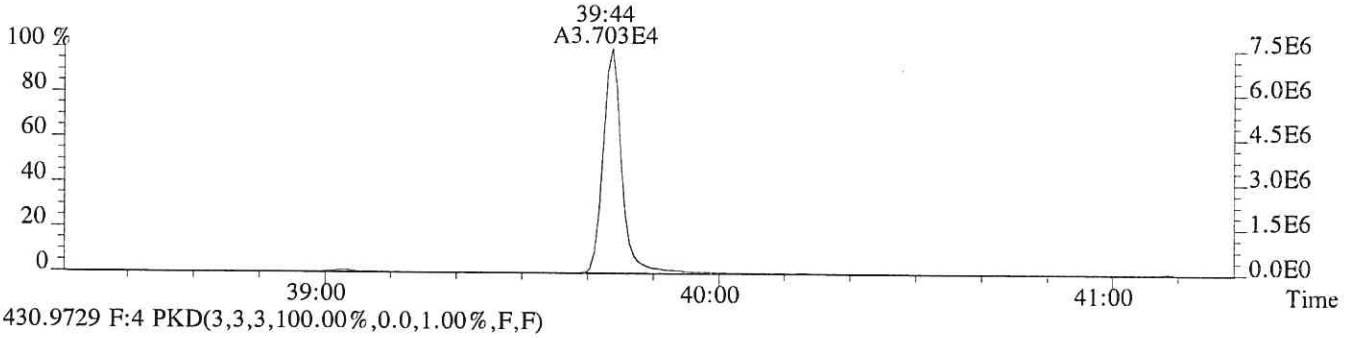
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



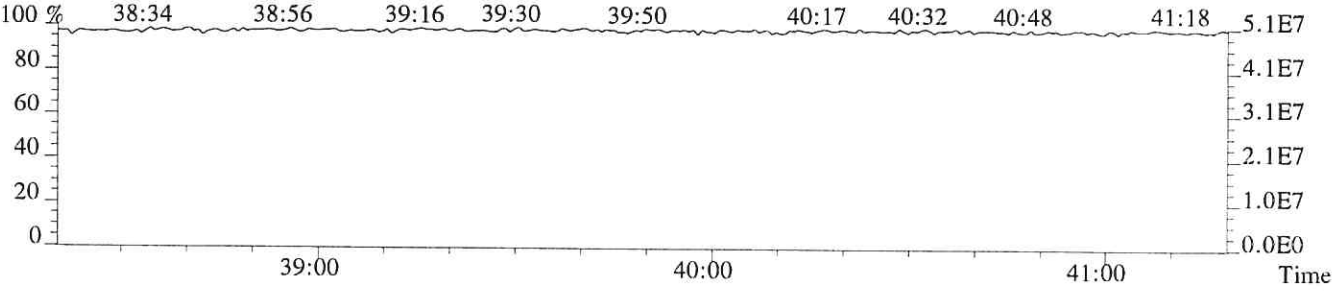
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



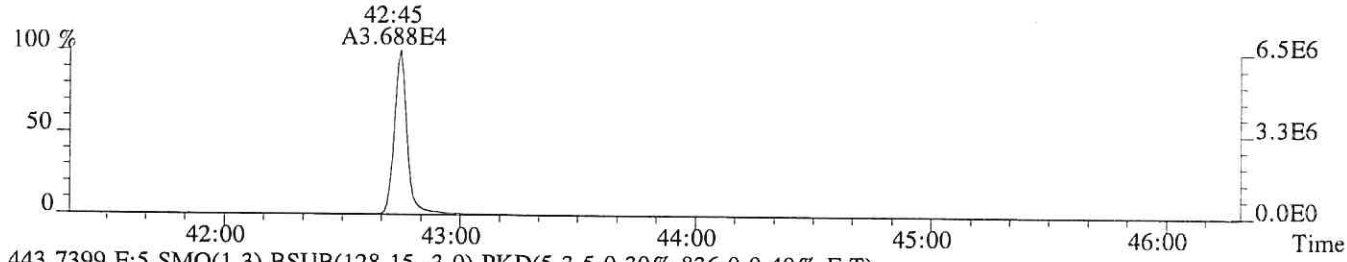
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



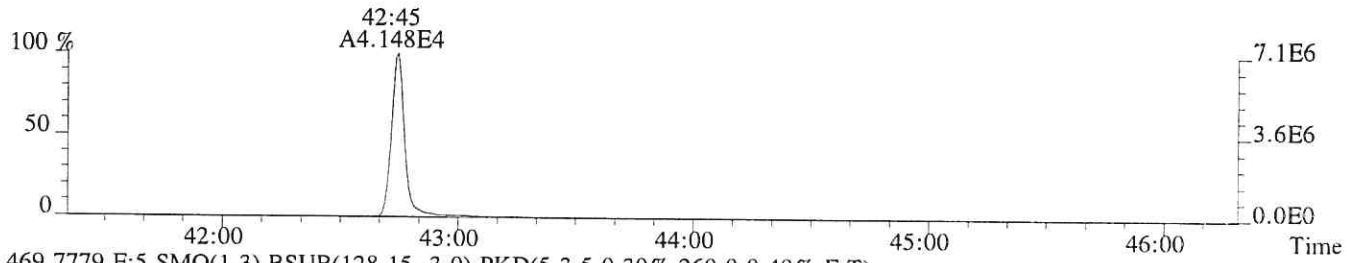
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



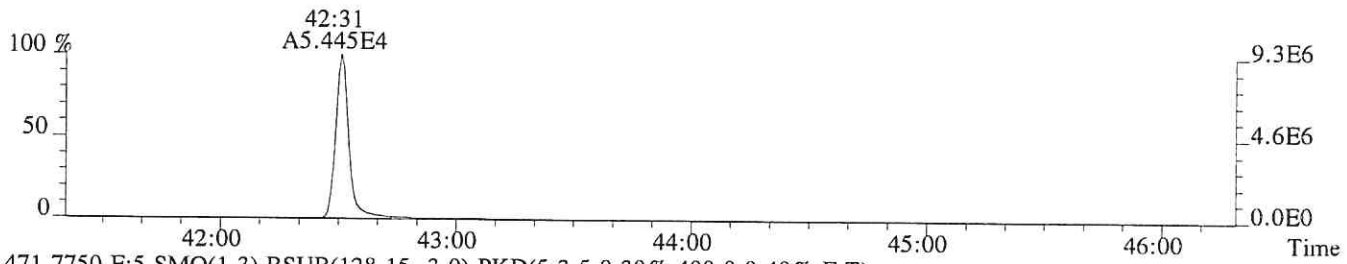
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



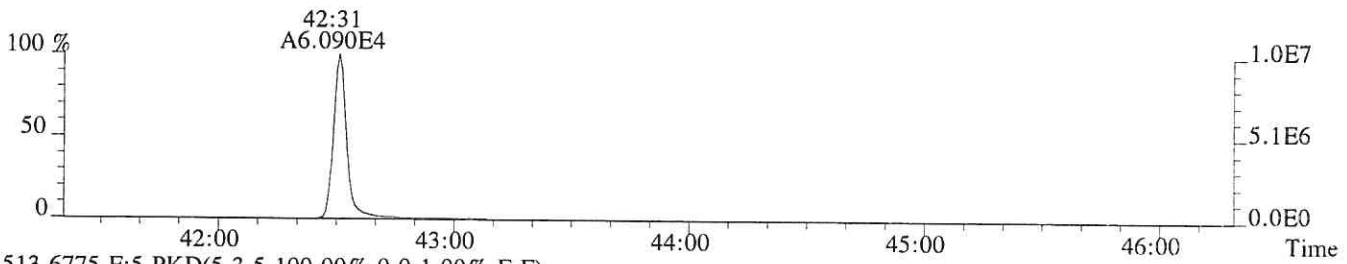
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



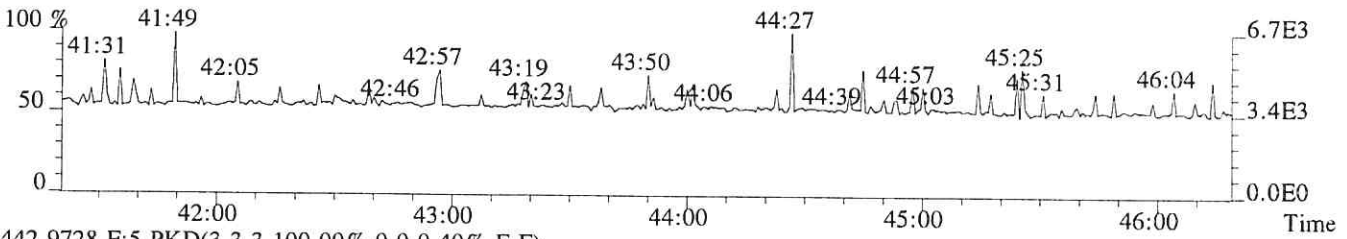
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



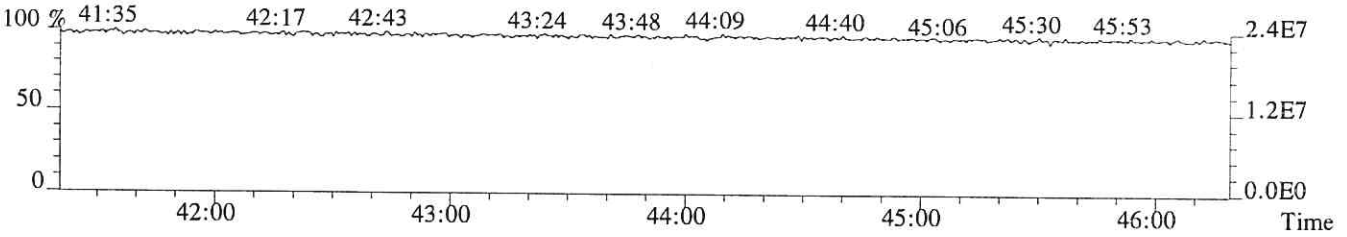
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



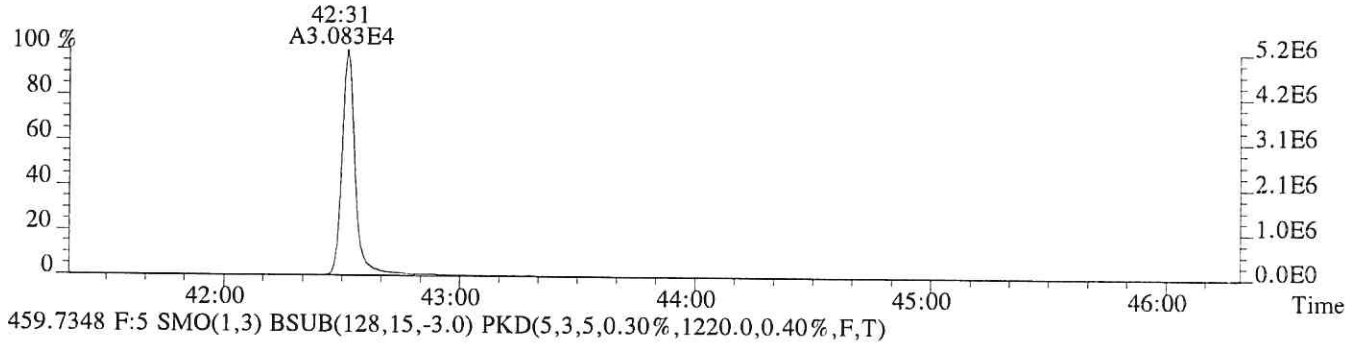
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



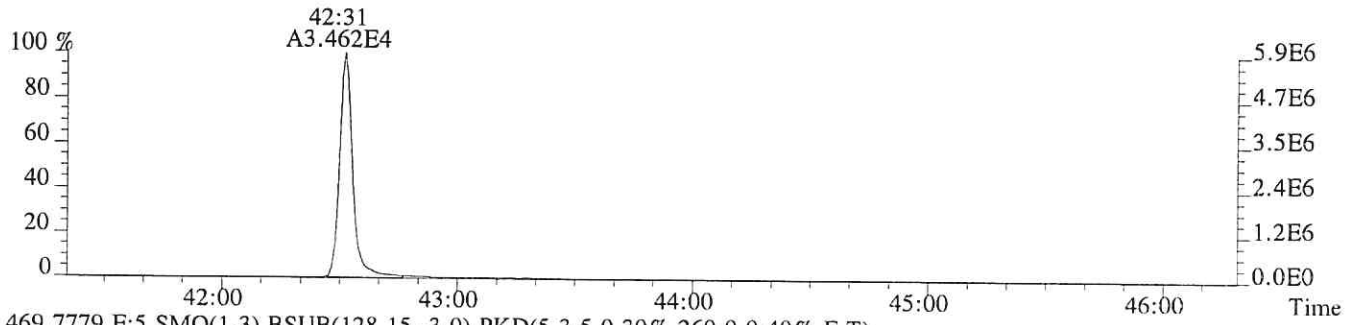
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



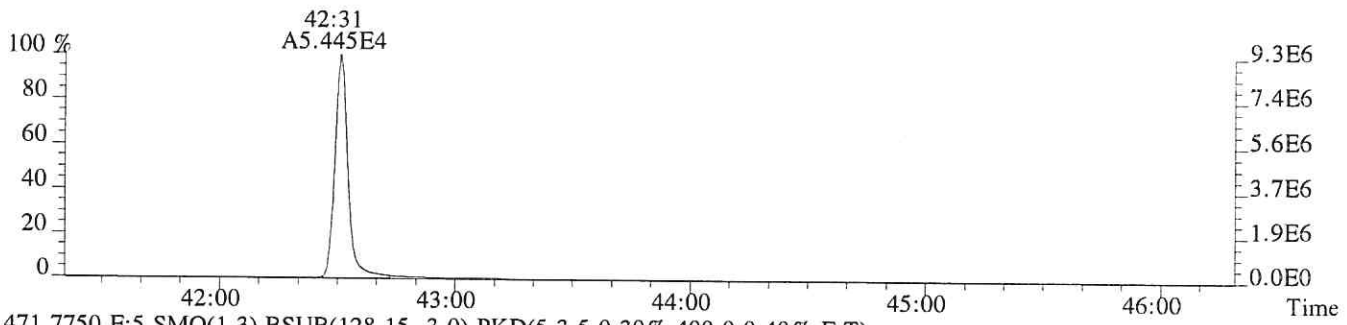
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



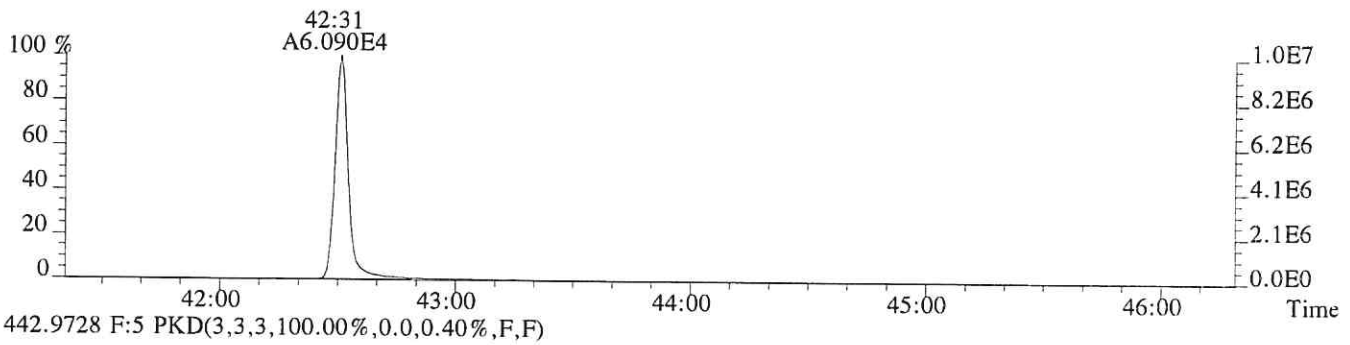
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



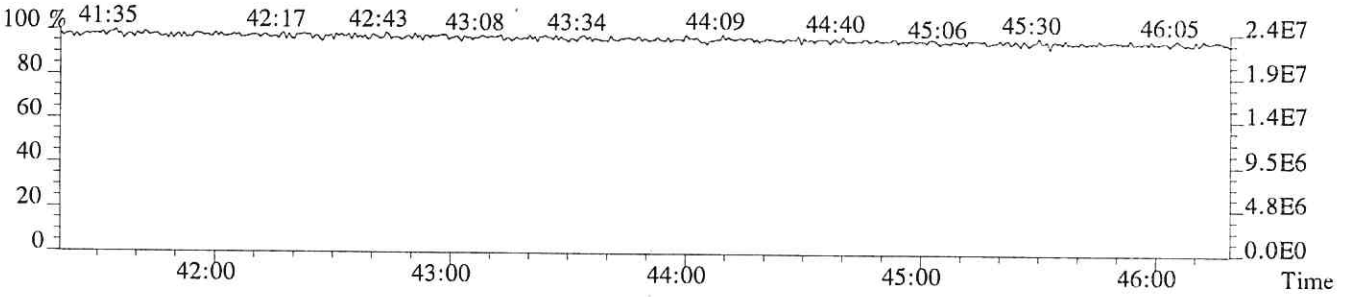
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



December 13, 2018 Service Request No:E1801046

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1844-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 14, 2018
For your reference, these analyses have been assigned our service request number **E1801046.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1801046
Project:	C1844-0501	**Date Received:**	11/14/18
Sample Matrix:	Soil/Wipe		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seven samples were received for analysis at ALS Environmental in Houston on 11/14/18.

The samples were received at 1.7°C, 3.2°C, and 0.8 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blanks EQ1800488-01 and EQ1800499-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800488 and EQ1800499: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

LCS/DLCS

EQ1800499: marginally low recovery for 1,2,3,4,6,7,8-HpCDD in the Laboratory Control Sample. The Duplicate Laboratory Control Sample and RPD are within control limits.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Integral Consulting, Incorporated **Service Request:**E1801046
Project: C1844-0501

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801046-001	SL0539	11/12/2018	1624
E1801046-002	SL0540	11/12/2018	1720
E1801046-003	SL0541	11/12/2018	1725
E1801046-004	SL0542	11/12/2018	1730
E1801046-005	SL0543	11/12/2018	1735
E1801046-006	SL0544	11/12/2018	1740
E1801046-007	FW0051	11/12/2018	0845

Service Request Summary

Folder #: **E1801046**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/14/18
Internal Due Date: 12/5/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

6 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
1 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 1A, E-Disposed
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801046-001	SL0539	Sludge, Solid	11/12/18 1624	**IV**	**IV**
E1801046-002	SL0540	Sludge, Solid	11/12/18 1720	**IV**	**IV**
E1801046-003	SL0541	Sludge, Solid	11/12/18 1725	**IV**	**IV**
E1801046-004	SL0542	Sludge, Solid	11/12/18 1730	**IV**	**IV**
E1801046-005	SL0543	Sludge, Solid	11/12/18 1735	**IV**	**IV**
E1801046-006	SL0544	Sludge, Solid	11/12/18 1740	**IV**	**IV**
E1801046-007	FW0051	Wipe	11/12/18 0845	**IV**	

Service Request Summary

Folder #: **E1801046**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/14/18
Internal Due Date: 12/5/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

6 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
1 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 1A, E-Disposed

Pressure Gas:

Superset Summary

Service Request: E1801046 **SuperSet Reference:** 18-0000490007 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519291	P519287	P519290	E1801046-001
P519247	P519240	P519290	E1801046-001.R01
P519292	P519287	P519290	E1801046-002
P519248	P519240	P519290	E1801046-002.R01
P519293	P519287	P519290	E1801046-003
P519249	P519240	P519290	E1801046-003.R01
P519294	P519287	P519290	E1801046-004
P519250	P519240	P519290	E1801046-004.R01
P519251	P519240	P519290	E1801046-005
P519361	P519350	P616043	E1801046-007
P519290	P519287	P519290	EQ1800488-01
P519363	P519350	P519290	EQ1800488-02
P519364	P519350	P519290	EQ1800488-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615947	P615940	P519290	E1801046-006
P616043	P616040	P616043	EQ1800499-01
P616051	P616040	P616043	EQ1800499-02
P616052	P616040	P616043	EQ1800499-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801046 | DB-5MSUI (circled) | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/07/18	JC	001-005

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/07/18	LKL	001-005

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801046 | (DB-5MSUI) | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/10/18	YC	001DL – 004DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/10/18	LKL	001DL - 004DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801046 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/10/18	JC	006

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/11/18	LKL	006

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801046 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 12/12/18	Analyst: Jc	Samples: 007

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/12/18	LKL	007

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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CHAIN OF CUSTODY FORM

Page __ of __

Project: C1844 - 0501

Samplers: O. Hargrave

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	ANALYSES REQUESTED: PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides					Extra Container	Archive	Comments
SL0539	0539	11/12/18	1624	SL	X										
SL0540	0540	11/12/18	1720	SL	X										
SL0541	0541	11/12/18	1725	SL	X										
SL0542	0542	11/12/18	1730	SL	X										
SL0543	0543	11/12/18	1735	SL	X										
SL0544	0544	11/12/18	1740	SL	X										
FW10051	0490	11/12/18	0845	FW	X										

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: Amber Langley (signature) **Date/Time:** 11/14/18 0927 **Received by:** Paul Johnson (signature) **Date/Time:** 11/14/18 0927

Relinquished by: _____ (signature) **Date/Time:** _____ **Received by:** CG 11/14/18 1212 (signature) **Date/Time:** _____

Matrix Code:	
GW - Groundwater	
SL - Soil	SW - Surface water
SD -Sediment	Other:

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler Receipt Form

ALS Environmental

Project Chemist KB

Client/Project INTEGRAL

Thermometer ID SM04

Date/Time Received: 11/14/17 Initials: CS Date/Time Logged in: 11/14/17 Initials CS

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ⊘ Courier (ALS) ○ Client

2. Samples received in: ⊘ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ○ No
   Were they intact? ⊘ Yes ○ No ○ N/A
   Were they signed and dated? ⊘ Yes ○ No ○ N/A
   If yes, how many and where? 2 SEALS

4. Packing Material: ○ Inserts ⊘ Baggies ⊘ Bubble Wrap ○ Gel Packs ⊘ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ⊘ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/14/18	1214	RS	1.7 / 2.1	☑
-		↓	↓	↓	3.2 / 3.6	☑
-		↓	↓	↓	0.8 / 1.2	☑
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ⊘ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ⊘ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ⊘ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ⊘ Yes ○ No
10. Did sample labels and tags agree with custody documents? ⊘ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E1801046 5
Integral Consulting, Inc.
C1844-0501

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801045-006	SL0153	.01	1613B/Dioxins Furans			Sludge, Solid	10.317g	Brown Mud
2	E1801045-017	SL0164	.01	1613B/Dioxins Furans			Sludge, Solid	10.713g	Brown Mud
3	E1801045-023	SL0146	.01	1613B/Dioxins Furans			Sludge, Solid	10.539g	Black Mud + Rocks
4	E1801046-001	SL0539	.01	1613B/Dioxins Furans			Sludge, Solid	10.411g	Brown Mud
5	E1801046-002	SL0540	.01	1613B/Dioxins Furans			Sludge, Solid	10.919g	Brown Mud
6	E1801046-003	SL0541	.01	1613B/Dioxins Furans			Sludge, Solid	10.976g	Brown Mud
7	E1801046-004	SL0542	.01	1613B/Dioxins Furans			Sludge, Solid	10.909g	Brown Mud
8	E1801046-005	SL0543	.01	1613B/Dioxins Furans			Sludge, Solid	10.895g	Brown Mud
9	E1801046-006	SL0544	.01	1613B/Dioxins Furans			Sludge, Solid	10.732g	Brown Mud
10	E1801056-006	SL0191	.04	1613B/Dioxins Furans			Sediment	10.626g	Brown Mud + Rocks
11	E1801056-012	SL0197	.04	1613B/Dioxins Furans			Sediment	10.151g	Brown Mud + Rocks
12	E1801056-023	SL0175	.04	1613B/Dioxins Furans			Sediment	10.629g	Black + Brown Mud
13	E1801056-039	SL0203	.04	1613B/Dioxins Furans			Sediment	10.924g	Brown Mud
14	E1801056-040	SL0204	.04	1613B/Dioxins Furans			Sediment	10.602g	Brown Mud
15	E1801056-057	SL0221	.04	1613B/Dioxins Furans			Sediment	10.729g	Brown Mud
16	E1801056-063	SL0227	.04	1613B/Dioxins Furans			Sediment	10.718g	Brown Mud
17	E1801058-011	SL0243	.02	1613B/Dioxins Furans			Sediment	10.111g	Brown Mud
18	E1801058-017	SL0249	.02	1613B/Dioxins Furans			Sediment	10.667g	Brown Mud
19	E1801058-018	SL0250	.02	1613B/Dioxins Furans			Sediment	10.538g	Brown Mud
20	E1801058-024	SL0256	.02	1613B/Dioxins Furans			Sediment	10.853g	Brown Mud
21	EQ1800488-01	MB		1613B/Dioxins Furans			Solid	10.246g	
22	EQ1800488-02	LCS		1613B/Dioxins Furans			Solid	10.279g	
23	EQ1800488-03	DLCS		1613B/Dioxins Furans			Solid	10.116g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 194946 Logbook Ref: 194946 AL 11/14/18 2-20 ng/mL Expires On: 05/13/2019

EQ1800488-02 100.00µL EQ1800488-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195222 Logbook Ref: 195221 JG 11/29/18 2-4ngml Expires On: 01/31/2019

E1801045-006	1,000.00µL	E1801045-017	1,000.00µL	E1801045-023	1,000.00µL	E1801046-001	1,000.00µL	E1801046-001.F	1,000.00µL	E1801046-002	1,000.00µL
E1801046-002.F	1,000.00µL	E1801046-003	1,000.00µL	E1801046-003.F	1,000.00µL	E1801046-004	1,000.00µL	E1801046-004.F	1,000.00µL	E1801046-005	1,000.00µL
E1801046-006	1,000.00µL	E1801056-006	1,000.00µL	E1801056-006.F	1,000.00µL	E1801056-012	1,000.00µL	E1801056-023	1,000.00µL	E1801056-023.F	1,000.00µL
E1801056-039	1,000.00µL	E1801056-039.F	1,000.00µL	E1801056-040	1,000.00µL	E1801056-040.F	1,000.00µL	E1801056-057	1,000.00µL	E1801056-057.F	1,000.00µL
E1801056-063	1,000.00µL	E1801056-063.F	1,000.00µL	E1801058-011	1,000.00µL	E1801058-017	1,000.00µL	E1801058-017.F	1,000.00µL	E1801058-018	1,000.00µL

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

E1801058-018.F	1,000.00µL	E1801058-024	1,000.00µL	EQ1800488-01	1,000.00µL	EQ1800488-02	1,000.00µL	EQ1800488-03	1,000.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801045-006	100.00µL	E1801045-017	100.00µL	E1801045-023	100.00µL	E1801046-001	100.00µL	E1801046-001.F	100.00µL	E1801046-002	100.00µL
E1801046-002.F	100.00µL	E1801046-003	100.00µL	E1801046-003.F	100.00µL	E1801046-004	100.00µL	E1801046-004.F	100.00µL	E1801046-005	100.00µL
E1801046-006	100.00µL	E1801056-006	100.00µL	E1801056-006.F	100.00µL	E1801056-012	100.00µL	E1801056-023	100.00µL	E1801056-023.F	100.00µL
E1801056-039	100.00µL	E1801056-039.F	100.00µL	E1801056-040	100.00µL	E1801056-040.F	100.00µL	E1801056-057	100.00µL	E1801056-057.F	100.00µL
E1801056-063	100.00µL	E1801056-063.F	100.00µL	E1801058-011	100.00µL	E1801058-017	100.00µL	E1801058-017.F	100.00µL	E1801058-018	100.00µL
E1801058-018.F	100.00µL	E1801058-024	100.00µL	EQ1800488-01	100.00µL	EQ1800488-02	100.00µL	EQ1800488-03	100.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195001)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/29/18 11:00	Started:	12/4/18 09:00	Started:	12/4/18 12:00	Started:	12/5/18 10:00
Finished:	11/30/18 07:30	Finished:	12/4/18 10:00	Finished:	12/4/18 15:00	Finished:	12/5/18 13:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801046-007	FW0051	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
2	E1801056-069	FW0007	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
3	E1801058-030	FW008	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
4	E1801058-031	FW009	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
5	E1801058-032	FW010	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
6	E1801065-030	FW0052	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
7	E1801065-031	FW0053	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
8	EQ1800499-01	MB		1613B/Dioxins Furans			Wipes	0.5000Sample	
9	EQ1800499-02	LCS		1613B/Dioxins Furans			Wipes	0.5000Sample	
10	EQ1800499-03	DLCS		1613B/Dioxins Furans			Wipes	0.5000Sample	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800499-02 200.00µL EQ1800499-03 200.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801046-007 100.00µL E1801056-069 100.00µL E1801058-030 100.00µL E1801058-031 100.00µL E1801058-032 100.00µL E1801065-030 100.00µL
E1801065-031 100.00µL EQ1800499-01 100.00µL EQ1800499-02 100.00µL EQ1800499-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195390 Logbook Ref: 195388 JG 12/5/18 2-4ngml Expires On: 01/31/2019

E1801046-007 2,000.00µL E1801056-069 2,000.00µL E1801058-030 2,000.00µL E1801058-031 2,000.00µL E1801058-032 2,000.00µL E1801065-030 2,000.00µL
E1801065-031 2,000.00µL EQ1800499-01 2,000.00µL EQ1800499-02 2,000.00µL EQ1800499-03 2,000.00µL

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	sodium hydroxide (180303)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195002)		

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/5/18 11:00	Started:	12/6/18 13:00	Started:	12/6/18 14:00	Started:	12/7/18 09:00
Finished:	12/6/18 07:30	Finished:	12/6/18 14:00	Finished:	12/6/18 17:00	Finished:	12/7/18 12:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 16:24
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0539	**Units:**	ng/Kg
Lab Code:	E1801046-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 22:22
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.411g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519291	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	879		19.0	19.0	0.81	1.001	10
1,2,3,7,8-PeCDD	3.50	**K**	0.130	2.96	2.11	1.000	1
1,2,3,4,7,8-HxCDD	0.258	**JK**	0.168	2.96	1.50	1.000	1
1,2,3,6,7,8-HxCDD	0.728	**JK**	0.189	2.96	0.96	1.000	1
1,2,3,7,8,9-HxCDD	0.487	**JK**	0.174	2.96	1.58	1.007	1
1,2,3,4,6,7,8-HpCDD	19.8		0.152	2.96	1.07	1.000	1
OCDD	481		0.225	5.93	0.91	1.000	1
2,3,7,8-TCDF	1420		4.58	5.93	0.72	1.001	10
1,2,3,7,8-PeCDF	33.3		0.286	2.96	1.51	1.000	1
2,3,4,7,8-PeCDF	26.8		0.290	2.96	1.58	1.001	1
1,2,3,4,7,8-HxCDF	109		0.126	2.96	1.20	1.000	1
1,2,3,6,7,8-HxCDF	24.2		0.126	2.96	1.21	1.000	1
1,2,3,7,8,9-HxCDF	6.50		0.150	2.96	1.43	1.000	1
2,3,4,6,7,8-HxCDF	4.30		0.132	2.96	1.36	1.000	1
1,2,3,4,6,7,8-HpCDF	41.1		0.239	2.96	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	17.2		0.317	2.96	0.98	1.000	1
OCDF	105		0.351	5.93	0.87	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 16:24
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0539	**Units:**	ng/Kg
Lab Code:	E1801046-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 22:22
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.411g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519291	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	517		0.998	0.998	0.78		1
Total Penta-Dioxins	ND	U	0.130	2.96			1
Total Hexa-Dioxins	5.10		0.177	2.96	1.20		1
Total Hepta-Dioxins	47.5		0.152	2.96	1.00		1
Total Tetra-Furans	1620		0.326	0.593	0.81		1
Total Penta-Furans	90.1		0.288	2.96	1.65		1
Total Hexa-Furans	148		0.133	2.96	1.36		1
Total Hepta-Furans	71.5		0.275	2.96	0.97		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 16:24
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0539	**Units:**	Percent
Lab Code:	E1801046-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 07:46
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.411g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519247	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	818.341	41		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1792.907	90		25-181	1.63	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1400.927	70		32-141	1.38	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1275.064	64		28-130	1.21	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1662.248	83		23-140	1.07	1.067
13C-OCDD	4000	2008.313	50		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	1089.643	54		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1579.382	79		24-185	1.60	1.144
13C-2,3,4,7,8-PeCDF	2000	1585.574	79		21-178	1.57	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1160.046	58		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1121.544	56		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1231.401	62		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1168.559	58		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1169.886	58		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1260.263	63		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	504.390	63		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 16:24
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0539	**Units:**	ng/Kg
Lab Code:	E1801046-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**879**	19.0	19.0	10	1	879
1,2,3,7,8-PeCDD	**3.50**	0.130	2.96	1	1	3.50
1,2,3,4,7,8-HxCDD	**0.258**	0.168	2.96	1	0.1	0.0258
1,2,3,6,7,8-HxCDD	**0.728**	0.189	2.96	1	0.1	0.0728
1,2,3,7,8,9-HxCDD	**0.487**	0.174	2.96	1	0.1	0.0487
1,2,3,4,6,7,8-HpCDD	**19.8**	0.152	2.96	1	0.01	0.198
OCDD	**481**	0.225	5.93	1	0.0003	0.144
2,3,7,8-TCDF	**1420**	4.58	5.93	10	0.1	142
1,2,3,7,8-PeCDF	**33.3**	0.286	2.96	1	0.03	0.999
2,3,4,7,8-PeCDF	**26.8**	0.290	2.96	1	0.3	8.04
1,2,3,4,7,8-HxCDF	**109**	0.126	2.96	1	0.1	10.9
1,2,3,6,7,8-HxCDF	**24.2**	0.126	2.96	1	0.1	2.42
1,2,3,7,8,9-HxCDF	**6.50**	0.150	2.96	1	0.1	0.650
2,3,4,6,7,8-HxCDF	**4.30**	0.132	2.96	1	0.1	0.430
1,2,3,4,6,7,8-HpCDF	**41.1**	0.239	2.96	1	0.01	0.411
1,2,3,4,7,8,9-HpCDF	**17.2**	0.317	2.96	1	0.01	0.172
OCDF	**105**	0.351	5.93	1	0.0003	0.0315
		Total TEQ				1050

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 16:24
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0539	**Units:**	Percent
Lab Code:	E1801046-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	9.358g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:20
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0540	**Units:**	ng/Kg
Lab Code:	E1801046-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 23:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.919g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519292	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5870		159	159	0.77	1.001	100
1,2,3,7,8-PeCDD	23.8		0.123	2.97	1.73	1.000	1
1,2,3,4,7,8-HxCDD	0.576	**J**	0.151	2.97	1.37	1.000	1
1,2,3,6,7,8-HxCDD	2.24	**JK**	0.165	2.97	1.46	1.000	1
1,2,3,7,8,9-HxCDD	1.03	**JK**	0.154	2.97	0.76	1.007	1
1,2,3,4,6,7,8-HpCDD	62.5		0.221	2.97	1.00	1.000	1
OCDD	1720		0.128	5.95	0.89	1.000	1
2,3,7,8-TCDF	10600		38.2	59.5	0.78	1.001	100
1,2,3,7,8-PeCDF	268		0.621	2.97	1.50	1.001	1
2,3,4,7,8-PeCDF	214		0.636	2.97	1.51	1.001	1
1,2,3,4,7,8-HxCDF	651		0.413	2.97	1.30	1.000	1
1,2,3,6,7,8-HxCDF	144		0.334	2.97	1.07	1.000	1
1,2,3,7,8,9-HxCDF	41.5		0.377	2.97	1.26	1.001	1
2,3,4,6,7,8-HxCDF	26.0		0.362	2.97	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	197		0.457	2.97	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	81.3		0.552	2.97	0.99	1.000	1
OCDF	133		0.200	5.95	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:20
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0540	**Units:**	ng/Kg
Lab Code:	E1801046-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 23:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.919g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519292	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3660		0.712	0.712	0.86		1
Total Penta-Dioxins	29.4		0.123	2.97	1.72		1
Total Hexa-Dioxins	20.4		0.156	2.97	1.38		1
Total Hepta-Dioxins	147		0.221	2.97	1.02		1
Total Tetra-Furans	13300		0.279	0.595	0.76		1
Total Penta-Furans	727		0.629	2.97	1.67		1
Total Hexa-Furans	928		0.369	2.97	1.13		1
Total Hepta-Furans	338		0.501	2.97	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:20
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0540	**Units:**	Percent
Lab Code:	E1801046-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 08:35
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.919g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519248	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	879.298	44		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1474.533	74		25-181	1.58	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1193.857	60		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1135.819	57		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1373.418	69		23-140	1.08	1.067
13C-OCDD	4000	1766.713	44		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	1203.783	60		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1375.305	69		24-185	1.58	1.143
13C-2,3,4,7,8-PeCDF	2000	1348.285	67		21-178	1.59	1.175
13C-1,2,3,4,7,8-HxCDF	2000	904.316	45		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1004.477	50		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1130.105	57		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1006.055	50		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	975.855	49		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1110.784	56		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	563.824	70		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:20
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0540	**Units:**	ng/Kg
Lab Code:	E1801046-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5870**	159	159	100	1	5870
1,2,3,7,8-PeCDD	**23.8**	0.123	2.97	1	1	23.8
1,2,3,4,7,8-HxCDD	**0.576**	0.151	2.97	1	0.1	0.0576
1,2,3,6,7,8-HxCDD	**2.24**	0.165	2.97	1	0.1	0.224
1,2,3,7,8,9-HxCDD	**1.03**	0.154	2.97	1	0.1	0.103
1,2,3,4,6,7,8-HpCDD	**62.5**	0.221	2.97	1	0.01	0.625
OCDD	**1720**	0.128	5.95	1	0.0003	0.516
2,3,7,8-TCDF	**10600**	38.2	59.5	100	0.1	1060
1,2,3,7,8-PeCDF	**268**	0.621	2.97	1	0.03	8.04
2,3,4,7,8-PeCDF	**214**	0.636	2.97	1	0.3	64.2
1,2,3,4,7,8-HxCDF	**651**	0.413	2.97	1	0.1	65.1
1,2,3,6,7,8-HxCDF	**144**	0.334	2.97	1	0.1	14.4
1,2,3,7,8,9-HxCDF	**41.5**	0.377	2.97	1	0.1	4.15
2,3,4,6,7,8-HxCDF	**26.0**	0.362	2.97	1	0.1	2.60
1,2,3,4,6,7,8-HpCDF	**197**	0.457	2.97	1	0.01	1.97
1,2,3,4,7,8,9-HpCDF	**81.3**	0.552	2.97	1	0.01	0.813
OCDF	**133**	0.200	5.95	1	0.0003	0.0399
		Total TEQ				7120

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:20
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0540	**Units:**	Percent
Lab Code:	E1801046-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	8.702g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:25
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0541	**Units:**	ng/Kg
Lab Code:	E1801046-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 23:59
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.976g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519293	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4740		175	175	0.76	1.001	100
1,2,3,7,8-PeCDD	21.9		0.0943	3.05	1.59	1.000	1
1,2,3,4,7,8-HxCDD	0.633	**JK**	0.213	3.05	1.66	1.000	1
1,2,3,6,7,8-HxCDD	2.96	**J**	0.247	3.05	1.40	1.000	1
1,2,3,7,8,9-HxCDD	1.70	**JK**	0.224	3.05	0.95	1.006	1
1,2,3,4,6,7,8-HpCDD	71.5		0.207	3.05	1.07	1.000	1
OCDD	2180		0.279	6.11	0.89	1.000	1
2,3,7,8-TCDF	8340		36.6	61.1	0.77	1.001	100
1,2,3,7,8-PeCDF	230		0.540	3.05	1.52	1.000	1
2,3,4,7,8-PeCDF	186		0.575	3.05	1.50	1.001	1
1,2,3,4,7,8-HxCDF	584		0.331	3.05	1.19	1.000	1
1,2,3,6,7,8-HxCDF	138		0.333	3.05	1.15	1.000	1
1,2,3,7,8,9-HxCDF	35.5		0.383	3.05	1.15	1.001	1
2,3,4,6,7,8-HxCDF	22.3		0.383	3.05	1.14	1.000	1
1,2,3,4,6,7,8-HpCDF	201		0.641	3.05	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	71.4		0.802	3.05	1.05	1.000	1
OCDF	112		0.282	6.11	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:25
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0541	**Units:**	ng/Kg
Lab Code:	E1801046-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 23:59
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.976g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519293	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3450		0.579	0.611	0.79		1
Total Penta-Dioxins	28.6		0.0943	3.05	1.32		1
Total Hexa-Dioxins	30.8		0.228	3.05	1.16		1
Total Hepta-Dioxins	183		0.207	3.05	1.01		1
Total Tetra-Furans	12100		0.277	0.611	0.73		1
Total Penta-Furans	628		0.557	3.05	1.53		1
Total Hexa-Furans	834		0.356	3.05	1.20		1
Total Hepta-Furans	326		0.715	3.05	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:25
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0541	**Units:**	Percent
Lab Code:	E1801046-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 09:23
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.976g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519249	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	987.337	49		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1635.709	82		25-181	1.60	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1347.689	67		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1223.385	61		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1370.926	69		23-140	1.08	1.067
13C-OCDD	4000	1653.336	41		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	1347.424	67		24-169	0.81	0.991
13C-1,2,3,7,8-PeCDF	2000	1522.460	76		24-185	1.57	1.143
13C-2,3,4,7,8-PeCDF	2000	1486.617	74		21-178	1.56	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1146.525	57		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1108.793	55		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1232.607	62		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1084.825	54		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1006.632	50		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1133.857	57		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	641.430	80		35-197	NA	1.020

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:25
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0541	**Units:**	ng/Kg
Lab Code:	E1801046-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4740**	175	175	100	1	4740
1,2,3,7,8-PeCDD	**21.9**	0.0943	3.05	1	1	21.9
1,2,3,4,7,8-HxCDD	**0.633**	0.213	3.05	1	0.1	0.0633
1,2,3,6,7,8-HxCDD	**2.96**	0.247	3.05	1	0.1	0.296
1,2,3,7,8,9-HxCDD	**1.70**	0.224	3.05	1	0.1	0.170
1,2,3,4,6,7,8-HpCDD	**71.5**	0.207	3.05	1	0.01	0.715
OCDD	**2180**	0.279	6.11	1	0.0003	0.654
2,3,7,8-TCDF	**8340**	36.6	61.1	100	0.1	834
1,2,3,7,8-PeCDF	**230**	0.540	3.05	1	0.03	6.90
2,3,4,7,8-PeCDF	**186**	0.575	3.05	1	0.3	55.8
1,2,3,4,7,8-HxCDF	**584**	0.331	3.05	1	0.1	58.4
1,2,3,6,7,8-HxCDF	**138**	0.333	3.05	1	0.1	13.8
1,2,3,7,8,9-HxCDF	**35.5**	0.383	3.05	1	0.1	3.55
2,3,4,6,7,8-HxCDF	**22.3**	0.383	3.05	1	0.1	2.23
1,2,3,4,6,7,8-HpCDF	**201**	0.641	3.05	1	0.01	2.01
1,2,3,4,7,8,9-HpCDF	**71.4**	0.802	3.05	1	0.01	0.714
OCDF	**112**	0.282	6.11	1	0.0003	0.0336
		Total TEQ				5740

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:25
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0541	**Units:**	Percent
Lab Code:	E1801046-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	6.788g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	74.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:30
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0542	**Units:**	ng/Kg
Lab Code:	E1801046-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 00:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.909g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519294	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1390		27.6	27.6	0.78	1.001	20
1,2,3,7,8-PeCDD	6.89		0.0788	2.93	1.57	1.000	1
1,2,3,4,7,8-HxCDD	0.257	**JK**	0.132	2.93	2.57	1.000	1
1,2,3,6,7,8-HxCDD	0.783	**JK**	0.148	2.93	1.82	1.000	1
1,2,3,7,8,9-HxCDD	0.717	**JK**	0.136	2.93	1.68	1.007	1
1,2,3,4,6,7,8-HpCDD	24.7		0.229	2.93	1.08	1.000	1
OCDD	829		0.102	5.85	0.88	1.000	1
2,3,7,8-TCDF	2510		6.60	11.7	0.71	1.001	20
1,2,3,7,8-PeCDF	76.8		0.320	2.93	1.51	1.001	1
2,3,4,7,8-PeCDF	60.7		0.323	2.93	1.53	1.000	1
1,2,3,4,7,8-HxCDF	241		0.167	2.93	1.21	1.000	1
1,2,3,6,7,8-HxCDF	54.8		0.167	2.93	1.23	1.000	1
1,2,3,7,8,9-HxCDF	13.5		0.191	2.93	1.26	1.001	1
2,3,4,6,7,8-HxCDF	7.67	**K**	0.182	2.93	1.02	1.000	1
1,2,3,4,6,7,8-HpCDF	71.5		0.312	2.93	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	31.6		0.406	2.93	1.01	1.000	1
OCDF	44.3		0.200	5.85	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:30
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0542	**Units:**	ng/Kg
Lab Code:	E1801046-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 00:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.909g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519294	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	954		0.512	0.585	0.82		1
Total Penta-Dioxins	8.20		0.0788	2.93	1.65		1
Total Hexa-Dioxins	11.9		0.139	2.93	1.15		1
Total Hepta-Dioxins	64.1		0.229	2.93	1.05		1
Total Tetra-Furans	3430		0.281	0.585	0.75		1
Total Penta-Furans	206		0.321	2.93	1.36		1
Total Hexa-Furans	330		0.176	2.93	1.26		1
Total Hepta-Furans	124		0.355	2.93	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:30
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0542	**Units:**	Percent
Lab Code:	E1801046-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 10:12
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.909g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519250	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	957.506	48		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1622.397	81		25-181	1.59	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1342.115	67		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1267.311	63		28-130	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1497.399	75		23-140	1.04	1.068
13C-OCDD	4000	1820.481	46		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	1304.056	65		24-169	0.81	0.992
13C-1,2,3,7,8-PeCDF	2000	1486.998	74		24-185	1.59	1.143
13C-2,3,4,7,8-PeCDF	2000	1474.239	74		21-178	1.60	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1184.027	59		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1125.030	56		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1250.148	63		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1145.377	57		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1069.100	53		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1189.536	59		26-138	0.46	1.080
37Cl-2,3,7,8-TCDD	800	623.676	78		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:30
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0542	**Units:**	ng/Kg
Lab Code:	E1801046-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1390**	27.6	27.6	20	1	1390
1,2,3,7,8-PeCDD	**6.89**	0.0788	2.93	1	1	6.89
1,2,3,4,7,8-HxCDD	**0.257**	0.132	2.93	1	0.1	0.0257
1,2,3,6,7,8-HxCDD	**0.783**	0.148	2.93	1	0.1	0.0783
1,2,3,7,8,9-HxCDD	**0.717**	0.136	2.93	1	0.1	0.0717
1,2,3,4,6,7,8-HpCDD	**24.7**	0.229	2.93	1	0.01	0.247
OCDD	**829**	0.102	5.85	1	0.0003	0.249
2,3,7,8-TCDF	**2510**	6.60	11.7	20	0.1	251
1,2,3,7,8-PeCDF	**76.8**	0.320	2.93	1	0.03	2.30
2,3,4,7,8-PeCDF	**60.7**	0.323	2.93	1	0.3	18.2
1,2,3,4,7,8-HxCDF	**241**	0.167	2.93	1	0.1	24.1
1,2,3,6,7,8-HxCDF	**54.8**	0.167	2.93	1	0.1	5.48
1,2,3,7,8,9-HxCDF	**13.5**	0.191	2.93	1	0.1	1.35
2,3,4,6,7,8-HxCDF	**7.67**	0.182	2.93	1	0.1	0.767
1,2,3,4,6,7,8-HpCDF	**71.5**	0.312	2.93	1	0.01	0.715
1,2,3,4,7,8,9-HpCDF	**31.6**	0.406	2.93	1	0.01	0.316
OCDF	**44.3**	0.200	5.85	1	0.0003	0.0133
		Total TEQ				1700

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:30
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0542	**Units:**	Percent
Lab Code:	E1801046-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	9.229g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:35
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0543	**Units:**	ng/Kg
Lab Code:	E1801046-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 11:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.895g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519251	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	122		0.773	0.773	0.78	1.001	1
1,2,3,7,8-PeCDD	0.975**JK**		0.150	2.78	1.28	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.123	2.78			1
1,2,3,6,7,8-HxCDD	ND	U	0.137	2.78			1
1,2,3,7,8,9-HxCDD	0.238**JK**		0.126	2.78	2.29	1.006	1
1,2,3,4,6,7,8-HpCDD	5.79		0.0846	2.78	1.10	1.000	1
OCDD	200		0.173	5.56	0.88	1.000	1
2,3,7,8-TCDF	274		0.406	0.556	0.75	1.000	1
1,2,3,7,8-PeCDF	12.1		0.181	2.78	1.52	1.001	1
2,3,4,7,8-PeCDF	9.37		0.191	2.78	1.42	1.001	1
1,2,3,4,7,8-HxCDF	26.3		0.0999	2.78	1.19	1.000	1
1,2,3,6,7,8-HxCDF	6.00		0.103	2.78	1.37	1.000	1
1,2,3,7,8,9-HxCDF	2.27**J**		0.131	2.78	1.26	1.001	1
2,3,4,6,7,8-HxCDF	1.42**J**		0.124	2.78	1.29	1.000	1
1,2,3,4,6,7,8-HpCDF	7.50		0.0605	2.78	0.90	1.000	1
1,2,3,4,7,8,9-HpCDF	2.92		0.0775	2.78	1.18	1.000	1
OCDF	5.59		0.312	5.56	0.98	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:35
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0543	**Units:**	ng/Kg
Lab Code:	E1801046-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 11:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.895g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519251	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	133		0.773	0.773	0.78		1
Total Penta-Dioxins	ND	U	0.150	2.78			1
Total Hexa-Dioxins	4.11		0.129	2.78	1.38		1
Total Hepta-Dioxins	17.4		0.0846	2.78	0.97		1
Total Tetra-Furans	450		0.406	0.556	0.71		1
Total Penta-Furans	30.9		0.186	2.78	1.60		1
Total Hexa-Furans	39.1		0.113	2.78	1.38		1
Total Hepta-Furans	12.5		0.0683	2.78	0.90		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:35
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0543	**Units:**	Percent
Lab Code:	E1801046-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 11:01
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.895g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519251	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	559.837	28		25-164	0.77	1.021
13C-1,2,3,7,8-PeCDD	2000	1037.949	52		25-181	1.61	1.186
13C-1,2,3,4,7,8-HxCDD	2000	875.696	44		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	834.424	42		28-130	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	949.067	47		23-140	1.07	1.068
13C-OCDD	4000	1064.992	27		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	720.539	36		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	947.180	47		24-185	1.58	1.144
13C-2,3,4,7,8-PeCDF	2000	904.528	45		21-178	1.60	1.176
13C-1,2,3,4,7,8-HxCDF	2000	755.451	38		26-152	0.50	0.971
13C-1,2,3,6,7,8-HxCDF	2000	740.680	37		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	722.847	36		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	651.232	33		28-136	0.49	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	699.422	35		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	760.002	38		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	331.350	41		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:35
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0543	**Units:**	ng/Kg
Lab Code:	E1801046-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**122**	0.773	0.773	1	1	122
1,2,3,7,8-PeCDD	**0.975**	0.150	2.78	1	1	0.975
1,2,3,4,7,8-HxCDD	ND	0.123	2.78	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.137	2.78	1	0.1	
1,2,3,7,8,9-HxCDD	**0.238**	0.126	2.78	1	0.1	0.0238
1,2,3,4,6,7,8-HpCDD	**5.79**	0.0846	2.78	1	0.01	0.0579
OCDD	**200**	0.173	5.56	1	0.0003	0.0600
2,3,7,8-TCDF	**274**	0.406	0.556	1	0.1	27.4
1,2,3,7,8-PeCDF	**12.1**	0.181	2.78	1	0.03	0.363
2,3,4,7,8-PeCDF	**9.37**	0.191	2.78	1	0.3	2.81
1,2,3,4,7,8-HxCDF	**26.3**	0.0999	2.78	1	0.1	2.63
1,2,3,6,7,8-HxCDF	**6.00**	0.103	2.78	1	0.1	0.600
1,2,3,7,8,9-HxCDF	**2.27**	0.131	2.78	1	0.1	0.227
2,3,4,6,7,8-HxCDF	**1.42**	0.124	2.78	1	0.1	0.142
1,2,3,4,6,7,8-HpCDF	**7.50**	0.0605	2.78	1	0.01	0.0750
1,2,3,4,7,8,9-HpCDF	**2.92**	0.0775	2.78	1	0.01	0.0292
OCDF	**5.59**	0.312	5.56	1	0.0003	0.00168
		Total TEQ				157

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:35
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0543	**Units:**	Percent
Lab Code:	E1801046-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	6.263g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:40
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0544	**Units:**	ng/Kg
Lab Code:	E1801046-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 16:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.732g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615947	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.3		0.366	0.589	0.76	1.001	1
1,2,3,7,8-PeCDD	0.179**JK**		0.0790	2.94	2.11	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.0545	2.94			1
1,2,3,6,7,8-HxCDD	0.113**JK**		0.0605	2.94	2.13	1.000	1
1,2,3,7,8,9-HxCDD	0.135**J**		0.0534	2.94	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	2.19**J**		0.0489	2.94	0.94	1.000	1
OCDD	90.1		0.102	5.89	0.89	1.000	1
2,3,7,8-TCDF	39.6		0.228	0.589	0.77	1.001	1
1,2,3,7,8-PeCDF	1.63**J**		0.0677	2.94	1.41	1.001	1
2,3,4,7,8-PeCDF	1.14**JK**		0.0661	2.94	1.29	1.001	1
1,2,3,4,7,8-HxCDF	3.21		0.0303	2.94	1.23	1.000	1
1,2,3,6,7,8-HxCDF	0.743**JK**		0.0320	2.94	1.00	1.000	1
1,2,3,7,8,9-HxCDF	0.271**BJ**		0.0369	2.94	1.20	1.000	1
2,3,4,6,7,8-HxCDF	0.102**JK**		0.0328	2.94	0.82	1.000	1
1,2,3,4,6,7,8-HpCDF	1.05**JP**		0.0191	2.94	1.20	1.000	1
1,2,3,4,7,8,9-HpCDF	0.453**J**		0.0254	2.94	0.88	1.000	1
OCDF	0.815**J**		0.0757	5.89	0.77	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:40
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0544	**Units:**	ng/Kg
Lab Code:	E1801046-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 16:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.732g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615947	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.3		0.366	0.589	0.76		1
Total Penta-Dioxins	0.300**J**		0.0790	2.94	1.58		1
Total Hexa-Dioxins	0.135**J**		0.0560	2.94	1.30		1
Total Hepta-Dioxins	8.14		0.0489	2.94	0.95		1
Total Tetra-Furans	61.8		0.228	0.589	0.83		1
Total Penta-Furans	2.29**J**		0.0668	2.94	1.36		1
Total Hexa-Furans	3.48		0.0329	2.94	1.23		1
Total Hepta-Furans	ND	U	0.0220	2.94			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:40
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0544	**Units:**	Percent
Lab Code:	E1801046-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 16:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.732g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615947	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	613.158	31		25-164	0.79	1.023
13C-1,2,3,7,8-PeCDD	2000	1228.861	61		25-181	1.57	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1345.231	67		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1311.115	66		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1489.735	74		23-140	1.05	1.066
13C-OCDD	4000	1804.860	45		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	797.651	40		24-169	0.77	0.993
13C-1,2,3,7,8-PeCDF	2000	1045.939	52		24-185	1.58	1.149
13C-2,3,4,7,8-PeCDF	2000	1096.632	55		21-178	1.57	1.183
13C-1,2,3,4,7,8-HxCDF	2000	1211.285	61		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1129.263	56		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1170.131	59		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1161.603	58		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1016.280	51		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1046.406	52		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	301.375	38		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:40
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0544	**Units:**	ng/Kg
Lab Code:	E1801046-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**19.3**	0.366	0.589	1	1	19.3
1,2,3,7,8-PeCDD	**0.179**	0.0790	2.94	1	1	0.179
1,2,3,4,7,8-HxCDD	ND	0.0545	2.94	1	0.1	
1,2,3,6,7,8-HxCDD	**0.113**	0.0605	2.94	1	0.1	0.0113
1,2,3,7,8,9-HxCDD	**0.135**	0.0534	2.94	1	0.1	0.0135
1,2,3,4,6,7,8-HpCDD	**2.19**	0.0489	2.94	1	0.01	0.0219
OCDD	**90.1**	0.102	5.89	1	0.0003	0.0270
2,3,7,8-TCDF	**39.6**	0.228	0.589	1	0.1	3.96
1,2,3,7,8-PeCDF	**1.63**	0.0677	2.94	1	0.03	0.0489
2,3,4,7,8-PeCDF	**1.14**	0.0661	2.94	1	0.3	0.342
1,2,3,4,7,8-HxCDF	**3.21**	0.0303	2.94	1	0.1	0.321
1,2,3,6,7,8-HxCDF	**0.743**	0.0320	2.94	1	0.1	0.0743
1,2,3,7,8,9-HxCDF	**0.271**	0.0369	2.94	1	0.1	0.0271
2,3,4,6,7,8-HxCDF	**0.102**	0.0328	2.94	1	0.1	0.0102
1,2,3,4,6,7,8-HpCDF	**1.05**	0.0191	2.94	1	0.01	0.0105
1,2,3,4,7,8,9-HpCDF	**0.453**	0.0254	2.94	1	0.01	0.00453
OCDF	**0.815**	0.0757	5.89	1	0.0003	0.000245
		Total TEQ				24.4

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 17:40
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0544	**Units:**	Percent
Lab Code:	E1801046-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	7.306g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 08:45
Sample Matrix:	Wipe	**Date Received:**	11/14/18 12:12
Sample Name:	FW0051	**Units:**	pg
Lab Code:	E1801046-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:30
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519361	**Blank File Name:**	P616043
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.75	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.74	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.560	50.0			1
1,2,3,6,7,8-HxCDD	1.03**JK**		0.618	50.0	0.50	1.001	1
1,2,3,7,8,9-HxCDD	ND	U	0.576	50.0			1
1,2,3,4,6,7,8-HpCDD	37.0**J**		0.976	50.0	1.16	1.000	1
OCDD	775		2.66	100	0.95	1.000	1
2,3,7,8-TCDF	12.0**K**		2.67	10.0	0.63	1.001	1
1,2,3,7,8-PeCDF	ND	U	1.60	50.0			1
2,3,4,7,8-PeCDF	ND	U	1.77	50.0			1
1,2,3,4,7,8-HxCDF	1.56**JK**		1.13	50.0	1.03	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	1.05	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.39	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.15	50.0			1
1,2,3,4,6,7,8-HpCDF	12.4**J**		0.504	50.0	1.10	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.724	50.0			1
OCDF	35.6**J**		2.50	100	1.01	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 08:45
Sample Matrix:	Wipe	**Date Received:**	11/14/18 12:12
Sample Name:	FW0051	**Units:**	pg
Lab Code:	E1801046-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:30
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519361	**Blank File Name:**	P616043
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.75	10.0			1
Total Penta-Dioxins	ND	U	1.74	50.0			1
Total Hexa-Dioxins	ND	U	0.586	50.0			1
Total Hepta-Dioxins	103		0.976	50.0	1.09		1
Total Tetra-Furans	ND	U	2.67	10.0			1
Total Penta-Furans	ND	U	1.68	50.0			1
Total Hexa-Furans	3.96**J**		1.17	50.0	1.31		1
Total Hepta-Furans	25.9**J**		0.602	50.0	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 08:45
Sample Matrix:	Wipe	**Date Received:**	11/14/18 12:12
Sample Name:	FW0051	**Units:**	Percent
Lab Code:	E1801046-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:30
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519361	**Blank File Name:**	P616043
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1114.215	56		25-164	0.81	1.021
13C-1,2,3,7,8-PeCDD	2000	1947.847	97		25-181	1.60	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1652.483	83		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1643.497	82		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	2020.010	101		23-140	1.05	1.070
13C-OCDD	4000	2697.392	67		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	1464.770	73		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1948.811	97		24-185	1.61	1.148
13C-2,3,4,7,8-PeCDF	2000	1776.346	89		21-178	1.59	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1465.450	73		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1561.865	78		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1552.024	78		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1517.779	76		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1546.997	77		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1577.828	79		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	611.869	76		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	11/12/18 08:45
Sample Matrix:	Wipe	**Date Received:**	11/14/18 12:12
Sample Name:	FW0051	**Units:**	pg
Lab Code:	E1801046-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.75	10.0	1	1	2.38
1,2,3,7,8-PeCDD	ND	1.74	50.0	1	1	0.870
1,2,3,4,7,8-HxCDD	ND	0.560	50.0	1	0.1	0.0280
1,2,3,6,7,8-HxCDD	**1.03**	0.618	50.0	1	0.1	0.103
1,2,3,7,8,9-HxCDD	ND	0.576	50.0	1	0.1	0.0288
1,2,3,4,6,7,8-HpCDD	**37.0**	0.976	50.0	1	0.01	0.370
OCDD	**775**	2.66	100	1	0.0003	0.233
2,3,7,8-TCDF	**12.0**	2.67	10.0	1	0.1	1.20
1,2,3,7,8-PeCDF	ND	1.60	50.0	1	0.03	0.0240
2,3,4,7,8-PeCDF	ND	1.77	50.0	1	0.3	0.266
1,2,3,4,7,8-HxCDF	**1.56**	1.13	50.0	1	0.1	0.156
1,2,3,6,7,8-HxCDF	ND	1.05	50.0	1	0.1	0.0525
1,2,3,7,8,9-HxCDF	ND	1.39	50.0	1	0.1	0.0695
2,3,4,6,7,8-HxCDF	ND	1.15	50.0	1	0.1	0.0575
1,2,3,4,6,7,8-HpCDF	**12.4**	0.504	50.0	1	0.01	0.124
1,2,3,4,7,8,9-HpCDF	ND	0.724	50.0	1	0.01	0.00362
OCDF	**35.6**	2.50	100	1	0.0003	0.0107
		Total TEQ				5.98

2005 WHO TEFs, ND = 0.5*DL

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.419	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0694	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0548	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0572	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0547	2.44			1
1,2,3,4,6,7,8-HpCDD	0.0967**JK**		0.0337	2.44	0.82	1.000	1
OCDD	0.200**JK**		0.0666	4.88	0.55	1.000	1
2,3,7,8-TCDF	0.343**JK**		0.115	0.488	0.63	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0515	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0562	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0415	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0363	2.44			1
1,2,3,7,8,9-HxCDF	0.0508**J**		0.0466	2.44	1.22	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0427	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0294	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0394	2.44			1
OCDF	ND	U	0.143	4.88			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.419	0.488			1
Total Penta-Dioxins	ND	U	0.0694	2.44			1
Total Hexa-Dioxins	ND	U	0.0556	2.44			1
Total Hepta-Dioxins	ND	U	0.0337	2.44			1
Total Tetra-Furans	ND	U	0.115	0.488			1
Total Penta-Furans	ND	U	0.0537	2.44			1
Total Hexa-Furans	0.0508**J**		0.0415	2.44	1.22		1
Total Hepta-Furans	0.0434**J**		0.0341	2.44	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	601.967	30		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1232.457	62		25-181	1.60	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1021.258	51		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	990.134	50		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1445.852	72		23-140	1.07	1.070
13C-OCDD	4000	2263.024	57		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	808.433	40		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1150.728	58		24-185	1.62	1.145
13C-2,3,4,7,8-PeCDF	2000	1085.788	54		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	890.132	45		26-152	0.54	0.970
13C-1,2,3,6,7,8-HxCDF	2000	953.383	48		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1026.900	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	925.376	46		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1012.807	51		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1149.672	57		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	348.230	44		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	18.3	18.3			1
1,2,3,7,8-PeCDD	ND	U	4.42	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.85	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	3.23	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.83	50.0			1
1,2,3,4,6,7,8-HpCDD	1.84**JK**		1.70	50.0	1.21	1.000	1
OCDD	20.3**JK**		4.20	100	0.62	1.000	1
2,3,7,8-TCDF	ND	U	9.75	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.98	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.24	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.35	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.41	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	3.25	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.98	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.57	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	2.16	50.0			1
OCDF	ND	U	11.9	100			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	18.3	18.3			1
Total Penta-Dioxins	ND	U	4.42	50.0			1
Total Hexa-Dioxins	5.86**J**		2.97	50.0	1.24		1
Total Hepta-Dioxins	ND	U	1.70	50.0			1
Total Tetra-Furans	ND	U	9.75	10.0			1
Total Penta-Furans	ND	U	3.11	50.0			1
Total Hexa-Furans	ND	U	2.71	50.0			1
Total Hepta-Furans	ND	U	1.84	50.0			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	621.382	31		25-164	0.75	1.023
13C-1,2,3,7,8-PeCDD	2000	1043.953	52		25-181	1.51	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1043.326	52		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1011.483	51		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1098.367	55		23-140	1.02	1.067
13C-OCDD	4000	1090.398	27		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	770.763	39		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	940.344	47		24-185	1.58	1.151
13C-2,3,4,7,8-PeCDF	2000	893.556	45		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	899.042	45		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	906.808	45		26-123	0.55	0.974
13C-1,2,3,7,8,9-HxCDF	2000	823.883	41		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	755.788	38		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	812.929	41		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	783.678	39		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	342.030	43		35-197	NA	1.024

Accuracy & Precision

ALS Environmental - Houston HRMS
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Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Sludge, Solid	**Date Extracted:**	11/29/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618494

	Lab Control Sample EQ1800488-02			Duplicate Lab Control Sample EQ1800488-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.5	97.3	79	76.7	98.9	78	70-140	<1	50
1,2,3,4,7,8-HxCDD	88.3	97.3	91	91.8	98.9	93	70-164	4	50
1,2,3,6,7,8-HxCDD	97.4	97.3	100	102	98.9	104	76-134	5	50
1,2,3,7,8,9-HxCDD	96.6	97.3	99	91.5	98.9	93	64-162	5	50
1,2,3,7,8-PeCDD	98.8	97.3	102	99.7	98.9	101	70-142	<1	50
2,3,7,8-TCDD	18.0	19.5	93	19.6	19.8	99	67-158	8	50
OCDD	194	195	100	191	198	96	78-144	2	50
1,2,3,4,6,7,8-HpCDF	91.6	97.3	94	93.2	98.9	94	82-122	2	50
1,2,3,4,7,8,9-HpCDF	95.8	97.3	99	100	98.9	101	78-138	4	50
1,2,3,4,7,8-HxCDF	98.1	97.3	101	99.8	98.9	101	72-134	2	50
1,2,3,6,7,8-HxCDF	94.7	97.3	97	99.2	98.9	100	84-130	5	50
1,2,3,7,8,9-HxCDF	92.5	97.3	95	95.3	98.9	96	78-130	3	50
1,2,3,7,8-PeCDF	90.1	97.3	93	90.8	98.9	92	80-134	<1	50
2,3,4,6,7,8-HxCDF	96.3	97.3	99	97.3	98.9	98	70-156	<1	50
2,3,4,7,8-PeCDF	98.8	97.3	102	100	98.9	101	68-160	2	50
2,3,7,8-TCDF	19.4	19.5	100	19.2	19.8	97	75-158	1	50
OCDF	209	195	108	219	198	111	63-170	4	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.0		0.371	0.486	0.83	1.001	1
1,2,3,7,8-PeCDD	98.8		0.0819	2.43	1.59	1.000	1
1,2,3,4,7,8-HxCDD	88.3		0.0522	2.43	1.28	1.000	1
1,2,3,6,7,8-HxCDD	97.4		0.0570	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0533	2.43	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	76.5		0.0421	2.43	1.04	1.000	1
OCDD	194		0.125	4.86	0.91	1.000	1
2,3,7,8-TCDF	19.4		0.198	0.486	0.68	1.001	1
1,2,3,7,8-PeCDF	90.1		0.149	2.43	1.50	1.000	1
2,3,4,7,8-PeCDF	98.8		0.155	2.43	1.48	1.000	1
1,2,3,4,7,8-HxCDF	98.1		0.0323	2.43	1.20	1.001	1
1,2,3,6,7,8-HxCDF	94.7		0.0299	2.43	1.21	1.000	1
1,2,3,7,8,9-HxCDF	92.5		0.0359	2.43	1.21	1.000	1
2,3,4,6,7,8-HxCDF	96.3		0.0304	2.43	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	91.6		0.129	2.43	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.165	2.43	0.97	1.000	1
OCDF	209		0.110	4.86	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.0		0.371	0.486	0.83		1
Total Penta-Dioxins	98.8		0.0819	2.43	1.59		1
Total Hexa-Dioxins	282		0.0541	2.43	1.28		1
Total Hepta-Dioxins	76.5		0.0421	2.43	1.04		1
Total Tetra-Furans	19.7		0.198	0.486	0.86		1
Total Penta-Furans	189		0.152	2.43	1.54		1
Total Hexa-Furans	382		0.0320	2.43	1.20		1
Total Hepta-Furans	187		0.146	2.43	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	466.307	23	**Y**	25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	825.671	41		25-181	1.62	1.191
13C-1,2,3,4,7,8-HxCDD	2000	864.506	43		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	870.765	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1092.489	55		23-140	1.06	1.070
13C-OCDD	4000	1640.699	41		17-157	0.89	1.151
13C-2,3,7,8-TCDF	2000	401.579	20	**Y**	24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	771.807	39		24-185	1.56	1.147
13C-2,3,4,7,8-PeCDF	2000	757.986	38		21-178	1.60	1.180
13C-1,2,3,4,7,8-HxCDF	2000	731.942	37		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	787.880	39		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	844.158	42		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	817.519	41		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	839.764	42		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	957.460	48		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	208.630	26	**Y**	35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.6		0.242	0.494	0.73	1.001	1
1,2,3,7,8-PeCDD	99.7		0.101	2.47	1.63	1.000	1
1,2,3,4,7,8-HxCDD	91.8		0.0303	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDD	102		0.0341	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	91.5		0.0314	2.47	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	76.7		0.0333	2.47	1.07	1.000	1
OCDD	191		0.126	4.94	0.90	1.000	1
2,3,7,8-TCDF	19.2		0.121	0.494	0.74	1.001	1
1,2,3,7,8-PeCDF	90.8		0.106	2.47	1.52	1.001	1
2,3,4,7,8-PeCDF	100		0.108	2.47	1.49	1.001	1
1,2,3,4,7,8-HxCDF	99.8		0.0342	2.47	1.21	1.000	1
1,2,3,6,7,8-HxCDF	99.2		0.0319	2.47	1.20	1.000	1
1,2,3,7,8,9-HxCDF	95.3		0.0465	2.47	1.26	1.000	1
2,3,4,6,7,8-HxCDF	97.3		0.0367	2.47	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	93.2		0.197	2.47	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	100		0.269	2.47	0.99	1.000	1
OCDF	219		0.195	4.94	0.85	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.6		0.242	0.494	0.73		1
Total Penta-Dioxins	99.7		0.101	2.47	1.63		1
Total Hexa-Dioxins	286		0.0319	2.47	1.28		1
Total Hepta-Dioxins	76.7		0.0333	2.47	1.07		1
Total Tetra-Furans	19.2		0.121	0.494	0.74		1
Total Penta-Furans	193		0.107	2.47	1.52		1
Total Hexa-Furans	392		0.0367	2.47	1.21		1
Total Hepta-Furans	193		0.230	2.47	0.99		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	728.406	36		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	999.237	50		25-181	1.59	1.191
13C-1,2,3,4,7,8-HxCDD	2000	935.215	47		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	886.125	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	974.232	49		23-140	1.06	1.070
13C-OCDD	4000	1238.088	31		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	695.555	35		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	937.057	47		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	924.290	46		21-178	1.59	1.180
13C-1,2,3,4,7,8-HxCDF	2000	799.844	40		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	843.883	42		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	795.949	40		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	808.396	40		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	804.546	40		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	878.334	44		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	336.023	42		35-197	NA	1.021

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Wipe	**Date Extracted:**	12/05/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	618605

	Lab Control Sample EQ1800499-02			Duplicate Lab Control Sample EQ1800499-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1370	2000	69 *	1420	2000	71	70-140	3	50
1,2,3,4,7,8-HxCDD	1760	2000	88	1800	2000	90	70-164	2	50
1,2,3,6,7,8-HxCDD	1950	2000	97	1960	2000	98	76-134	<1	50
1,2,3,7,8,9-HxCDD	1820	2000	91	1850	2000	92	64-162	2	50
1,2,3,7,8-PeCDD	1950	2000	98	2020	2000	101	70-142	3	50
2,3,7,8-TCDD	541	400	135	555	400	139	67-158	3	50
OCDD	3930	4000	98	3920	4000	98	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	1820	2000	91	1810	2000	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	1800	2000	90	1800	2000	90	78-138	<1	50
1,2,3,4,7,8-HxCDF	1760	2000	88	1740	2000	87	72-134	1	50
1,2,3,6,7,8-HxCDF	1820	2000	91	1830	2000	91	84-130	<1	50
1,2,3,7,8,9-HxCDF	1740	2000	87	1790	2000	89	78-130	3	50
1,2,3,7,8-PeCDF	1620	2000	81	1620	2000	81	80-134	<1	50
2,3,4,6,7,8-HxCDF	1850	2000	92	1820	2000	91	70-156	2	50
2,3,4,7,8-PeCDF	1740	2000	87	1780	2000	89	68-160	2	50
2,3,7,8-TCDF	354	400	89	331	400	83	75-158	7	50
OCDF	3760	4000	94	3700	4000	93	63-170	2	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	541		5.92	10.0	0.79	1.001	1
1,2,3,7,8-PeCDD	1950		1.02	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDD	1760		1.34	50.0	1.23	1.000	1
1,2,3,6,7,8-HxCDD	1950		1.50	50.0	1.24	1.000	1
1,2,3,7,8,9-HxCDD	1820		1.32	50.0	1.27	1.006	1
1,2,3,4,6,7,8-HpCDD	1370		0.634	50.0	1.07	1.001	1
OCDD	3930		2.06	100	0.90	1.000	1
2,3,7,8-TCDF	354		3.26	10.0	0.74	1.001	1
1,2,3,7,8-PeCDF	1620		1.88	50.0	1.53	1.000	1
2,3,4,7,8-PeCDF	1740		1.97	50.0	1.52	1.001	1
1,2,3,4,7,8-HxCDF	1760		0.670	50.0	1.28	1.000	1
1,2,3,6,7,8-HxCDF	1820		0.676	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1740		0.826	50.0	1.25	1.000	1
2,3,4,6,7,8-HxCDF	1850		0.716	50.0	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	1820		2.45	50.0	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		3.30	50.0	0.99	1.000	1
OCDF	3760		3.02	100	0.90	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	541		5.92	10.0	0.79		1
Total Penta-Dioxins	1950		1.02	50.0	1.53		1
Total Hexa-Dioxins	5530		1.38	50.0	1.23		1
Total Hepta-Dioxins	1370		0.634	50.0	1.07		1
Total Tetra-Furans	361		3.26	10.0	0.67		1
Total Penta-Furans	3360		1.92	50.0	1.53		1
Total Hexa-Furans	7170		0.718	50.0	1.28		1
Total Hepta-Furans	3620		2.84	50.0	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1379.145	69		25-164	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	2077.843	104		25-181	1.56	1.197
13C-1,2,3,4,7,8-HxCDD	2000	1687.372	84		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1598.825	80		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1794.902	90		23-140	1.06	1.066
13C-OCDD	4000	1922.794	48		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	1777.501	89		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1906.634	95		24-185	1.56	1.153
13C-2,3,4,7,8-PeCDF	2000	1828.814	91		21-178	1.59	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1448.419	72		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1405.252	70		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1383.466	69		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1365.154	68		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1272.217	64		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1265.684	63		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	733.439	92		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	555		8.33	10.0	0.74	1.001	1
1,2,3,7,8-PeCDD	2020		2.29	50.0	1.59	1.001	1
1,2,3,4,7,8-HxCDD	1800		0.988	50.0	1.24	1.000	1
1,2,3,6,7,8-HxCDD	1960		1.10	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1850		0.970	50.0	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	1420		0.708	50.0	1.04	1.000	1
OCDD	3920		1.48	100	0.90	1.000	1
2,3,7,8-TCDF	331		3.77	10.0	0.83	1.001	1
1,2,3,7,8-PeCDF	1620		2.51	50.0	1.56	1.001	1
2,3,4,7,8-PeCDF	1780		2.87	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDF	1740		0.800	50.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1830		0.812	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1790		1.05	50.0	1.27	1.000	1
2,3,4,6,7,8-HxCDF	1820		0.934	50.0	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	1810		1.77	50.0	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		2.44	50.0	1.02	1.000	1
OCDF	3700		3.04	100	0.93	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	555		8.33	10.0	0.74		1
Total Penta-Dioxins	2020		2.29	50.0	1.59		1
Total Hexa-Dioxins	5620		1.02	50.0	1.24		1
Total Hepta-Dioxins	1420		0.708	50.0	1.04		1
Total Tetra-Furans	335		3.77	10.0	0.78		1
Total Penta-Furans	3400		2.68	50.0	1.56		1
Total Hexa-Furans	7170		0.890	50.0	1.26		1
Total Hepta-Furans	3610		2.07	50.0	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801046
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	842.482	42		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1347.262	67		25-181	1.54	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1494.024	75		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1502.512	75		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1706.315	85		23-140	1.06	1.067
13C-OCDD	4000	1960.430	49		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1088.712	54		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1264.486	63		24-185	1.57	1.151
13C-2,3,4,7,8-PeCDF	2000	1175.771	59		21-178	1.64	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1311.605	66		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1331.396	67		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1250.468	63		29-147	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1250.711	63		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1219.583	61		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1191.130	60		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	471.492	59		35-197	NA	1.023

Chromatograms and Selected Ion Monitoring

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0539

Run #14 Filename P519247 Samp: 1 Inj: 1 Acquired: 6-DEC-18 07:46:23
Processed: 7-DEC-18 09:55:17 Sample ID: E1801046-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.510e+04	6.088e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	3.205e+03	2.120e+03	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.473e+03	1.564e+03	1.58	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	9.534e+03	7.958e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.190e+03	1.807e+03	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	3.795e+02	2.789e+02	1.36	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:16	5.972e+02	4.164e+02	1.43	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.894e+03	2.992e+03	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:54	1.040e+03	1.056e+03	0.98	yes	no	1.258
10	Unk	OCDF	42:25	3.663e+03	4.203e+03	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	1.161e+04	1.492e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	3.297e+02	1.563e+02	2.11	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:37	2.181e+01	1.456e+01	1.50	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	4.754e+01	4.933e+01	0.96	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	4.286e+01	2.720e+01	1.58	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	1.398e+03	1.313e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:13	1.403e+04	1.550e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	1.185e+04	1.476e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	2.306e+04	1.444e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	2.279e+04	1.448e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.087e+04	2.101e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.208e+04	2.284e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.111e+04	2.158e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.001e+04	1.976e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	7.852e+03	1.732e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	7.054e+03	1.596e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	5.376e+03	6.823e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:27	1.748e+04	1.073e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.670e+04	1.214e+04	1.38	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	1.474e+04	1.220e+04	1.21	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:25	1.643e+04	1.531e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:13	1.243e+04	1.361e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.435e+04	1.792e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.520e+04	1.933e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	8.252e+03				no	1.014

$$OCDD = \frac{(1.403e+04 + 1.550e+04) \times 4000\ pg \times 1}{(1.243e+04 + 1.361e+04) \times 10.411\ g \times 81.0 / 100 \times 1.118} = 481\ ng/kg$$

4M 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0539

Run #14 Filename P519247 Samp: 1 Inj: 1 Acquired: 6-DEC-18 07:46:23
Processed: 7-DEC-18 09:55:17 LAB. ID: E1801046-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.82e+06	6.92e+02	1.1e+04	1.04e+07	1.89e+03	5.5e+03
2	1,2,3,7,8-PeCDF	6.05e+05	1.48e+03	4.1e+02	4.00e+05	1.96e+03	2.0e+02
3	2,3,4,7,8-PeCDF	4.17e+05	1.48e+03	2.8e+02	2.69e+05	1.96e+03	1.4e+02
4	1,2,3,4,7,8-HxCDF	2.03e+06	7.76e+02	2.6e+03	1.74e+06	9.88e+02	1.8e+03
5	1,2,3,6,7,8-HxCDF	4.40e+05	7.76e+02	5.7e+02	3.73e+05	9.88e+02	3.8e+02
6	2,3,4,6,7,8-HxCDF	7.71e+04	7.76e+02	9.9e+01	6.26e+04	9.88e+02	6.3e+01
7	1,2,3,7,8,9-HxCDF	9.80e+04	7.76e+02	1.3e+02	7.77e+04	9.88e+02	7.9e+01
8	1,2,3,4,6,7,8-HpCDF	6.36e+05	2.02e+03	3.1e+02	6.48e+05	9.72e+02	6.7e+02
9	1,2,3,4,7,8,9-HpCDF	2.05e+05	2.02e+03	1.0e+02	2.05e+05	9.72e+02	2.1e+02
10	OCDF	5.66e+05	3.04e+02	1.9e+03	6.89e+05	1.36e+03	5.1e+02
11	2,3,7,8-TCDD	2.30e+06	3.18e+03	7.2e+02	2.93e+06	1.16e+03	2.5e+03
12	1,2,3,7,8-PeCDD	5.98e+04	9.56e+02	6.3e+01	2.69e+04	1.88e+02	1.4e+02
13	1,2,3,4,7,8-HxCDD	5.36e+03	6.72e+02	8.0e+00	3.15e+03	1.21e+03	2.6e+00
14	1,2,3,6,7,8-HxCDD	9.98e+03	6.72e+02	1.5e+01	1.04e+04	1.21e+03	8.6e+00
15	1,2,3,7,8,9-HxCDD	9.96e+03	6.72e+02	1.5e+01	5.75e+03	1.21e+03	4.8e+00
16	1,2,3,4,6,7,8-HpCDD	2.81e+05	1.30e+03	2.2e+02	2.57e+05	4.00e+02	6.4e+02
17	OCDD	2.17e+06	3.04e+02	7.2e+03	2.51e+06	5.72e+02	4.4e+03
18	13C-2,3,7,8-TCDF	2.22e+06	1.13e+04	2.0e+02	2.75e+06	7.29e+03	3.8e+02
19	13C-1,2,3,7,8-PeCDF	4.34e+06	4.08e+02	1.1e+04	2.71e+06	6.80e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	4.47e+06	4.08e+02	1.1e+04	2.85e+06	6.80e+02	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.37e+06	7.88e+02	3.0e+03	4.64e+06	1.31e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.54e+06	7.88e+02	3.2e+03	4.88e+06	1.31e+03	3.7e+03
23	13C-2,3,4,6,7,8-HxCDF	2.41e+06	7.88e+02	3.1e+03	4.73e+06	1.31e+03	3.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.05e+06	7.88e+02	2.6e+03	4.02e+06	1.31e+03	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.71e+06	1.53e+03	1.1e+03	3.77e+06	2.38e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.33e+06	1.53e+03	8.7e+02	3.15e+06	2.38e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.05e+06	5.50e+03	1.9e+02	1.32e+06	2.92e+03	4.5e+02
28	13C-1,2,3,7,8-PeCDD	3.37e+06	1.37e+03	2.5e+03	2.09e+06	9.52e+02	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	3.65e+06	1.72e+03	2.1e+03	2.72e+06	8.32e+02	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	3.20e+06	1.72e+03	1.9e+03	2.50e+06	8.32e+02	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.31e+06	7.60e+02	4.4e+03	3.15e+06	6.24e+02	5.1e+03
32	13C-OCDD	1.97e+06	5.72e+02	3.4e+03	2.16e+06	3.04e+02	7.1e+03
33	13C-1,2,3,4-TCDD	2.73e+06	5.50e+03	5.0e+02	3.39e+06	2.92e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.36e+06	1.72e+03	3.1e+03	4.15e+06	8.32e+02	5.0e+03
35	37Cl-2,3,7,8-TCDD	1.61e+06	2.13e+03	7.6e+02			

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Peak List Summary

CLIENT ID.
SL0539

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519247 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 303.9020 305.8990 Tot Response: 1.71e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:59	3.27e+02	4.02e+02	0.81	yes	7.28e+02		n	n
2	25:19	1.68e+03	2.31e+03	0.72	yes	3.99e+03		n	n
3	25:44	5.22e+02	7.34e+02	0.71	yes	1.26e+03		n	n
4	26:02	1.46e+03	2.08e+03	0.70	yes	3.54e+03		n	n
5	26:46	2.03e+03	2.94e+03	0.69	yes	4.96e+03		n	n
6	27:12	1.82e+04	2.41e+04	0.76	yes	4.23e+04		n	n
7	28:00	4.51e+04	6.09e+04	0.74	yes	1.06e+05	2,3,7,8-TCDF	n	n
8	28:21	2.88e+03	4.14e+03	0.70	yes	7.02e+03		n	n
9	28:34	5.40e+02	7.84e+02	0.69	yes	1.32e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0539

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519247 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 319.8970 321.8940 Tot Response: 2.88e+04 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:48	1.16e+04	1.49e+04 0.78	yes	2.65e+04	2,3,7,8-TCDD	n	n
2	29:06	9.79e+02	1.33e+03 0.74	yes	2.31e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SL0539

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P519247 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 339.8600 341.8570 Tot Response: 1.15e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:49	6.57e+01	4.97e+01 1.32	yes	1.15e+02		n	n

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CLIENT ID.
SL0539

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519247 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 339.8600 341.8570 Tot Response: 1.39e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:11	5.12e+01	3.11e+01	1.65	yes	8.23e+01		n	n
2	31:20	1.37e+03	9.38e+02	1.46	yes	2.31e+03		n	n
3	31:58	8.53e+01	6.30e+01	1.35	yes	1.48e+02		n	n
4	32:06	3.09e+02	2.14e+02	1.44	yes	5.22e+02		n	n
5	32:16	3.21e+03	2.12e+03	1.51	yes	5.32e+03	1,2,3,7,8-PeCDF	n	n
6	32:31	9.09e+02	5.77e+02	1.58	yes	1.49e+03		n	n
7	33:11	2.47e+03	1.56e+03	1.58	yes	4.04e+03	2,3,4,7,8-PeCDF	n	n

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SL0539

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519247 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 373.8210 375.8180 Tot Response: 2.38e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:46	4.87e+01	3.57e+01	1.36	yes	8.44e+01		n	n
2	34:55	5.49e+02	4.64e+02	1.18	yes	1.01e+03		n	n
3	35:27	3.07e+02	2.44e+02	1.26	yes	5.51e+02		n	n
4	35:53	9.53e+03	7.96e+03	1.20	yes	1.75e+04	1,2,3,4,7,8-HxCDF	n	n
5	35:59	2.19e+03	1.81e+03	1.21	yes	4.00e+03	1,2,3,6,7,8-HxCDF	n	n
6	36:30	3.79e+02	2.79e+02	1.36	yes	6.58e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0539

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519247 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 389.8160 391.8130 Tot Response: 6.28e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	3.43e+02	2.85e+02 1.20	yes	6.28e+02		n	n

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SL0539

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519247 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 407.7820 409.7790 Tot Response: 9.74e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:31	2.89e+03	2.99e+03	0.97	yes	5.89e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:47	6.60e+01	5.81e+01	1.14	yes	1.24e+02		n	n
3	38:54	8.28e+02	8.08e+02	1.02	yes	1.64e+03		n	n
4	39:54	1.04e+03	1.06e+03	0.98	yes	2.10e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0539

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519247 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 07:46:23 Processed: 7-DEC-18 09:55:17

Mass: 423.7770 425.7740 Tot Response: 6.52e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	1.90e+03	1.90e+03	1.00	yes	3.81e+03		n	n
2	39:26	1.40e+03	1.31e+03	1.07	yes	2.71e+03	1,2,3,4,6,7,8-HpCDD	n	n

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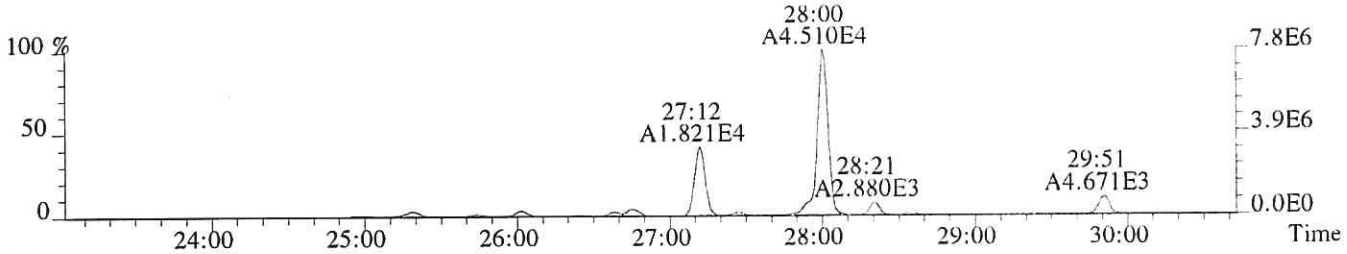
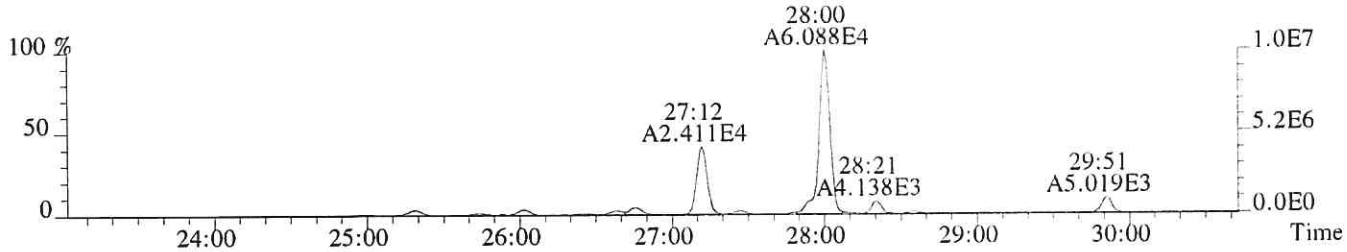
File:P519247 #1-545 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001

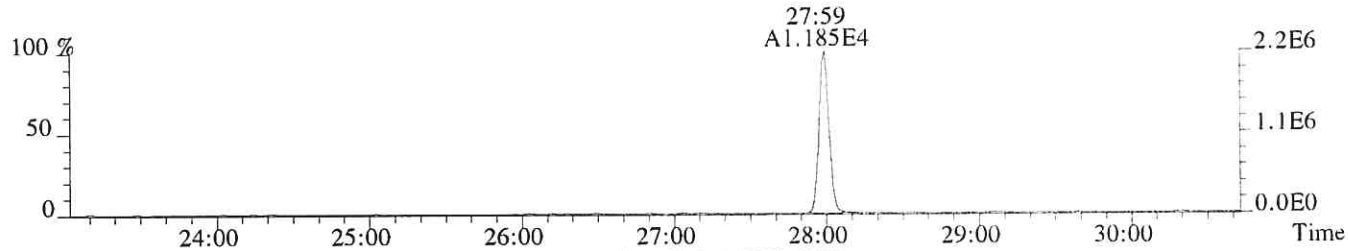
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



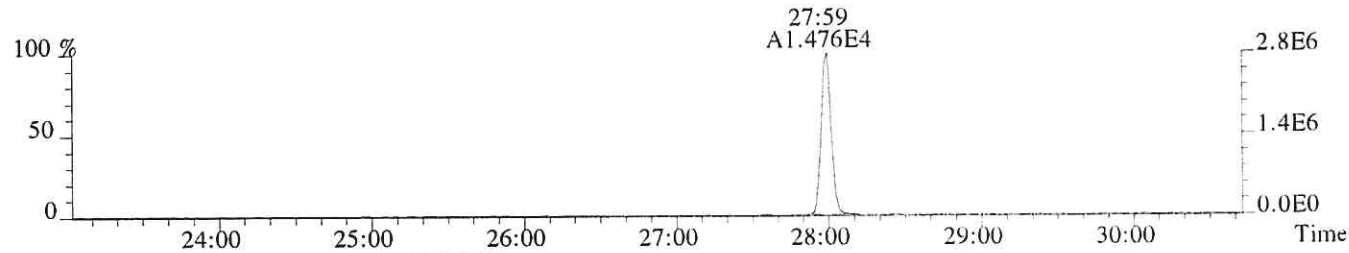
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



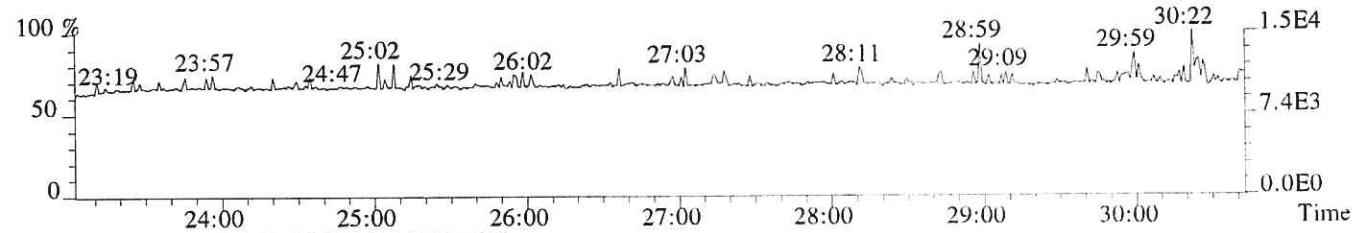
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11308.0,1.00%,F,T)



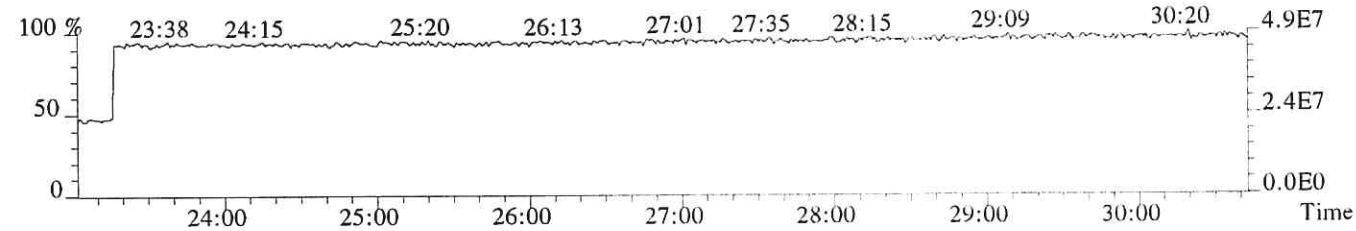
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7292.0,1.00%,F,T)



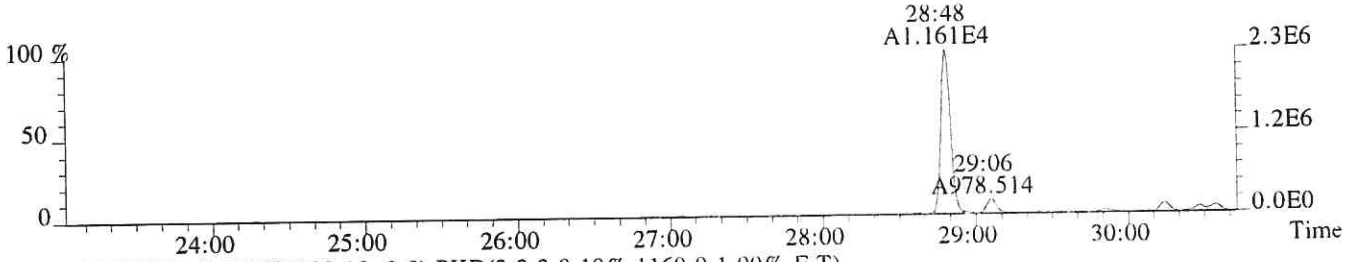
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



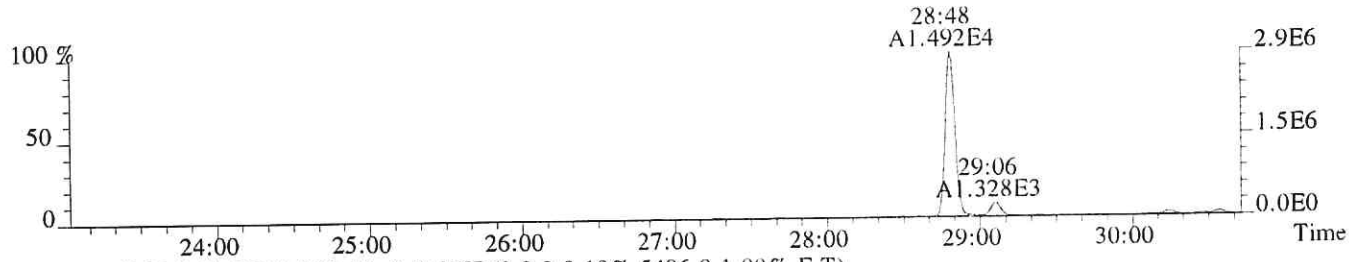
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



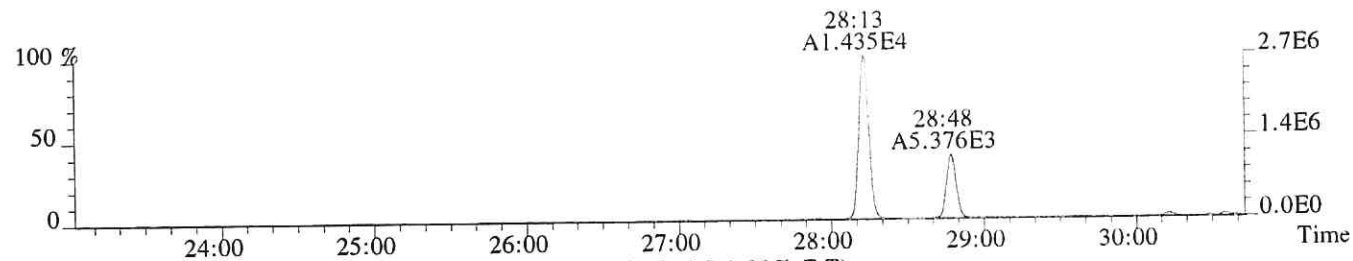
File:P519247 #1-545 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3184.0,1.00%,F,T)



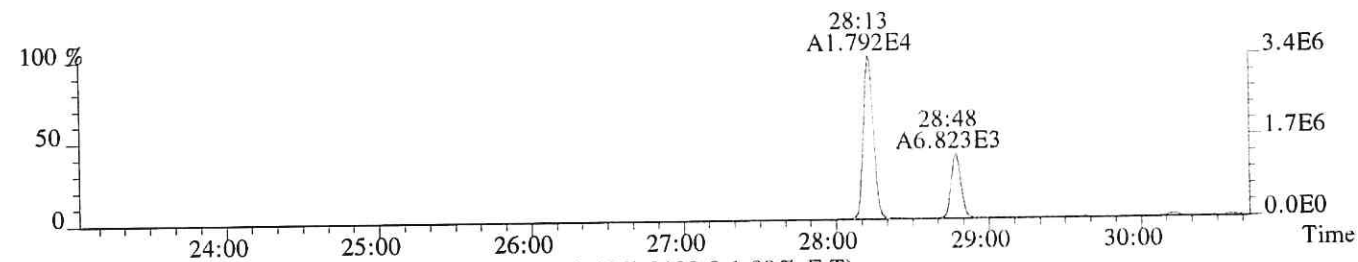
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



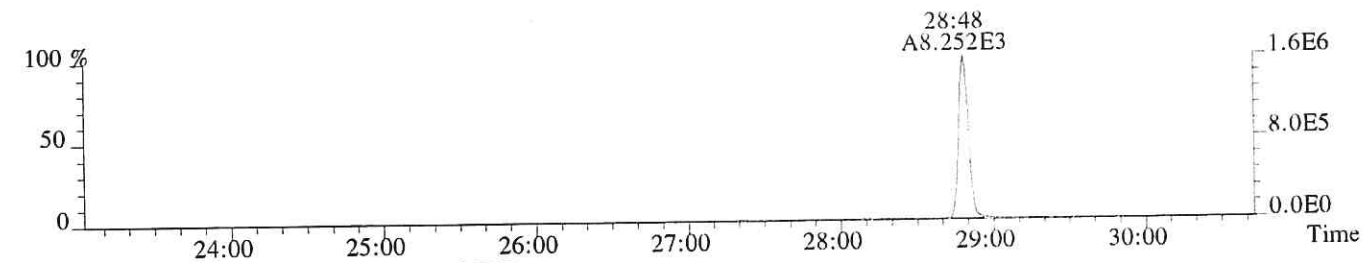
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5496.0,1.00%,F,T)



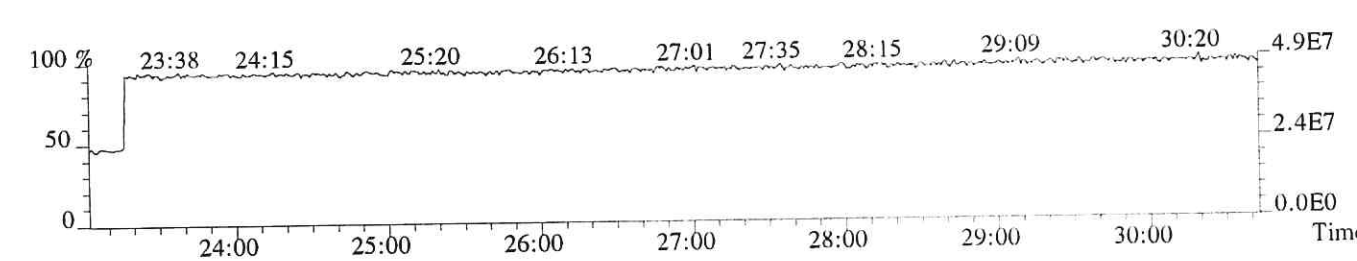
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2916.0,1.00%,F,T)



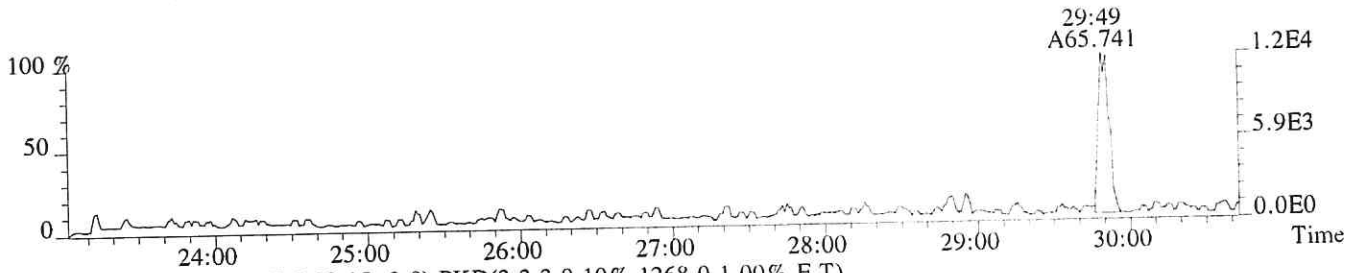
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2128.0,1.00%,F,T)



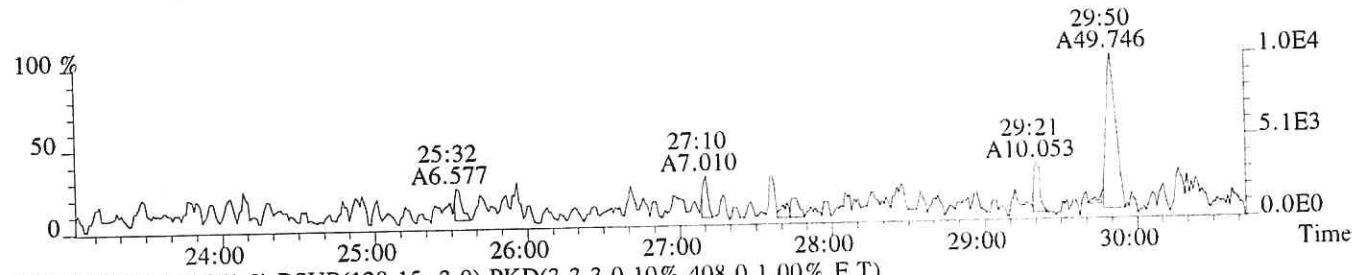
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



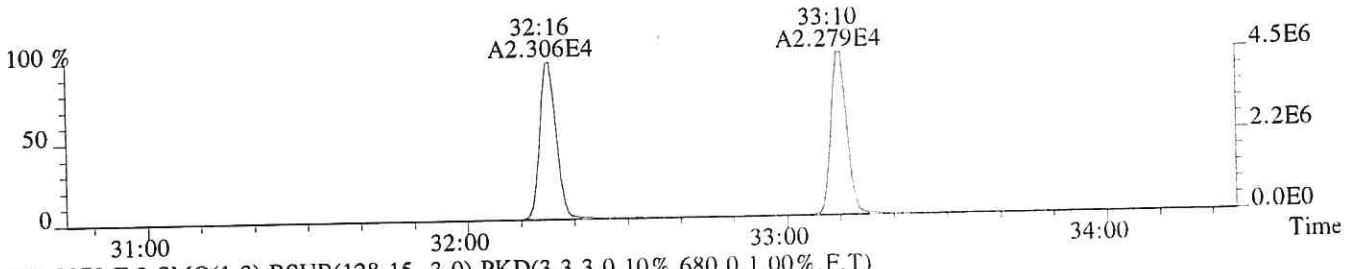
File:P519247 #1-545 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



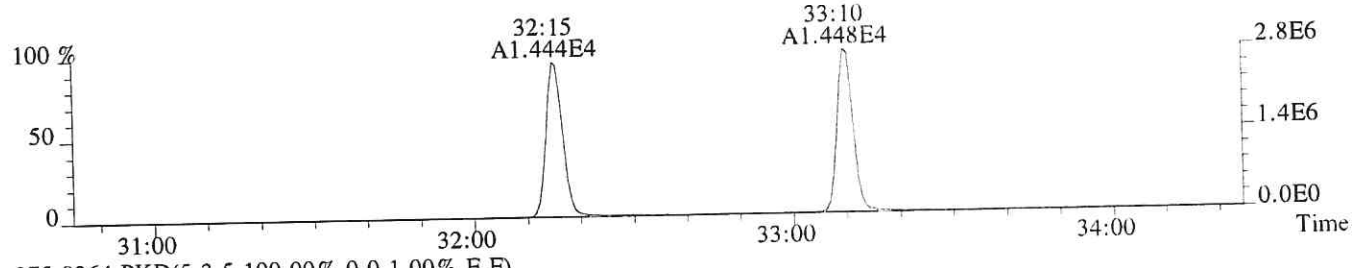
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



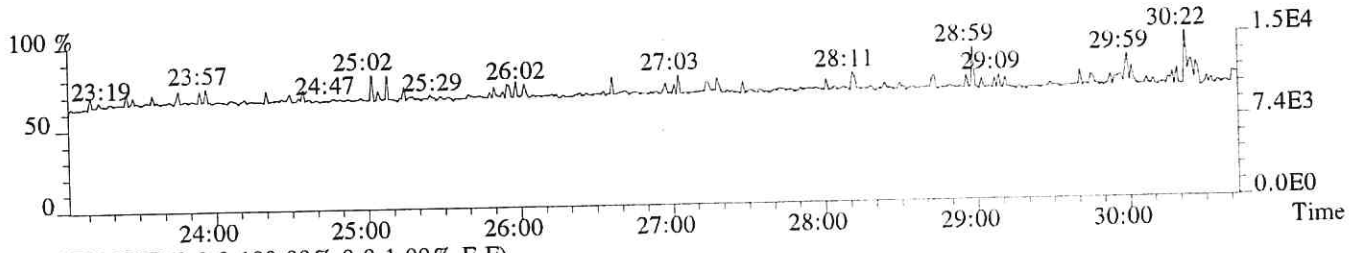
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



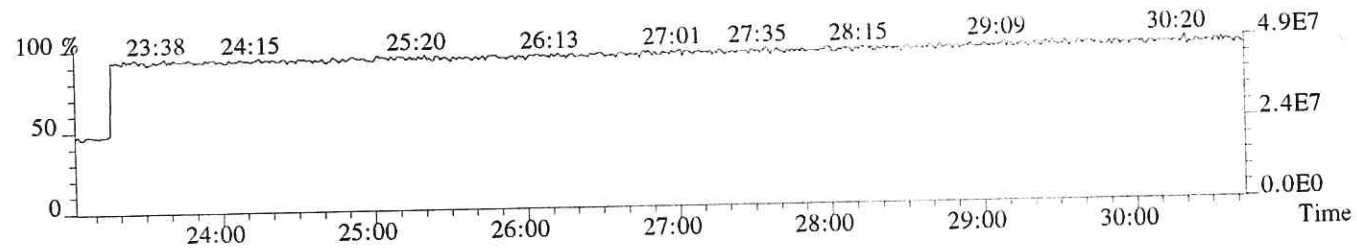
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



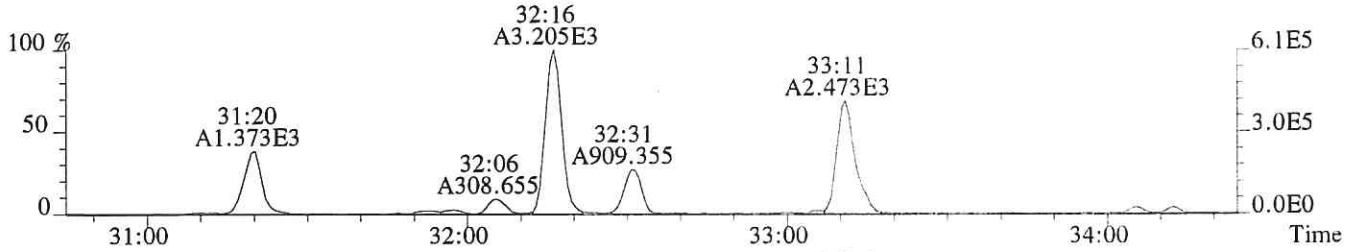
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



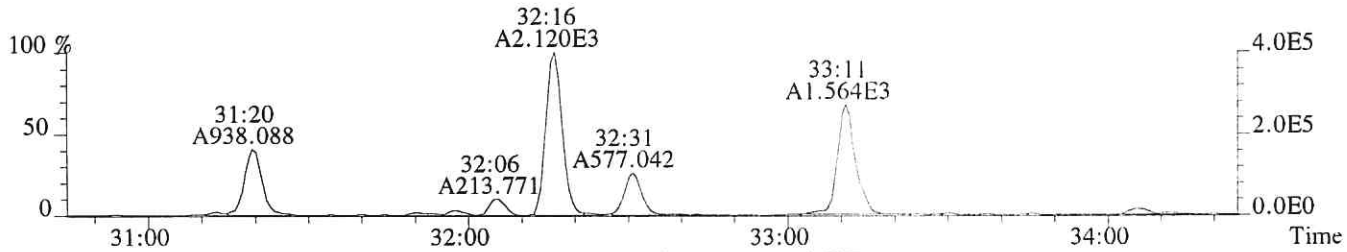
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



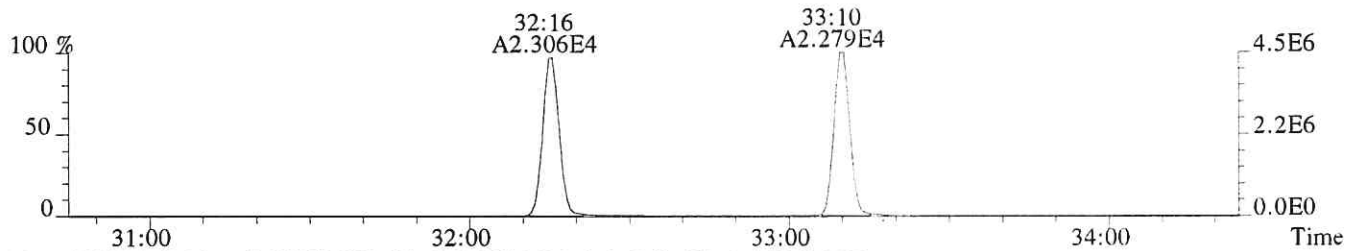
File:P519247 #1-330 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



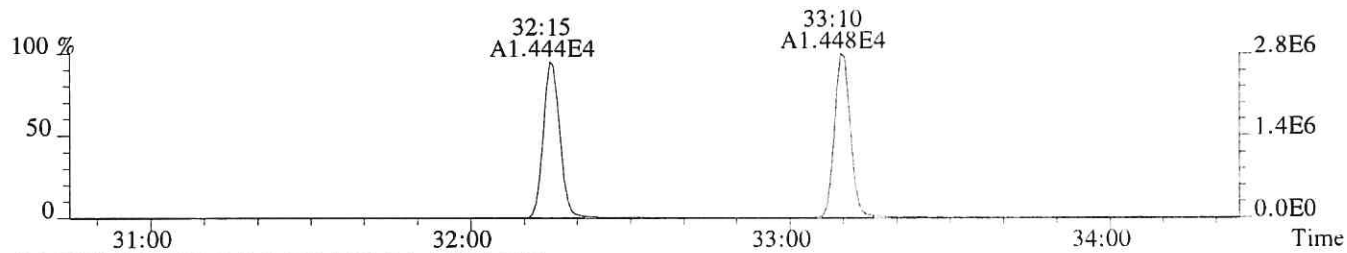
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1956.0,1.00%,F,T)



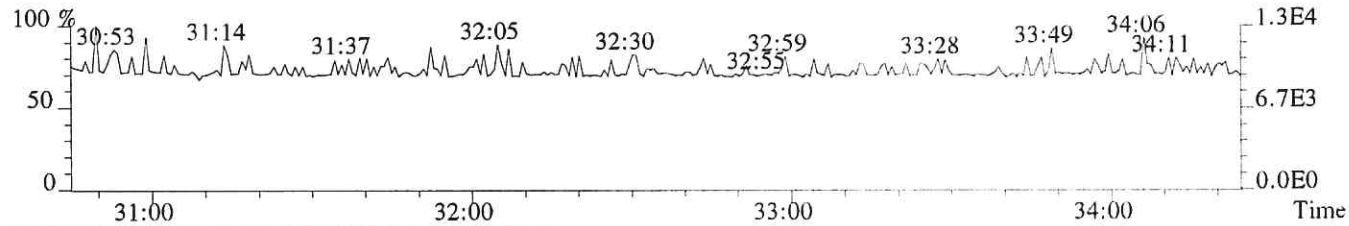
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



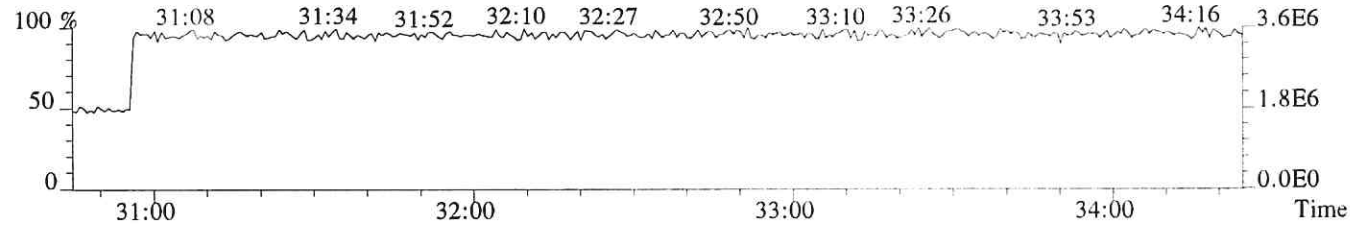
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



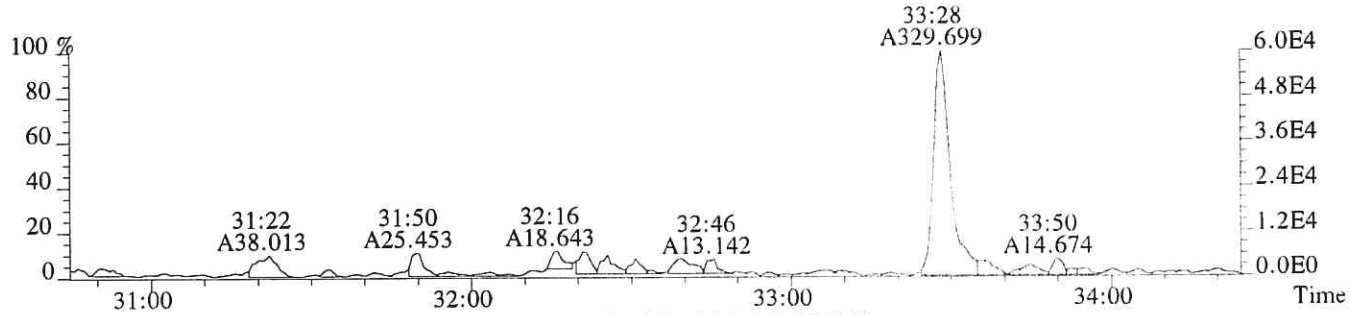
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



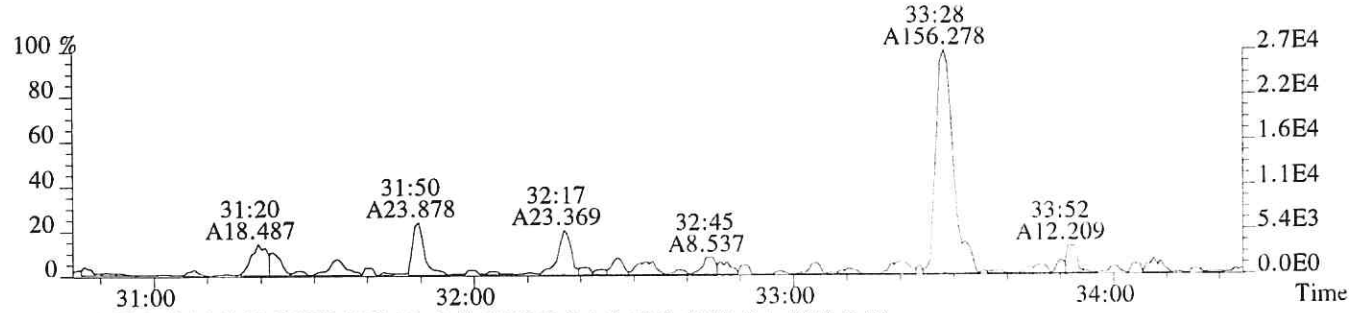
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



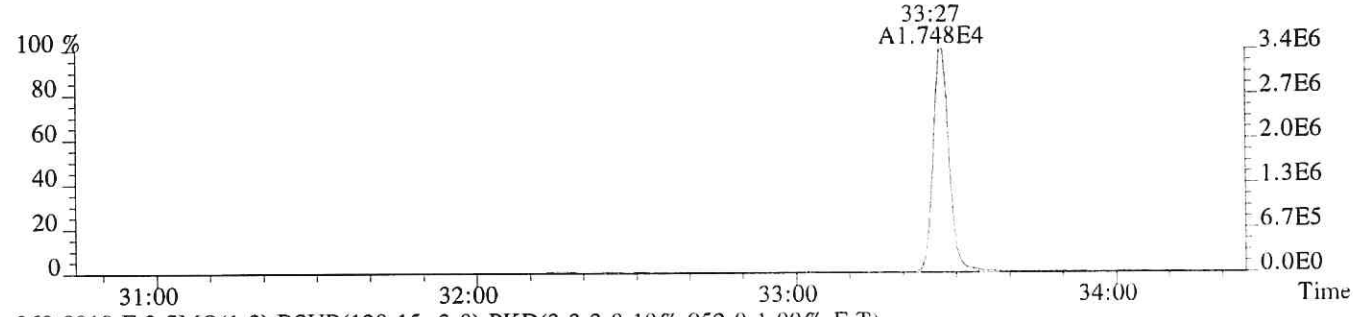
File:P519247 #1-330 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



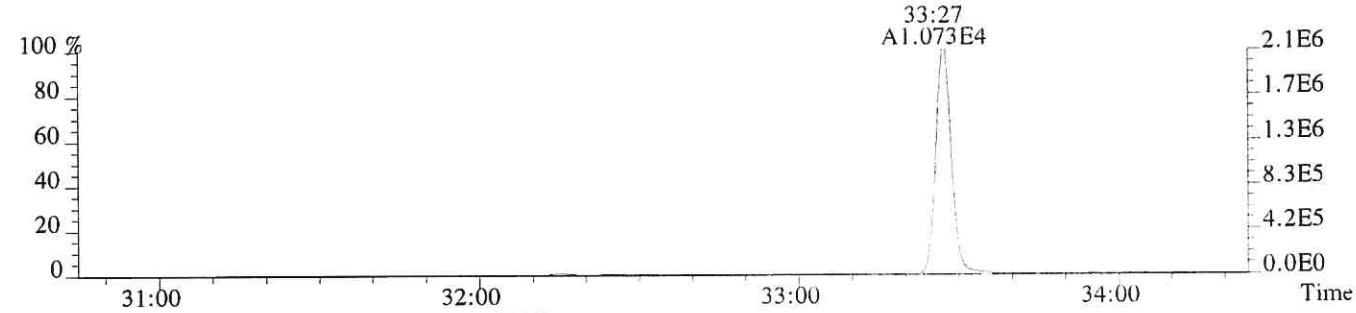
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



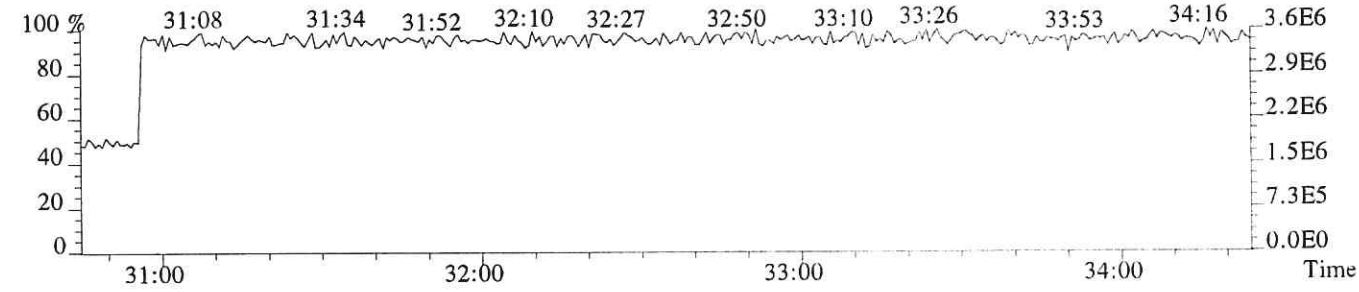
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



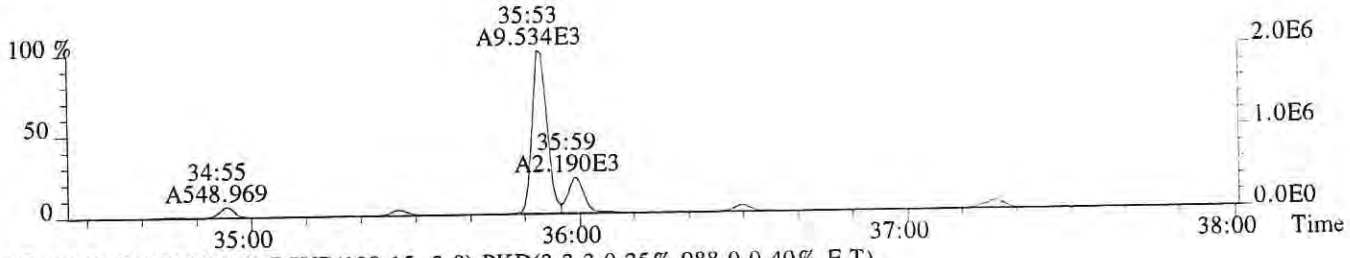
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



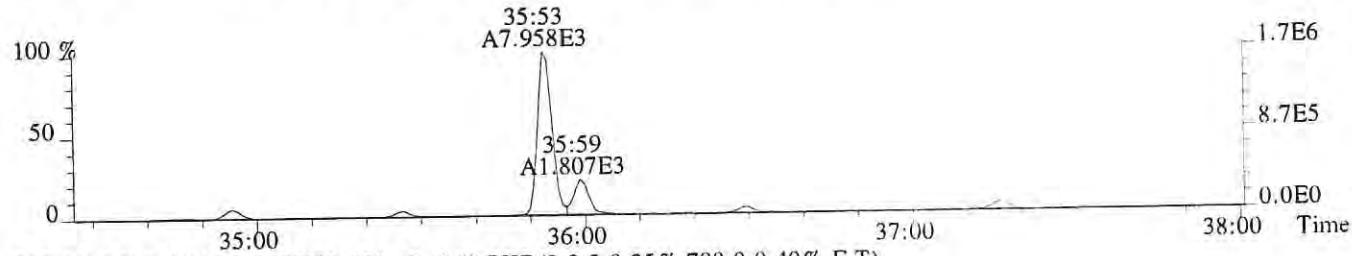
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



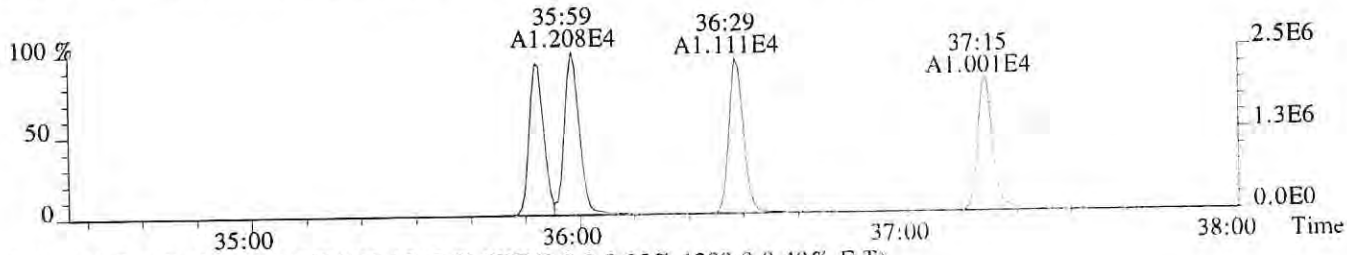
File:P519247 #1-322 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



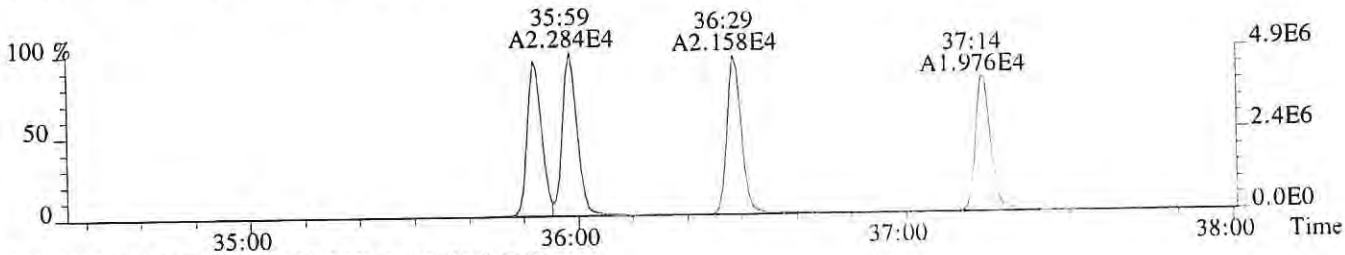
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



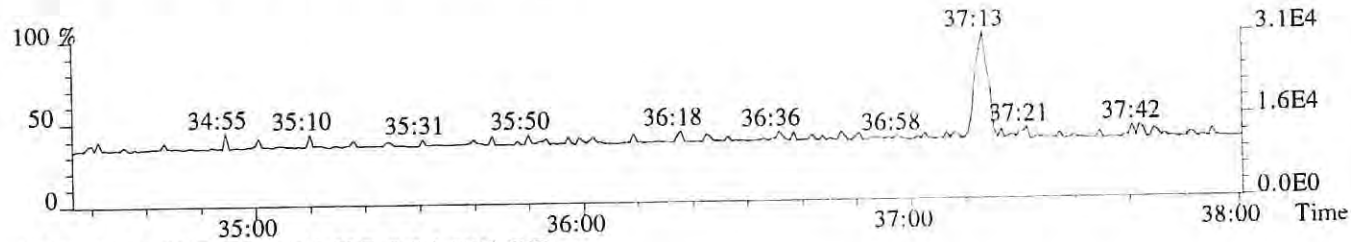
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



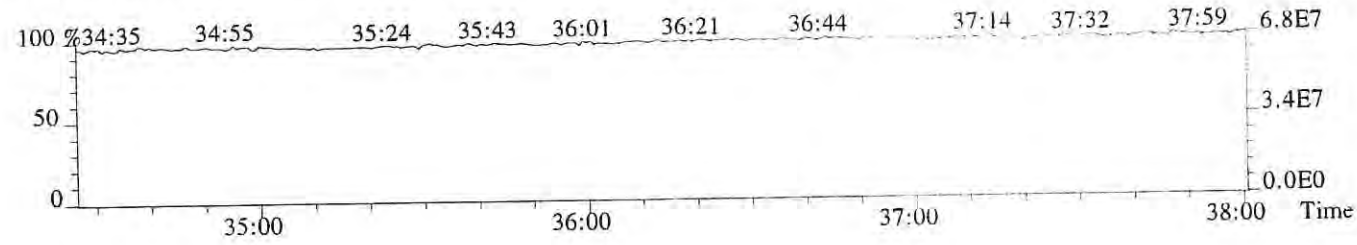
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



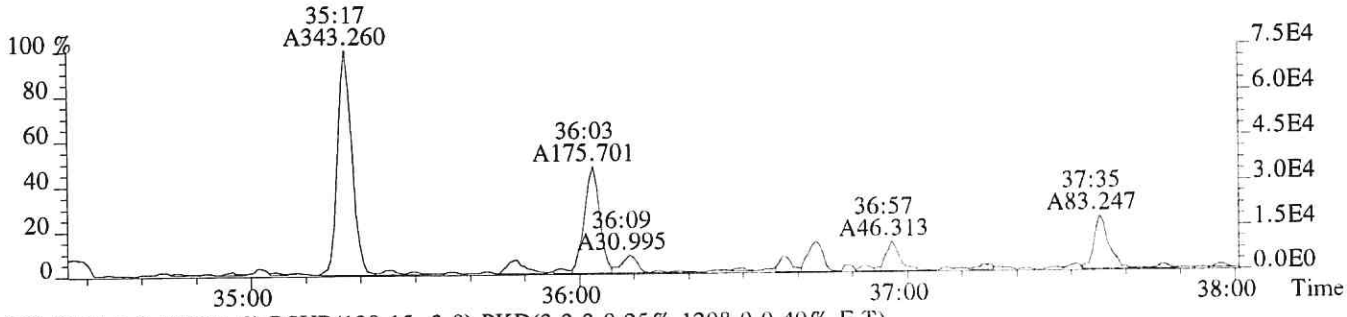
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



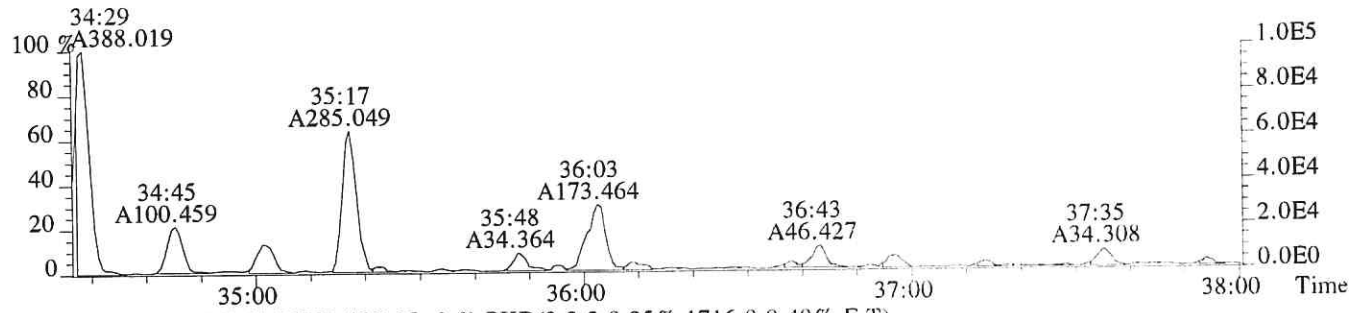
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



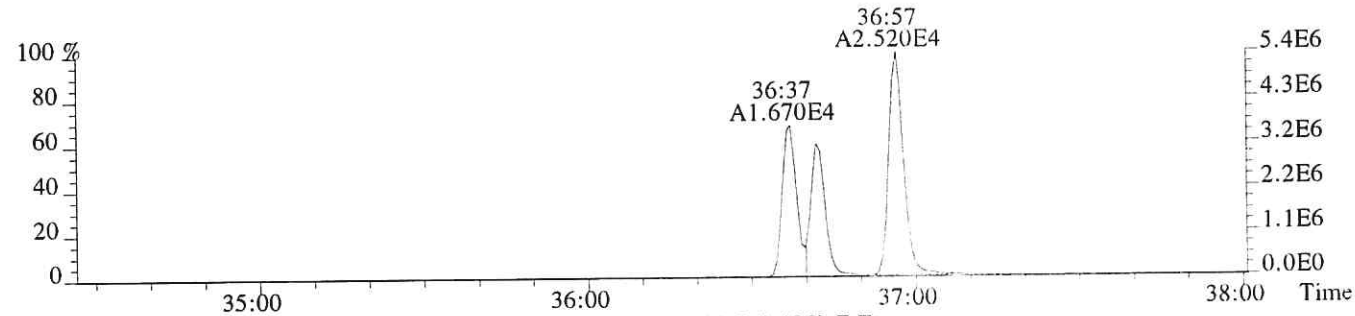
File:P519247 #1-322 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



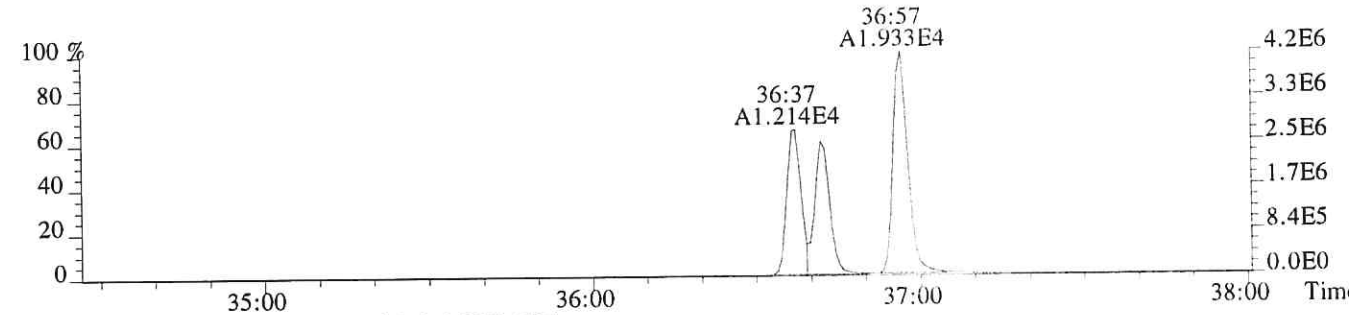
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



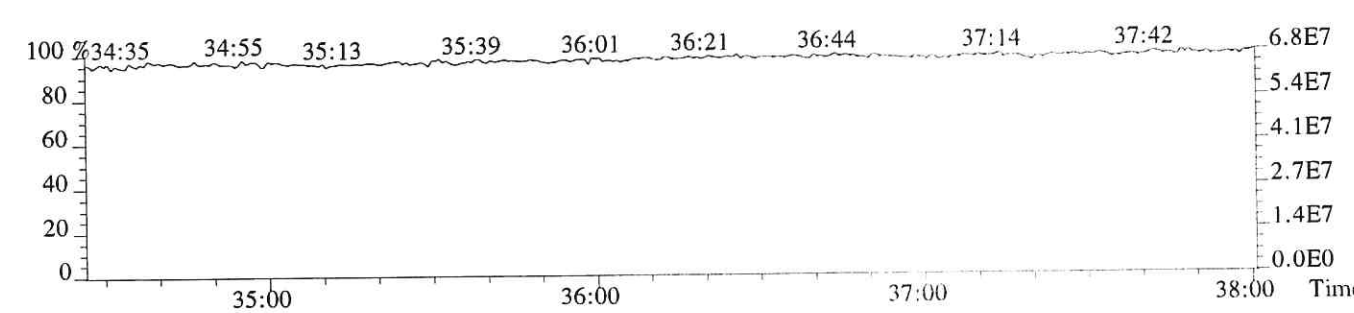
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1716.0,0.40%,F,T)



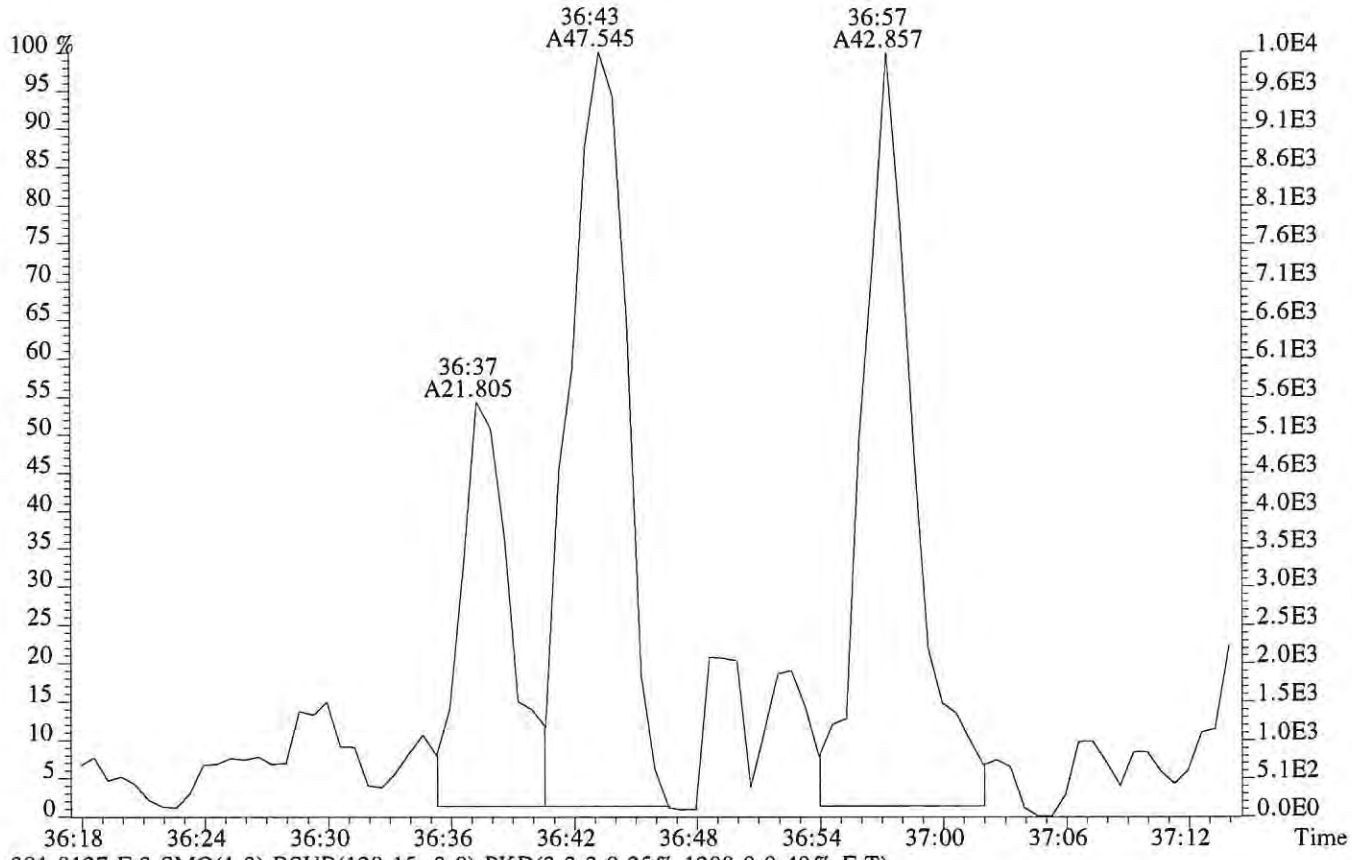
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



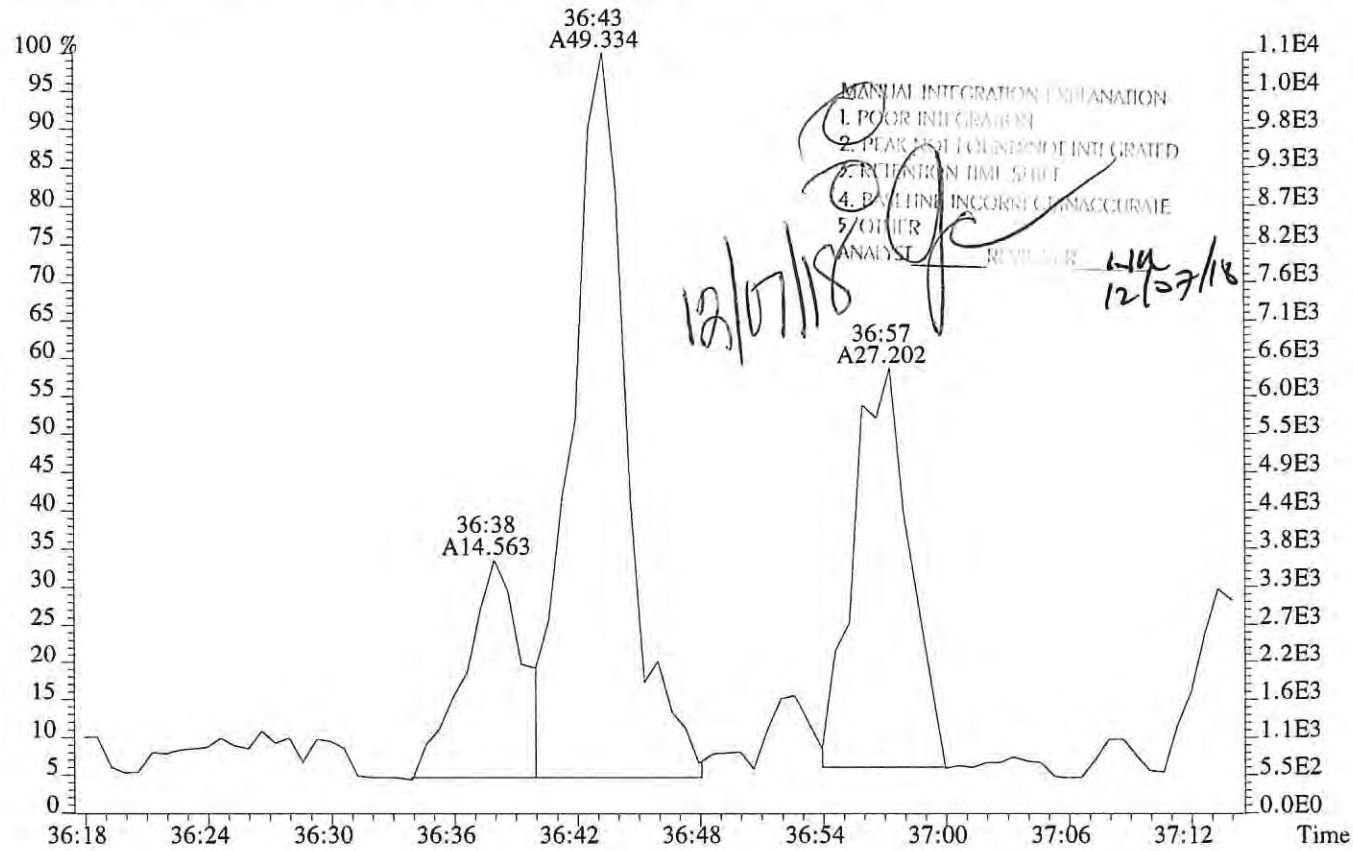
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



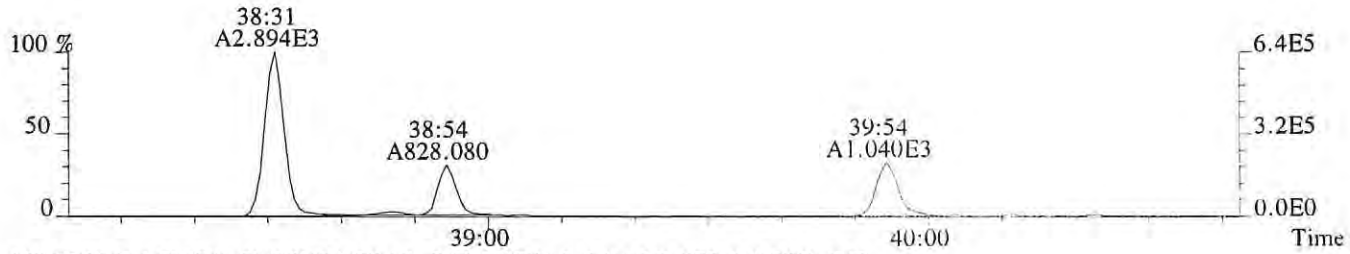
File:P519247 #1-322 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



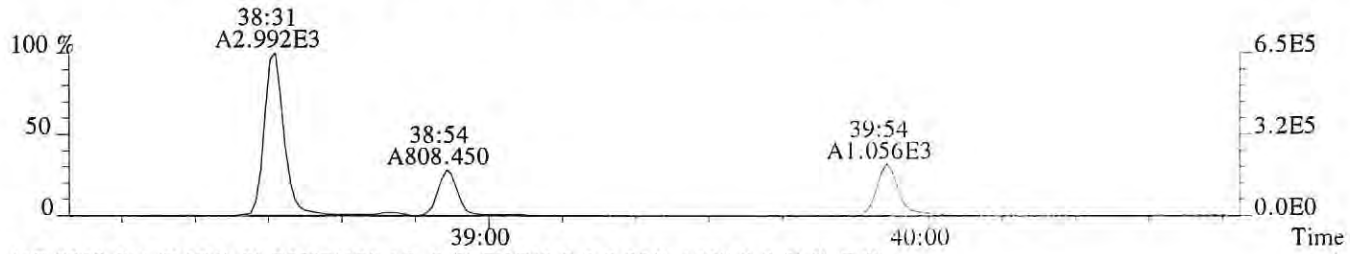
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



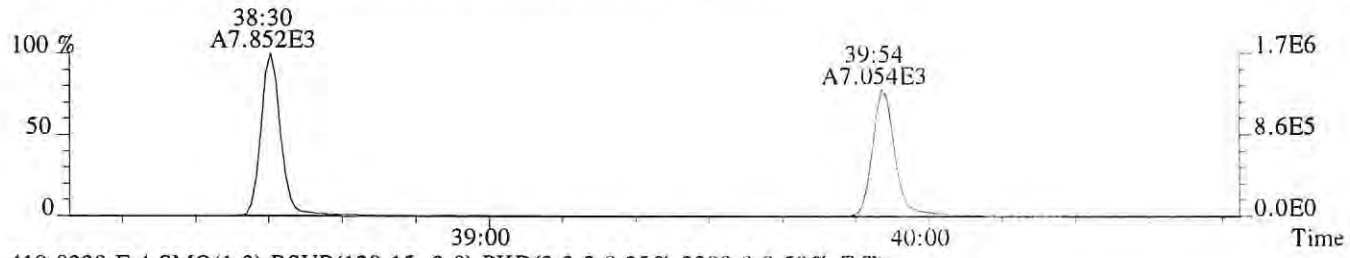
File:P519247 #1-240 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2020.0,0.50%,F,T)



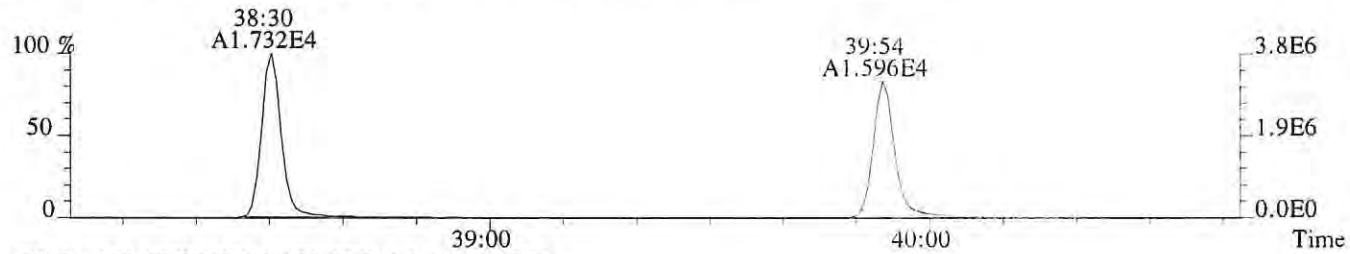
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.50%,F,T)



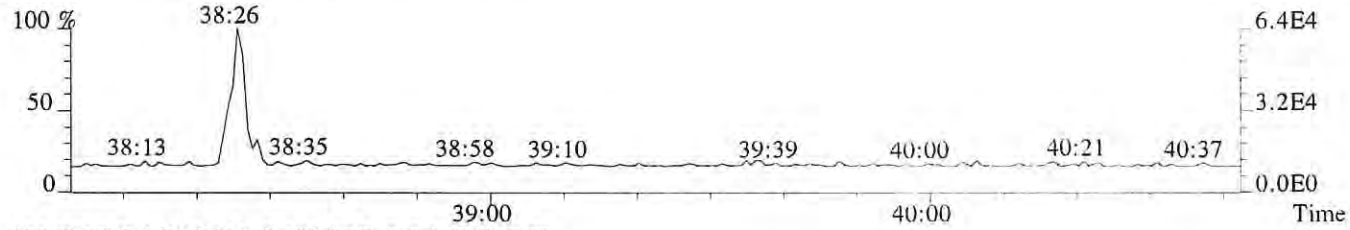
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.50%,F,T)



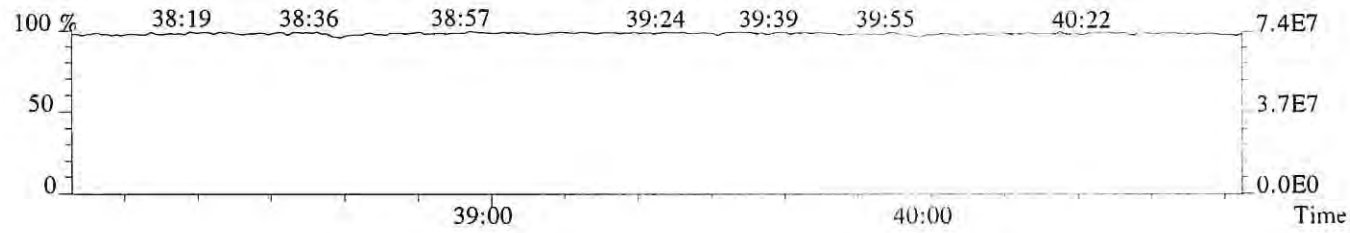
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.50%,F,T)



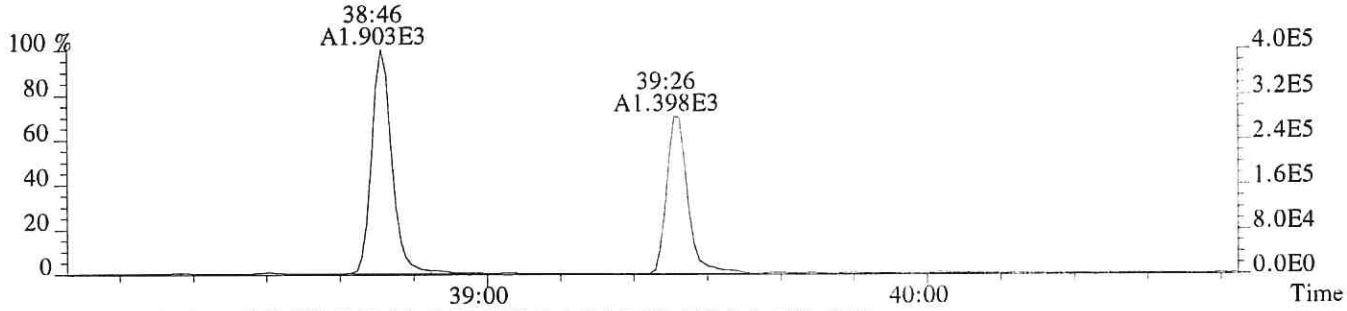
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



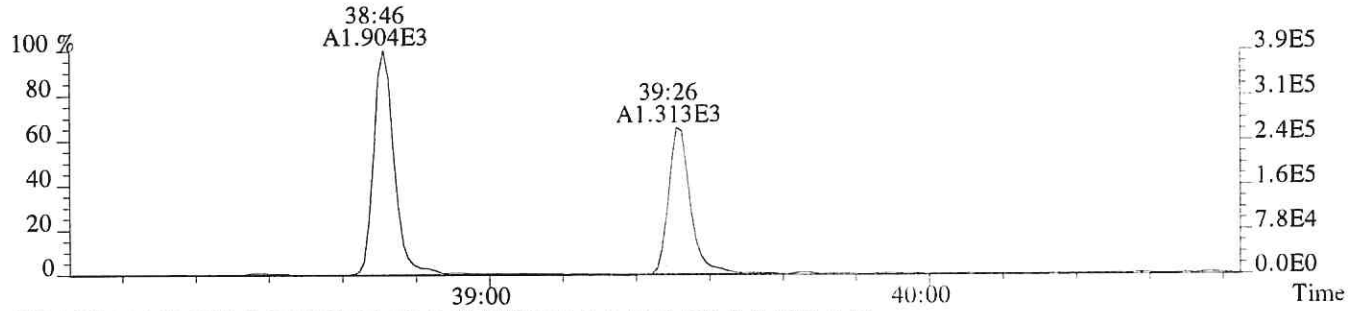
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



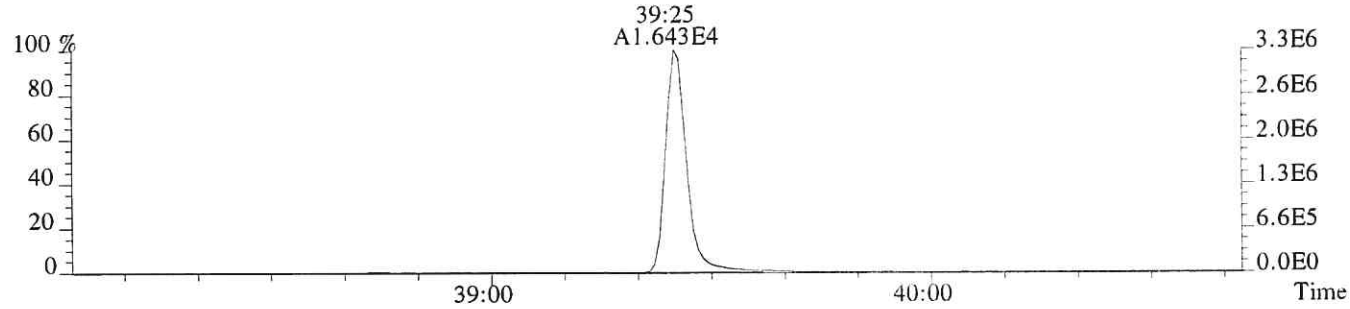
File:P519247 #1-240 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



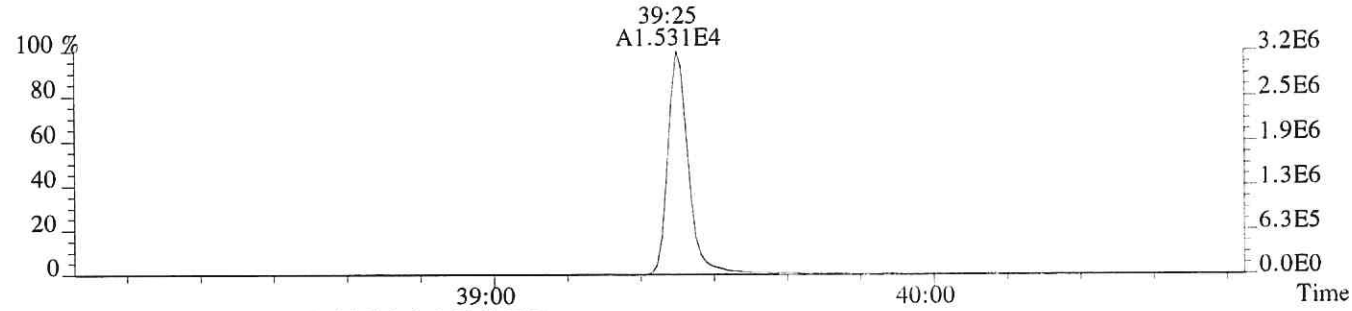
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



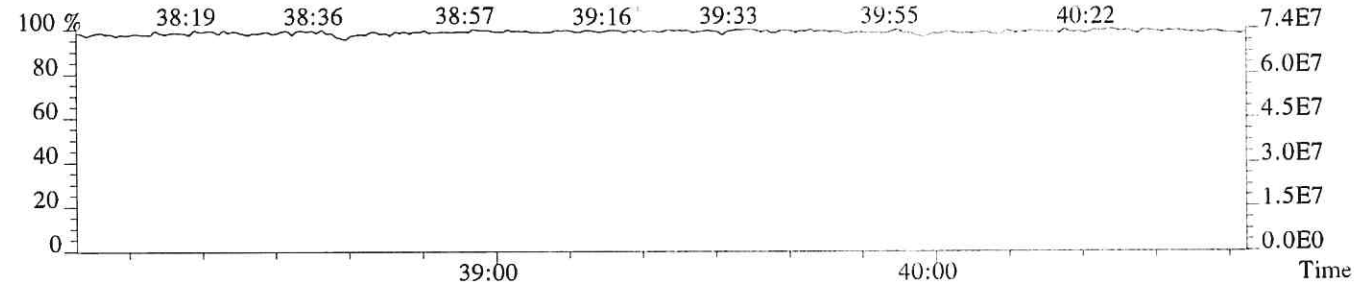
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



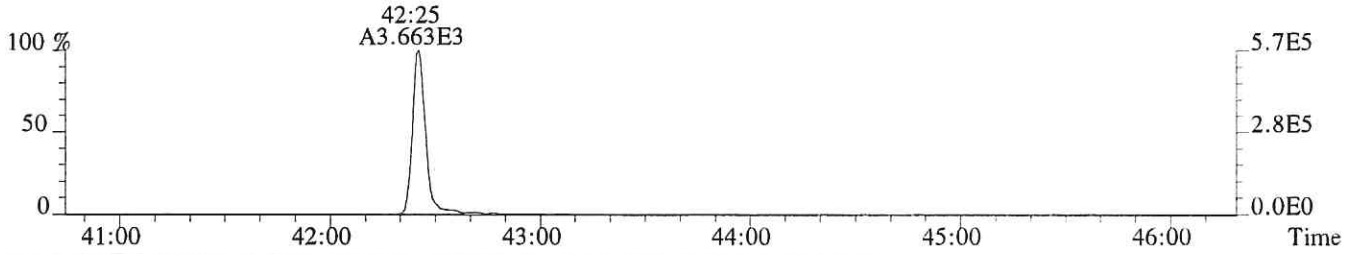
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



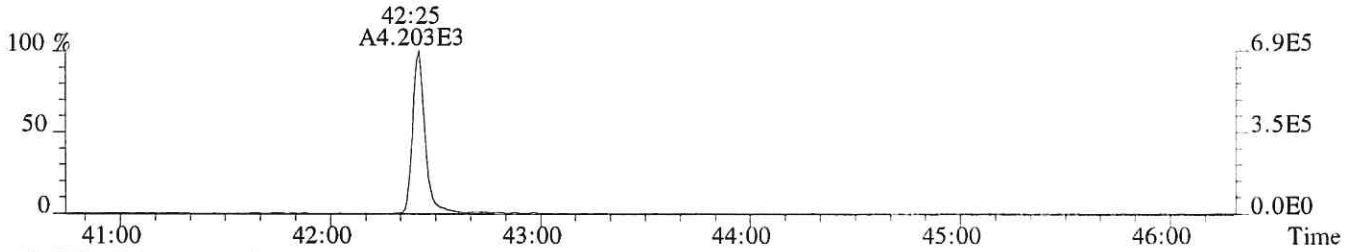
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



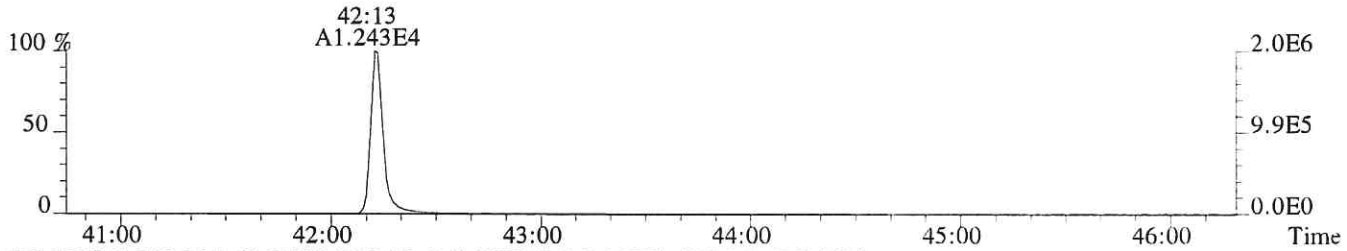
File:P519247 #1-502 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



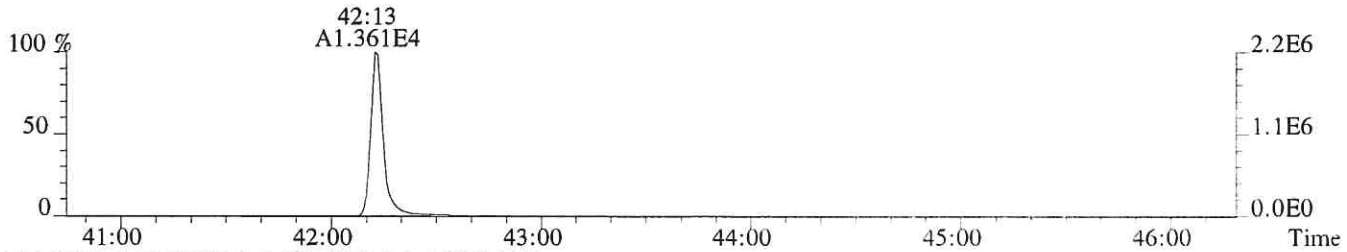
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1360.0,0.40%,F,T)



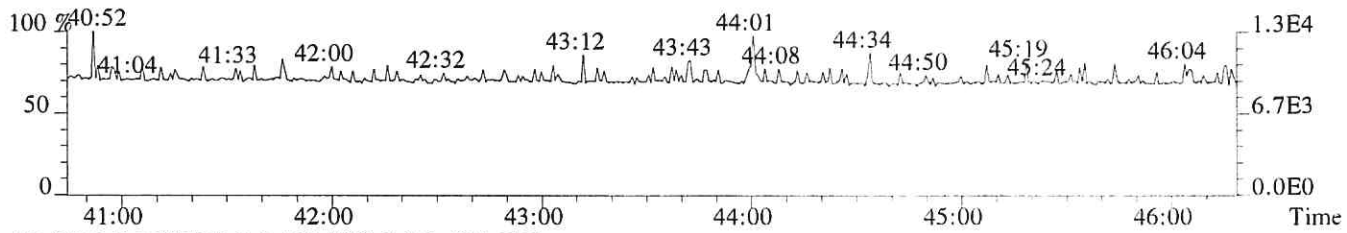
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



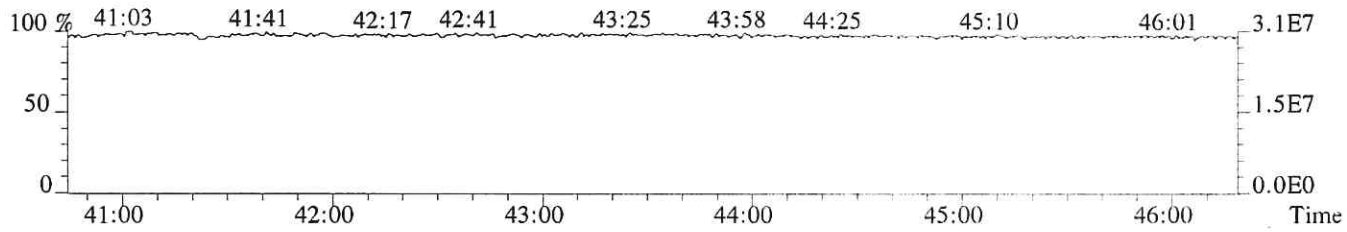
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



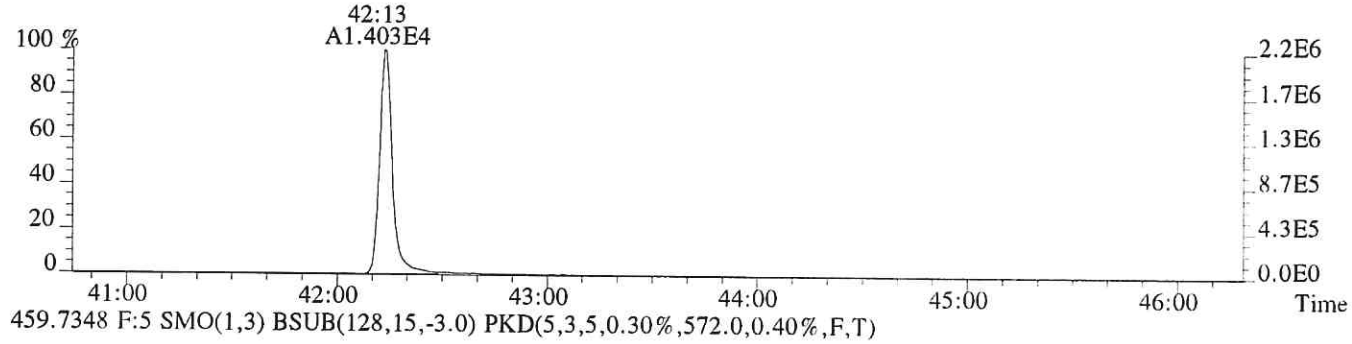
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



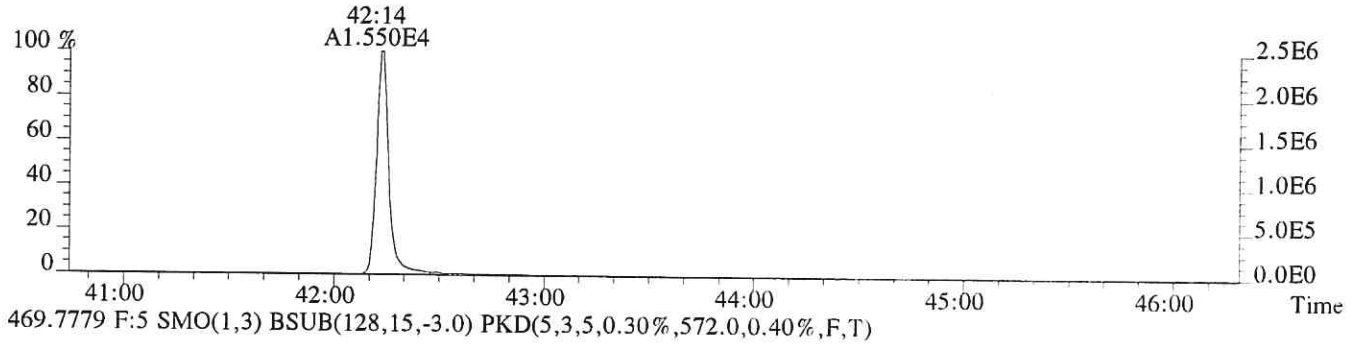
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



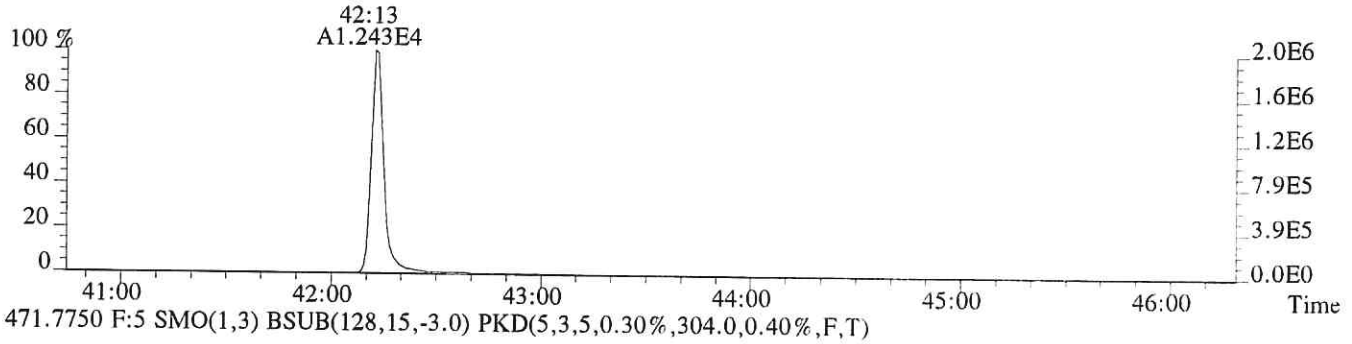
File:P519247 #1-502 Acq: 6-DEC-2018 07:46:23 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



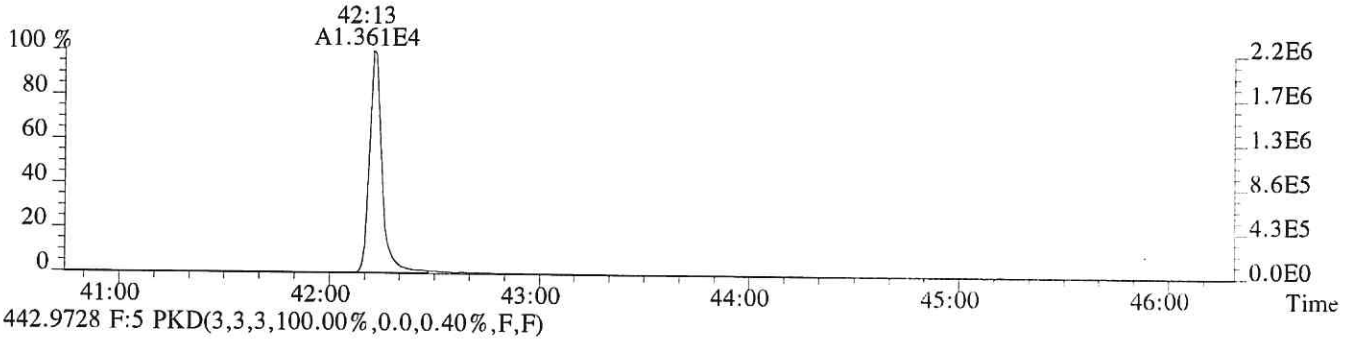
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



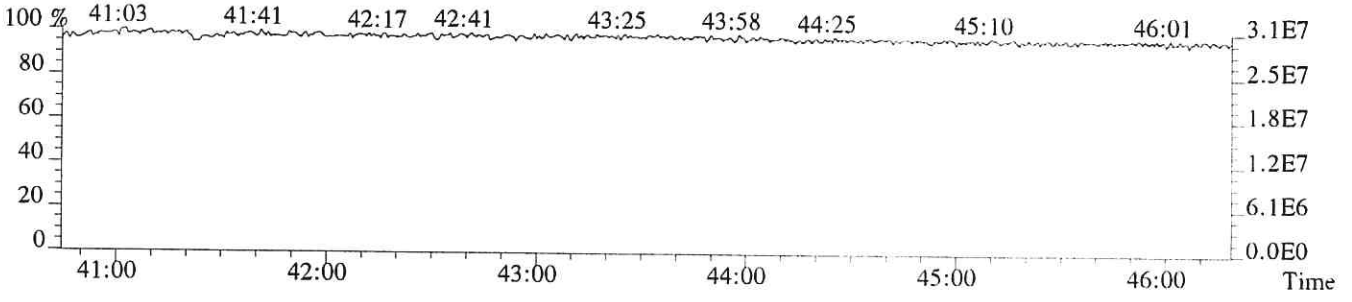
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0539

Run #11 Filename P519291 Samp: 1 Inj: 1 Acquired: 7-DEC-18 22:22:00
Processed: 10-DEC-18 09:24:34 Sample ID: E1801046-001DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.872e+03	3.992e+03	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	2.158e+02	1.301e+02	1.66	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:06	1.446e+02	1.031e+02	1.40	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	4.988e+02	4.471e+02	1.12	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.452e+02	1.062e+02	1.37	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	1.320e+01	1.683e+01	0.78	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	2.840e+01	2.613e+01	1.09	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	1.642e+02	1.721e+02	0.95	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	7.621e+01	6.229e+01	1.22	no	no	1.258
10	Unk	OCDF	42:45	3.274e+02	3.316e+02	0.99	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	7.665e+02	9.465e+02	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	1.285e+01	8.409e+00	1.53	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	2.530e+00	3.494e+00	0.72	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:01	1.507e+00	5.401e-01	2.79	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	7.390e+01	7.502e+01	0.99	yes	no	1.025
17	Unk	OCDD	42:33	1.038e+03	1.171e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	9.906e+03	1.264e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	1.551e+04	9.806e+03	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.484e+04	9.067e+03	1.64	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	6.557e+03	1.240e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	8.245e+03	1.544e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	7.233e+03	1.385e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	6.901e+03	1.283e+04	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:35	5.923e+03	1.361e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	5.345e+03	1.220e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	4.573e+03	5.810e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.044e+04	6.389e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	9.153e+03	7.222e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	9.043e+03	7.032e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.104e+04	1.032e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:33	1.317e+04	1.453e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	7.590e+03	9.295e+03	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	1.162e+04	8.915e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	5.174e+02				no	1.014

$$\text{OCDD} = \frac{(1.038e+03 + 1.171e+03) \times 4000\ \text{pg} \times 10}{(1.317e+04 + 1.453e+04) \times 10.41\ \text{g} \times 81.0 / 100 \times 1.118 \times 0.50} = 676.8\ \text{ng/kg}$$

LM 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0539

Run #11 Filename P519291 Samp: 1 Inj: 1 Acquired: 7-DEC-18 22:22:00
Processed: 10-DEC-18 09:24:34 LAB. ID: E1801046-001DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.75e+05	5.84e+02	8.1e+02	6.16e+05	1.02e+03	6.1e+02
2	1,2,3,7,8-PeCDF	4.13e+04	2.80e+02	1.5e+02	2.47e+04	9.44e+02	2.6e+01
3	2,3,4,7,8-PeCDF	2.35e+04	2.80e+02	8.4e+01	1.79e+04	9.44e+02	1.9e+01
4	1,2,3,4,7,8-HxCDF	1.07e+05	7.64e+02	1.4e+02	8.71e+04	3.84e+02	2.3e+02
5	1,2,3,6,7,8-HxCDF	2.41e+04	7.64e+02	3.2e+01	1.66e+04	3.84e+02	4.3e+01
6	2,3,4,6,7,8-HxCDF	3.30e+03	7.64e+02	4.3e+00	2.52e+03	3.84e+02	6.6e+00
7	1,2,3,7,8,9-HxCDF	6.20e+03	7.64e+02	8.1e+00	4.19e+03	3.84e+02	1.1e+01
8	1,2,3,4,6,7,8-HpCDF	2.99e+04	3.40e+02	8.8e+01	3.84e+04	4.16e+02	9.2e+01
9	1,2,3,4,7,8,9-HpCDF	1.59e+04	3.40e+02	4.7e+01	9.46e+03	4.16e+02	2.3e+01
10	OCDF	4.80e+04	1.68e+02	2.9e+02	4.12e+04	4.64e+02	8.9e+01
11	2,3,7,8-TCDD	1.37e+05	1.82e+03	7.5e+01	1.74e+05	8.44e+02	2.1e+02
12	1,2,3,7,8-PeCDD	2.73e+03	5.56e+02	4.9e+00	1.28e+03	2.20e+02	5.8e+00
13	1,2,3,4,7,8-HxCDD	*	3.48e+02	*	*	2.28e+02	*
14	1,2,3,6,7,8-HxCDD	7.51e+02	3.48e+02	2.2e+00	8.75e+02	2.28e+02	3.8e+00
15	1,2,3,7,8,9-HxCDD	5.40e+02	3.48e+02	1.6e+00	2.33e+02	2.28e+02	1.0e+00
16	1,2,3,4,6,7,8-HpCDD	1.39e+04	3.16e+02	4.4e+01	1.28e+04	2.28e+02	5.6e+01
17	OCDD	1.22e+05	2.04e+02	6.0e+02	1.37e+05	2.72e+02	5.0e+02
18	13C-2,3,7,8-TCDF	1.76e+06	5.96e+03	3.0e+02	2.30e+06	4.06e+03	5.7e+02
19	13C-1,2,3,7,8-PeCDF	2.75e+06	2.48e+02	1.1e+04	1.76e+06	2.48e+02	7.1e+03
20	13C-2,3,4,7,8-PeCDF	2.83e+06	2.48e+02	1.1e+04	1.73e+06	2.48e+02	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.36e+06	1.17e+03	1.2e+03	2.57e+06	5.92e+02	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.55e+06	1.17e+03	1.3e+03	2.95e+06	5.92e+02	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.45e+06	1.17e+03	1.2e+03	2.78e+06	5.92e+02	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.26e+06	1.17e+03	1.1e+03	2.41e+06	5.92e+02	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.18e+06	1.86e+03	6.4e+02	2.62e+06	5.44e+02	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.15e+05	1.86e+03	4.9e+02	2.02e+06	5.44e+02	3.7e+03
27	13C-2,3,7,8-TCDD	8.30e+05	4.63e+03	1.8e+02	1.04e+06	1.35e+03	7.7e+02
28	13C-1,2,3,7,8-PeCDD	1.92e+06	2.92e+02	6.6e+03	1.16e+06	6.44e+02	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.84e+06	6.04e+02	3.1e+03	1.47e+06	2.32e+02	6.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.72e+06	6.04e+02	2.9e+03	1.35e+06	2.32e+02	5.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.95e+06	2.60e+02	7.5e+03	1.86e+06	2.88e+02	6.5e+03
32	13C-OCDD	1.55e+06	3.12e+02	5.0e+03	1.71e+06	2.52e+02	6.8e+03
33	13C-1,2,3,4-TCDD	1.44e+06	4.63e+03	3.1e+02	1.76e+06	1.35e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	2.08e+06	6.04e+02	3.4e+03	1.61e+06	2.32e+02	7.0e+03
35	37Cl-2,3,7,8-TCDD	1.00e+05	9.00e+02	1.1e+02			

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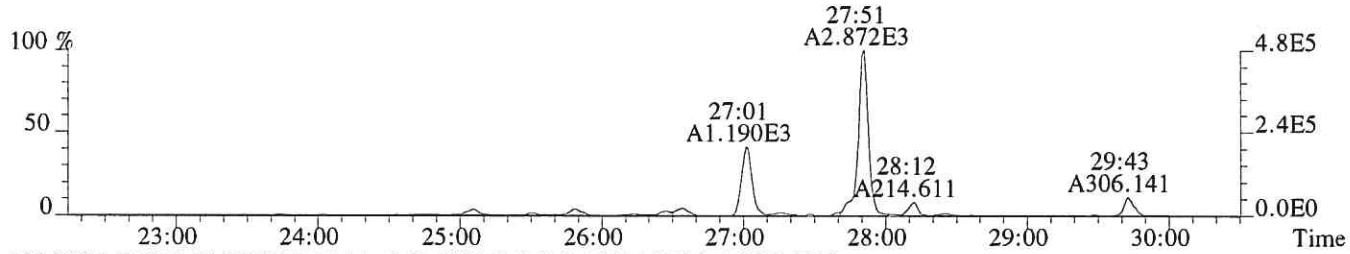
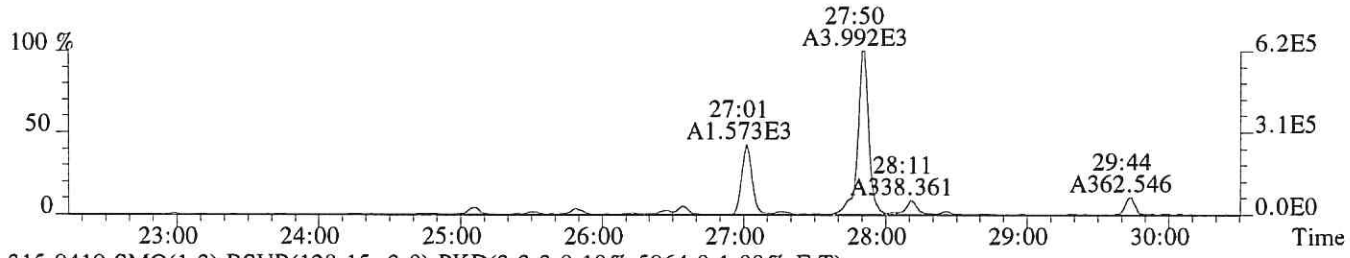
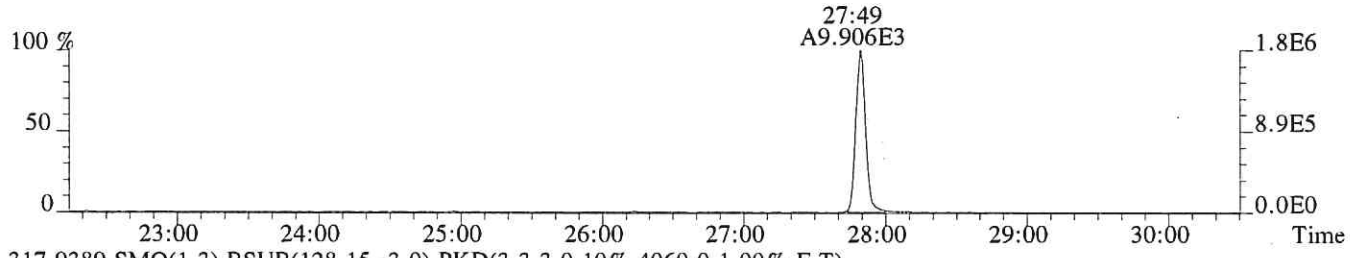
File:P519291 #1-587 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



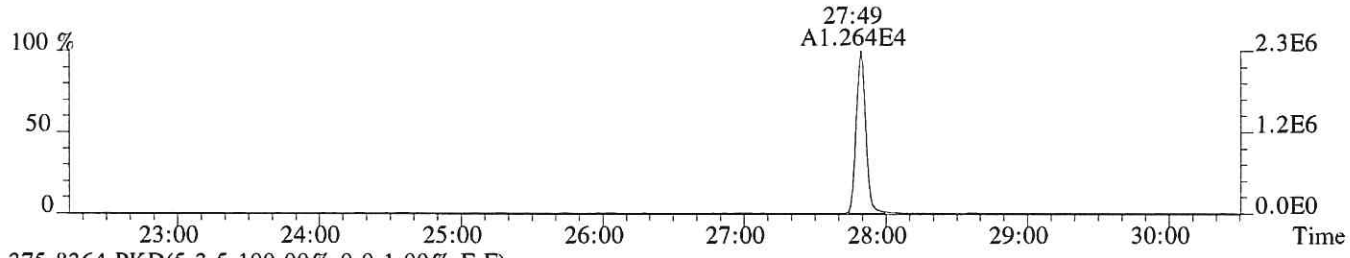
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



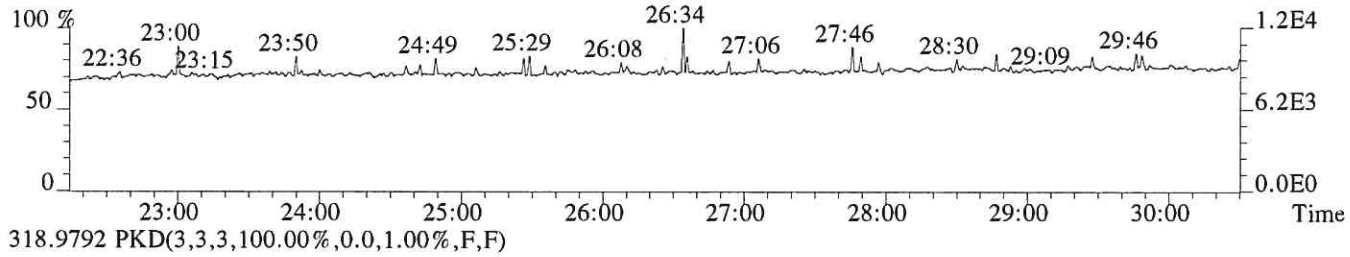
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5964.0,1.00%,F,T)



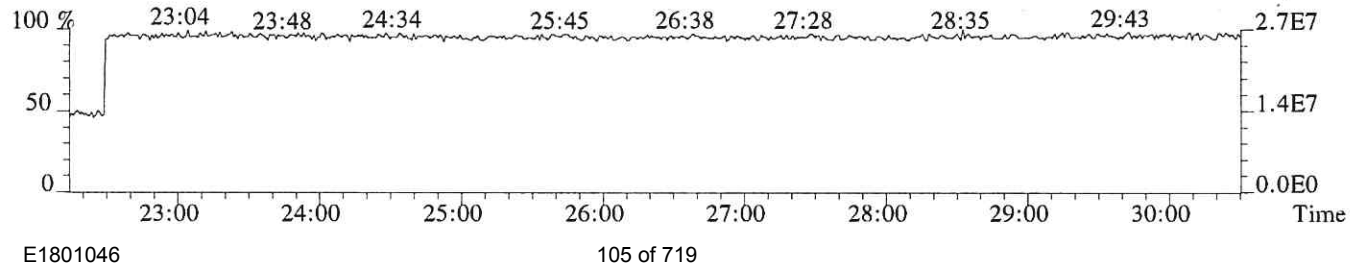
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4060.0,1.00%,F,T)



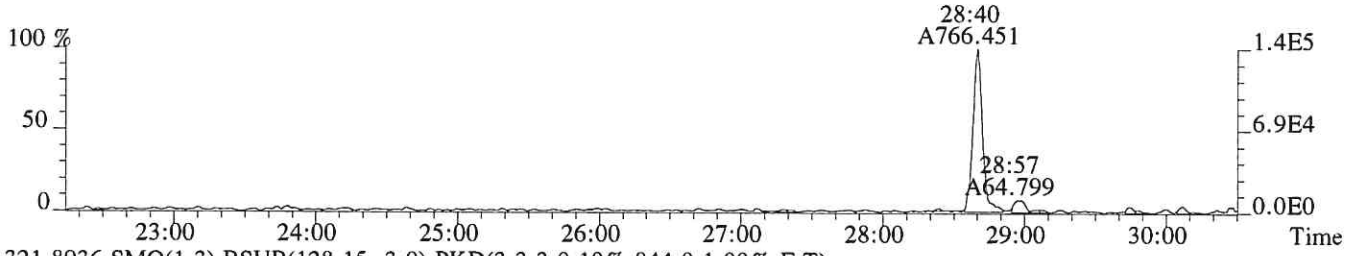
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



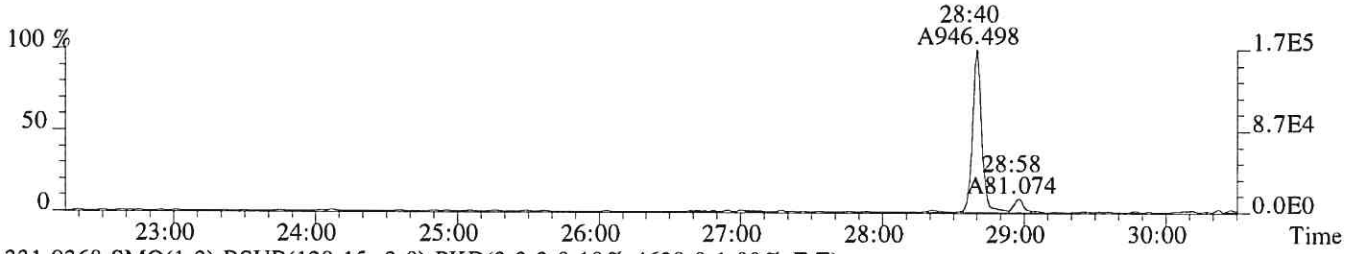
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



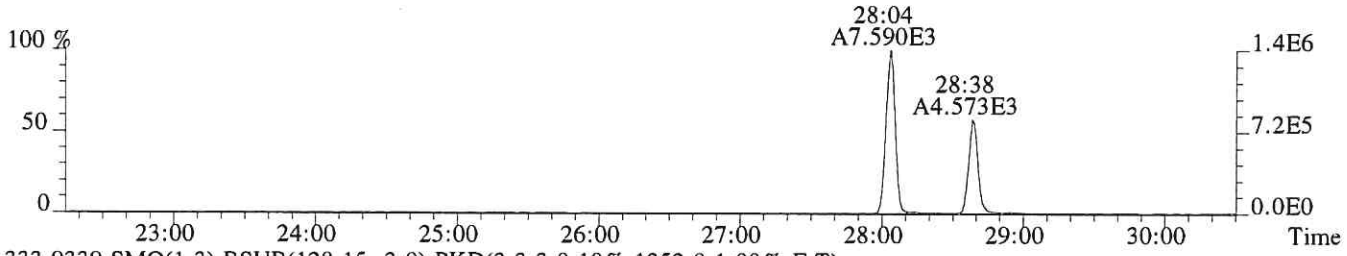
File:P519291 #1-587 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



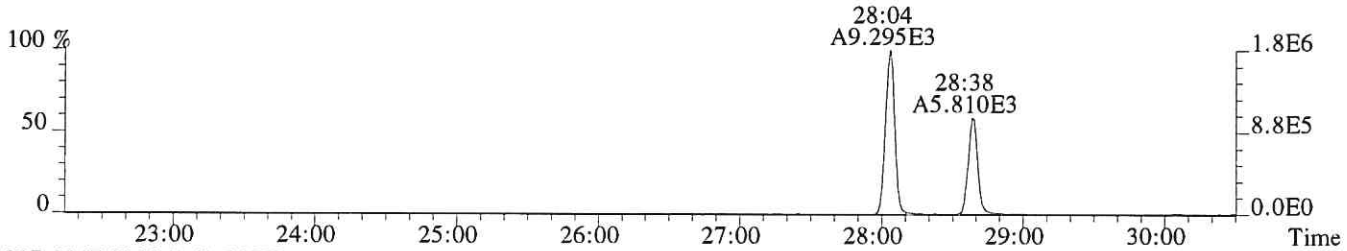
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



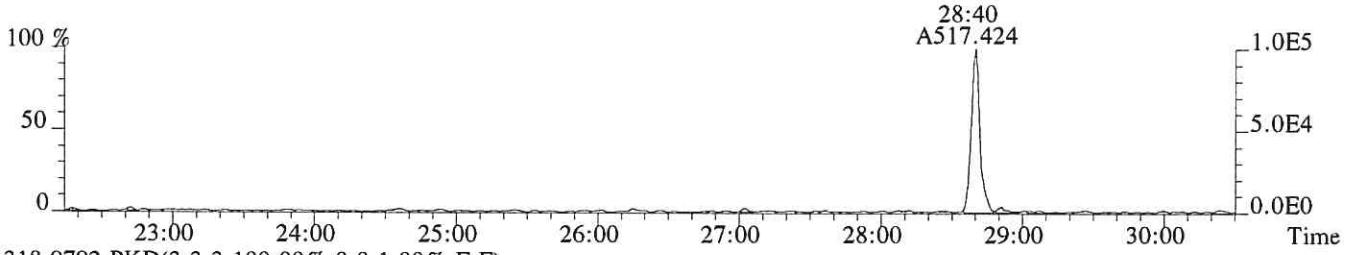
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



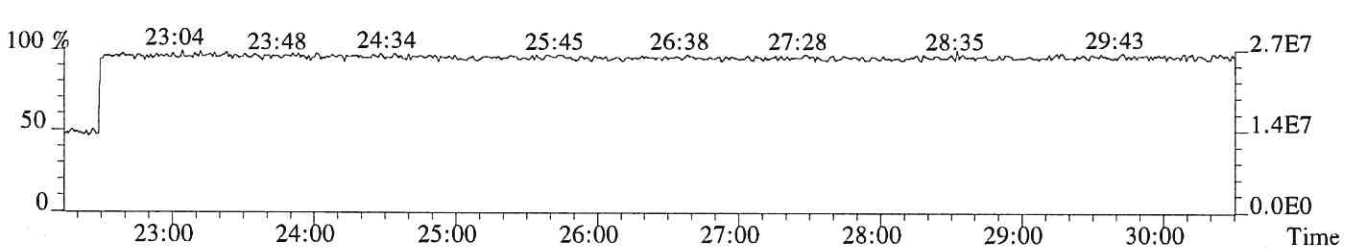
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



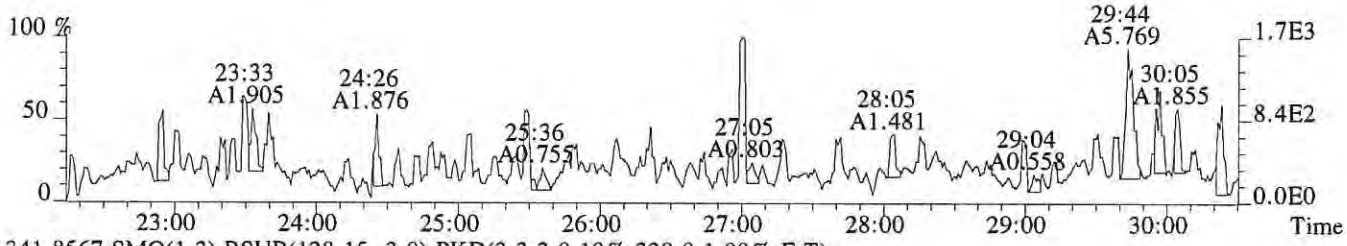
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



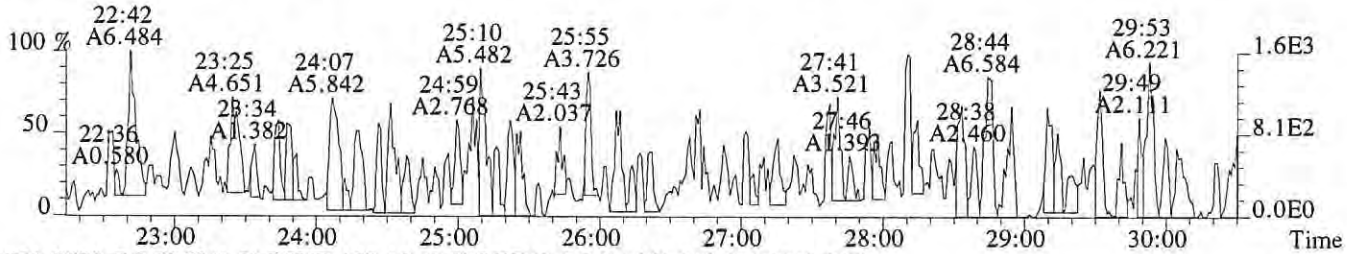
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



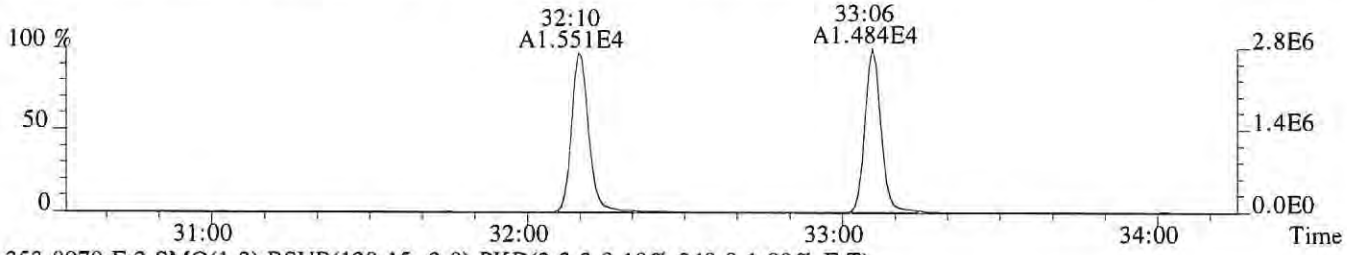
File:P519291 #1-587 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



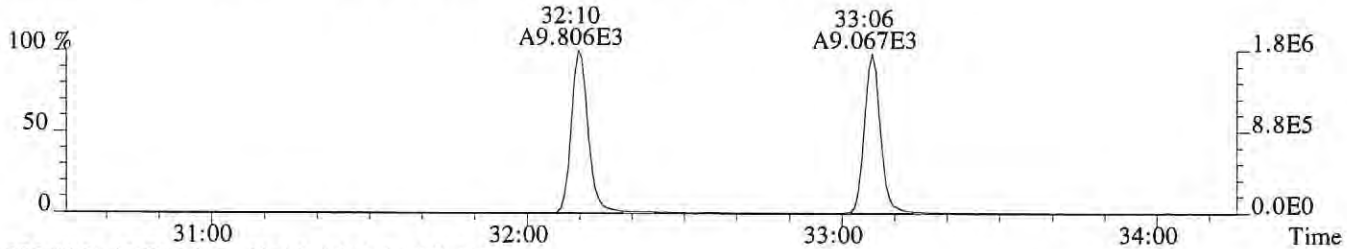
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



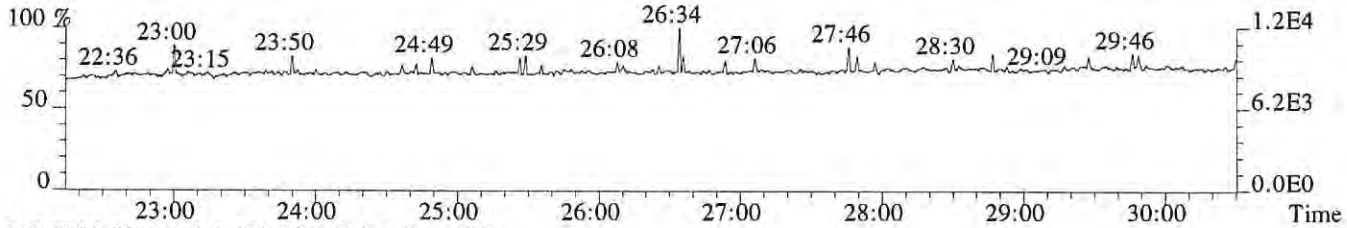
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



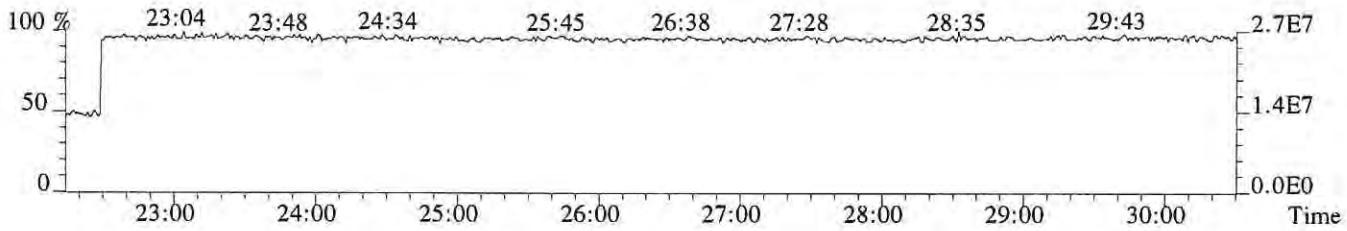
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



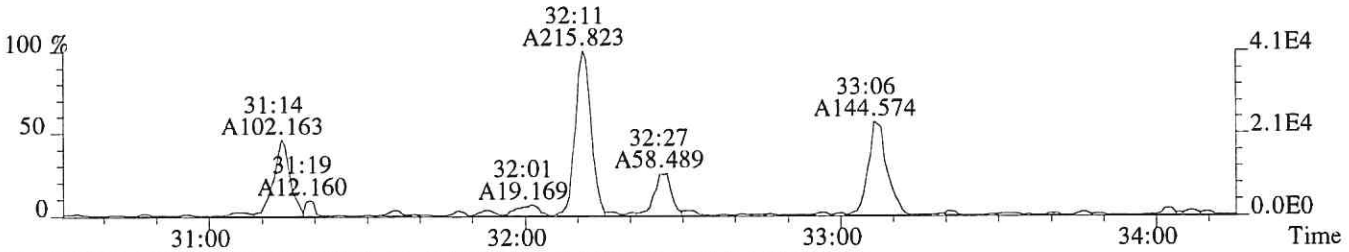
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



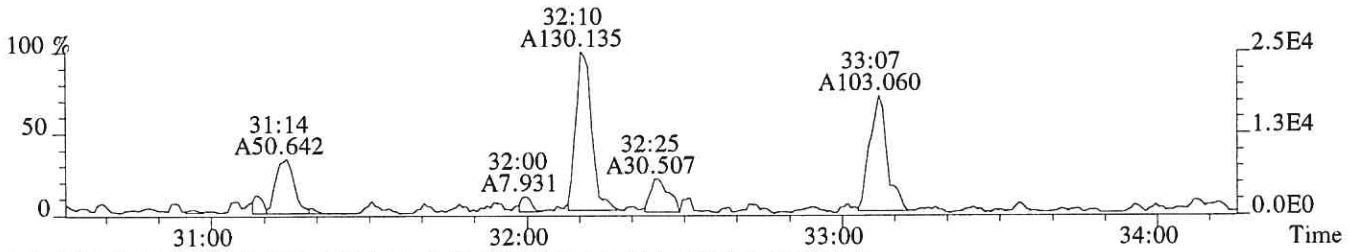
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



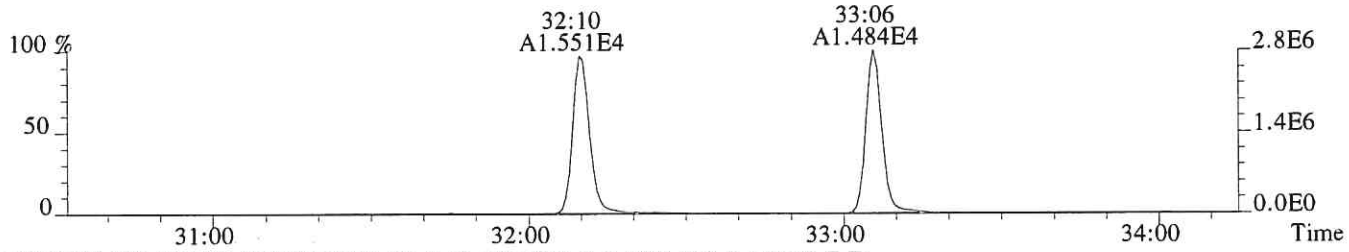
File:P519291 #1-335 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



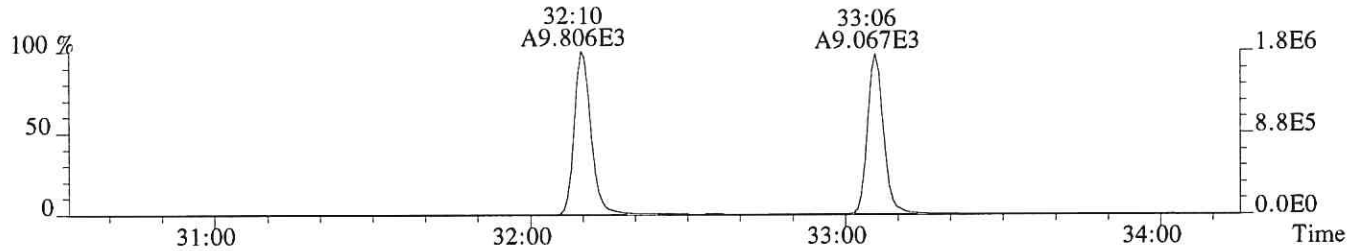
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



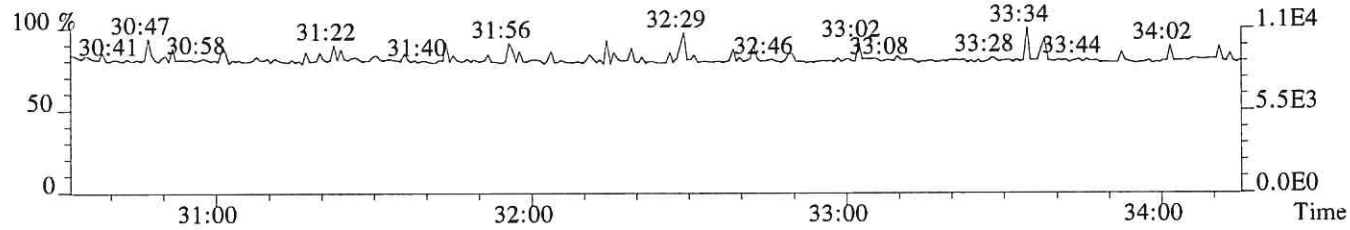
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



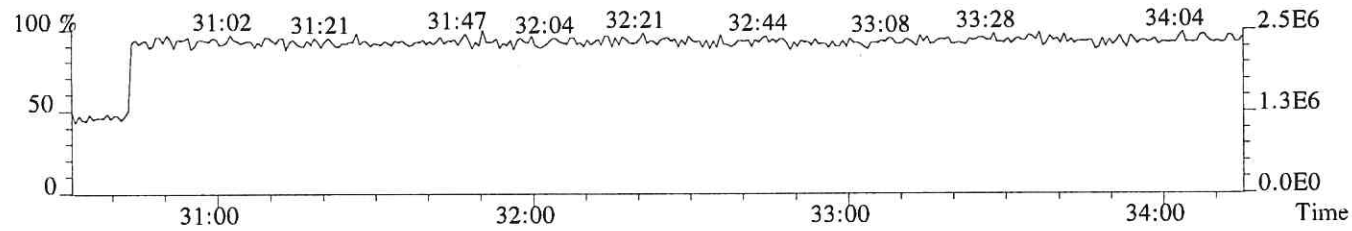
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



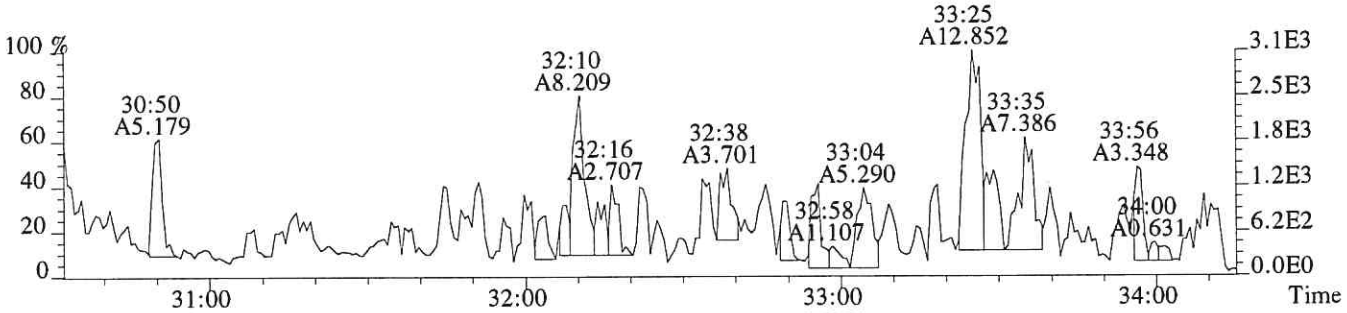
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



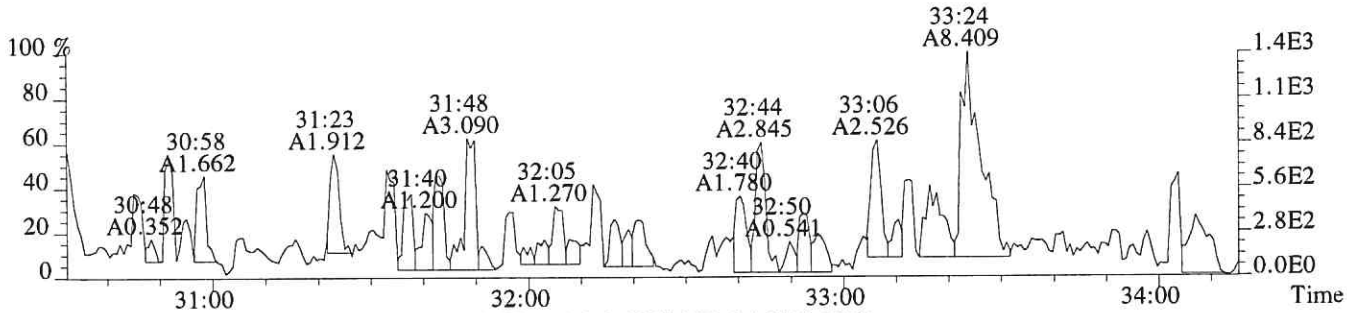
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



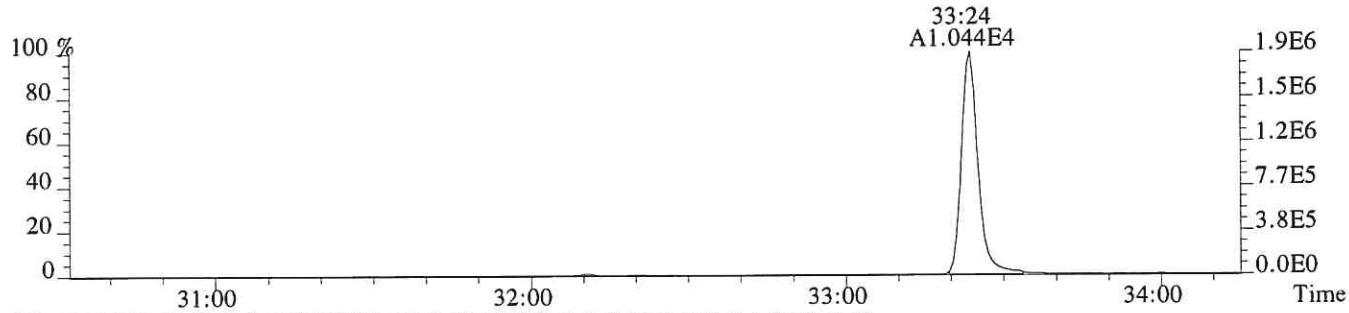
File:P519291 #1-335 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



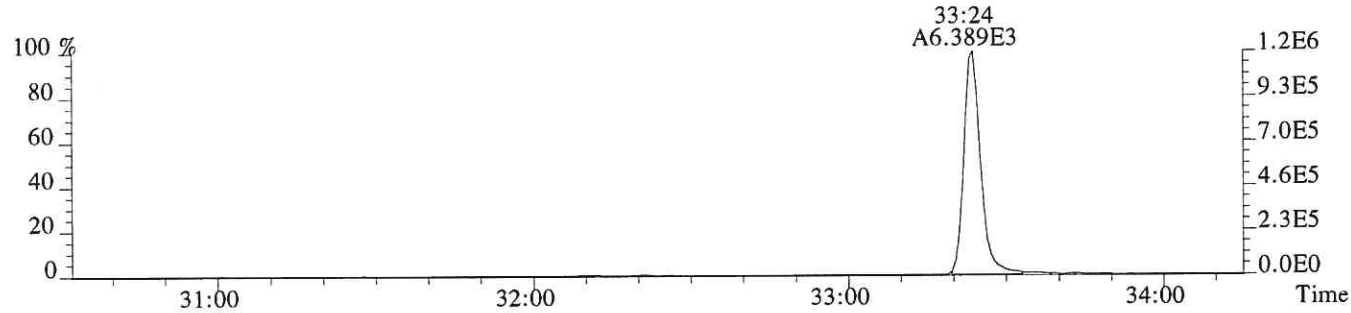
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



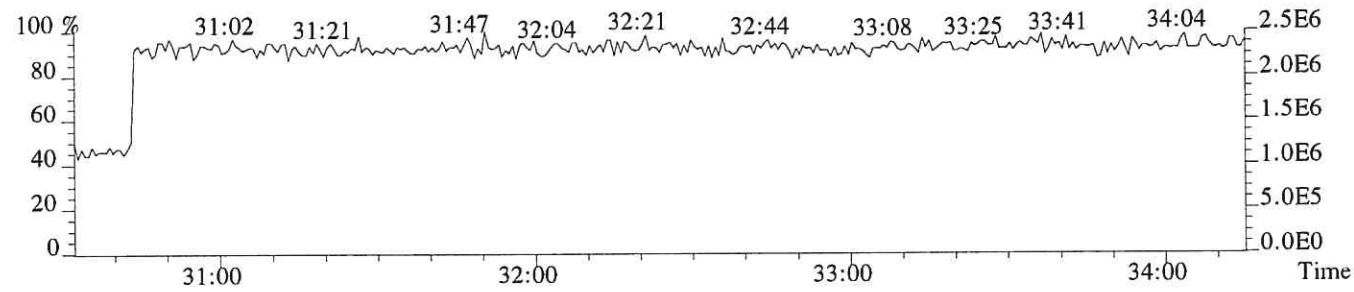
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



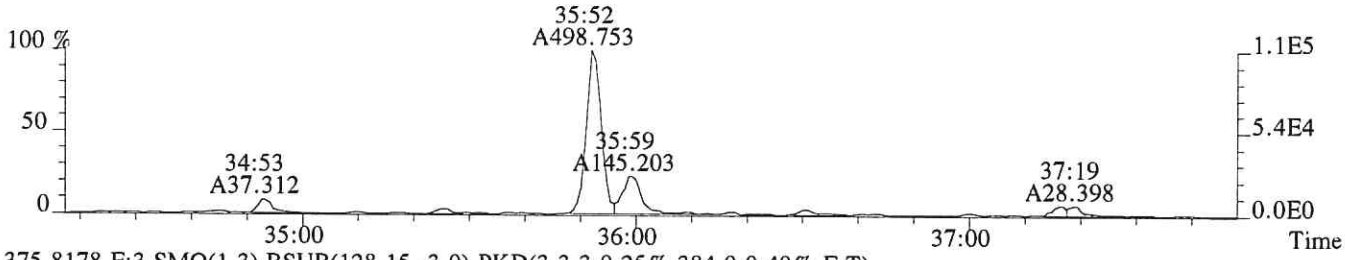
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



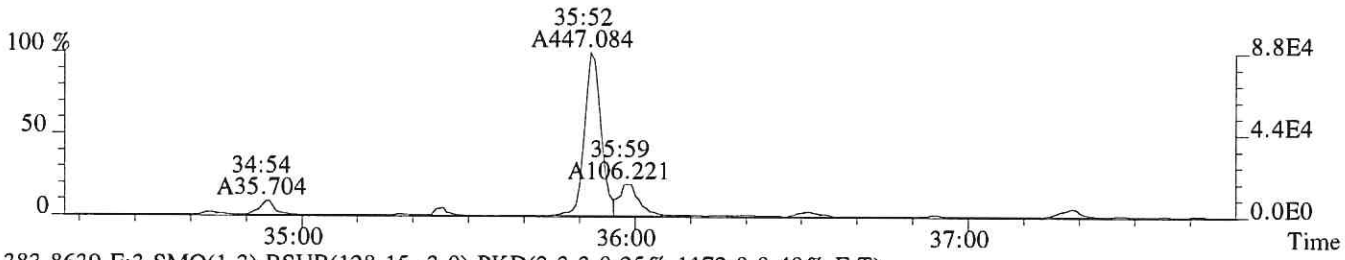
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



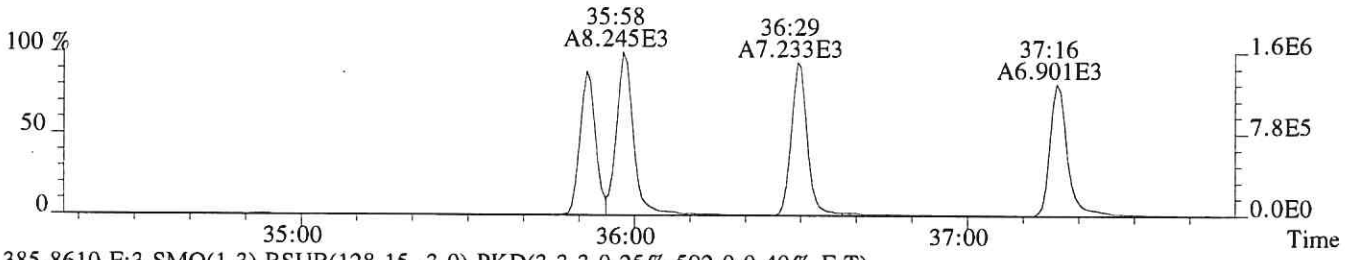
File:P519291 #1-317 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



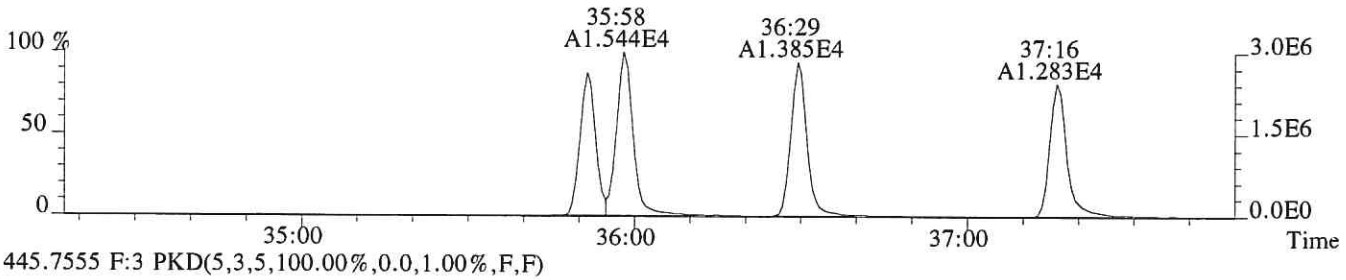
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



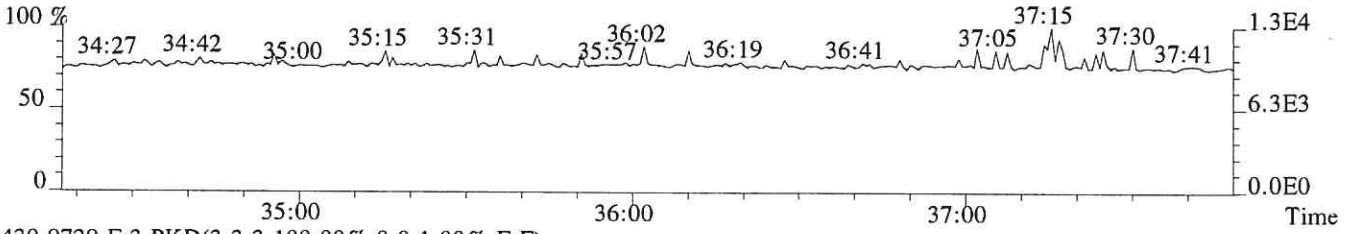
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



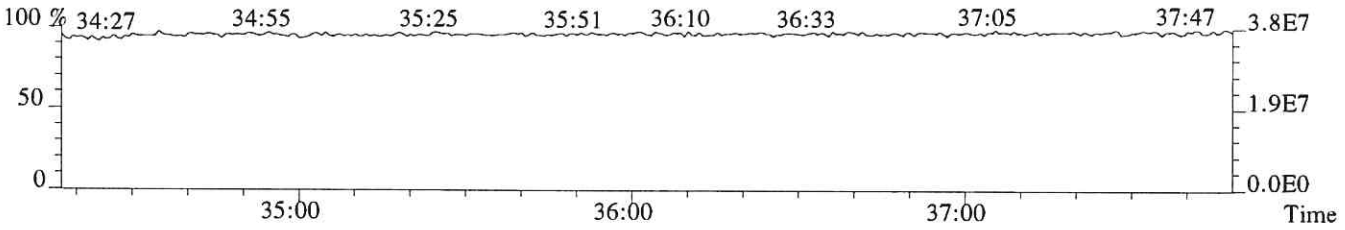
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



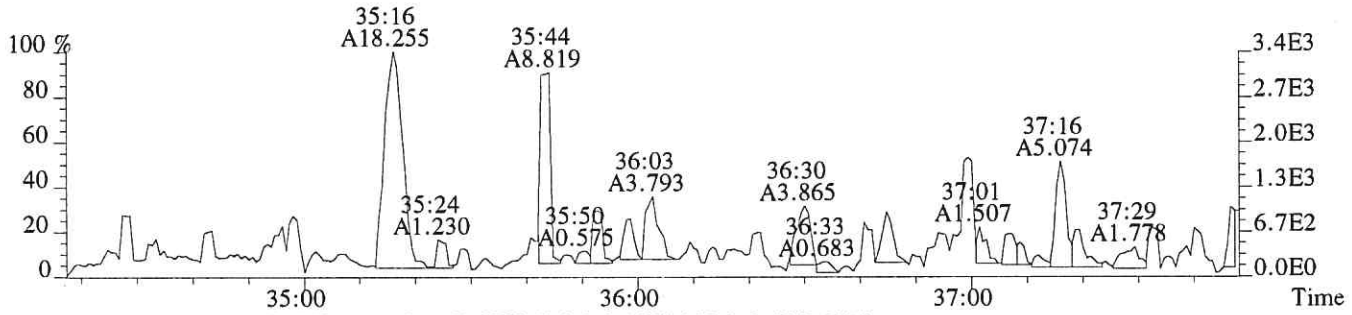
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



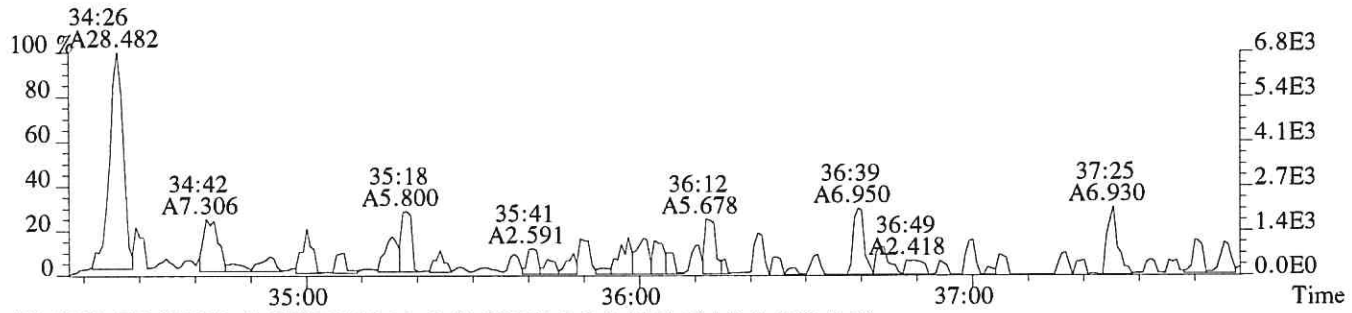
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



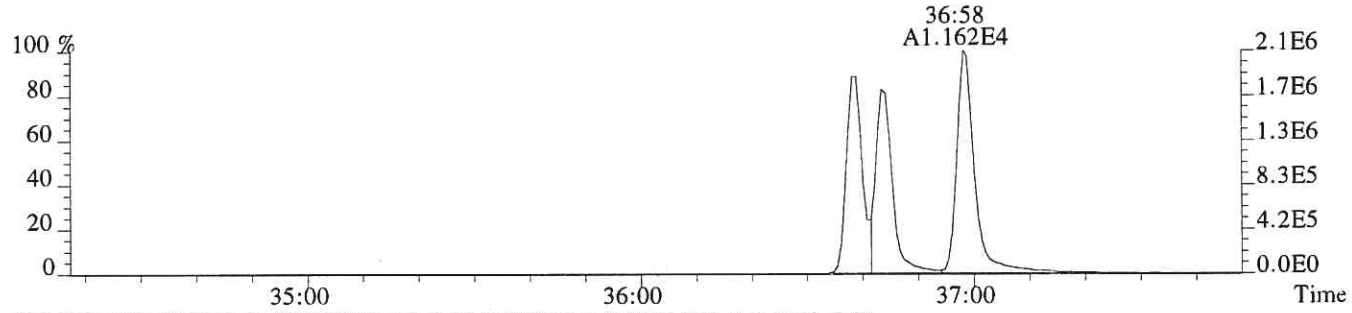
File:P519291 #1-317 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



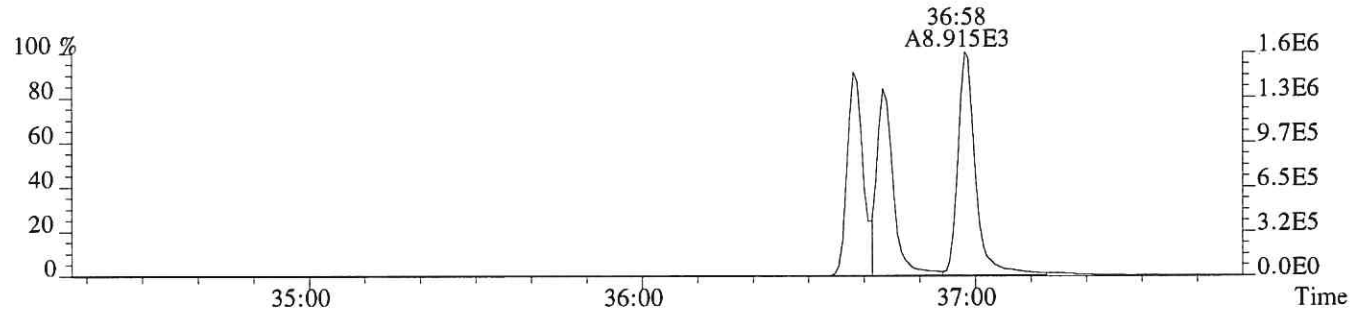
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



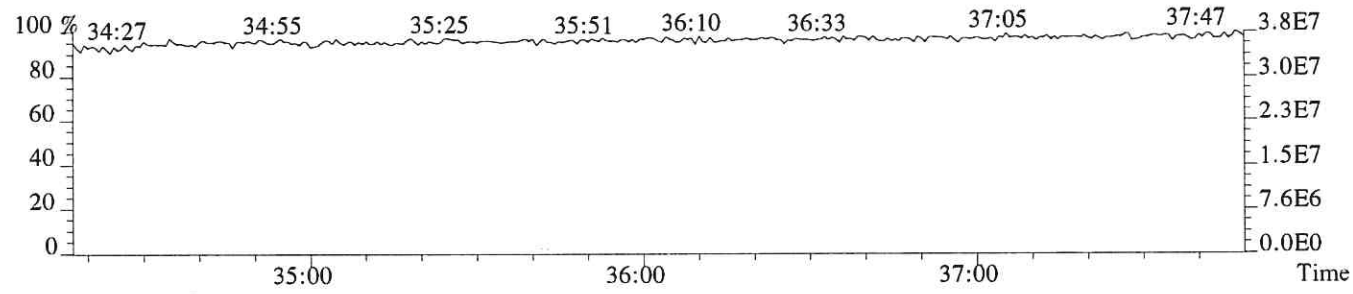
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



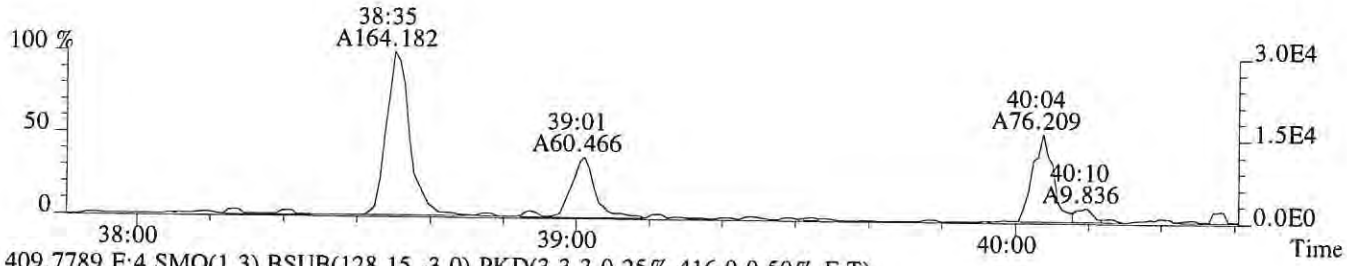
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



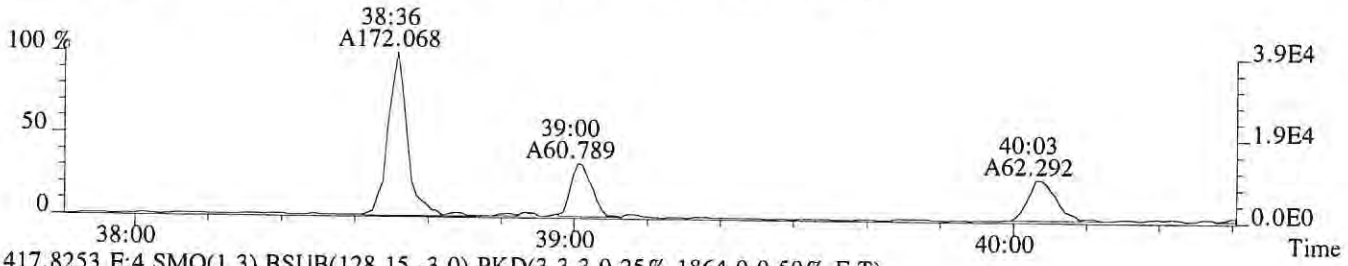
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



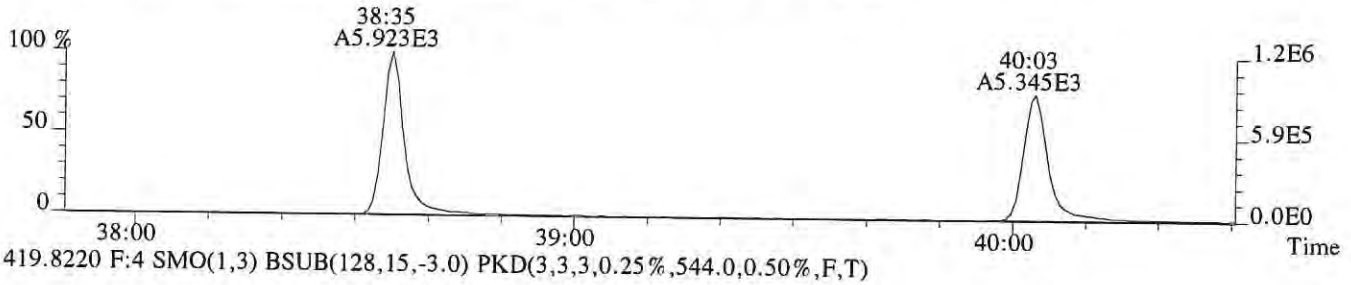
File:P519291 #1-241 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.50%,F,T)



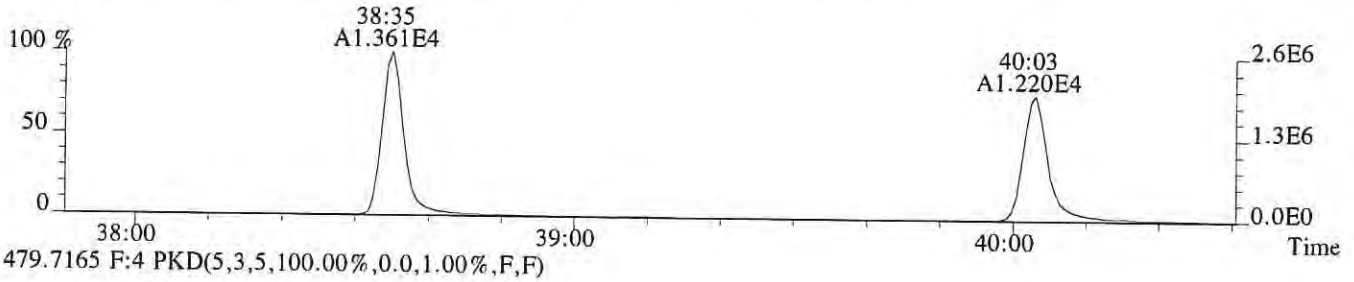
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.50%,F,T)



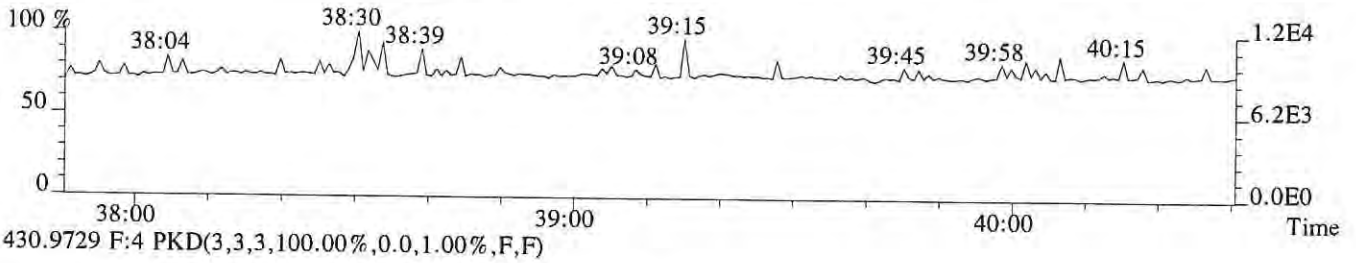
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.50%,F,T)



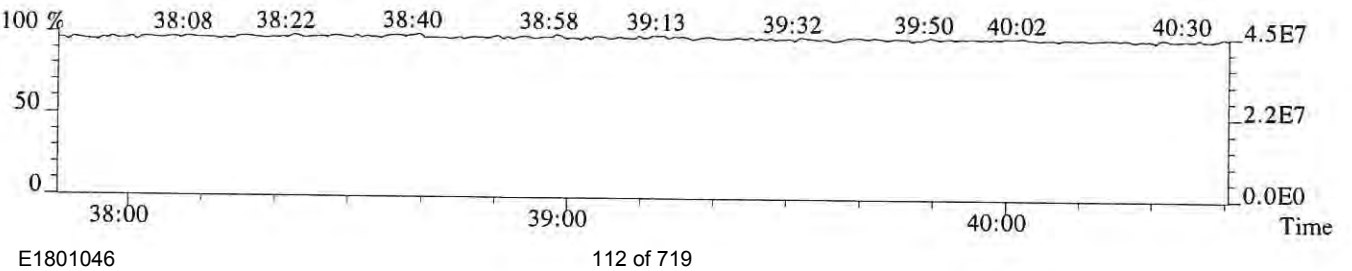
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.50%,F,T)



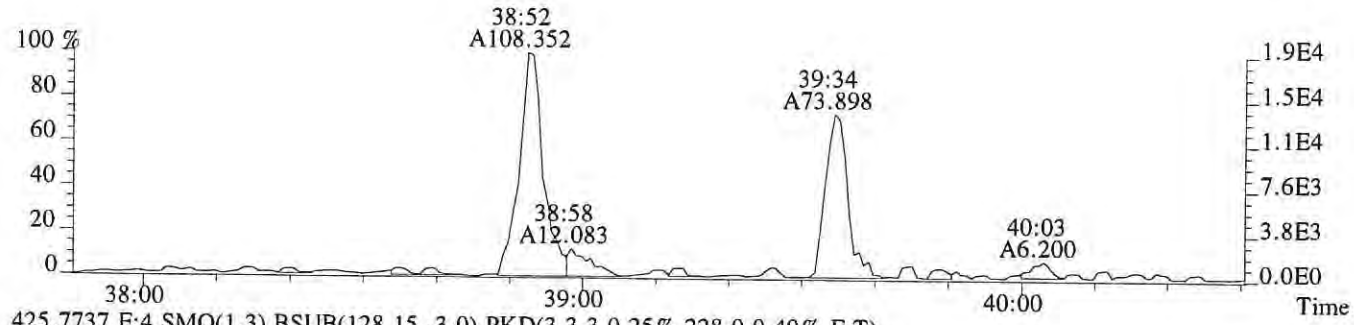
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



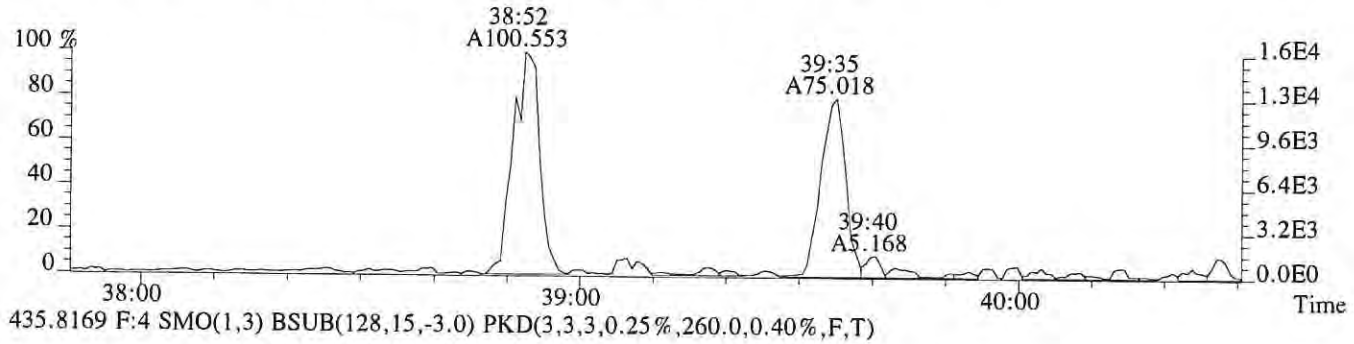
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



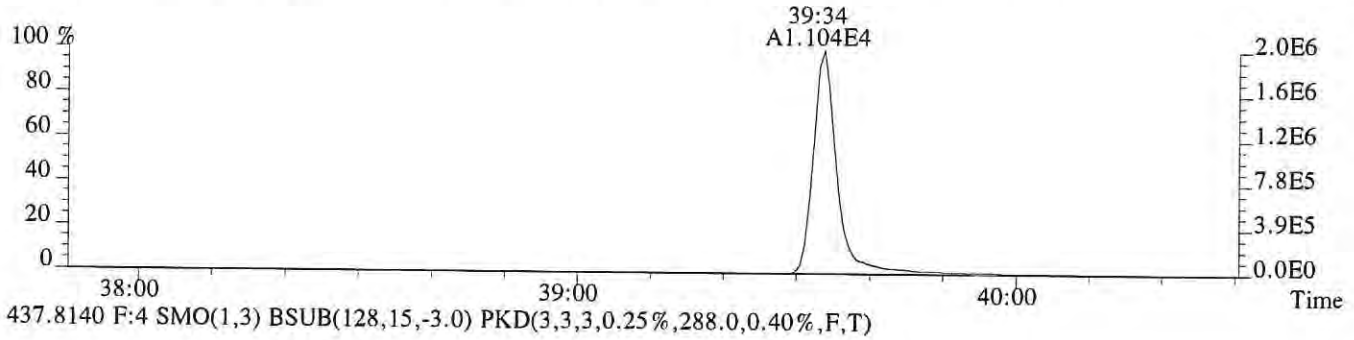
File:P519291 #1-241 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



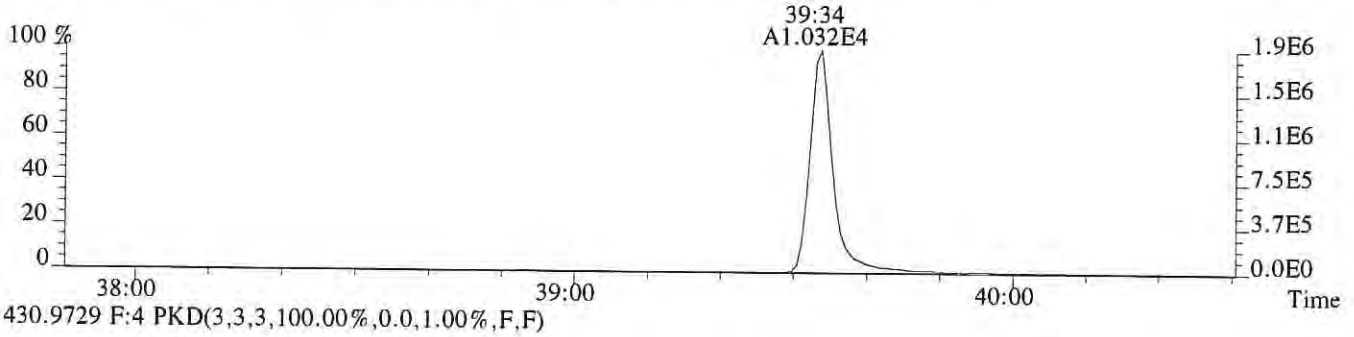
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



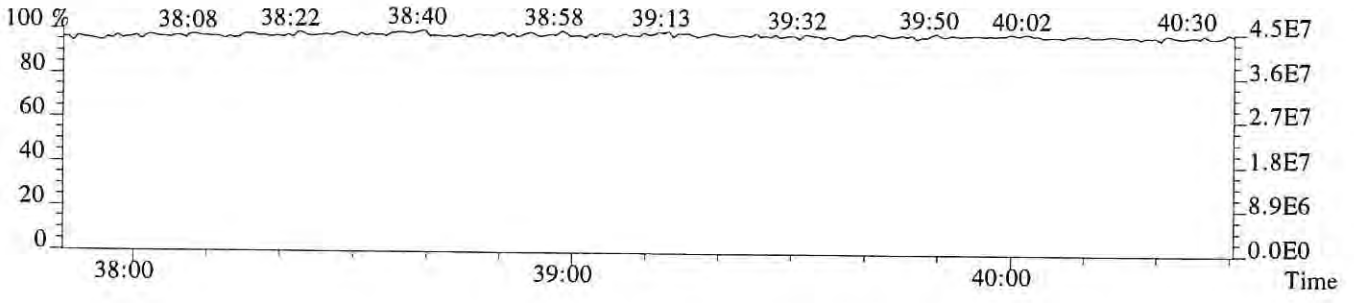
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



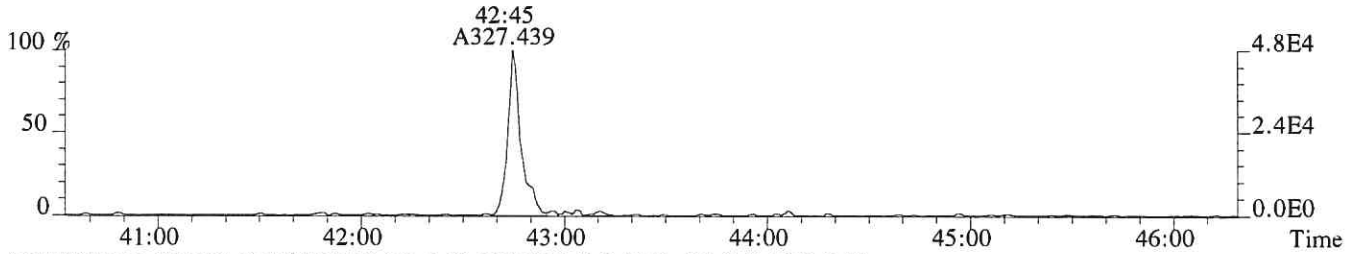
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



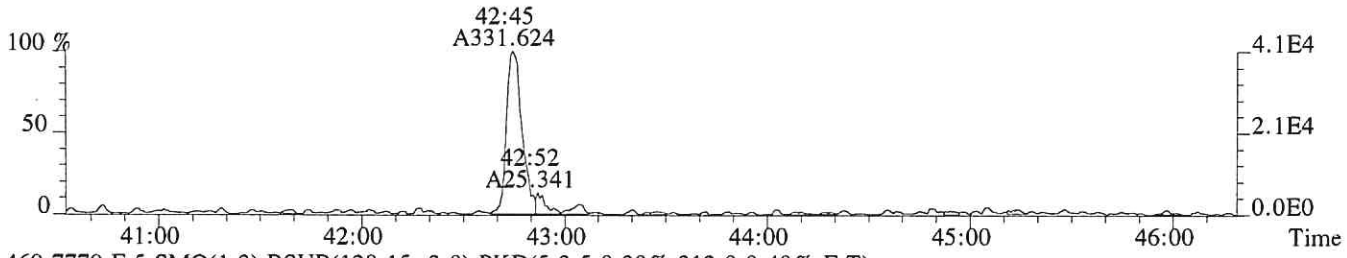
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



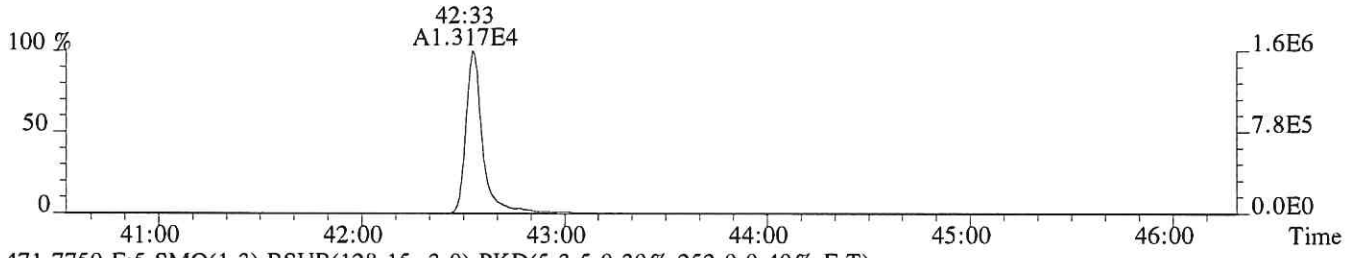
File:P519291 #1-520 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



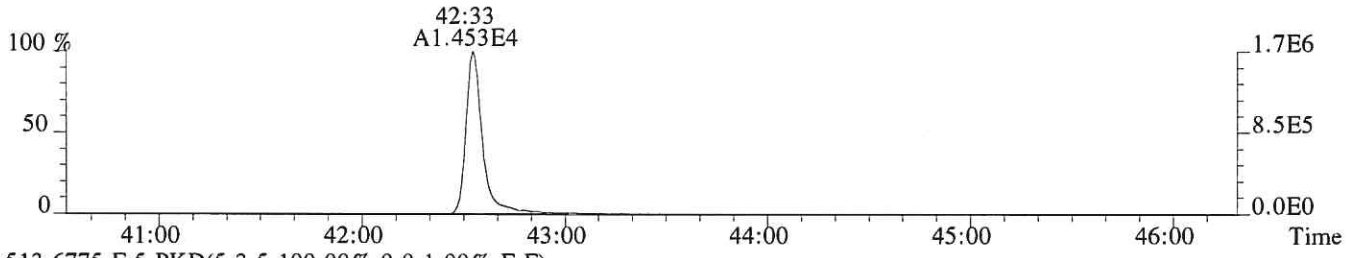
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



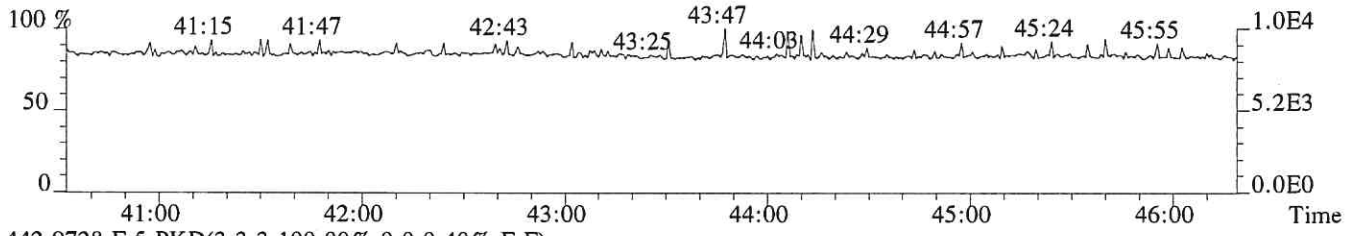
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



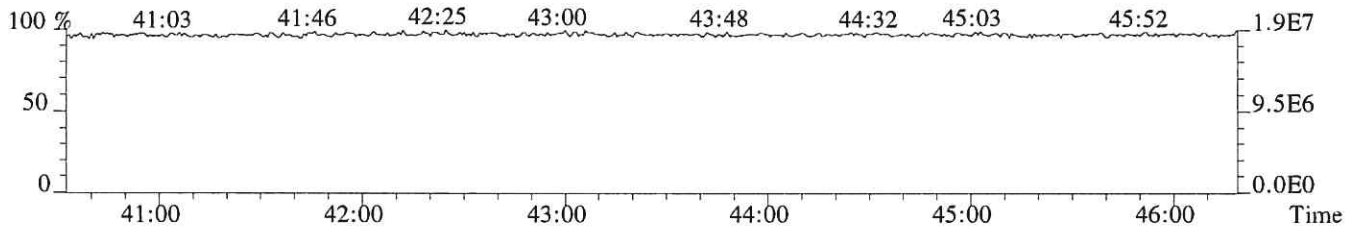
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



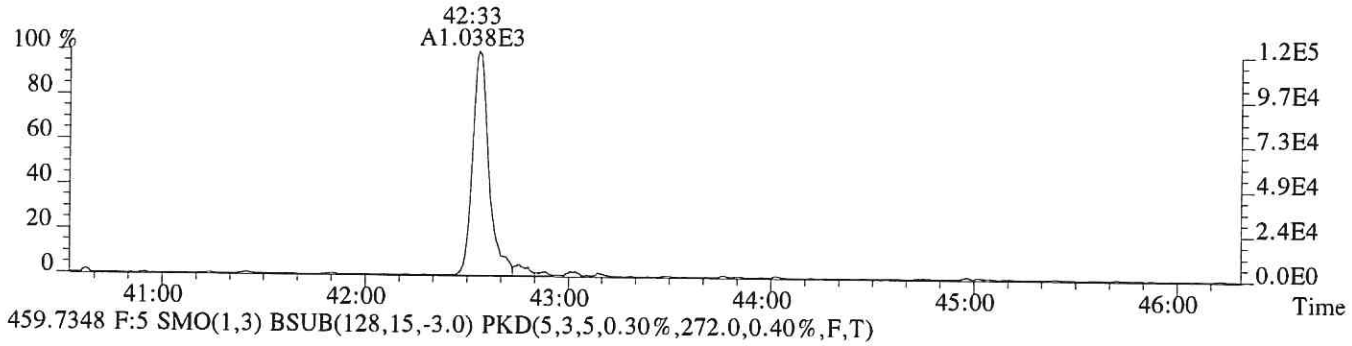
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



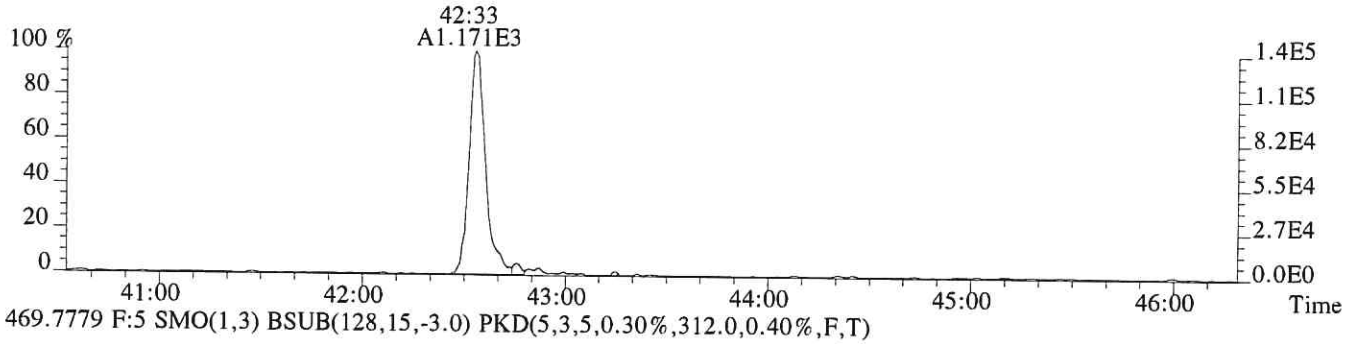
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



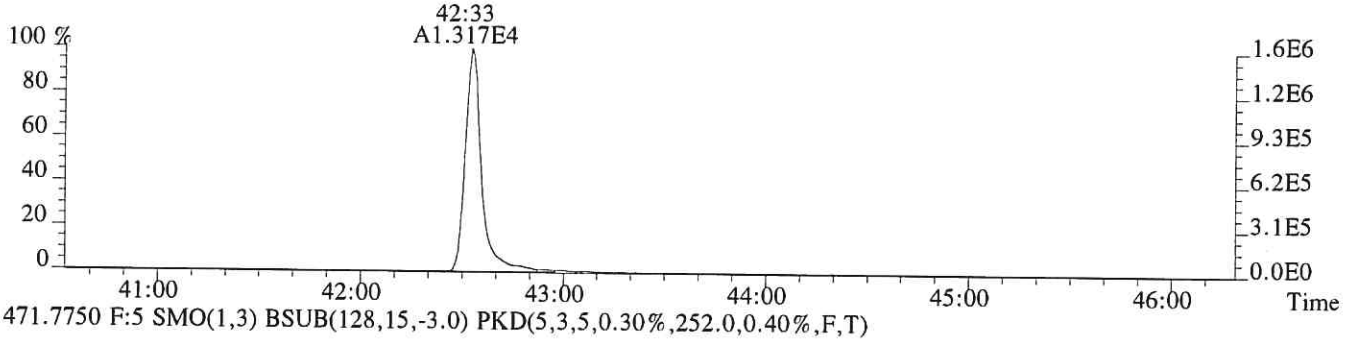
File:P519291 #1-520 Acq: 7-DEC-2018 22:22:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-001DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



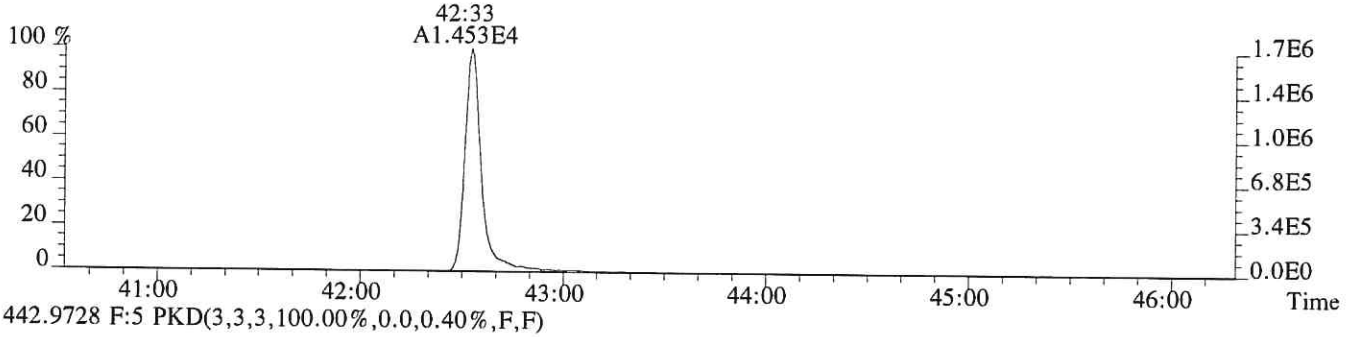
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



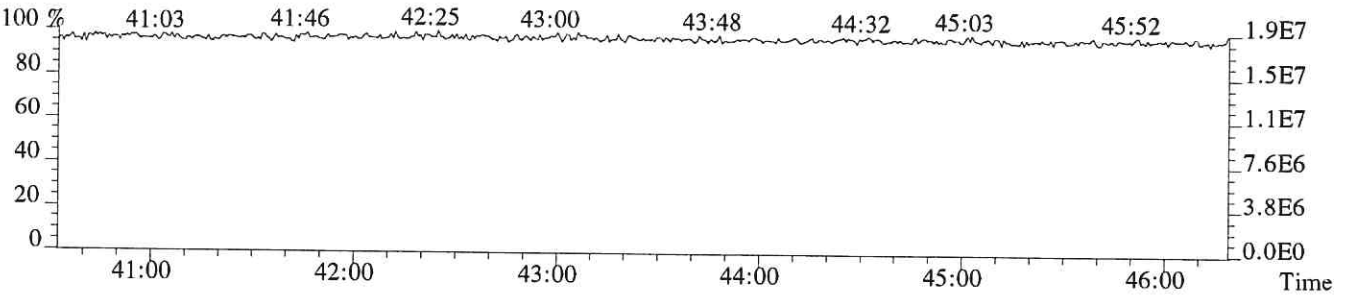
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0540

Run #15 Filename P519248 Samp: 1 Inj: 1 Acquired: 6-DEC-18 08:35:00
Processed: 7-DEC-18 09:55:18 Sample ID: E1801046-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	6.379e+05	8.245e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	3.710e+04	2.474e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.725e+04	1.803e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	6.345e+04	4.883e+04	1.30	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.527e+04	1.422e+04	1.07	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	2.538e+03	2.191e+03	1.16	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:16	4.220e+03	3.348e+03	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	1.647e+04	1.605e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	6.020e+03	6.064e+03	0.99	yes	no	1.258
10	Unk	OCDF	42:25	5.600e+03	6.486e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	1.443e+05	1.845e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	2.336e+03	1.352e+03	1.73	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:37	4.959e+01	3.609e+01	1.37	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	2.111e+02	1.449e+02	1.46	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	8.616e+01	1.132e+02	0.76	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	4.893e+03	4.895e+03	1.00	yes	no	1.025
17	Unk	OCDD	42:14	6.040e+04	6.774e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	2.156e+04	2.721e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:15	3.314e+04	2.103e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	3.226e+04	2.032e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.173e+04	2.272e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.463e+04	2.874e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.328e+04	2.575e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:14	1.288e+04	2.500e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	8.885e+03	2.022e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	8.740e+03	1.938e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:47	9.676e+03	1.207e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:27	2.359e+04	1.491e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.921e+04	1.487e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	1.855e+04	1.473e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	1.884e+04	1.752e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:13	1.519e+04	1.657e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.377e+04	2.978e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.496e+04	2.678e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.530e+04				no	1.014

$$\text{OCDD} = \frac{(6.040e{+}04 + 6.774e{+}04) \times 4000 \text{ pg} \times 1}{(1.519e{+}04 + 1.657e{+}04) \times 10.919 \text{ g} \times 77.0/100 \times 1.118} = 1720 \text{ ng/Kg}$$

HK 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0540

Run #15 Filename P519248 Samp: 1 Inj: 1 Acquired: 6-DEC-18 08:35:00
Processed: 7-DEC-18 09:55:18 LAB. ID: E1801046-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.11e+08	1.17e+03	9.4e+04	1.42e+08	2.80e+03	5.1e+04
2	1,2,3,7,8-PeCDF	7.04e+06	4.00e+03	1.8e+03	4.74e+06	6.97e+03	6.8e+02
3	2,3,4,7,8-PeCDF	4.49e+06	4.00e+03	1.1e+03	2.98e+06	6.97e+03	4.3e+02
4	1,2,3,4,7,8-HxCDF	1.28e+07	2.61e+03	4.9e+03	9.37e+06	3.09e+03	3.0e+03
5	1,2,3,6,7,8-HxCDF	3.24e+06	2.61e+03	1.2e+03	2.78e+06	3.09e+03	9.0e+02
6	2,3,4,6,7,8-HxCDF	5.43e+05	2.61e+03	2.1e+02	4.90e+05	3.09e+03	1.6e+02
7	1,2,3,7,8,9-HxCDF	8.06e+05	2.61e+03	3.1e+02	6.35e+05	3.09e+03	2.1e+02
8	1,2,3,4,6,7,8-HpCDF	3.45e+06	4.31e+03	8.0e+02	3.35e+06	2.04e+03	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	1.17e+06	4.31e+03	2.7e+02	1.18e+06	2.04e+03	5.8e+02
10	OCDF	9.24e+05	3.56e+02	2.6e+03	1.08e+06	7.76e+02	1.4e+03
11	2,3,7,8-TCDD	2.84e+07	3.84e+03	7.4e+03	3.62e+07	1.76e+03	2.1e+04
12	1,2,3,7,8-PeCDD	3.99e+05	1.18e+03	3.4e+02	2.49e+05	3.84e+02	6.5e+02
13	1,2,3,4,7,8-HxCDD	1.23e+04	5.48e+02	2.2e+01	9.47e+03	1.49e+03	6.4e+00
14	1,2,3,6,7,8-HxCDD	4.57e+04	5.48e+02	8.3e+01	3.45e+04	1.49e+03	2.3e+01
15	1,2,3,7,8,9-HxCDD	1.91e+04	5.48e+02	3.5e+01	2.29e+04	1.49e+03	1.5e+01
16	1,2,3,4,6,7,8-HpCDD	9.64e+05	1.86e+03	5.2e+02	9.62e+05	8.44e+02	1.1e+03
17	OCDD	9.50e+06	3.16e+02	3.0e+04	1.07e+07	2.80e+02	3.8e+04
18	13C-2,3,7,8-TCDF	3.98e+06	7.80e+03	5.1e+02	4.99e+06	6.64e+03	7.5e+02
19	13C-1,2,3,7,8-PeCDF	6.31e+06	1.66e+03	3.8e+03	4.02e+06	1.07e+03	3.8e+03
20	13C-2,3,4,7,8-PeCDF	6.53e+06	1.66e+03	3.9e+03	4.13e+06	1.07e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.36e+06	2.29e+03	1.0e+03	4.50e+06	1.02e+03	4.4e+03
22	13C-1,2,3,6,7,8-HxCDF	3.05e+06	2.29e+03	1.3e+03	5.95e+06	1.02e+03	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	2.88e+06	2.29e+03	1.3e+03	5.53e+06	1.02e+03	5.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.66e+06	2.29e+03	1.2e+03	5.19e+06	1.02e+03	5.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.88e+06	1.76e+03	1.1e+03	4.19e+06	4.14e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.69e+06	1.76e+03	9.6e+02	3.72e+06	4.14e+03	9.0e+02
27	13C-2,3,7,8-TCDD	1.90e+06	5.59e+03	3.4e+02	2.40e+06	2.34e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	4.81e+06	1.25e+03	3.9e+03	3.05e+06	1.67e+03	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	4.33e+06	1.55e+03	2.8e+03	3.40e+06	7.20e+02	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.93e+06	1.55e+03	2.5e+03	3.14e+06	7.20e+02	4.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.67e+06	9.60e+02	3.8e+03	3.41e+06	5.28e+02	6.5e+03
32	13C-OCDD	2.37e+06	8.36e+02	2.8e+03	2.59e+06	2.68e+02	9.7e+03
33	13C-1,2,3,4-TCDD	4.59e+06	5.59e+03	8.2e+02	5.73e+06	2.34e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	7.08e+06	1.55e+03	4.6e+03	5.38e+06	7.20e+02	7.5e+03
35	37Cl-2,3,7,8-TCDD	3.01e+06	1.90e+03	1.6e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519248 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 303.9020 305.8990 Tot Response: 2.56e+06 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:59	4.69e+03	0.76	yes	1.08e+04		n	n
2	25:19	2.68e+04	0.75	yes	6.26e+04		n	n
3	25:43	8.08e+03	0.82	yes	1.80e+04		n	n
4	26:01	2.34e+04	0.74	yes	5.51e+04		n	n
5	26:25	4.23e+03	0.79	yes	9.62e+03		n	n
6	26:37	1.43e+04	0.69	yes	3.50e+04		n	n
7	26:45	2.80e+04	0.74	yes	6.60e+04		n	n
8	27:11	2.54e+05	0.76	yes	5.91e+05		n	n
9	27:27	1.14e+04	0.72	yes	2.72e+04		n	n
10	28:00	6.38e+05	0.77	yes	1.46e+06	2,3,7,8-TCDF	n	n
11	28:21	4.24e+04	0.76	yes	9.83e+04		n	n
12	28:35	6.43e+03	0.76	yes	1.49e+04		n	n
13	29:51	5.08e+04	0.85	yes	1.11e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519248 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 319.8970 321.8940 Tot Response: 3.63e+05 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:16	2.89e+02	3.37e+02	0.86	yes	6.26e+02		n	n
2	27:42	2.02e+02	2.91e+02	0.69	yes	4.93e+02		n	n
3	28:33	1.89e+03	2.22e+03	0.85	yes	4.11e+03		n	n
4	28:48	1.44e+05	1.84e+05	0.78	yes	3.29e+05	2,3,7,8-TCDD	n	n
5	29:06	1.23e+04	1.63e+04	0.76	yes	2.86e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P519248 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 339.8600 341.8570 Tot Response: 8.79e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:51	5.50e+02	3.29e+02 1.67	yes	8.79e+02		n	n

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Peak List Summary

CLIENT ID.
SL0540

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519248 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 339.8600 341.8570 Tot Response: 1.61e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:12	3.13e+02	1.88e+02	1.67	yes	5.01e+02		n	n
2	31:20	1.58e+04	1.04e+04	1.53	yes	2.62e+04		n	n
3	31:52	5.75e+02	3.46e+02	1.66	yes	9.20e+02		n	n
4	31:58	5.64e+02	3.74e+02	1.51	yes	9.38e+02		n	n
5	32:06	3.19e+03	2.08e+03	1.54	yes	5.27e+03		n	n
6	32:16	3.71e+04	2.47e+04	1.50	yes	6.18e+04	1,2,3,7,8-PeCDF	n	n
7	32:31	1.07e+04	7.05e+03	1.52	yes	1.77e+04		n	n
8	33:11	2.73e+04	1.80e+04	1.51	yes	4.53e+04	2,3,4,7,8-PeCDF	n	n
9	34:05	1.13e+03	7.57e+02	1.50	yes	1.89e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519248 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 355.8550 357.8520 Tot Response: 4.55e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:17	2.30e+02	1.33e+02	1.72	yes	3.63e+02		
2	32:26	1.50e+02	8.96e+01	1.68	yes	2.40e+02	n	n
3	32:33	7.18e+01	5.09e+01	1.41	yes	1.23e+02	n	n
4	33:04	5.29e+01	4.01e+01	1.32	yes	9.30e+01	n	n
5	33:28	2.34e+03	1.35e+03	1.73	yes	3.69e+03	n	n
6	33:59	2.36e+01	1.59e+01	1.49	yes	3.94e+01	n	n
						1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519248 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 373.8210 375.8180 Tot Response: 1.66e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:46	3.36e+02	2.97e+02	1.13	yes	6.34e+02		n	n
2	34:55	4.07e+03	3.68e+03	1.11	yes	7.75e+03		n	n
3	35:27	2.04e+03	1.56e+03	1.31	yes	3.59e+03		n	n
4	35:53	6.35e+04	4.88e+04	1.30	yes	1.12e+05	1,2,3,4,7,8-HxCDF	n	n
5	35:59	1.53e+04	1.42e+04	1.07	yes	2.95e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:29	2.54e+03	2.19e+03	1.16	yes	4.73e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:16	4.22e+03	3.35e+03	1.26	yes	7.57e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519248 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 389.8160 391.8130 Tot Response: 3.02e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	9.38e+02	6.81e+02	1.38	yes	1.62e+03		n	n
2	35:48	8.65e+01	6.95e+01	1.24	yes	1.56e+02		n	n
3	36:02	6.82e+02	4.82e+02	1.41	yes	1.16e+03		n	n
4	36:37	4.96e+01	3.61e+01	1.37	yes	8.57e+01	1,2,3,4,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519248 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 407.7820 409.7790 Tot Response: 5.41e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:31	1.65e+04	1.61e+04	1.03	yes	3.25e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:55	4.67e+03	4.82e+03	0.97	yes	9.49e+03		n	n
3	39:55	6.02e+03	6.06e+03	0.99	yes	1.21e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0540

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519248 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 08:35:00 Processed: 7-DEC-18 09:55:18

Mass: 423.7770 425.7740 Tot Response: 2.31e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	6.69e+03	6.58e+03	1.02	yes	1.33e+04		n	n
2	39:26	4.89e+03	4.90e+03	1.00	yes	9.79e+03	1,2,3,4,6,7,8-HpCDD	n	n

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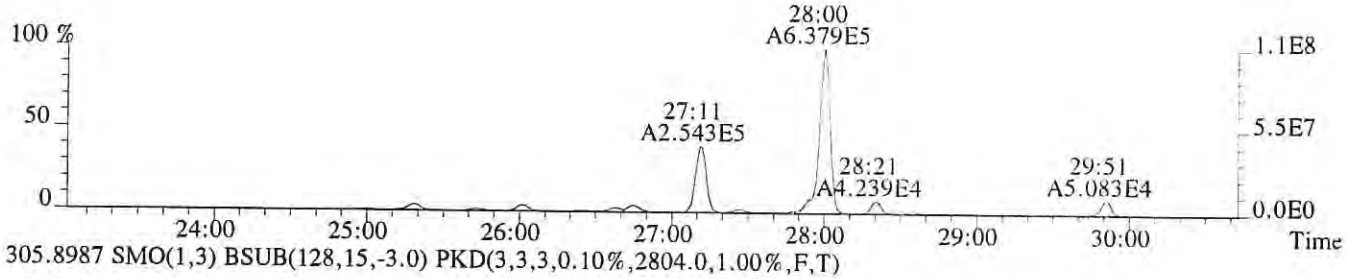
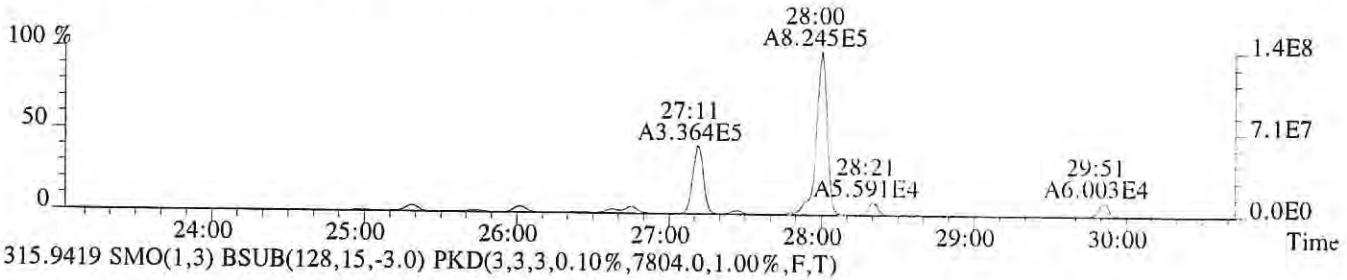
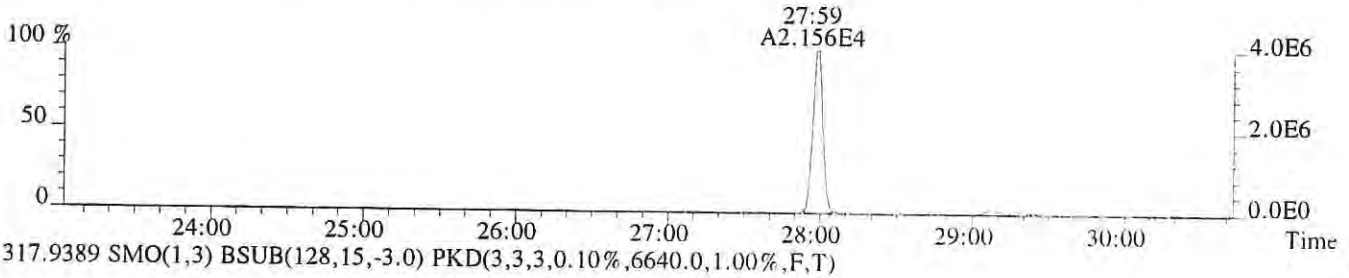
File:P519248 #1-545 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



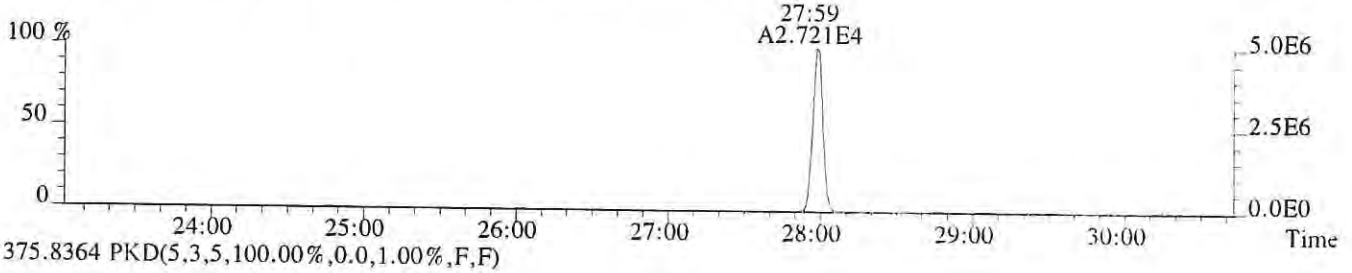
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



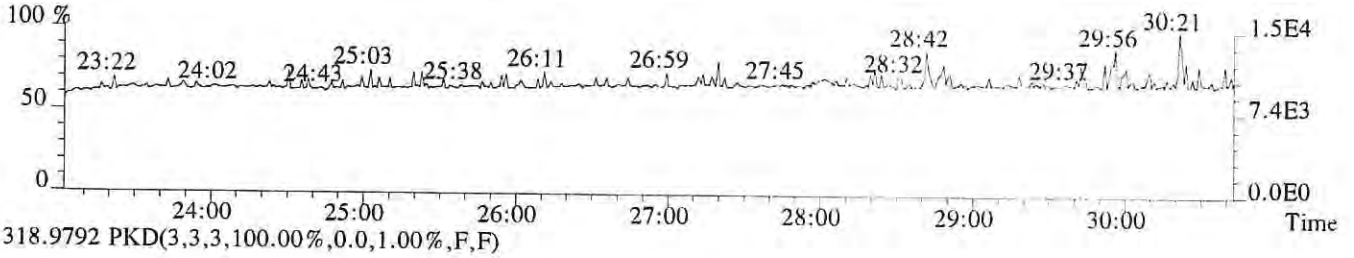
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7804.0,1.00%,F,T)



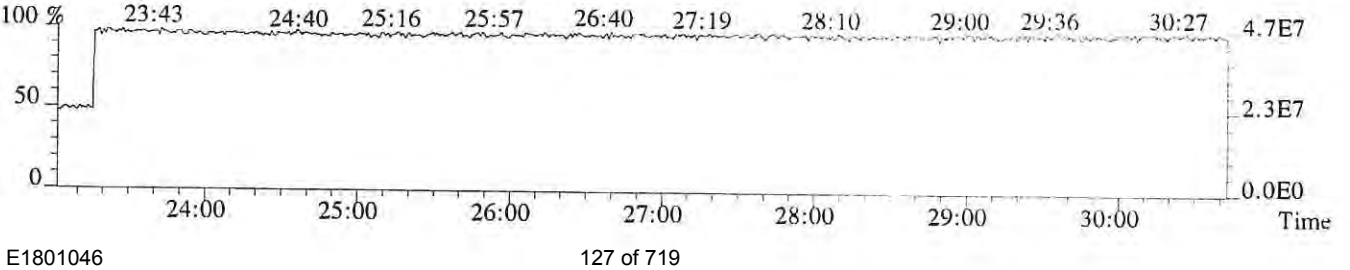
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6640.0,1.00%,F,T)



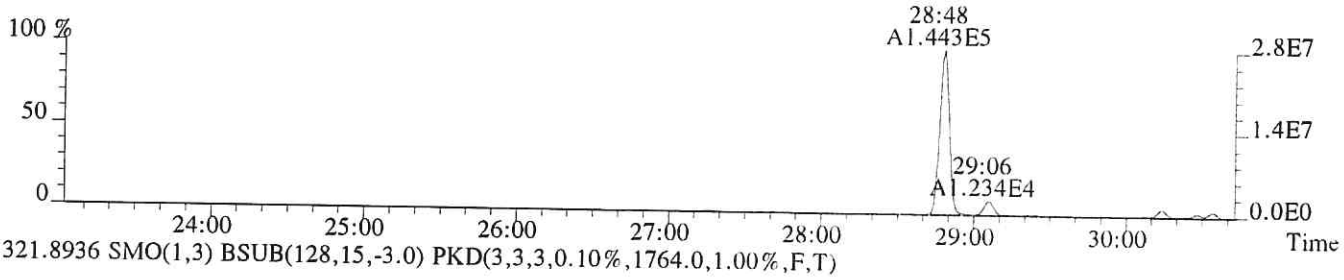
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



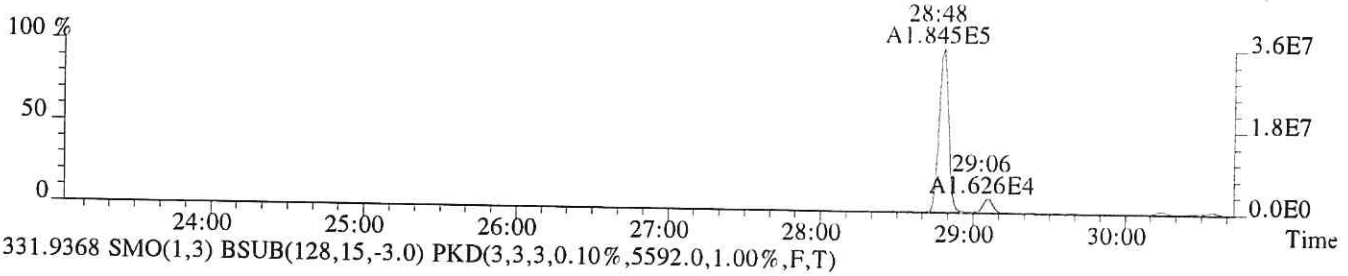
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



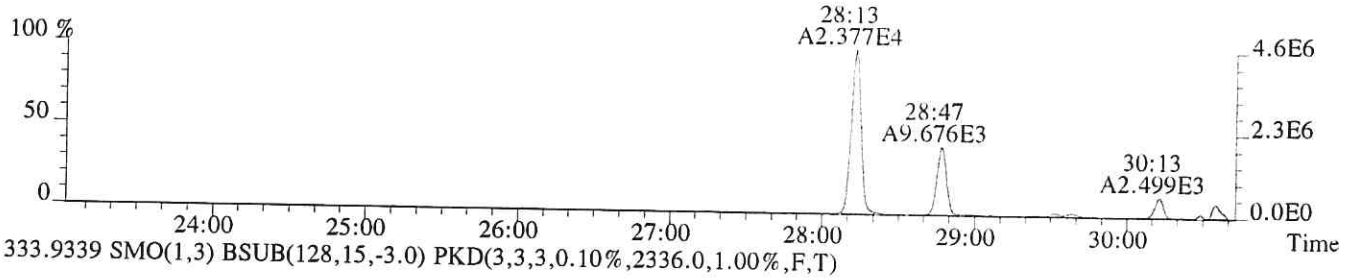
File:P519248 #1-545 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3844.0,1.00%,F,T)



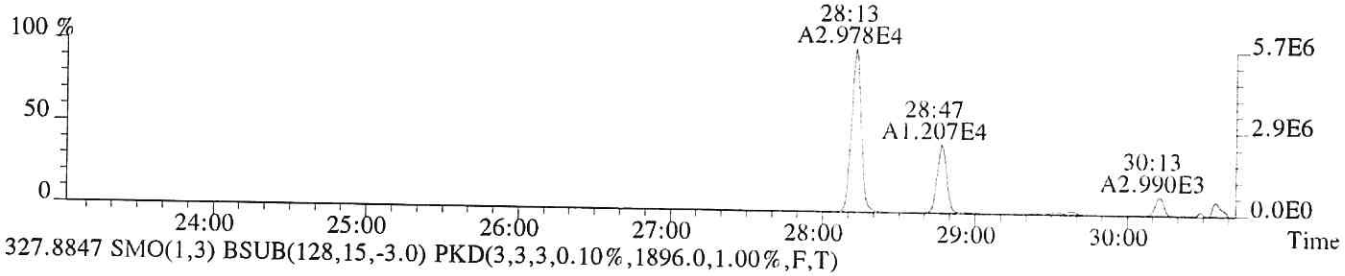
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



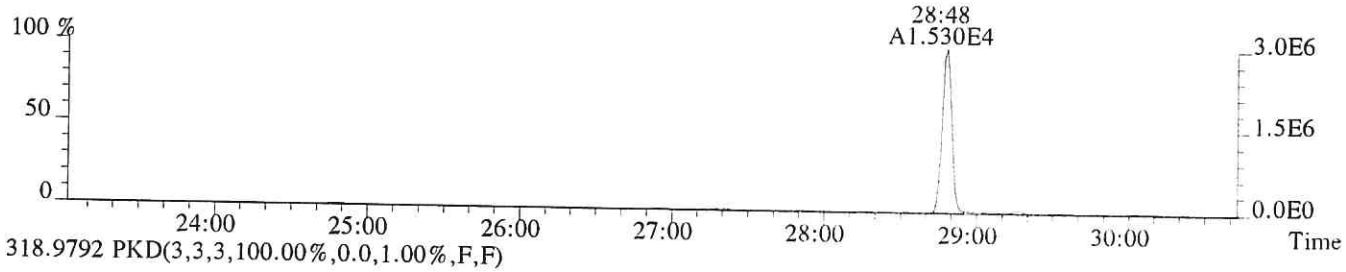
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5592.0,1.00%,F,T)



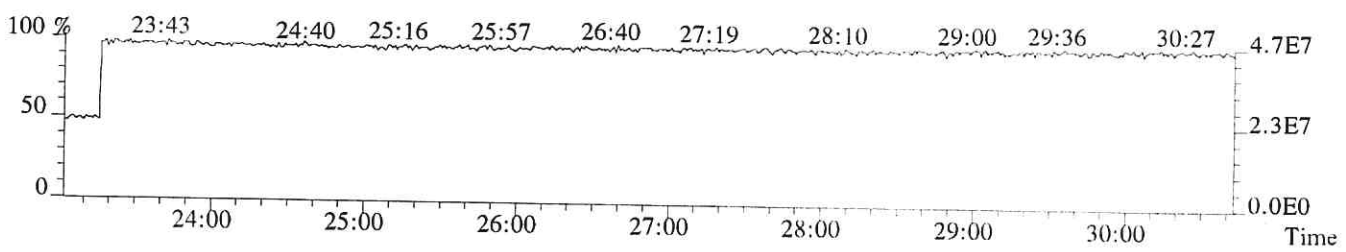
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



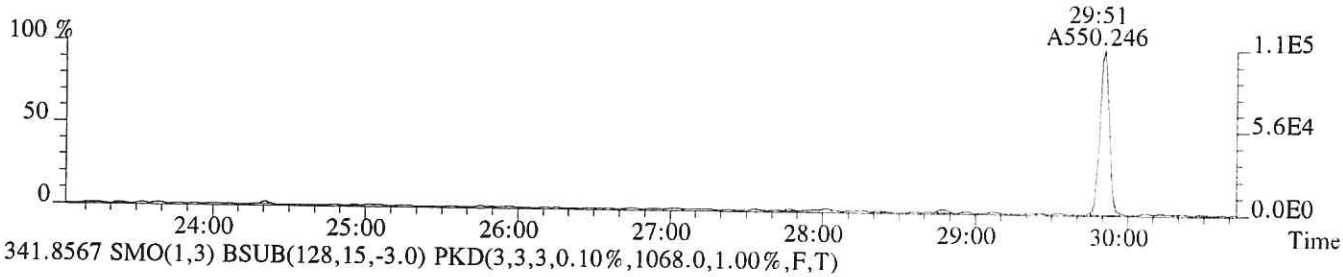
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



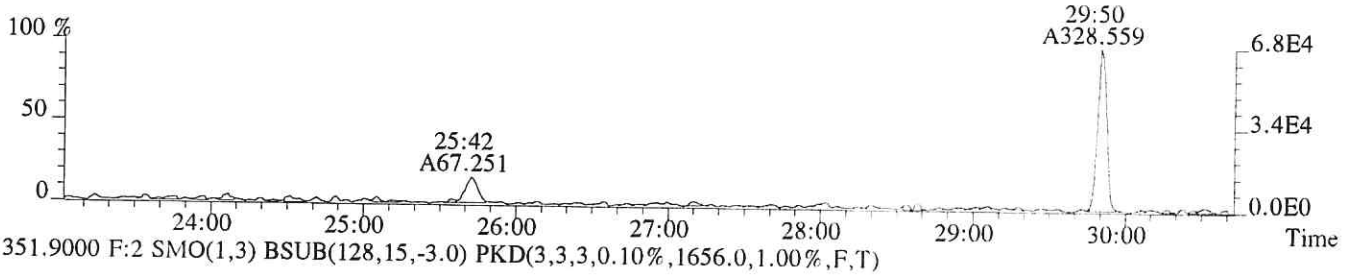
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



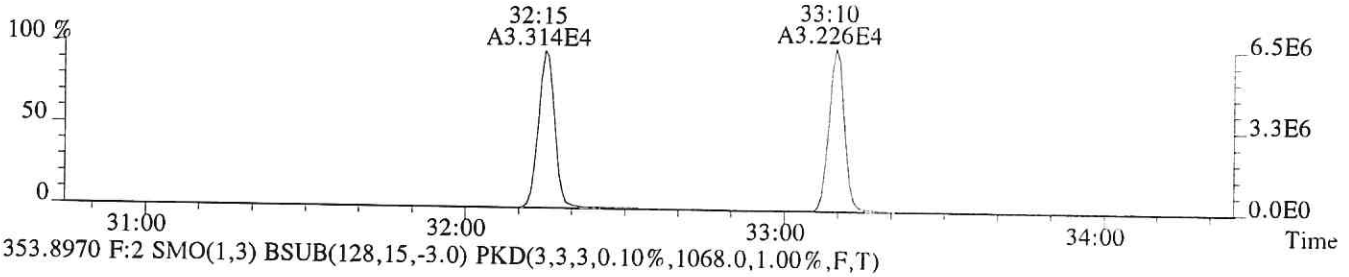
File:P519248 #1-545 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



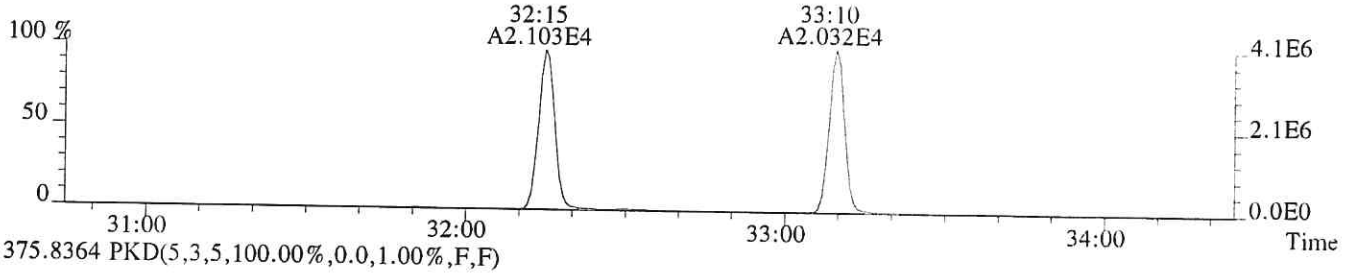
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



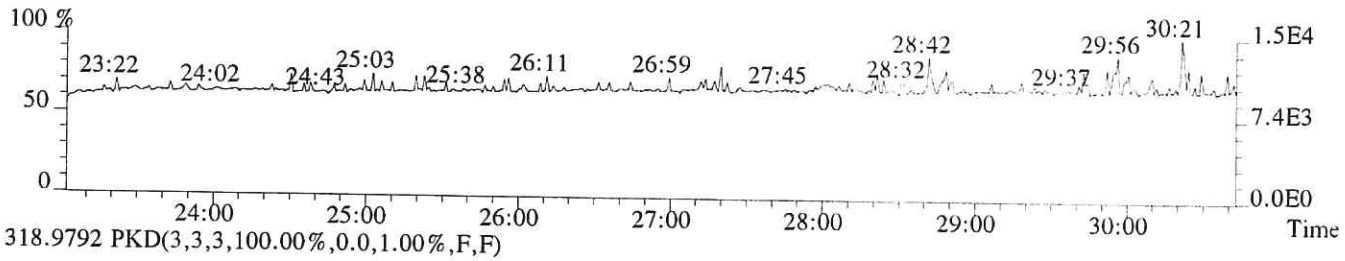
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



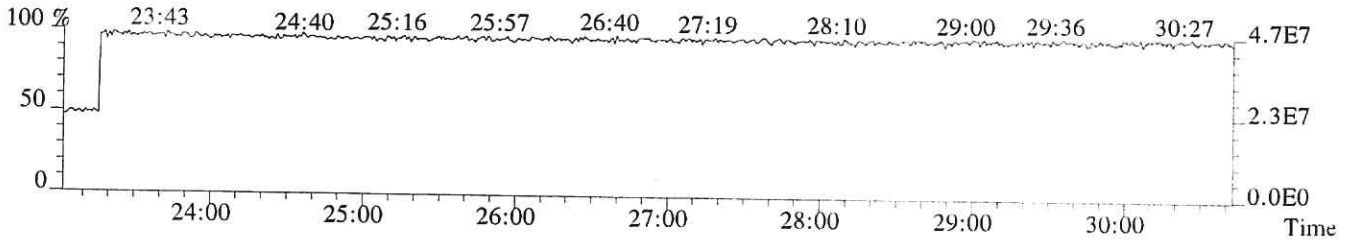
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



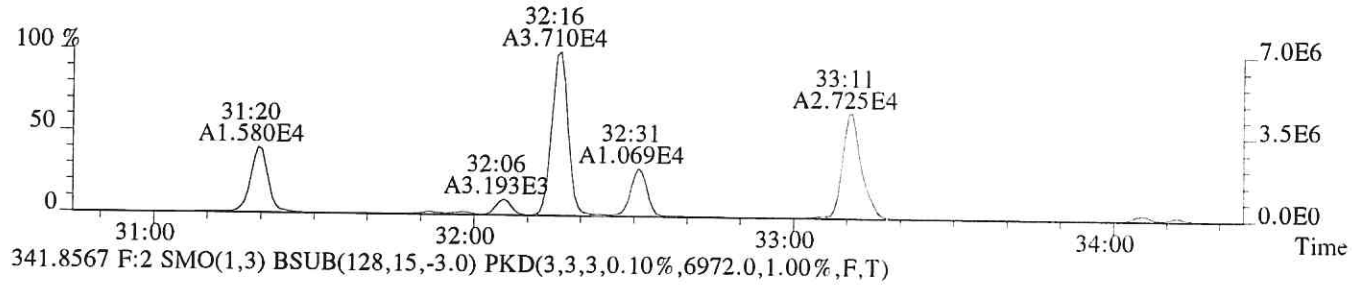
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



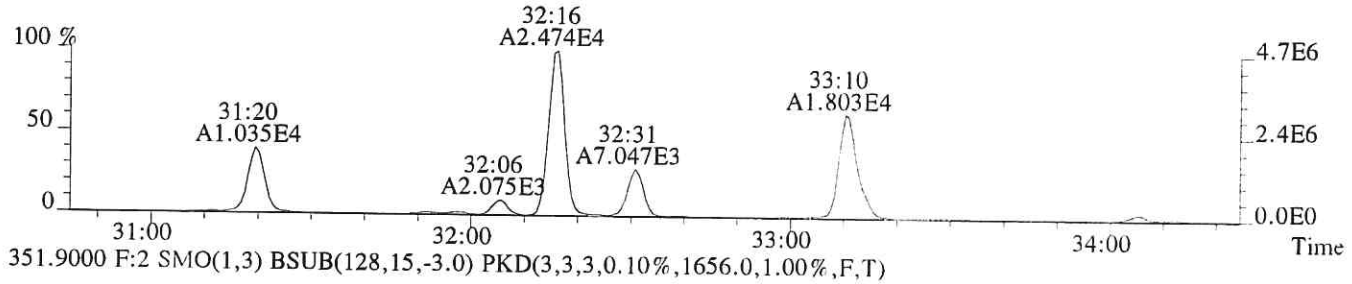
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



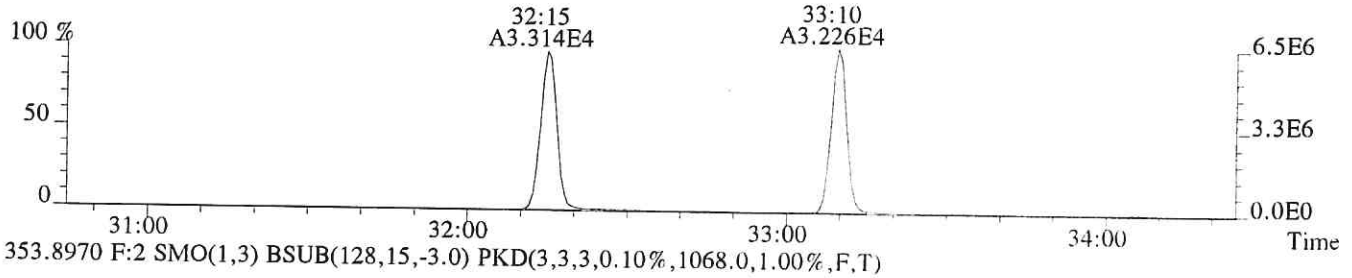
File:P519248 #1-330 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4000.0,1.00%,F,T)



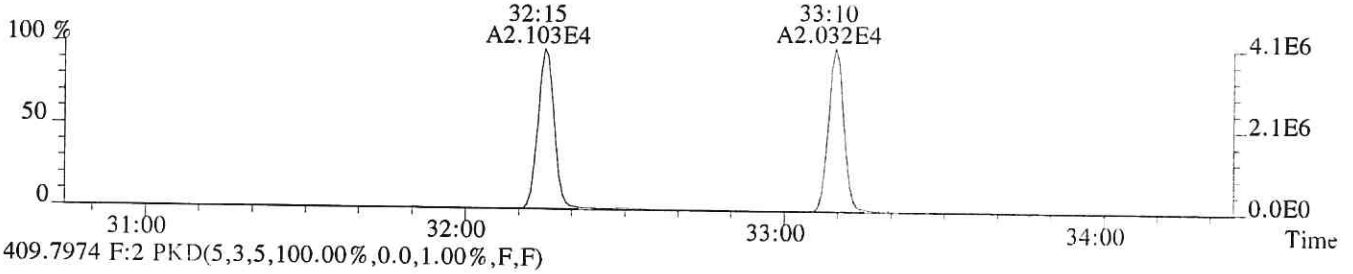
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



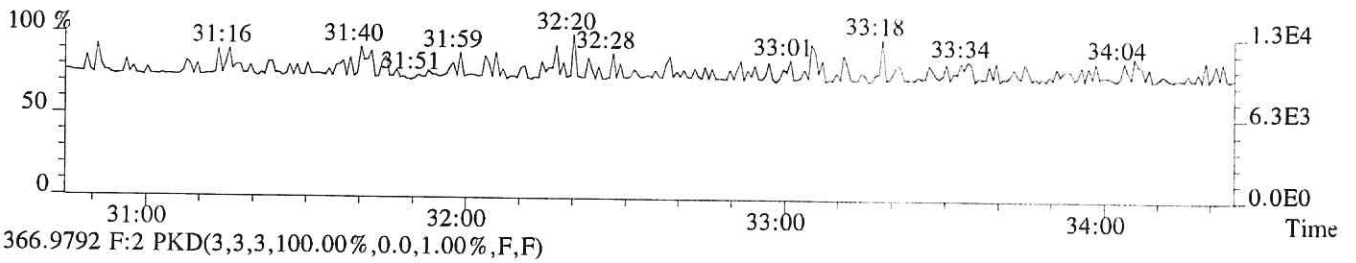
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



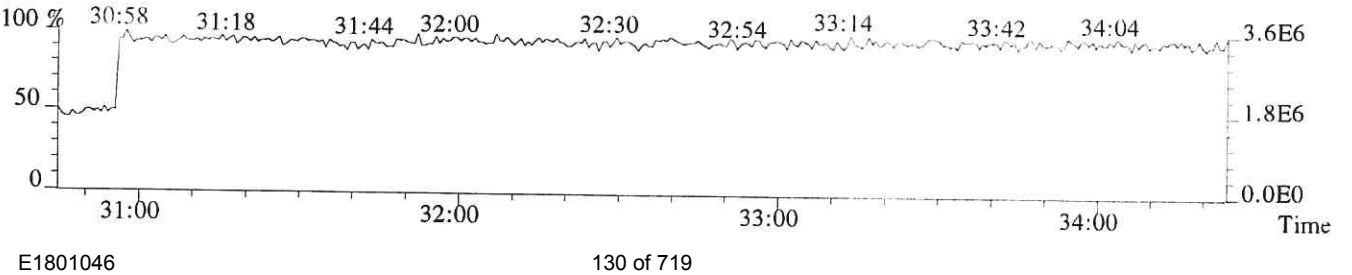
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



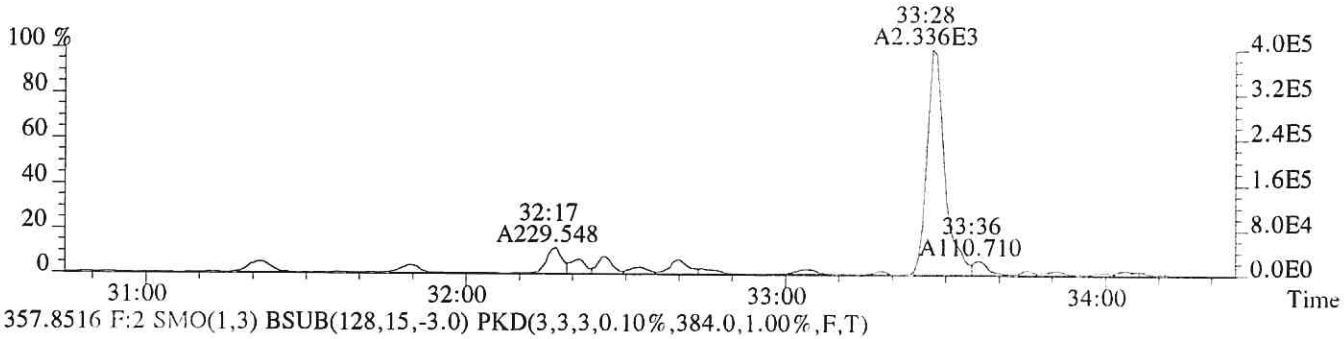
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



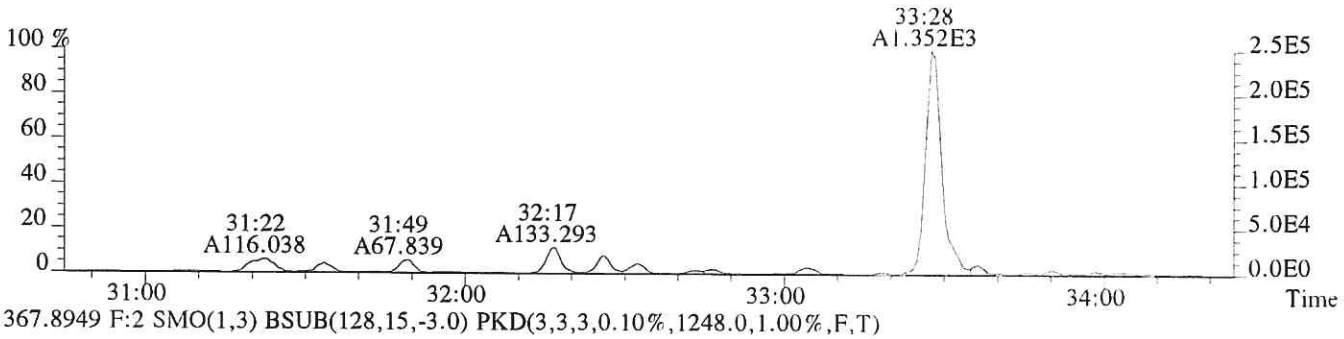
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



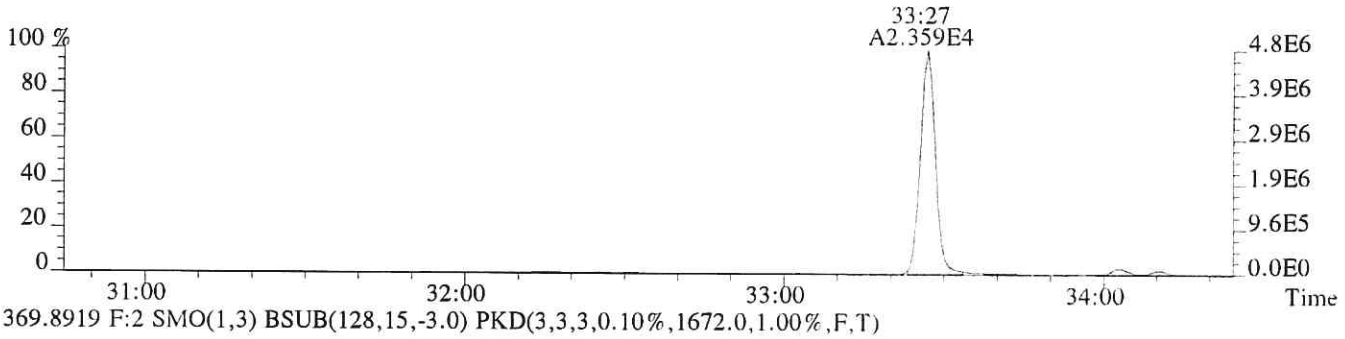
File:P519248 #1-330 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



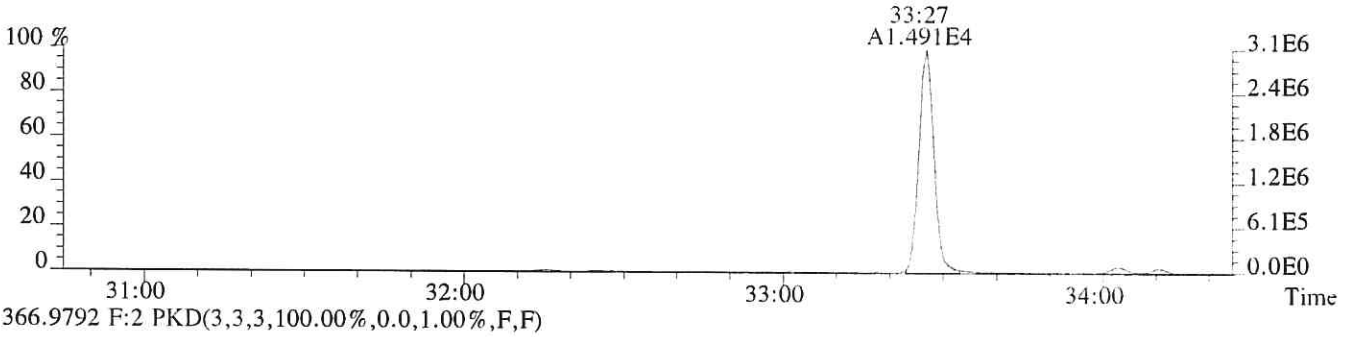
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



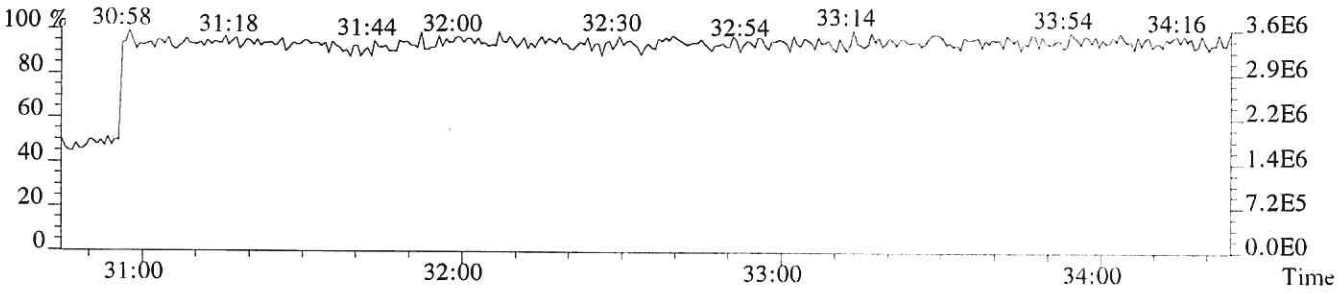
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



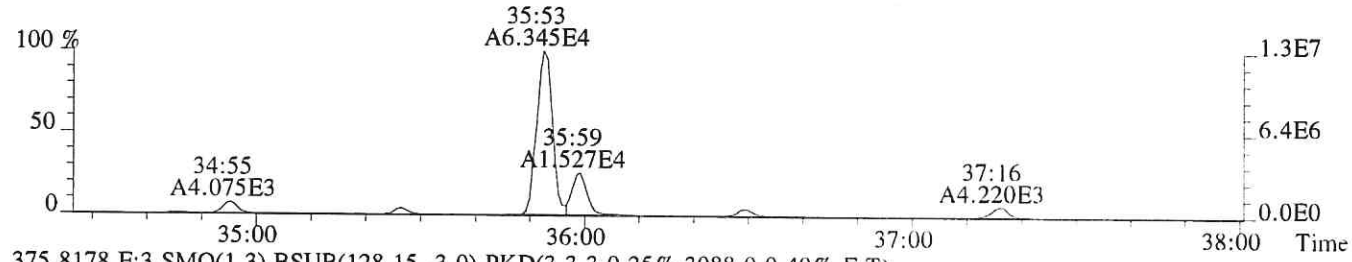
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



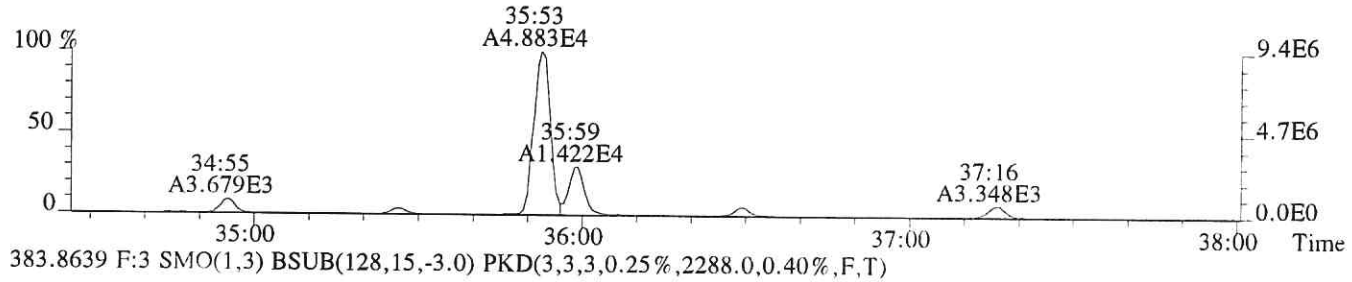
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



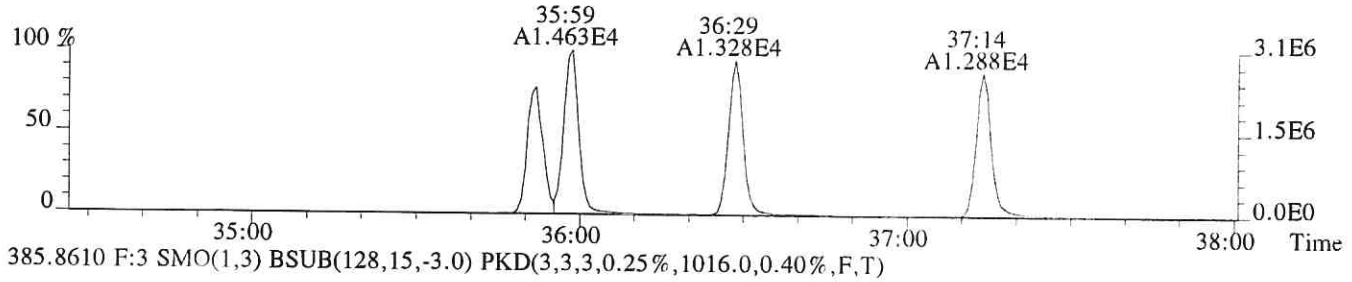
File:P519248 #1-322 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



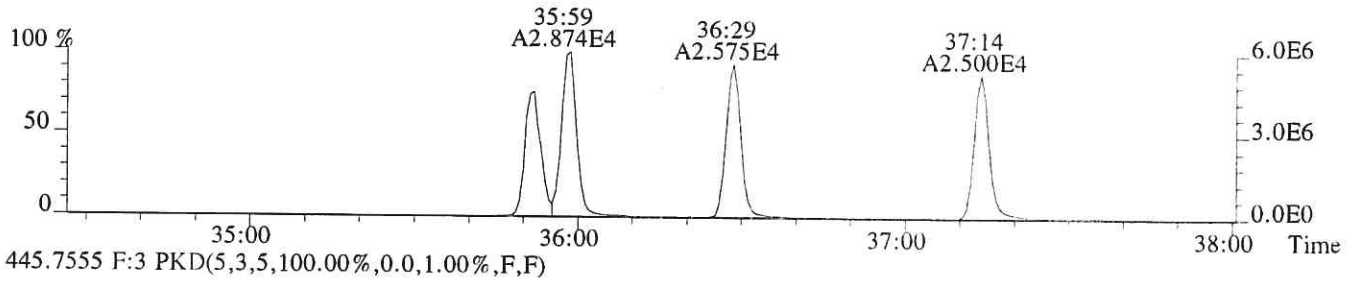
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3088.0,0.40%,F,T)



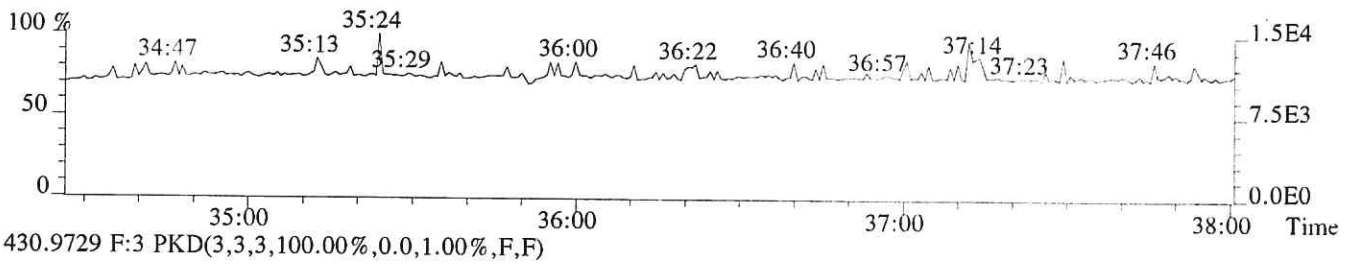
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2288.0,0.40%,F,T)



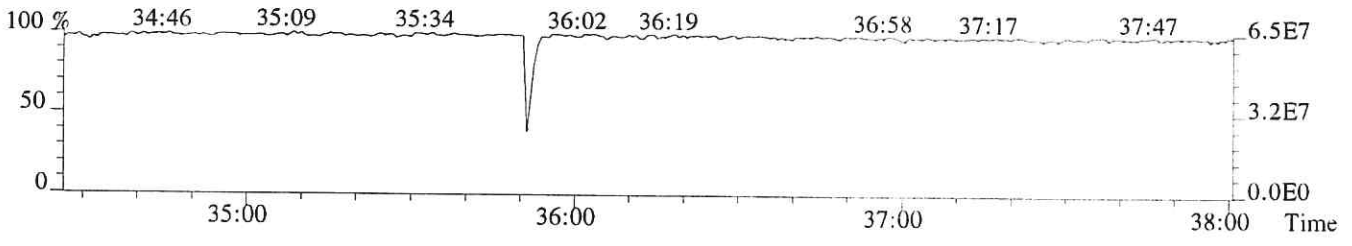
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



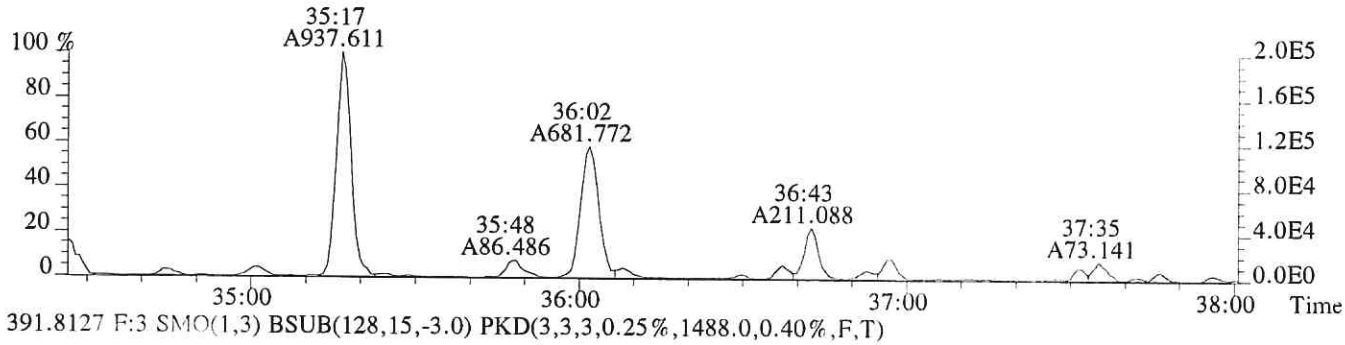
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



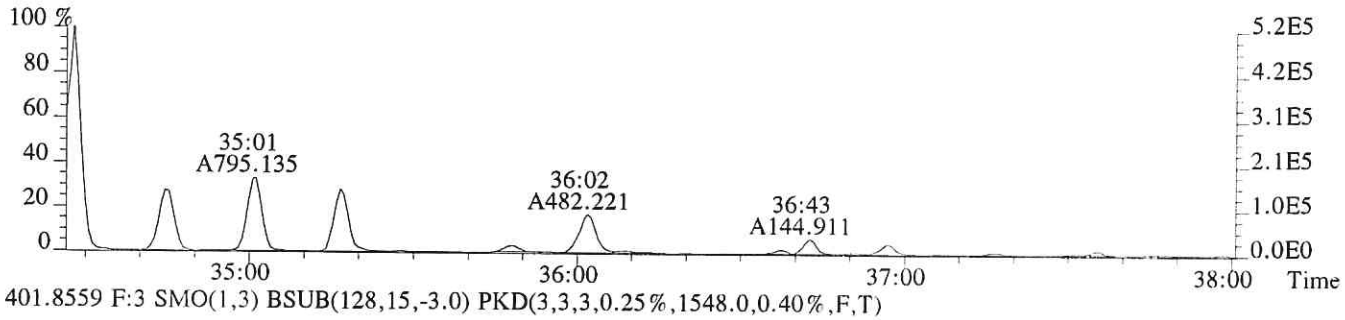
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



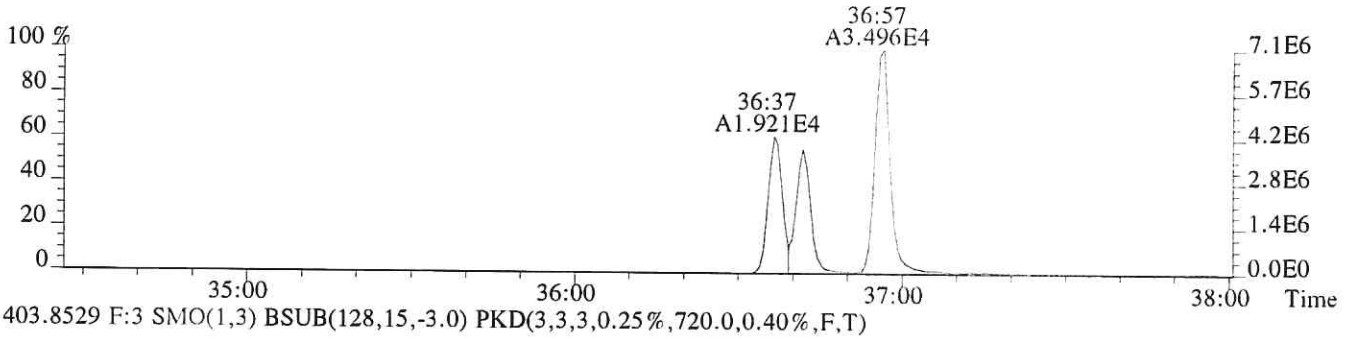
File:P519248 #1-322 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



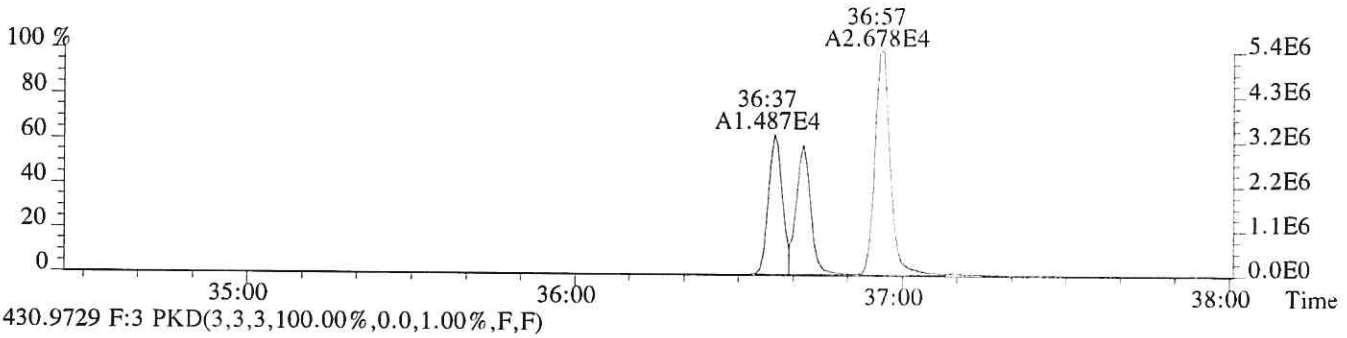
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



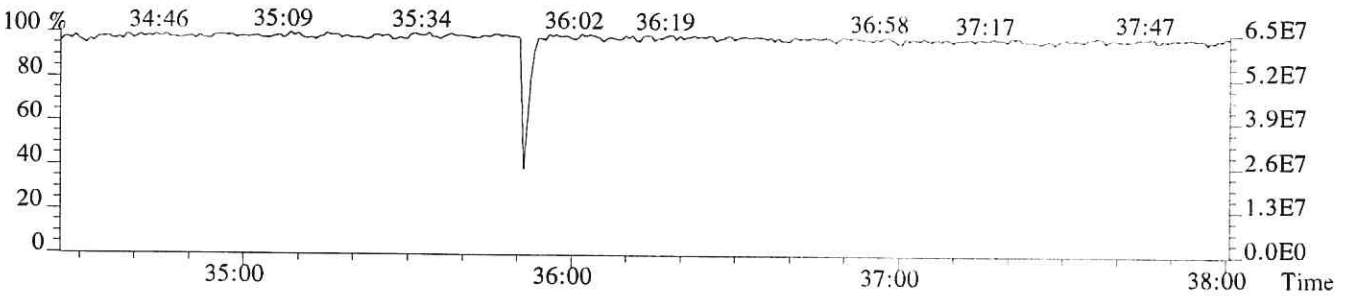
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



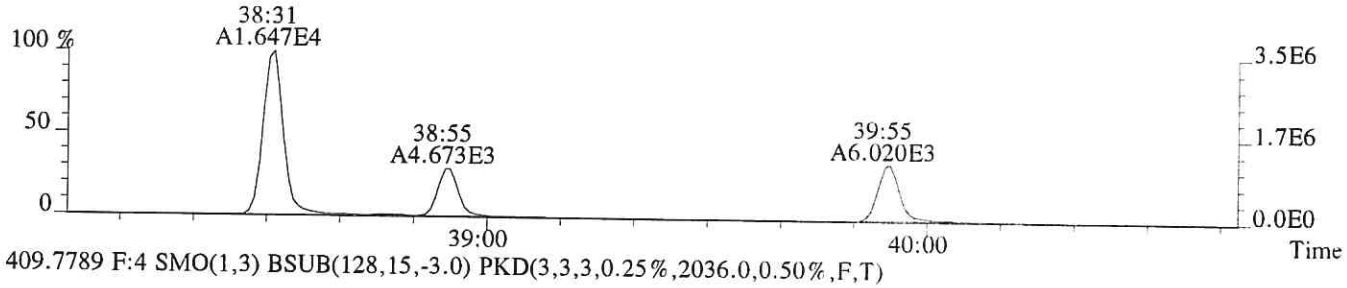
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



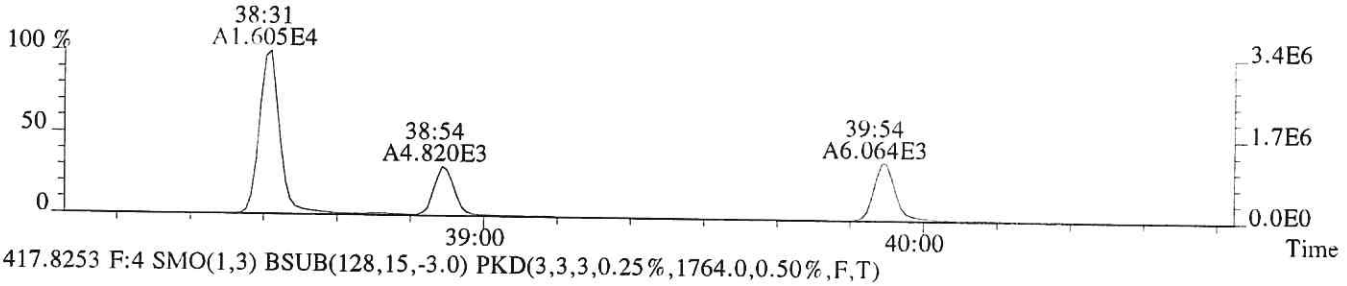
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



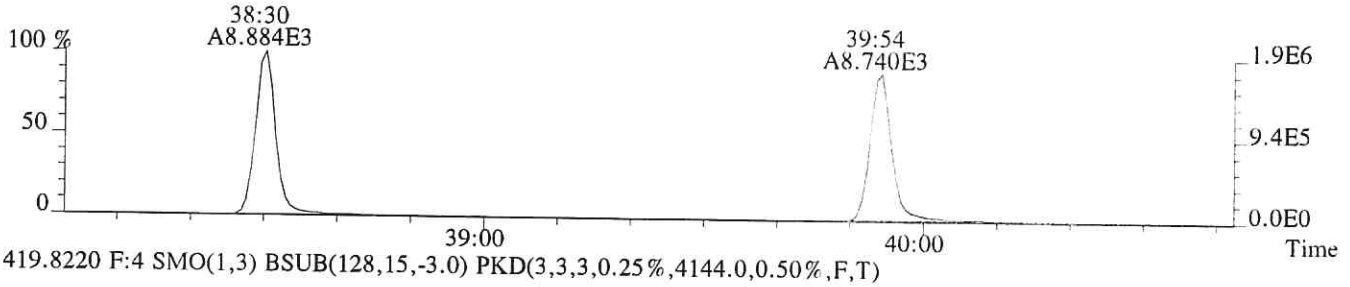
File:P519248 #1-240 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4312.0,0.50%,F,T)



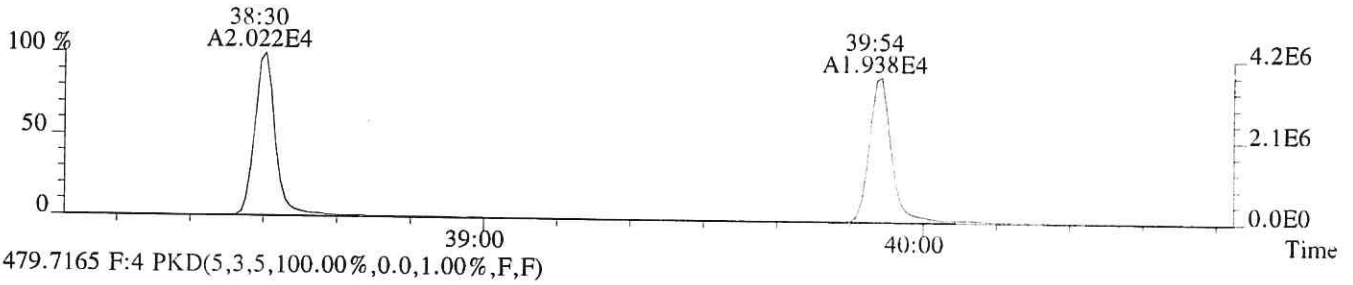
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.50%,F,T)



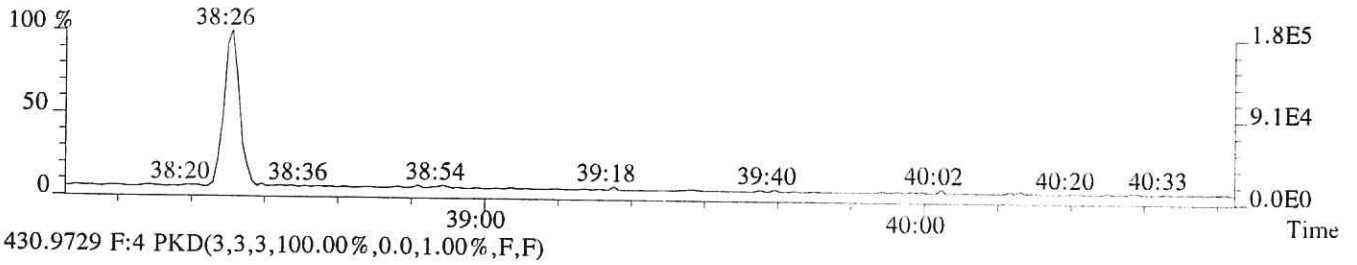
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1764.0,0.50%,F,T)



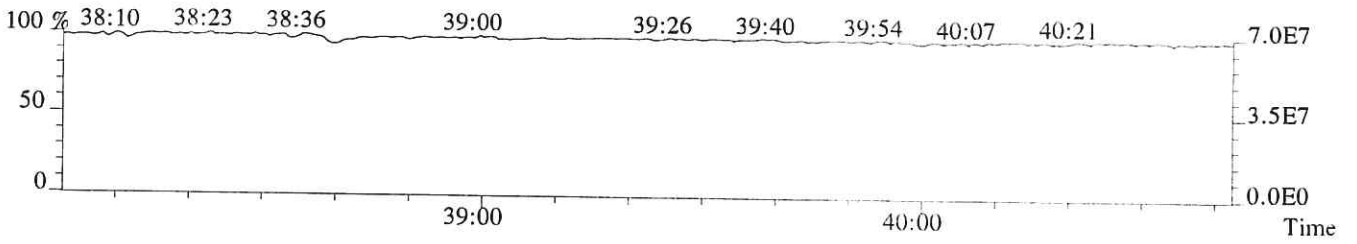
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4144.0,0.50%,F,T)



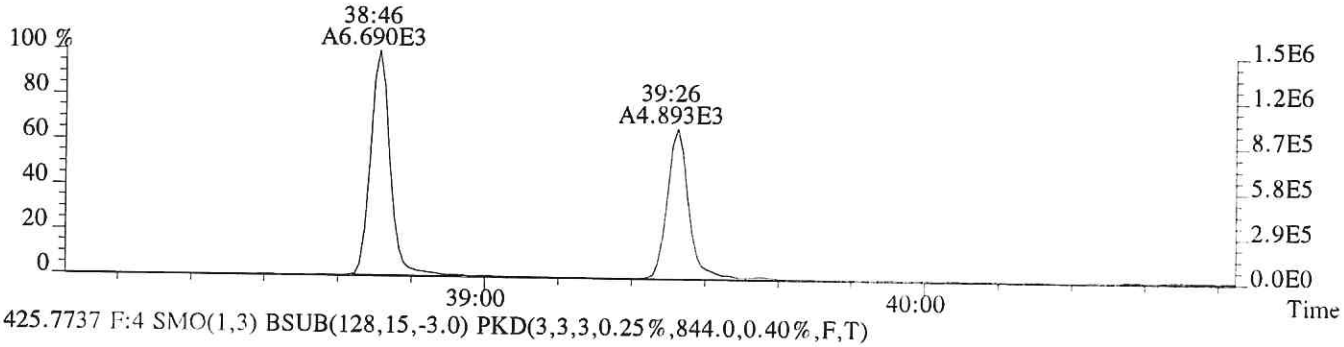
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



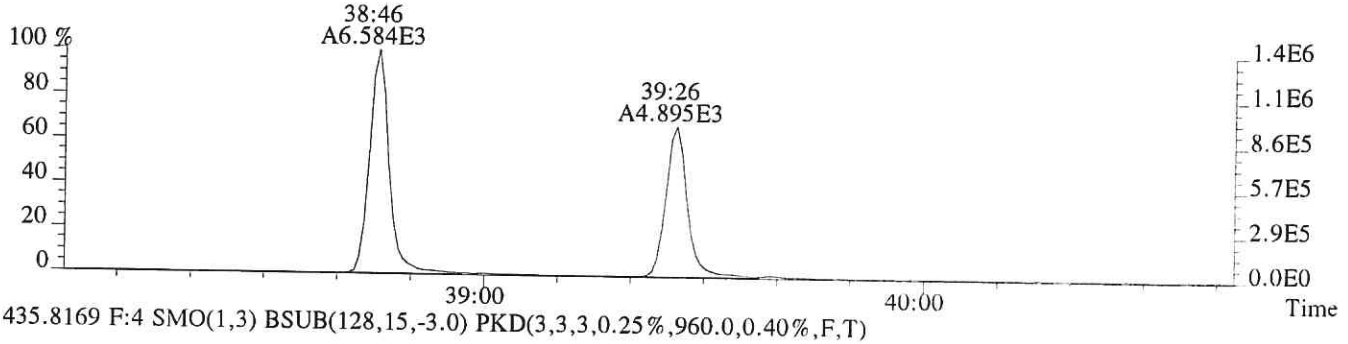
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



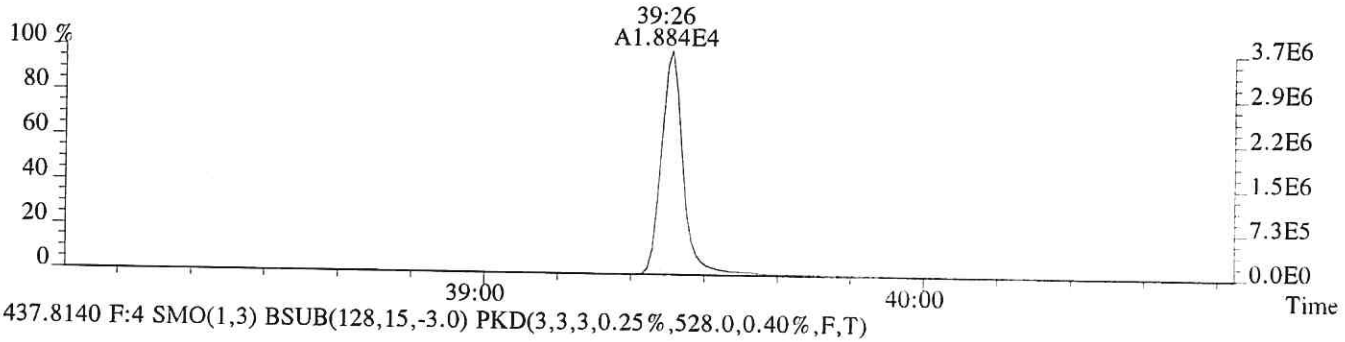
File:P519248 #1-240 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



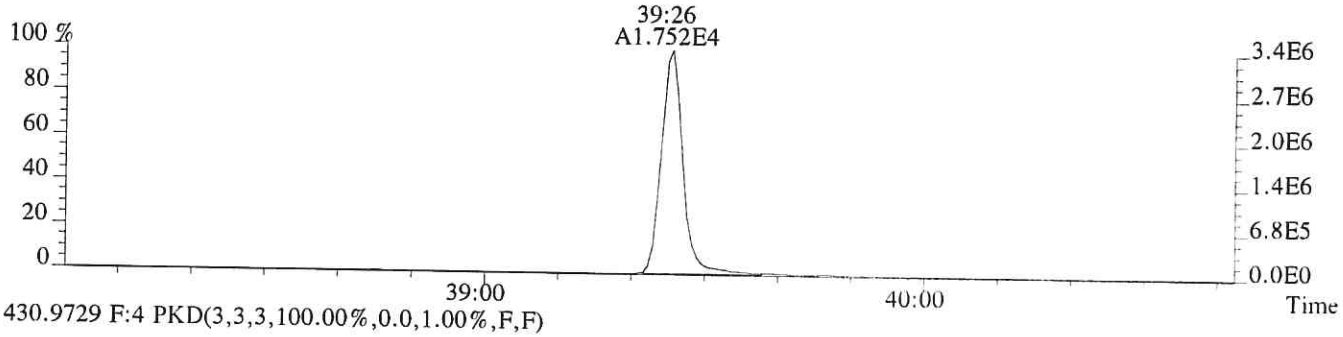
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



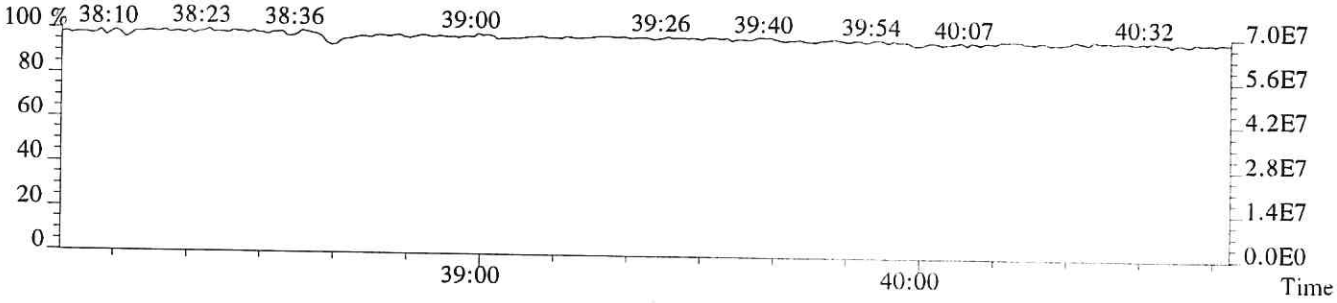
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



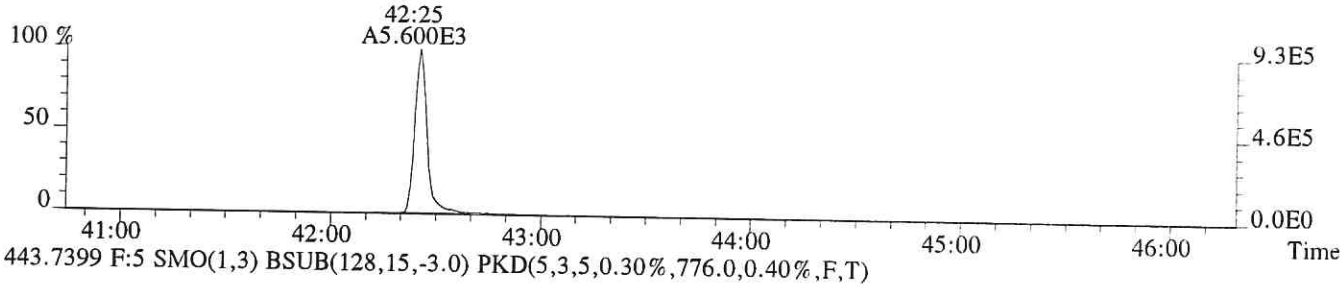
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



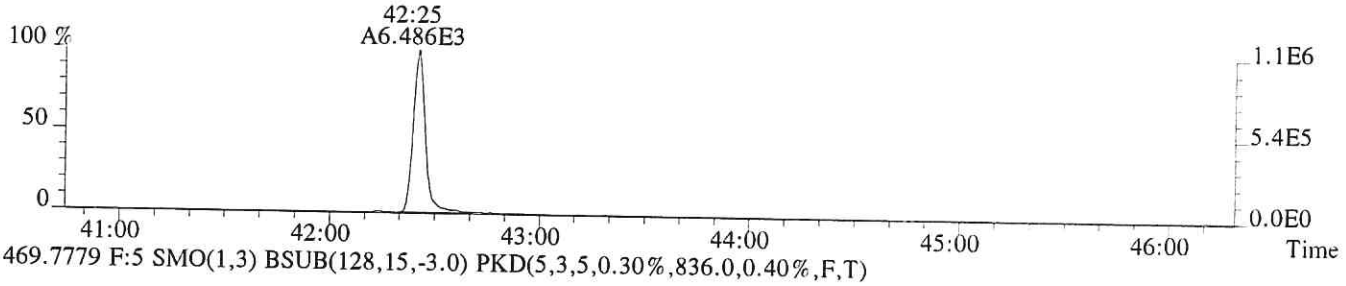
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



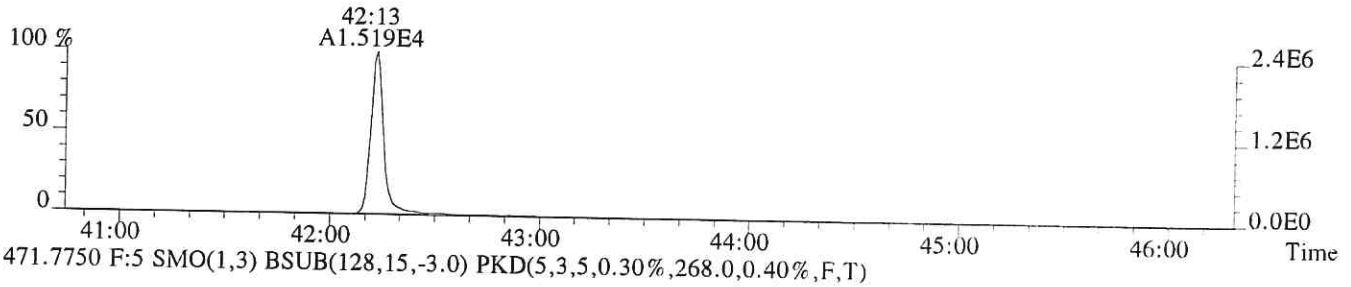
File:P519248 #1-502 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



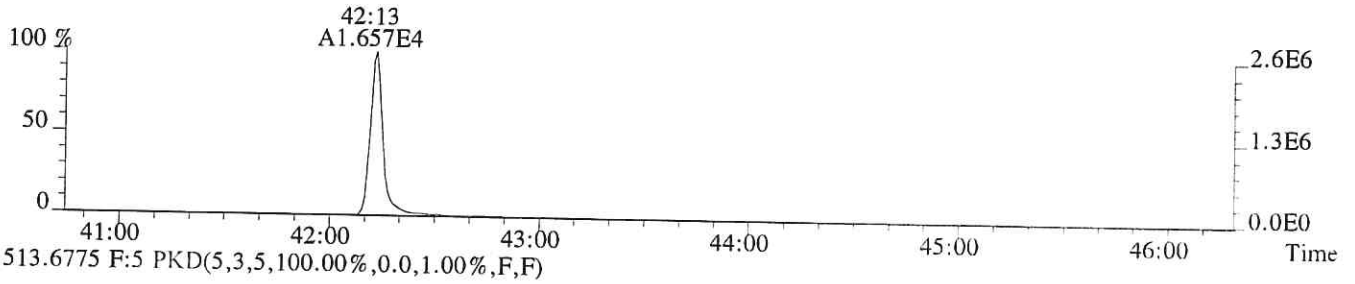
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



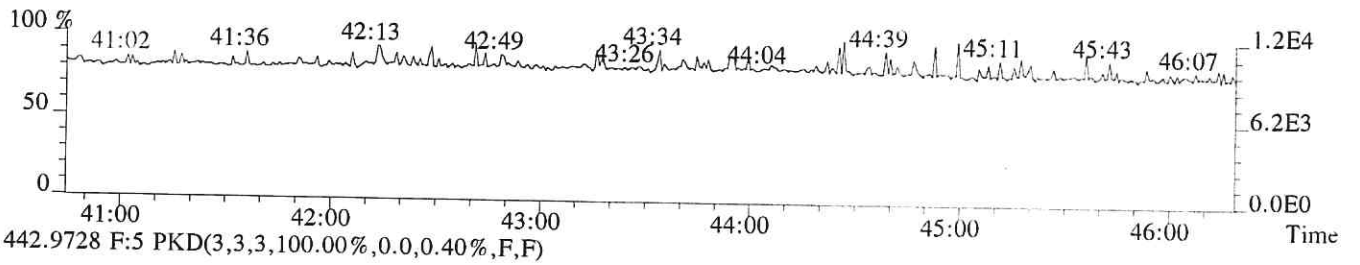
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



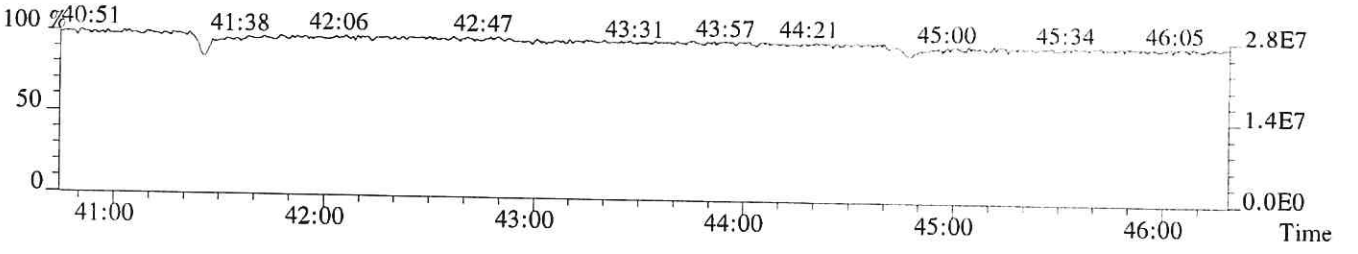
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



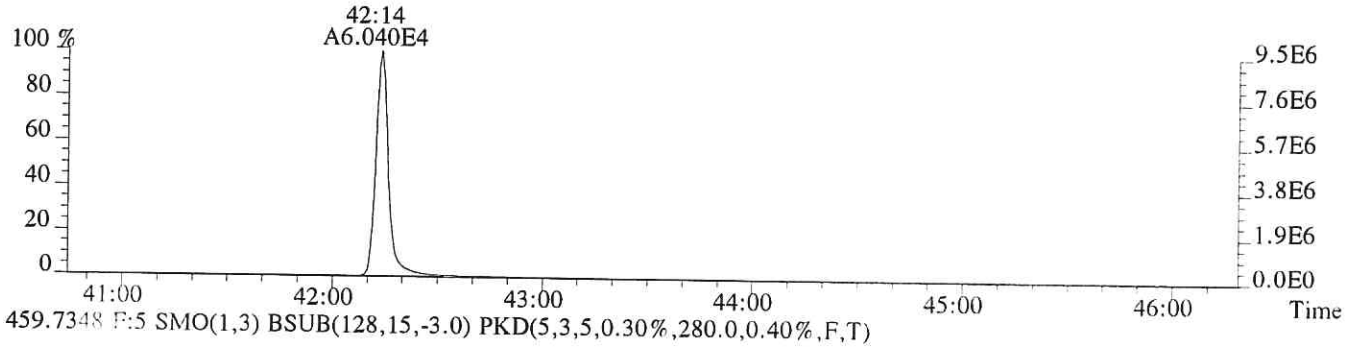
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



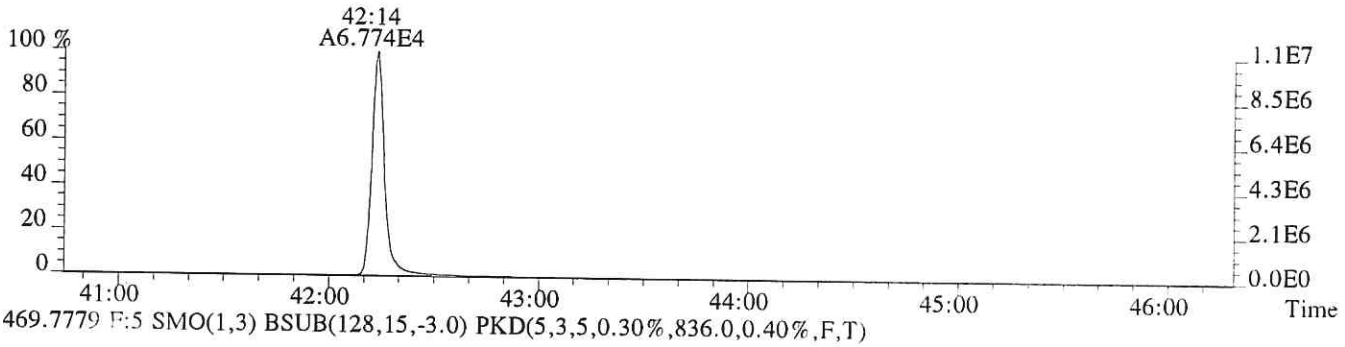
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



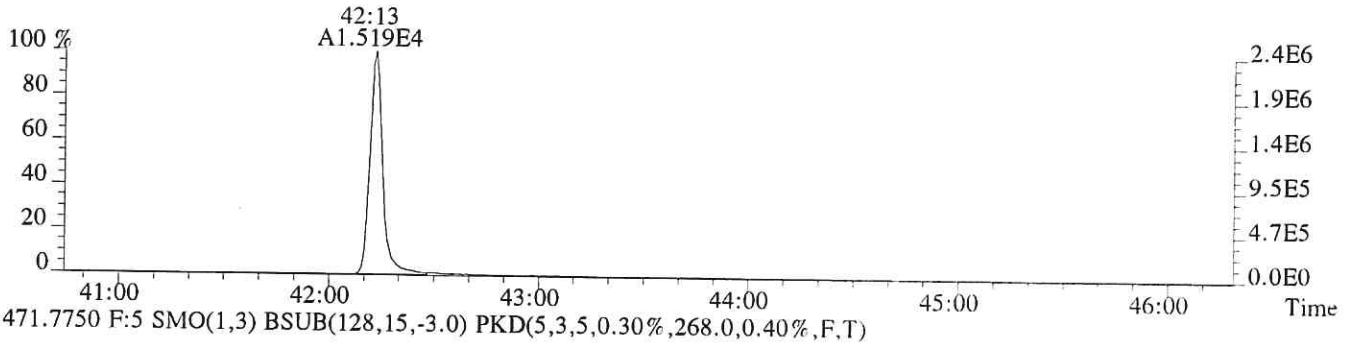
File:P519248 #1-502 Acq: 6-DEC-2018 08:35:00 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



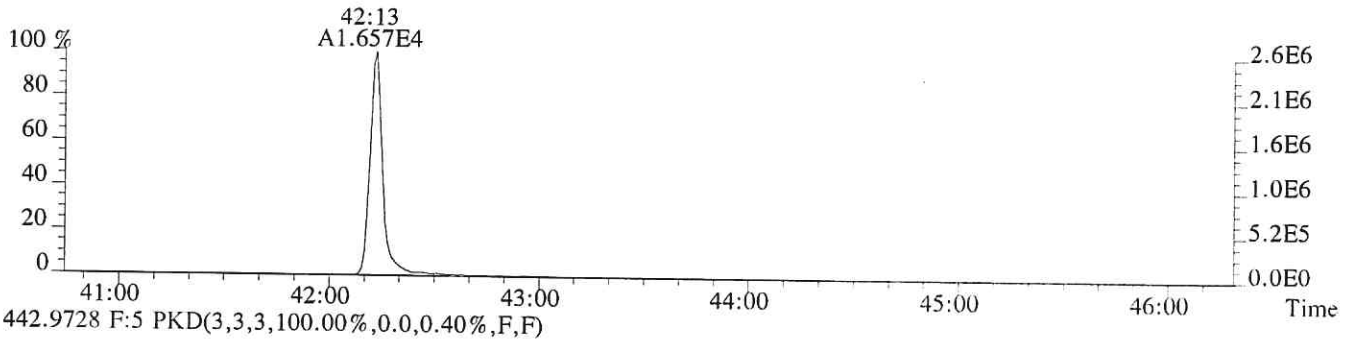
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



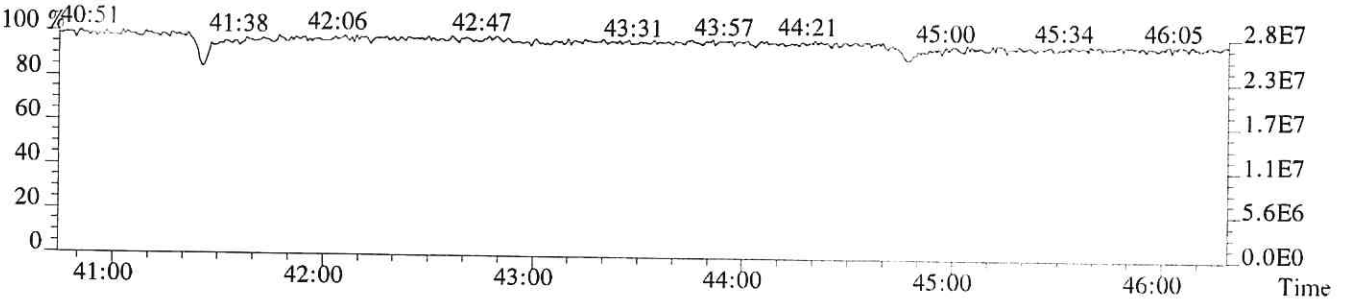
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0540

Run #12 Filename P519292 Samp: 1 Inj: 1 Acquired: 7-DEC-18 23:10:38
Processed: 10-DEC-18 09:24:35 Sample ID: E1801046-002DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:50	2.287e+03	2.919e+03	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:10	1.465e+02	8.519e+01	1.72	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	1.037e+02	7.941e+01	1.31	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.482e+02	2.677e+02	0.93	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:58	7.584e+01	5.758e+01	1.32	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:18	1.731e+01	1.194e+01	1.45	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	7.267e+01	8.256e+01	0.88	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	2.287e+01	2.020e+01	1.13	yes	no	1.258
10	Unk	OCDF	42:47	4.016e+01	4.430e+01	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	4.834e+02	6.308e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	8.027e+00	2.126e+00	3.77	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:41	7.557e-01	1.855e+00	0.41	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	7.557e-01	1.855e+00	0.41	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	2.582e+01	2.251e+01	1.15	yes	no	1.025
17	Unk	OCDD	42:35	2.777e+02	3.535e+02	0.79	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	9.064e+03	1.159e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	1.430e+04	8.713e+03	1.64	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.343e+04	8.543e+03	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	5.735e+03	1.124e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	7.059e+03	1.398e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	6.384e+03	1.251e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	5.936e+03	1.156e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	5.356e+03	1.196e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.727e+03	1.089e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	4.098e+03	5.361e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	9.498e+03	6.016e+03	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:38	7.925e+03	6.245e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	8.315e+03	6.561e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	9.750e+03	9.360e+03	1.04	yes	no	0.858
32	IS	13C-OCDD	42:33	1.172e+04	1.237e+04	0.95	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	6.643e+03	8.208e+03	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	9.545e+03	7.639e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	5.518e+01				no	1.014

$$OCDD = \frac{(2.777e+02 + 3.535e+02) \times 4000\ pg \times 100}{(1.172e+04 + 1.237e+04) \times 10.919\ g \times 77.0 / 100 \times 1.118 \times 0.44} = 2534\ ng/Kg$$

4A 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0540

Run #12 Filename P519292 Samp: 1 Inj: 1 Acquired: 7-DEC-18 23:10:38
Processed: 10-DEC-18 09:24:35 LAB. ID: E1801046-002DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.60e+05	2.84e+02	1.3e+03	4.64e+05	1.02e+03	4.5e+02
2	1,2,3,7,8-PeCDF	2.73e+04	2.92e+02	9.4e+01	1.24e+04	6.80e+02	1.8e+01
3	2,3,4,7,8-PeCDF	1.46e+04	2.92e+02	5.0e+01	1.36e+04	6.80e+02	2.0e+01
4	1,2,3,4,7,8-HxCDF	5.32e+04	3.64e+02	1.5e+02	5.53e+04	3.88e+02	1.4e+02
5	1,2,3,6,7,8-HxCDF	1.33e+04	3.64e+02	3.6e+01	1.05e+04	3.88e+02	2.7e+01
6	2,3,4,6,7,8-HxCDF	*	3.64e+02	*	*	3.88e+02	*
7	1,2,3,7,8,9-HxCDF	3.55e+03	3.64e+02	9.8e+00	3.12e+03	3.88e+02	8.0e+00
8	1,2,3,4,6,7,8-HpCDF	1.22e+04	2.88e+02	4.2e+01	1.65e+04	2.28e+02	7.2e+01
9	1,2,3,4,7,8,9-HpCDF	3.76e+03	2.88e+02	1.3e+01	3.46e+03	2.28e+02	1.5e+01
10	OCDF	7.57e+03	2.52e+02	3.0e+01	7.43e+03	6.44e+02	1.2e+01
11	2,3,7,8-TCDD	8.53e+04	1.53e+03	5.6e+01	1.17e+05	6.68e+02	1.8e+02
12	1,2,3,7,8-PeCDD	1.83e+03	4.64e+02	3.9e+00	5.40e+02	2.84e+02	1.9e+00
13	1,2,3,4,7,8-HxCDD	2.31e+02	2.96e+02	7.8e-01	5.84e+02	3.44e+02	1.7e+00
14	1,2,3,6,7,8-HxCDD	2.31e+02	2.96e+02	7.8e-01	5.84e+02	3.44e+02	1.7e+00
15	1,2,3,7,8,9-HxCDD	*	2.96e+02	*	*	3.44e+02	*
16	1,2,3,4,6,7,8-HpCDD	5.29e+03	2.76e+02	1.9e+01	4.24e+03	3.64e+02	1.2e+01
17	OCDD	3.06e+04	3.72e+02	8.2e+01	4.59e+04	3.96e+02	1.2e+02
18	13C-2,3,7,8-TCDF	1.60e+06	6.19e+03	2.6e+02	1.98e+06	4.86e+03	4.1e+02
19	13C-1,2,3,7,8-PeCDF	2.55e+06	2.32e+02	1.1e+04	1.50e+06	3.68e+02	4.1e+03
20	13C-2,3,4,7,8-PeCDF	2.49e+06	2.32e+02	1.1e+04	1.56e+06	3.68e+02	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.17e+06	3.48e+02	3.4e+03	2.30e+06	3.48e+02	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.37e+06	3.48e+02	3.9e+03	2.61e+06	3.48e+02	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.25e+06	3.48e+02	3.6e+03	2.44e+06	3.48e+02	7.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.07e+06	3.48e+02	3.1e+03	2.03e+06	3.48e+02	5.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.00e+06	1.85e+03	5.4e+02	2.25e+06	2.86e+03	7.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.29e+05	1.85e+03	3.9e+02	1.72e+06	2.86e+03	6.0e+02
27	13C-2,3,7,8-TCDD	7.48e+05	4.50e+03	1.7e+02	9.73e+05	1.57e+03	6.2e+02
28	13C-1,2,3,7,8-PeCDD	1.70e+06	7.40e+02	2.3e+03	1.09e+06	7.92e+02	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	1.71e+06	2.80e+02	6.1e+03	1.33e+06	4.24e+02	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.55e+06	2.80e+02	5.5e+03	1.21e+06	4.24e+02	2.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.54e+06	2.84e+02	5.4e+03	1.51e+06	3.08e+02	4.9e+03
32	13C-OCDD	1.36e+06	3.08e+02	4.4e+03	1.47e+06	3.56e+02	4.1e+03
33	13C-1,2,3,4-TCDD	1.21e+06	4.50e+03	2.7e+02	1.51e+06	1.57e+03	9.6e+02
34	13C-1,2,3,7,8,9-HxCDD	1.78e+06	2.80e+02	6.4e+03	1.40e+06	4.24e+02	3.3e+03
35	37Cl-2,3,7,8-TCDD	9.77e+03	7.84e+02	1.2e+01			

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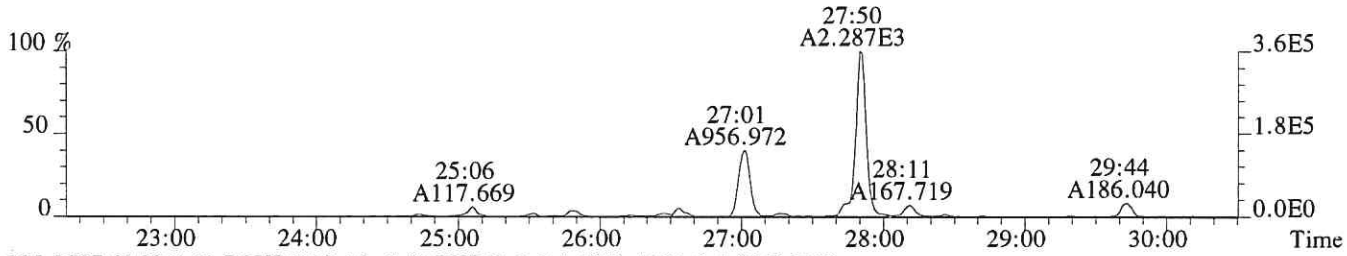
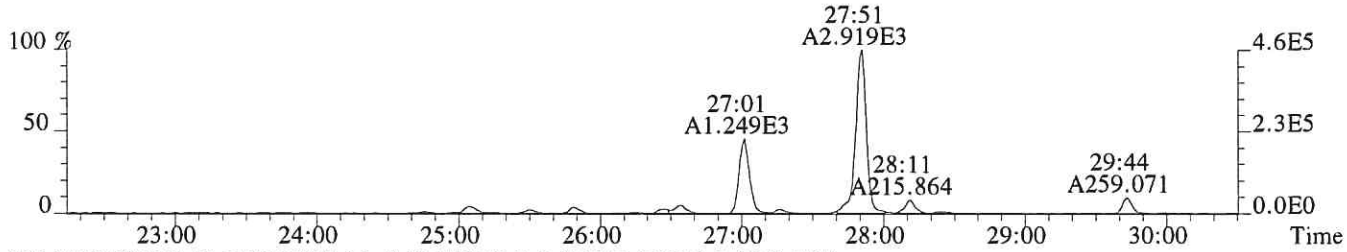
www.alsglobal.com

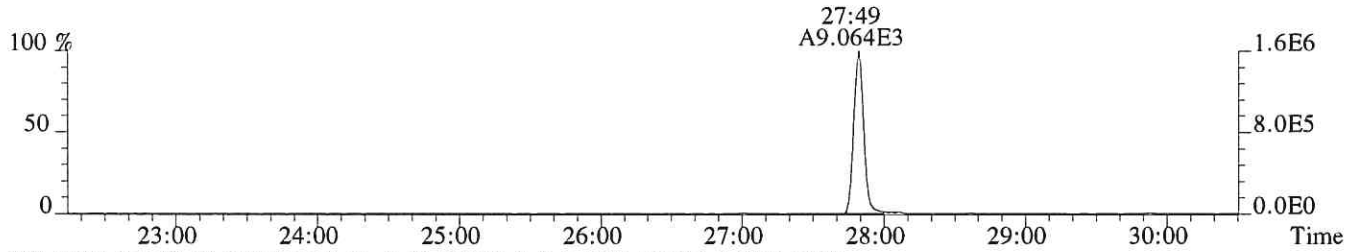
File:P519292 #1-587 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



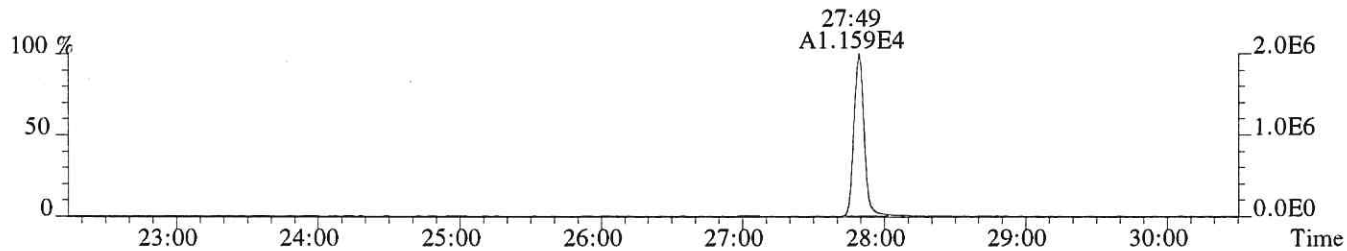
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



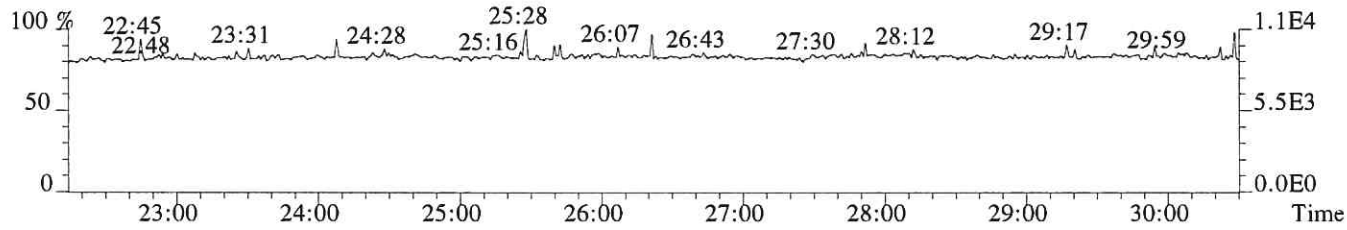
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6192.0,1.00%,F,T)



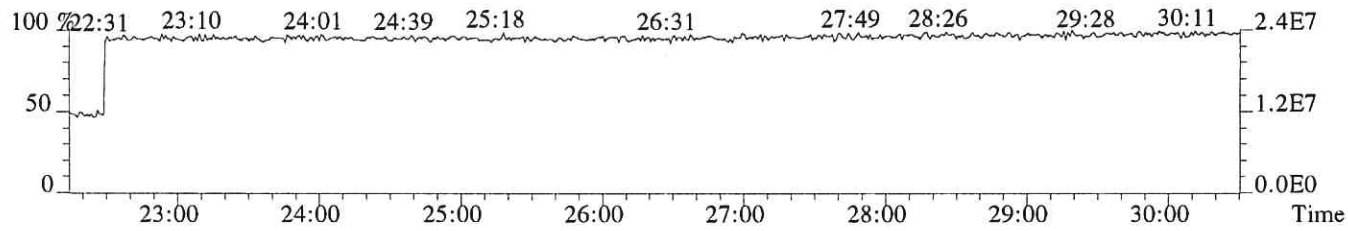
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4860.0,1.00%,F,T)



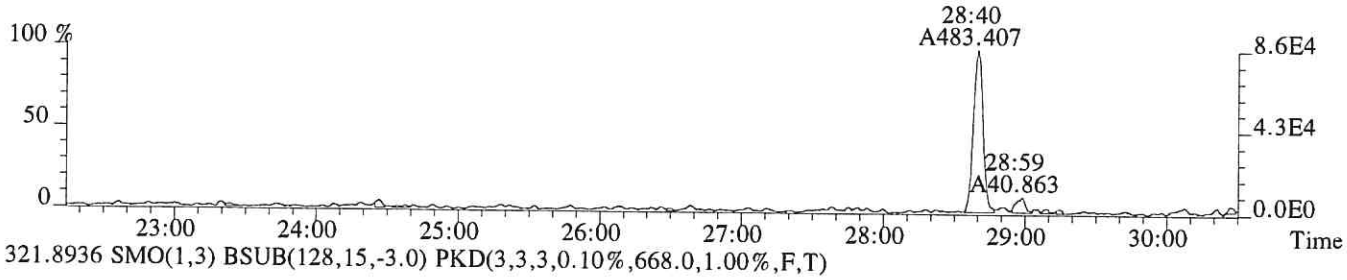
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



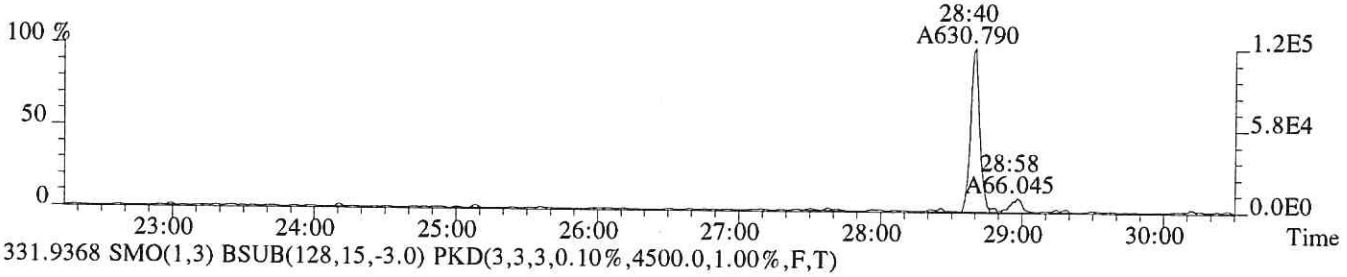
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



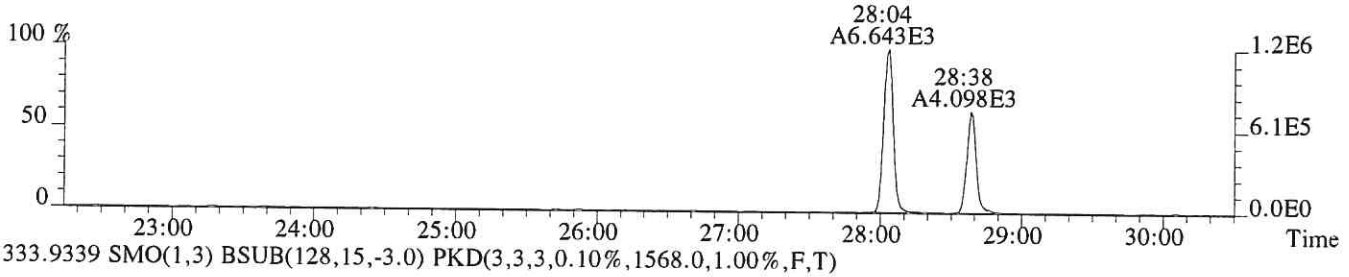
File:P519292 #1-587 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



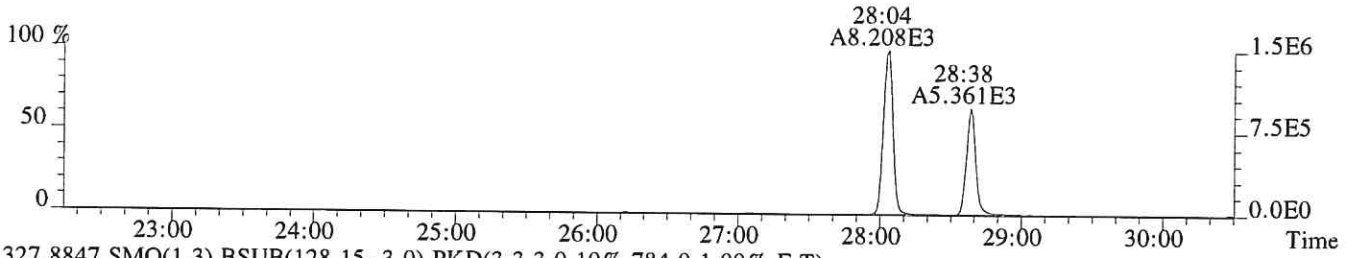
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



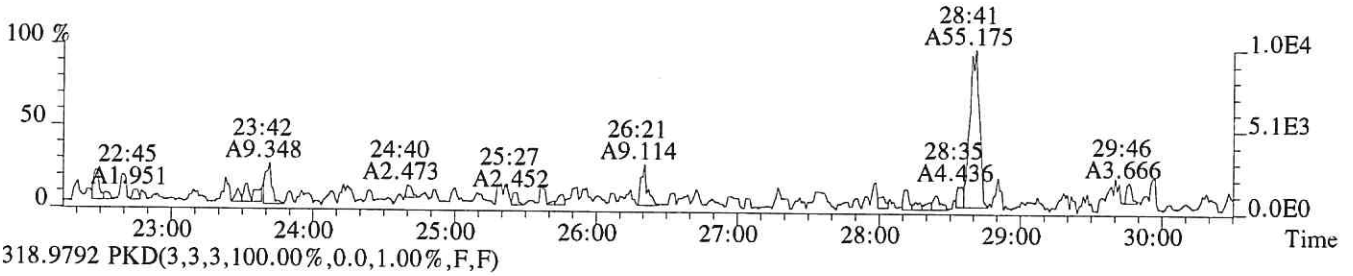
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4500.0,1.00%,F,T)



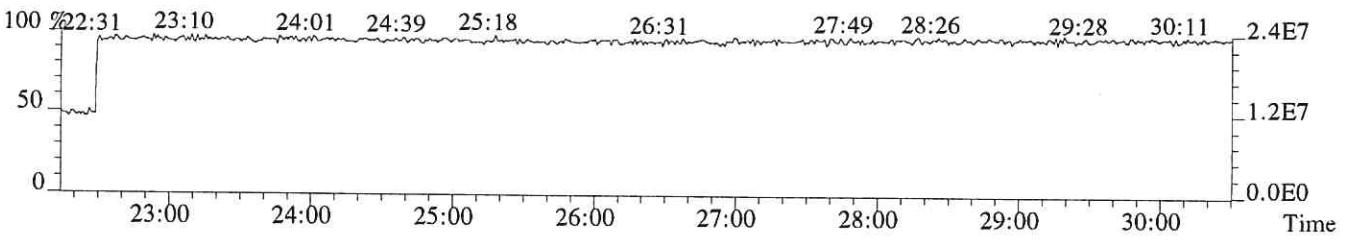
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



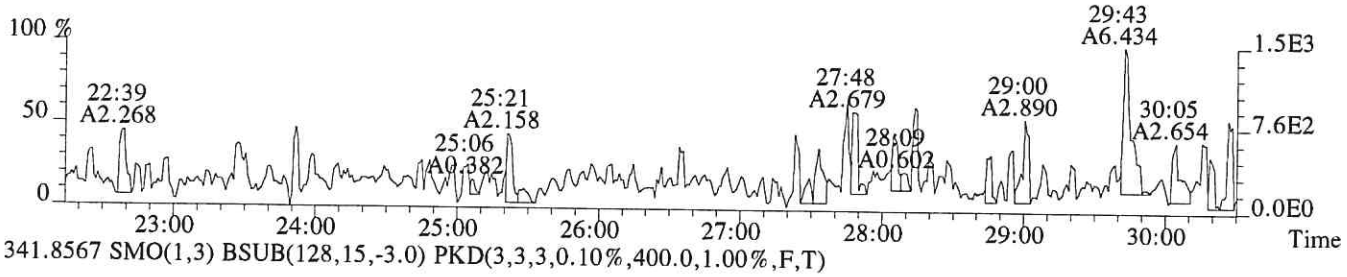
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



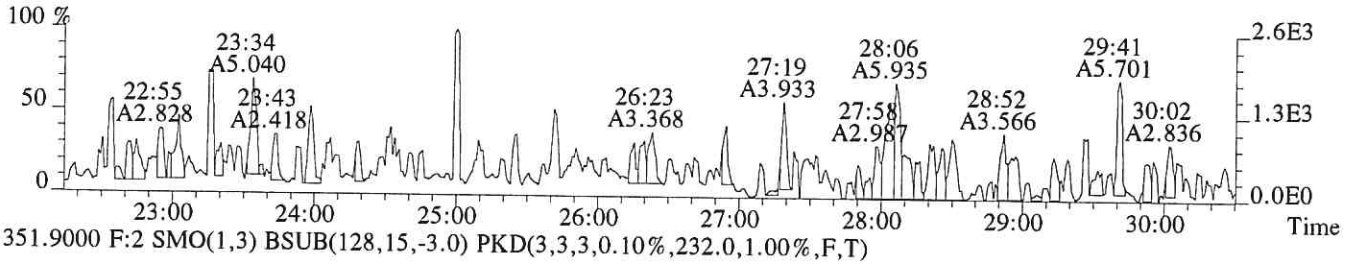
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



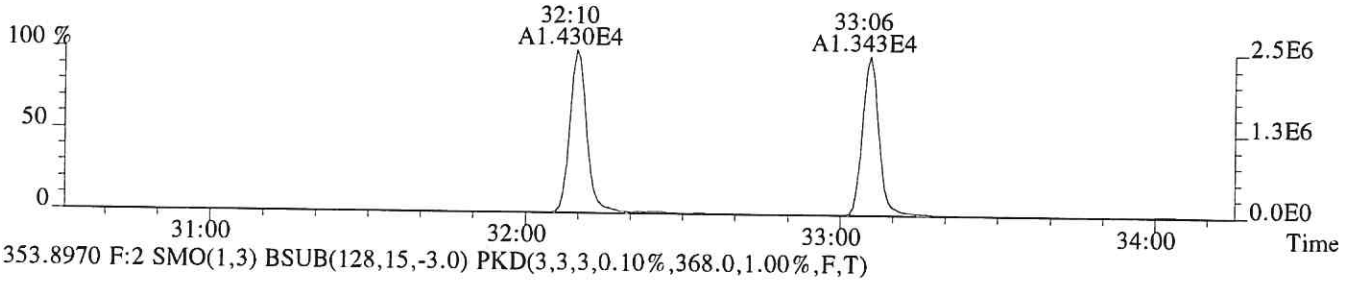
File:P519292 #1-587 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



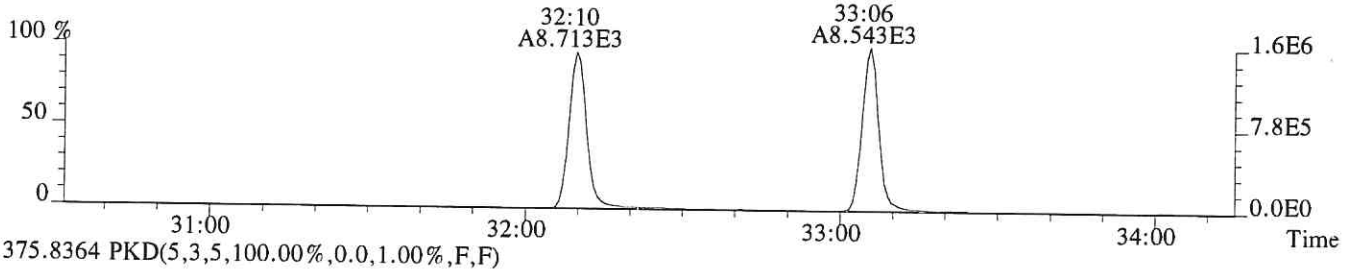
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



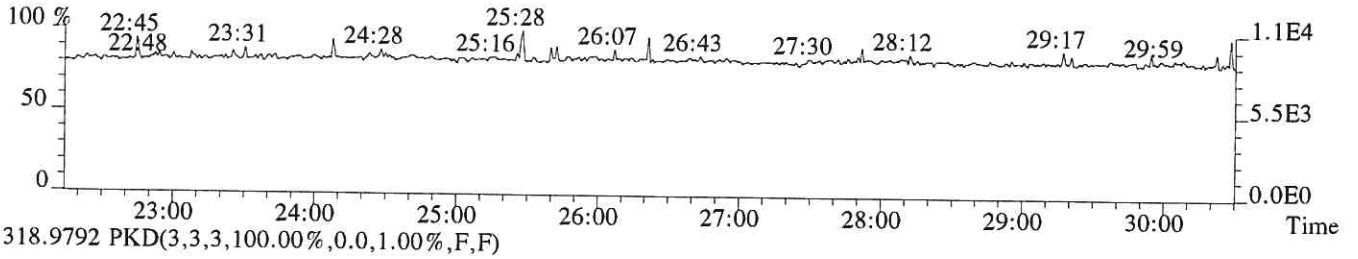
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



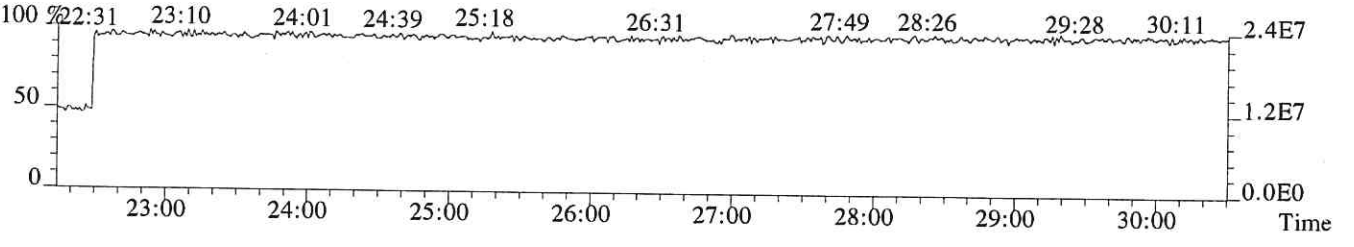
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



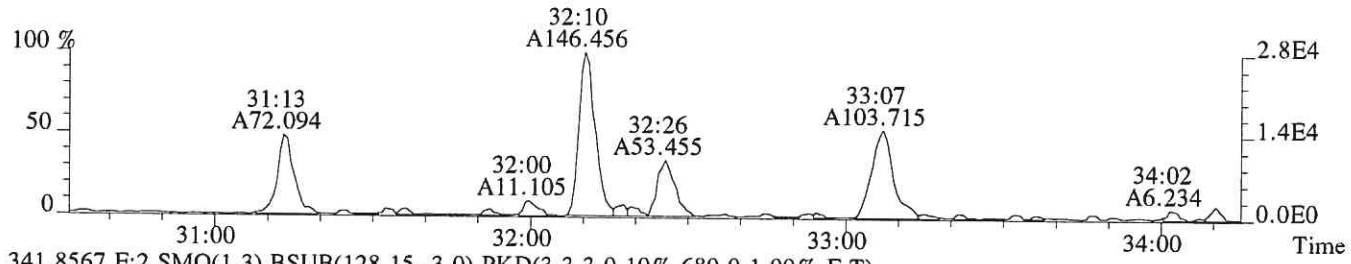
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



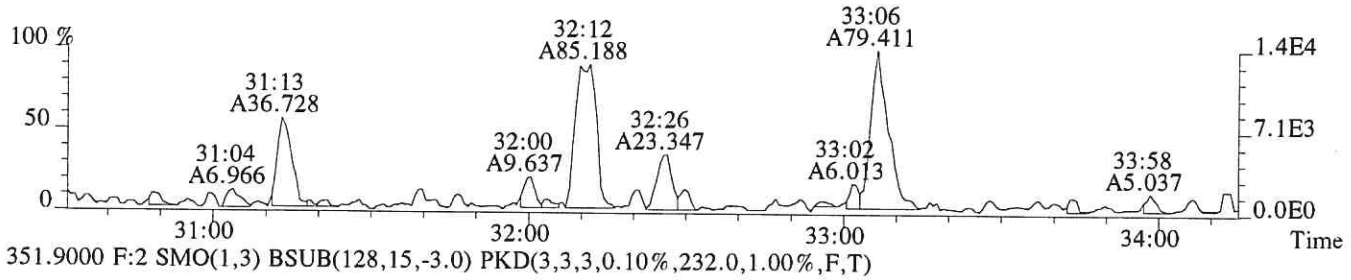
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



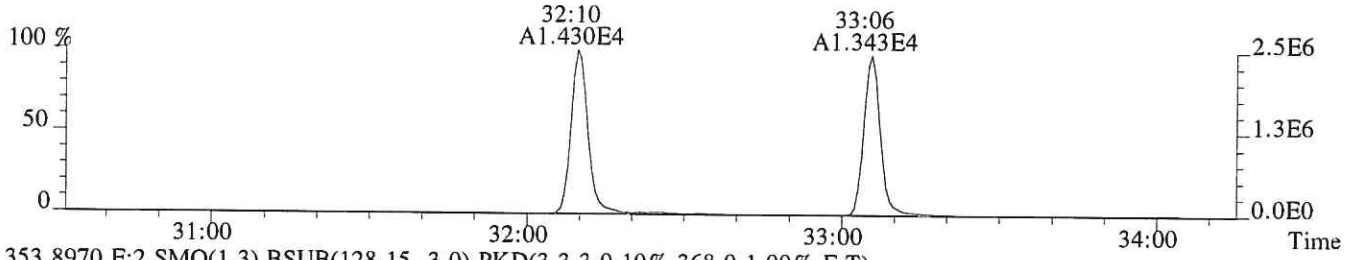
File:P519292 #1-335 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



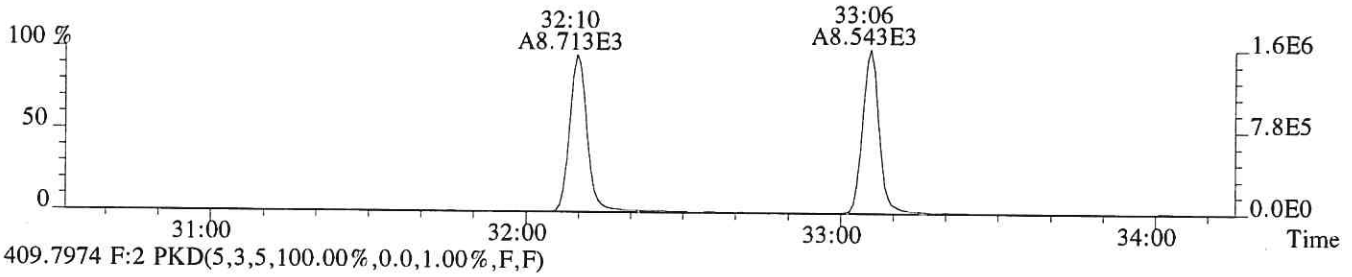
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



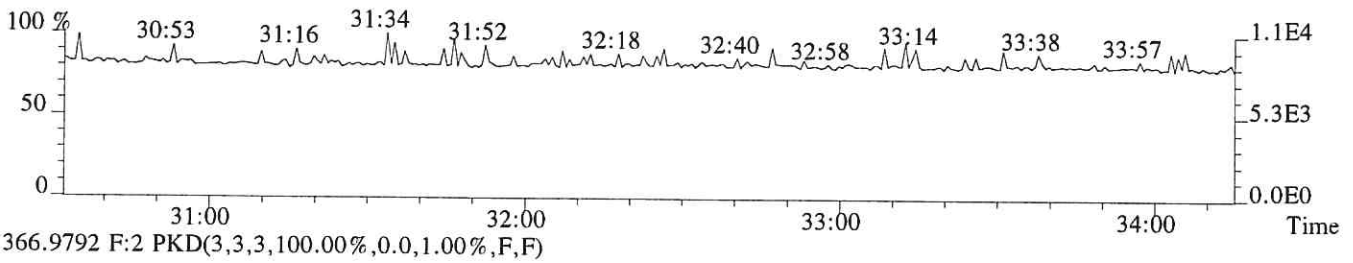
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



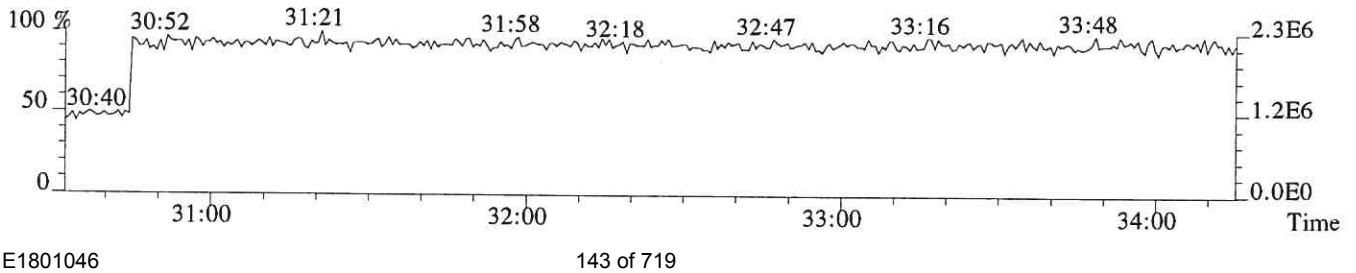
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



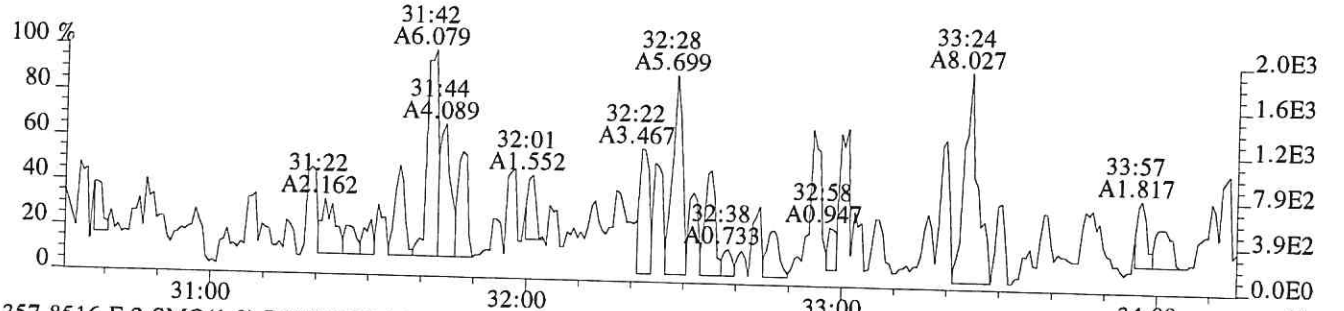
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



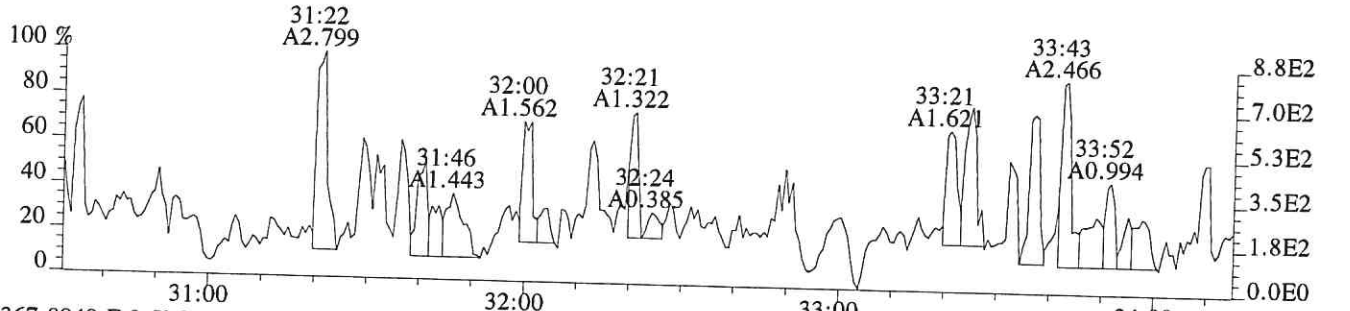
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



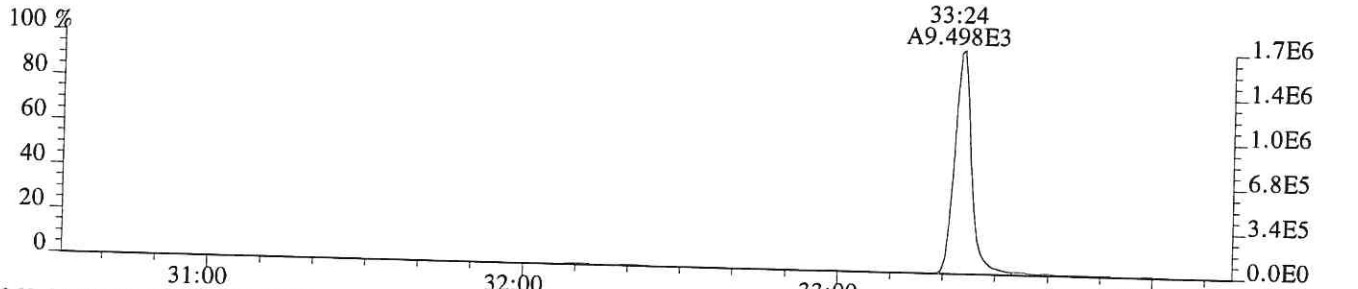
File:P519292 #1-335 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



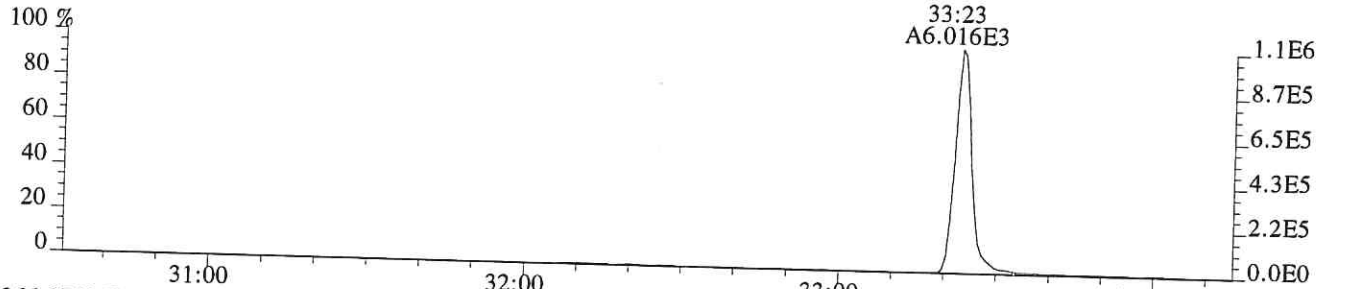
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



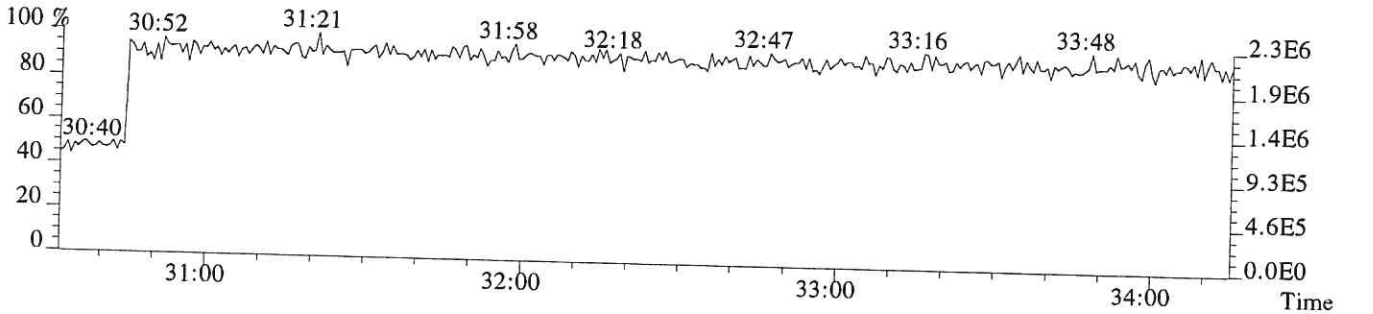
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



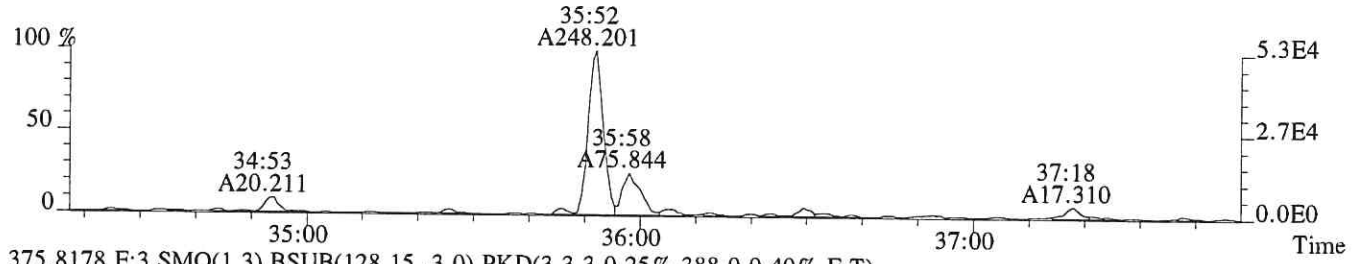
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



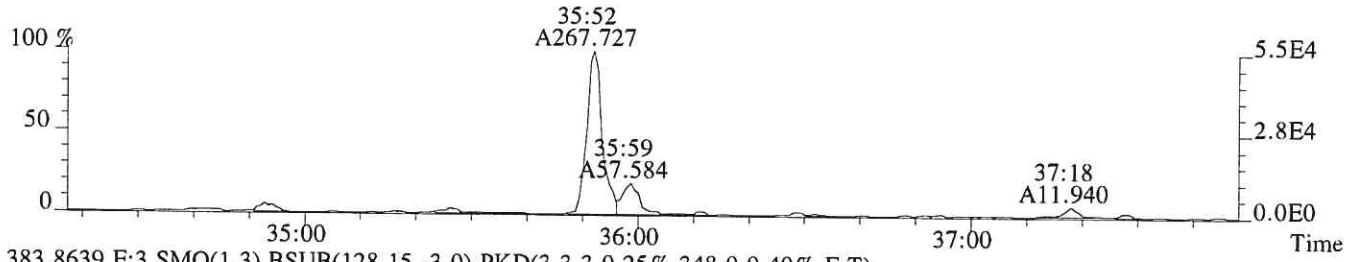
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



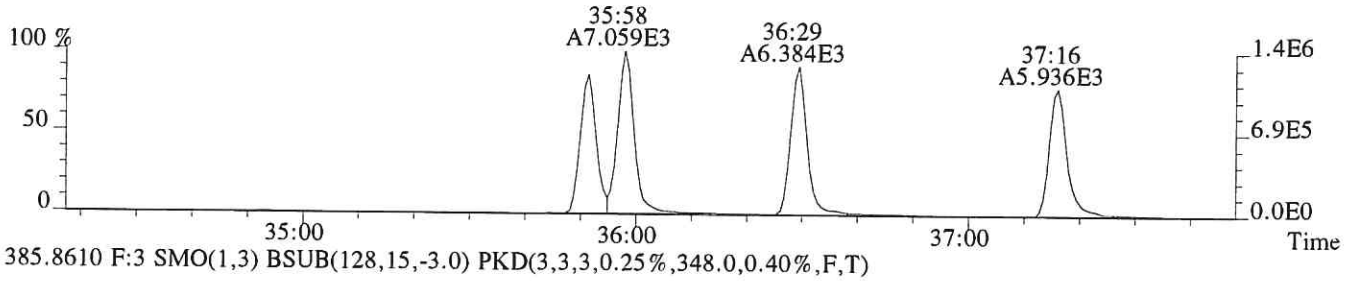
File:P519292 #1-317 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



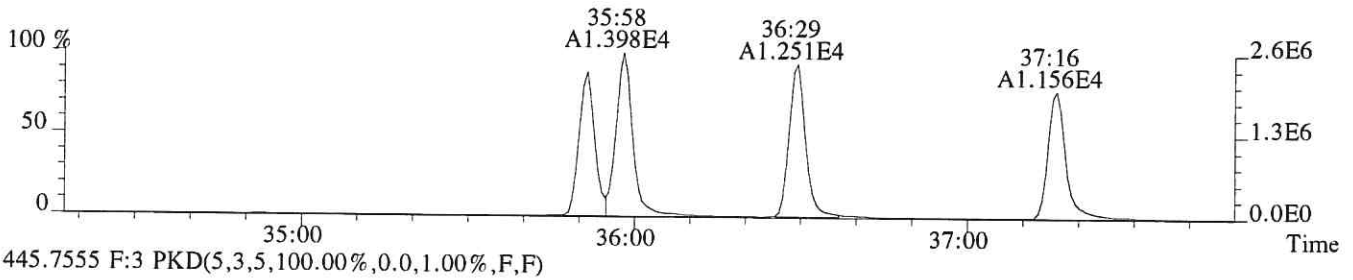
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



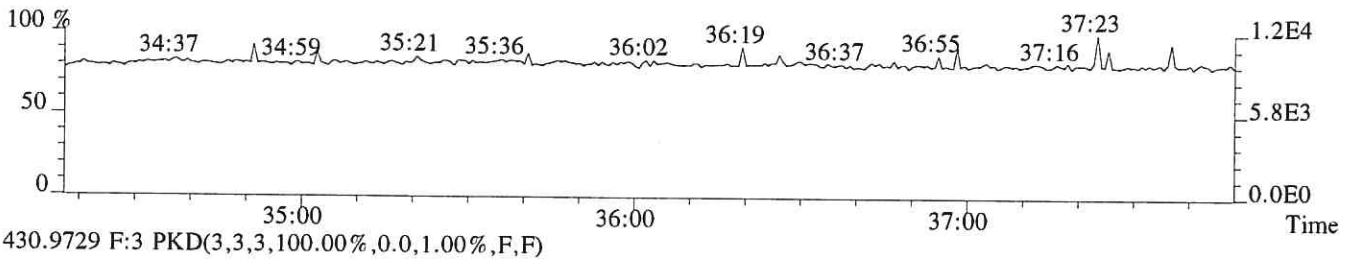
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



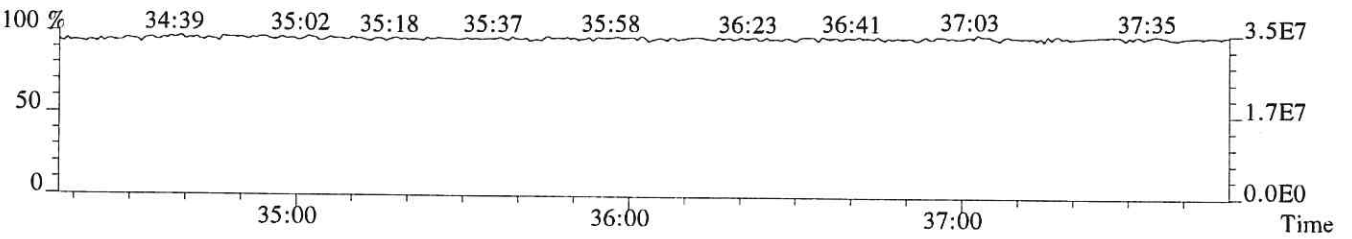
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



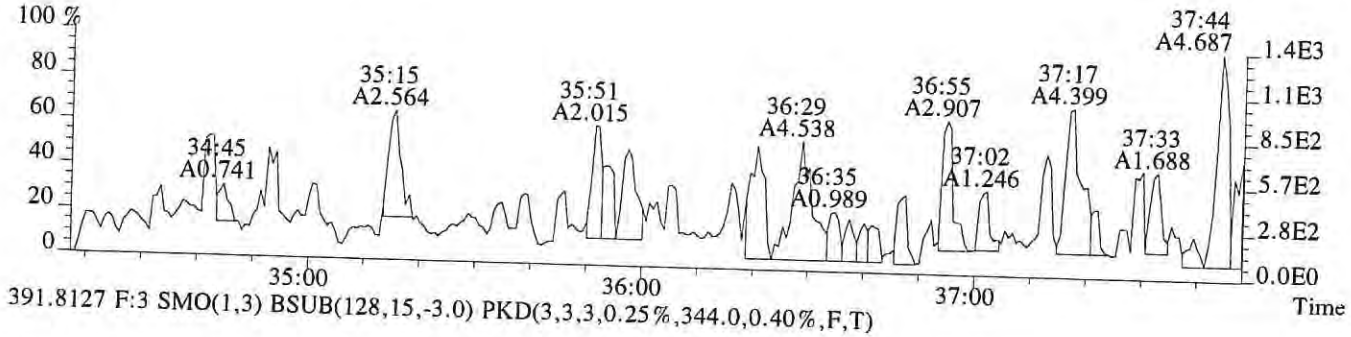
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



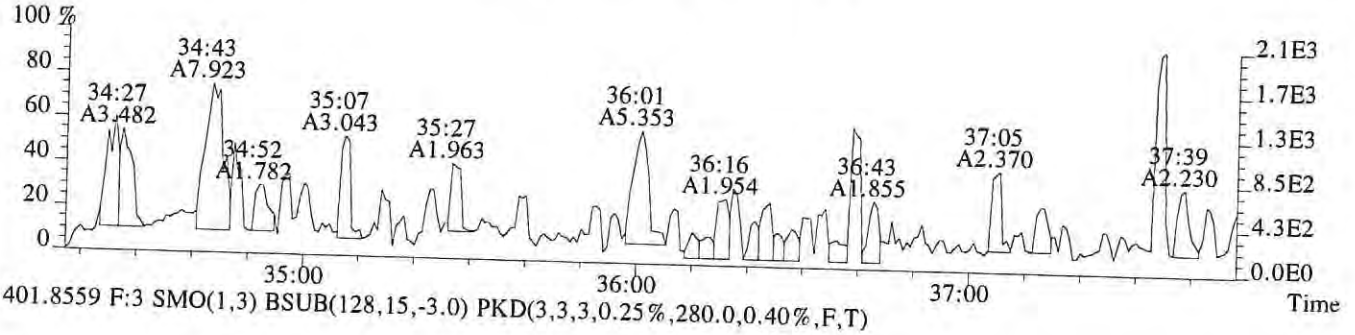
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



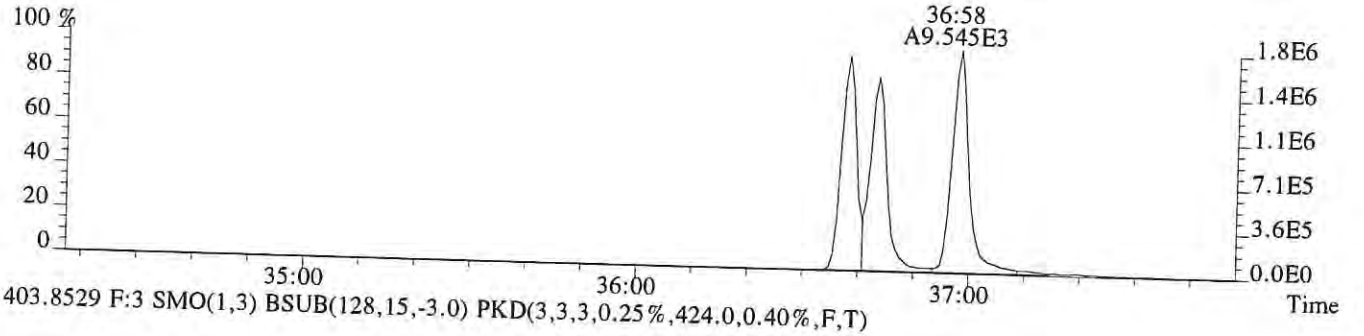
File:P519292 #1-317 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



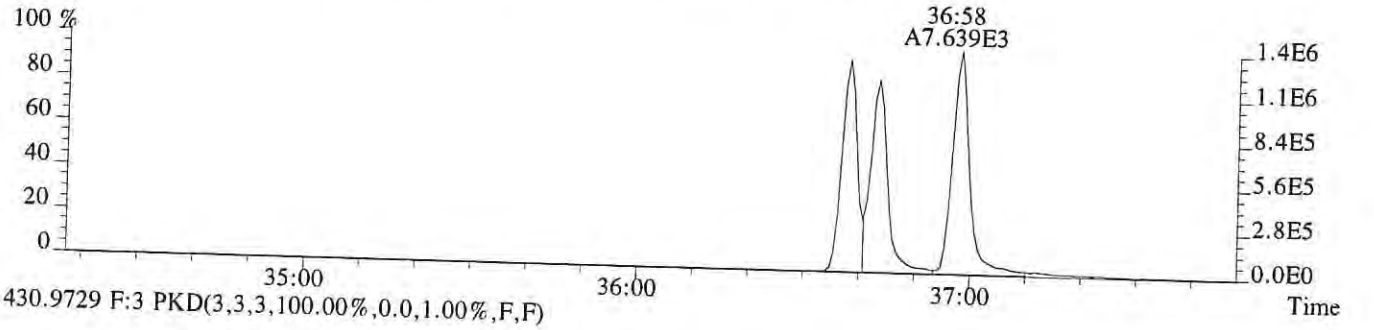
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



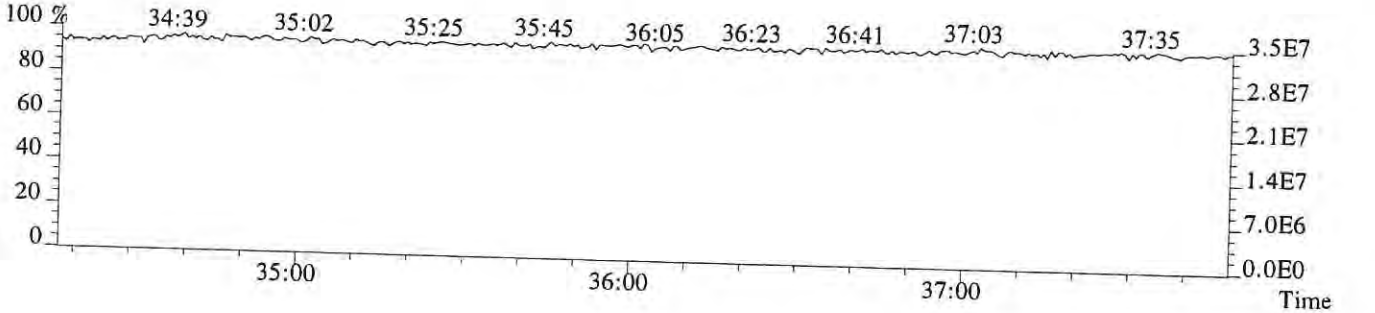
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



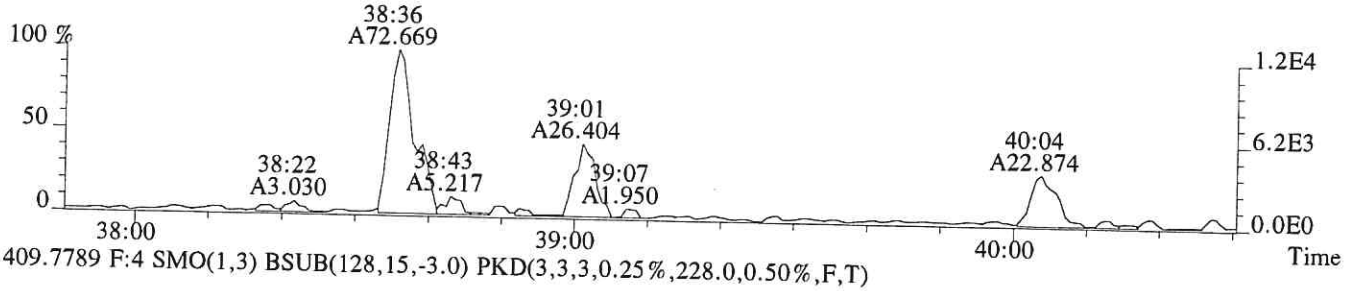
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



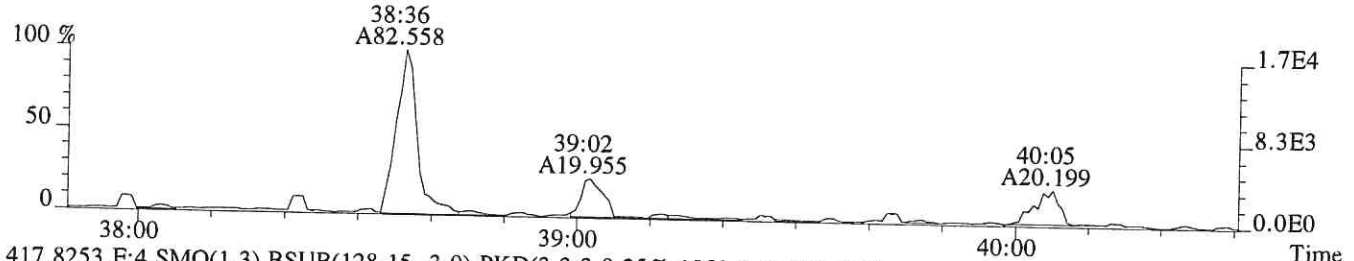
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



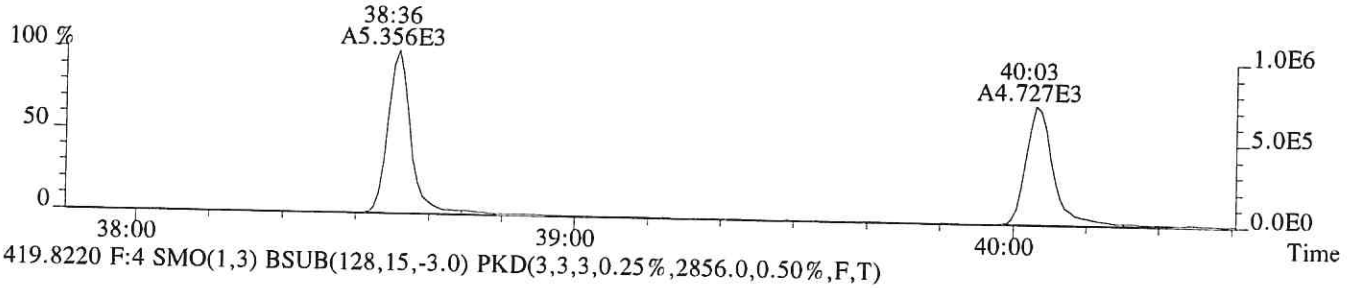
File:P519292 #1-241 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.50%,F,T)



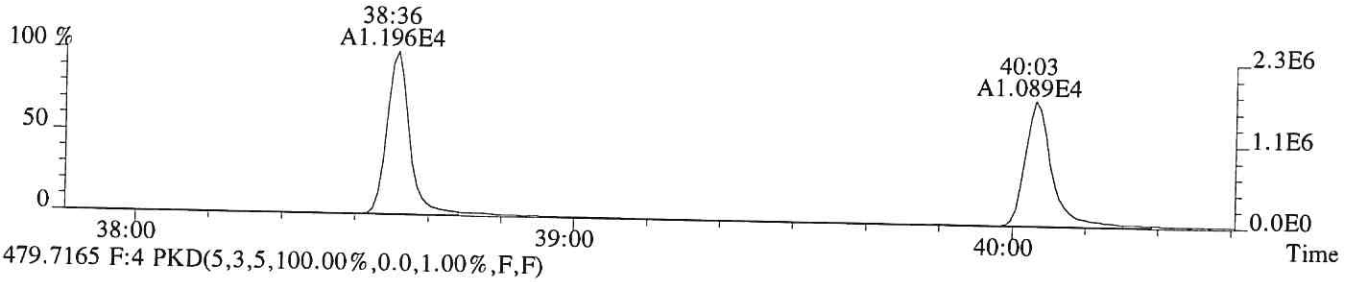
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)



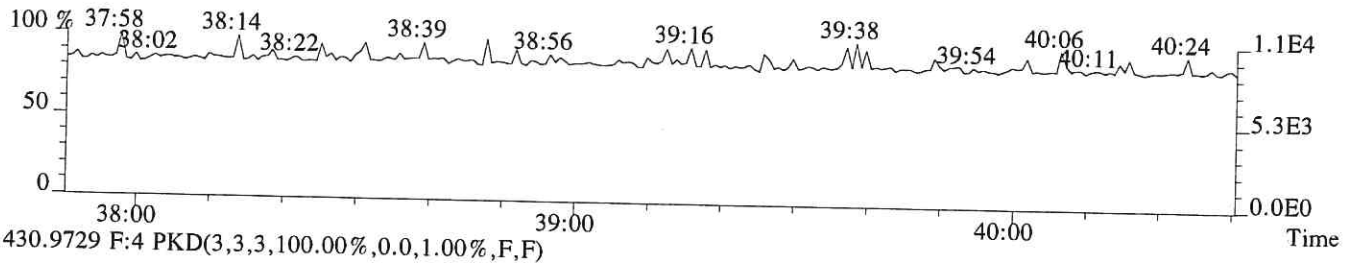
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.50%,F,T)



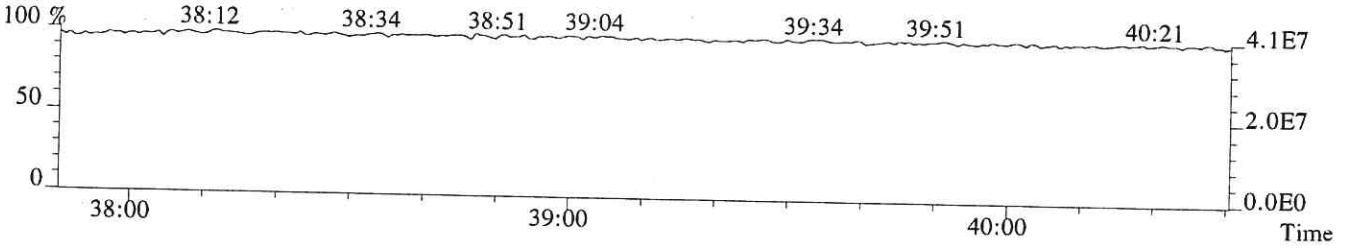
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2856.0,0.50%,F,T)



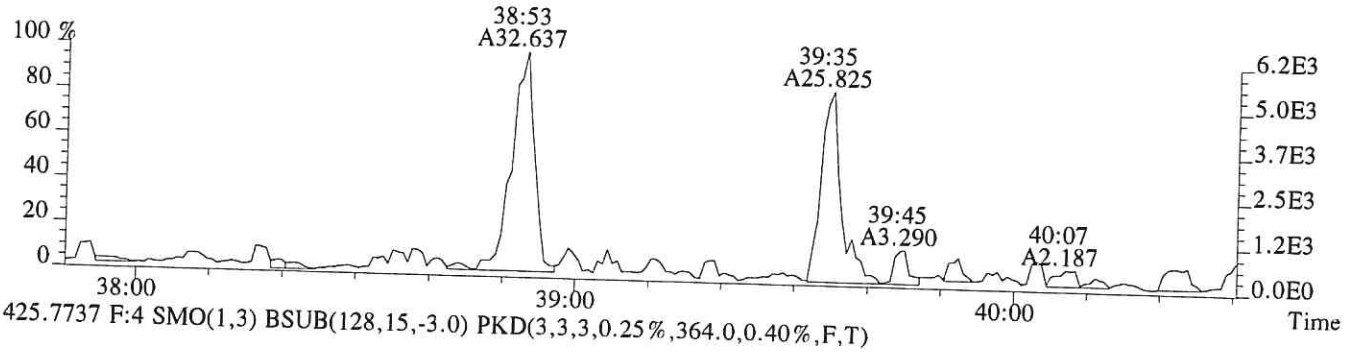
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



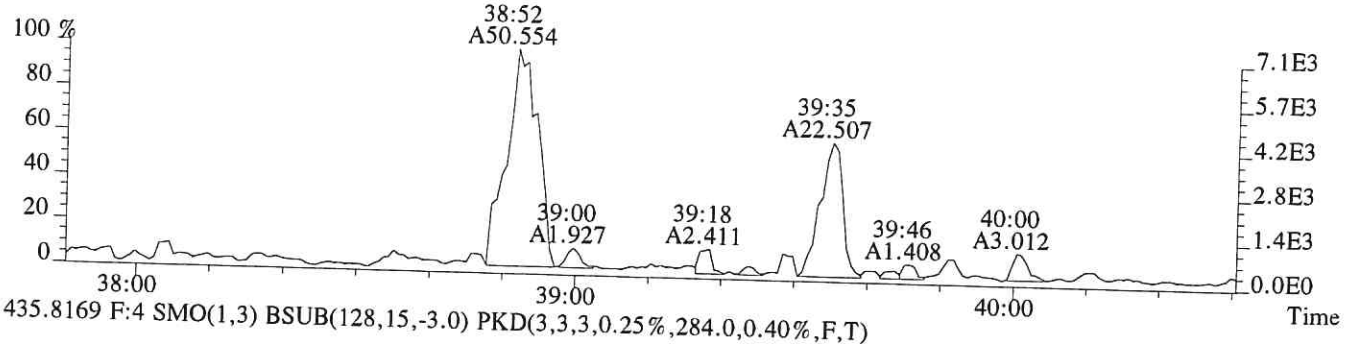
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



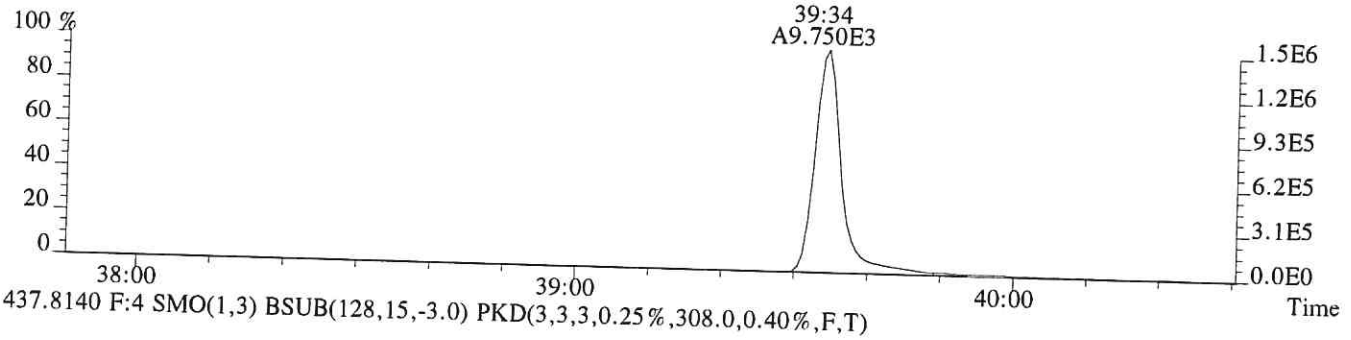
File:P519292 #1-241 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



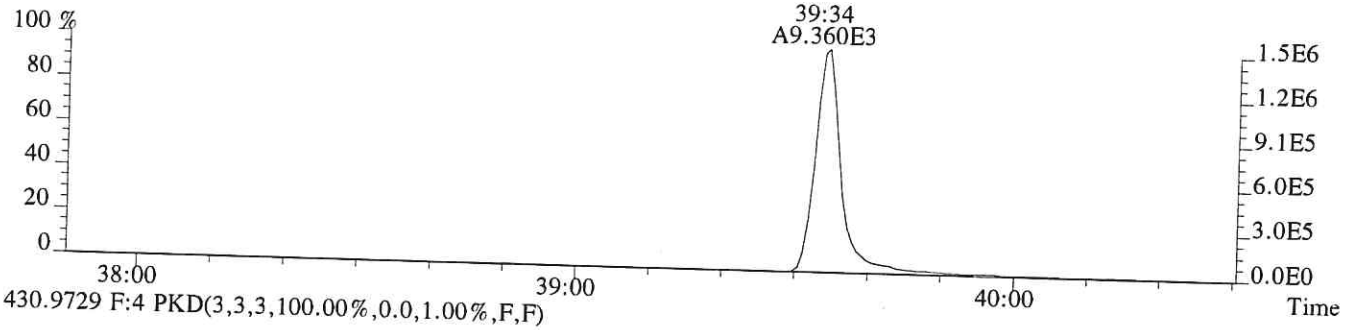
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



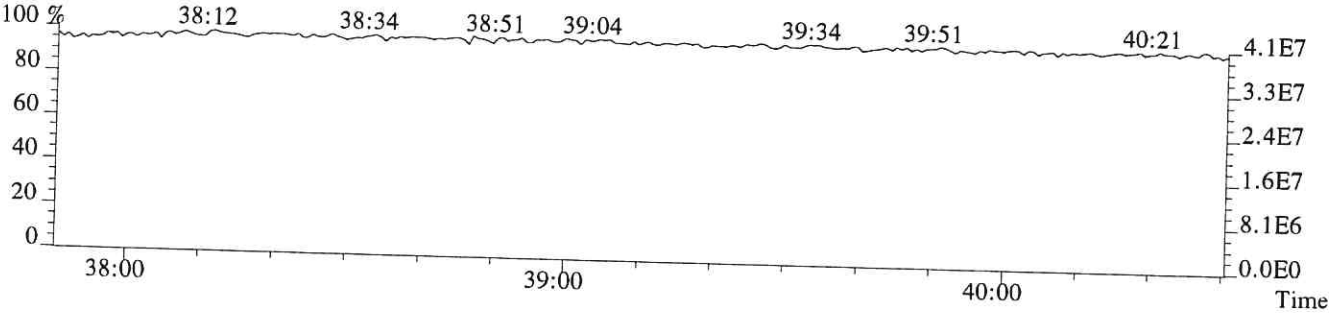
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



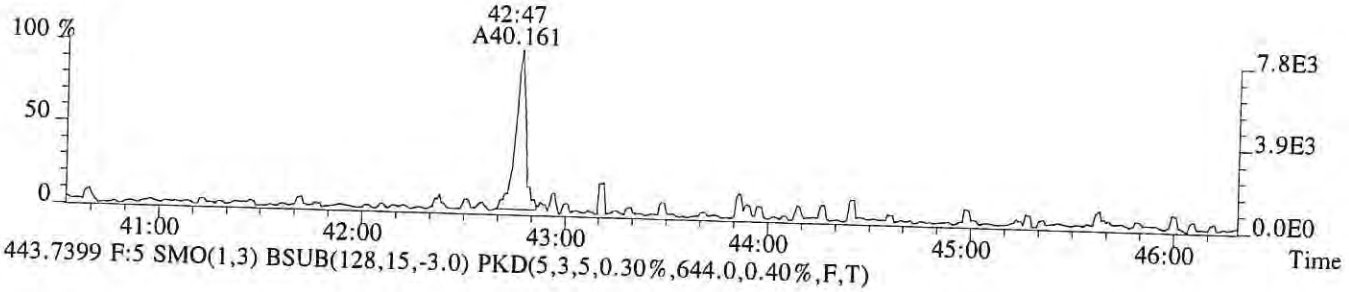
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



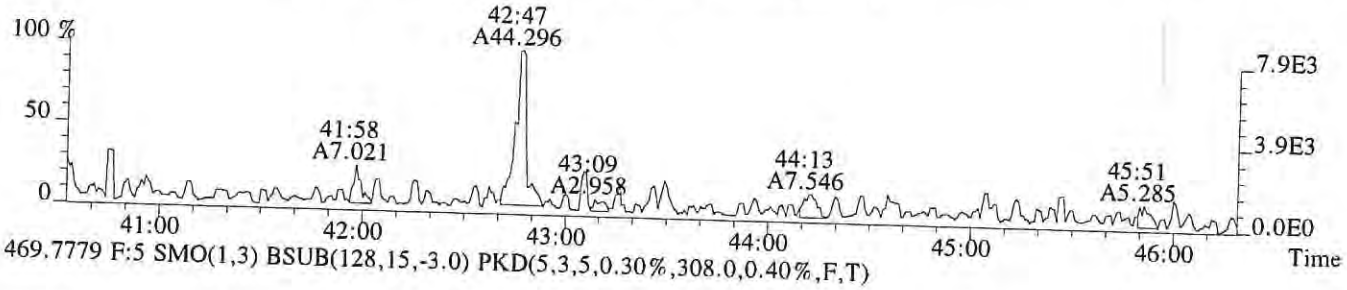
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



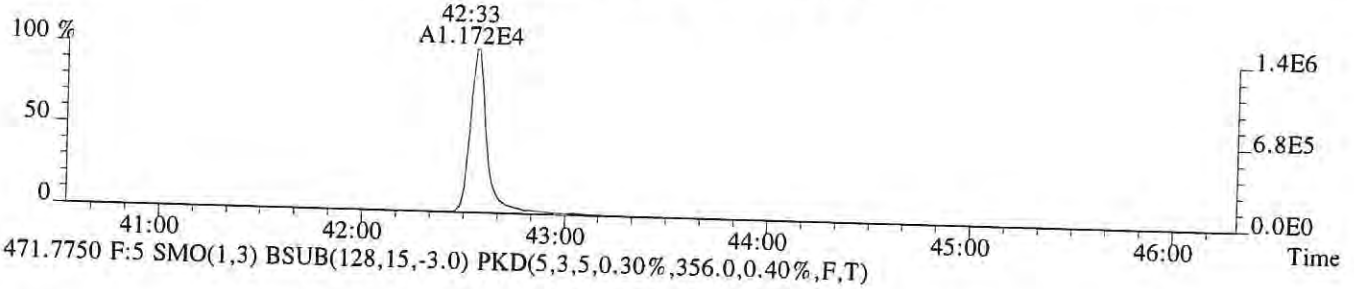
File:P519292 #1-520 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



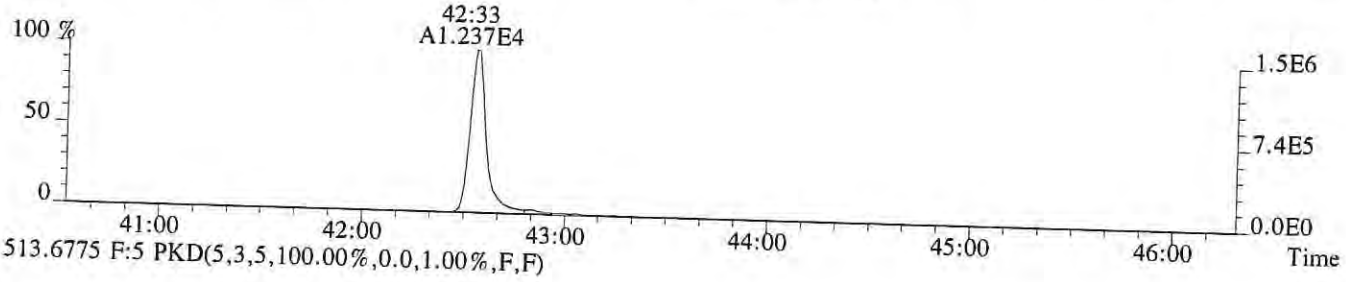
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



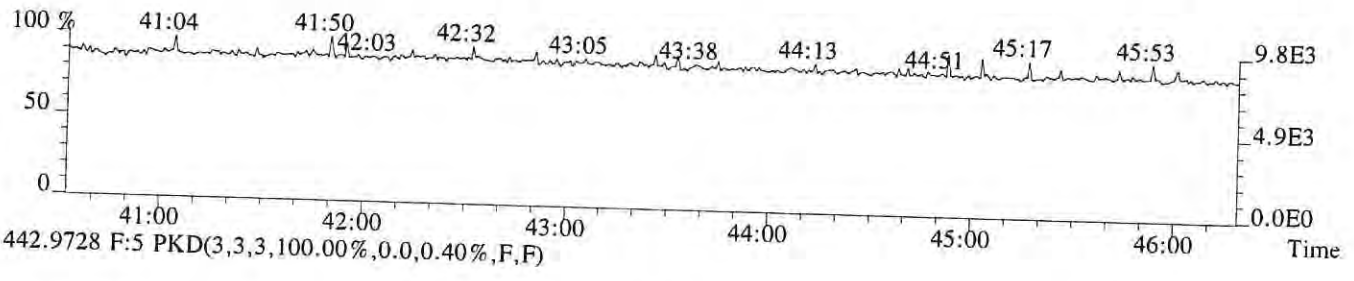
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



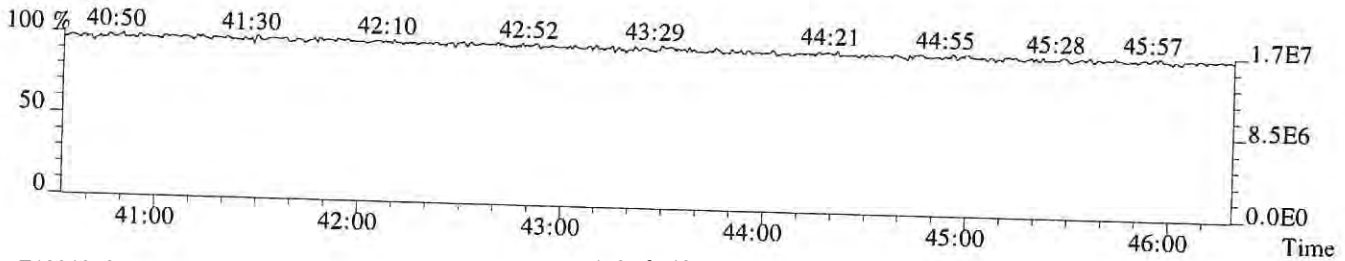
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



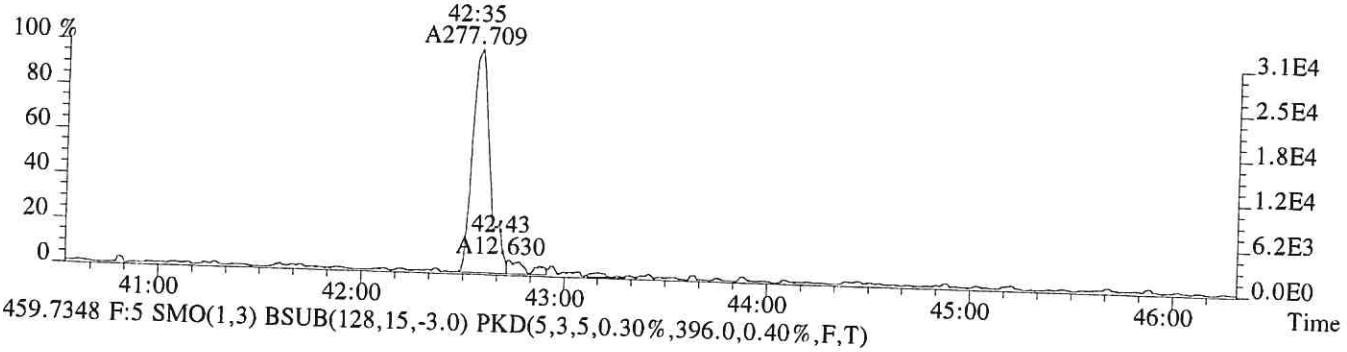
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



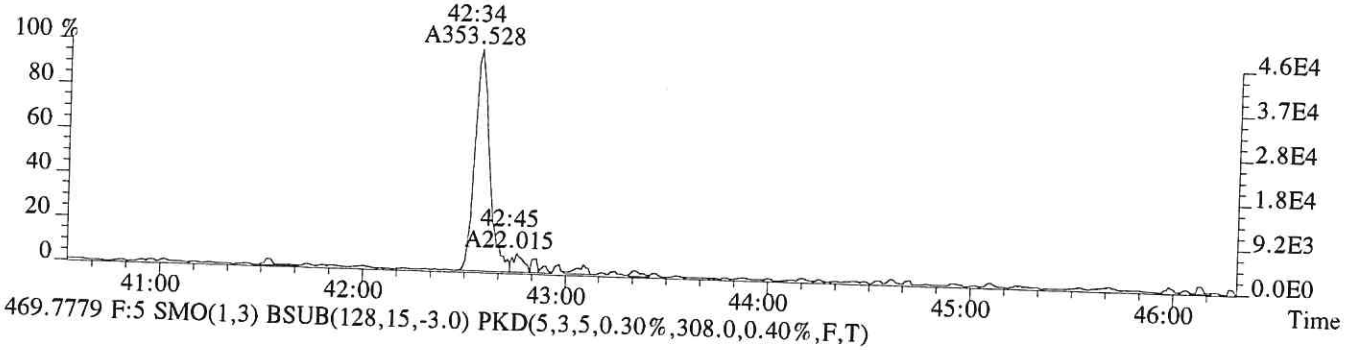
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



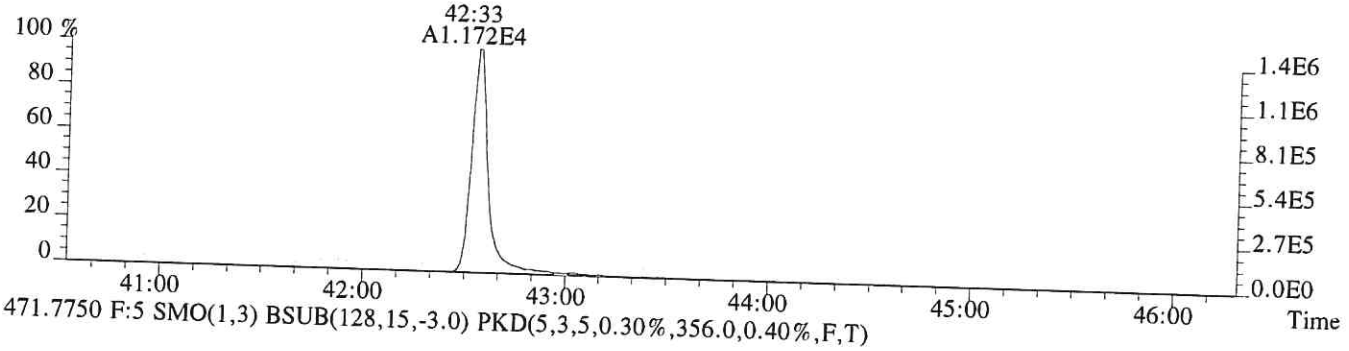
File:P519292 #1-520 Acq: 7-DEC-2018 23:10:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-002DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



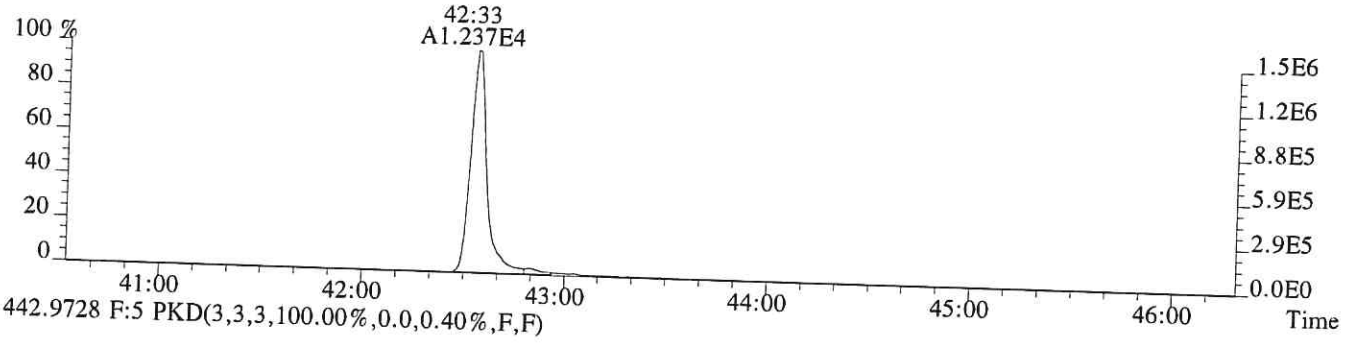
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,396.0,0.40%,F,T)



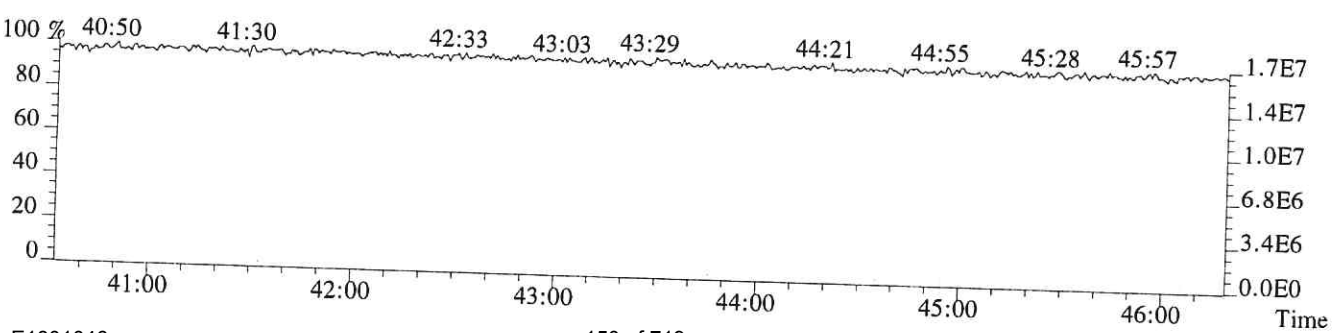
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0541

Run #16 Filename P519249 Samp: 1 Inj: 1 Acquired: 6-DEC-18 09:23:39
Processed: 7-DEC-18 09:55:18 Sample ID: E1801046-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	6.372e+05	8.247e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	3.479e+04	2.283e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.563e+04	1.703e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	6.820e+04	5.730e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.642e+04	1.431e+04	1.15	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.298e+03	2.016e+03	1.14	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	3.713e+03	3.222e+03	1.15	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	1.698e+04	1.668e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	5.473e+03	5.193e+03	1.05	yes	no	1.258
10	Unk	OCDF	42:26	4.332e+03	5.056e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	1.507e+05	1.906e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	2.260e+03	1.425e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	7.741e+01	4.666e+01	1.66	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	2.655e+02	1.894e+02	1.40	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.534e+02	1.620e+02	0.95	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	5.677e+03	5.325e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:15	7.066e+04	7.923e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	2.455e+04	3.037e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	3.686e+04	2.347e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	3.558e+04	2.274e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.503e+04	2.910e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.647e+04	3.189e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.439e+04	2.812e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.422e+04	2.752e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	9.283e+03	2.105e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	8.970e+03	2.003e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	1.077e+04	1.380e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	2.642e+04	1.654e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	2.174e+04	1.712e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	2.037e+04	1.583e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	1.903e+04	1.764e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:14	1.431e+04	1.572e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	2.421e+04	2.966e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.509e+04	2.728e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.752e+04				no	1.014

$$\text{OCDD} = \frac{(7.066e+04 + 7.923e+04) \times 4000 \text{ pg} \times 1}{(1.431e+04 + 1.572e+04) \times 10.976 \text{ g} \times 74.6 / 100 \times 1.118} = 2180.9 \text{ ng/kg}$$

LM 12/10/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0541

Run #16 Filename P519249 Samp: 1 Inj: 1 Acquired: 6-DEC-18 09:23:39
Processed: 7-DEC-18 09:55:18 LAB. ID: E1801046-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.11e+08	1.17e+03	9.4e+04	1.42e+08	3.20e+03	4.4e+04
2	1,2,3,7,8-PeCDF	6.74e+06	3.24e+03	2.1e+03	4.37e+06	7.34e+03	5.9e+02
3	2,3,4,7,8-PeCDF	4.23e+06	3.24e+03	1.3e+03	2.79e+06	7.34e+03	3.8e+02
4	1,2,3,4,7,8-HxCDF	1.47e+07	2.23e+03	6.6e+03	1.23e+07	3.97e+03	3.1e+03
5	1,2,3,6,7,8-HxCDF	3.32e+06	2.23e+03	1.5e+03	2.95e+06	3.97e+03	7.4e+02
6	2,3,4,6,7,8-HxCDF	5.07e+05	2.23e+03	2.3e+02	4.35e+05	3.97e+03	1.1e+02
7	1,2,3,7,8,9-HxCDF	7.37e+05	2.23e+03	3.3e+02	6.30e+05	3.97e+03	1.6e+02
8	1,2,3,4,6,7,8-HpCDF	3.65e+06	5.16e+03	7.1e+02	3.60e+06	3.99e+03	9.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.06e+06	5.16e+03	2.0e+02	1.02e+06	3.99e+03	2.5e+02
10	OCDF	7.17e+05	3.92e+02	1.8e+03	8.40e+05	1.14e+03	7.4e+02
11	2,3,7,8-TCDD	2.91e+07	3.75e+03	7.8e+03	3.72e+07	1.26e+03	3.0e+04
12	1,2,3,7,8-PeCDD	3.91e+05	1.04e+03	3.8e+02	2.67e+05	2.36e+02	1.1e+03
13	1,2,3,4,7,8-HxCDD	1.68e+04	1.30e+03	1.3e+01	1.06e+04	1.88e+03	5.6e+00
14	1,2,3,6,7,8-HxCDD	5.28e+04	1.30e+03	4.1e+01	3.95e+04	1.88e+03	2.1e+01
15	1,2,3,7,8,9-HxCDD	3.16e+04	1.30e+03	2.4e+01	3.02e+04	1.88e+03	1.6e+01
16	1,2,3,4,6,7,8-HpCDD	1.14e+06	5.36e+02	2.1e+03	1.11e+06	2.07e+03	5.4e+02
17	OCDD	1.13e+07	2.44e+02	4.6e+04	1.27e+07	1.00e+03	1.3e+04
18	13C-2,3,7,8-TCDF	4.59e+06	1.09e+04	4.2e+02	5.63e+06	8.56e+03	6.6e+02
19	13C-1,2,3,7,8-PeCDF	7.20e+06	2.31e+03	3.1e+03	4.58e+06	1.16e+03	4.0e+03
20	13C-2,3,4,7,8-PeCDF	7.11e+06	2.31e+03	3.1e+03	4.57e+06	1.16e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	3.24e+06	1.67e+03	1.9e+03	6.38e+06	1.15e+03	5.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.42e+06	1.67e+03	2.1e+03	6.69e+06	1.15e+03	5.8e+03
23	13C-2,3,4,6,7,8-HxCDF	3.02e+06	1.67e+03	1.8e+03	5.86e+06	1.15e+03	5.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.94e+06	1.67e+03	1.8e+03	5.69e+06	1.15e+03	4.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.97e+06	3.02e+03	6.5e+02	4.46e+06	5.76e+03	7.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.70e+06	3.02e+03	5.6e+02	3.84e+06	5.76e+03	6.7e+02
27	13C-2,3,7,8-TCDD	2.11e+06	5.56e+03	3.8e+02	2.74e+06	3.63e+03	7.6e+02
28	13C-1,2,3,7,8-PeCDD	5.32e+06	1.31e+03	4.1e+03	3.30e+06	1.50e+03	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	4.90e+06	1.42e+03	3.5e+03	3.85e+06	9.12e+02	4.2e+03
30	13C-1,2,3,6,7,8-HxCDD	4.29e+06	1.42e+03	3.0e+03	3.28e+06	9.12e+02	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.86e+06	6.72e+02	5.8e+03	3.61e+06	6.84e+02	5.3e+03
32	13C-OCDD	2.32e+06	6.16e+02	3.8e+03	2.53e+06	3.12e+02	8.1e+03
33	13C-1,2,3,4-TCDD	4.64e+06	5.56e+03	8.3e+02	5.65e+06	3.63e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	7.10e+06	1.42e+03	5.0e+03	5.61e+06	9.12e+02	6.2e+03
35	37Cl-2,3,7,8-TCDD	3.45e+06	1.72e+03	2.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0541

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519249 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 303.9020 305.8990 Tot Response: 2.56e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:00	4.78e+03	6.58e+03	0.73	yes	1.14e+04		n	n
2	25:20	2.72e+04	3.56e+04	0.76	yes	6.29e+04		n	n
3	25:44	7.57e+03	9.84e+03	0.77	yes	1.74e+04		n	n
4	26:02	2.41e+04	3.12e+04	0.77	yes	5.53e+04		n	n
5	26:25	4.54e+03	5.24e+03	0.87	yes	9.78e+03		n	n
6	26:38	1.59e+04	2.07e+04	0.77	yes	3.66e+04		n	n
7	26:46	2.87e+04	3.68e+04	0.78	yes	6.55e+04		n	n
8	27:12	2.56e+05	3.33e+05	0.77	yes	5.89e+05		n	n
9	27:27	1.20e+04	1.57e+04	0.77	yes	2.78e+04		n	n
10	28:01	6.37e+05	8.25e+05	0.77	yes	1.46e+06	2,3,7,8-TCDF	n	n
11	28:21	4.38e+04	5.67e+04	0.77	yes	1.00e+05		n	n
12	28:35	7.14e+03	8.76e+03	0.82	yes	1.59e+04		n	n
13	29:52	5.06e+04	5.96e+04	0.85	yes	1.10e+05		n	n

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Peak List Summary

CLIENT ID.
SL0541

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P519249 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 319.8970 321.8940 Tot Response: 3.76e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:42	3.08e+02	3.93e+02	0.79	yes	7.01e+02		n	n
2	28:32	1.91e+03	2.39e+03	0.80	yes	4.30e+03		n	n
3	28:48	1.51e+05	1.91e+05	0.79	yes	3.41e+05	2,3,7,8-TCDD	n	n
4	29:06	1.33e+04	1.66e+04	0.80	yes	2.99e+04		n	n

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Peak List Summary

CLIENT ID.
SL0541

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P519249 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 339.8600 341.8570 Tot Response: 1.02e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:51	6.16e+02	4.07e+02 1.51	yes	1.02e+03		n	n

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Peak List Summary

CLIENT ID.
SL0541

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P519249 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 339.8600 341.8570 Tot Response: 1.50e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:20	1.50e+04	9.82e+03	1.53	yes	2.48e+04		n	n
2	31:58	6.33e+02	3.95e+02	1.60	yes	1.03e+03		n	n
3	32:06	3.02e+03	2.01e+03	1.51	yes	5.03e+03		n	n
4	32:16	3.48e+04	2.28e+04	1.52	yes	5.76e+04	1,2,3,7,8-PeCDF	n	n
5	32:32	1.02e+04	6.57e+03	1.55	yes	1.67e+04		n	n
6	33:11	2.56e+04	1.70e+04	1.50	yes	4.27e+04	2,3,4,7,8-PeCDF	n	n
7	34:06	1.16e+03	7.82e+02	1.48	yes	1.94e+03		n	n

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Peak List Summary

CLIENT ID.
SL0541

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519249 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 355.8550 357.8520 Tot Response: 4.81e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:22	1.88e+02	1.42e+02	1.32	yes	3.30e+02		n	y
2	31:50	9.18e+01	6.56e+01	1.40	yes	1.57e+02		n	n
3	32:17	2.20e+02	1.47e+02	1.50	yes	3.68e+02		n	n
4	32:26	1.68e+02	1.02e+02	1.64	yes	2.70e+02		n	n
5	33:28	2.26e+03	1.43e+03	1.59	yes	3.68e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0541

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519249 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 373.8210 375.8180 Tot Response: 1.79e+05 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:56	4.14e+03	3.47e+03 1.20	yes	7.61e+03		n	n
2	35:27	1.96e+03	1.71e+03 1.14	yes	3.67e+03		n	n
3	35:53	6.82e+04	5.73e+04 1.19	yes	1.26e+05	1,2,3,4,7,8-HxCDF	n	n
4	35:59	1.64e+04	1.43e+04 1.15	yes	3.07e+04	1,2,3,6,7,8-HxCDF	n	n
5	36:30	2.30e+03	2.02e+03 1.14	yes	4.31e+03	2,3,4,6,7,8-HxCDF	n	n
6	37:17	3.71e+03	3.22e+03 1.15	yes	6.94e+03	1,2,3,7,8,9-HxCDF	n	n

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CLIENT ID.
SL0541

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519249 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 389.8160 391.8130 Tot Response: 4.94e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	1.45e+03	1.24e+03	1.16	yes	2.69e+03	n	n
2	36:03	9.62e+02	7.53e+02	1.28	yes	1.71e+03	n	n
3	36:43	2.65e+02	1.89e+02	1.40	yes	4.55e+02 1,2,3,6,7,8-HxCDD	n	n
4	36:53	4.57e+01	3.54e+01	1.29	yes	8.12e+01	n	n

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Peak List Summary

CLIENT ID.
SL0541

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519249 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 407.7820 409.7790 Tot Response: 5.28e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:31	1.70e+04	1.67e+04	1.02	yes	3.37e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:55	4.34e+03	4.18e+03	1.04	yes	8.52e+03		n	n
3	39:55	5.47e+03	5.19e+03	1.05	yes	1.07e+04	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SL0541

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519249 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 09:23:39 Processed: 7-DEC-18 09:55:18

Mass: 423.7770 425.7740 Tot Response: 2.81e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	8.59e+03	8.51e+03	1.01	yes	1.71e+04		n	n
2	39:26	5.68e+03	5.32e+03	1.07	yes	1.10e+04	1,2,3,4,6,7,8-HpCDD	n	n

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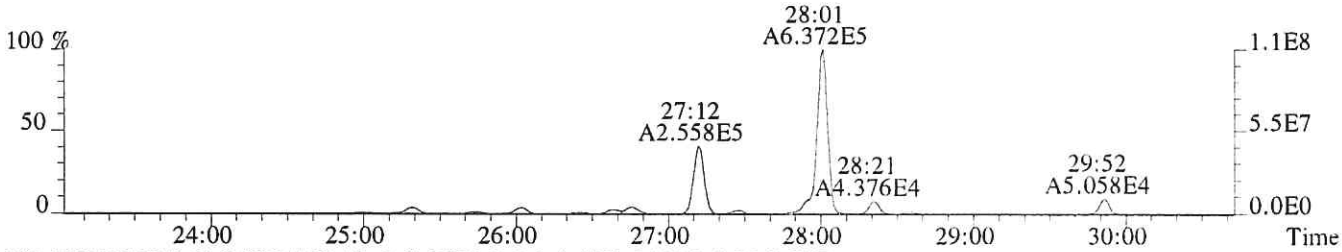
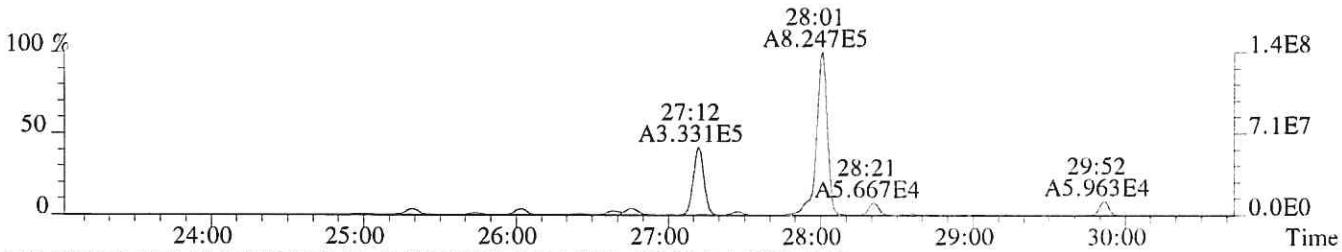
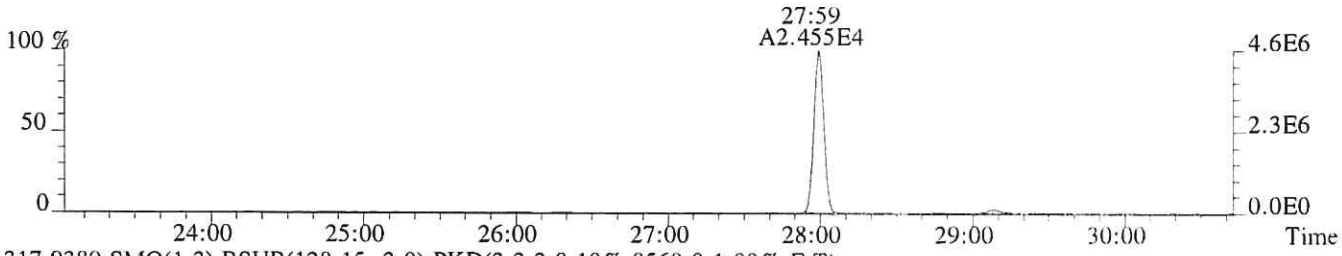
File:P519249 #1-545 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



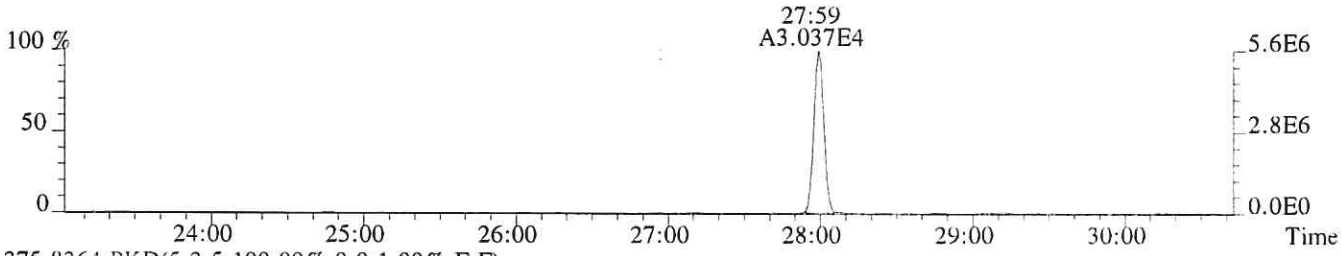
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



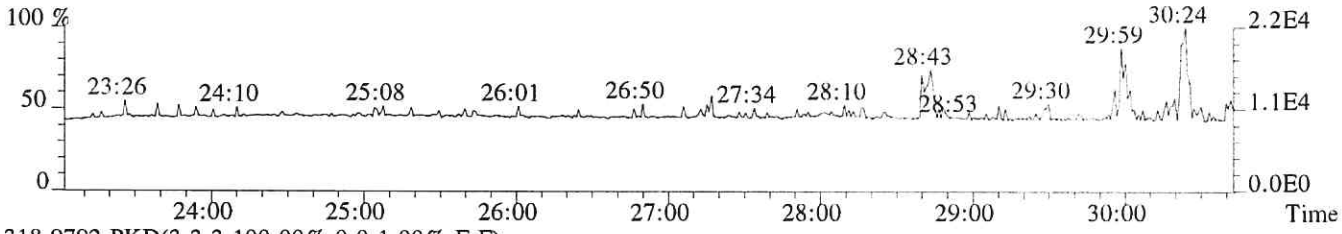
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10900.0,1.00%,F,T)



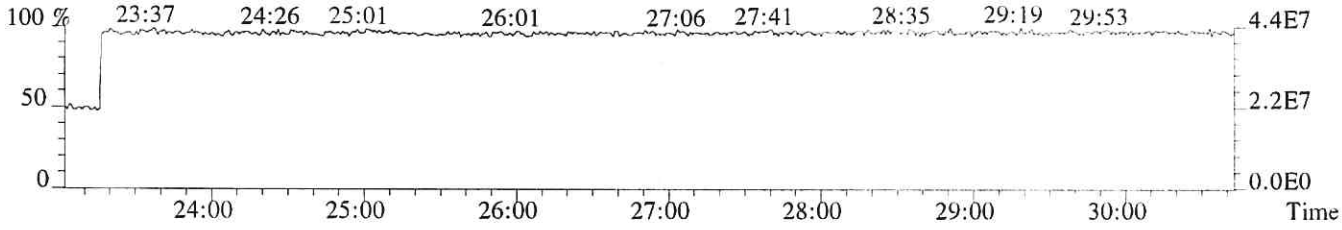
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8560.0,1.00%,F,T)



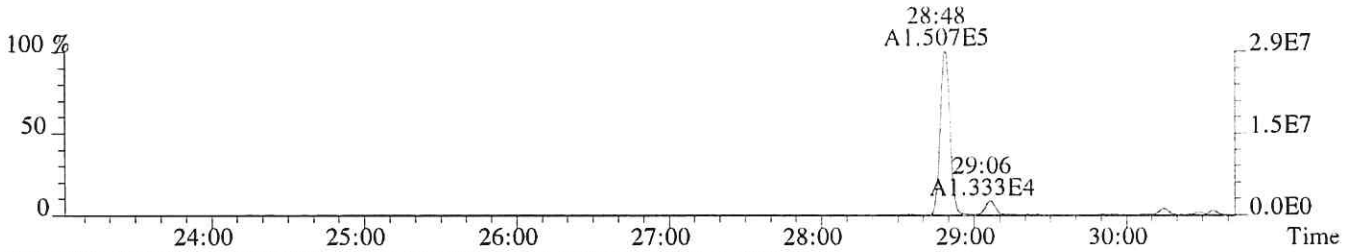
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



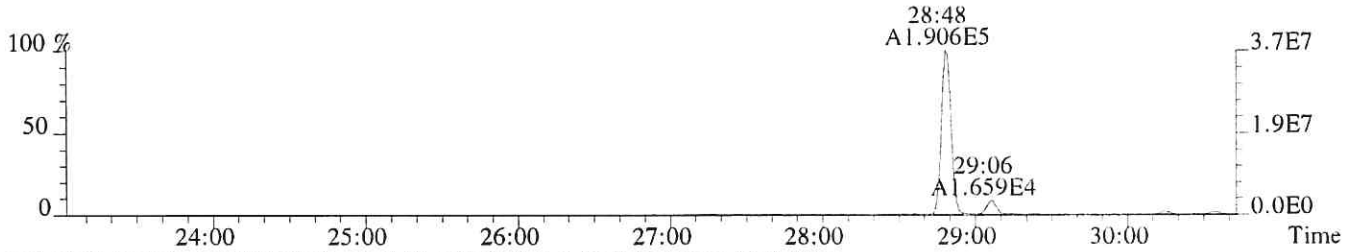
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



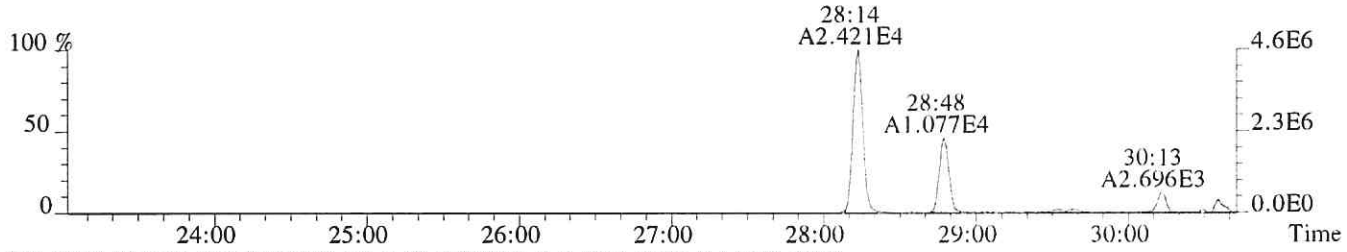
File:P519249 #1-545 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3752.0,1.00%,F,T)



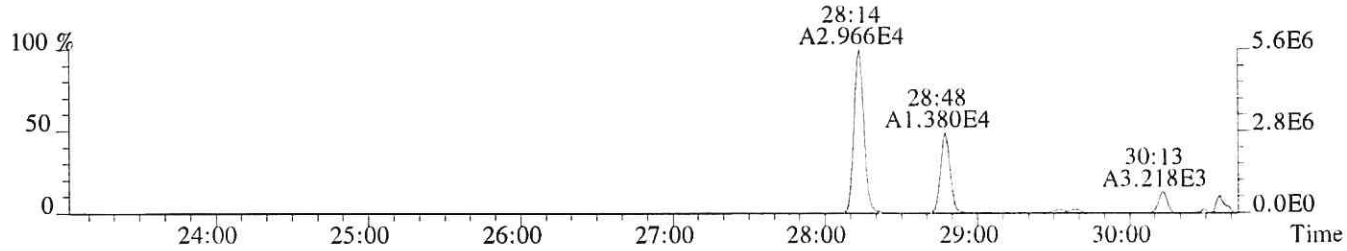
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



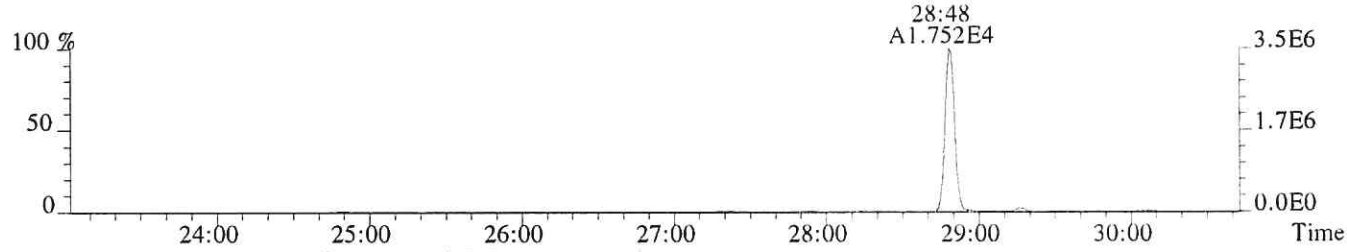
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5560.0,1.00%,F,T)



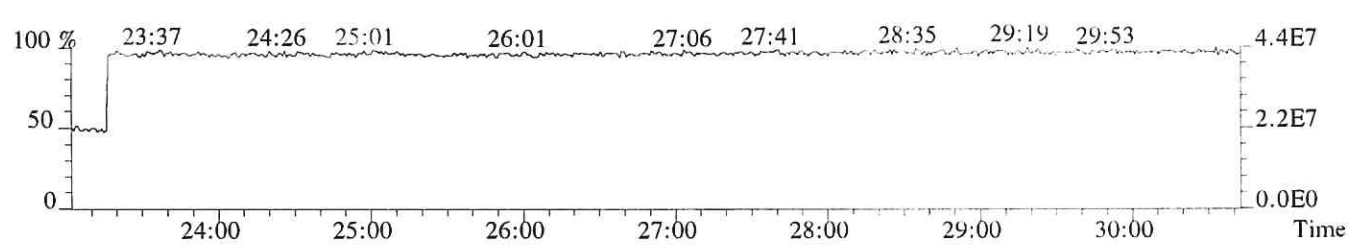
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3632.0,1.00%,F,T)



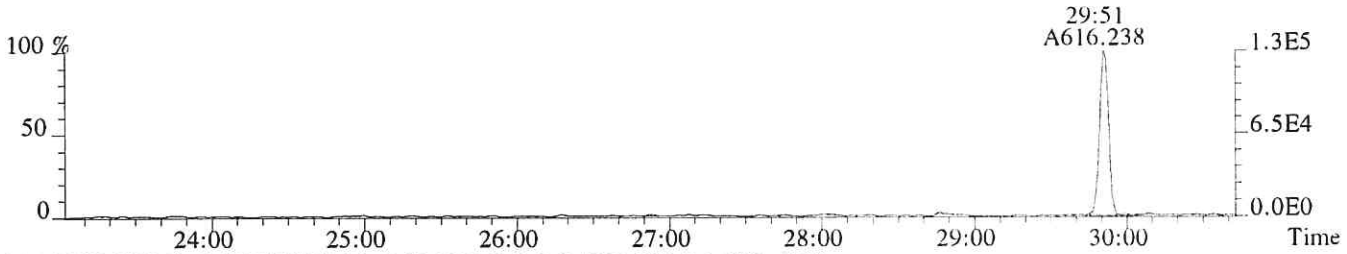
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



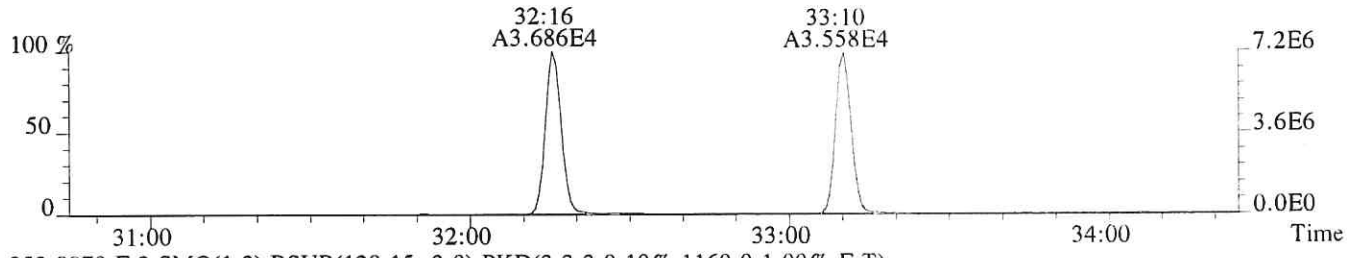
File:P519249 #1-545 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



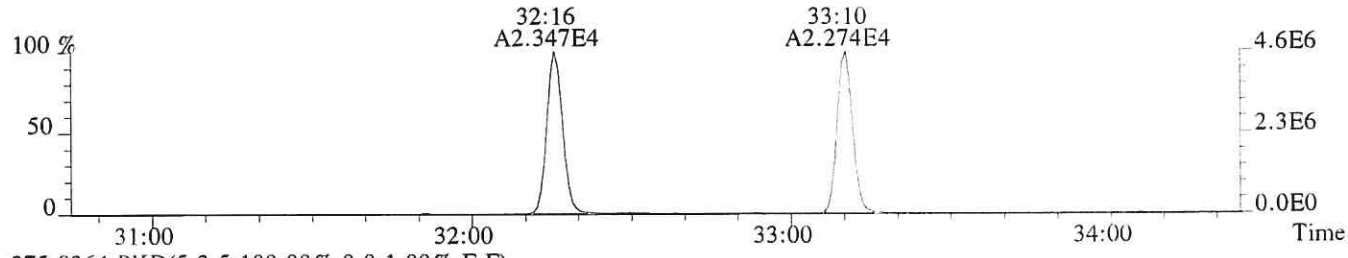
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



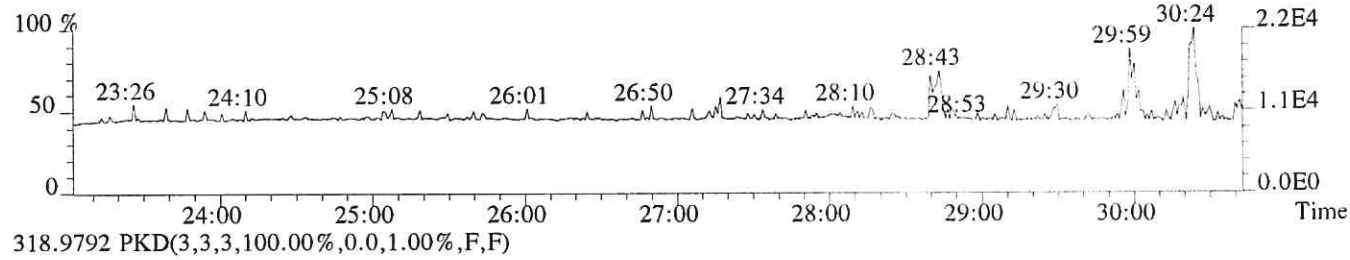
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2312.0,1.00%,F,T)



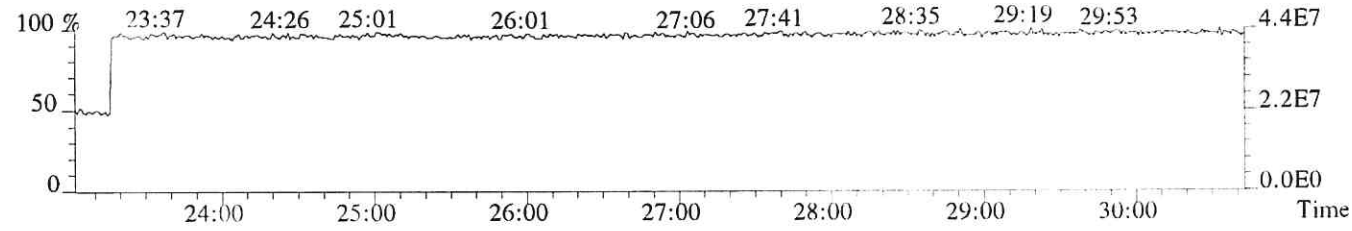
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



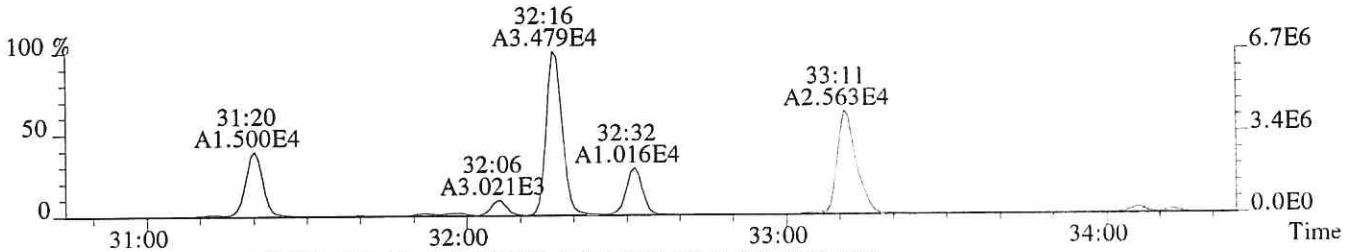
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



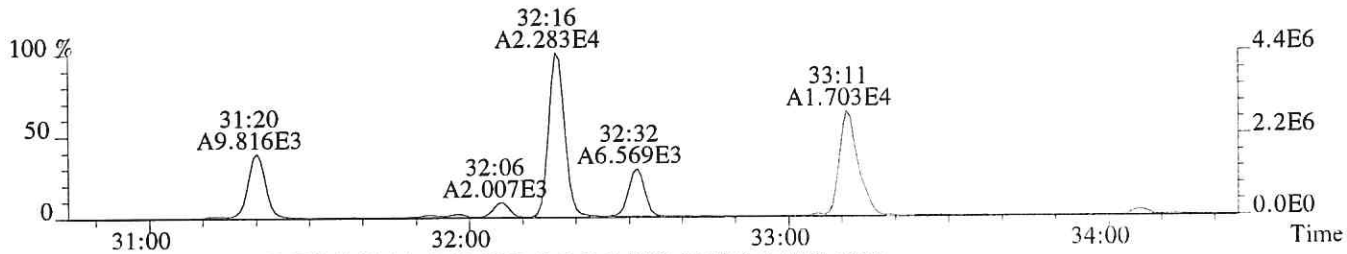
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



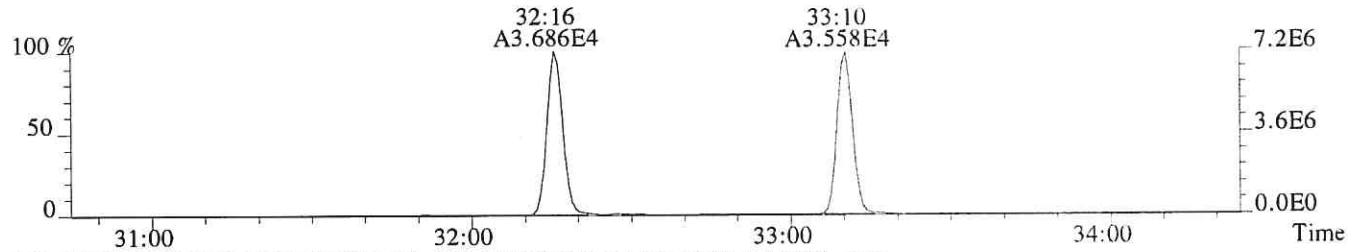
File:P519249 #1-330 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



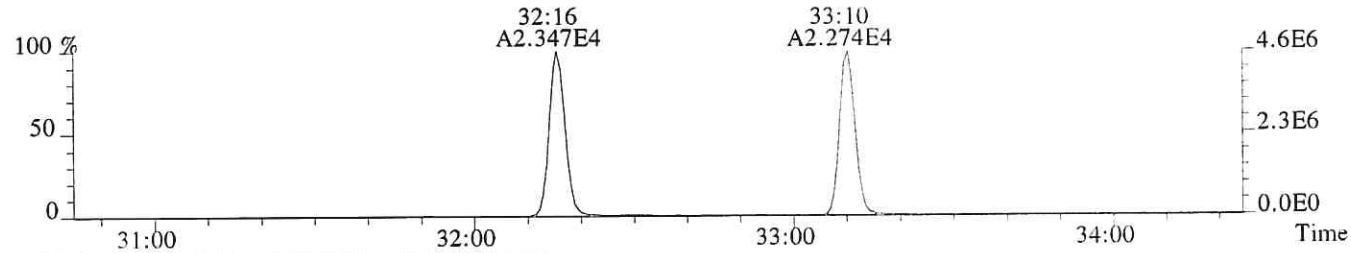
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7344.0,1.00%,F,T)



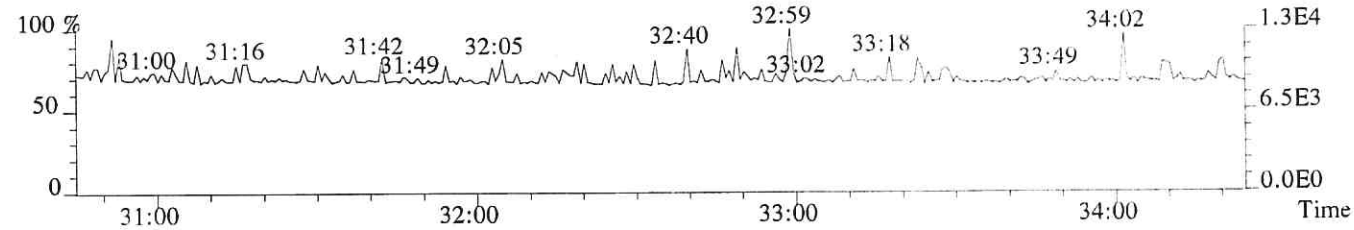
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2312.0,1.00%,F,T)



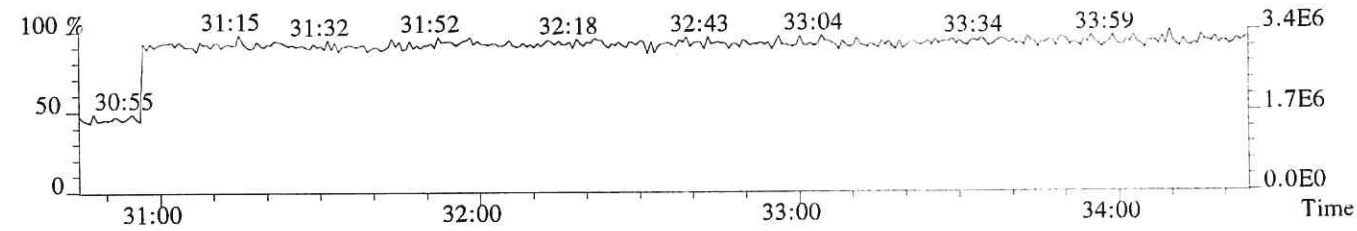
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



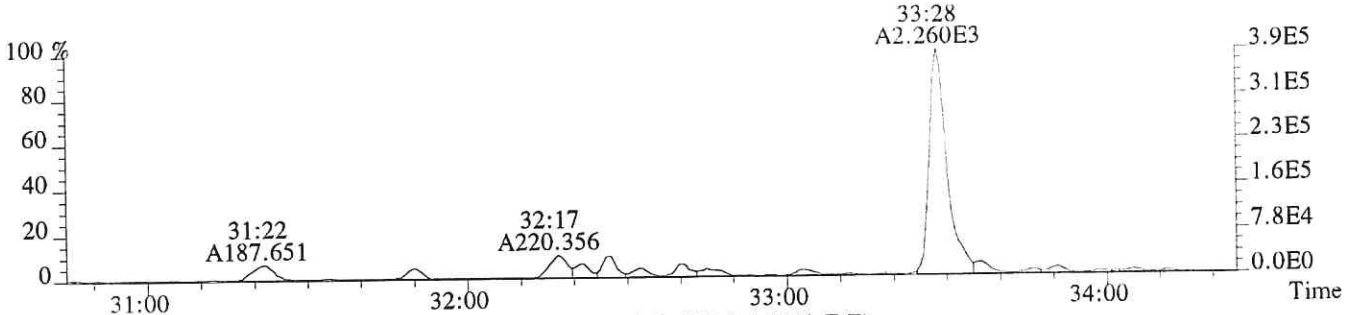
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



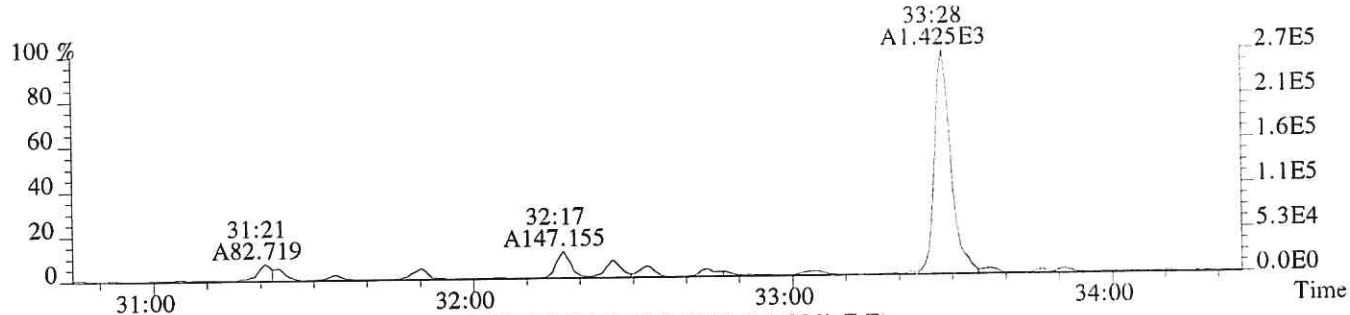
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



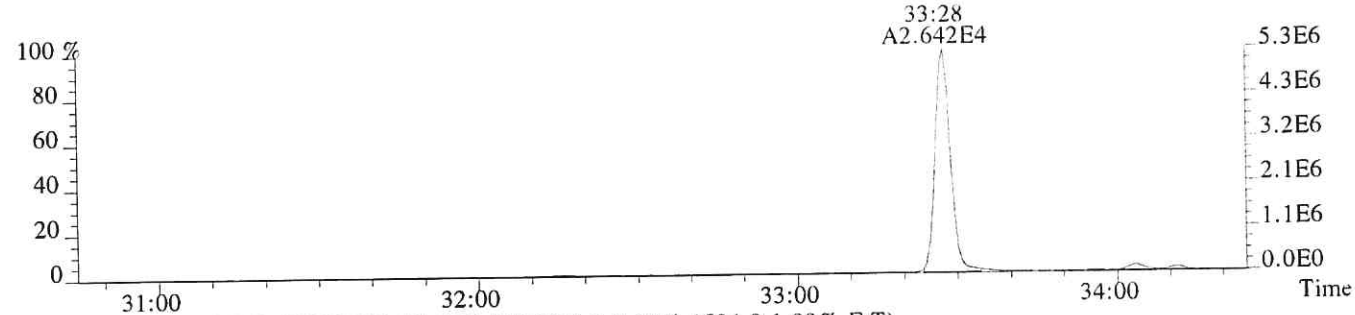
File:P519249 #1-330 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



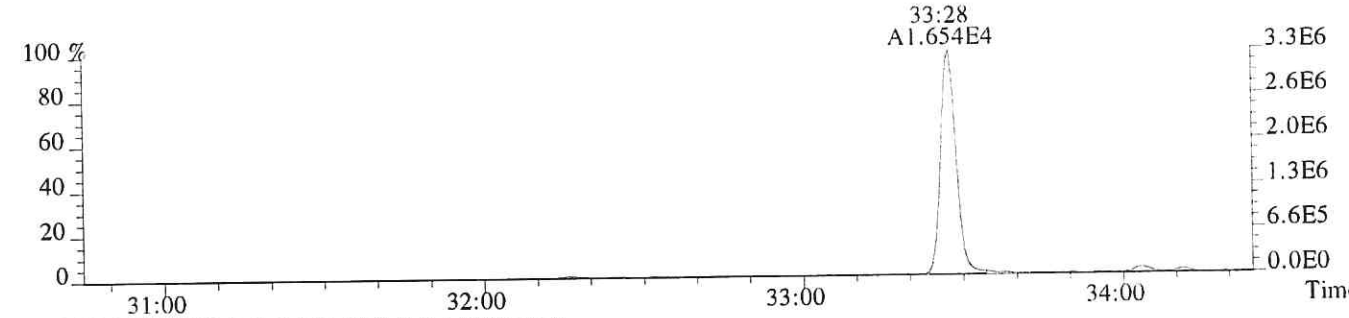
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



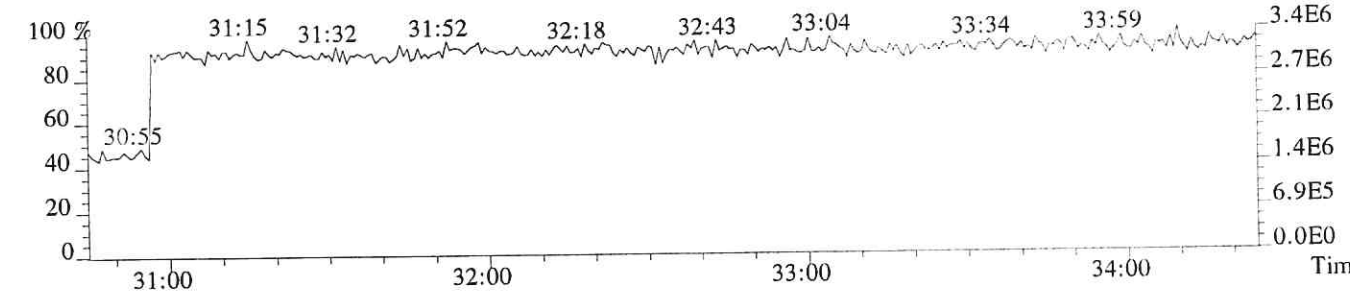
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



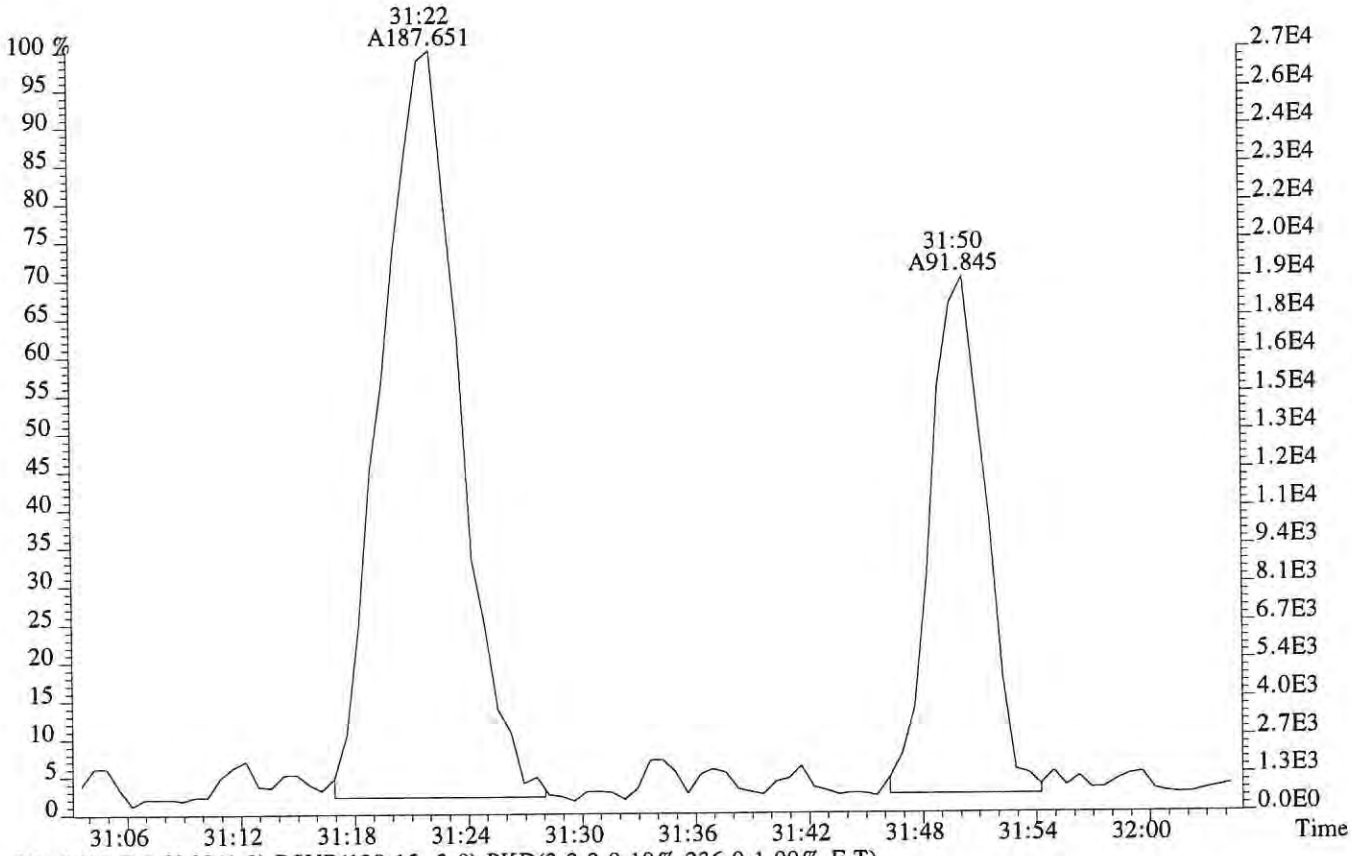
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



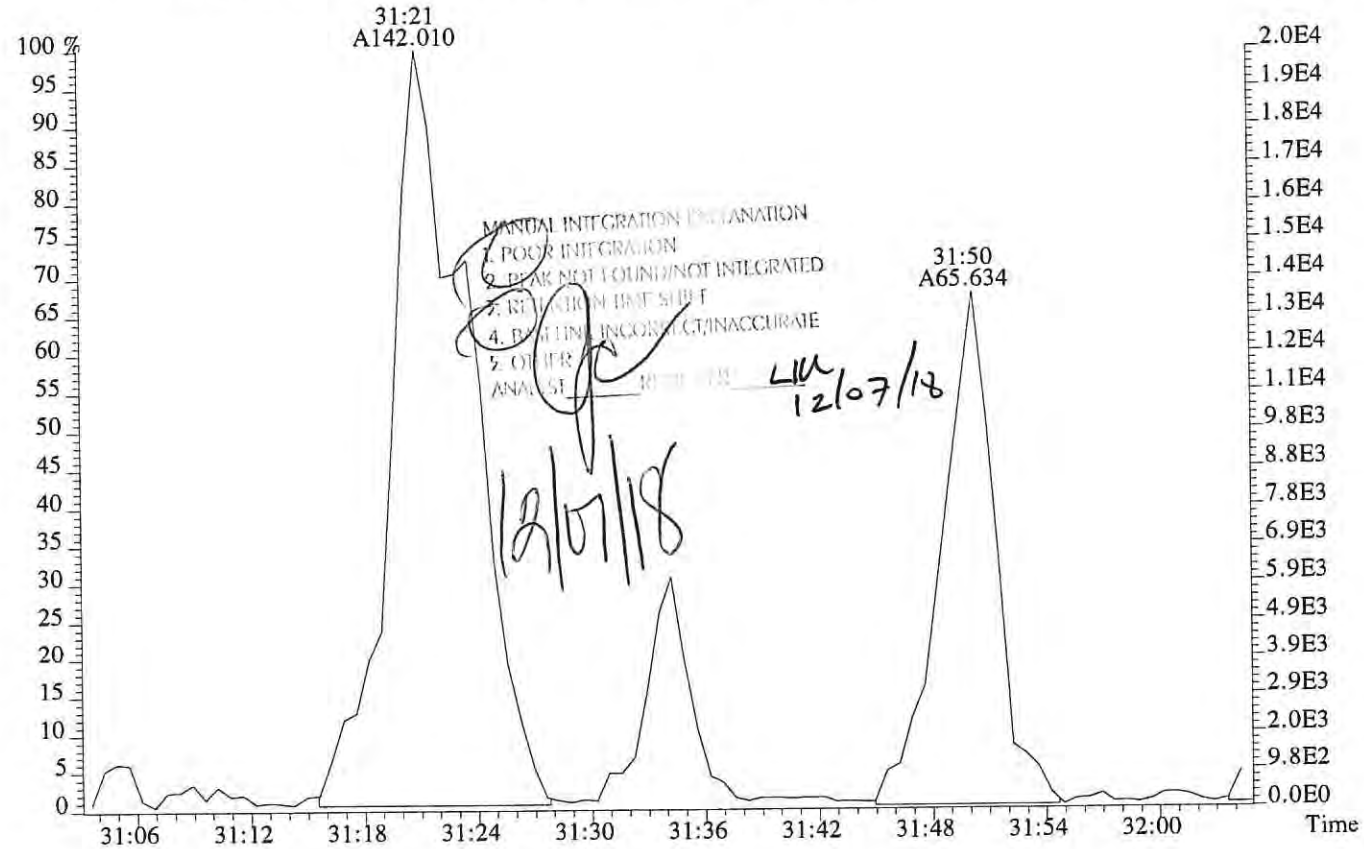
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



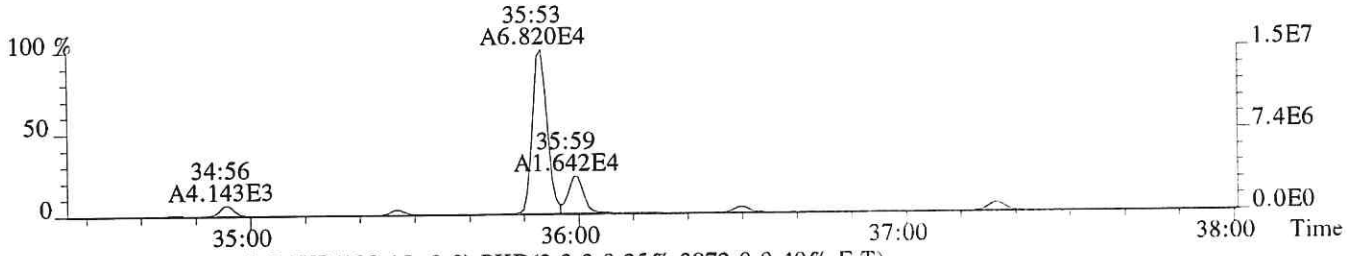
File:P519249 #1-330 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



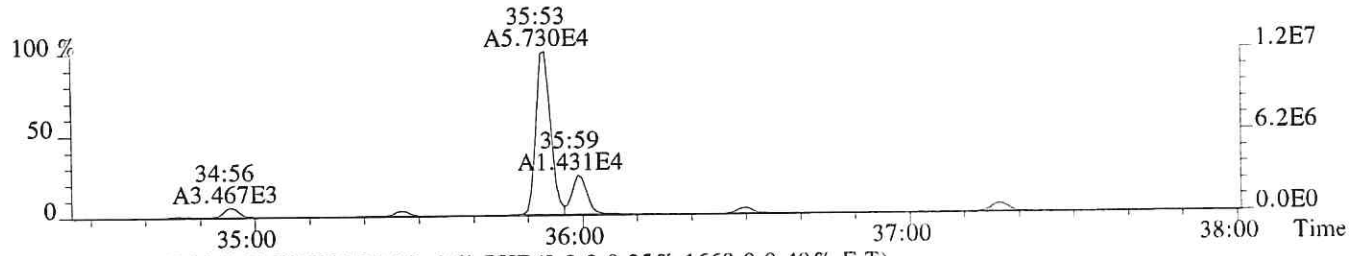
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



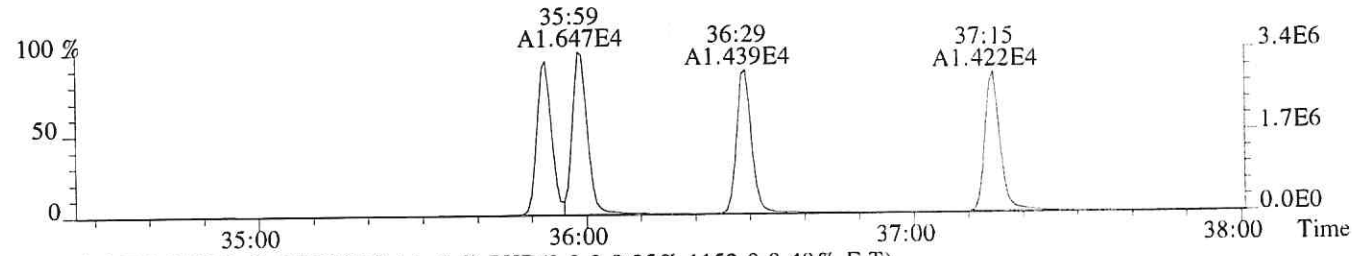
File:P519249 #1-322 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.40%,F,T)



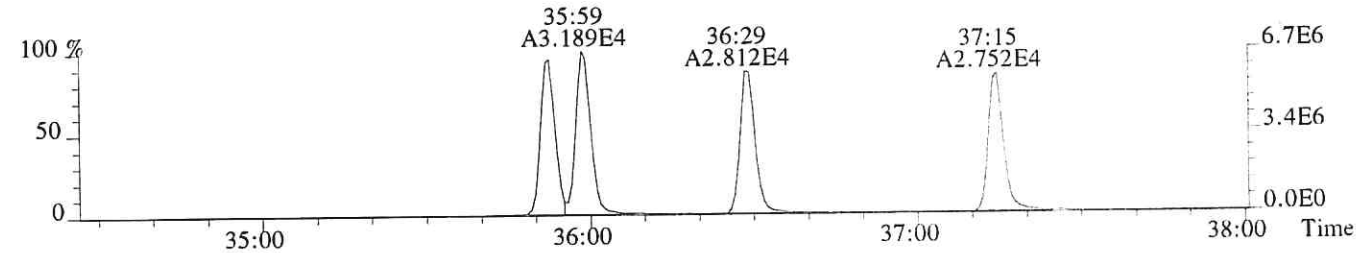
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3972.0,0.40%,F,T)



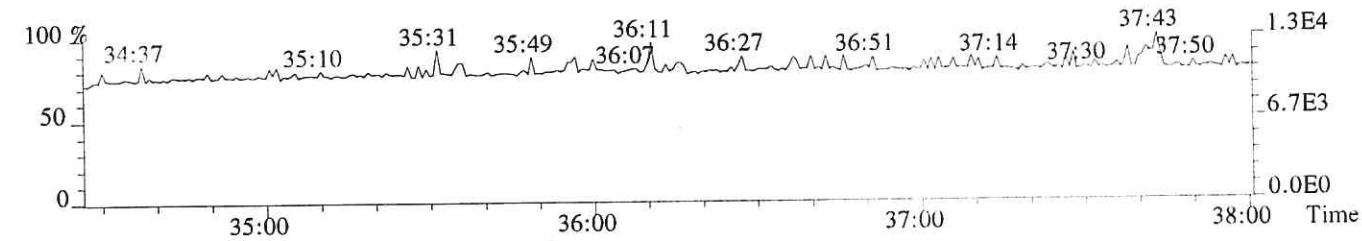
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1668.0,0.40%,F,T)



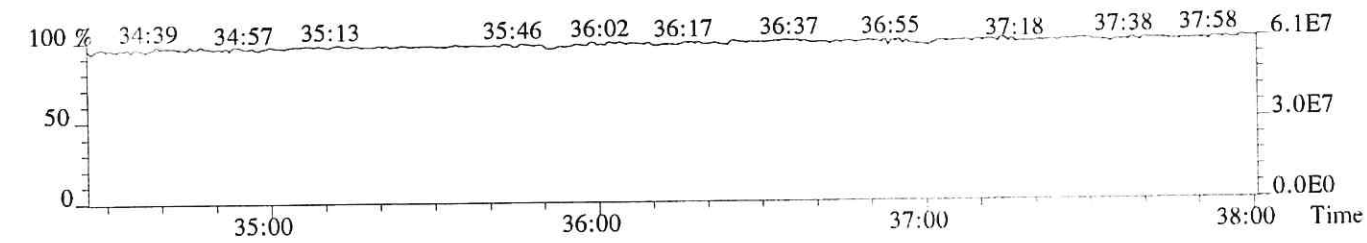
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



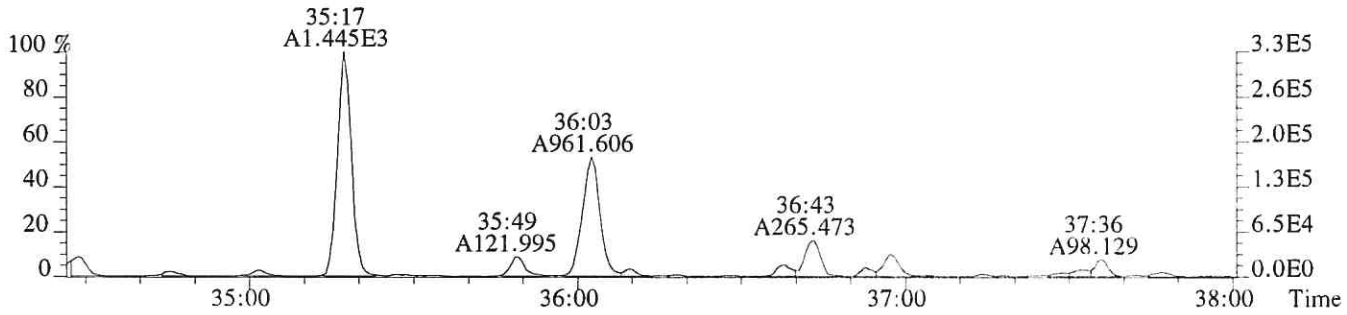
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



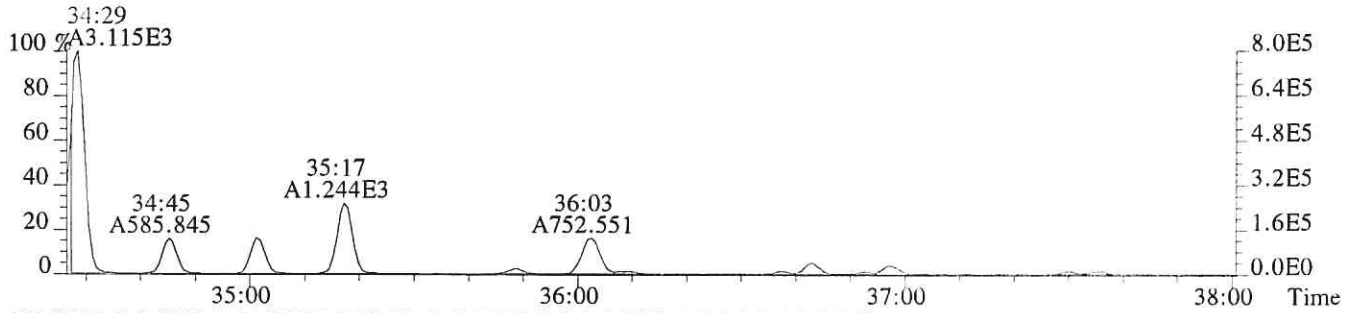
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



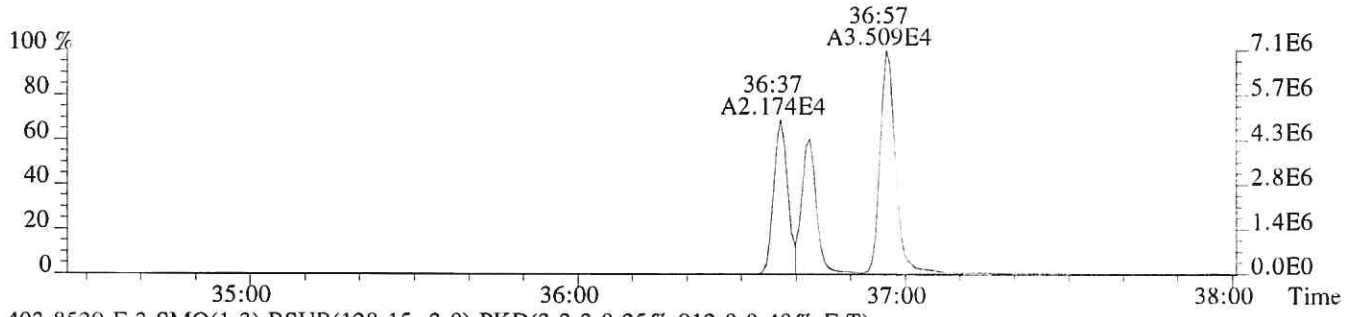
File:P519249 #1-322 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



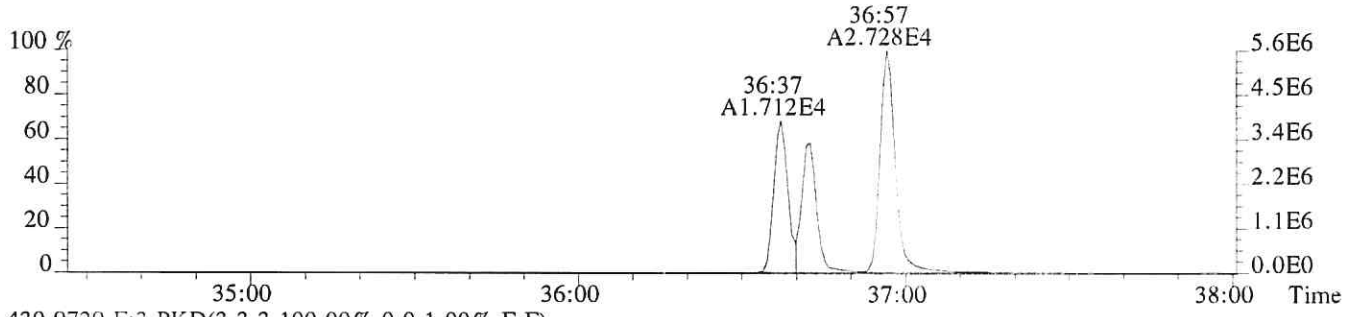
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1880.0,0.40%,F,T)



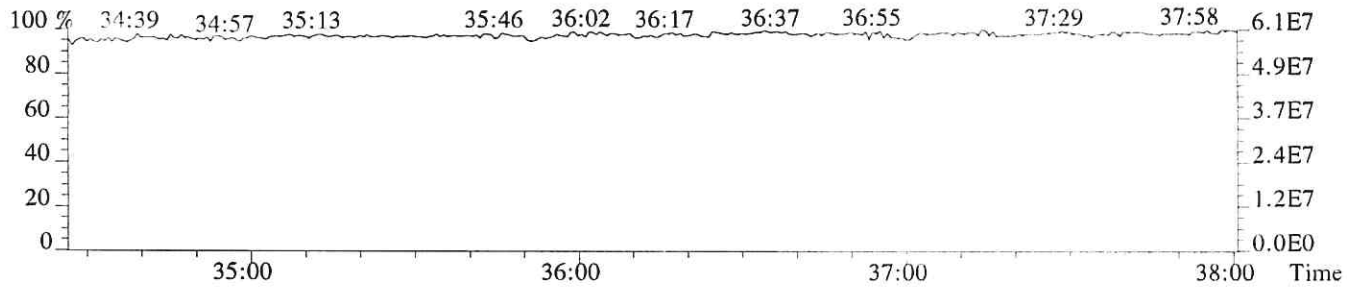
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



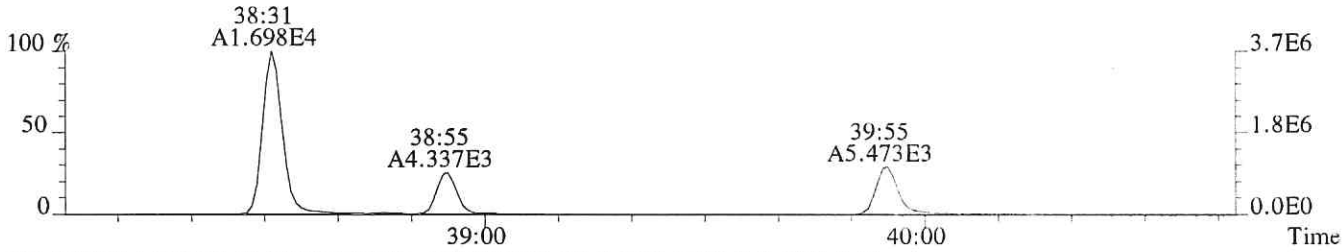
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



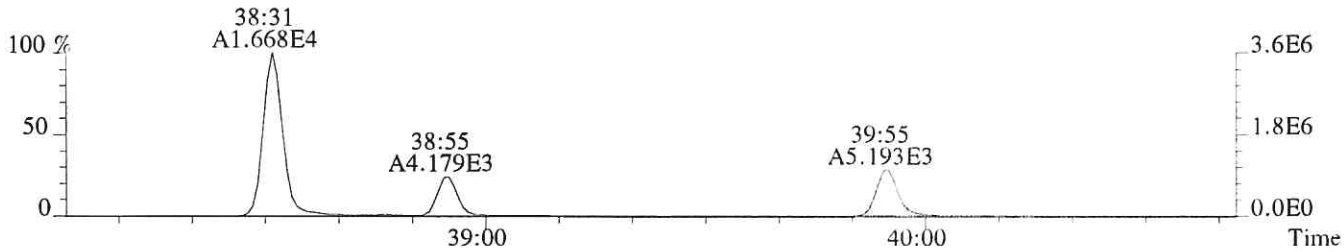
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



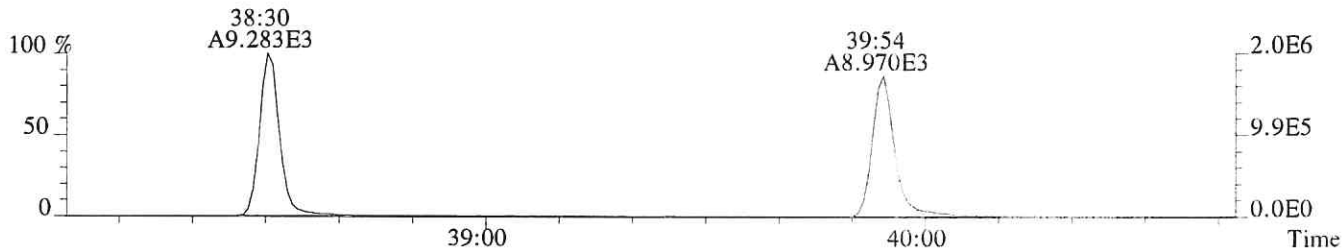
File:P519249 #1-240 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5164.0,0.50%,F,T)



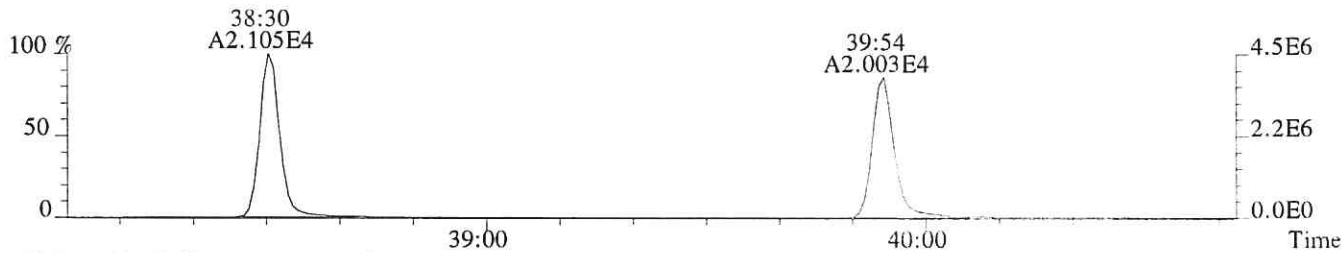
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3992.0,0.50%,F,T)



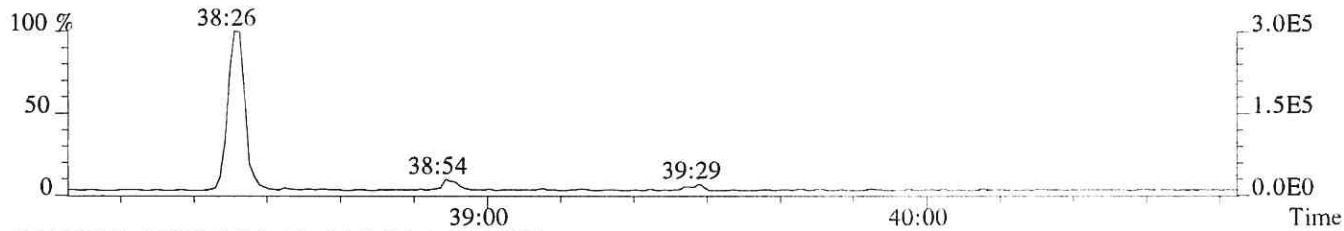
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3024.0,0.50%,F,T)



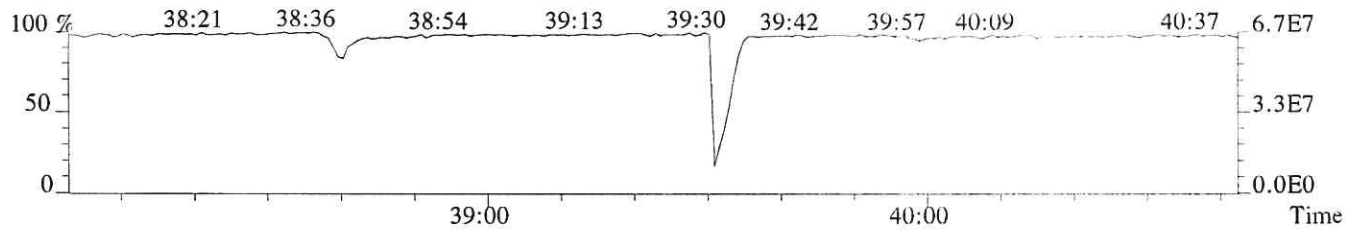
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5756.0,0.50%,F,T)



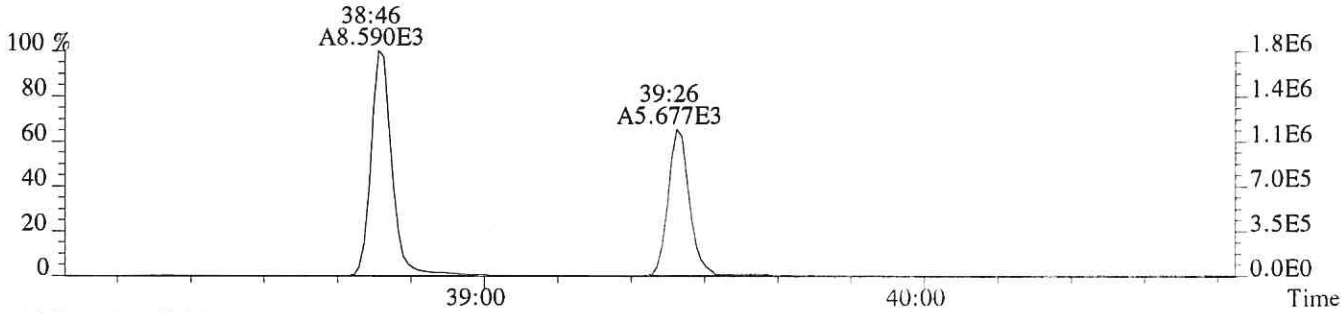
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



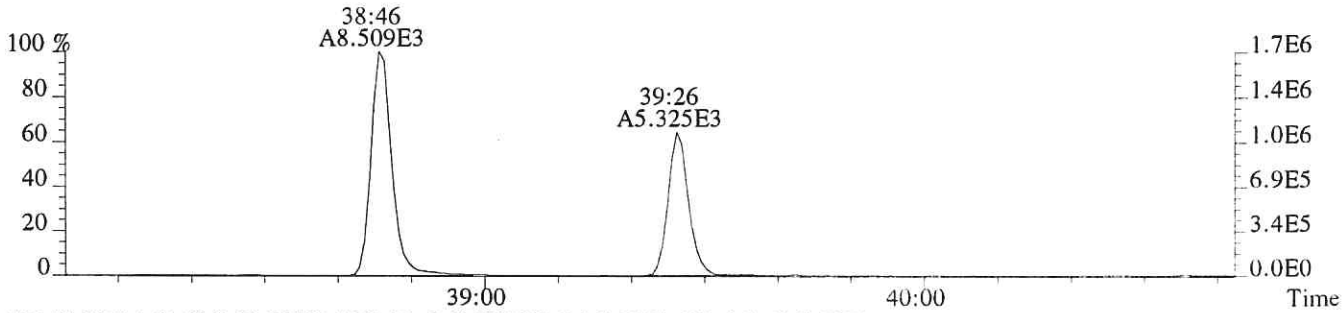
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



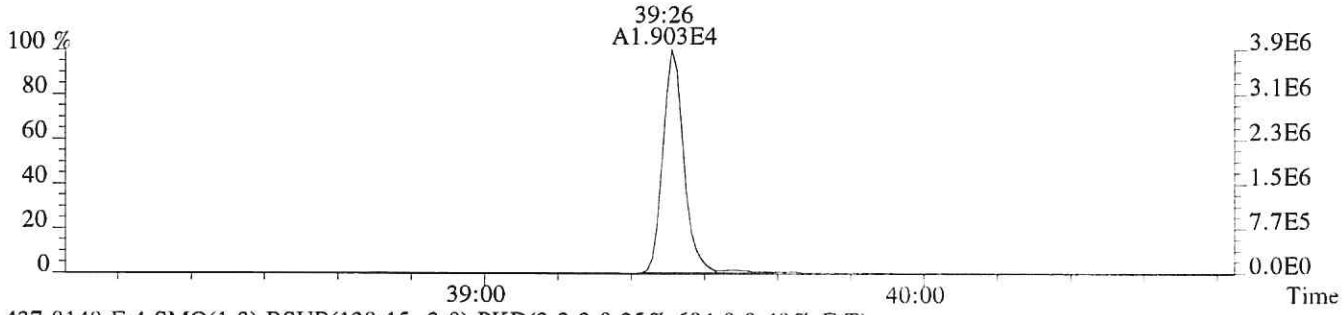
File:P519249 #1-240 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



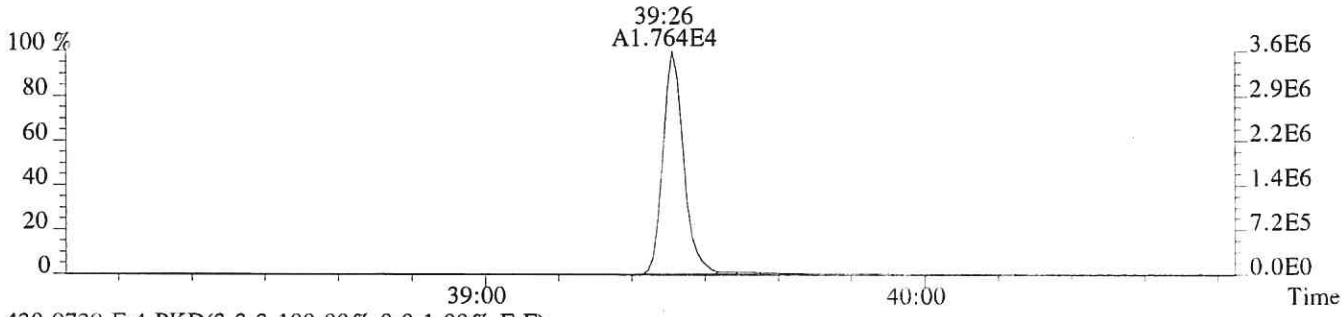
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



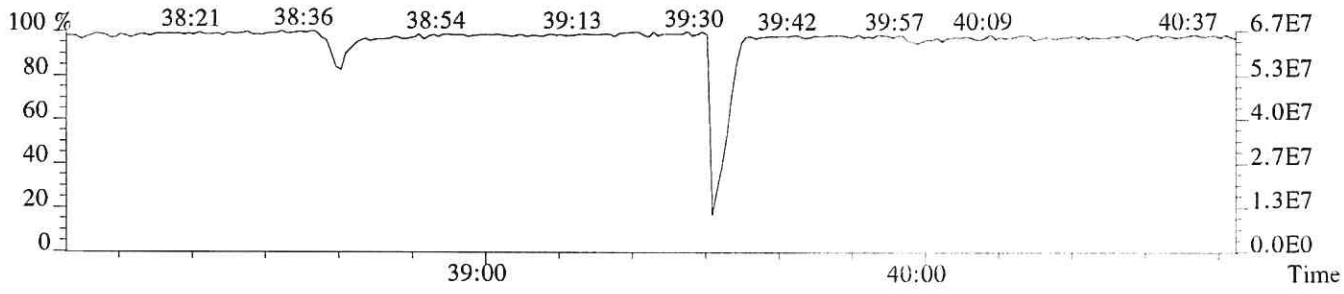
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



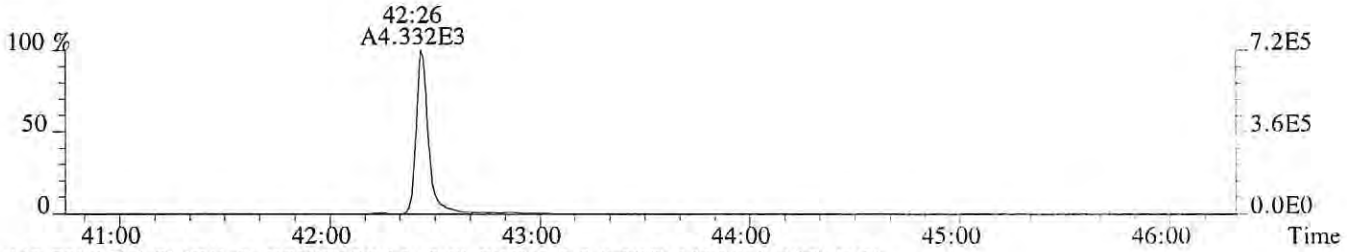
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



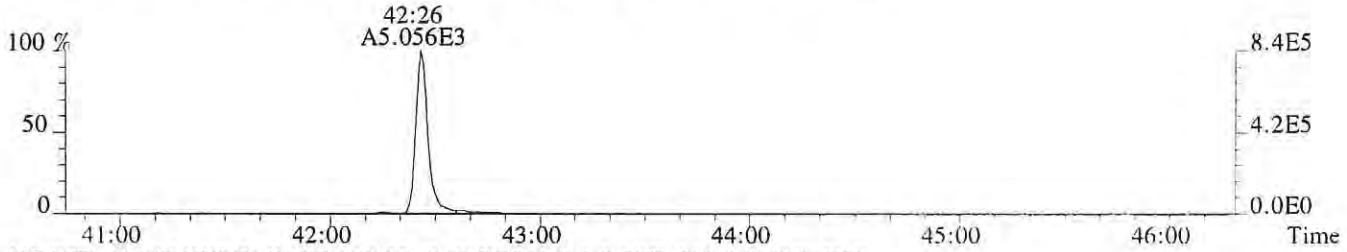
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



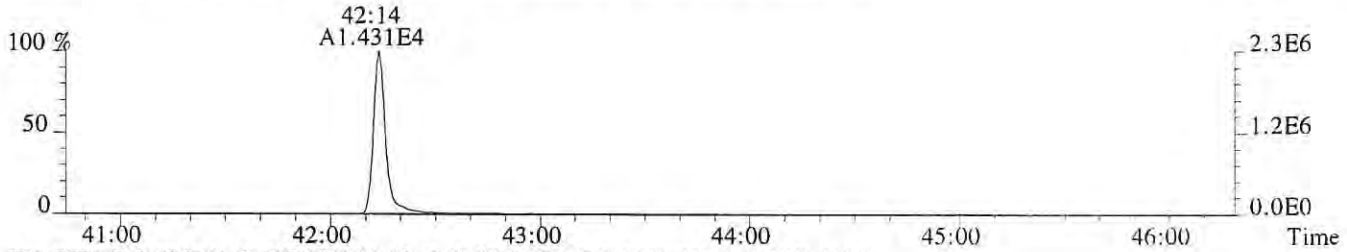
File:P519249 #1-502 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



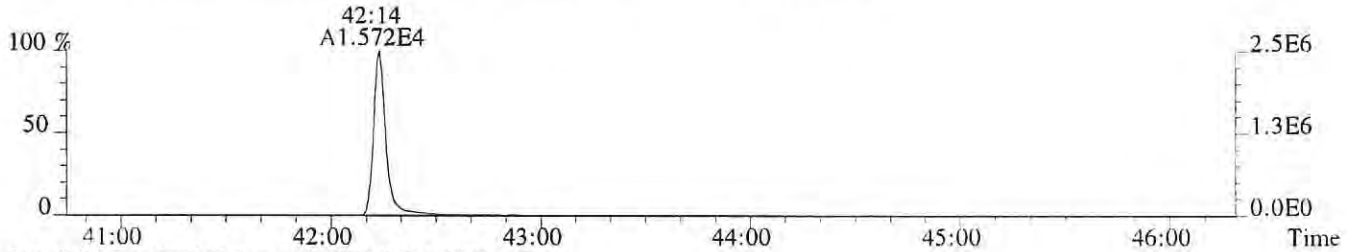
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,F,T)



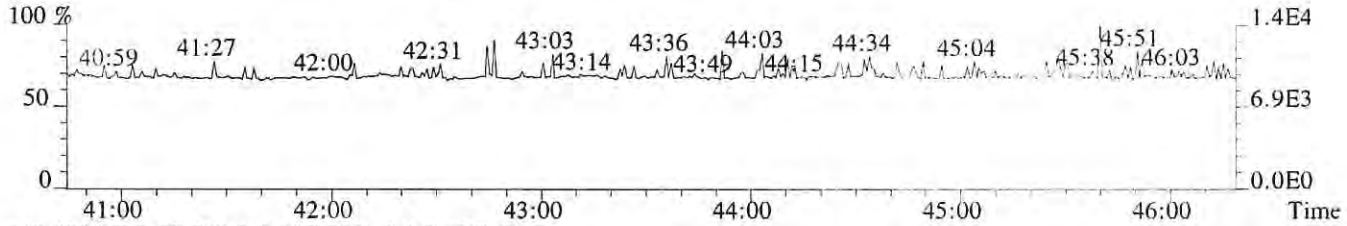
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



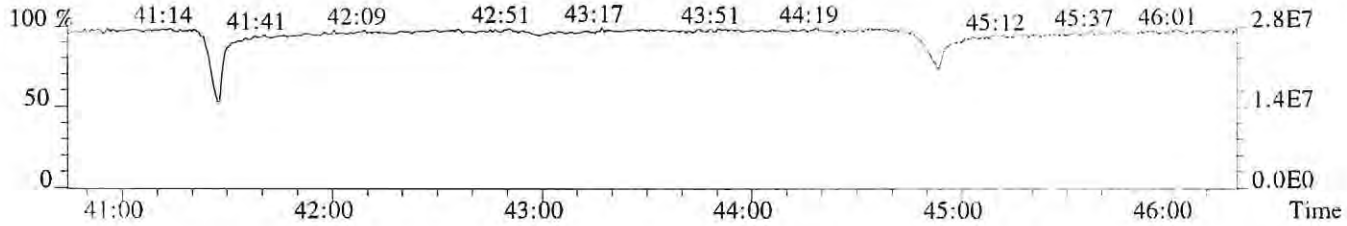
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



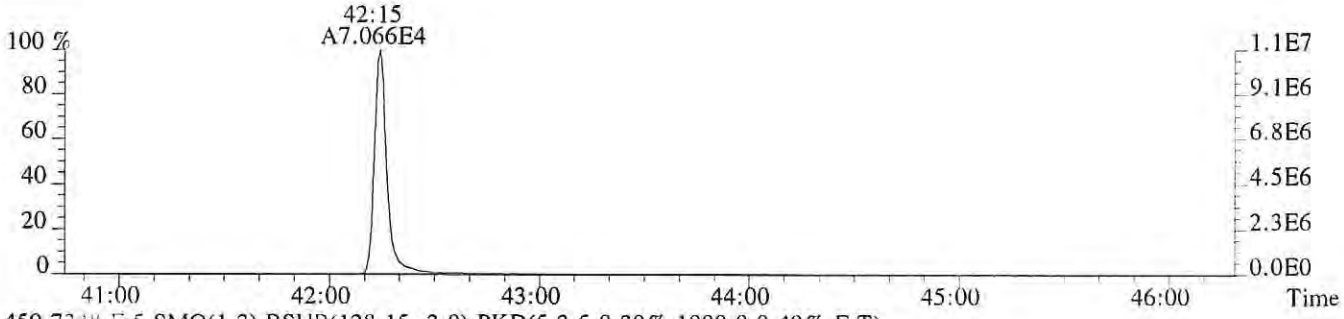
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



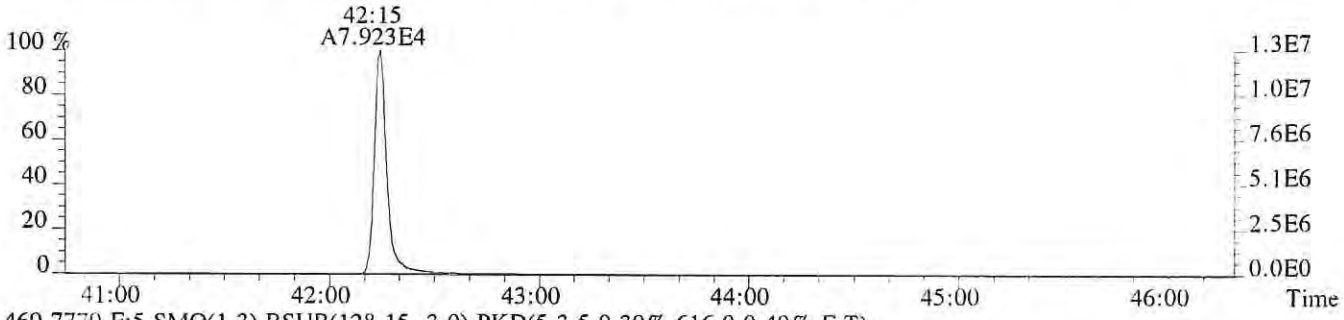
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



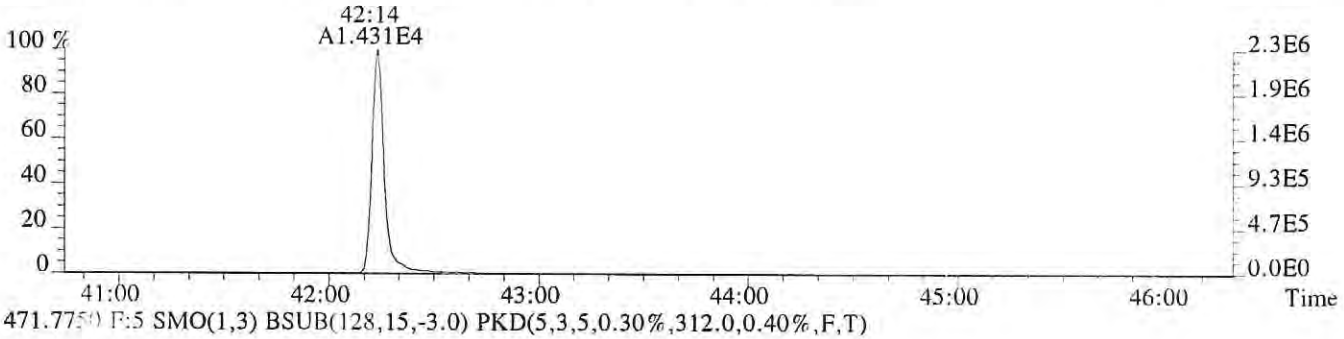
File:P519249 #1-502 Acq: 6-DEC-2018 09:23:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



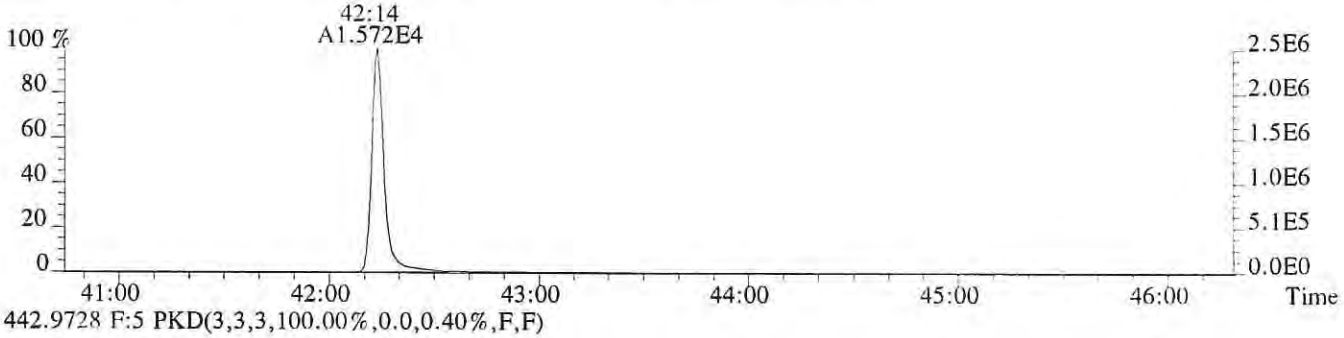
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1000.0,0.40%,F,T)



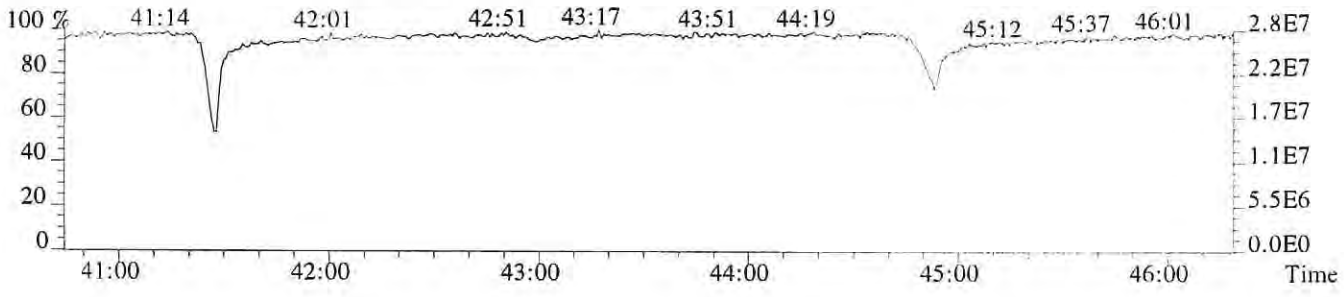
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0541

Run #13 Filename P519293 Samp: 1 Inj: 1 Acquired: 7-DEC-18 23:59:16
Processed: 10-DEC-18 09:24:36 Sample ID: E1801046-003DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	1.904e+03	2.483e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	1.152e+02	9.409e+01	1.22	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	7.805e+01	5.663e+01	1.38	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.418e+02	1.583e+02	1.53	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:58	5.297e+01	4.784e+01	1.11	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	4.012e+00	6.665e+00	0.60	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	1.180e+01	7.726e+00	1.53	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	5.268e+01	4.253e+01	1.24	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:05	1.887e+01	2.053e+01	0.92	yes	no	1.258
10	Unk	OCDF	42:44	1.907e+01	2.662e+01	0.72	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:39	4.289e+02	5.622e+02	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	6.388e+00	3.360e+00	1.90	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	3.715e+00	2.889e+00	1.29	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	1.925e+01	1.397e+01	1.38	no	no	1.025
17	Unk	OCDD	42:33	3.013e+02	3.357e+02	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	8.944e+03	1.141e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	1.397e+04	8.812e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.322e+04	8.189e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	5.561e+03	1.073e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	6.994e+03	1.332e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	6.473e+03	1.214e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	5.575e+03	1.098e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	5.080e+03	1.162e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	4.594e+03	1.073e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	4.236e+03	5.376e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	9.428e+03	5.705e+03	1.65	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:38	7.437e+03	5.856e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	8.265e+03	6.601e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	9.414e+03	8.965e+03	1.05	yes	no	0.858
32	IS	13C-OCDD	42:33	1.134e+04	1.226e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	6.401e+03	7.920e+03	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	9.077e+03	7.261e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:39	4.278e+01				no	1.014

$$\text{OCDD} = \frac{(3.013e{+}02 + 3.357e{+}02) \times 4000\ \text{pg} \times 100}{(1.134e{+}04 + 1.226e{+}04) \times 10{,}976\ \text{g} \times 74.6 / 100 \times 1.118 \times 0.41} = 2876\ \text{ng/kg}$$

AK 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0541

Run #13 Filename P519293 Samp: 1 Inj: 1 Acquired: 7-DEC-18 23:59:16
Processed: 10-DEC-18 09:24:36 LAB. ID: E1801046-003DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.96e+05	4.48e+02	6.6e+02	4.01e+05	9.24e+02	4.3e+02
2	1,2,3,7,8-PeCDF	1.80e+04	2.28e+02	7.9e+01	1.46e+04	6.40e+02	2.3e+01
3	2,3,4,7,8-PeCDF	1.45e+04	2.28e+02	6.4e+01	8.86e+03	6.40e+02	1.4e+01
4	1,2,3,4,7,8-HxCDF	5.29e+04	5.00e+02	1.1e+02	2.95e+04	3.60e+02	8.2e+01
5	1,2,3,6,7,8-HxCDF	8.80e+03	5.00e+02	1.8e+01	9.39e+03	3.60e+02	2.6e+01
6	2,3,4,6,7,8-HxCDF	1.23e+03	5.00e+02	2.5e+00	1.80e+03	3.60e+02	5.0e+00
7	1,2,3,7,8,9-HxCDF	2.14e+03	5.00e+02	4.3e+00	2.53e+03	3.60e+02	7.0e+00
8	1,2,3,4,6,7,8-HpCDF	9.22e+03	3.80e+02	2.4e+01	9.51e+03	2.48e+02	3.8e+01
9	1,2,3,4,7,8,9-HpCDF	3.76e+03	3.80e+02	9.9e+00	4.79e+03	2.48e+02	1.9e+01
10	OCDF	3.76e+03	2.60e+02	1.4e+01	5.28e+03	6.68e+02	7.9e+00
11	2,3,7,8-TCDD	7.62e+04	1.74e+03	4.4e+01	1.01e+05	8.48e+02	1.2e+02
12	1,2,3,7,8-PeCDD	1.33e+03	3.32e+02	4.0e+00	8.69e+02	2.16e+02	4.0e+00
13	1,2,3,4,7,8-HxCDD	*	3.28e+02	*	*	3.04e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.28e+02	*	*	3.04e+02	*
15	1,2,3,7,8,9-HxCDD	7.58e+02	3.28e+02	2.3e+00	8.98e+02	3.04e+02	3.0e+00
16	1,2,3,4,6,7,8-HpCDD	3.72e+03	3.52e+02	1.1e+01	4.40e+03	1.96e+02	2.2e+01
17	OCDD	3.96e+04	2.16e+02	1.8e+02	3.90e+04	2.16e+02	1.8e+02
18	13C-2,3,7,8-TCDF	1.60e+06	6.22e+03	2.6e+02	2.02e+06	3.87e+03	5.2e+02
19	13C-1,2,3,7,8-PeCDF	2.48e+06	3.12e+02	7.9e+03	1.56e+06	2.32e+02	6.7e+03
20	13C-2,3,4,7,8-PeCDF	2.48e+06	3.12e+02	7.9e+03	1.53e+06	2.32e+02	6.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.14e+06	5.08e+02	2.2e+03	2.22e+06	3.84e+02	5.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.30e+06	5.08e+02	2.6e+03	2.46e+06	3.84e+02	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.26e+06	5.08e+02	2.5e+03	2.43e+06	3.84e+02	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.03e+06	5.08e+02	2.0e+03	2.00e+06	3.84e+02	5.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.19e+05	8.92e+02	1.0e+03	2.10e+06	8.64e+02	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.97e+05	8.92e+02	7.8e+02	1.65e+06	8.64e+02	1.9e+03
27	13C-2,3,7,8-TCDD	7.43e+05	4.70e+03	1.6e+02	9.53e+05	1.24e+03	7.7e+02
28	13C-1,2,3,7,8-PeCDD	1.71e+06	2.84e+02	6.0e+03	1.04e+06	7.32e+02	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	1.60e+06	6.80e+02	2.4e+03	1.24e+06	2.76e+02	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.45e+06	6.80e+02	2.1e+03	1.17e+06	2.76e+02	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.52e+06	6.44e+02	2.4e+03	1.45e+06	3.12e+02	4.7e+03
32	13C-OCDD	1.35e+06	3.08e+02	4.4e+03	1.44e+06	2.48e+02	5.8e+03
33	13C-1,2,3,4-TCDD	1.20e+06	4.70e+03	2.6e+02	1.47e+06	1.24e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.59e+06	6.80e+02	2.3e+03	1.27e+06	2.76e+02	4.6e+03
35	37Cl-2,3,7,8-TCDD	8.01e+03	7.80e+02	1.0e+01			

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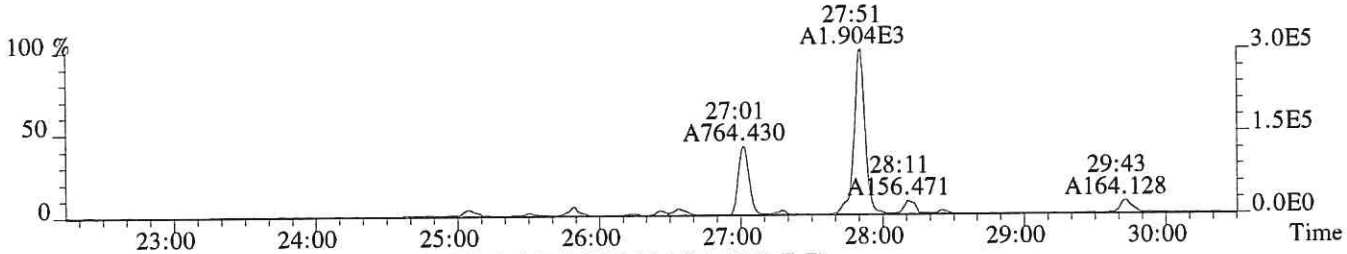
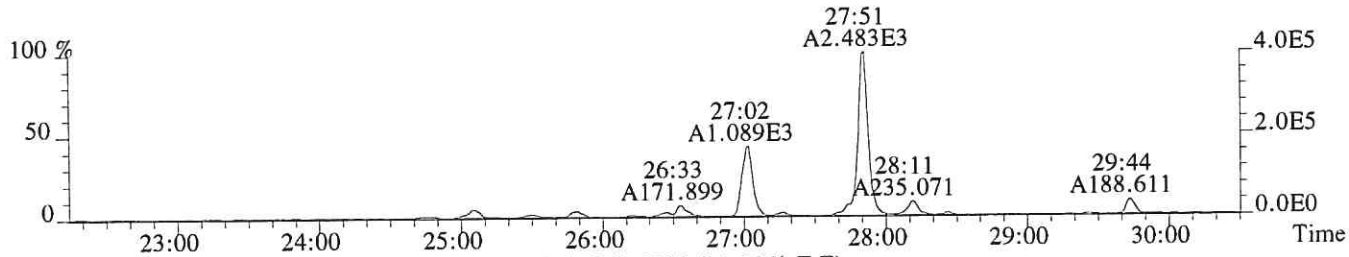
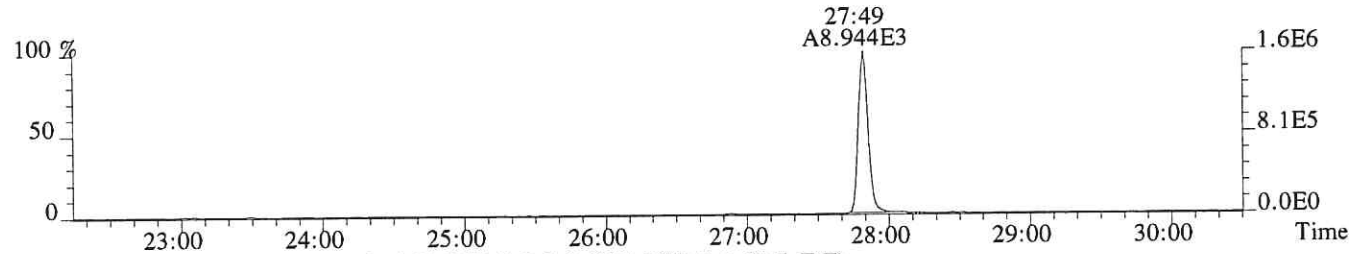
File:P519293 #1-587 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



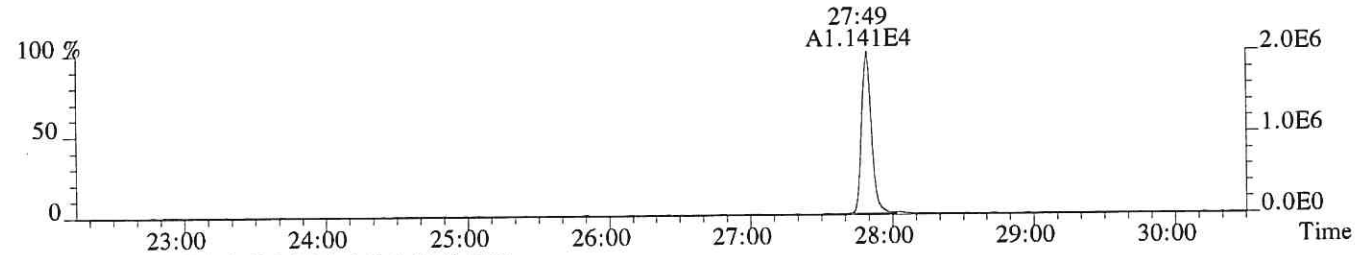
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



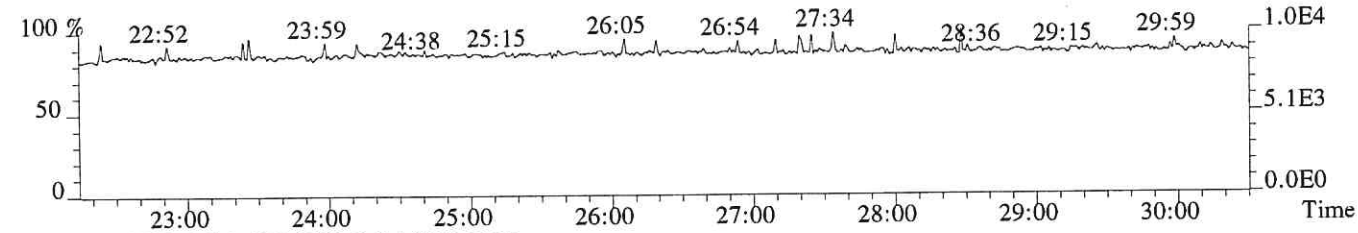
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6220.0,1.00%,F,T)



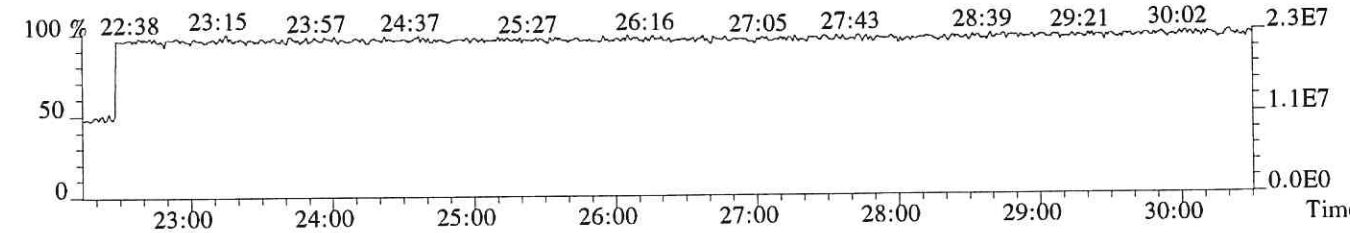
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3872.0,1.00%,F,T)



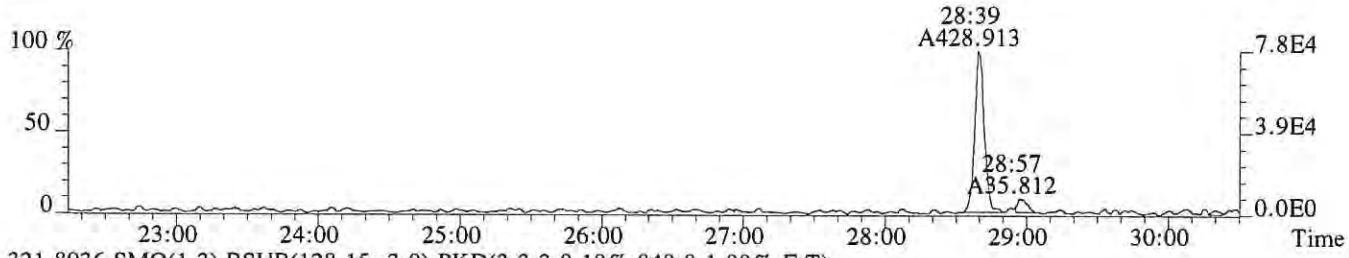
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



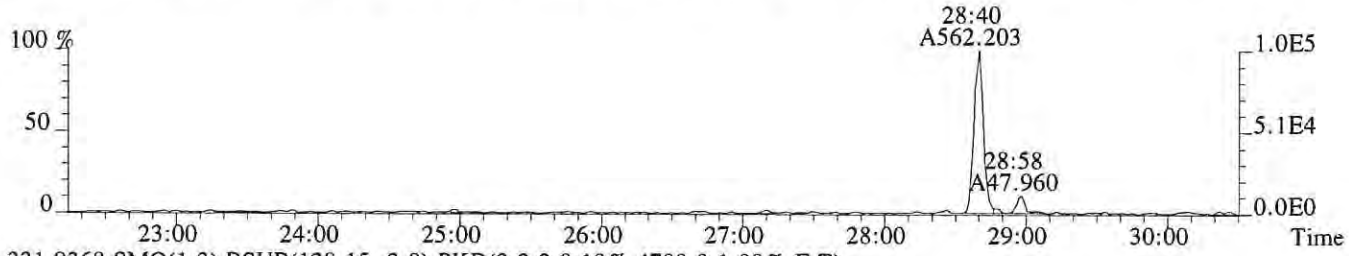
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



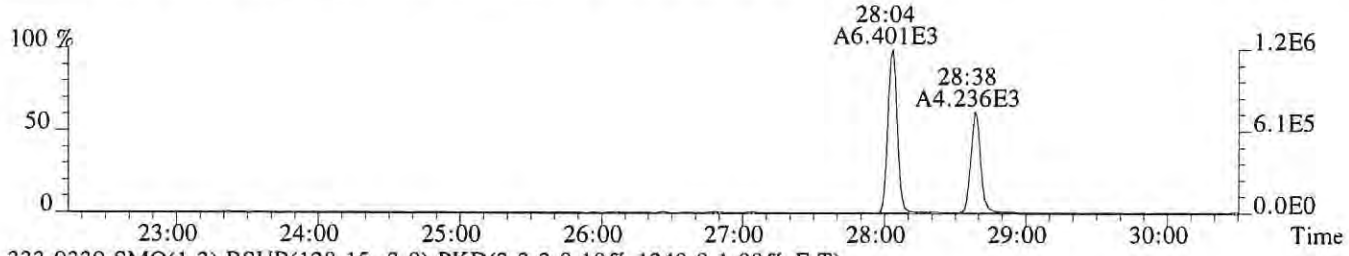
File:P519293 #1-587 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



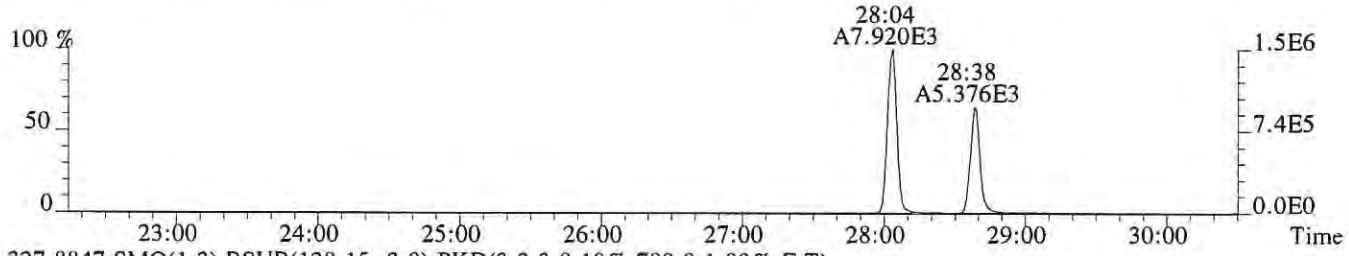
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



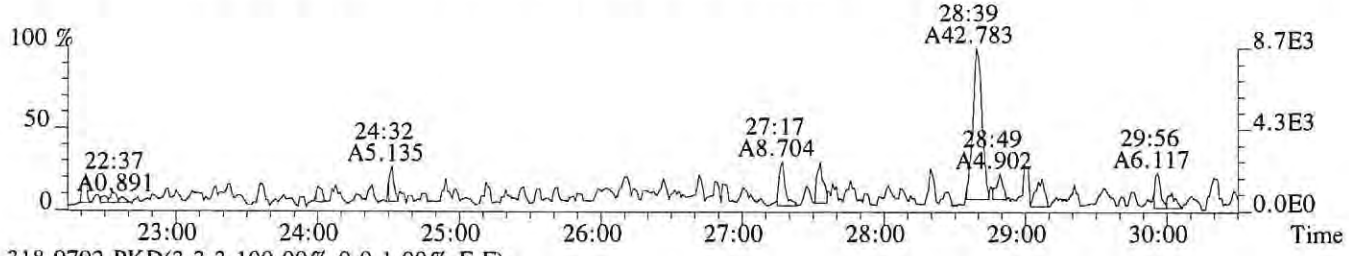
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4700.0,1.00%,F,T)



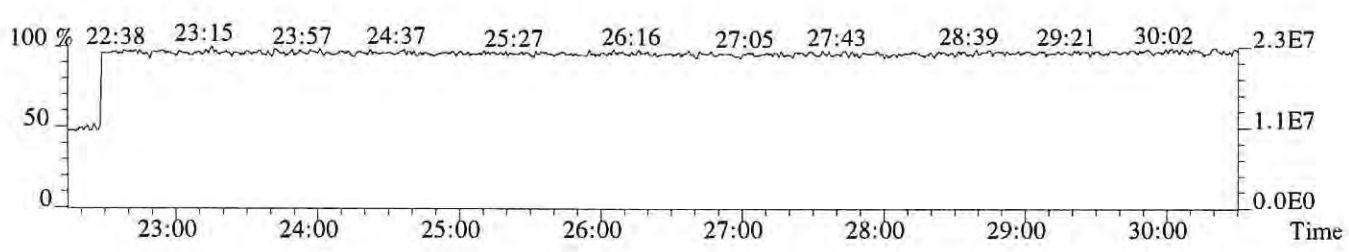
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



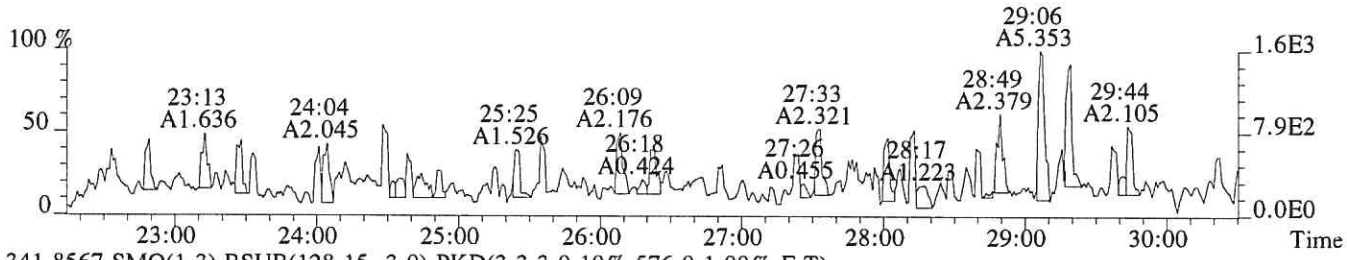
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



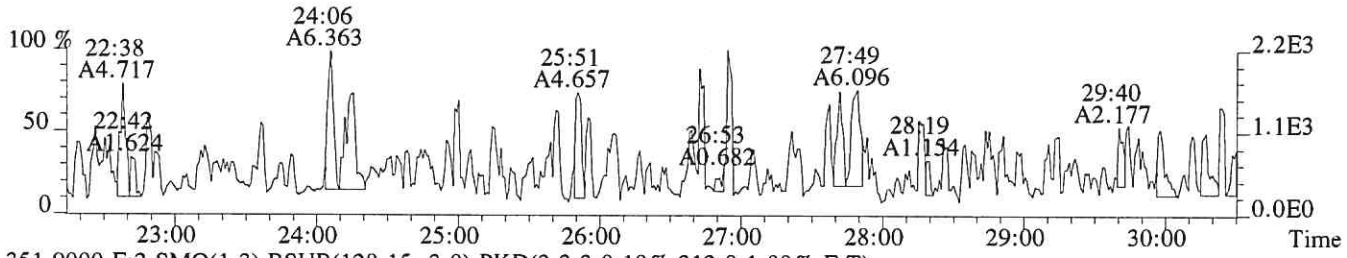
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



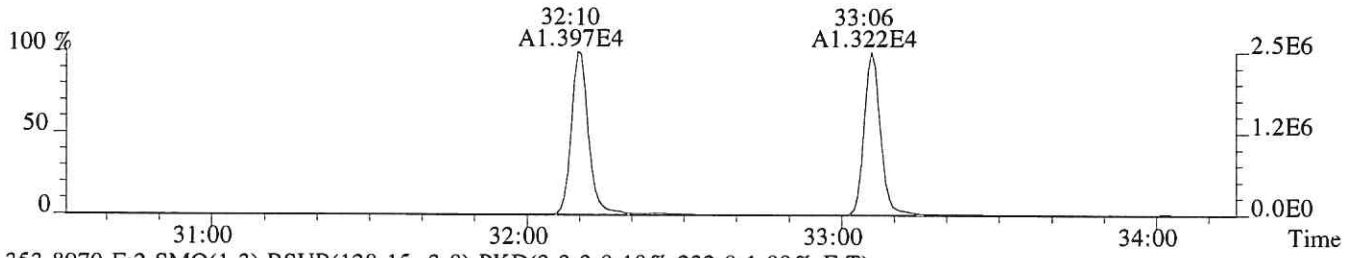
File:P519293 #1-587 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



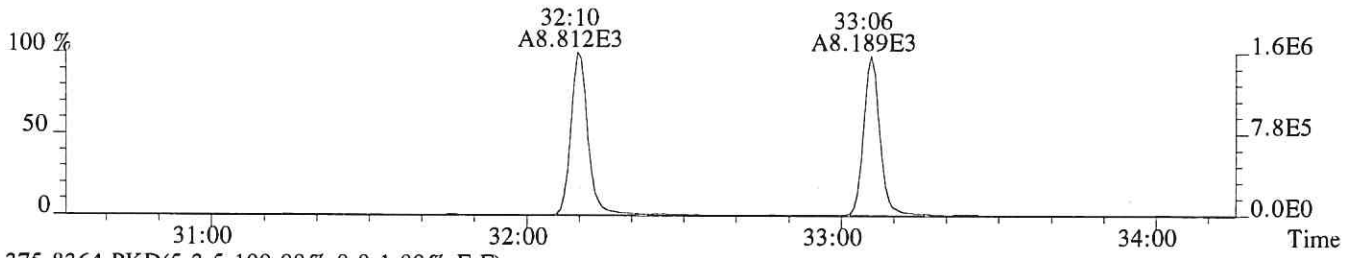
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



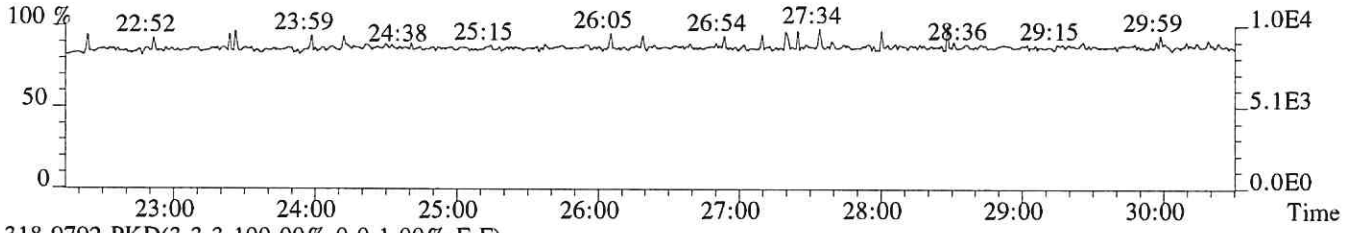
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



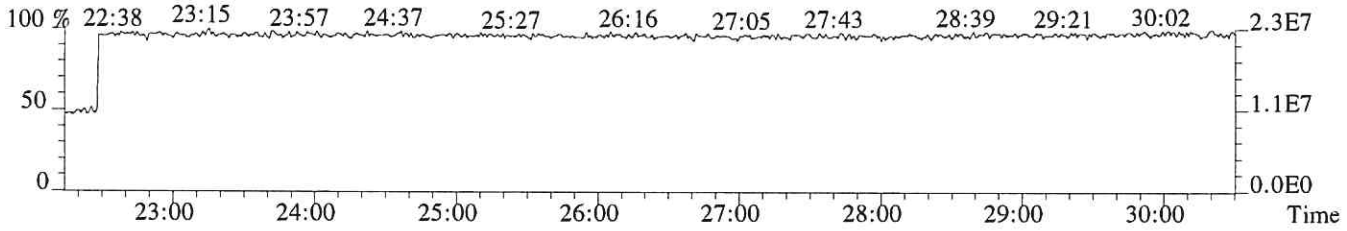
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



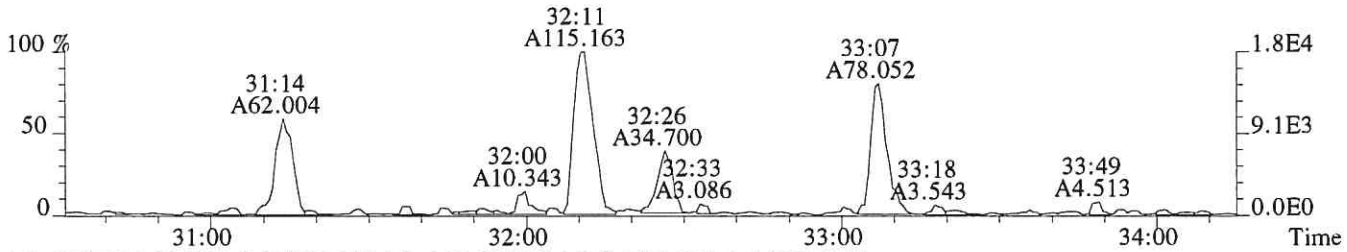
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



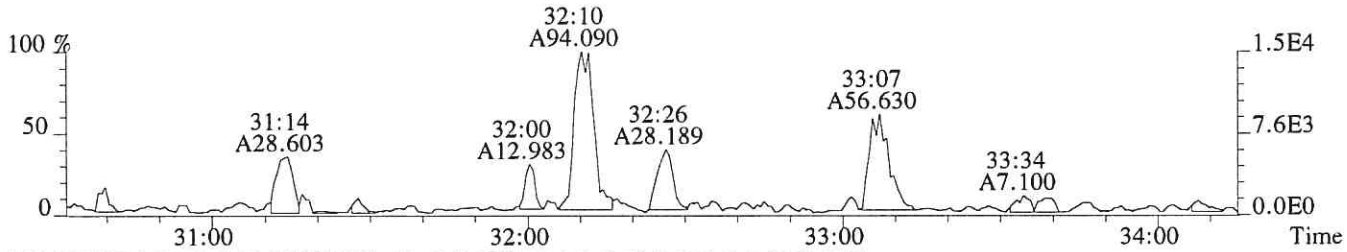
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



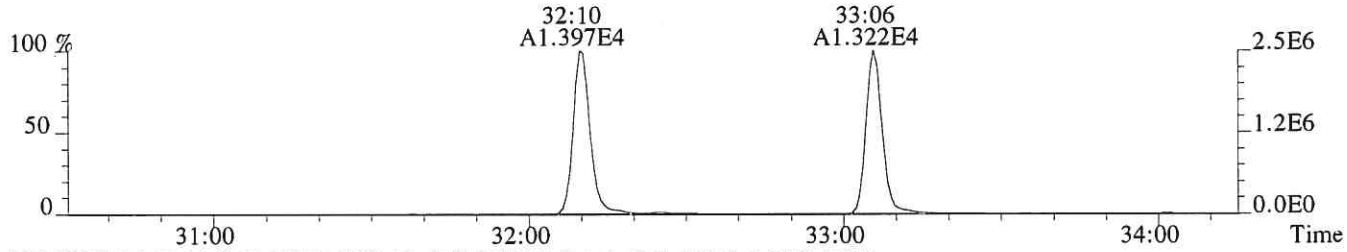
File:P519293 #1-335 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



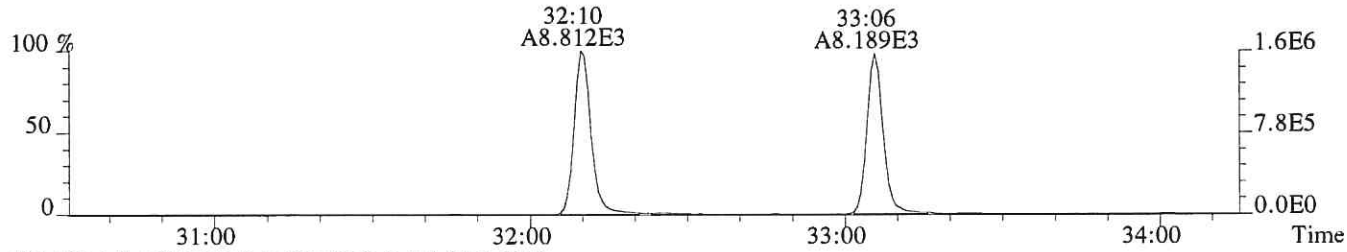
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



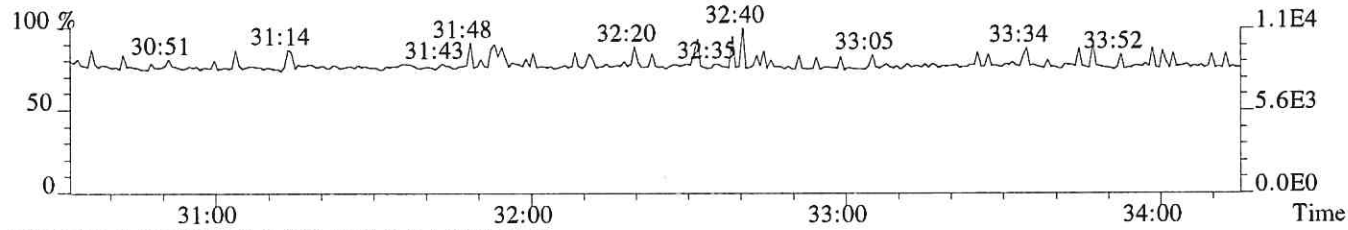
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



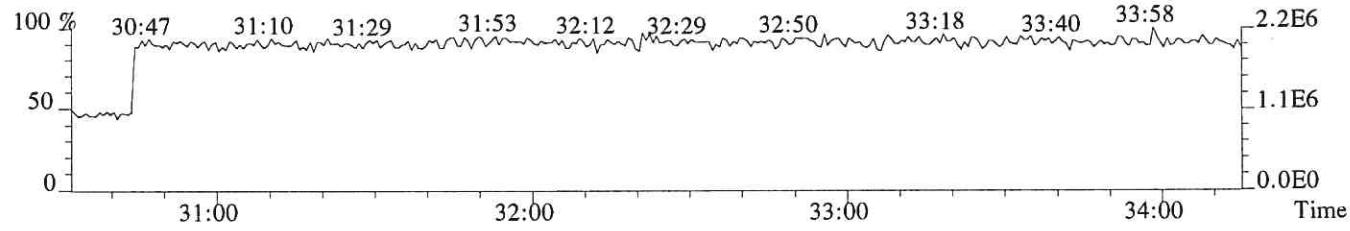
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



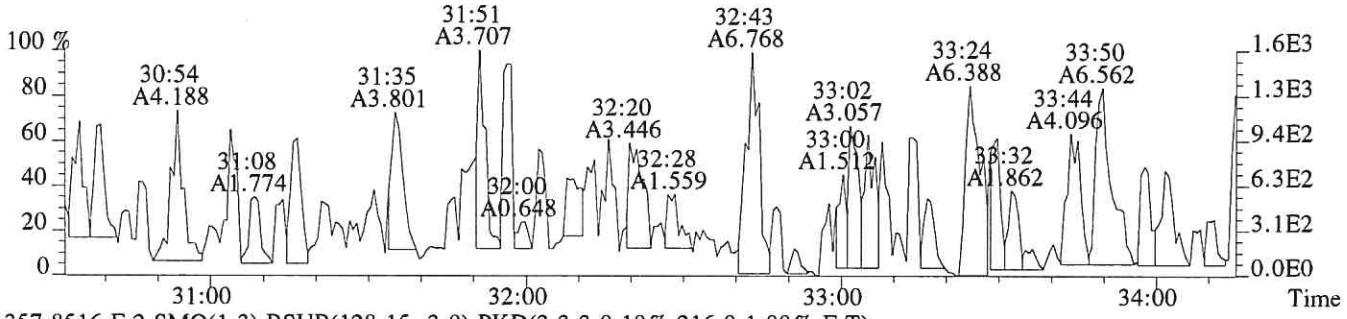
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



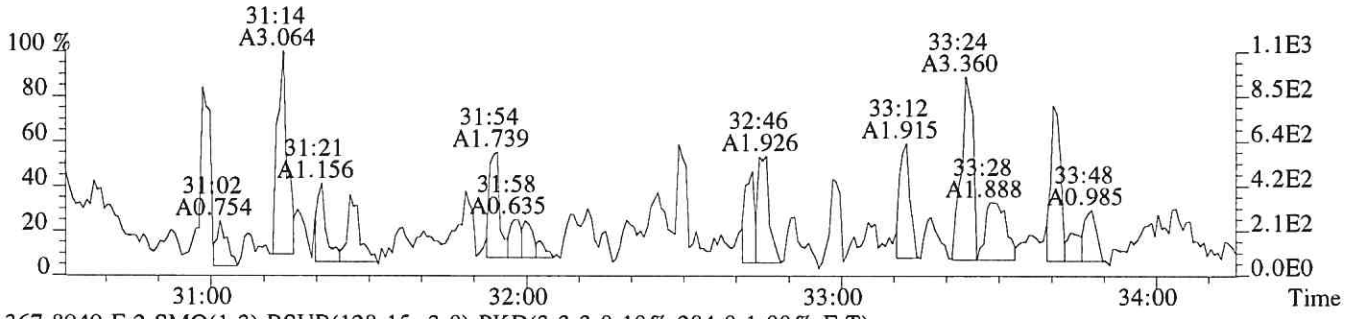
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



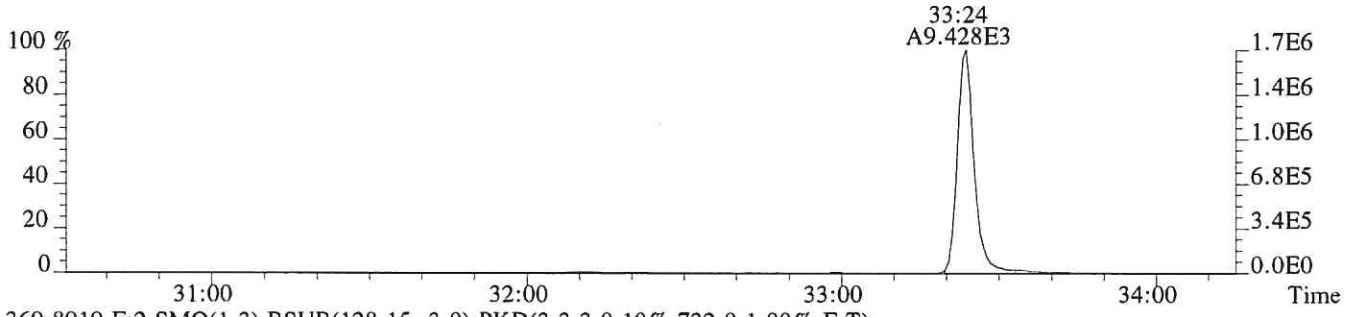
File:P519293 #1-335 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



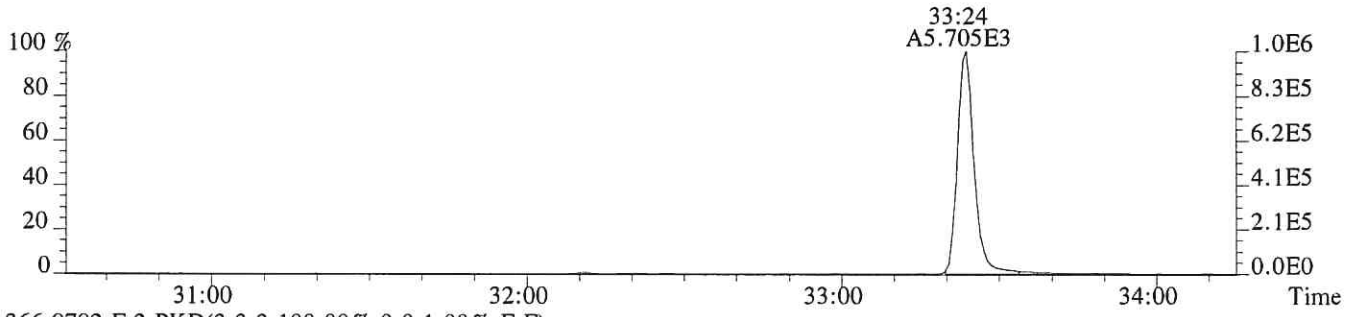
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



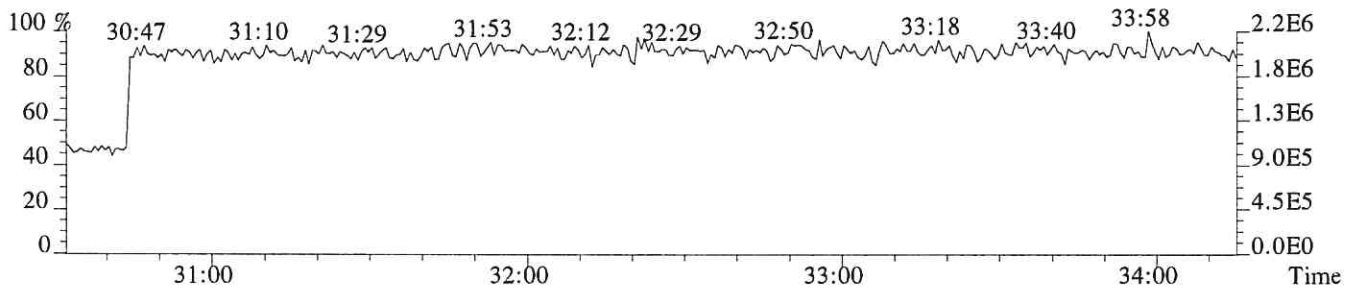
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



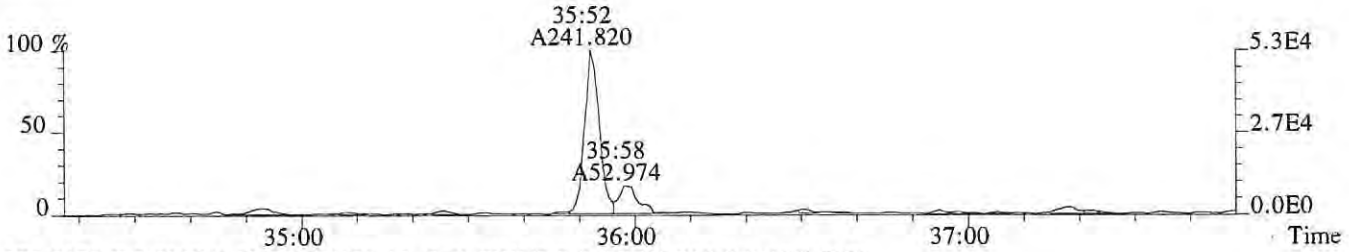
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



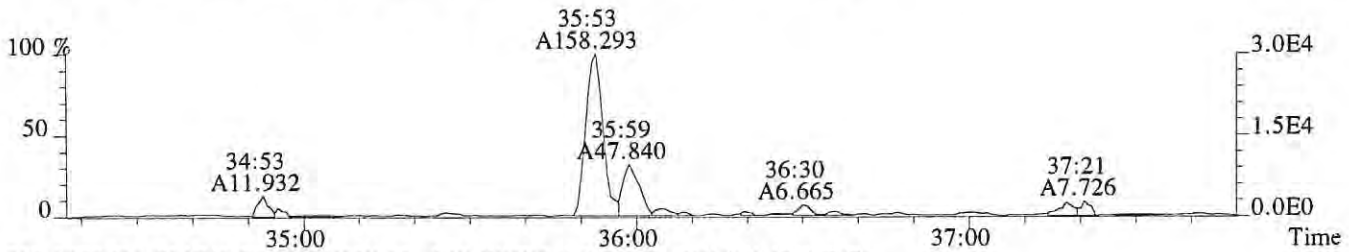
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



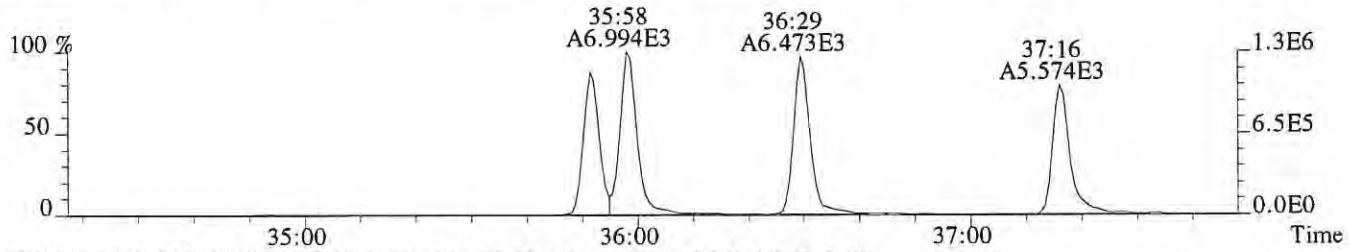
File:P519293 #1-317 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



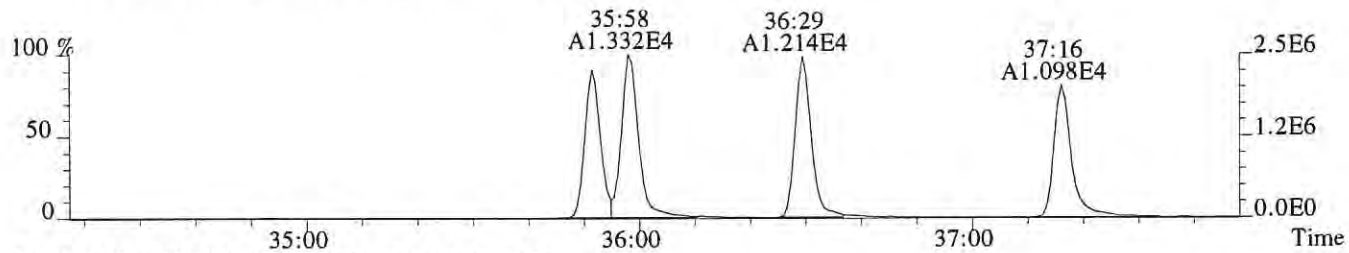
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



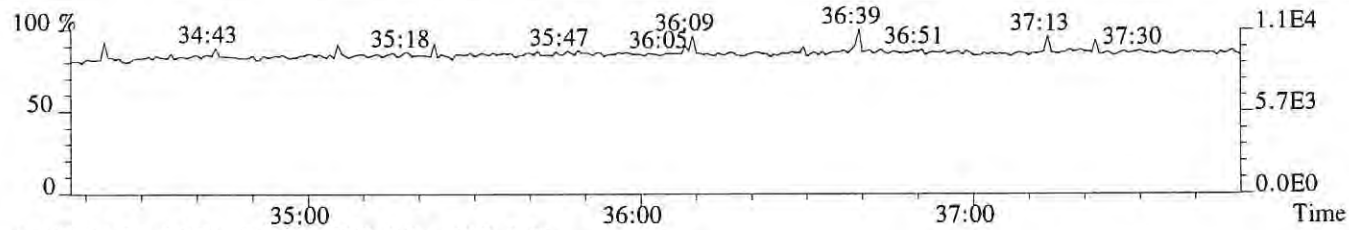
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



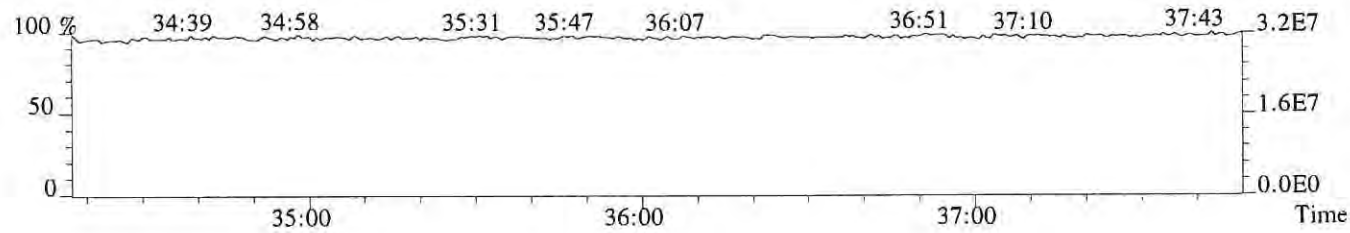
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



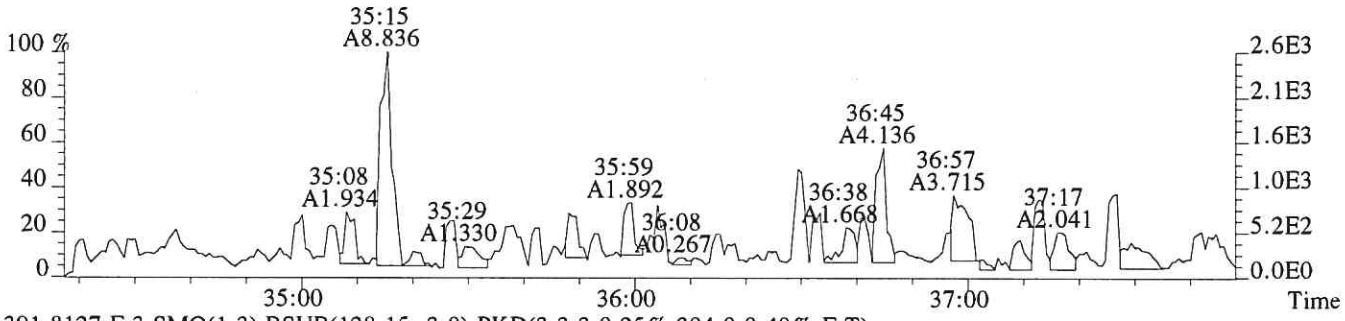
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



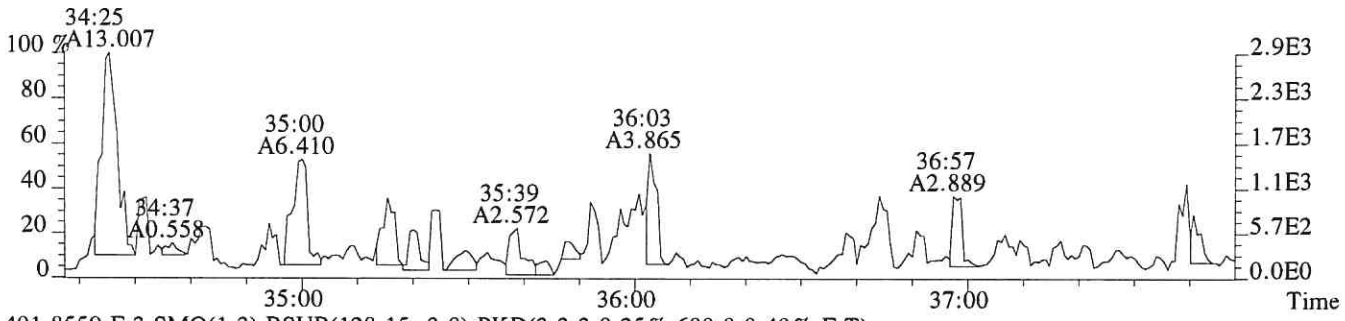
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



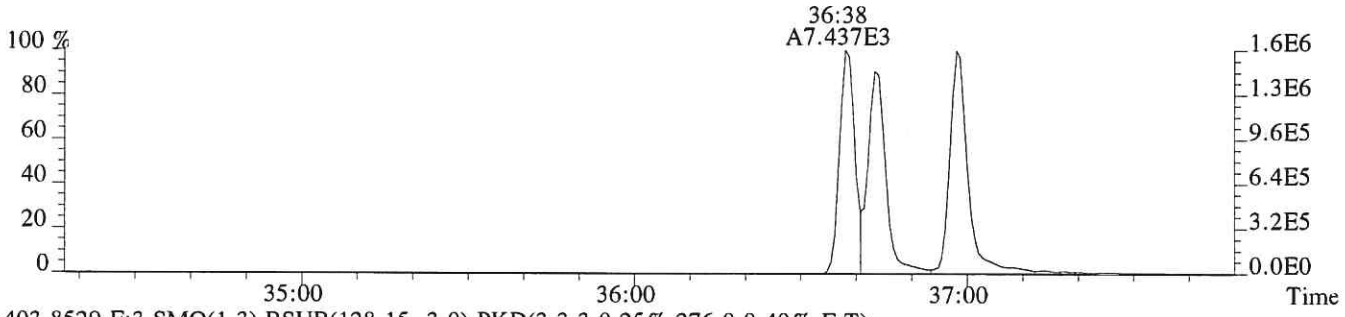
File:P519293 #1-317 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



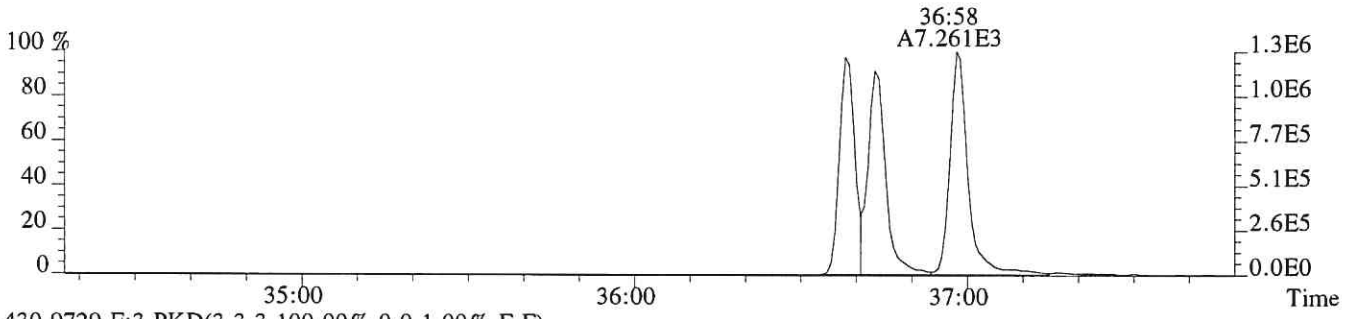
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



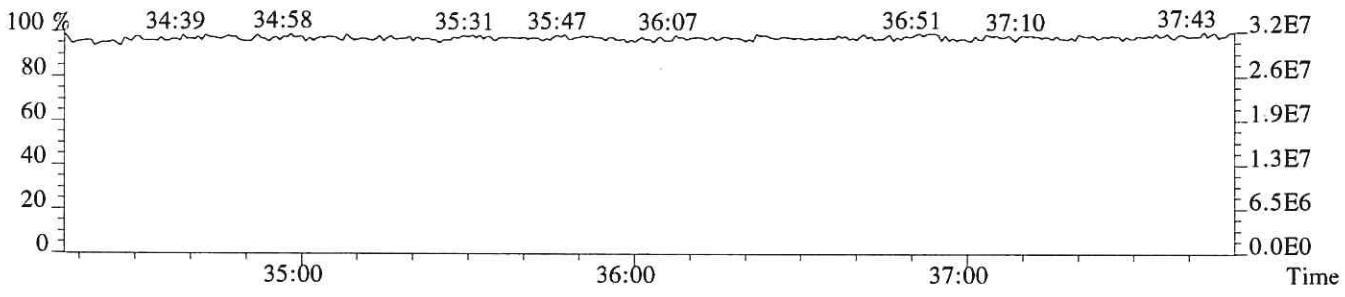
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



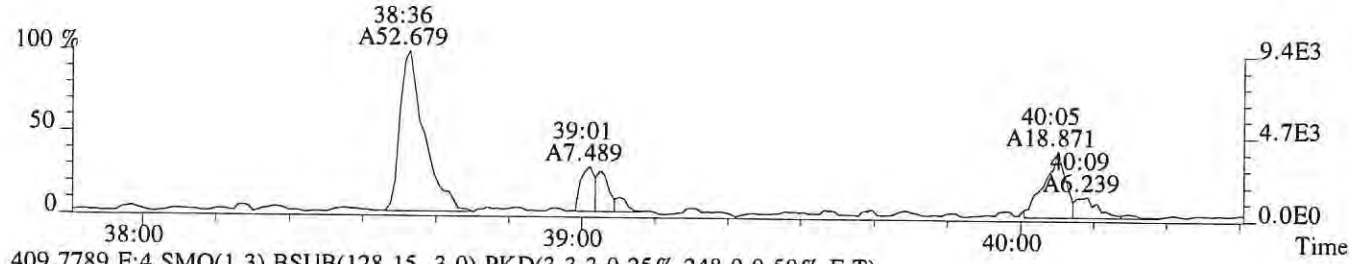
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



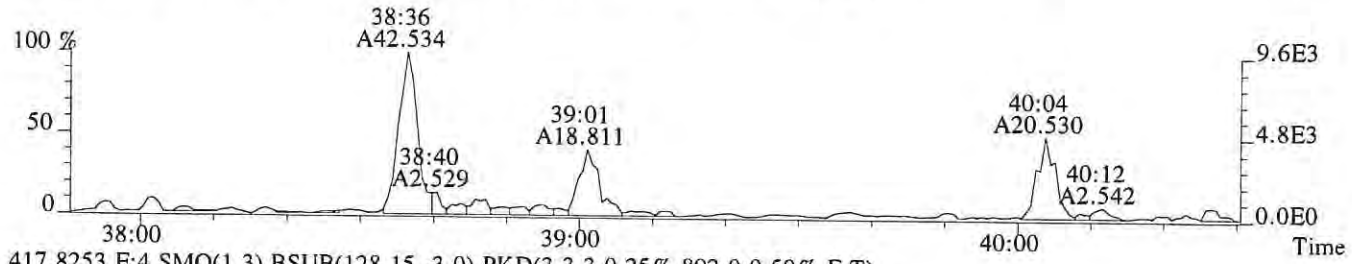
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



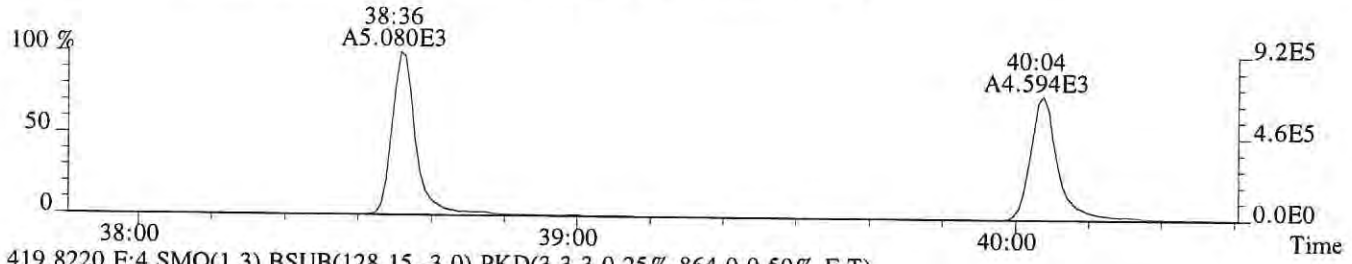
File:P519293 #1-241 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.50%,F,T)



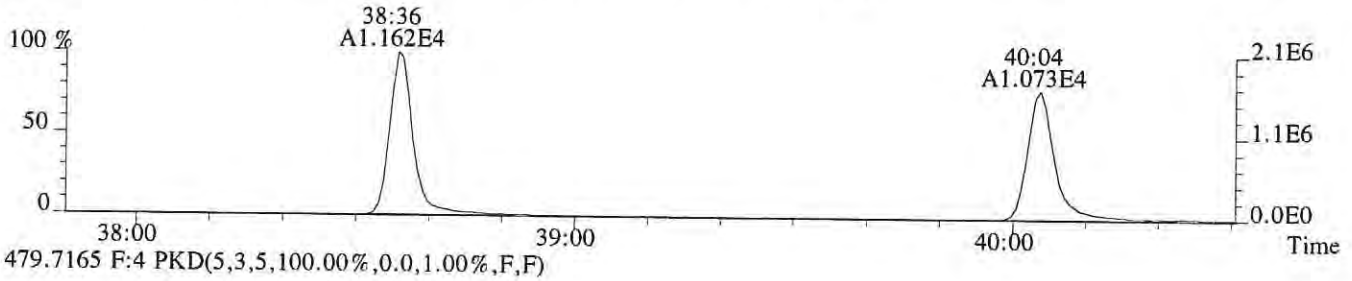
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.50%,F,T)



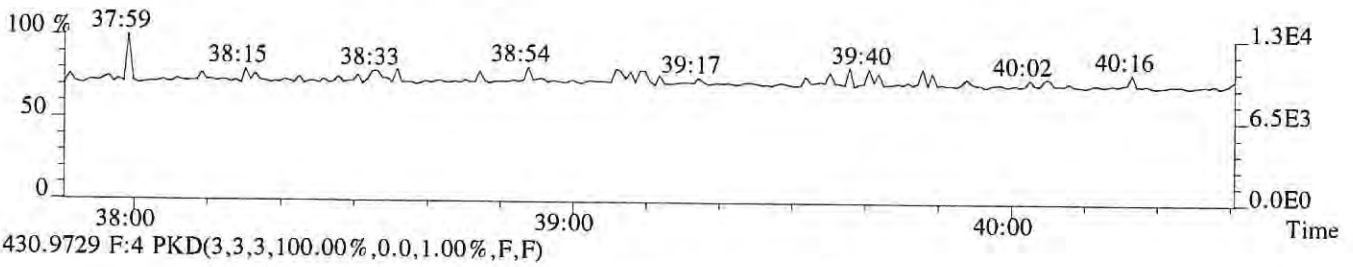
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.50%,F,T)



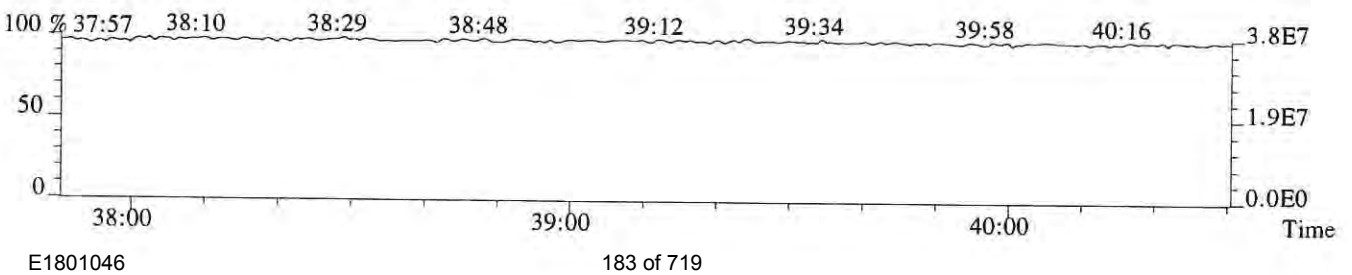
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.50%,F,T)



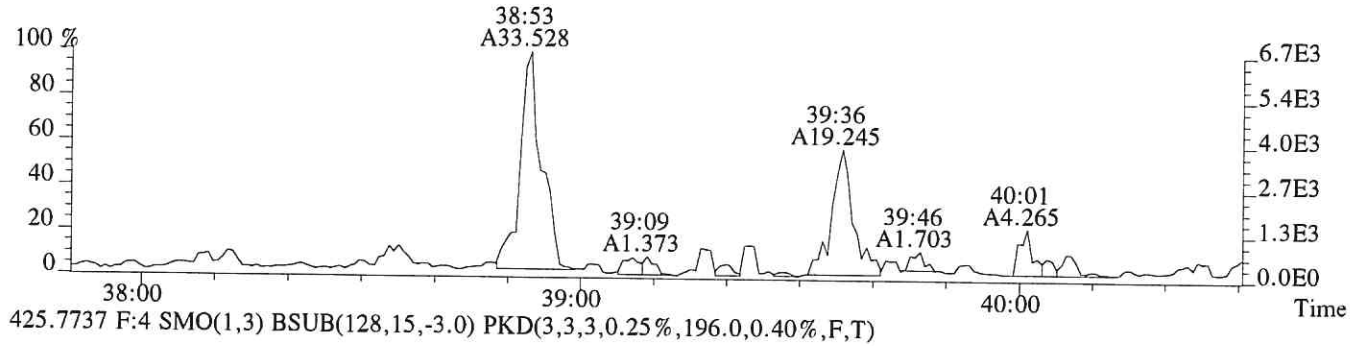
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



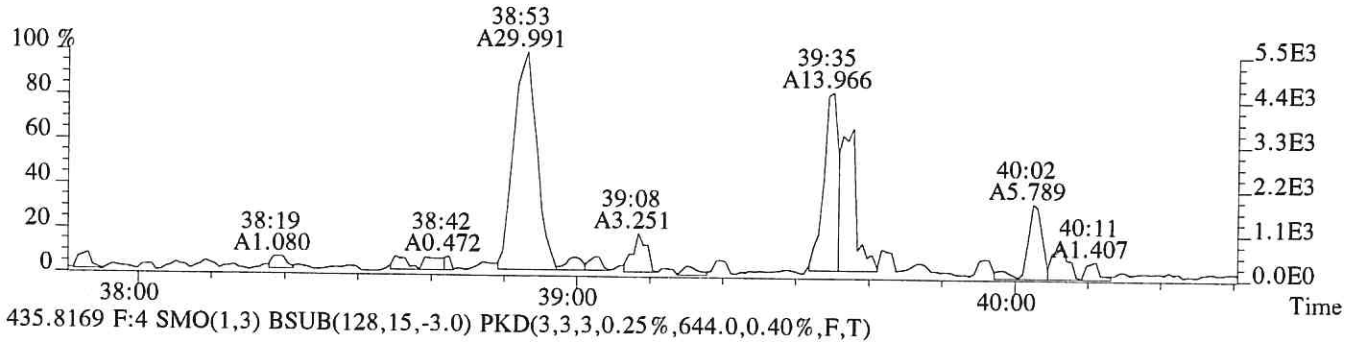
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



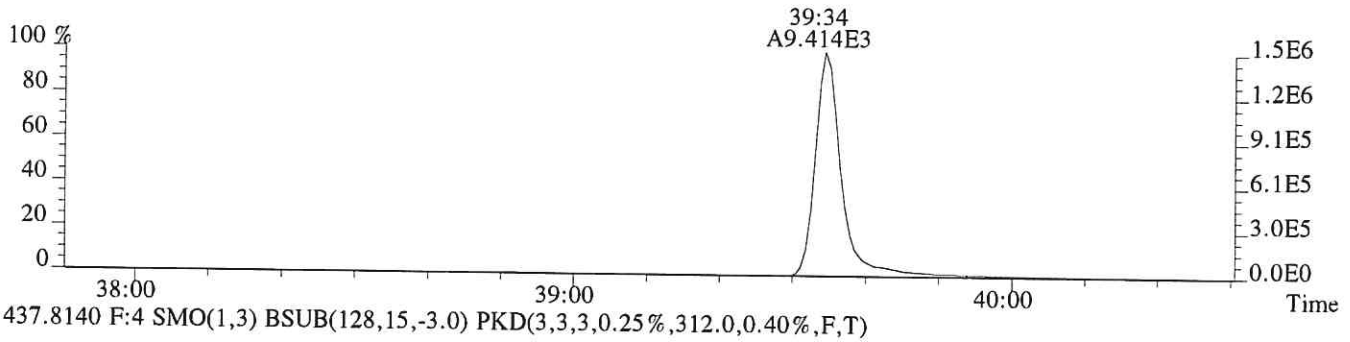
File:P519293 #1-241 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



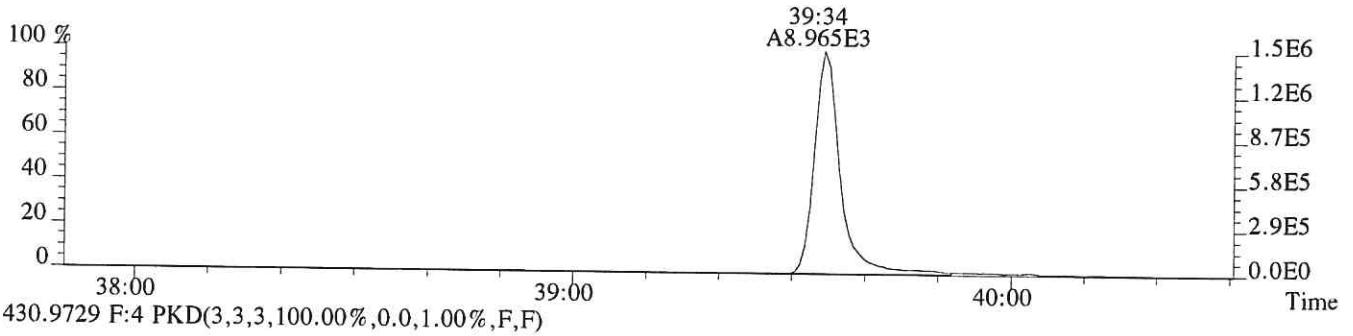
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



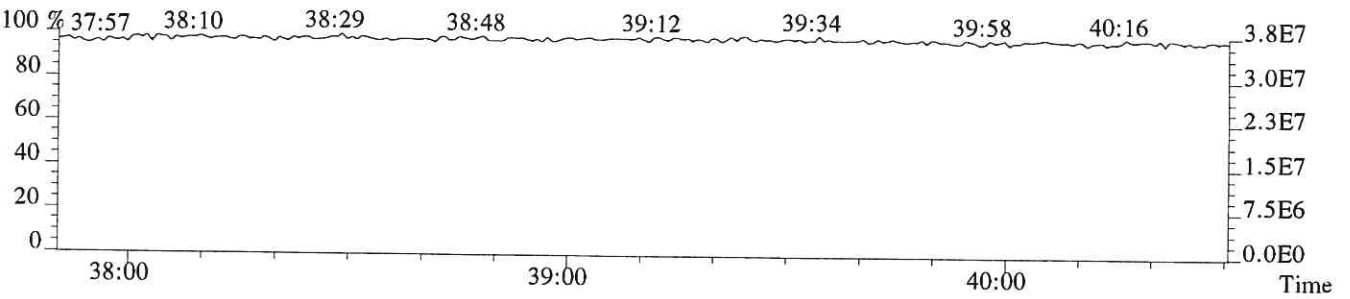
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



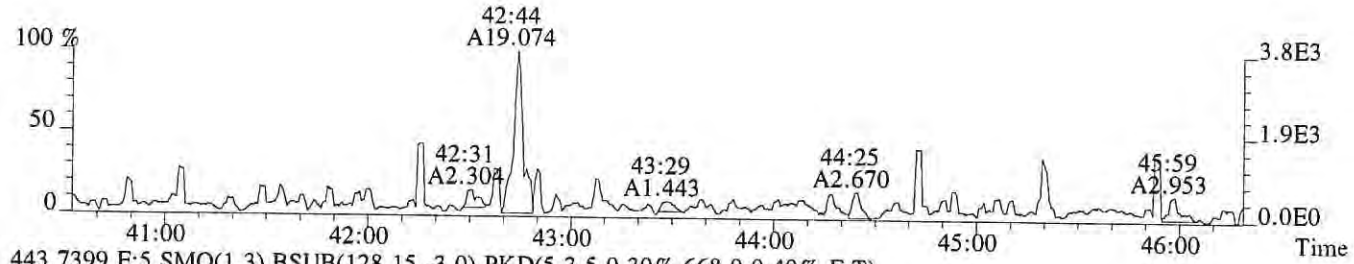
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



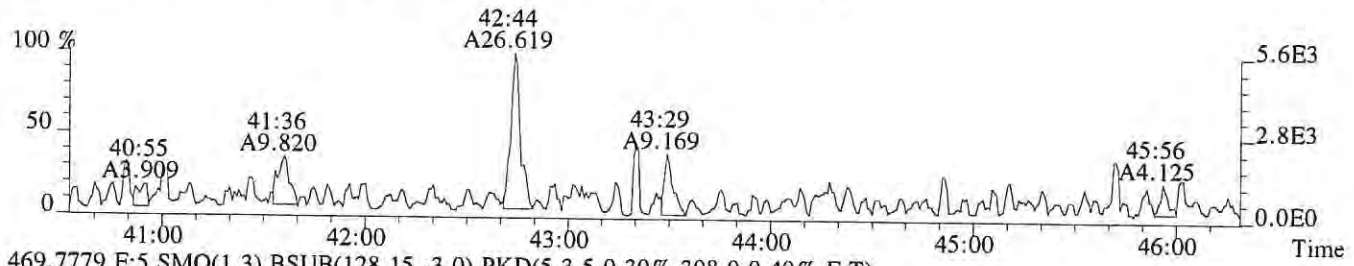
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



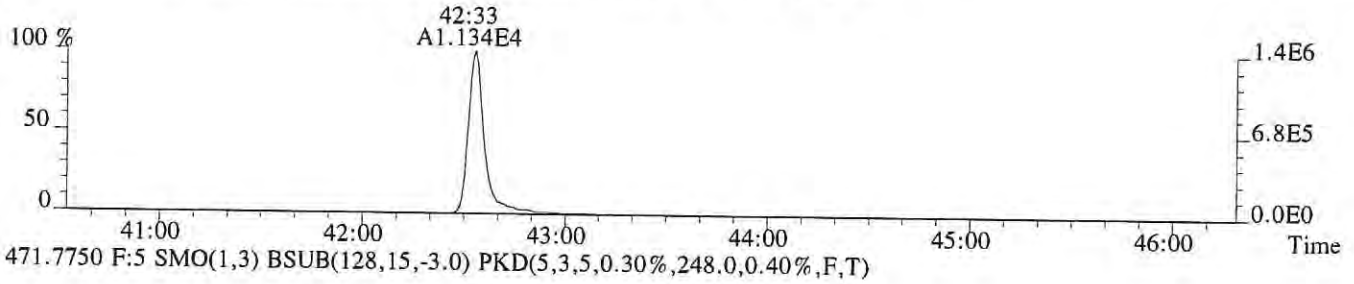
File:P519293 #1-520 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



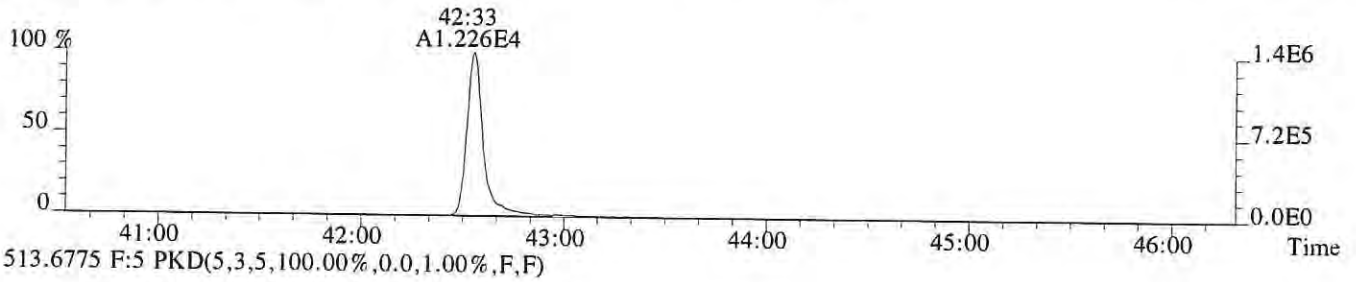
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



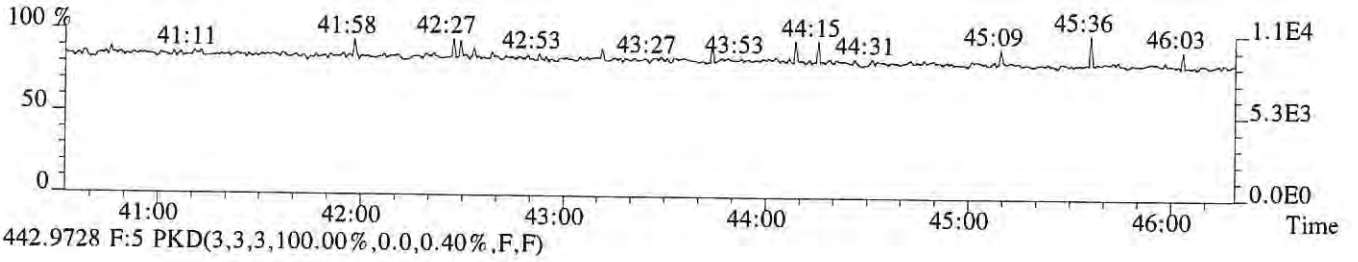
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



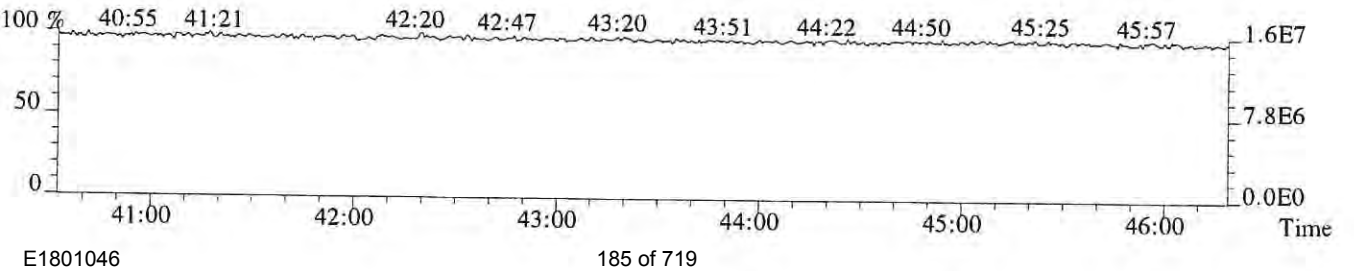
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



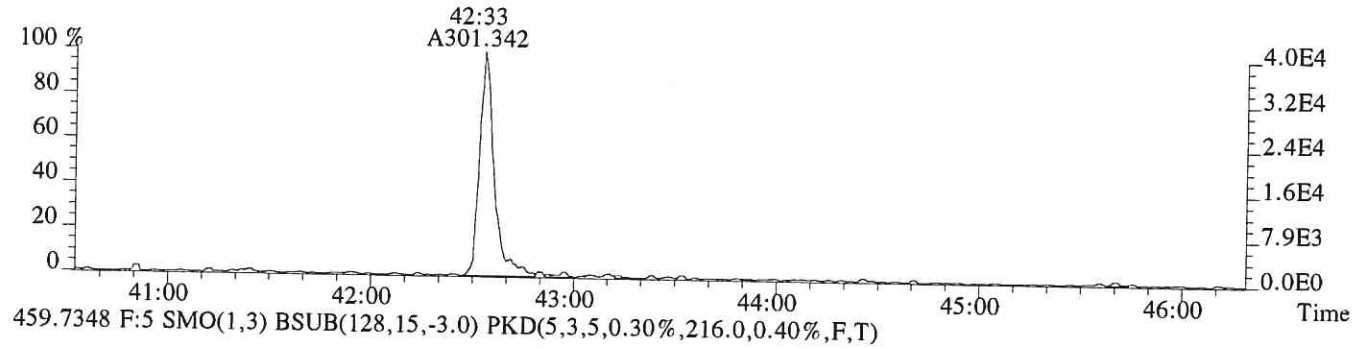
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



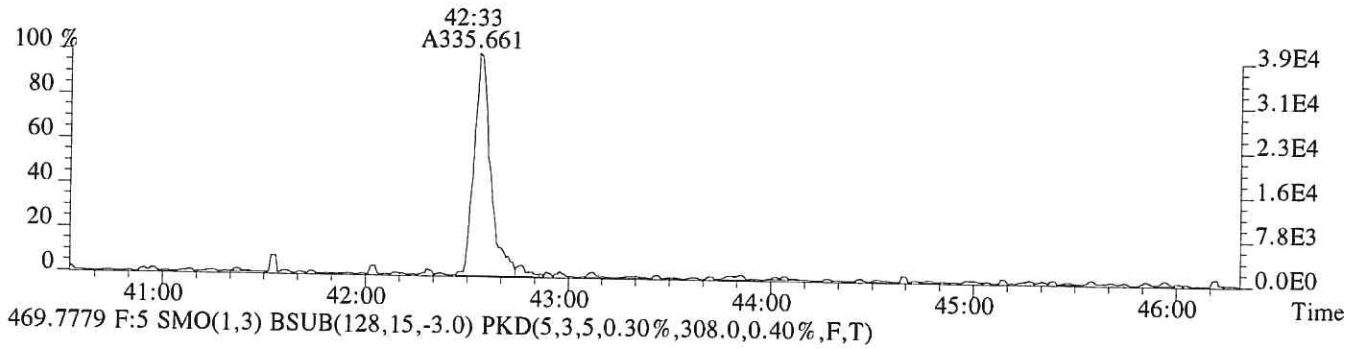
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



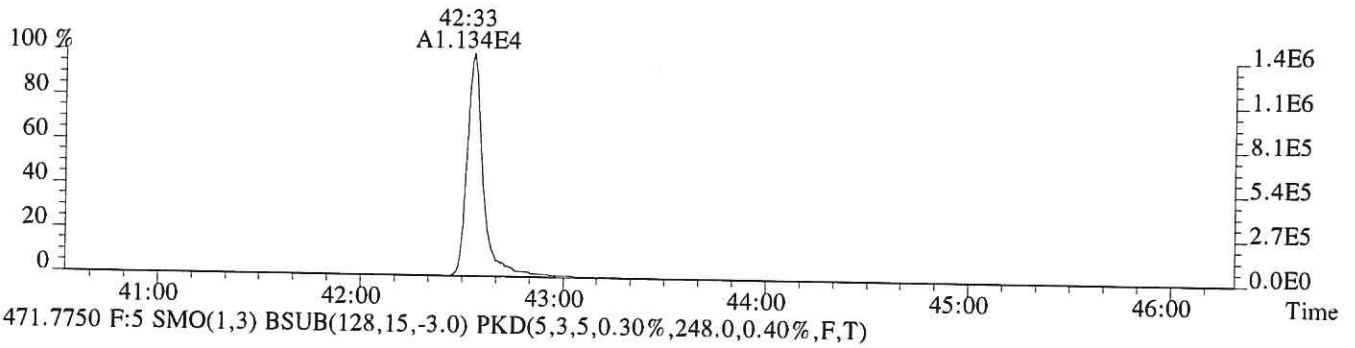
File:P519293 #1-520 Acq: 7-DEC-2018 23:59:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-003DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



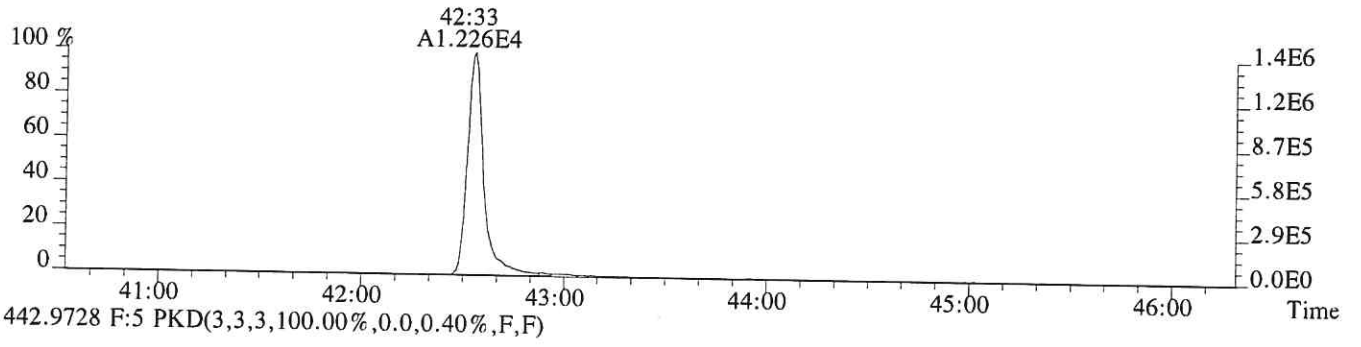
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



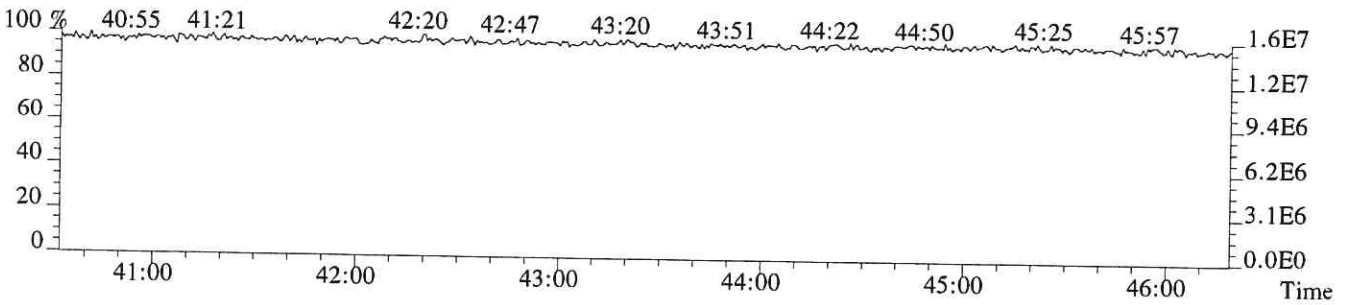
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0542

Run #17 Filename P519250 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:12:15
Processed: 7-DEC-18 09:55:19 Sample ID: E1801046-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.750e+05	2.255e+05	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	1.136e+04	7.545e+03	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:10	8.381e+03	5.494e+03	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.939e+04	2.432e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	6.833e+03	5.557e+03	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	8.674e+02	8.472e+02	1.02	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:16	1.493e+03	1.188e+03	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:30	6.368e+03	6.394e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:54	2.489e+03	2.466e+03	1.01	yes	no	1.258
10	Unk	OCDF	42:26	1.881e+03	2.197e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	4.050e+04	5.170e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	7.079e+02	4.498e+02	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:37	4.867e+01	1.893e+01	2.57	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.014e+02	5.583e+01	1.82	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	8.970e+01	5.324e+01	1.68	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	2.166e+03	1.996e+03	1.08	yes	no	1.025
17	Unk	OCDD	42:14	2.944e+04	3.346e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	2.294e+04	2.839e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:15	3.495e+04	2.196e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	3.441e+04	2.145e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.505e+04	2.873e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	1.612e+04	3.102e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.468e+04	2.844e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:14	1.400e+04	2.666e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	9.420e+03	2.153e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	9.155e+03	2.007e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:47	1.021e+04	1.279e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:27	2.529e+04	1.586e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	2.085e+04	1.632e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	2.040e+04	1.563e+04	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	1.965e+04	1.883e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:13	1.521e+04	1.656e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.313e+04	2.889e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:56	3.377e+04	2.614e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.645e+04				no	1.014

$$\text{OCDD} = \frac{(2.944e+04 + 3.346e+04) \times 4000\ \text{pg} \times 1}{(1.521e+04 + 1.656e+04) \times 10.909\ \text{g} \times 78.3 / 100 \times 1.118} = 829.2\ \text{ng/kg}$$

4H 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0542

Run #17 Filename P519250 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:12:15
Processed: 7-DEC-18 09:55:19 LAB. ID: E1801046-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.96e+07	1.68e+03	1.8e+04	3.82e+07	2.70e+03	1.4e+04
2	1,2,3,7,8-PeCDF	2.18e+06	4.00e+03	5.4e+02	1.43e+06	2.01e+03	7.1e+02
3	2,3,4,7,8-PeCDF	1.41e+06	4.00e+03	3.5e+02	9.14e+05	2.01e+03	4.6e+02
4	1,2,3,4,7,8-HxCDF	6.35e+06	1.84e+03	3.5e+03	5.17e+06	1.30e+03	4.0e+03
5	1,2,3,6,7,8-HxCDF	1.33e+06	1.84e+03	7.2e+02	1.09e+06	1.30e+03	8.4e+02
6	2,3,4,6,7,8-HxCDF	1.96e+05	1.84e+03	1.1e+02	1.85e+05	1.30e+03	1.4e+02
7	1,2,3,7,8,9-HxCDF	2.87e+05	1.84e+03	1.6e+02	2.21e+05	1.30e+03	1.7e+02
8	1,2,3,4,6,7,8-HpCDF	1.34e+06	2.41e+03	5.6e+02	1.35e+06	2.28e+03	5.9e+02
9	1,2,3,4,7,8,9-HpCDF	4.54e+05	2.41e+03	1.9e+02	4.56e+05	2.28e+03	2.0e+02
10	OCDF	3.16e+05	2.32e+02	1.4e+03	3.55e+05	9.08e+02	3.9e+02
11	2,3,7,8-TCDD	7.76e+06	2.97e+03	2.6e+03	9.87e+06	1.40e+03	7.1e+03
12	1,2,3,7,8-PeCDD	1.11e+05	8.04e+02	1.4e+02	8.41e+04	2.56e+02	3.3e+02
13	1,2,3,4,7,8-HxCDD	1.40e+04	5.76e+02	2.4e+01	5.80e+03	1.37e+03	4.2e+00
14	1,2,3,6,7,8-HxCDD	2.19e+04	5.76e+02	3.8e+01	1.35e+04	1.37e+03	9.8e+00
15	1,2,3,7,8,9-HxCDD	1.69e+04	5.76e+02	2.9e+01	1.14e+04	1.37e+03	8.3e+00
16	1,2,3,4,6,7,8-HpCDD	4.29e+05	1.67e+03	2.6e+02	3.83e+05	1.28e+03	3.0e+02
17	OCDD	4.62e+06	1.88e+02	2.5e+04	5.25e+06	2.88e+02	1.8e+04
18	13C-2,3,7,8-TCDF	4.31e+06	7.47e+03	5.8e+02	5.36e+06	8.49e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	6.72e+06	4.08e+02	1.6e+04	4.13e+06	1.45e+03	2.9e+03
20	13C-2,3,4,7,8-PeCDF	7.00e+06	4.08e+02	1.7e+04	4.34e+06	1.45e+03	3.0e+03
21	13C-1,2,3,4,7,8-HxCDF	3.17e+06	1.06e+03	3.0e+03	6.04e+06	1.01e+03	6.0e+03
22	13C-1,2,3,6,7,8-HxCDF	3.33e+06	1.06e+03	3.1e+03	6.50e+06	1.01e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	3.08e+06	1.06e+03	2.9e+03	6.01e+06	1.01e+03	6.0e+03
24	13C-1,2,3,7,8,9-HxCDF	2.89e+06	1.06e+03	2.7e+03	5.48e+06	1.01e+03	5.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.01e+06	1.84e+03	1.1e+03	4.46e+06	3.84e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.67e+06	1.84e+03	9.1e+02	3.72e+06	3.84e+03	9.7e+02
27	13C-2,3,7,8-TCDD	2.04e+06	5.64e+03	3.6e+02	2.54e+06	3.80e+03	6.7e+02
28	13C-1,2,3,7,8-PeCDD	5.01e+06	1.60e+03	3.1e+03	3.17e+06	1.42e+03	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	4.65e+06	1.06e+03	4.4e+03	3.65e+06	1.10e+03	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	4.17e+06	1.06e+03	3.9e+03	3.26e+06	1.10e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.75e+06	9.16e+02	4.1e+03	3.58e+06	5.12e+02	7.0e+03
32	13C-OCDD	2.35e+06	6.92e+02	3.4e+03	2.56e+06	2.88e+02	8.9e+03
33	13C-1,2,3,4-TCDD	4.36e+06	5.64e+03	7.7e+02	5.52e+06	3.80e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.88e+06	1.06e+03	6.5e+03	5.42e+06	1.10e+03	4.9e+03
35	37Cl-2,3,7,8-TCDD	3.17e+06	1.45e+03	2.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0542

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519250 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 303.9020 305.8990 Tot Response: 7.08e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:59	1.44e+03	1.92e+03	0.75	yes	3.36e+03		n	n
2	25:18	7.63e+03	1.06e+04	0.72	yes	1.82e+04		n	n
3	25:43	2.40e+03	2.80e+03	0.86	yes	5.20e+03		n	n
4	26:01	6.88e+03	9.19e+03	0.75	yes	1.61e+04		n	n
5	26:37	4.42e+03	6.08e+03	0.73	yes	1.05e+04		n	n
6	26:45	7.81e+03	1.03e+04	0.76	yes	1.81e+04		n	n
7	27:11	7.20e+04	9.48e+04	0.76	yes	1.67e+05		n	n
8	27:26	3.38e+03	4.49e+03	0.75	yes	7.87e+03		n	n
9	28:00	1.75e+05	2.26e+05	0.78	yes	4.01e+05	2,3,7,8-TCDF	n	n
10	28:20	1.13e+04	1.54e+04	0.74	yes	2.67e+04		n	n
11	28:34	1.73e+03	2.39e+03	0.73	yes	4.12e+03		n	n
12	29:51	1.43e+04	1.65e+04	0.86	yes	3.08e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SL0542

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519250 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 319.8970 321.8940 Tot Response: 1.02e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:40	8.57e+01	1.05e+02	0.82	yes	1.90e+02		n	n
2	28:32	5.77e+02	6.63e+02	0.87	yes	1.24e+03		n	n
3	28:48	4.05e+04	5.17e+04	0.78	yes	9.22e+04	2,3,7,8-TCDD	n	n
4	29:05	3.41e+03	4.71e+03	0.72	yes	8.11e+03		n	n

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Peak List Summary

CLIENT ID.
SL0542

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P519250 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 339.8600 341.8570 Tot Response: 3.44e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:50	2.14e+02	1.29e+02	1.66	yes	3.44e+02	n	n

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Peak List Summary

CLIENT ID.
SL0542

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519250 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 339.8600 341.8570 Tot Response: 4.88e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:12	1.17e+02	8.62e+01	1.36	yes	2.03e+02		n	n
2	31:20	4.81e+03	3.24e+03	1.48	yes	8.05e+03		n	n
3	32:06	9.56e+02	6.79e+02	1.41	yes	1.64e+03		n	n
4	32:16	1.14e+04	7.54e+03	1.51	yes	1.89e+04	1,2,3,7,8-PeCDF	n	n
5	32:31	3.32e+03	2.18e+03	1.52	yes	5.50e+03		n	n
6	33:10	8.38e+03	5.49e+03	1.53	yes	1.39e+04	2,3,4,7,8-PeCDF	n	n
7	34:06	3.73e+02	2.65e+02	1.41	yes	6.37e+02		n	n

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Peak List Summary

CLIENT ID.
SL0542

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519250 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 355.8550 357.8520 Tot Response: 1.38e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:16	7.32e+01	4.44e+01 1.65	yes	1.18e+02		n	n
2	32:26	6.25e+01	4.04e+01 1.55	yes	1.03e+02		n	y
3	33:28	7.08e+02	4.50e+02 1.57	yes	1.16e+03	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0542

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519250 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 373.8210 375.8180 Tot Response: 7.32e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	1.64e+03	1.31e+03	1.26	yes	2.95e+03		n	n
2	35:26	8.06e+02	6.34e+02	1.27	yes	1.44e+03		n	n
3	35:53	2.94e+04	2.43e+04	1.21	yes	5.37e+04	1,2,3,4,7,8-HxCDF	n	n
4	35:59	6.83e+03	5.56e+03	1.23	yes	1.24e+04	1,2,3,6,7,8-HxCDF	n	n
5	37:16	1.49e+03	1.19e+03	1.26	yes	2.68e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0542

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519250 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 389.8160 391.8130 Tot Response: 1.95e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	6.43e+02	5.58e+02	1.15	yes	1.20e+03		n	n
2	36:02	3.98e+02	3.07e+02	1.30	yes	7.05e+02		n	n
3	36:52	2.26e+01	1.79e+01	1.27	yes	4.05e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0542

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519250 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 407.7820 409.7790 Tot Response: 2.12e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:30	6.37e+03	6.39e+03	1.00	yes	1.28e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:54	1.74e+03	1.72e+03	1.01	yes	3.46e+03		n	n
3	39:54	2.49e+03	2.47e+03	1.01	yes	4.95e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0542

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519250 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 10:12:15 Processed: 7-DEC-18 09:55:19

Mass: 423.7770 425.7740 Tot Response: 1.08e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	3.39e+03	3.23e+03	1.05	yes	6.62e+03		n	n
2	39:26	2.17e+03	2.00e+03	1.08	yes	4.16e+03	1,2,3,4,6,7,8-HpCDD	n	n

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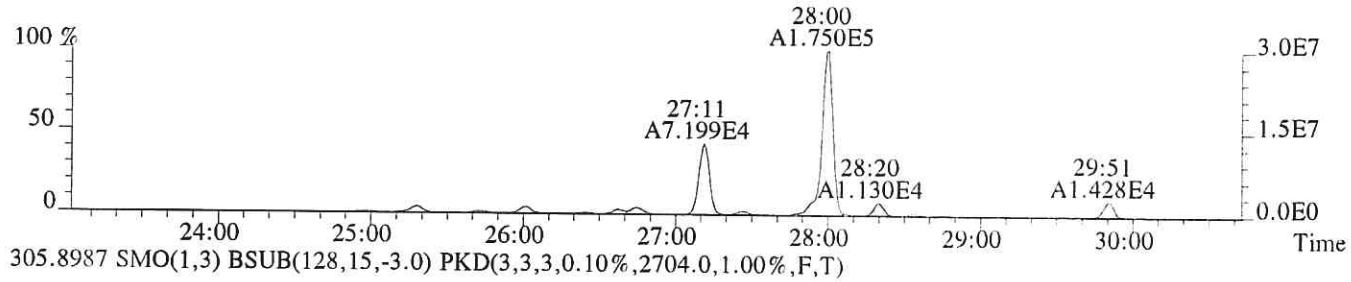
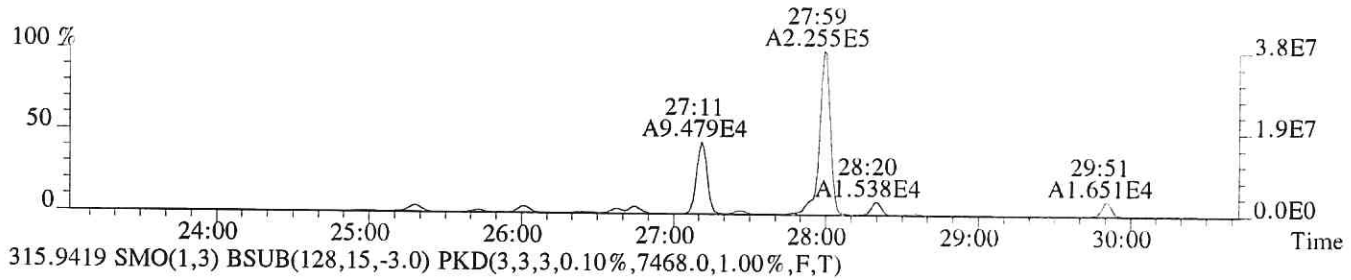
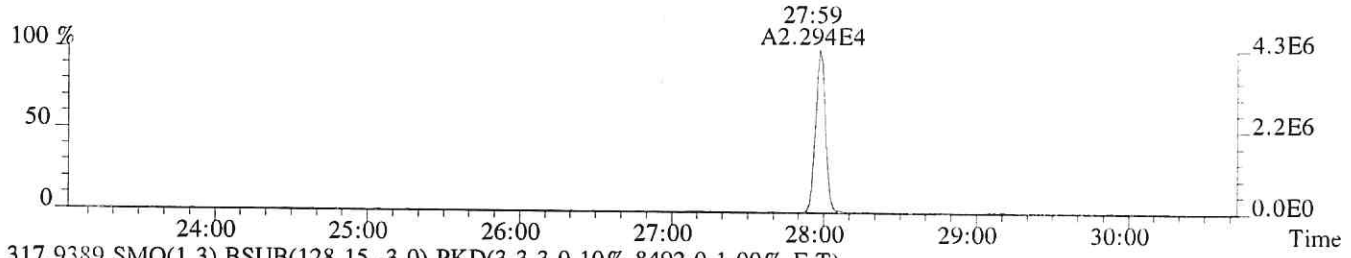
File:P519250 #1-545 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



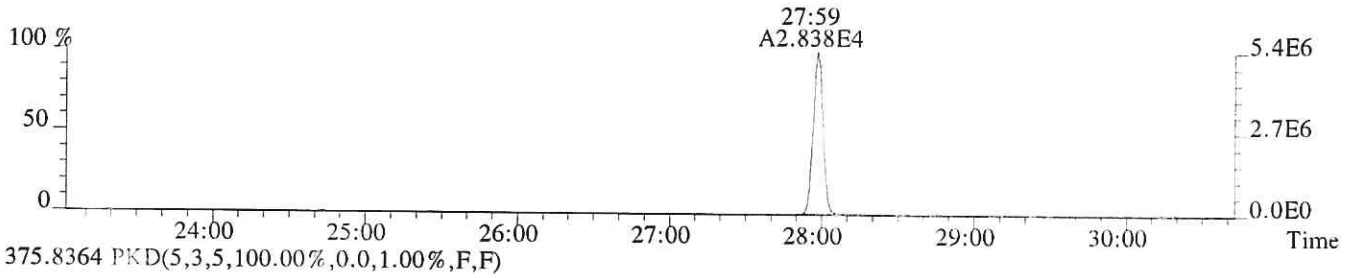
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2704.0,1.00%,F,T)



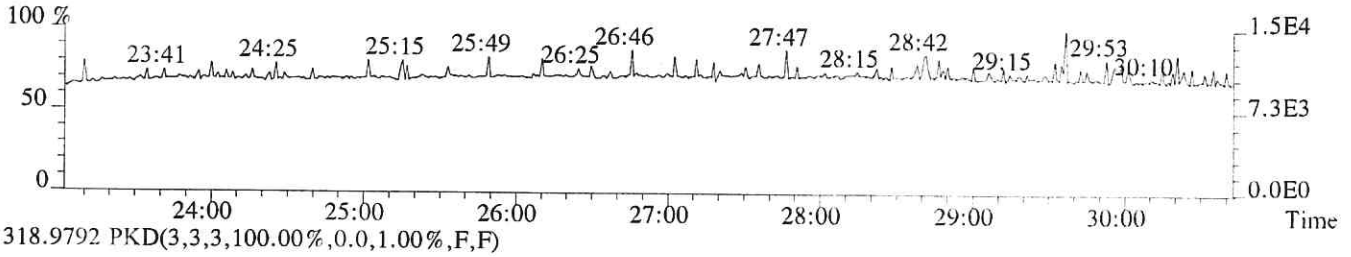
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7468.0,1.00%,F,T)



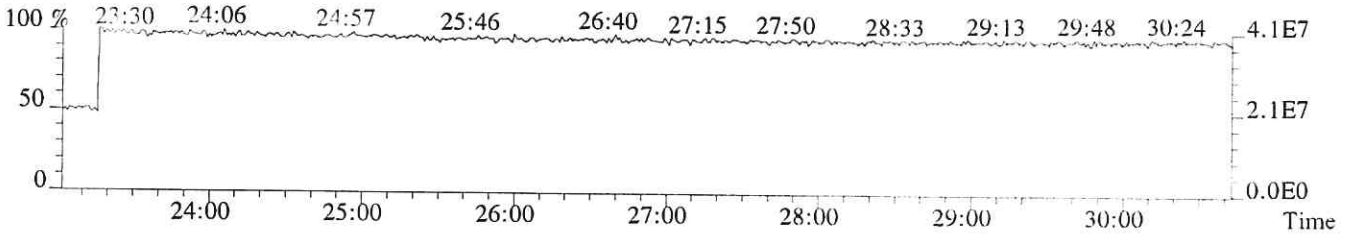
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8492.0,1.00%,F,T)



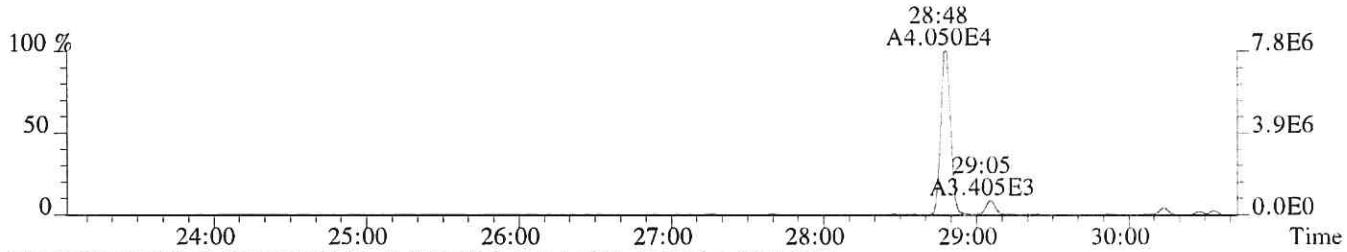
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



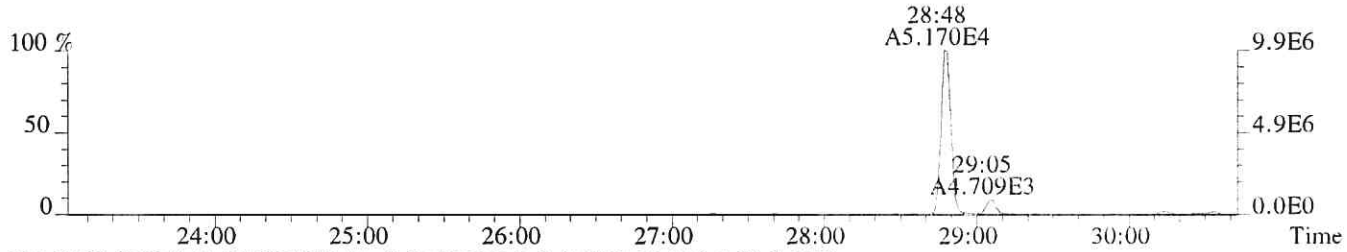
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



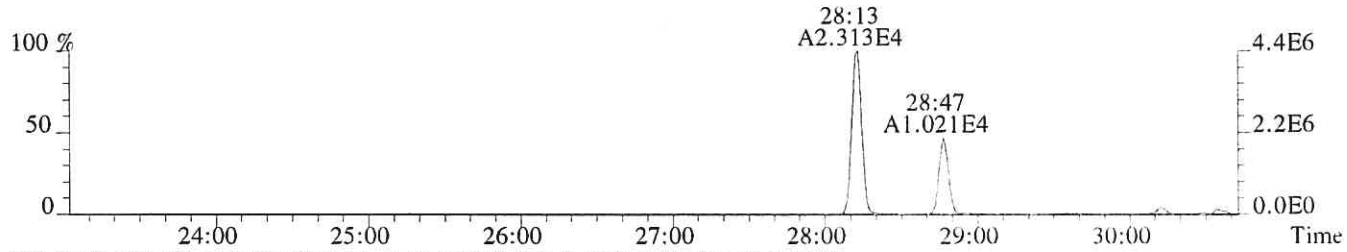
File:P519250 #1-545 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



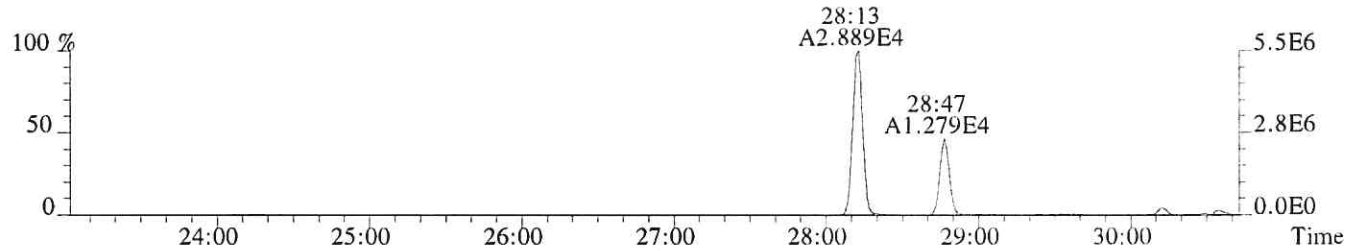
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



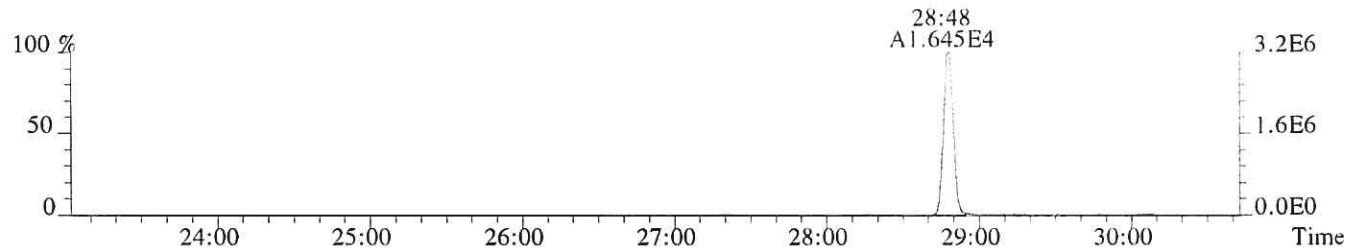
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



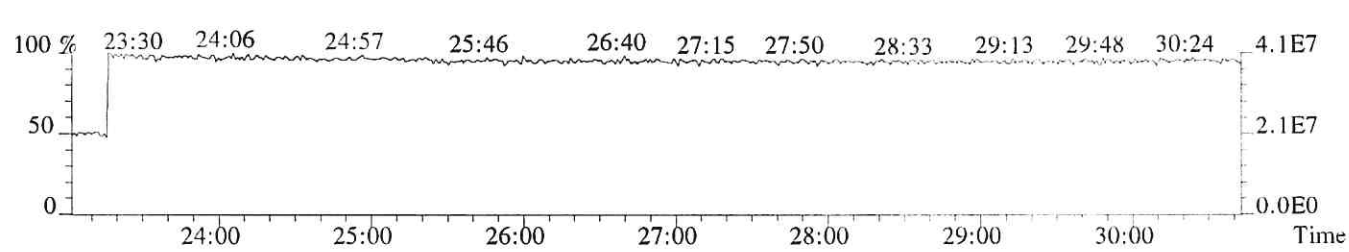
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3796.0,1.00%,F,T)



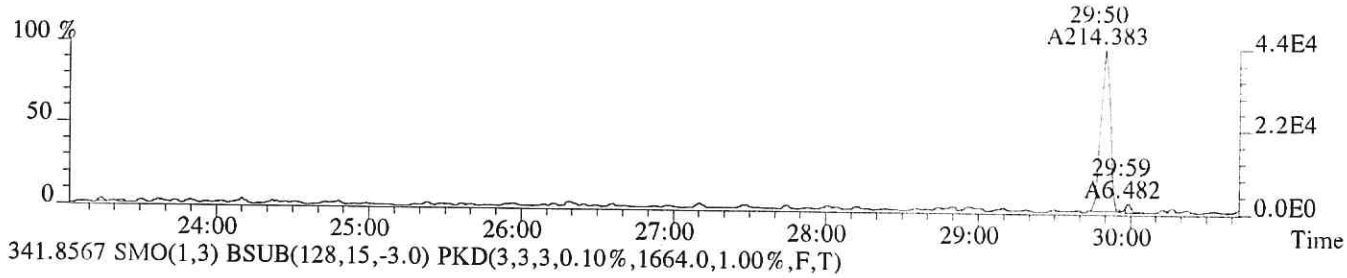
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



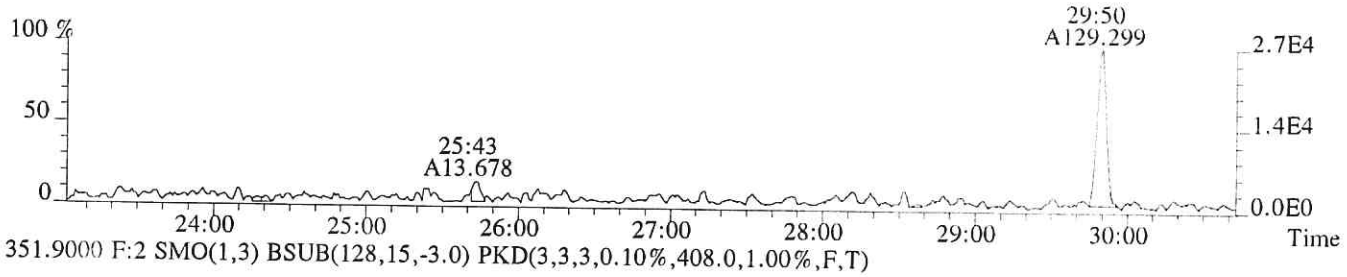
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



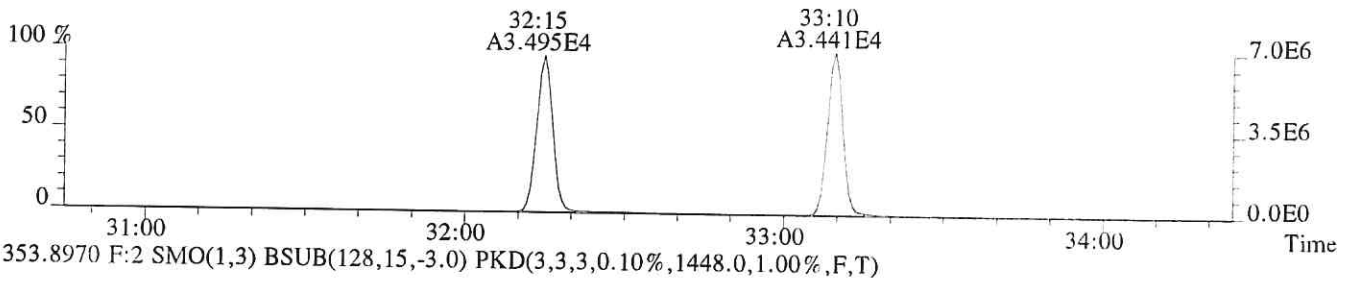
File:P519250 #1-545 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



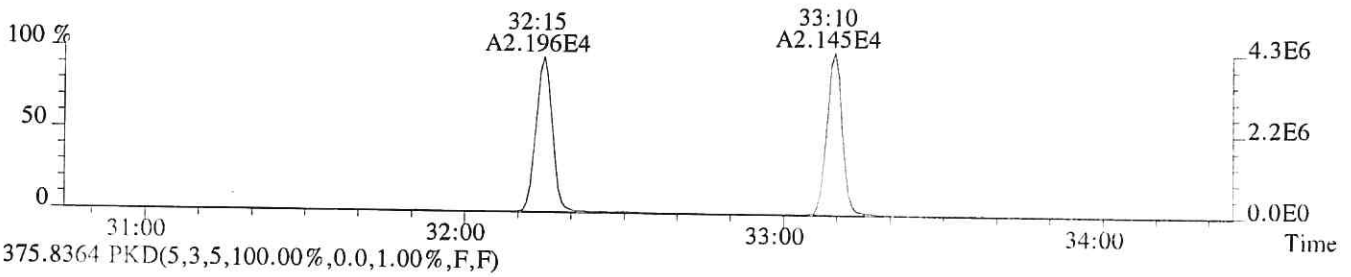
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



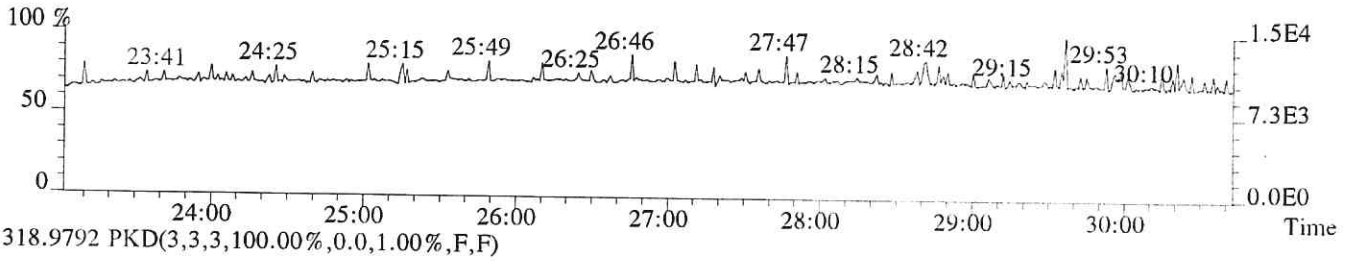
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



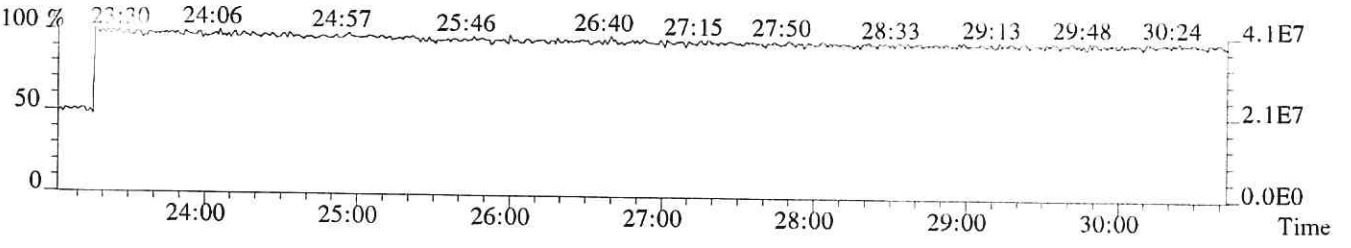
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



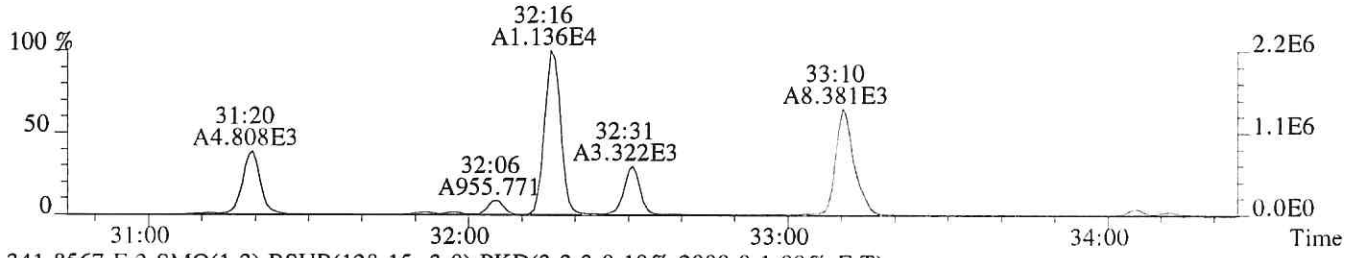
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



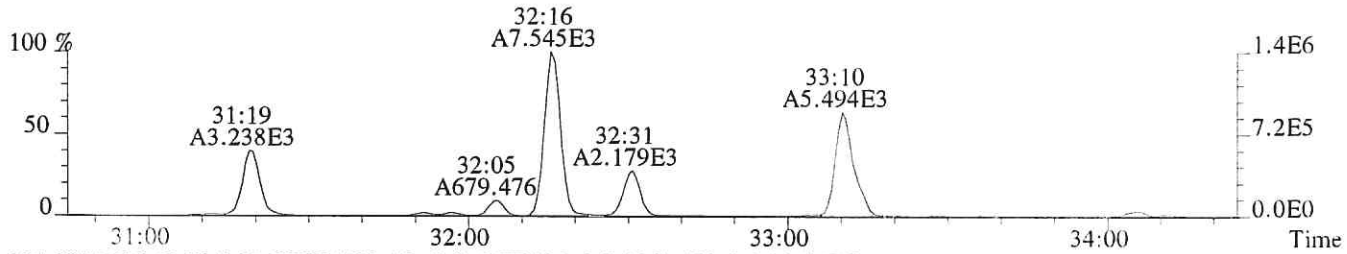
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



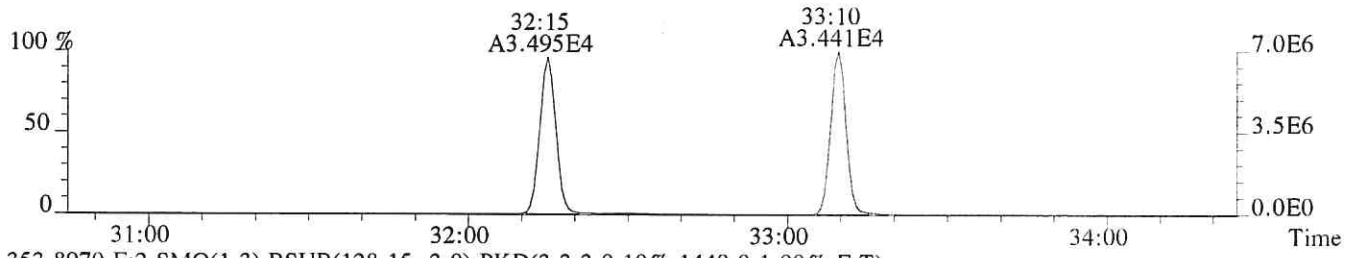
File:P519250 #1-330 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3996.0,1.00%,F,T)



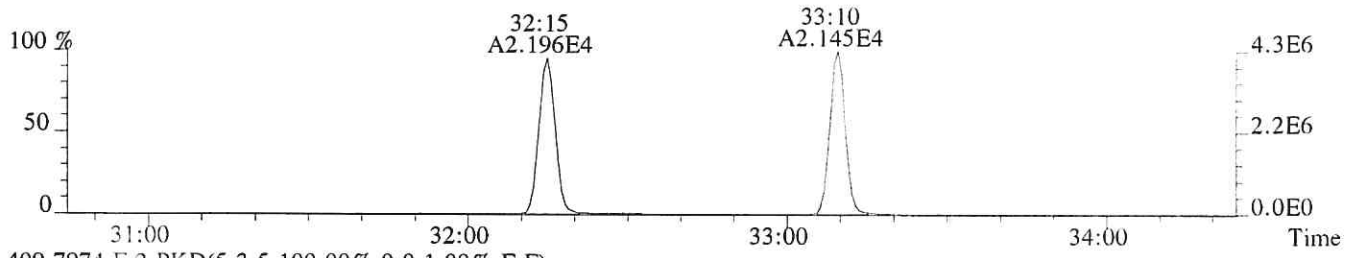
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



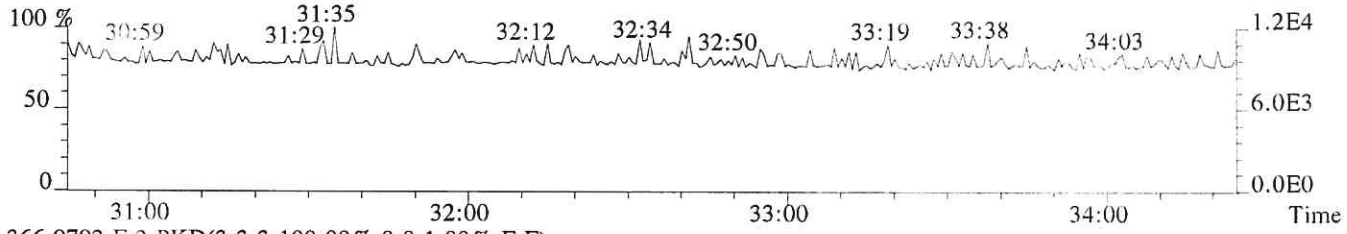
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



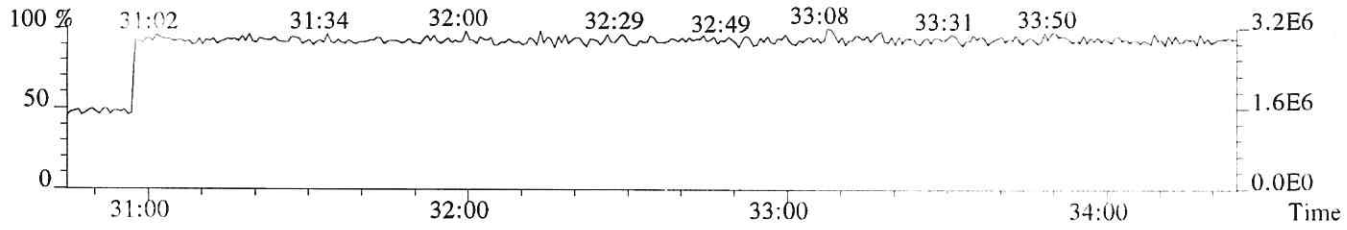
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



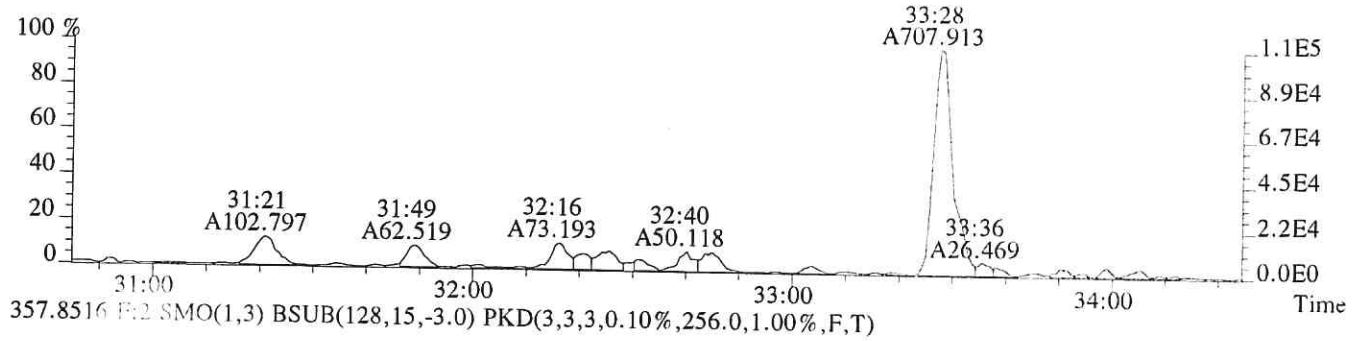
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



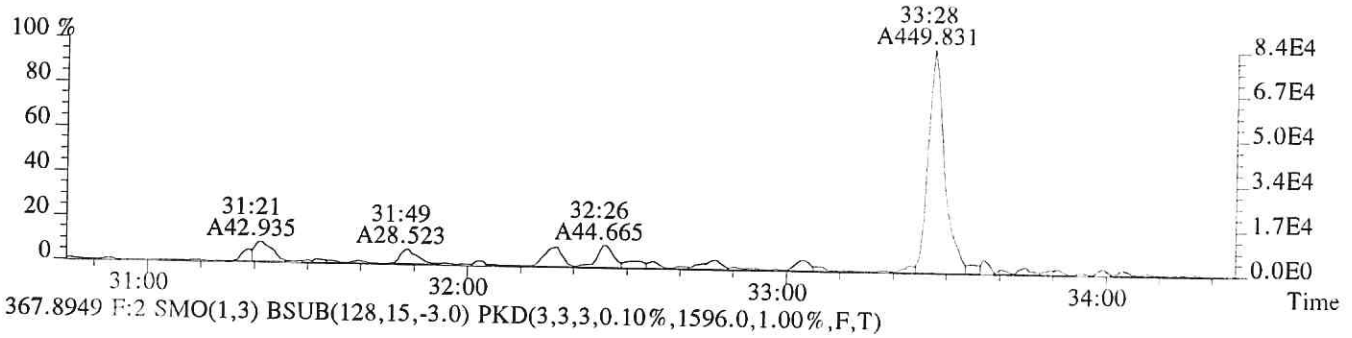
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



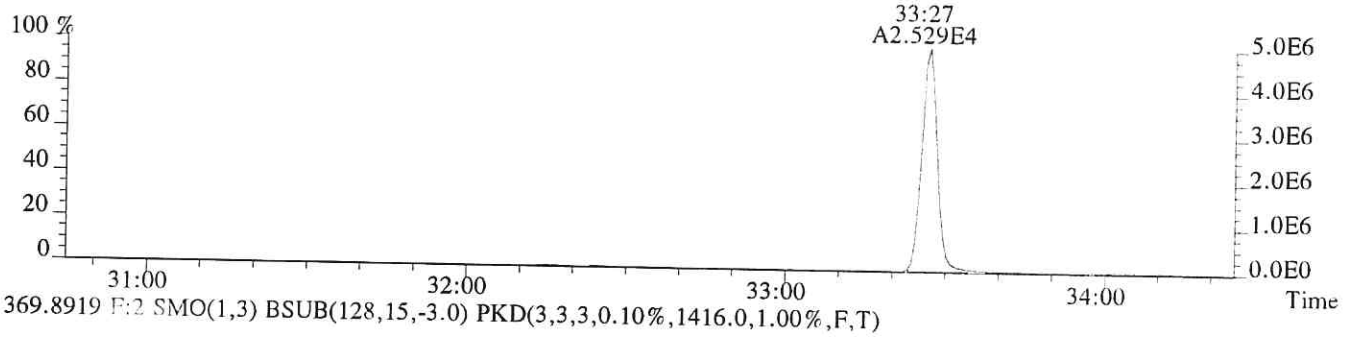
File:P519250 #1-330 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



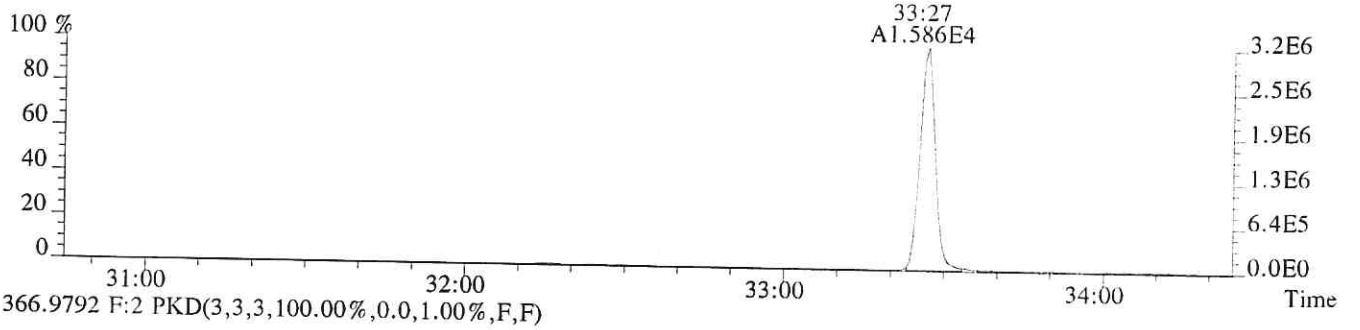
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



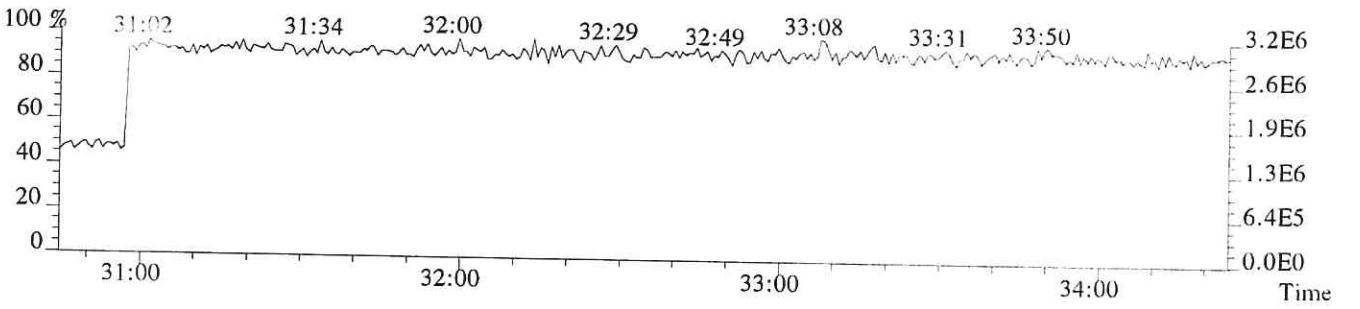
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)



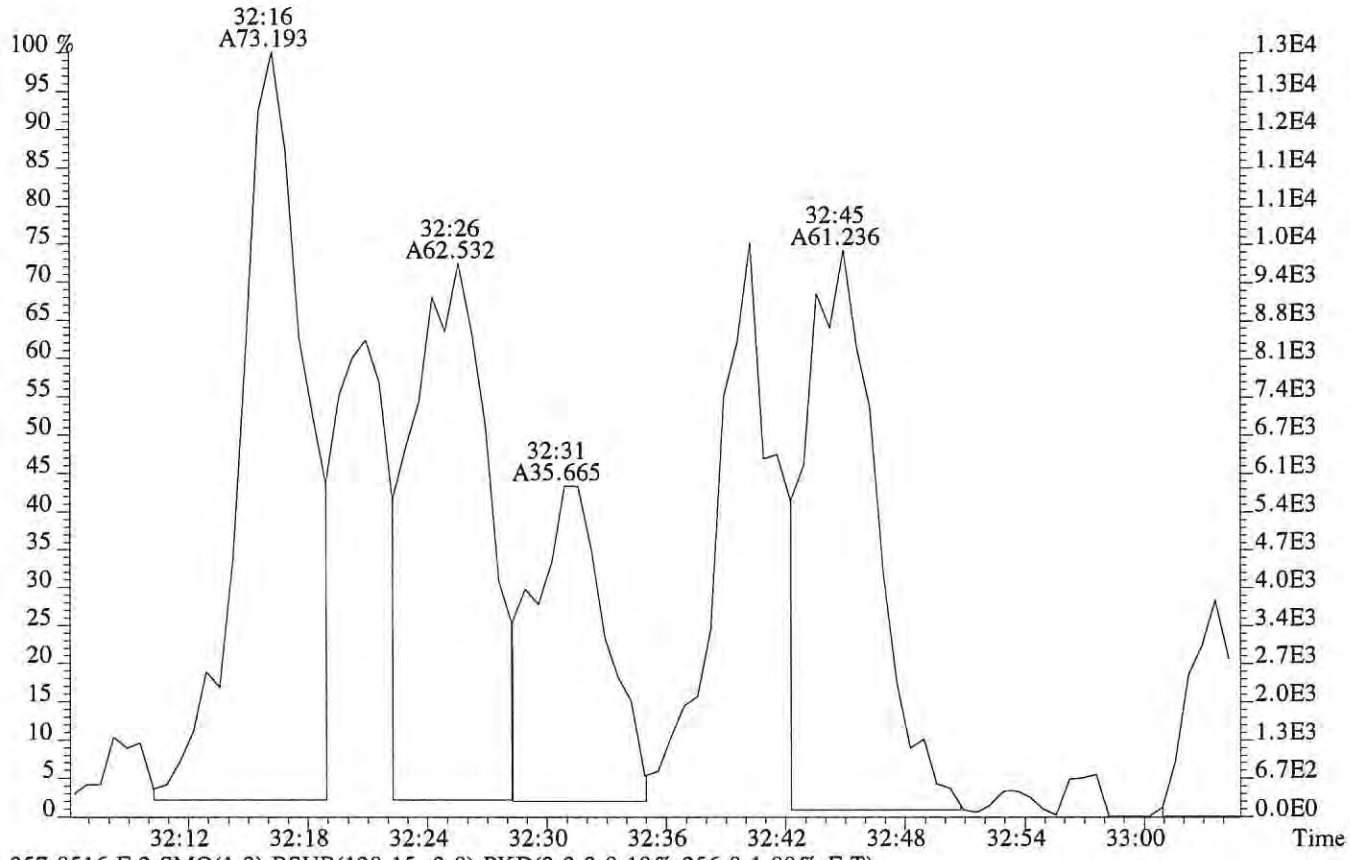
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



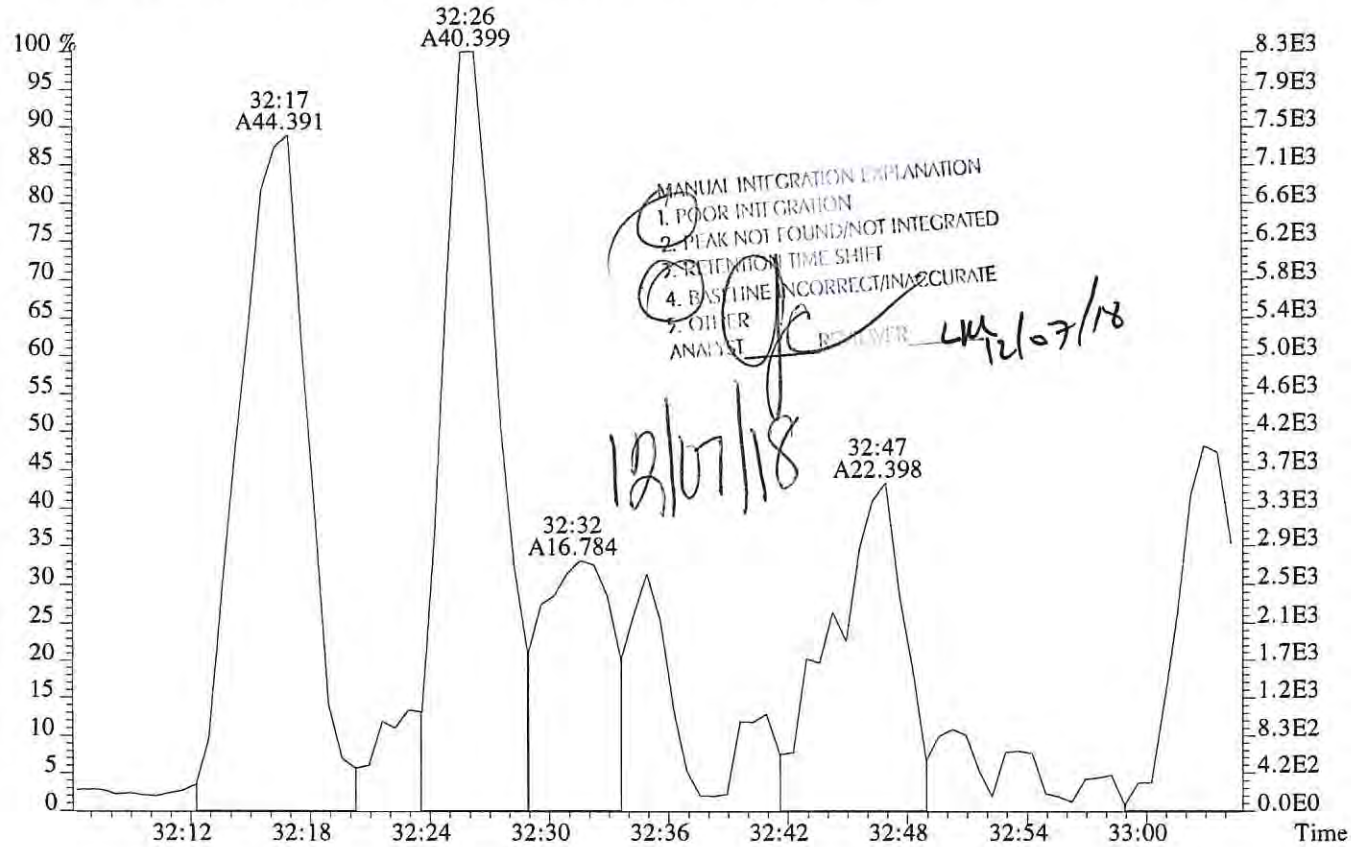
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519250 #1-330 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

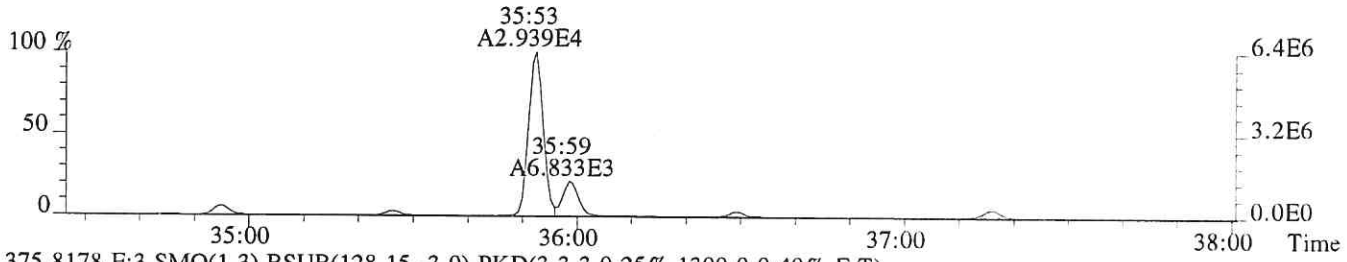


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)

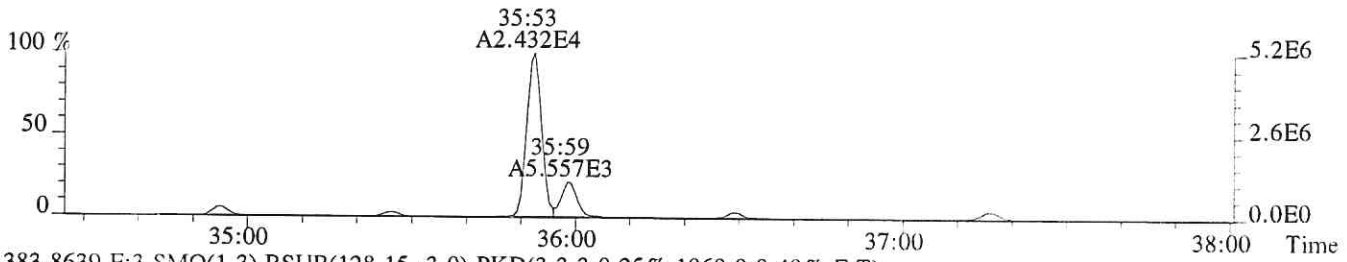


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST RE-REVIEWER
12/07/18
12/07/18

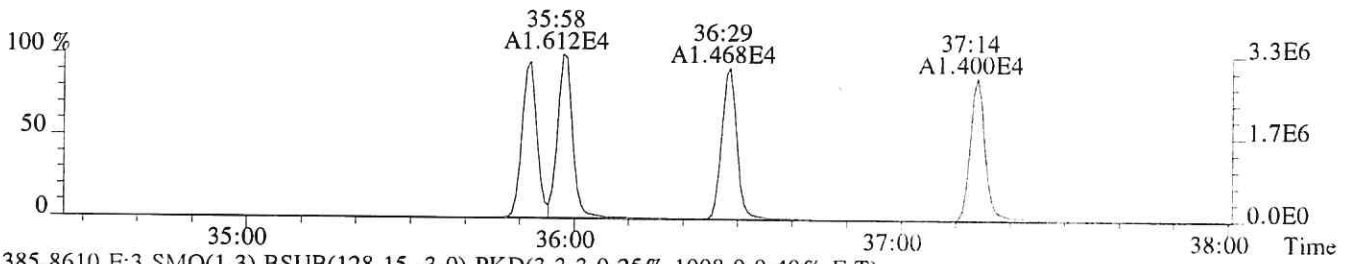
File:P519250 #1-322 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



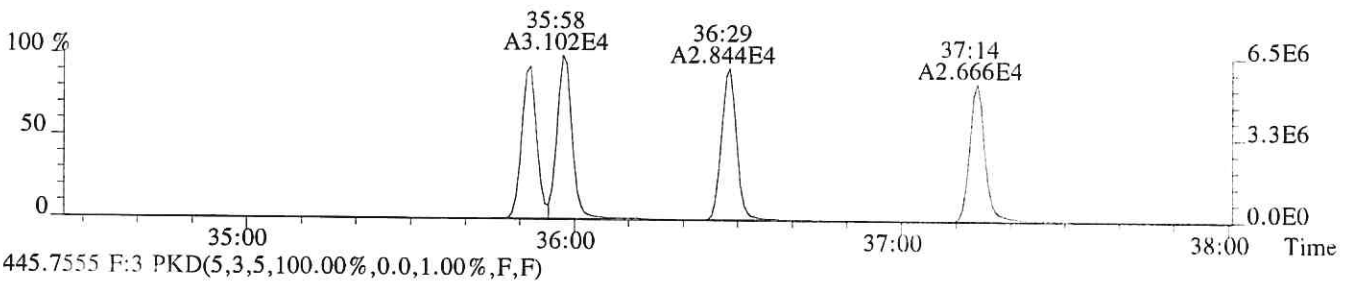
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



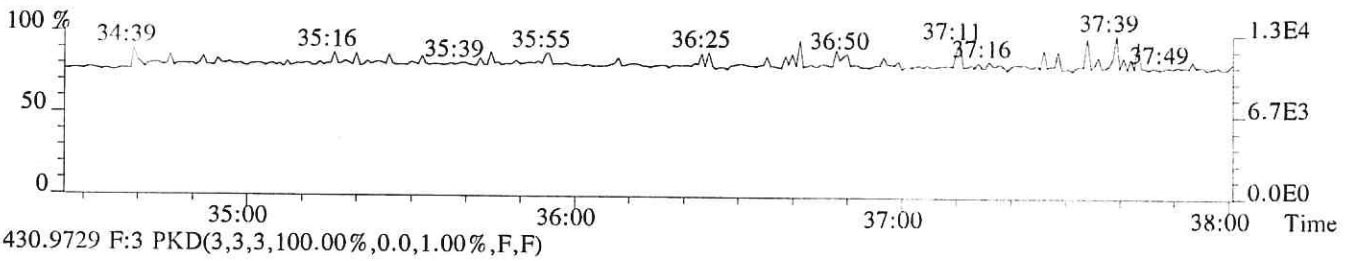
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



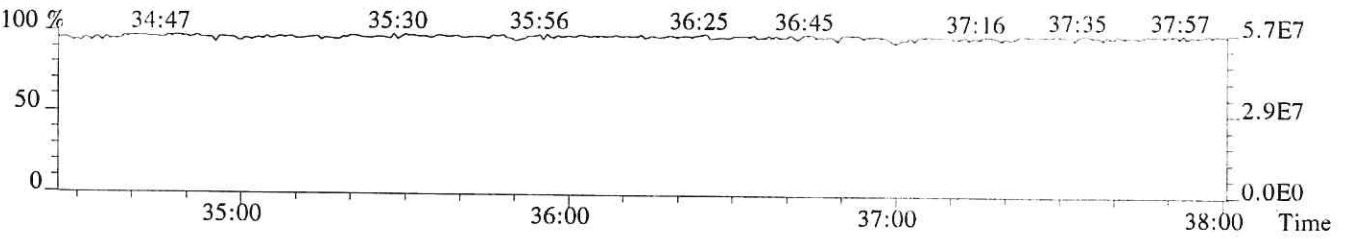
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



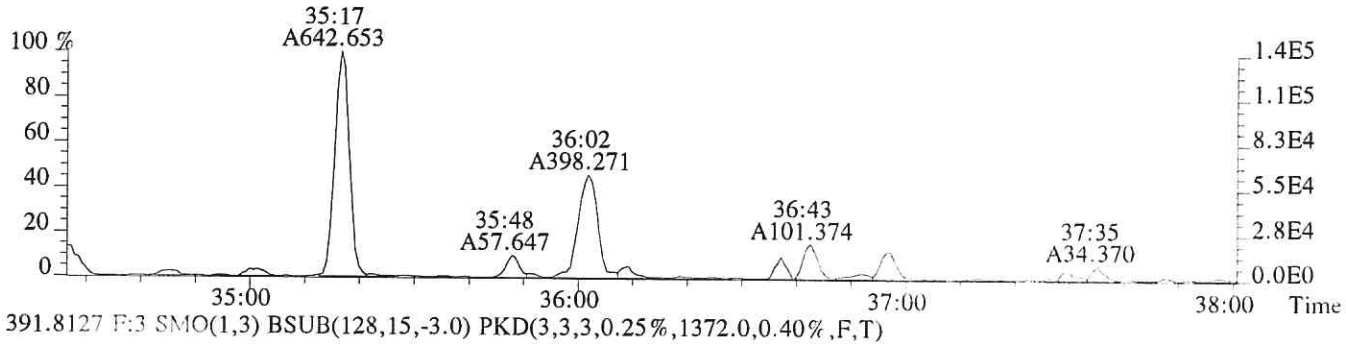
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



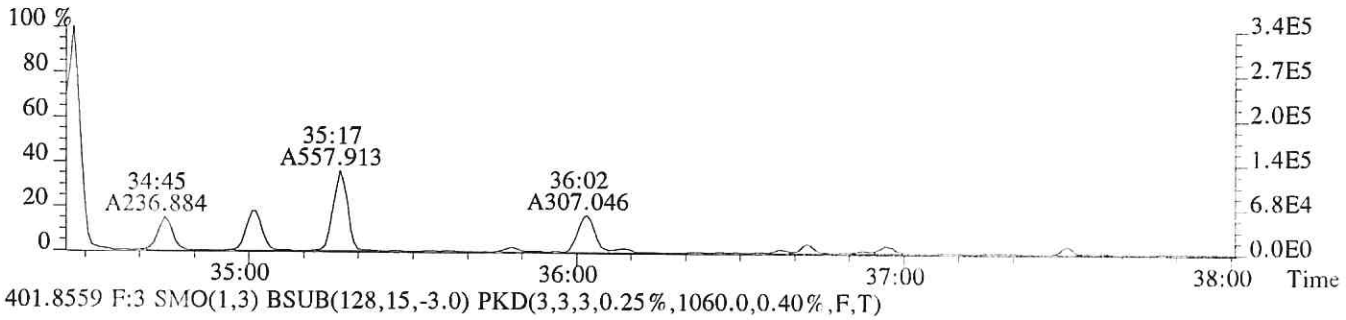
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



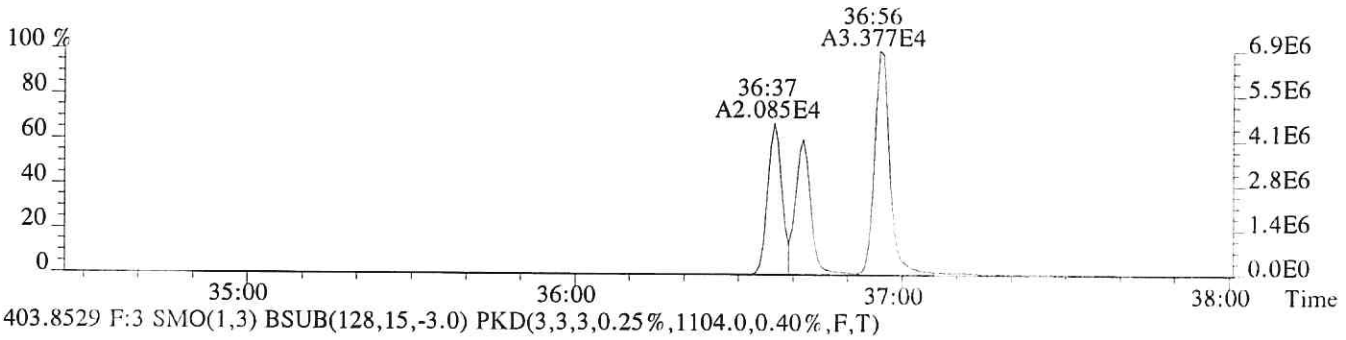
File:P519250 #1-322 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



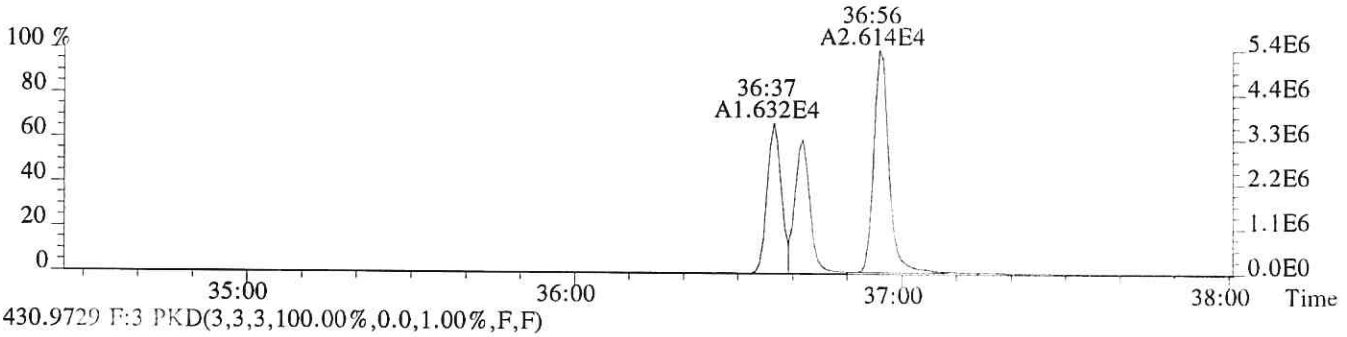
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



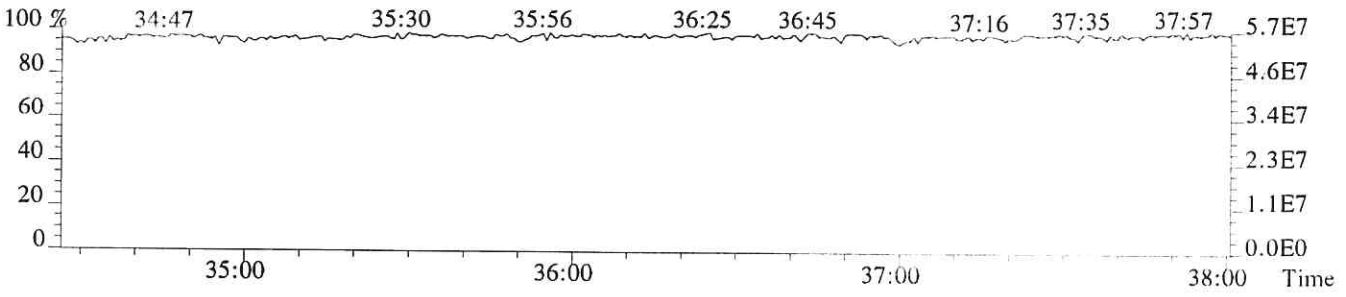
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)

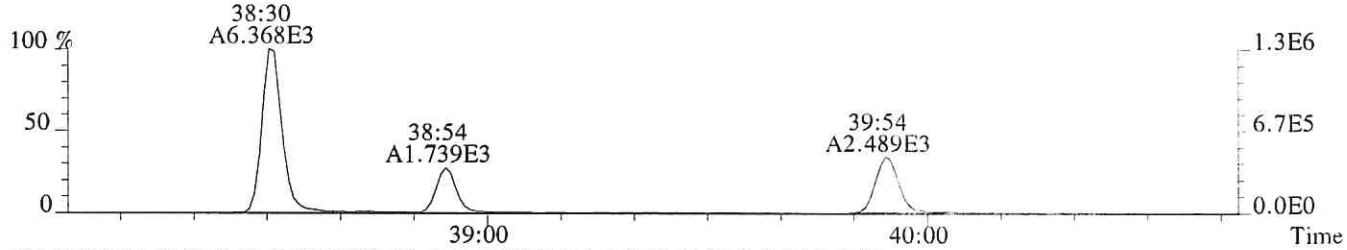


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

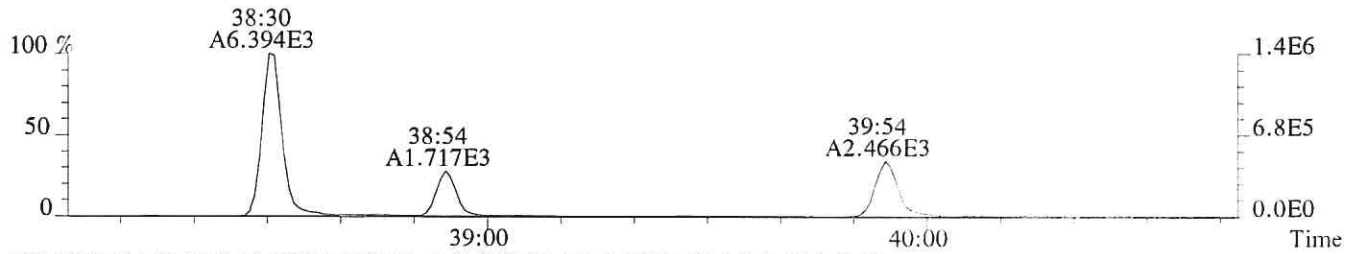


File:P519250 #1-240 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004

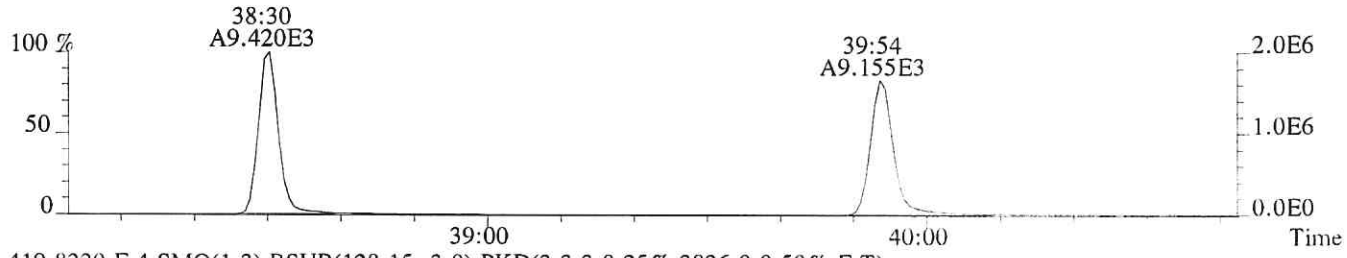
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2412.0,0.50%,F,T)



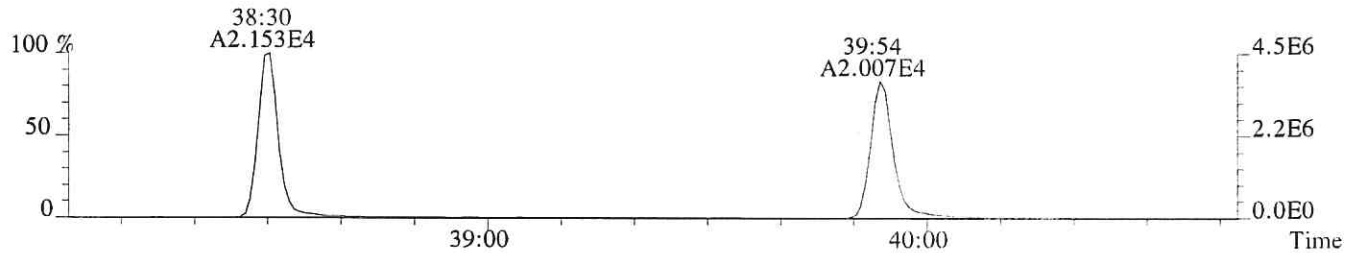
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.50%,F,T)



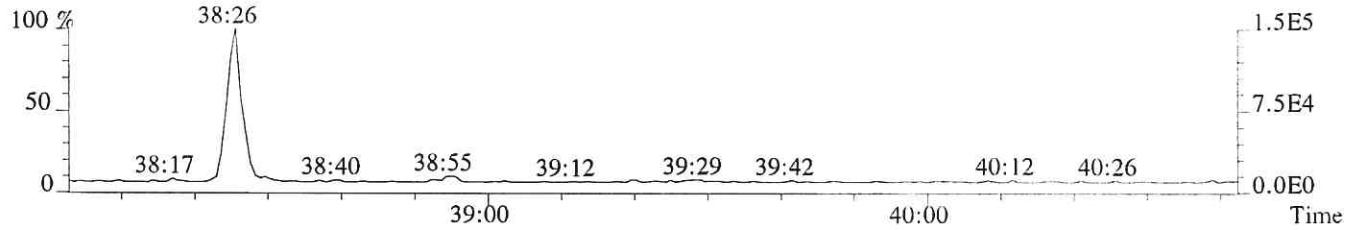
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.50%,F,T)



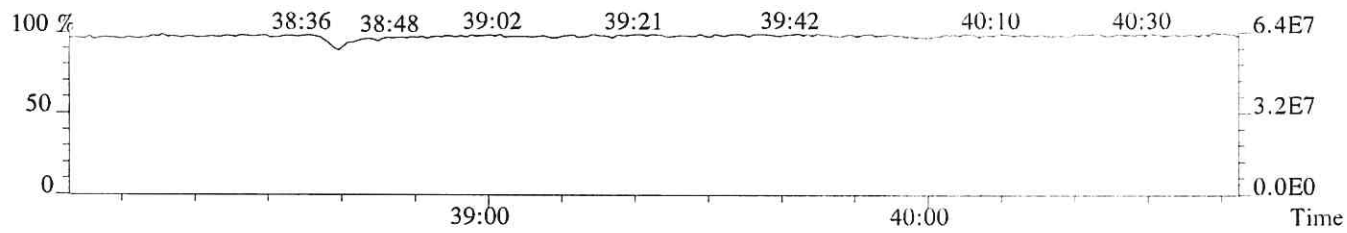
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3836.0,0.50%,F,T)



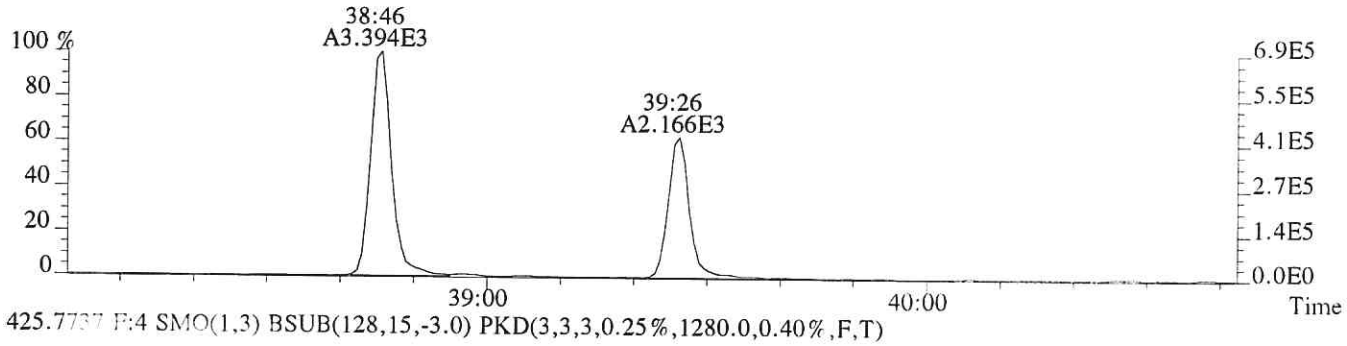
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



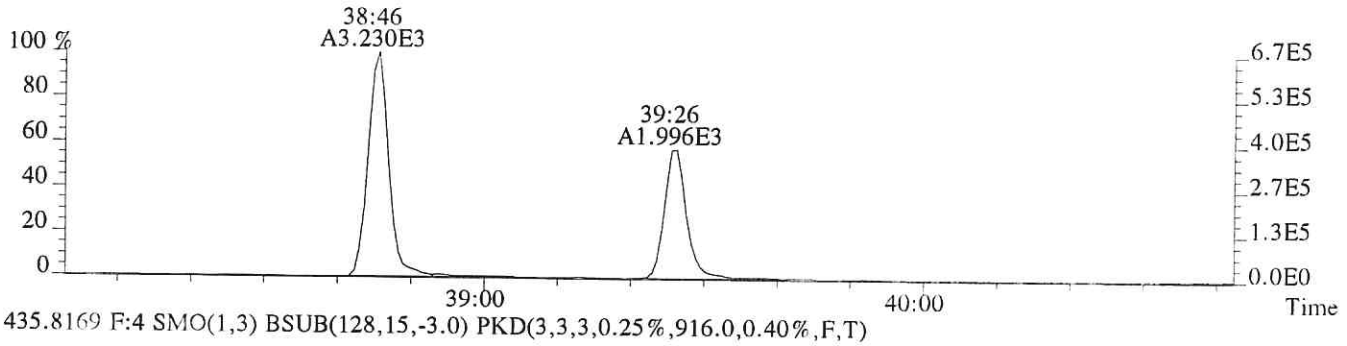
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



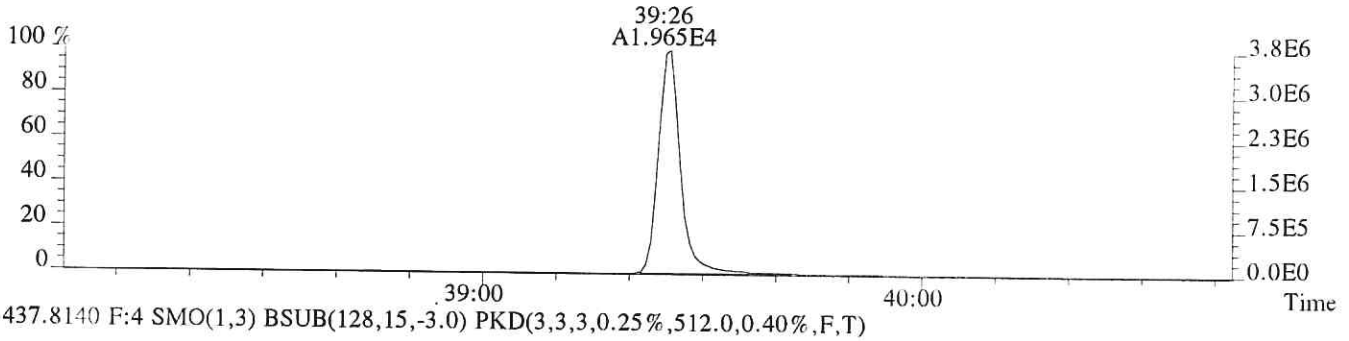
File:P519250 #1-240 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1668.0,0.40%,F,T)



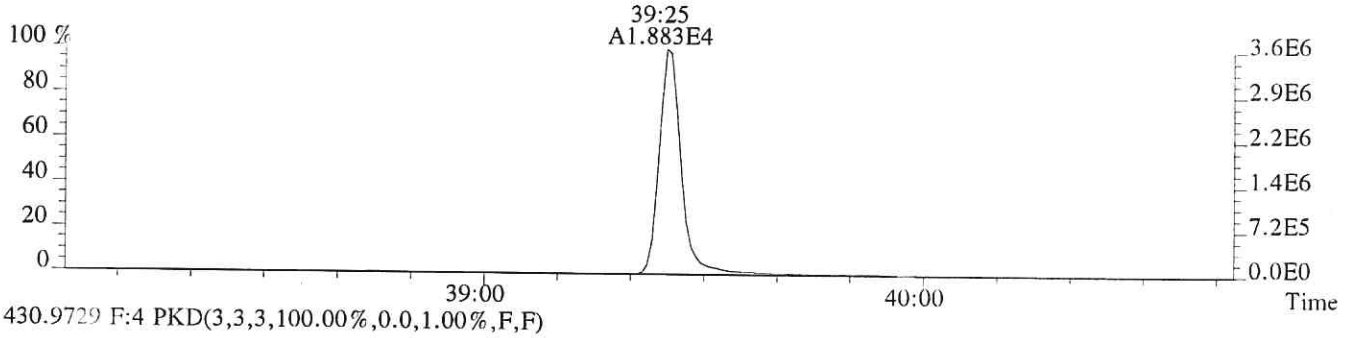
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)



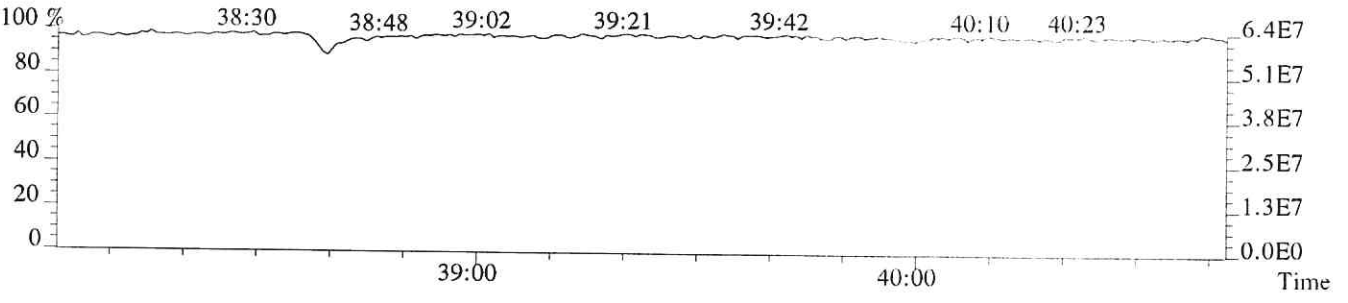
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



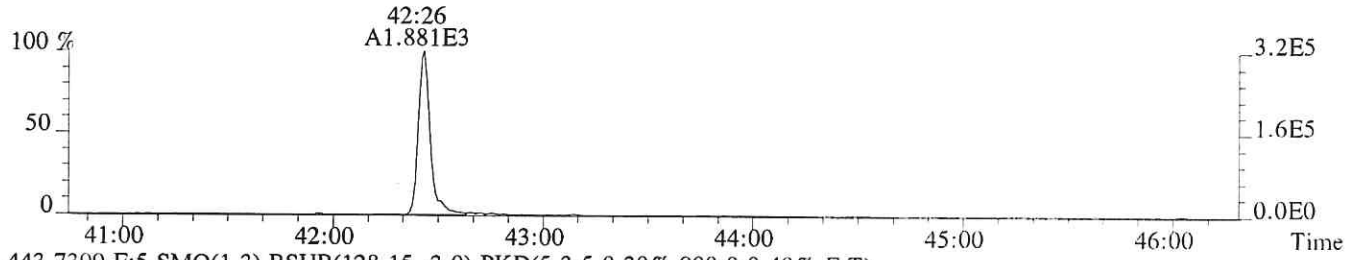
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



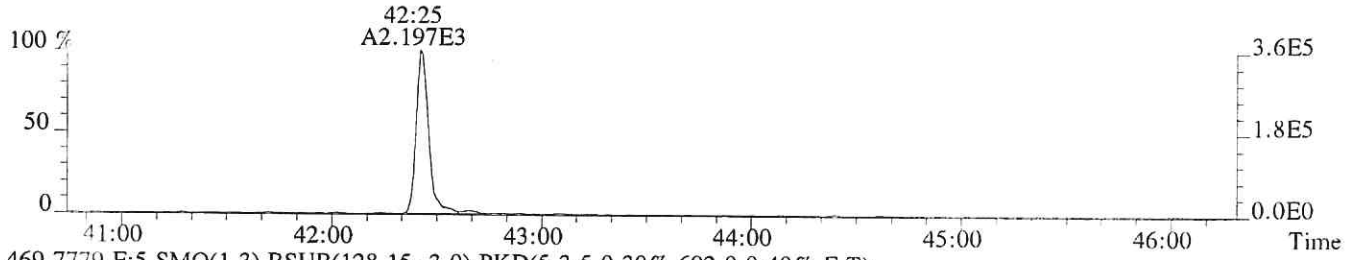
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



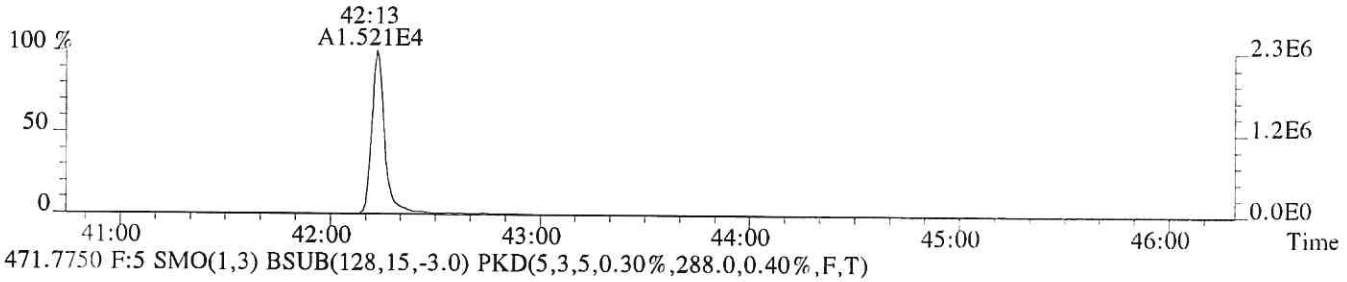
File:P519250 #1-502 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



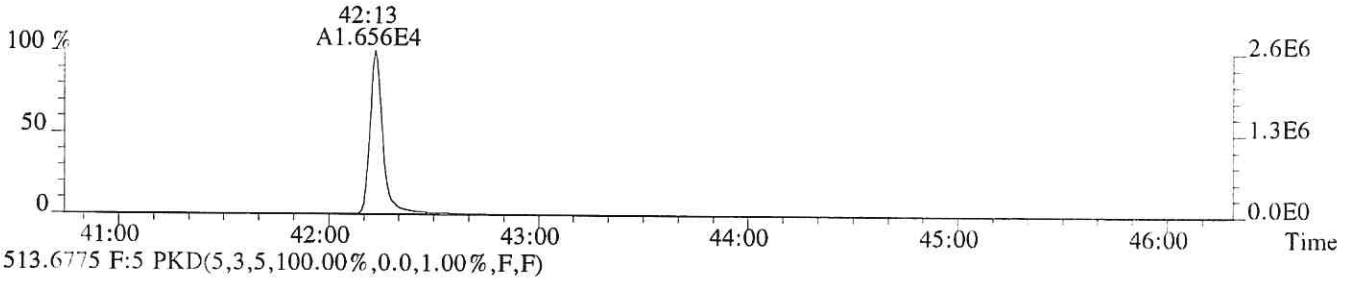
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



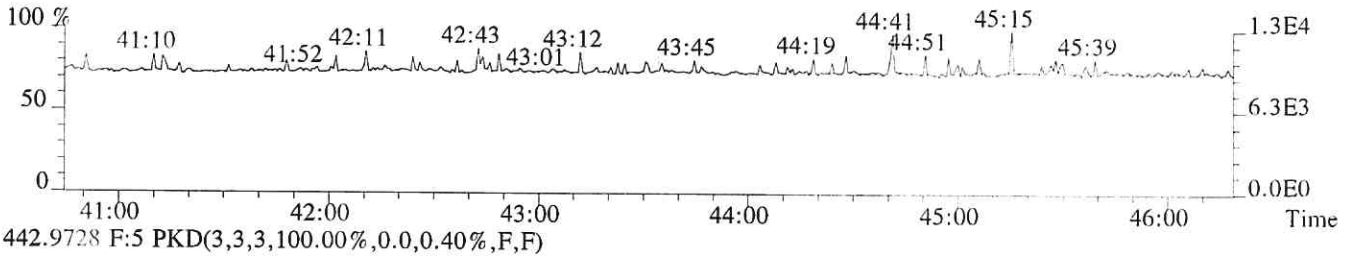
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



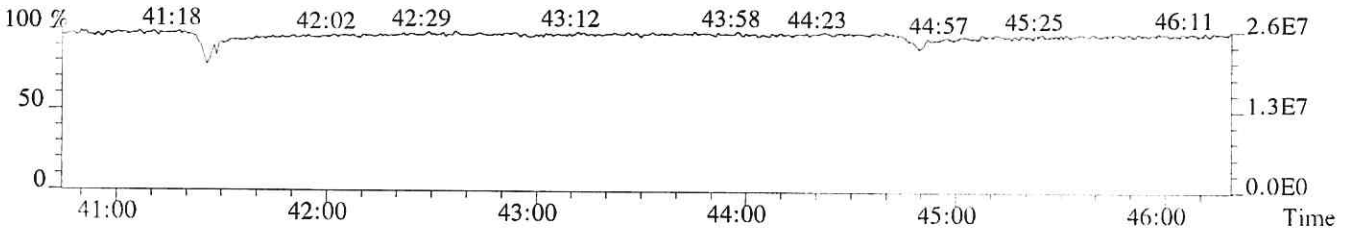
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



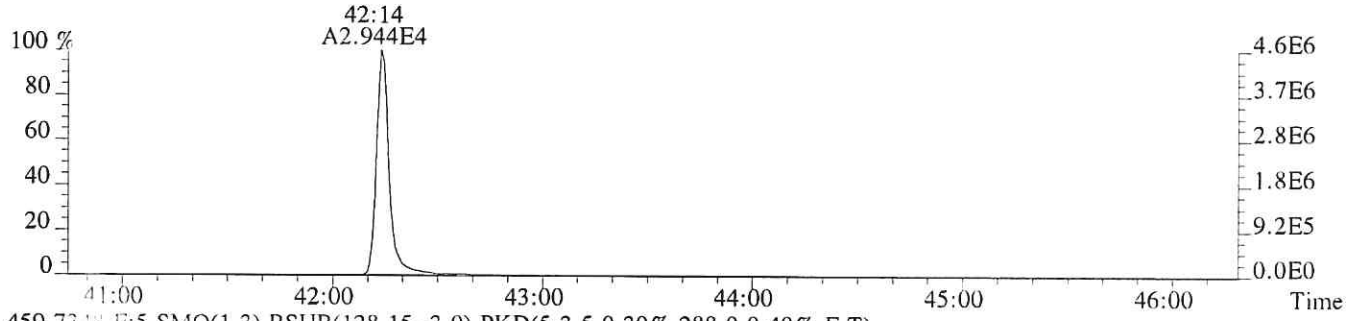
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



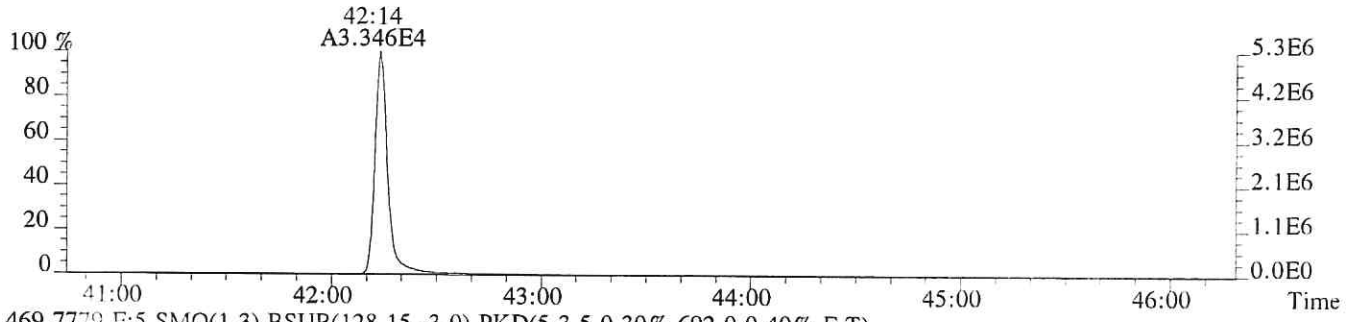
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



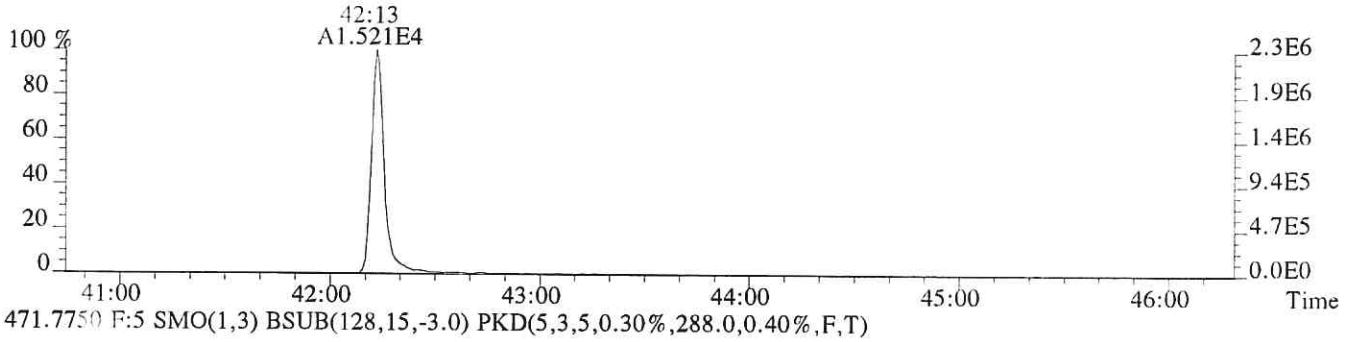
File:P519250 #1-502 Acq: 6-DEC-2018 10:12:15 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



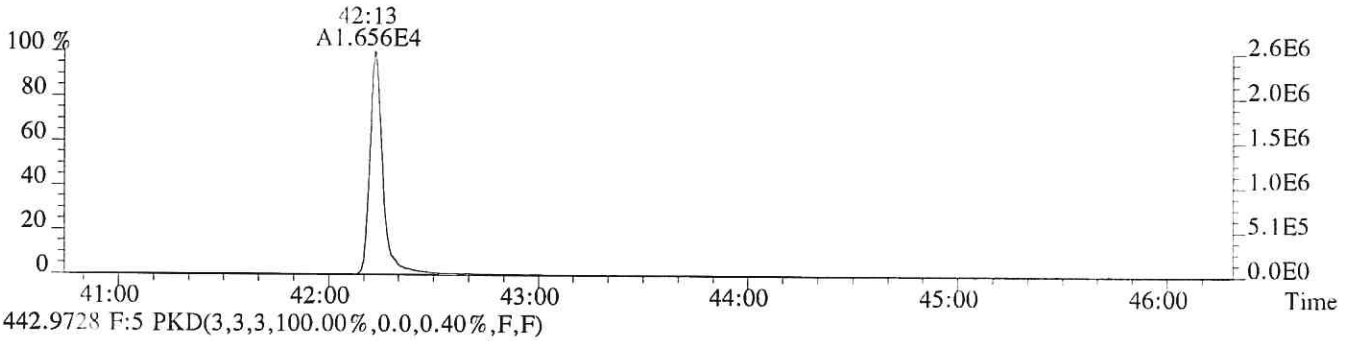
459.7319 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



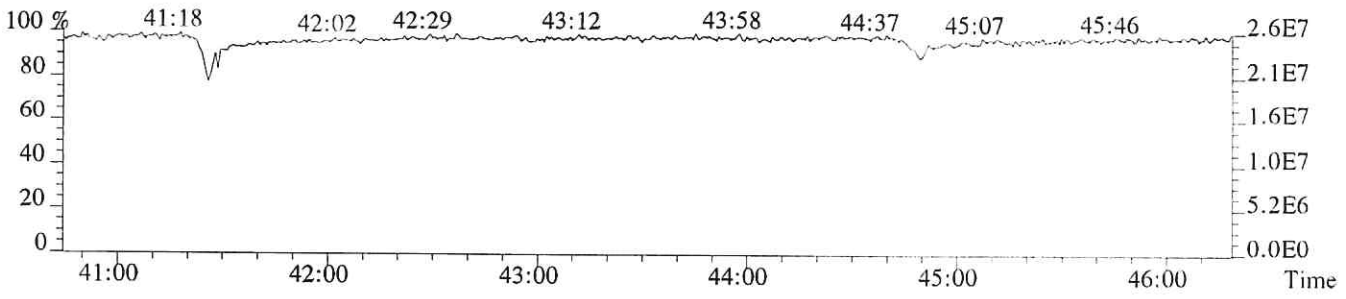
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0542

Run #14 Filename P519294 Samp: 1 Inj: 1 Acquired: 8-DEC-18 00:47:53
Processed: 10-DEC-18 09:24:37 Sample ID: E1801046-004DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.017e+03	4.226e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	2.081e+02	1.619e+02	1.29	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	1.549e+02	1.005e+02	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	5.163e+02	4.284e+02	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.313e+02	1.113e+02	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.918e+01	4.635e+00	6.30	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:18	2.821e+01	2.970e+01	0.95	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:37	1.445e+02	1.275e+02	1.13	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	2.777e+01	4.221e+01	0.66	no	no	1.258
10	Unk	OCDF	42:47	3.822e+01	7.515e+01	0.51	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	6.912e+02	8.865e+02	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	1.305e+01	1.173e+01	1.11	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	5.025e+00	2.380e+00	2.11	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	4.617e+01	2.168e+01	2.13	no	no	1.025
17	Unk	OCDD	42:34	7.433e+02	8.511e+02	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	9.832e+03	1.226e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	1.500e+04	9.737e+03	1.54	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.422e+04	8.826e+03	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	6.050e+03	1.193e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	7.434e+03	1.422e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	6.765e+03	1.334e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	6.167e+03	1.187e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	5.560e+03	1.200e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	4.811e+03	1.141e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	4.417e+03	5.809e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	9.936e+03	6.285e+03	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	8.460e+03	6.462e+03	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	8.773e+03	6.806e+03	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.002e+04	9.245e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	42:34	1.168e+04	1.282e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	7.083e+03	8.649e+03	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	9.969e+03	7.906e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	2.993e+02				no	1.014

$$\text{OCDD} = \frac{(7.433e+02 + 8.511e+02) \times 4000\ \text{pg} \times 20}{(1.168e+04 + 1.282e+04) \times 10.909\ \text{g} \times 78.3 / 100 \times 1.118} = \times 0.46 = 1185\ \text{ng/kg}$$

LM 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0542

Run #14 Filename P519294 Samp: 1 Inj: 1 Acquired: 8-DEC-18 00:47:53
Processed: 10-DEC-18 09:24:37 LAB. ID: E1801046-004DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.89e+05	3.24e+02	1.5e+03	6.93e+05	1.00e+03	6.9e+02
2	1,2,3,7,8-PeCDF	3.73e+04	3.88e+02	9.6e+01	3.50e+04	5.28e+02	6.6e+01
3	2,3,4,7,8-PeCDF	2.50e+04	3.88e+02	6.4e+01	1.82e+04	5.28e+02	3.4e+01
4	1,2,3,4,7,8-HxCDF	1.02e+05	2.68e+02	3.8e+02	8.32e+04	2.68e+02	3.1e+02
5	1,2,3,6,7,8-HxCDF	2.30e+04	2.68e+02	8.6e+01	2.02e+04	2.68e+02	7.5e+01
6	2,3,4,6,7,8-HxCDF	5.83e+03	2.68e+02	2.2e+01	1.11e+03	2.68e+02	4.2e+00
7	1,2,3,7,8,9-HxCDF	6.49e+03	2.68e+02	2.4e+01	5.57e+03	2.68e+02	2.1e+01
8	1,2,3,4,6,7,8-HpCDF	3.41e+04	2.80e+02	1.2e+02	2.49e+04	2.16e+02	1.2e+02
9	1,2,3,4,7,8,9-HpCDF	6.79e+03	2.80e+02	2.4e+01	8.18e+03	2.16e+02	3.8e+01
10	OCDF	6.24e+03	1.96e+02	3.2e+01	1.01e+04	7.00e+02	1.4e+01
11	2,3,7,8-TCDD	1.25e+05	1.61e+03	7.8e+01	1.60e+05	6.80e+02	2.4e+02
12	1,2,3,7,8-PeCDD	3.66e+03	7.00e+02	5.2e+00	2.74e+03	2.12e+02	1.3e+01
13	1,2,3,4,7,8-HxCDD	1.18e+03	2.28e+02	5.2e+00	6.75e+02	2.48e+02	2.7e+00
14	1,2,3,6,7,8-HxCDD	*	2.28e+02	*	*	2.48e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.28e+02	*	*	2.48e+02	*
16	1,2,3,4,6,7,8-HpCDD	9.61e+03	3.08e+02	3.1e+01	5.15e+03	2.52e+02	2.0e+01
17	OCDD	9.14e+04	2.16e+02	4.2e+02	1.00e+05	1.96e+02	5.1e+02
18	13C-2,3,7,8-TCDF	1.70e+06	5.56e+03	3.1e+02	2.13e+06	3.35e+03	6.4e+02
19	13C-1,2,3,7,8-PeCDF	2.75e+06	2.28e+02	1.2e+04	1.78e+06	2.04e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	2.66e+06	2.28e+02	1.2e+04	1.65e+06	2.04e+02	8.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.22e+06	4.08e+02	3.0e+03	2.36e+06	3.76e+02	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.38e+06	4.08e+02	3.4e+03	2.71e+06	3.76e+02	7.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.33e+06	4.08e+02	3.3e+03	2.56e+06	3.76e+02	6.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.09e+06	4.08e+02	2.7e+03	2.07e+06	3.76e+02	5.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.02e+06	1.23e+03	8.3e+02	2.26e+06	2.81e+03	8.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.58e+05	1.23e+03	6.2e+02	1.79e+06	2.81e+03	6.4e+02
27	13C-2,3,7,8-TCDD	8.22e+05	4.04e+03	2.0e+02	1.03e+06	9.00e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.82e+06	4.48e+02	4.1e+03	1.16e+06	5.32e+02	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.80e+06	3.04e+02	5.9e+03	1.36e+06	3.64e+02	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	1.63e+06	3.04e+02	5.4e+03	1.26e+06	3.64e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.65e+06	3.20e+02	5.1e+03	1.49e+06	3.36e+02	4.4e+03
32	13C-OCDD	1.35e+06	2.92e+02	4.6e+03	1.47e+06	1.88e+02	7.8e+03
33	13C-1,2,3,4-TCDD	1.32e+06	4.04e+03	3.3e+02	1.63e+06	9.00e+02	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.79e+06	3.04e+02	5.9e+03	1.40e+06	3.64e+02	3.8e+03
35	37Cl-2,3,7,8-TCDD	5.56e+04	5.72e+02	9.7e+01			

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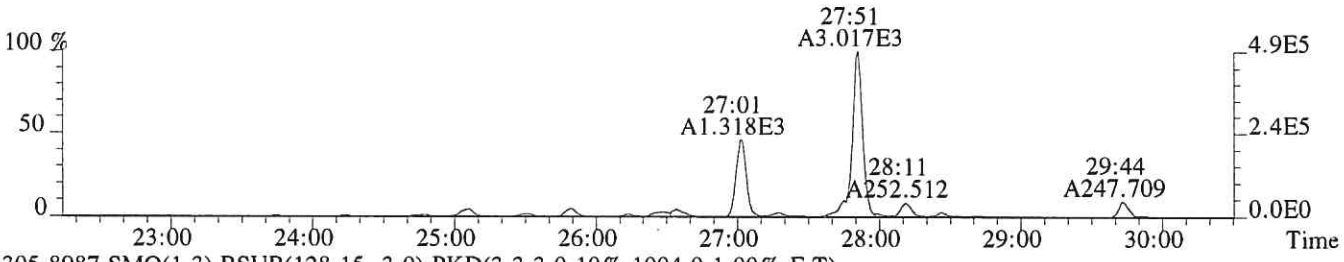
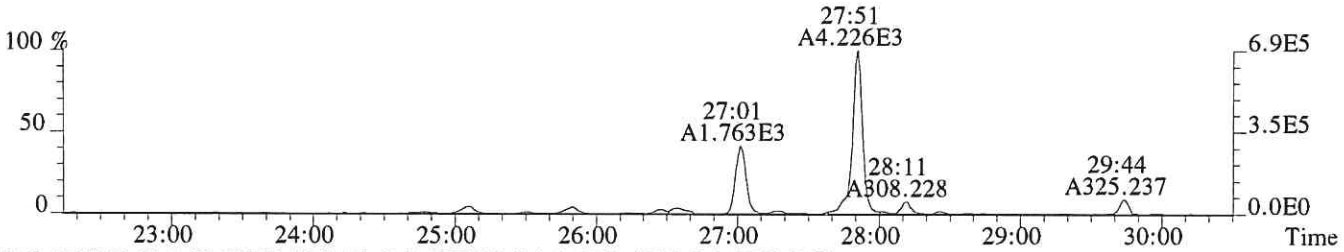
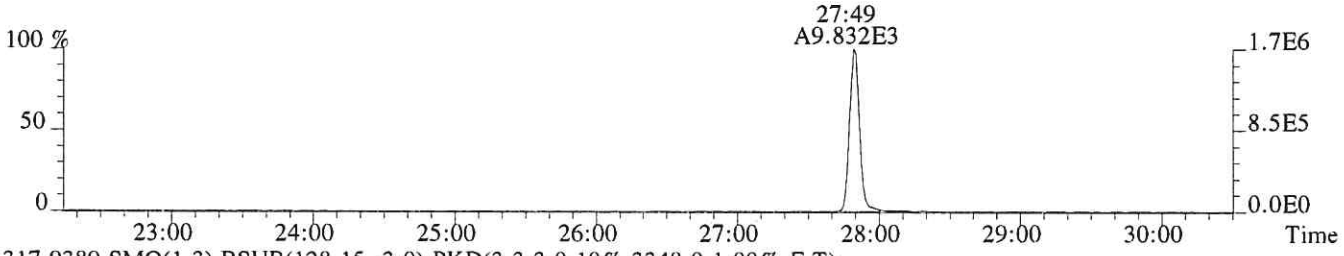
File:P519294 #1-587 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



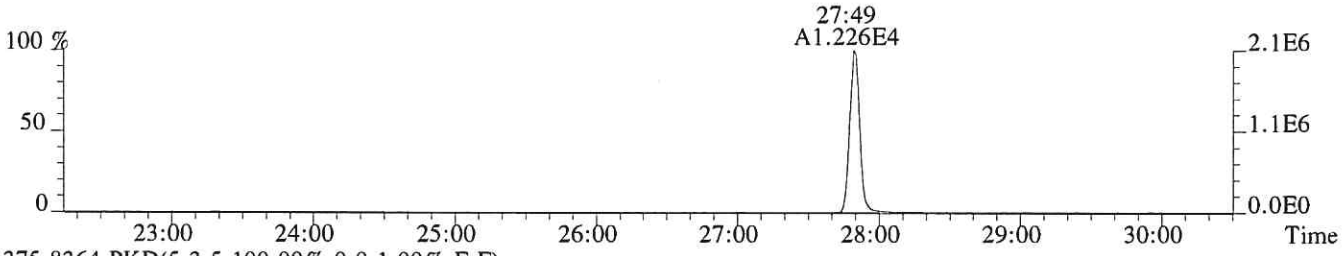
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



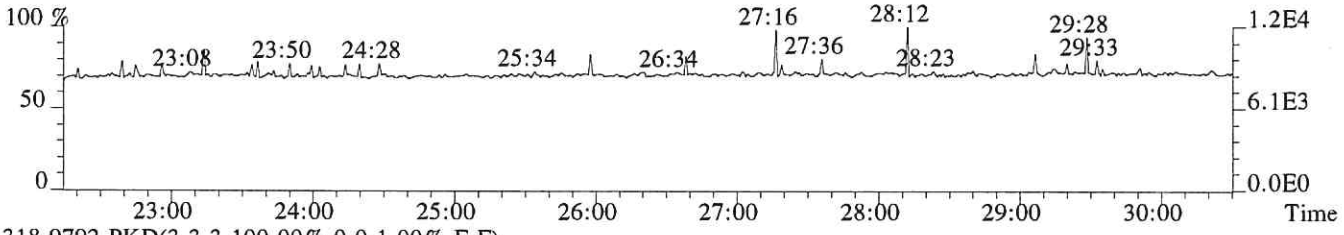
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5556.0,1.00%,F,T)



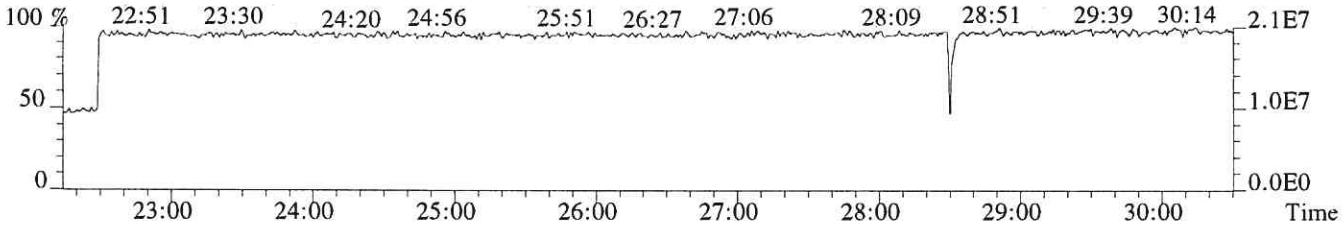
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3348.0,1.00%,F,T)



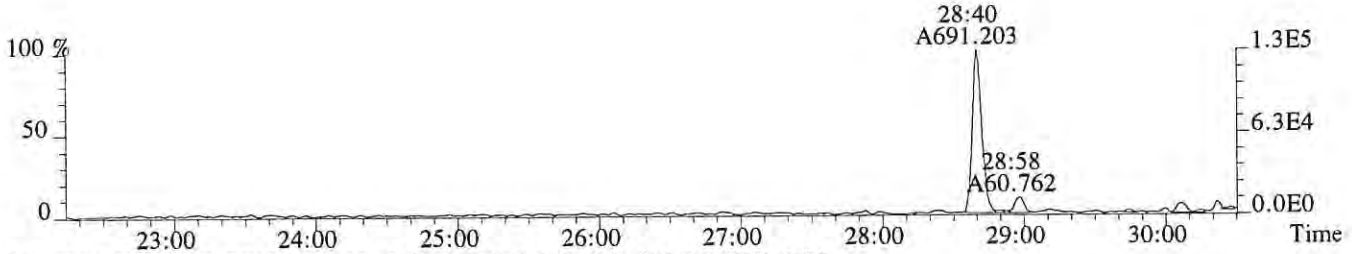
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



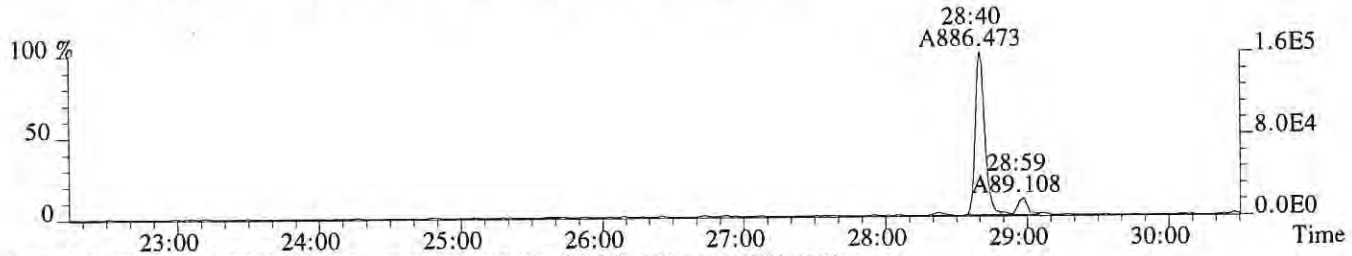
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



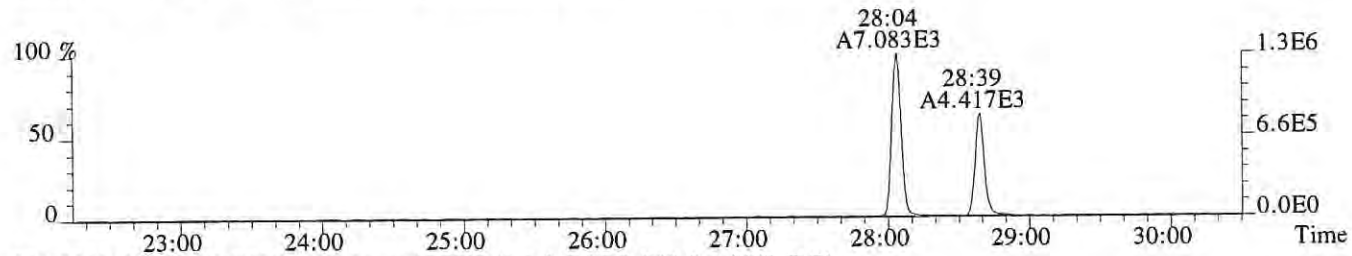
File:P519294 #1-587 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



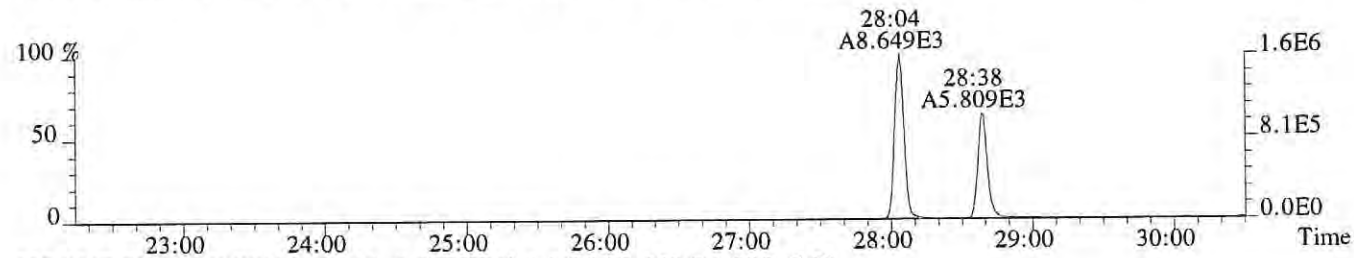
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



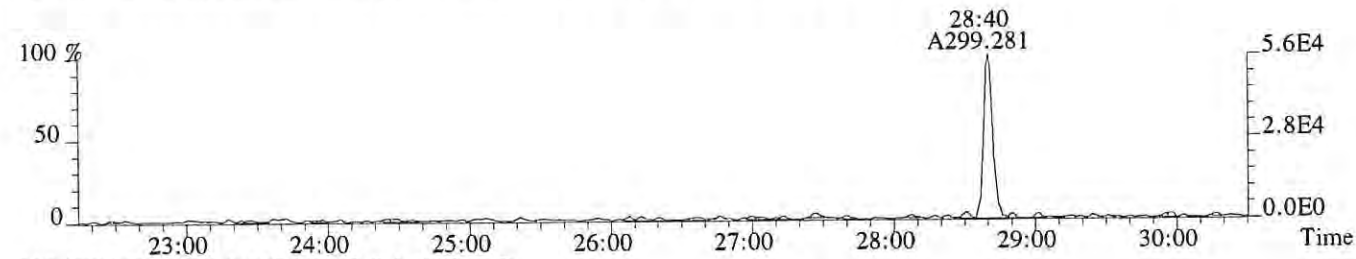
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4036.0,1.00%,F,T)



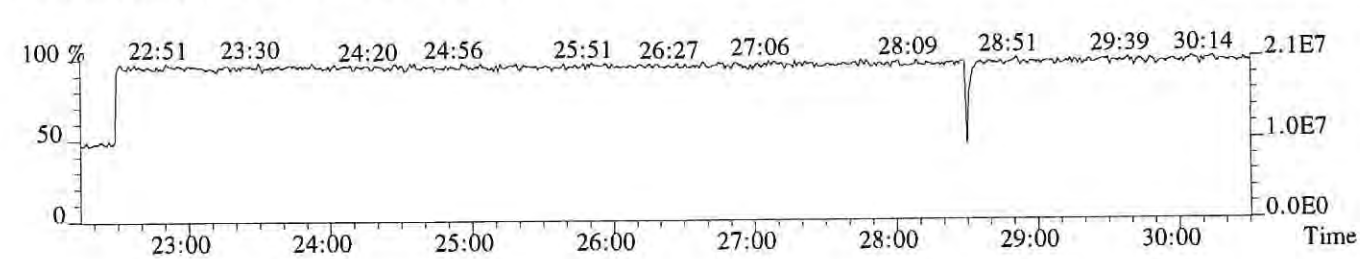
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



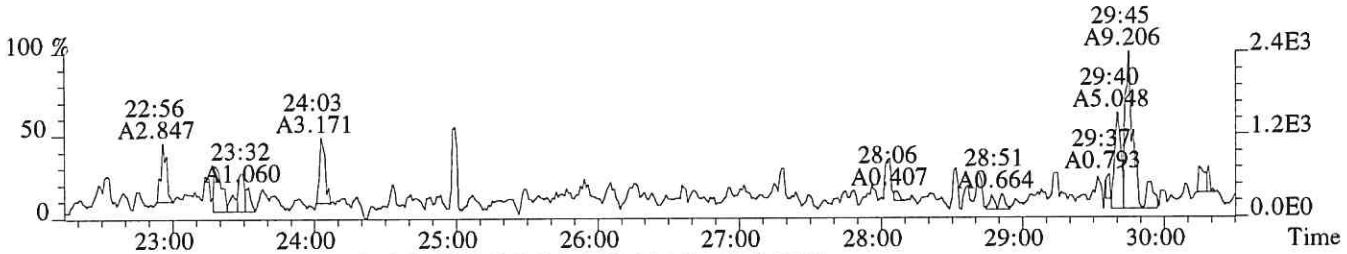
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



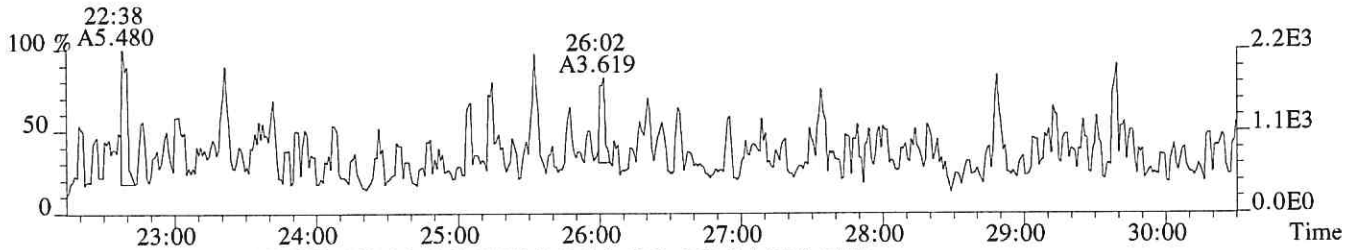
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



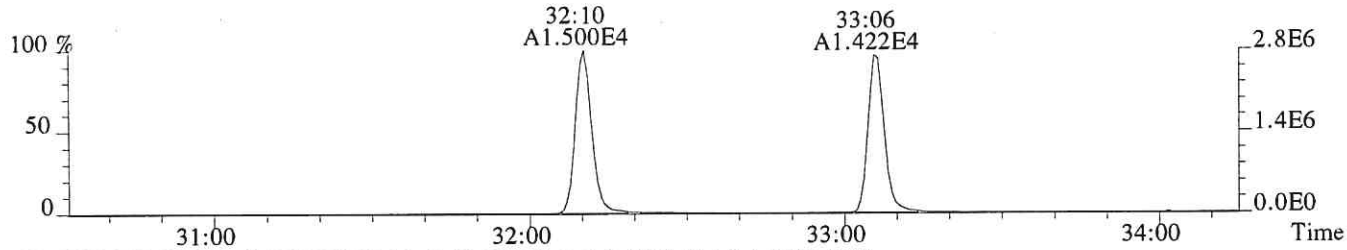
File:P519294 #1-587 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



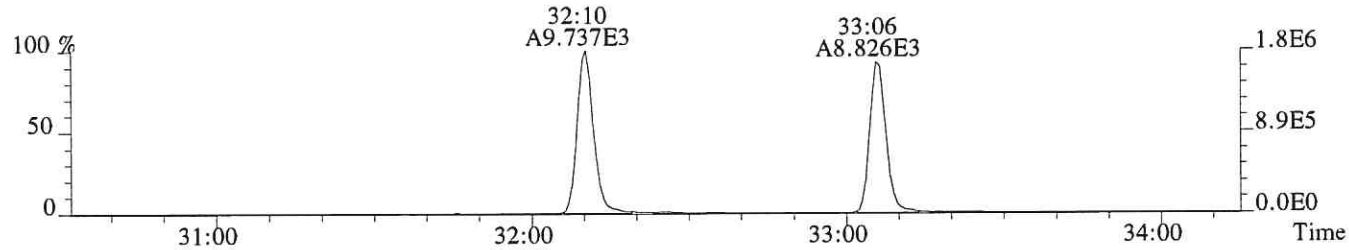
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



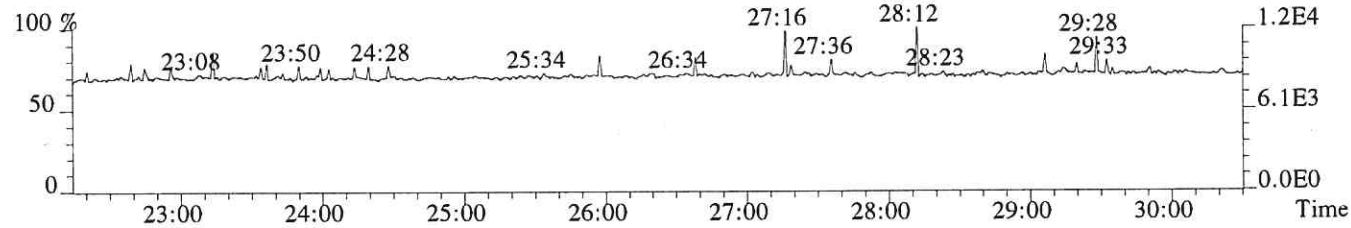
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



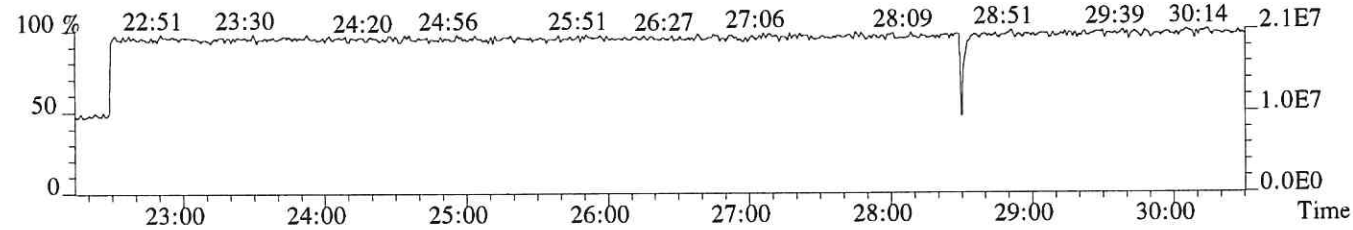
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



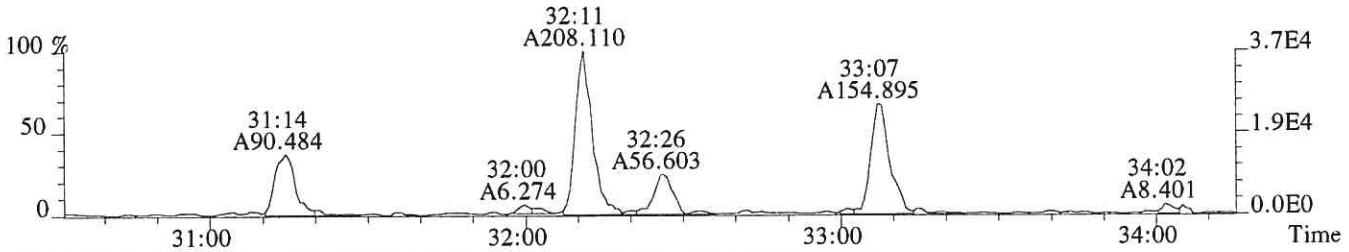
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



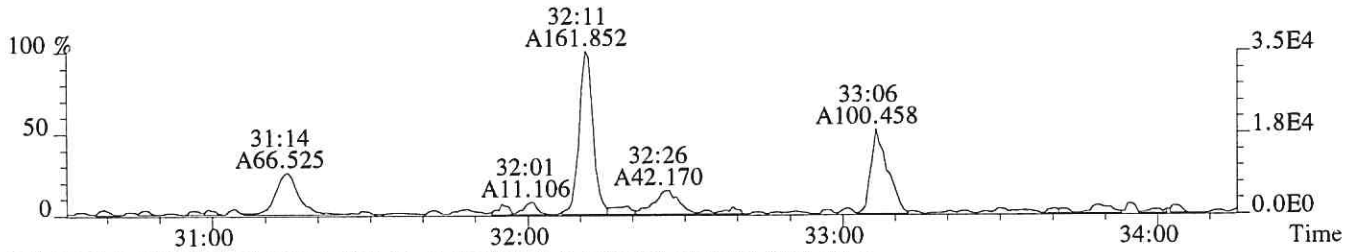
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



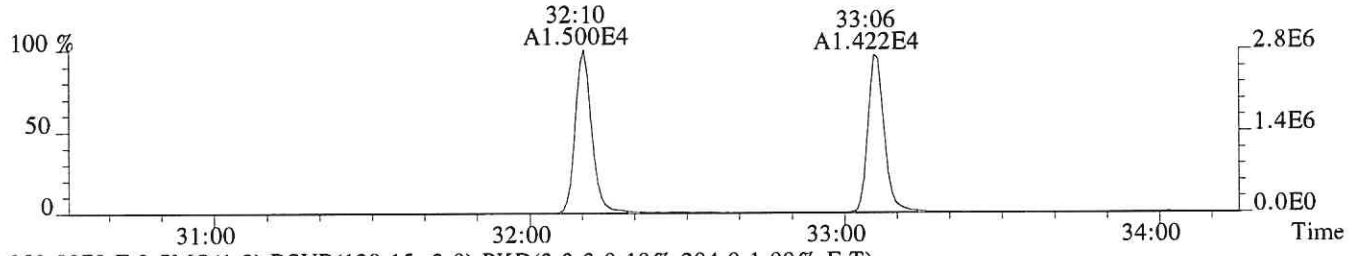
File:P519294 #1-335 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



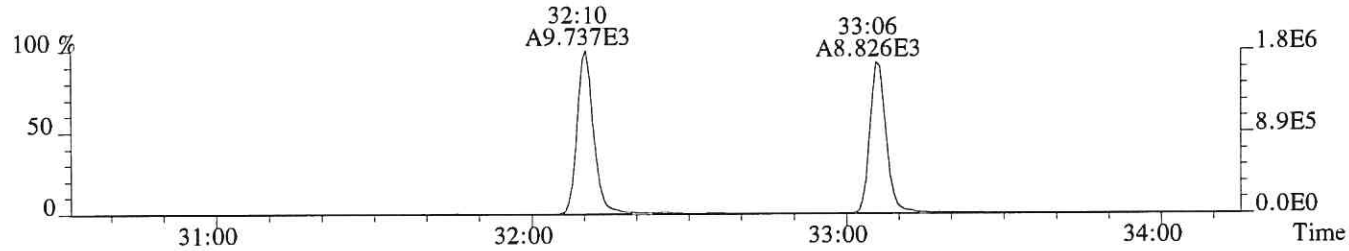
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



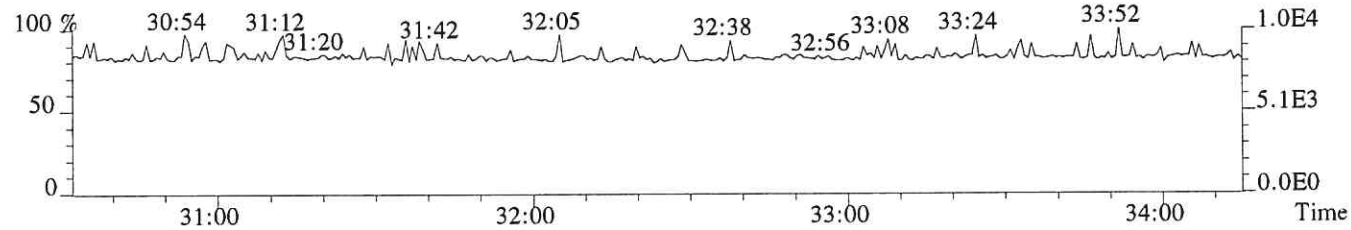
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



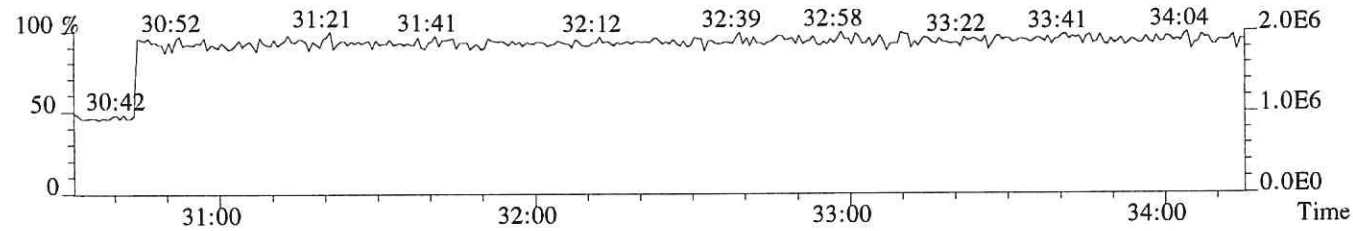
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



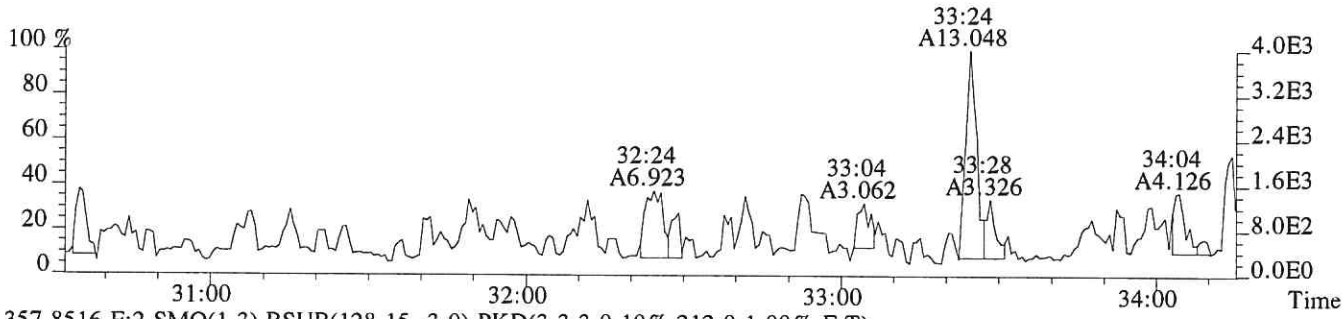
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



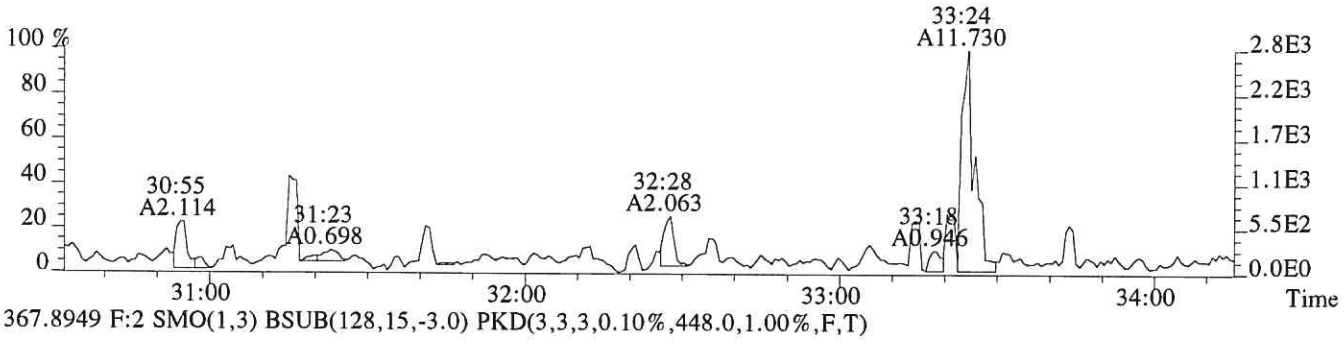
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



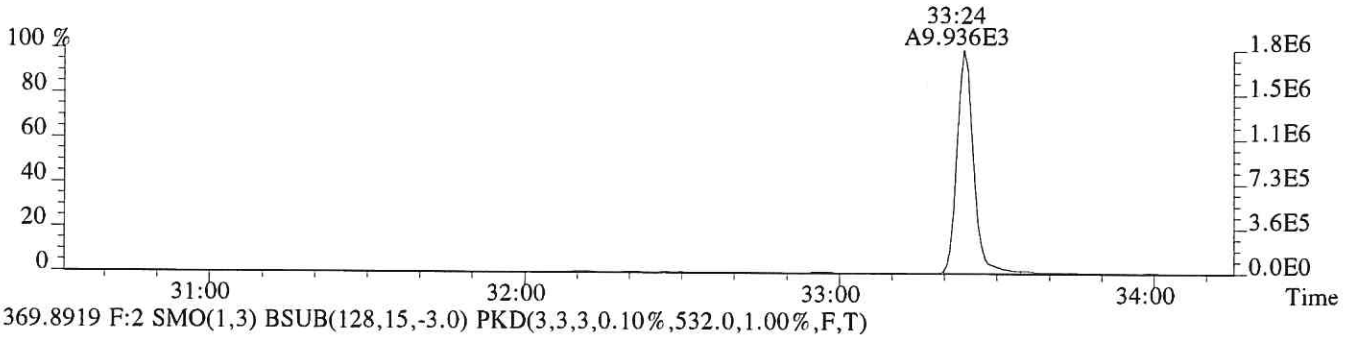
File:P519294 #1-335 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



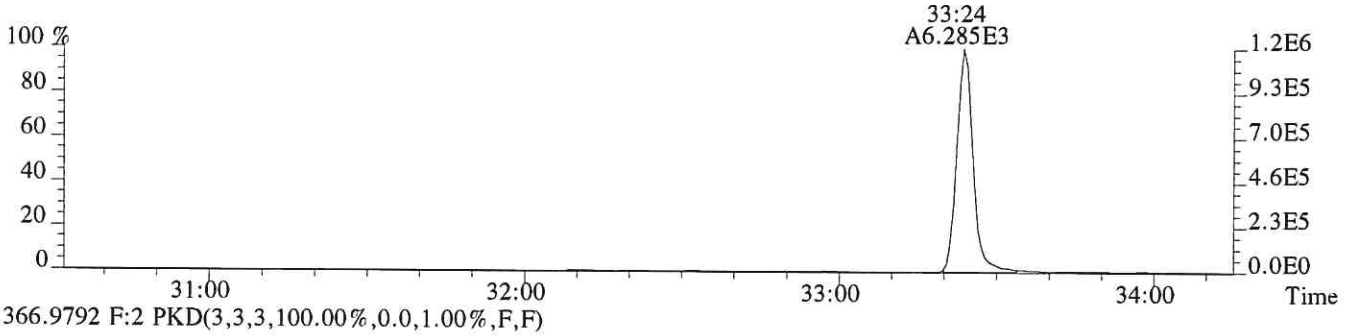
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



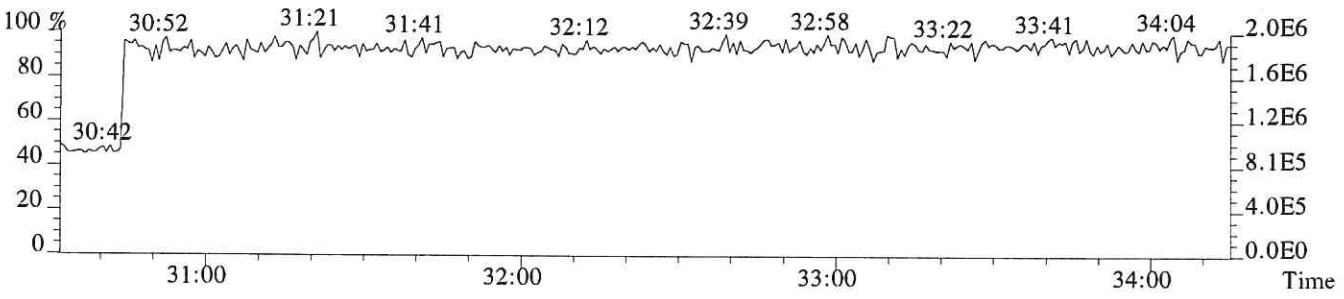
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



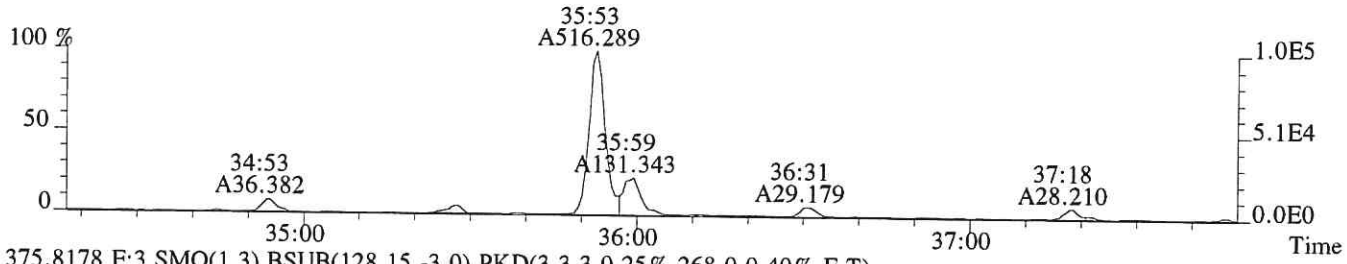
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



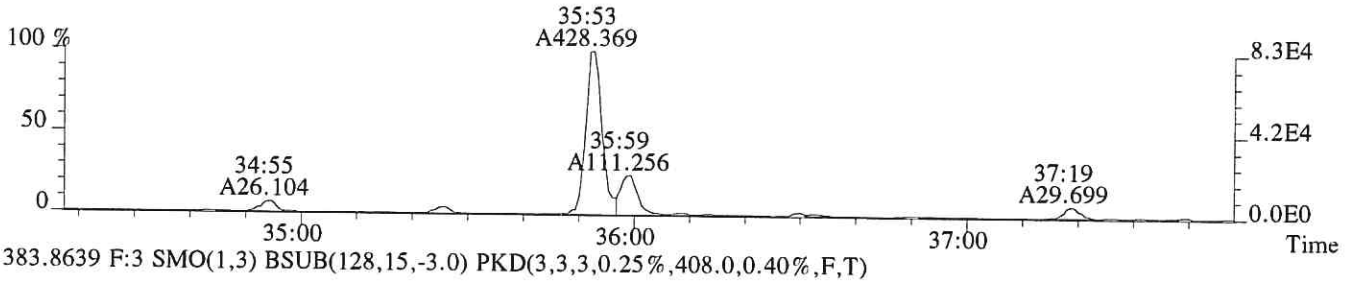
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



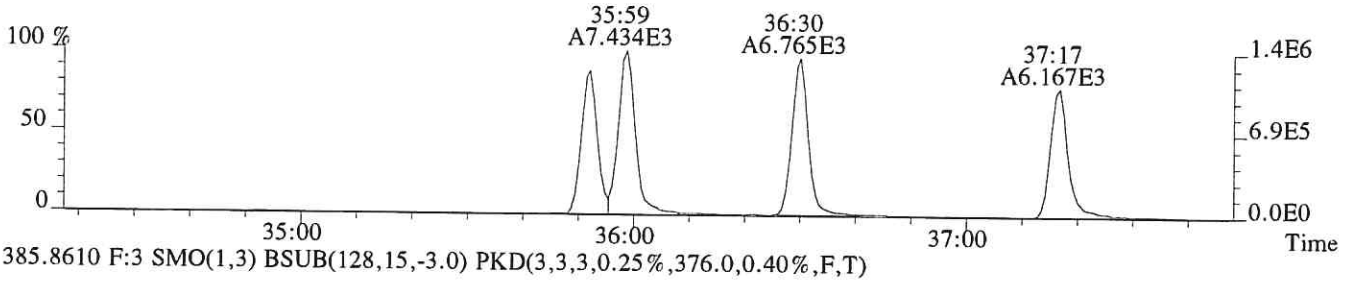
File:P519294 #1-317 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



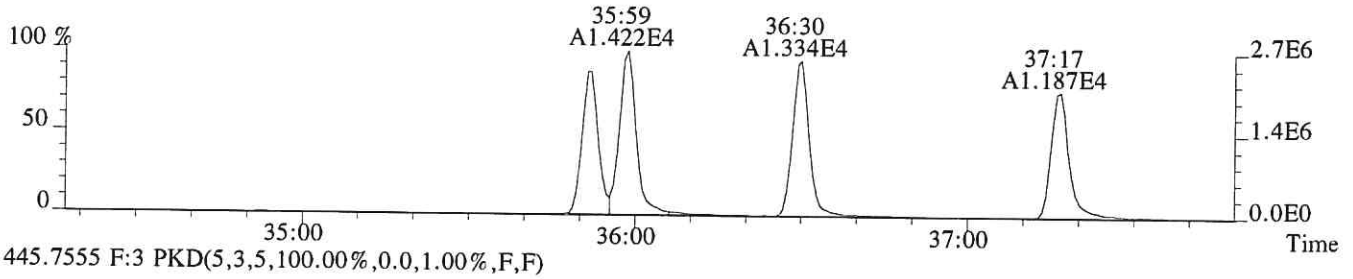
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



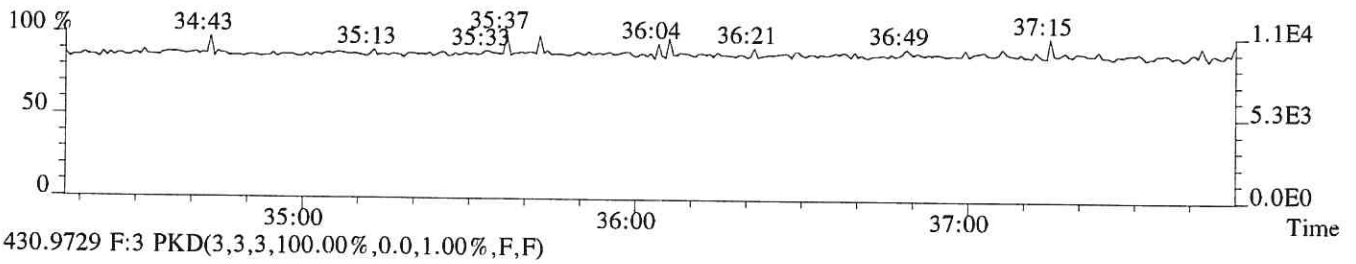
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



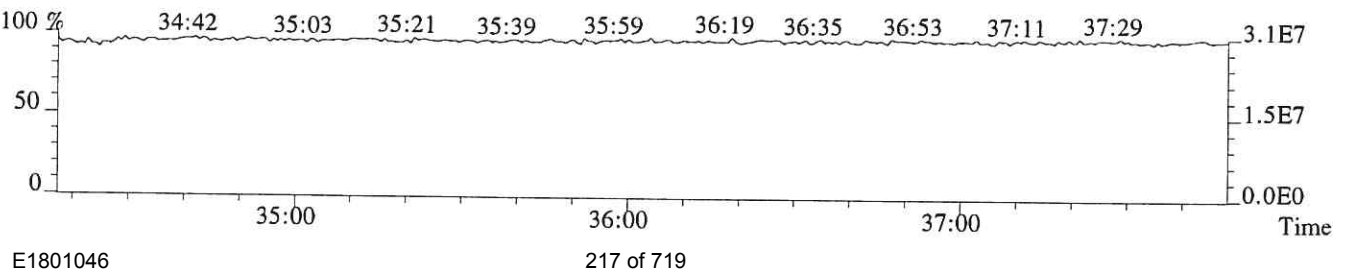
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



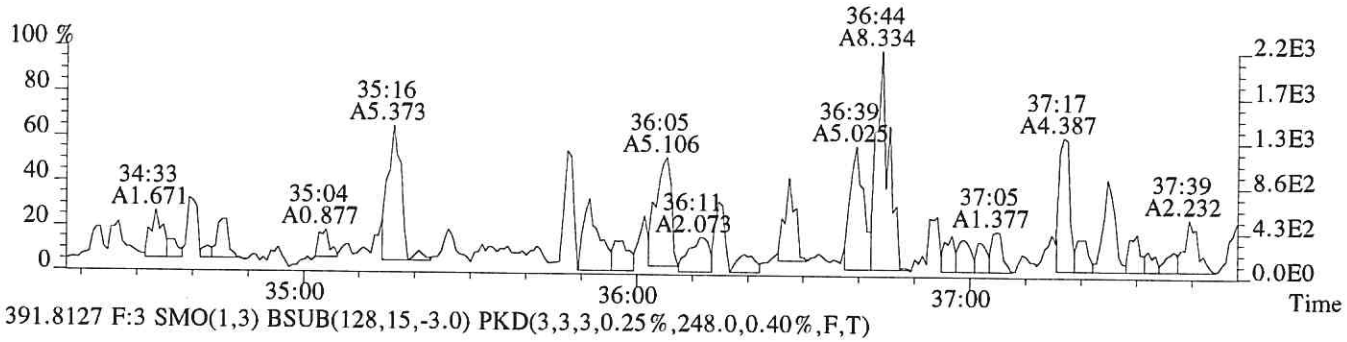
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



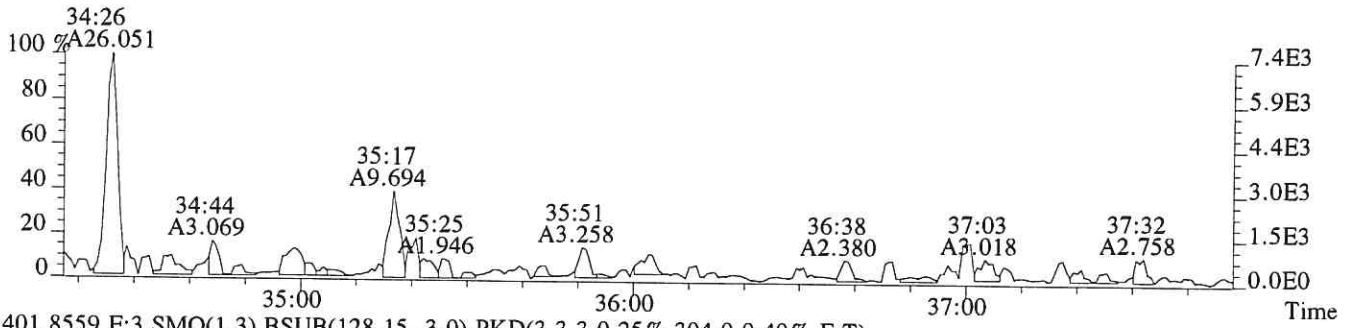
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



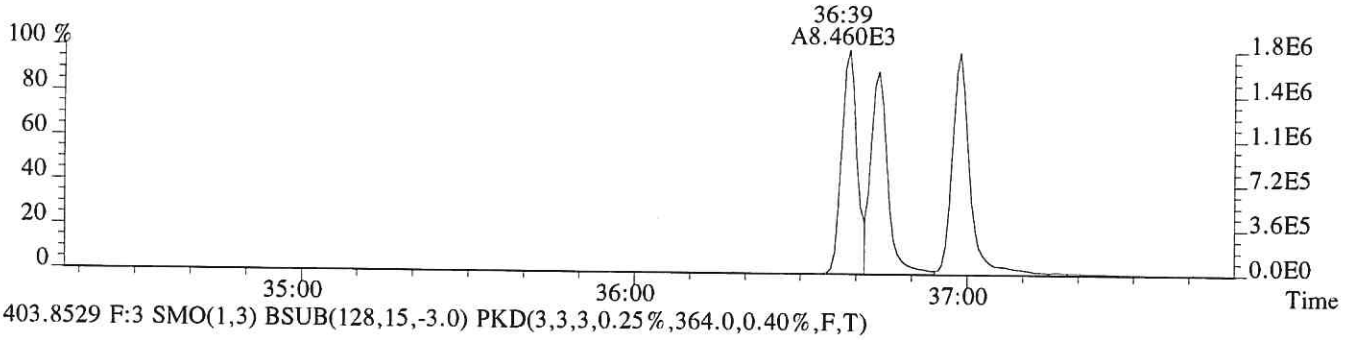
File:P519294 #1-317 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



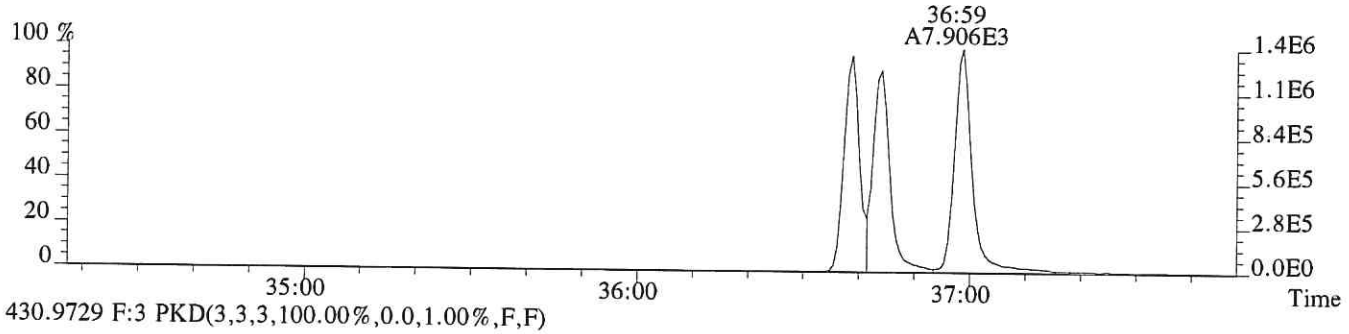
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



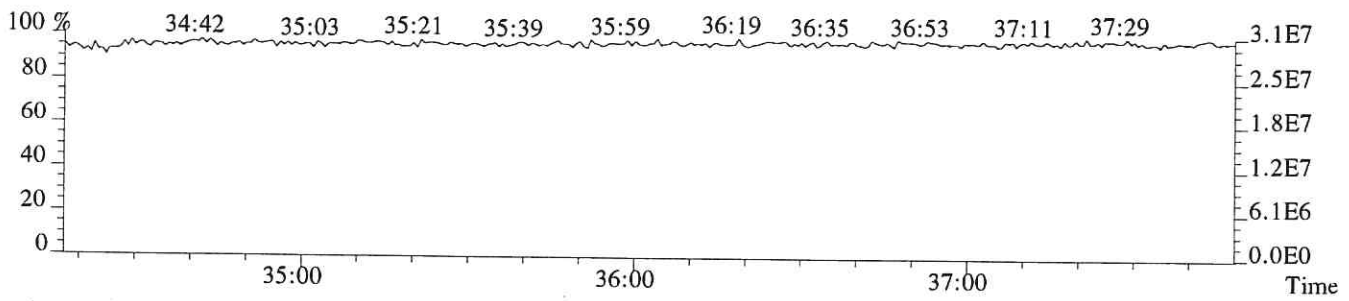
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



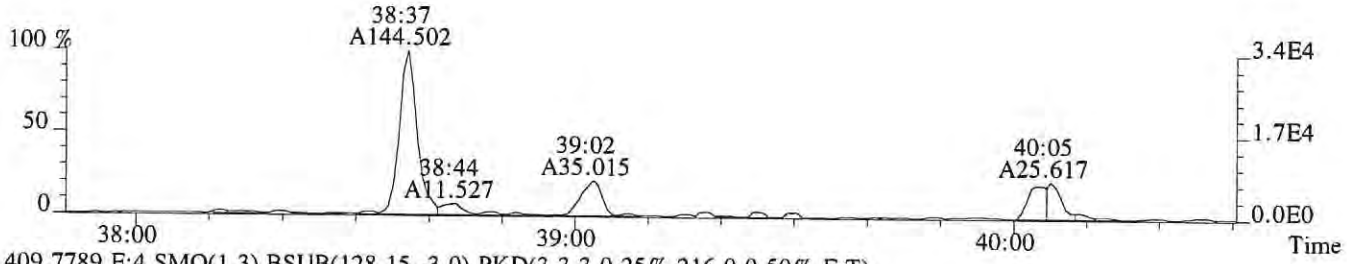
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



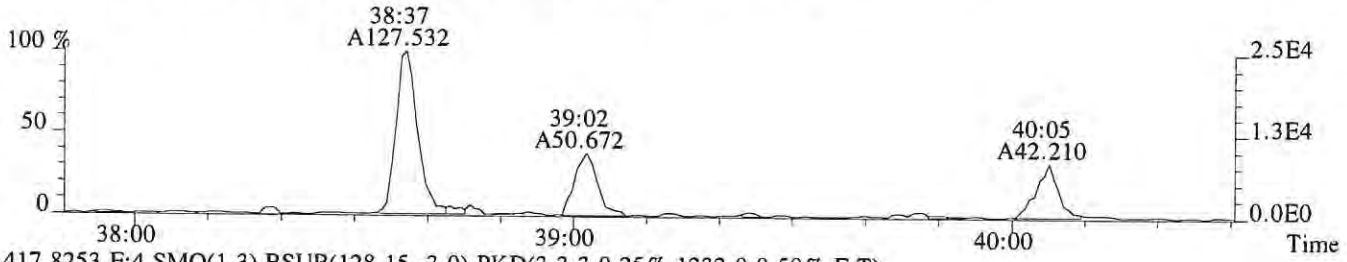
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



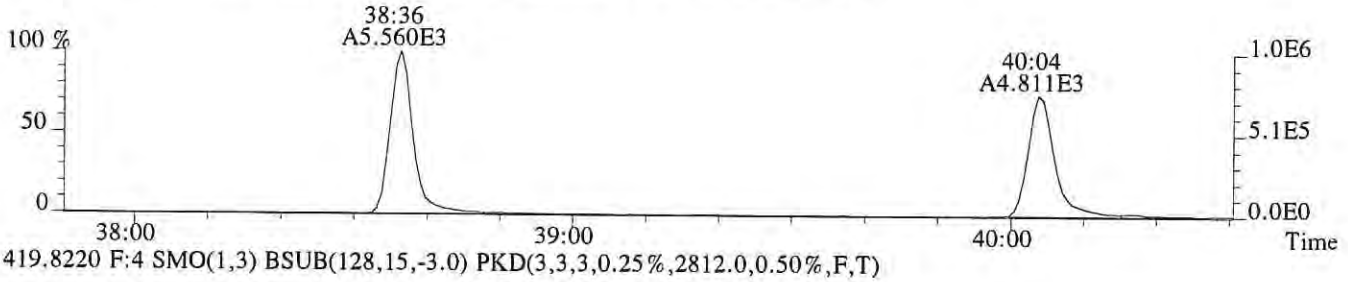
File:P519294 #1-241 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.50%,F,T)



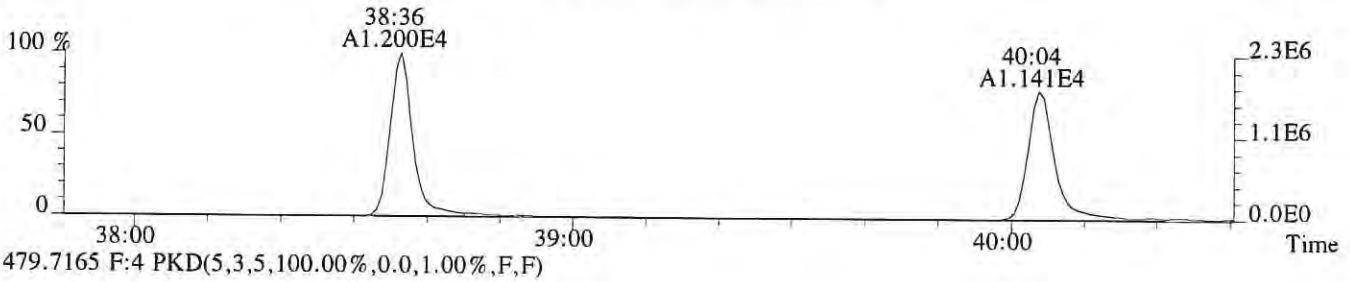
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



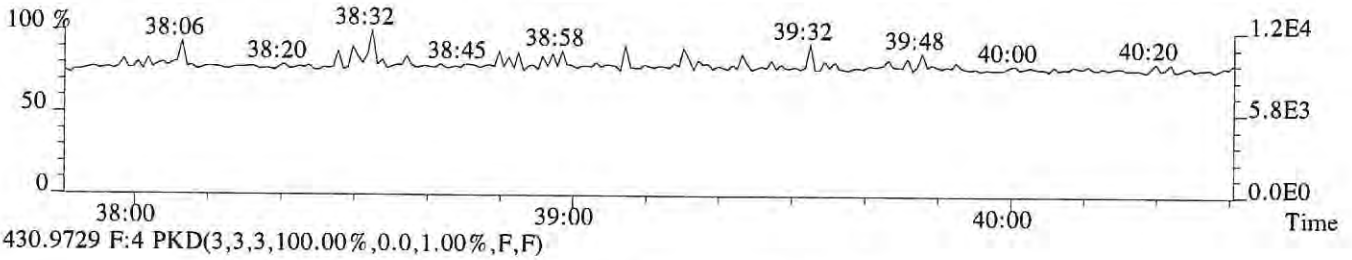
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



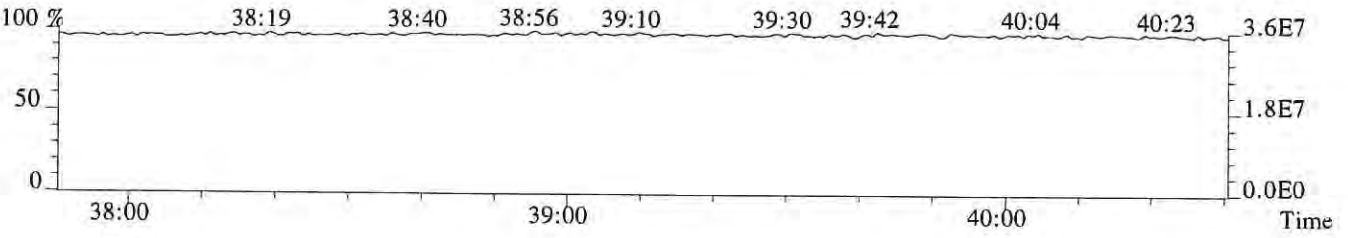
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2812.0,0.50%,F,T)



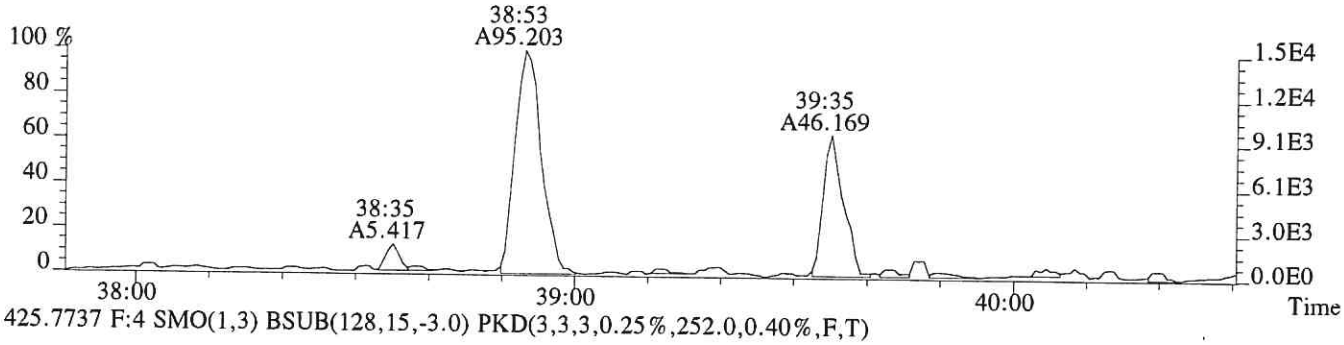
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



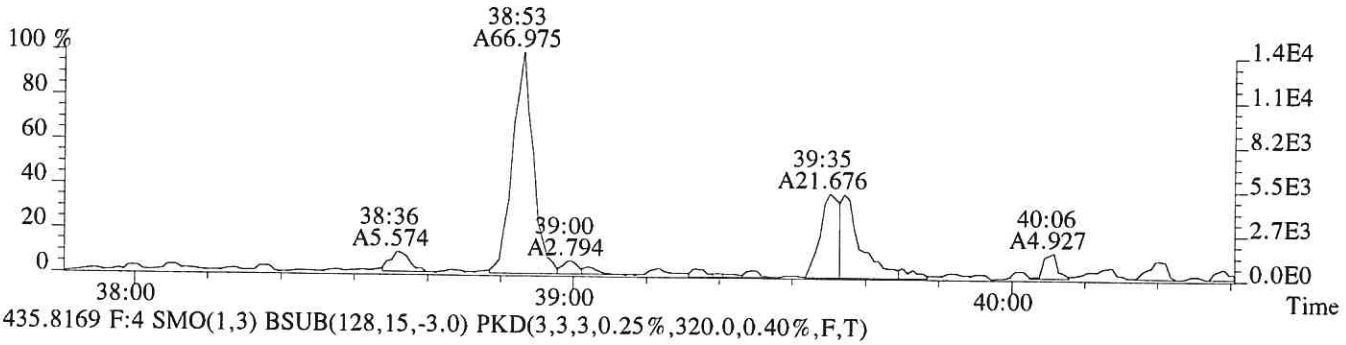
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



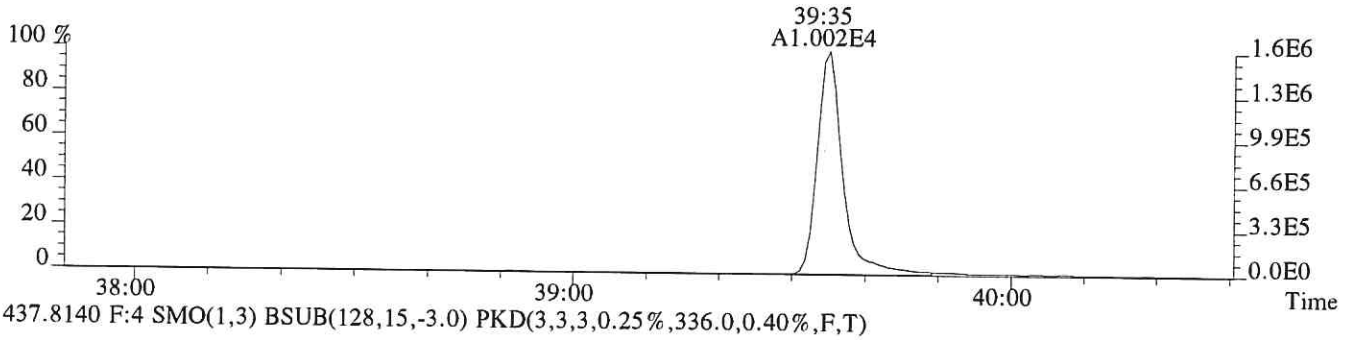
File:P519294 #1-241 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



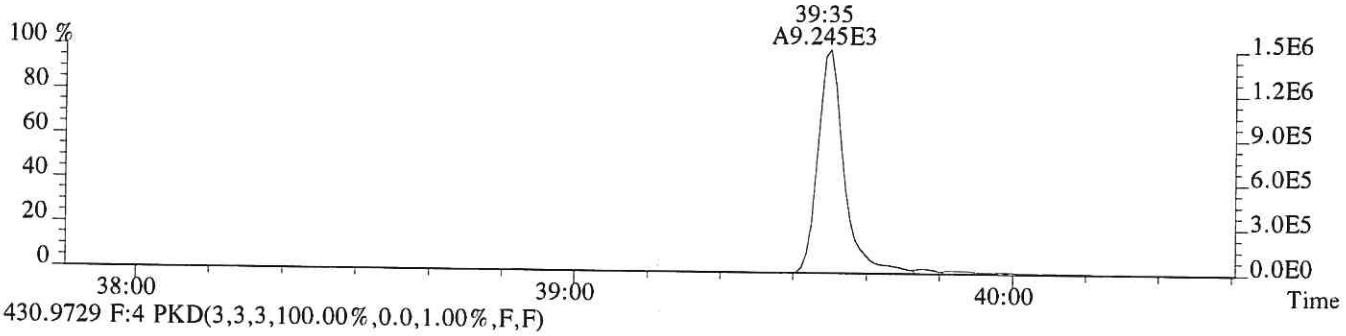
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



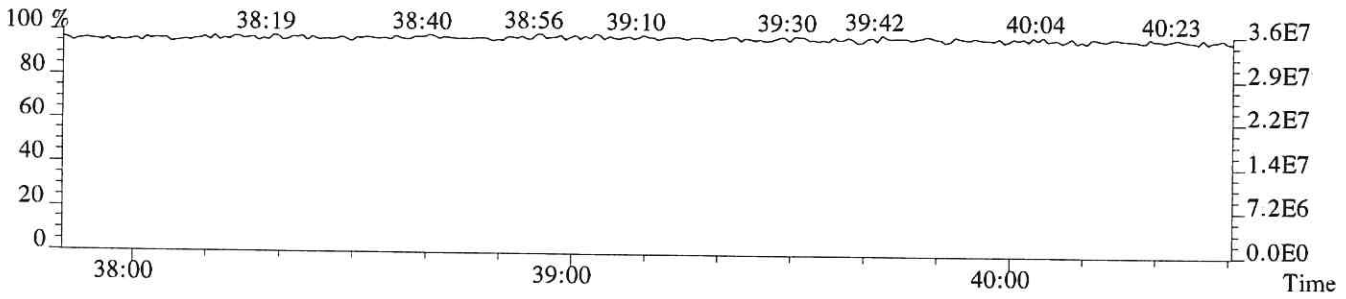
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



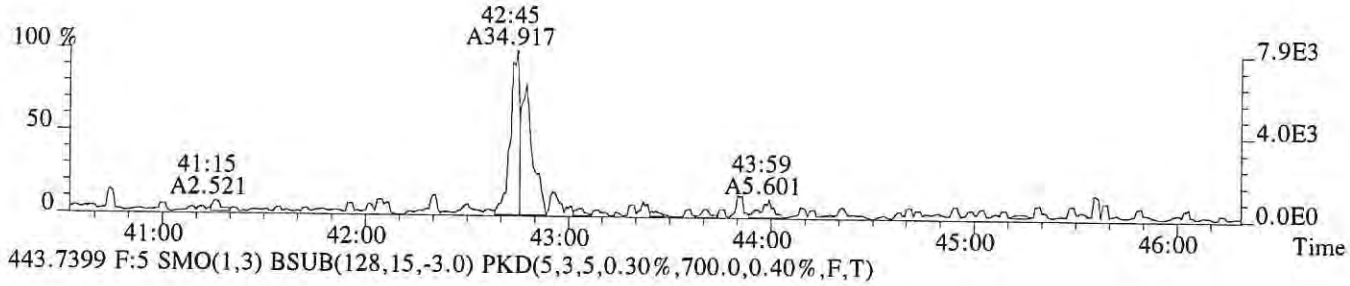
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



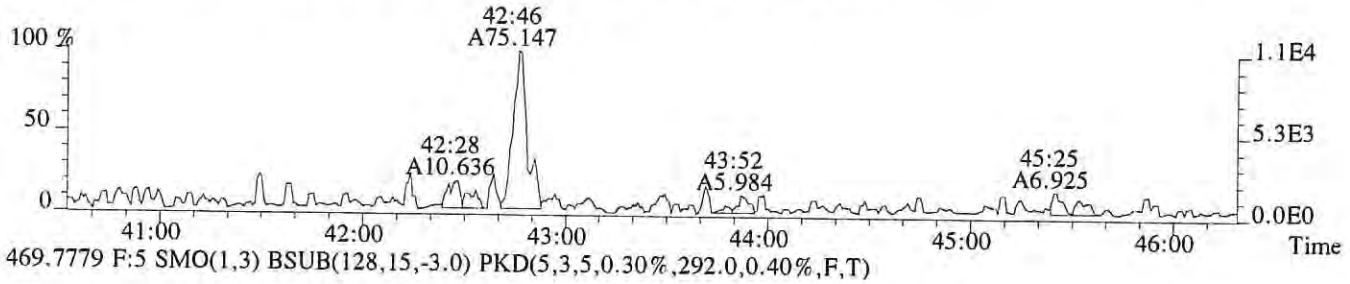
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



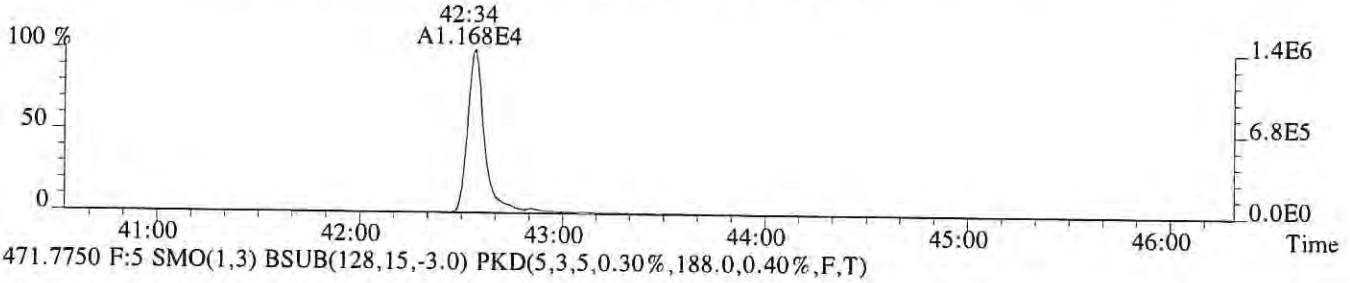
File:P519294 #1-520 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



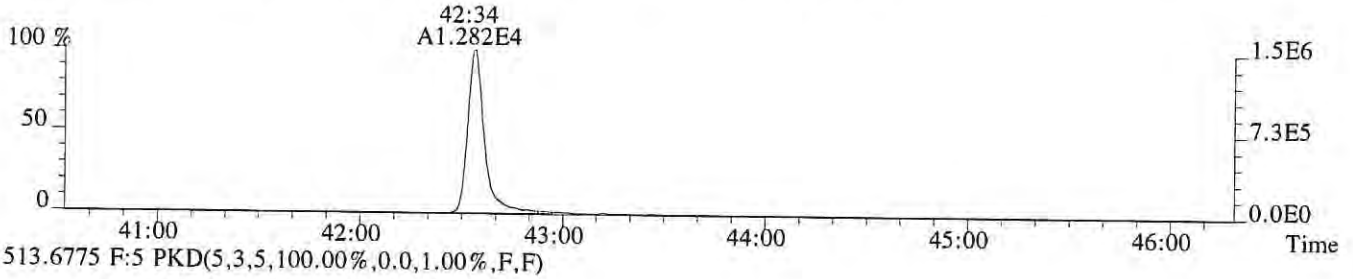
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



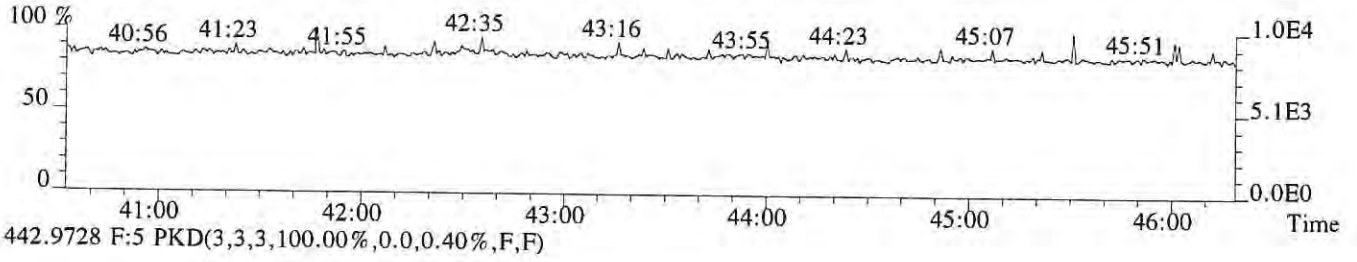
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



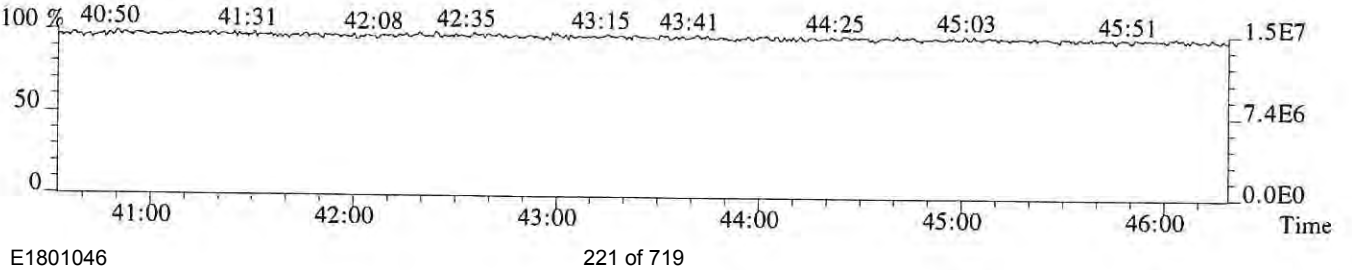
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



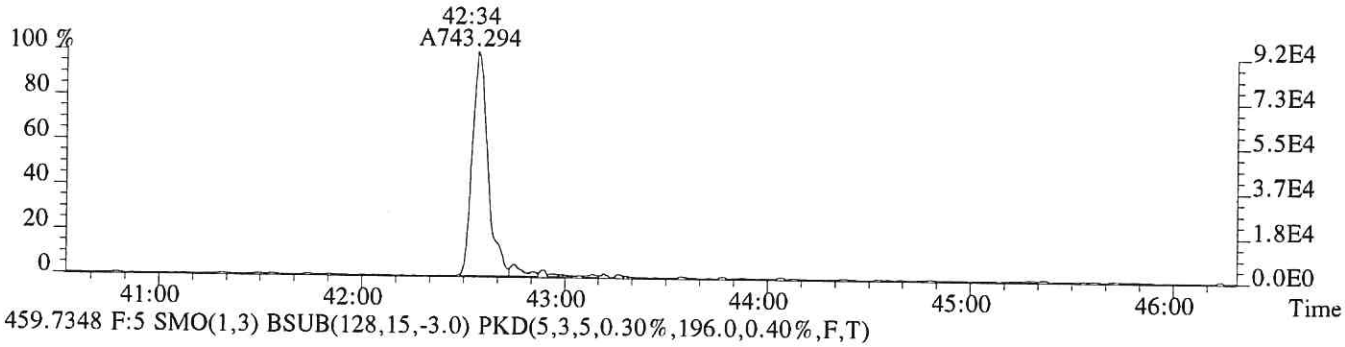
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



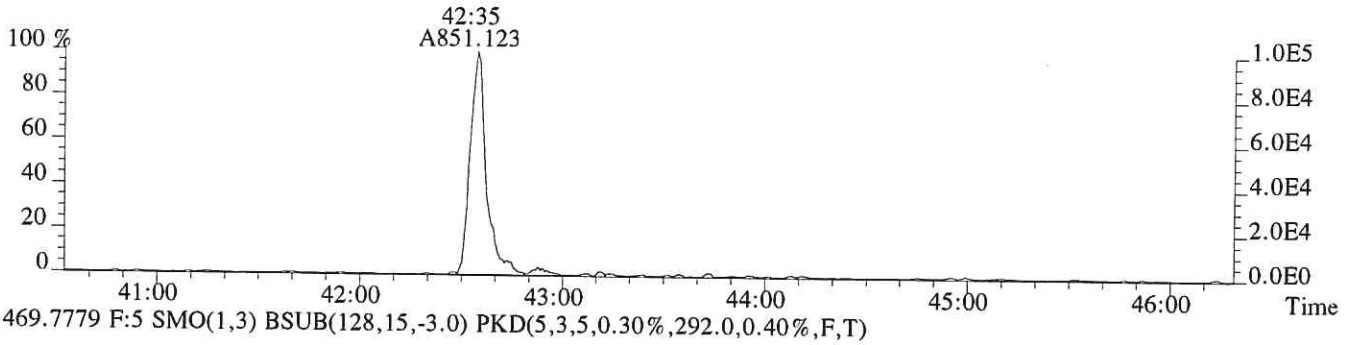
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



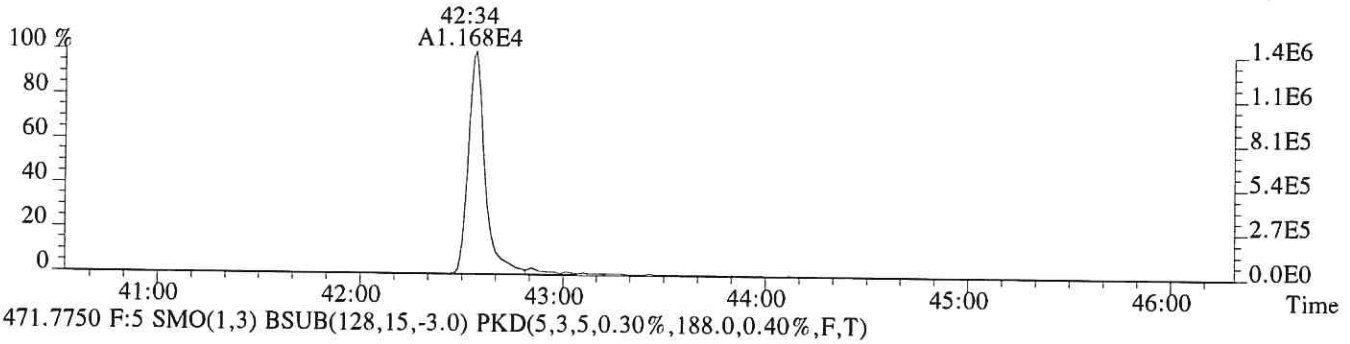
File:P519294 #1-520 Acq: 8-DEC-2018 00:47:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-004DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



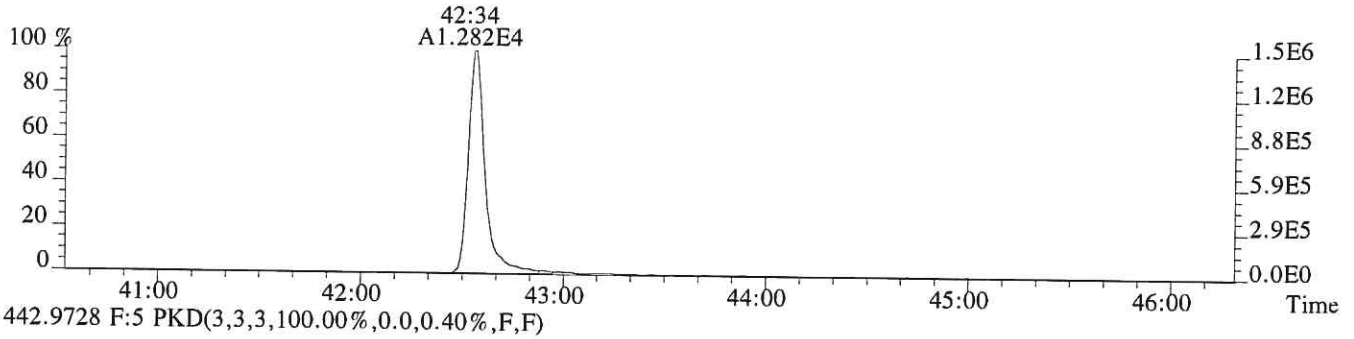
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



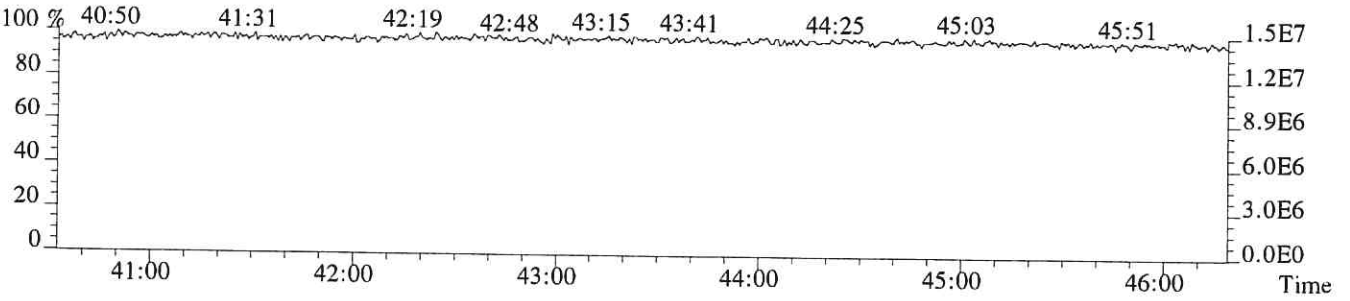
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0543

Run #18 Filename P519251 Samp: 1 Inj: 1 Acquired: 6-DEC-18 11:01:01
Processed: 7-DEC-18 09:55:20 Sample ID: E1801046-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:59	1.369e+04	1.820e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	1.168e+03	7.701e+02	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	7.876e+02	5.562e+02	1.42	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.084e+03	1.758e+03	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	5.317e+02	3.869e+02	1.37	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	9.589e+01	7.410e+01	1.29	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	1.493e+02	1.188e+02	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:30	4.258e+02	4.754e+02	0.90	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:54	1.627e+02	1.381e+02	1.18	yes	no	1.258
10	Unk	OCDF	42:25	1.534e+02	1.564e+02	0.98	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	3.407e+03	4.368e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	6.510e+01	5.073e+01	1.28	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:56	2.719e+01	1.188e+01	2.29	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	3.323e+02	3.028e+02	1.10	yes	no	1.025
17	Unk	OCDD	42:14	4.276e+03	4.844e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	1.210e+04	1.540e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:15	2.150e+04	1.364e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	2.046e+04	1.277e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	9.047e+03	1.820e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.034e+04	1.994e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	7.872e+03	1.605e+04	0.49	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:14	7.919e+03	1.502e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	6.038e+03	1.372e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	5.543e+03	1.268e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:47	5.664e+03	7.380e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:27	1.576e+04	9.764e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.337e+04	1.030e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	1.316e+04	9.982e+03	1.32	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	1.228e+04	1.151e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:13	8.676e+03	9.454e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:12	2.220e+04	2.824e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:56	3.270e+04	2.576e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	8.472e+03				no	1.014

$$\text{OCDD} = \frac{(4.276e+03 + 4.844e+03) \times 4000\ \text{pg} \times 1}{(8.676e+03 + 9.454e+03) \times 10.895\ \text{g} \times 82.6 / 100 \times 1.118} =$$

200 ng/kg
HH 12/19/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0543

Run #18 Filename P519251 Samp: 1 Inj: 1 Acquired: 6-DEC-18 11:01:01
Processed: 7-DEC-18 09:55:20 LAB. ID: E1801046-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.29e+06	9.88e+02	2.3e+03	3.05e+06	2.51e+03	1.2e+03
2	1,2,3,7,8-PeCDF	2.08e+05	3.56e+02	5.8e+02	1.43e+05	1.82e+03	7.9e+01
3	2,3,4,7,8-PeCDF	1.26e+05	3.56e+02	3.5e+02	8.64e+04	1.82e+03	4.8e+01
4	1,2,3,4,7,8-HxCDF	4.40e+05	9.72e+02	4.5e+02	3.55e+05	2.88e+02	1.2e+03
5	1,2,3,6,7,8-HxCDF	1.04e+05	9.72e+02	1.1e+02	7.58e+04	2.88e+02	2.6e+02
6	2,3,4,6,7,8-HxCDF	2.06e+04	9.72e+02	2.1e+01	1.49e+04	2.88e+02	5.2e+01
7	1,2,3,7,8,9-HxCDF	2.45e+04	9.72e+02	2.5e+01	1.96e+04	2.88e+02	6.8e+01
8	1,2,3,4,6,7,8-HpCDF	8.58e+04	2.64e+02	3.2e+02	9.94e+04	3.28e+02	3.0e+02
9	1,2,3,4,7,8,9-HpCDF	2.77e+04	2.64e+02	1.0e+02	2.70e+04	3.28e+02	8.2e+01
10	OCDF	2.50e+04	3.40e+02	7.4e+01	2.61e+04	7.56e+02	3.5e+01
11	2,3,7,8-TCDD	6.54e+05	2.90e+03	2.3e+02	8.21e+05	9.04e+02	9.1e+02
12	1,2,3,7,8-PeCDD	1.20e+04	9.88e+02	1.2e+01	7.48e+03	3.16e+02	2.4e+01
13	1,2,3,4,7,8-HxCDD	*	3.72e+02	*	*	8.48e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.72e+02	*	*	8.48e+02	*
15	1,2,3,7,8,9-HxCDD	4.63e+03	3.72e+02	1.2e+01	3.59e+03	8.48e+02	4.2e+00
16	1,2,3,4,6,7,8-HpCDD	5.92e+04	1.76e+02	3.4e+02	6.34e+04	5.40e+02	1.2e+02
17	OCDD	6.86e+05	2.36e+02	2.9e+03	7.84e+05	2.64e+02	3.0e+03
18	13C-2,3,7,8-TCDF	2.23e+06	9.56e+03	2.3e+02	2.83e+06	6.46e+03	4.4e+02
19	13C-1,2,3,7,8-PeCDF	4.06e+06	9.88e+02	4.1e+03	2.53e+06	6.24e+02	4.1e+03
20	13C-2,3,4,7,8-PeCDF	4.07e+06	9.88e+02	4.1e+03	2.52e+06	6.24e+02	4.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.97e+06	1.26e+03	1.6e+03	3.88e+06	1.14e+03	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.08e+06	1.26e+03	1.7e+03	4.01e+06	1.14e+03	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.69e+06	1.26e+03	1.3e+03	3.41e+06	1.14e+03	3.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.60e+06	1.26e+03	1.3e+03	3.08e+06	1.14e+03	2.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.23e+06	1.62e+03	7.6e+02	2.78e+06	2.97e+03	9.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.00e+06	1.62e+03	6.2e+02	2.39e+06	2.97e+03	8.0e+02
27	13C-2,3,7,8-TCDD	1.08e+06	6.16e+03	1.8e+02	1.43e+06	2.75e+03	5.2e+02
28	13C-1,2,3,7,8-PeCDD	3.13e+06	9.60e+02	3.3e+03	1.93e+06	1.30e+03	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	3.01e+06	1.01e+03	3.0e+03	2.32e+06	6.32e+02	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	2.71e+06	1.01e+03	2.7e+03	2.06e+06	6.32e+02	3.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.33e+06	6.36e+02	3.7e+03	2.24e+06	3.28e+02	6.8e+03
32	13C-OCDD	1.37e+06	7.64e+02	1.8e+03	1.50e+06	1.72e+02	8.7e+03
33	13C-1,2,3,4-TCDD	4.24e+06	6.16e+03	6.9e+02	5.38e+06	2.75e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	6.61e+06	1.01e+03	6.6e+03	5.27e+06	6.32e+02	8.3e+03
35	37Cl-2,3,7,8-TCDD	1.61e+06	1.15e+03	1.4e+03			

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Peak List Summary

CLIENT ID.
SL0543

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519251 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 303.9020 305.8990 Tot Response: 5.25e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:18	5.81e+02	8.18e+02	0.71	yes	1.40e+03		n	n
2	25:52	2.62e+01	3.56e+01	0.73	yes	6.18e+01		n	n
3	26:01	5.13e+02	7.41e+02	0.69	yes	1.25e+03		n	n
4	26:24	9.12e+01	1.24e+02	0.74	yes	2.15e+02		n	n
5	26:37	3.71e+02	5.17e+02	0.72	yes	8.88e+02		n	n
6	26:45	6.56e+02	7.97e+02	0.82	yes	1.45e+03		n	n
7	27:11	5.55e+03	7.71e+03	0.72	yes	1.33e+04		n	n
8	27:59	1.37e+04	1.82e+04	0.75	yes	3.19e+04	2,3,7,8-TCDF	n	n
9	28:21	9.16e+02	1.15e+03	0.79	yes	2.07e+03		n	n

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Peak List Summary

CLIENT ID.
SL0543

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519251 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 319.8970 321.8940 Tot Response: 8.49e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:48	3.41e+03	4.37e+03 0.78	yes	7.77e+03	2,3,7,8-TCDD	n	n
2	29:06	3.07e+02	4.03e+02 0.76	yes	7.10e+02		n	n

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Peak List Summary

CLIENT ID.
SL0543

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P519251 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 339.8600 341.8570 Tot Response: 2.72e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:49	1.60e+01	1.12e+01 1.43	yes	2.72e+01		n	n

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Peak List Summary

CLIENT ID.
SL0543

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519251 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 339.8600 341.8570 Tot Response: 4.69e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:20	5.24e+02	3.27e+02	1.60	yes	8.51e+02		n	n
2	32:16	1.17e+03	7.70e+02	1.52	yes	1.94e+03	1,2,3,7,8-PeCDF	n	n
3	32:22	1.89e+01	1.38e+01	1.37	yes	3.27e+01		n	n
4	32:30	3.19e+02	2.01e+02	1.59	yes	5.20e+02		n	n
5	33:11	7.88e+02	5.56e+02	1.42	yes	1.34e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0543

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519251 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 373.8210 375.8180 Tot Response: 5.61e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	1.52e+02	1.10e+02	1.38	yes	2.62e+02		n	n
2	35:26	8.25e+01	6.65e+01	1.24	yes	1.49e+02		n	n
3	35:53	2.08e+03	1.76e+03	1.19	yes	3.84e+03	1,2,3,4,7,8-HxCDF	n	n
4	35:59	5.32e+02	3.87e+02	1.37	yes	9.19e+02	1,2,3,6,7,8-HxCDF	n	n
5	36:29	9.59e+01	7.41e+01	1.29	yes	1.70e+02	2,3,4,6,7,8-HxCDF	n	n
6	37:17	1.49e+02	1.19e+02	1.26	yes	2.68e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0543

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519251 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 389.8160 391.8130 Tot Response: 4.53e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	1.96e+02	1.42e+02 1.38	yes	3.37e+02		n	n
2	36:02	6.65e+01	4.94e+01 1.35	yes	1.16e+02		n	n

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Peak List Summary

CLIENT ID.
SL0543

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519251 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 407.7820 409.7790 Tot Response: 1.44e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:30	4.26e+02	4.75e+02 0.90	yes	9.01e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:55	1.10e+02	1.24e+02 0.89	yes	2.34e+02		n	n
3	39:54	1.63e+02	1.38e+02 1.18	yes	3.01e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0543

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519251 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 11:01:01 Processed: 7-DEC-18 09:55:20

Mass: 423.7770 425.7740 Tot Response: 1.91e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	6.26e+02	6.46e+02	0.97	yes	1.27e+03		n	n
2	39:26	3.32e+02	3.03e+02	1.10	yes	6.35e+02	1,2,3,4,6,7,8-HpCDD	n	n

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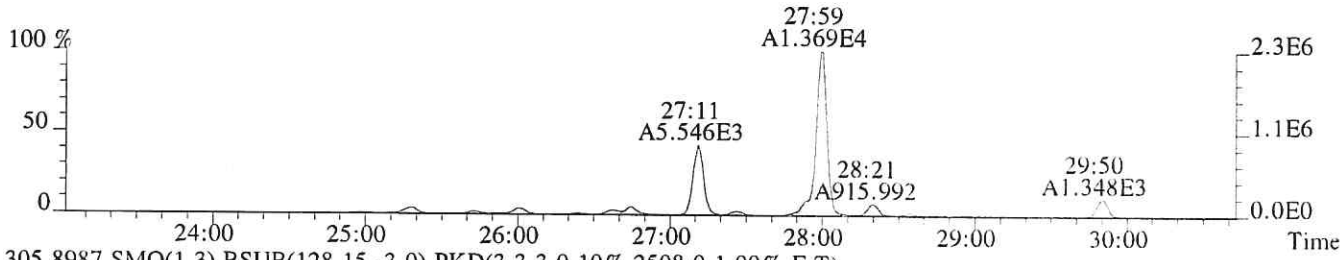
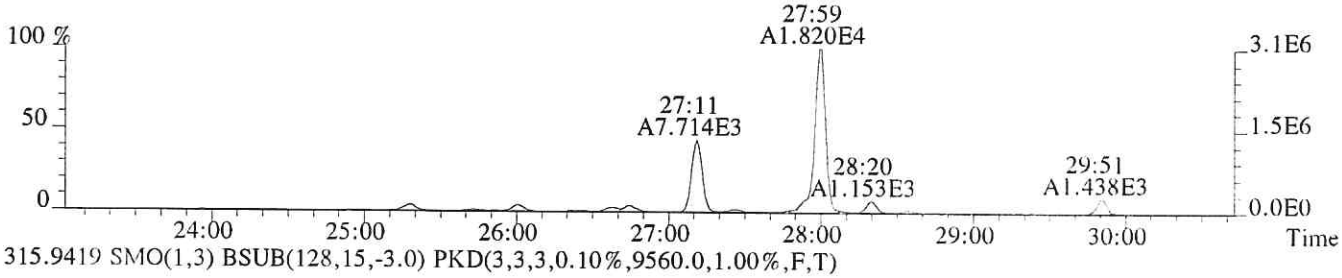
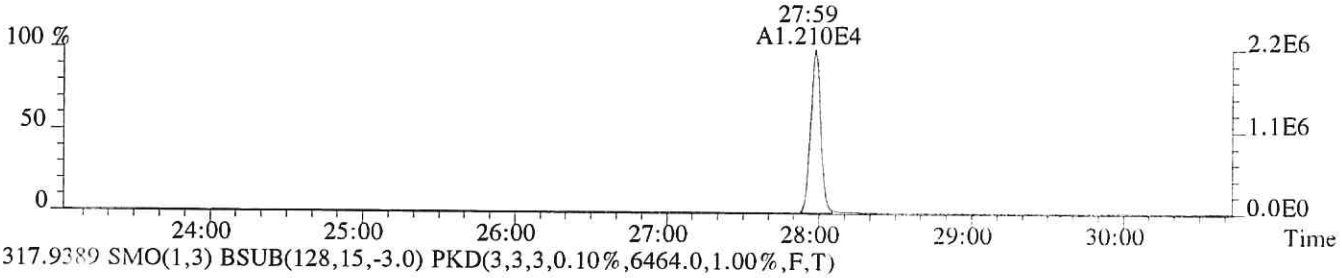
File:P519251 #1-545 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



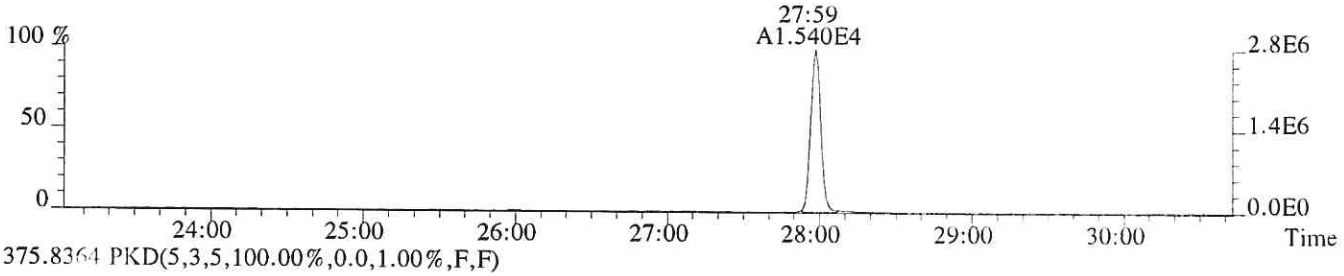
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



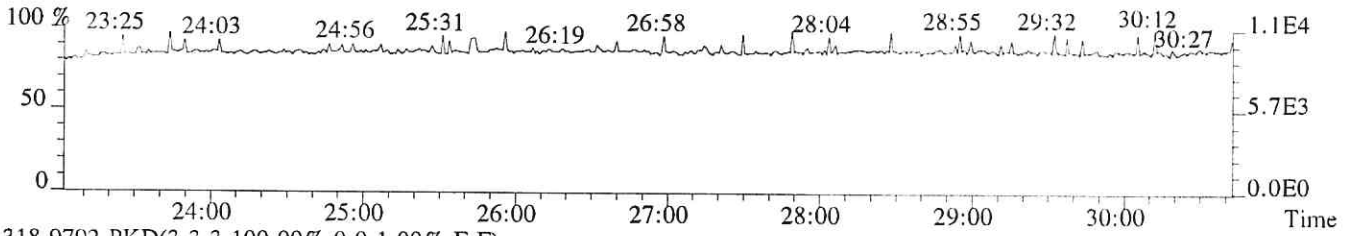
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9560.0,1.00%,F,T)



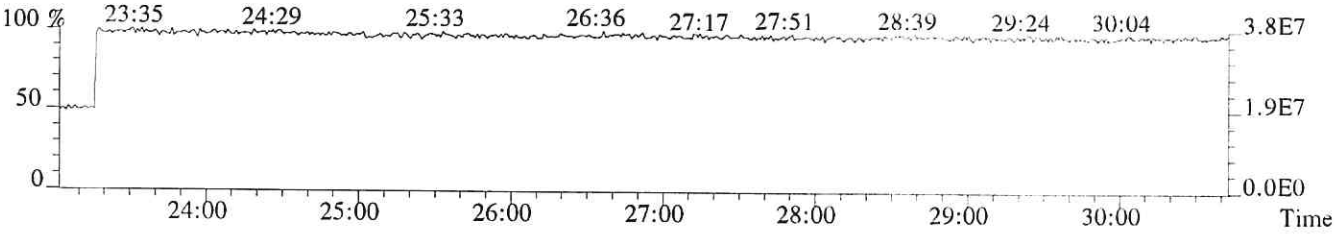
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6464.0,1.00%,F,T)



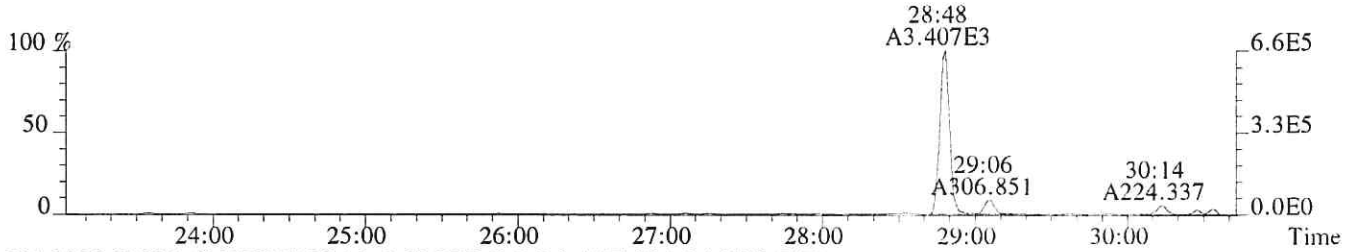
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



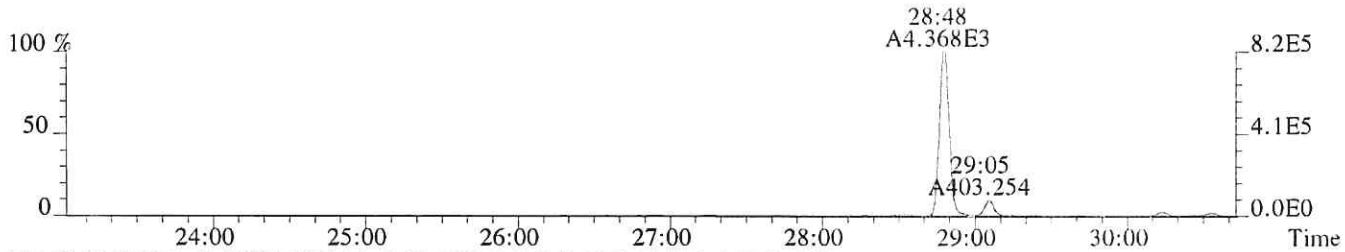
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



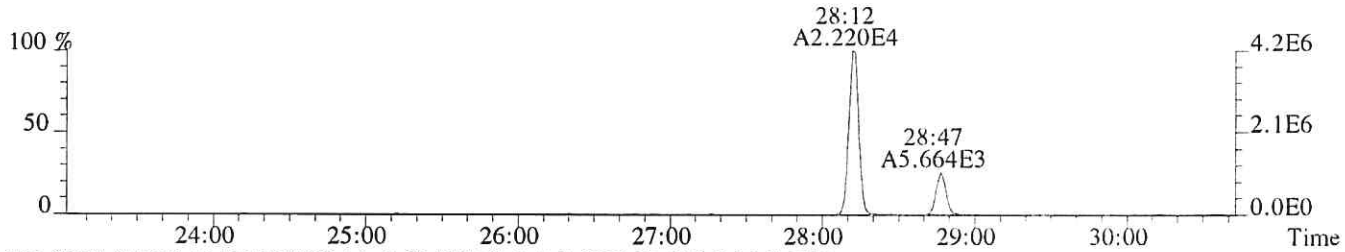
File:P519251 #1-545 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



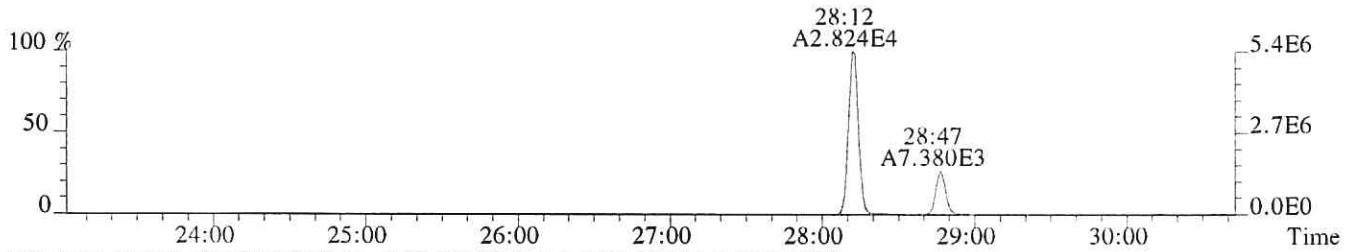
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



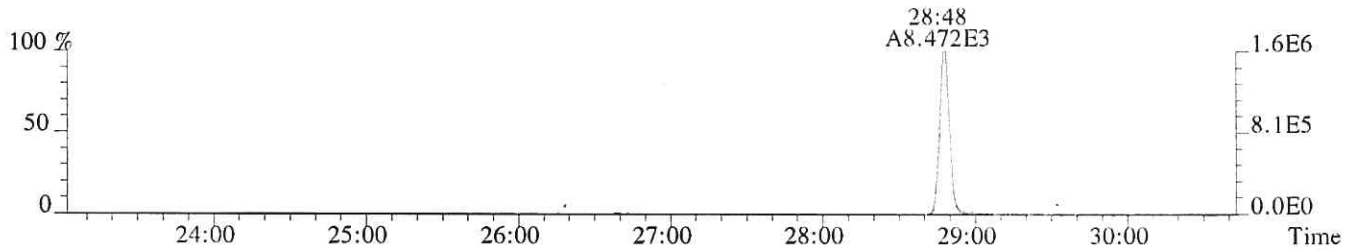
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6164.0,1.00%,F,T)



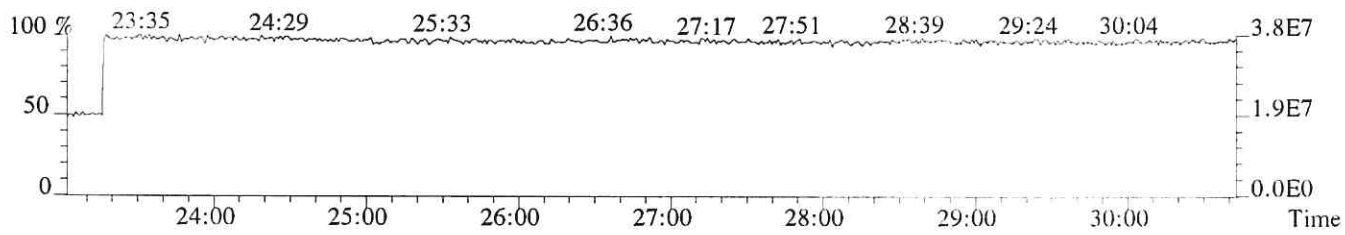
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2748.0,1.00%,F,T)



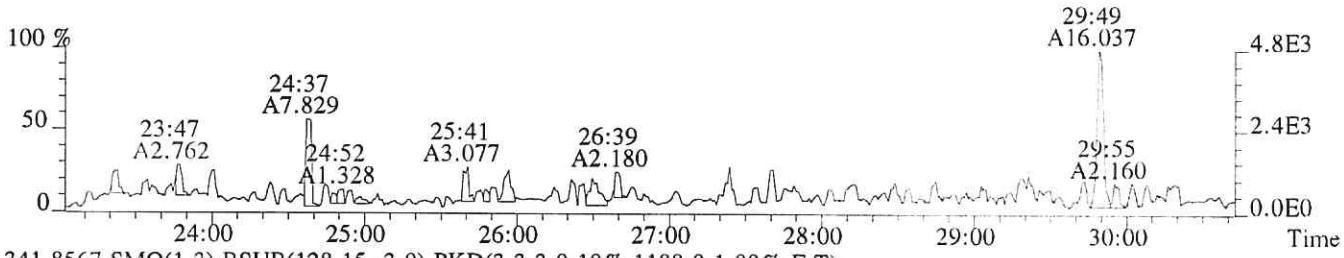
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



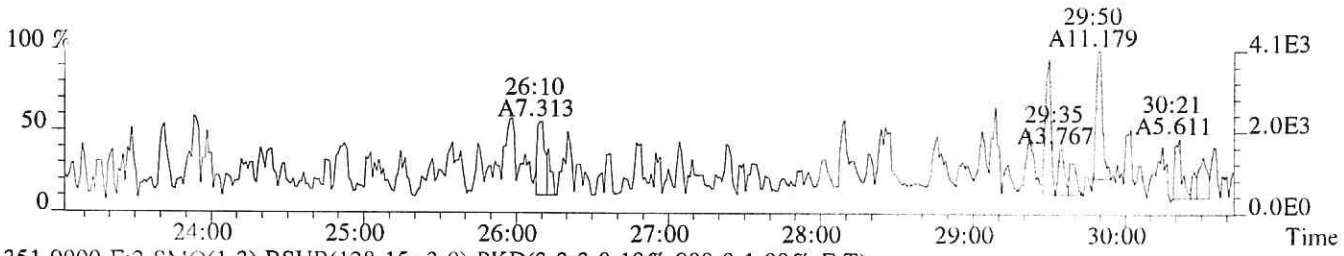
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



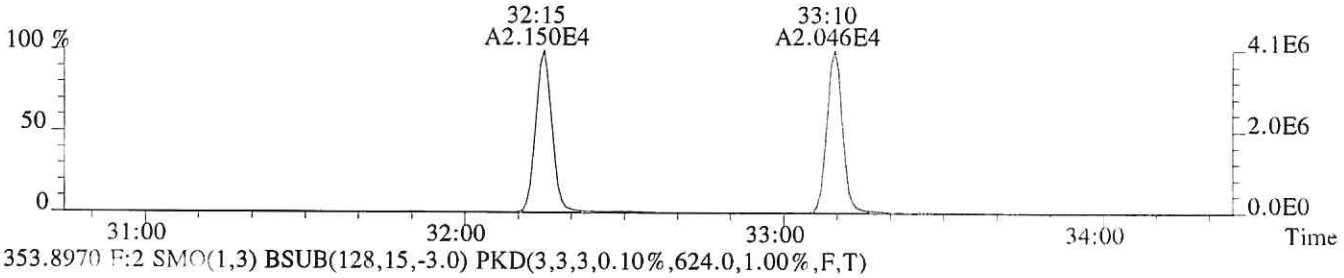
File:P519251 #1-545 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



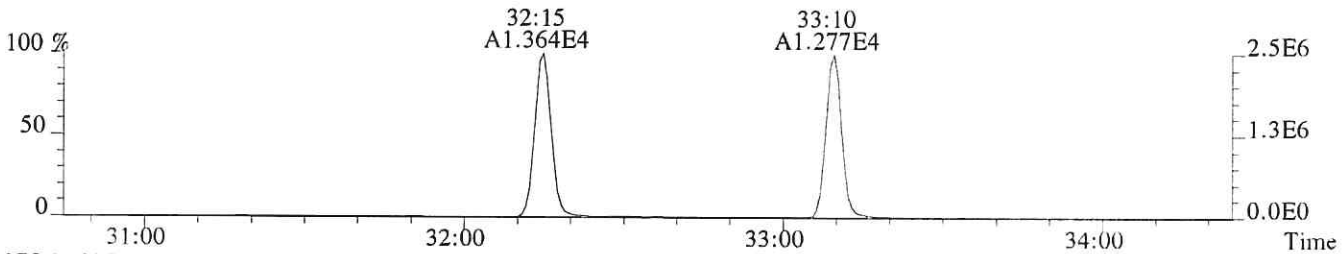
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



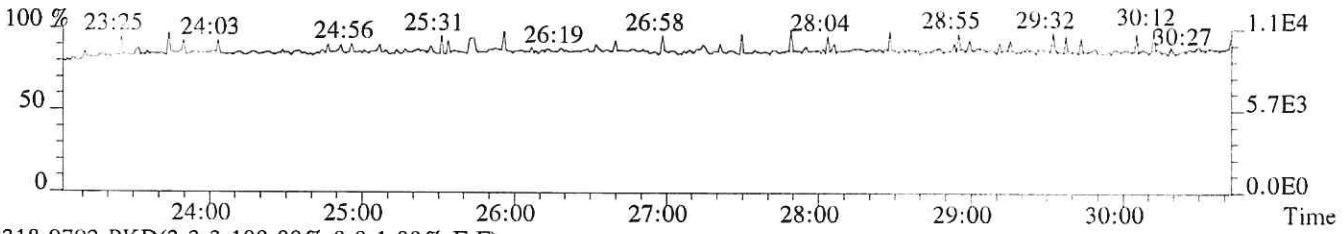
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



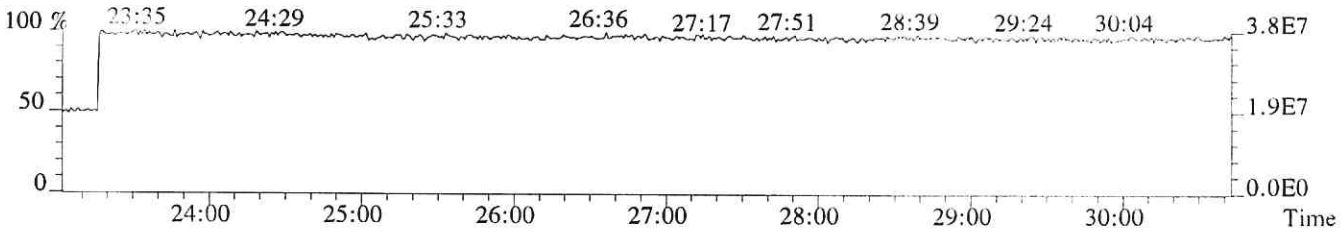
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



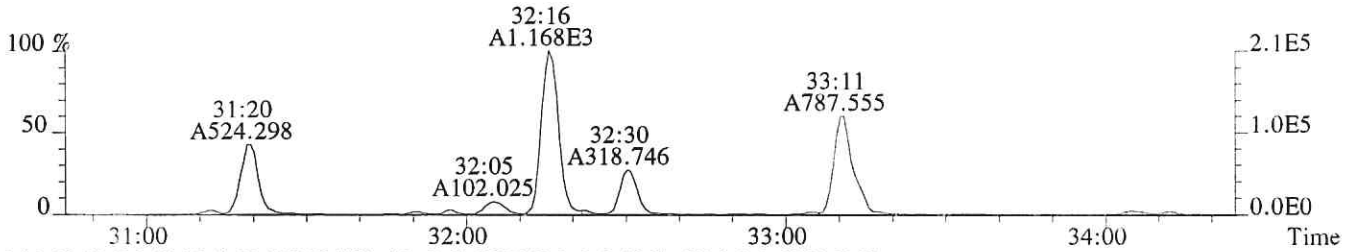
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



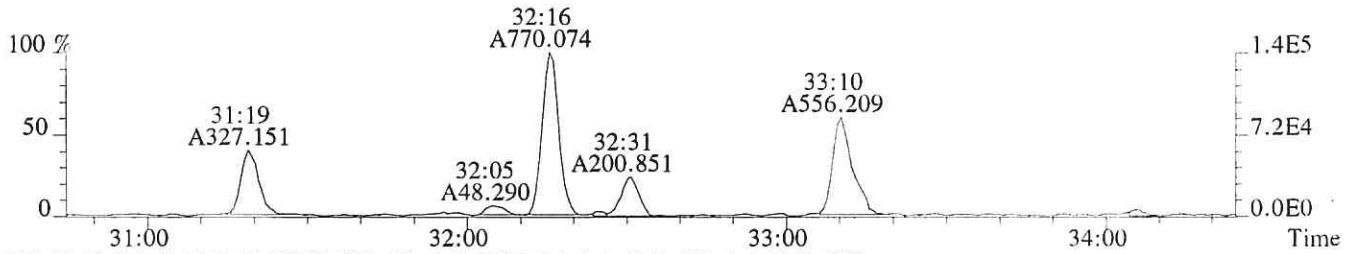
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



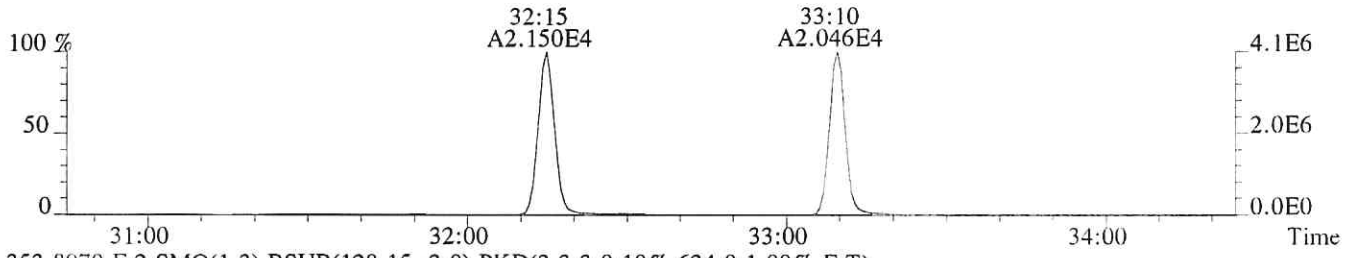
File:P519251 #1-330 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



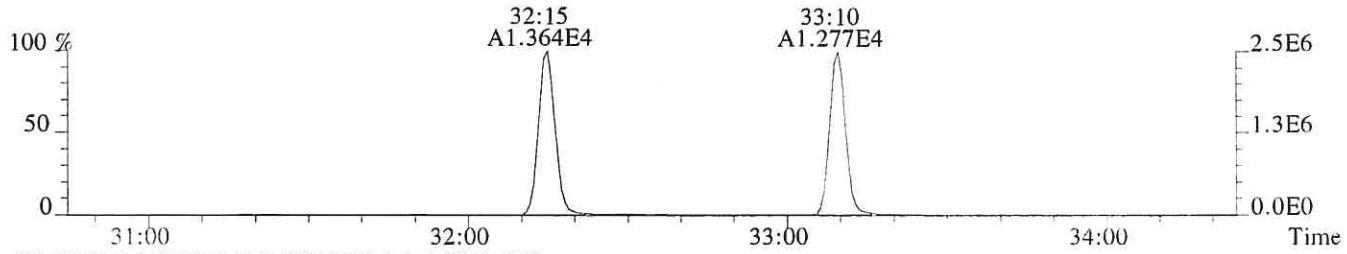
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



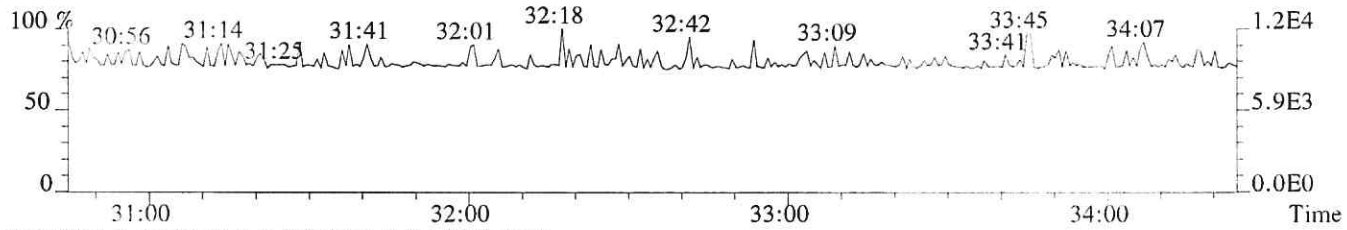
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



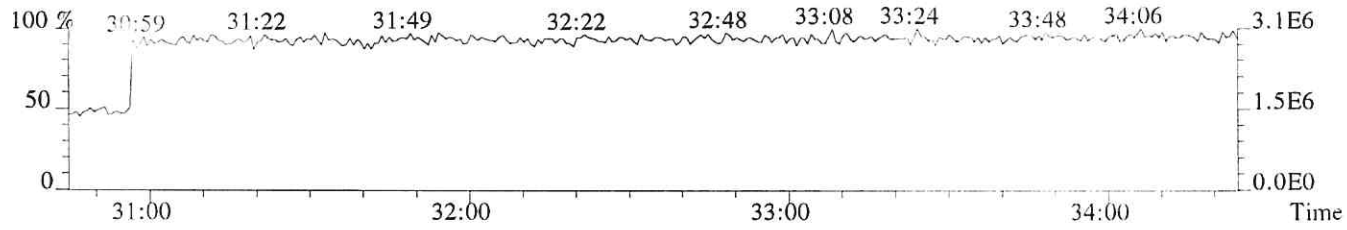
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



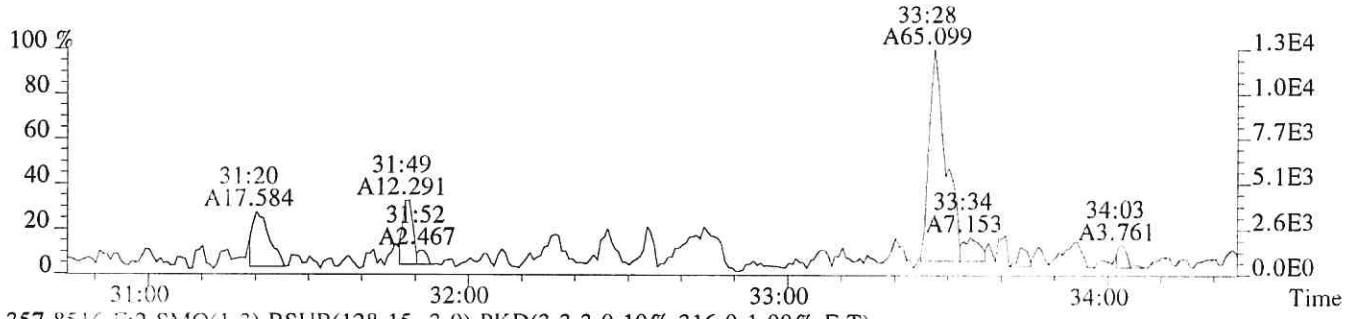
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



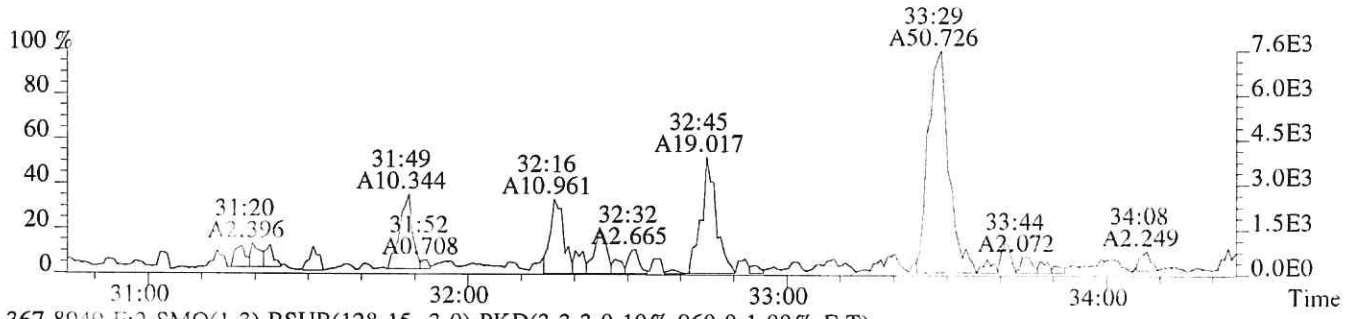
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



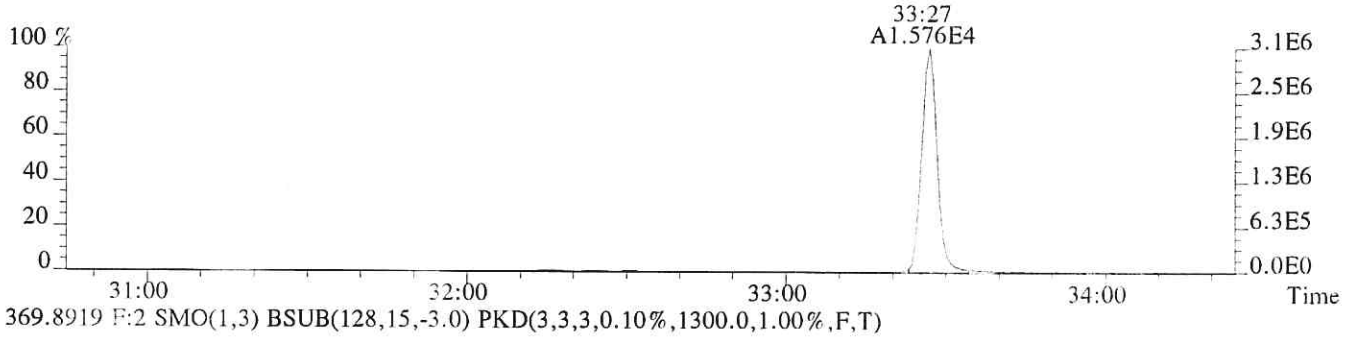
File:P519251 #1-330 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



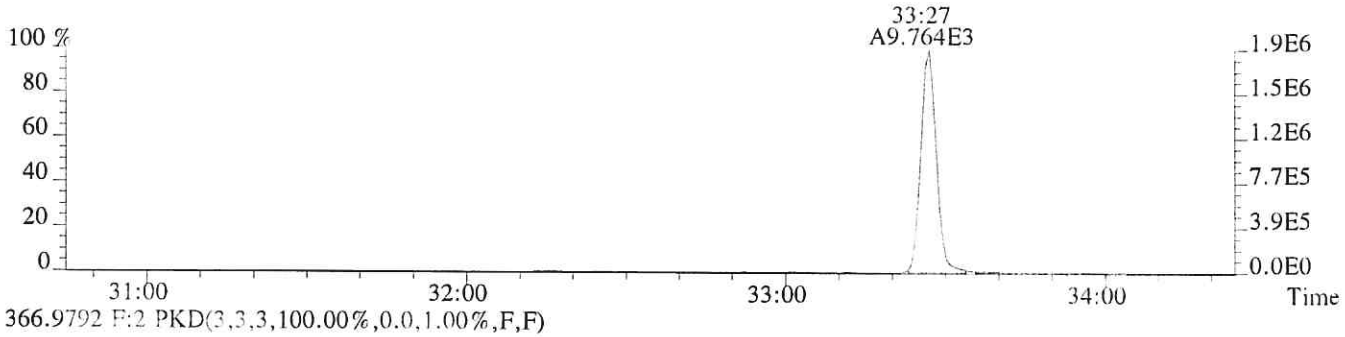
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



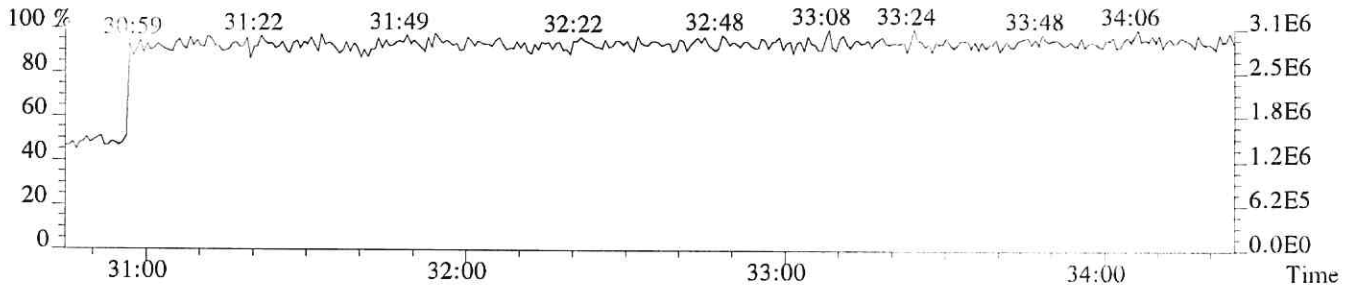
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



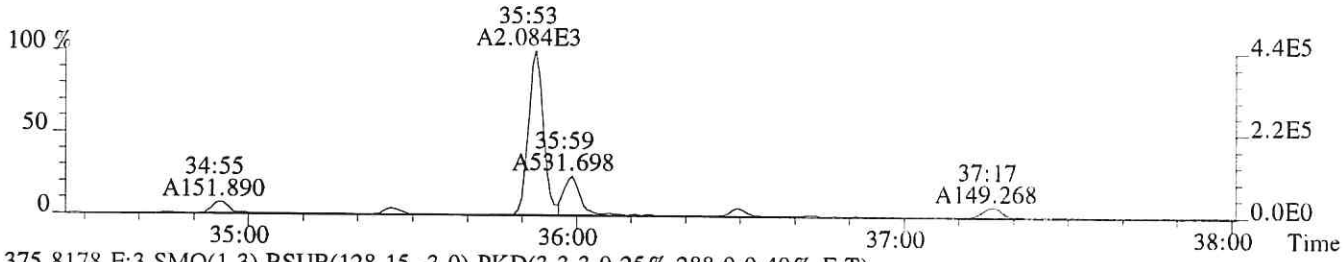
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



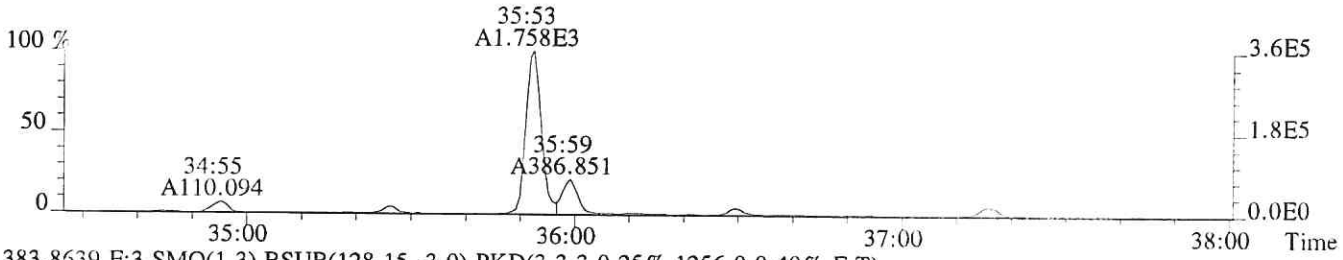
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



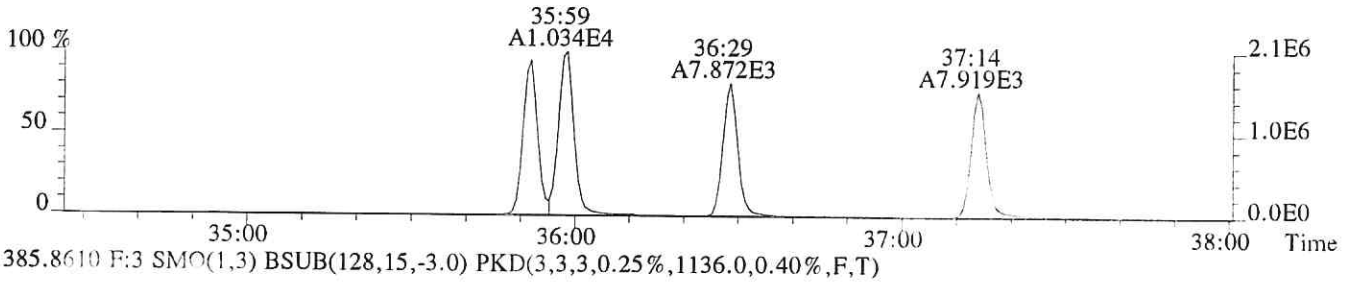
File:P519251 #1-322 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



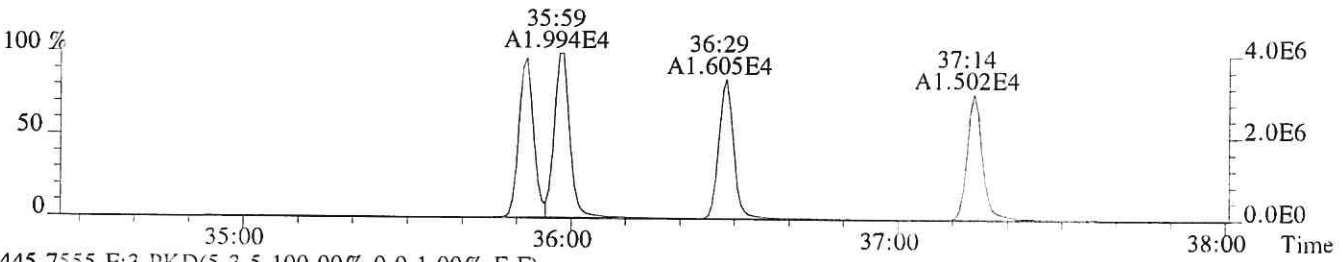
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



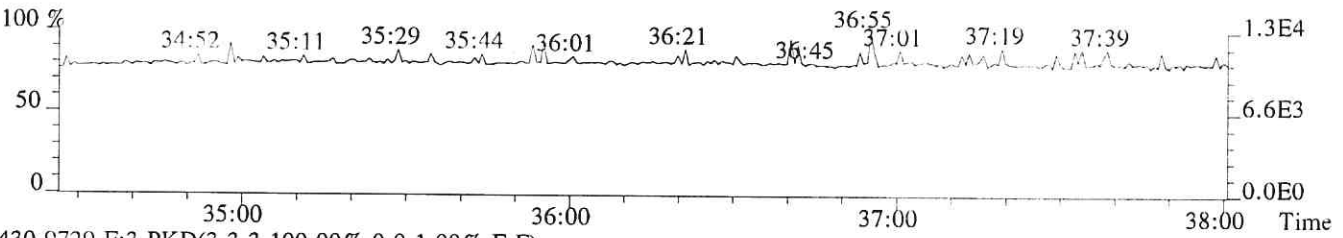
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



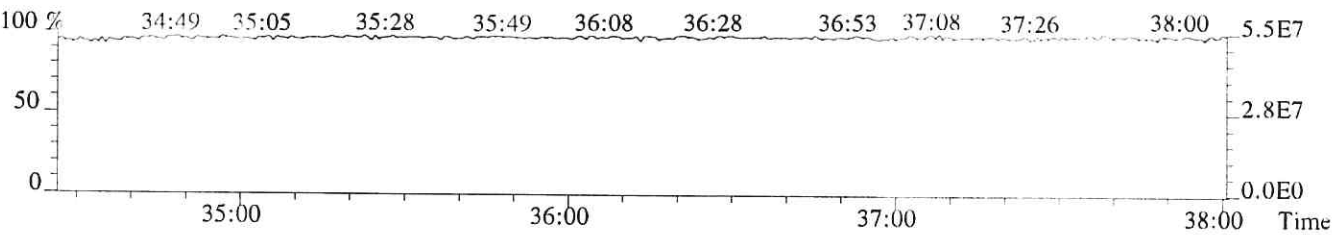
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



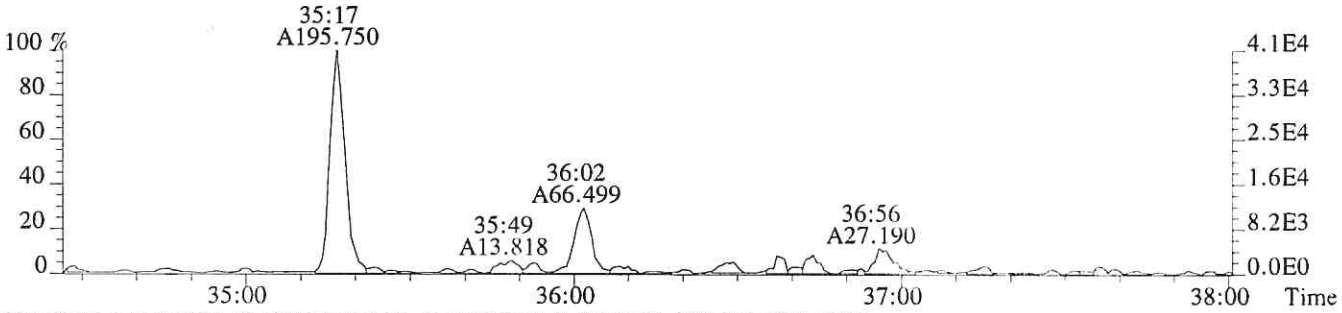
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



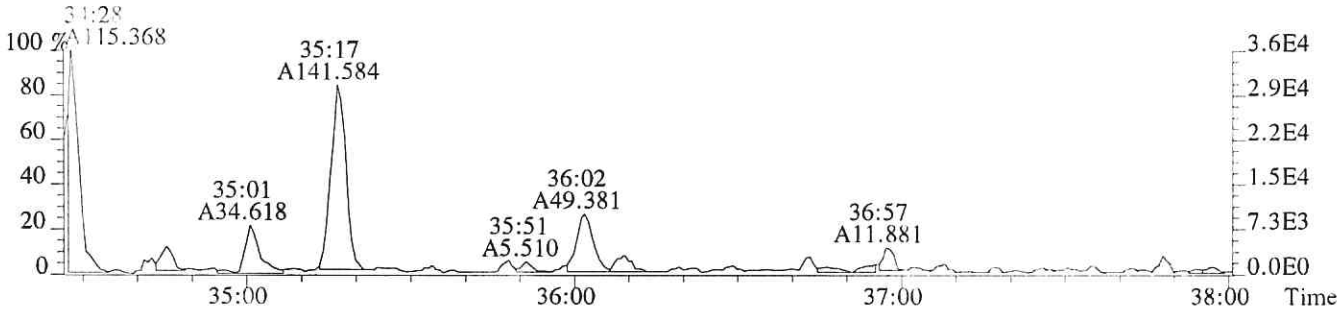
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



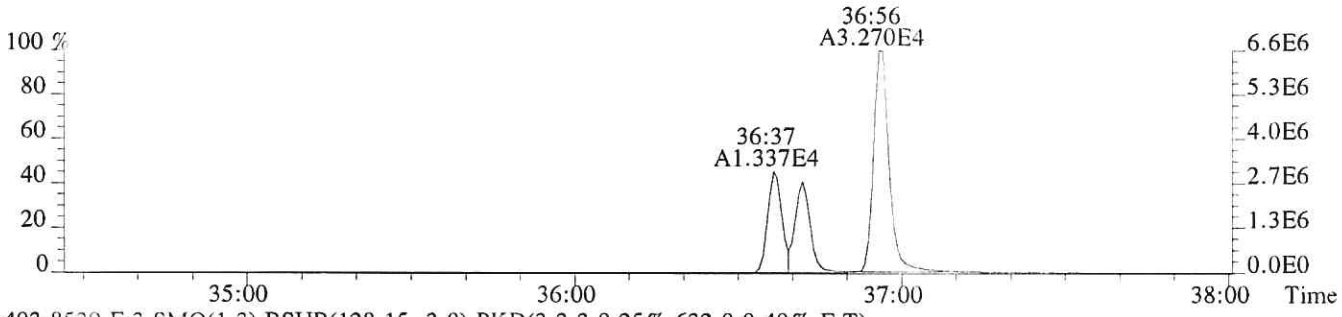
File:P519251 #1-322 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



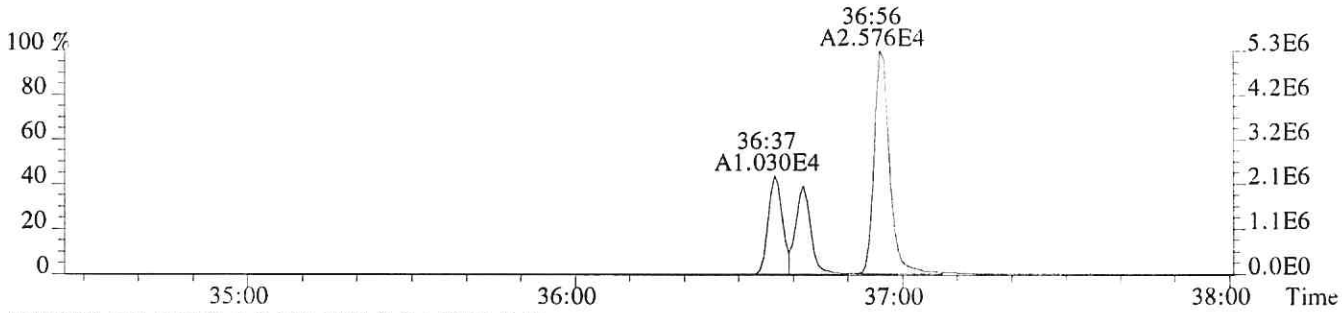
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



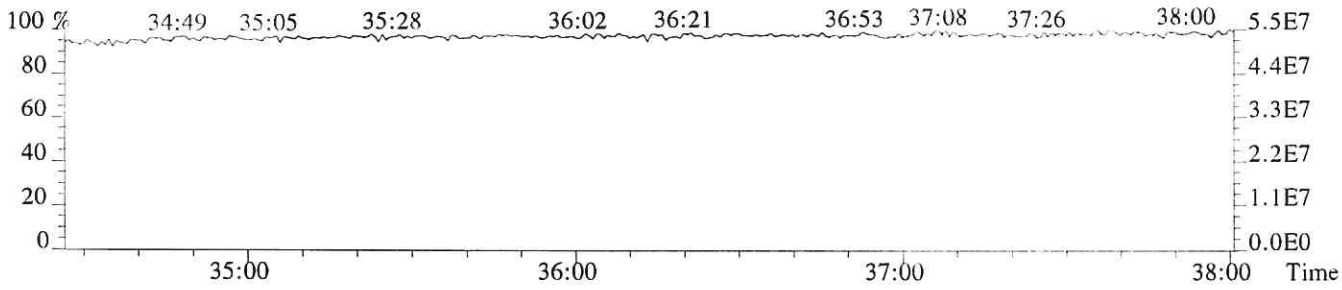
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



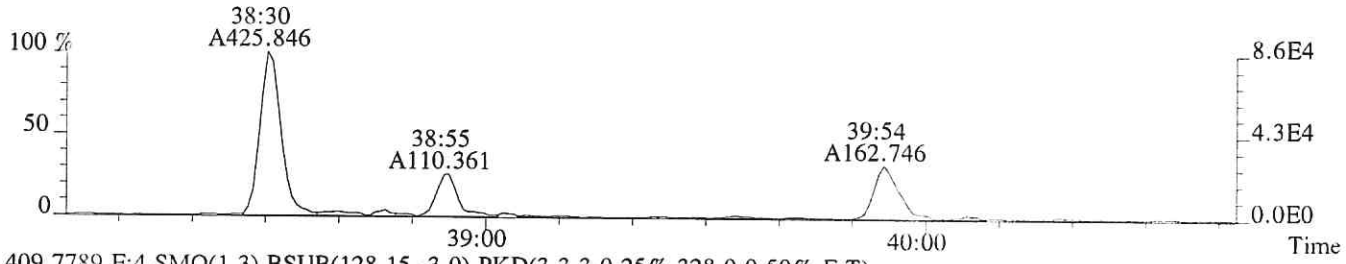
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



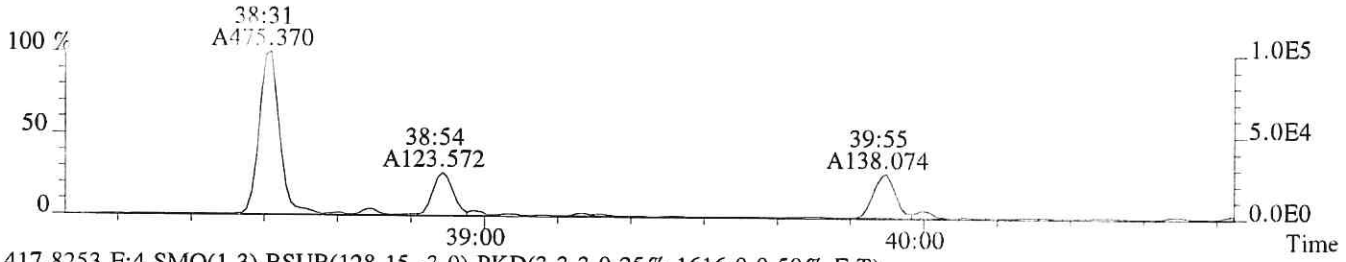
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



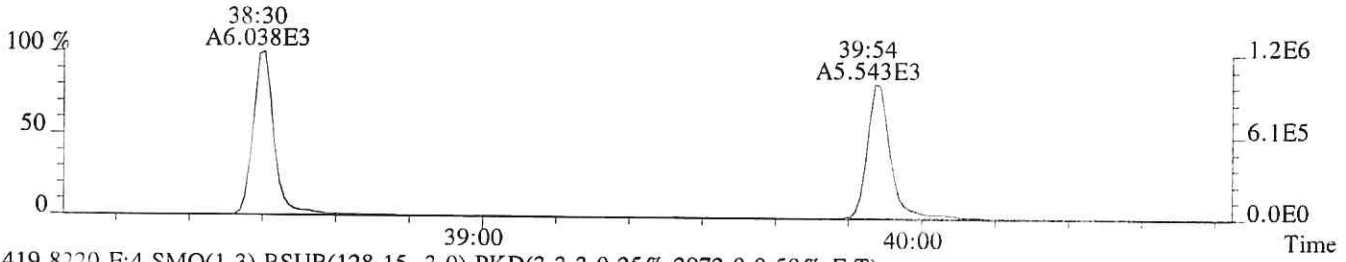
File:P519251 #1-240 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.50%,F,T)



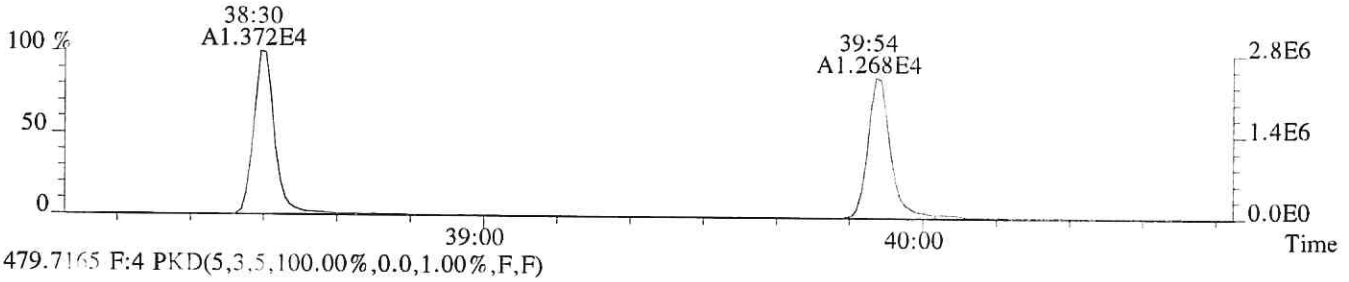
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.50%,F,T)



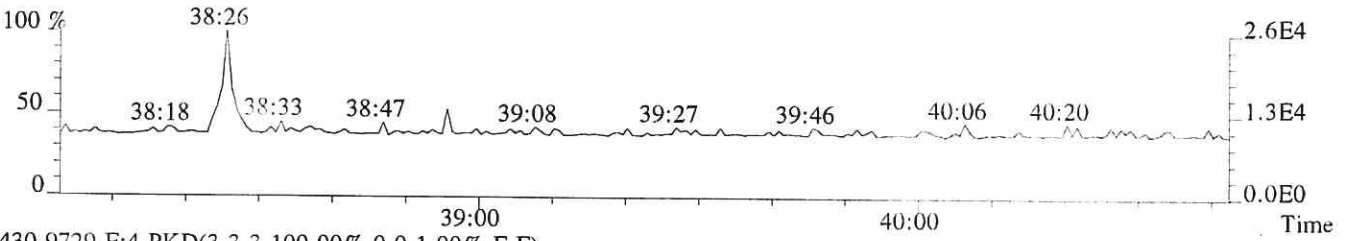
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.50%,F,T)



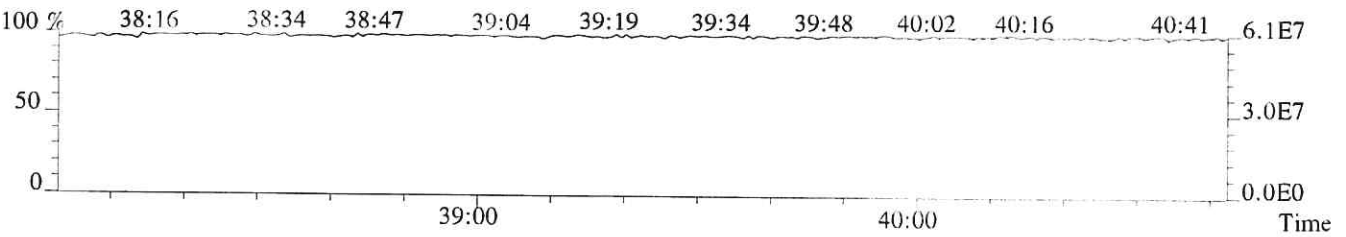
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2972.0,0.50%,F,T)



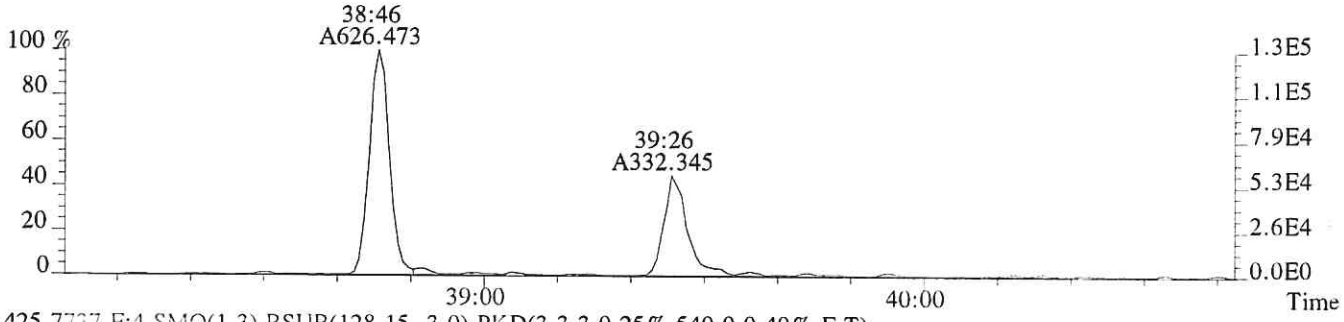
479.7165 F:4 PKD(5,3.5,100.00%,0.0,1.00%,F,F)



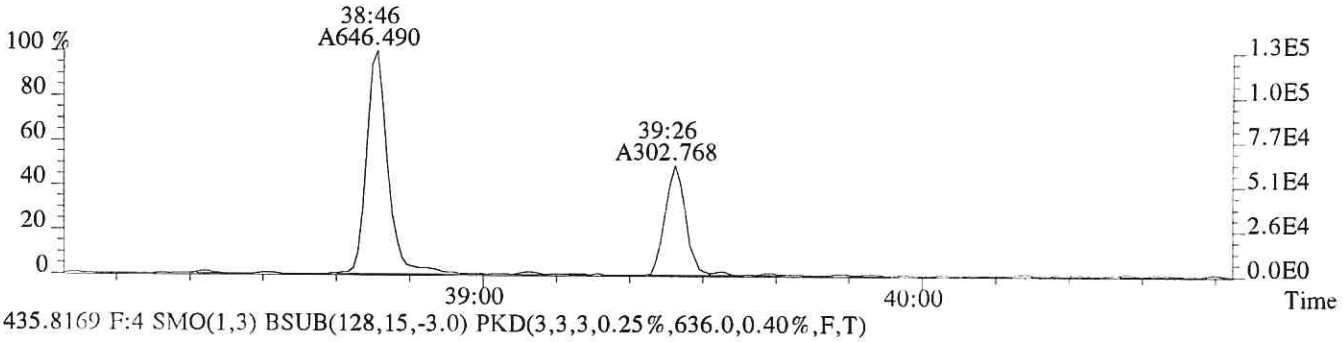
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



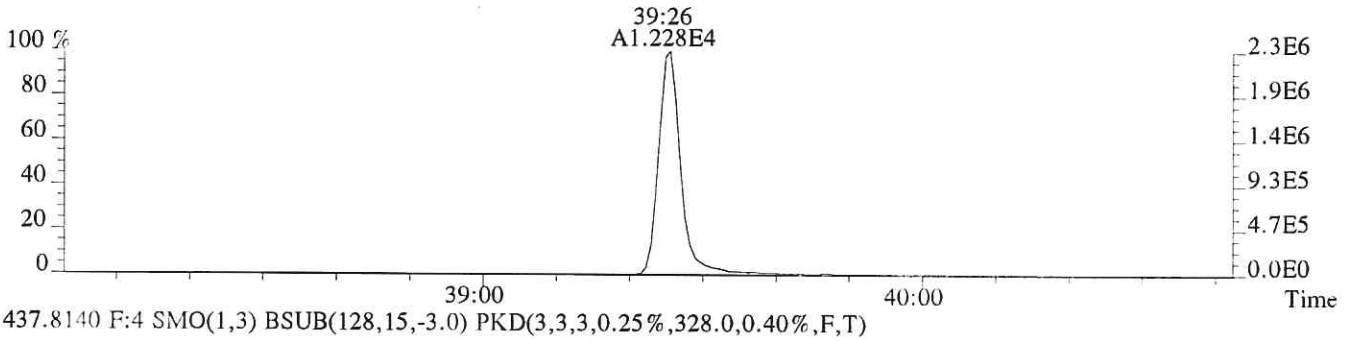
File:P519251 #1-240 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spect±
Sample#1 Exp:E1801046-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



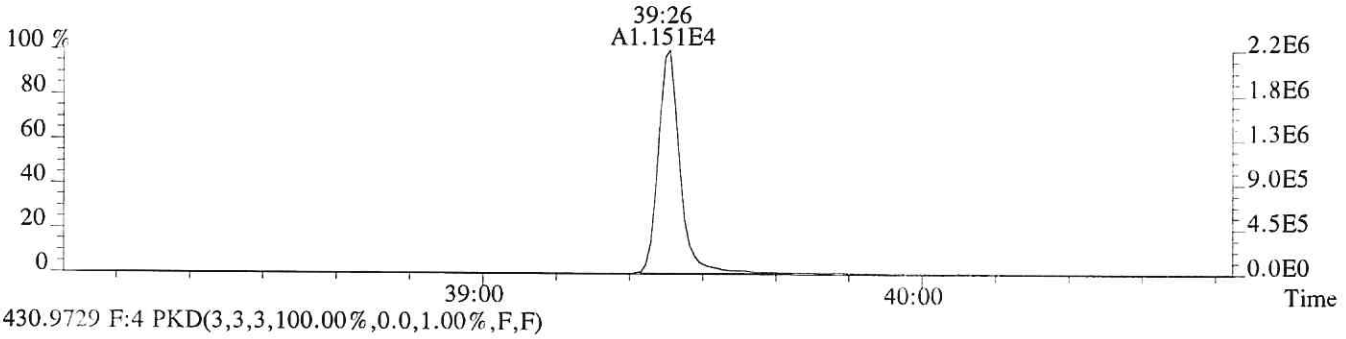
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



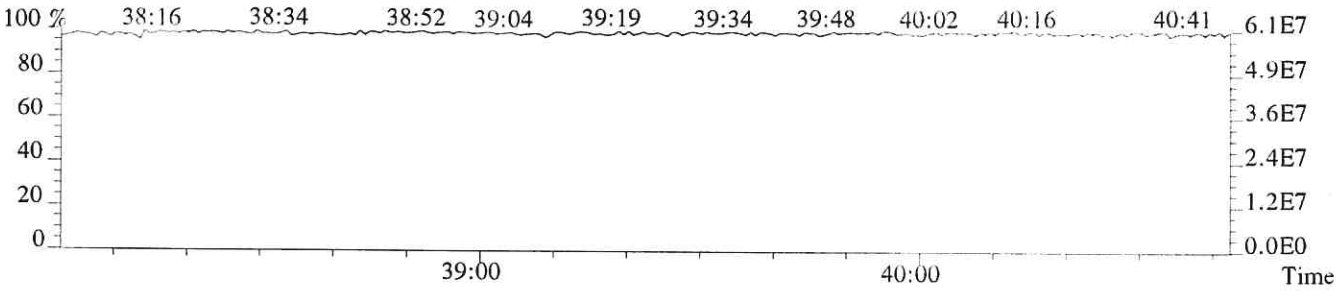
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



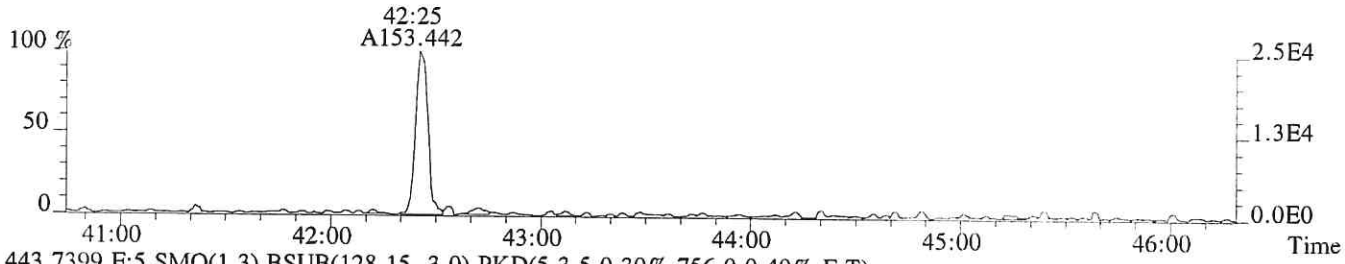
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



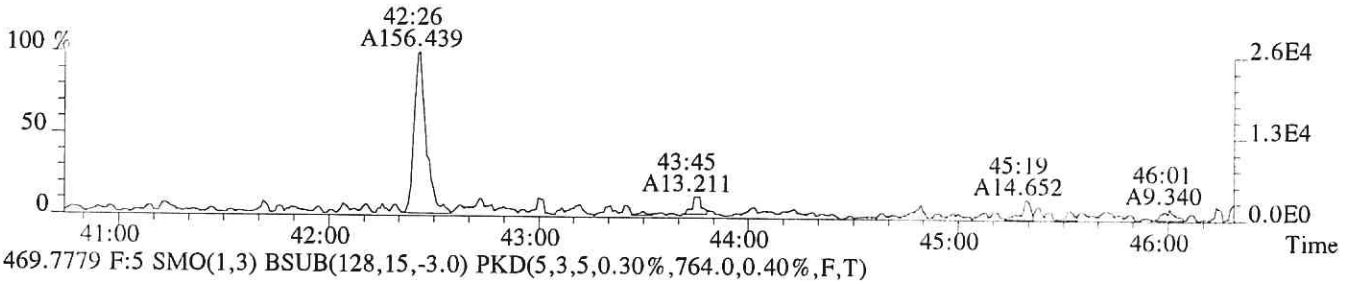
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



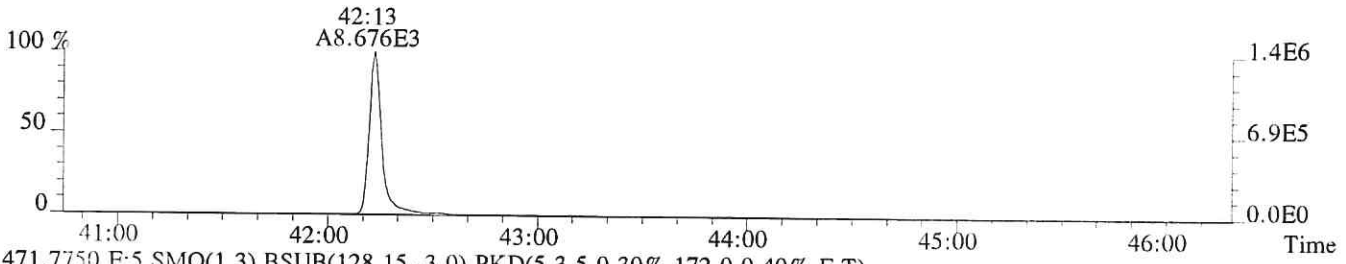
File:P519251 #1-502 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



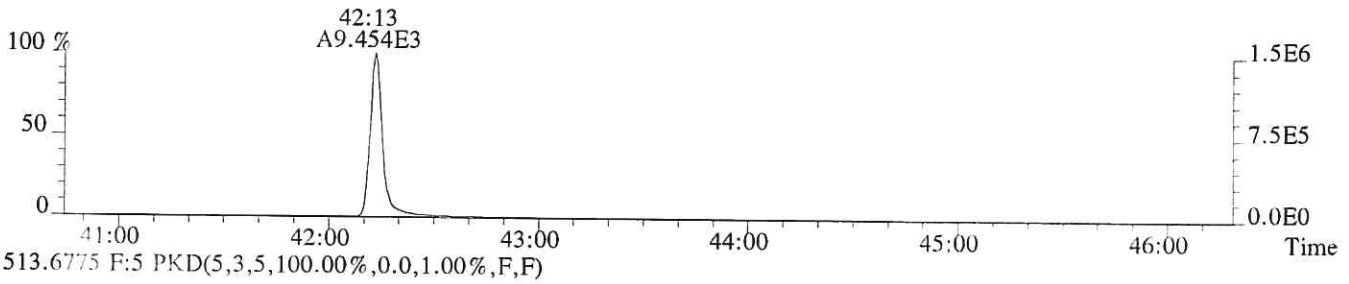
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



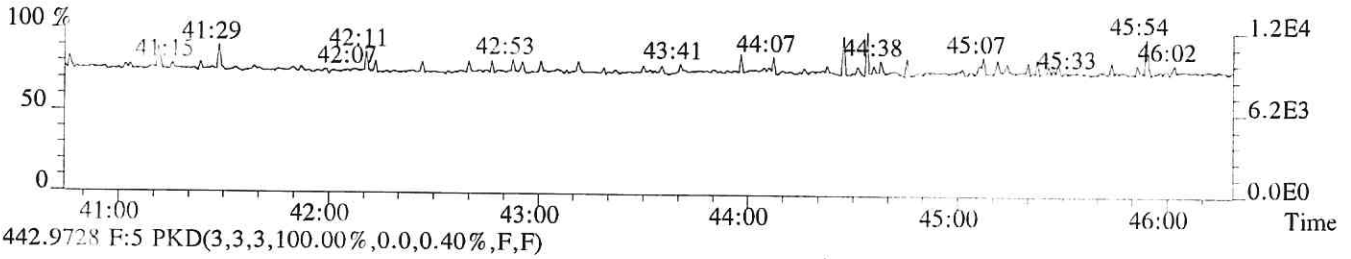
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



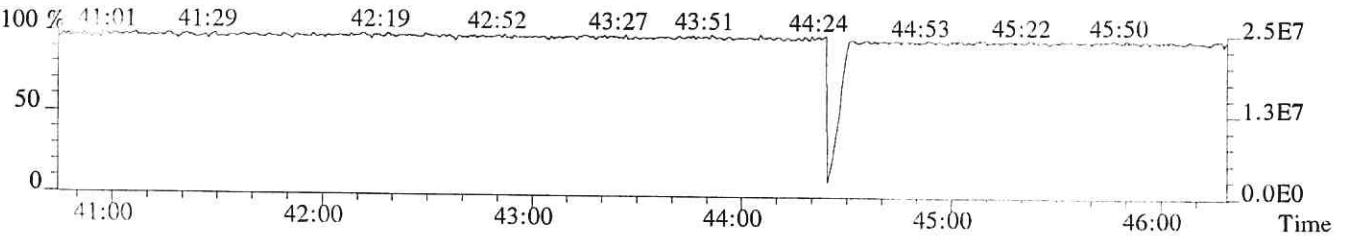
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



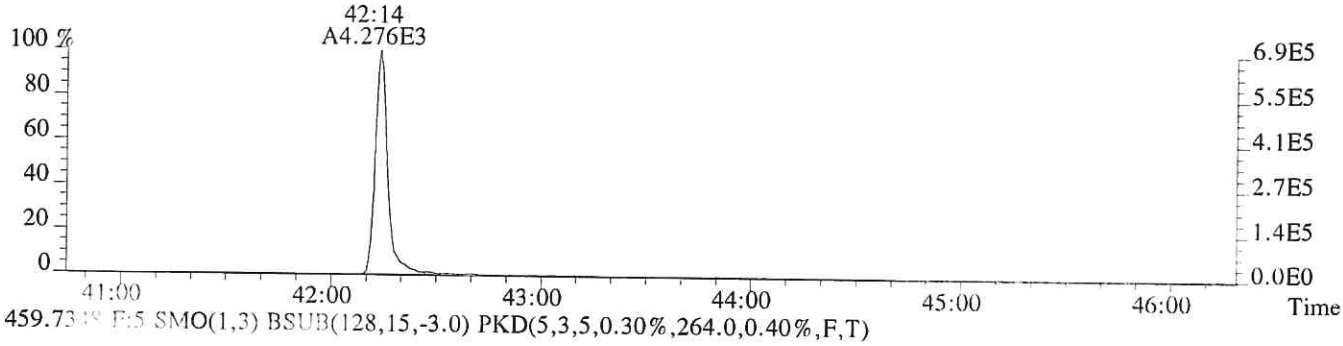
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



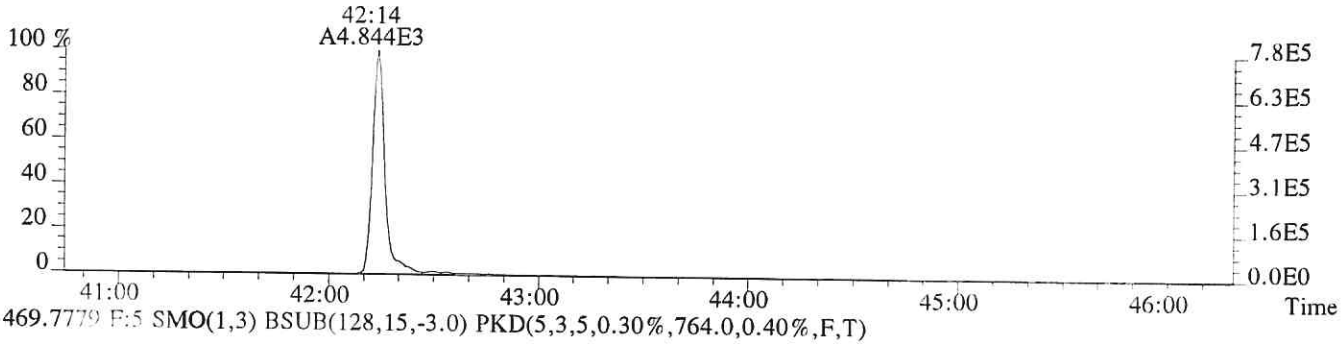
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



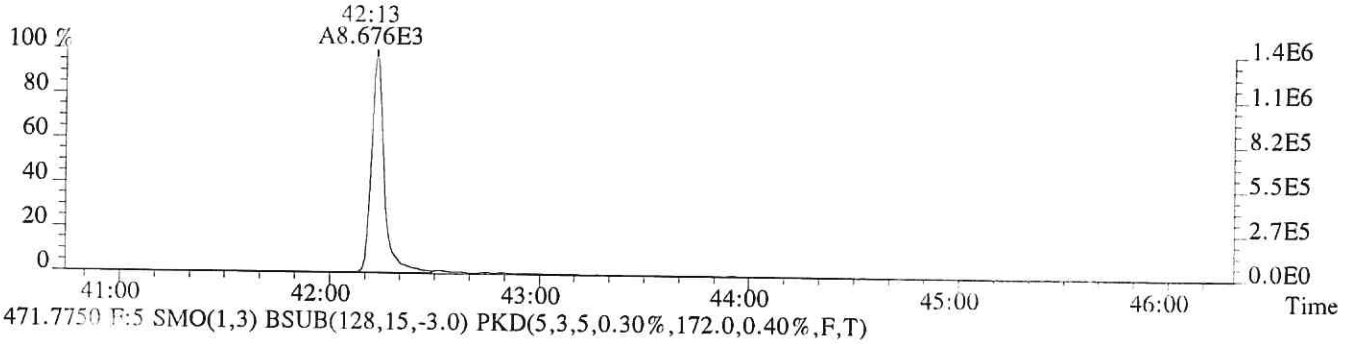
File:P519251 #1-502 Acq: 6-DEC-2018 11:01:01 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801046-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



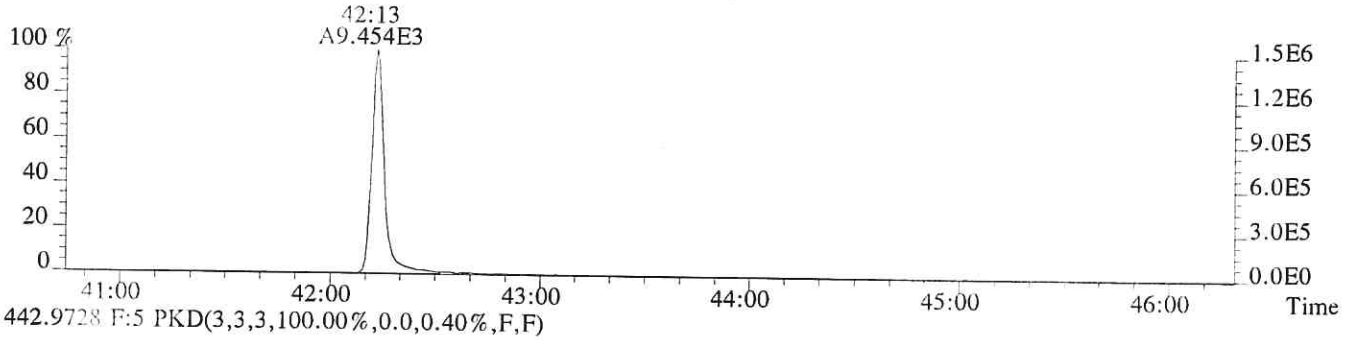
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



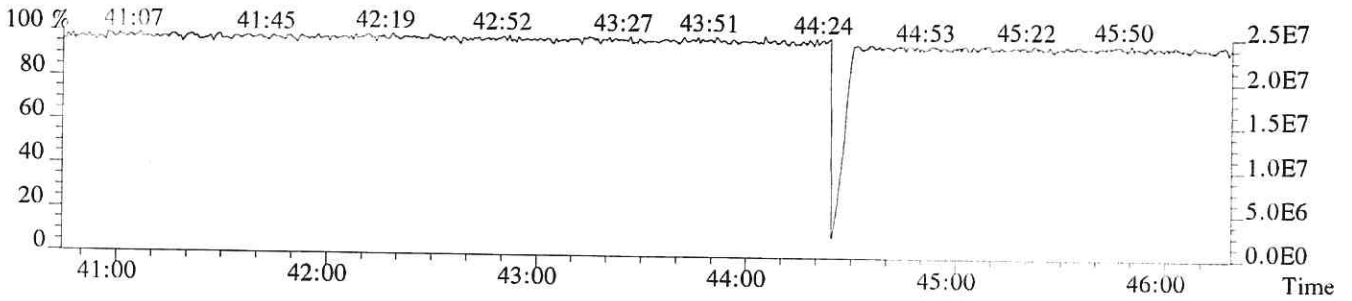
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0544

Run #15 Filename P615947 Samp: 1 Inj: 1 Acquired: 6-DEC-18 16:30:45
Processed: 10-DEC-18 11:32:05 Sample ID: E1801046-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:36	6.049e+03	7.866e+03	0.77	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	5.282e+02	3.748e+02	1.41	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	3.798e+02	2.954e+02	1.29	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	1.074e+03	8.767e+02	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	2.446e+02	2.453e+02	1.00	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:10	3.212e+01	3.909e+01	0.82	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	7.835e+01	6.546e+01	1.20	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	3.005e+02	2.507e+02	1.20	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:31	9.780e+01	1.111e+02	0.88	no	no	1.463
10	Unk	OCDF	41:55	1.013e+02	1.311e+02	0.77	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:25	1.515e+03	1.988e+03	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:09	5.463e+01	2.592e+01	2.11	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	4.117e+01	1.931e+01	2.13	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	3.206e+01	2.464e+01	1.30	yes	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	4.594e+02	4.899e+02	0.94	yes	no	1.112
17	Unk	OCDD	41:43	8.907e+03	1.000e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	3.341e+04	4.323e+04	0.77	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	6.929e+04	4.388e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:51	7.132e+04	4.548e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	3.451e+04	6.651e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.742e+04	7.102e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	3.604e+04	6.835e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	3.250e+04	6.269e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	2.372e+04	5.148e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:30	2.153e+04	4.669e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.798e+04	2.288e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	5.723e+04	3.650e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.871e+04	3.863e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:22	4.740e+04	3.775e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	4.708e+04	4.476e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	4.071e+04	4.478e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:46	5.955e+04	7.606e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:36	7.995e+04	6.386e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	2.220e+04				no	1.086

$$\text{OCDD} = \frac{(8.907e+03 + 1.000e+04) \times 4000\ \text{pg} \times 1}{(4.071e+04 + 4.478e+04) \times 10.732\ \text{g} \times 79.1 / 100 \times 1.157} = 90.1\ \text{ng/kg}$$

LM 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0544

Run #15 Filename P615947 Samp: 1 Inj: 1 Acquired: 6-DEC-18 16:30:45
Processed: 10-DEC-18 11:32:05 LAB. ID: E1801046-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.65e+05	1.19e+03	7.3e+02	1.14e+06	3.87e+03	2.9e+02
2	1,2,3,7,8-PeCDF	9.66e+04	6.52e+02	1.5e+02	7.27e+04	2.06e+03	3.5e+01
3	2,3,4,7,8-PeCDF	5.85e+04	6.52e+02	9.0e+01	4.86e+04	2.06e+03	2.4e+01
4	1,2,3,4,7,8-HxCDF	2.27e+05	1.04e+03	2.2e+02	1.86e+05	5.60e+02	3.3e+02
5	1,2,3,6,7,8-HxCDF	4.95e+04	1.04e+03	4.7e+01	4.78e+04	5.60e+02	8.5e+01
6	2,3,4,6,7,8-HxCDF	7.62e+03	1.04e+03	7.3e+00	9.18e+03	5.60e+02	1.6e+01
7	1,2,3,7,8,9-HxCDF	1.14e+04	1.04e+03	1.1e+01	1.25e+04	5.60e+02	2.2e+01
8	1,2,3,4,6,7,8-HpCDF	6.57e+04	4.72e+02	1.4e+02	5.13e+04	3.52e+02	1.5e+02
9	1,2,3,4,7,8,9-HpCDF	2.06e+04	4.72e+02	4.4e+01	2.29e+04	3.52e+02	6.5e+01
10	OCDF	2.02e+04	4.32e+02	4.7e+01	1.58e+04	1.09e+03	1.4e+01
11	2,3,7,8-TCDD	2.32e+05	3.20e+03	7.2e+01	3.57e+05	1.30e+03	2.8e+02
12	1,2,3,7,8-PeCDD	7.95e+03	1.83e+03	4.4e+00	5.22e+03	3.68e+02	1.4e+01
13	1,2,3,4,7,8-HxCDD	*	5.96e+02	*	*	1.34e+03	*
14	1,2,3,6,7,8-HxCDD	7.44e+03	5.96e+02	1.2e+01	4.11e+03	1.34e+03	3.1e+00
15	1,2,3,7,8,9-HxCDD	8.06e+03	5.96e+02	1.4e+01	6.04e+03	1.34e+03	4.5e+00
16	1,2,3,4,6,7,8-HpCDD	1.01e+05	1.18e+03	8.5e+01	9.74e+04	5.56e+02	1.8e+02
17	OCDD	1.58e+06	3.84e+02	4.1e+03	1.78e+06	1.12e+03	1.6e+03
18	13C-2,3,7,8-TCDF	5.23e+06	1.09e+04	4.8e+02	6.83e+06	6.23e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.25e+07	2.76e+02	4.5e+04	7.82e+06	9.76e+02	8.0e+03
20	13C-2,3,4,7,8-PeCDF	1.34e+07	2.76e+02	4.8e+04	8.44e+06	9.76e+02	8.6e+03
21	13C-1,2,3,4,7,8-HxCDF	7.54e+06	1.26e+03	6.0e+03	1.44e+07	2.30e+03	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	7.90e+06	1.26e+03	6.3e+03	1.49e+07	2.30e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	7.72e+06	1.26e+03	6.1e+03	1.47e+07	2.30e+03	6.4e+03
24	13C-1,2,3,7,8,9-HxCDF	6.67e+06	1.26e+03	5.3e+03	1.28e+07	2.30e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.29e+06	3.95e+03	1.3e+03	1.14e+07	2.13e+03	5.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.11e+06	3.95e+03	1.0e+03	8.96e+06	2.13e+03	4.2e+03
27	13C-2,3,7,8-TCDD	3.04e+06	1.21e+04	2.5e+02	3.84e+06	5.45e+03	7.1e+02
28	13C-1,2,3,7,8-PeCDD	1.08e+07	1.91e+03	5.6e+03	6.80e+06	1.12e+03	6.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.09e+07	3.44e+03	3.2e+03	8.63e+06	1.92e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.88e+06	3.44e+03	2.9e+03	7.86e+06	1.92e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.69e+06	1.20e+03	8.0e+03	9.09e+06	5.88e+02	1.5e+04
32	13C-OCDD	7.12e+06	1.00e+03	7.1e+03	7.93e+06	5.92e+02	1.3e+04
33	13C-1,2,3,4-TCDD	1.01e+07	1.21e+04	8.4e+02	1.30e+07	5.45e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.68e+07	3.44e+03	4.9e+03	1.35e+07	1.92e+03	7.0e+03
35	37Cl-2,3,7,8-TCDD	3.78e+06	2.57e+03	1.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0544

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P615947 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 16:30:45 Processed: 10-DEC-18 11:32:05

Mass: 303.9020 305.8990 Tot Response: 2.17e+04 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:45	2.01e+02	2.42e+02	0.83	yes	4.43e+02		n	n
2	25:10	6.26e+01	7.50e+01	0.84	yes	1.38e+02		n	n
3	25:54	3.05e+01	3.94e+01	0.77	yes	6.99e+01		n	n
4	26:17	2.83e+02	3.46e+02	0.82	yes	6.29e+02		n	n
5	26:44	2.38e+03	2.89e+03	0.82	yes	5.27e+03		n	n
6	27:01	1.28e+02	1.50e+02	0.86	yes	2.78e+02		n	n
7	27:36	6.05e+03	7.87e+03	0.77	yes	1.39e+04	2,3,7,8-TCDF	n	n
8	27:56	4.19e+02	5.83e+02	0.72	yes	1.00e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0544

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P615947 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 16:30:45 Processed: 10-DEC-18 11:32:05

Mass: 319.8970 321.8940 Tot Response: 3.50e+03 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:25	1.52e+03	1.99e+03 0.76	yes	3.50e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0544

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P615947 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 16:30:45 Processed: 10-DEC-18 11:32:05

Mass: 339.8600 341.8570 Tot Response: 1.27e+03 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:58	2.11e+02	1.56e+02 1.36	yes	3.68e+02		n	n
2	31:56	5.28e+02	3.75e+02 1.41	yes	9.03e+02	1,2,3,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0544

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P615947 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 16:30:45 Processed: 10-DEC-18 11:32:05

Mass: 355.8550 357.8520 Tot Response: 1.11e+02 RRF: 0.9288

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:58	2.41e+01	1.53e+01 1.58	yes	3.94e+01		y	n
2	31:28	4.44e+01	2.72e+01 1.63	yes	7.16e+01		y	n

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Peak List Summary

CLIENT ID.
SL0544

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P615947 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 16:30:45 Processed: 10-DEC-18 11:32:05

Mass: 373.8210 375.8180 Tot Response: 2.09e+03 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:33	1.07e+03	8.77e+02 1.23	yes	1.95e+03	1,2,3,4,7,8-HxCDF	n	n
2	36:56	7.83e+01	6.55e+01 1.20	yes	1.44e+02	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0544

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P615947 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 16:30:45 Processed: 10-DEC-18 11:32:05

Mass: 389.8160 391.8130 Tot Response: 5.67e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:37	3.21e+01	2.46e+01 1.30	yes	5.67e+01	1,2,3,7,8,9-HxCDD	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0544

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P615947 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 16:30:45 Processed: 10-DEC-18 11:32:05

Mass: 423.7770 425.7740 Tot Response: 3.53e+03 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:24	1.25e+03	1.33e+03	0.95	yes	2.58e+03		n	n
2	39:03	4.59e+02	4.90e+02	0.94	yes	9.49e+02	1,2,3,4,6,7,8-HpCDD	n	n

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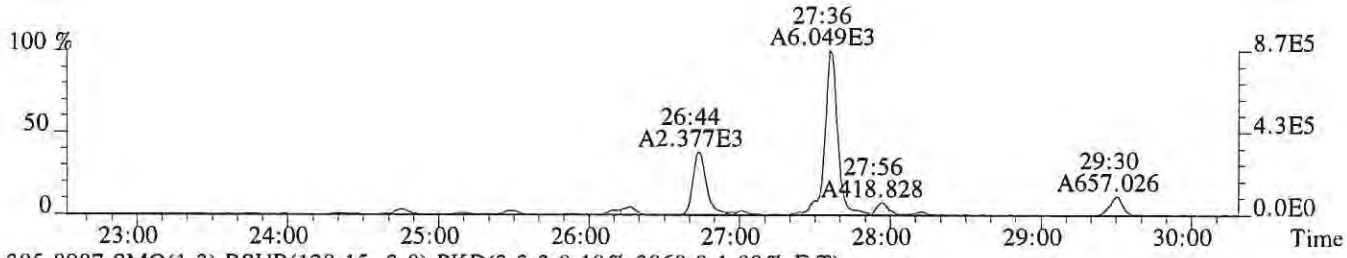
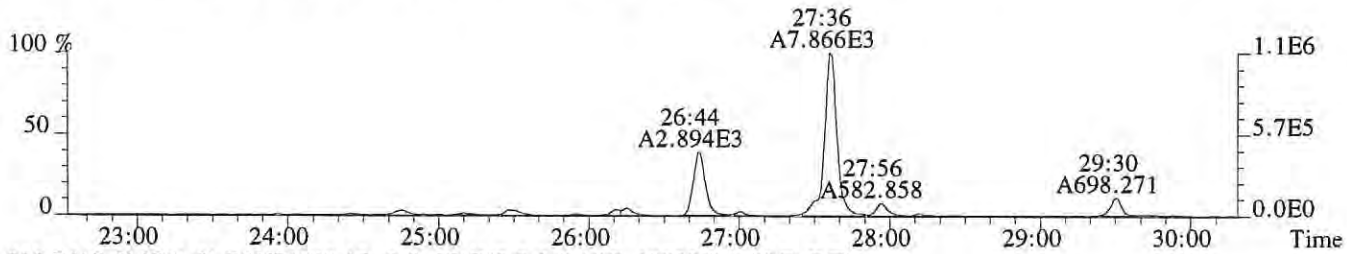
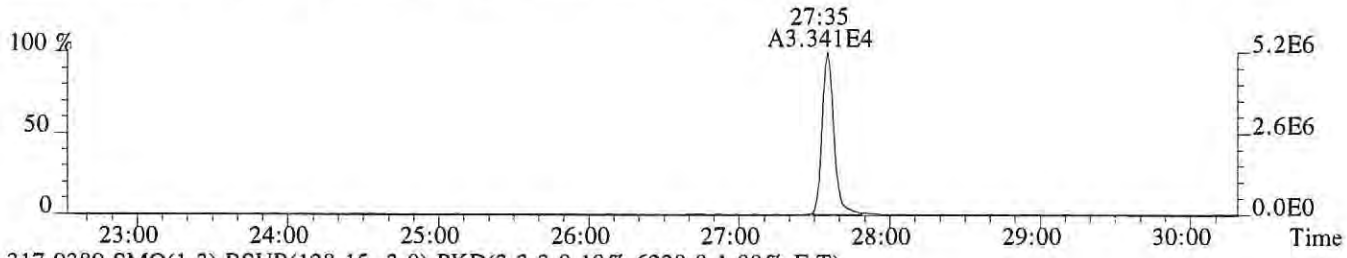
File:P615947 #1-552 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



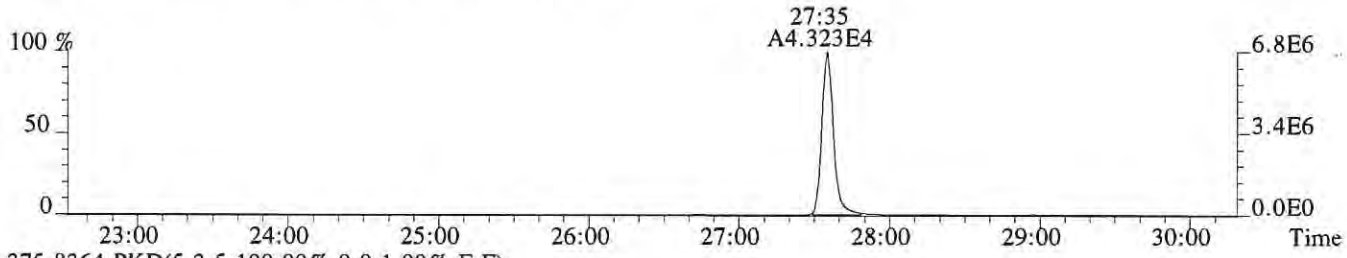
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



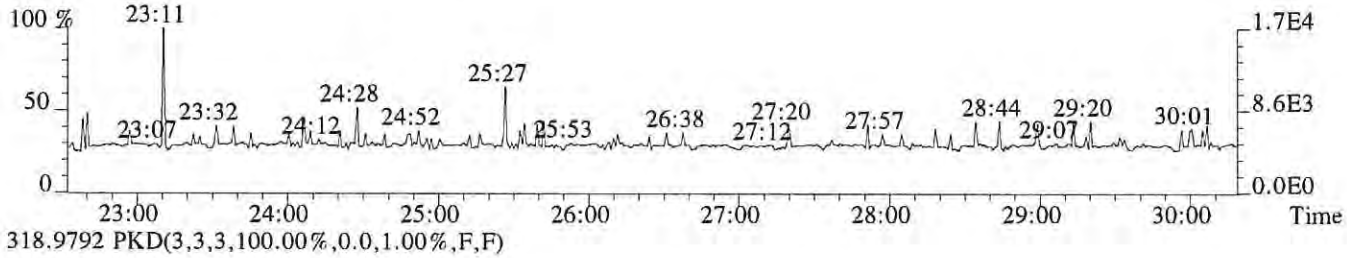
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10932.0,1.00%,F,T)



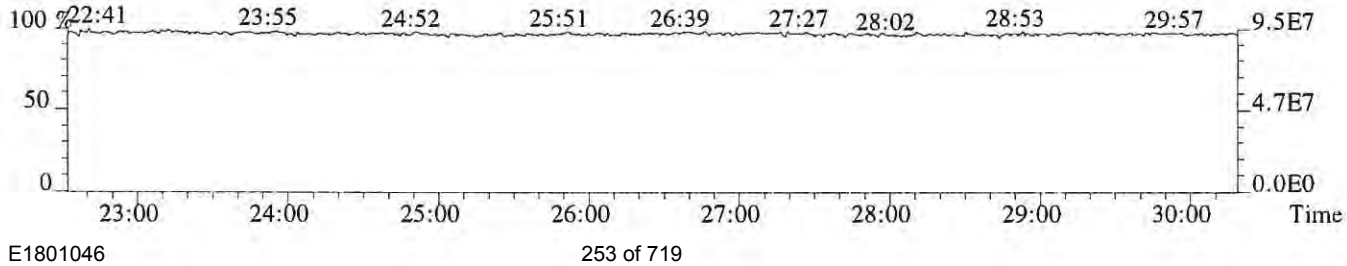
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6228.0,1.00%,F,T)



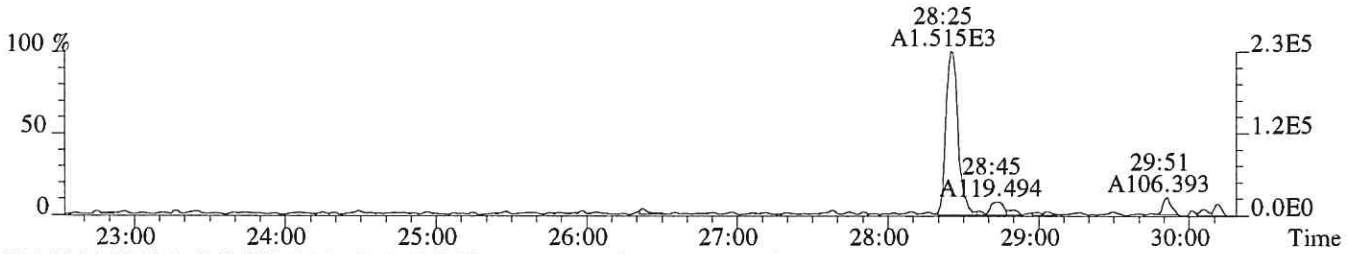
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



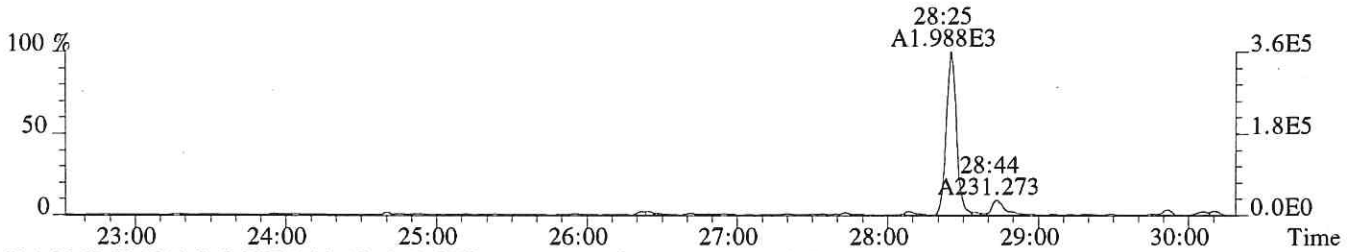
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



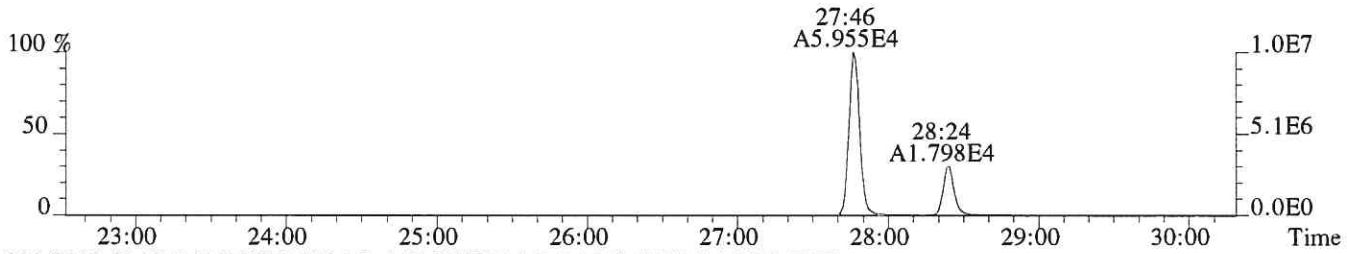
File:P615947 #1-552 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3200.0,1.00%,F,T)



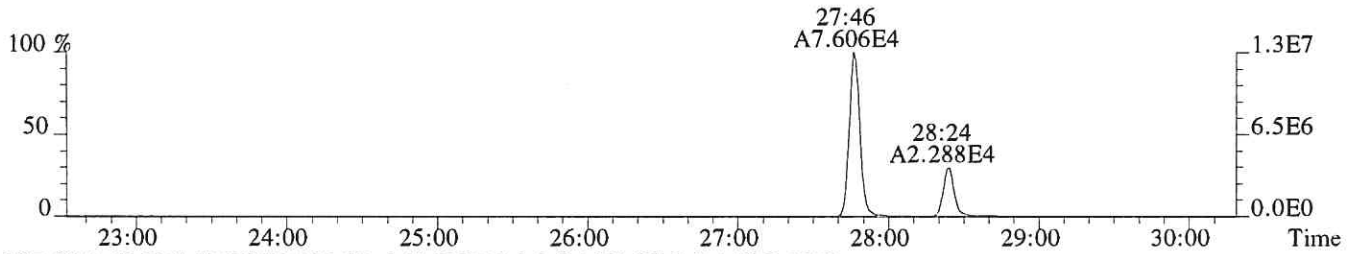
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



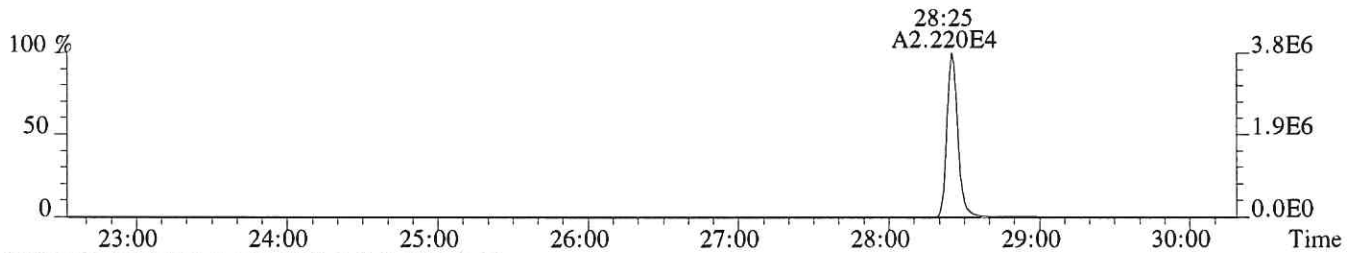
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12068.0,1.00%,F,T)



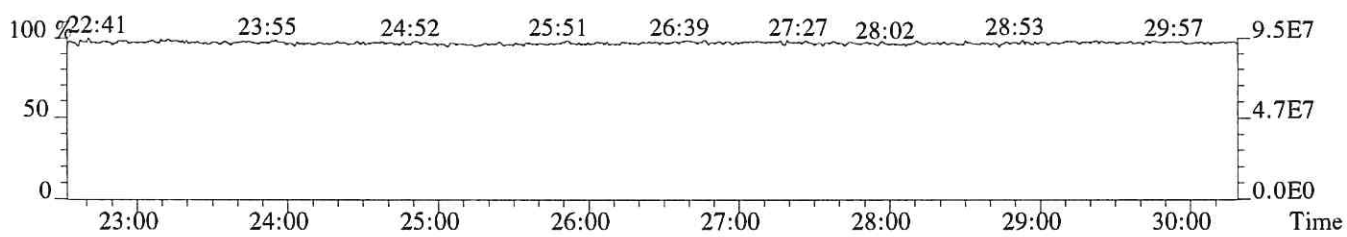
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5448.0,1.00%,F,T)



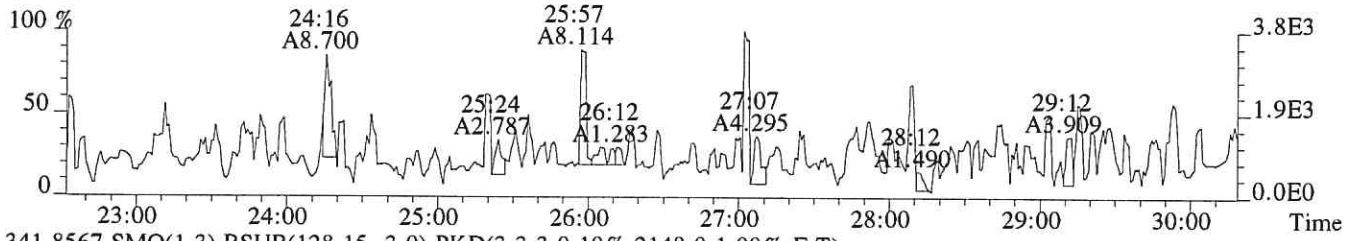
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



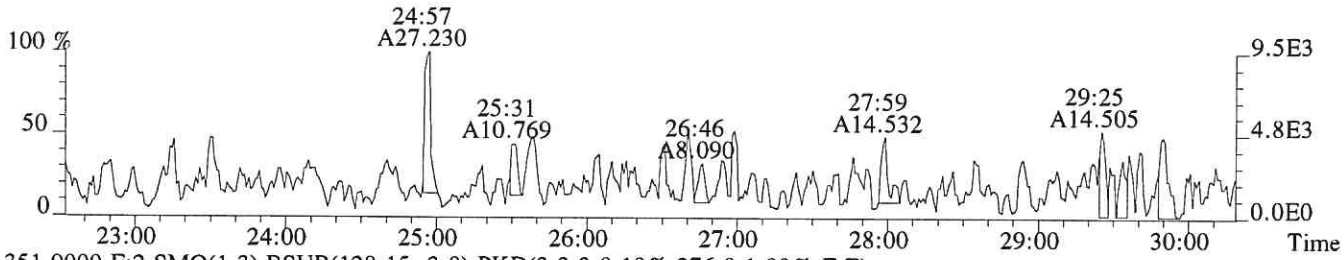
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



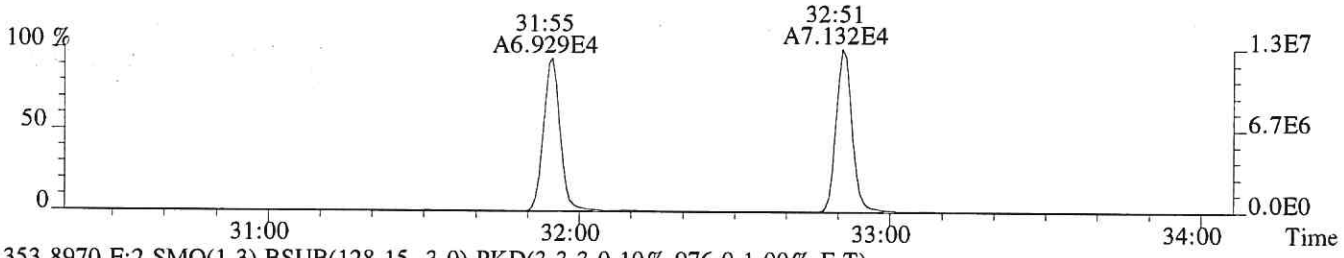
File:P615947 #1-552 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



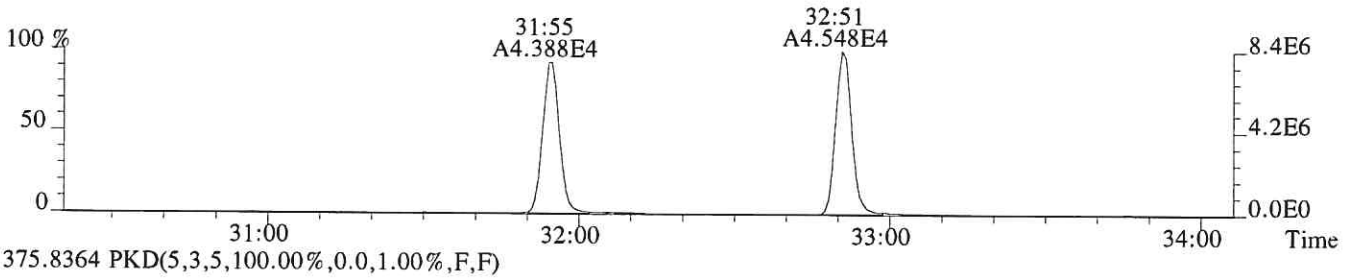
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



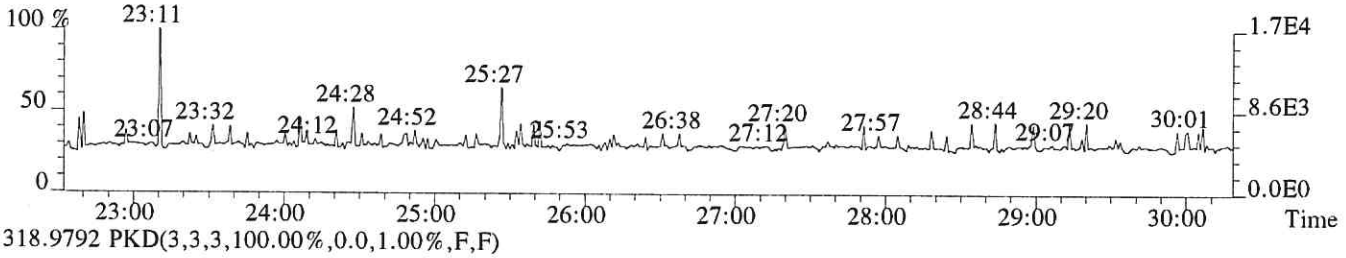
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



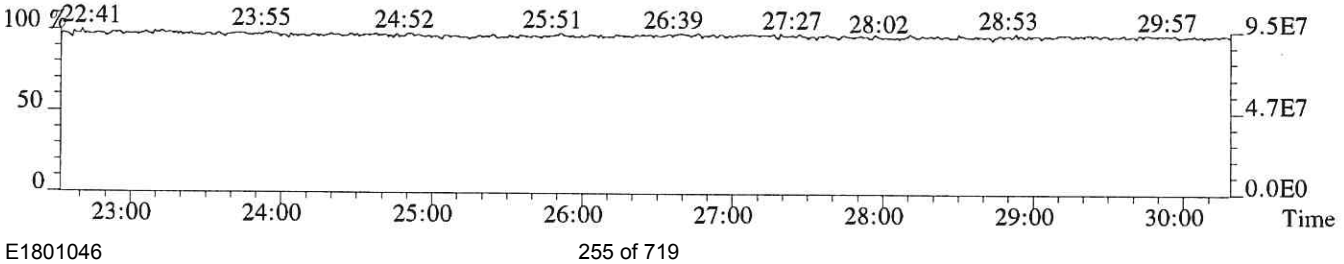
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



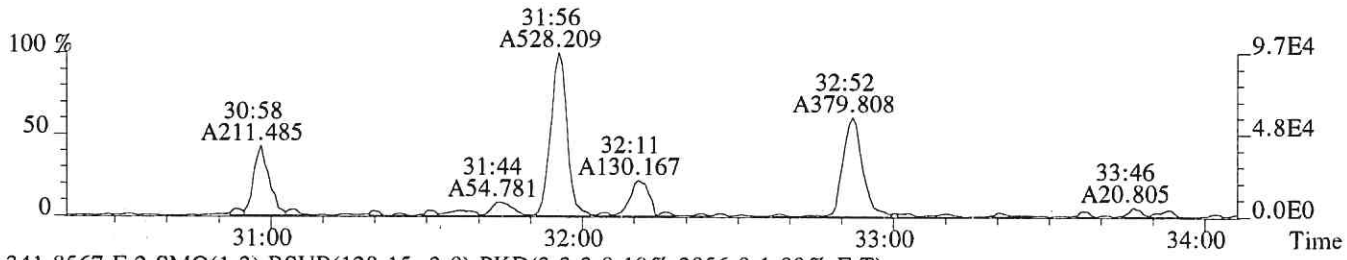
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



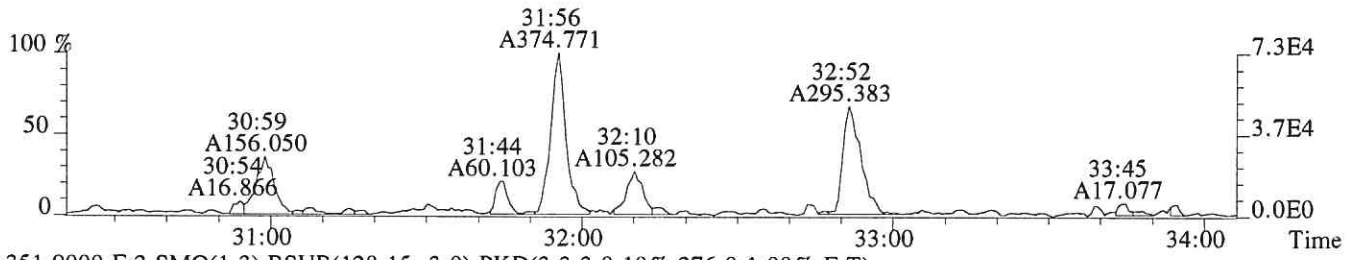
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



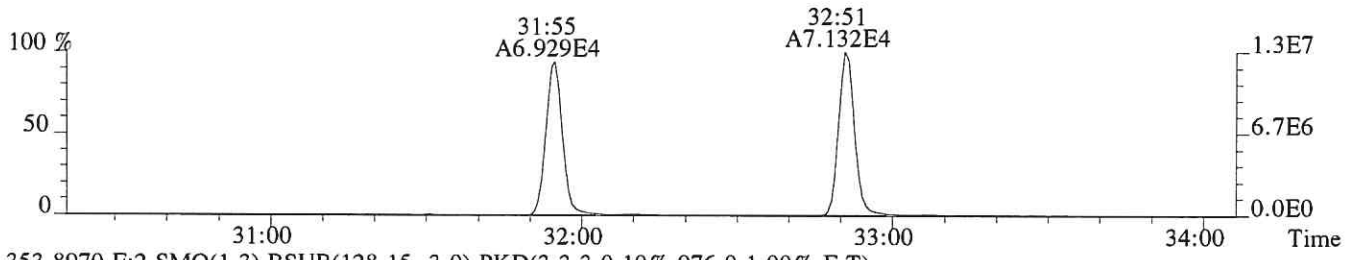
File:P615947 #1-339 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



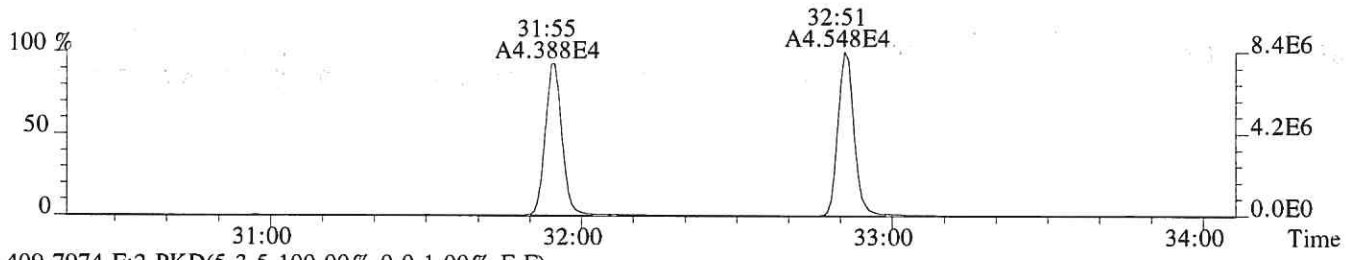
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



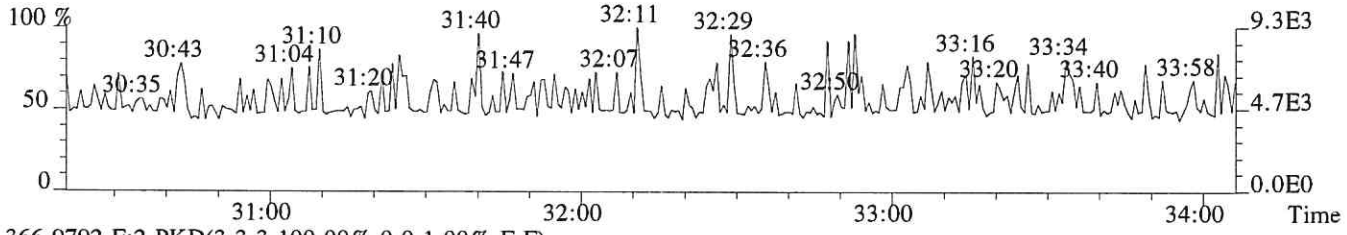
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



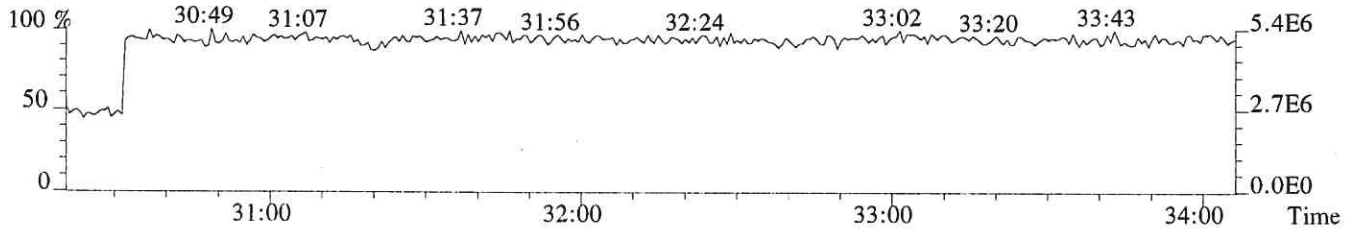
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



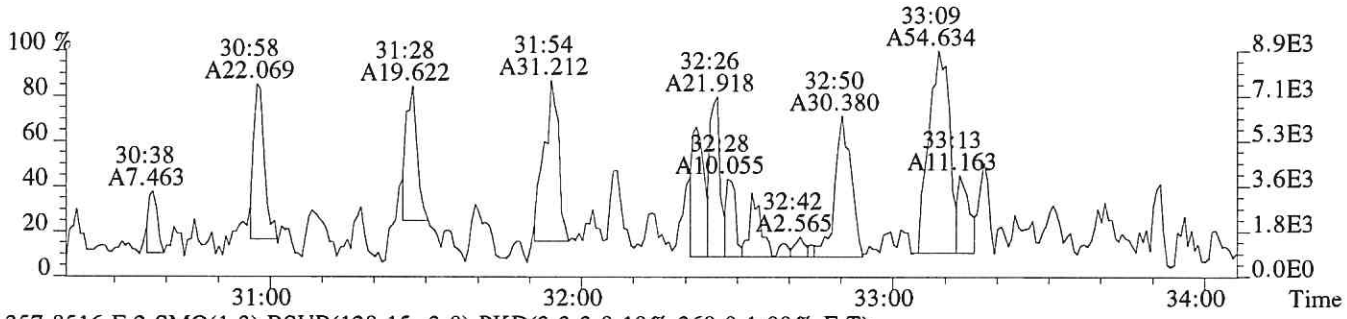
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



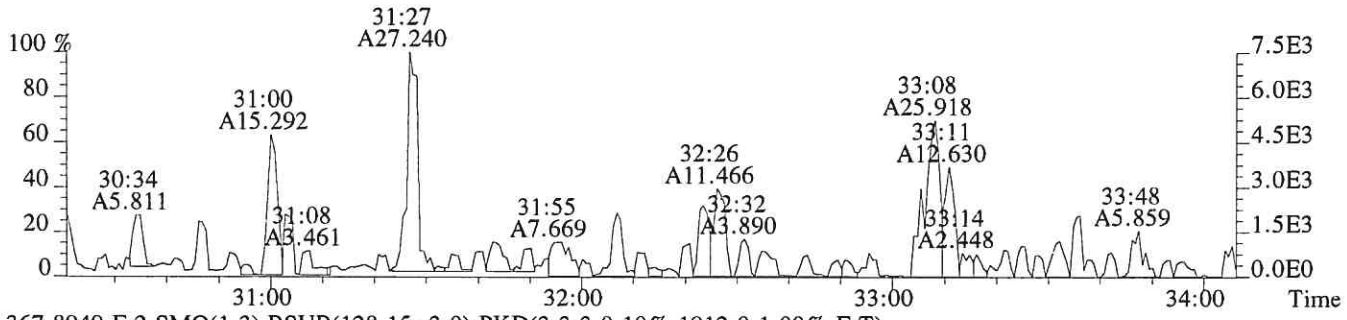
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



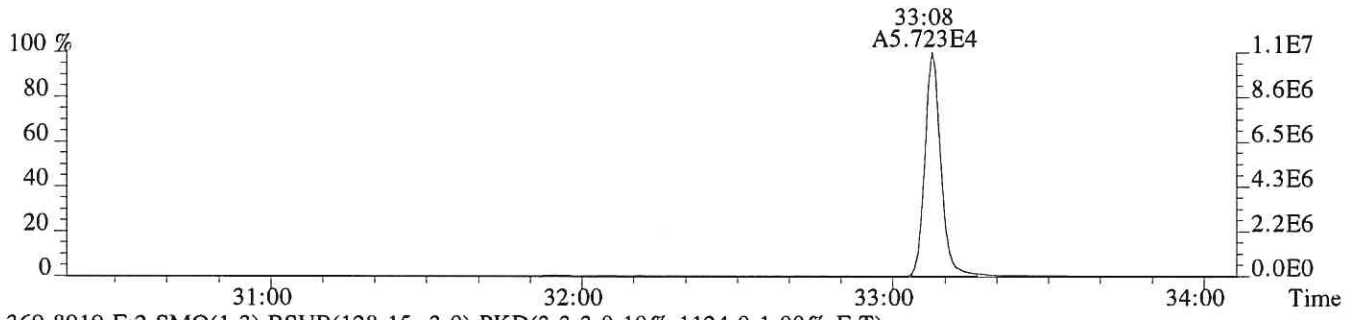
File:P615947 #1-339 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



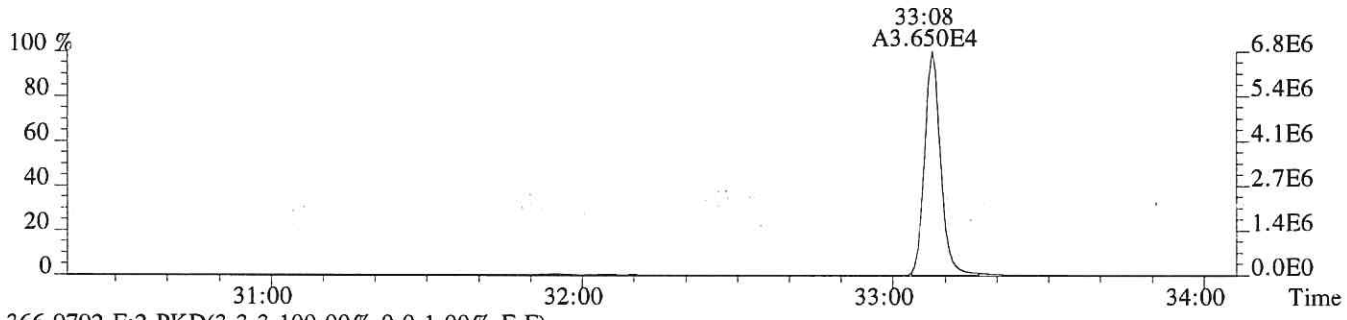
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



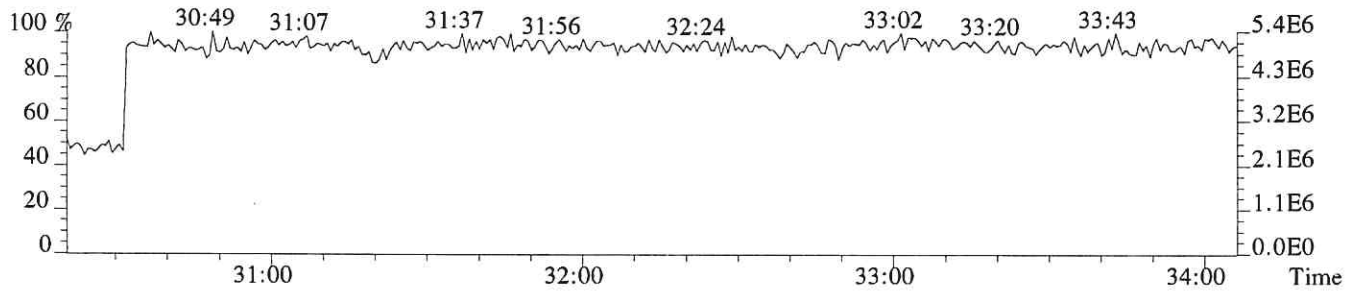
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



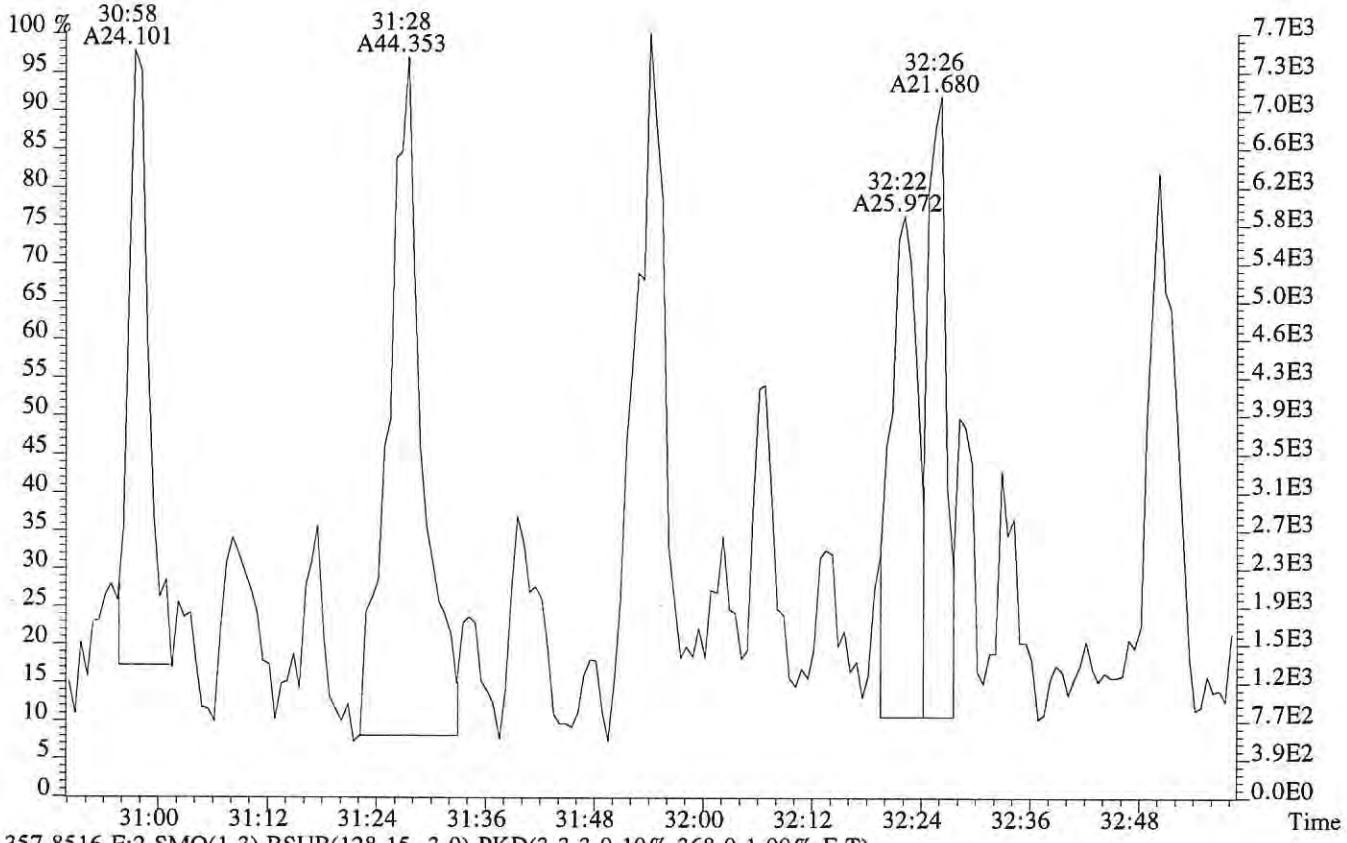
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



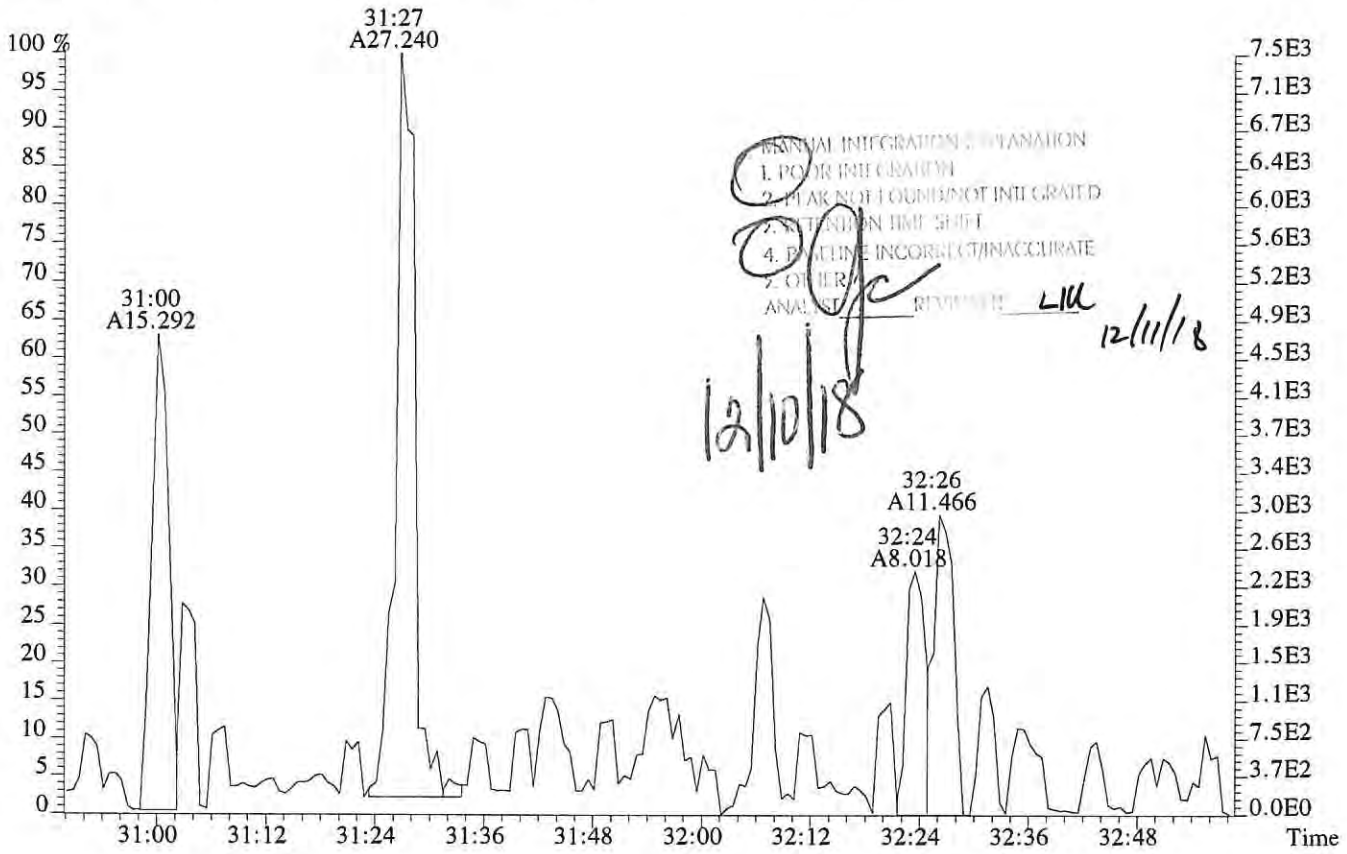
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615947 #1-339 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)

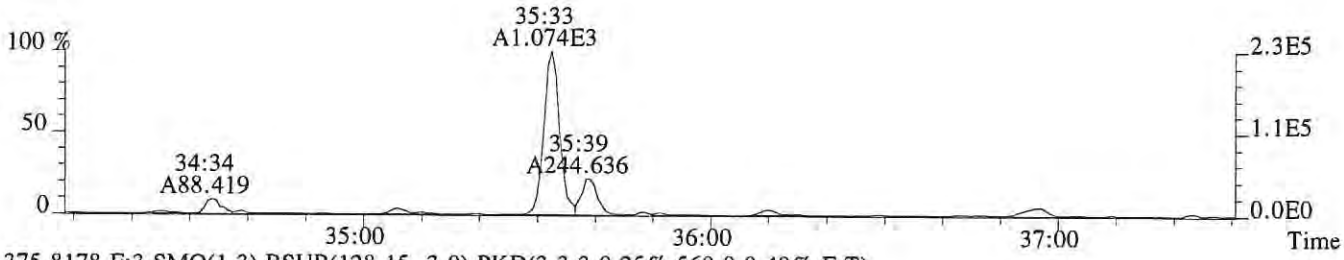


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)

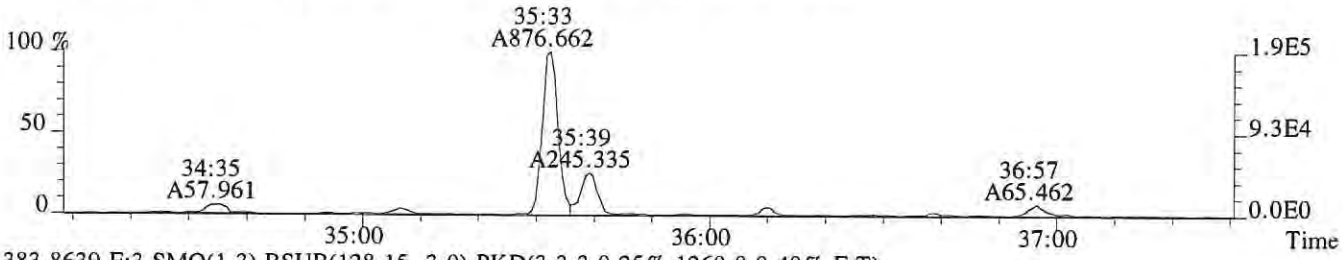


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST LLC 12/11/18
12/10/18

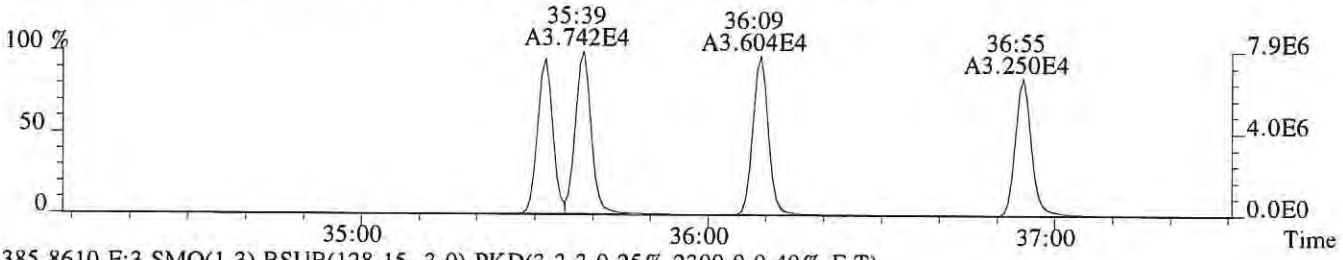
File:P615947 #1-304 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



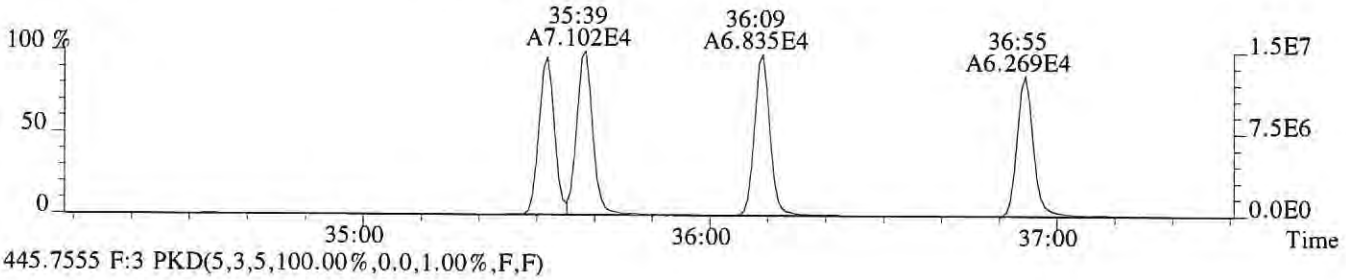
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



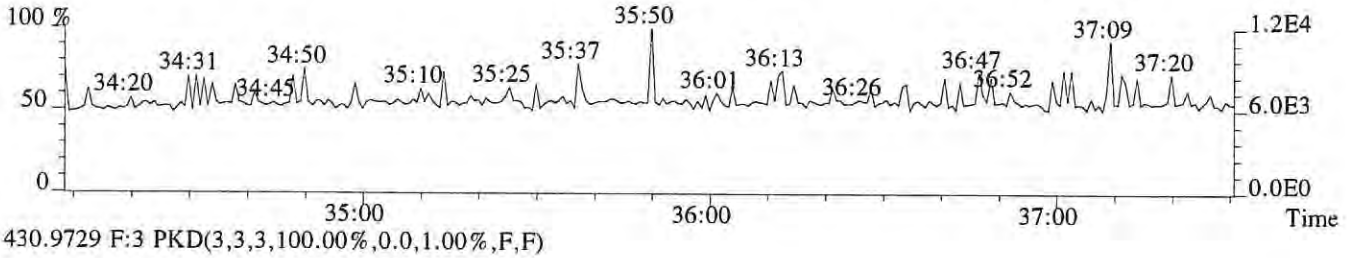
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



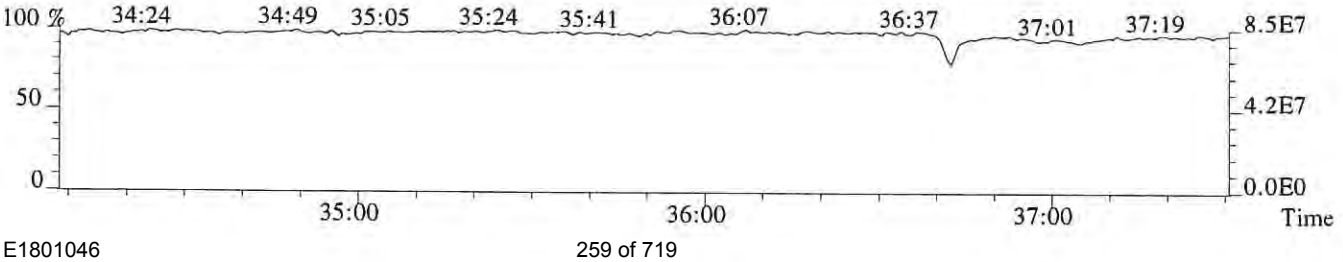
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



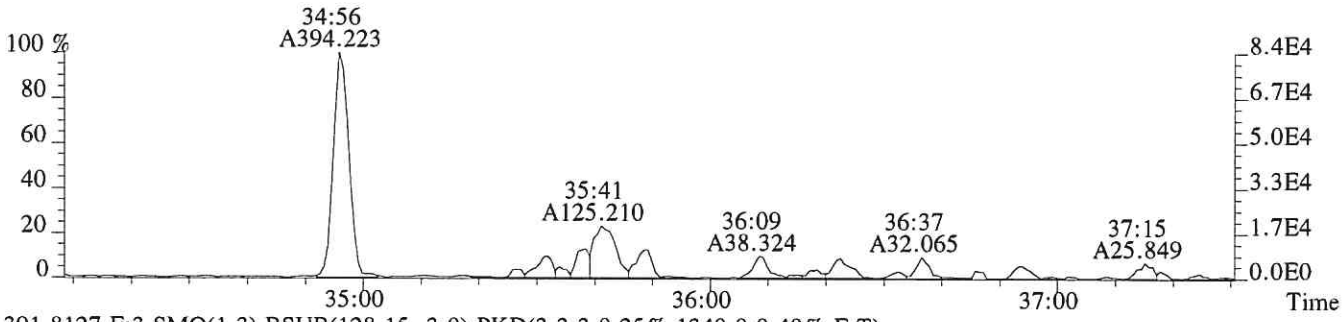
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



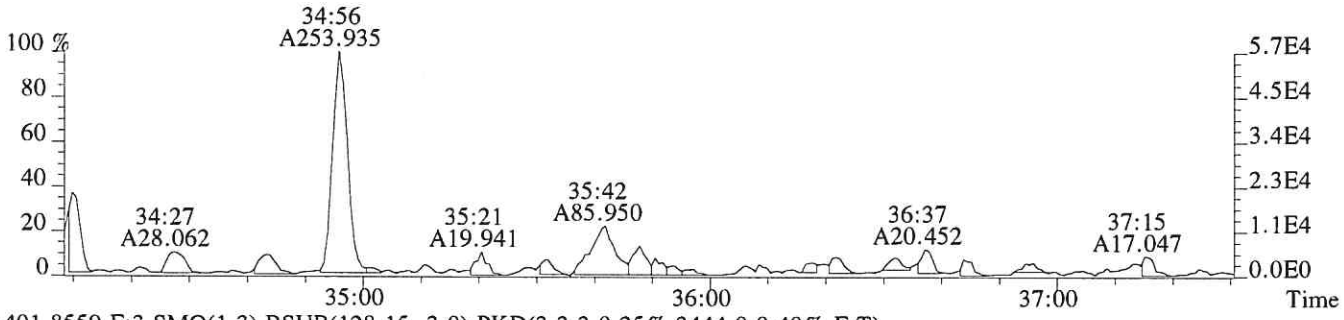
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



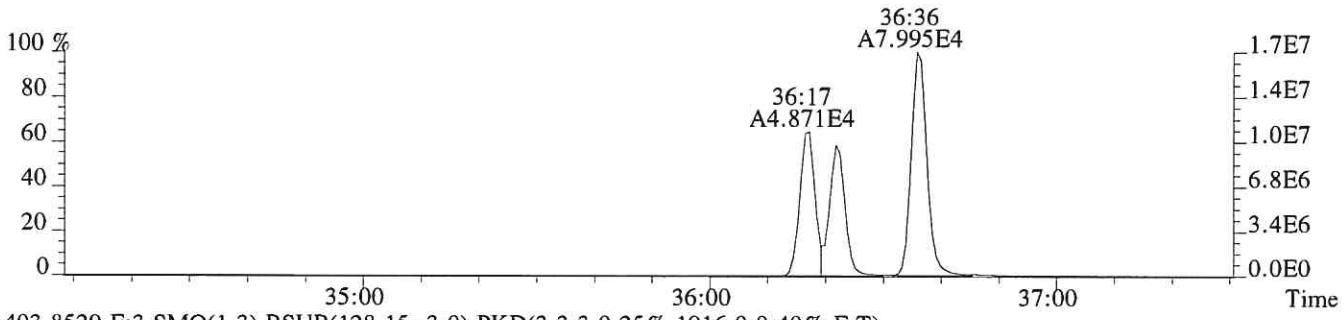
File:P615947 #1-304 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



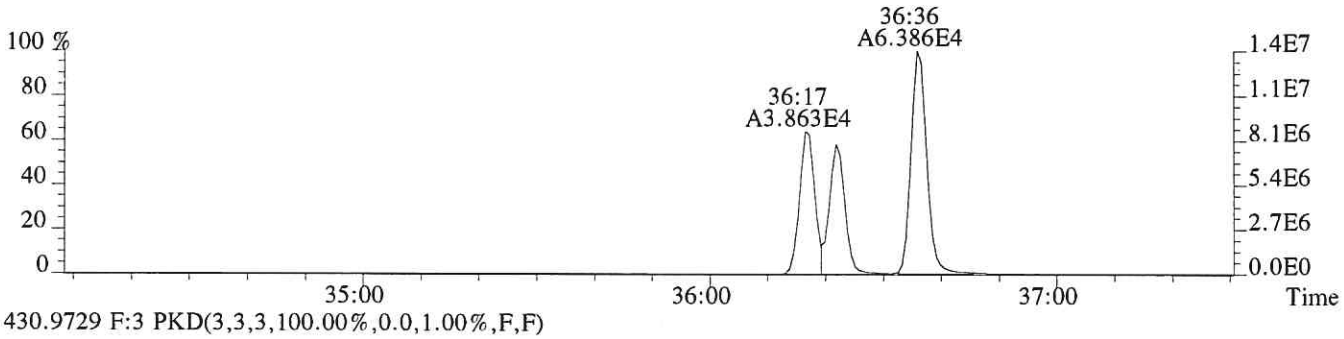
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)



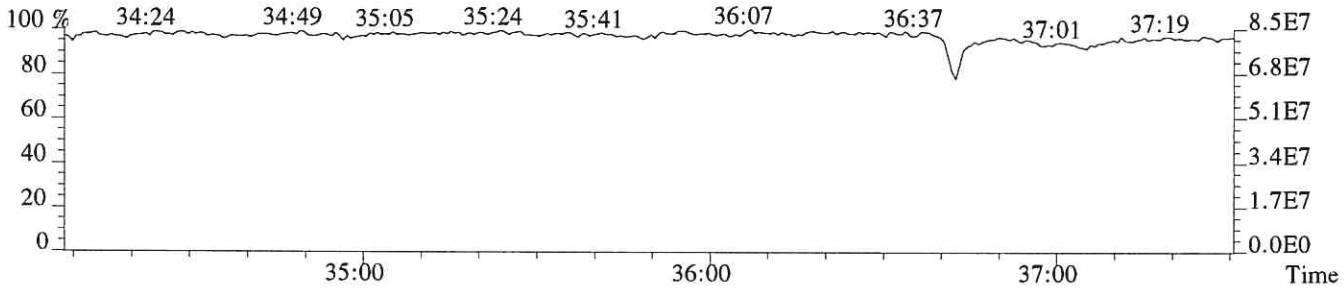
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.40%,F,T)



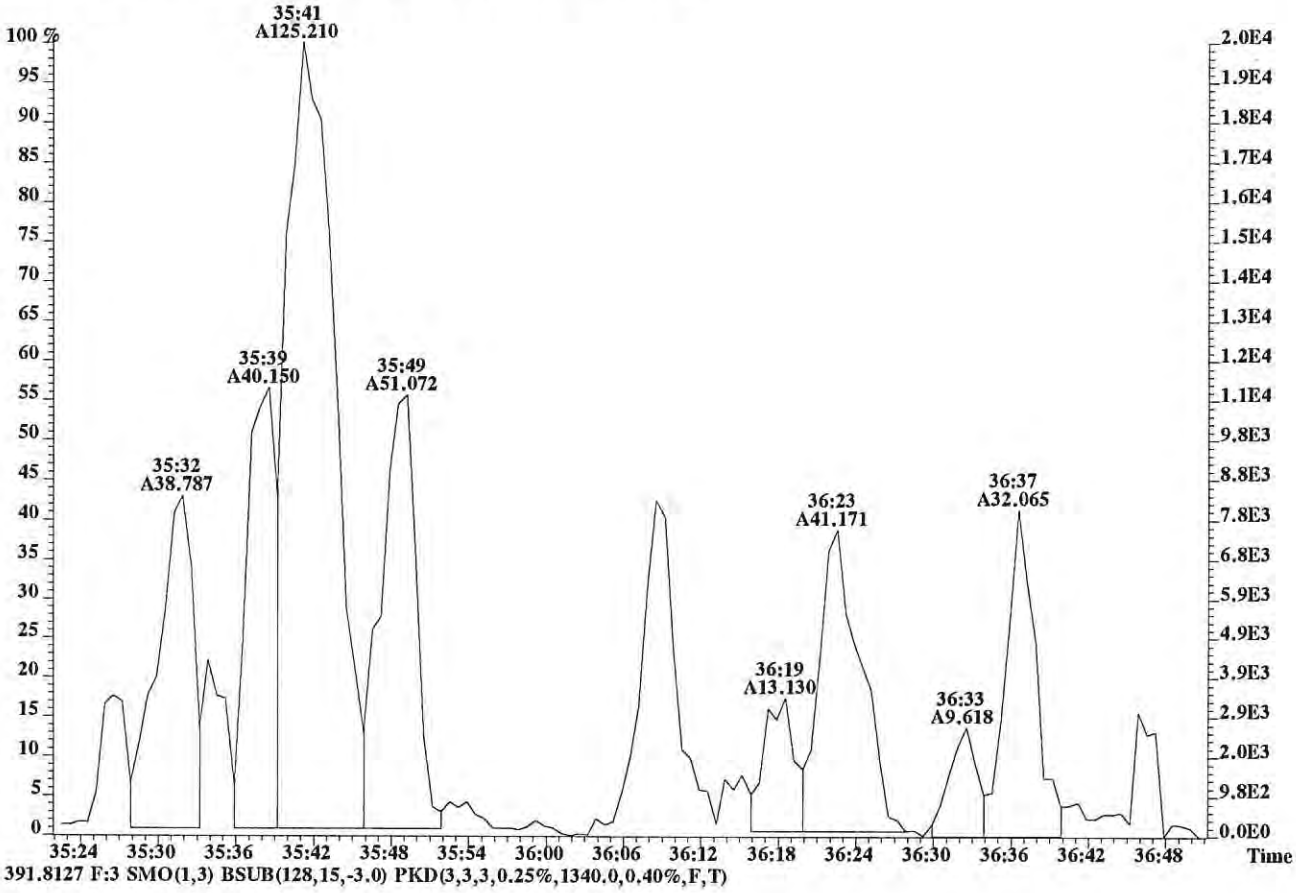
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.40%,F,T)



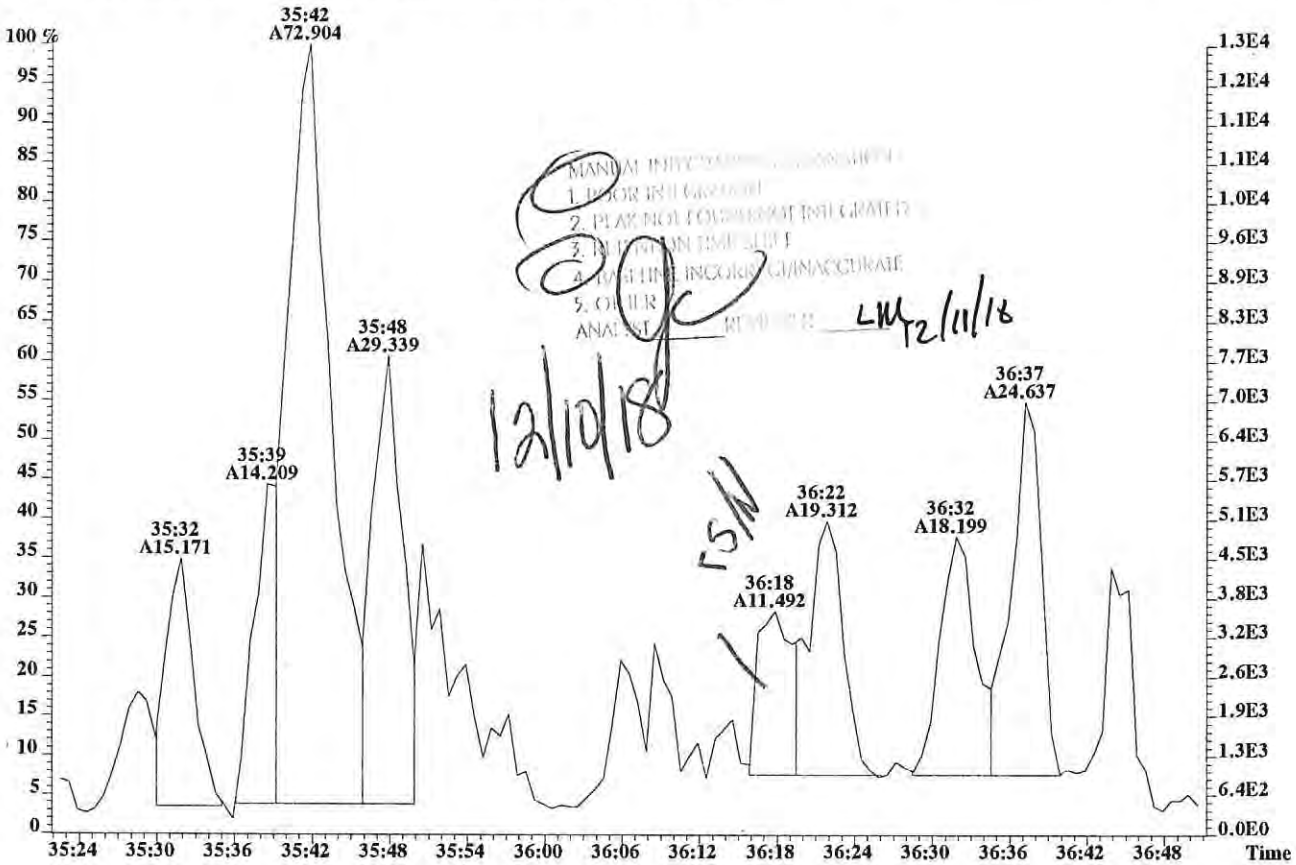
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615947 #1-304 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1801046-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)

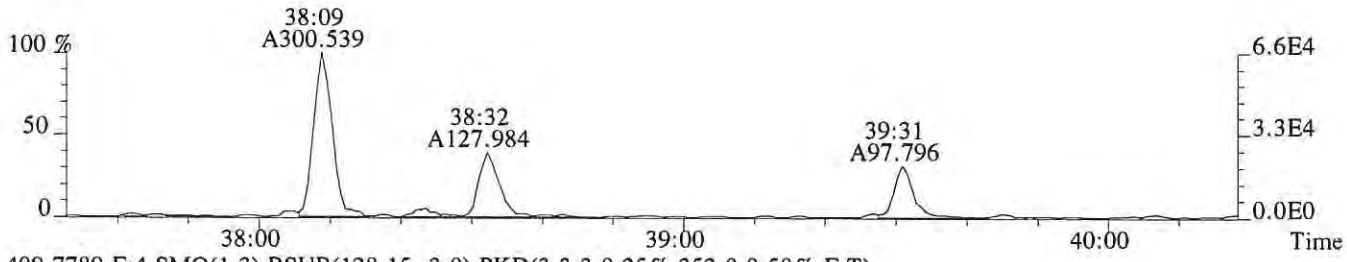


MANUAL INTEGRATION CONSISTENT
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LM 12/11/18

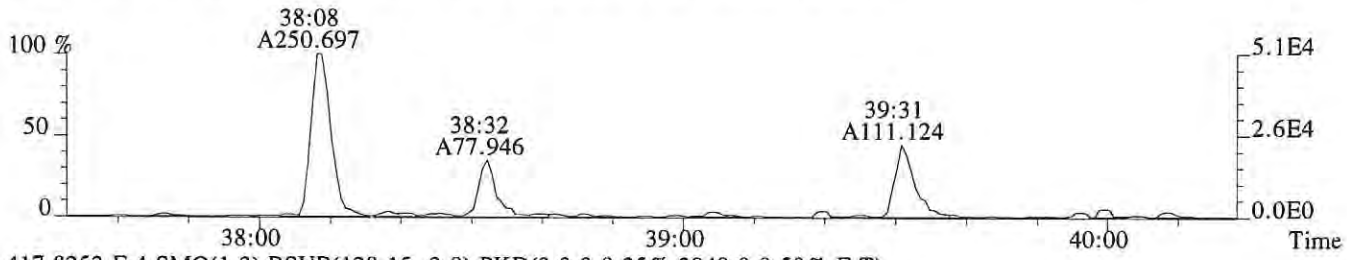
12/10/18

TSN

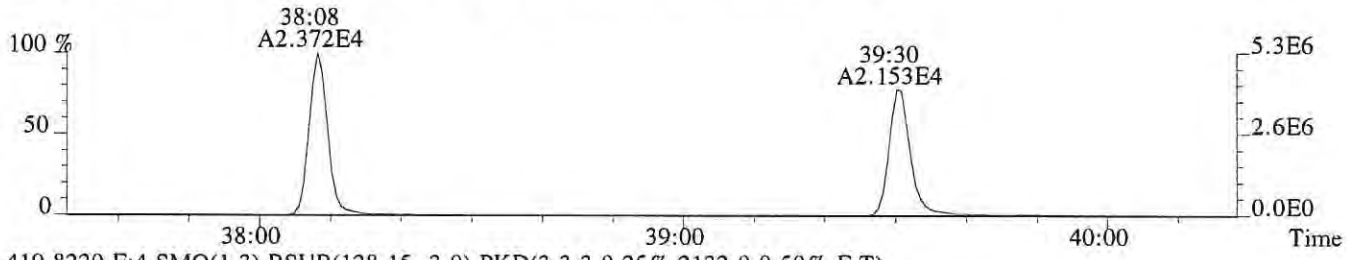
File:P615947 #1-249 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.50%,F,T)



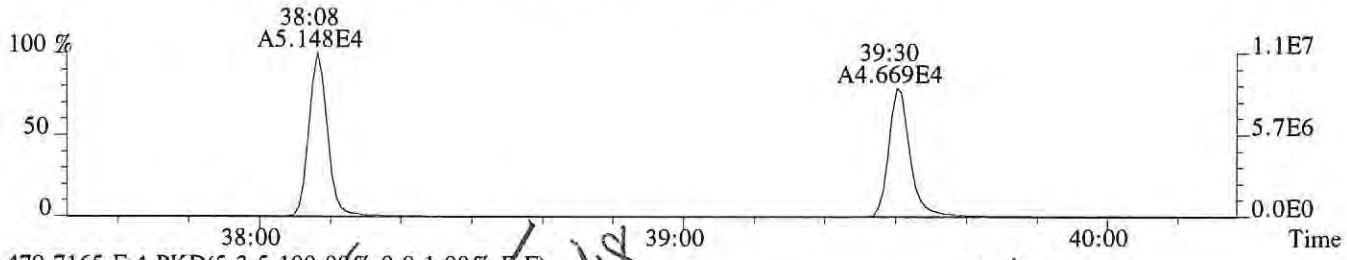
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.50%,F,T)



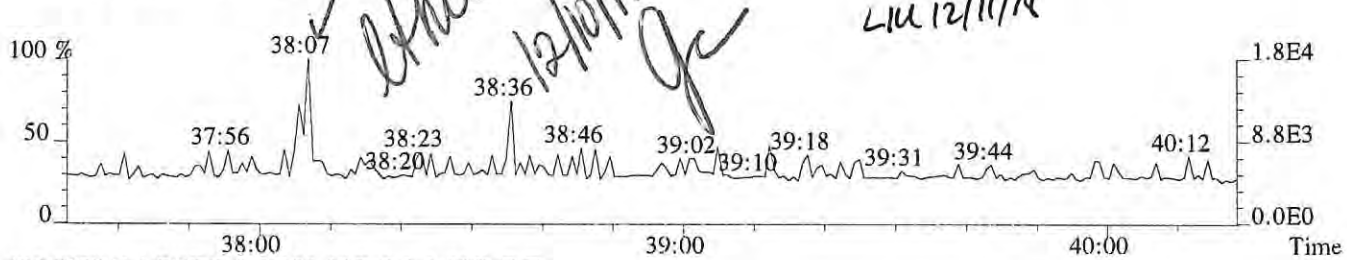
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3948.0,0.50%,F,T)



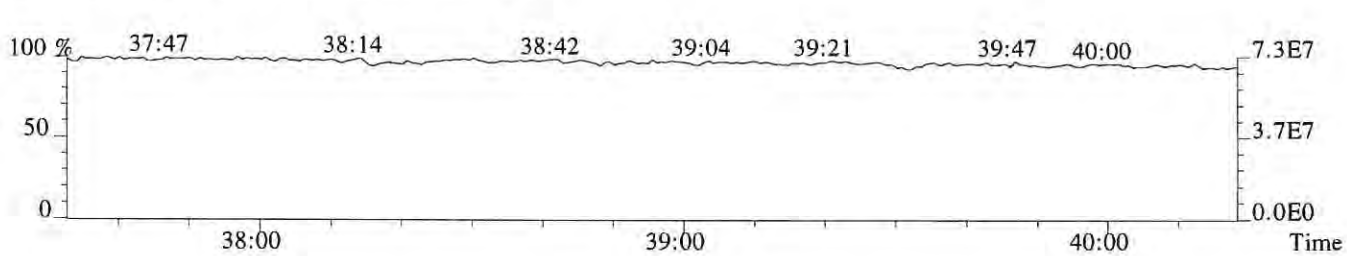
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.50%,F,T)



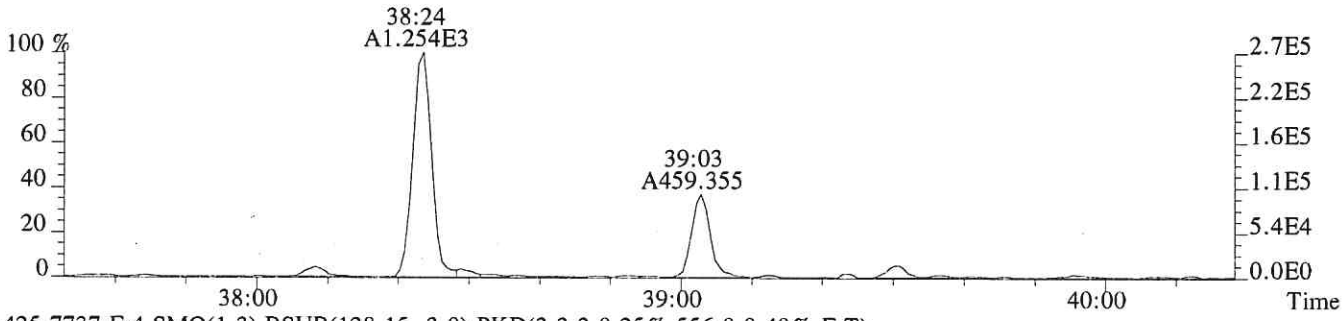
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



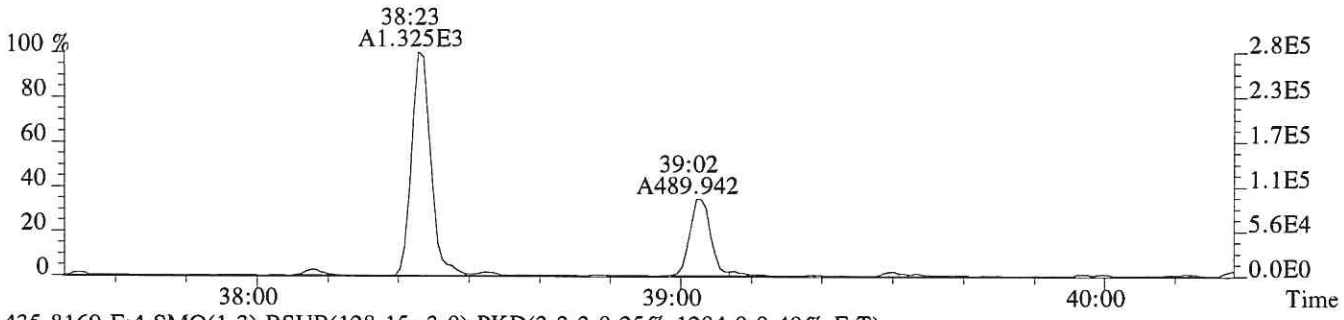
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



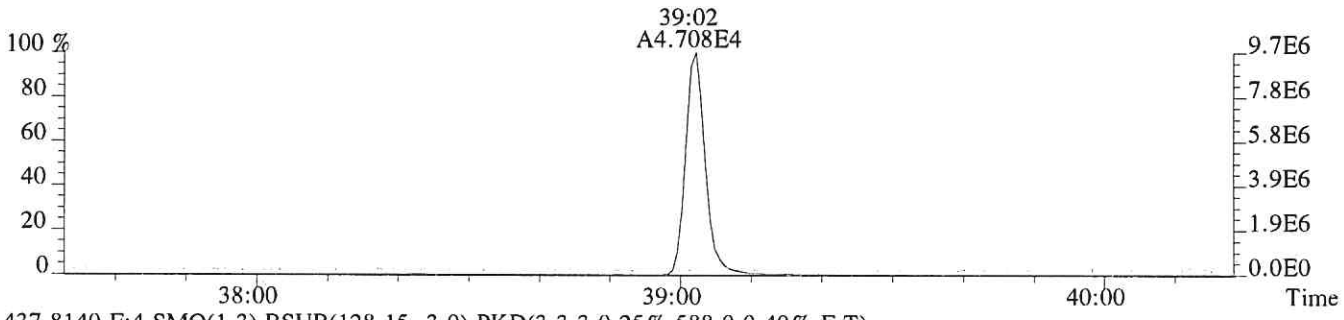
File:P615947 #1-249 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



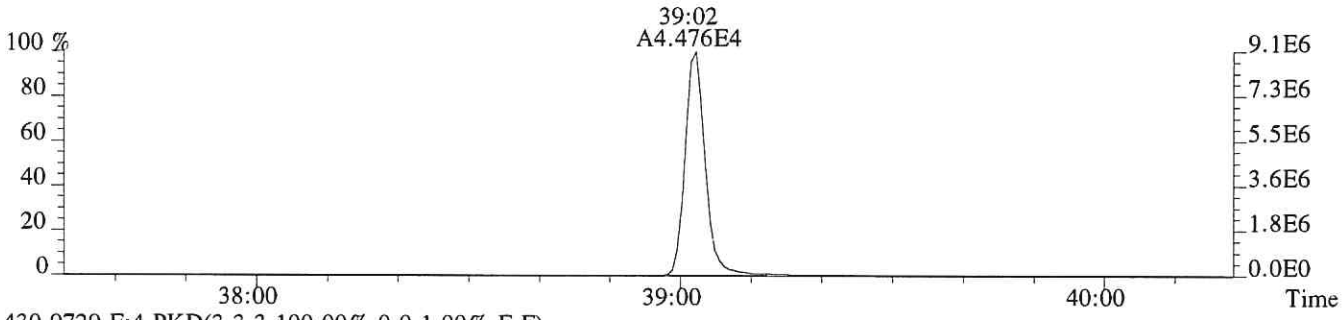
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



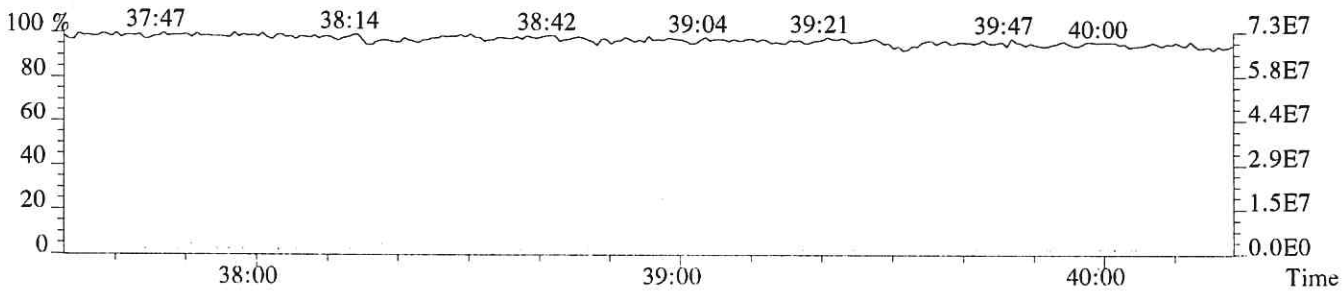
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



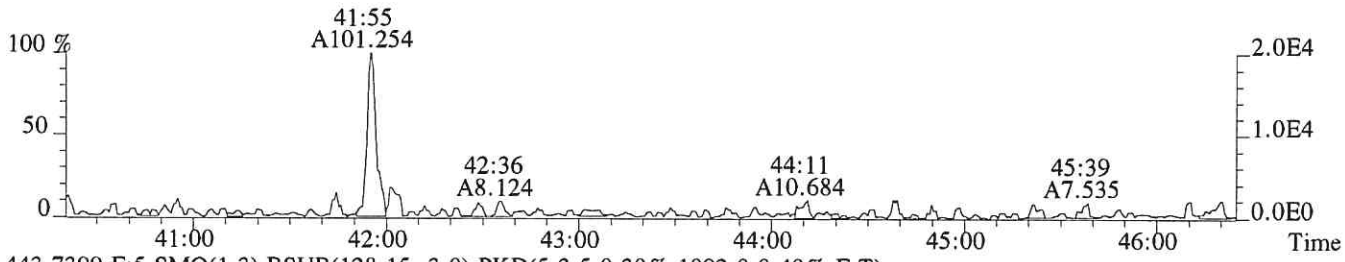
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



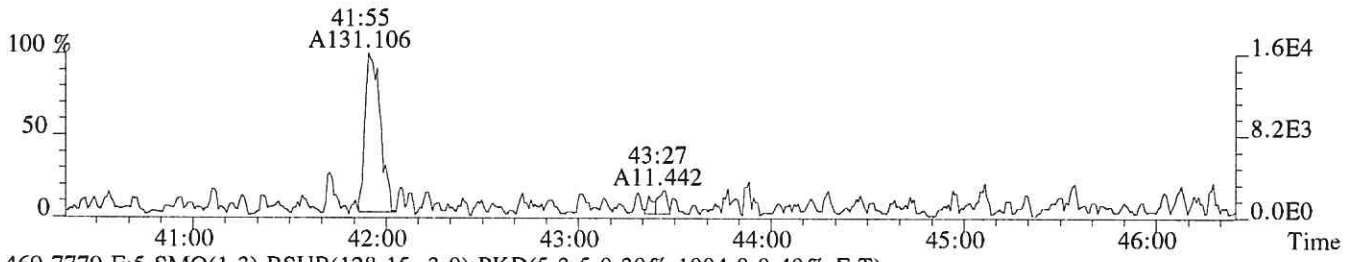
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



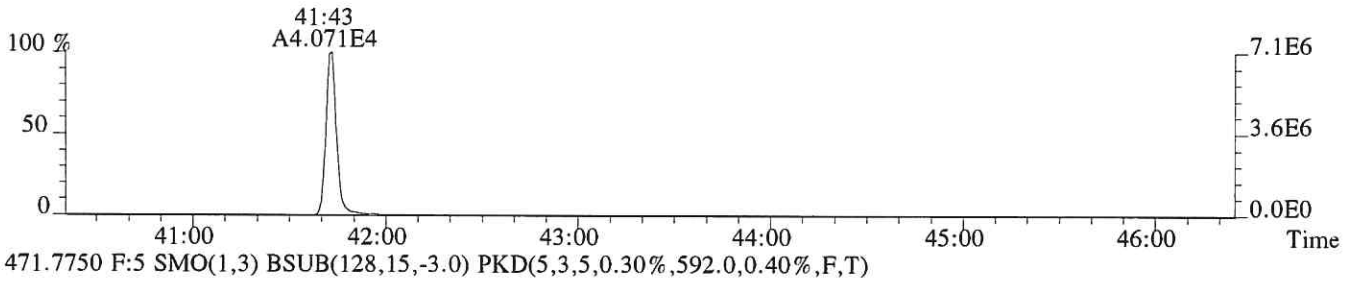
File:P615947 #1-547 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



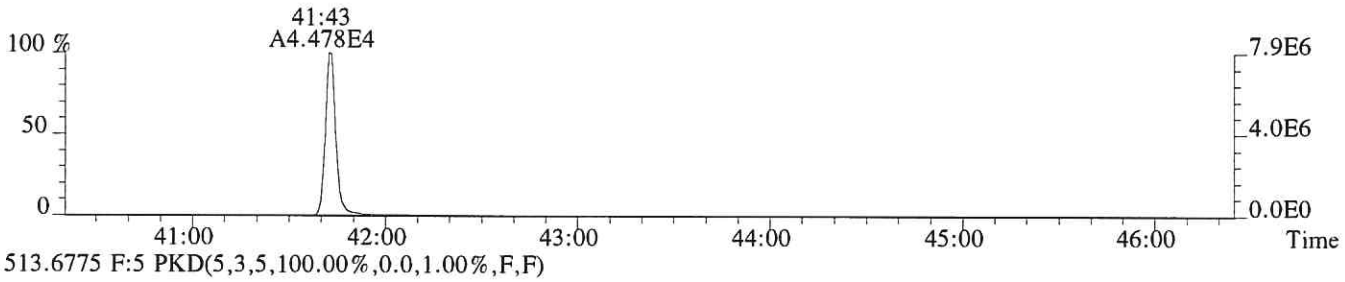
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



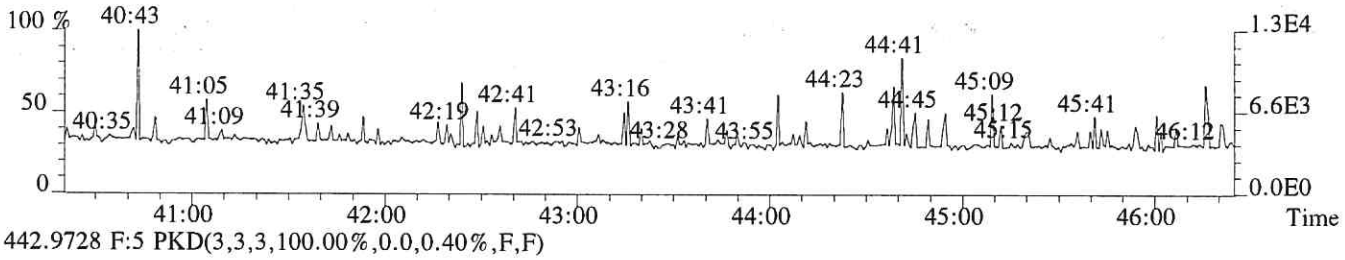
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



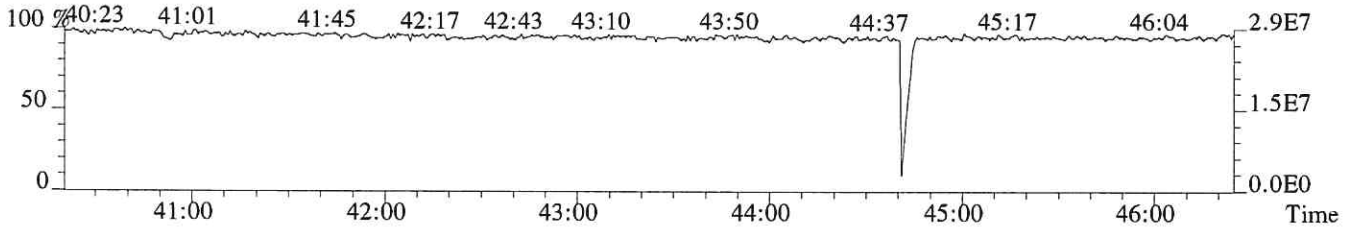
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



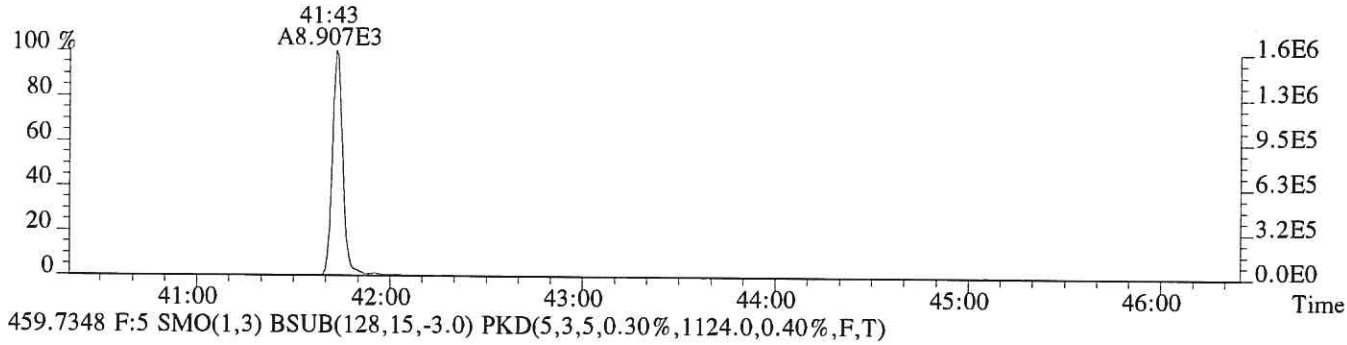
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



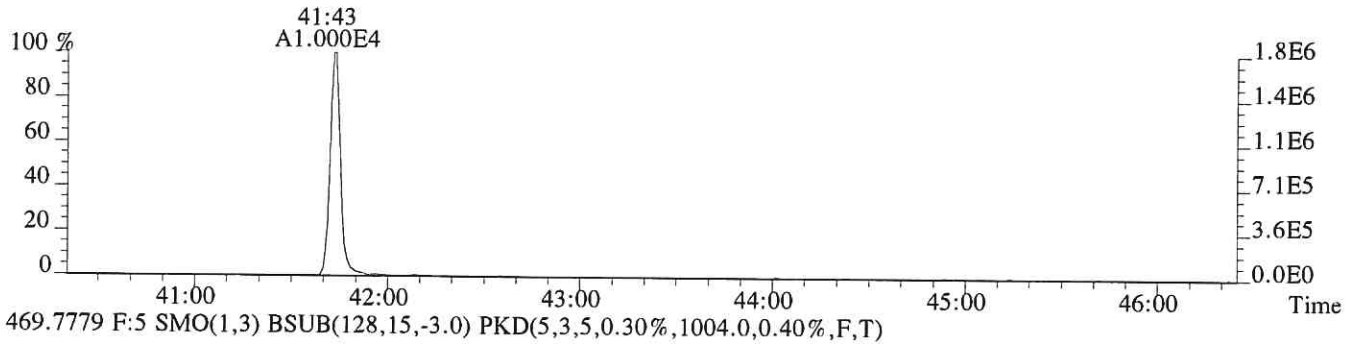
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



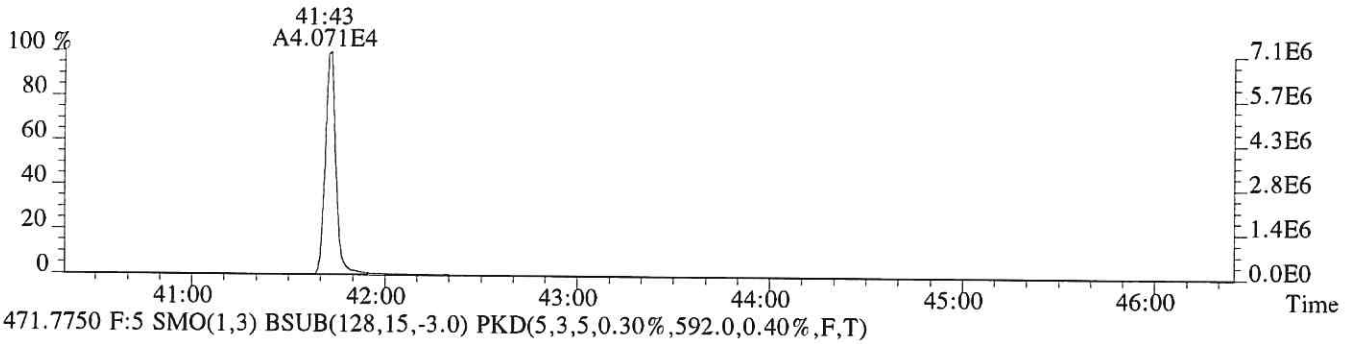
File:P615947 #1-547 Acq: 6-DEC-2018 16:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



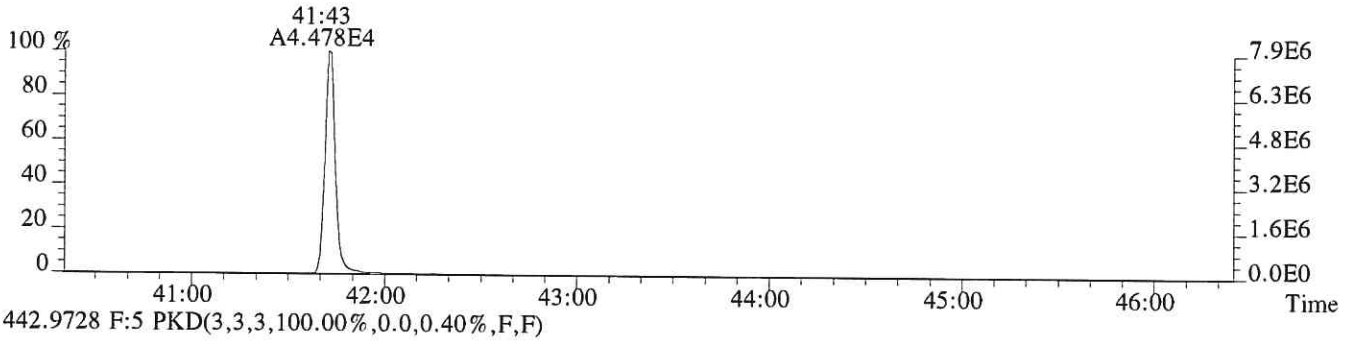
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



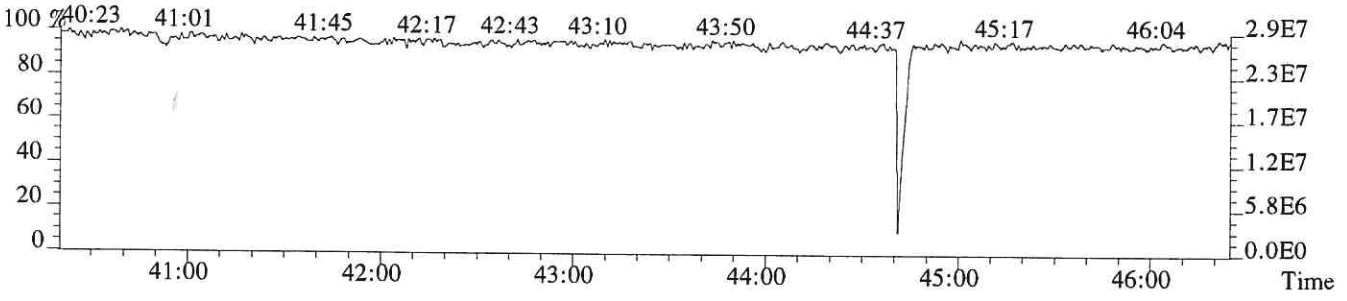
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FW0051

Run #18 Filename P519361 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:30:28
Processed: 12-DEC-18 09:58:31 Sample ID: E1801046-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	7.655e+01	1.207e+02	0.63	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.505e+01	1.464e+01	1.03	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	1.059e+02	9.634e+01	1.10	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:40	1.547e+02	1.528e+02	1.01	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	7.454e+00	1.504e+01	0.50	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.851e+02	2.457e+02	1.16	yes	no	1.025
17	Unk	OCDD	42:29	2.686e+03	2.818e+03	0.95	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	2.762e+04	3.473e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	4.974e+04	3.091e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	4.469e+04	2.810e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.009e+04	3.843e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	2.442e+04	4.626e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.093e+04	4.078e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.863e+04	3.589e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.507e+04	3.329e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.275e+04	2.912e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	1.293e+04	1.603e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	3.292e+04	2.051e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	2.769e+04	2.175e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.811e+04	2.235e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.877e+04	2.728e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:28	2.406e+04	2.678e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.475e+04	3.151e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	3.626e+04	2.845e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.745e+04				no	1.014

$$\text{OCDD} = \frac{(2.686e+03 + 2.818e+03) \times 4000\ \text{pg} \times 1}{(2.406e+04 + 2.678e+04) \times 0.5 \times 100 / 100 \times 1.118} = 774.6\ \text{pg}$$

LMW 12/12/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0051

Run #18 Filename P519361 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:30:28
Processed: 12-DEC-18 09:58:31 LAB. ID: E1801046-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.46e+04	1.19e+03	1.2e+01	1.99e+04	1.59e+03	1.3e+01
2	1,2,3,7,8-PeCDF	*	7.44e+02	*	*	1.66e+03	*
3	2,3,4,7,8-PeCDF	*	7.44e+02	*	*	1.66e+03	*
4	1,2,3,4,7,8-HxCDF	3.73e+03	9.60e+02	3.9e+00	2.86e+03	6.80e+02	4.2e+00
5	1,2,3,6,7,8-HxCDF	*	9.60e+02	*	*	6.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.60e+02	*	*	6.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.60e+02	*	*	6.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.42e+04	2.76e+02	5.1e+01	1.32e+04	3.40e+02	3.9e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.76e+02	*	*	3.40e+02	*
10	OCDF	2.04e+04	2.64e+02	7.7e+01	1.91e+04	7.72e+02	2.5e+01
11	2,3,7,8-TCDD	*	1.69e+03	*	*	1.14e+03	*
12	1,2,3,7,8-PeCDD	*	1.21e+03	*	*	5.16e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.68e+02	*	*	3.64e+02	*
14	1,2,3,6,7,8-HxCDD	2.25e+03	2.68e+02	8.4e+00	3.88e+03	3.64e+02	1.1e+01
15	1,2,3,7,8,9-HxCDD	*	2.68e+02	*	*	3.64e+02	*
16	1,2,3,4,6,7,8-HpCDD	4.47e+04	3.72e+02	1.2e+02	4.59e+04	5.80e+02	7.9e+01
17	OCDD	3.16e+05	2.08e+02	1.5e+03	3.37e+05	7.00e+02	4.8e+02
18	13C-2,3,7,8-TCDF	4.90e+06	7.86e+03	6.2e+02	6.13e+06	4.67e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	9.16e+06	8.36e+02	1.1e+04	5.65e+06	9.68e+02	5.8e+03
20	13C-2,3,4,7,8-PeCDF	8.63e+06	8.36e+02	1.0e+04	5.52e+06	9.68e+02	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	4.17e+06	9.36e+02	4.5e+03	8.10e+06	9.28e+02	8.7e+03
22	13C-1,2,3,6,7,8-HxCDF	4.76e+06	9.36e+02	5.1e+03	9.19e+06	9.28e+02	9.9e+03
23	13C-2,3,4,6,7,8-HxCDF	4.38e+06	9.36e+02	4.7e+03	8.44e+06	9.28e+02	9.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.55e+06	9.36e+02	3.8e+03	6.76e+06	9.28e+02	7.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.81e+06	7.08e+02	4.0e+03	6.22e+06	2.70e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.05e+06	7.08e+02	2.9e+03	4.69e+06	2.70e+03	1.7e+03
27	13C-2,3,7,8-TCDD	2.45e+06	6.94e+03	3.5e+02	3.03e+06	3.38e+03	9.0e+02
28	13C-1,2,3,7,8-PeCDD	6.35e+06	9.32e+02	6.8e+03	4.01e+06	5.76e+02	7.0e+03
29	13C-1,2,3,4,7,8-HxCDD	6.02e+06	1.80e+03	3.3e+03	4.79e+06	9.52e+02	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.42e+06	1.80e+03	3.0e+03	4.37e+06	9.52e+02	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.87e+06	8.32e+02	5.9e+03	4.61e+06	4.40e+02	1.0e+04
32	13C-OCDD	2.88e+06	3.04e+02	9.5e+03	3.21e+06	3.08e+02	1.0e+04
33	13C-1,2,3,4-TCDD	4.62e+06	6.94e+03	6.7e+02	5.89e+06	3.38e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	6.83e+06	1.80e+03	3.8e+03	5.32e+06	9.52e+02	5.6e+03
35	37Cl-2,3,7,8-TCDD	3.28e+06	1.02e+03	3.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0051

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519361 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 19:30:28 Processed: 12-DEC-18 09:58:31

Mass: 373.8210 375.8180 Tot Response: 6.93e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:15	1.19e+01	9.09e+00	1.31	yes	2.10e+01		n	n
2	35:31	2.48e+01	2.34e+01	1.06	yes	4.82e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0051

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519361 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 19:30:28 Processed: 12-DEC-18 09:58:31

Mass: 407.7820 409.7790 Tot Response: 4.02e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:31	1.06e+02	9.63e+01 1.10	yes	2.02e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:57	1.02e+02	9.75e+01 1.04	yes	1.99e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0051

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519361 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 19:30:28 Processed: 12-DEC-18 09:58:31

Mass: 423.7770 425.7740 Tot Response: 1.48e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	4.94e+02	4.55e+02 1.09	yes	9.50e+02		n	n
2	39:30	2.85e+02	2.46e+02 1.16	yes	5.31e+02	1,2,3,4,6,7,8-HpCDD	n	n

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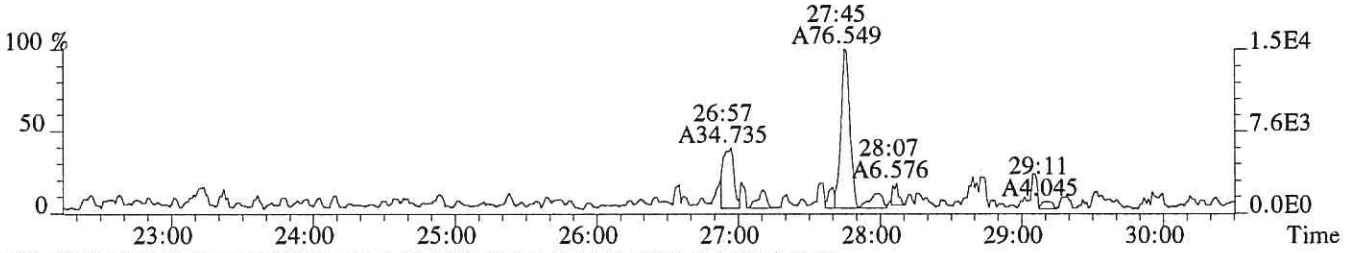
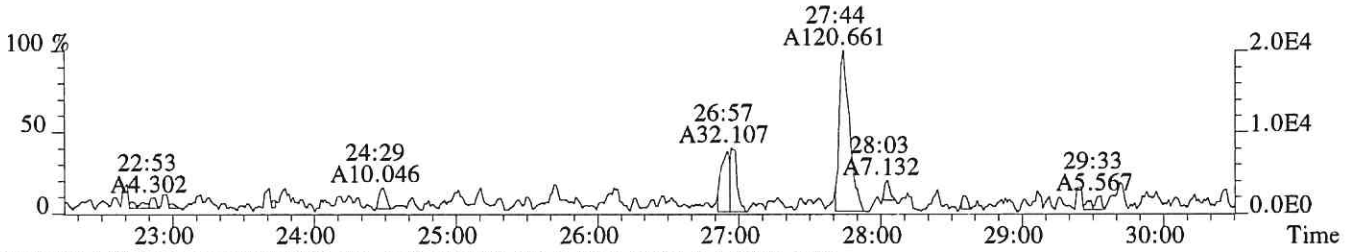
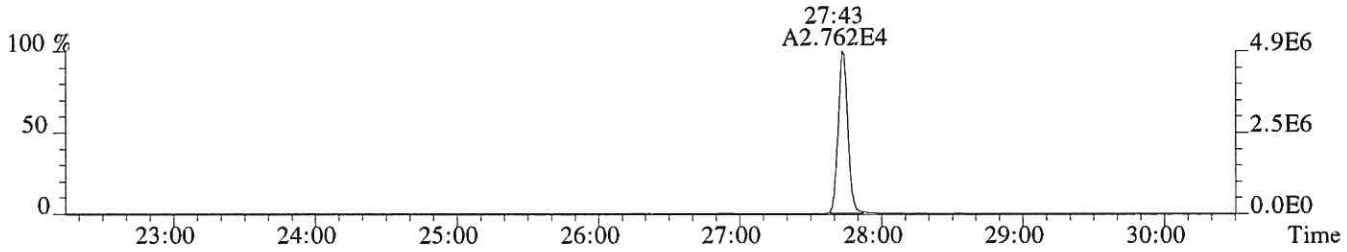
File:P519361 #1-587 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



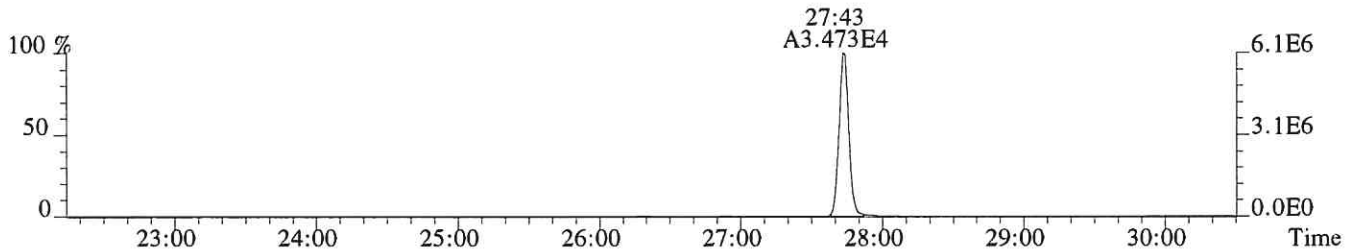
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



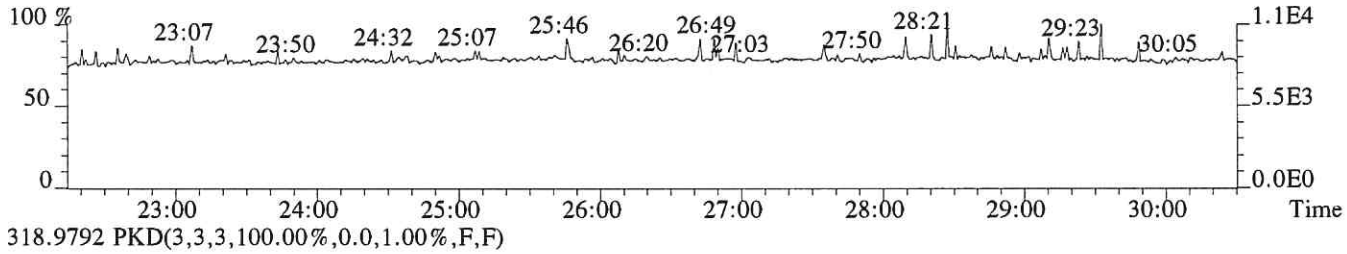
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7856.0,1.00%,F,T)



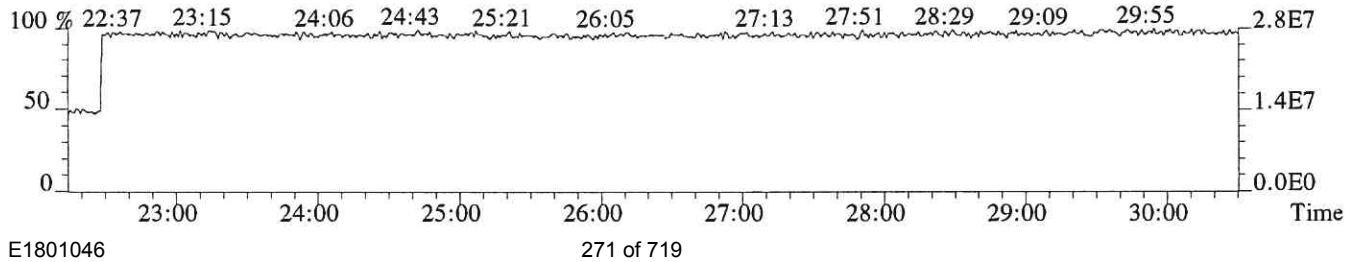
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4668.0,1.00%,F,T)



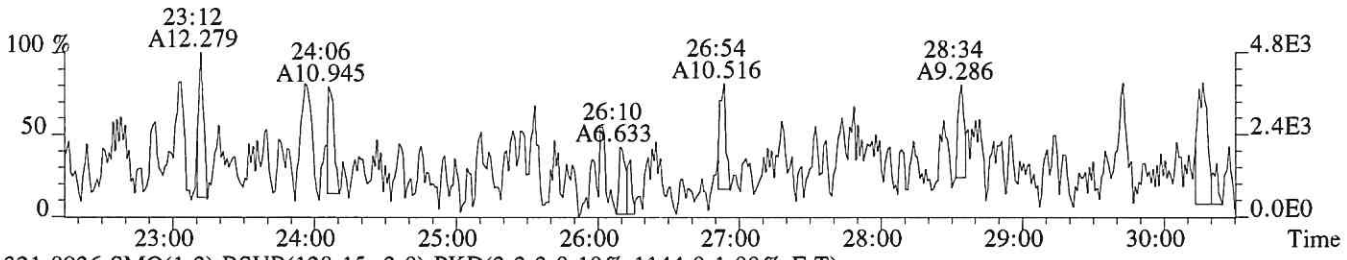
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



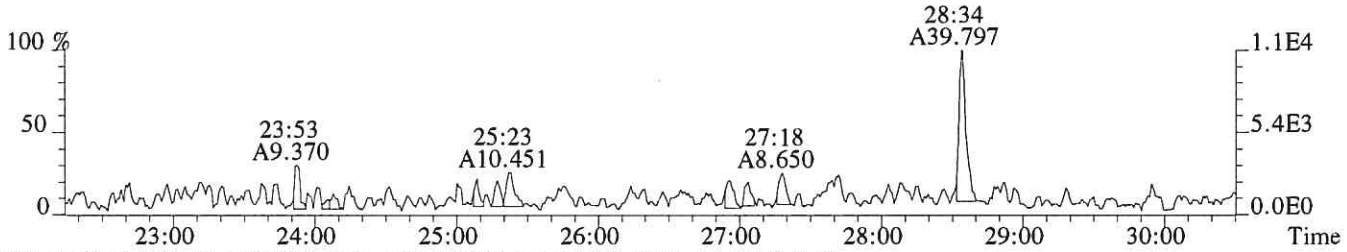
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



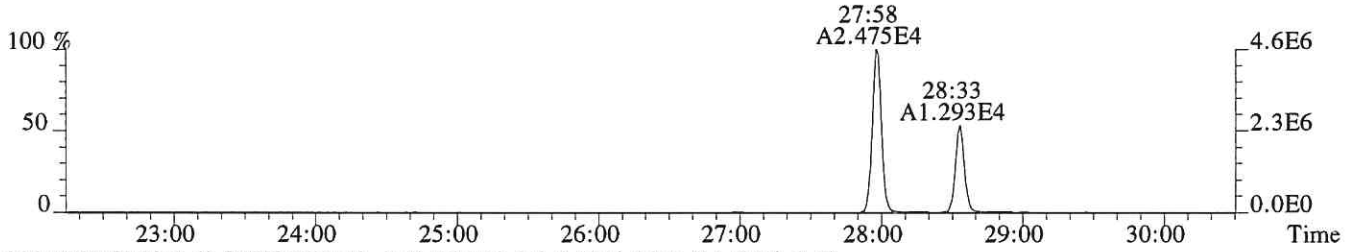
File:P519361 #1-587 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



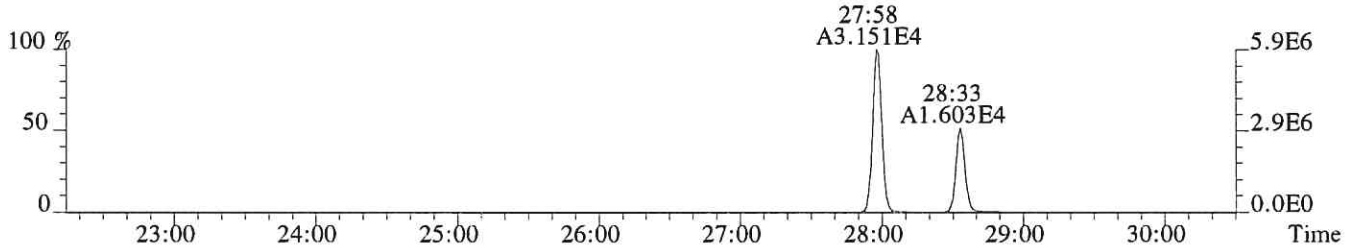
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



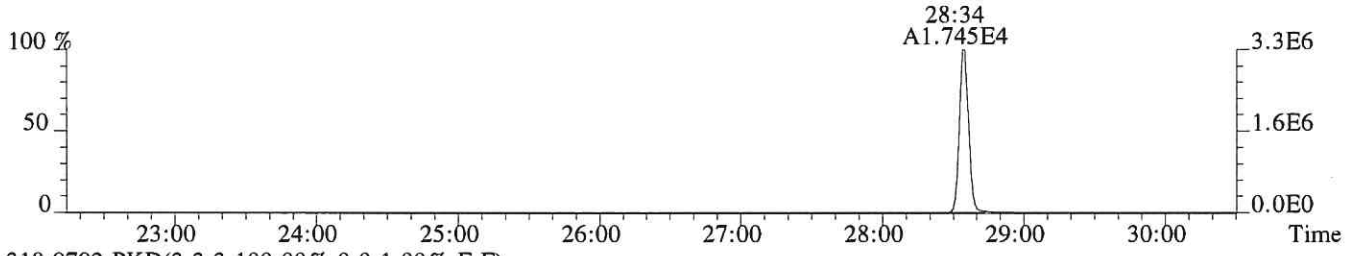
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6940.0,1.00%,F,T)



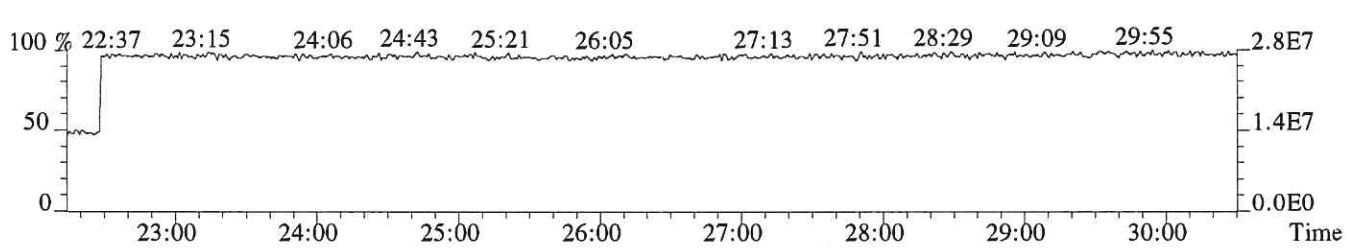
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3376.0,1.00%,F,T)



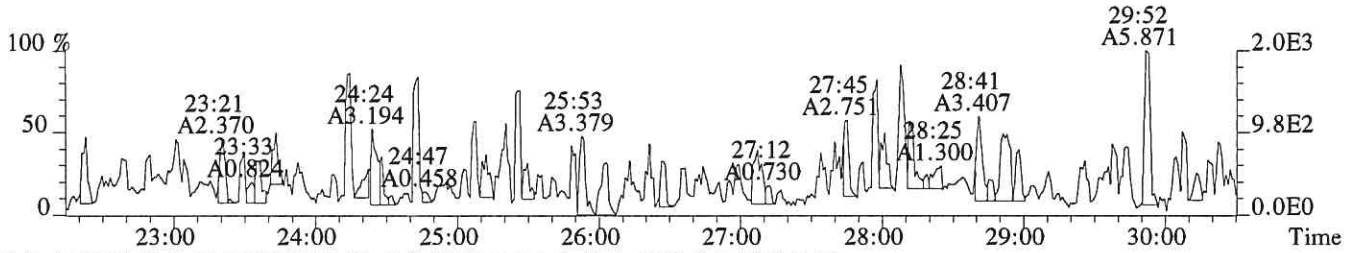
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



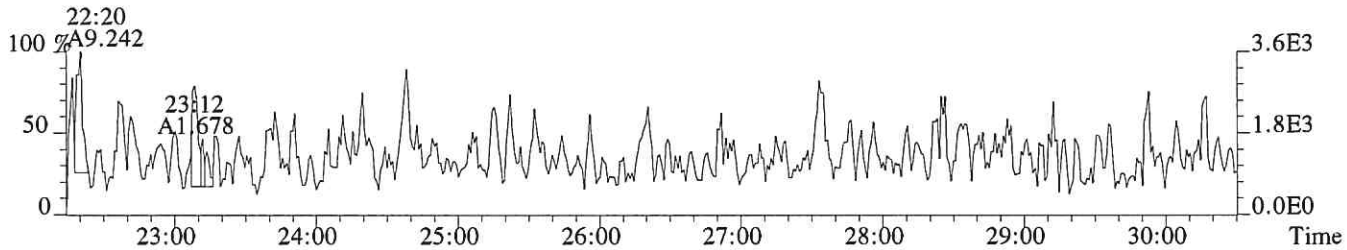
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



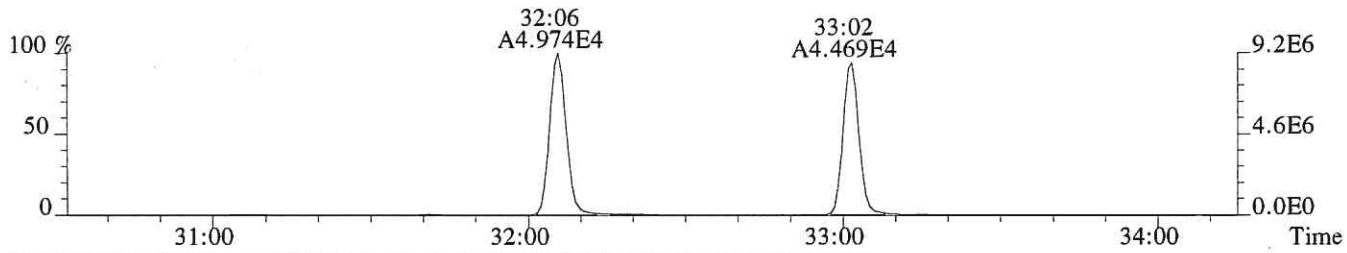
File:P519361 #1-587 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



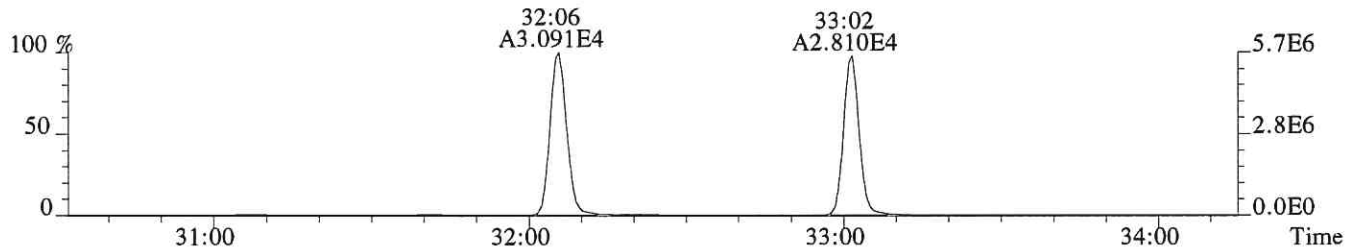
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



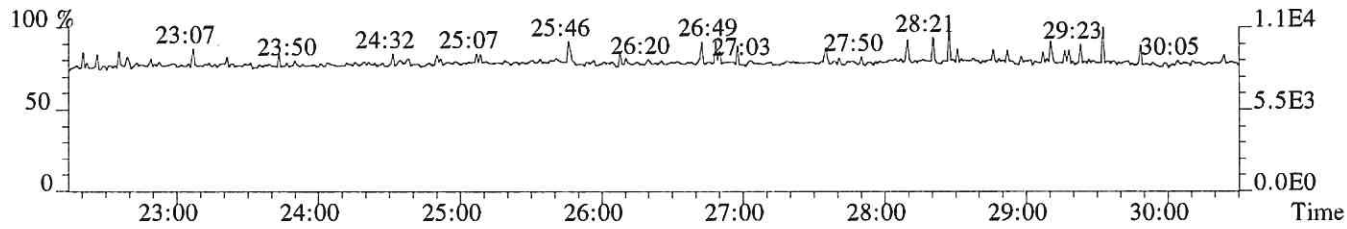
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



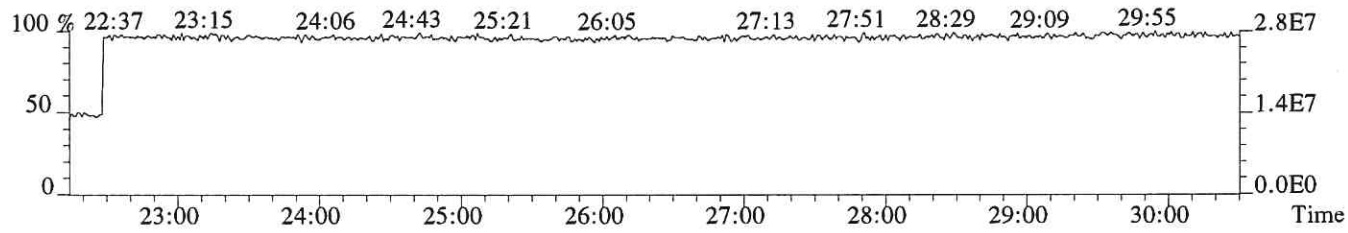
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



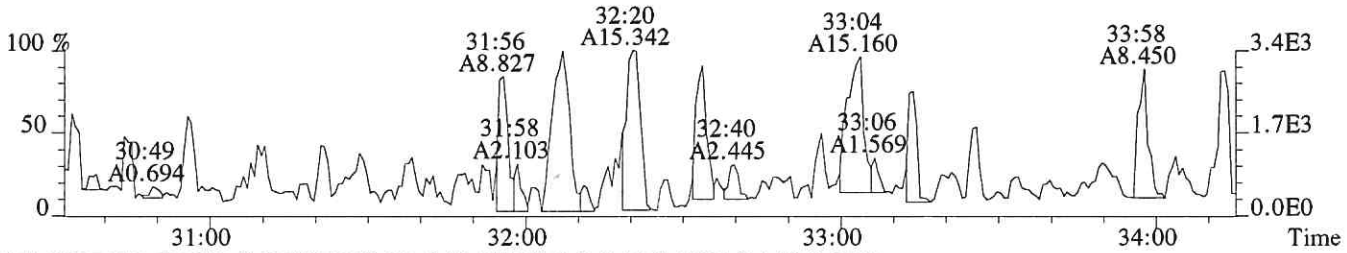
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



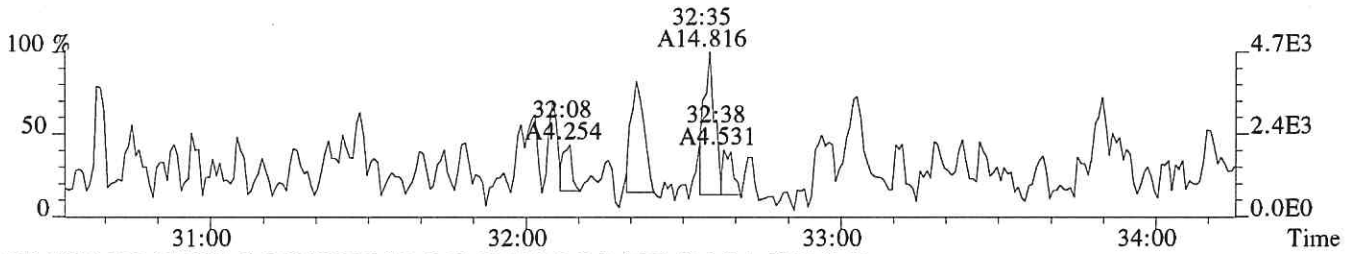
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



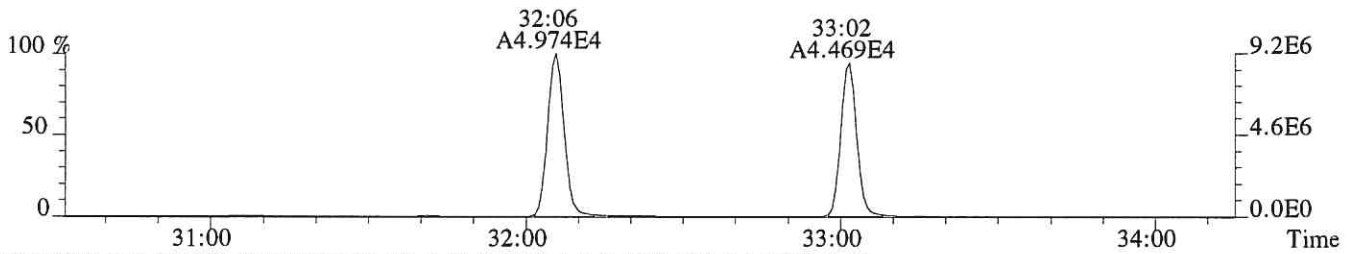
File:P519361 #1-335 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



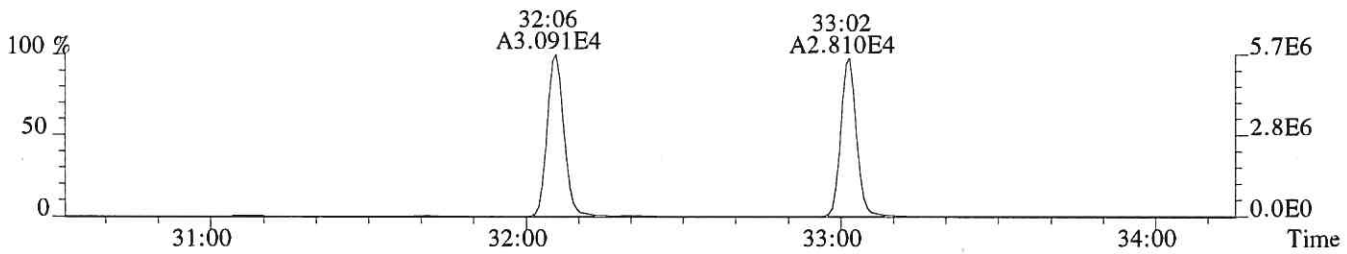
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



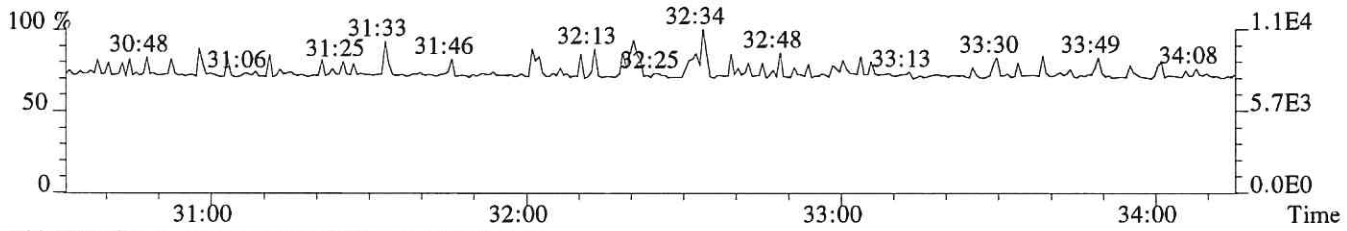
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



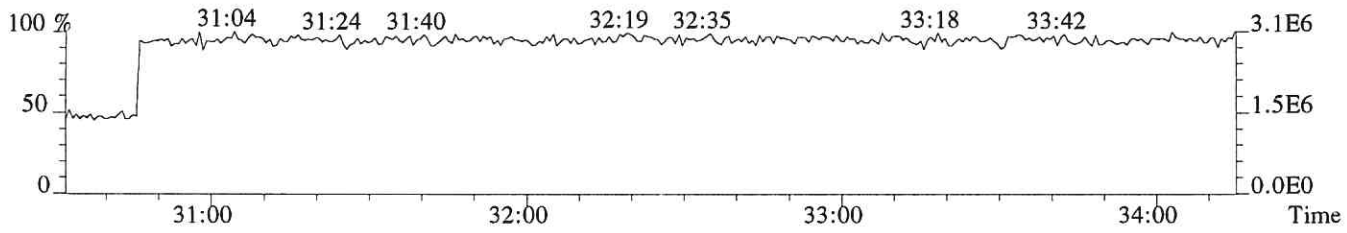
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



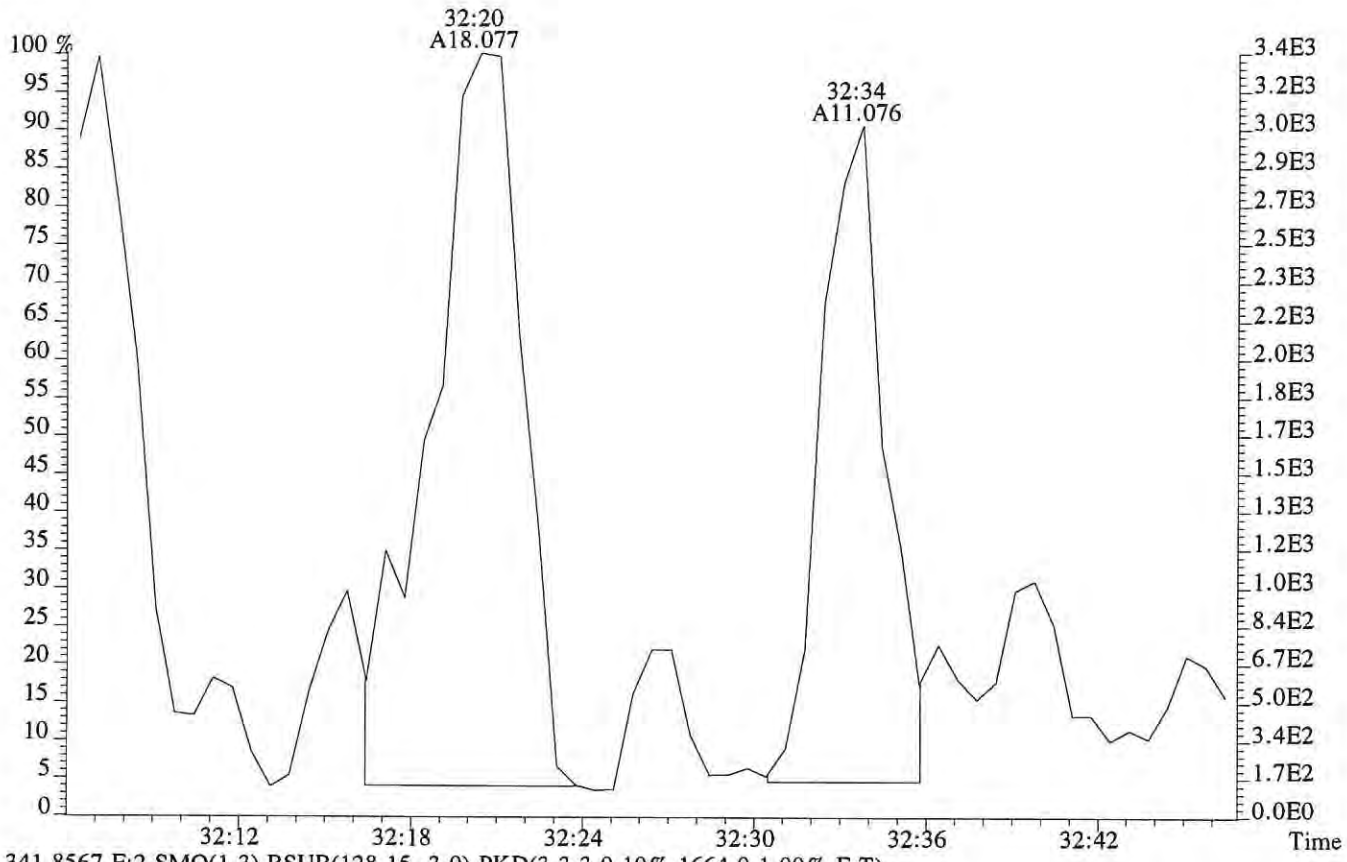
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



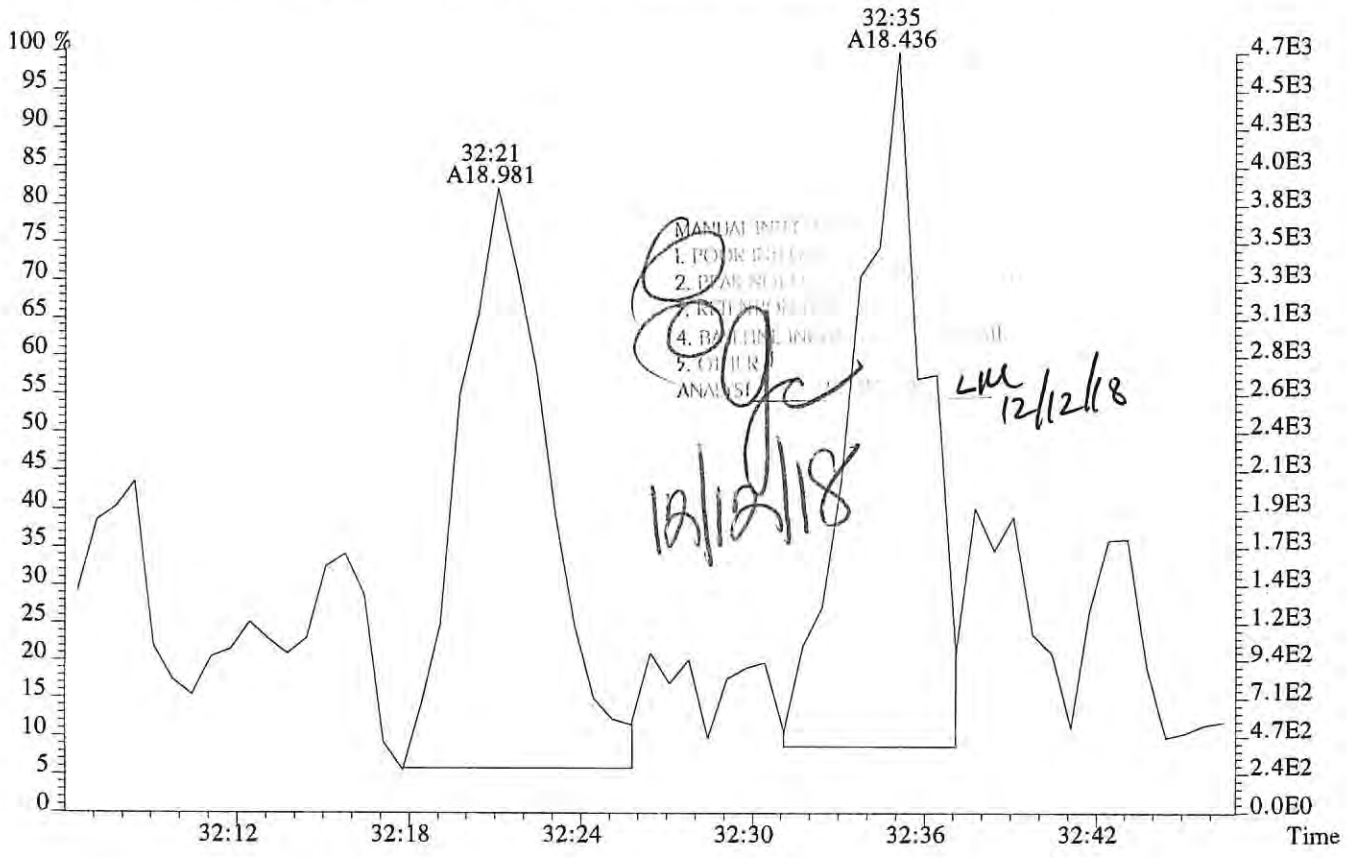
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



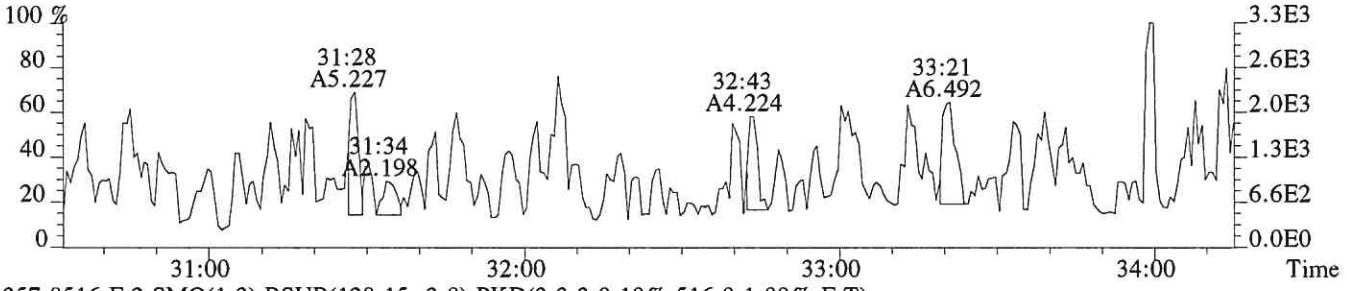
File:P519361 #1-335 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



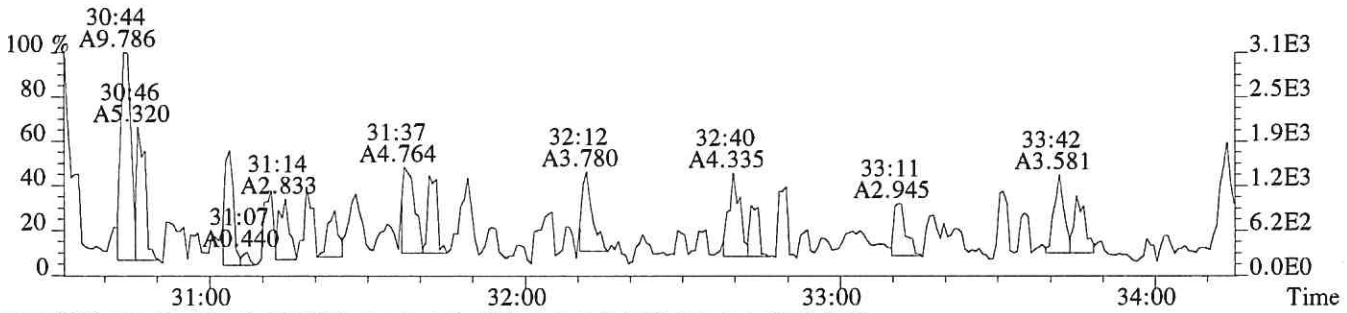
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



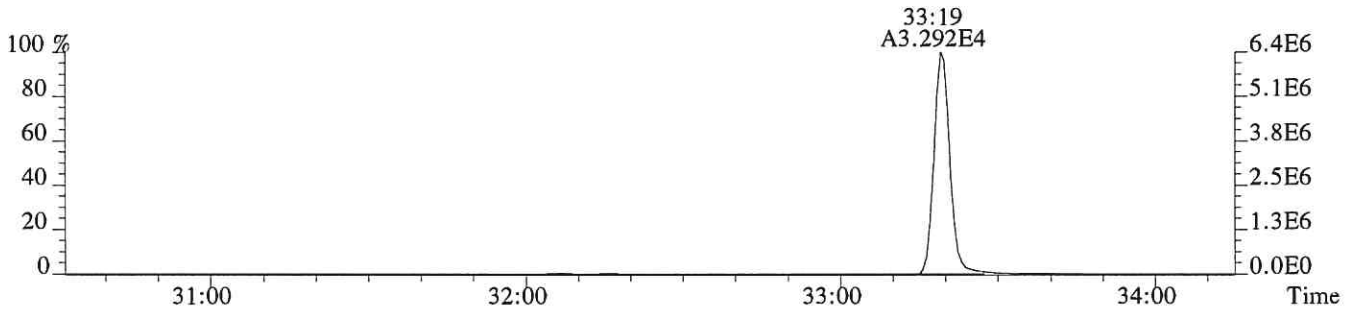
File:P519361 #1-335 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



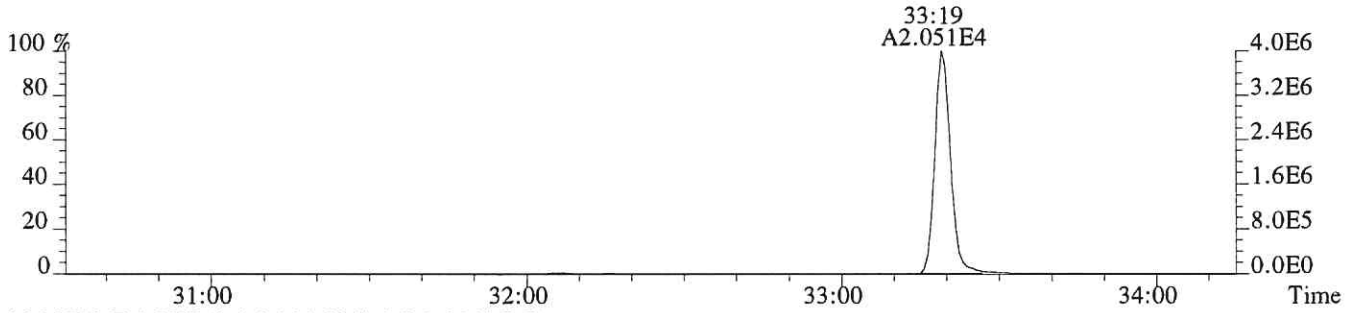
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



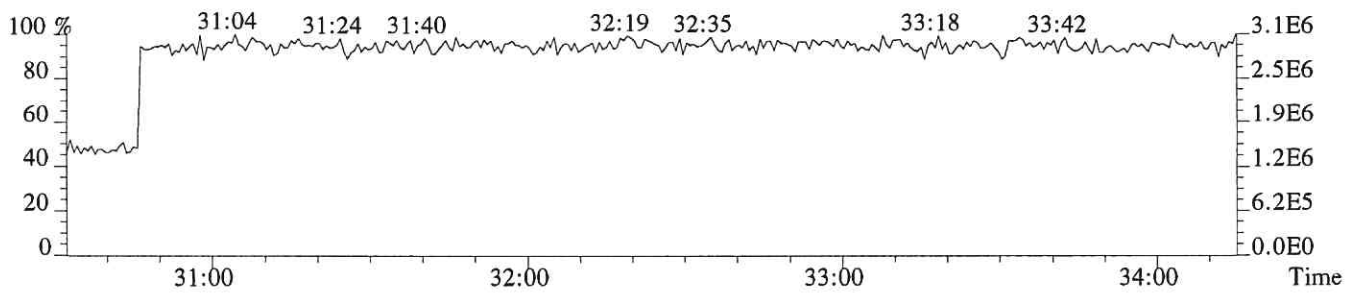
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)

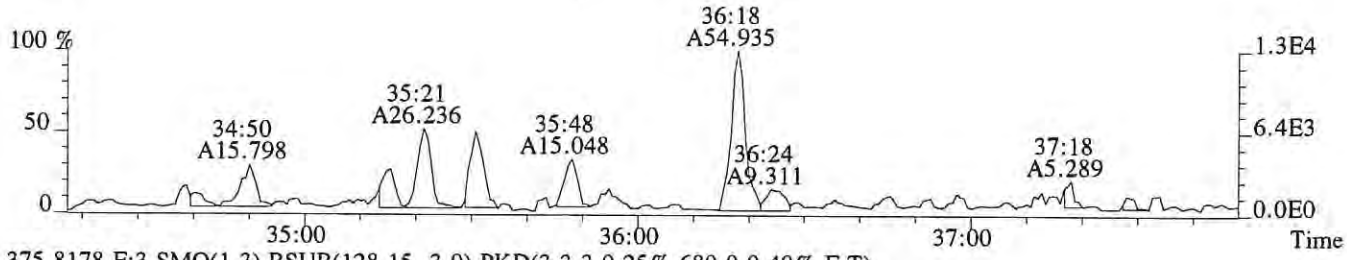


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

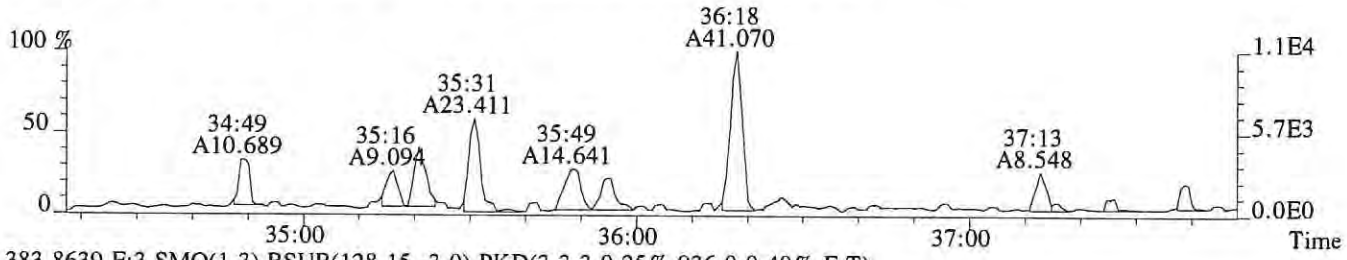


File:P519361 #1-317 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007

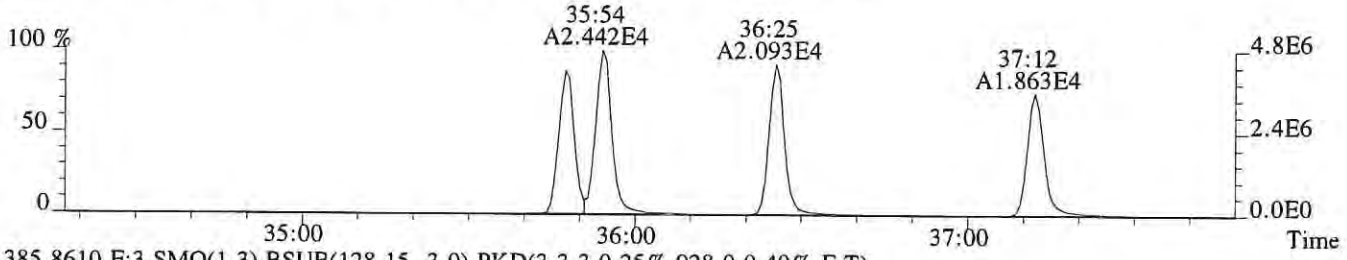
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



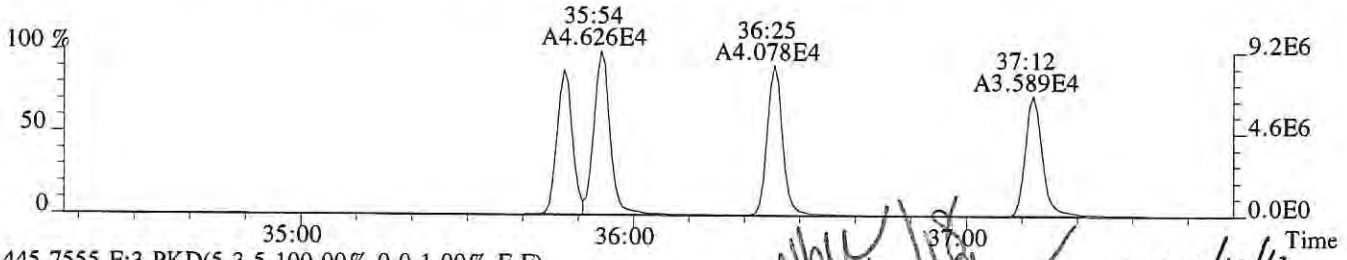
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)

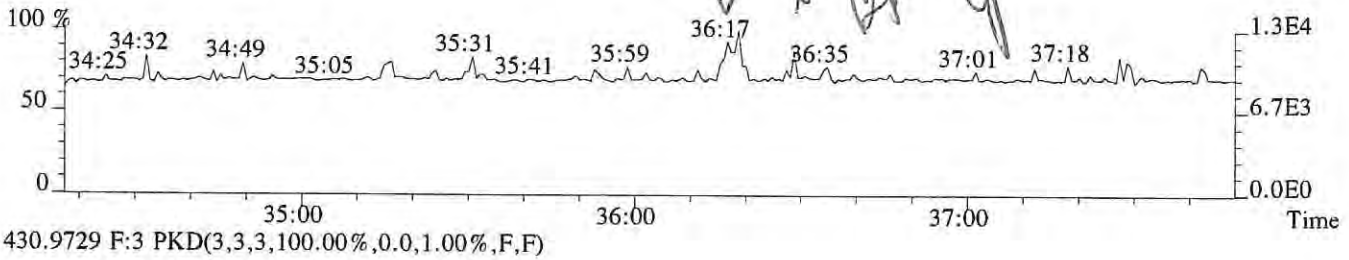


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

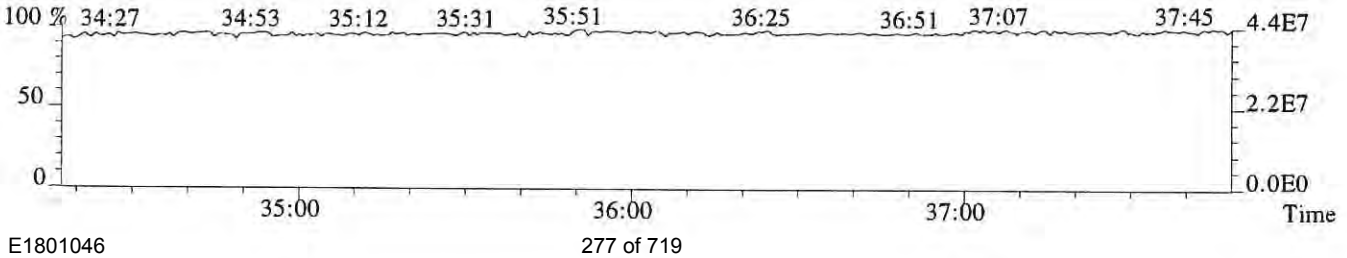


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

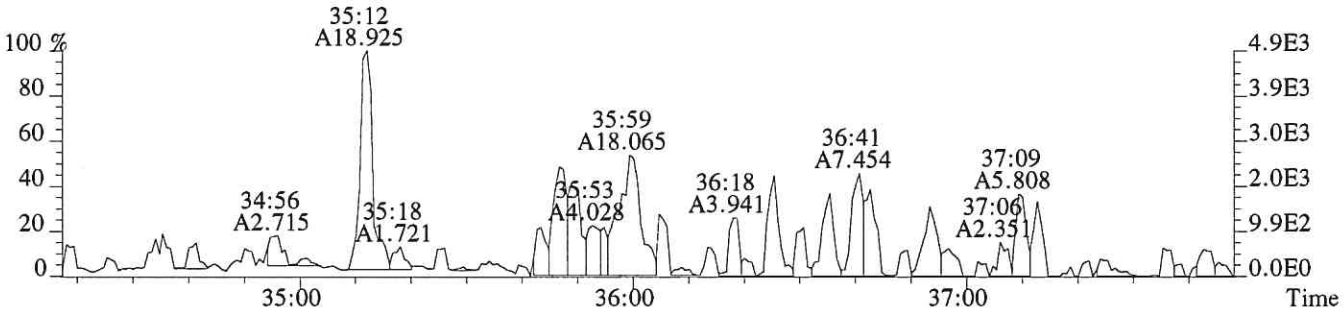
LM 12/12/18



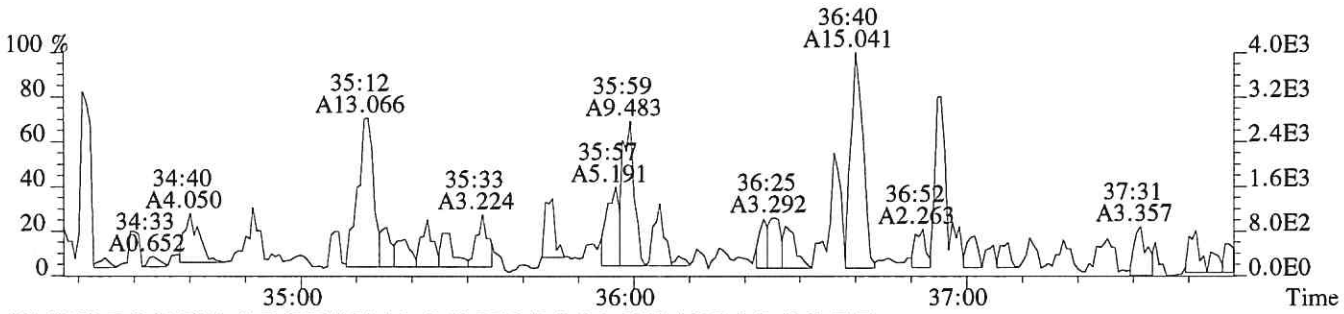
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



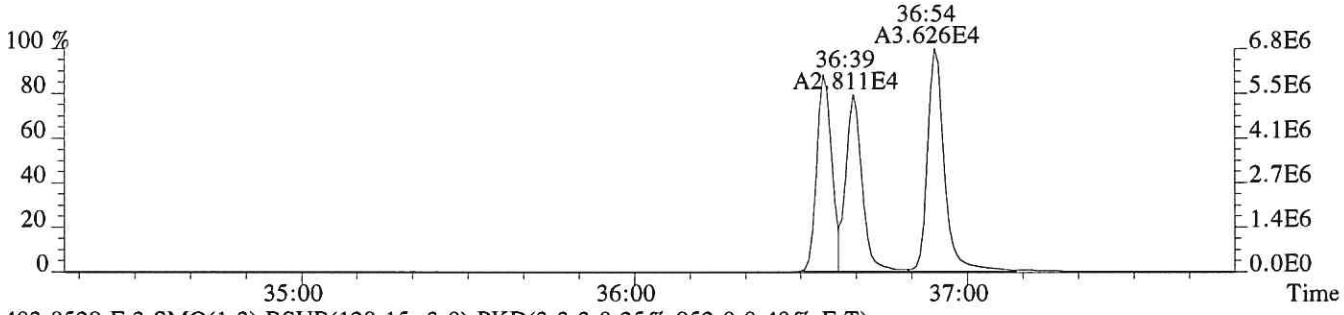
File:P519361 #1-317 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



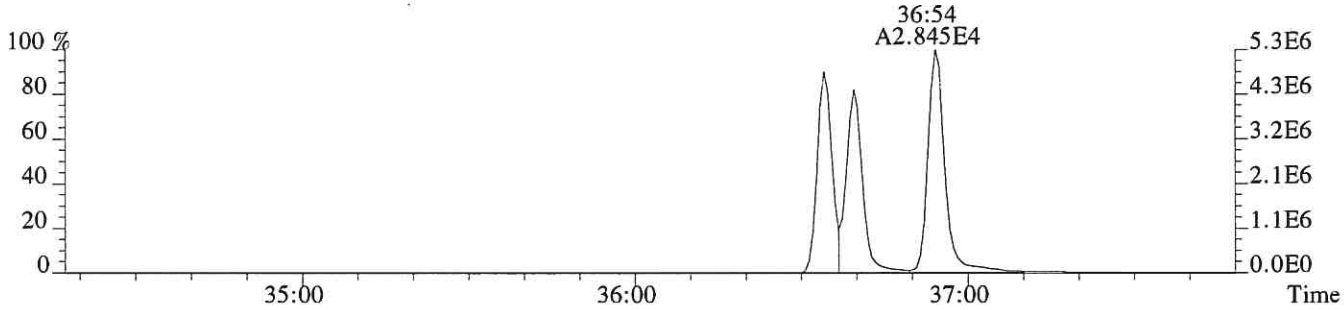
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



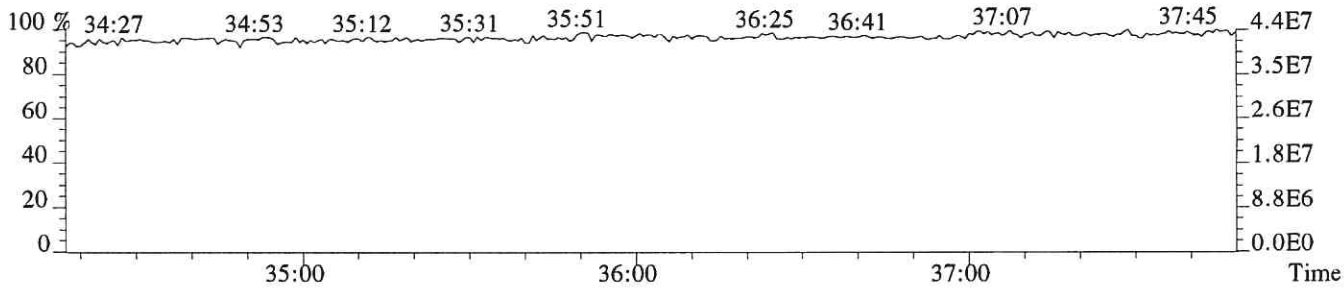
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



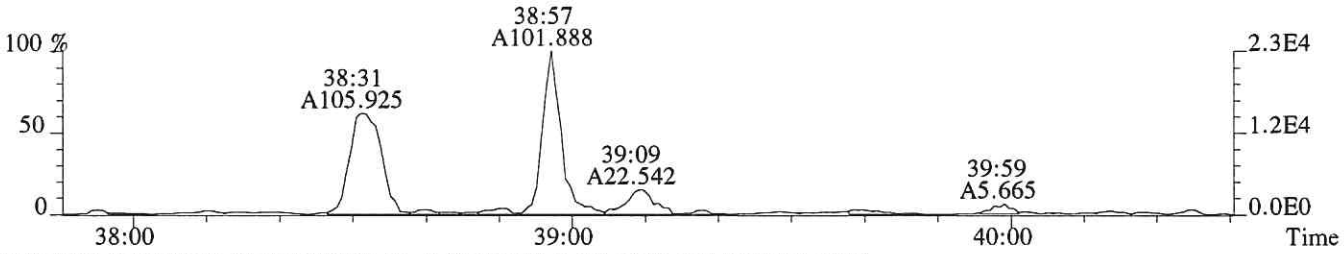
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



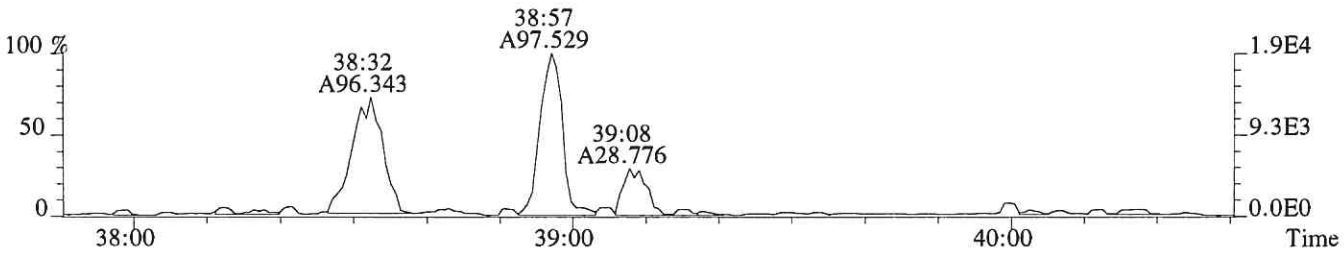
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



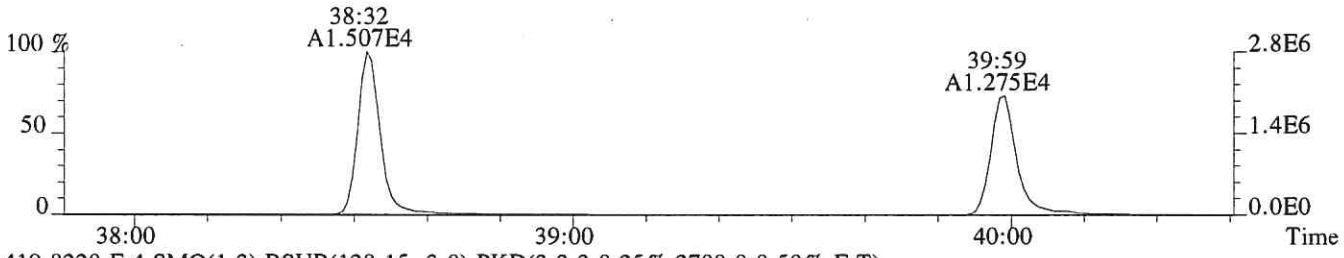
File:P519361 #1-241 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.50%,F,T)



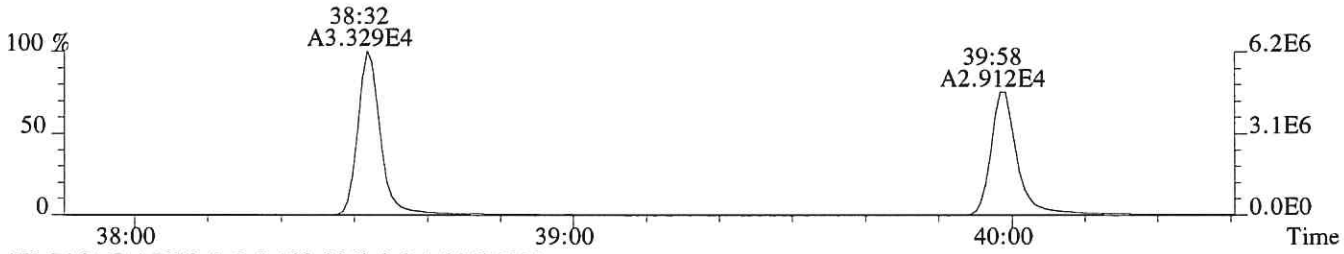
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.50%,F,T)



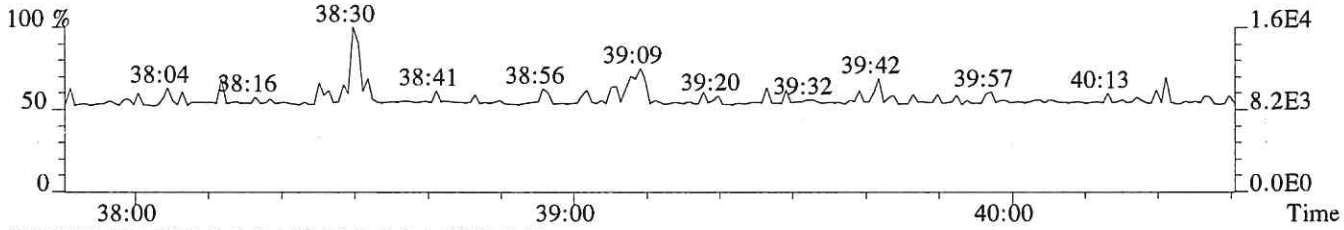
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.50%,F,T)



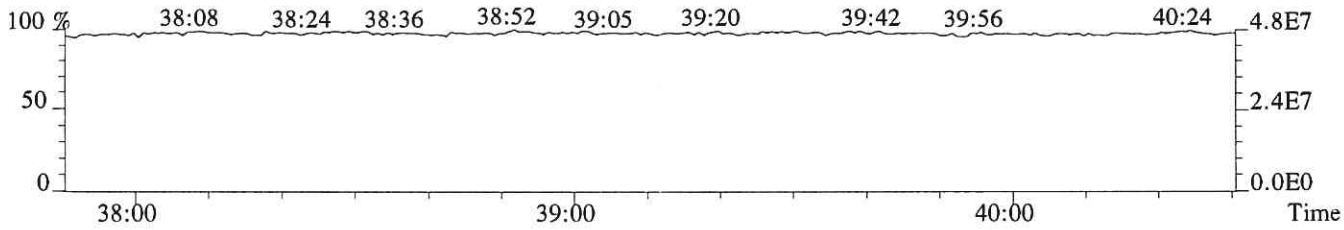
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2700.0,0.50%,F,T)



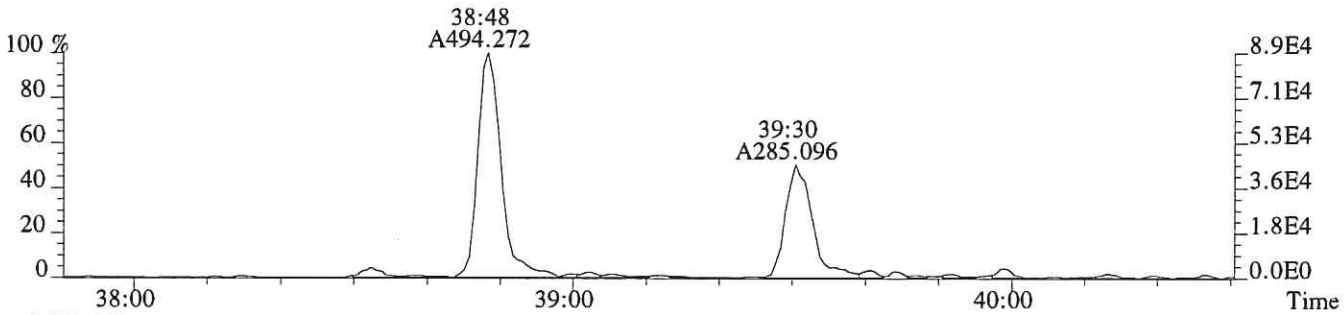
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



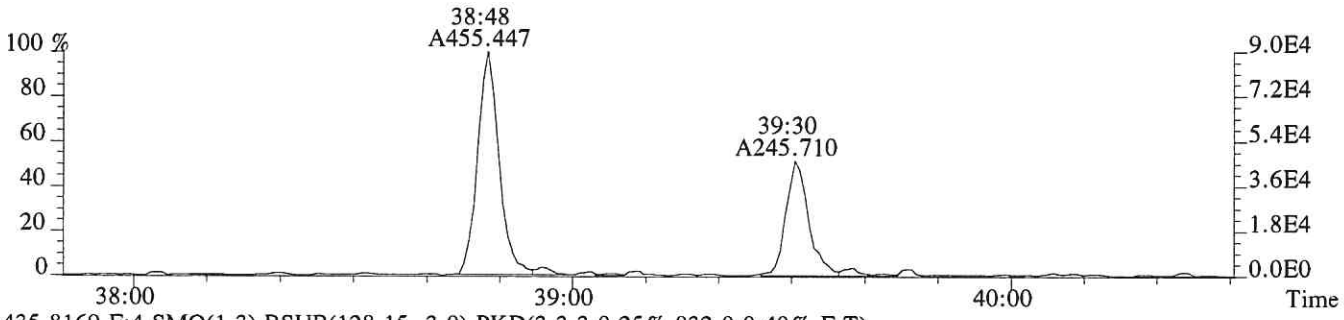
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



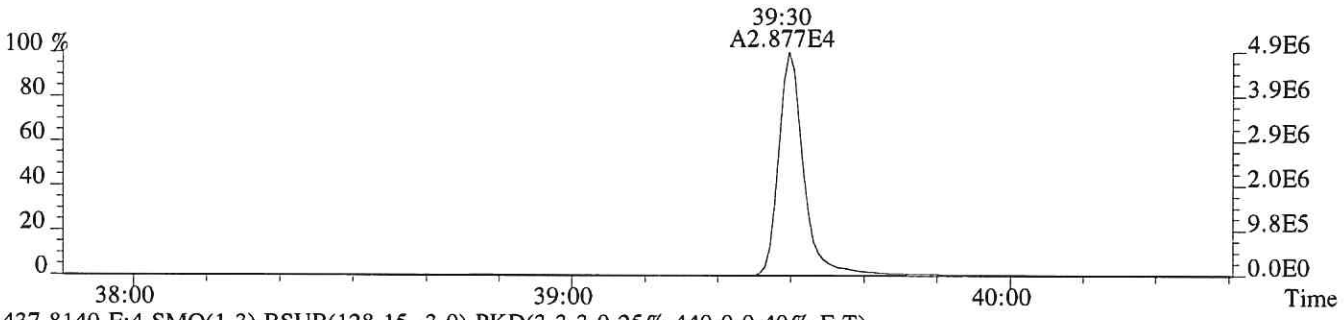
File:P519361 #1-241 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



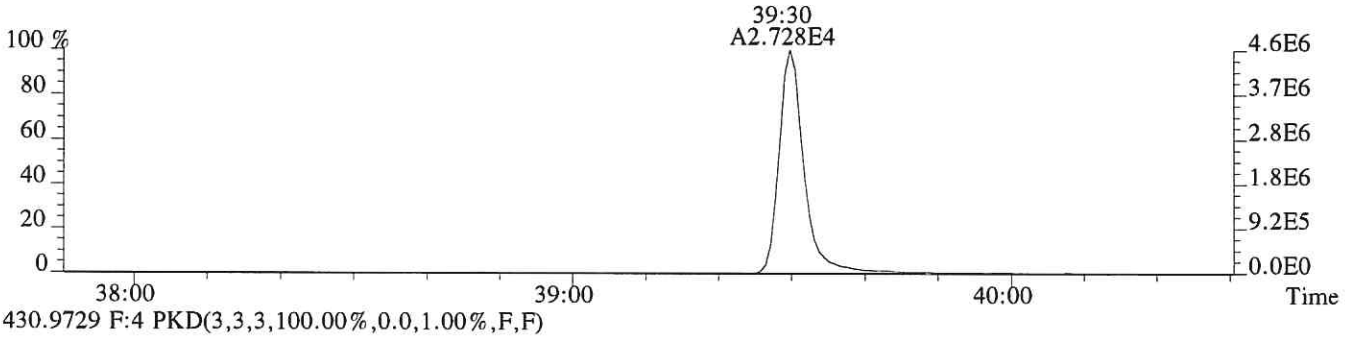
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



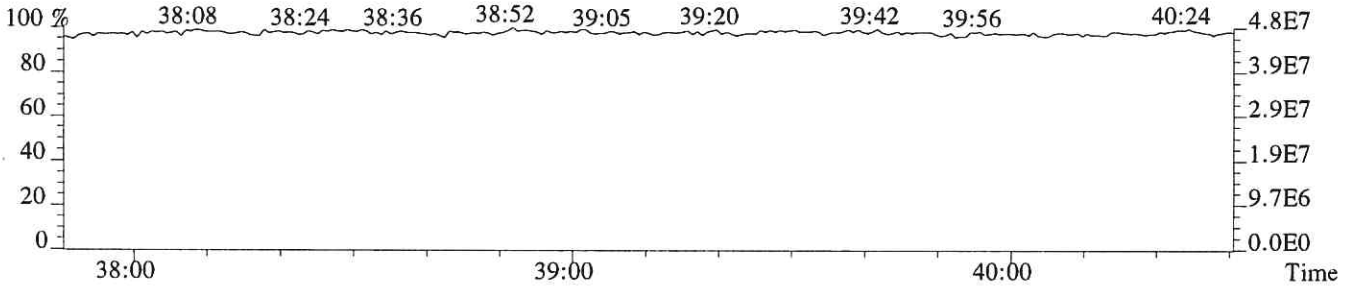
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



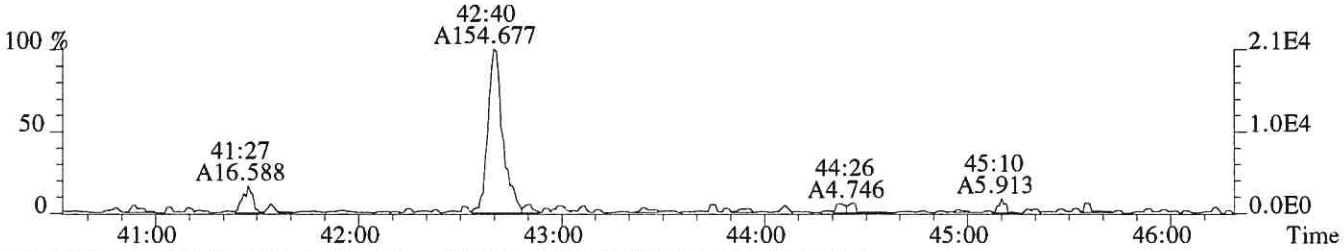
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



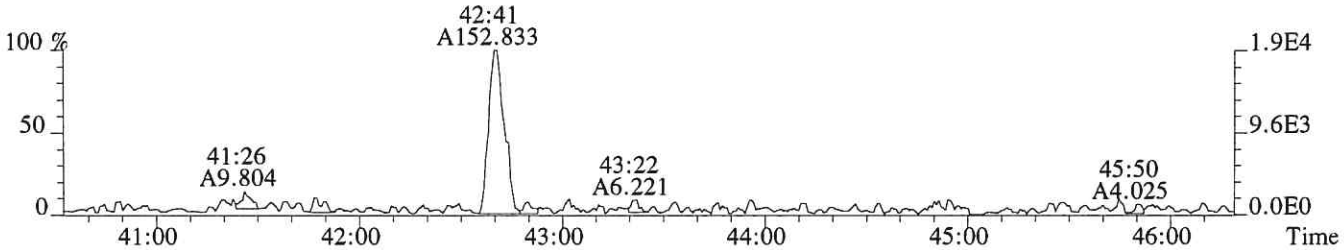
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



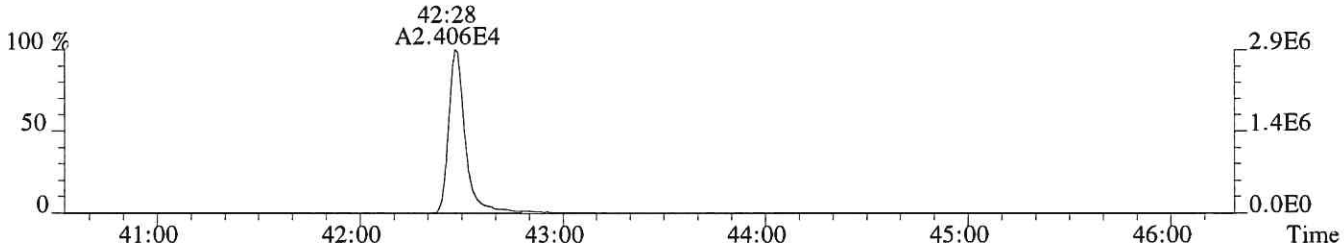
File:P519361 #1-520 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



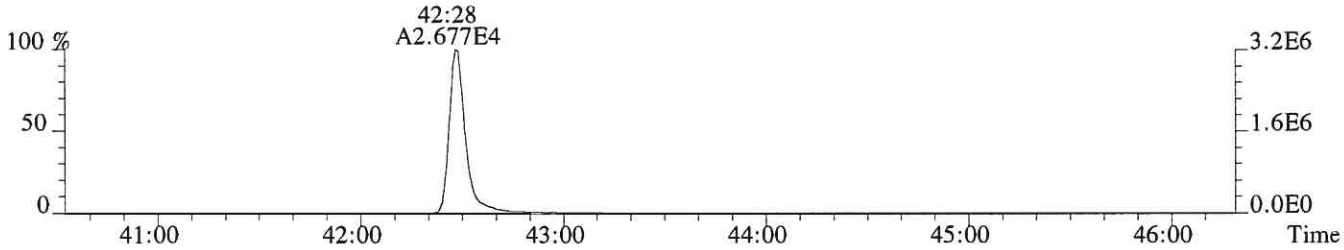
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



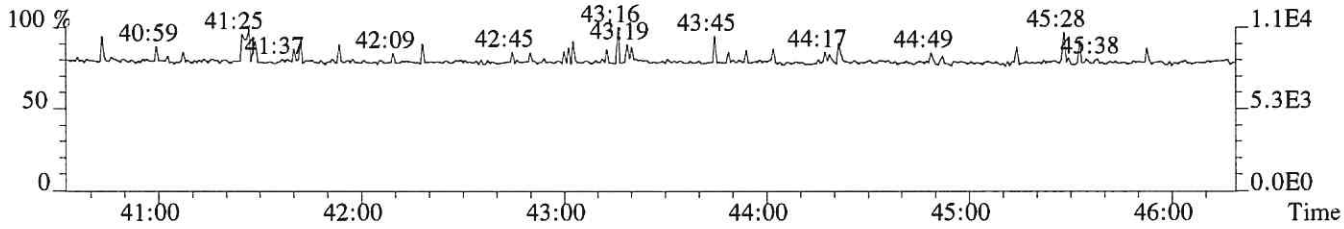
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



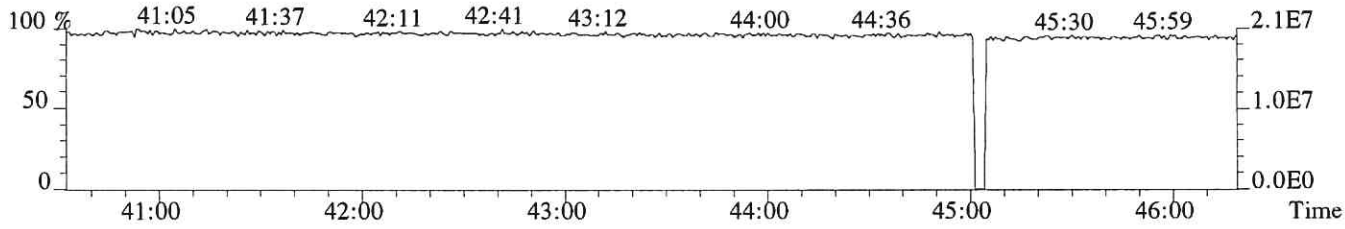
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



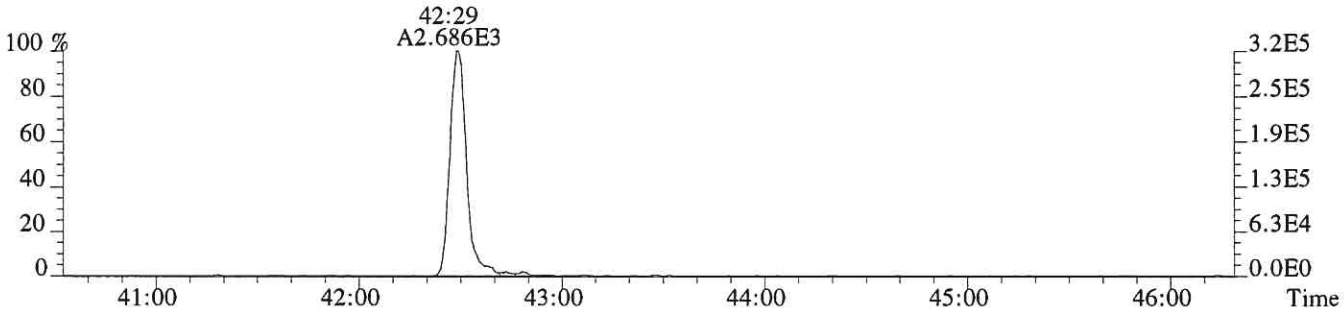
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



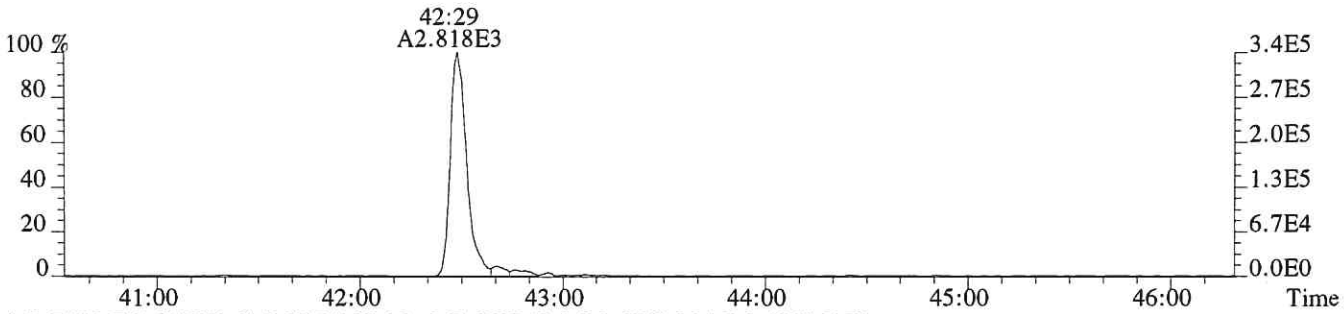
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



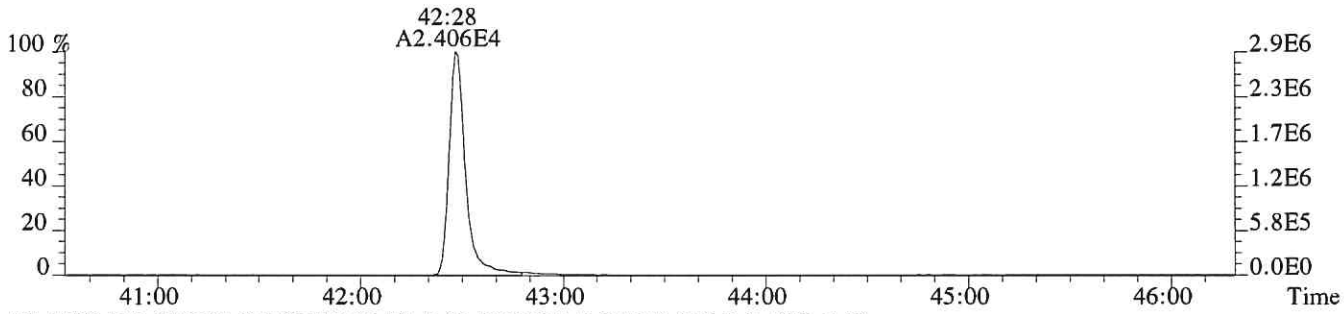
File:P519361 #1-520 Acq:11-DEC-2018 19:30:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801046-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



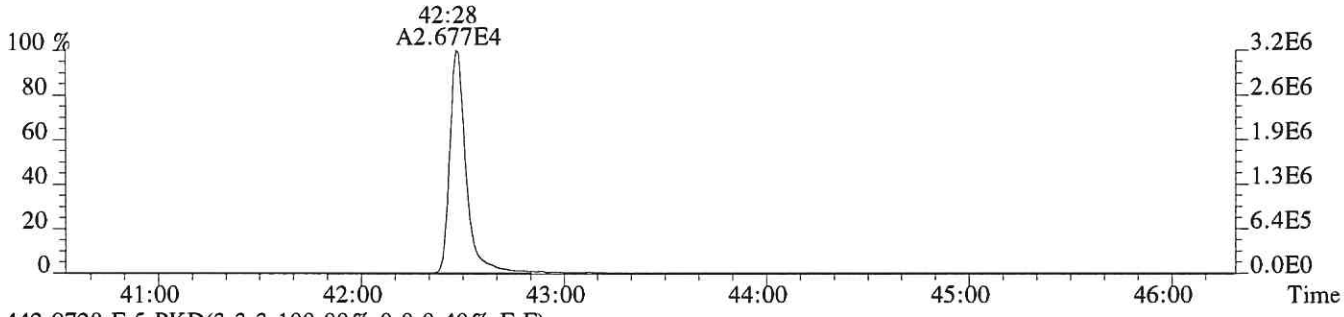
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



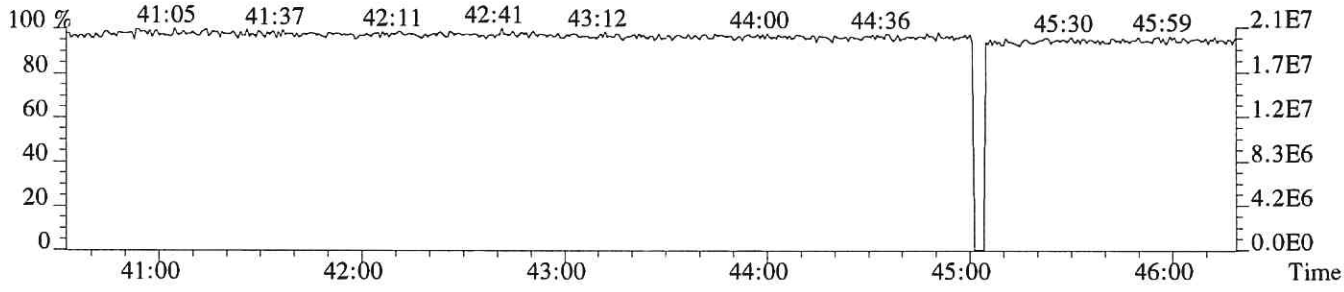
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 Sample ID: EQ1800488-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.636e+01	4.193e+01	0.63	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	6.901e+00	5.641e+00	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	1.212e+01	1.478e+01	0.82	no	no	1.025
17	Unk	OCDD	42:33	1.344e+01	2.450e+01	0.55	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.618e+04	2.044e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	3.135e+04	1.933e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.905e+04	1.828e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.448e+04	2.701e+04	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.742e+04	3.293e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.493e+04	2.899e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.430e+04	2.780e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	1.127e+04	2.569e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	1.091e+04	2.470e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	7.381e+03	9.263e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	2.213e+04	1.384e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	2.012e+04	1.553e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.981e+04	1.568e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.417e+04	2.265e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:34	2.376e+04	2.602e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.667e+04	3.319e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.229e+04	3.323e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	1.057e+04				no	1.014

$$\text{OCDD} = \frac{(1.344e+01 + 2.450e+01) \times 4000\ \text{pg} \times 1}{(2.376e+04 + 2.602e+04) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 LAB. ID: EQ1800488-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.19e+03	5.20e+02	8.1e+00	6.19e+03	9.28e+02	6.7e+00
2	1,2,3,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
3	2,3,4,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
4	1,2,3,4,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
5	1,2,3,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
6	2,3,4,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
7	1,2,3,7,8,9-HxCDF	1.58e+03	4.92e+02	3.2e+00	1.70e+03	3.60e+02	4.7e+00
8	1,2,3,4,6,7,8-HpCDF	*	3.32e+02	*	*	2.36e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.32e+02	*	*	2.36e+02	*
10	OCDF	*	3.08e+02	*	*	8.80e+02	*
11	2,3,7,8-TCDD	*	1.90e+03	*	*	1.07e+03	*
12	1,2,3,7,8-PeCDD	*	6.96e+02	*	*	2.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.60e+02	*	*	5.04e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.66e+03	2.88e+02	9.2e+00	2.55e+03	2.56e+02	9.9e+00
17	OCDD	2.89e+03	1.84e+02	1.6e+01	4.32e+03	2.72e+02	1.6e+01
18	13C-2,3,7,8-TCDF	2.88e+06	6.29e+03	4.6e+02	3.66e+06	5.84e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	5.78e+06	5.72e+02	1.0e+04	3.59e+06	9.60e+01	3.7e+04
20	13C-2,3,4,7,8-PeCDF	5.59e+06	5.72e+02	9.8e+03	3.48e+06	9.60e+01	3.6e+04
21	13C-1,2,3,4,7,8-HxCDF	2.93e+06	4.64e+02	6.3e+03	5.44e+06	7.12e+02	7.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.50e+06	4.64e+02	7.5e+03	6.70e+06	7.12e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.97e+06	4.64e+02	6.4e+03	5.79e+06	7.12e+02	8.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.65e+06	4.64e+02	5.7e+03	5.11e+06	7.12e+02	7.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.13e+06	1.26e+03	1.7e+03	4.80e+06	9.96e+02	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+06	1.26e+03	1.4e+03	3.84e+06	9.96e+02	3.9e+03
27	13C-2,3,7,8-TCDD	1.41e+06	6.02e+03	2.3e+02	1.77e+06	7.76e+02	2.3e+03
28	13C-1,2,3,7,8-PeCDD	4.07e+06	7.76e+02	5.2e+03	2.51e+06	8.12e+02	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.19e+06	7.08e+02	5.9e+03	3.20e+06	3.48e+02	9.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.97e+06	7.08e+02	5.6e+03	3.11e+06	3.48e+02	8.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.94e+06	4.64e+02	8.5e+03	3.72e+06	4.64e+02	8.0e+03
32	13C-OCDD	2.87e+06	4.08e+02	7.0e+03	3.08e+06	2.08e+02	1.5e+04
33	13C-1,2,3,4-TCDD	4.97e+06	6.02e+03	8.3e+02	6.19e+06	7.76e+02	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.73e+06	7.08e+02	1.1e+04	6.15e+06	3.48e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.92e+06	8.96e+02	2.1e+03			

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 373.8210 375.8180 Tot Response: 1.25e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:17	6.90e+00	5.64e+00 1.22	yes	1.25e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 407.7820 409.7790 Tot Response: 1.06e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	5.54e+00	5.02e+00 1.10	yes	1.06e+01		y	y

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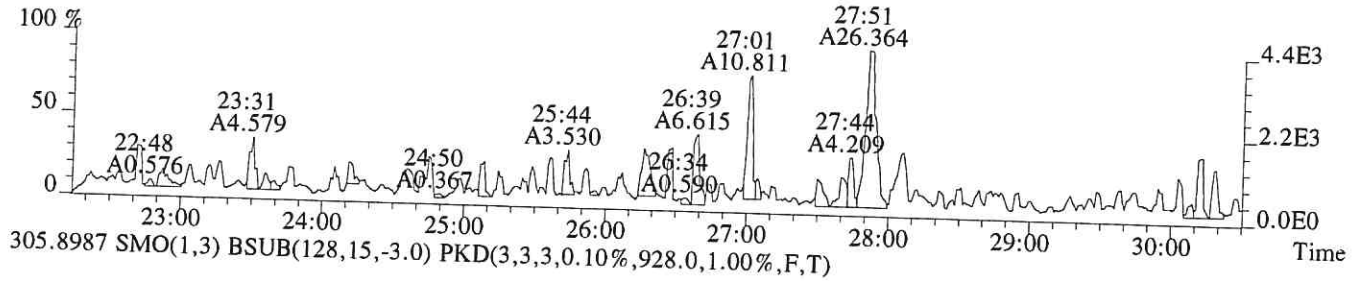
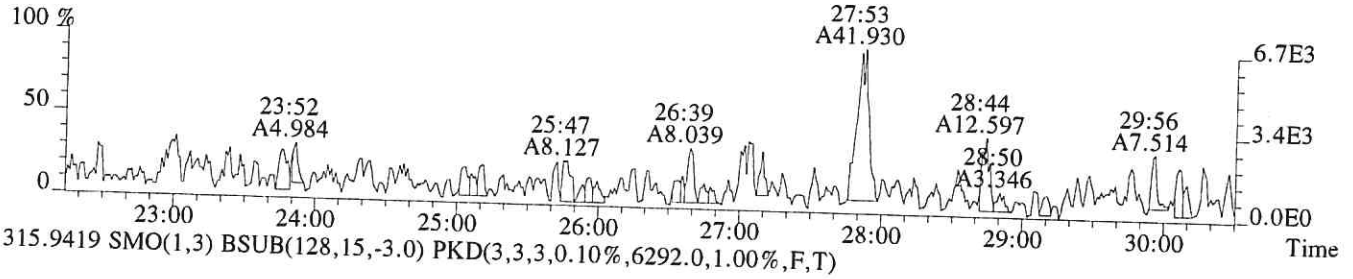
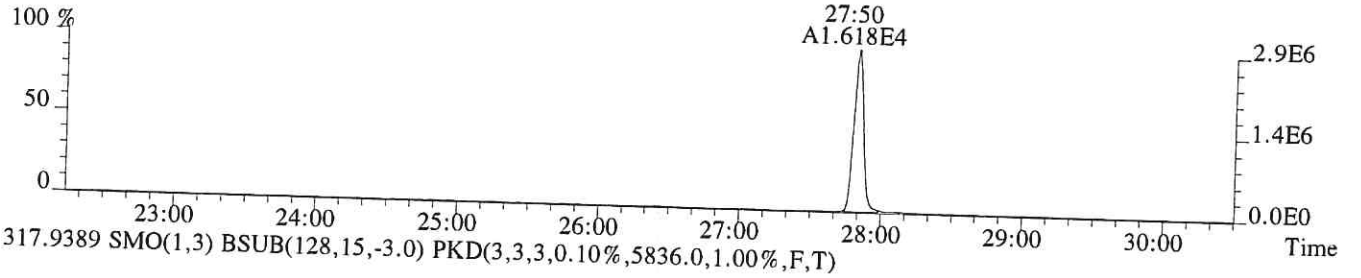
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



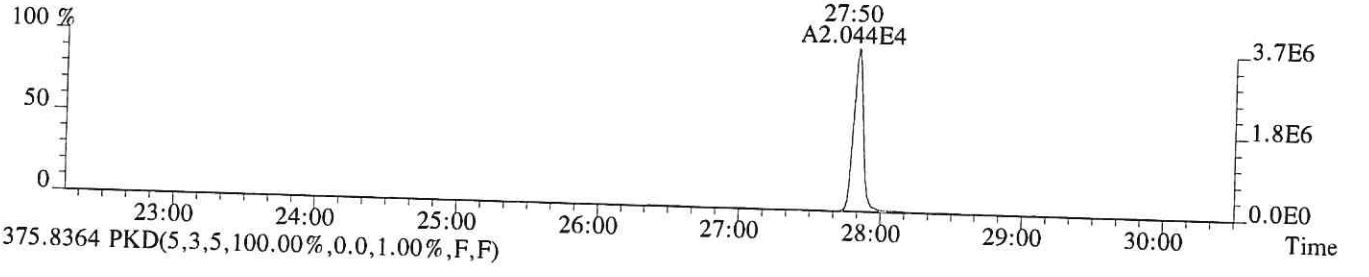
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



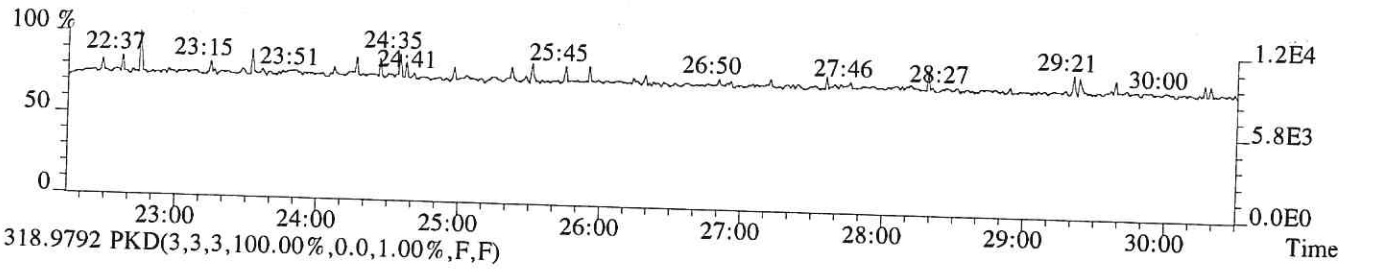
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6292.0,1.00%,F,T)



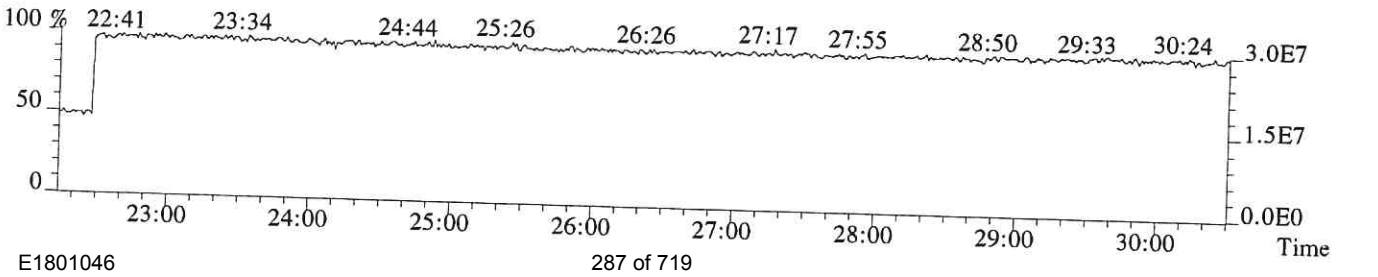
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5836.0,1.00%,F,T)



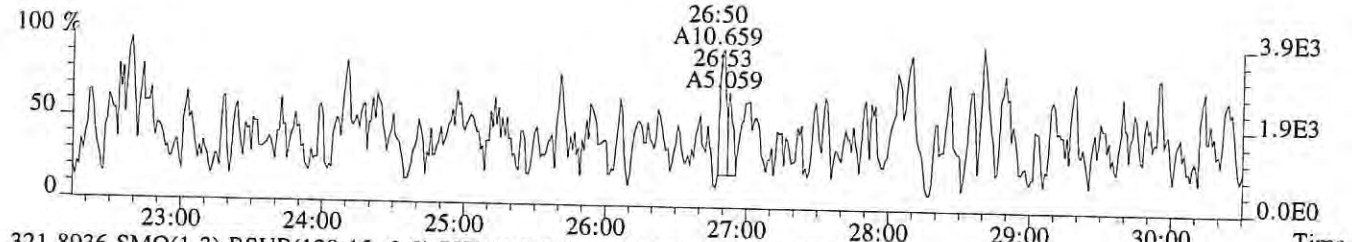
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



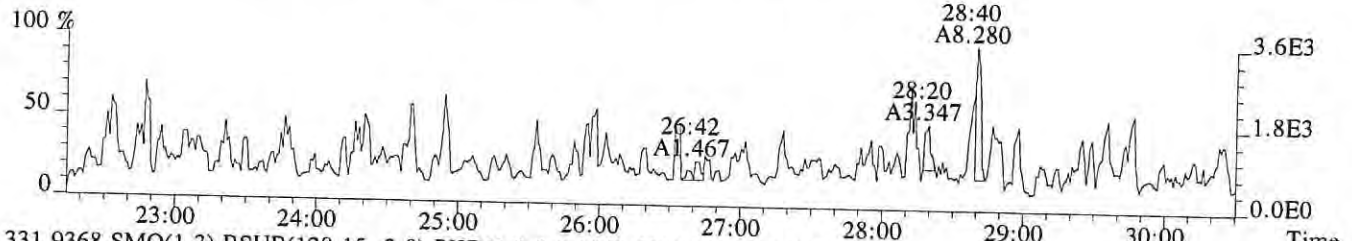
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



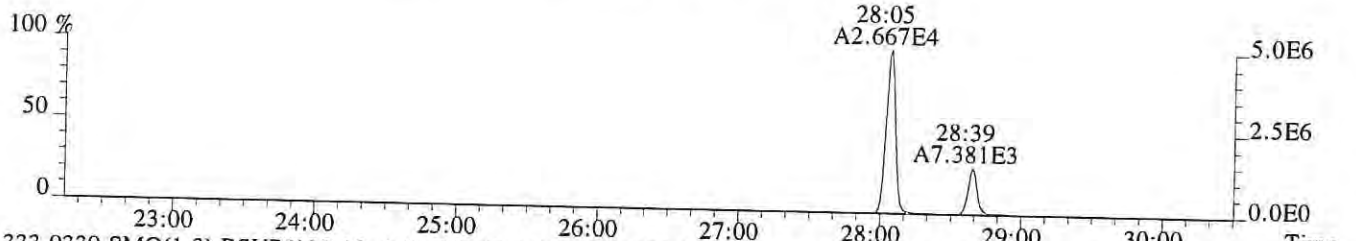
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



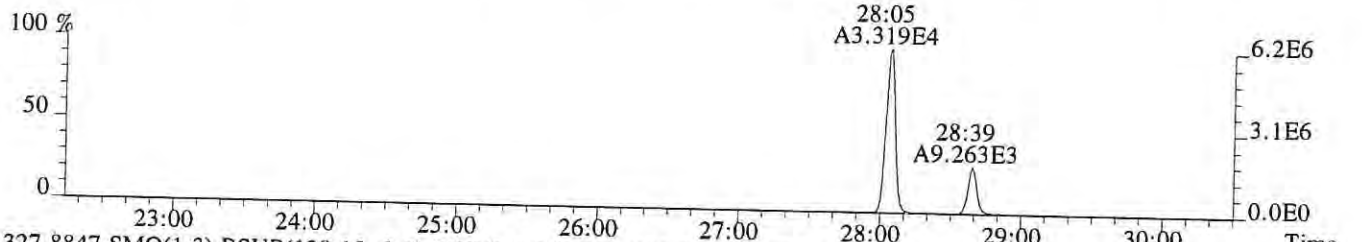
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



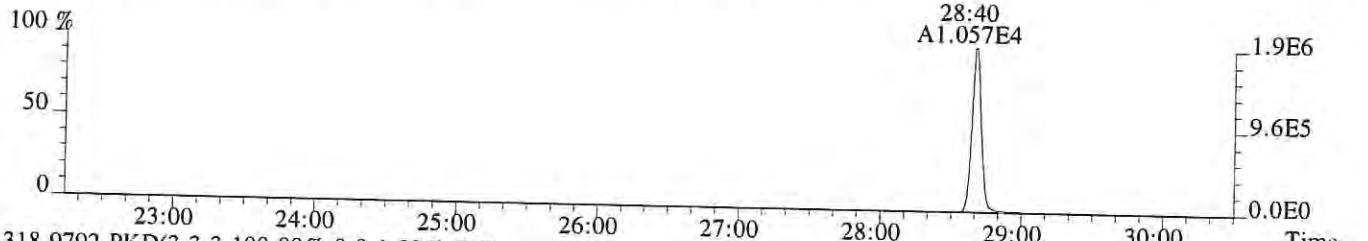
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6016.0,1.00%,F,T)



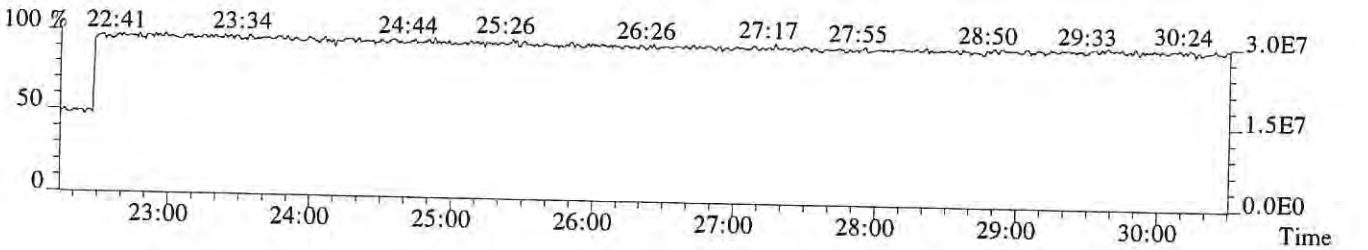
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



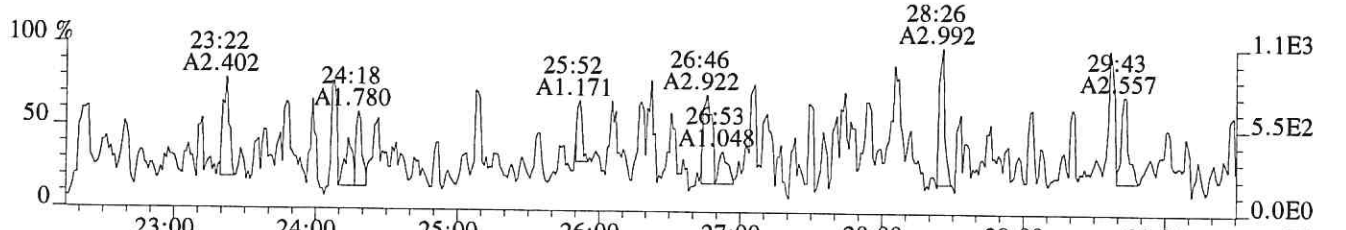
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



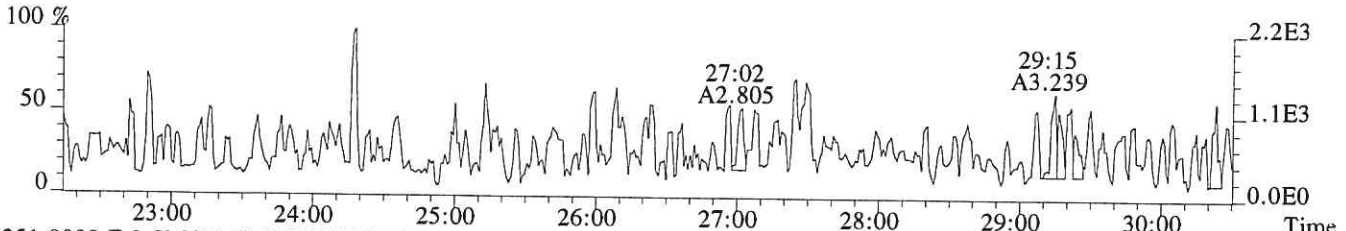
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



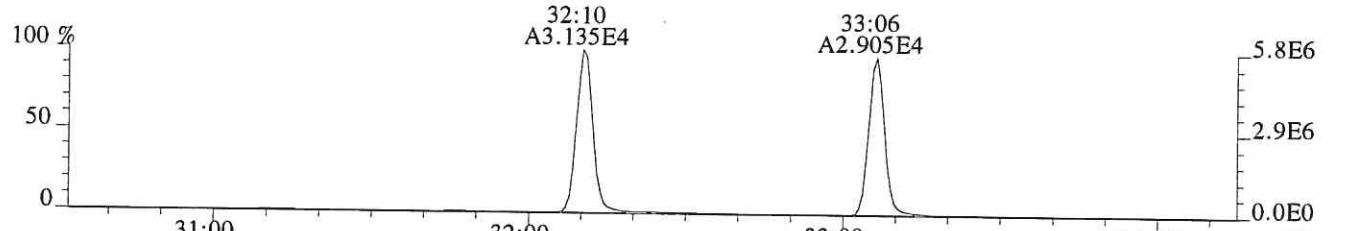
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



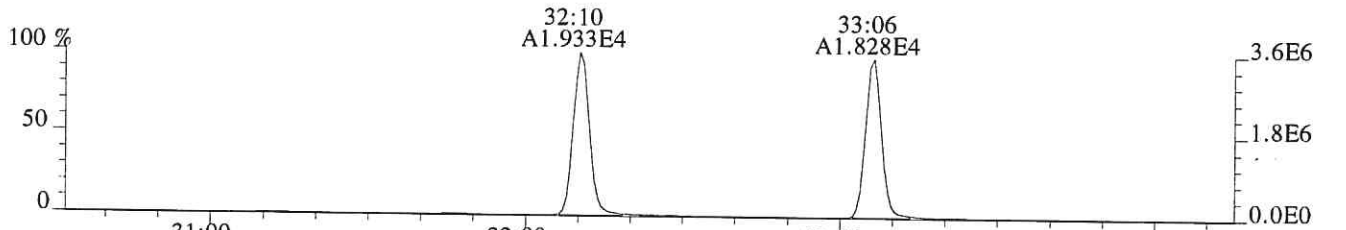
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



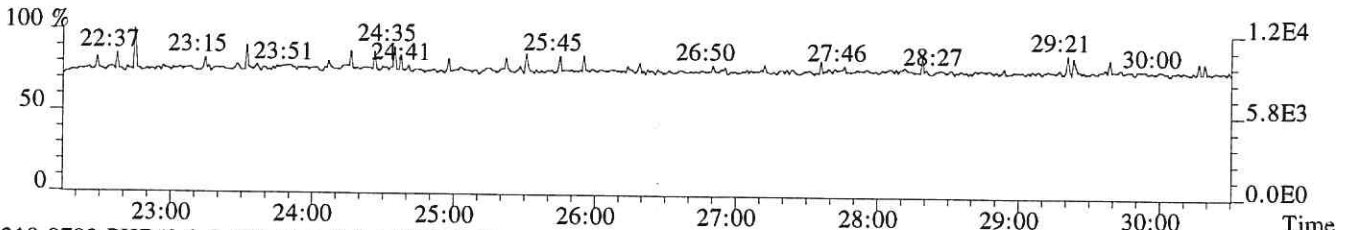
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



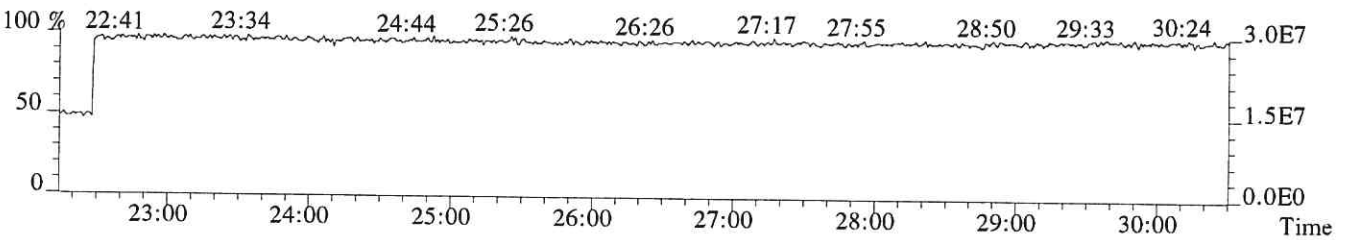
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



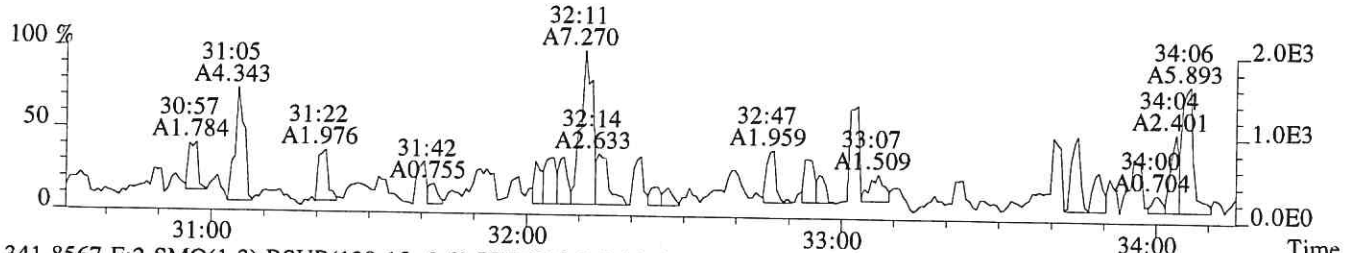
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



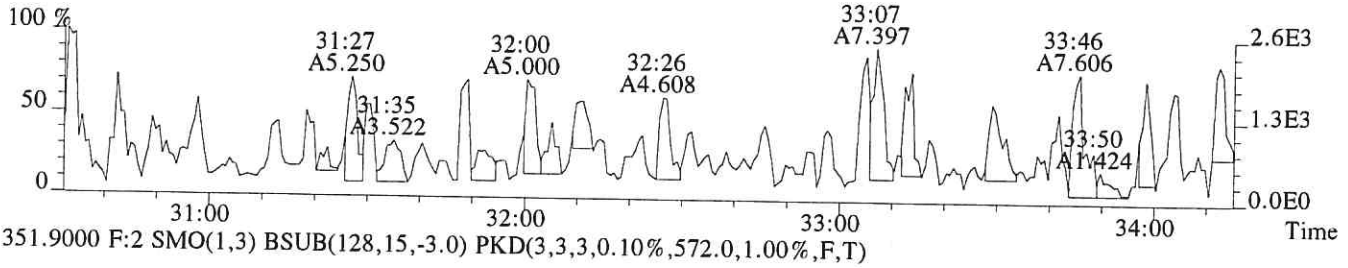
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



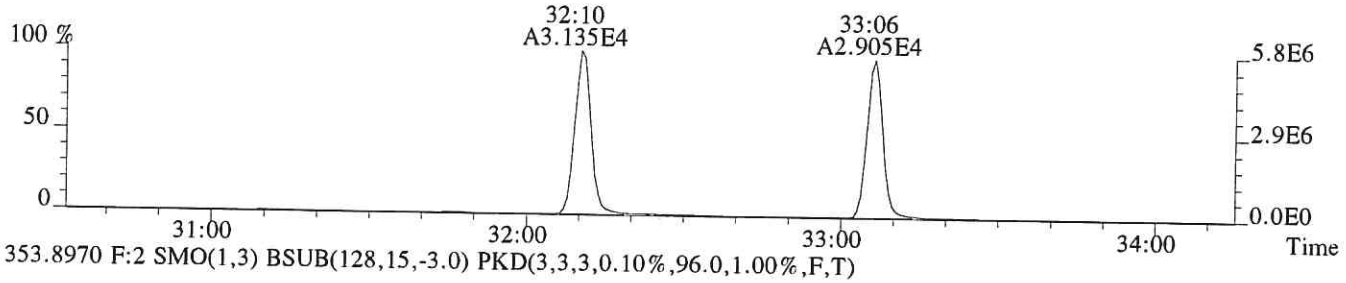
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



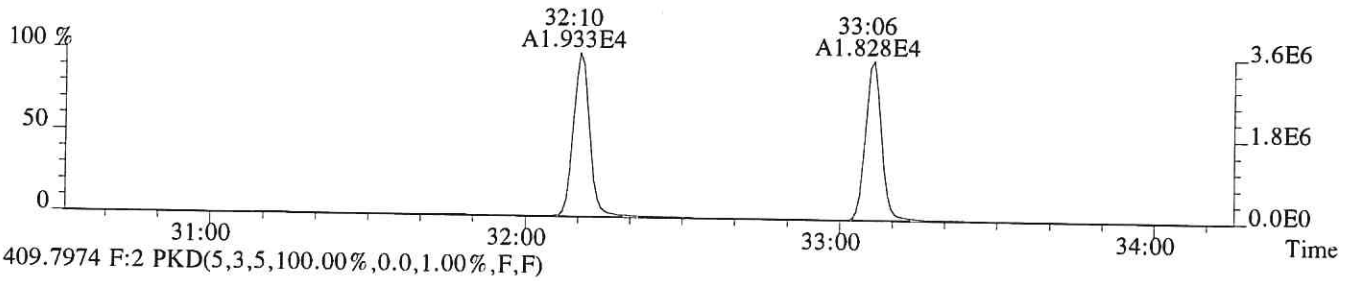
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



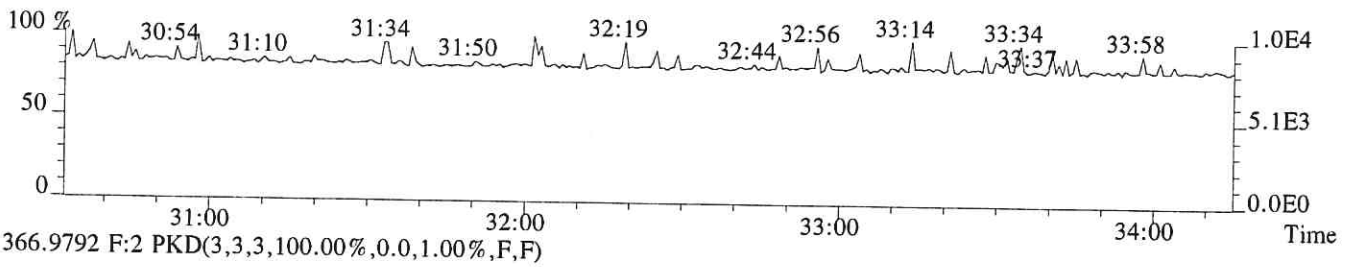
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



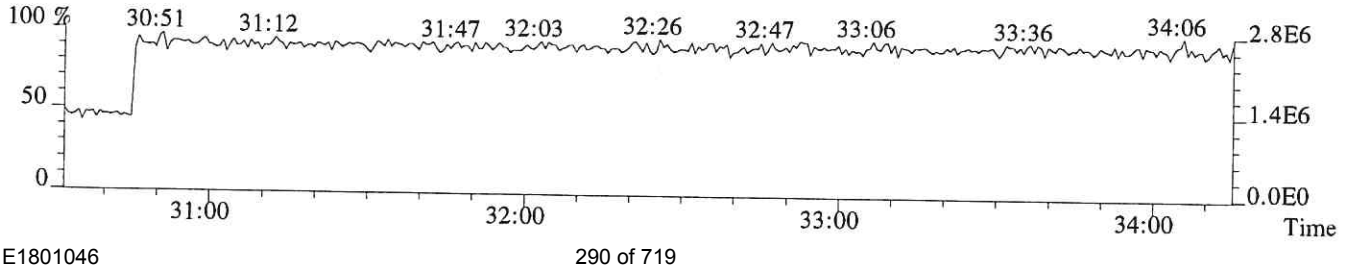
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



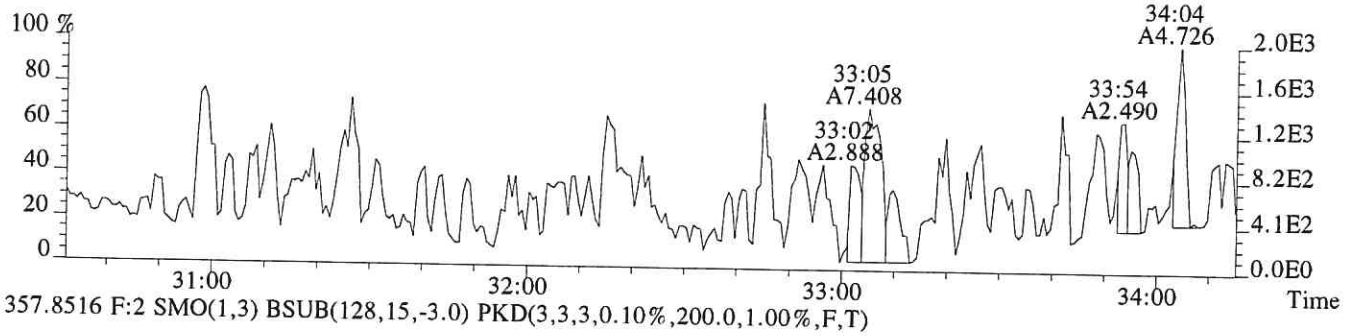
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



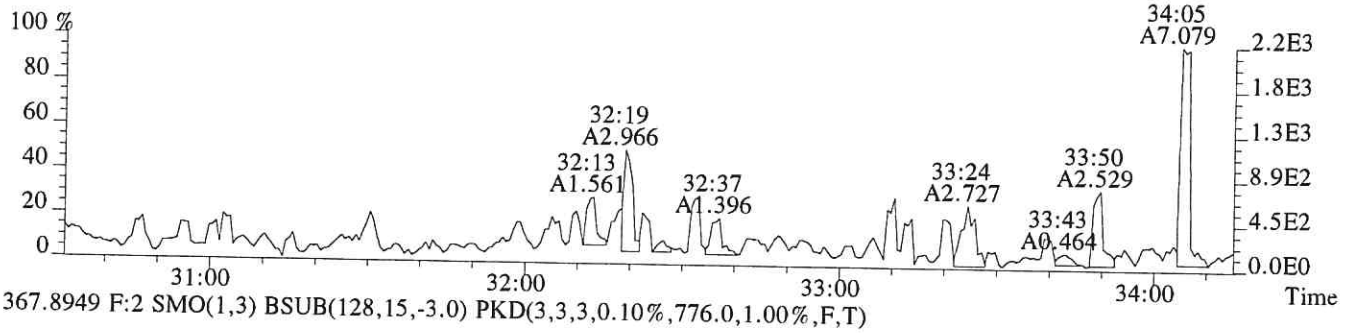
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



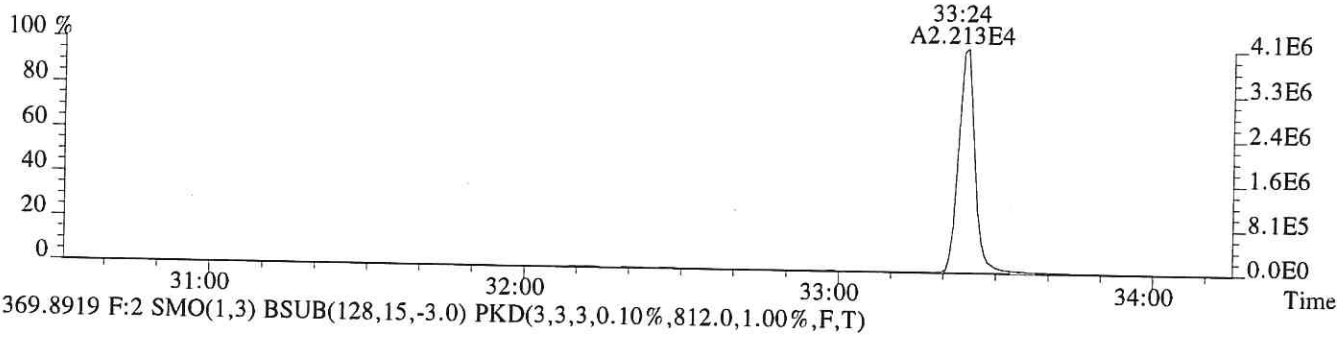
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



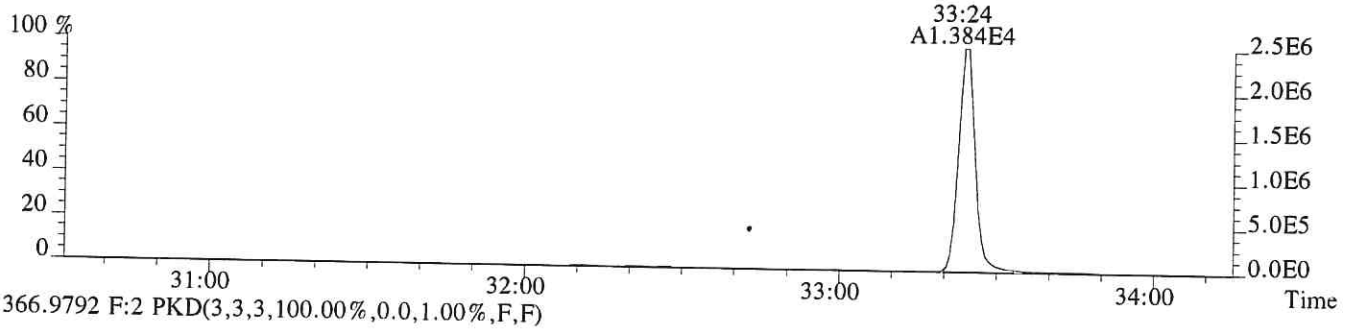
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



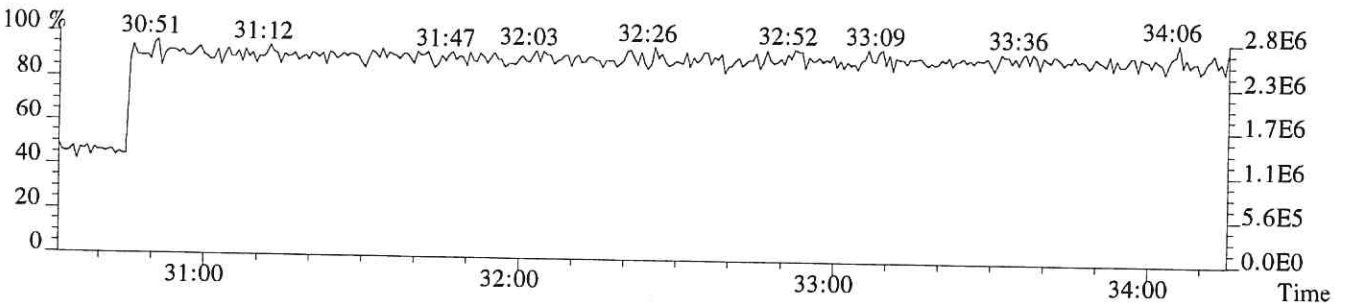
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



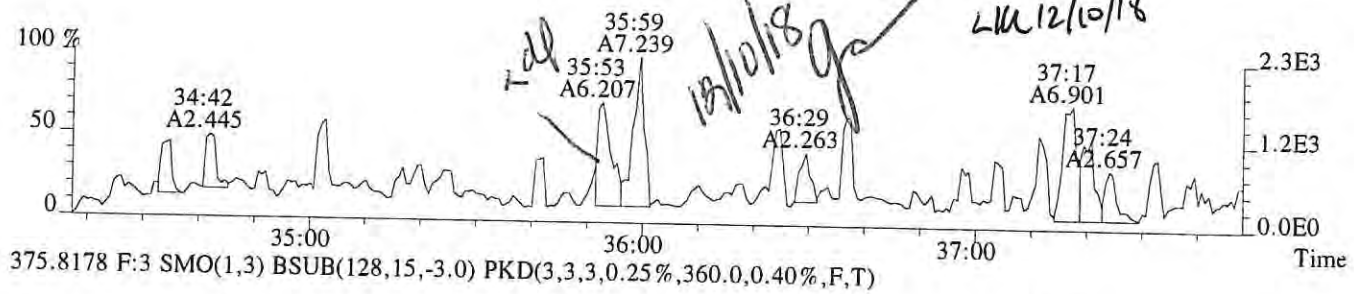
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



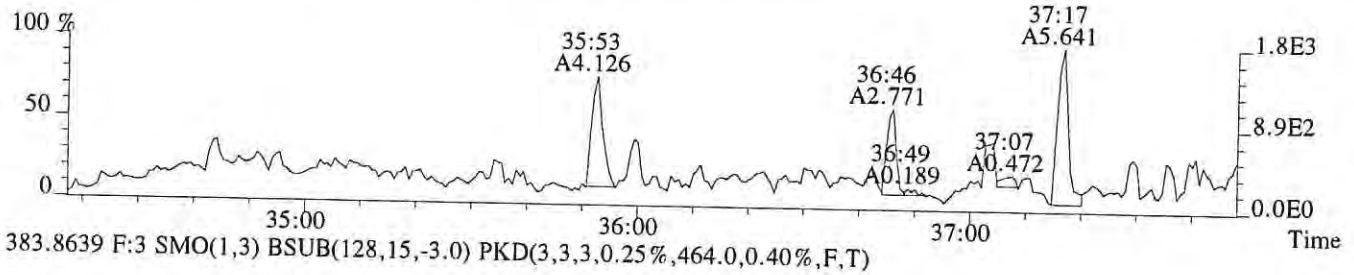
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



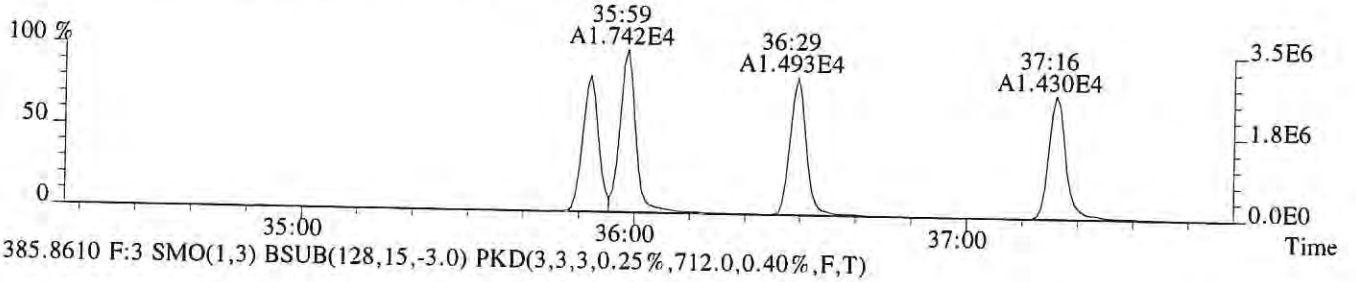
File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



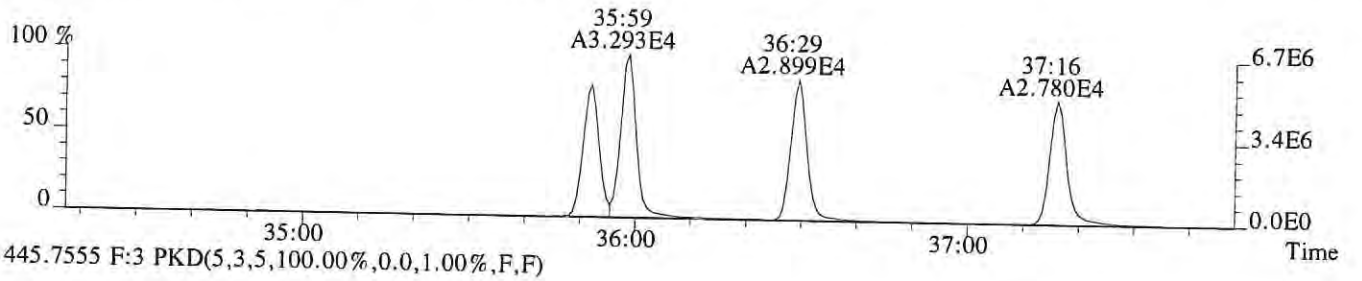
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



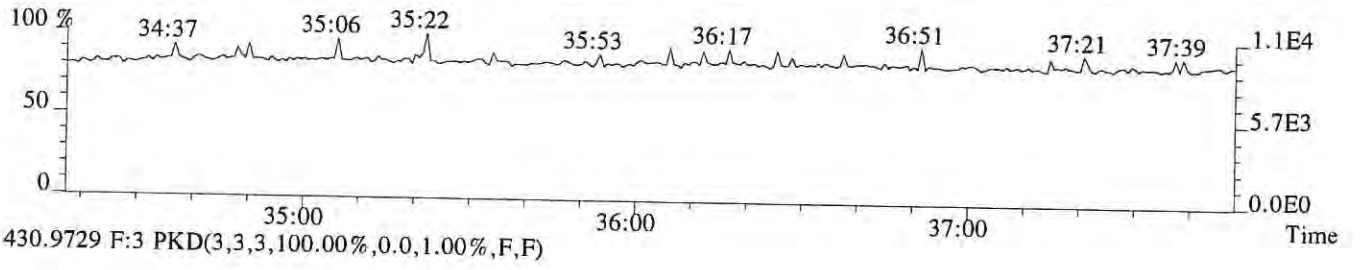
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



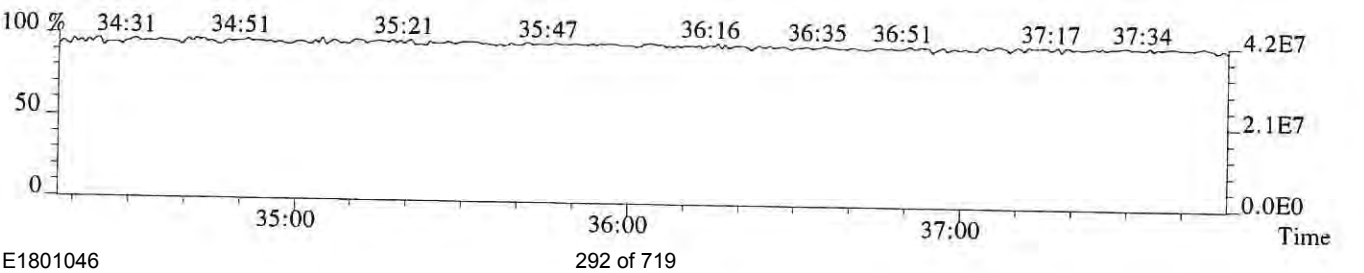
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



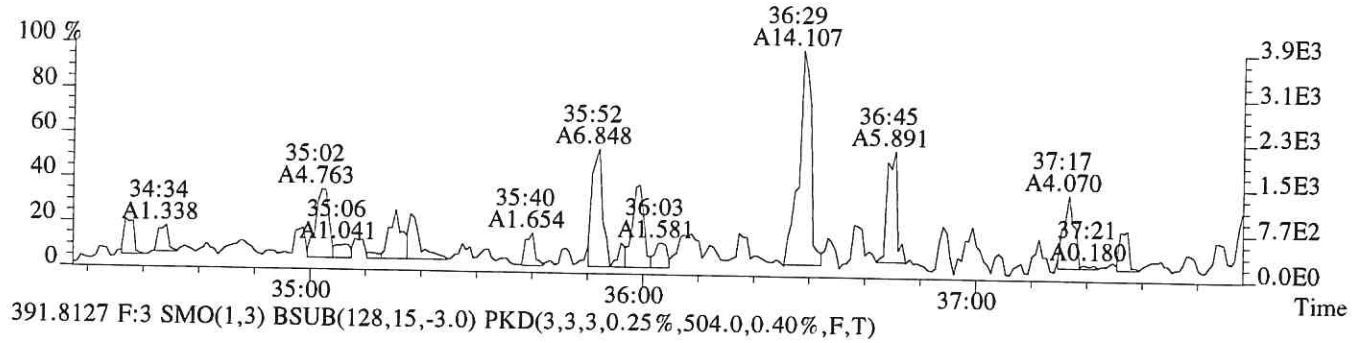
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



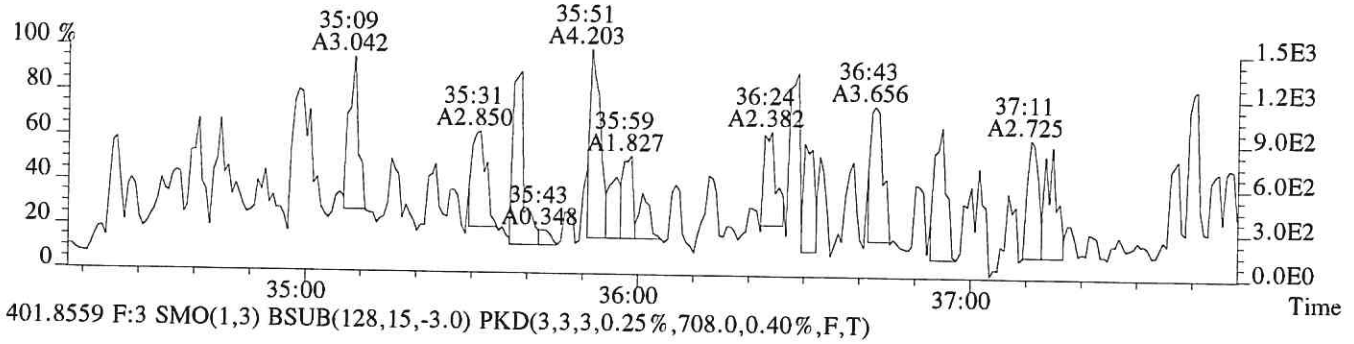
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



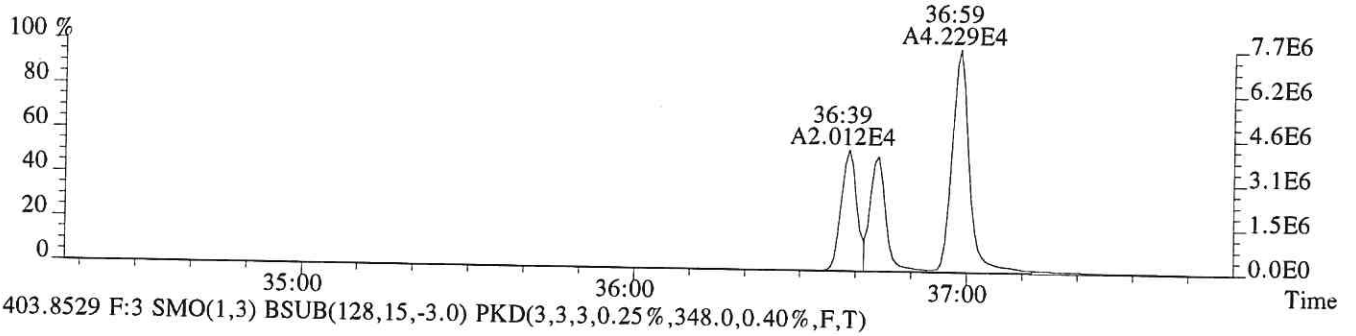
File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



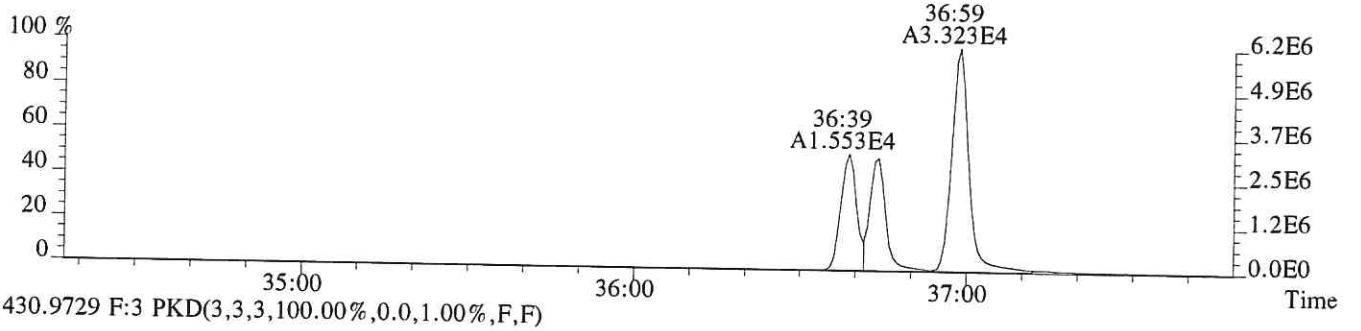
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



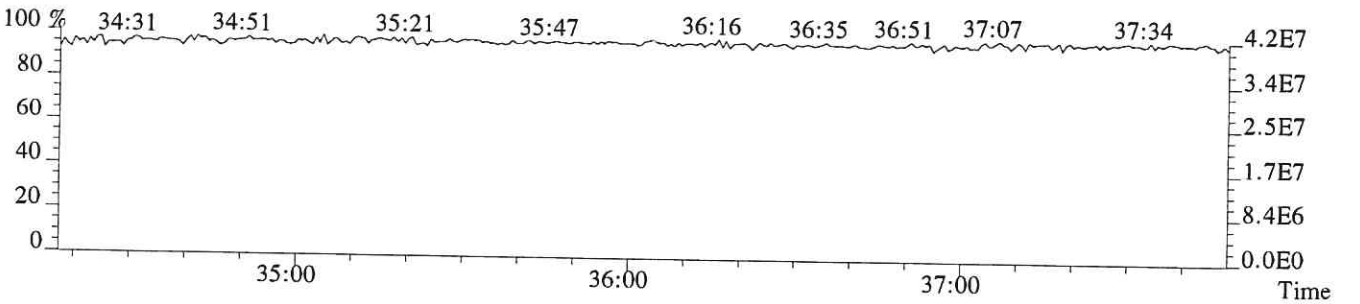
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



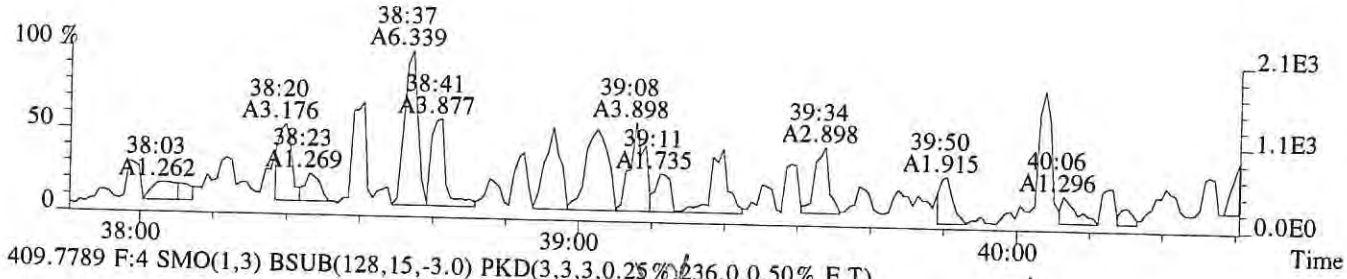
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



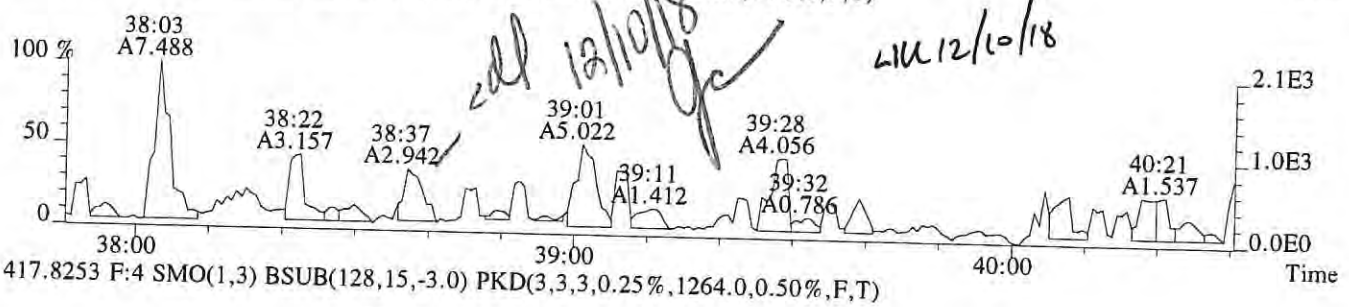
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



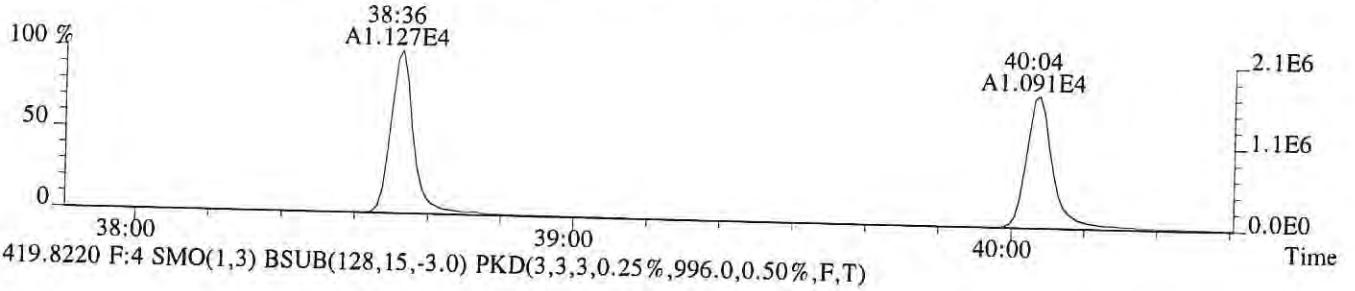
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



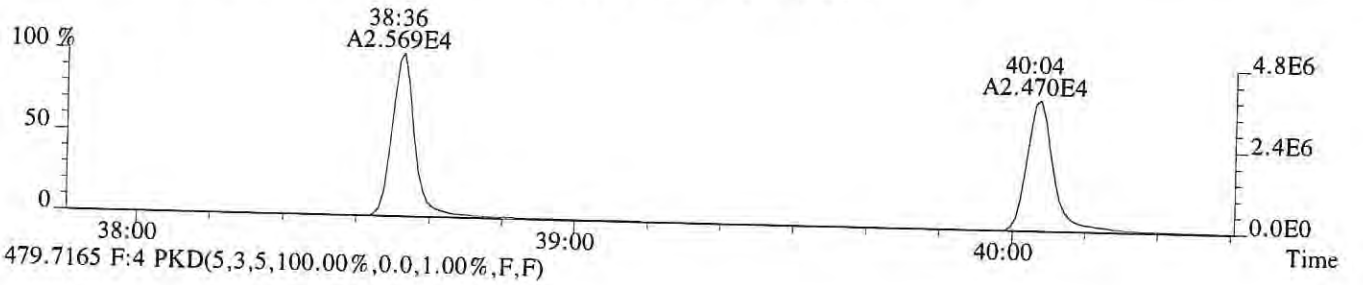
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.50%,F,T)



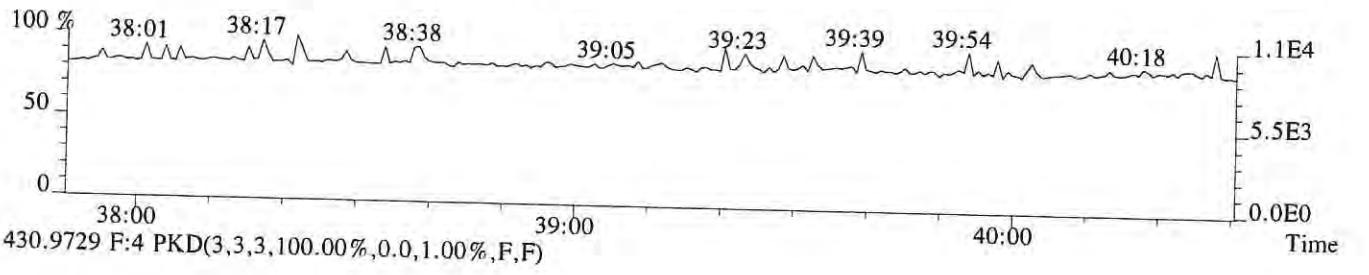
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.50%,F,T)



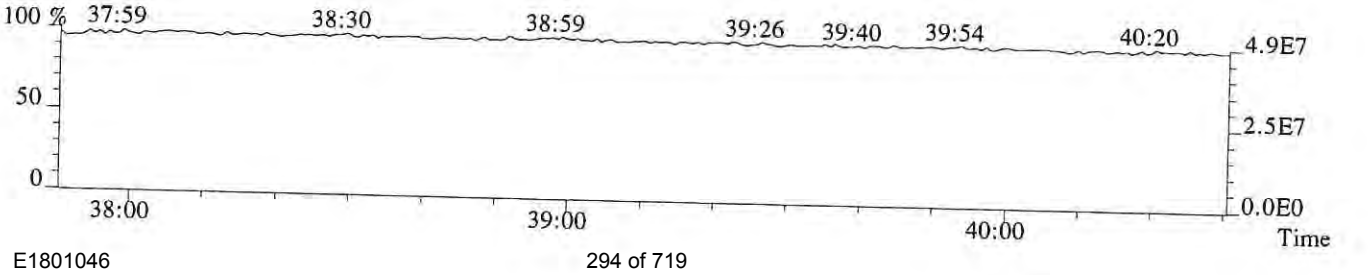
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.50%,F,T)



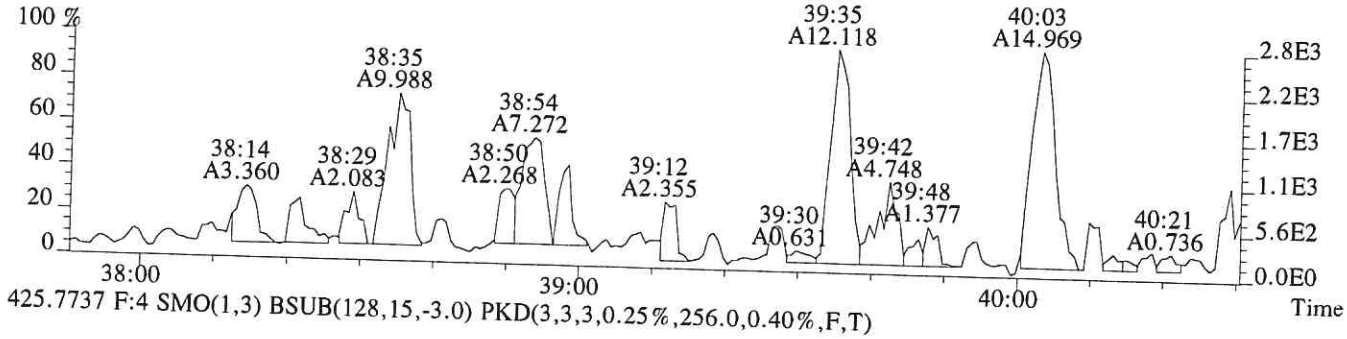
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



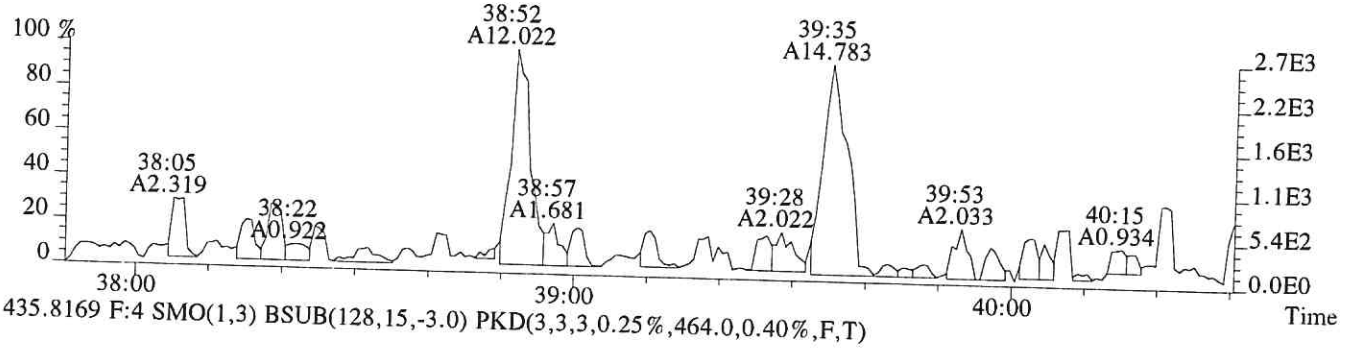
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



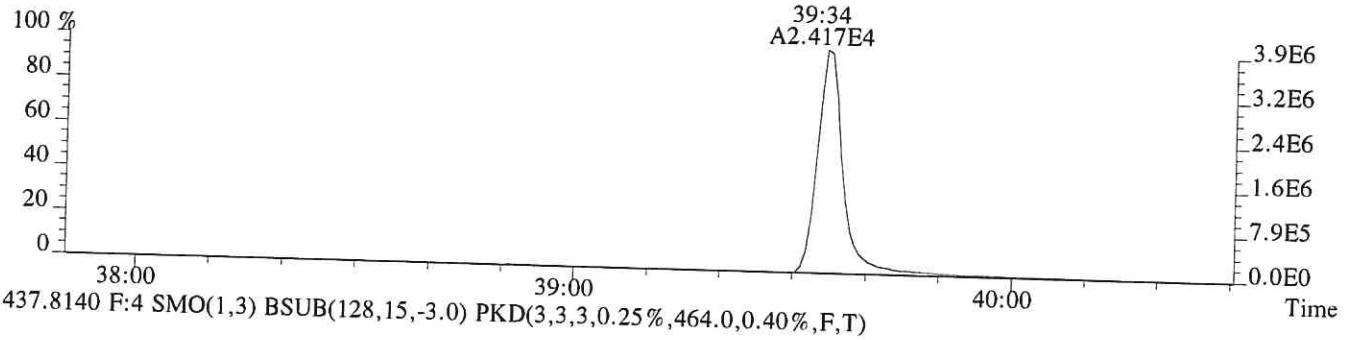
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



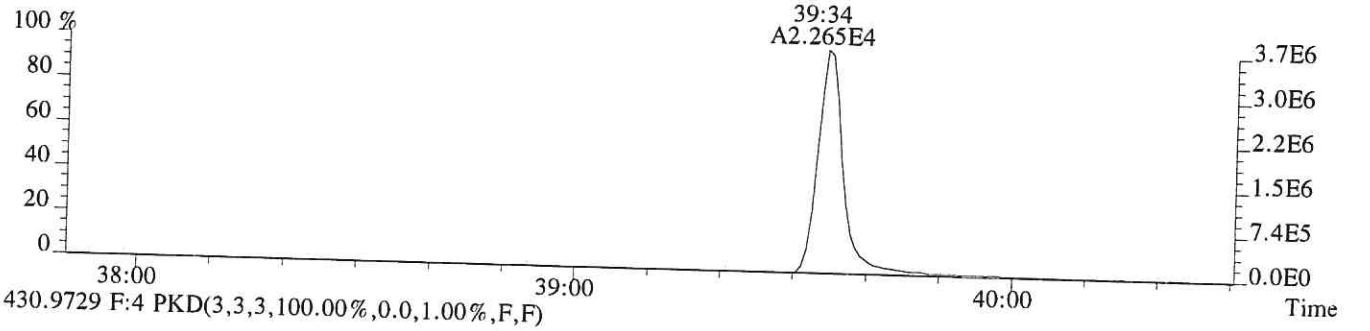
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



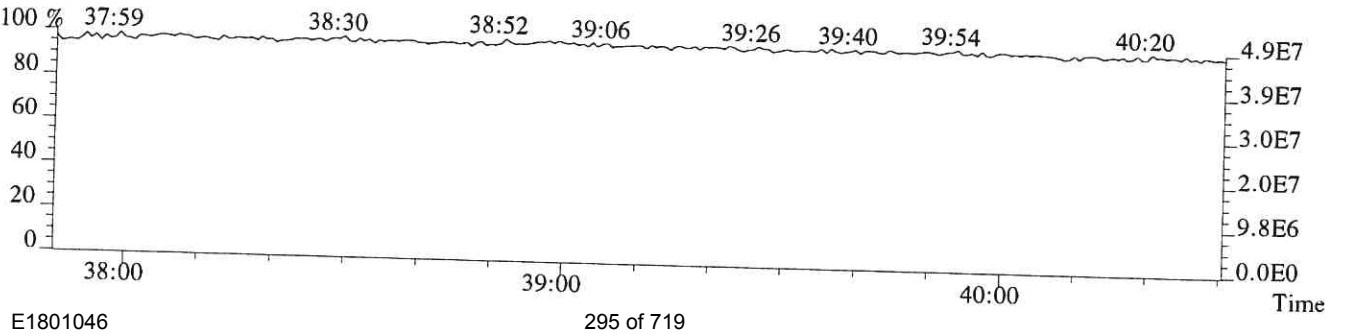
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



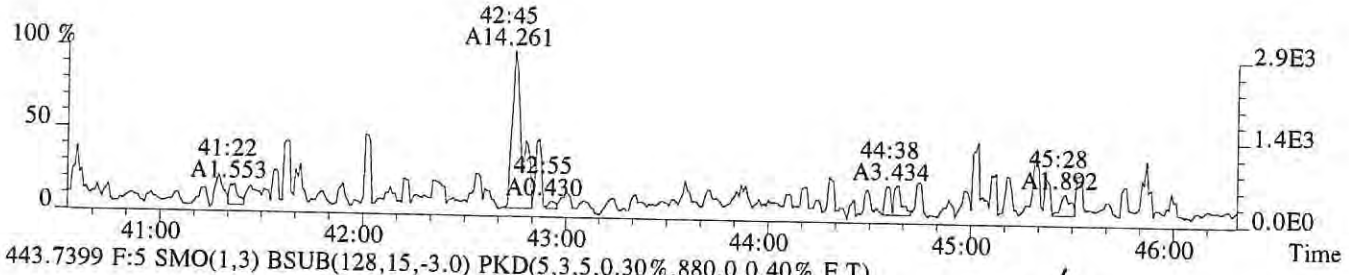
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



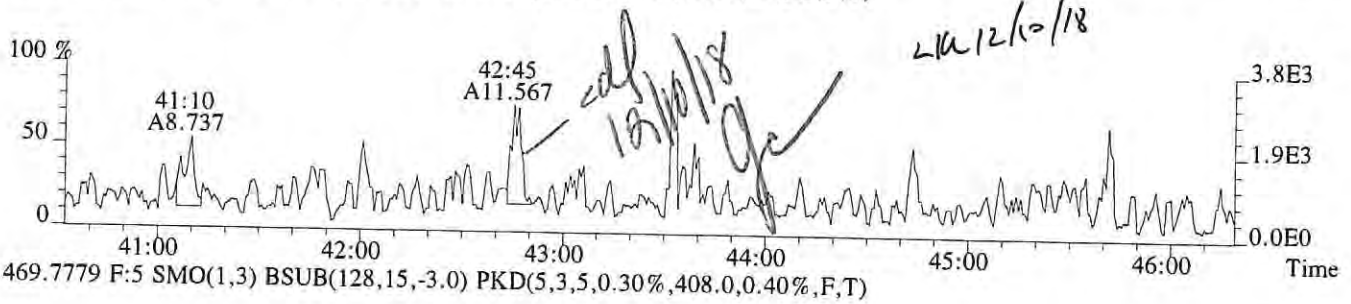
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



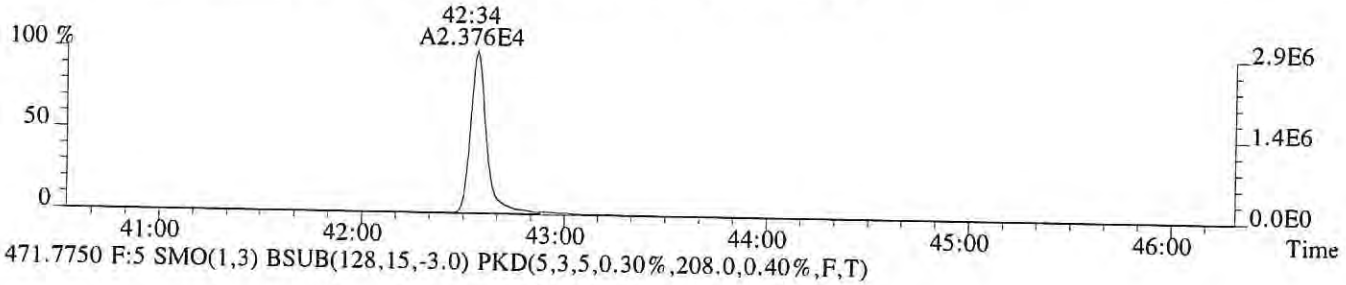
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



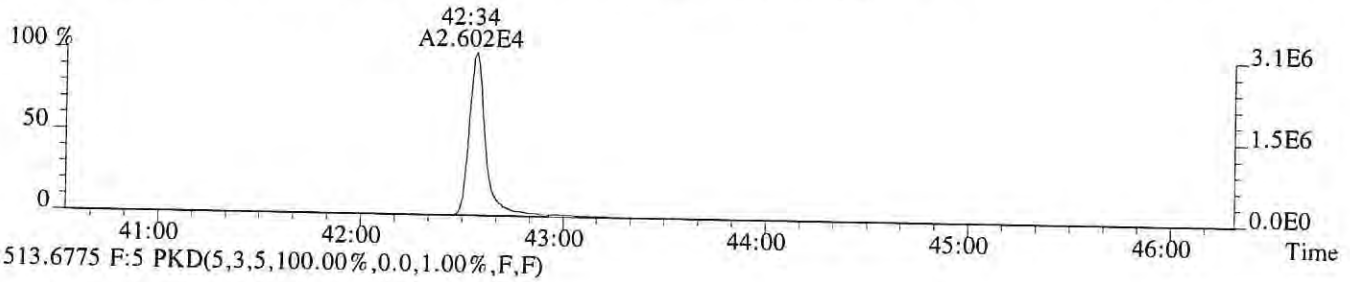
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



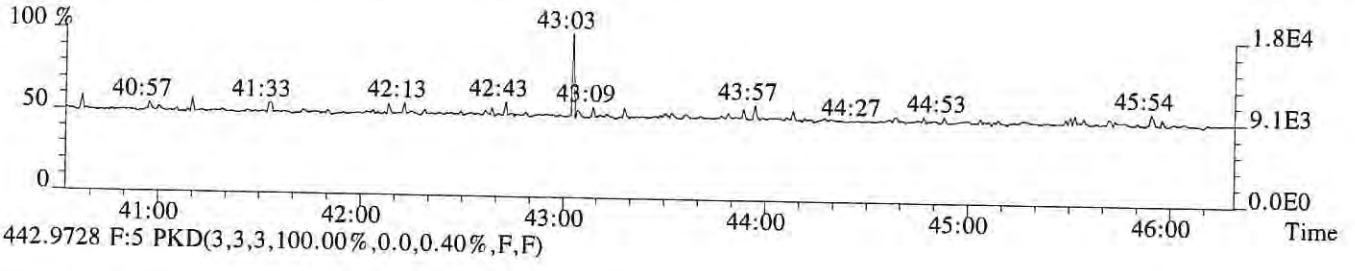
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



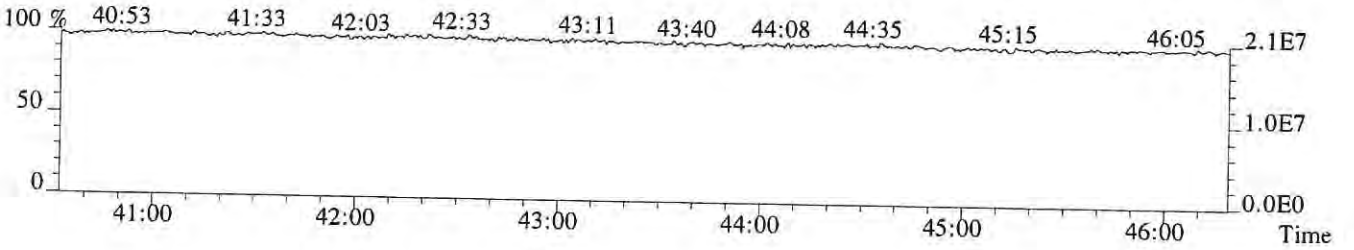
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



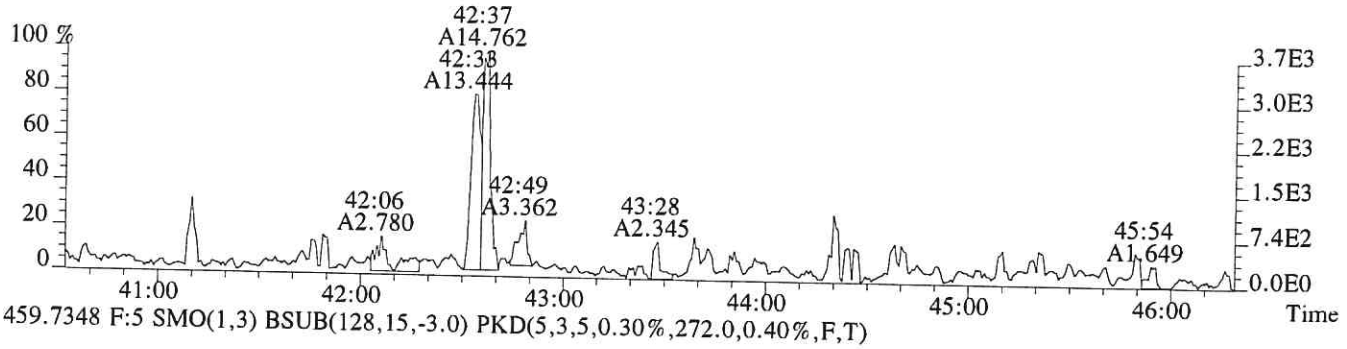
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



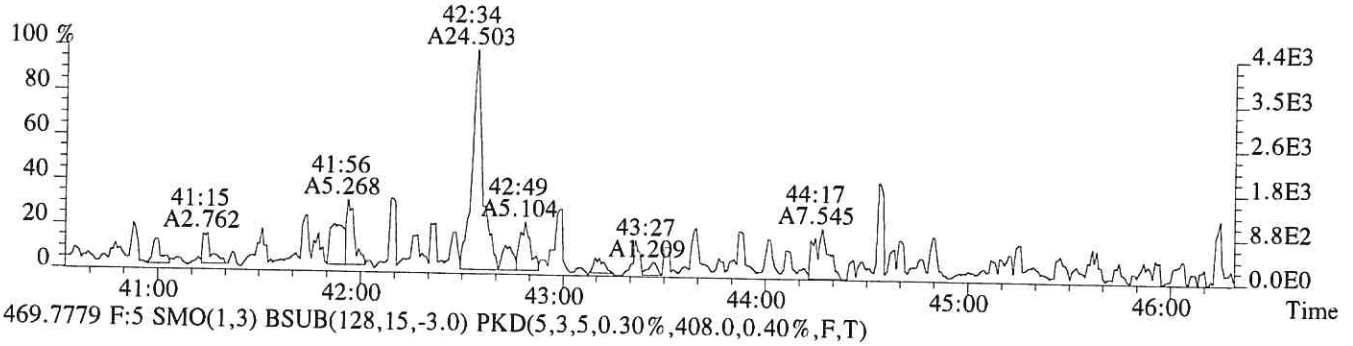
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



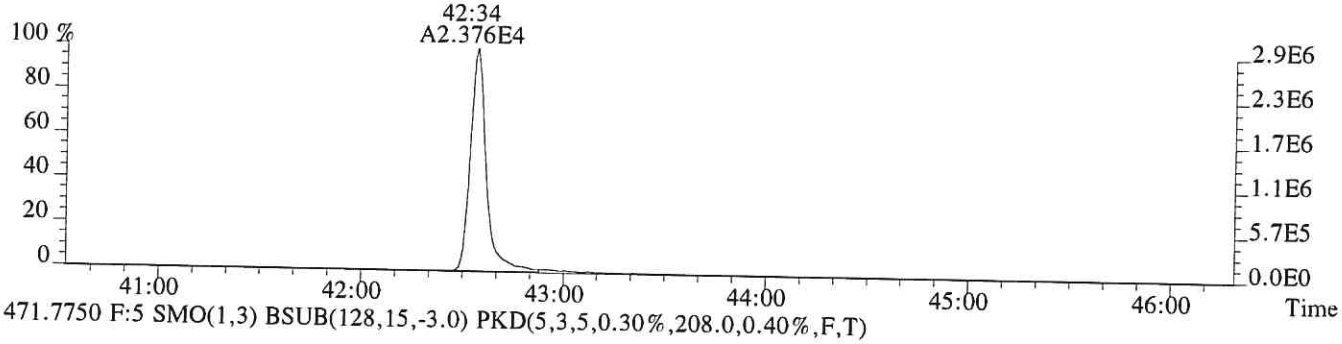
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



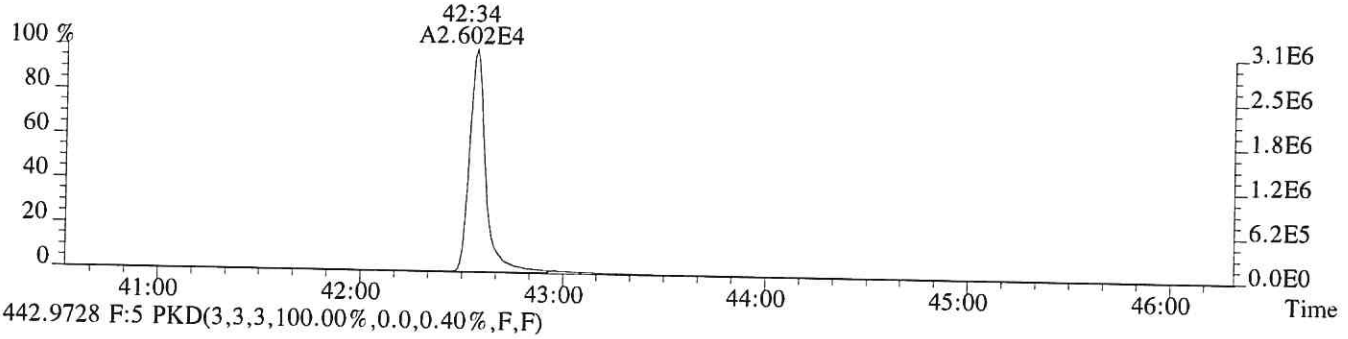
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



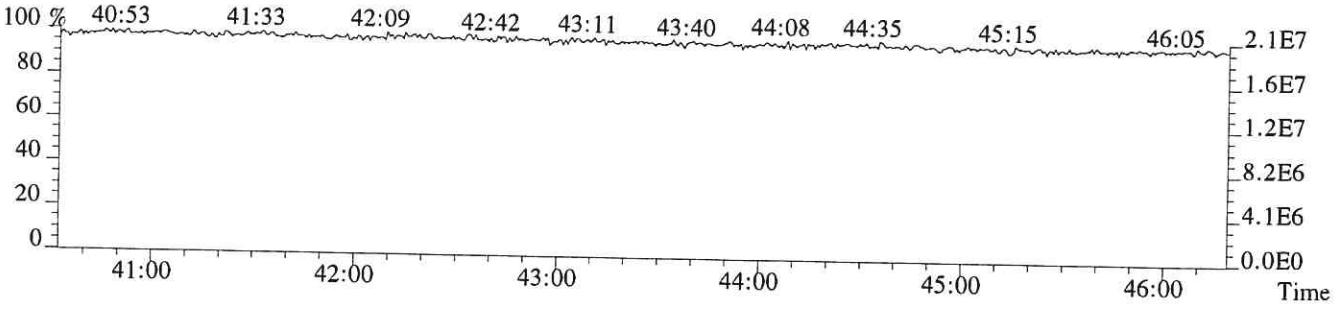
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 Sample ID: EQ1800488-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	9.372e+02	1.376e+03	0.68	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.296e+04	8.619e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.301e+04	8.768e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.293e+04	1.078e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.445e+04	1.190e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.342e+04	1.127e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.192e+04	9.885e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.135e+04	1.123e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	1.046e+04	1.082e+04	0.97	yes	no	1.258
10	Unk	OCDF	42:41	1.412e+04	1.646e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	7.951e+02	9.577e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	9.722e+03	6.120e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.252e+03	7.218e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.044e+04	8.357e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.031e+04	8.457e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	8.433e+03	8.079e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:29	1.108e+04	1.220e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.085e+04	1.378e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.804e+04	1.798e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.755e+04	1.720e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.349e+04	2.603e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.624e+04	3.198e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.542e+04	2.952e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.335e+04	2.676e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.092e+04	2.458e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.047e+04	2.389e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	7.586e+03	9.873e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.020e+04	1.243e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.950e+04	1.548e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.035e+04	1.580e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.109e+04	1.990e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.968e+04	2.213e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.596e+04	4.510e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.939e+04	3.811e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	8.573e+03				no	1.014

$$\text{OCDD} = \frac{(1.108e+04 + 1.220e+04) \times 4000\ \text{pg} \times 1}{(1.968e+04 + 2.213e+04) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 LAB. ID: EQ1800488-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.61e+05	6.52e+02	2.5e+02	2.30e+05	9.44e+02	2.4e+02
2	1,2,3,7,8-PeCDF	2.38e+06	9.76e+02	2.4e+03	1.58e+06	1.62e+03	9.8e+02
3	2,3,4,7,8-PeCDF	2.50e+06	9.76e+02	2.6e+03	1.69e+06	1.62e+03	1.0e+03
4	1,2,3,4,7,8-HxCDF	2.65e+06	3.08e+02	8.6e+03	2.20e+06	3.28e+02	6.7e+03
5	1,2,3,6,7,8-HxCDF	2.73e+06	3.08e+02	8.9e+03	2.29e+06	3.28e+02	7.0e+03
6	2,3,4,6,7,8-HxCDF	2.68e+06	3.08e+02	8.7e+03	2.28e+06	3.28e+02	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.25e+06	3.08e+02	7.3e+03	1.86e+06	3.28e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.12e+06	1.34e+03	1.6e+03	2.09e+06	1.01e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	1.71e+06	1.34e+03	1.3e+03	1.77e+06	1.01e+03	1.8e+03
10	OCDF	1.69e+06	2.60e+02	6.5e+03	1.97e+06	5.08e+02	3.9e+03
11	2,3,7,8-TCDD	1.41e+05	1.59e+03	8.9e+01	1.81e+05	1.09e+03	1.7e+02
12	1,2,3,7,8-PeCDD	1.83e+06	7.24e+02	2.5e+03	1.17e+06	2.56e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	1.99e+06	3.64e+02	5.5e+03	1.57e+06	4.72e+02	3.3e+03
14	1,2,3,6,7,8-HxCDD	1.97e+06	3.64e+02	5.4e+03	1.61e+06	4.72e+02	3.4e+03
15	1,2,3,7,8,9-HxCDD	1.95e+06	3.64e+02	5.4e+03	1.60e+06	4.72e+02	3.4e+03
16	1,2,3,4,6,7,8-HpCDD	1.44e+06	3.12e+02	4.6e+03	1.40e+06	3.04e+02	4.6e+03
17	OCDD	1.32e+06	3.00e+02	4.4e+03	1.48e+06	4.16e+02	3.6e+03
18	13C-2,3,7,8-TCDF	1.84e+06	5.64e+03	3.3e+02	2.31e+06	3.82e+03	6.0e+02
19	13C-1,2,3,7,8-PeCDF	5.09e+06	8.56e+02	6.0e+03	3.28e+06	3.08e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	5.25e+06	8.56e+02	6.1e+03	3.28e+06	3.08e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	2.68e+06	2.56e+02	1.0e+04	5.43e+06	7.24e+02	7.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.13e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
23	13C-2,3,4,6,7,8-HxCDF	3.14e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.50e+06	2.56e+02	9.8e+03	5.01e+06	7.24e+02	6.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.03e+06	1.00e+03	2.0e+03	4.51e+06	1.64e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.69e+06	1.00e+03	1.7e+03	3.78e+06	1.64e+03	2.3e+03
27	13C-2,3,7,8-TCDD	1.39e+06	6.64e+03	2.1e+02	1.84e+06	2.20e+03	8.4e+02
28	13C-1,2,3,7,8-PeCDD	3.75e+06	4.92e+02	7.6e+03	2.32e+06	4.64e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.15e+06	1.26e+03	3.3e+03	3.33e+06	6.36e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.87e+06	1.26e+03	3.1e+03	2.99e+06	6.36e+02	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.57e+06	5.36e+02	6.7e+03	3.36e+06	2.44e+02	1.4e+04
32	13C-OCDD	2.33e+06	3.80e+02	6.1e+03	2.66e+06	3.40e+02	7.8e+03
33	13C-1,2,3,4-TCDD	6.47e+06	6.64e+03	9.7e+02	8.20e+06	2.20e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.33e+06	1.26e+03	7.4e+03	7.39e+06	6.36e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.58e+06	9.12e+02	1.7e+03			

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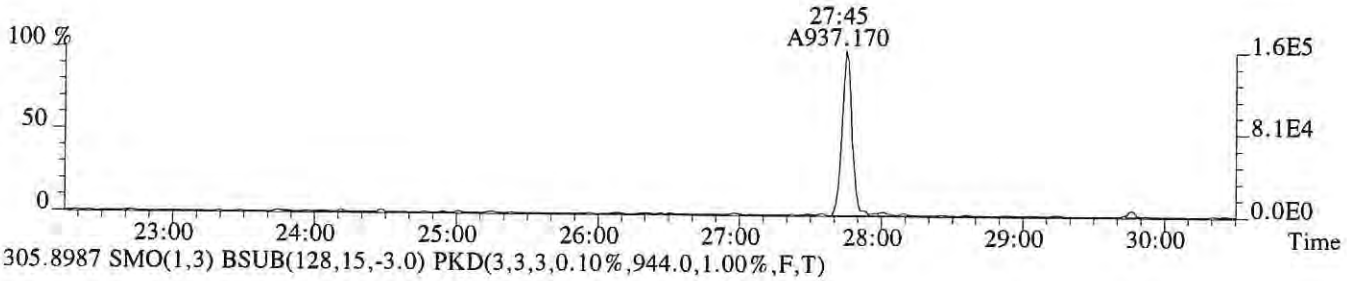
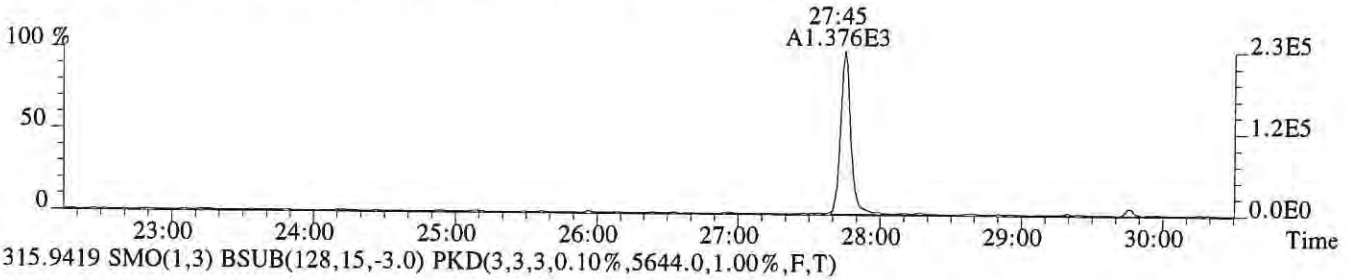
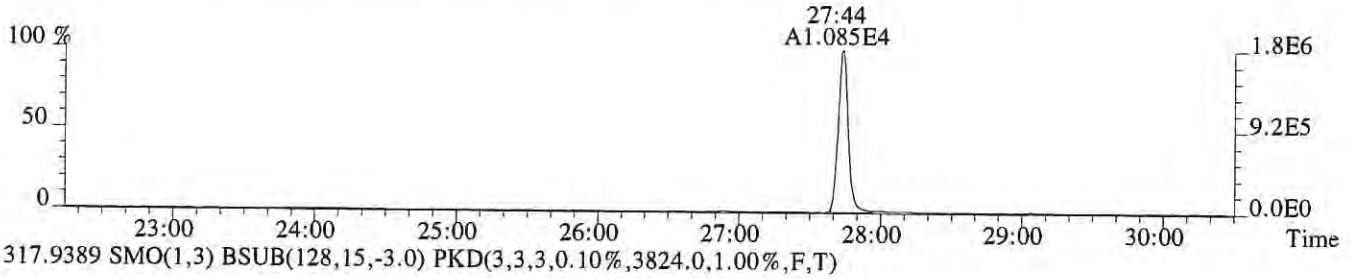
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



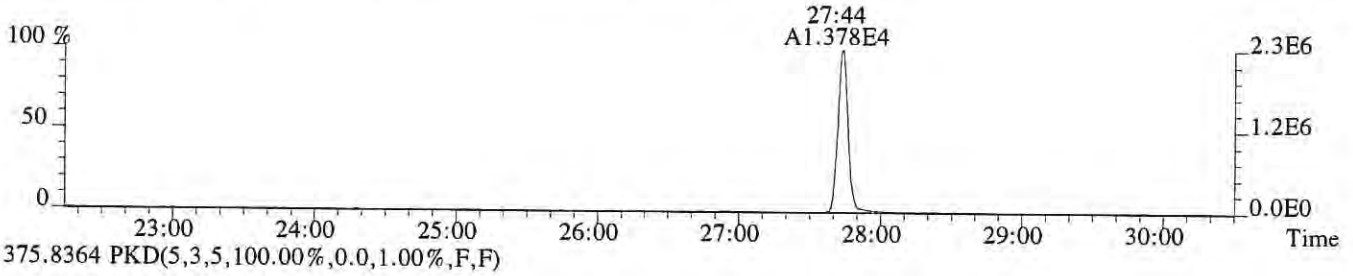
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



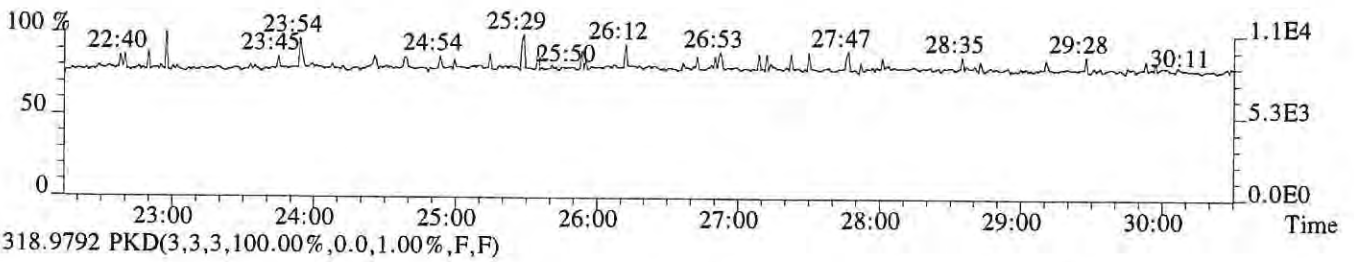
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



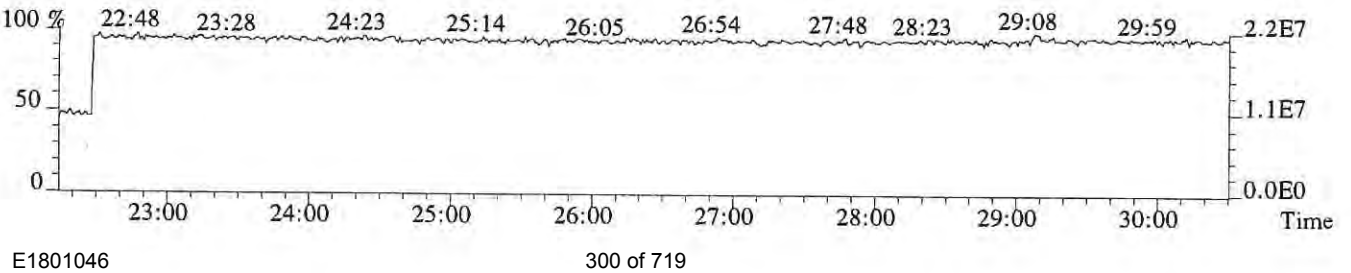
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3824.0,1.00%,F,T)



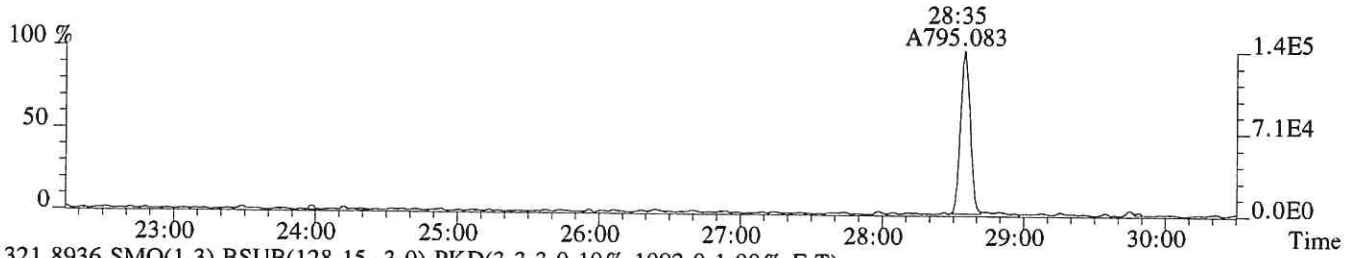
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



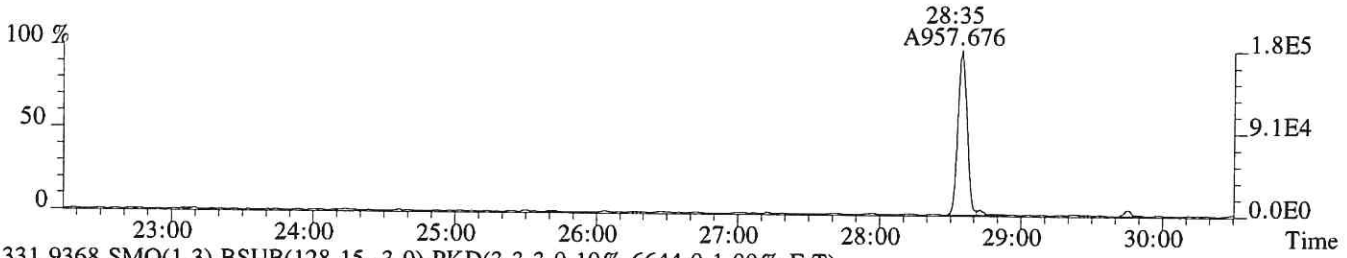
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



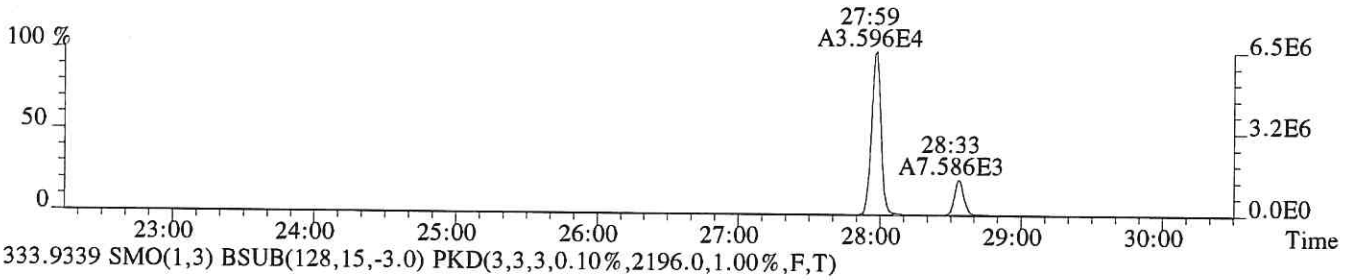
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



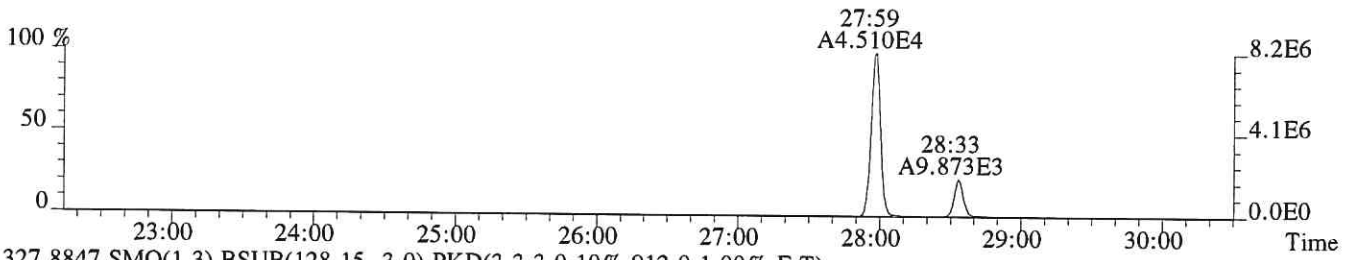
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



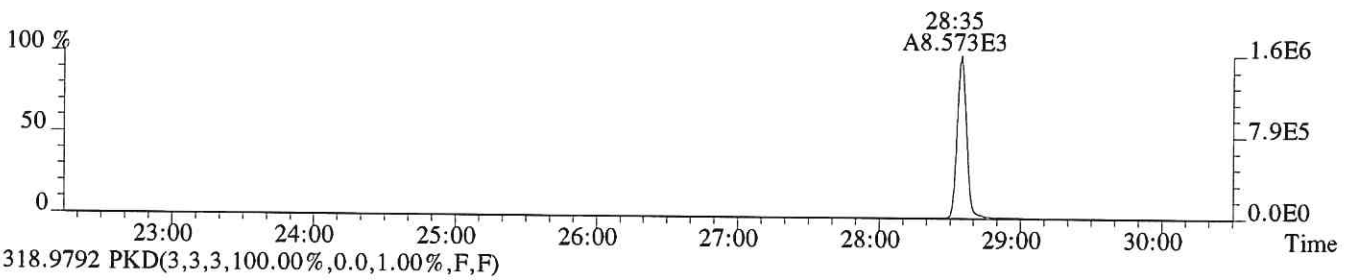
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



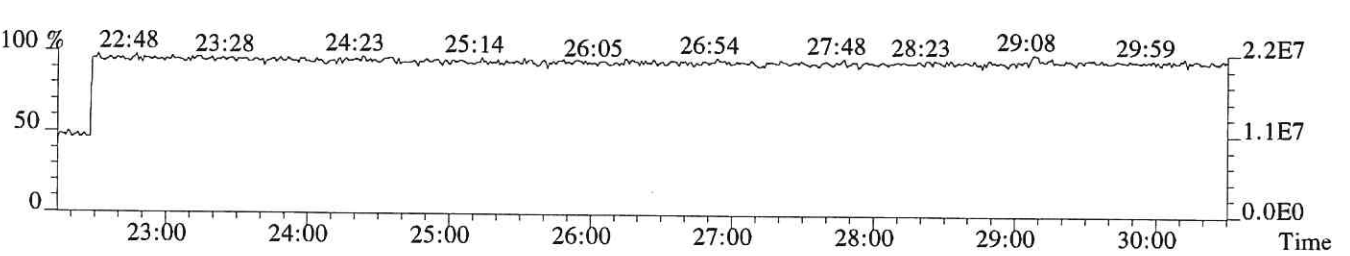
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



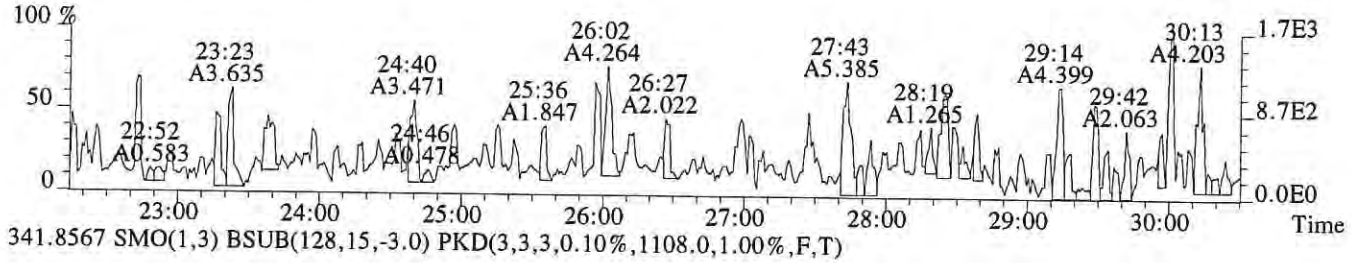
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



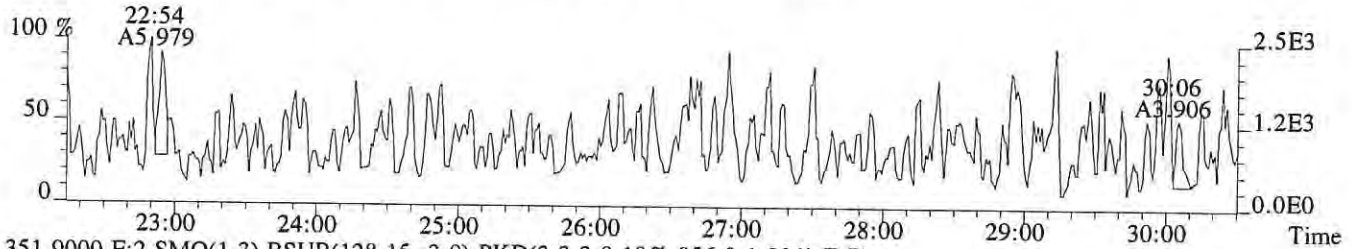
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



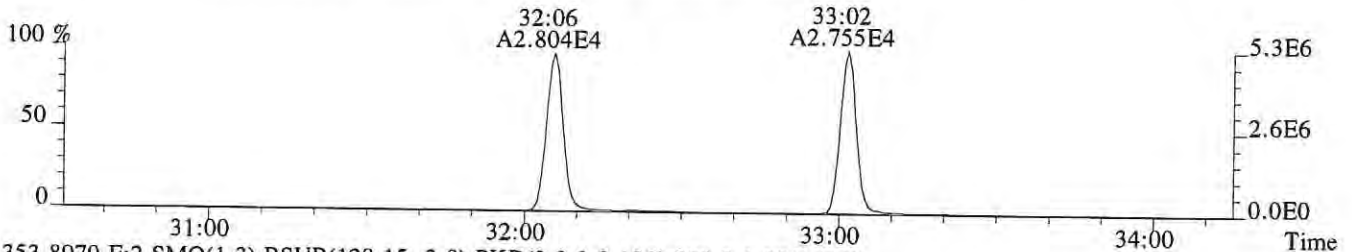
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



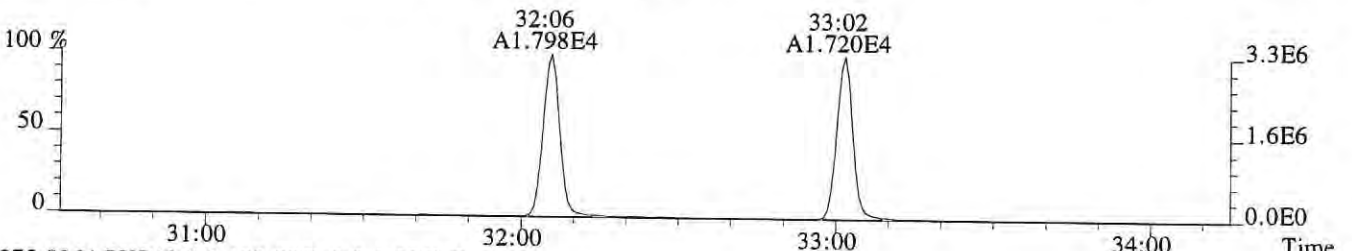
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



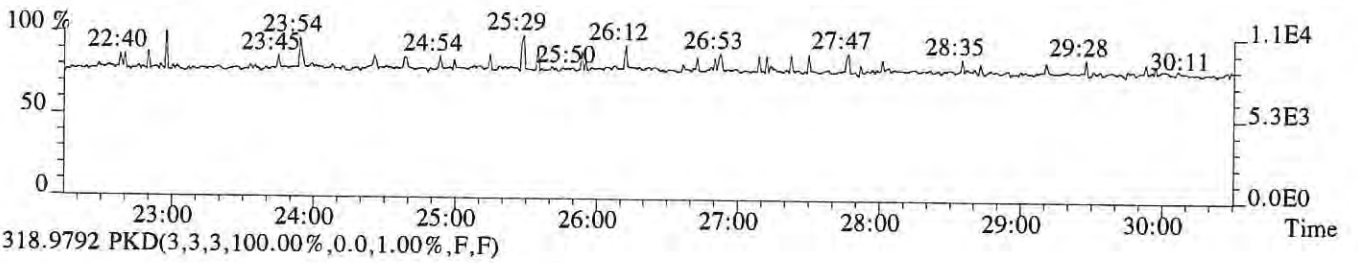
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



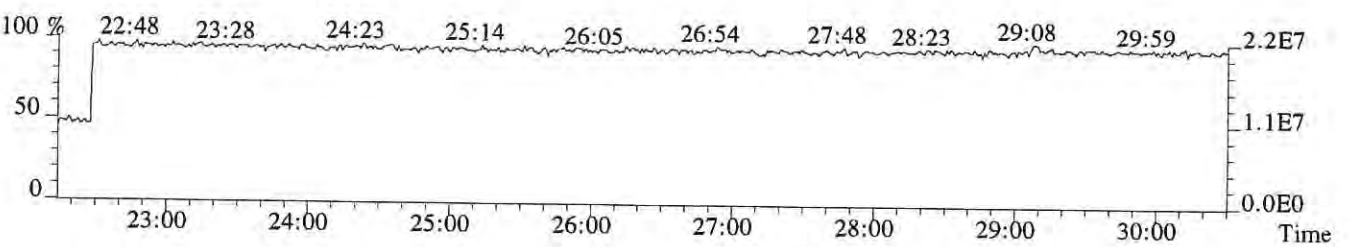
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



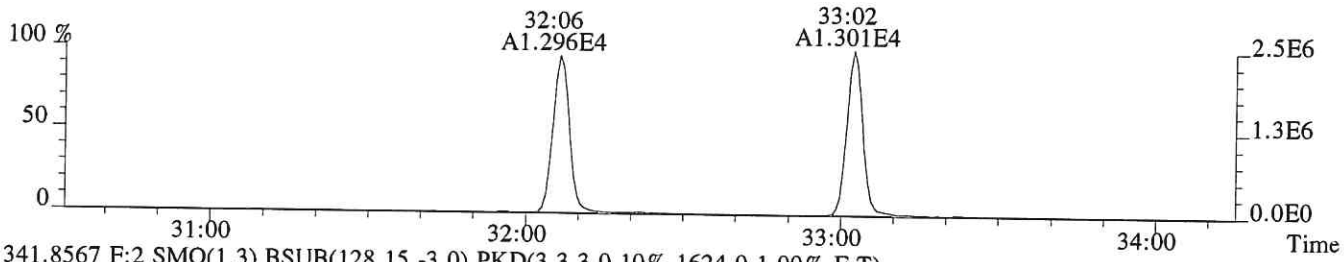
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



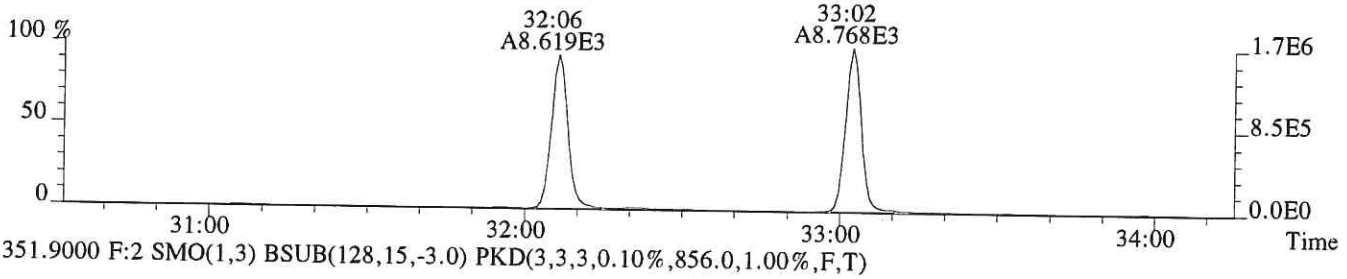
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



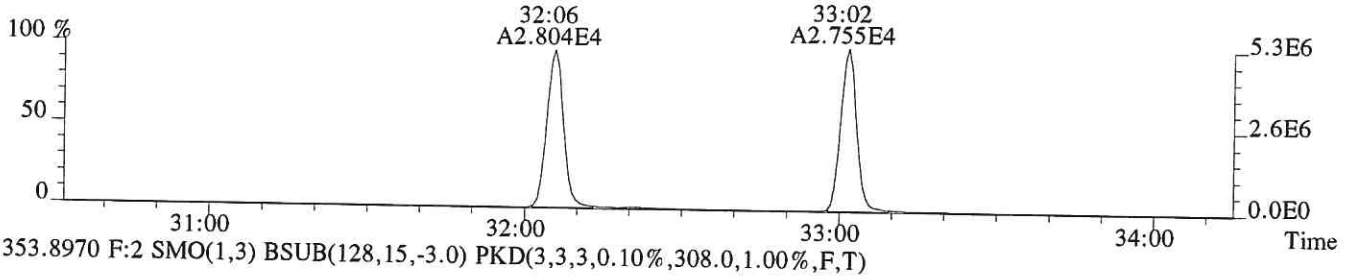
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



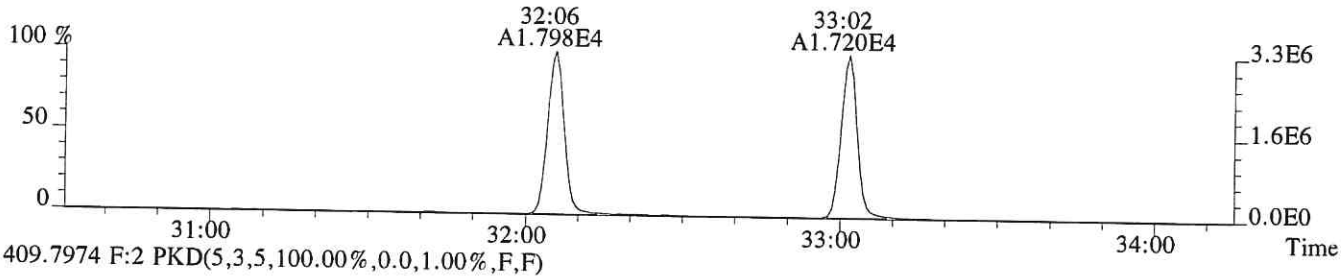
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



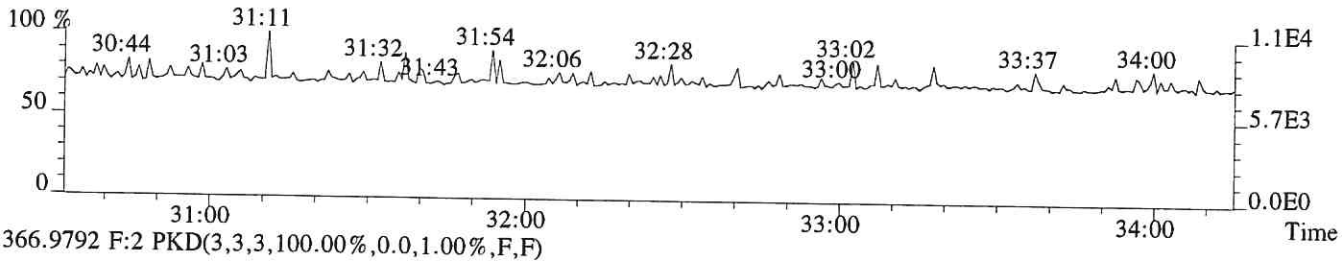
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



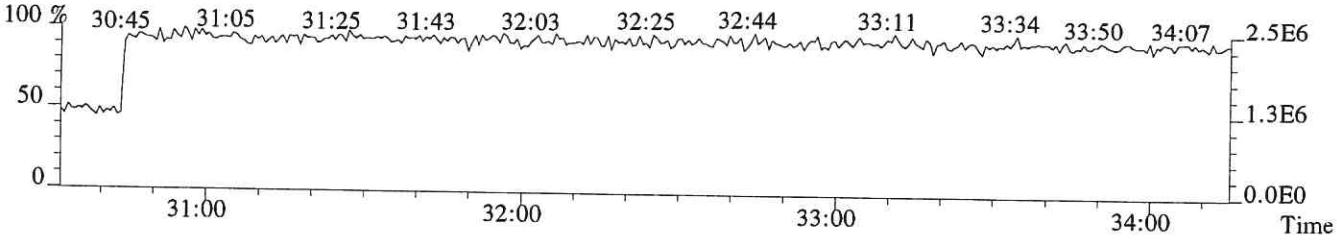
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



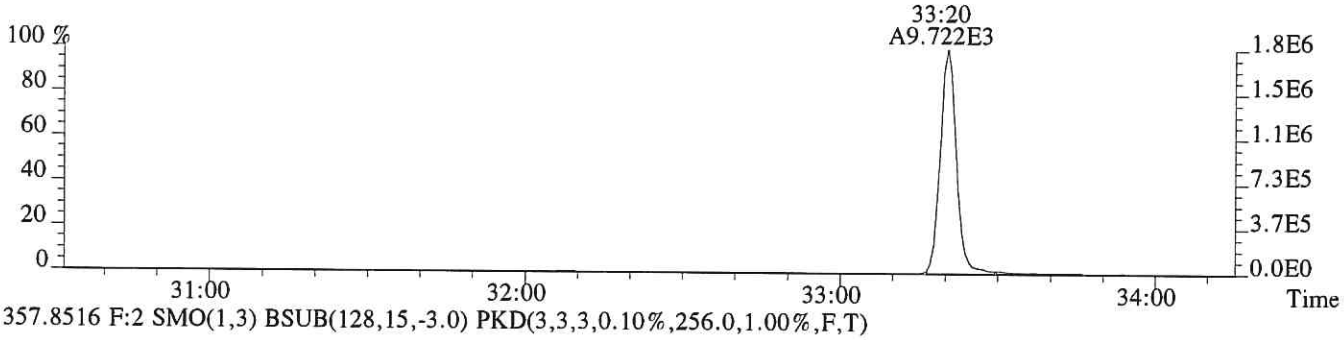
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



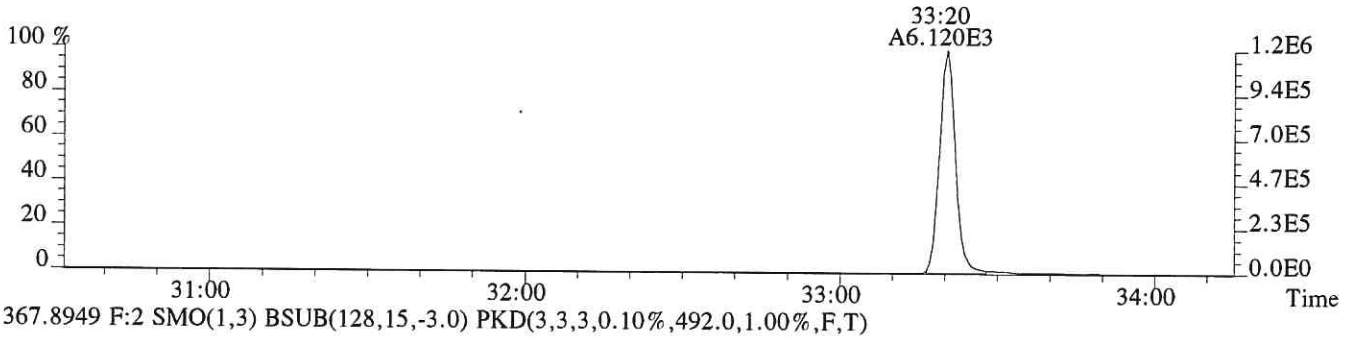
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



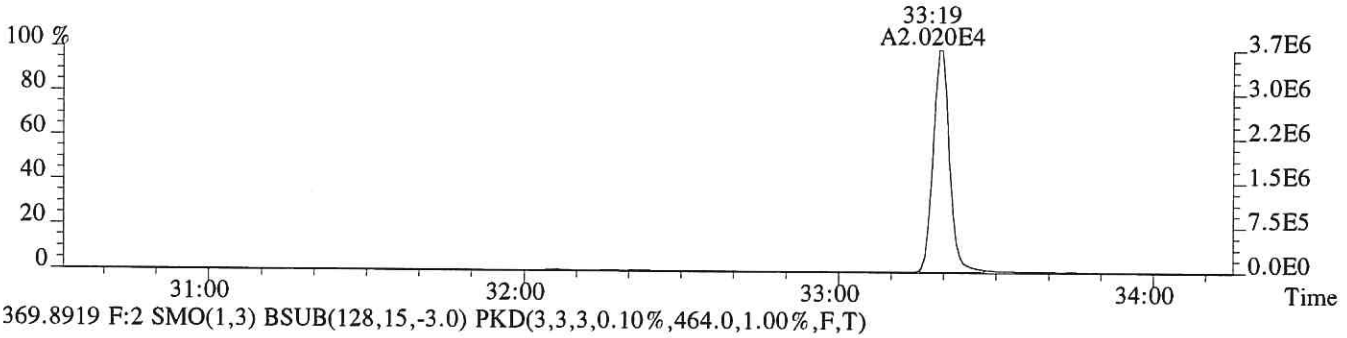
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



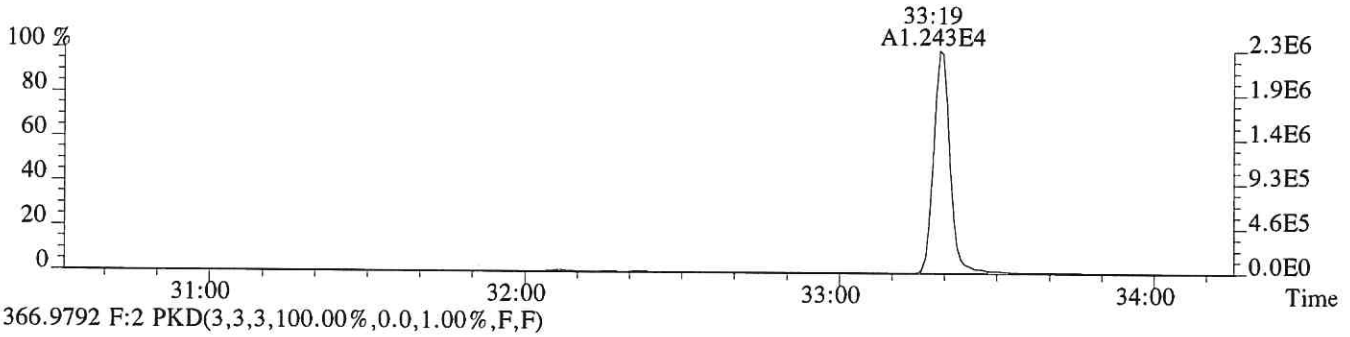
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



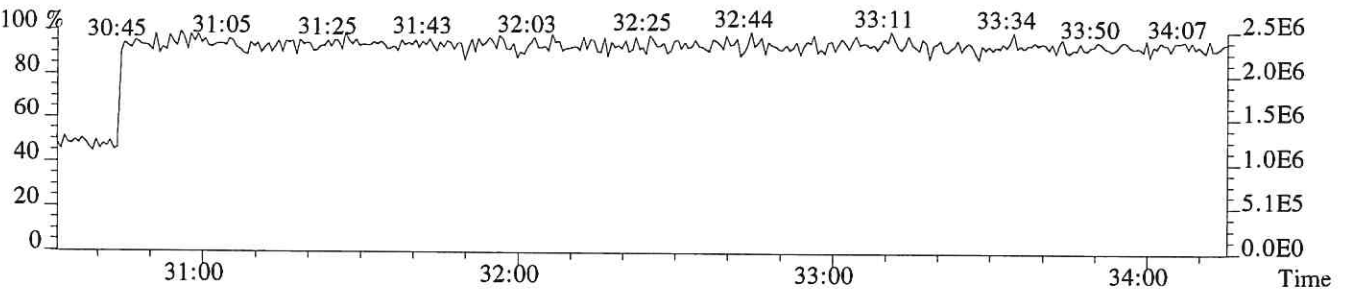
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



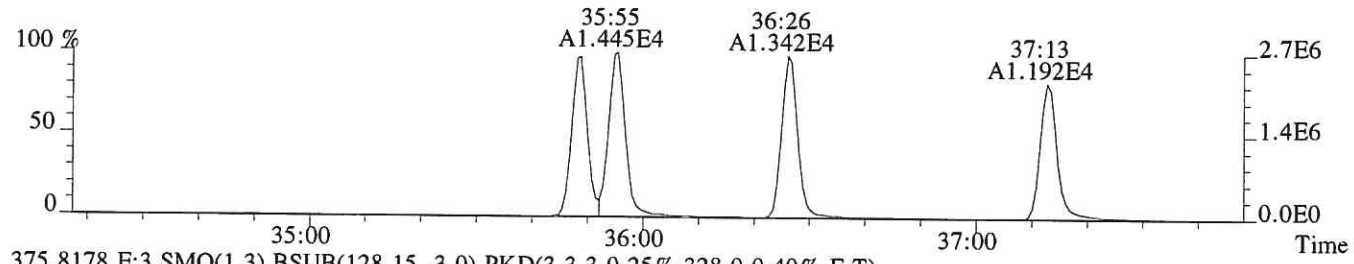
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



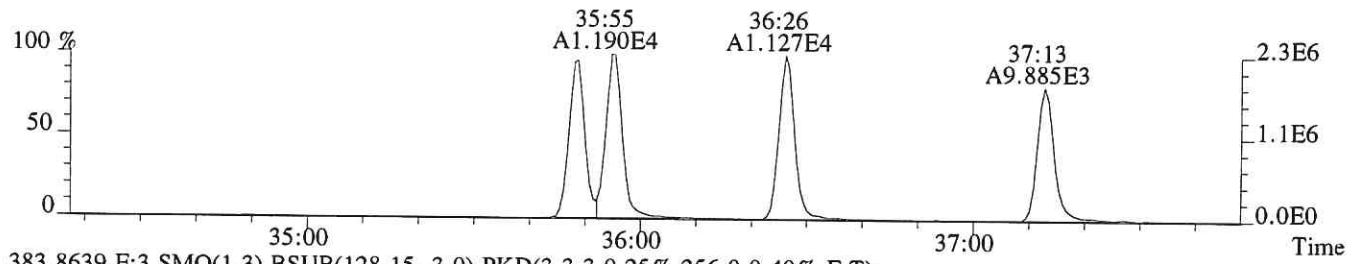
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



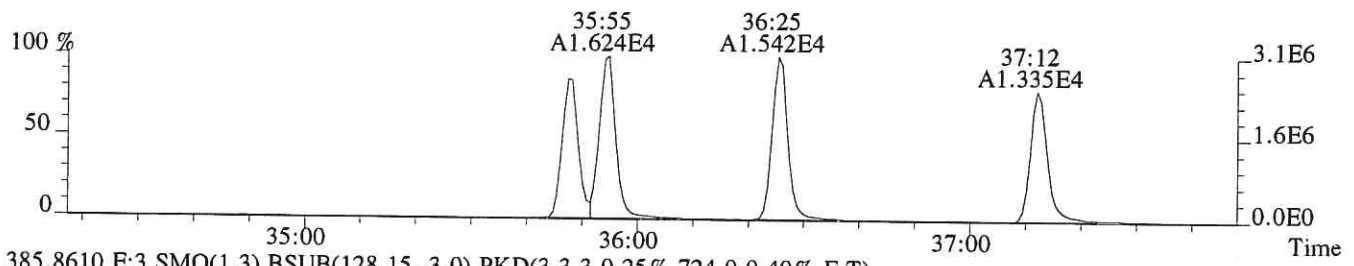
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



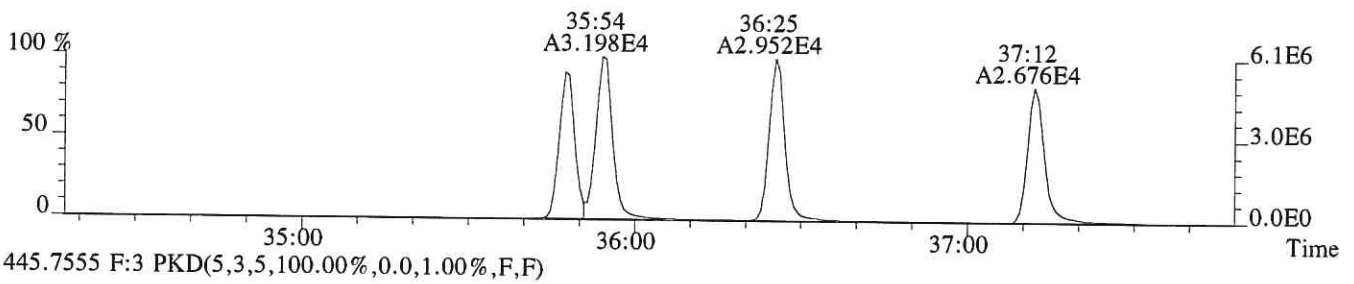
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



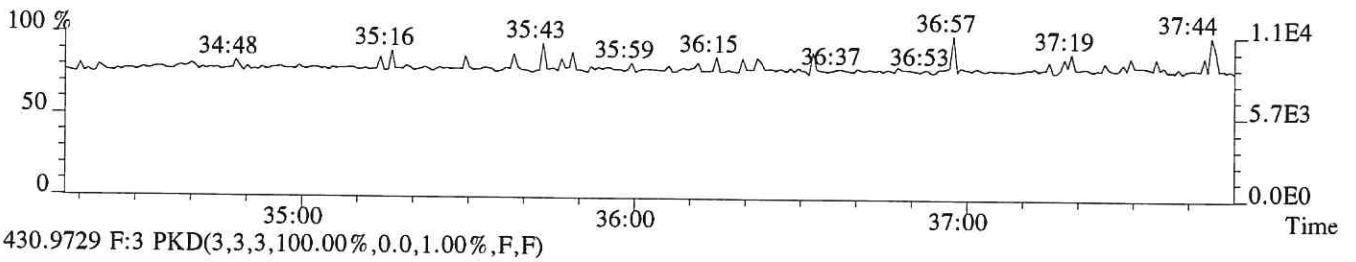
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



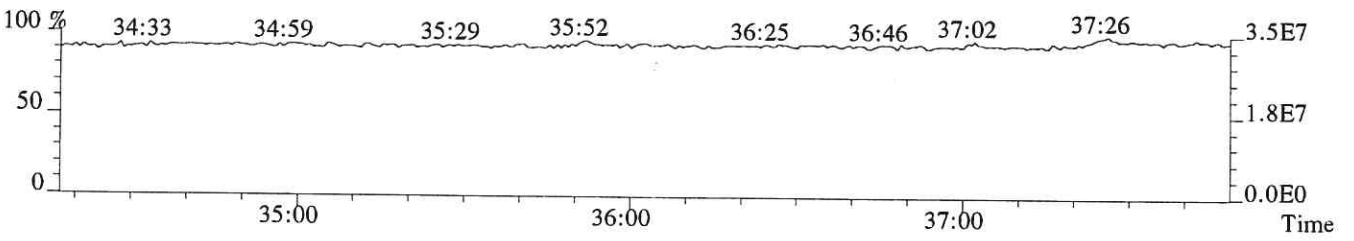
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



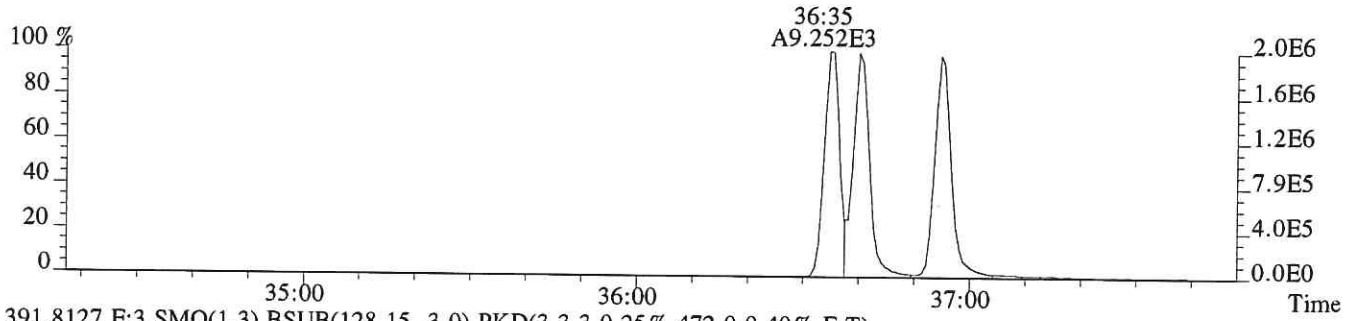
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



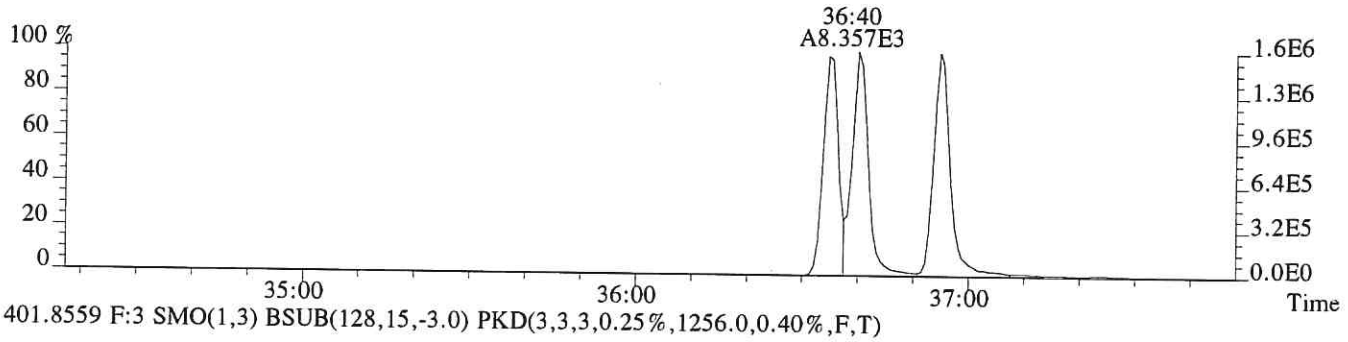
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



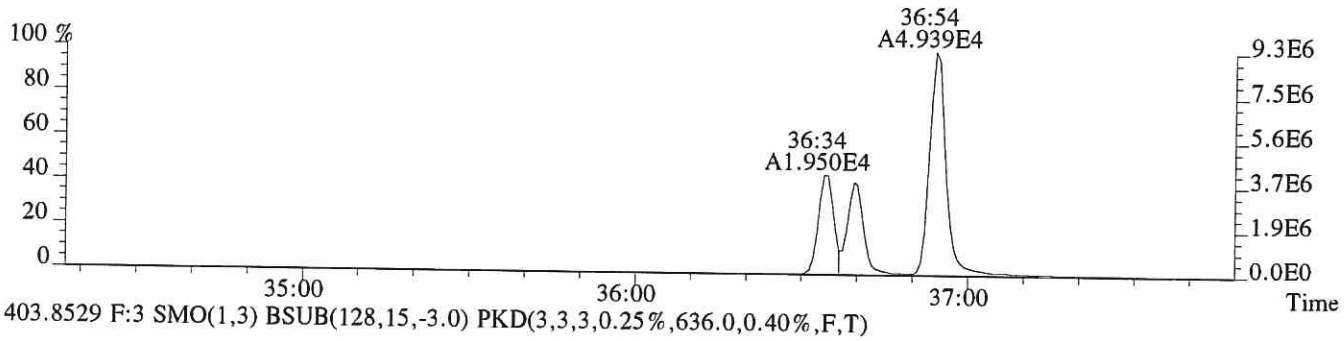
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



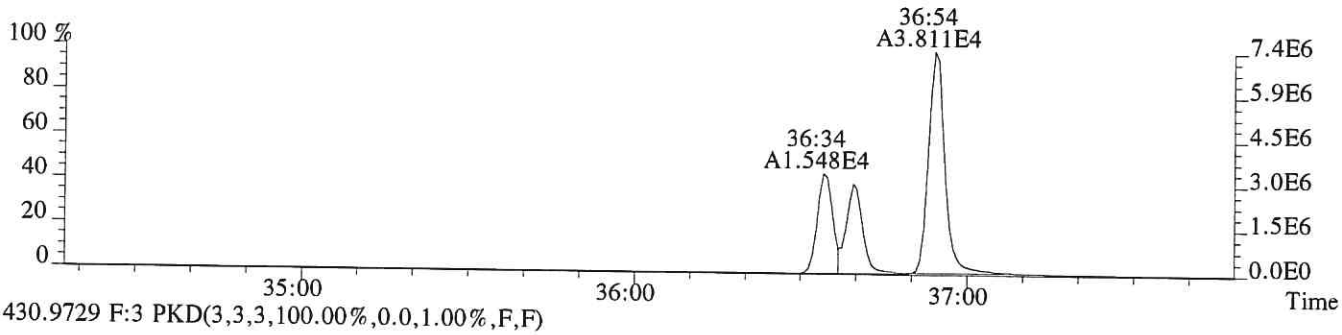
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



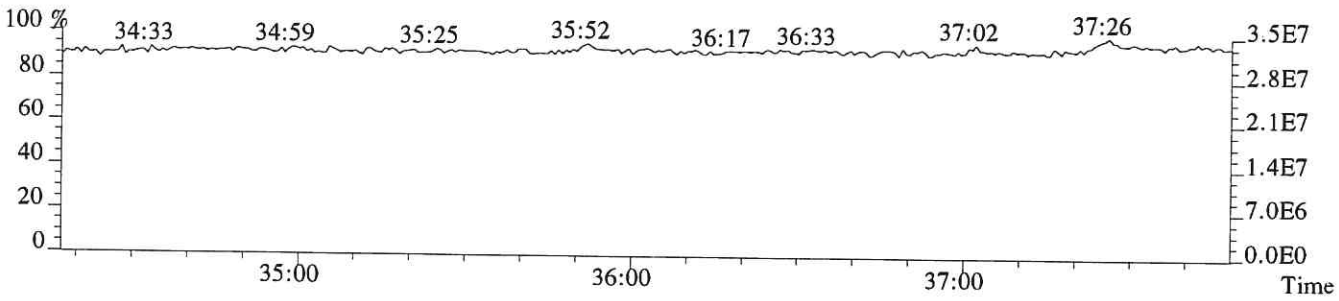
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



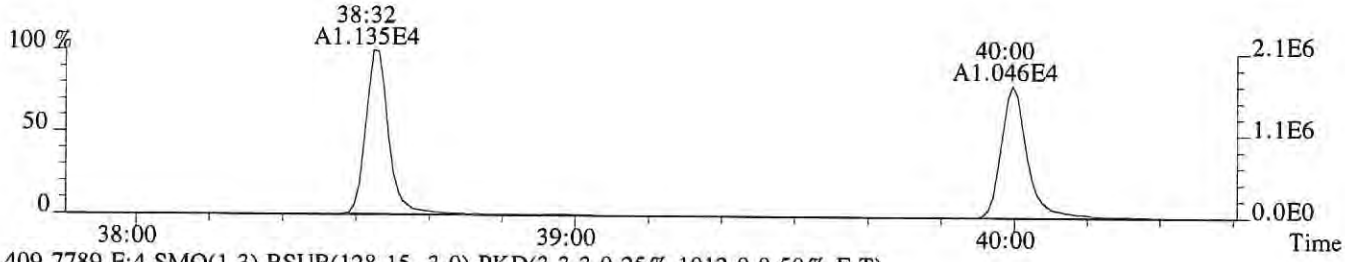
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



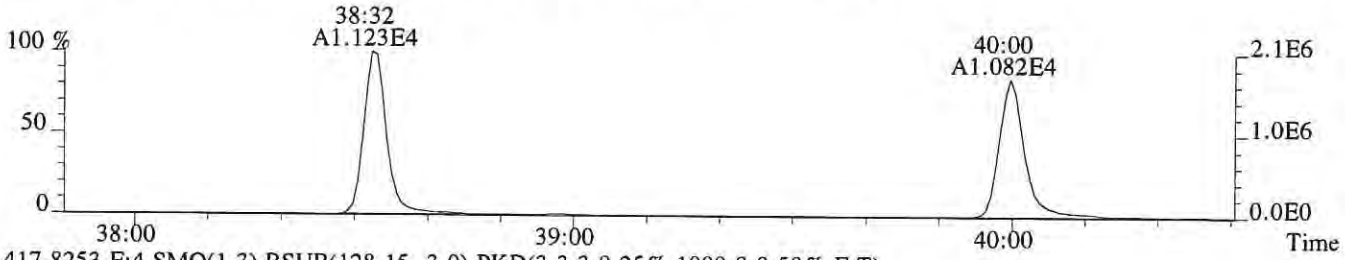
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



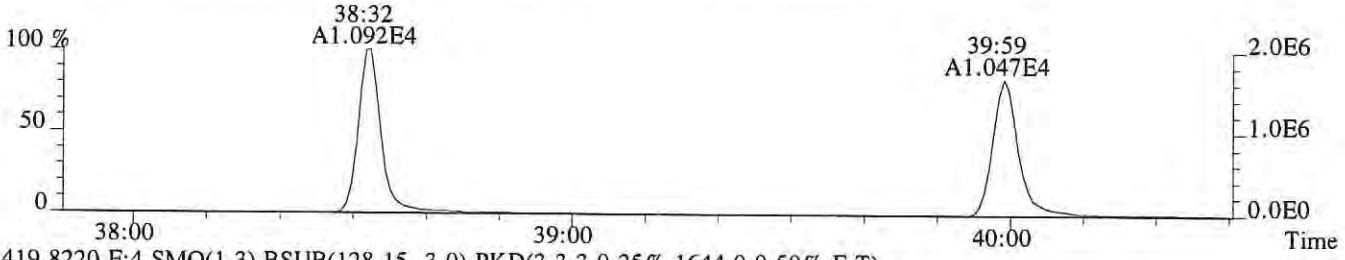
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



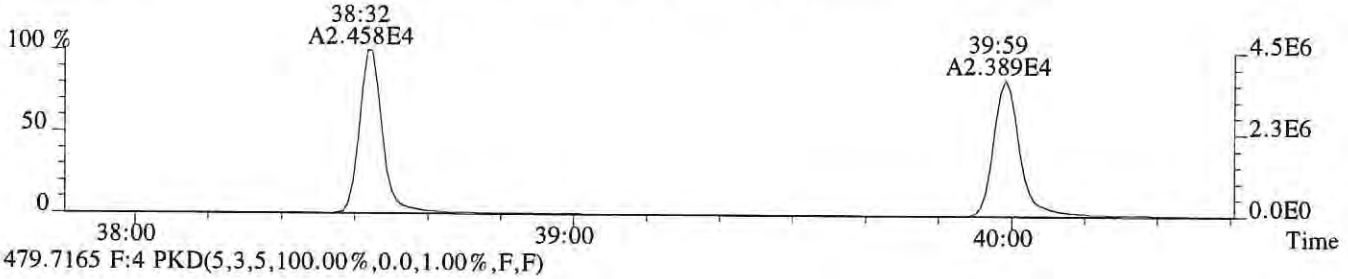
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.50%,F,T)



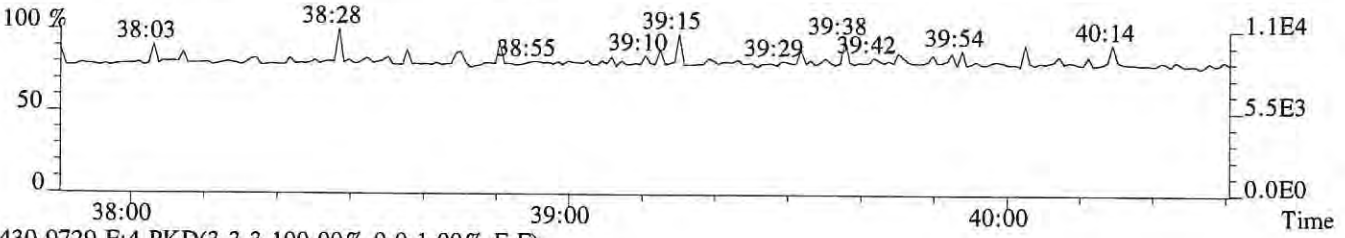
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.50%,F,T)



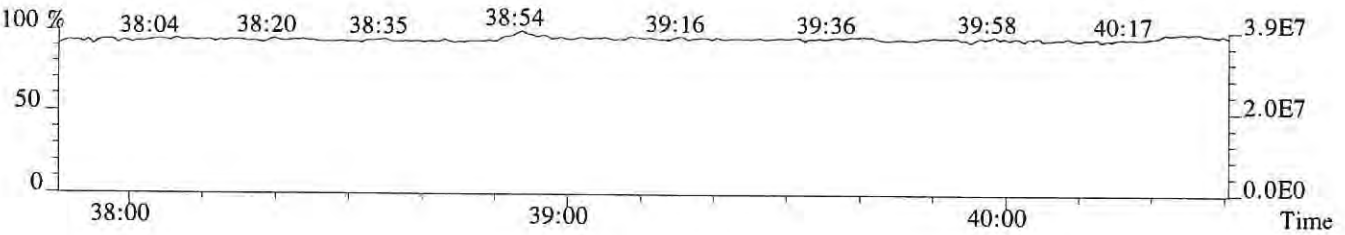
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.50%,F,T)



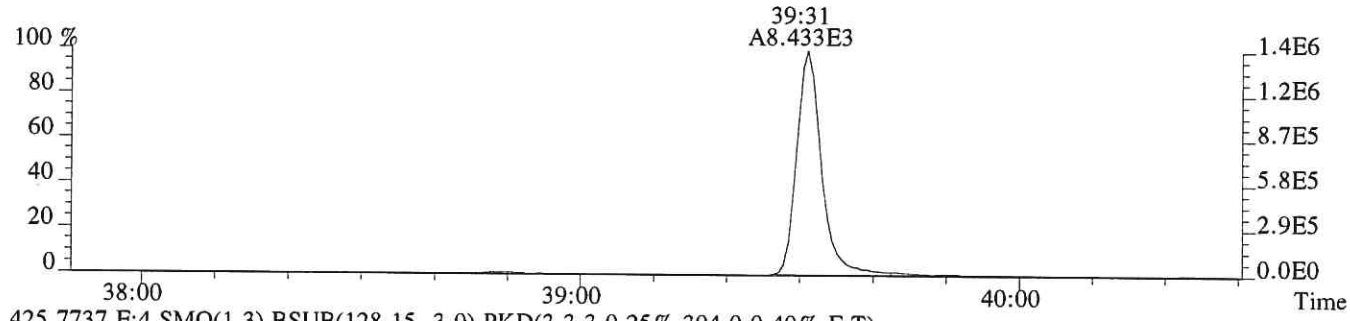
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



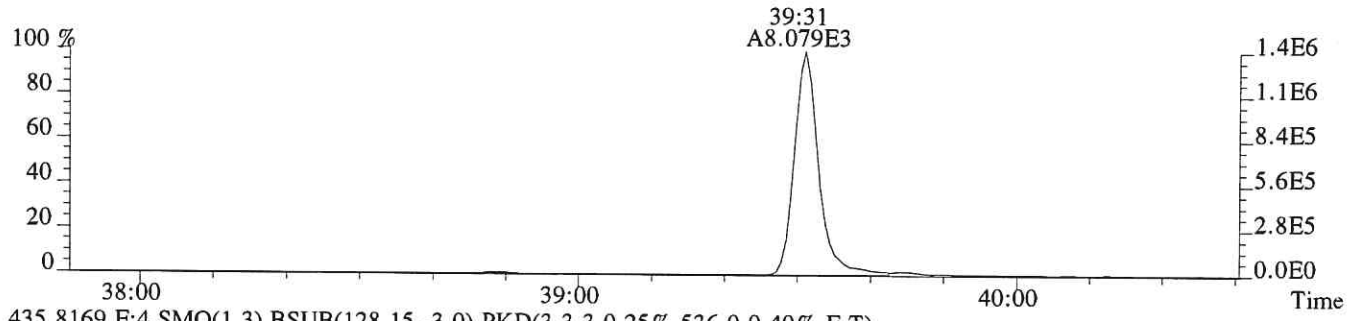
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



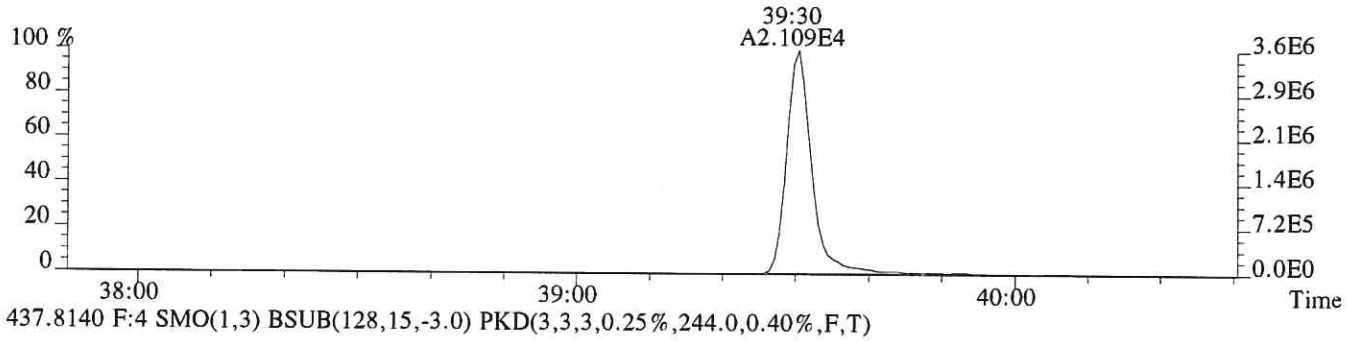
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



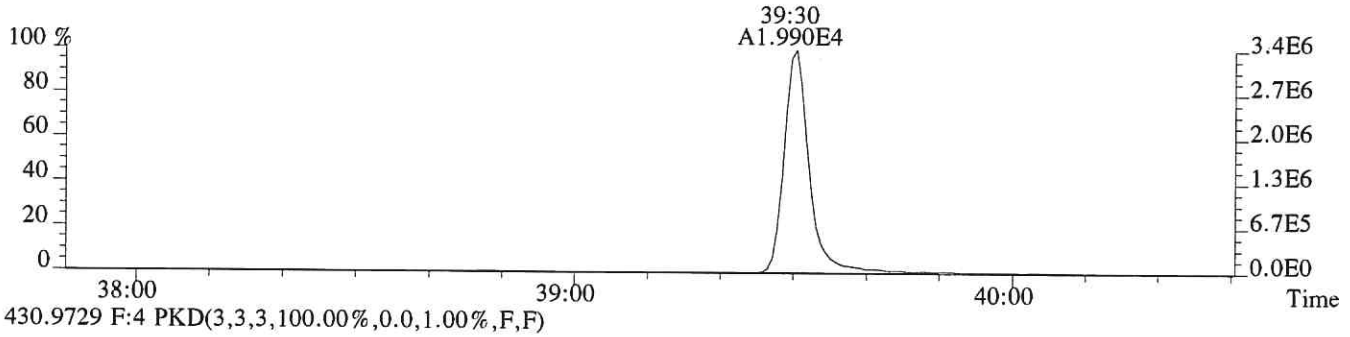
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



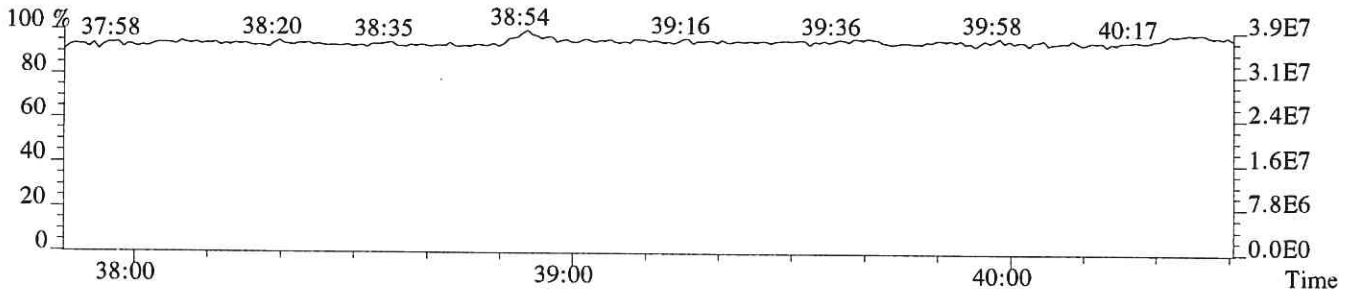
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



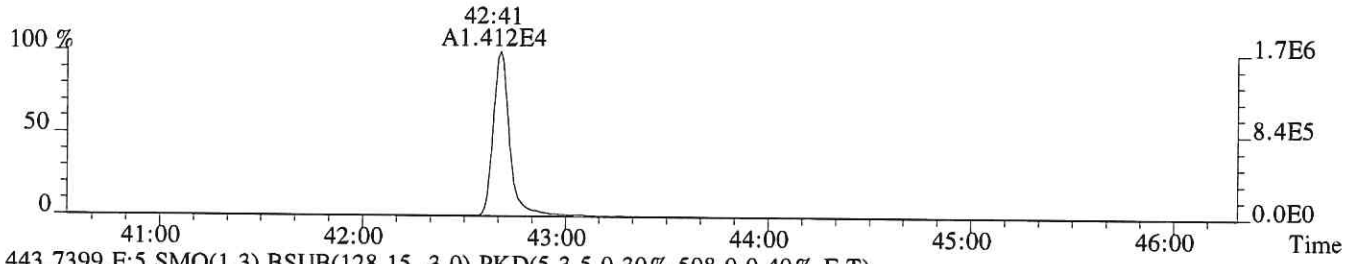
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



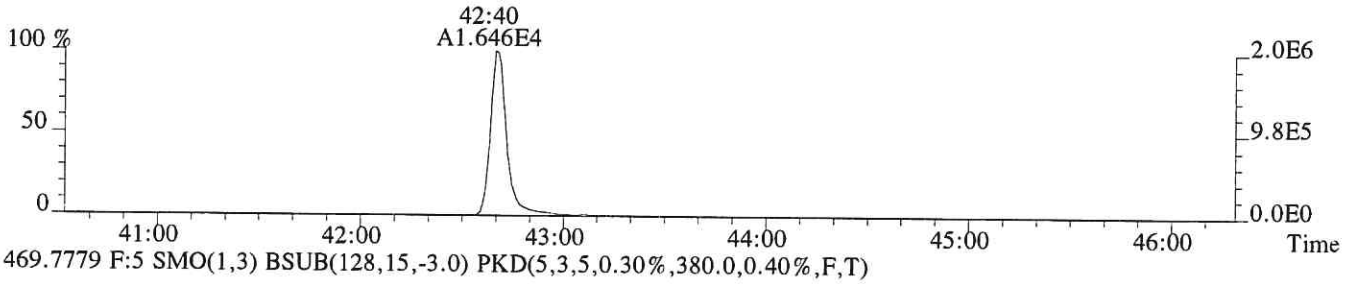
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



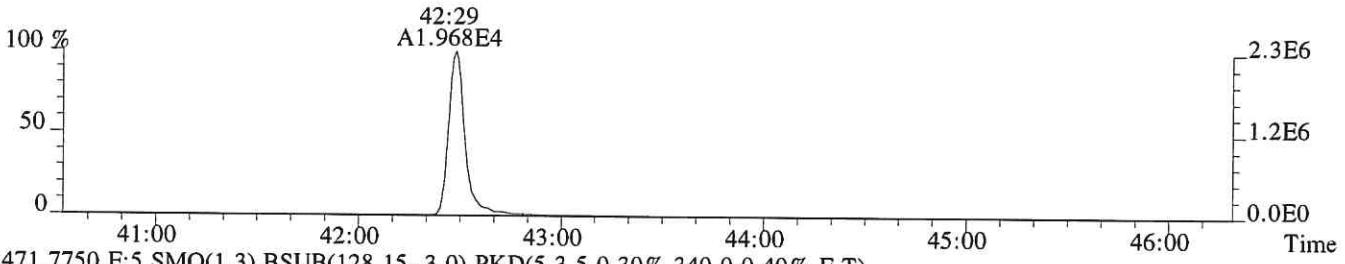
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



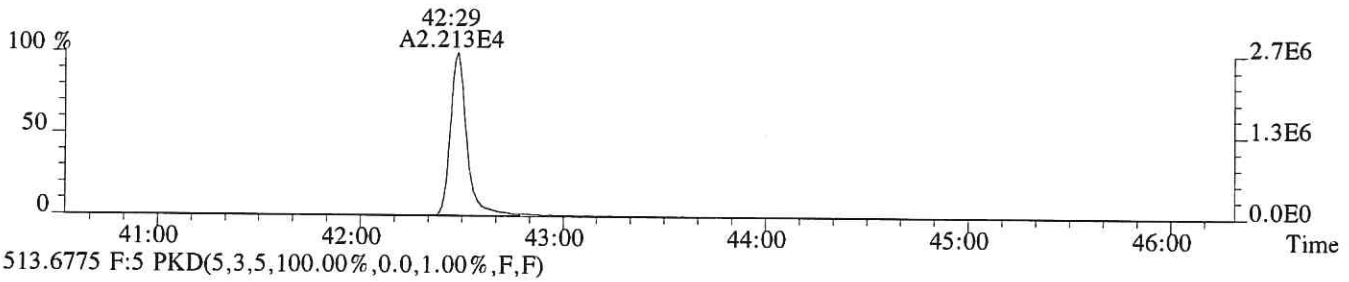
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



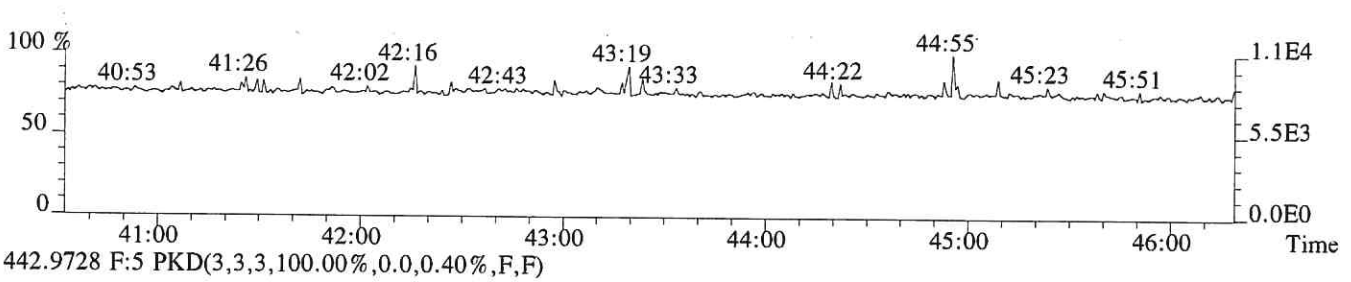
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



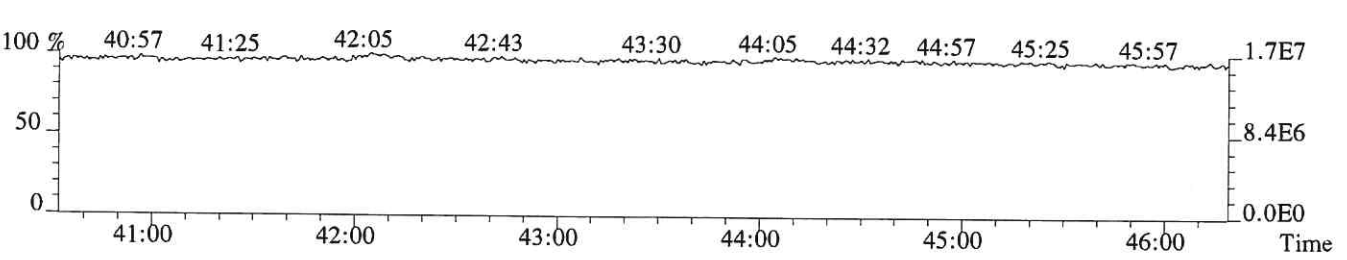
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



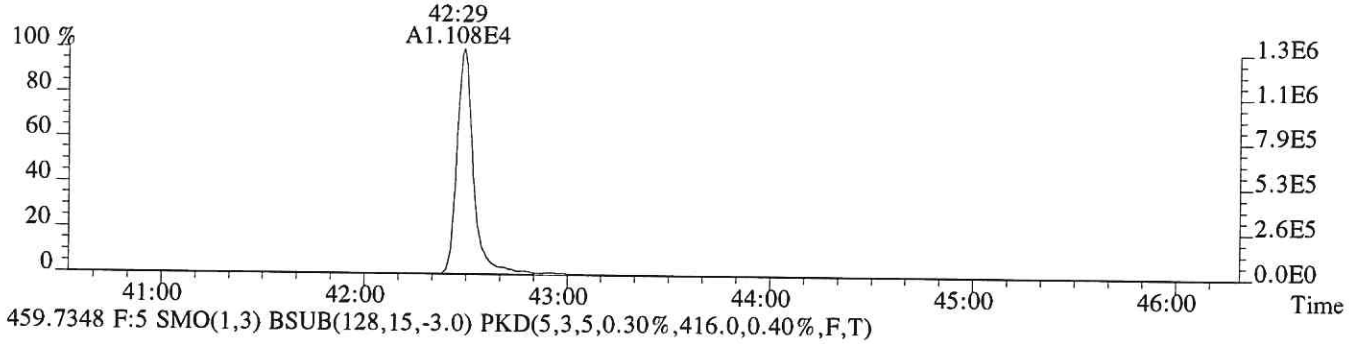
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



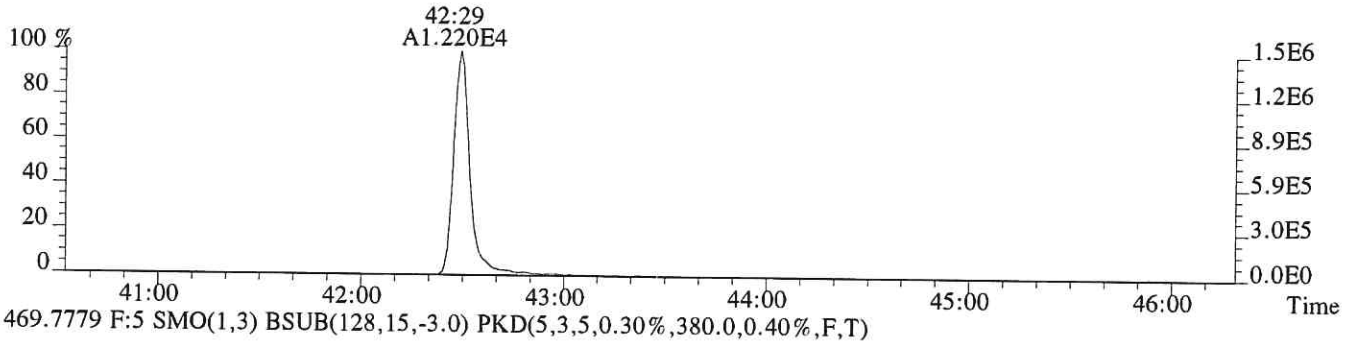
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



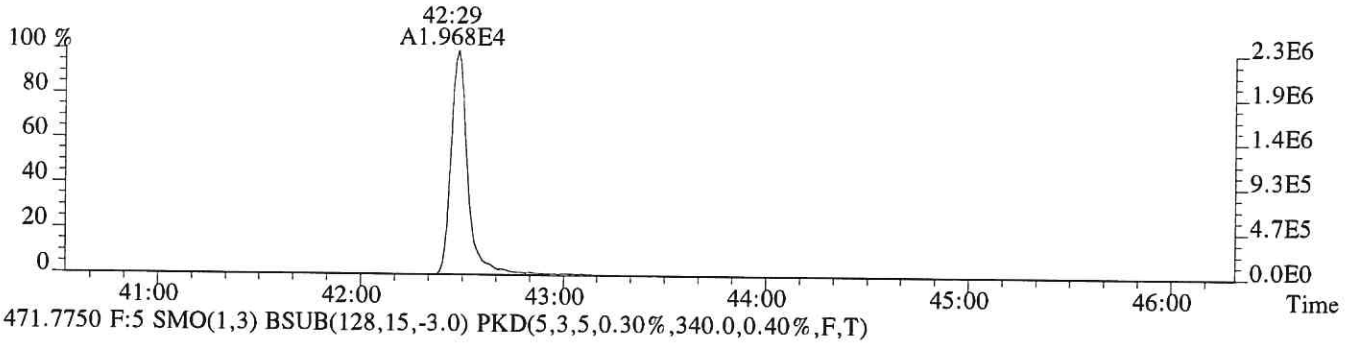
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



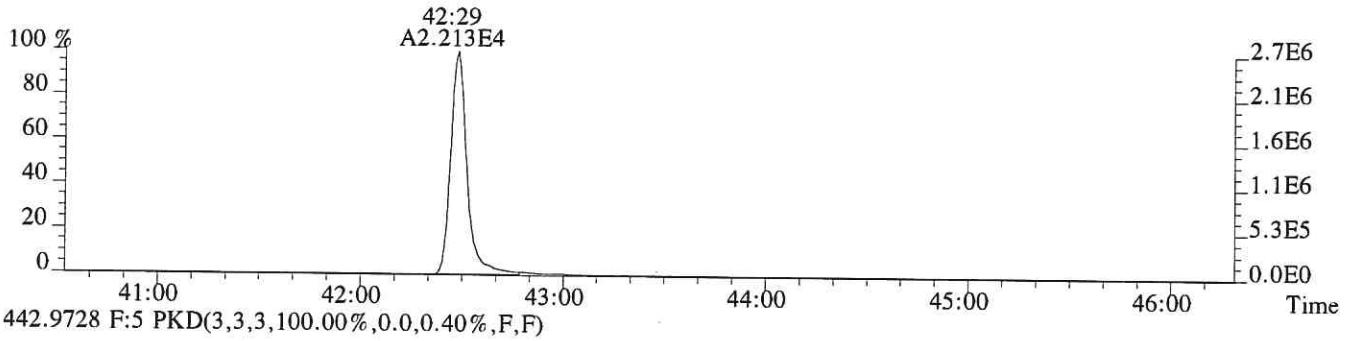
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



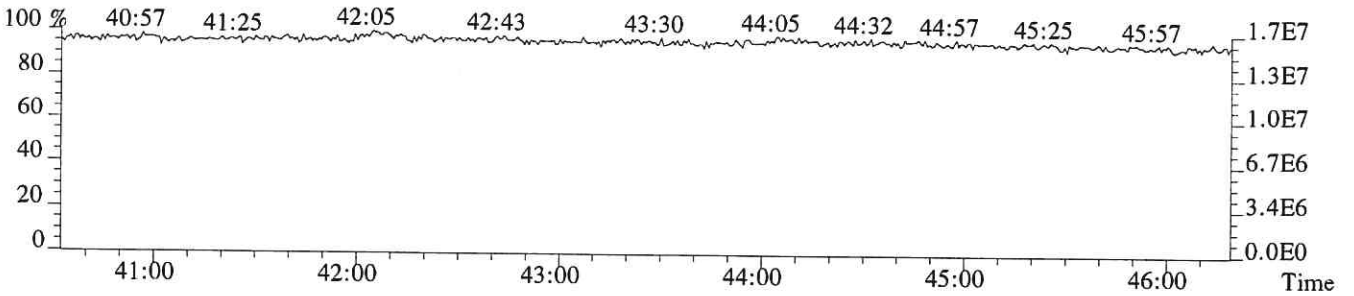
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 Sample ID: EQ1800488-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.546e+03	2.100e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	1.467e+04	9.624e+03	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	1.484e+04	9.963e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.351e+04	1.117e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.509e+04	1.257e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	1.278e+04	1.030e+04	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.106e+04	8.766e+03	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	1.026e+04	1.033e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	9.473e+03	9.583e+03	0.99	yes	no	1.258
10	Unk	OCDF	42:41	1.040e+04	1.217e+04	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.156e+03	1.582e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.103e+04	6.780e+03	1.63	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.741e+03	7.603e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.044e+04	8.362e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	9.523e+03	7.931e+03	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	7.141e+03	6.675e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:30	7.648e+03	8.525e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.767e+04	2.220e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.210e+04	2.012e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.132e+04	1.969e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.394e+04	2.713e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.669e+04	3.242e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.438e+04	2.788e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.214e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.002e+04	2.233e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	9.077e+03	2.090e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	1.132e+04	1.417e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.268e+04	1.424e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	2.019e+04	1.579e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.971e+04	1.528e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.785e+04	1.691e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.420e+04	1.580e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.365e+04	4.212e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	4.701e+04	3.620e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.291e+04				no	1.014

$$\text{OCDD} = \frac{(7.648e+03 + 8.525e+03) \times 4000\ \text{pg} \times 1}{(1.420e+04 + 1.580e+04)\ \text{x}\ \ \text{g}\ \ \text{x}\ \ / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 LAB. ID: EQ1800488-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.74e+05	4.40e+02	6.2e+02	3.64e+05	1.18e+03	3.1e+02
2	1,2,3,7,8-PeCDF	2.72e+06	4.08e+02	6.7e+03	1.78e+06	1.67e+03	1.1e+03
3	2,3,4,7,8-PeCDF	2.88e+06	4.08e+02	7.1e+03	1.92e+06	1.67e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	2.81e+06	4.12e+02	6.8e+03	2.33e+06	2.84e+02	8.2e+03
5	1,2,3,6,7,8-HxCDF	2.89e+06	4.12e+02	7.0e+03	2.44e+06	2.84e+02	8.6e+03
6	2,3,4,6,7,8-HxCDF	2.58e+06	4.12e+02	6.3e+03	2.12e+06	2.84e+02	7.5e+03
7	1,2,3,7,8,9-HxCDF	1.99e+06	4.12e+02	4.8e+03	1.58e+06	2.84e+02	5.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.93e+06	1.23e+03	1.6e+03	1.94e+06	2.01e+03	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.49e+06	1.23e+03	1.2e+03	1.48e+06	2.01e+03	7.3e+02
10	OCDF	1.19e+06	2.12e+02	5.6e+03	1.40e+06	7.20e+02	1.9e+03
11	2,3,7,8-TCDD	2.19e+05	1.54e+03	1.4e+02	2.94e+05	9.72e+02	3.0e+02
12	1,2,3,7,8-PeCDD	2.16e+06	1.17e+03	1.8e+03	1.32e+06	2.40e+02	5.5e+03
13	1,2,3,4,7,8-HxCDD	2.08e+06	3.28e+02	6.3e+03	1.62e+06	1.60e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	2.03e+06	3.28e+02	6.2e+03	1.67e+06	1.60e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	1.84e+06	3.28e+02	5.6e+03	1.42e+06	1.60e+02	8.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.15e+06	2.00e+02	5.7e+03	1.07e+06	1.88e+02	5.7e+03
17	OCDD	8.68e+05	2.76e+02	3.1e+03	9.85e+05	2.20e+02	4.5e+03
18	13C-2,3,7,8-TCDF	3.14e+06	6.04e+03	5.2e+02	3.92e+06	3.74e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	5.91e+06	8.56e+02	6.9e+03	3.68e+06	1.68e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	6.09e+06	8.56e+02	7.1e+03	3.87e+06	1.68e+02	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+06	7.80e+02	3.7e+03	5.60e+06	6.84e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.28e+06	7.80e+02	4.2e+03	6.30e+06	6.84e+02	9.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.89e+06	7.80e+02	3.7e+03	5.49e+06	6.84e+02	8.0e+03
24	13C-1,2,3,7,8,9-HxCDF	2.18e+06	7.80e+02	2.8e+03	4.28e+06	6.84e+02	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.87e+06	1.21e+03	1.5e+03	4.14e+06	1.76e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.42e+06	1.21e+03	1.2e+03	3.33e+06	1.76e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.09e+06	5.60e+03	3.7e+02	2.62e+06	2.35e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.44e+06	7.36e+02	6.0e+03	2.77e+06	1.17e+03	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	4.32e+06	1.23e+03	3.5e+03	3.34e+06	2.40e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	3.79e+06	1.23e+03	3.1e+03	3.01e+06	2.40e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.87e+06	5.64e+02	5.1e+03	2.74e+06	8.04e+02	3.4e+03
32	13C-OCDD	1.63e+06	3.48e+02	4.7e+03	1.84e+06	2.20e+02	8.4e+03
33	13C-1,2,3,4-TCDD	6.22e+06	5.60e+03	1.1e+03	7.76e+06	2.35e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	8.78e+06	1.23e+03	7.1e+03	6.81e+06	2.40e+02	2.8e+04
35	37Cl-2,3,7,8-TCDD	2.41e+06	8.00e+02	3.0e+03			

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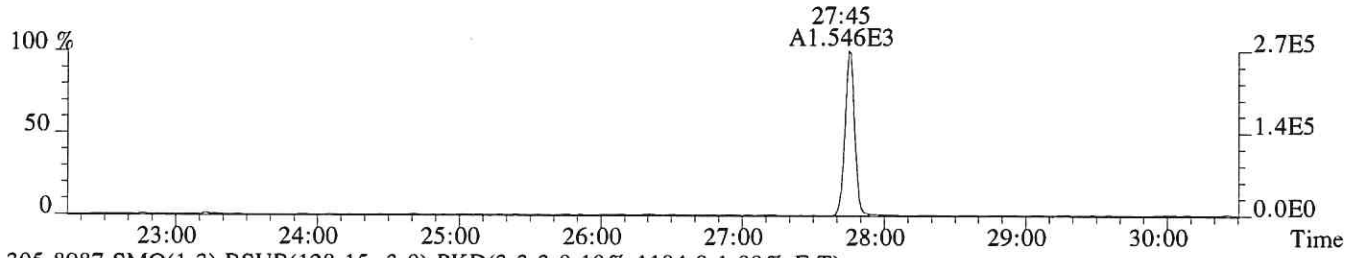
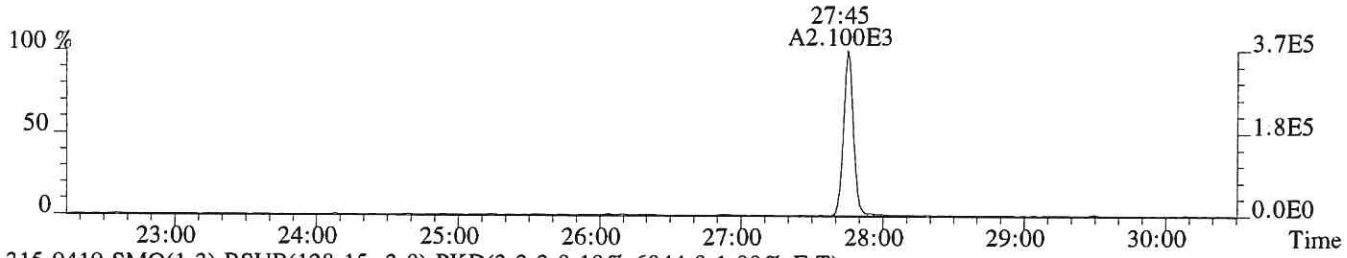
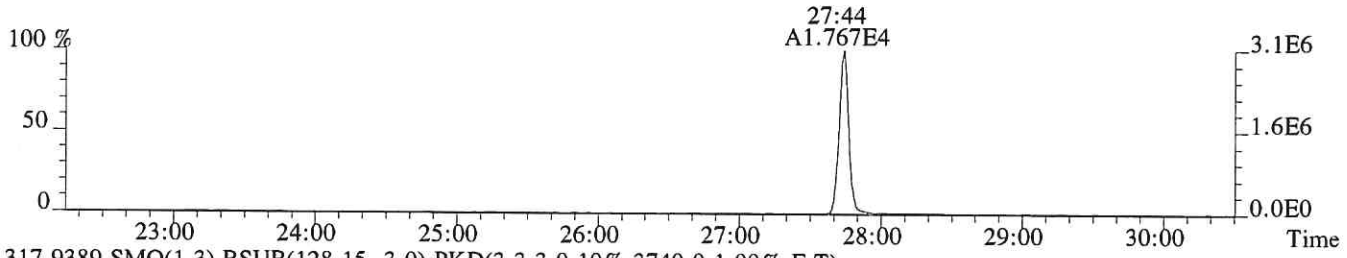
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



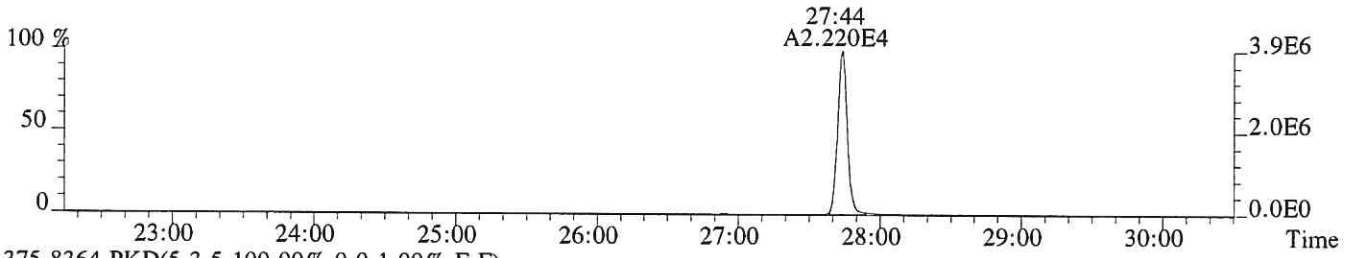
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



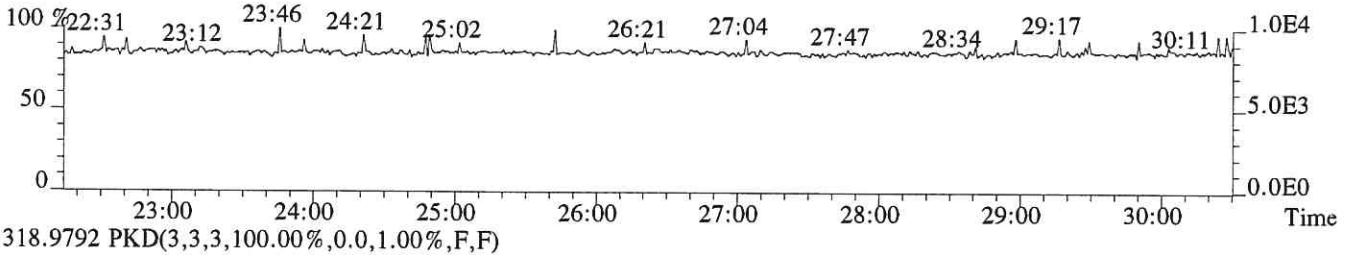
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6044.0,1.00%,F,T)



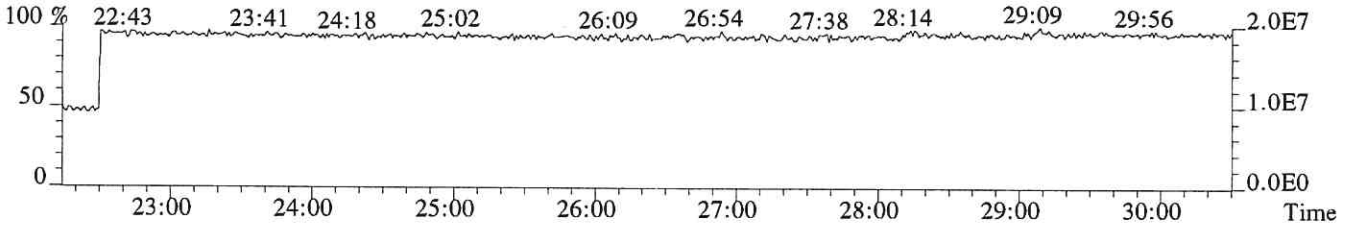
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



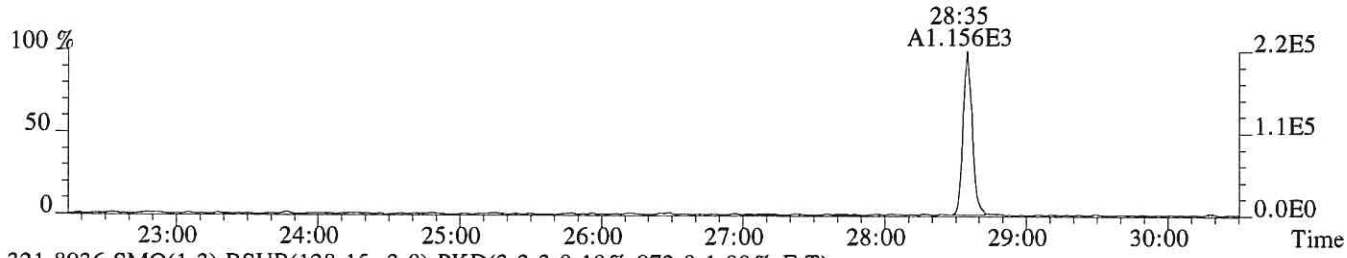
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



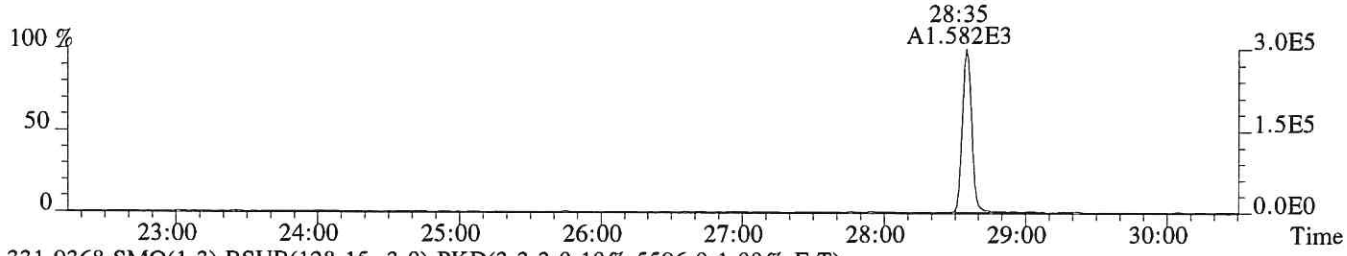
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



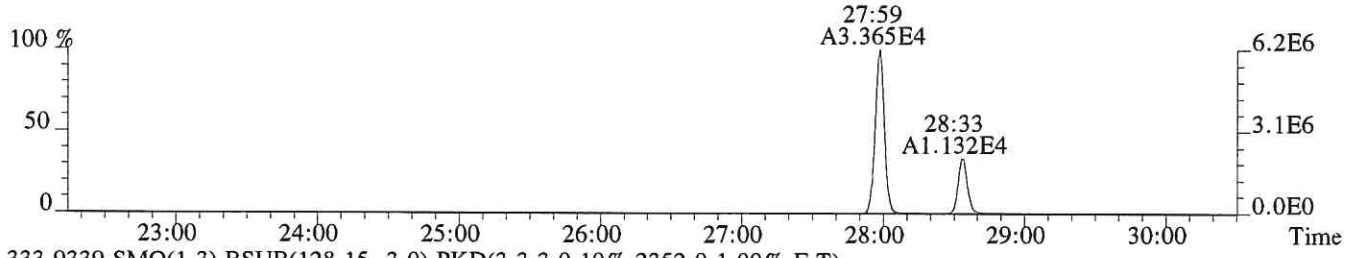
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



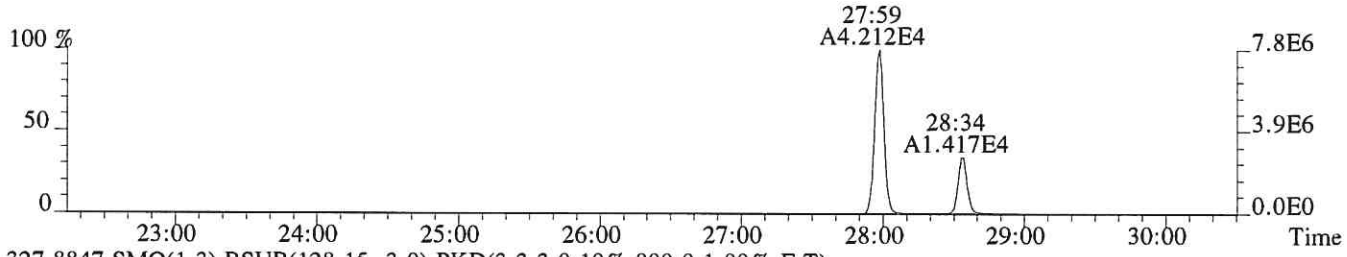
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



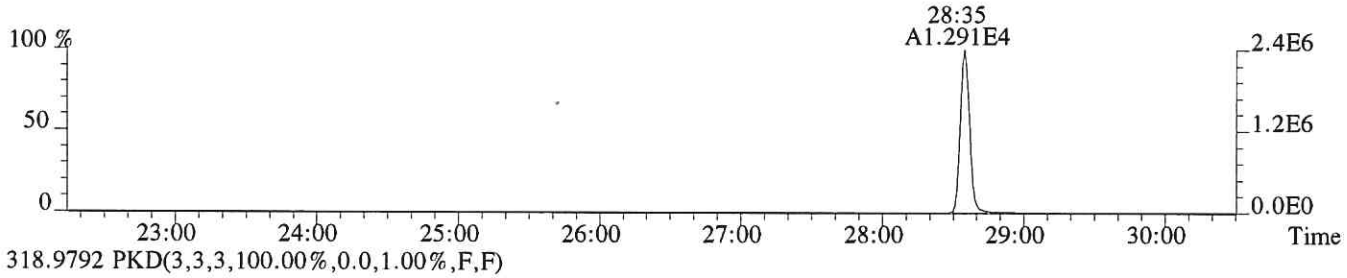
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5596.0,1.00%,F,T)



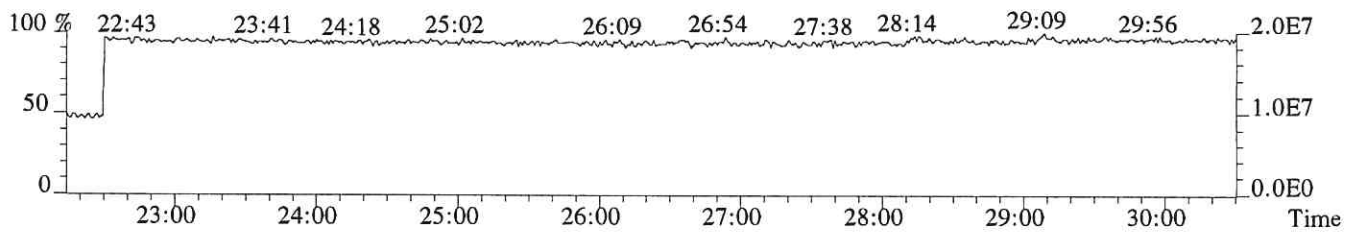
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



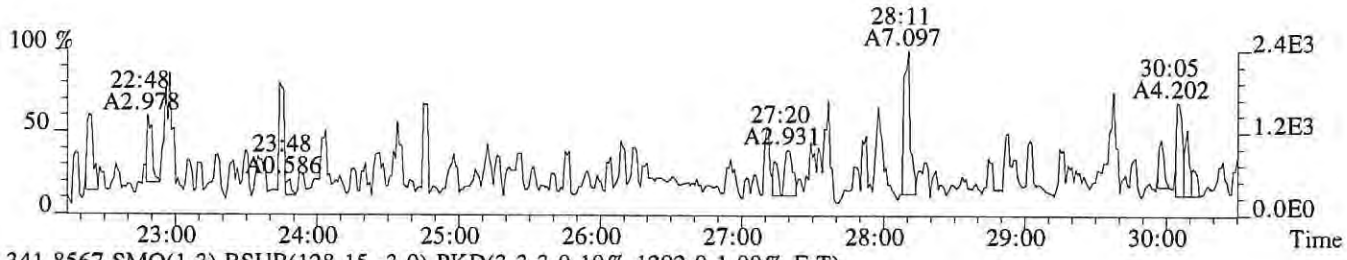
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



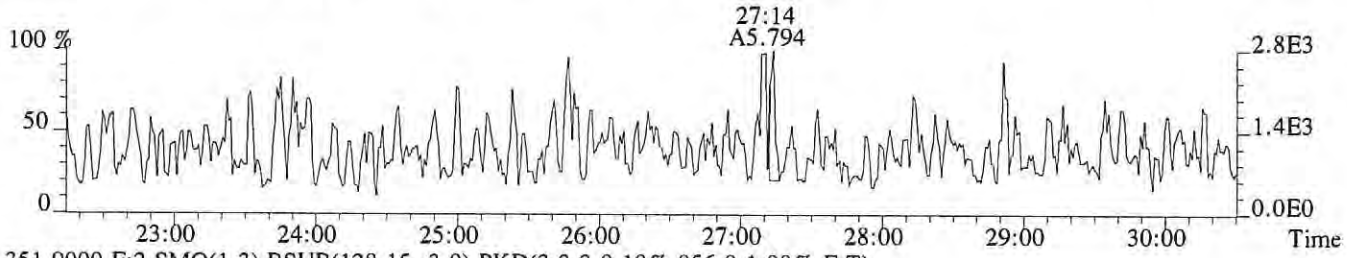
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



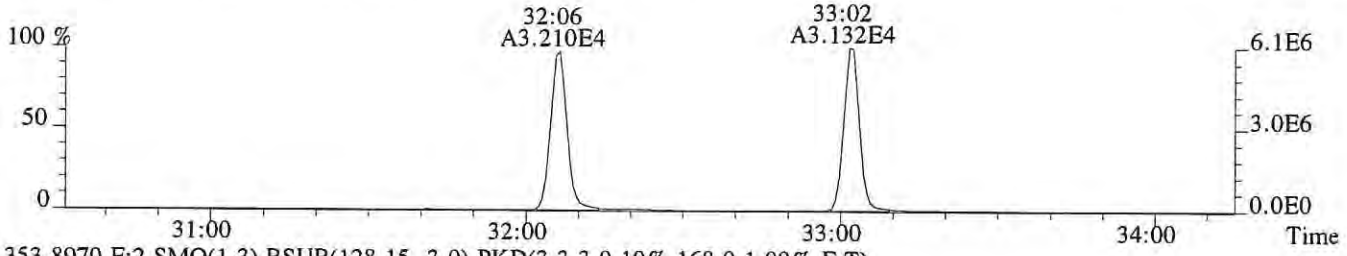
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



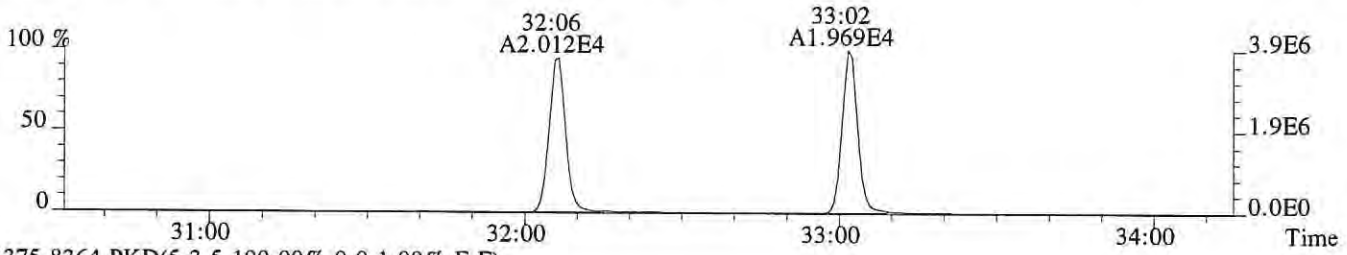
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



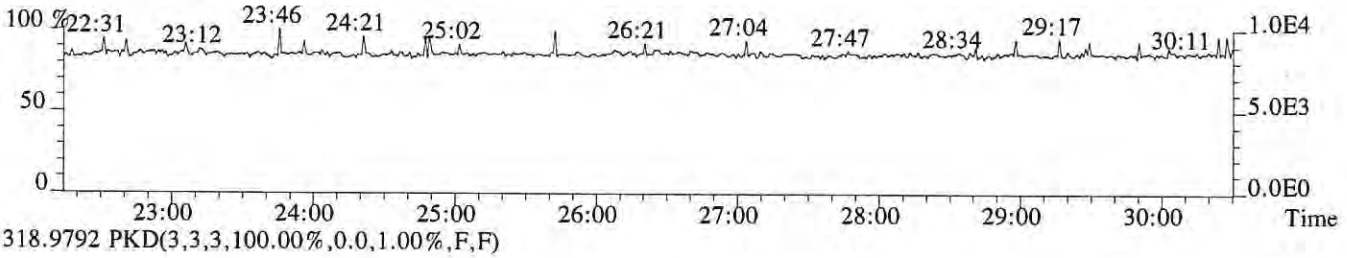
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



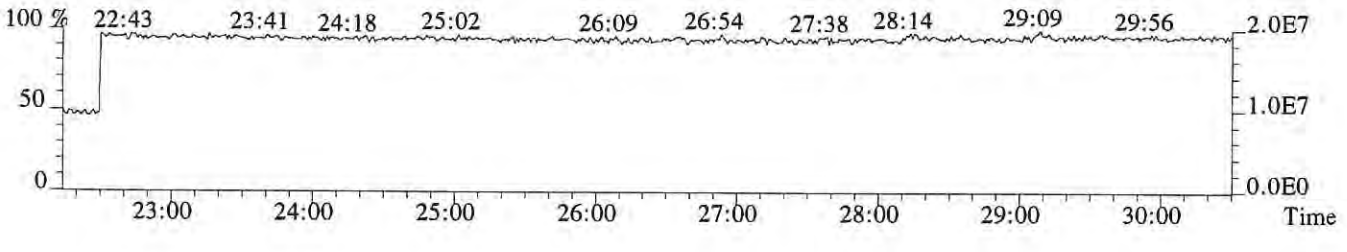
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



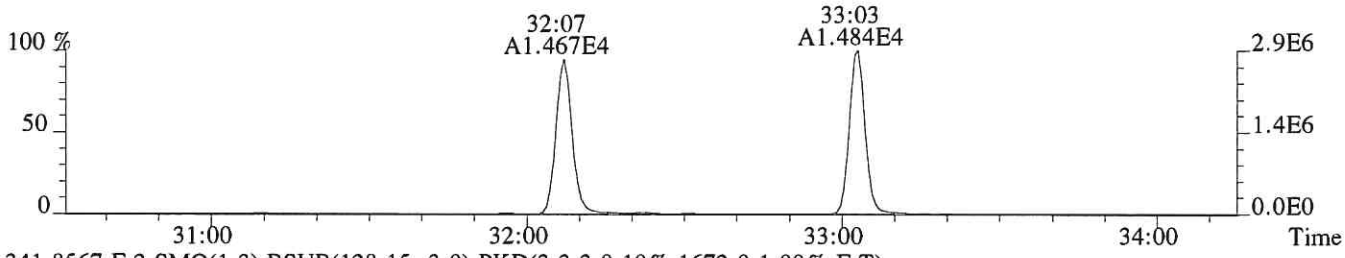
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



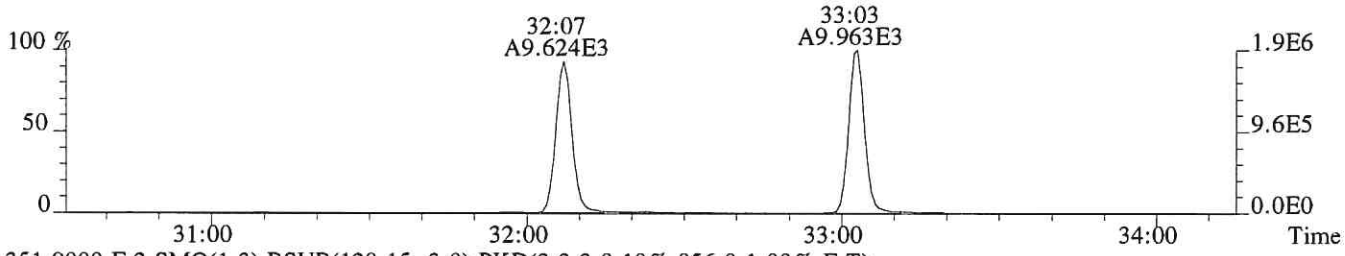
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



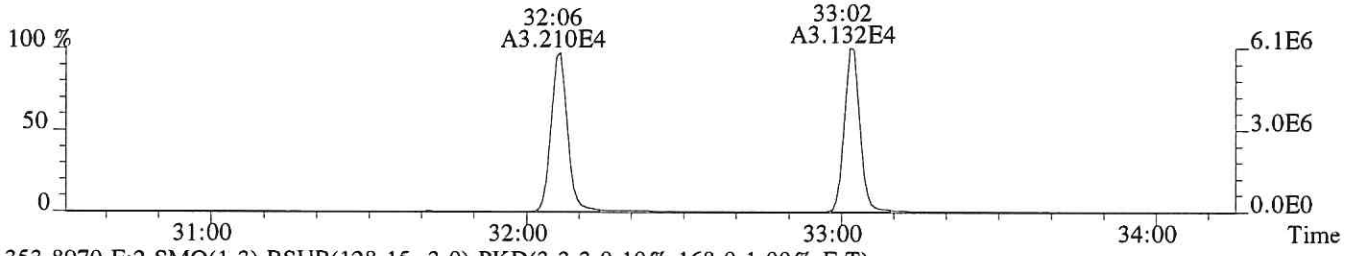
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



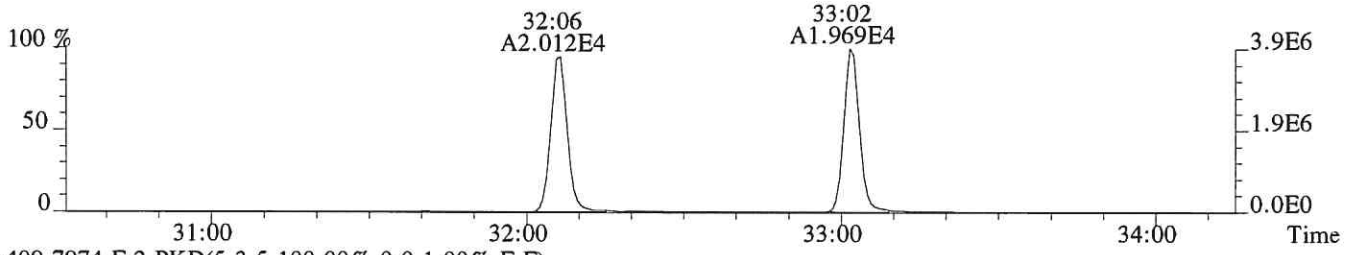
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



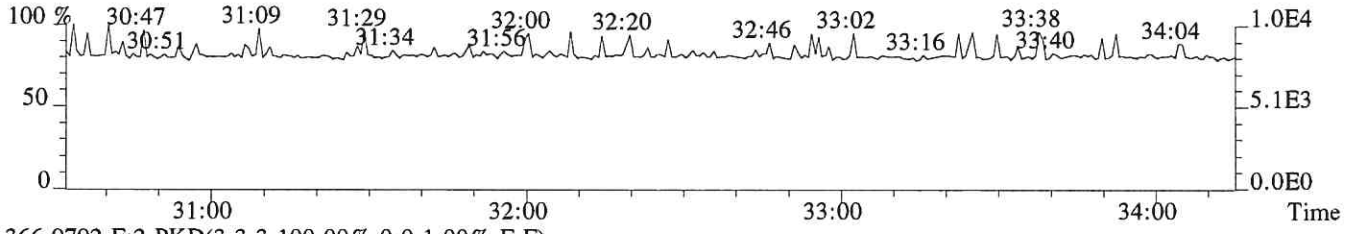
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



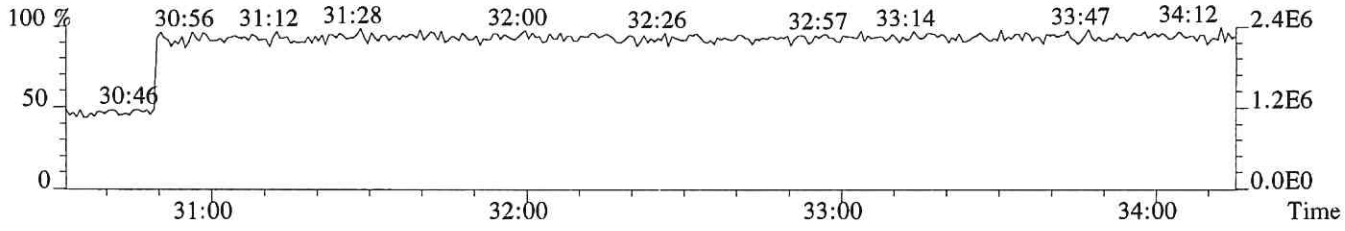
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



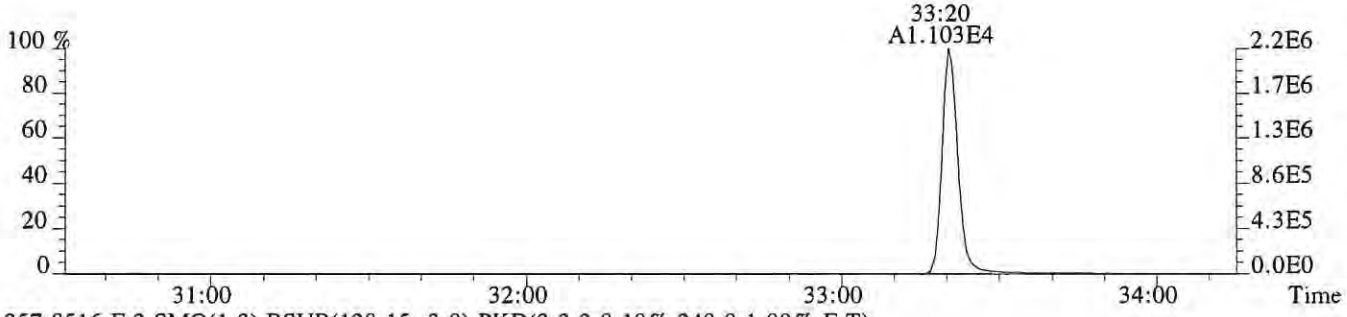
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



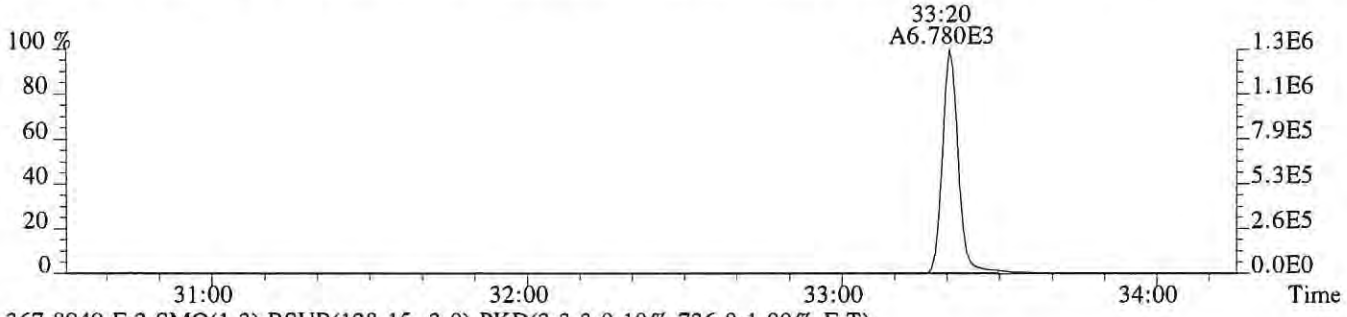
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



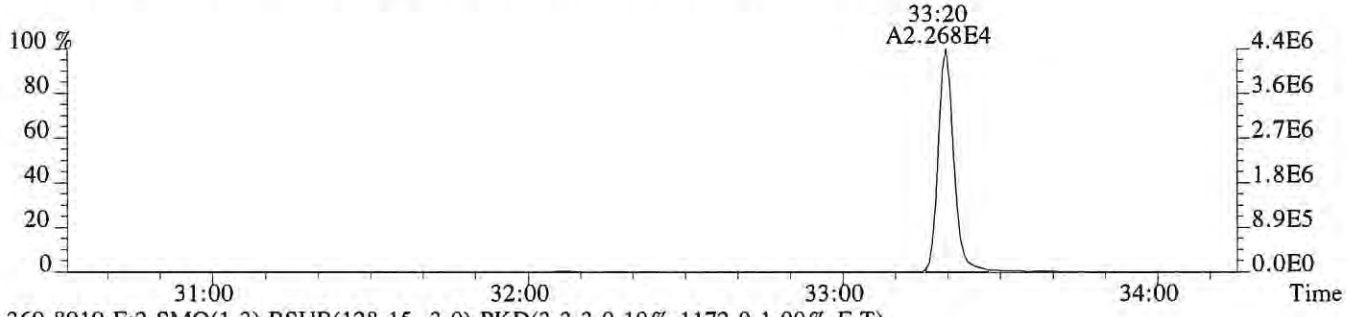
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



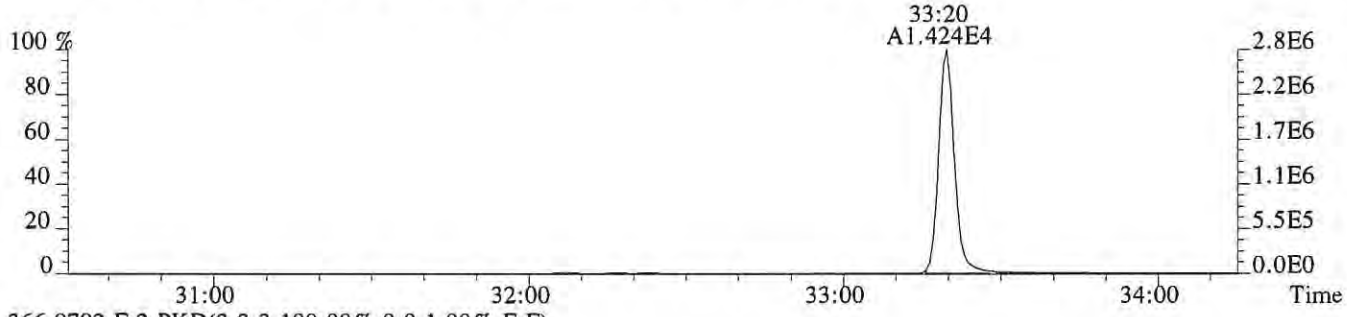
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



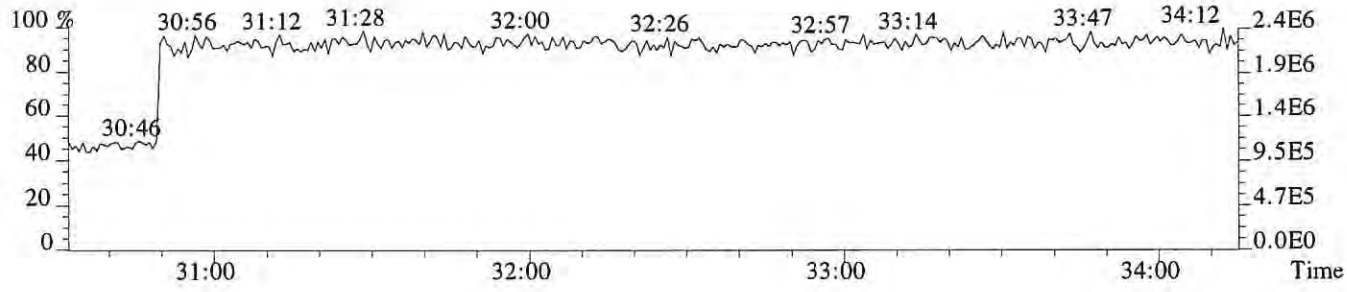
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



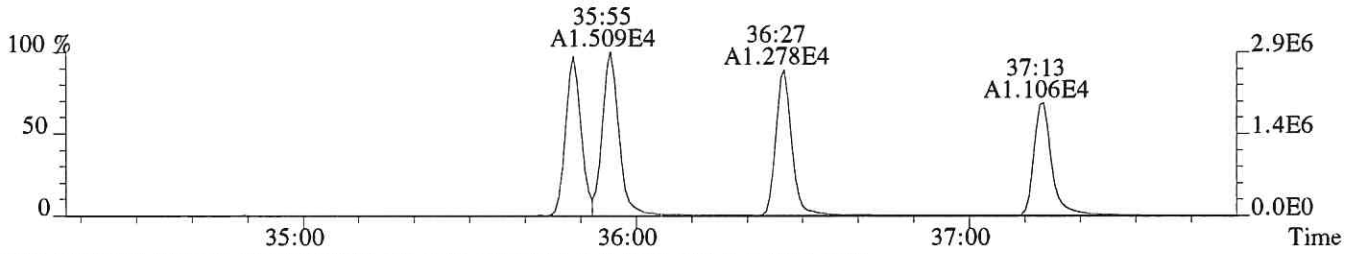
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



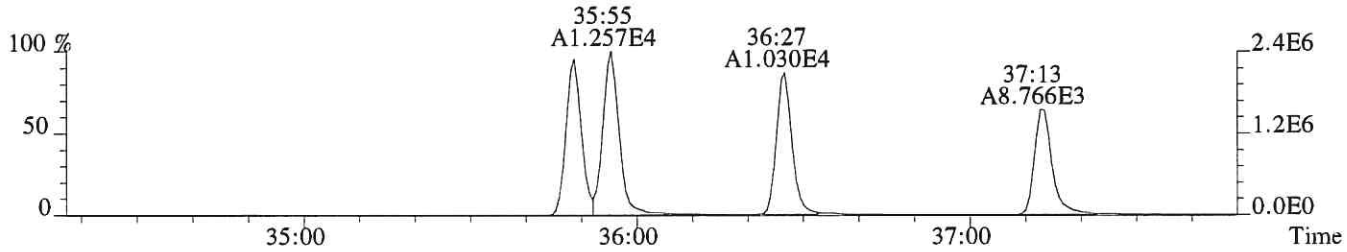
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



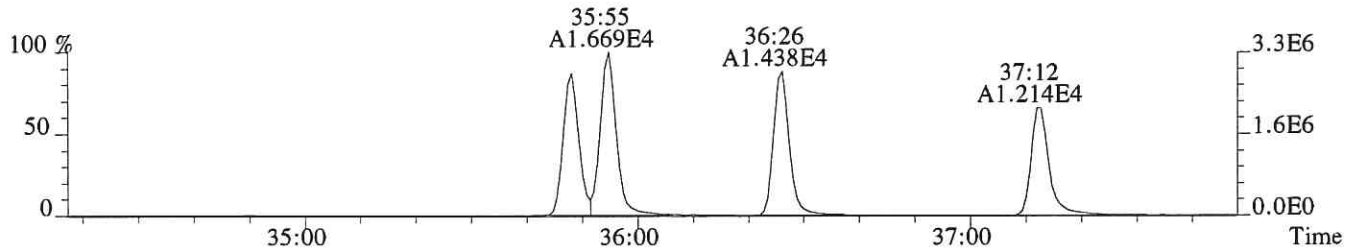
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



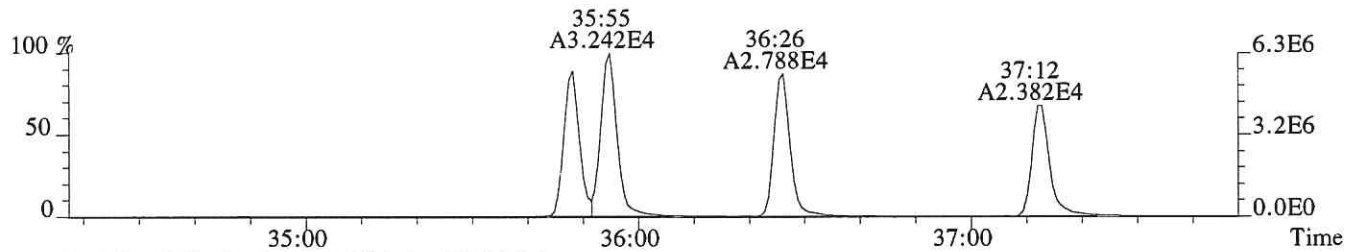
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



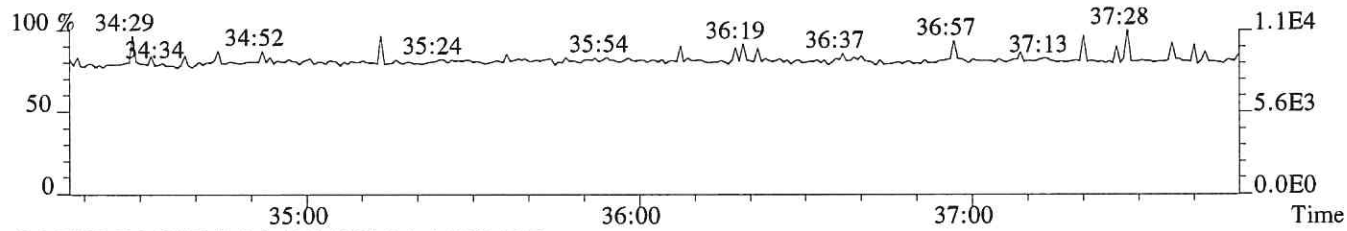
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



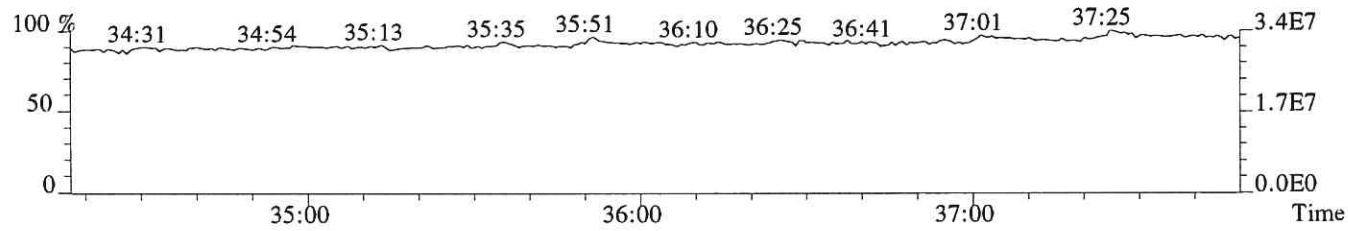
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



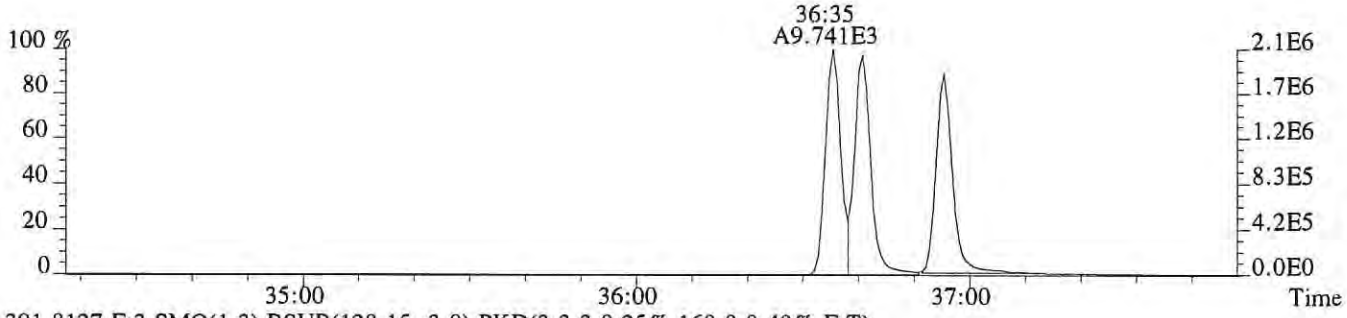
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



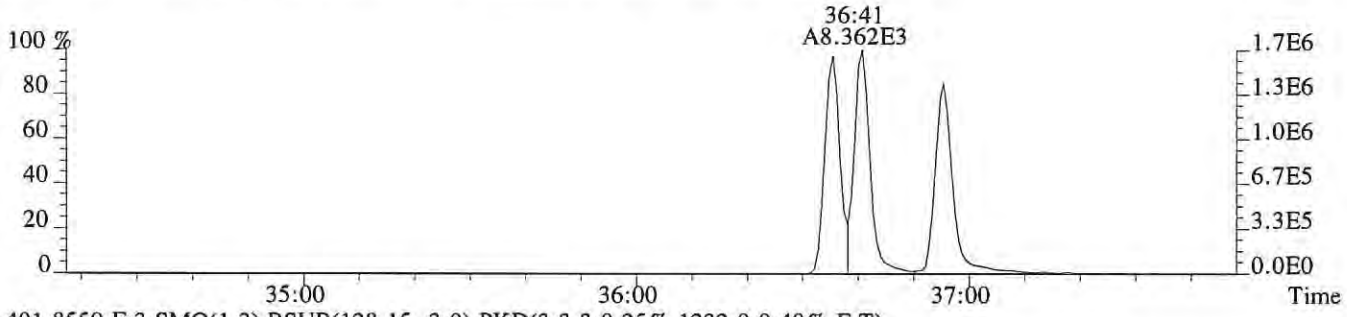
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



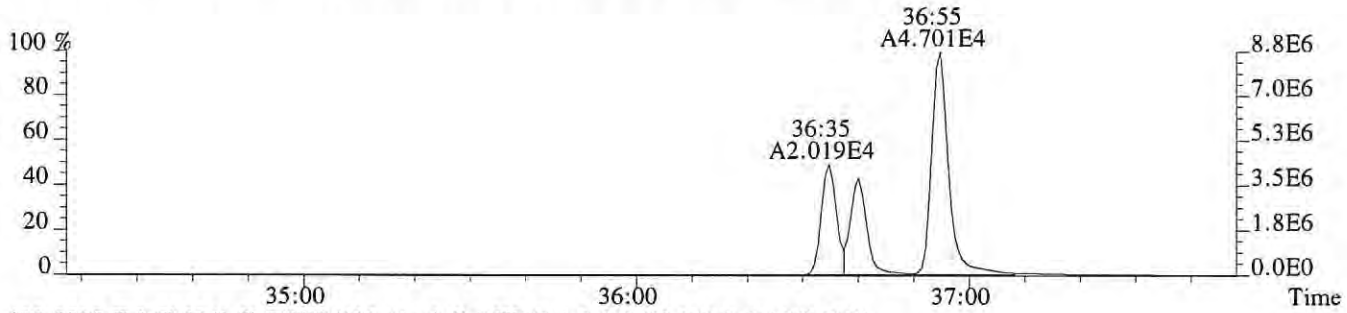
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



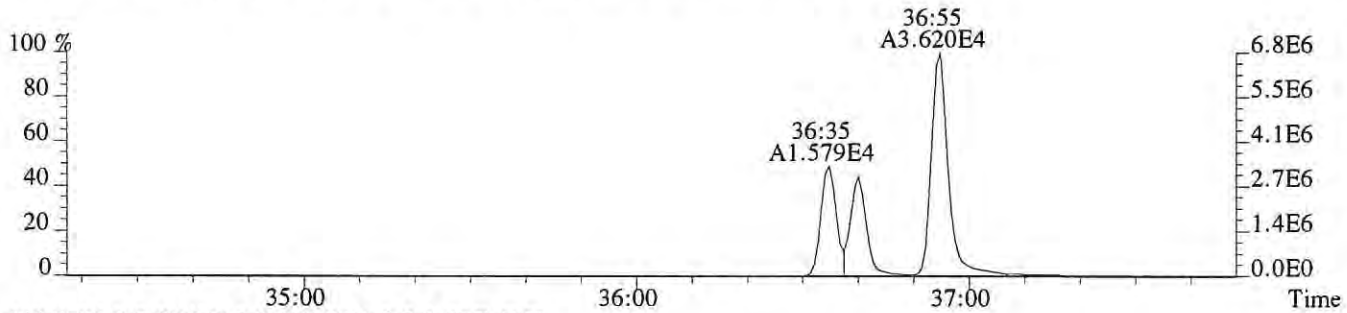
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



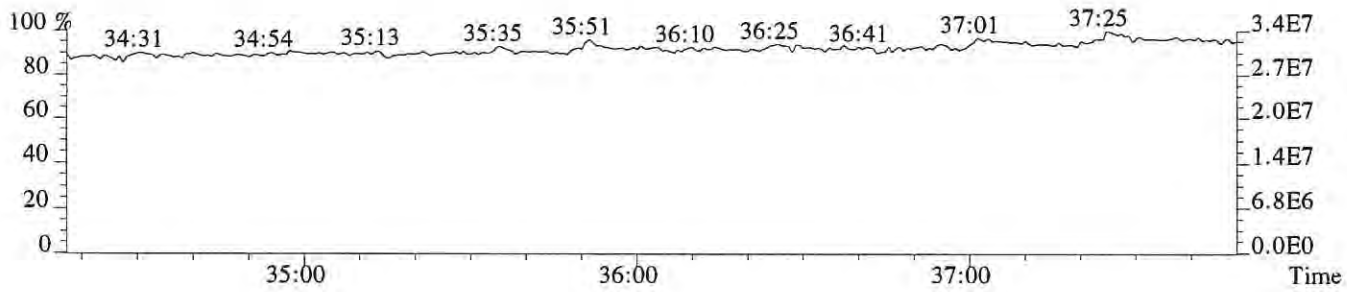
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



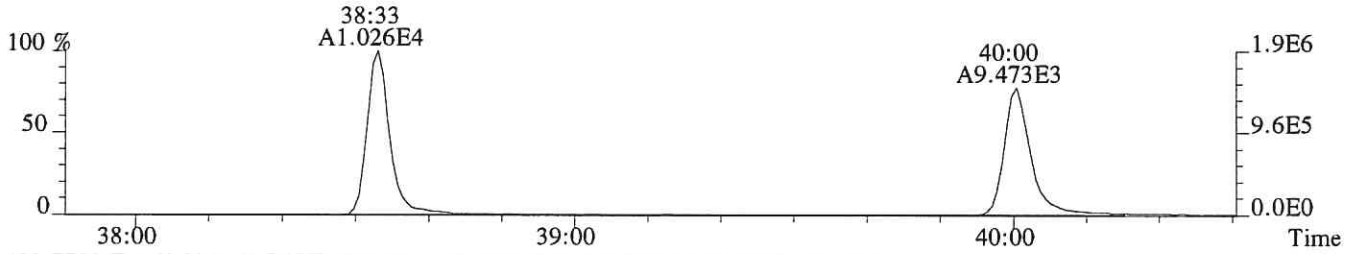
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



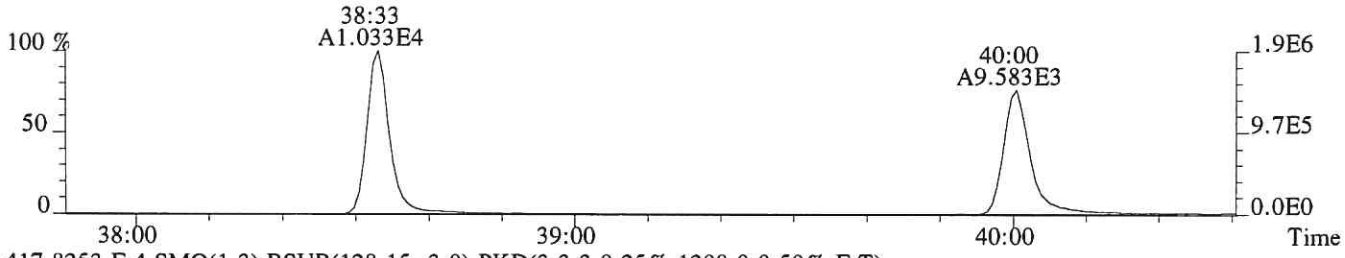
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



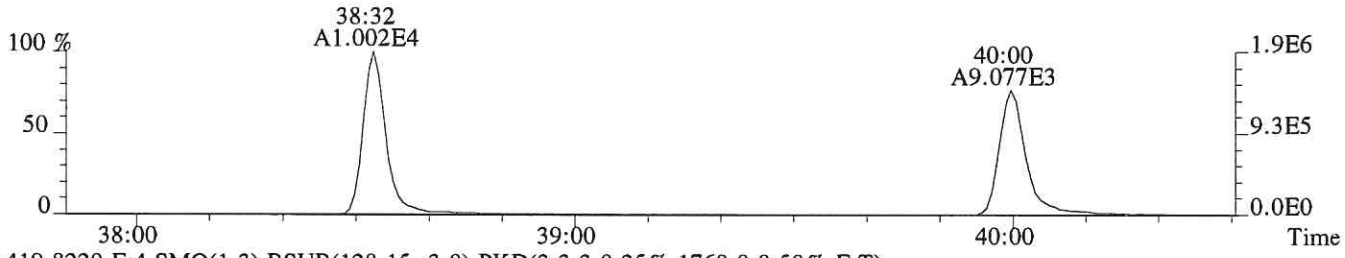
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



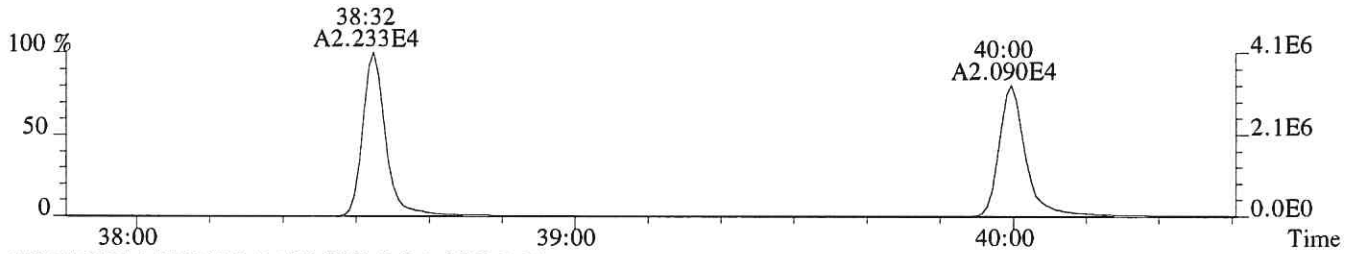
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2012.0,0.50%,F,T)



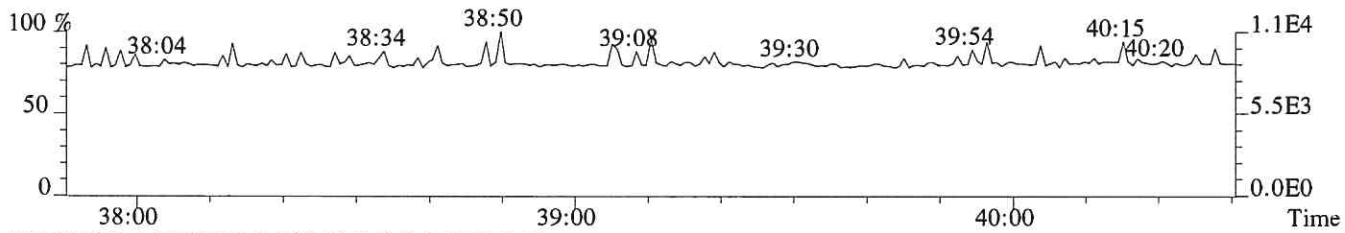
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.50%,F,T)



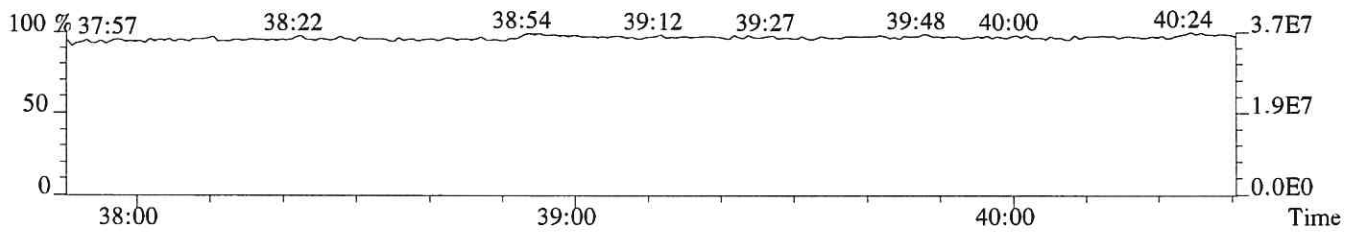
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.50%,F,T)



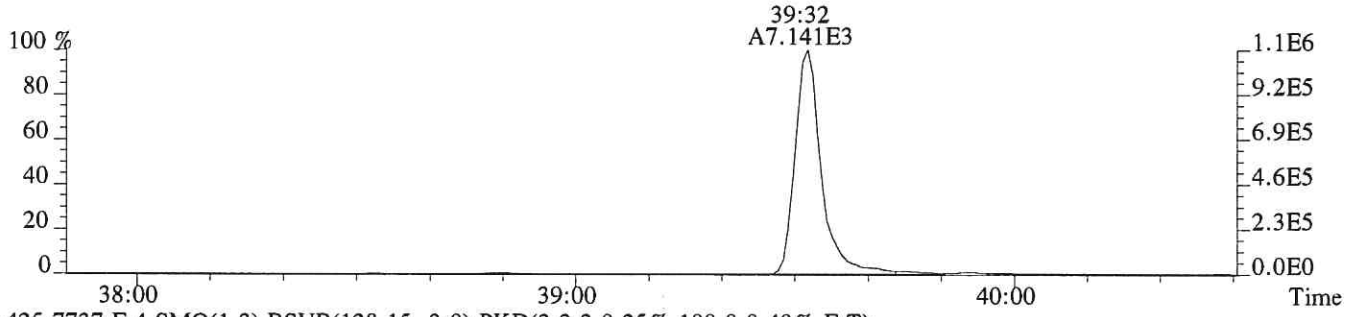
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



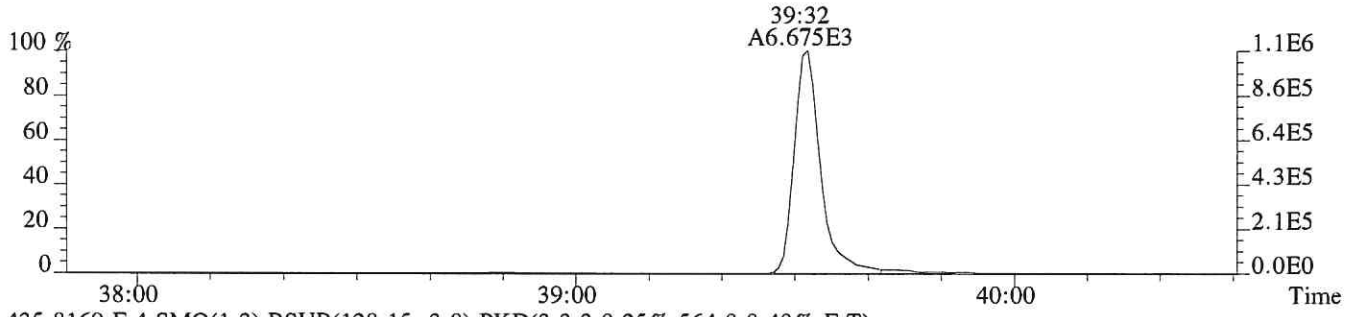
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



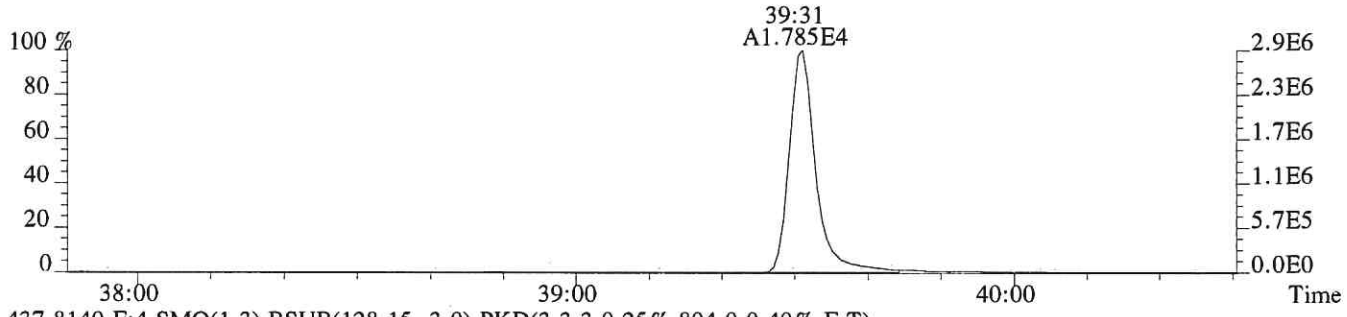
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



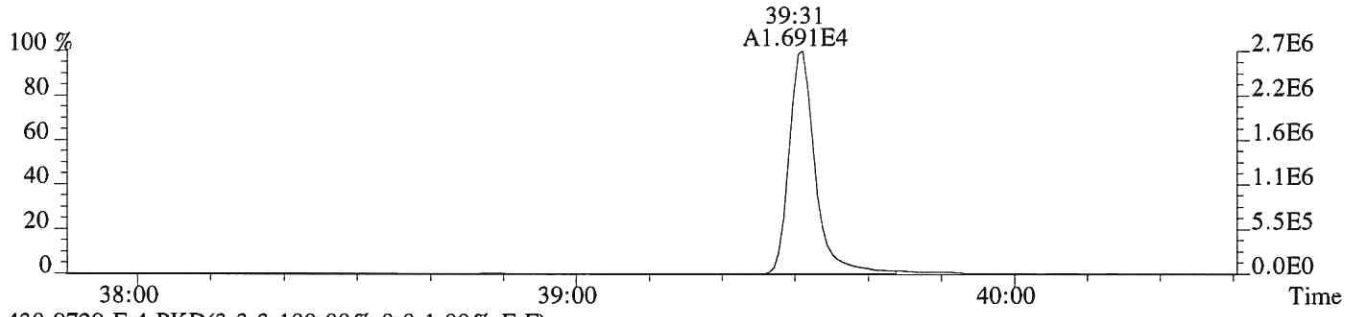
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



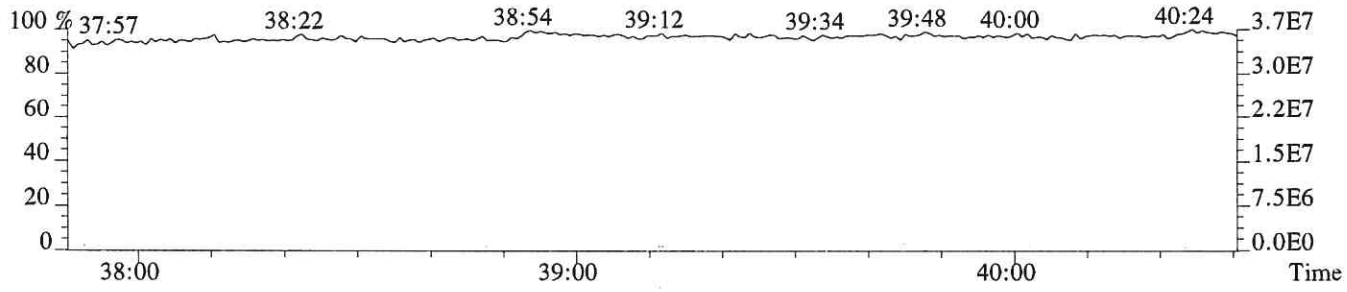
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



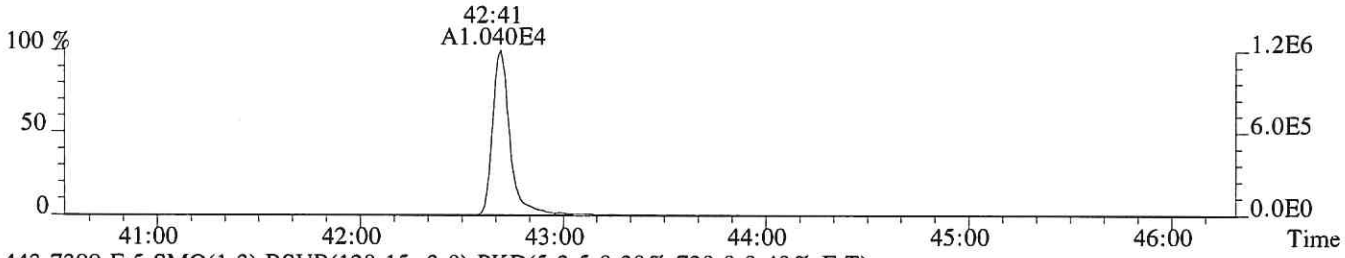
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



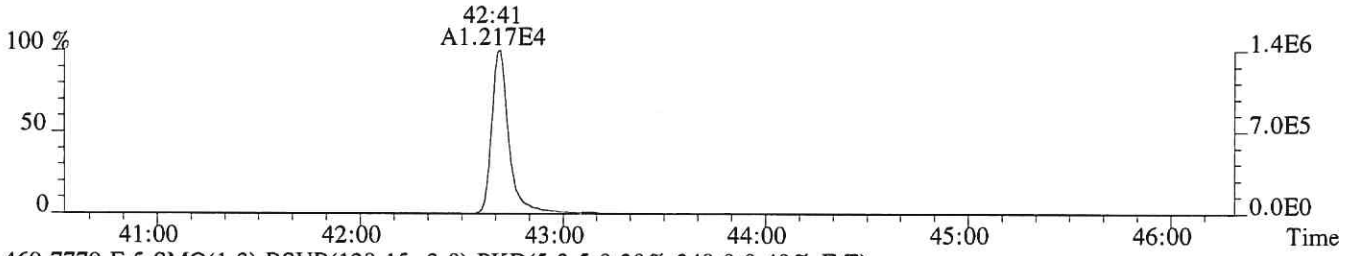
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



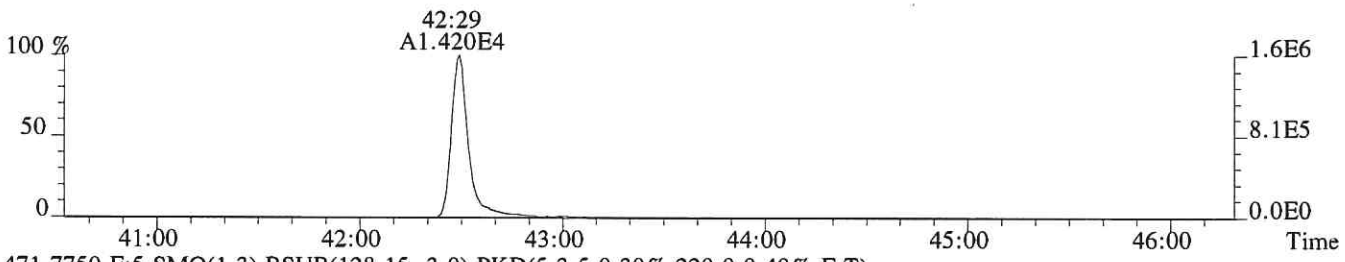
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



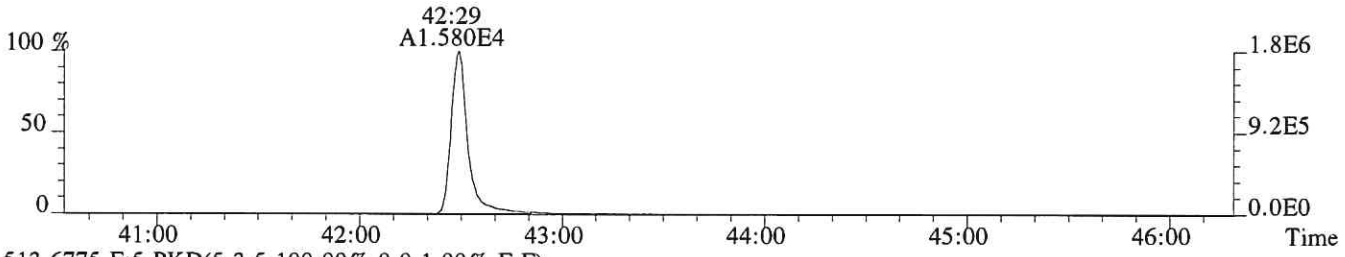
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



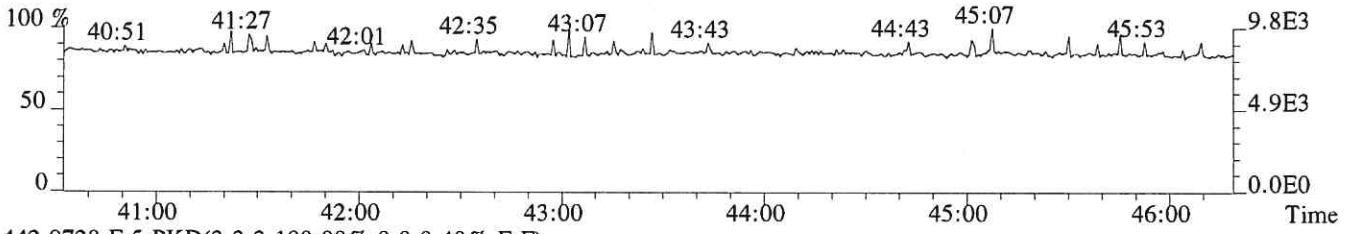
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



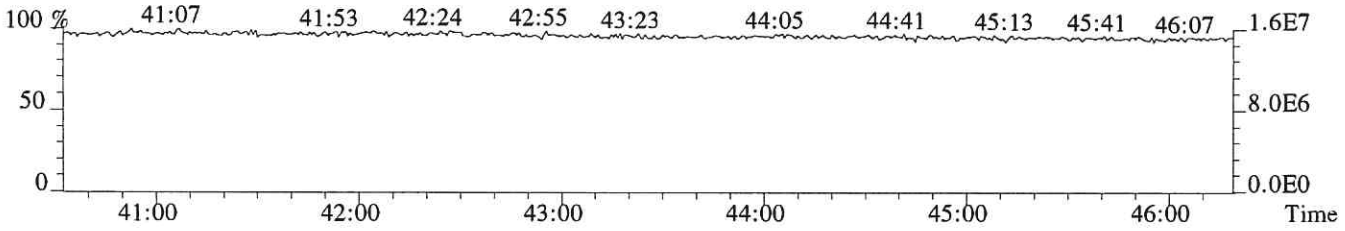
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



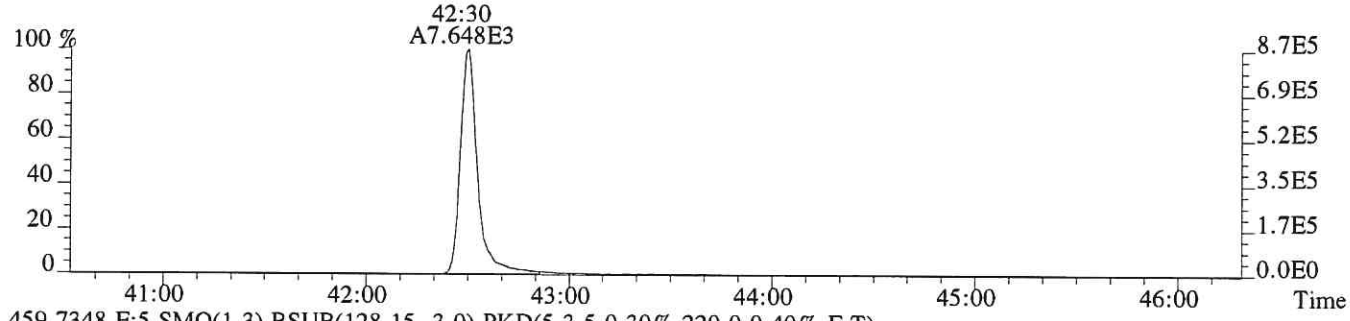
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



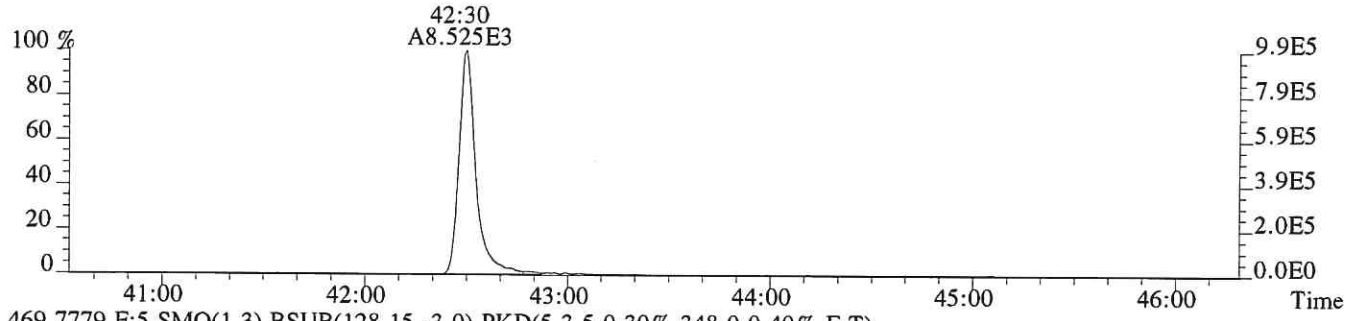
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



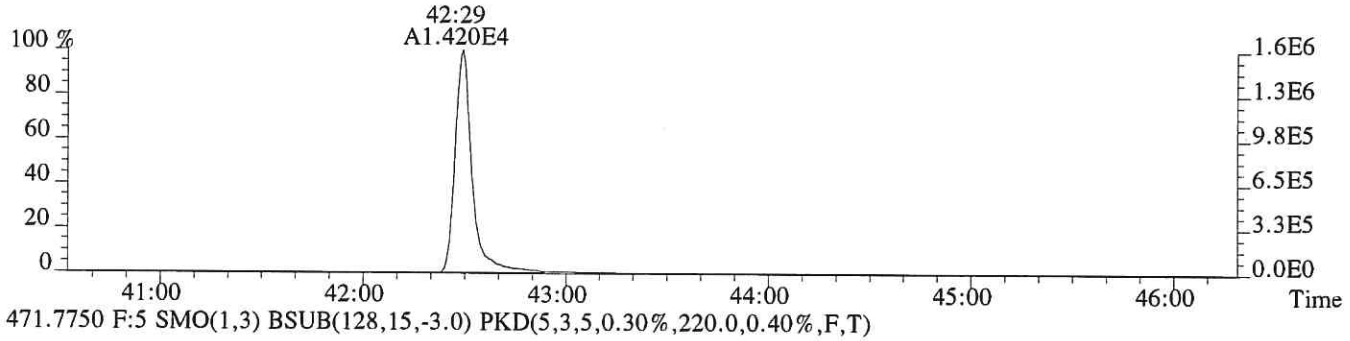
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



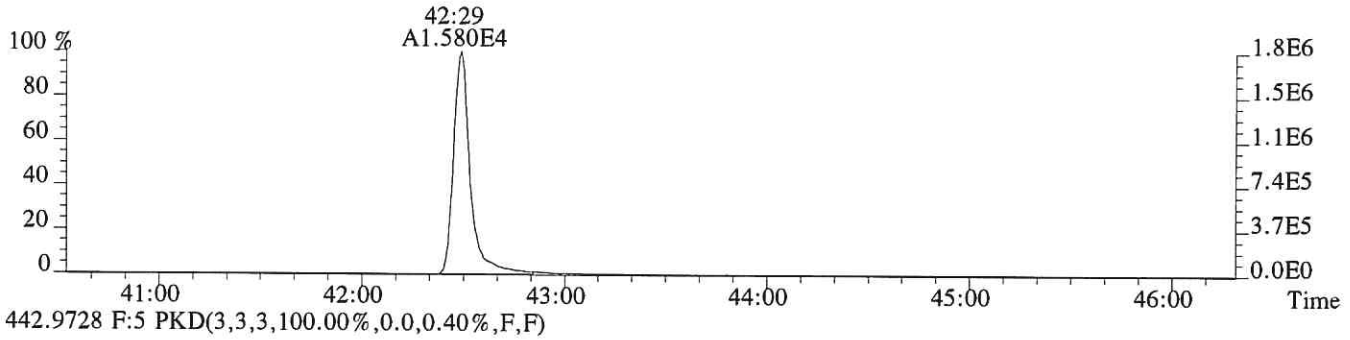
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



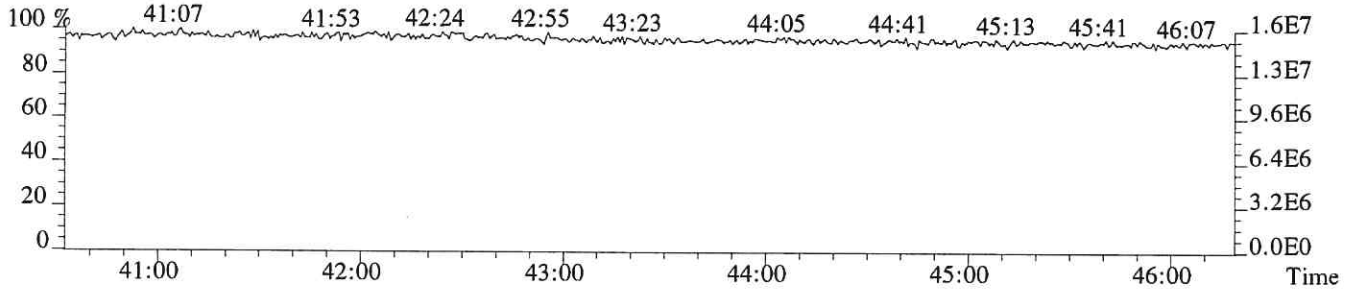
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 Sample ID: EQ1800499-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.001e+01	8.252e+00	1.21	no	yes	1.112
17	Unk	OCDD	41:42	3.477e+01	5.631e+01	0.62	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	1.477e+04	1.886e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	2.829e+04	1.792e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:49	2.645e+04	1.677e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	1.254e+04	2.391e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	1.500e+04	2.734e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	1.123e+04	2.178e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	1.095e+04	2.163e+04	0.51	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	9.248e+03	1.999e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	7.635e+03	1.720e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	8.050e+03	1.075e+04	0.75	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	2.175e+04	1.442e+04	1.51	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	1.828e+04	1.465e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	1.791e+04	1.402e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	1.664e+04	1.628e+04	1.02	yes	no	0.857
32	IS	13C-OCDD	41:41	1.180e+04	1.330e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	2.703e+04	3.456e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	3.937e+04	3.054e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	1.144e+04				no	1.086

$$\text{OCDD} = \frac{(3.477e+01 + 5.631e+01) \times 4000\ \text{pg} \times 1}{(1.180e+04 + 1.330e+04) \times \text{g} \times / 100 \times 1.157} =$$

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 LAB. ID: EQ1800499-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.45e+03	*	*	4.19e+03	*
2	1,2,3,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
3	2,3,4,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.64e+03	*	*	9.20e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.68e+02	*	*	5.76e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.68e+02	*	*	5.76e+02	*
10	OCDF	*	9.72e+02	*	*	2.94e+03	*
11	2,3,7,8-TCDD	*	4.27e+03	*	*	1.78e+03	*
12	1,2,3,7,8-PeCDD	*	1.80e+03	*	*	8.08e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
14	1,2,3,6,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
15	1,2,3,7,8,9-HxCDD	*	9.24e+02	*	*	1.27e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.12e+03	6.00e+02	5.2e+00	2.49e+03	6.20e+02	4.0e+00
17	OCDD	5.96e+03	6.08e+02	9.8e+00	1.10e+04	4.16e+02	2.6e+01
18	13C-2,3,7,8-TCDF	2.35e+06	1.06e+04	2.2e+02	2.98e+06	1.02e+04	2.9e+02
19	13C-1,2,3,7,8-PeCDF	4.84e+06	1.86e+03	2.6e+03	3.09e+06	5.84e+02	5.3e+03
20	13C-2,3,4,7,8-PeCDF	4.68e+06	1.86e+03	2.5e+03	2.98e+06	5.84e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.64e+06	9.36e+02	2.8e+03	5.02e+06	2.52e+03	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.94e+06	9.36e+02	3.1e+03	5.22e+06	2.52e+03	2.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.26e+06	9.36e+02	2.4e+03	4.44e+06	2.52e+03	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.04e+06	9.36e+02	2.2e+03	3.91e+06	2.52e+03	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.89e+06	4.73e+03	4.0e+02	4.15e+06	3.78e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+06	4.73e+03	3.0e+02	3.13e+06	3.78e+03	8.3e+02
27	13C-2,3,7,8-TCDD	1.35e+06	1.38e+04	9.8e+01	1.78e+06	5.92e+03	3.0e+02
28	13C-1,2,3,7,8-PeCDD	3.84e+06	2.64e+03	1.5e+03	2.50e+06	2.18e+03	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	1.54e+03	2.6e+03	3.20e+06	1.14e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.59e+06	1.54e+03	2.3e+03	2.80e+06	1.14e+03	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.25e+06	1.64e+03	2.0e+03	3.17e+06	7.56e+02	4.2e+03
32	13C-OCDD	1.99e+06	6.60e+02	3.0e+03	2.21e+06	6.64e+02	3.3e+03
33	13C-1,2,3,4-TCDD	4.62e+06	1.38e+04	3.3e+02	5.96e+06	5.92e+03	1.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.78e+06	1.54e+03	5.0e+03	6.00e+06	1.14e+03	5.3e+03
35	37Cl-2,3,7,8-TCDD	1.93e+06	1.23e+03	1.6e+03			

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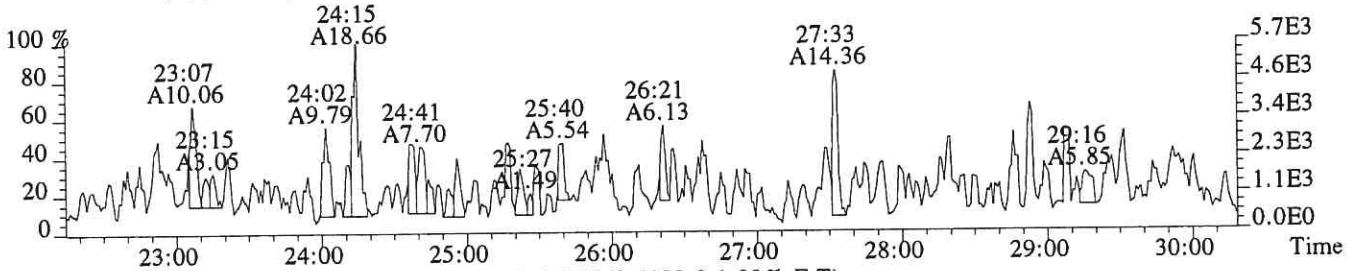
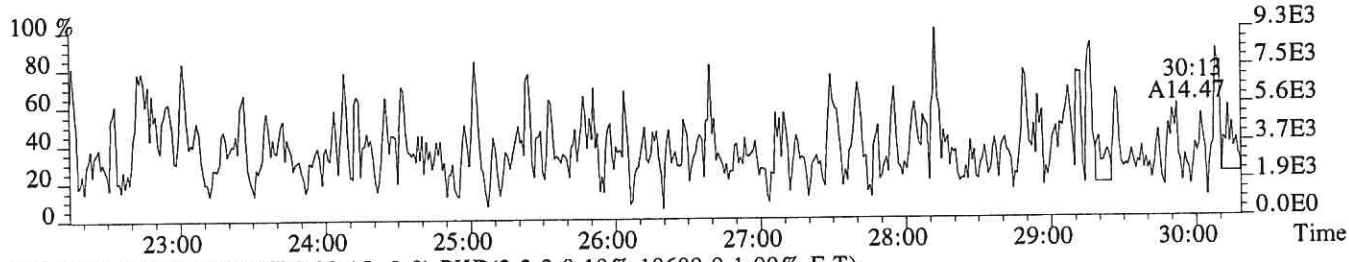
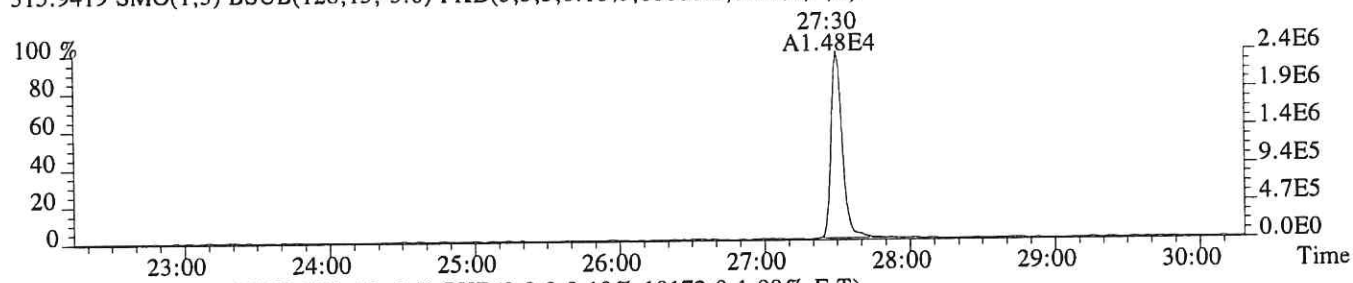
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



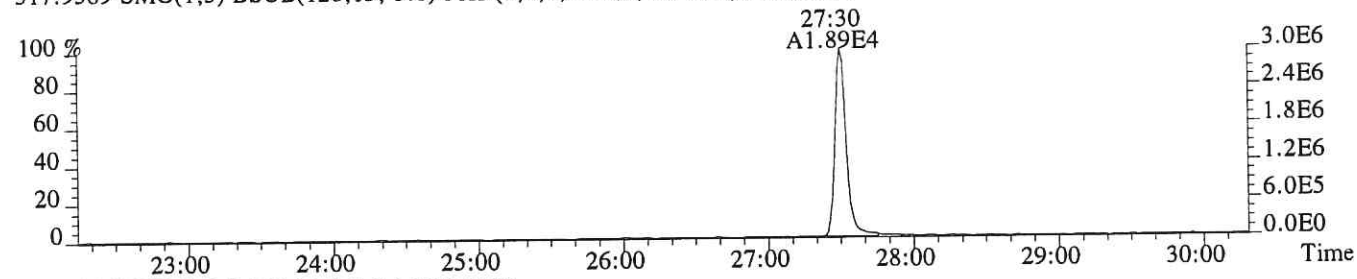
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4192.0,1.00%,F,T)



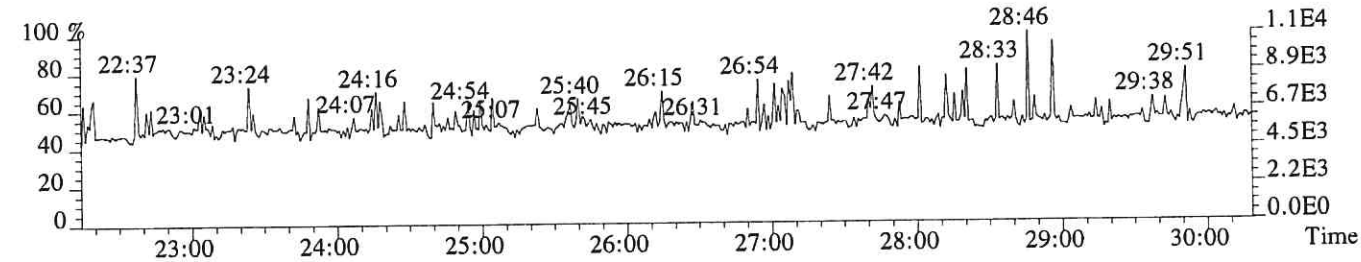
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10600.0,1.00%,F,T)



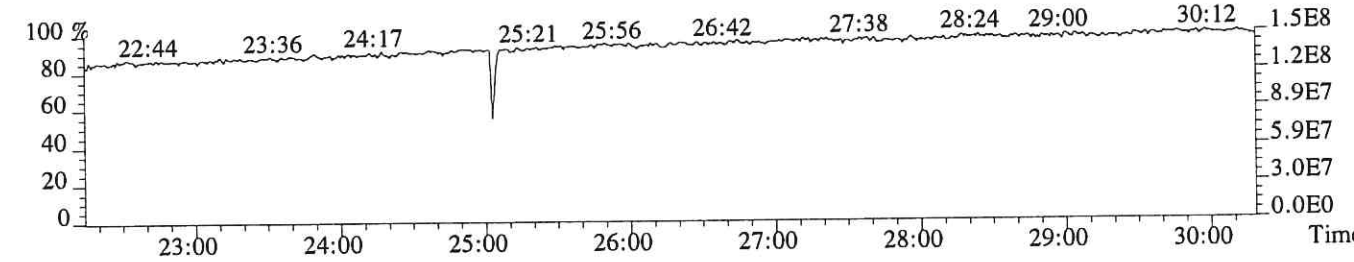
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10172.0,1.00%,F,T)



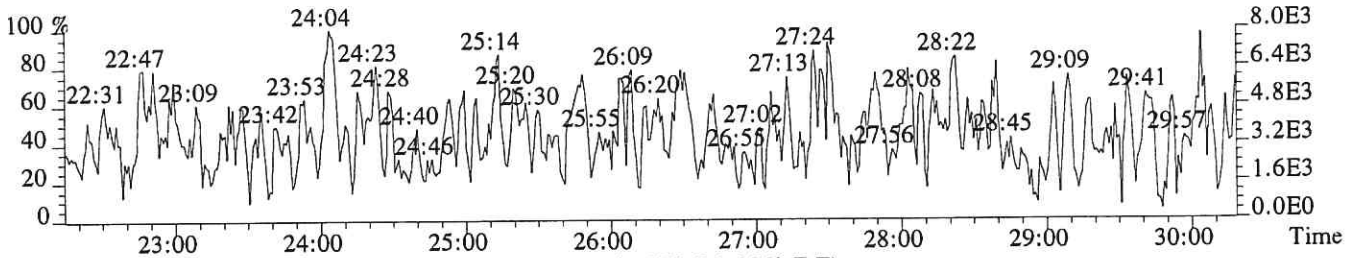
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



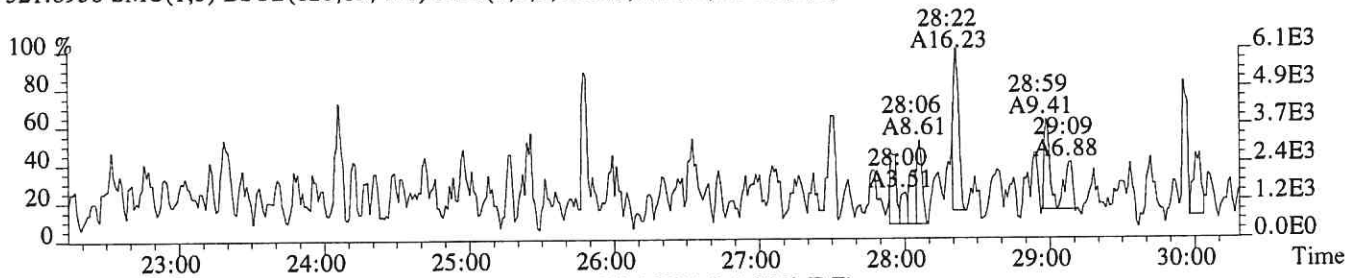
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



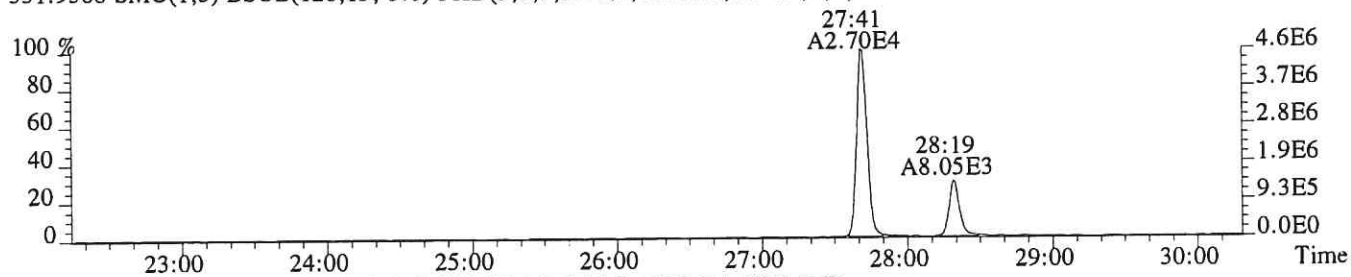
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4268.0,1.00%,F,T)



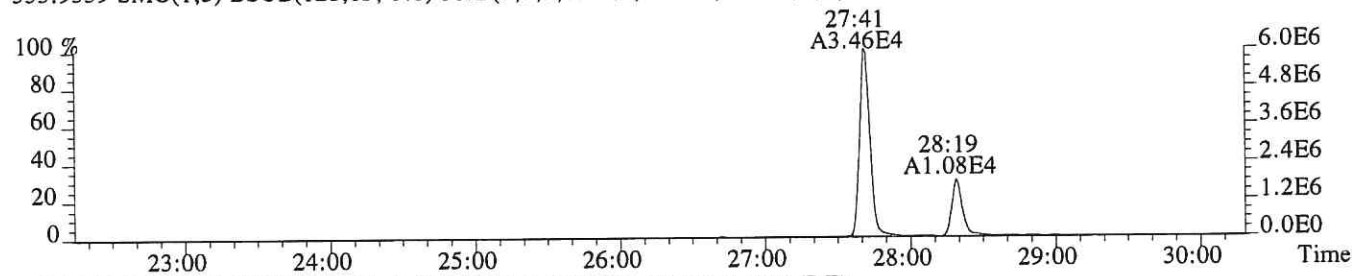
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



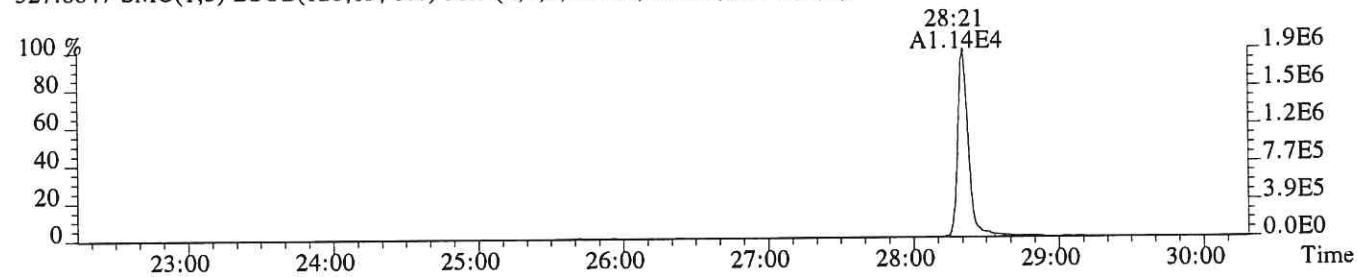
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



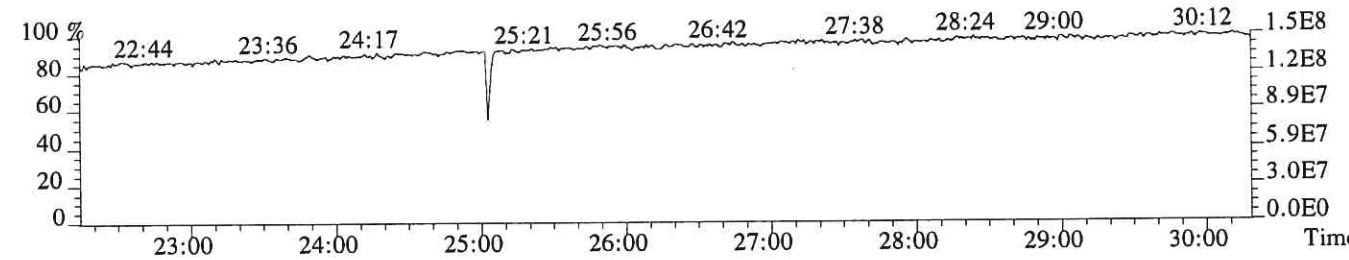
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5920.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)

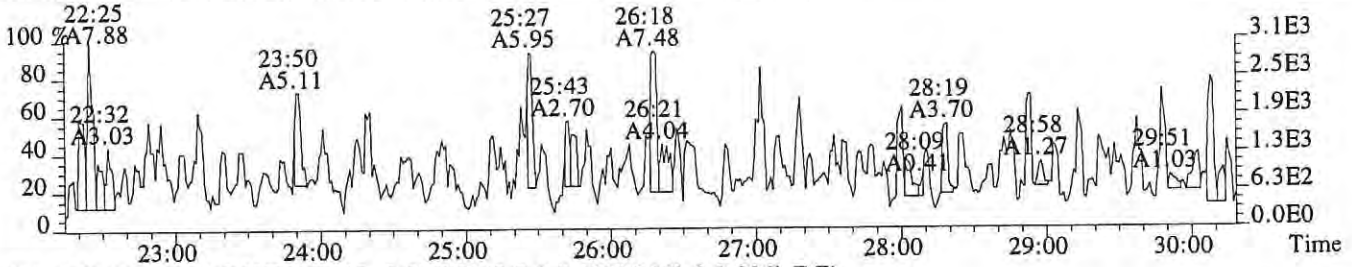


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

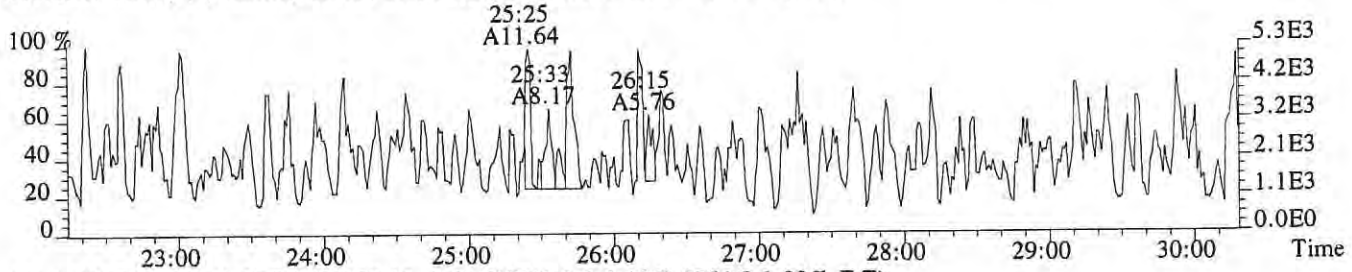


File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

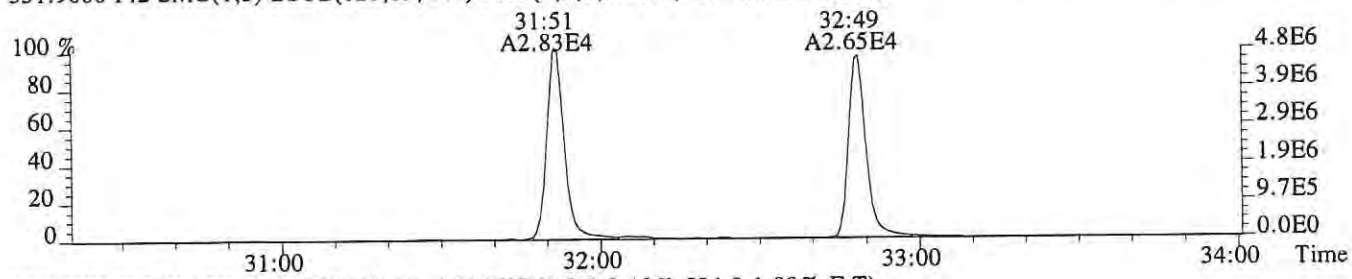
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



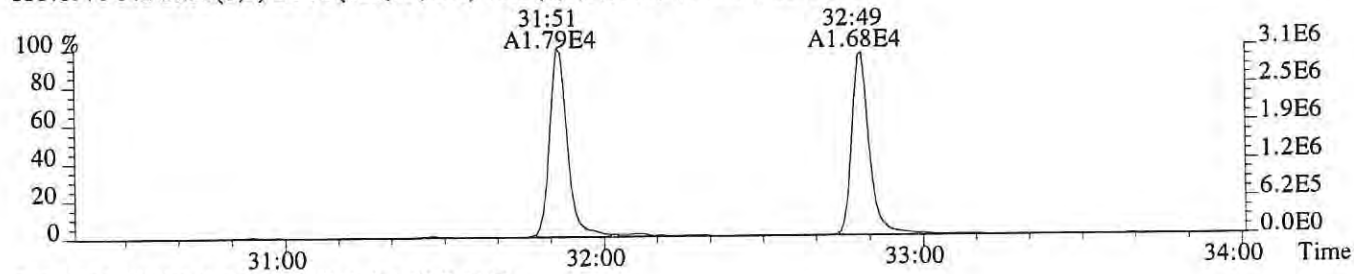
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



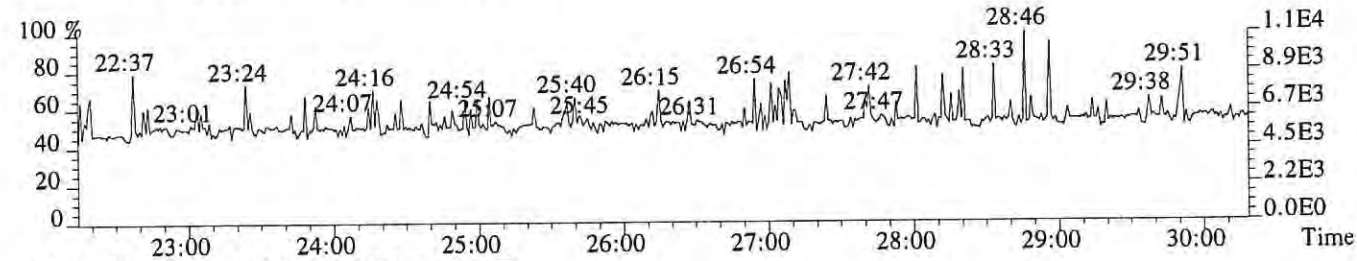
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



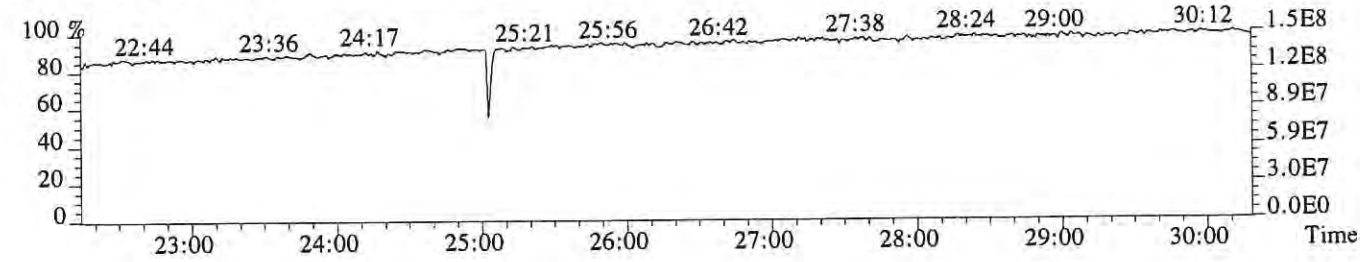
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

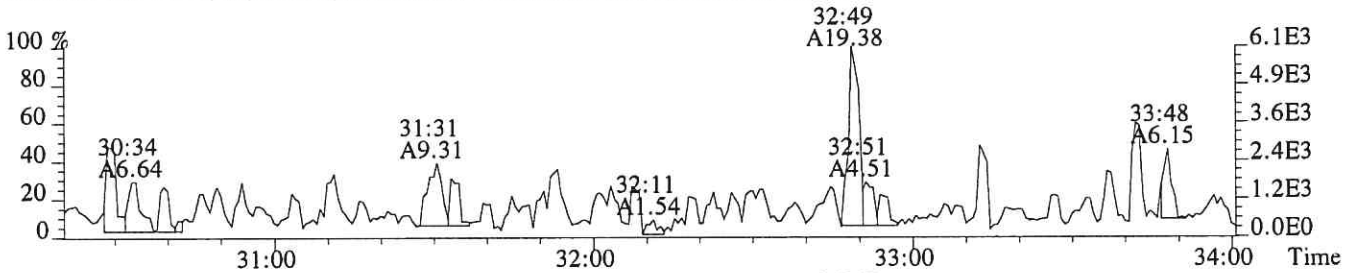


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

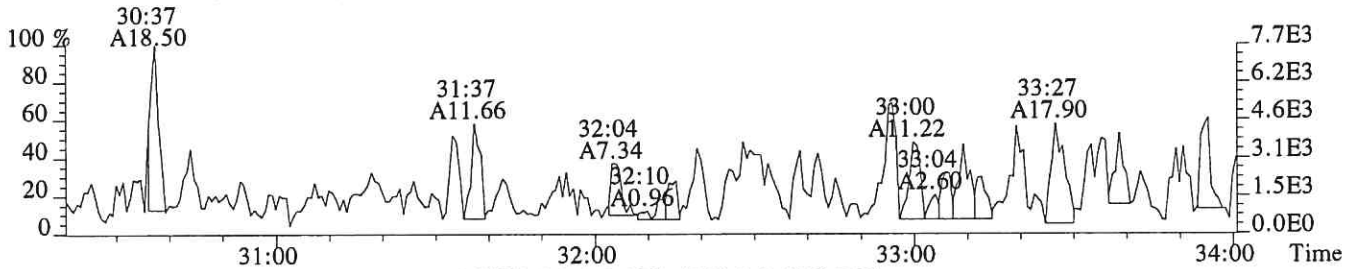


File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

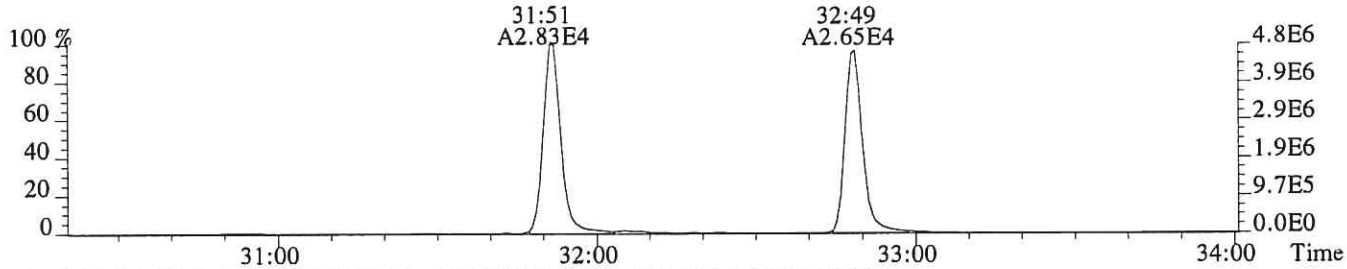
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



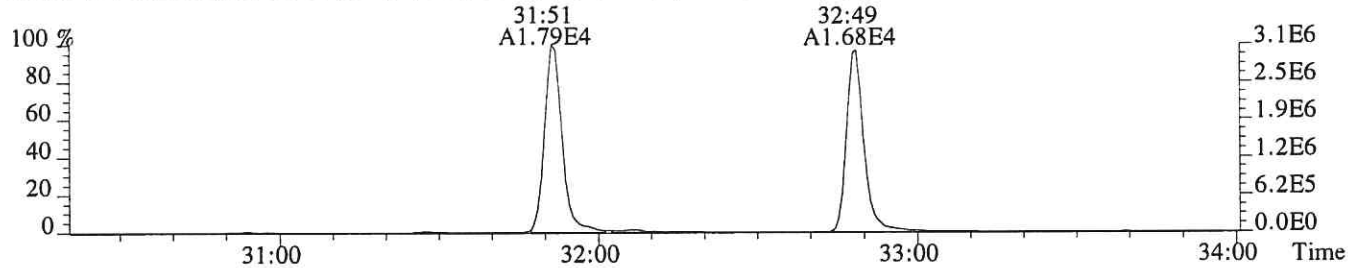
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



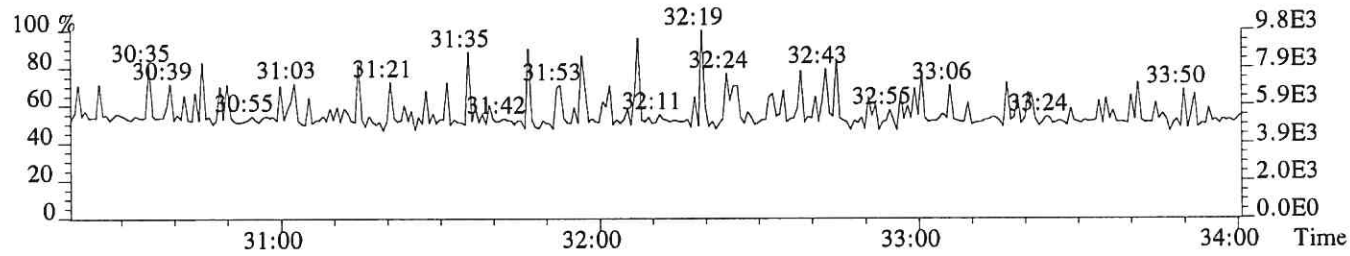
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



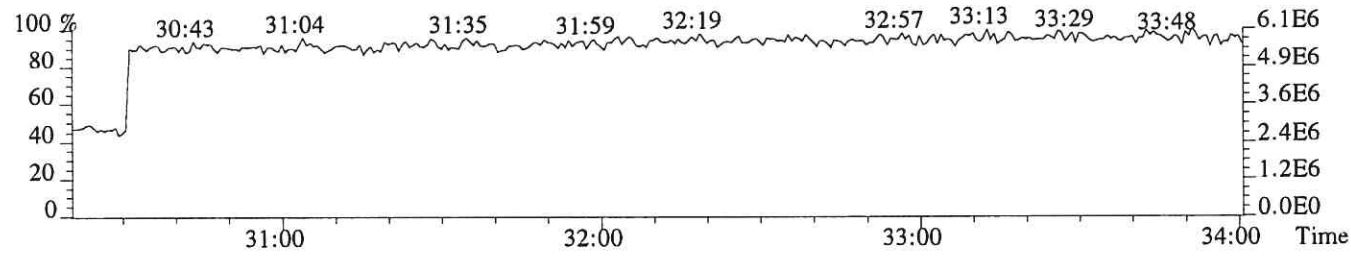
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



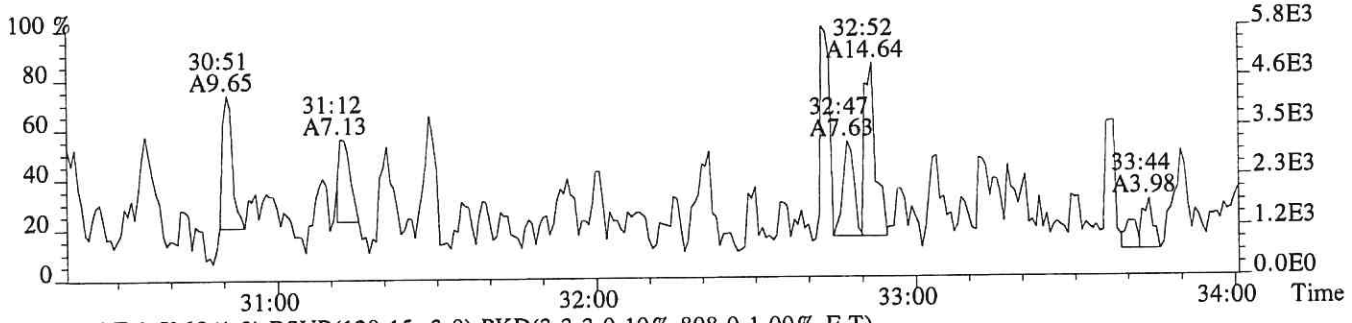
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



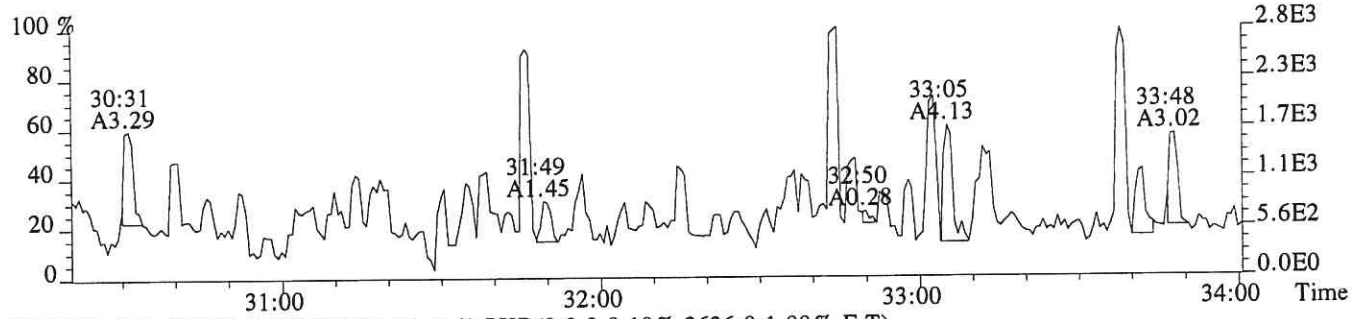
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



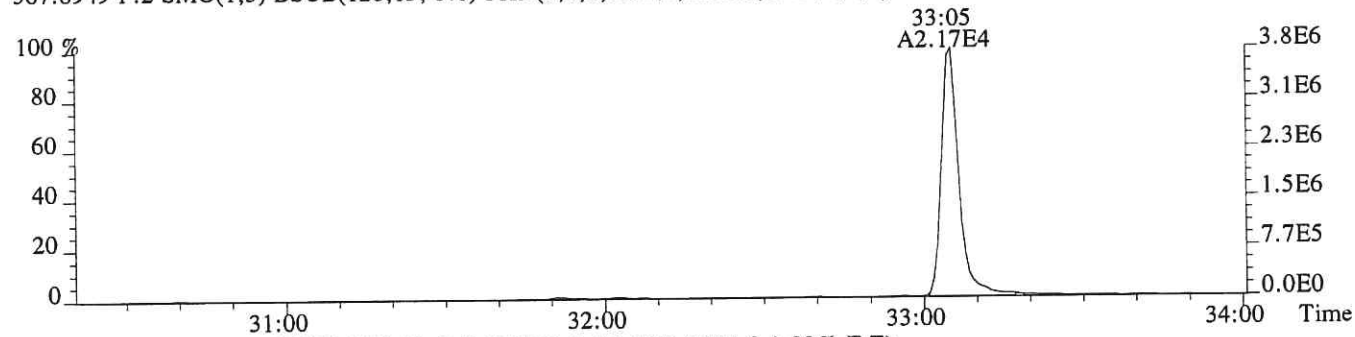
File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



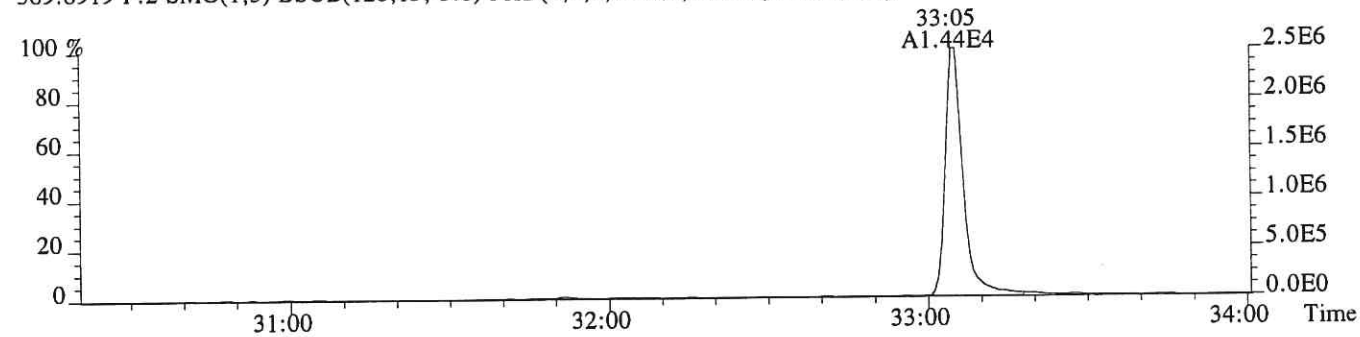
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



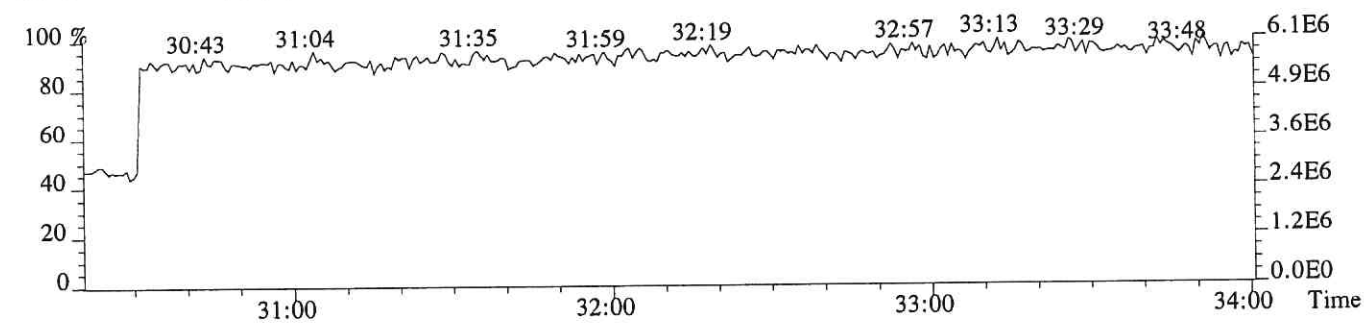
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)

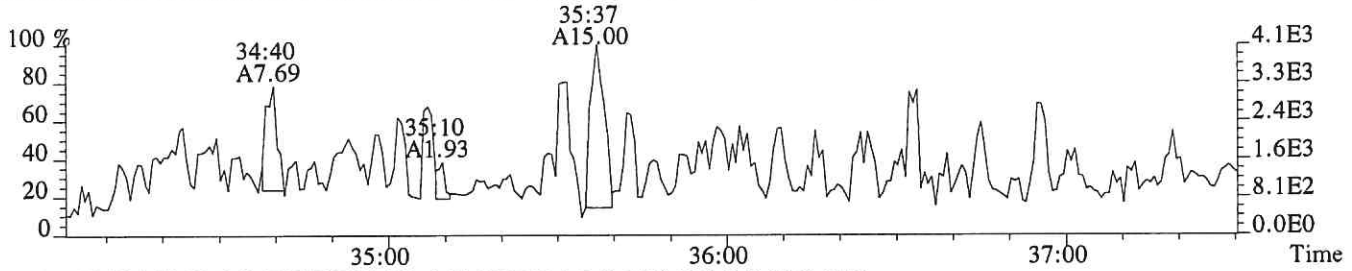


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

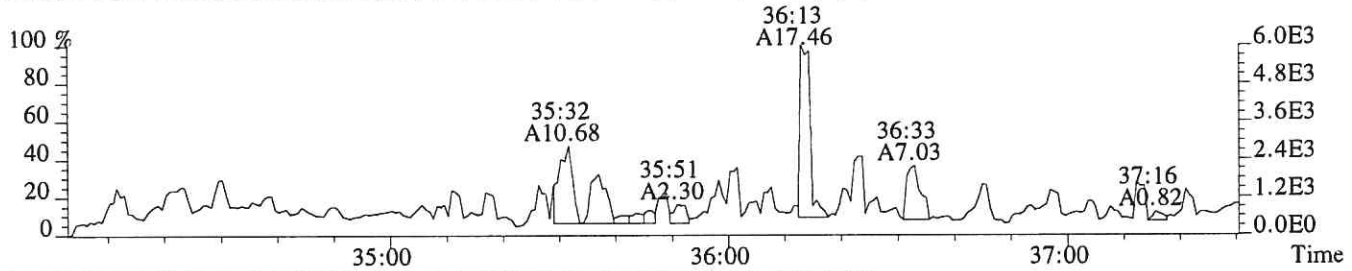


File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

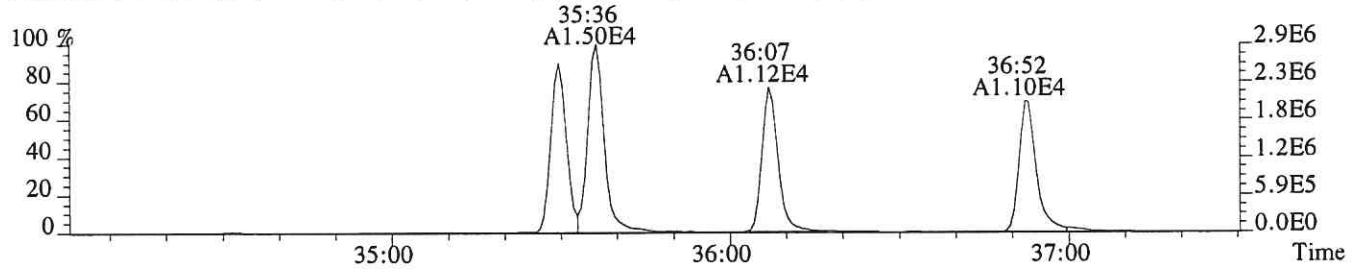
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



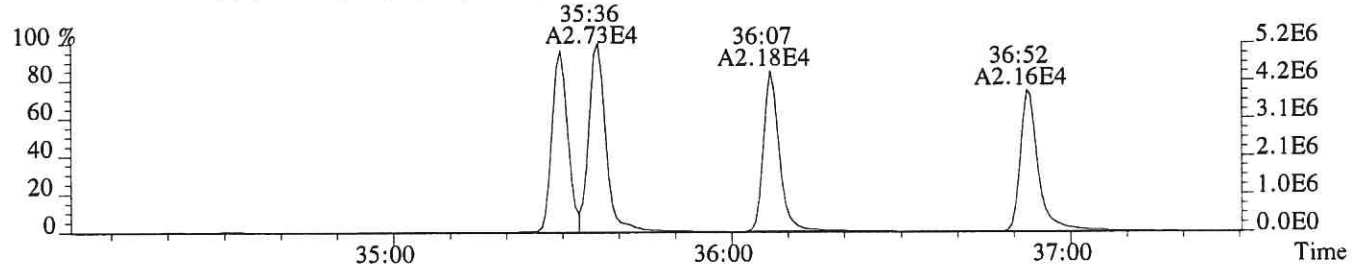
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



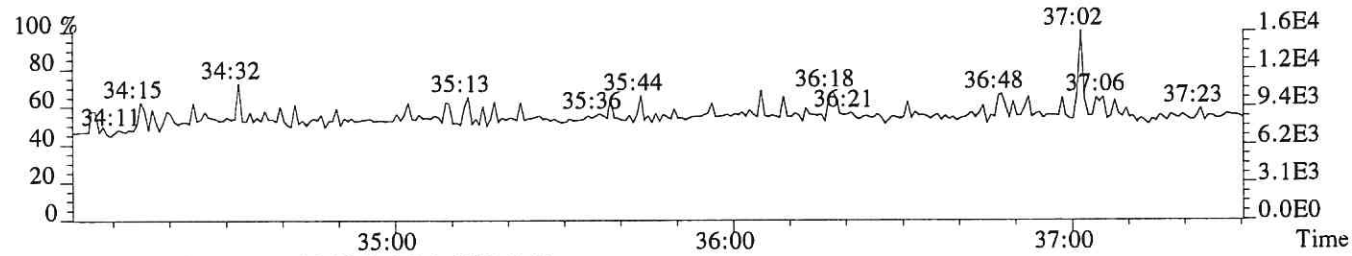
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



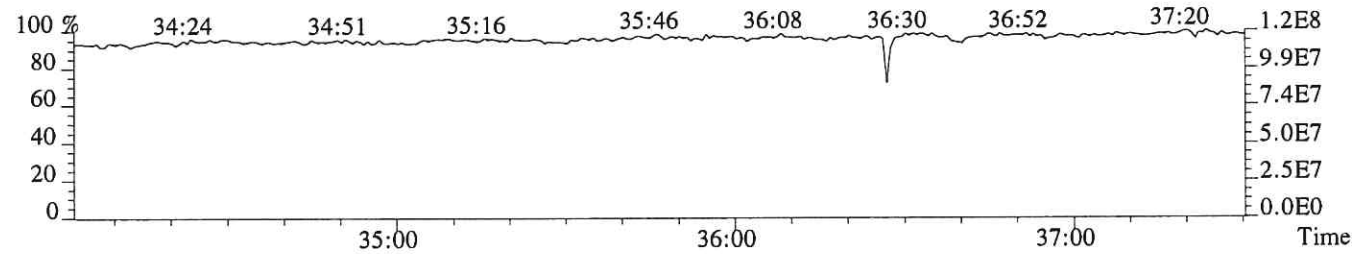
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.40%,F,T)



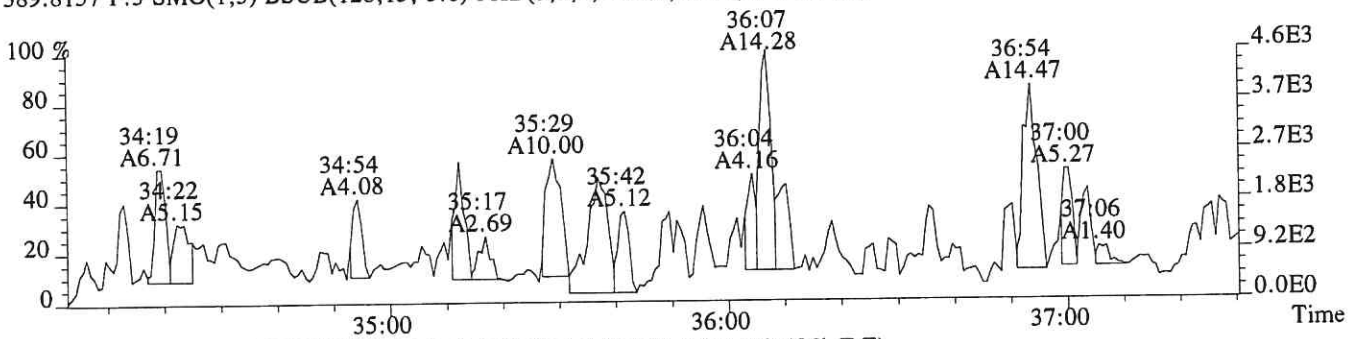
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



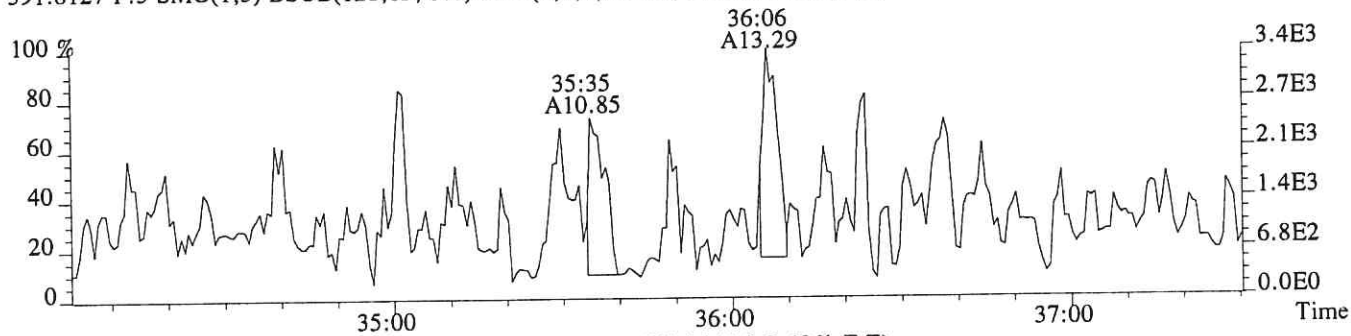
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



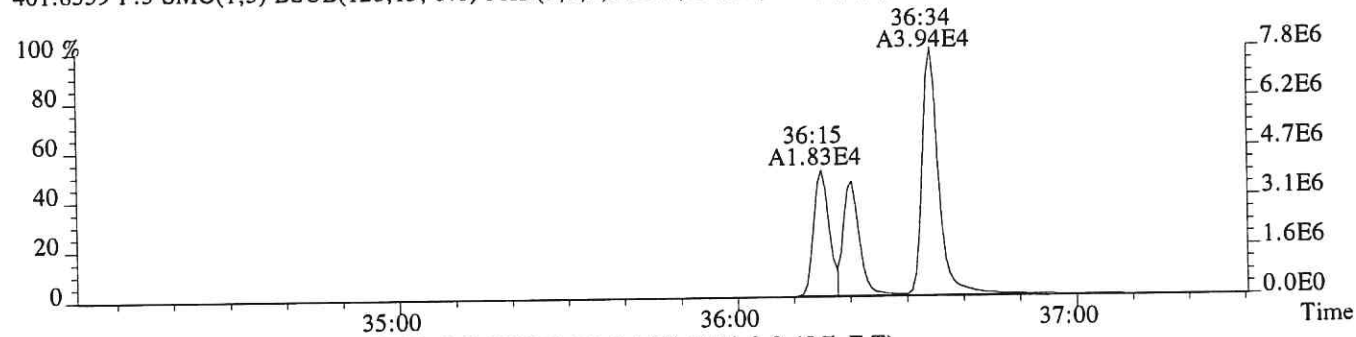
File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



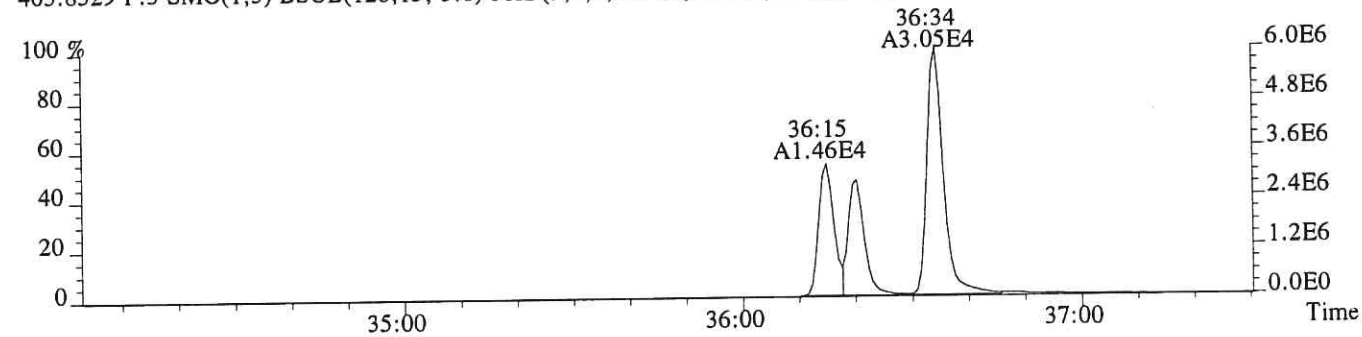
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



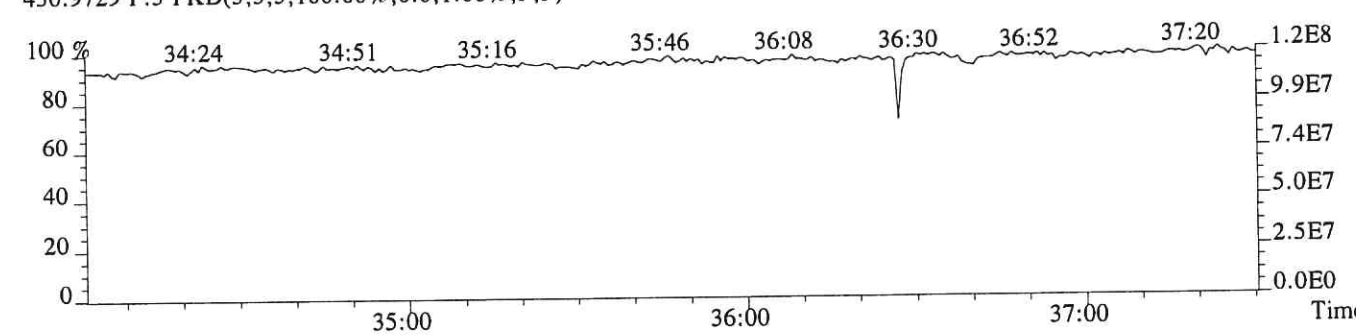
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



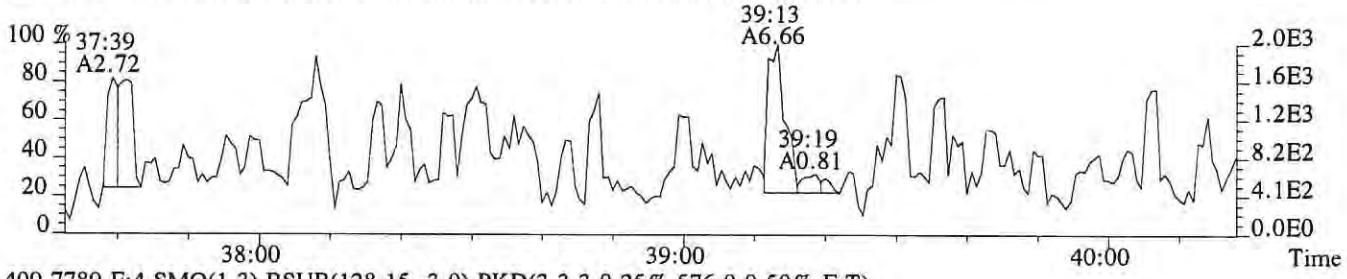
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



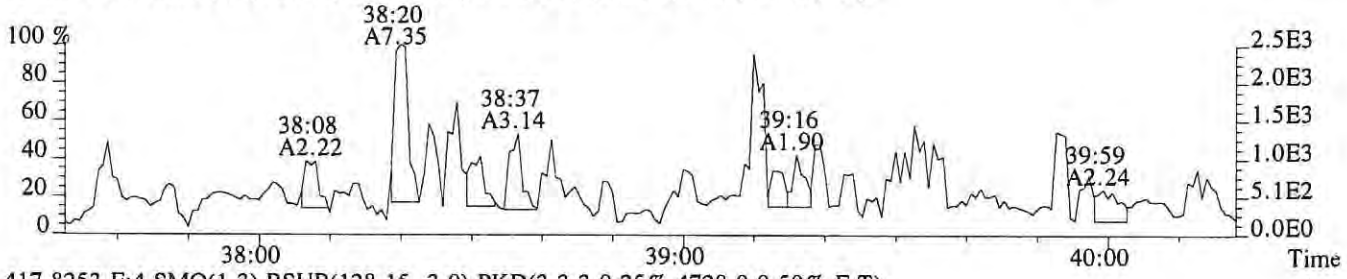
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



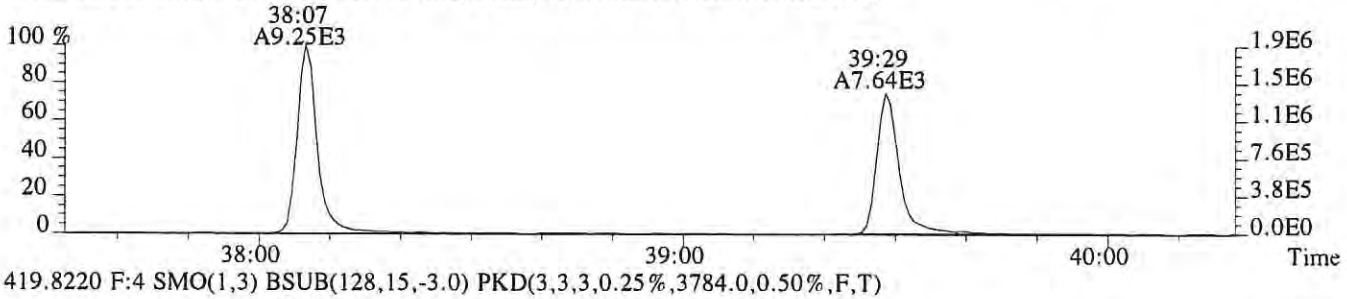
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



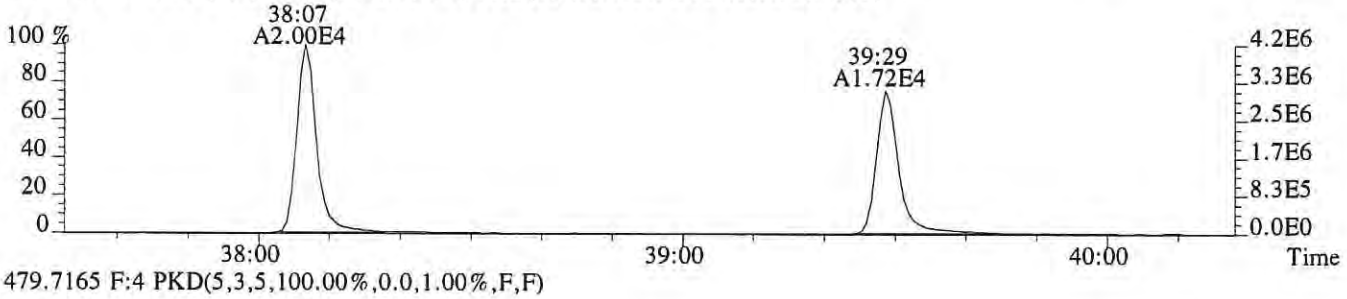
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.50%,F,T)



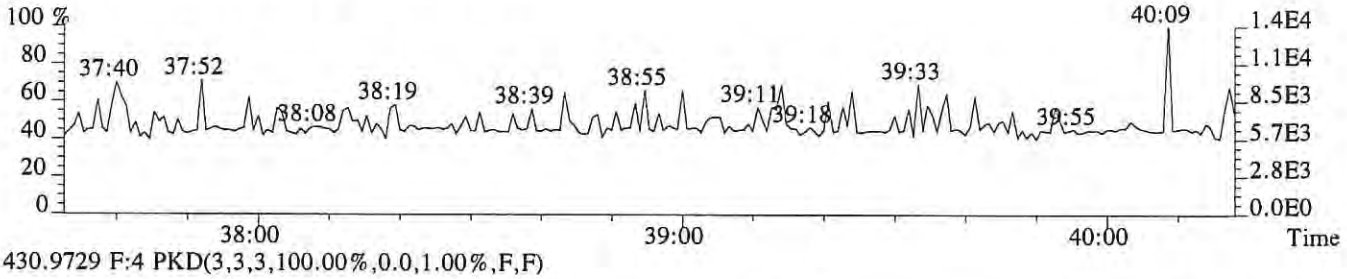
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4728.0,0.50%,F,T)



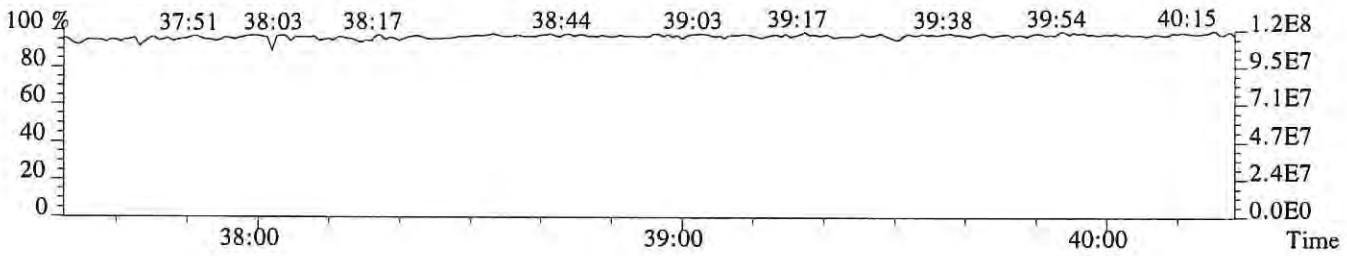
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3784.0,0.50%,F,T)



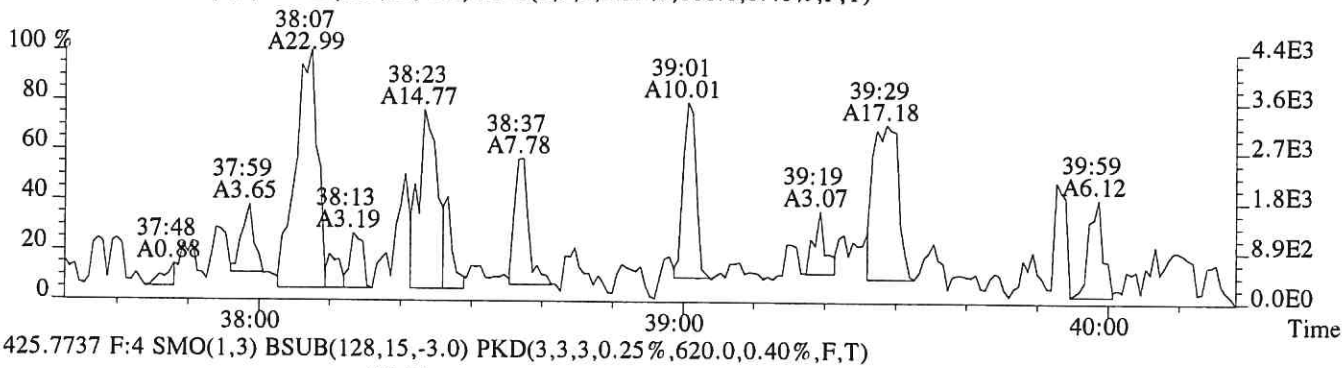
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



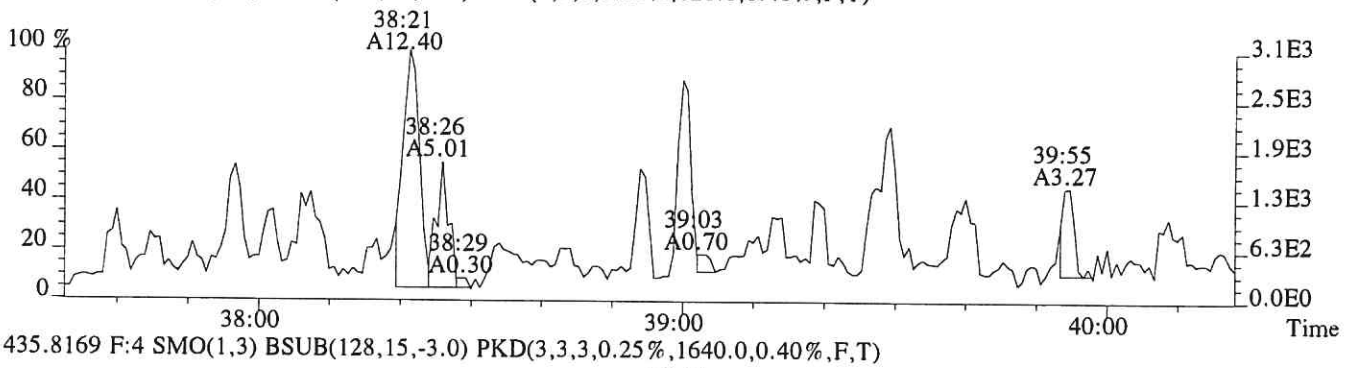
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



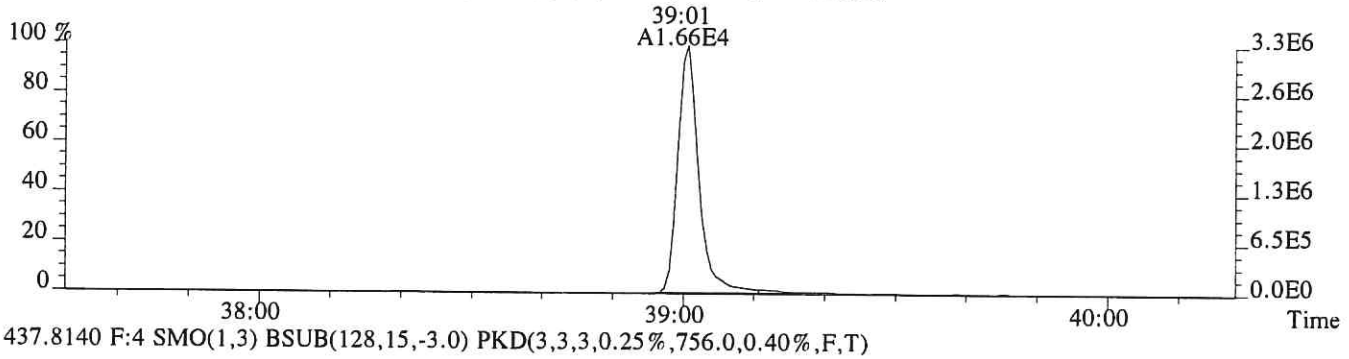
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



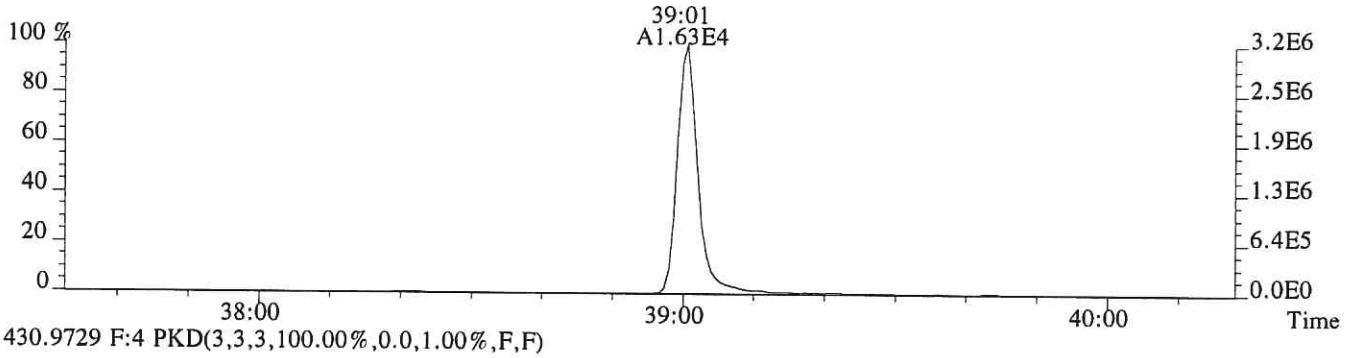
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



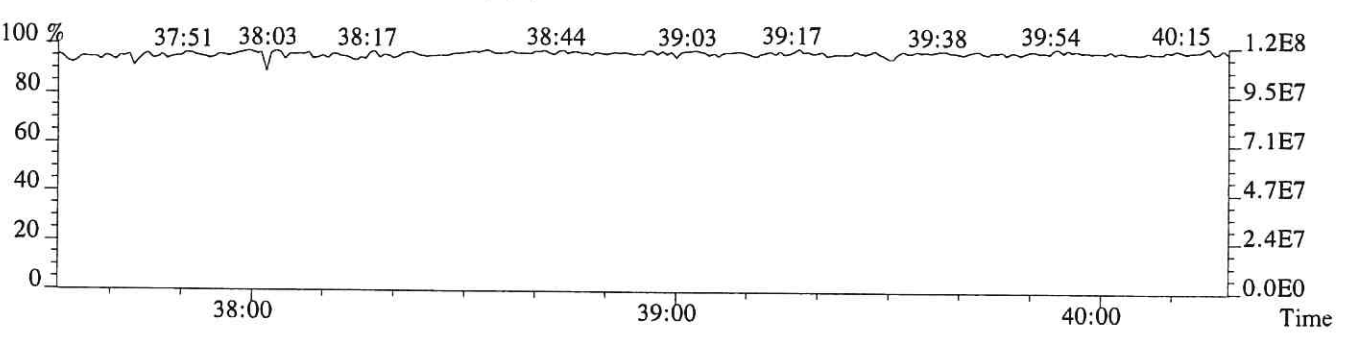
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



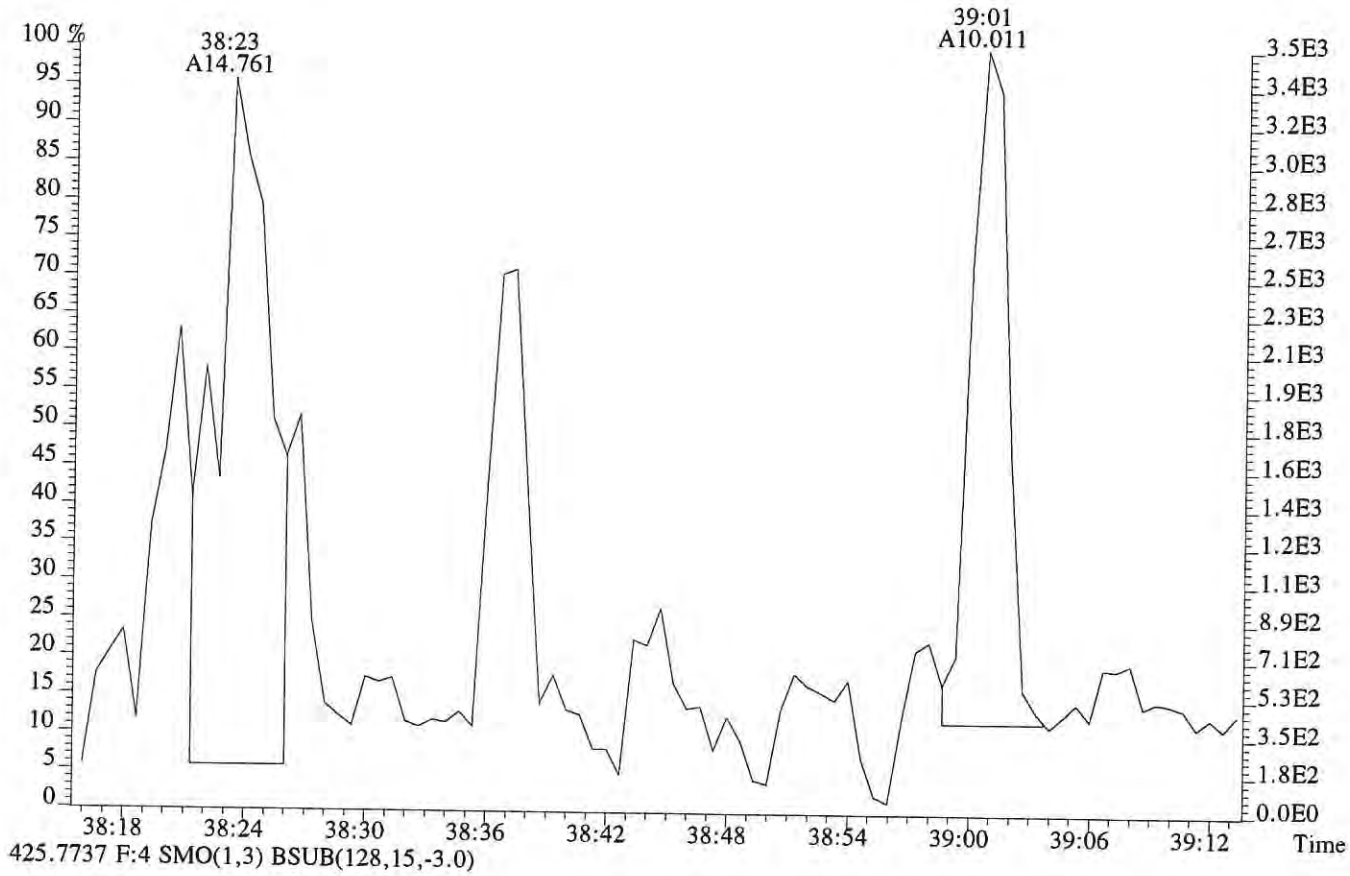
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



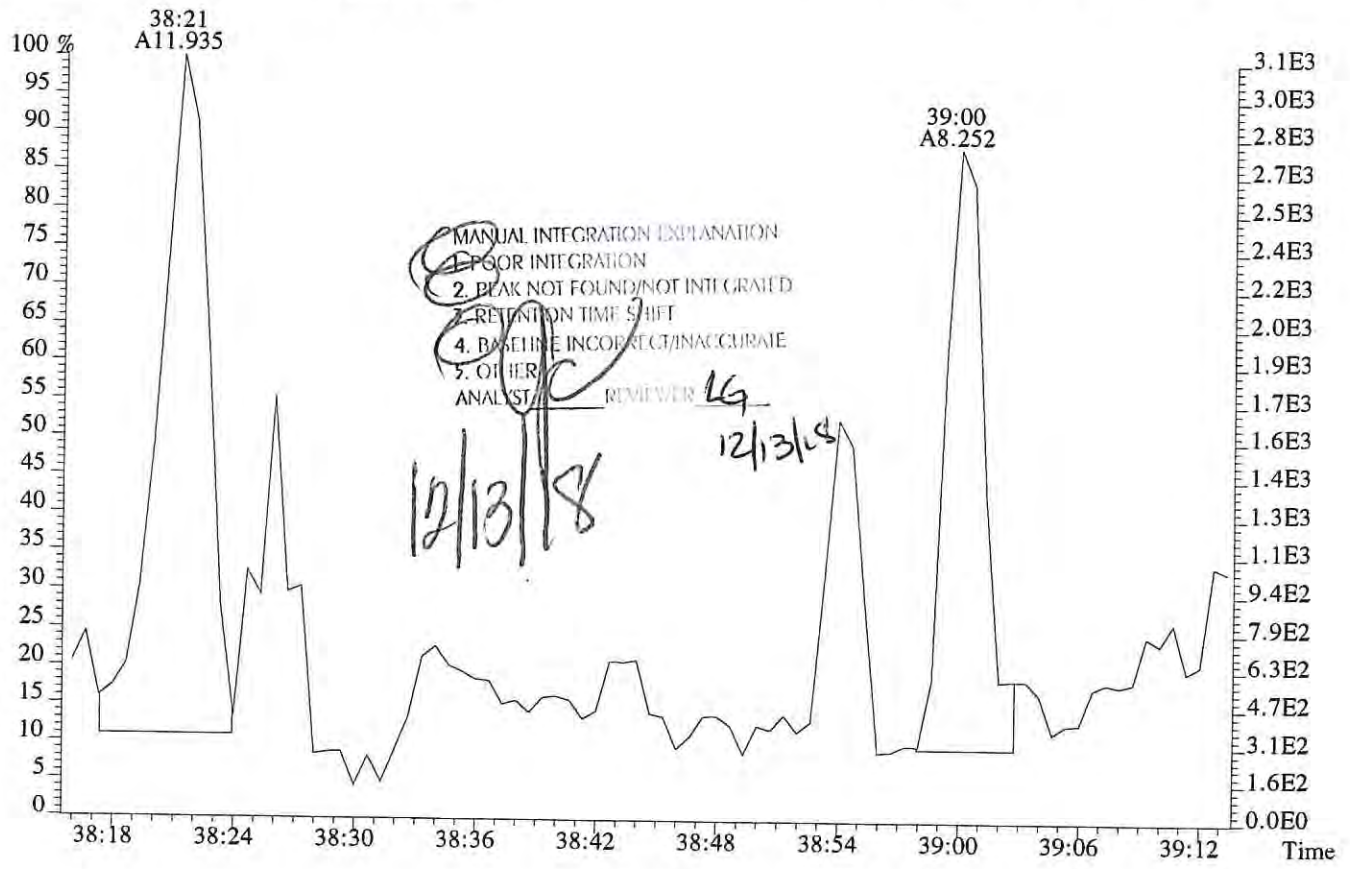
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0)



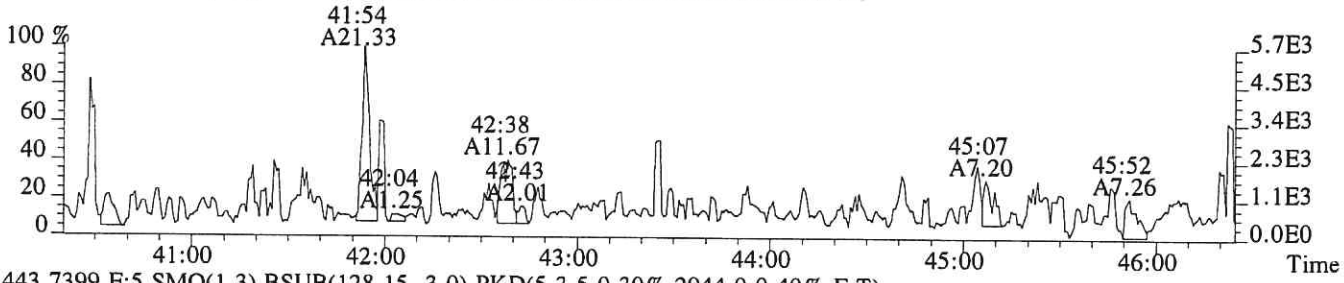
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0)



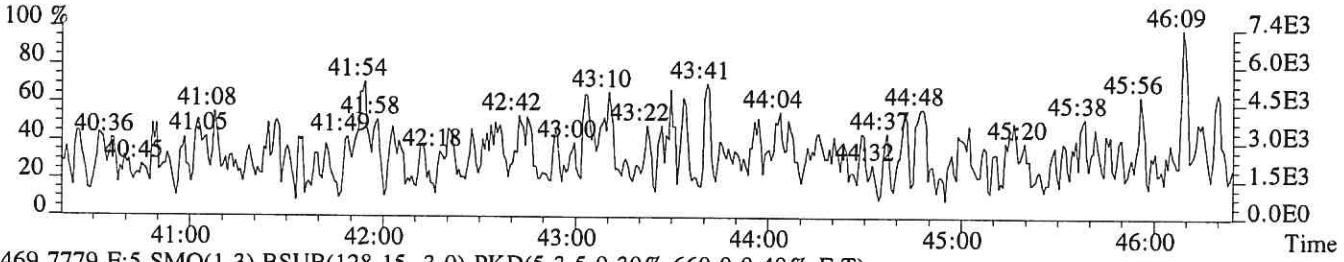
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST RC REVIEWER LG
12/13/18
12/13/18

File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

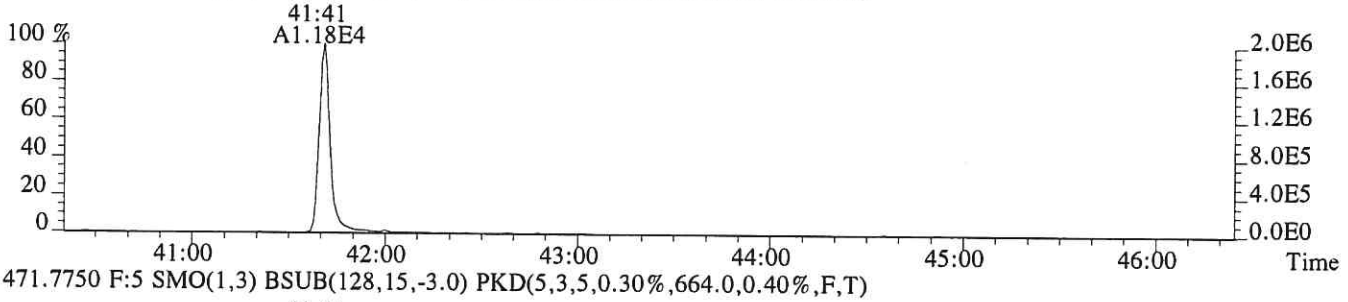
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,972.0,0.40%,F,T)



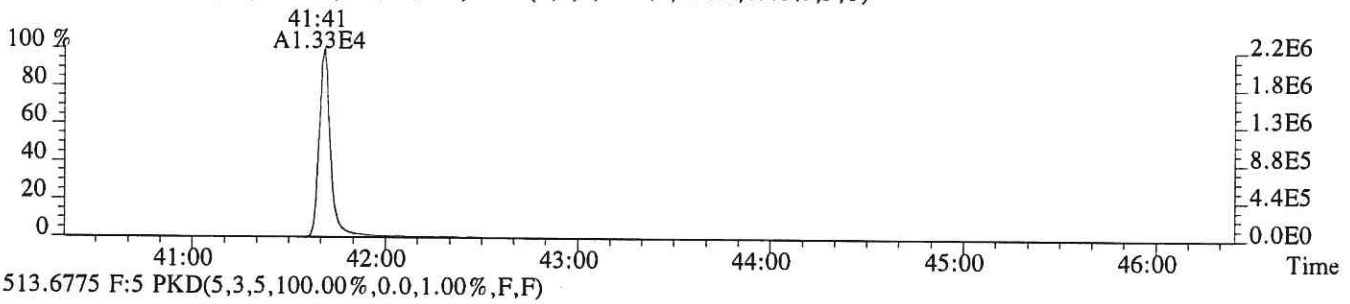
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2944.0,0.40%,F,T)



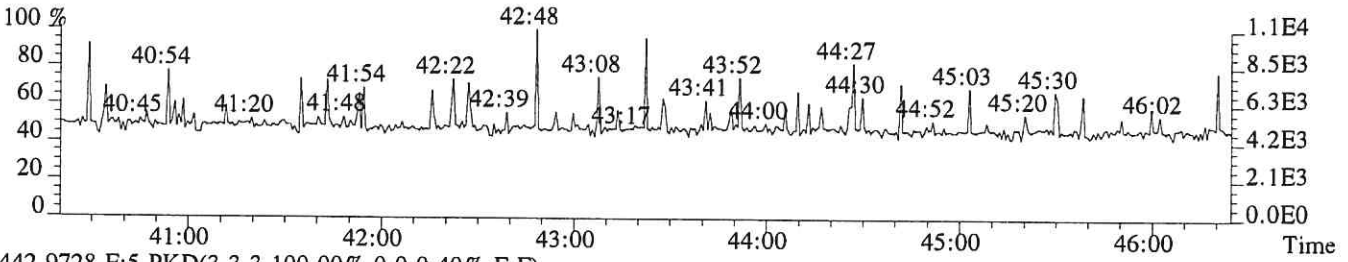
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



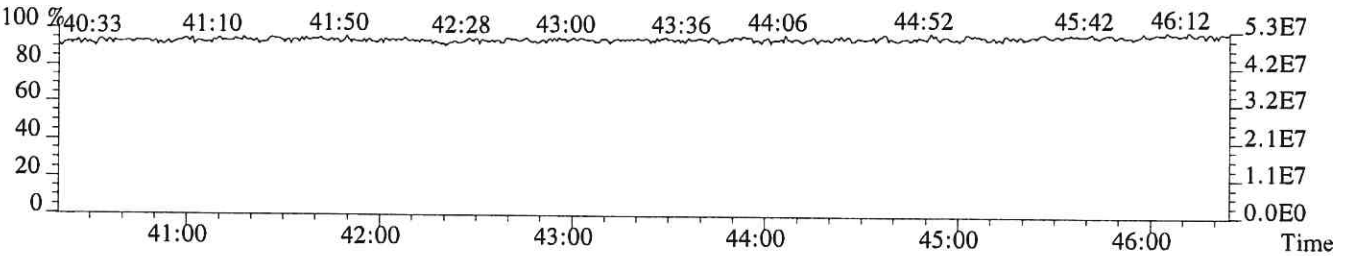
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

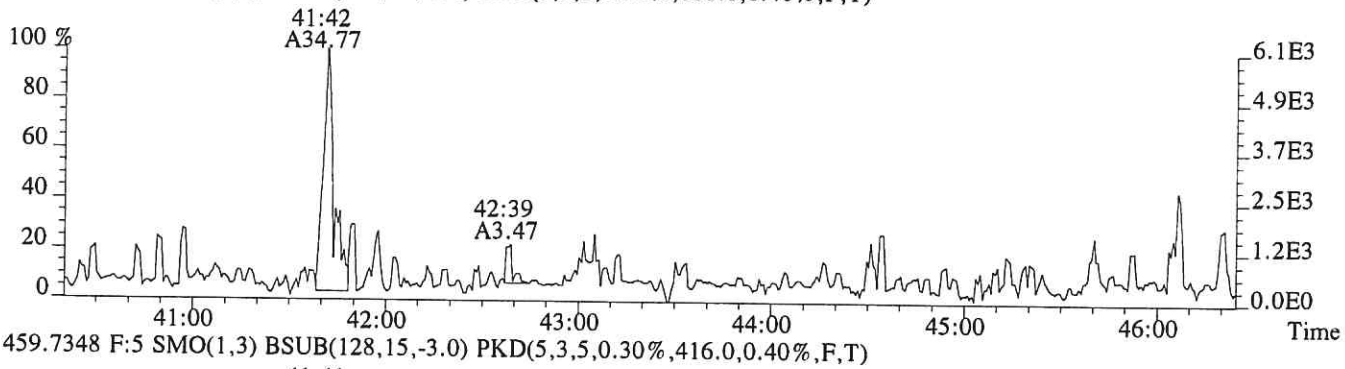


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

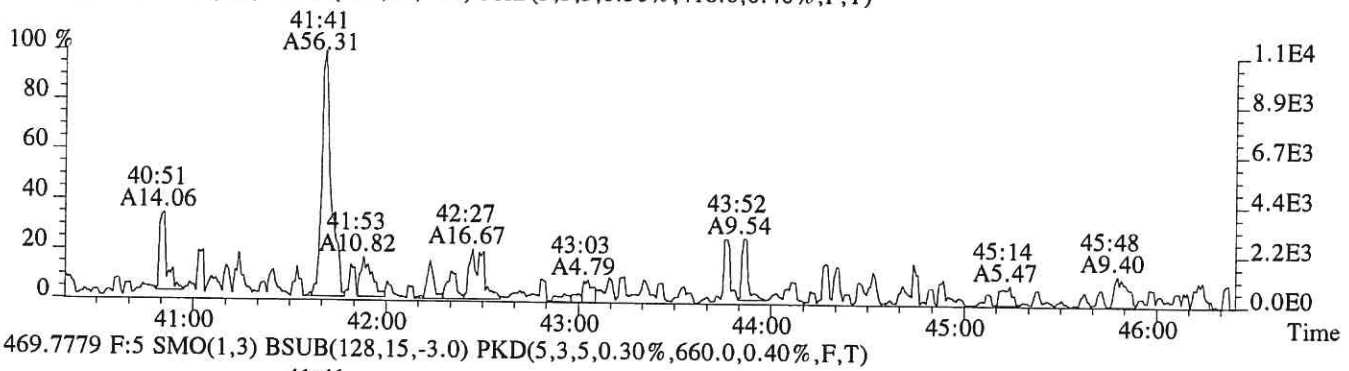


File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

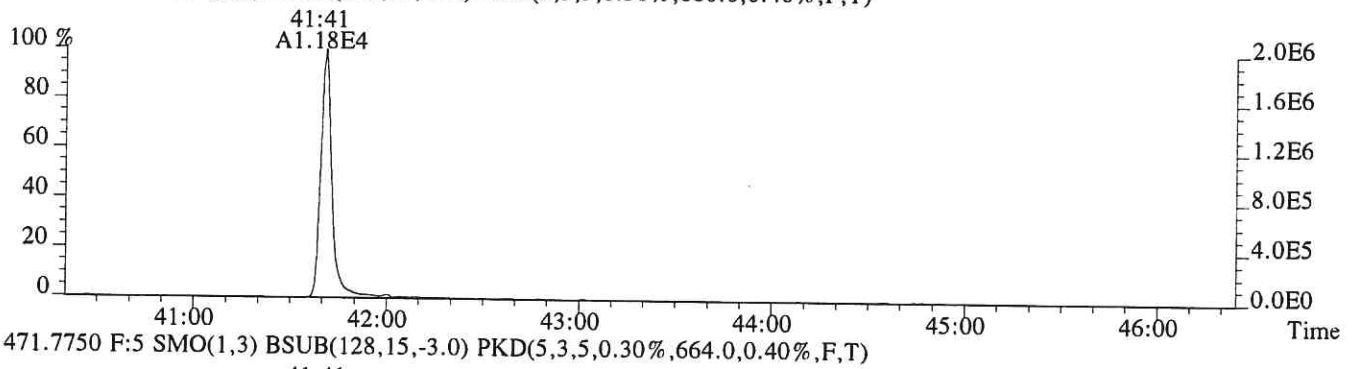
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



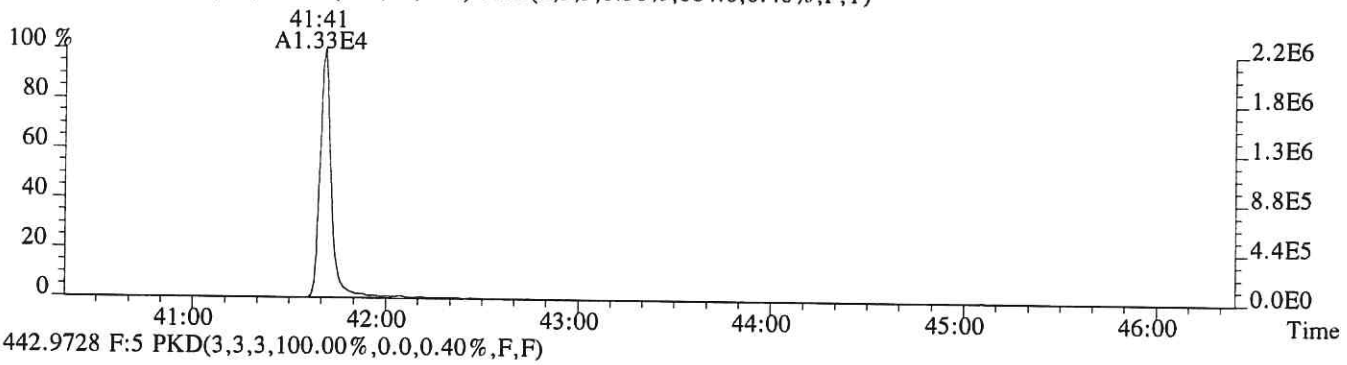
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



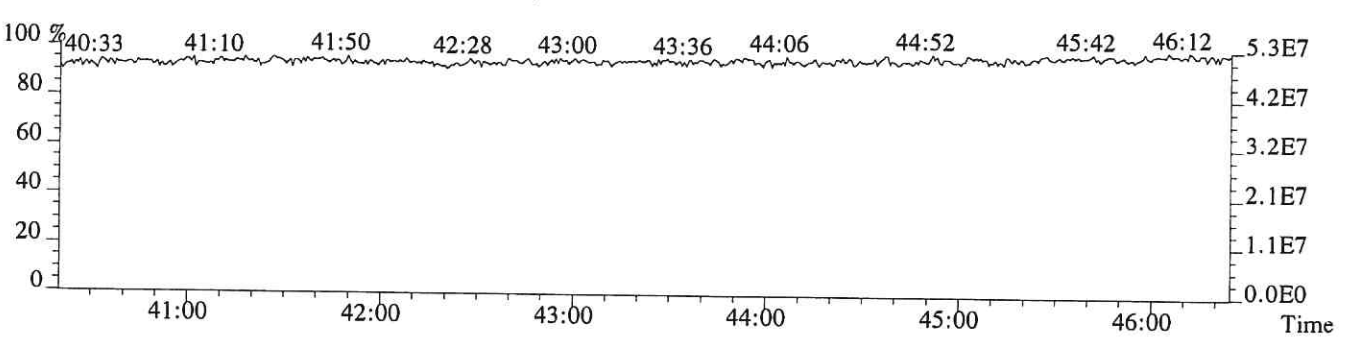
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 Sample ID: EQ1800499-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.949e+03	5.314e+03	0.74	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	3.305e+04	2.161e+04	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	3.202e+04	2.105e+04	1.52	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	3.219e+04	2.506e+04	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.317e+04	2.702e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	3.002e+04	2.507e+04	1.20	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.711e+04	2.164e+04	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	2.500e+04	2.452e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	2.050e+04	2.068e+04	0.99	yes	no	1.463
10	Unk	OCDF	41:52	2.423e+04	2.681e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:20	3.272e+03	4.124e+03	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	2.468e+04	1.608e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:15	2.165e+04	1.757e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.252e+04	1.815e+04	1.24	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	2.360e+04	1.858e+04	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.658e+04	1.545e+04	1.07	yes	no	1.112
17	Unk	OCDD	41:40	1.860e+04	2.074e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:28	4.281e+04	5.403e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	7.131e+04	4.568e+04	1.56	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	6.777e+04	4.268e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	3.166e+04	6.005e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.559e+04	6.687e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.189e+04	6.126e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.912e+04	5.633e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.232e+04	4.915e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.904e+04	4.361e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	2.292e+04	2.918e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	5.480e+04	3.506e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.674e+04	3.643e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.391e+04	3.493e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	4.332e+04	4.070e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:40	3.289e+04	3.626e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:38	3.371e+04	4.319e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.990e+04	4.928e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:19	3.064e+04				no	1.086

$$\text{OCDD} = \frac{(1.860e+04 + 2.074e+04) \times 4000\ \text{pg} \times 1}{(3.289e+04 + 3.626e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 LAB. ID: EQ1800499-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.53e+05	1.89e+03	3.5e+02	8.69e+05	3.57e+03	2.4e+02
2	1,2,3,7,8-PeCDF	5.93e+06	8.40e+02	7.1e+03	3.88e+06	3.68e+03	1.1e+03
3	2,3,4,7,8-PeCDF	5.86e+06	8.40e+02	7.0e+03	3.91e+06	3.68e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	6.79e+06	1.01e+03	6.7e+03	5.26e+06	8.16e+02	6.4e+03
5	1,2,3,6,7,8-HxCDF	6.72e+06	1.01e+03	6.7e+03	5.35e+06	8.16e+02	6.6e+03
6	2,3,4,6,7,8-HxCDF	6.37e+06	1.01e+03	6.3e+03	5.25e+06	8.16e+02	6.4e+03
7	1,2,3,7,8,9-HxCDF	5.30e+06	1.01e+03	5.3e+03	4.30e+06	8.16e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	5.40e+06	3.58e+03	1.5e+03	5.15e+06	2.17e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	3.95e+06	3.58e+03	1.1e+03	3.91e+06	2.17e+03	1.8e+03
10	OCDF	4.15e+06	4.08e+02	1.0e+04	4.55e+06	2.44e+03	1.9e+03
11	2,3,7,8-TCDD	5.63e+05	3.44e+03	1.6e+02	6.92e+05	2.10e+03	3.3e+02
12	1,2,3,7,8-PeCDD	4.40e+06	1.08e+03	4.1e+03	2.91e+06	5.16e+02	5.6e+03
13	1,2,3,4,7,8-HxCDD	4.68e+06	9.60e+02	4.9e+03	3.76e+06	1.63e+03	2.3e+03
14	1,2,3,6,7,8-HxCDD	4.56e+06	9.60e+02	4.8e+03	3.71e+06	1.63e+03	2.3e+03
15	1,2,3,7,8,9-HxCDD	4.74e+06	9.60e+02	4.9e+03	3.69e+06	1.63e+03	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	3.37e+06	7.36e+02	4.6e+03	3.17e+06	4.72e+02	6.7e+03
17	OCDD	3.21e+06	3.80e+02	8.5e+03	3.60e+06	1.06e+03	3.4e+03
18	13C-2,3,7,8-TCDF	6.79e+06	8.50e+03	8.0e+02	8.68e+06	7.20e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.27e+07	1.59e+03	8.0e+03	8.10e+06	2.44e+03	3.3e+03
20	13C-2,3,4,7,8-PeCDF	1.28e+07	1.59e+03	8.1e+03	7.98e+06	2.44e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	6.62e+06	9.12e+02	7.3e+03	1.26e+07	2.06e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	7.24e+06	9.12e+02	7.9e+03	1.35e+07	2.06e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	6.81e+06	9.12e+02	7.5e+03	1.30e+07	2.06e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.73e+06	9.12e+02	6.3e+03	1.10e+07	2.06e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.81e+06	5.04e+03	9.5e+02	1.06e+07	6.10e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.63e+06	5.04e+03	7.2e+02	8.26e+06	6.10e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.88e+06	1.57e+04	2.5e+02	5.03e+06	7.22e+03	7.0e+02
28	13C-1,2,3,7,8-PeCDD	1.02e+07	2.14e+03	4.8e+03	6.57e+06	2.87e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.02e+07	2.95e+03	3.5e+03	7.83e+06	1.30e+03	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.06e+06	2.95e+03	3.1e+03	7.21e+06	1.30e+03	5.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.69e+06	1.42e+03	6.1e+03	8.35e+06	7.68e+02	1.1e+04
32	13C-OCDD	5.68e+06	1.31e+03	4.3e+03	6.32e+06	6.28e+02	1.0e+04
33	13C-1,2,3,4-TCDD	5.53e+06	1.57e+04	3.5e+02	7.14e+06	7.22e+03	9.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.22e+07	2.95e+03	4.1e+03	9.92e+06	1.30e+03	7.7e+03
35	37Cl-2,3,7,8-TCDD	5.27e+06	3.39e+03	1.6e+03			

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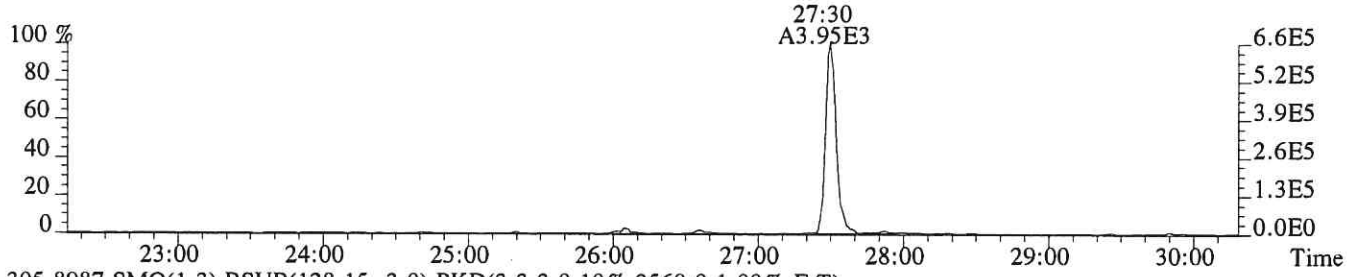
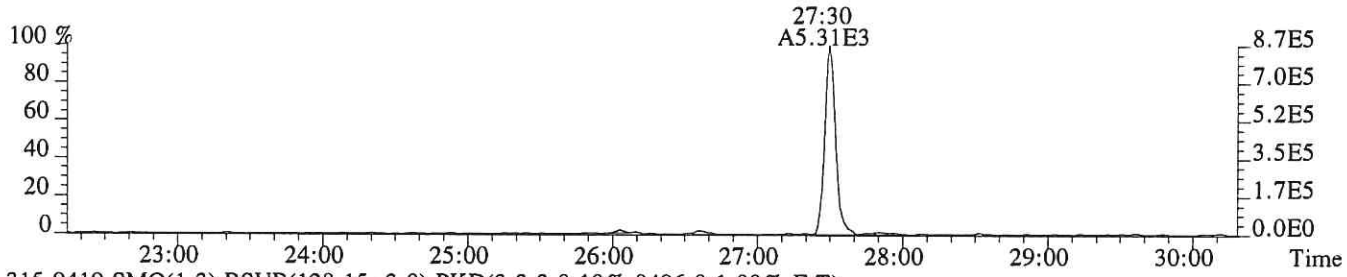
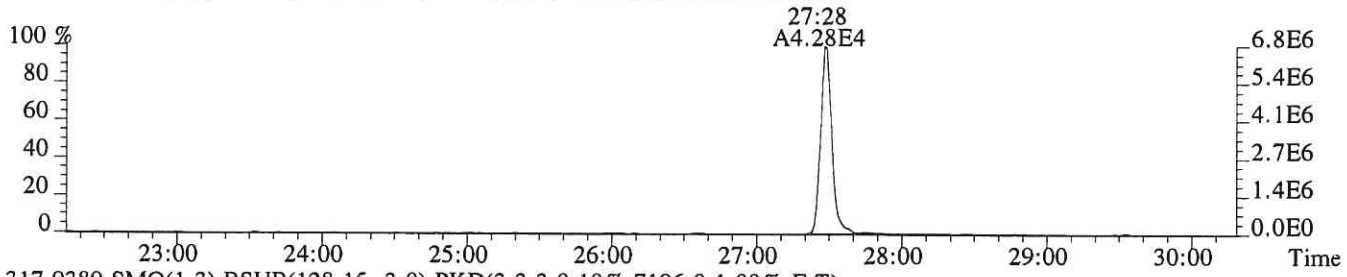
File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



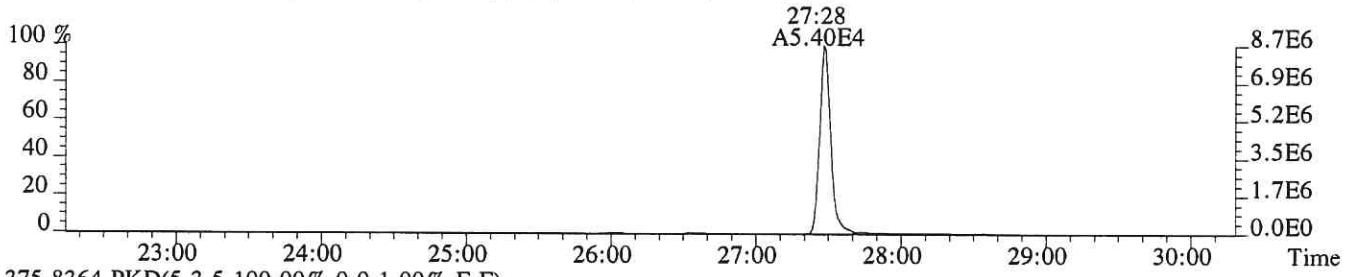
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3568.0,1.00%,F,T)



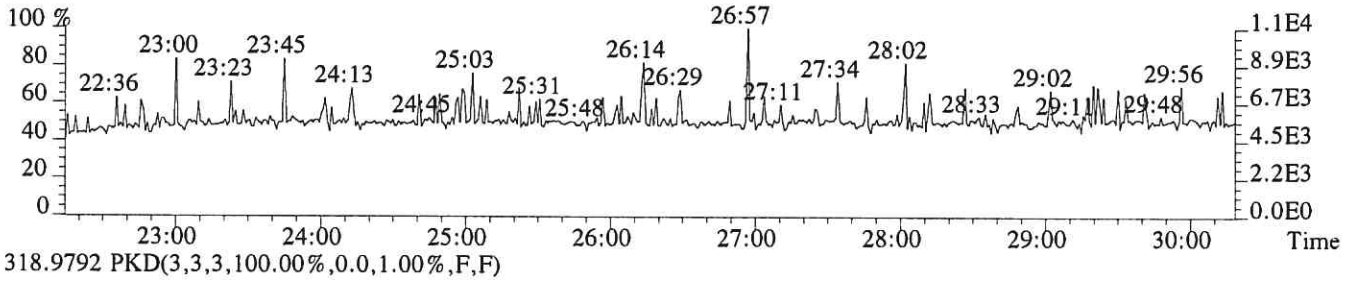
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8496.0,1.00%,F,T)



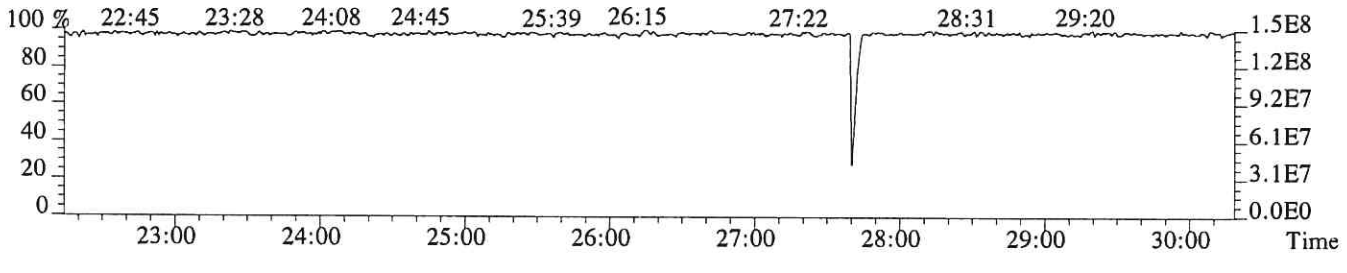
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7196.0,1.00%,F,T)



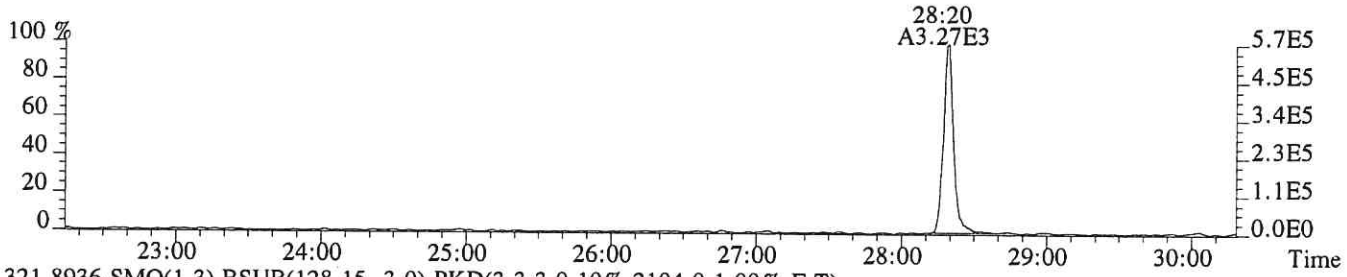
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



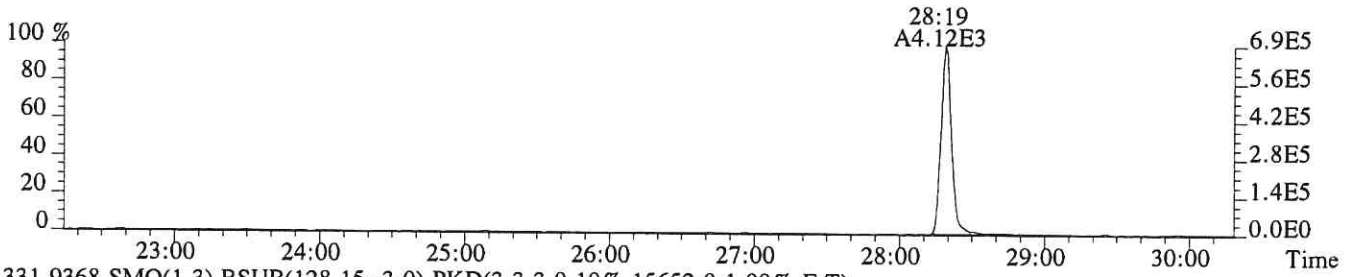
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



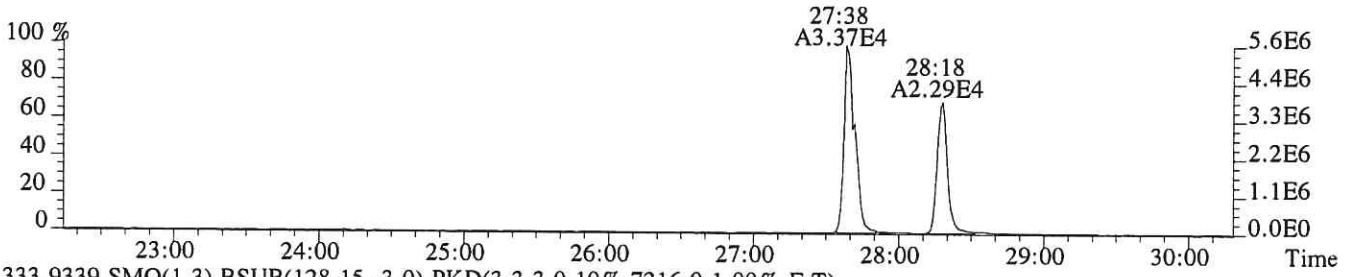
File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



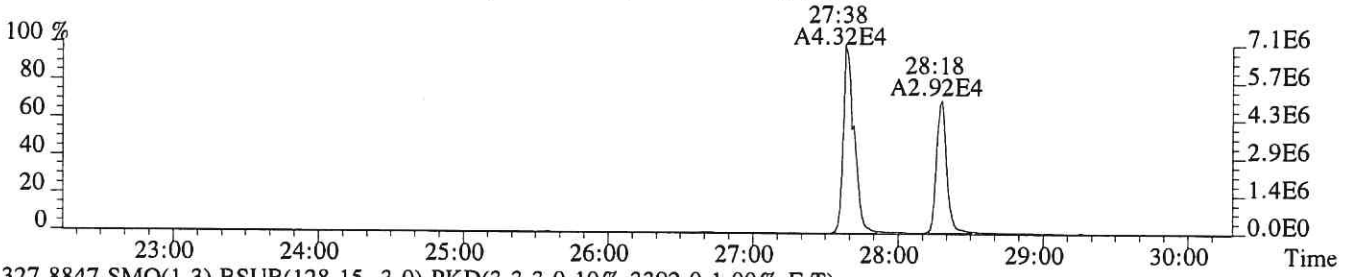
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



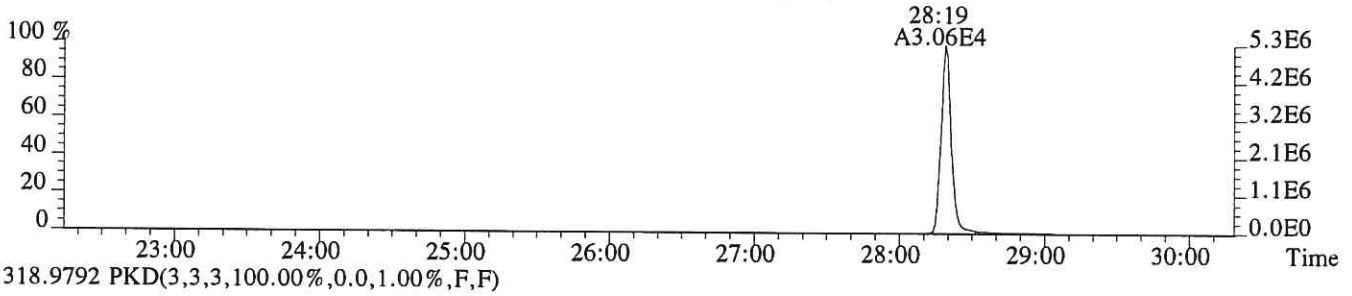
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15652.0,1.00%,F,T)



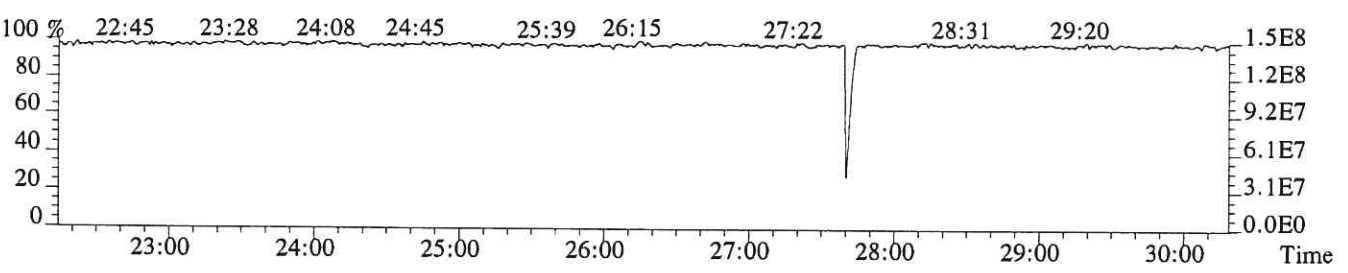
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7216.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)

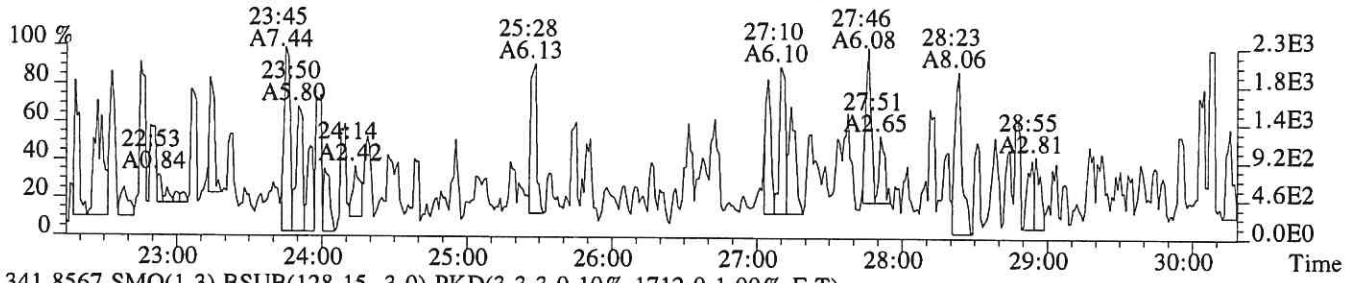


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

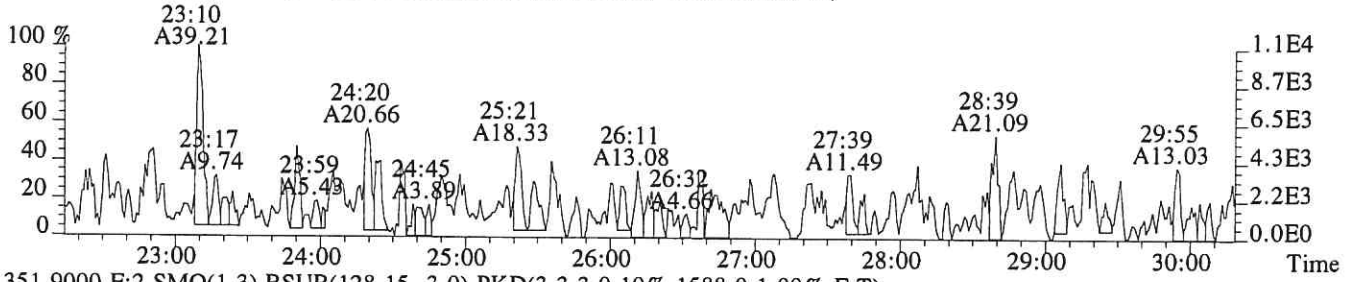


File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

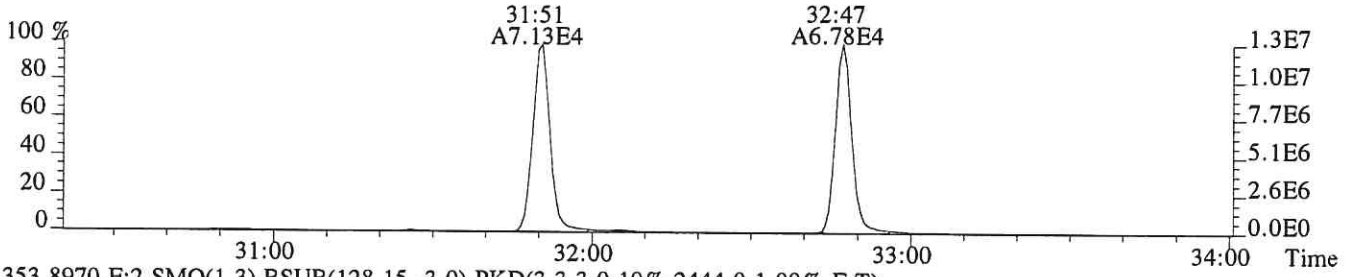
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



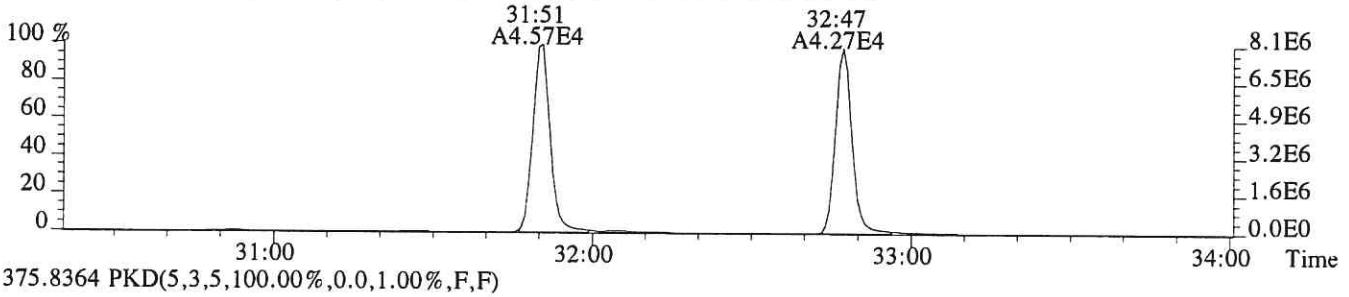
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



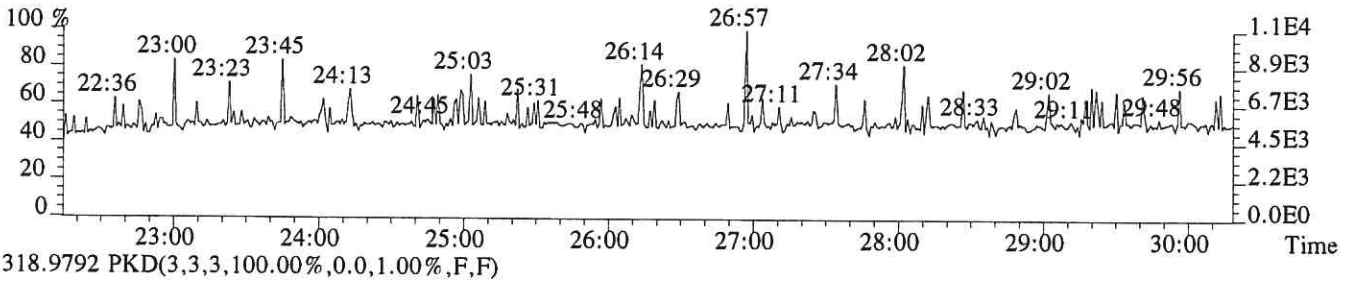
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



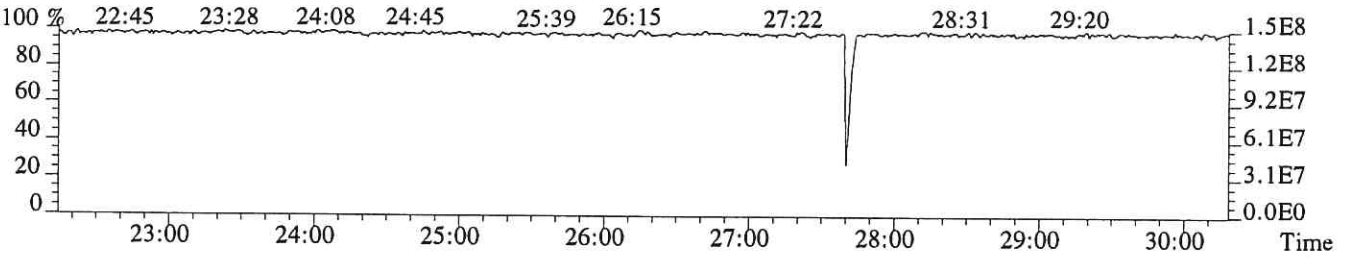
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

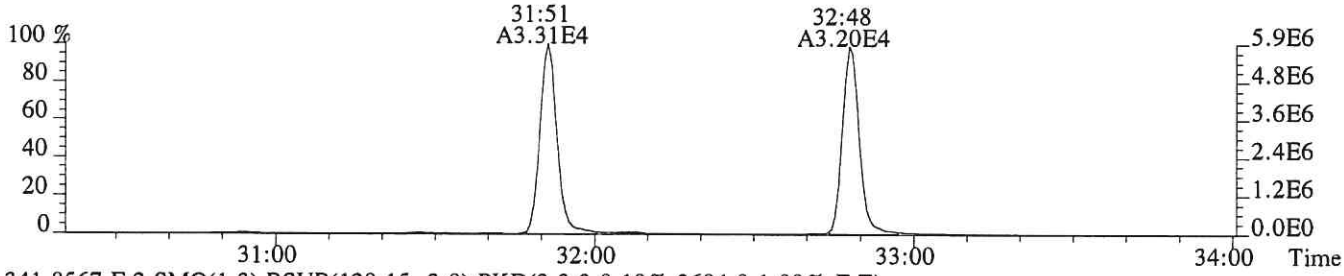


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

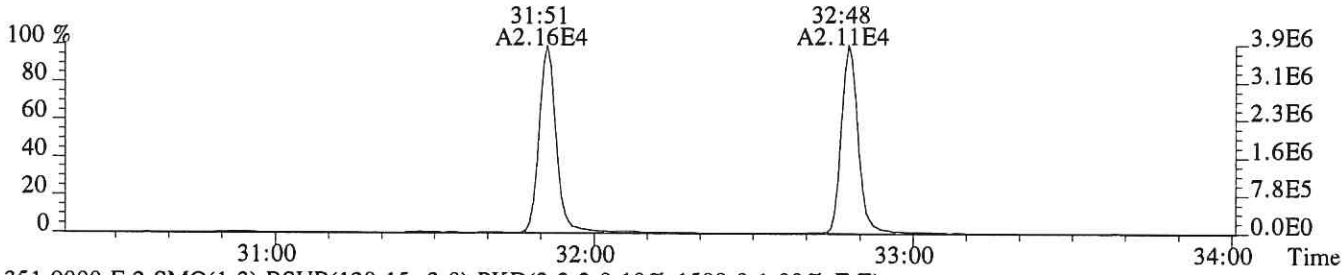


File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

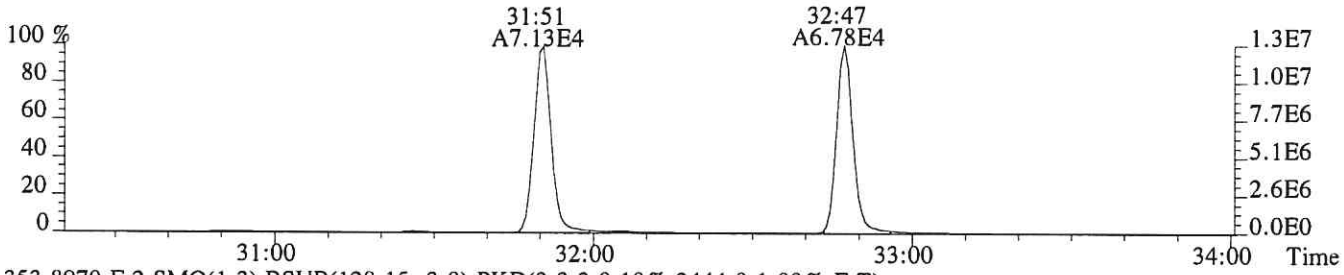
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



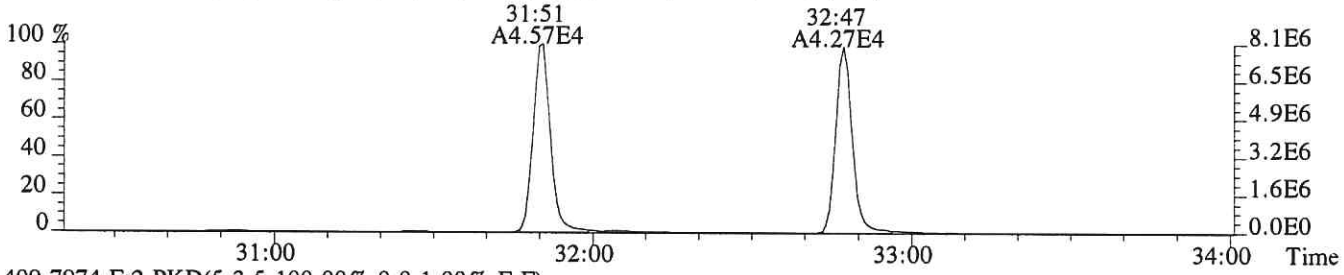
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3684.0,1.00%,F,T)



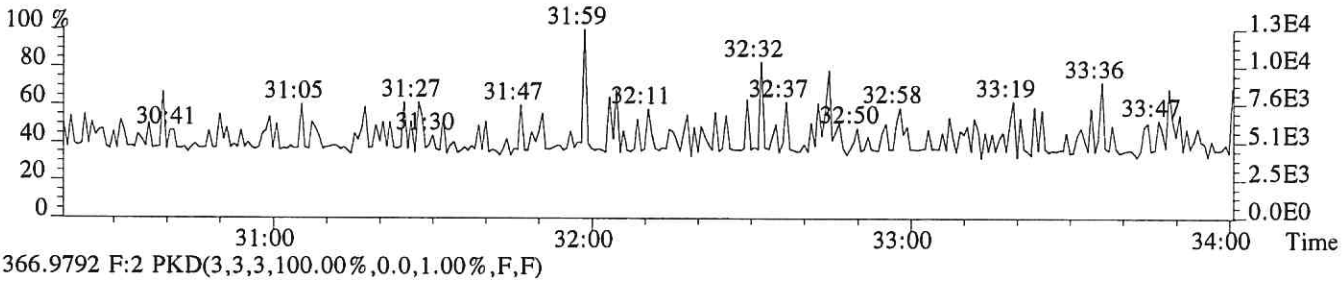
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



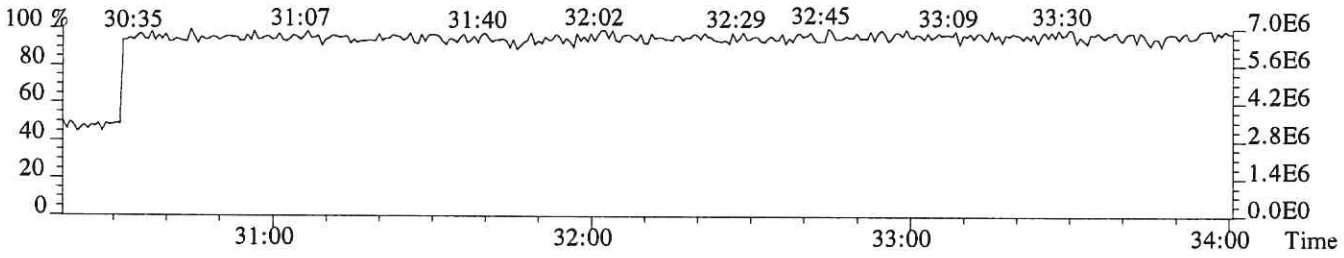
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



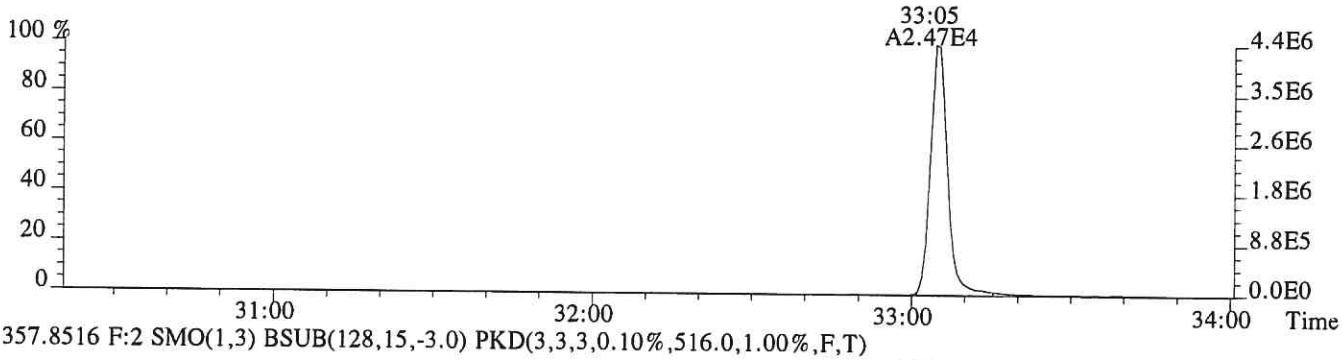
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



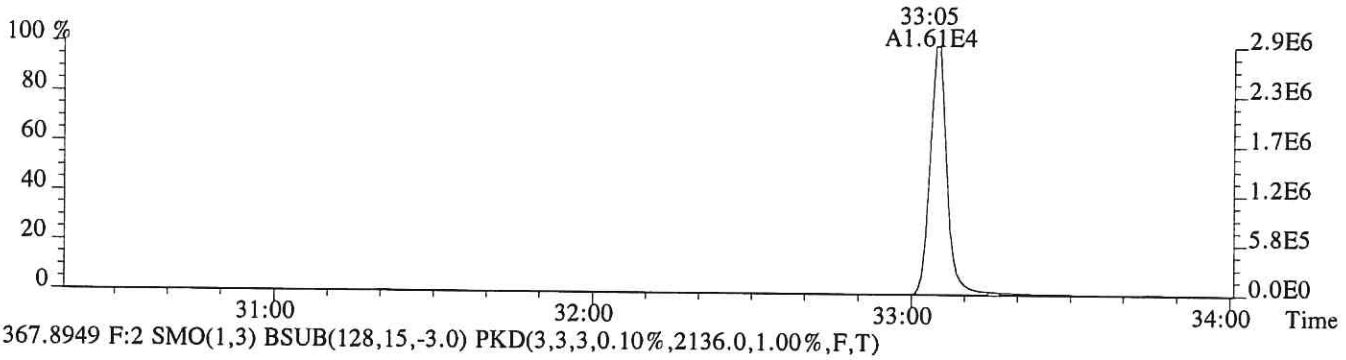
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



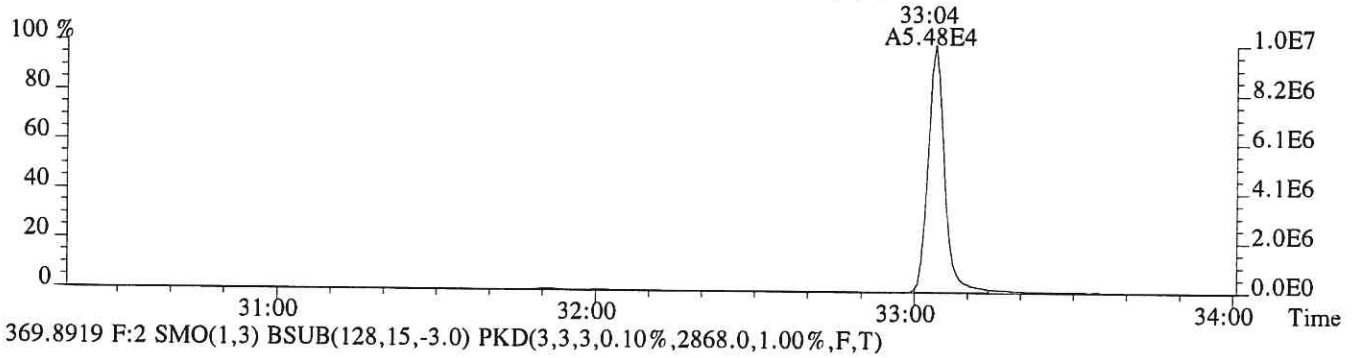
File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



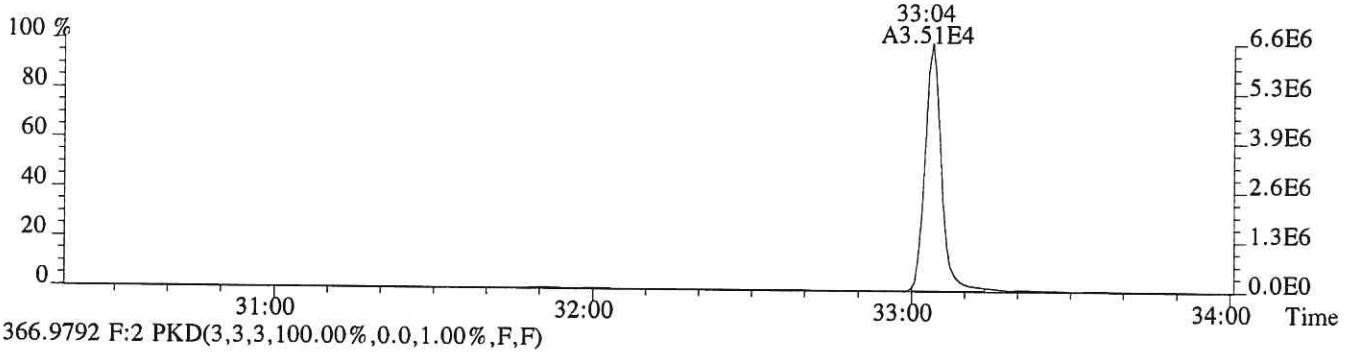
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



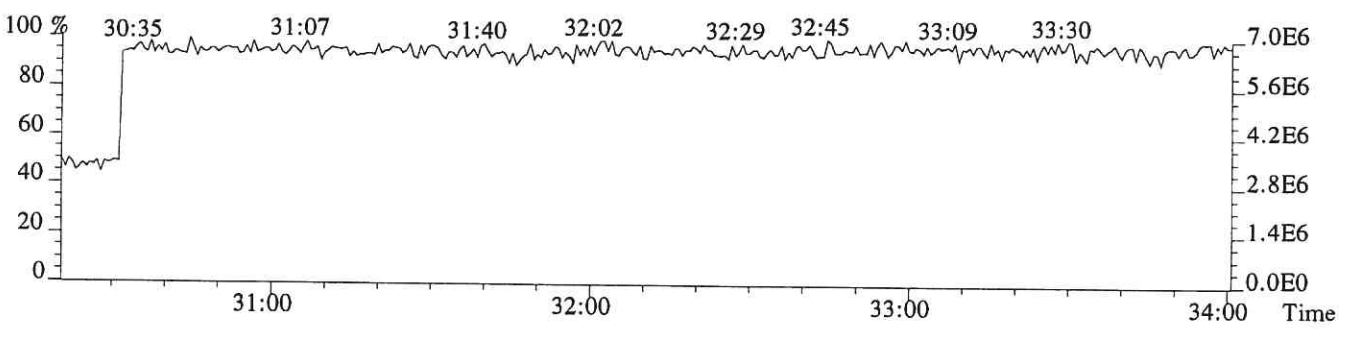
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)

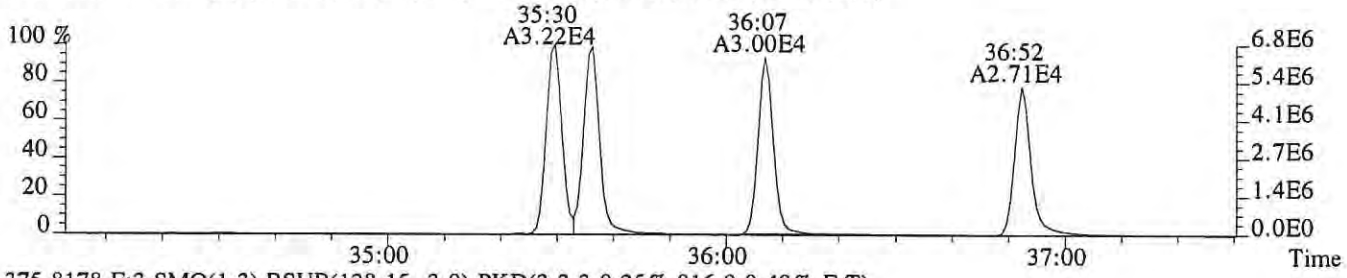


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

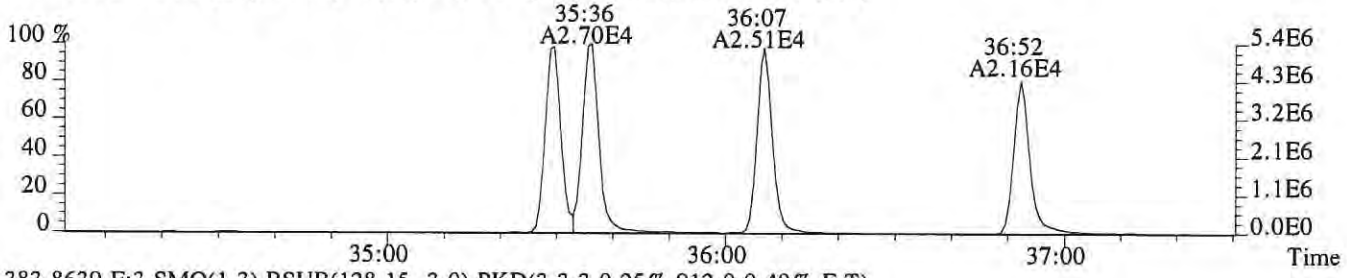


File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

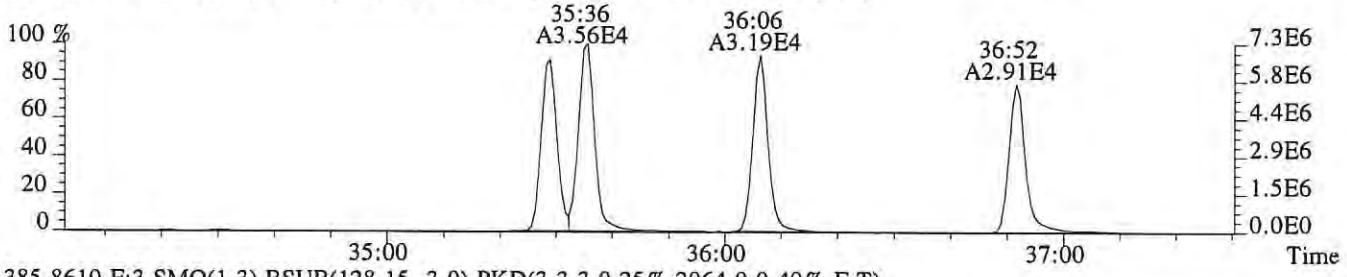
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



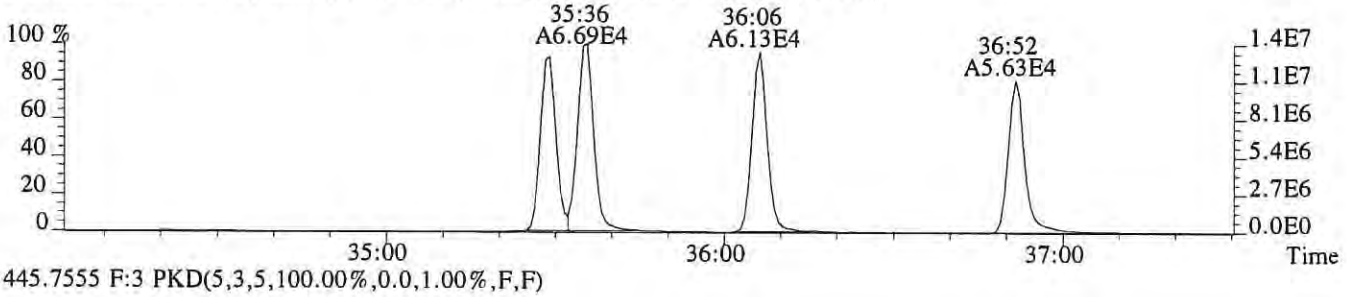
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



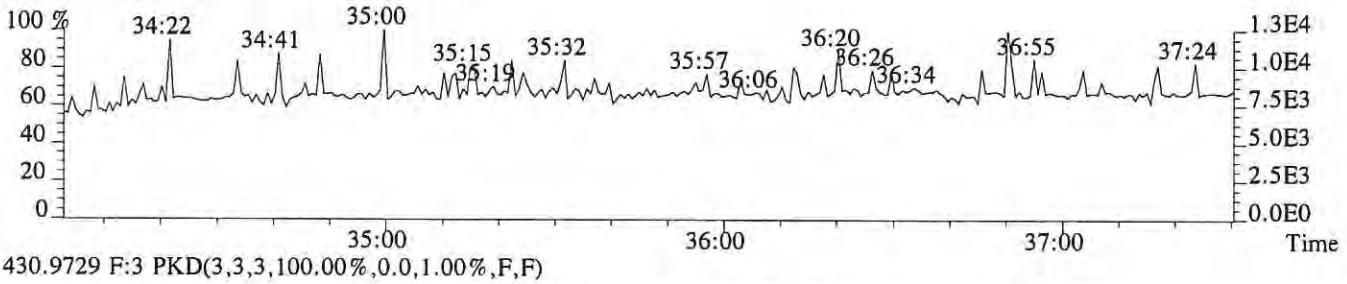
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



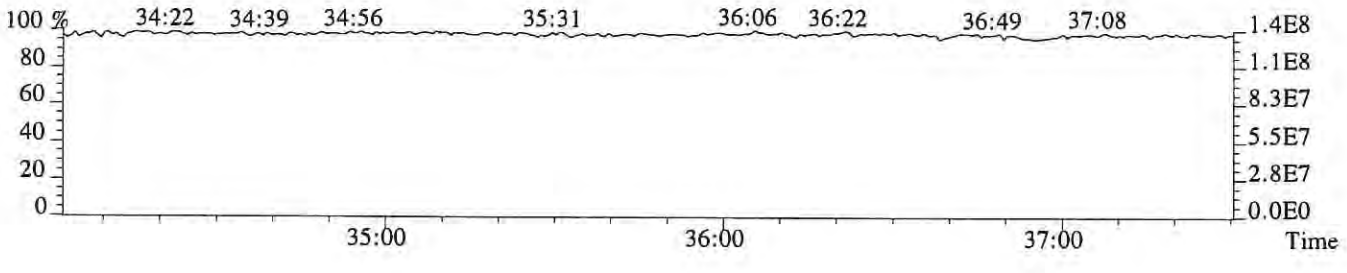
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



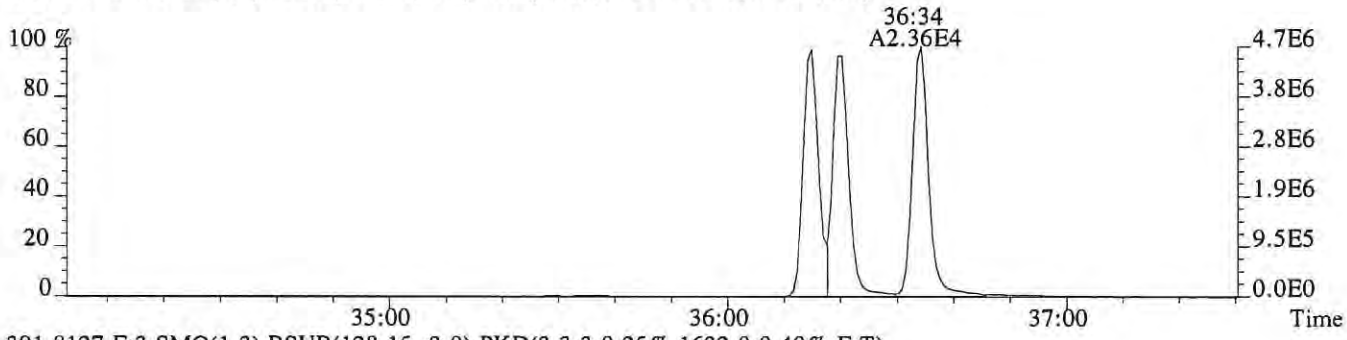
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



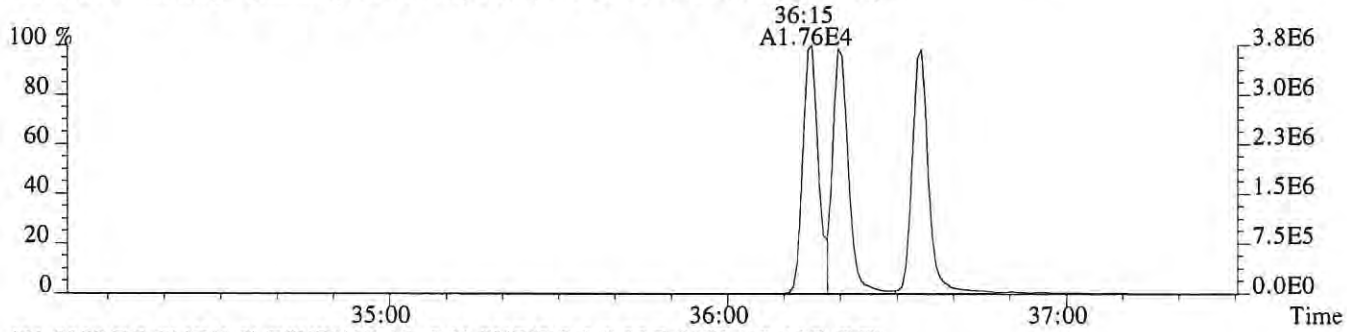
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



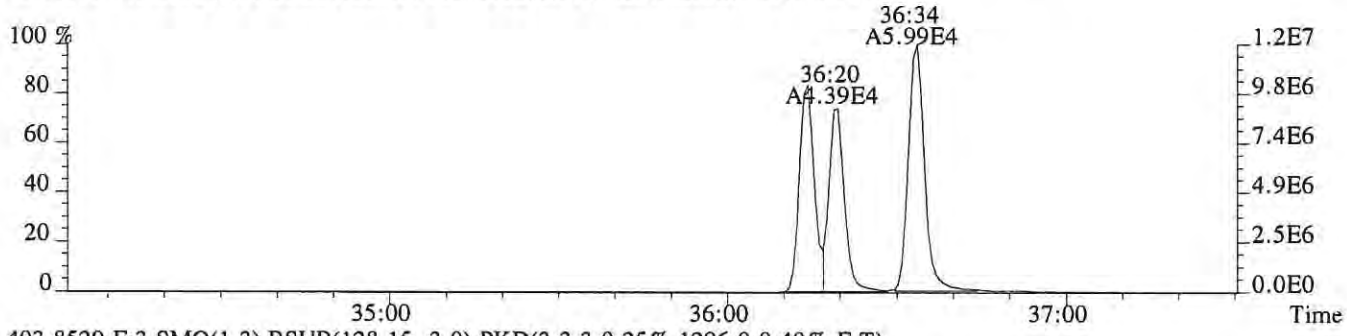
File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



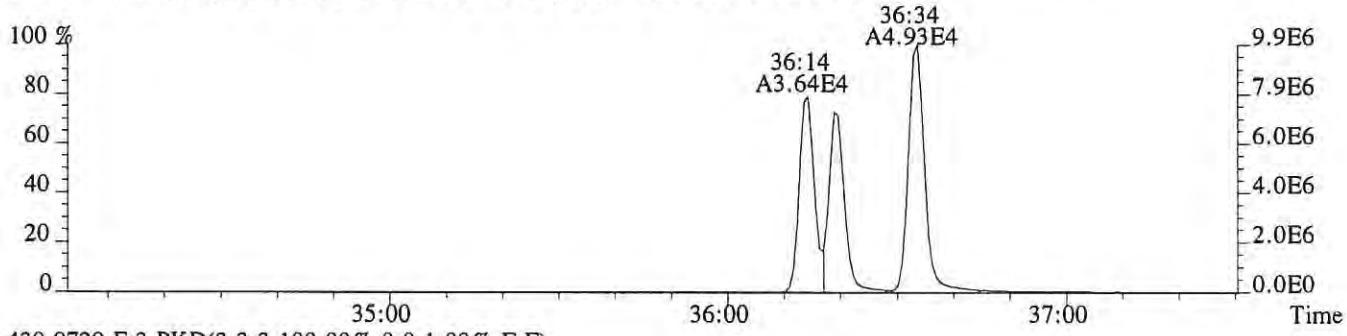
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



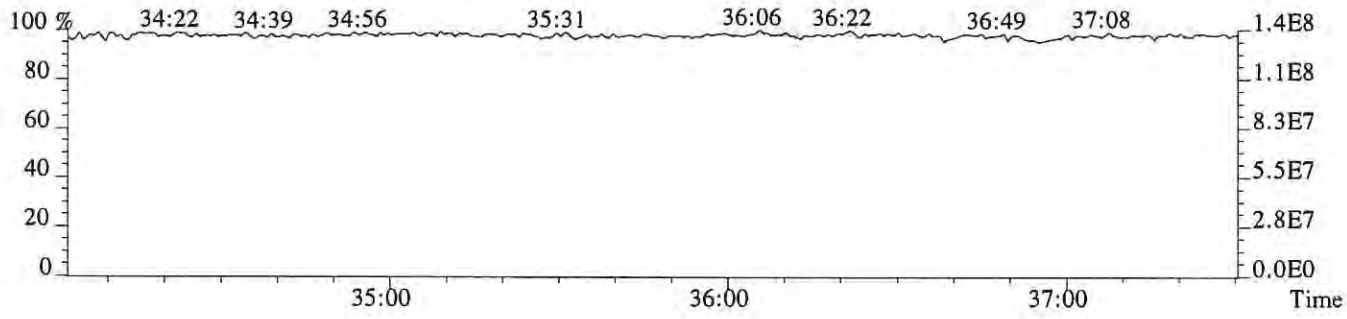
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)

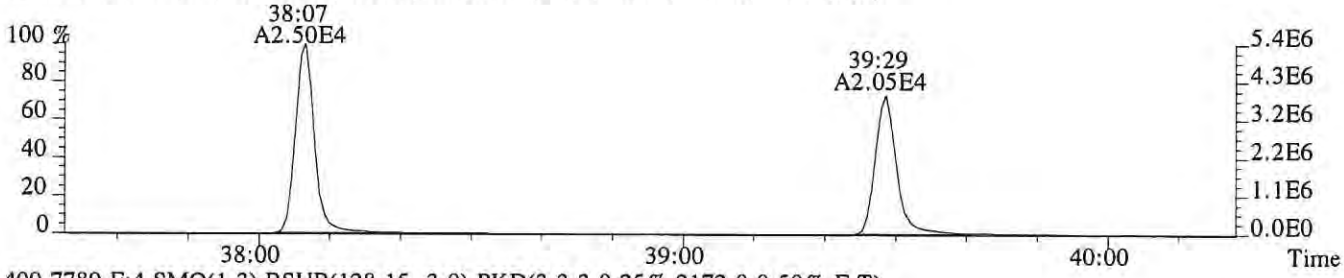


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

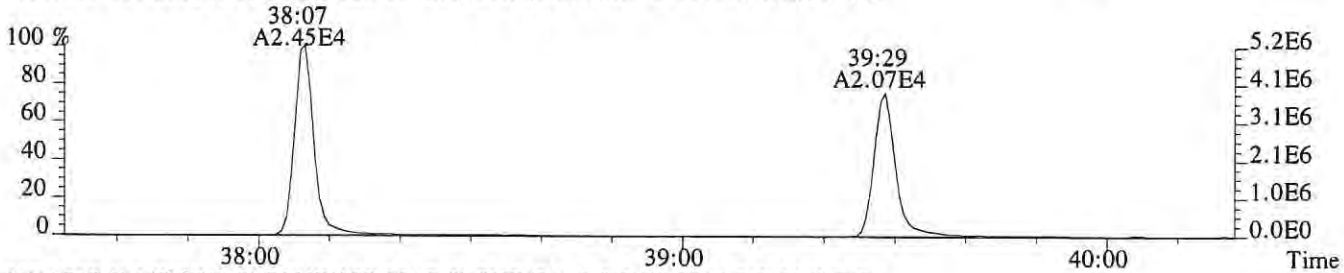


File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

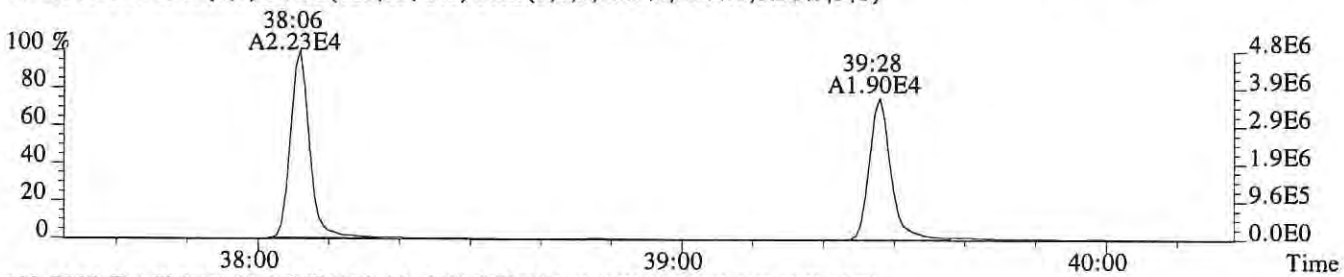
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3584.0,0.50%,F,T)



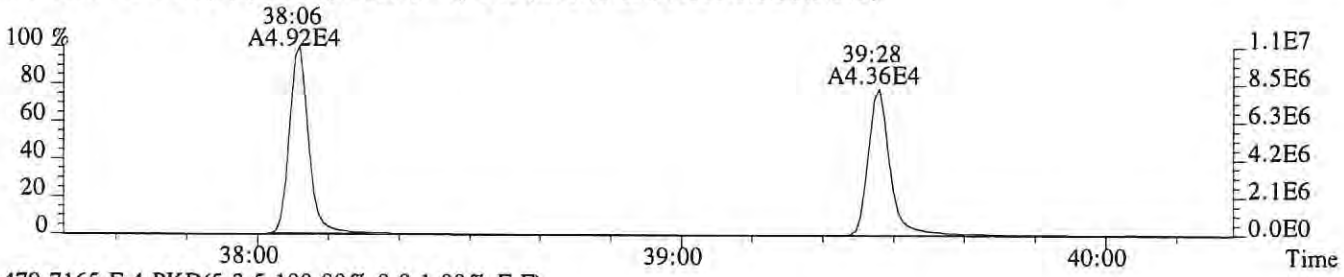
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.50%,F,T)



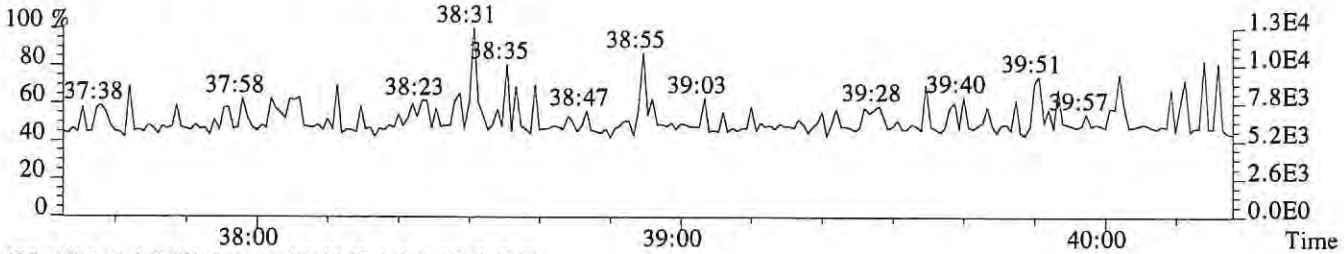
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5044.0,0.50%,F,T)



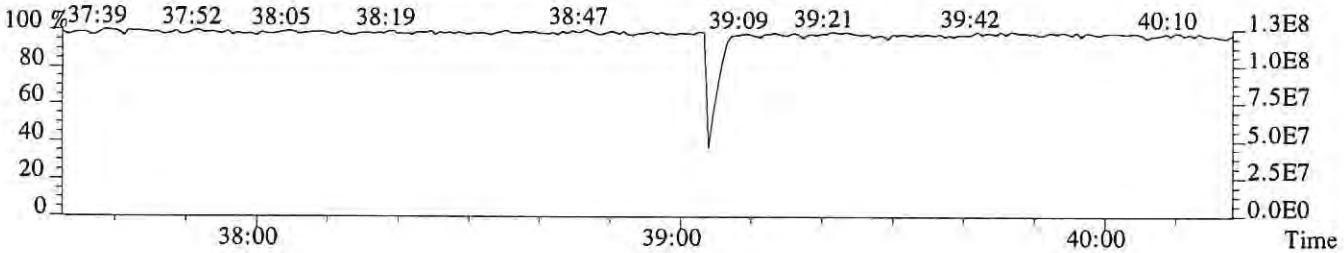
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6100.0,0.50%,F,T)



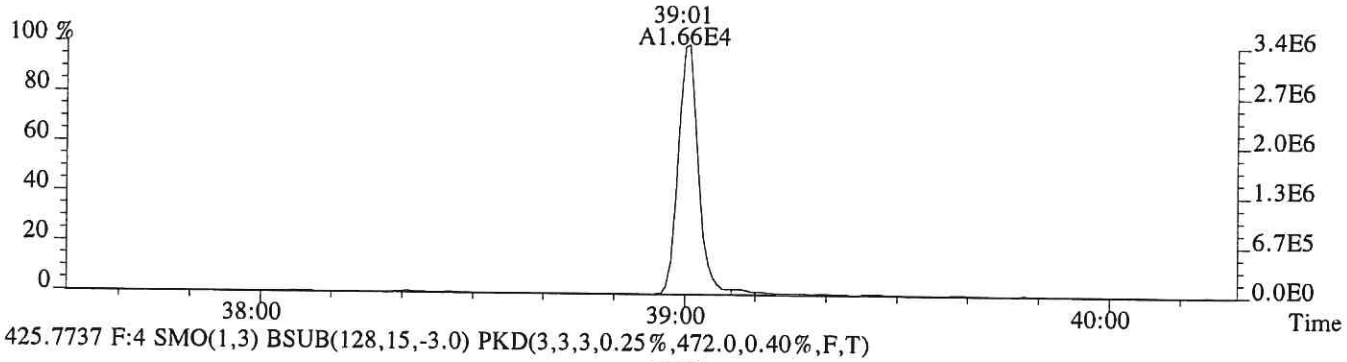
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



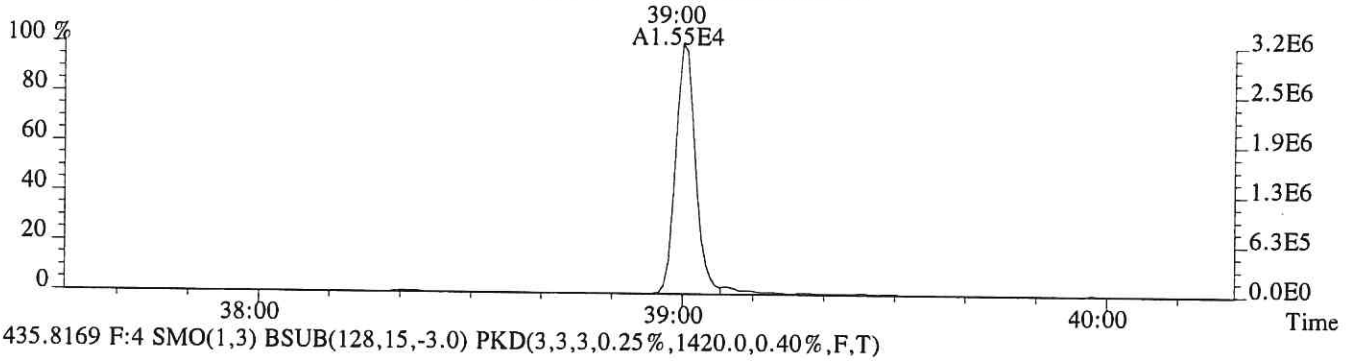
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



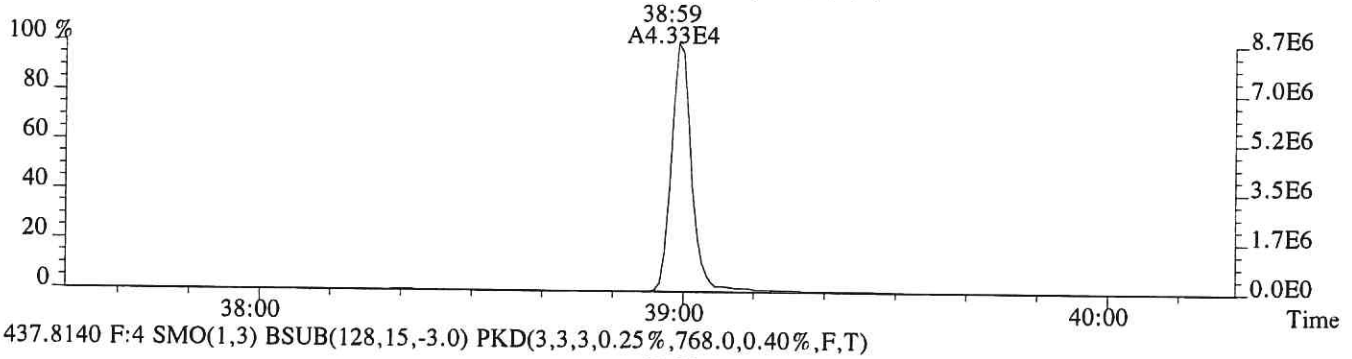
File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



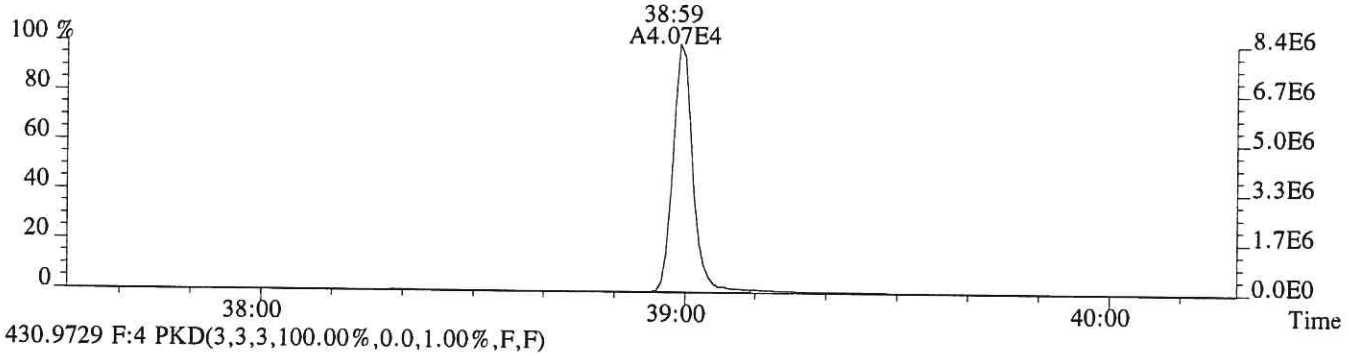
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



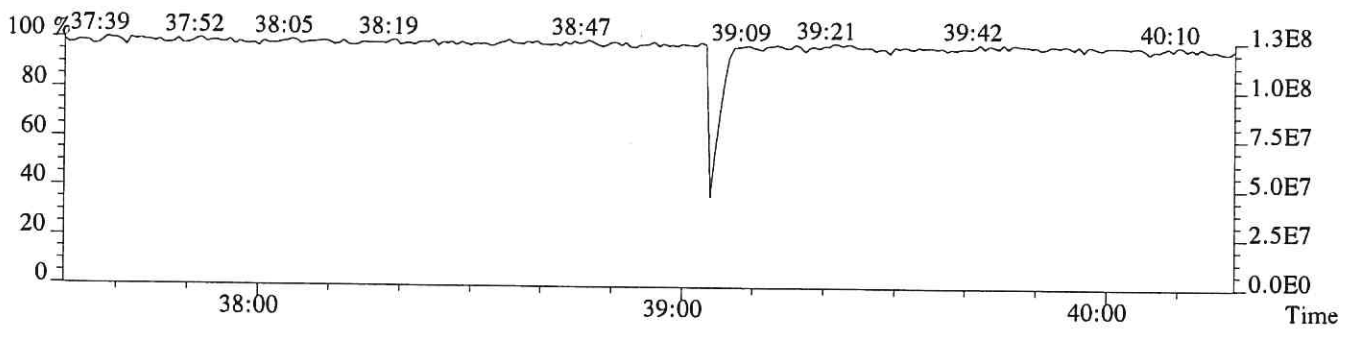
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)

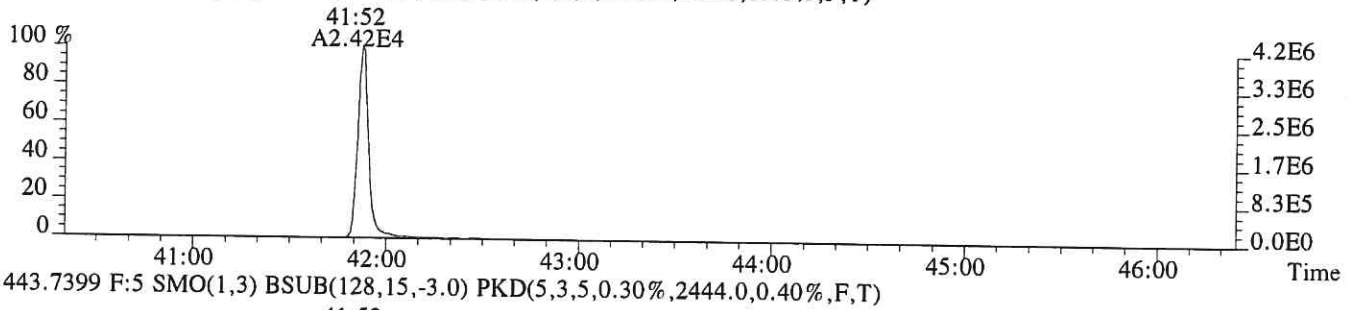


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

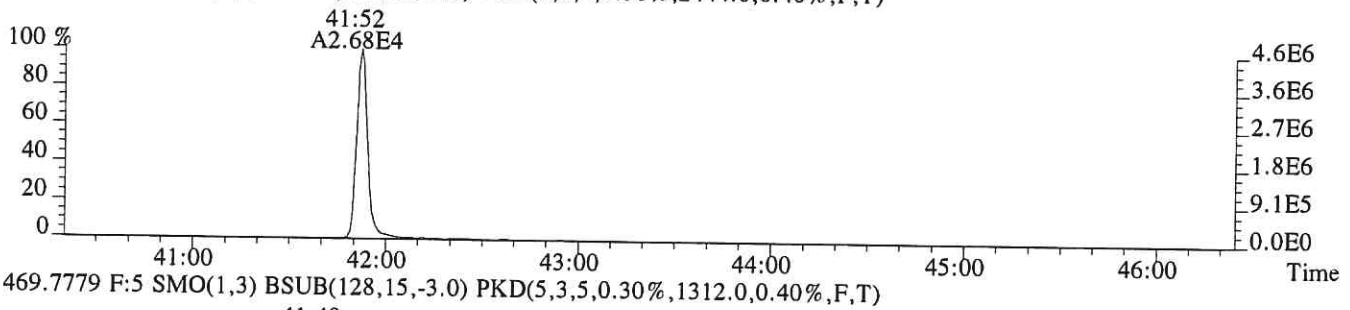


File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

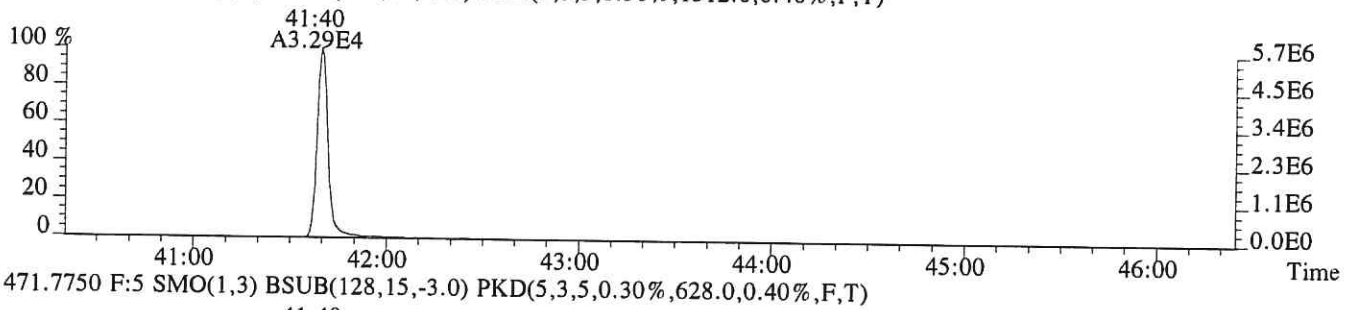
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



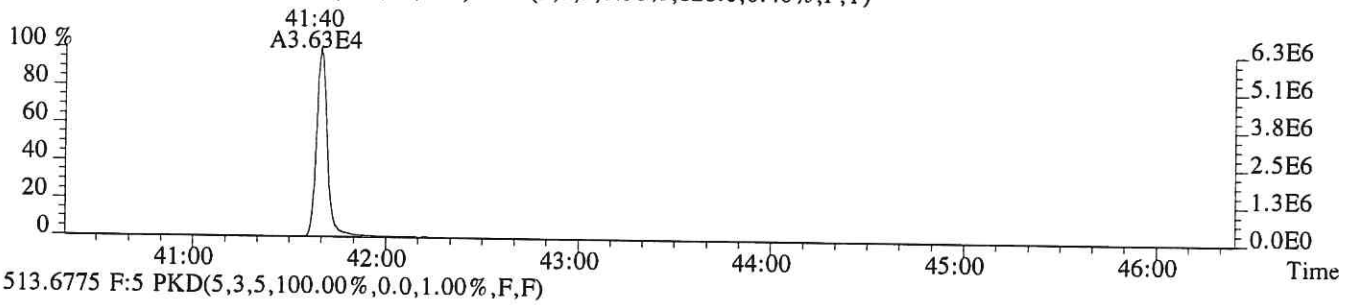
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



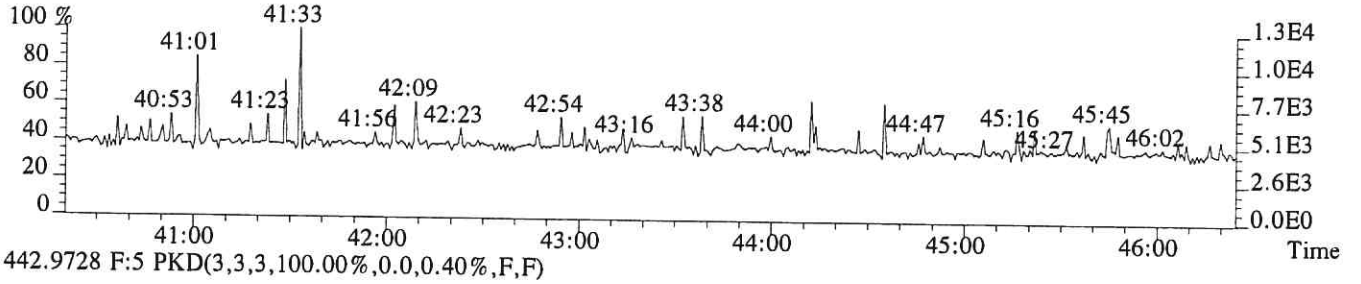
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



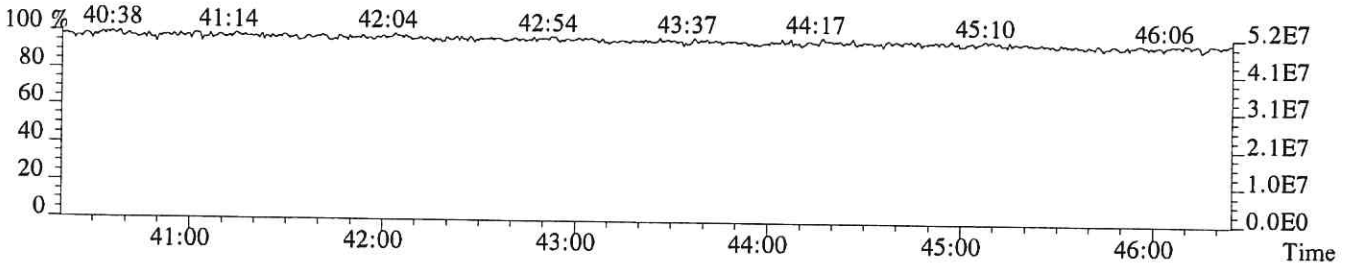
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



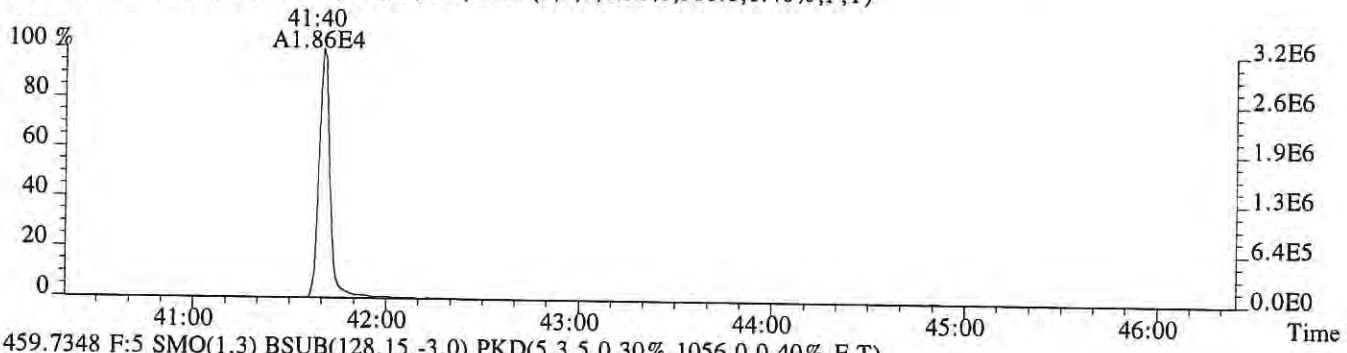
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



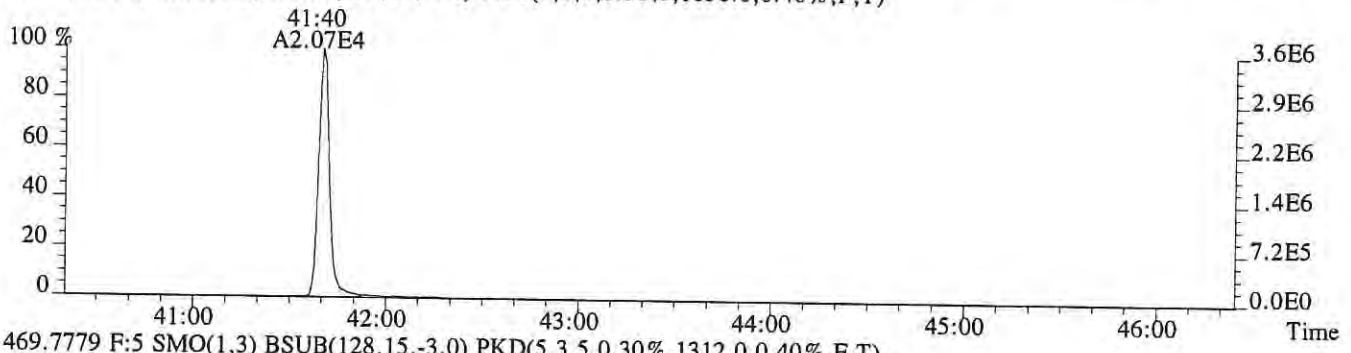
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



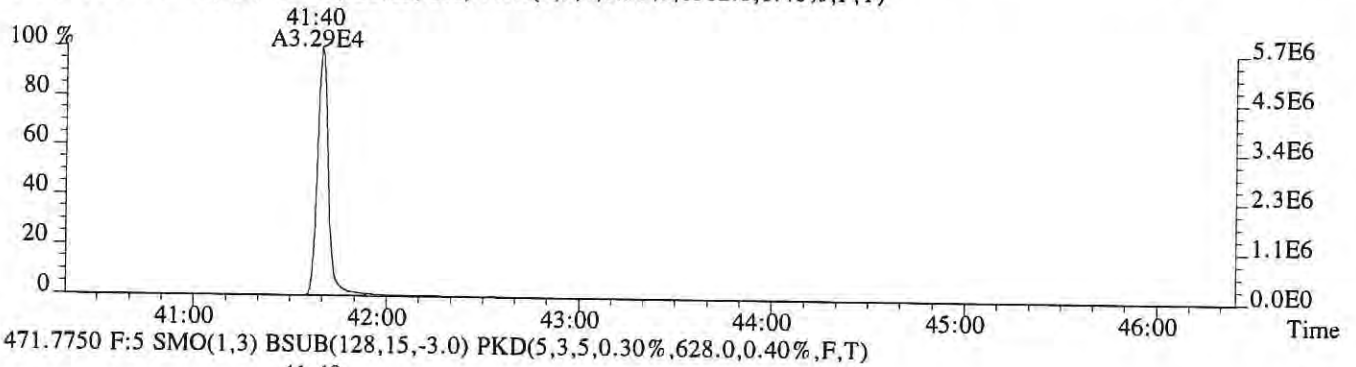
File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



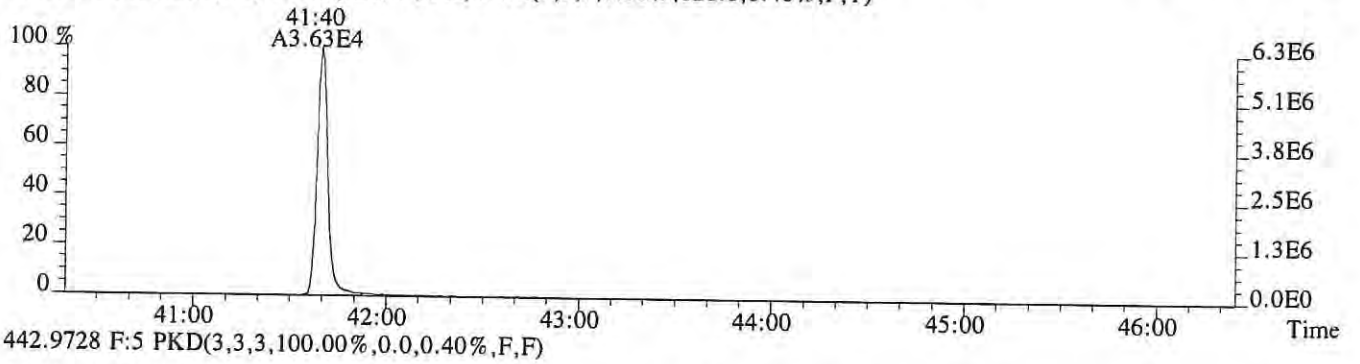
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



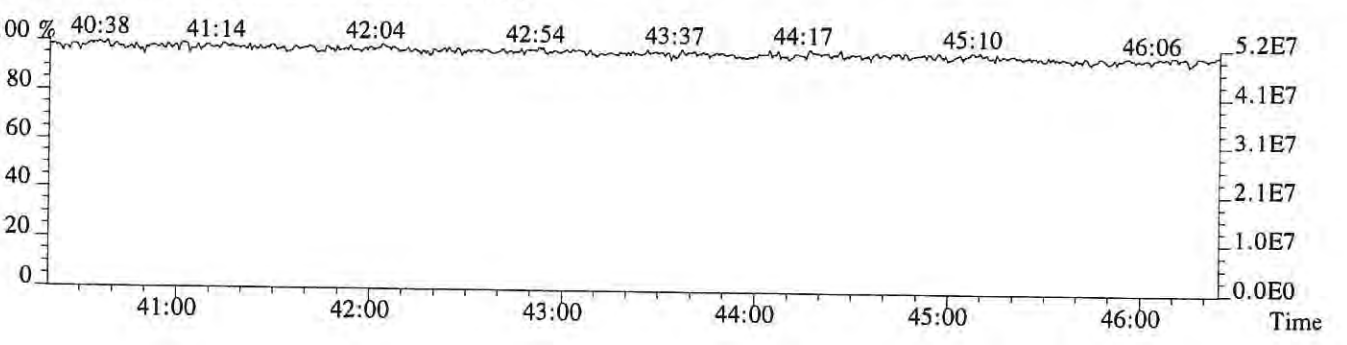
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 Sample ID: EQ1800499-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.213e+03	3.891e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	2.960e+04	1.904e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	2.810e+04	1.842e+04	1.53	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:29	2.764e+04	2.202e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.077e+04	2.498e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	2.646e+04	2.181e+04	1.21	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.461e+04	1.938e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	2.291e+04	2.287e+04	1.00	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	1.904e+04	1.874e+04	1.02	yes	no	1.463
0	Unk	OCDF	41:52	2.393e+04	2.585e+04	0.93	yes	no	1.571
1	Unk	2,3,7,8-TCDD	28:19	2.630e+03	3.565e+03	0.74	yes	no	1.049
2	Unk	1,2,3,7,8-PeCDD	33:05	2.244e+04	1.413e+04	1.59	yes	no	0.929
3	Unk	1,2,3,4,7,8-HxCDD	36:14	1.911e+04	1.545e+04	1.24	yes	no	1.071
4	Unk	1,2,3,6,7,8-HxCDD	36:20	2.081e+04	1.665e+04	1.25	yes	no	1.060
5	Unk	1,2,3,7,8,9-HxCDD	36:34	2.125e+04	1.670e+04	1.27	yes	no	1.145
6	Unk	1,2,3,4,6,7,8-HpCDD	39:00	1.562e+04	1.501e+04	1.04	yes	no	1.112
7	Unk	OCDD	41:40	1.837e+04	2.049e+04	0.90	yes	no	1.157
8	IS	13C-2,3,7,8-TCDF	27:28	3.525e+04	4.407e+04	0.80	yes	no	1.417
9	IS	13C-1,2,3,7,8-PeCDF	31:50	6.336e+04	4.040e+04	1.57	yes	no	1.596
0	IS	13C-2,3,4,7,8-PeCDF	32:47	5.895e+04	3.601e+04	1.64	yes	no	1.571
1	IS	13C-1,2,3,4,7,8-HxCDF	35:28	2.759e+04	5.309e+04	0.52	yes	no	1.160
2	IS	13C-1,2,3,6,7,8-HxCDF	35:35	3.241e+04	6.190e+04	0.52	yes	no	1.336
3	IS	13C-2,3,4,6,7,8-HxCDF	36:06	2.893e+04	5.397e+04	0.54	yes	no	1.250
4	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.519e+04	4.985e+04	0.51	yes	no	1.131
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	2.073e+04	4.584e+04	0.45	yes	no	1.029
6	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.764e+04	3.964e+04	0.45	yes	no	0.907
7	IS	13C-2,3,7,8-TCDD	28:17	1.841e+04	2.415e+04	0.76	yes	no	0.983
8	IS	13C-1,2,3,7,8-PeCDD	33:04	4.723e+04	3.069e+04	1.54	yes	no	1.125
9	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.967e+04	3.187e+04	1.24	yes	no	0.903
0	IS	13C-1,2,3,6,7,8-HxCDD	36:19	4.018e+04	3.179e+04	1.26	yes	no	0.903
1	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	3.986e+04	3.773e+04	1.06	yes	no	0.857
2	IS	13C-OCDD	41:40	3.220e+04	3.629e+04	0.89	yes	no	0.659
3	RS/RT	13C-1,2,3,4-TCDD	27:40	4.523e+04	5.761e+04	0.79	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:33	5.878e+04	4.730e+04	1.24	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:19	2.634e+04				no	1.086

$$\text{OCDD} = \frac{(1.837e+04 + 2.049e+04) \times 4000\ \text{pg} \times 1}{(3.220e+04 + 3.629e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 LAB. ID: EQ1800499-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	4.98e+05	1.91e+03	2.6e+02	6.00e+05	3.12e+03	1.9e+02
	1,2,3,7,8-PeCDF	5.27e+06	9.88e+02	5.3e+03	3.37e+06	4.39e+03	7.7e+02
	2,3,4,7,8-PeCDF	5.19e+06	9.88e+02	5.2e+03	3.37e+06	4.39e+03	7.7e+02
	1,2,3,4,7,8-HxCDF	5.98e+06	6.64e+02	9.0e+03	4.74e+06	1.30e+03	3.7e+03
	1,2,3,6,7,8-HxCDF	5.99e+06	6.64e+02	9.0e+03	4.90e+06	1.30e+03	3.8e+03
	2,3,4,6,7,8-HxCDF	5.39e+06	6.64e+02	8.1e+03	4.36e+06	1.30e+03	3.4e+03
	1,2,3,7,8,9-HxCDF	4.63e+06	6.64e+02	7.0e+03	3.74e+06	1.30e+03	2.9e+03
	1,2,3,4,6,7,8-HpCDF	4.69e+06	1.85e+03	2.5e+03	4.74e+06	1.85e+03	2.6e+03
	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.85e+03	1.9e+03	3.32e+06	1.85e+03	1.8e+03
.0	OCDF	4.07e+06	9.04e+02	4.5e+03	4.38e+06	1.94e+03	2.3e+03
.1	2,3,7,8-TCDD	4.62e+05	3.86e+03	1.2e+02	6.13e+05	2.40e+03	2.6e+02
.2	1,2,3,7,8-PeCDD	4.09e+06	2.00e+03	2.0e+03	2.57e+06	9.12e+02	2.8e+03
.3	1,2,3,4,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.41e+06	9.88e+02	3.5e+03
.4	1,2,3,6,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.36e+06	9.88e+02	3.4e+03
.5	1,2,3,7,8,9-HxCDD	4.20e+06	7.12e+02	5.9e+03	3.33e+06	9.88e+02	3.4e+03
.6	1,2,3,4,6,7,8-HpCDD	3.05e+06	5.44e+02	5.6e+03	2.95e+06	6.72e+02	4.4e+03
.7	OCDD	3.26e+06	3.92e+02	8.3e+03	3.55e+06	6.24e+02	5.7e+03
18	13C-2,3,7,8-TCDF	5.50e+06	9.40e+03	5.8e+02	6.79e+06	6.86e+03	9.9e+02
19	13C-1,2,3,7,8-PeCDF	1.13e+07	1.12e+03	1.0e+04	7.17e+06	1.19e+03	6.0e+03
20	13C-2,3,4,7,8-PeCDF	1.05e+07	1.12e+03	9.4e+03	6.46e+06	1.19e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.82e+06	1.37e+03	4.2e+03	1.15e+07	2.30e+03	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	6.36e+06	1.37e+03	4.6e+03	1.23e+07	2.30e+03	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.63e+06	1.37e+03	4.1e+03	1.07e+07	2.30e+03	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	4.81e+06	1.37e+03	3.5e+03	9.38e+06	2.30e+03	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.27e+06	2.47e+03	1.7e+03	9.45e+06	6.68e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.22e+06	2.47e+03	1.3e+03	7.09e+06	6.68e+03	1.1e+03
27	13C-2,3,7,8-TCDD	3.08e+06	1.85e+04	1.7e+02	4.05e+06	5.16e+03	7.8e+02
28	13C-1,2,3,7,8-PeCDD	8.36e+06	2.00e+03	4.2e+03	5.35e+06	1.80e+03	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	8.86e+06	2.53e+03	3.5e+03	7.13e+06	1.50e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.20e+06	2.53e+03	3.2e+03	6.40e+06	1.50e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.89e+06	8.52e+02	9.3e+03	7.48e+06	9.56e+02	7.8e+03
32	13C-OCDD	5.59e+06	1.28e+03	4.4e+03	6.29e+06	6.32e+02	9.9e+03
33	13C-1,2,3,4-TCDD	7.67e+06	1.85e+04	4.1e+02	9.73e+06	5.16e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.19e+07	2.53e+03	4.7e+03	9.40e+06	1.50e+03	6.3e+03
35	37Cl-2,3,7,8-TCDD	4.52e+06	3.52e+03	1.3e+03			

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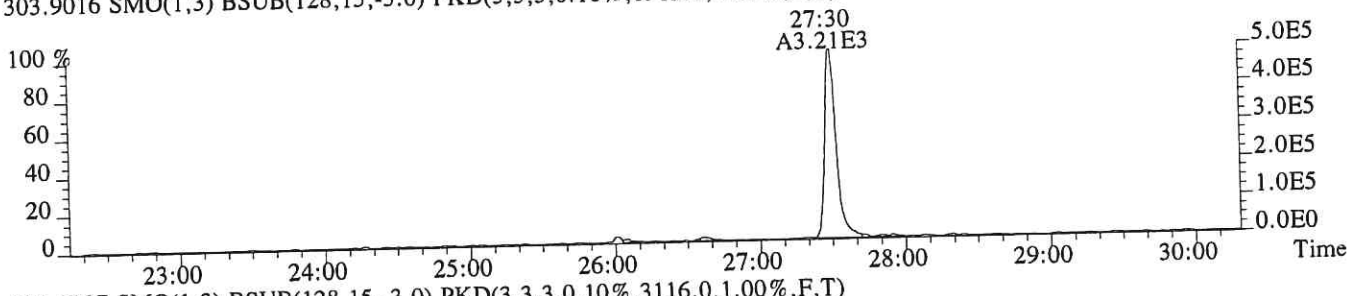
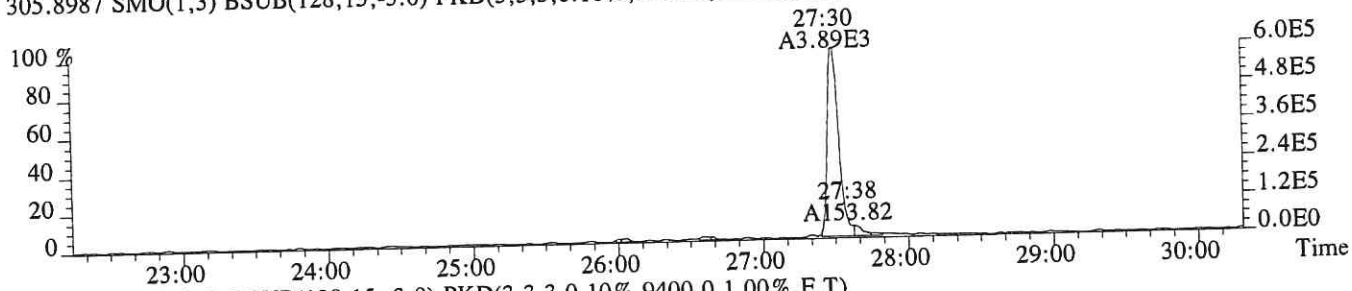
File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:DLCS

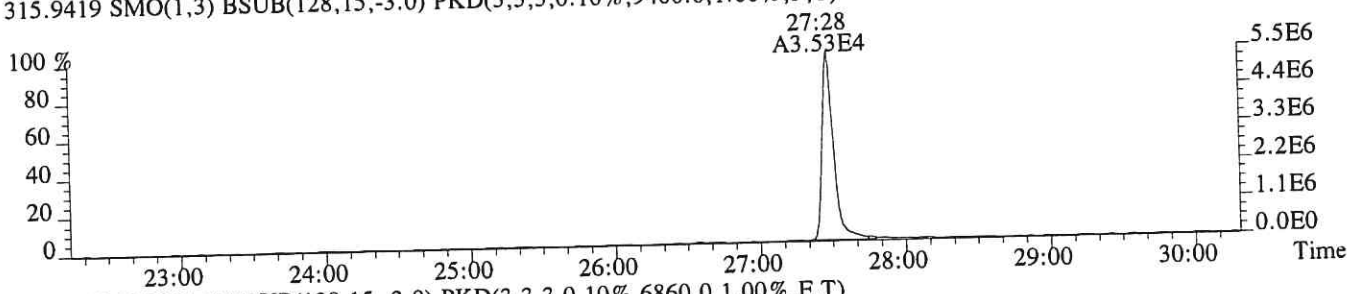
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



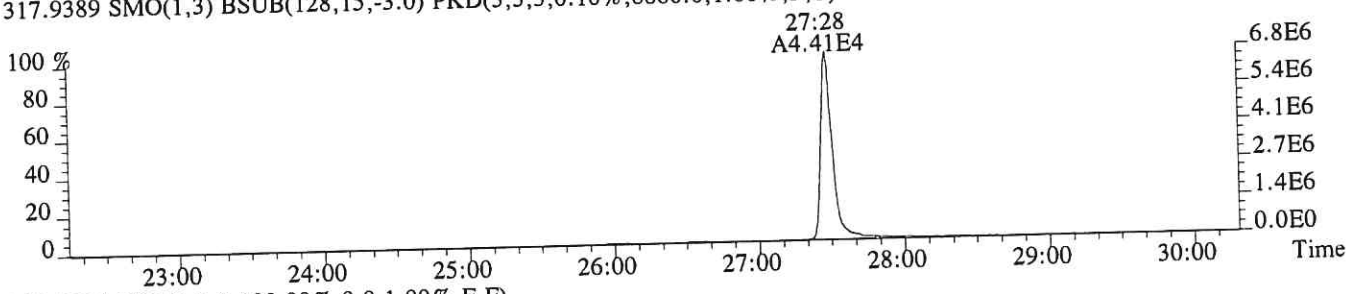
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3116.0,1.00%,F,T)



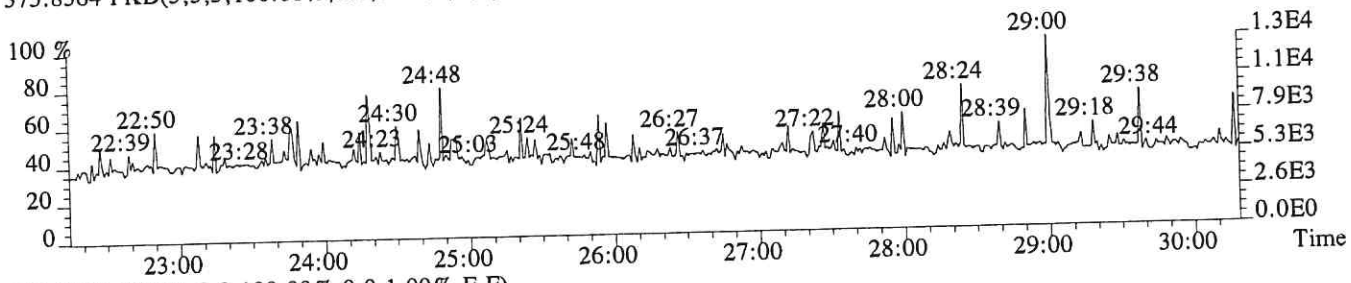
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9400.0,1.00%,F,T)



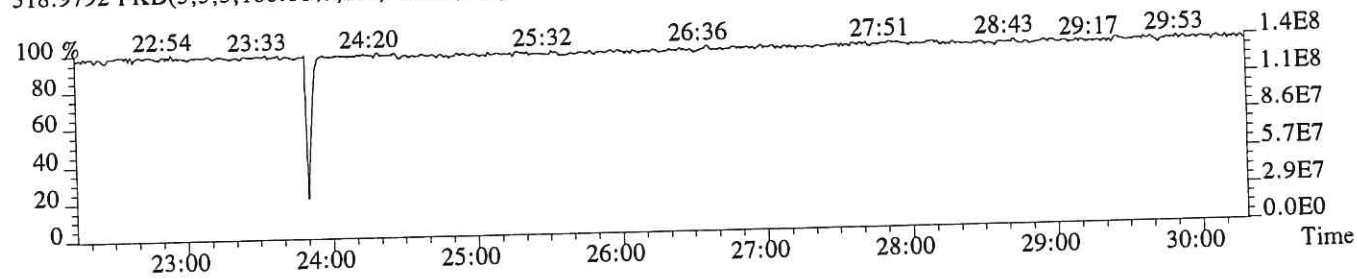
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

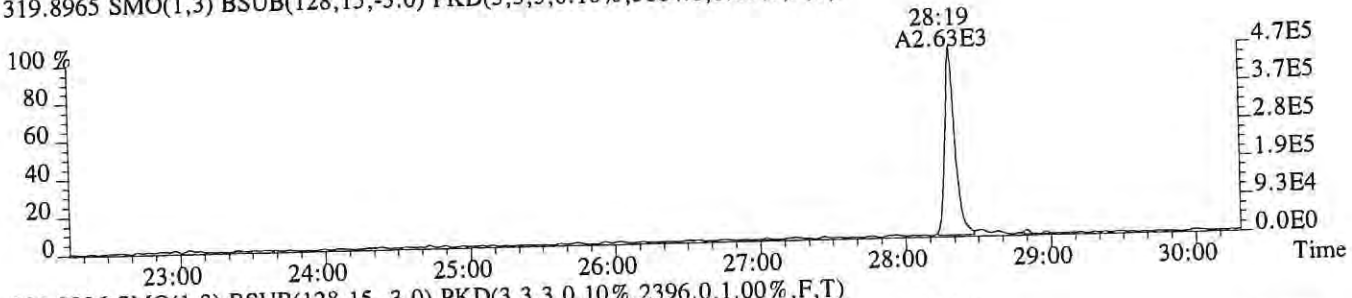


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

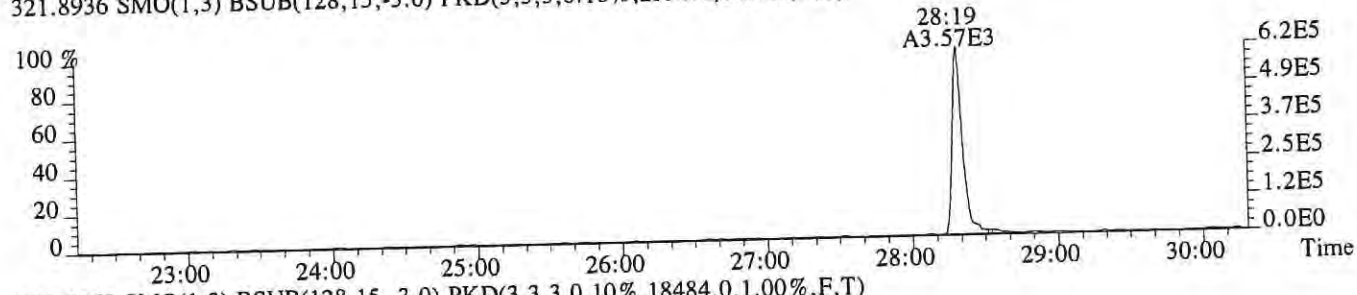


File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:DLCS

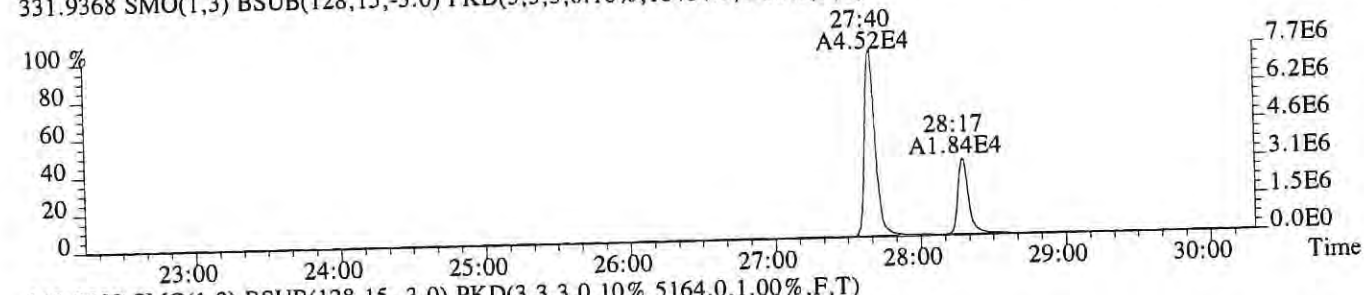
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3864.0,1.00%,F,T)



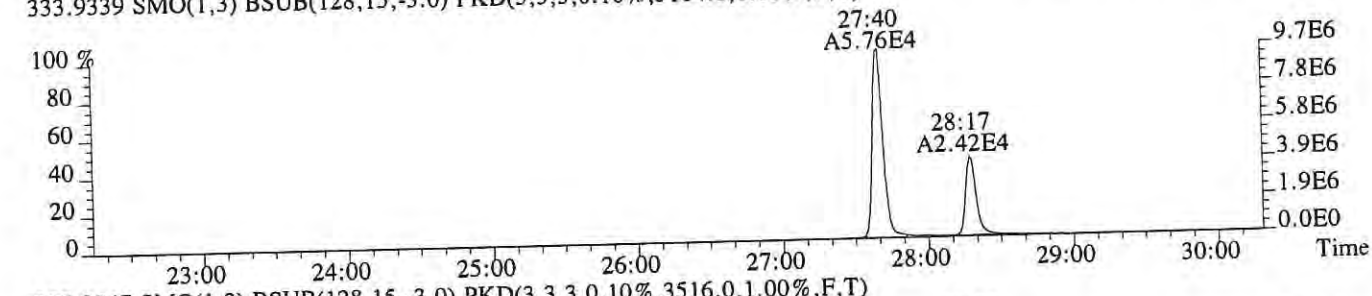
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



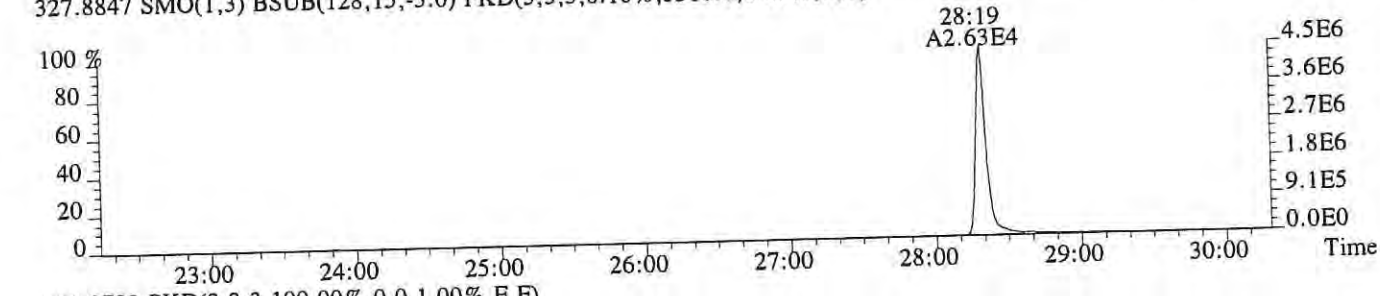
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18484.0,1.00%,F,T)



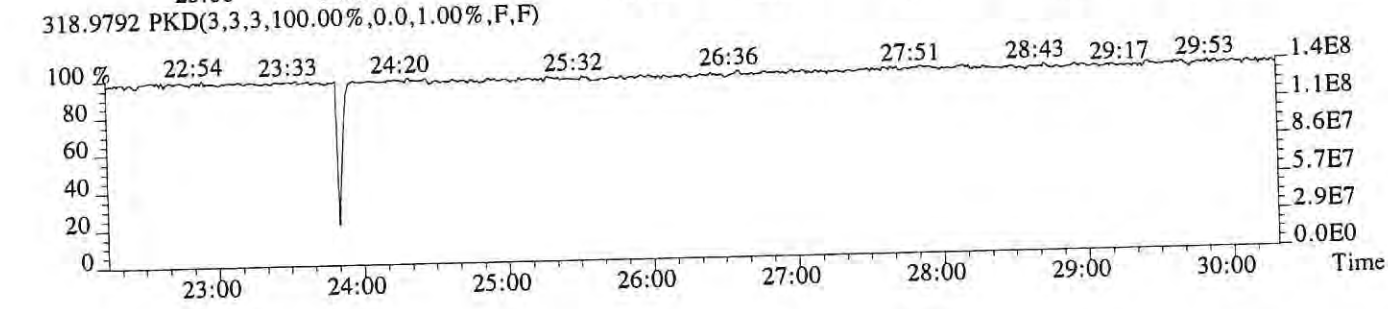
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5164.0,1.00%,F,T)



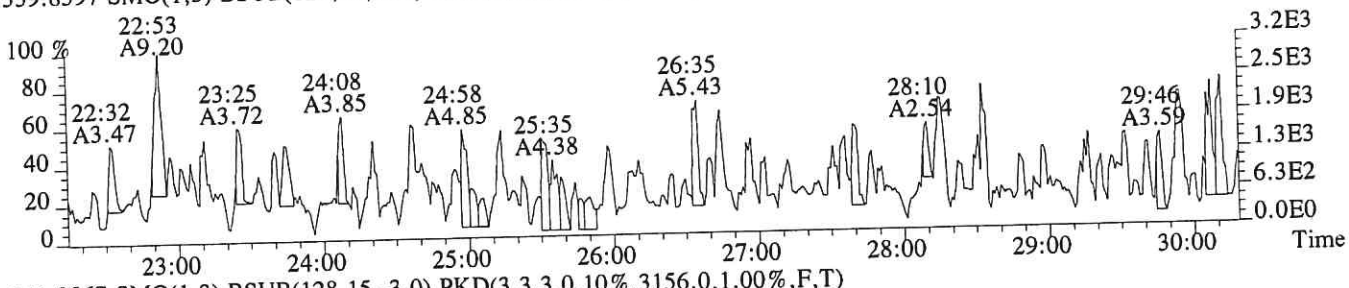
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3516.0,1.00%,F,T)



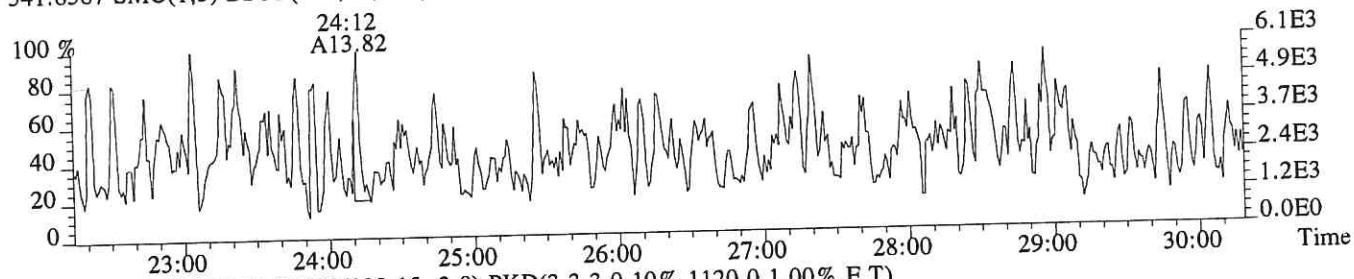
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



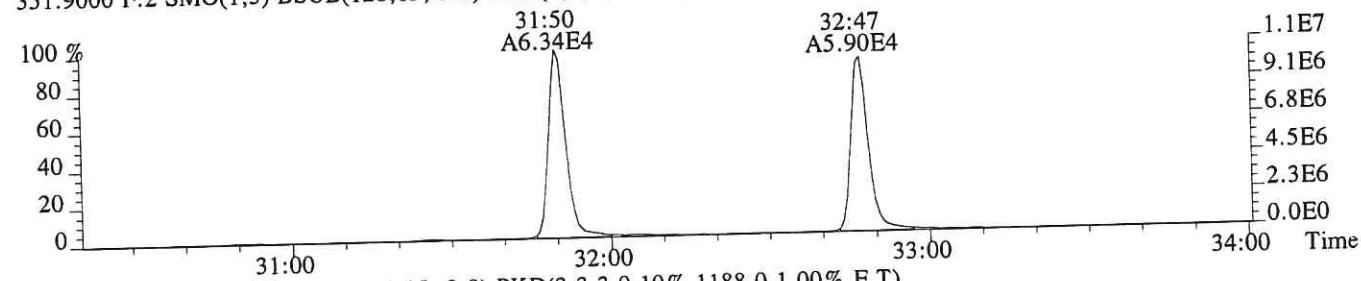
File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



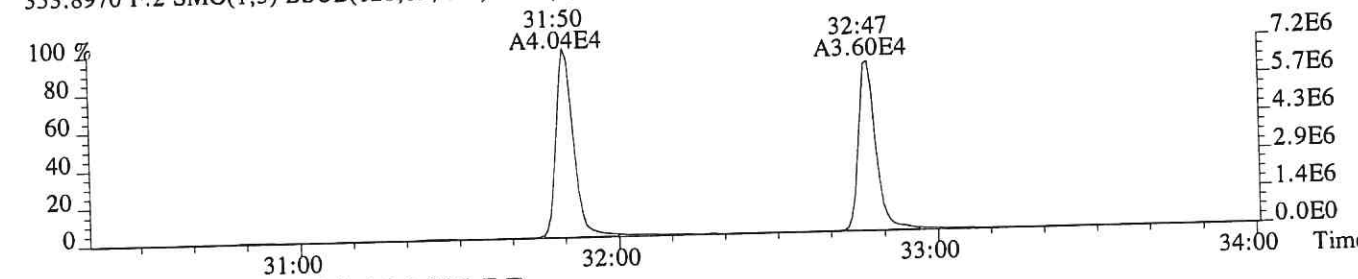
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3156.0,1.00%,F,T)



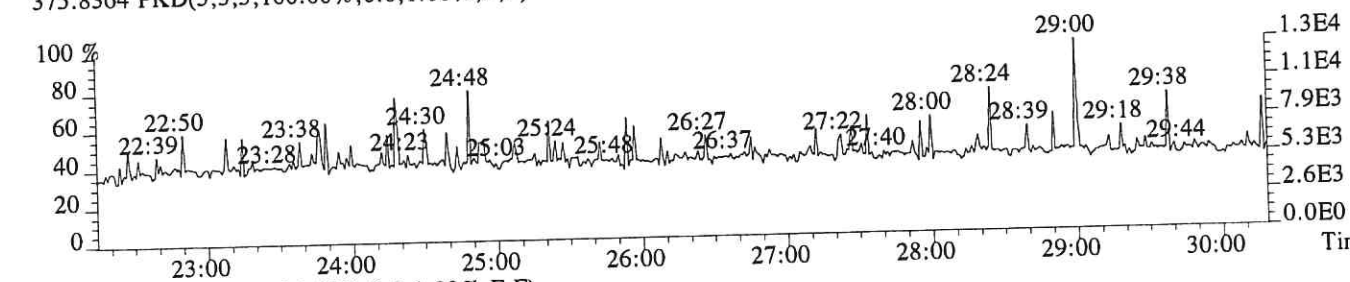
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



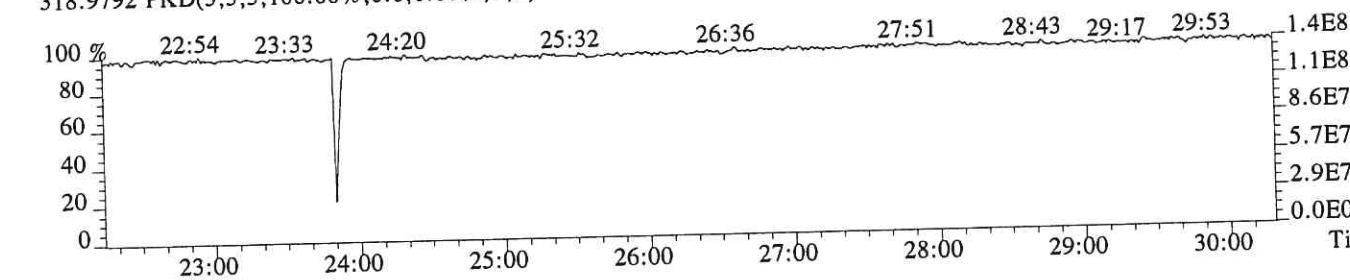
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

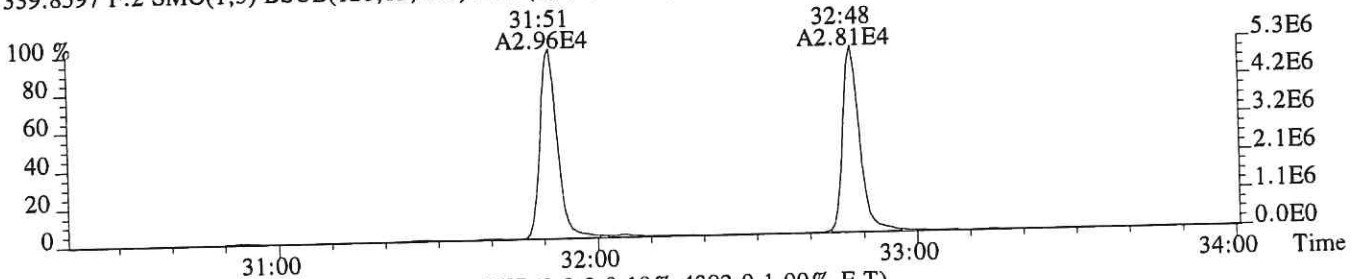


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

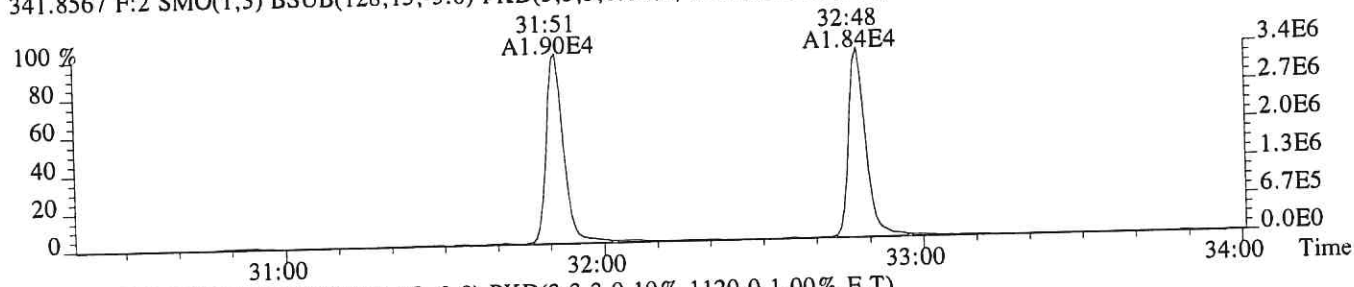


File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

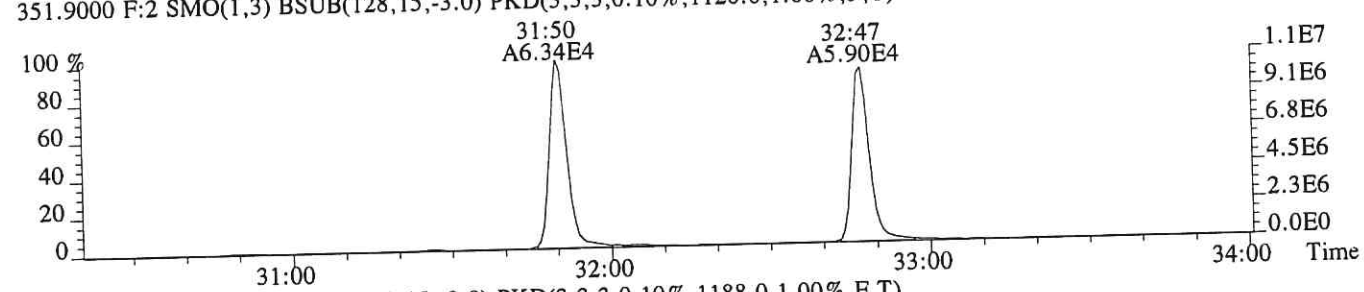
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



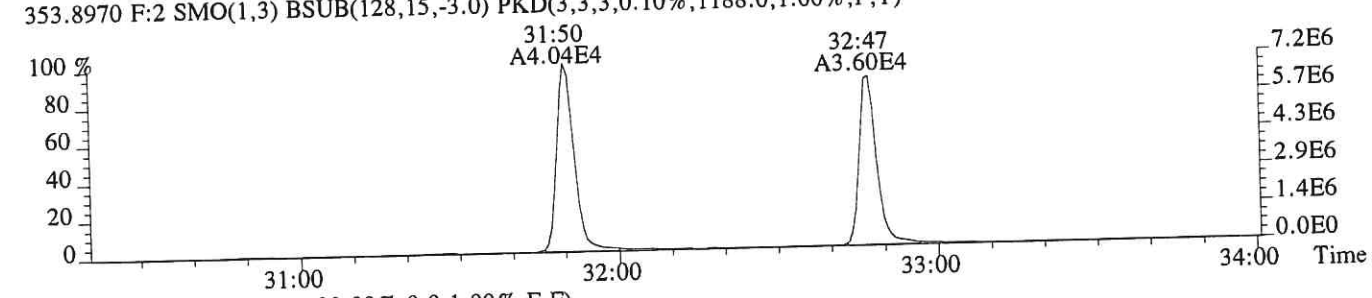
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



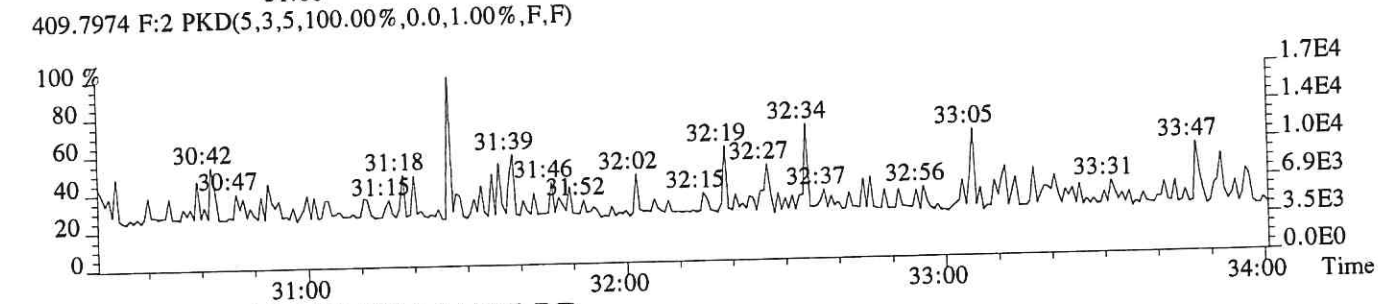
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



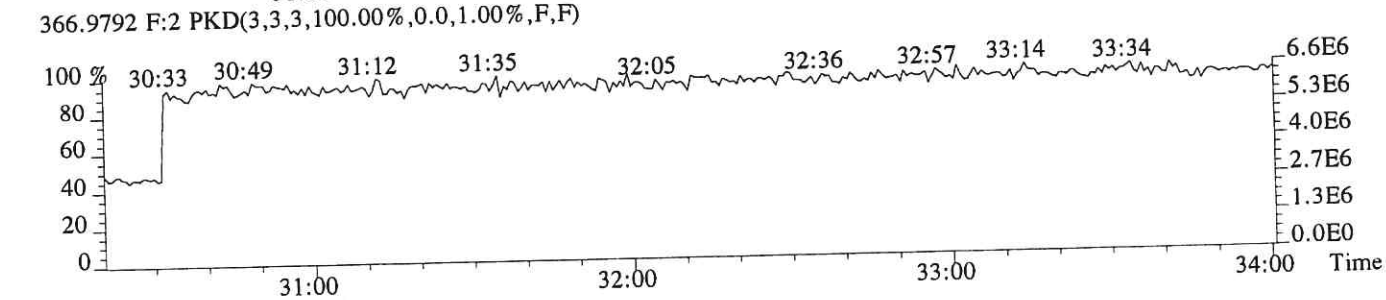
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

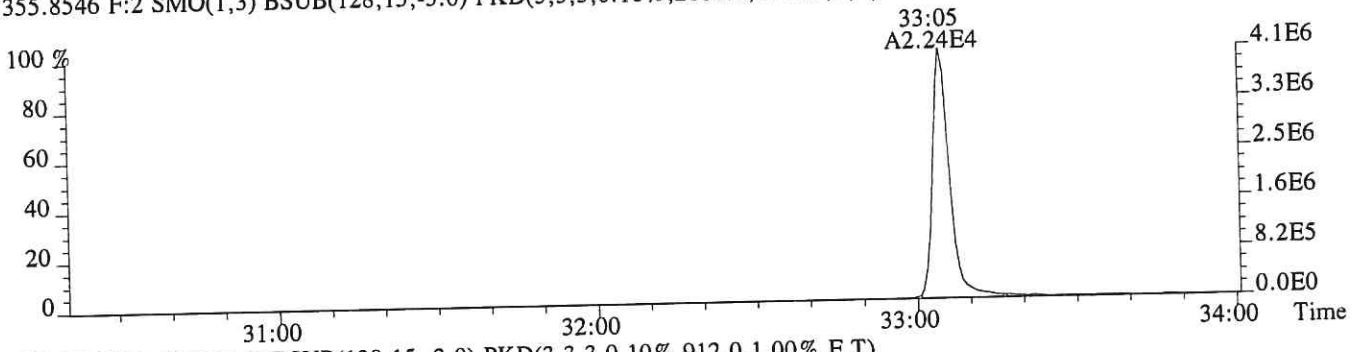


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

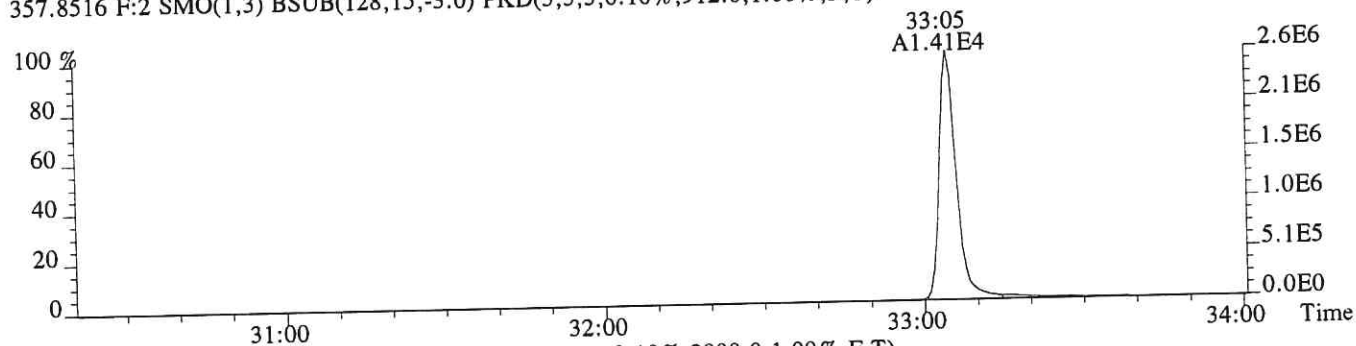


File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

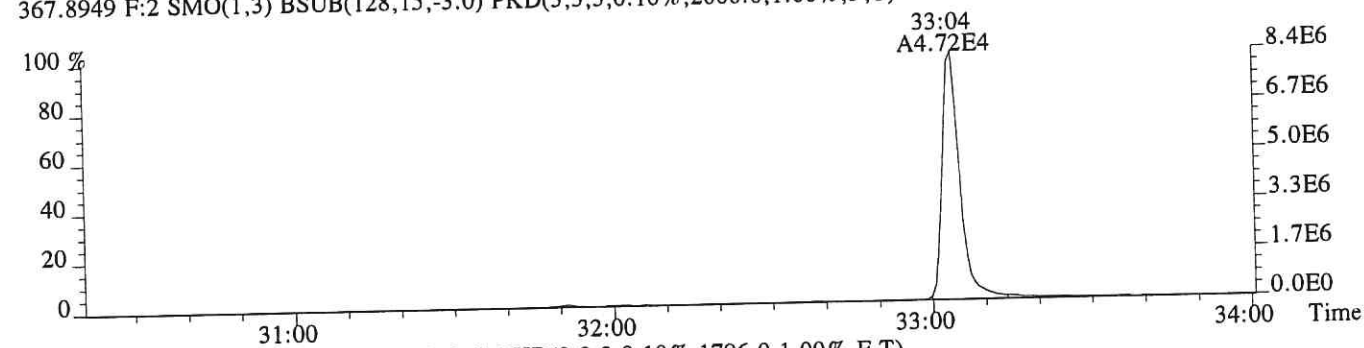
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



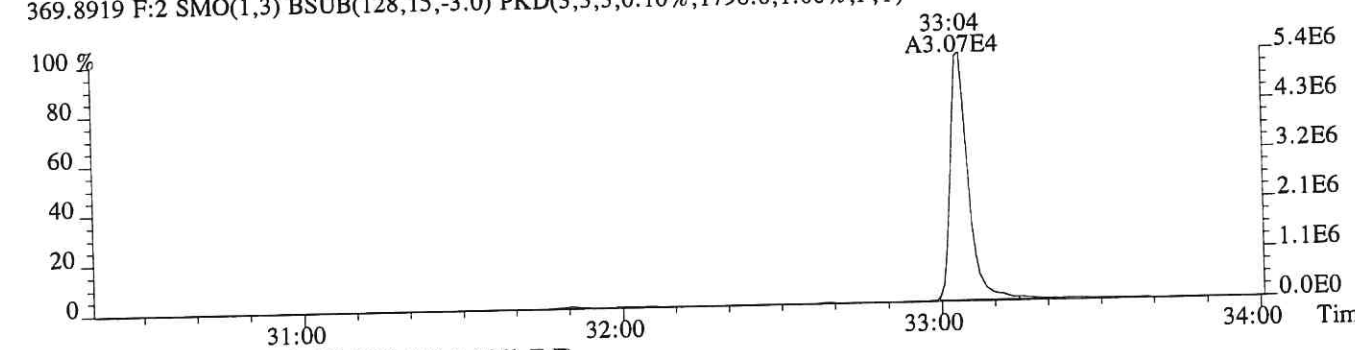
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



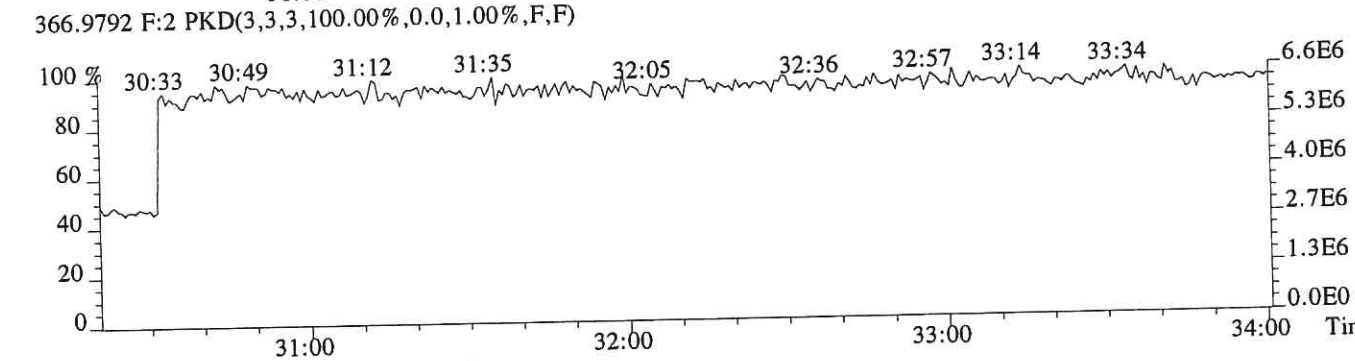
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)

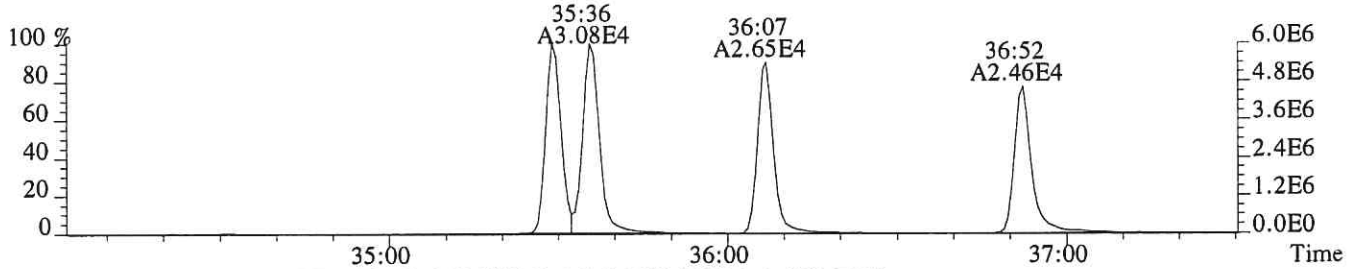


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

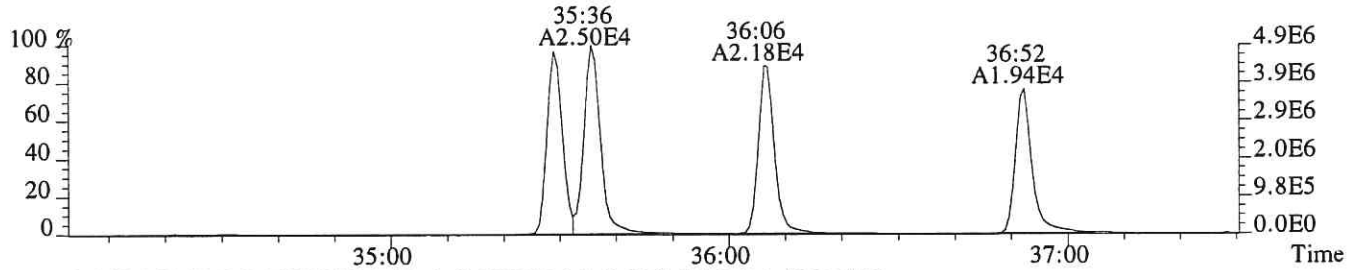


File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

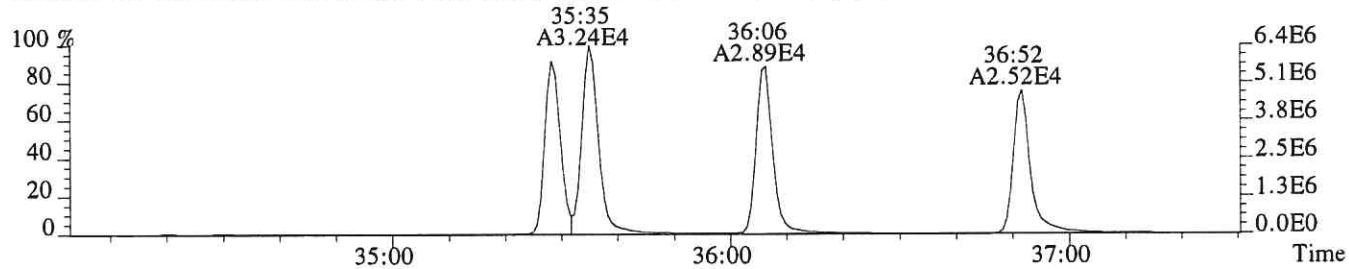
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



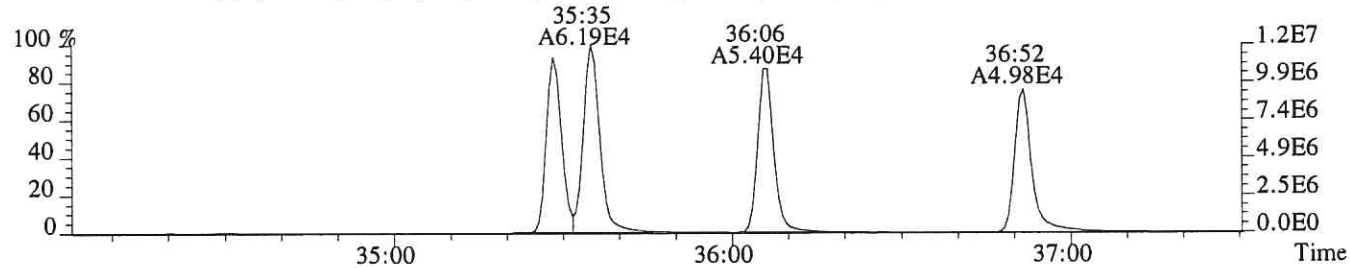
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



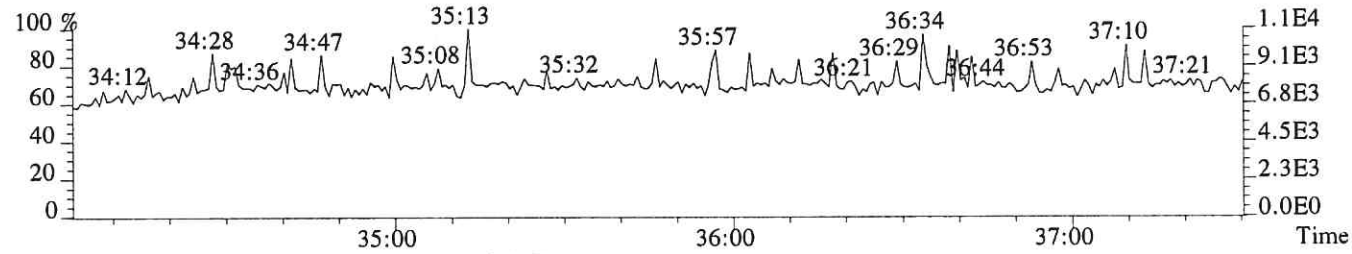
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



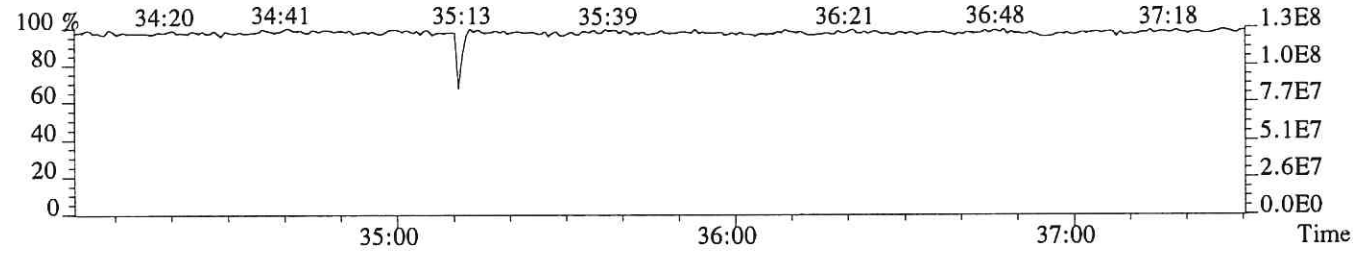
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

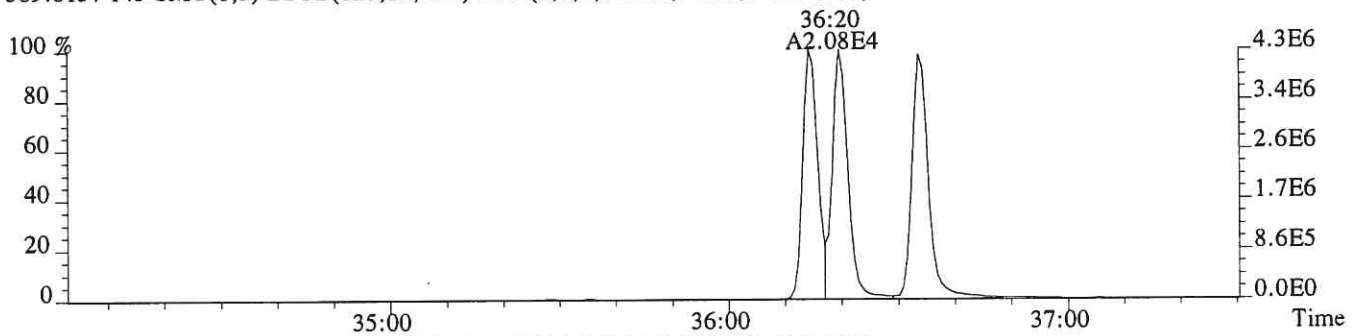


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

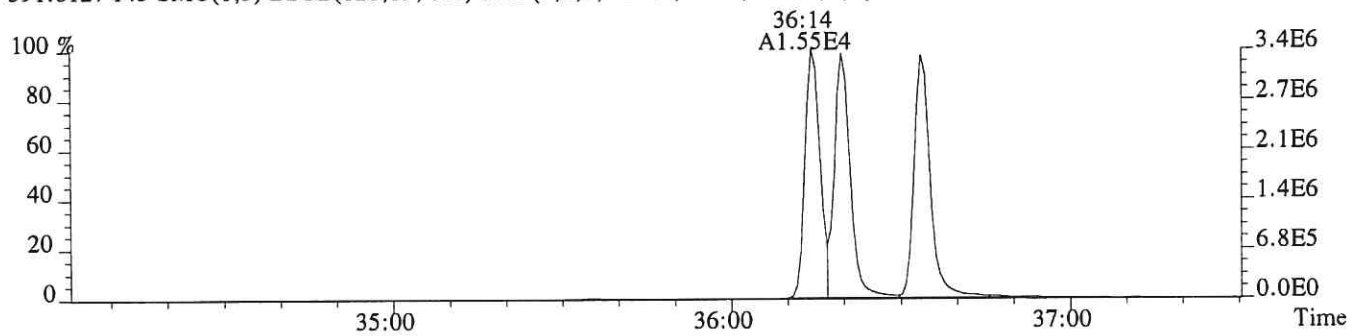


File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

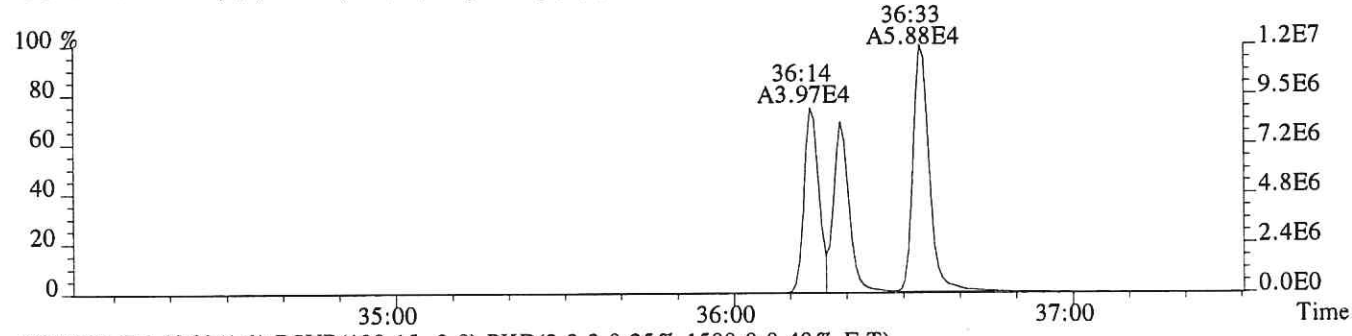
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



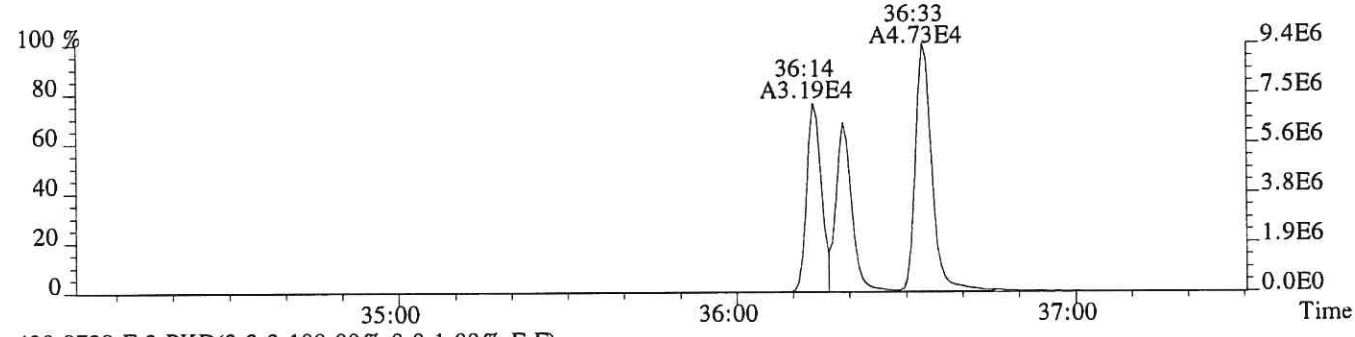
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



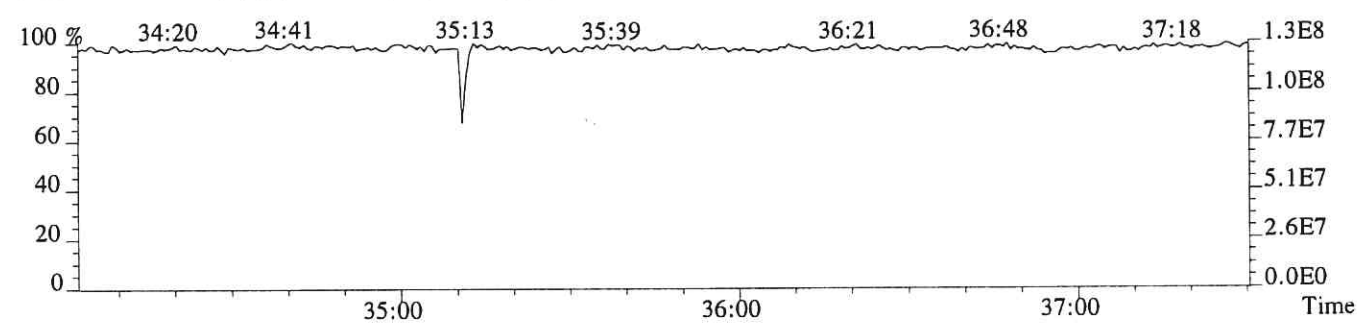
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2532.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)

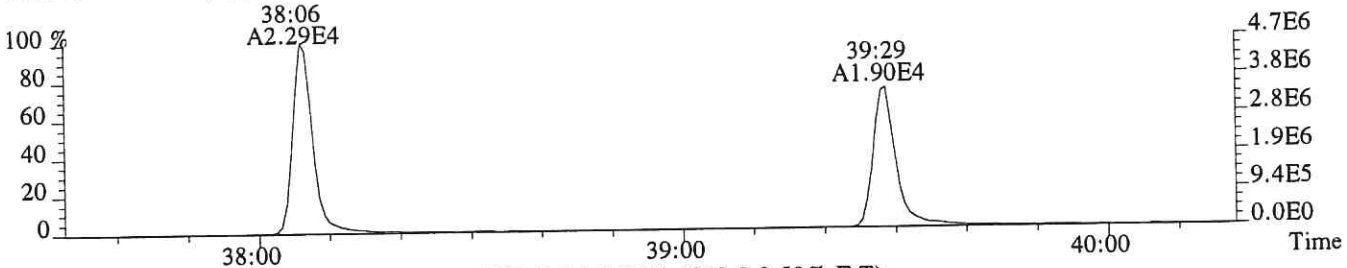


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

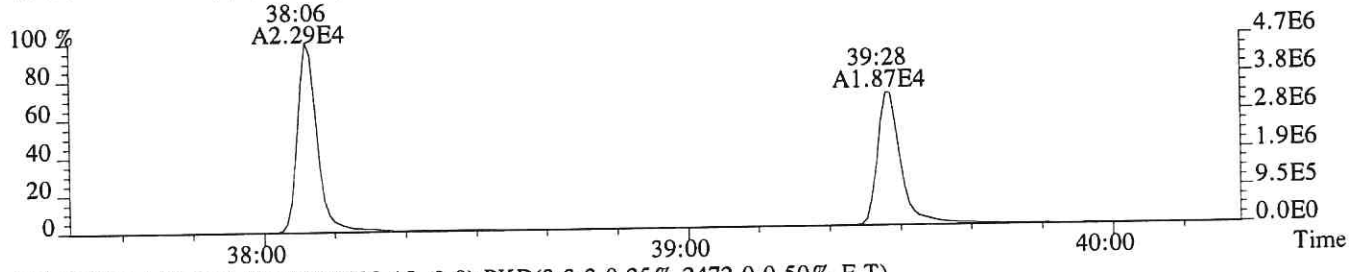


File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

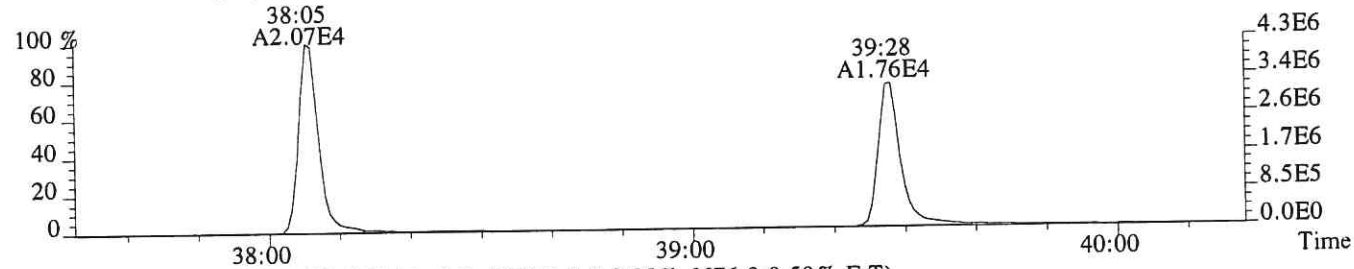
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.50%,F,T)



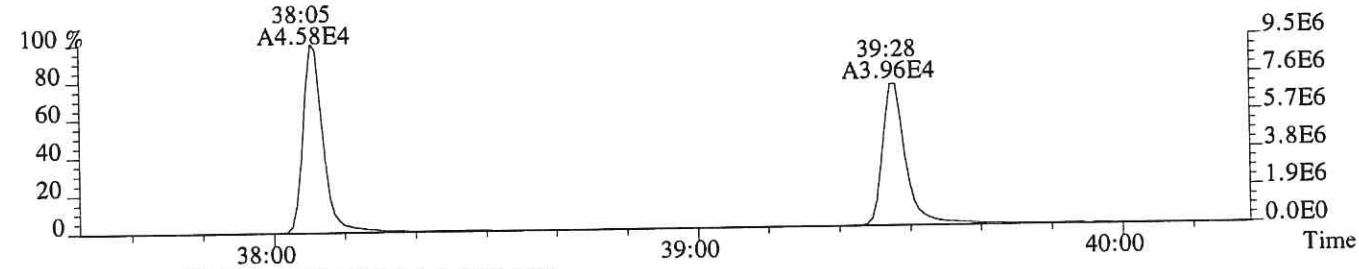
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.50%,F,T)



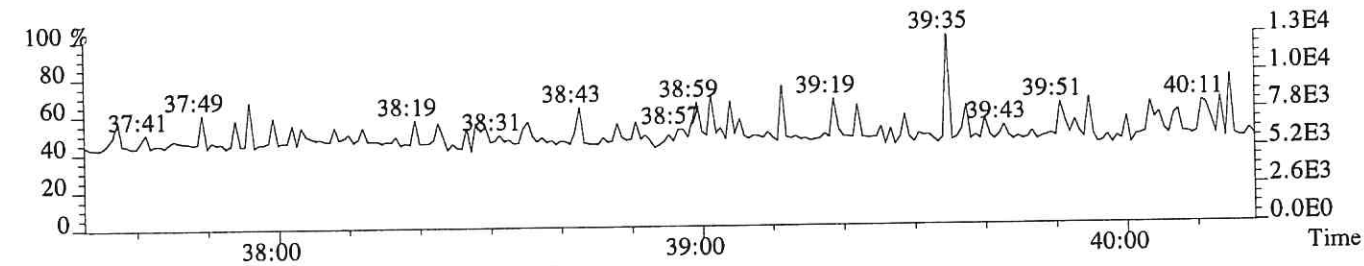
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2472.0,0.50%,F,T)



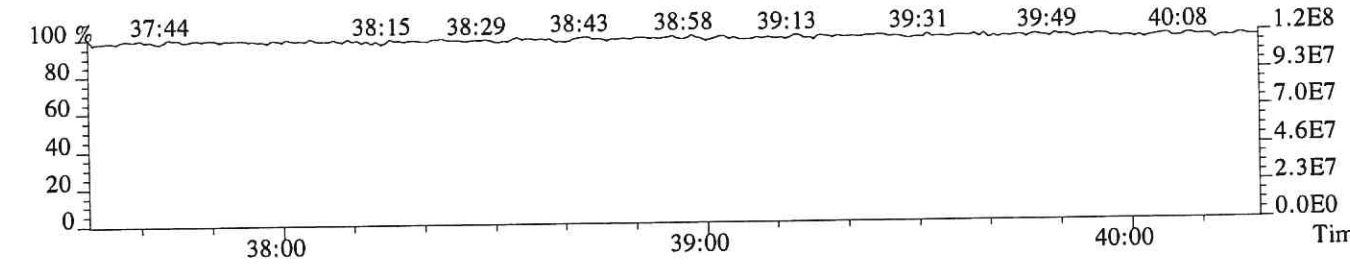
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6676.0,0.50%,F,T)



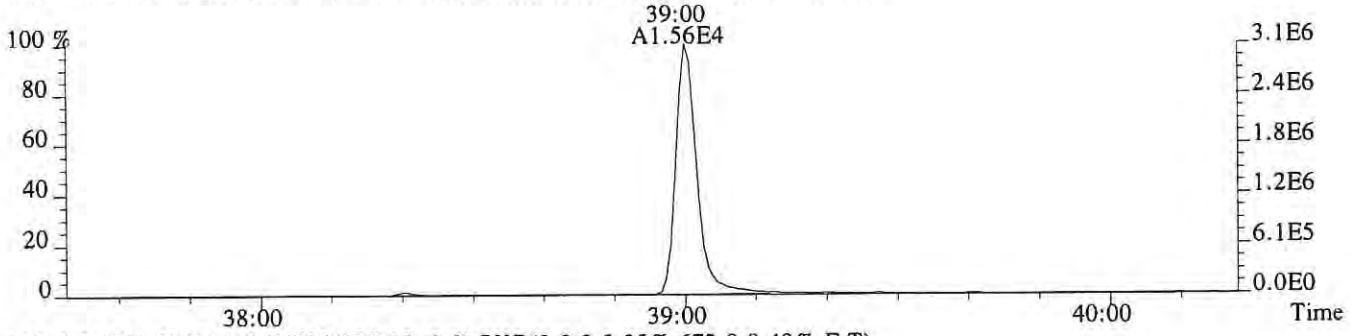
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



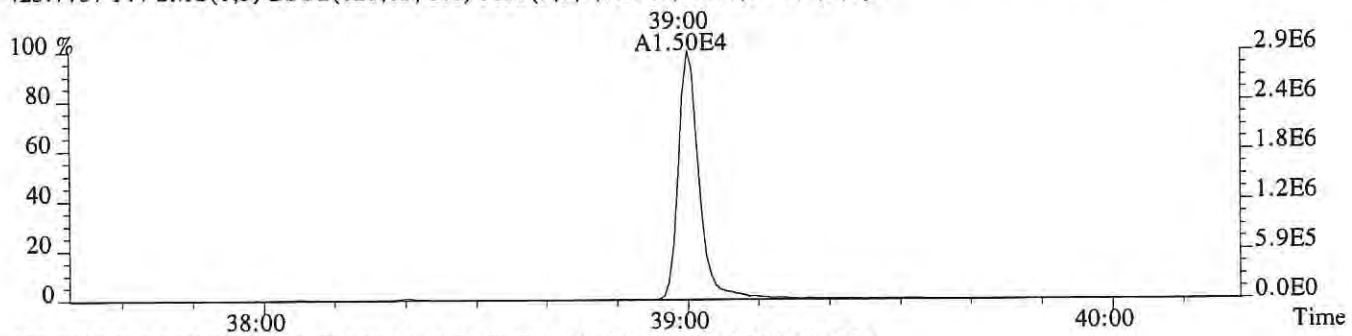
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



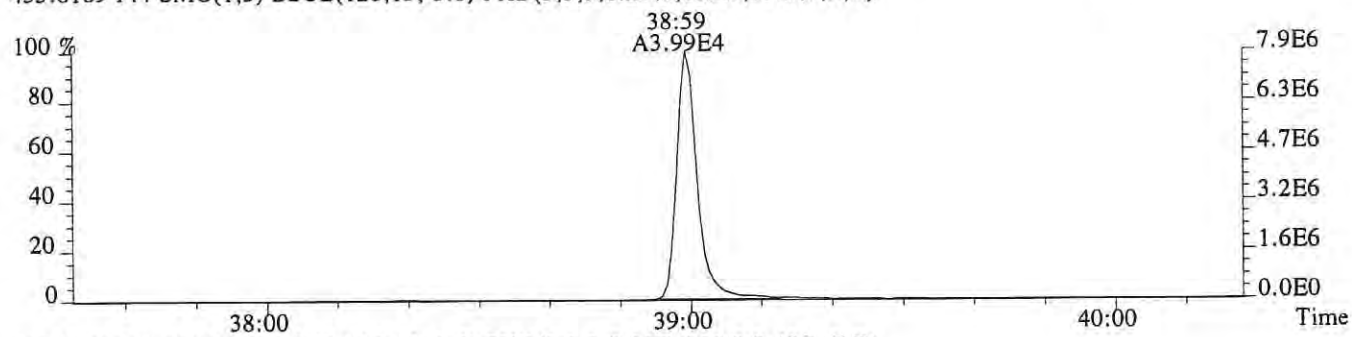
File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



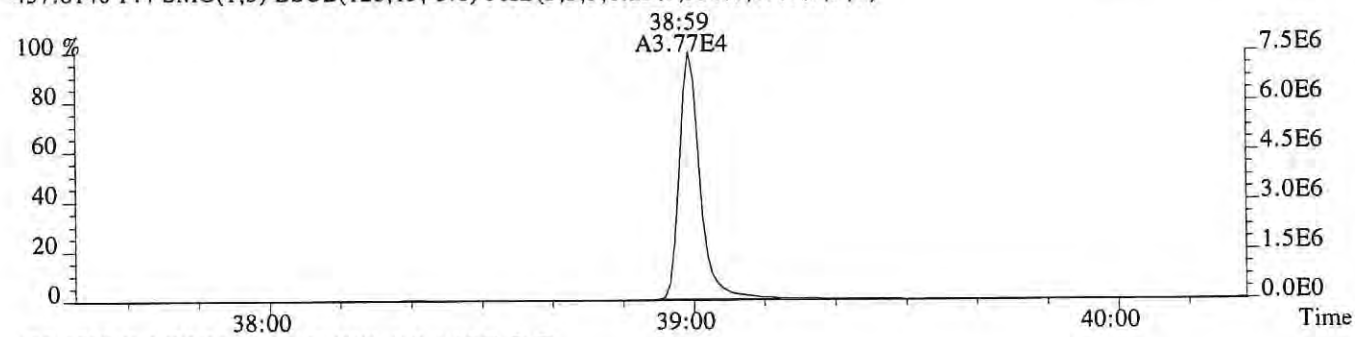
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



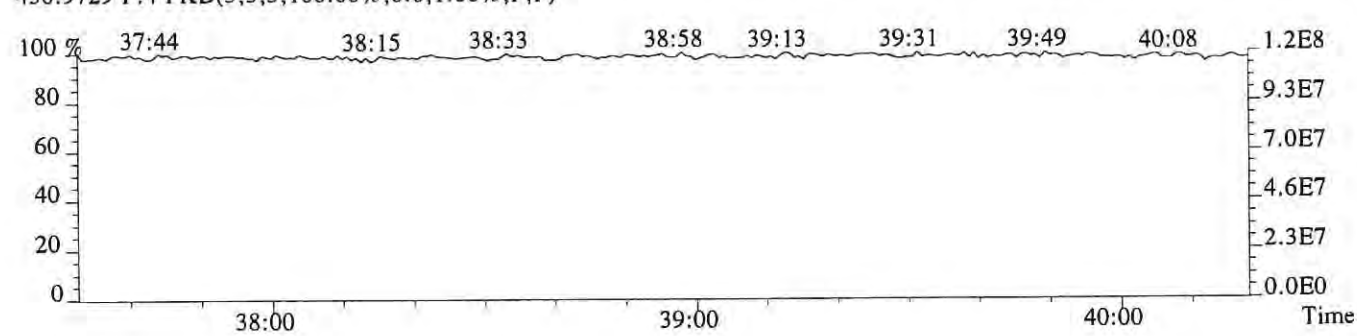
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)

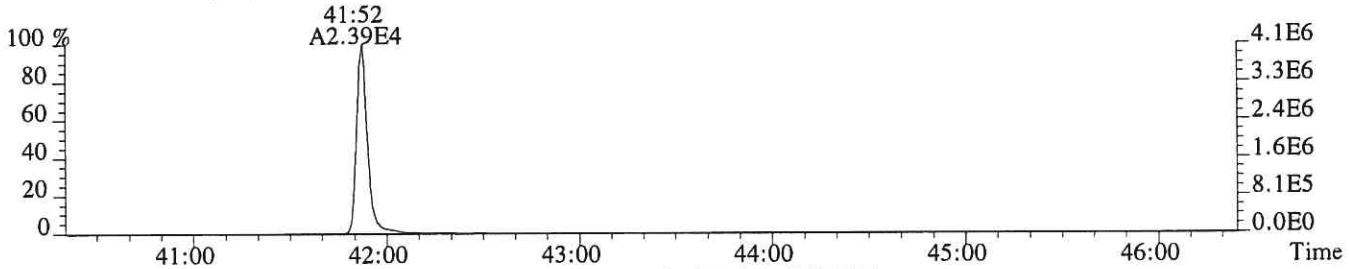


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

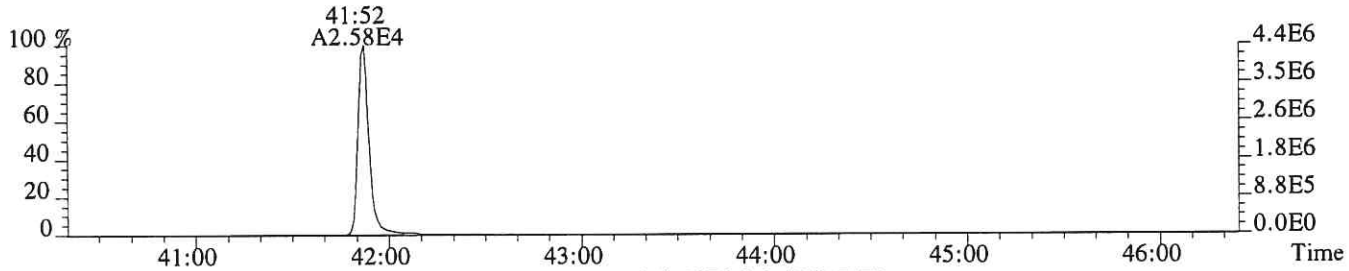


File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

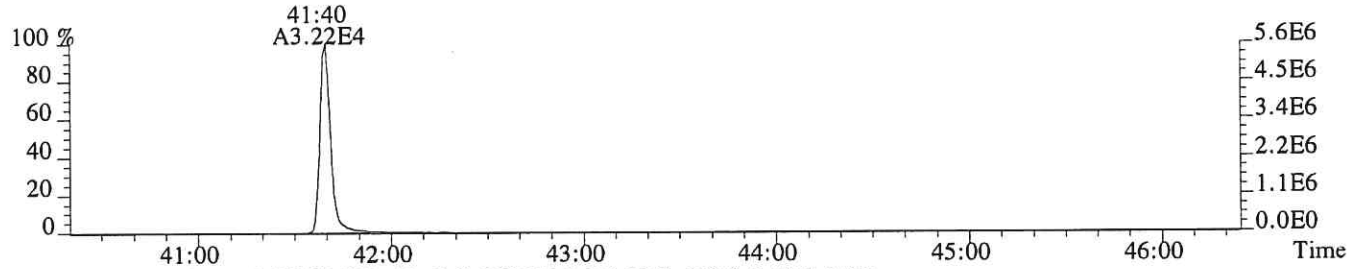
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



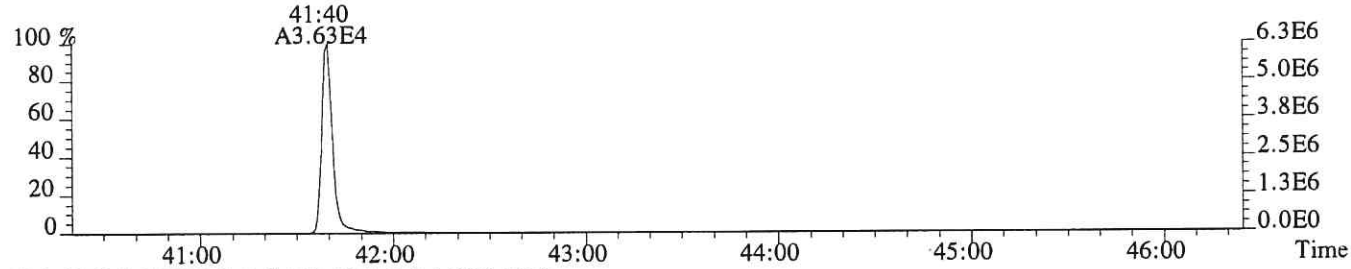
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1944.0,0.40%,F,T)



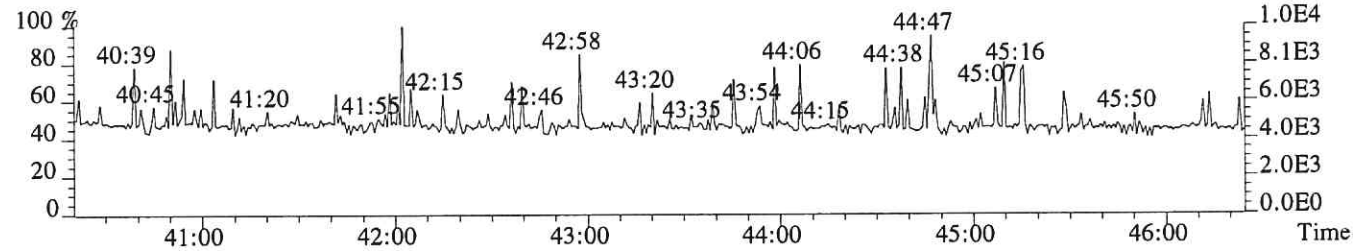
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



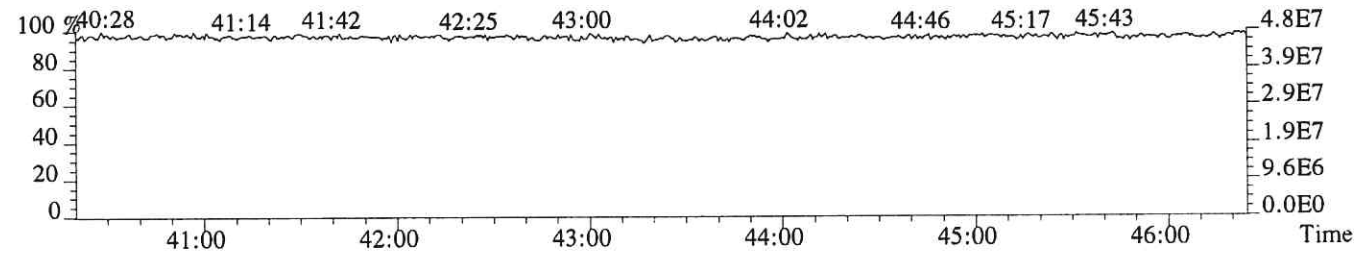
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



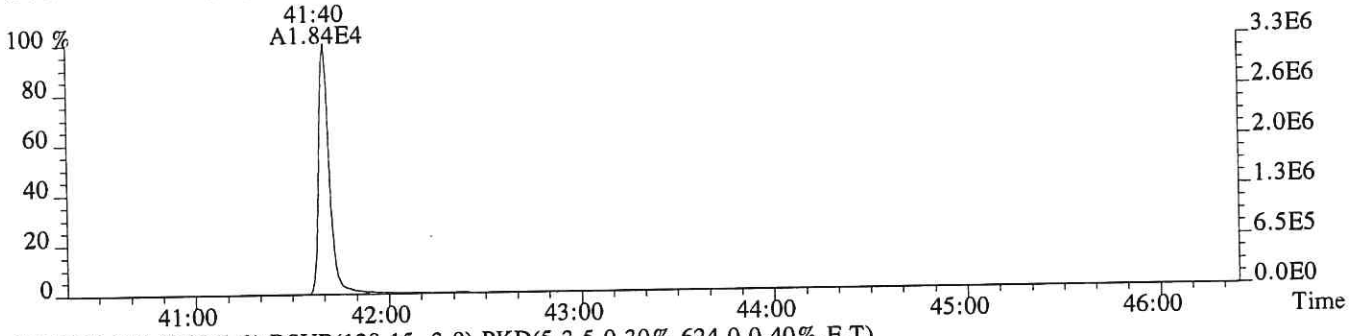
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



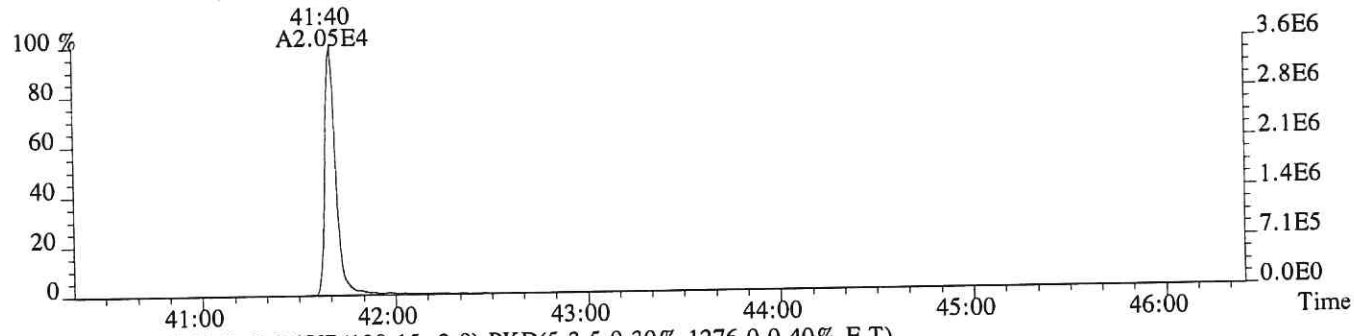
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



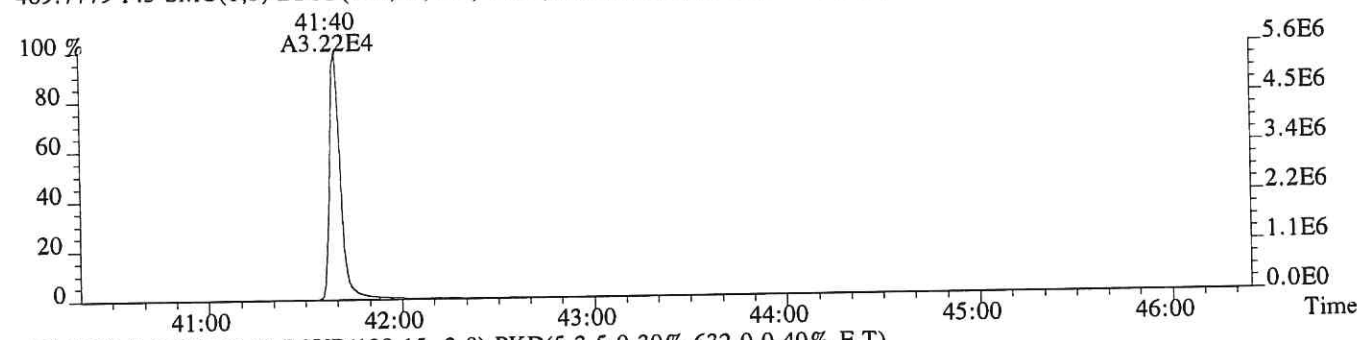
File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



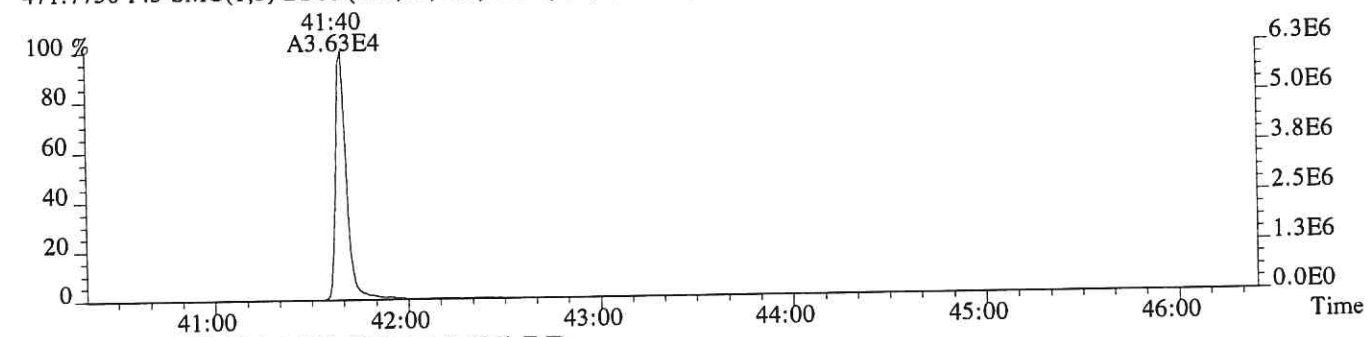
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



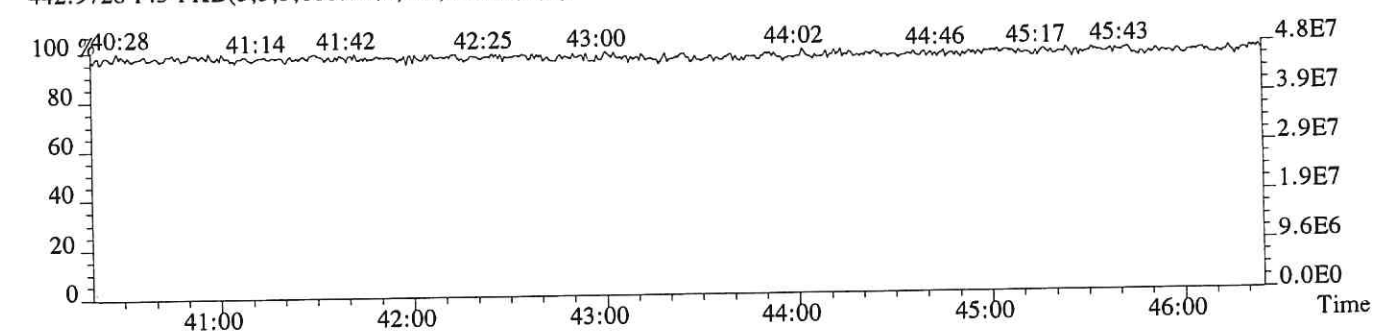
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519240

Date: 12/06/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519240	6-DEC-18	02:06:17
192977	WINDOW DEFINE	P519241	6-DEC-18	02:54:05
METHOD BLANK	EQ1800483-01	P519242	6-DEC-18	03:42:42
METHOD BLANK	EQ1800488-01	P519243	6-DEC-18	04:31:19
SL0153	E1801045-006	P519244	6-DEC-18	05:19:57
SL0164	E1801045-017	P519245	6-DEC-18	06:08:33
SL0146	E1801045-023	P519246	6-DEC-18	06:58:34
SL0539	E1801046-001	P519247	6-DEC-18	07:46:23
SL0540	E1801046-002	P519248	6-DEC-18	08:35:00
SL0541	E1801046-003	P519249	6-DEC-18	09:23:39
SL0542	E1801046-004	P519250	6-DEC-18	10:12:15
SL0543	E1801046-005	P519251	6-DEC-18	11:01:01
SL0544	E1801046-006	P519252	6-DEC-18	11:49:47
LCS	EQ1800488-02	P519253	6-DEC-18	12:38:23
DLCS	EQ1800488-03	P519254	6-DEC-18	13:27:00

E1801046

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181205B.SPL
Last Modified: Thursday, December 06, 2018 14:14:00 Central Standard Time
Printed: Thursday, December 06, 2018 14:14:02 Central Standard Time

Page Position (1, 1)

OPUS 4: P519240res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/6/18	02:02	P519240	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 02:02
2		02:54	P519241	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		03:47	P519242	MB	EQ1800483-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		04:31	P519243	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		05:19	P519244	E1801045-006	E1801045-006	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		06:08	P519245	E1801045-017	E1801045-017	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:58	P519246	E1801045-023	E1801045-023	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		07:46	P519247	E1801046-001	E1801046-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		08:35	P519248	E1801046-002	E1801046-002	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		09:23	P519249	E1801046-003	E1801046-003	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		10:12	P519250	E1801046-004	E1801046-004	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		11:01	P519251	E1801046-005	E1801046-005	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		11:49	P519252	E1801046-006	E1801046-006	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		12:38	P519253	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	↓	13:27	P519254	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	↓	HRMS check 15:55
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

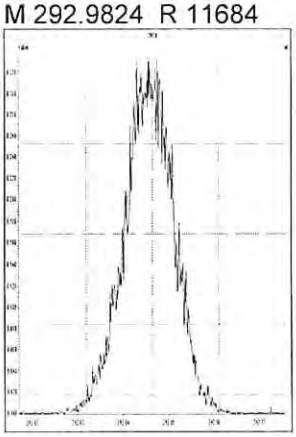
gc
12/07/18

045

~~045~~ LG 12/6/18

Printed: Thursday, December 06, 2018 02:06:15 Central Standard Time

M 292.9824 R 11684



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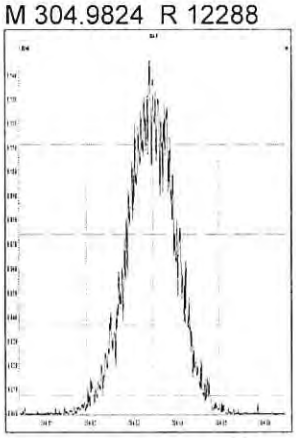

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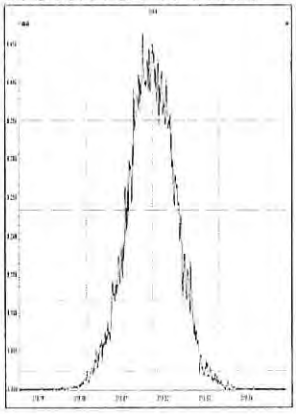
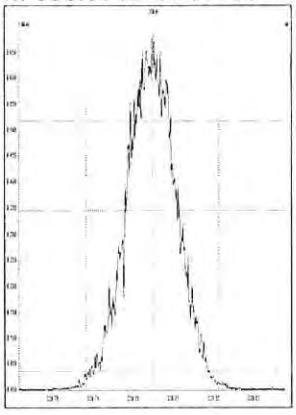


M 330.9792 R 11495



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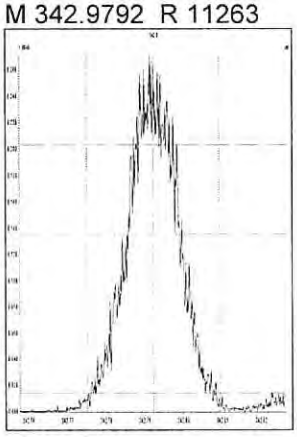

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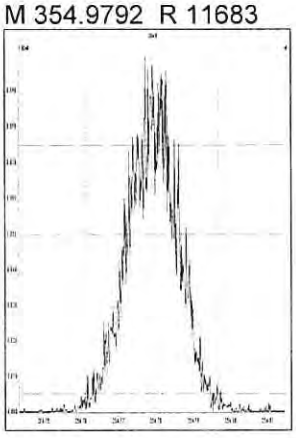

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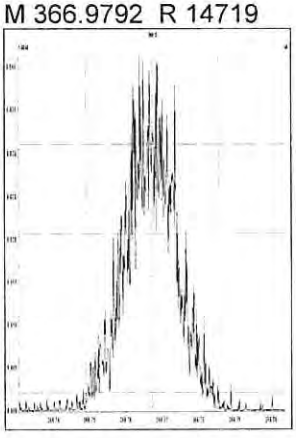

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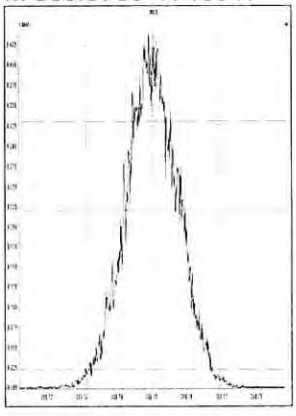

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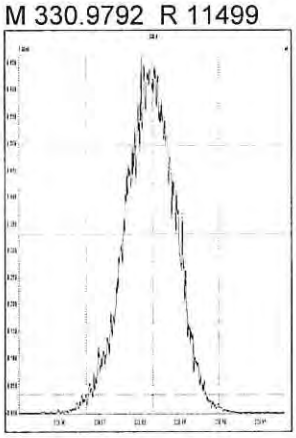

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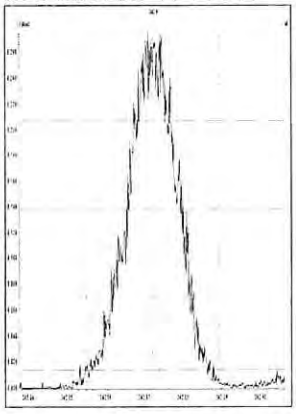
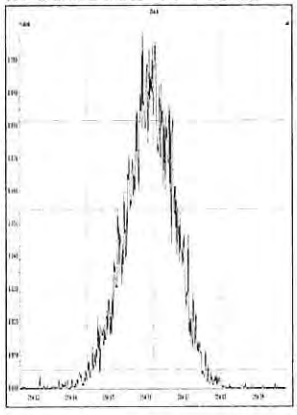


M 354.9792 R 11848



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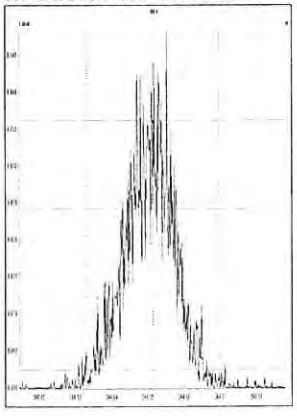
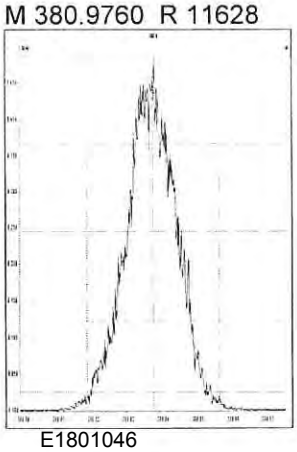


M 380.9760 R 11628



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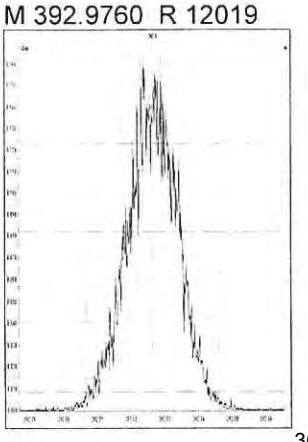
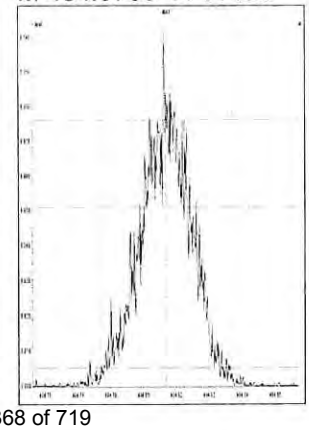


M 404.9760 R 11493



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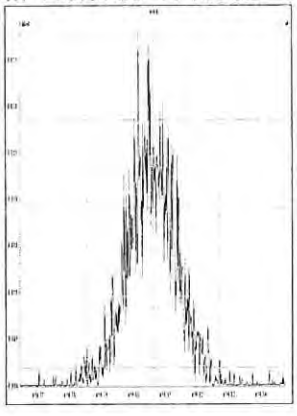
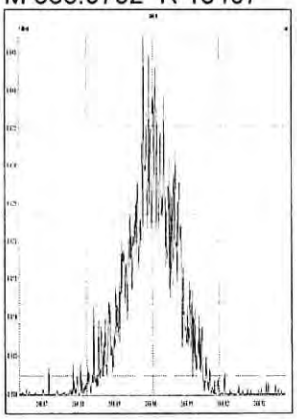


M 366.9792 R 13407



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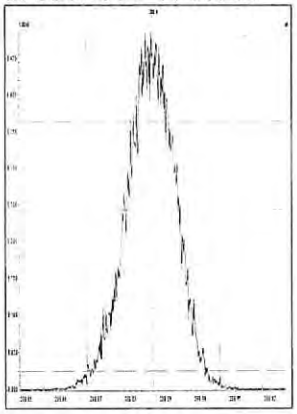

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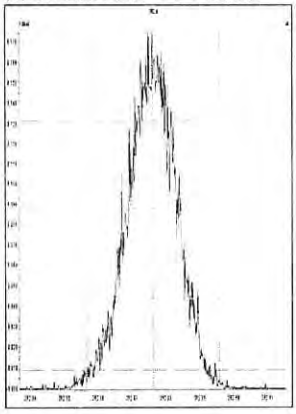

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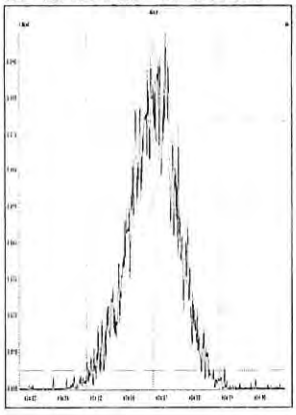
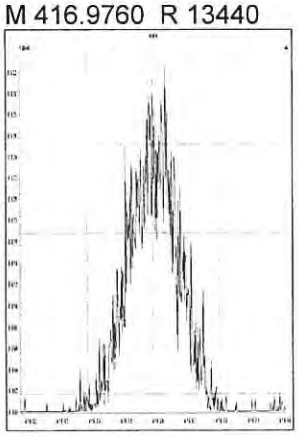
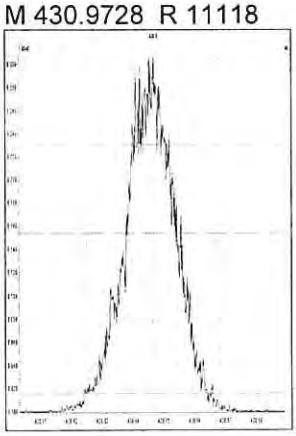


M 416.9760 R 13440



M 430.9728 R 11118



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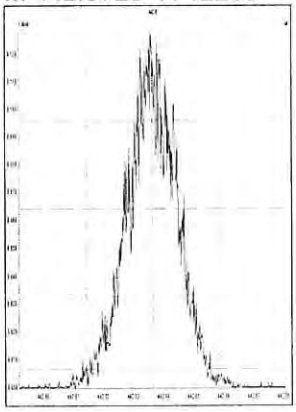

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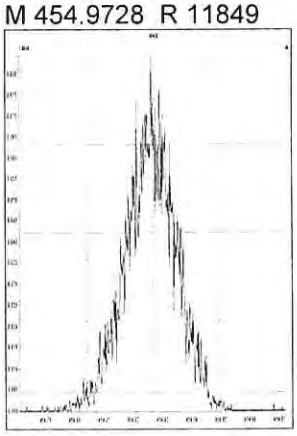

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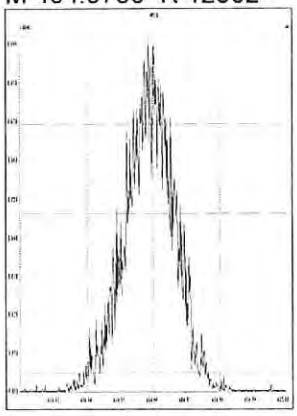

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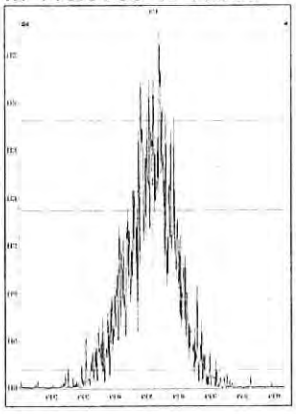
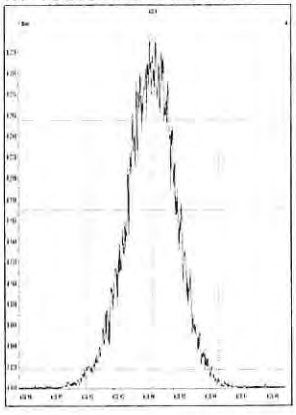


M 430.9728 R 11415



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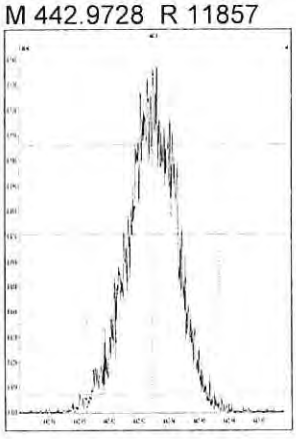

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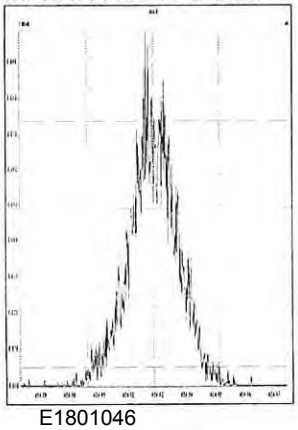

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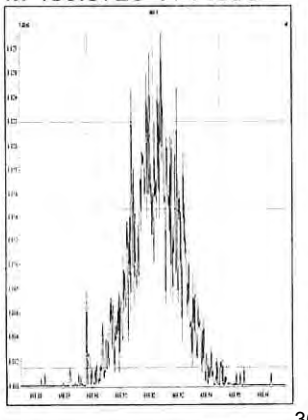

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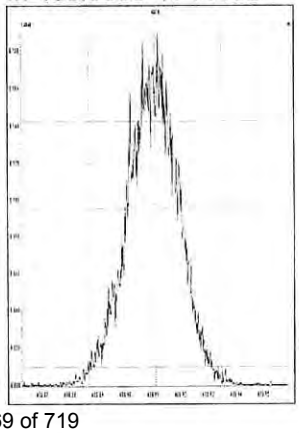

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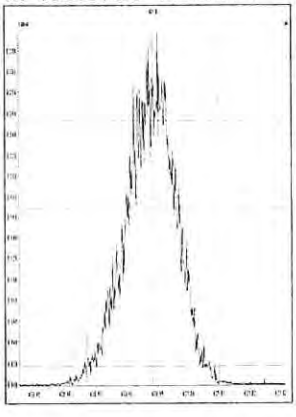
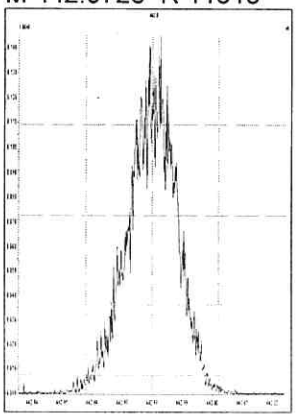


M 442.9728 R 11618



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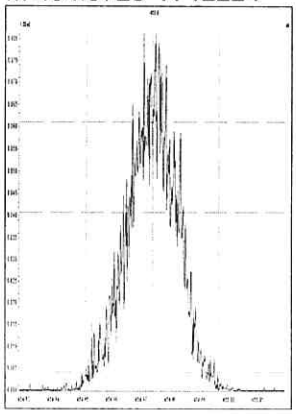

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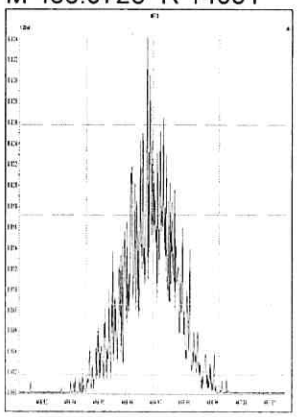

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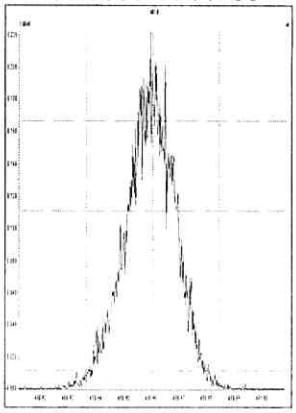

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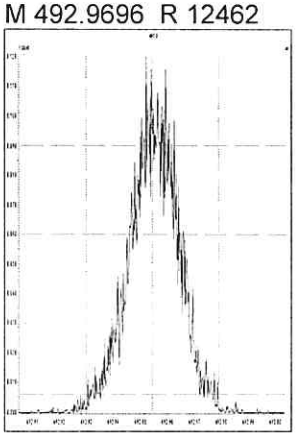
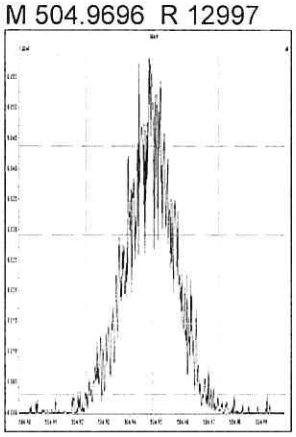


M 504.9696 R 12997



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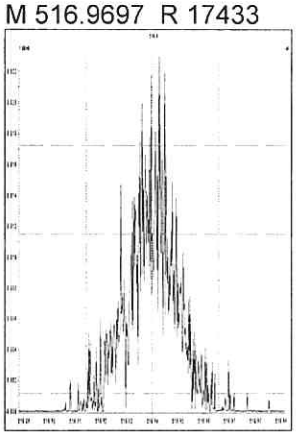
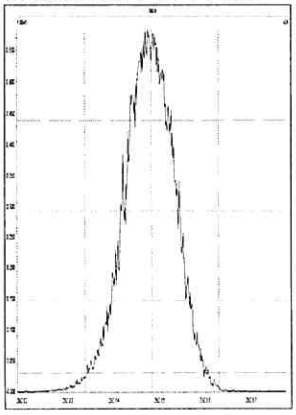


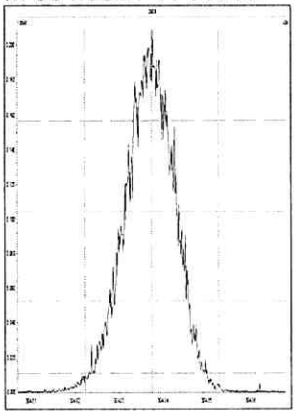
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 06, 2018 15:55:07 Central Standard Time

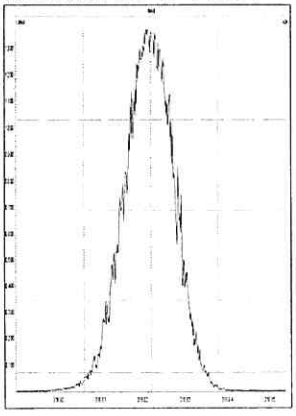
M 292.9824 R 11469



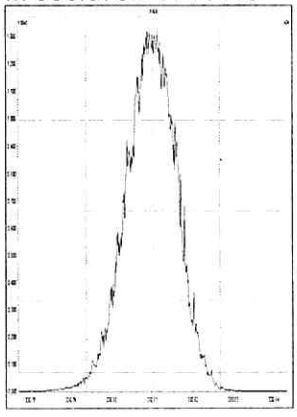
M 304.9824 R 11310



M 318.9792 R 11684



M 330.9792 R 11415



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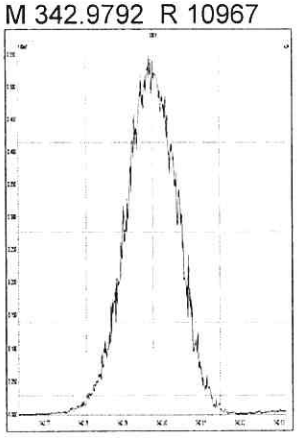
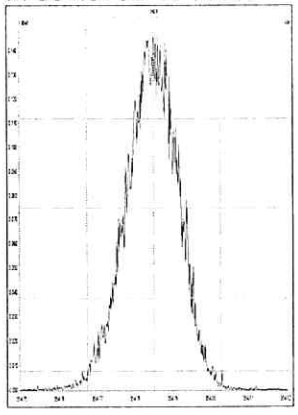
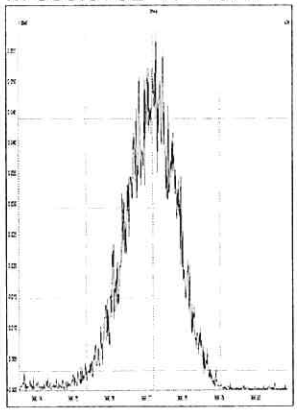


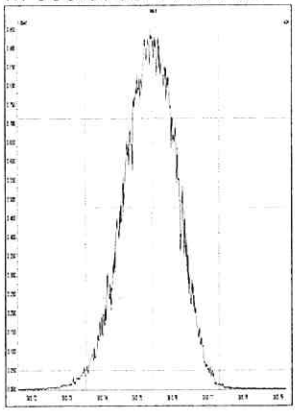
M 354.9792 R 11211



M 366.9792 R 11572



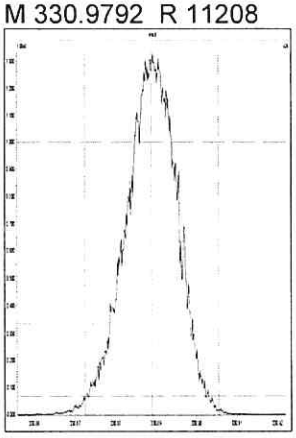
M 380.9760 R 11112



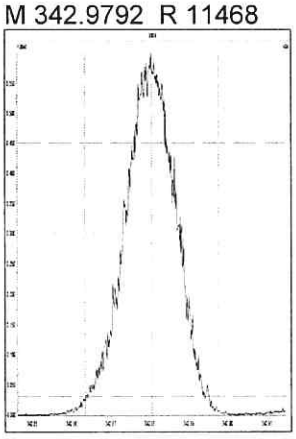
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 06, 2018 15:55:59 Central Standard Time

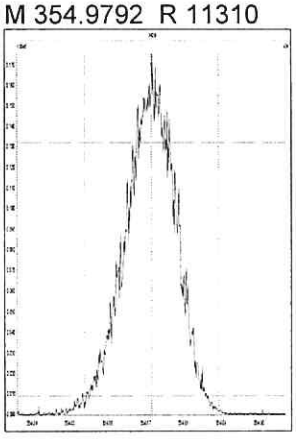
M 330.9792 R 11208



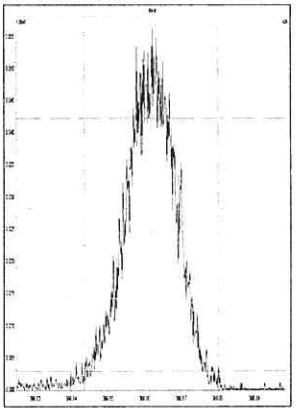
M 342.9792 R 11468



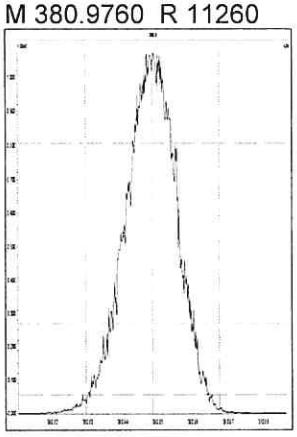
M 354.9792 R 11310



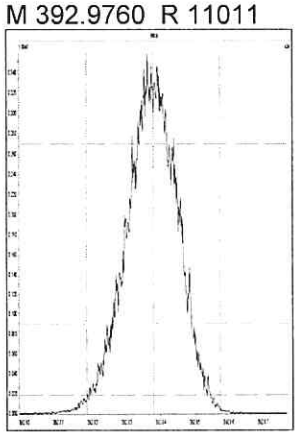
M 366.9792 R 11521



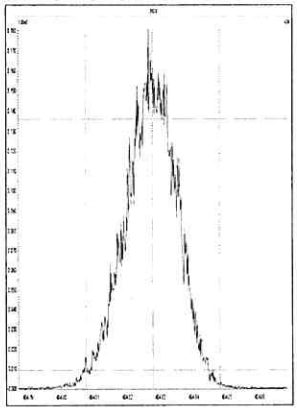
M 380.9760 R 11260



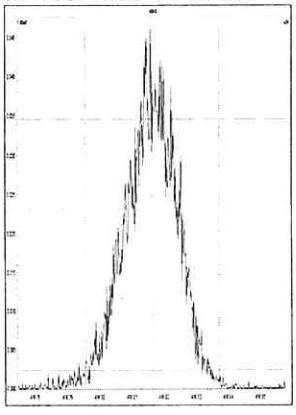
M 392.9760 R 11011



M 404.9760 R 11261



M 416.9760 R 11011



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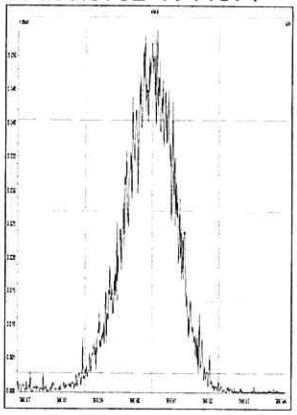
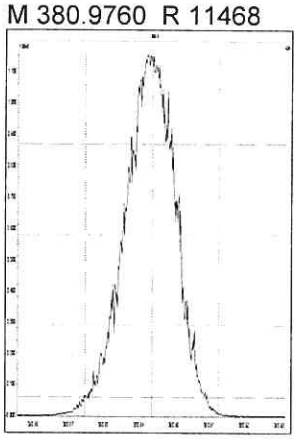
Printed: Thursday, December 06, 2018 15:56:39 Central Standard Time

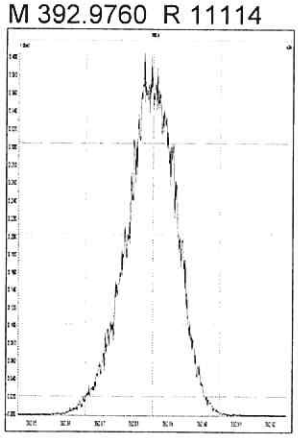
M 366.9792 R 11571



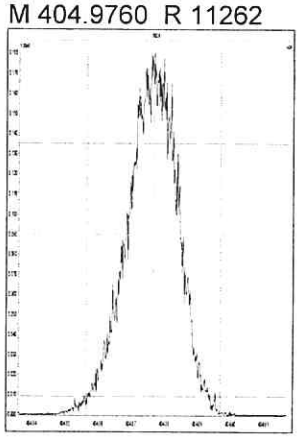
M 380.9760 R 11468



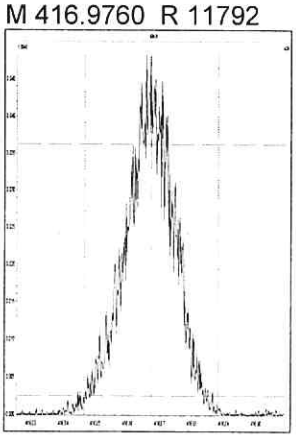
M 392.9760 R 11114



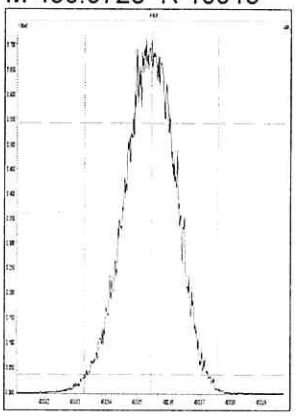
M 404.9760 R 11262



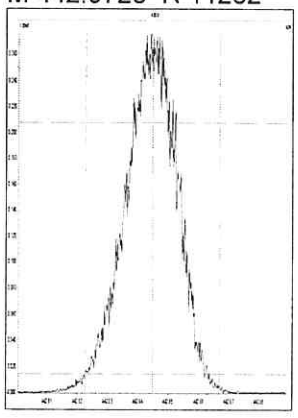
M 416.9760 R 11792



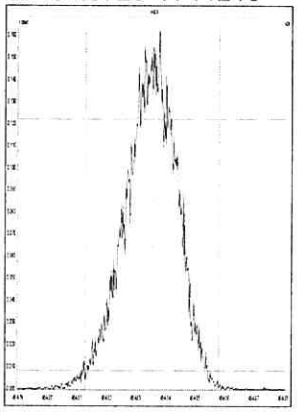
M 430.9728 R 10915



M 442.9728 R 11262



M 454.9728 R 11210



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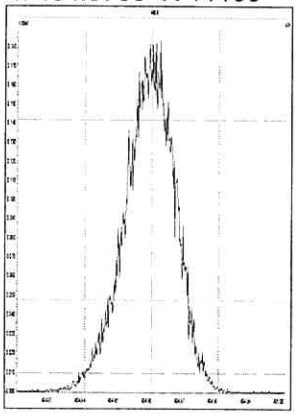
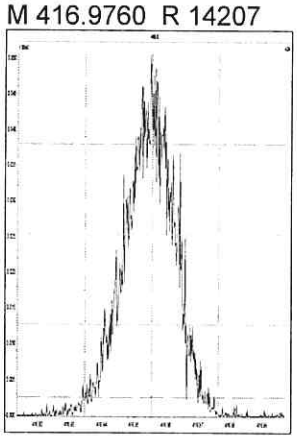
Printed: Thursday, December 06, 2018 15:57:15 Central Standard Time

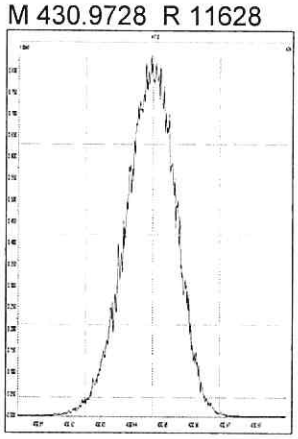
M 404.9760 R 11160



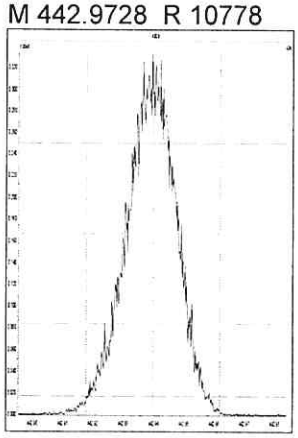
M 416.9760 R 14207



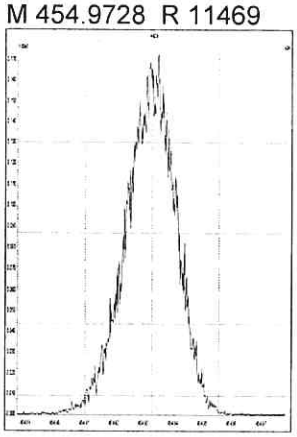
M 430.9728 R 11628



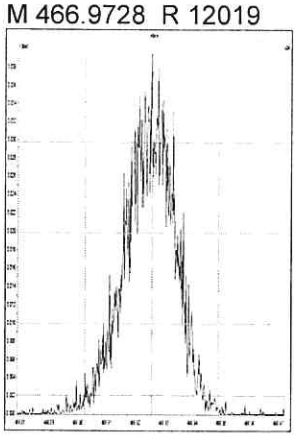
M 442.9728 R 10778



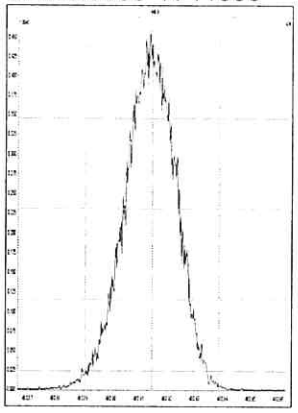
M 454.9728 R 11469



M 466.9728 R 12019



M 480.9696 R 11366



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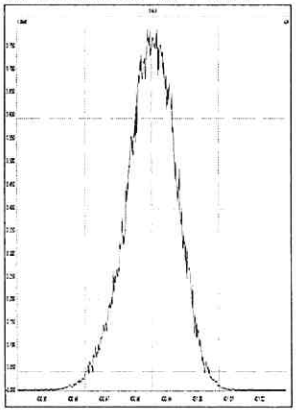
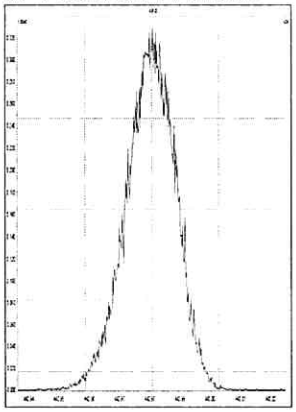
Printed: Thursday, December 06, 2018 15:58:55 Central Standard Time

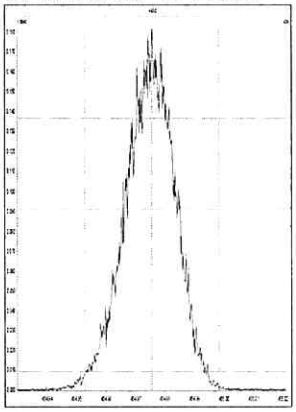
M 430.9728 R 11572



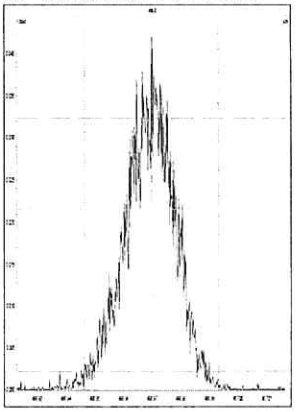
M 442.9728 R 11308



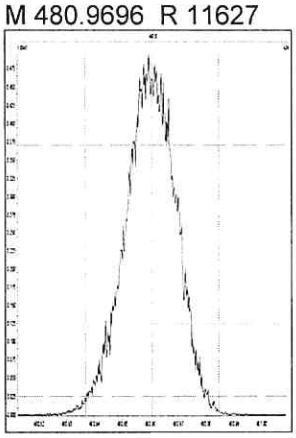
M 454.9728 R 11060



M 466.9728 R 11906



M 480.9696 R 11627



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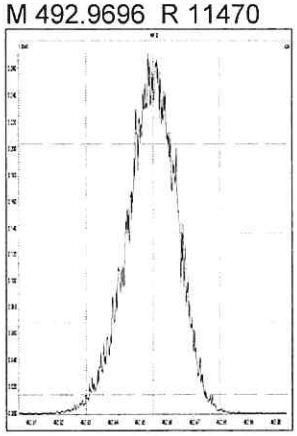
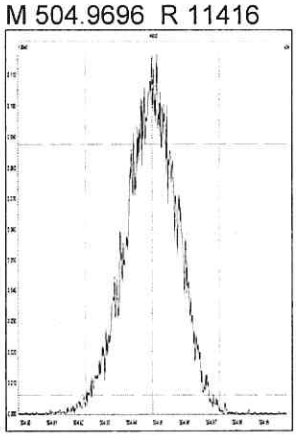
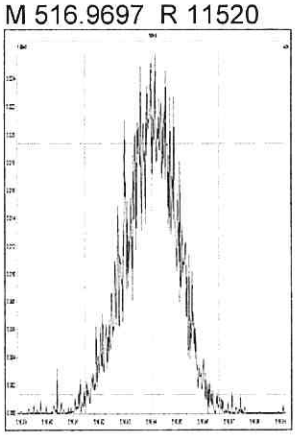


M 504.9696 R 11416



M 516.9697 R 11520



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

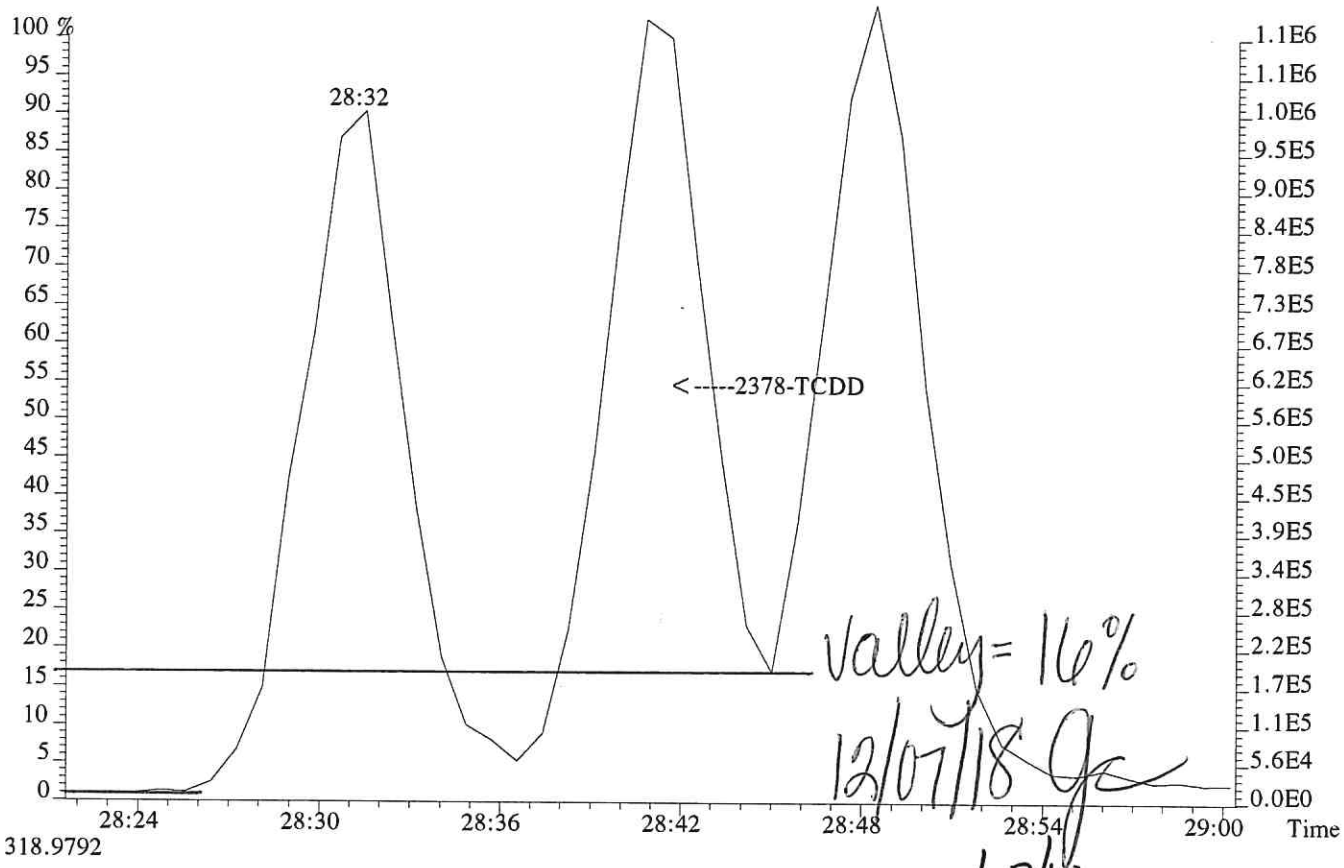
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519241
Date Analyzed: 6-DEC-2018
Time Analyzed: 02:54:05

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:51
TCDD	25:18	29:42
PeCDF	29:48	34:06
PeCDD	31:22	33:51
HxCDF	34:46	37:17
HxCDD	35:17	36:53
HpCDF	38:32	39:55
HpCDD	38:46	39:27

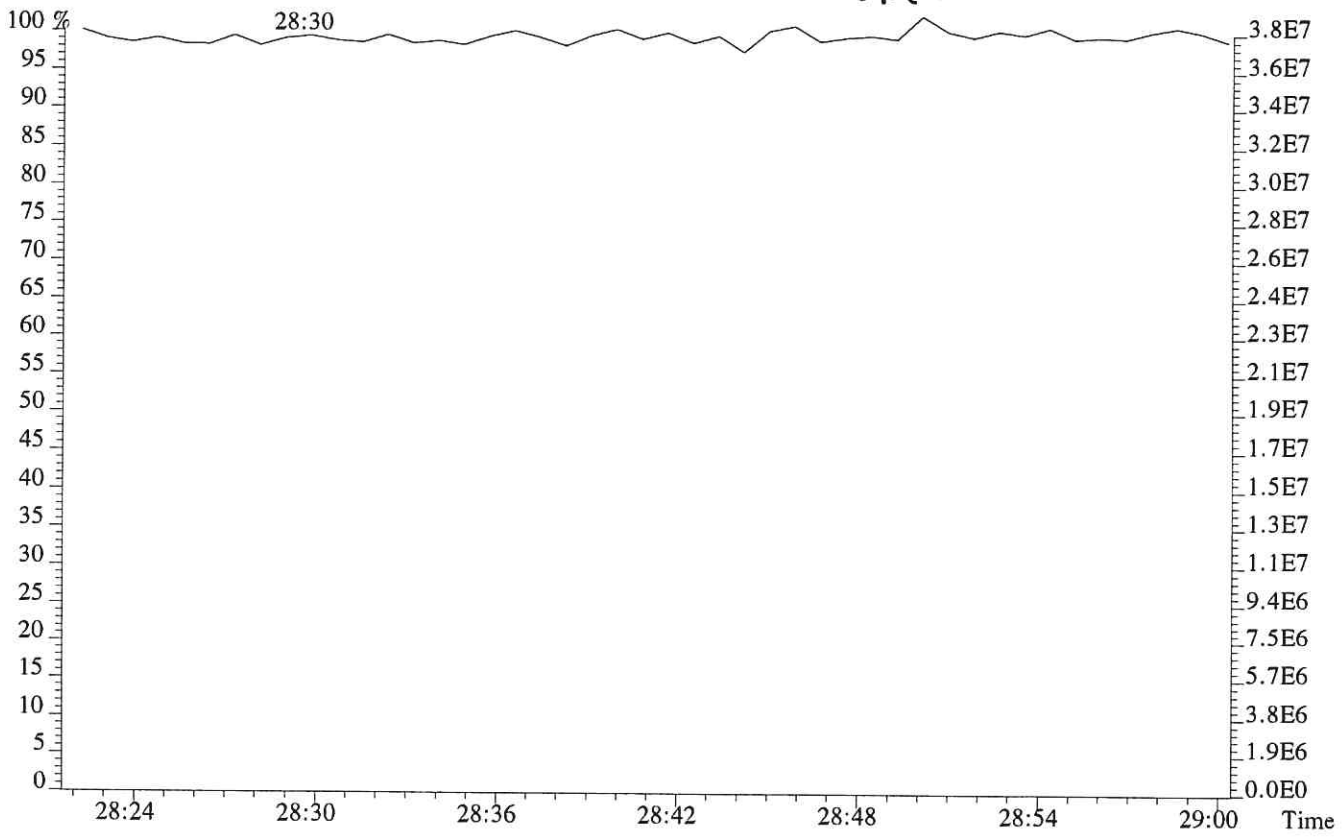
% Valley 2378-TCDD: 16 %

File:P519241 #1-545 Acq: 6-DEC-2018 02:54:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LM 12/07/18



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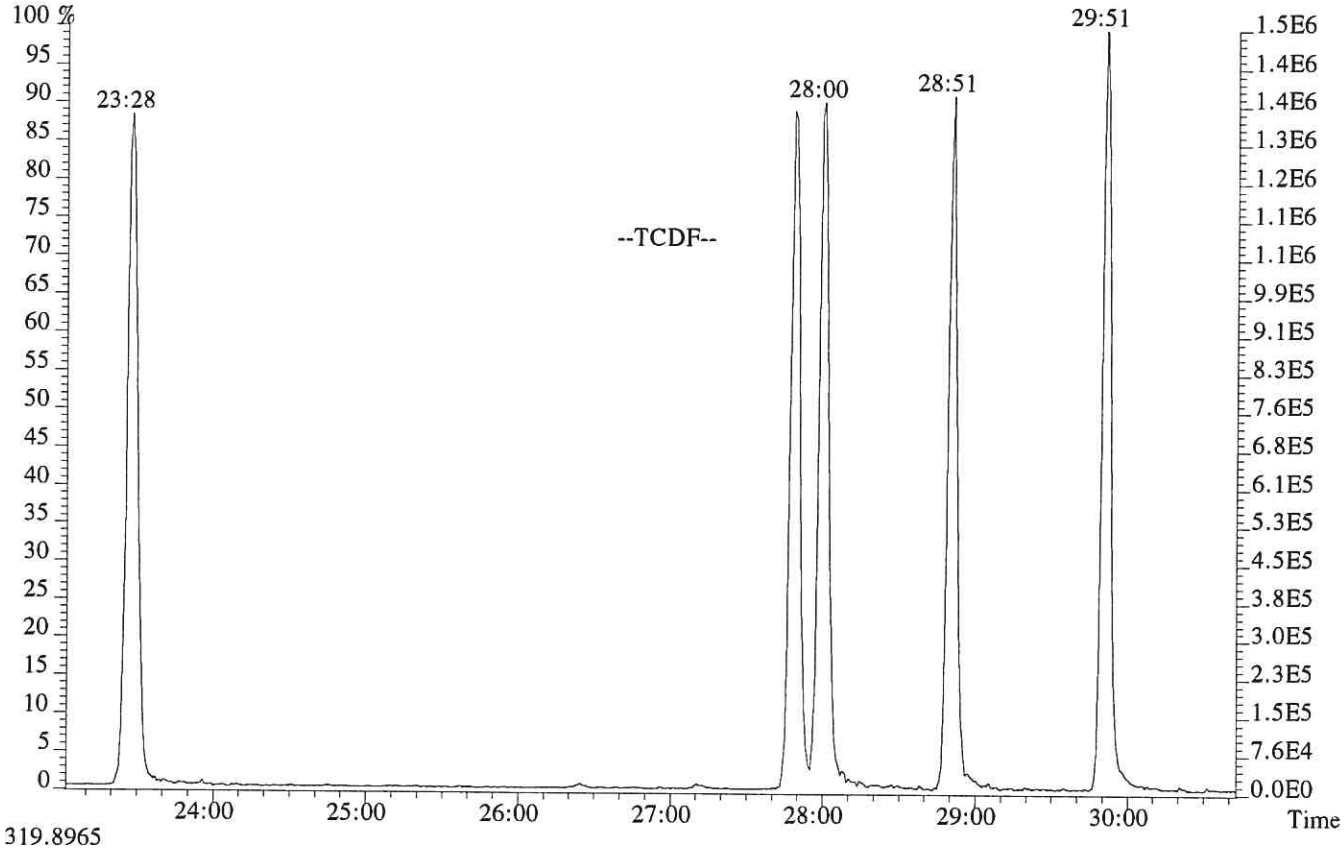
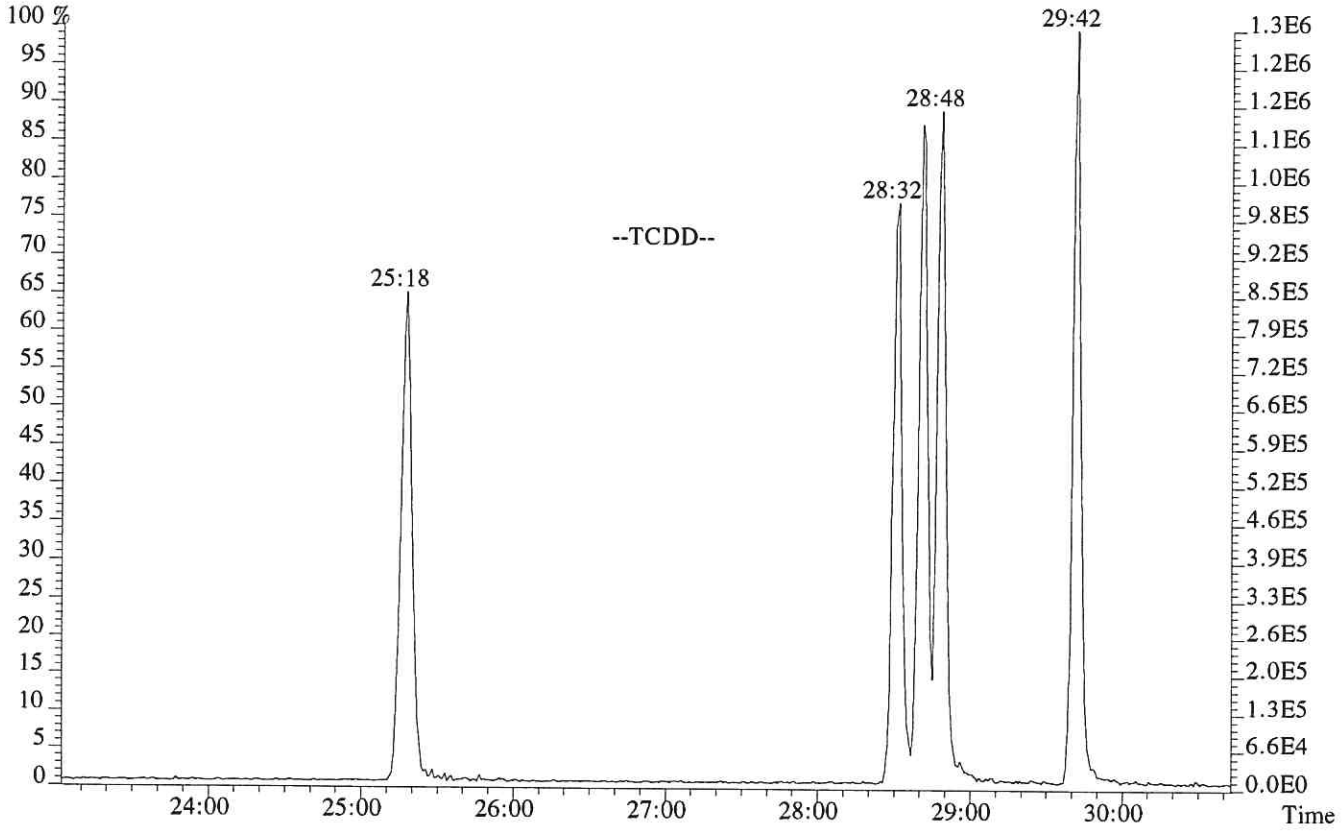
Sample#1 Exp:192977
303.9016



319.8965



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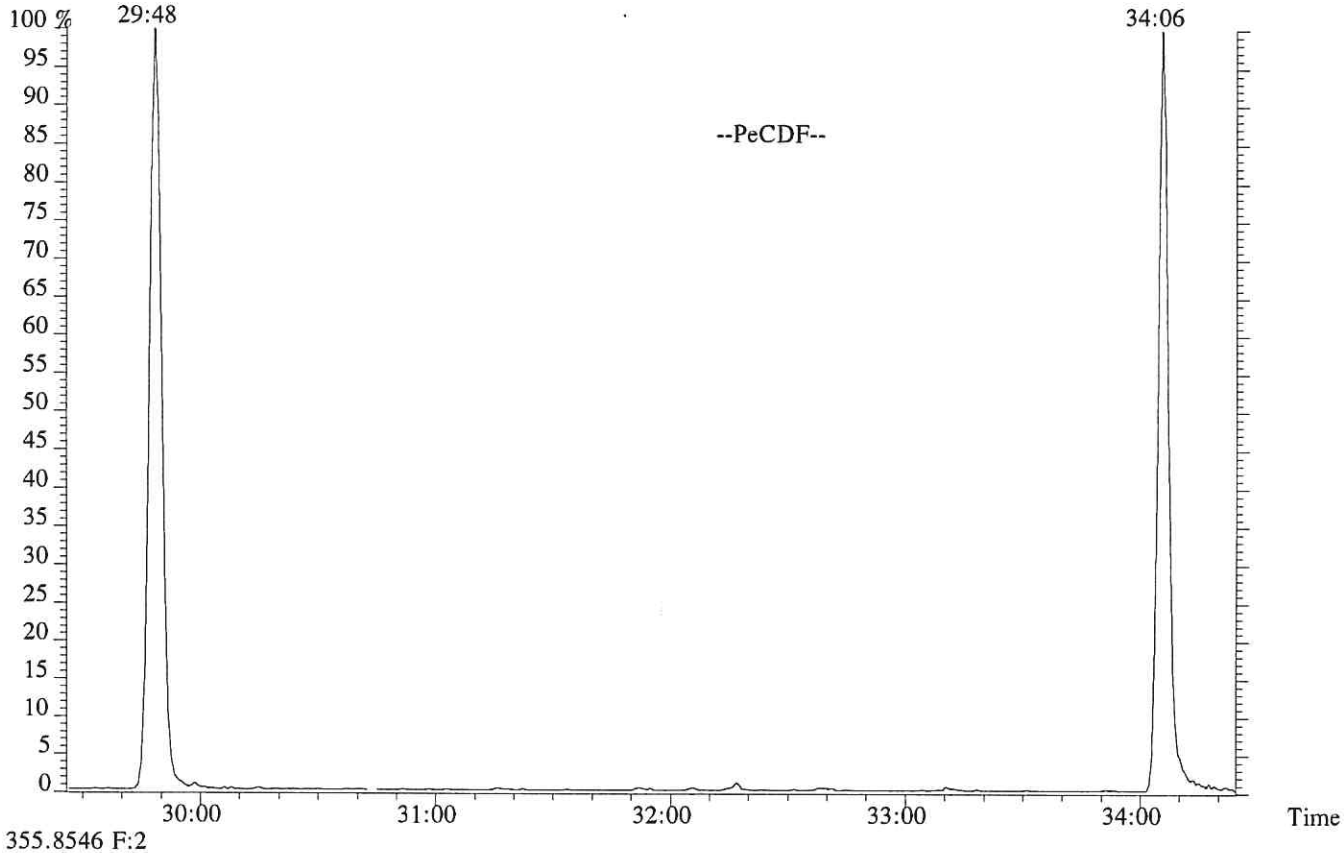
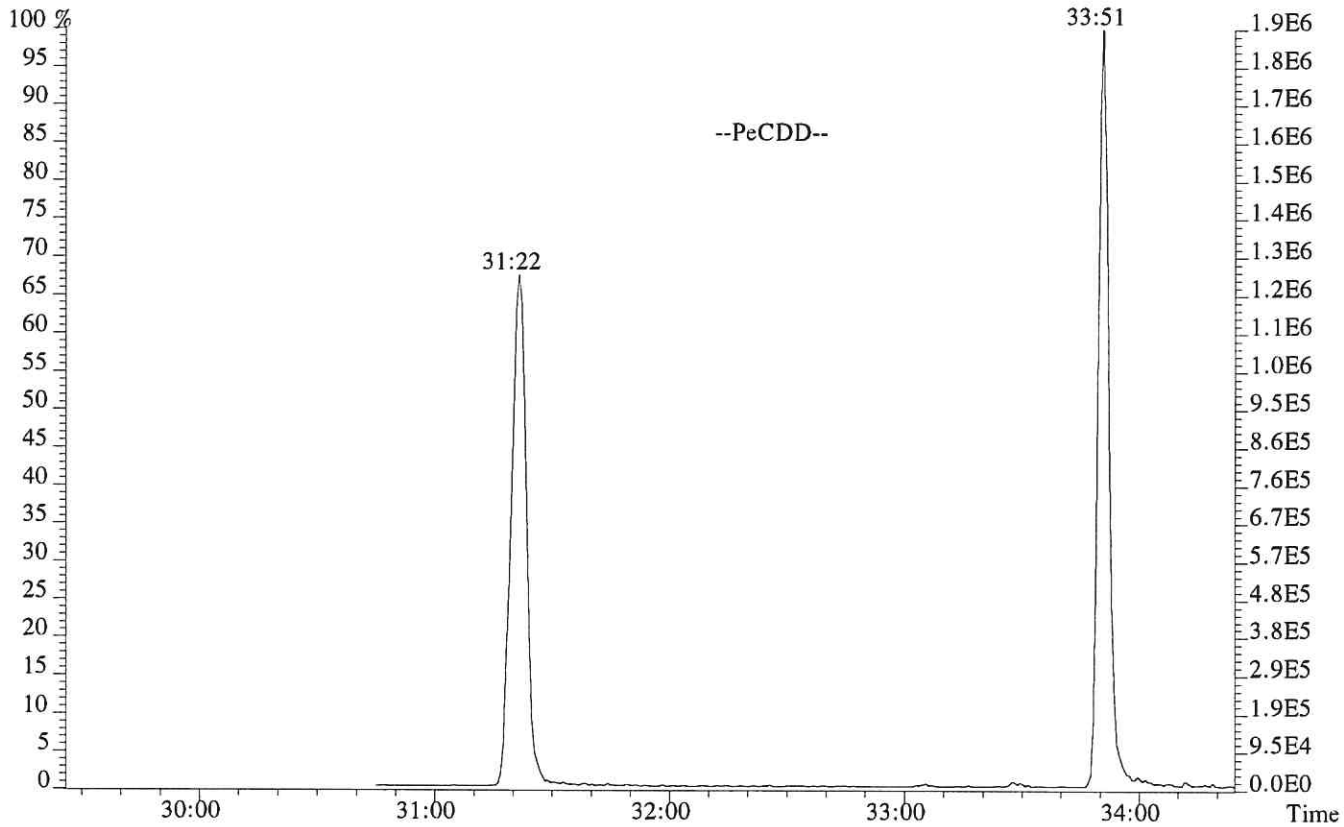
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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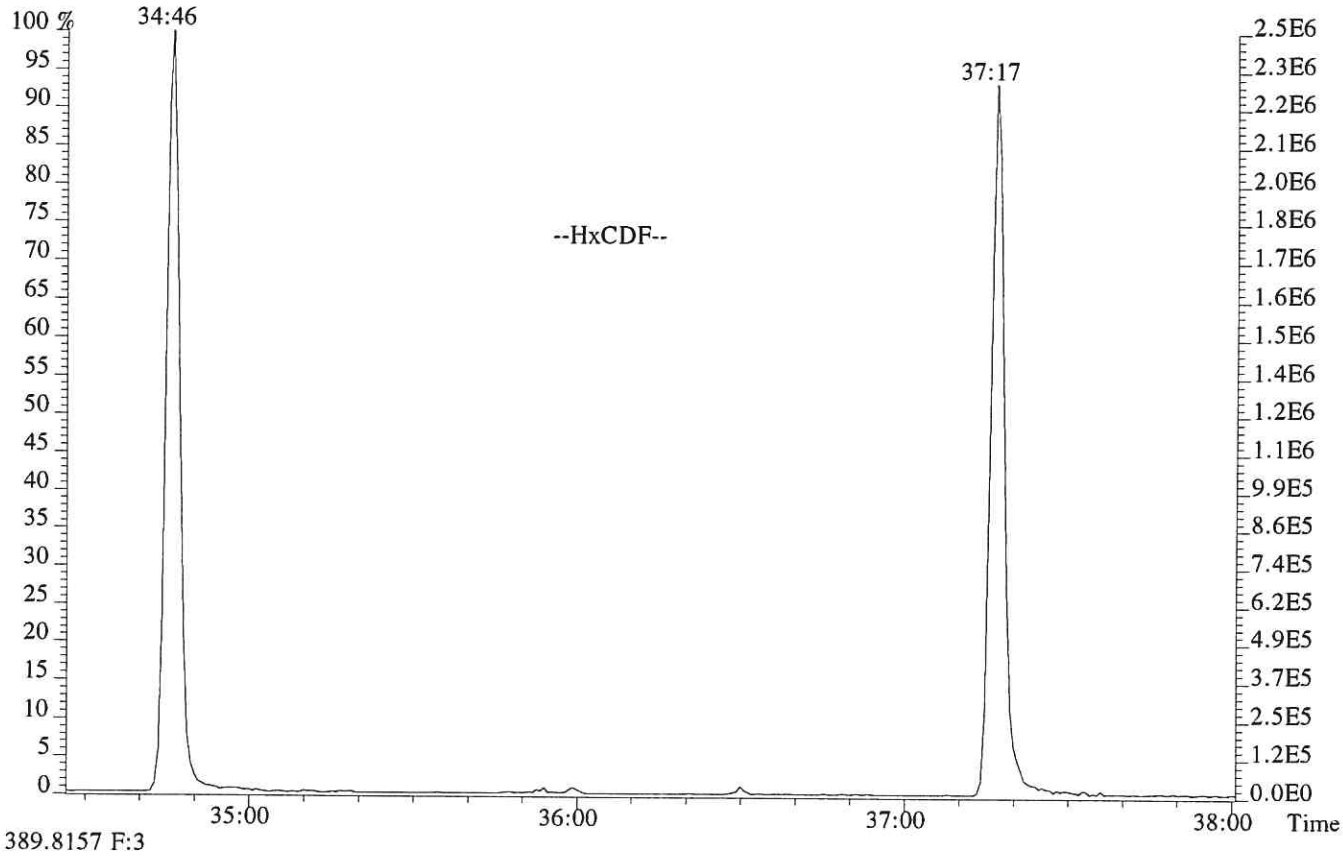
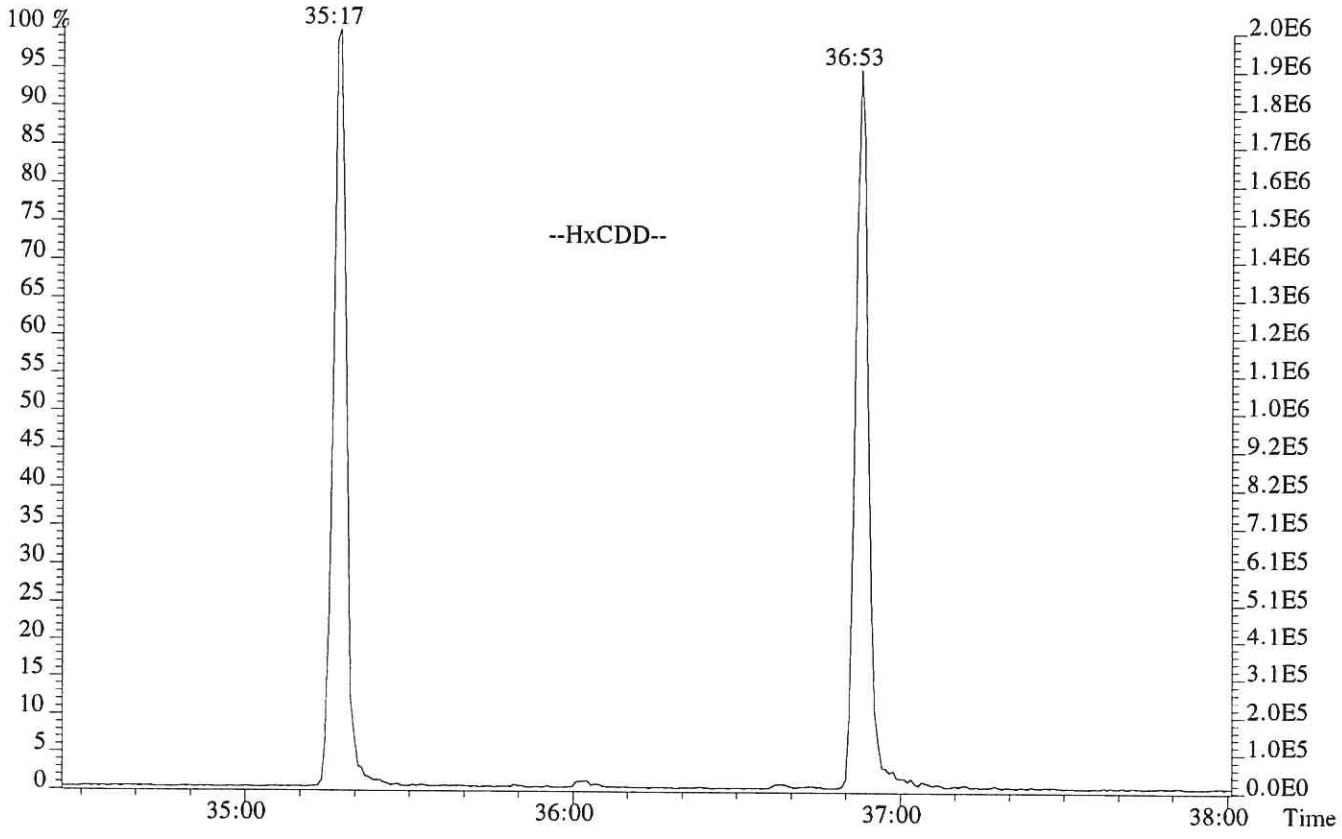
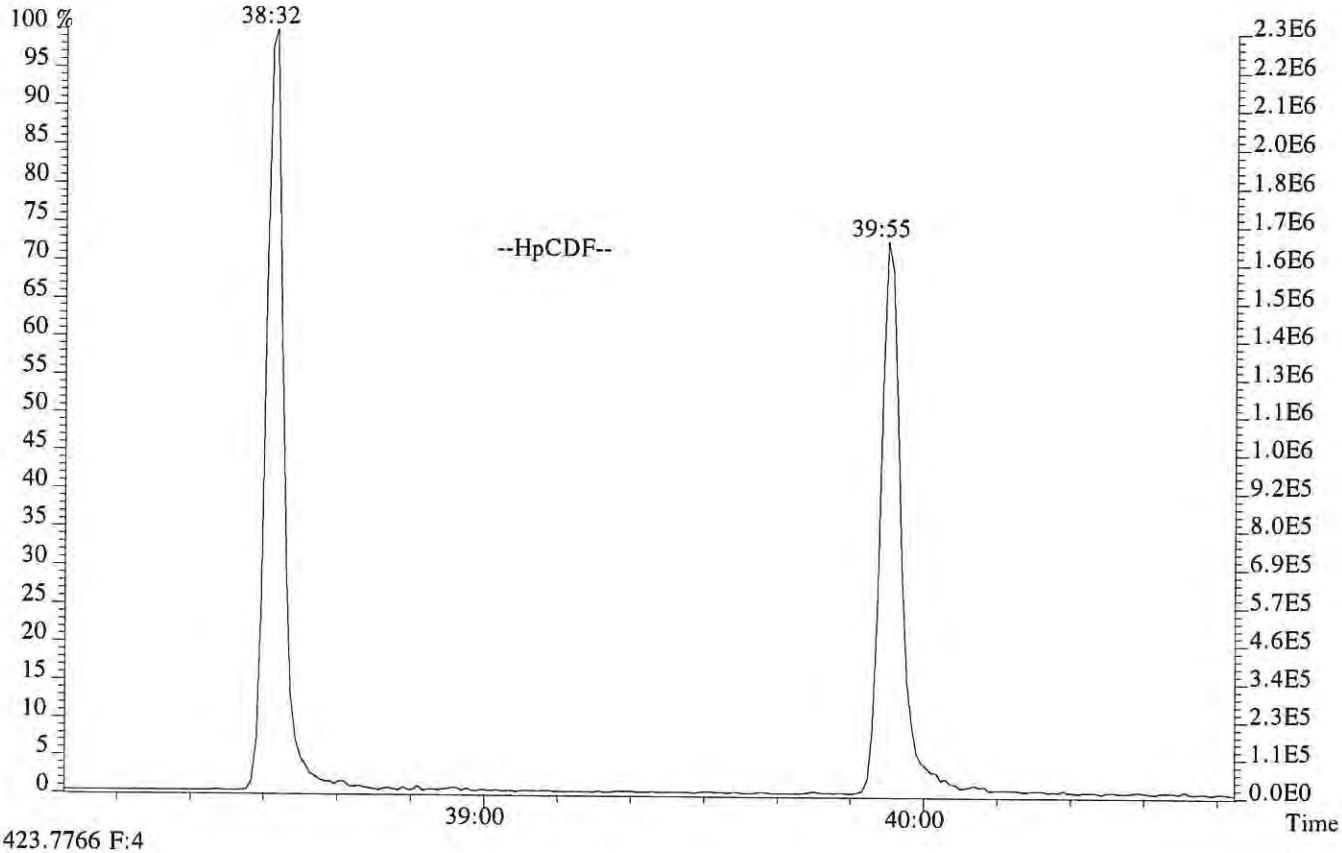
Sample#1 Exp:192977
373.8208 F:3



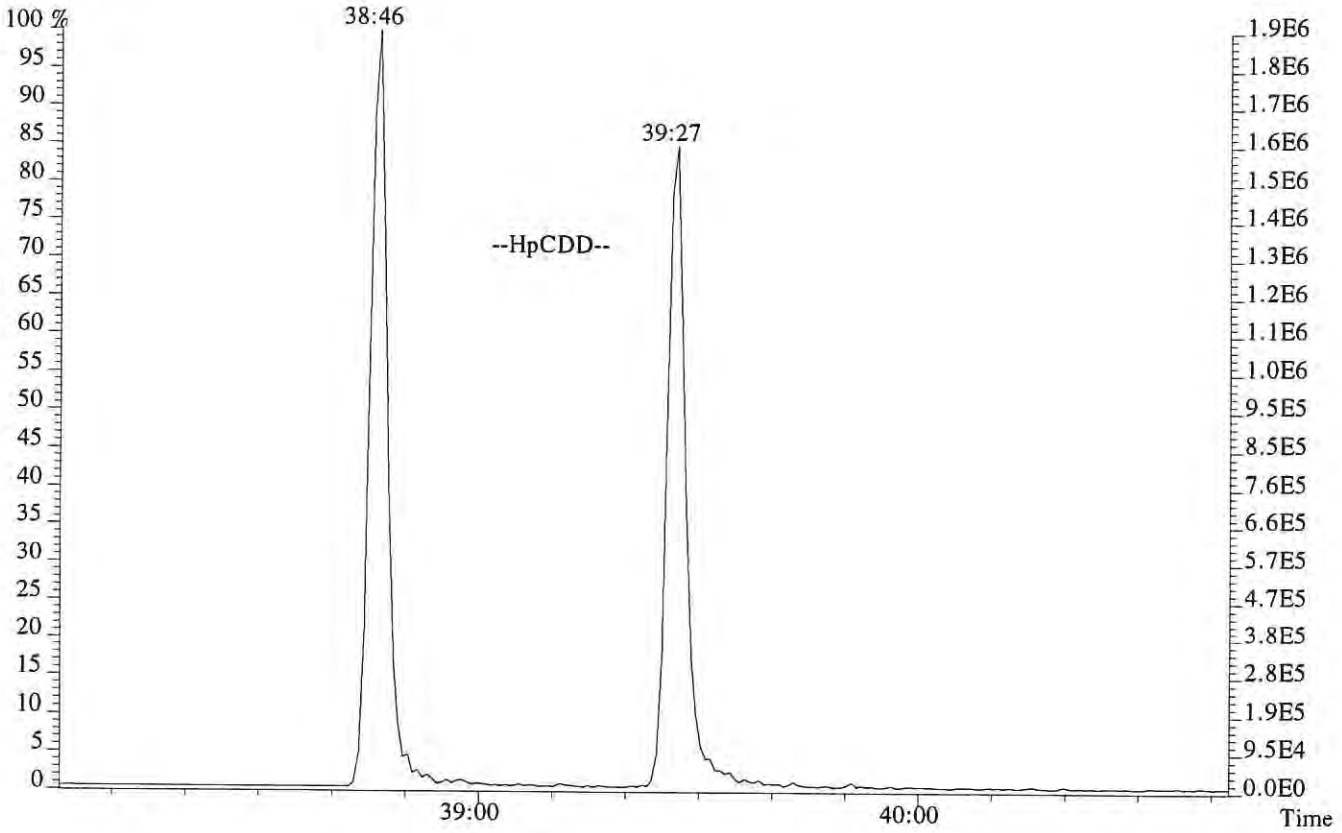
389.8157 F:3



File:P519241 #1-240 Acq: 6-DEC-2018 02:54:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519240 Analysis Date: 6-DEC-18 Time: 02:06:17

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.6	7.8 - 12.9	-3.5
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	-0.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	2.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.36	1.05-1.43	53	41 - 61	5.3
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	2.5
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.7	8.4 - 12.0	-2.9
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 60	-0.3
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	51	45 - 56	1.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	49	45 - 56	-1.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	51	44 - 57	2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	51	45 - 55	1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.87	0.76-1.02	100	63 - 159	0.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519240 Analysis Date: 6-DEC-18 Time: 02:06:17

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	107	82 - 121	7.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.63	1.32-1.78	122	62 - 160	22.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	99	85 - 117	-1.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	94	85 - 118	-5.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	110	72 - 138	9.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	259	96 - 415	29.7
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	97	71 - 140	-3.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	115	76 - 130	14.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	117	77 - 130	16.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	70 - 143	-10.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	99	74 - 135	-0.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	103	78 - 129	3.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	112	77 - 129	11.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.4	7.8 - 12.7	4.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519240 Samp: 1 Inj: 1 Acquired: 6-DEC-18 02:06:17
Processed: 7-DEC-18 09:55:12 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.109e+03	4.145e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	2.763e+04	1.848e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.642e+04	1.718e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.370e+04	1.997e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.569e+04	2.137e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	2.425e+04	2.039e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	2.240e+04	1.803e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.304e+04	2.245e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	1.966e+04	1.925e+04	1.02	yes	no	1.258
10	Unk	OCDF	42:26	3.187e+04	3.666e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	2.466e+03	3.144e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	1.897e+04	1.192e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.738e+04	1.406e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.755e+04	1.403e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.942e+04	1.432e+04	1.36	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	1.688e+04	1.604e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:15	2.672e+04	3.029e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	3.506e+04	4.431e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:15	5.628e+04	3.503e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	5.679e+04	3.546e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	2.481e+04	4.753e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	2.859e+04	5.472e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	2.688e+04	5.153e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:14	2.473e+04	4.723e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	2.050e+04	4.585e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.870e+04	4.235e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	2.385e+04	2.972e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:27	4.002e+04	2.454e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	3.442e+04	2.657e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	3.326e+04	2.626e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	3.258e+04	3.009e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:14	4.786e+04	5.277e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.412e+04	3.007e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.686e+04	2.977e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.725e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519240 Samp: 1 Inj: 1 Acquired: 6-DEC-18 02:06:17
Processed: 7-DEC-18 09:55:12 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.62e+05	4.32e+02	1.3e+03	7.37e+05	7.64e+02	9.6e+02
2	1,2,3,7,8-PeCDF	5.25e+06	2.44e+02	2.1e+04	3.56e+06	5.92e+02	6.0e+03
3	2,3,4,7,8-PeCDF	5.24e+06	2.44e+02	2.1e+04	3.33e+06	5.92e+02	5.6e+03
4	1,2,3,4,7,8-HxCDF	5.37e+06	4.00e+02	1.3e+04	4.48e+06	1.92e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	5.34e+06	4.00e+02	1.3e+04	4.53e+06	1.92e+02	2.4e+04
6	2,3,4,6,7,8-HxCDF	5.31e+06	4.00e+02	1.3e+04	4.45e+06	1.92e+02	2.3e+04
7	1,2,3,7,8,9-HxCDF	4.59e+06	4.00e+02	1.1e+04	3.77e+06	1.92e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.01e+06	1.60e+03	3.1e+03	4.91e+06	4.91e+03	1.0e+03
9	1,2,3,4,7,8,9-HpCDF	3.79e+06	1.60e+03	2.4e+03	3.72e+06	4.91e+03	7.6e+02
10	OCDF	5.27e+06	3.52e+02	1.5e+04	6.10e+06	7.44e+02	8.2e+03
11	2,3,7,8-TCDD	4.66e+05	1.91e+03	2.4e+02	6.34e+05	6.44e+02	9.8e+02
12	1,2,3,7,8-PeCDD	3.73e+06	4.92e+02	7.6e+03	2.36e+06	2.44e+02	9.7e+03
13	1,2,3,4,7,8-HxCDD	3.88e+06	1.96e+02	2.0e+04	3.11e+06	1.80e+02	1.7e+04
14	1,2,3,6,7,8-HxCDD	3.75e+06	1.96e+02	1.9e+04	3.06e+06	1.80e+02	1.7e+04
15	1,2,3,7,8,9-HxCDD	4.12e+06	1.96e+02	2.1e+04	3.14e+06	1.80e+02	1.7e+04
16	1,2,3,4,6,7,8-HpCDD	3.42e+06	2.44e+02	1.4e+04	3.30e+06	2.44e+02	1.4e+04
17	OCDD	4.40e+06	2.24e+02	2.0e+04	4.95e+06	2.12e+02	2.3e+04
18	13C-2,3,7,8-TCDF	6.29e+06	5.11e+03	1.2e+03	7.91e+06	2.65e+03	3.0e+03
19	13C-1,2,3,7,8-PeCDF	1.06e+07	4.00e+02	2.6e+04	6.65e+06	7.72e+02	8.6e+03
20	13C-2,3,4,7,8-PeCDF	1.13e+07	4.00e+02	2.8e+04	7.10e+06	7.72e+02	9.2e+03
21	13C-1,2,3,4,7,8-HxCDF	5.60e+06	1.68e+02	3.3e+04	1.07e+07	3.56e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	6.07e+06	1.68e+02	3.6e+04	1.17e+07	3.56e+02	3.3e+04
23	13C-2,3,4,6,7,8-HxCDF	5.87e+06	1.68e+02	3.5e+04	1.13e+07	3.56e+02	3.2e+04
24	13C-1,2,3,7,8,9-HxCDF	5.00e+06	1.68e+02	3.0e+04	9.69e+06	3.56e+02	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.45e+06	1.86e+03	2.4e+03	9.91e+06	4.97e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.66e+06	1.86e+03	2.0e+03	8.16e+06	4.97e+03	1.6e+03
27	13C-2,3,7,8-TCDD	4.55e+06	4.18e+03	1.1e+03	5.61e+06	1.80e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	7.93e+06	2.00e+02	4.0e+04	4.90e+06	3.44e+02	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	7.60e+06	5.48e+02	1.4e+04	5.76e+06	4.32e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	7.05e+06	5.48e+02	1.3e+04	5.59e+06	4.32e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.69e+06	2.72e+02	2.5e+04	6.18e+06	2.12e+02	2.9e+04
32	13C-OCDD	7.82e+06	2.24e+02	3.5e+04	8.57e+06	2.64e+02	3.2e+04
33	13C-1,2,3,4-TCDD	4.64e+06	4.18e+03	1.1e+03	5.74e+06	1.80e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	8.04e+06	5.48e+02	1.5e+04	6.26e+06	4.32e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.15e+06	9.80e+02	1.2e+03			

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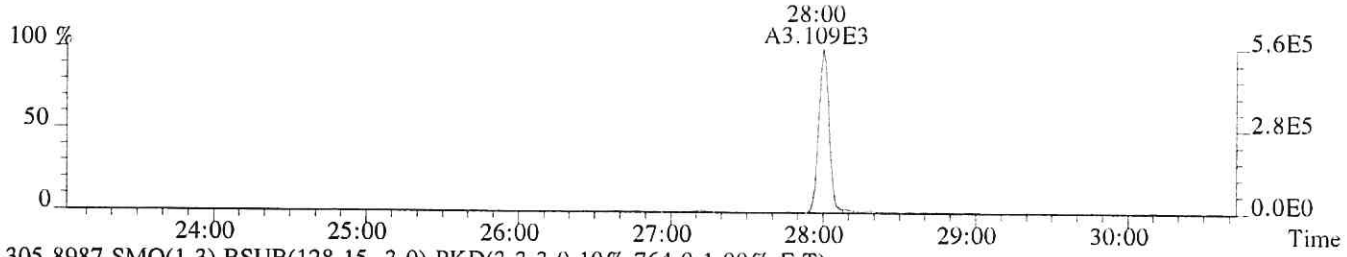
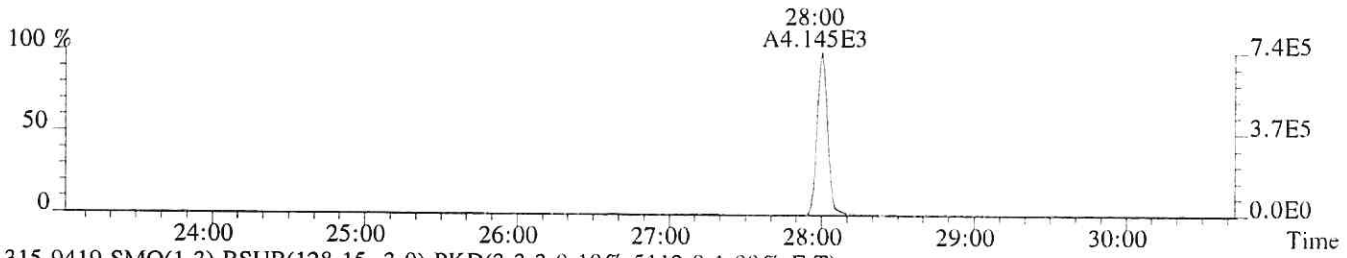
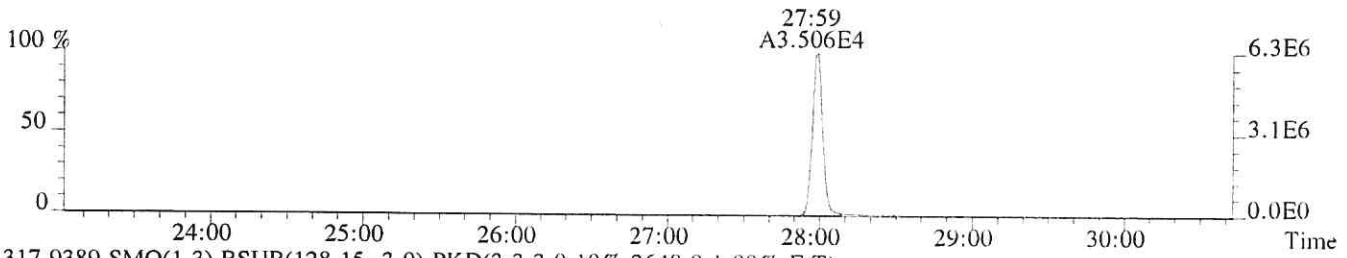
File:P519240 #1-545 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



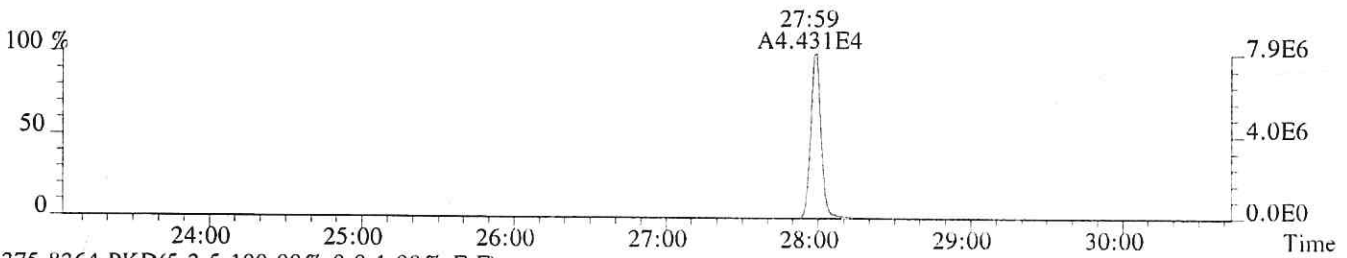
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



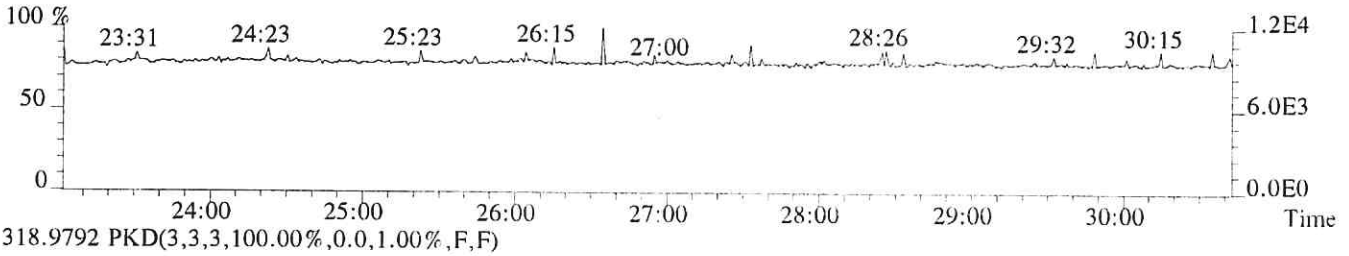
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5112.0,1.00%,F,T)



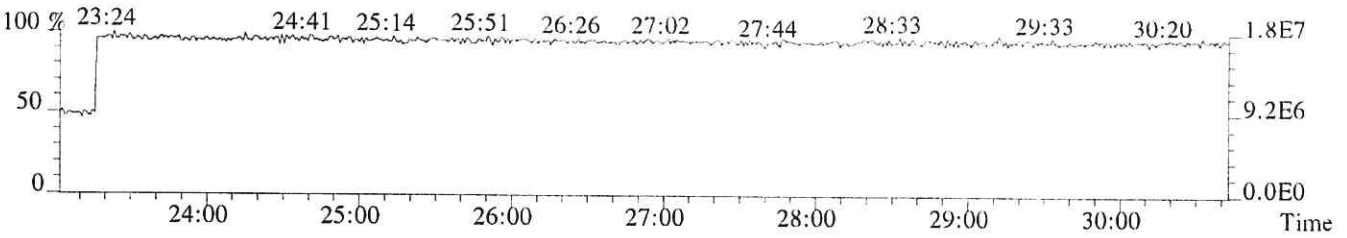
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



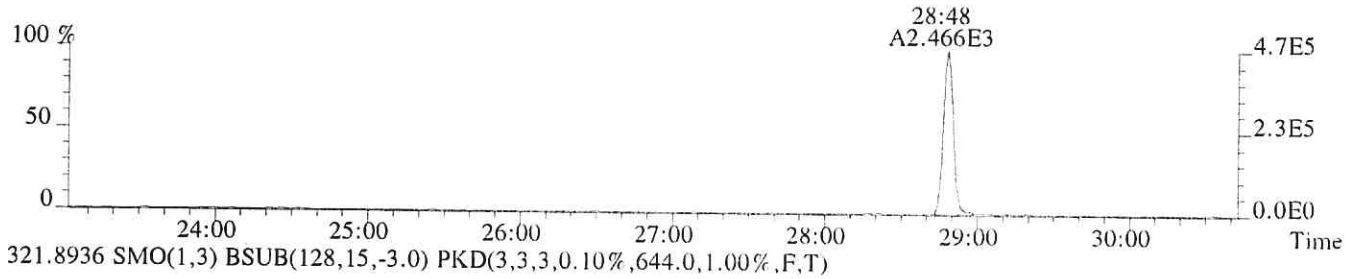
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



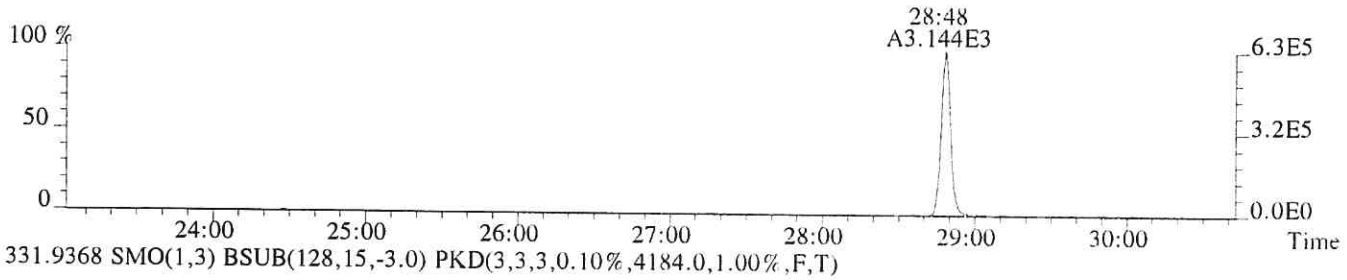
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



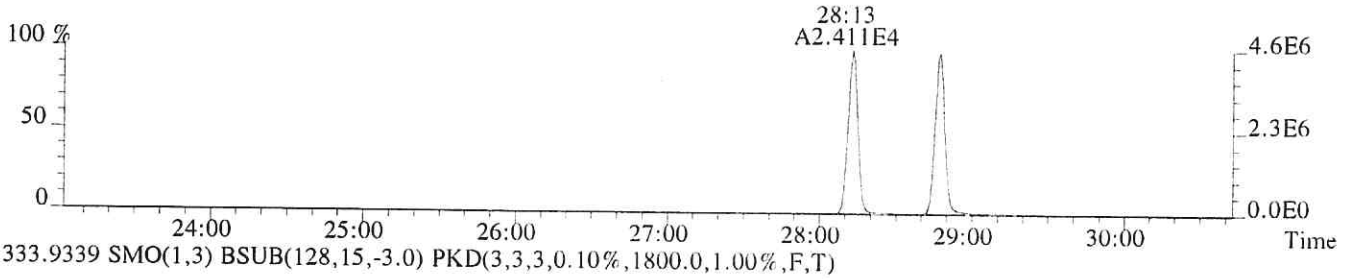
File:P519240 #1-545 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



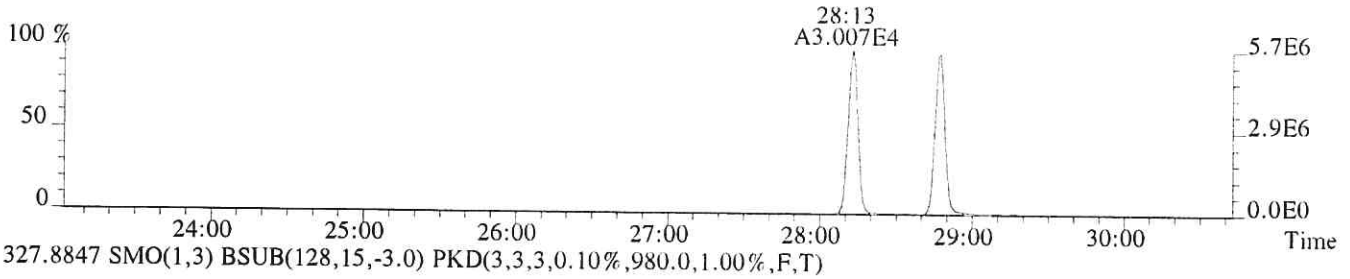
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



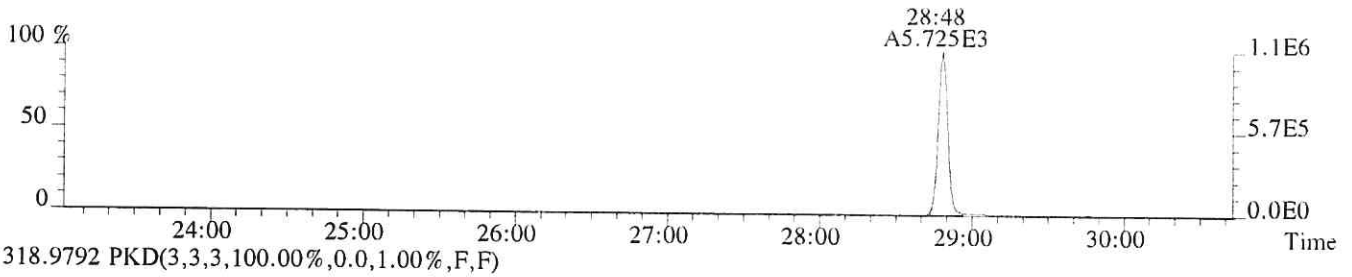
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4184.0,1.00%,F,T)



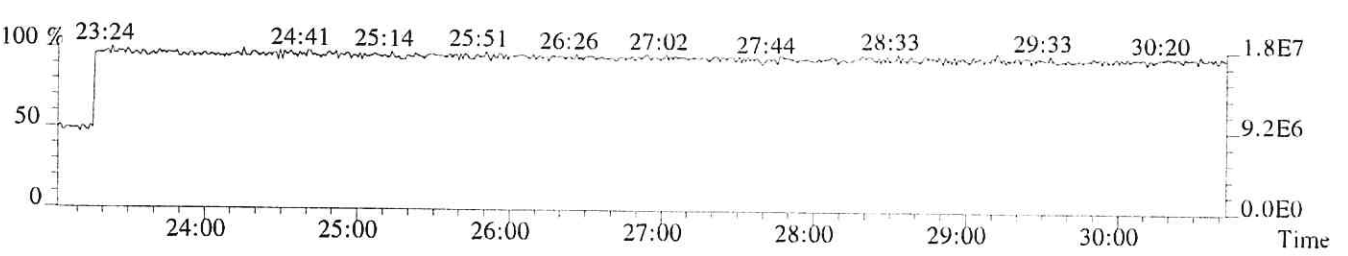
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



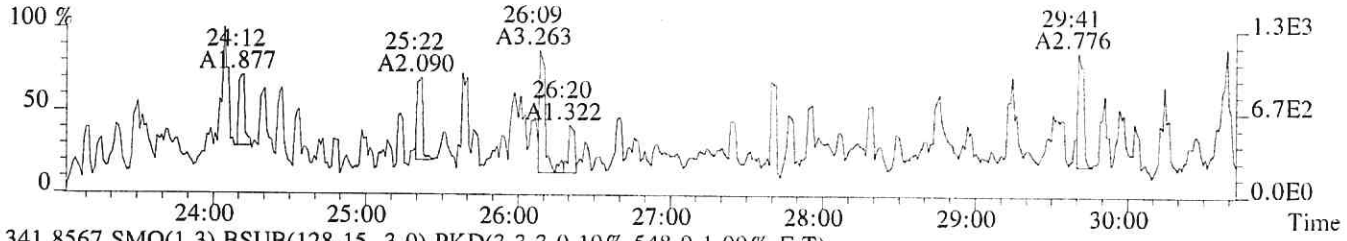
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



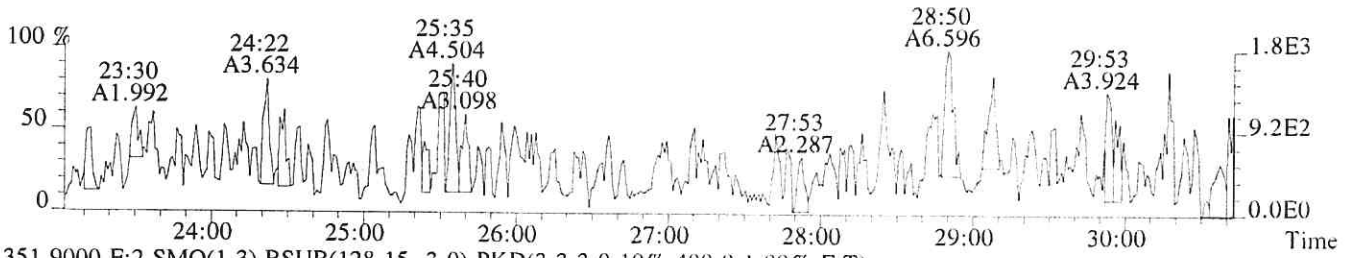
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



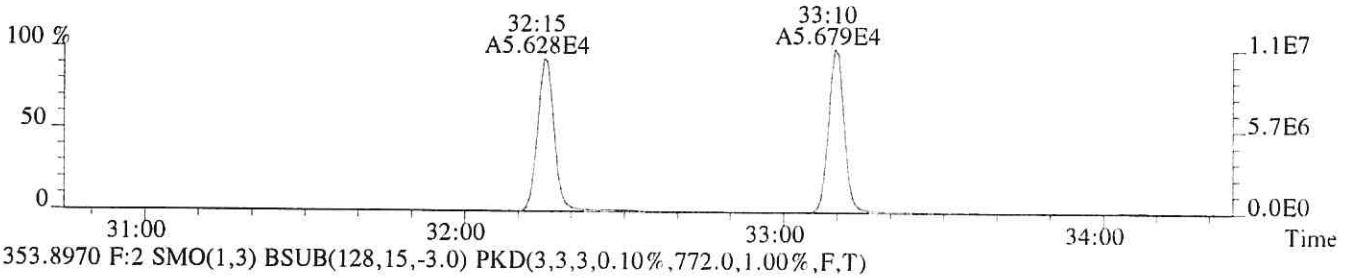
File:P519240 #1-545 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



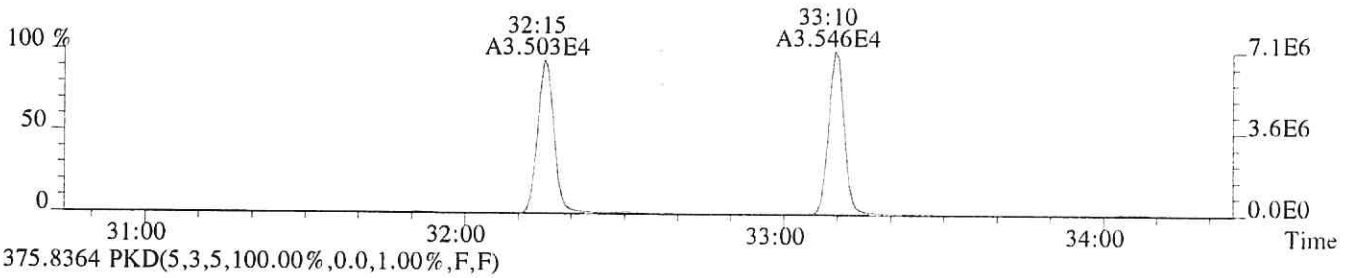
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



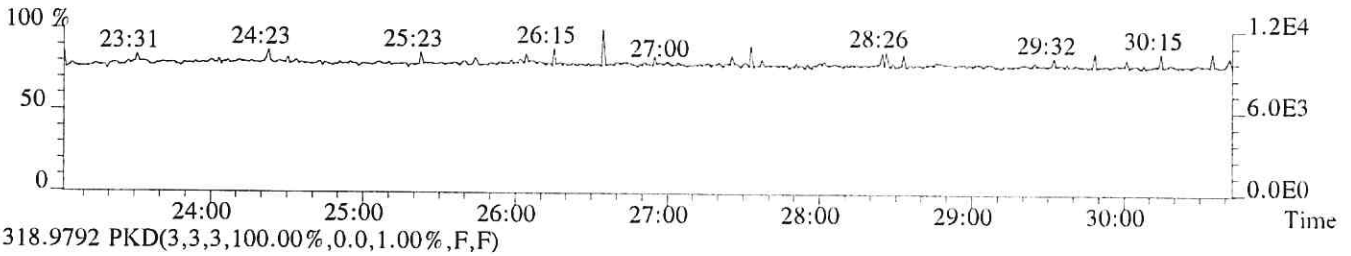
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



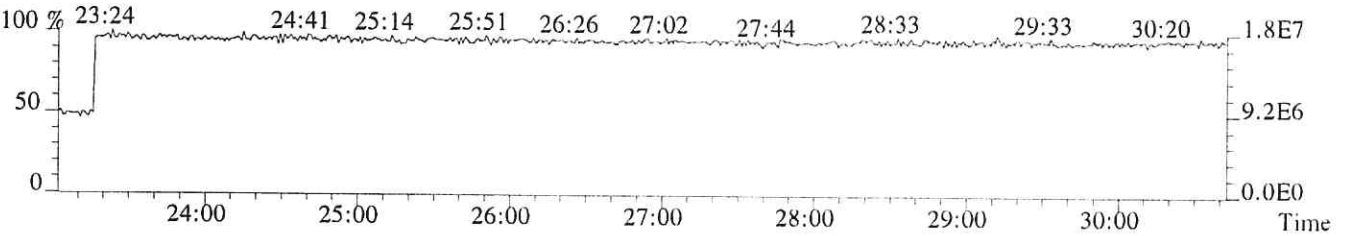
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



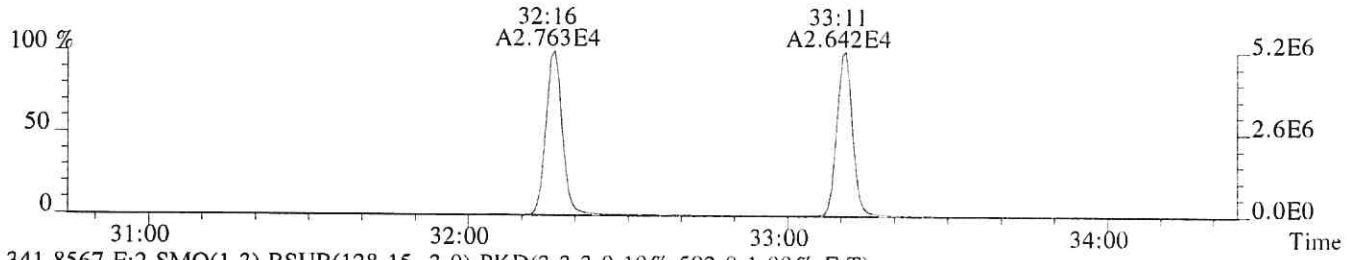
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



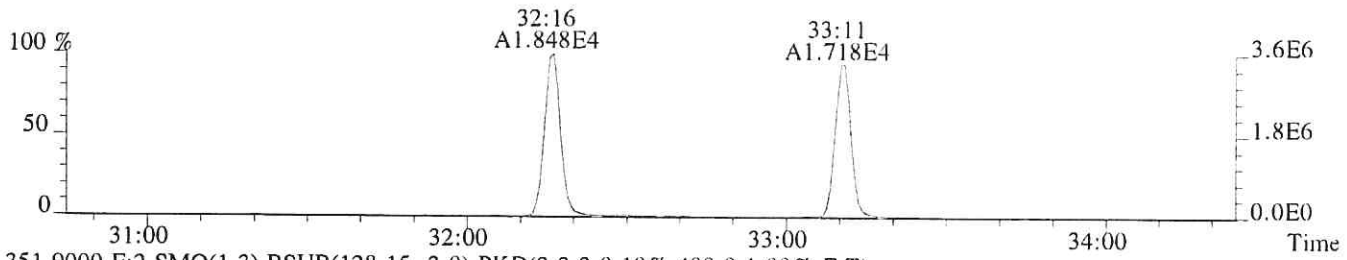
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



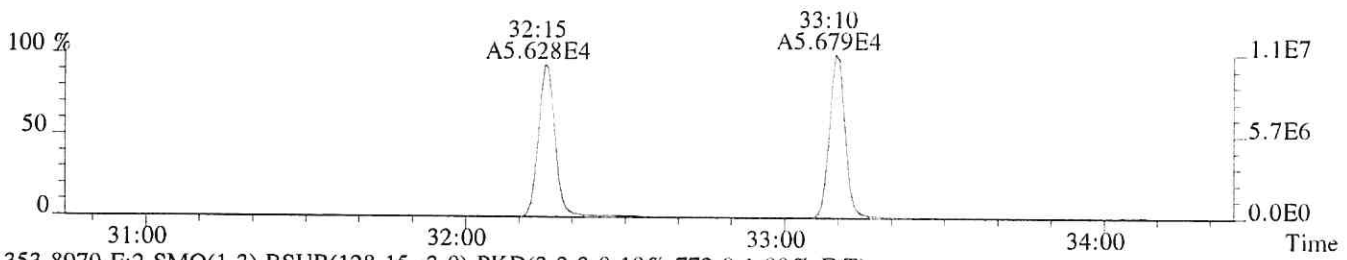
File:P519240 #1-330 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



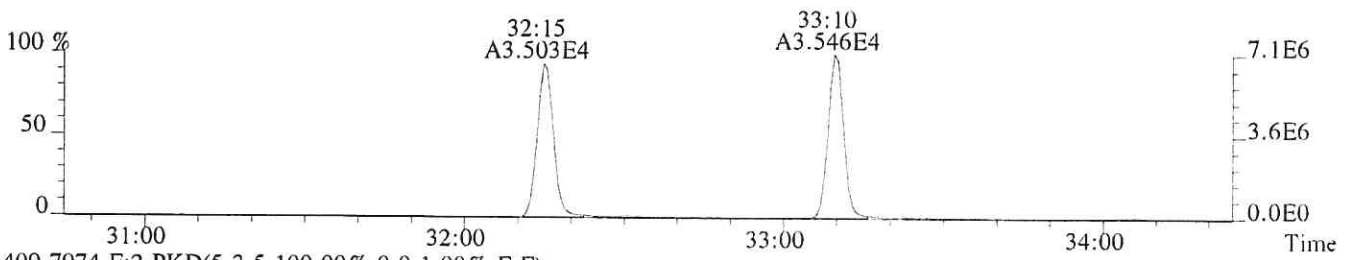
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



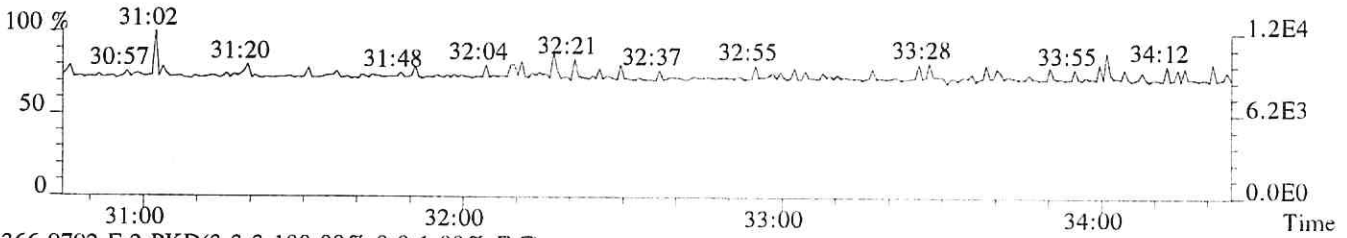
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



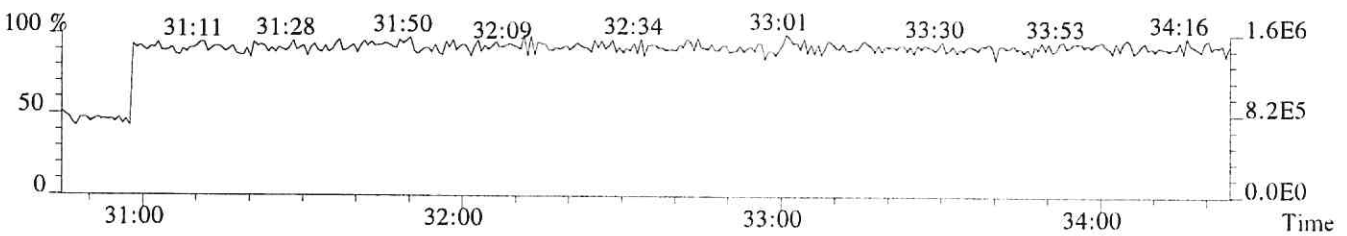
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



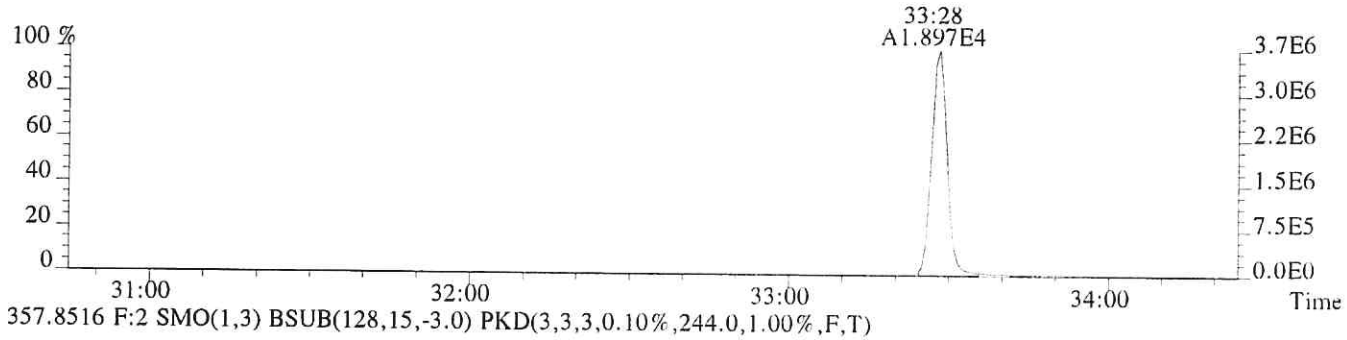
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



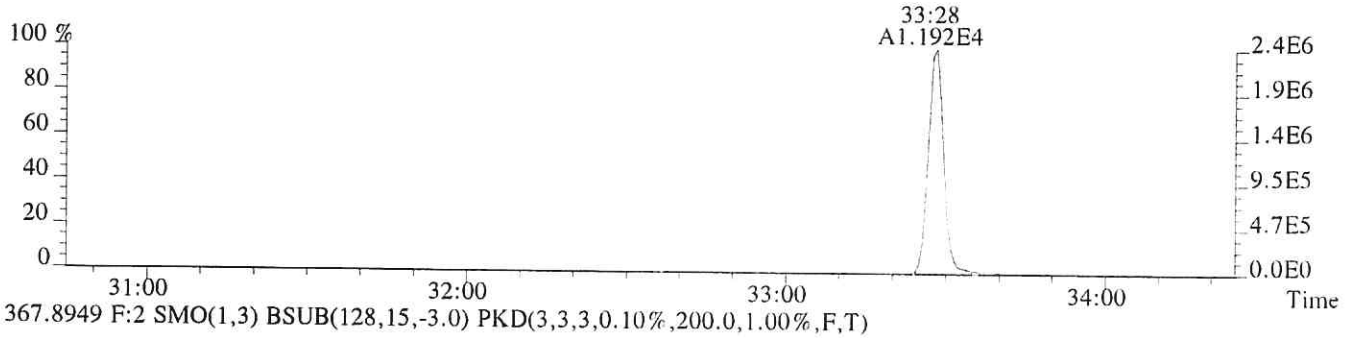
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



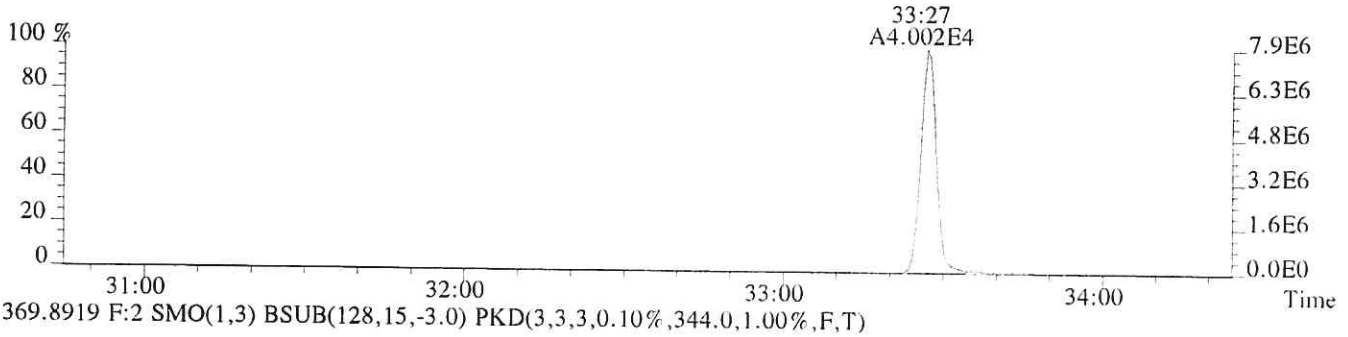
File:P519240 #1-330 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



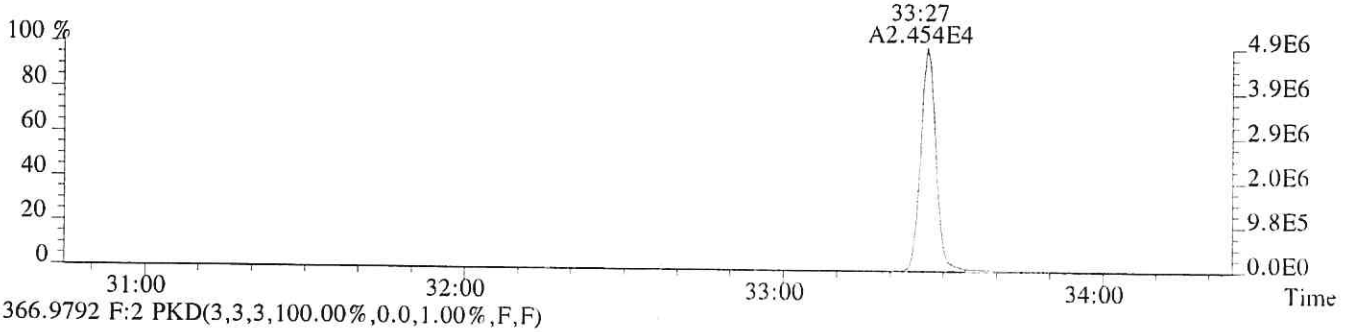
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



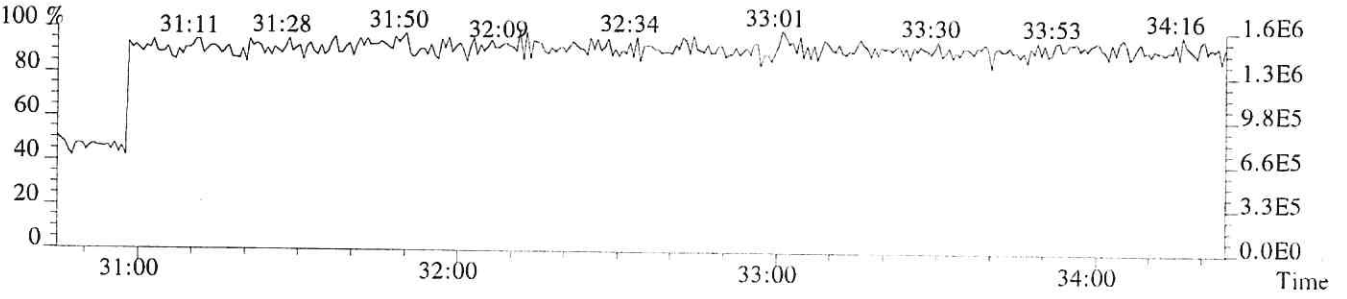
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



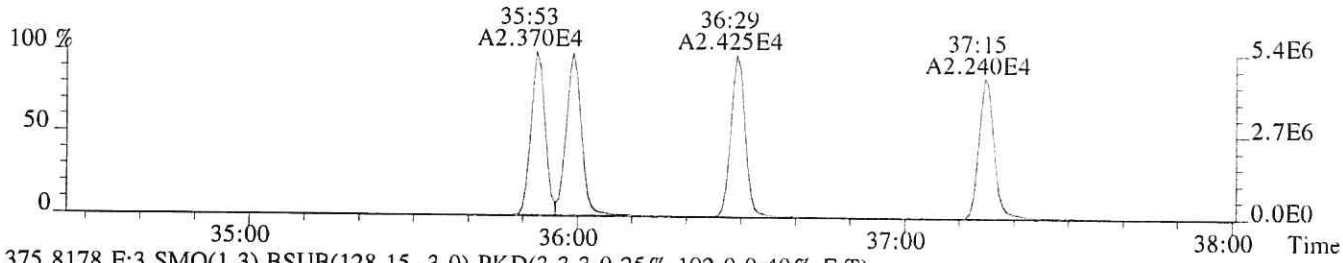
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



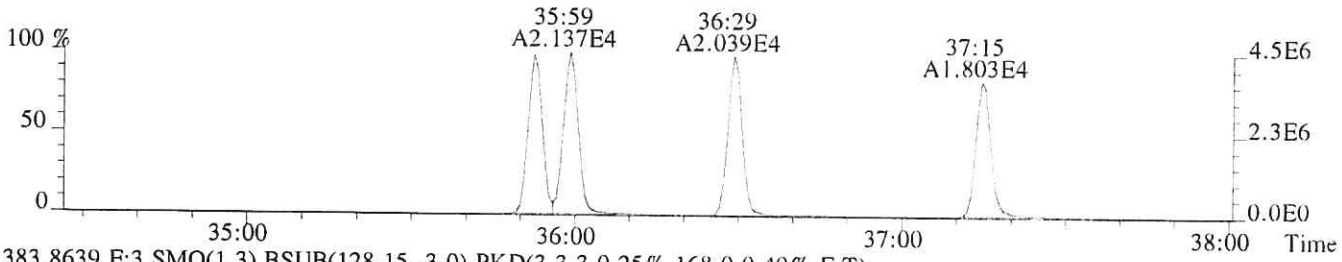
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



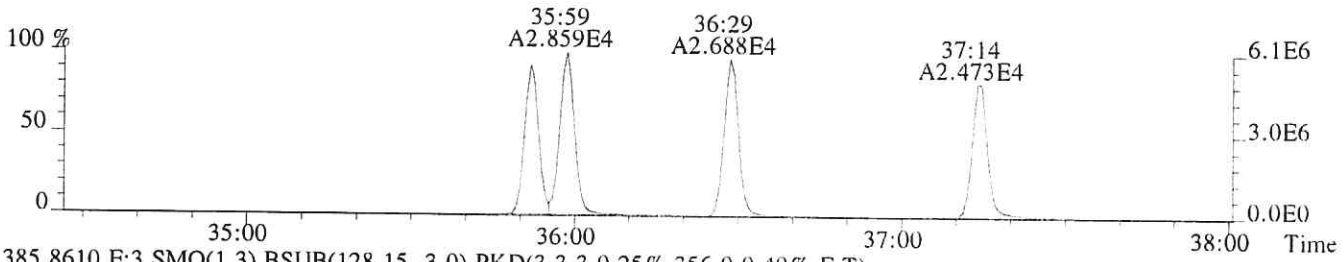
File:P519240 #1-322 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



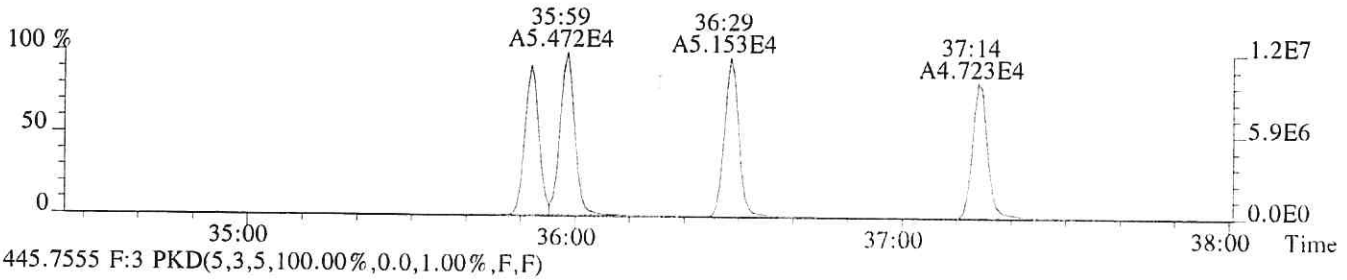
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



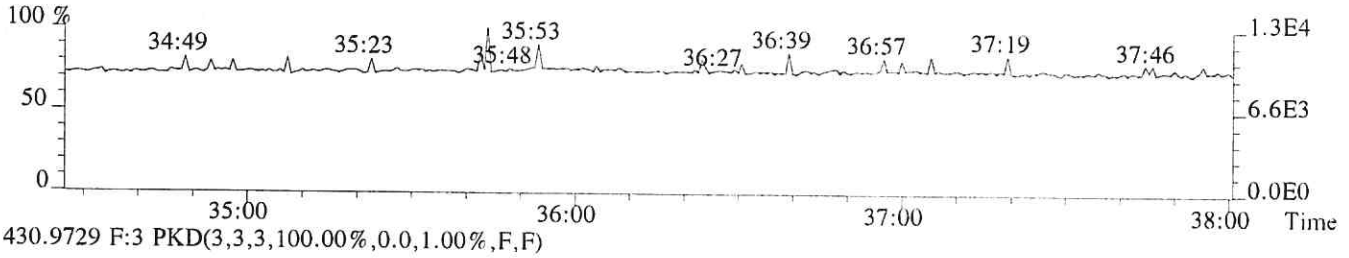
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



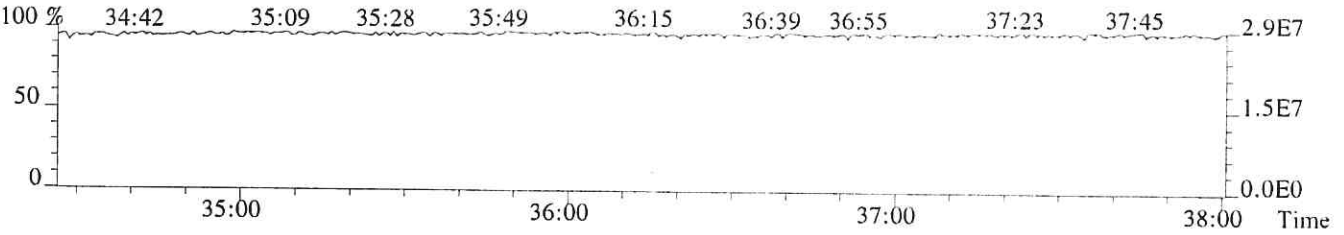
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



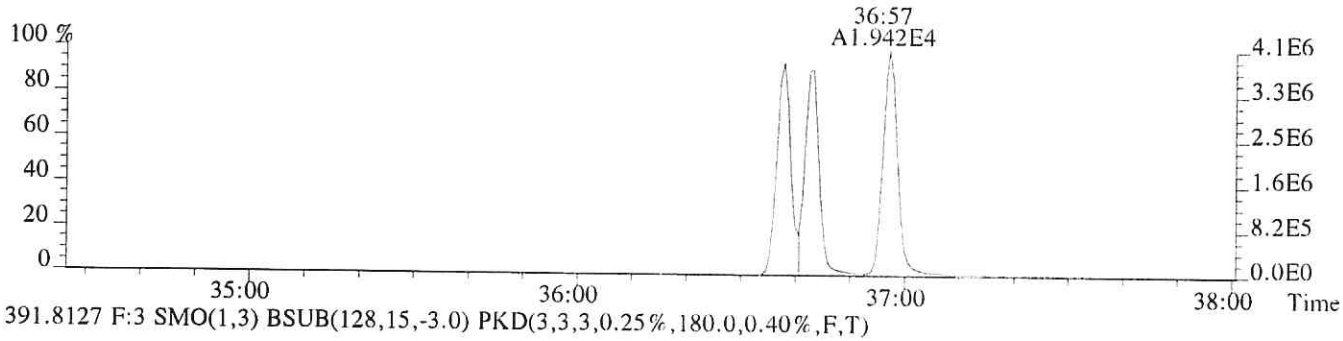
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



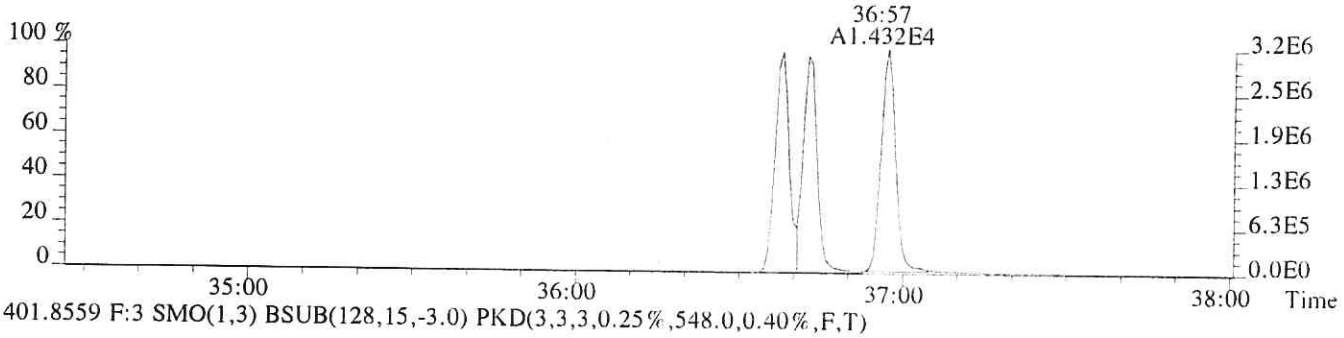
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



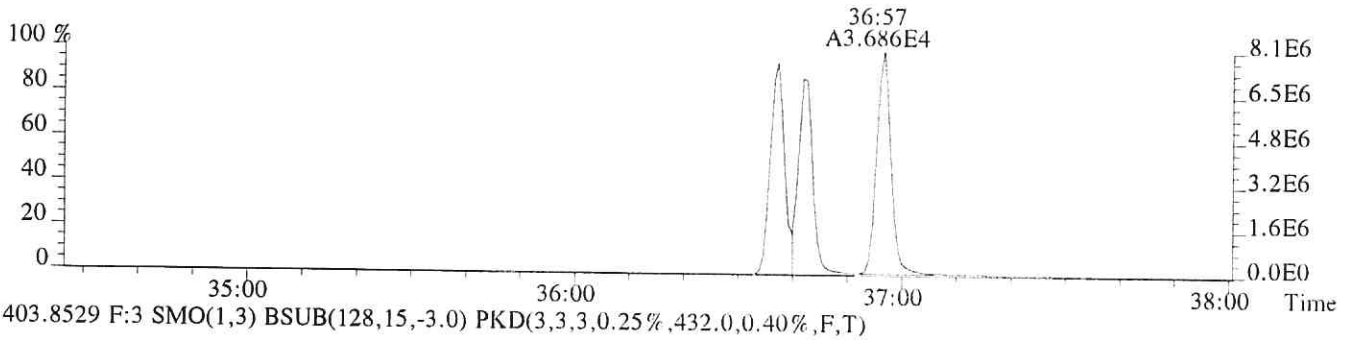
File:P519240 #1-322 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



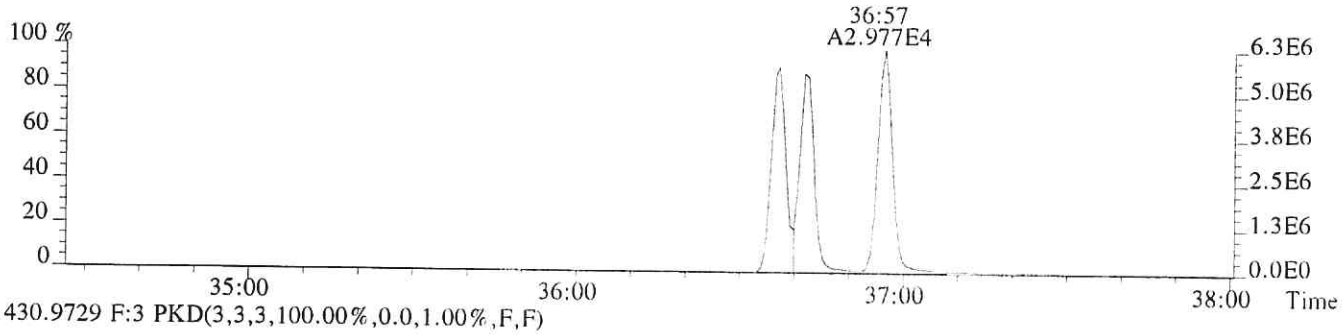
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



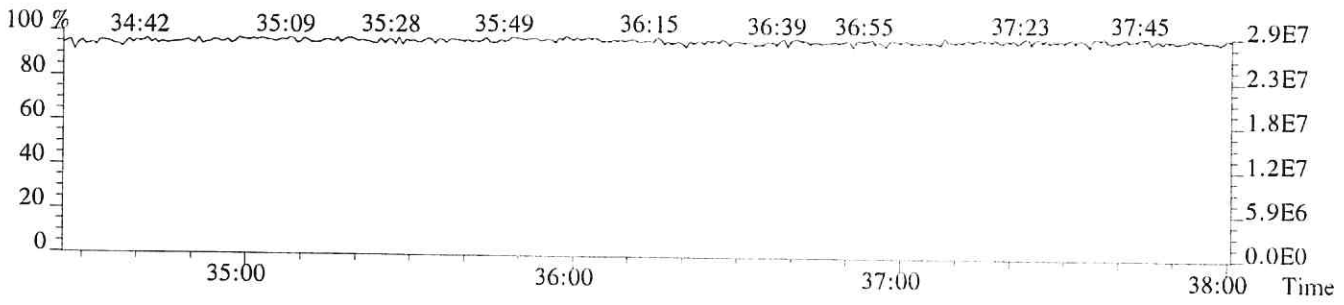
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



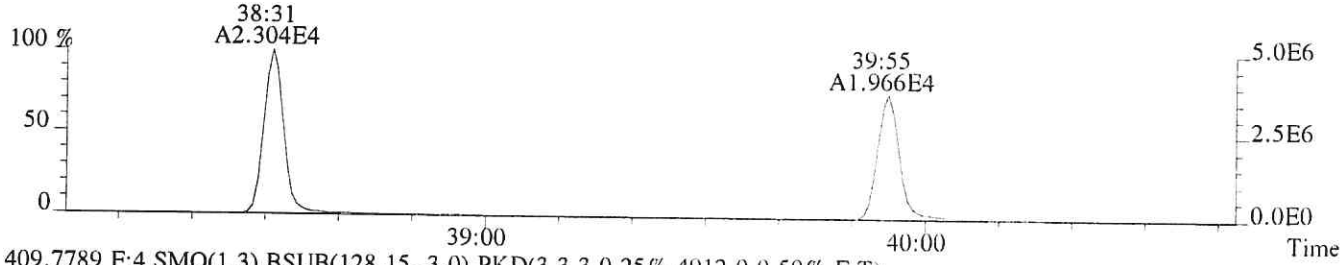
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



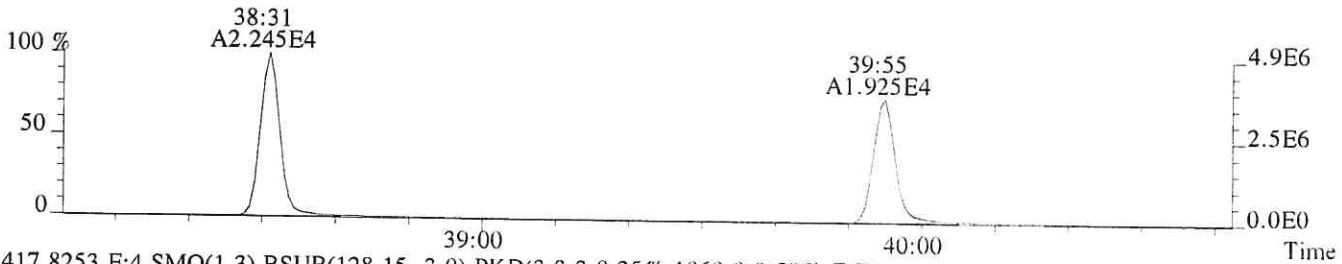
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



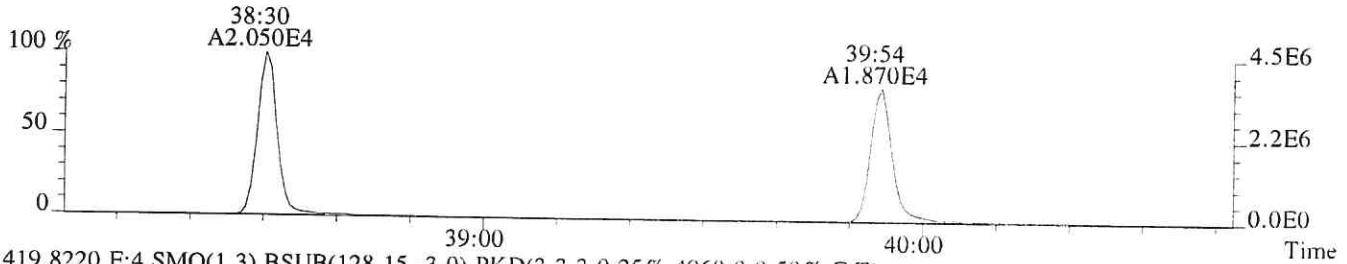
File:P519240 #1-240 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



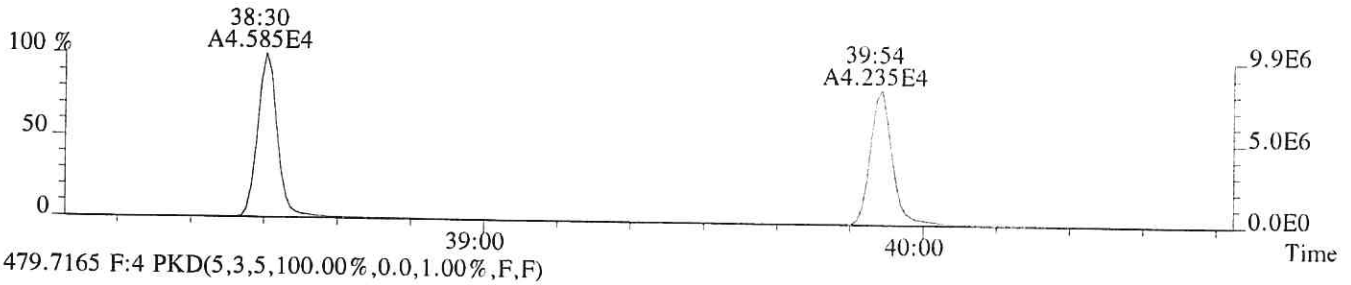
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4912.0,0.50%,F,T)



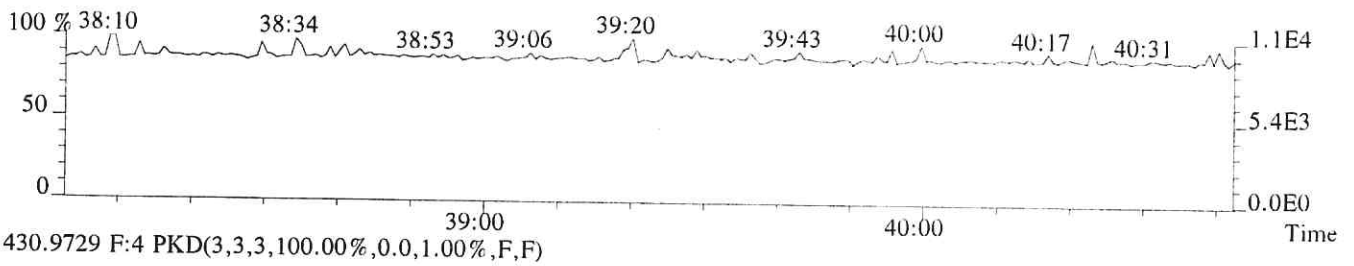
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.50%,F,T)



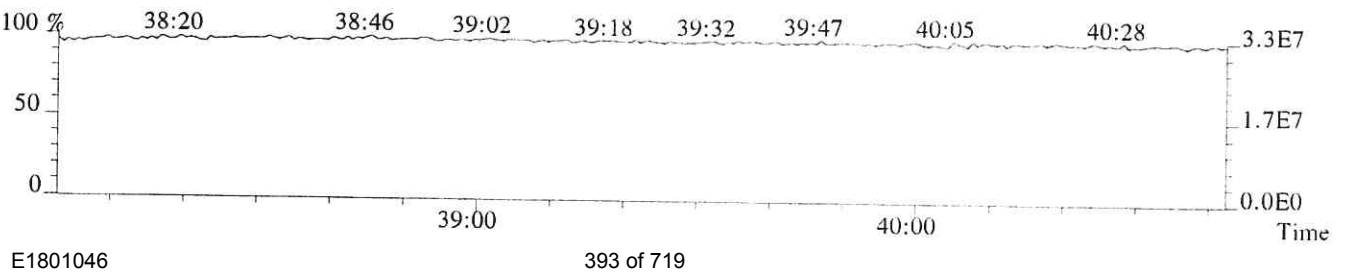
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4968.0,0.50%,F,T)



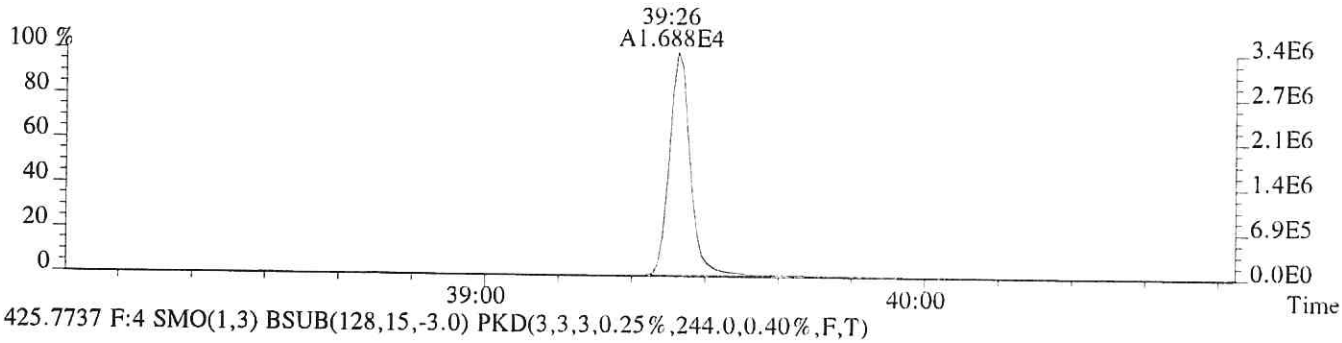
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



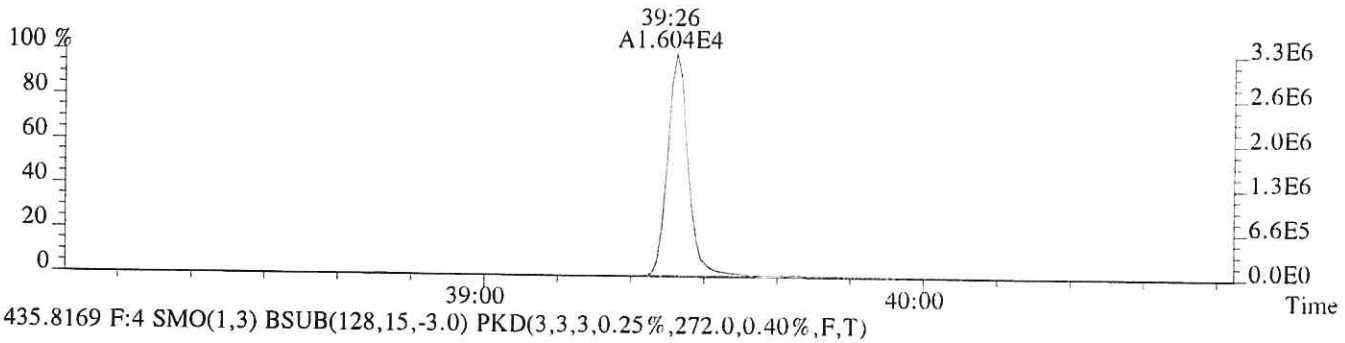
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



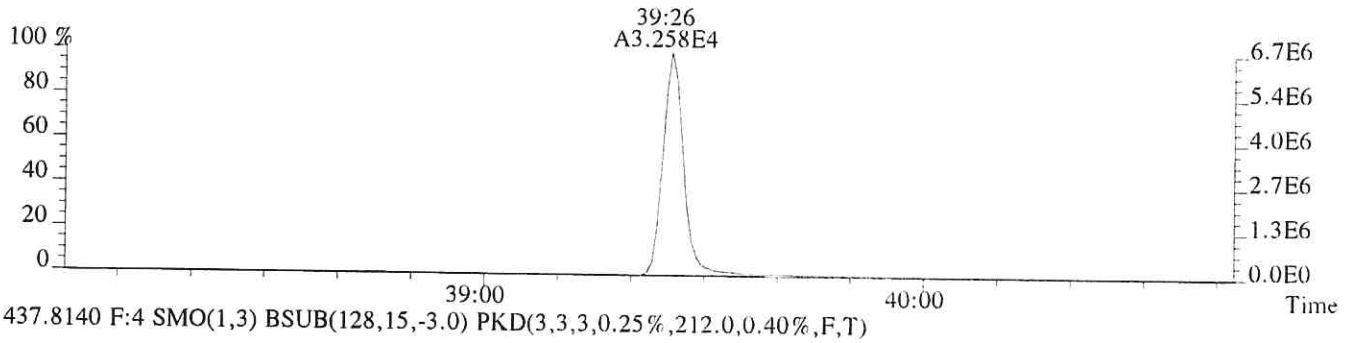
File:P519240 #1-240 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



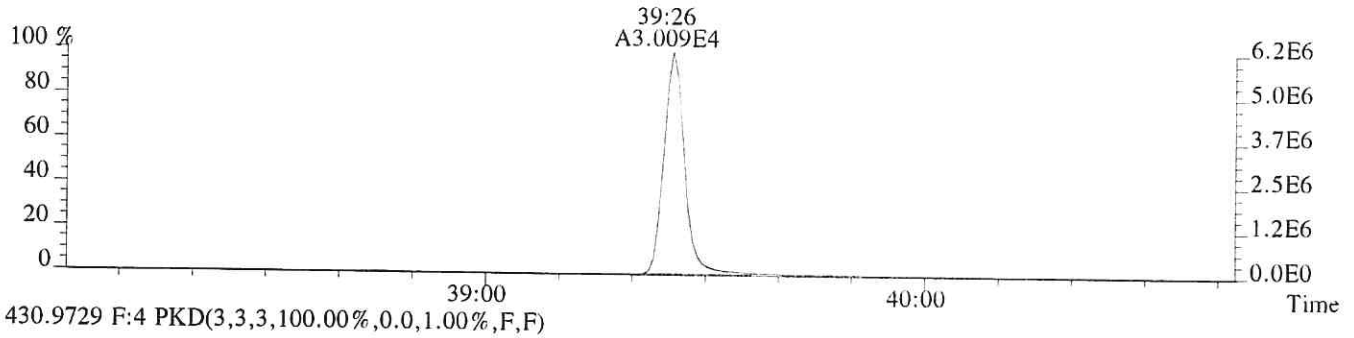
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



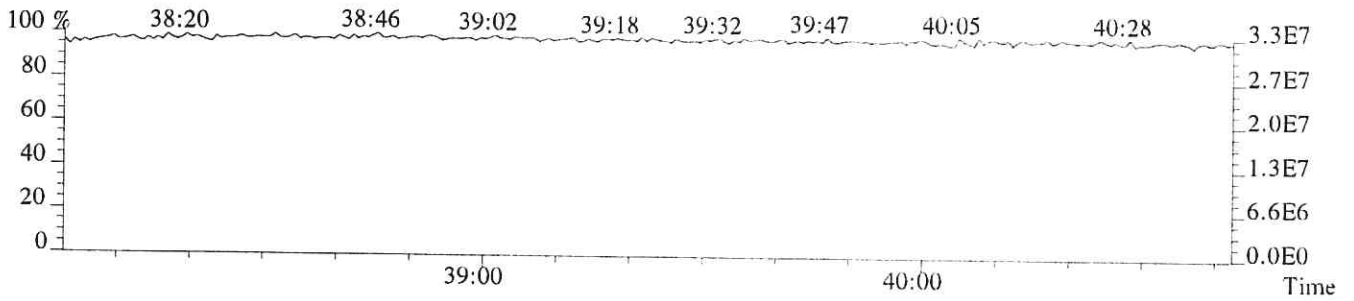
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



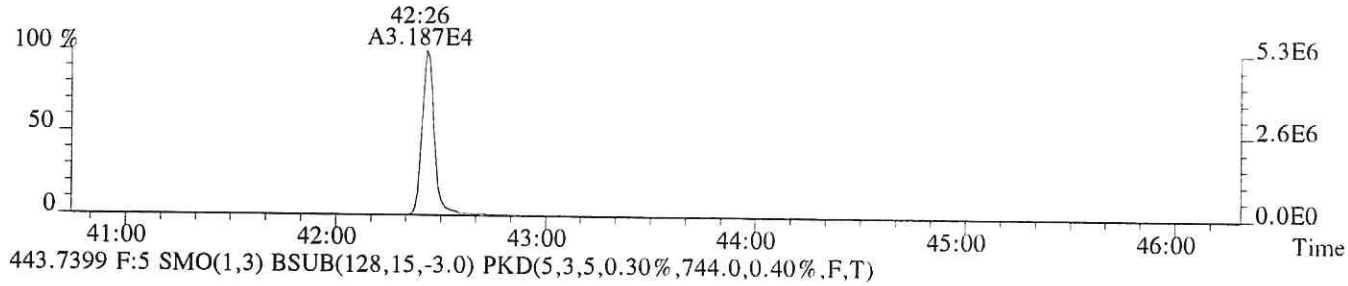
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



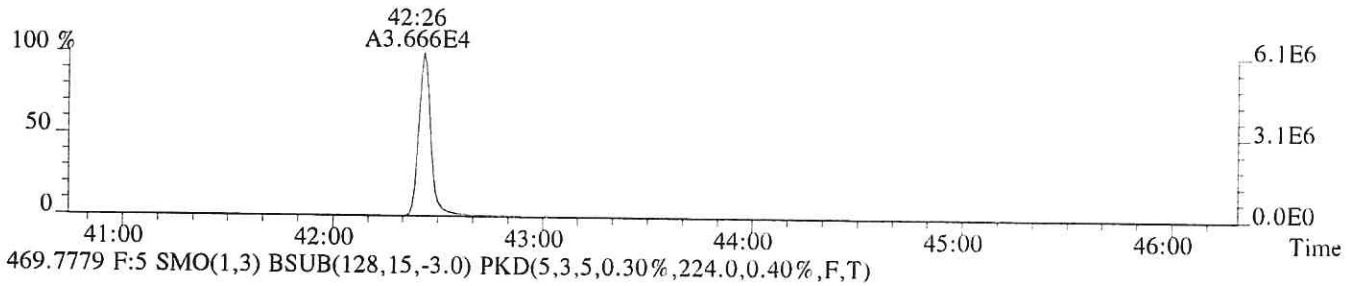
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



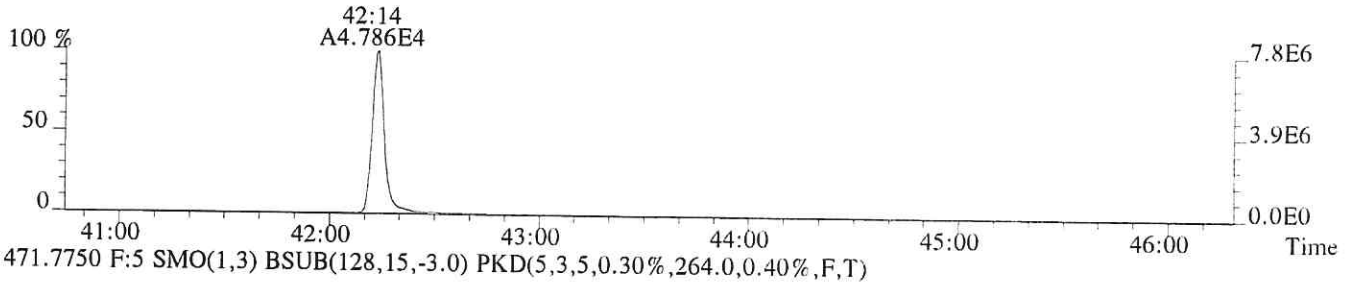
File:P519240 #1-502 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



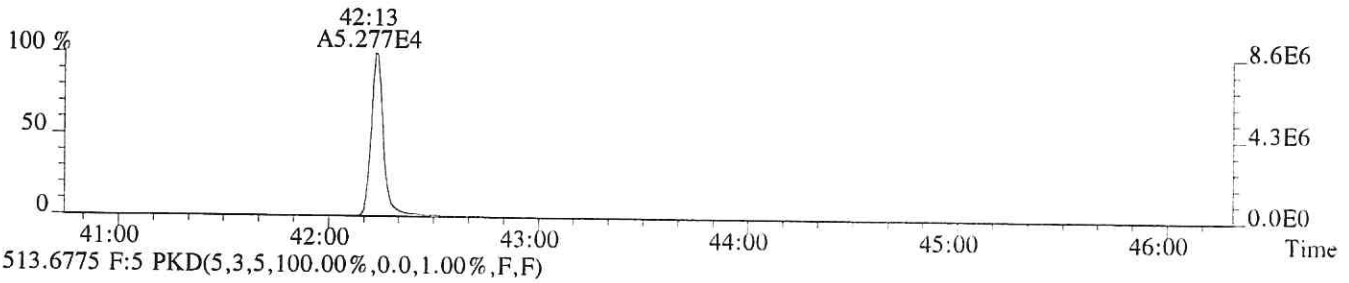
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



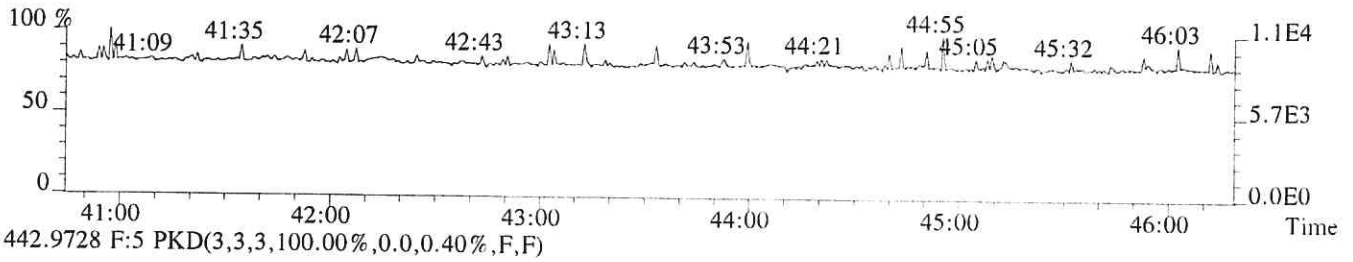
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



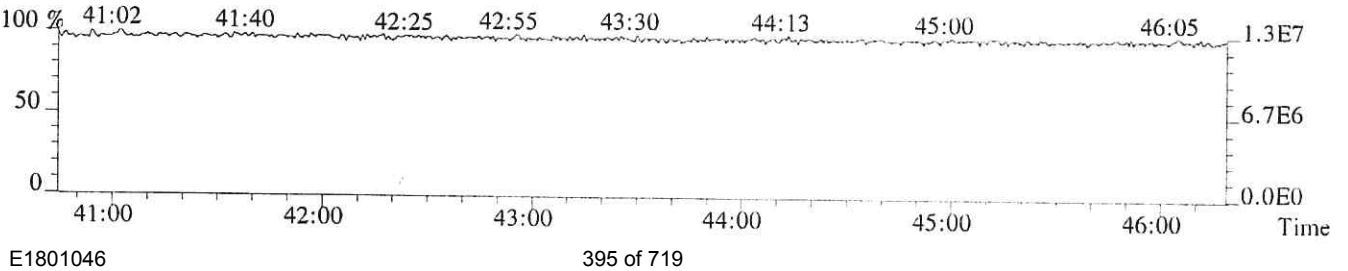
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



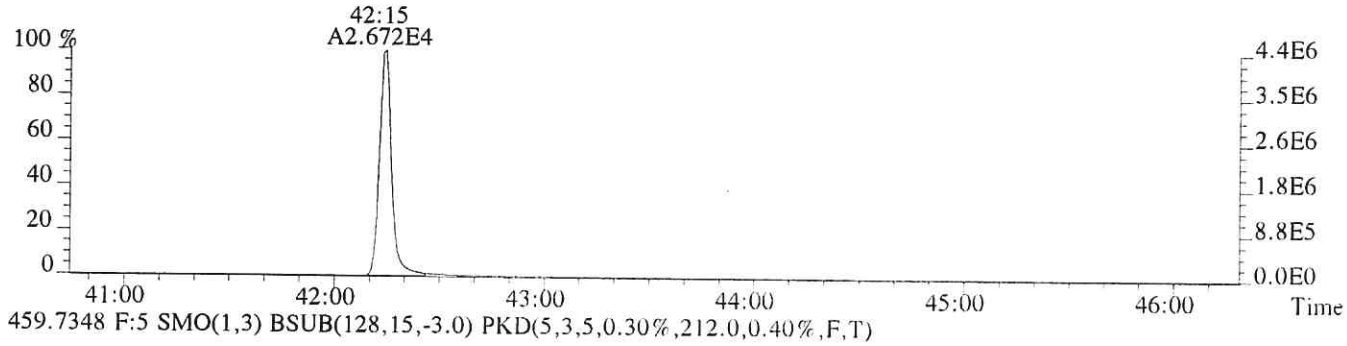
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



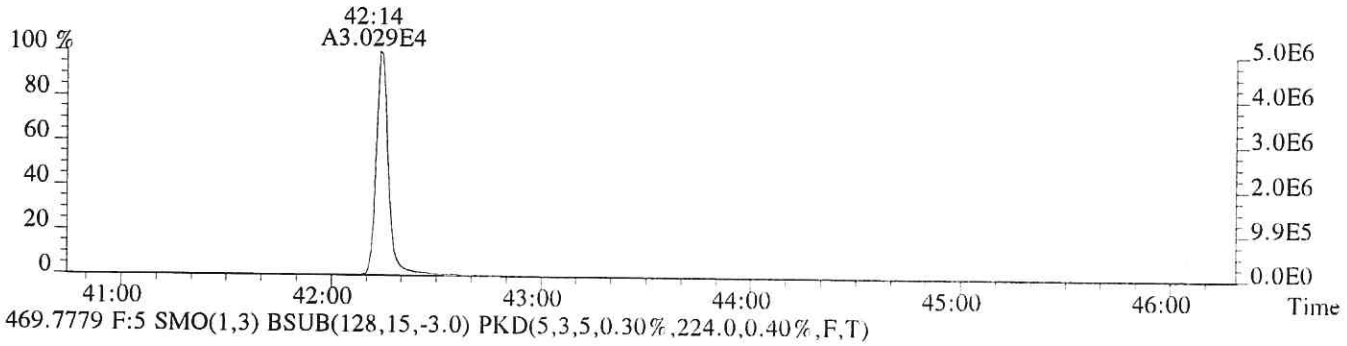
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



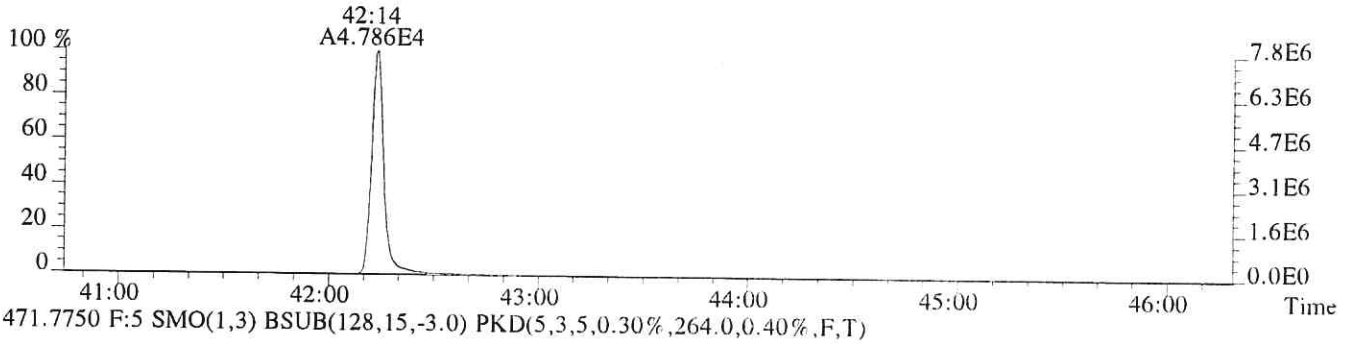
File:P519240 #1-502 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



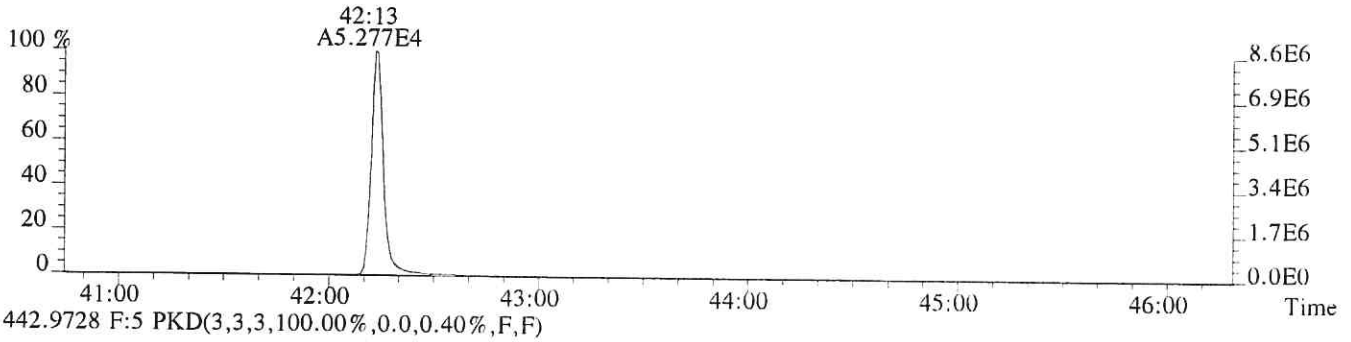
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



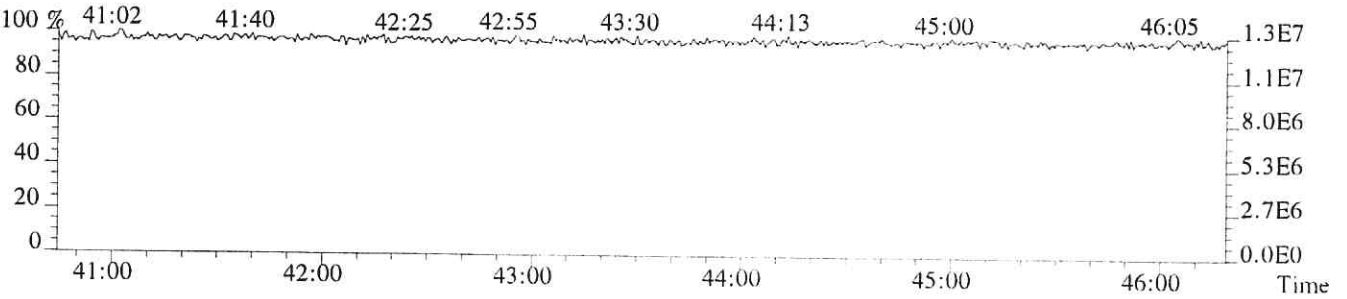
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519287

Date: 12/07/18-12/08/18 (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: qc

Second QC: LKL

ccalqc.xls 07/17/12

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519287	7-DEC-18	19:08:16
192977	WINDOW DEFINE	P519288	7-DEC-18	19:56:03
METHOD BLANK	EQ1800469-01	P519289	7-DEC-18	20:44:48
METHOD BLANK	EQ1800488-01	P519290	7-DEC-18	21:33:23
SL0539	E1801046-001DL	P519291	7-DEC-18	22:22:00
SL0540	E1801046-002DL	P519292	7-DEC-18	23:10:38
SL0541	E1801046-003DL	P519293	7-DEC-18	23:59:16
SL0542	E1801046-004DL	P519294	8-DEC-18	00:47:53
SL0552	E1801055-008	P519295	8-DEC-18	01:36:30
SL0558	E1801057-006	P519296	8-DEC-18	02:25:08
SL0559	E1801057-007	P519297	8-DEC-18	03:13:44
SL0560	E1801057-008	P519298	8-DEC-18	04:02:22
SL0580	E1801065-001	P519299	8-DEC-18	04:50:59
SL0581	E1801065-002	P519300	8-DEC-18	05:39:44
SL0582	E1801065-003	P519301	8-DEC-18	06:28:20

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207B.SPL
Last Modified: Monday, December 10, 2018 07:32:15 Central Standard Time
Printed: Monday, December 10, 2018 07:32:17 Central Standard Time

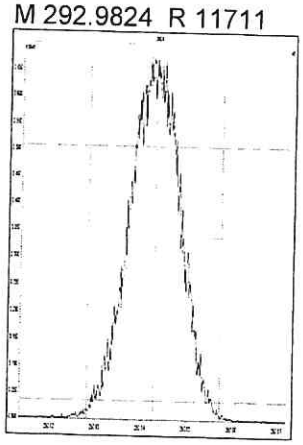
Page Position (1, 1)

OPR54: P519287res

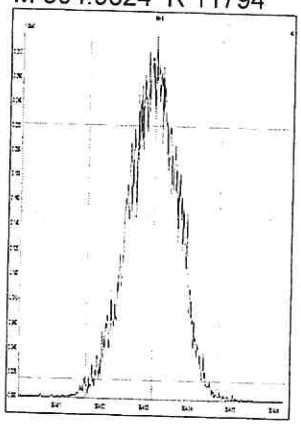
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	19:08	P519287	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 19:08
2		19:56	P519288	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		20:44	P519289	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		21:32	P519290	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		22:22	P519291	E1801046-001DL	E1801046-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		23:10	P519292	E1801046-002DL	E1801046-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		23:59	P519293	E1801046-003DL	E1801046-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8	12/8/18	00:47	P519294	E1801046-004DL	E1801046-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		01:36	P519295	E1801055-008	E1801055-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		02:25	P519296	E1801057-006	E1801057-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		03:13	P519297	E1801057-007	E1801057-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		04:02	P519298	E1801057-008	E1801057-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		04:50	P519299	E1801065-001	E1801065-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		05:39	P519300	E1801065-002	E1801065-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		06:28	P519301	E1801065-003	E1801065-003	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		07:25	P519302	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 07:25
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/10/18

M 292.9824 R 11711



M 304.9824 R 11794



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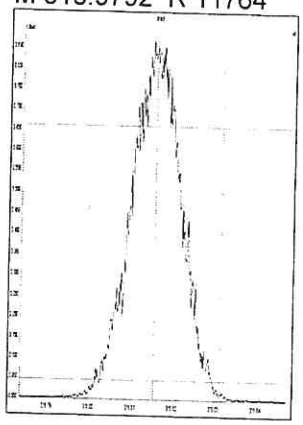

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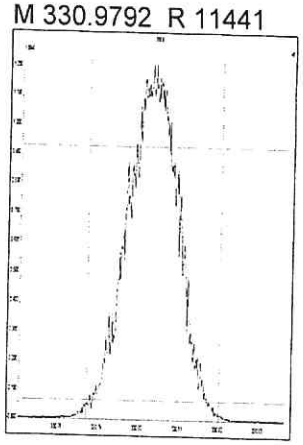
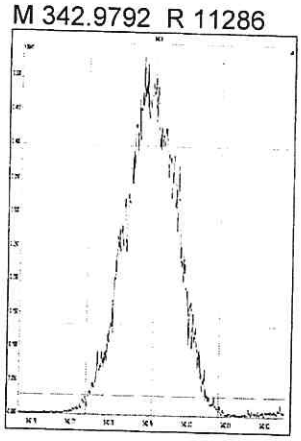
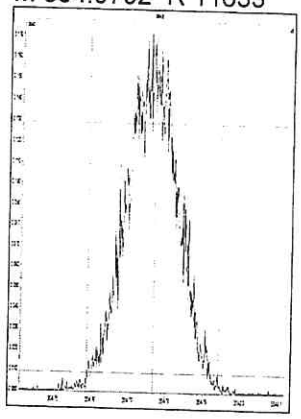


M 342.9792 R 11286



M 354.9792 R 11633



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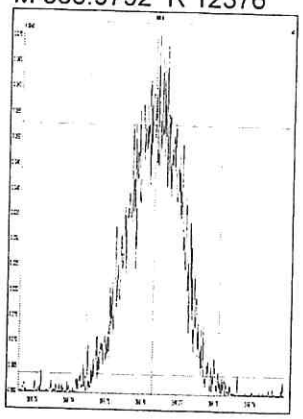
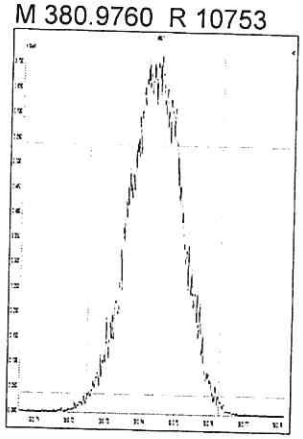


M 380.9760 R 10753



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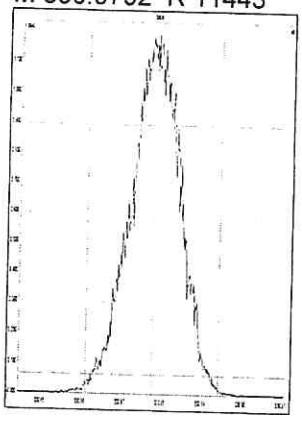

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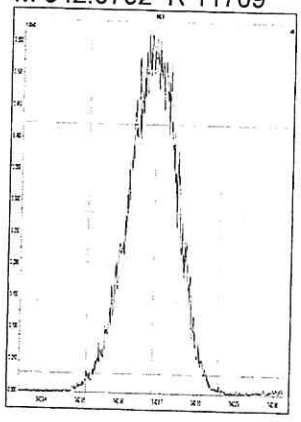

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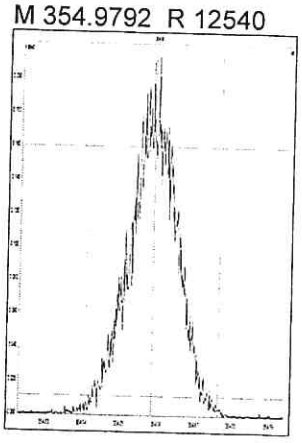

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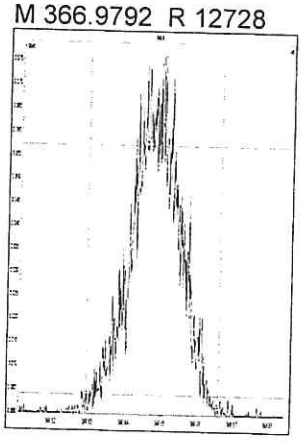

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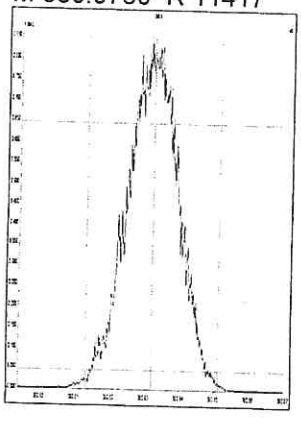

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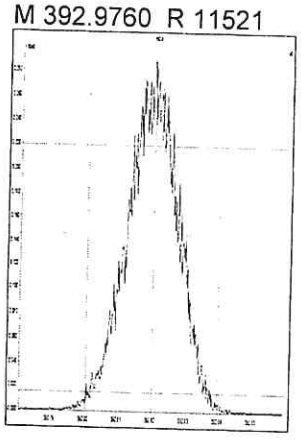

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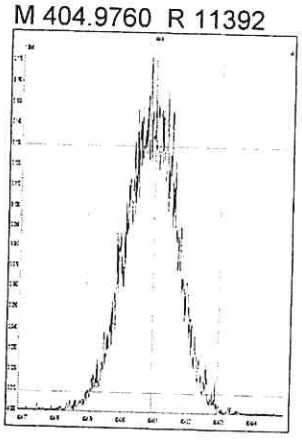

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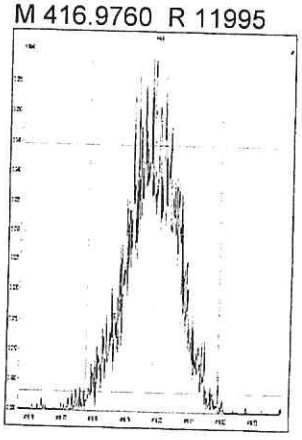

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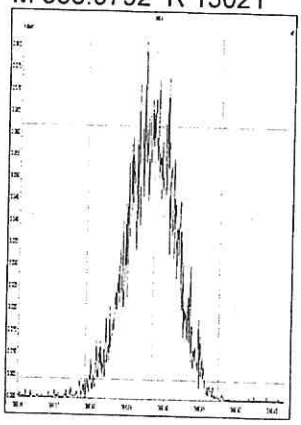

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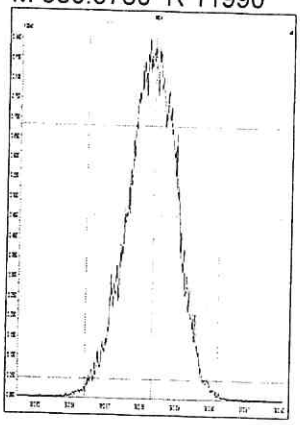

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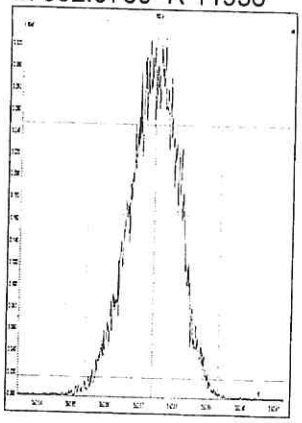

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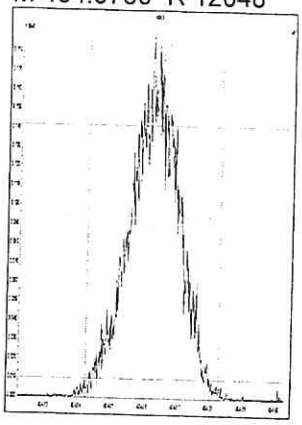

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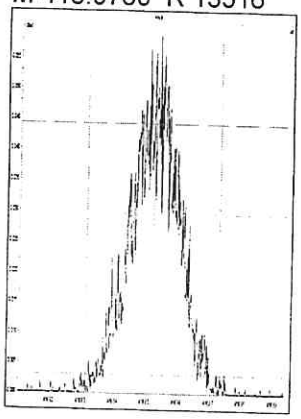
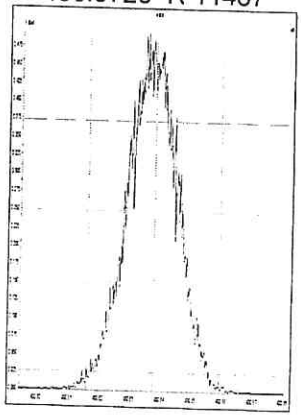
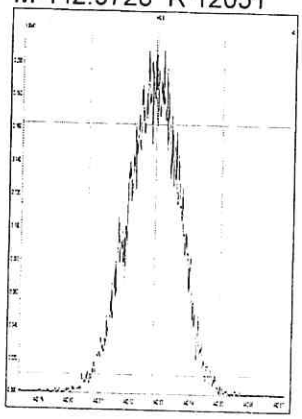


M 430.9728 R 11467



M 442.9728 R 12051



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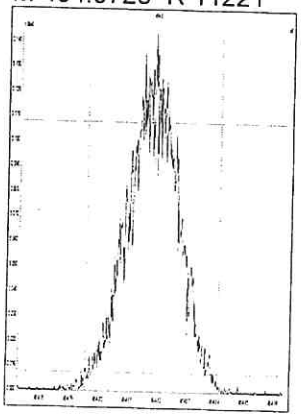

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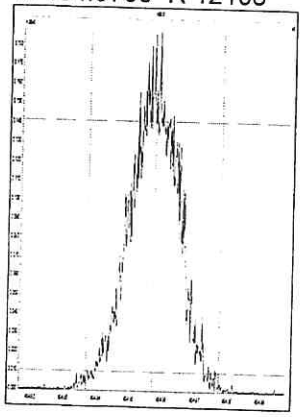

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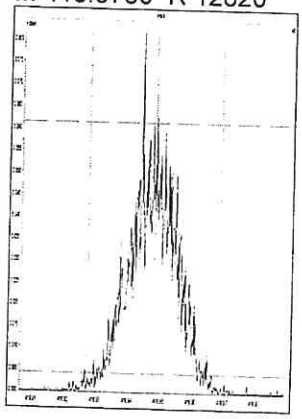

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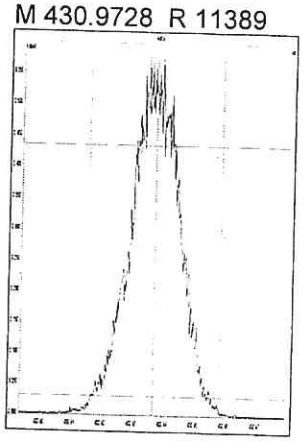

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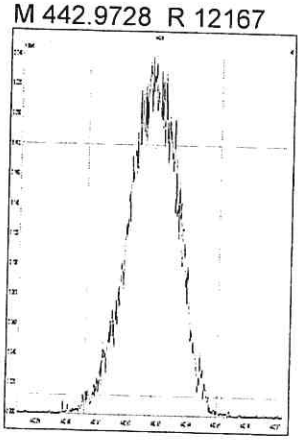

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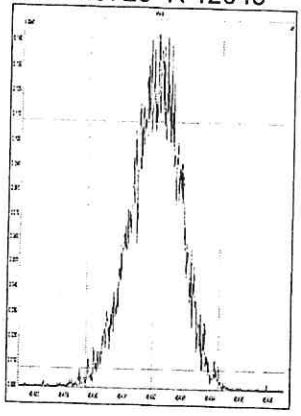

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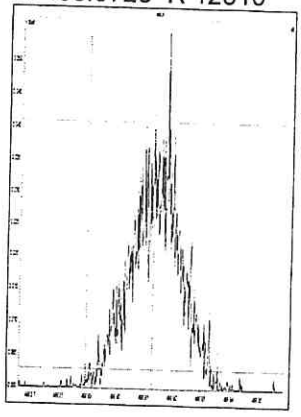

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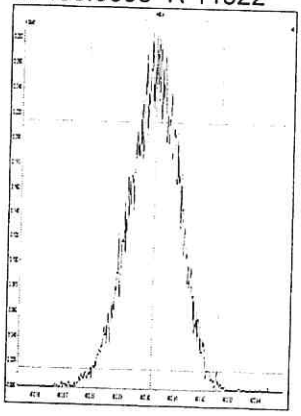

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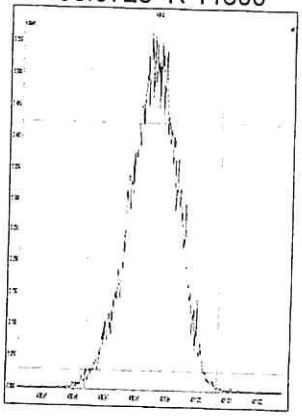

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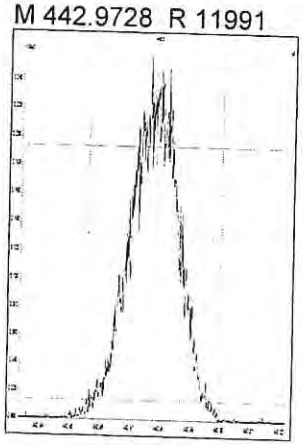

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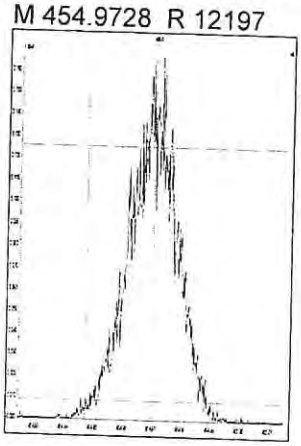

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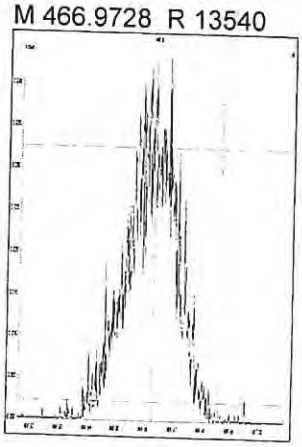

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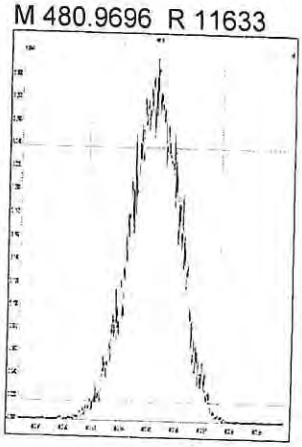

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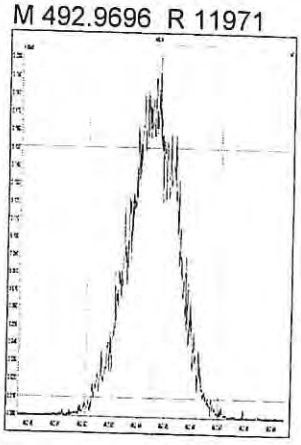
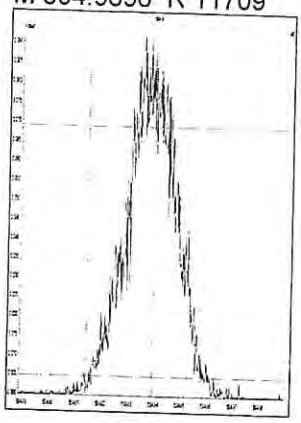


M 504.9696 R 11709



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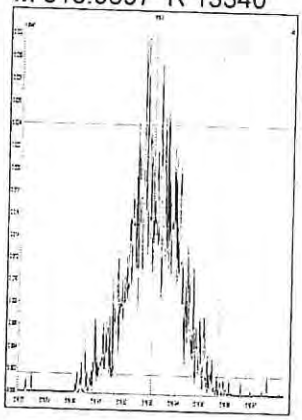

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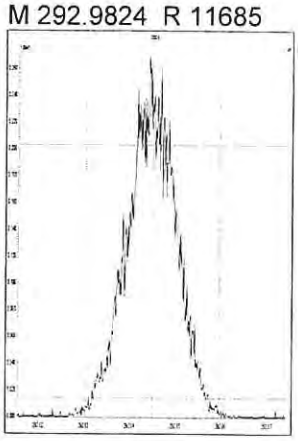

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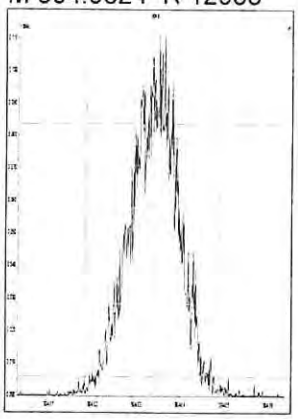

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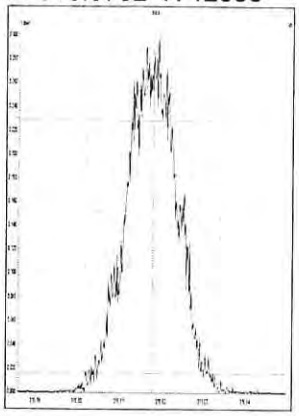

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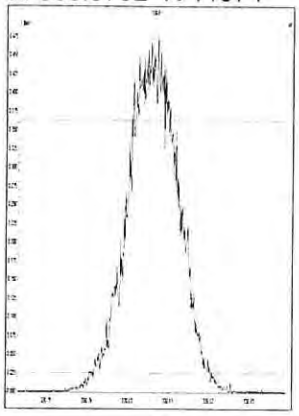

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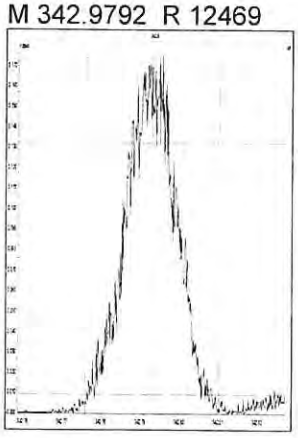

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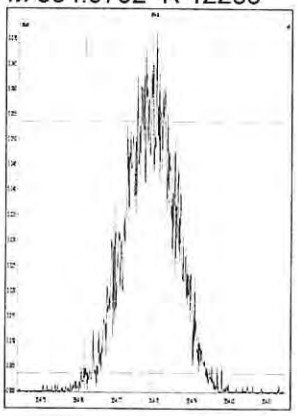

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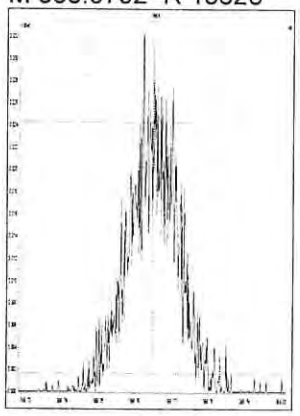

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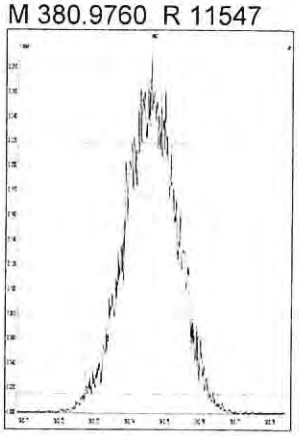

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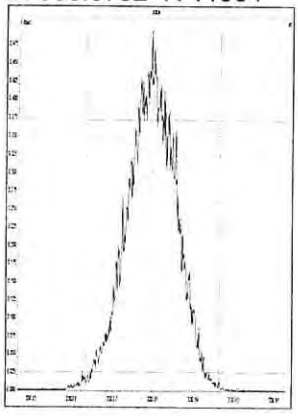

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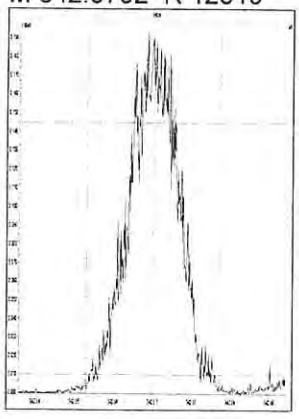

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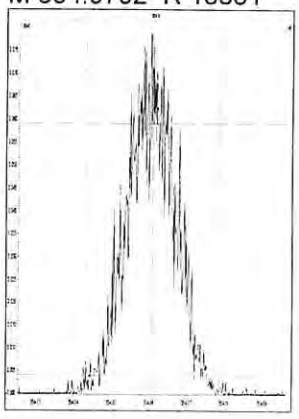

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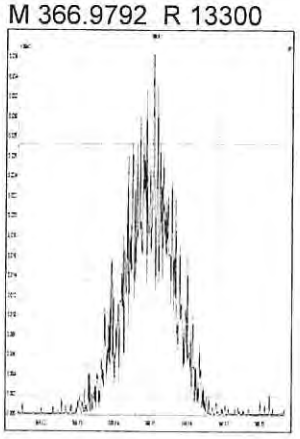

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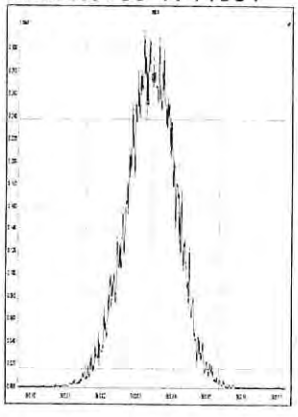

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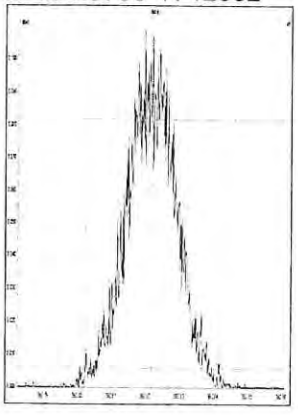

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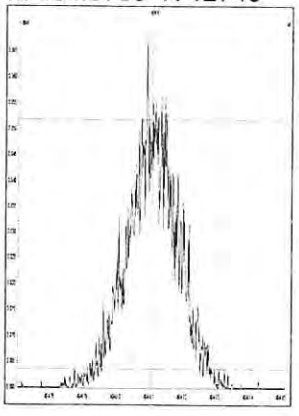

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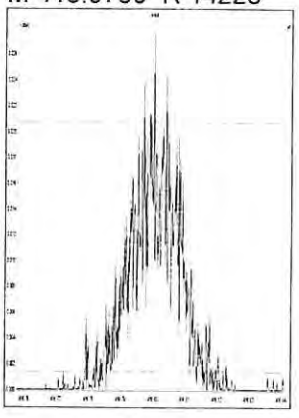

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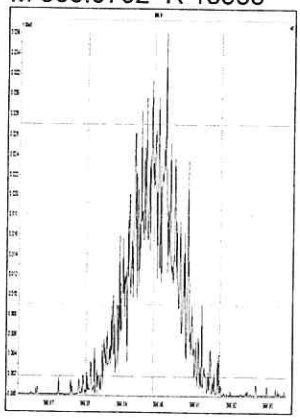

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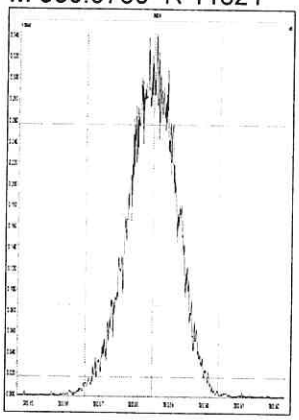

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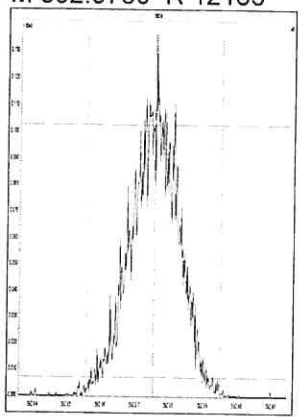

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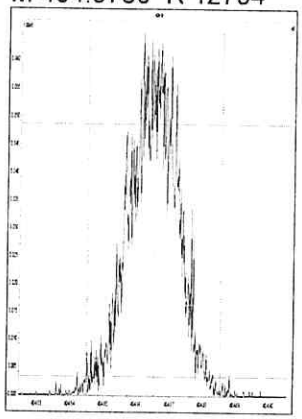

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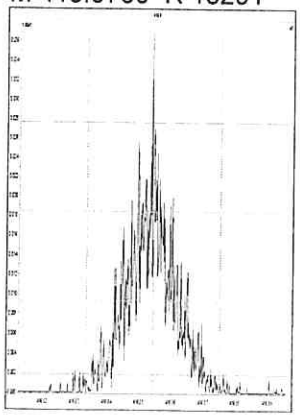

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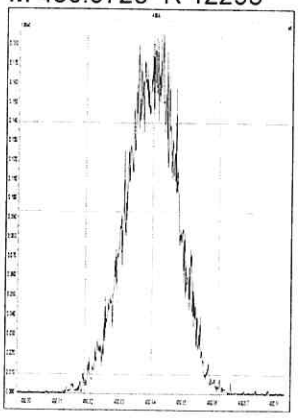

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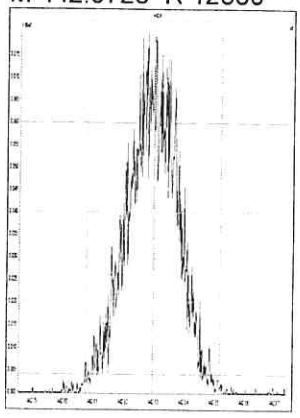

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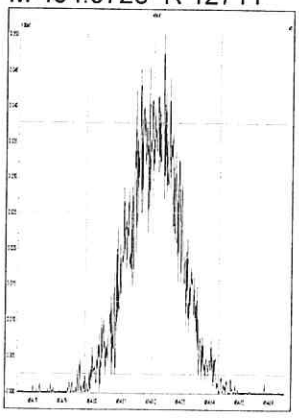

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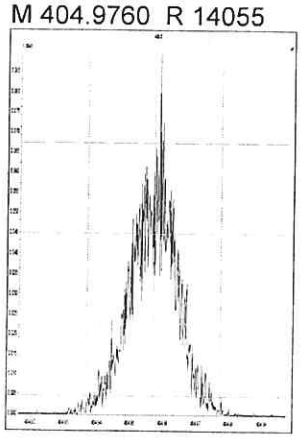

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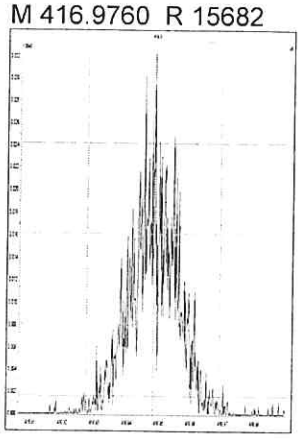

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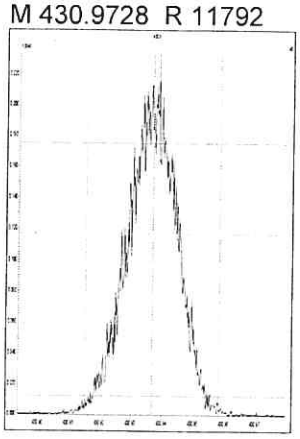

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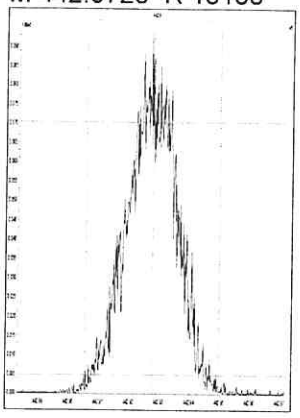

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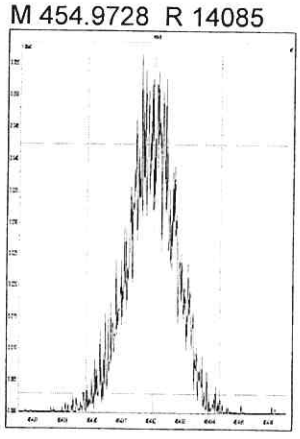

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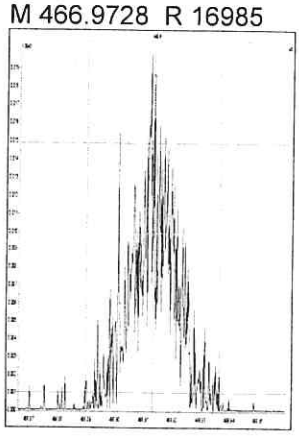

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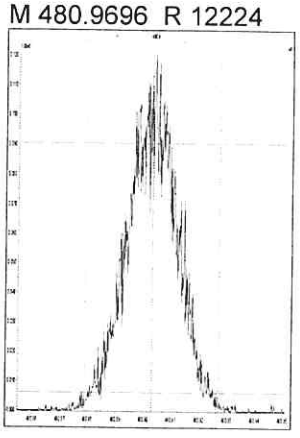

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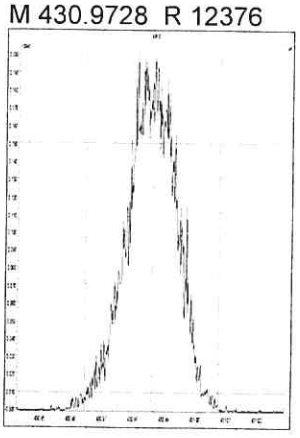

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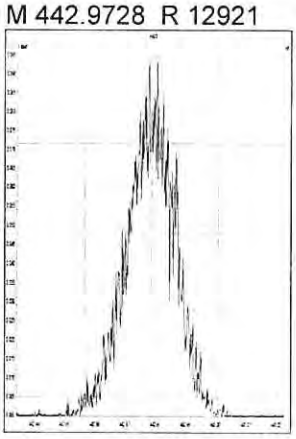

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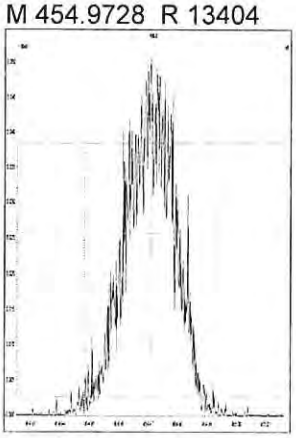

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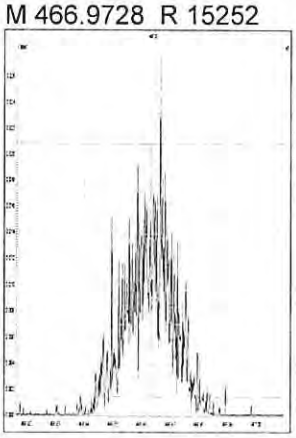

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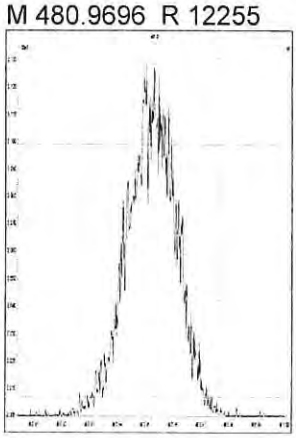

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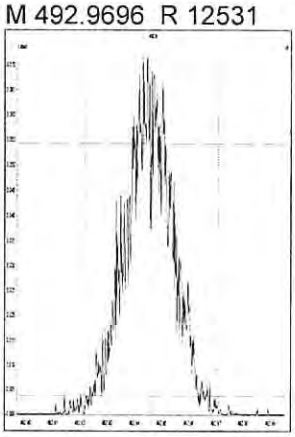

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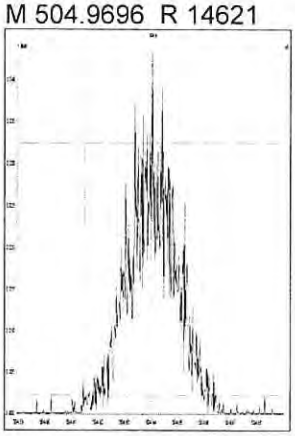

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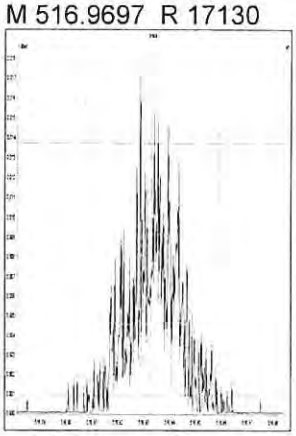

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519288
Date Analyzed: 7-DEC-2018
Time Analyzed: 19:56:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:17	33:48
HxCDF	34:44	37:19
HxCDD	35:16	36:54
HpCDF	38:36	40:04
HpCDD	38:52	39:34

% Valley 2378-TCDD: 13 %

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
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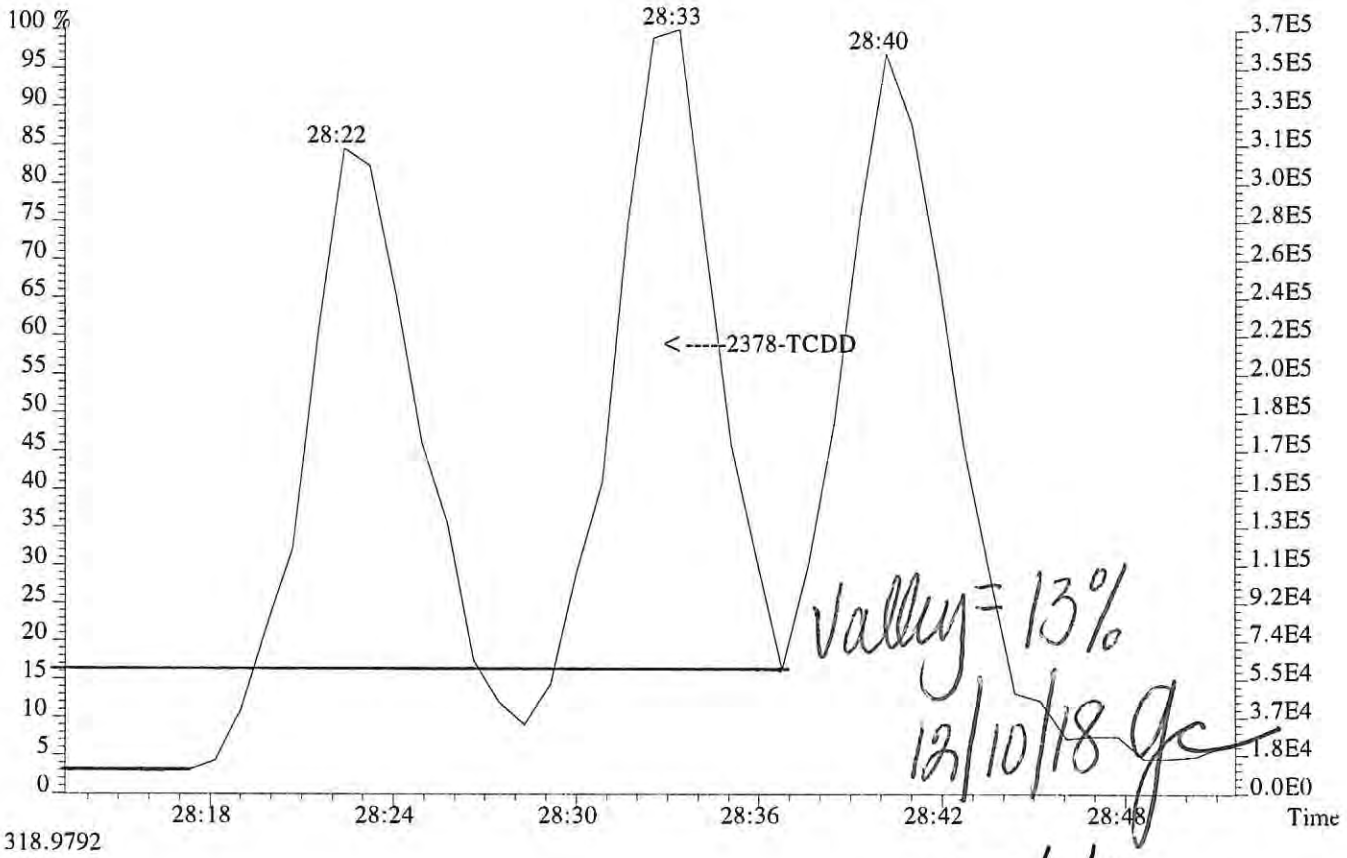
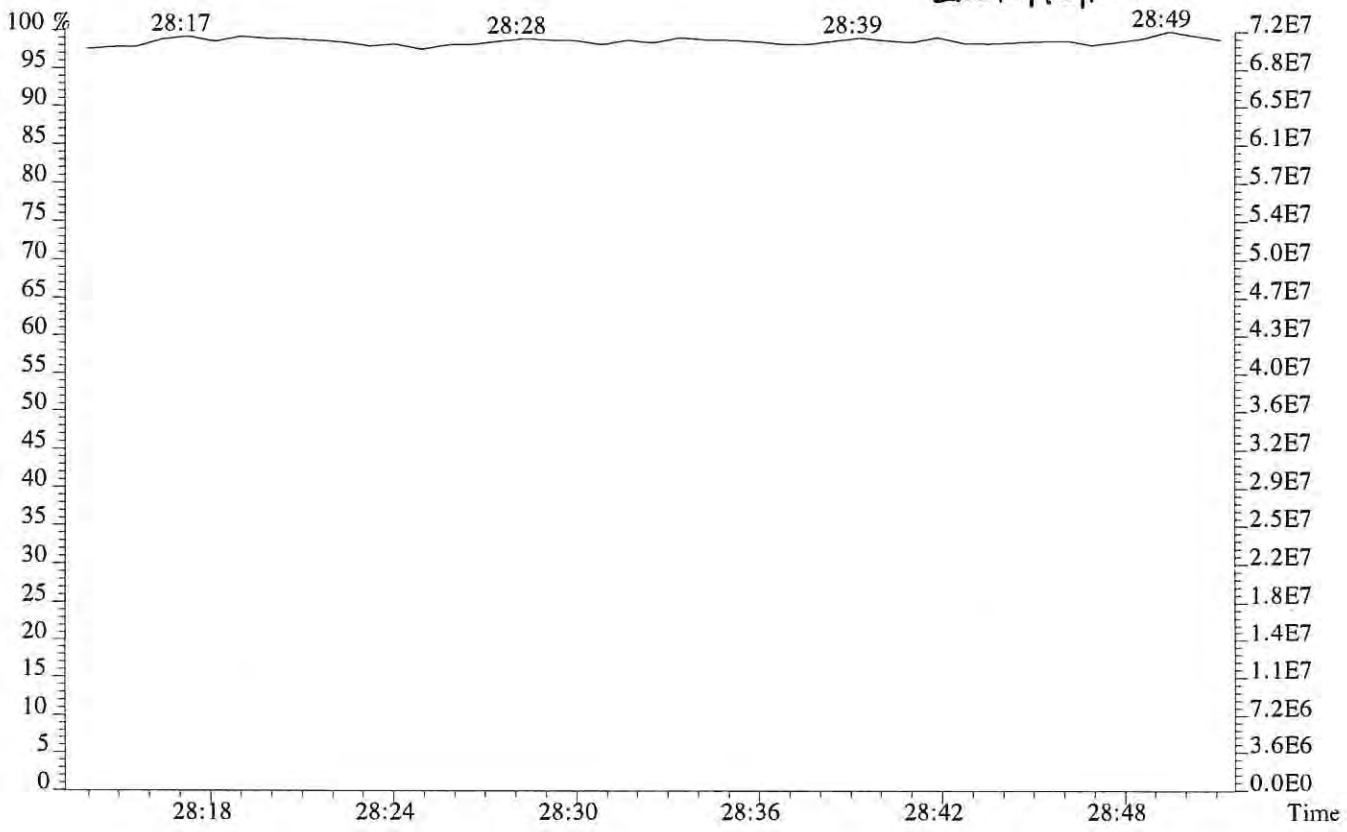


318.9792

LIK 12/10/18



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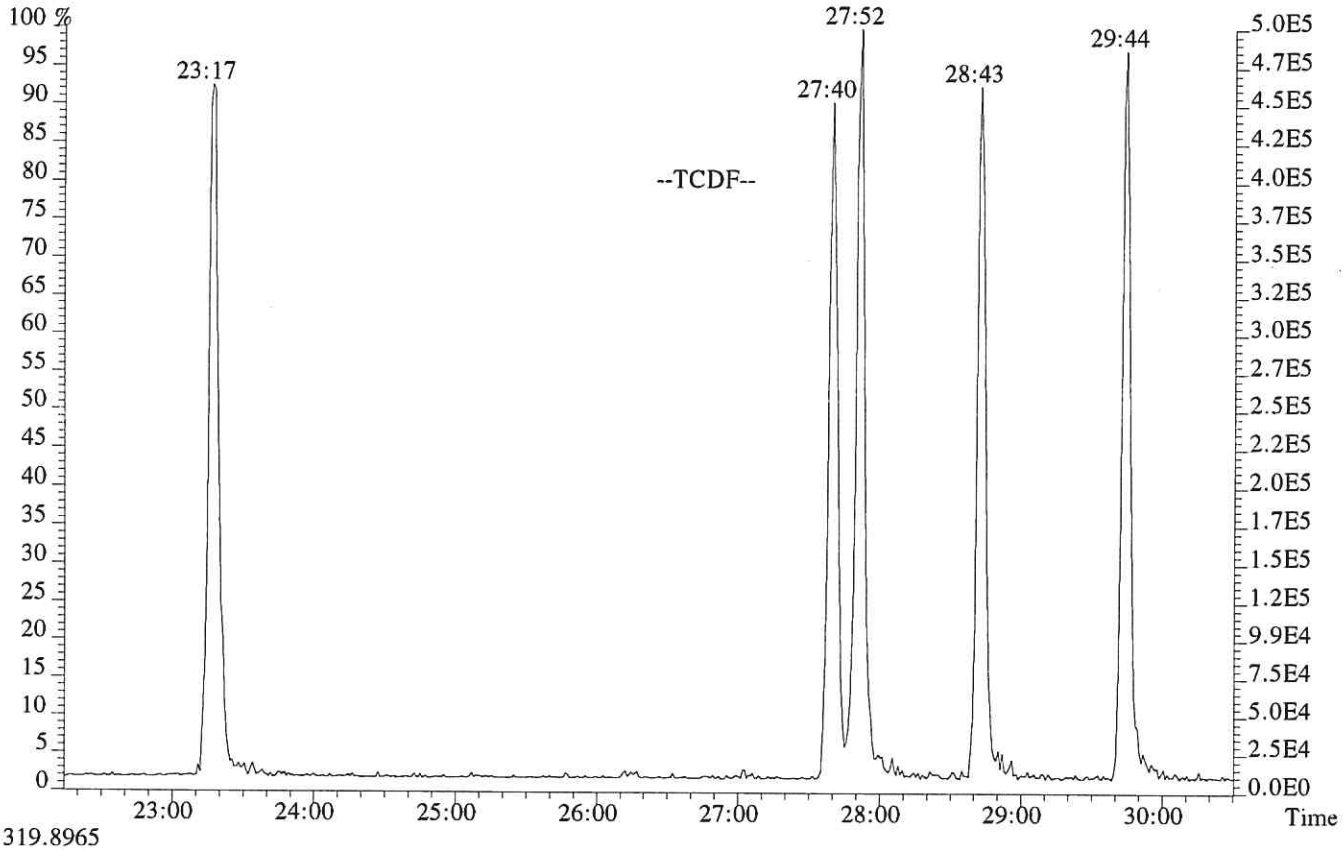

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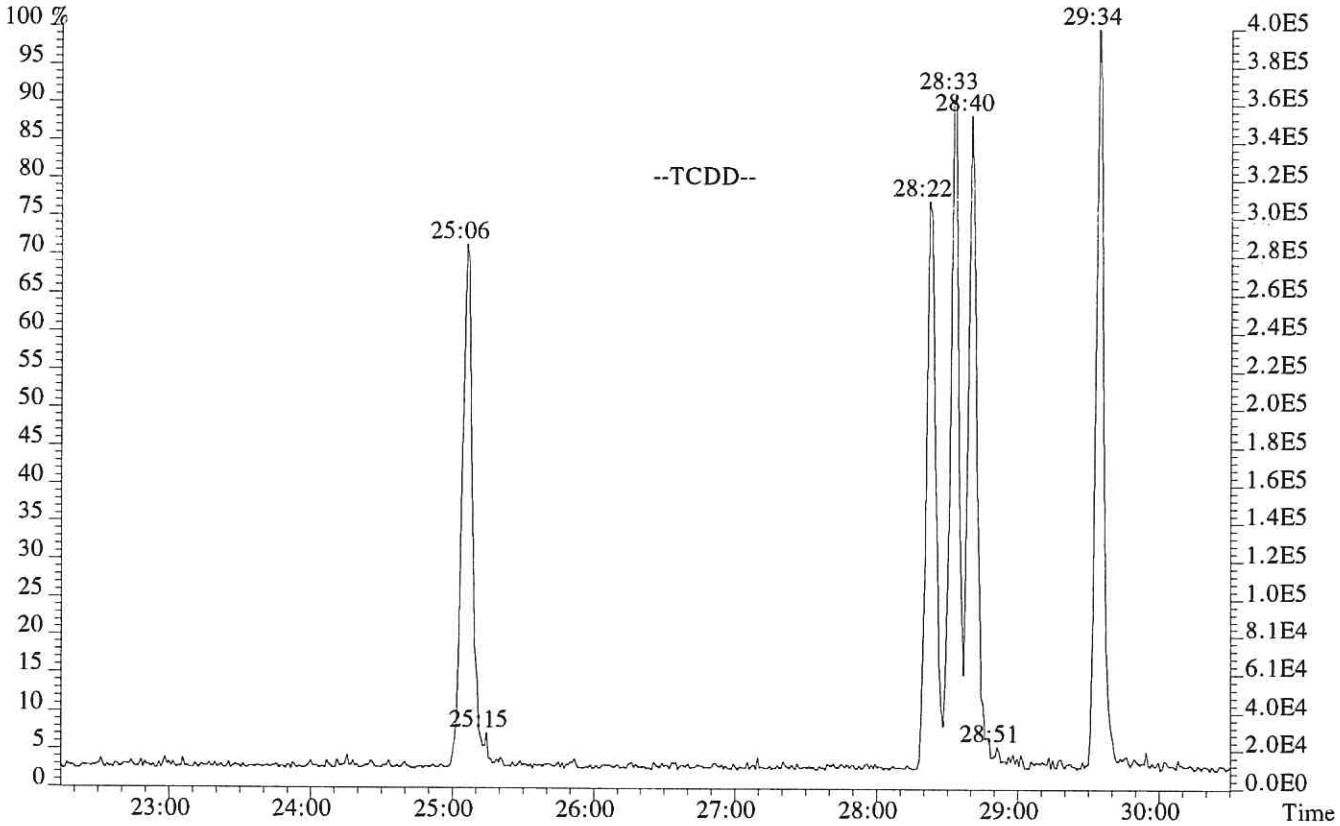
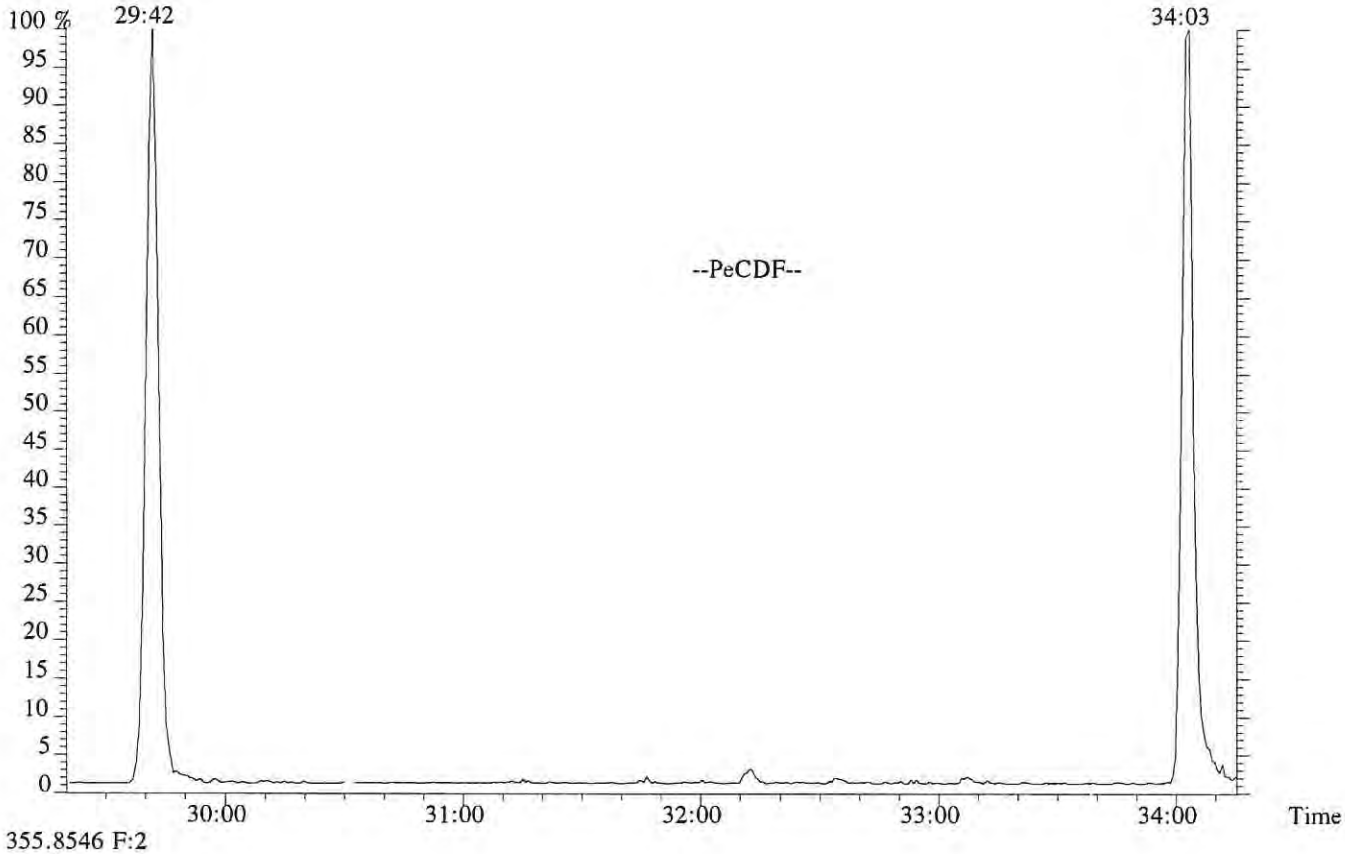


File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



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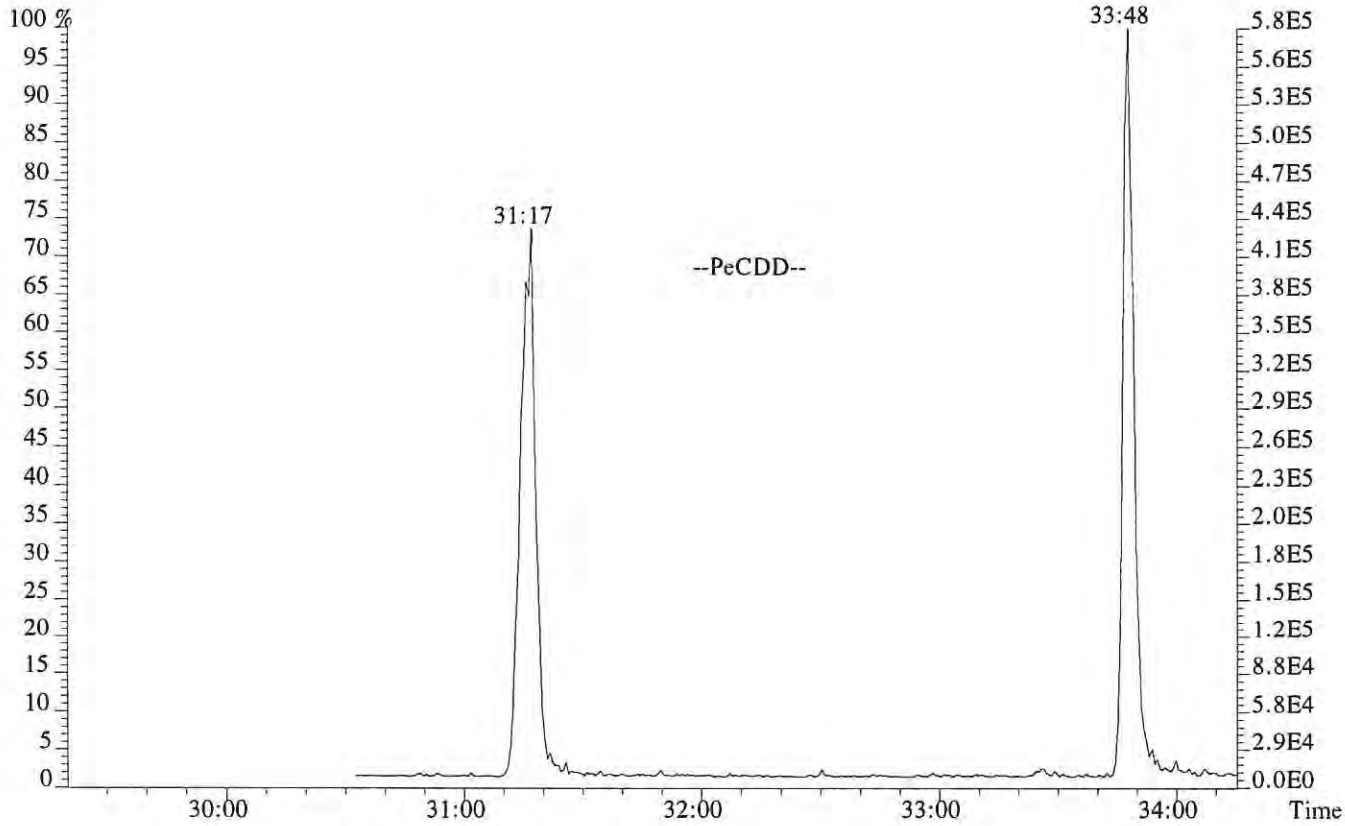

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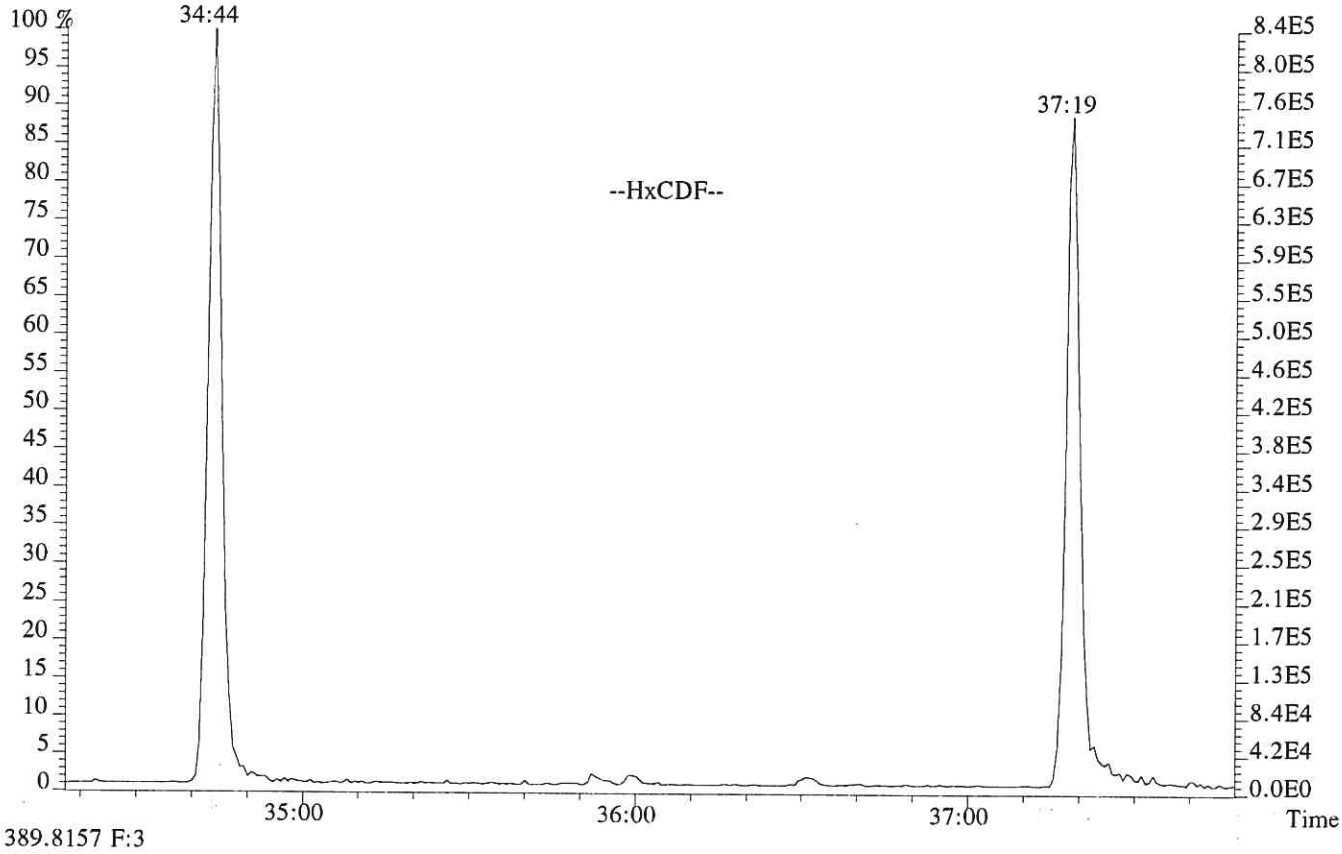
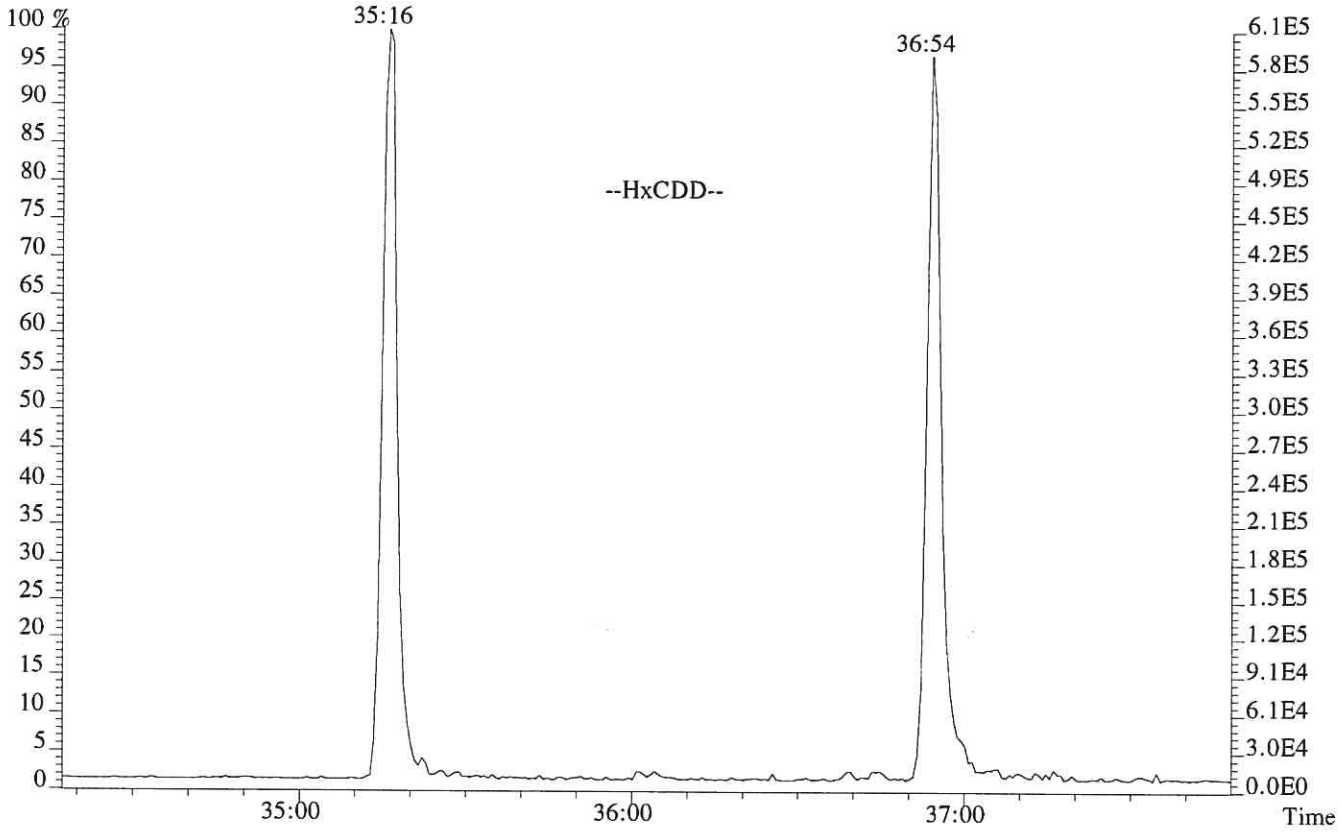


389.8157 F:3



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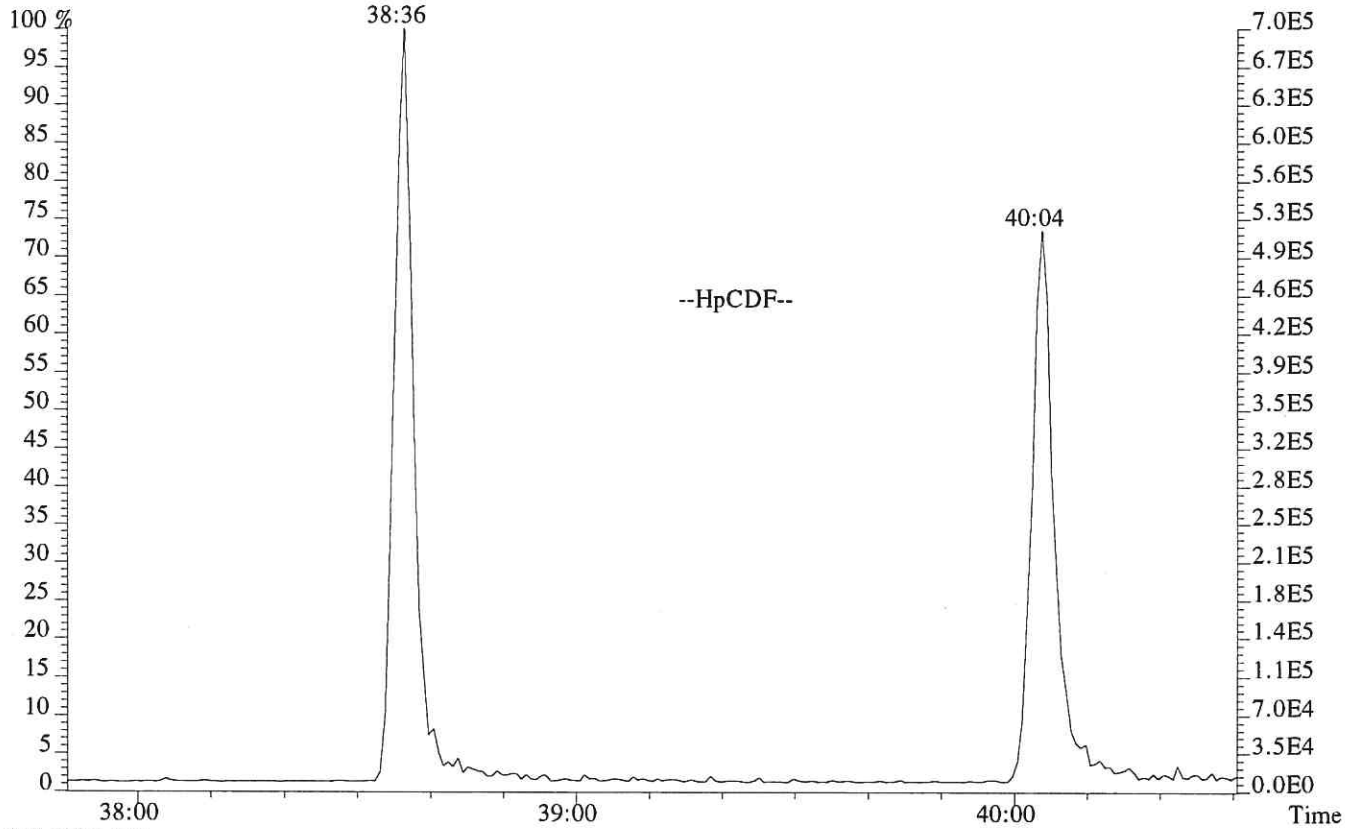
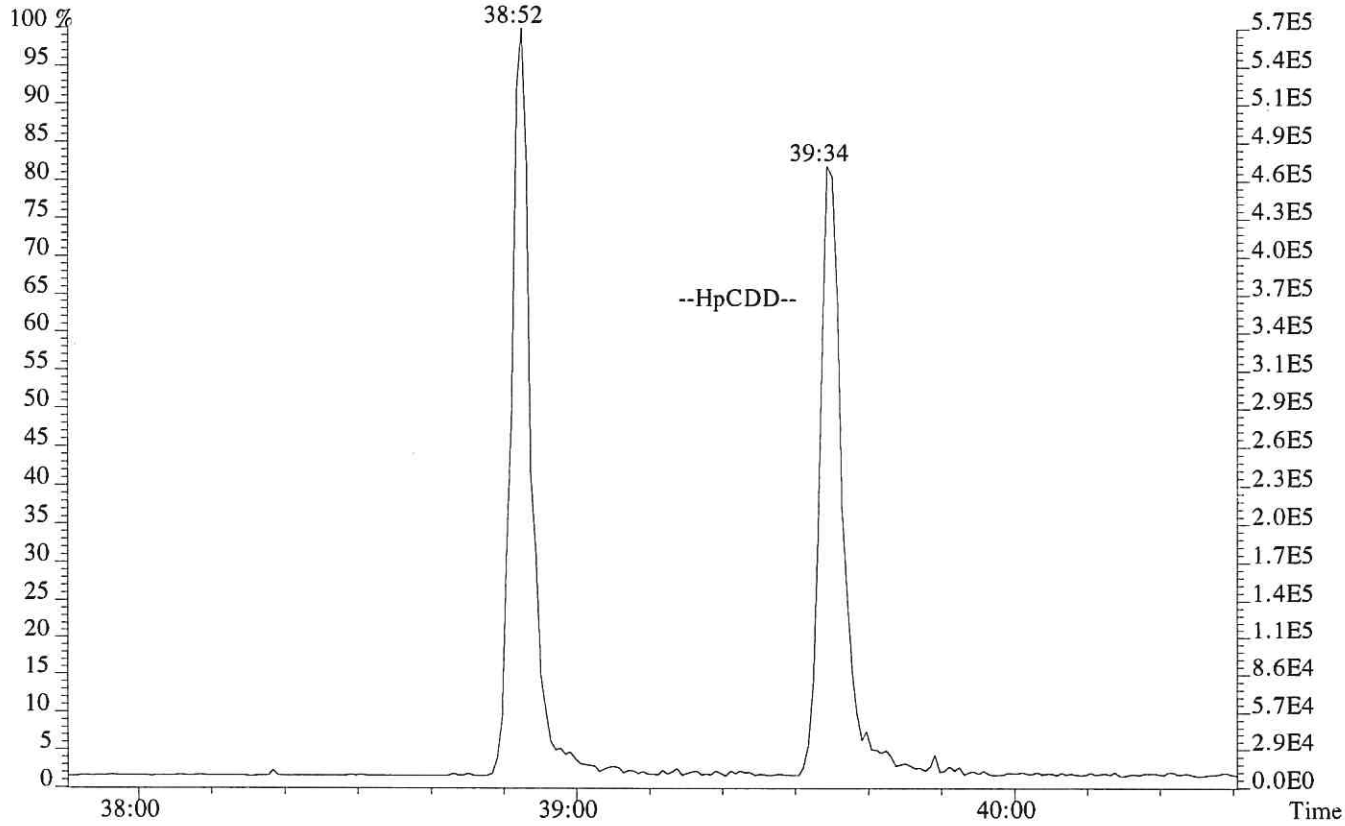


423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	52	39 - 65	3.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	4.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.9
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	1.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	16.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	93	85 - 118	-6.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	8.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	260	96 - 415	29.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	115	76 - 130	15.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	116	77 - 130	15.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	111	77 - 129	11.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	1.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.651e+03	4.952e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.206e+04	2.107e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.080e+04	1.981e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.691e+04	2.245e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.028e+04	2.509e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.724e+04	2.254e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.554e+04	2.123e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.572e+04	2.571e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.196e+04	2.194e+04	1.00	yes	no	1.258
0	Unk	OCDF	42:45	3.662e+04	4.163e+04	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:41	2.761e+03	3.479e+03	0.79	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:24	2.121e+04	1.333e+04	1.59	yes	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:39	1.971e+04	1.514e+04	1.30	yes	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:44	2.027e+04	1.584e+04	1.28	yes	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:59	2.150e+04	1.714e+04	1.25	yes	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.894e+04	1.774e+04	1.07	yes	no	1.025
7	Unk	OCDD	42:33	3.068e+04	3.415e+04	0.90	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:50	4.040e+04	5.052e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:10	6.382e+04	4.020e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.314e+04	3.999e+04	1.58	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.765e+04	5.368e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:58	3.358e+04	6.345e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.020e+04	5.826e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:16	2.797e+04	5.320e+04	0.53	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.344e+04	5.212e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.114e+04	4.735e+04	0.45	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:39	2.623e+04	3.259e+04	0.80	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.289e+04	2.696e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.687e+04	2.852e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.742e+04	2.911e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.637e+04	3.368e+04	1.08	yes	no	0.858
2	IS	13C-OCDD	42:33	5.342e+04	6.023e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:05	2.717e+04	3.412e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	4.200e+04	3.318e+04	1.27	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.279e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.34e+05	5.32e+02	1.2e+03	8.78e+05	1.42e+03	6.2e+02
	1,2,3,7,8-PeCDF	5.87e+06	4.76e+02	1.2e+04	3.87e+06	1.20e+03	3.2e+03
	2,3,4,7,8-PeCDF	6.08e+06	4.76e+02	1.3e+04	3.82e+06	1.20e+03	3.2e+03
	1,2,3,4,7,8-HxCDF	5.87e+06	7.00e+02	8.4e+03	4.99e+06	6.00e+02	8.3e+03
	1,2,3,6,7,8-HxCDF	6.14e+06	7.00e+02	8.8e+03	5.11e+06	6.00e+02	8.5e+03
	2,3,4,6,7,8-HxCDF	5.95e+06	7.00e+02	8.5e+03	4.93e+06	6.00e+02	8.2e+03
	1,2,3,7,8,9-HxCDF	4.77e+06	7.00e+02	6.8e+03	3.97e+06	6.00e+02	6.6e+03
	1,2,3,4,6,7,8-HpCDF	5.16e+06	2.04e+02	2.5e+04	5.11e+06	1.60e+02	3.2e+04
	1,2,3,4,7,8,9-HpCDF	3.49e+06	2.04e+02	1.7e+04	3.55e+06	1.60e+02	2.2e+04
0	OCDF	4.67e+06	2.52e+02	1.9e+04	5.34e+06	1.02e+03	5.2e+03
1	2,3,7,8-TCDD	5.32e+05	2.04e+03	2.6e+02	6.56e+05	1.17e+03	5.6e+02
2	1,2,3,7,8-PeCDD	4.13e+06	7.76e+02	5.3e+03	2.61e+06	2.92e+02	8.9e+03
3	1,2,3,4,7,8-HxCDD	4.25e+06	3.72e+02	1.1e+04	3.20e+06	6.84e+02	4.7e+03
4	1,2,3,6,7,8-HxCDD	3.99e+06	3.72e+02	1.1e+04	3.10e+06	6.84e+02	4.5e+03
5	1,2,3,7,8,9-HxCDD	4.16e+06	3.72e+02	1.1e+04	3.22e+06	6.84e+02	4.7e+03
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	4.48e+02	7.7e+03	3.25e+06	4.96e+02	6.6e+03
7	OCDD	3.99e+06	2.52e+02	1.6e+04	4.42e+06	3.00e+02	1.5e+04
8	13C-2,3,7,8-TCDF	7.22e+06	6.64e+03	1.1e+03	9.07e+06	6.70e+03	1.4e+03
9	13C-1,2,3,7,8-PeCDF	1.17e+07	8.12e+02	1.4e+04	7.35e+06	5.40e+02	1.4e+04
0	13C-2,3,4,7,8-PeCDF	1.23e+07	8.12e+02	1.5e+04	7.92e+06	5.40e+02	1.5e+04
1	13C-1,2,3,4,7,8-HxCDF	6.00e+06	9.16e+02	6.6e+03	1.18e+07	8.96e+02	1.3e+04
2	13C-1,2,3,6,7,8-HxCDF	6.90e+06	9.16e+02	7.5e+03	1.30e+07	8.96e+02	1.5e+04
3	13C-2,3,4,6,7,8-HxCDF	6.46e+06	9.16e+02	7.1e+03	1.24e+07	8.96e+02	1.4e+04
4	13C-1,2,3,7,8,9-HxCDF	5.21e+06	9.16e+02	5.7e+03	9.73e+06	8.96e+02	1.1e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.61e+06	2.22e+03	2.1e+03	1.02e+07	1.12e+03	9.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	2.22e+03	1.5e+03	7.57e+06	1.12e+03	6.8e+03
7	13C-2,3,7,8-TCDD	4.99e+06	4.20e+03	1.2e+03	6.26e+06	1.75e+03	3.6e+03
8	13C-1,2,3,7,8-PeCDD	8.63e+06	1.40e+03	6.2e+03	5.45e+06	1.18e+03	4.6e+03
9	13C-1,2,3,4,7,8-HxCDD	7.82e+06	7.08e+02	1.1e+04	5.99e+06	7.16e+02	8.4e+03
0	13C-1,2,3,6,7,8-HxCDD	7.35e+06	7.08e+02	1.0e+04	5.72e+06	7.16e+02	8.0e+03
1	13C-1,2,3,4,6,7,8-HpCDD	6.49e+06	6.00e+02	1.1e+04	6.06e+06	5.16e+02	1.2e+04
2	13C-OCDD	6.87e+06	4.92e+02	1.4e+04	7.75e+06	2.76e+02	2.8e+04
3	13C-1,2,3,4-TCDD	5.19e+06	4.20e+03	1.2e+03	6.52e+06	1.75e+03	3.7e+03
4	13C-1,2,3,7,8,9-HxCDD	7.95e+06	7.08e+02	1.1e+04	6.19e+06	7.16e+02	8.6e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	1.10e+03	1.1e+03			

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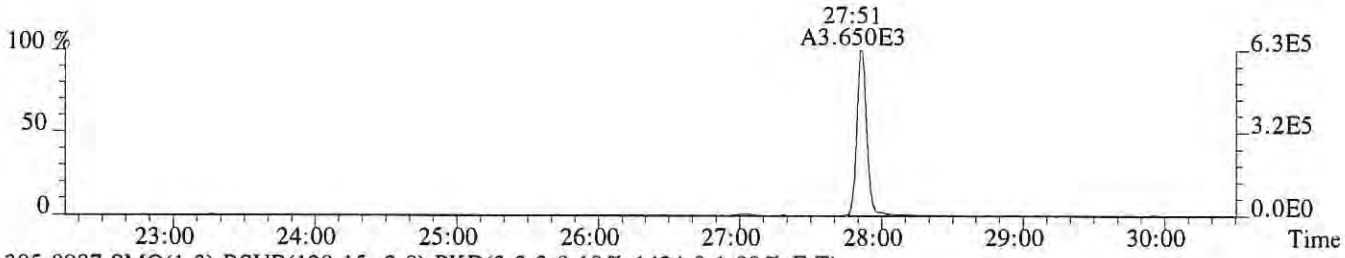
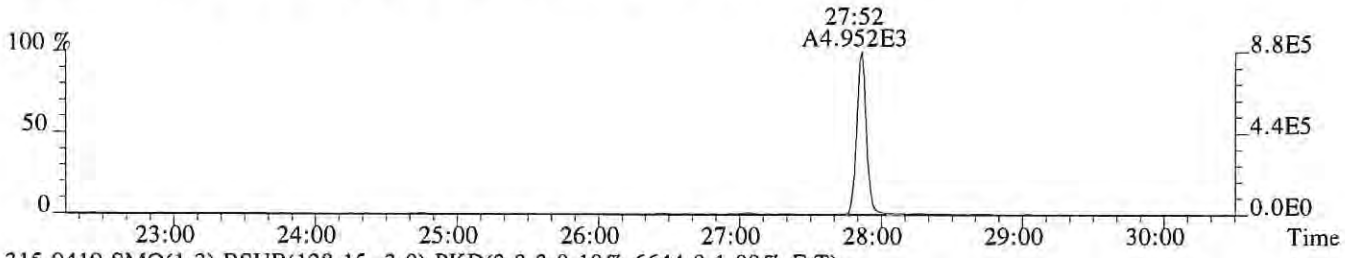
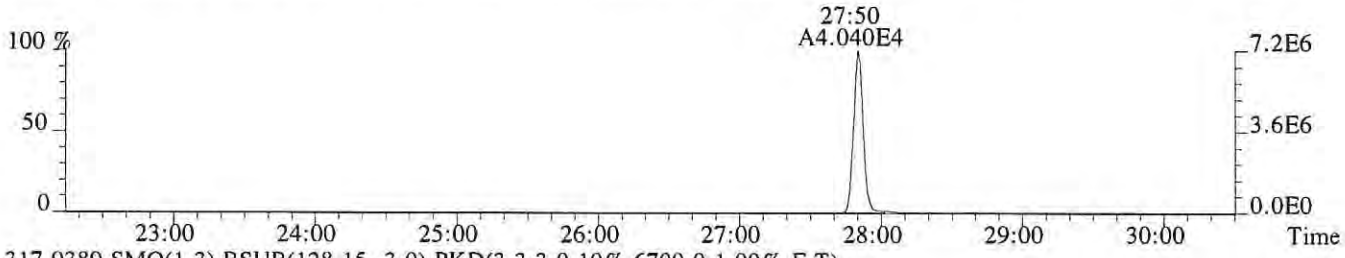
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



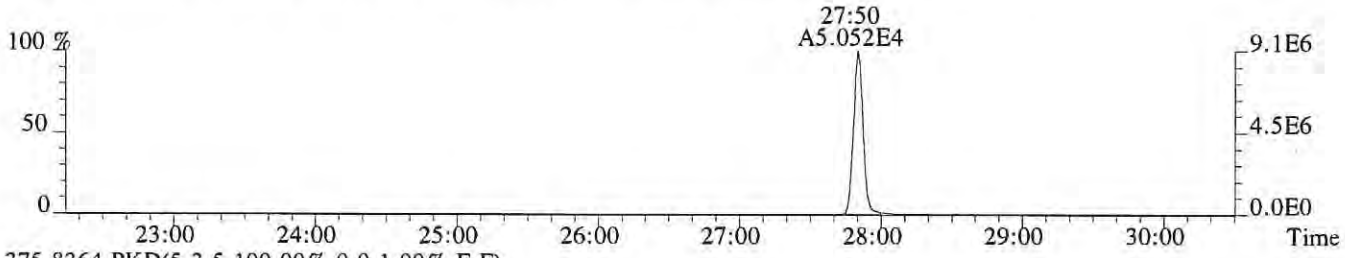
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



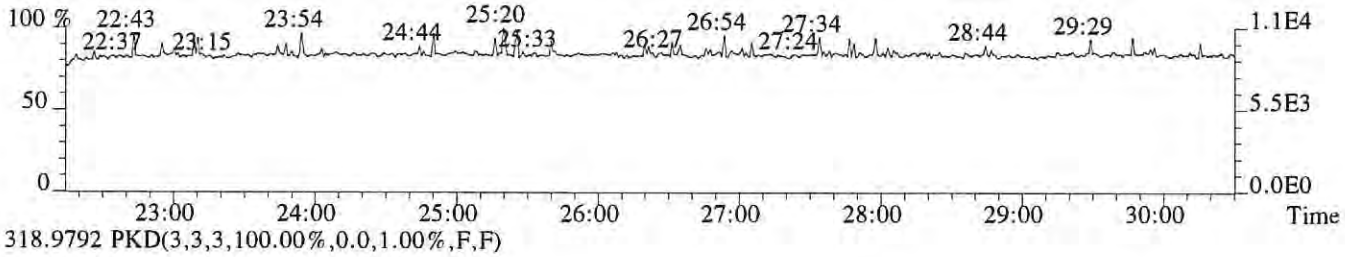
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



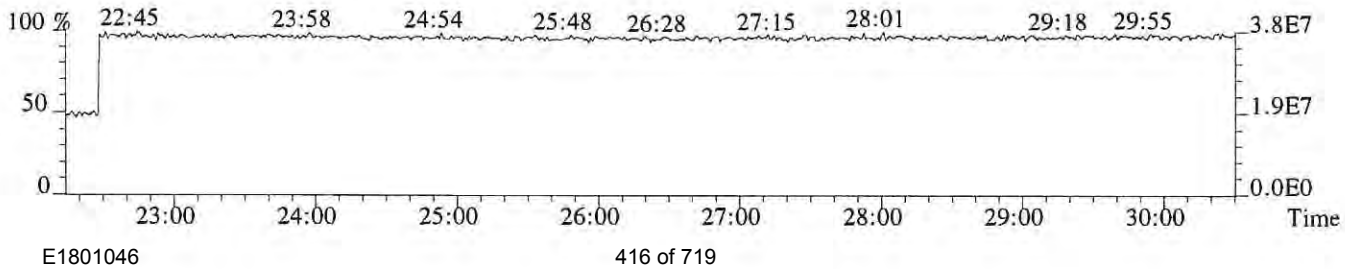
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6700.0,1.00%,F,T)



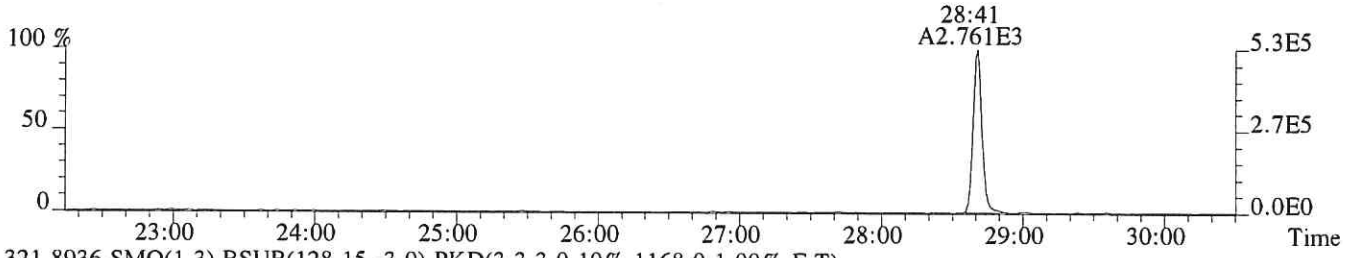
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



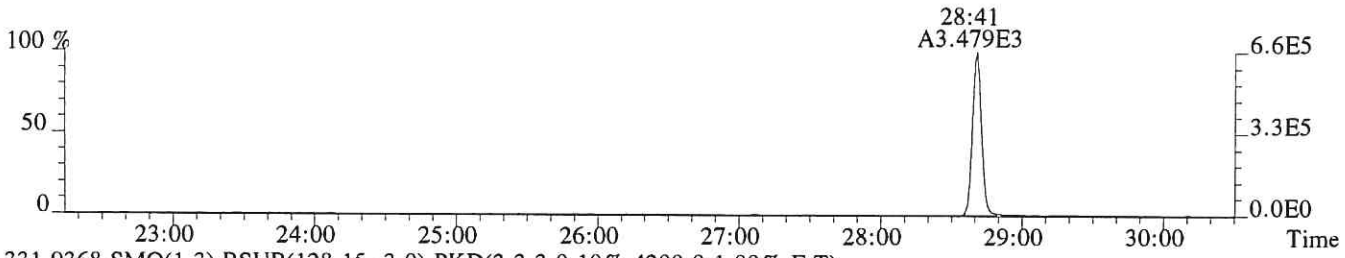
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



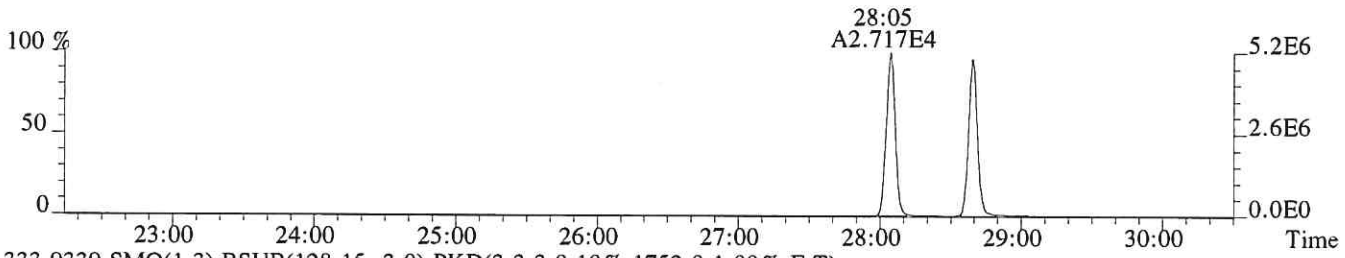
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



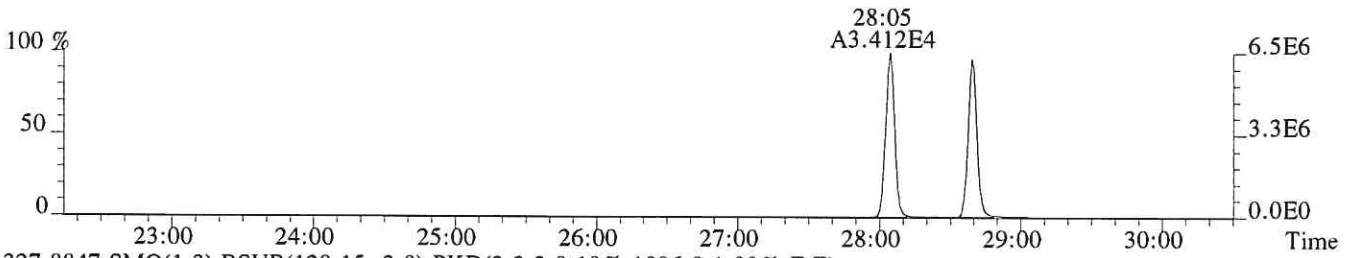
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



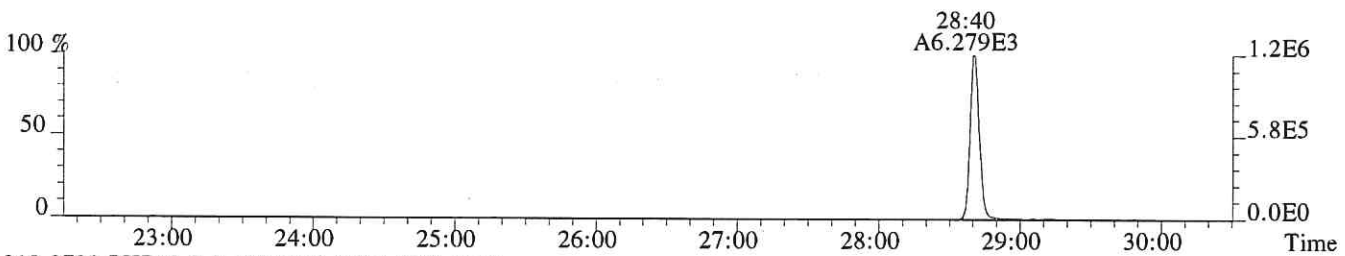
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



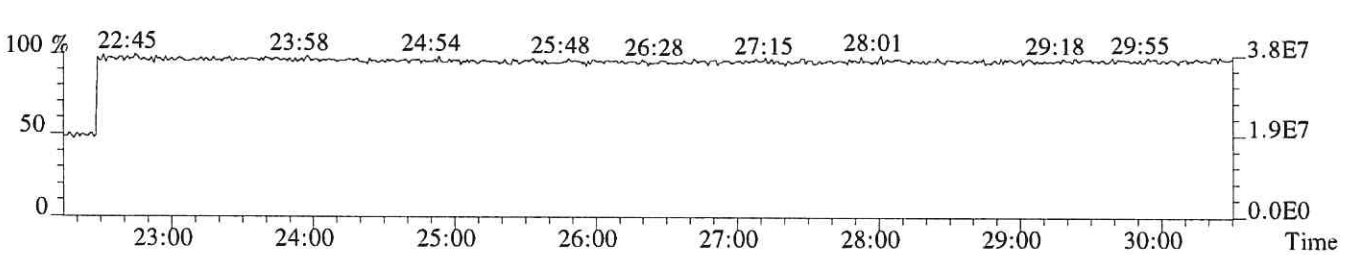
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



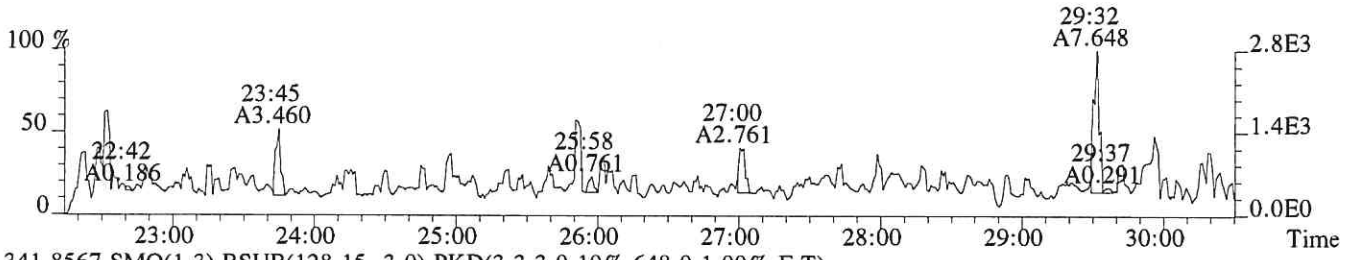
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



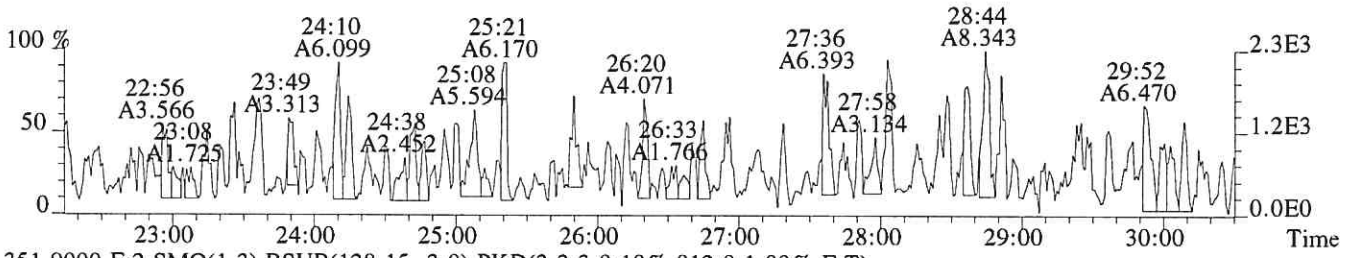
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



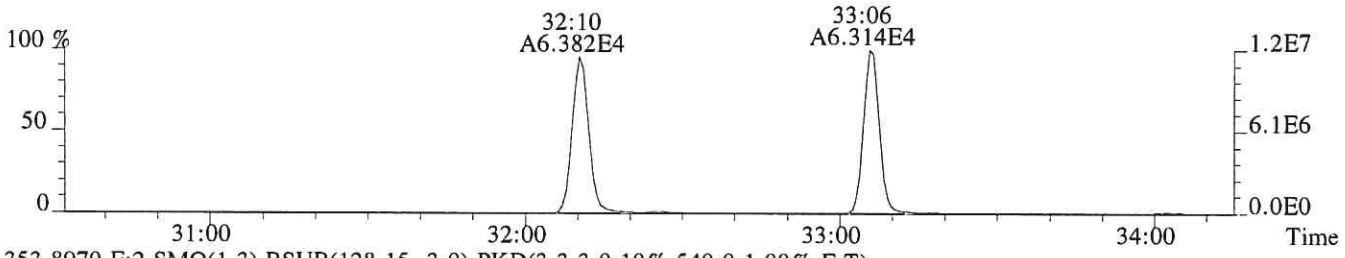
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



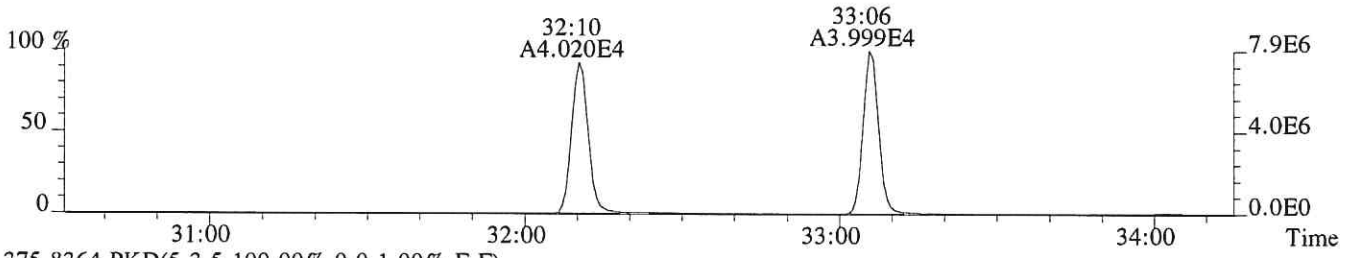
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



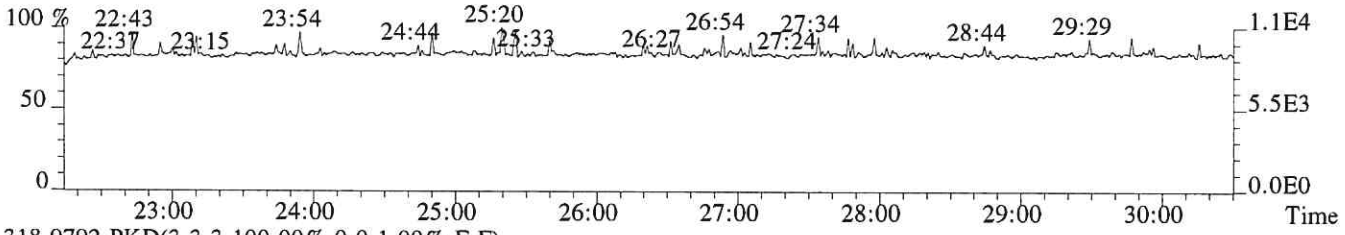
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



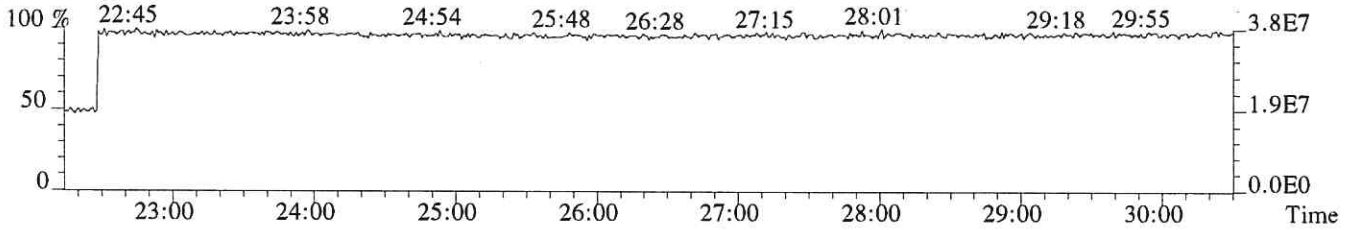
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



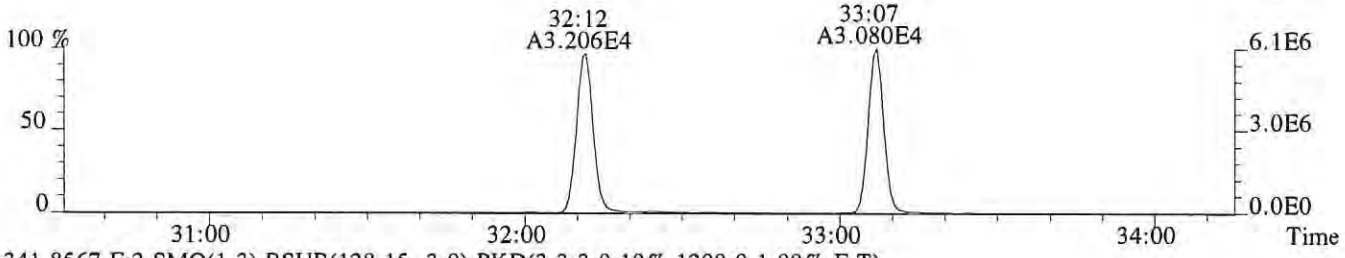
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



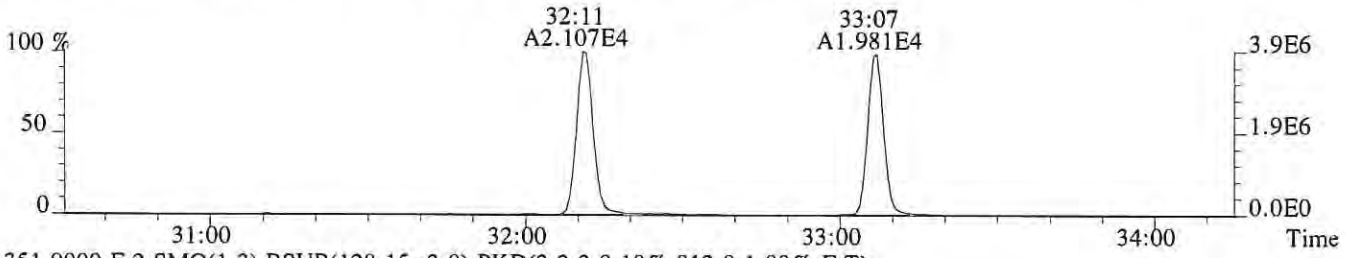
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



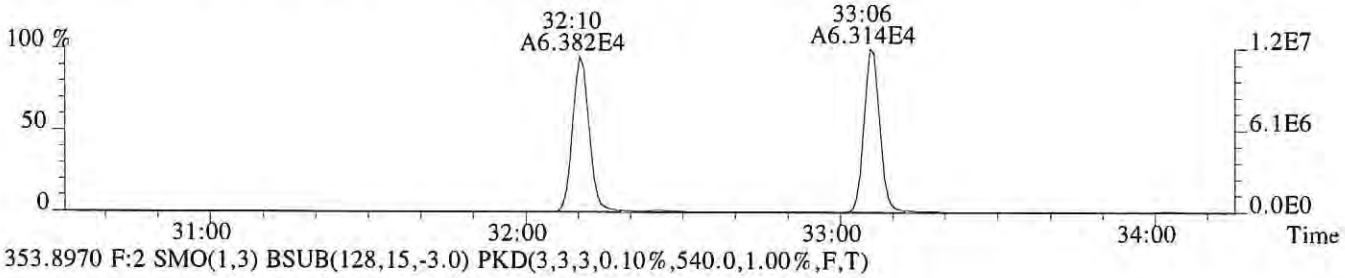
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



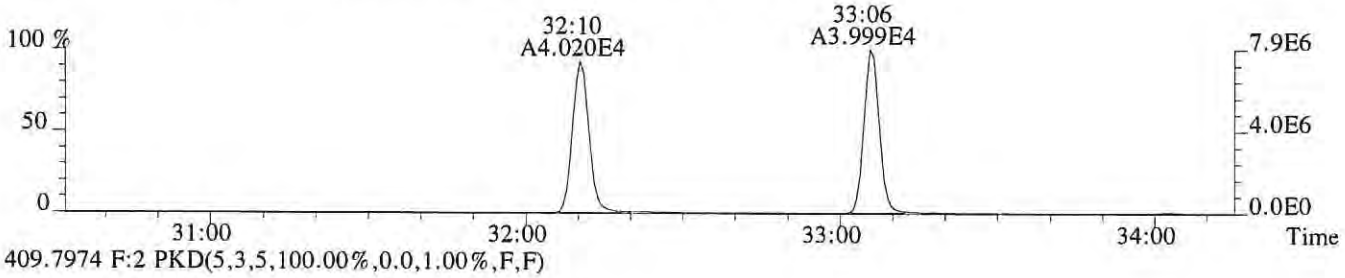
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



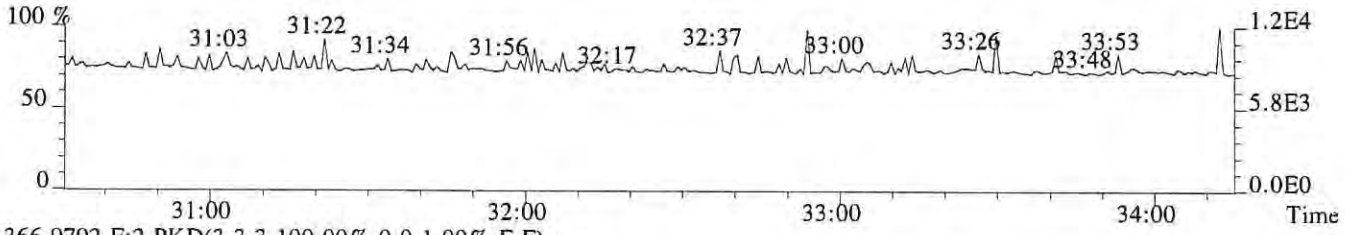
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



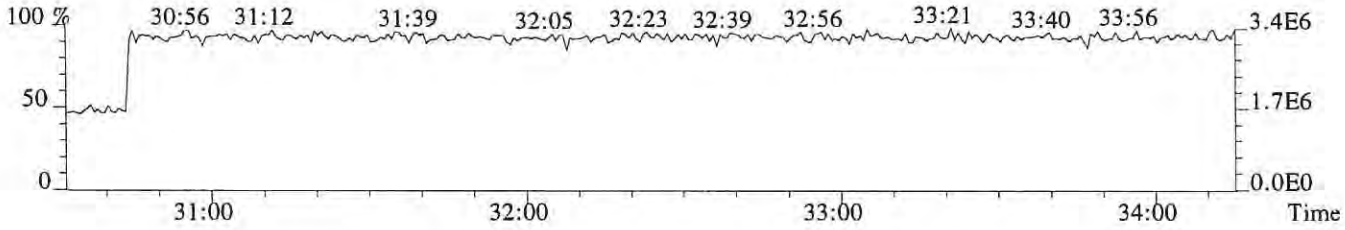
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



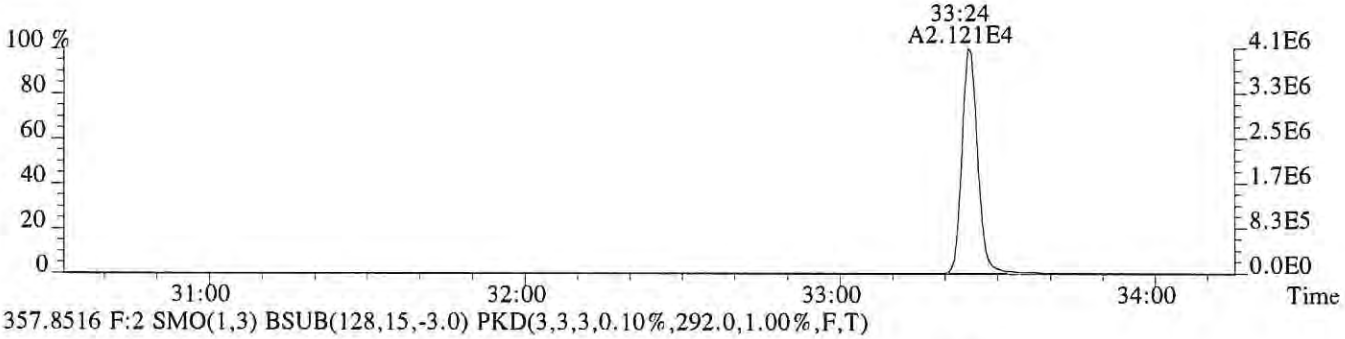
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



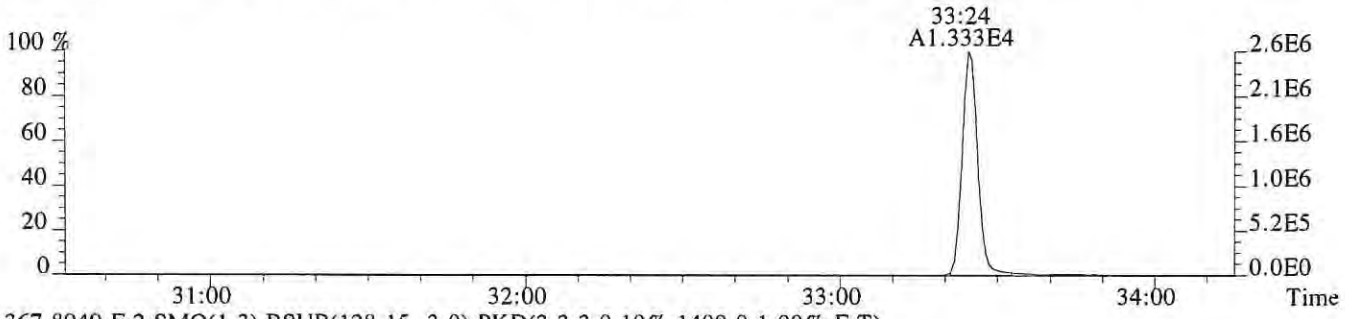
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



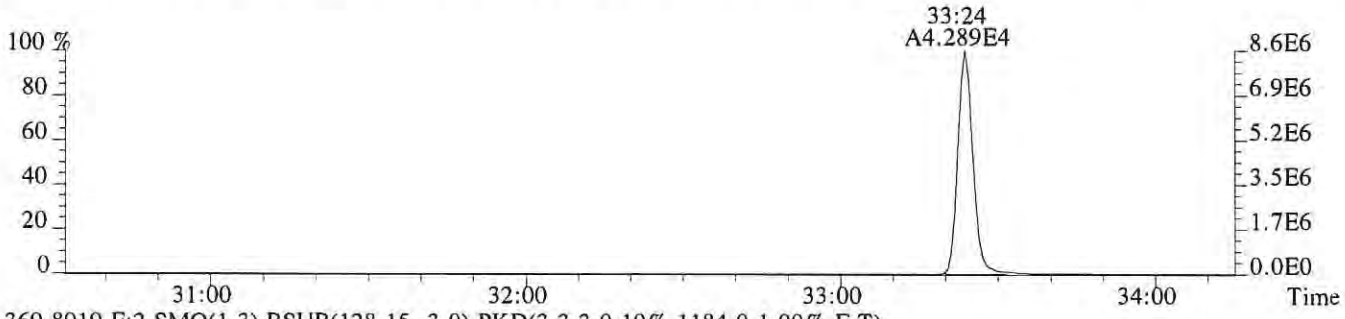
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



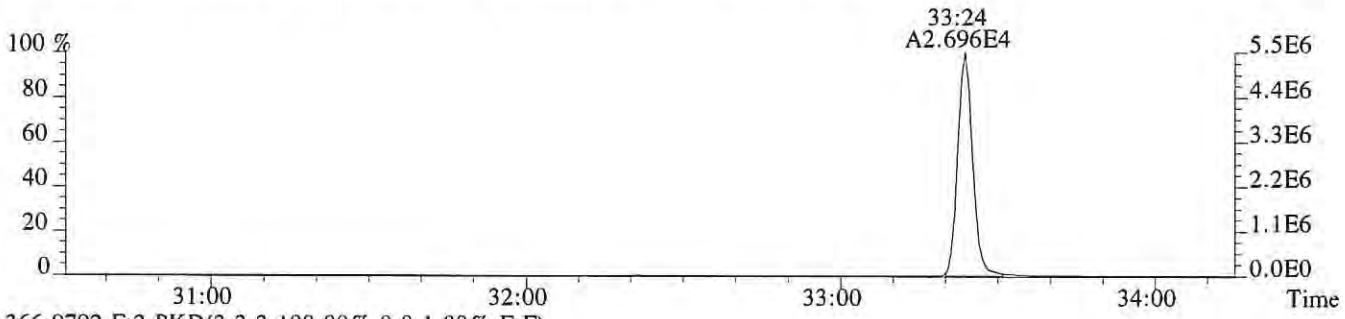
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



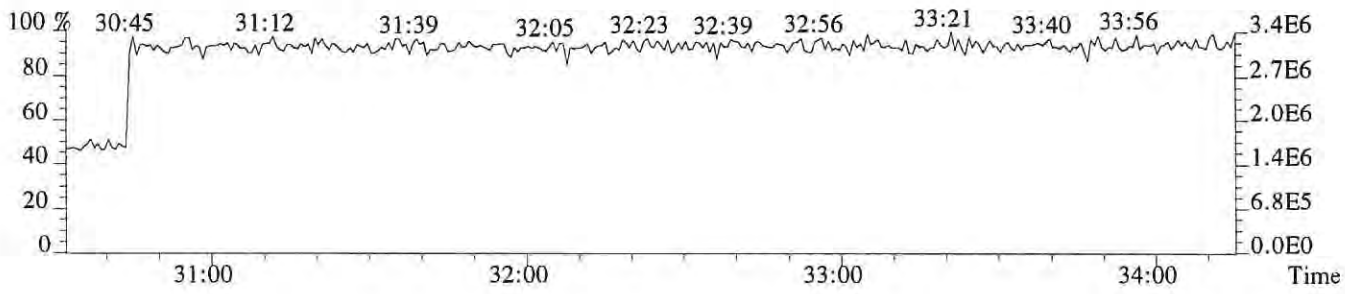
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



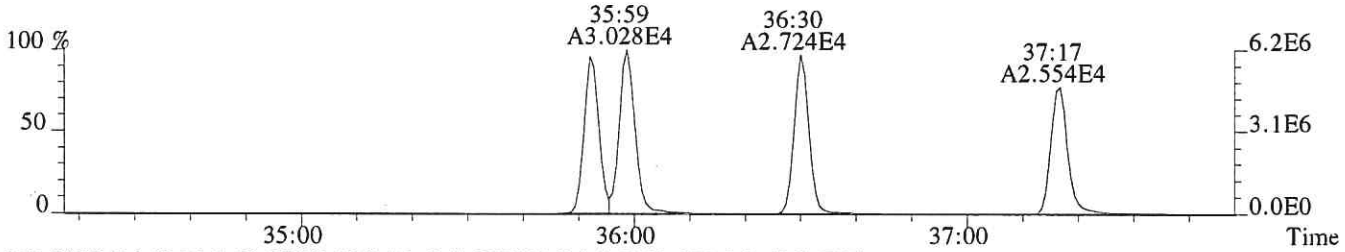
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



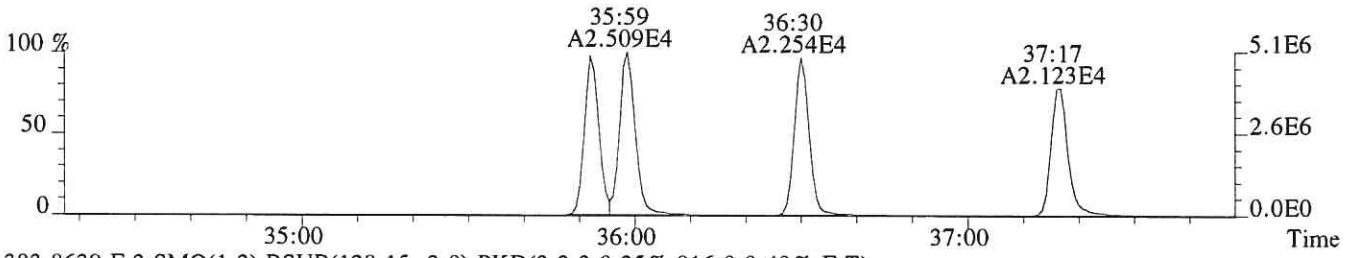
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



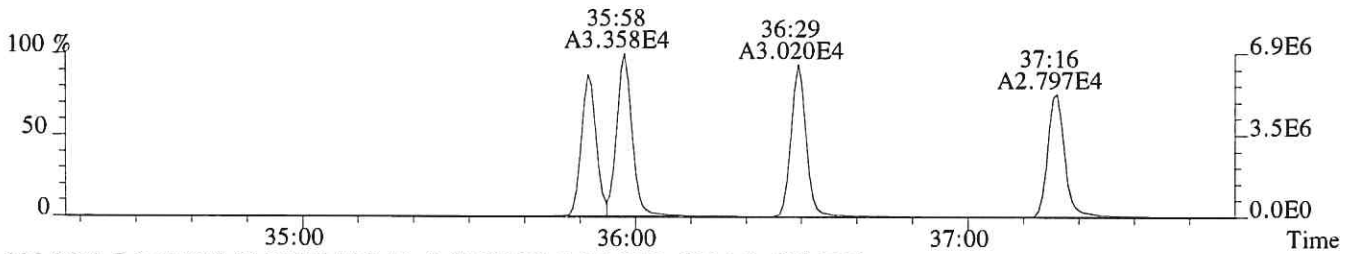
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



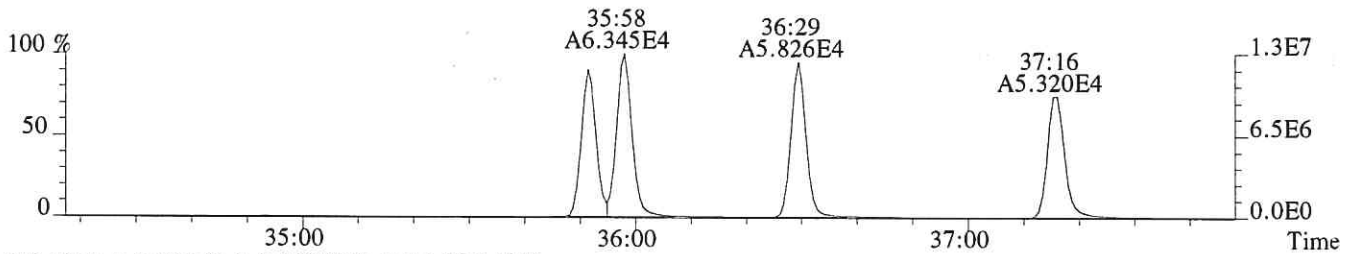
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



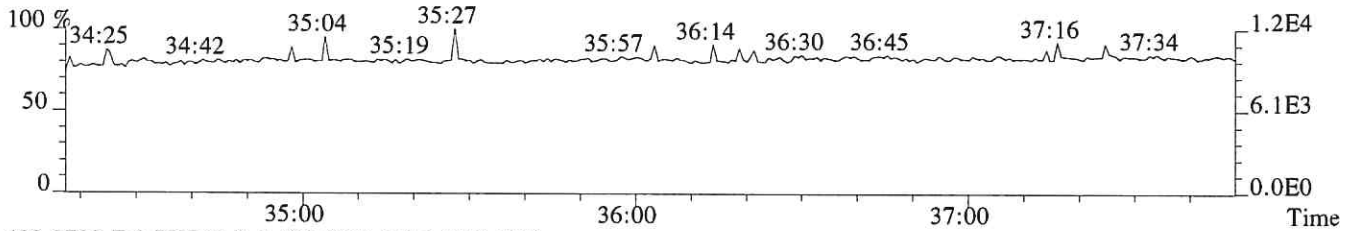
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



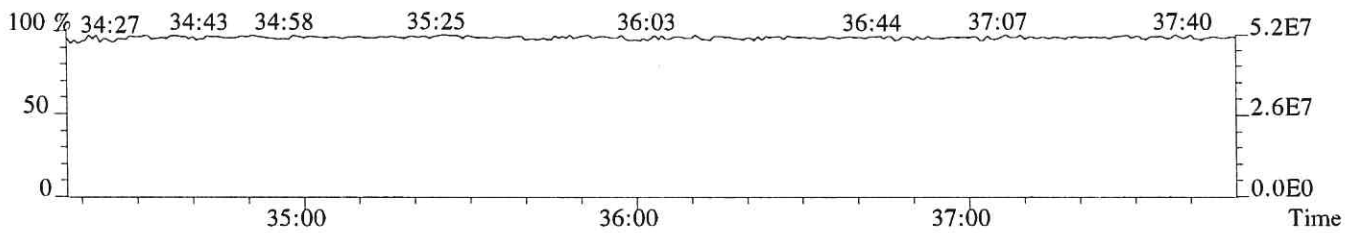
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



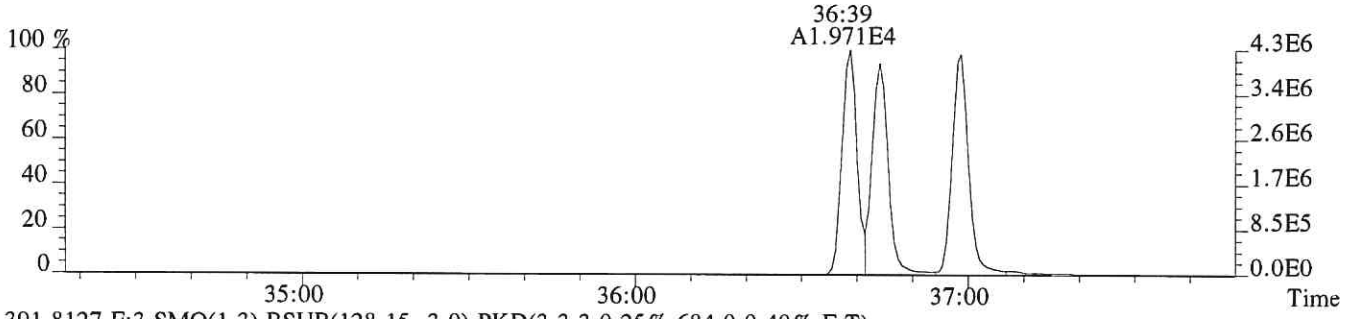
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



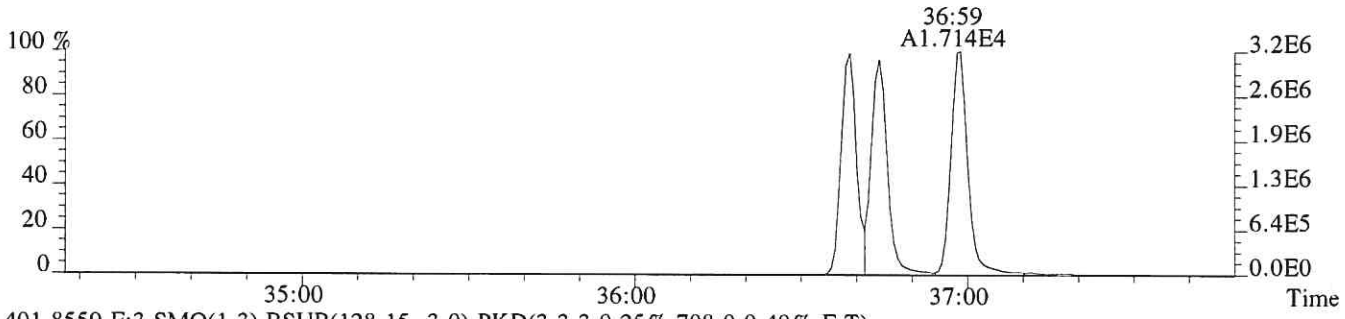
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



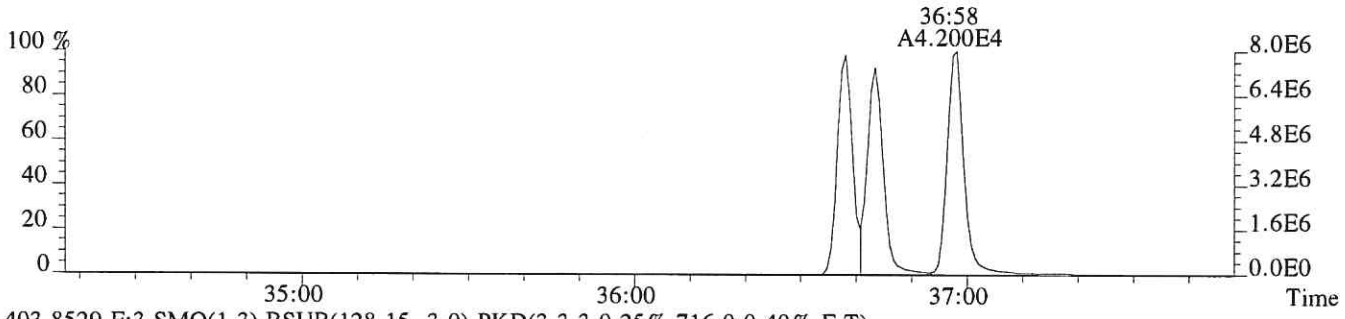
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



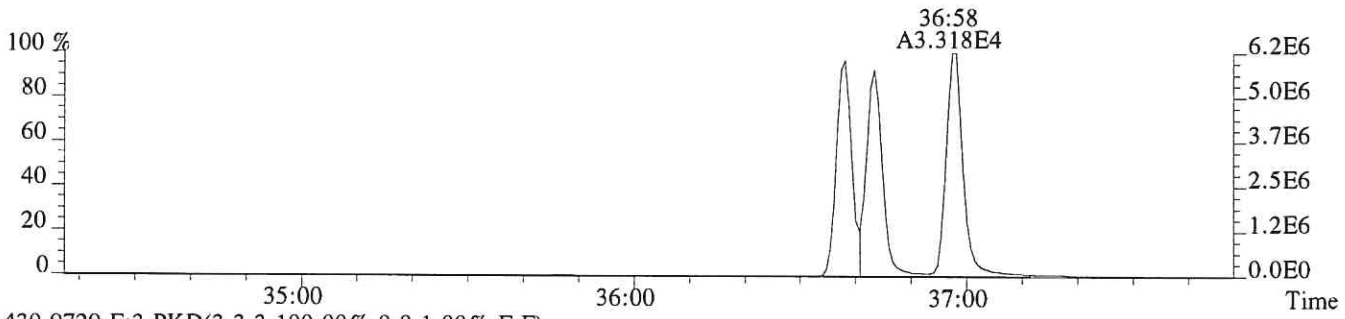
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



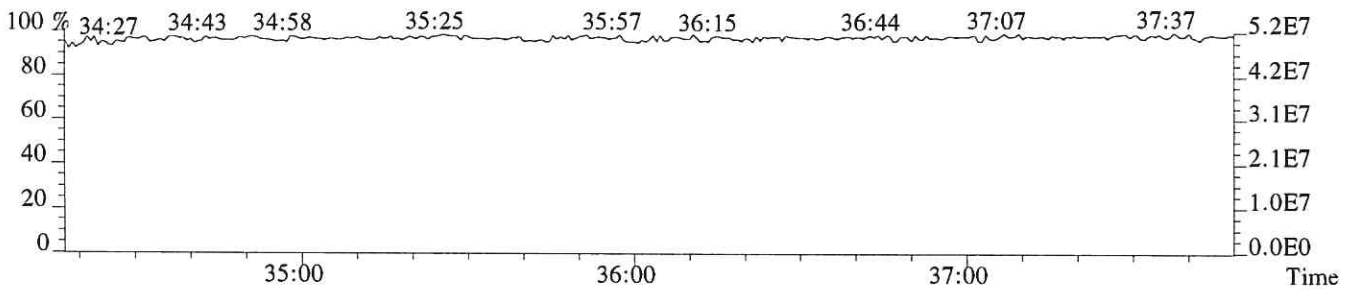
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



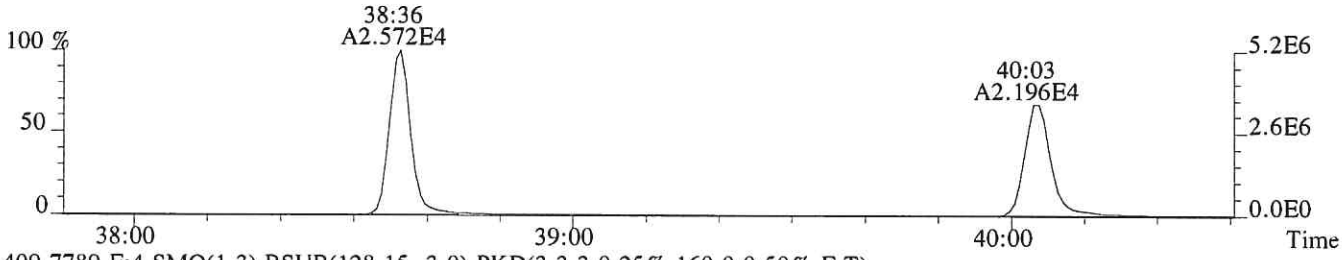
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



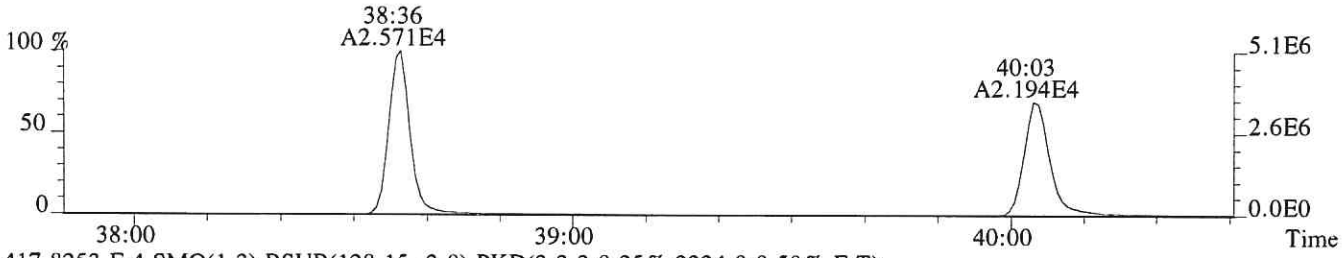
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



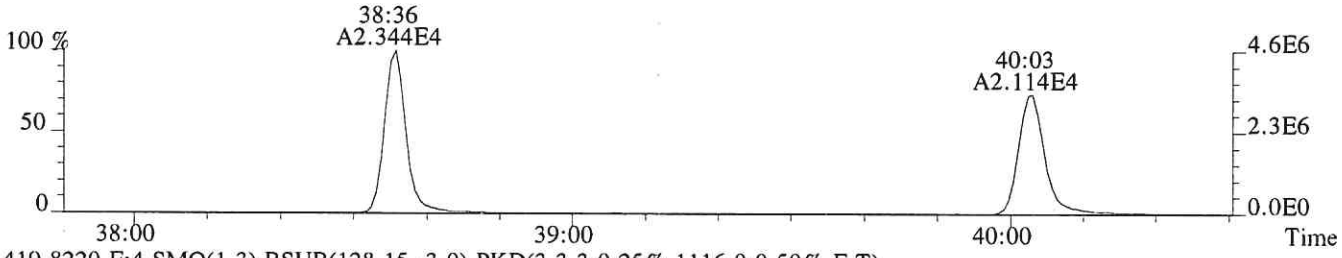
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



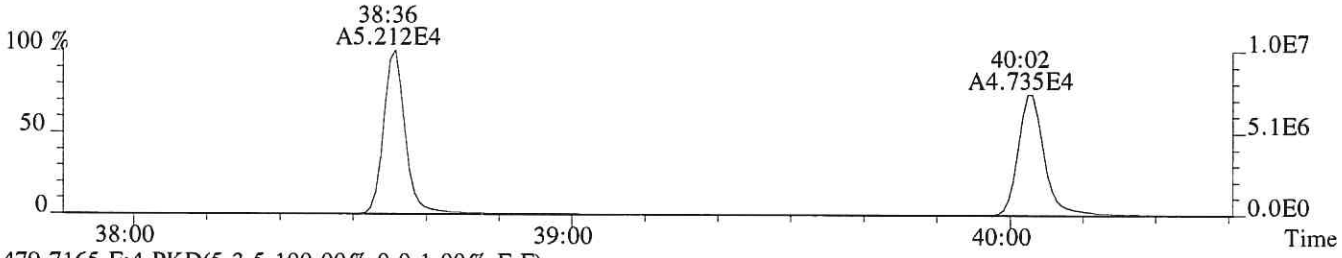
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



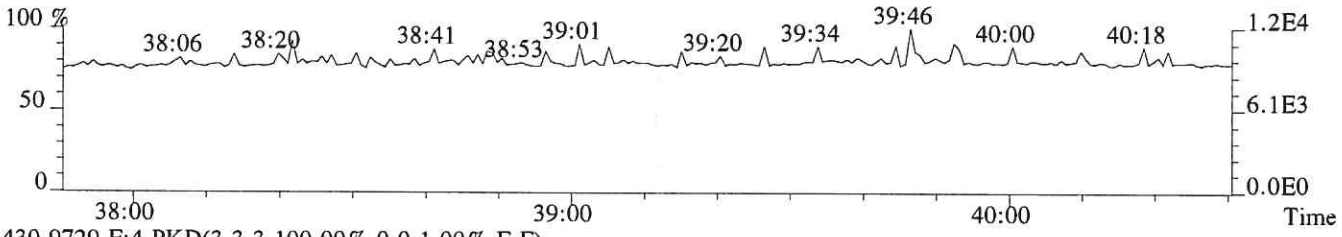
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



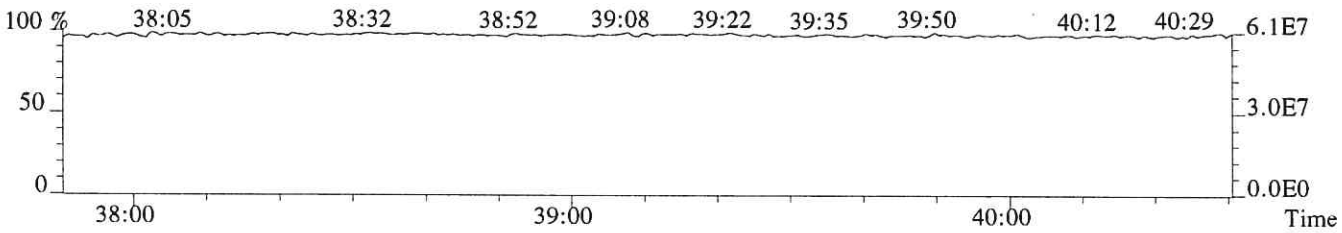
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)



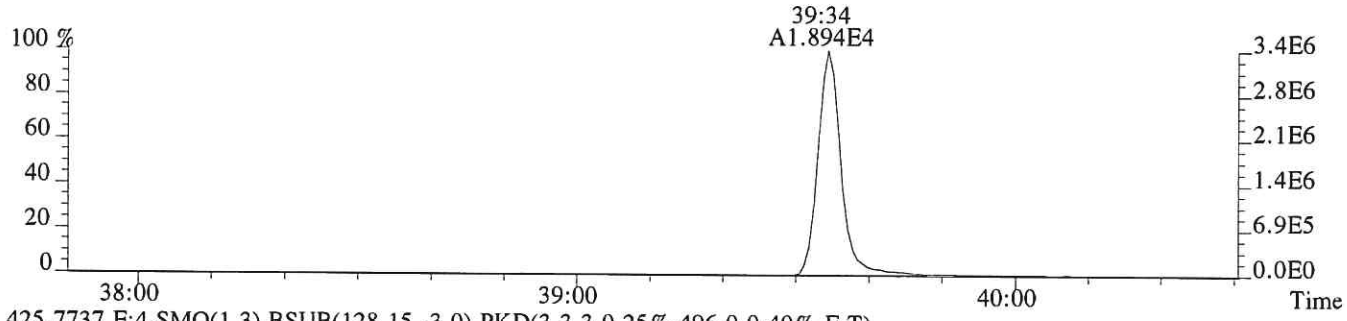
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



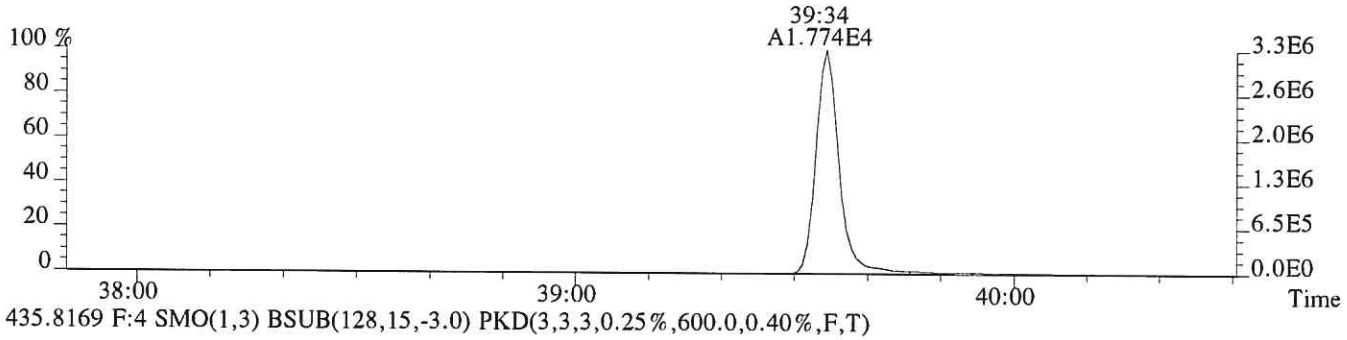
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



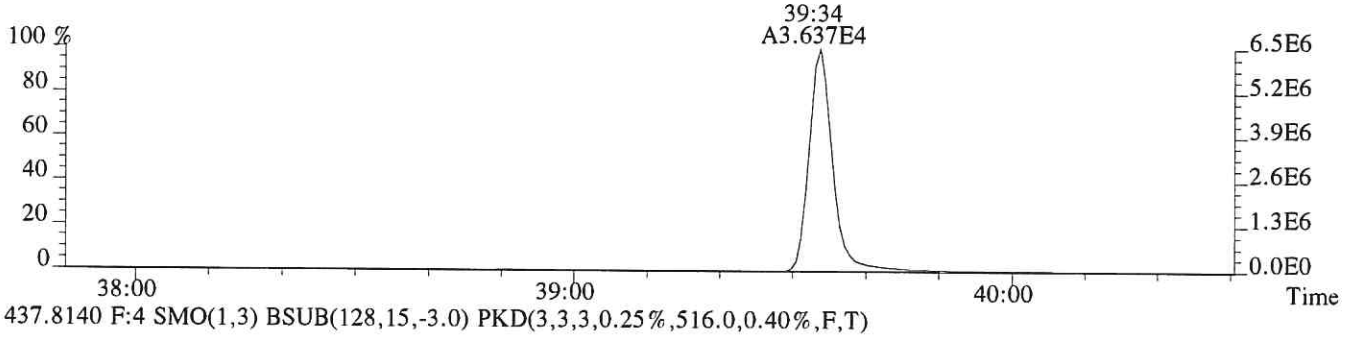
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



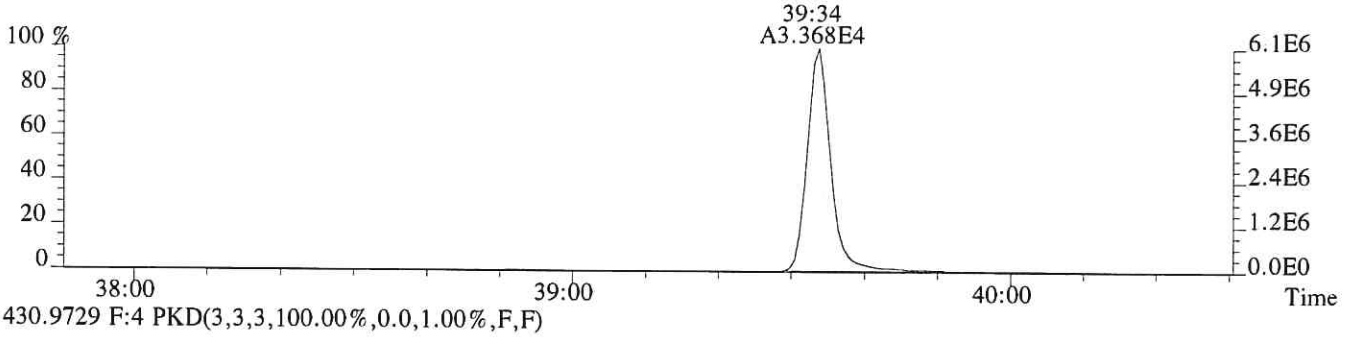
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



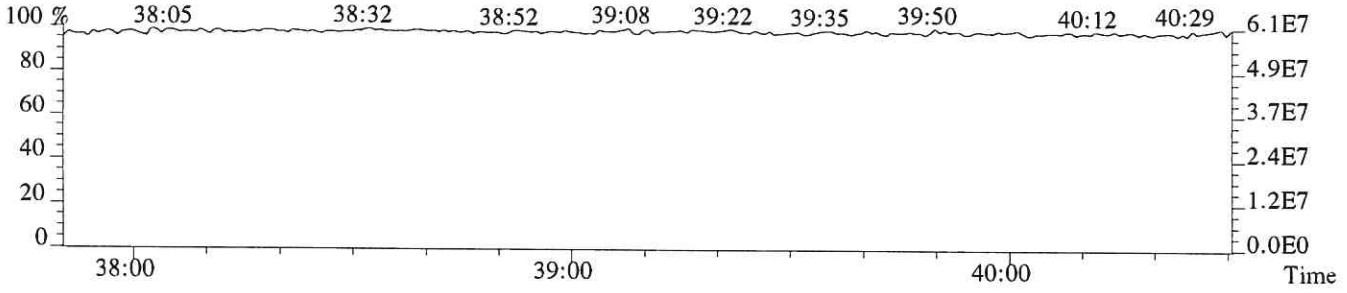
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



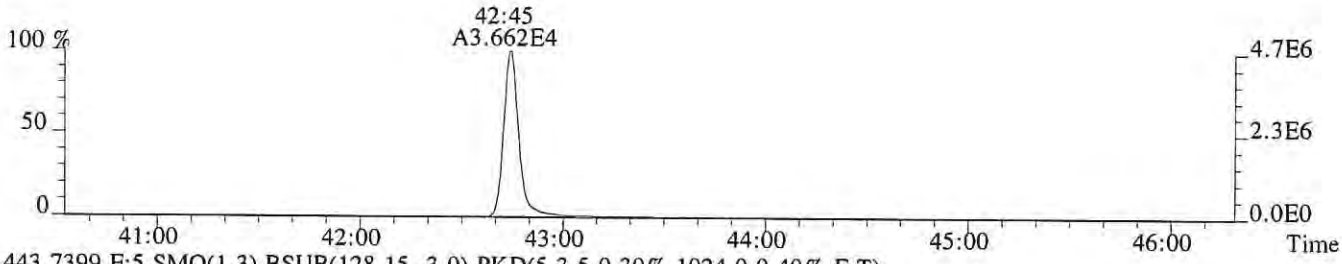
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



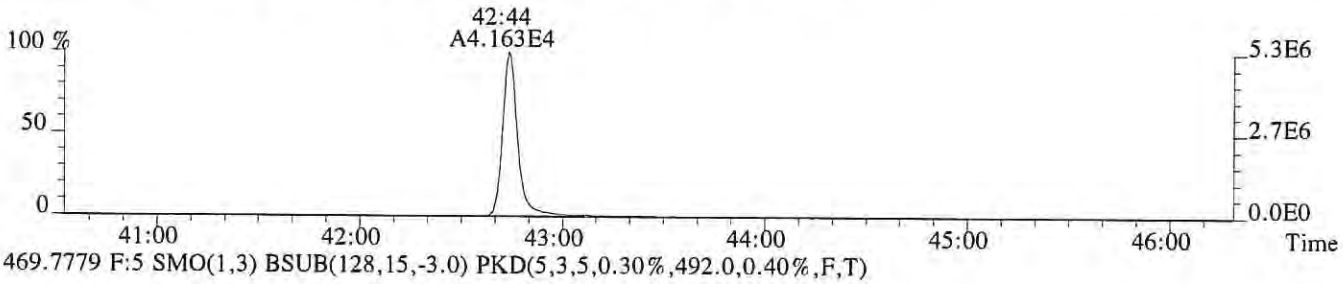
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



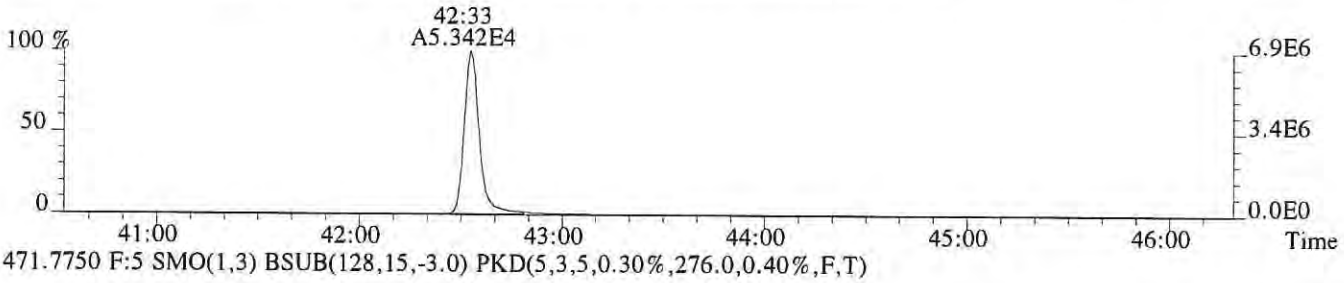
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



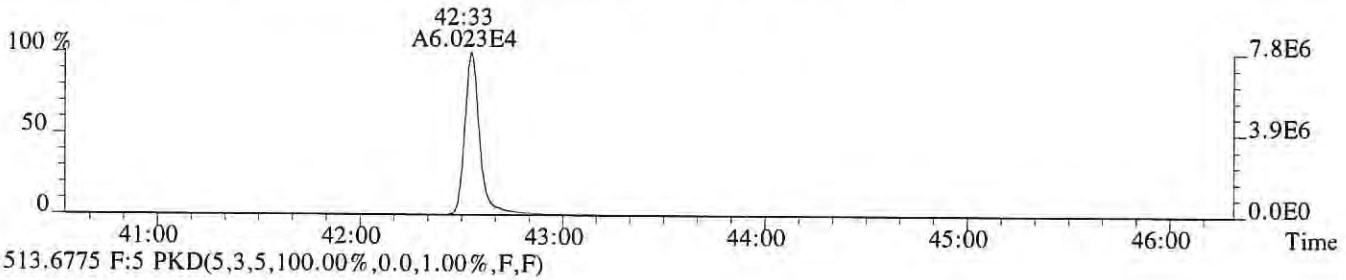
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



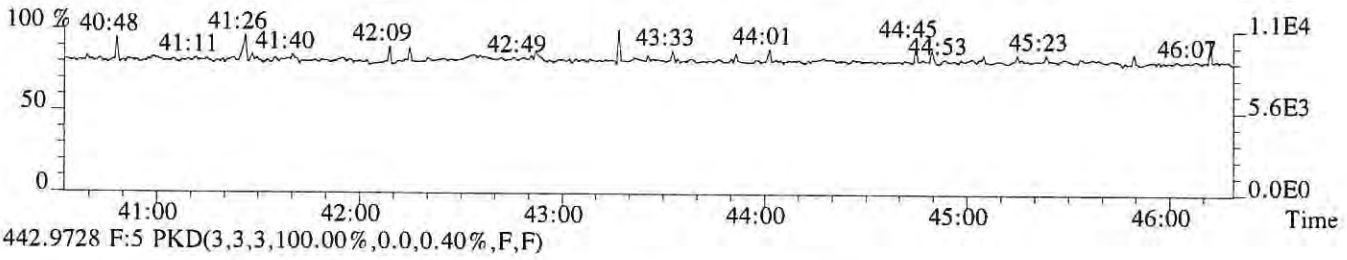
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



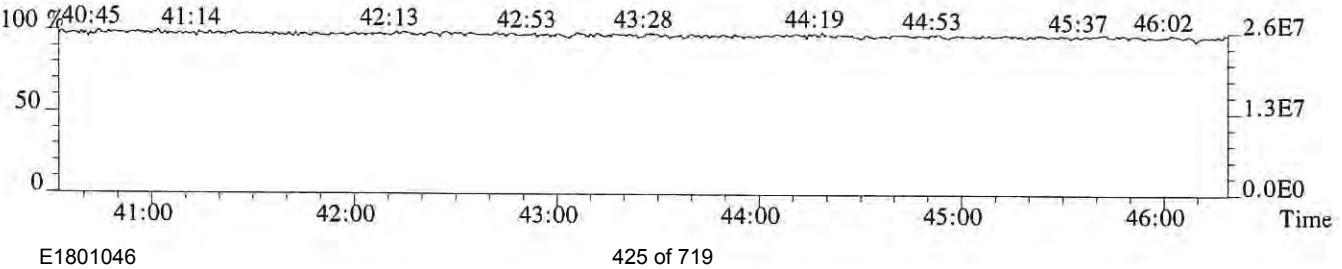
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



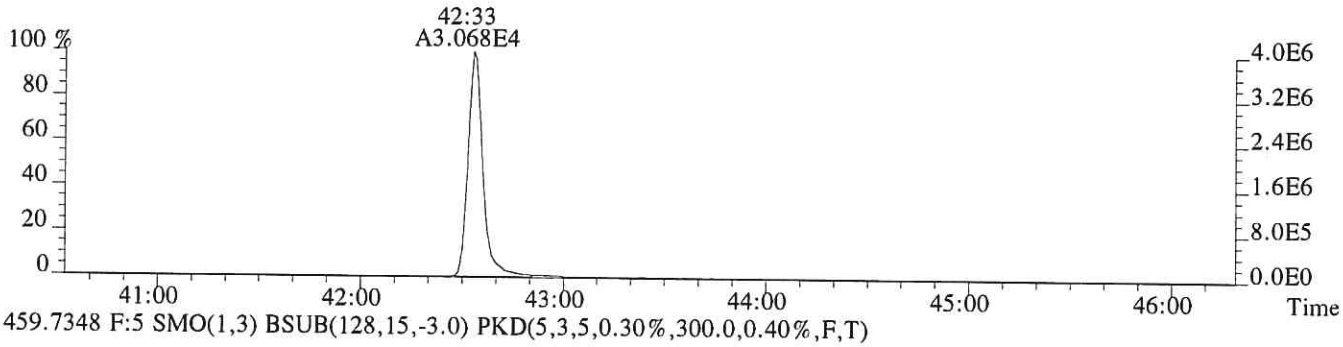
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



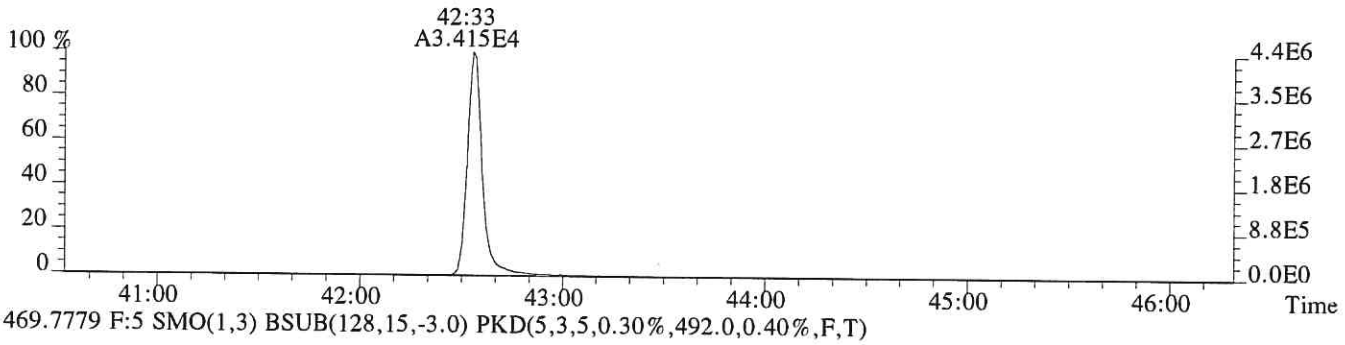
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



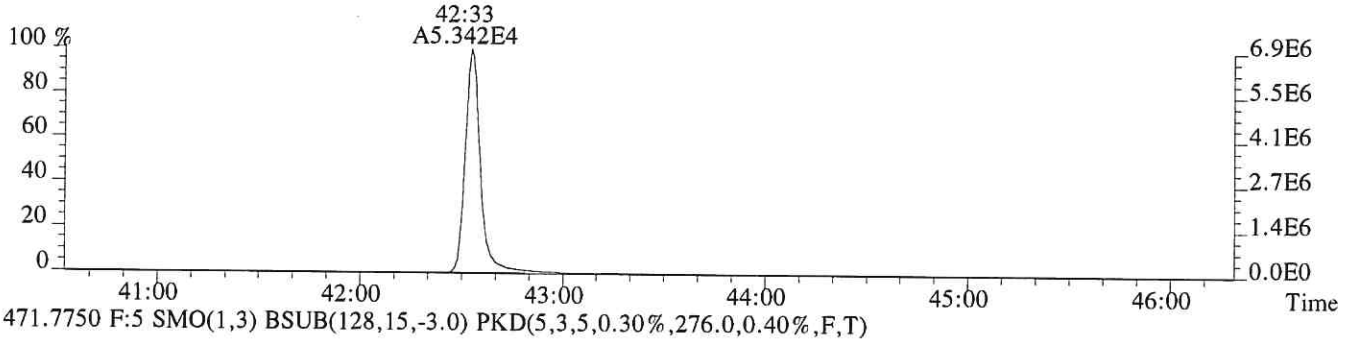
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



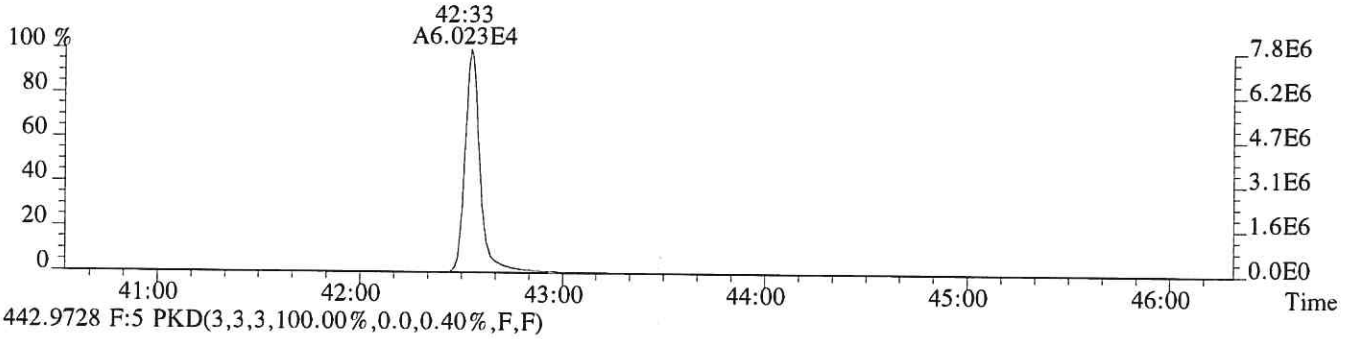
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



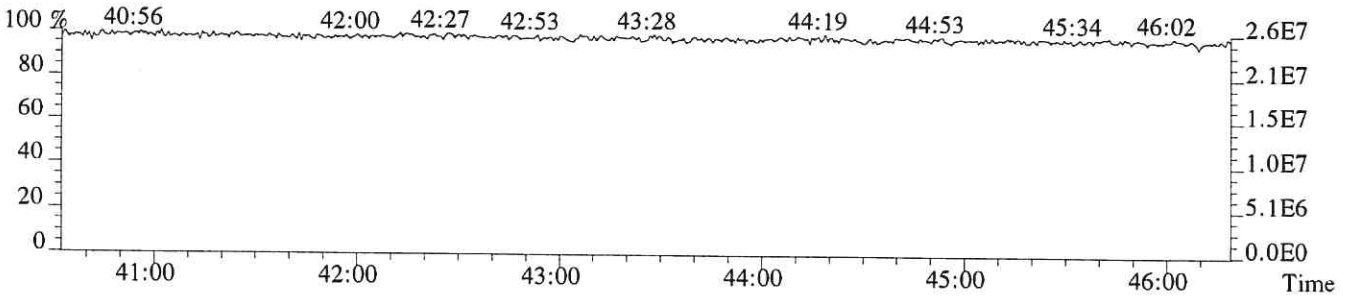
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519350

Date: 12/11/18

Circle one: (Beginning) / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519350	11-DEC-18	10:22:01
192977	WINDOW DEFINE	P519351	11-DEC-18	11:14:28
METHOD BLANK	EQ1800485-01	P519352	11-DEC-18	12:02:18
METHOD BLANK	EQ1800494-01	P519353	11-DEC-18	12:50:51
UU03601	K1811038-003	P519354	11-DEC-18	13:48:39
SL0572	E1801065-022	P519355	11-DEC-18	14:36:26
ASH 1 SPLP	E1801064-015	P519356	11-DEC-18	15:25:04
INFLUENT DIOXIN	E1801086-004	P519357	11-DEC-18	16:15:17
EFFLUENT DIOXIN	E1801086-005	P519358	11-DEC-18	17:05:24
3003147001	E1801087-001	P519359	11-DEC-18	17:53:12
SL0549	E1801055-004DL	P519360	11-DEC-18	18:41:50
FW0051	E1801046-007	P519361	11-DEC-18	19:30:28
FW008	E1801058-030	P519362	11-DEC-18	20:19:13
LCS	EQ1800488-02	P519363	11-DEC-18	21:07:51
DLCS	EQ1800488-03	P519364	11-DEC-18	21:56:19

Sample List Report — **MassLynx 4.1 SCN815 SCN795** — Page 1 of 1

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:00:37 Central Standard Time
Printed: Wednesday, December 12, 2018 07:00:39 Central Standard Time
Page Position (1, 1)

OPUS4: P519350res

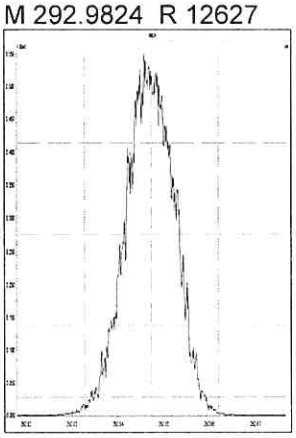
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	10:22	P519350	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	H2RSCheck 10:15
2	"	11:14	P519351	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	"	"
3	"	12:07	P519352	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3	"	"
4	"	12:50	P519353	MB	EQ1800494-01	EPA1613_ALS	Dioxin_ALS	Tray1:4	"	"
5	"	13:48	P519354	K1811038-003	K1811038-003	EPA1613_ALS	Dioxin_ALS	Tray1:5	"	"
6	"	14:36	P519355	E1801065-022	E1801065-022	EPA1613_ALS	Dioxin_ALS	Tray1:6	"	"
7	"	15:25	P519356	E1801064-015	E1801064-015	EPA1613_ALS	Dioxin_ALS	Tray1:7	"	"
8	"	16:15	P519357	E1801086-004	E1801086-004	EPA1613_ALS	Dioxin_ALS	Tray1:8	"	"
9	"	17:05	P519358	E1801086-005	E1801086-005	EPA1613_ALS	Dioxin_ALS	Tray1:9	"	"
10	"	17:53	P519359	E1801087-001	E1801087-001	EPA1613_ALS	Dioxin_ALS	Tray1:10	"	"
11	"	18:41	P519360	E1801055-004DL	E1801055-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11	"	"
12	"	19:30	P519361	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:12	"	"
13	"	20:19	P519362	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:13	"	"
14	"	21:07	P519363	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14	"	"
15	"	21:56	P519364	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	"	"
16	"	22:53	P519365	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	"	H2RS check 22:53
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/12/18

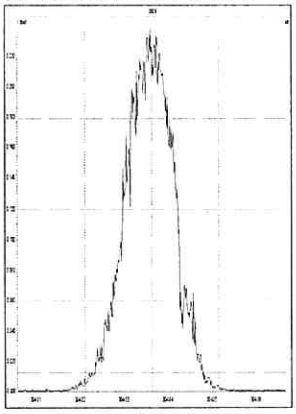
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:52 Central Standard Time

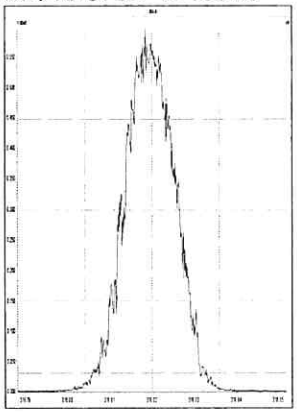
M 292.9824 R 12627



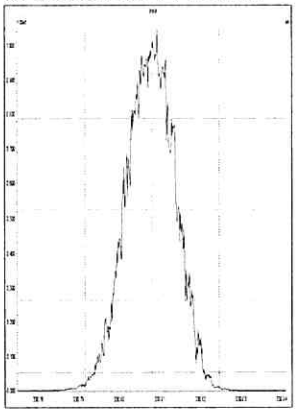
M 304.9824 R 12381



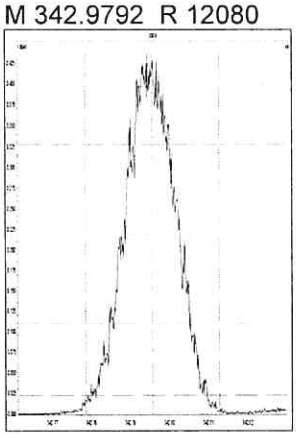
M 318.9792 R 13300



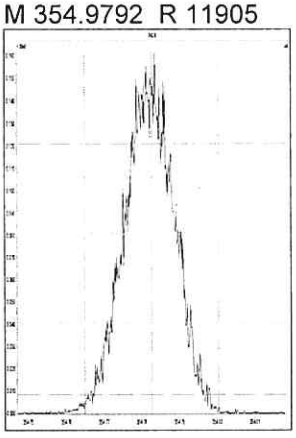
M 330.9792 R 12135



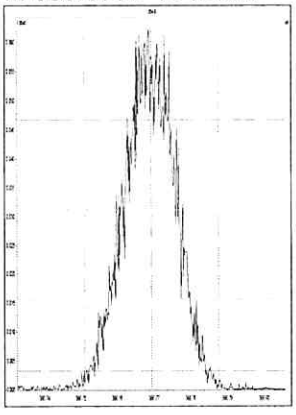
M 342.9792 R 12080



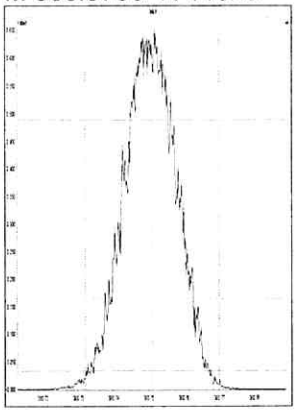
M 354.9792 R 11905



M 366.9792 R 12080



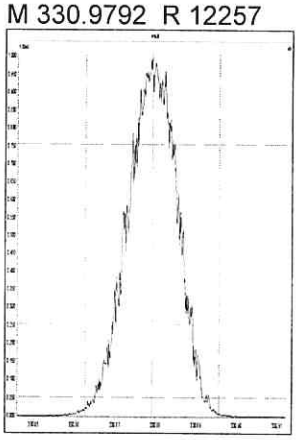
M 380.9760 R 11629



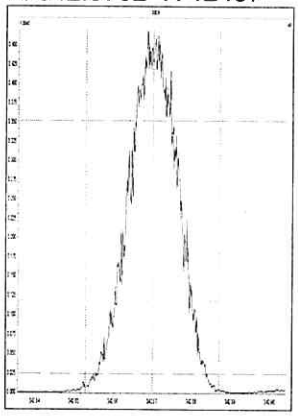
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:16:35 Central Standard Time

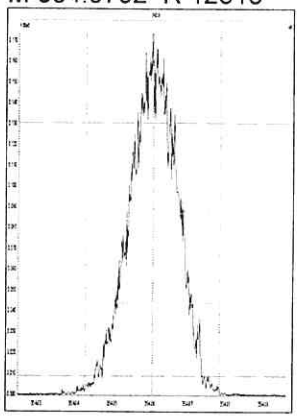
M 330.9792 R 12257



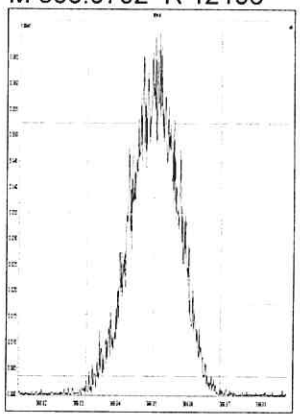
M 342.9792 R 12437



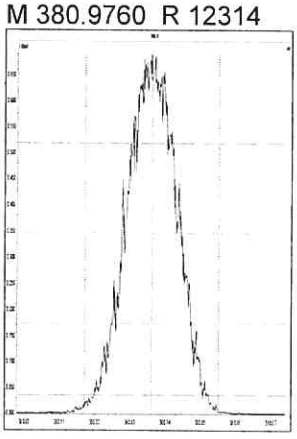
M 354.9792 R 12318



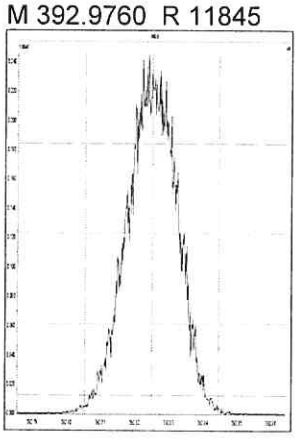
M 366.9792 R 12196



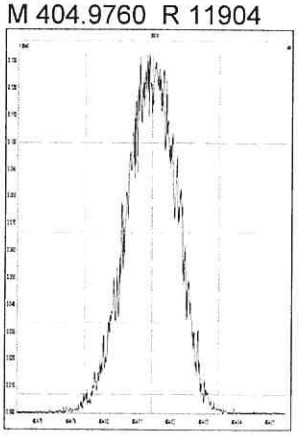
M 380.9760 R 12314



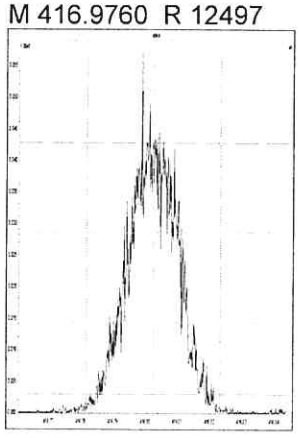
M 392.9760 R 11845



M 404.9760 R 11904



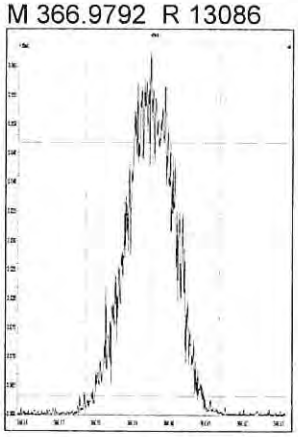
M 416.9760 R 12497



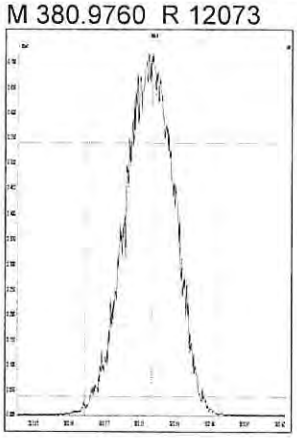
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:19 Central Standard Time

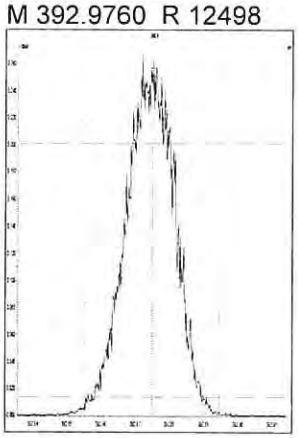
M 366.9792 R 13086



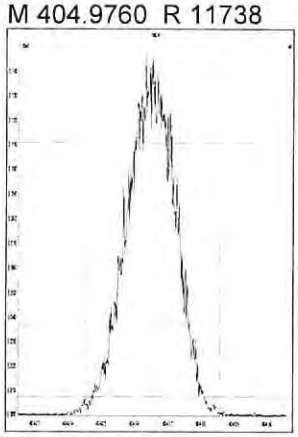
M 380.9760 R 12073



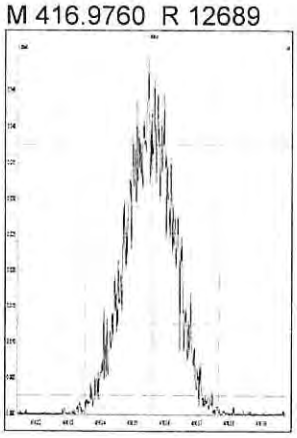
M 392.9760 R 12498



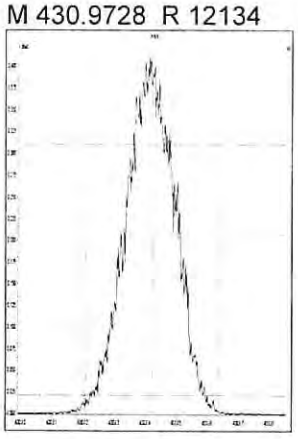
M 404.9760 R 11738



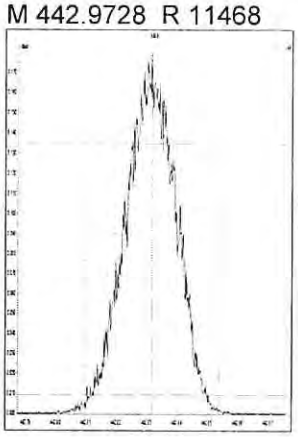
M 416.9760 R 12689



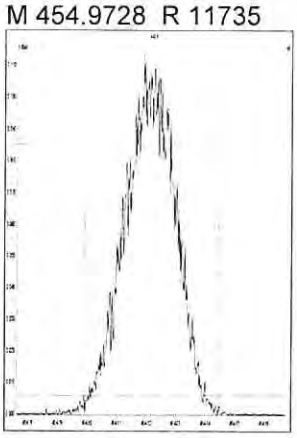
M 430.9728 R 12134



M 442.9728 R 11468



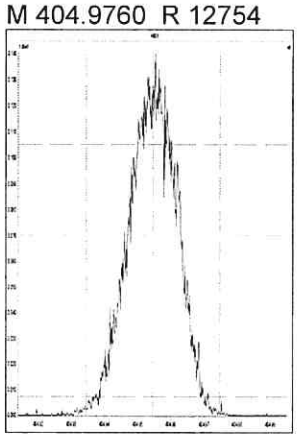
M 454.9728 R 11735



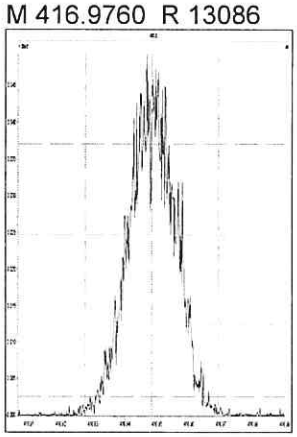
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:58 Central Standard Time

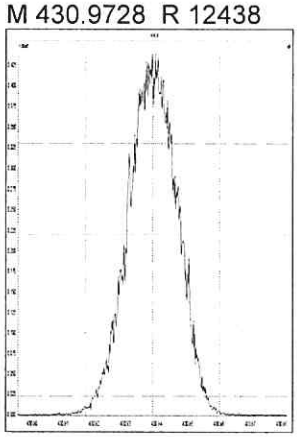
M 404.9760 R 12754



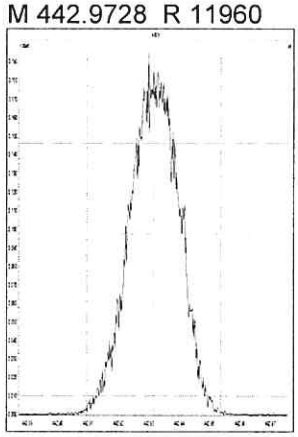
M 416.9760 R 13086



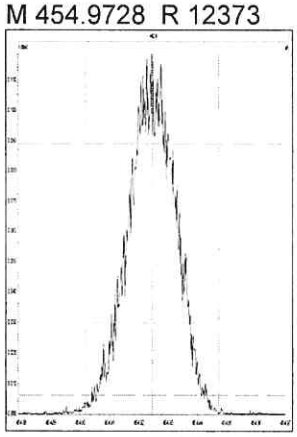
M 430.9728 R 12438



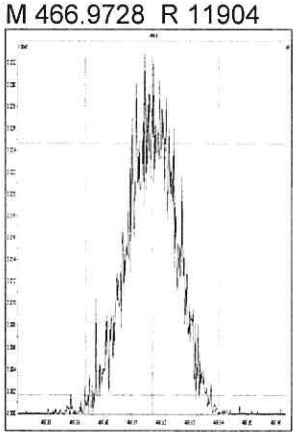
M 442.9728 R 11960



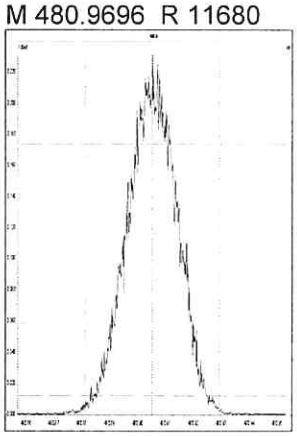
M 454.9728 R 12373



M 466.9728 R 11904



M 480.9696 R 11680



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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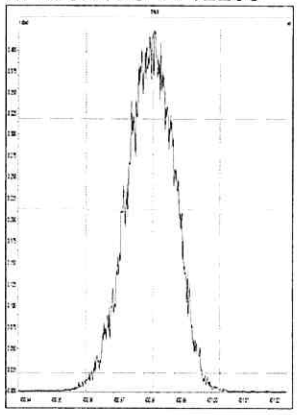
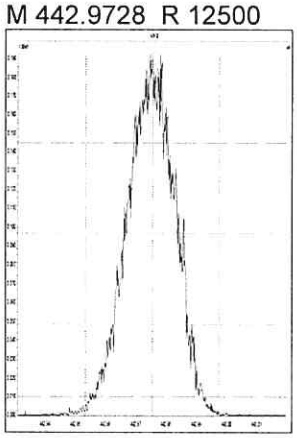
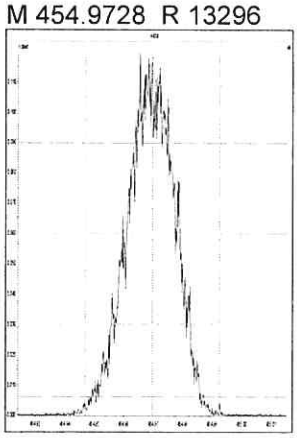
M 430.9728 R 12256



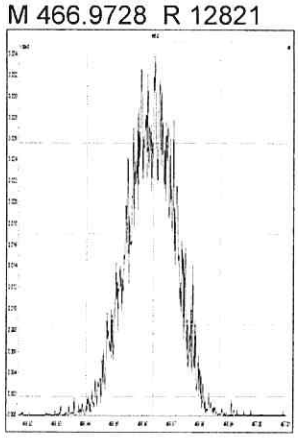
M 442.9728 R 12500



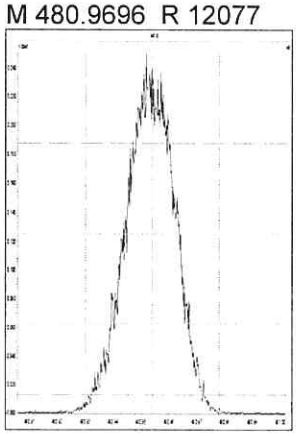
M 454.9728 R 13296



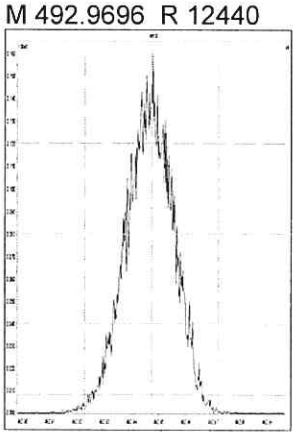
M 466.9728 R 12821



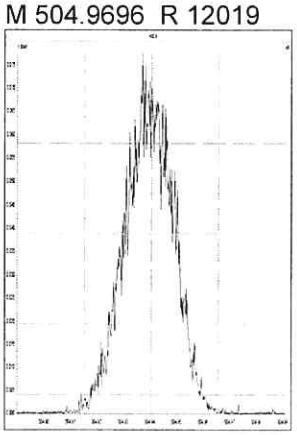
M 480.9696 R 12077



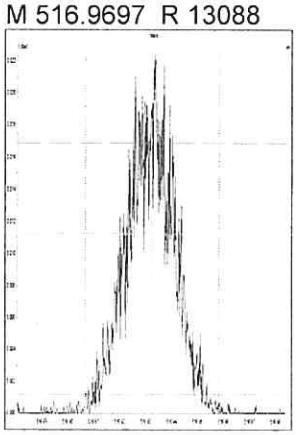
M 492.9696 R 12440



M 504.9696 R 12019



M 516.9697 R 13088



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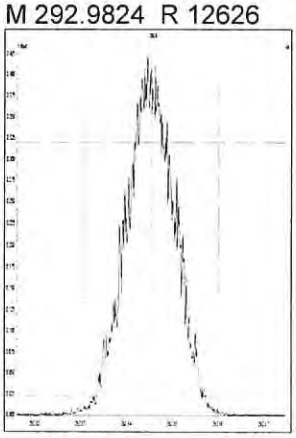
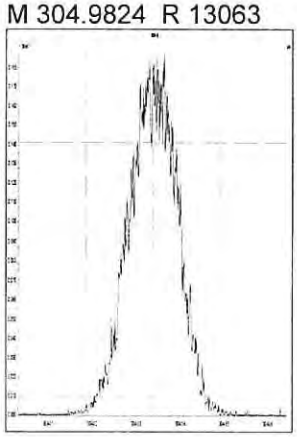
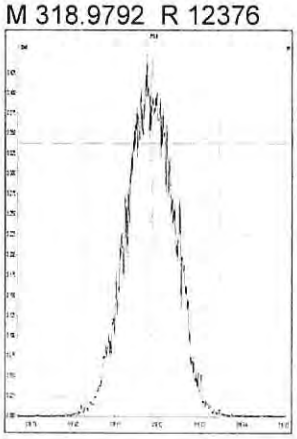
M 292.9824 R 12626



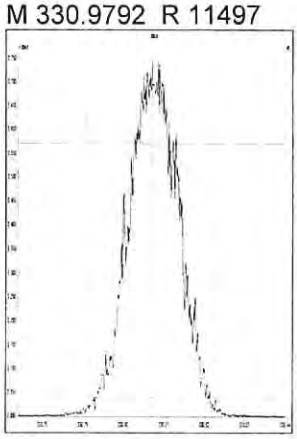
M 304.9824 R 13063



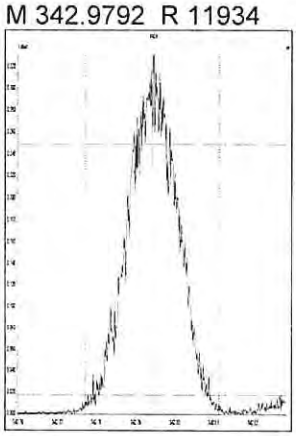
M 318.9792 R 12376



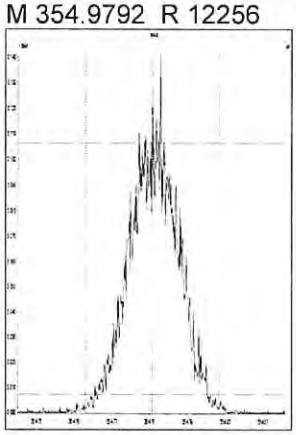
M 330.9792 R 11497



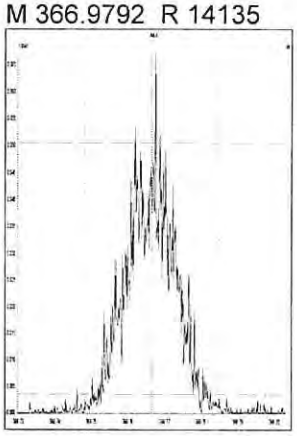
M 342.9792 R 11934



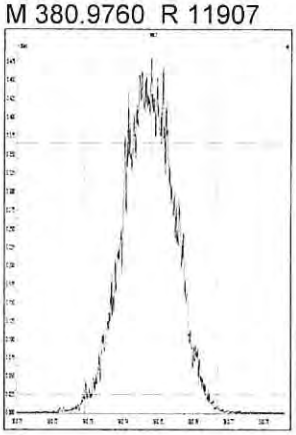
M 354.9792 R 12256



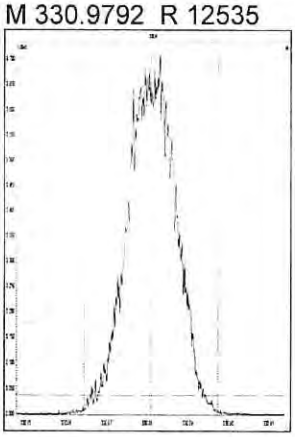
M 366.9792 R 14135



M 380.9760 R 11907



M 330.9792 R 12535



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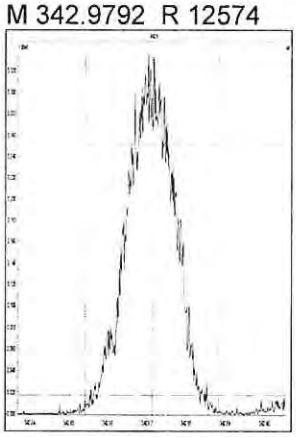
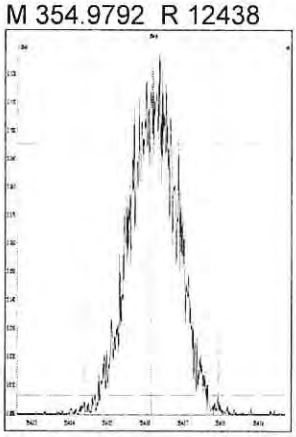


M 354.9792 R 12438



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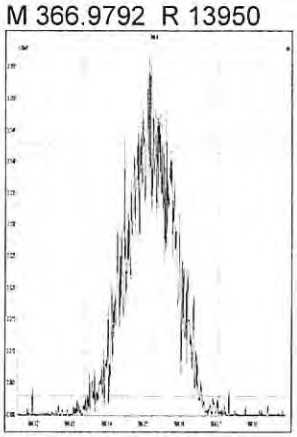
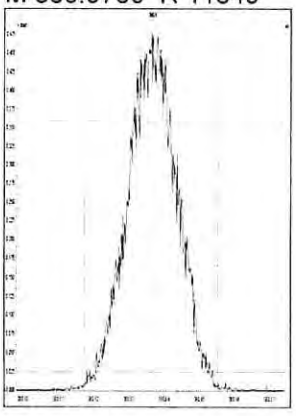
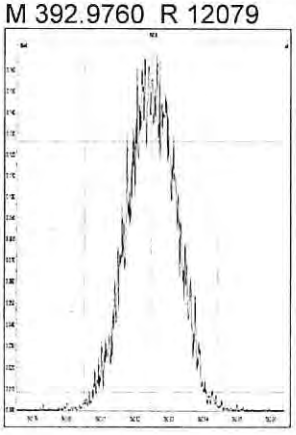


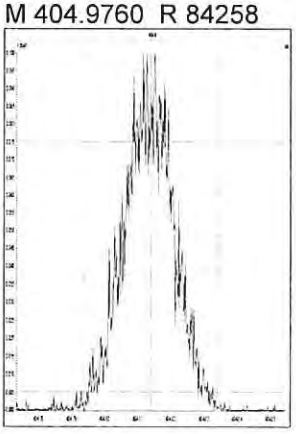
M 380.9760 R 11849



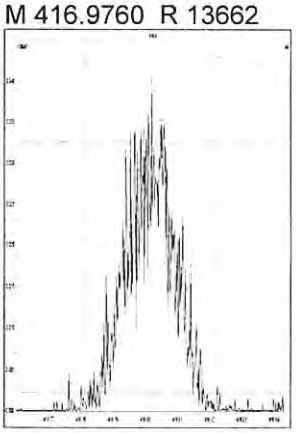
M 392.9760 R 12079



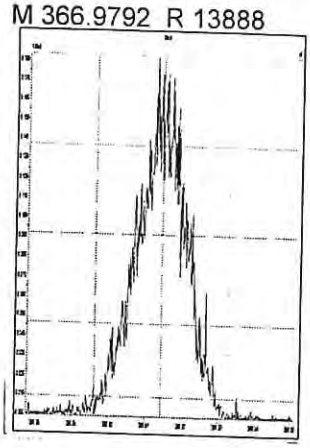
M 404.9760 R 84258



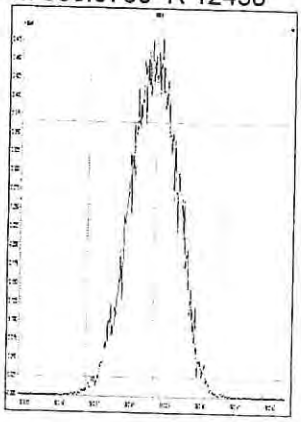
M 416.9760 R 13662



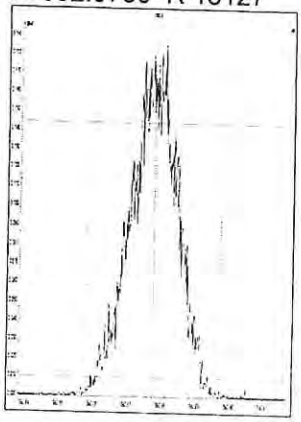
M 366.9792 R 13888



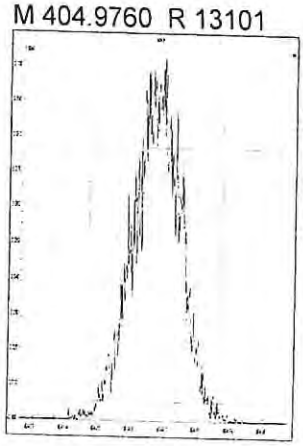
M 380.9760 R 12438



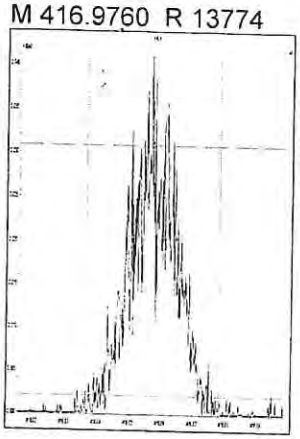
M 392.9760 R 13127



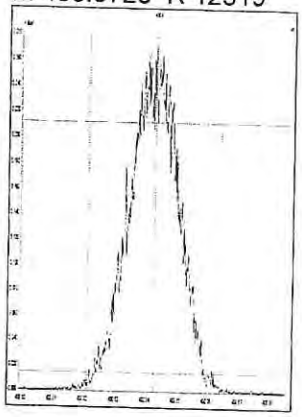
M 404.9760 R 13101



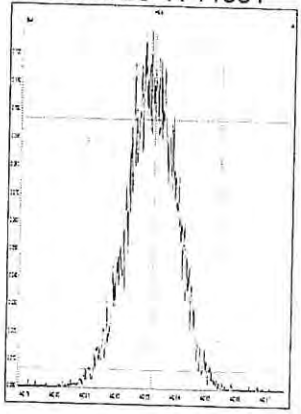
M 416.9760 R 13774



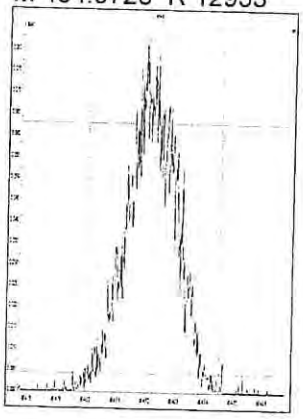
M 430.9728 R 12319



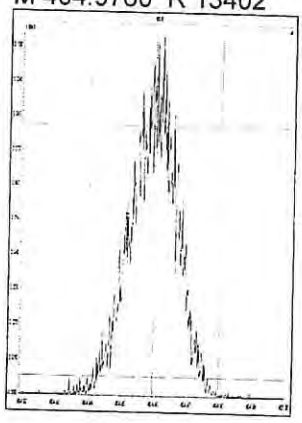
M 442.9728 R 11881



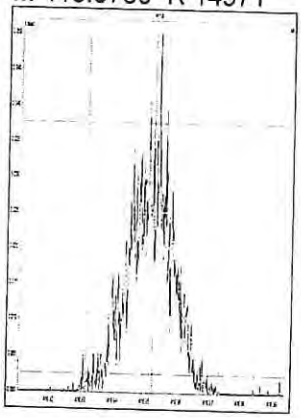
M 454.9728 R 12953



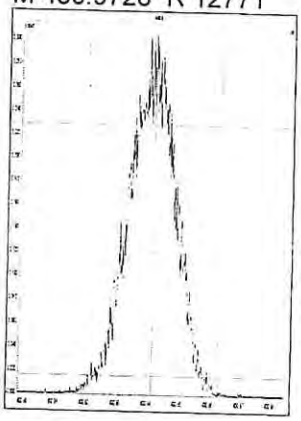
M 404.9760 R 13402



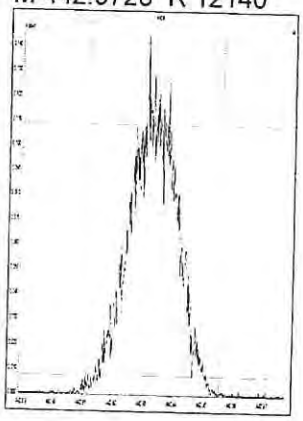
M 416.9760 R 14971



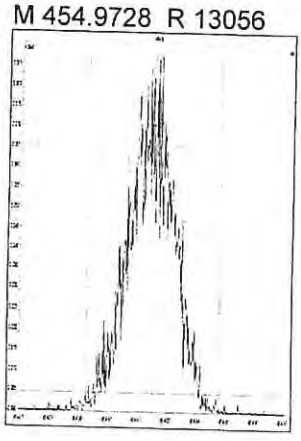
M 430.9728 R 12771



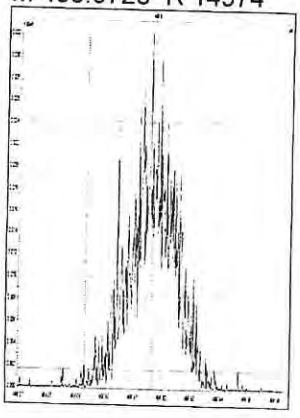
M 442.9728 R 12140



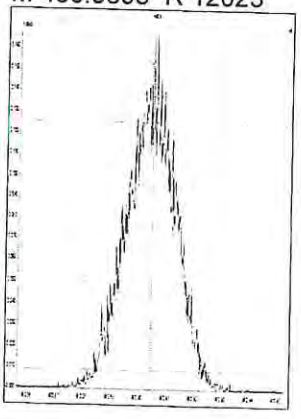
M 454.9728 R 13056



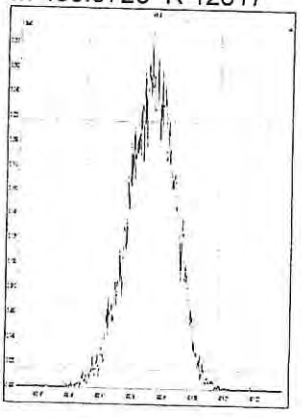
M 466.9728 R 14974



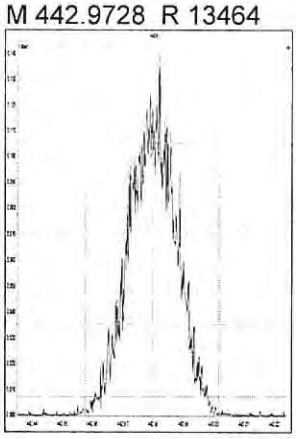
M 480.9696 R 12023



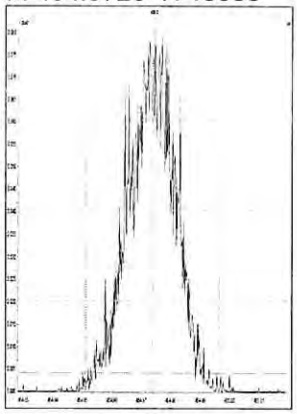
M 430.9728 R 12617



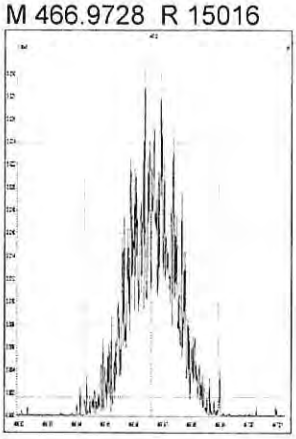
M 442.9728 R 13464



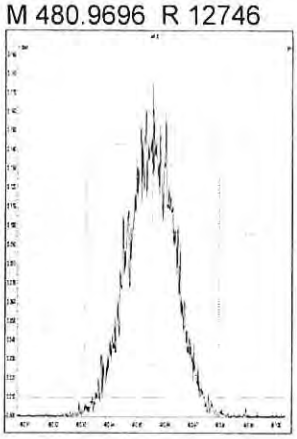
M 454.9728 R 13335



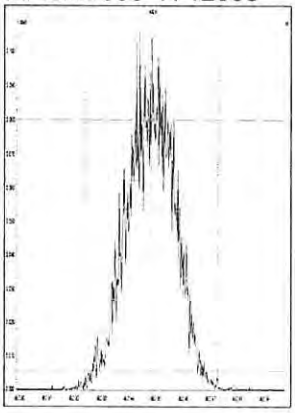
M 466.9728 R 15016



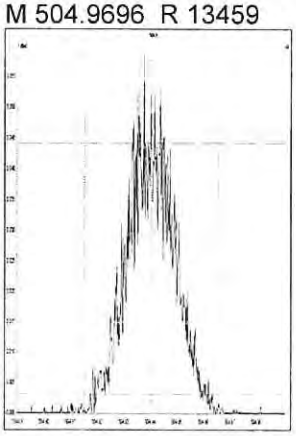
M 480.9696 R 12746



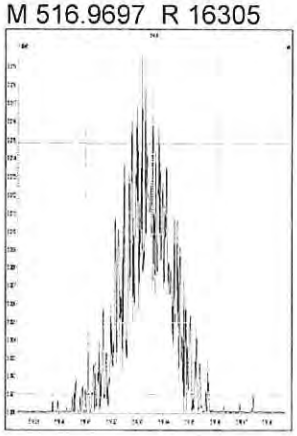
M 492.9696 R 12853



M 504.9696 R 13459



M 516.9697 R 16305



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

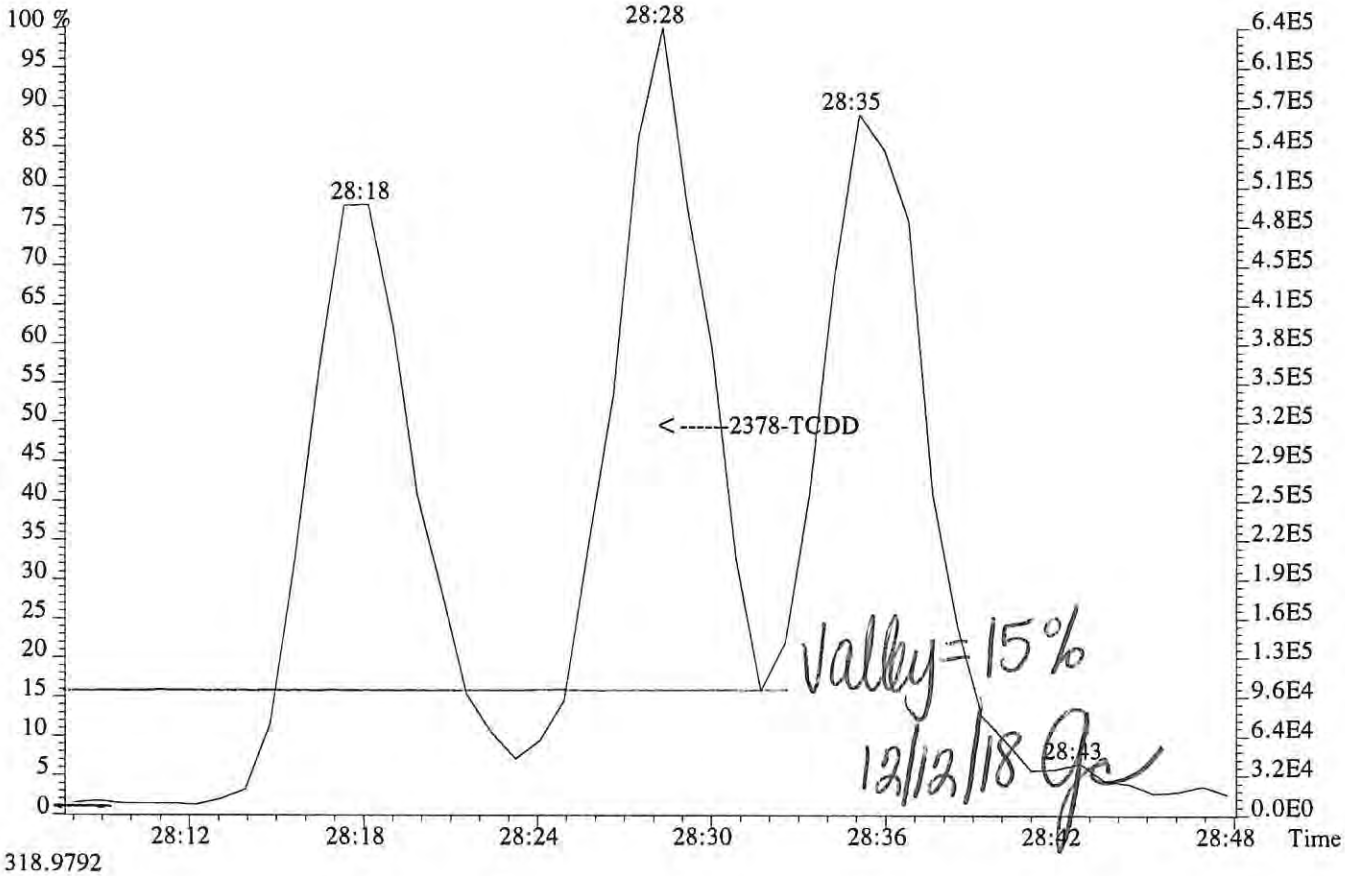
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519351
Date Analyzed: 11-DEC-2018
Time Analyzed: 11:14:28

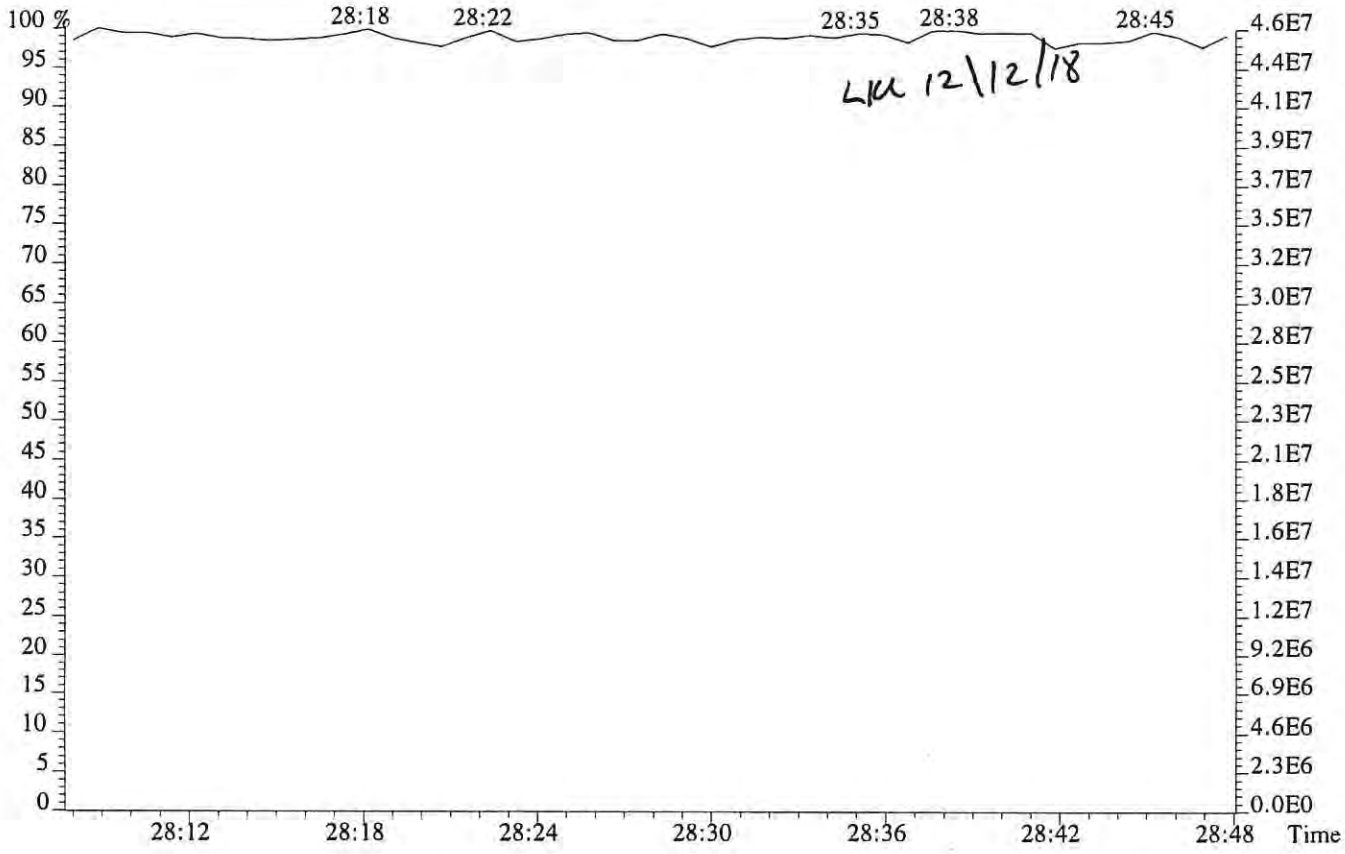
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:41	37:15
HxCDD	35:13	36:50
HpCDF	38:32	40:00
HpCDD	38:48	39:31

% Valley 2378-TCDD: 15 %

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



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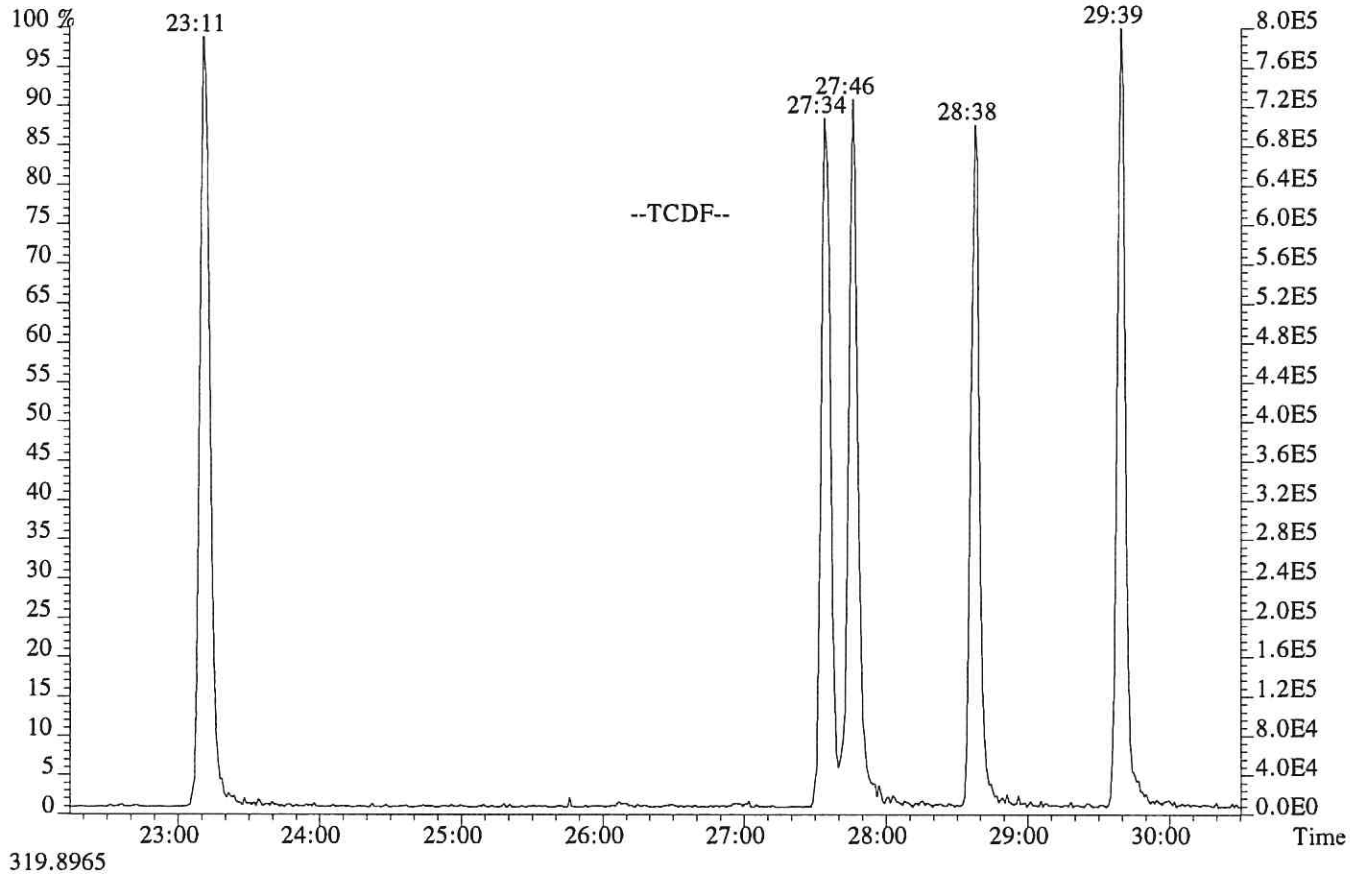
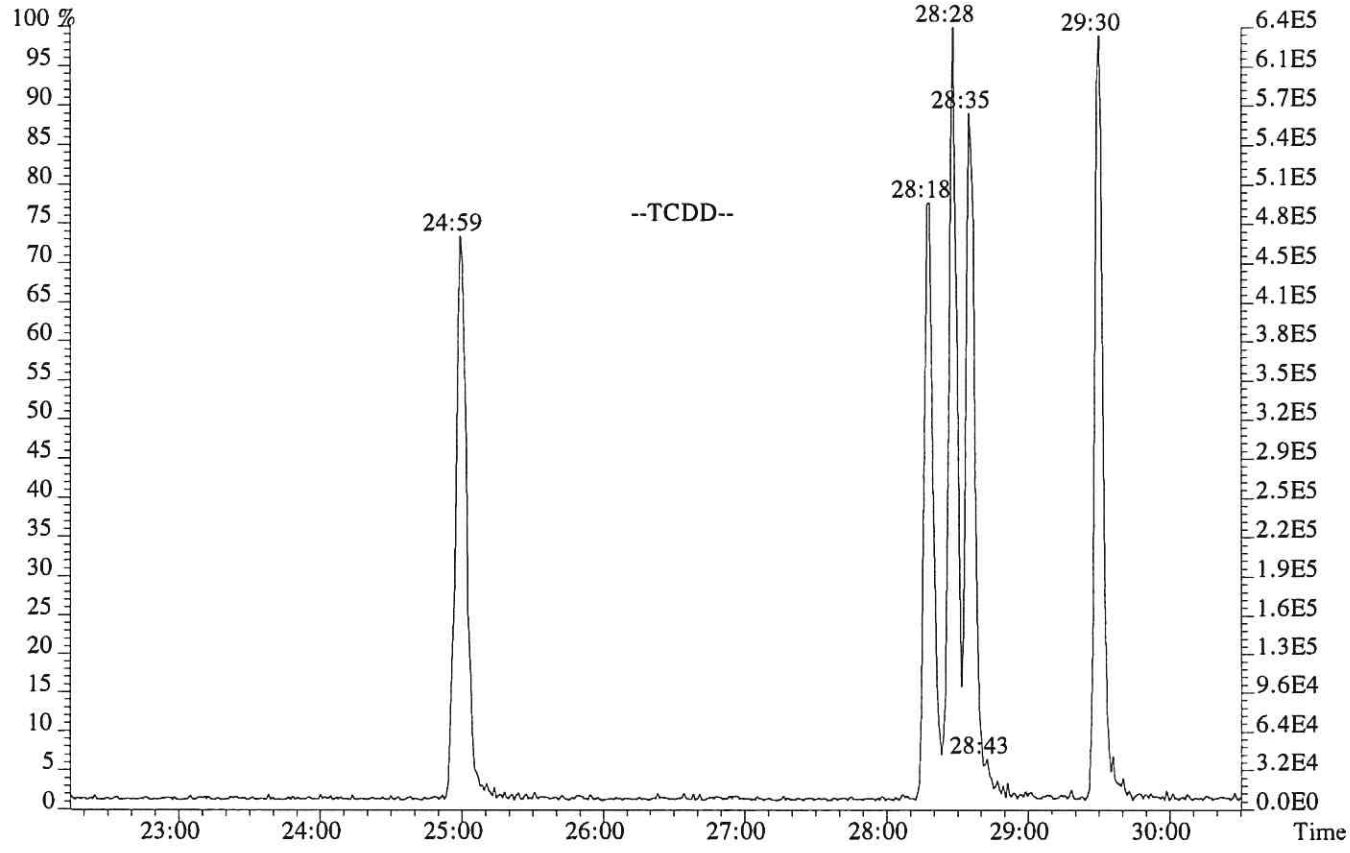
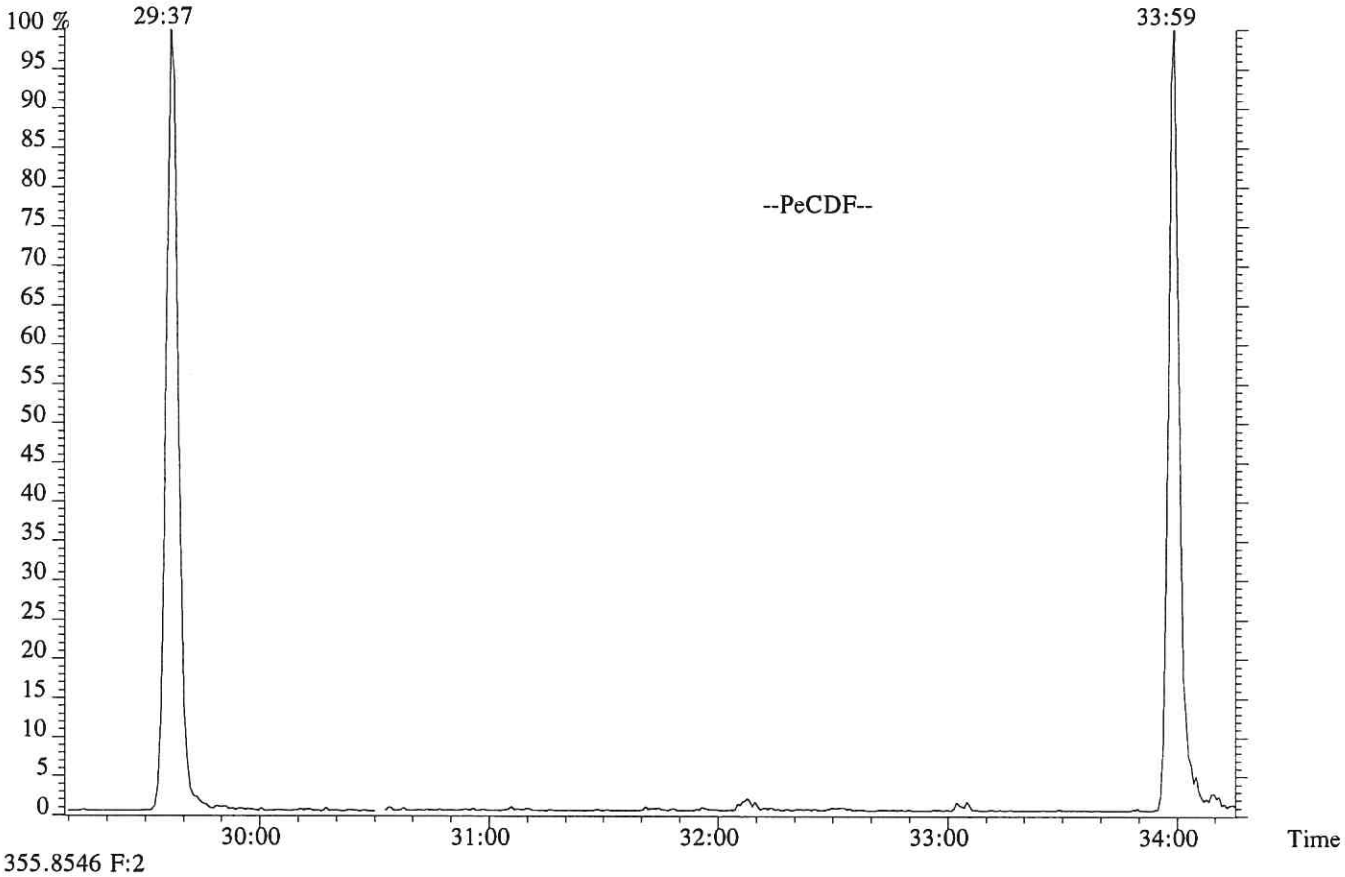
Sample#1 Exp:192977
303.9016



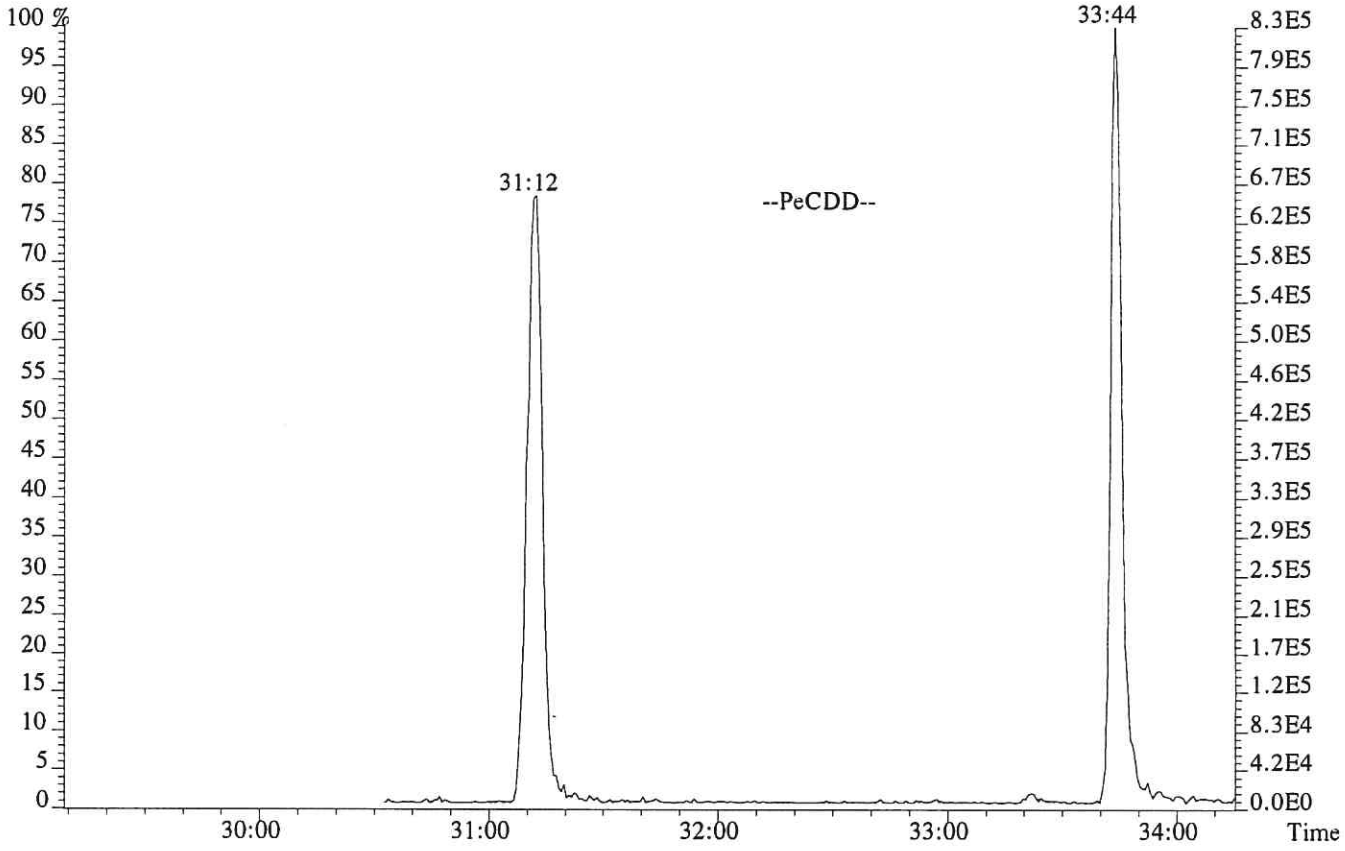
319.8965



File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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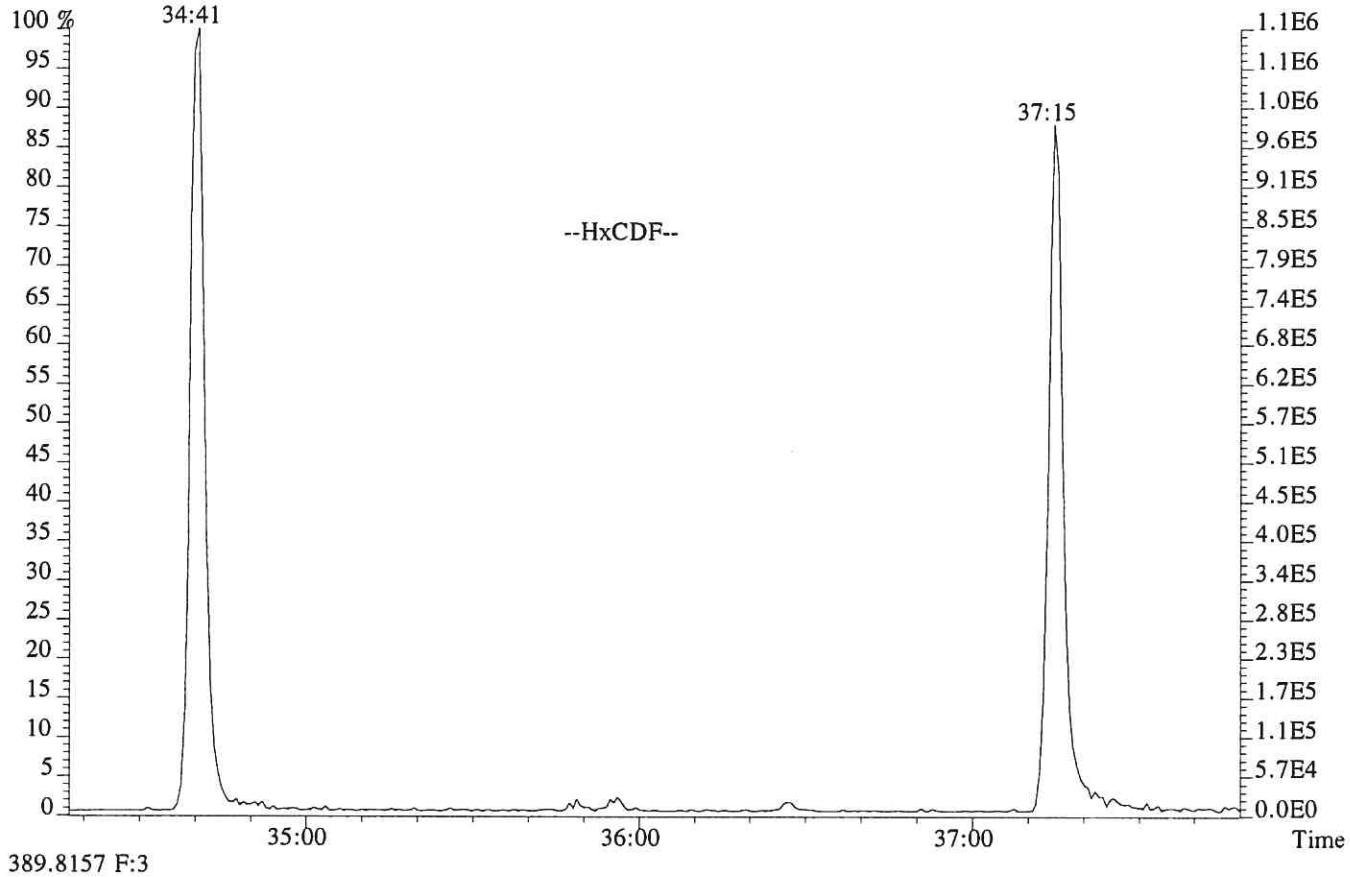
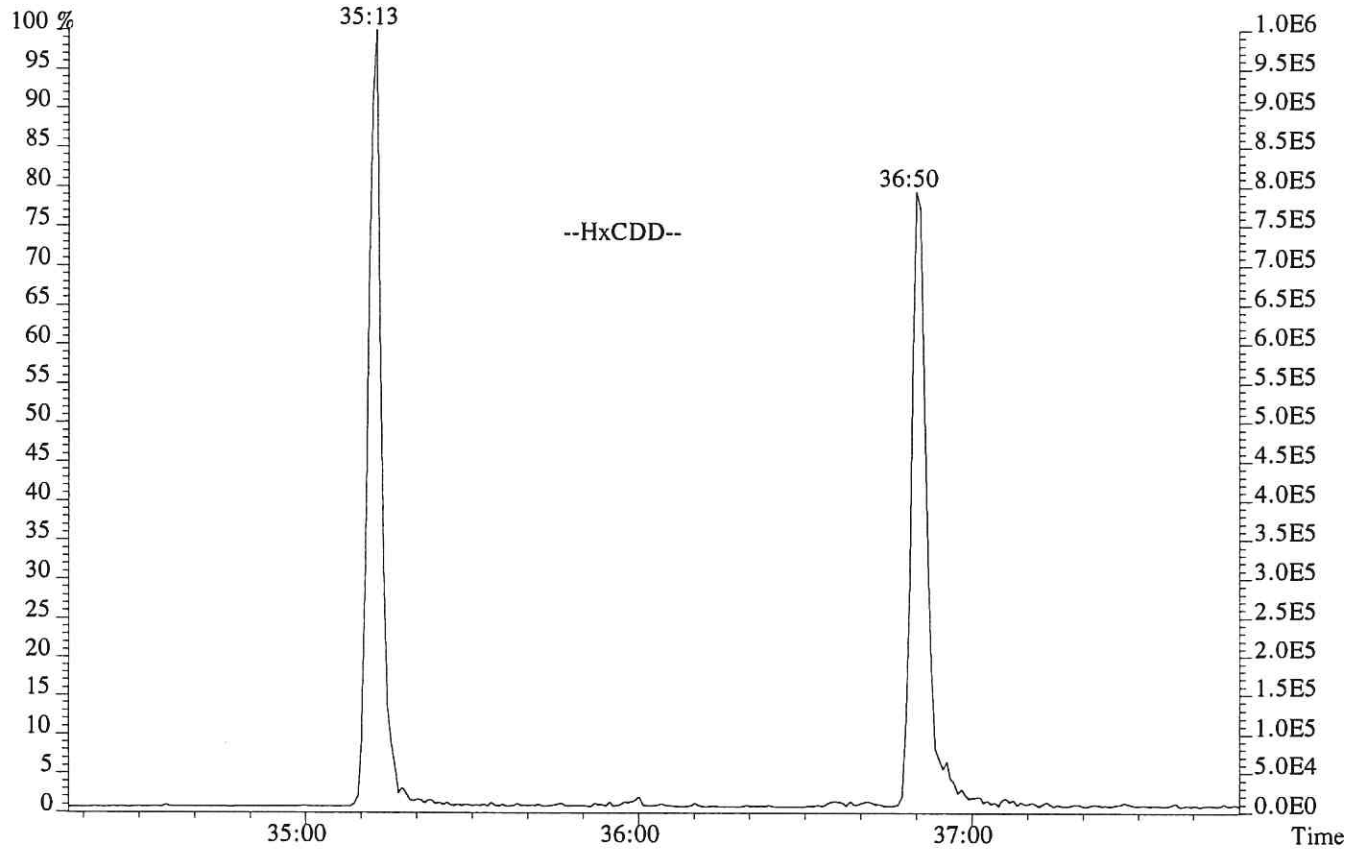
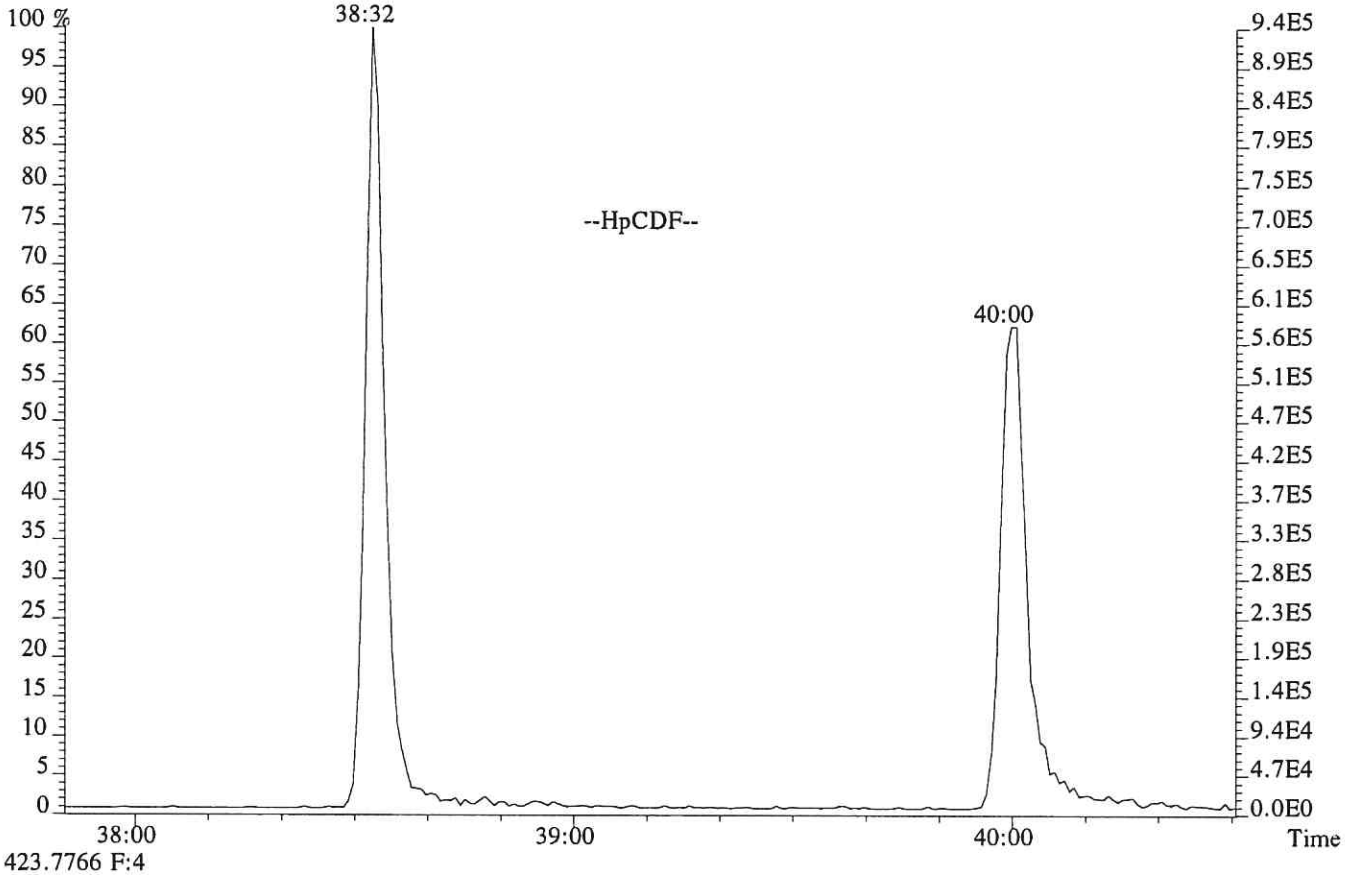
Sample#1 Exp:192977
373.8208 F:3



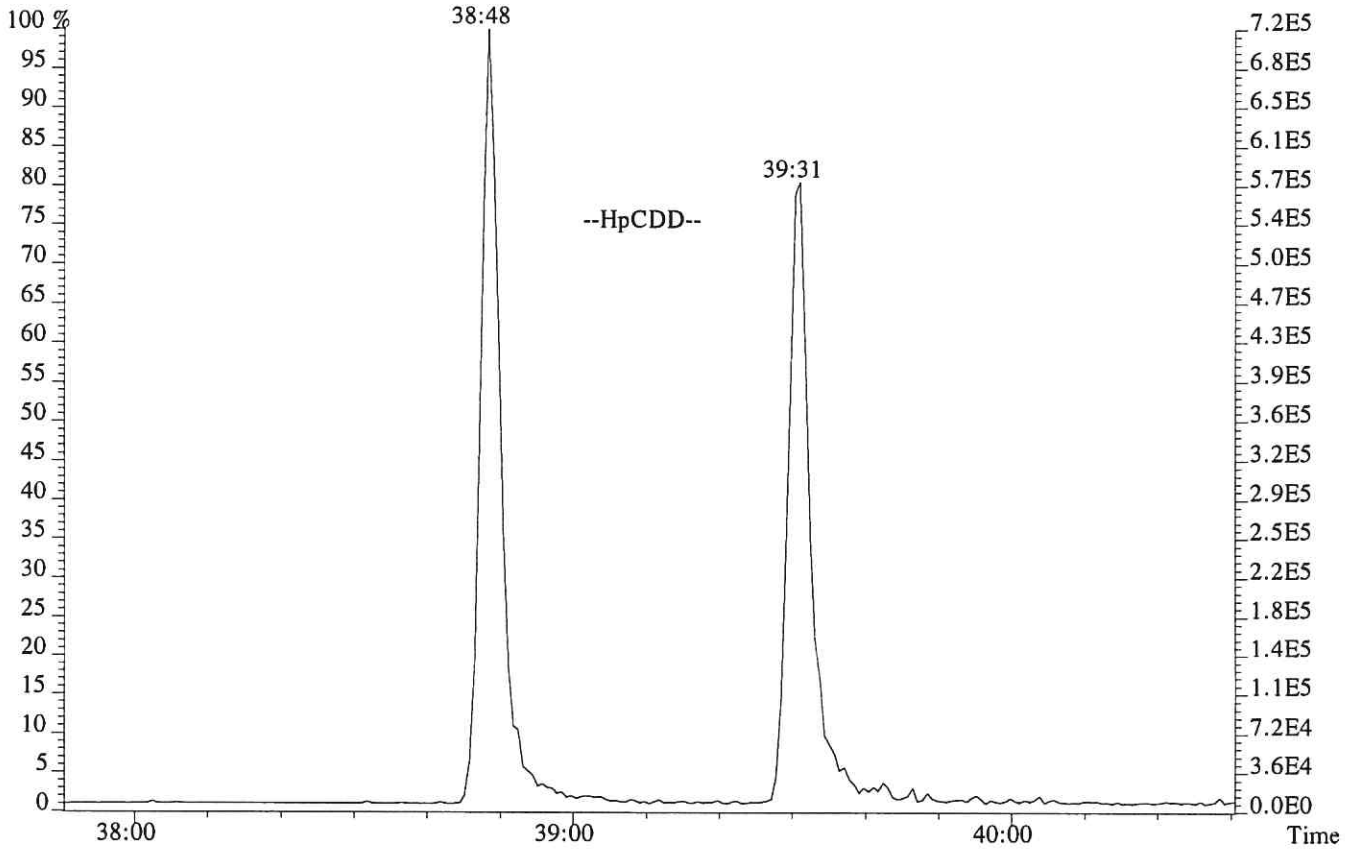
389.8157 F:3



File:P519351 #1-241 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-5.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	8.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	0.9
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 61	-1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.3
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	5.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	113	62 - 160	12.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 117	-6.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 118	-5.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	107	72 - 138	6.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	233	96 - 415	16.7
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	112	76 - 130	12.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	113	77 - 130	12.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	70 - 143	-6.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-1.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-4.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	107	77 - 129	6.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	5.308e+03	7.001e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.406e+04	2.904e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.136e+04	2.740e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.543e+04	2.949e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.963e+04	3.312e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.593e+04	2.996e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.331e+04	2.736e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.483e+04	3.414e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	2.697e+04	2.740e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:42	4.159e+04	4.700e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.844e+03	5.065e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.852e+04	1.810e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.467e+04	1.982e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	2.629e+04	2.095e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.782e+04	2.213e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.401e+04	2.264e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:31	3.511e+04	3.992e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	5.910e+04	7.387e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	9.023e+04	5.608e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	8.955e+04	5.616e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.605e+04	7.021e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.469e+04	8.464e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	4.040e+04	7.823e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.652e+04	6.908e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	3.151e+04	7.056e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.613e+04	6.006e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.848e+04	4.842e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	5.991e+04	3.752e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	4.768e+04	3.726e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	4.968e+04	3.871e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	4.639e+04	4.383e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:30	6.314e+04	7.068e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.953e+04	4.928e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.488e+04	4.359e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	9.184e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.33e+05	5.80e+02	1.6e+03	1.26e+06	1.14e+03	1.1e+03
2	1,2,3,7,8-PeCDF	8.13e+06	4.40e+02	1.8e+04	5.42e+06	9.84e+02	5.5e+03
3	2,3,4,7,8-PeCDF	8.16e+06	4.40e+02	1.9e+04	5.36e+06	9.84e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.30e+06	3.56e+02	2.1e+04	5.92e+06	3.92e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	7.85e+06	3.56e+02	2.2e+04	6.68e+06	3.92e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	7.22e+06	3.56e+02	2.0e+04	6.04e+06	3.92e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	5.99e+06	3.56e+02	1.7e+04	4.98e+06	3.92e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.57e+06	5.59e+03	1.2e+03	6.39e+06	2.82e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	4.32e+06	5.59e+03	7.7e+02	4.36e+06	2.82e+03	1.5e+03
10	OCDF	4.91e+06	3.52e+02	1.4e+04	5.52e+06	5.44e+02	1.0e+04
11	2,3,7,8-TCDD	7.22e+05	1.69e+03	4.3e+02	9.34e+05	1.03e+03	9.1e+02
12	1,2,3,7,8-PeCDD	5.29e+06	4.88e+02	1.1e+04	3.37e+06	2.48e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	5.00e+06	3.28e+02	1.5e+04	3.94e+06	4.28e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	5.26e+06	3.28e+02	1.6e+04	4.13e+06	4.28e+02	9.7e+03
15	1,2,3,7,8,9-HxCDD	5.12e+06	3.28e+02	1.6e+04	4.05e+06	4.28e+02	9.5e+03
16	1,2,3,4,6,7,8-HpCDD	4.10e+06	6.36e+02	6.4e+03	3.84e+06	1.96e+02	2.0e+04
17	OCDD	4.01e+06	1.76e+02	2.3e+04	4.56e+06	3.08e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.04e+07	4.63e+03	2.2e+03	1.31e+07	4.45e+03	2.9e+03
19	13C-1,2,3,7,8-PeCDF	1.64e+07	1.20e+03	1.4e+04	1.02e+07	1.35e+03	7.6e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+07	1.20e+03	1.4e+04	1.07e+07	1.35e+03	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.25e+06	6.72e+02	1.1e+04	1.40e+07	5.60e+02	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	8.79e+06	6.72e+02	1.3e+04	1.67e+07	5.60e+02	3.0e+04
23	13C-2,3,4,6,7,8-HxCDF	8.01e+06	6.72e+02	1.2e+04	1.55e+07	5.60e+02	2.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.47e+06	6.72e+02	9.6e+03	1.24e+07	5.60e+02	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.84e+06	1.65e+03	3.5e+03	1.32e+07	2.66e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.25e+06	1.65e+03	2.6e+03	9.43e+06	2.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	7.12e+06	4.84e+03	1.5e+03	8.94e+06	1.87e+03	4.8e+03
28	13C-1,2,3,7,8-PeCDD	1.14e+07	8.56e+02	1.3e+04	7.20e+06	9.88e+02	7.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.50e+06	1.08e+03	8.8e+03	7.34e+06	4.88e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	9.67e+06	1.08e+03	9.0e+03	7.57e+06	4.88e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.85e+06	6.60e+02	1.2e+04	7.47e+06	6.88e+02	1.1e+04
32	13C-OCDD	7.14e+06	9.36e+02	7.6e+03	7.97e+06	3.52e+02	2.3e+04
33	13C-1,2,3,4-TCDD	7.30e+06	4.84e+03	1.5e+03	9.12e+06	1.87e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.08e+03	9.3e+03	7.85e+06	4.88e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.71e+06	6.16e+02	2.8e+03			

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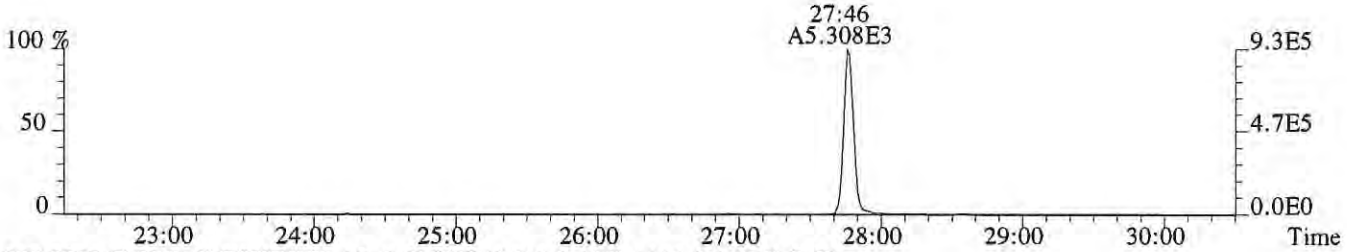
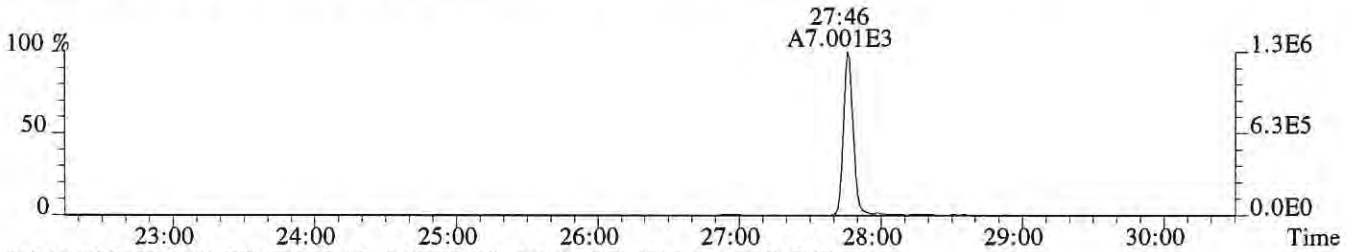
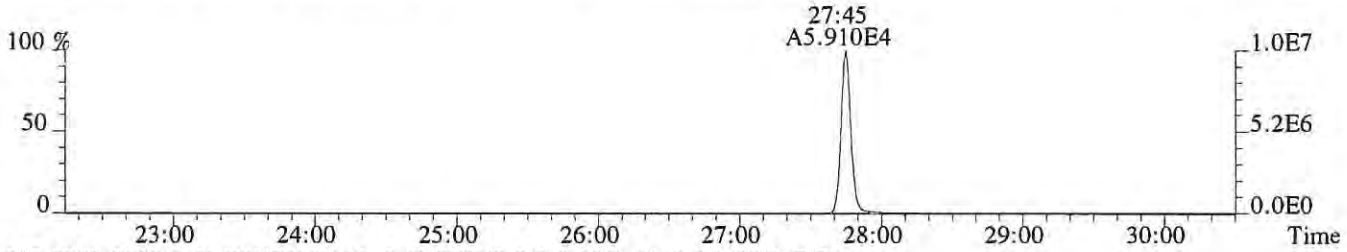
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



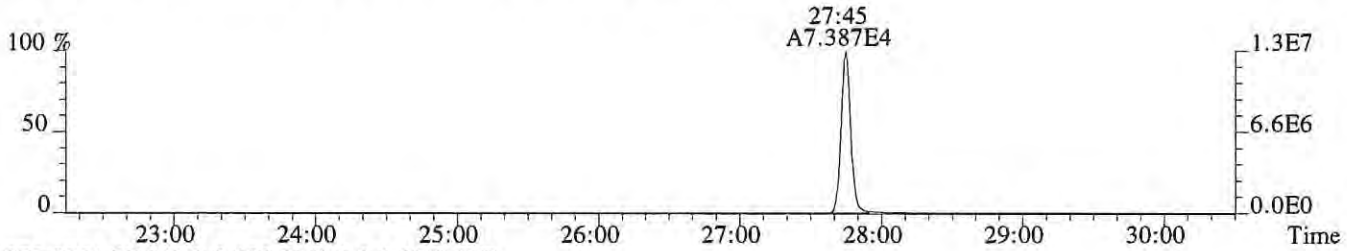
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



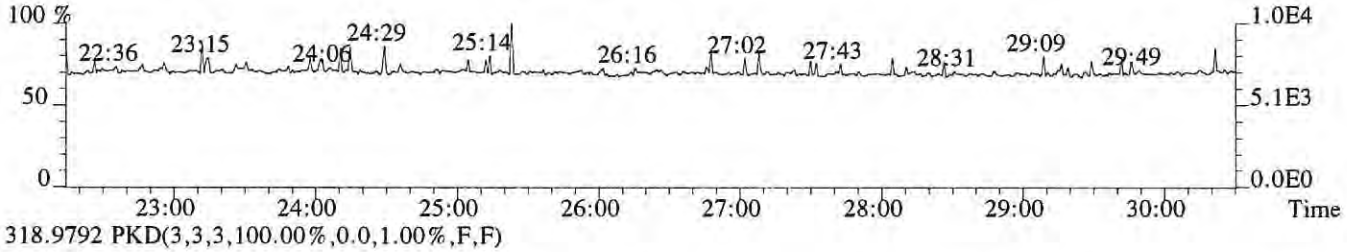
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



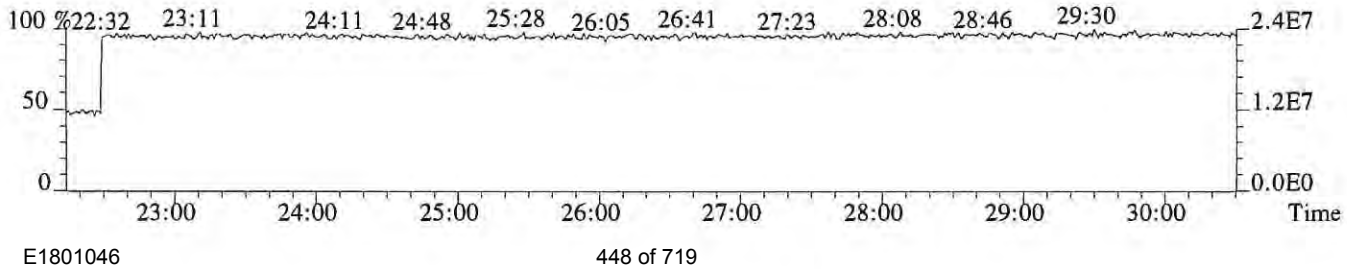
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



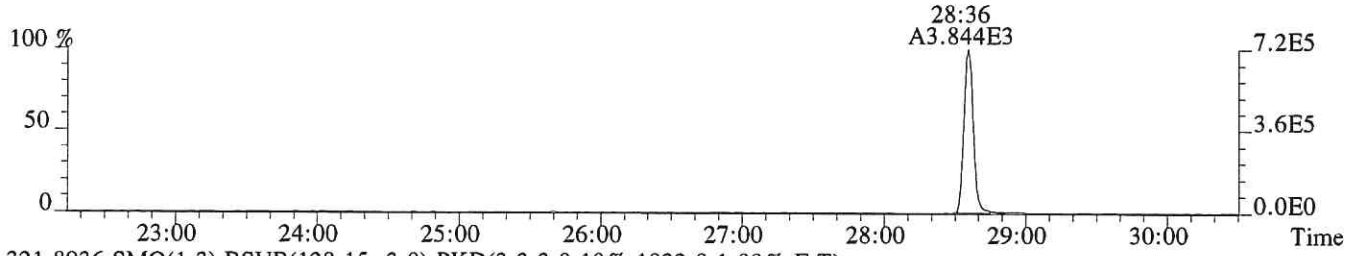
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



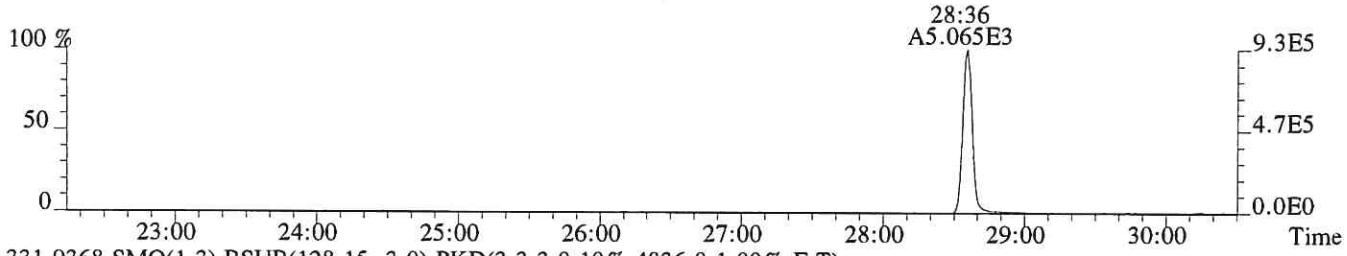
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



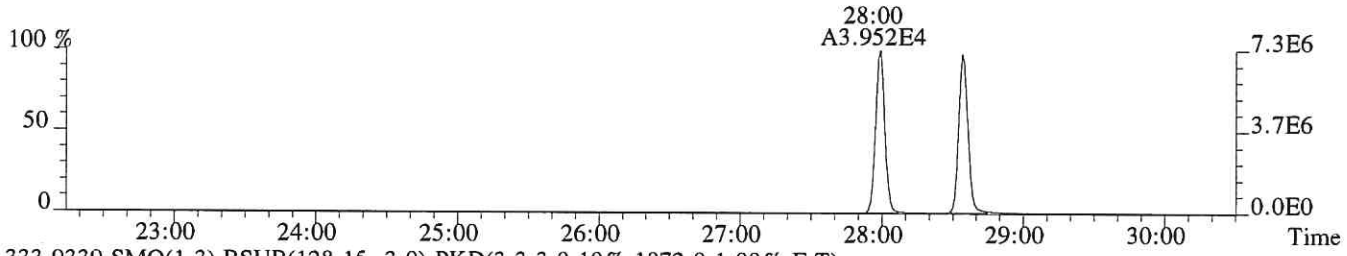
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



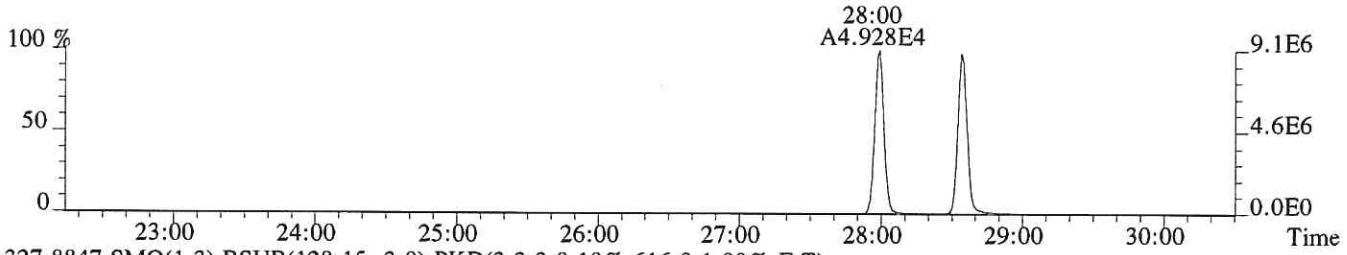
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



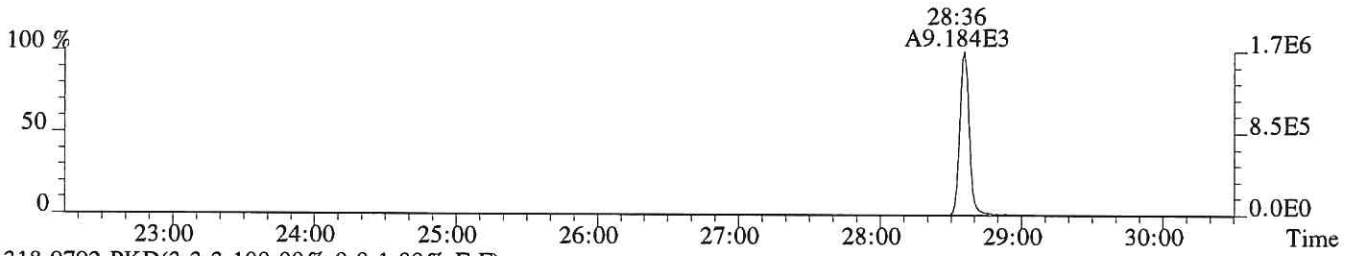
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



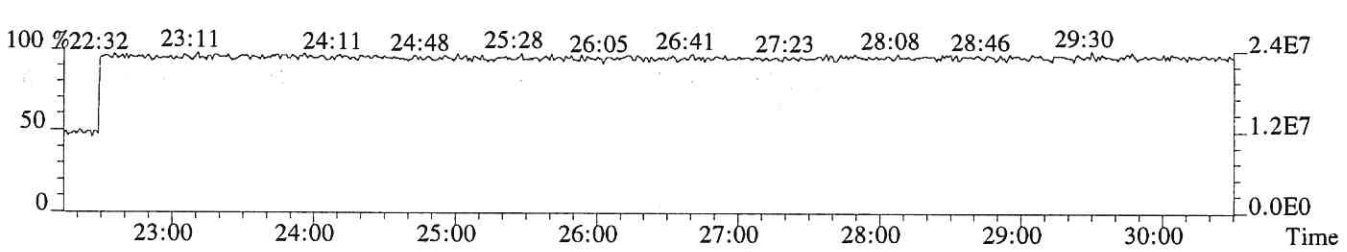
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



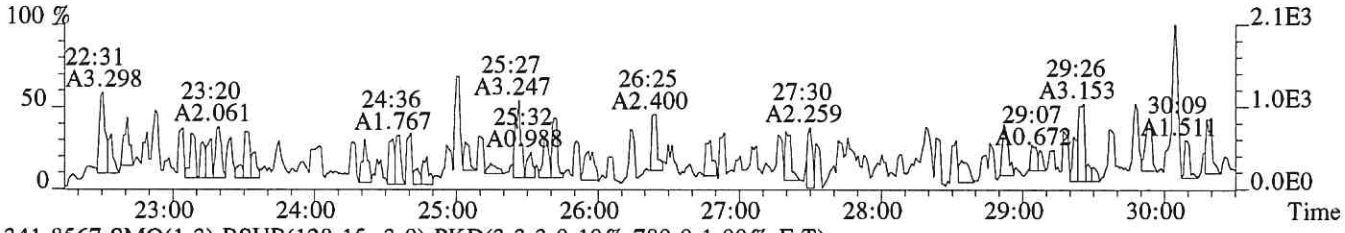
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



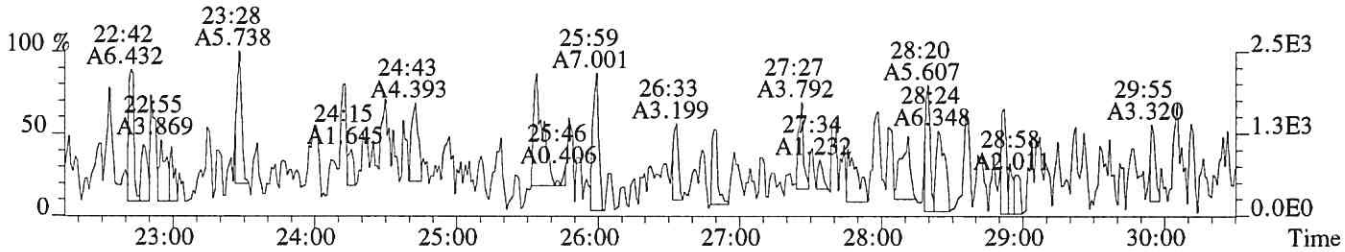
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



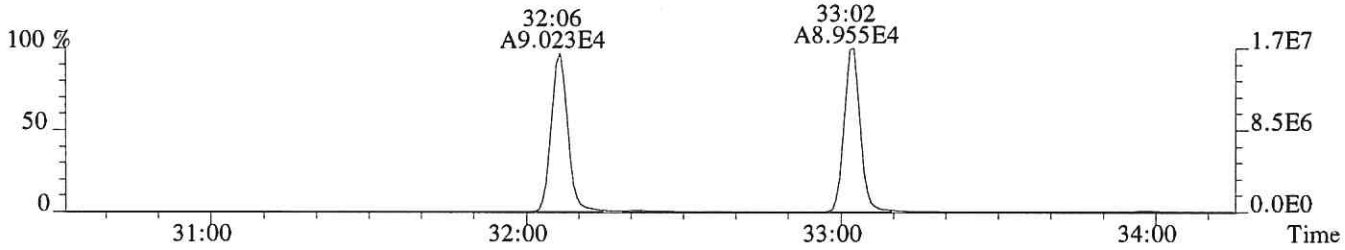
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



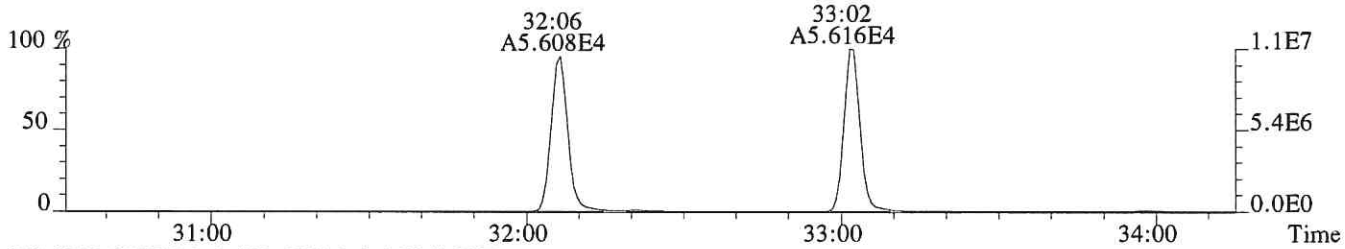
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



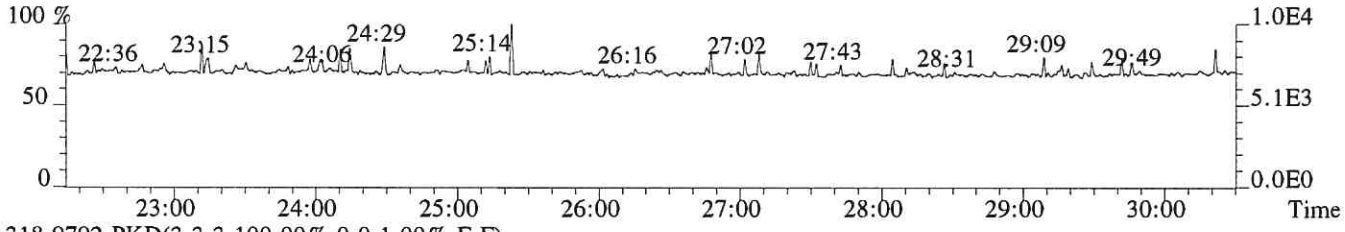
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



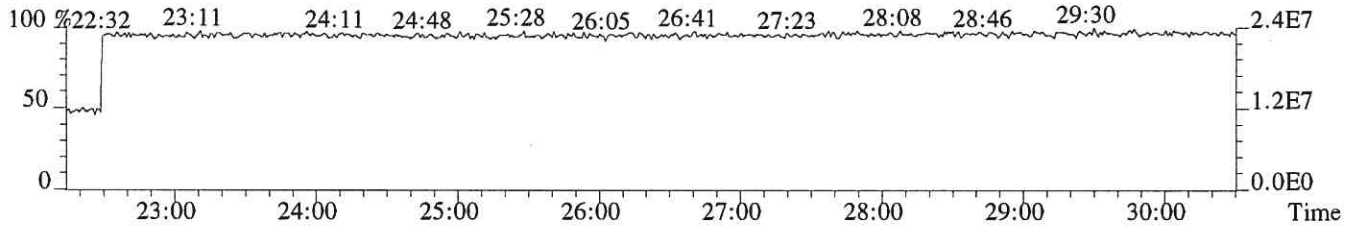
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

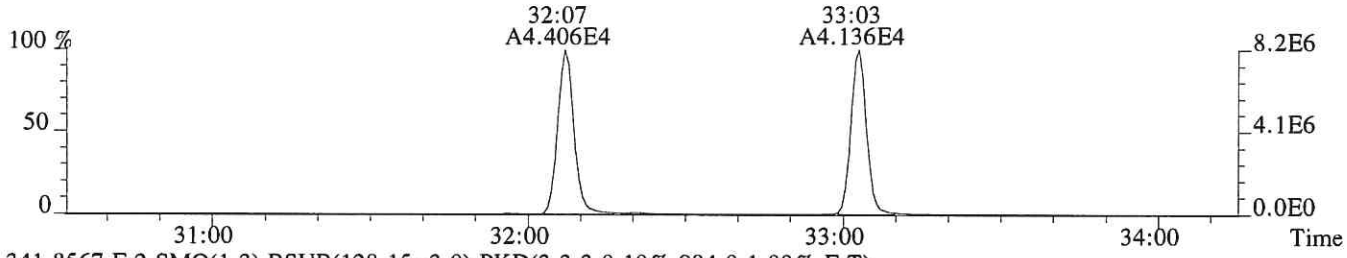


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

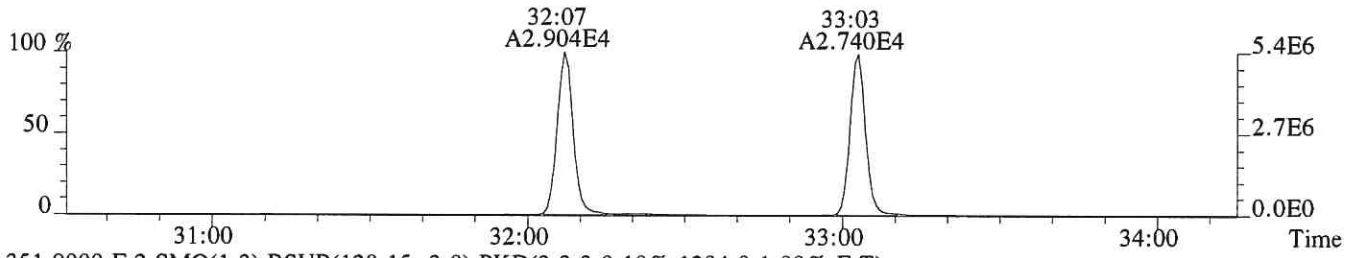


File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

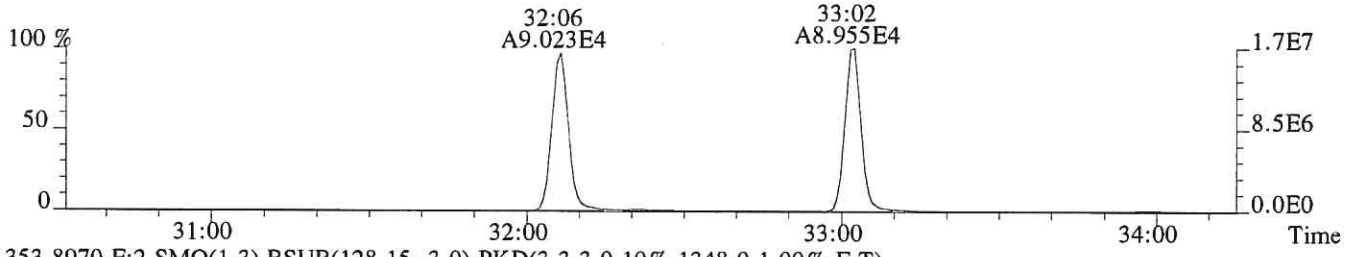
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



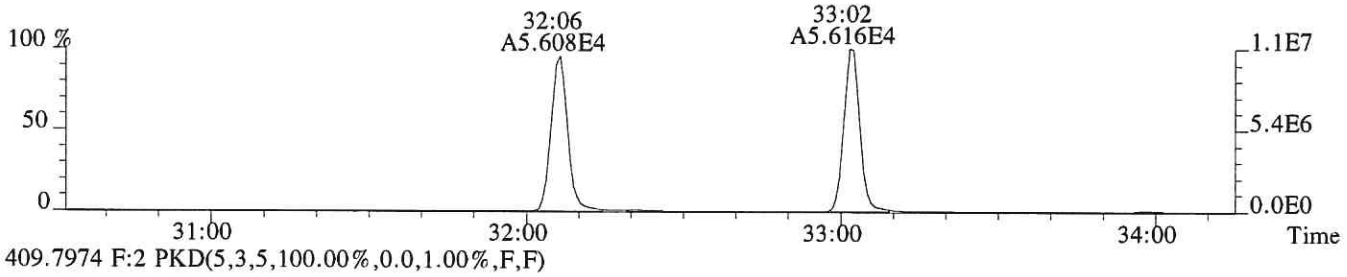
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



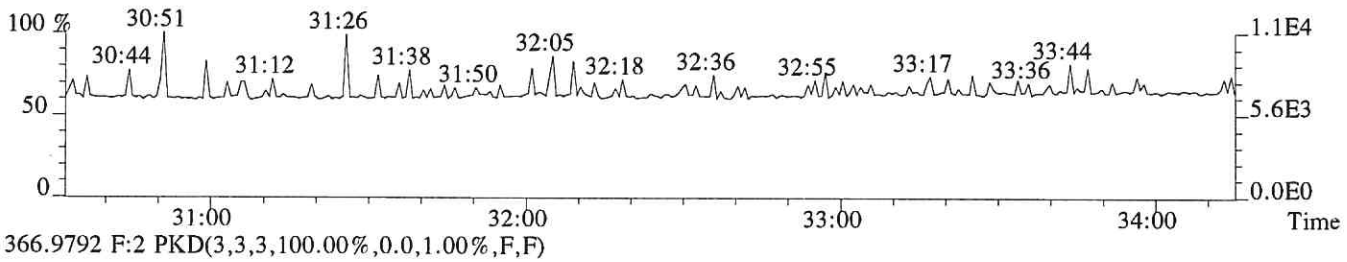
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



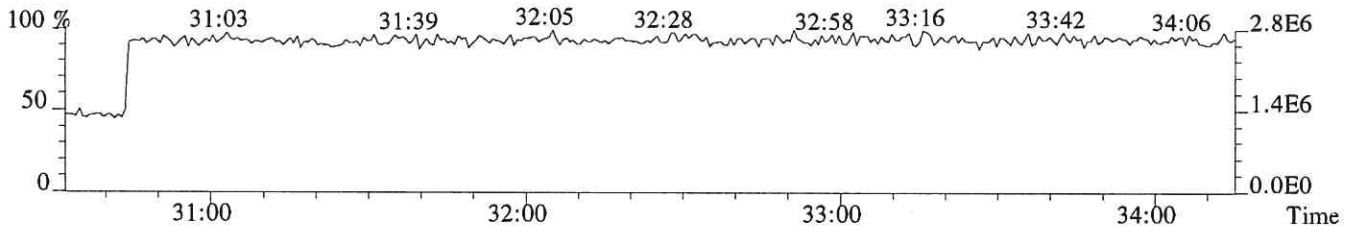
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



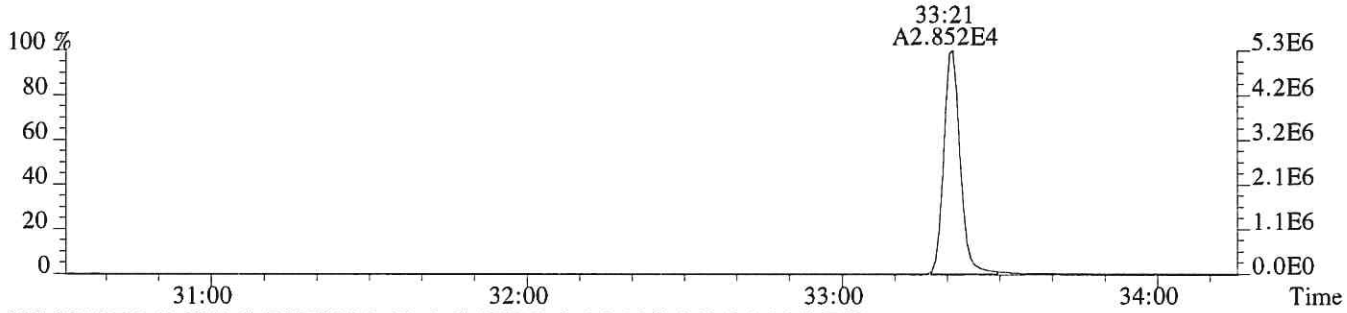
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



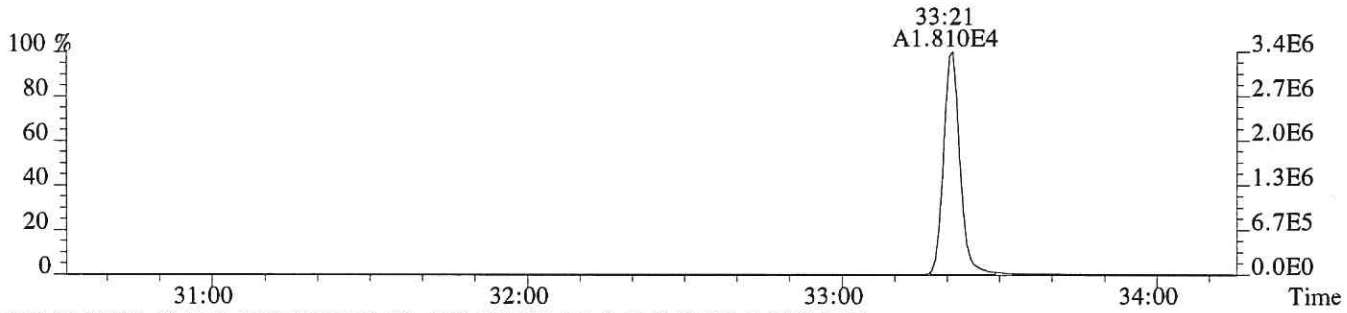
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



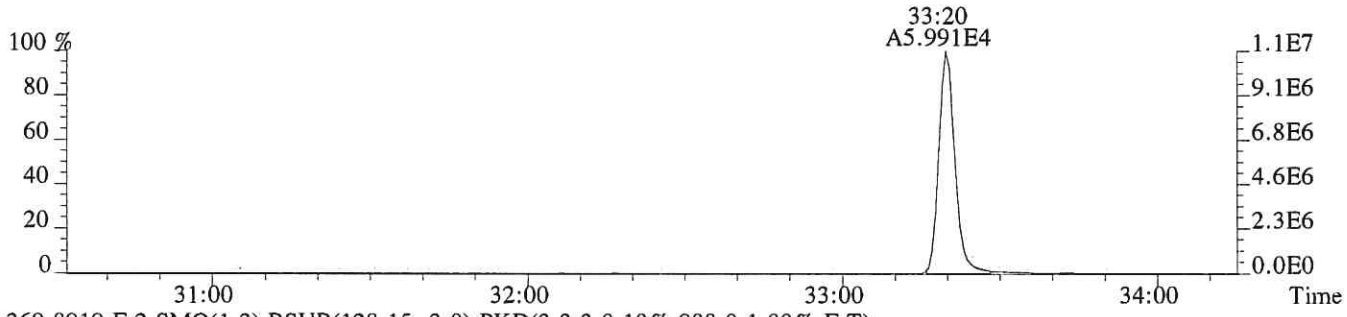
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



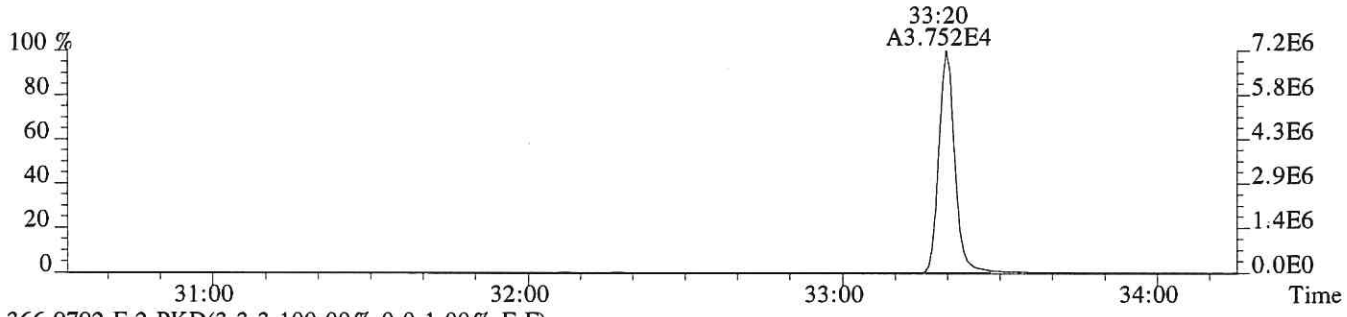
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



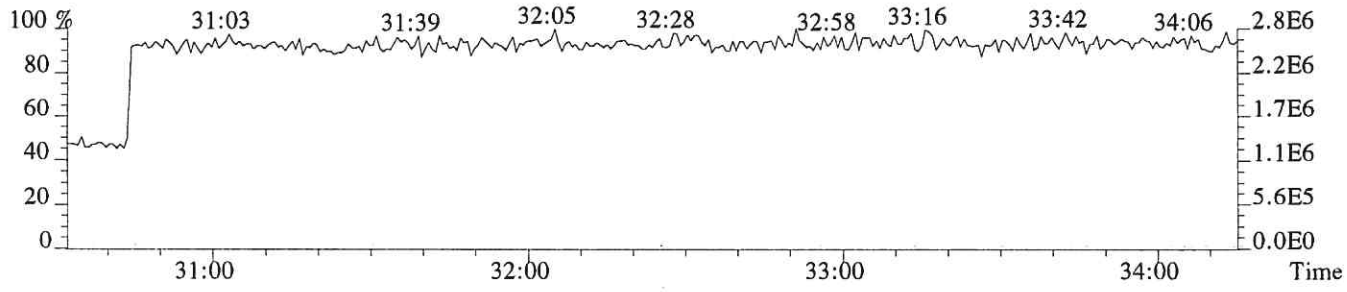
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



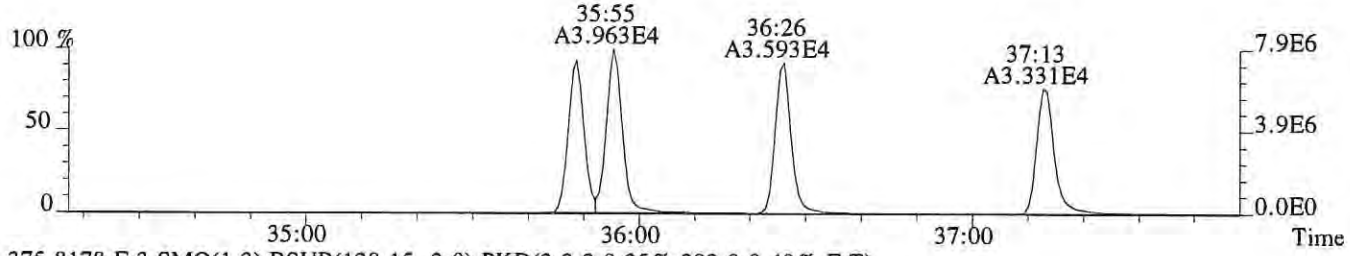
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



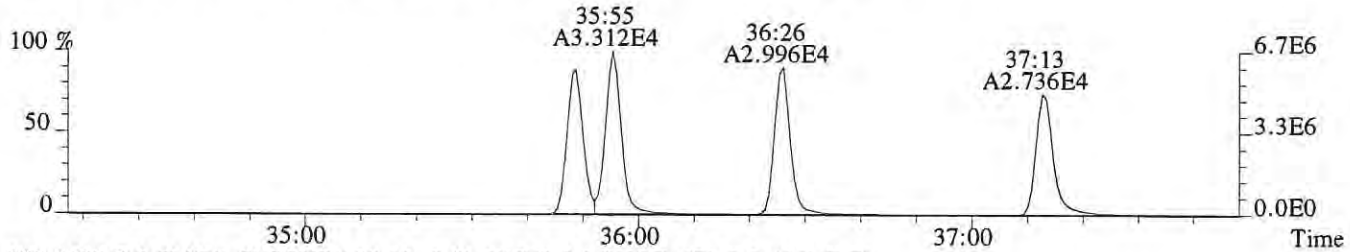
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



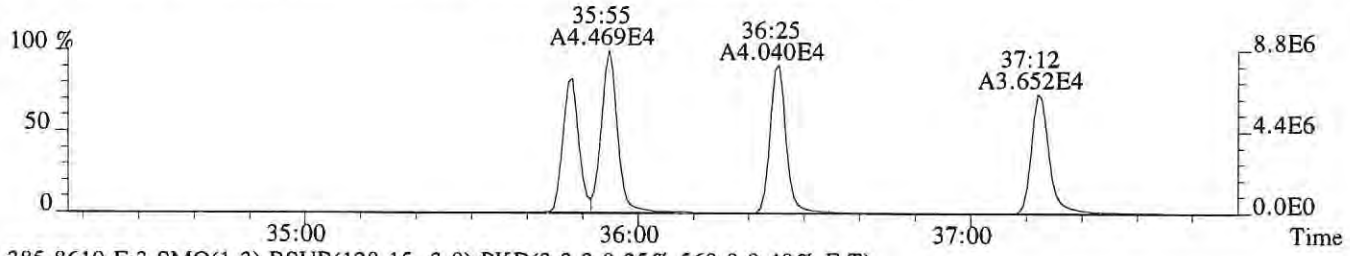
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



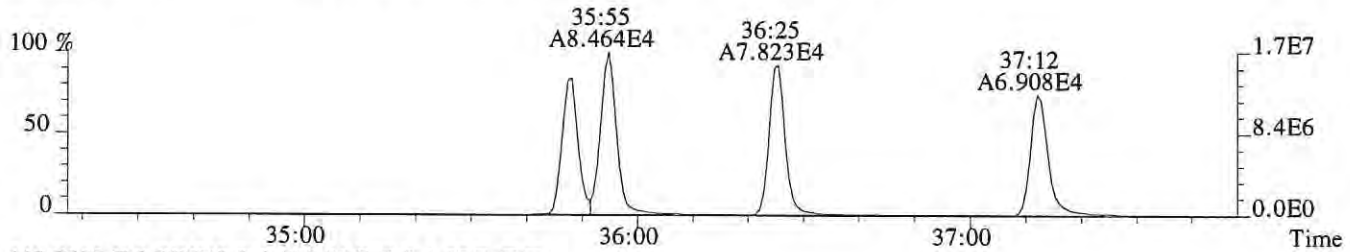
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



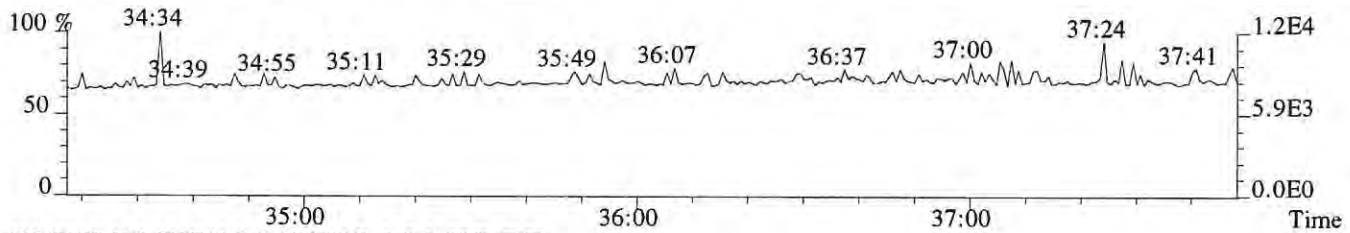
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



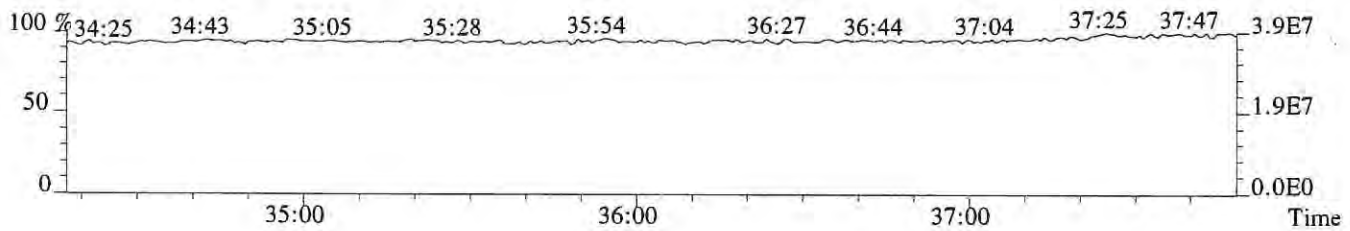
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



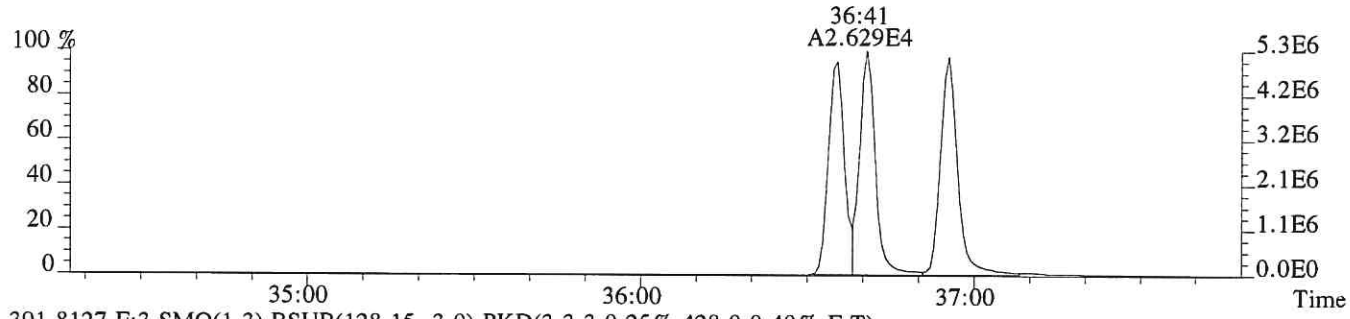
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



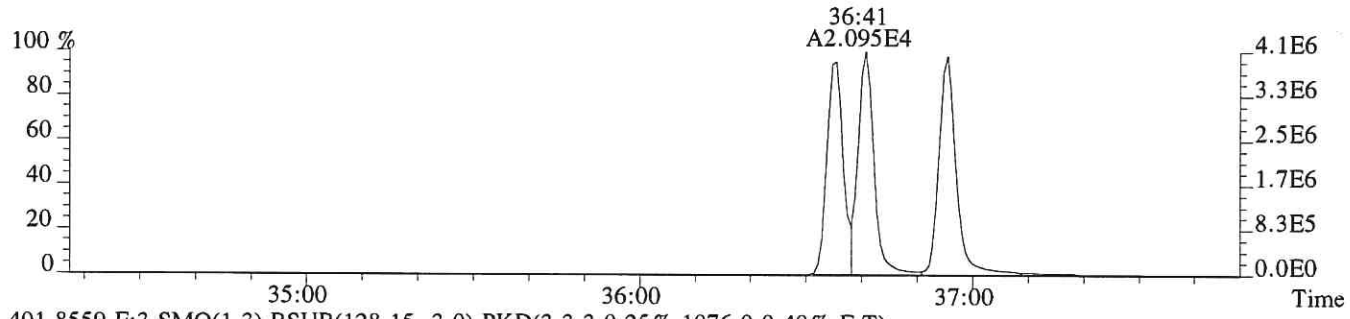
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



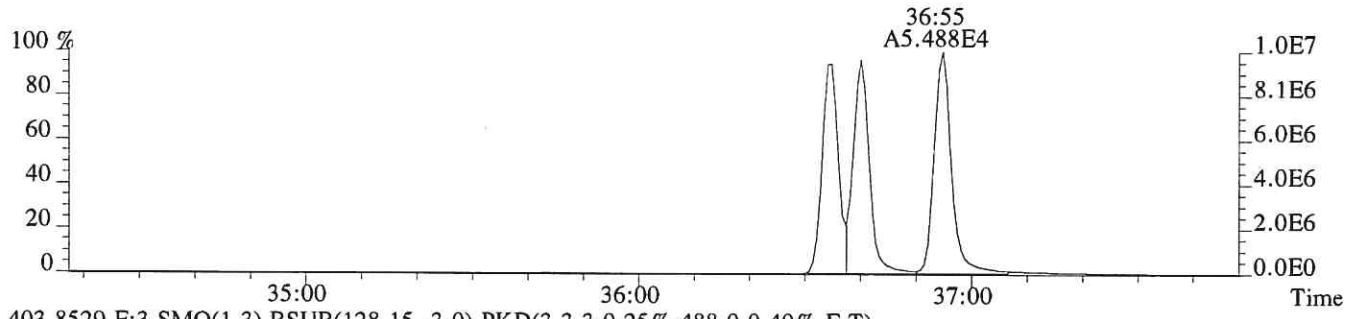
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



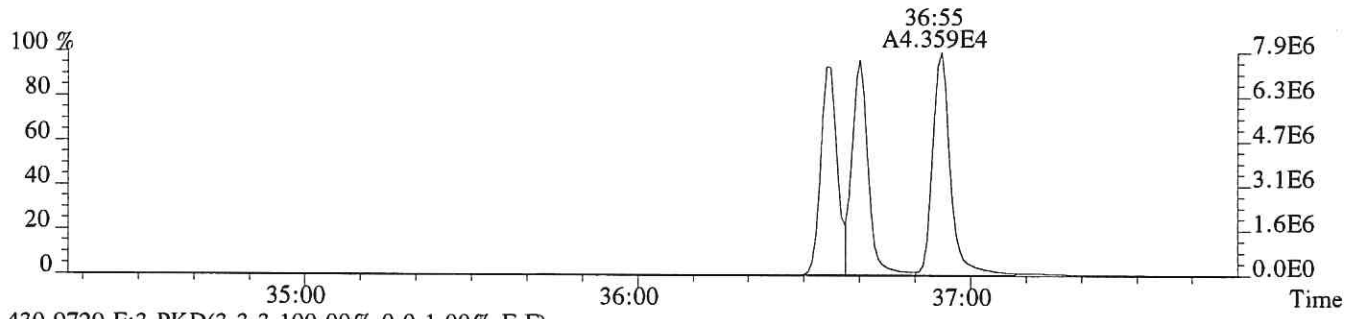
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



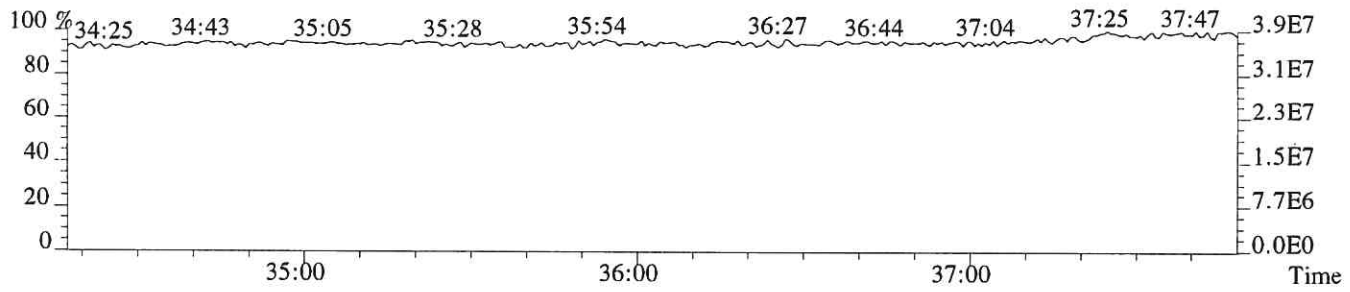
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



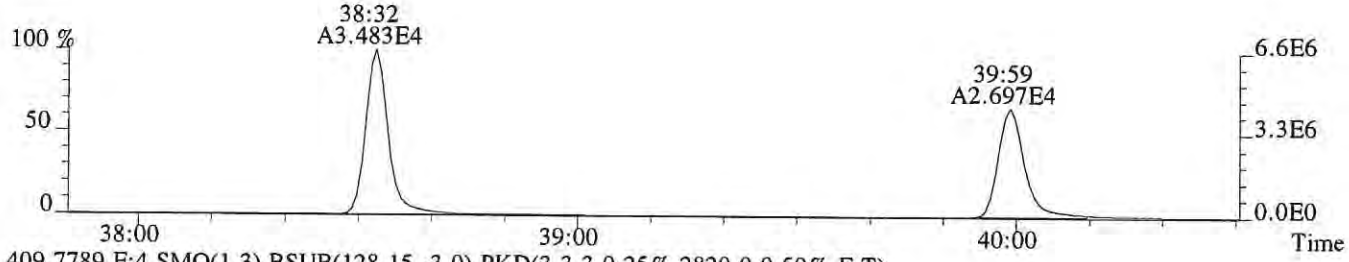
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



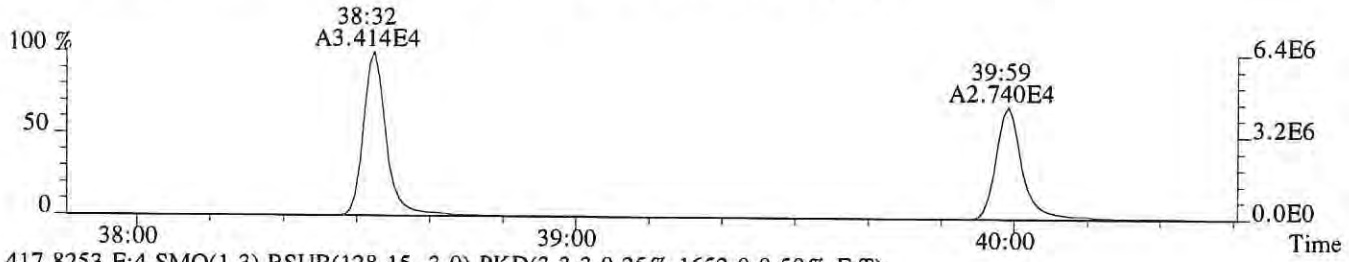
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



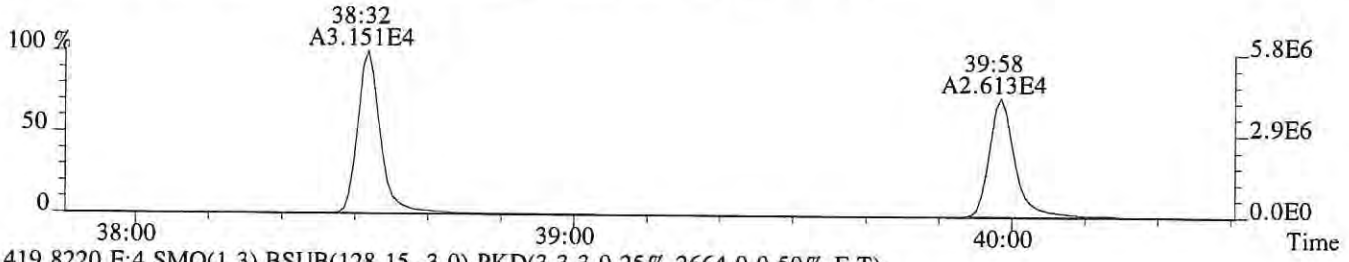
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5592.0,0.50%,F,T)



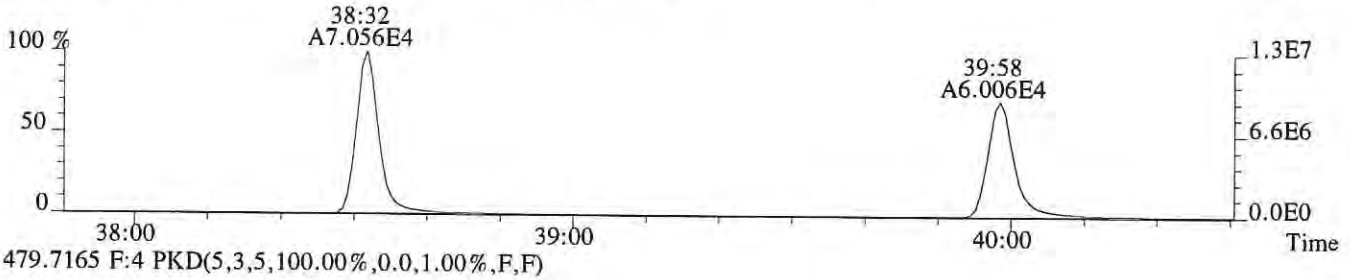
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.50%,F,T)



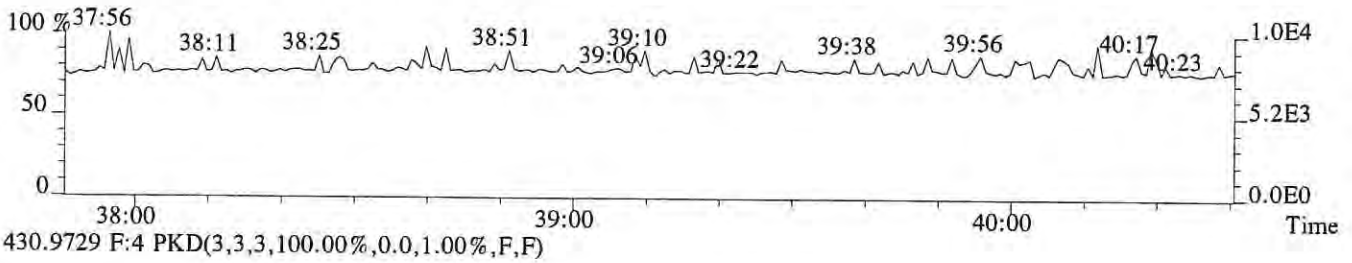
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



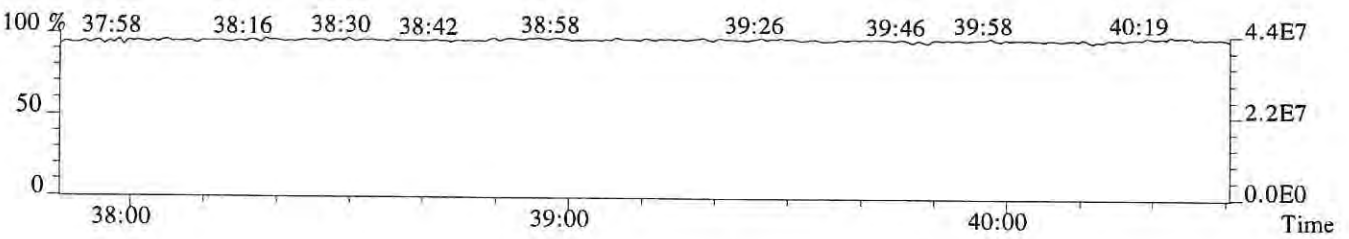
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



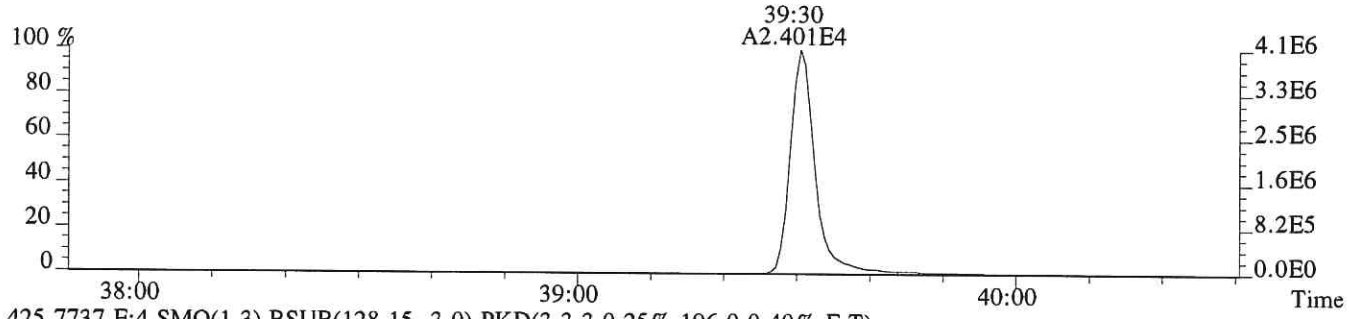
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



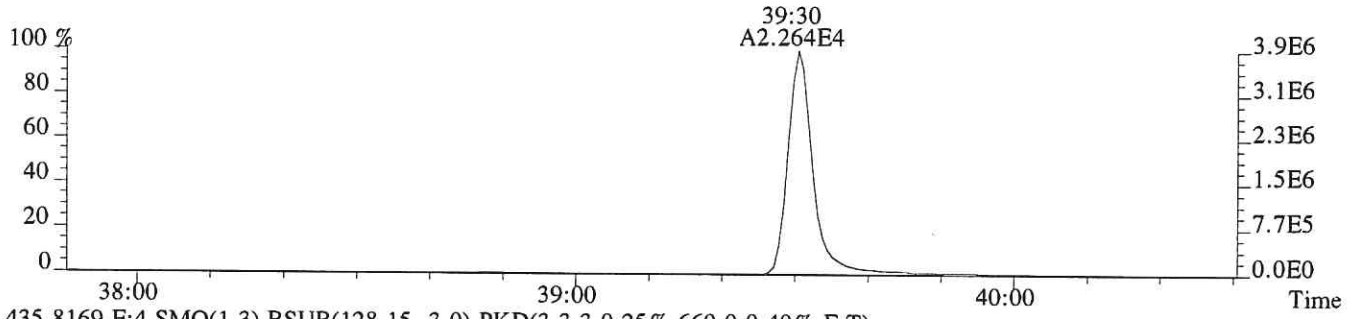
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



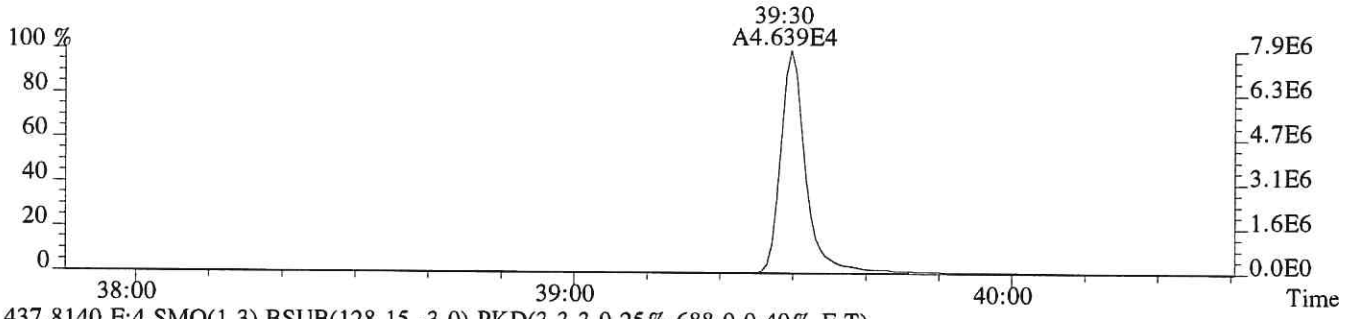
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



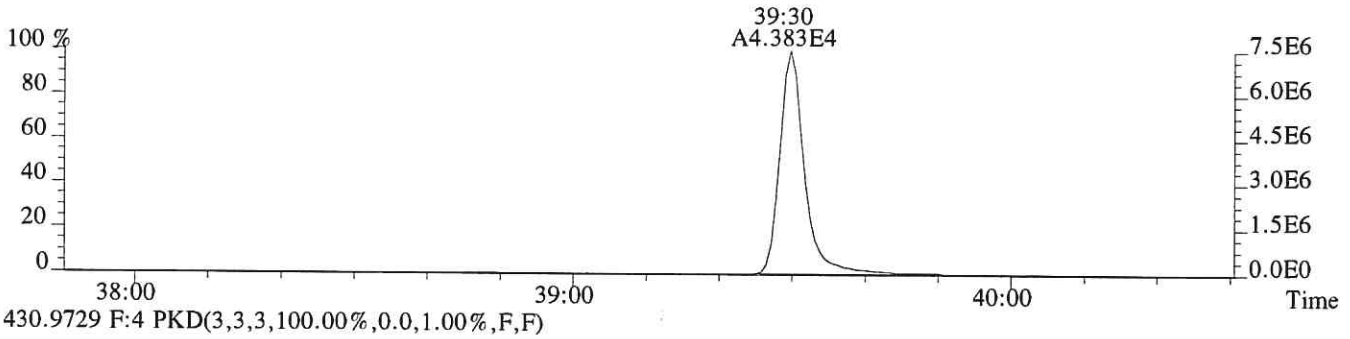
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



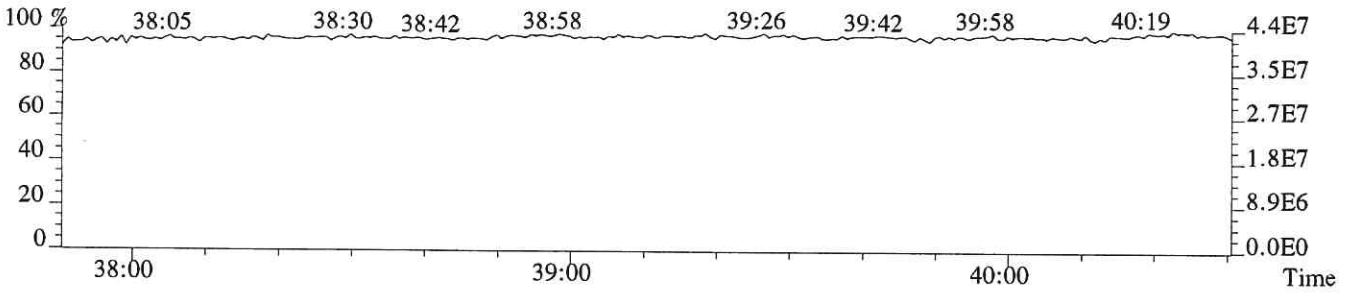
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



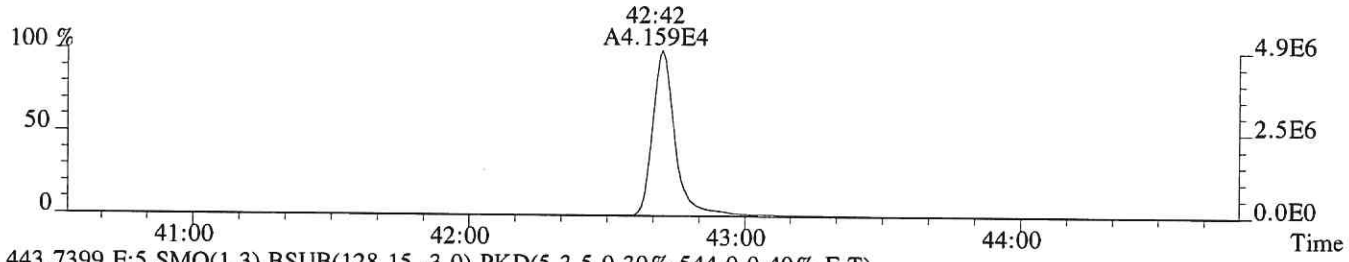
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



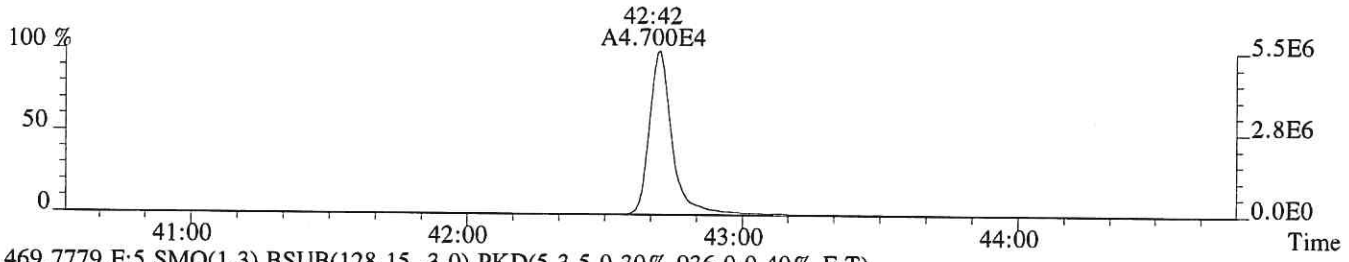
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



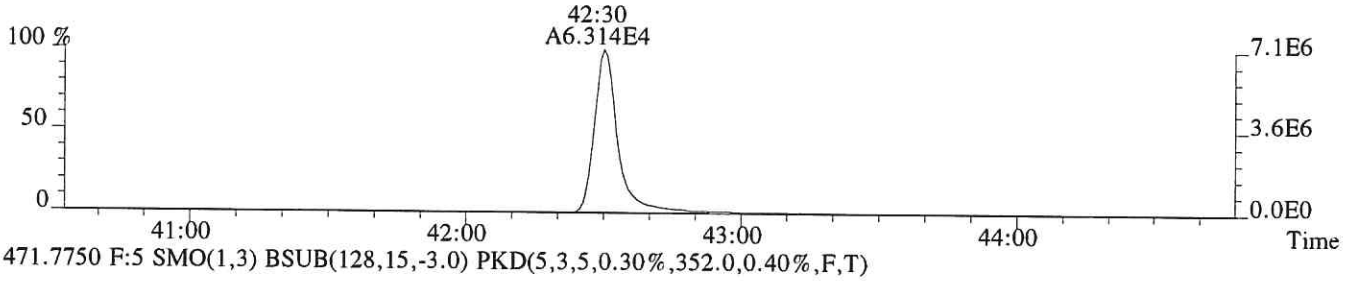
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



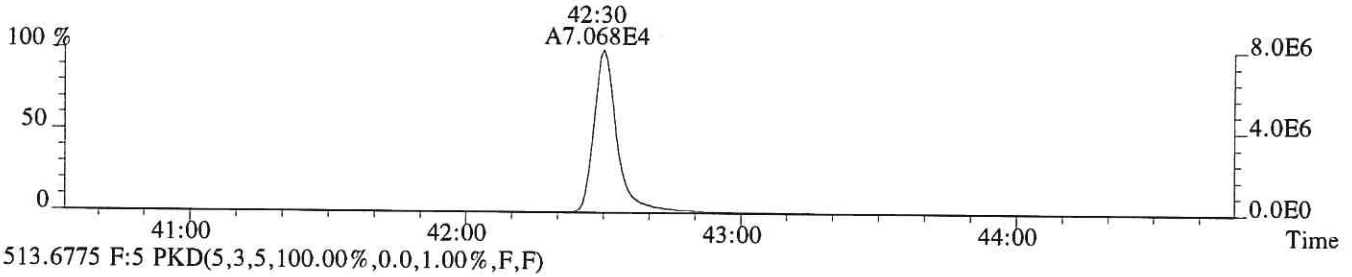
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



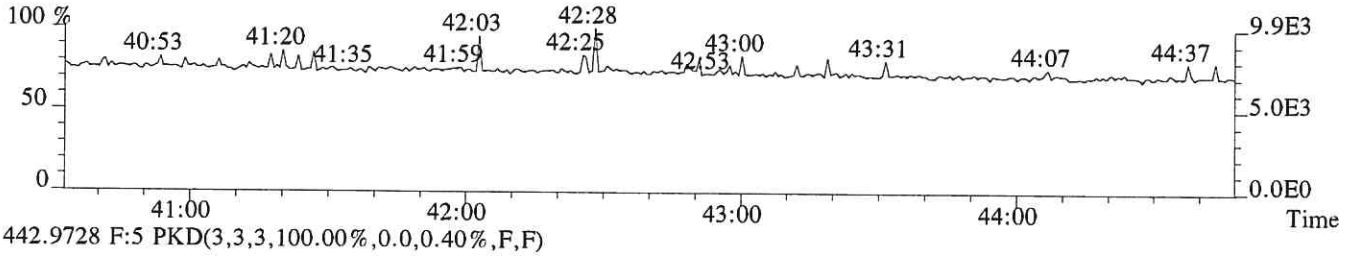
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



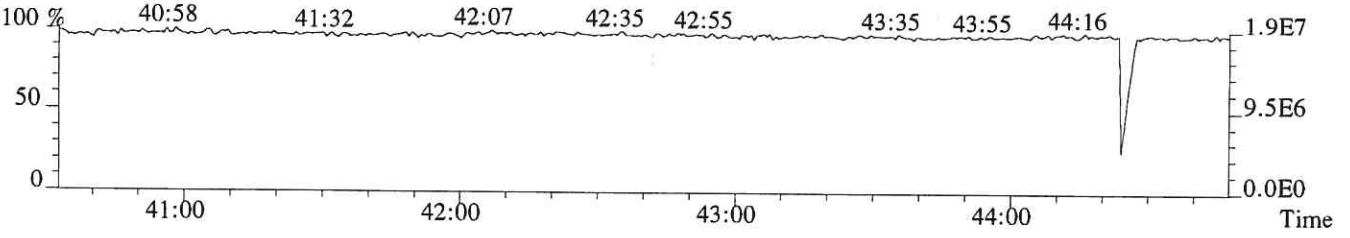
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



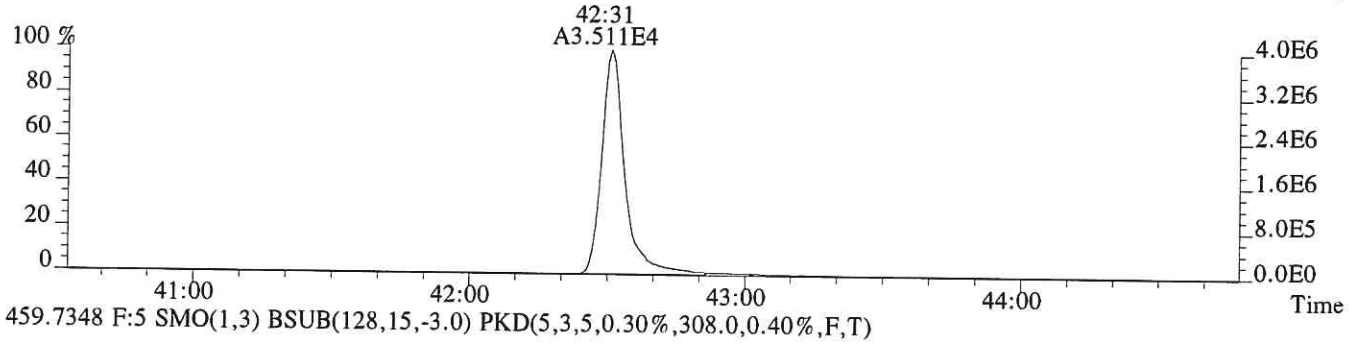
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



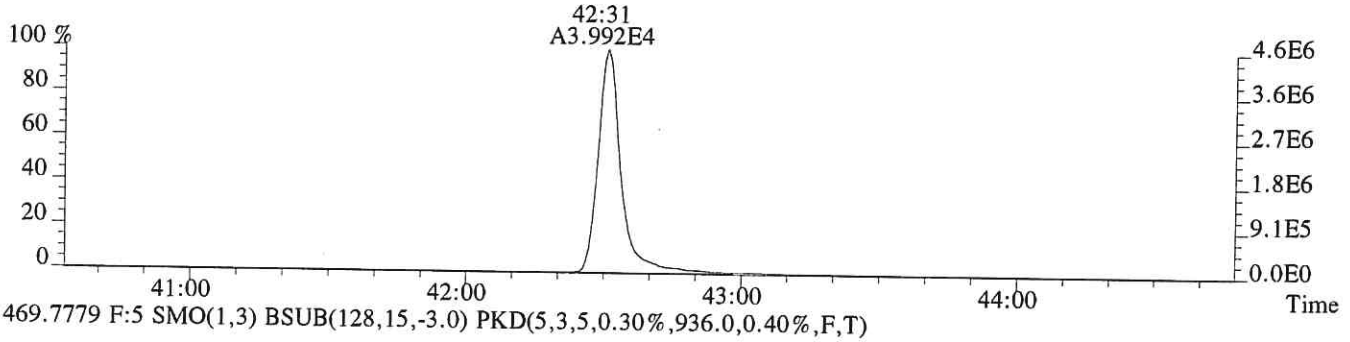
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



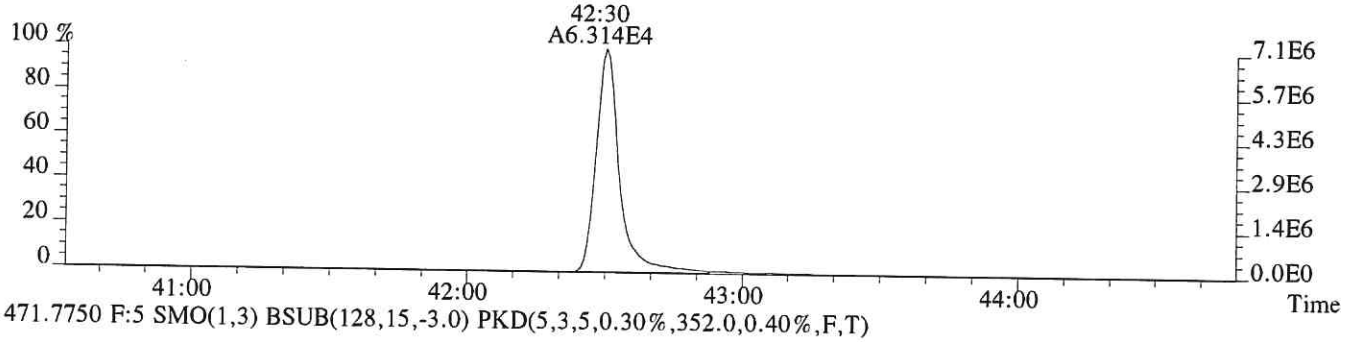
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



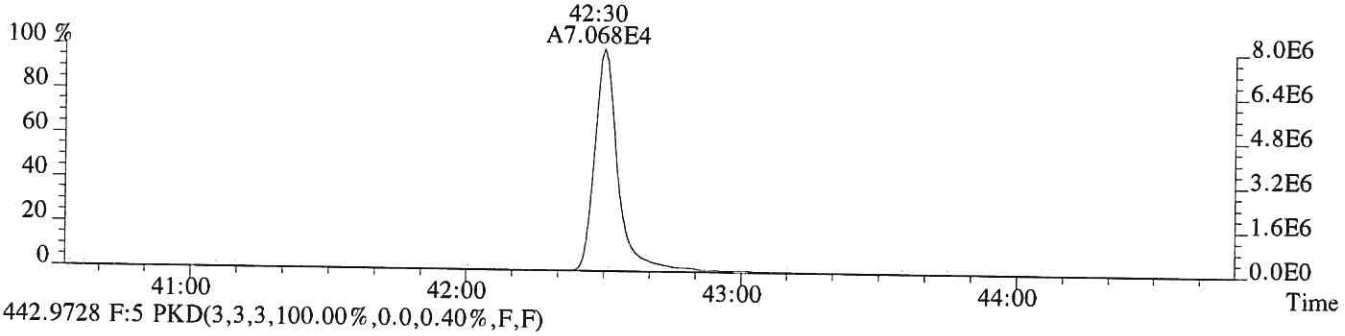
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



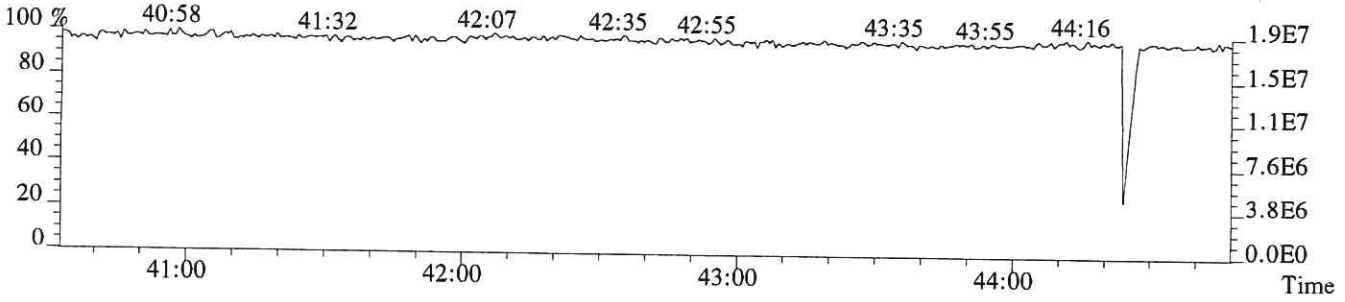
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P015940

Date: 12/06/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615939	6-DEC-18	09:46:58
194503	CS3	P615940	6-DEC-18	10:36:14
METHOD BLANK	EQ1800489-01	P615941	6-DEC-18	11:29:21
SL0129	E1801039-036DL	P615942	6-DEC-18	12:17:41
SL0130	E1801039-037DL	P615943	6-DEC-18	13:06:43
141506W-141510W	E1801004-006	P615944	6-DEC-18	14:03:40
152901F-152905F	E1801004-009	P615945	6-DEC-18	14:51:59
18315B01BA	E1801053-001	P615946	6-DEC-18	15:42:25
SL0544	E1801046-006	P615947	6-DEC-18	16:30:45
SL0191	E1801056-006	P615948	6-DEC-18	17:22:09
SL0197	E1801056-012	P615949	6-DEC-18	18:10:28
SL0203	E1801056-039	P615950	6-DEC-18	18:59:31
SL0204	E1801056-040	P615951	6-DEC-18	19:48:42
LCS	EQ1800488-02	P615952	6-DEC-18	20:37:53
DLCS	EQ1800488-03	P615953	6-DEC-18	21:27:03

E1801046

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181206A.SPL
Last Modified: Friday, December 07, 2018 06:56:08 Central Standard Time
Printed: Friday, December 07, 2018 06:56:10 Central Standard Time

Page Position (1, 1)

OPUS4: P615940res

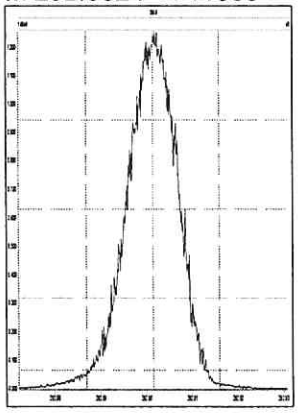
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/6/18	08:52	P615938	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	not used
2		09:46	P615939	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 08:51
3		10:36	P615940	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		11:29	P615941	EQ1800489-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:17	P615942	E181039-036DL	E181039-036DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:06	P615943	E181039-037DL	E181039-037DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:03	P615944	E1801004-006	E1801004-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:51	P615945	E1801004-009	E1801004-009	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:42	P615946	E1801053-001	E1801053-001	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:30	P615947	E1801046-006	E1801046-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:22	P615948	E1801056-006	E1801056-006	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:10	P615949	E1801056-012	E1801056-012	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:59	P615950	E1801056-039	E1801056-039	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:48	P615951	E1801056-040	E1801056-040	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:37	P615952	EQ1800488-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:27	P615953	EQ1800488-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:16		
17		22:24	P615954	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 22:24
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 12/10/18

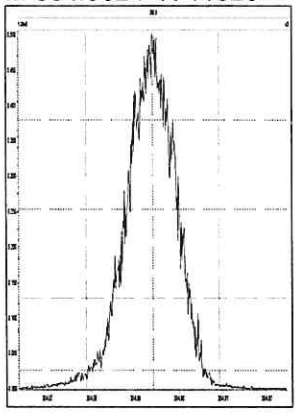
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:51:02 Central Standard Time

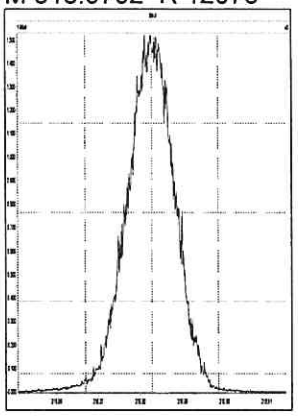
M 292.9824 R 11366



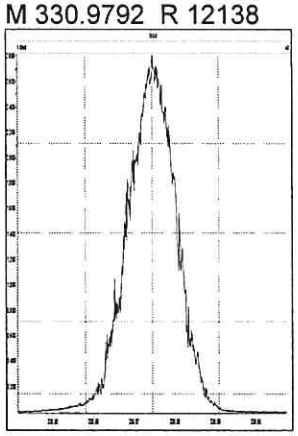
M 304.9824 R 11628



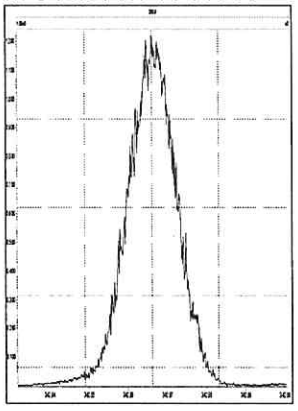
M 318.9792 R 12076



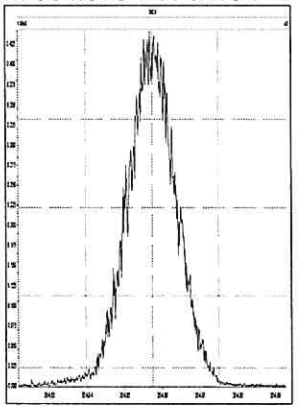
M 330.9792 R 12138



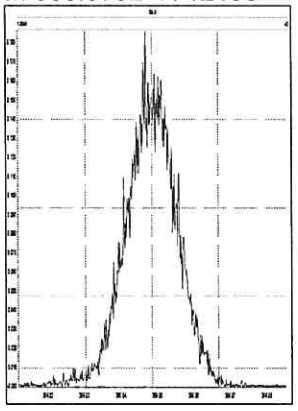
M 342.9792 R 11848



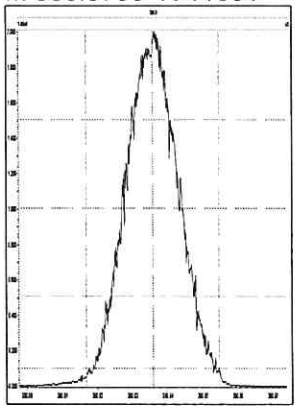
M 354.9792 R 12192



M 366.9792 R 12196



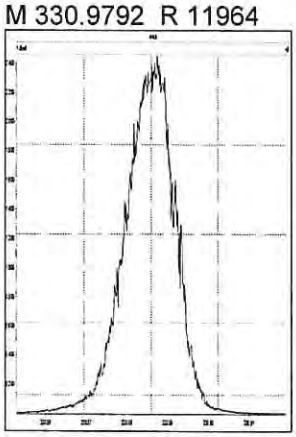
M 380.9760 R 11061



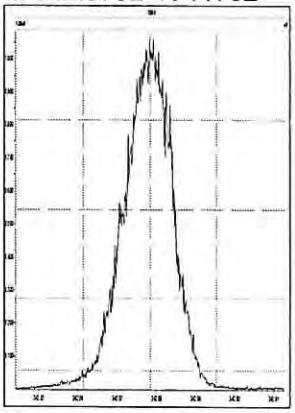
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:51:50 Central Standard Time

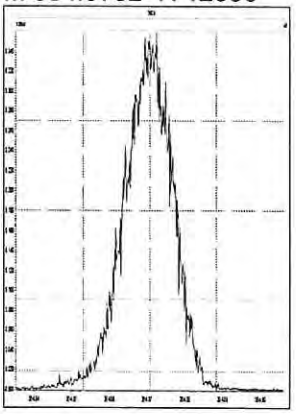
M 330.9792 R 11964



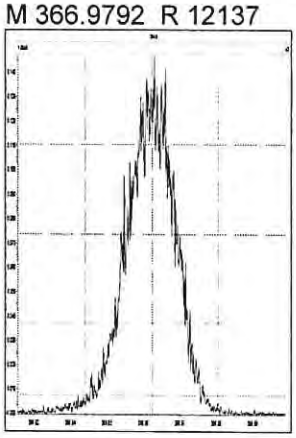
M 342.9792 R 11792



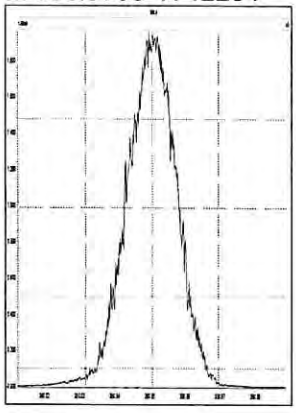
M 354.9792 R 12080



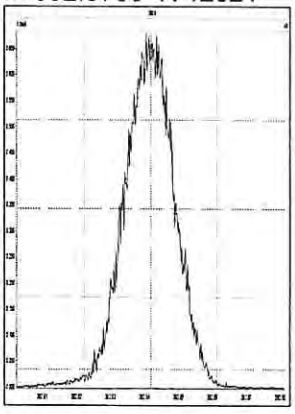
M 366.9792 R 12137



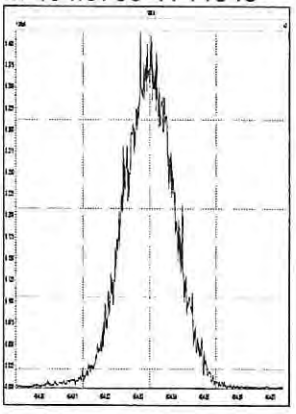
M 380.9760 R 12254



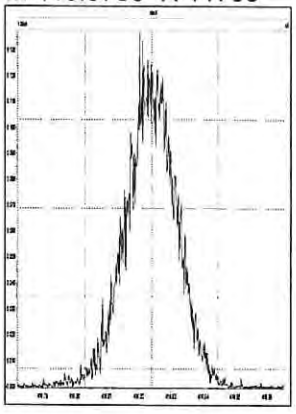
M 392.9760 R 12021



M 404.9760 R 11848



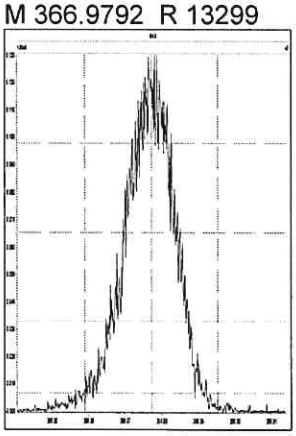
M 416.9760 R 11735



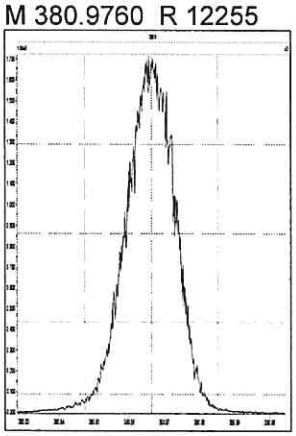
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:52:34 Central Standard Time

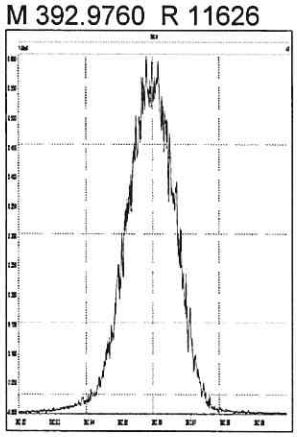
M 366.9792 R 13299



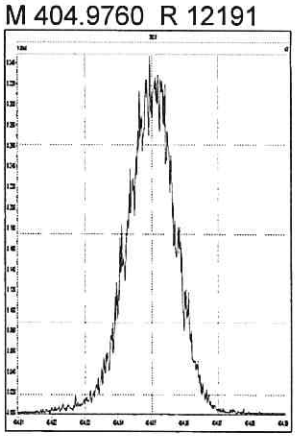
M 380.9760 R 12255



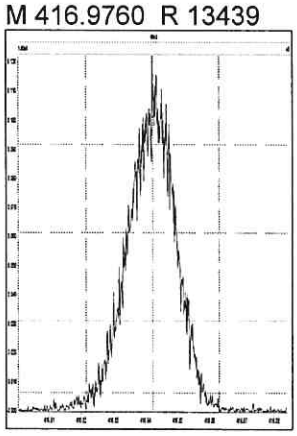
M 392.9760 R 11626



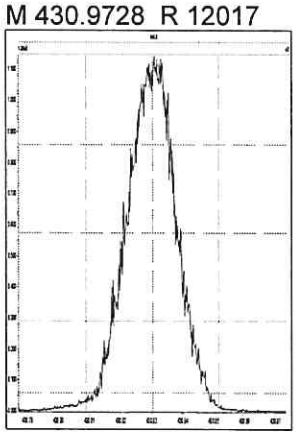
M 404.9760 R 12191



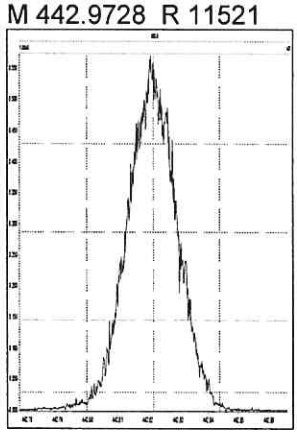
M 416.9760 R 13439



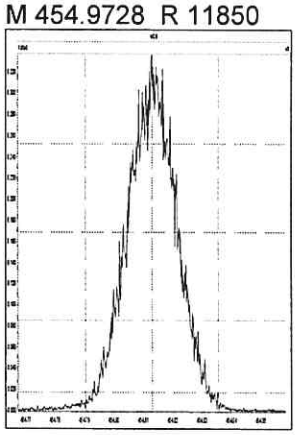
M 430.9728 R 12017



M 442.9728 R 11521



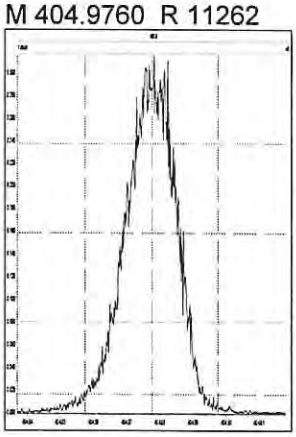
M 454.9728 R 11850



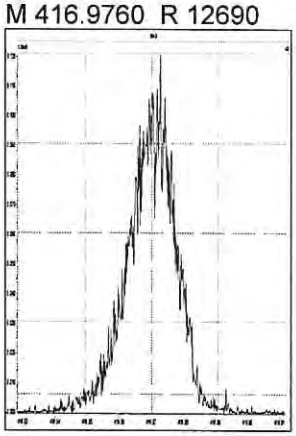
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:53:21 Central Standard Time

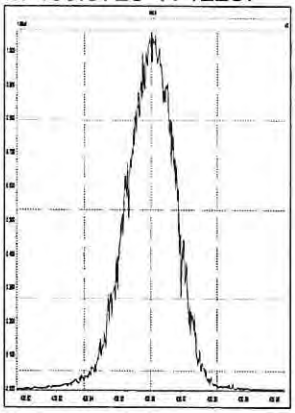
M 404.9760 R 11262



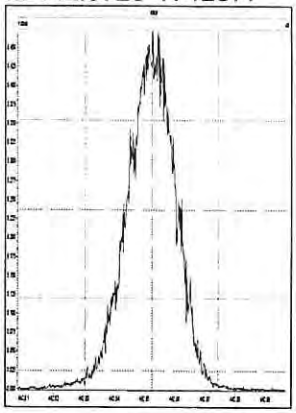
M 416.9760 R 12690



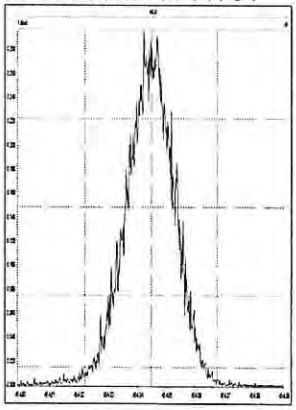
M 430.9728 R 12257



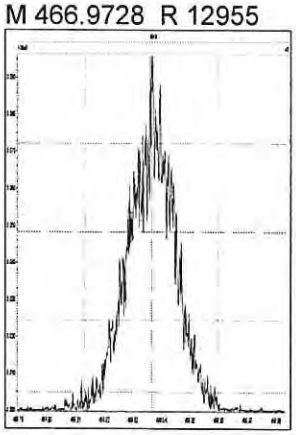
M 442.9728 R 12377



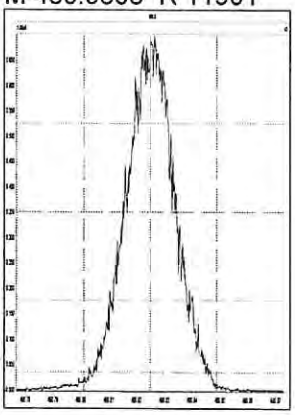
M 454.9728 R 11791



M 466.9728 R 12955



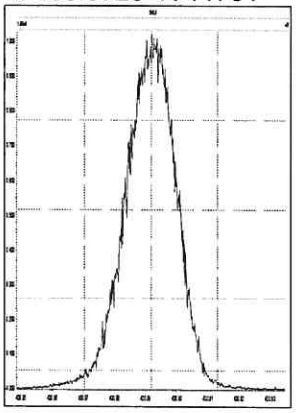
M 480.9696 R 11901



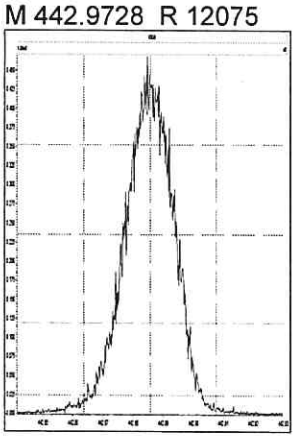
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:54:10 Central Standard Time

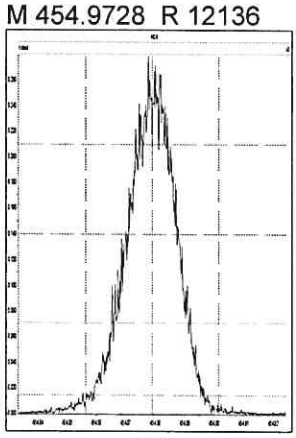
M 430.9728 R 11791



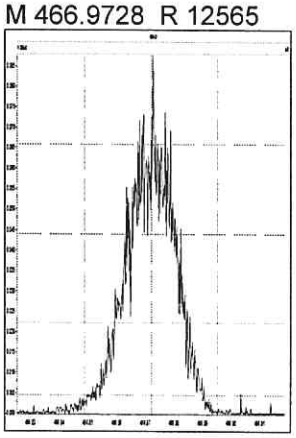
M 442.9728 R 12075



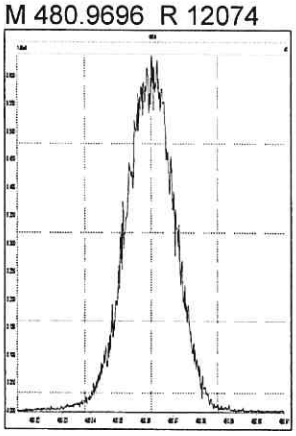
M 454.9728 R 12136



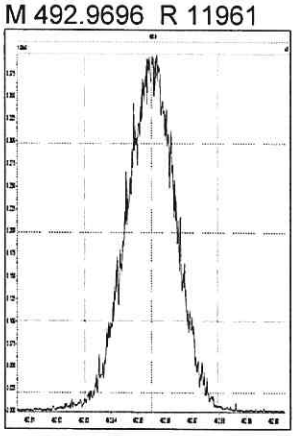
M 466.9728 R 12565



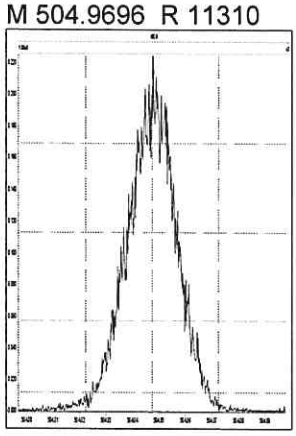
M 480.9696 R 12074



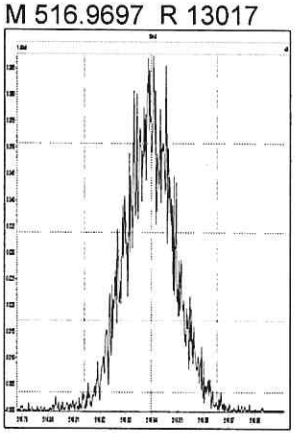
M 492.9696 R 11961



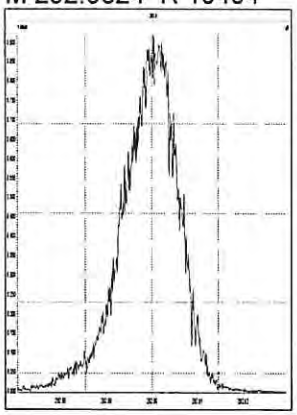
M 504.9696 R 11310



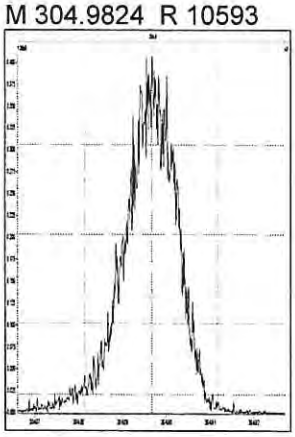
M 516.9697 R 13017



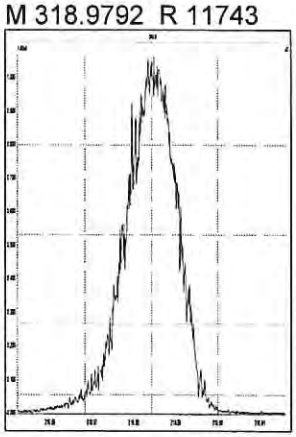
M 292.9824 R 10404



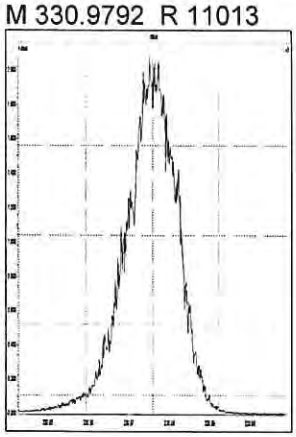
M 304.9824 R 10593



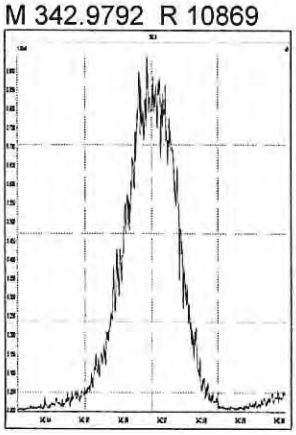
M 318.9792 R 11743



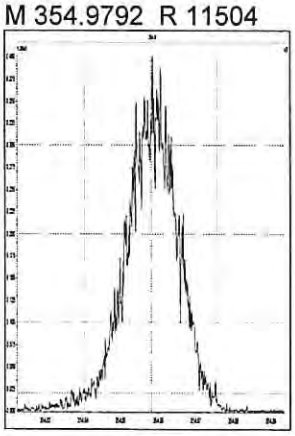
M 330.9792 R 11013



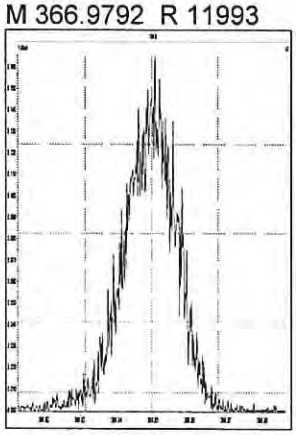
M 342.9792 R 10869



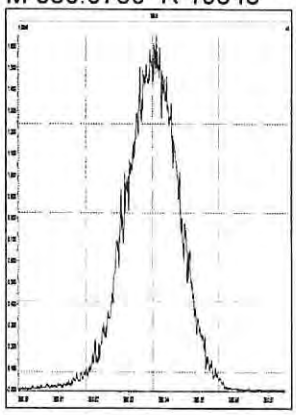
M 354.9792 R 11504



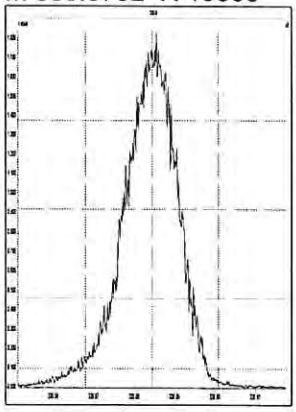
M 366.9792 R 11993



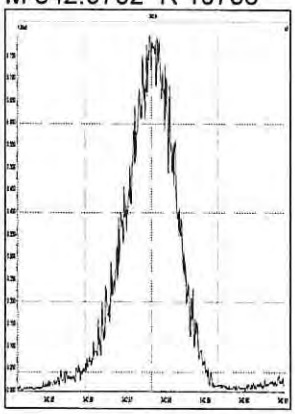
M 380.9760 R 10848



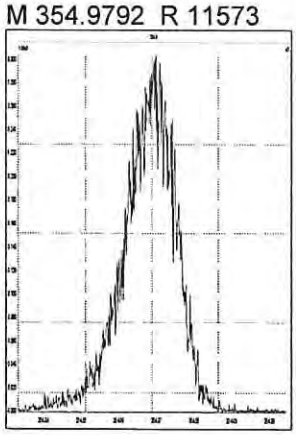
M 330.9792 R 10355



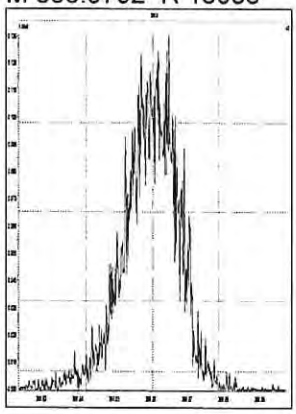
M 342.9792 R 10756



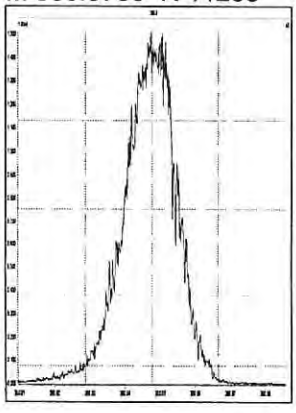
M 354.9792 R 11573



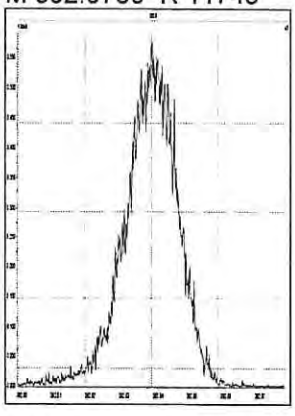
M 366.9792 R 13086



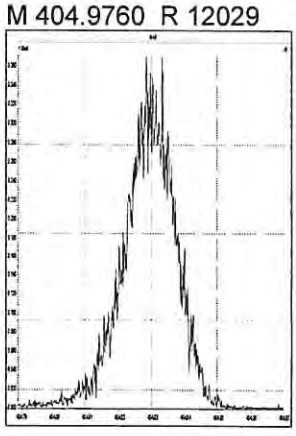
M 380.9760 R 11263



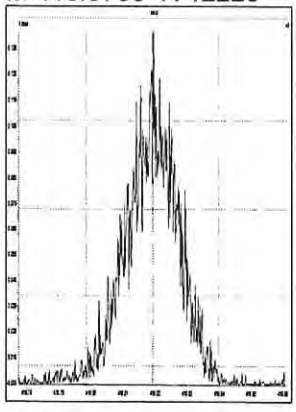
M 392.9760 R 11743



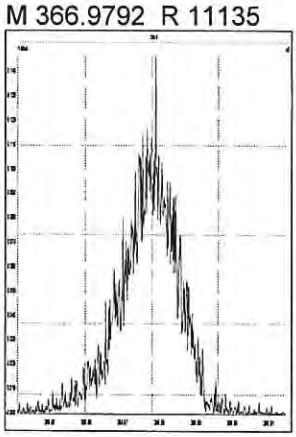
M 404.9760 R 12029



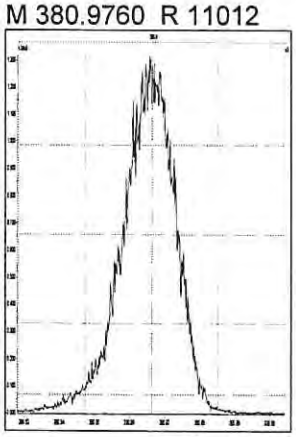
M 416.9760 R 12225



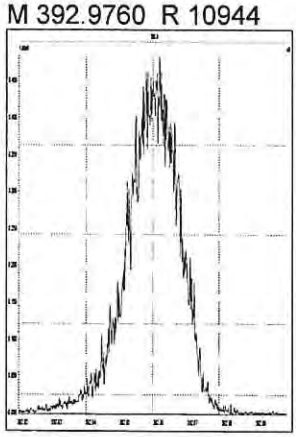
M 366.9792 R 11135



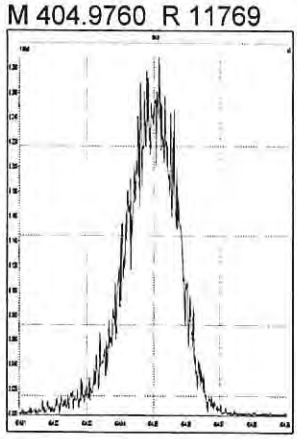
M 380.9760 R 11012



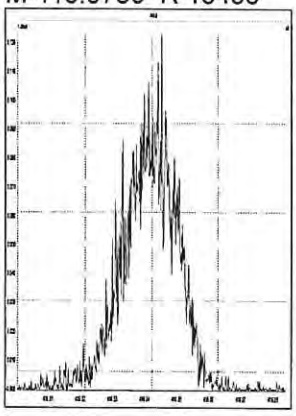
M 392.9760 R 10944



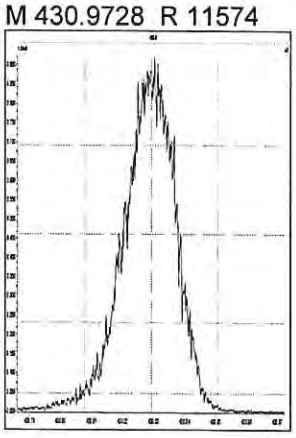
M 404.9760 R 11769



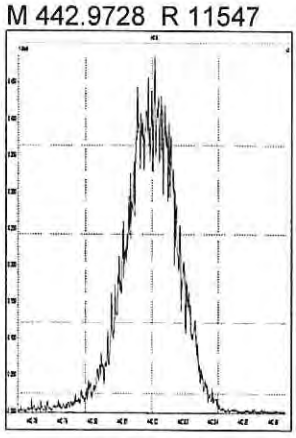
M 416.9760 R 13455



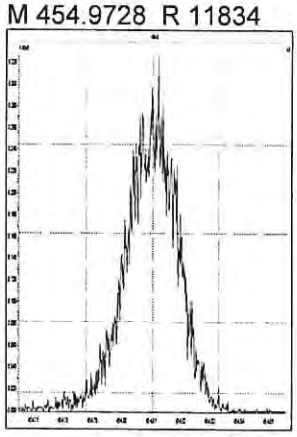
M 430.9728 R 11574



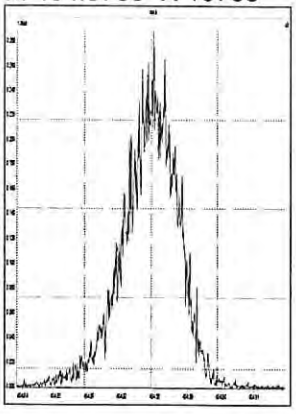
M 442.9728 R 11547



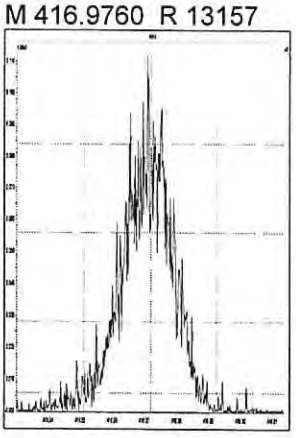
M 454.9728 R 11834



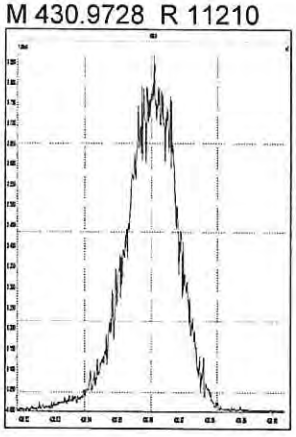
M 404.9760 R 10760



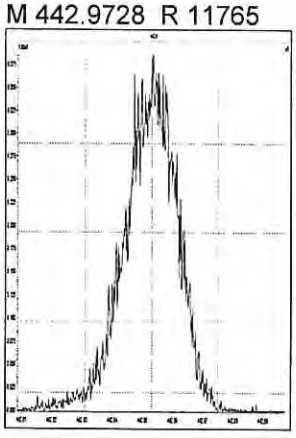
M 416.9760 R 13157



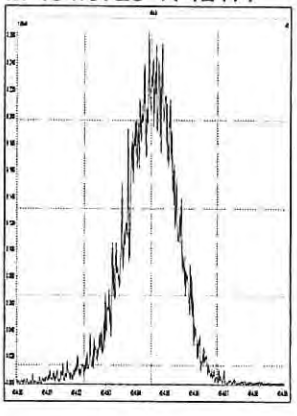
M 430.9728 R 11210



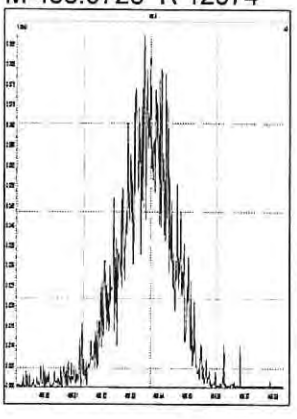
M 442.9728 R 11765



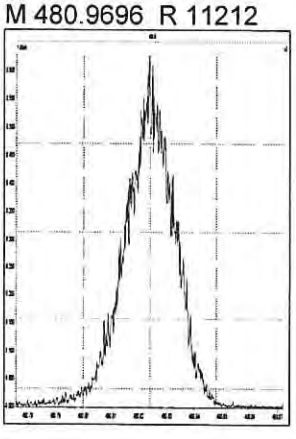
M 454.9728 R 12177



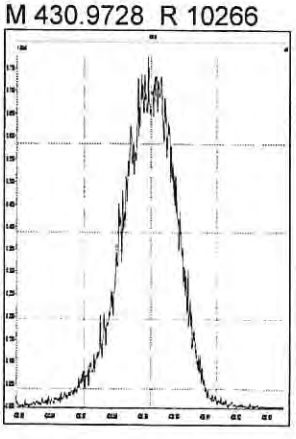
M 466.9728 R 12574



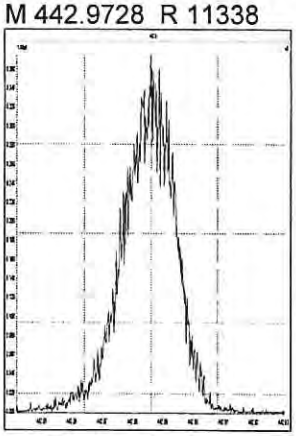
M 480.9696 R 11212



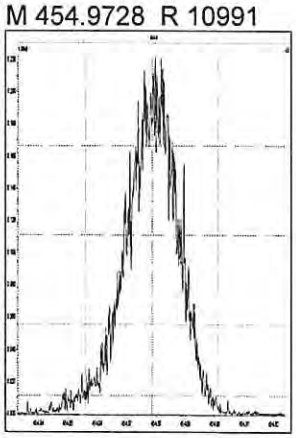
M 430.9728 R 10266



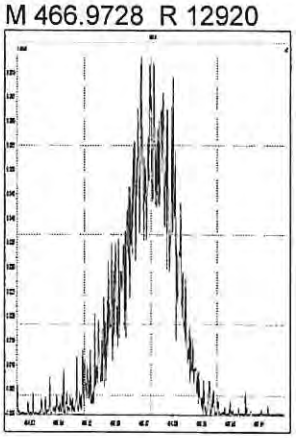
M 442.9728 R 11338



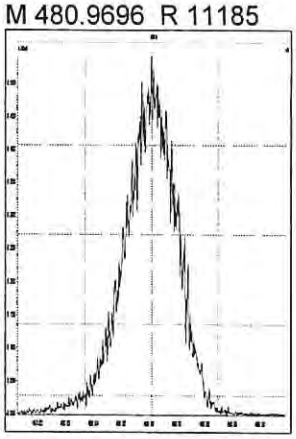
M 454.9728 R 10991



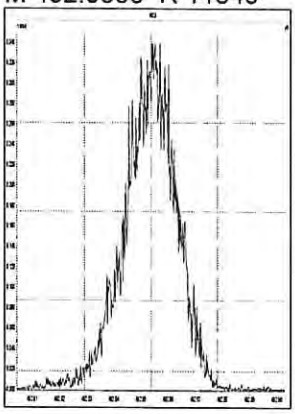
M 466.9728 R 12920



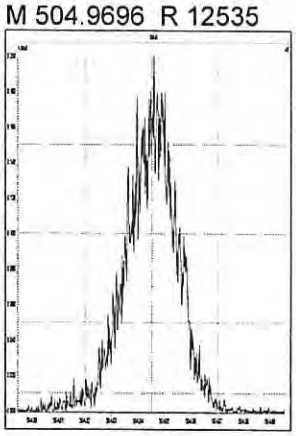
M 480.9696 R 11185



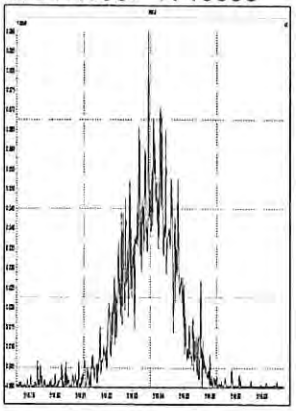
M 492.9696 R 11849



M 504.9696 R 12535



M 516.9697 R 13596



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

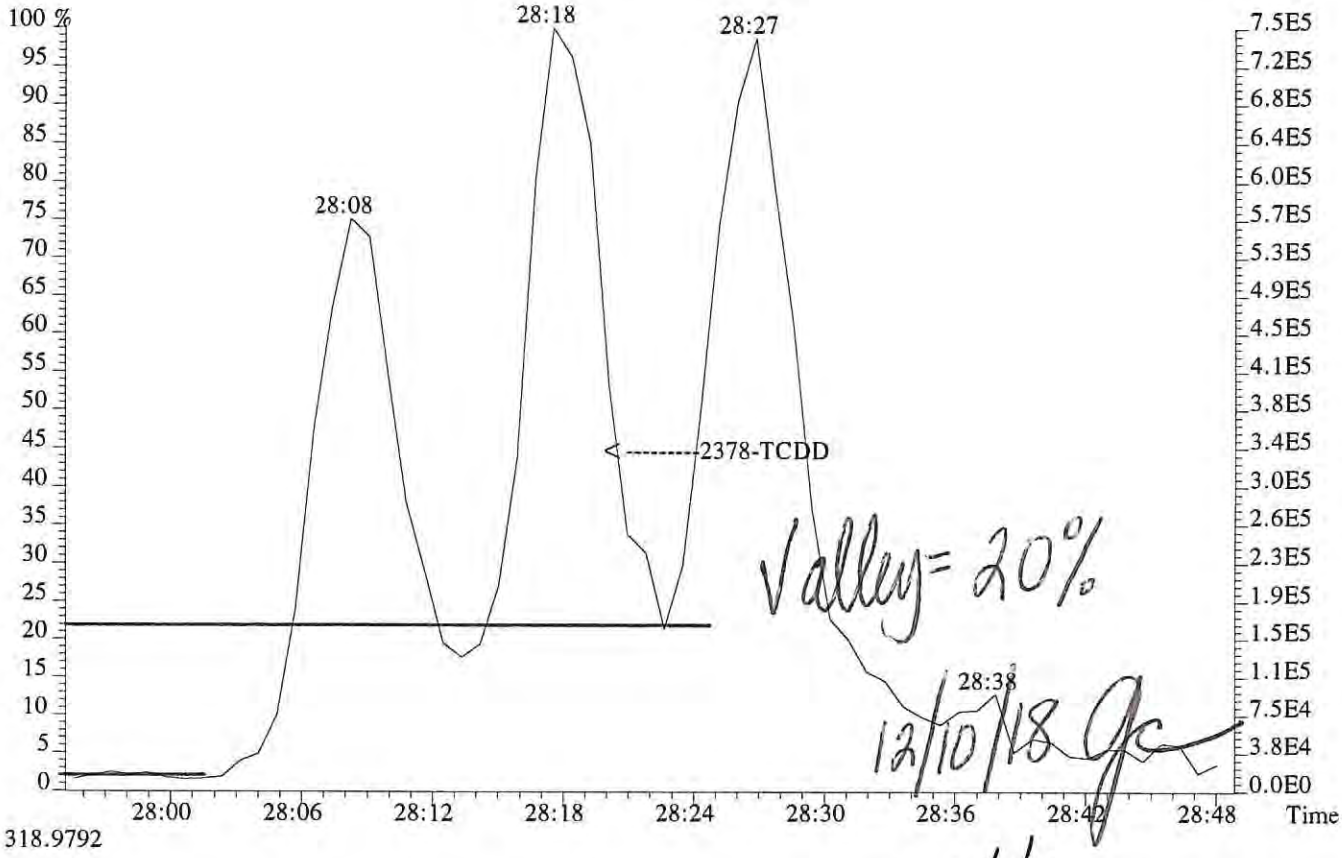
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P615939
Date Analyzed: 6-DEC-18
Time Analyzed: 09:46:58

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:59	29:32
TCDD	24:46	29:20
PeCDF	29:25	33:48
PeCDD	31:02	33:32
HxCDF	34:26	36:58
HxCDD	34:57	36:33
HpCDF	38:10	39:32
HpCDD	38:24	39:04

% Valley 2378-TCDD: 20 %

File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

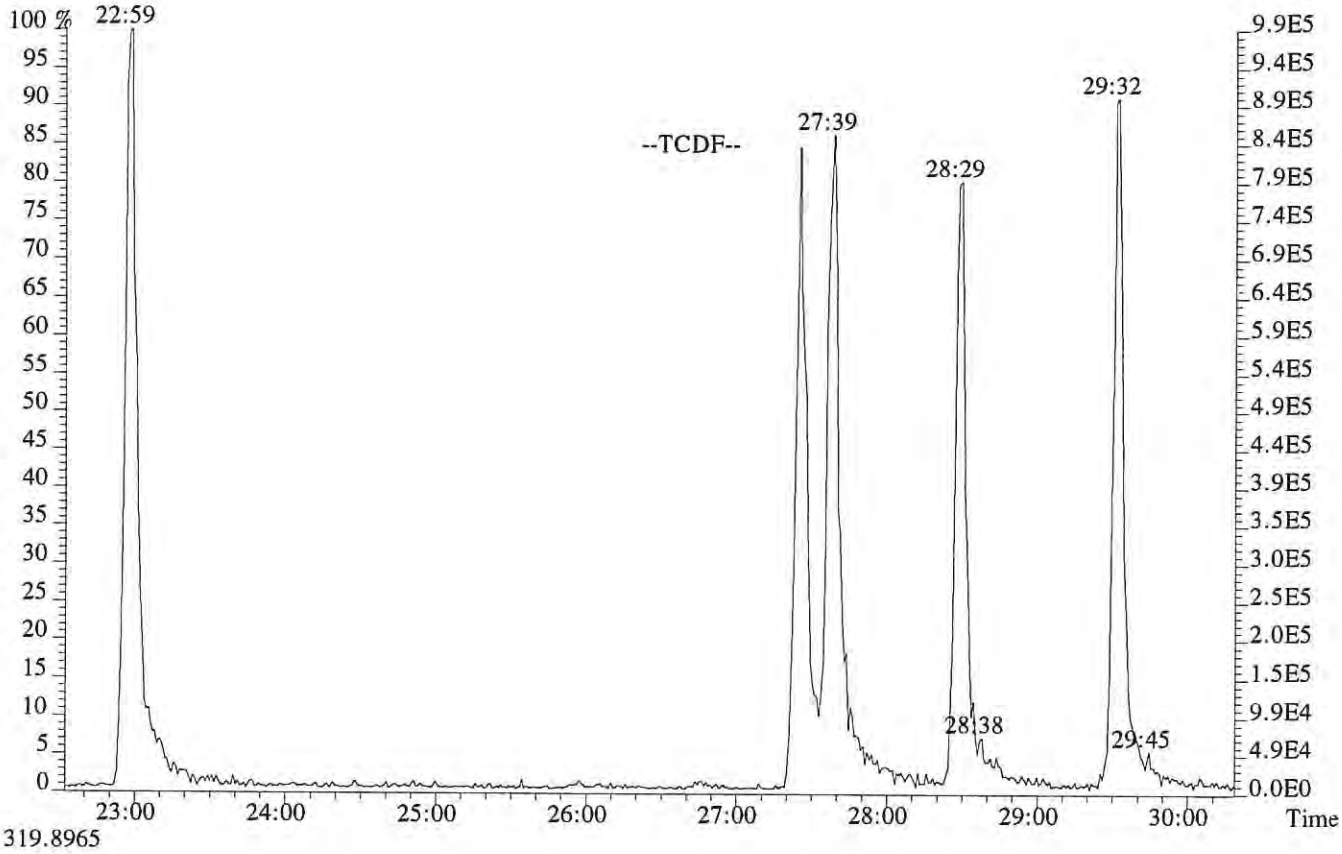


318.9792

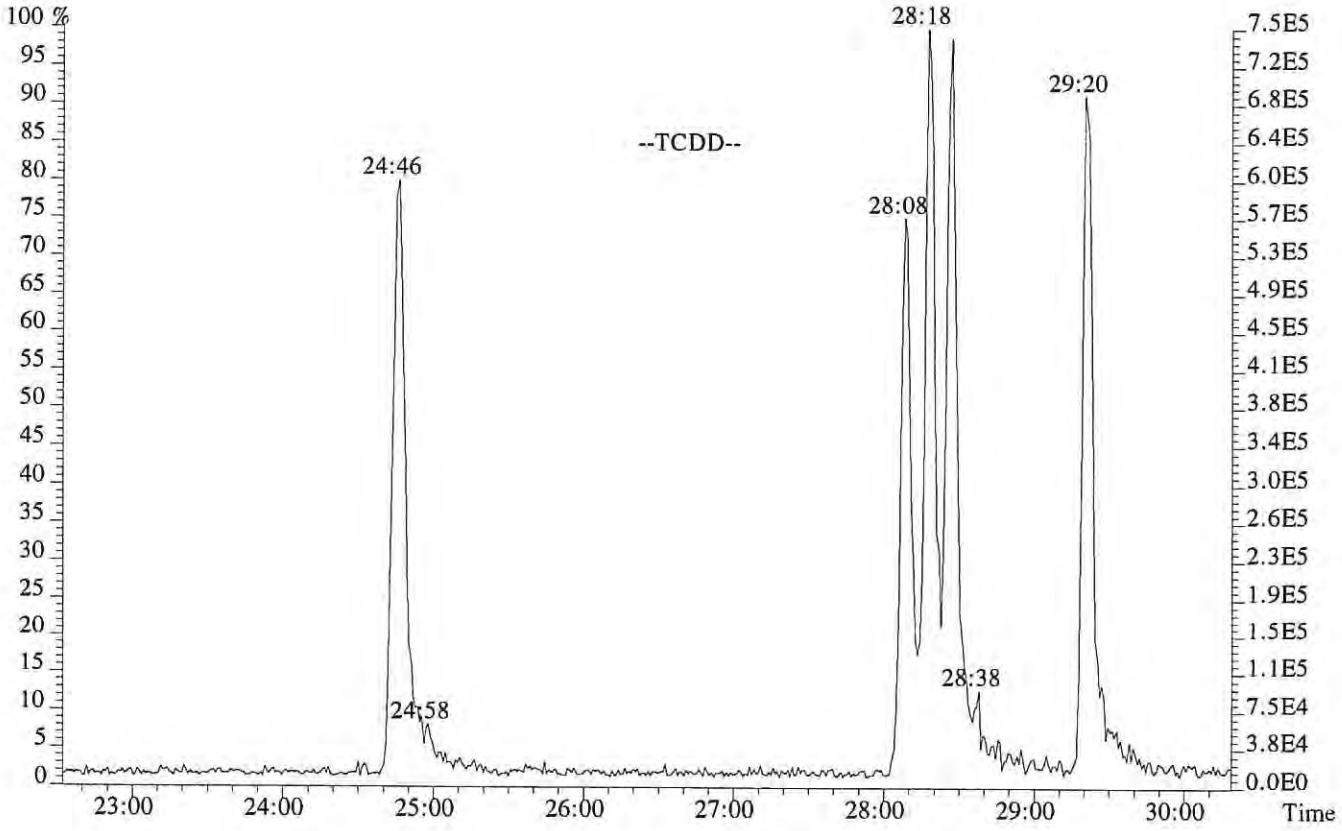
LM 12/11/18



File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



319.8965



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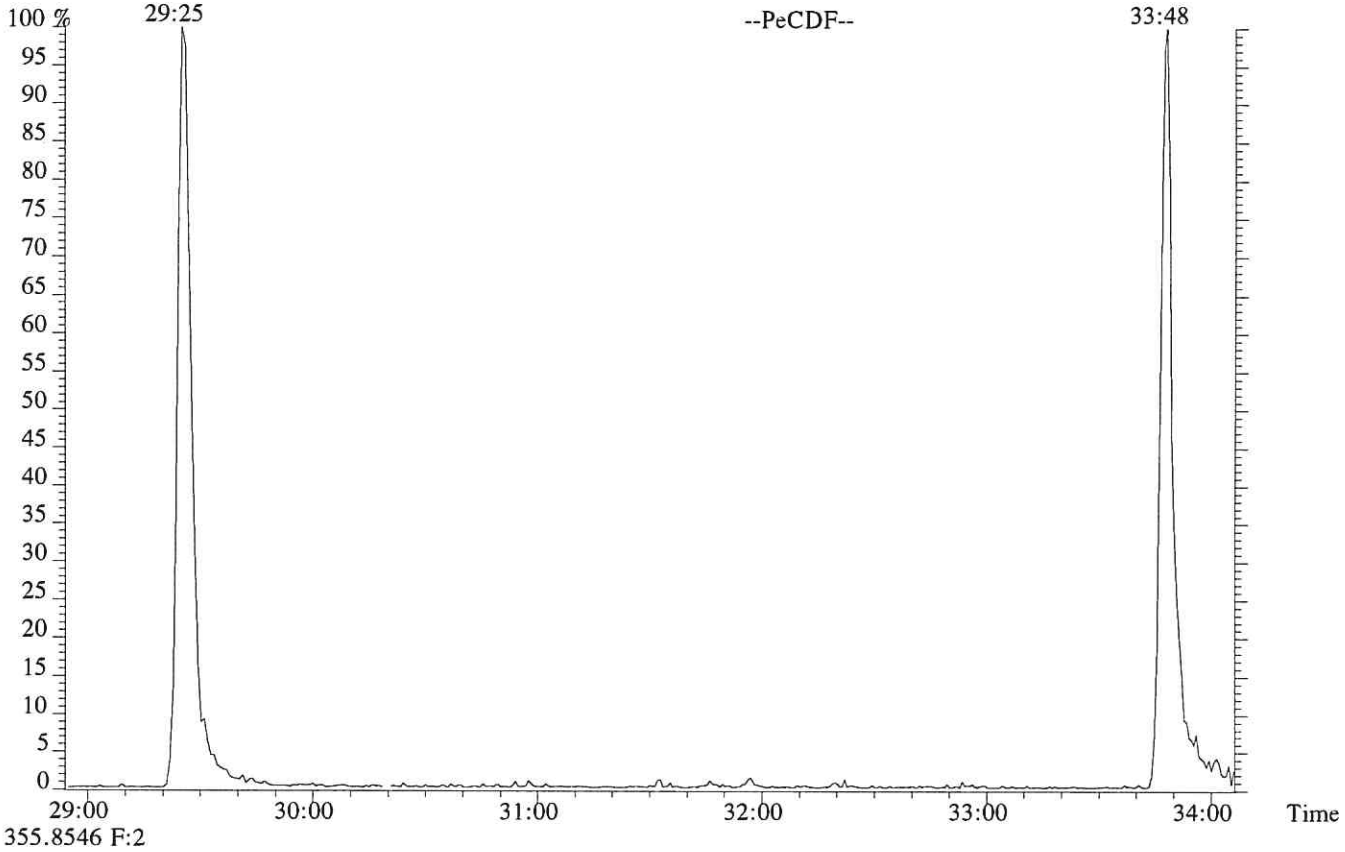
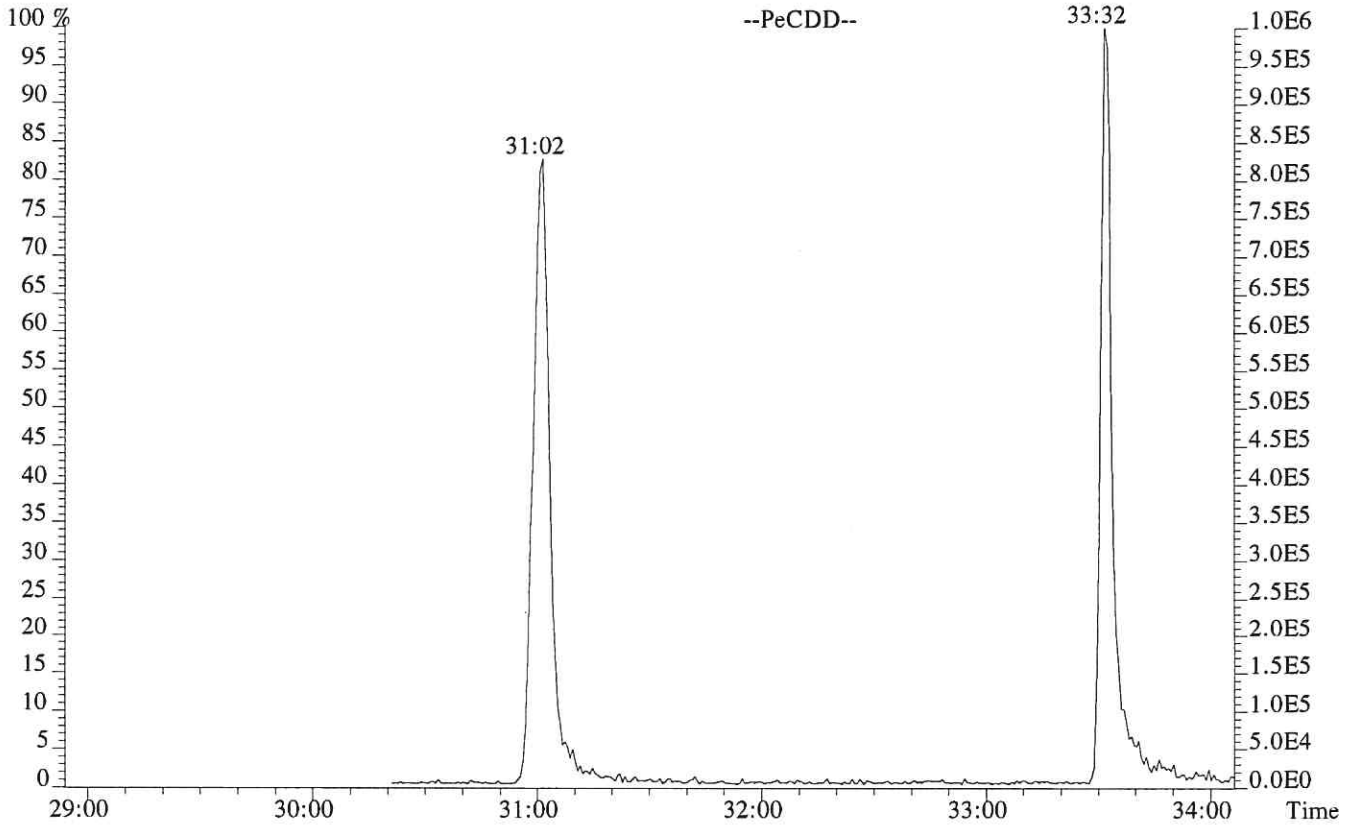
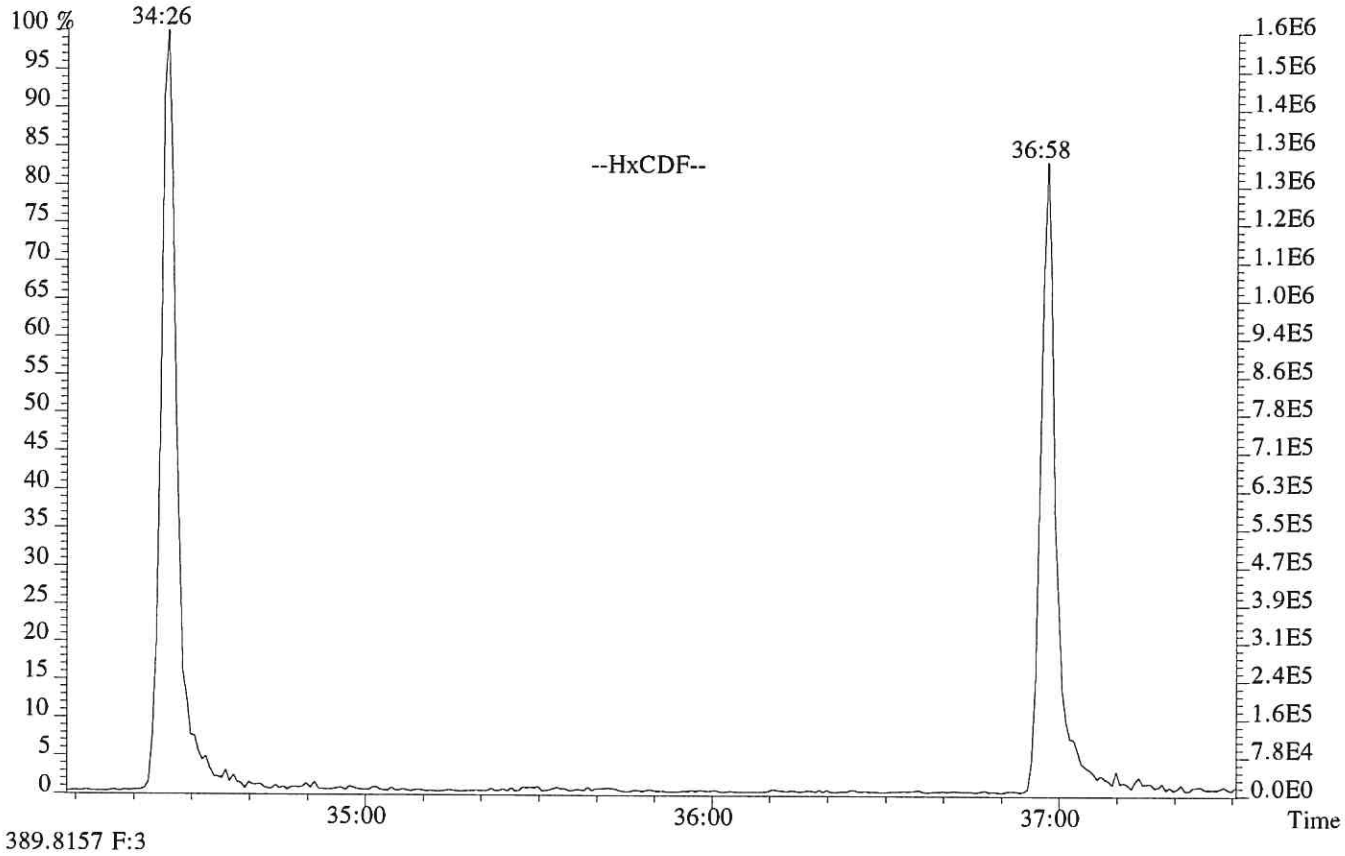
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



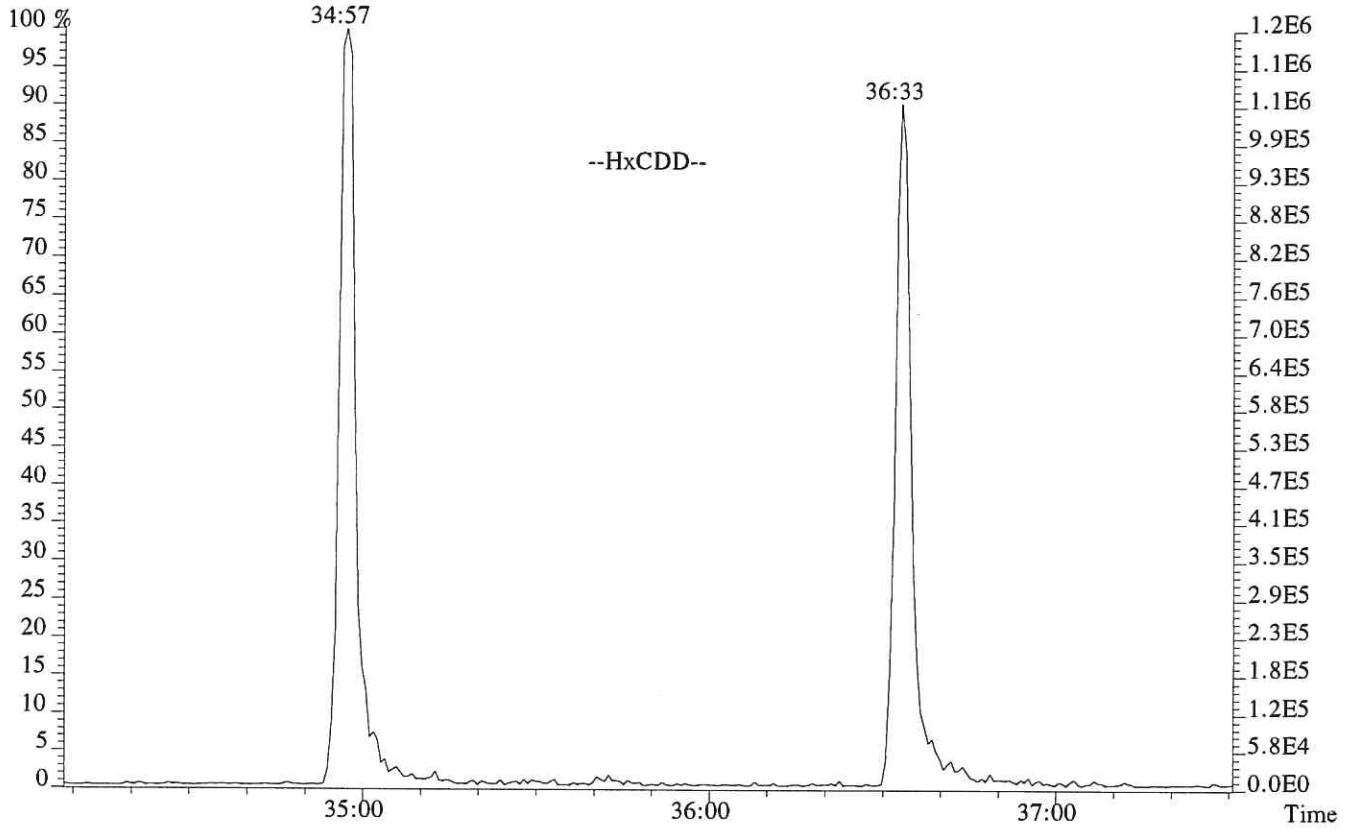
355.8546 F:2



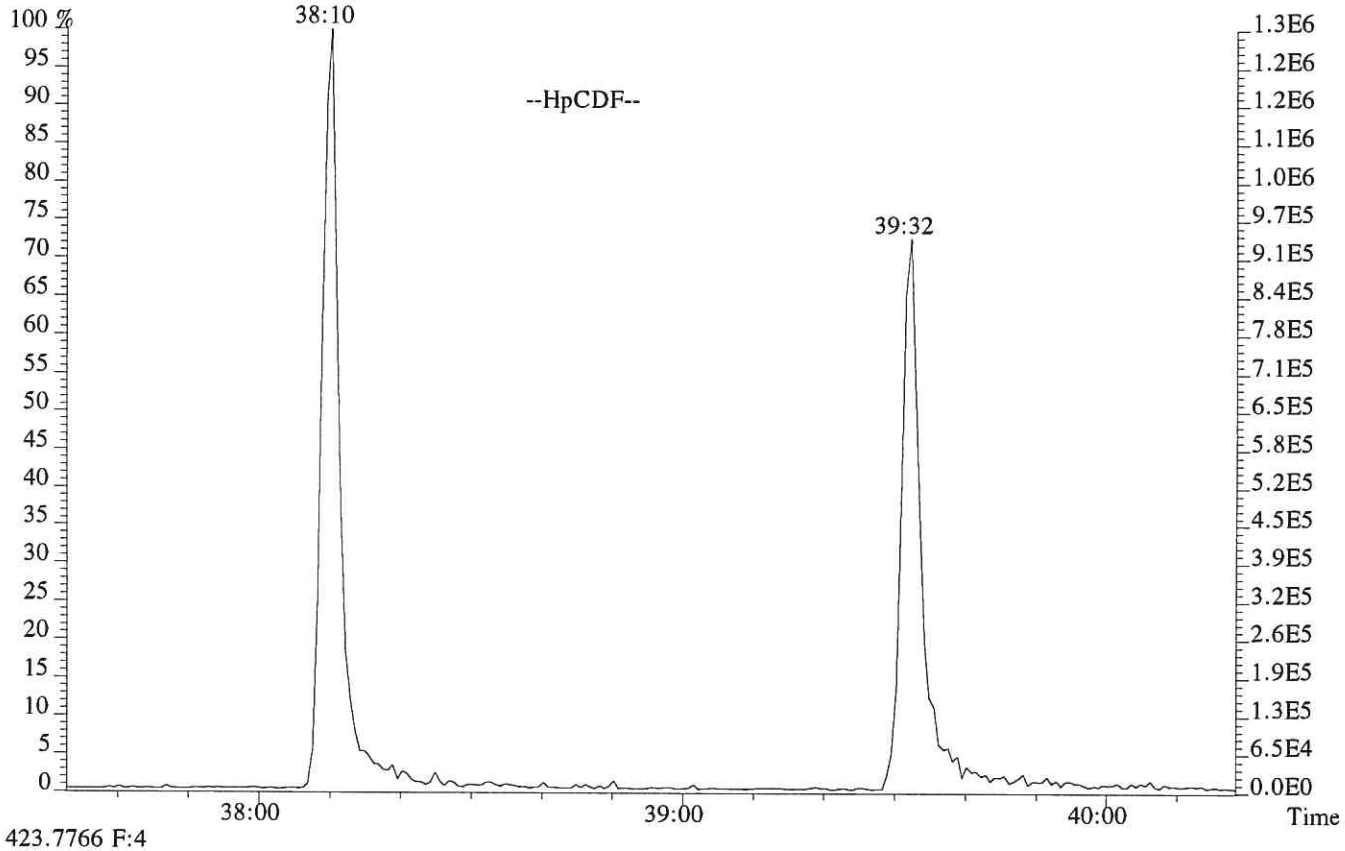
File:P615939 #1-304 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



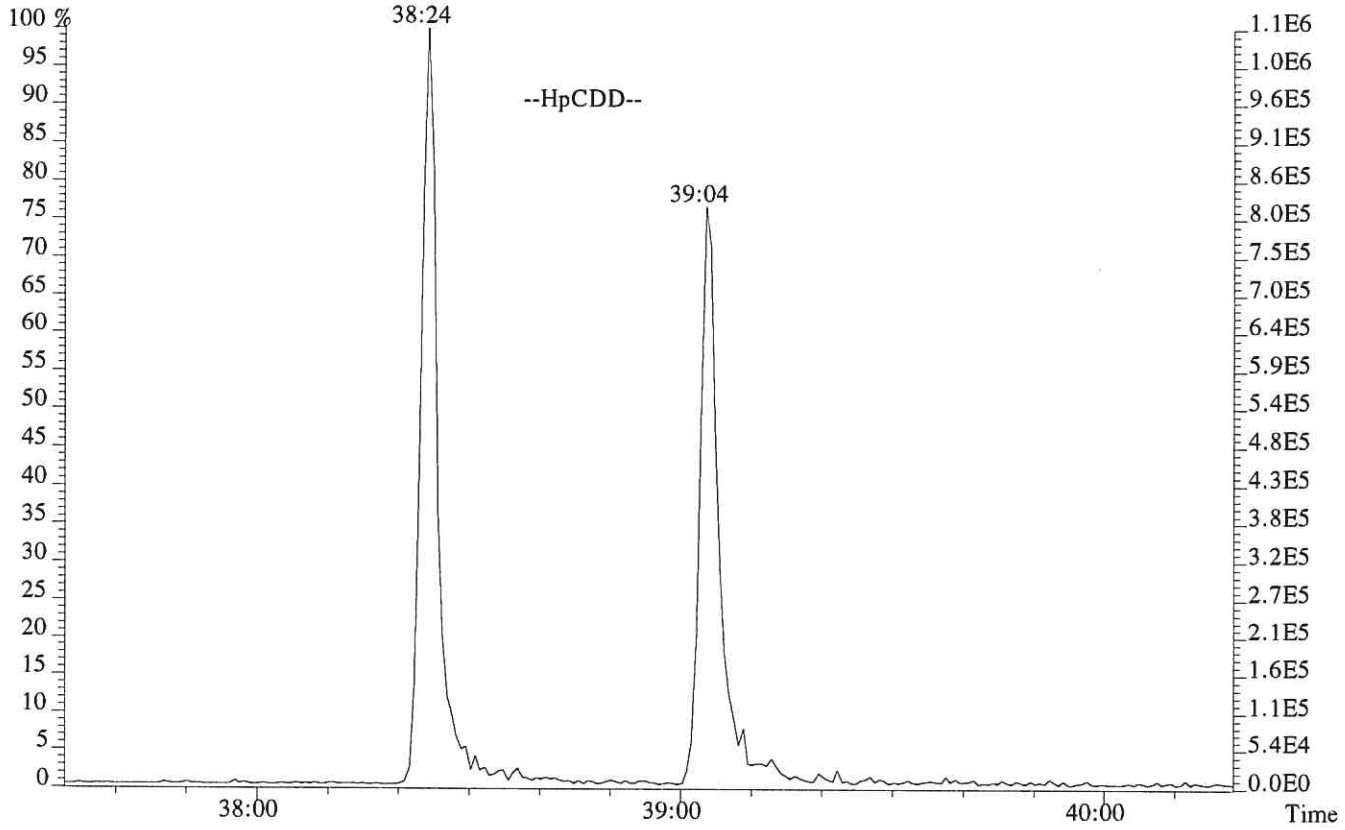
389.8157 F:3



File:P615939 #1-249 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615940 Analysis Date: 6-DEC-18 Time: 10:36:14

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.6	7.8 - 12.9	-4.1
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	48	39 - 64	-3.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	-0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	47	43 - 58	-6.2
OCDD	M+2/M+4	0.89	0.76-1.02	95	79 - 126	-4.7
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.0	8.4 - 12.0	-10.4
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 60	-9.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 61	-10.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-7.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	46	45 - 56	-7.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	46	45 - 55	-8.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	45	43 - 58	-10.0
OCDF	M+2/M+4	0.90	0.76-1.02	86	63 - 159	-14.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615940 Analysis Date: 6-DEC-18 Time: 10:36:14

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	97	82 - 121	-3.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	91	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	100	85 - 117	-0.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	102	85 - 118	2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	96	72 - 138	-4.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	188	96 - 415	-5.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	89	76 - 130	-11.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	87	77 - 130	-12.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	76 - 131	-5.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	70 - 143	-3.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	86	74 - 135	-13.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-5.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	85	77 - 129	-14.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.3	7.8 - 12.7	-7.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P615940 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:36:14
Processed: 10-DEC-18 11:31:53 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	7.114e+03	9.021e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	5.771e+04	3.707e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	5.304e+04	3.400e+04	1.56	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	4.722e+04	3.842e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	5.261e+04	4.196e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:10	4.702e+04	3.800e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:55	4.036e+04	3.274e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	4.022e+04	3.902e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	3.230e+04	3.050e+04	1.06	yes	no	1.463
10	Unk	OCDF	41:56	4.869e+04	5.409e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:25	5.330e+03	6.936e+03	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:09	3.653e+04	2.343e+04	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	3.190e+04	2.575e+04	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	3.360e+04	2.616e+04	1.28	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	3.533e+04	2.810e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	2.683e+04	2.590e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:43	3.965e+04	4.461e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	7.353e+04	9.298e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	1.119e+05	6.994e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	1.084e+05	6.792e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	4.667e+04	8.828e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	5.488e+04	1.040e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	4.976e+04	9.512e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	4.144e+04	7.897e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	3.526e+04	7.848e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.968e+04	6.570e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	5.307e+04	6.886e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	8.023e+04	5.192e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	6.176e+04	4.924e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	6.352e+04	5.029e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	5.160e+04	4.941e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:43	7.238e+04	8.033e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.690e+04	7.153e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	6.857e+04	5.467e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	1.292e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P615940 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:36:14
Processed: 10-DEC-18 11:31:53 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	2.18e+03	4.8e+02	1.31e+06	7.64e+03	1.7e+02
2	1,2,3,7,8-PeCDF	9.45e+06	1.68e+03	5.6e+03	6.05e+06	3.39e+03	1.8e+03
3	2,3,4,7,8-PeCDF	9.31e+06	1.68e+03	5.6e+03	5.99e+06	3.39e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	9.97e+06	1.42e+03	7.0e+03	8.09e+06	1.10e+03	7.4e+03
5	1,2,3,6,7,8-HxCDF	1.02e+07	1.42e+03	7.2e+03	8.14e+06	1.10e+03	7.4e+03
6	2,3,4,6,7,8-HxCDF	9.44e+06	1.42e+03	6.7e+03	7.59e+06	1.10e+03	6.9e+03
7	1,2,3,7,8,9-HxCDF	7.77e+06	1.42e+03	5.5e+03	6.34e+06	1.10e+03	5.8e+03
8	1,2,3,4,6,7,8-HpCDF	8.43e+06	4.38e+03	1.9e+03	8.15e+06	1.96e+03	4.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.85e+06	4.38e+03	1.3e+03	5.49e+06	1.96e+03	2.8e+03
10	OCDF	8.12e+06	7.48e+02	1.1e+04	9.20e+06	2.77e+03	3.3e+03
11	2,3,7,8-TCDD	8.59e+05	4.31e+03	2.0e+02	1.12e+06	2.51e+03	4.5e+02
12	1,2,3,7,8-PeCDD	6.46e+06	1.86e+03	3.5e+03	4.02e+06	9.20e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	6.80e+06	1.24e+03	5.5e+03	5.49e+06	2.11e+03	2.6e+03
14	1,2,3,6,7,8-HxCDD	6.66e+06	1.24e+03	5.4e+03	5.15e+06	2.11e+03	2.4e+03
15	1,2,3,7,8,9-HxCDD	6.78e+06	1.24e+03	5.5e+03	5.37e+06	2.11e+03	2.5e+03
16	1,2,3,4,6,7,8-HpCDD	5.29e+06	1.20e+03	4.4e+03	5.05e+06	6.44e+02	7.8e+03
17	OCDD	6.97e+06	3.76e+02	1.9e+04	7.70e+06	1.09e+03	7.1e+03
18	13C-2,3,7,8-TCDF	1.05e+07	8.47e+03	1.2e+03	1.33e+07	1.22e+04	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.82e+07	1.97e+03	9.3e+03	1.14e+07	1.05e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	1.86e+07	1.97e+03	9.4e+03	1.15e+07	1.05e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	9.76e+06	2.59e+03	3.8e+03	1.85e+07	2.73e+03	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.08e+07	2.59e+03	4.2e+03	2.04e+07	2.73e+03	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.01e+07	2.59e+03	3.9e+03	1.94e+07	2.73e+03	7.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.97e+06	2.59e+03	3.1e+03	1.52e+07	2.73e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.30e+06	5.48e+03	1.3e+03	1.63e+07	1.16e+04	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.41e+06	5.48e+03	9.9e+02	1.18e+07	1.16e+04	1.0e+03
27	13C-2,3,7,8-TCDD	8.61e+06	1.77e+04	4.9e+02	1.09e+07	8.28e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	1.38e+07	2.56e+03	5.4e+03	8.93e+06	2.42e+03	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.32e+07	4.48e+03	2.9e+03	1.03e+07	2.30e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.24e+07	4.48e+03	2.8e+03	9.79e+06	2.30e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.04e+07	1.85e+03	5.6e+03	9.71e+06	8.64e+02	1.1e+04
32	13C-OCDD	1.27e+07	1.44e+03	8.8e+03	1.39e+07	4.60e+02	3.0e+04
33	13C-1,2,3,4-TCDD	8.83e+06	1.77e+04	5.0e+02	1.12e+07	8.28e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.33e+07	4.48e+03	3.0e+03	1.05e+07	2.30e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.99e+06	3.54e+03	5.6e+02			

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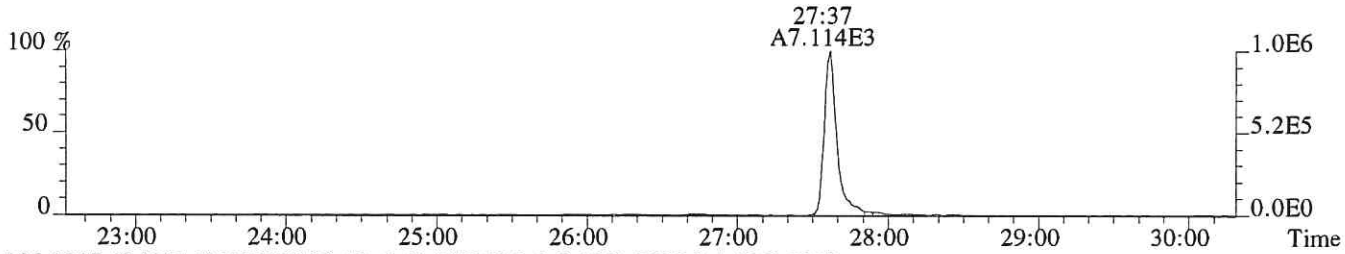
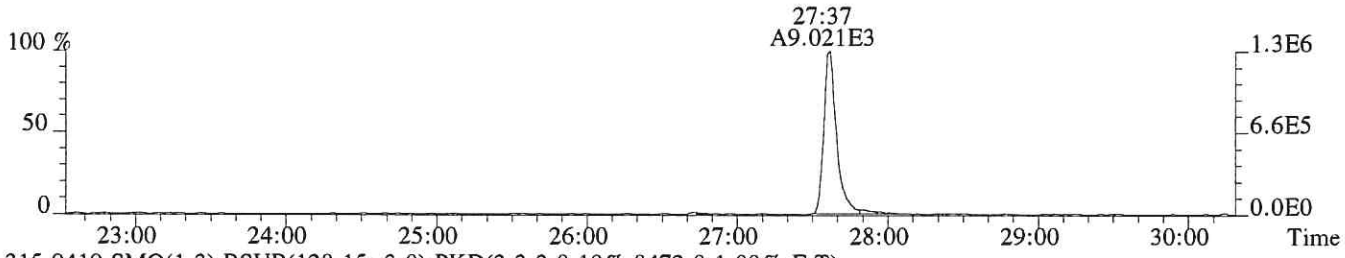
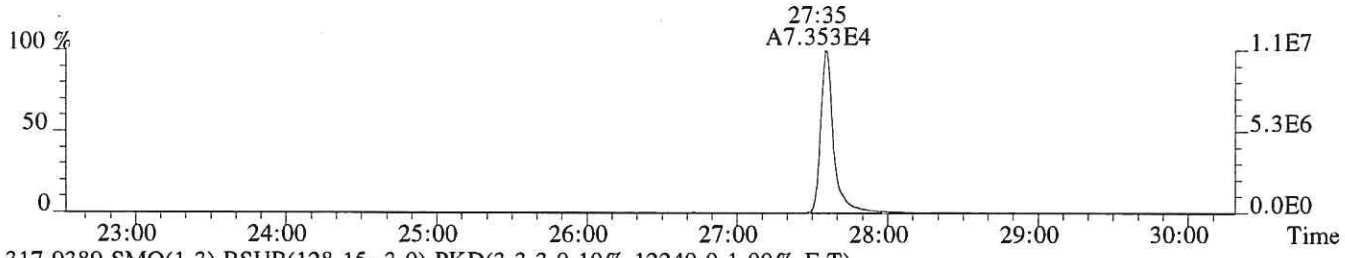
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



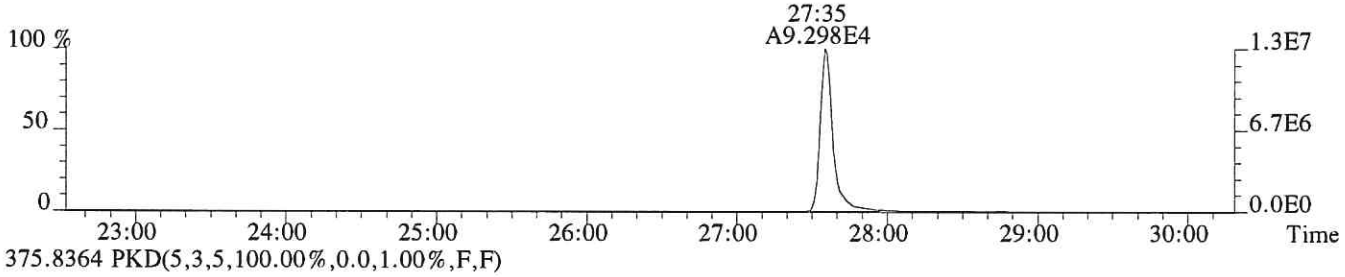
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7636.0,1.00%,F,T)



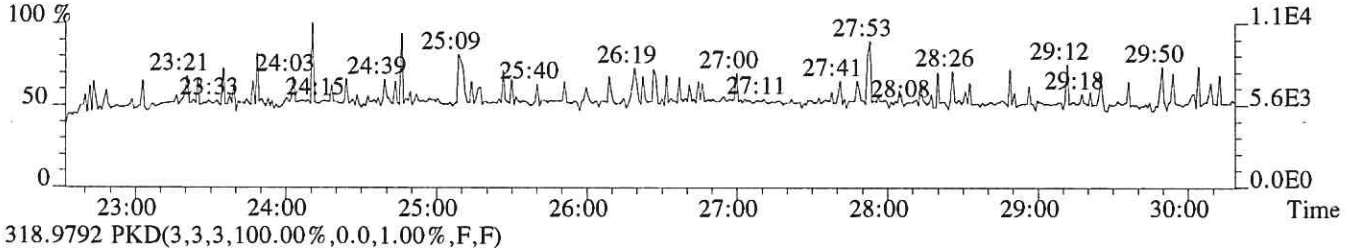
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8472.0,1.00%,F,T)



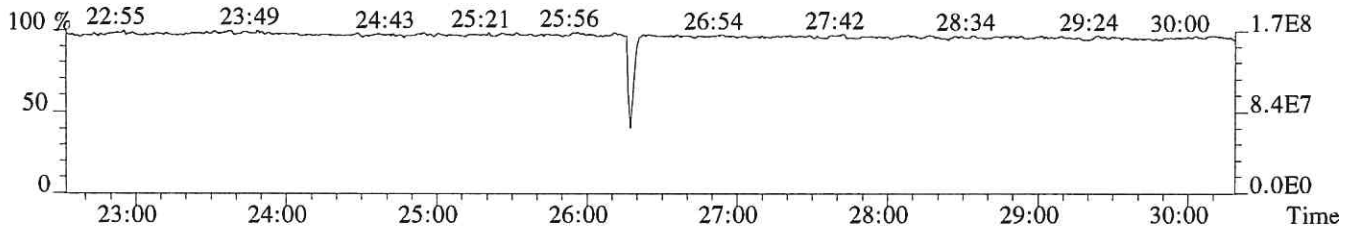
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12240.0,1.00%,F,T)



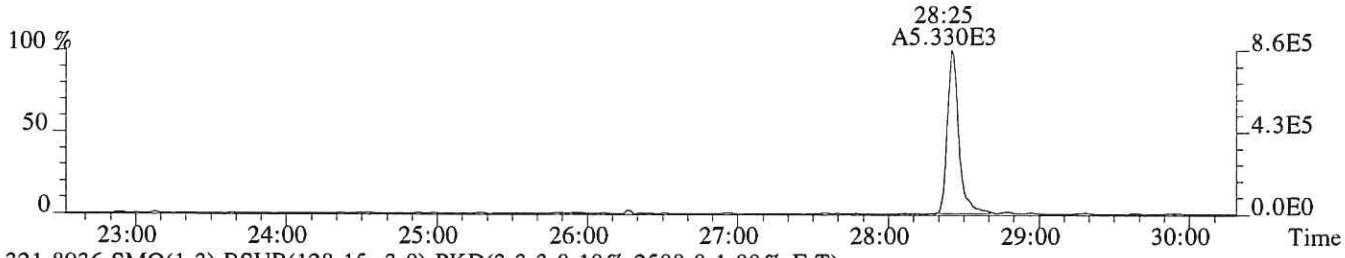
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



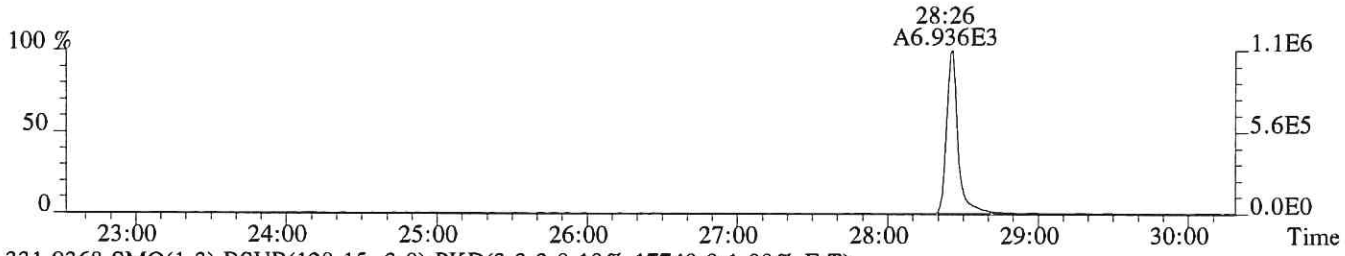
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



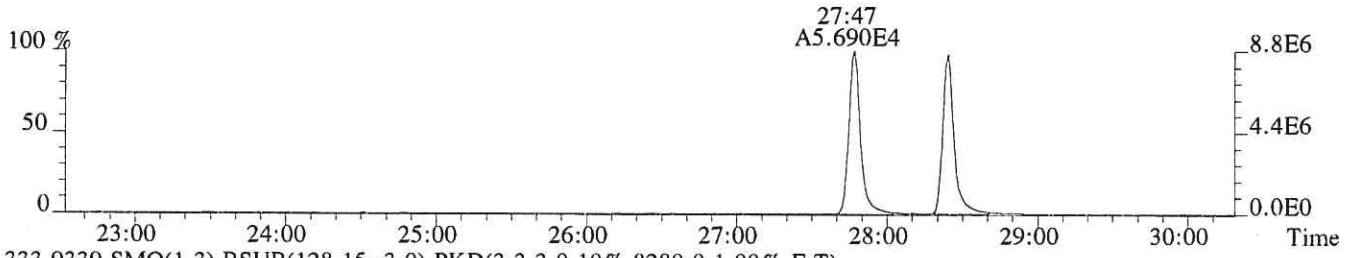
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4308.0,1.00%,F,T)



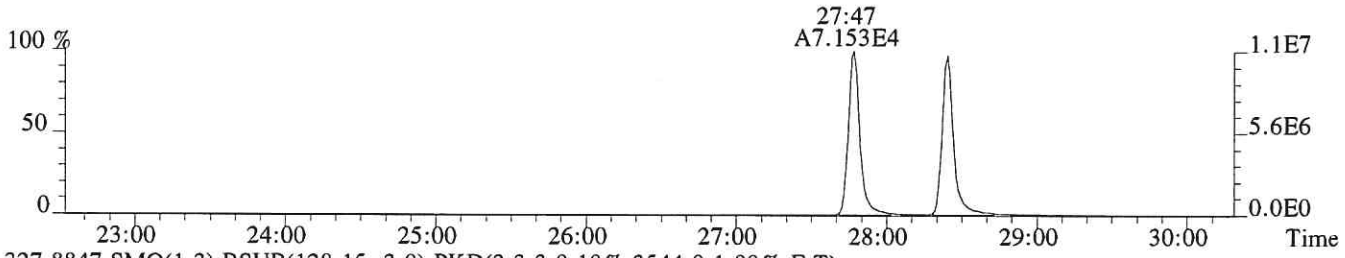
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



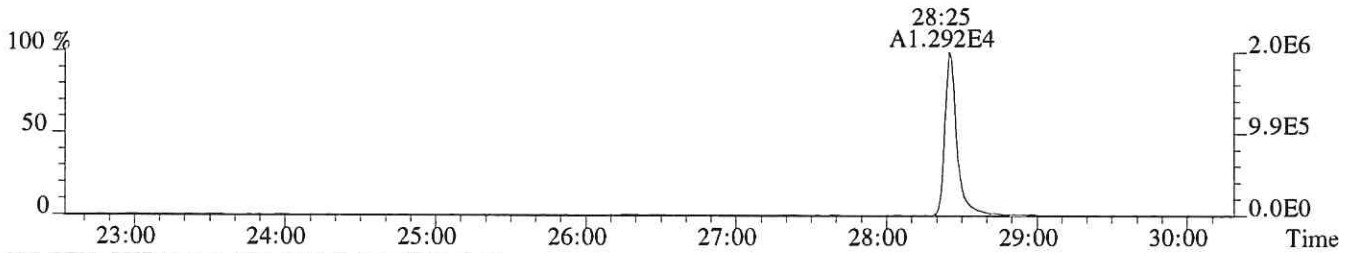
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17740.0,1.00%,F,T)



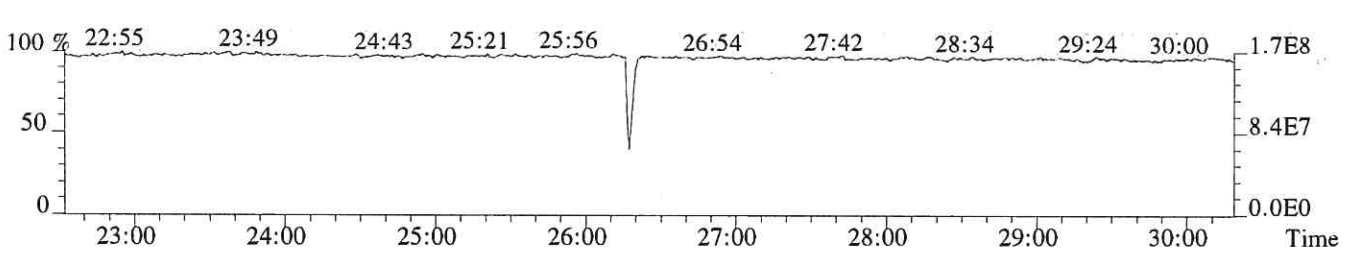
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8280.0,1.00%,F,T)



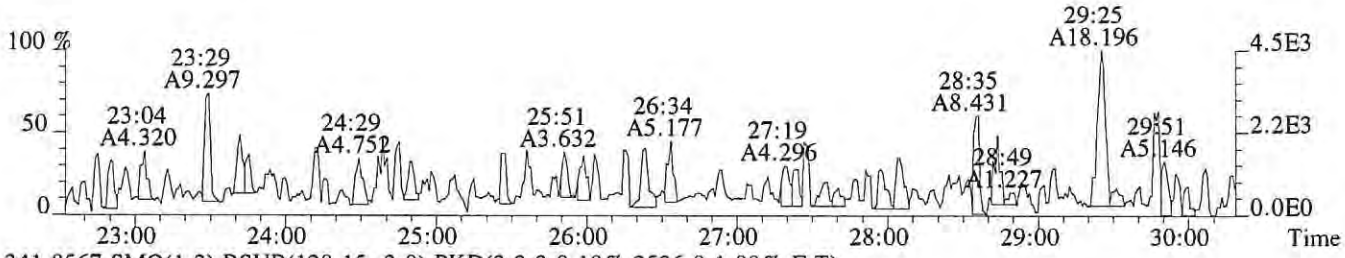
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3544.0,1.00%,F,T)



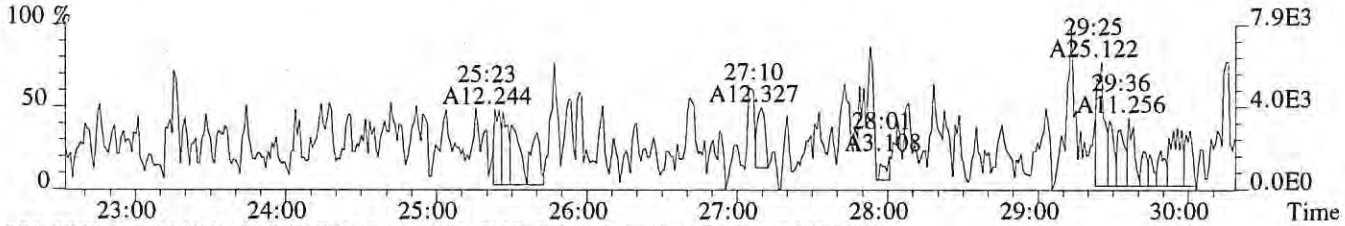
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



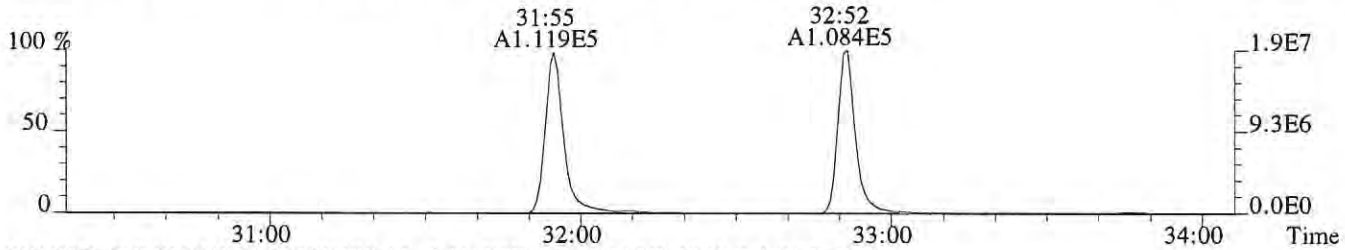
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



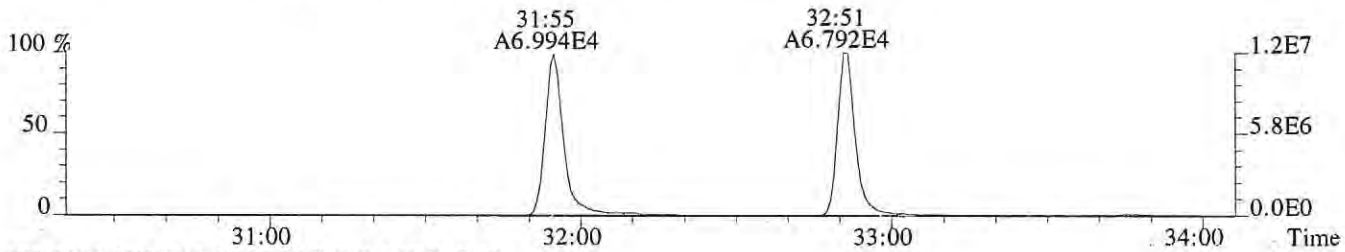
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



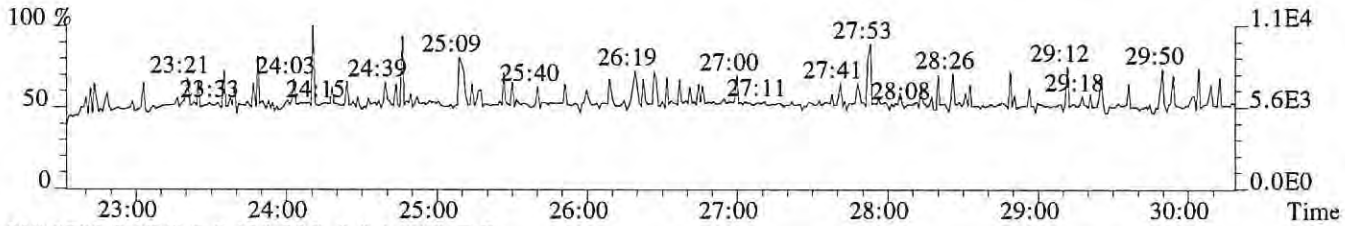
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



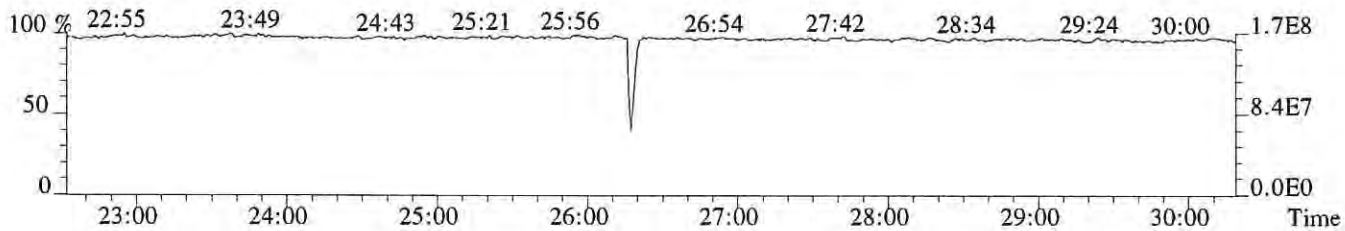
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



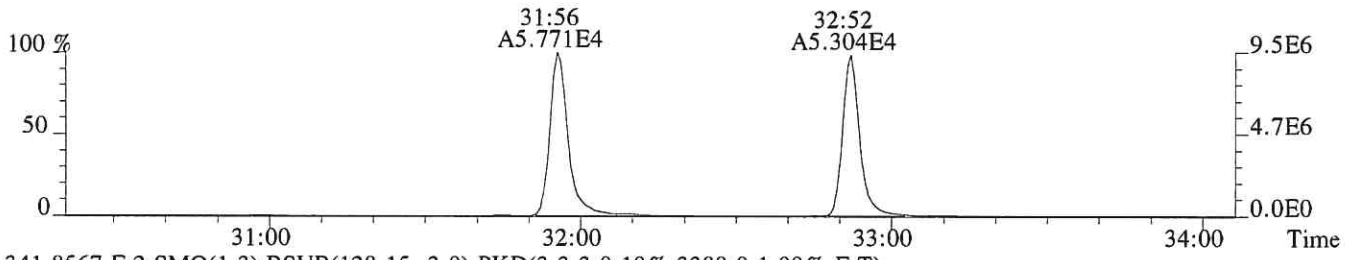
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



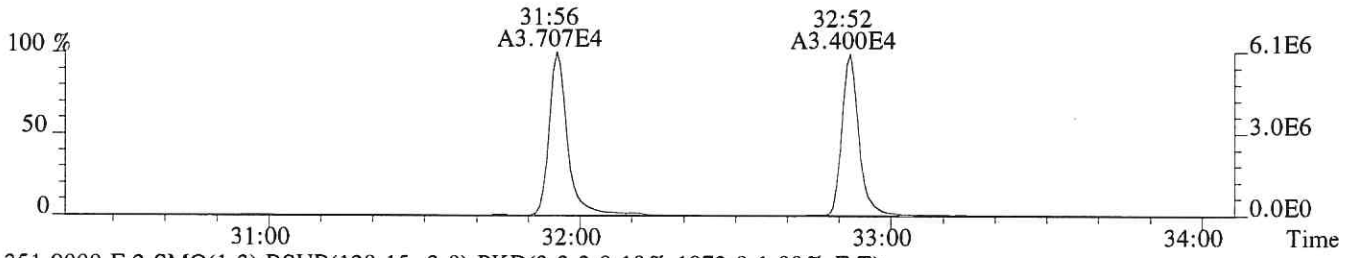
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



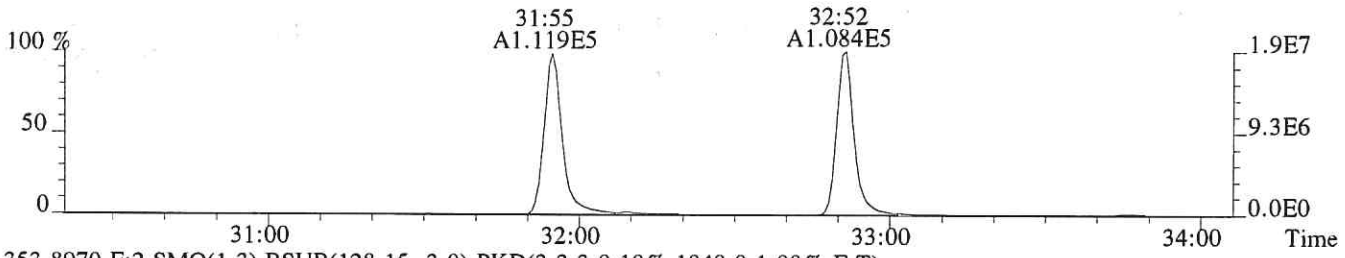
File:P615940 #1-339 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



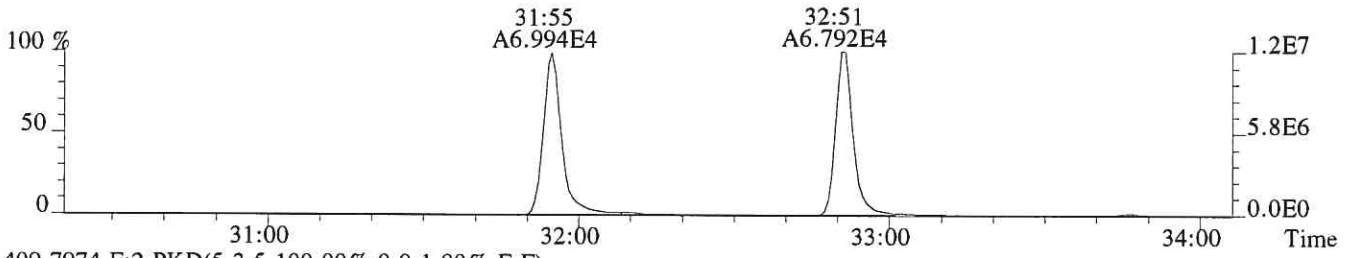
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3388.0,1.00%,F,T)



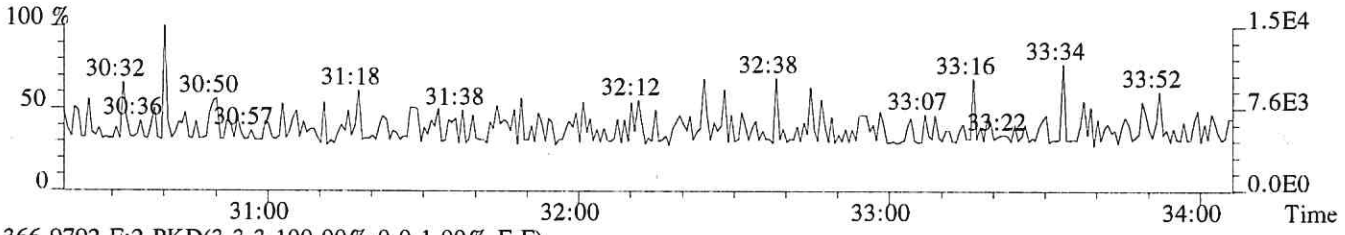
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



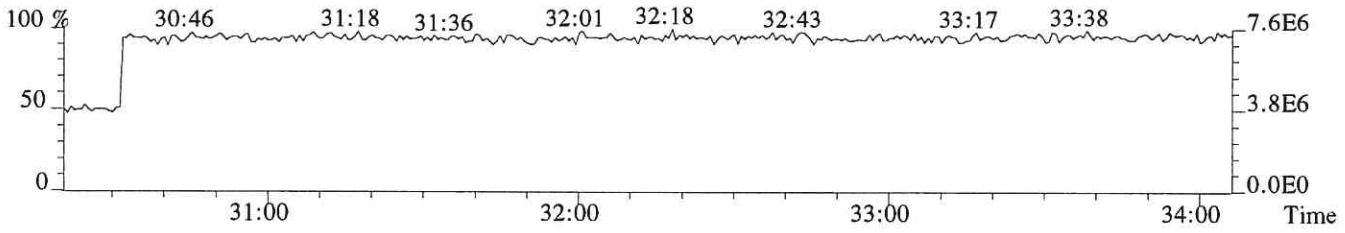
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



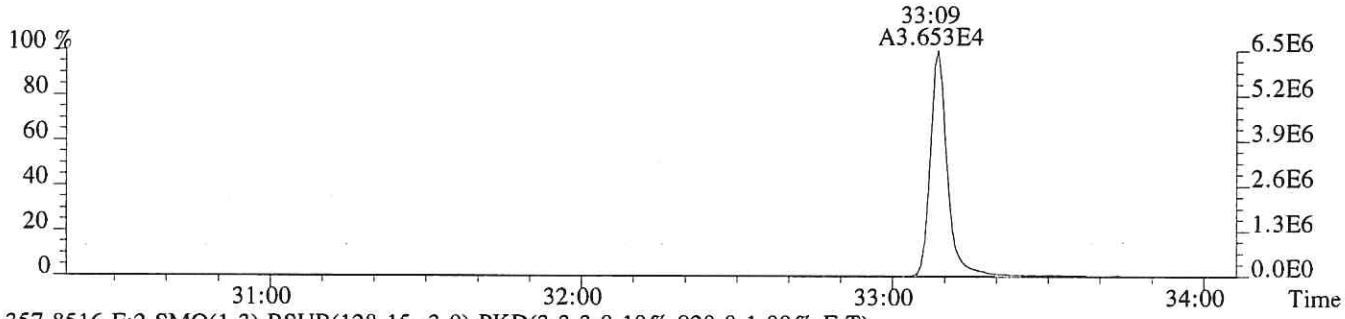
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



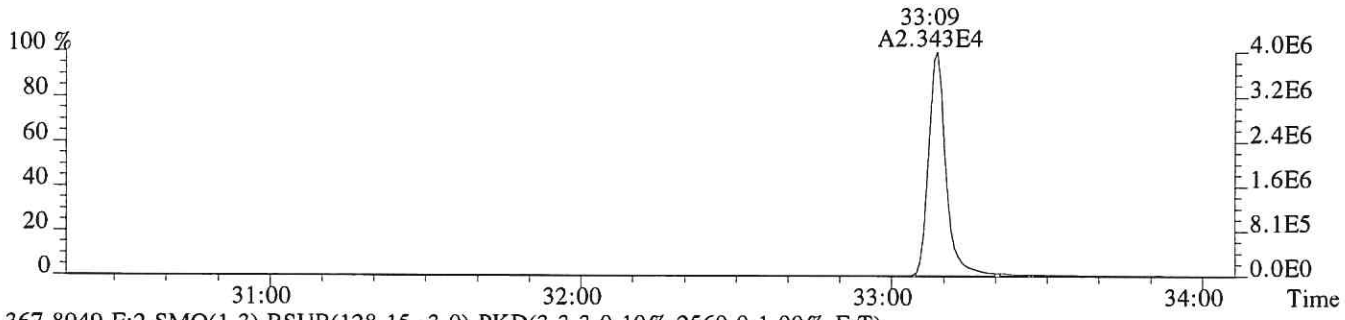
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



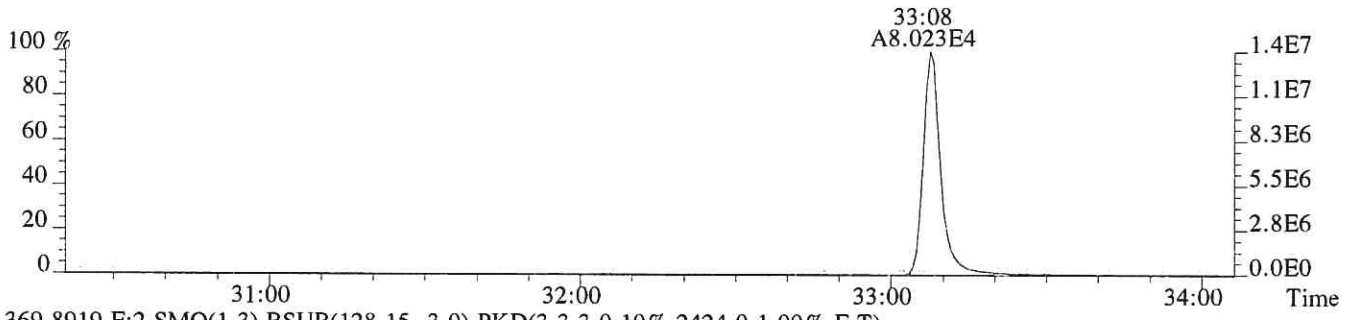
File:P615940 #1-339 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



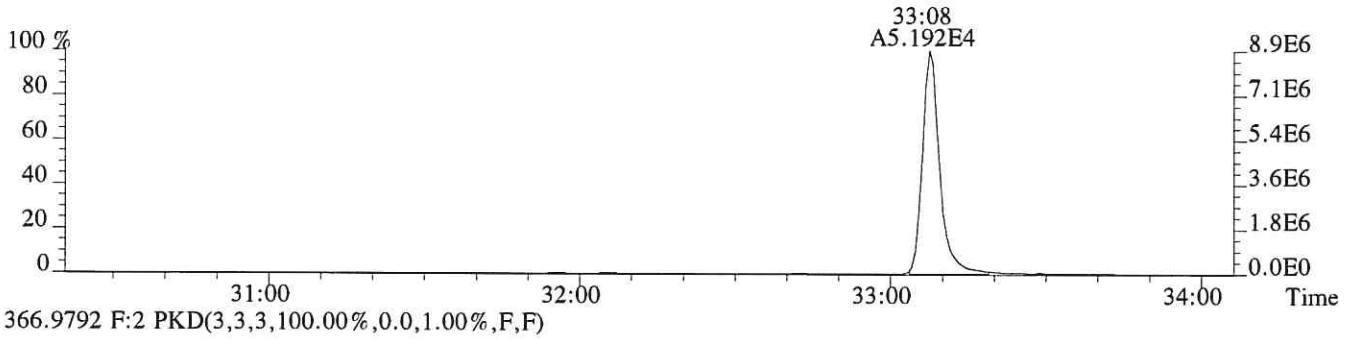
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



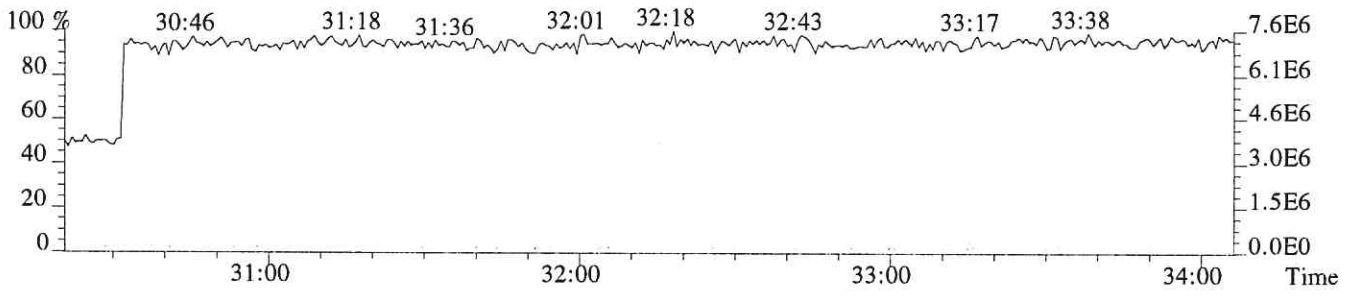
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



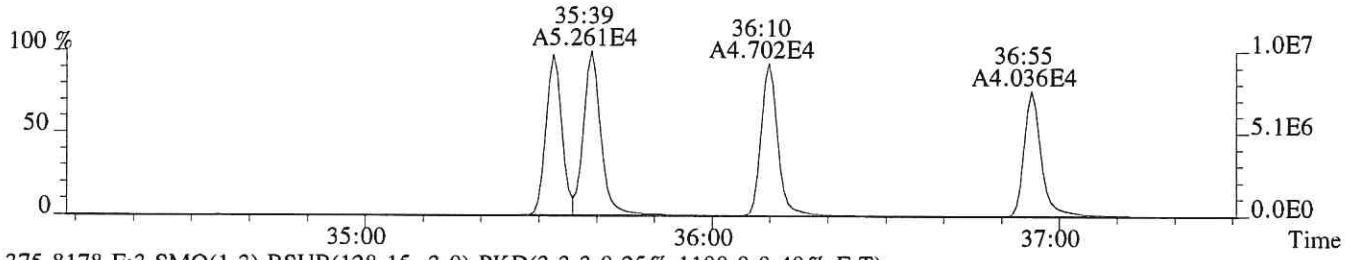
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



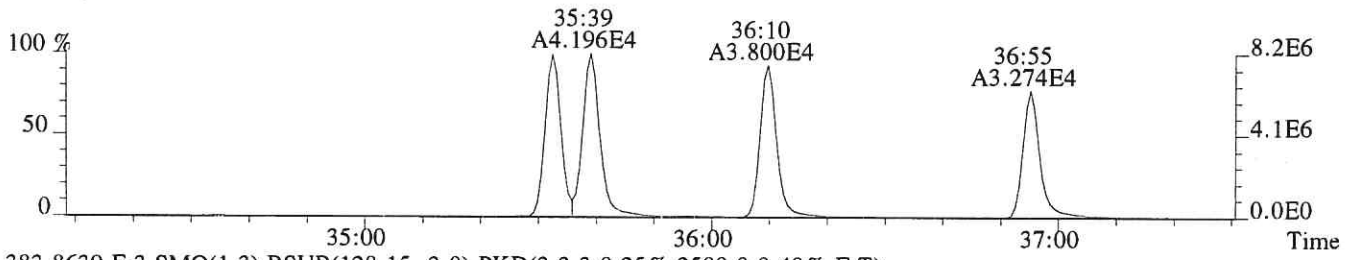
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



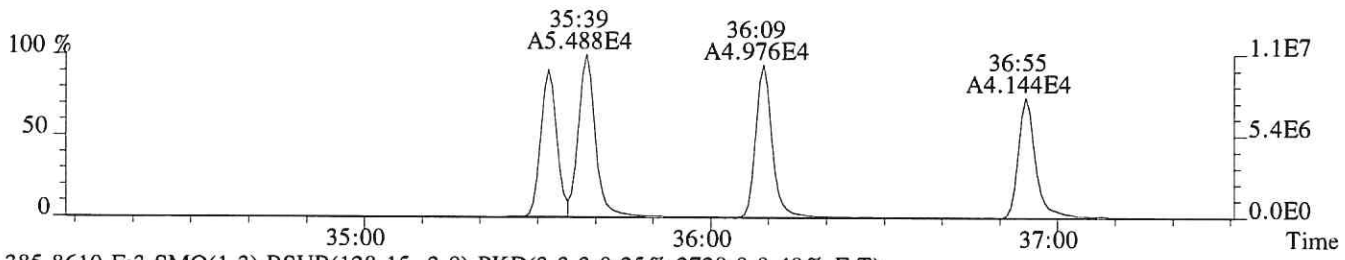
File:P615940 #1-304 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.40%,F,T)



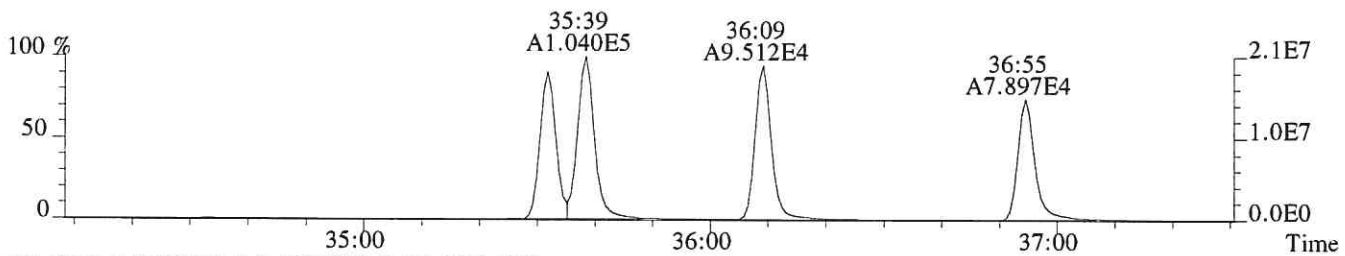
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



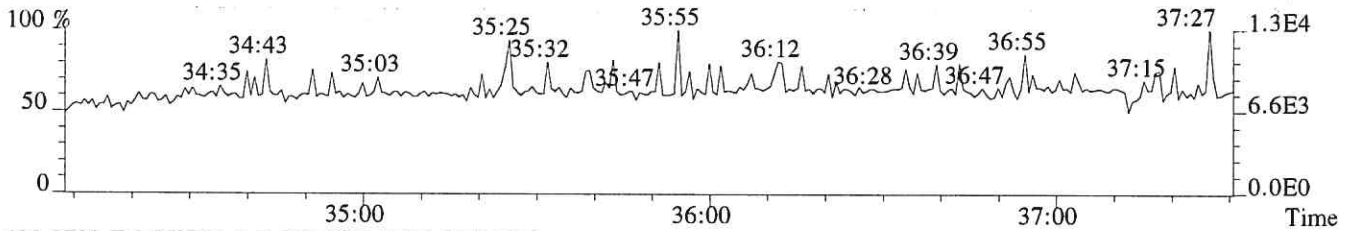
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2588.0,0.40%,F,T)



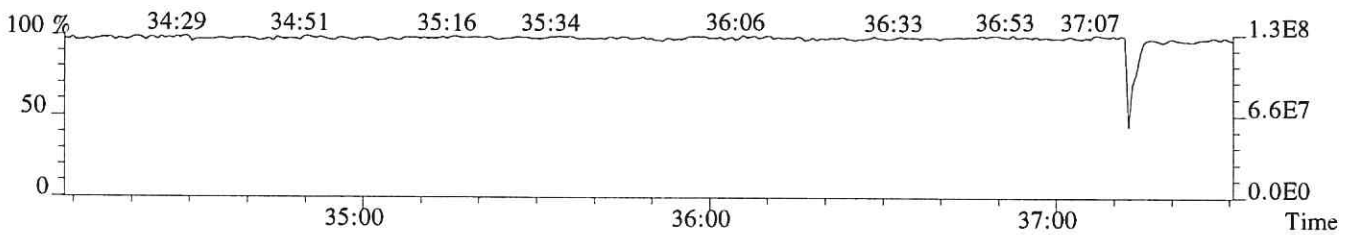
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2728.0,0.40%,F,T)



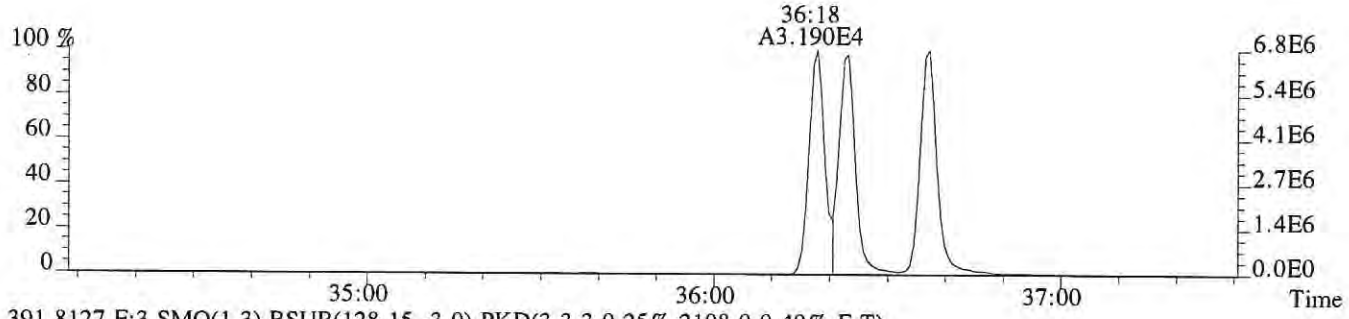
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



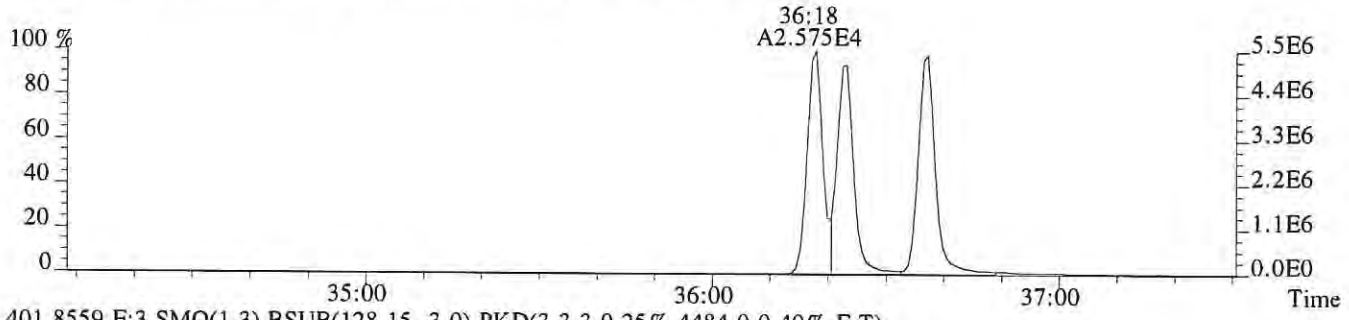
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



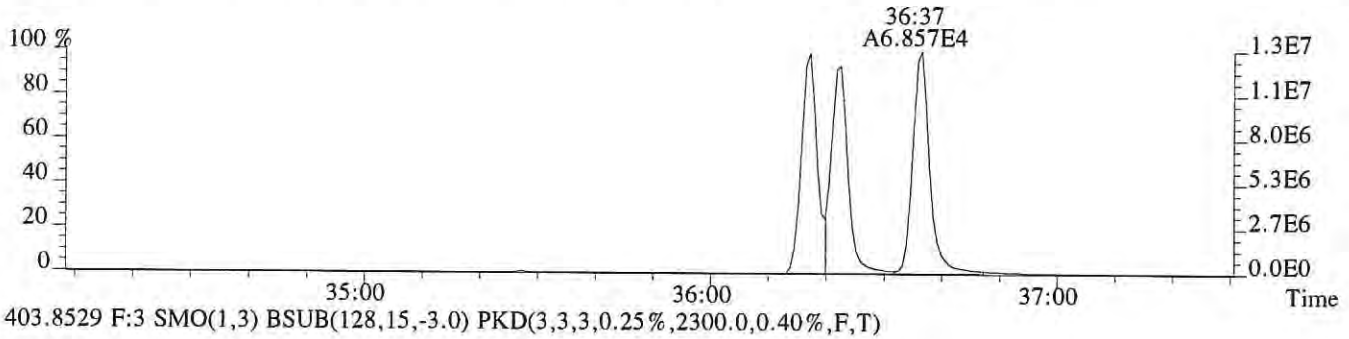
File:P615940 #1-304 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



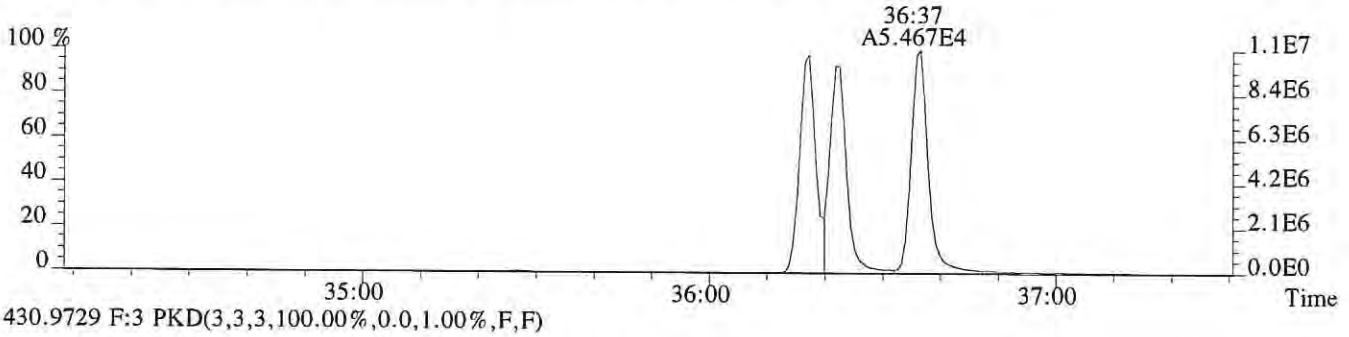
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2108.0,0.40%,F,T)



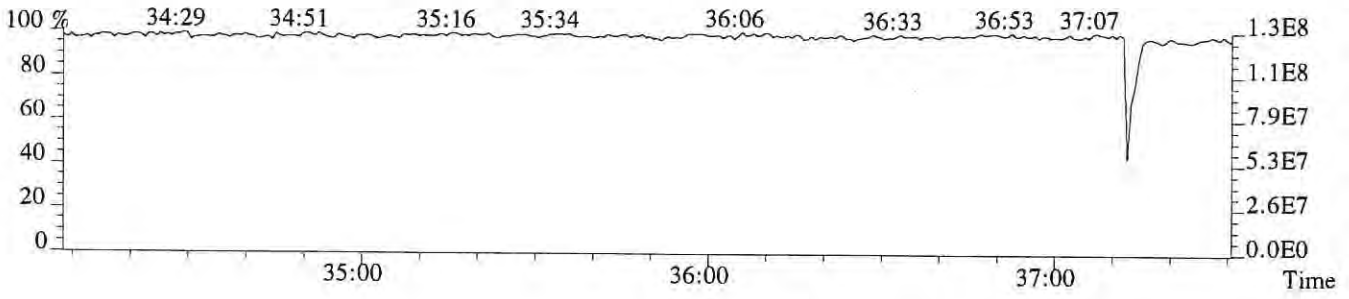
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4484.0,0.40%,F,T)



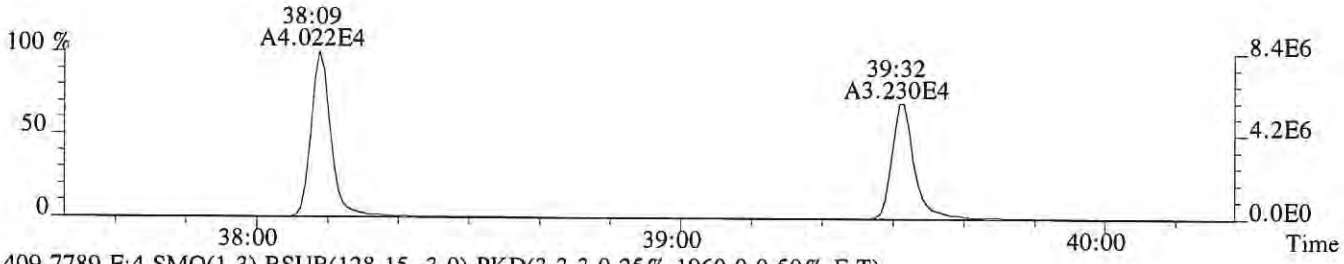
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



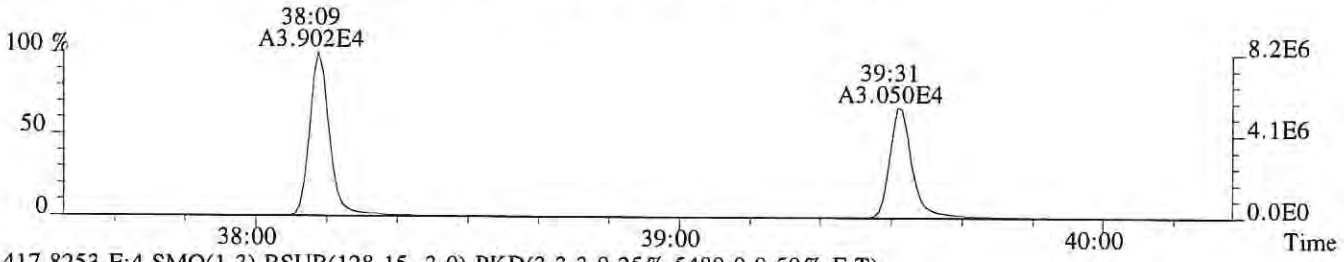
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



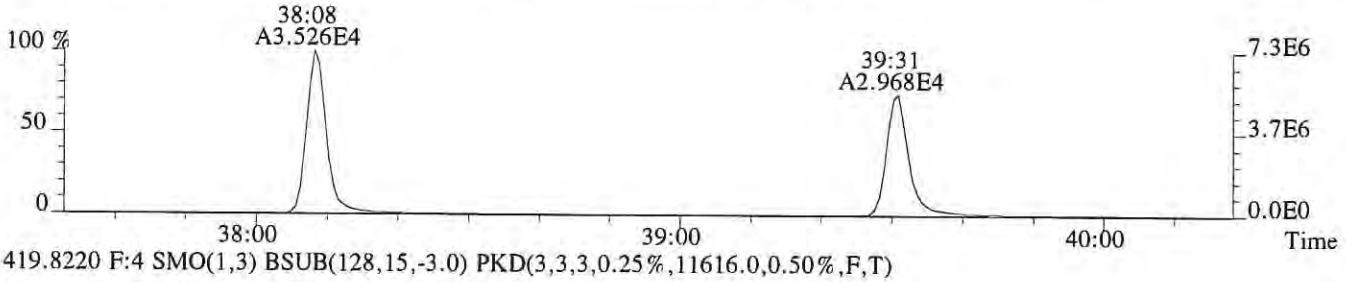
File:P615940 #1-249 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4380.0,0.50%,F,T)



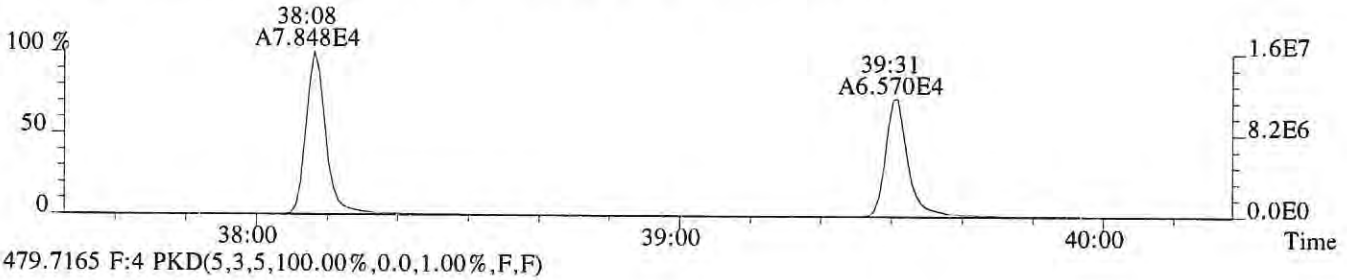
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.50%,F,T)



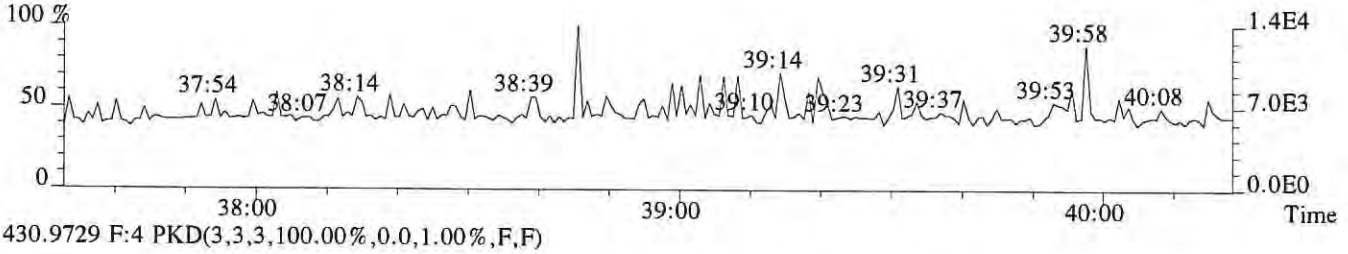
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5480.0,0.50%,F,T)



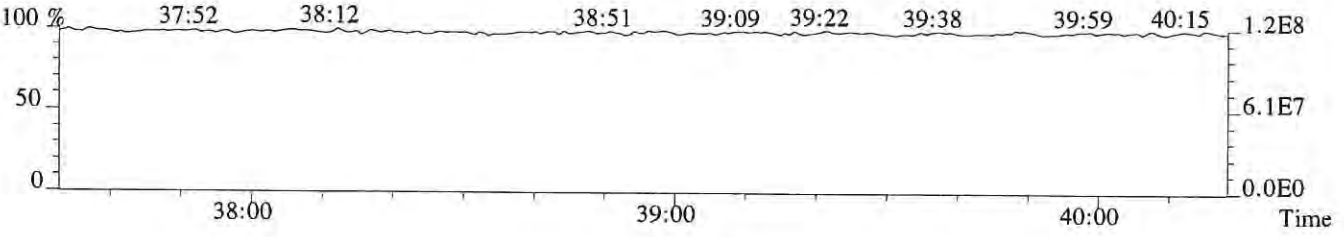
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11616.0,0.50%,F,T)



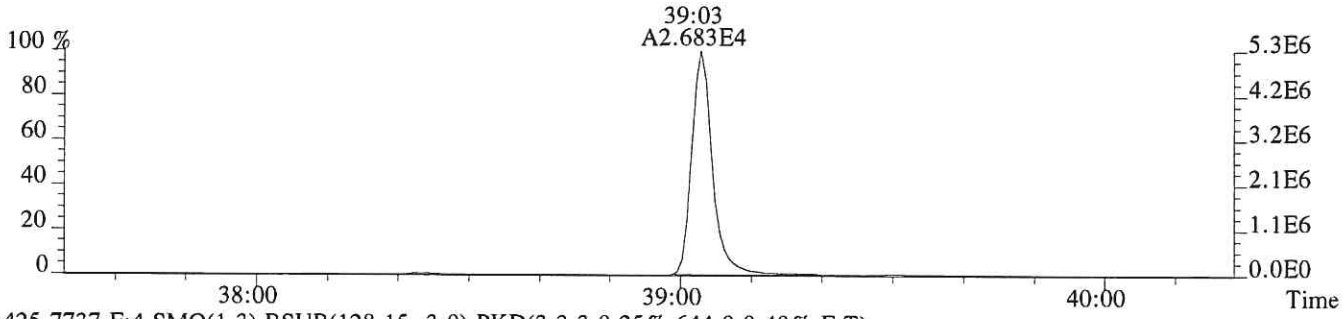
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



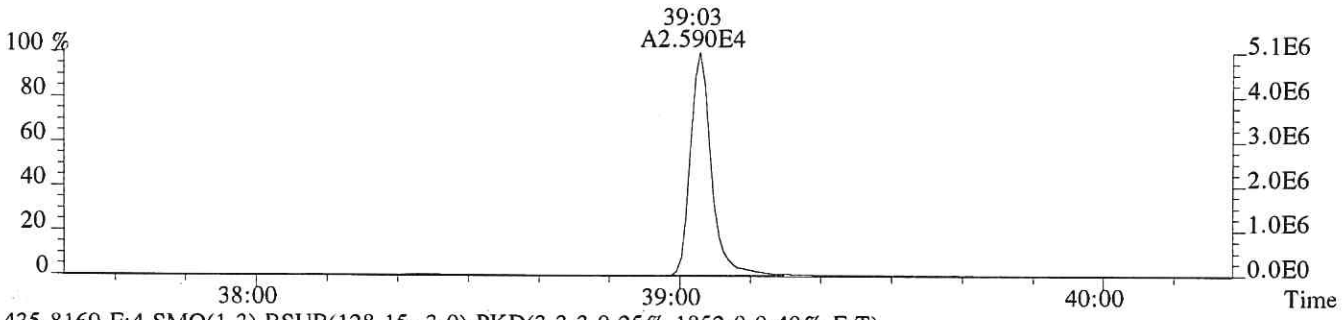
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



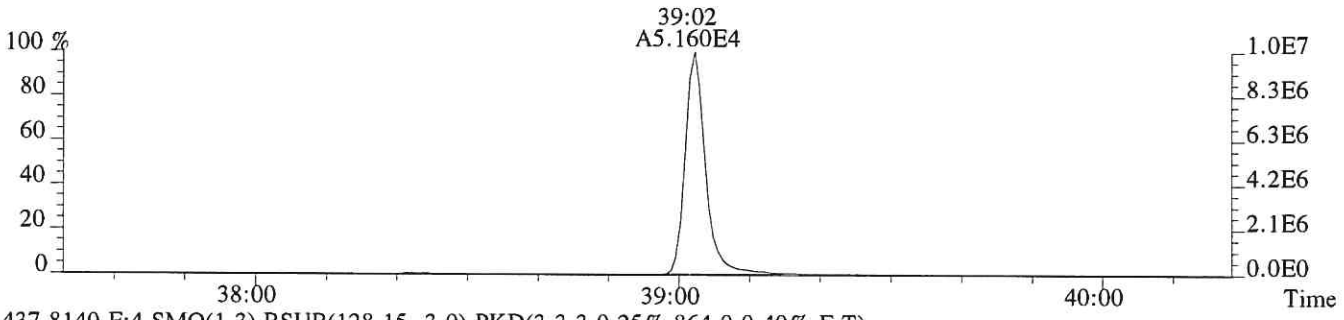
File:P615940 #1-249 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



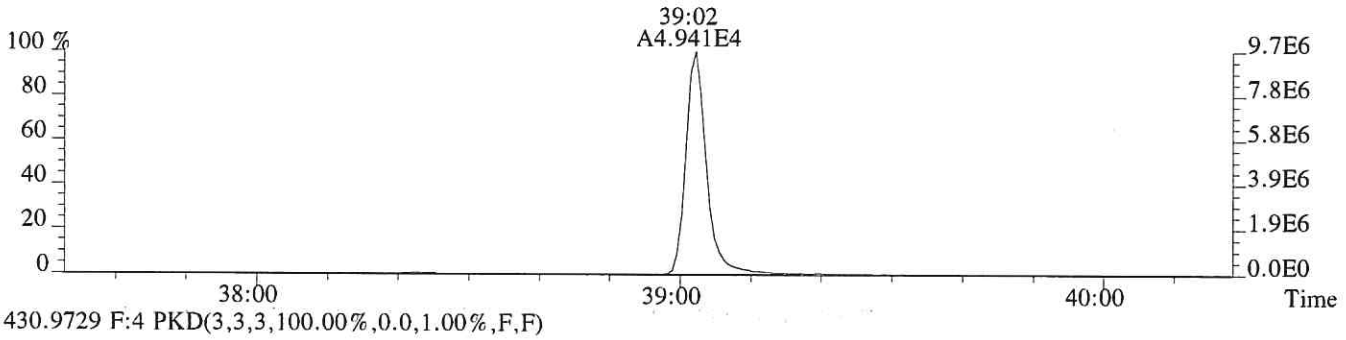
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



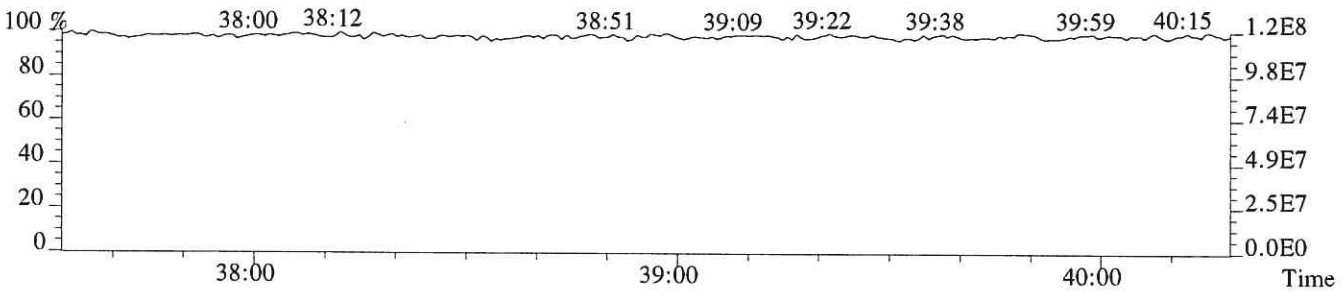
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.40%,F,T)



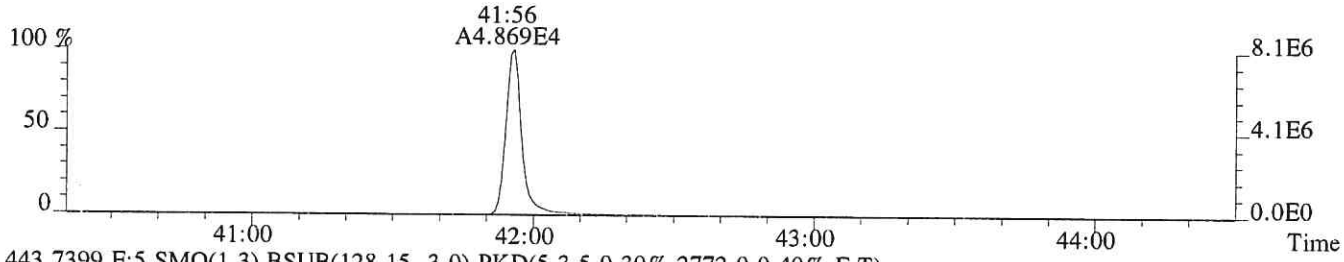
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



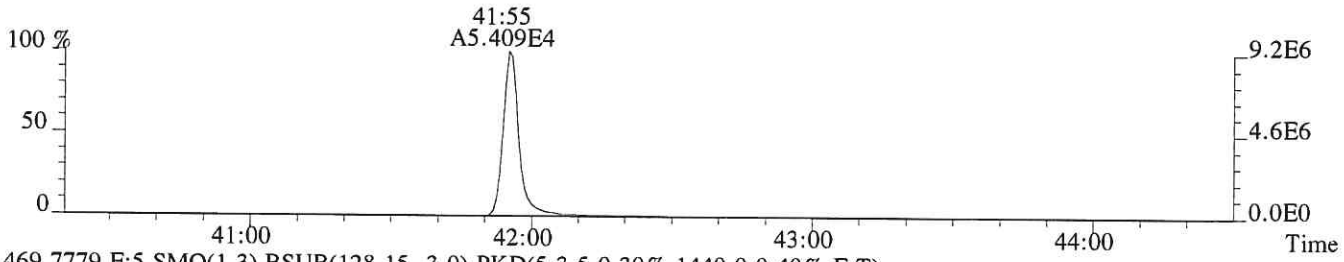
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



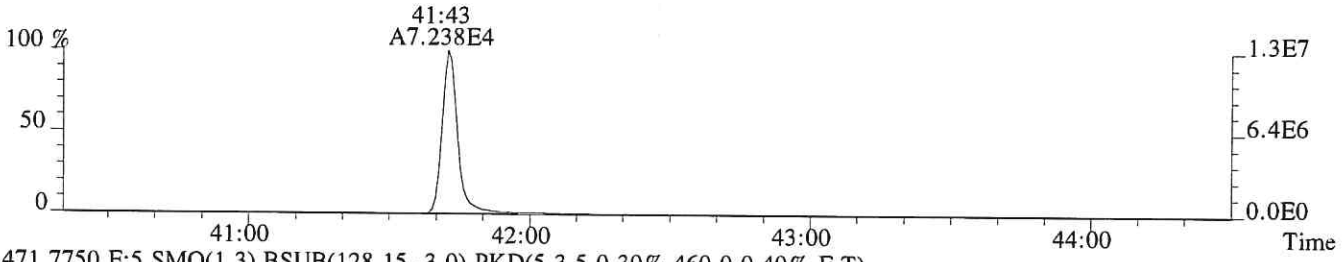
File:P615940 #1-375 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)



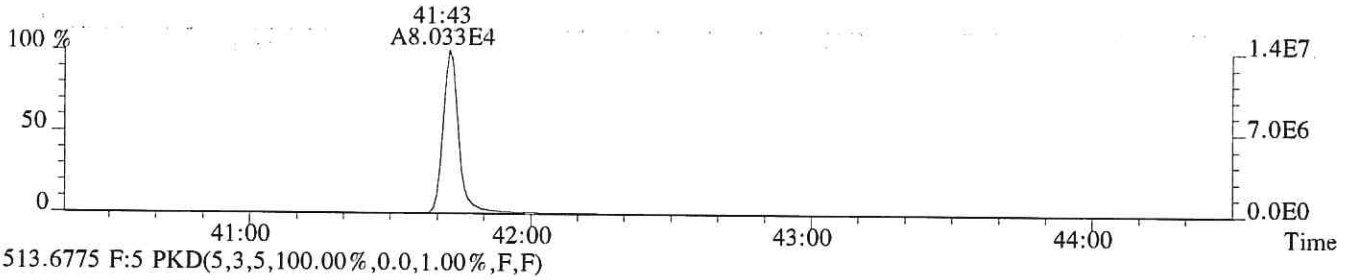
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2772.0,0.40%,F,T)



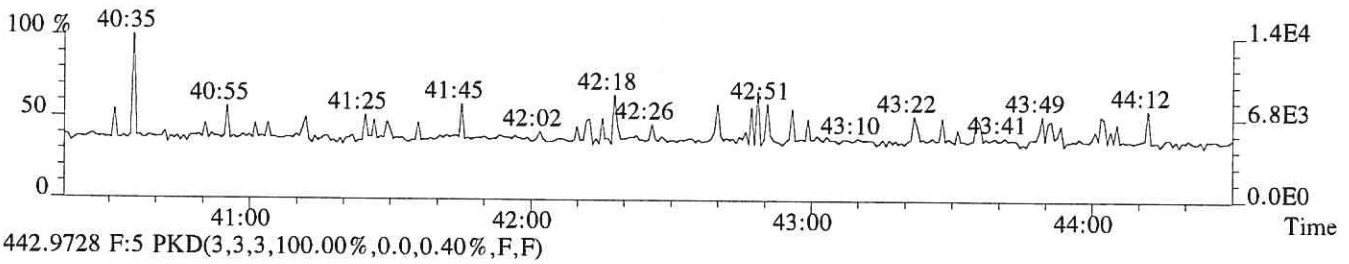
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1440.0,0.40%,F,T)



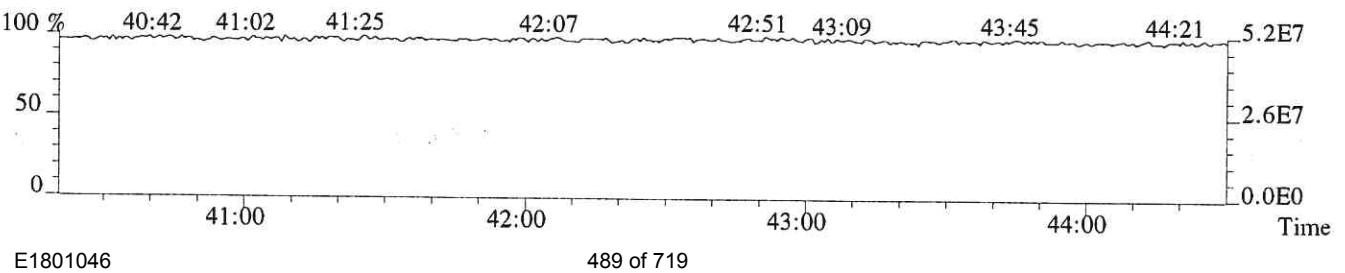
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



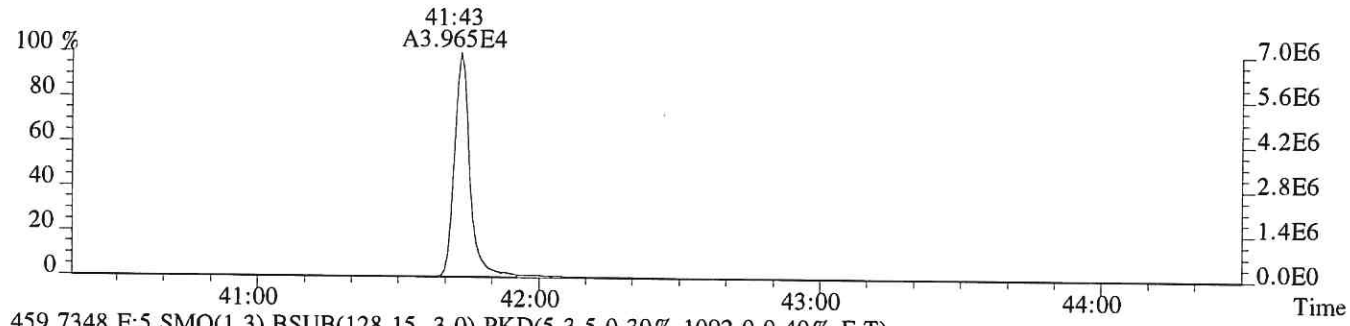
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



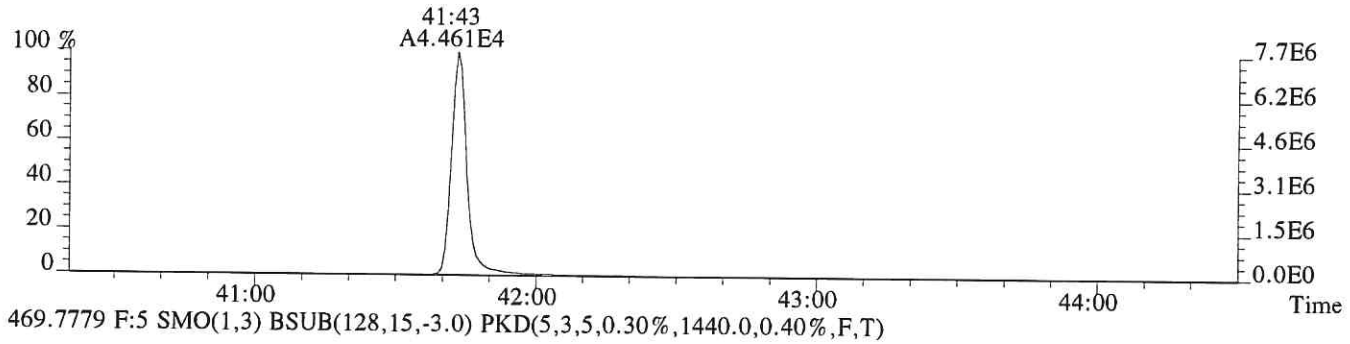
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



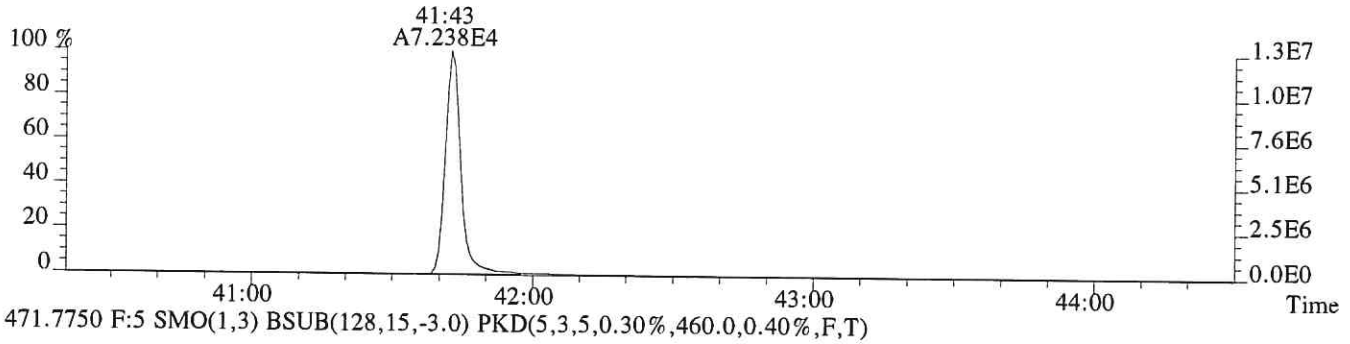
File:P615940 #1-375 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



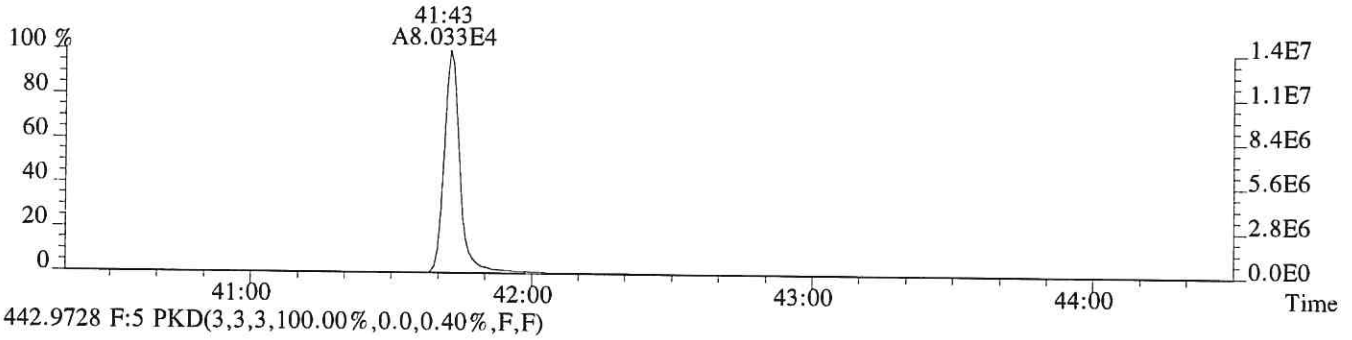
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



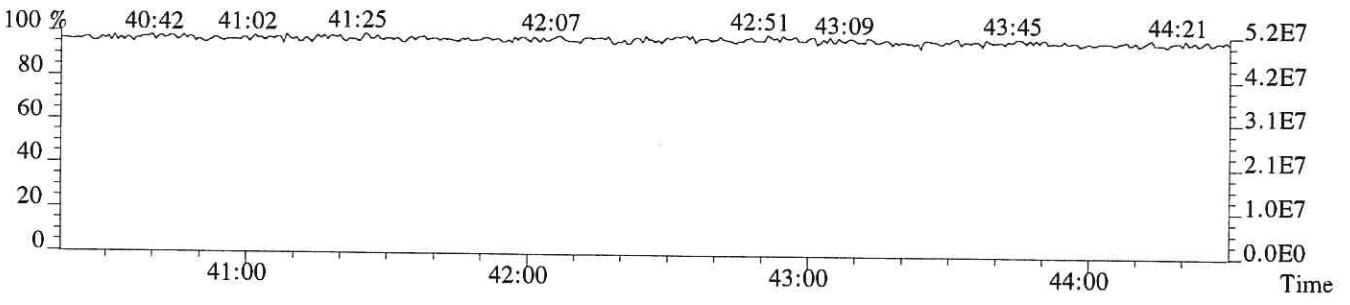
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1440.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:38	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	LS	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ LD 1/24/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

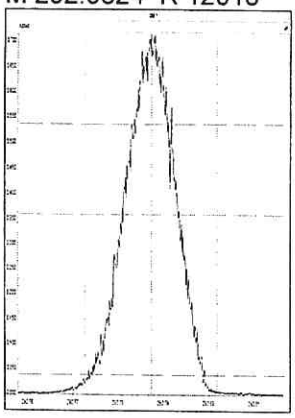
gc 01/25/18

* gc 01/25/18

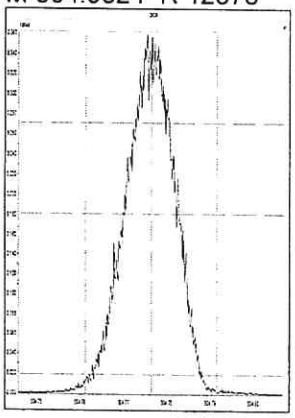
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

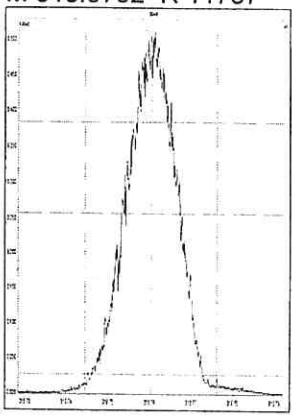
M 292.9824 R 12018



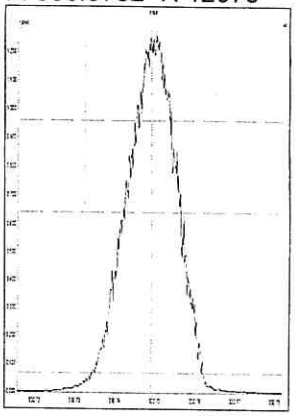
M 304.9824 R 12378



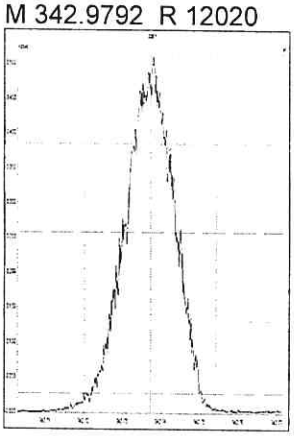
M 318.9792 R 11737



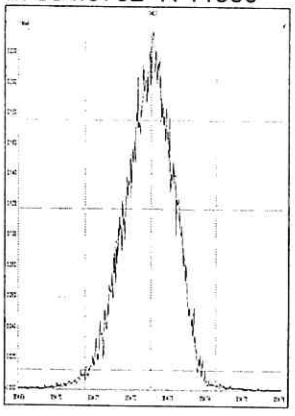
M 330.9792 R 12075



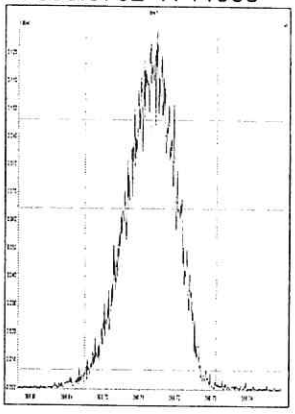
M 342.9792 R 12020



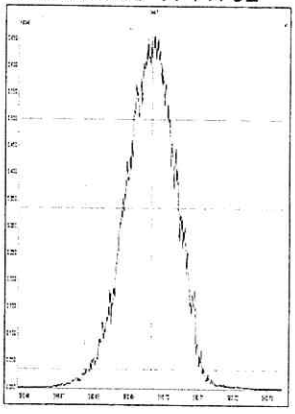
M 354.9792 R 11680



M 366.9792 R 11963



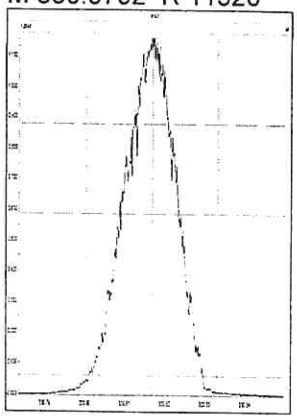
M 380.9760 R 11792



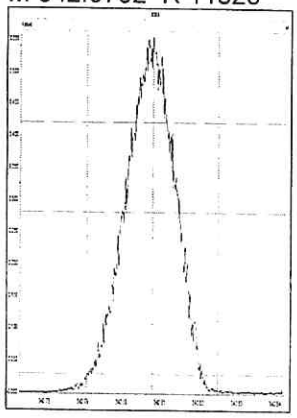
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

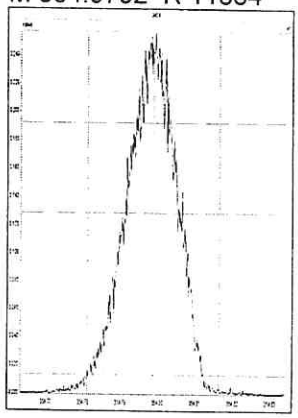
M 330.9792 R 11520



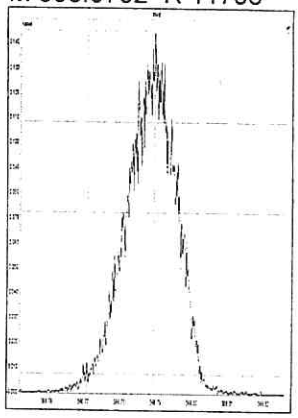
M 342.9792 R 11625



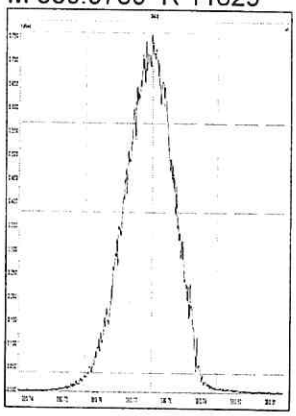
M 354.9792 R 11364



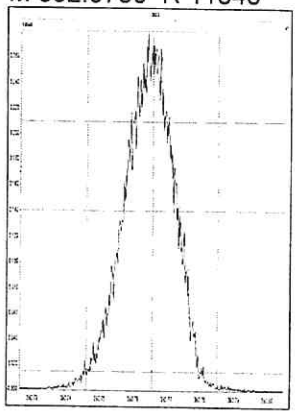
M 366.9792 R 11796



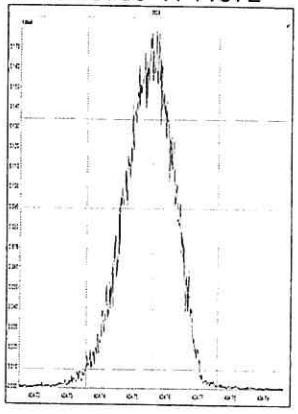
M 380.9760 R 11629



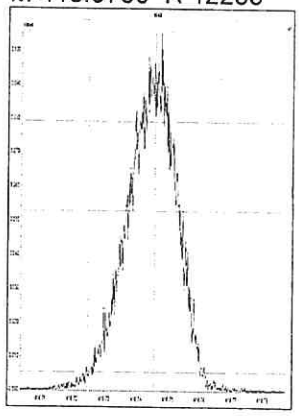
M 392.9760 R 11848



M 404.9760 R 11572



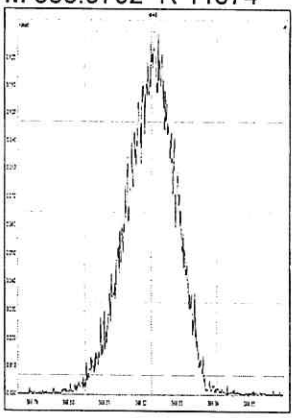
M 416.9760 R 12255



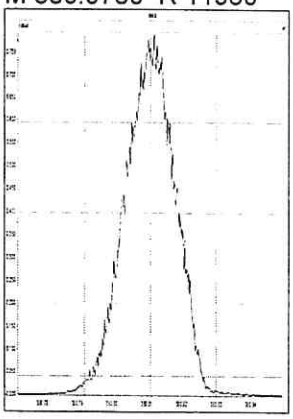
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

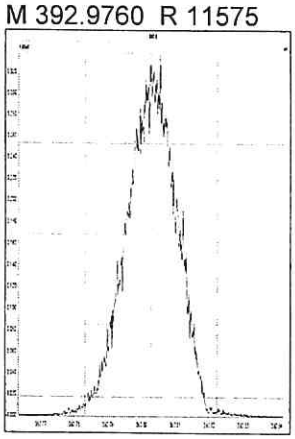
M 366.9792 R 11574



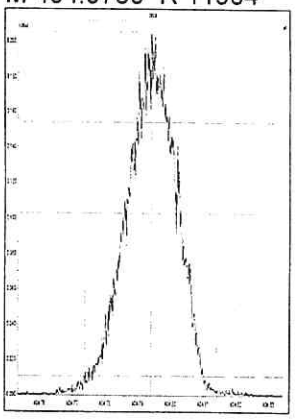
M 380.9760 R 11960



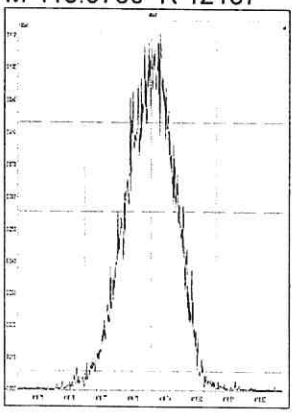
M 392.9760 R 11575



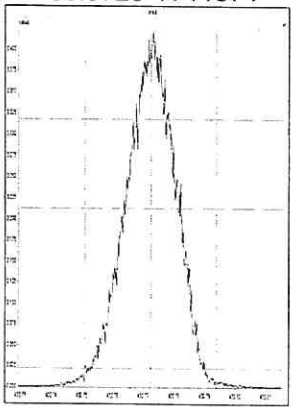
M 404.9760 R 11904



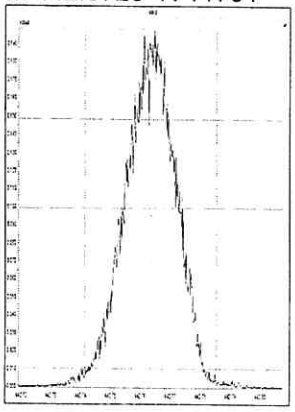
M 416.9760 R 12137



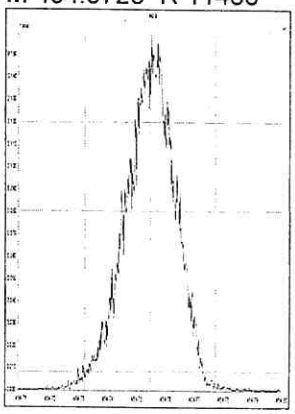
M 430.9728 R 11574



M 442.9728 R 11791



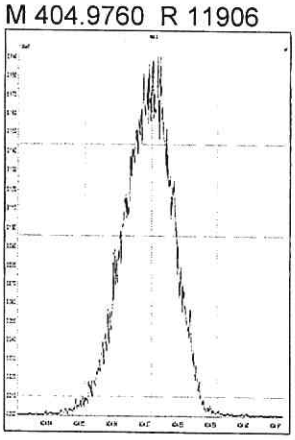
M 454.9728 R 11465



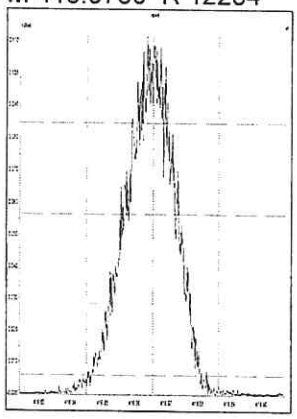
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

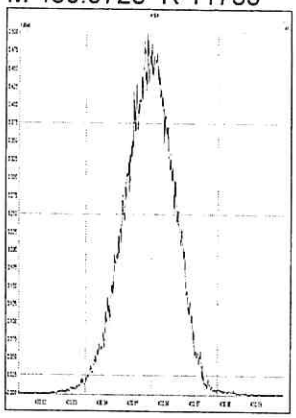
M 404.9760 R 11906



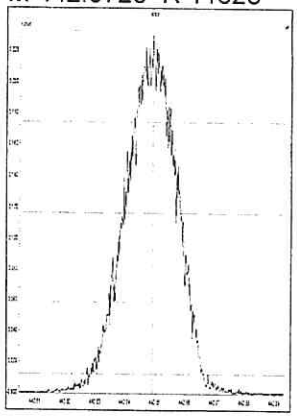
M 416.9760 R 12254



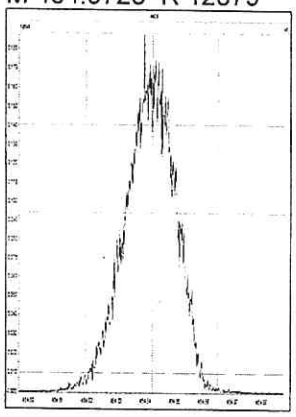
M 430.9728 R 11735



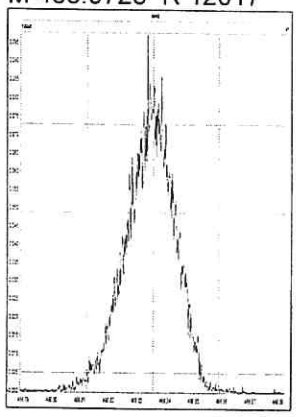
M 442.9728 R 11628



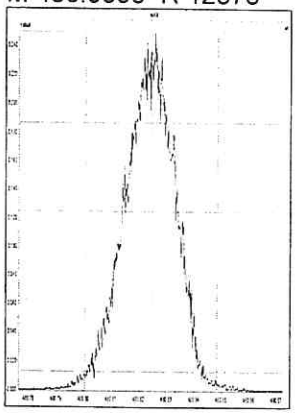
M 454.9728 R 12379



M 466.9728 R 12017



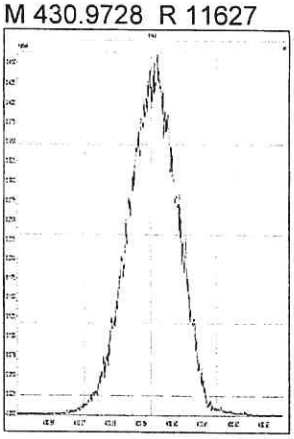
M 480.9696 R 12376



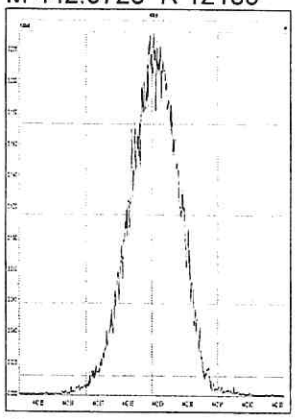
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

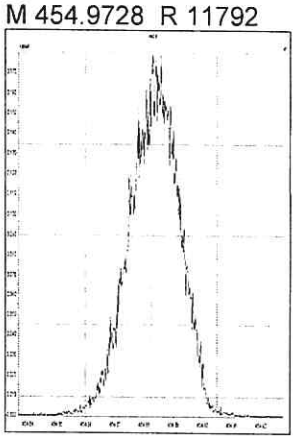
M 430.9728 R 11627



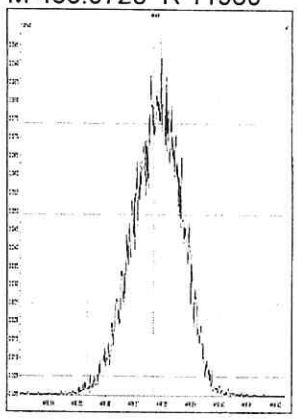
M 442.9728 R 12133



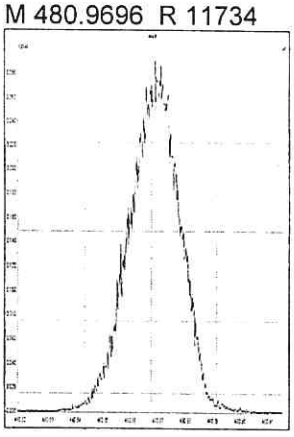
M 454.9728 R 11792



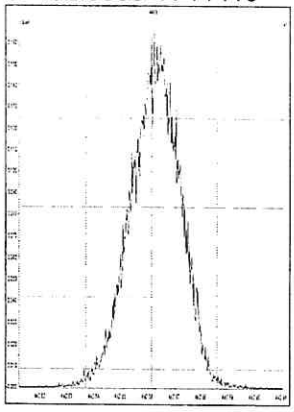
M 466.9728 R 11960



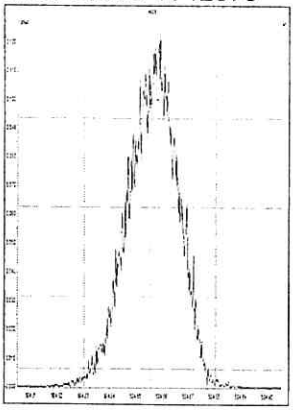
M 480.9696 R 11734



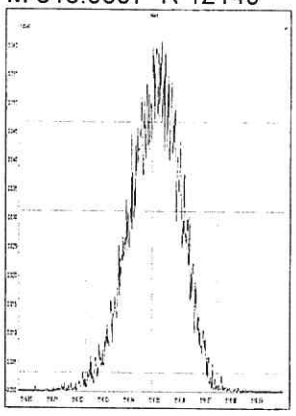
M 492.9696 R 11415



M 504.9696 R 12075



M 516.9697 R 12140



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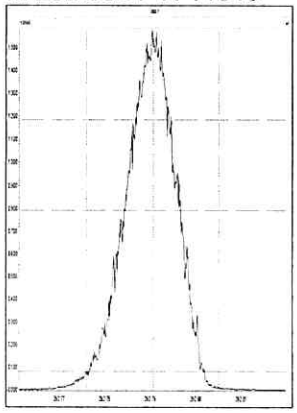
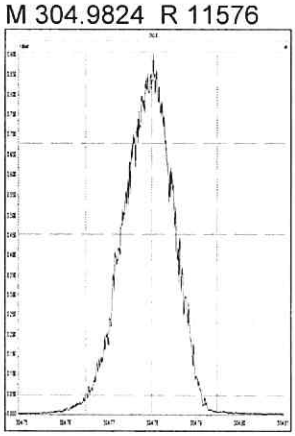
Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

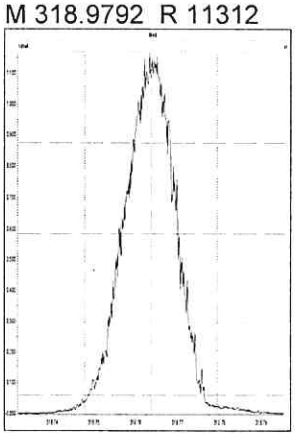
M 292.9824 R 11519



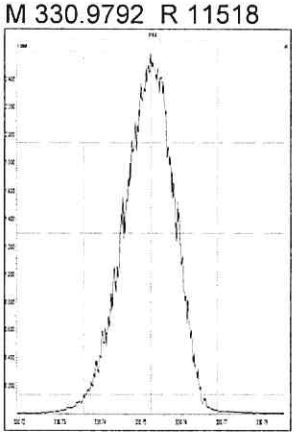
M 304.9824 R 11576



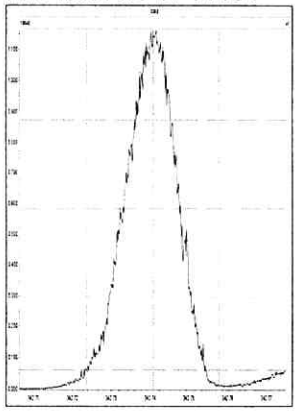
M 318.9792 R 11312



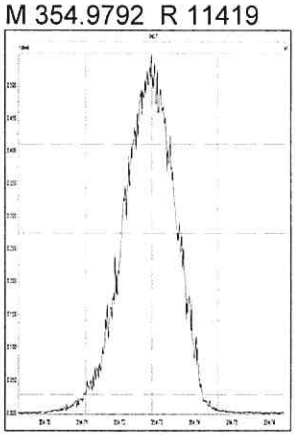
M 330.9792 R 11518



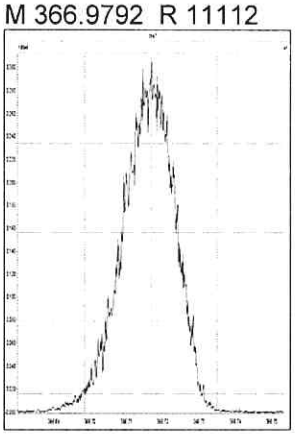
M 342.9792 R 11161



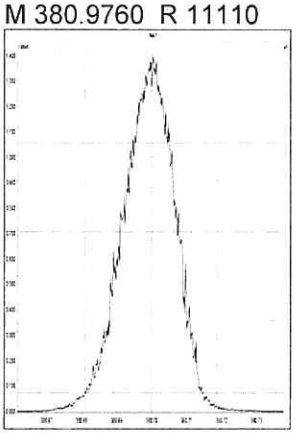
M 354.9792 R 11419



M 366.9792 R 11112



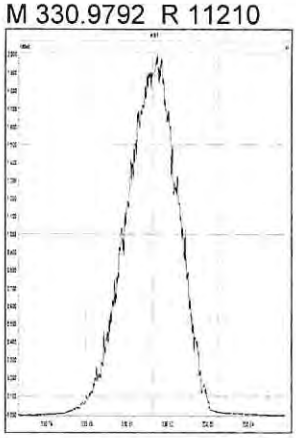
M 380.9760 R 11110



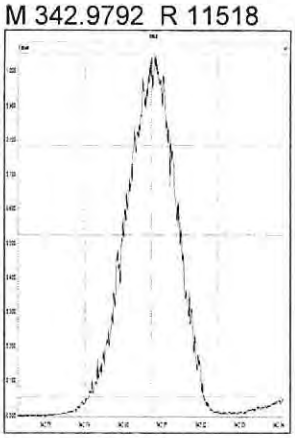
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

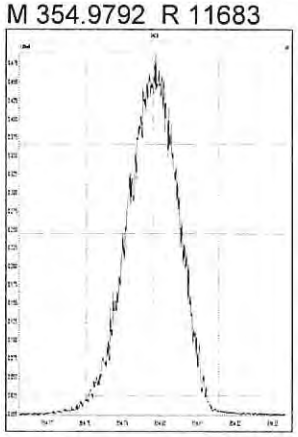
M 330.9792 R 11210



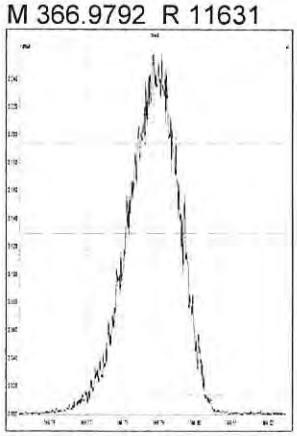
M 342.9792 R 11518



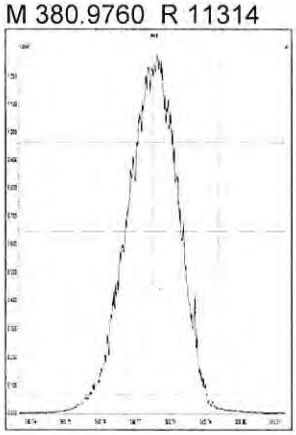
M 354.9792 R 11683



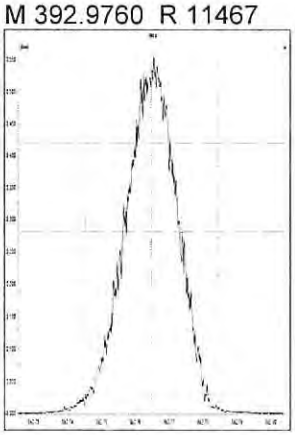
M 366.9792 R 11631



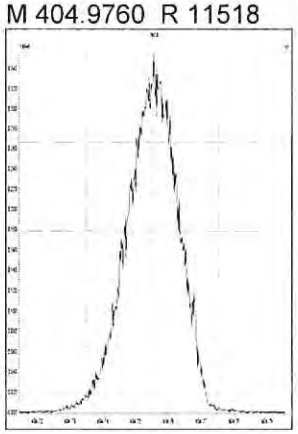
M 380.9760 R 11314



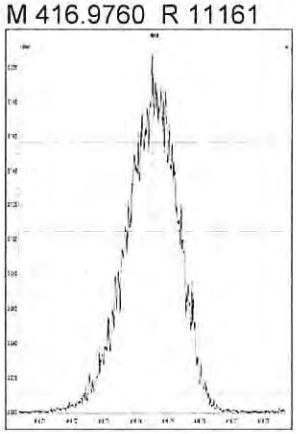
M 392.9760 R 11467



M 404.9760 R 11518



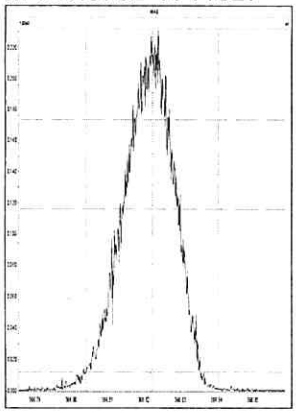
M 416.9760 R 11161



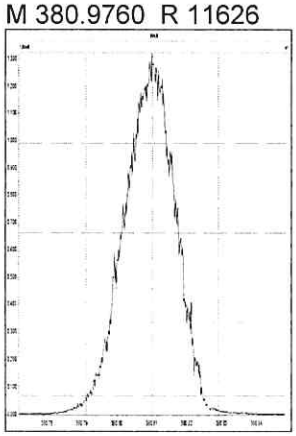
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

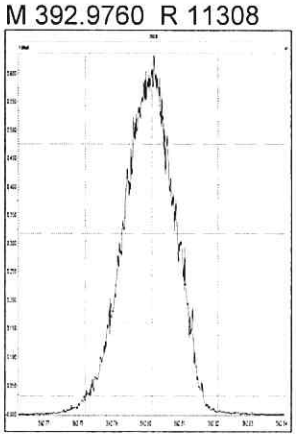
M 366.9792 R 11627



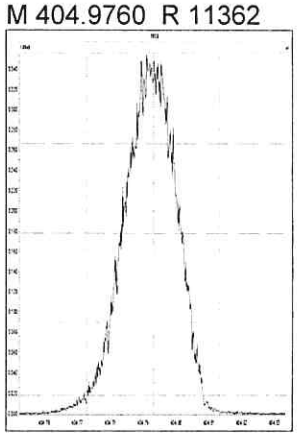
M 380.9760 R 11626



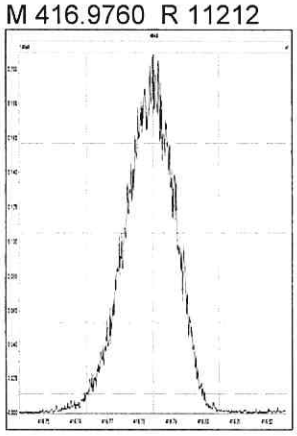
M 392.9760 R 11308



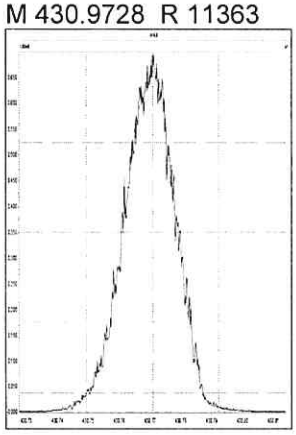
M 404.9760 R 11362



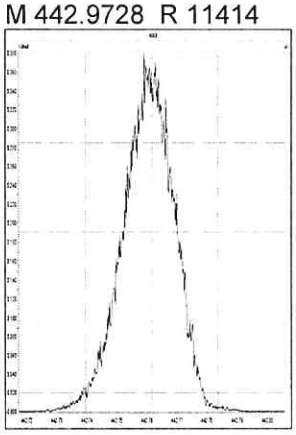
M 416.9760 R 11212



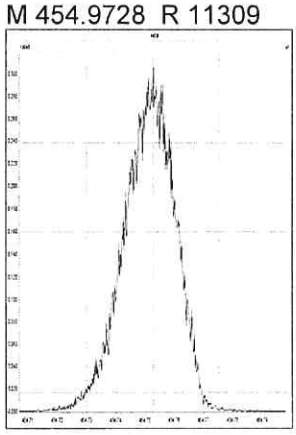
M 430.9728 R 11363



M 442.9728 R 11414



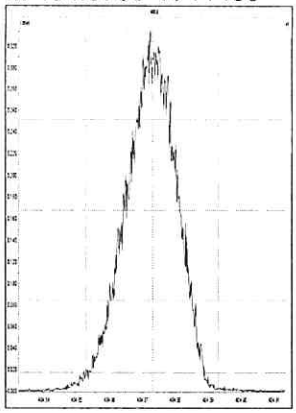
M 454.9728 R 11309



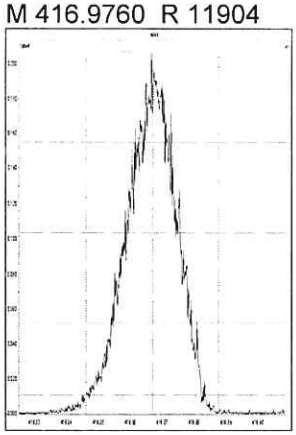
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

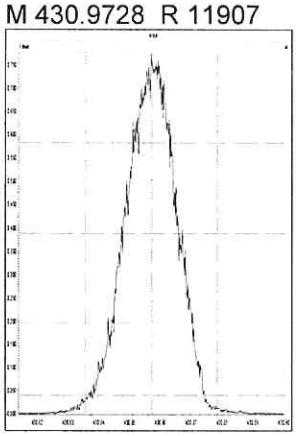
M 404.9760 R 11465



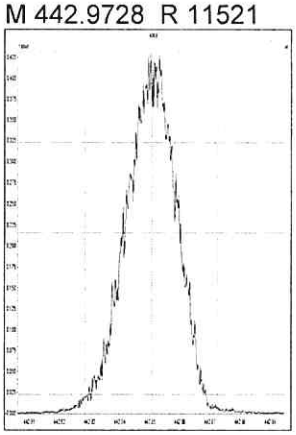
M 416.9760 R 11904



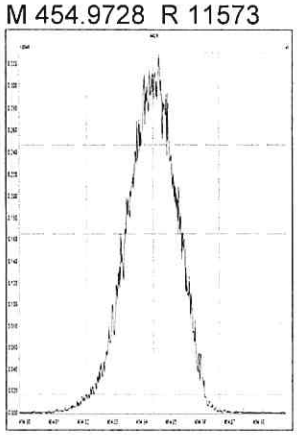
M 430.9728 R 11907



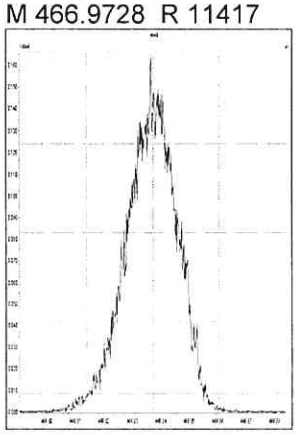
M 442.9728 R 11521



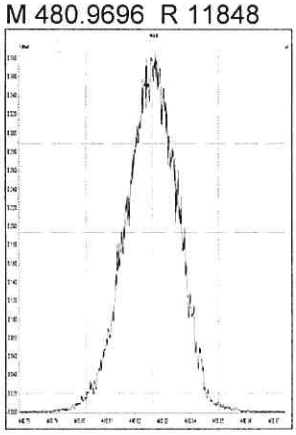
M 454.9728 R 11573



M 466.9728 R 11417



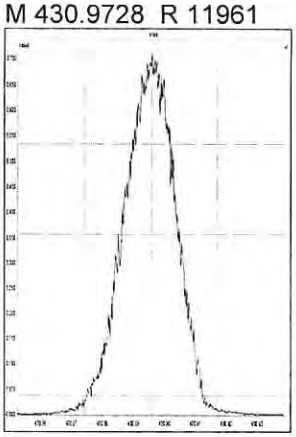
M 480.9696 R 11848



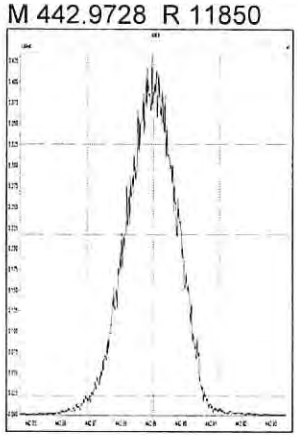
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

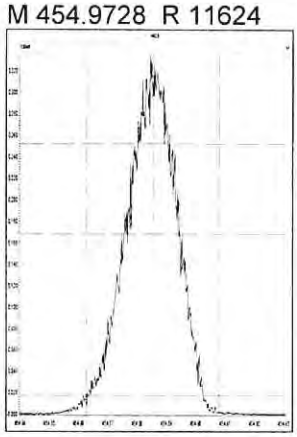
M 430.9728 R 11961



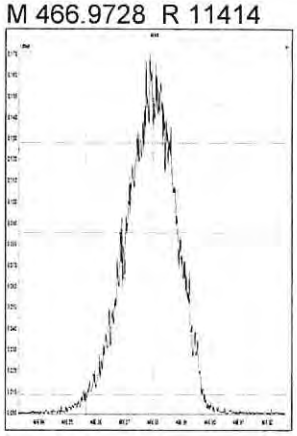
M 442.9728 R 11850



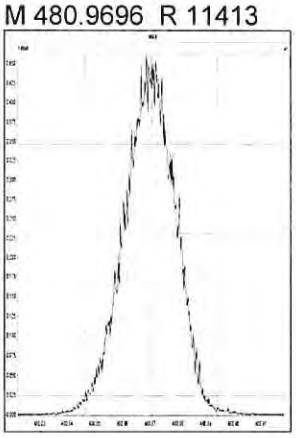
M 454.9728 R 11624



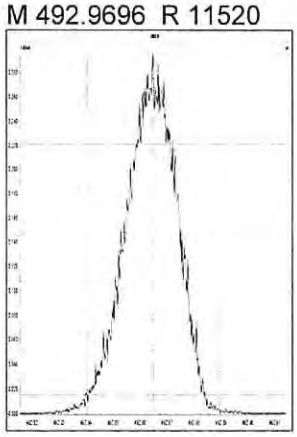
M 466.9728 R 11414



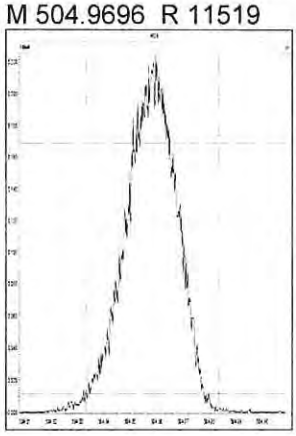
M 480.9696 R 11413



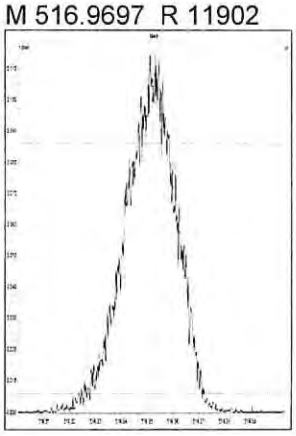
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

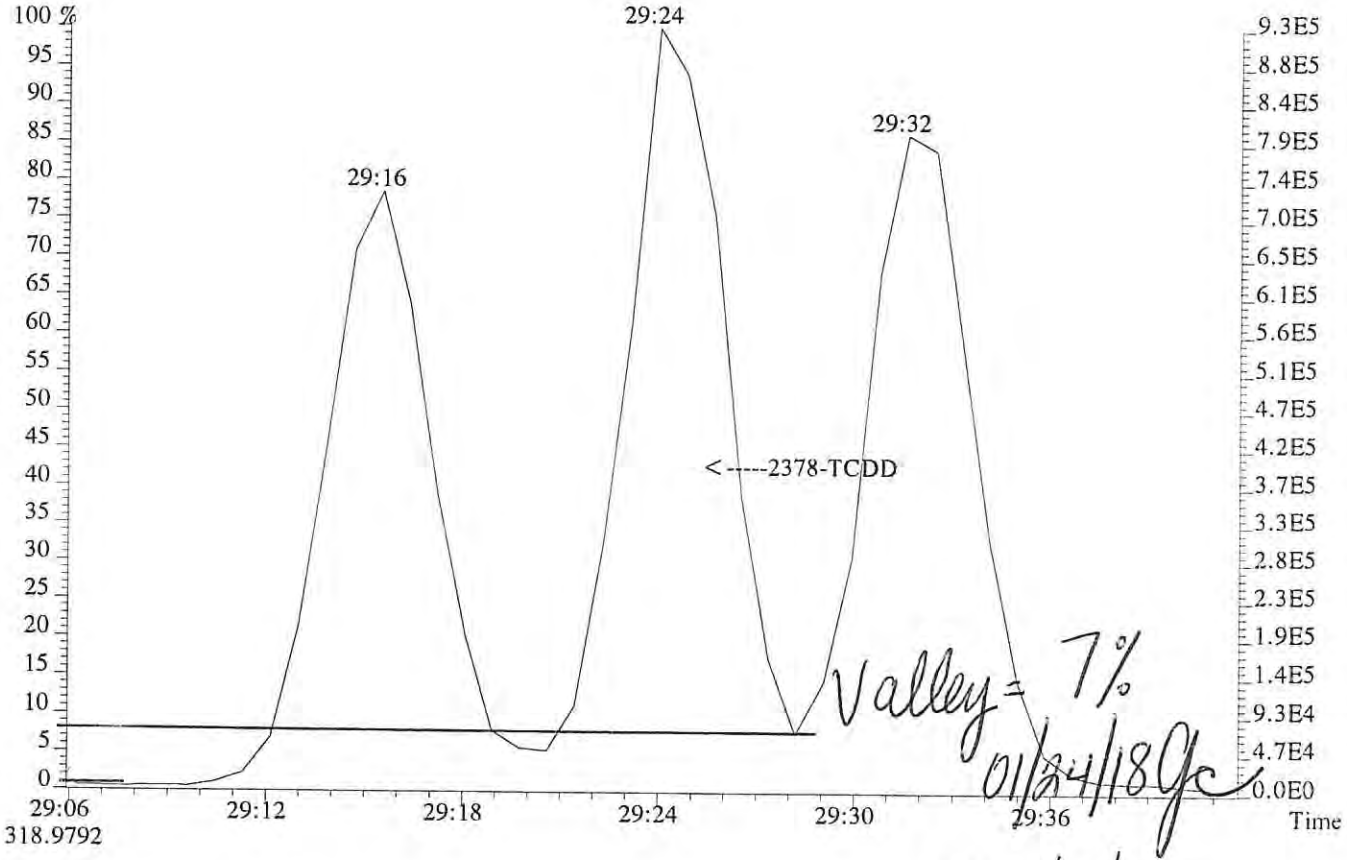
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

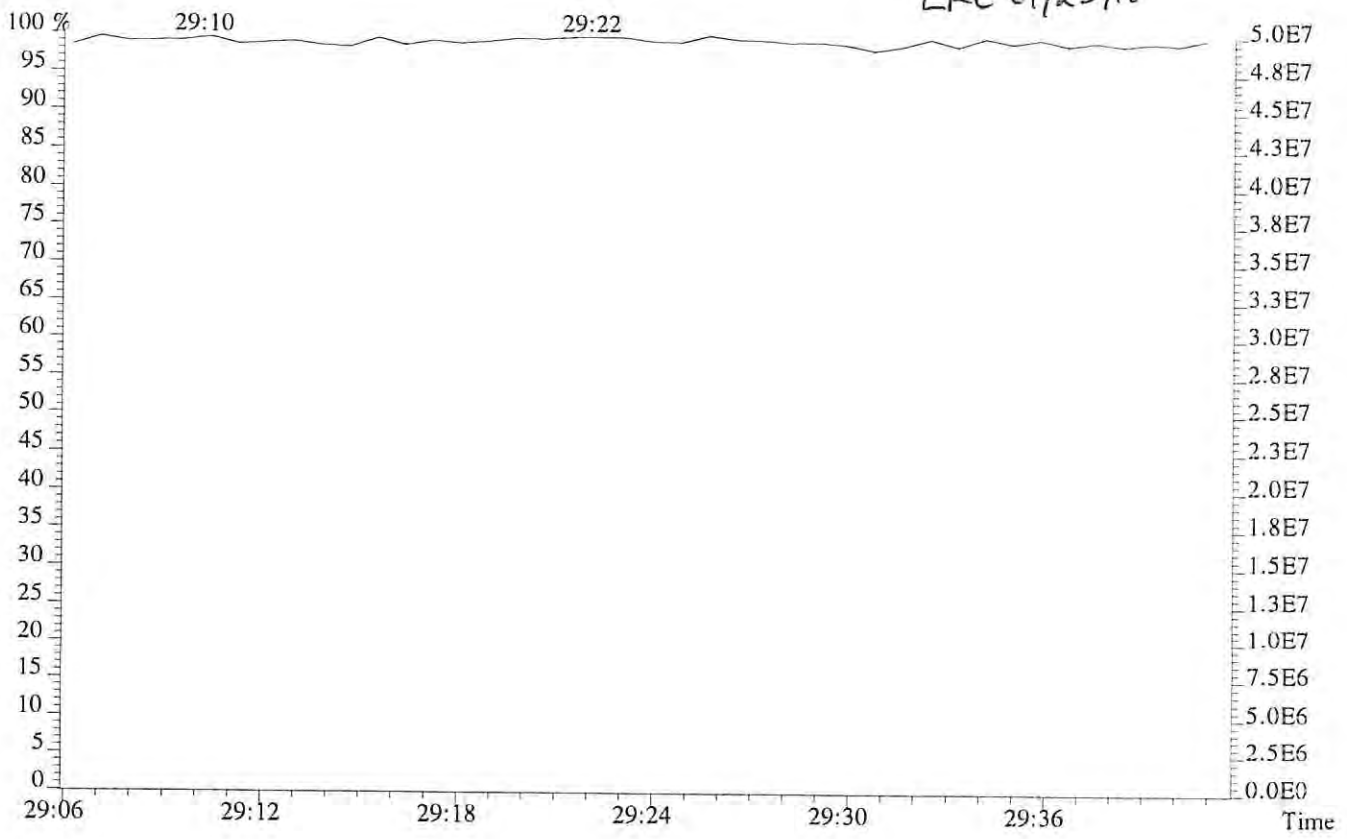
% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

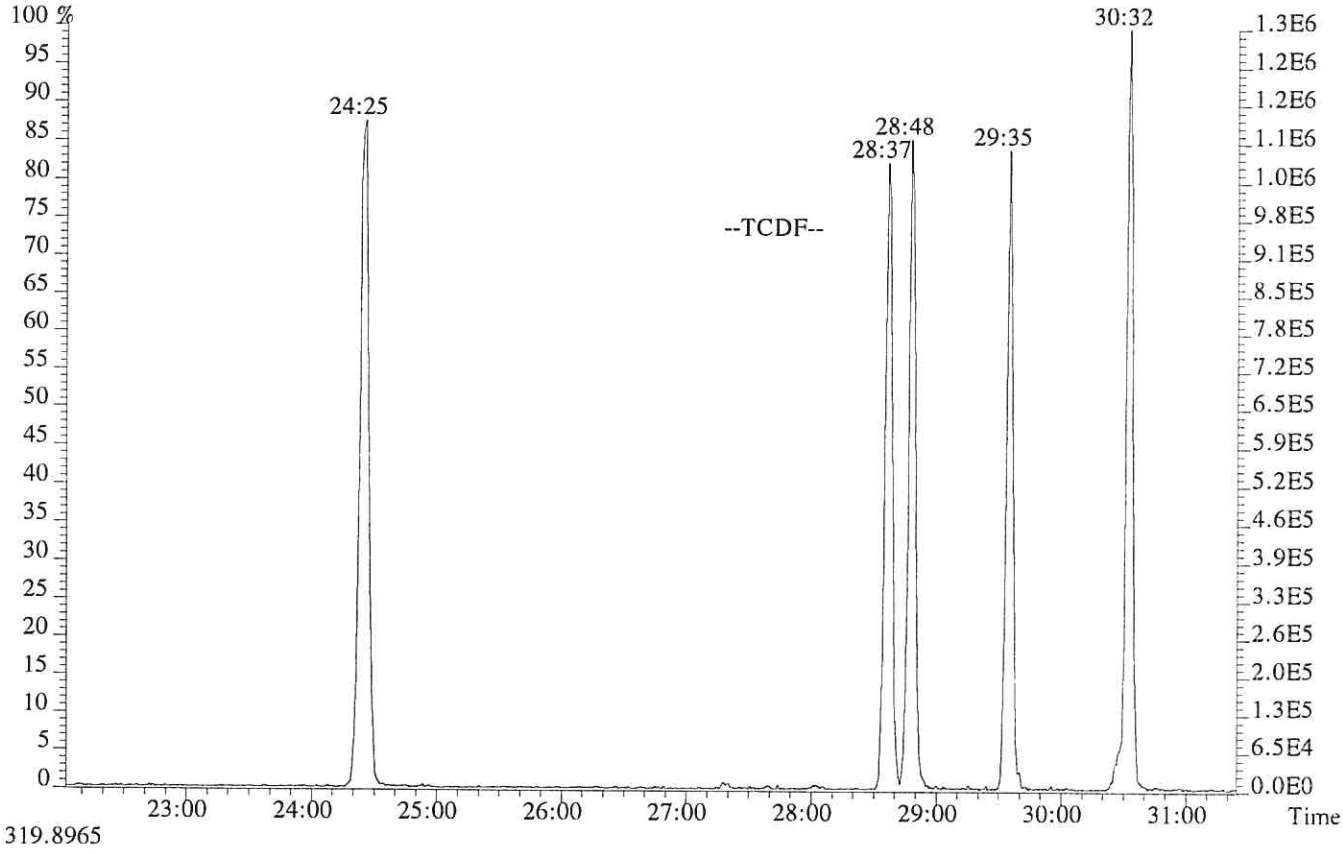


318.9792

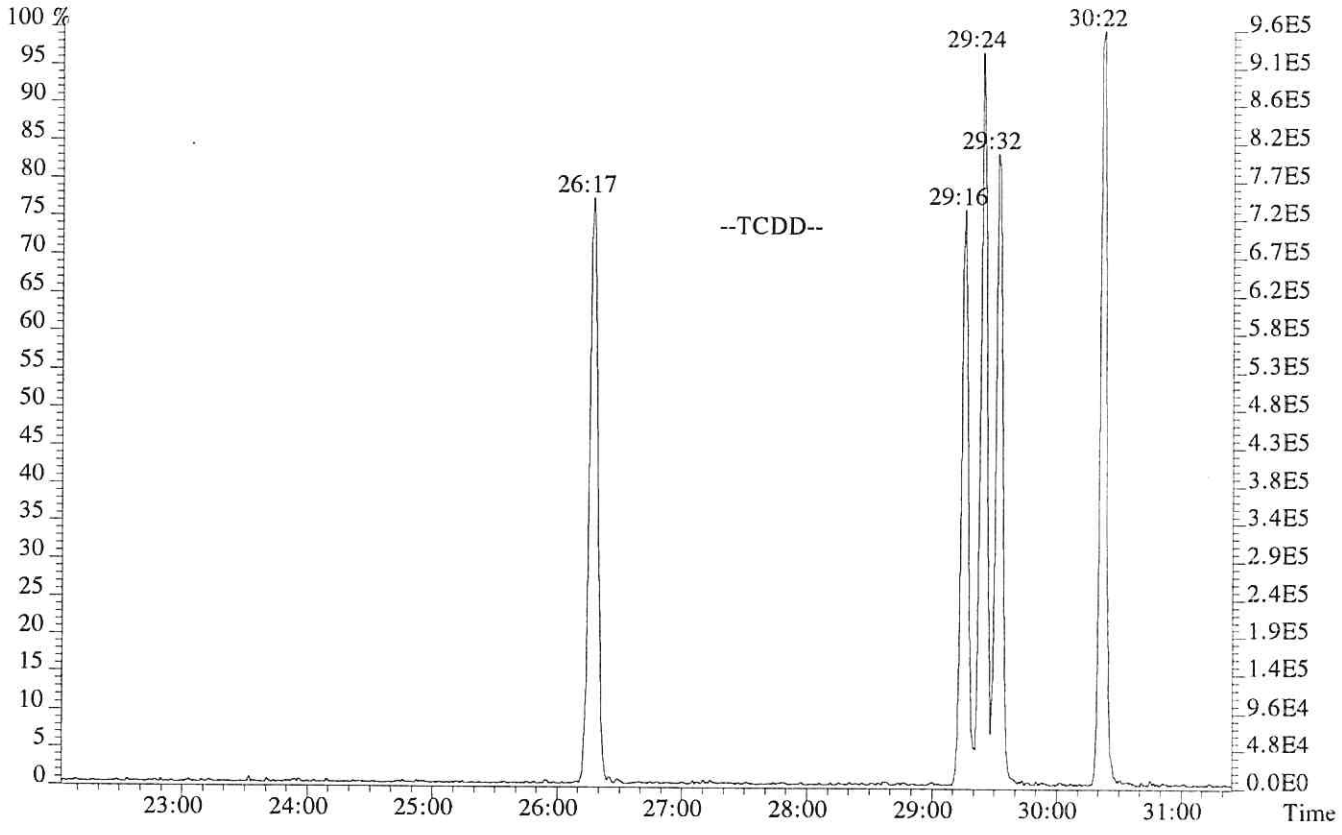
LKL 01/25/18



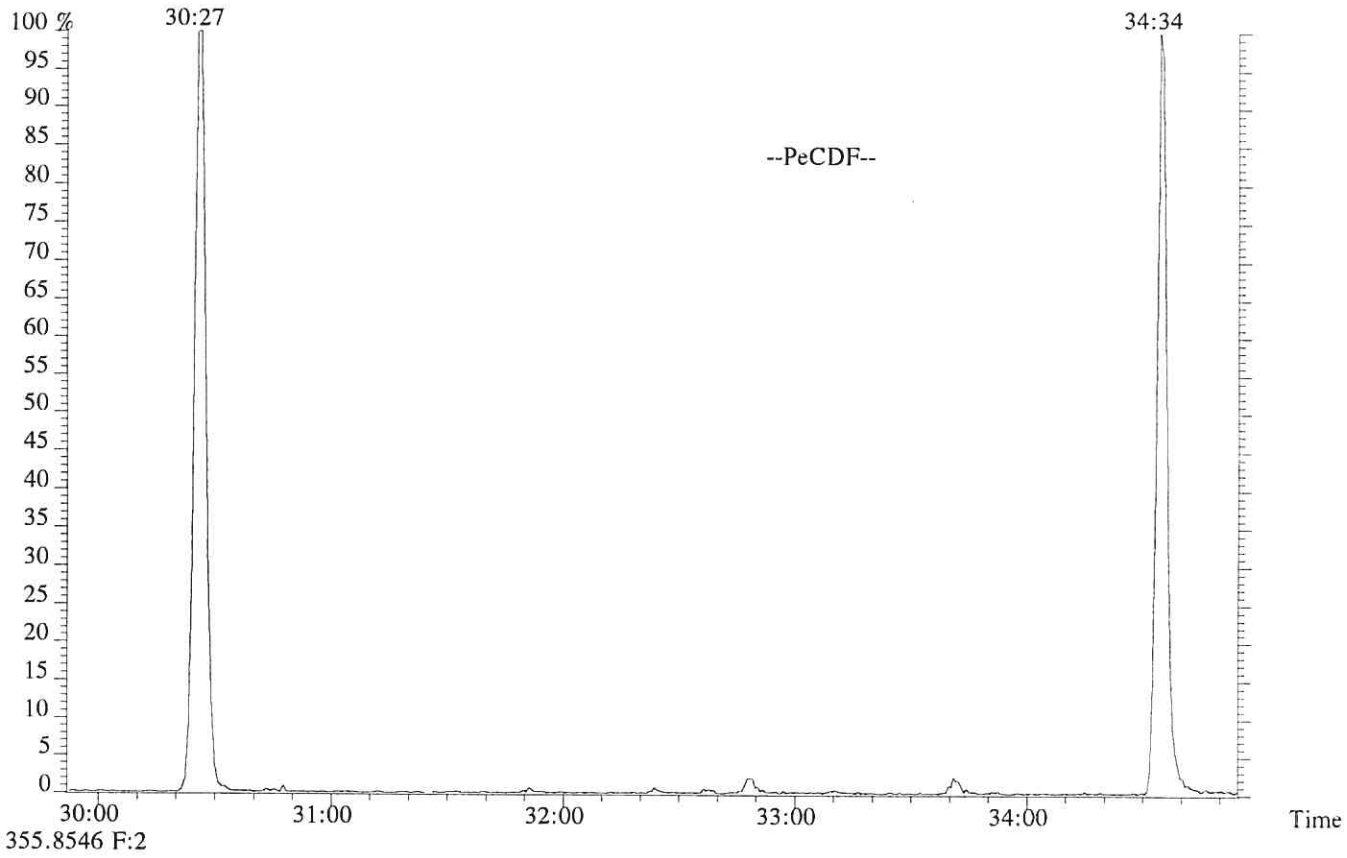
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016



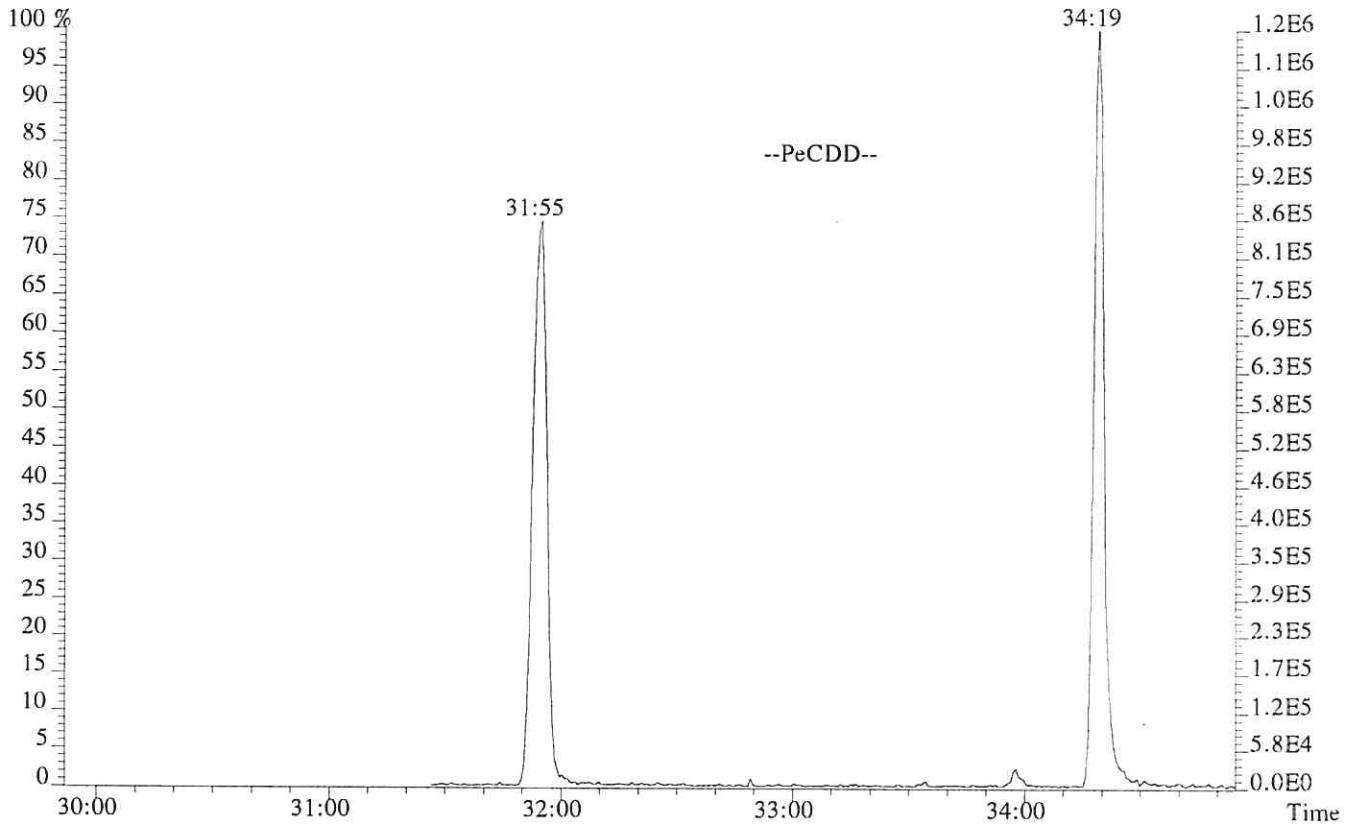
319.8965



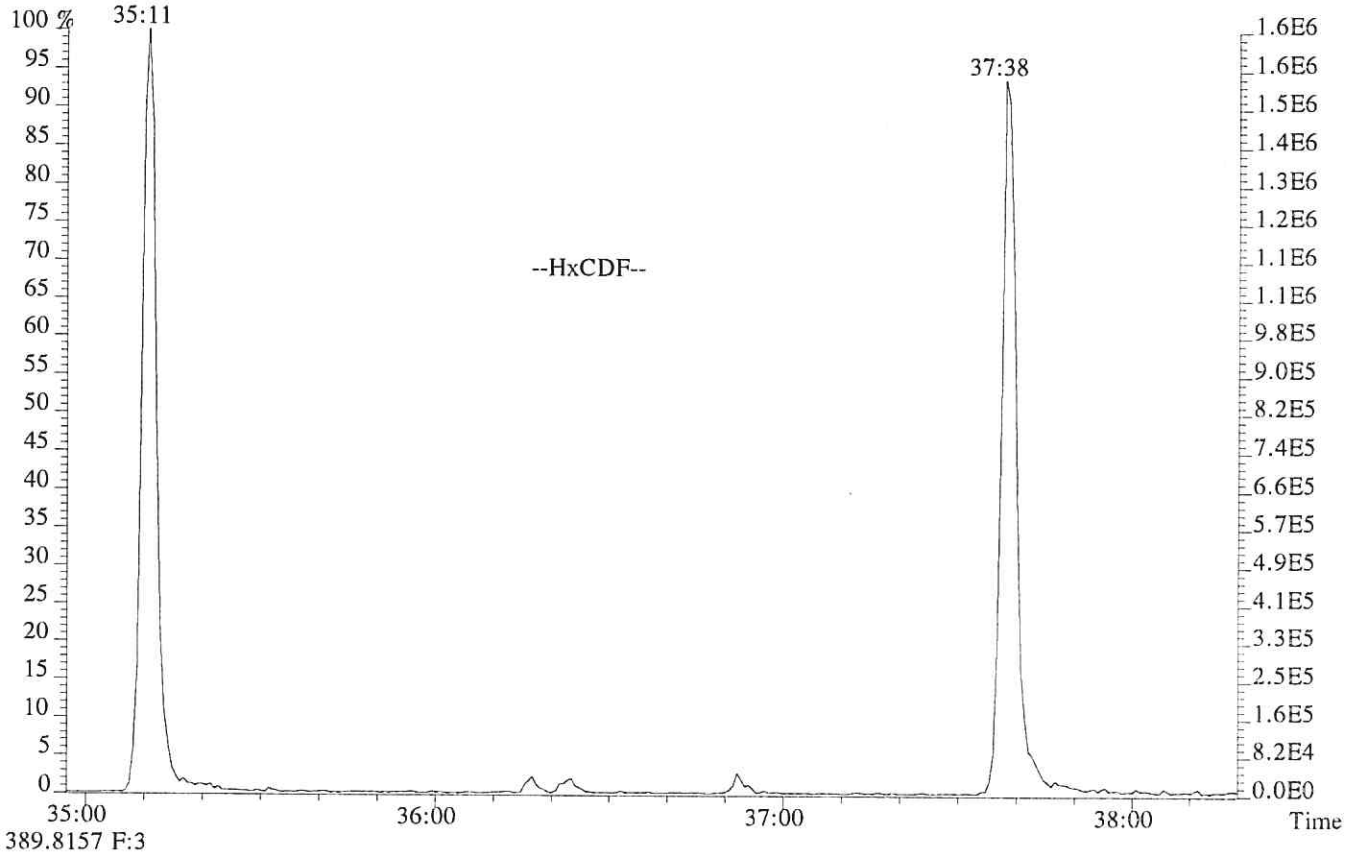
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



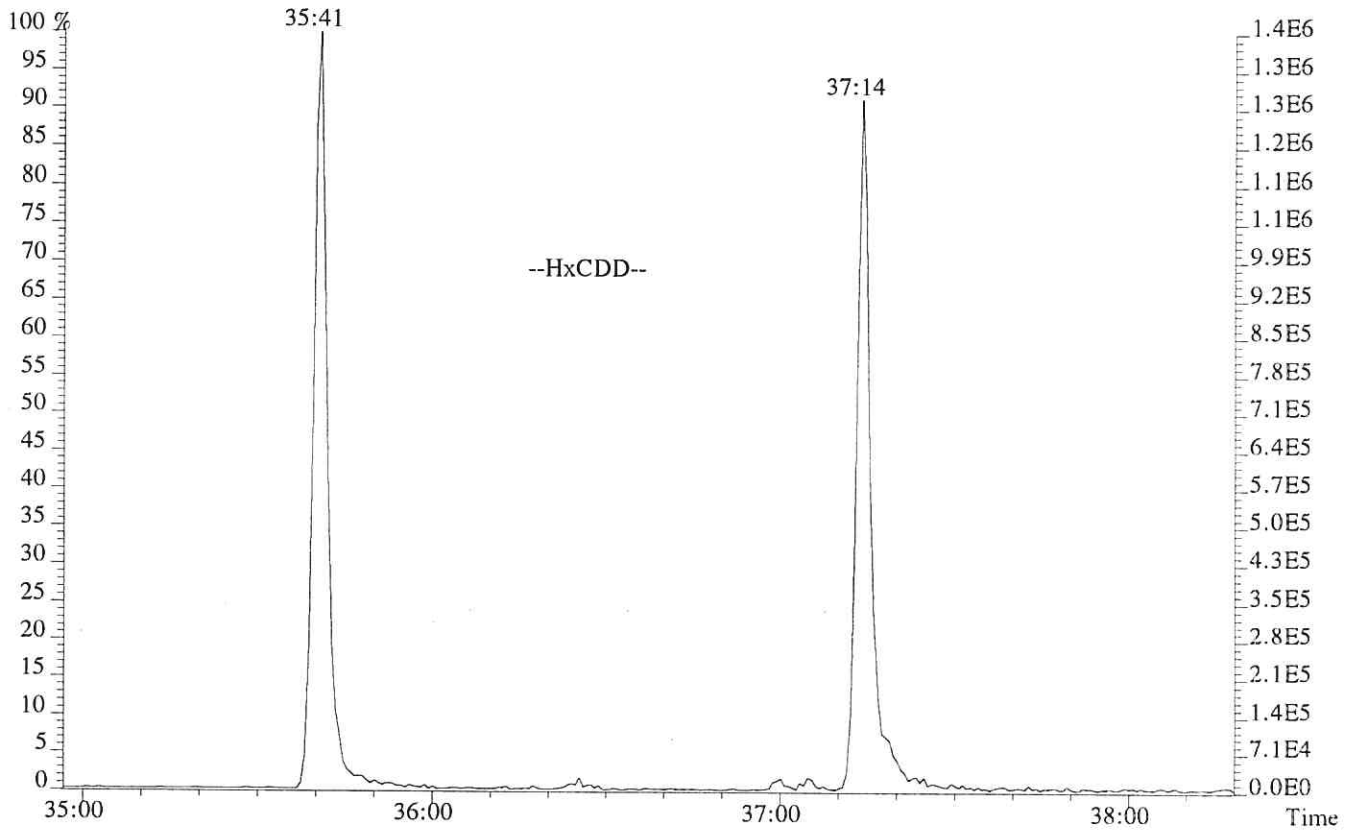
355.8546 F:2



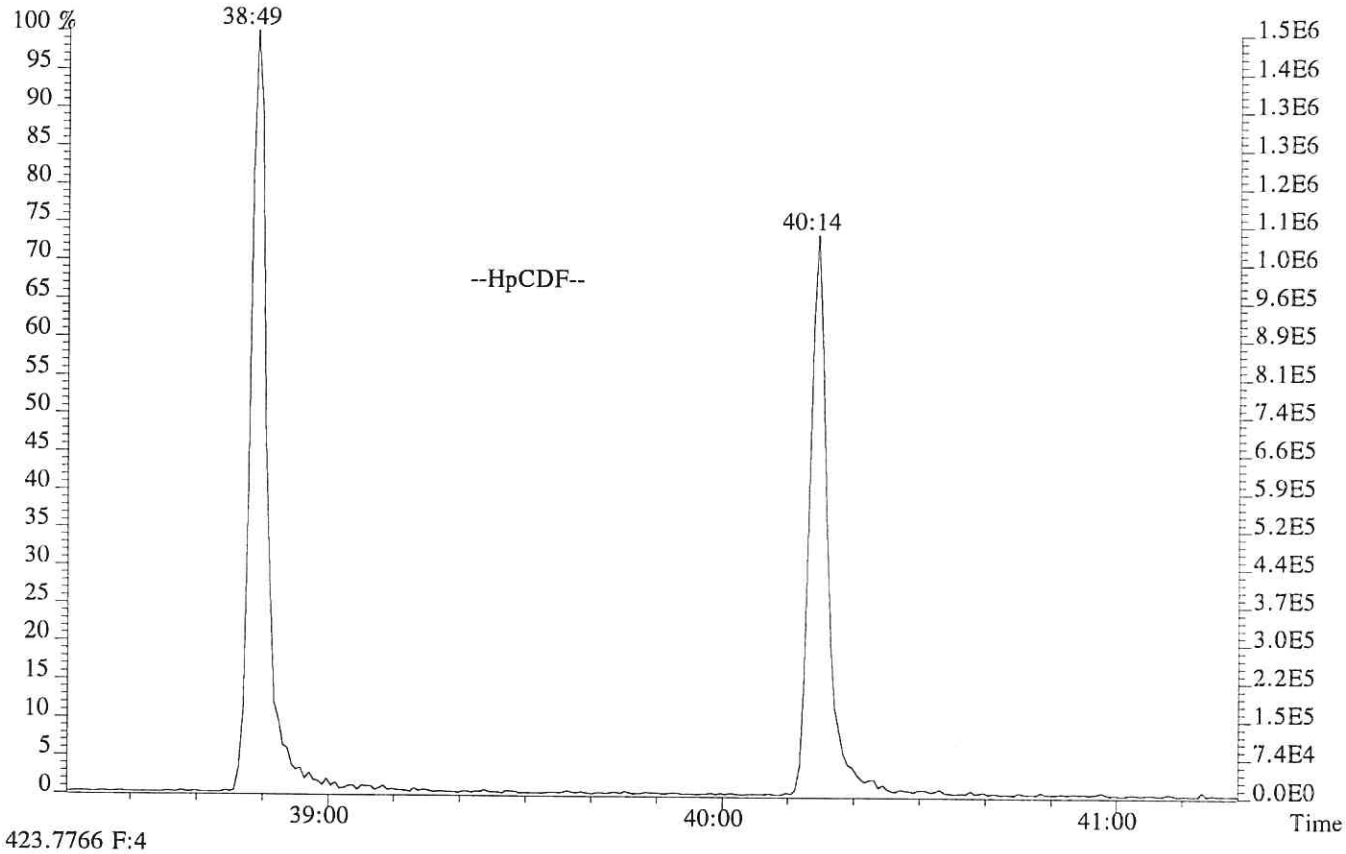
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



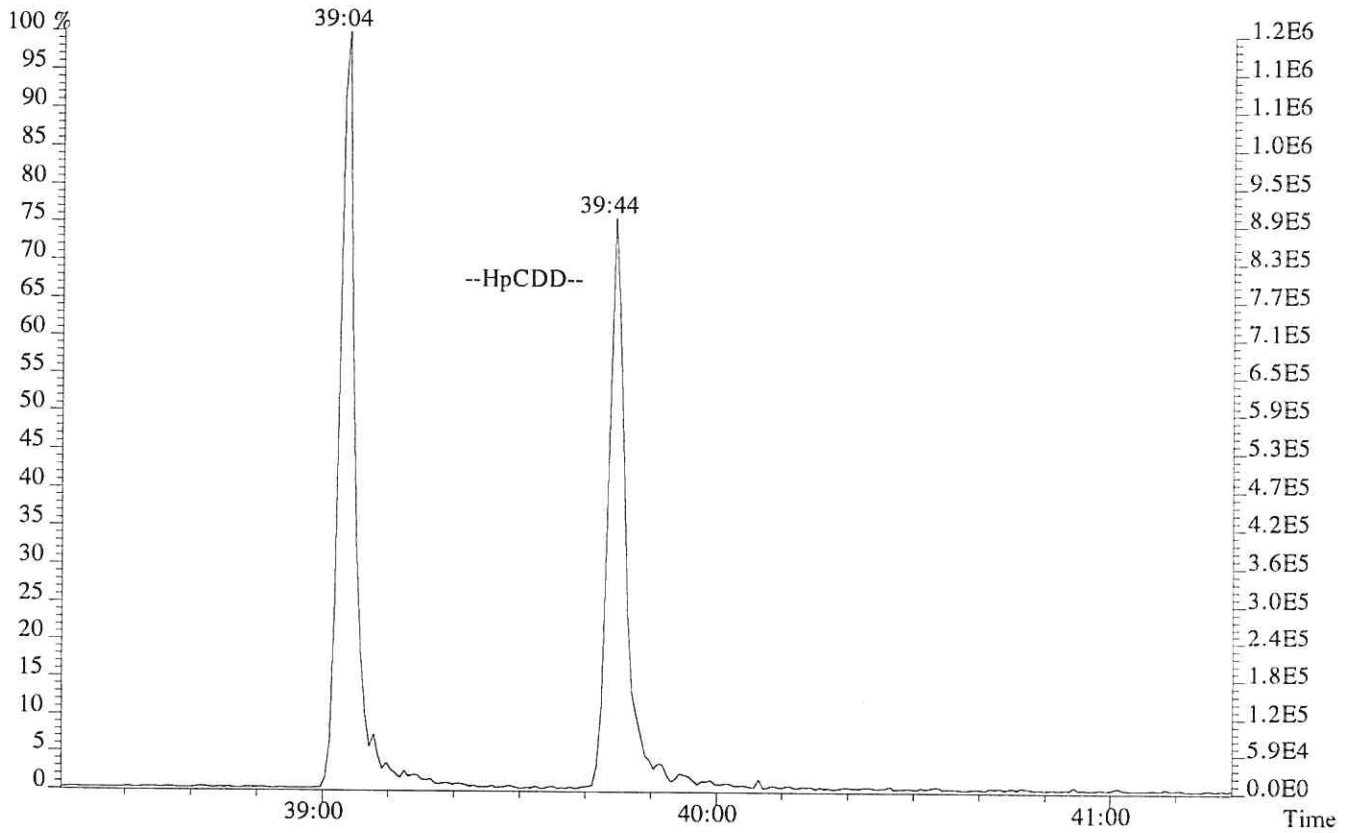
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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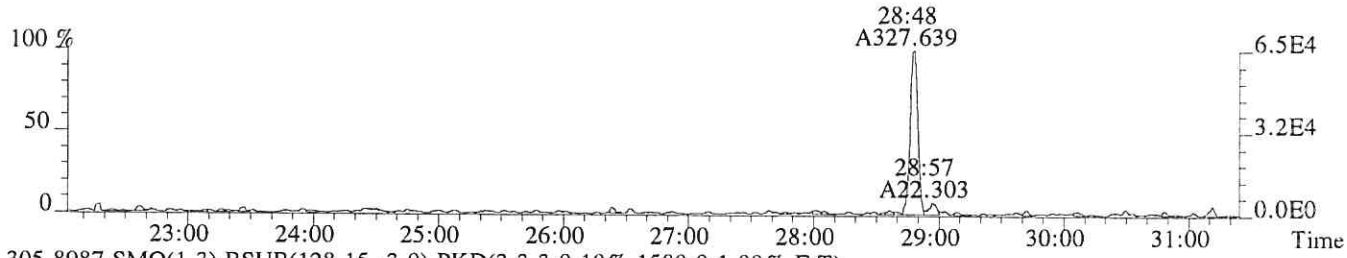
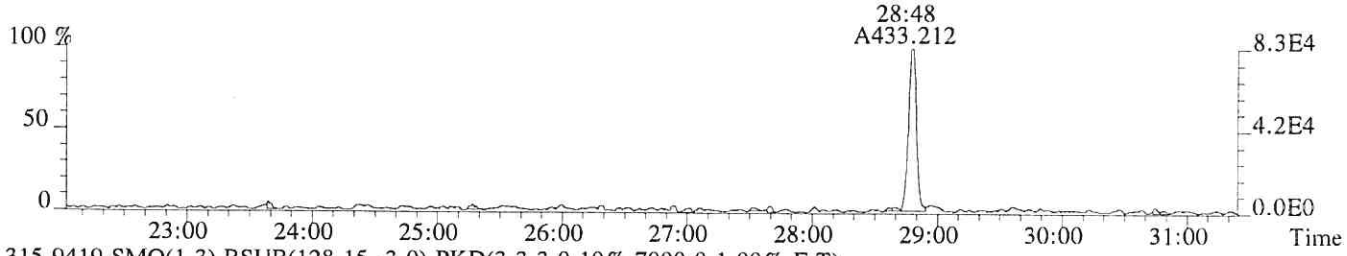
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

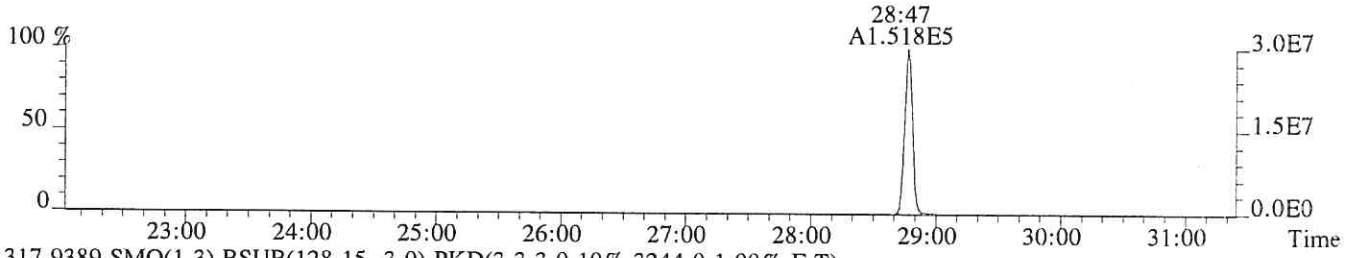
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



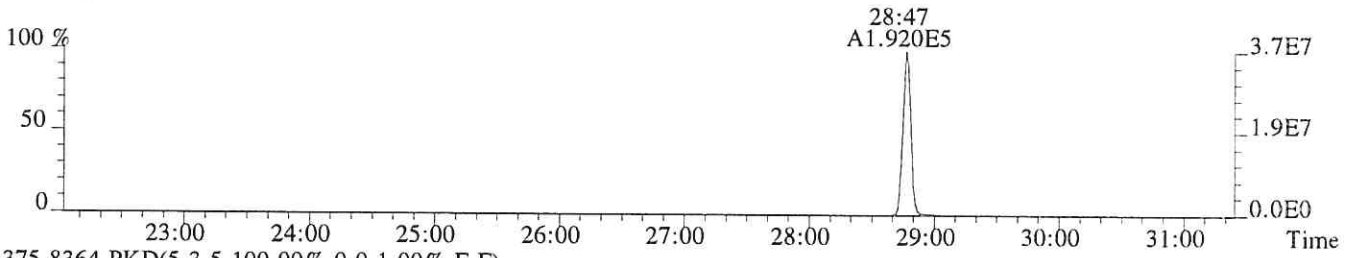
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



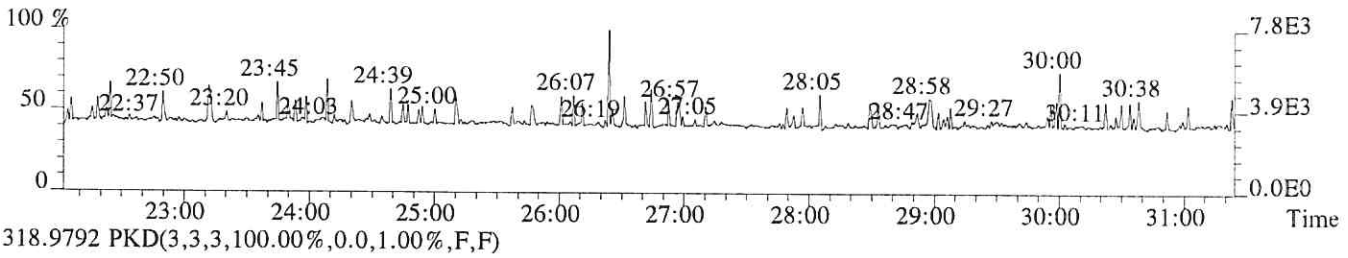
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



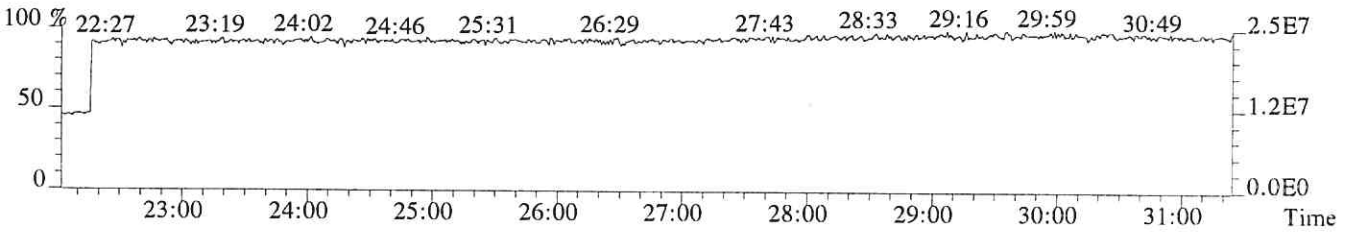
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

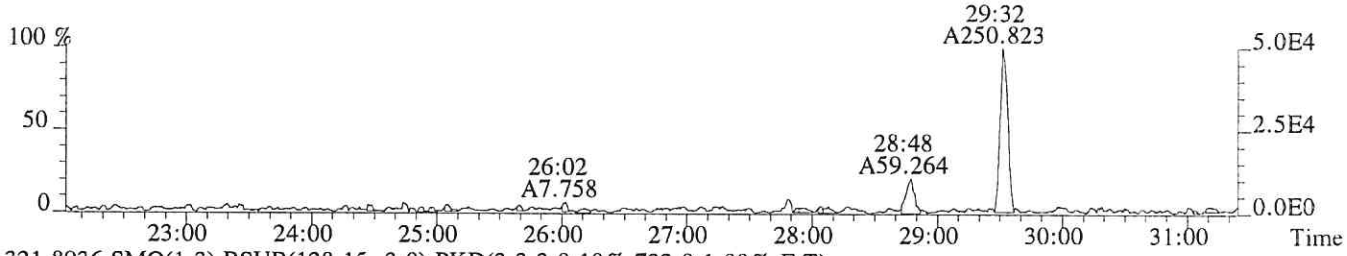


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

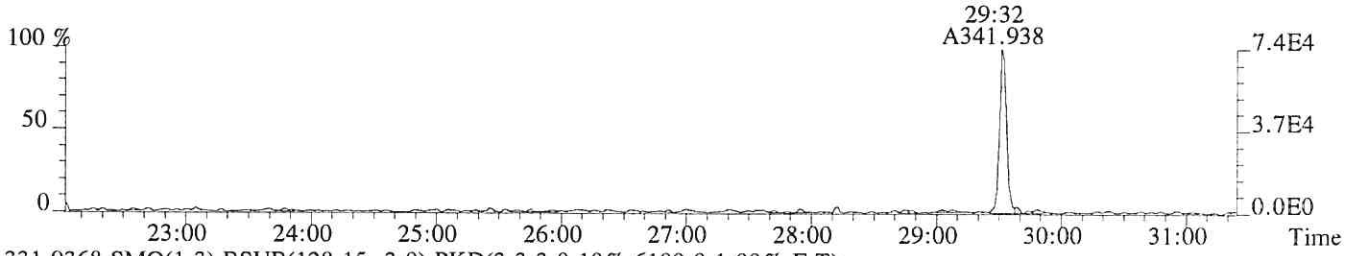


File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

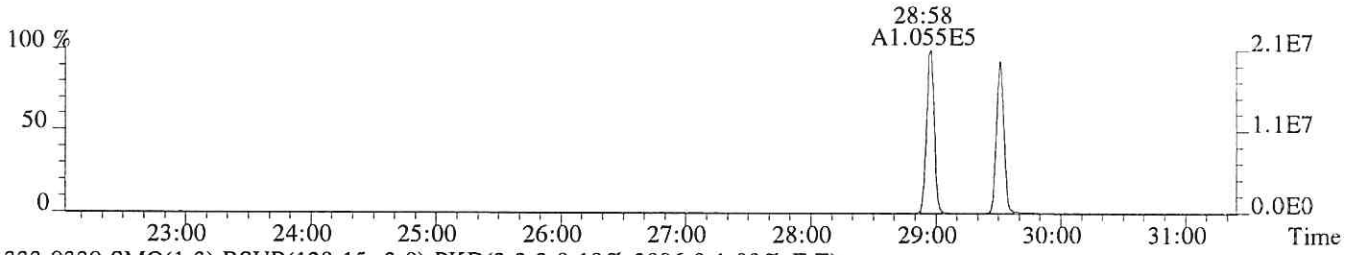
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



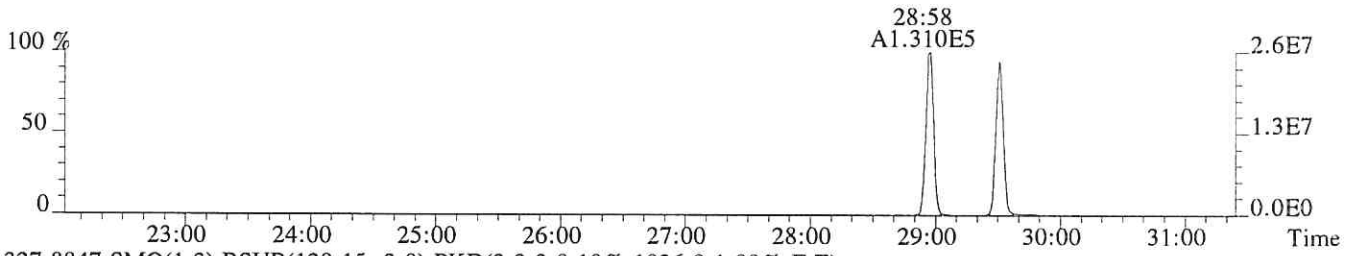
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



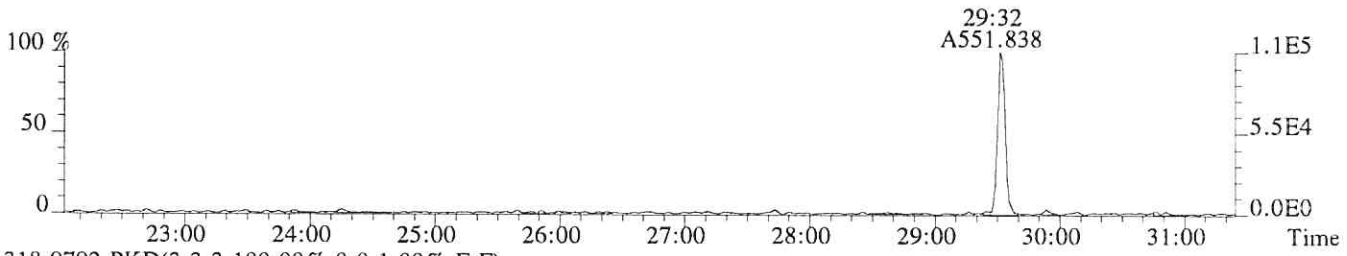
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



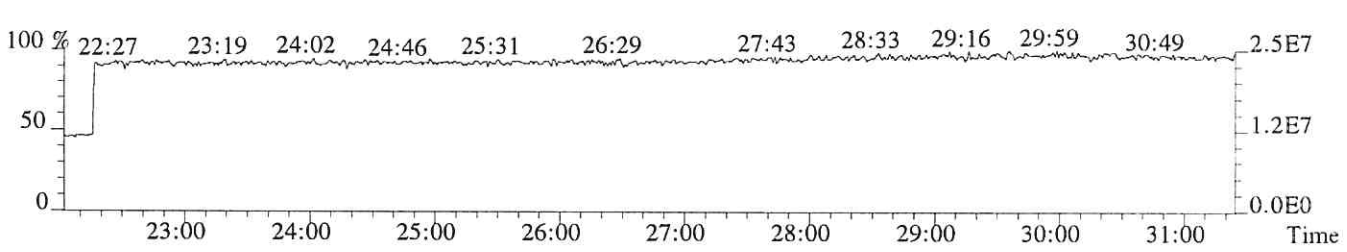
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



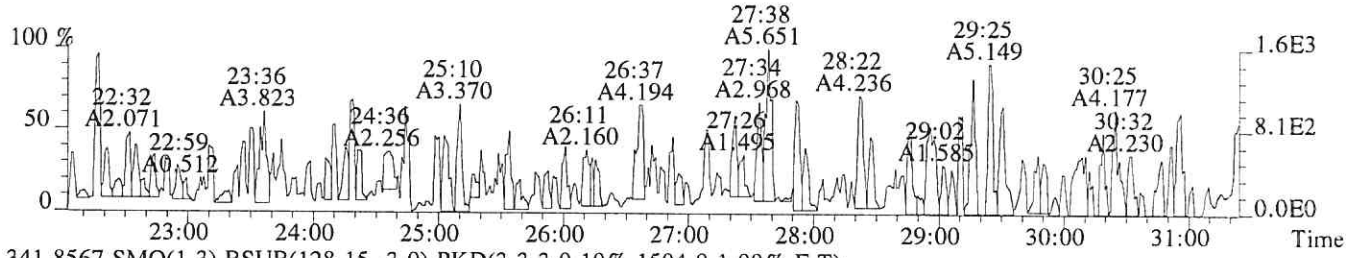
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



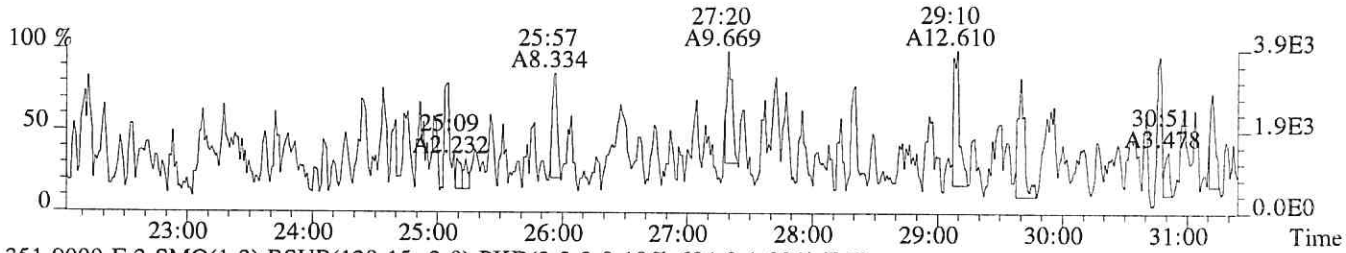
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



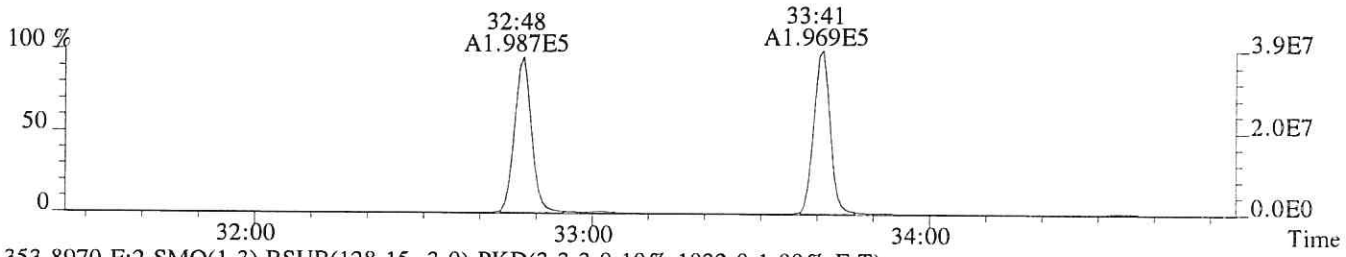
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



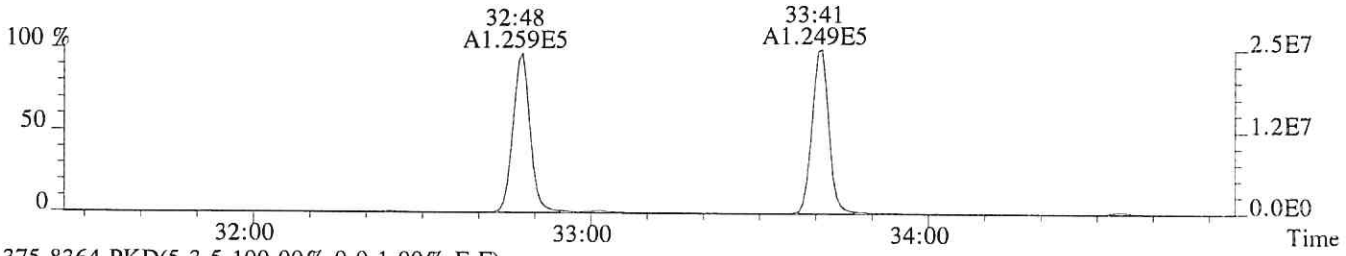
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



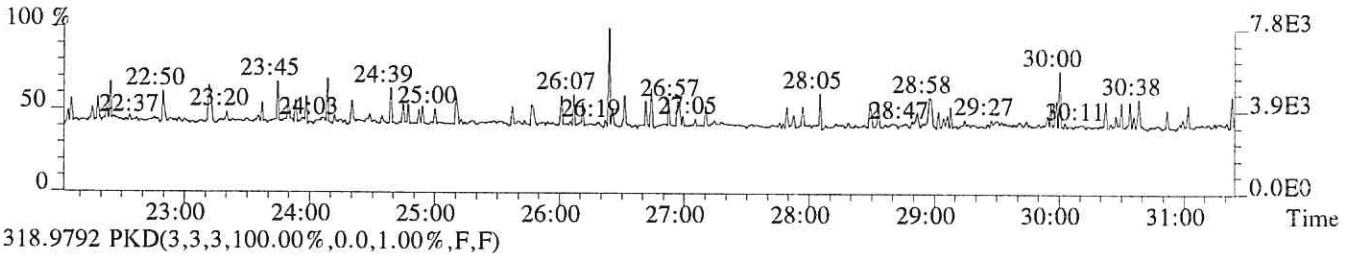
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



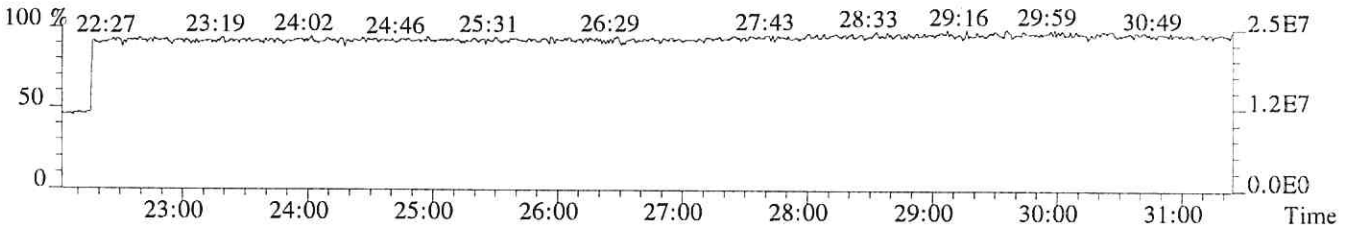
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



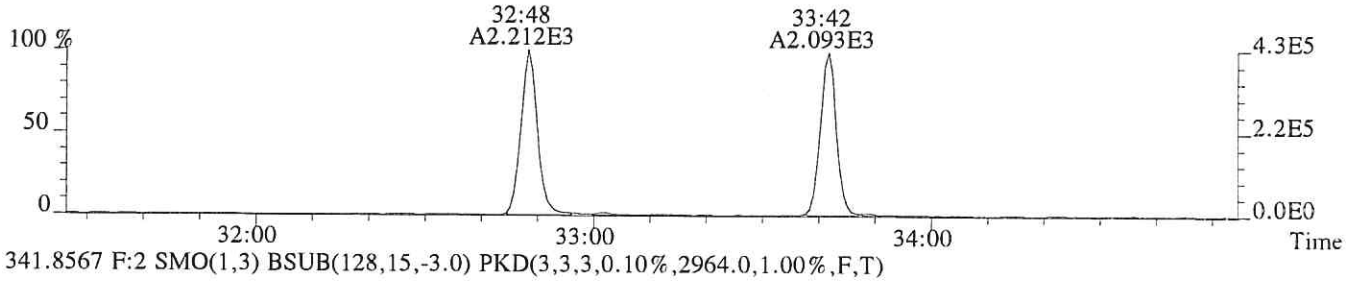
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



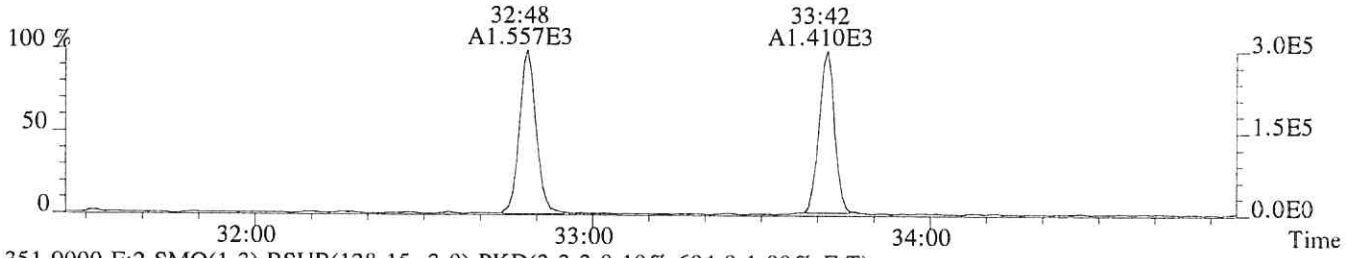
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



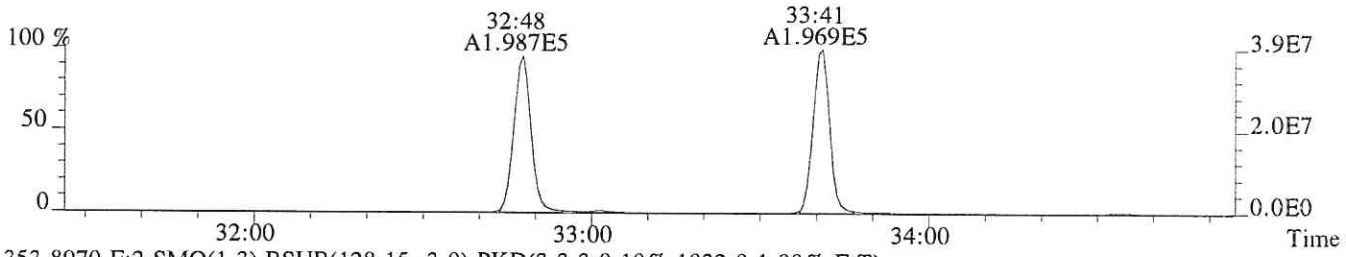
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



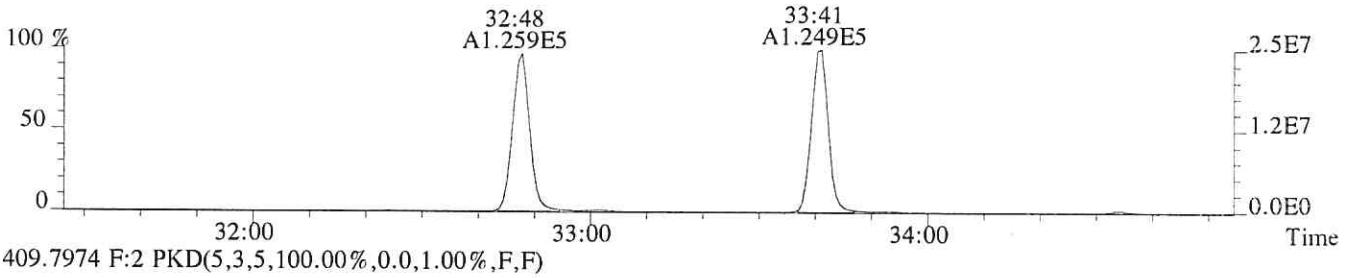
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



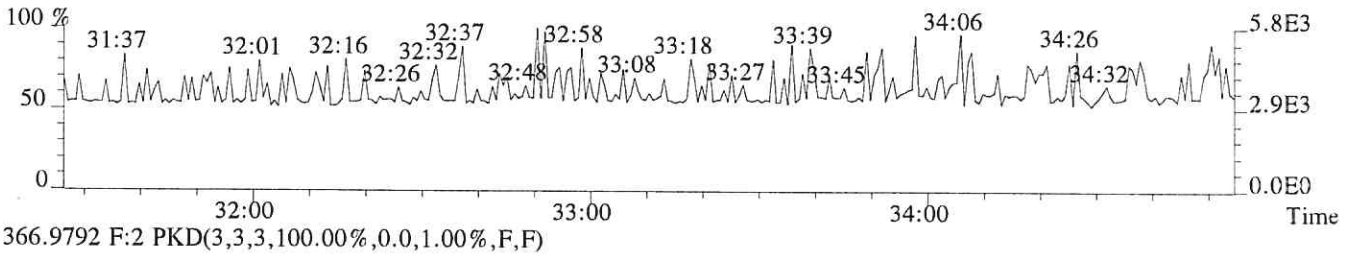
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



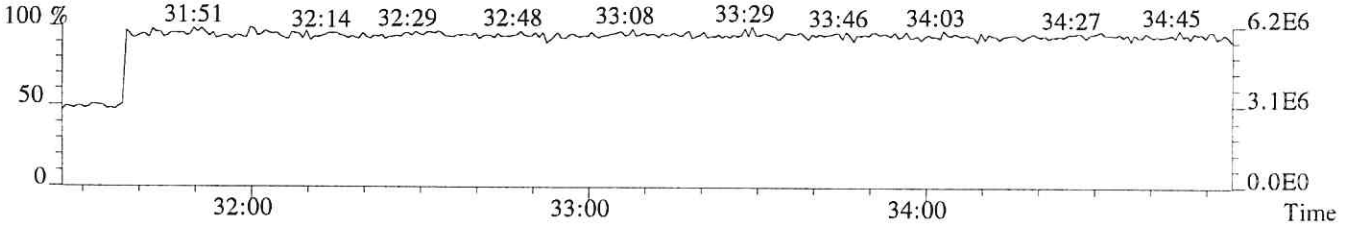
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



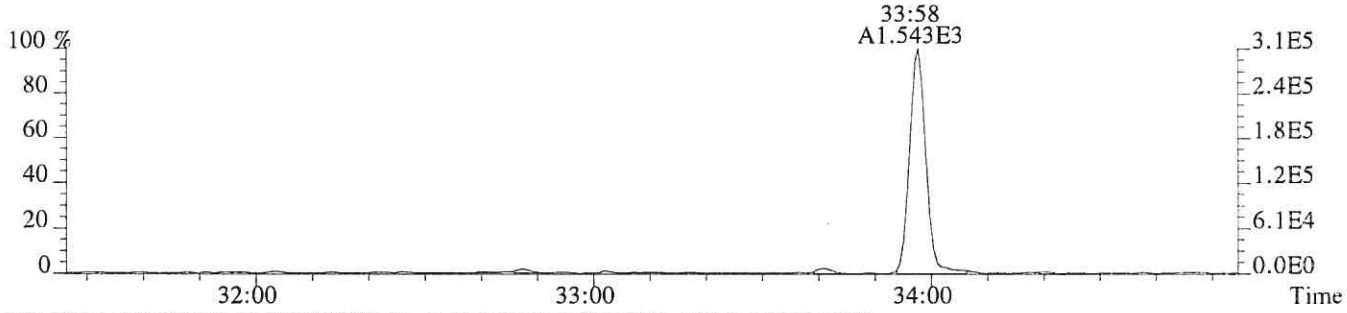
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



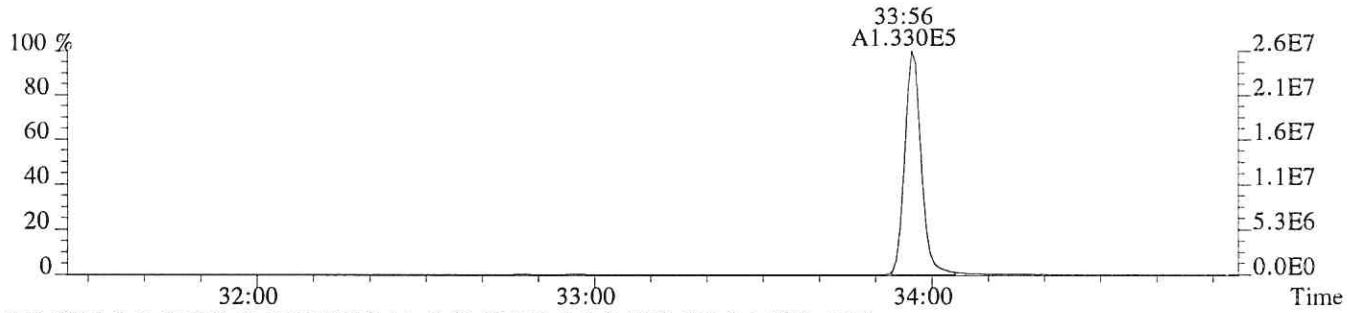
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



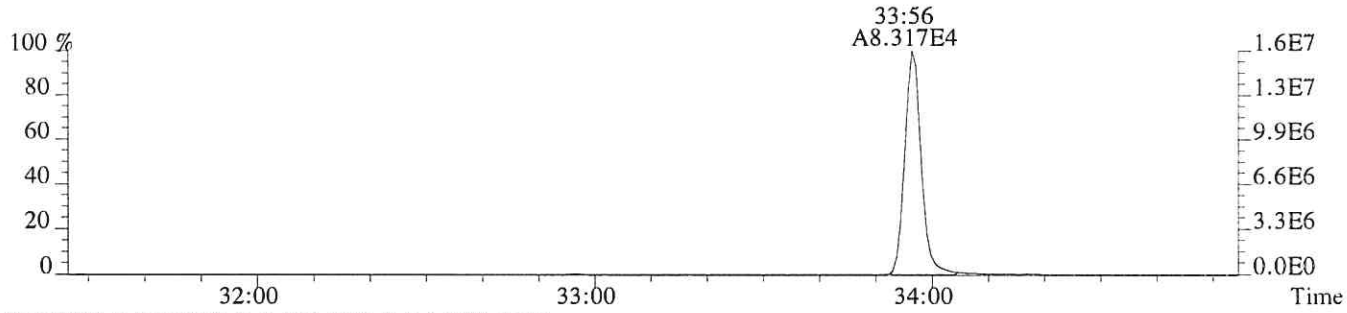
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



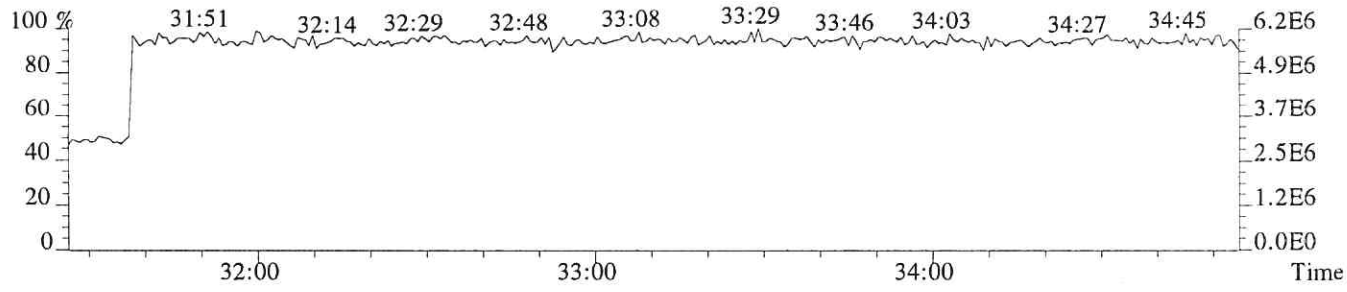
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



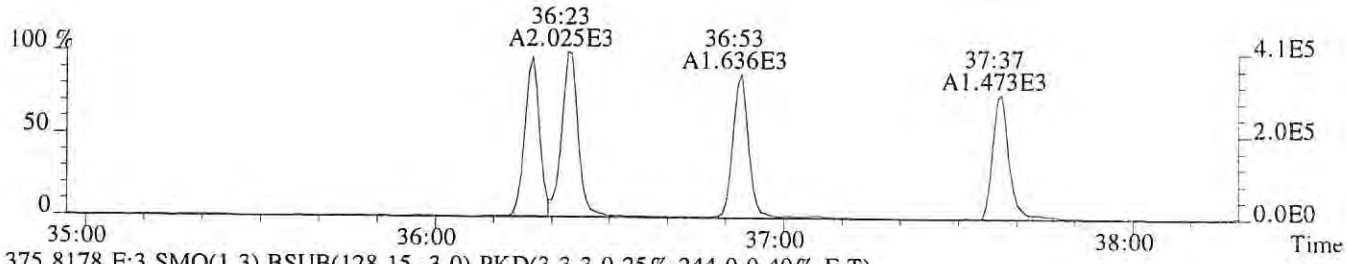
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



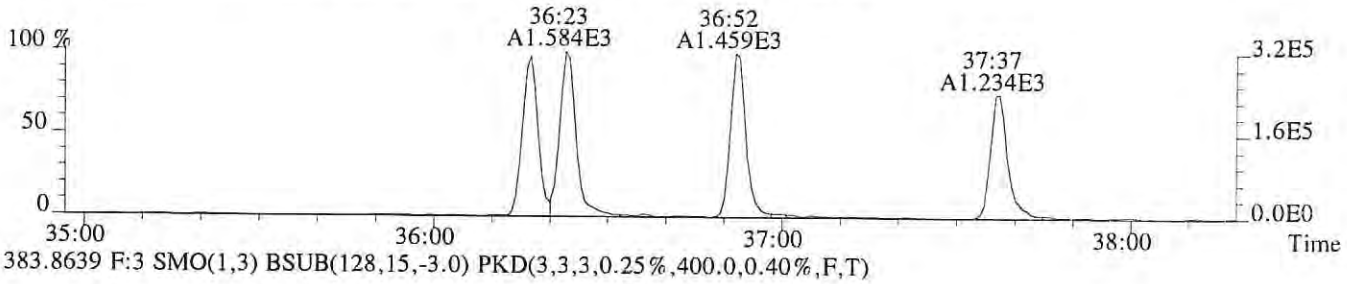
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



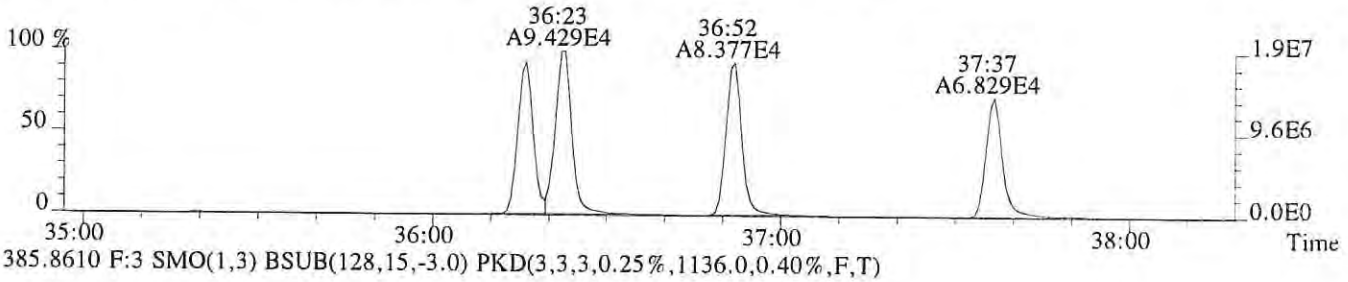
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



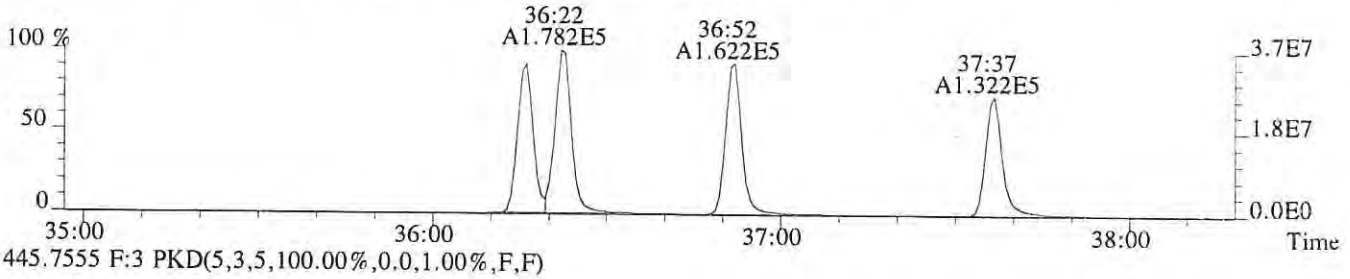
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



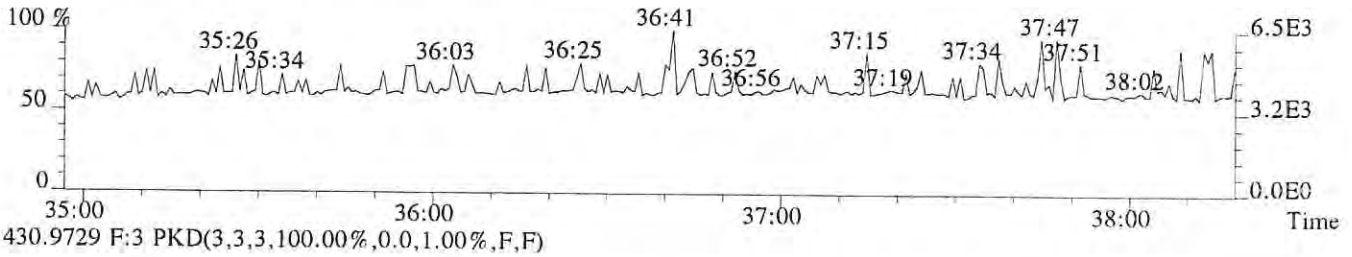
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



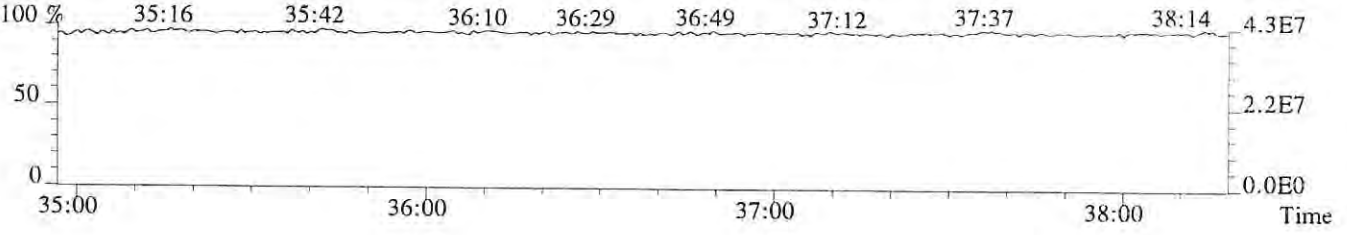
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



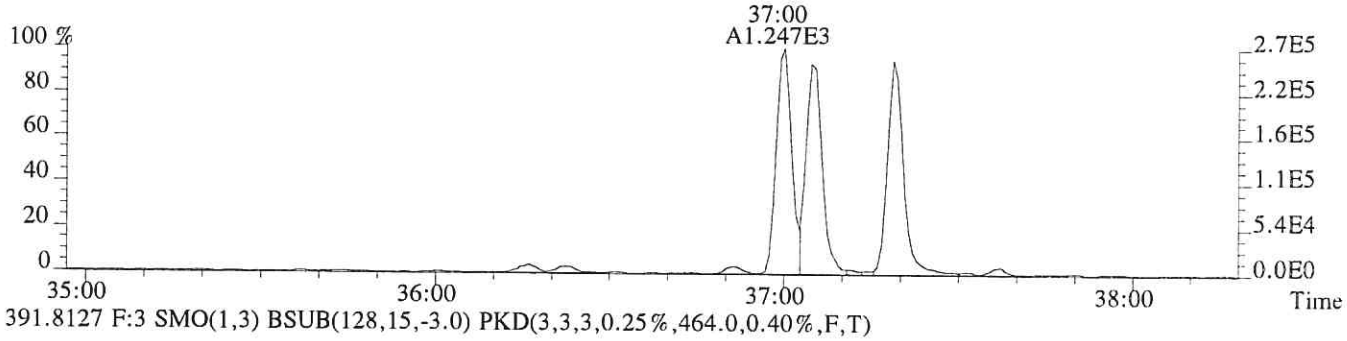
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



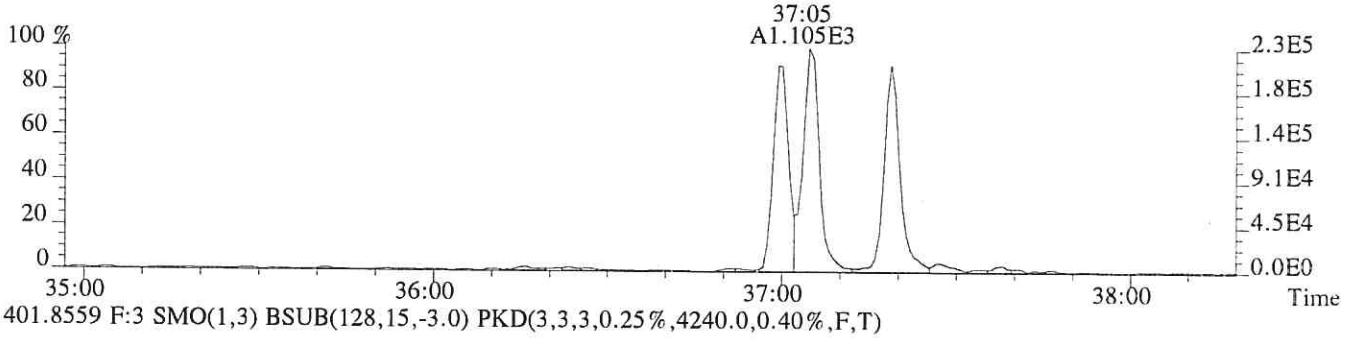
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



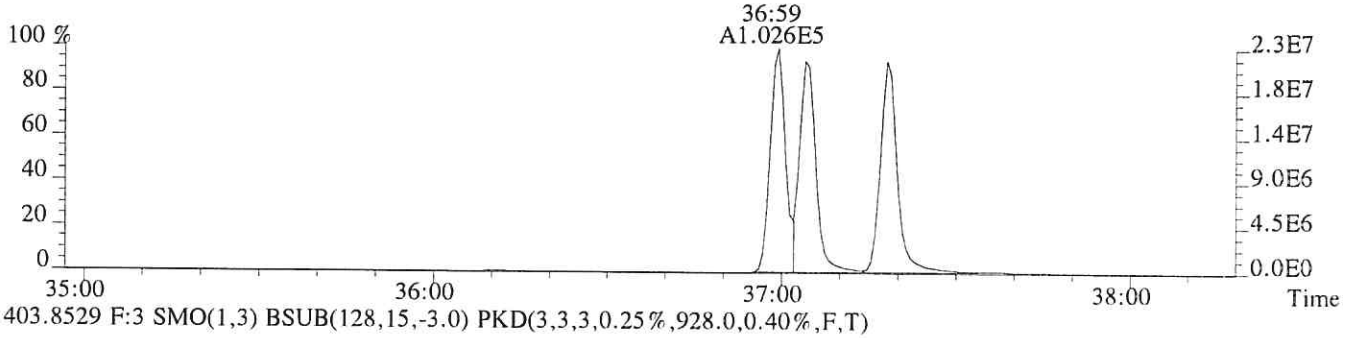
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



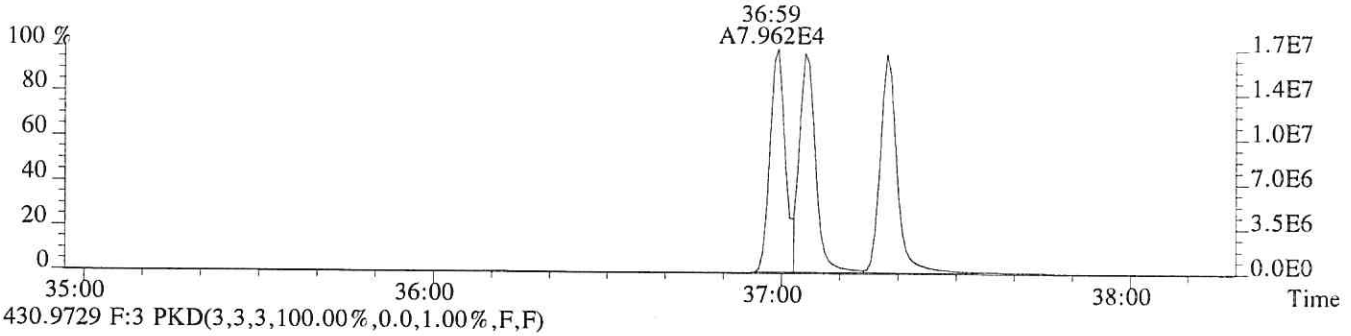
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



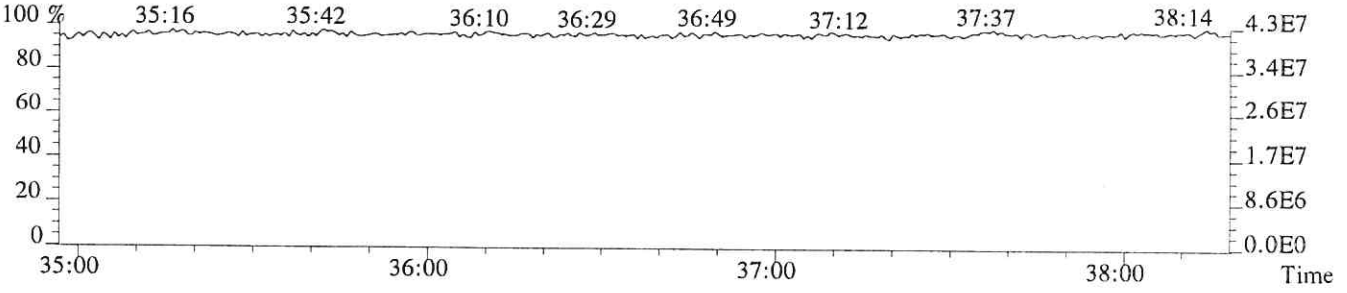
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



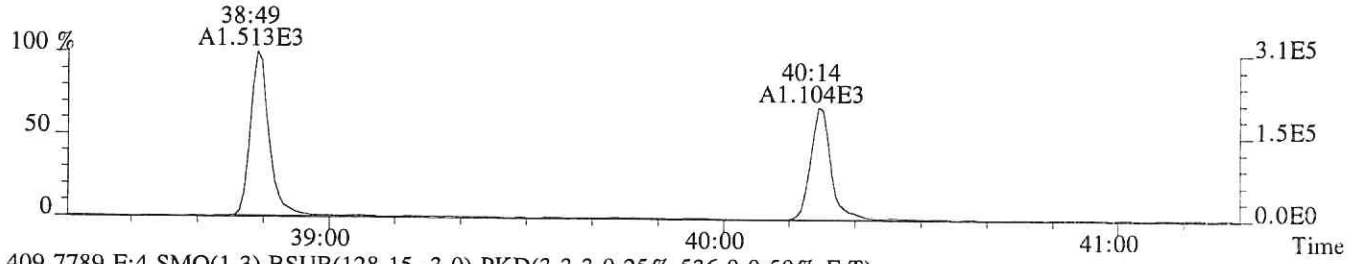
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



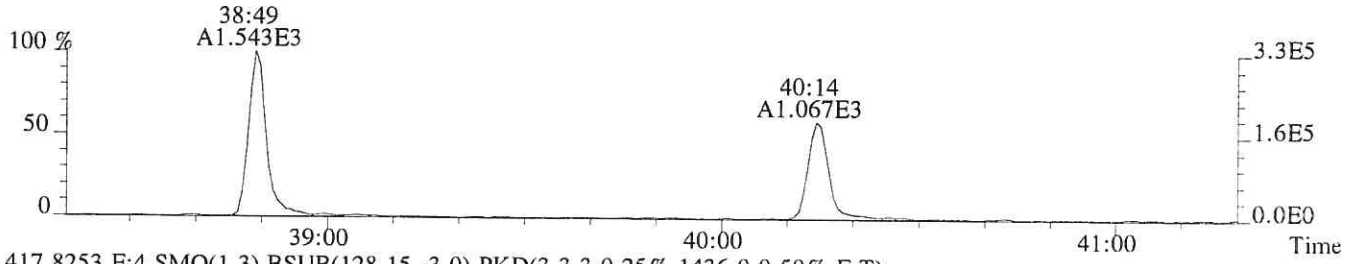
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



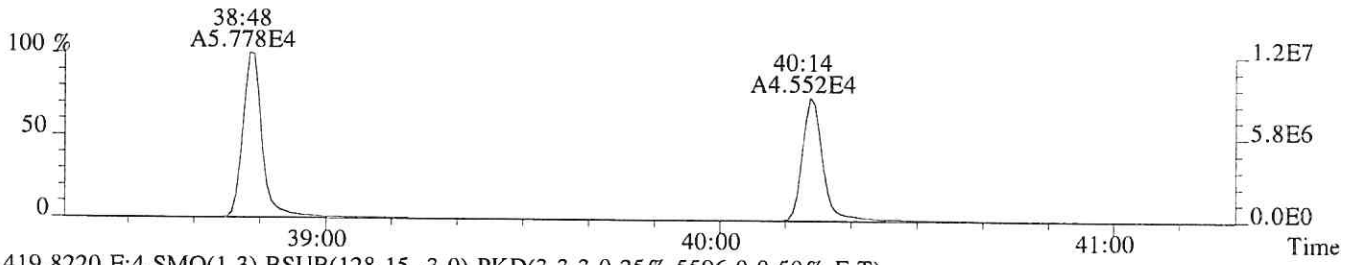
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



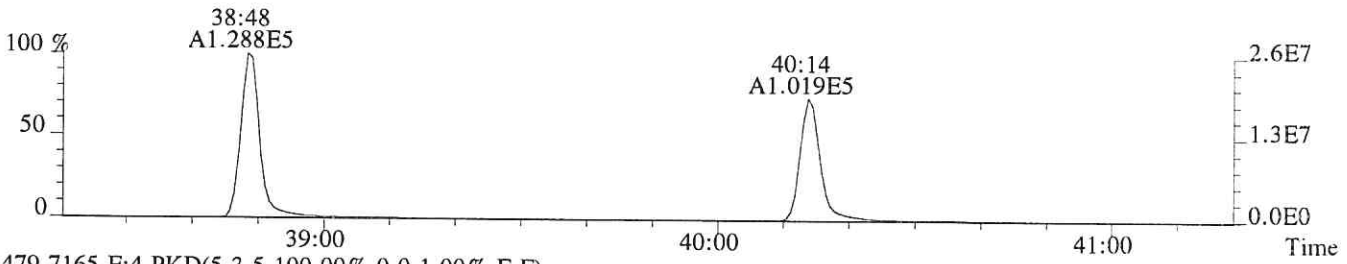
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



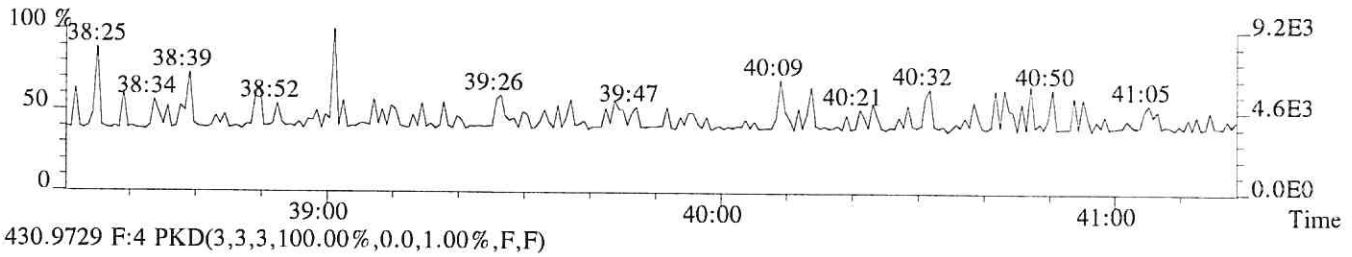
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



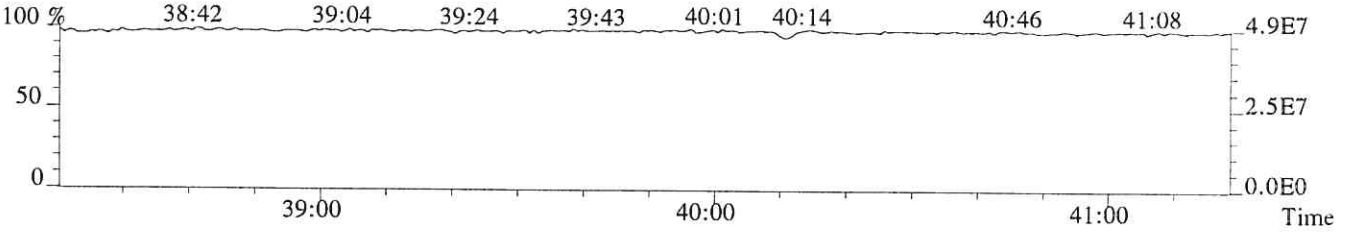
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



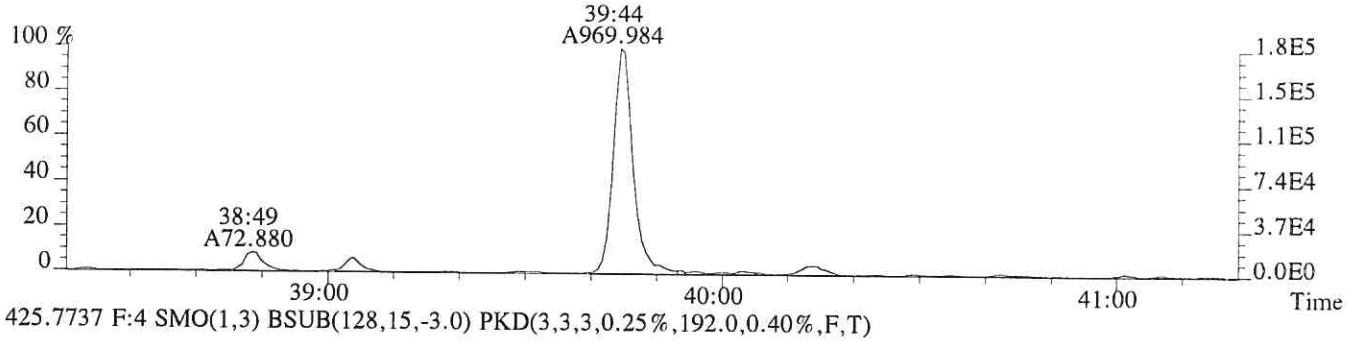
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



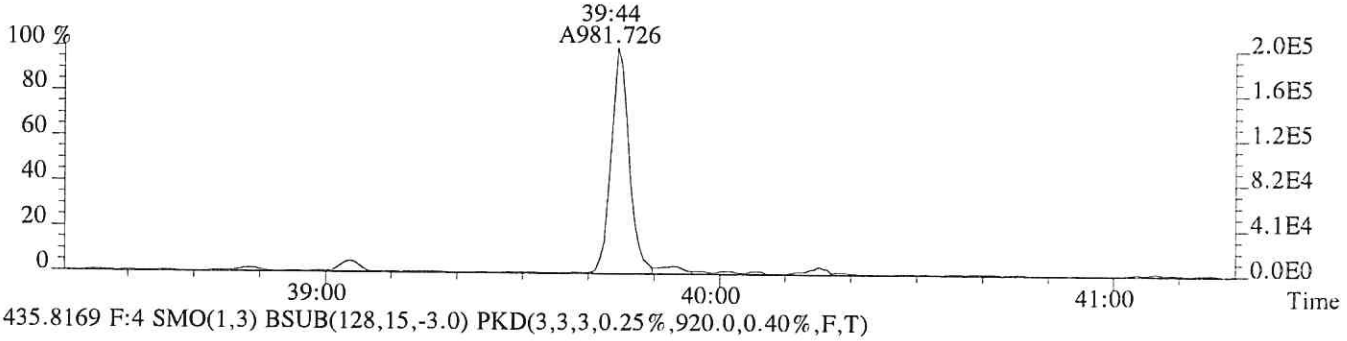
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



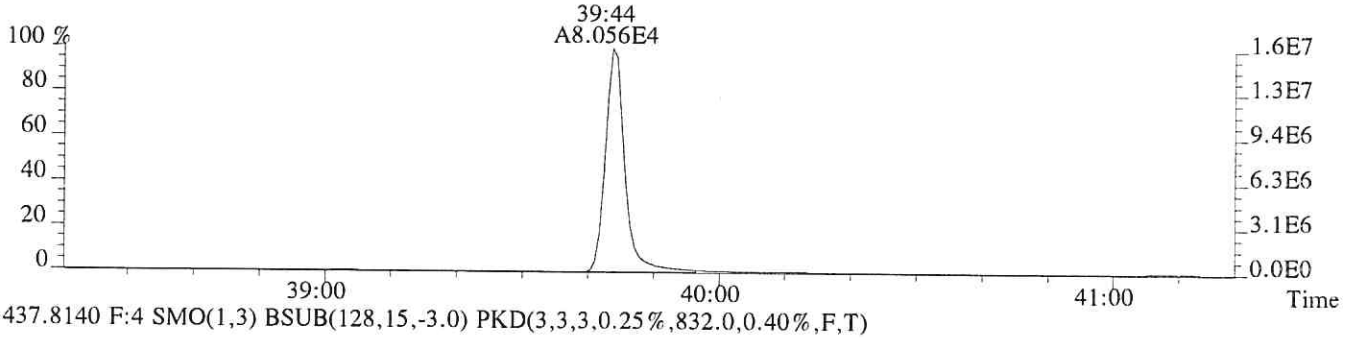
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



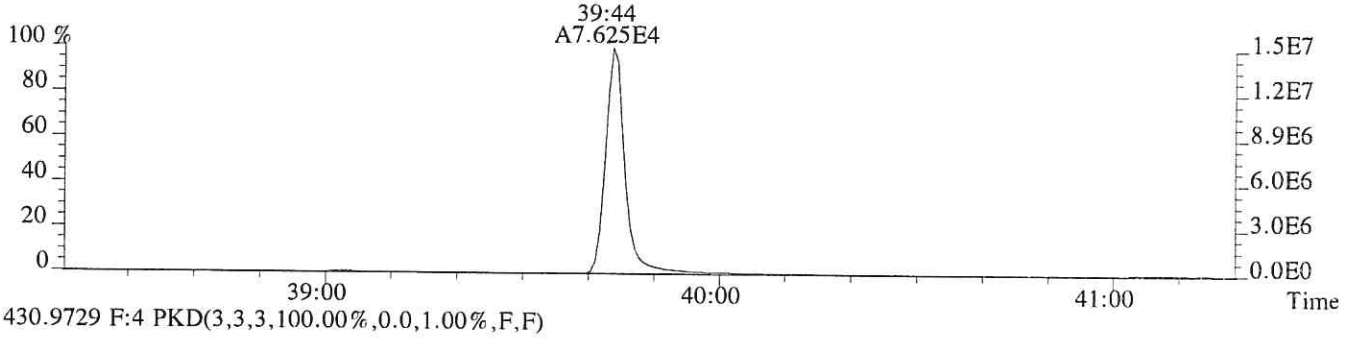
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



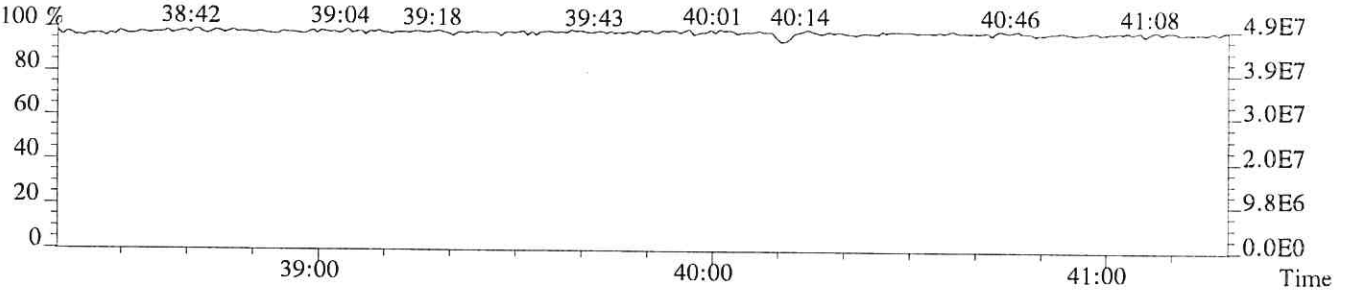
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



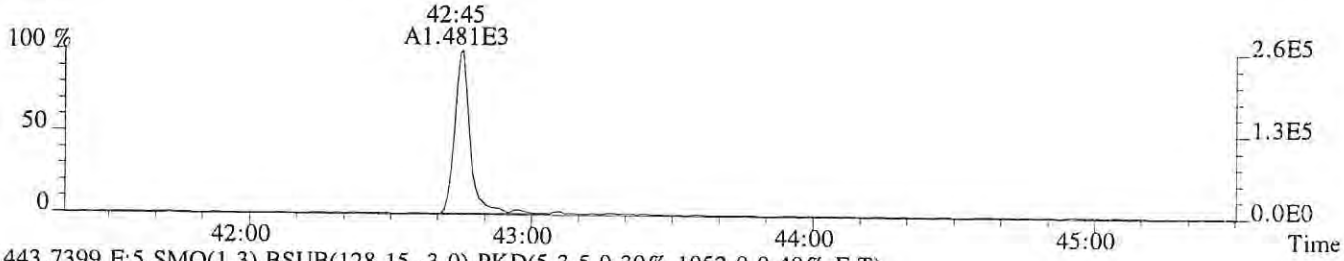
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



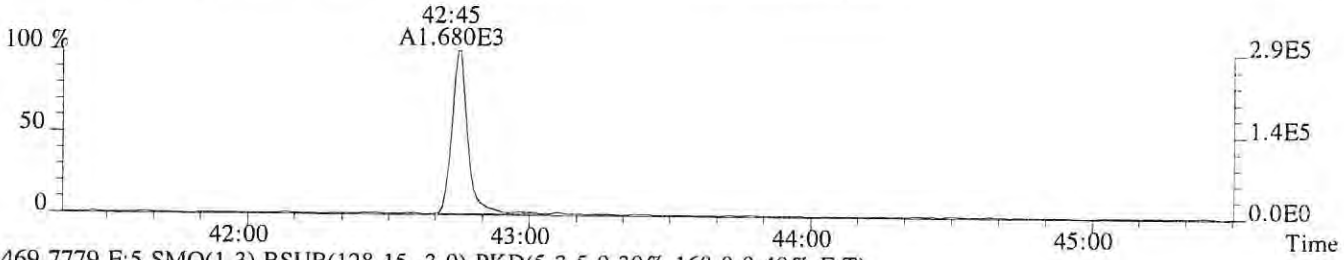
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



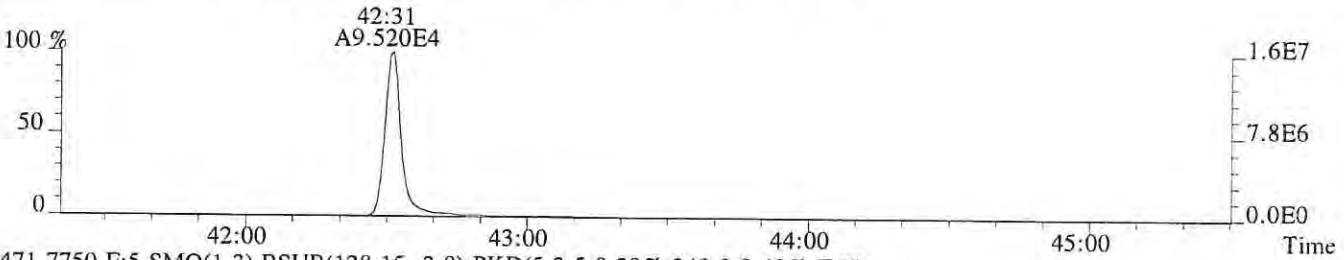
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



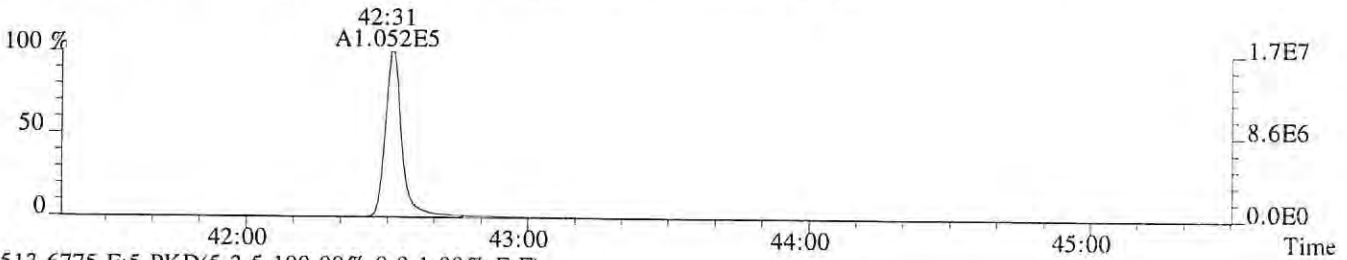
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



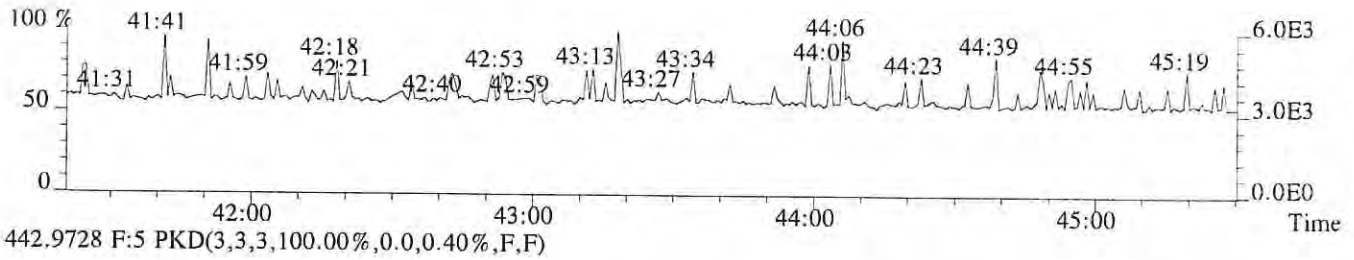
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



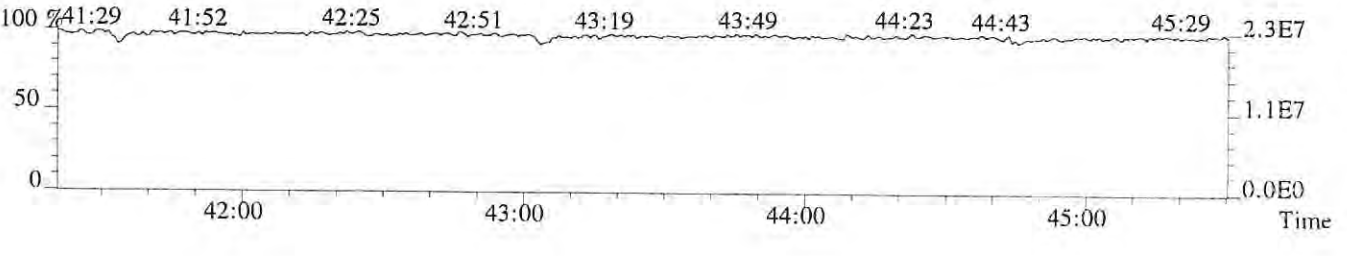
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



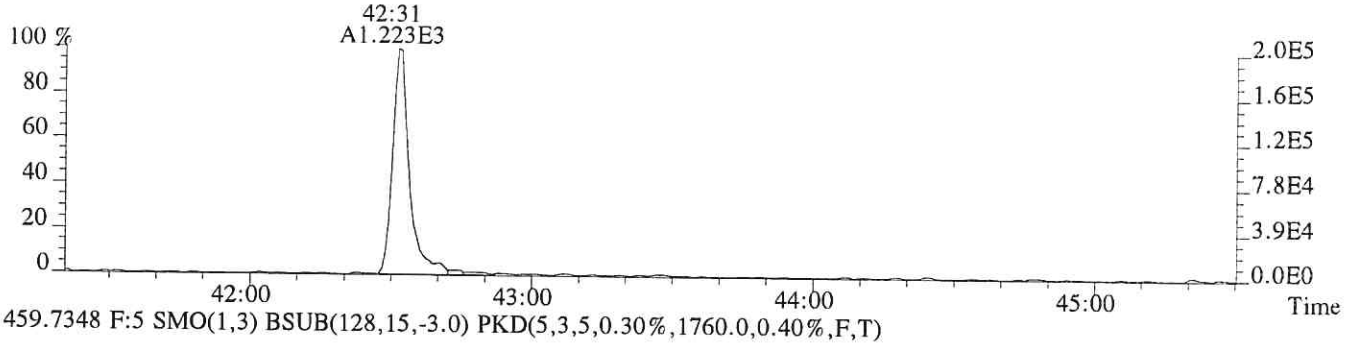
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



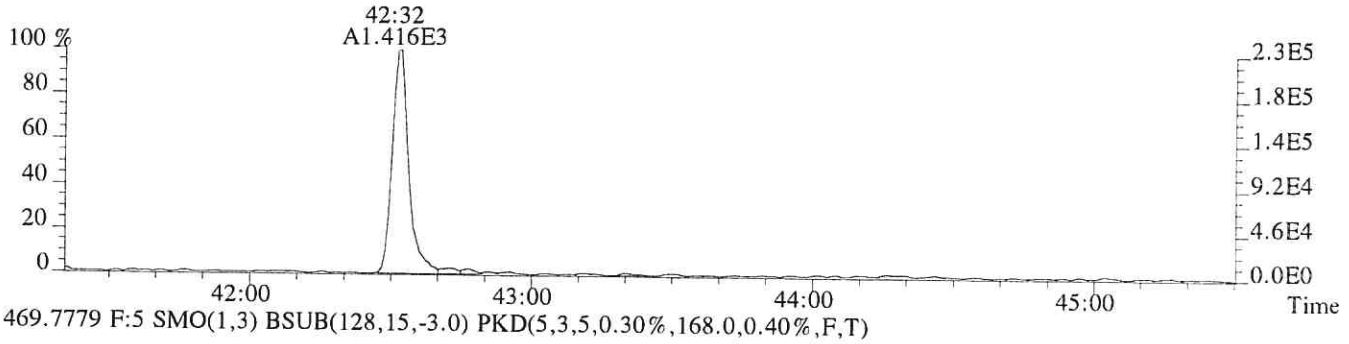
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



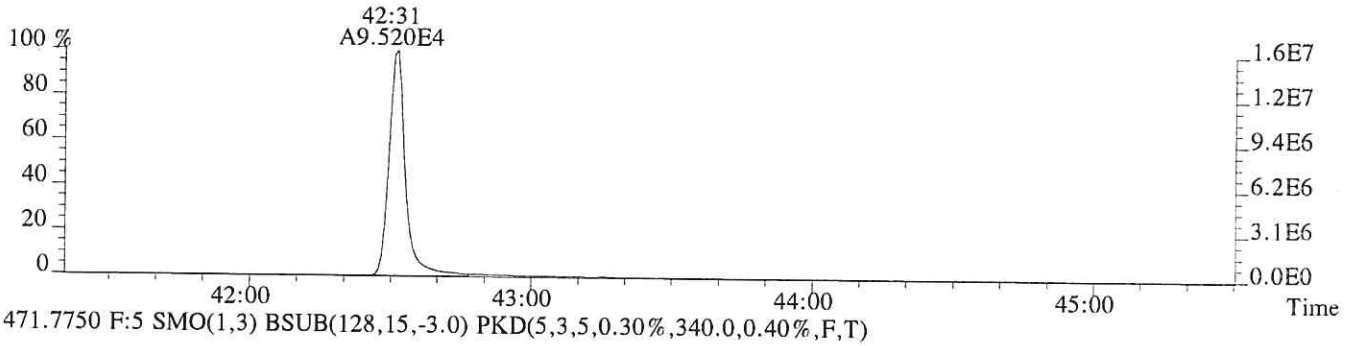
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



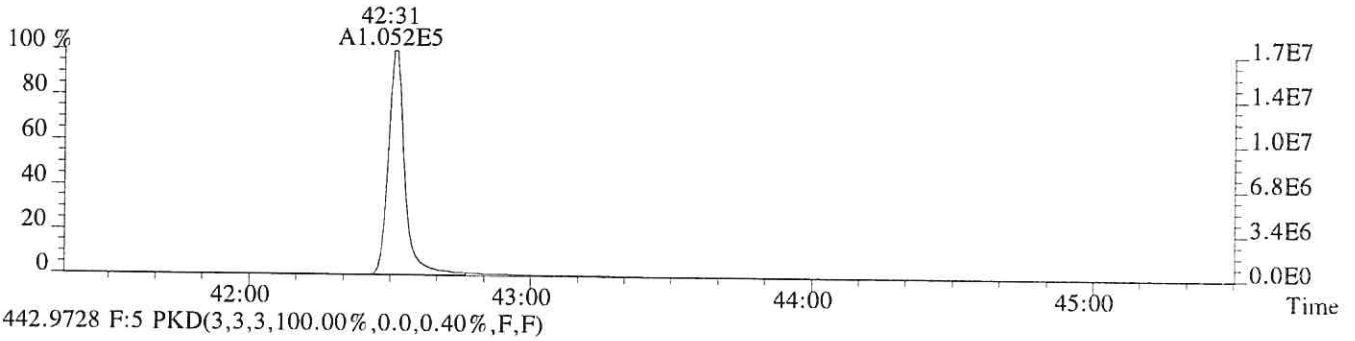
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



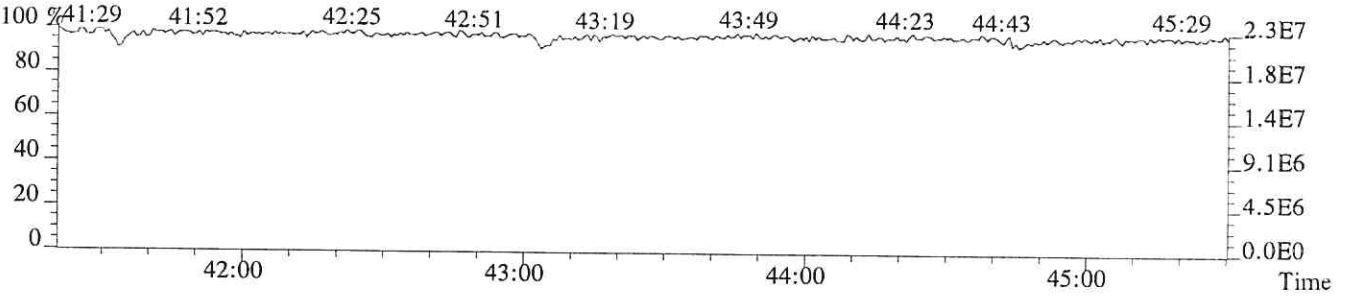
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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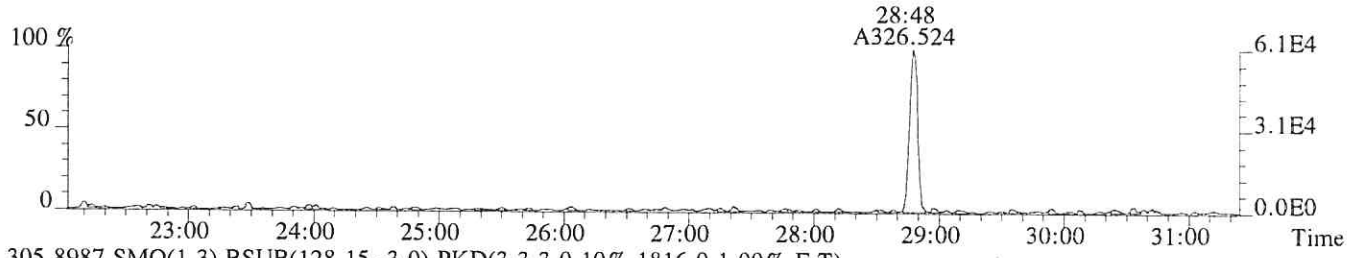
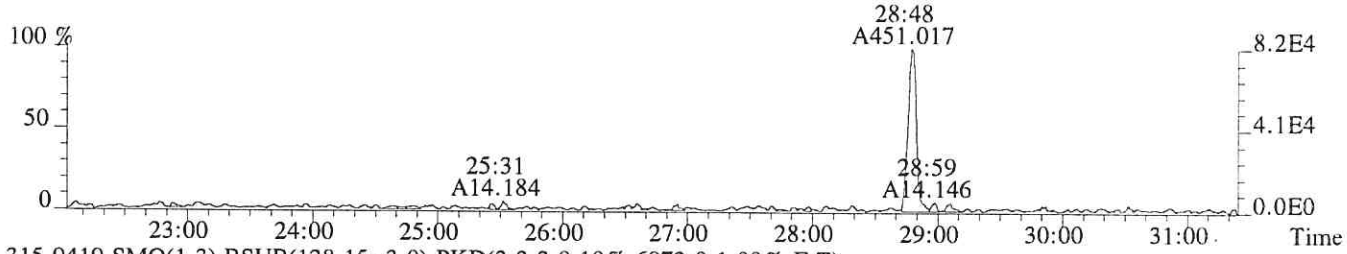
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

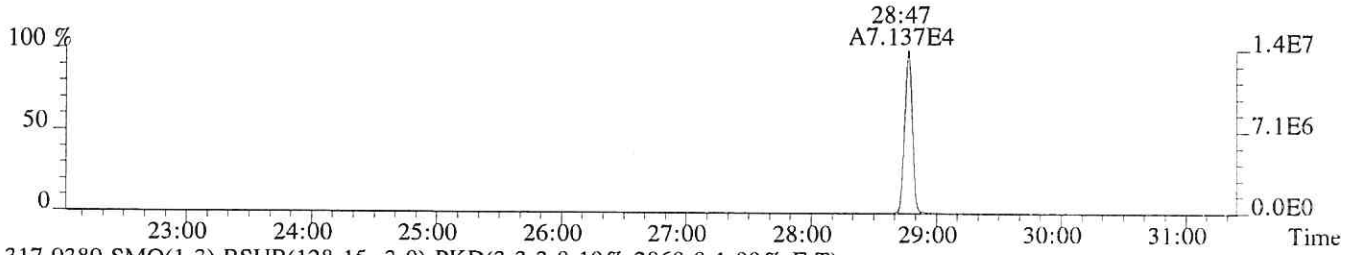
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



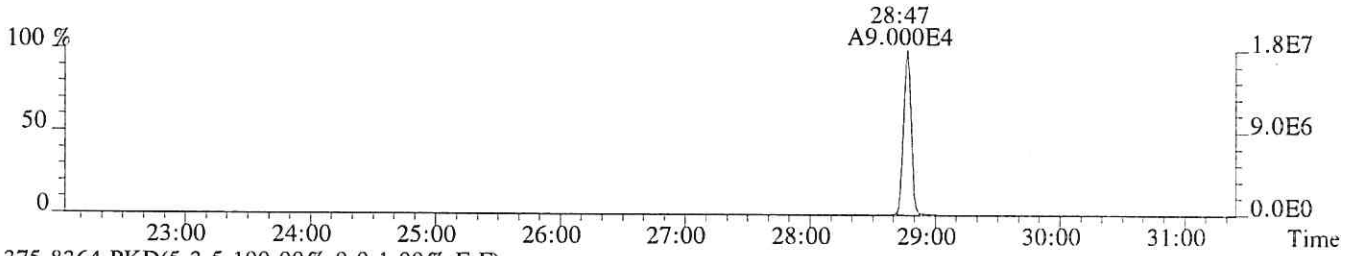
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



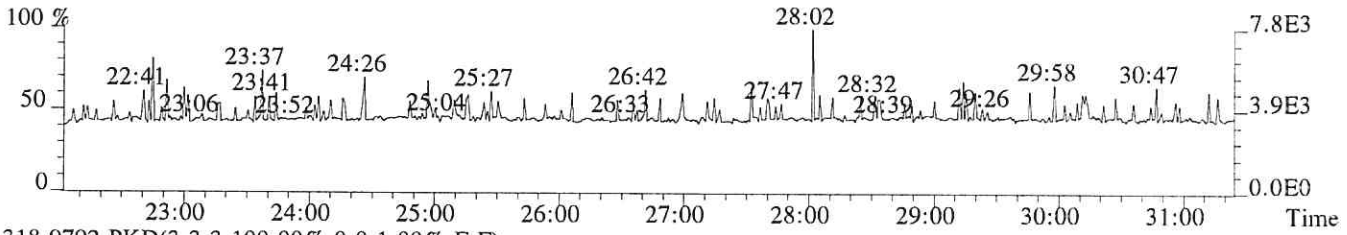
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



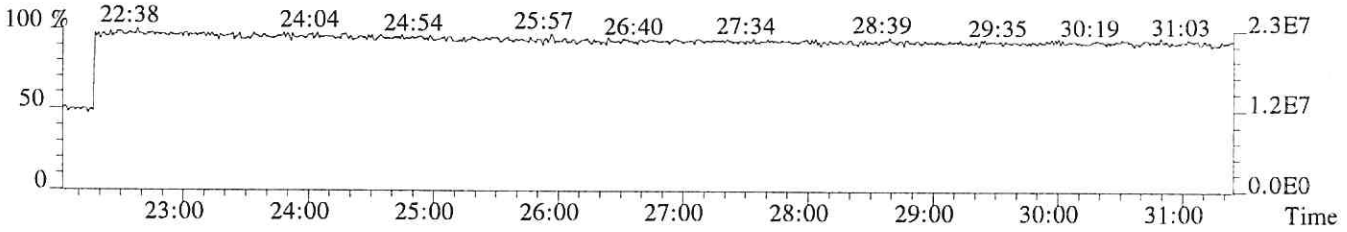
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



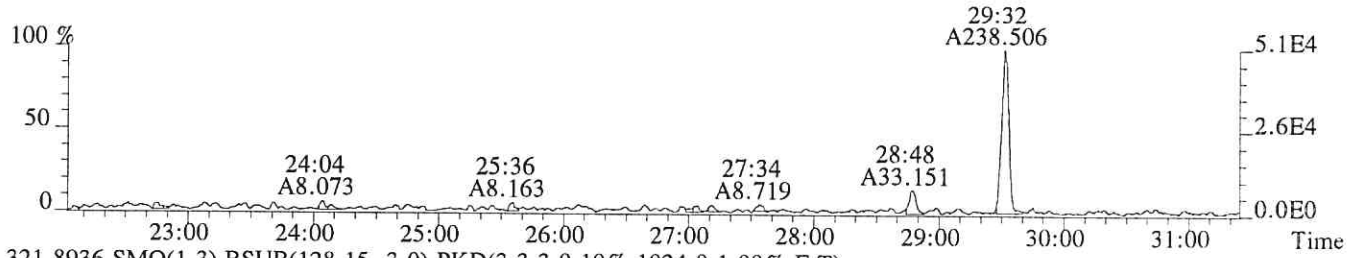
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



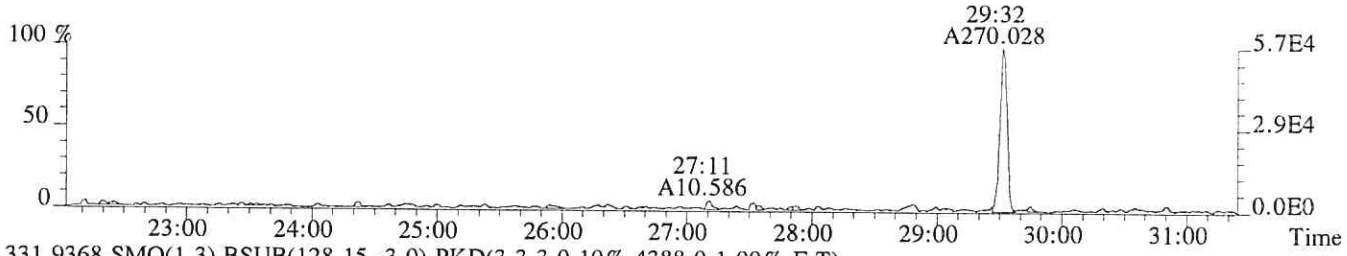
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



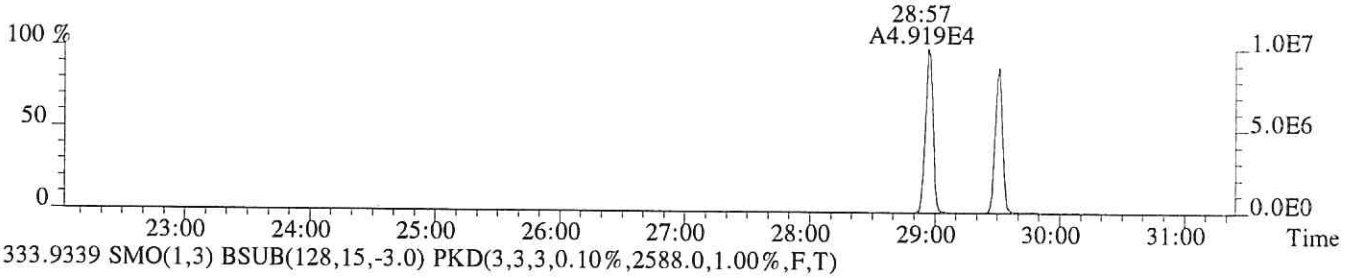
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectΣ
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



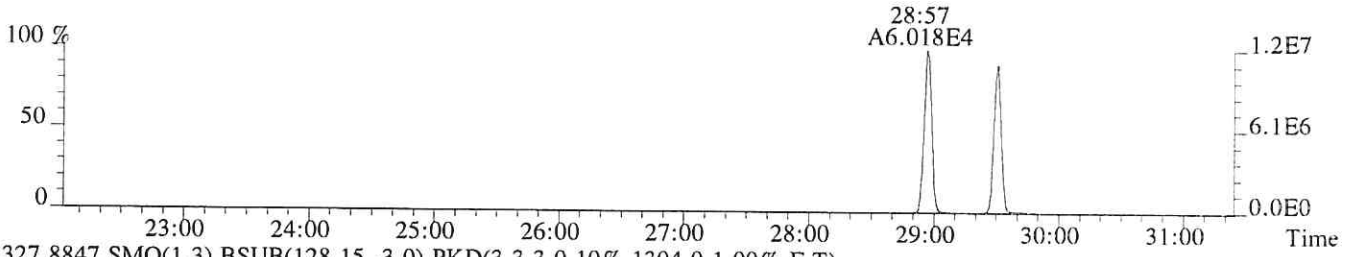
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



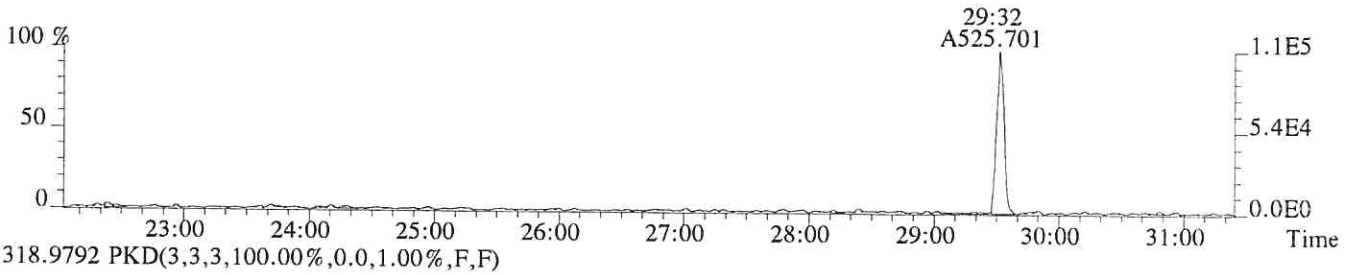
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



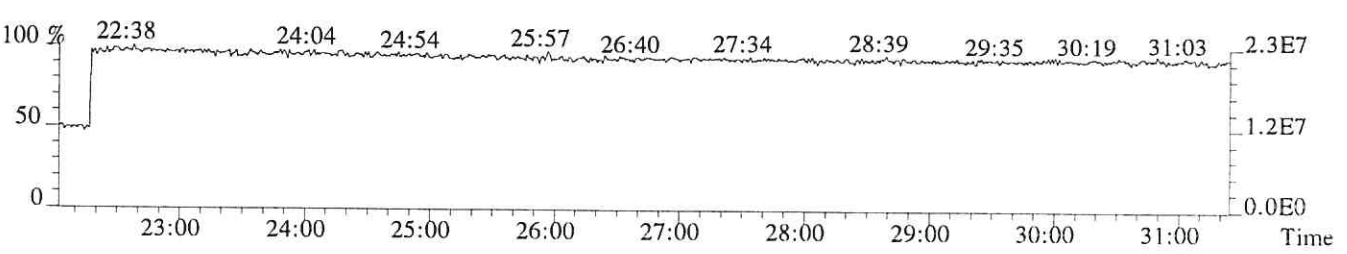
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



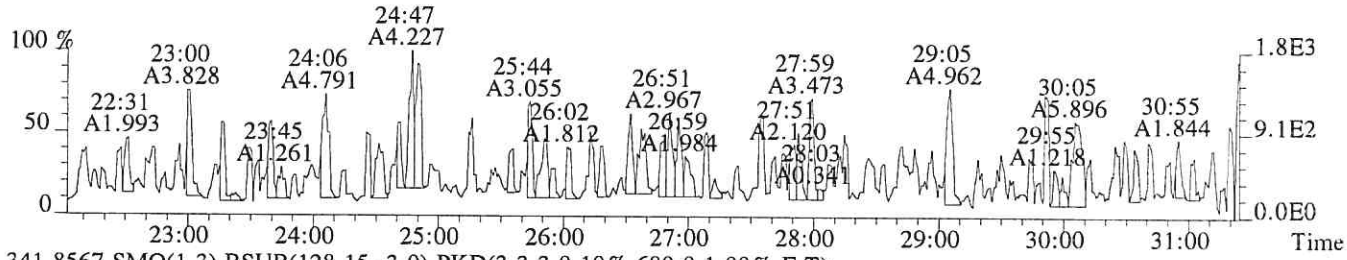
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



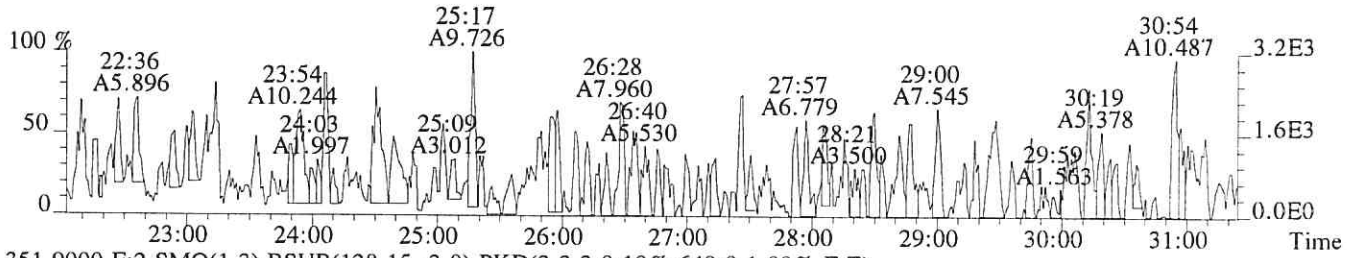
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



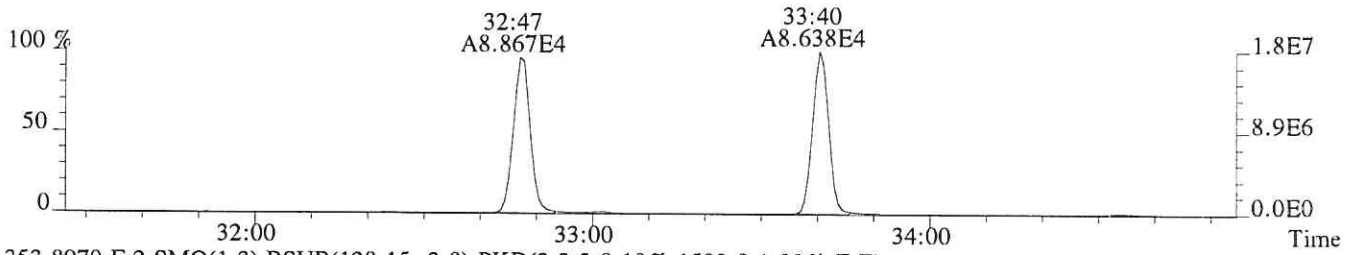
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



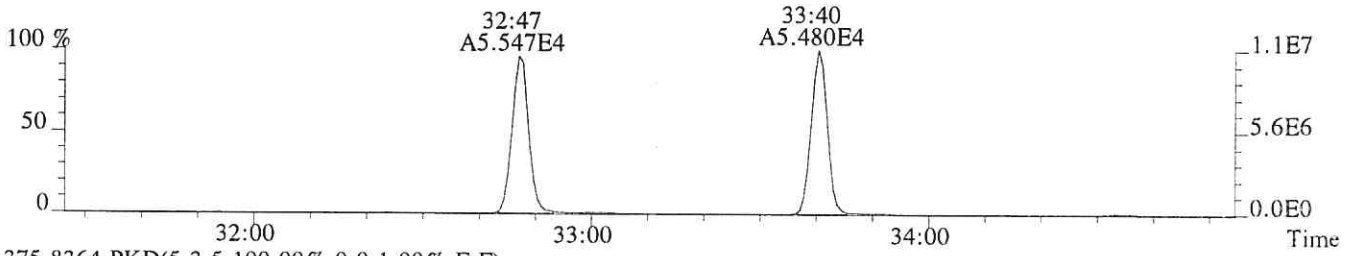
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



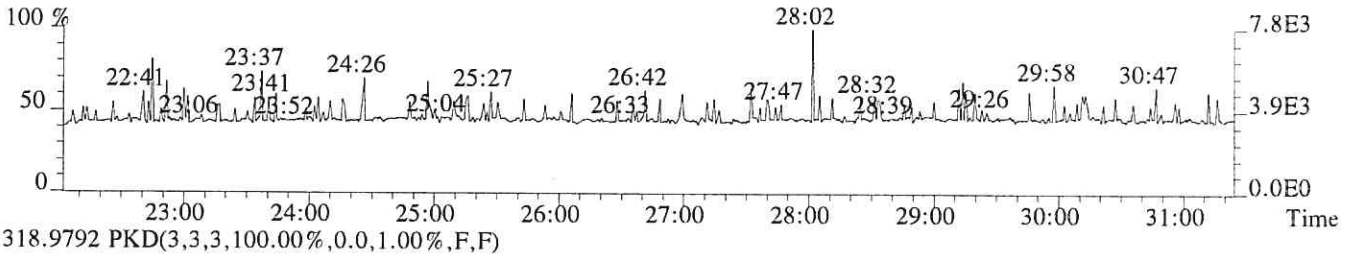
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



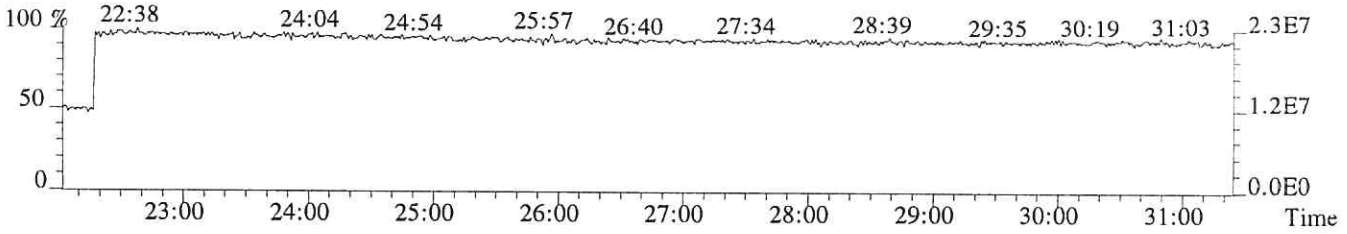
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

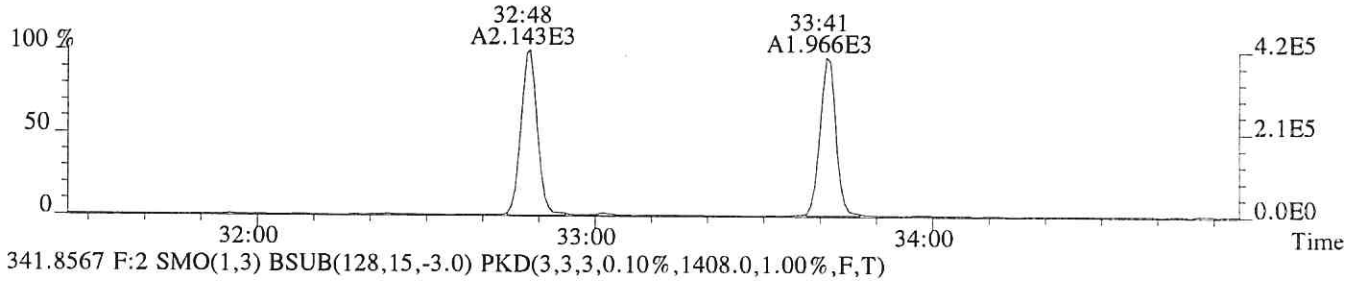


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

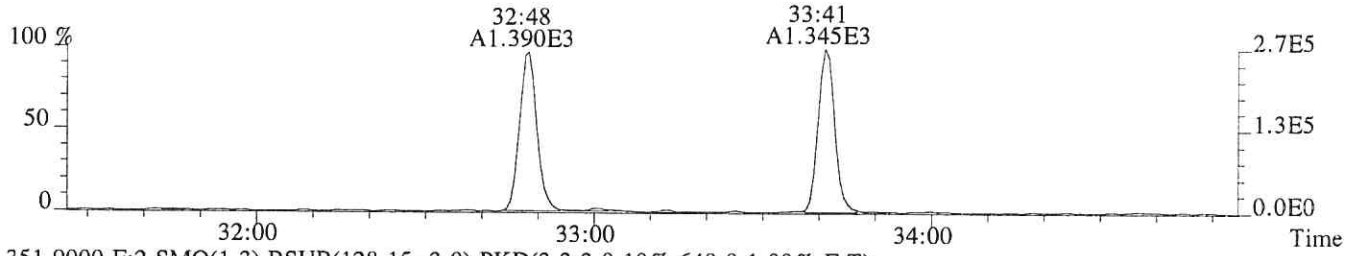


File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

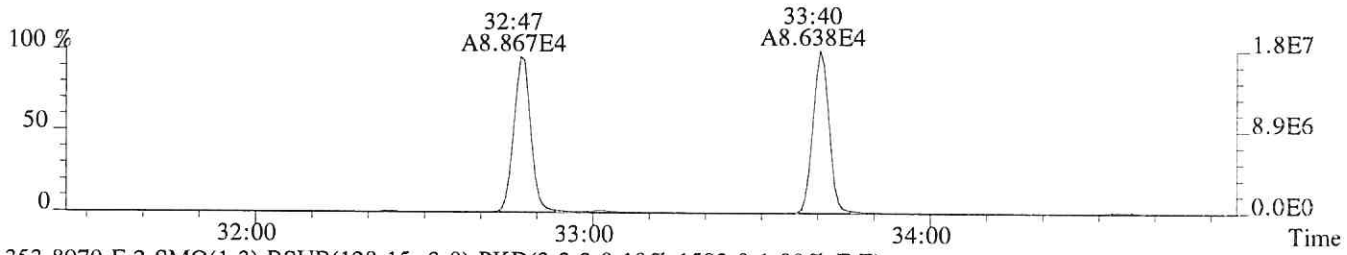
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



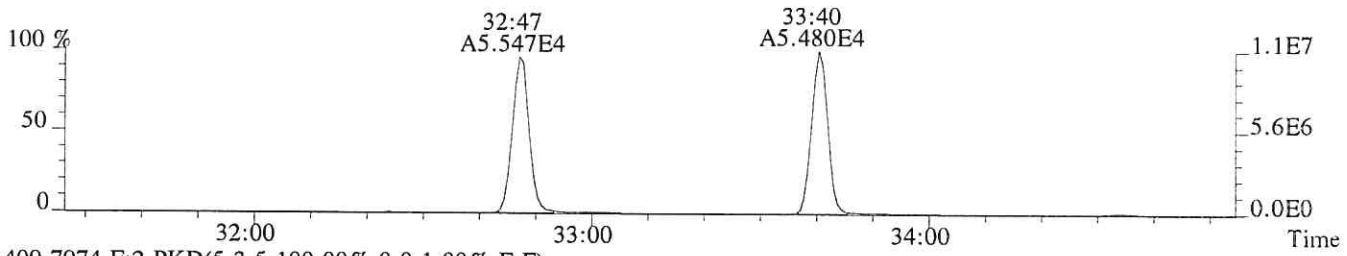
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



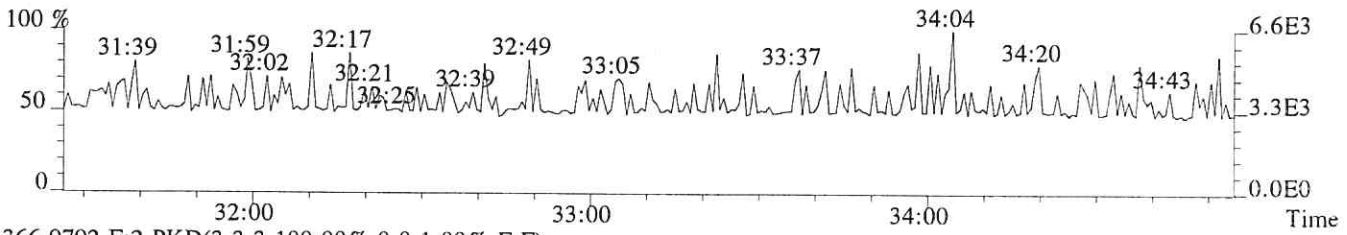
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



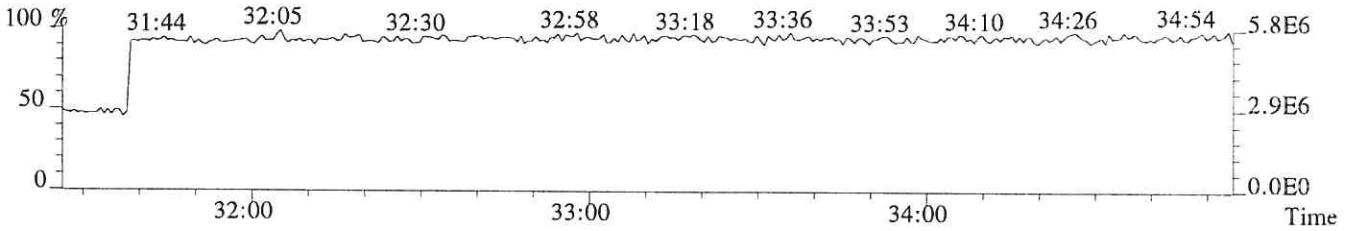
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



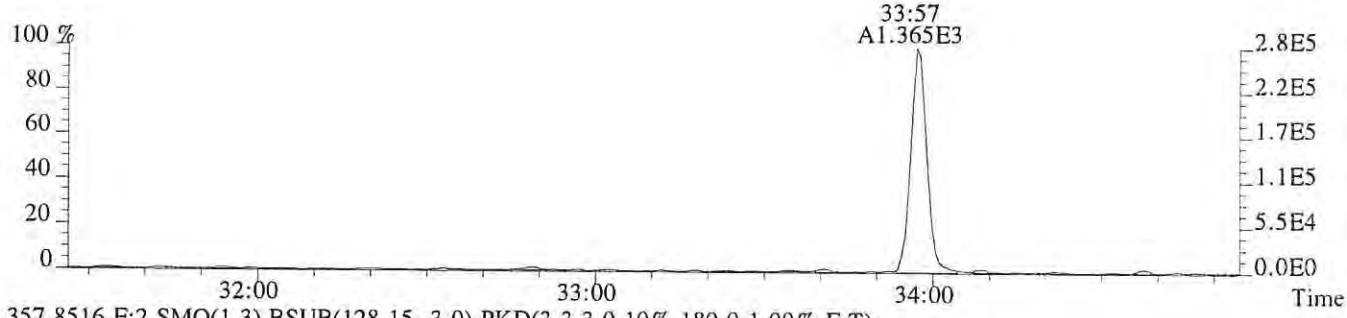
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



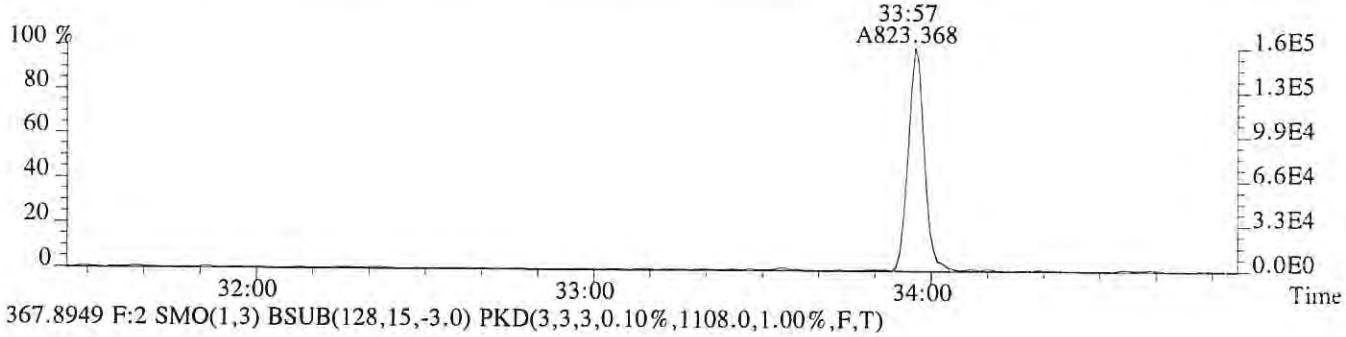
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



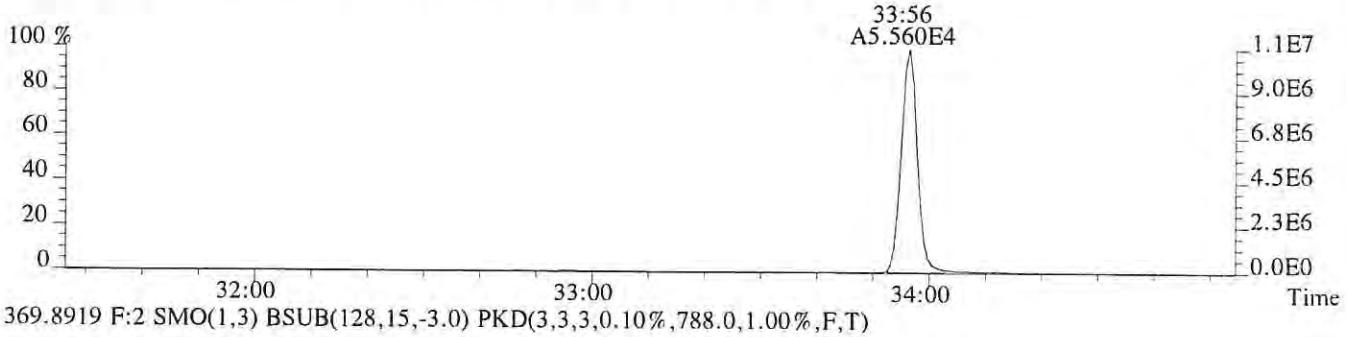
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



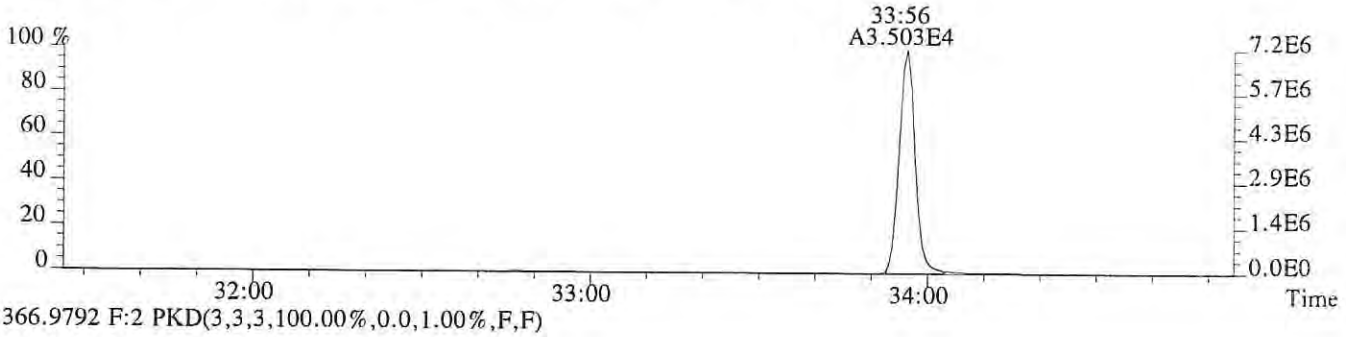
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



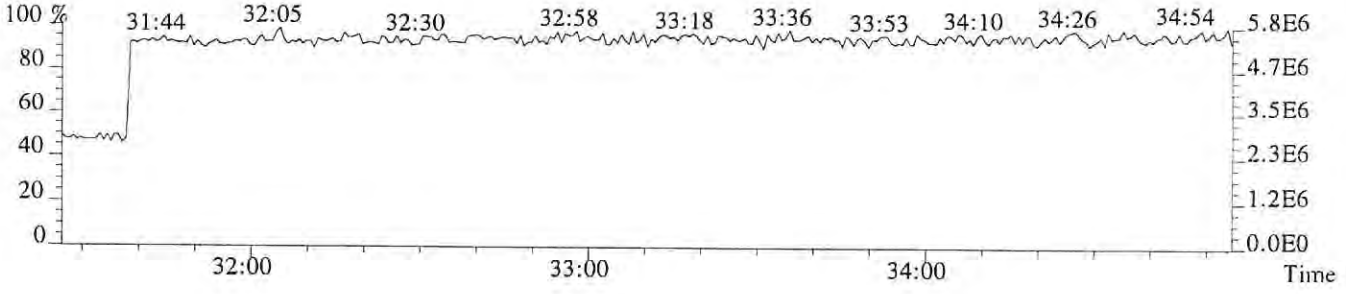
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



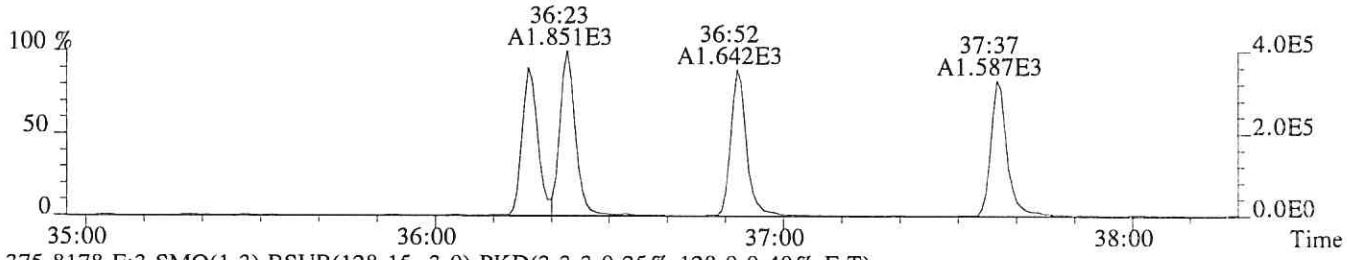
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



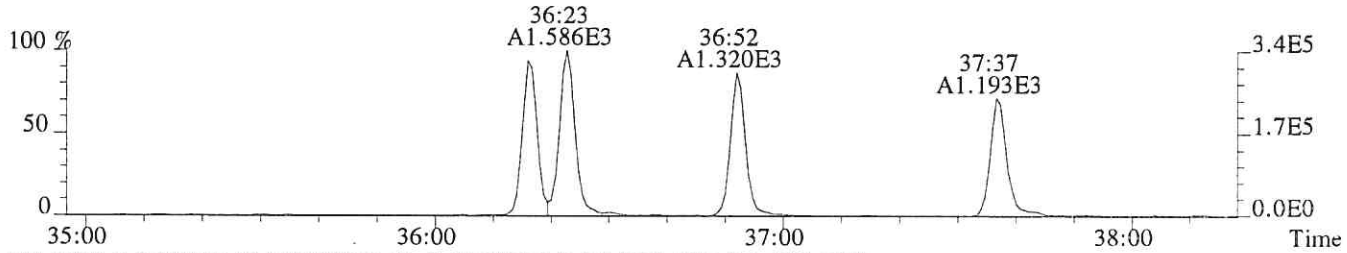
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



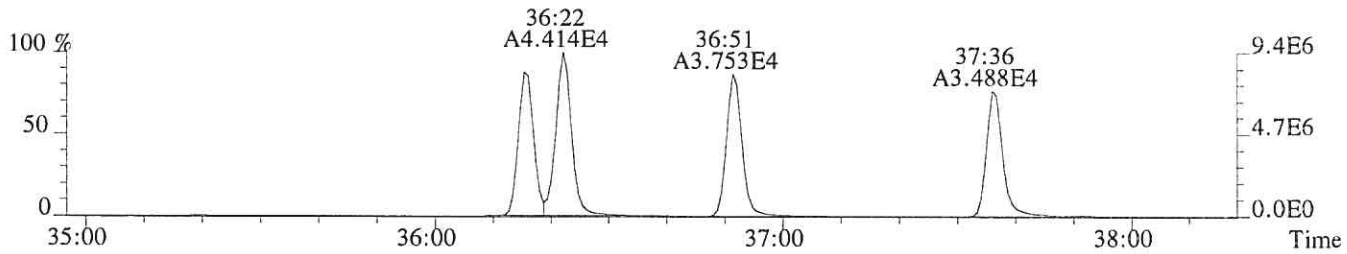
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



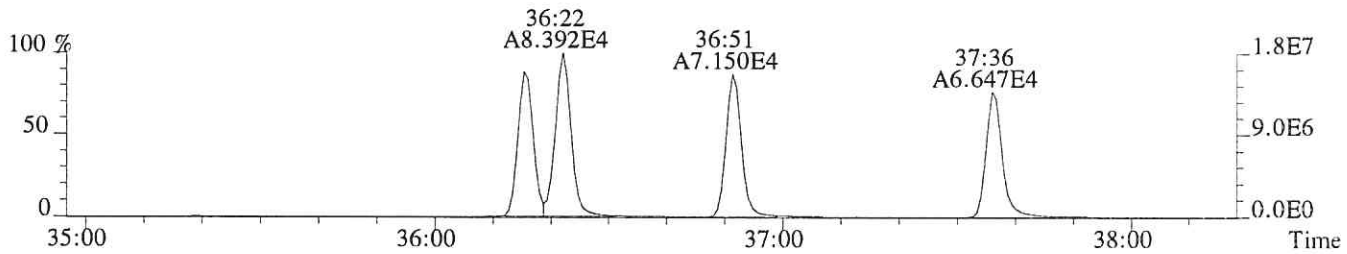
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



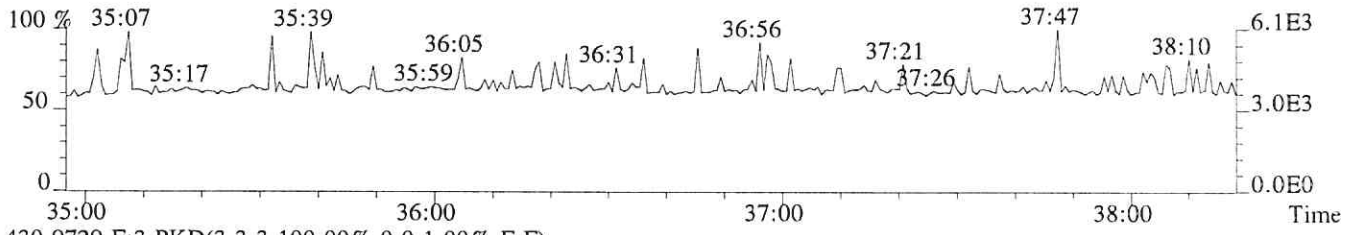
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



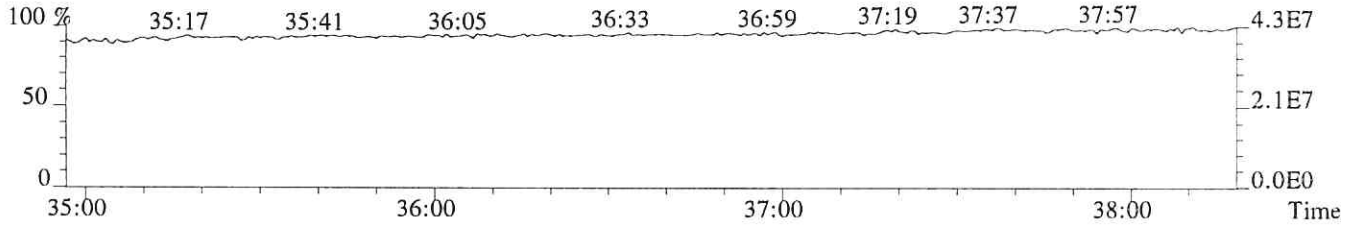
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



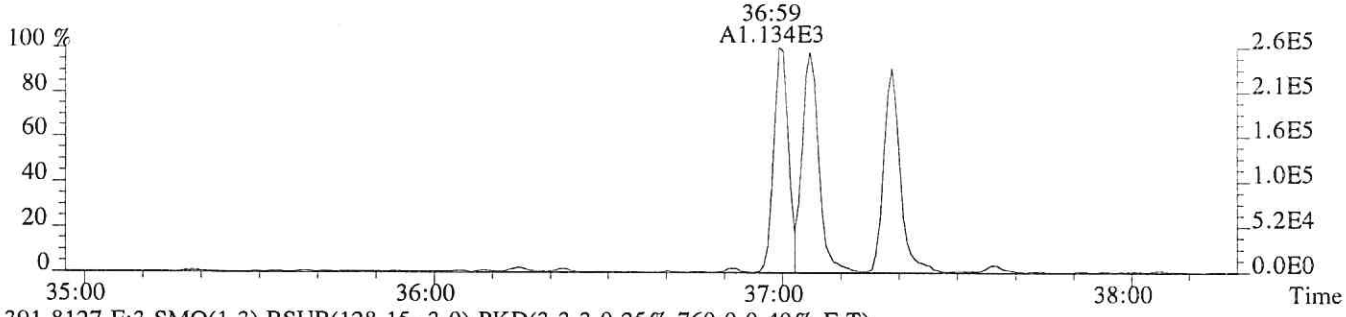
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



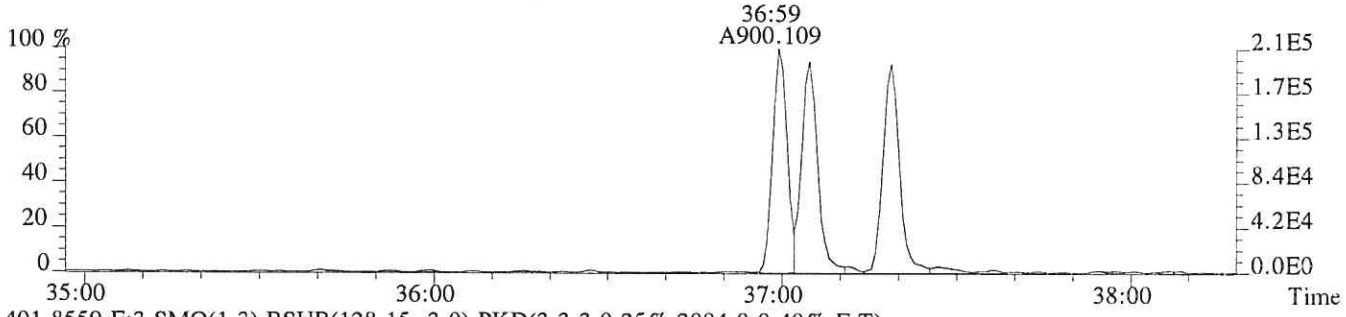
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



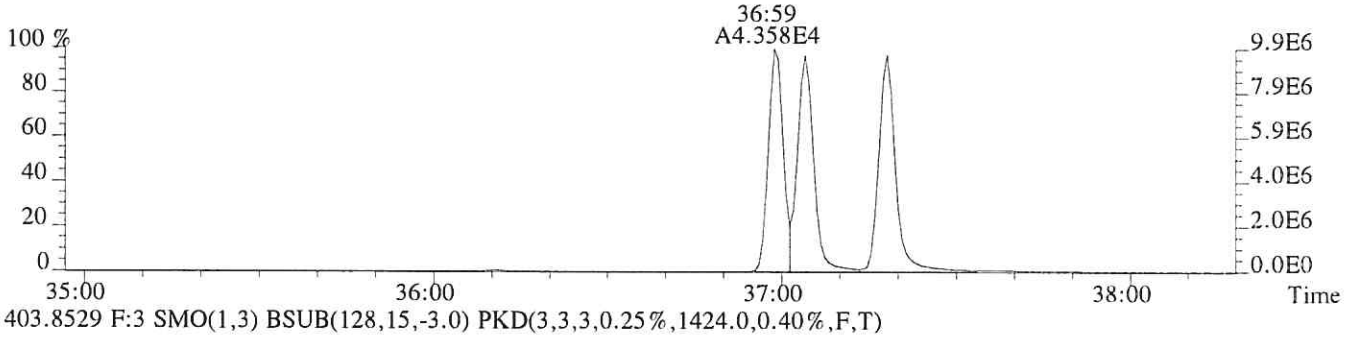
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



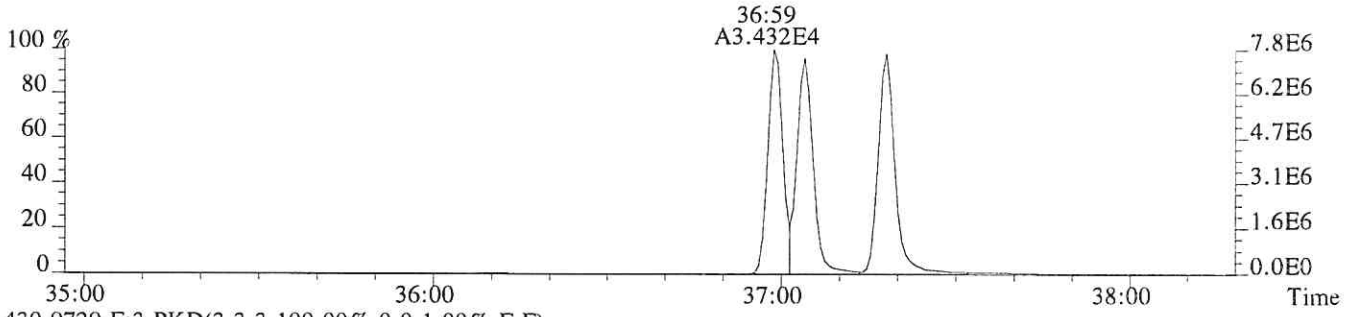
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



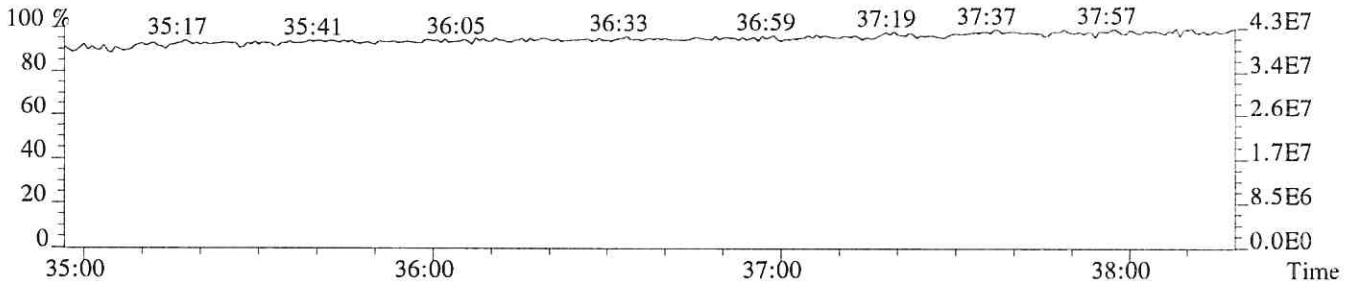
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



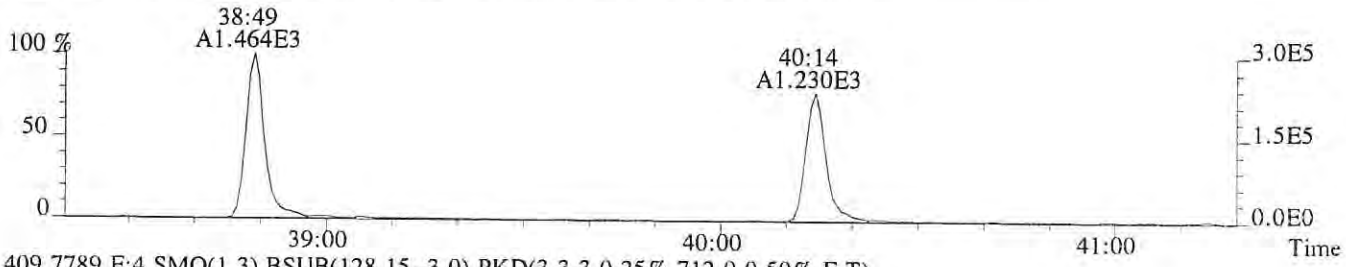
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



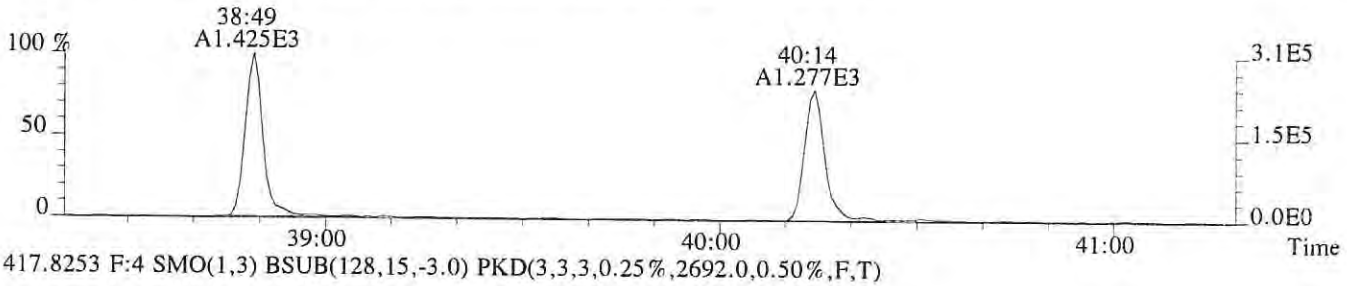
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



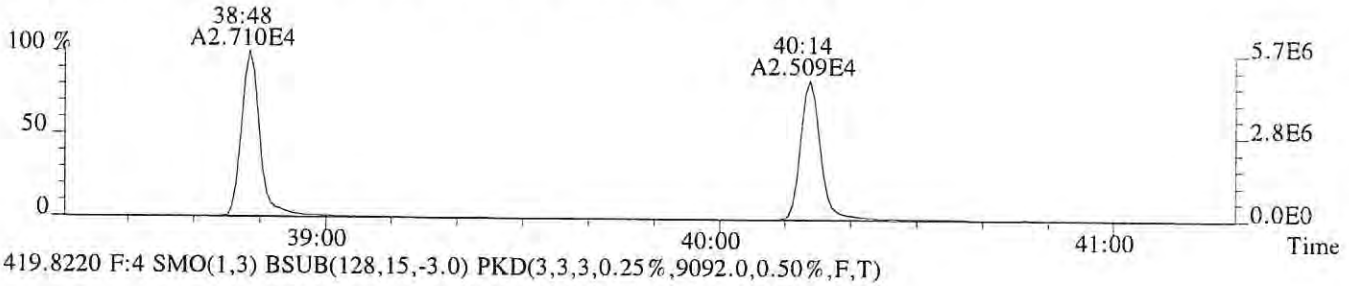
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



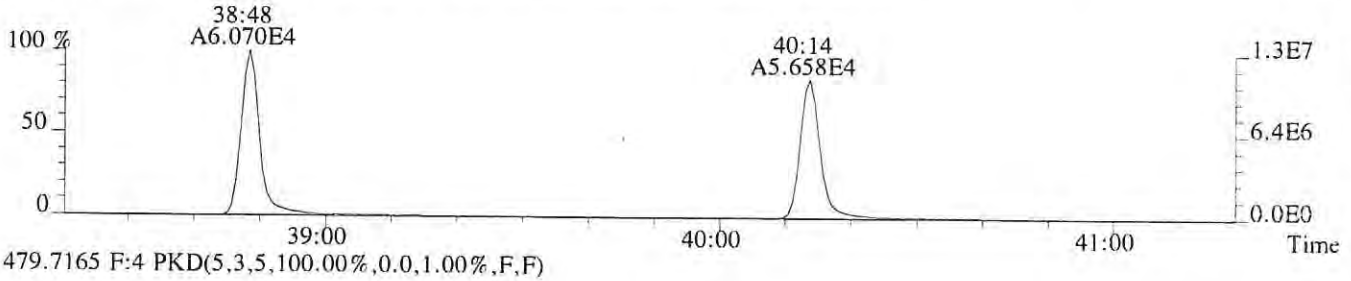
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



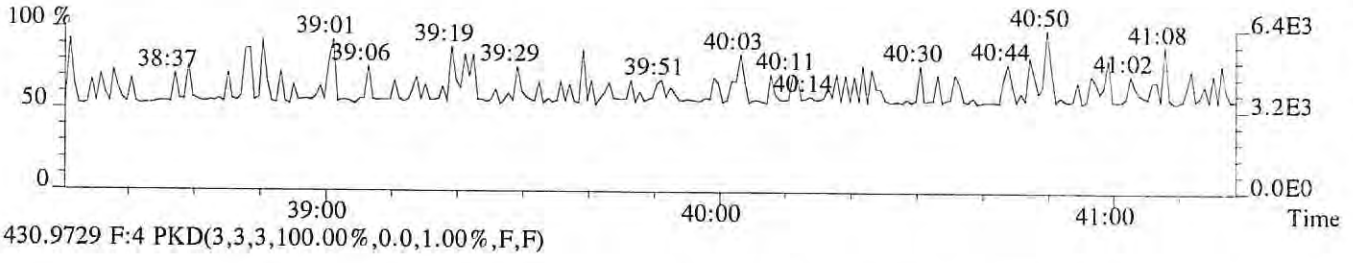
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



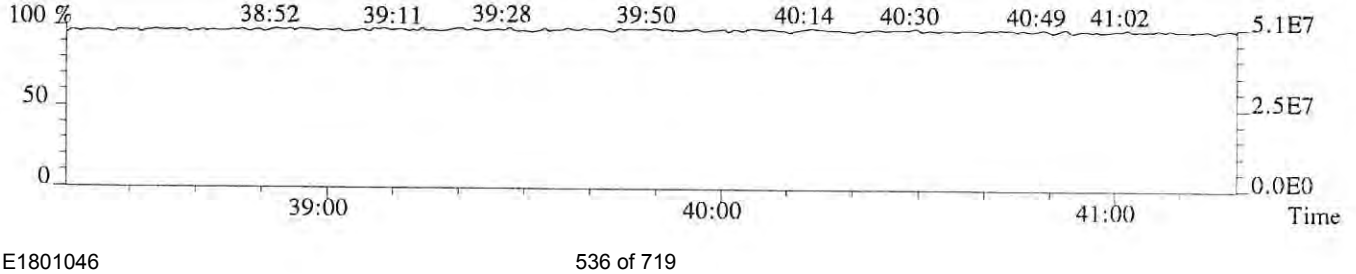
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



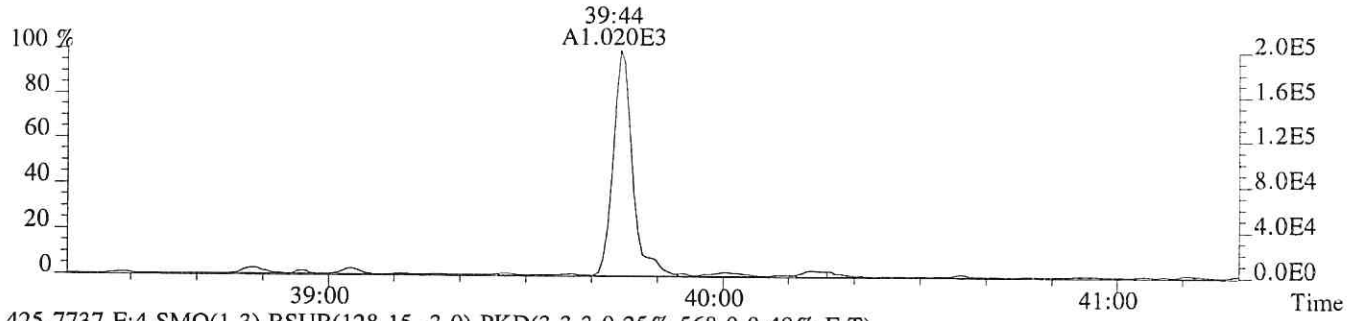
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



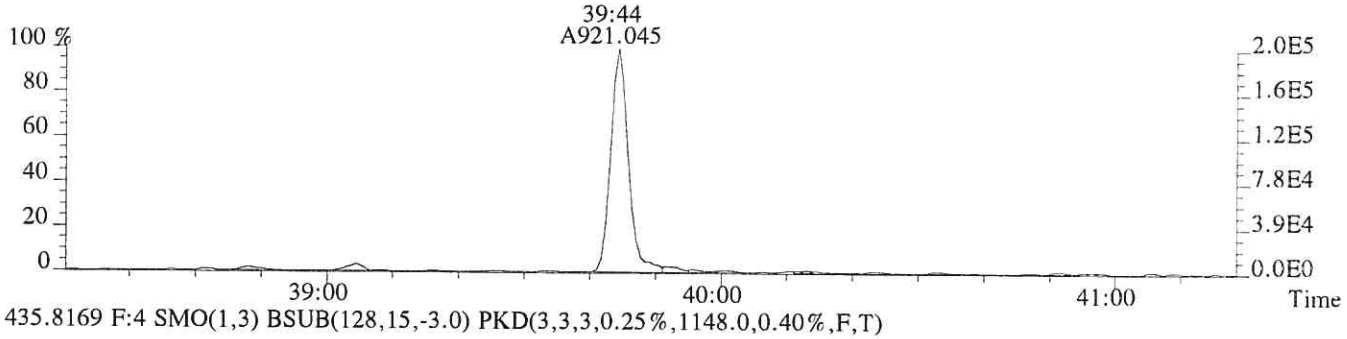
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



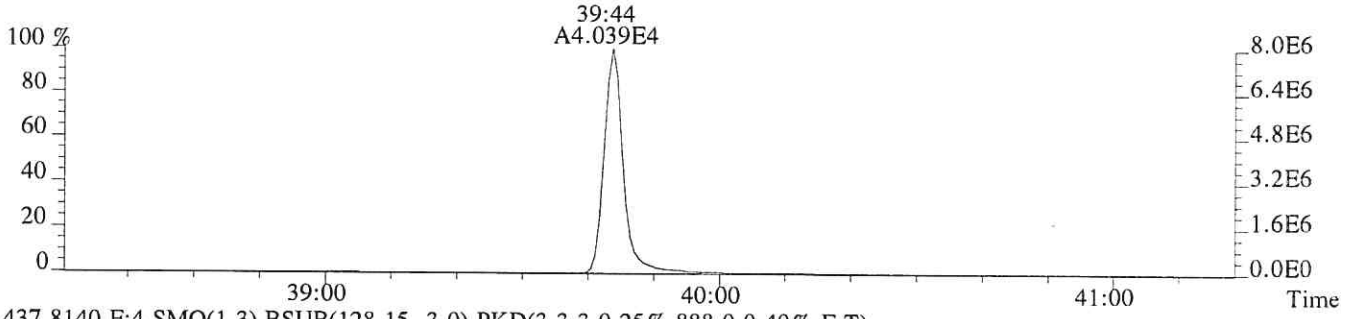
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



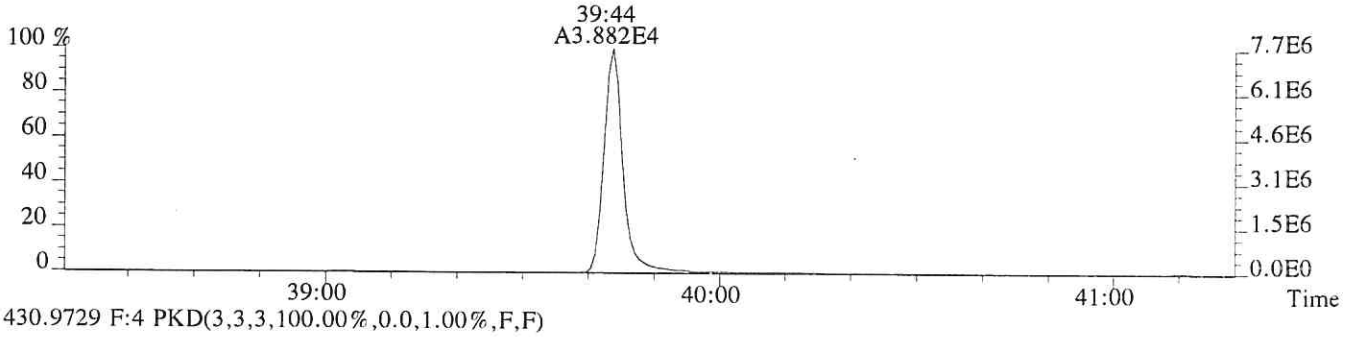
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



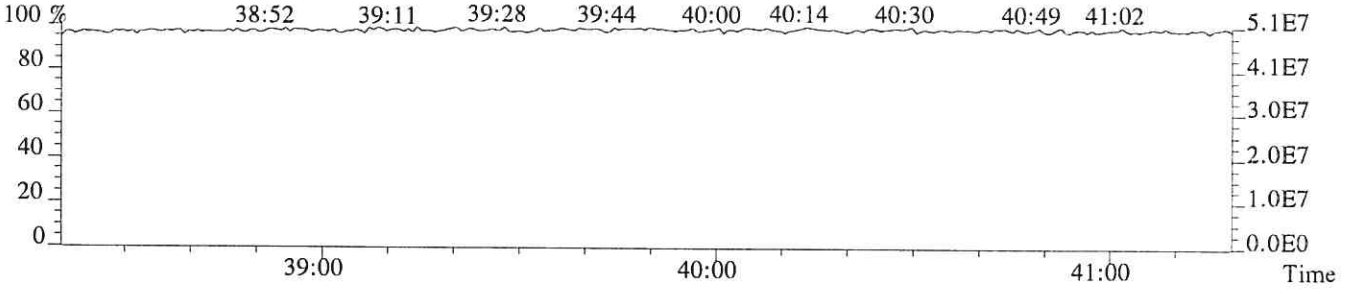
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



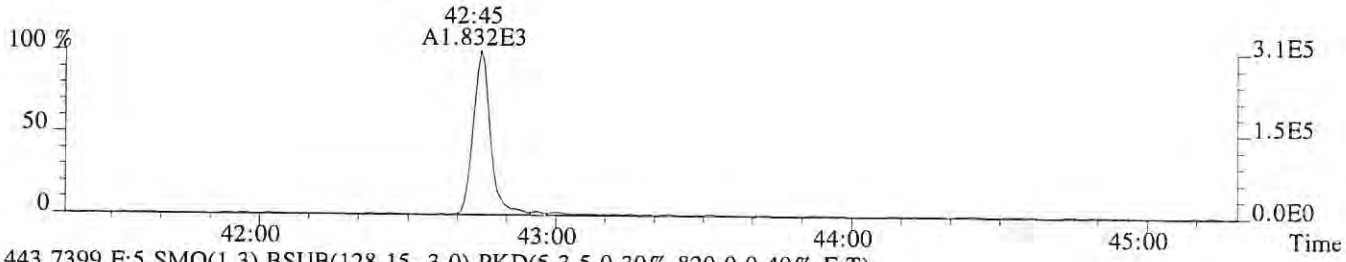
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



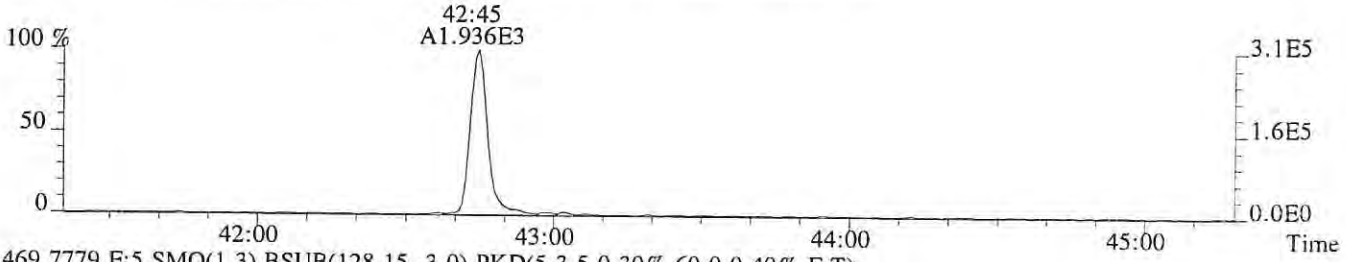
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



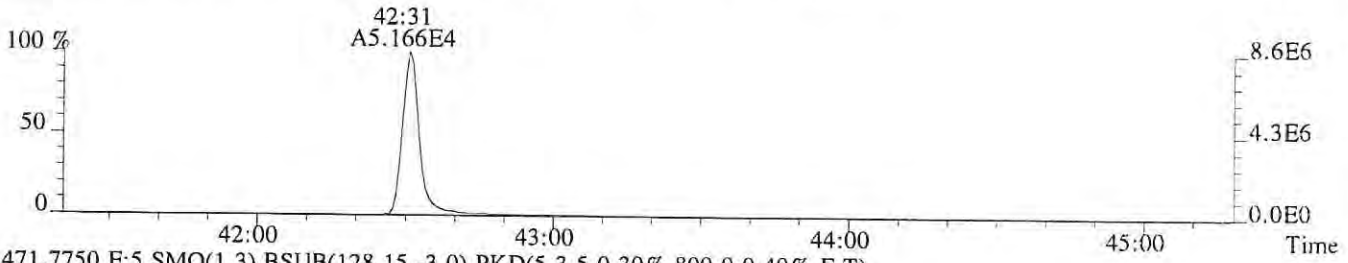
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



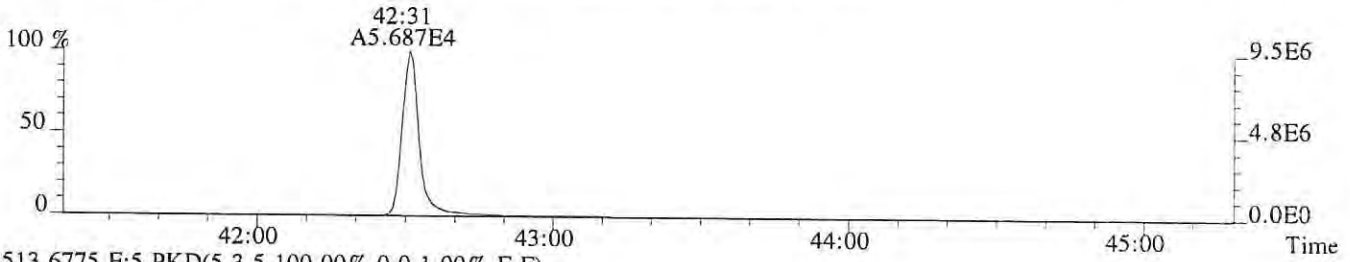
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



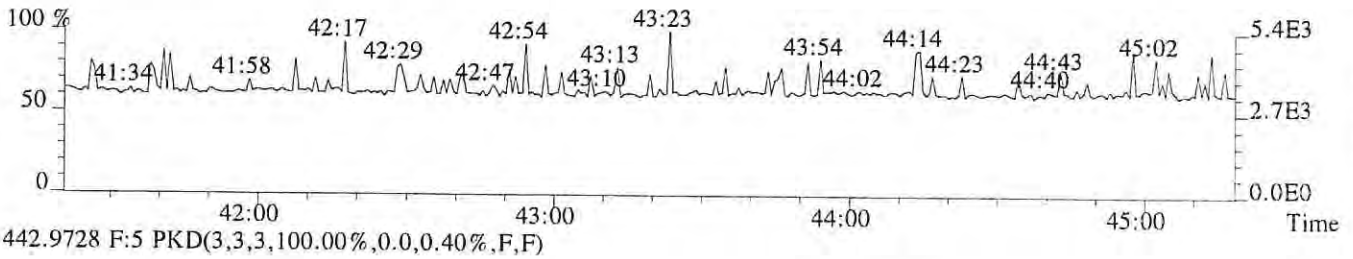
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



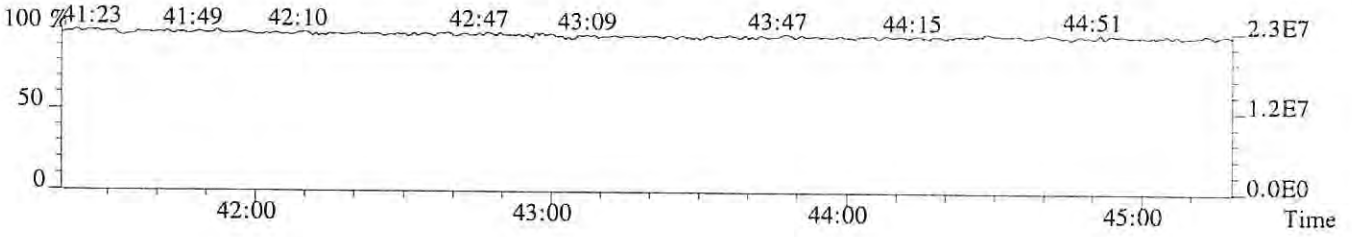
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



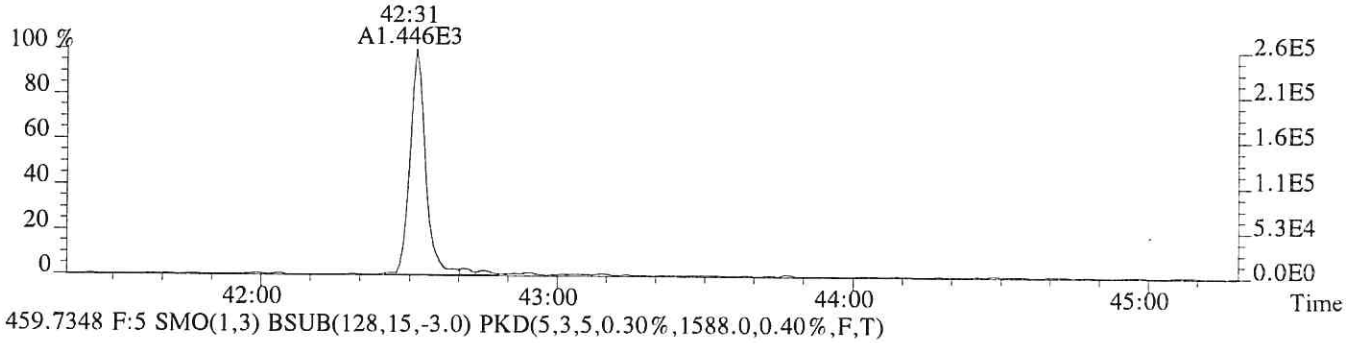
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



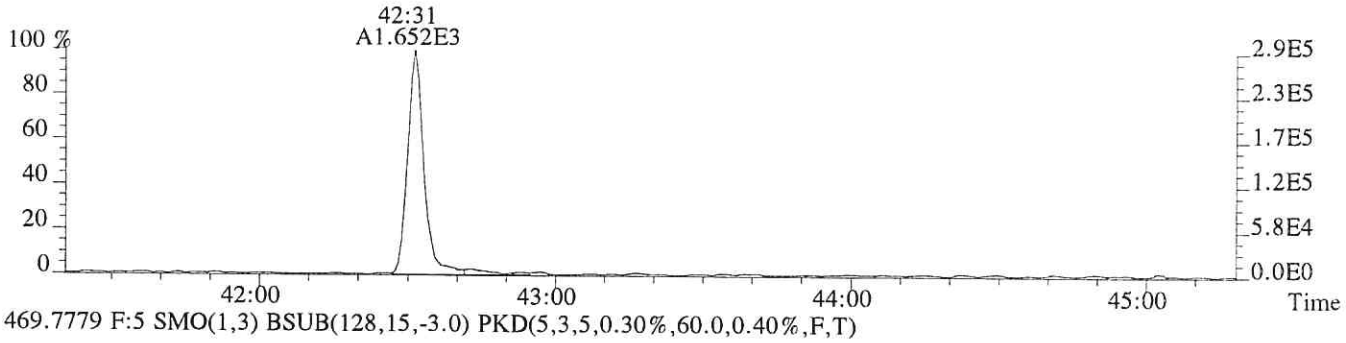
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



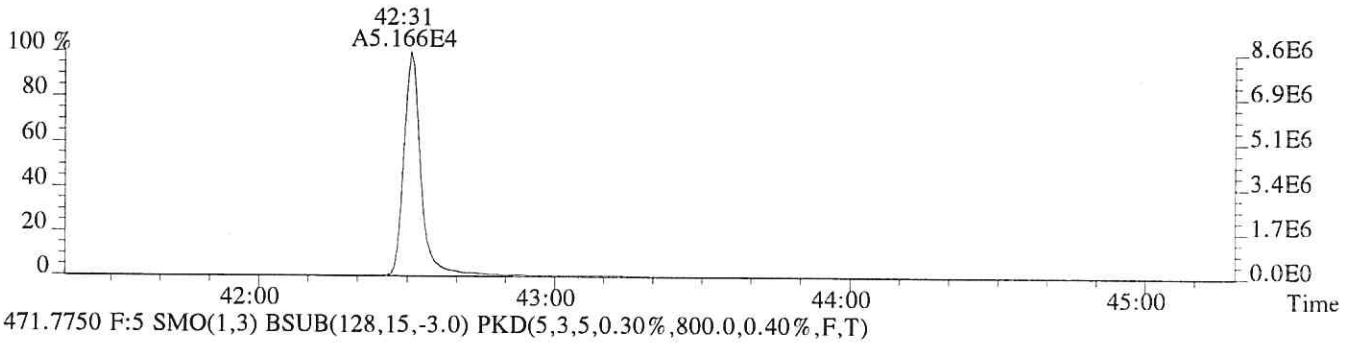
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



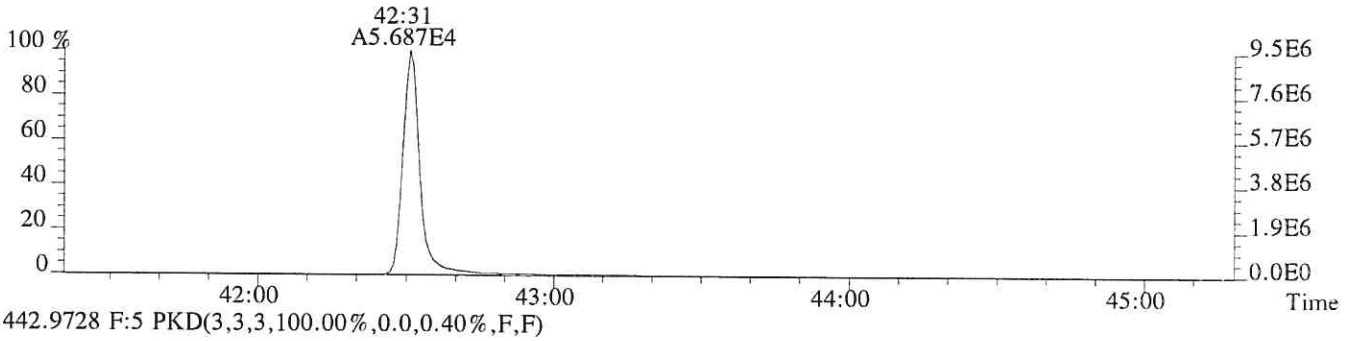
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



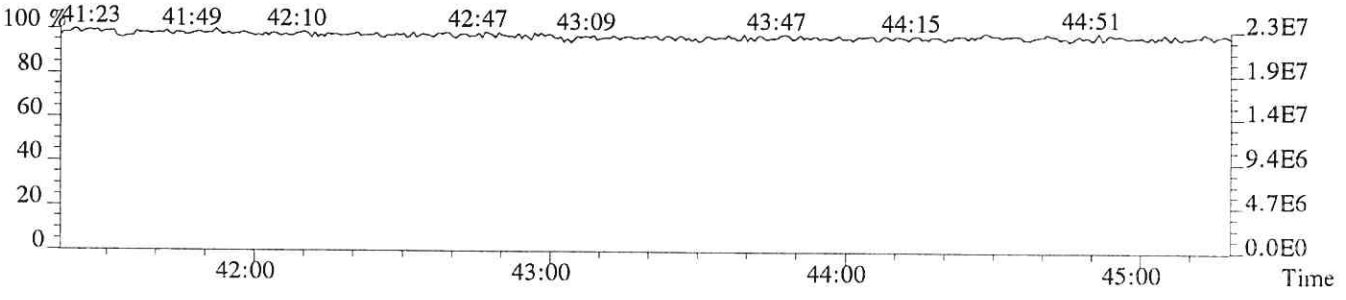
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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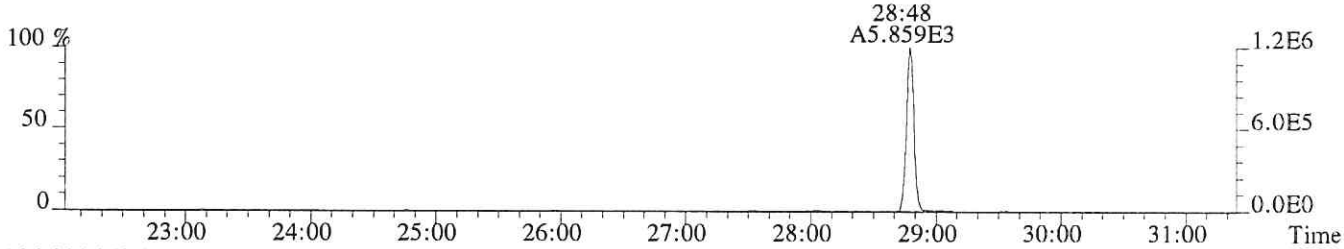
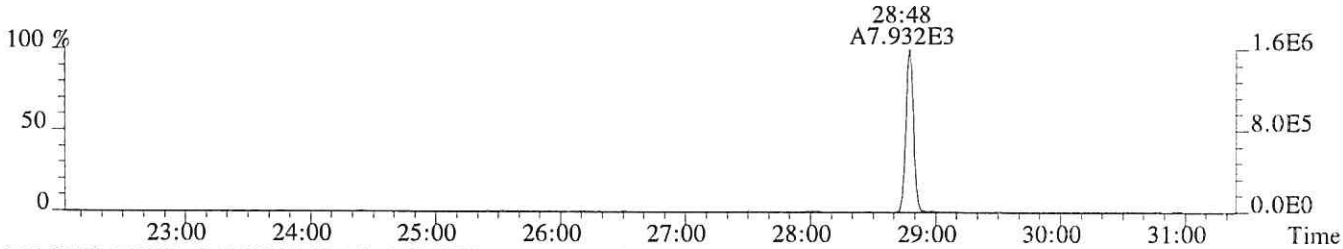
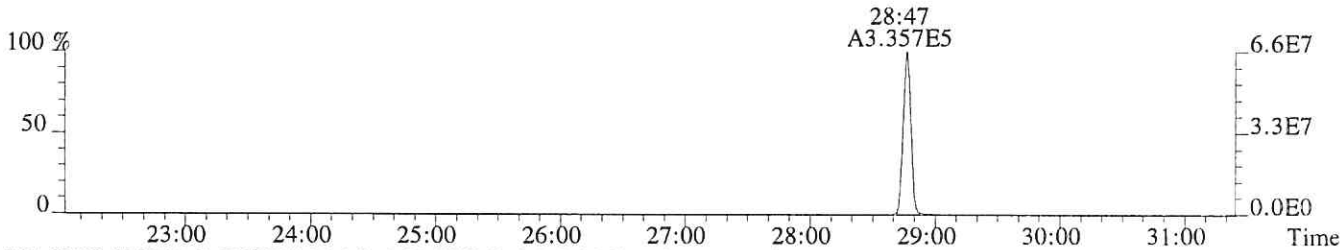
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



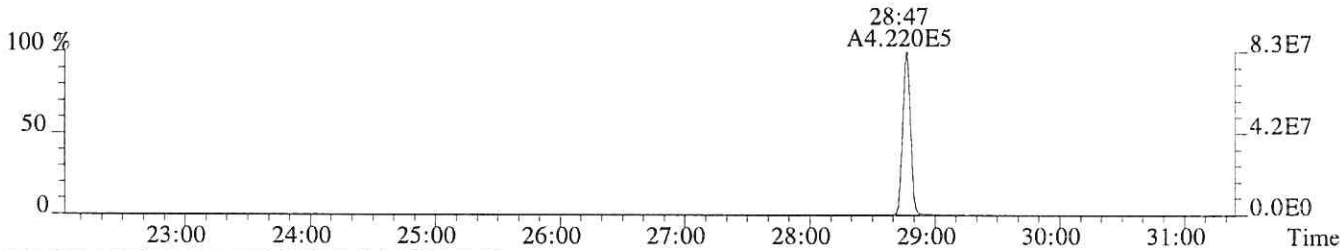
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



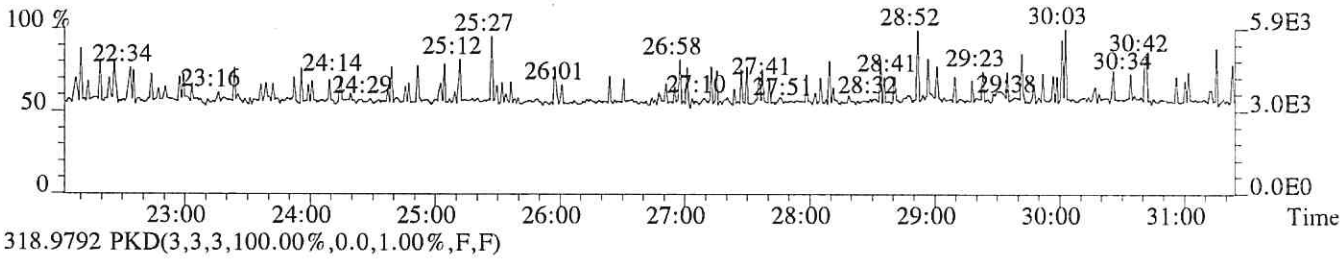
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



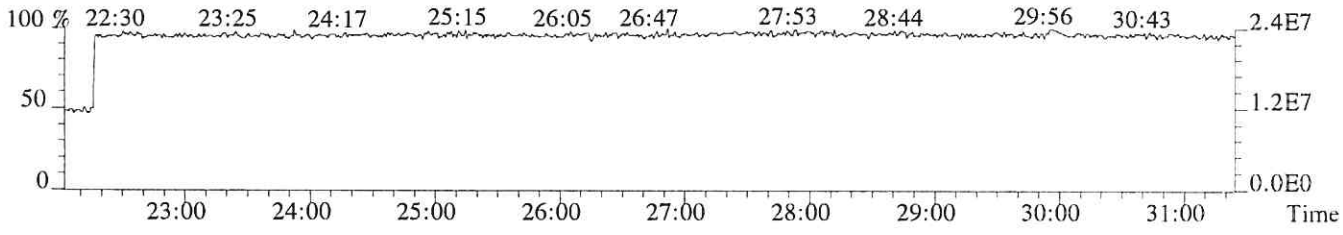
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

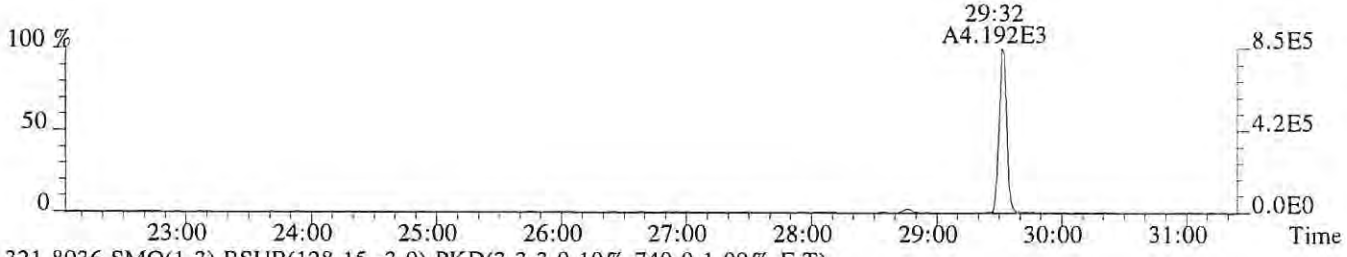


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

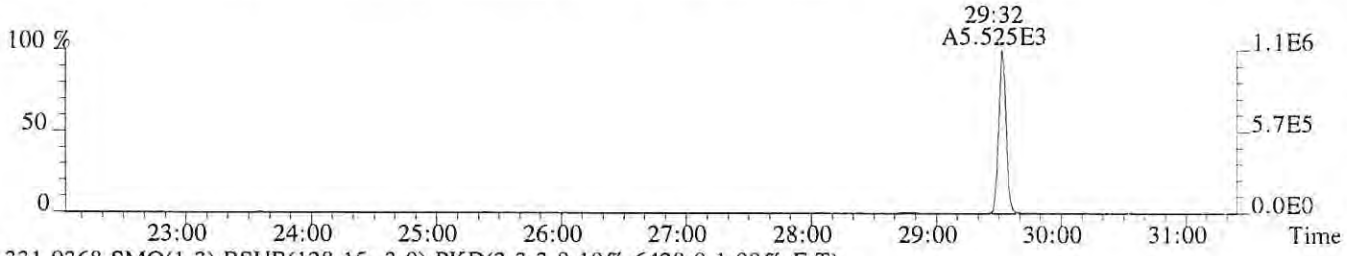


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

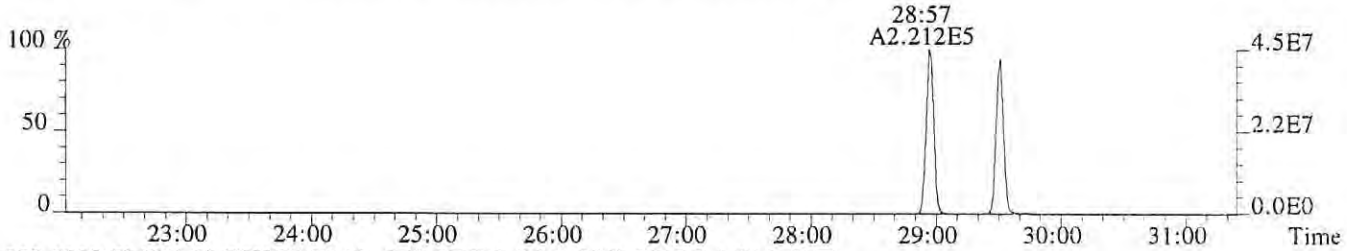
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



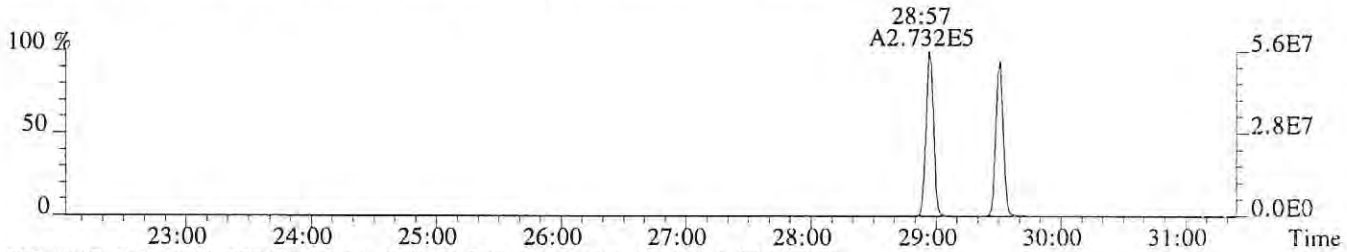
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



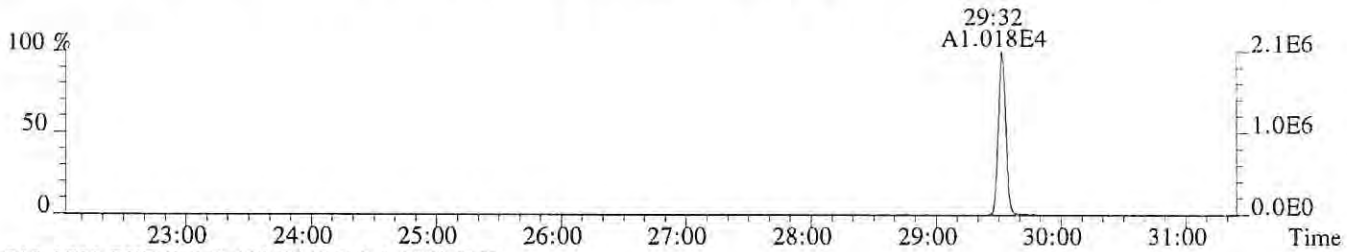
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



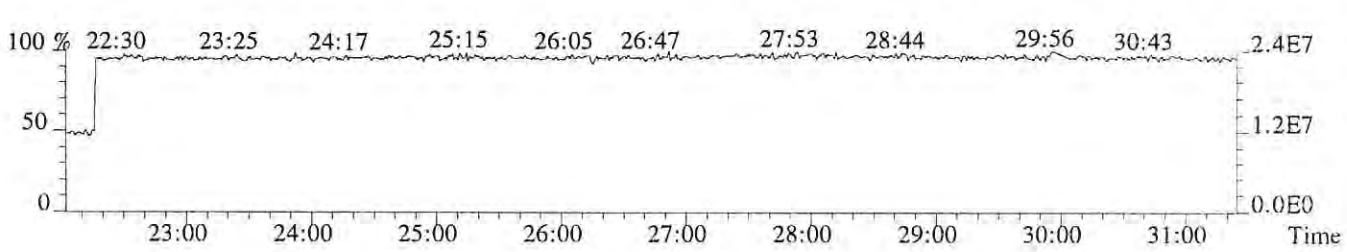
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

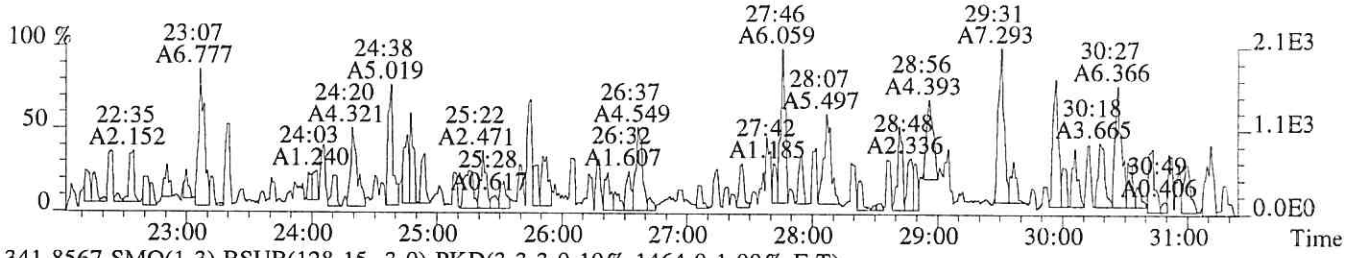


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

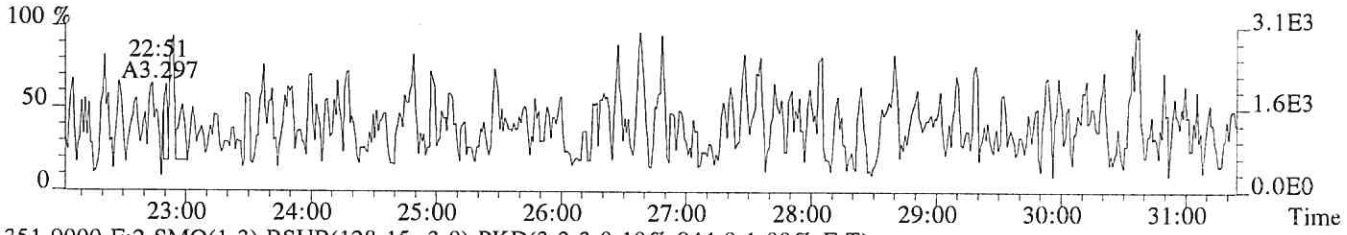


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

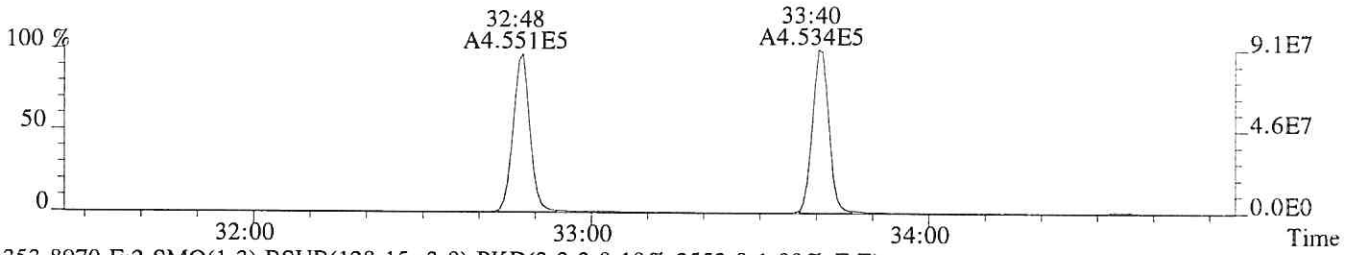
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



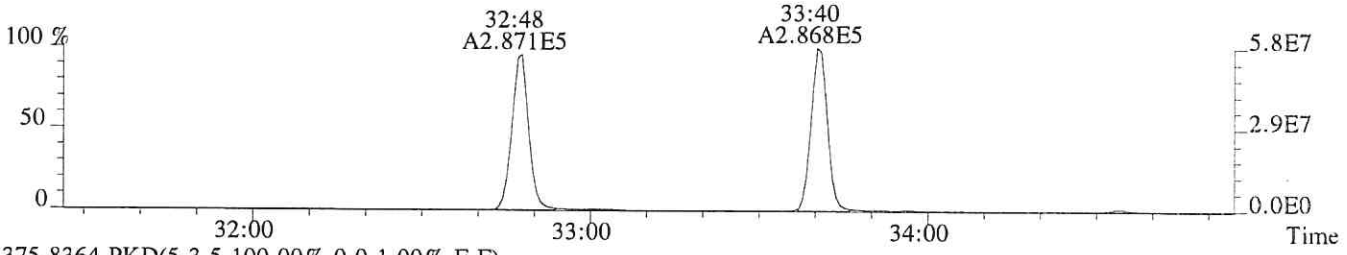
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



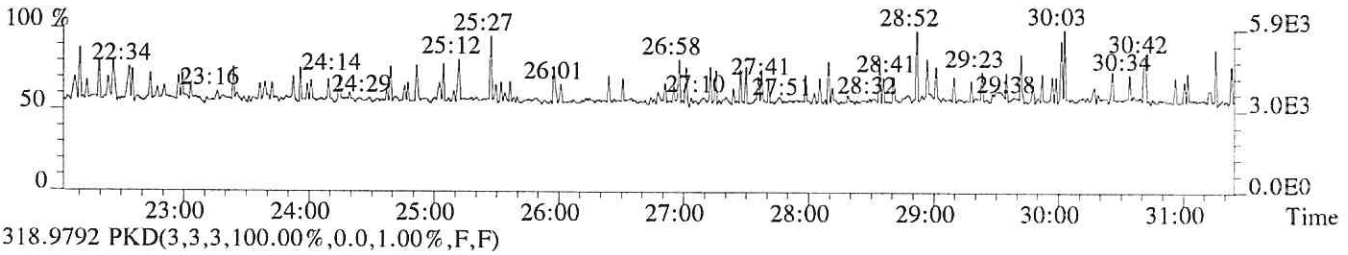
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



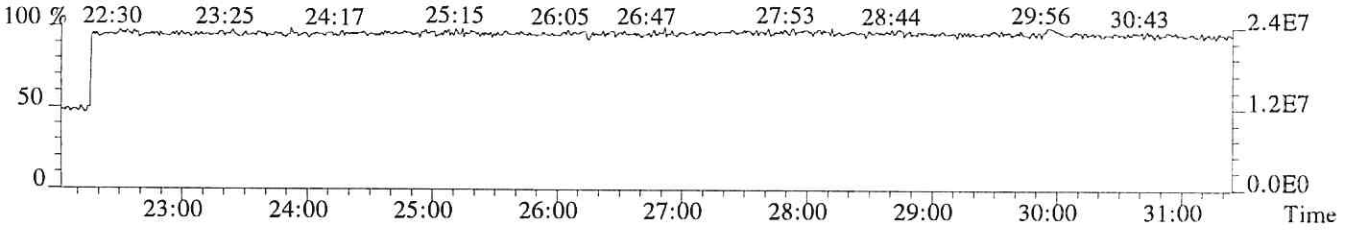
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



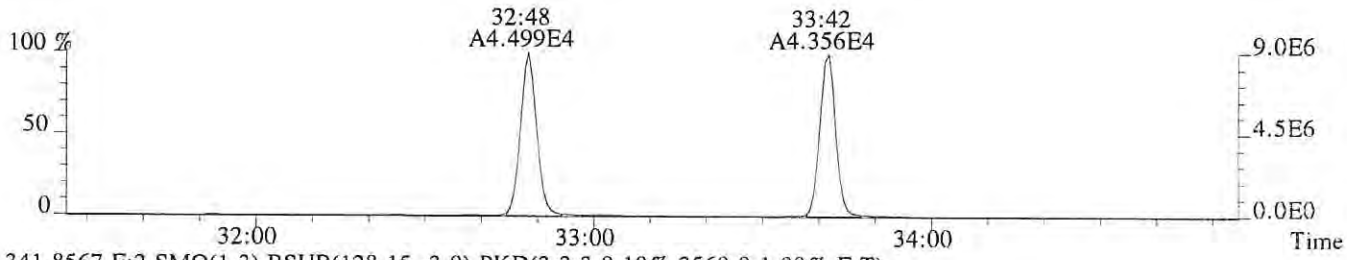
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



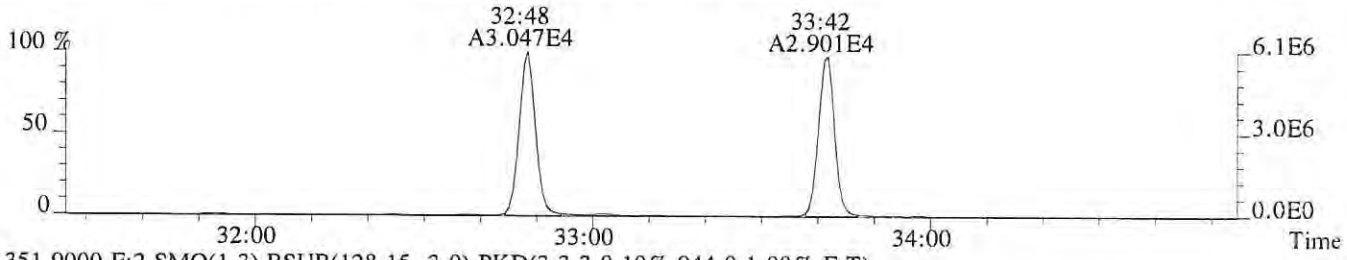
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



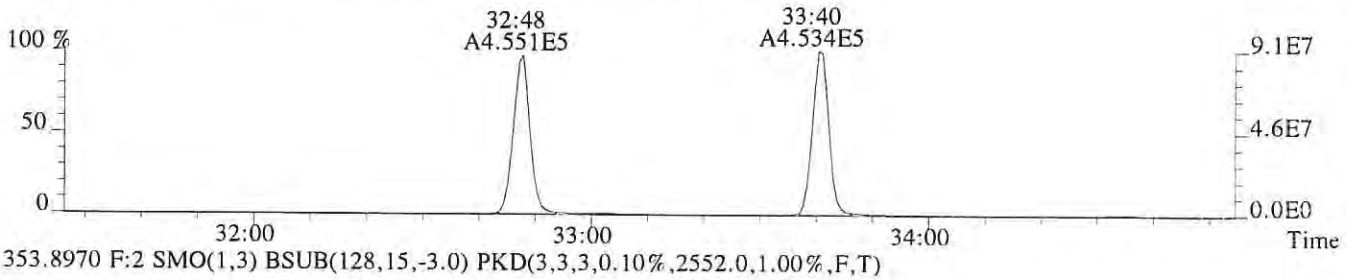
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



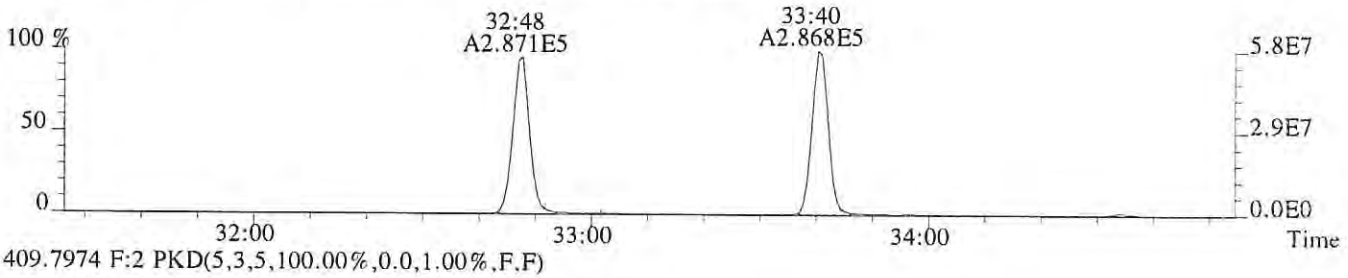
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



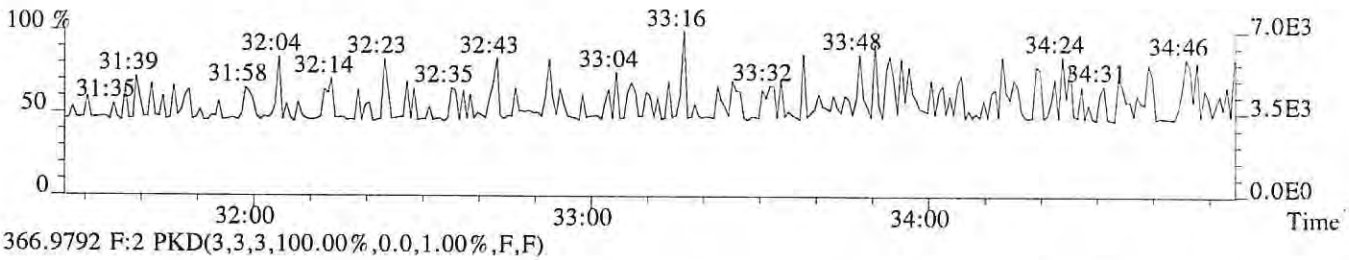
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



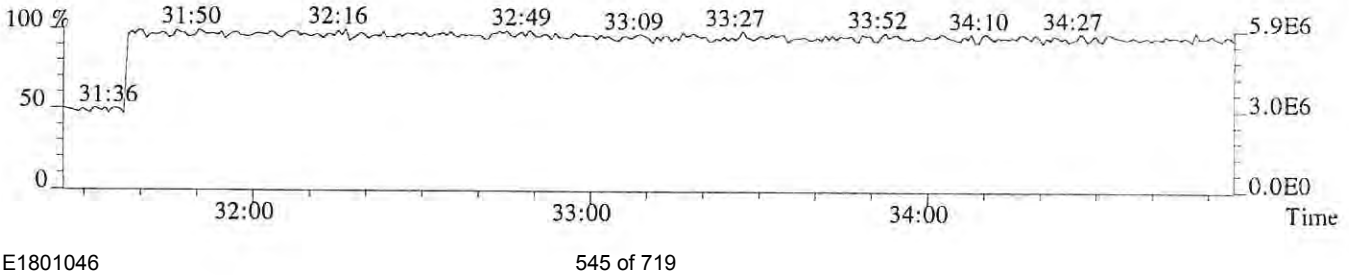
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



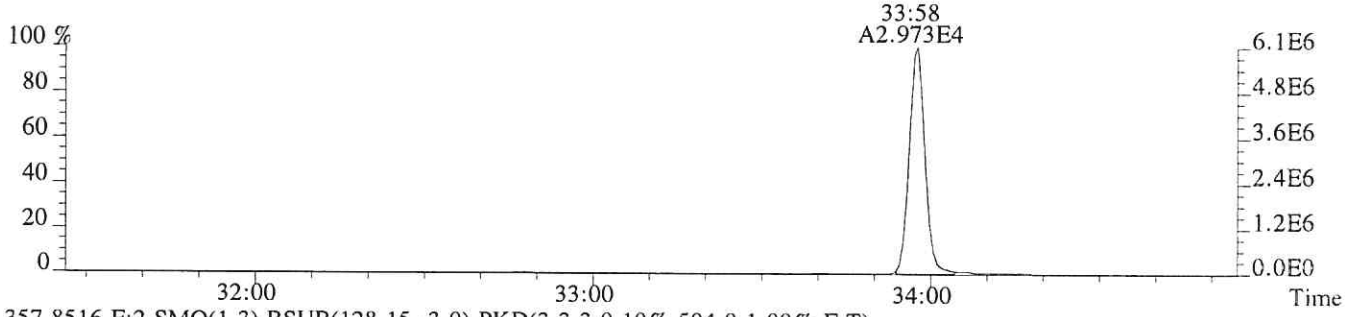
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



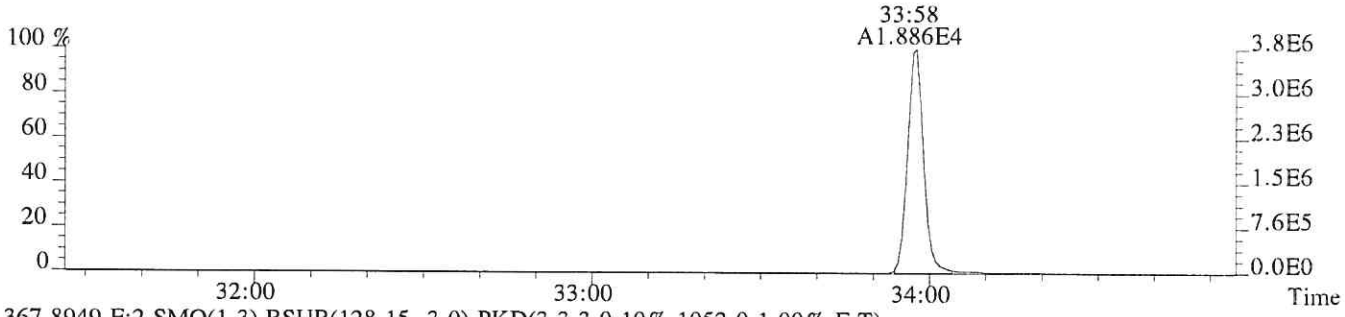
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



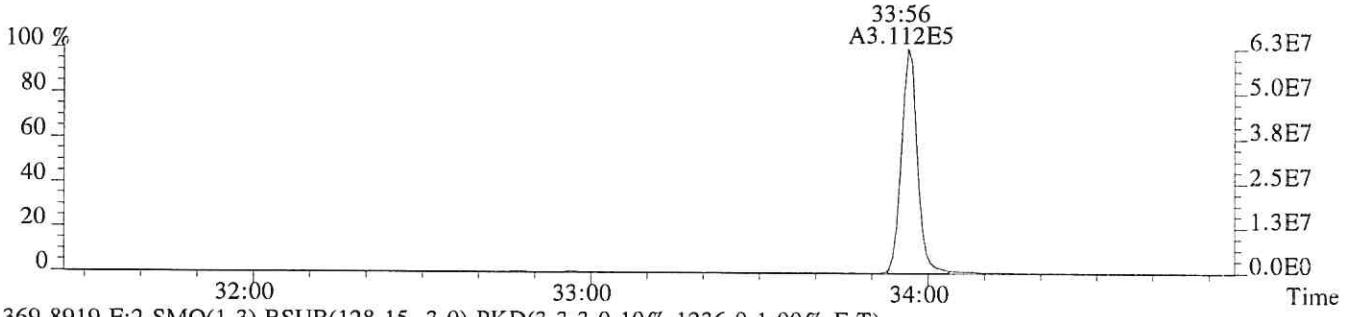
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



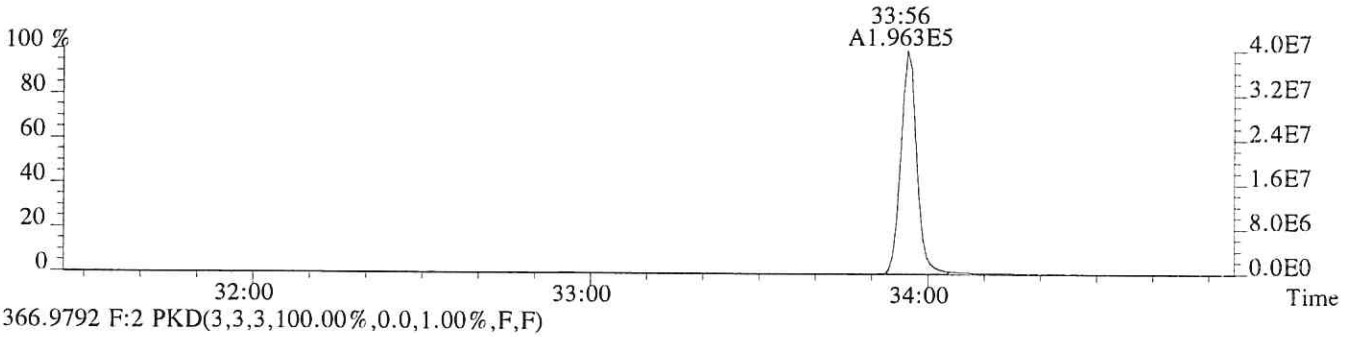
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



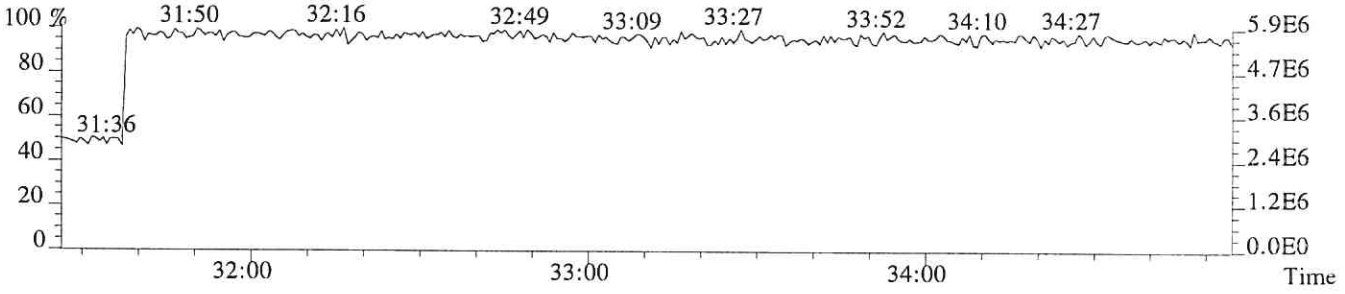
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



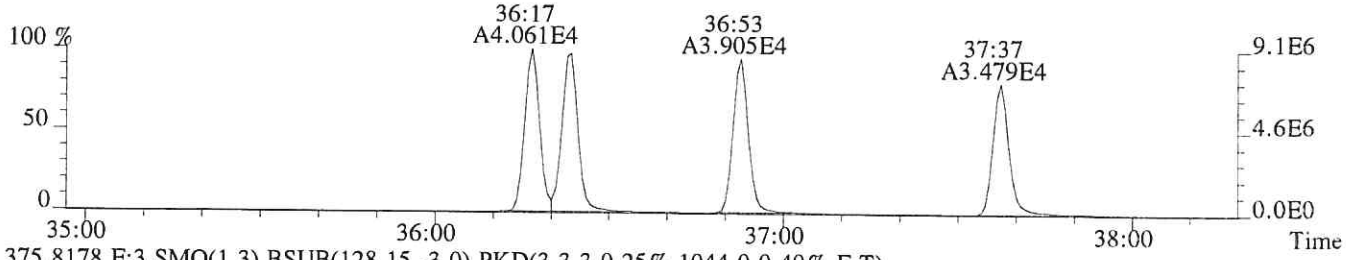
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



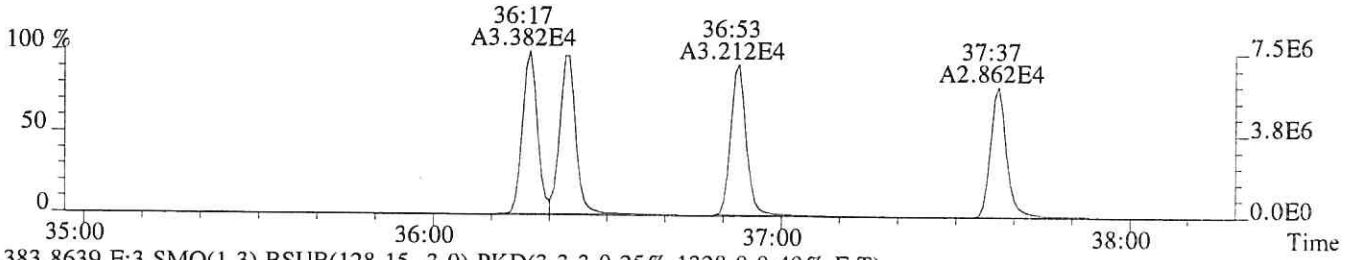
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



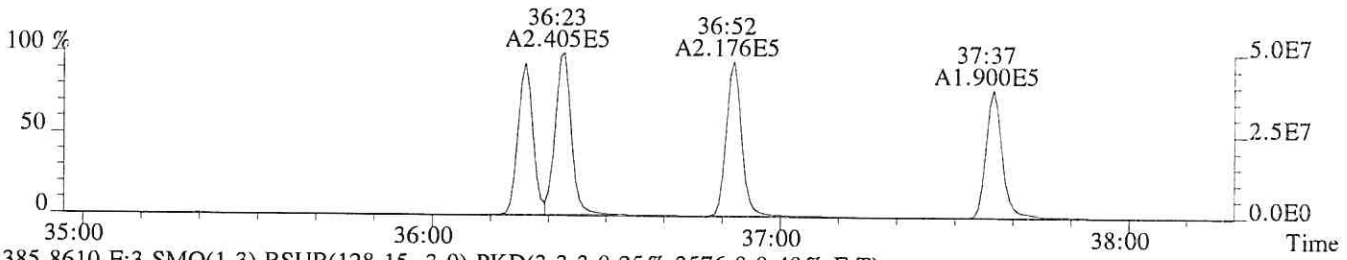
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



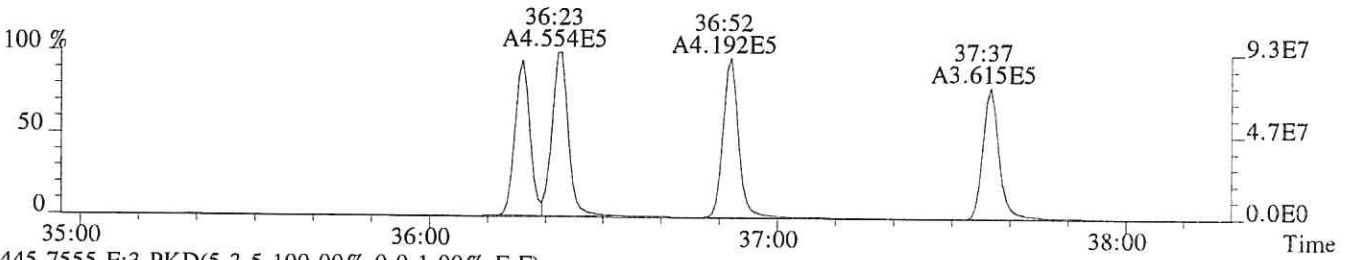
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



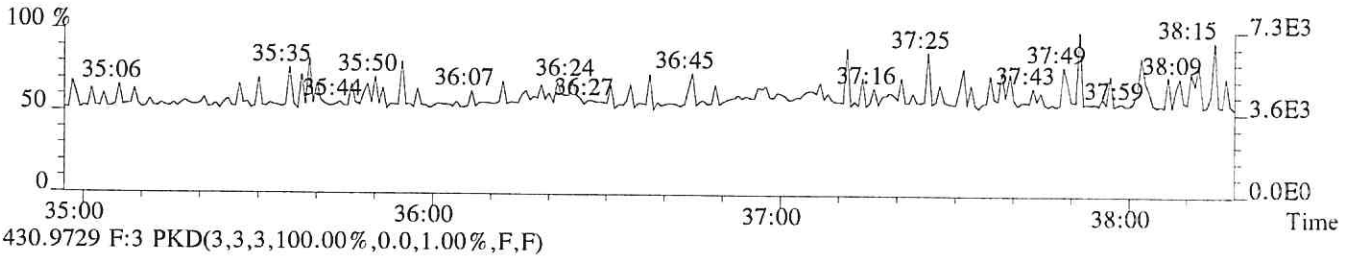
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



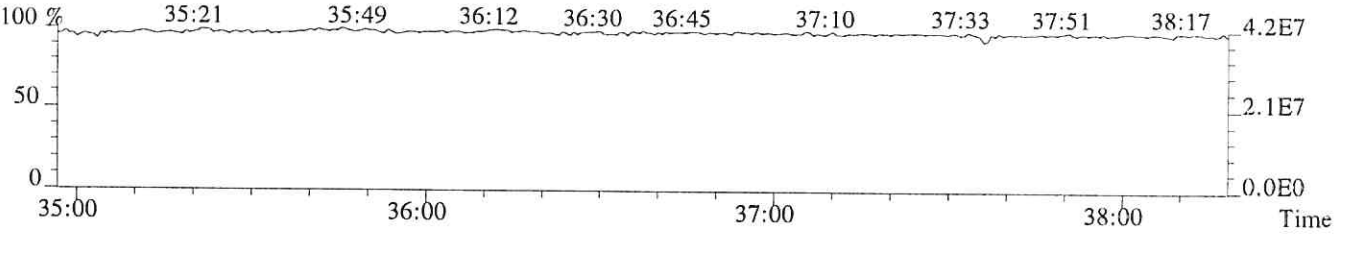
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



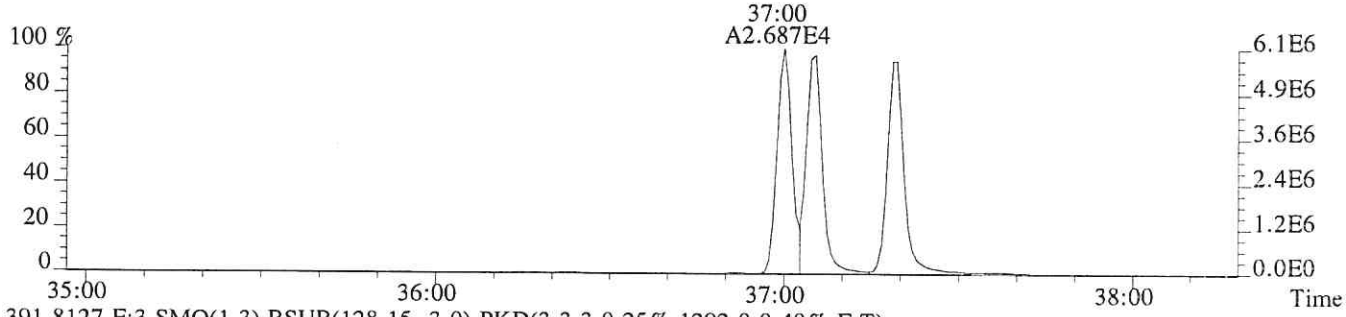
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



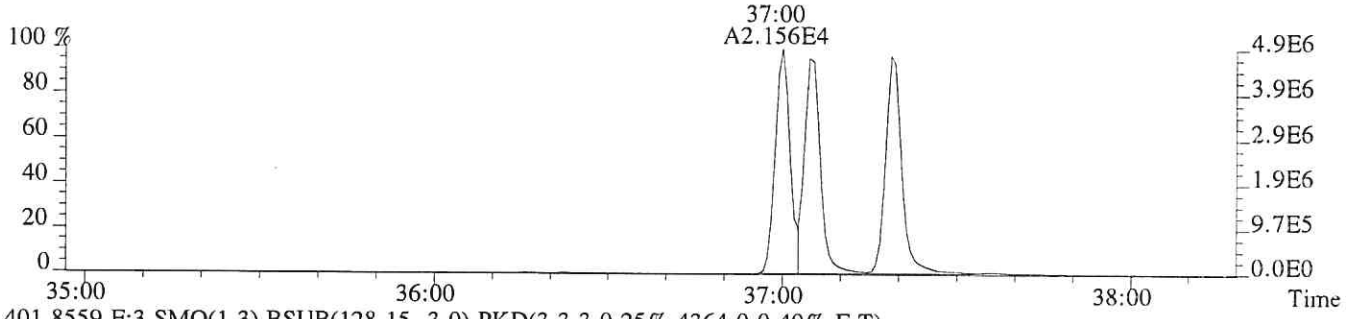
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



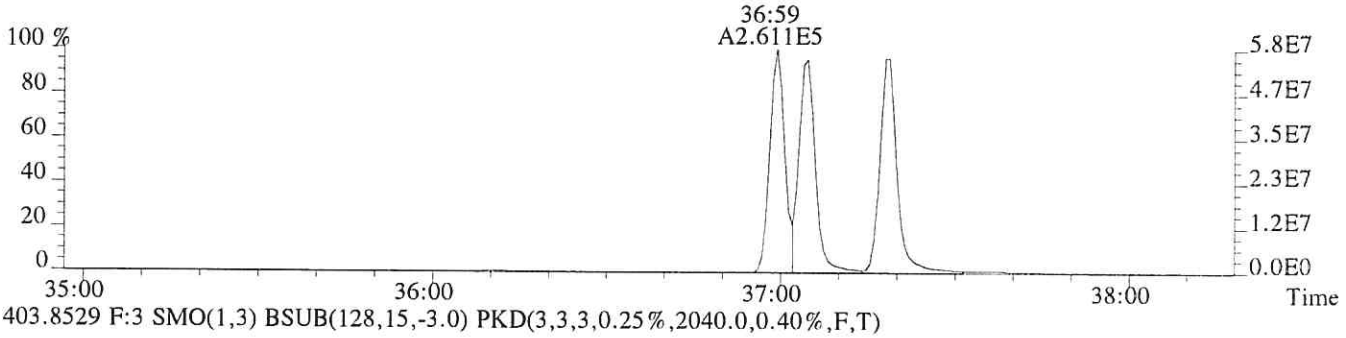
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



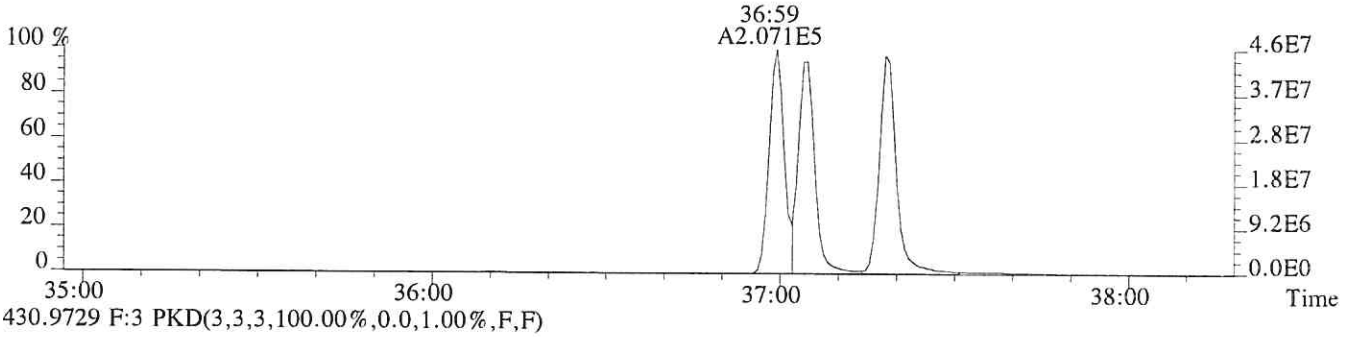
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



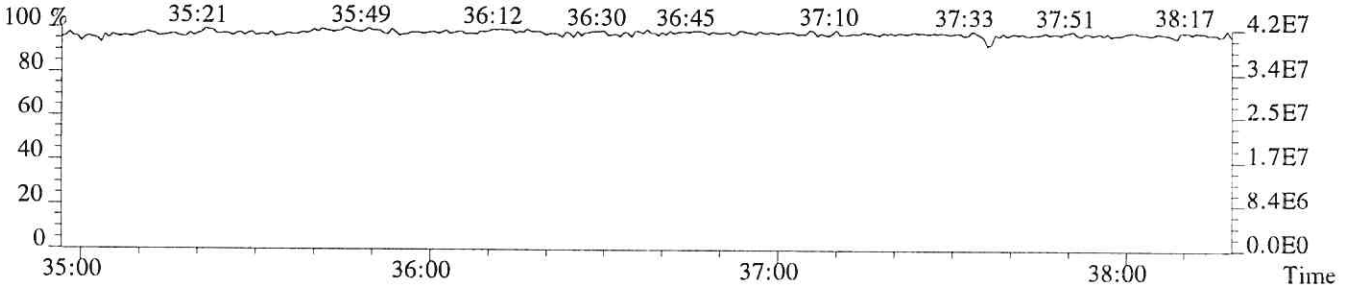
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



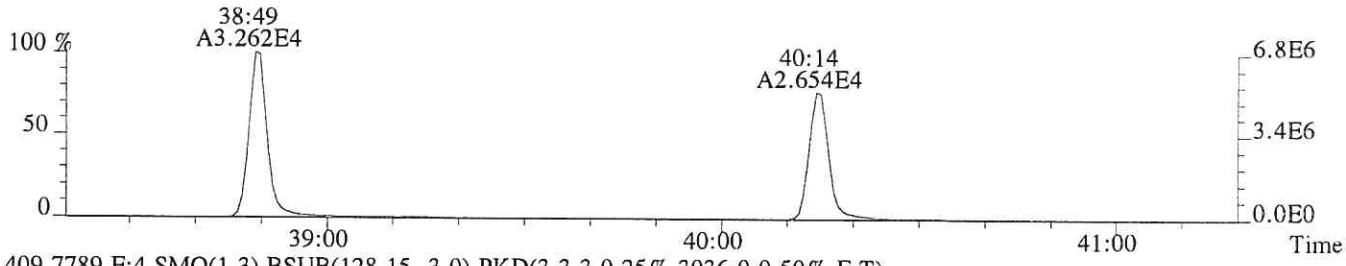
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



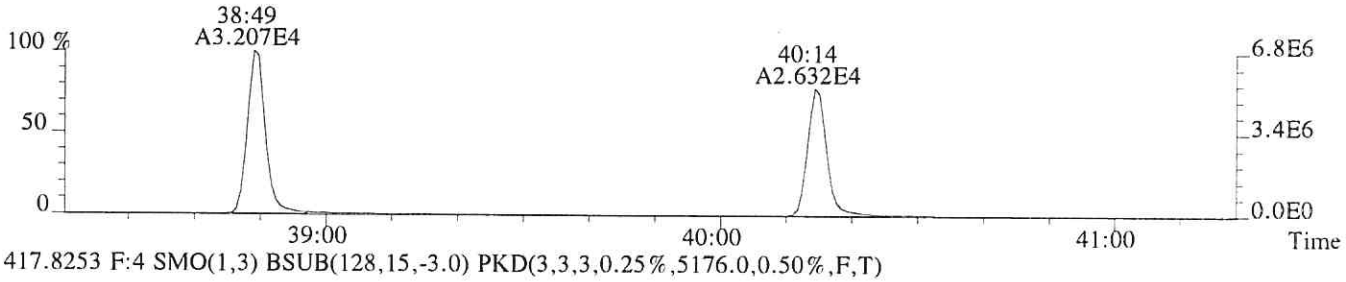
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



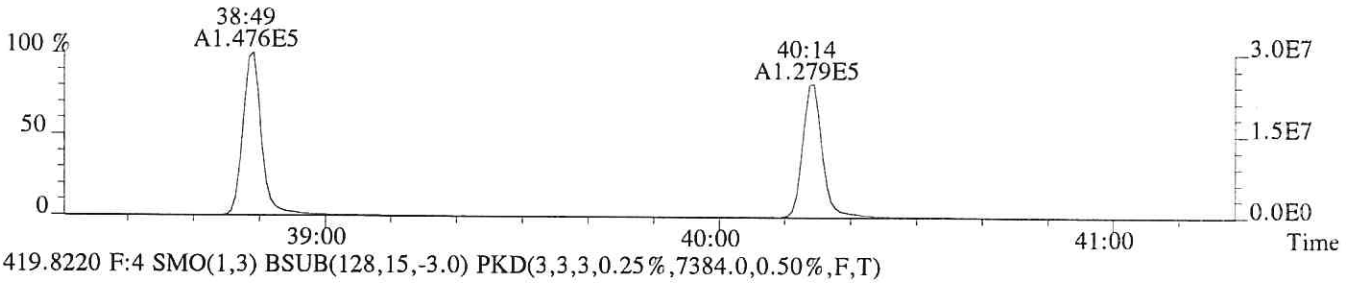
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



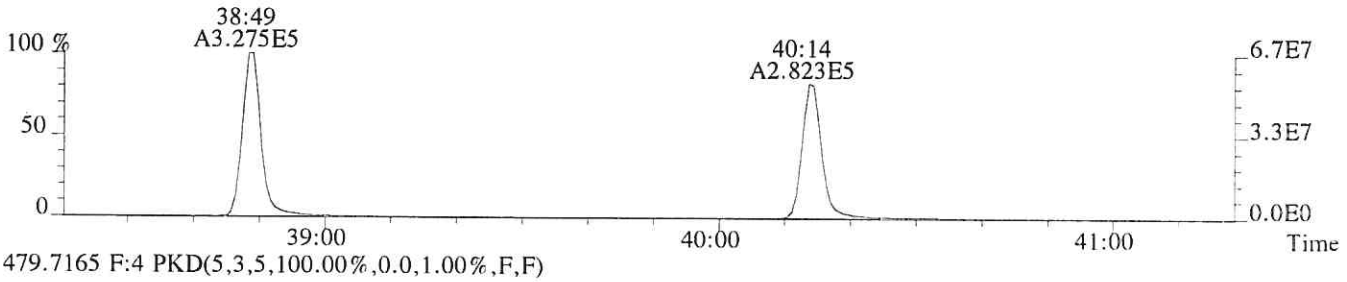
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



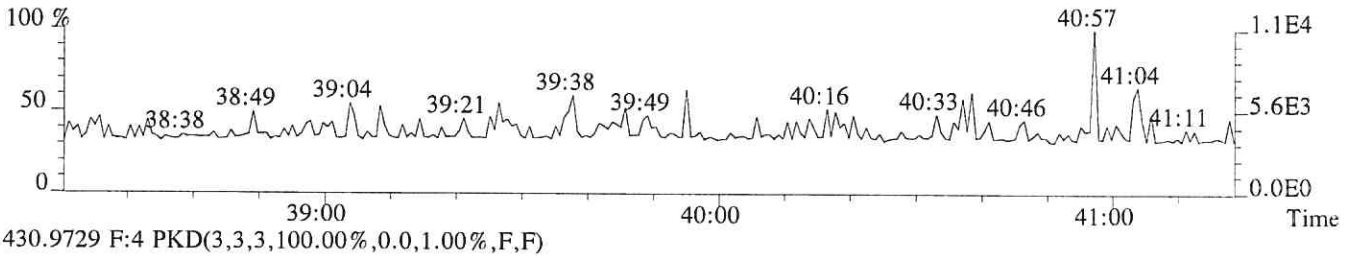
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



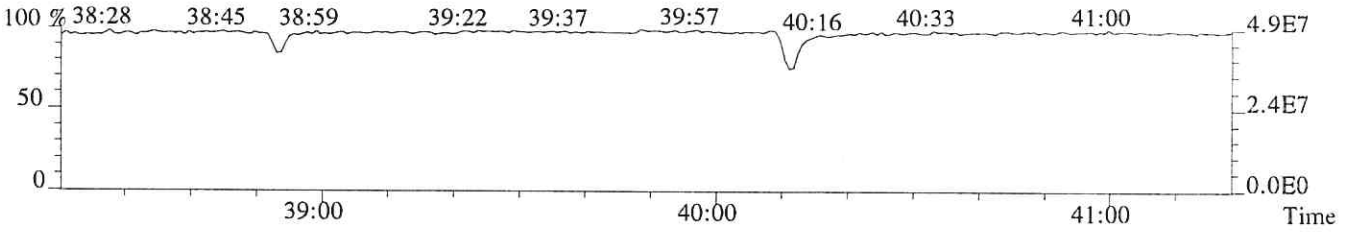
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



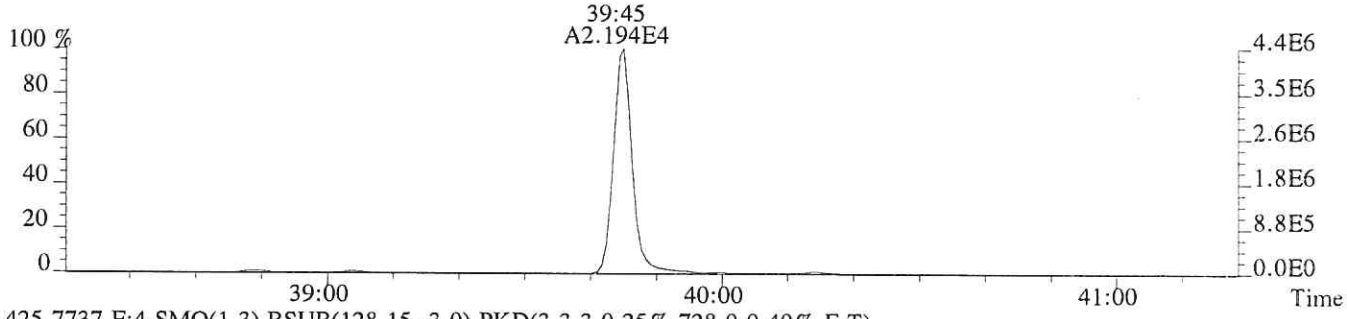
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



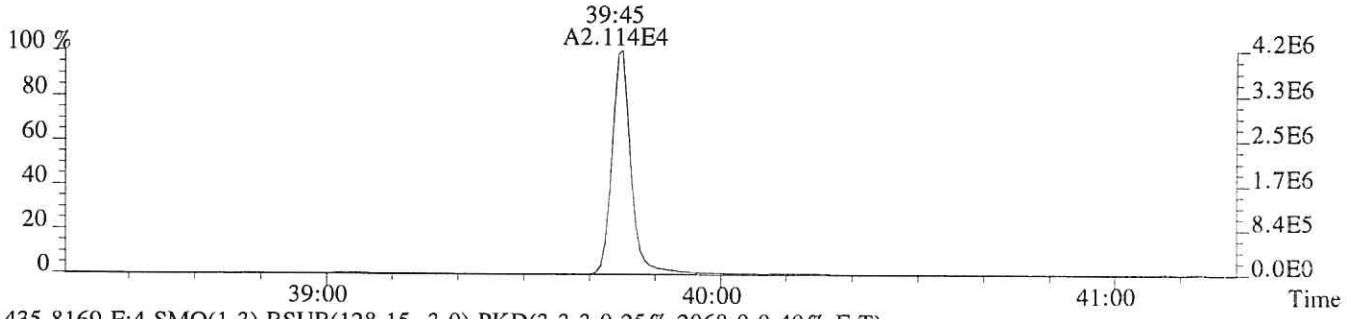
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



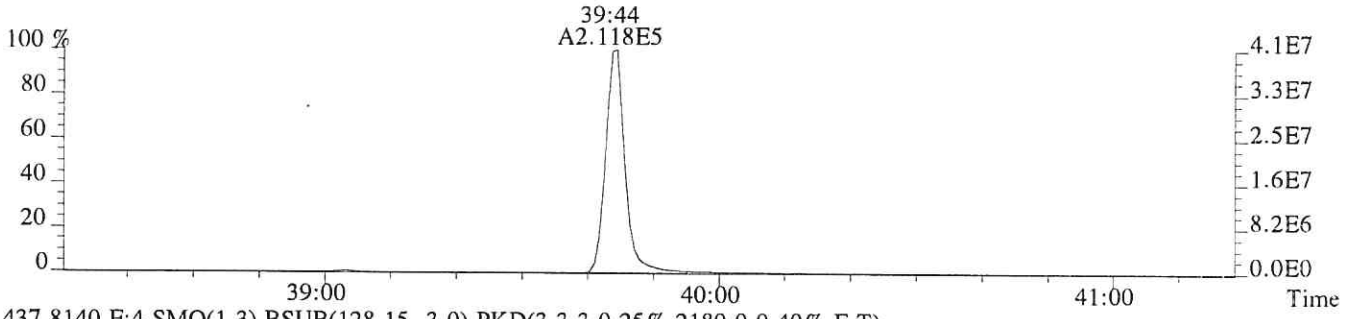
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



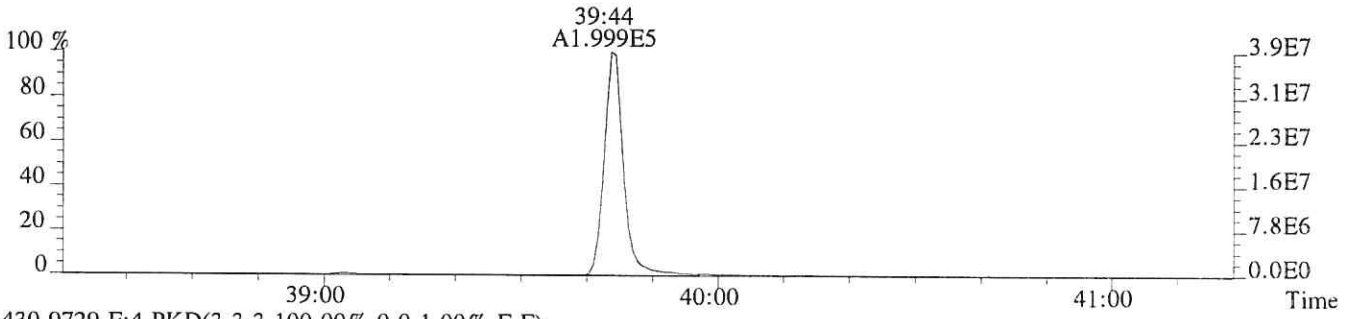
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



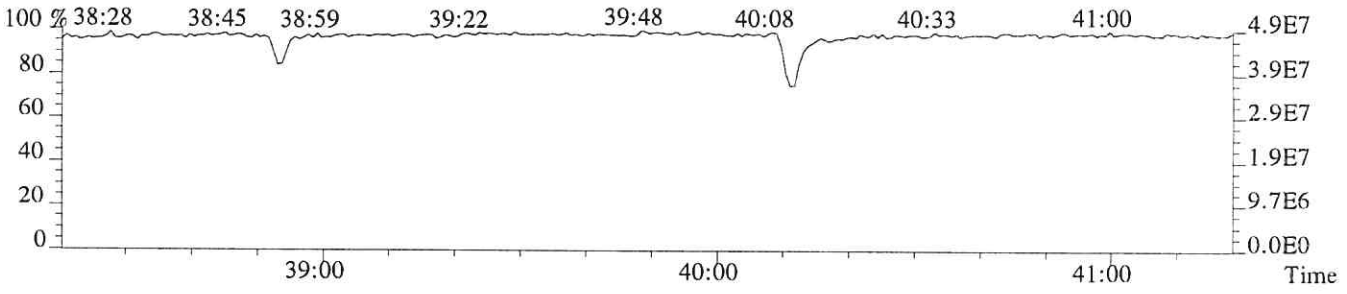
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



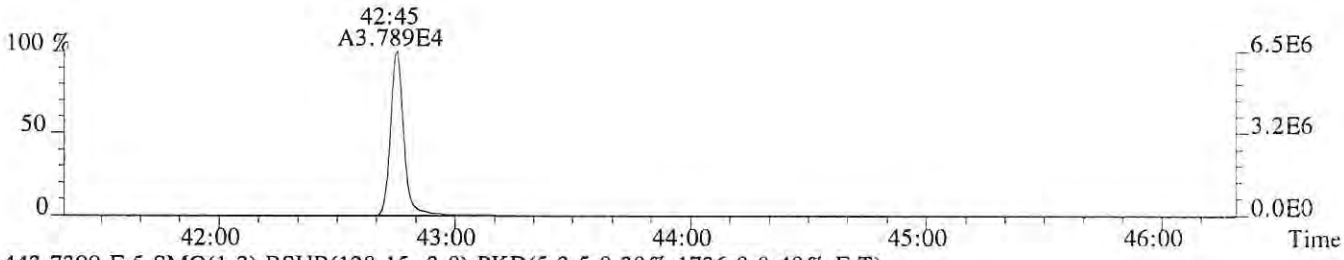
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



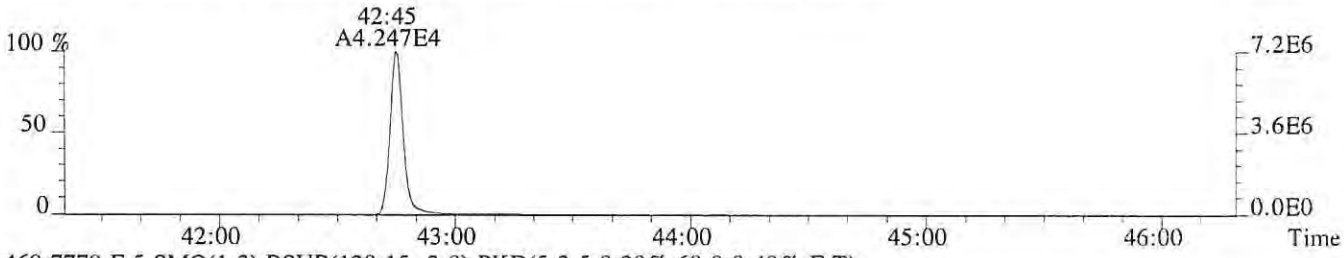
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



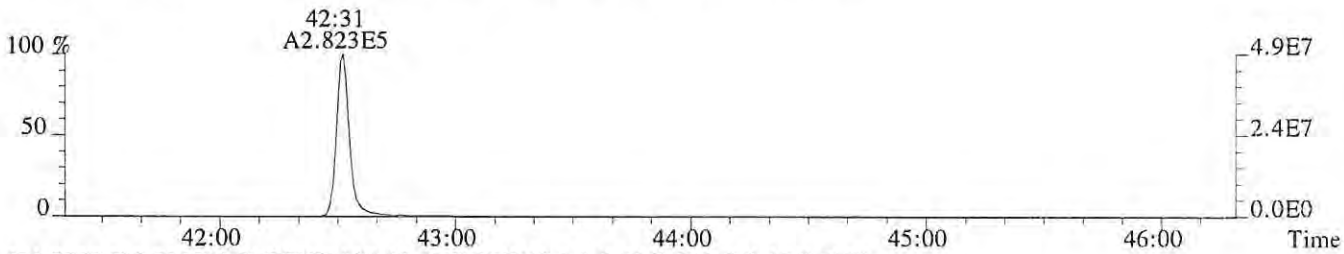
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



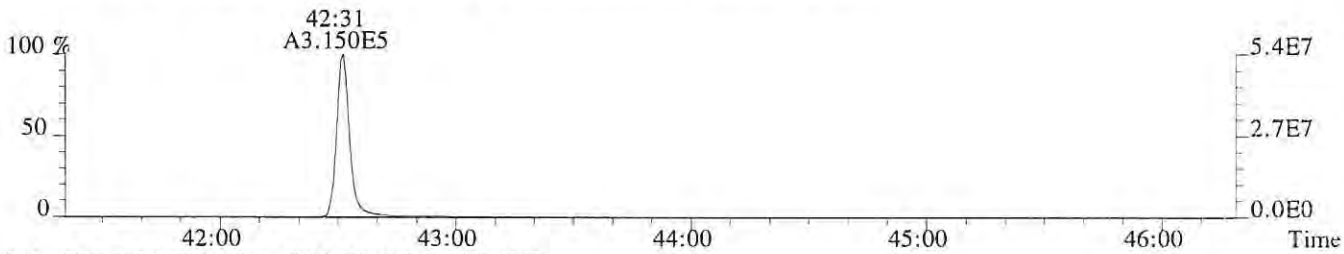
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



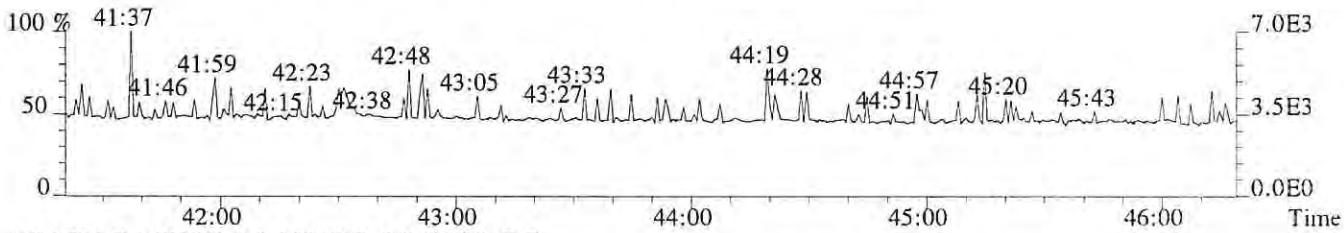
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



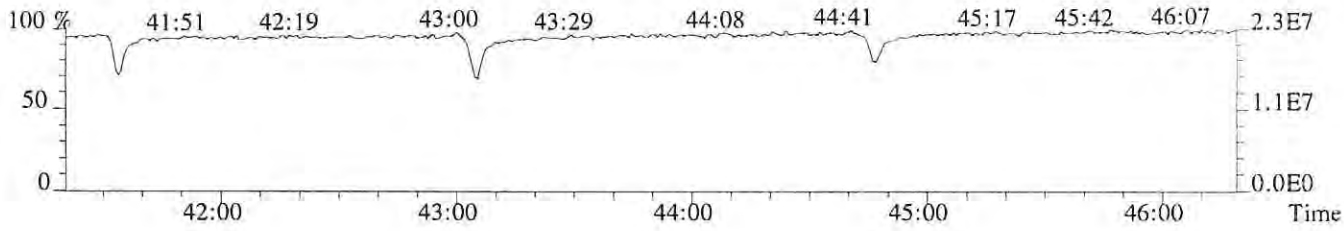
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



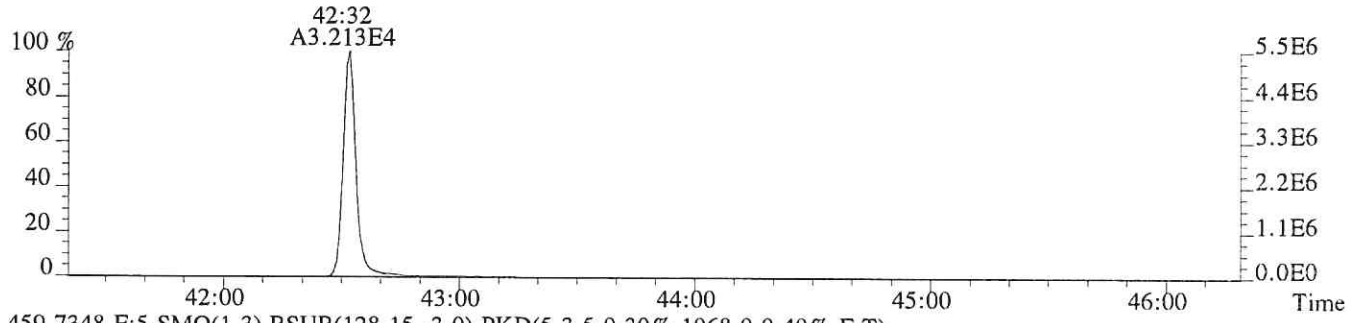
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



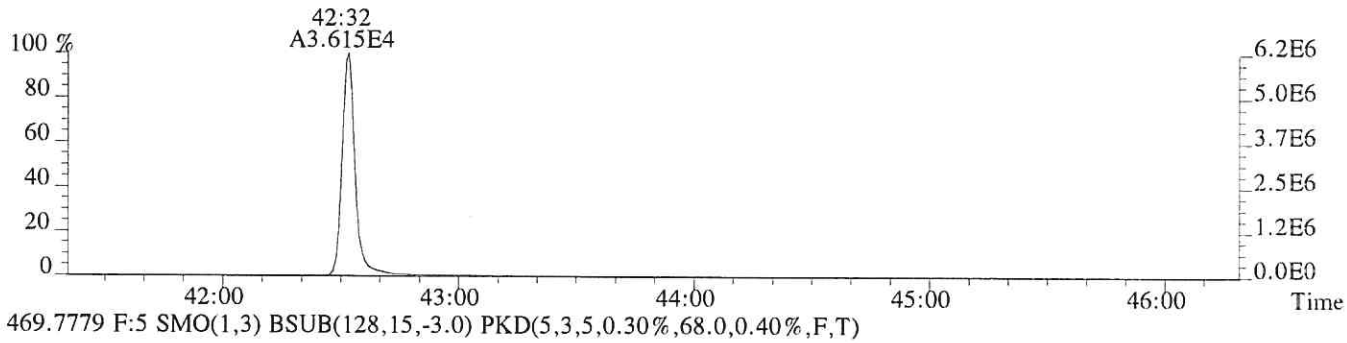
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



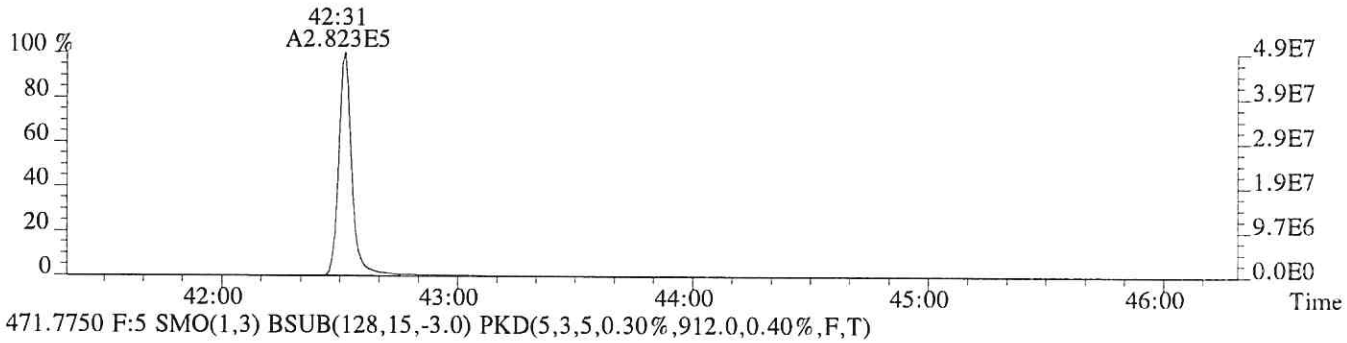
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



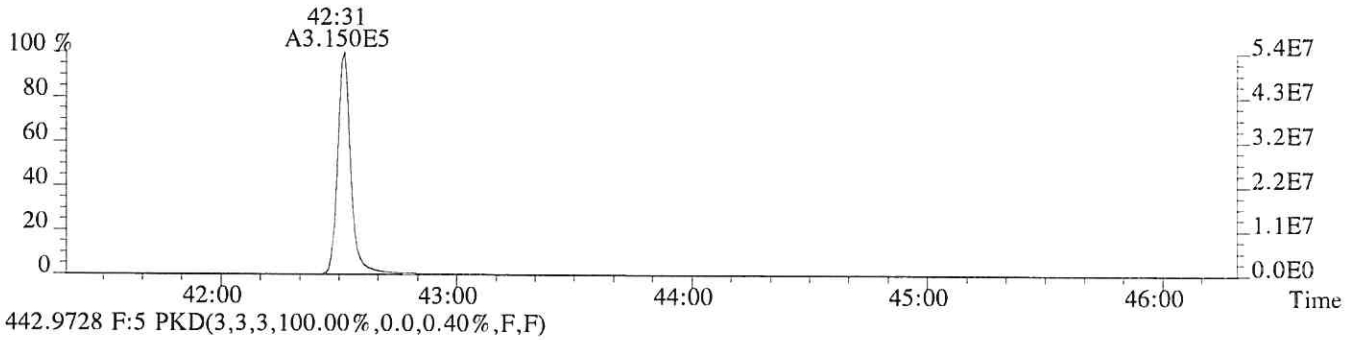
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



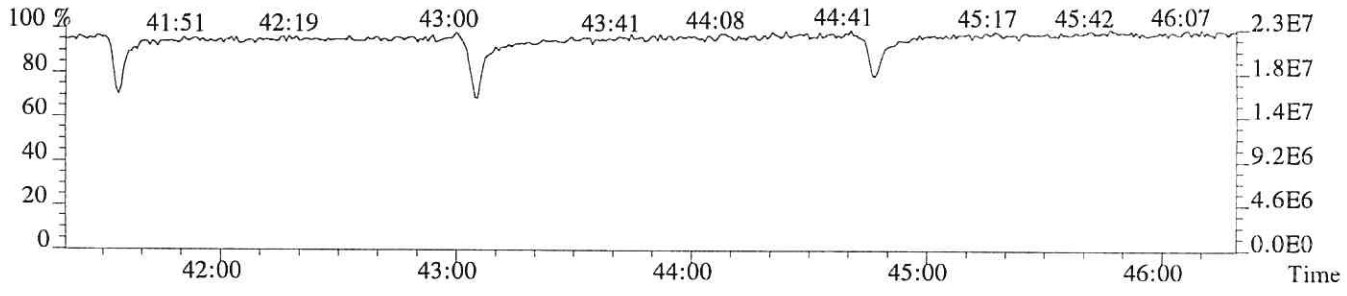
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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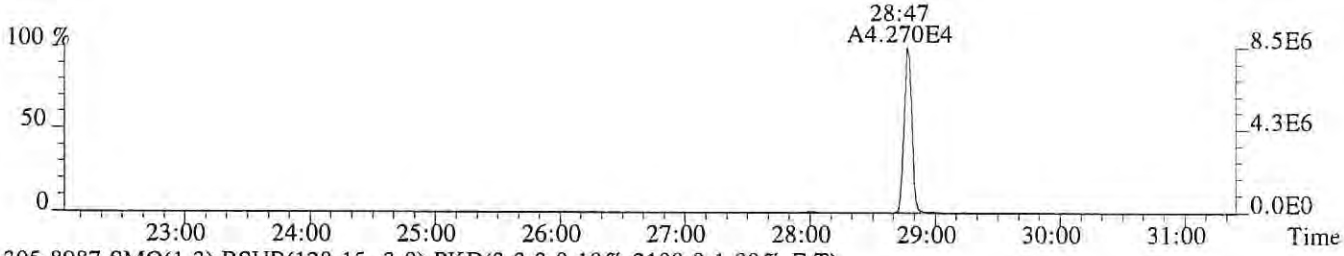
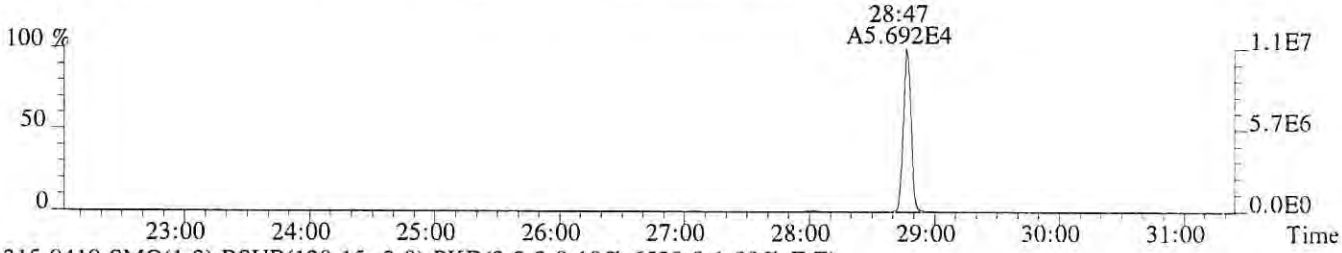
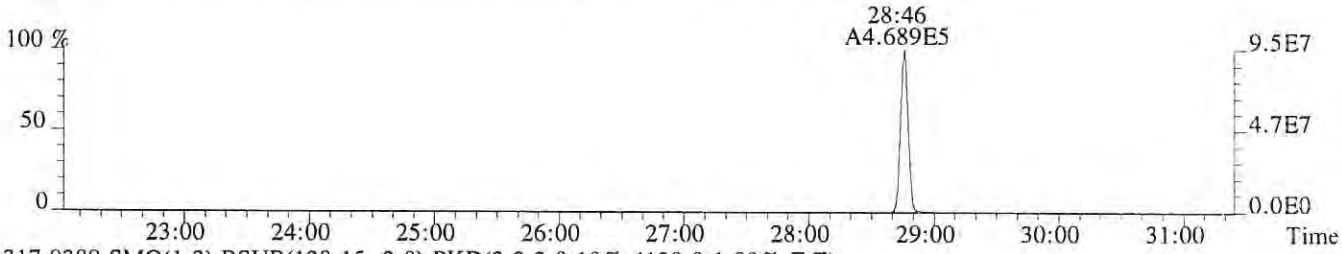
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



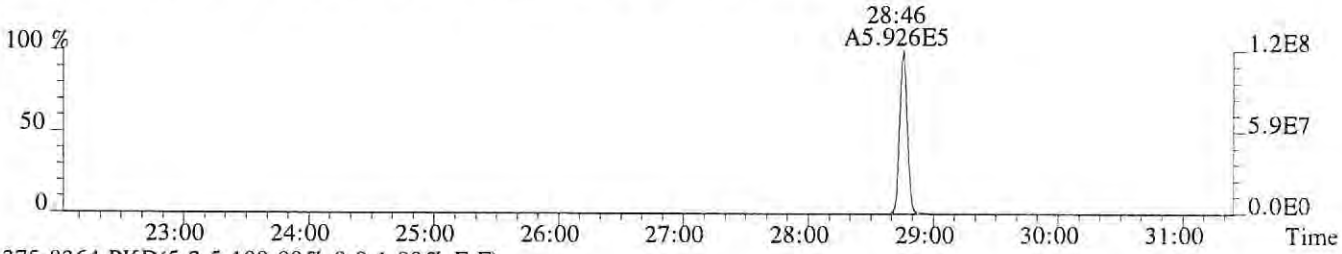
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



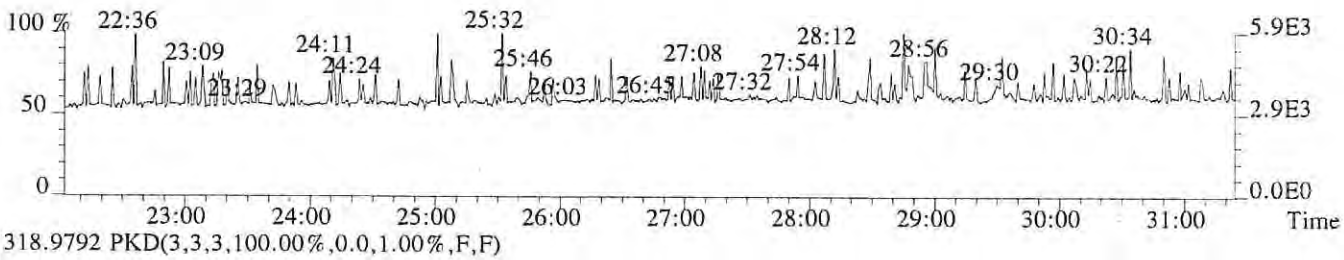
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



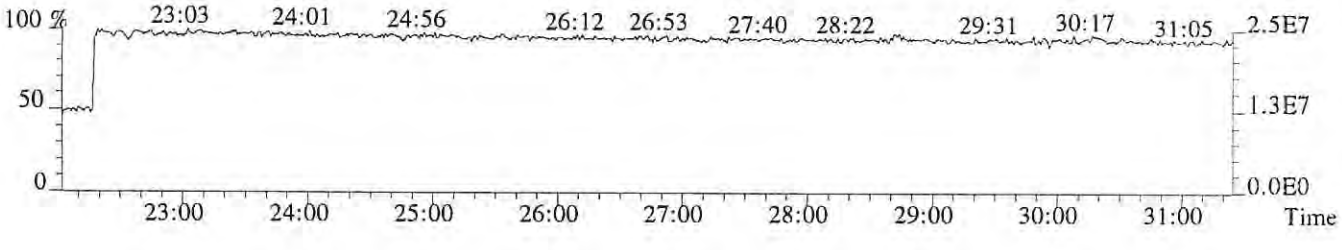
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



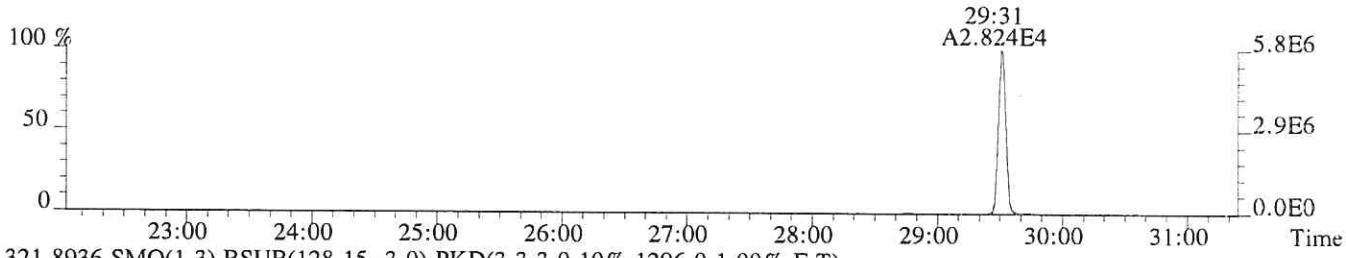
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



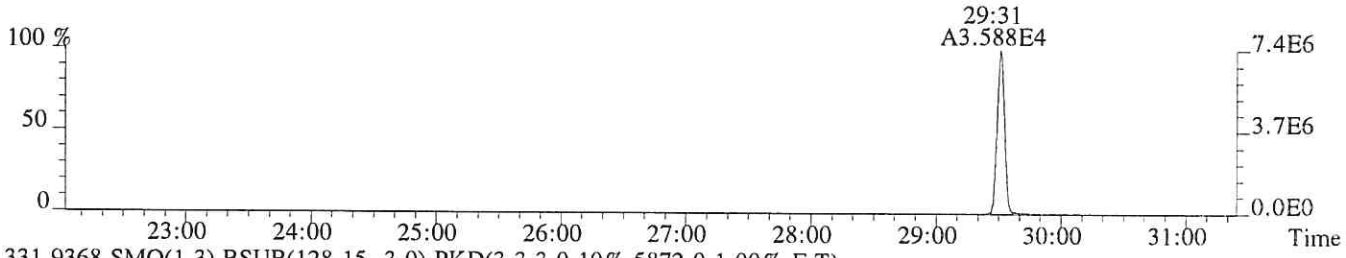
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



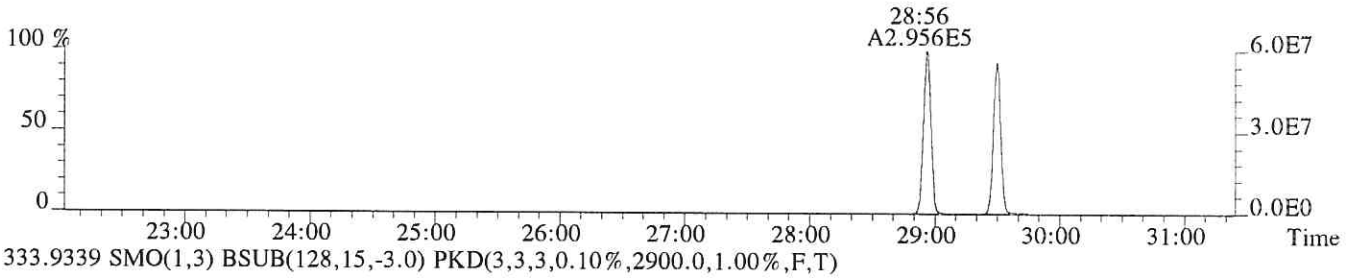
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



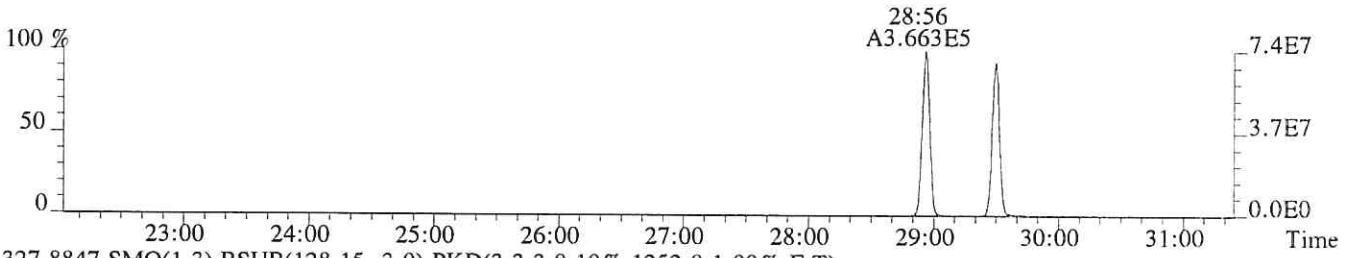
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



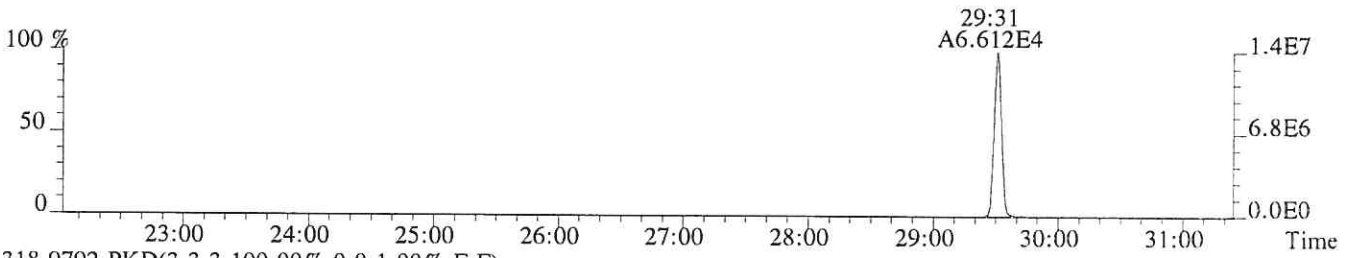
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



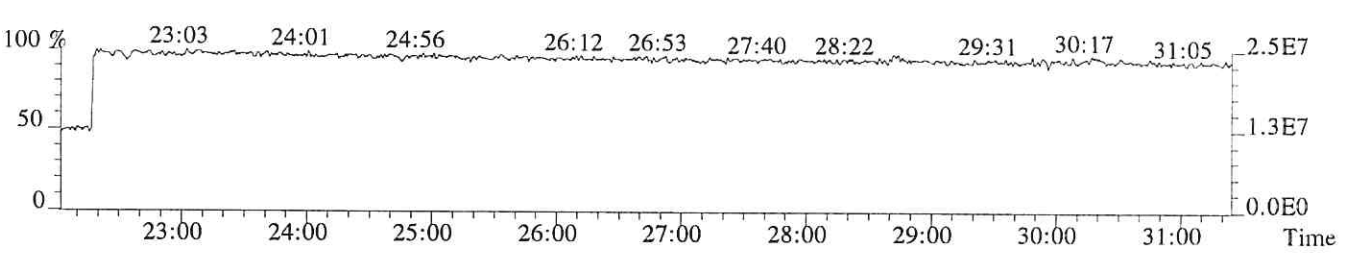
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



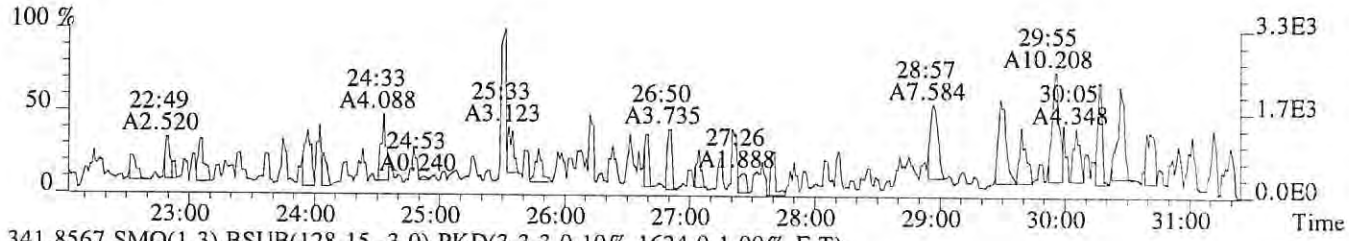
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



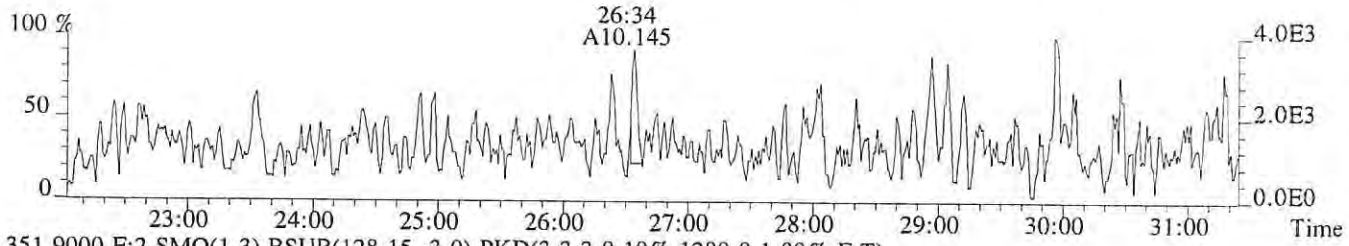
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



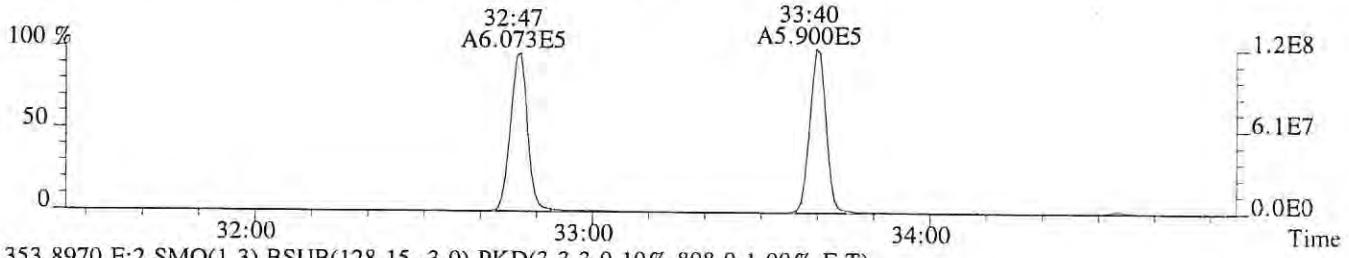
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



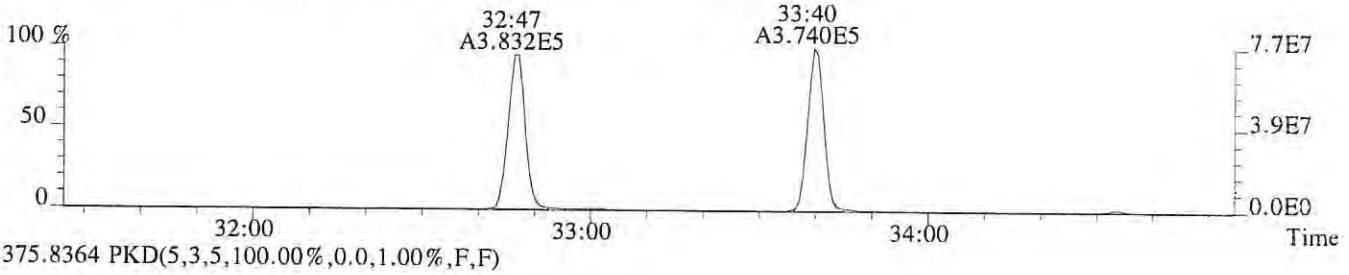
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



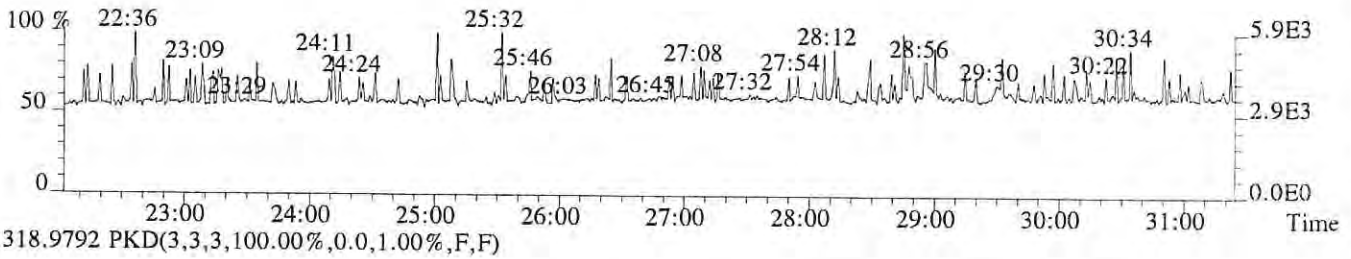
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



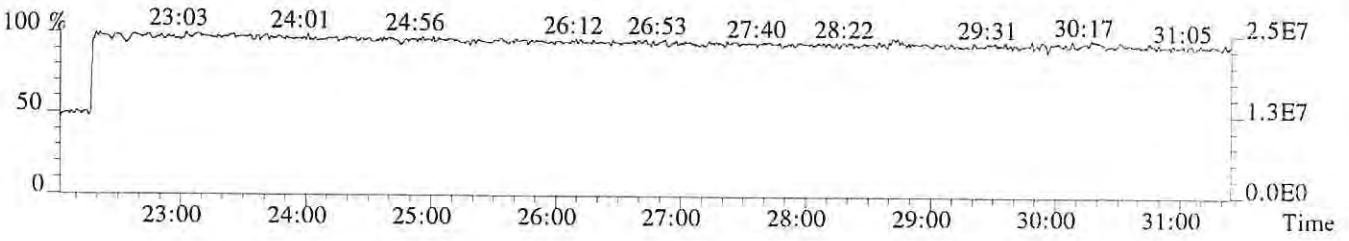
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



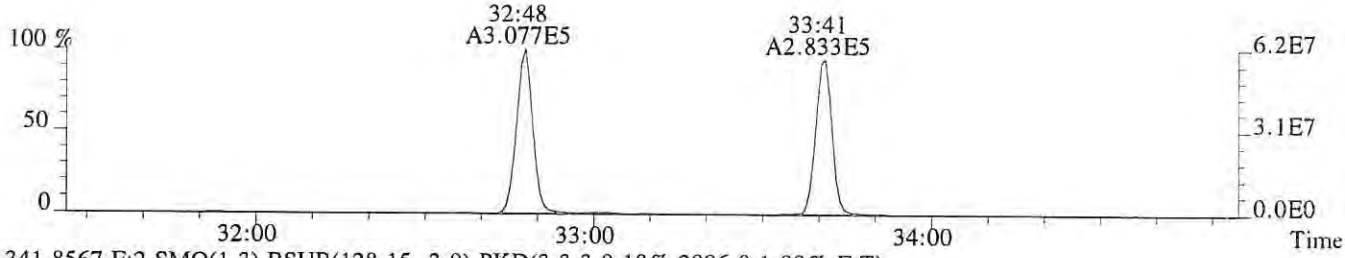
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



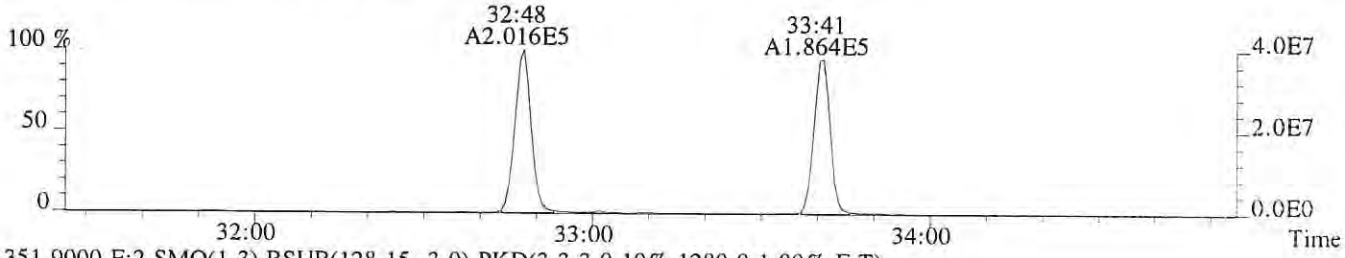
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



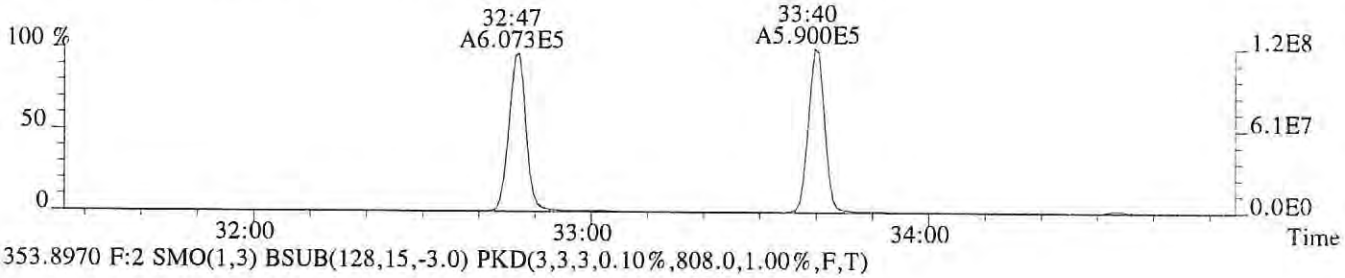
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



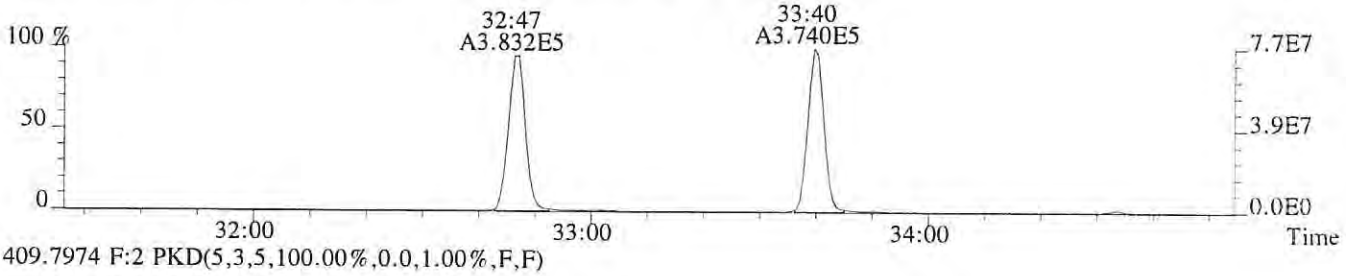
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



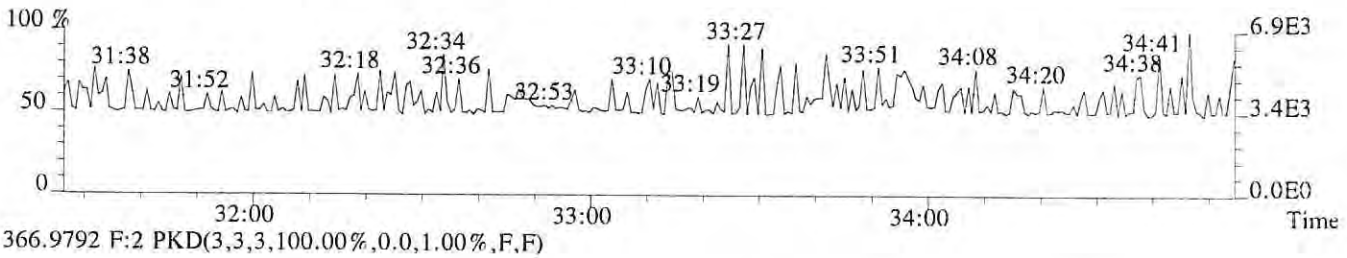
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



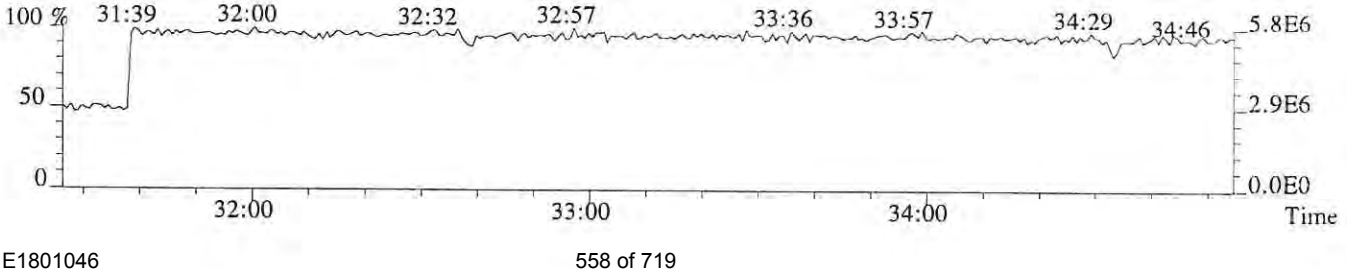
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



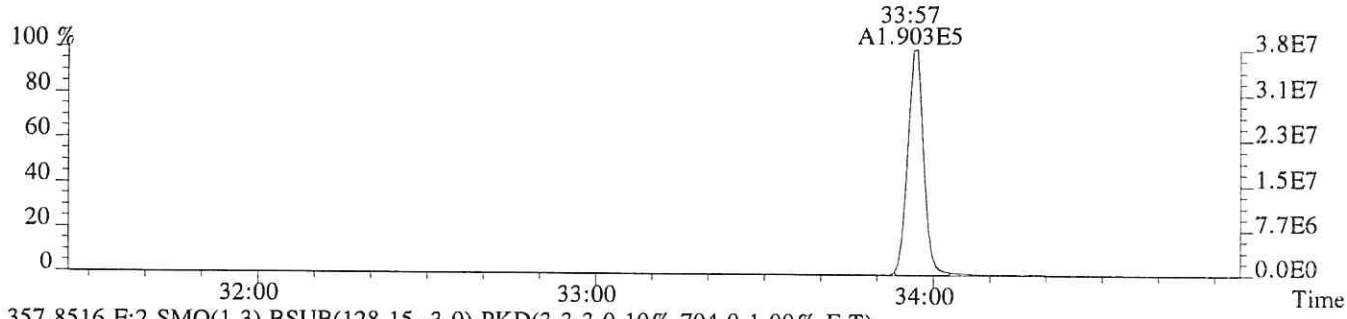
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



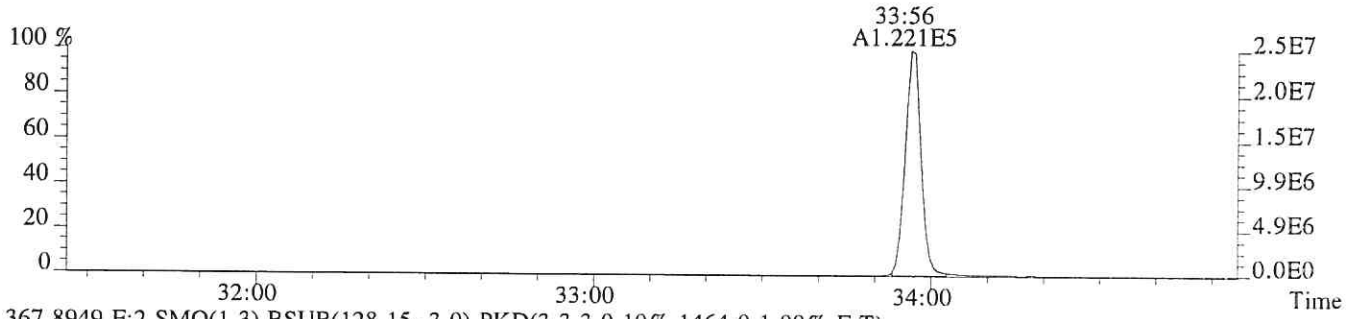
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



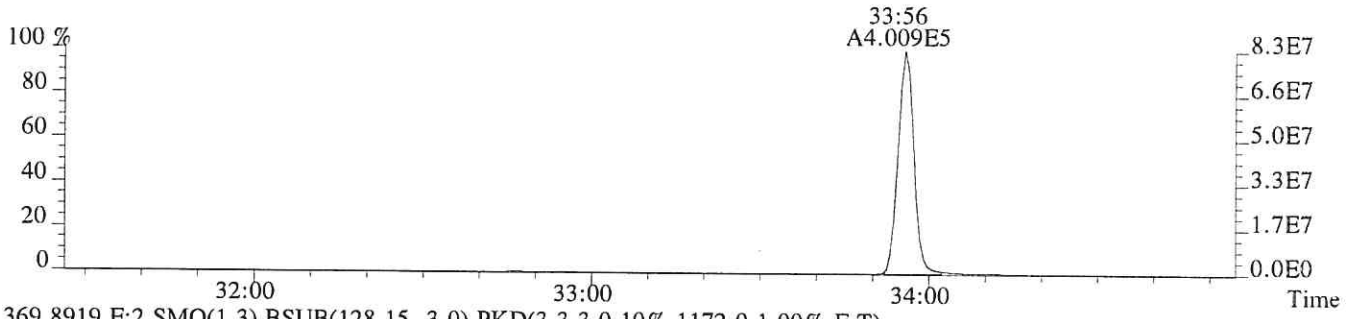
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



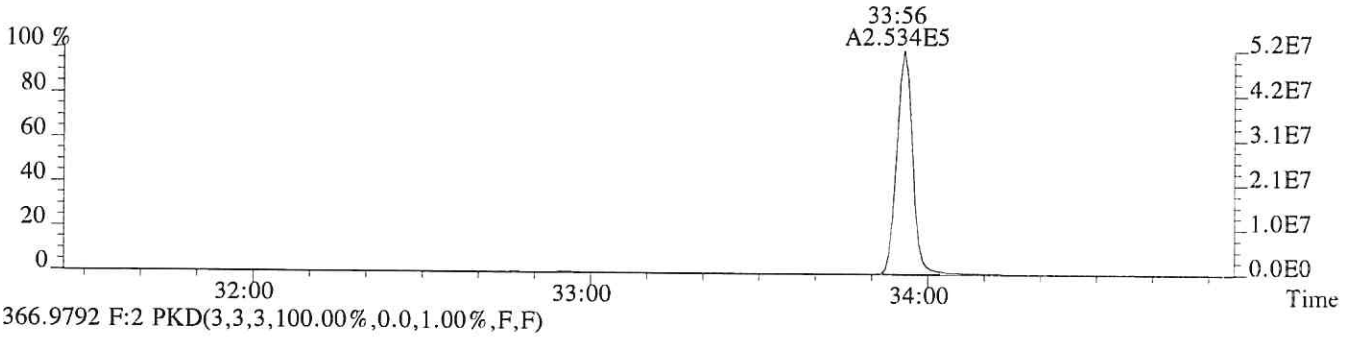
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



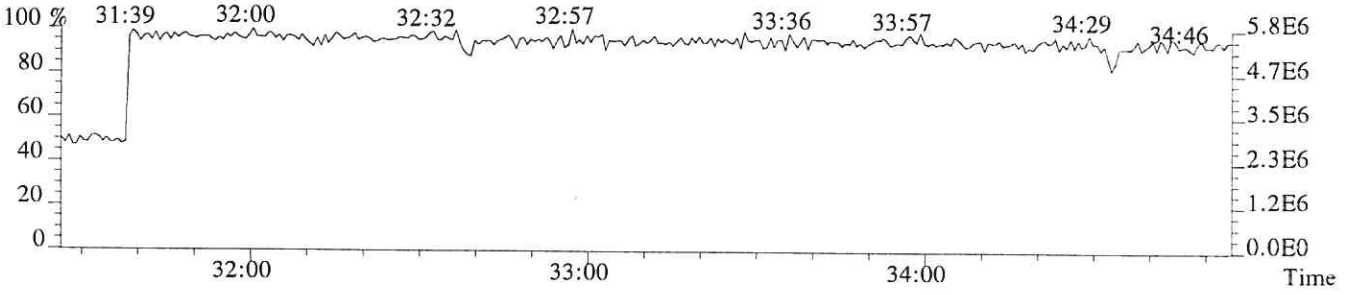
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



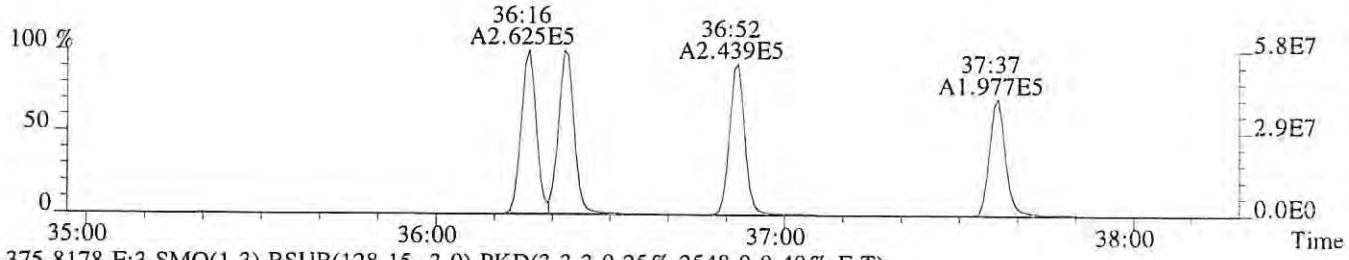
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



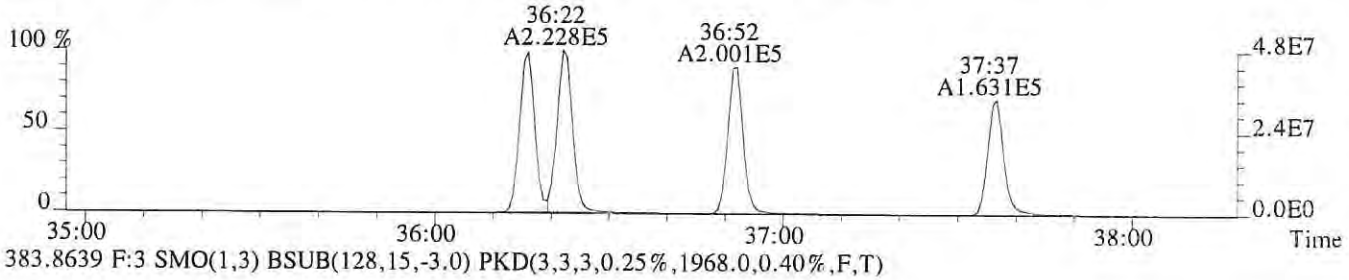
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



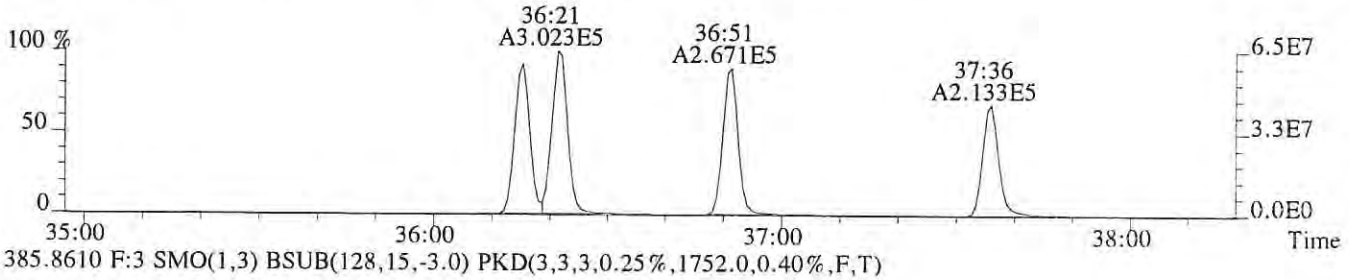
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



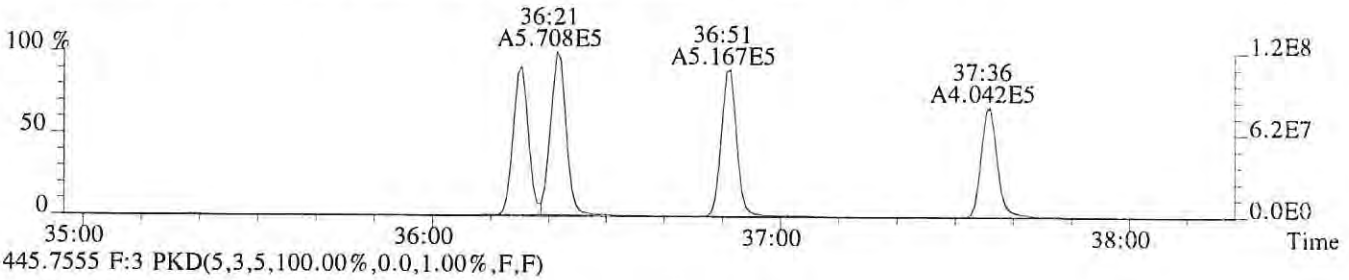
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



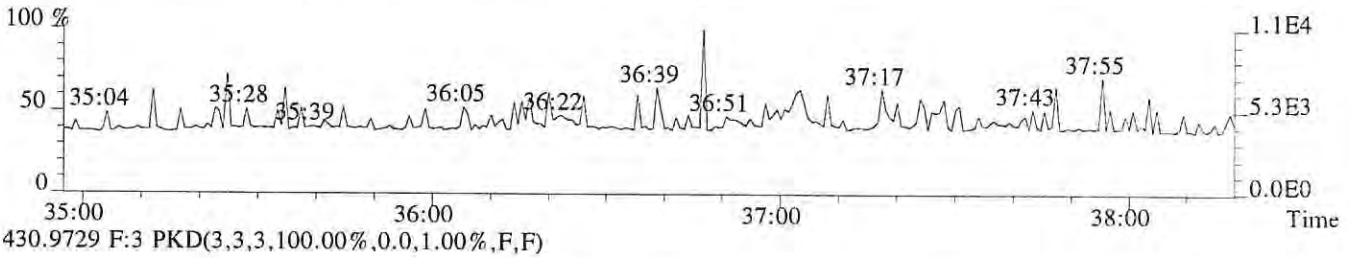
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



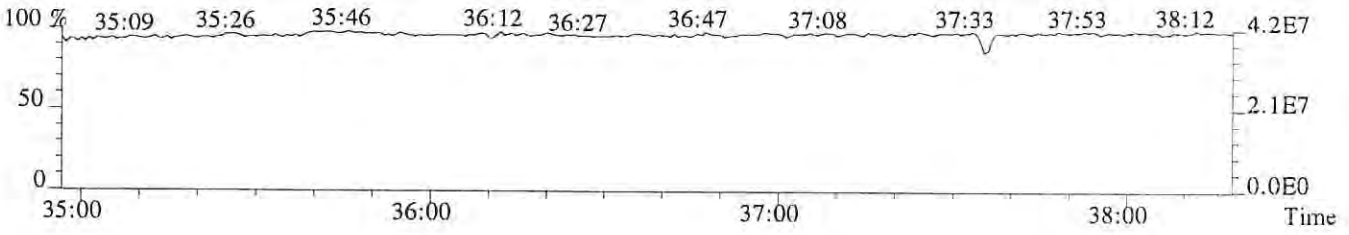
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



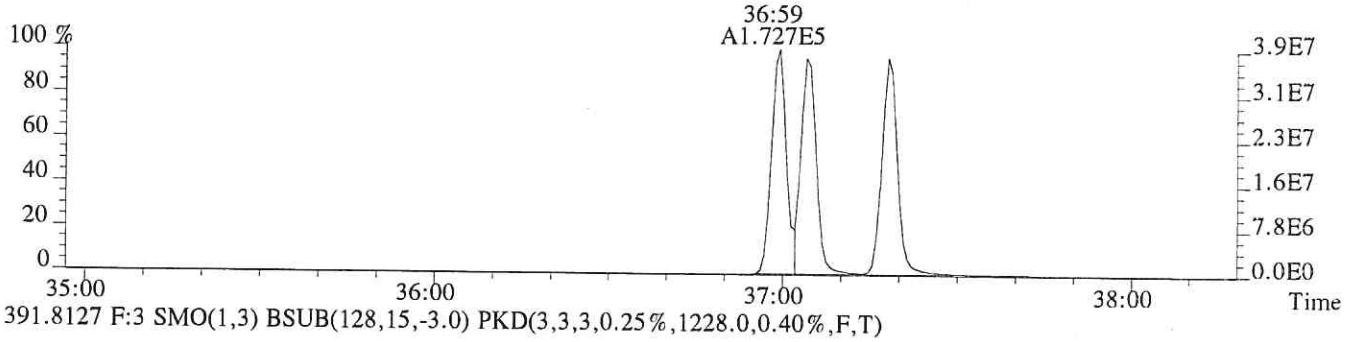
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



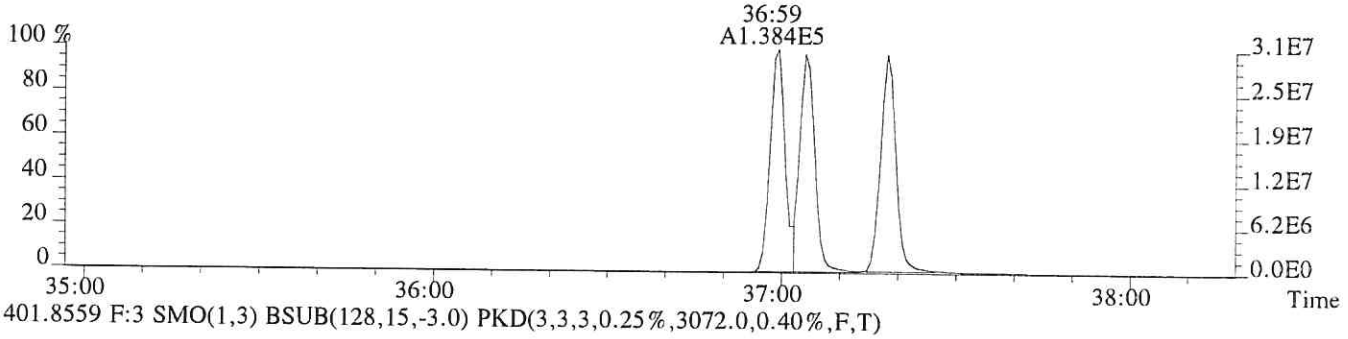
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



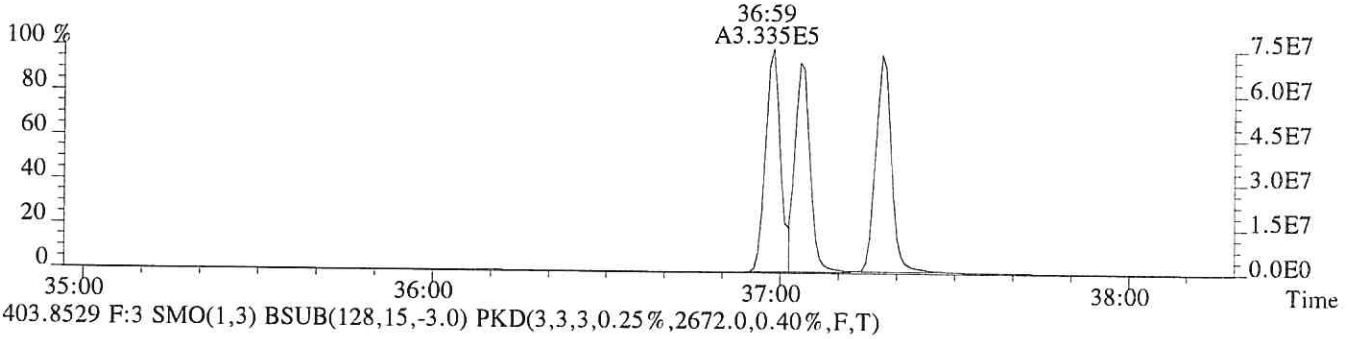
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



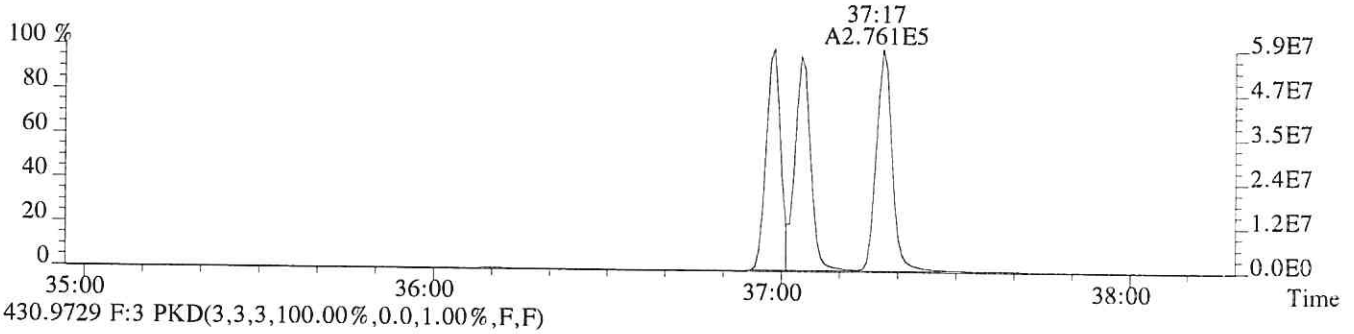
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



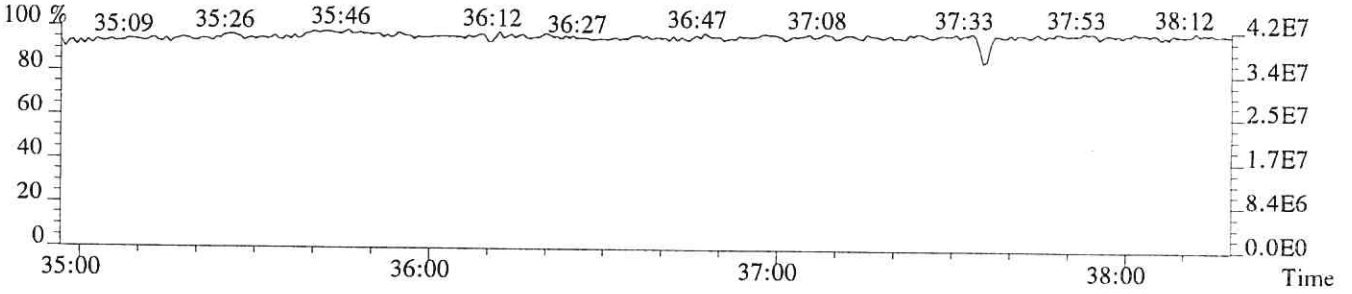
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



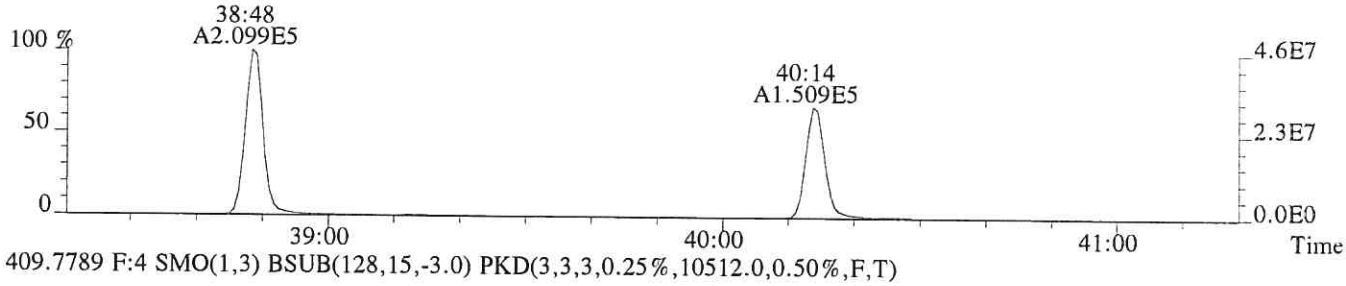
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)



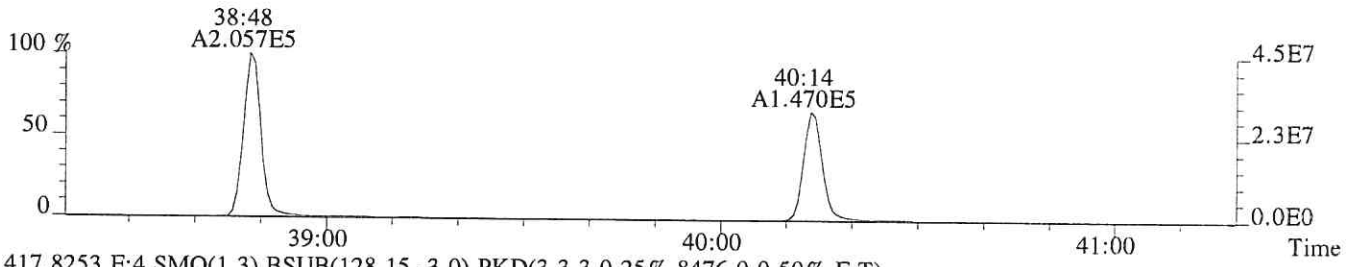
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



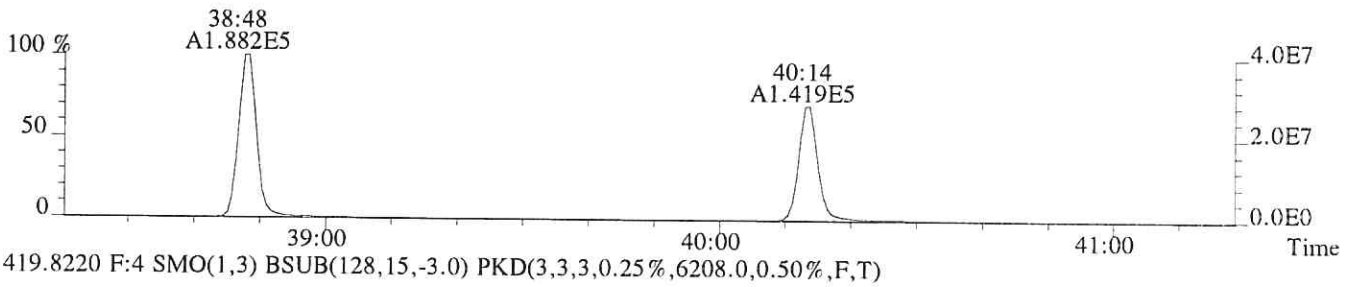
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



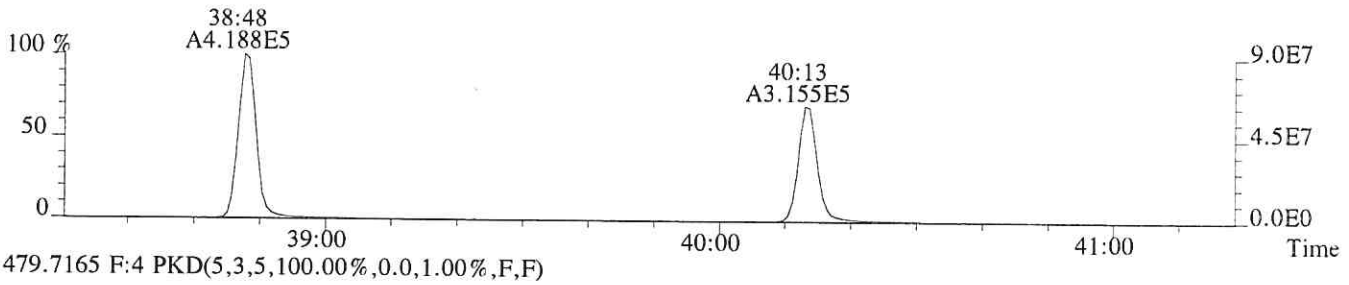
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



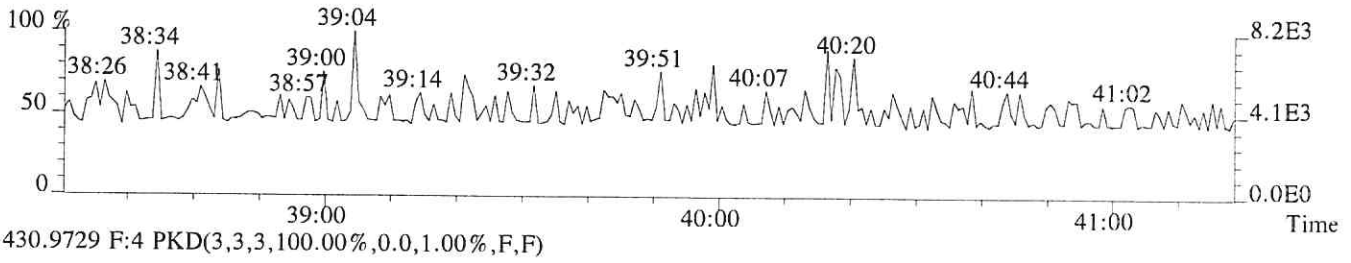
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



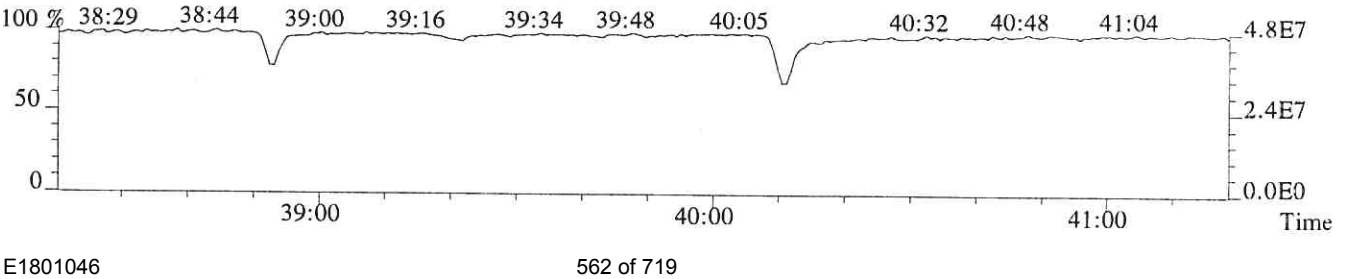
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



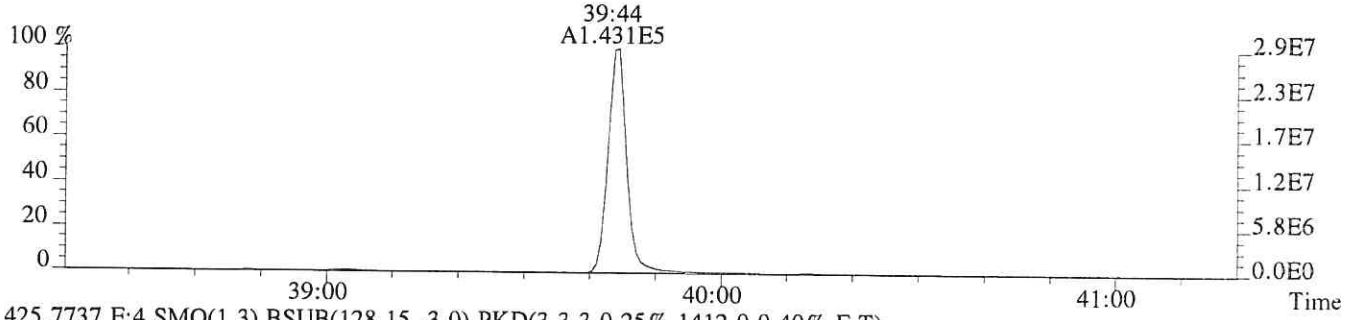
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



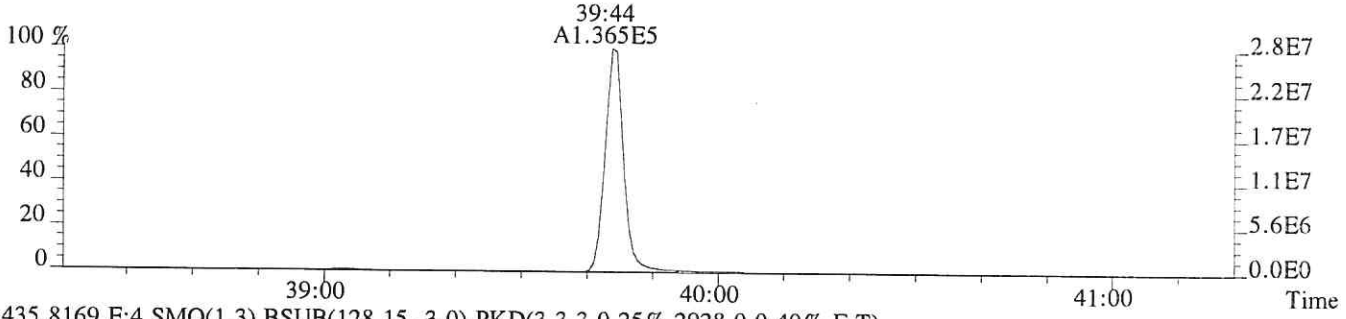
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



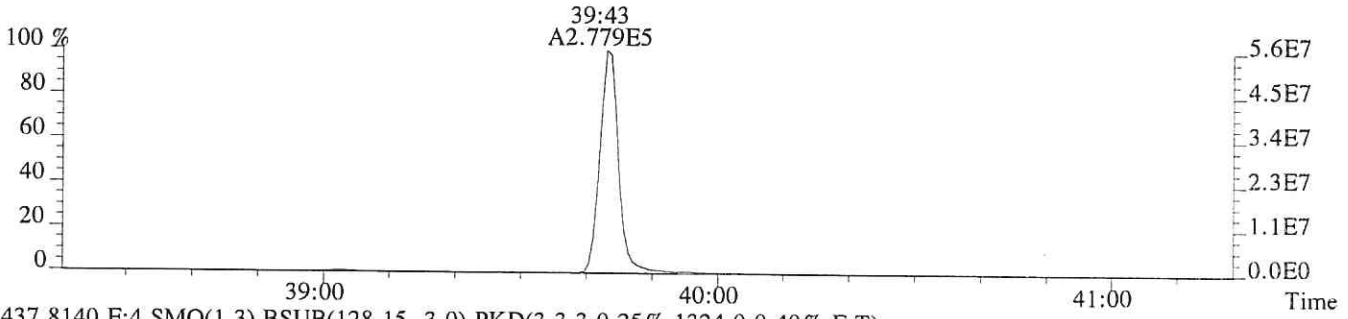
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



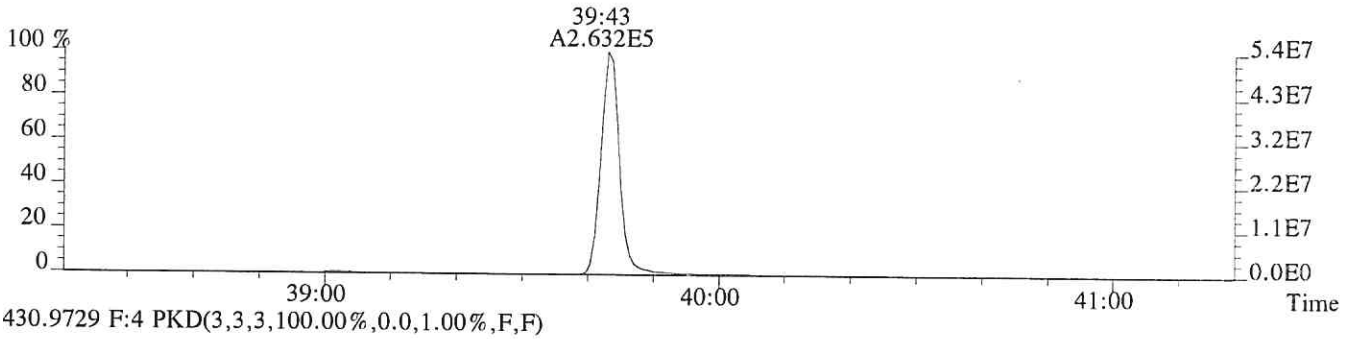
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



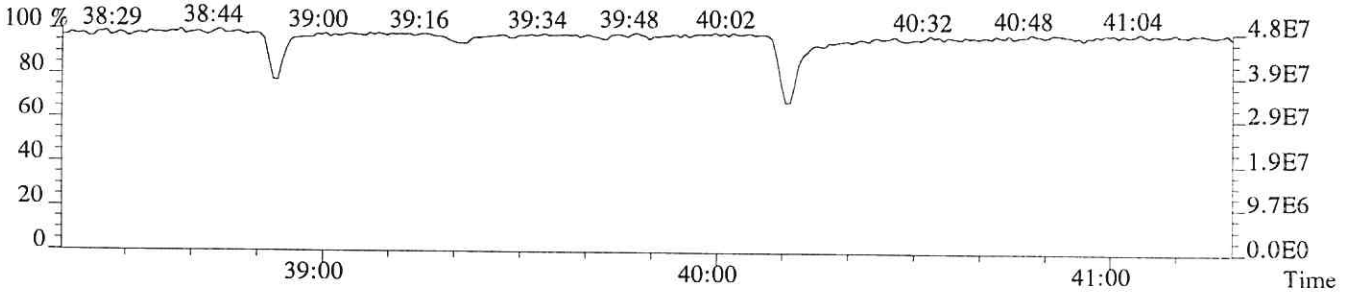
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



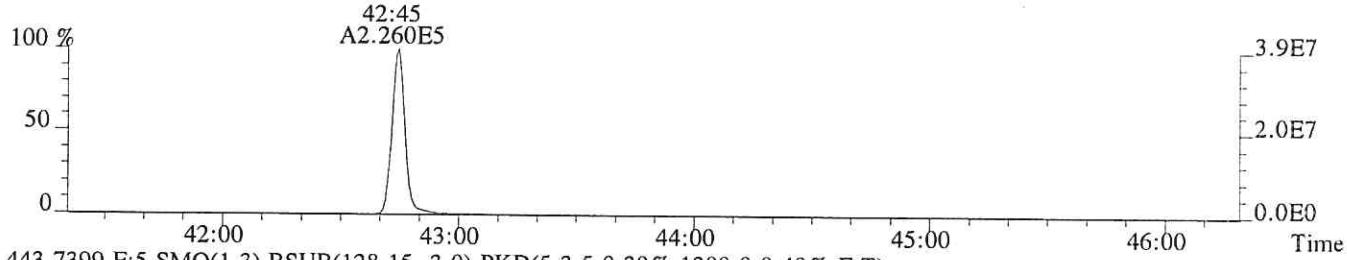
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



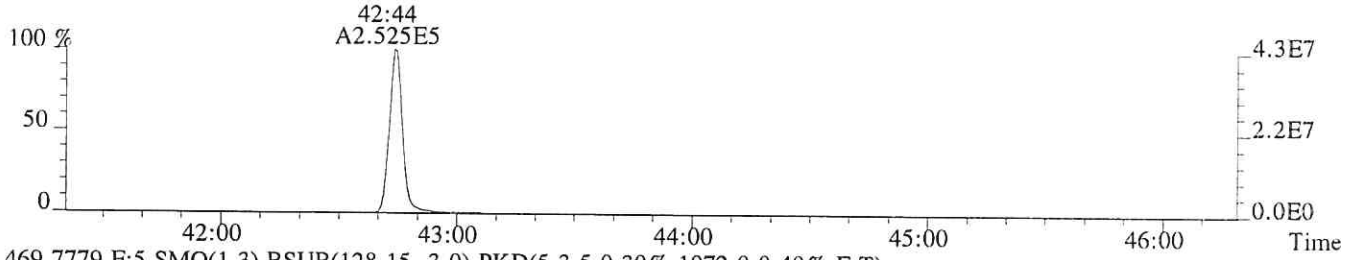
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



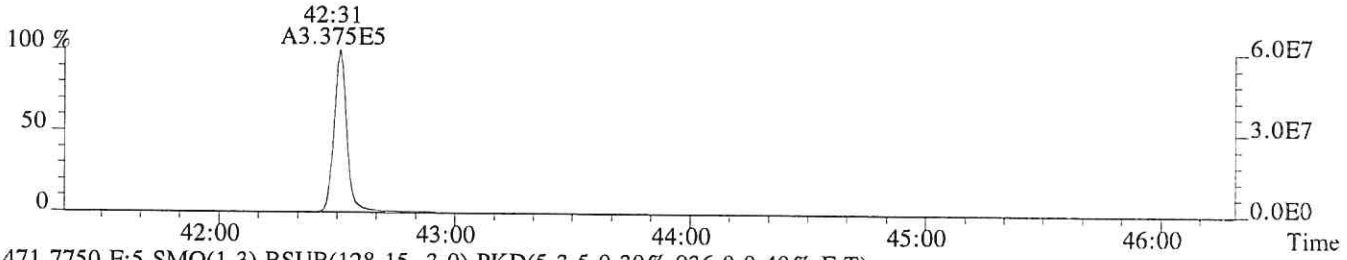
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



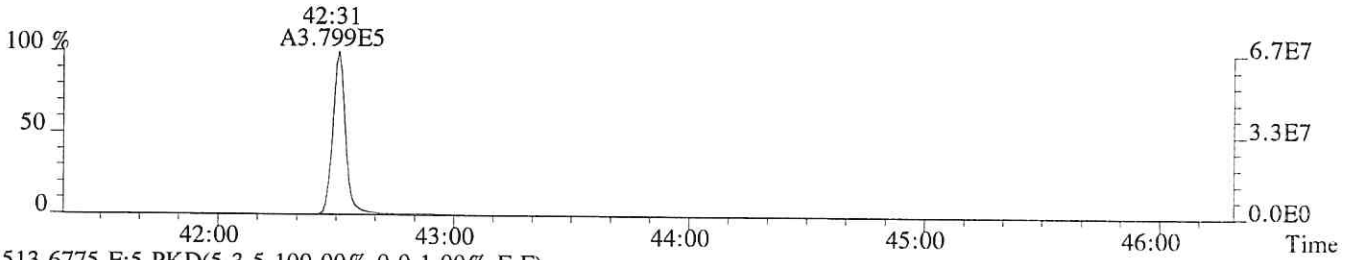
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



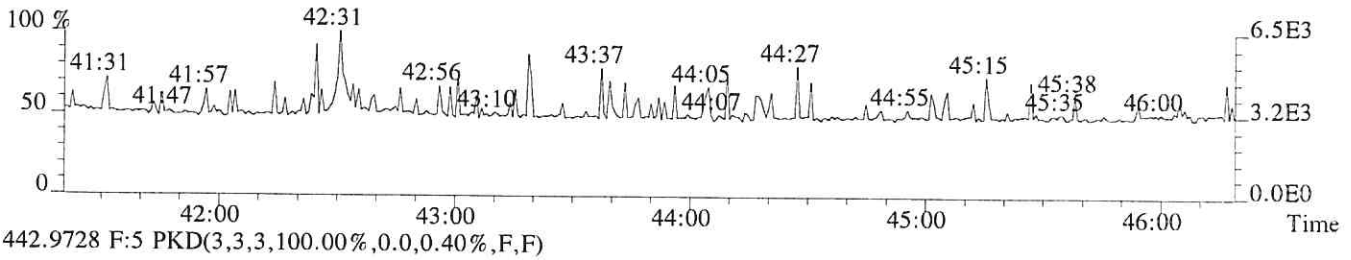
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



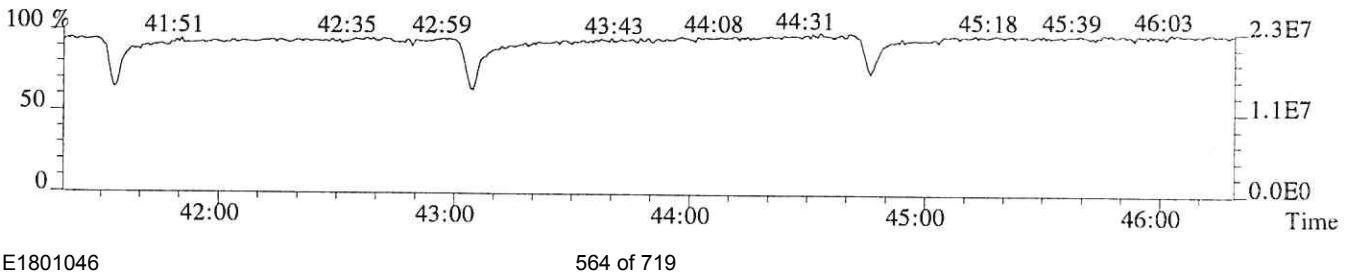
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



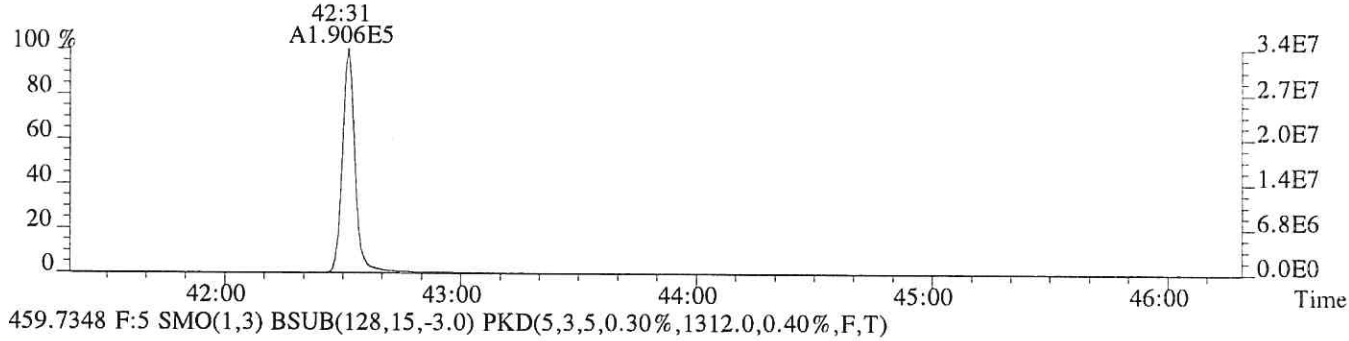
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



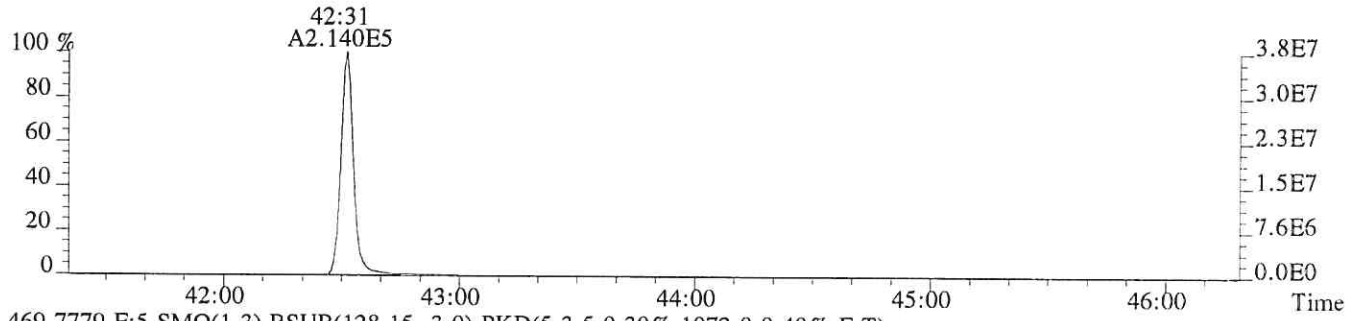
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



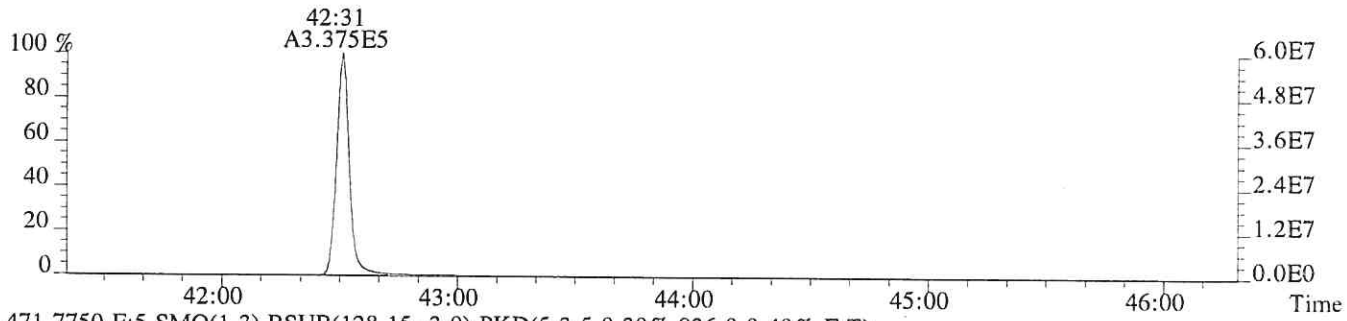
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



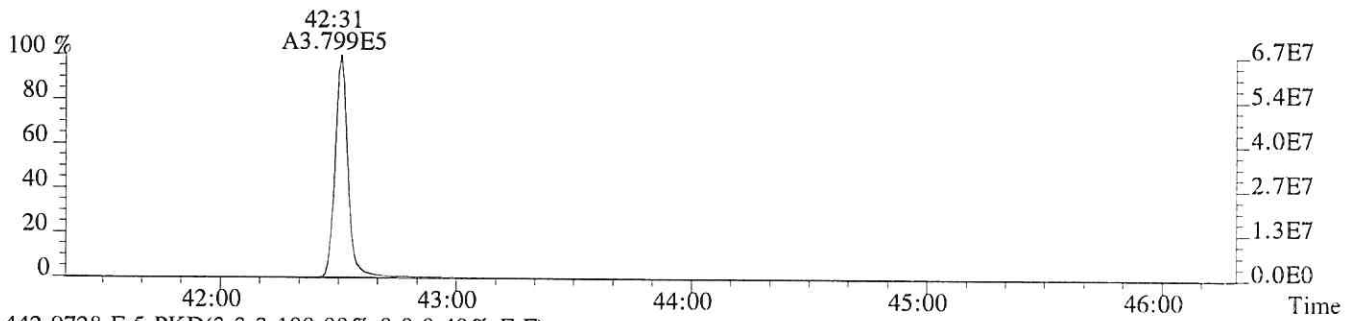
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



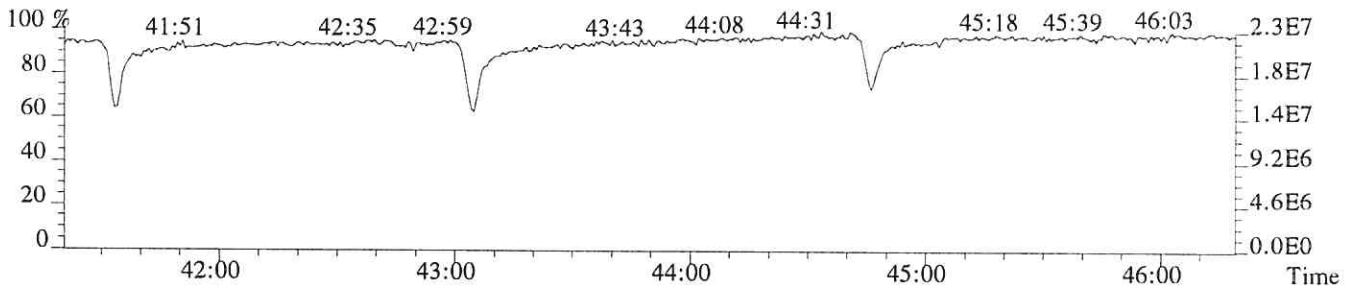
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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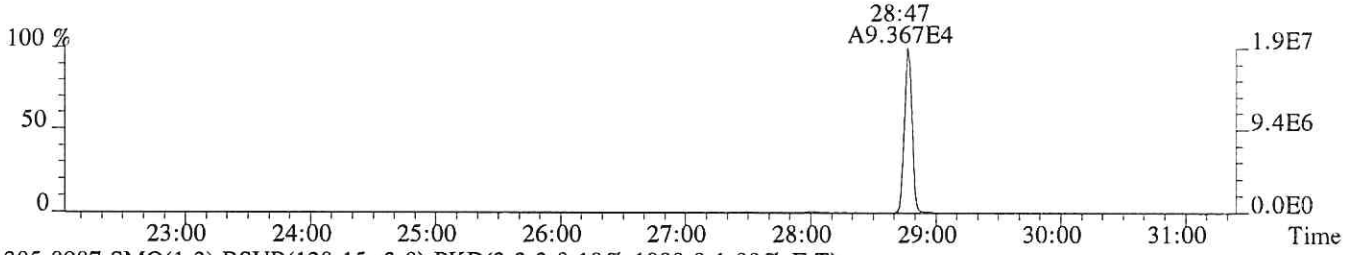
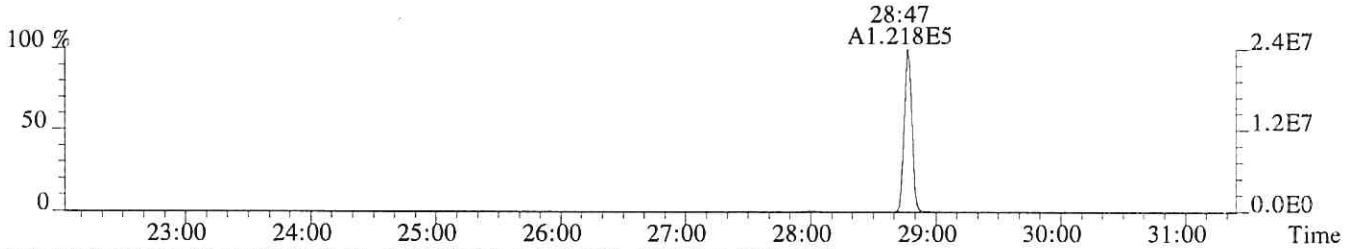
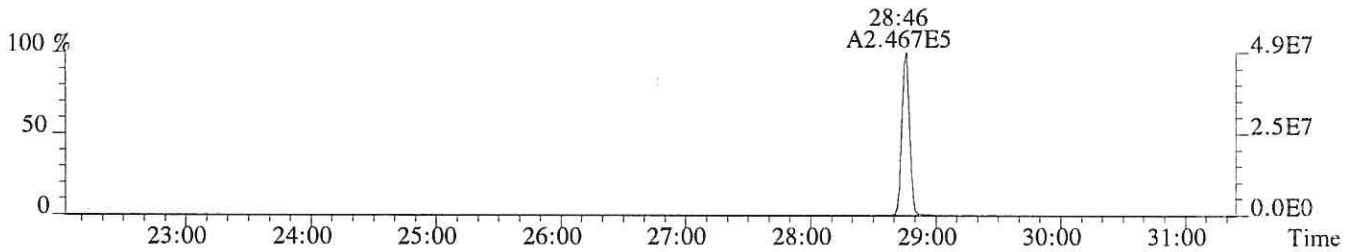
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



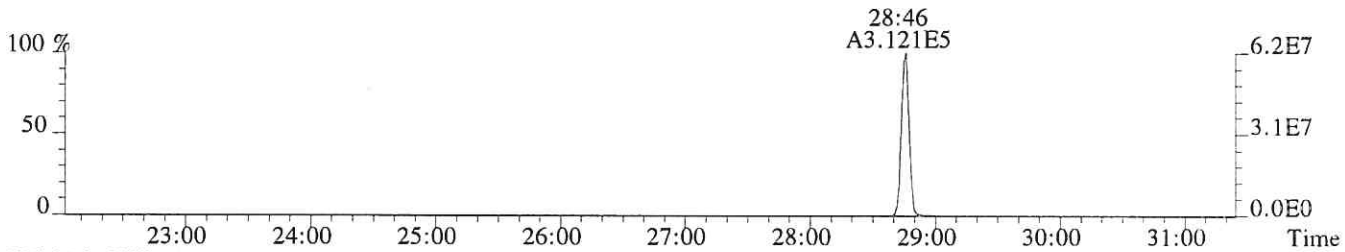
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



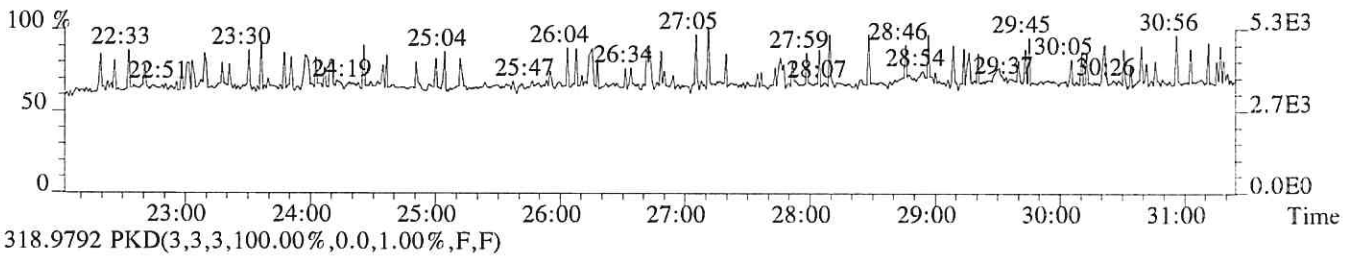
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



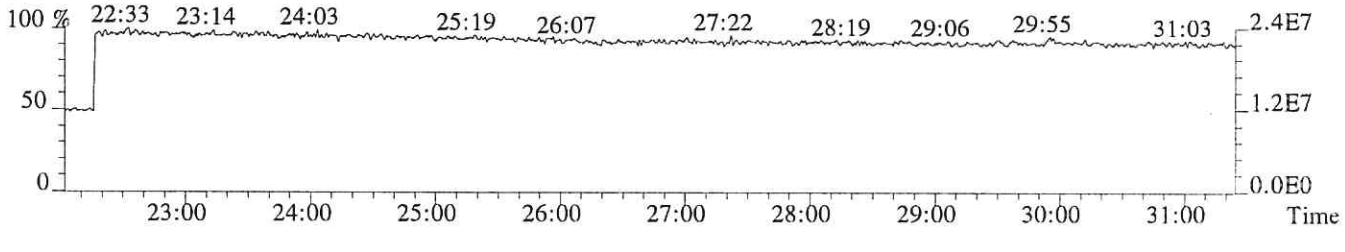
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



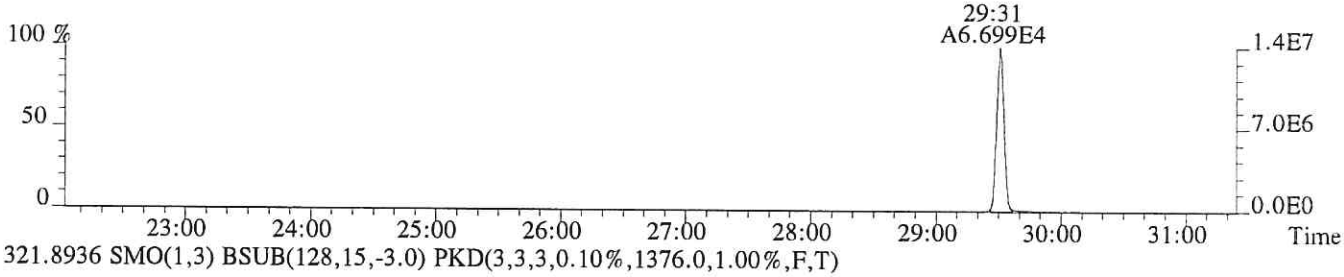
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



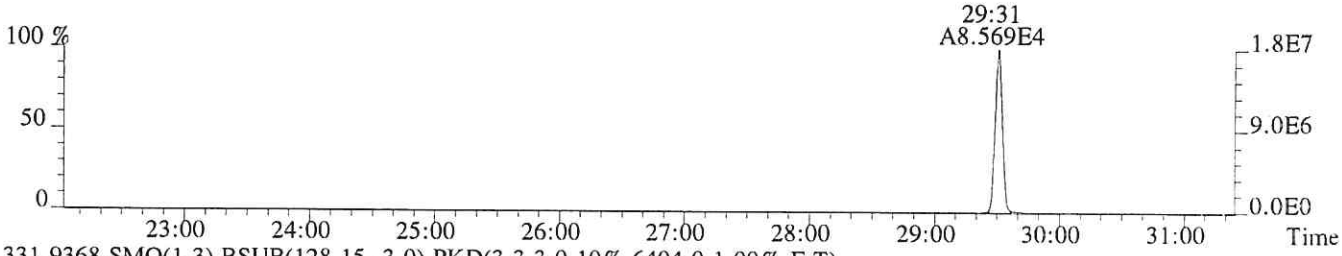
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



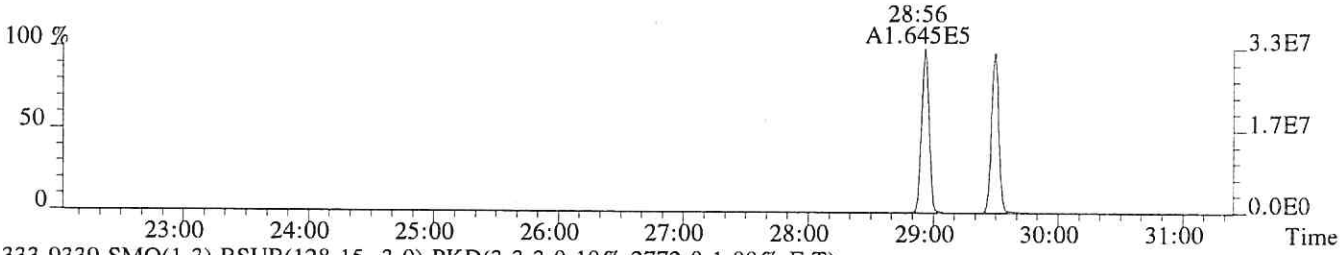
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



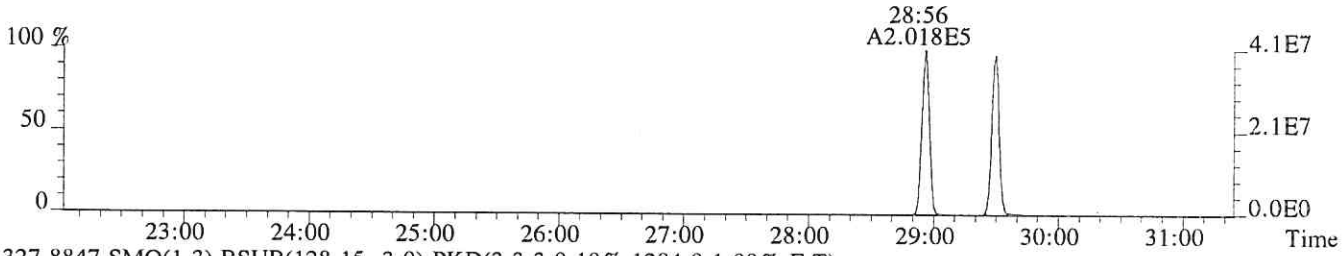
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



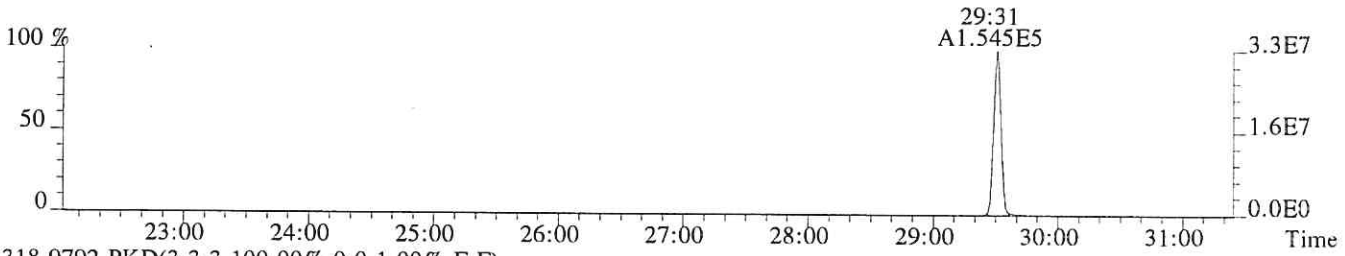
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



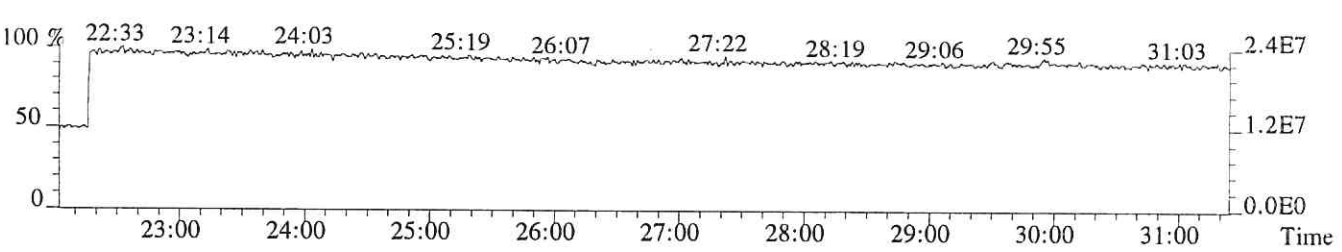
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



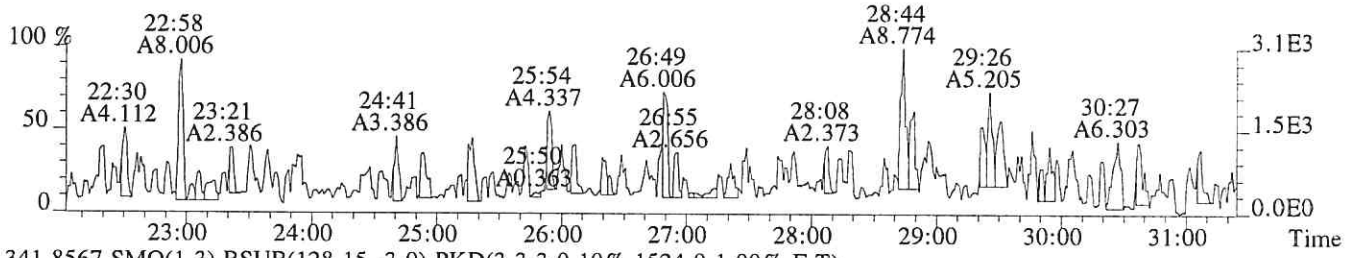
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



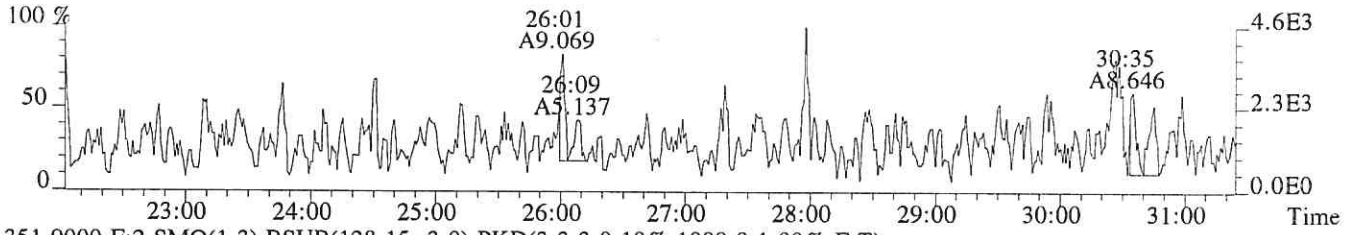
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



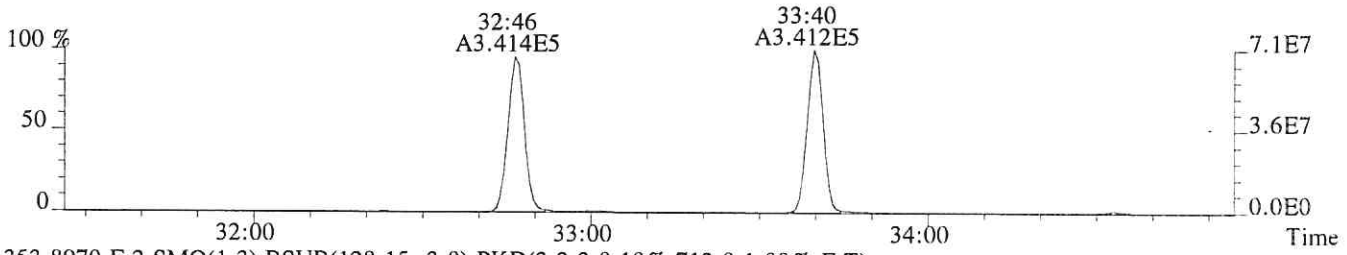
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



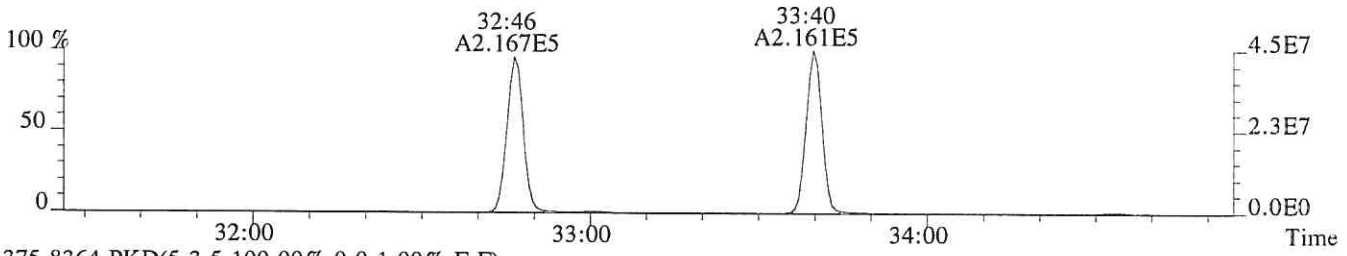
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



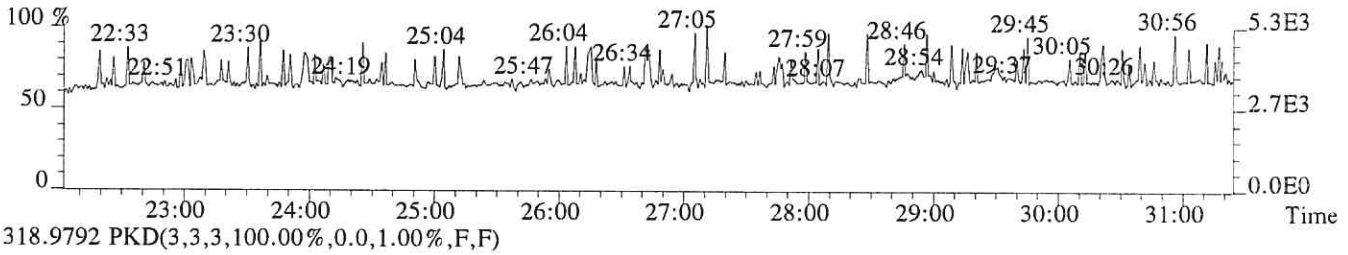
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



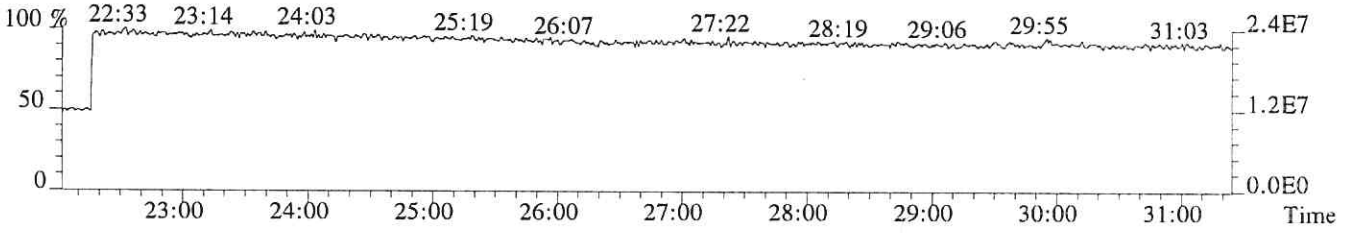
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



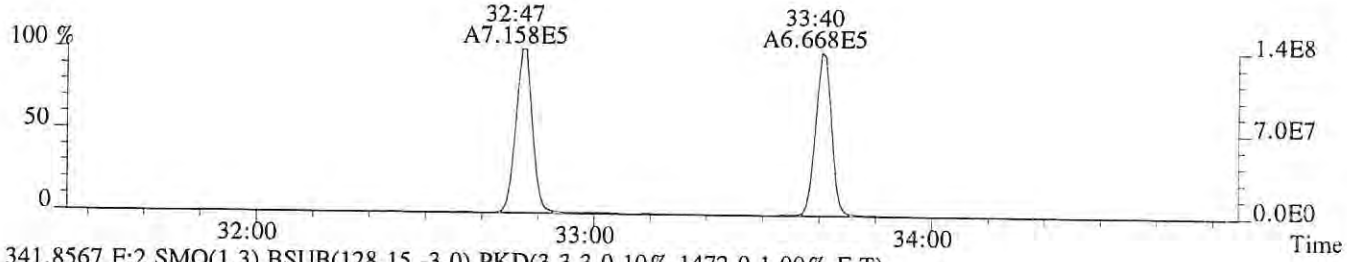
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



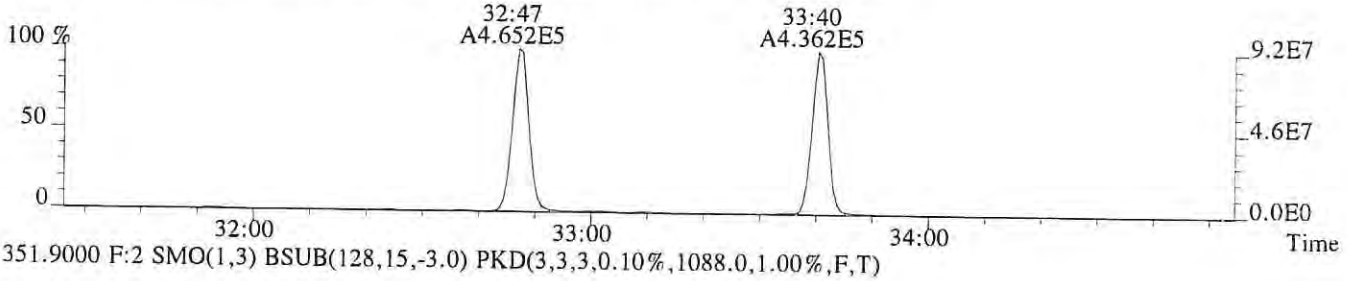
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



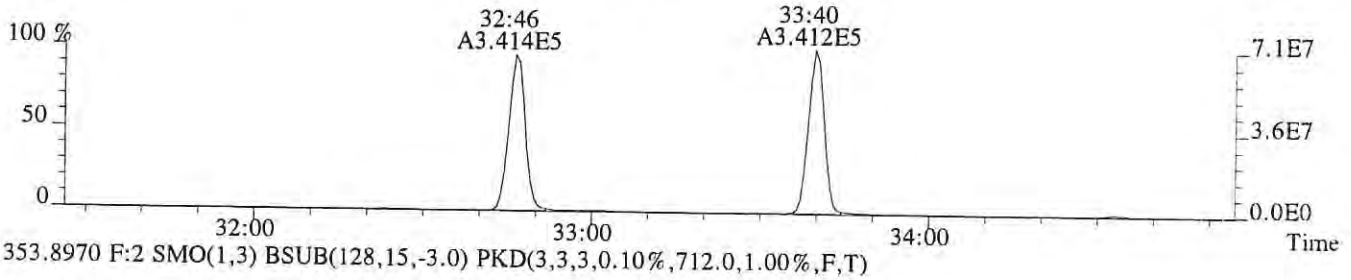
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



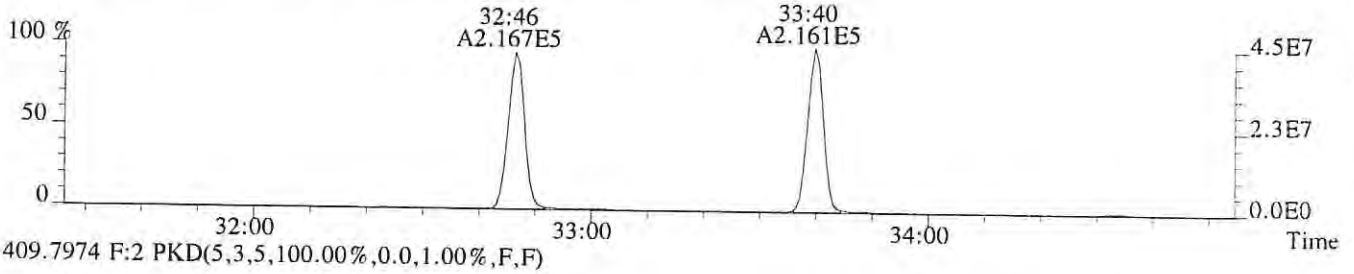
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



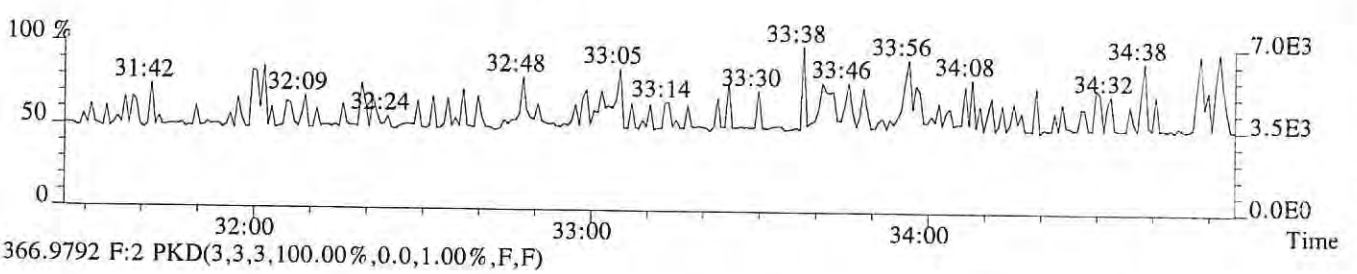
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



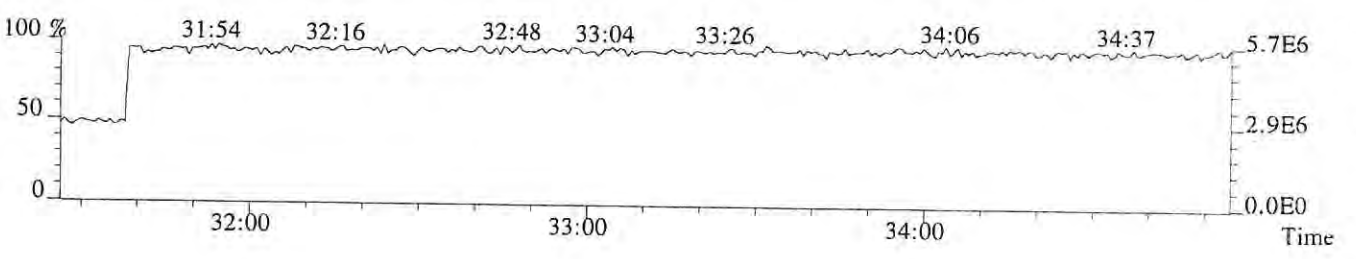
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



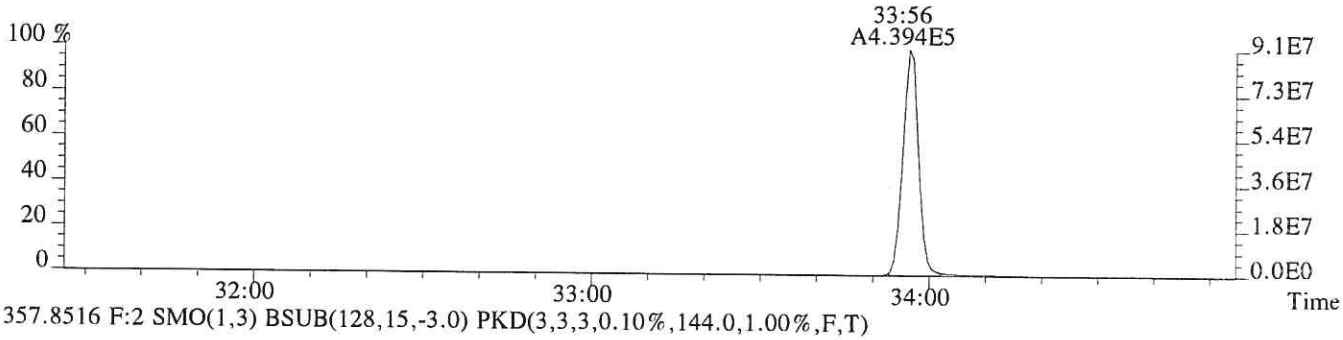
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



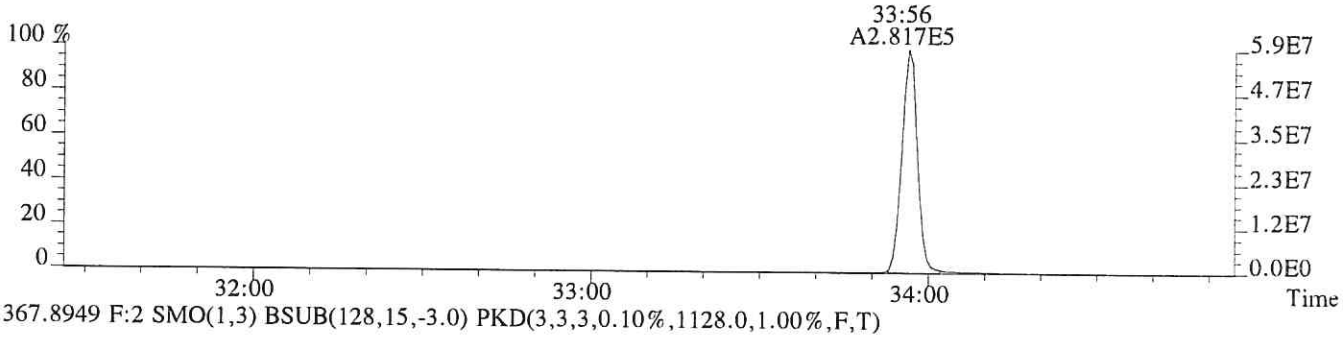
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



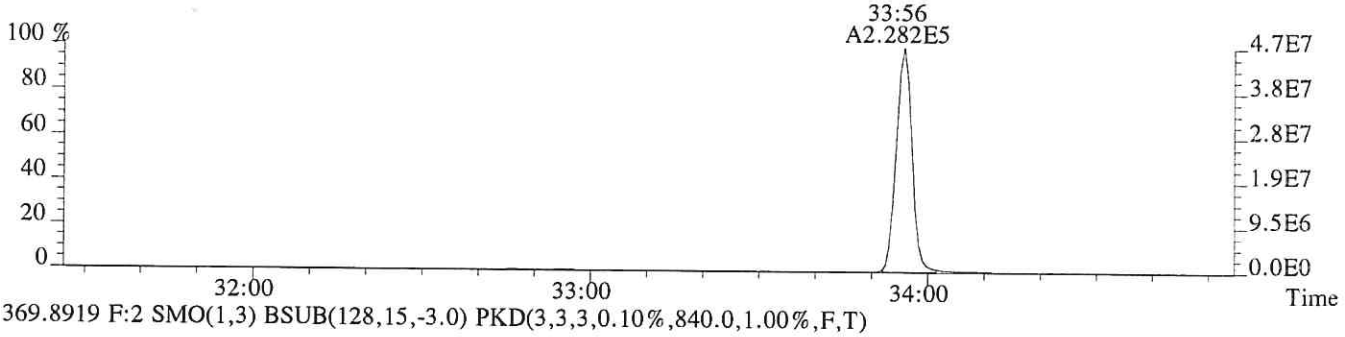
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



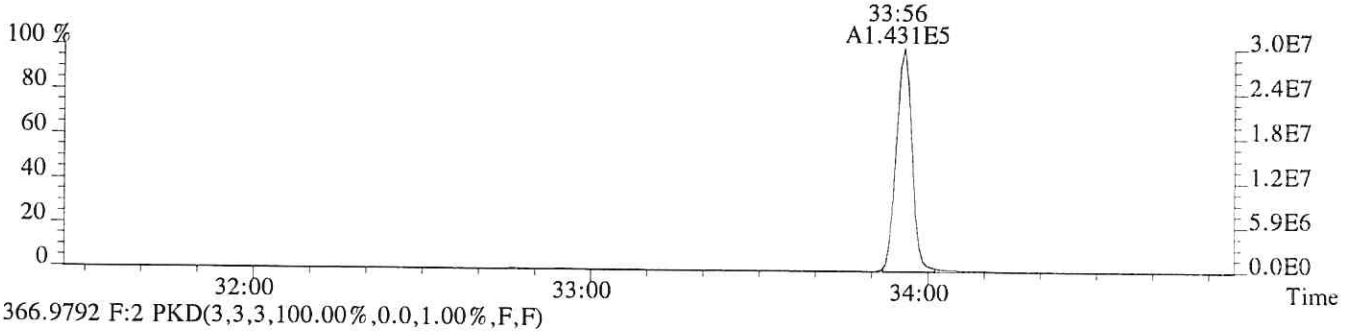
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



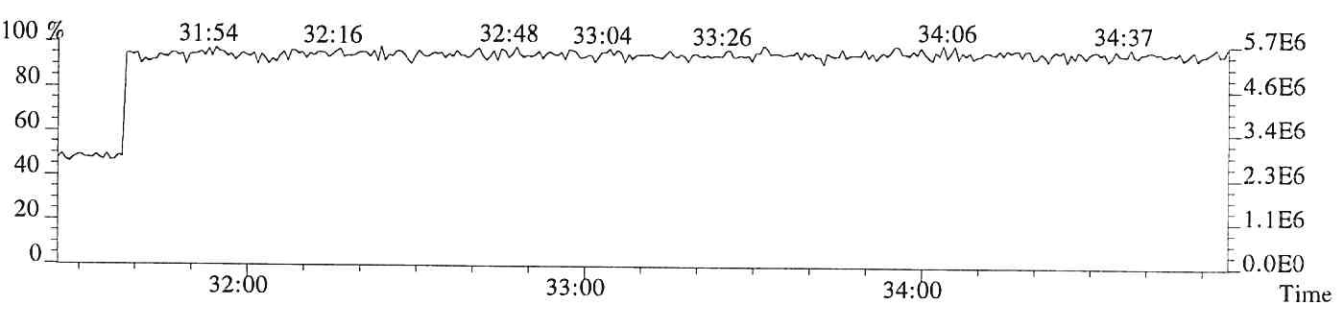
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



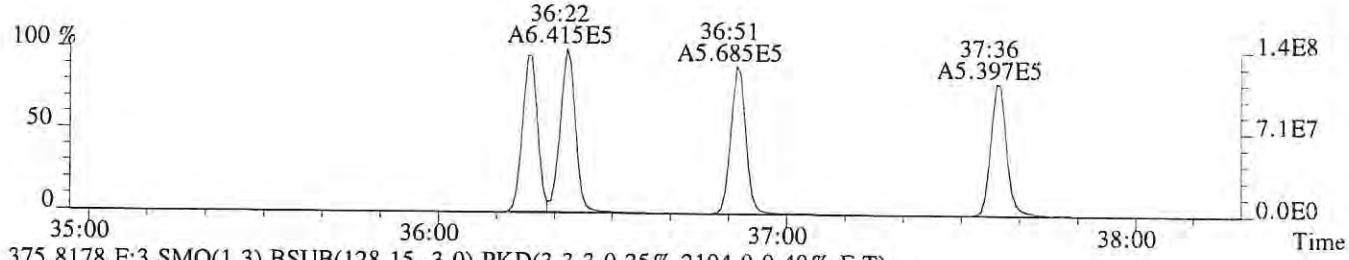
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



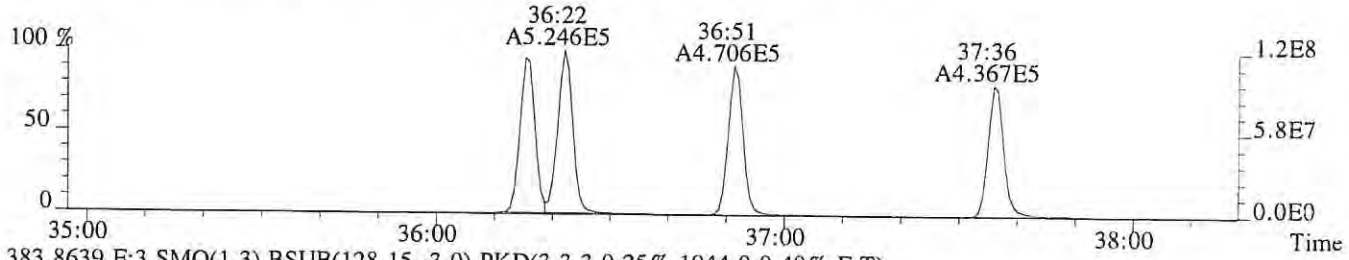
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



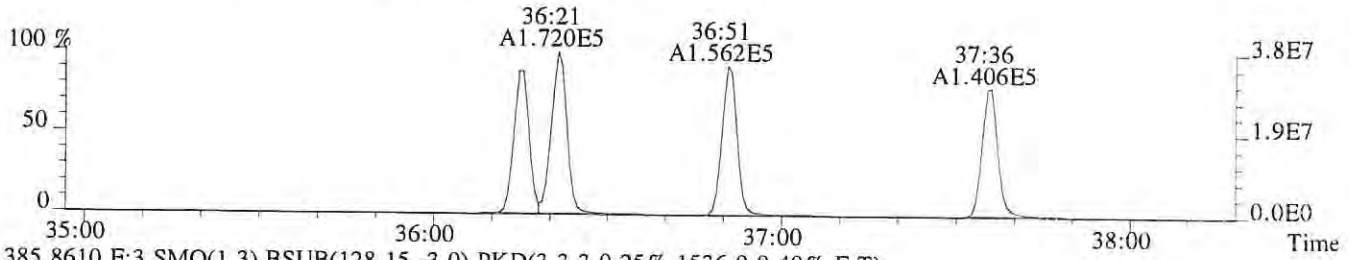
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



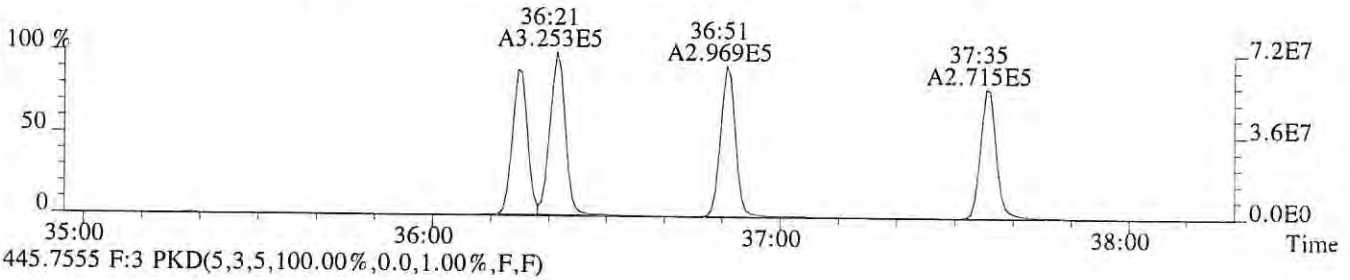
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



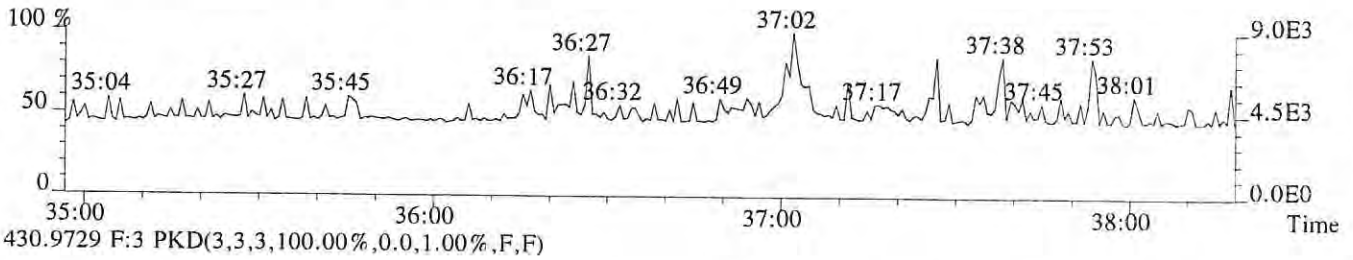
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



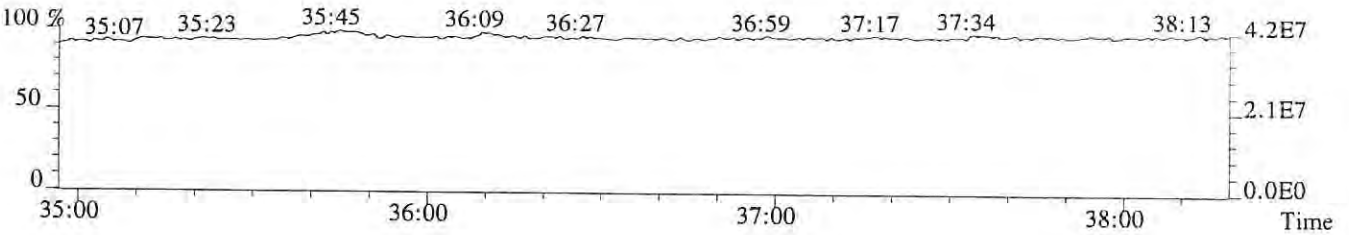
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



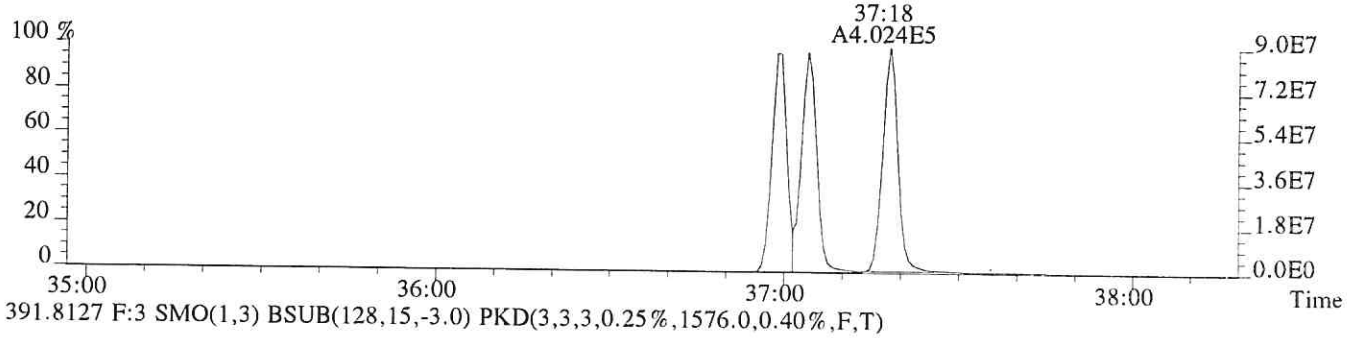
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



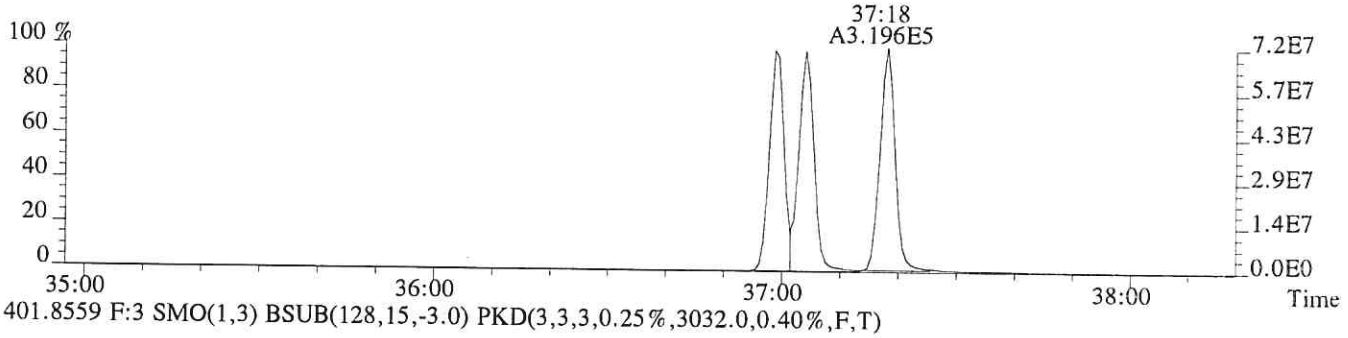
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



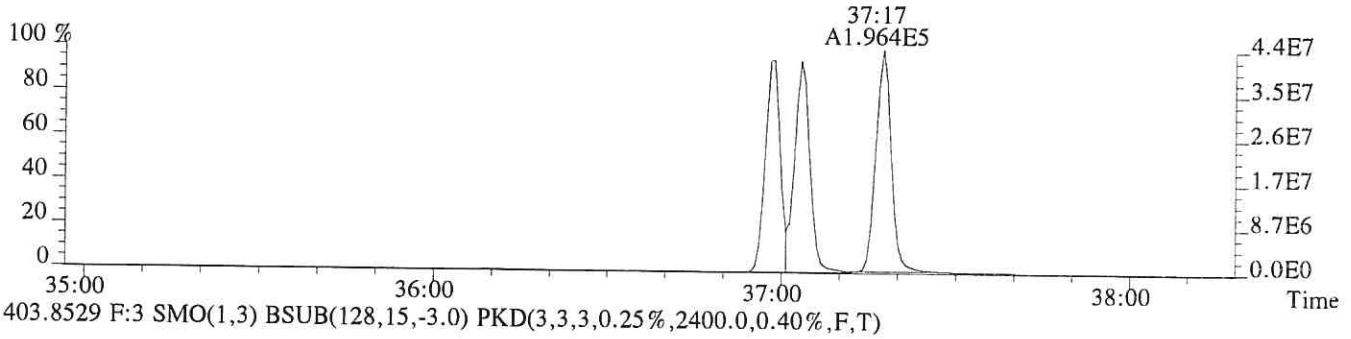
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



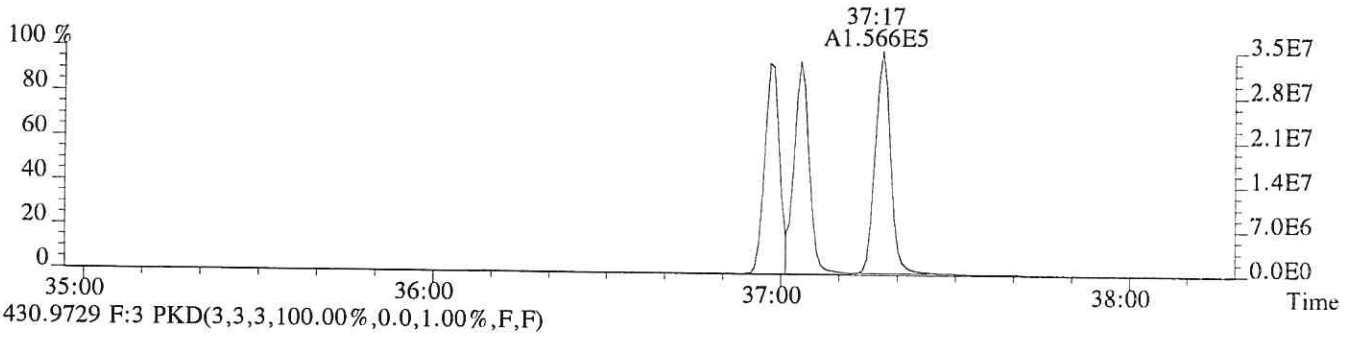
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



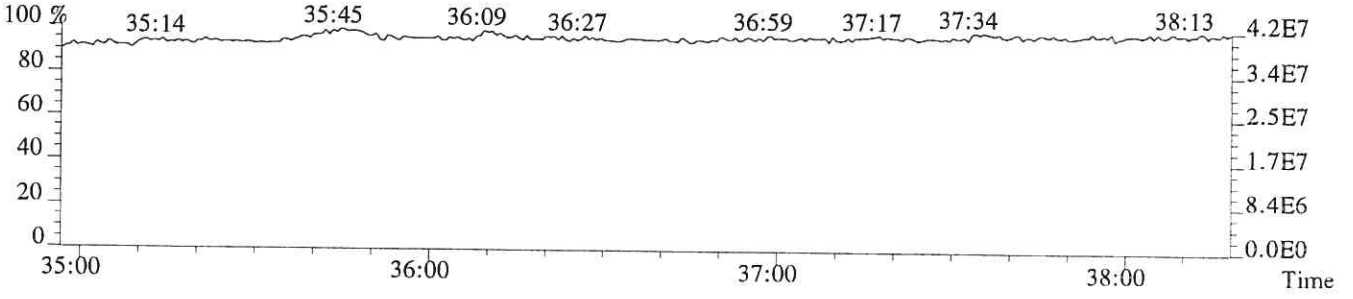
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



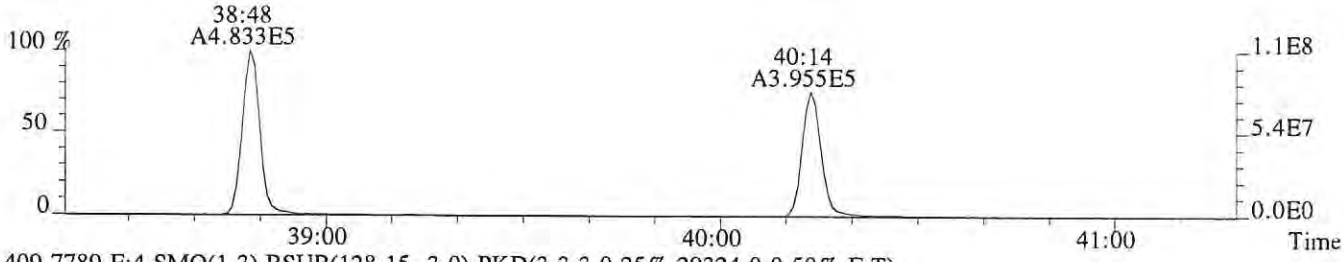
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



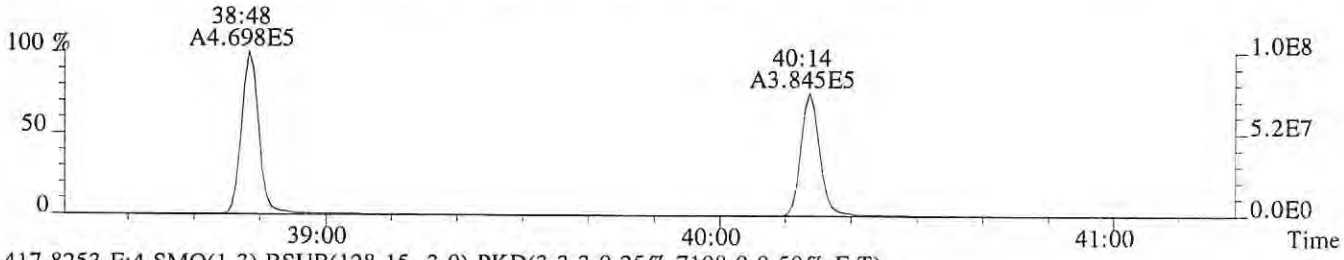
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



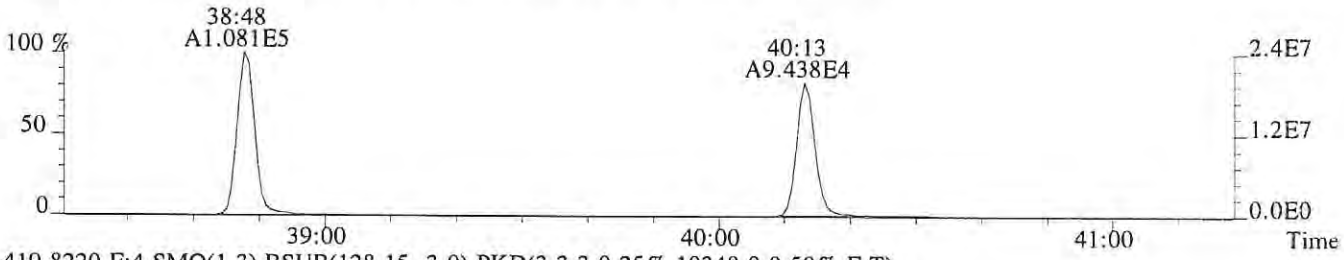
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



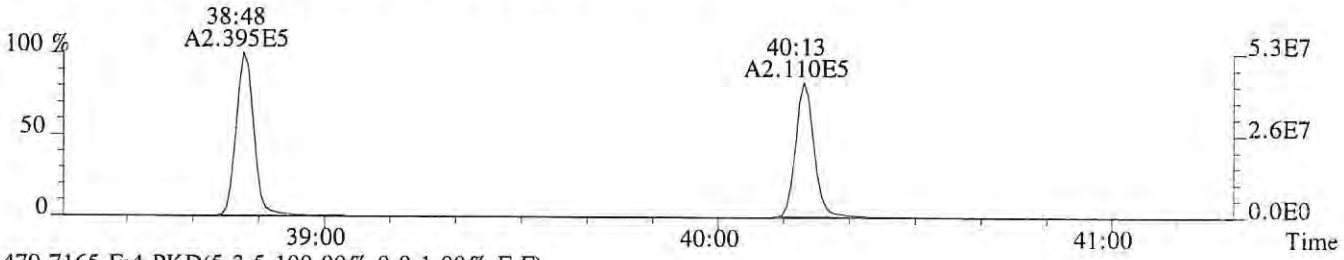
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



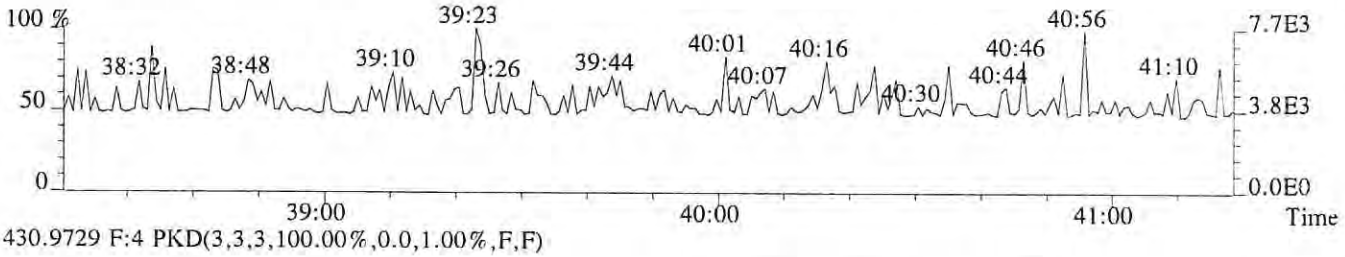
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



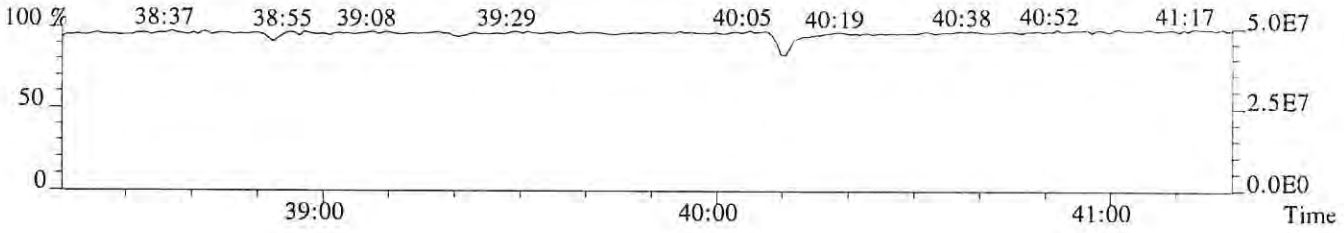
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



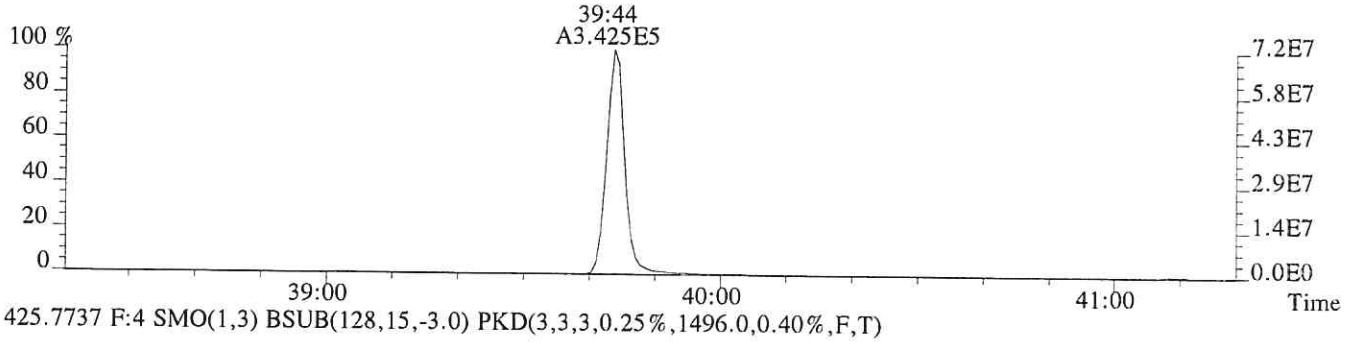
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



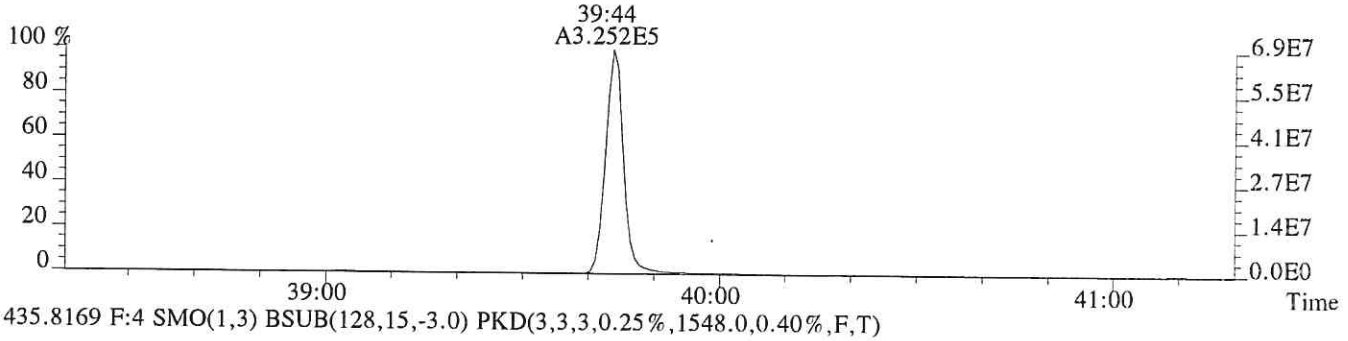
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



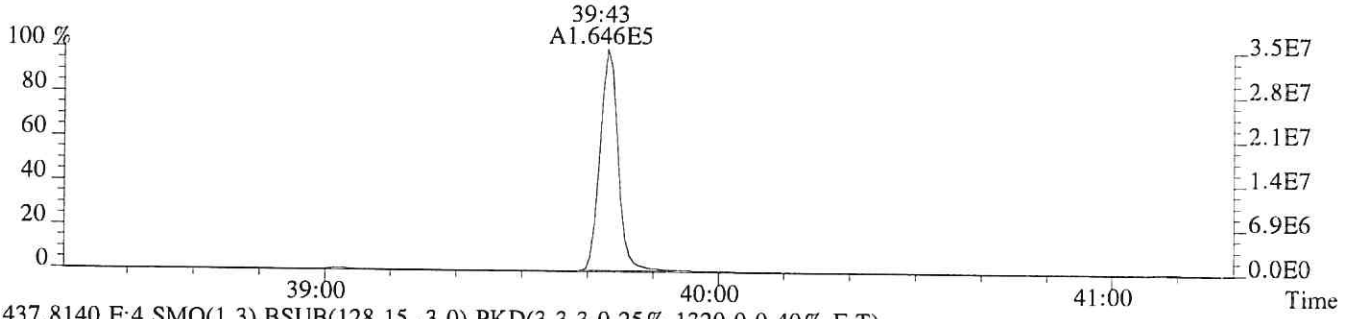
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



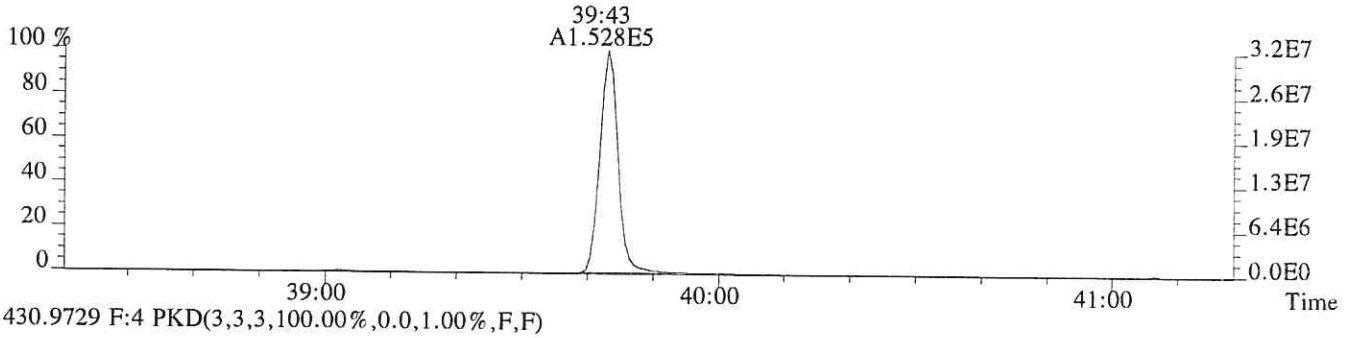
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



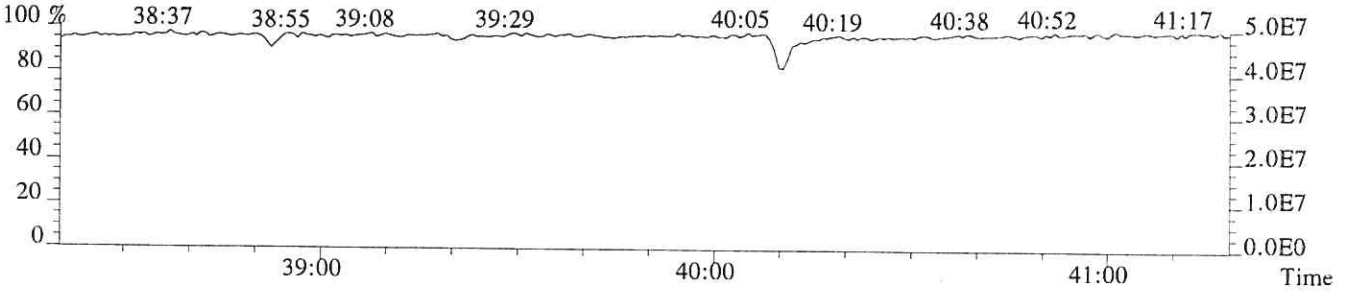
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



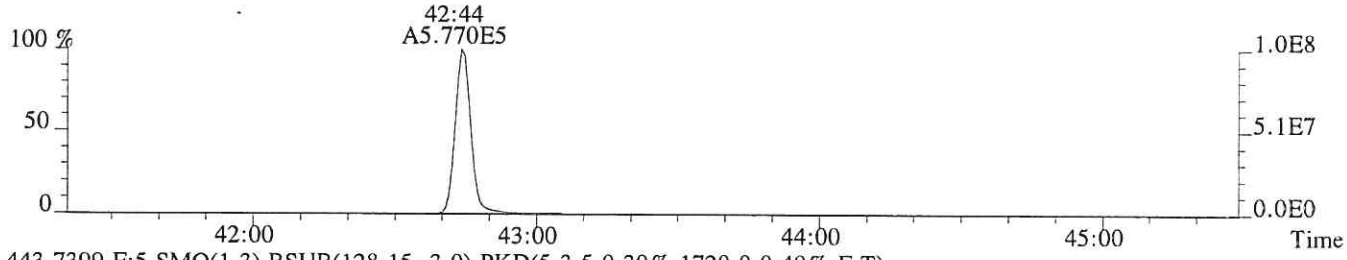
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



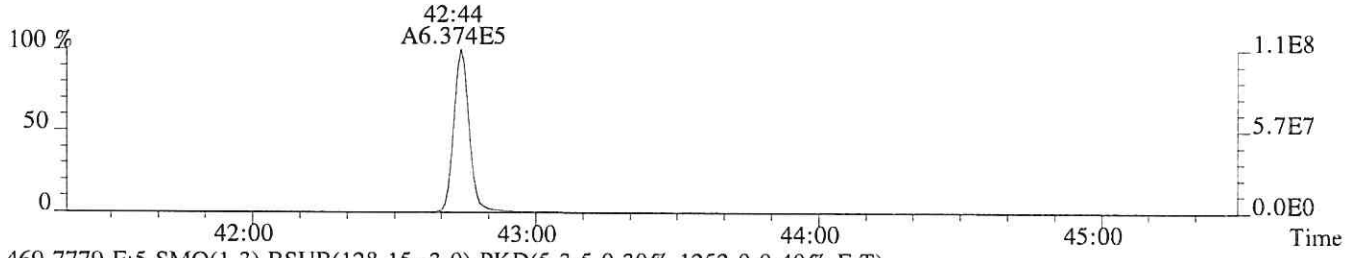
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



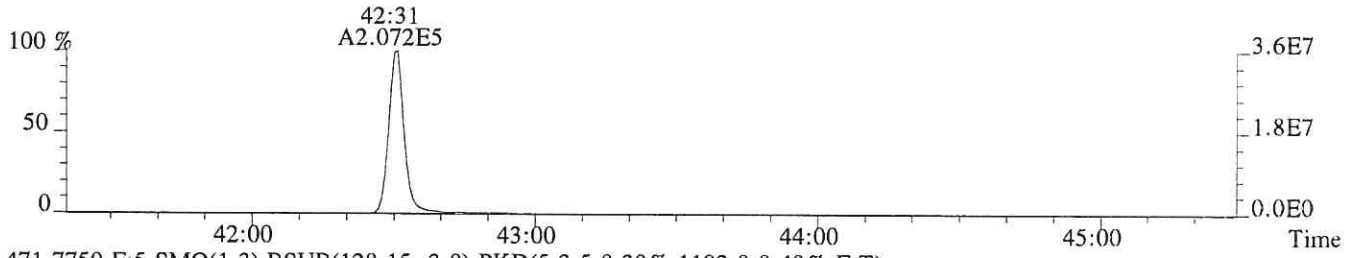
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



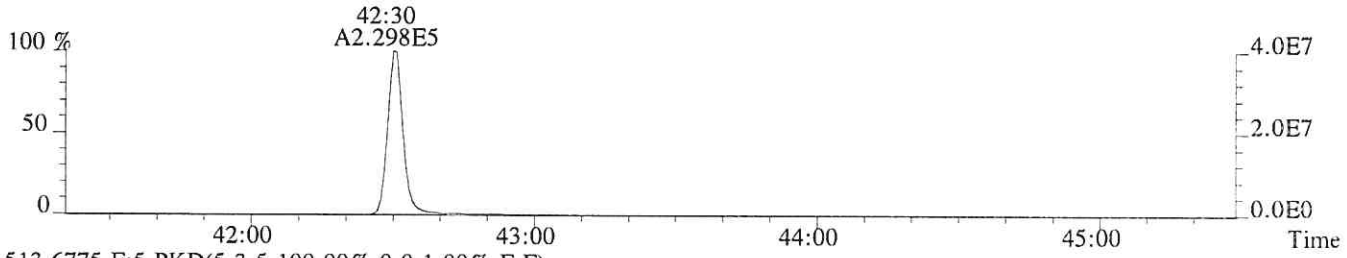
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



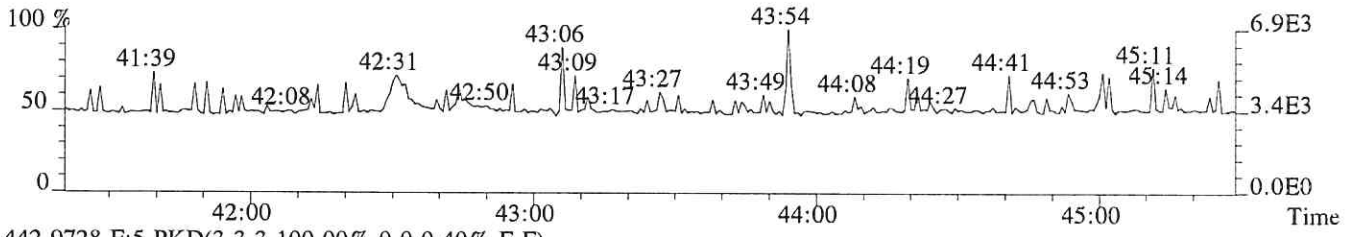
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



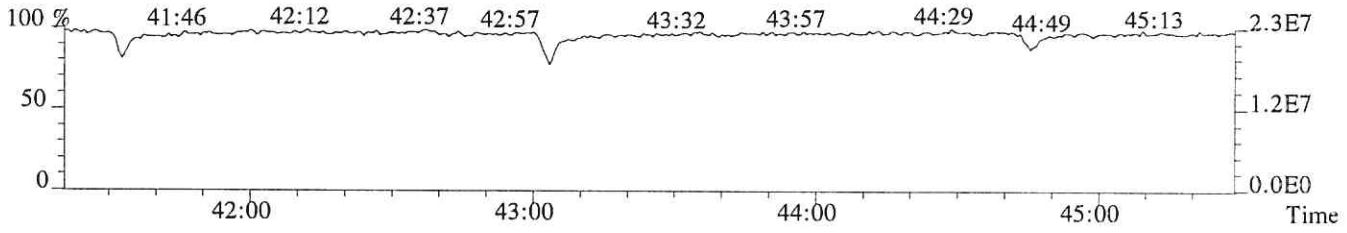
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



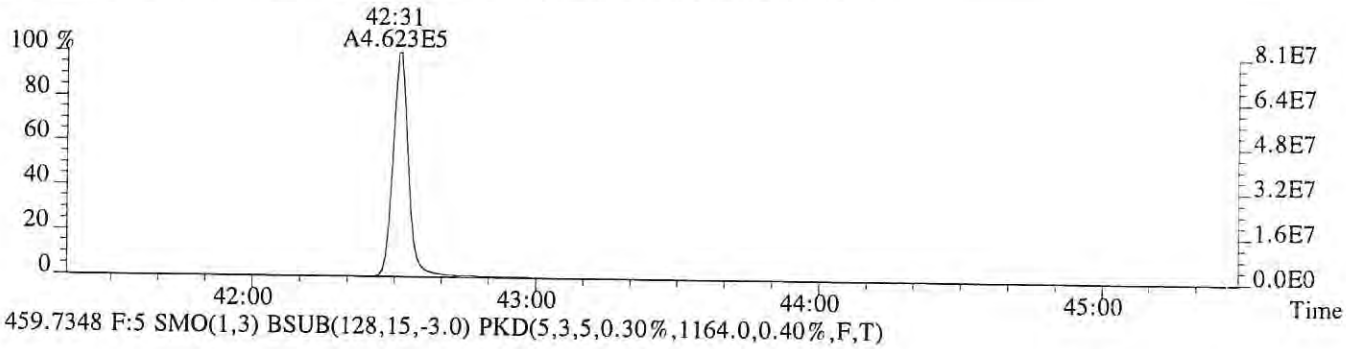
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



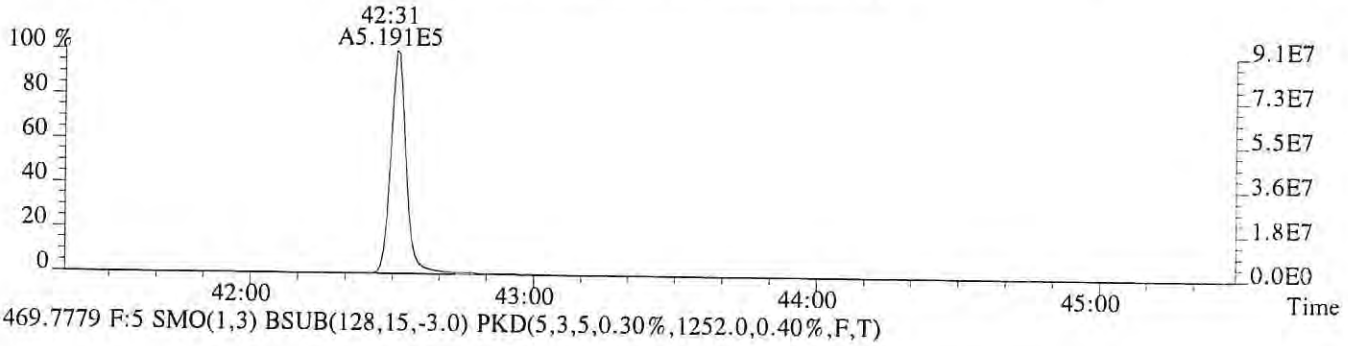
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



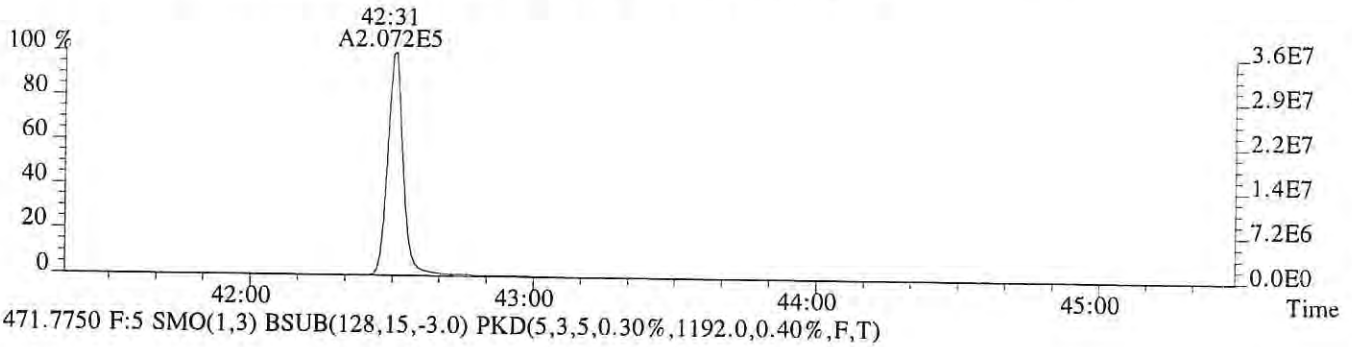
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



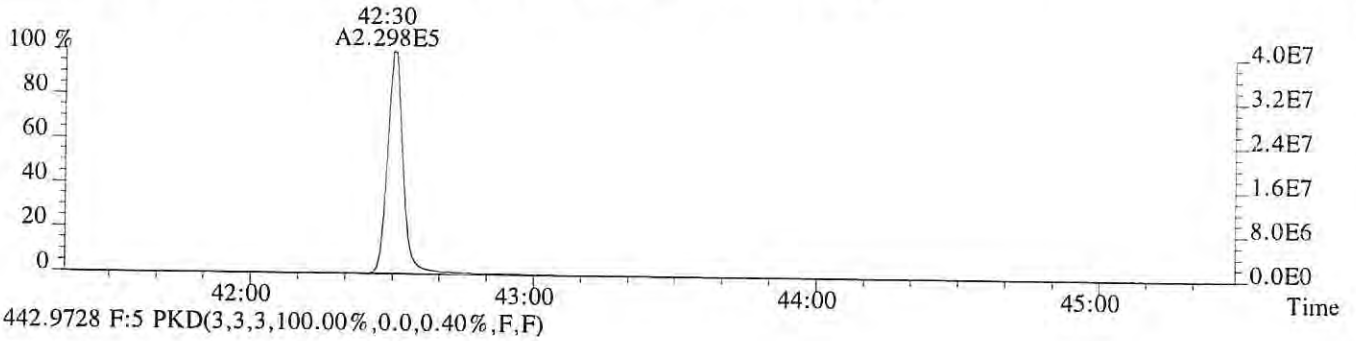
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



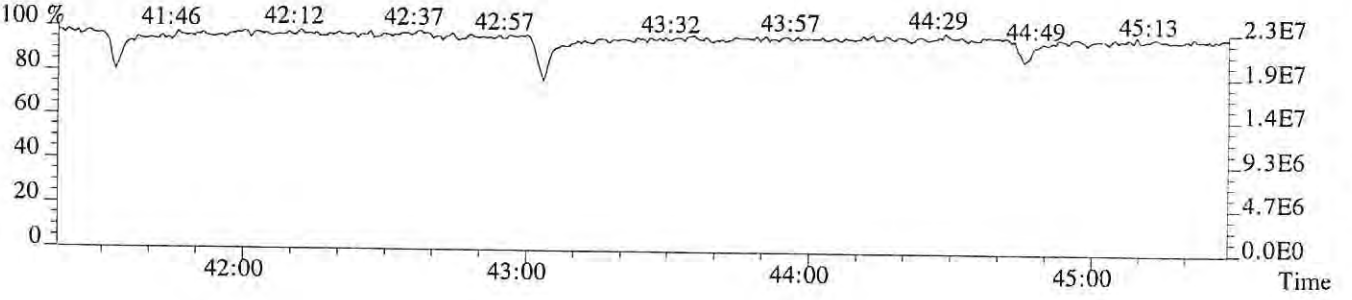
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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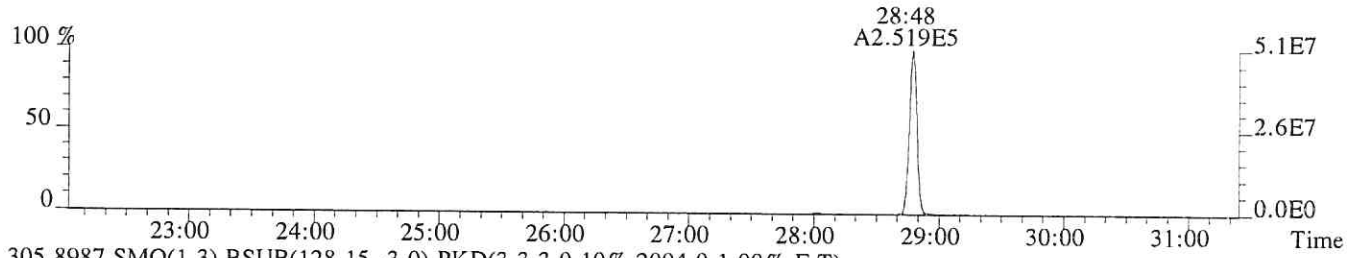
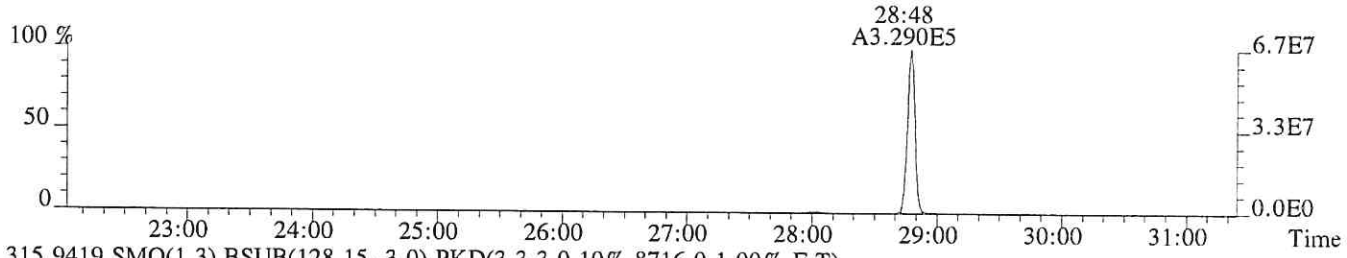
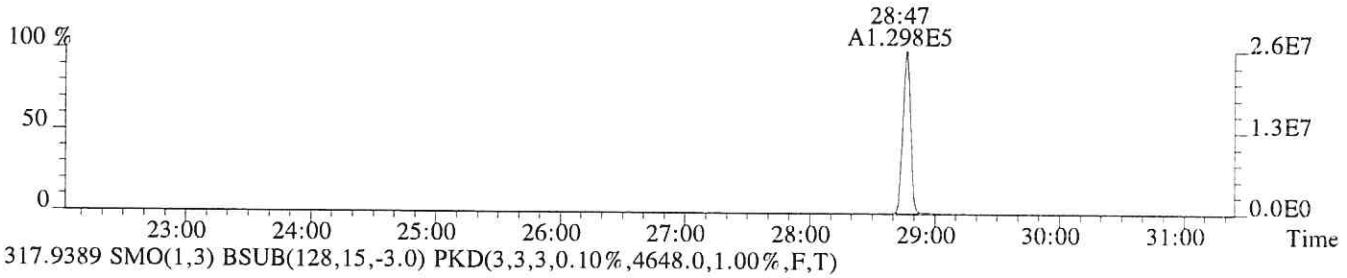
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



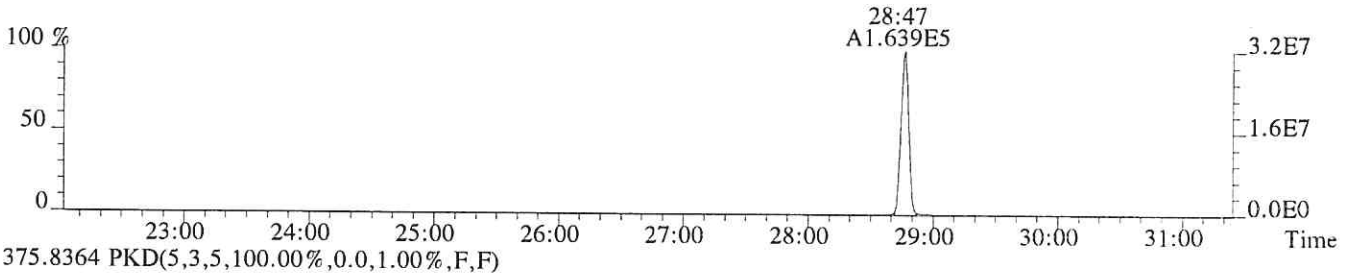
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



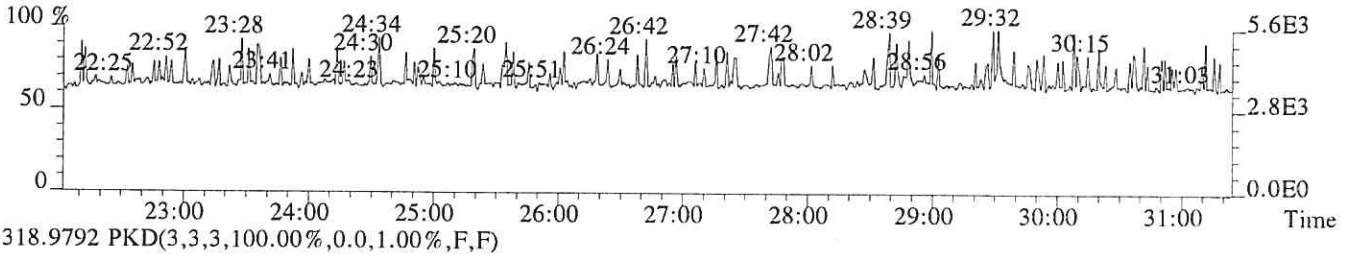
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



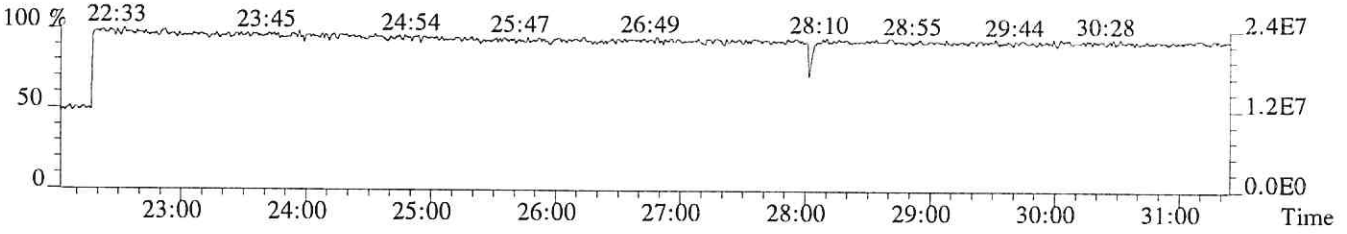
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



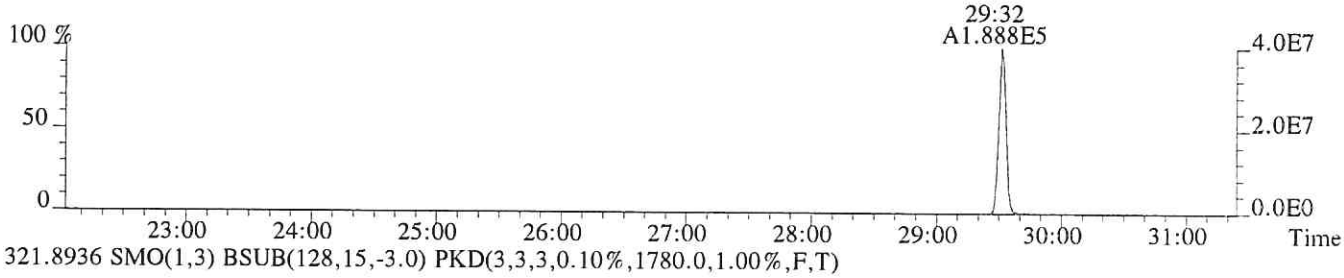
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



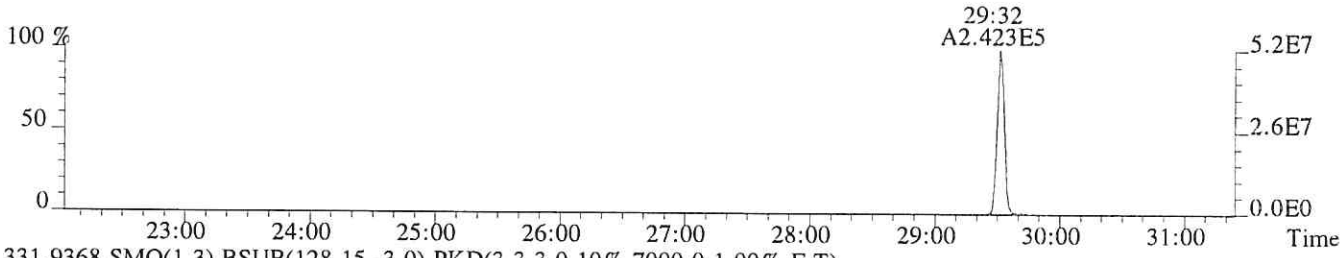
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



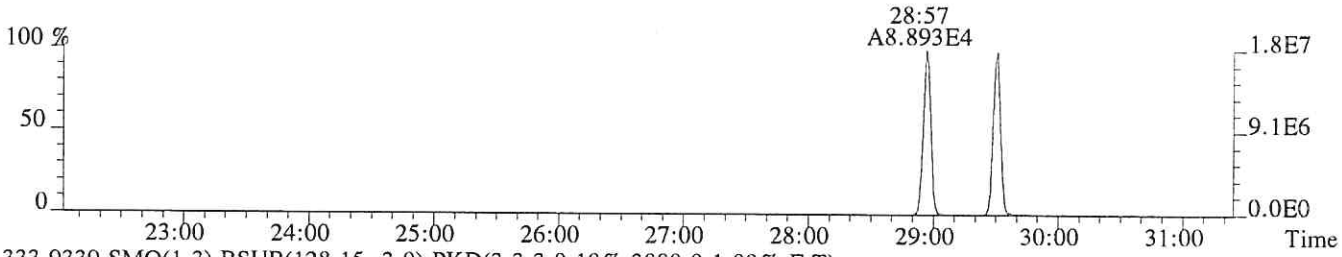
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



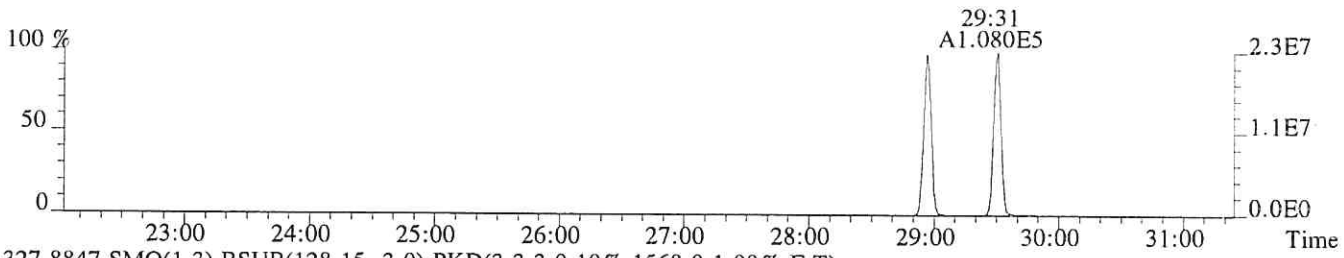
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



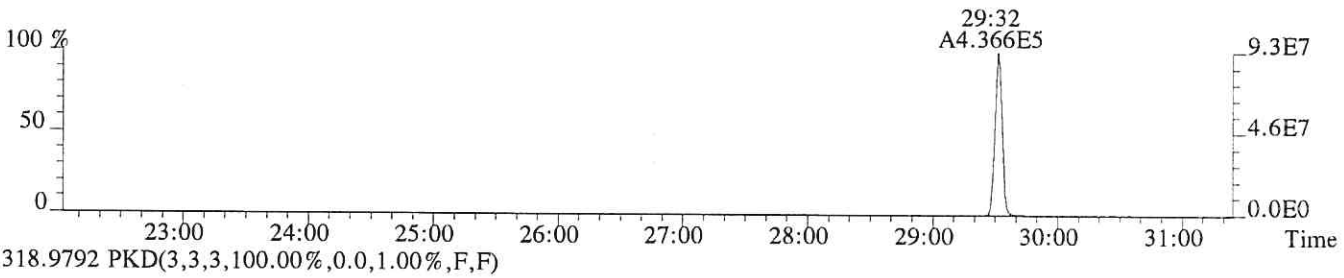
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



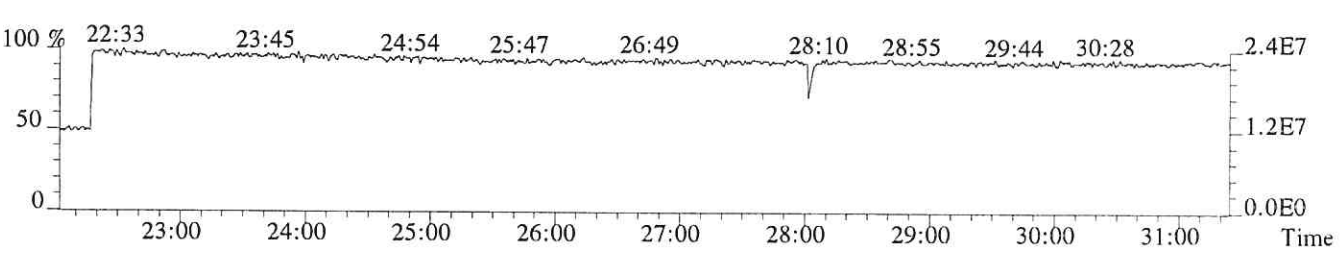
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



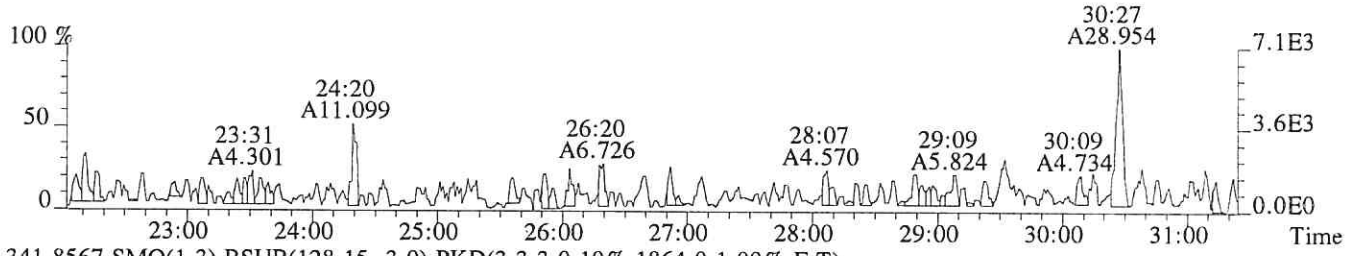
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



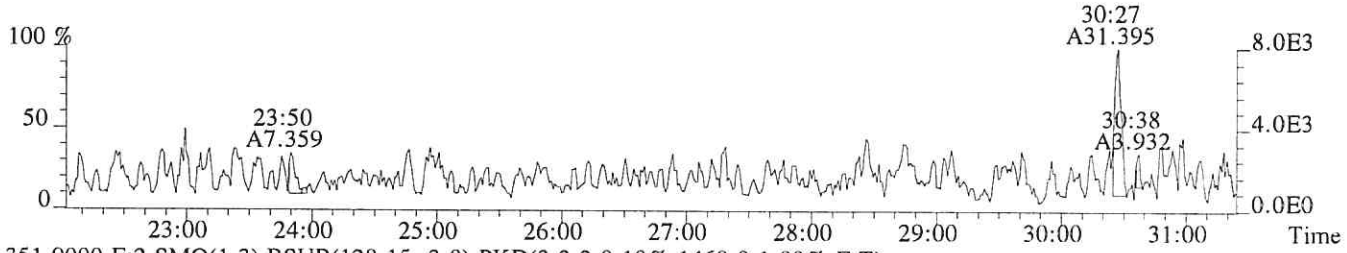
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



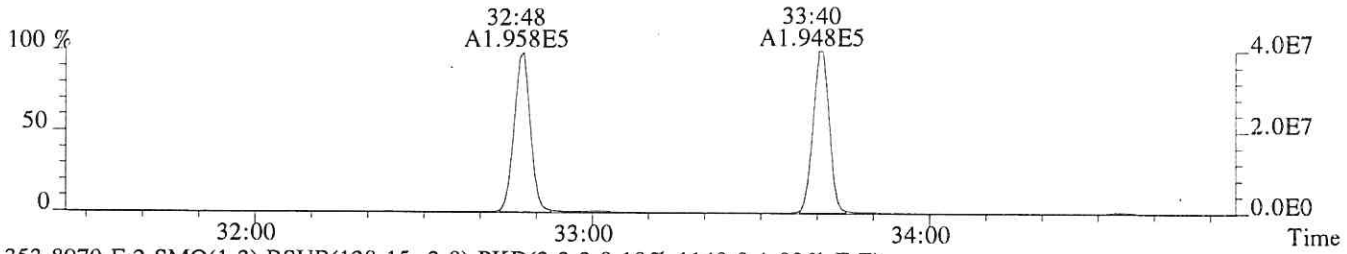
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



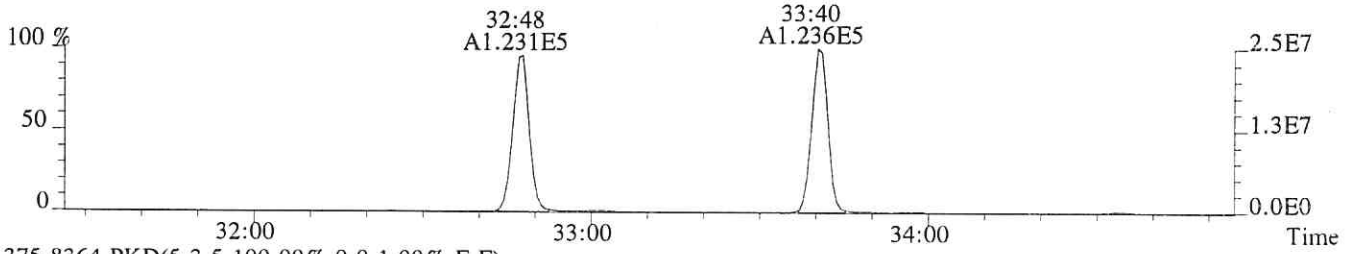
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



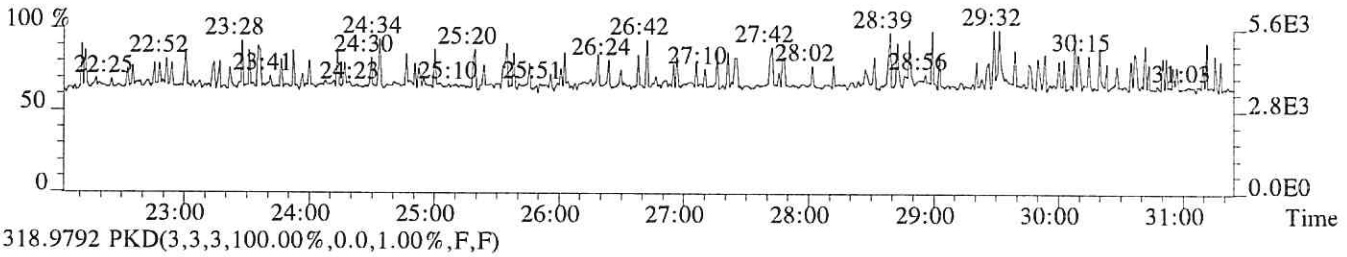
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



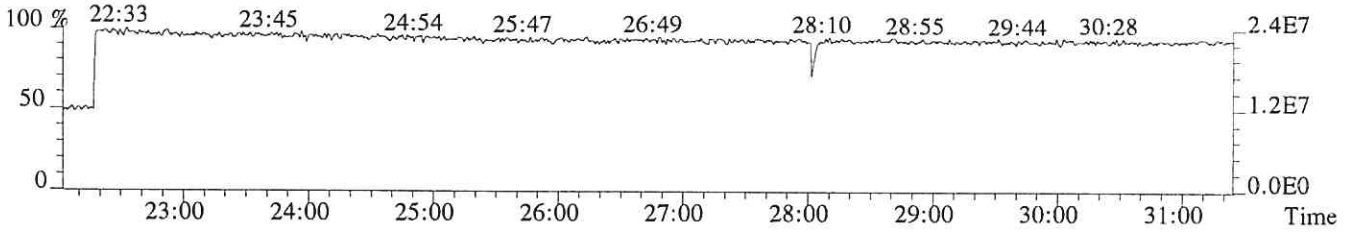
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



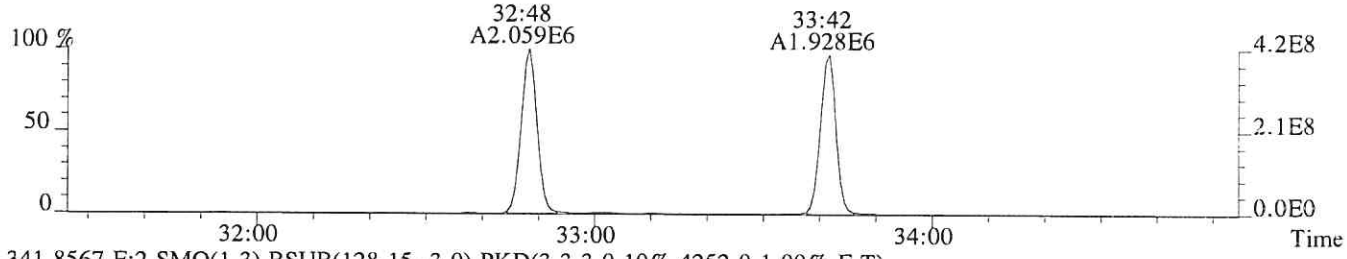
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



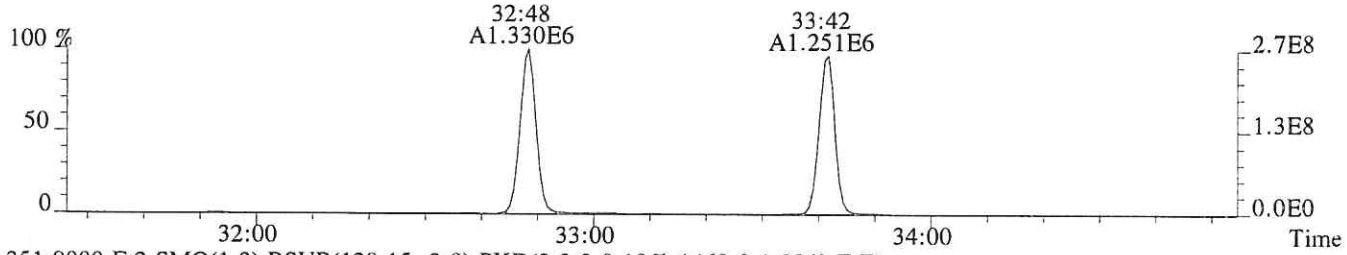
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



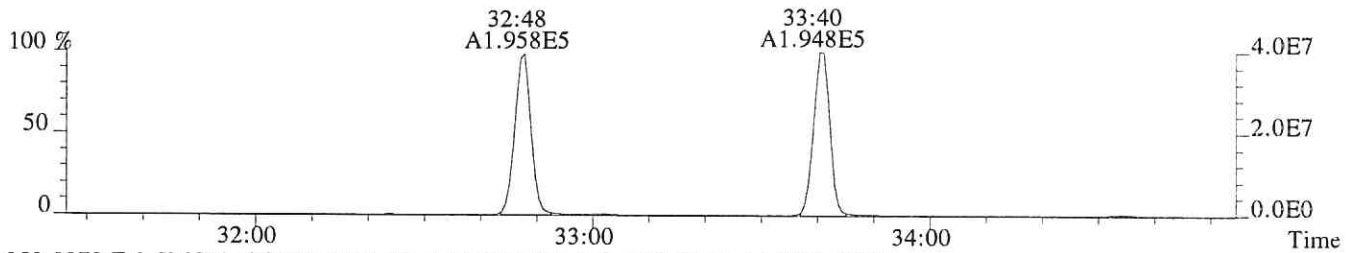
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



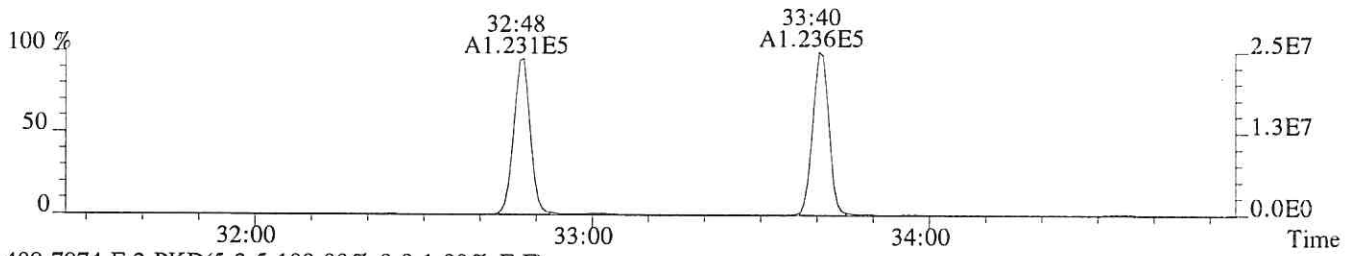
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



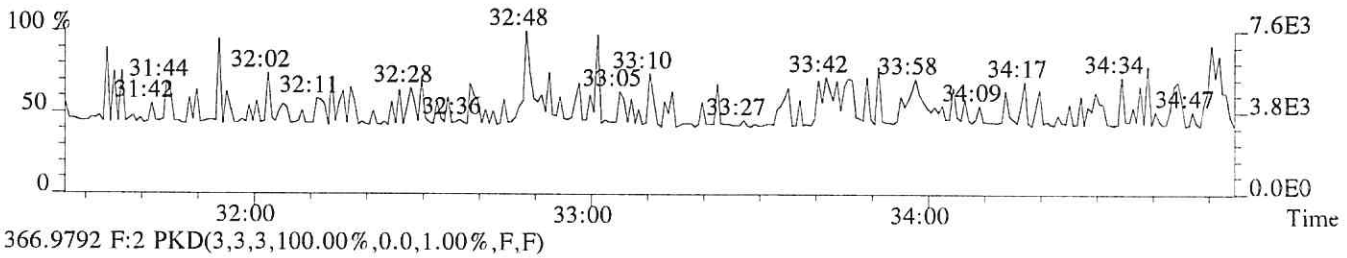
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



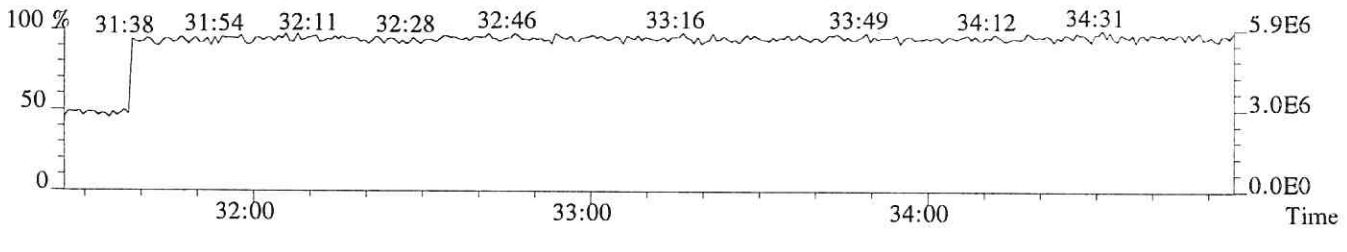
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



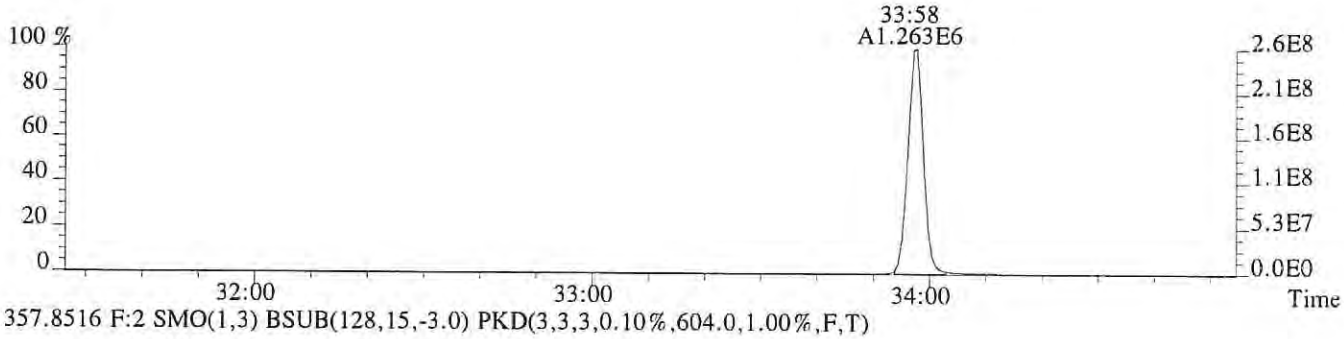
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



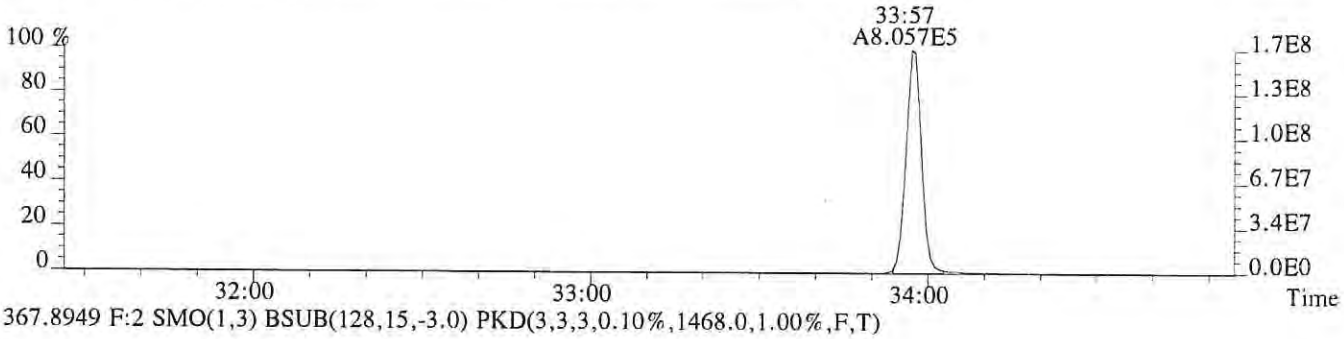
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



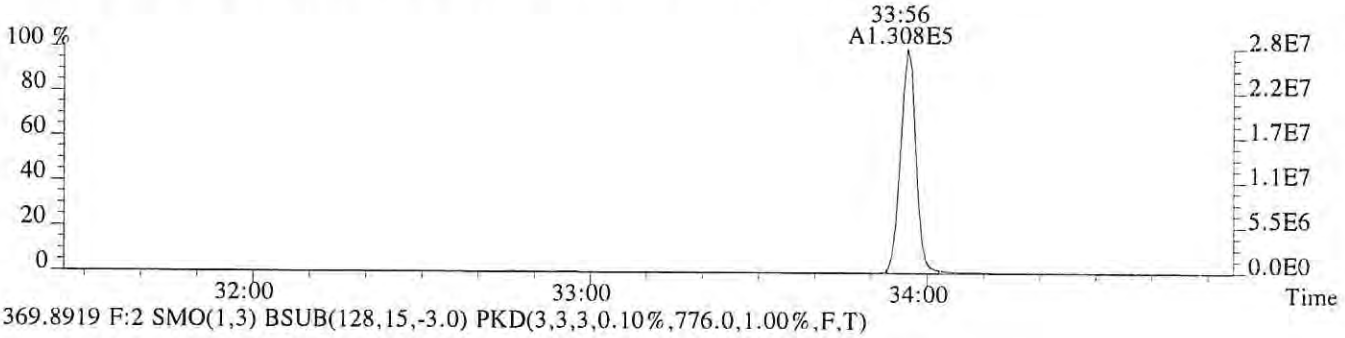
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



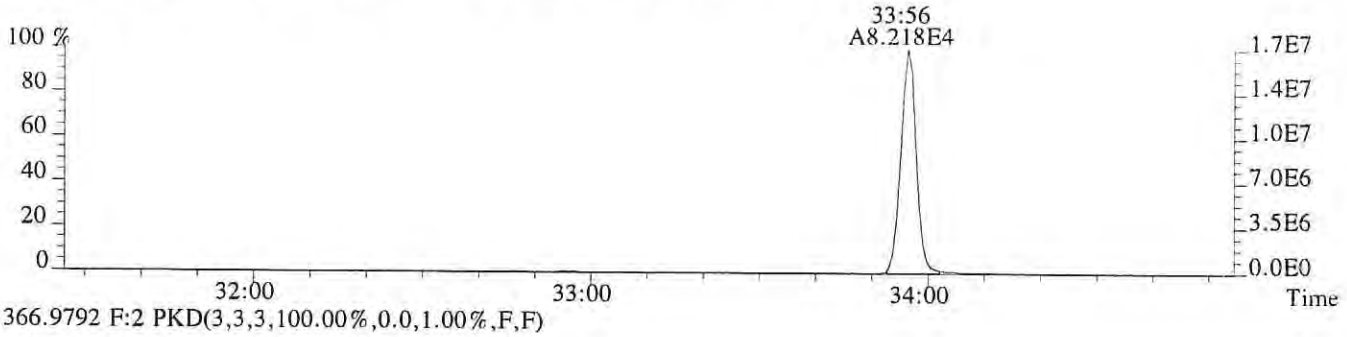
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



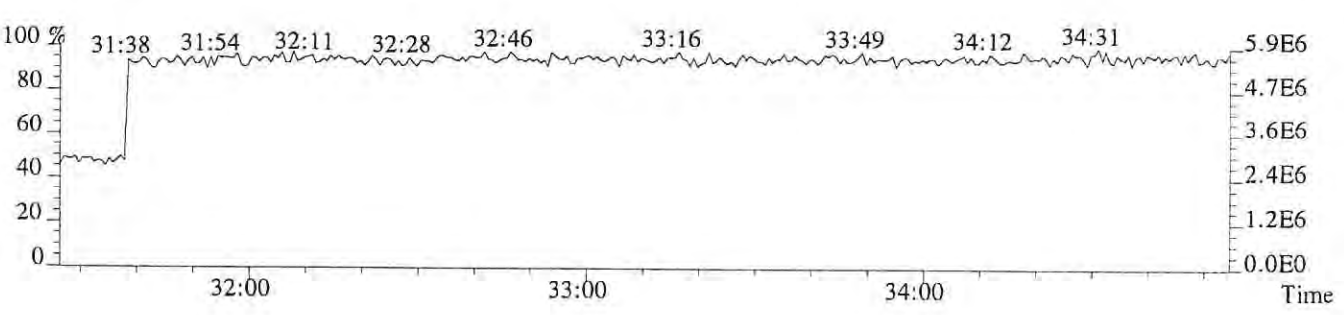
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



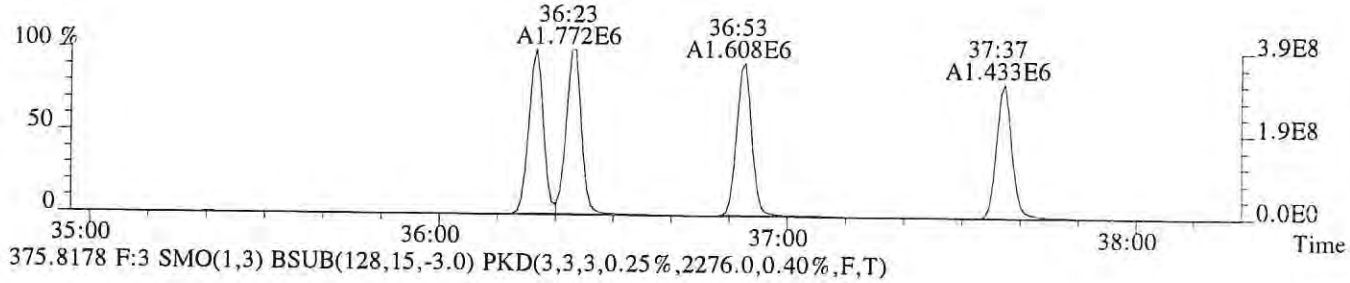
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



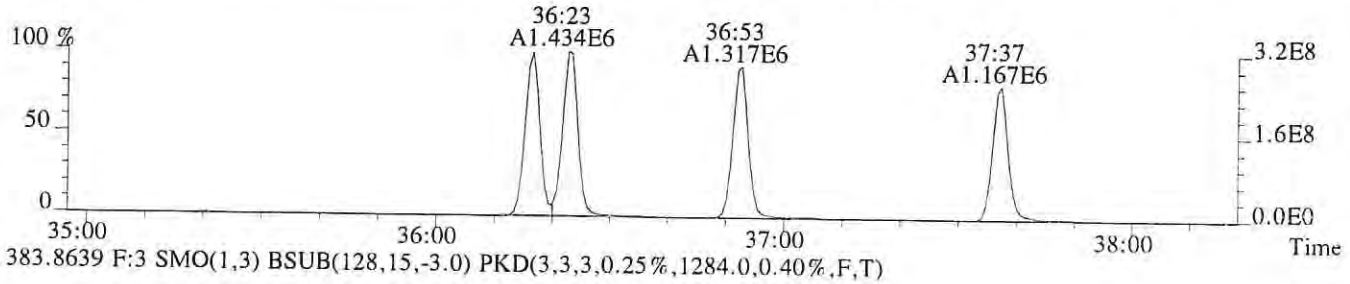
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



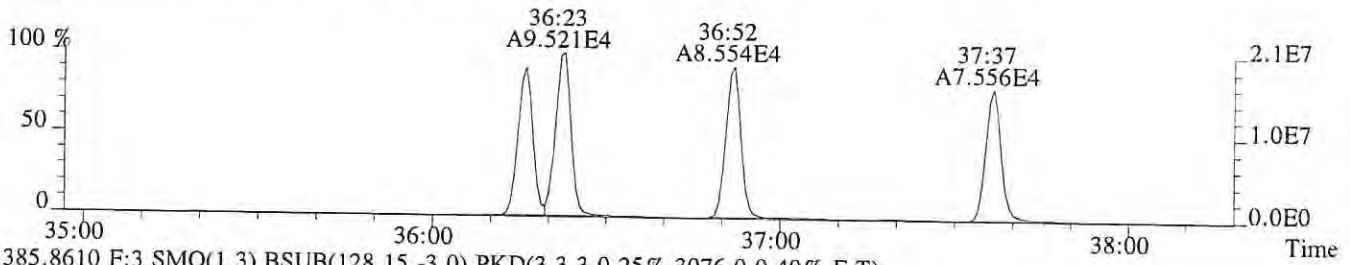
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



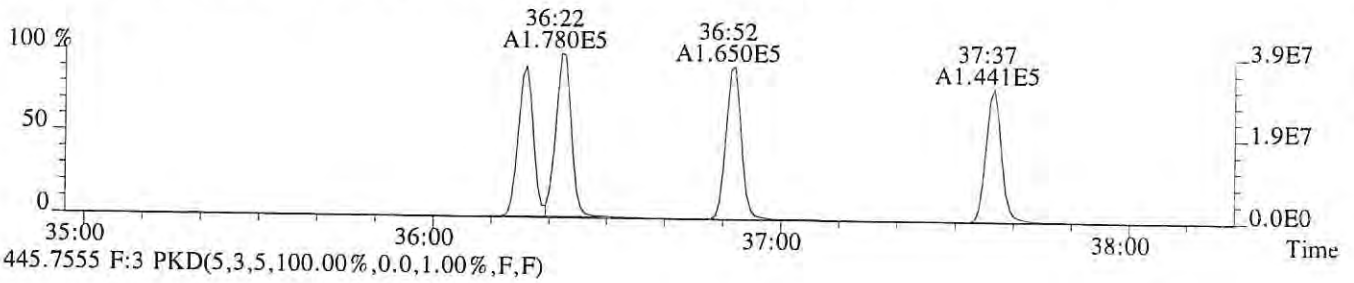
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



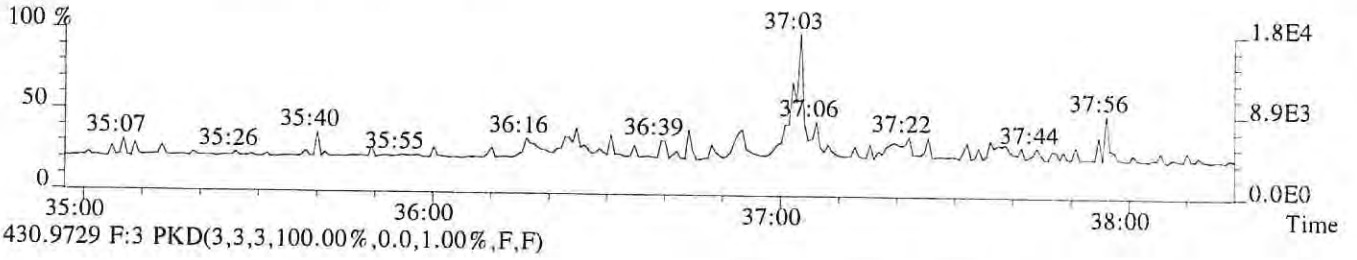
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



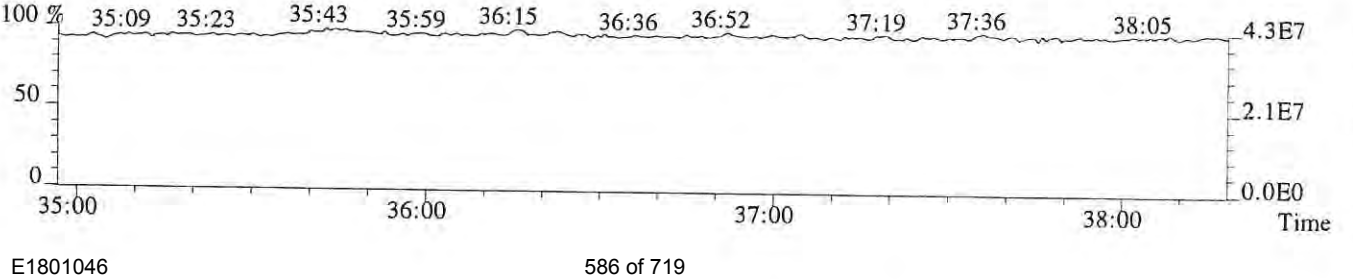
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



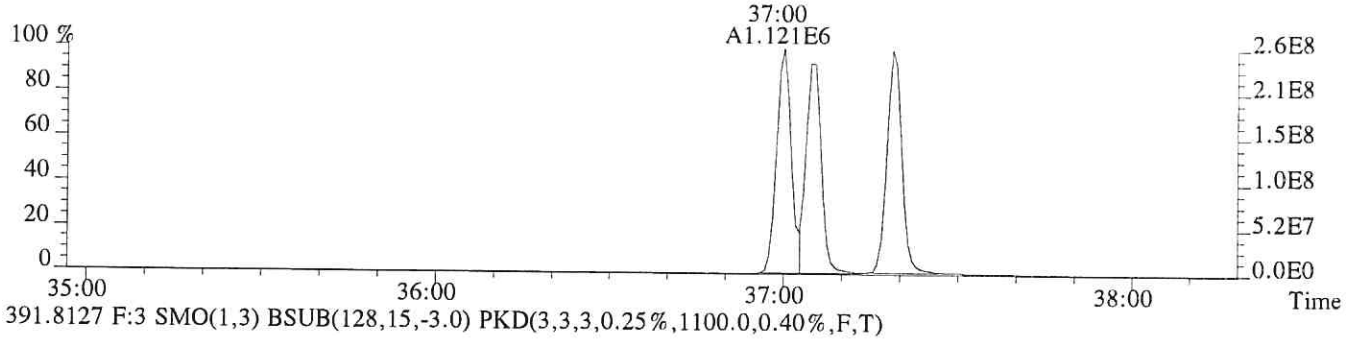
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



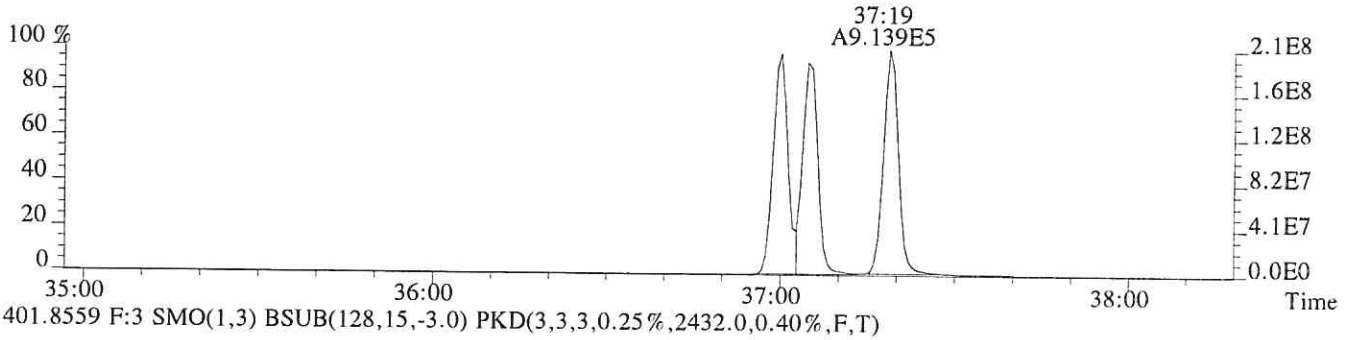
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



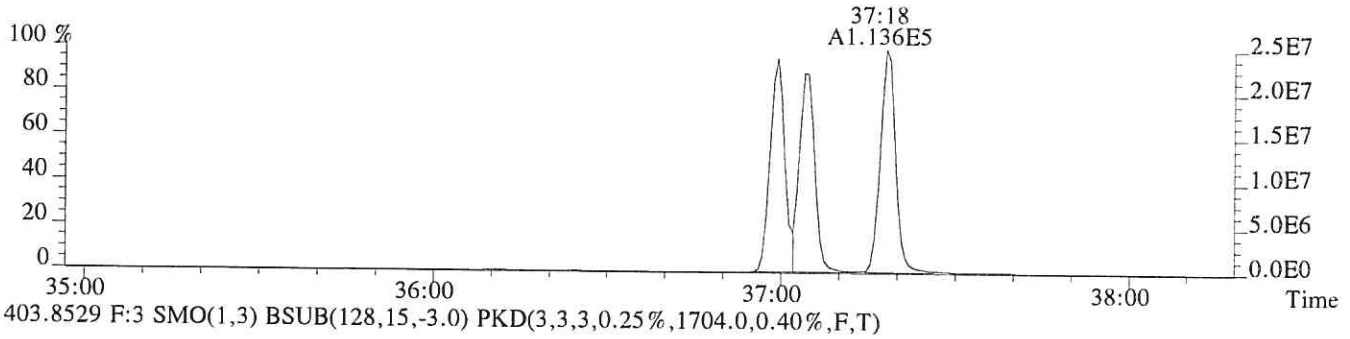
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



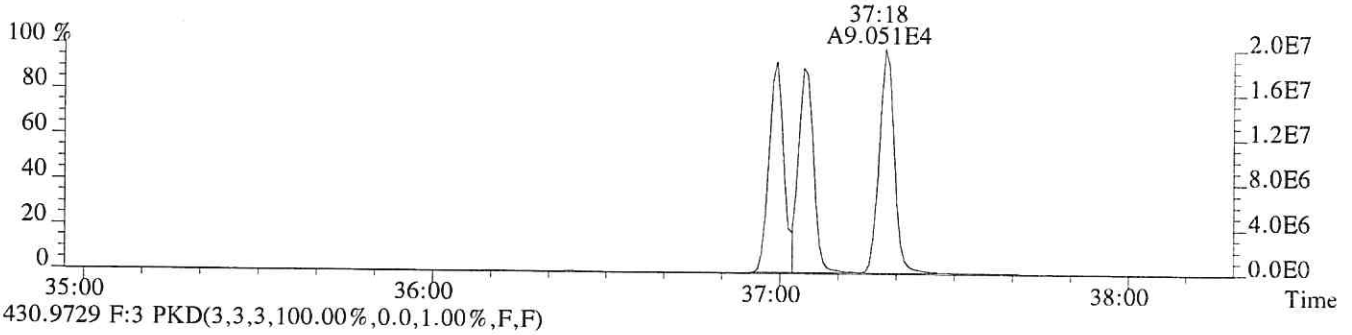
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



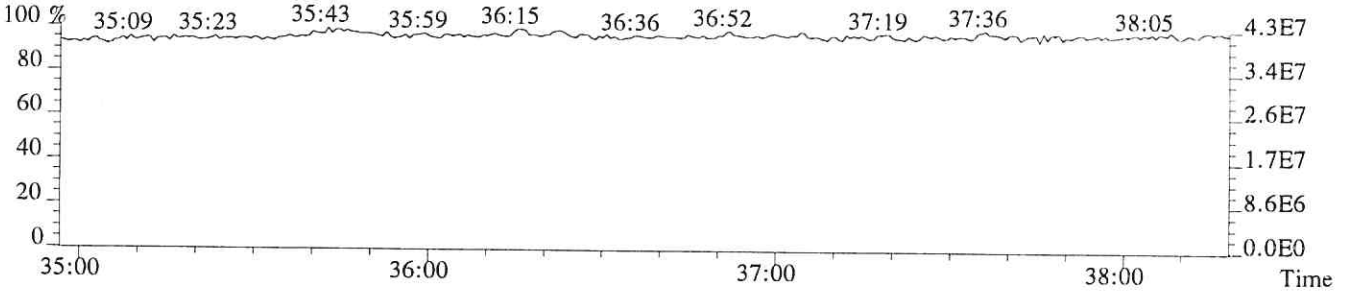
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



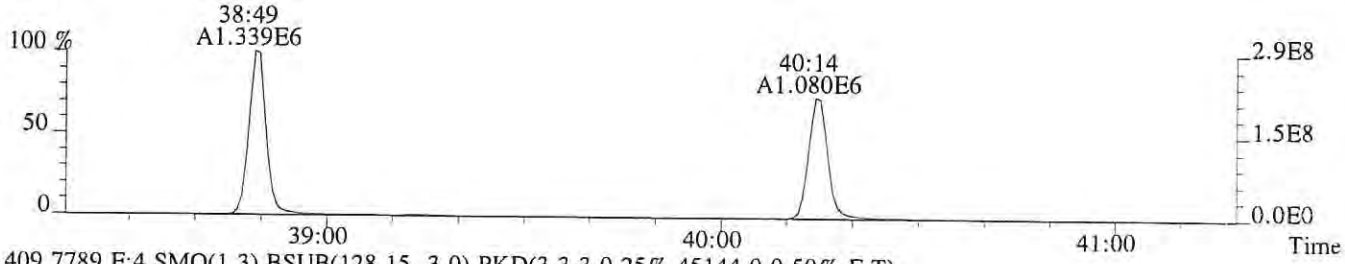
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



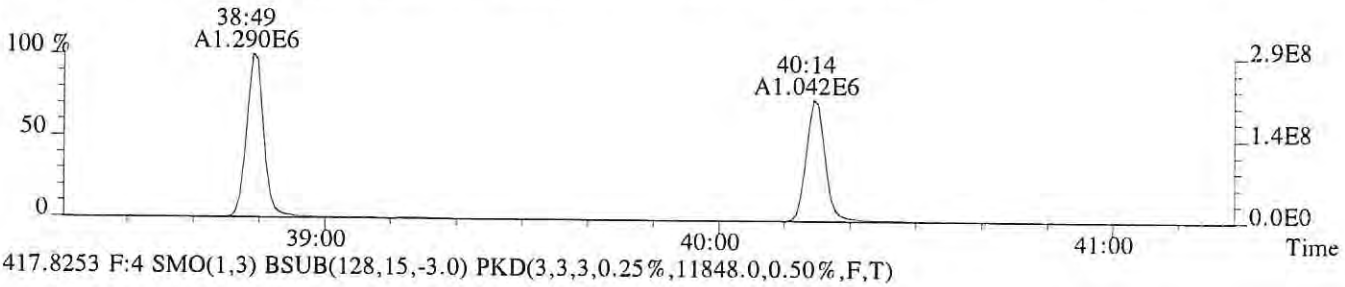
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



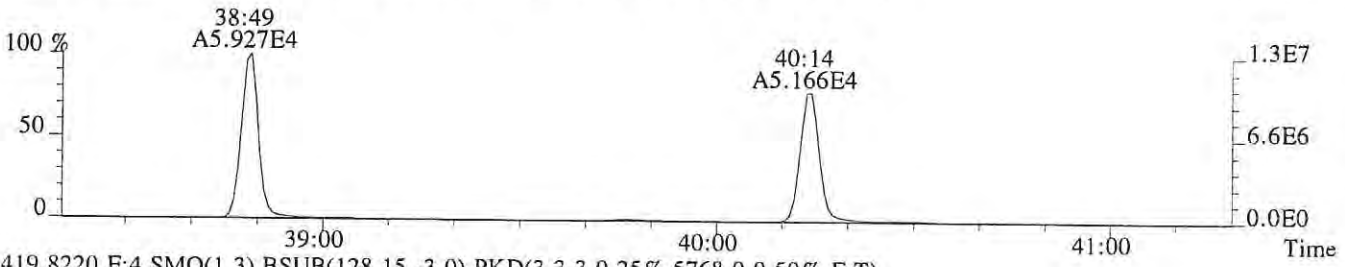
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



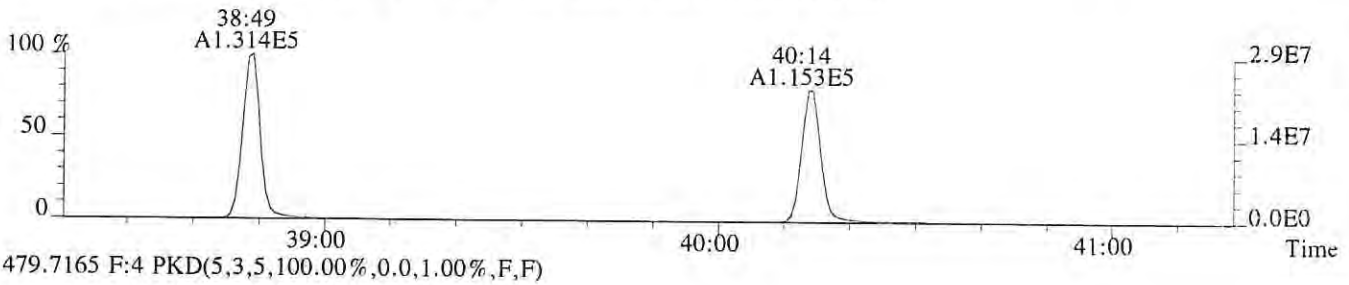
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



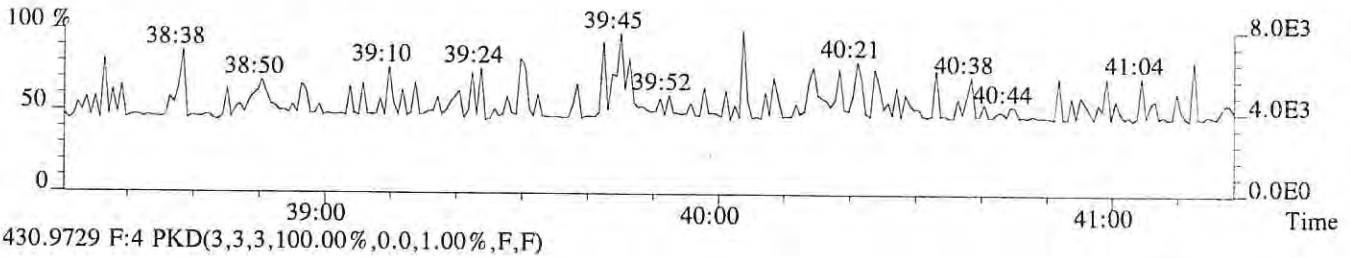
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



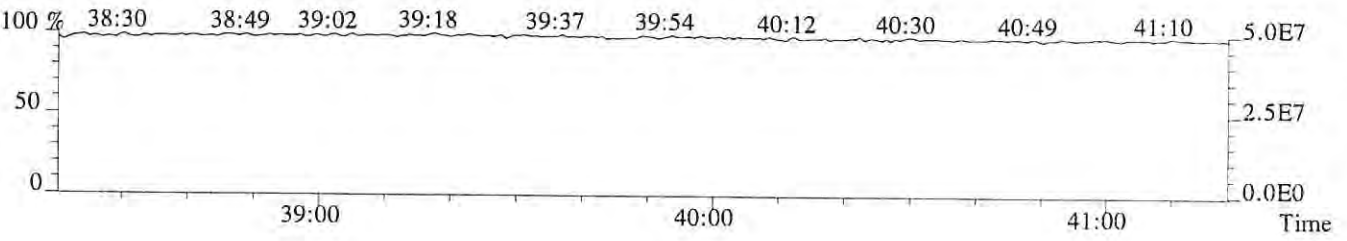
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



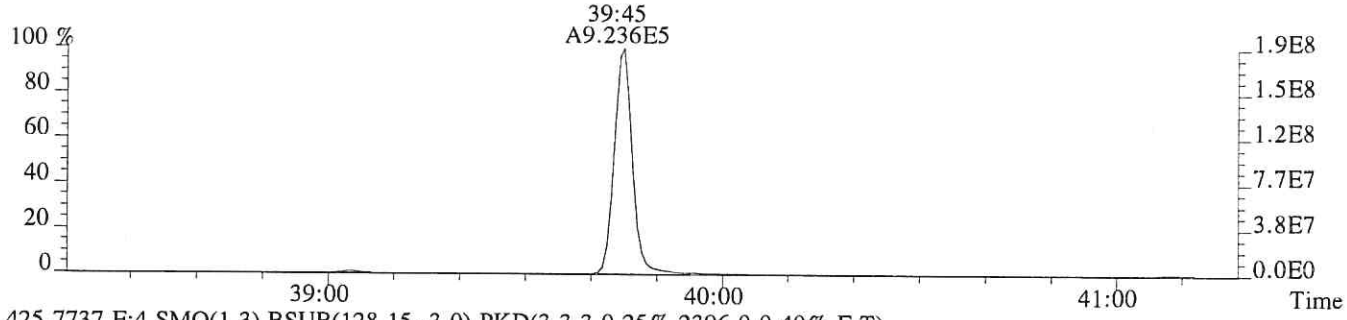
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



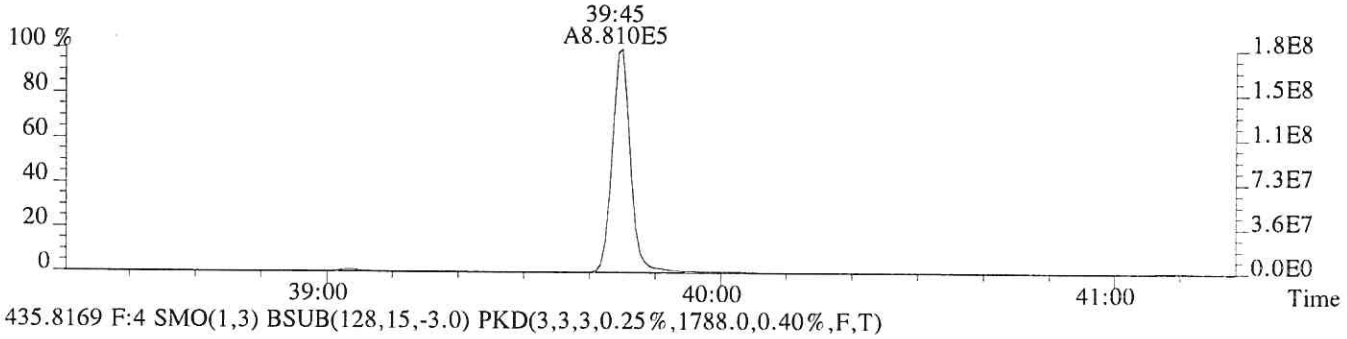
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



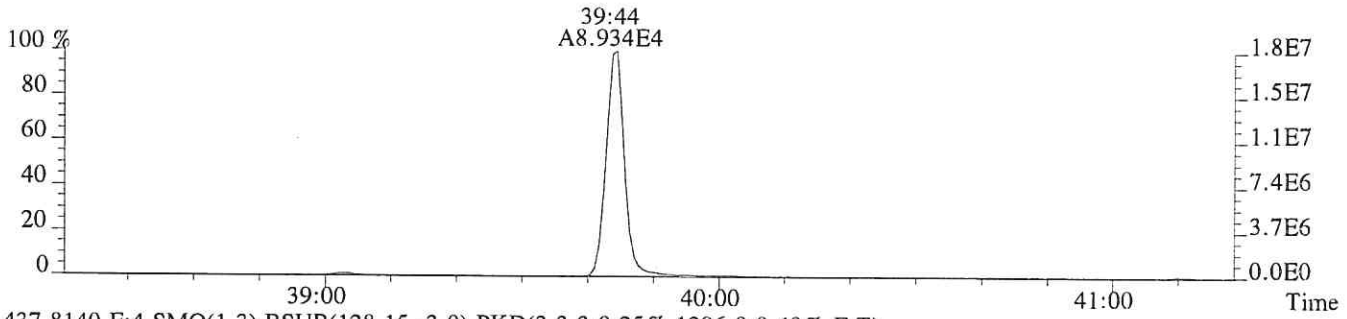
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



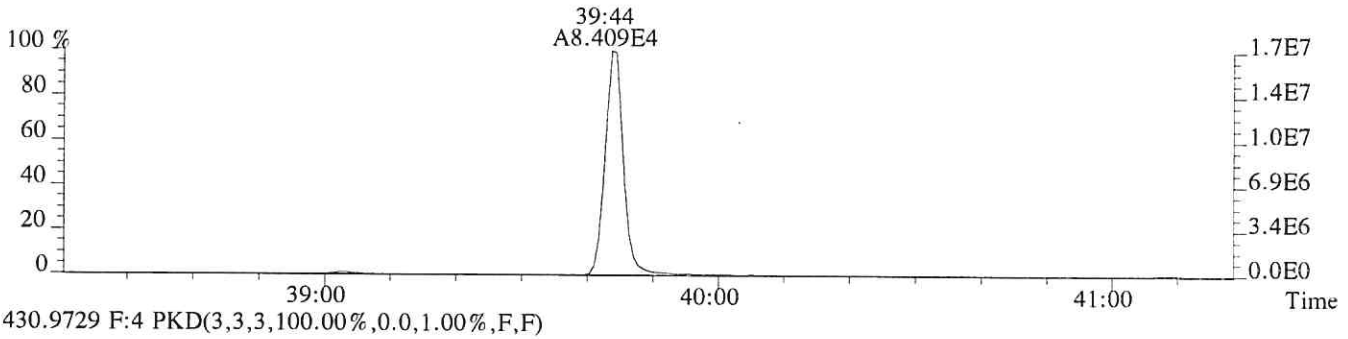
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



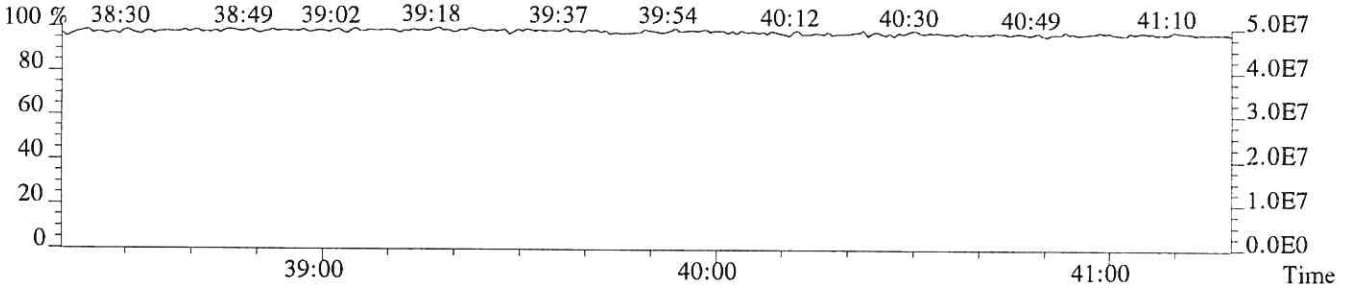
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



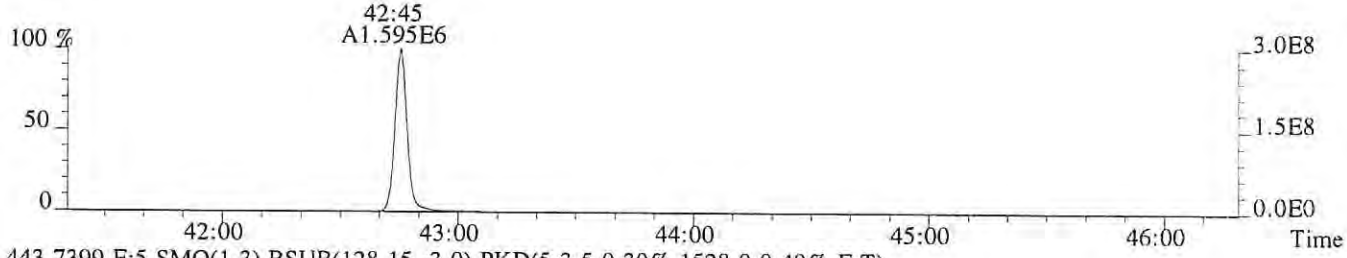
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



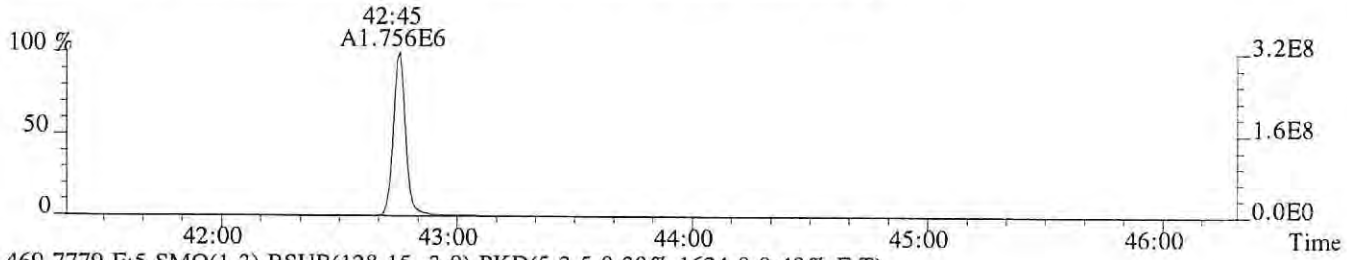
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



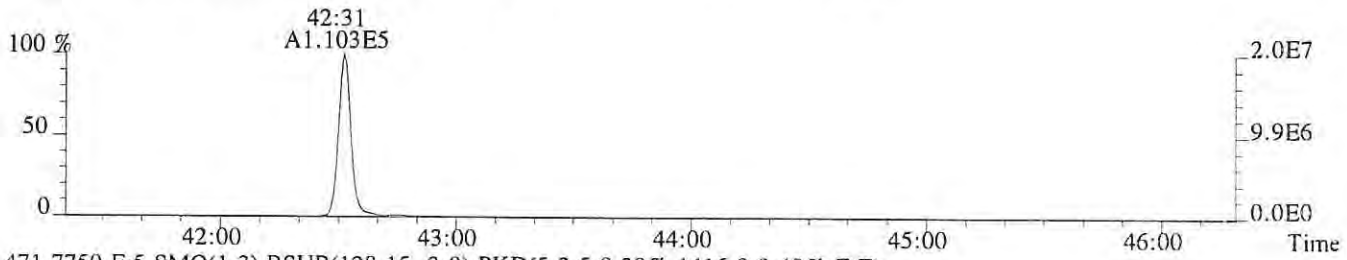
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



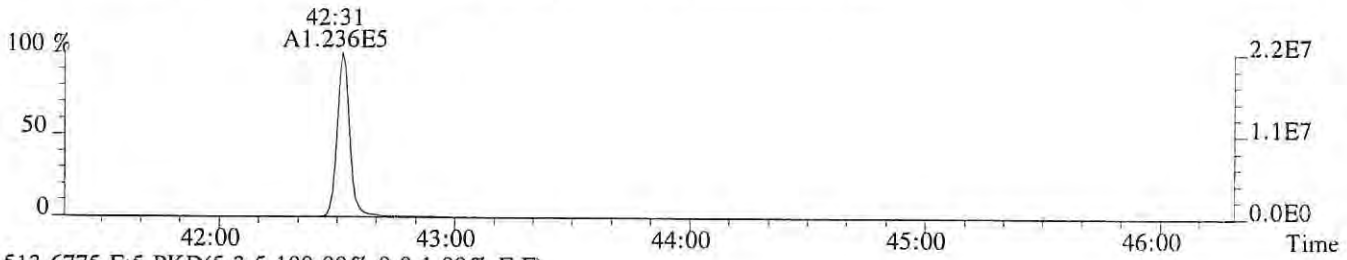
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



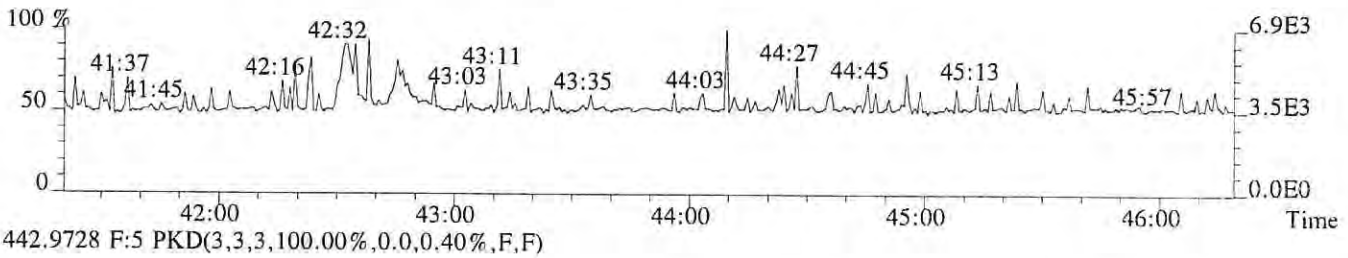
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



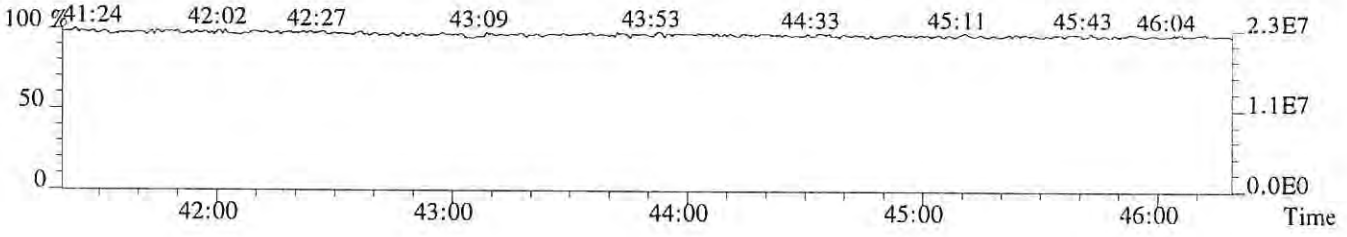
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



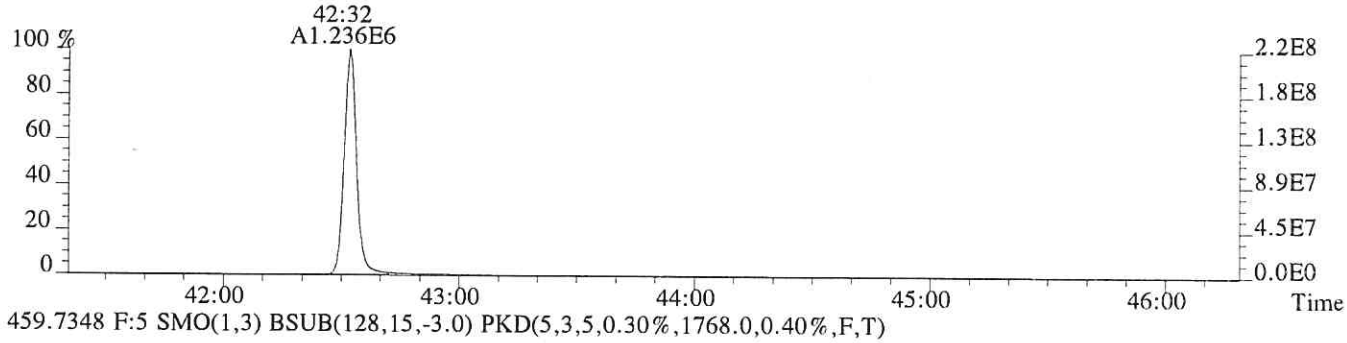
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



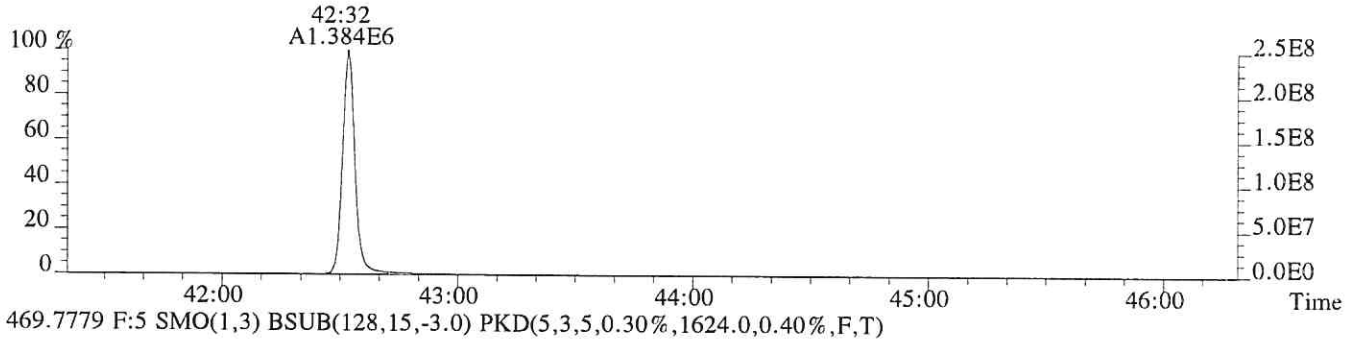
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



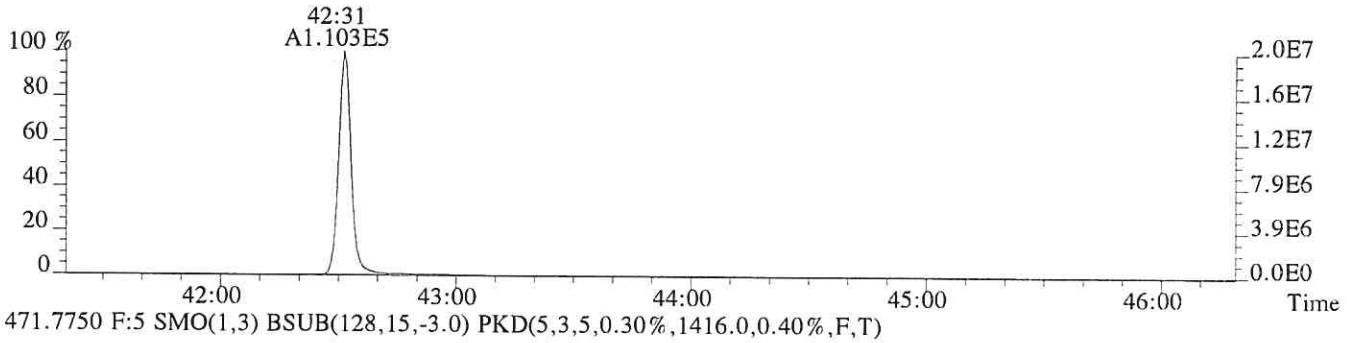
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



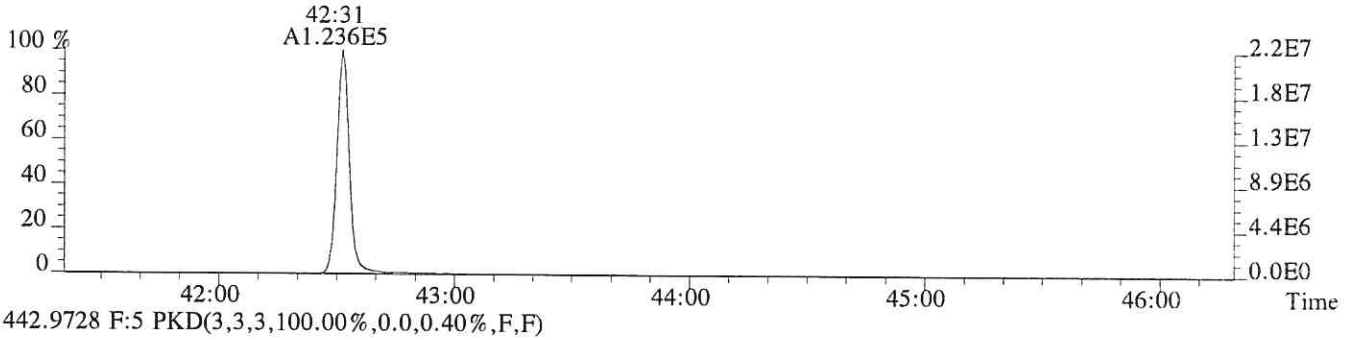
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



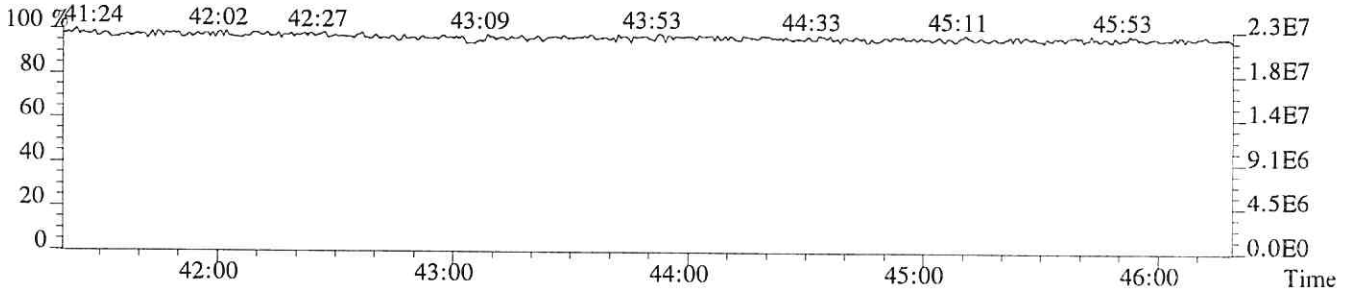
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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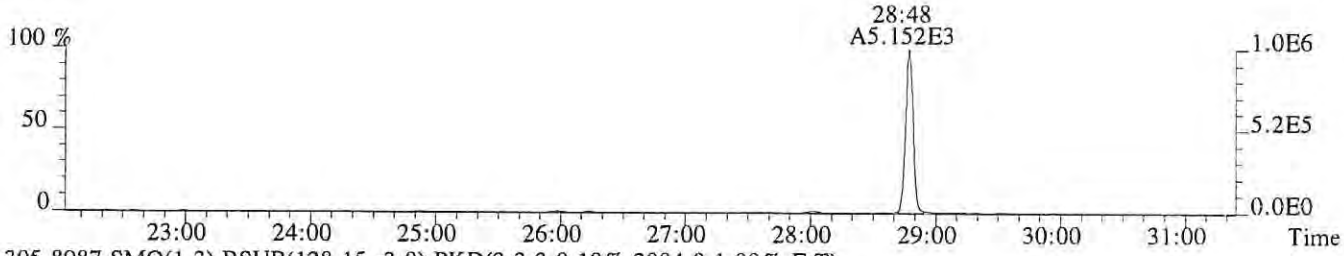
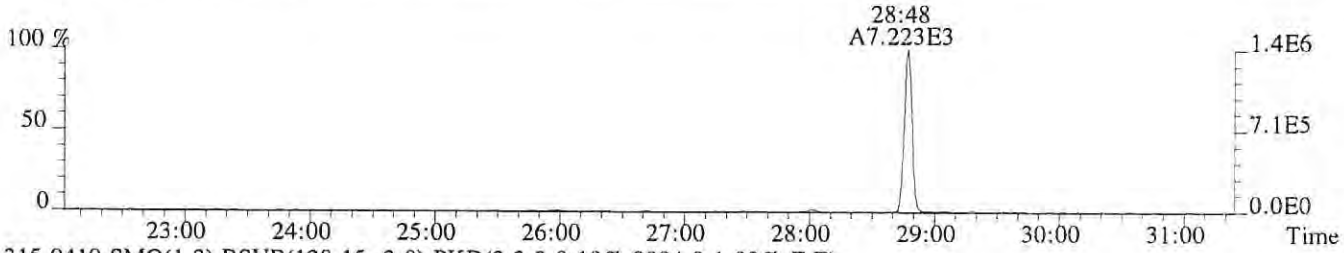
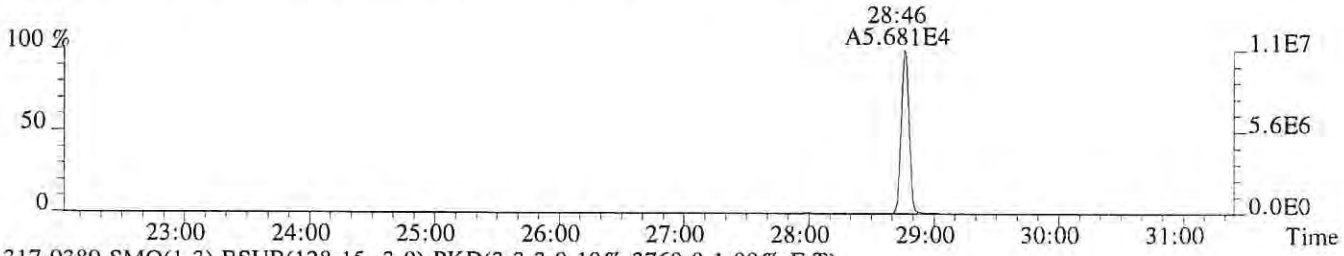
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



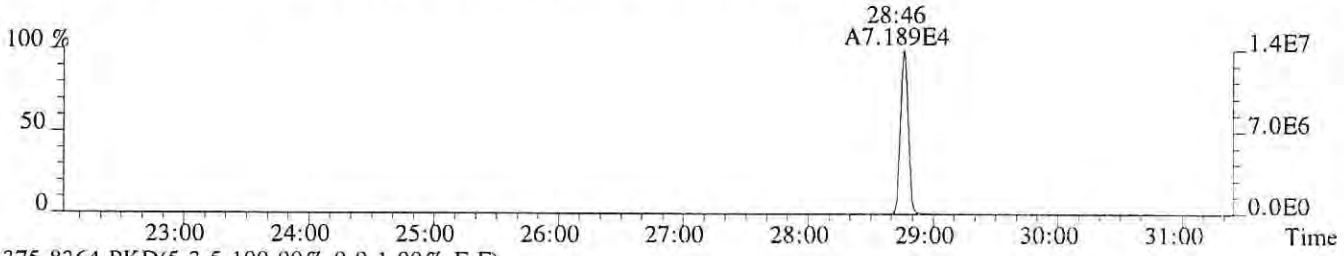
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



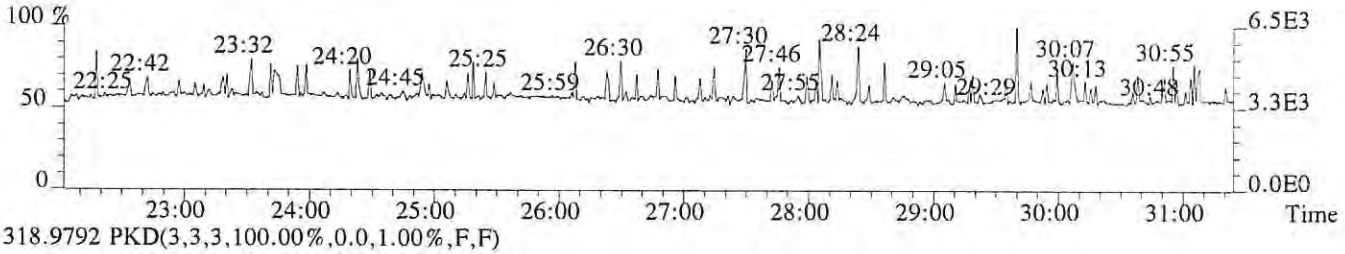
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



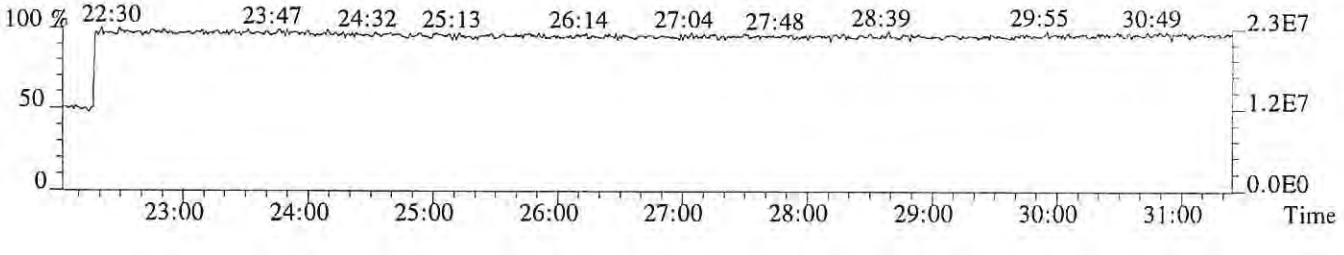
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



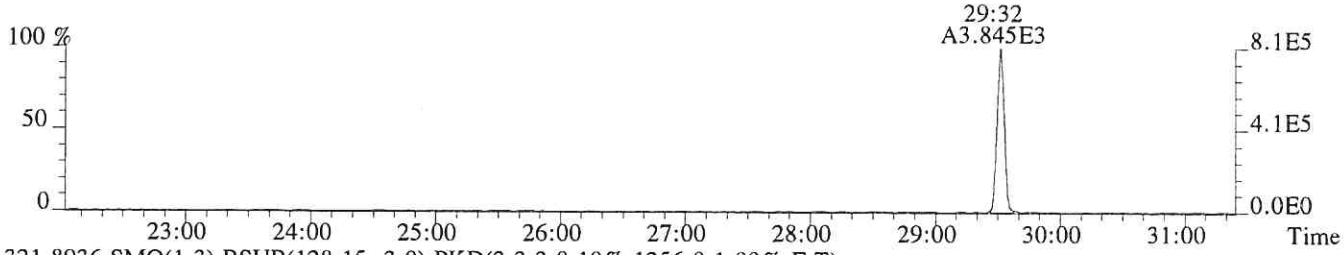
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



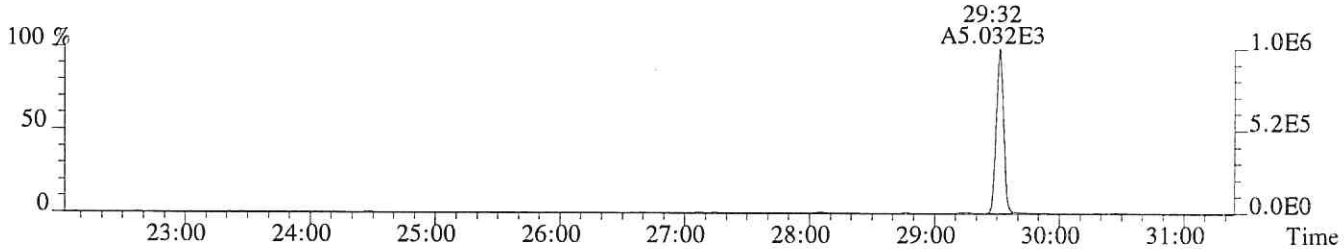
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



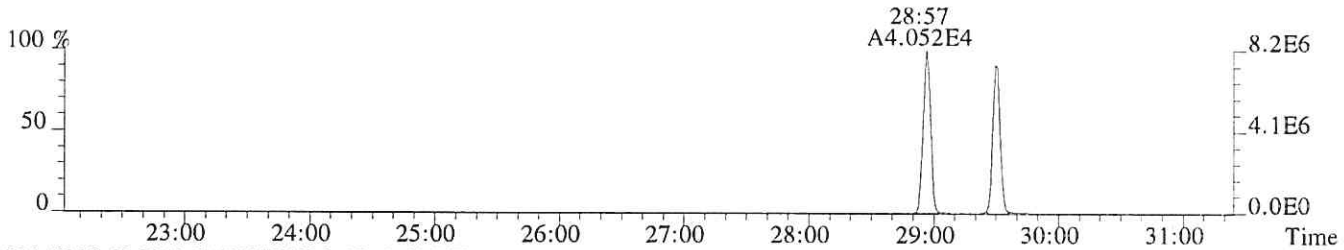
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



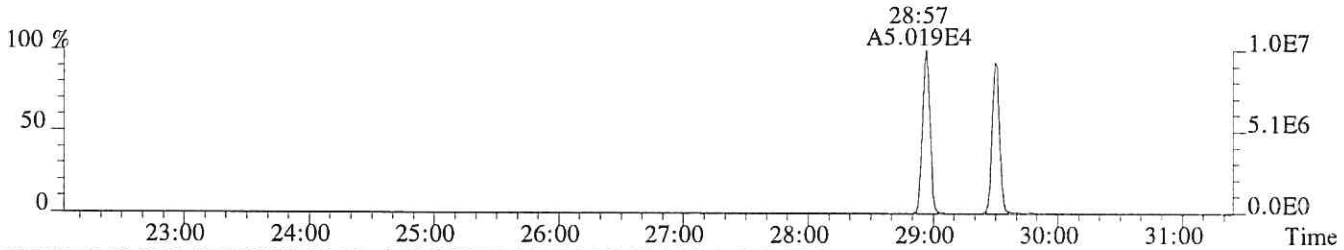
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



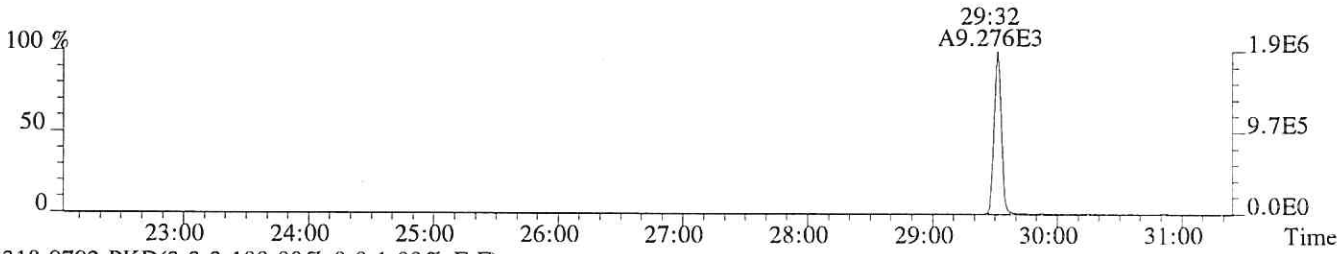
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



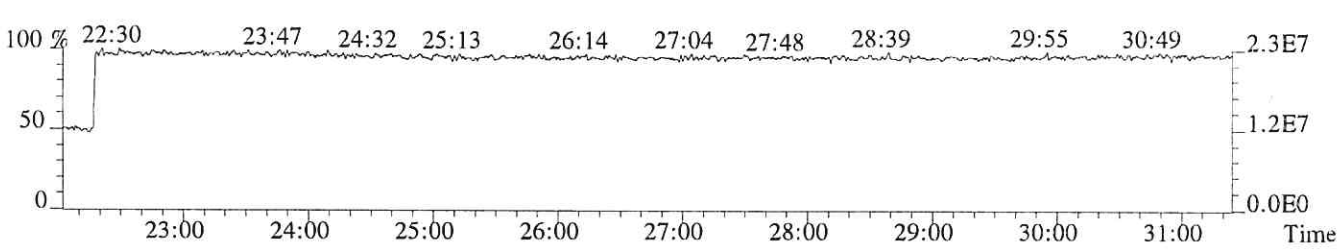
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



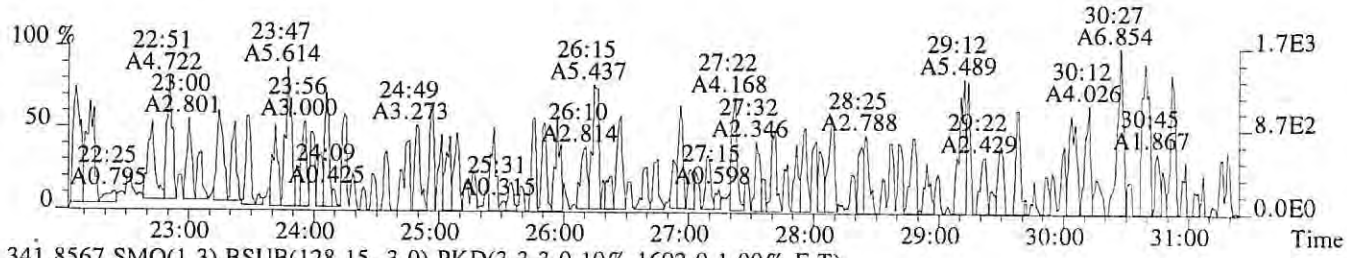
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



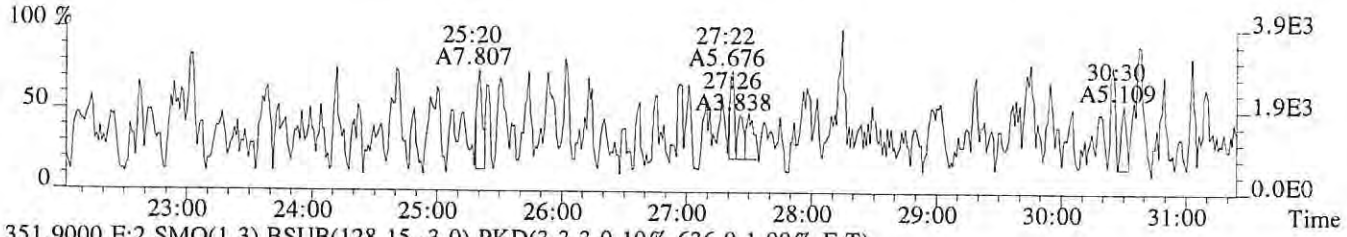
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



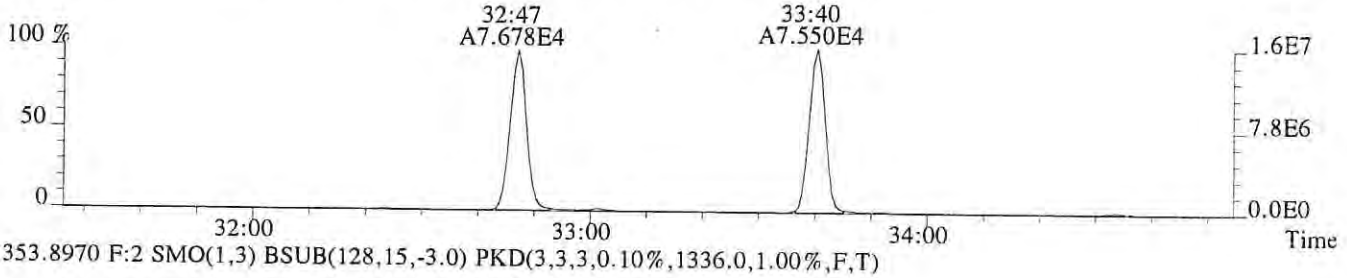
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



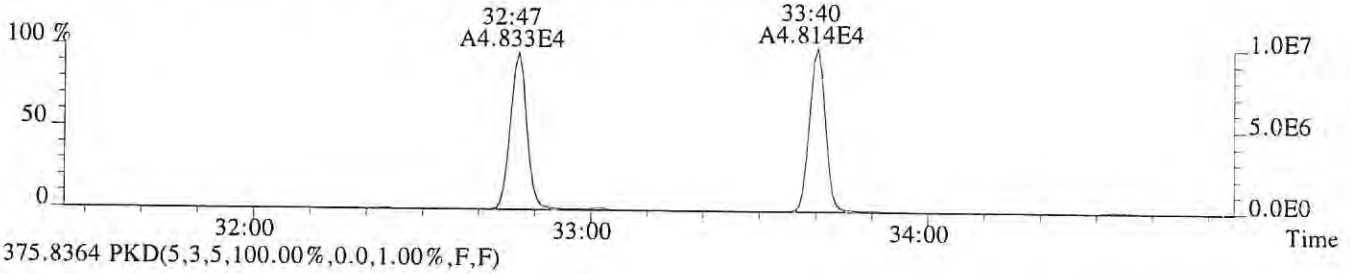
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



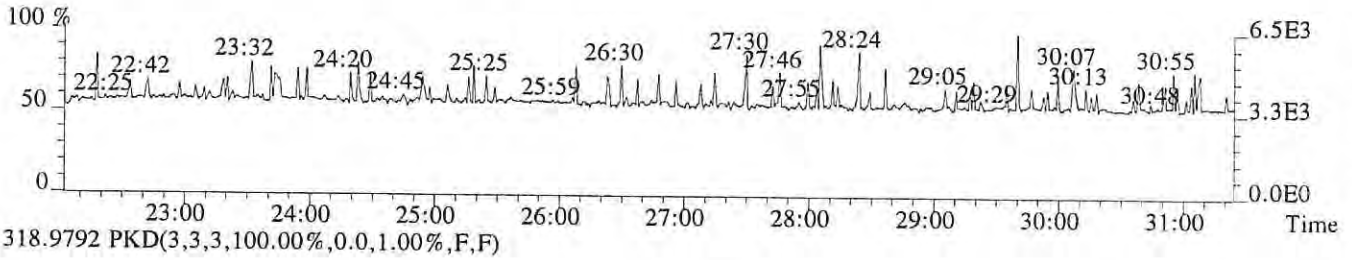
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



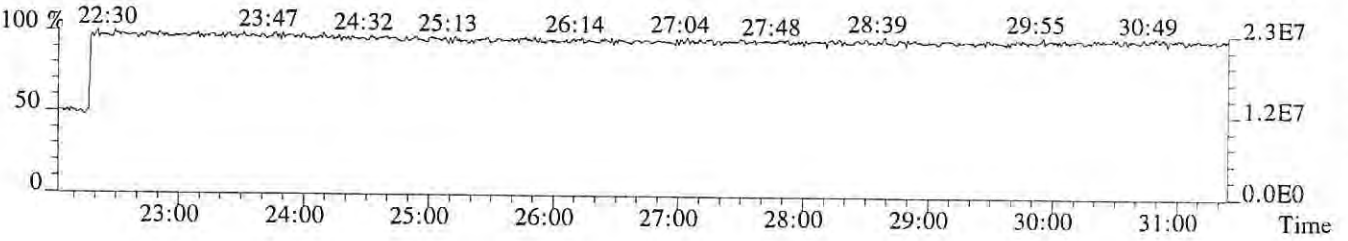
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



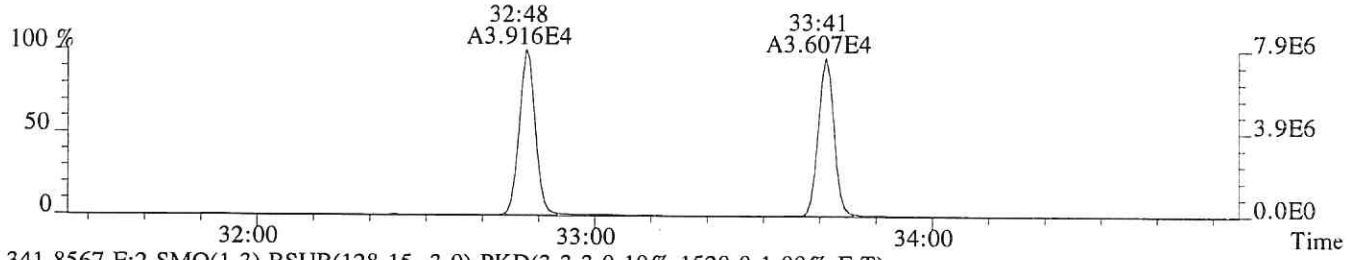
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



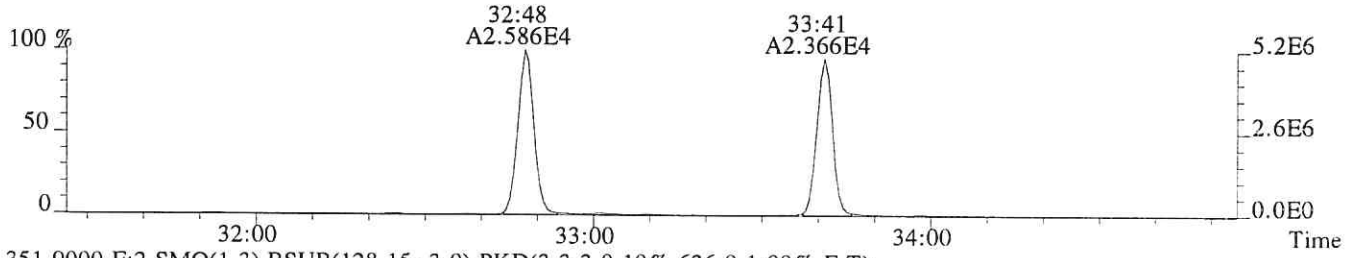
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



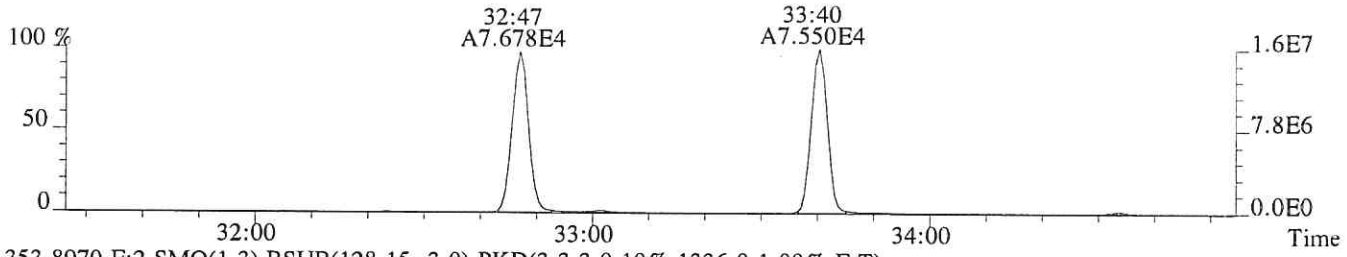
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



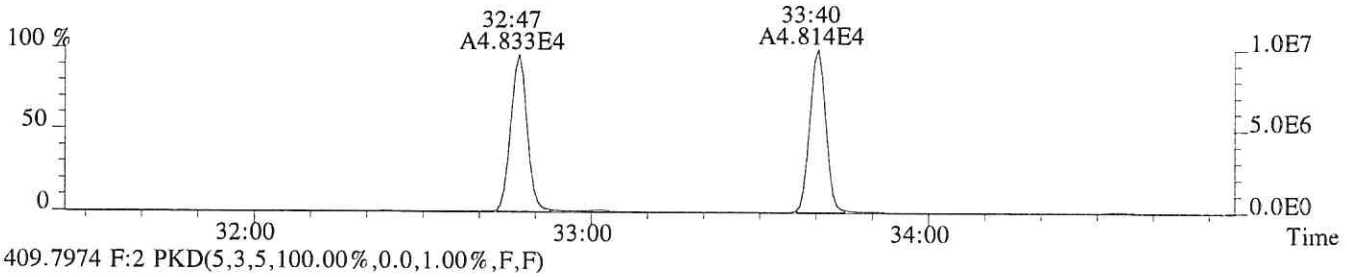
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



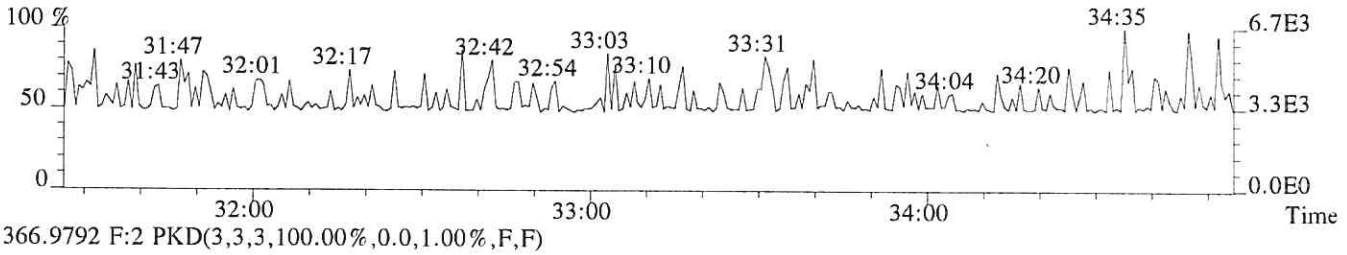
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



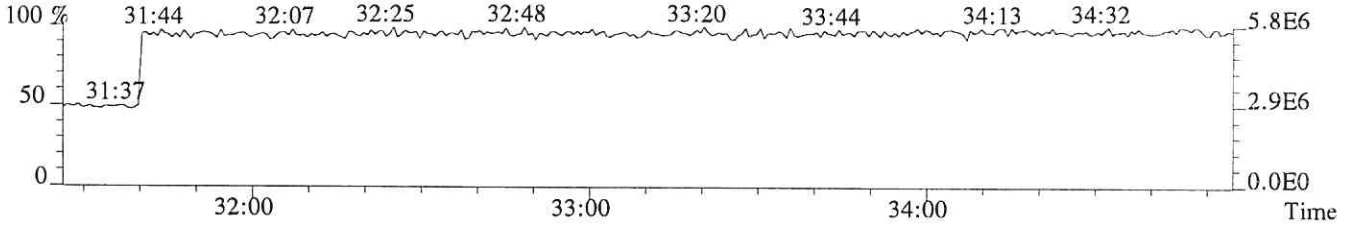
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



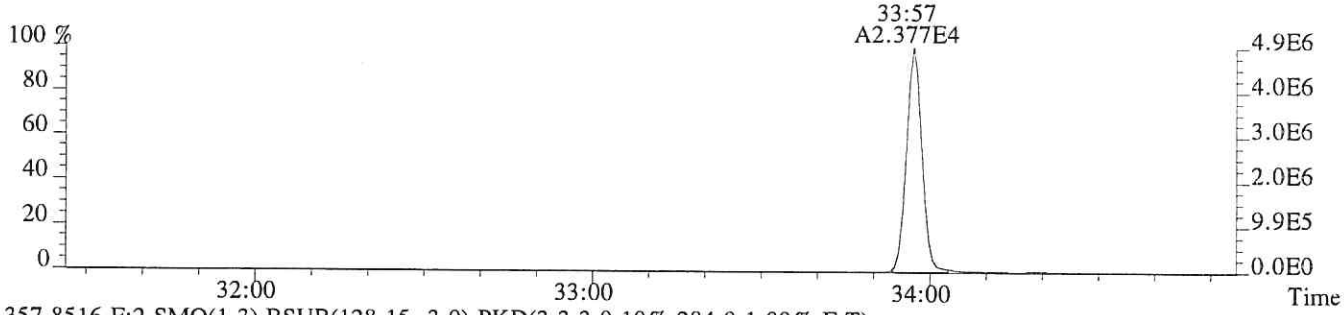
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



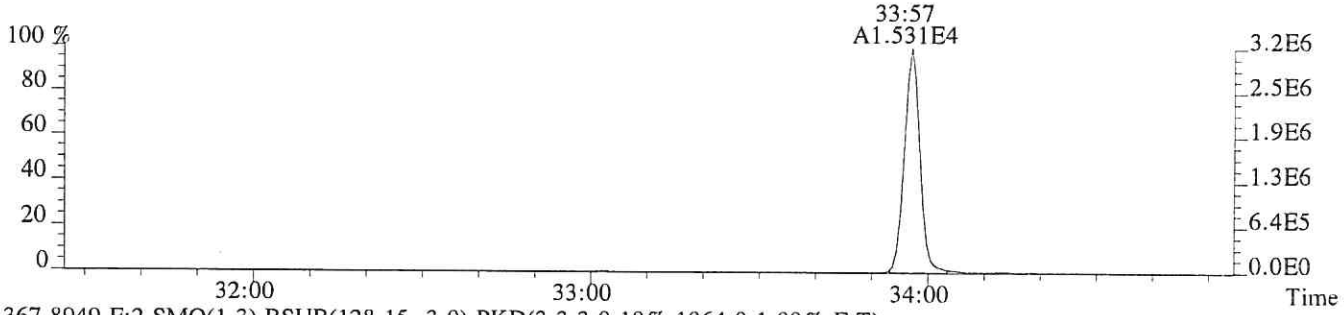
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



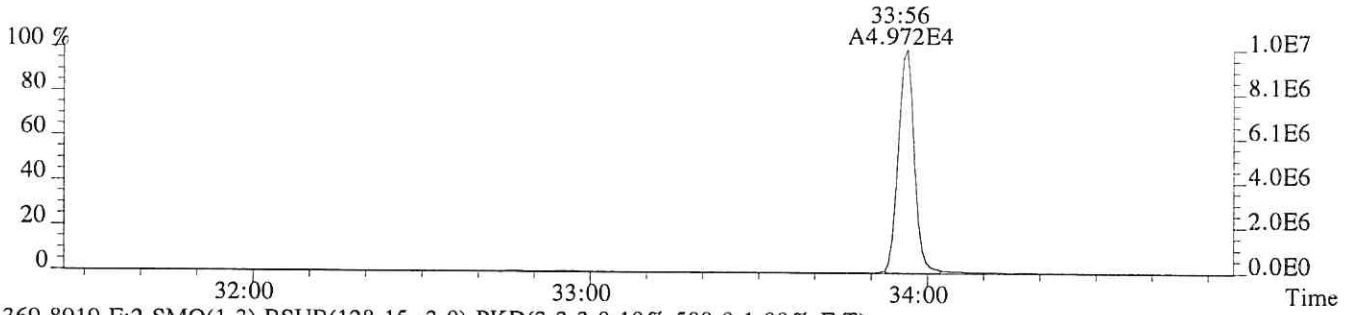
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



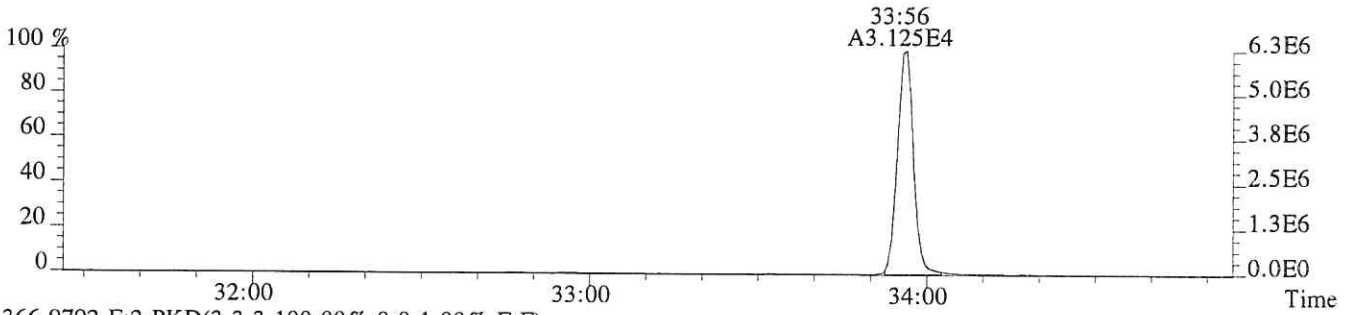
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



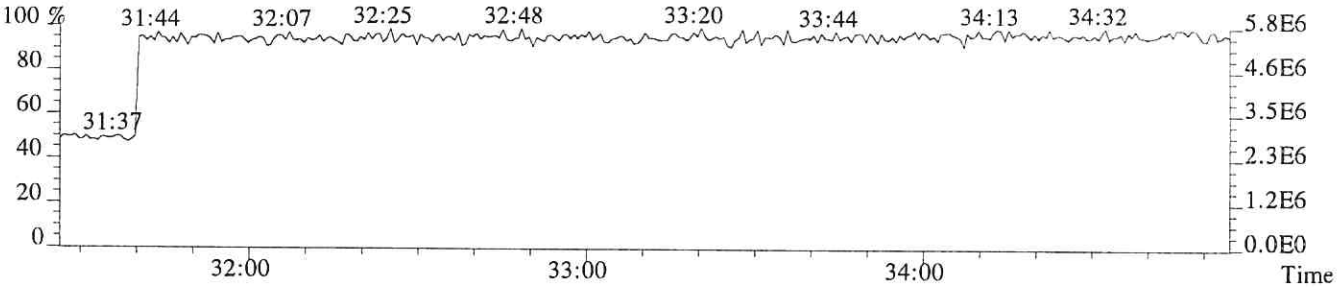
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



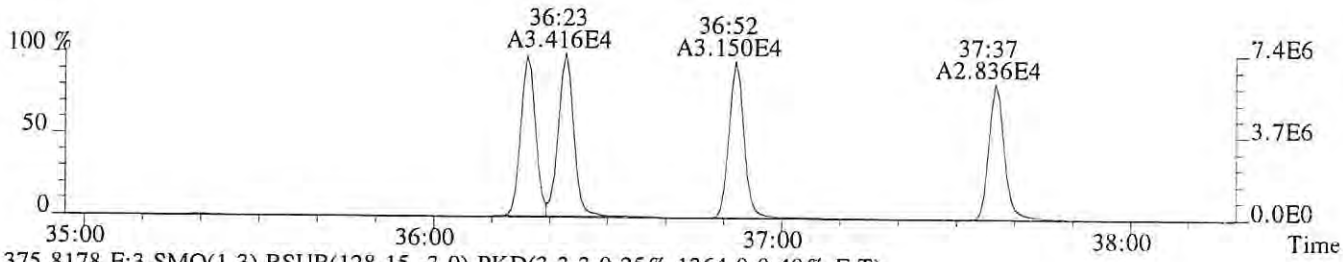
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



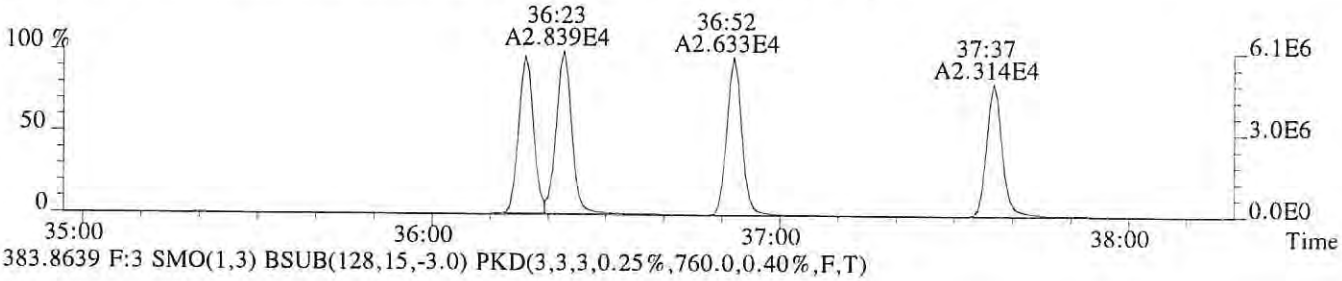
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



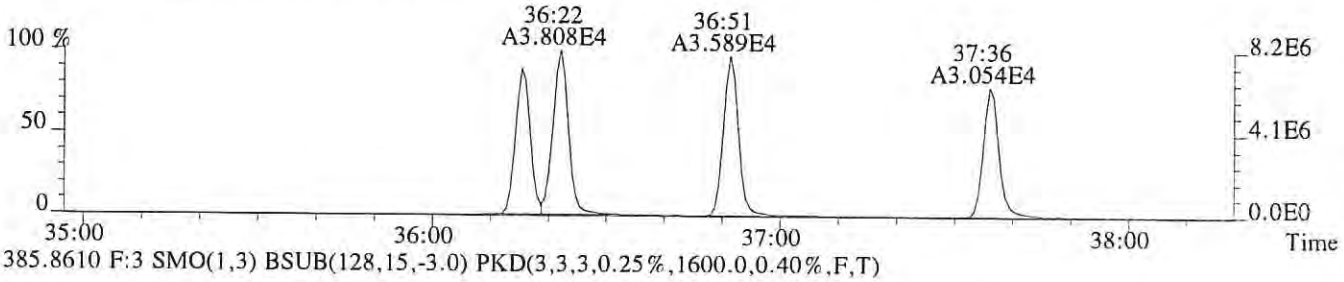
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



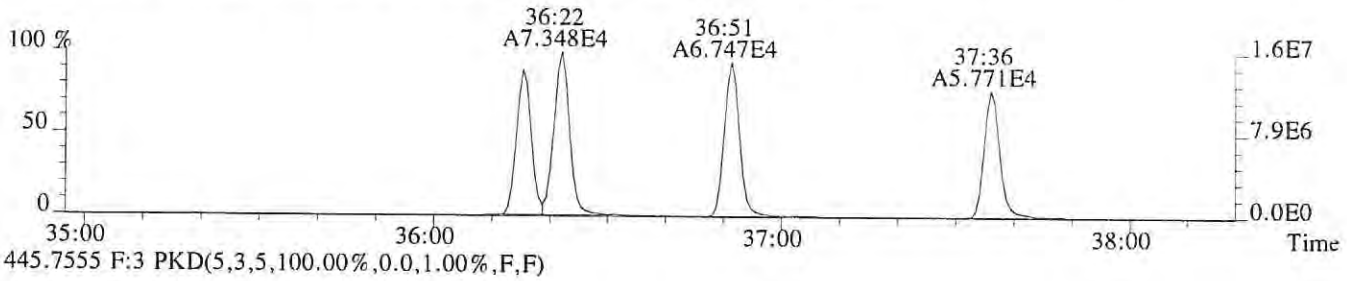
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



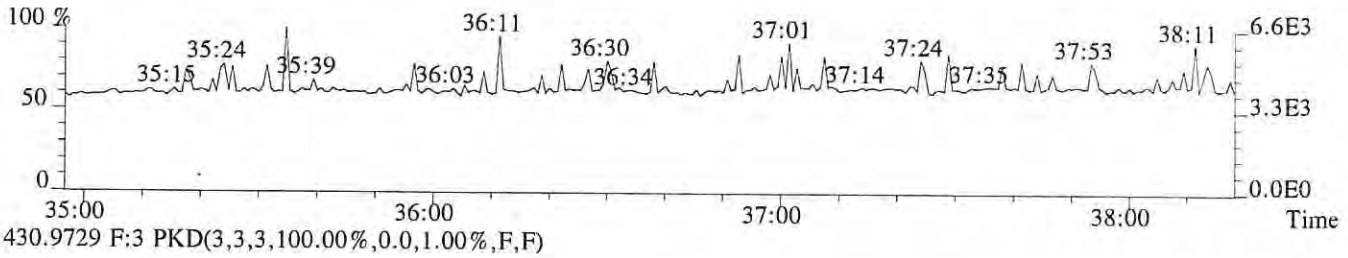
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



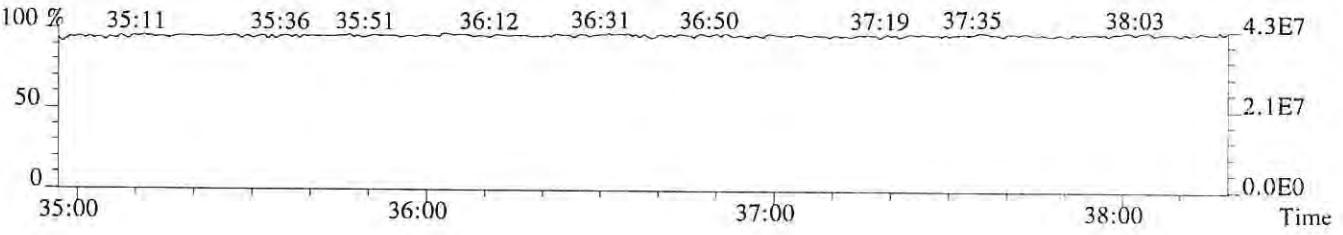
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



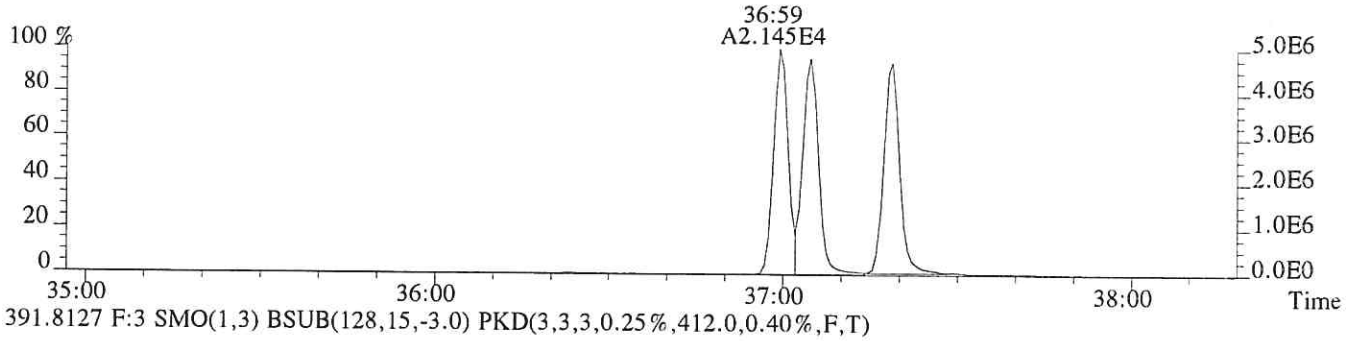
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



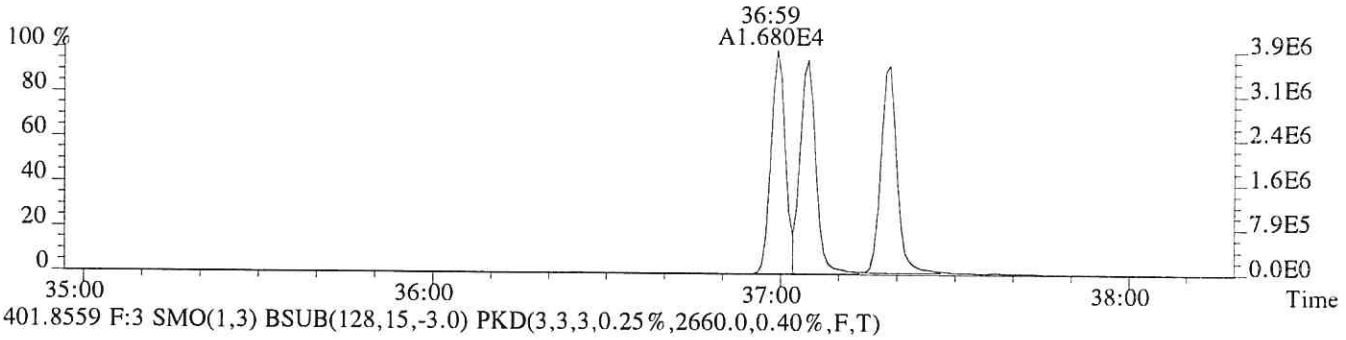
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



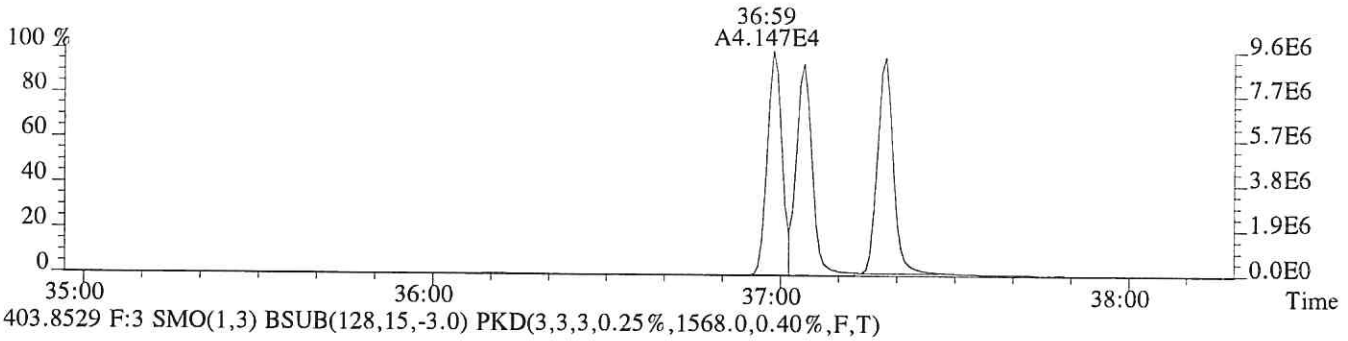
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



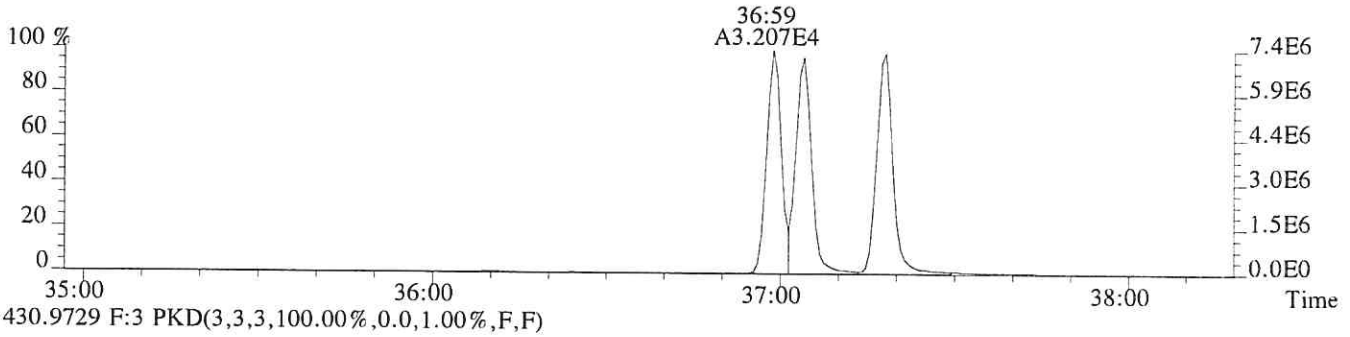
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



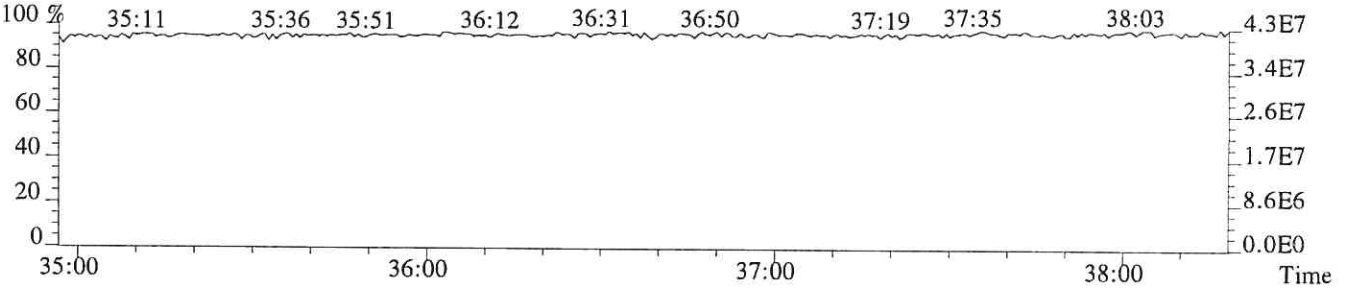
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



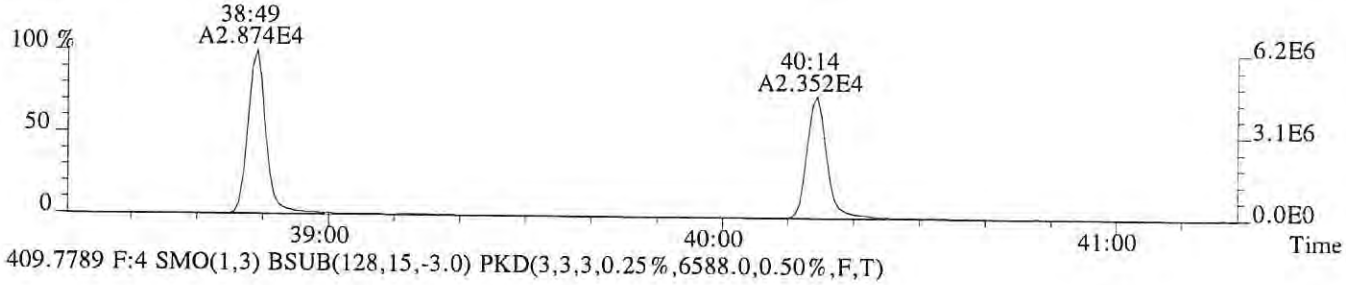
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



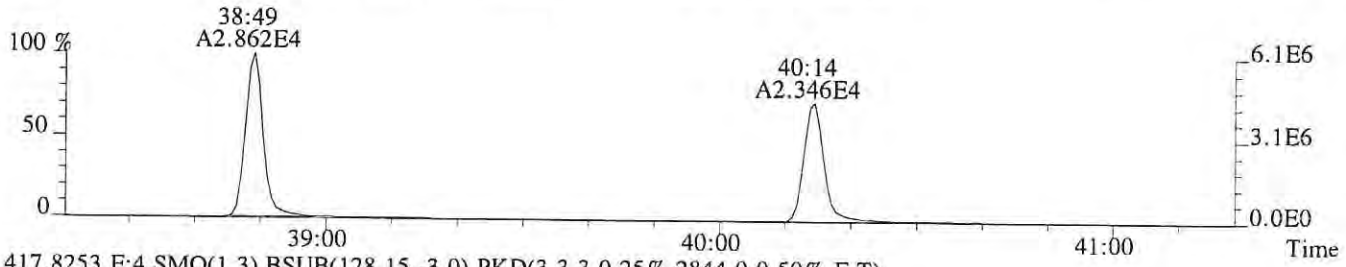
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



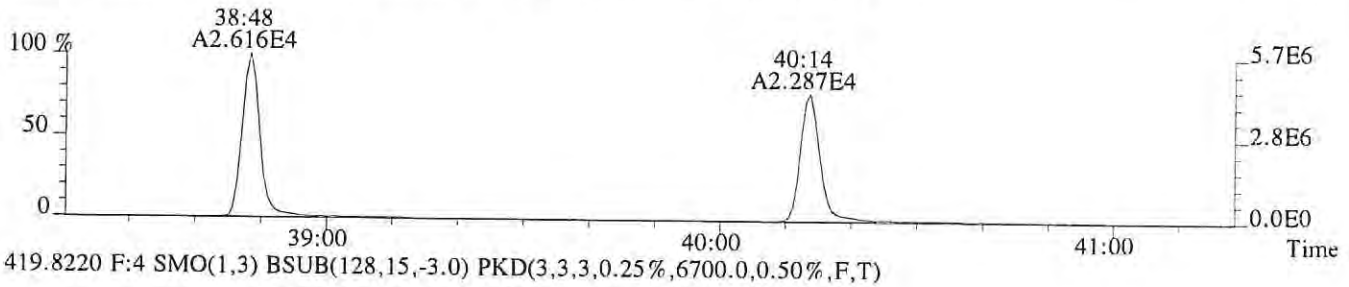
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



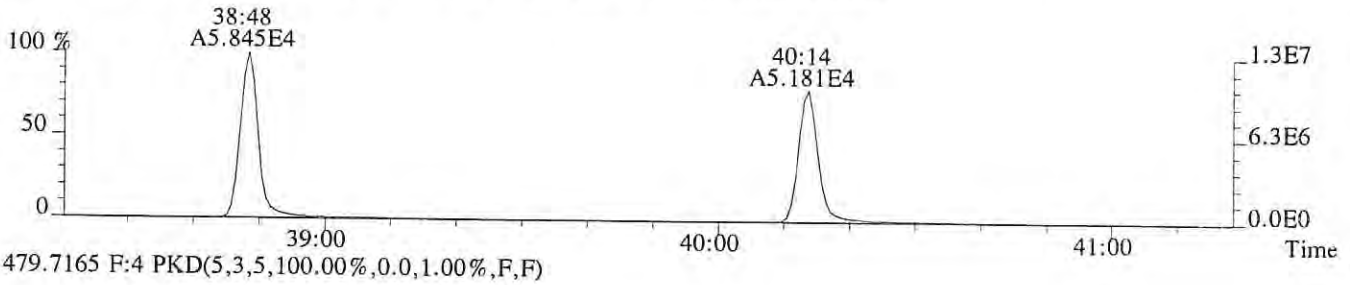
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



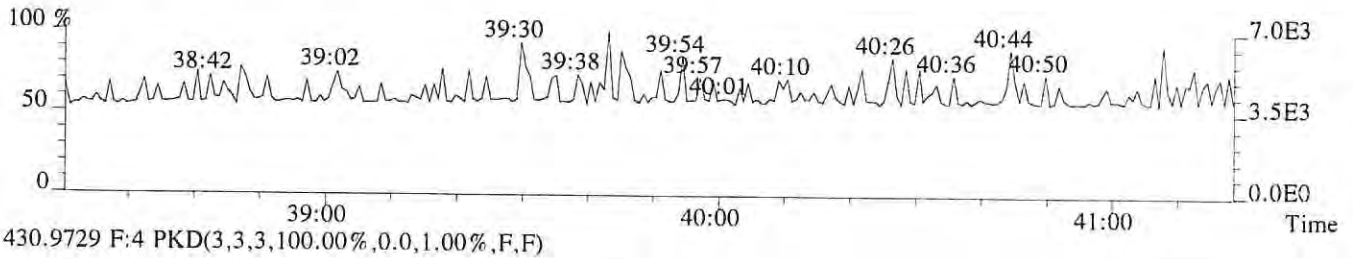
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



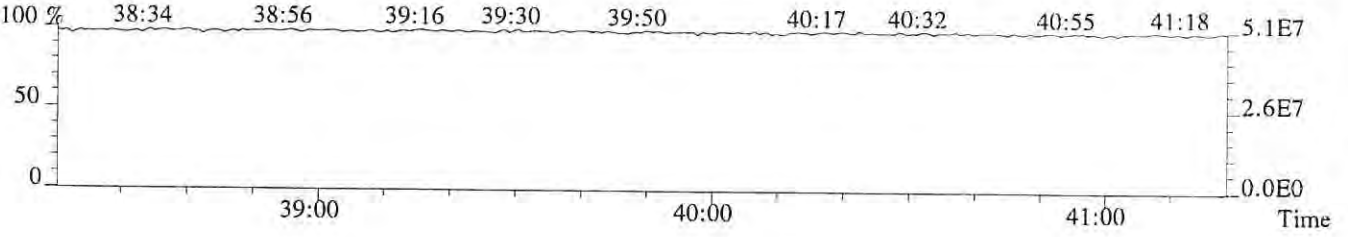
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



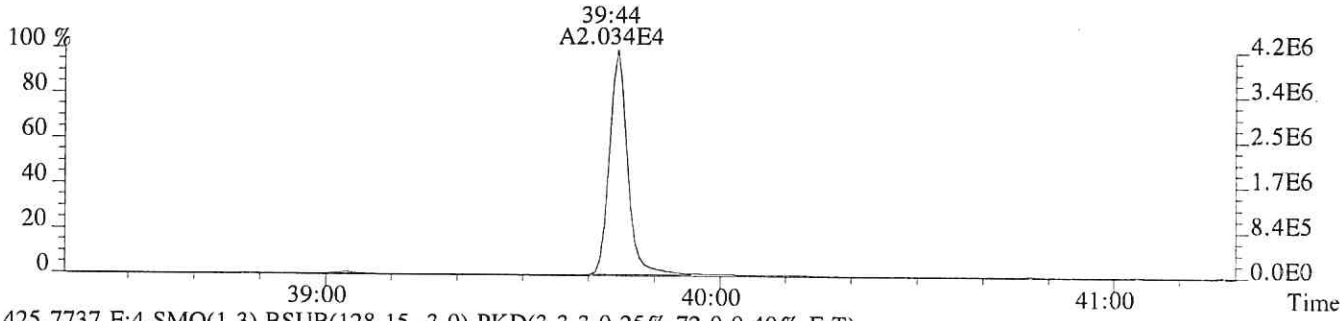
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



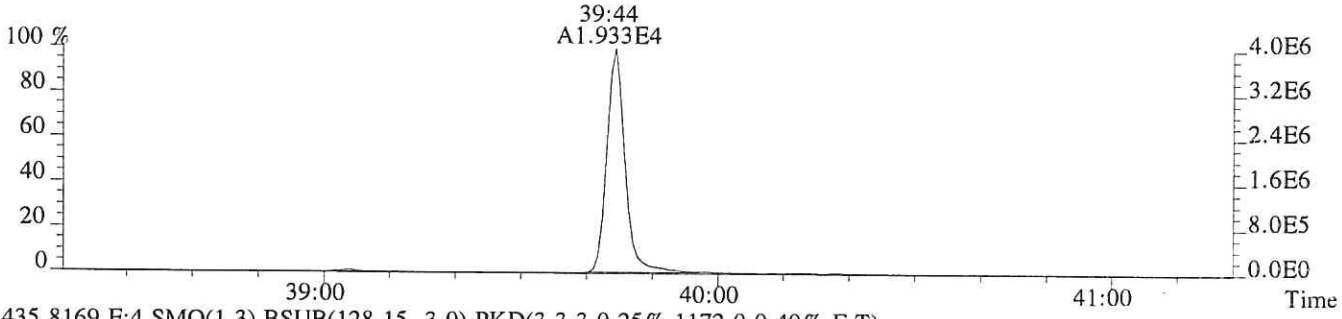
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



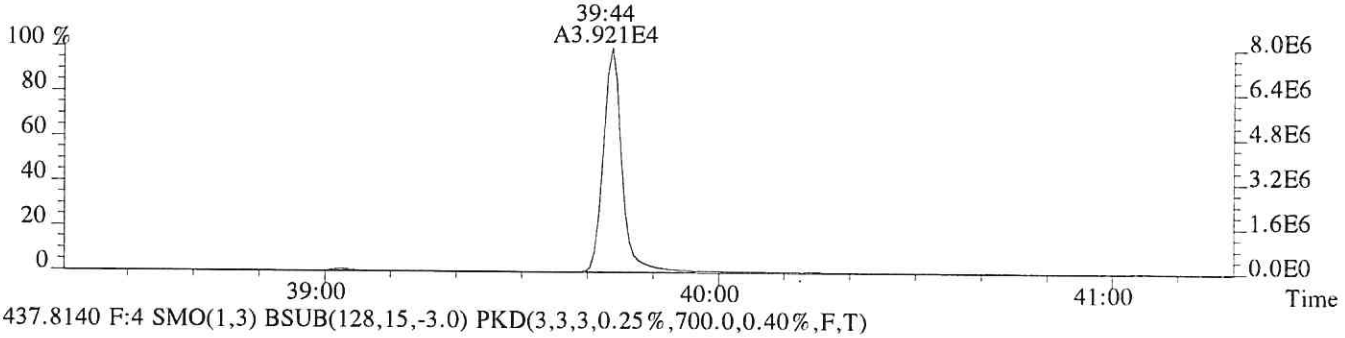
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



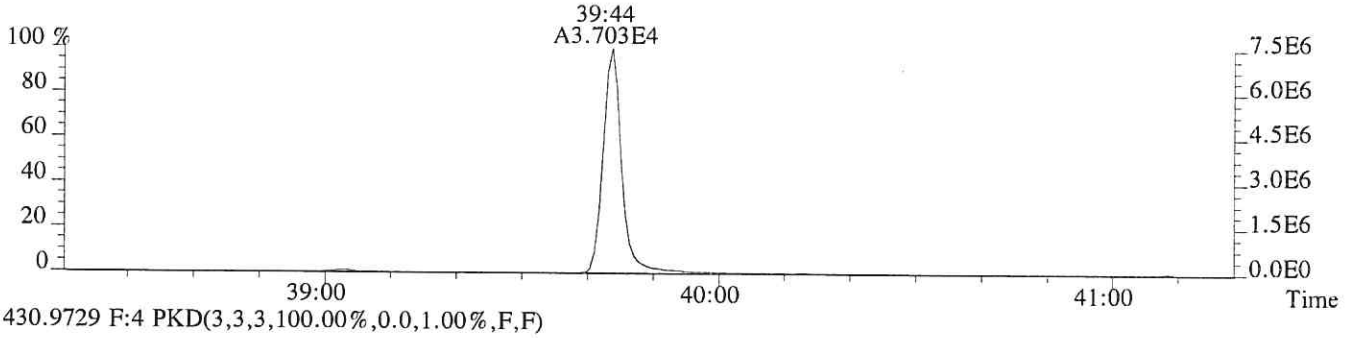
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



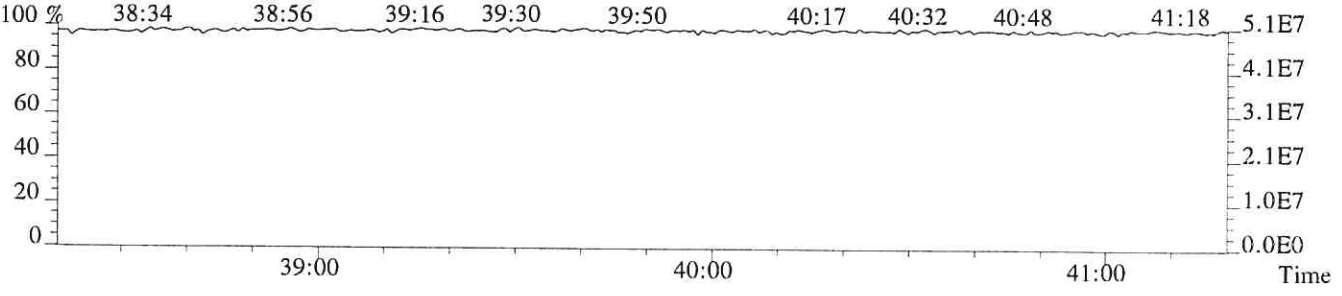
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



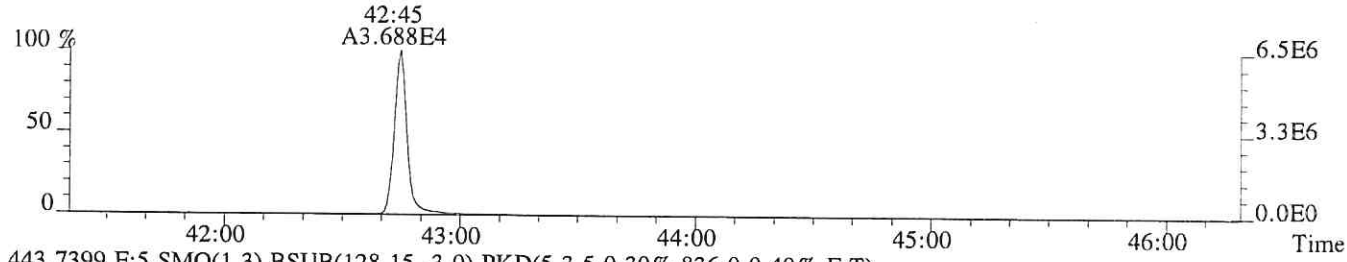
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



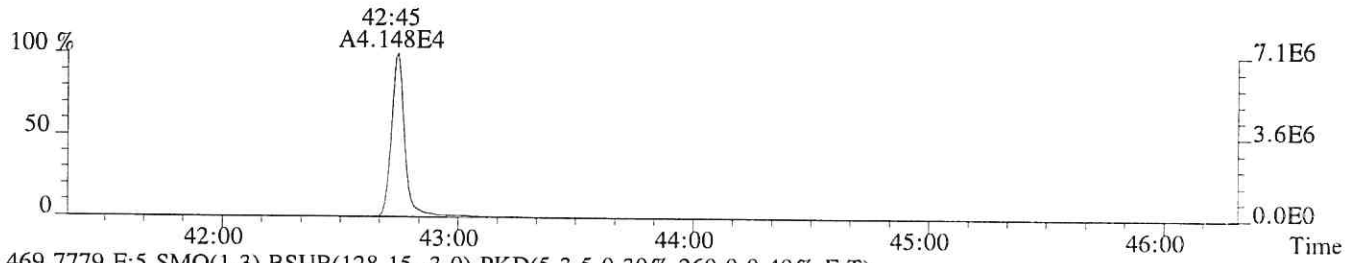
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



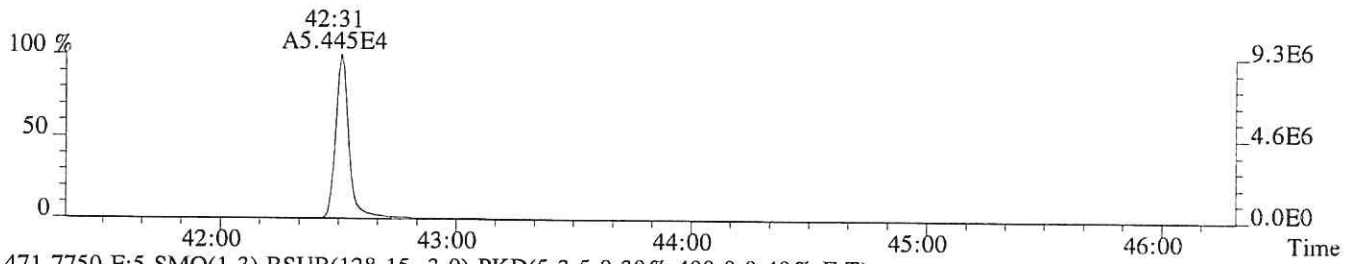
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



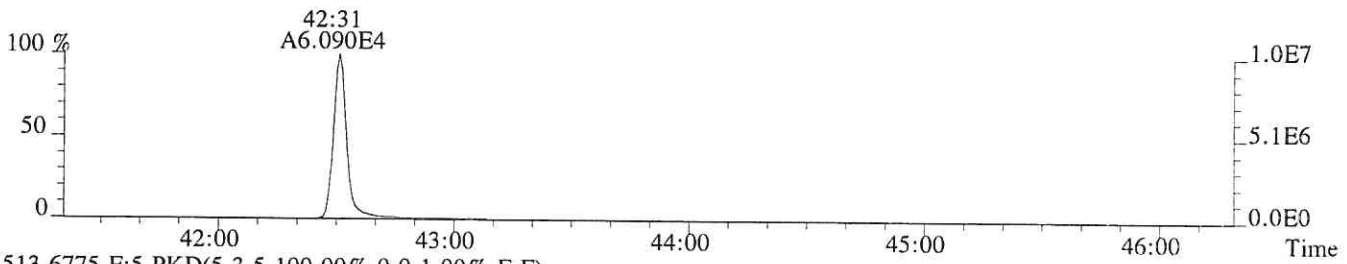
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



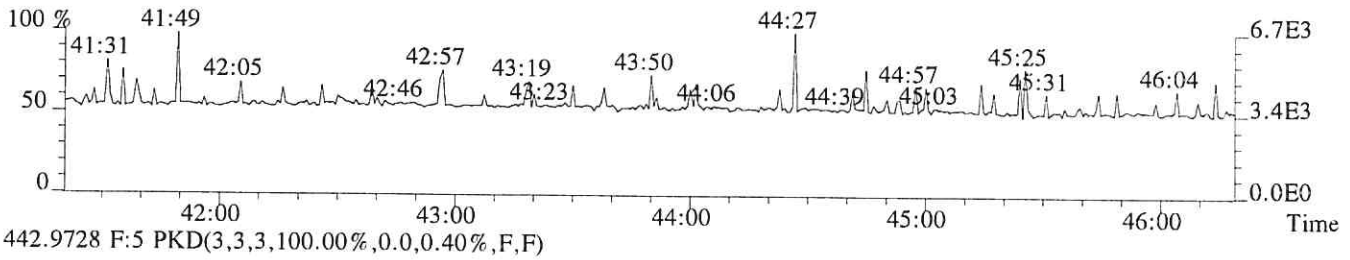
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



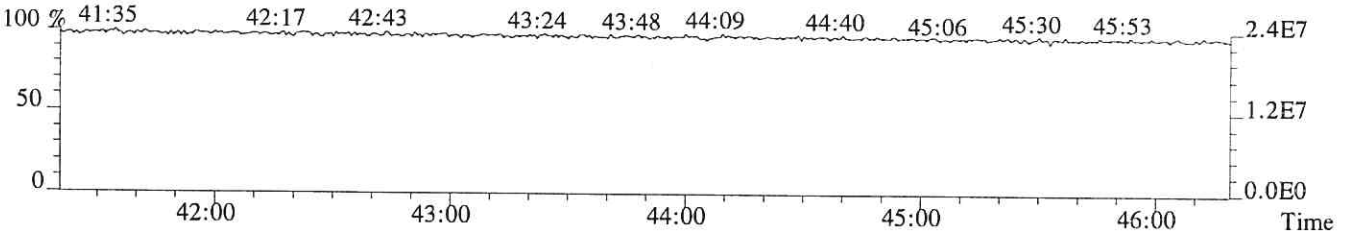
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



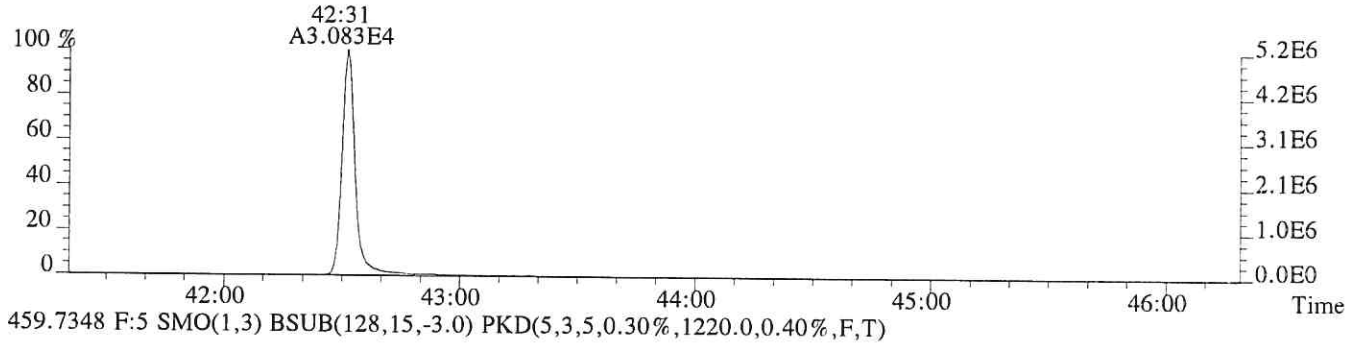
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



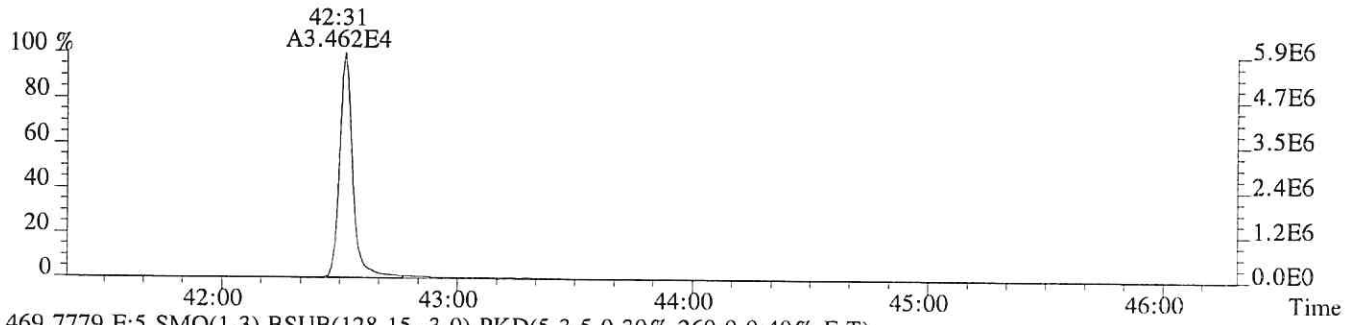
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



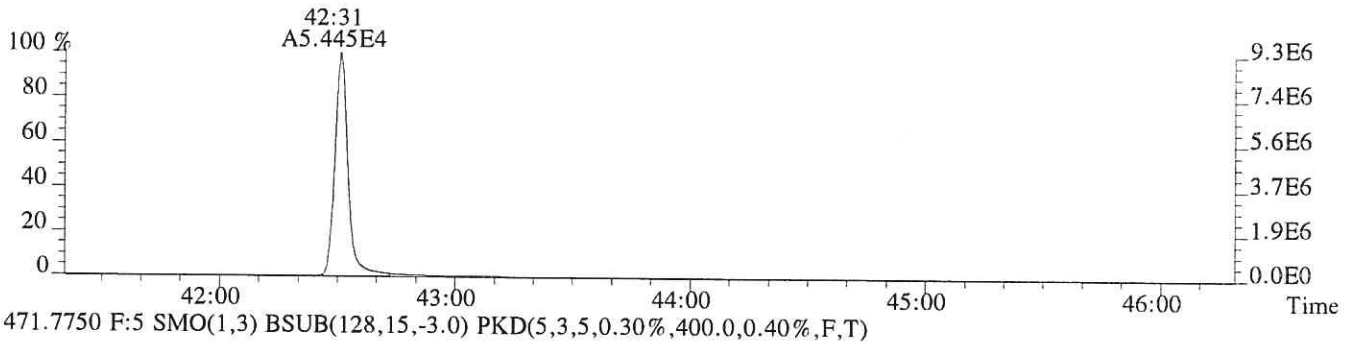
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



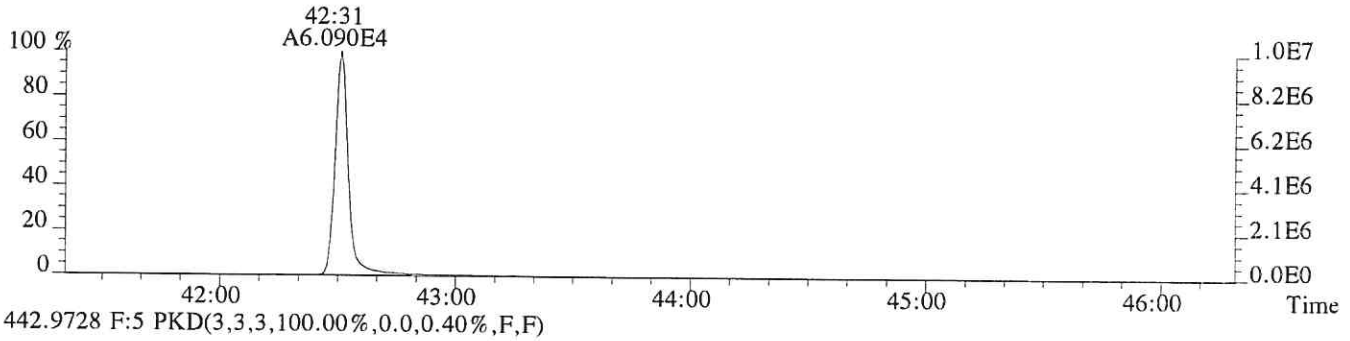
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



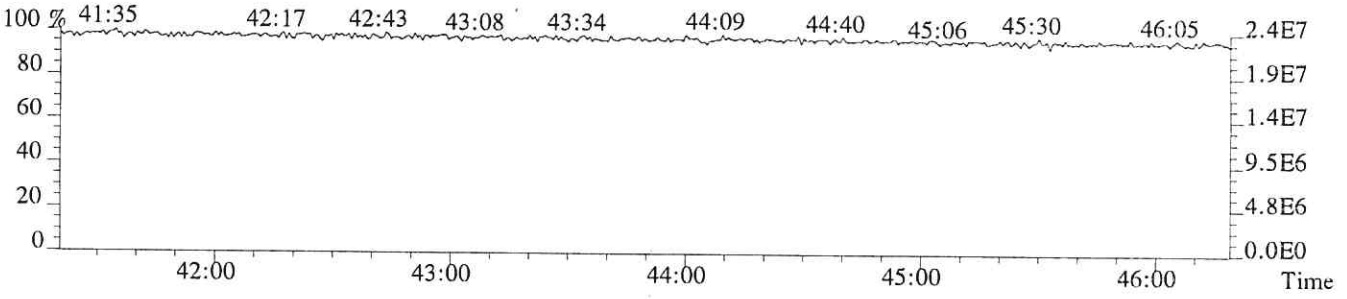
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)?						
PCB-34 and PCB-23				√		
PCB-187 and PCB-182						
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor Signature: Kristin Weir	

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?			√		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690 res

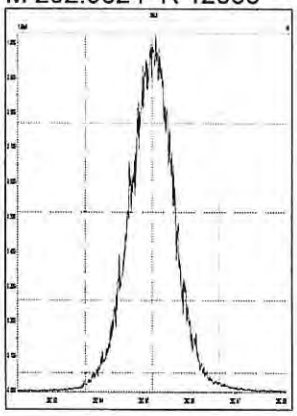
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use.
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 09/26/18

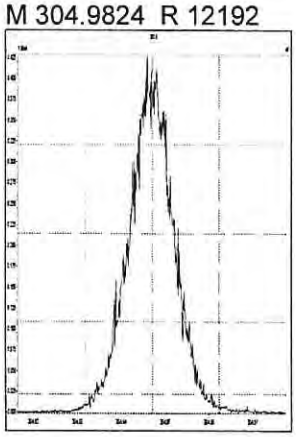
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

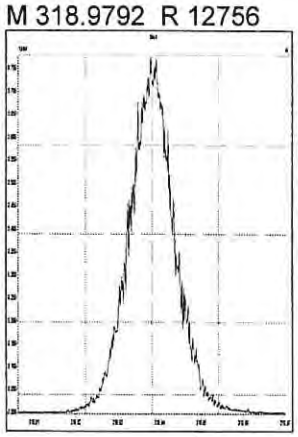
M 292.9824 R 12568



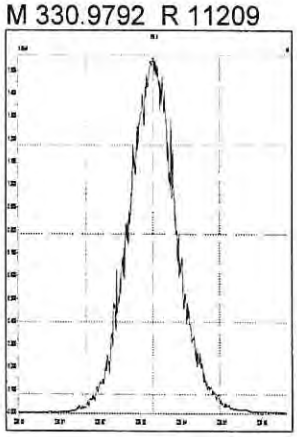
M 304.9824 R 12192



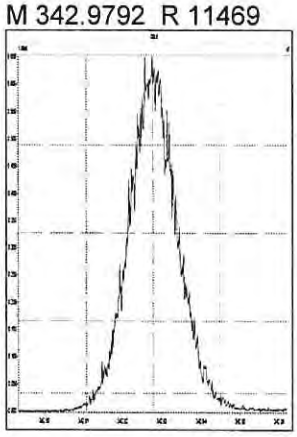
M 318.9792 R 12756



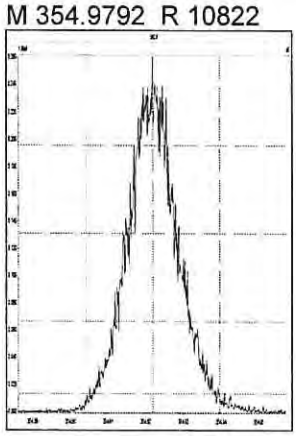
M 330.9792 R 11209



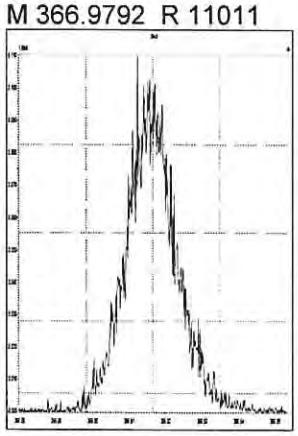
M 342.9792 R 11469



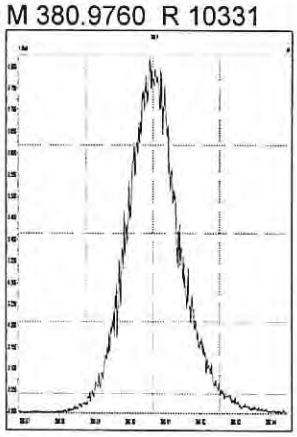
M 354.9792 R 10822



M 366.9792 R 11011



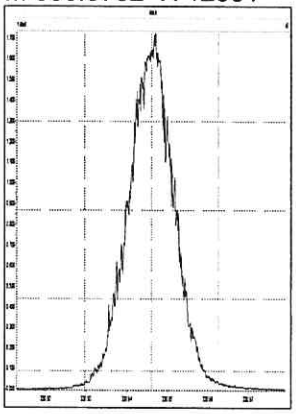
M 380.9760 R 10331



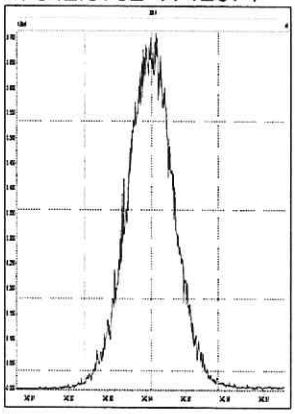
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

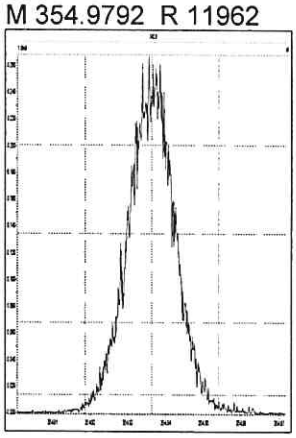
M 330.9792 R 12381



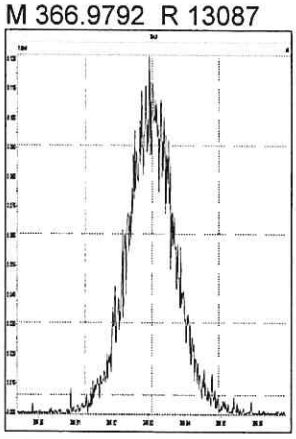
M 342.9792 R 12074



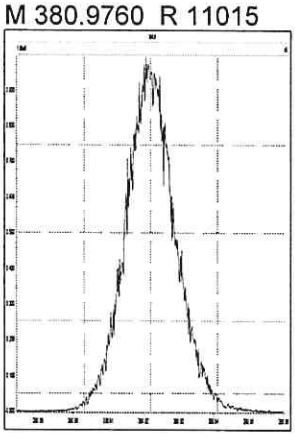
M 354.9792 R 11962



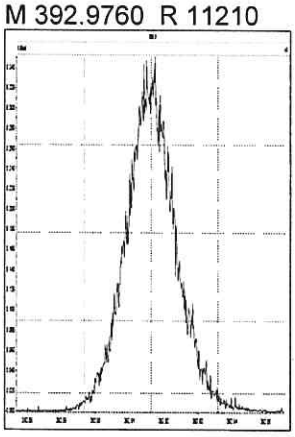
M 366.9792 R 13087



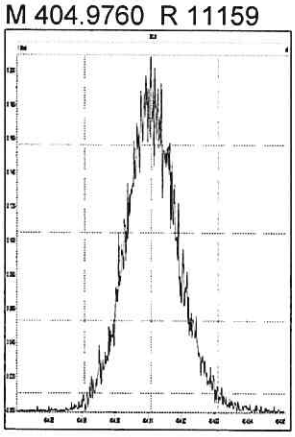
M 380.9760 R 11015



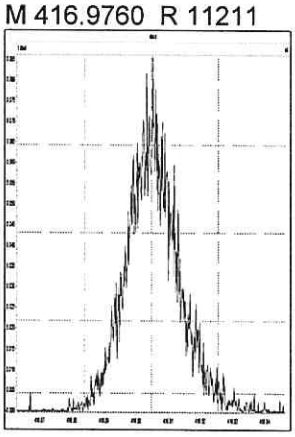
M 392.9760 R 11210



M 404.9760 R 11159



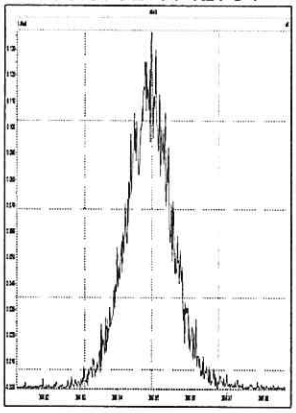
M 416.9760 R 11211



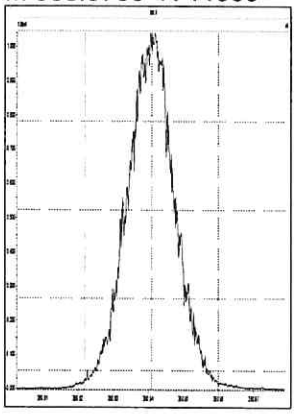
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

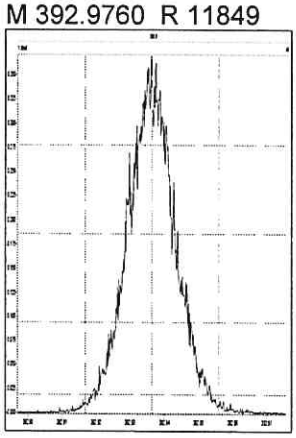
M 366.9792 R 12754



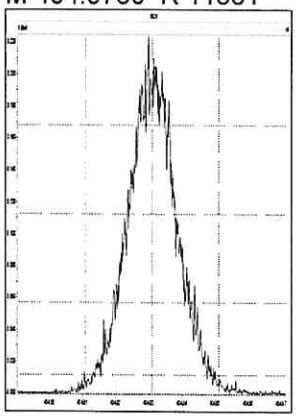
M 380.9760 R 11959



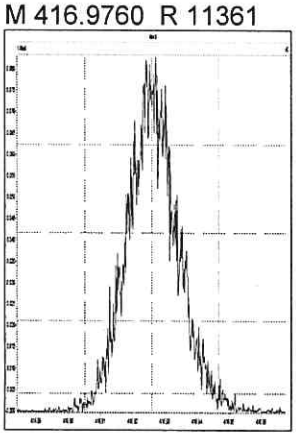
M 392.9760 R 11849



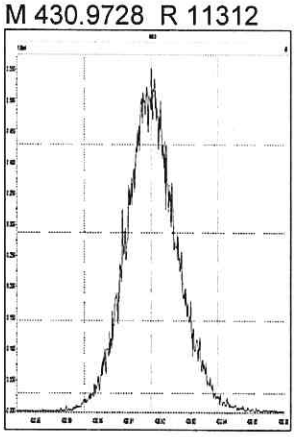
M 404.9760 R 11681



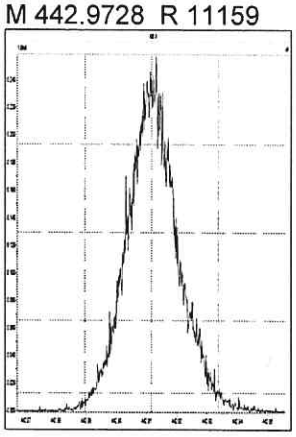
M 416.9760 R 11361



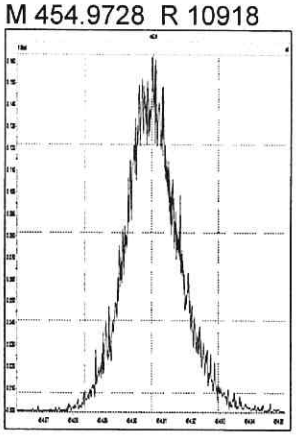
M 430.9728 R 11312



M 442.9728 R 11159



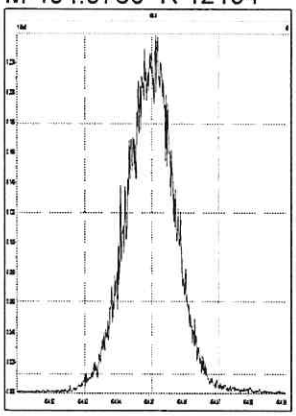
M 454.9728 R 10918



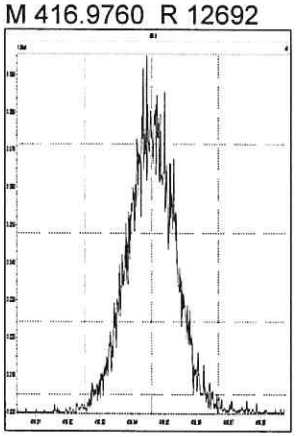
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

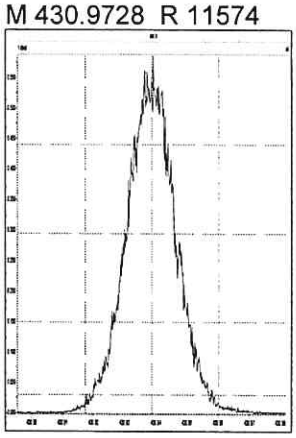
M 404.9760 R 12194



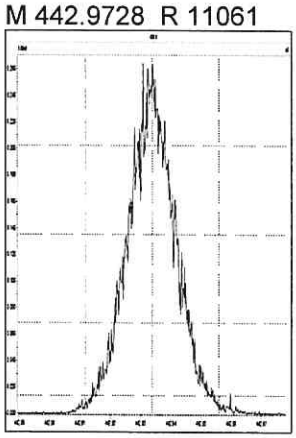
M 416.9760 R 12692



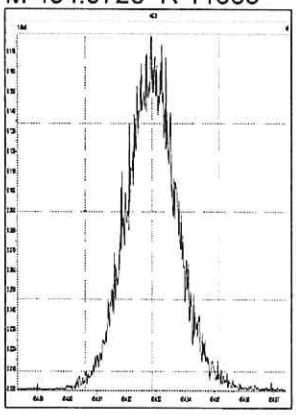
M 430.9728 R 11574



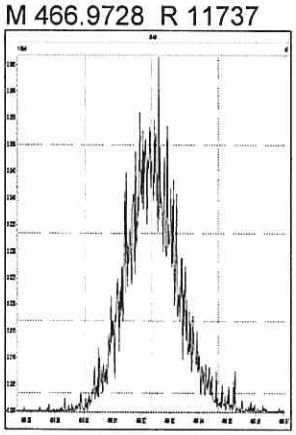
M 442.9728 R 11061



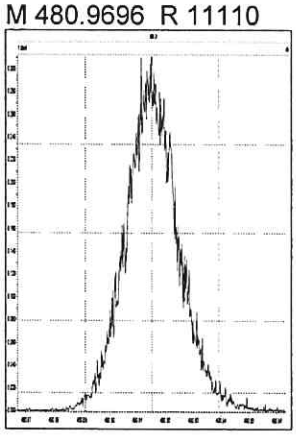
M 454.9728 R 11683



M 466.9728 R 11737



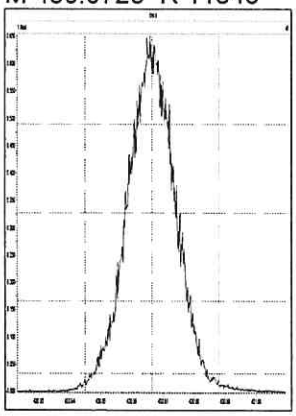
M 480.9696 R 11110



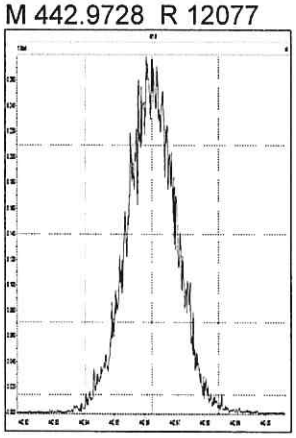
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

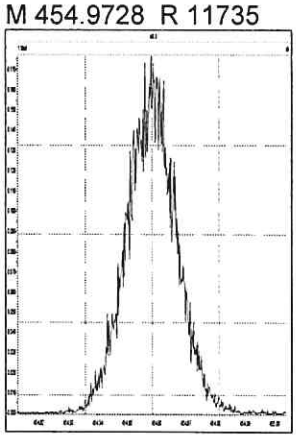
M 430.9728 R 11845



M 442.9728 R 12077



M 454.9728 R 11735



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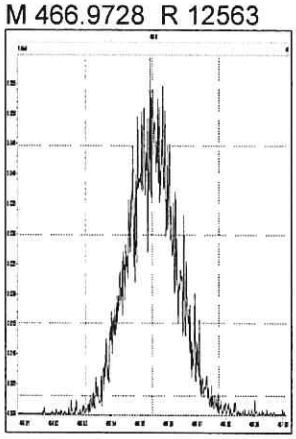
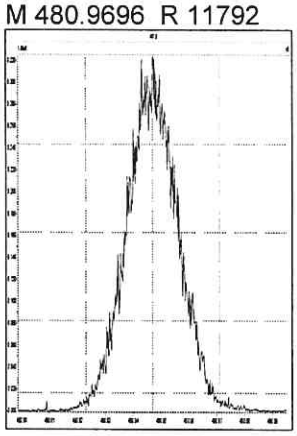
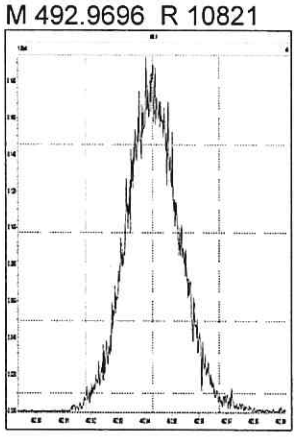


M 480.9696 R 11792



M 492.9696 R 10821



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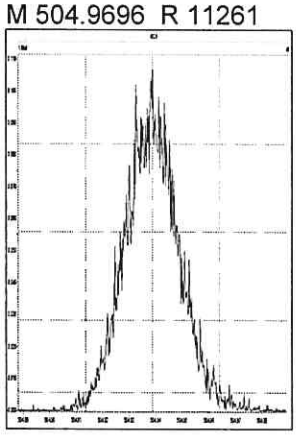

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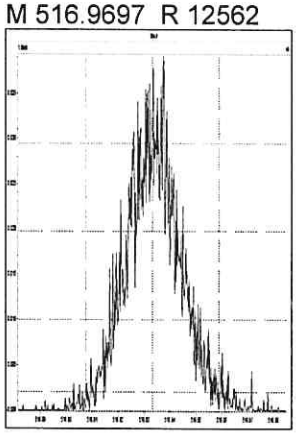

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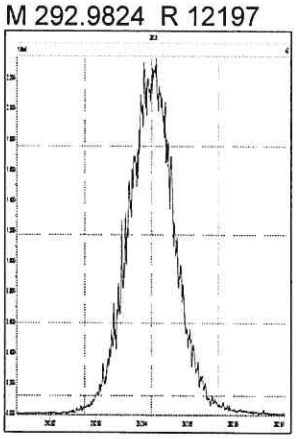

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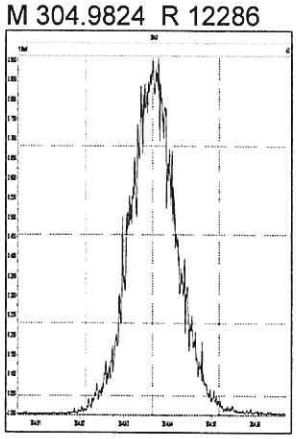

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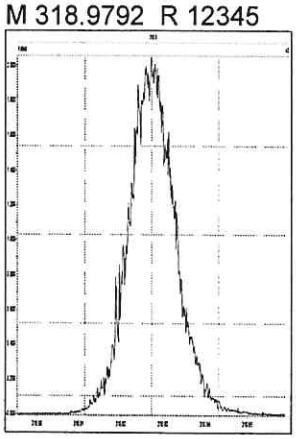

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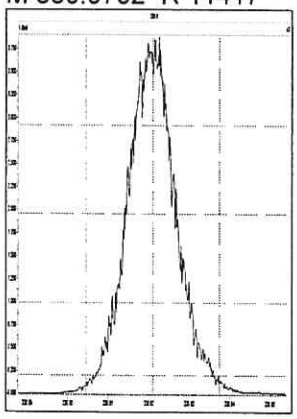

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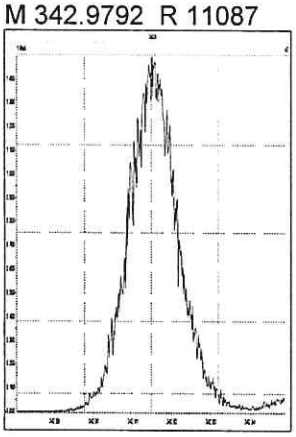

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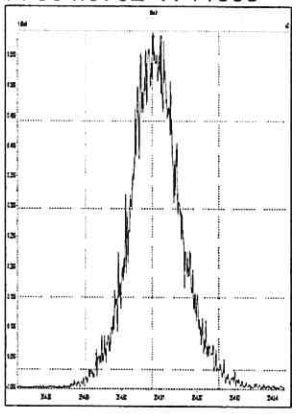

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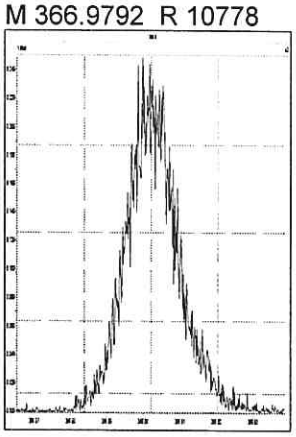

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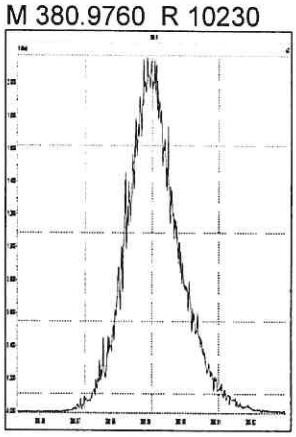

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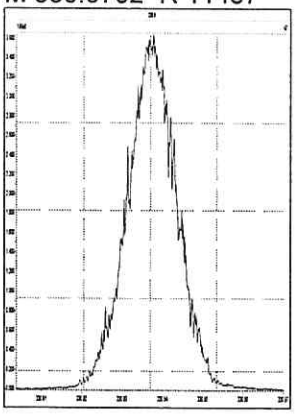

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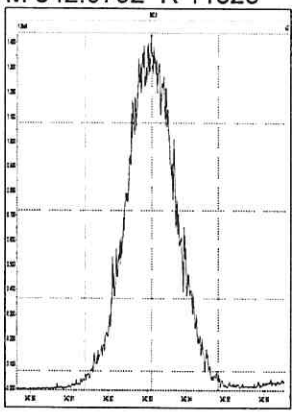

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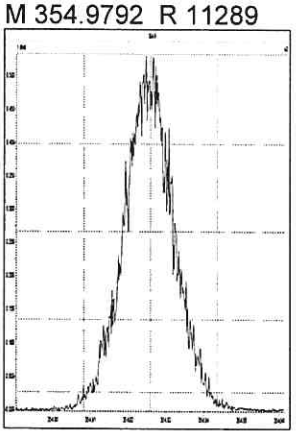

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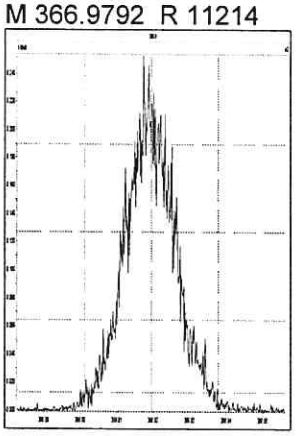

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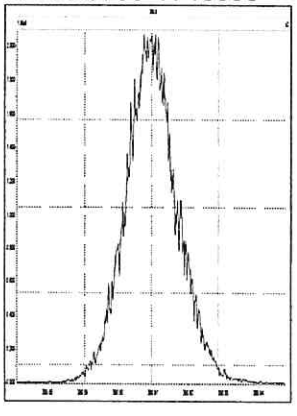

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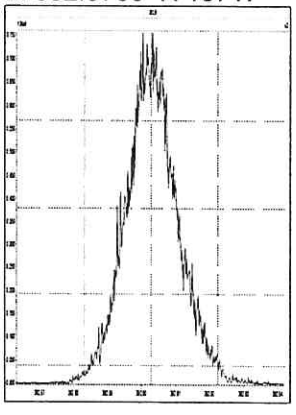

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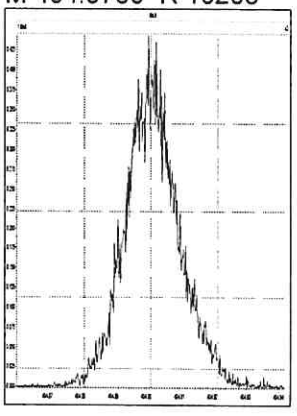

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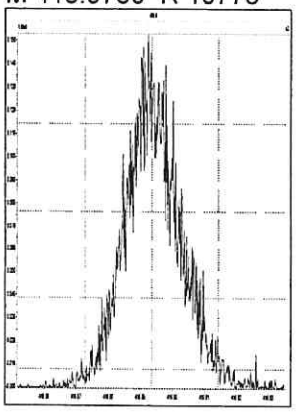

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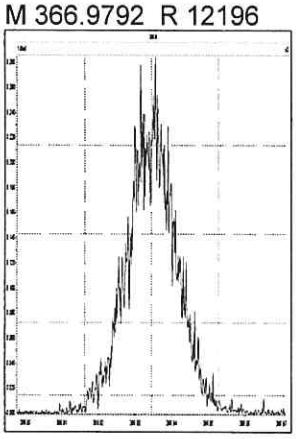

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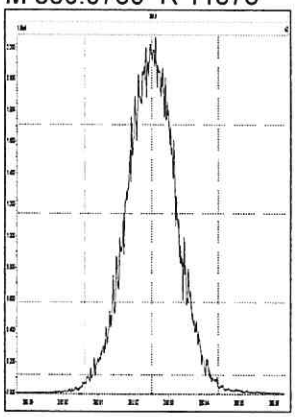

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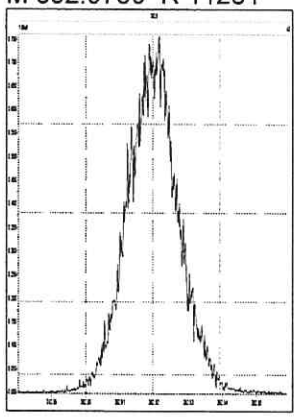

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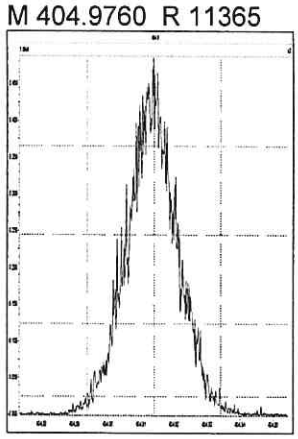

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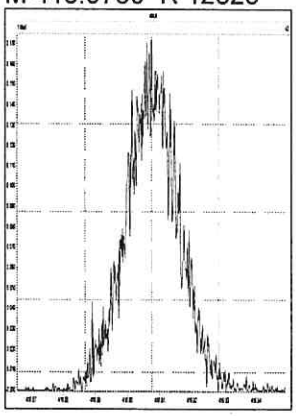

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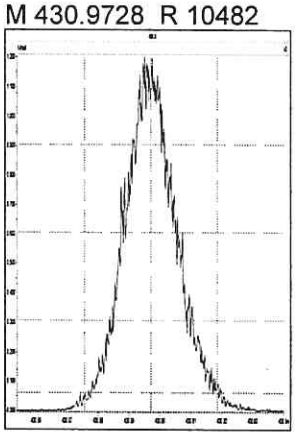

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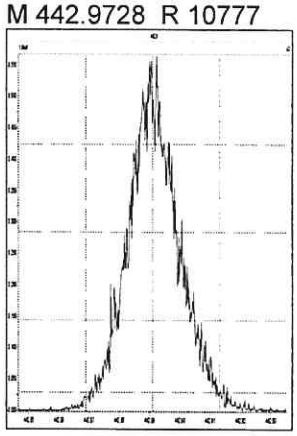

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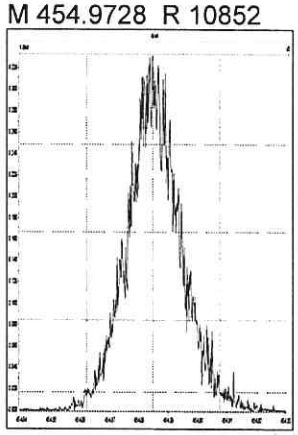

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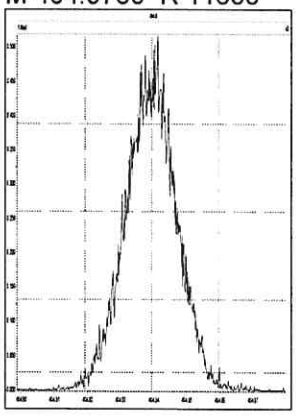

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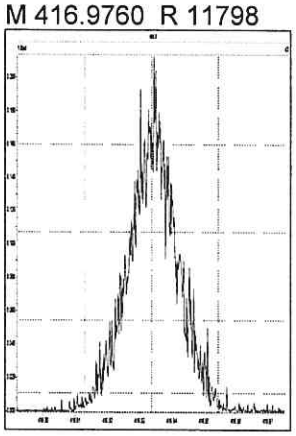

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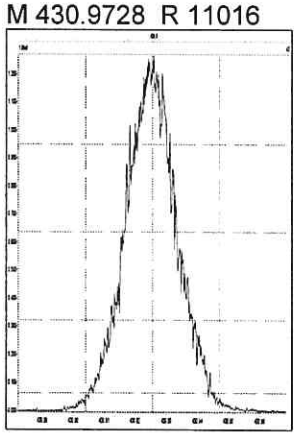

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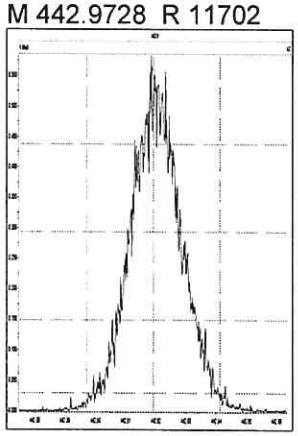

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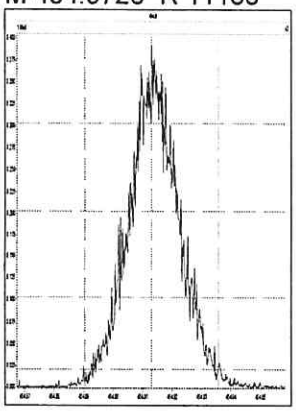

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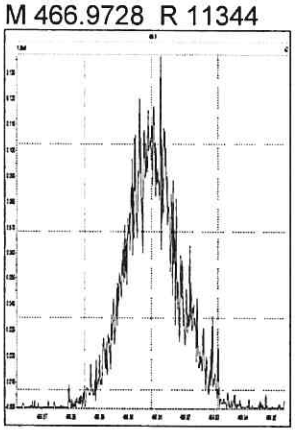
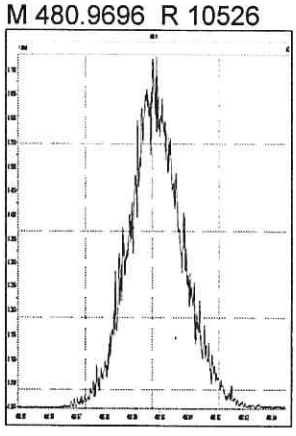


M 480.9696 R 10526



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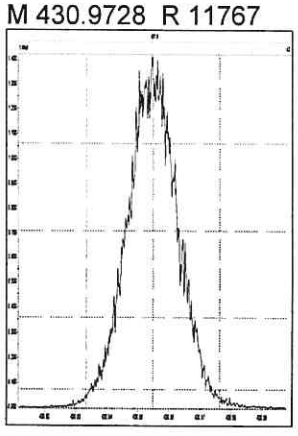

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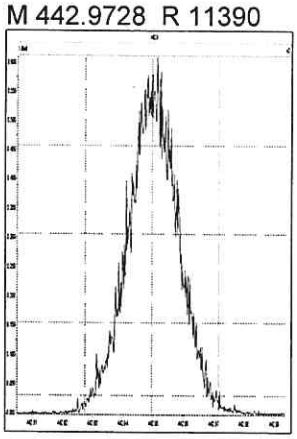

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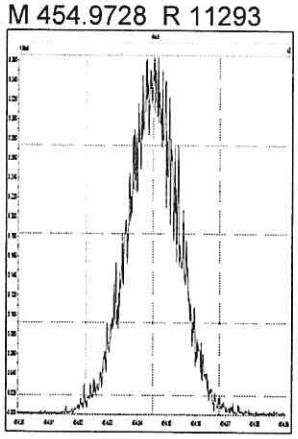

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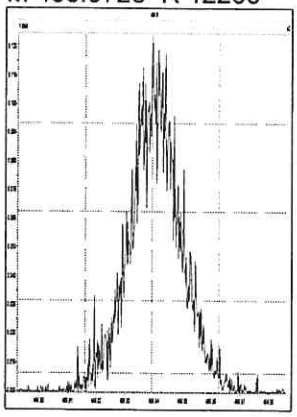

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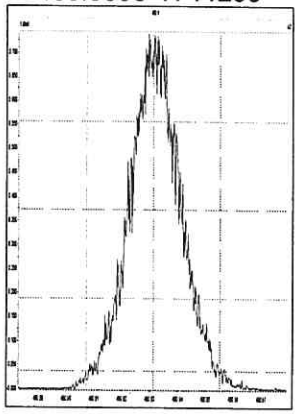

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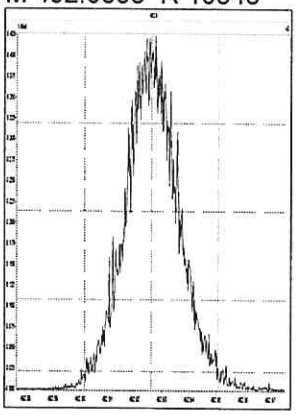

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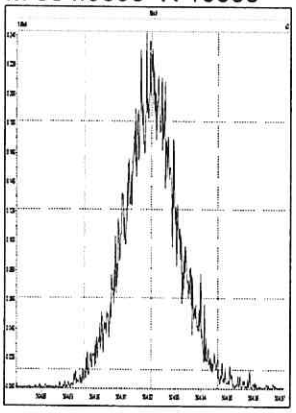

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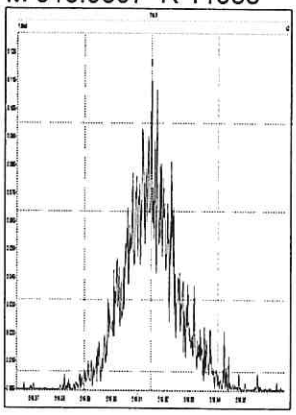


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

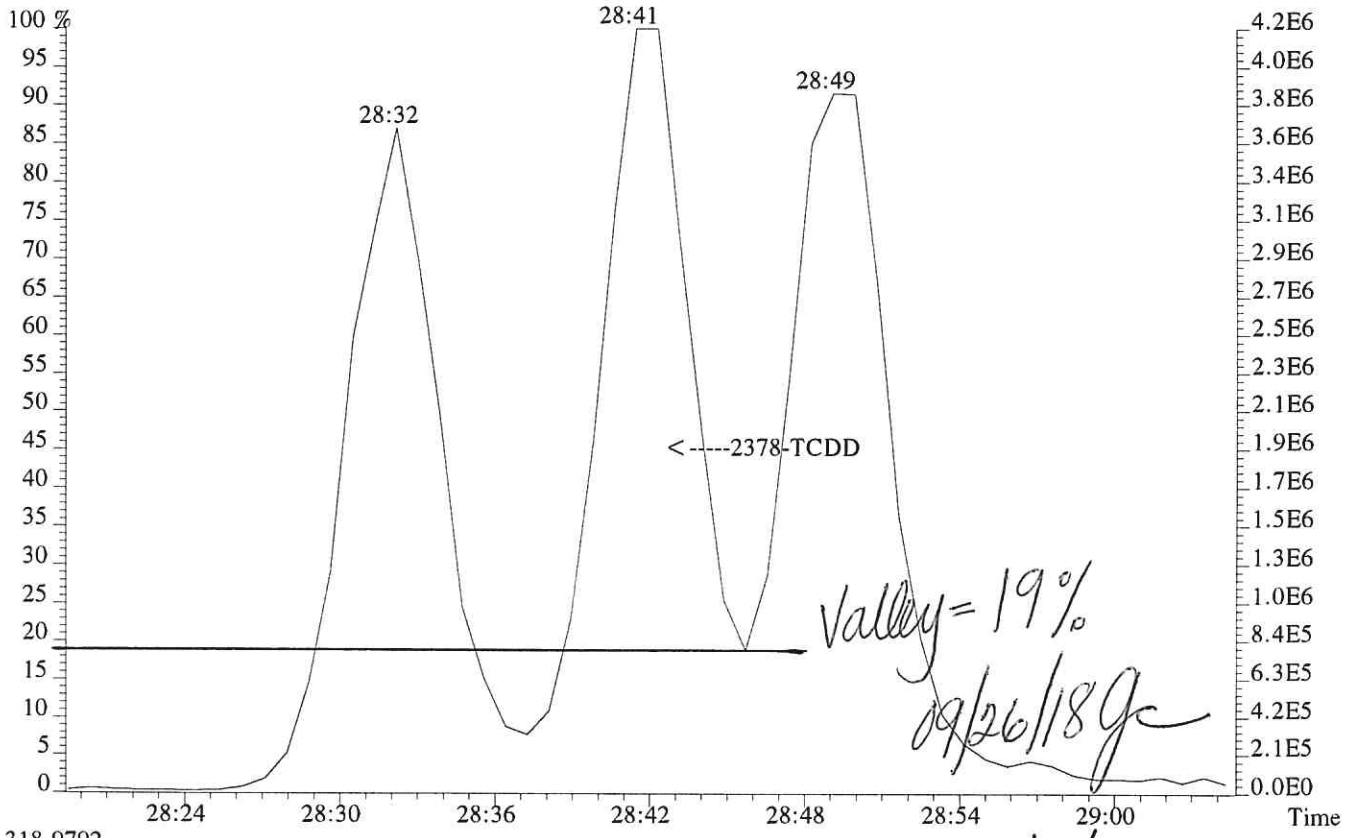
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

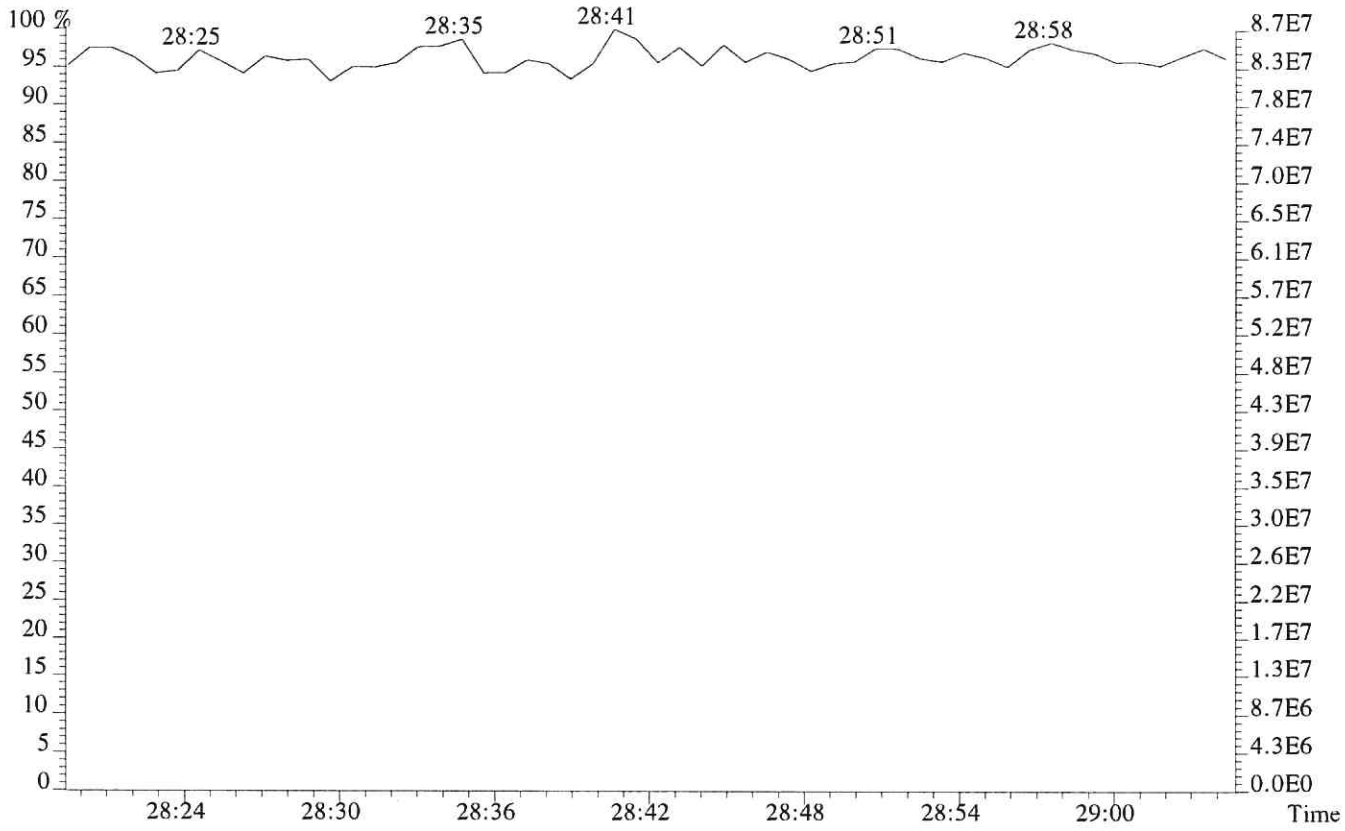
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792

LKL 09/26/18



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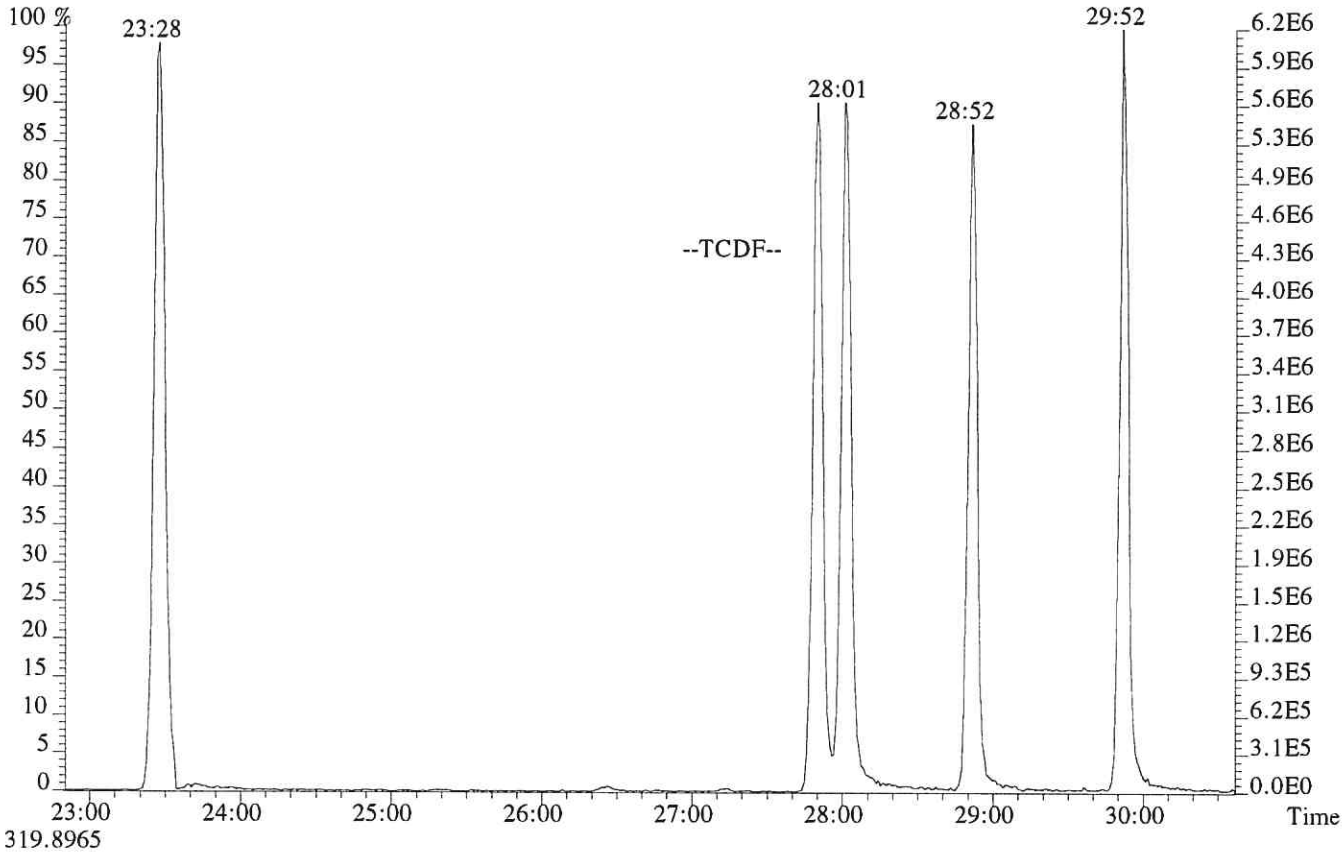
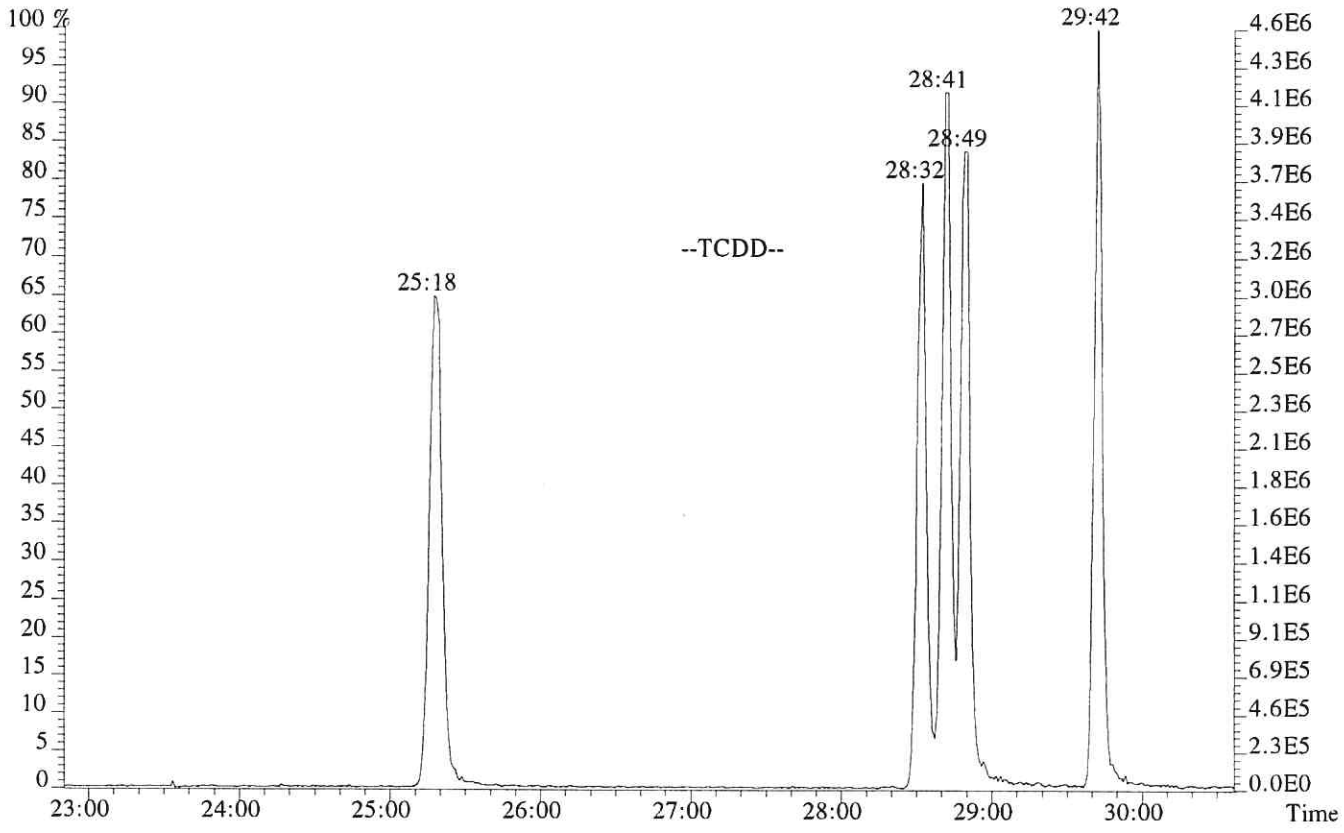
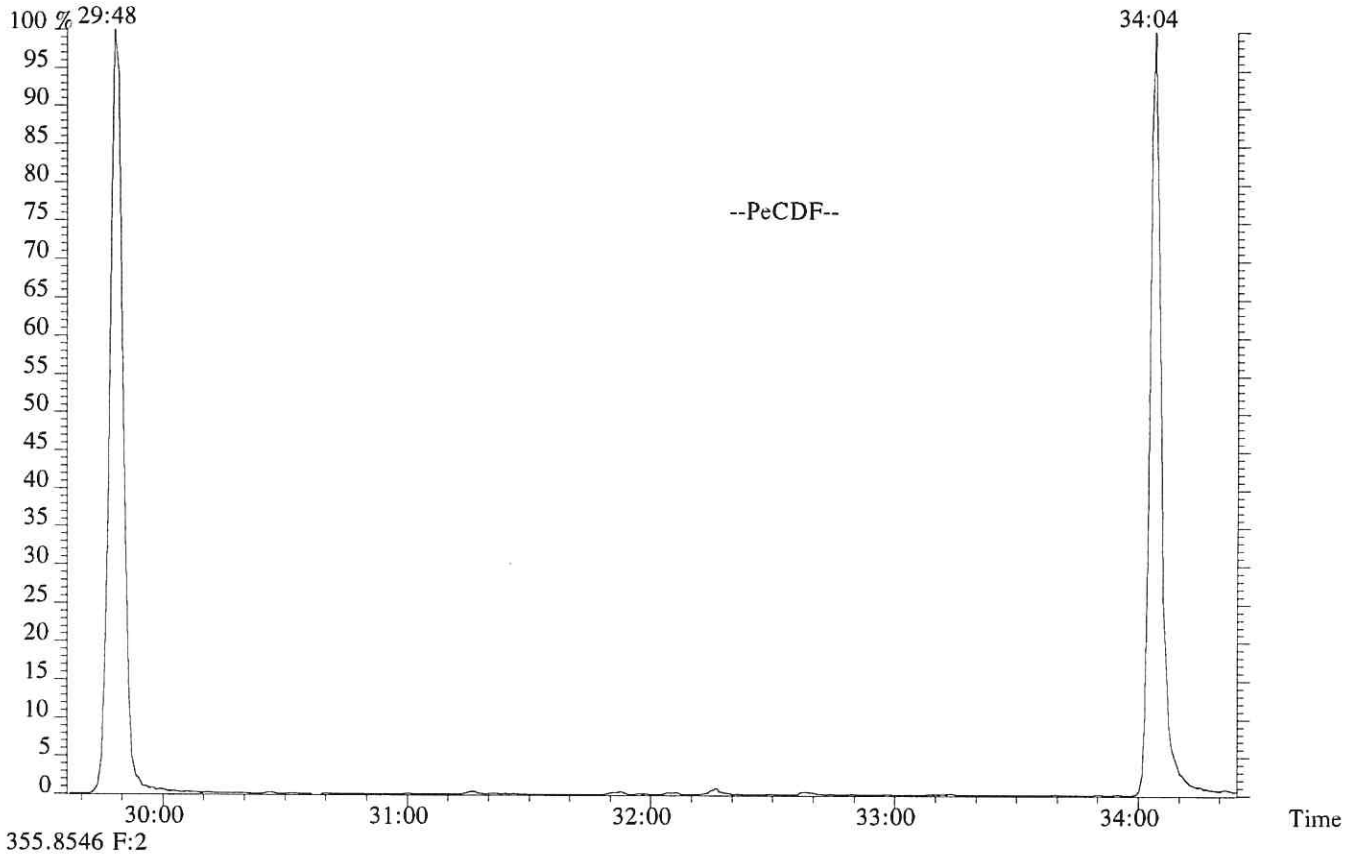
303.9016



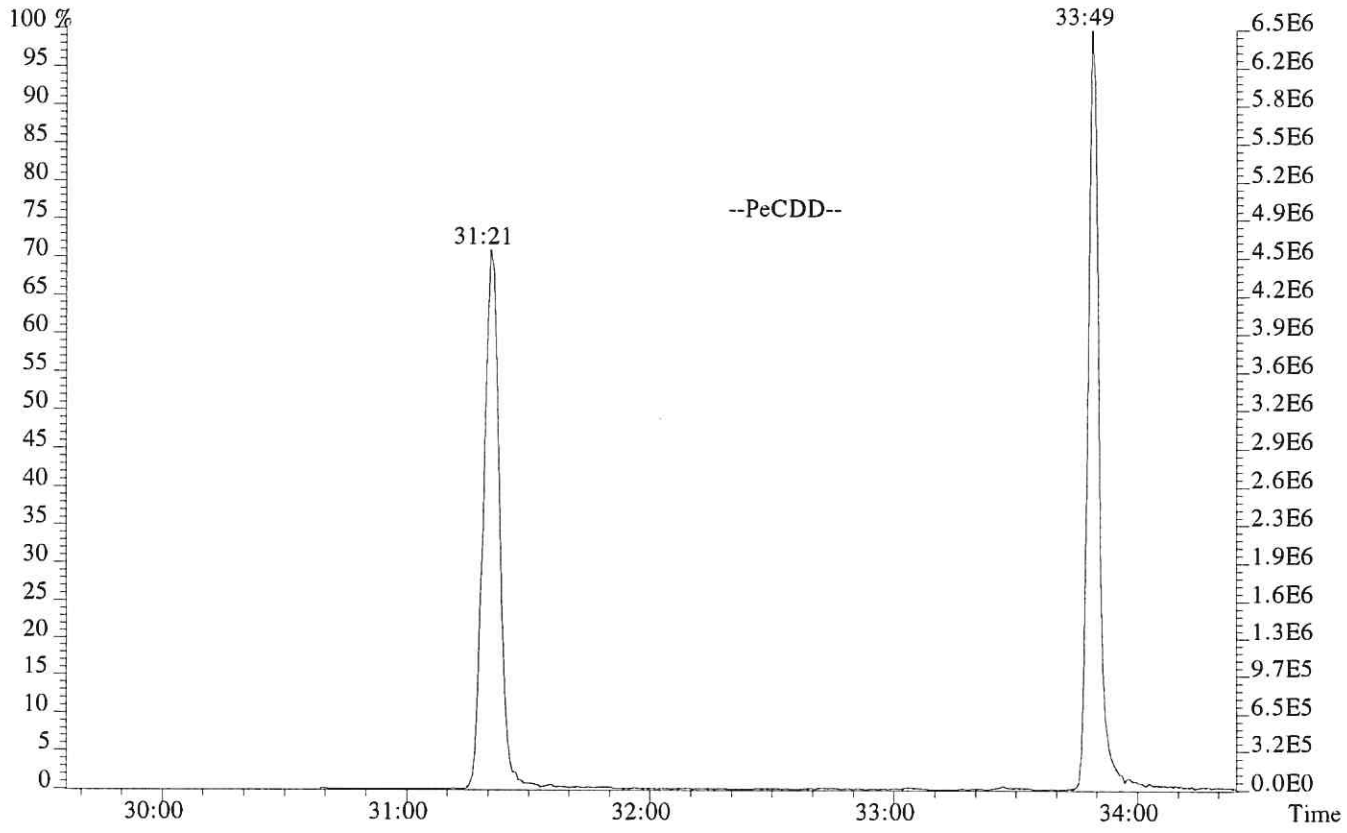
319.8965



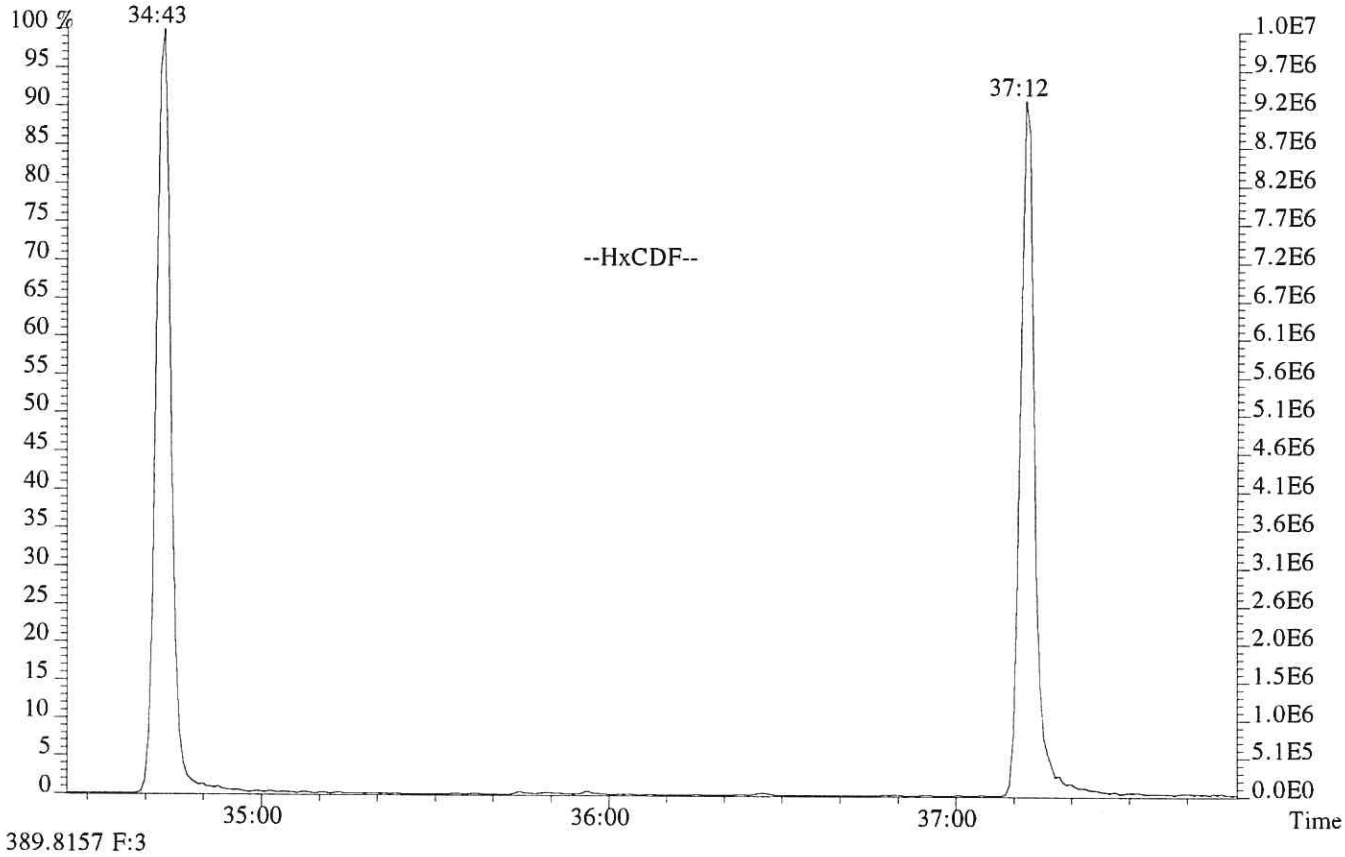
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



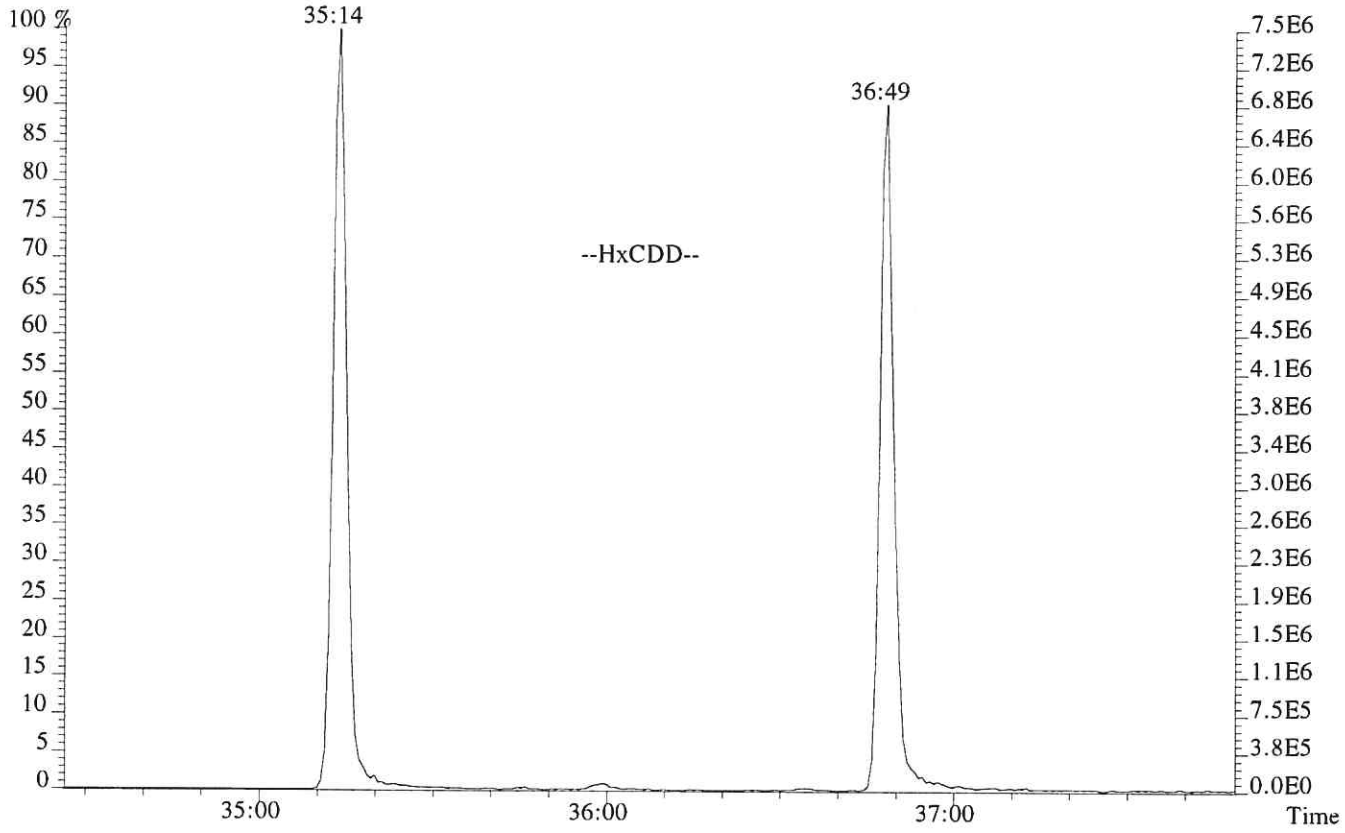
355.8546 F:2



File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



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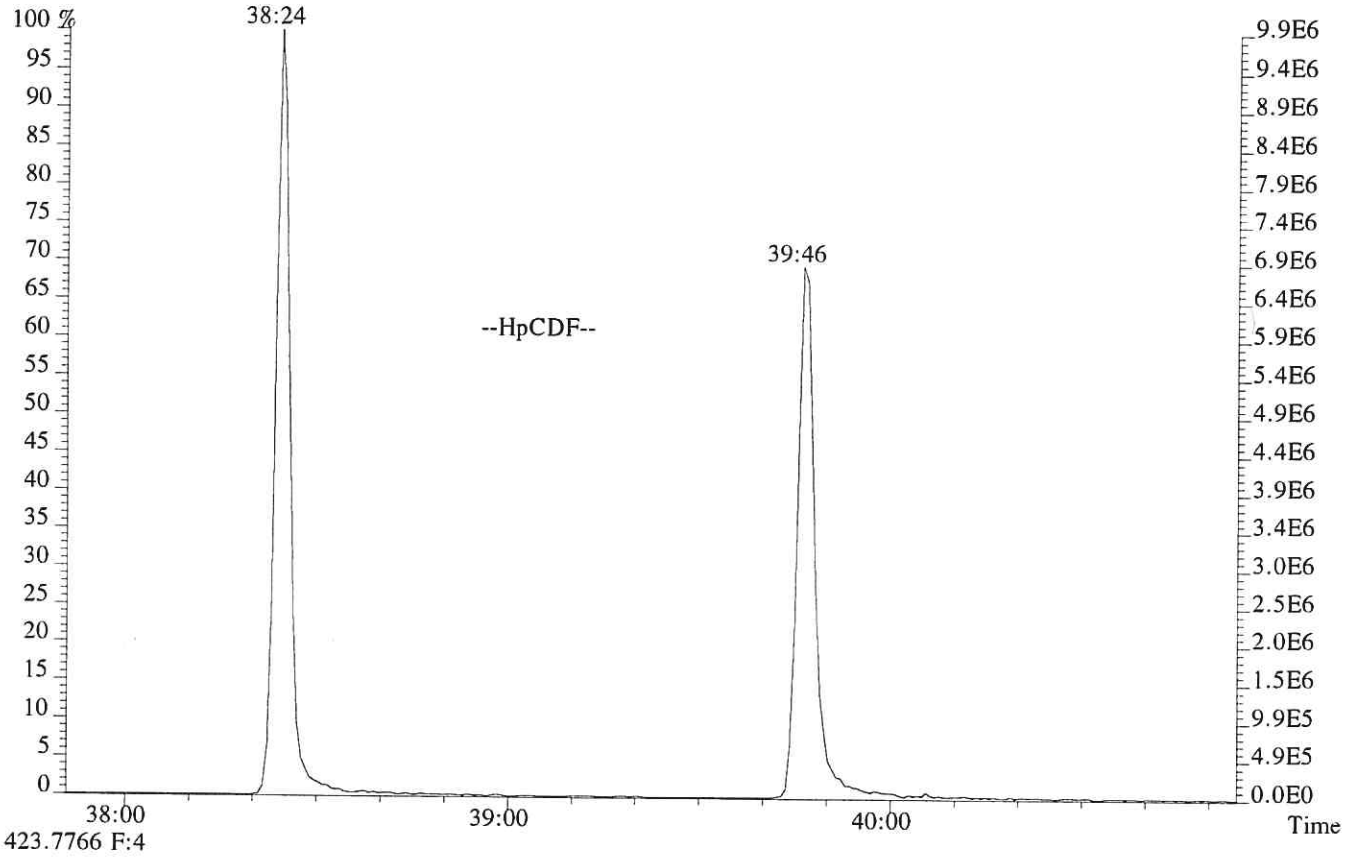
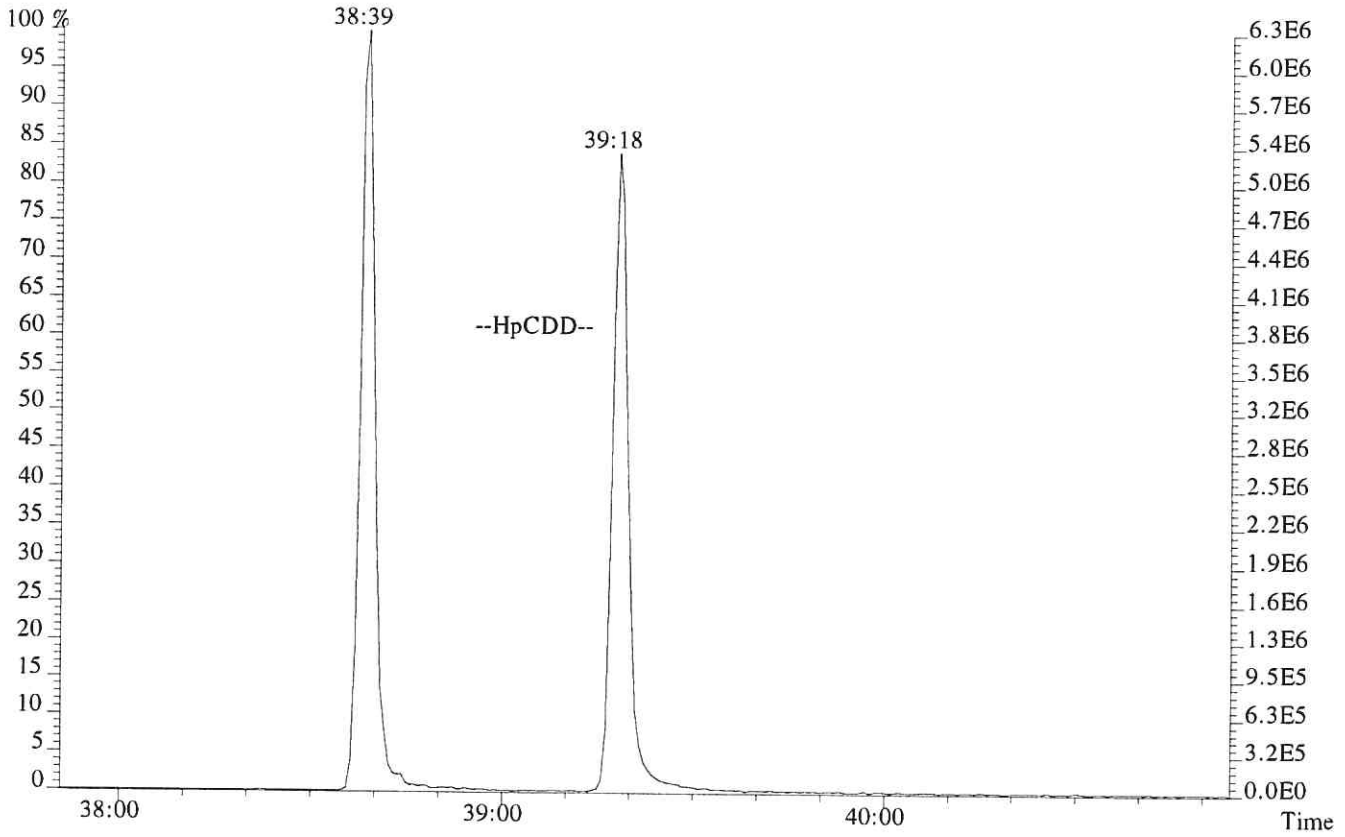
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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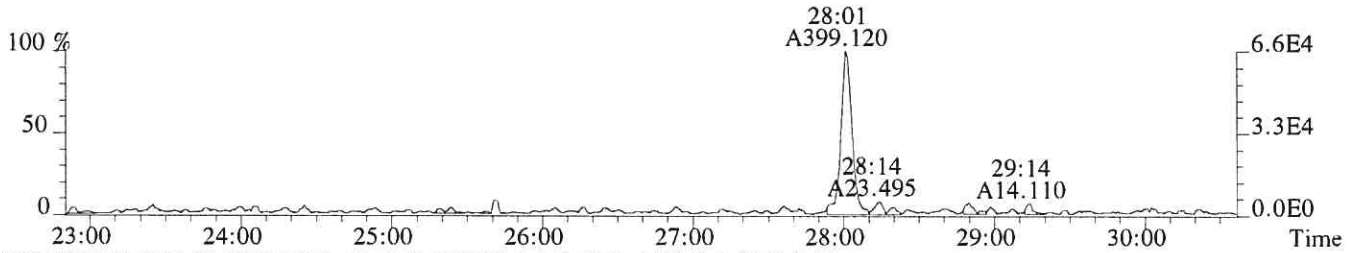
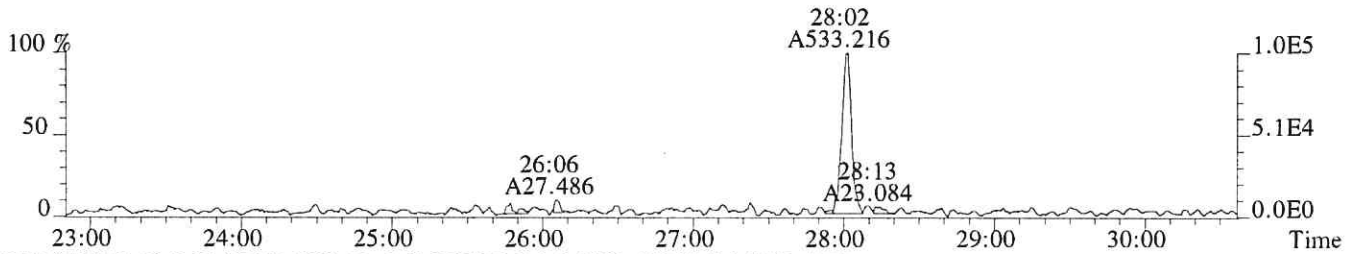
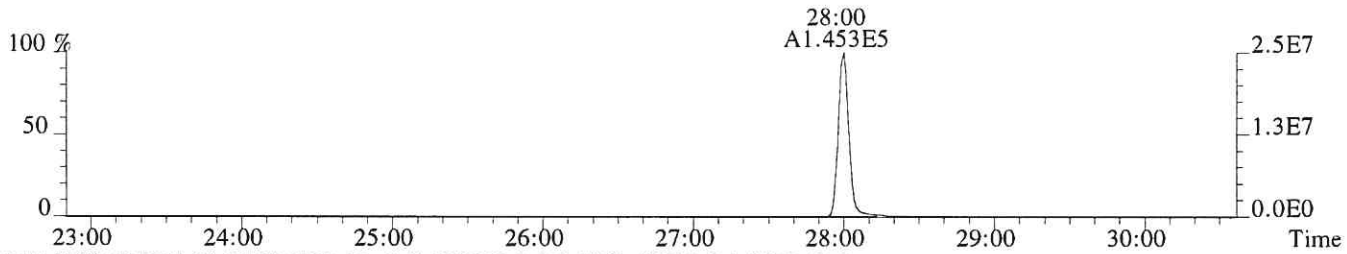
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



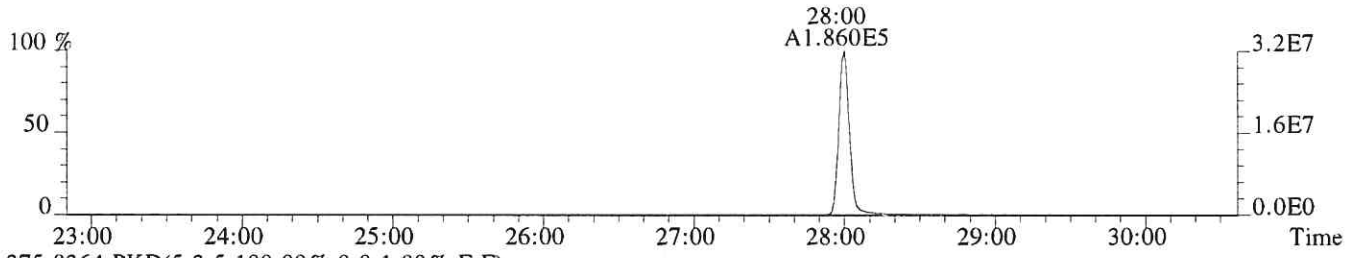
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



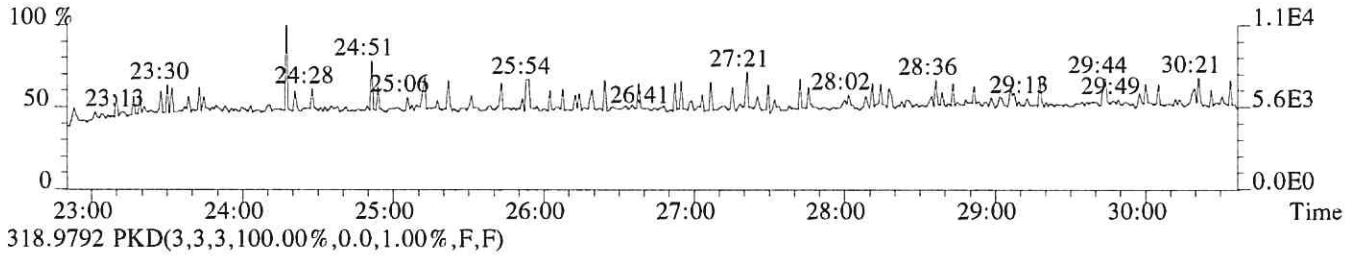
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



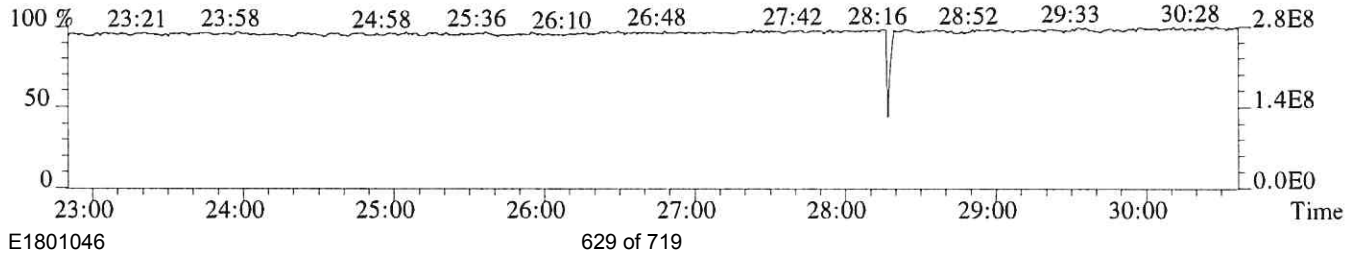
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



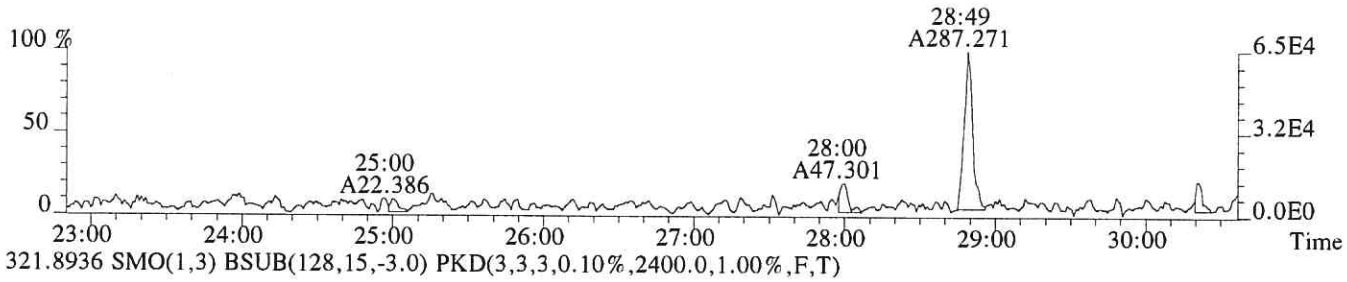
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



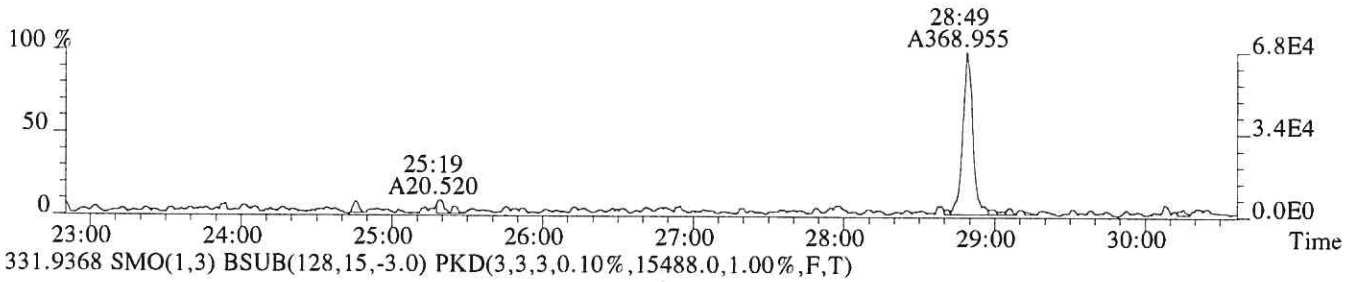
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



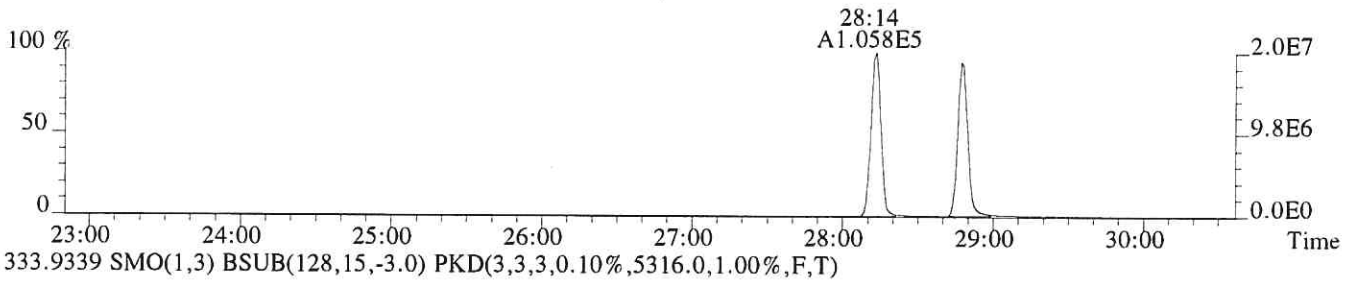
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



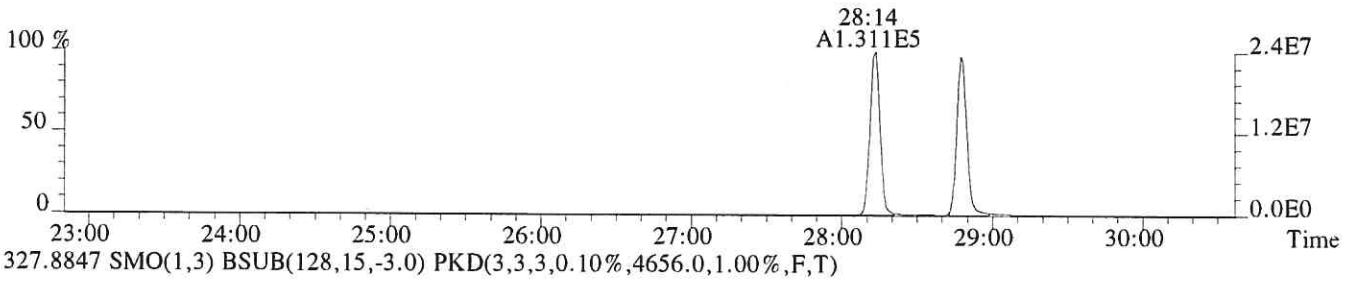
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



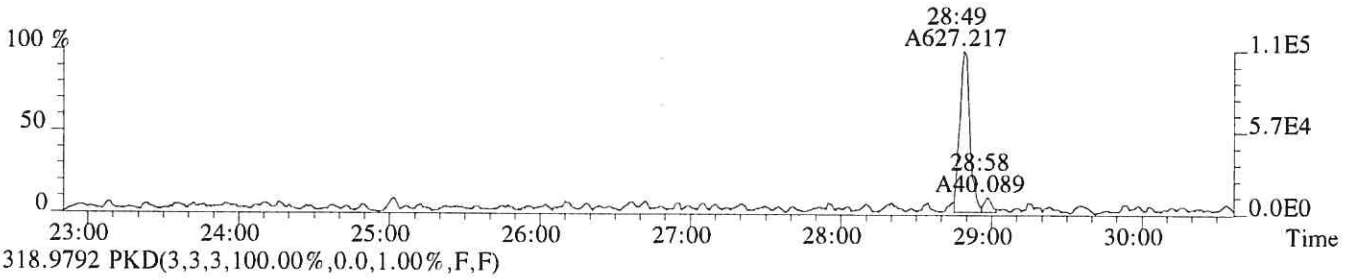
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



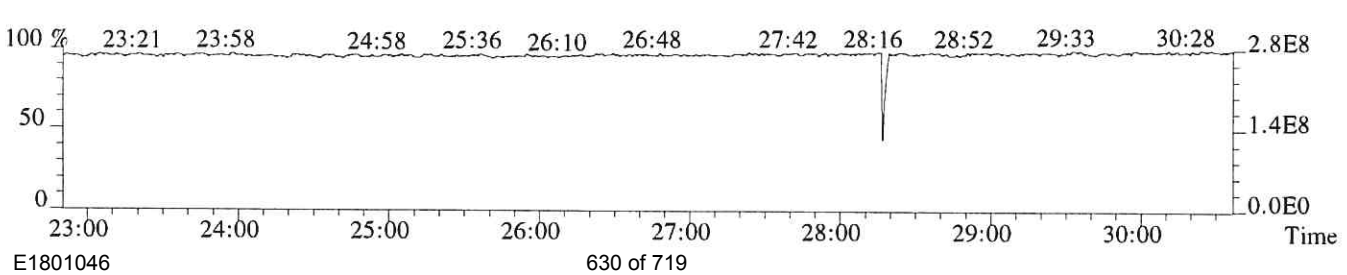
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



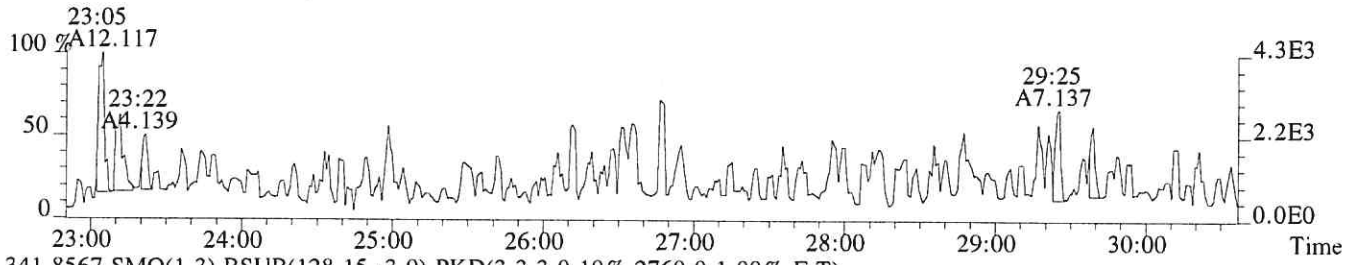
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



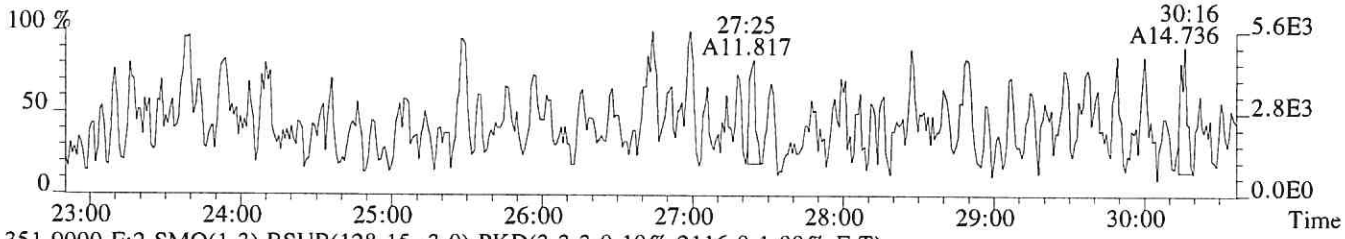
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



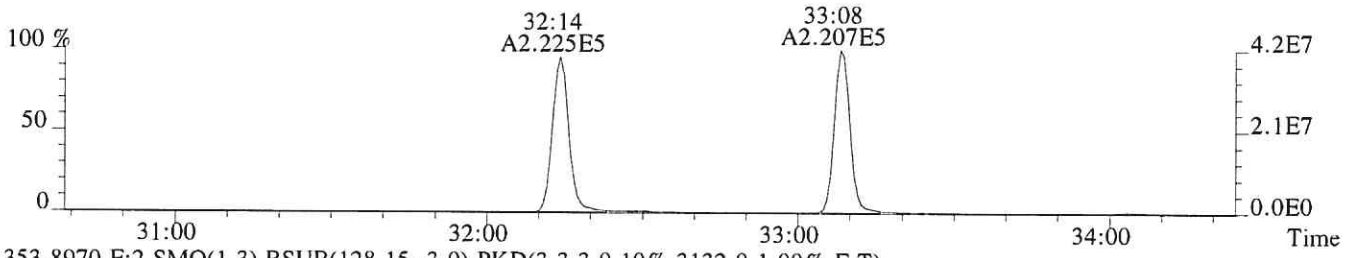
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



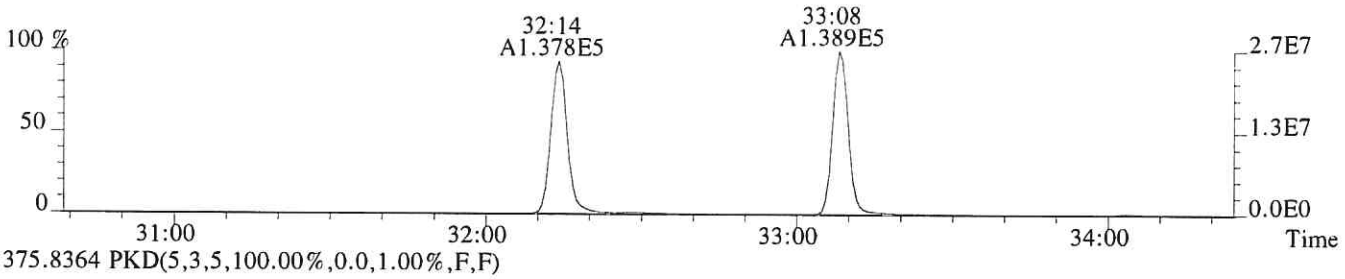
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



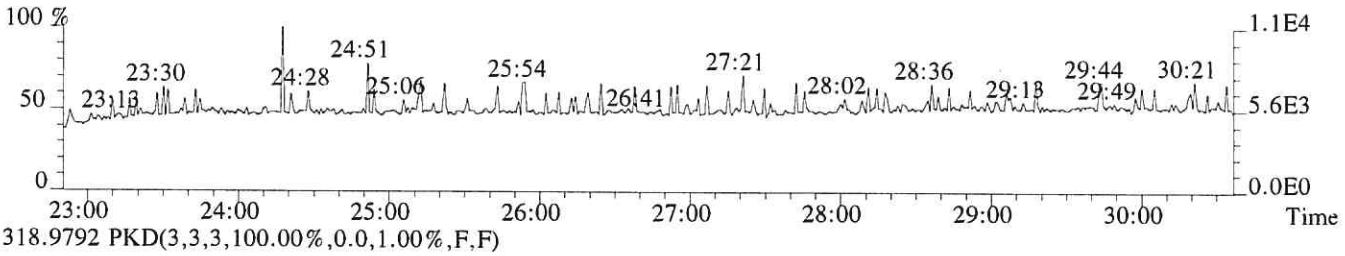
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



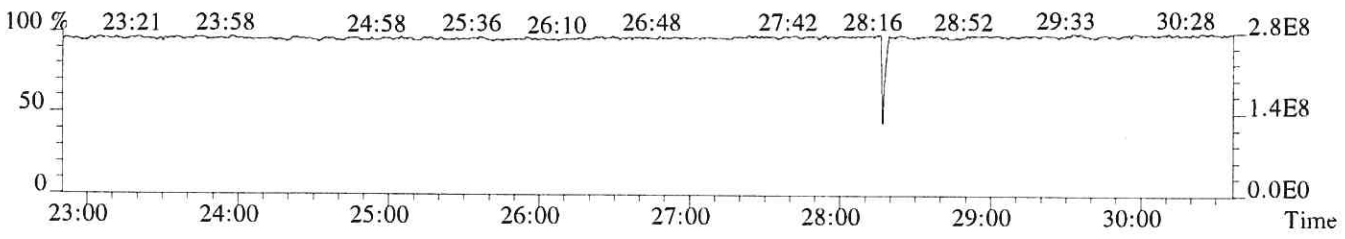
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



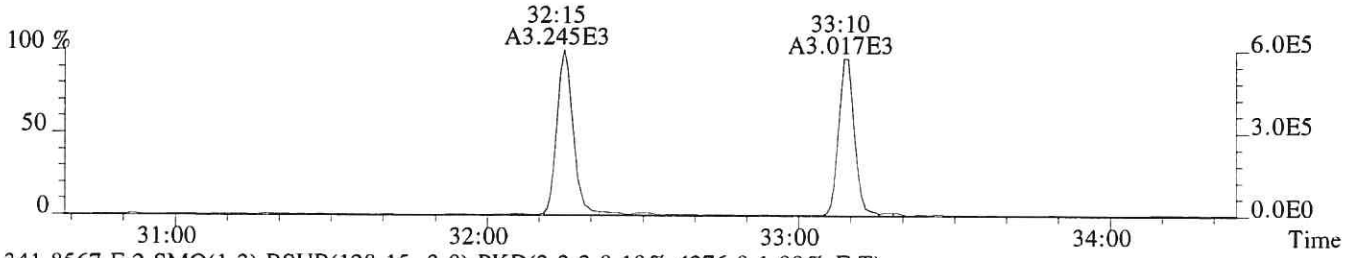
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



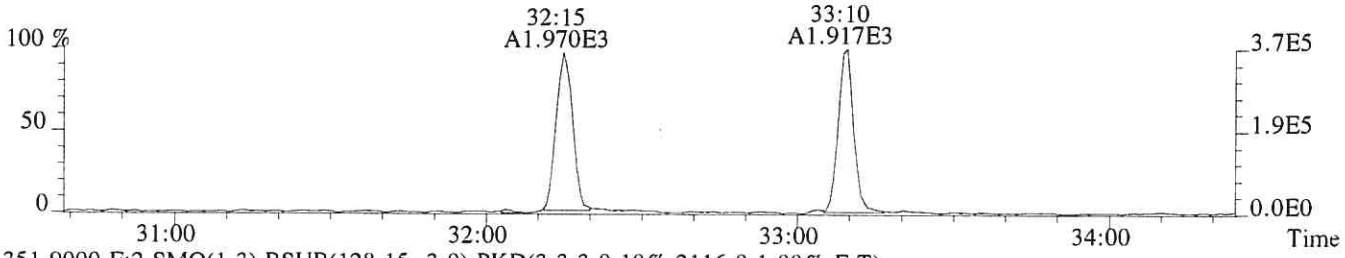
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



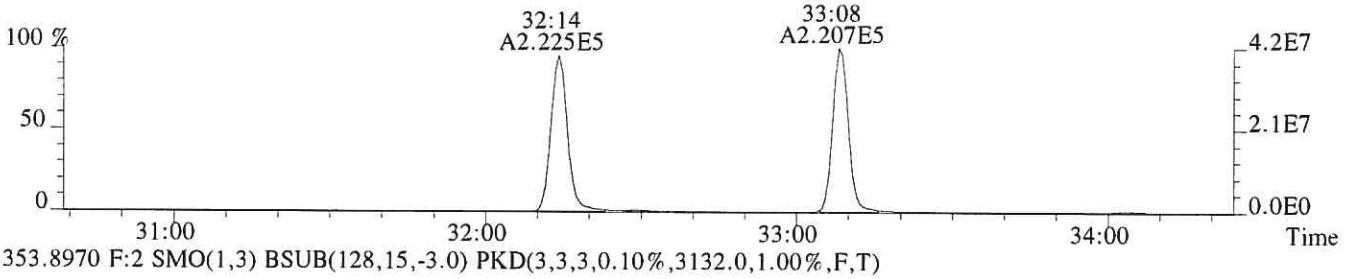
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



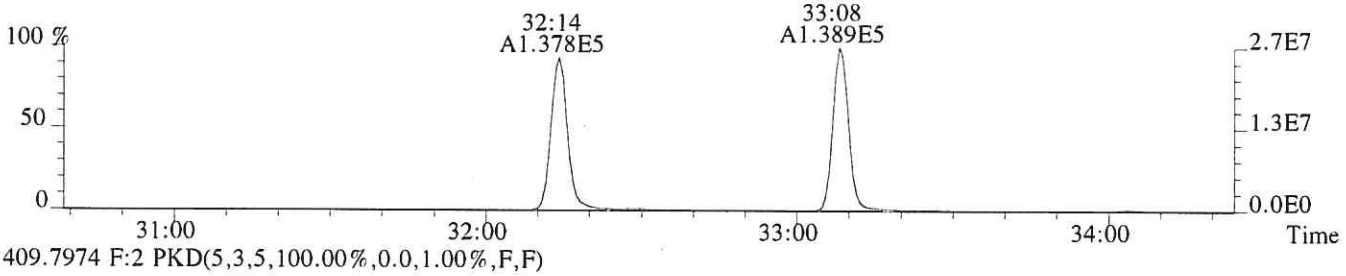
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



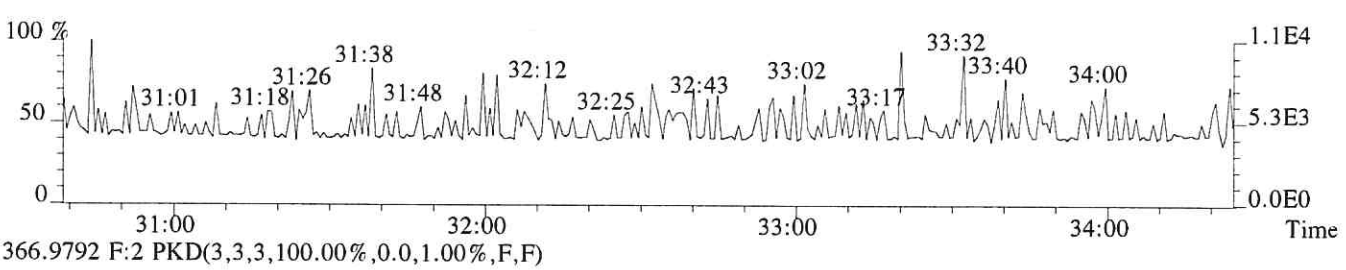
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



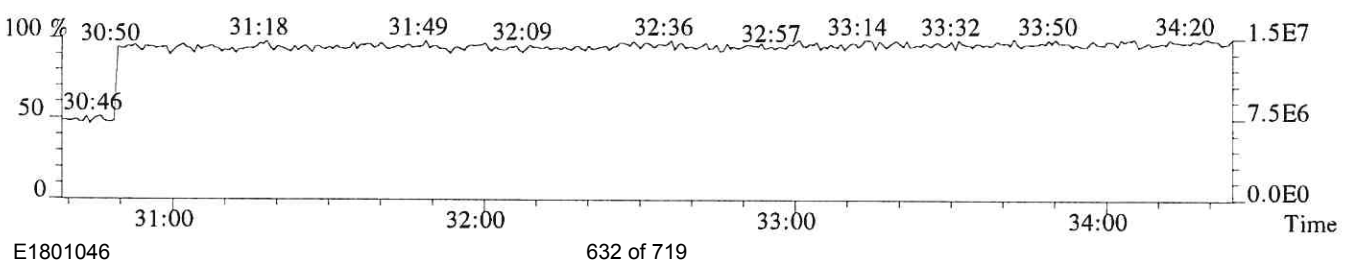
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



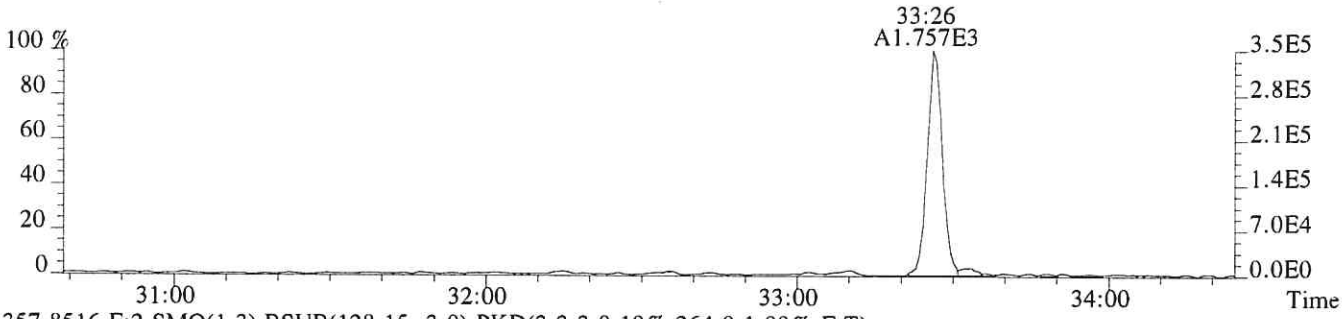
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



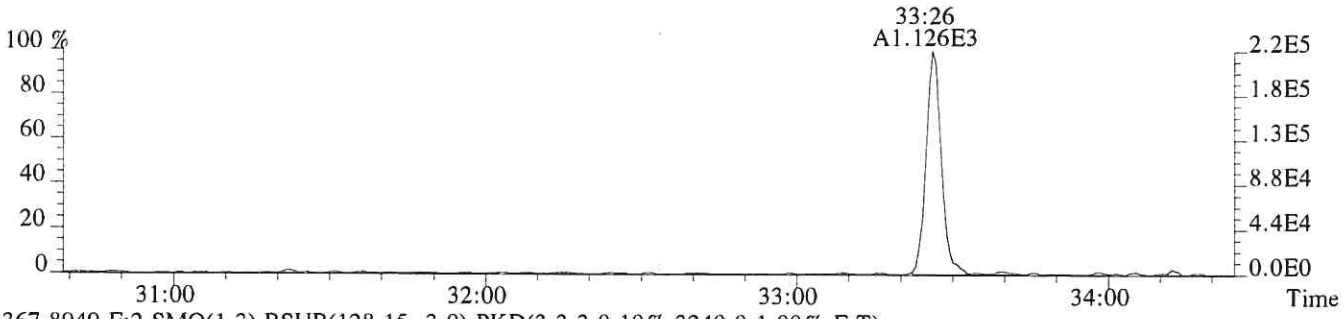
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



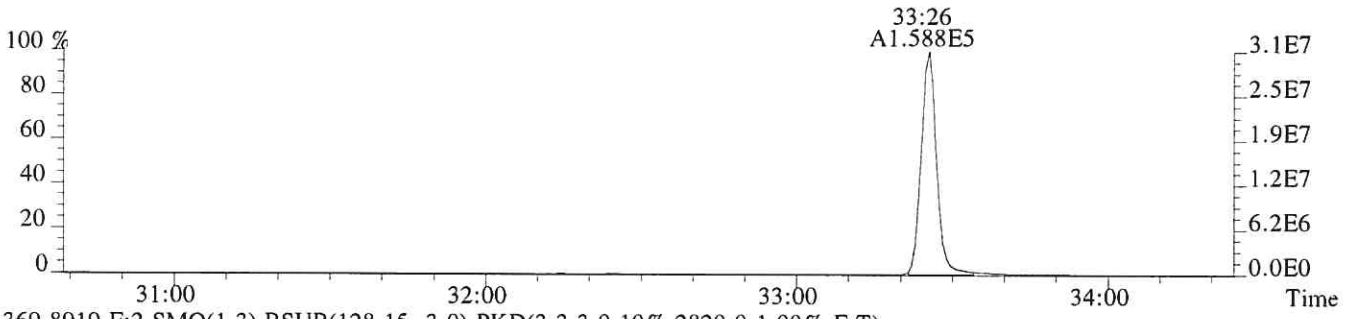
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



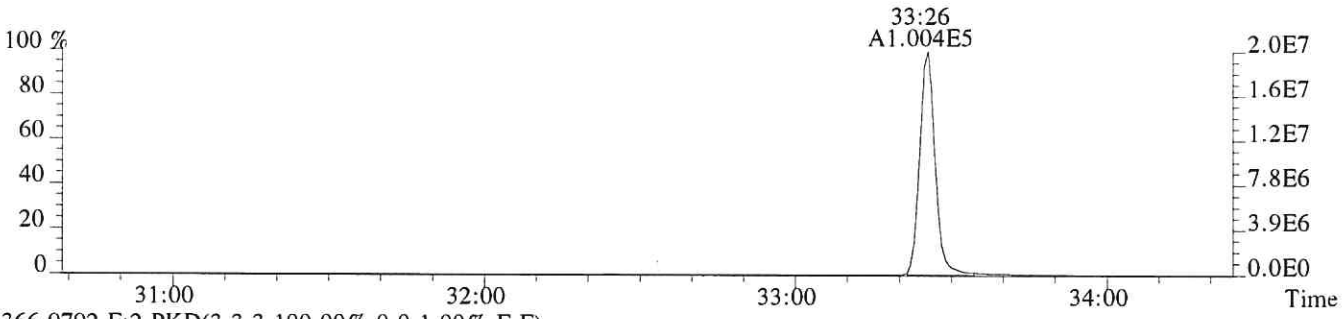
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



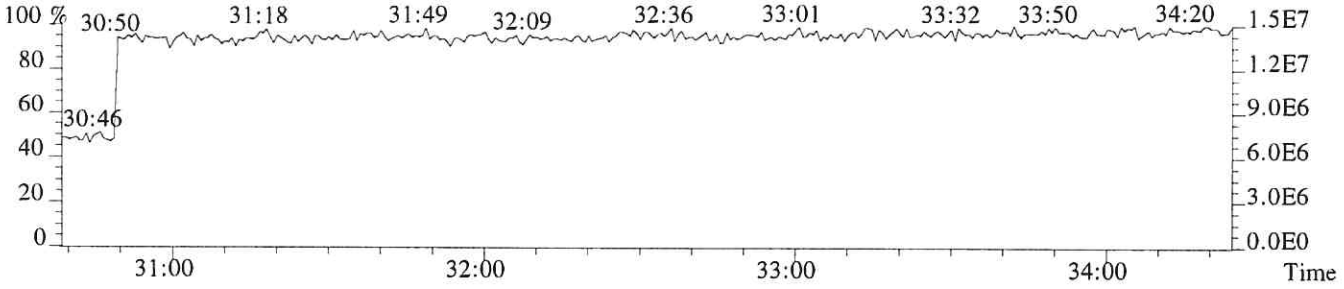
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



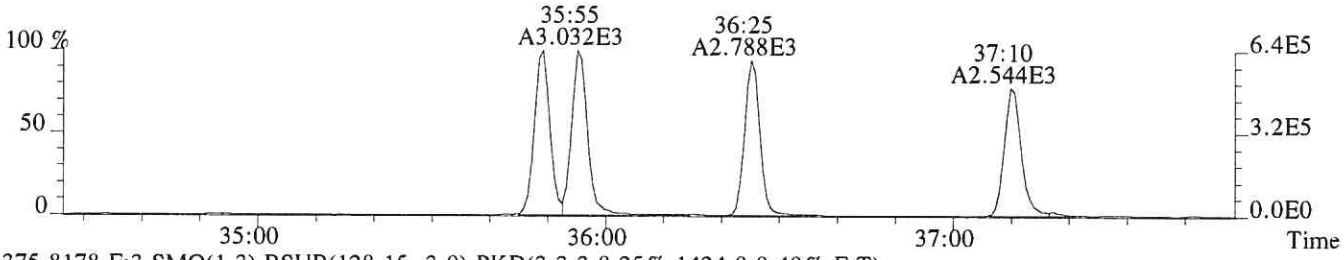
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



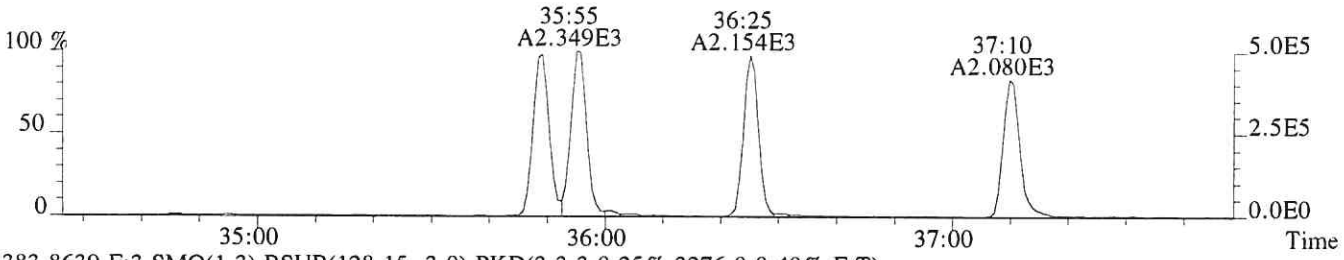
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



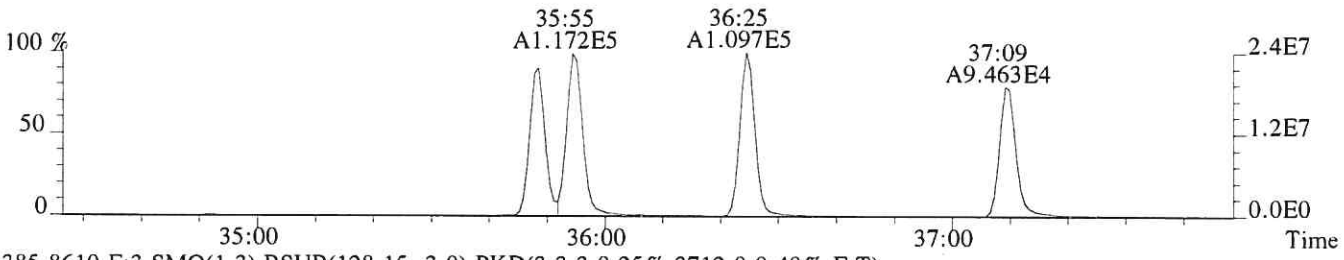
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



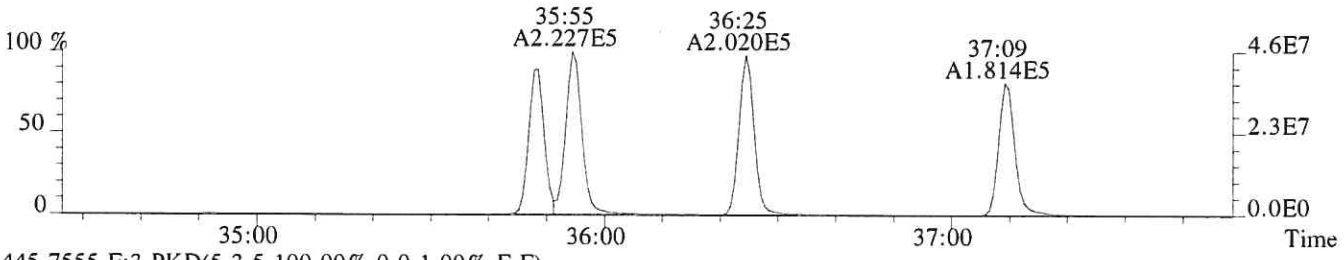
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



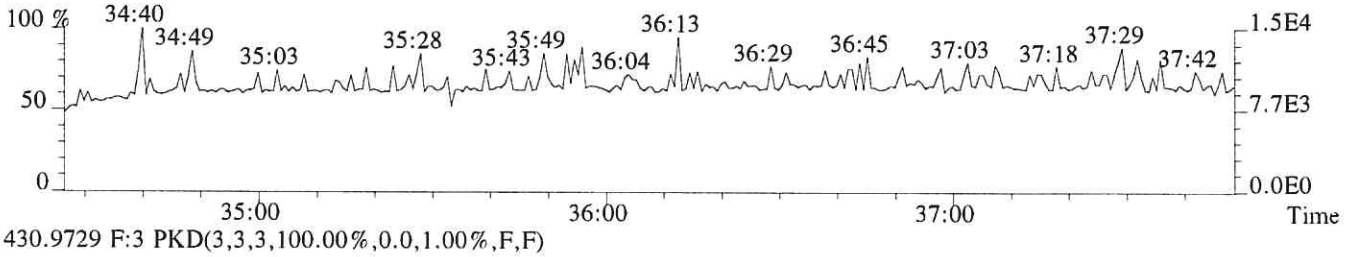
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



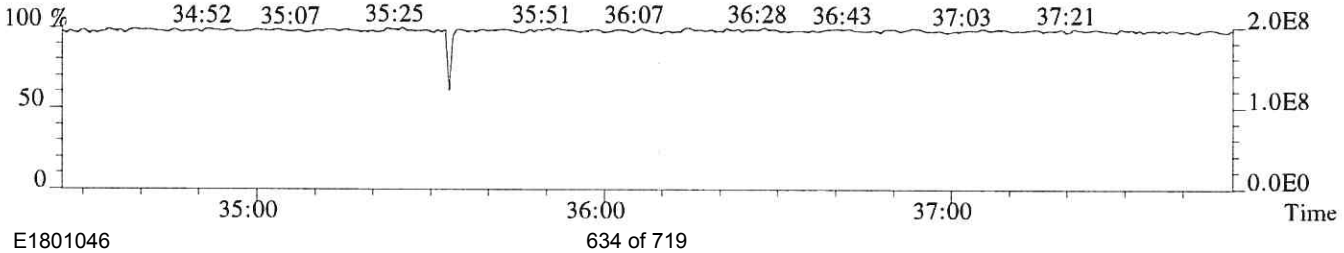
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



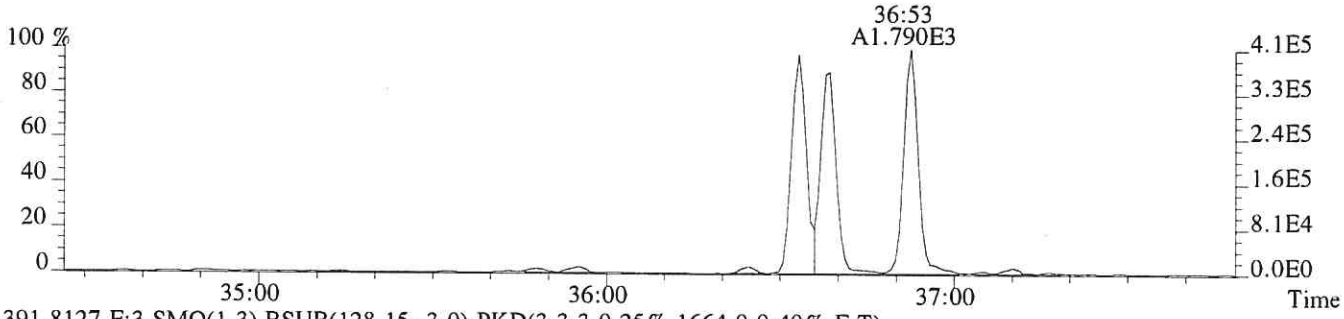
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



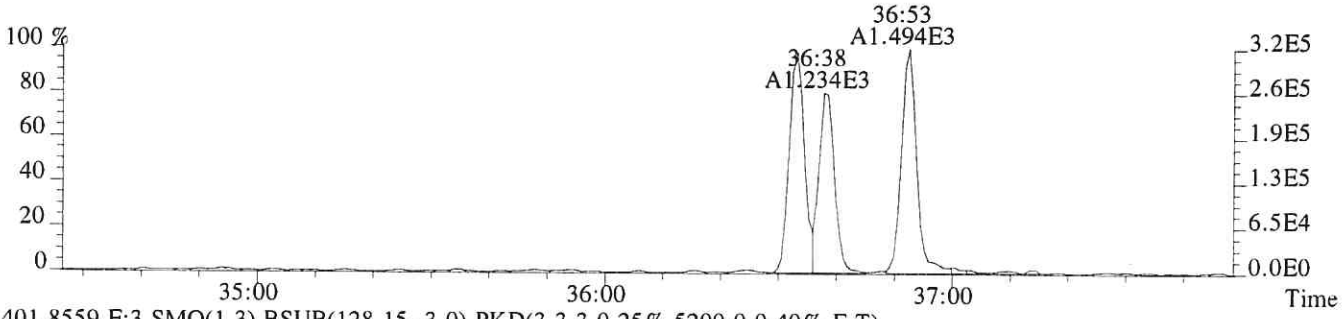
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



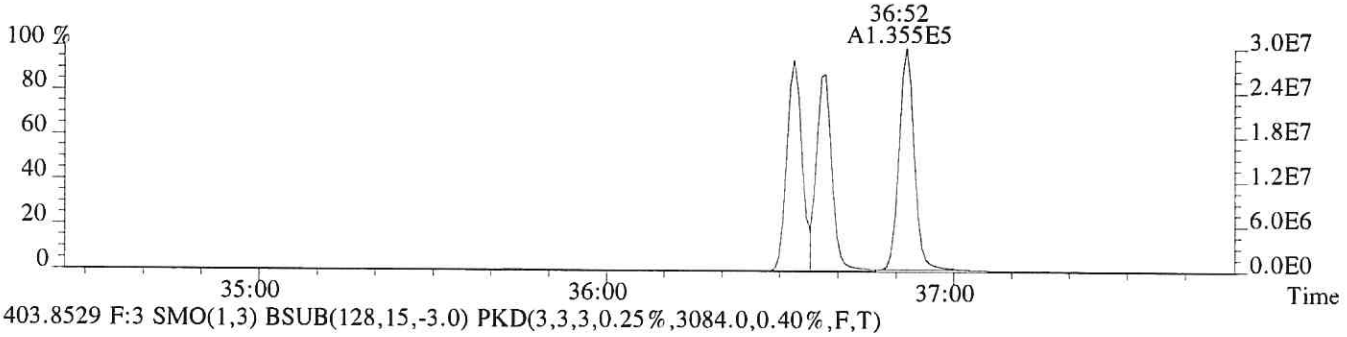
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



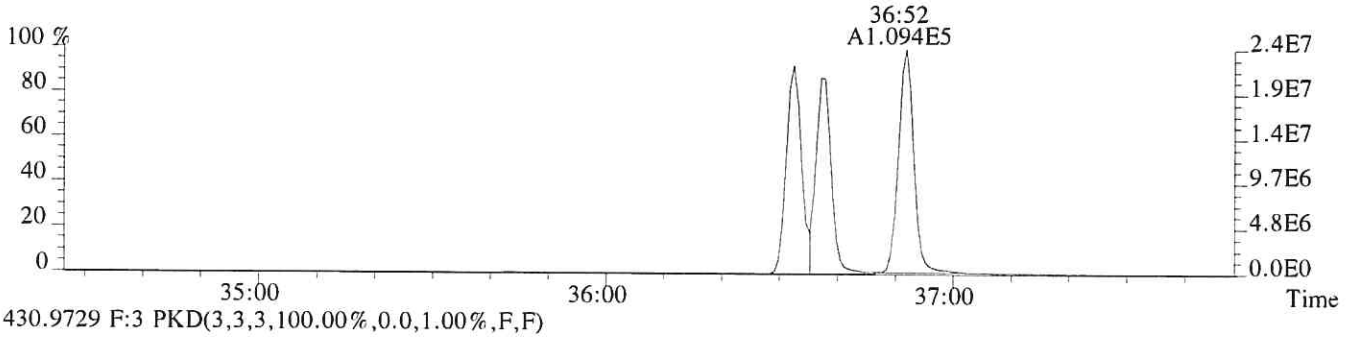
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



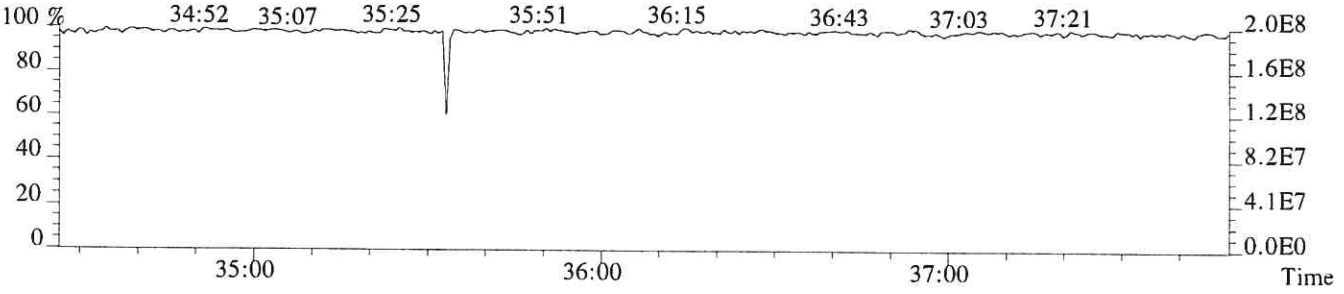
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



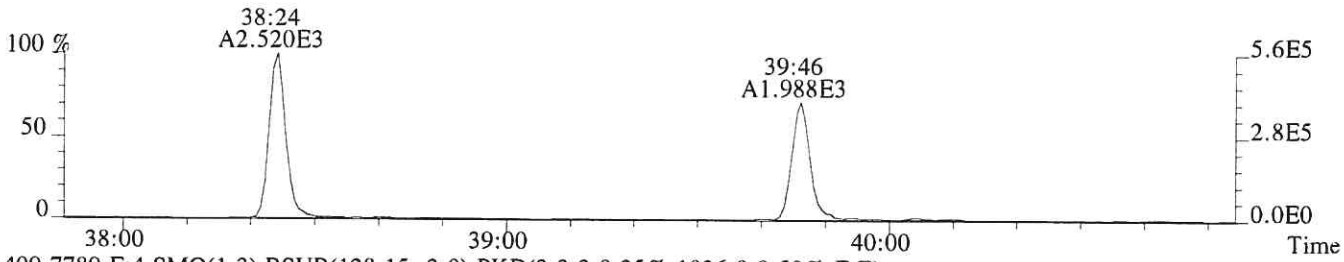
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



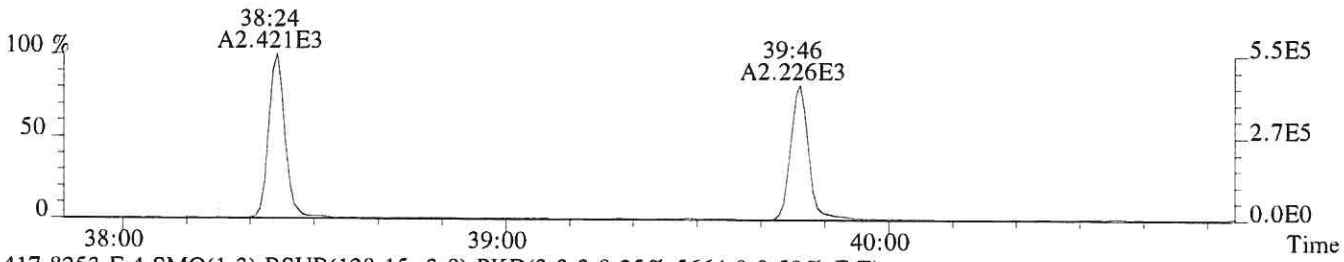
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



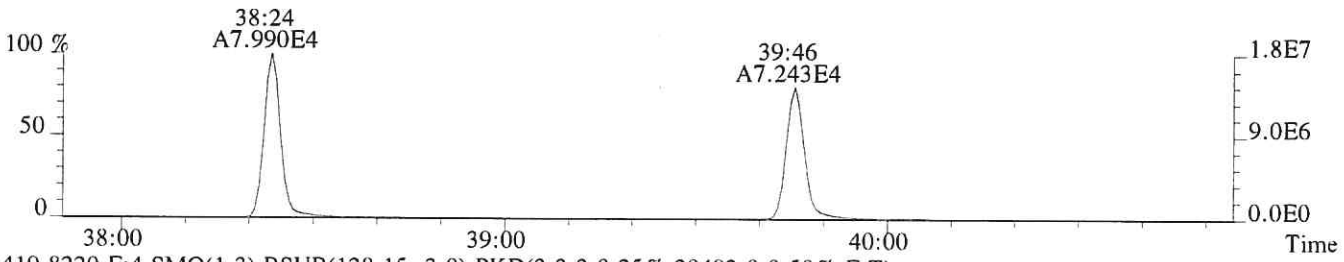
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



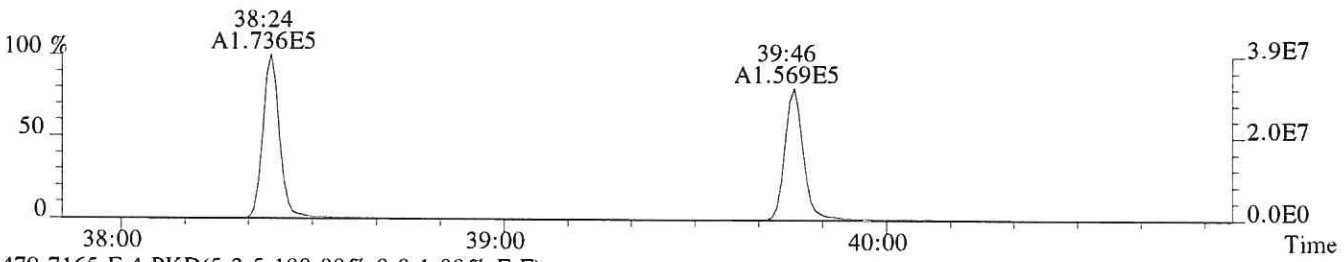
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



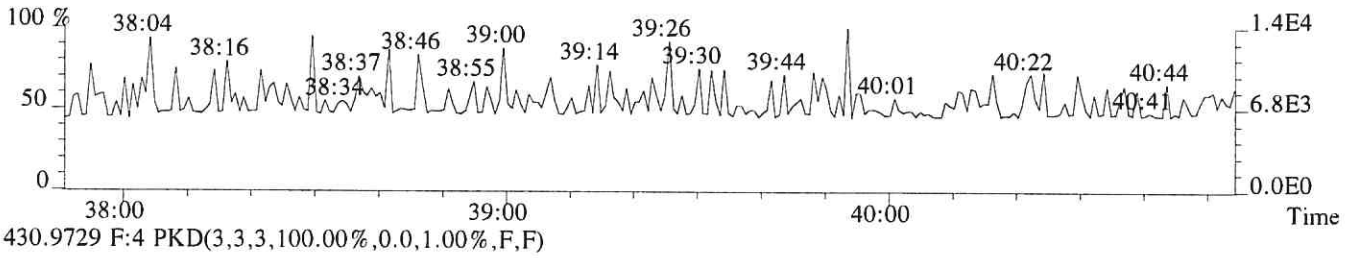
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



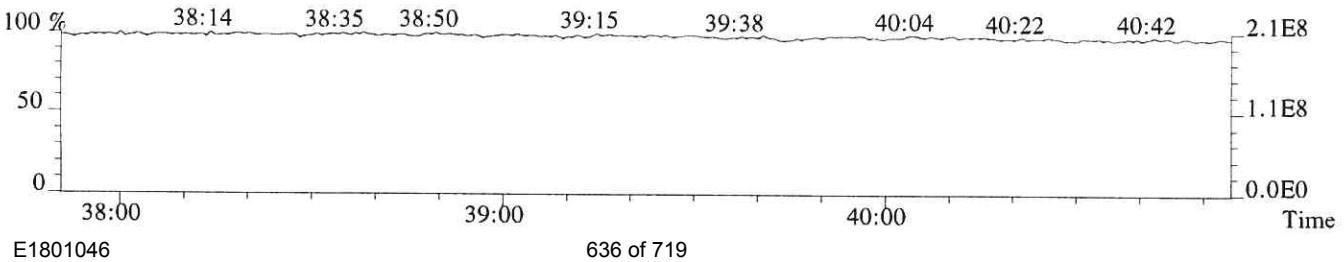
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



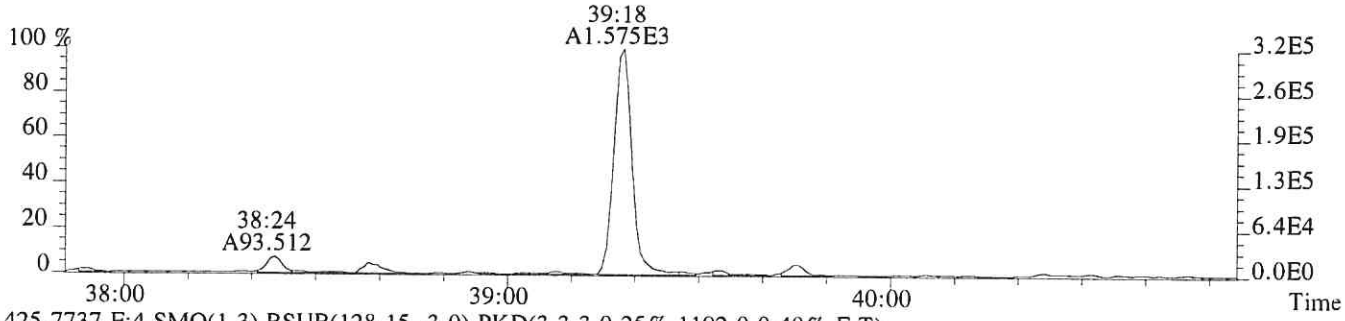
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



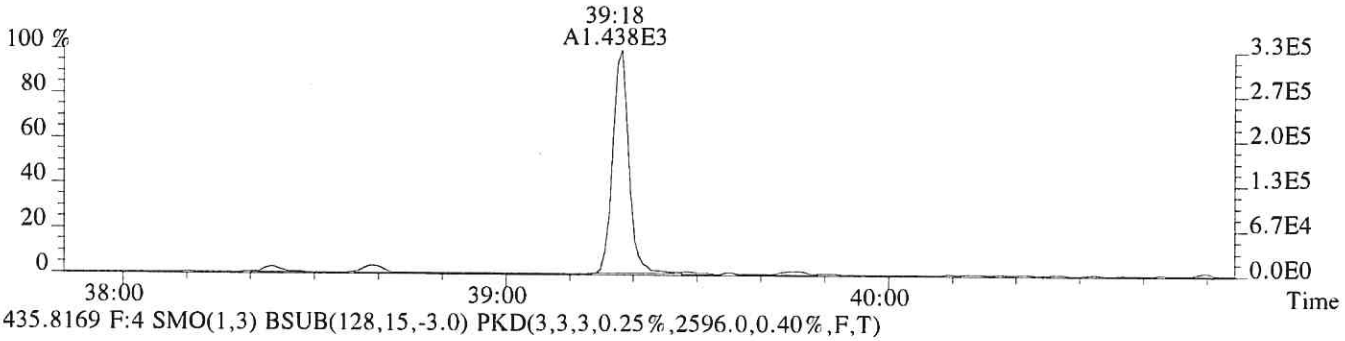
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



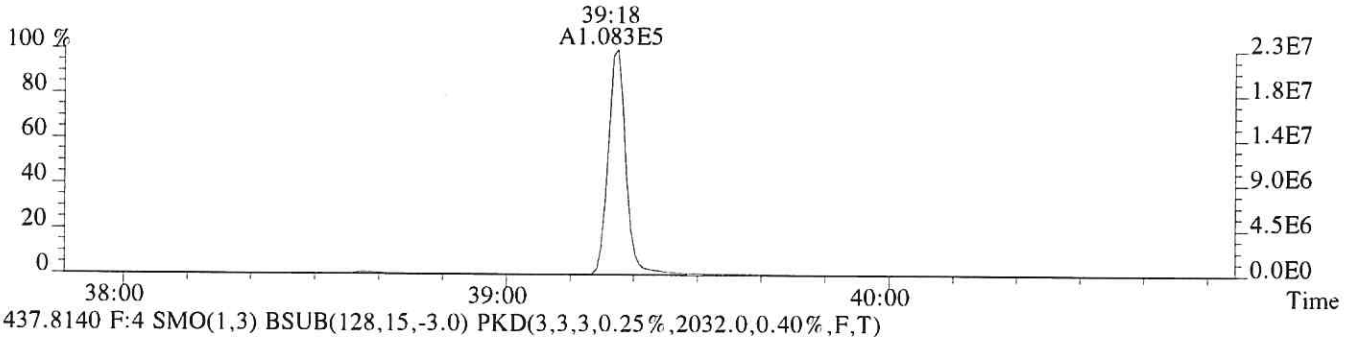
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



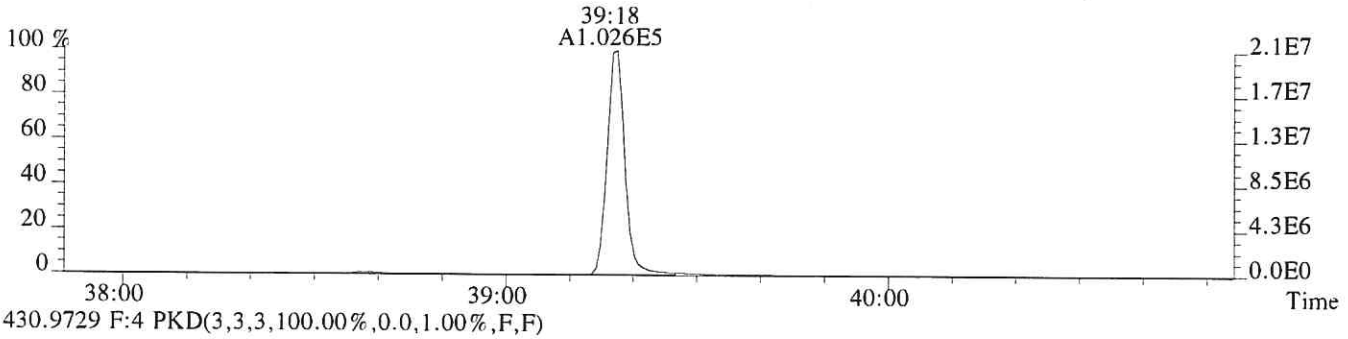
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



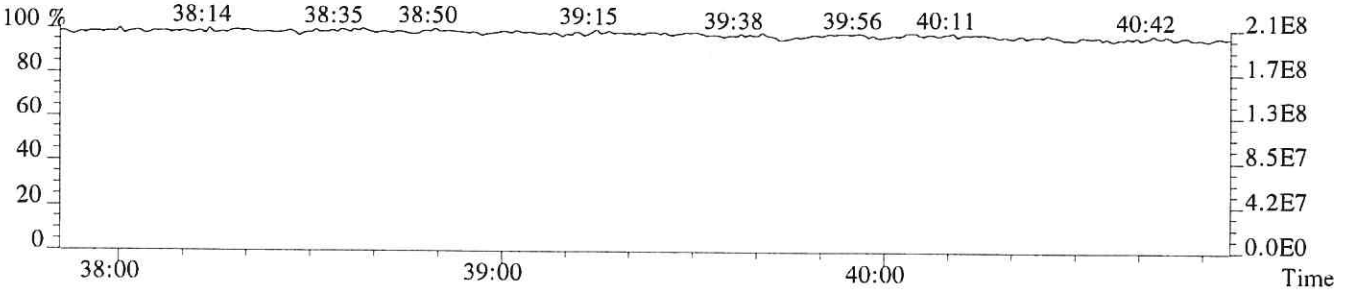
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



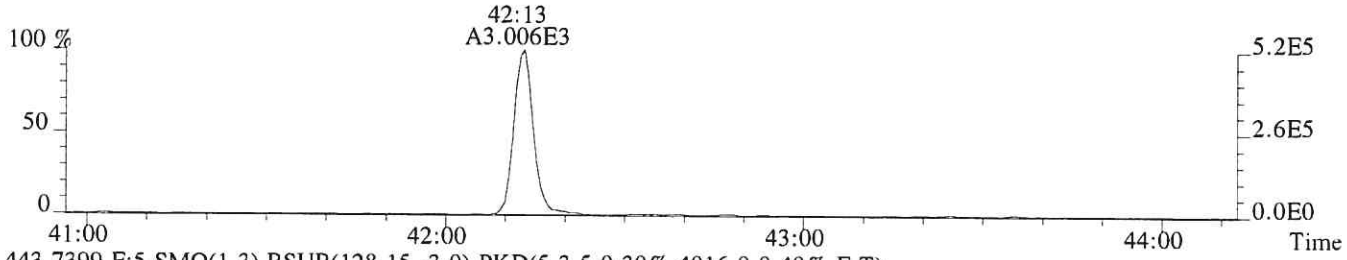
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



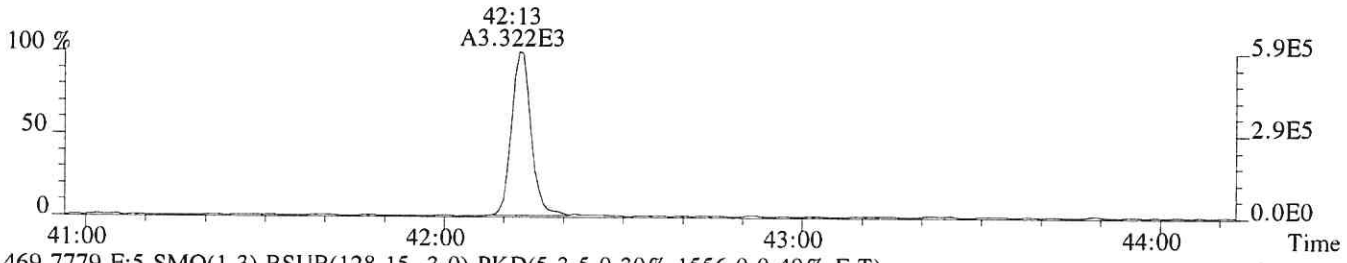
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



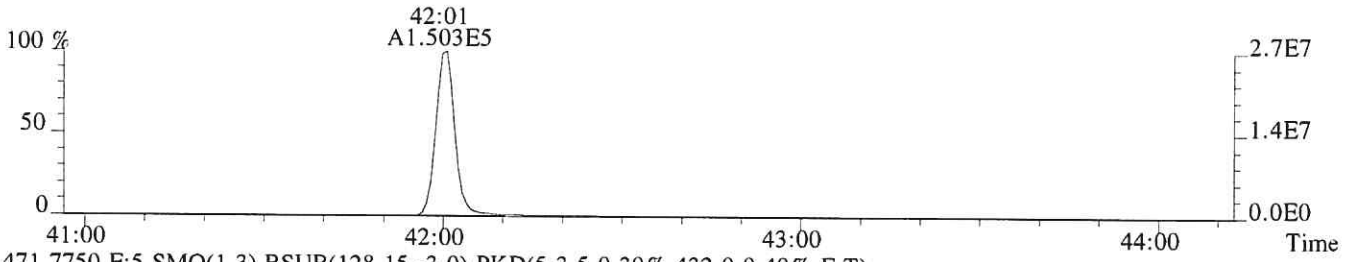
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



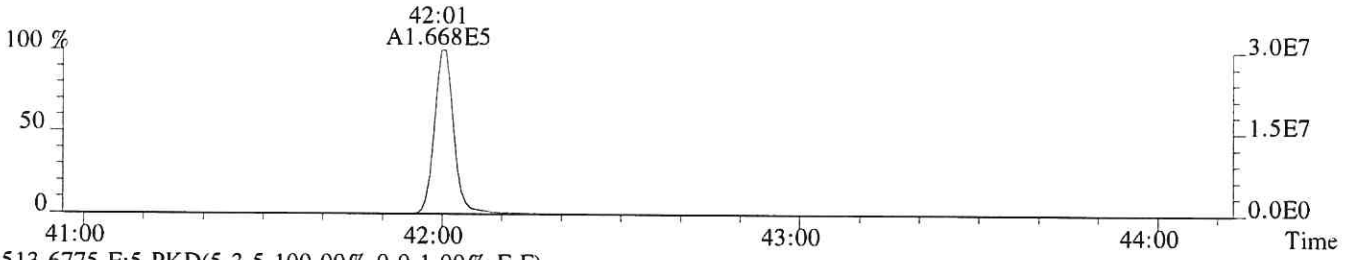
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



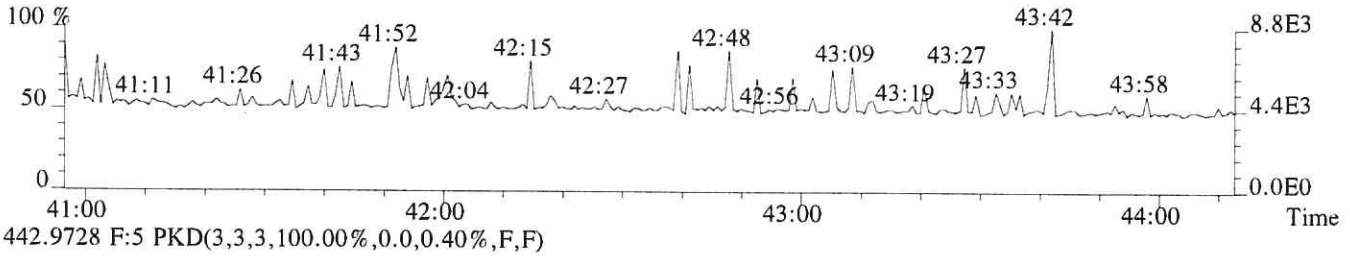
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



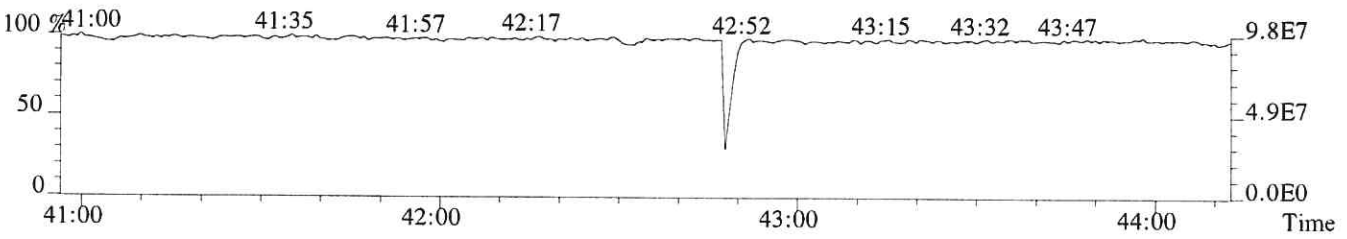
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



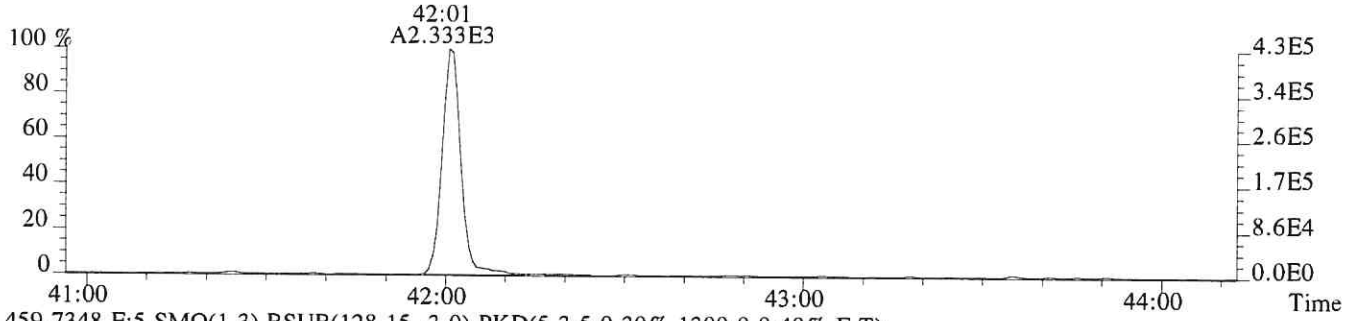
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



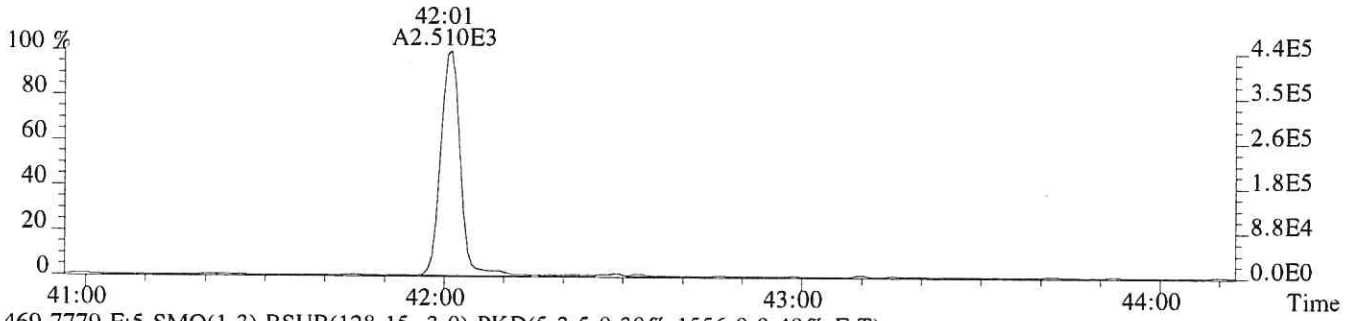
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



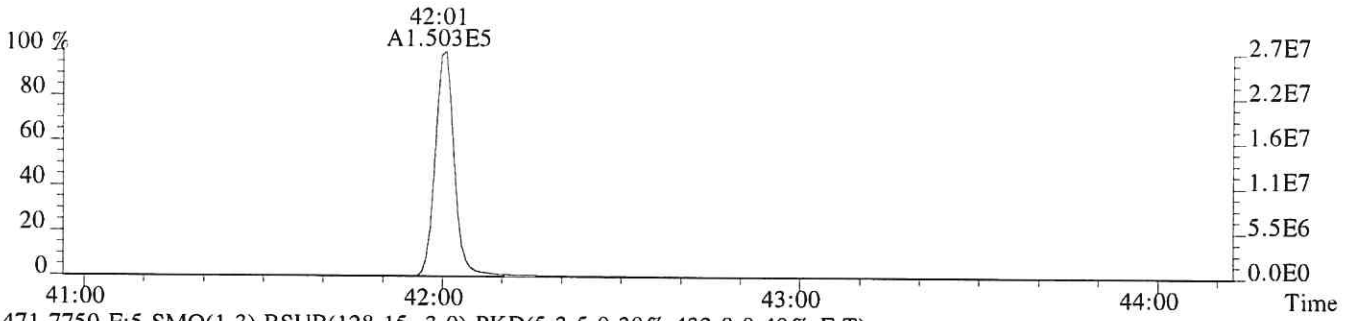
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



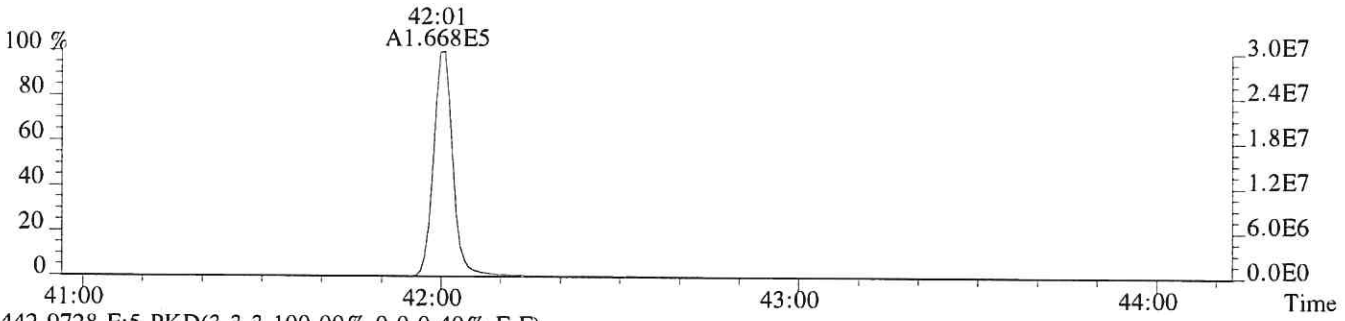
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



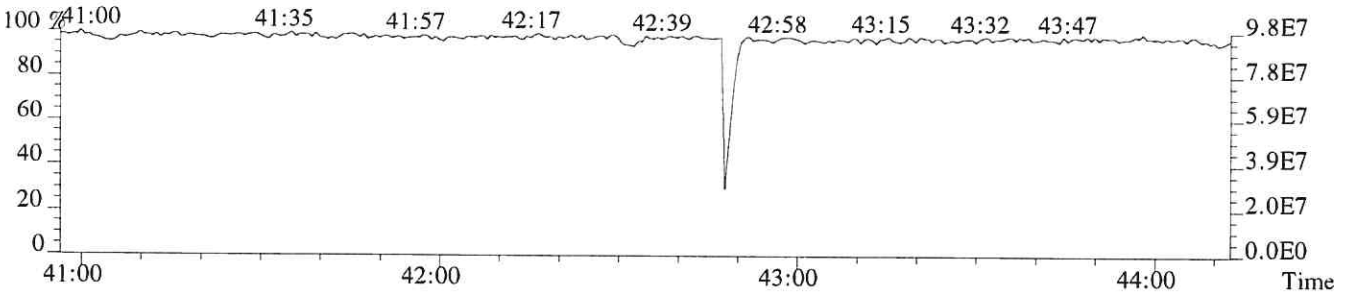
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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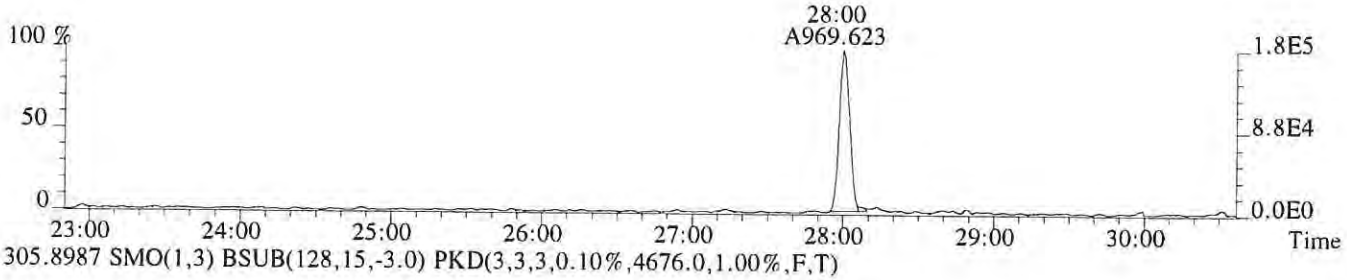
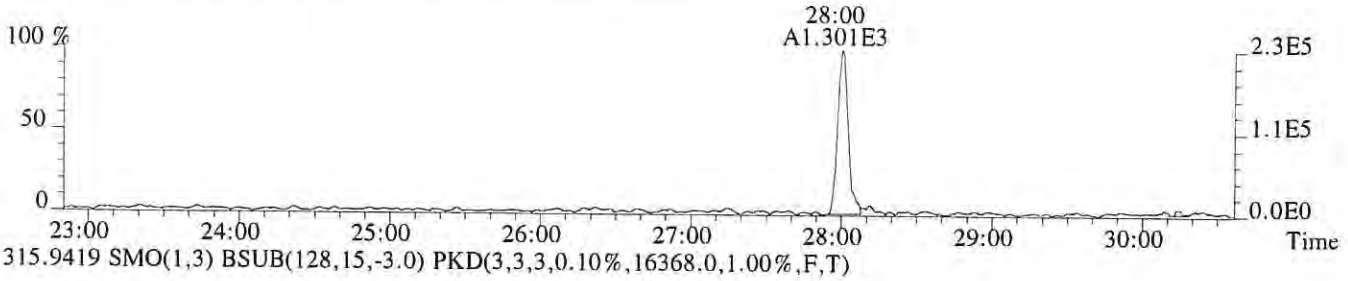
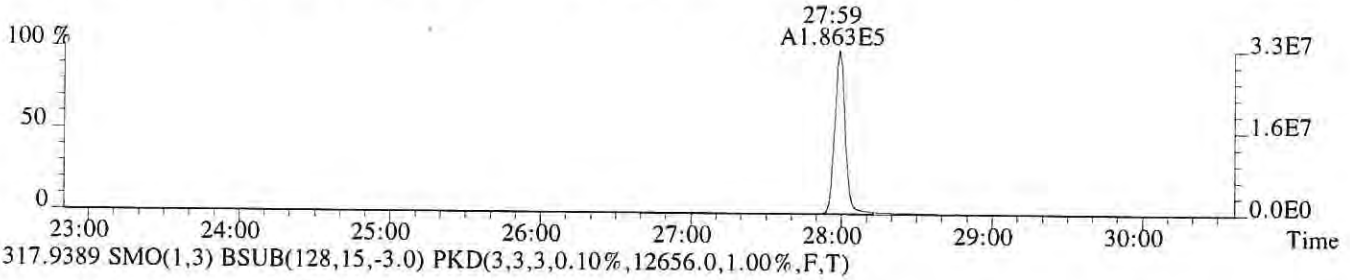
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



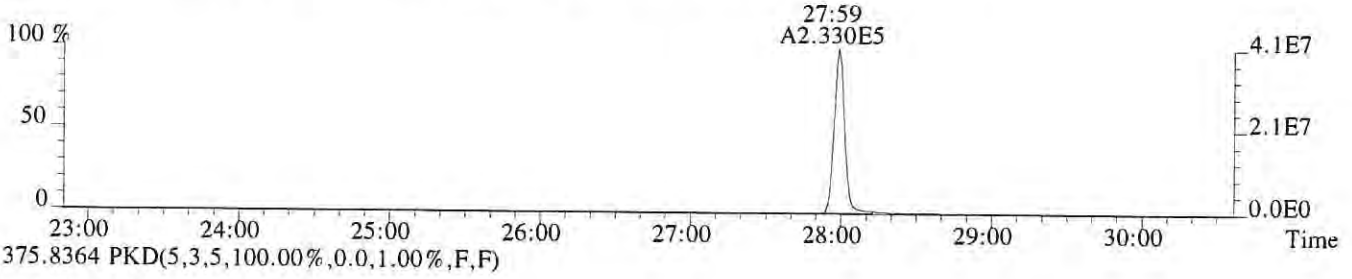
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



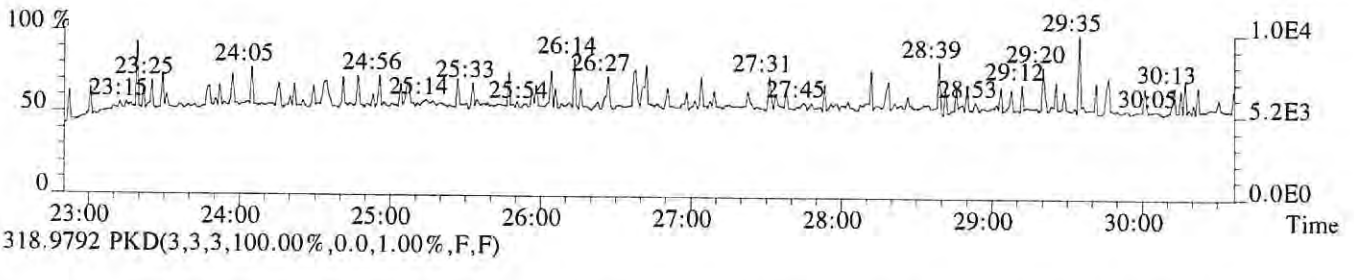
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



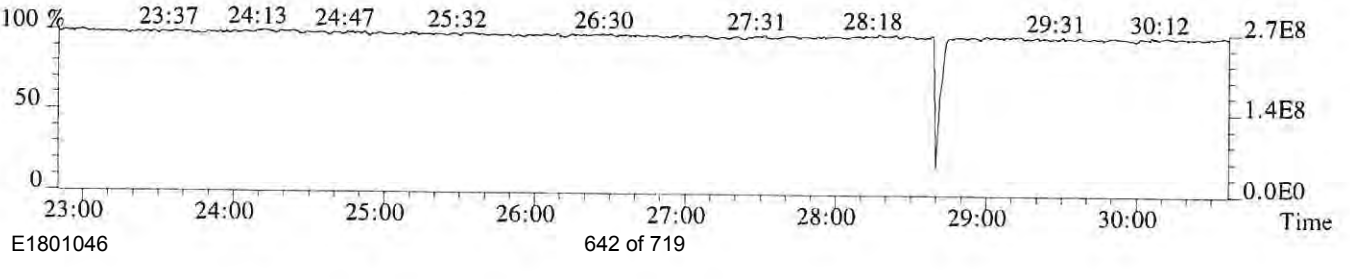
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



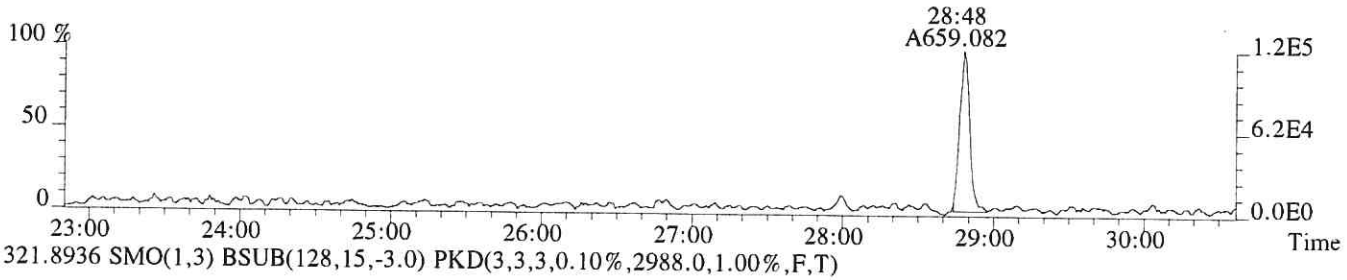
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



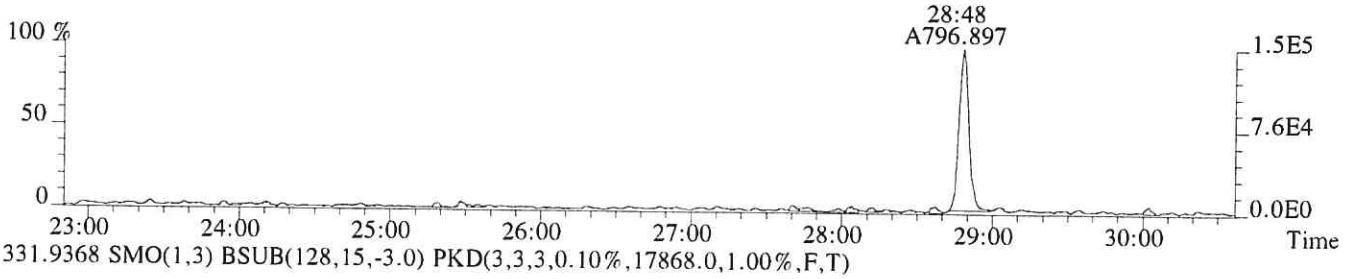
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



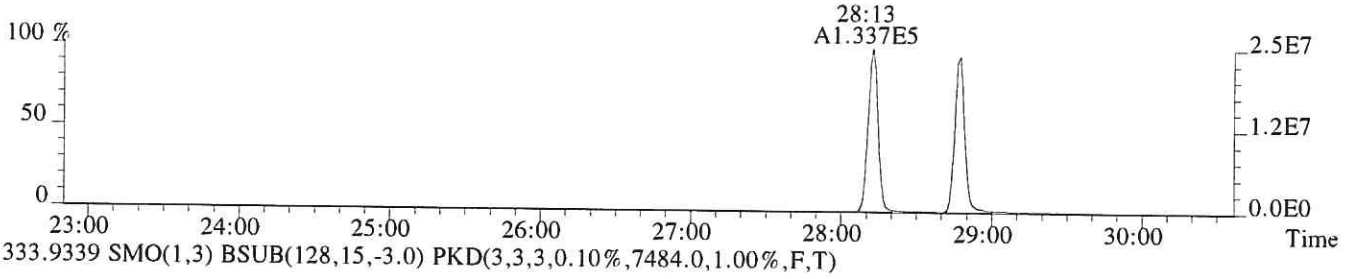
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



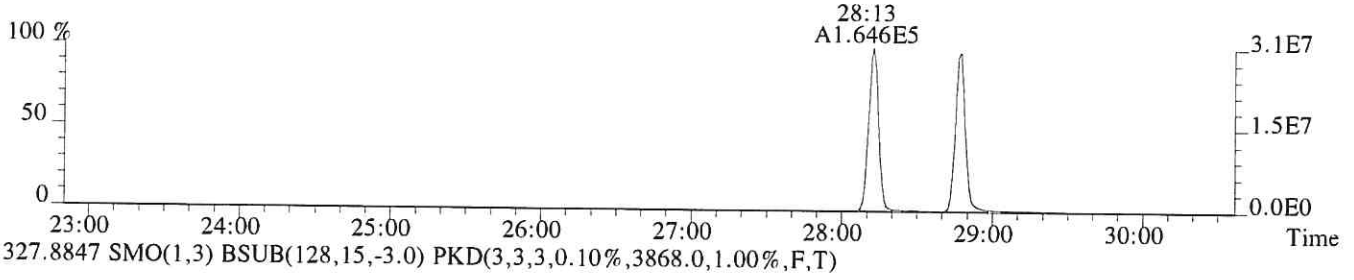
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



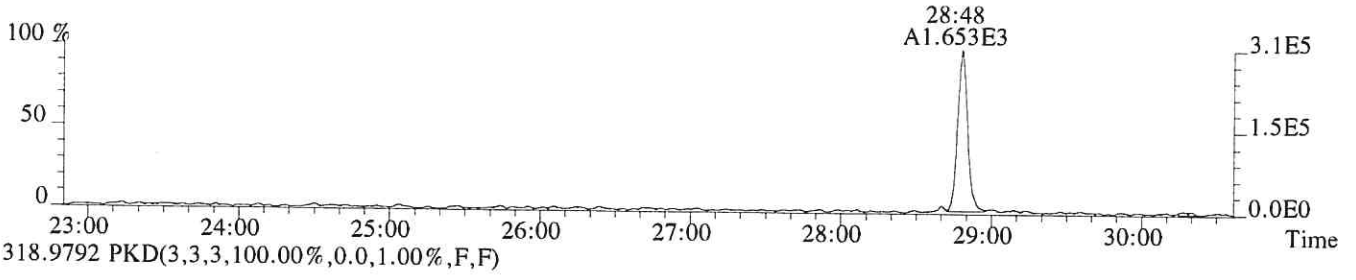
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



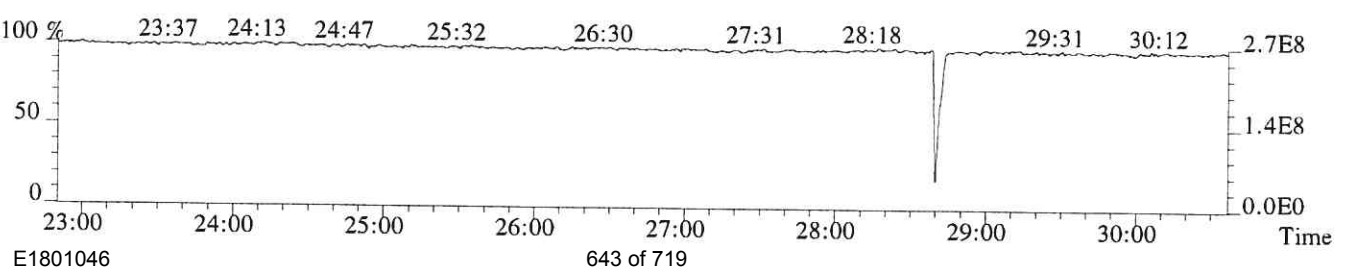
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



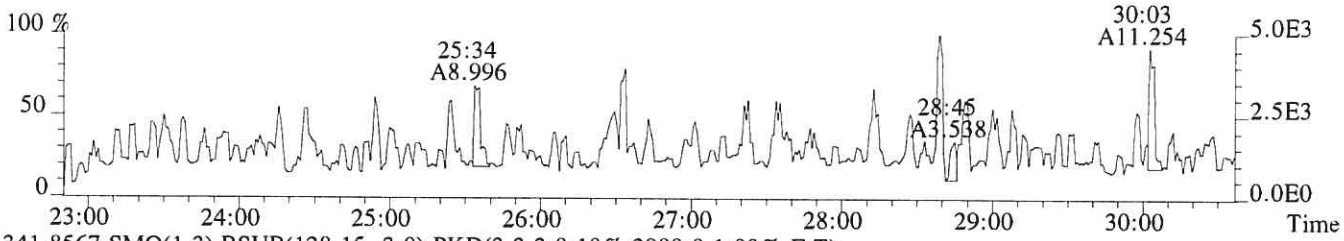
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



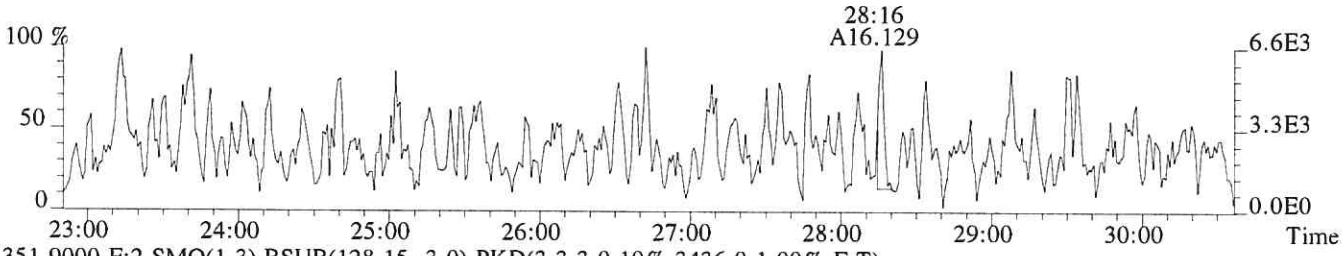
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



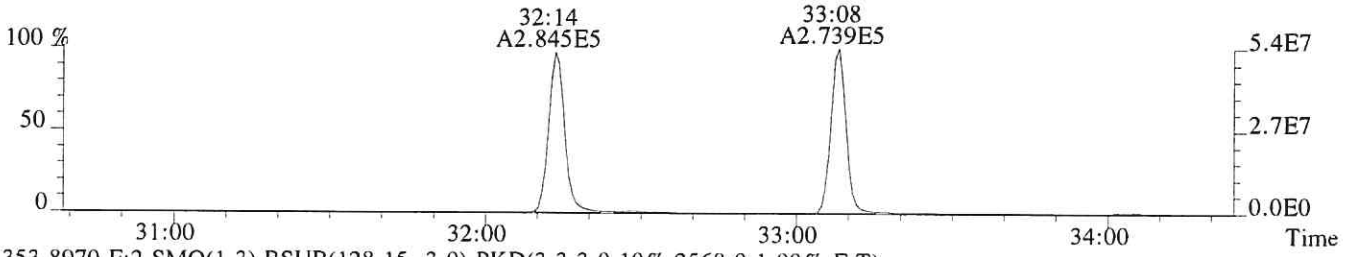
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



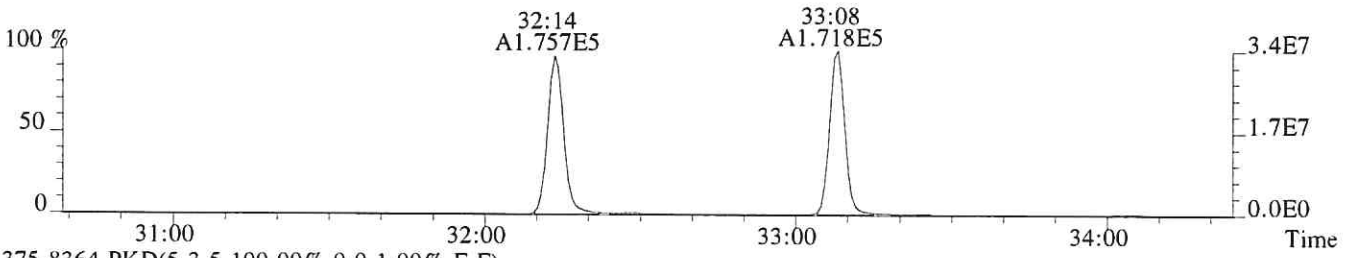
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



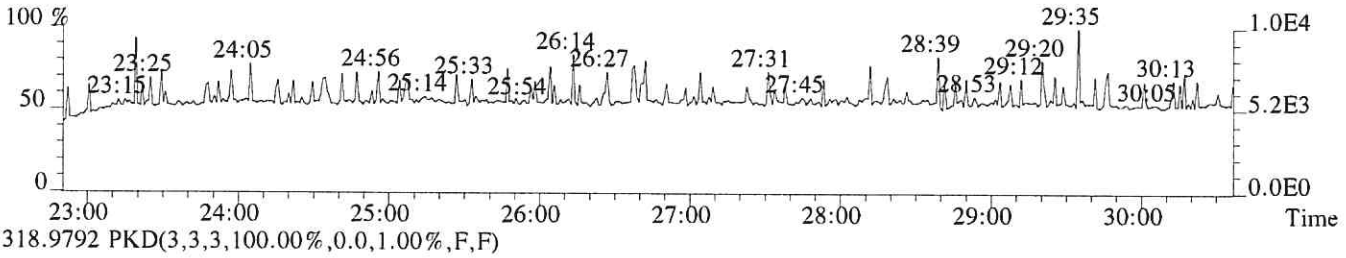
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



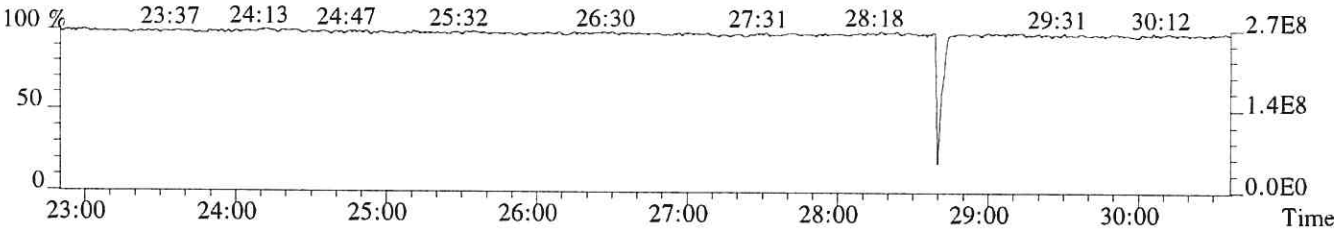
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



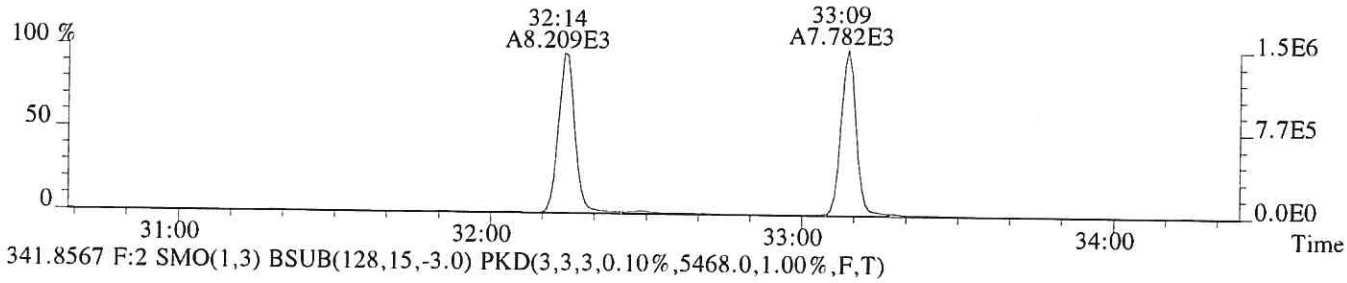
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



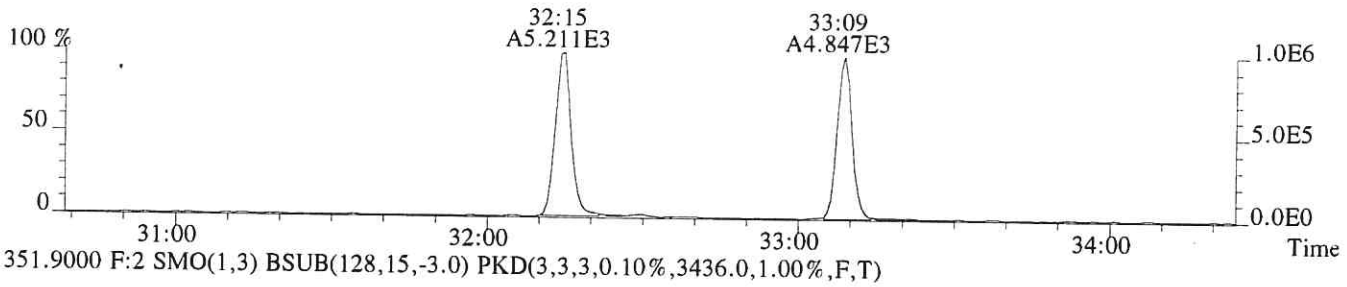
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



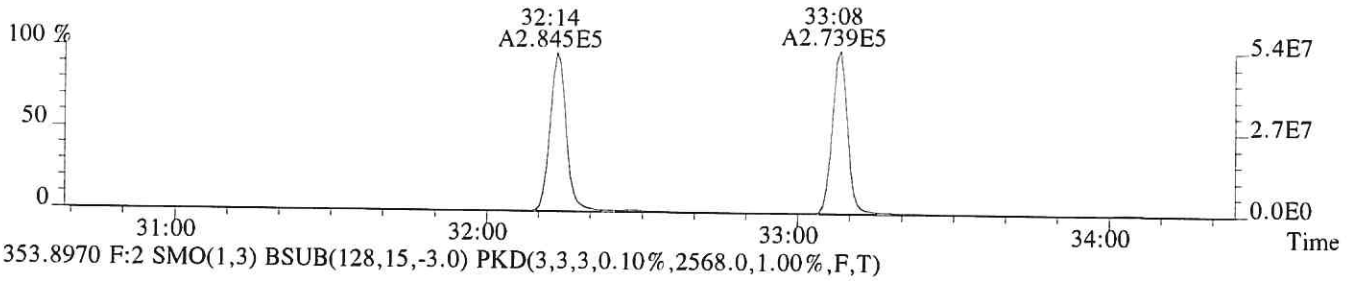
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



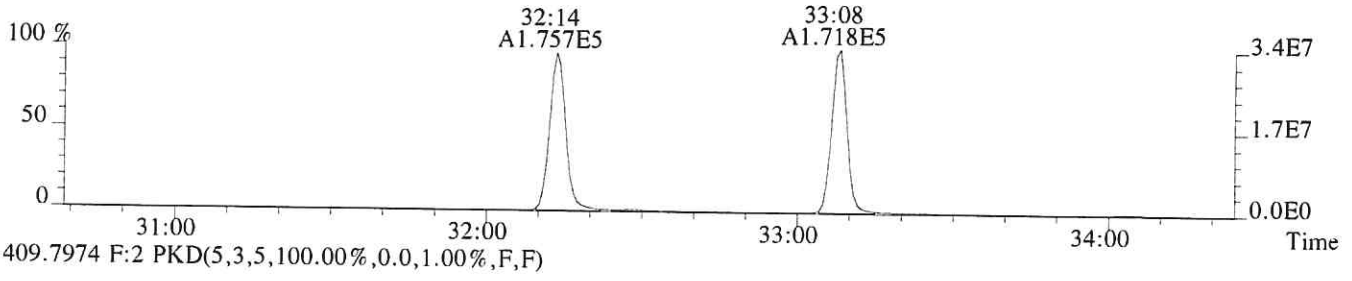
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



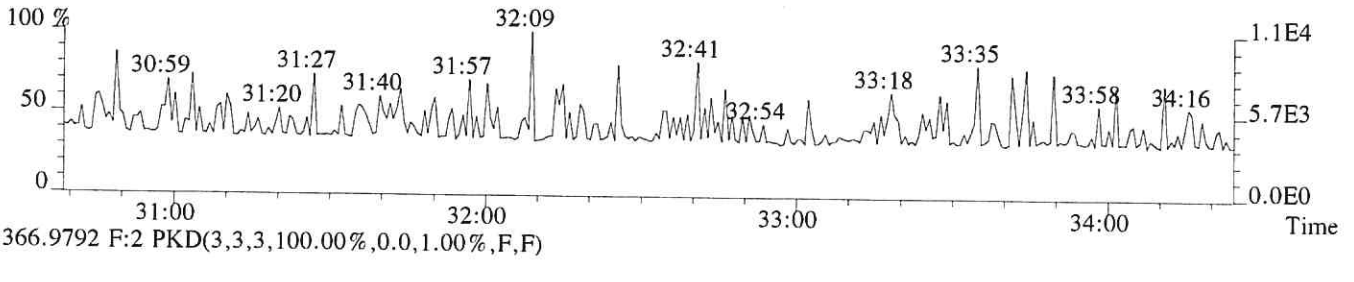
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



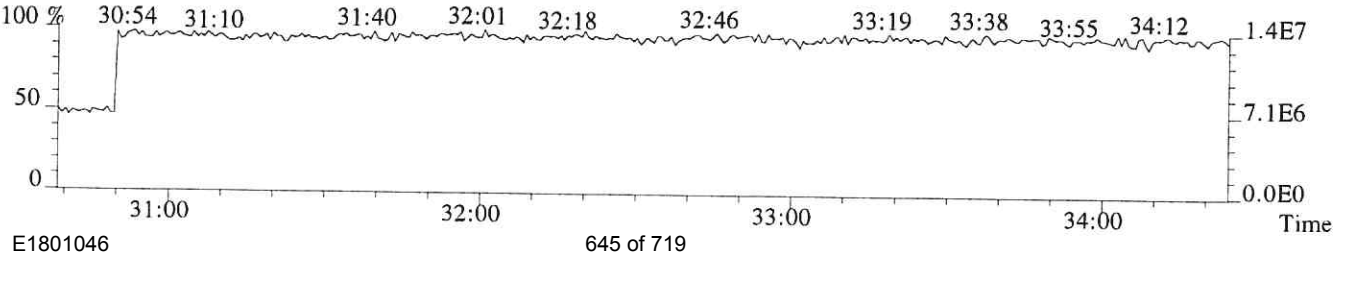
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



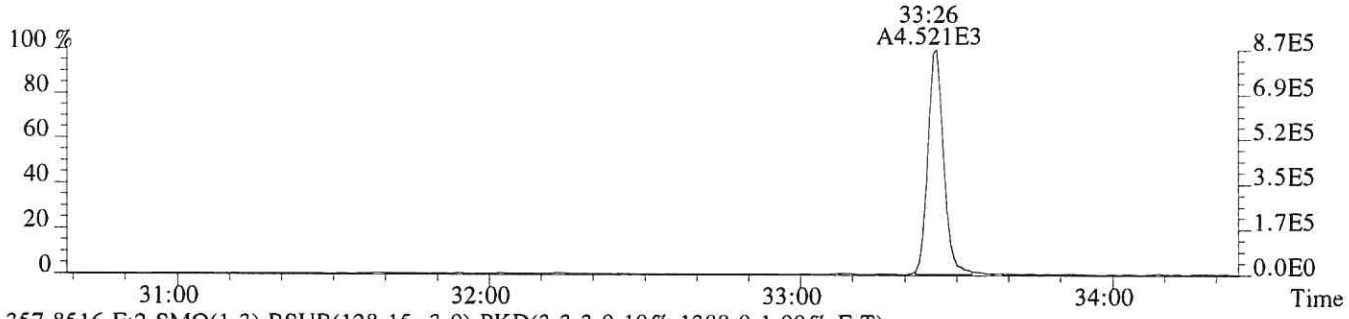
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



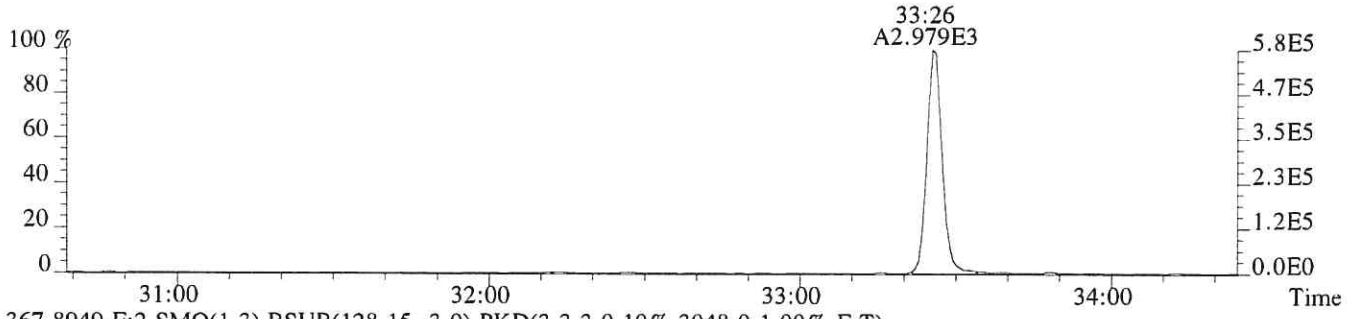
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



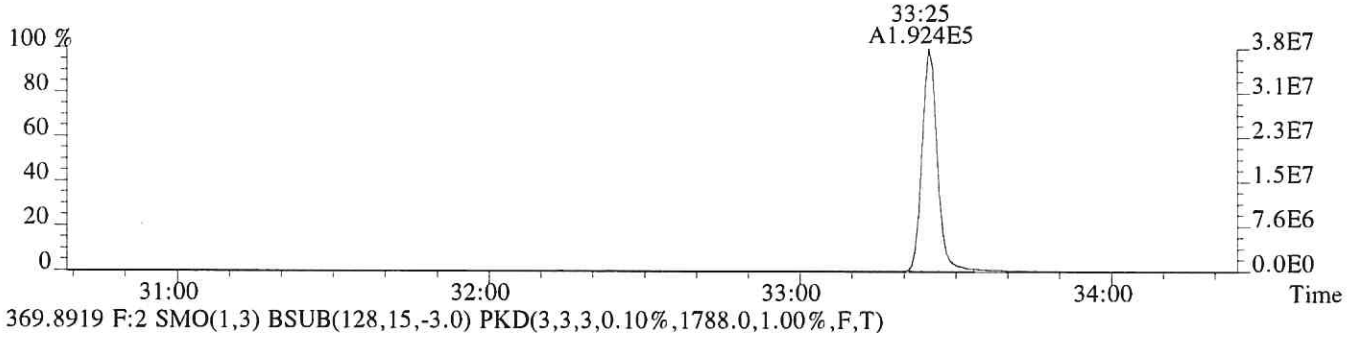
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



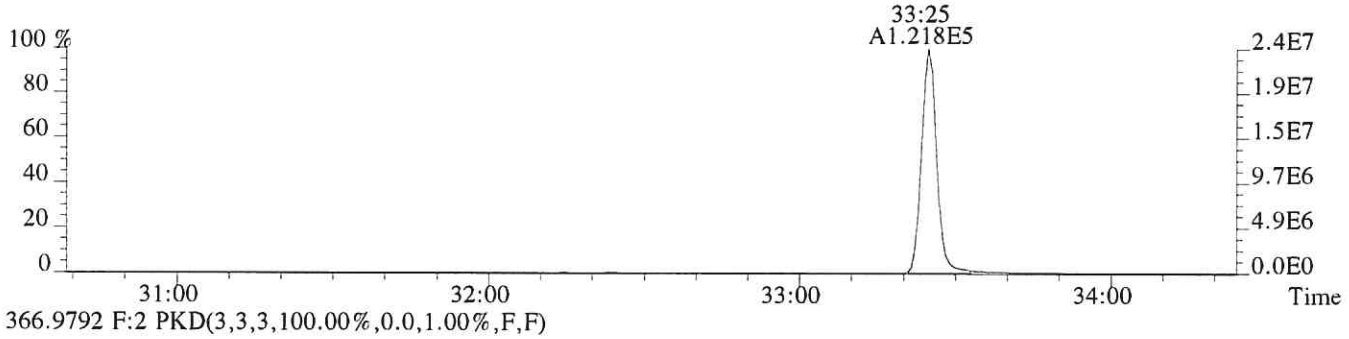
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



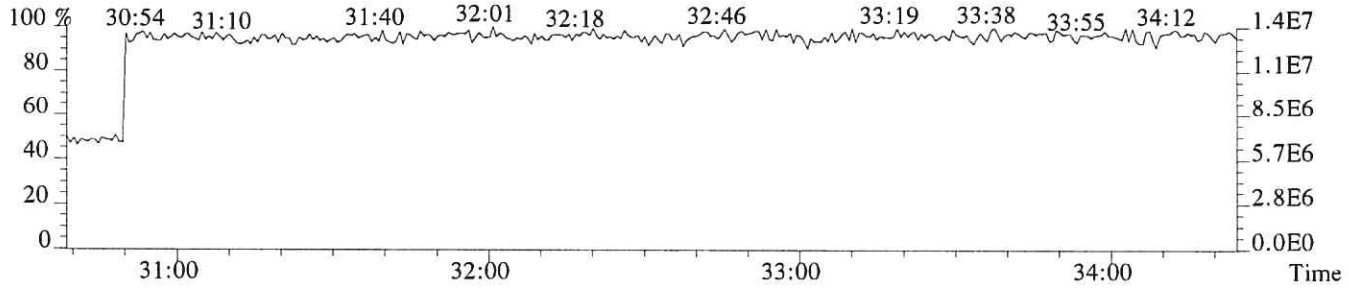
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



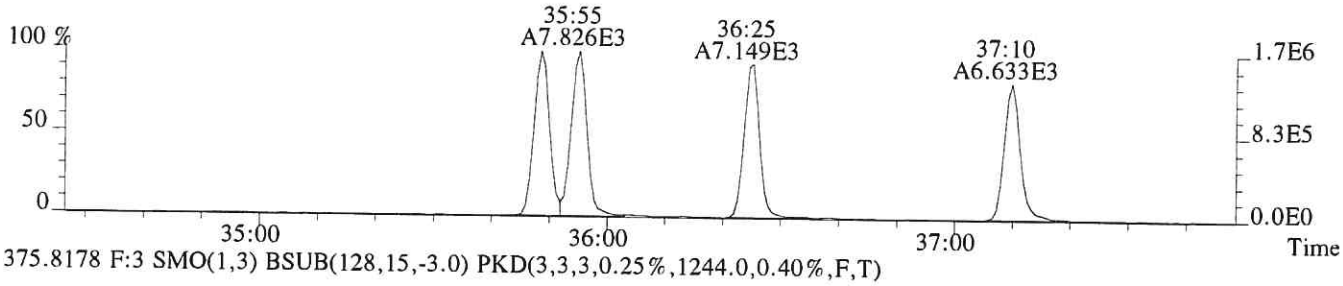
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



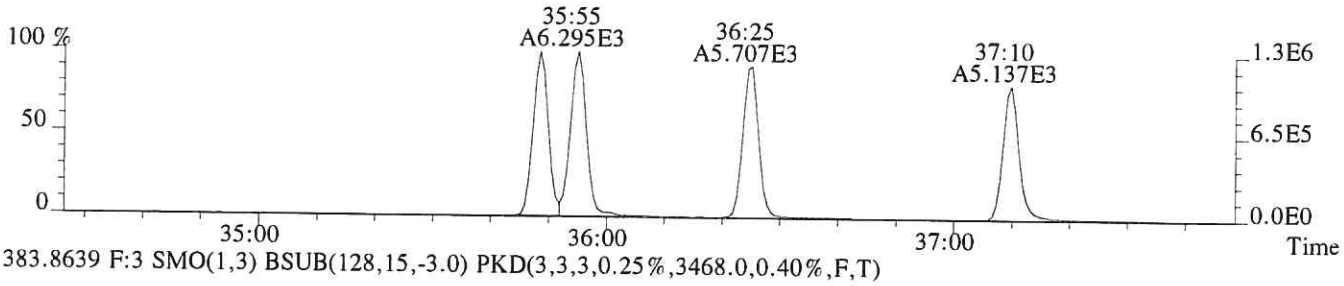
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



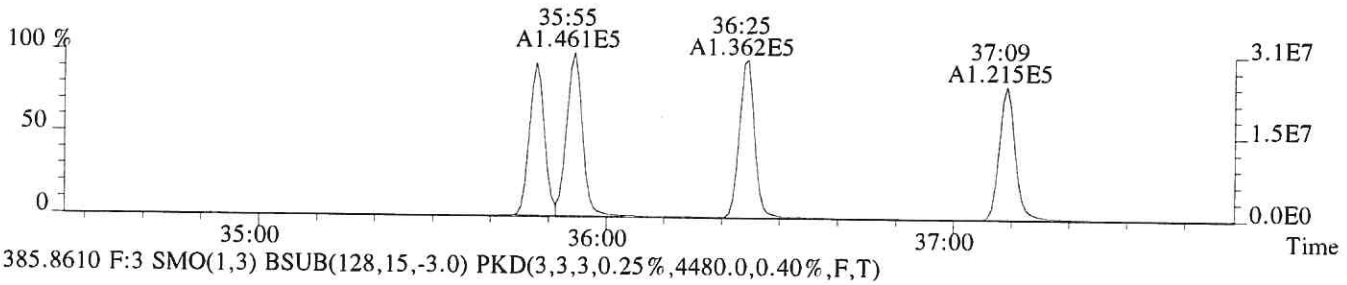
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



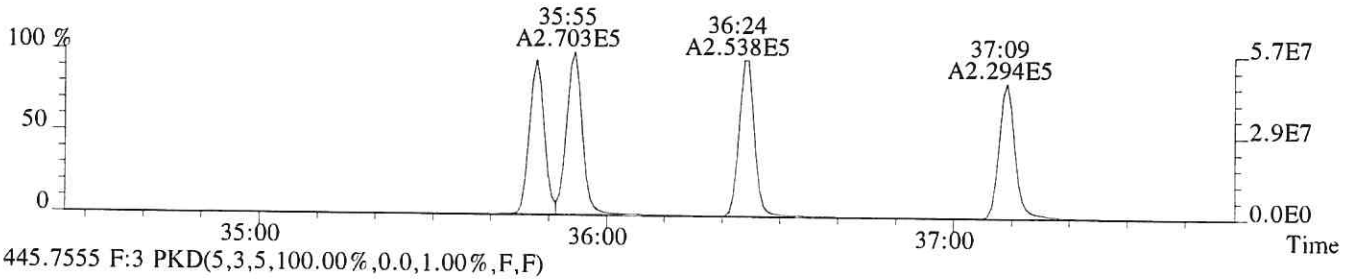
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



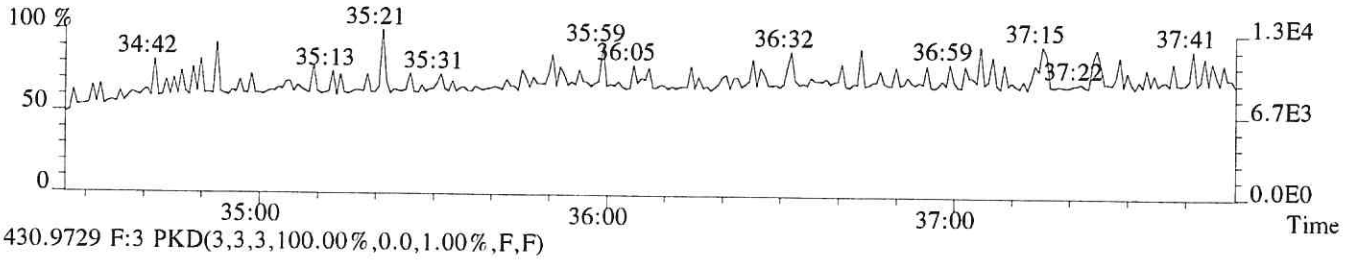
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



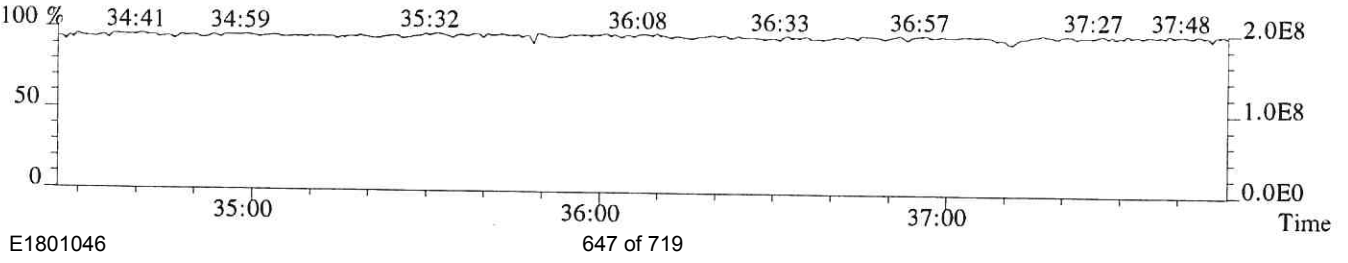
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



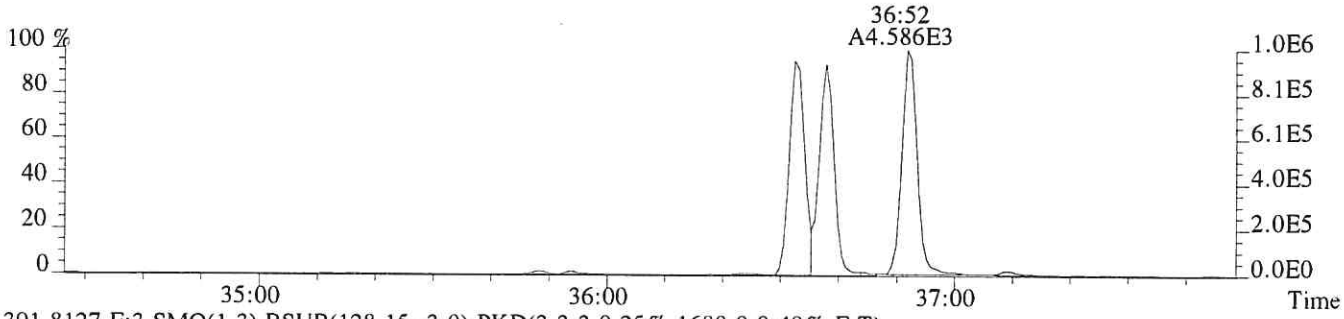
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



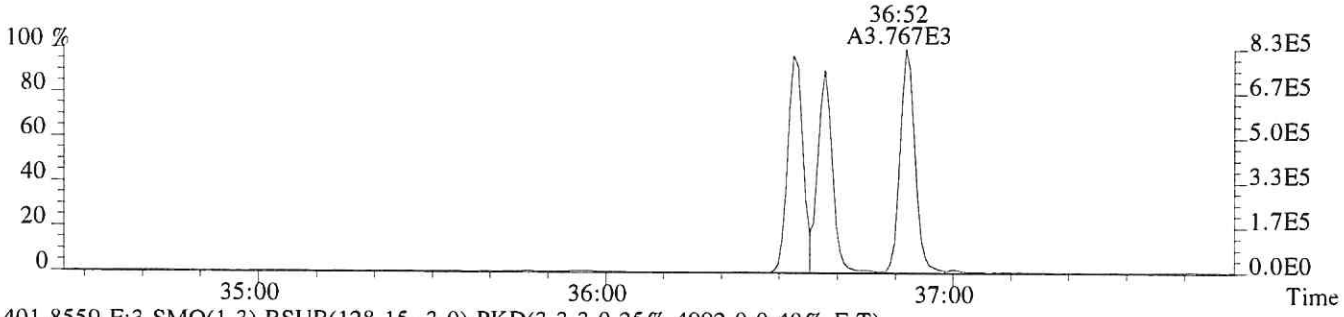
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



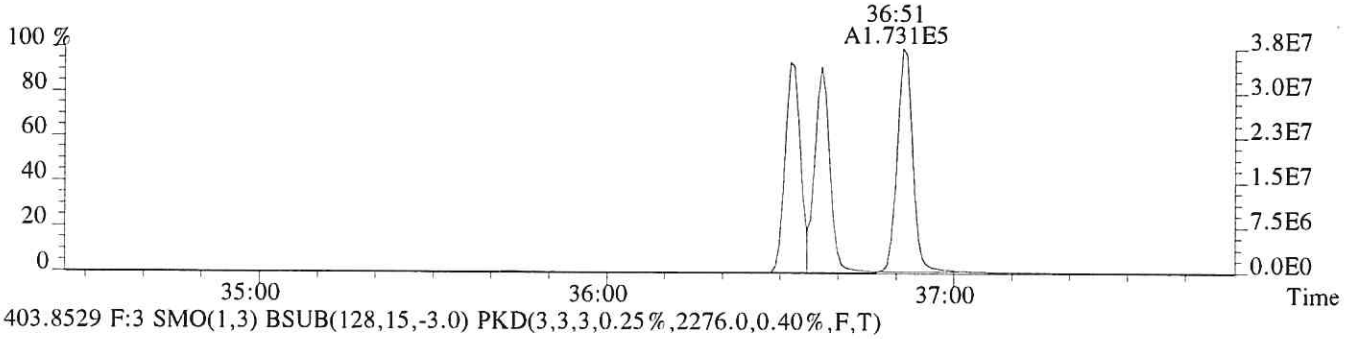
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



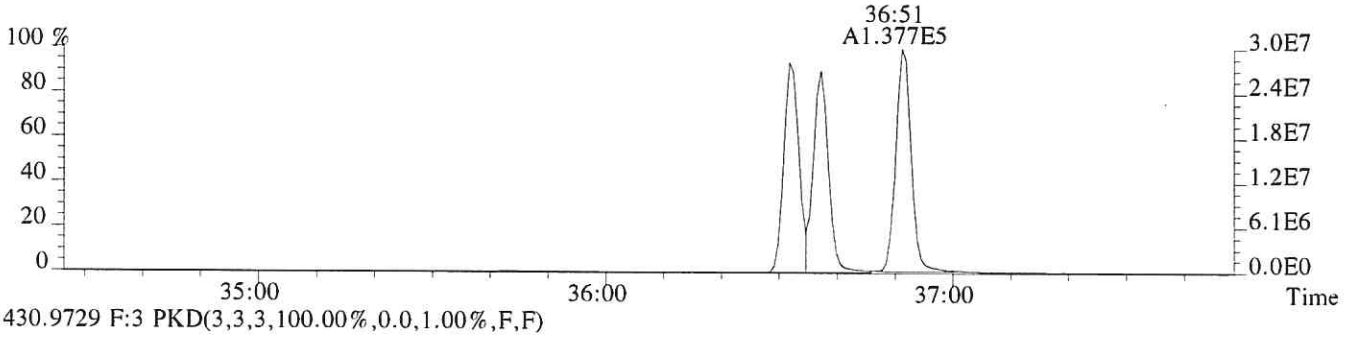
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



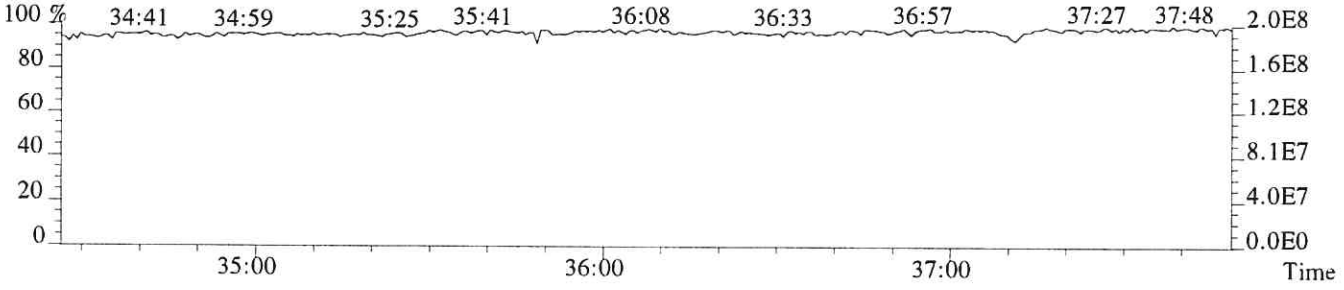
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



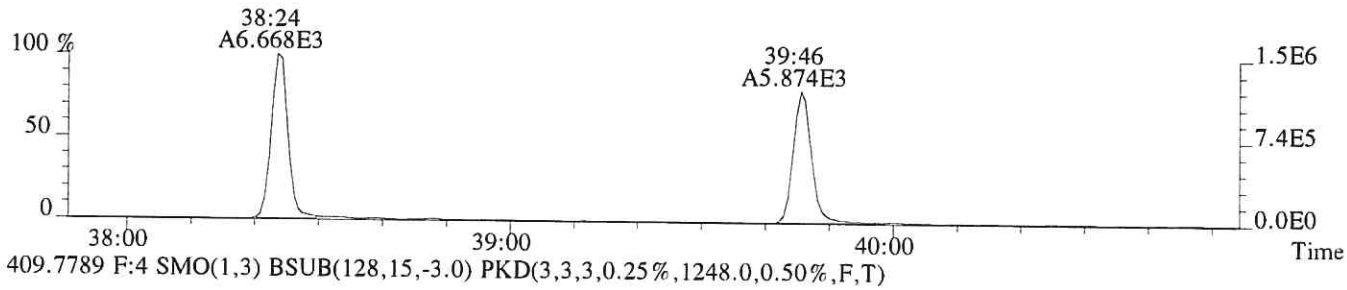
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



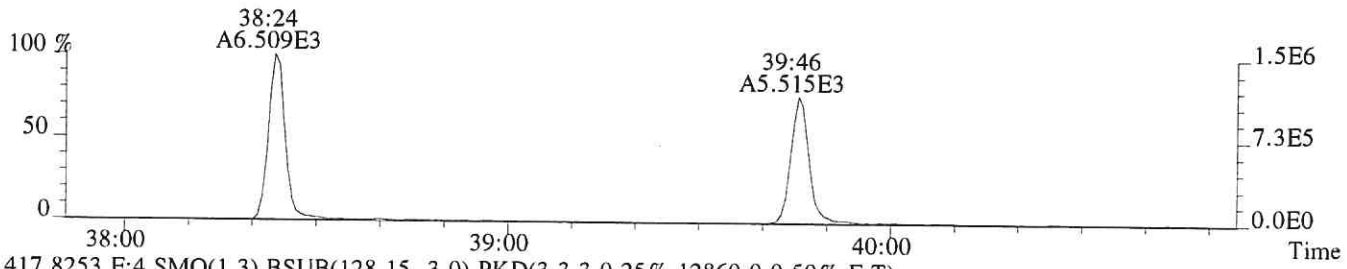
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



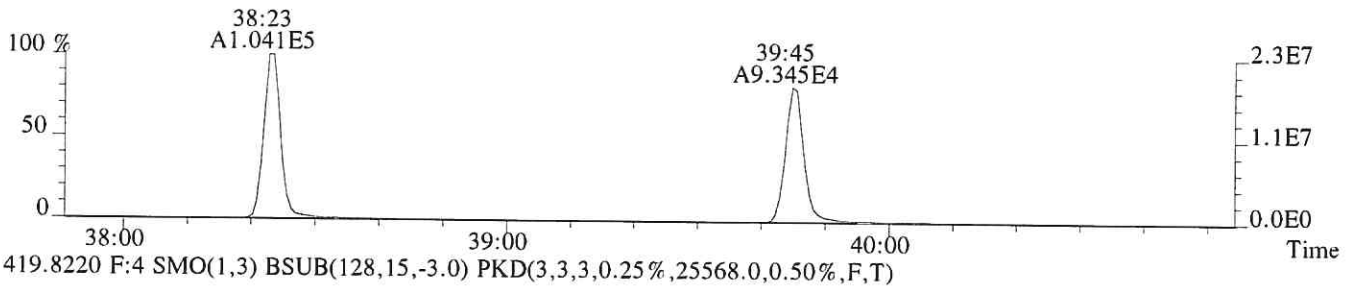
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



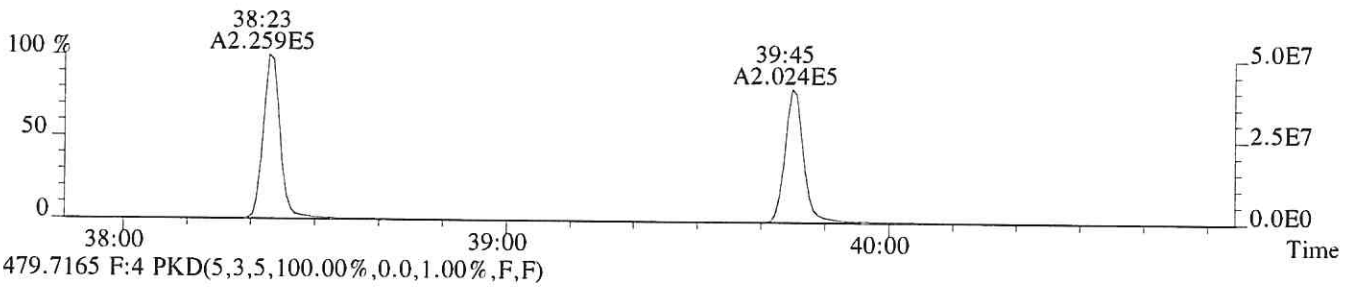
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



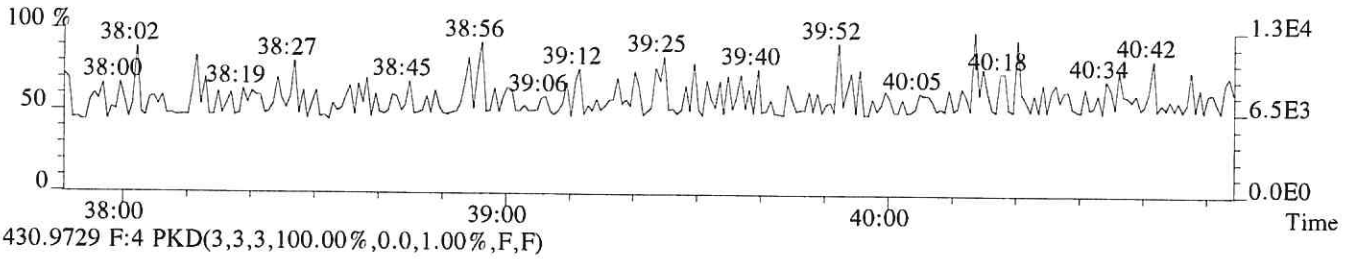
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



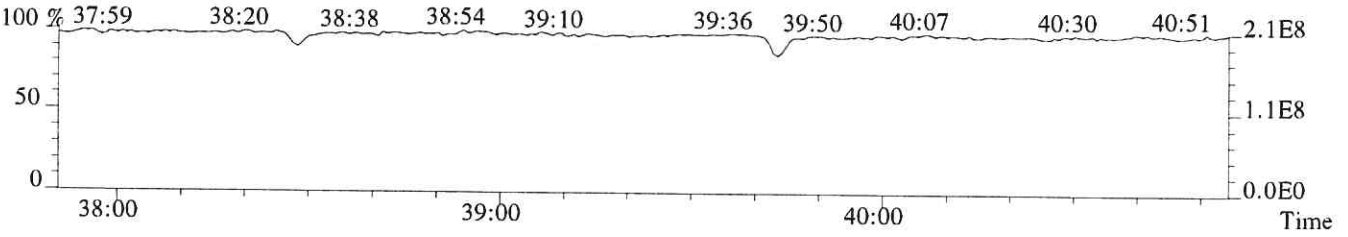
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



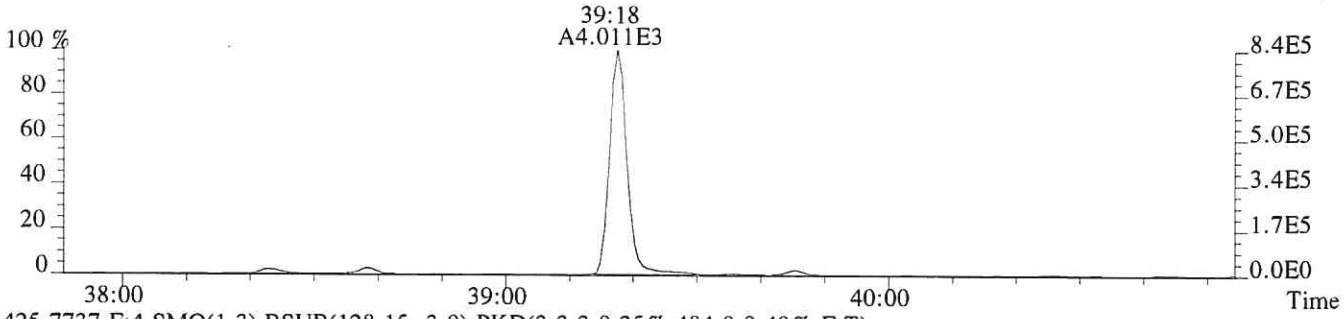
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



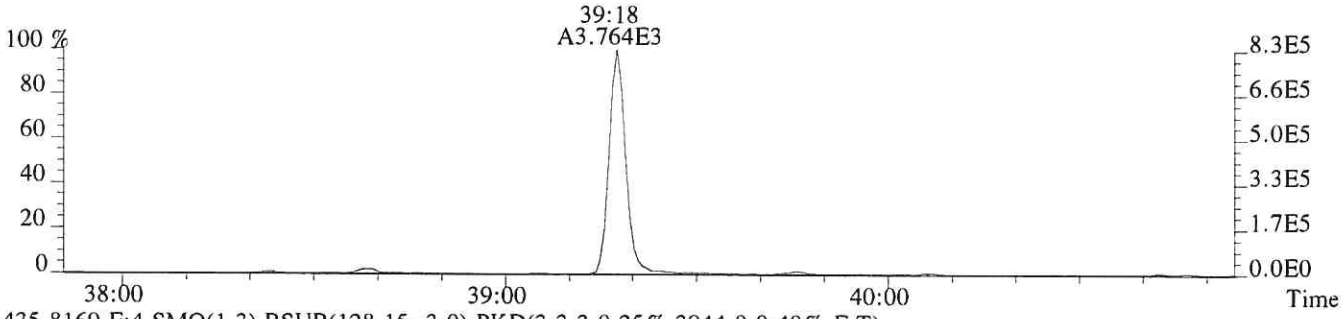
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



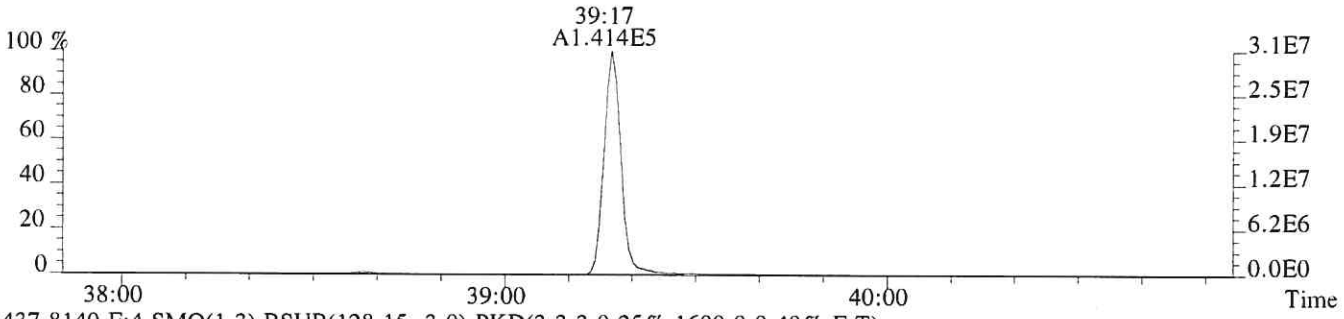
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



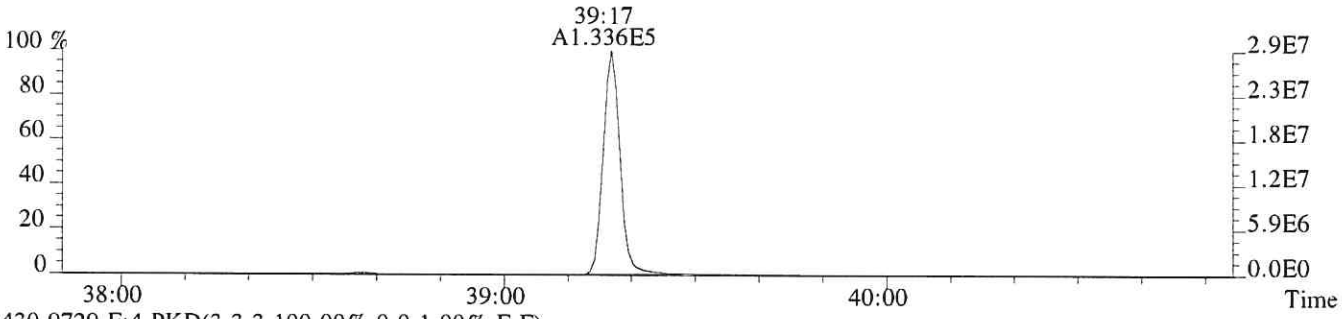
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



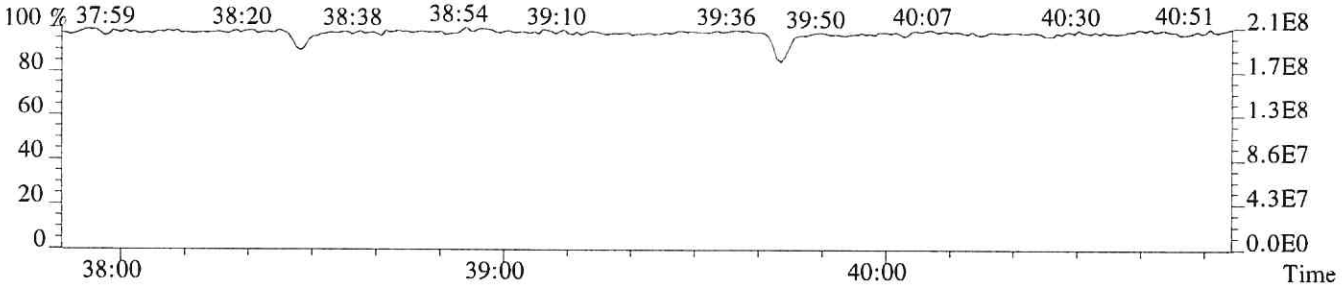
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



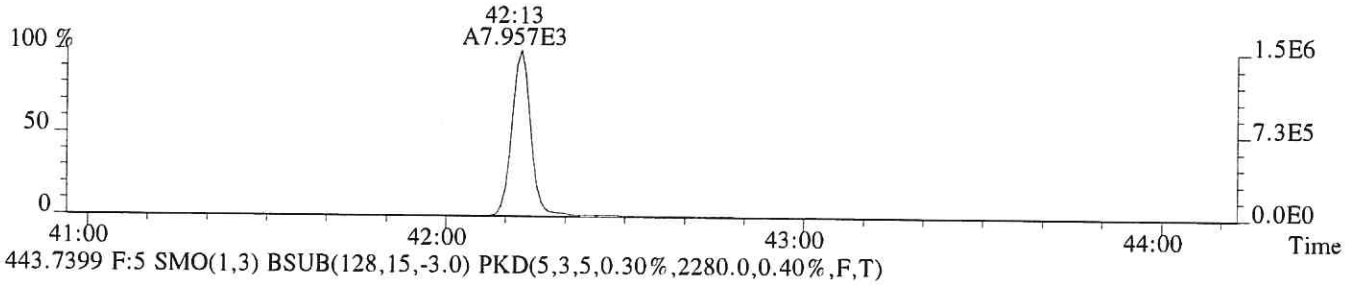
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



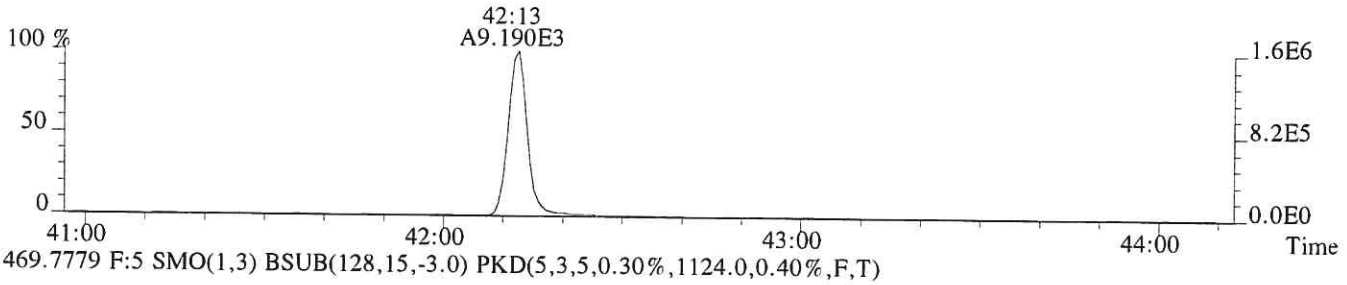
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



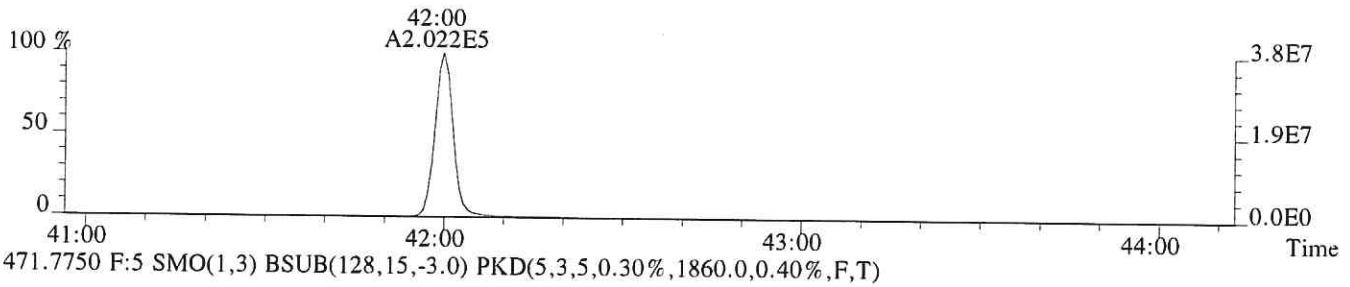
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



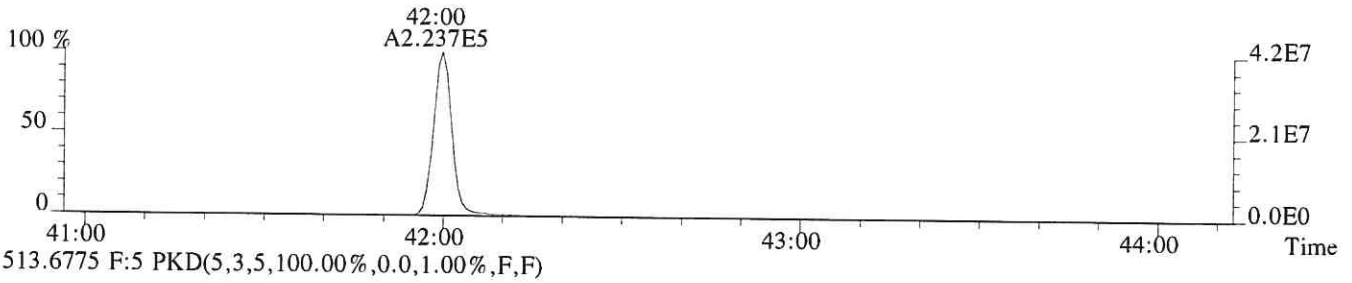
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



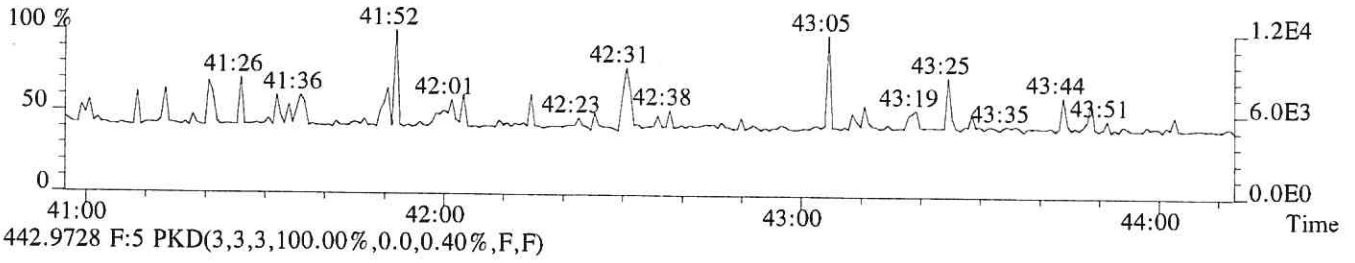
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



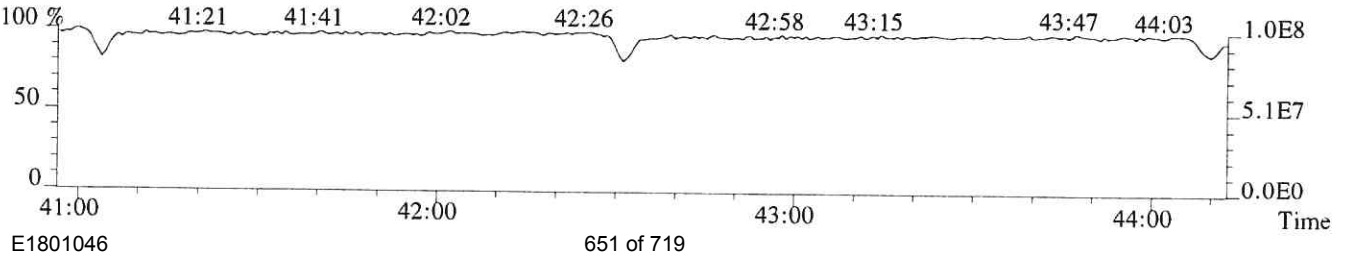
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



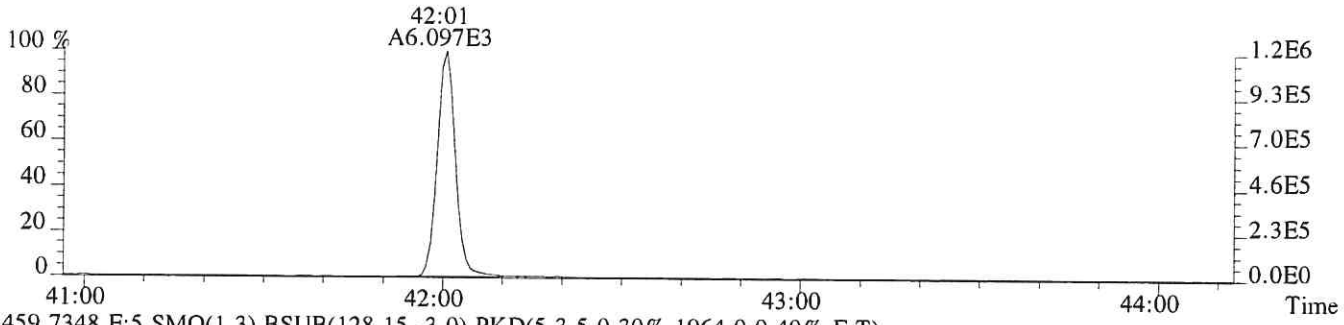
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



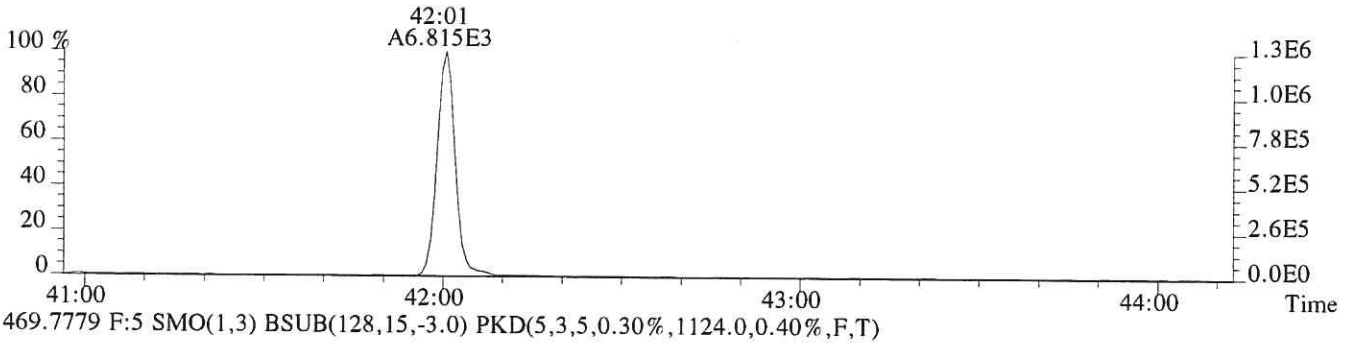
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



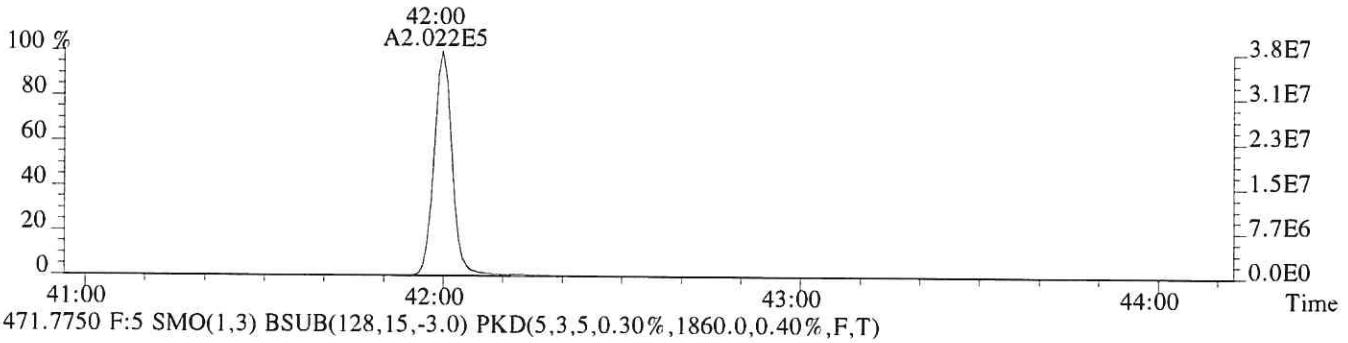
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



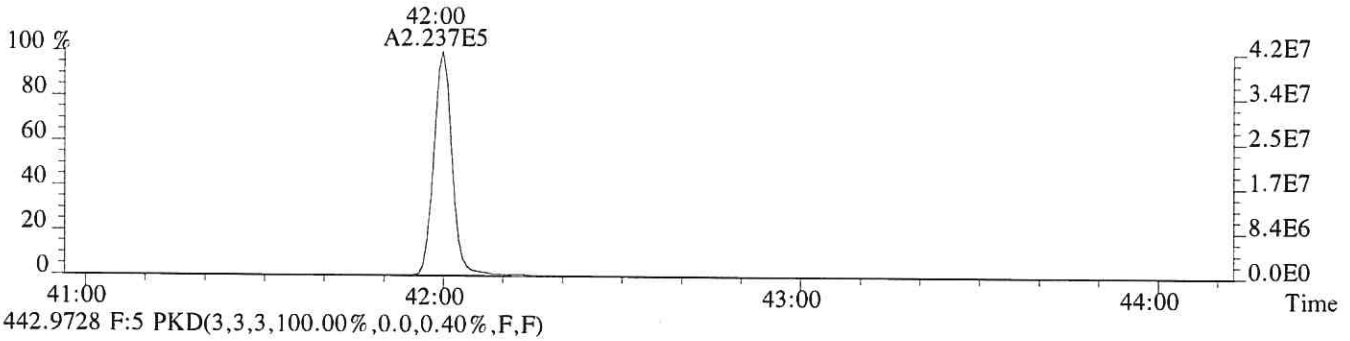
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



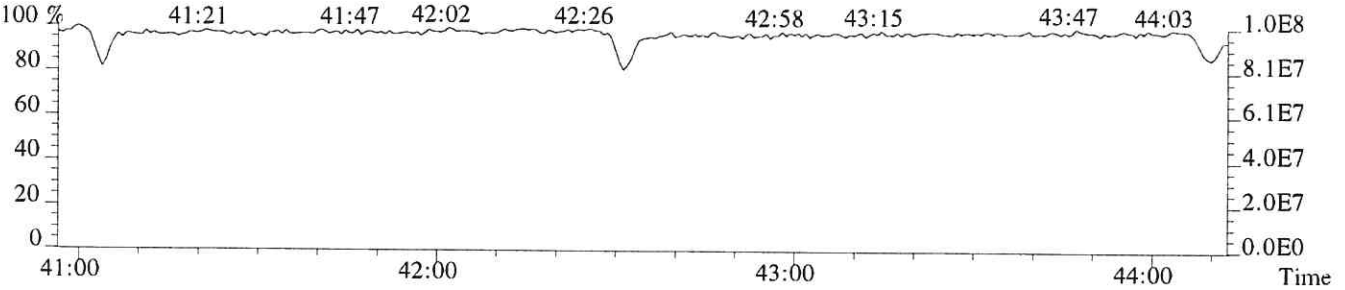
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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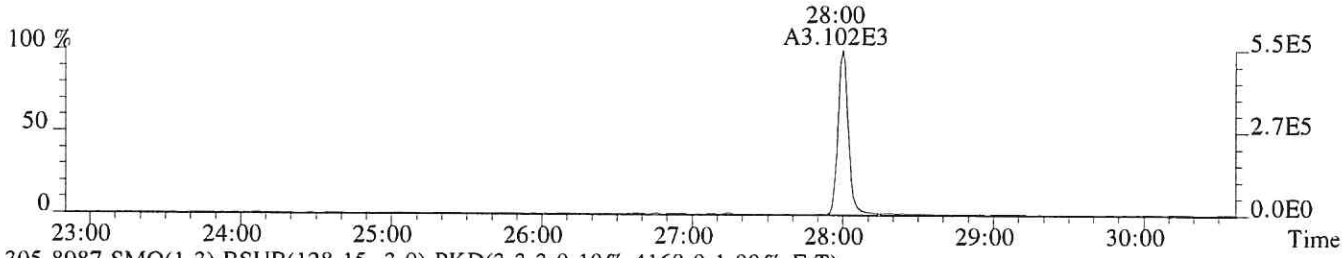
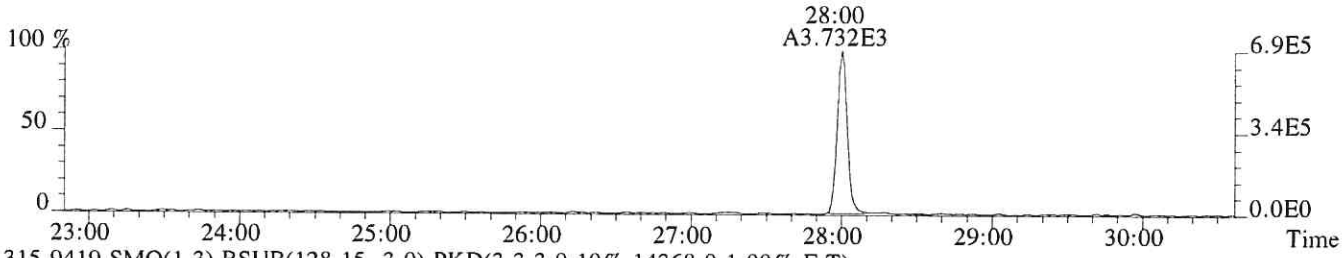
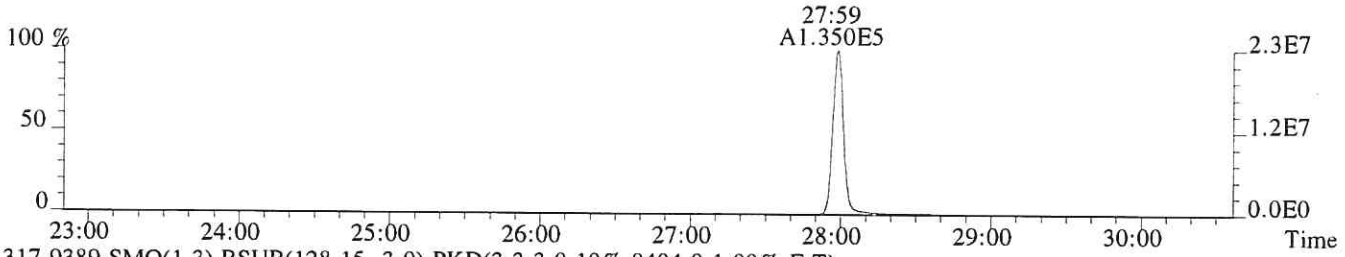
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



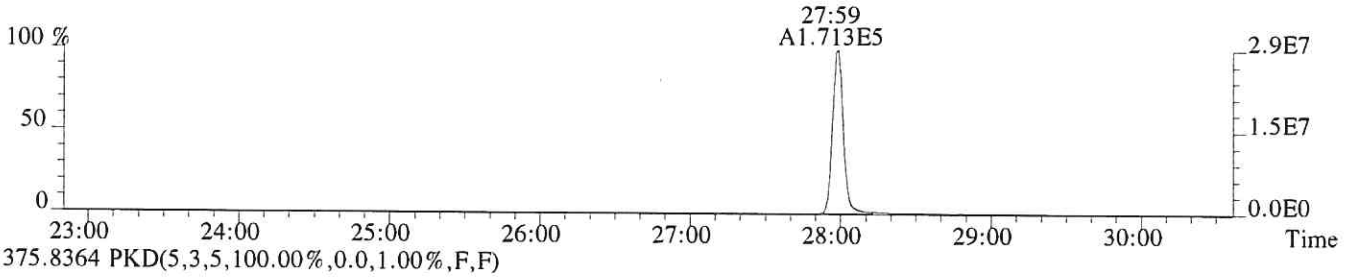
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



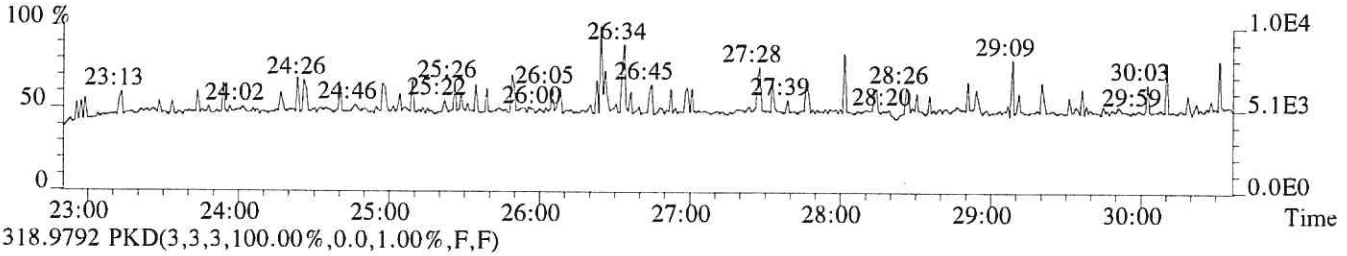
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



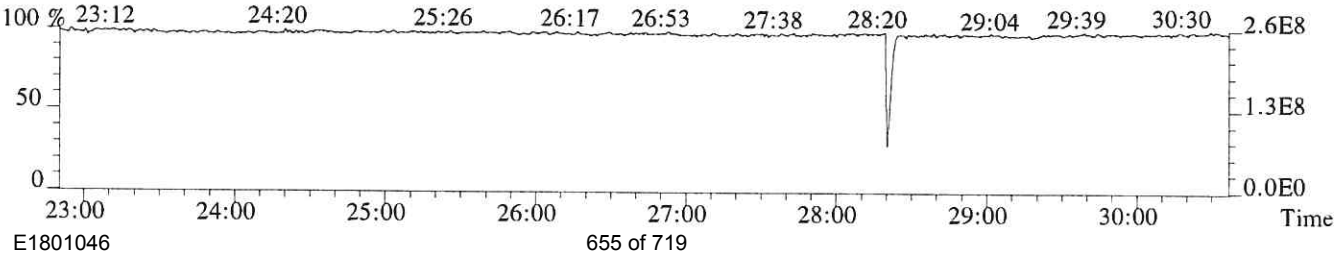
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



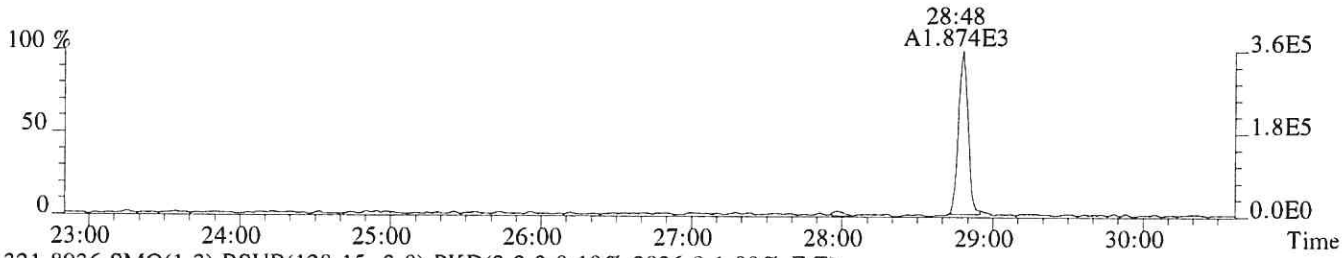
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



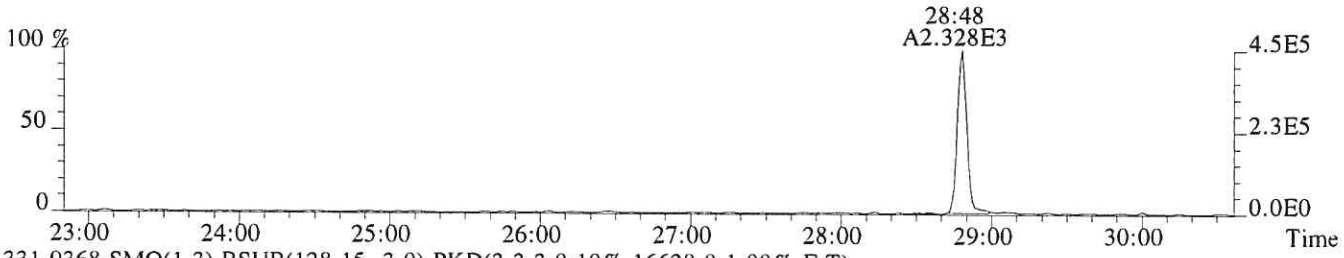
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



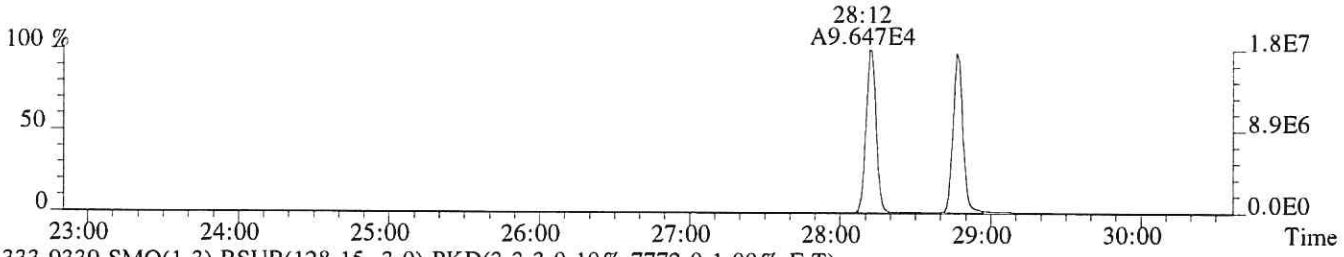
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



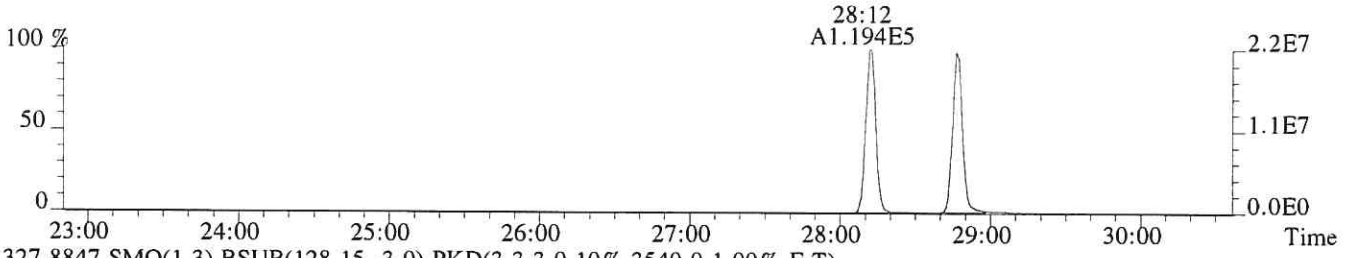
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



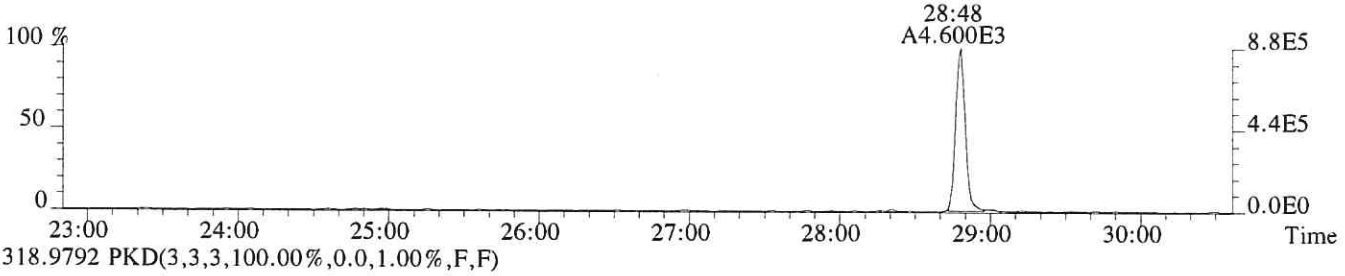
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



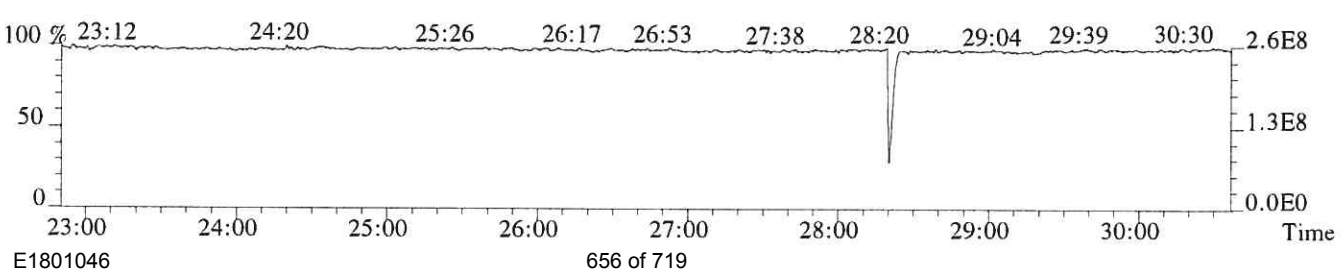
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



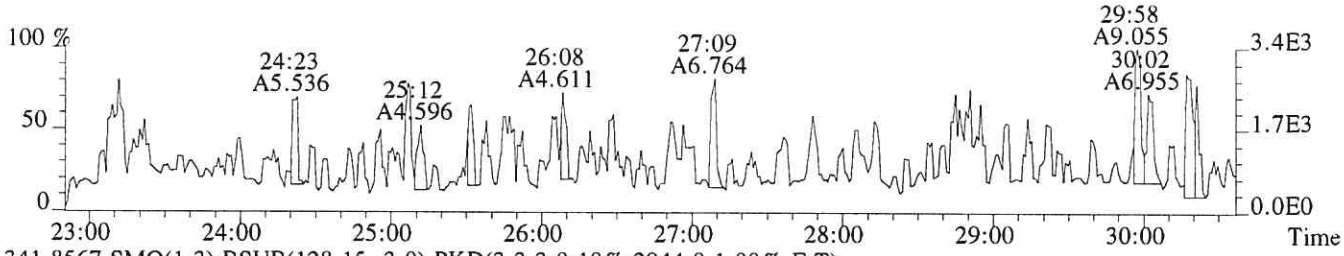
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



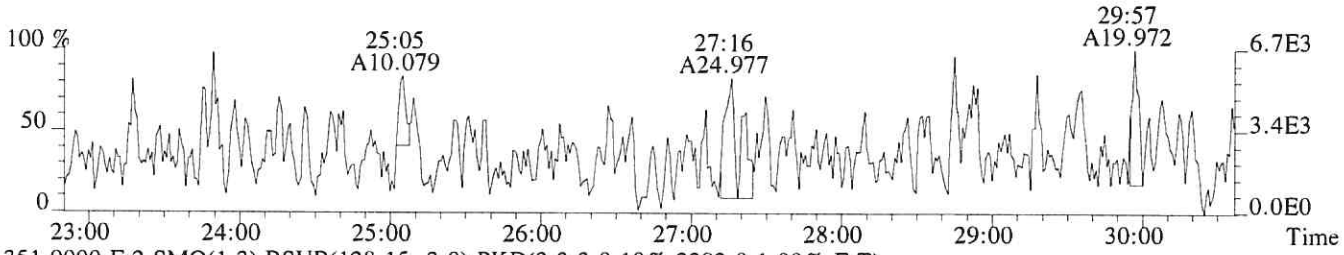
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



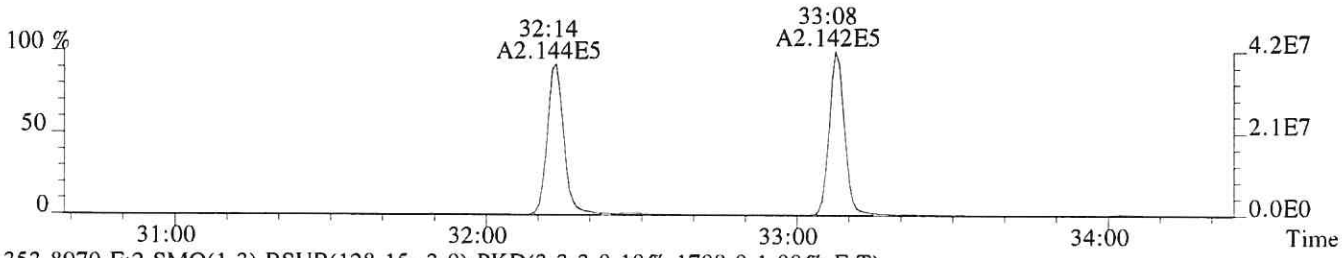
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



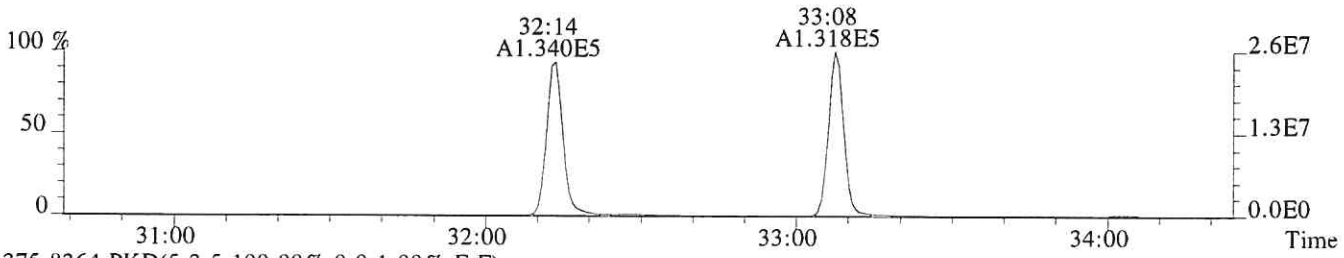
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



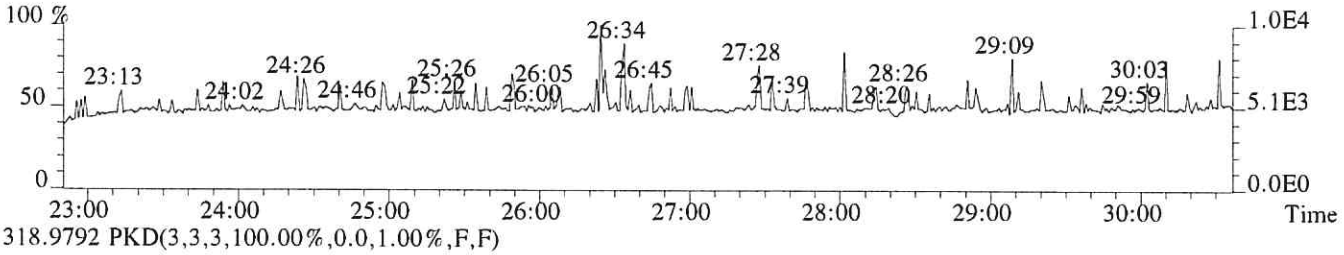
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



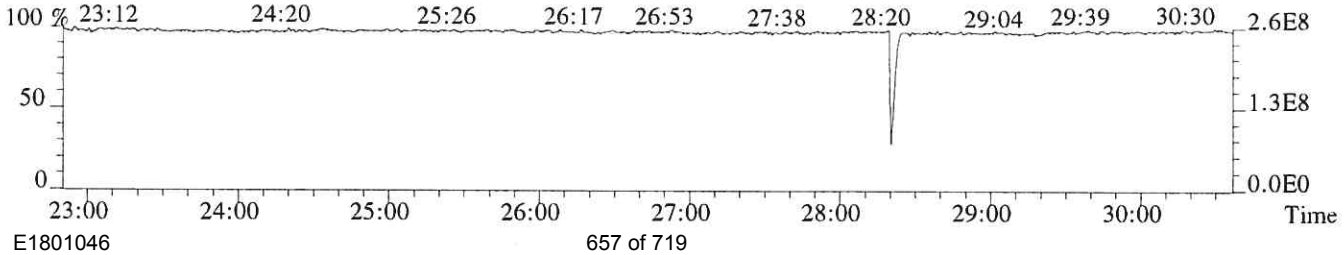
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



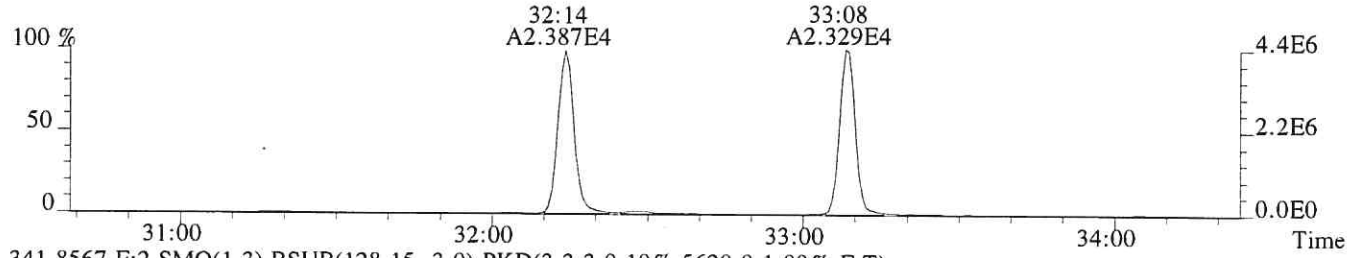
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



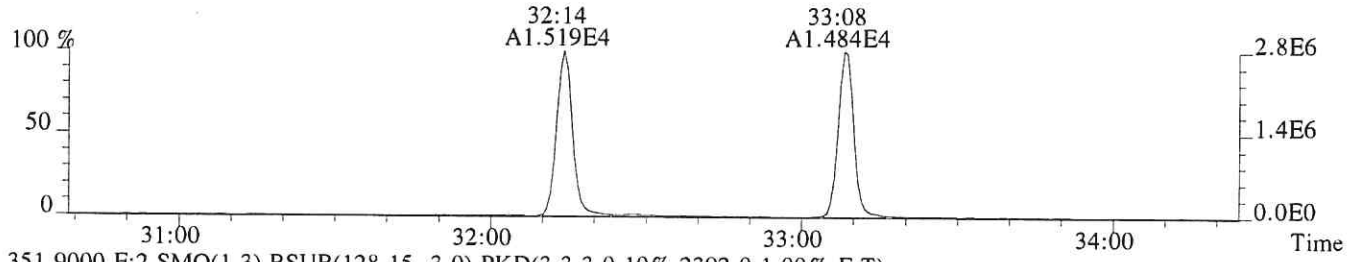
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



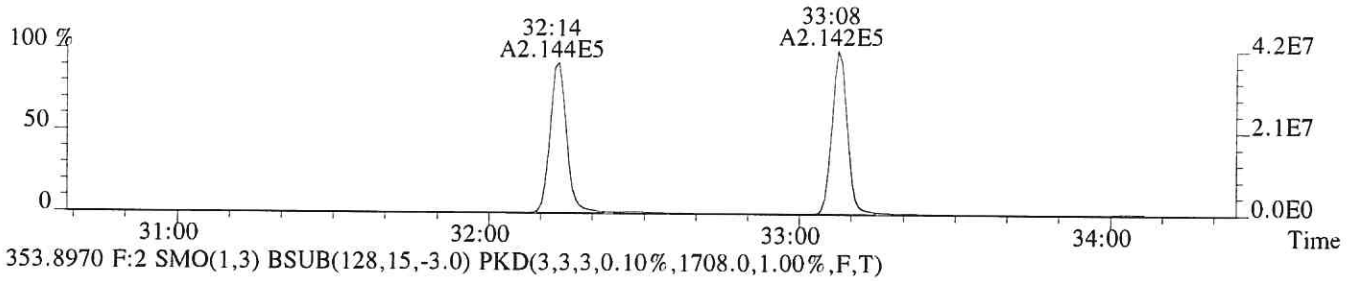
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



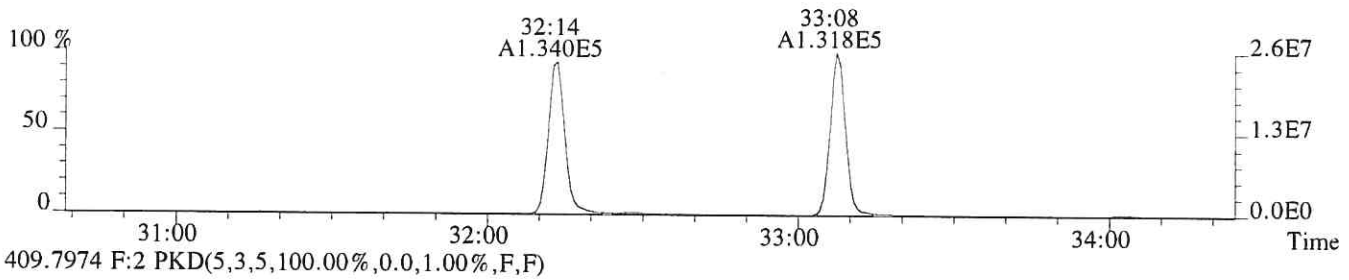
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



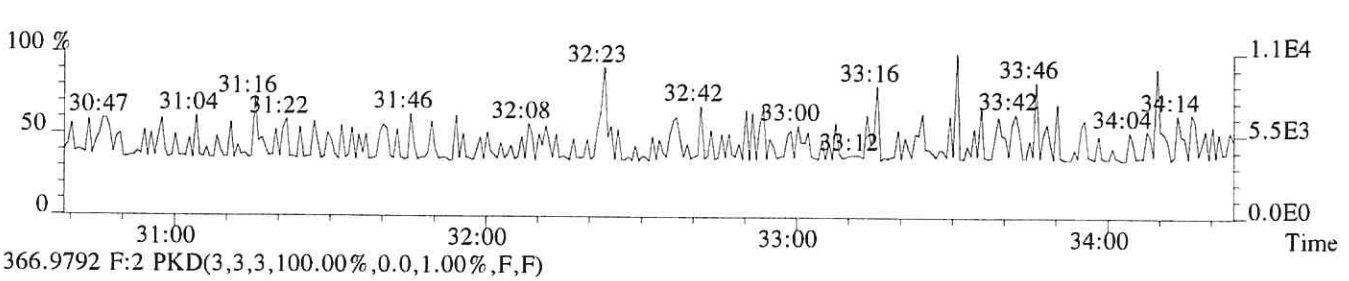
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



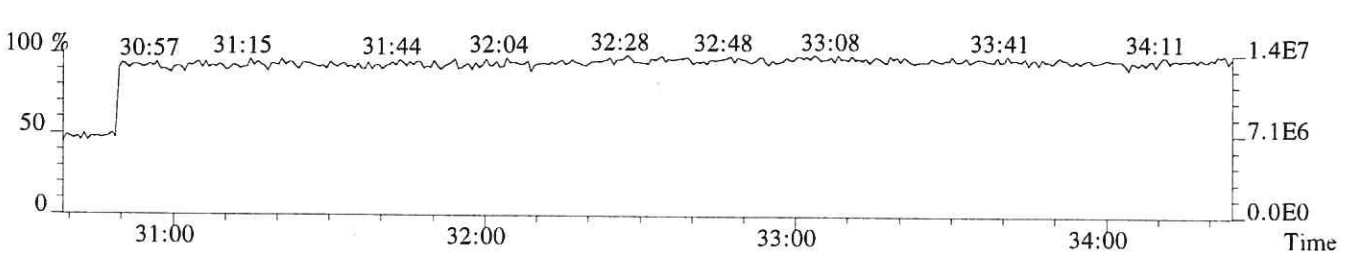
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



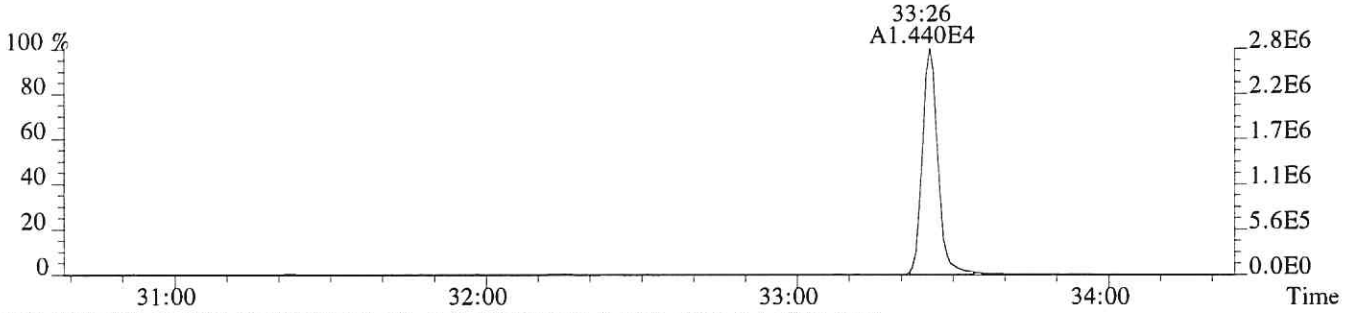
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



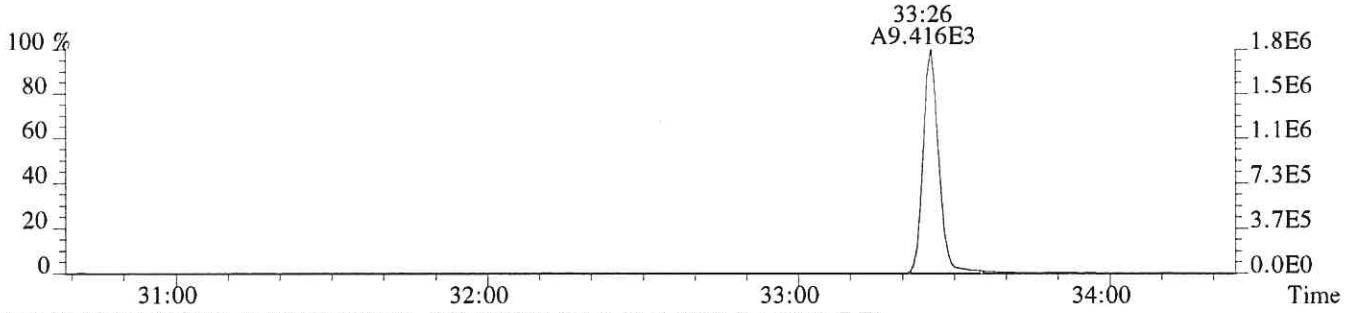
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



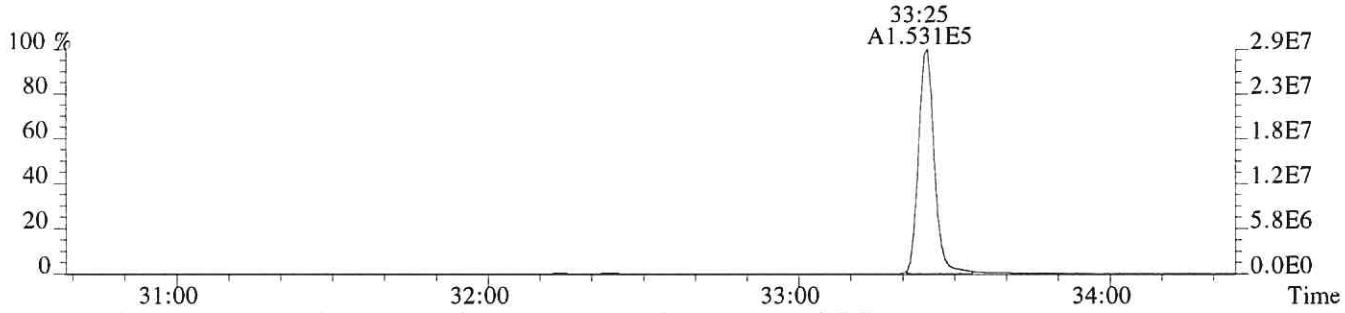
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



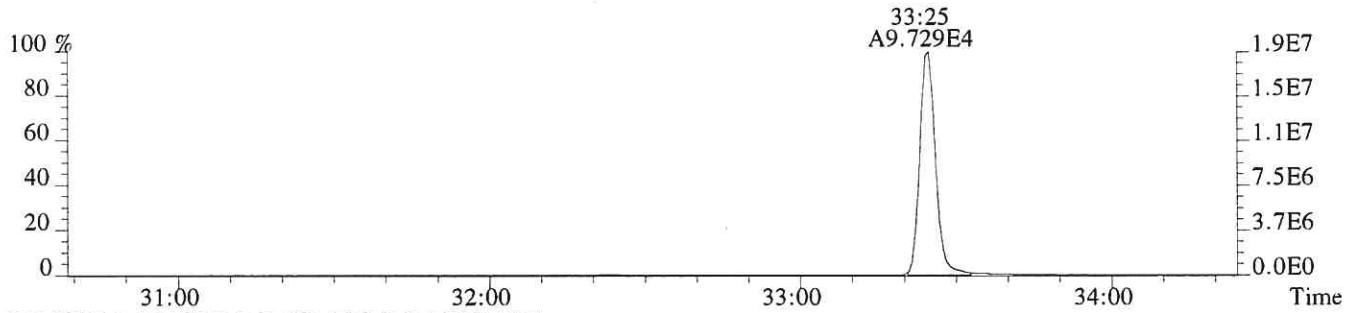
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



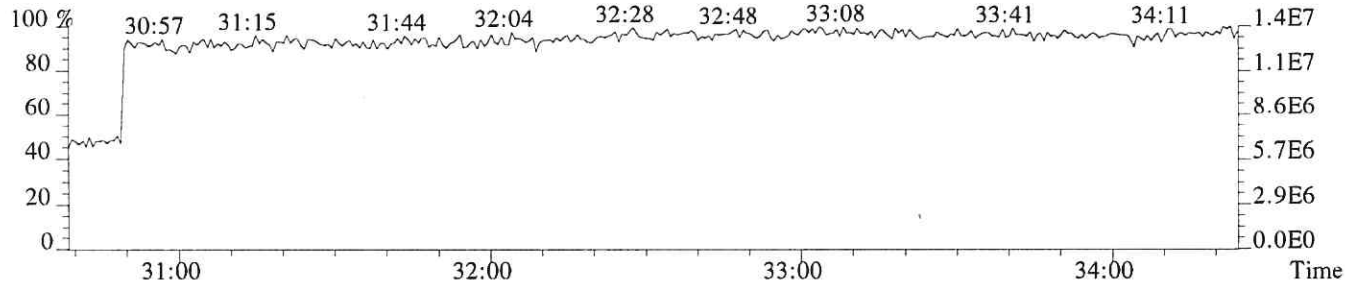
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



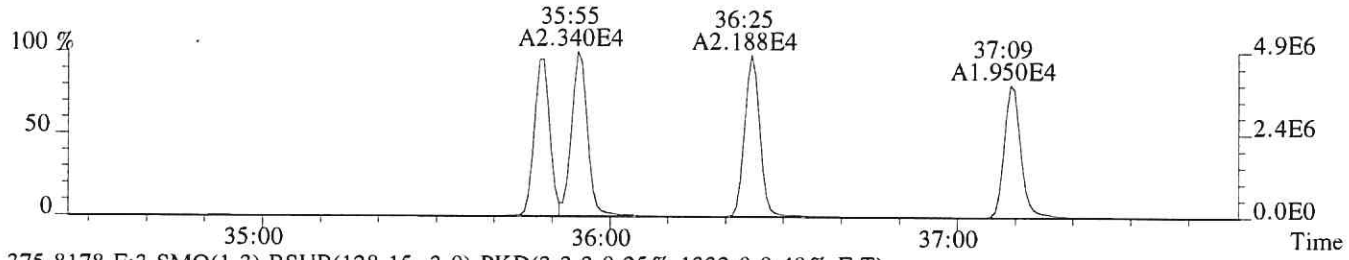
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



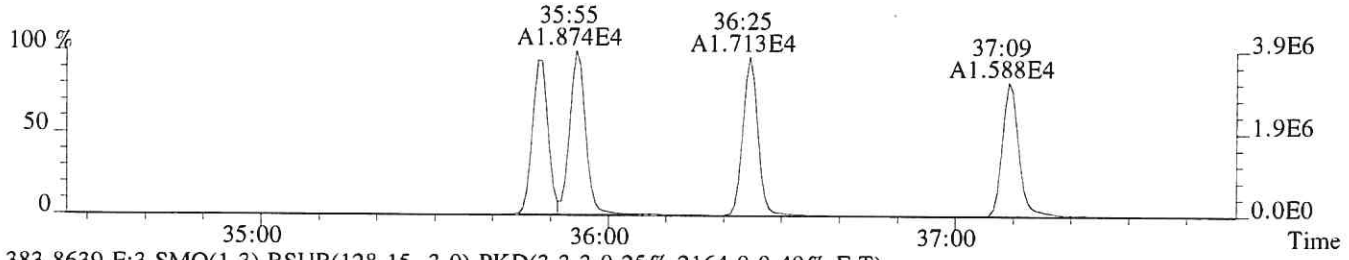
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



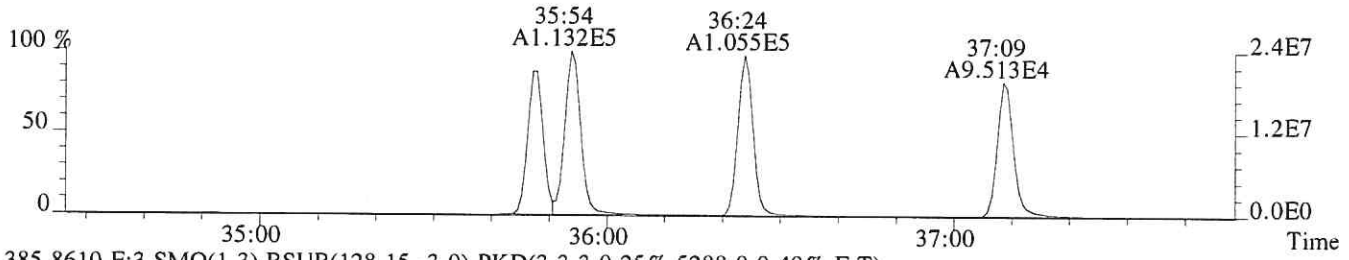
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



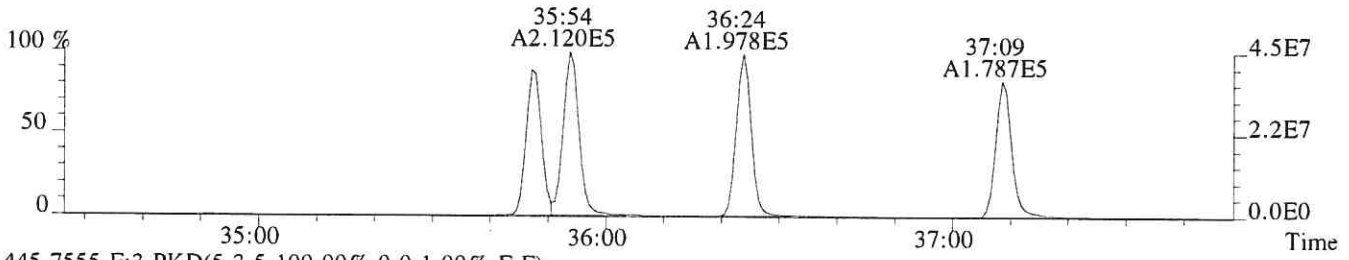
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



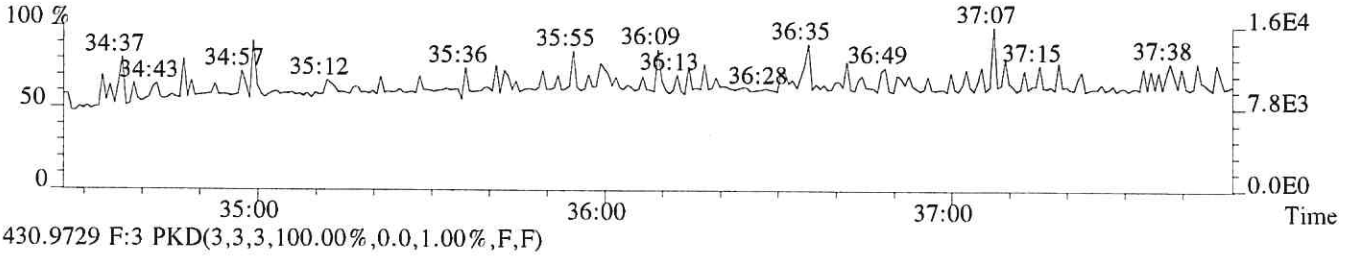
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



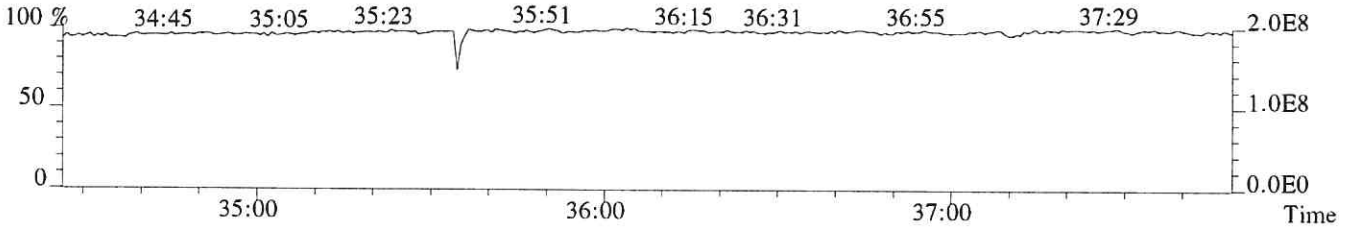
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



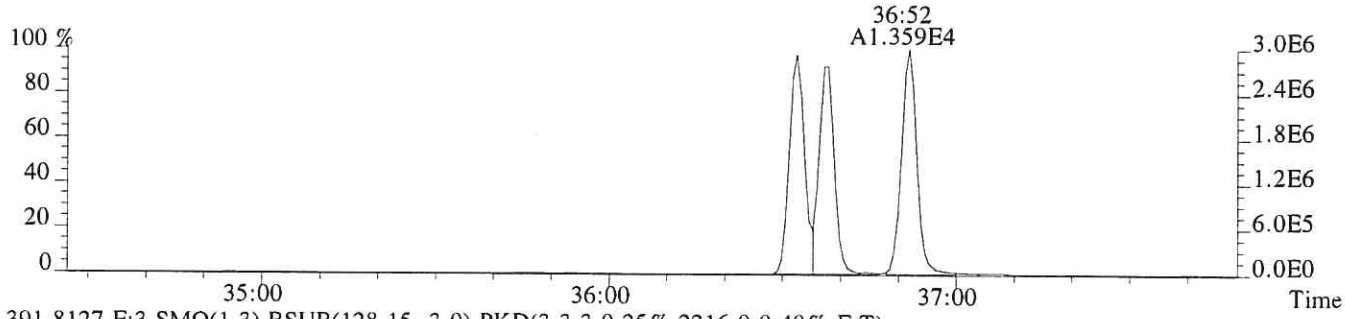
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



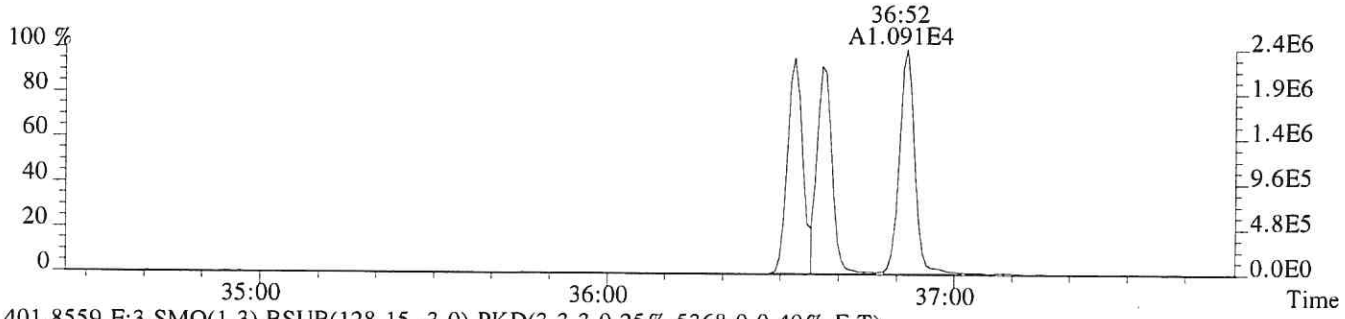
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



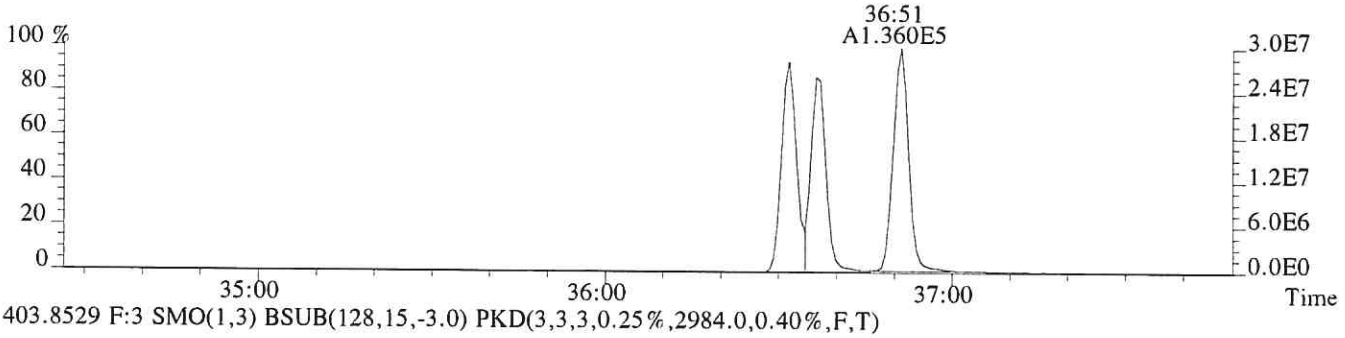
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



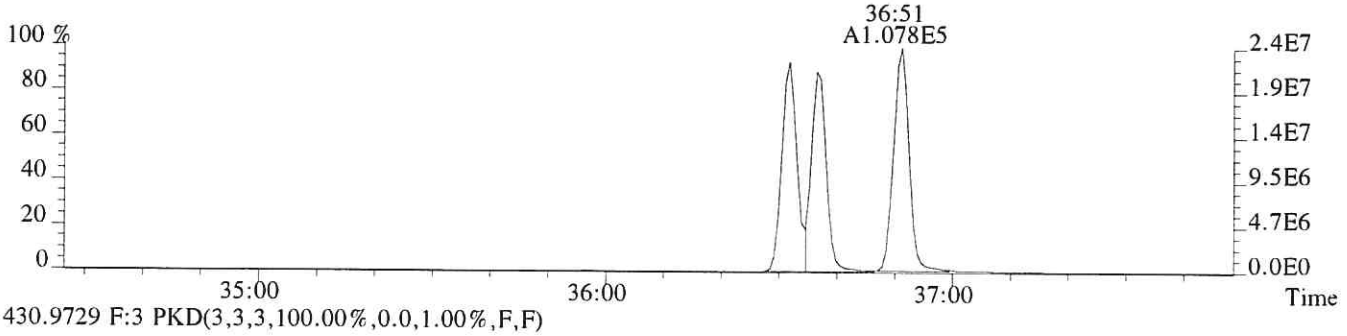
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



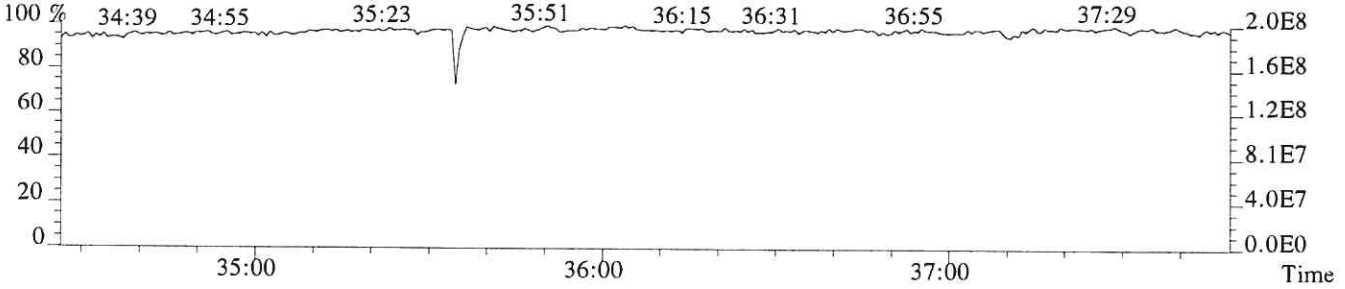
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



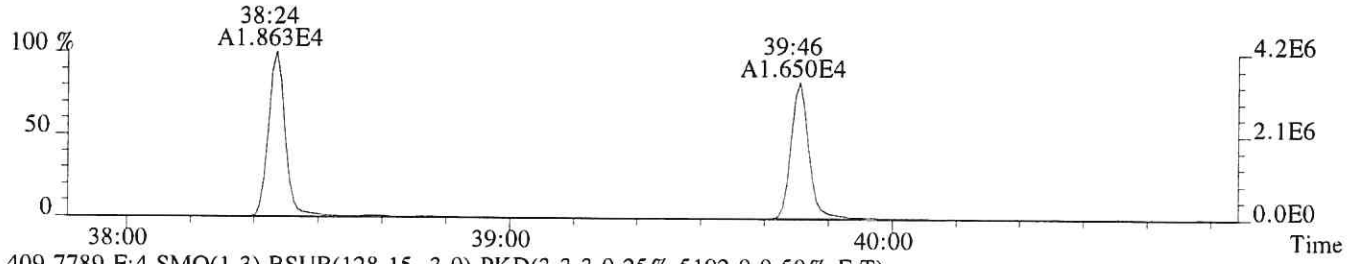
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



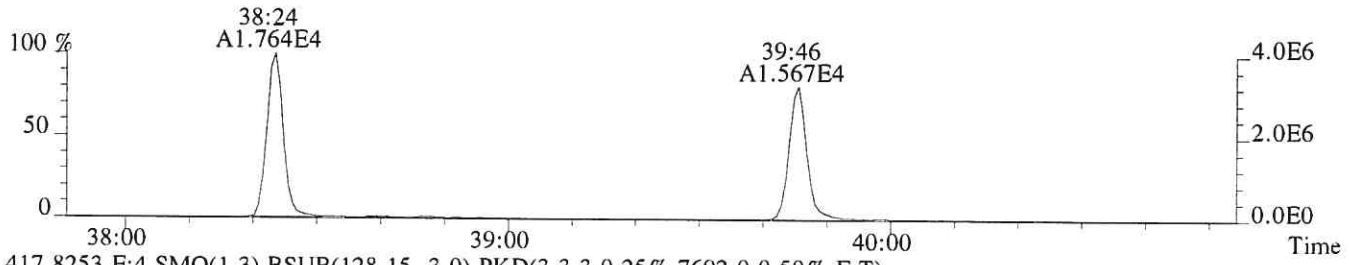
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



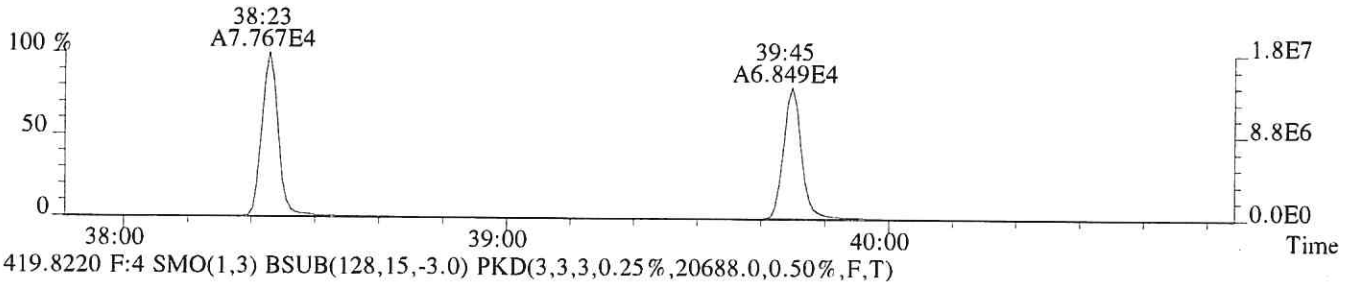
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



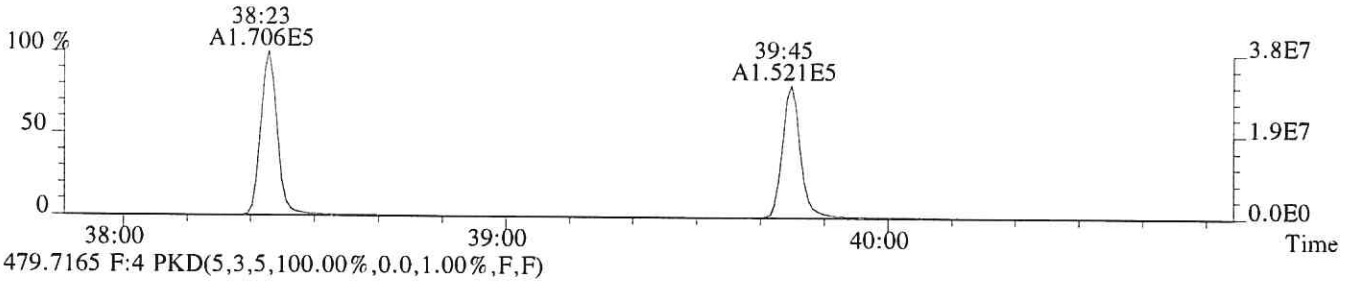
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



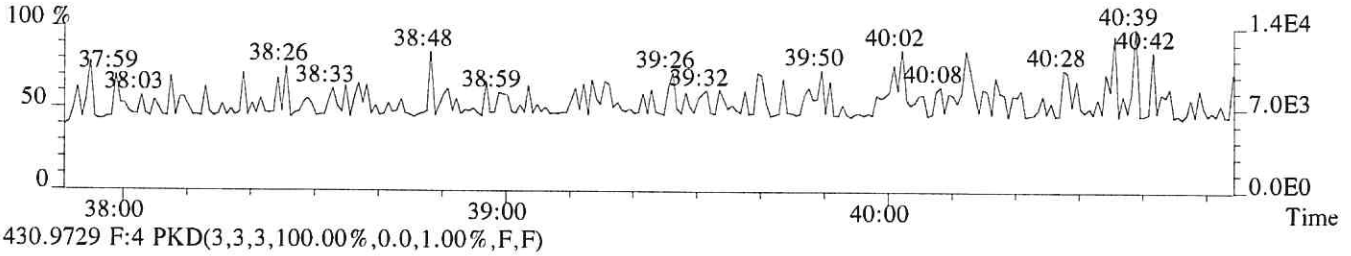
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



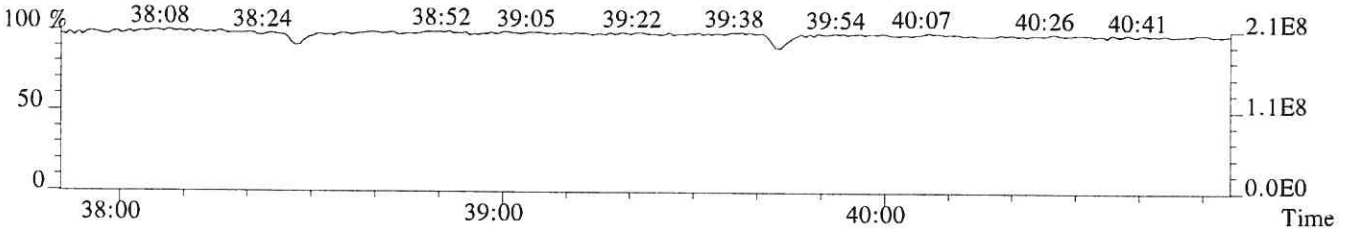
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



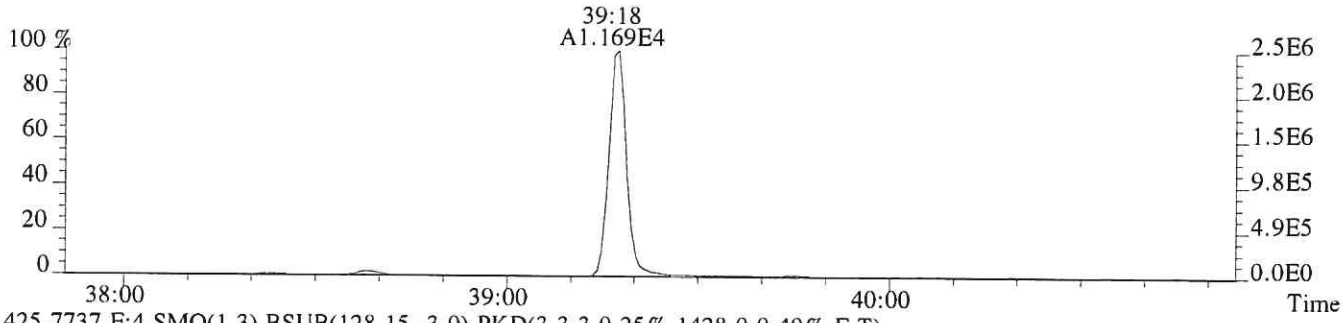
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



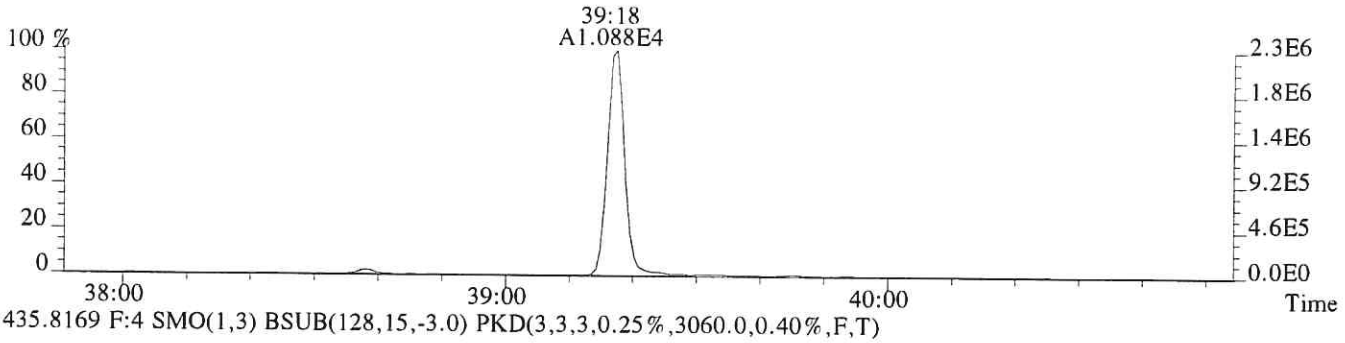
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



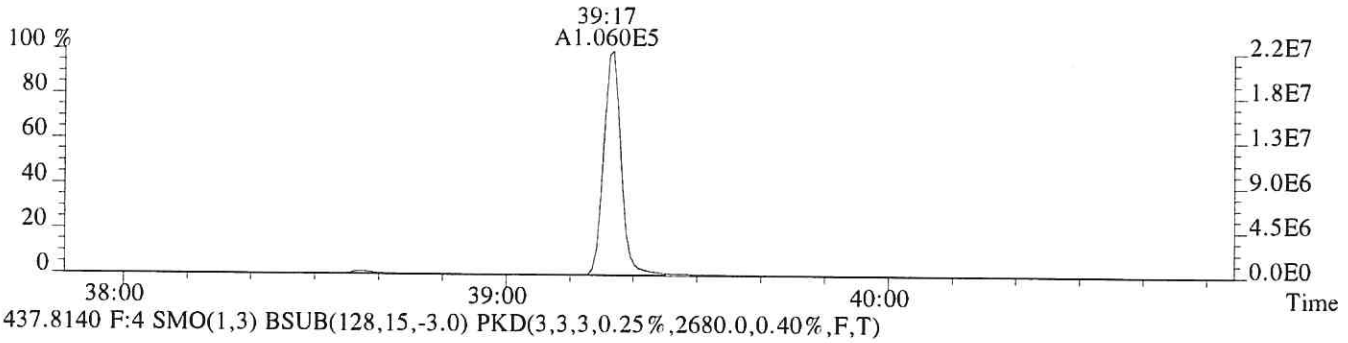
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



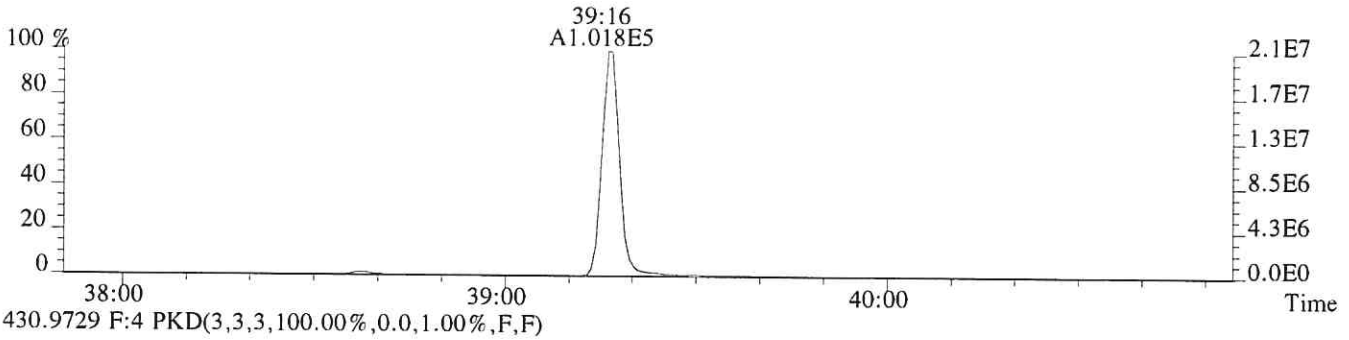
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



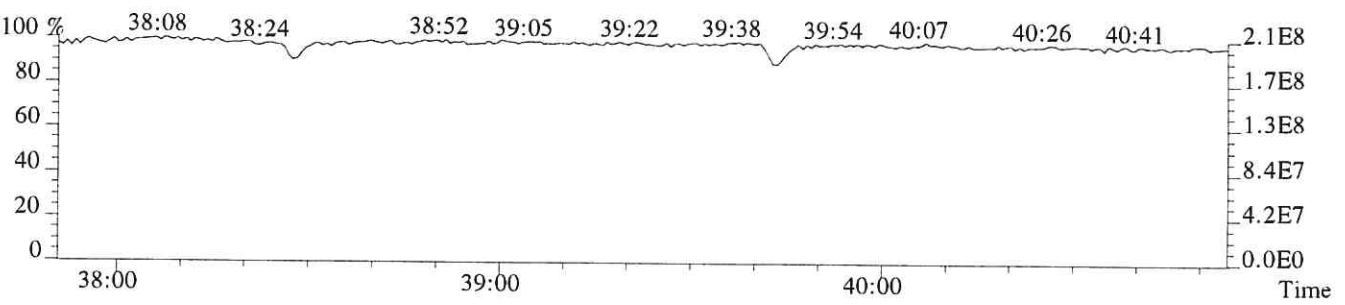
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



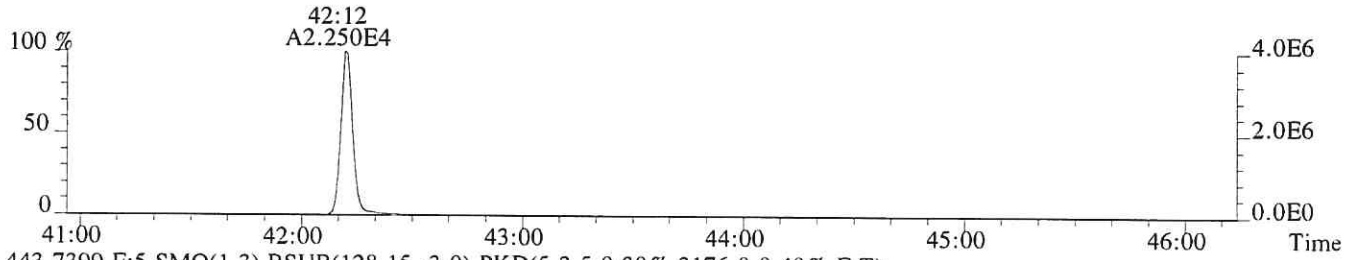
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



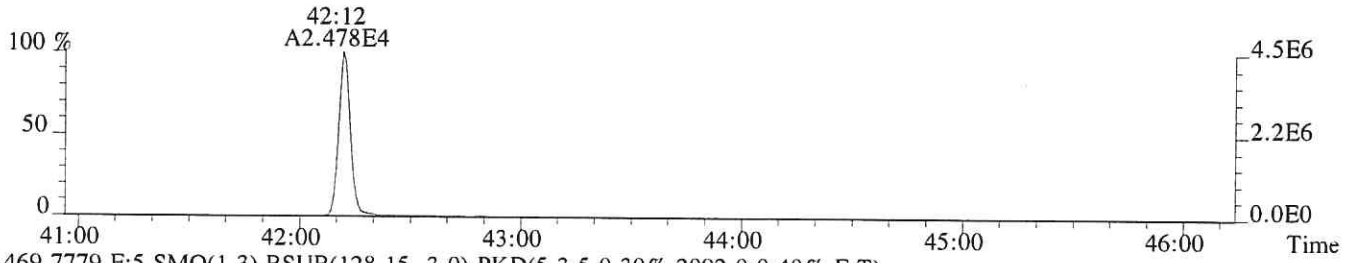
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



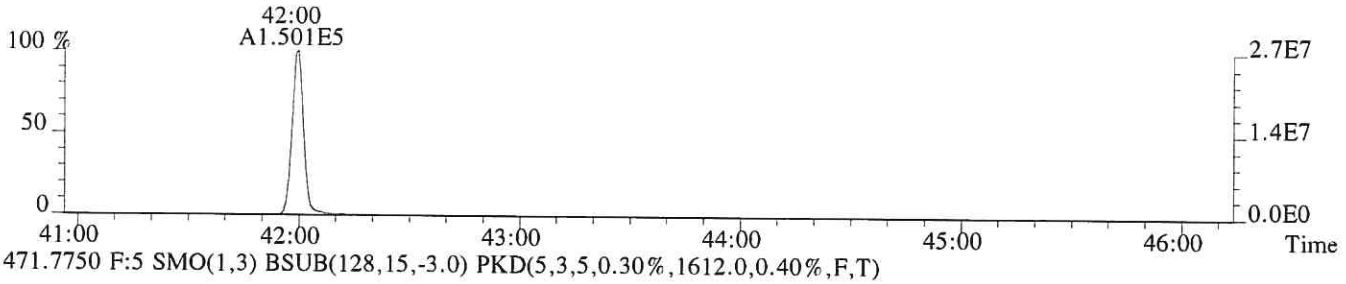
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



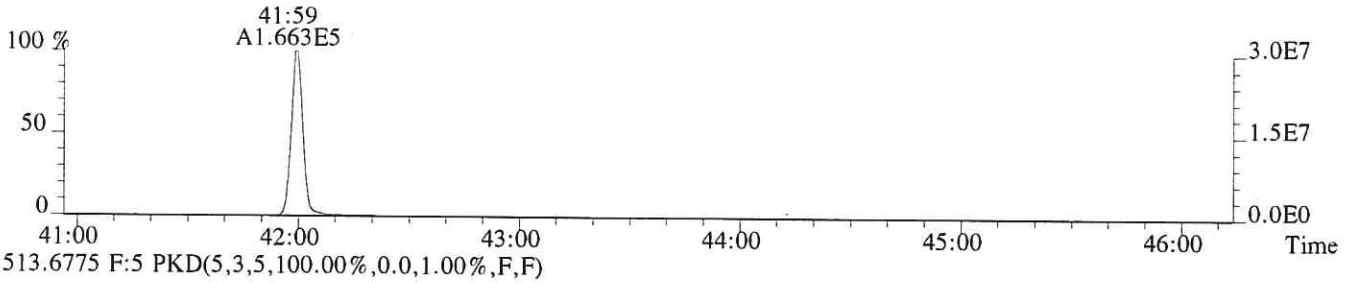
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



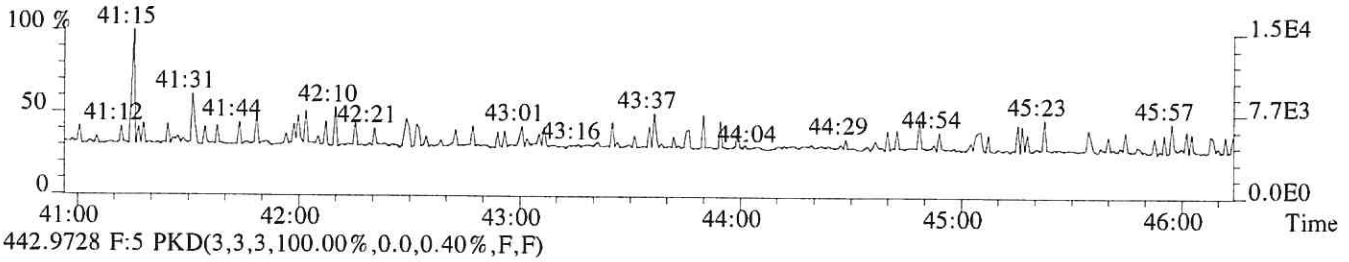
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



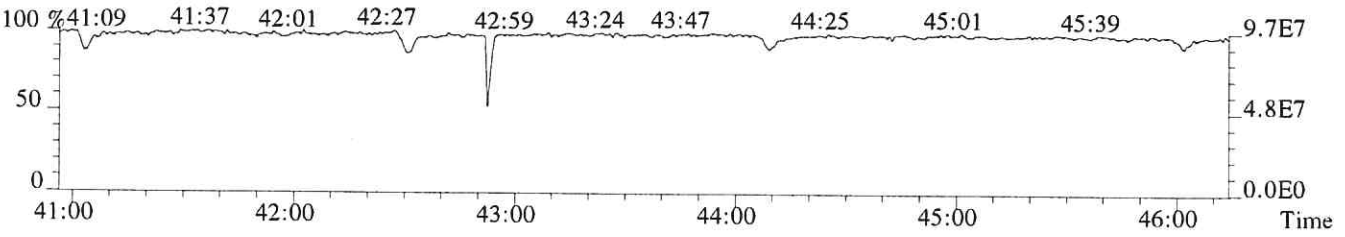
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



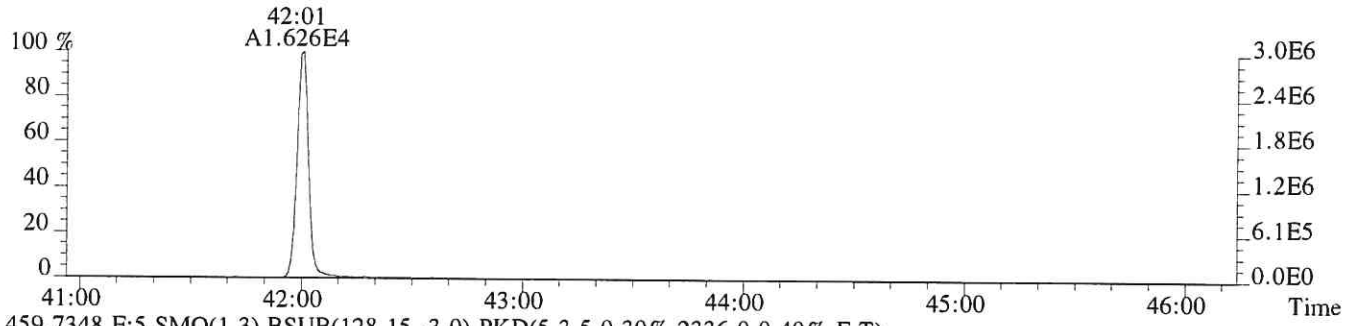
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



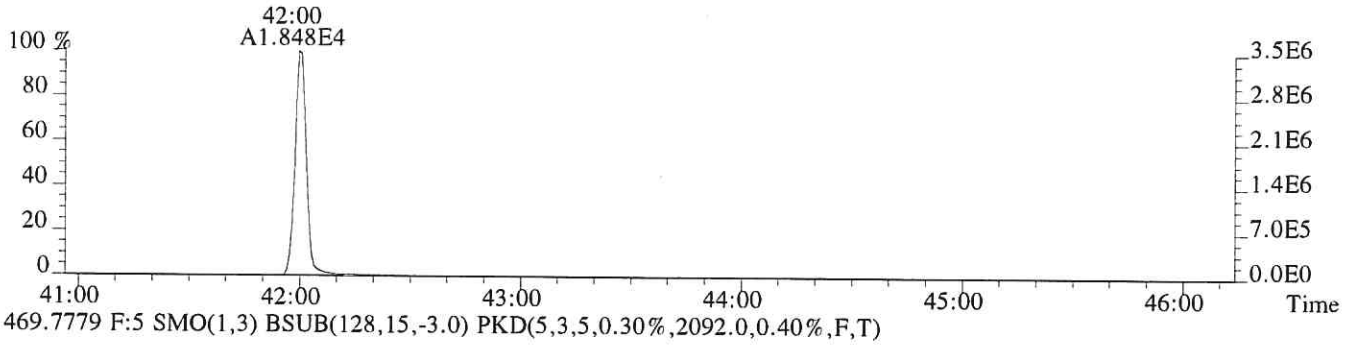
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



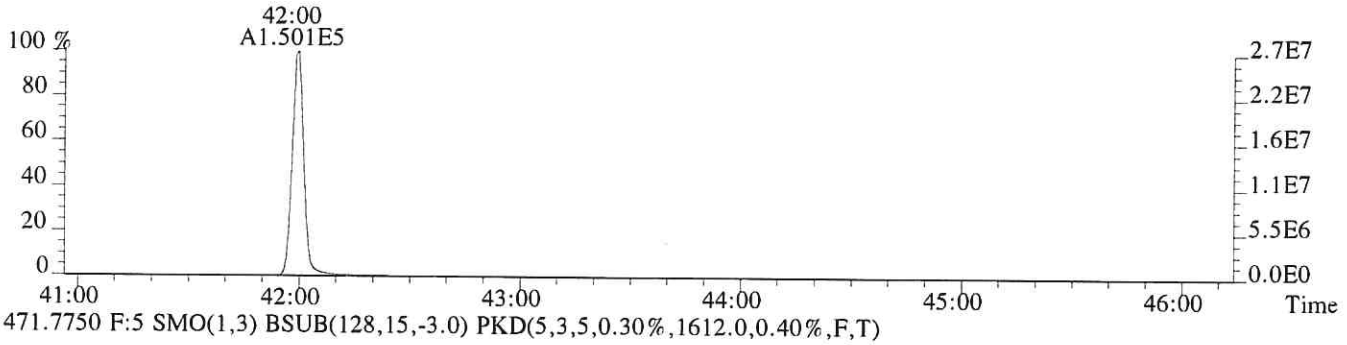
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



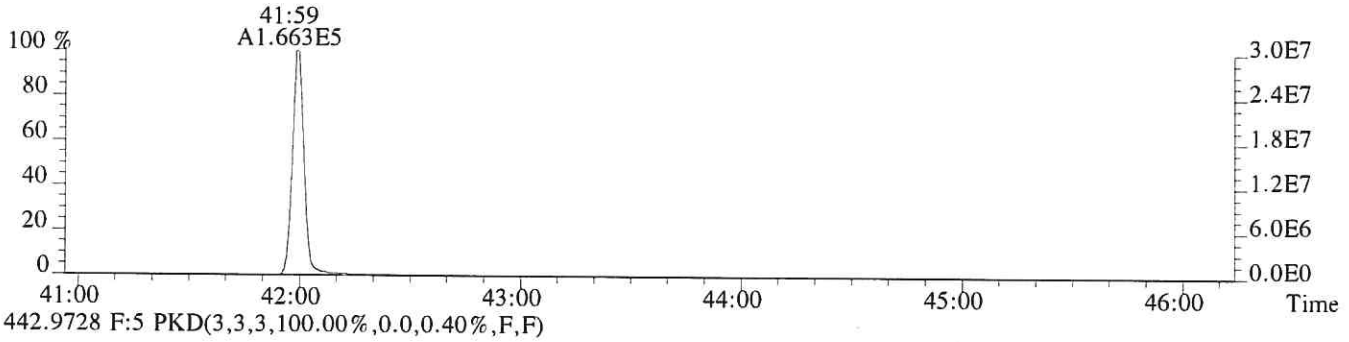
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



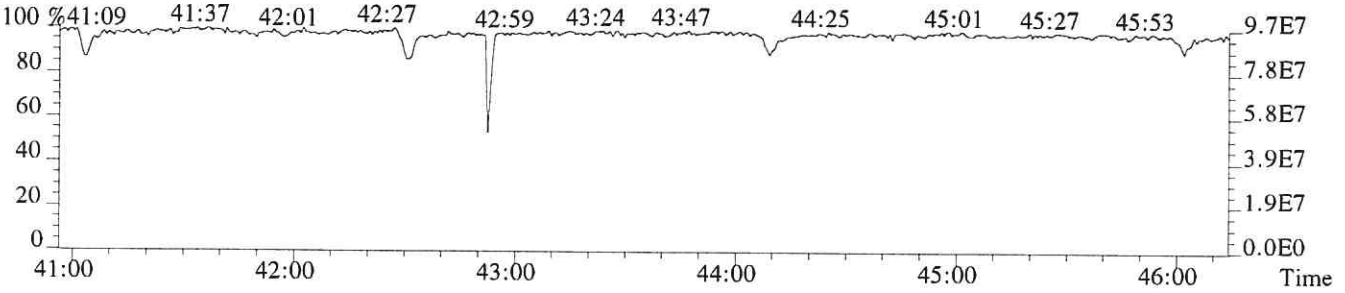
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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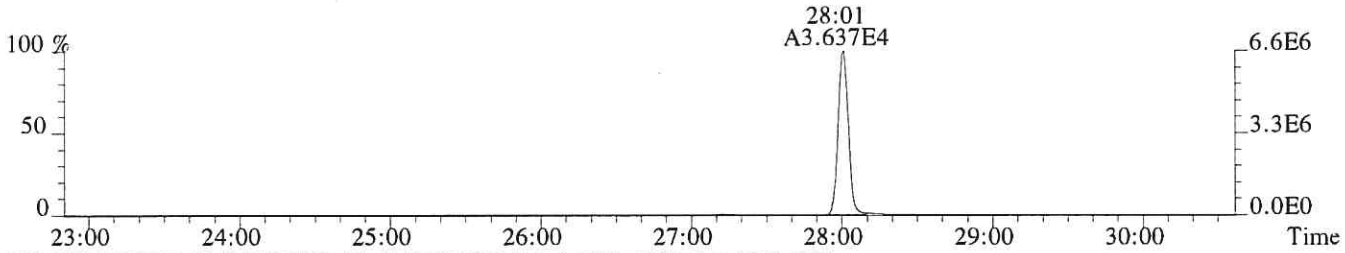
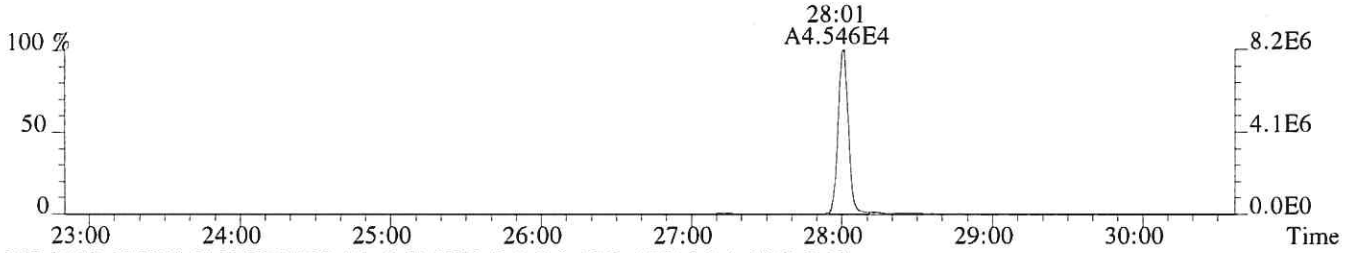
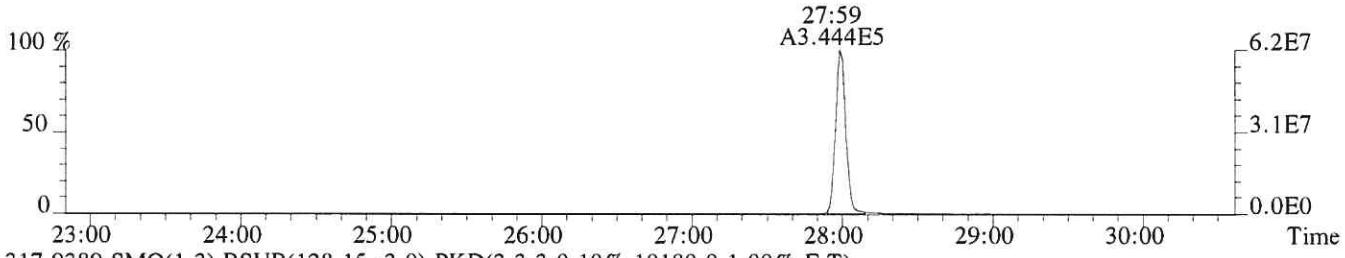
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



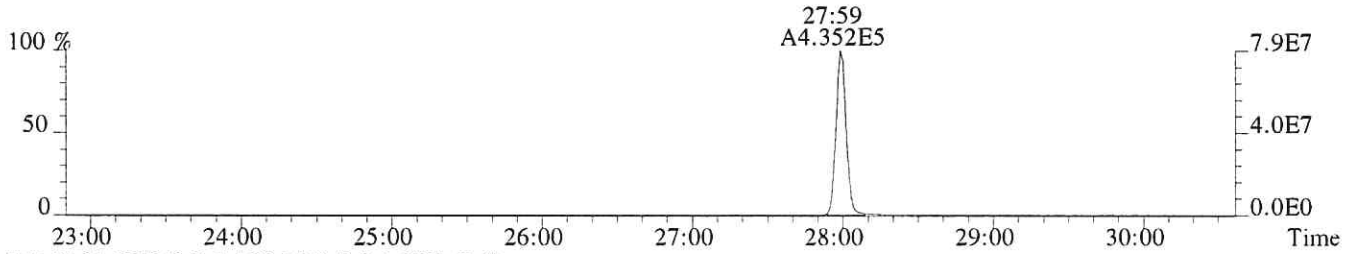
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



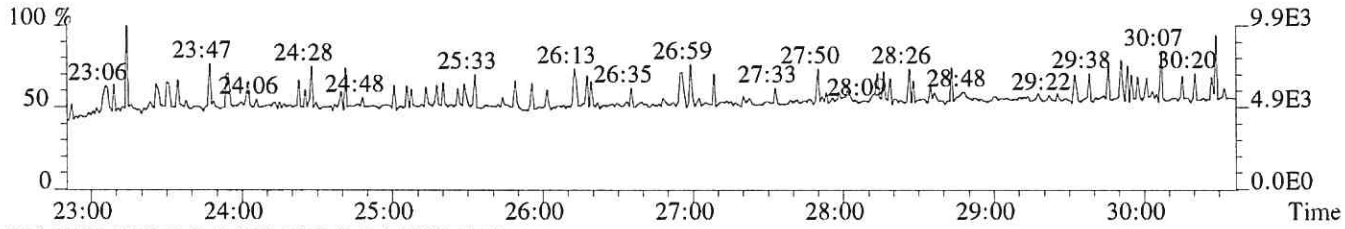
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



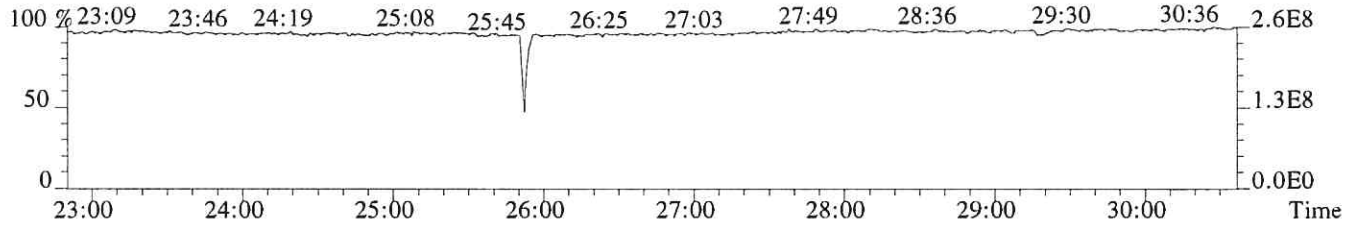
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



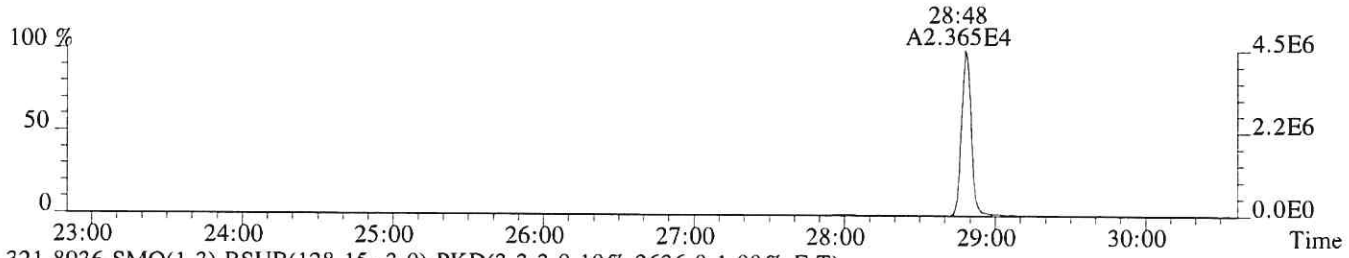
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



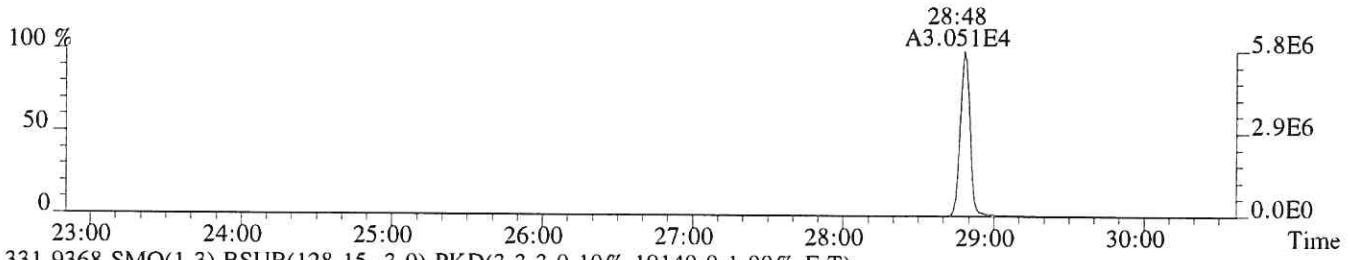
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



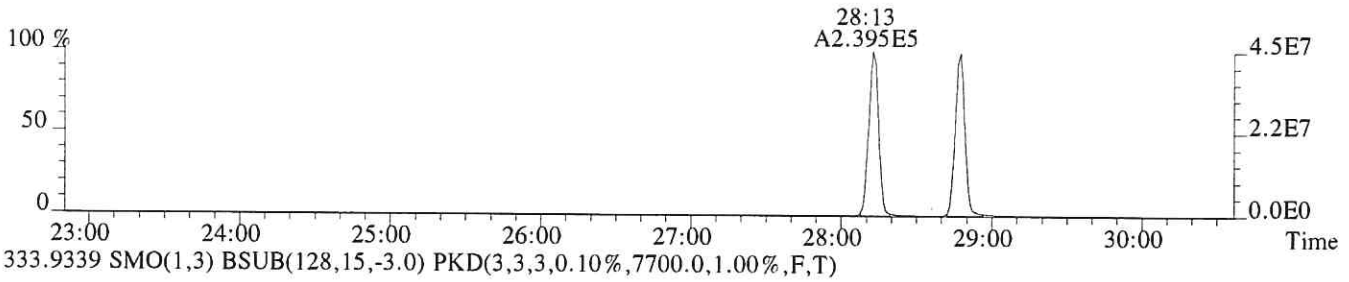
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



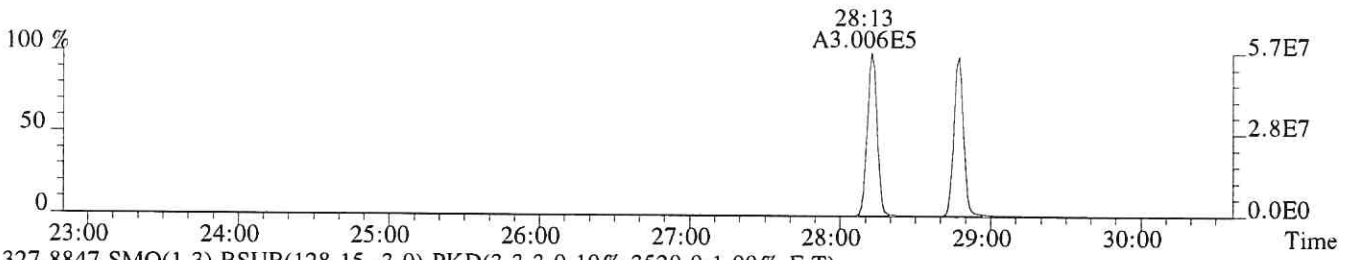
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



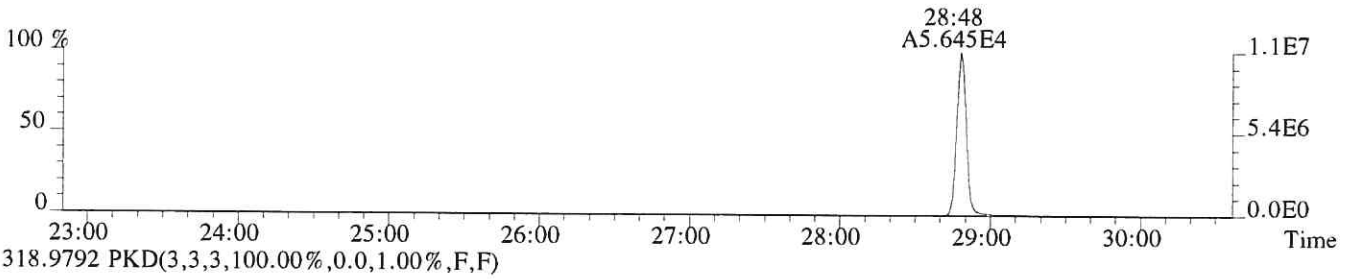
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



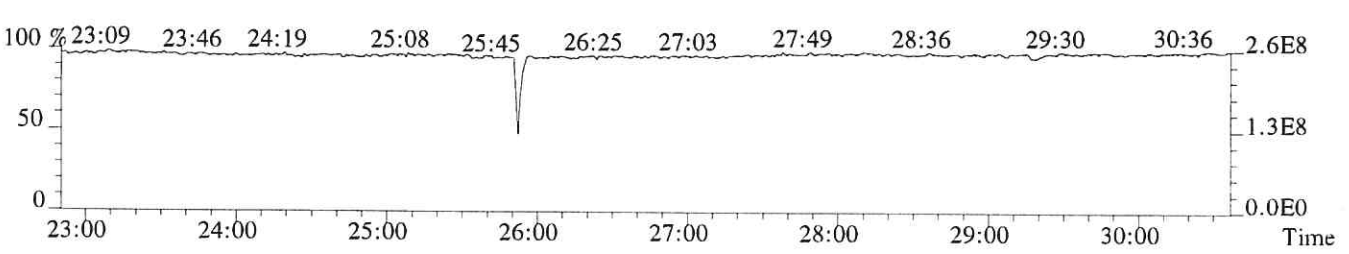
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



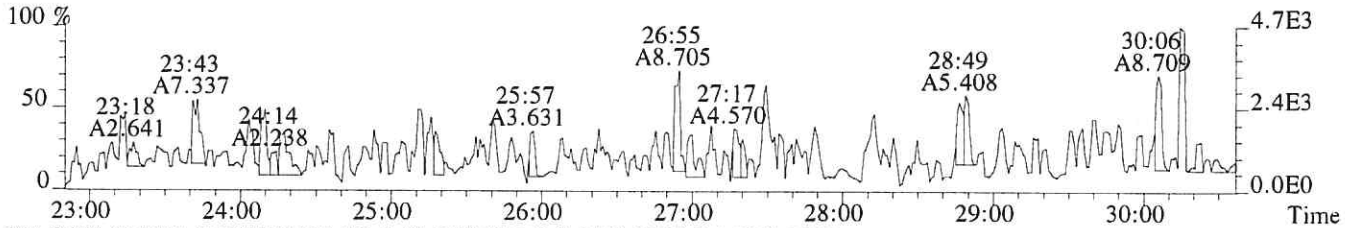
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



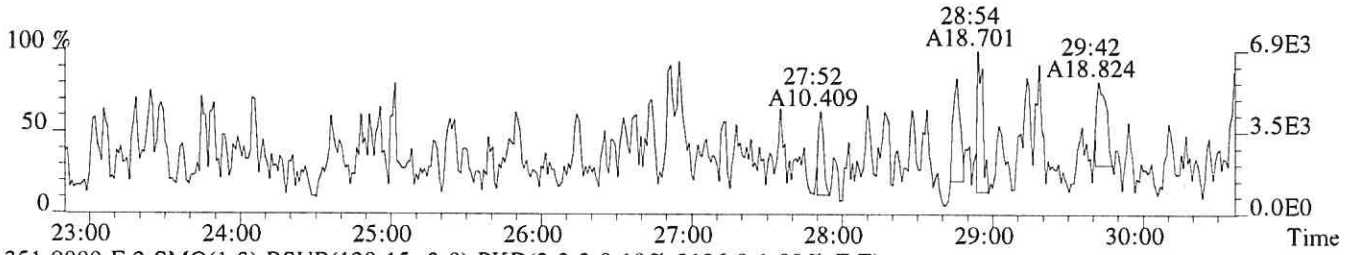
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



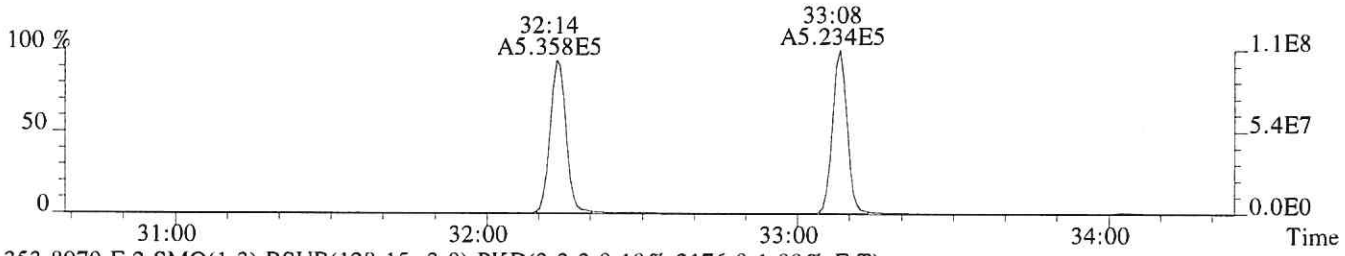
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



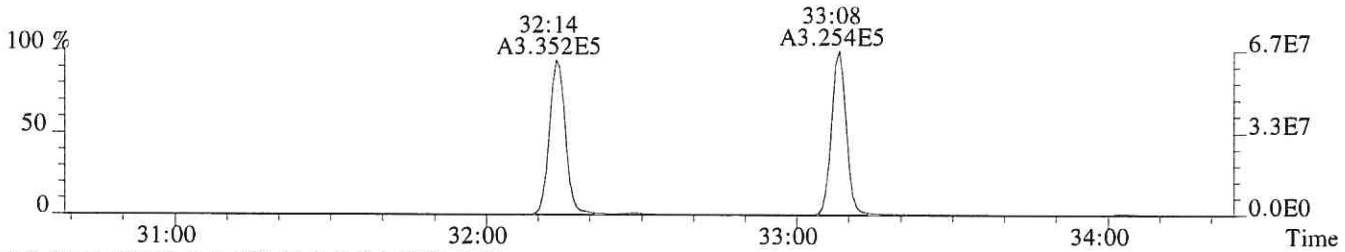
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



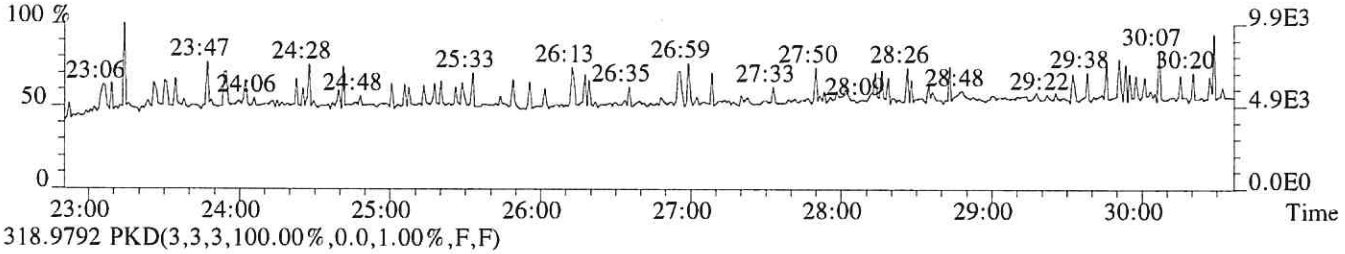
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



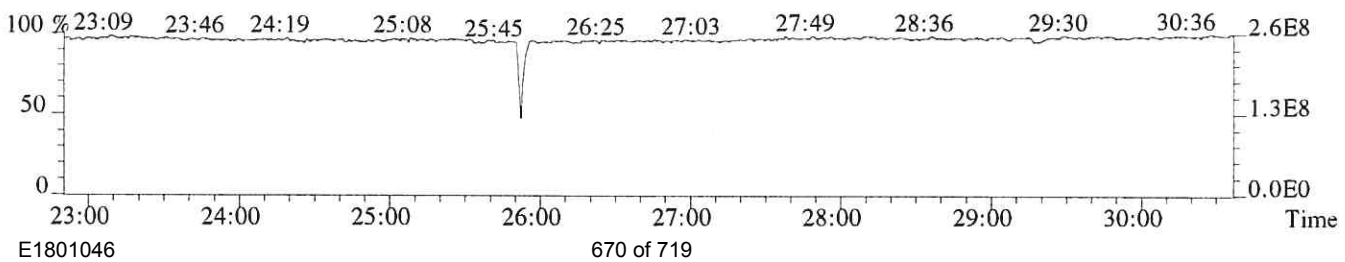
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



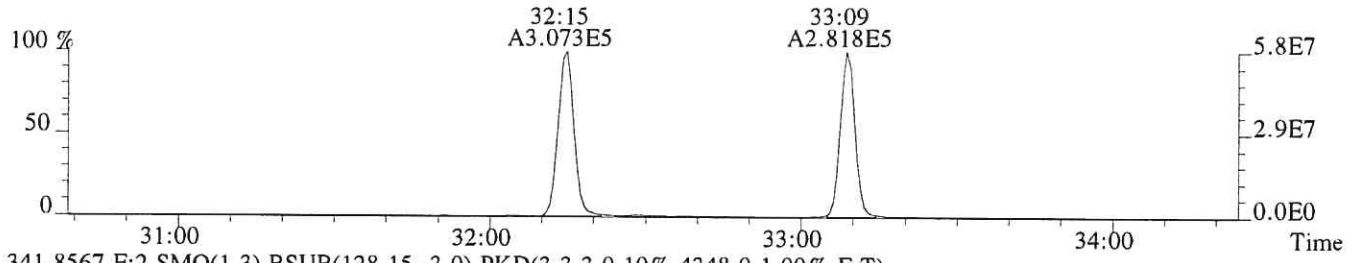
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



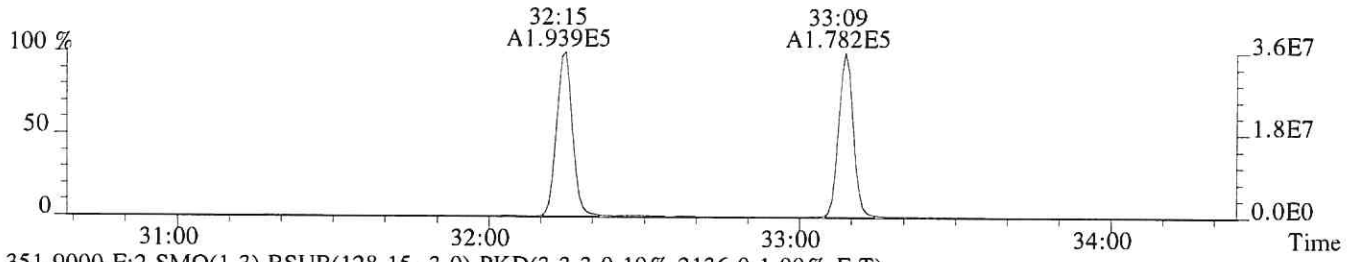
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



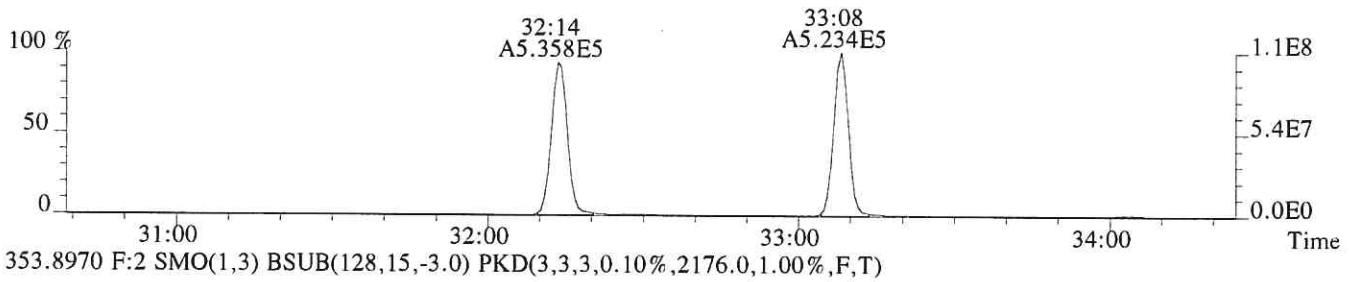
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



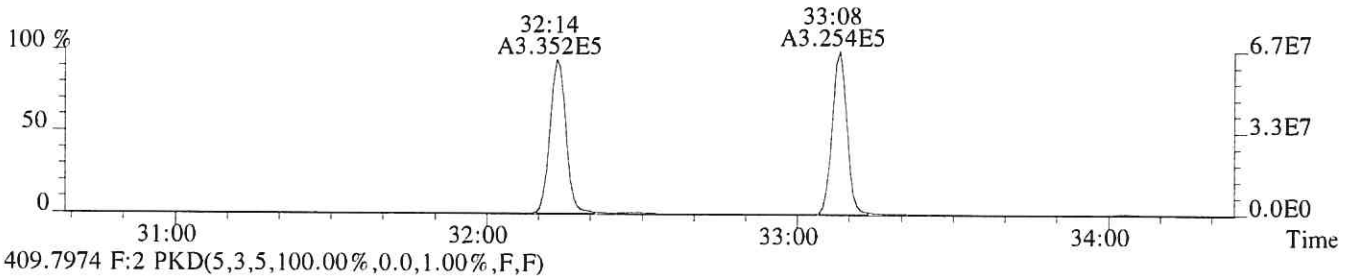
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



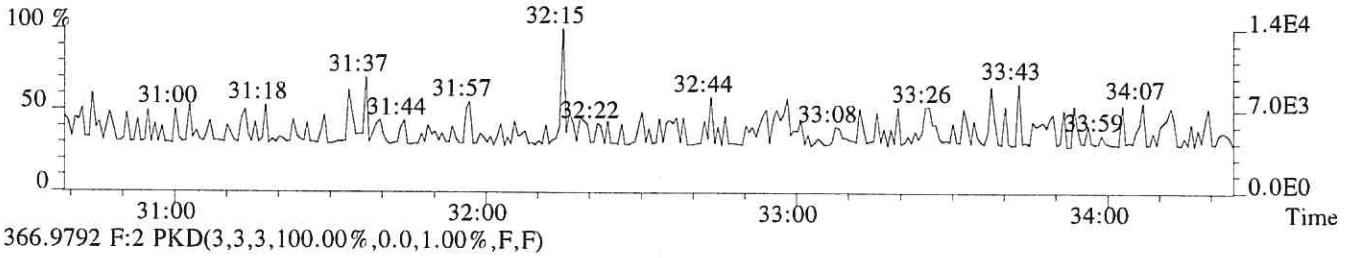
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



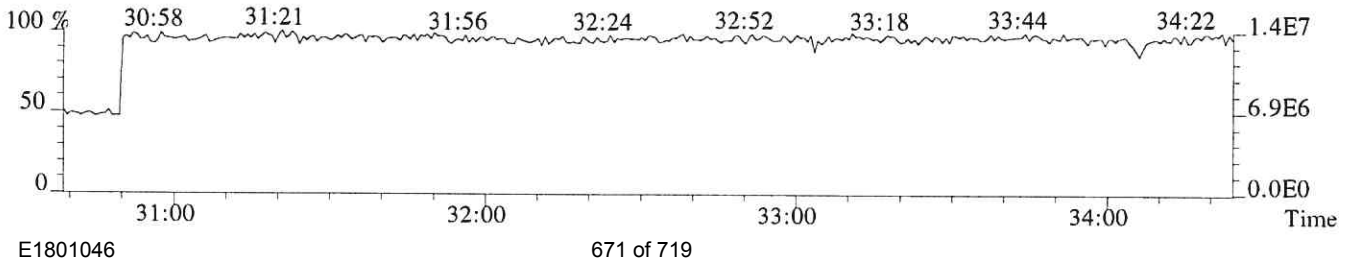
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



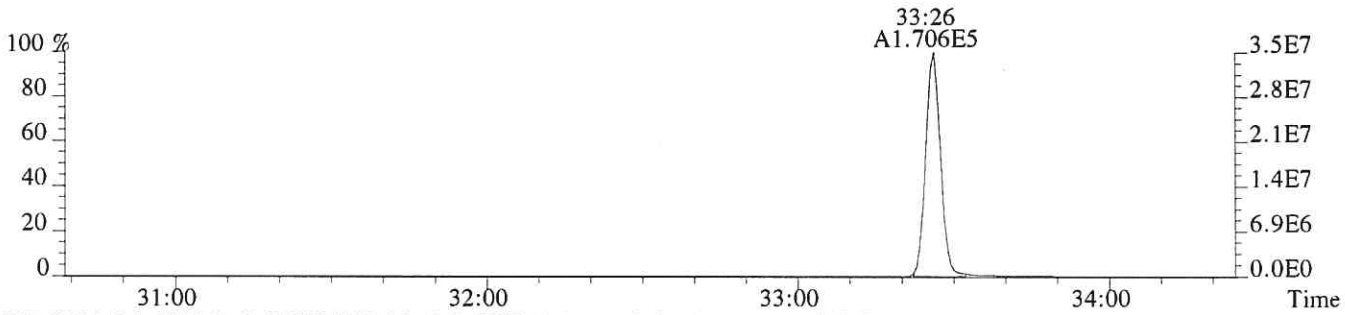
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



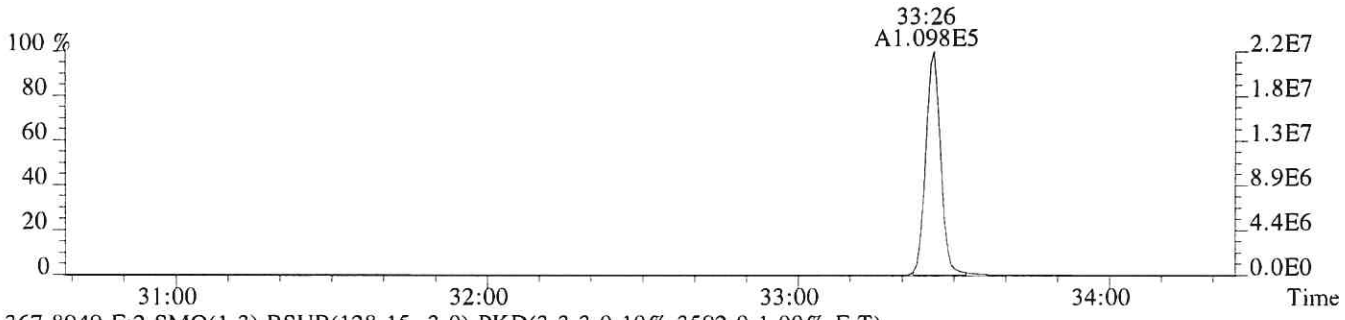
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



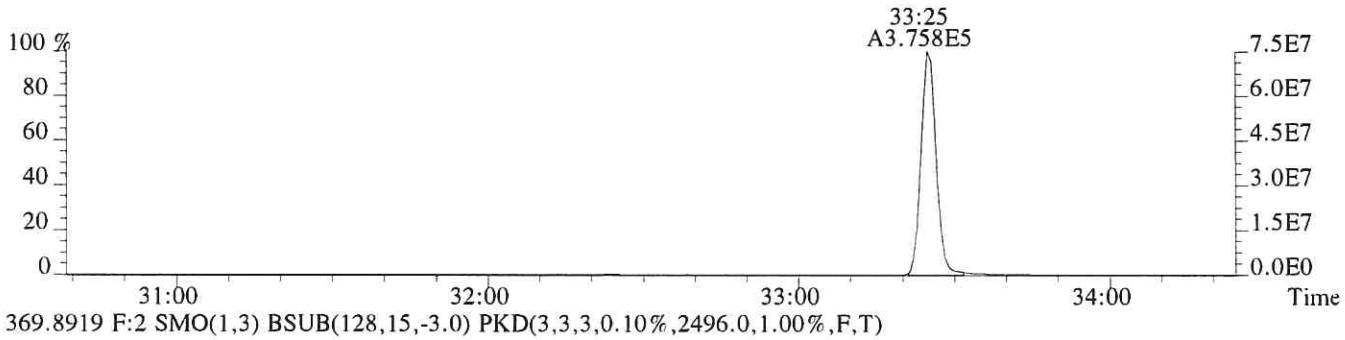
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



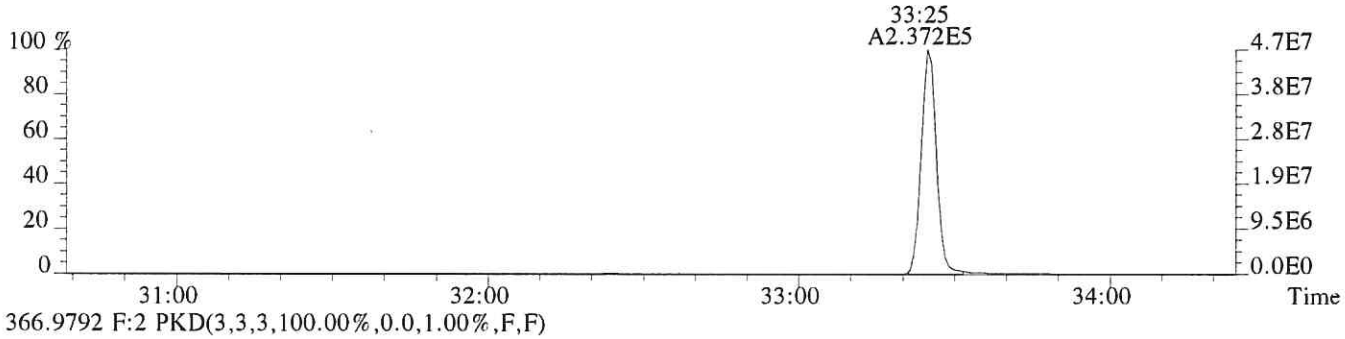
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



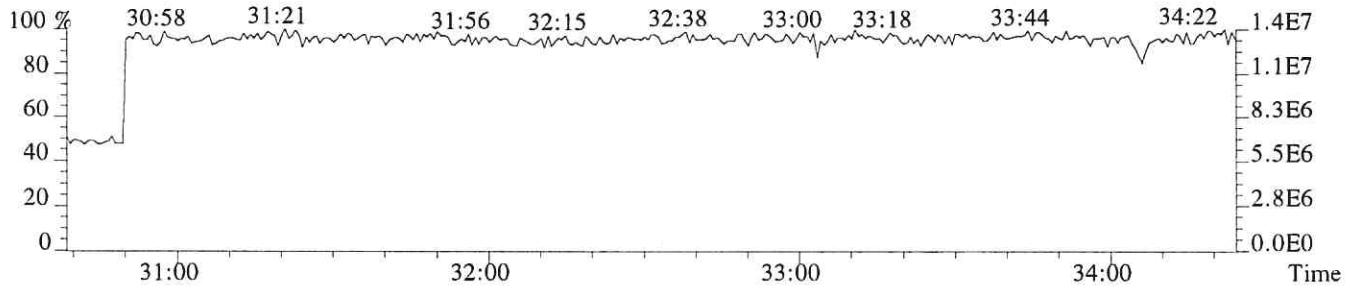
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



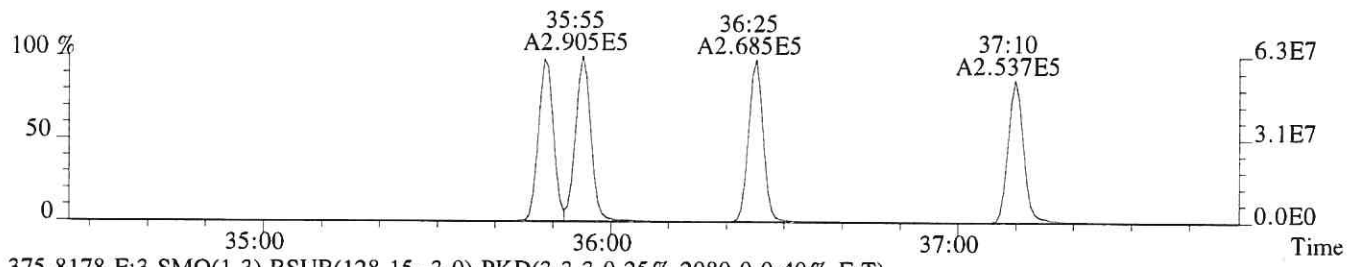
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



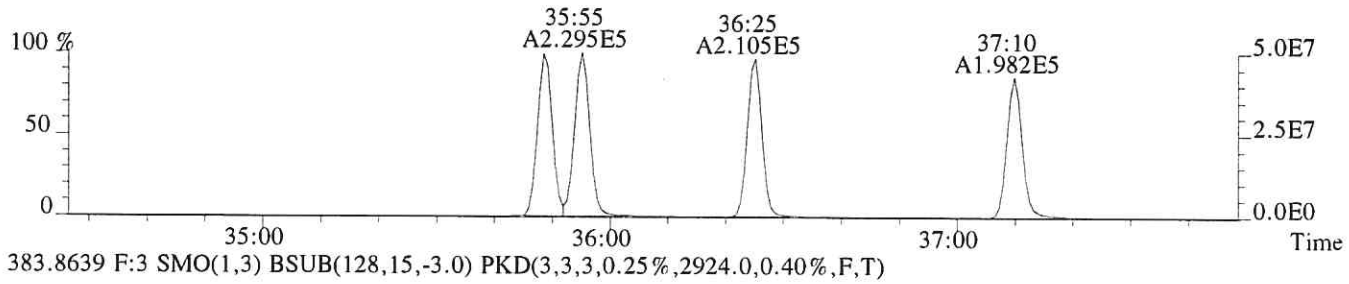
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



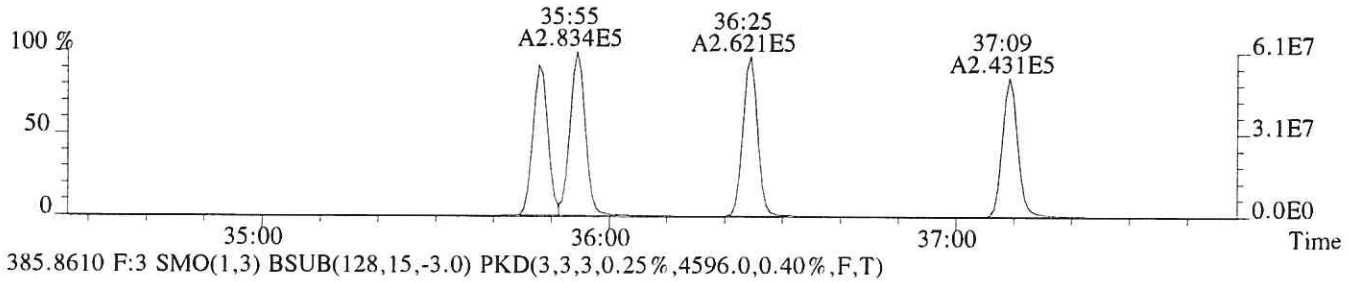
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



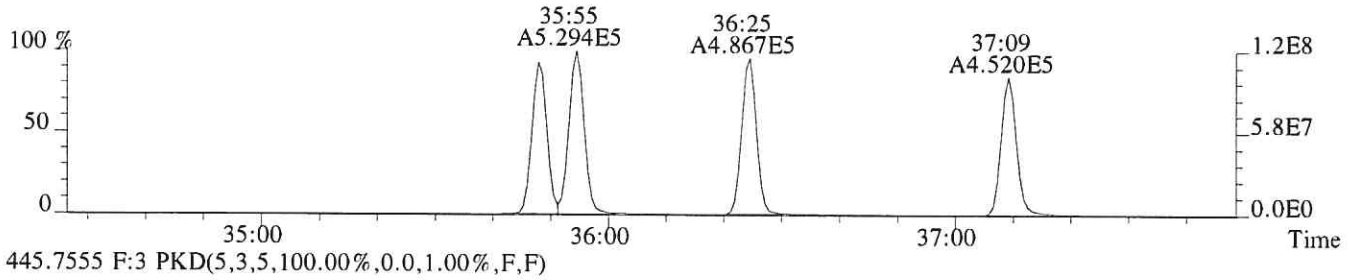
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



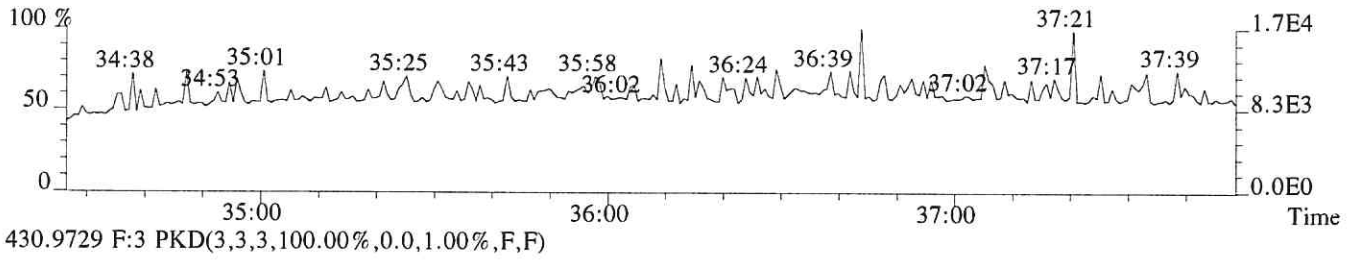
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



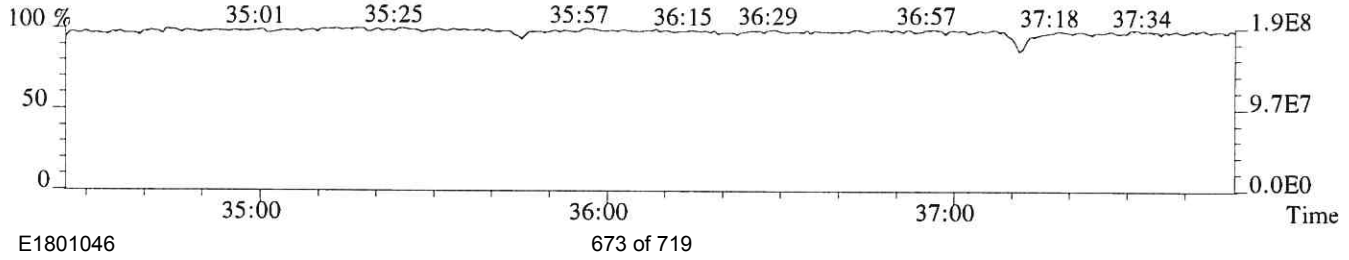
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



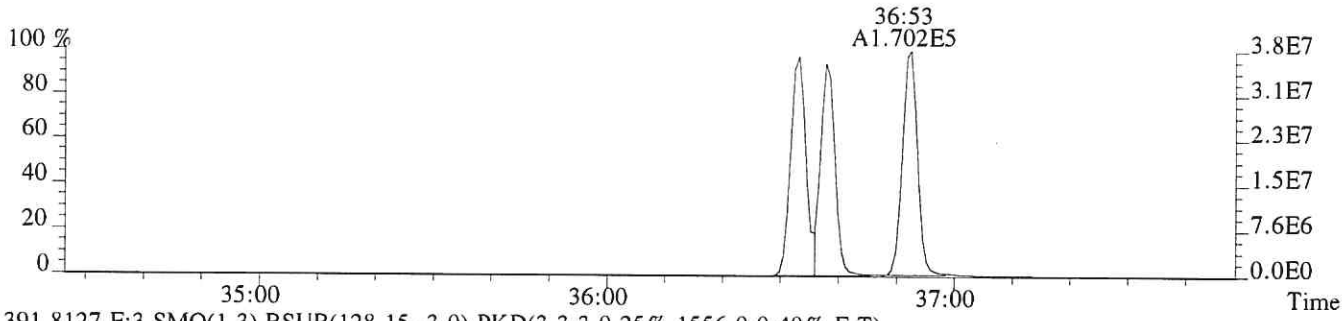
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



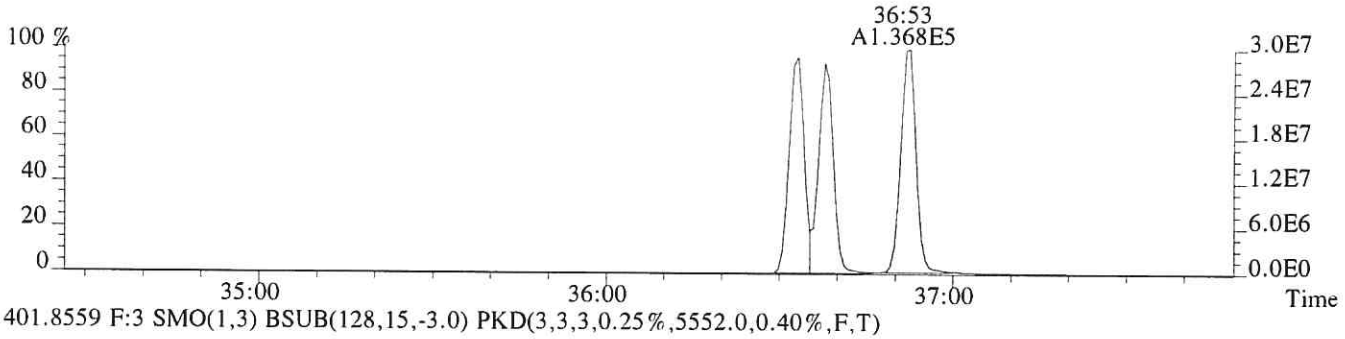
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



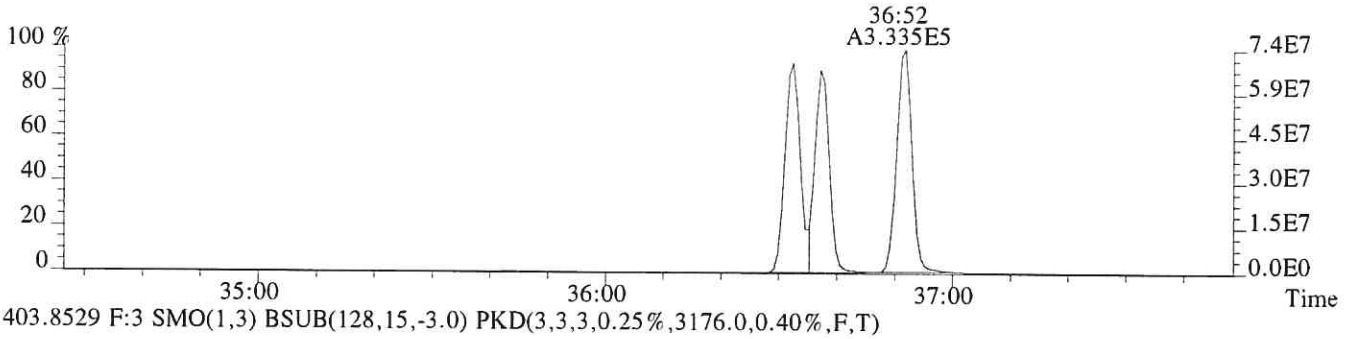
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



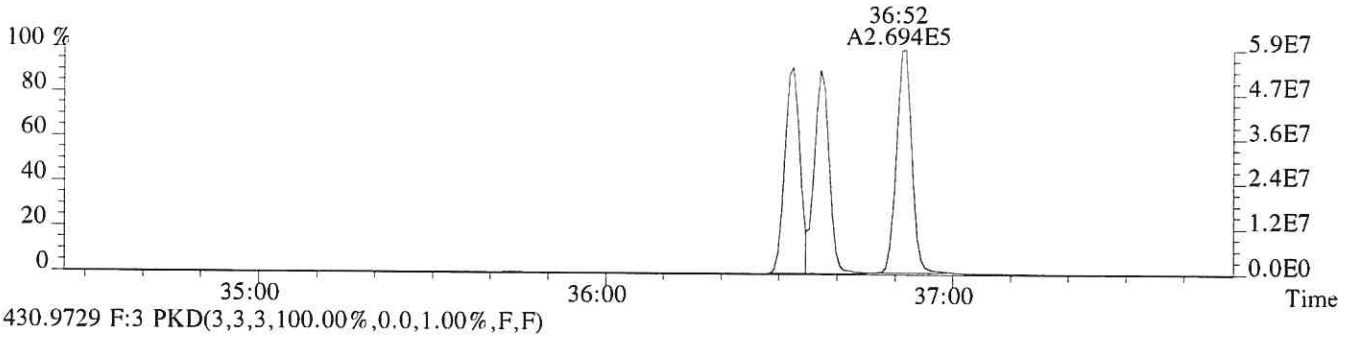
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



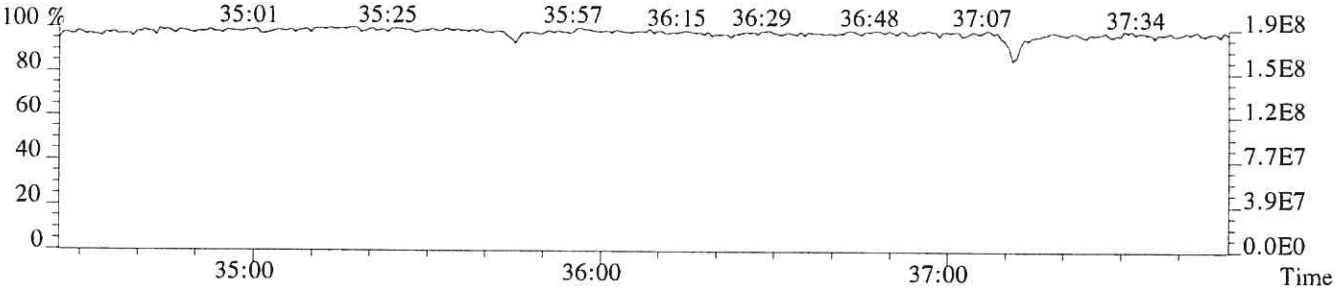
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



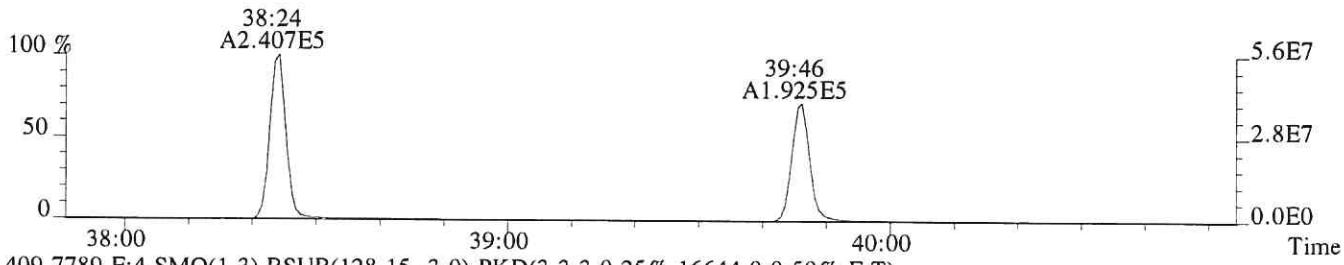
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



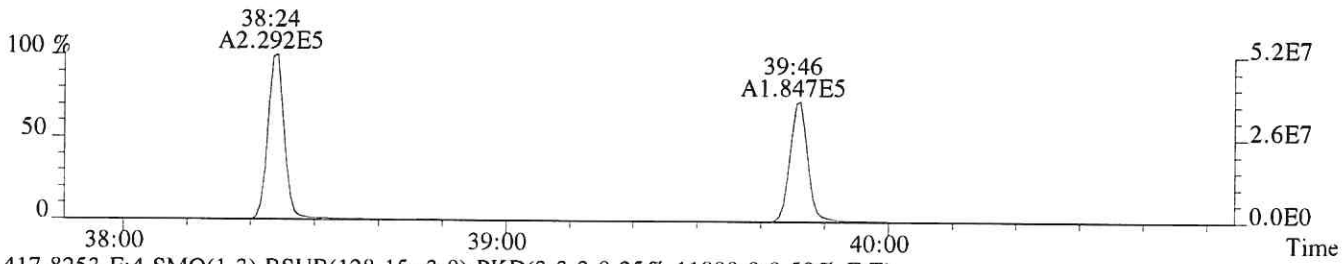
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



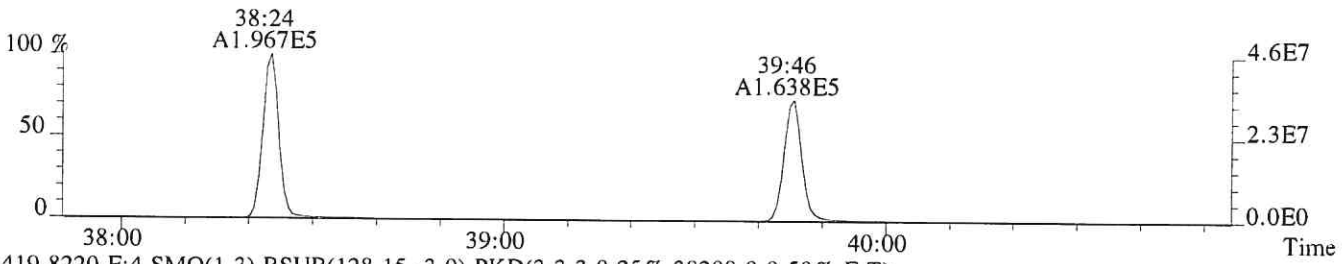
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



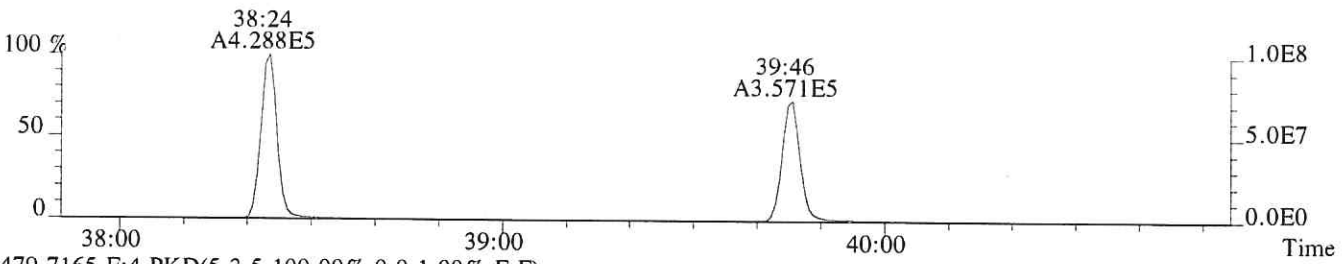
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



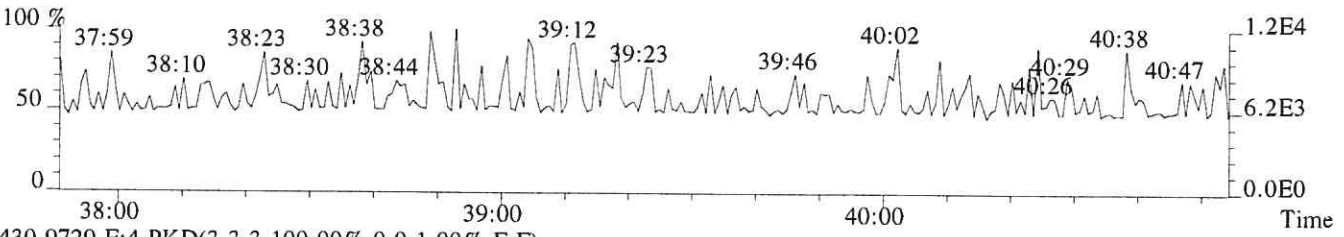
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



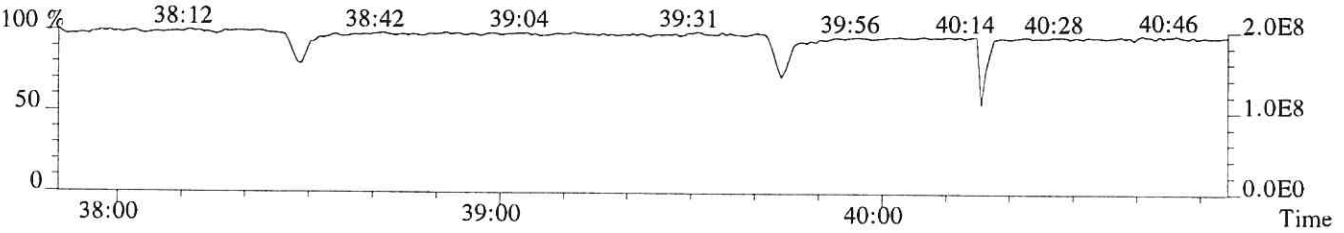
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



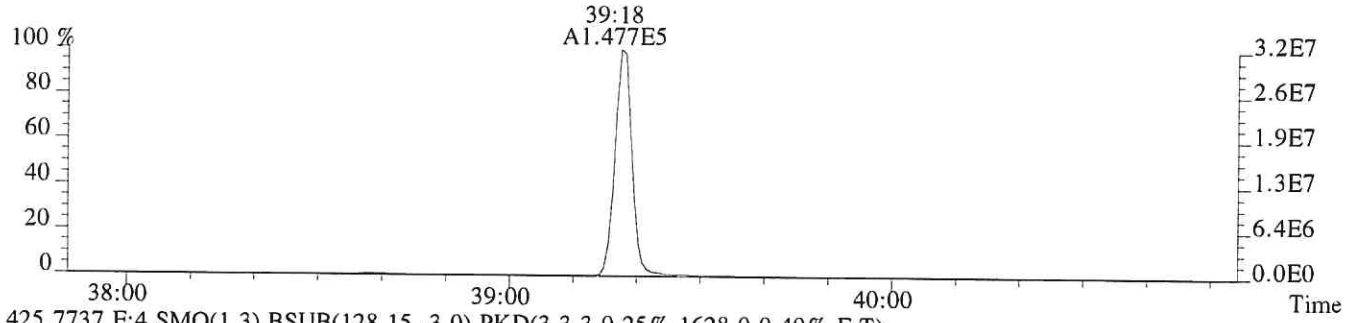
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



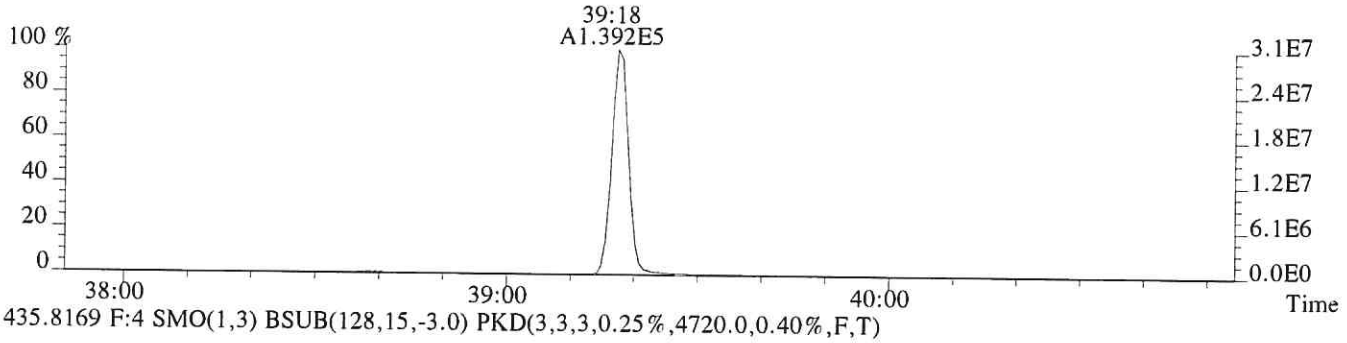
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



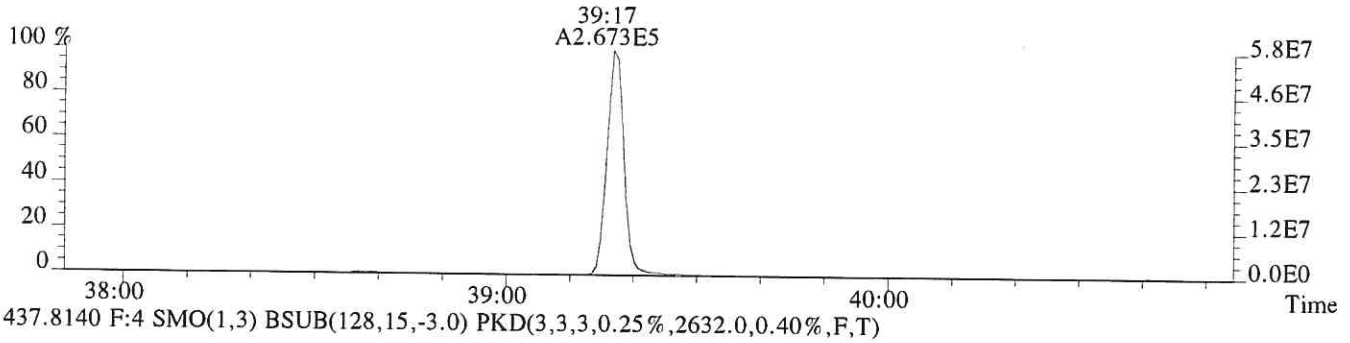
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



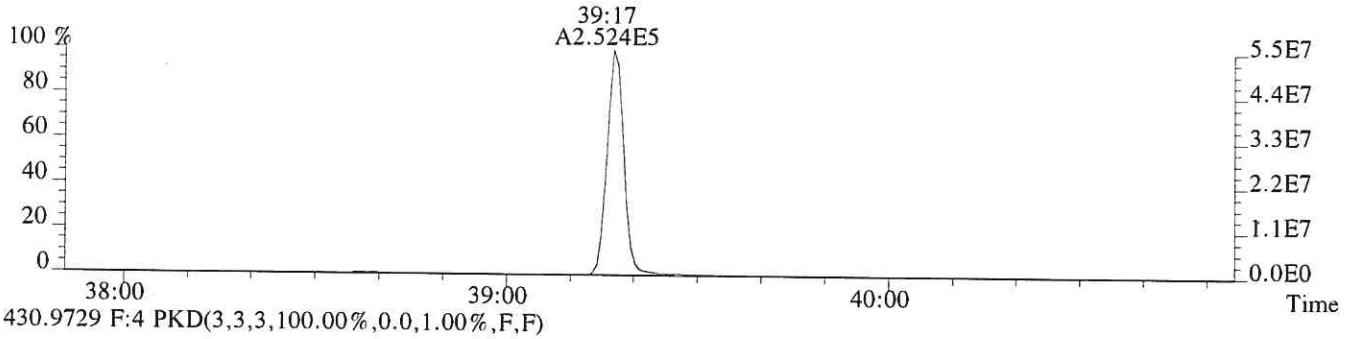
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



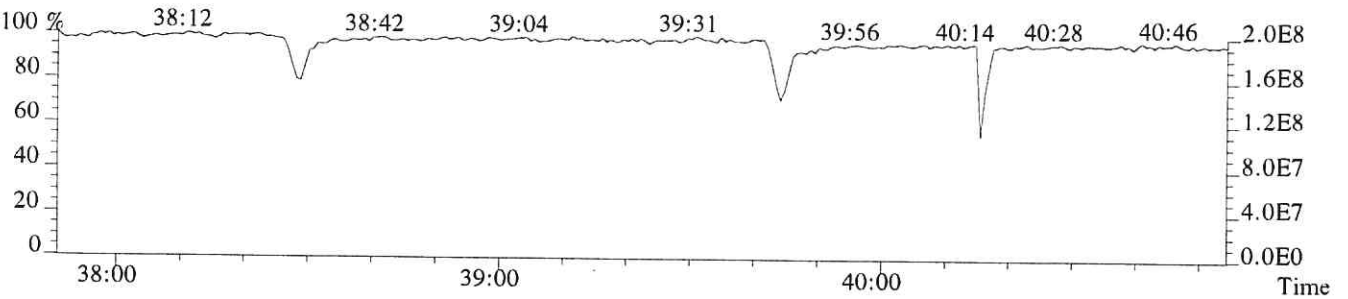
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



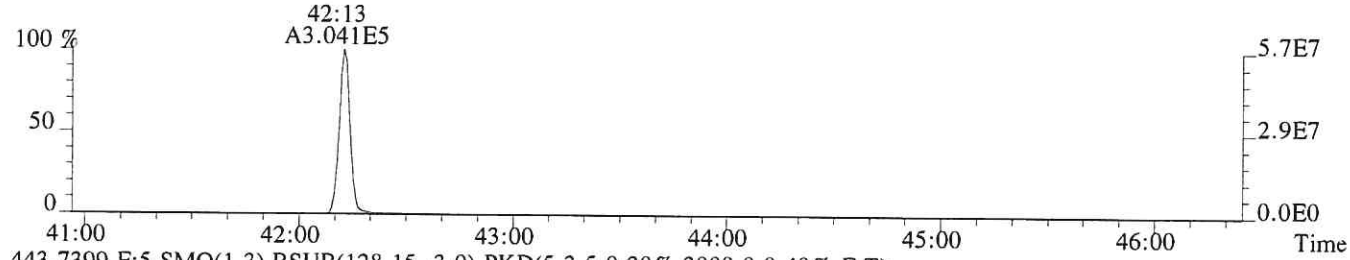
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



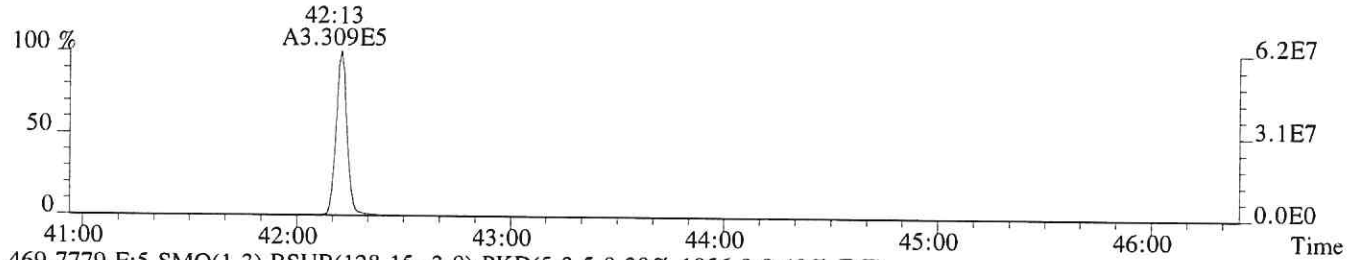
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



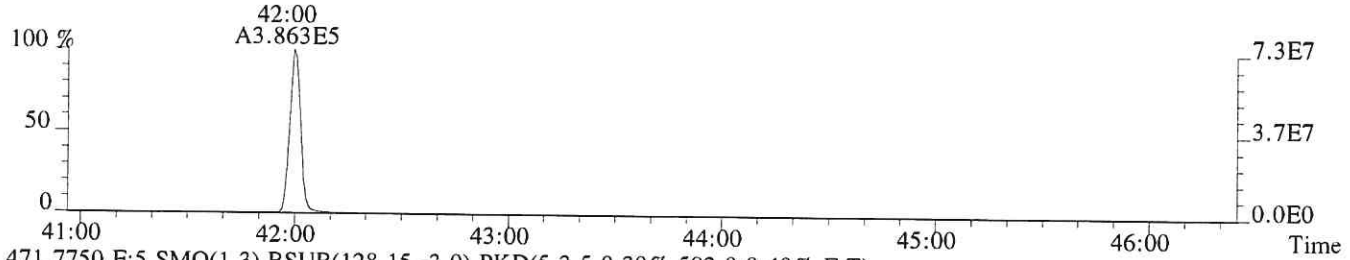
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



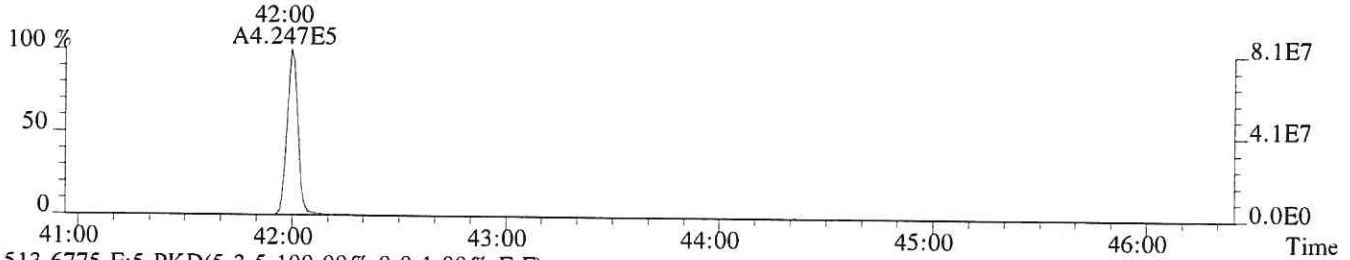
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



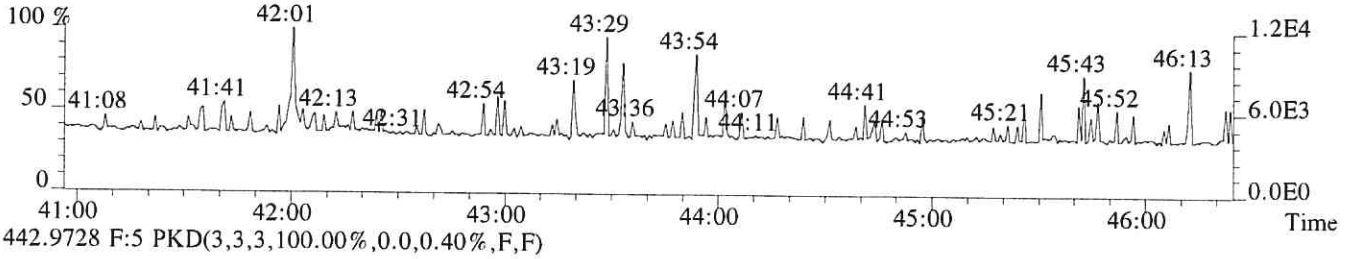
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



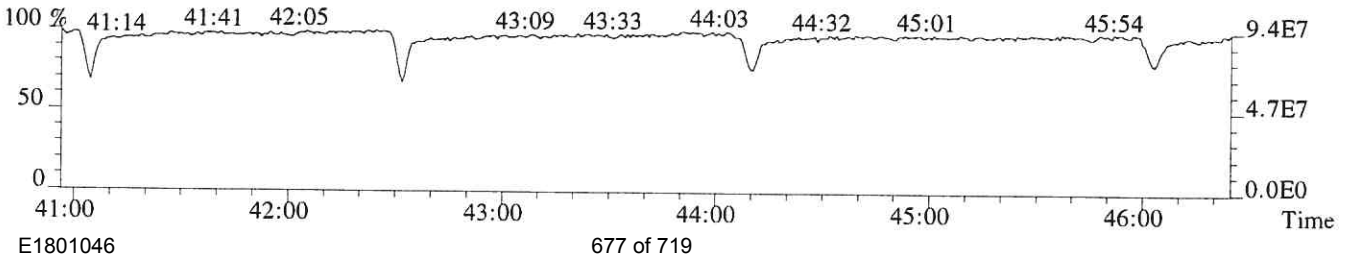
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



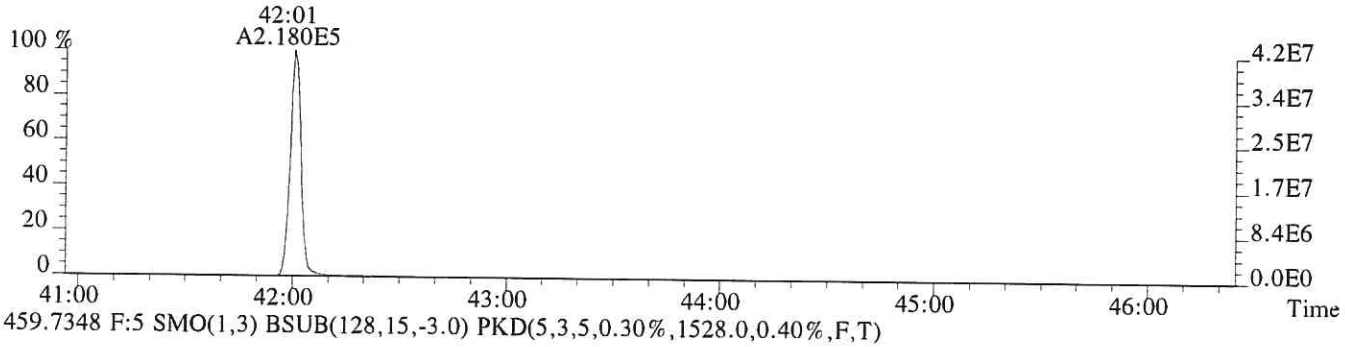
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



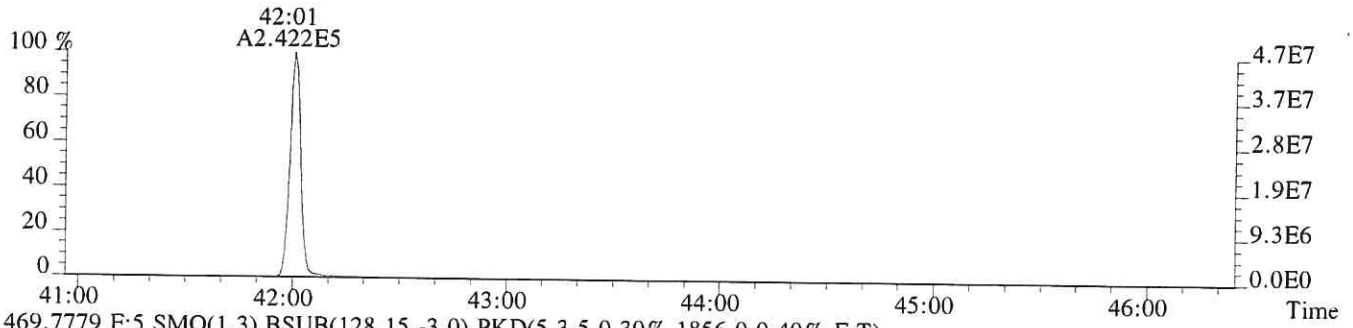
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



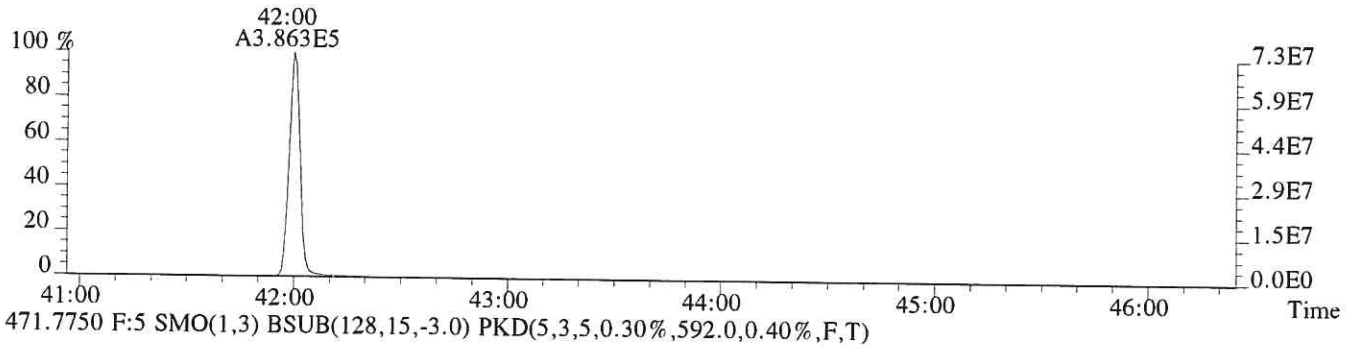
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



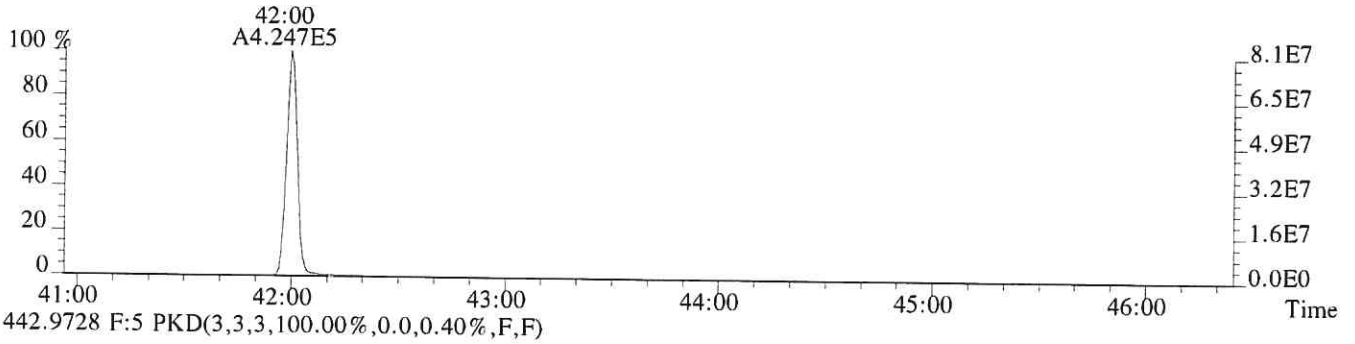
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



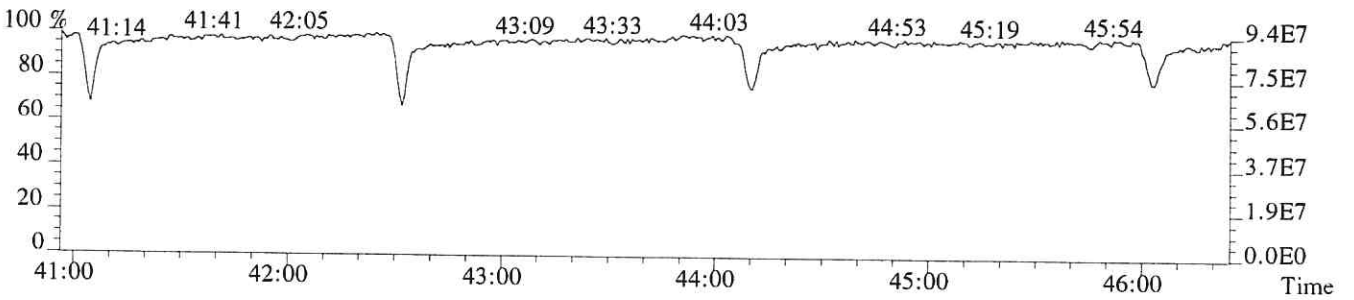
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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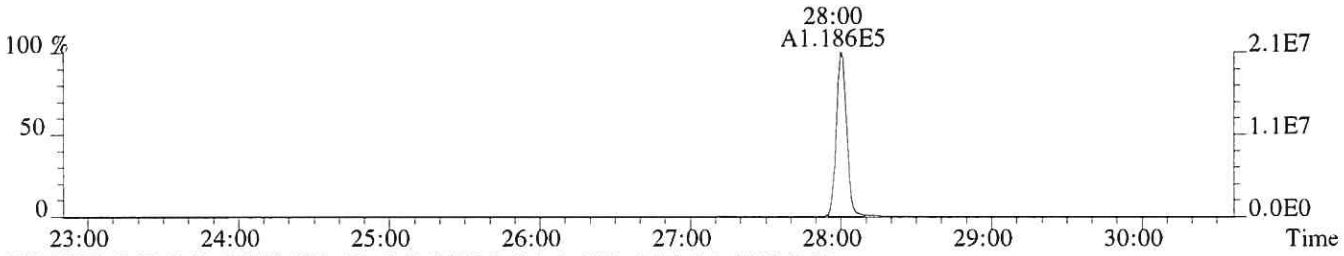
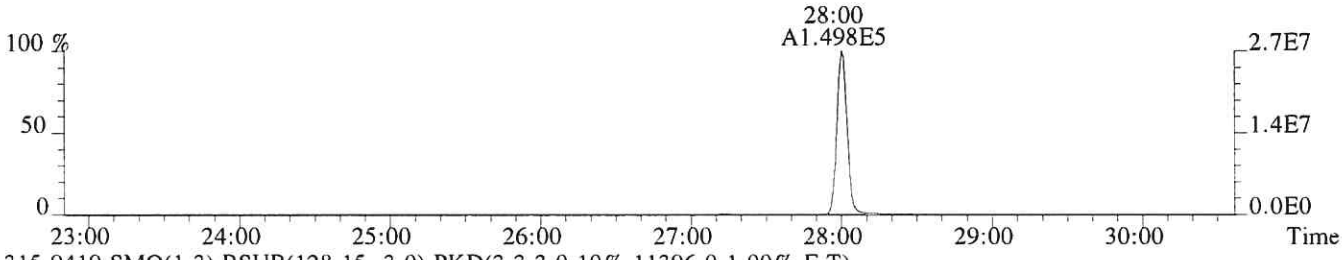
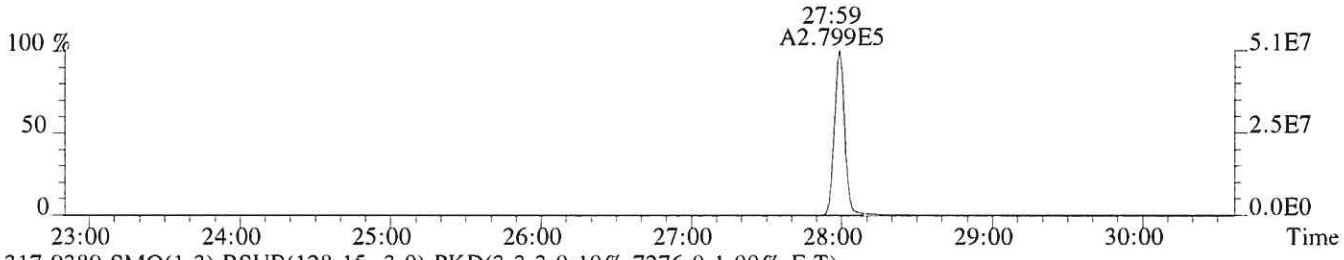
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



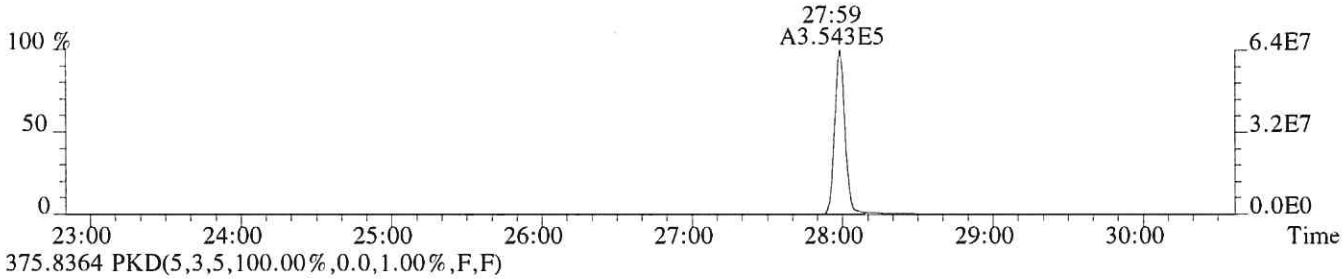
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



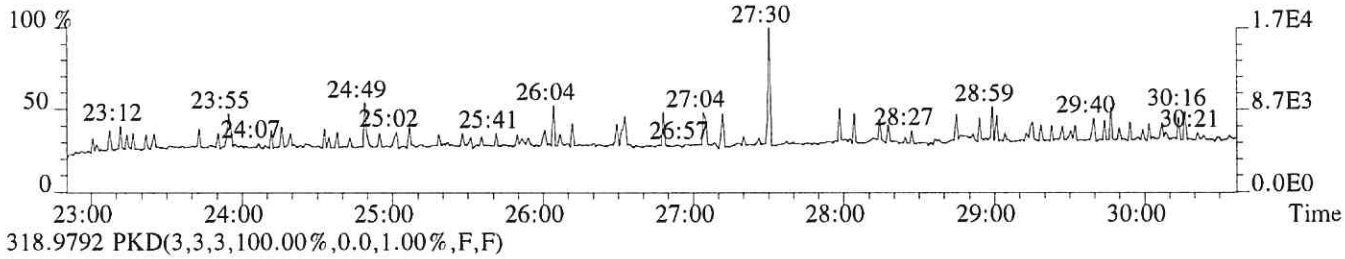
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



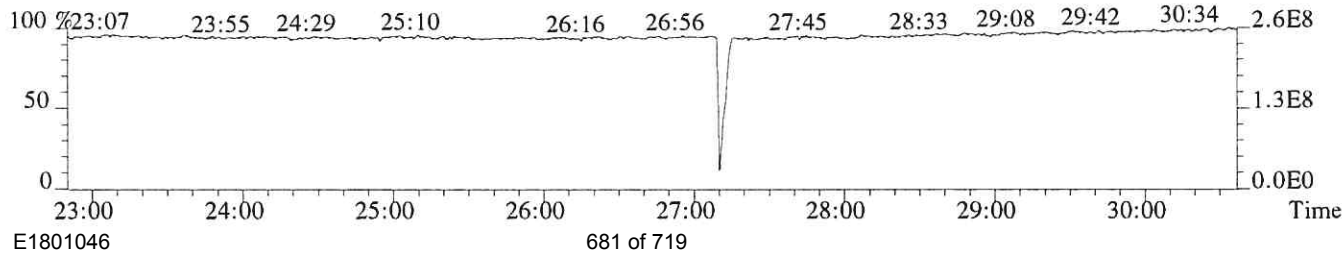
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



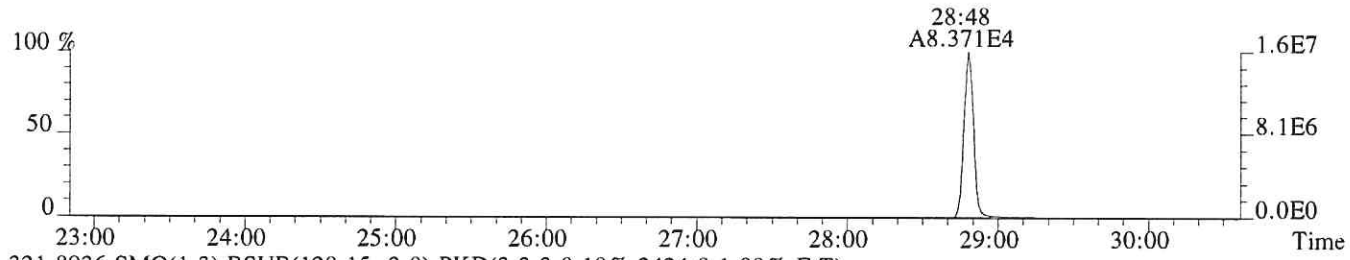
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



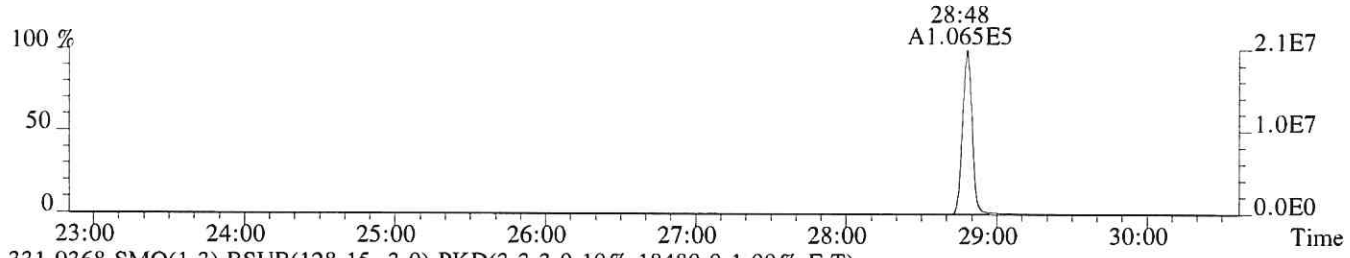
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



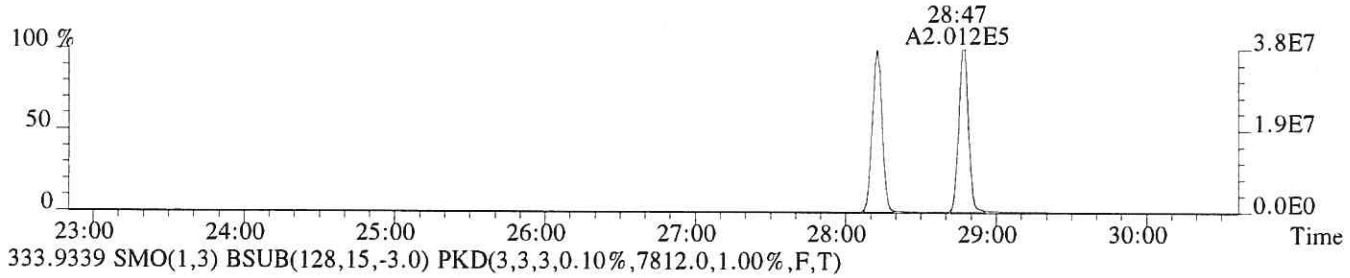
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



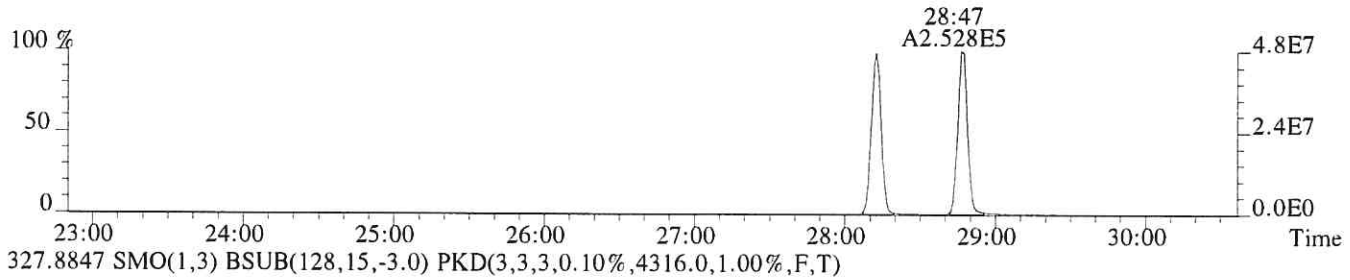
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



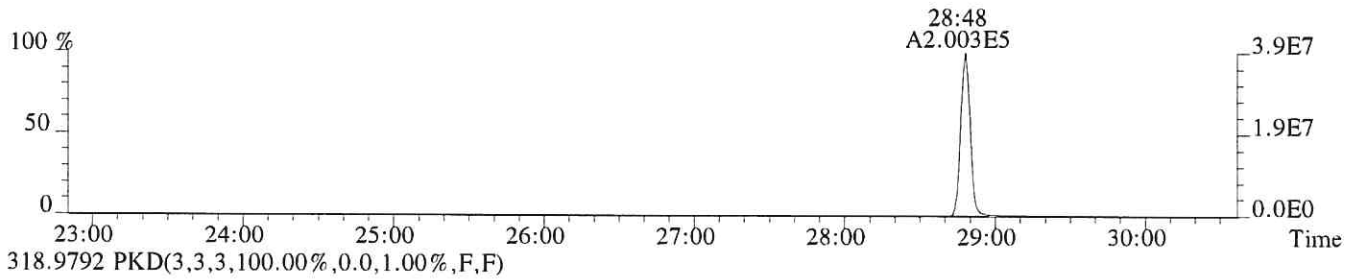
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



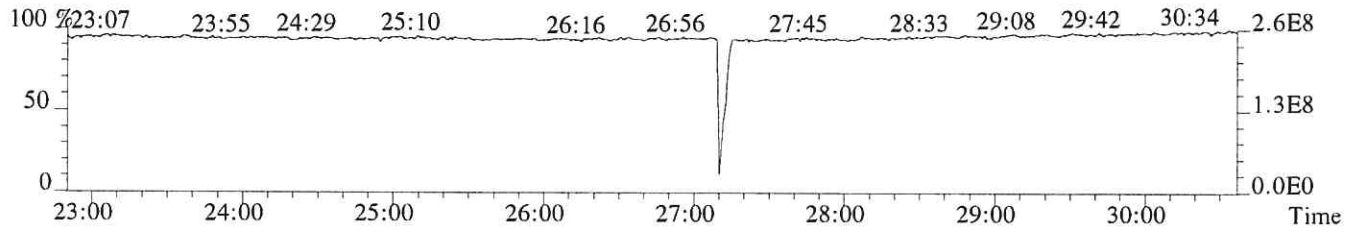
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



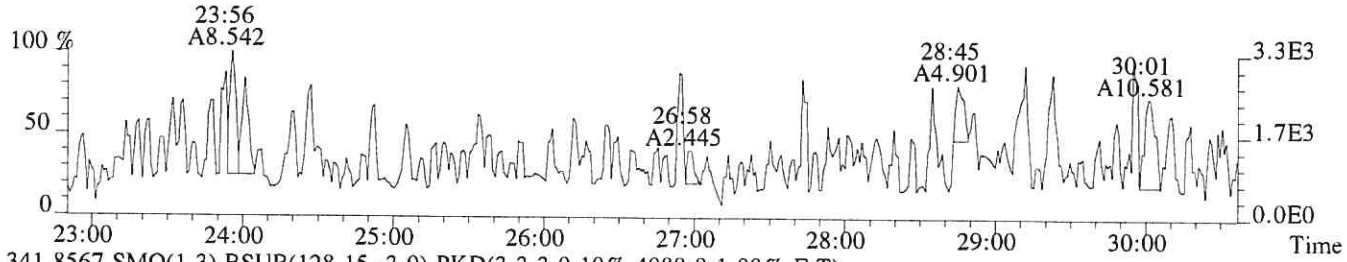
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



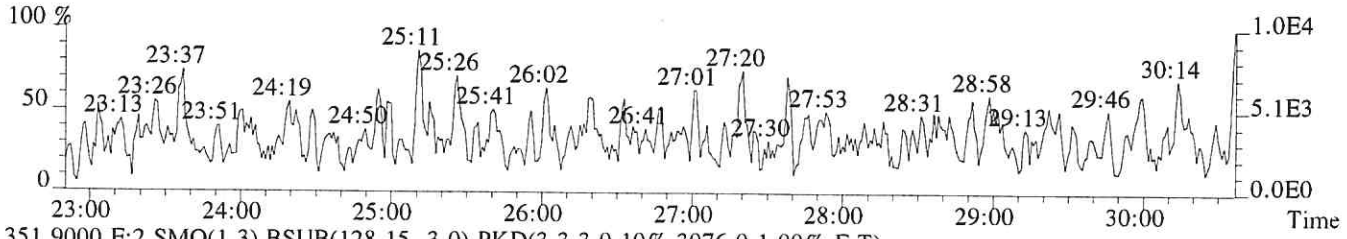
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



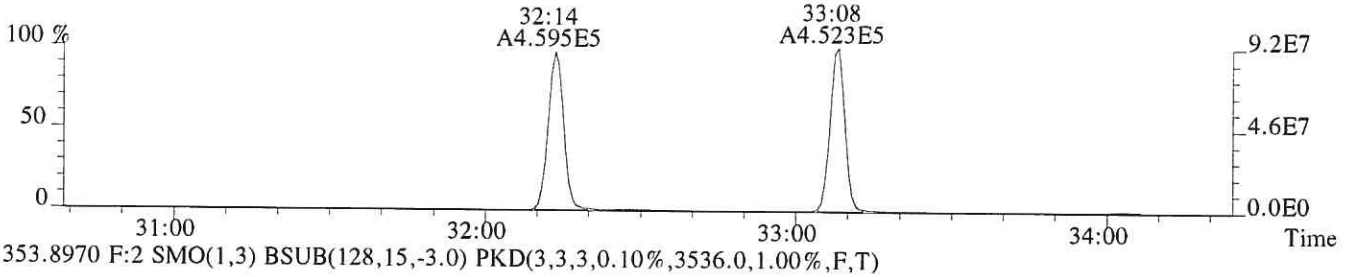
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



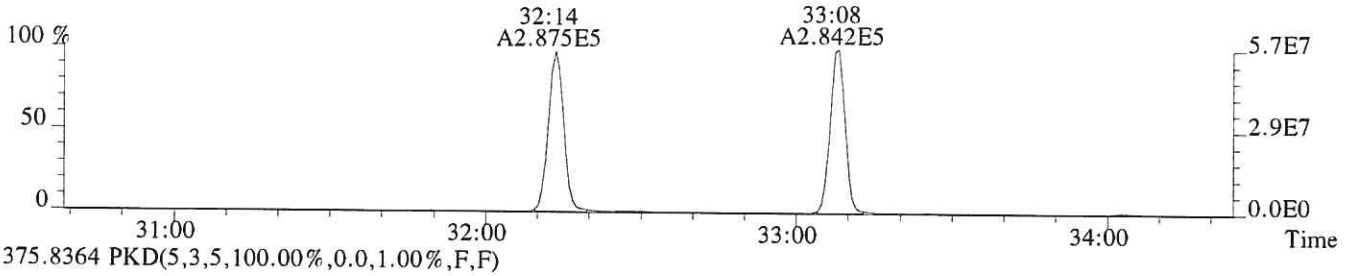
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



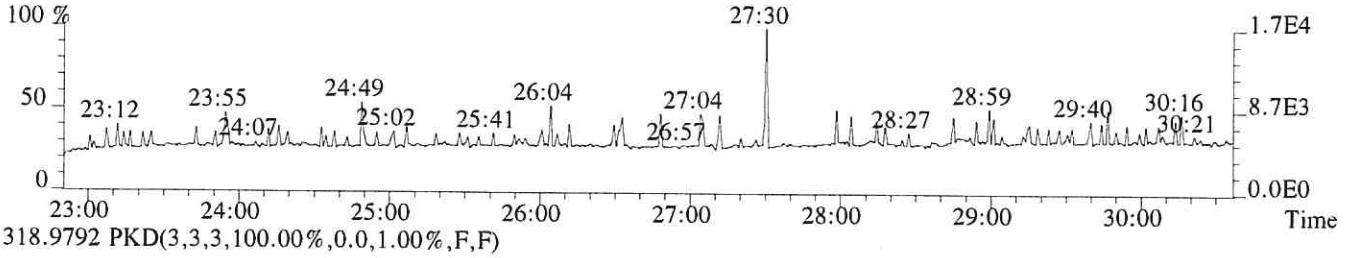
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



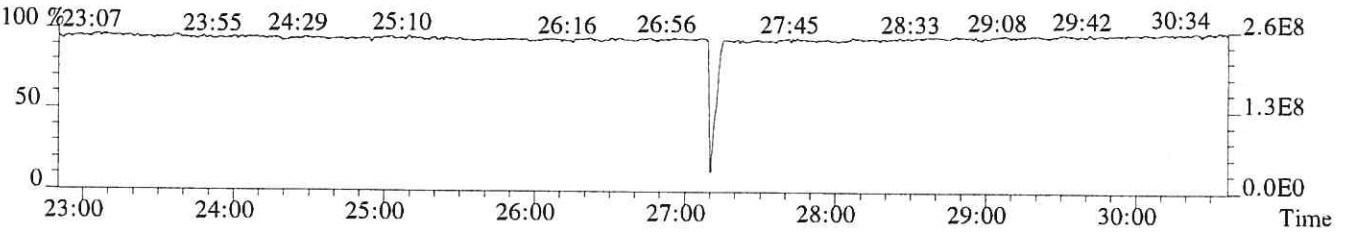
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



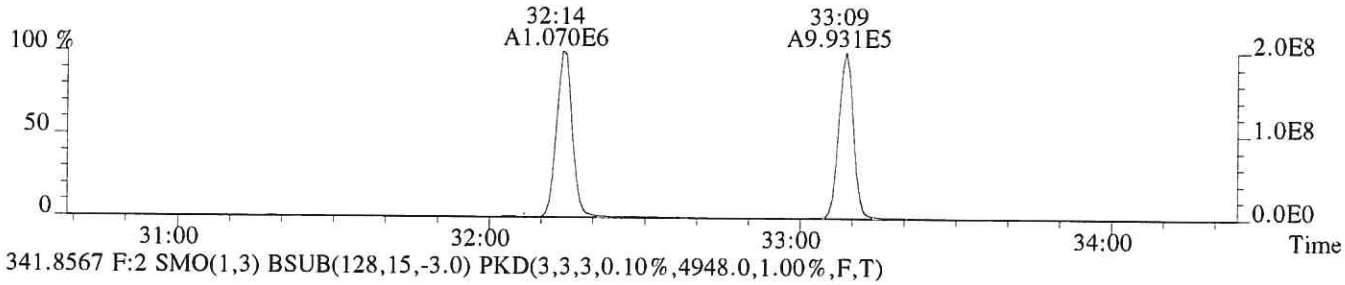
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



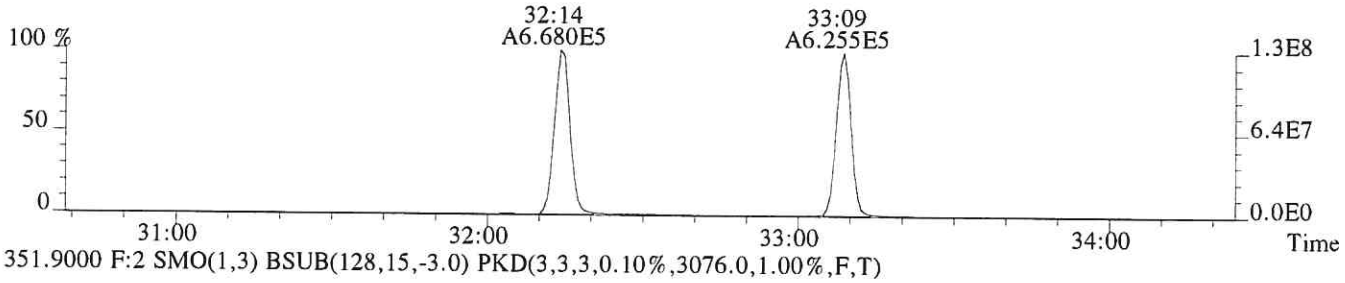
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



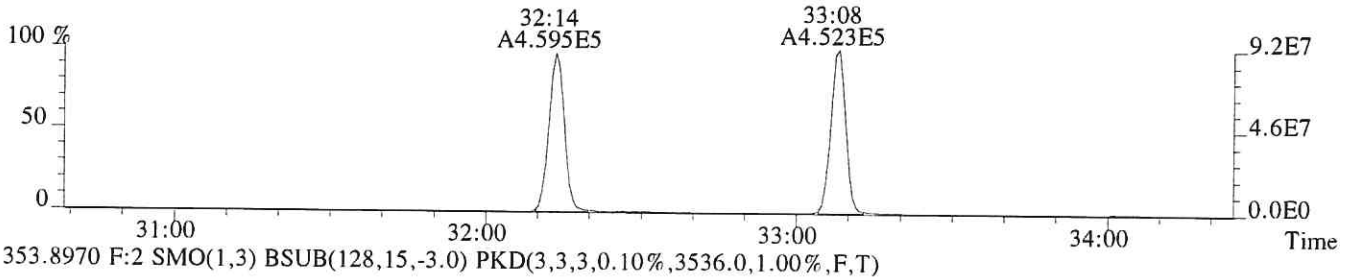
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



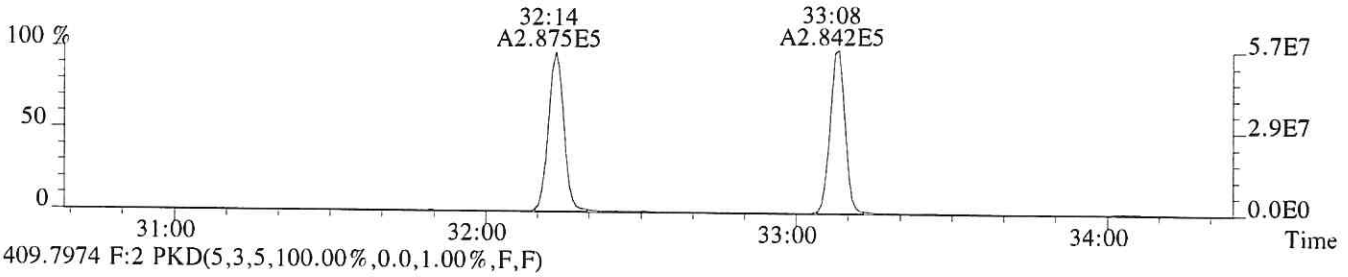
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



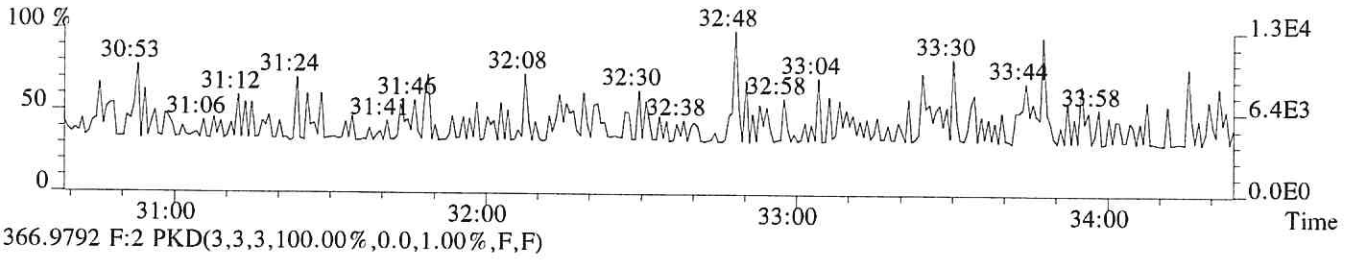
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



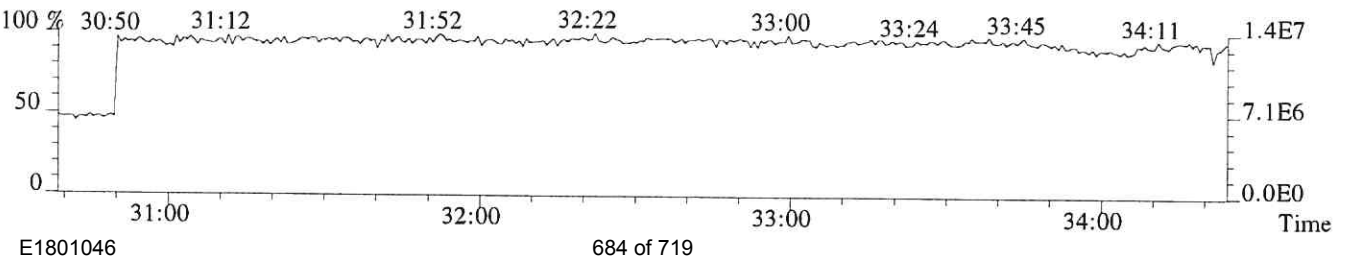
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



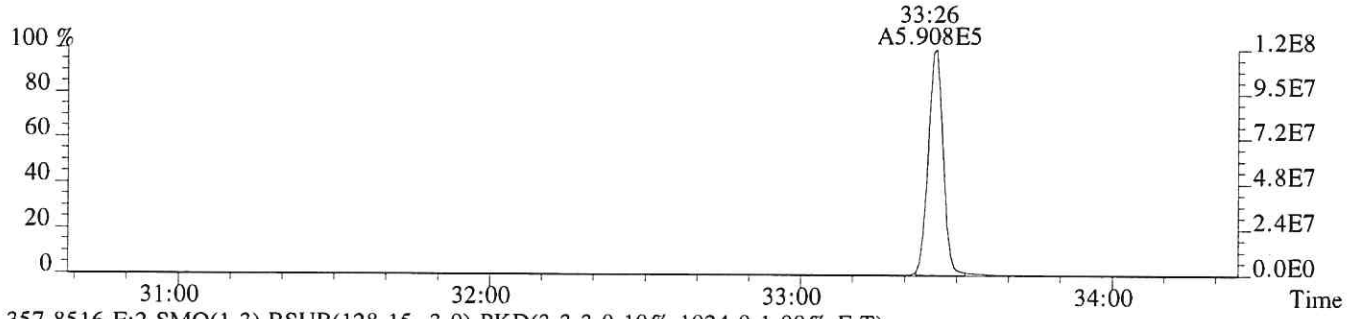
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



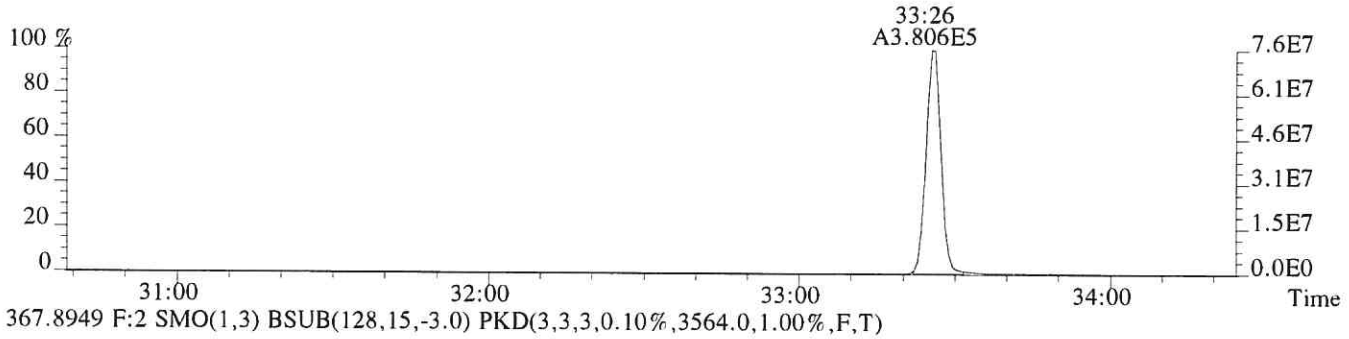
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



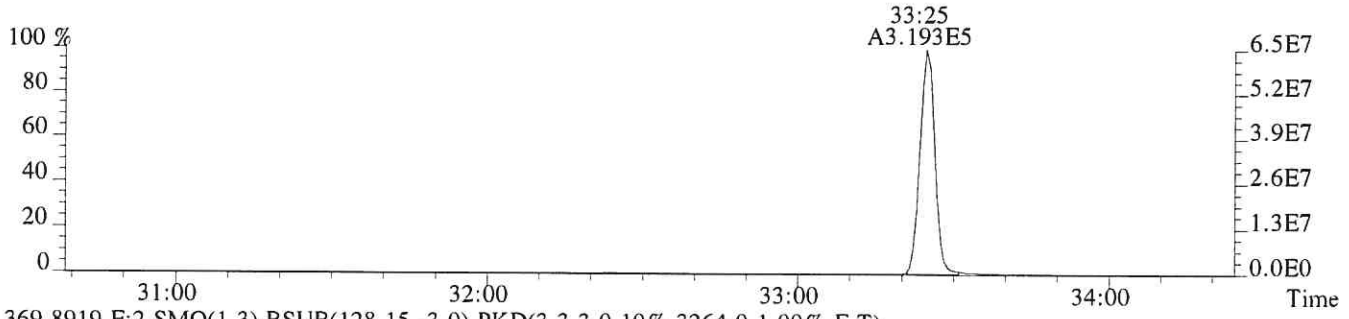
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



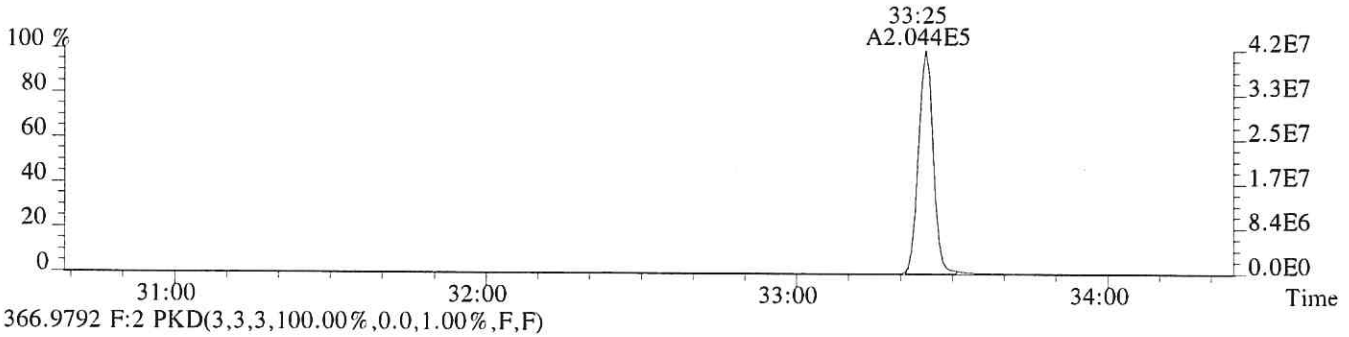
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



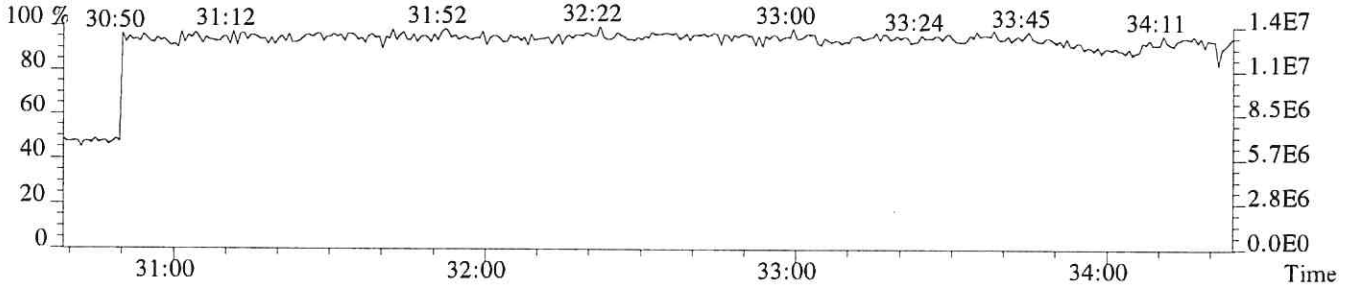
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



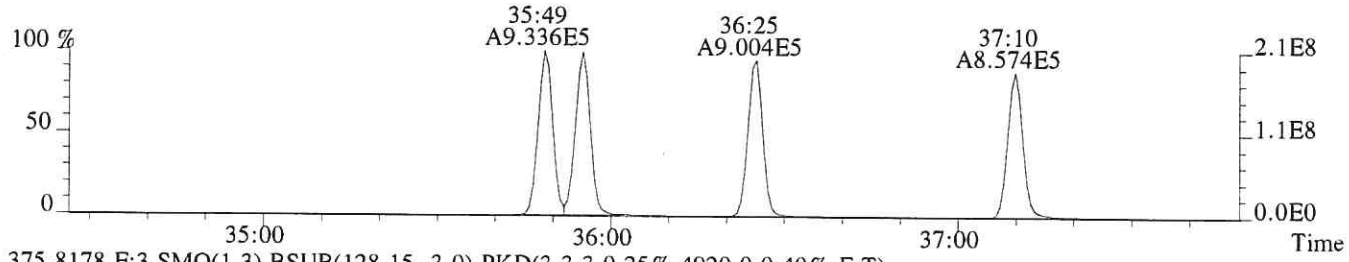
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



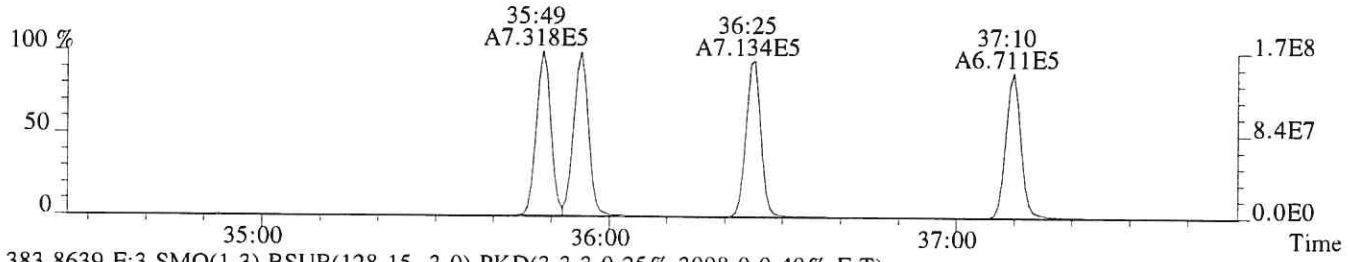
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



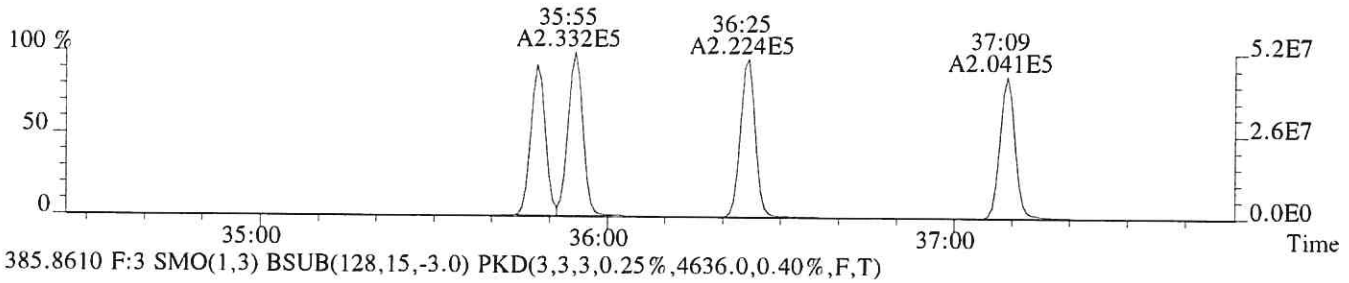
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



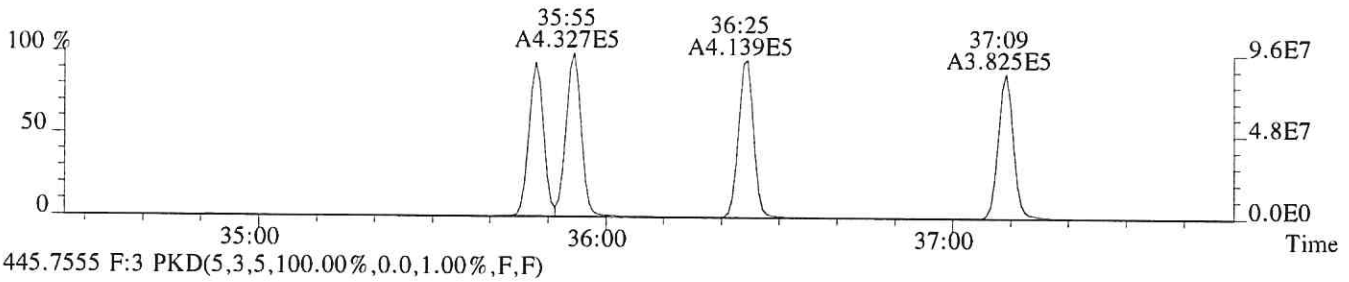
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



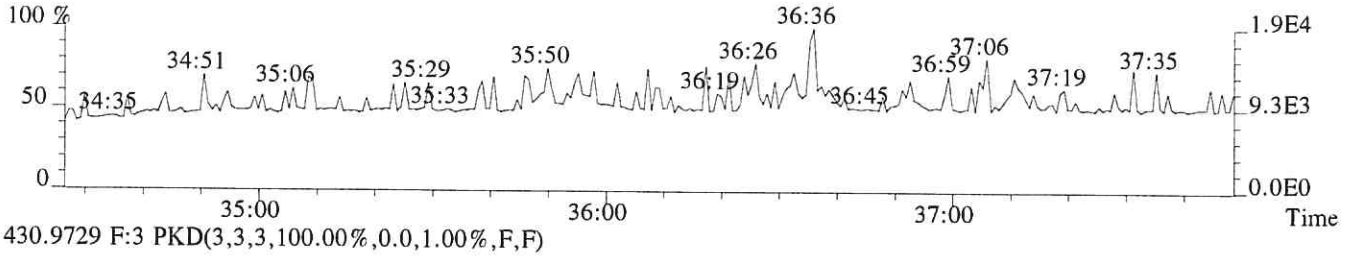
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



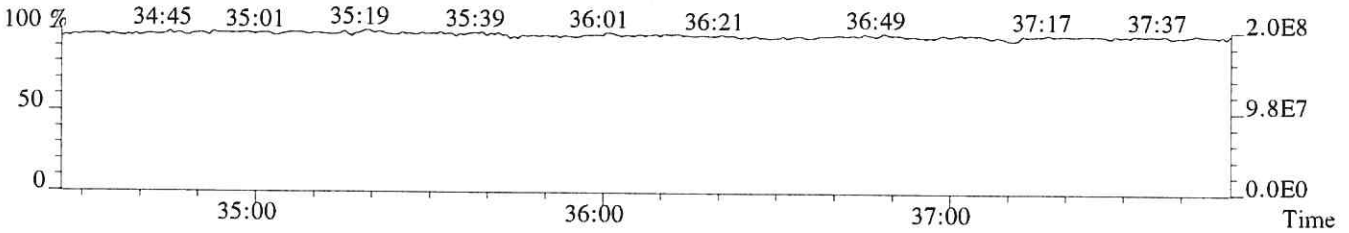
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



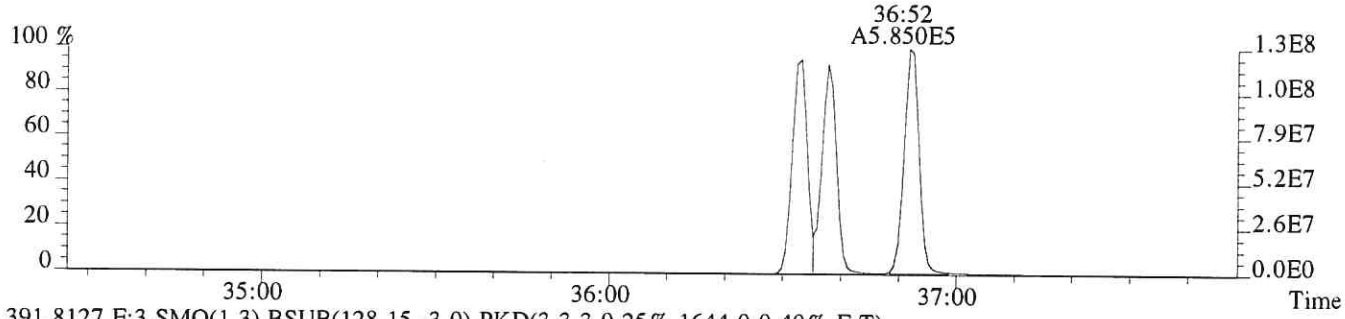
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



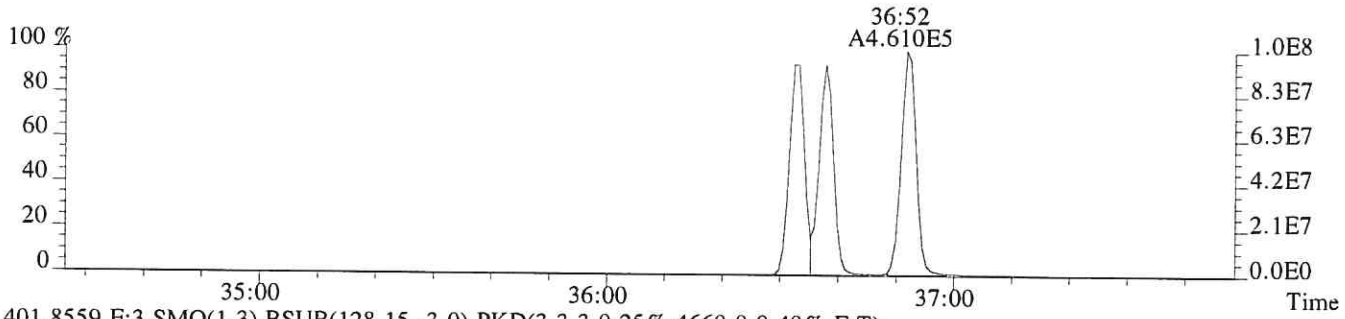
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



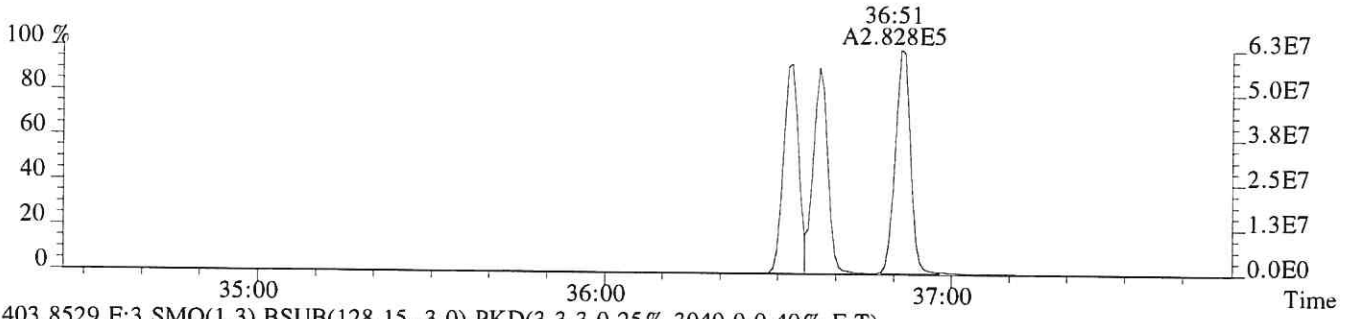
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



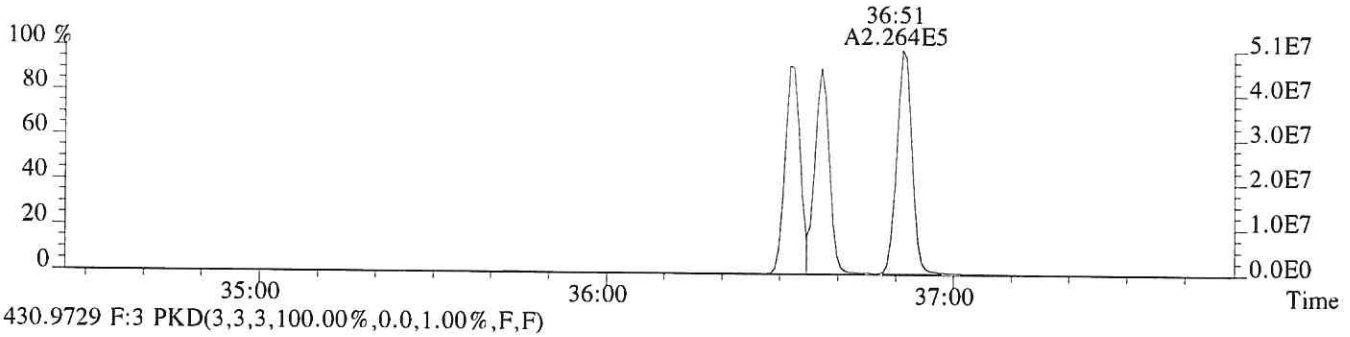
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



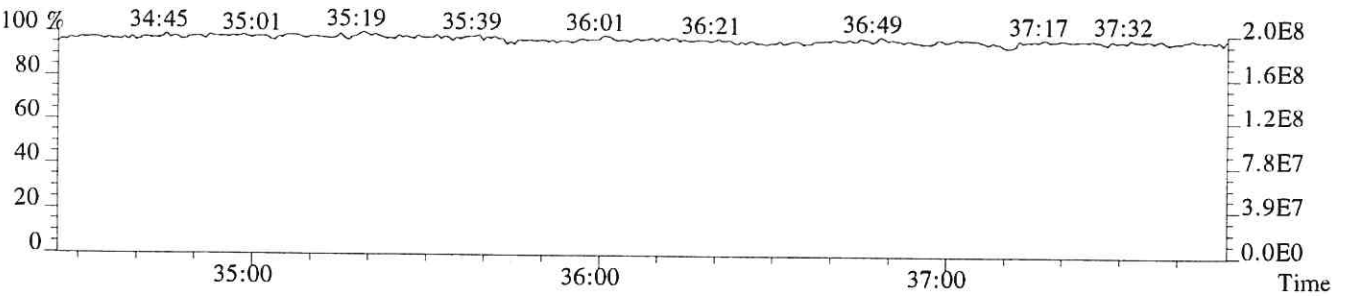
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



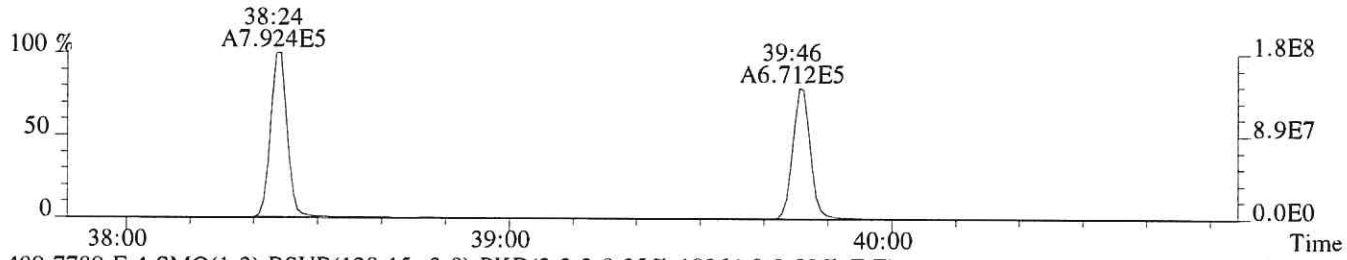
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



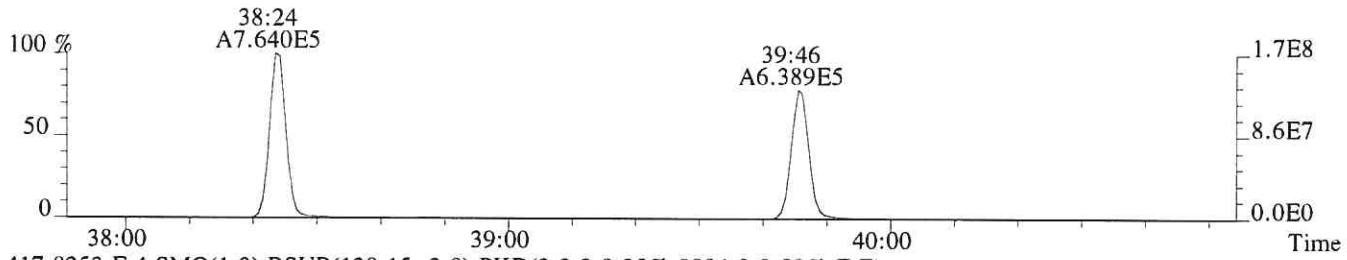
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



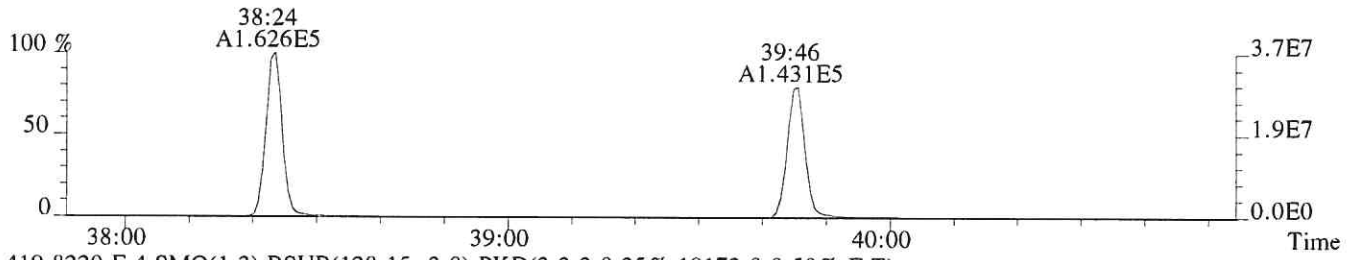
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



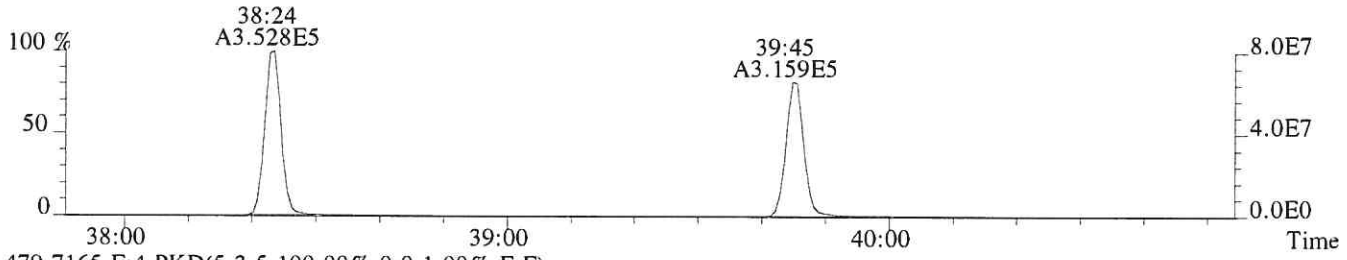
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



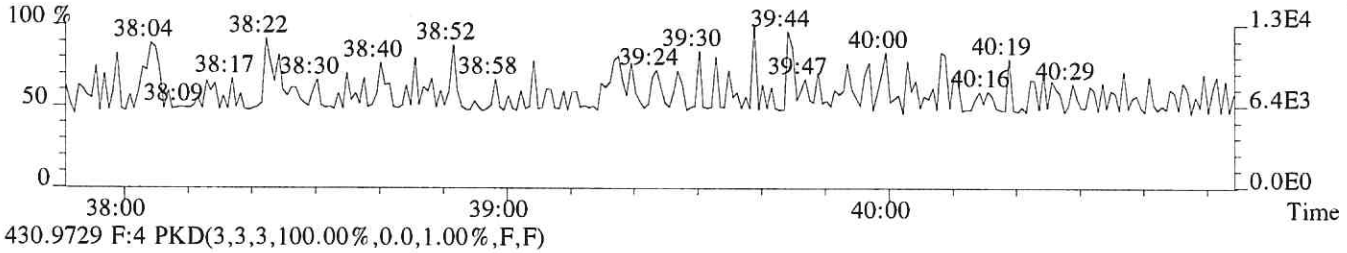
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



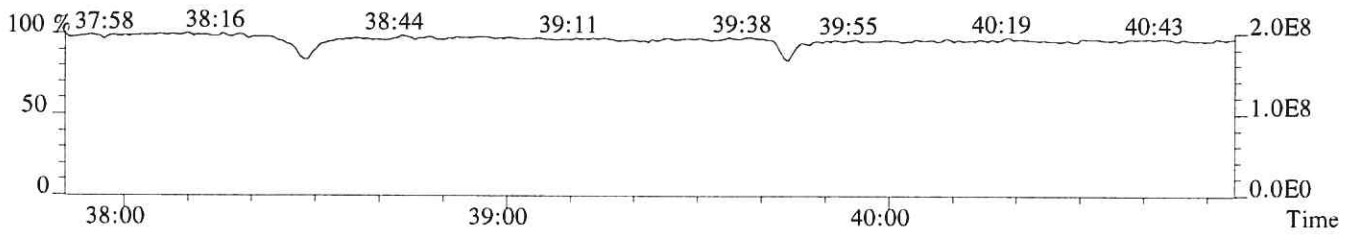
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



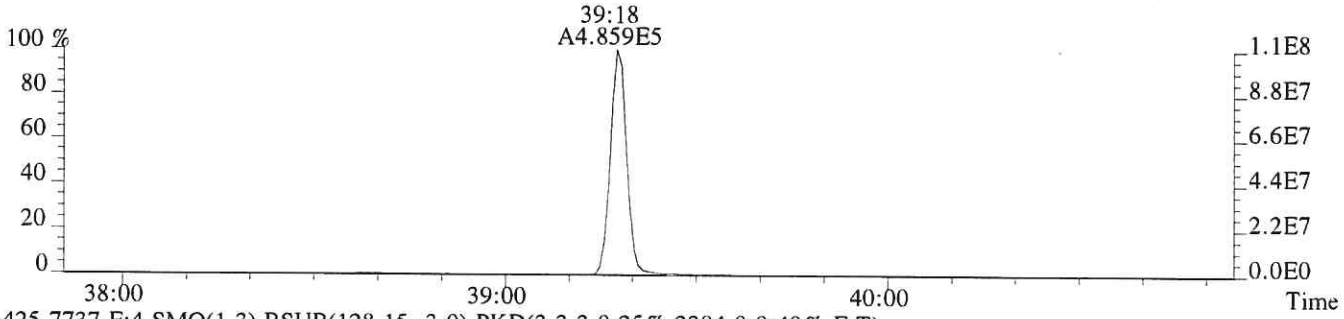
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



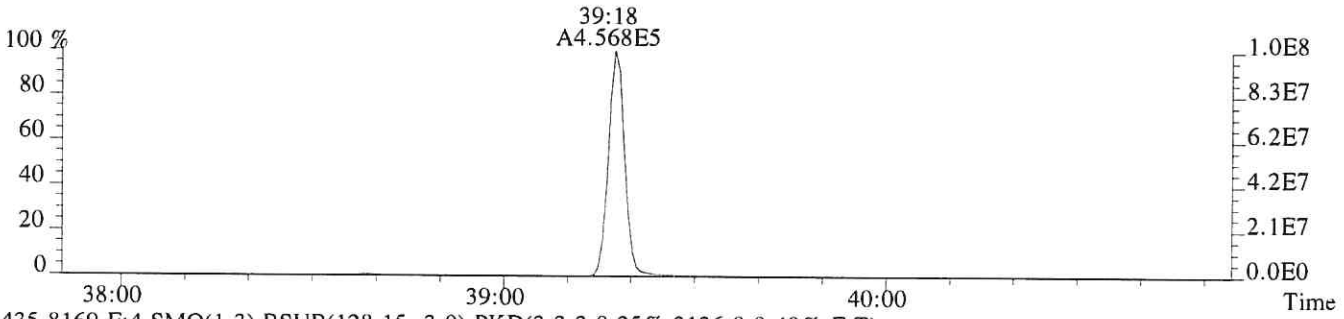
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



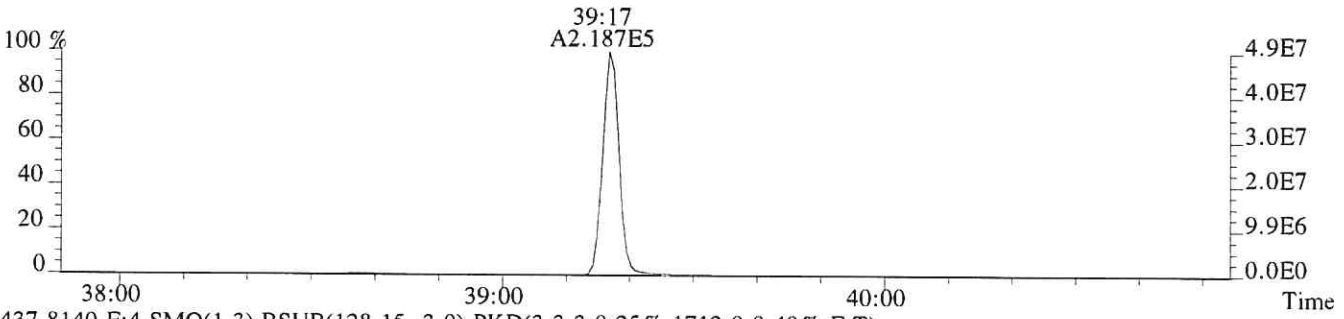
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



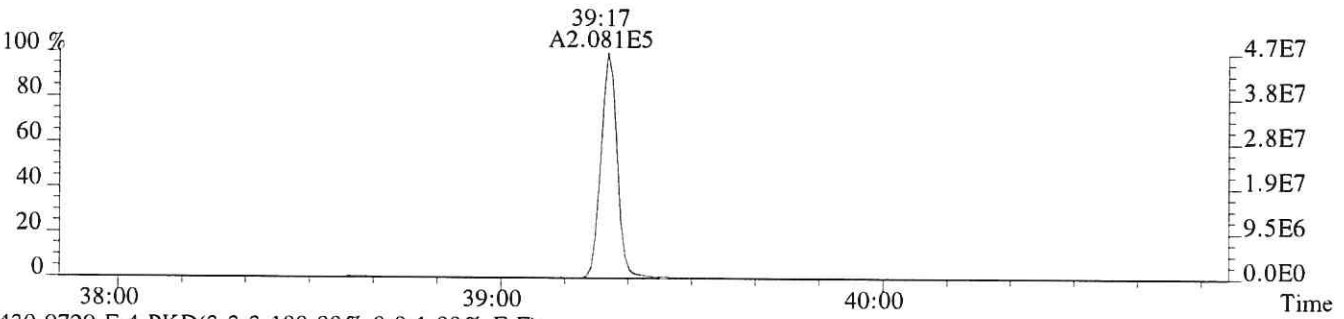
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



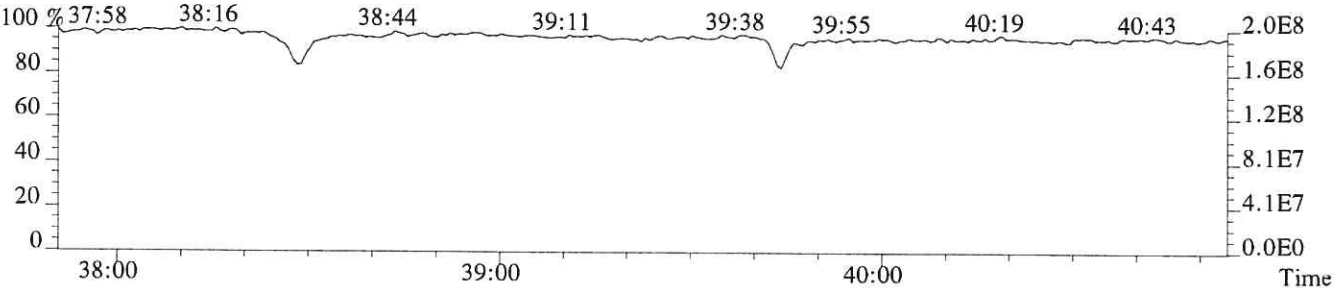
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



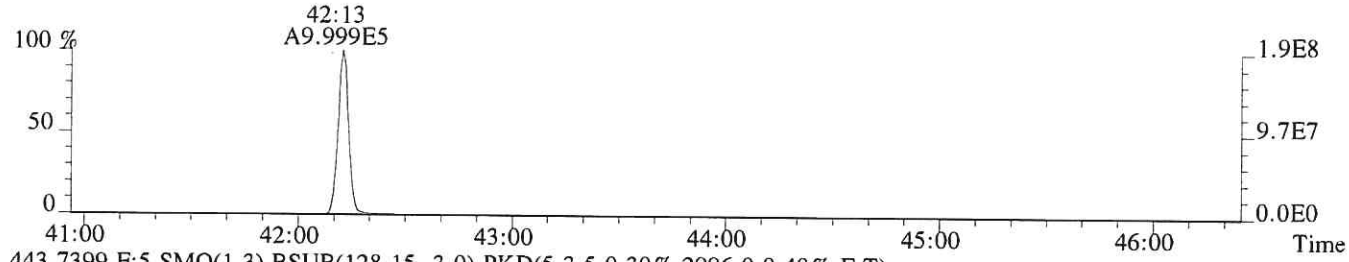
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



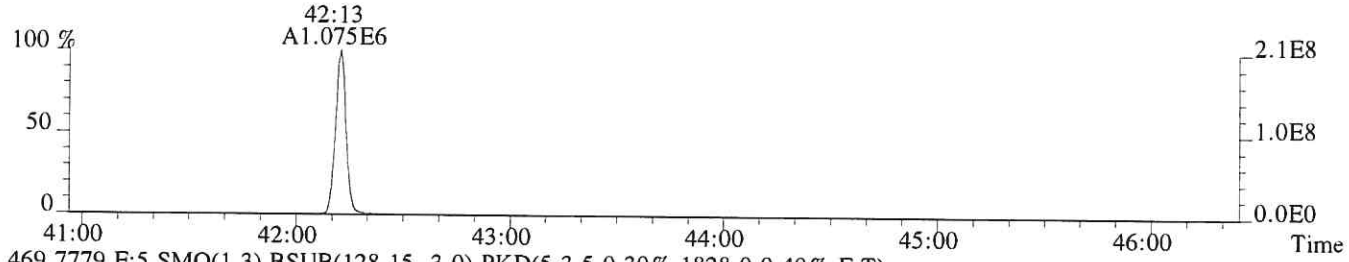
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



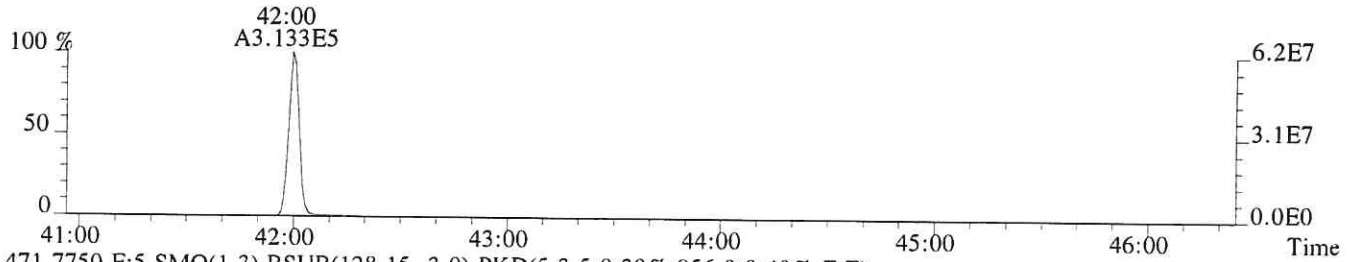
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



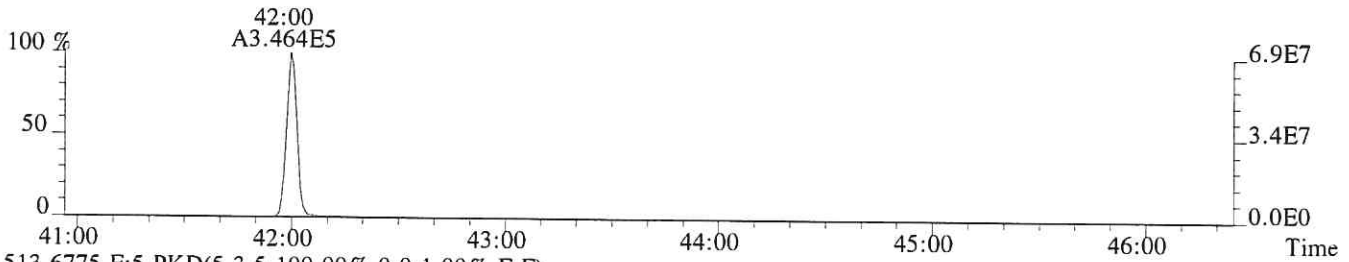
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



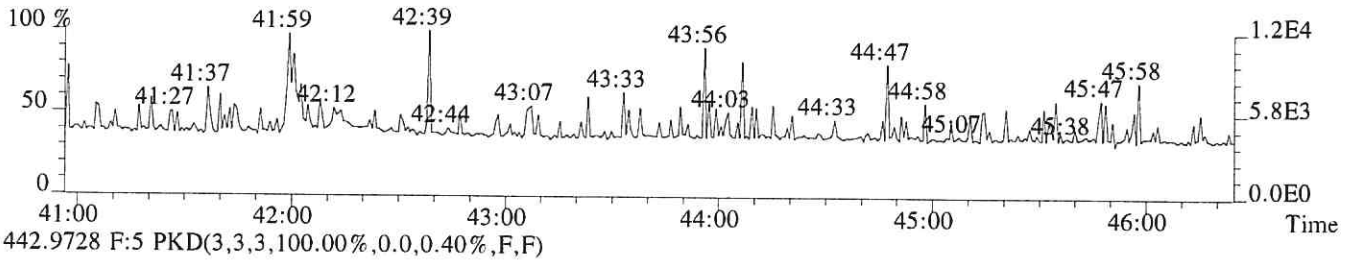
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



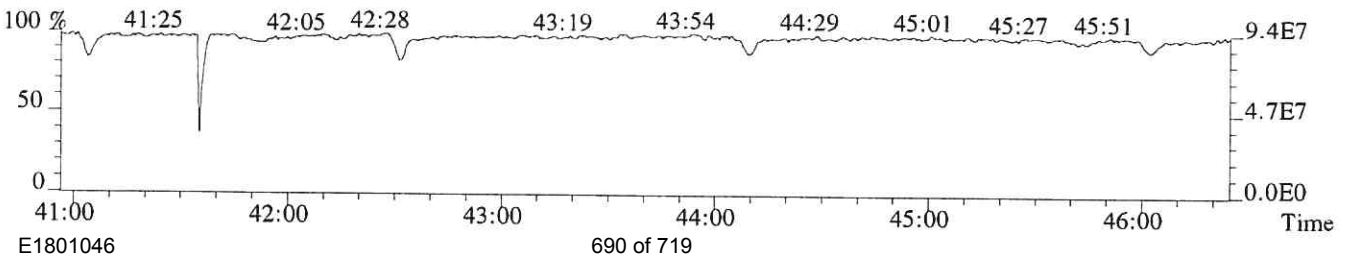
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



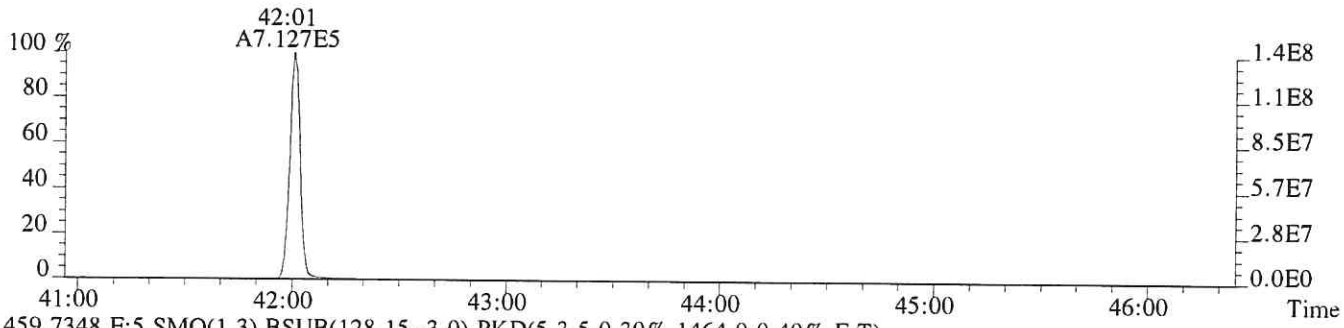
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



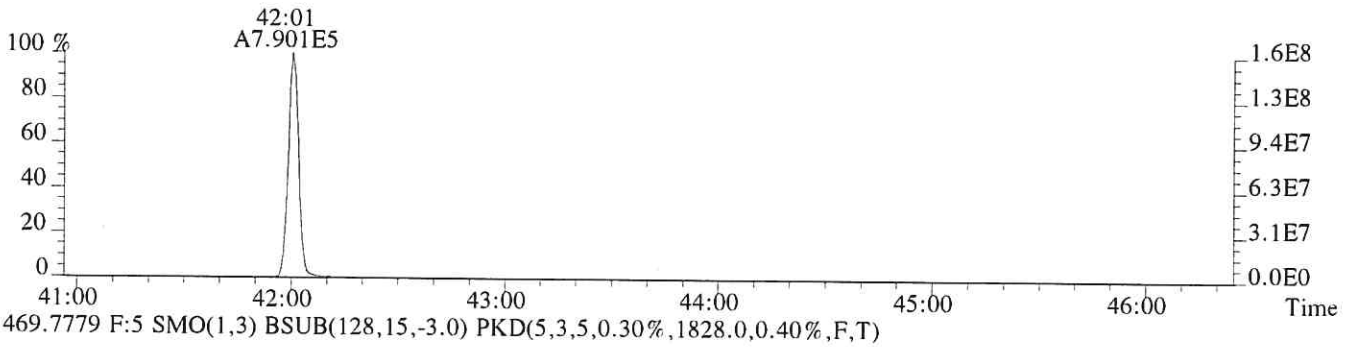
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



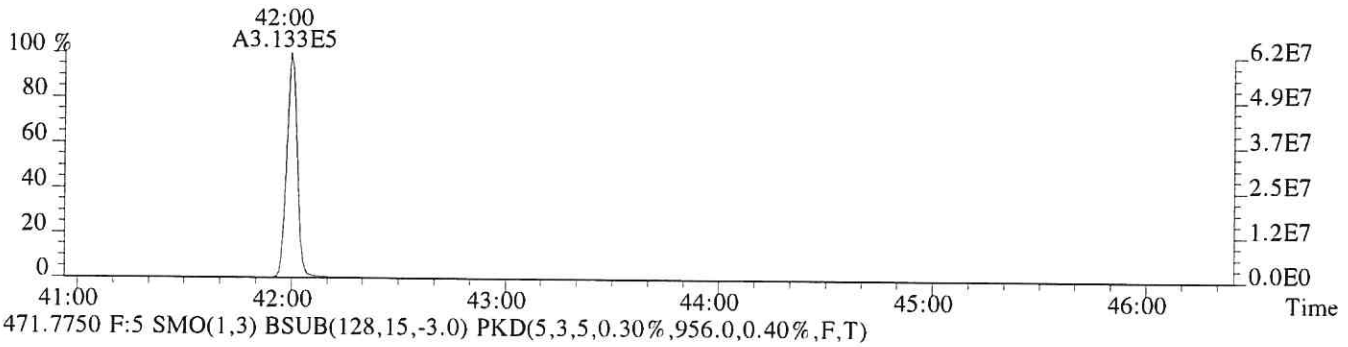
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



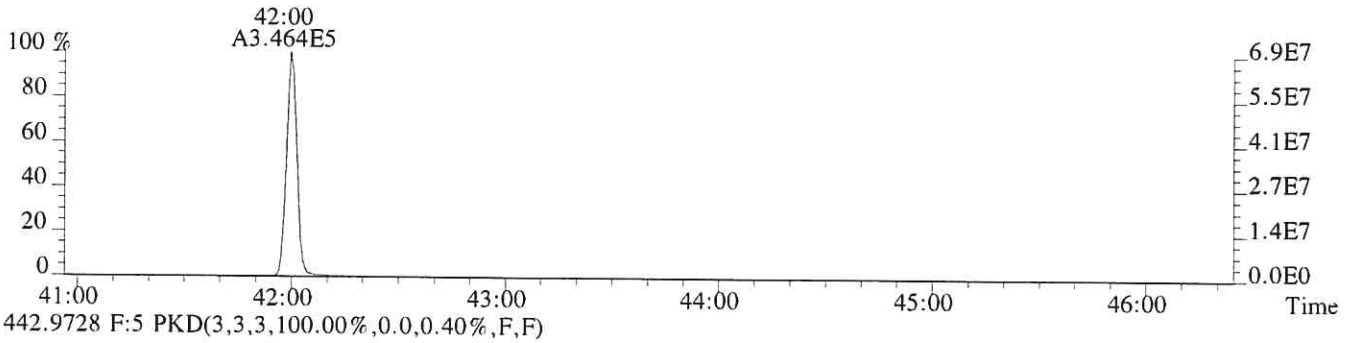
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



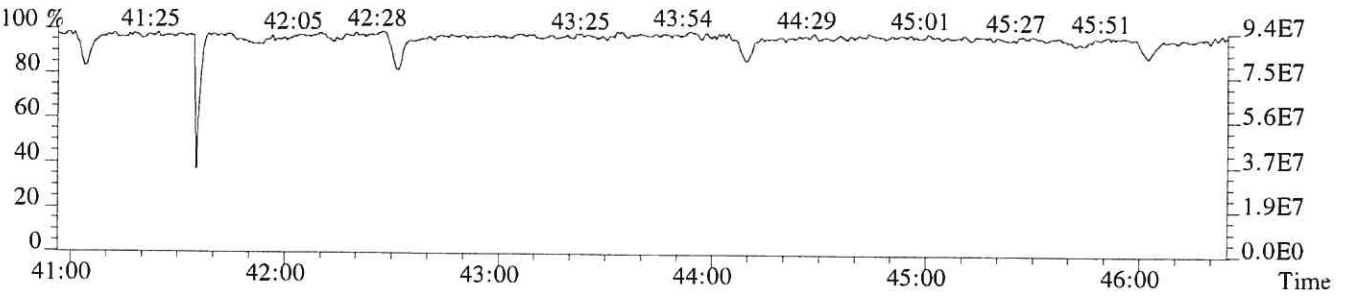
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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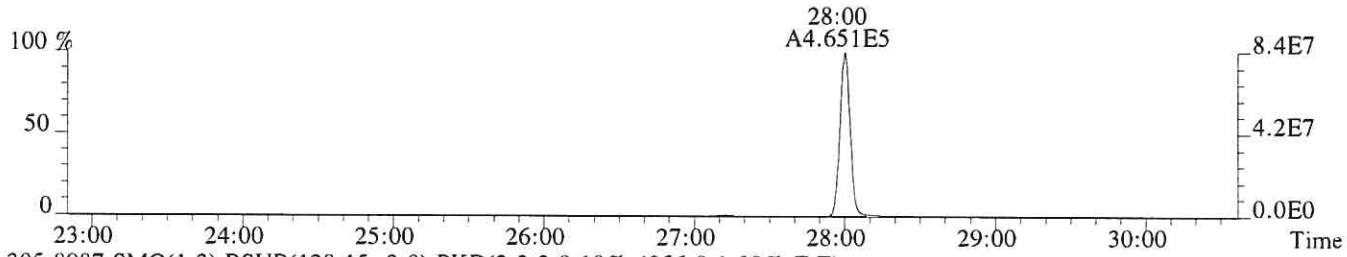
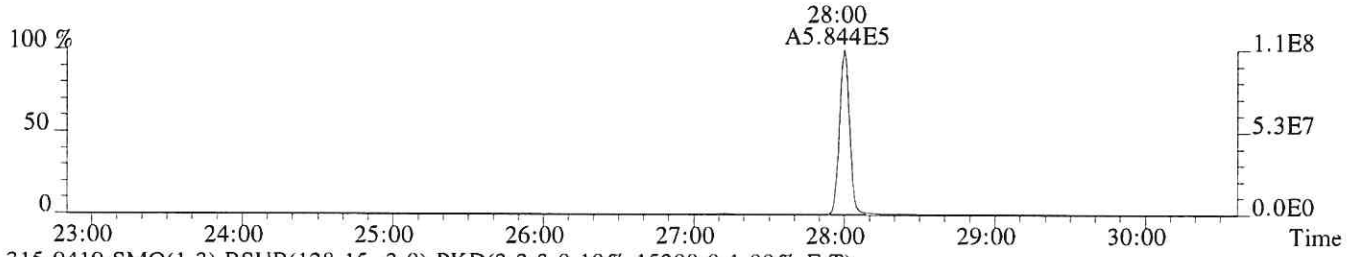
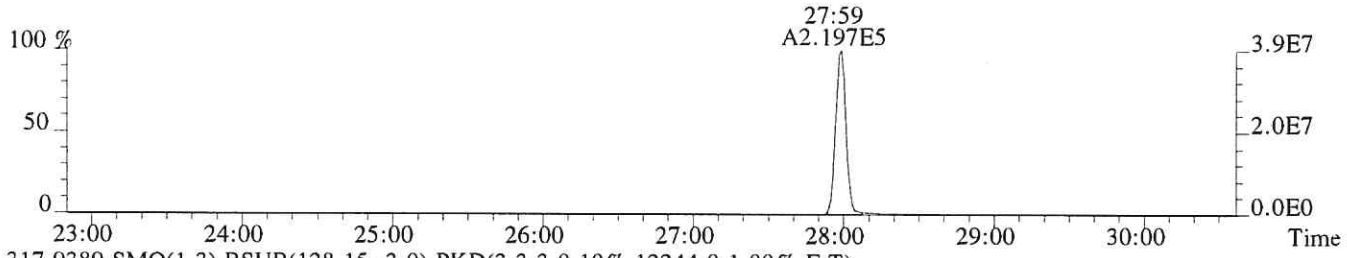
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



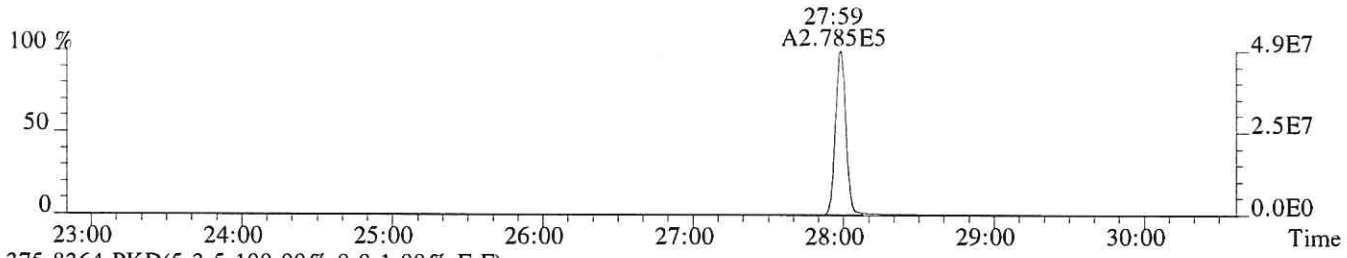
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



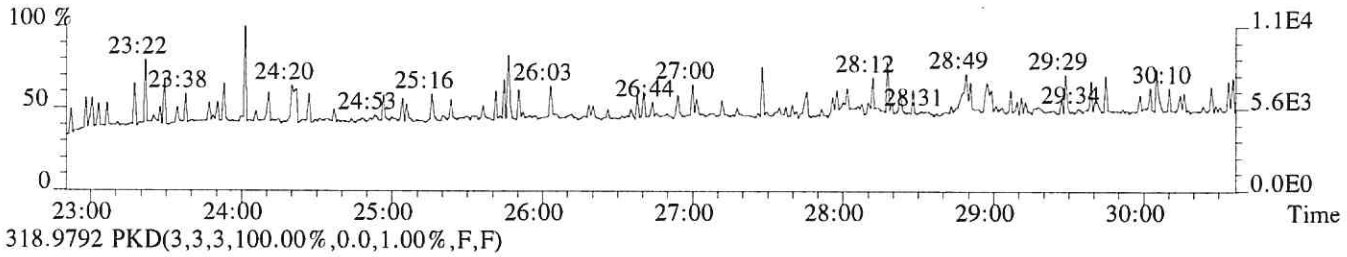
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



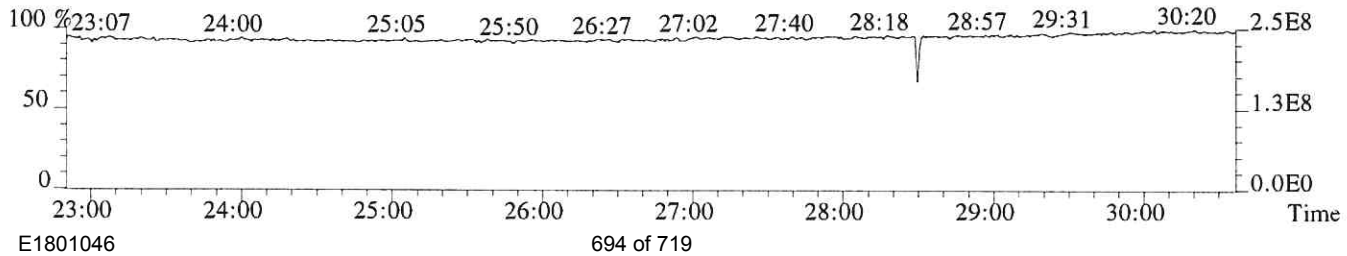
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



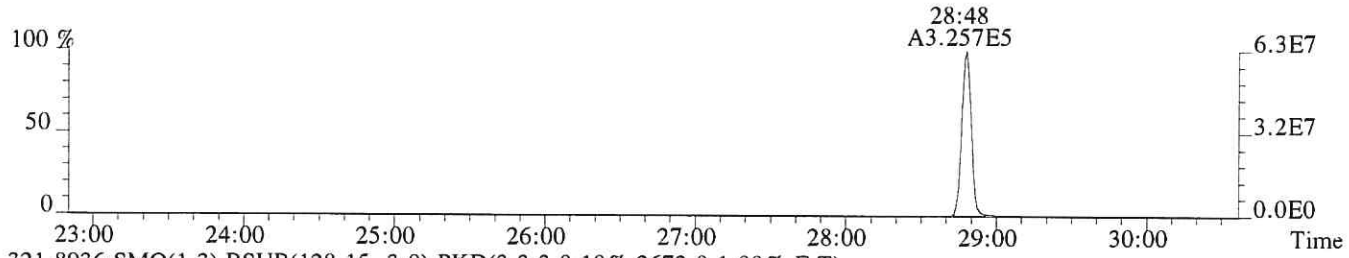
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



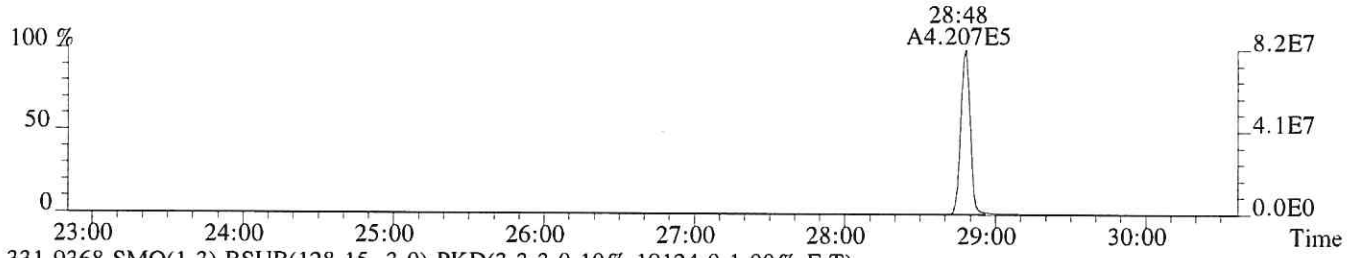
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



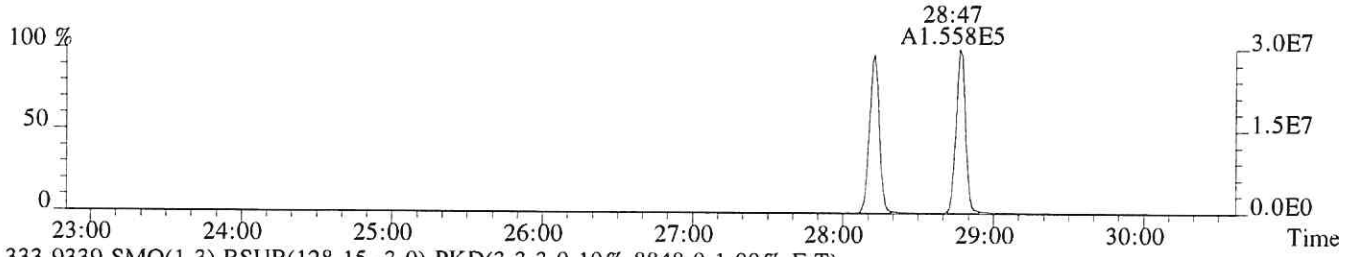
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



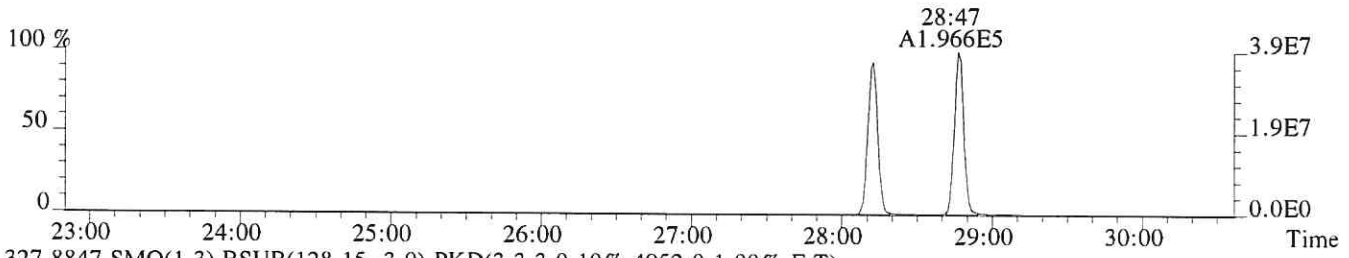
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



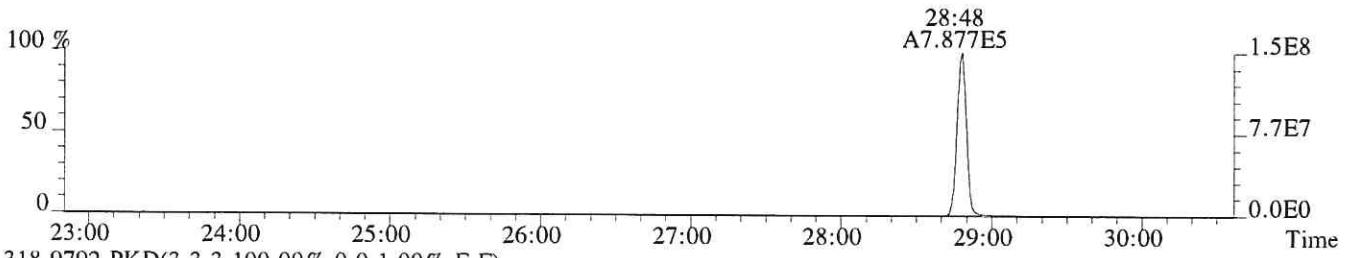
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



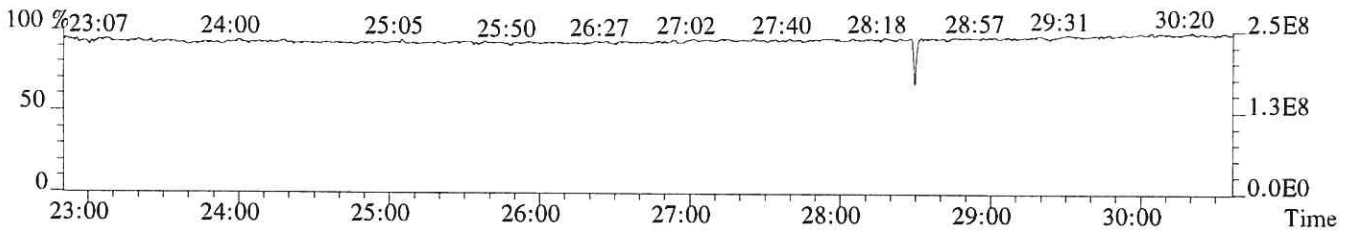
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



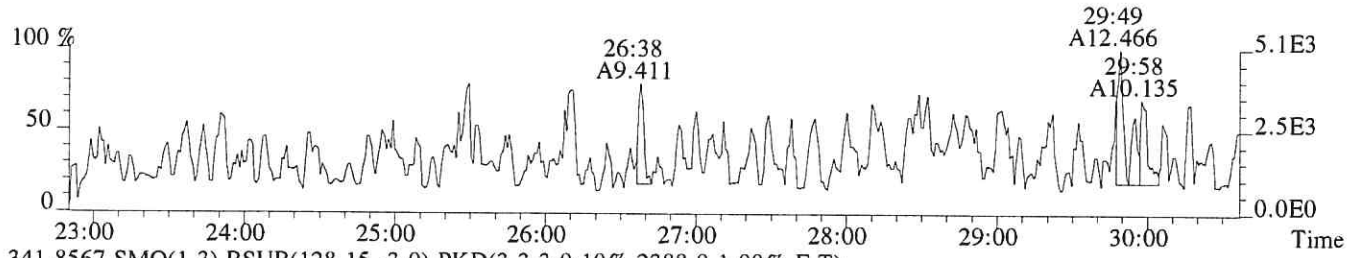
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)



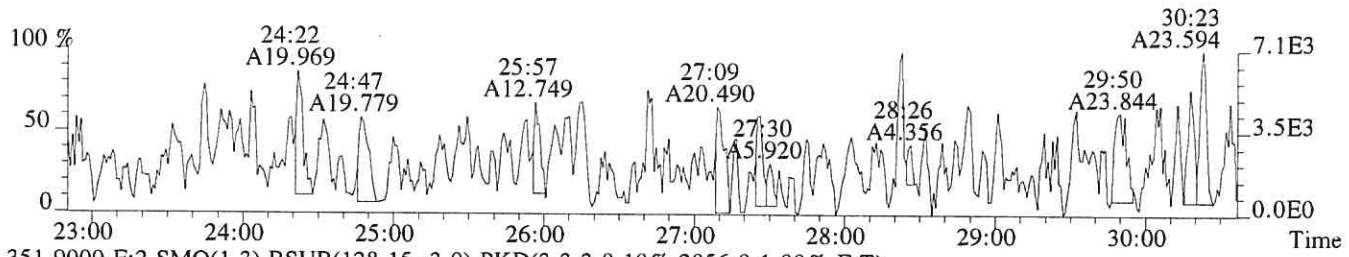
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



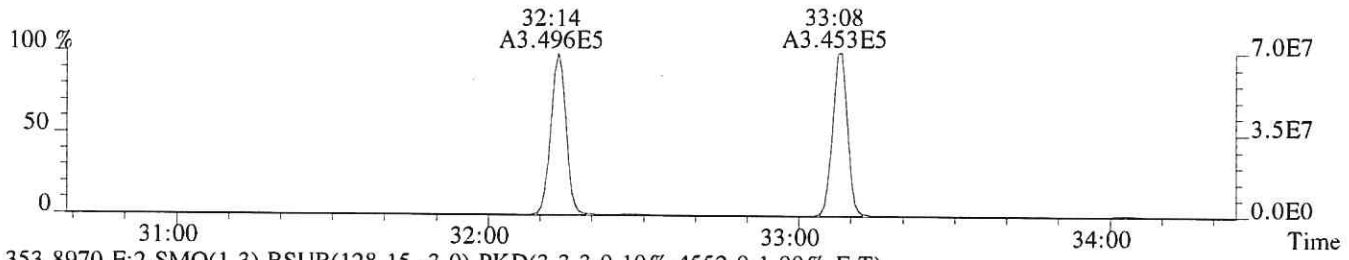
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



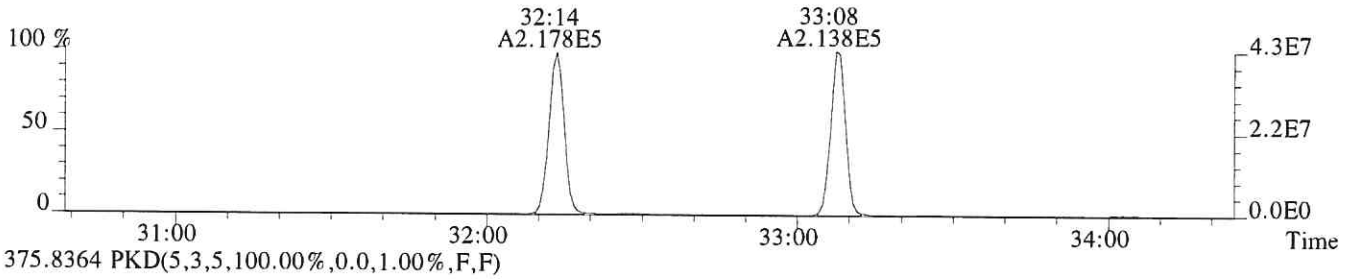
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



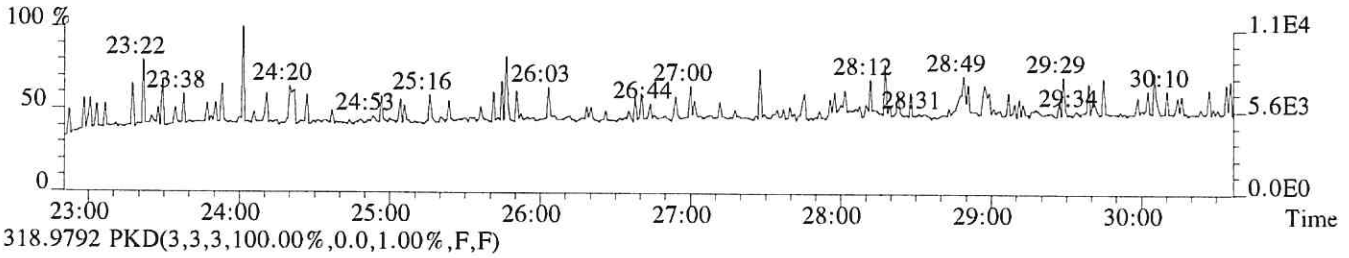
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



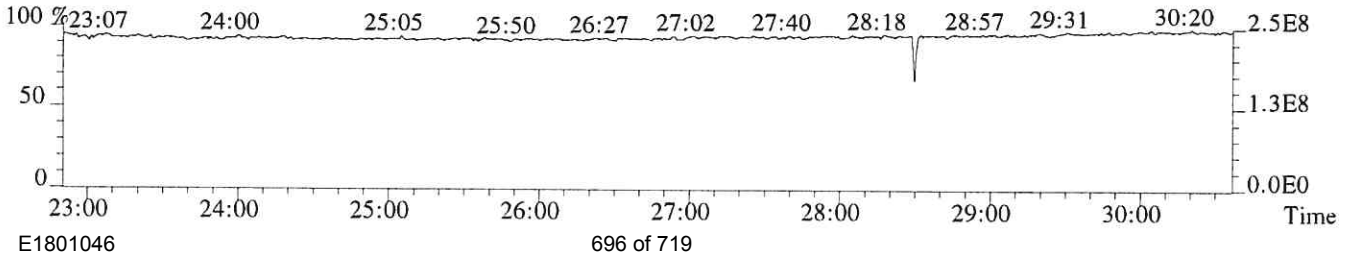
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



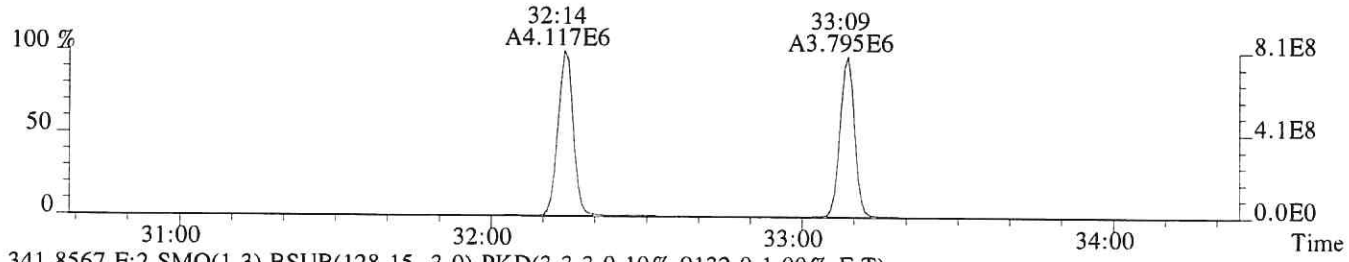
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



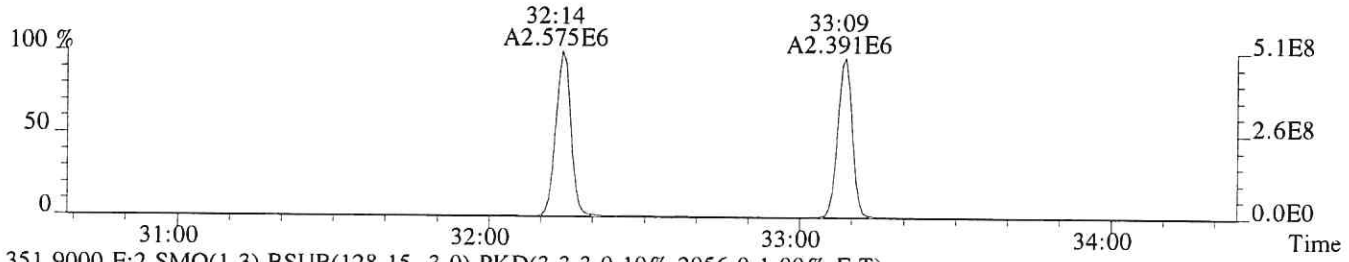
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



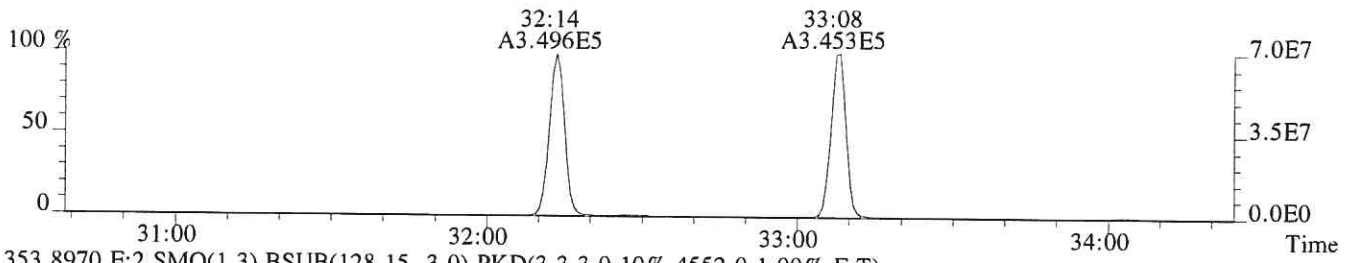
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



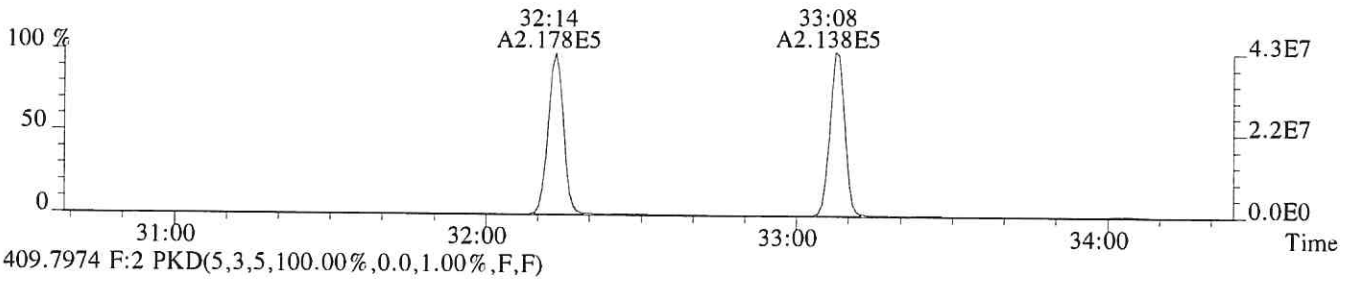
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



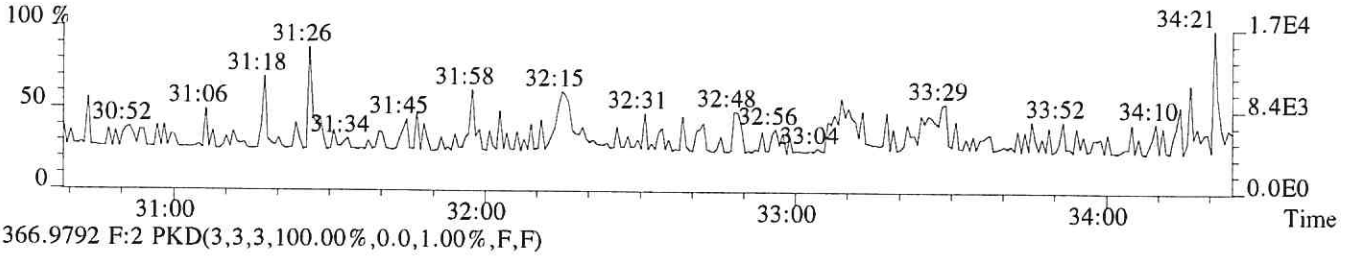
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



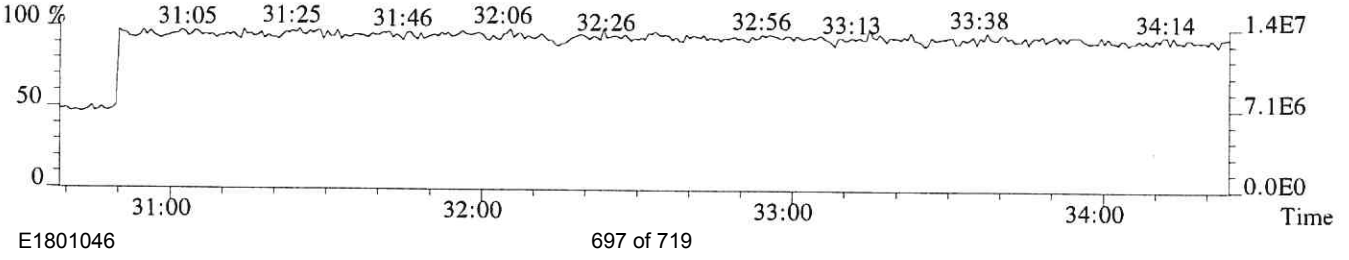
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



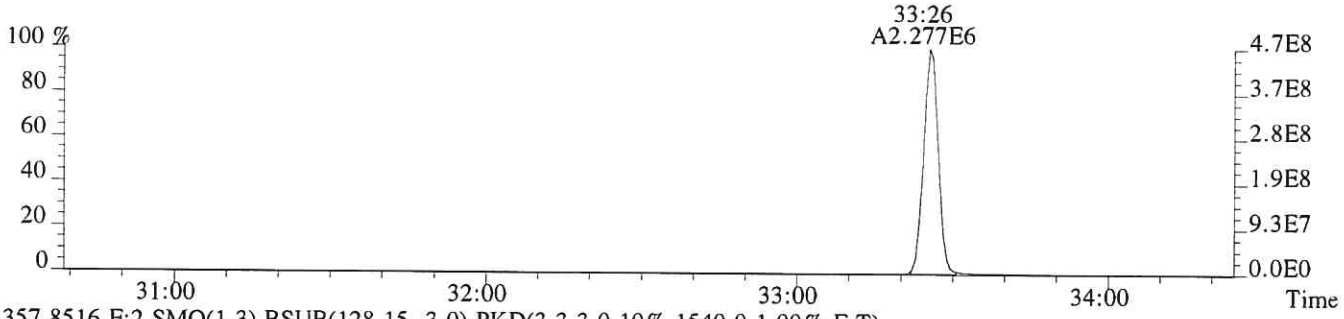
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



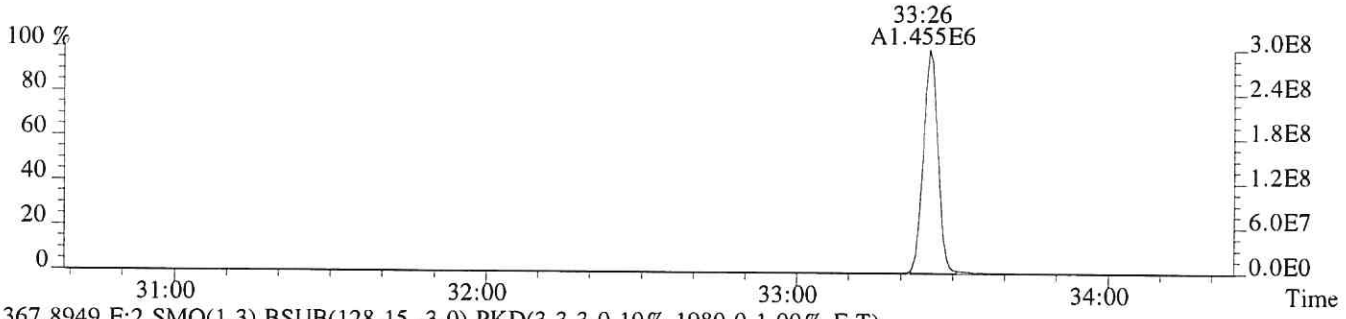
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



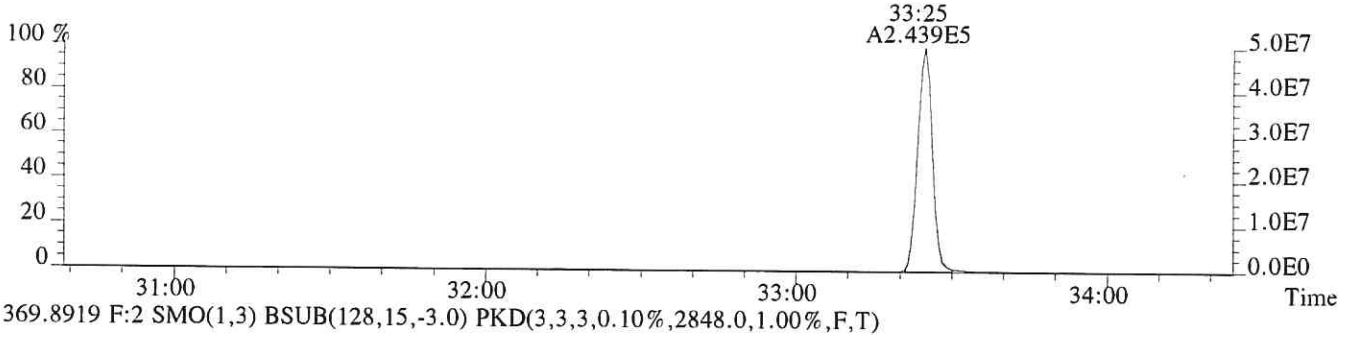
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



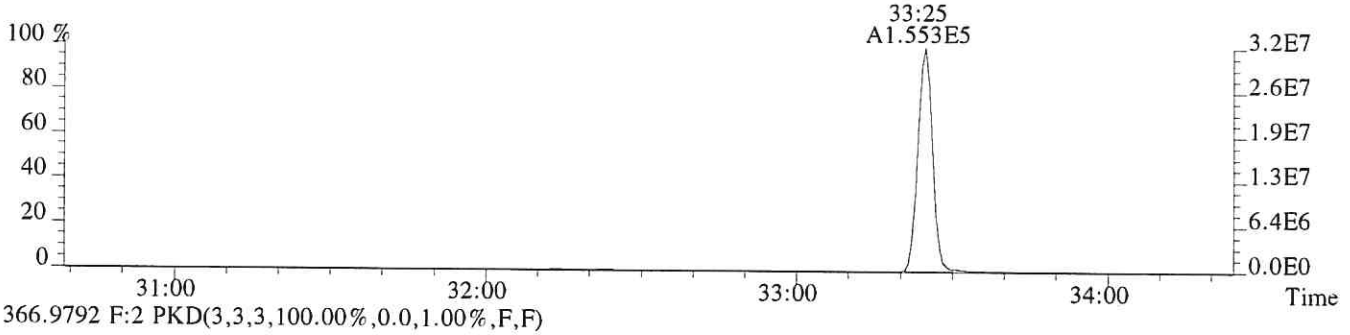
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



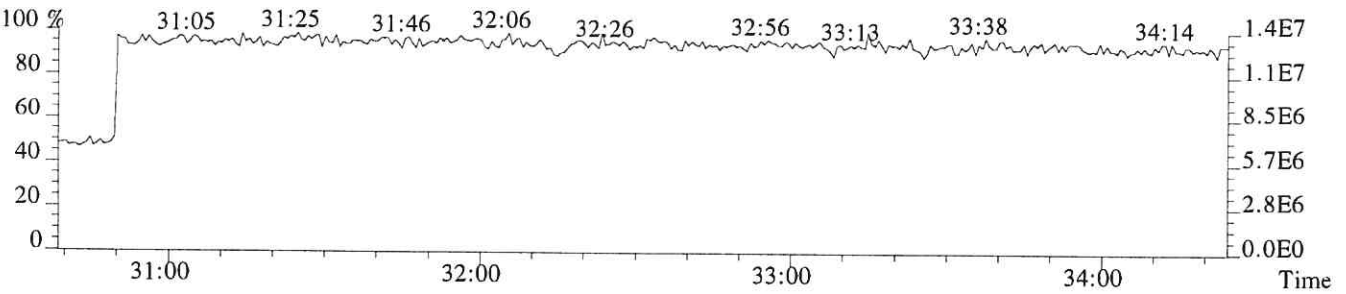
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



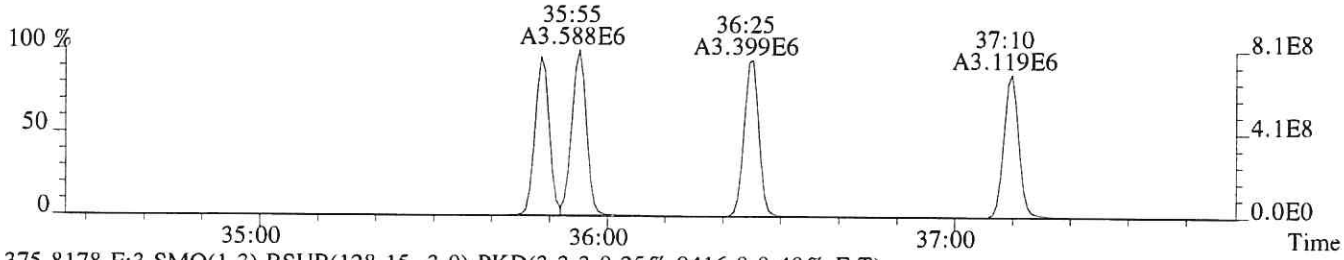
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



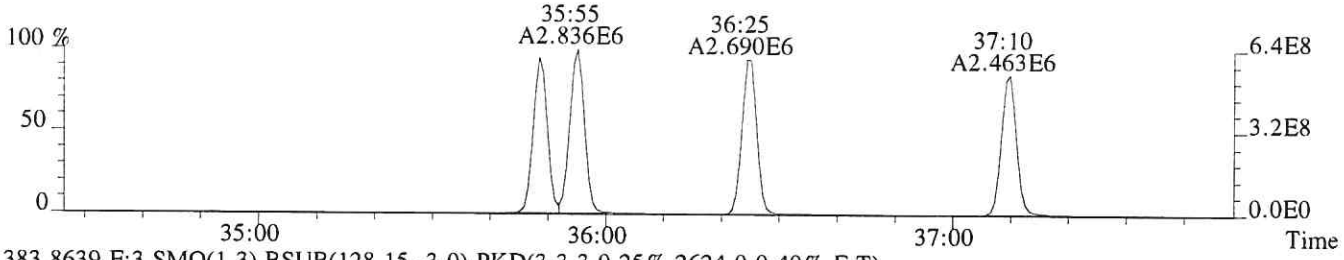
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



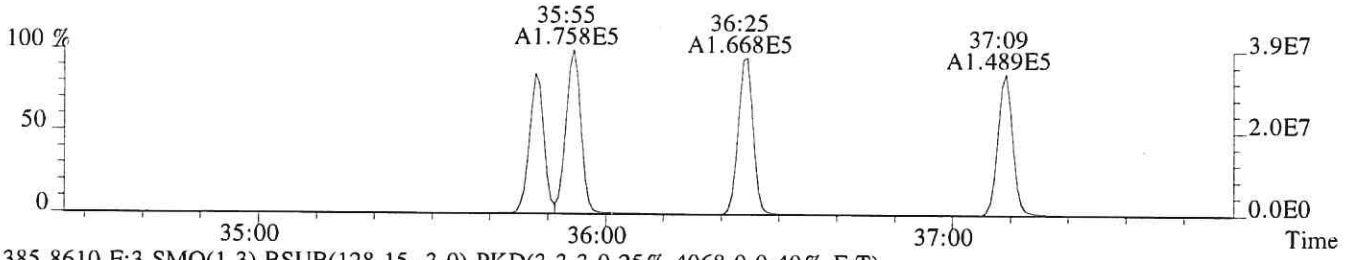
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



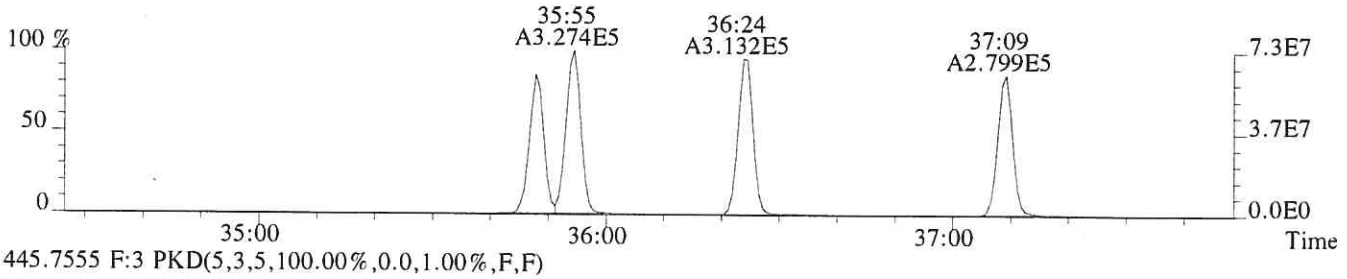
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



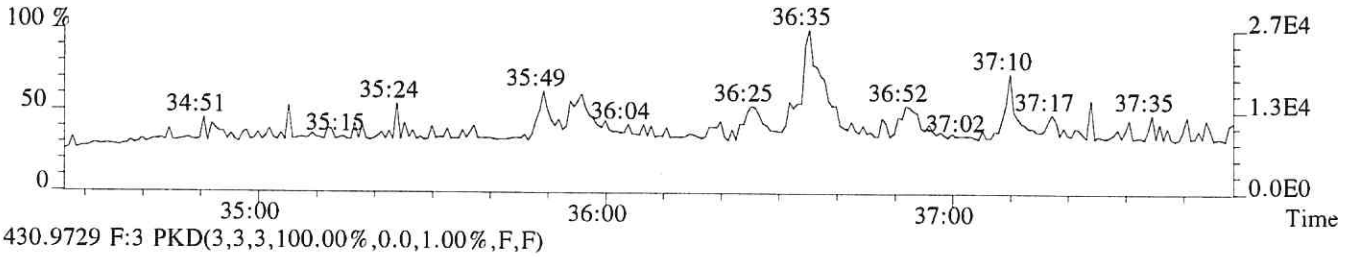
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



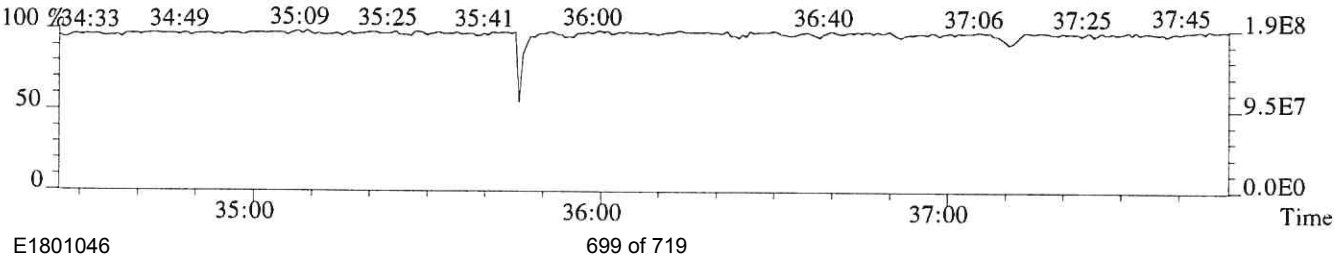
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



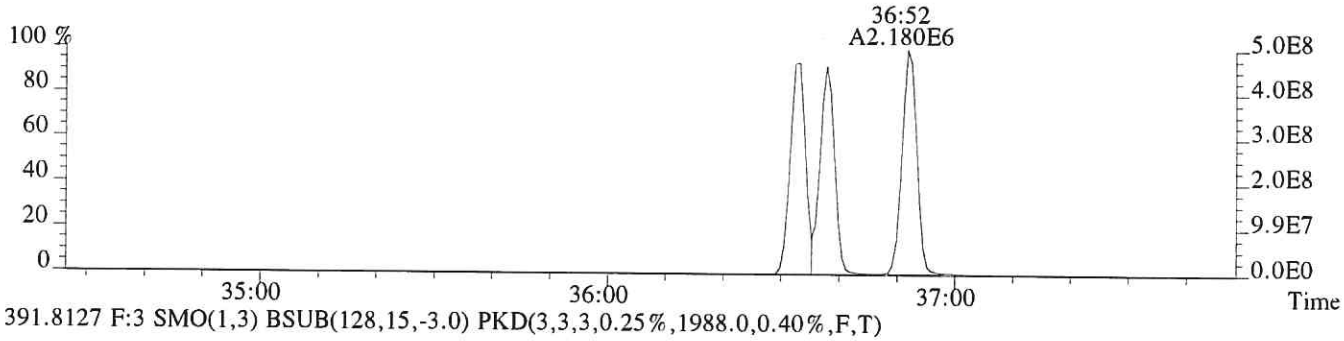
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



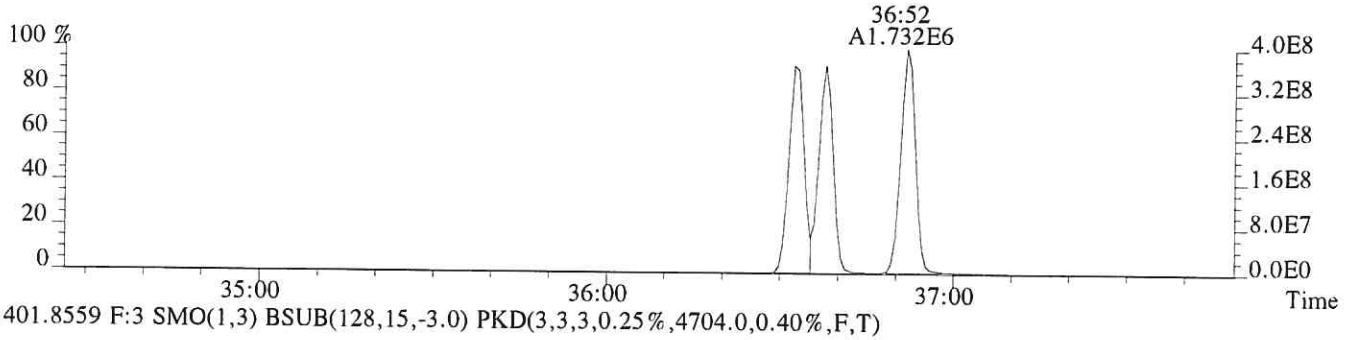
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



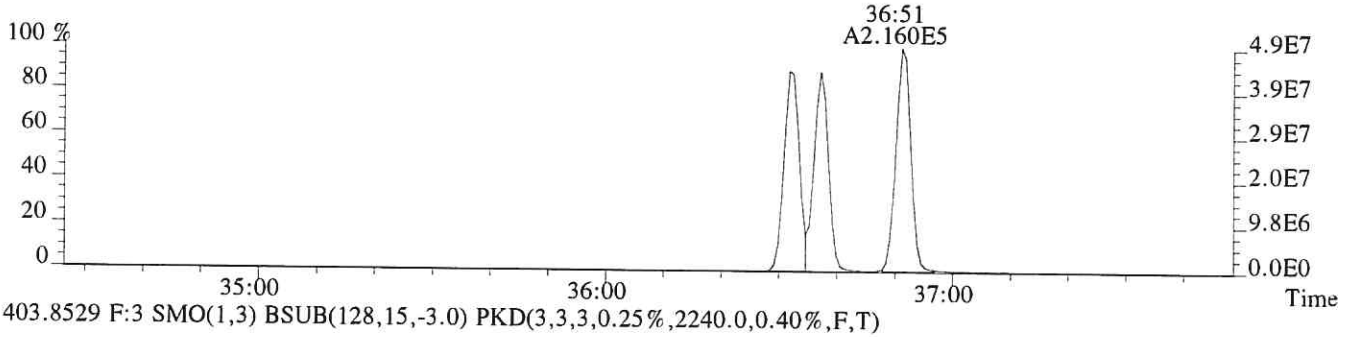
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



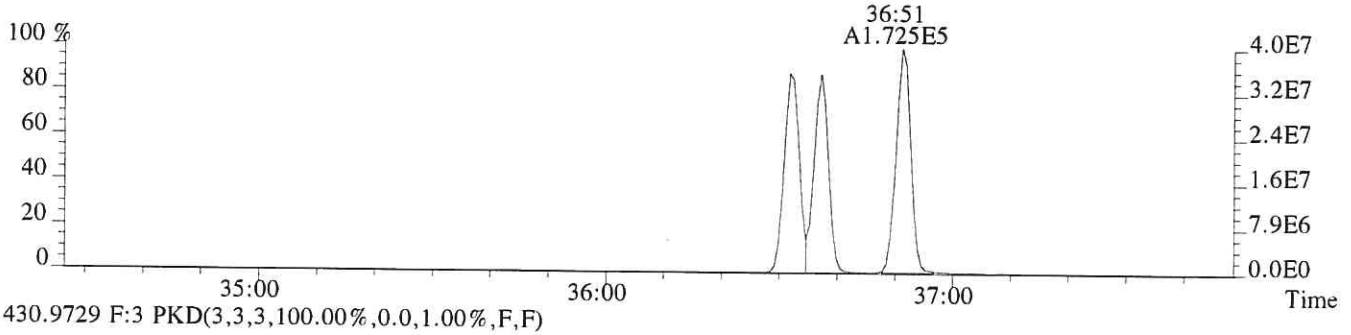
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



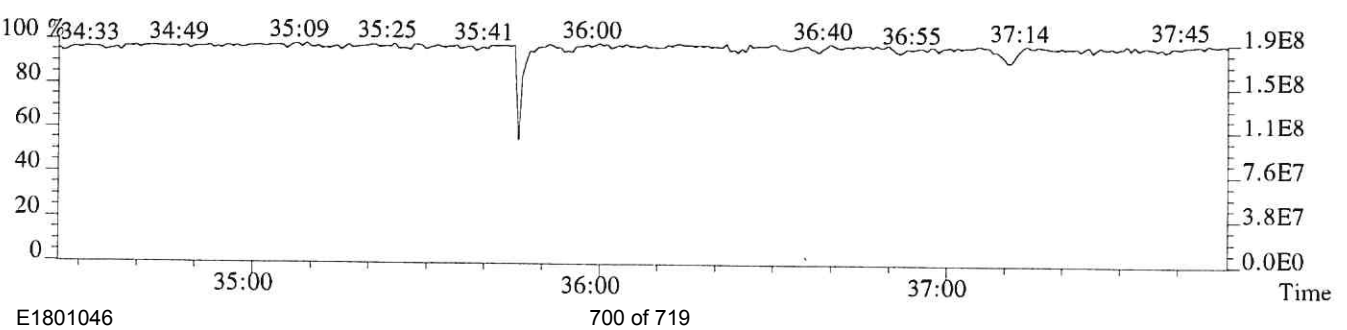
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



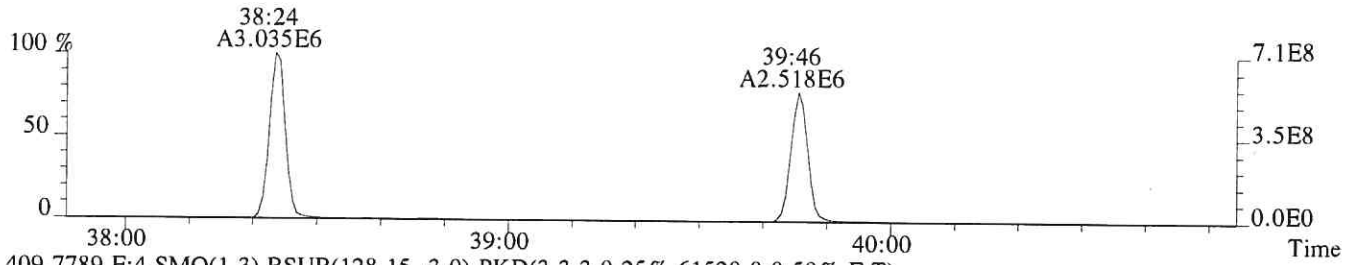
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



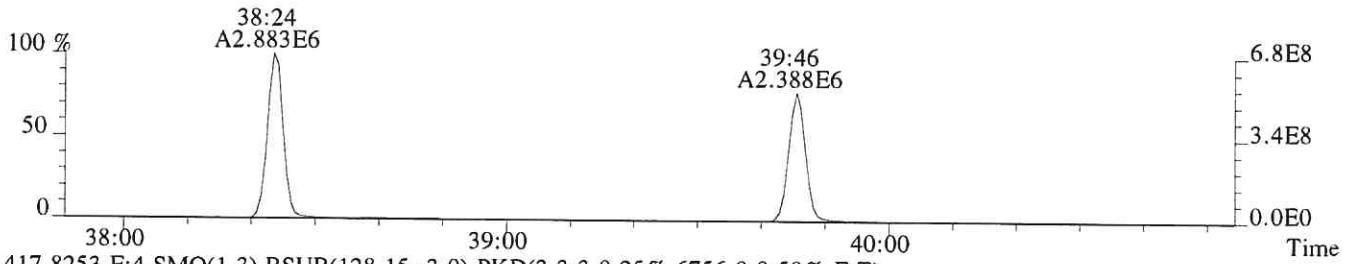
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



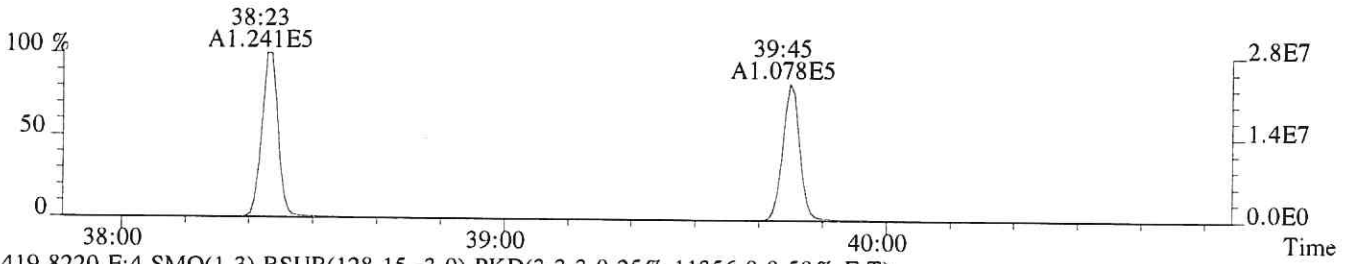
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



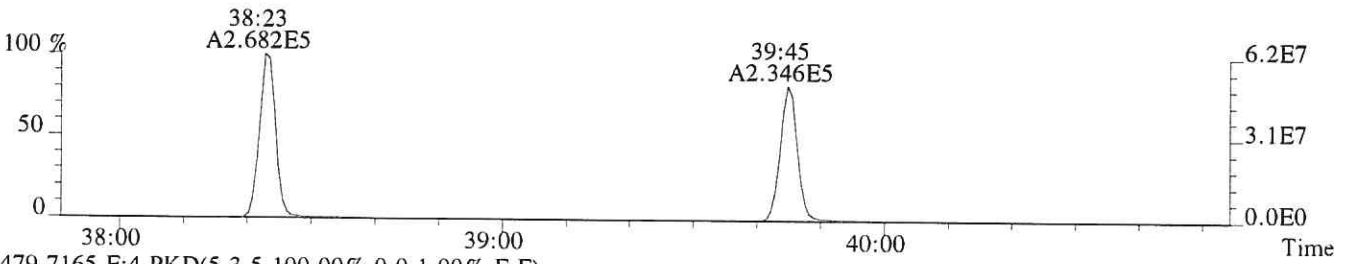
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



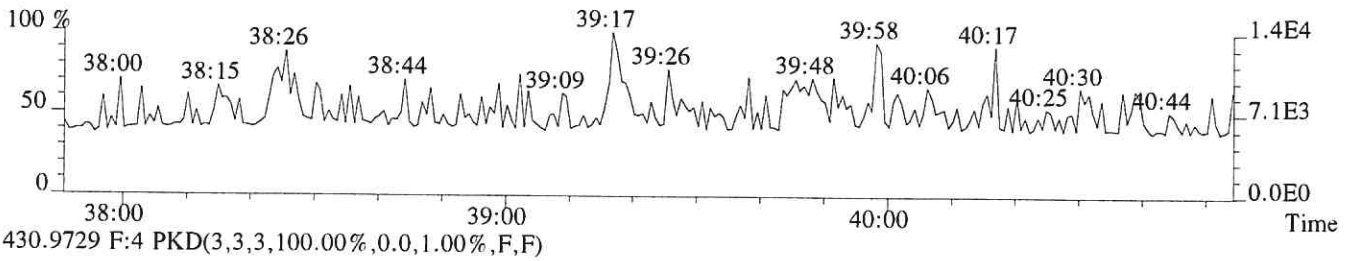
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



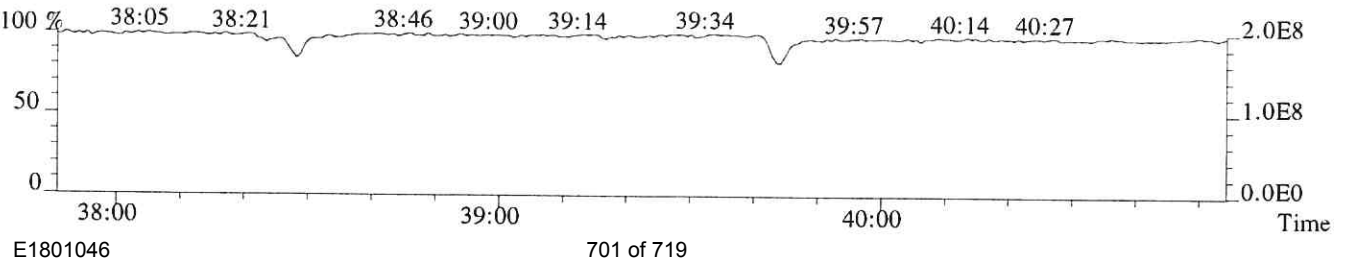
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



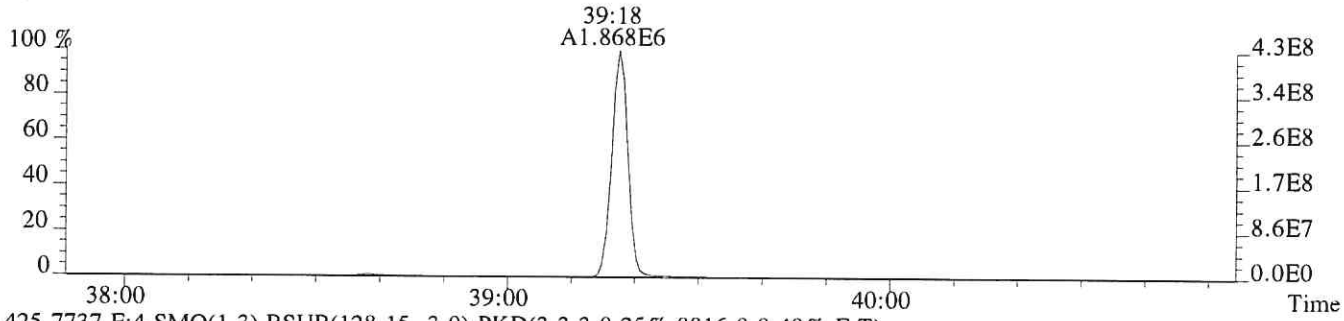
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



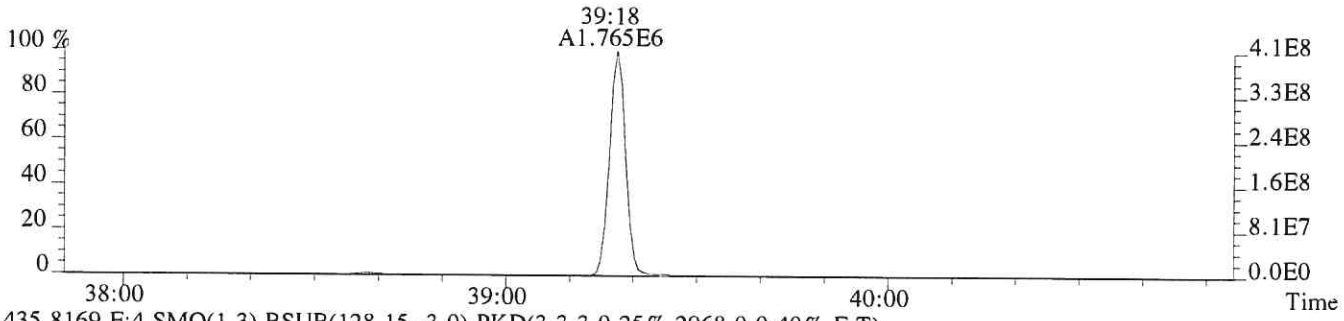
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



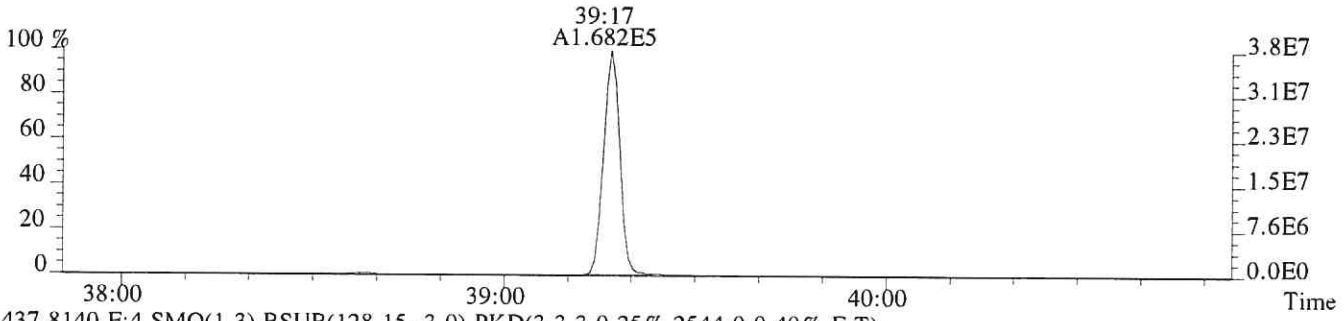
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



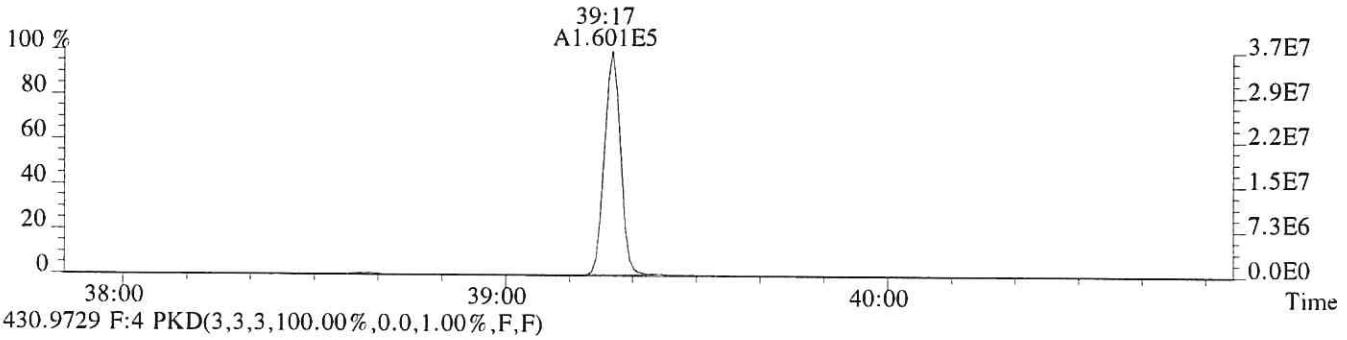
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



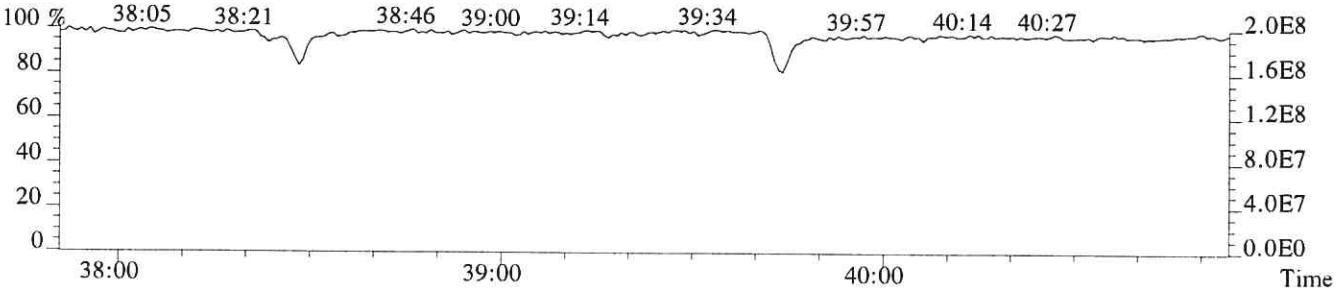
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



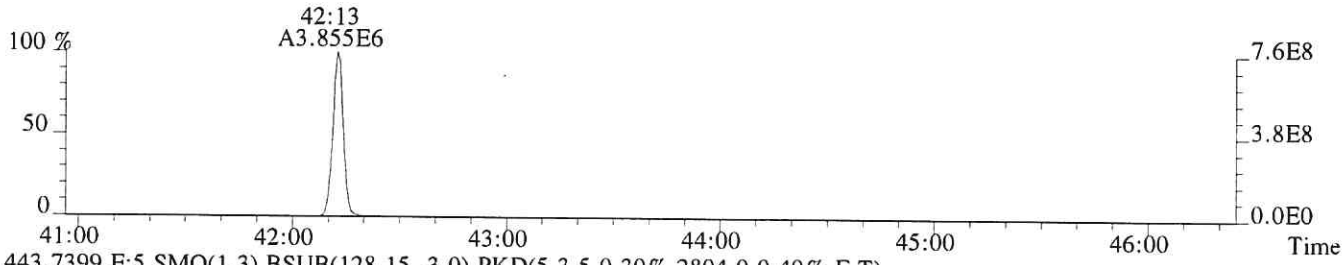
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



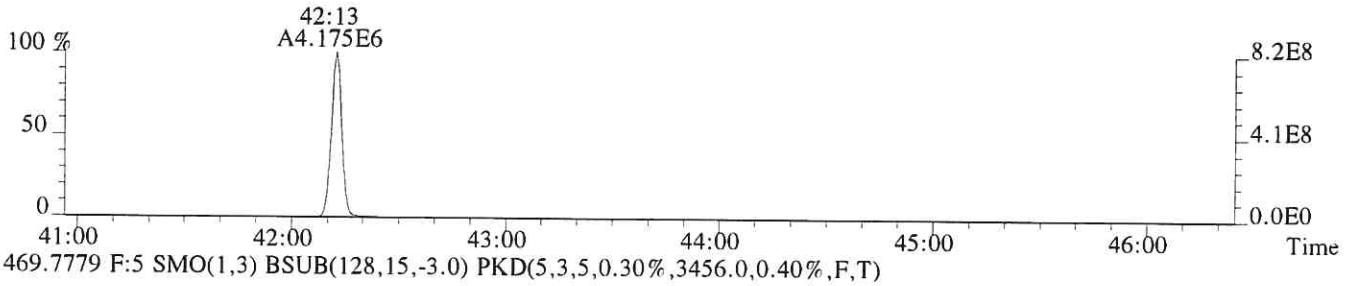
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



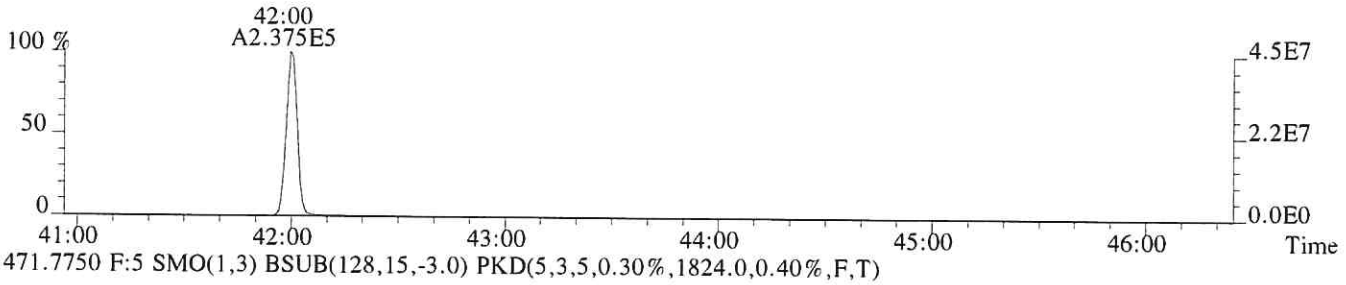
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



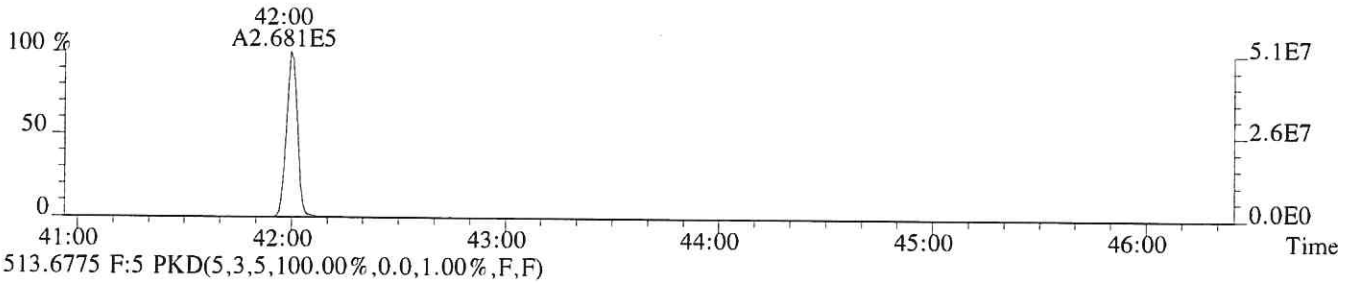
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



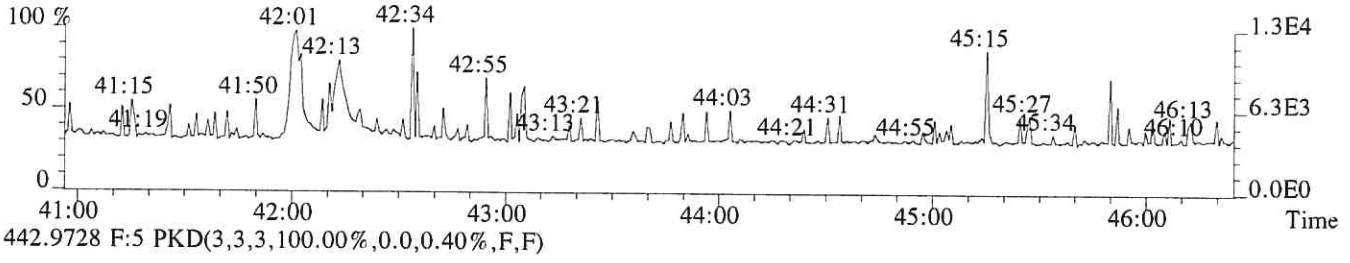
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



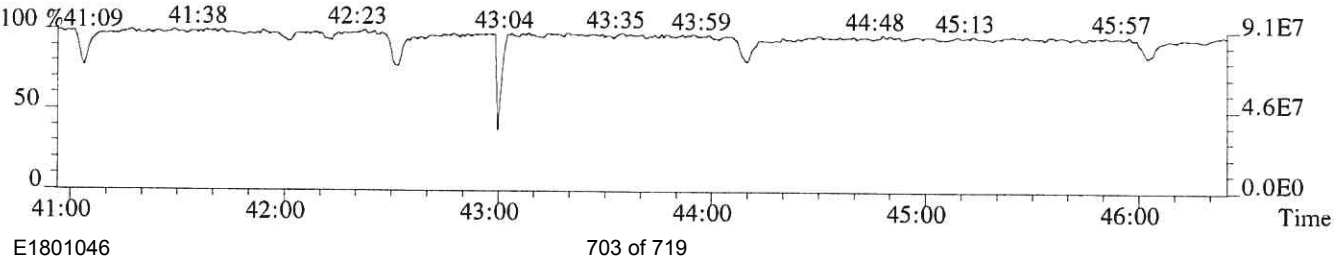
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



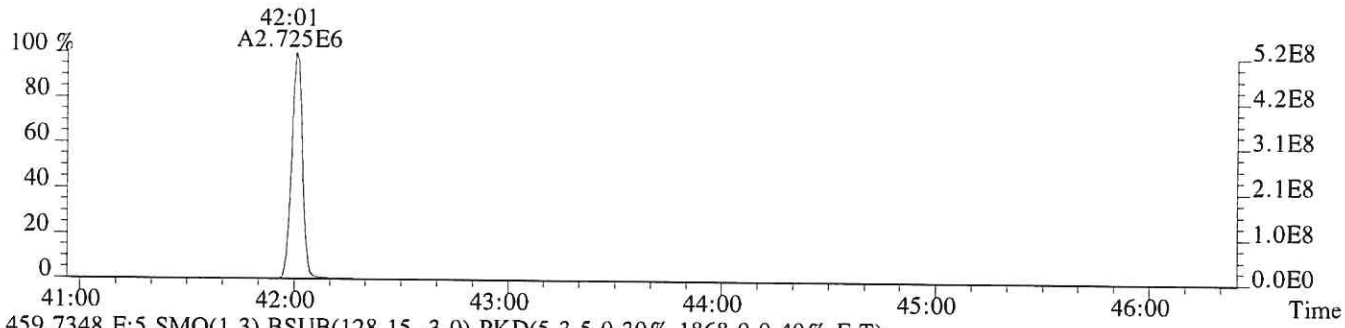
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



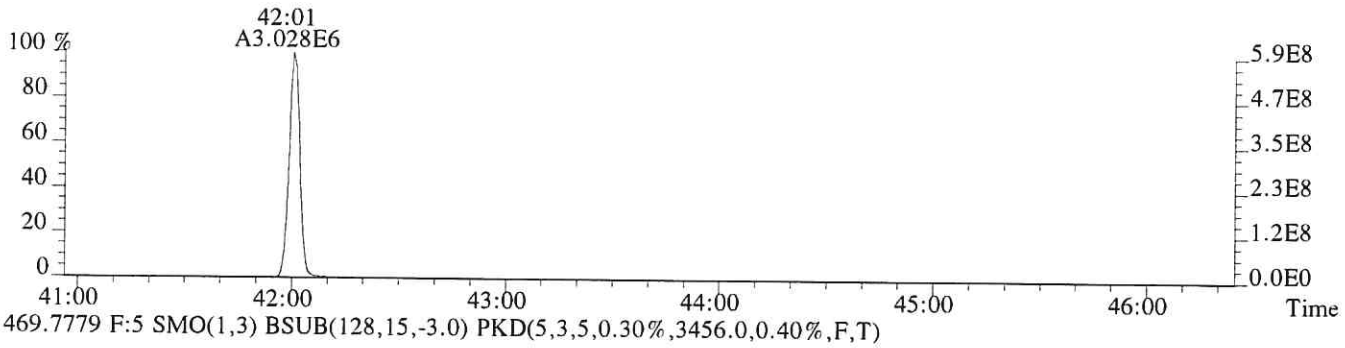
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



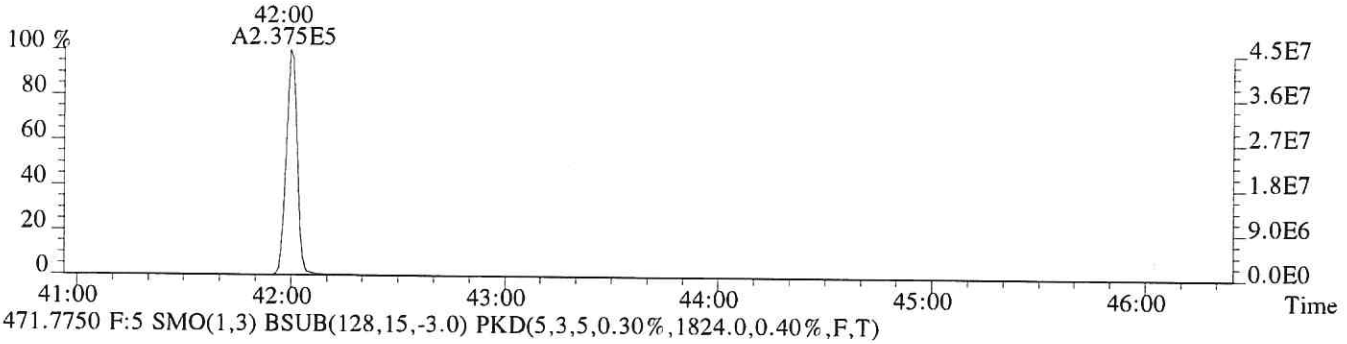
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



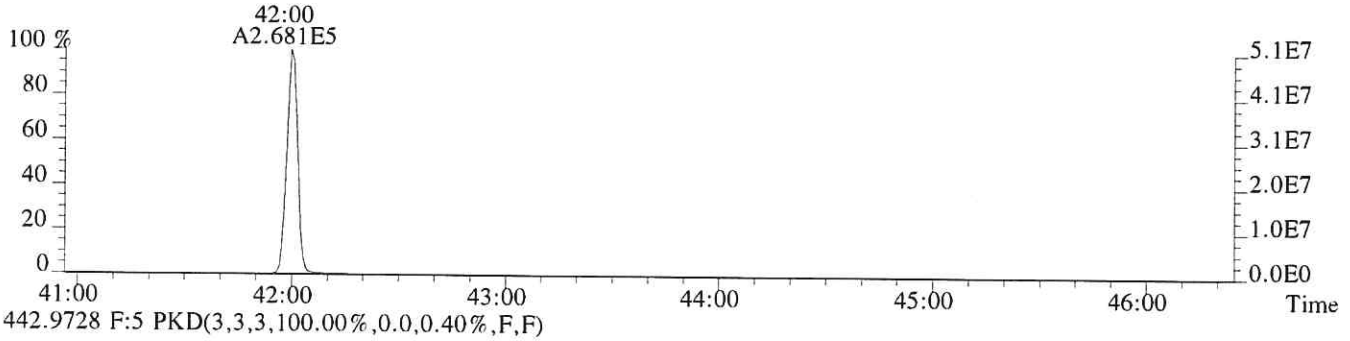
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



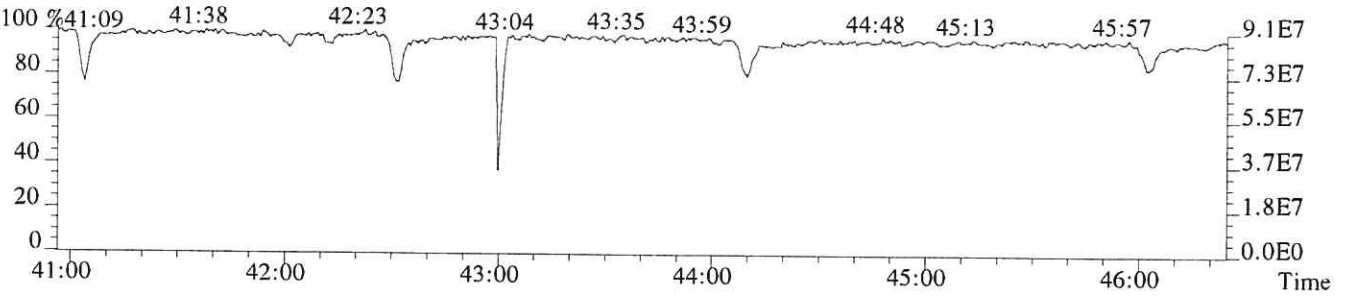
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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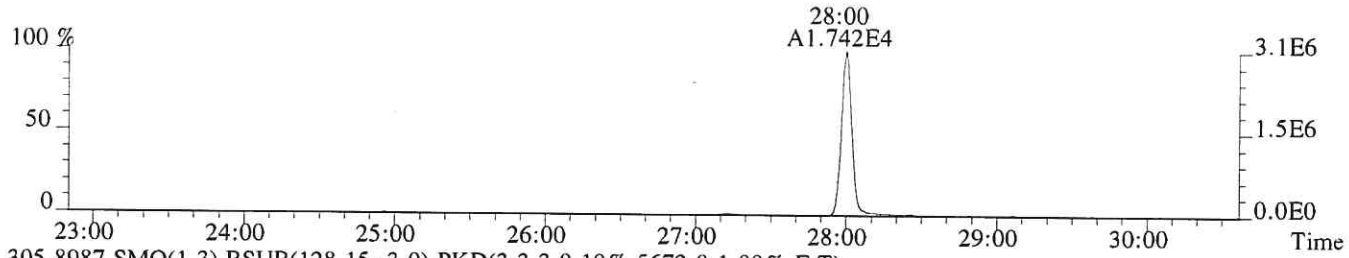
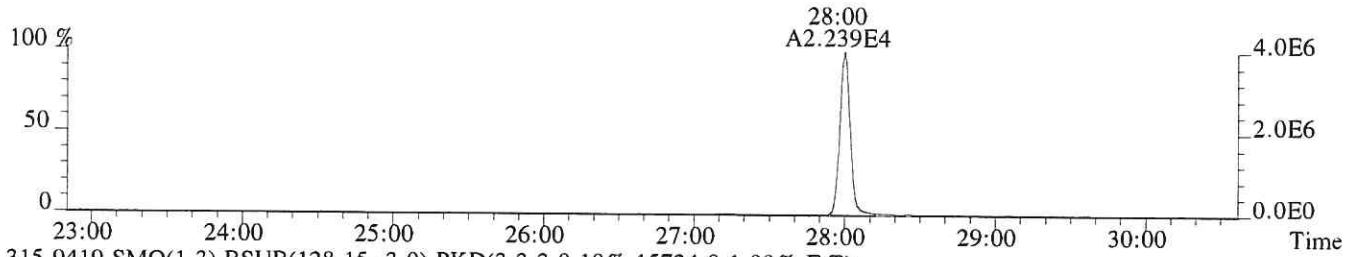
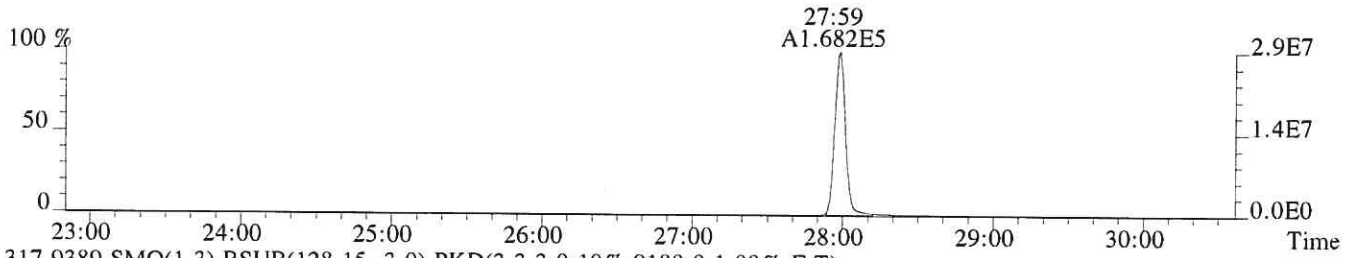
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



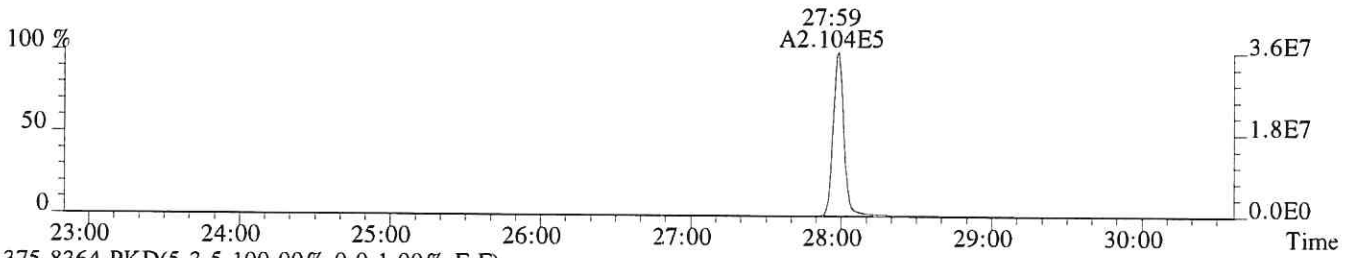
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



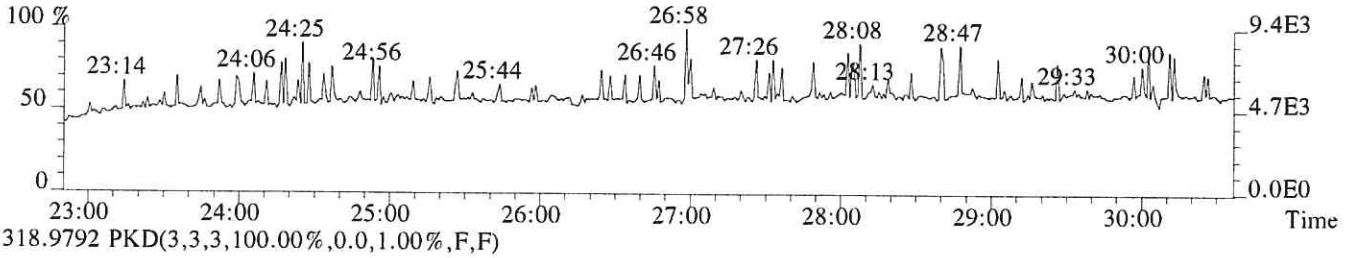
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



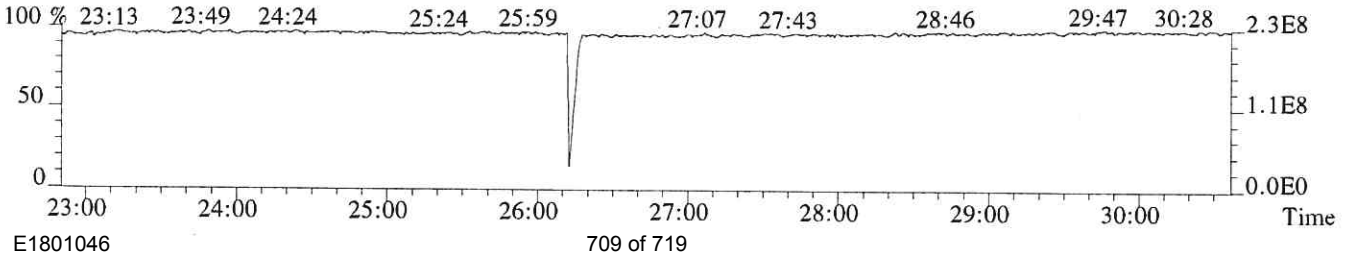
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



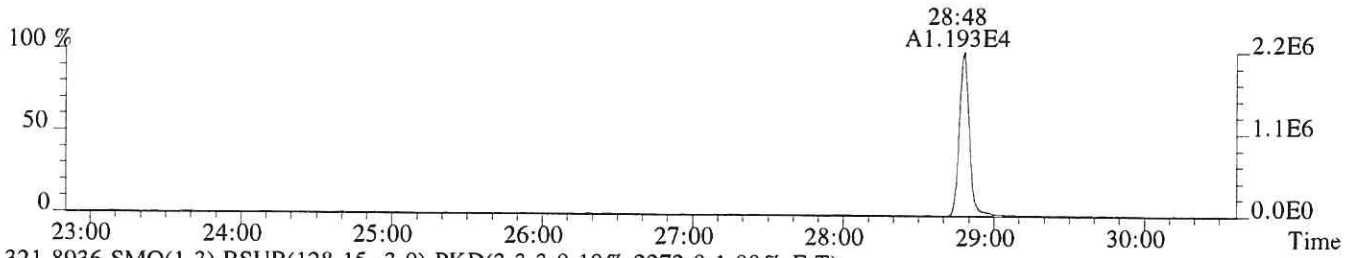
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



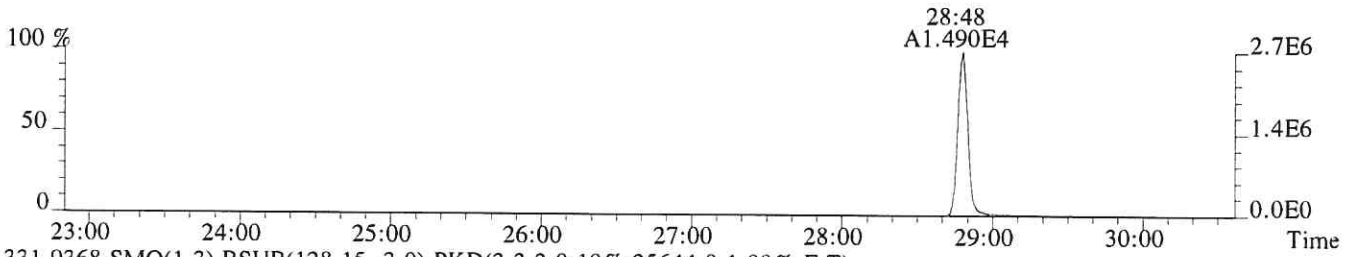
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



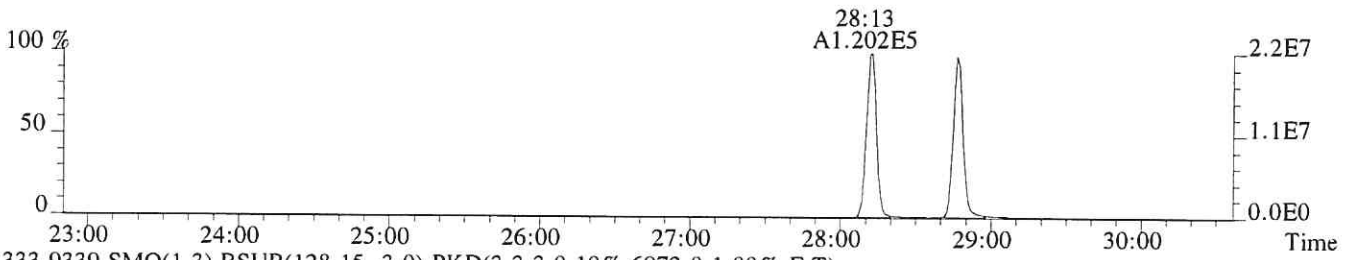
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



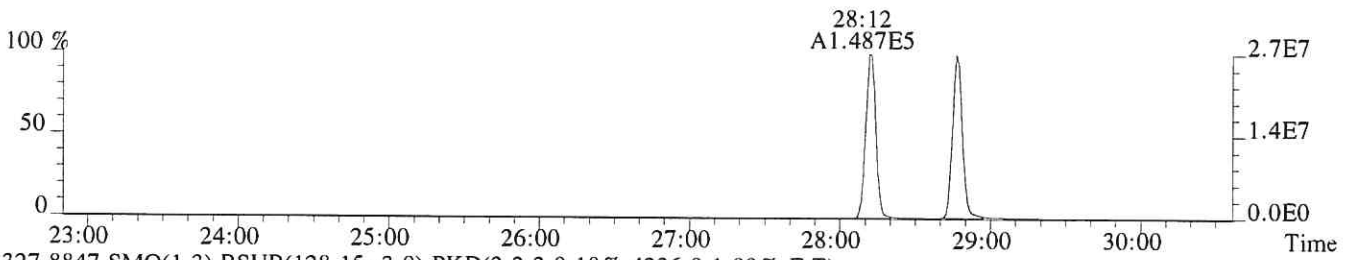
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



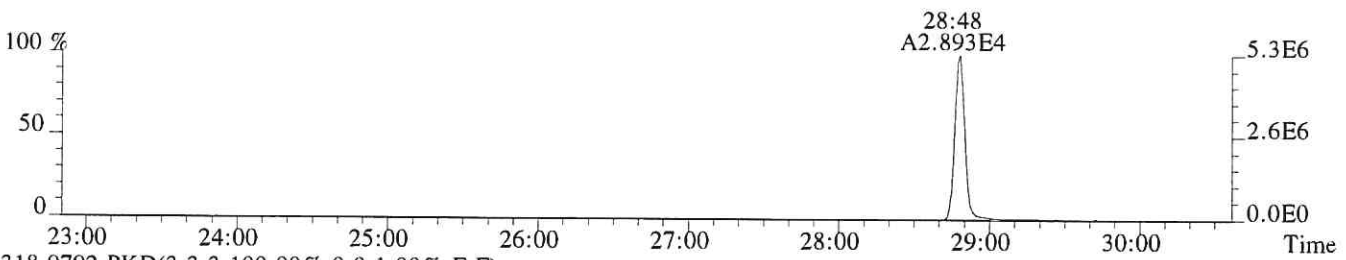
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

